# Floodplain Redelineation Study of Ocotillo Wash and Tributary-2, and Floodplain Delineation Study of Cave Creek West Tributaries 2 and 3

*Volume 2 of 3*

Contract FCD2006C024
Work Assignment No. 2

April 22, 2009

*Prepared for:*

Flood Control District of Maricopa County

HDR

# Floodplain Redelineation Study of Ocotillo Wash and Tributary-2, and Floodplain Delineation Study of Cave Creek West Tributaries 2 and 3 within Cave Creek, Arizona

Prepared for:

Flood Control District of Maricopa County
Contract No. FCD2006C024
Work Assignment No. 2

Prepared by:

HDR
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Volume 2 of 3

April 22, 2009

Registered Professional Engineer
CERTIFICATE NO.
35571
LINDA A.
POTTER
Date Signed 4/22/09
ARIZONA U.S.A.
Expires 12/31/09

# List of Notebook Volumes

## Volume 1 of 3:

Floodplain Redelineation Study of Ocotillo Wash and Tributary-2 and Floodplain Delineation Study of Cave Creek West Tributaries 2 and 3 within Cave Creek, Arizona

## Volume 2 of 3:

Continuation of the Floodplain Redelineation Study of Ocotillo Wash and Tributary-2 and Floodplain Delineation Study of Cave Creek West Tributaries 2 and 3 within Cave Creek, Arizona

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# APPENDIX E HYDRAULIC ANALYSIS SUPPORTING DOCUMENTATION

# Tie-In Conversion for Hydraulic Models

91427 CCTRIB3 Refer to Vertcon for Conversion Support Data --> NGVD29 + 2.02' = NAVD 88

Conversion= 2.02

Elevations in feet

| | | | Base Flood Water Surface Elevation (NGVD 29) | | | Base Flood Water Surface Elevation (NAVD 88) | | |
|---|---|---|---|---|---|---|---|---|
| Cross Section | Distance (River Miles) | Distance (Feet) | Regulatory | W/O FW | W/FW | Regulatory | W/O FW | W/FW |
| EI | 36.528 | 192867.84 | 1974.00 | 1974.00 | 1974.60 | 1976.02 | 1976.02 | 1976.62 |
| CCTRIB3 Tie-In | 36.406 | 192223.84 | 1968.86 | 1968.86 | 1969.60 | 1970.88 | 1970.88 | 1971.62 |
| EH | 36.362 | 191991.36 | 1967.00 | 1967.00 | 1967.80 | 1969.02 | 1969.02 | 1969.82 |

91427 CCTRIB2 Refer to Vertcon for Conversion Support Data --> NGVD29 + 2.02' = NAVD 88

Conversion= 2.02

Elevations in feet

| | | | Base Flood Water Surface Elevation (NGVD 29) | | | Base Flood Water Surface Elevation (NAVD 88) | | |
|---|---|---|---|---|---|---|---|---|
| Cross Section | Distance (River Miles) | Distance (Feet) | Regulatory | W/O FW | W/FW | Regulatory | W/O FW | W/FW |
| EL | 36.976 | 195233.28 | 1993.50 | 1993.50 | 1994.50 | 1995.52 | 1995.52 | 1996.52 |
| CCTRIB2 Tie-In | 36.954 | 195116.16 | 1992.55 | 1992.55 | 1993.47 | 1994.57 | 1994.57 | 1995.49 |
| EK | 36.894 | 194800.32 | 1990.00 | 1990.00 | 1990.70 | 1992.02 | 1992.02 | 1992.72 |

91427 Ocotillo Wash Refer to Vertcon for Conversion Support Data --> NGVD29 + 2.04' = NAVD 88

Conversion= 2.04

Elevations in feet

| | | | Base Flood Water Surface Elevation (NGVD 29) | | | Base Flood Water Surface Elevation (NAVD 88) | | |
|---|---|---|---|---|---|---|---|---|
| Cross Section | Distance (River Miles) | Distance (Feet) | Regulatory | W/O FW | W/FW | Regulatory | W/O FW | W/FW |
| ER | 38.011 | 200698.08 | 2042.10 | 2042.10 | 2042.40 | 2044.14 | 2044.14 | 2044.44 |
| Ocotillo Wash Tie-In | 37.911 | 200168.44 | 2038.29 | 2038.29 | 2038.59 | 2040.33 | 2040.33 | 2040.63 |
| EQ | 37.819 | 199684.32 | 2034.80 | 2034.80 | 2035.10 | 2036.84 | 2036.84 | 2037.14 |

## Linear interpolation between two known points

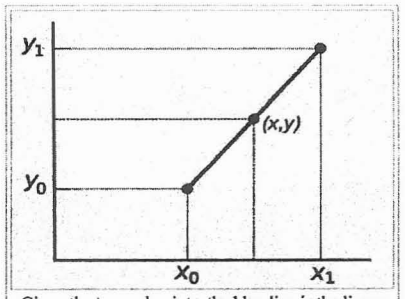
If the two known points are given by the coordinates $(x_0,y_0)$ and $(x_1,y_1)$, the **linear interpolant** is the straight line between these points. For a value $x$ in the interval $(x_0,x_1)$, the value $y$ along the straight line is given from the equation

$$\frac{y-y_0}{y_1-y_0}=\frac{x-x_0}{x_1-x_0}$$

which can be derived geometrically from the figure on the right.

Solving this equation for $y$, which is the unknown value at $x$, gives

$$y=y_0+(x-x_0)\frac{y_1-y_0}{x_1-x_0}$$




Given the two red points, the blue line is the linear interpolant between the points, and the value $y$ at $x$ may be found by linear interpolation.

which is the formula for linear interpolation in the interval $(x_0,x_1)$. Outside this interval, the formula is identical to linear extrapolation.

TerraServer USA

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Street

City
cave creek

State
az

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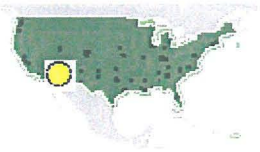

Longitude -111.93938
Latitude 33.85431

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The National Map **2 km N of Cave Creek, Arizona, United States** 3/24/1992

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**Size**

OUT

IN

NORTH

WEST

SOUTH

Image courtesy of the U.S. Geological Survey

m
yds

Source=46574 Running Time 78.12 ms

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Questions concerning the VERTCON process may be mailed to NGS

---

**Latitude:** 33.85431

**Longitude:** 111.93938

**NGVD 29 height:**

**Datum shift**(NAVD 88 minus NGVD 29): 0.629 meter

---

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Street

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cave creek

State
az GO

Longitude -111.96300
Latitude 33.83969

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The National Map **2 km W of Cave Creek, Arizona, United States** 3/24/1992

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IN

Image courtesy of the U.S. Geological Survey

m
yds

Source=46574 Running Time 0.00 ms

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Questions concerning the VERTCON process may be mailed to NGS

---

Latitude: 33.83969

Longitude: 111.96300

NGVD 29 height:

Datum shift(NAVD 88 minus NGVD 29): 0.621 meter

---

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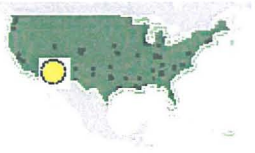
Street

City
cave creek

State
az GO



Longitude -111.96934
Latitude 33.82702
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The National Map **3 km W of Cave Creek, Arizona, United States** 3/24/1992

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NORTH

WEST

SOUTH

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m
yds

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Questions concerning the VERTCON process may be mailed to NGS

---

**Latitude:** 33.82707

**Longitude:** 111.96934

**NGVD 29 height:**

**Datum shift**(NAVD 88 minus NGVD 29): **0.617 meter**

---

TerraServer USA

Search TerraServer

Street

City

cave creek

State

az GO

Longitude Latitude

-111.97142 33.81979

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The National Map **3 km SW of Cave Creek, Arizona, United States** 3/24/1992

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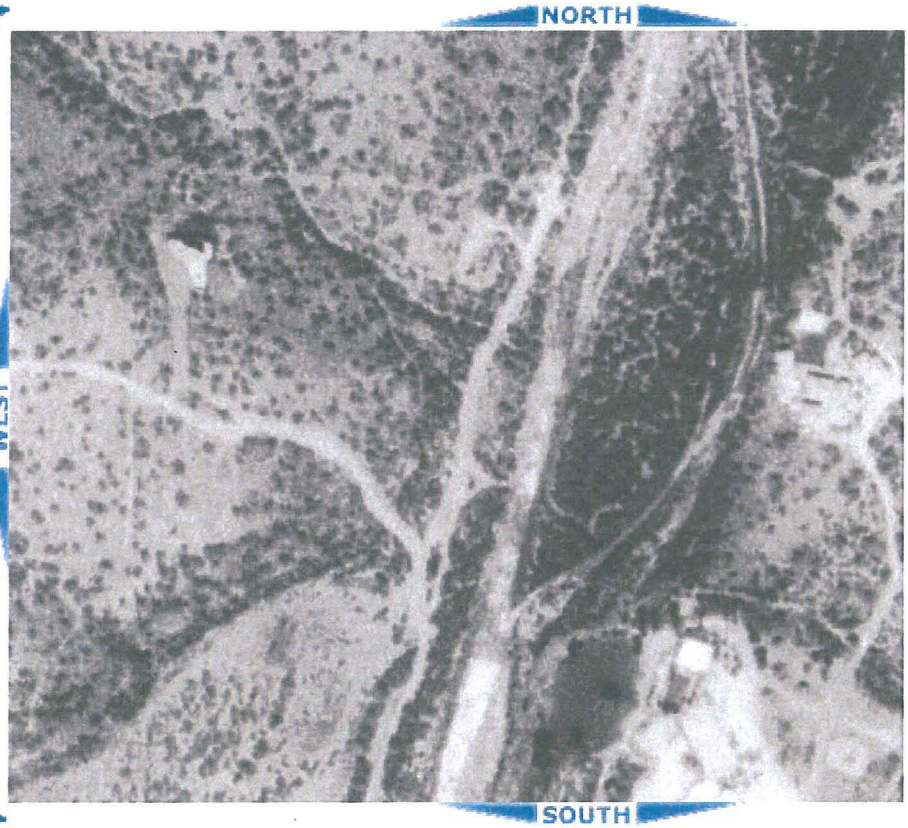
**Size**

OUT

IN

NORTH

WEST



SOUTH

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m
yds

Source=46574 Running Time 0.00 ms

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Questions concerning the VERTCON process may be mailed to NGS

---

**Latitude:** 33.81979

**Longitude:** 111.97142

**NGVD 29 height:**

**Datum shift**(NAVD 88 minus NGVD 29): 0.615 meter

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The Flood Control District of Maricopa County
DXF Metadata

---

This file contains the metadata information about the DXF file(s). The naming convention for all files, except contours, created from FCDMC projects is <filename>-<project id>.DXF. For example, the bridges are named BRIDGE-<project id>.DXF (ex: BRIDGE-6666.DXF). The project id number is used to link the DXF files to the metadata information about the project. Using the example, you would look for the project id assigned a value of 6666 in this file to find the metadata information about the data associated with this project.

The contours are named ELV-<project id>-<topo id>.DXF (ex: ELV-6666-100.DXF). Using this example, you would look for the project id assigned a value of 6666 in this file to find the metadata information about this project. Additionally, you would look for the topo id assigned a value of 100 within the project id to find the specific topographic information associated with the data. The contour text is delivered in a file named ELV-<project id>-TEXT.DXF. The project id is used in the same way as in the examples above.

---

Project ID.....1028
Contract Number.....FCD 95-28
Project Name.....Cave Creek from Tonto National Forest to Carefree Hwy FDS

Topo ID.....222
   Flight date.....10/18/1995
   Contour Interval...2'
   DTM Data.....Yes
   Vertical Datum.....NGVD29
   Horizontal Datum...Stateplane NAD27, Arizona Central, International Feet
                      Data projected to NAD83 by FCDMC using Arc/Info (ESRI).

---

Project ID.....1092
Contract Number.....FCD 99-14
Project Name.....Andora Hills and Galloway Washes FDS

Topo ID.....100
   Flight date.....09/30/1999
   Contour Interval...2'
   DTM Data.....Yes
   Vertical Datum.....NGVD29
   Horizontal Datum...Stateplane NAD83, Arizona Central, International Feet

---

Project ID.....1184
Contract Number.....FCD 00-37
Project Name.....Carefree DMP

Topo ID.....600
   Flight date.....08/02/2001
   Contour Interval...2'
   DTM Data.....Yes
   Vertical Datum.....NGVD29
   Horizontal Datum...Stateplane NAD83, Arizona Central, International Feet

---

```
Project ID............1254
Contract Number.......FCD 03-48
Project Name..........Cave Creek Mapping

Topo ID...............700
   Flight date........10/20/2004
   Contour Interval...2'
   DTM Data...........Yes
   Vertical Datum.....NAVD88
   Horizontal Datum...Stateplane NAD83, Arizona Central, International Feet

--------------------------------------------------------------------------------

Project ID............1268
Contract Number.......FCD 05-30
Project Name..........Cave Creek Mapping

Topo ID...............600
   Flight date........10/20/2004
   Contour Interval...2'
   DTM Data...........Yes
   Vertical Datum.....NAVD88
   Horizontal Datum...Stateplane NAD83, Arizona Central, International Feet

--------------------------------------------------------------------------------

Project ID............1050
Contract Number.......FCD 96-06
Project Name..........Desert Hills Area FDS

Topo ID...............200
   Flight date........03/20/1997
   Contour Interval...10'
   DTM Data...........Yes
   Vertical Datum.....NGVD29
   Horizontal Datum...Stateplane NAD83, Arizona Central, International Feet

--------------------------------------------------------------------------------
Date extracted: September 08, 2008
```

**Hydraulic Model Reference:**
**VertCon Conversions from meter to foot**

Ocotillo Wash Tributary-2 to Ocotillo Wash
0.629 meters = 2.063642 foot (Using 2.06')

Ocotillo Wash confluence at Cave Creek
0.621 meters = 2.037395 foot (Using 2.04')

Cave Creek Tributary 2 confluence with Cave Creek
0.617 meters = 2.024272 foot (Using 2.02')

Cave Creek Tributary 3 confluence with Cave Creek
0.615 meters = 2.01771 foot (Using 2.02')

Prepared 09/07/2008
Revised 03/26/2009
Mark Fountain
HDR Engineering, Inc.

# E.1 ROUGHESS COEFFICIENT ESTIMATION

# Final Manning's "n" Value Report for the FRS of Ocotillo Wash and Tributary-2 and FDS of Cave Creek Tributaries 2 and 3 within Cave Creek, Arizona

Prepared for:

Flood Control District of Maricopa County

Prepared by:

HDR

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3200 East Camelback Road
Suite 350
Phoenix, Arizona 85018-2311

October 22, 2008

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SITE RECONNAISSANCE PHOTOGRAPHY LOG

**APPENDIX B**

MANNING'S "n" VALUE DETERMINATION FOR OCOTILLO WASH

**APPENDIX C**

MANNING'S "n" VALUE DETERMINATION FOR OCOTILLO WASH TRIBUTARY-2

**APPENDIX D**

MANNING'S "n" VALUE DETERMINATION FOR CAVE CREEK TRIBUTARY 2

**APPENDIX E**

MANNING'S "n" VALUE DETERMINATION FOR CAVE CREEK TRIBUTARY 3

**APPENDIX F**

MANNING'S "n" VALUE DETERMINATION EXHIBITS

**APPENDIX G**

CD OF ELECTRONIC DATA FILES

# 1.0 INTRODUCTION

This report was prepared by HDR Engineering, Inc. in support of the detailed Floodplain Redelineation Study (FRS) for a portion of Ocotillo Wash and Ocotillo Wash Tributary-2, and approximate Floodplain Delineation Study (FDS) for Cave Creek Tributary 2, and Cave Creek Tributary 3. This report has been prepared under the Flood Control District of Maricopa County (FCDMC) contract FCD 2006C024, Work Assignment Number 2.

The Manning's "n" values from the Ocotillo Wash Floodplain Redelineation Study (HDR 2008) will be reviewed in comparison to the proposed n values at areas of adjacency within this work assignment. No changes will be made under this work assignment to the effective values of the previous study.

New Manning's "n" values will be developed in support of a portion of Ocotillo Wash and Ocotillo Wash Tributary-2, and Cave Creek Tributaries 2 and 3.

The "n" value assessments, prepared within this report, are approximately located as follows:

- The effective flood zone of Ocotillo Wash (FIS cross sections A through T)
- The effective Ocotillo Wash Tributary-2
- Two currently unmapped tributaries located within the Cave Creek Watershed, which are proposed as the Cave Creek Tributaries 2 and 3.

Refer to **Figure 1**, Location Map, and **Figure 2**, Vicinity Map, located following this section.

## LOCATION MAP

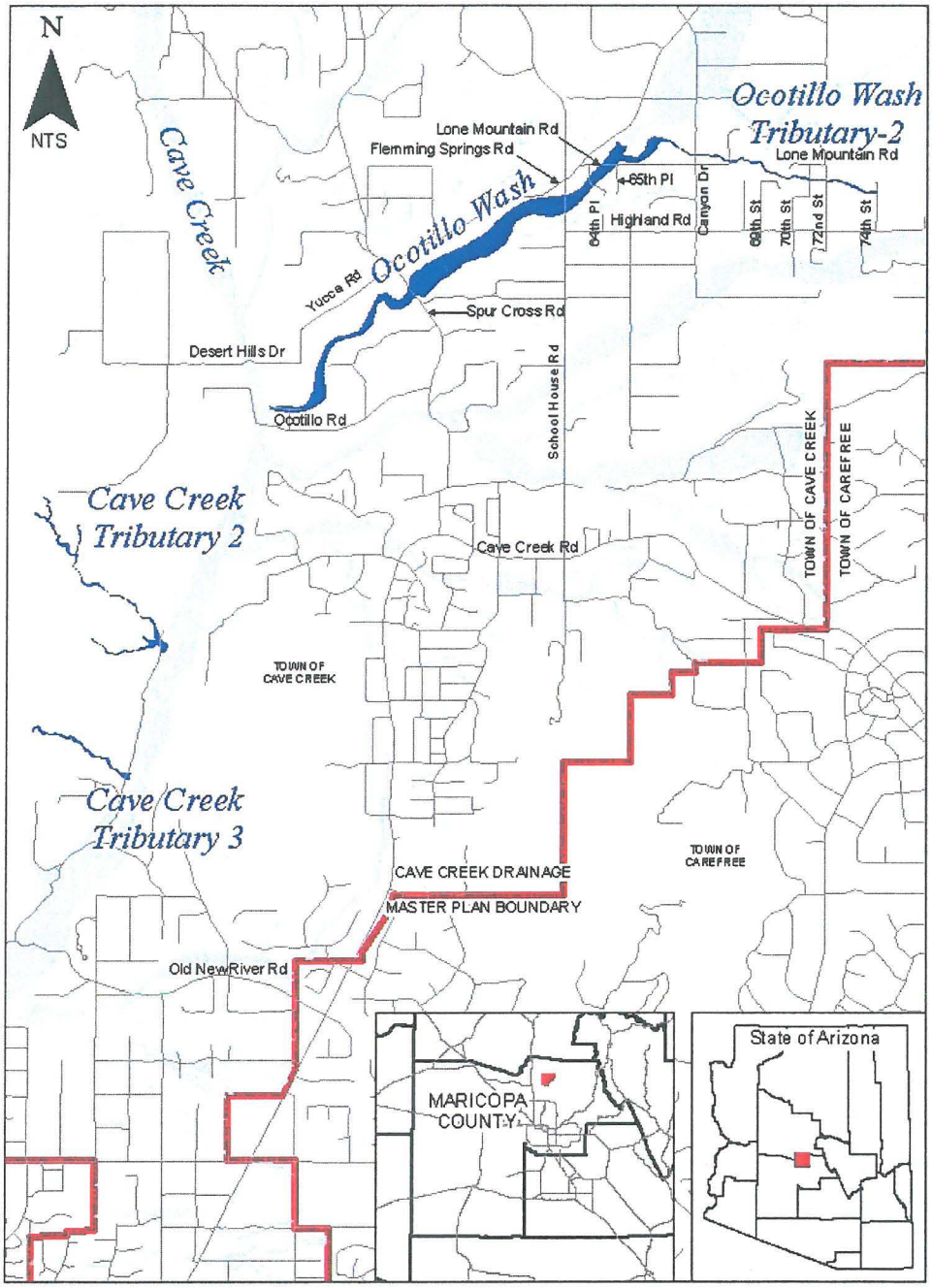



Figure 1

## VICINITY MAP

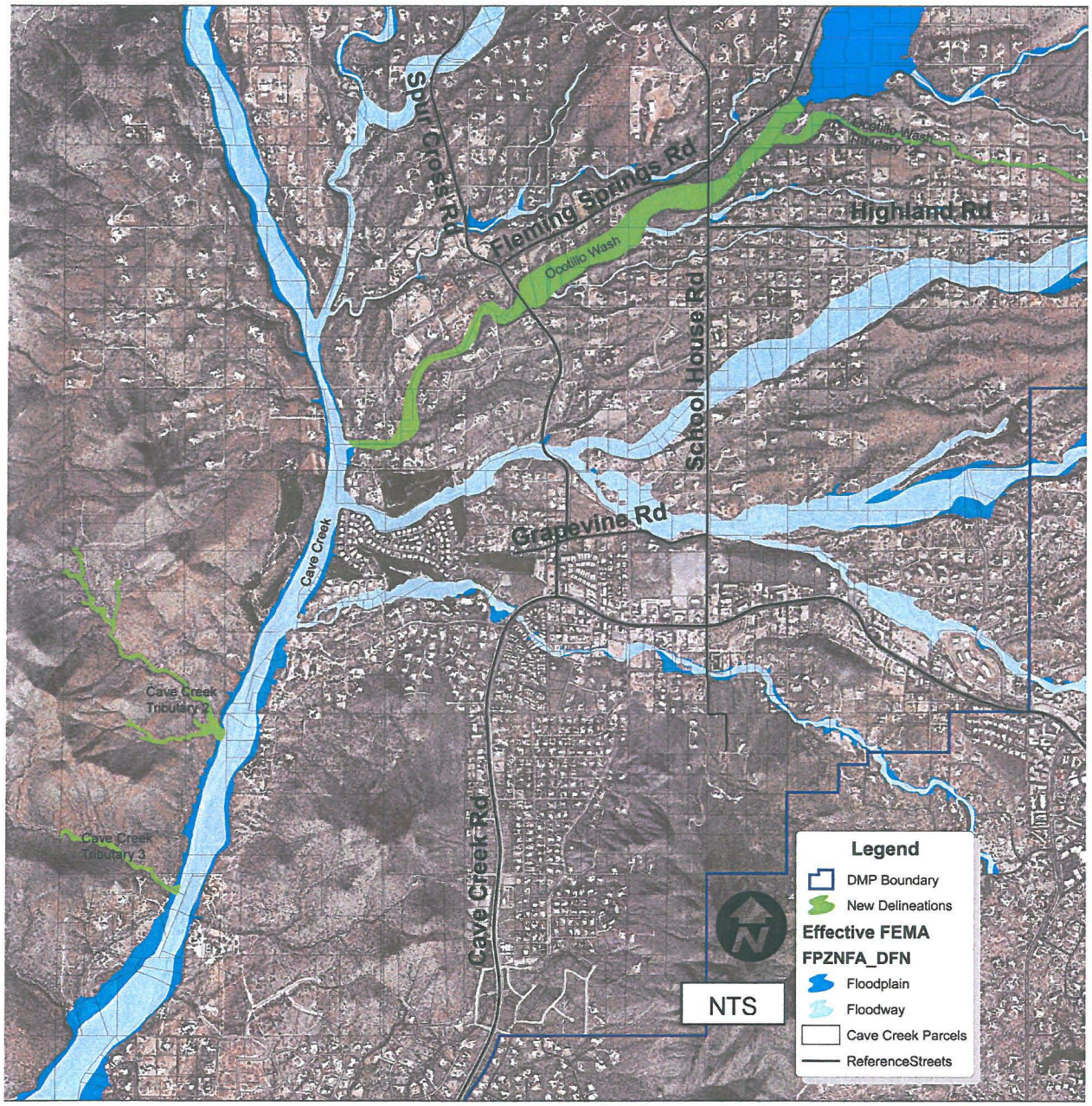



Figure 2

# 2.0 METHODOLOGY

The tributaries described above were examined for areas of similar roughness values. Manning's "n" values were assigned for the existing conditions as they related to each area of similar roughness for the 100-year storm event at the time of the study. The values were determined using the methodology outlined within the United States Geological Survey (USGS) report titled *Estimated Manning's Roughness Coefficients for Stream Channels and Flood Plains in Maricopa County, Arizona* (Thomsen and Hjalmarson, 1991).

Several sources of data were utilized in the development of the "n" values presented within this report. Sources include Cave Creek ortho-rectified aerial photography (flight dates of November 3, 2007 and November 4, 2007, provided by the Flood Control District of Maricopa County), site surface photography, and site reconnaissance. Site surface photography and site reconnaissance were conducted on August 27, 2008. **Appendix A** contains the site reconnaissance photo logs.

The selected "n" values represent the most accurate roughness factors to ensure the energy losses due to friction are properly accounted for. The "n" values were computed by selecting an initial base "$n_0$" value which represents surface roughness of a straight, uniform channel composed of a known particular bed material. Channel materials and their respective roughness coefficients can vary from the main channel section and within each of the over banks. Additional factors contributing to the increase of the roughness coefficient include vegetation, channel slope, channel irregularity, obstructions, and a degree of meandering. Each component affects the roughness coefficient with an incremental addition to the base "$n_0$".

The components of the "n" value equation are computed by:

$$n = (n_0 + n_1 + n_2 + n_3 + n_4)\ m$$

Where

$n_0$ = base value of n for a straight uniform channel

$n_1$= value for surface irregularities

$n_2$= value for obstruction

$n_3$ = value of vegetation

$n_4$ = variations in channel cross sections, and

m = degree of meandering

The major adjustments to the base values of "n" utilized within this report are further described in Section 4.0.

# 3.0 BASE "N" VALUE DETERMINATION

The base "$n_0$" values utilized within this analysis were selected as average condition within the portions of the wash tributaries with similar characteristics, rather than selecting the smoothest reach possible of existing bed material within each tributary. The bed materials representative of each of the tributaries may vary from fine grain sand to boulders, as described in the report titled *Estimated Manning's Roughness Coefficients for Stream Channels and Flood Plains in Maricopa County, Arizona.* **Table 3.1** illustrates the base "n" value range for each of the study washes and their tributaries.

**Table 3.1: Base "$n_0$" Value**

| Wash | Site | Base "$n_0$" Range | | |
|---|---|---|---|---|
| | | Left Overbank | Main Channel | Right Overbank |
| Ocotillo Wash, Tributary-2 | 101-110 | 0.028-0.028 | 0.028-0.050 | 0.028-0.028 |
| Ocotillo Wash | 111-136 | 0.028-0.040 | 0.025-0.028 | 0.024-0.028 |
| Cave Creek, Tributary 2 | 201-221 | 0.025-0.028 | 0.024-0.035 | 0.025-0.028 |
| Cave Creek, Tributary 3 | 301-308 | 0.025-0.030 | 0.025-0.035 | 0.025-0.028 |

# 4.0 ADJUSTMENTS TO THE BASE VALUE

Major adjustments to the base "$n_0$" were utilized to account for cross-section characteristics. Minor adjustments for the reach characteristics between cross-sections, which may include changes of size, shape, and shifts in the direction of flow, have not been included as part of this report.

Changes to the base "$n_0$" consist of adjustment factors specific to the cross-section which are further described as the degree of channel irregularity ($n_1$), effects of obstructions ($n_2$), vegetation ($n_3$) and variations in the channel cross-sections ($n_4$). Based on this general procedure, the incremental adjustments $n_1$ through $n_4$ are added to the base "$n_0$" resulting in an increased roughness value. The resultant of the base "$n_0$" and the corresponding adjustment factors $n_1$ through $n_4$ is then multiplied by the degree of meandering (m), to produce a final "n" value representative of the specific grouping. Refer to **Appendix B, C, D, and E** for computations of the Manning Roughness Factor for each wash and their tributaries.

# 5.0 DETAILED ANALYSIS

Determination of the Manning's Roughness coefficient adjustments factors and their level of impact within each tributary yielded differing results. Portions of the tributaries with similar bed material were evaluated separately to determine the final "n" value for the main channel, left overbank and right overbank. **Table 5.1** illustrates the range for the final roughness coefficient along each wash and their tributaries.

**Table 5.1: Manning's "n" Value**

| Wash | Site | Manning's "n" Range | | |
|---|---|---|---|---|
| | | Left Overbank | Main Channel | Right Overbank |
| Ocotillo Wash, Tributary-2 | 101-110 | 0.041-0.088 | 0.039-0.086 | 0.041-0.081 |
| Ocotillo Wash | 111-136 | 0.048-0.080 | 0.040-0.055 | 0.044-0.070 |
| Cave Creek, Tributary 2 | 201-221 | 0.053-0.072 | 0.041-0.069 | 0.053-0.069 |
| Cave Creek, Tributary 3 | 301-308 | 0.058-0.070 | 0.048-0.062 | 0.058-0.065 |

# 6.0 REFERENCES

Thomsen, B.W. and Hjalmarson, H.W., (April 1991), Estimated Manning's Roughness Coefficients for Stream Channels and Flood Plains in Maricopa County, Arizona. Flood Control District of Maricopa County, Arizona, Report, Page 126.

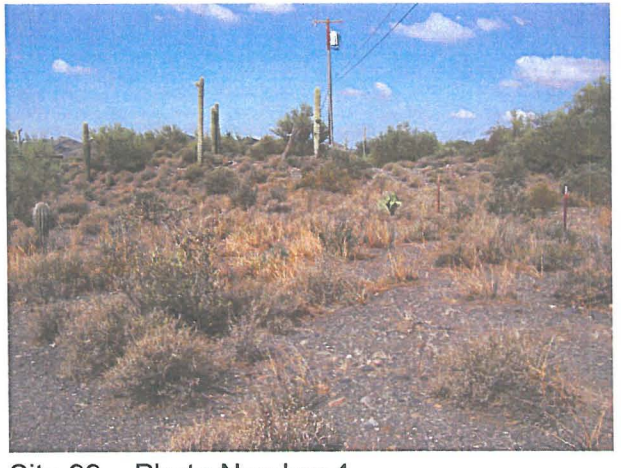
HDR Engineering, Inc, Cave Creek Drainage Master Plan, Technical Data Notebook Ocotillo Wash Floodplain Redelineation, Cave Creek, Arizona, November 28, 2008.

# APPENDIX A SITE RECONNAISSANCE PHOTOGRAPHY LOG

Site 99 – Photo Number 1

Site 99 – Photo Number 2

Site 99 – Photo Number 3



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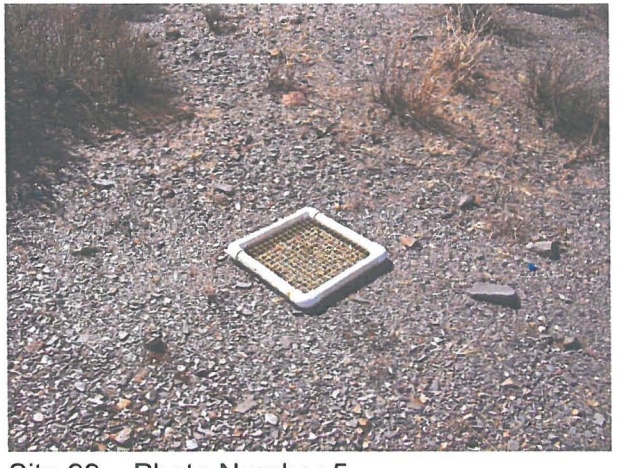
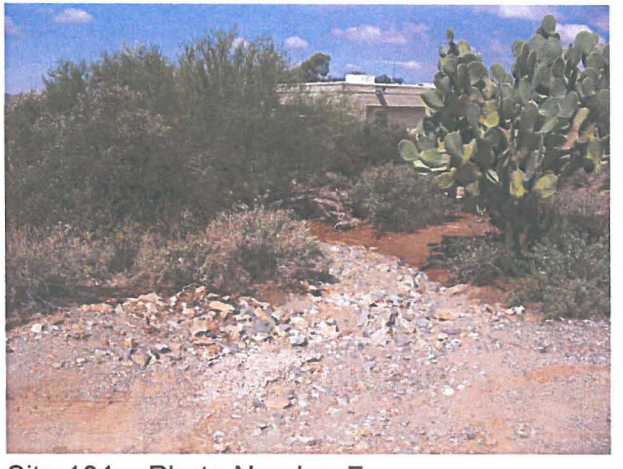


Site 99 – Photo Number 5

Site 101 – Photo Number 6



Site 101 – Photo Number 7

Site 101 – Photo Number 8

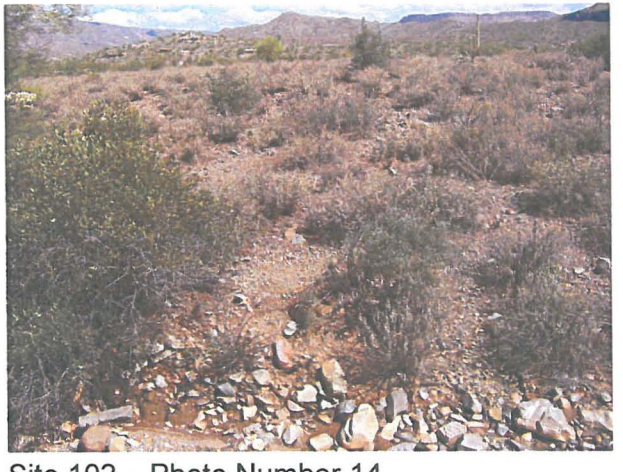
Site 101 – Photo Number 9

Site 101 – Photo Number 10

Site 102 – Photo Number 11

Site 102 – Photo Number 12

Site 102 – Photo Number 13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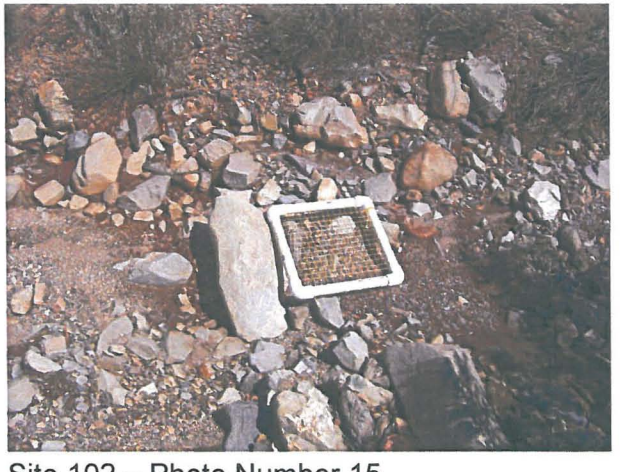
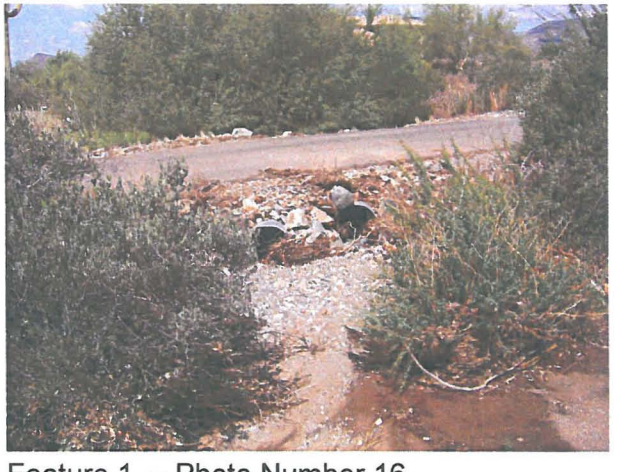

Site 102 – Photo Number 15

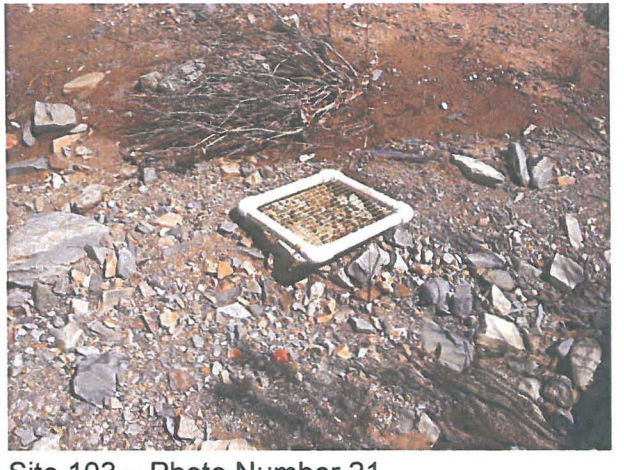

Feature 1 – Photo Number 16

Site 103 – Photo Number 17

Site 103 – Photo Number 18

Site 103 – Photo Number 19

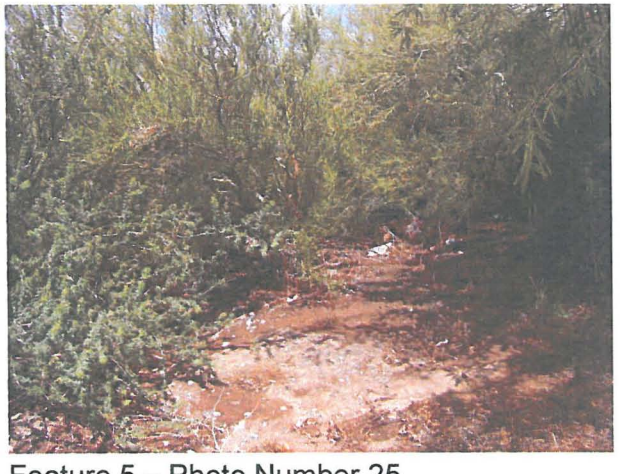
Site 103 – Photo Number 20


Site 103 – Photo Number 21

Feature 2 – Photo Number 22

Feature 3 – Photo Number 23

Feature 4 – Photo Number 24

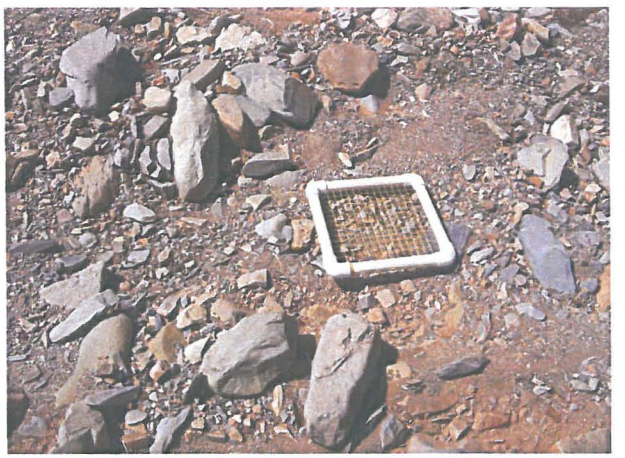

Feature 5 – Photo Number 25

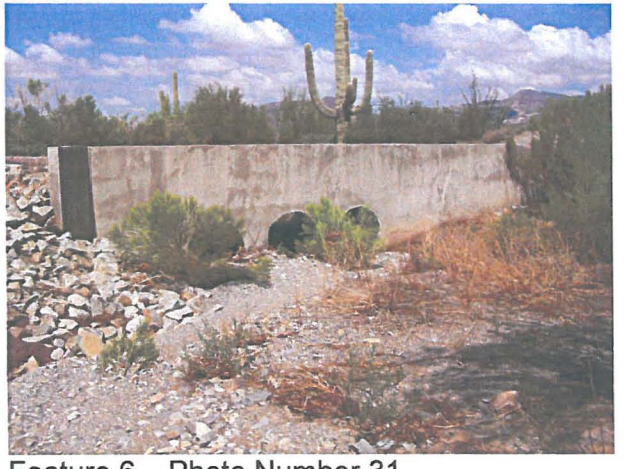
Site 104 – Photo Number 26

Site 104 – Photo Number 27

Site 104 – Photo Number 28

Site 104 – Photo Number 29


Site 104 – Photo Number 30


Feature 6 – Photo Number 31

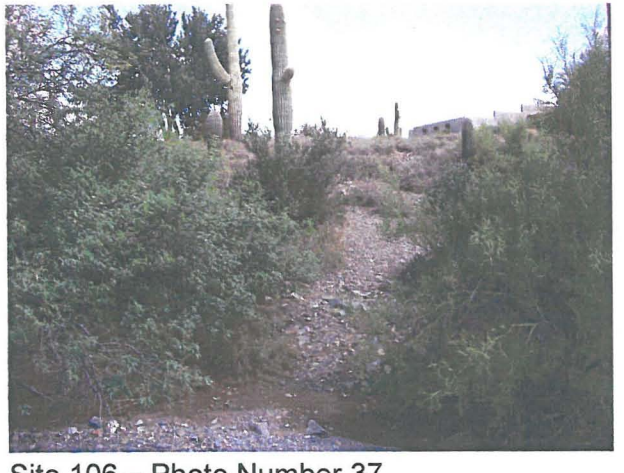
Site 105 – Photo Number 32

Site 105 – Photo Number 33

Site 106 – Photo Number 34

Site 106 – Photo Number 35

Site 106 – Photo Number 36

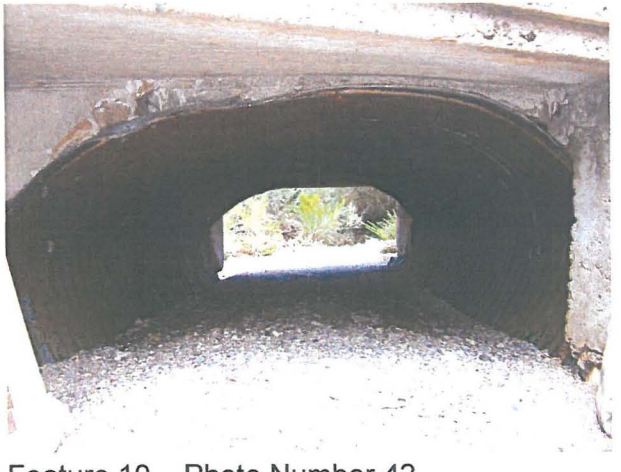

Site 106 – Photo Number 37

Site 106 – Photo Number 38

Feature 7 – Photo Number 39

Feature 8 – Photo Number 40

Feature 9 – Photo Number 41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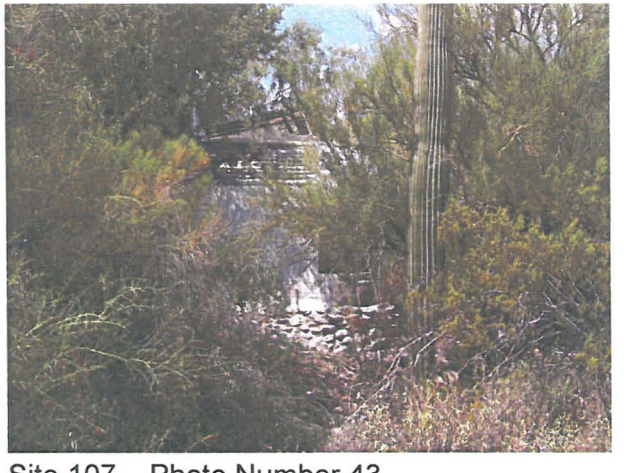
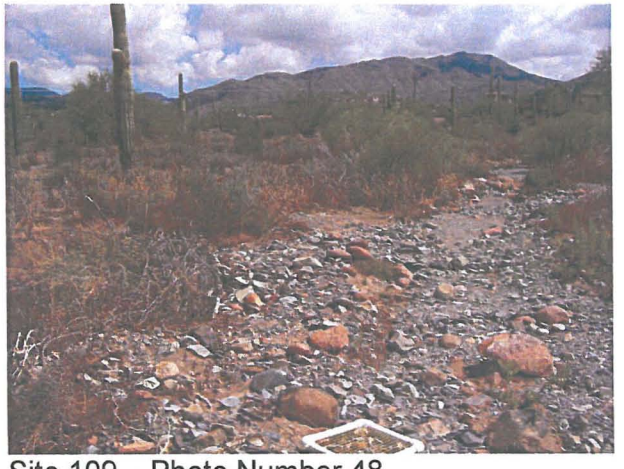

Site 107 – Photo Number 43

Site 108 – Photo Number 44

Site 108 – Photo Number 45

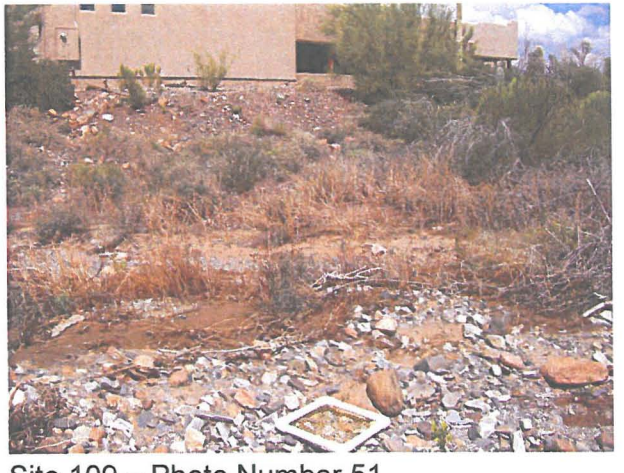
Site 108 – Photo Number 46

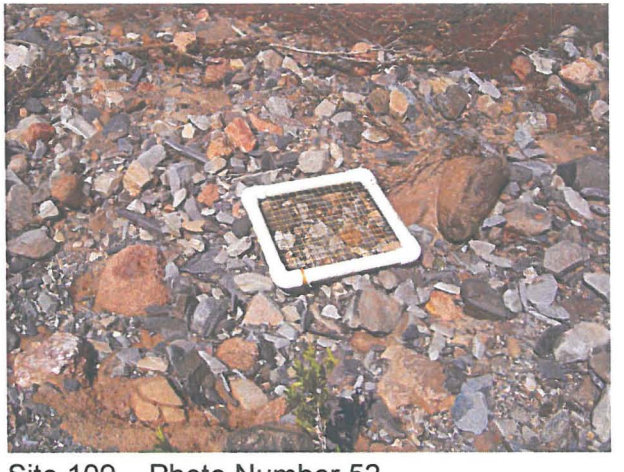
Site 108 – Photo Number 47


Site 109 – Photo Number 48

Site 109 – Photo Number 49

Site 109 – Photo Number 50


Site 109 – Photo Number 51


Site 109 – Photo Number 52

Site 110 – Photo Number 53

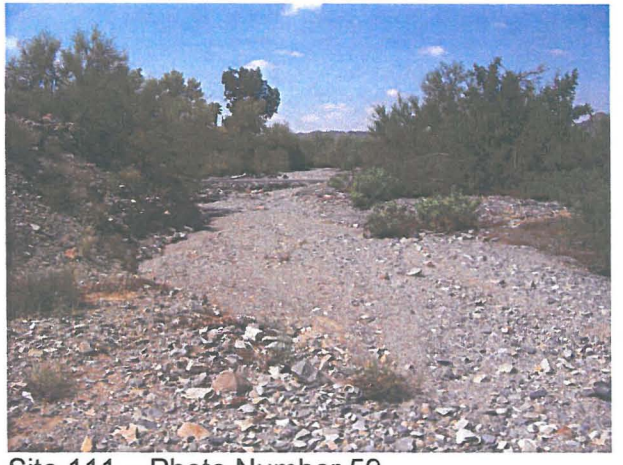
Site 110 – Photo Number 54

Site 110 – Photo Number 55

Site 110 – Photo Number 56

Site 110 – Photo Number 57

Site 111 – Photo Number 58


Site 111 – Photo Number 59

Site 111 – Photo Number 60

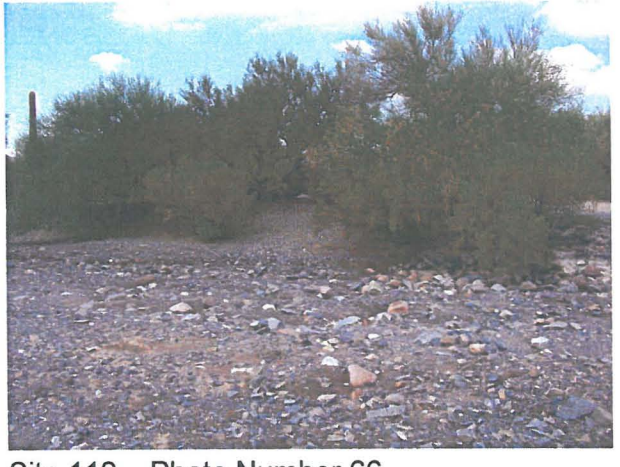
Site 111 – Photo Number 61

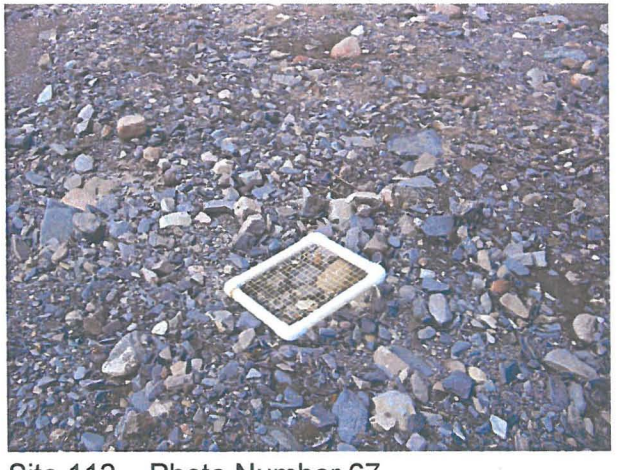
Site 111 – Photo Number 62

Site 112 – Photo Number 63

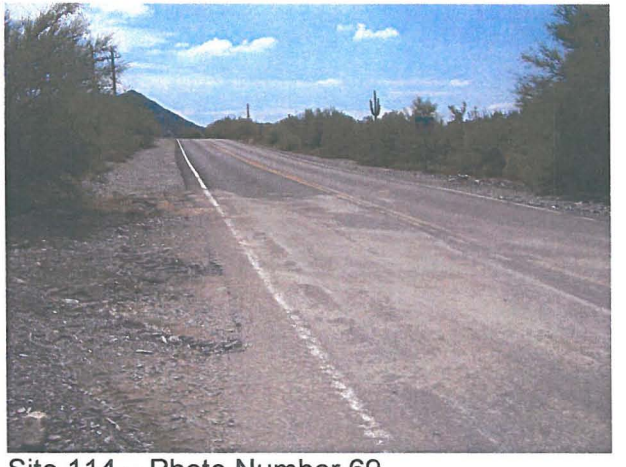
Site 112 – Photo Number 64

Site 112 – Photo Number 65

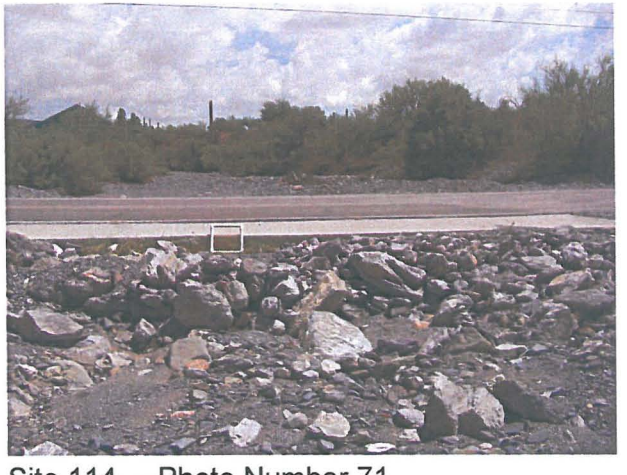

Site 112 – Photo Number 66


Site 112 – Photo Number 67

Site 113 – Photo Number 68


Site 114 – Photo Number 69

Site 114 – Photo Number 70


Site 114 – Photo Number 71

Site 115 – Photo Number 72

Site 115 – Photo Number 73

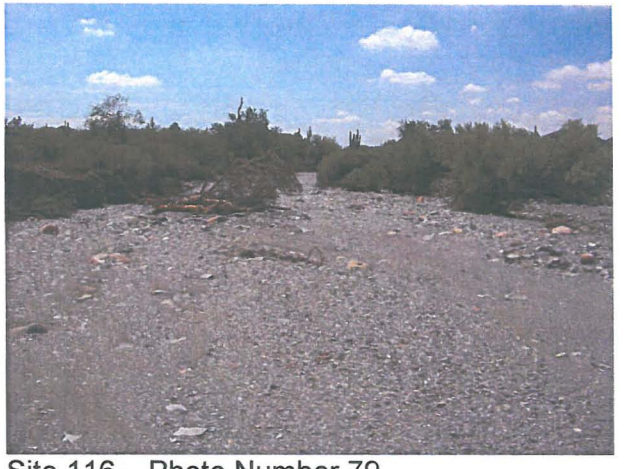
Site 115 – Photo Number 74

Site 115 – Photo Number 75

Site 115 – Photo Number 76

Site 116 – Photo Number 77

Site 116 – Photo Number 78


Site 116 – Photo Number 79

Site 117 – Photo Number 80

Site 117 – Photo Number 81

Site 117 – Photo Number 82

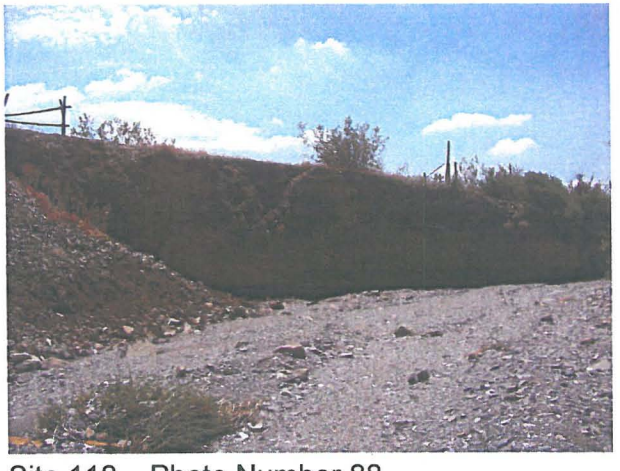
Site 117 – Photo Number 83

Site 117 – Photo Number 84

Site 118 – Photo Number 85

Site 118 – Photo Number 86

Site 118 – Photo Number 87


Site 118 – Photo Number 88

Site 119 – Photo Number 89

Site 120 – Photo Number 90

Site 121 – Photo Number 91

Site 121 – Photo Number 92

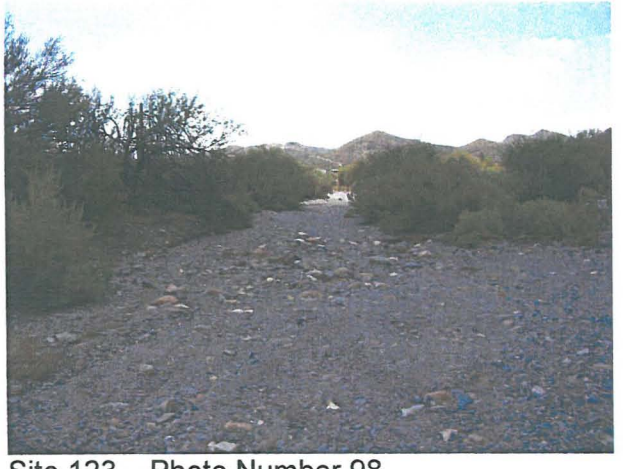
Site 122 – Photo Number 93

Site 122 – Photo Number 94

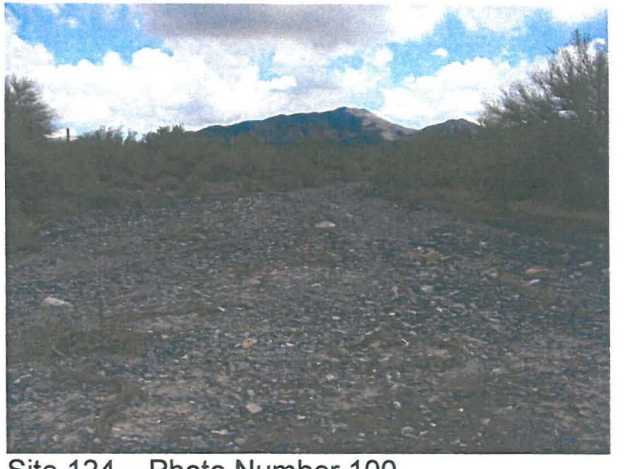
Site 122 – Photo Number 95

Site 122 – Photo Number 96

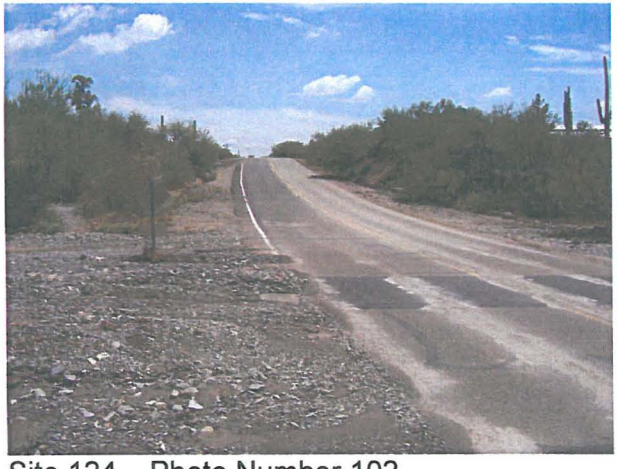
Site 122 – Photo Number 97


Site 123 – Photo Number 98

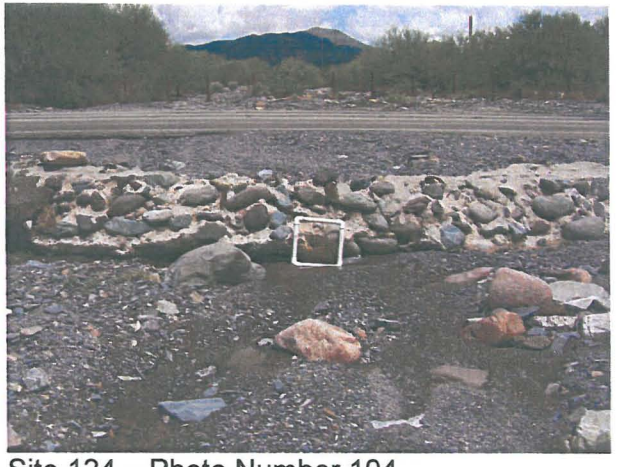
Site 123 – Photo Number 99

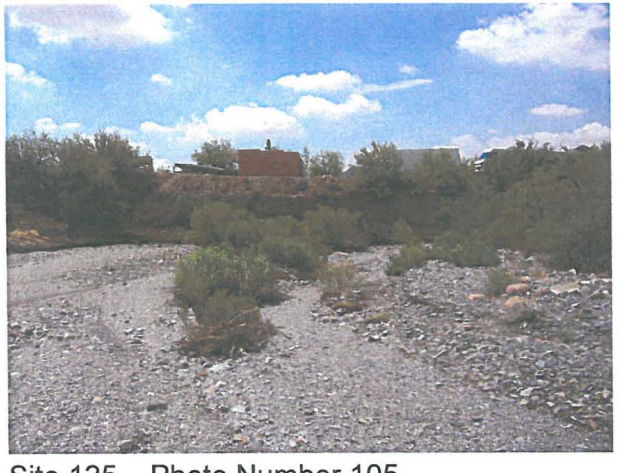

Site 124 – Photo Number 100

Site 124 – Photo Number 101


Site 124 – Photo Number 102

Site 124 – Photo Number 103


Site 124 – Photo Number 104

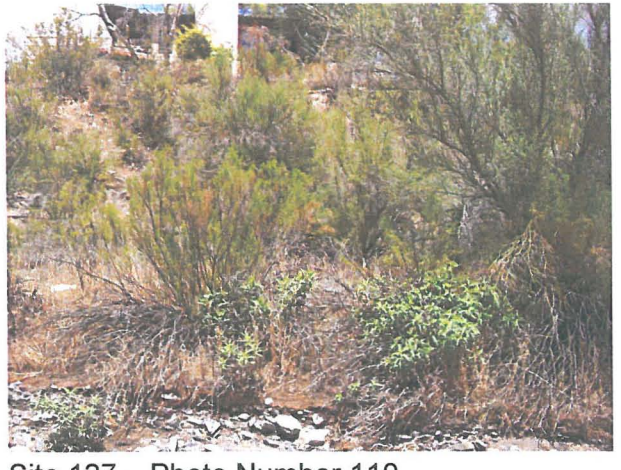

Site 125 – Photo Number 105

Site 126 – Photo Number 106

Site 127 – Photo Number 107

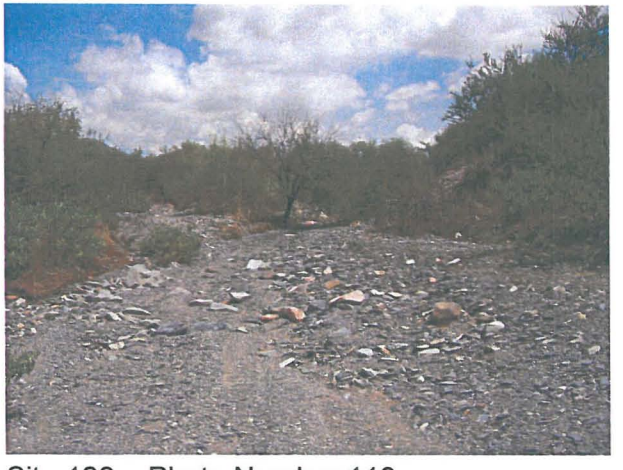
Site 127 – Photo Number 108

Site 127 – Photo Number 109


Site 127 – Photo Number 110

Site 127 – Photo Number 111

Site 128 – Photo Number 112

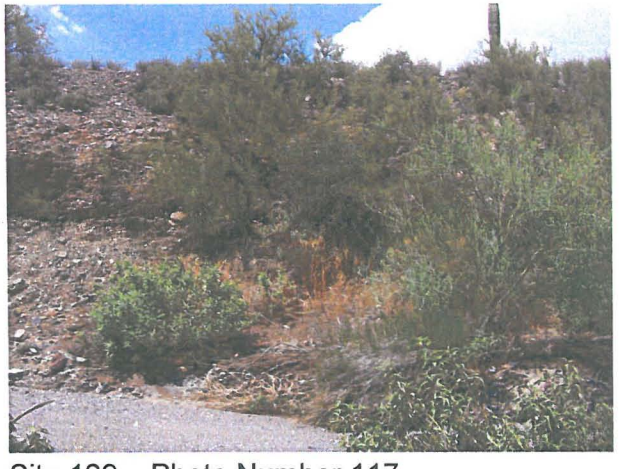


Site 128 – Photo Number 113

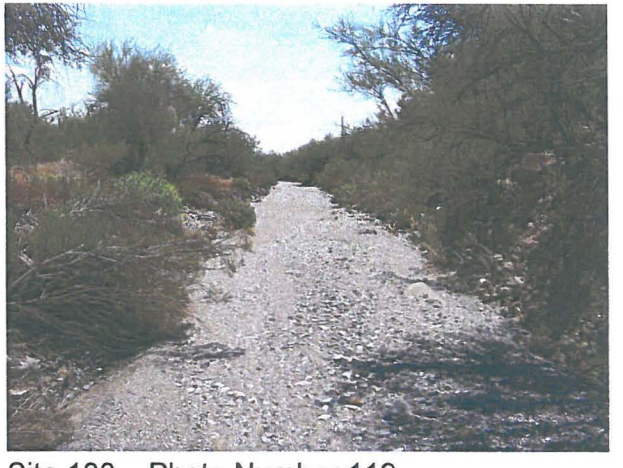
Site 129 – Photo Number 114

Site 129 – Photo Number 115

Site 129 – Photo Number 116


Site 129 – Photo Number 117

Site 129 – Photo Number 118


Site 130 – Photo Number 119

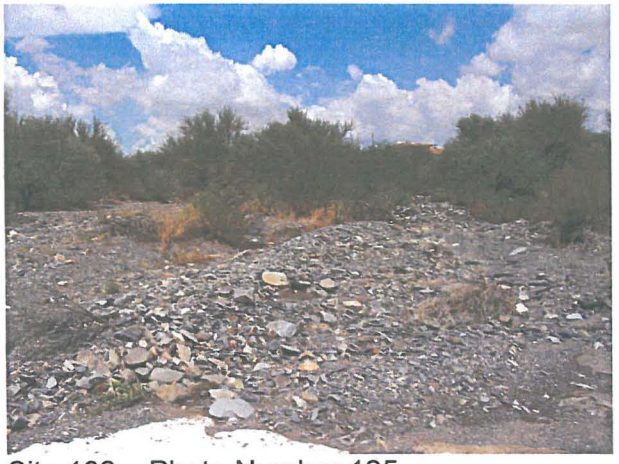
Site 131 – Photo Number 120

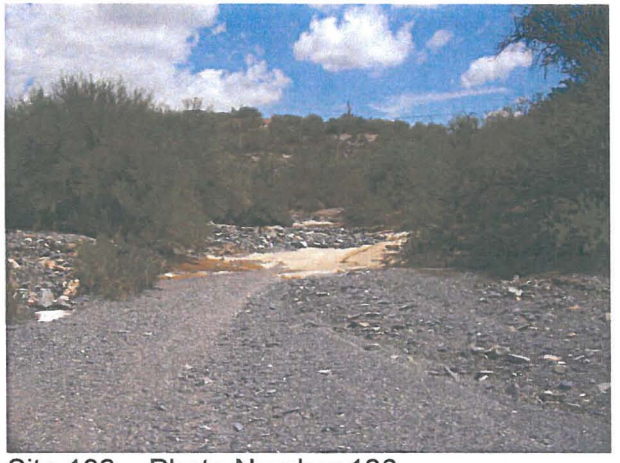
Site 131 – Photo Number 121

Site 131 – Photo Number 122

Site 131 – Photo Number 123

Site 131 – Photo Number 124


Site 132 – Photo Number 125


Site 132 – Photo Number 126

Site 132 – Photo Number 127

Site 132 – Photo Number 128

Site 132 – Photo Number 129

Site 132 – Photo Number 130

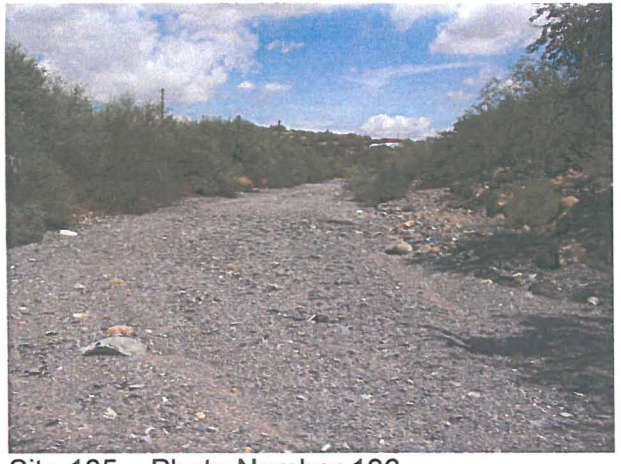
Site 133 – Photo Number 131

Site 133 – Photo Number 132

Site 133 – Photo Number 133

Site 134 – Photo Number 134

Site 135 – Photo Number 135


Site 135 – Photo Number 136

Site 135 – Photo Number 137

Site 135 – Photo Number 138

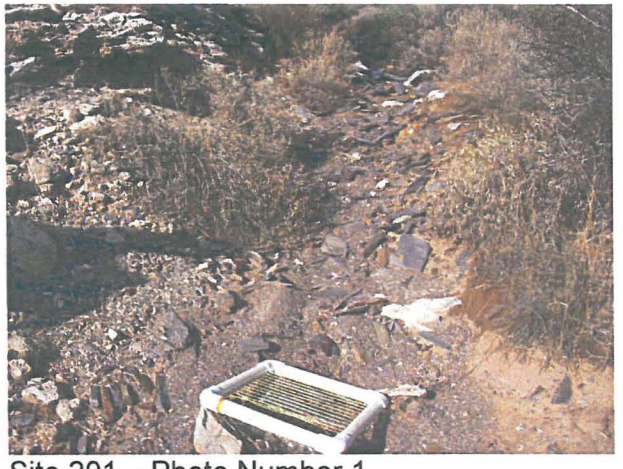
Site 135 – Photo Number 139

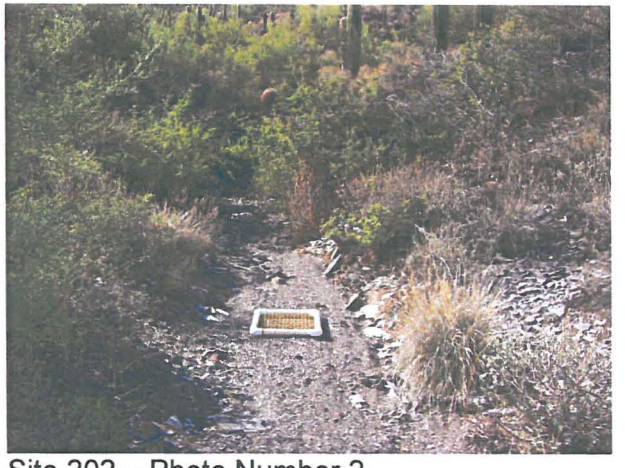
Site 135 – Photo Number 140

Site 136 – Photo Number 141

Site 136 – Photo Number 142

Site 136 – Photo Number 143


Site 201 – Photo Number 1

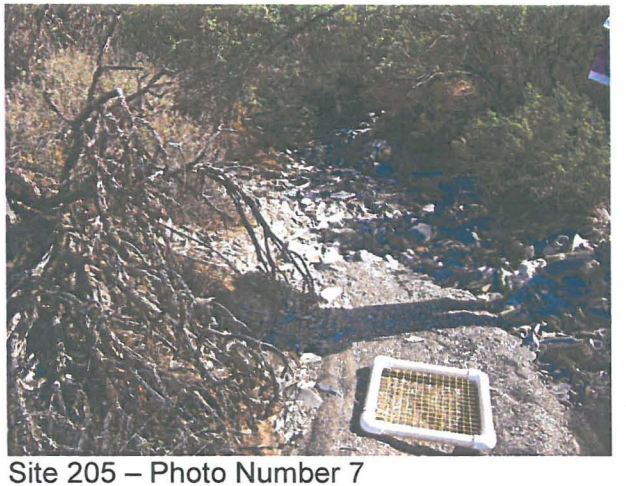

Site 202 – Photo Number 2

Site 203 – Photo Number 3

Site 203 – Photo Number 4

Site 204 – Photo Number 5

Site 205 – Photo Number 6


Site 205 – Photo Number 7

Site 206 – Photo Number 8

Site 206 – Photo Number 9

Site 206 – Photo Number 10

Site 207 – Photo Number 11

Site 208 – Photo Number 12

Site 209 – Photo Number 13

Site 209 – Photo Number 14

Site 209 – Photo Number 15

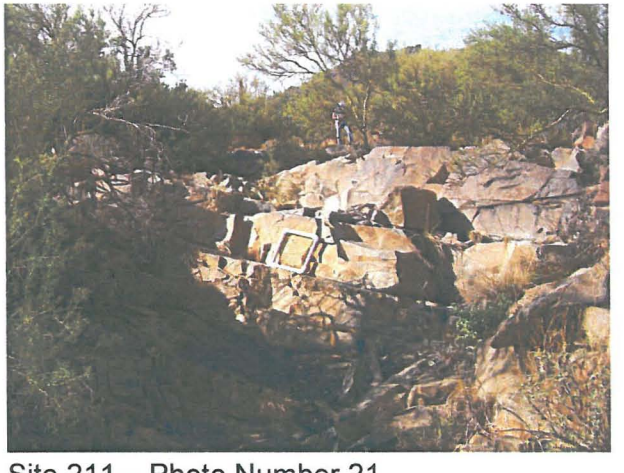
Site 209 – Photo Number 16

Site 210 – Photo Number 17

Site 210 – Photo Number 18

Site 210 – Photo Number 19

Site 211 – Photo Number 20


Site 211 – Photo Number 21

Site 212 – Photo Number 22

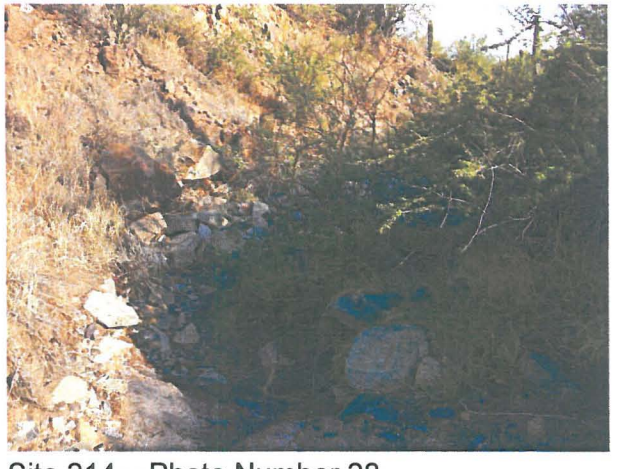
Site 213 – Photo Number 23

Site 213 – Photo Number 24

Site 213 – Photo Number 25

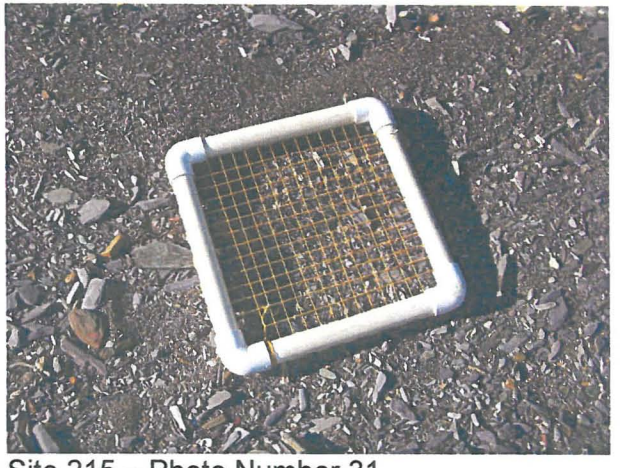
Site 213 – Photo Number 26

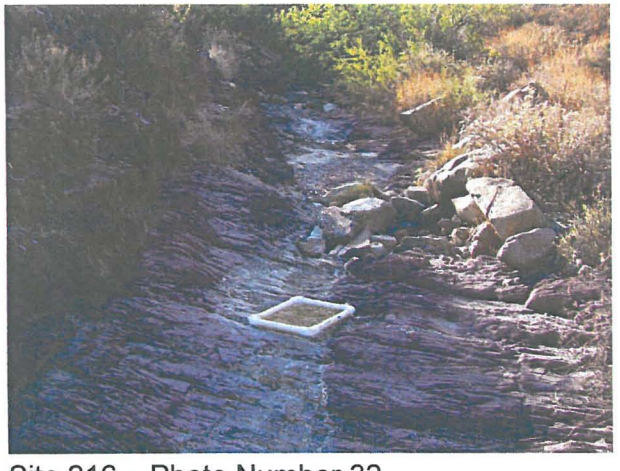
Site 214 – Photo Number 27


Site 214 – Photo Number 28

Site 215 – Photo Number 29

Site 215 – Photo Number 30


Site 215 – Photo Number 31


Site 216 – Photo Number 32

Site 216 – Photo Number 33

Site 217 – Photo Number 34

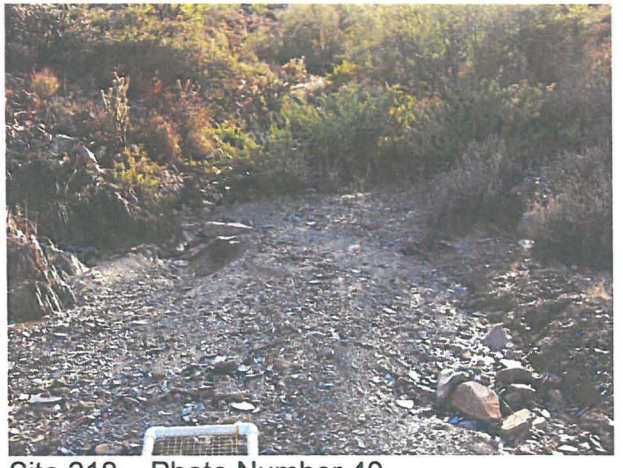
Site 217 – Photo Number 35

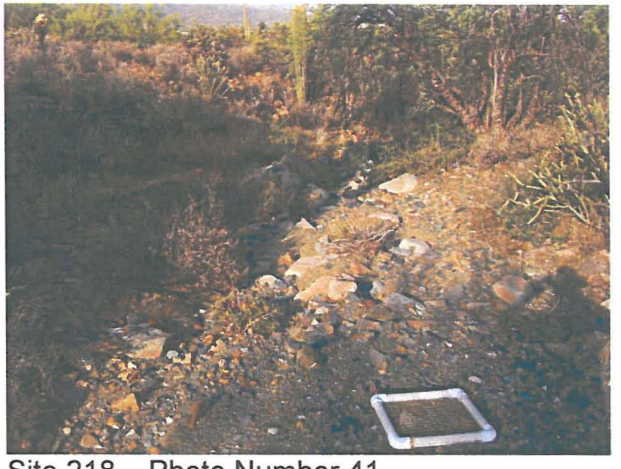
Site 217 – Photo Number 36

Site 219 – Photo Number 37

Site 219 – Photo Number 38

Site 219 – Photo Number 39


Site 218 – Photo Number 40


Site 218 – Photo Number 41

Site 218 – Photo Number 42

Site 218 – Photo Number 43

Site 218 – Photo Number 44

Site 220 – Photo Number 45

Site 220 – Photo Number 46

Site 220 – Photo Number 47

Site 220 – Photo Number 48

Site 220 – Photo Number 49

Site 221 – Photo Number 50

Site 221 – Photo Number 51

Site 221 – Photo Number 52

Site 301 – Photo Number 1

Site 301 – Photo Number 2

Site 301 – Photo Number 3

Site 301 – Photo Number 4

Site 301 – Photo Number 5

Site 302 – Photo Number 6

Site 302 – Photo Number 7

Site 302 – Photo Number 8

Site 303 – Photo Number 9

Site 303 – Photo Number 10

Site 303 – Photo Number 11

Site 303 – Photo Number 12

Site 303 – Photo Number 13

Site 304 – Photo Number 14

Site 305 – Photo Number 15

Site 305 – Photo Number 16

Site 306 – Photo Number 17

Site 306 – Photo Number 18

Site 306 – Photo Number 19

Site 307 – Photo Number 20

Site 308 – Photo Number 21

Site 308 – Photo Number 22

Site 308 – Photo Number 23

# APPENDIX B MANNING'S "n" VALUE DETERMINATION FOR OCOTILLO WASH

# DETERMINATION OF MANNING'S ROUGHNESS COEFFICIENTS BY FCDMC METHOD

| | |
|---|---|
| Project: | FRS Ocotillo Wash & Tributary-2 |
| Stream: | Ocotillo Wash |
| Photograph No: | 3584-3588 |
| Section Description: | Site 111 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | 0.024 |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | 0.028 | |
| | Cobble | | 0.030 - 0.050 | | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | | | |
| | Moderate | | 0.006 - 0.010 | | 0.010 | 0.008 |
| | Severe | | 0.011 - 0.020 | 0.015 | | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.005 | 0.005 | 0.005 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | | 0.010 | |
| | Medium | | 0.010 - 0.025 | 0.010 | | 0.015 |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | 1.000 | 1.000 | 1.000 |
| | Appreciable | | 1.15 | | | |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | **USE:** | **0.058** | **0.053** | **0.052** |

| | |
|---|---|
| Project: | FRS Ocotillo Wash & Tributary-2 |
| Stream: | Ocotillo Wash |
| Photograph No: | 3589-3593 |
| Section Description: | Site 112 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | 0.024 |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | 0.028 | |
| | Cobble | | 0.030 - 0.050 | | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | | 0.005 | 0.005 |
| | Moderate | | 0.006 - 0.010 | 0.010 | | |
| | Severe | | 0.011 - 0.020 | | | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.005 | 0.005 | 0.005 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | | 0.010 | |
| | Medium | | 0.010 - 0.025 | 0.010 | | 0.015 |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | 1.000 | 1.000 | 1.000 |
| | Appreciable | | 1.15 | | | |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | **USE:** | **0.053** | **0.048** | **0.049** |

| | |
|---|---|
| Project: | FRS Ocotillo Wash & Tributary-2 |
| Stream: | Ocotillo Wash |
| Photograph No: | 3594 |
| Section Description: | Site 113 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | 0.024 |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | 0.028 | |
| | Cobble | | 0.030 - 0.050 | | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | | 0.005 | 0.005 |
| | Moderate | | 0.006 - 0.010 | 0.010 | | |
| | Severe | | 0.011 - 0.020 | | | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.005 | 0.005 | 0.005 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | 0.010 | 0.002 | 0.010 |
| | Medium | | 0.010 - 0.025 | | | |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | 1.000 | 1.000 | 1.000 |
| | Appreciable | | 1.15 | | | |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | **USE:** | **0.053** | **0.040** | **0.044** |

Project: FRS Ocotillo Wash & Tributary-2
Stream: Ocotillo Wash
Photograph No: 3595-3597
Section Description: Site 114

AT ROAD

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | 0.028 | 0.028 |
| | Cobble | | 0.030 - 0.050 | | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | 0.005 | 0.005 | 0.005 |
| | Moderate | | 0.006 - 0.010 | | | |
| | Severe | | 0.011 - 0.020 | | | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.005 | 0.005 | 0.005 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | | 0.002 | |
| | Medium | | 0.010 - 0.025 | 0.010 | | 0.010 |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | 1.000 | 1.000 | 1.000 |
| | Appreciable | | 1.15 | | | |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | **USE:** | **0.048** | **0.040** | **0.048** |

| | |
|---|---|
| Project: | FRS Ocotillo Wash & Tributary-2 |
| Stream: | Ocotillo Wash |
| Photograph No: | 3598-3602 |
| Section Description: | Site 115 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | 0.028 | 0.028 |
| | Cobble | | 0.030 - 0.050 | | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | 0.005 | 0.005 | 0.005 |
| | Moderate | | 0.006 - 0.010 | | | |
| | Severe | | 0.011 - 0.020 | | | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.005 | 0.005 | 0.005 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | 0.010 | 0.002 | 0.010 |
| | Medium | | 0.010 - 0.025 | | | |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | 1.000 | 1.000 | 1.000 |
| | Appreciable | | 1.15 | | | |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | **USE:** | **0.048** | **0.040** | **0.048** |

| | |
|---|---|
| Project: | FRS Ocotillo Wash & Tributary-2 |
| Stream: | Ocotillo Wash |
| Photograph No: | 3603-3605 |
| Section Description: | Site 116 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | 0.024 |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | 0.028 | |
| | Cobble | | 0.030 - 0.050 | | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | 0.005 | 0.005 | |
| | Moderate | | 0.006 - 0.010 | | | |
| | Severe | | 0.011 - 0.020 | | | 0.015 |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.005 | 0.005 | 0.005 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | | 0.002 | |
| | Medium | | 0.010 - 0.025 | 0.015 | | 0.015 |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | 1.000 | 1.000 | 1.000 |
| | Appreciable | | 1.15 | | | |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | **USE:** | **0.053** | **0.040** | **0.059** |

| | |
|---|---|
| Project: | FRS Ocotillo Wash & Tributary-2 |
| Stream: | Ocotillo Wash |
| Photograph No: | 3606-3610 |
| Section Description: | Site 117 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | 0.028 | 0.028 |
| | Cobble | | 0.030 - 0.050 | | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | | 0.005 | 0.005 |
| | Moderate | | 0.006 - 0.010 | 0.010 | | |
| | Severe | | 0.011 - 0.020 | | | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.005 | 0.005 | 0.005 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | | 0.002 | |
| | Medium | | 0.010 - 0.025 | 0.020 | | 0.020 |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | 1.000 | 1.000 | 1.000 |
| | Appreciable | | 1.15 | | | |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | **USE:** | **0.063** | **0.040** | **0.058** |

| | |
|---|---|
| Project: | FRS Ocotillo Wash & Tributary-2 |
| Stream: | Ocotillo Wash |
| Photograph No: | 3611-3614 |
| Section Description: | Site 118 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | 0.028 | 0.028 |
| | Cobble | | 0.030 - 0.050 | | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | | 0.005 | 0.005 |
| | Moderate | | 0.006 - 0.010 | | | |
| | Severe | | 0.011 - 0.020 | 0.020 | | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.005 | 0.005 | 0.005 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | | 0.002 | |
| | Medium | | 0.010 - 0.025 | 0.015 | | 0.015 |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | 1.000 | 1.000 | 1.000 |
| | Appreciable | | 1.15 | | | |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | **USE:** | **0.068** | **0.040** | **0.053** |

| | |
|---|---|
| Project: | FRS Ocotillo Wash & Tributary-2 |
| Stream: | Ocotillo Wash |
| Photograph No: | 3615 |
| Section Description: | Site 119 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | 0.028 | 0.028 |
| | Cobble | | 0.030 - 0.050 | | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | 0.005 | 0.005 | 0.005 |
| | Moderate | | 0.006 - 0.010 | | | |
| | Severe | | 0.011 - 0.020 | | | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.005 | | 0.005 |
| | Appreciable | | 0.020 - 0.030 | | 0.002 | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | | | 0.010 |
| | Medium | | 0.010 - 0.025 | 0.015 | 0.020 | |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | 1.000 | 1.000 | 1.000 |
| | Appreciable | | 1.15 | | | |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | **USE:** | **0.053** | **0.055** | **0.048** |

| | |
|---|---|
| Project: | FRS Ocotillo Wash & Tributary-2 |
| Stream: | Ocotillo Wash |
| Photograph No: | 3616 |
| Section Description: | Site 120 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | 0.028 | 0.028 |
| | Cobble | | 0.030 - 0.050 | | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | | 0.005 | 0.005 |
| | Moderate | | 0.006 - 0.010 | 0.010 | | |
| | Severe | | 0.011 - 0.020 | | | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.005 | 0.005 | 0.005 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | | 0.002 | |
| | Medium | | 0.010 - 0.025 | 0.015 | | 0.015 |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | 1.000 | 1.000 | 1.000 |
| | Appreciable | | 1.15 | | | |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | **USE:** | **0.058** | **0.040** | **0.053** |

| | |
|---|---|
| Project: | FRS Ocotillo Wash & Tributary-2 |
| Stream: | Ocotillo Wash |
| Photograph No: | 3617,3618 |
| Section Description: | Site 121 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | 0.028 | 0.028 |
| | Cobble | | 0.030 - 0.050 | | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | | 0.005 | 0.005 |
| | Moderate | | 0.006 - 0.010 | | | |
| | Severe | | 0.011 - 0.020 | 0.020 | | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.005 | 0.005 | 0.005 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | 0.010 | 0.002 | |
| | Medium | | 0.010 - 0.025 | | | 0.015 |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | 1.000 | 1.000 | 1.000 |
| | Appreciable | | 1.15 | | | |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | **USE:** | **0.063** | **0.040** | **0.053** |

| | |
|---|---|
| Project: | FRS Ocotillo Wash & Tributary-2 |
| Stream: | Ocotillo Wash |
| Photograph No: | 3619-3623 |
| Section Description: | Site 122 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | 0.028 | 0.028 |
| | Cobble | | 0.030 - 0.050 | | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | | 0.005 | 0.005 |
| | Moderate | | 0.006 - 0.010 | | | |
| | Severe | | 0.011 - 0.020 | 0.020 | | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.005 | 0.005 | 0.005 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | 0.010 | 0.002 | |
| | Medium | | 0.010 - 0.025 | | | 0.015 |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | 1.000 | 1.000 | 1.000 |
| | Appreciable | | 1.15 | | | |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | **USE:** | **0.063** | **0.040** | **0.053** |

| | |
|---|---|
| Project: | FRS Ocotillo Wash & Tributary-2 |
| Stream: | Ocotillo Wash |
| Photograph No: | 3624,3625 |
| Section Description: | Site 123 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | 0.028 | 0.028 |
| | Cobble | | 0.030 - 0.050 | | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | 0.005 | 0.005 | 0.005 |
| | Moderate | | 0.006 - 0.010 | | | |
| | Severe | | 0.011 - 0.020 | | | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.005 | 0.005 | 0.005 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | | 0.002 | |
| | Medium | | 0.010 - 0.025 | 0.015 | | 0.015 |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | 1.000 | 1.000 | 1.000 |
| | Appreciable | | 1.15 | | | |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | **USE:** | **0.053** | **0.040** | **0.053** |

| | |
|---|---|
| Project: | FRS Ocotillo Wash & Tributary-2 |
| Stream: | Ocotillo Wash |
| Photograph No: | 3626,3630 |
| Section Description: | Site 124 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | 0.028 | 0.028 |
| | Cobble | | 0.030 - 0.050 | | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | 0.005 | 0.005 | 0.005 |
| | Moderate | | 0.006 - 0.010 | | | |
| | Severe | | 0.011 - 0.020 | | | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.005 | 0.005 | 0.005 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | 0.010 | 0.002 | 0.010 |
| | Medium | | 0.010 - 0.025 | | | |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | 1.000 | 1.000 | 1.000 |
| | Appreciable | | 1.15 | | | |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | **USE:** | **0.048** | **0.040** | **0.048** |

| | |
|---|---|
| Project: | FRS Ocotillo Wash & Tributary-2 |
| Stream: | Ocotillo Wash |
| Photograph No: | 3631 |
| Section Description: | Site 125 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | 0.028 | 0.028 |
| | Cobble | | 0.030 - 0.050 | | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | | 0.005 | 0.005 |
| | Moderate | | 0.006 - 0.010 | | | |
| | Severe | | 0.011 - 0.020 | 0.020 | | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.005 | 0.005 | 0.005 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | 0.010 | 0.002 | |
| | Medium | | 0.010 - 0.025 | | | 0.012 |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | | | |
| | Appreciable | | 1.15 | 1.150 | 1.150 | 1.150 |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | **USE:** | **0.072** | **0.046** | **0.058** |

| | |
|---|---|
| Project: | FRS Ocotillo Wash & Tributary-2 |
| Stream: | Ocotillo Wash |
| Photograph No: | 3632 |
| Section Description: | Site 126 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | 0.028 | 0.028 |
| | Cobble | | 0.030 - 0.050 | | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | | 0.005 | 0.005 |
| | Moderate | | 0.006 - 0.010 | | | |
| | Severe | | 0.011 - 0.020 | 0.020 | | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.005 | 0.005 | 0.005 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | | 0.002 | 0.010 |
| | Medium | | 0.010 - 0.025 | 0.012 | | |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | | | |
| | Appreciable | | 1.15 | 1.150 | 1.150 | 1.150 |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | **USE:** | **0.075** | **0.046** | **0.055** |

| | |
|---|---|
| Project: | FRS Ocotillo Wash & Tributary-2 |
| Stream: | Ocotillo Wash |
| Photograph No: | 3633-3637 |
| Section Description: | Site 127 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | 0.028 | 0.028 |
| | Cobble | | 0.030 - 0.050 | | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | | 0.005 | |
| | Moderate | | 0.006 - 0.010 | 0.010 | | |
| | Severe | | 0.011 - 0.020 | | | 0.018 |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.005 | 0.005 | 0.005 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | | 0.002 | 0.010 |
| | Medium | | 0.010 - 0.025 | 0.012 | | |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | | | |
| | Appreciable | | 1.15 | 1.150 | 1.150 | 1.150 |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | **USE:** | **0.063** | **0.046** | **0.070** |

| | |
|---|---|
| Project: | FRS Ocotillo Wash & Tributary-2 |
| Stream: | Ocotillo Wash |
| Photograph No: | 3638,3639 |
| Section Description: | Site 128 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | 0.028 | 0.028 |
| | Cobble | | 0.030 - 0.050 | | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | | 0.005 | |
| | Moderate | | 0.006 - 0.010 | | | 0.010 |
| | Severe | | 0.011 - 0.020 | 0.015 | | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.005 | 0.005 | 0.005 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | | 0.002 | 0.010 |
| | Medium | | 0.010 - 0.025 | 0.012 | | |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | | | |
| | Appreciable | | 1.15 | 1.150 | 1.150 | 1.150 |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | **USE:** | **0.069** | **0.046** | **0.061** |

| | |
|---|---|
| Project: | FRS Ocotillo Wash & Tributary-2 |
| Stream: | Ocotillo Wash |
| Photograph No: | 3640-3644 |
| Section Description: | Site 129 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | 0.028 | 0.028 |
| | Cobble | | 0.030 - 0.050 | | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | | 0.005 | |
| | Moderate | | 0.006 - 0.010 | 0.010 | | |
| | Severe | | 0.011 - 0.020 | | | 0.018 |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.005 | 0.005 | 0.005 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | | 0.002 | 0.010 |
| | Medium | | 0.010 - 0.025 | 0.012 | | |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | 1.000 | 1.000 | 1.000 |
| | Appreciable | | 1.15 | | | |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | **USE:** | **0.055** | **0.040** | **0.061** |

| | |
|---|---|
| Project: | FRS Ocotillo Wash & Tributary-2 |
| Stream: | Ocotillo Wash |
| Photograph No: | 3645 |
| Section Description: | Site 130 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | 0.028 | 0.028 |
| | Cobble | | 0.030 - 0.050 | | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | | 0.005 | |
| | Moderate | | 0.006 - 0.010 | 0.008 | | |
| | Severe | | 0.011 - 0.020 | | | 0.014 |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.005 | 0.005 | 0.005 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | | 0.002 | 0.010 |
| | Medium | | 0.010 - 0.025 | 0.012 | | |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | 1.000 | 1.000 | 1.000 |
| | Appreciable | | 1.15 | | | |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | **USE:** | **0.053** | **0.040** | **0.057** |

| | |
|---|---|
| Project: | FRS Ocotillo Wash & Tributary-2 |
| Stream: | Ocotillo Wash |
| Photograph No: | 3646-3650 |
| Section Description: | Site 131 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | 0.028 | 0.028 |
| | Cobble | | 0.030 - 0.050 | | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | | 0.005 | |
| | Moderate | | 0.006 - 0.010 | 0.008 | | 0.008 |
| | Severe | | 0.011 - 0.020 | | | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.005 | 0.005 | 0.005 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | 0.010 | 0.002 | 0.010 |
| | Medium | | 0.010 - 0.025 | | | |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | 1.000 | 1.000 | 1.000 |
| | Appreciable | | 1.15 | | | |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | **USE:** | **0.051** | **0.040** | **0.051** |

| | |
|---|---|
| Project: | FRS Ocotillo Wash & Tributary-2 |
| Stream: | Ocotillo Wash |
| Photograph No: | 3651-3656 |
| Section Description: | Site 132 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | 0.025 | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | | 0.028 |
| | Cobble | | 0.030 - 0.050 | | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | | | |
| | Moderate | | 0.006 - 0.010 | 0.008 | 0.010 | 0.008 |
| | Severe | | 0.011 - 0.020 | | | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.005 | 0.005 | 0.005 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | 0.010 | 0.002 | 0.010 |
| | Medium | | 0.010 - 0.025 | | | |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | 1.000 | 1.000 | 1.000 |
| | Appreciable | | 1.15 | | | |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | **USE:** | **0.051** | **0.042** | **0.051** |

| | |
|---|---|
| Project: | FRS Ocotillo Wash & Tributary-2 |
| Stream: | Ocotillo Wash |
| Photograph No: | 3657,3658 |
| Section Description: | Site 133 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | 0.025 | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | | 0.028 |
| | Cobble | | 0.030 - 0.050 | | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | 0.005 | | 0.005 |
| | Moderate | | 0.006 - 0.010 | | 0.010 | |
| | Severe | | 0.011 - 0.020 | | | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.005 | 0.005 | 0.005 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | 0.010 | 0.002 | 0.010 |
| | Medium | | 0.010 - 0.025 | | | |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | 1.000 | 1.000 | 1.000 |
| | Appreciable | | 1.15 | | | |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | **USE:** | **0.048** | **0.042** | **0.048** |

| | |
|---|---|
| Project: | FRS Ocotillo Wash & Tributary-2 |
| Stream: | Ocotillo Wash |
| Photograph No: | 3659,3660 |
| Section Description: | Site 134 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | | 0.028 | 0.028 |
| | Cobble | | 0.030 - 0.050 | 0.040 | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | 0.005 | | 0.005 |
| | Moderate | | 0.006 - 0.010 | | 0.010 | |
| | Severe | | 0.011 - 0.020 | | | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.005 | 0.005 | 0.005 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | 0.010 | 0.002 | 0.010 |
| | Medium | | 0.010 - 0.025 | | | |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | 1.000 | 1.000 | 1.000 |
| | Appreciable | | 1.15 | | | |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | **USE:** | **0.060** | **0.045** | **0.048** |

| | |
|---|---|
| Project: | FRS Ocotillo Wash & Tributary-2 |
| Stream: | Ocotillo Wash |
| Photograph No: | 3661-3666 |
| Section Description: | Site 135 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | | 0.028 | 0.028 |
| | Cobble | | 0.030 - 0.050 | 0.040 | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | | 0.005 | 0.005 |
| | Moderate | | 0.006 - 0.010 | 0.010 | | |
| | Severe | | 0.011 - 0.020 | | | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.005 | 0.005 | 0.005 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | | 0.002 | |
| | Medium | | 0.010 - 0.025 | 0.025 | | 0.025 |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | 1.000 | 1.000 | 1.000 |
| | Appreciable | | 1.15 | | | |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | **USE:** | **0.080** | **0.040** | **0.063** |

| | |
|---|---|
| Project: | FRS Ocotillo Wash & Tributary-2 |
| Stream: | Ocotillo Wash |
| Photograph No: | 3667-3669 |
| Section Description: | Site 136 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | 0.028 | 0.028 |
| | Cobble | | 0.030 - 0.050 | | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | 0.005 | 0.005 | 0.005 |
| | Moderate | | 0.006 - 0.010 | | | |
| | Severe | | 0.011 - 0.020 | | | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.005 | 0.005 | 0.005 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | | 0.002 | |
| | Medium | | 0.010 - 0.025 | 0.025 | | 0.025 |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | 1.000 | 1.000 | 1.000 |
| | Appreciable | | 1.15 | | | |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | **USE:** | **0.063** | **0.040** | **0.063** |

# APPENDIX C MANNING'S "n" VALUE DETERMINATION FOR OCOTILLO WASH TRIBUTARY-2

# DETERMINATION OF MANNING'S ROU[illegible]SS COEFFICIENTS BY FCDMC METHOD

Project: FRS Ocotillo Wash & Tributary-2
Stream: Tributary-2
Photograph No: 3527-3531
Section Description: Site 99
Naturally Occurring Lateral Weir #6

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | 0.028 | 0.028 |
| | Cobble | | 0.030 - 0.050 | | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | 0.003 | 0.001 | 0.003 |
| | Moderate | | 0.006 - 0.010 | | | |
| | Severe | | 0.011 - 0.020 | | | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.010 | 0.005 | 0.005 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | | 0.005 | |
| | Medium | | 0.010 - 0.025 | 0.010 | | 0.005 |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | 1.000 | 1.000 | 1.000 |
| | Appreciable | | 1.15 | | | |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | **USE:** | **0.051** | **0.039** | **0.041** |

# DETERMINATION OF MANNING'S ROUGHNESS COEFFICIENTS BY FCDMC METHOD

Project: FRS Ocotillo Wash & Tributary-2
Stream: Tributary-2
Photograph No: 3532-3536
Section Description: Site 101

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | | 0.028 |
| | Cobble | | 0.030 - 0.050 | | 0.035 | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | 0.003 | 0.003 | 0.003 |
| | Moderate | | 0.006 - 0.010 | | | |
| | Severe | | 0.011 - 0.020 | | | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.010 | 0.010 | 0.010 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | | | |
| | Medium | | 0.010 - 0.025 | 0.020 | 0.010 | 0.025 |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | 1.000 | 1.100 | 1.000 |
| | Appreciable | | 1.15 | | | |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | USE: | 0.061 | 0.064 | 0.066 |

| | |
|---|---|
| Project: | FRS Ocotillo Wash & Tributary-2 |
| Stream: | Tributary-2 |
| Photograph No: | 3537-3541 |
| Section Description: | Site 102 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | | 0.028 |
| | Cobble | | 0.030 - 0.050 | | 0.050 | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | 0.003 | 0.003 | 0.003 |
| | Moderate | | 0.006 - 0.010 | | | |
| | Severe | | 0.011 - 0.020 | | | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.010 | 0.010 | 0.010 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | | | |
| | Medium | | 0.010 - 0.025 | 0.015 | 0.015 | 0.015 |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | 1.000 | 1.100 | 1.000 |
| | Appreciable | | 1.15 | | | |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | **USE:** | **0.056** | **0.086** | **0.056** |

| | |
|---|---|
| Project: | FRS Ocotillo Wash & Tributary-2 |
| Stream: | Tributary-2 |
| Photograph No: | 3543-3547 |
| Section Description: | Site 103 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | | 0.028 |
| | Cobble | | 0.030 - 0.050 | | 0.035 | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | 0.003 | 0.003 | 0.003 |
| | Moderate | | 0.006 - 0.010 | | | |
| | Severe | | 0.011 - 0.020 | | | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.010 | 0.010 | 0.010 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | | | |
| | Medium | | 0.010 - 0.025 | 0.020 | 0.010 | 0.020 |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | 1.000 | 1.100 | 1.000 |
| | Appreciable | | 1.15 | | | |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | **USE:** | **0.061** | **0.064** | **0.061** |

| | |
|---|---|
| Project: | FRS Ocotillo Wash & Tributary-2 |
| Stream: | Tributary-2 |
| Photograph No: | 3352-3556 |
| Section Description: | Site 104 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | | 0.028 |
| | Cobble | | 0.030 - 0.050 | | 0.035 | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | 0.003 | 0.003 | 0.003 |
| | Moderate | | 0.006 - 0.010 | | | |
| | Severe | | 0.011 - 0.020 | | | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.010 | 0.010 | 0.010 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | | | |
| | Medium | | 0.010 - 0.025 | 0.020 | 0.010 | 0.020 |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | 1.000 | 1.100 | 1.000 |
| | Appreciable | | 1.15 | | | |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | USE: | 0.061 | 0.064 | 0.061 |

| | |
|---|---|
| Project: | FRS Ocotillo Wash & Tributary-2 |
| Stream: | Tributary-2 |
| Photograph No: | 3357-3559 |
| Section Description: | Site 105 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | | 0.028 |
| | Cobble | | 0.030 - 0.050 | | 0.035 | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | 0.003 | | 0.003 |
| | Moderate | | 0.006 - 0.010 | | 0.006 | |
| | Severe | | 0.011 - 0.020 | | | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.010 | 0.010 | 0.010 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | | | |
| | Medium | | 0.010 - 0.025 | 0.022 | 0.010 | 0.018 |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | 0.001 | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | 1.000 | | 1.000 |
| | Appreciable | | 1.15 | | 1.120 | |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | **USE:** | **0.063** | **0.069** | **0.059** |

| | |
|---|---|
| Project: | FRS Ocotillo Wash & Tributary-2 |
| Stream: | Tributary-2 |
| Photograph No: | 3560-3564 |
| Section Description: | Site 106 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | 0.028 | 0.028 |
| | Cobble | | 0.030 - 0.050 | | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | 0.003 | 0.003 | 0.003 |
| | Moderate | | 0.006 - 0.010 | | | |
| | Severe | | 0.011 - 0.020 | | | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.010 | 0.010 | 0.010 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | | | |
| | Medium | | 0.010 - 0.025 | 0.015 | 0.010 | 0.015 |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | 1.000 | 1.100 | 1.000 |
| | Appreciable | | 1.15 | | | |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | **USE:** | **0.056** | **0.056** | **0.056** |

| | |
|---|---|
| Project: | FRS Ocotillo Wash & Tributary-2 |
| Stream: | Tributary-2 |
| Photograph No: | 3569 |
| Section Description: | Site 107 |

Note: Habitable structure

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | 0.028 | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | | 0.028 |
| | Cobble | | 0.030 - 0.050 | | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | 0.003 | 0.002 | 0.003 |
| | Moderate | | 0.006 - 0.010 | | | |
| | Severe | | 0.011 - 0.020 | | | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | | | |
| | Appreciable | | 0.020 - 0.030 | 0.035 | 0.020 | 0.030 |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | | | |
| | Medium | | 0.010 - 0.025 | 0.022 | | 0.020 |
| | Large | | 0.025 - 0.050 | | 0.025 | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | 1.000 | 1.100 | 1.000 |
| | Appreciable | | 1.15 | | | |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | **USE:** | **0.088** | **0.083** | **0.081** |

| | |
|---|---|
| Project: | FRS Ocotillo Wash & Tributary-2 |
| Stream: | Tributary-2 |
| Photograph No: | 3570-3573 |
| Section Description: | Site 108 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | | 0.028 |
| | Cobble | | 0.030 - 0.050 | | 0.030 | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | 0.003 | 0.003 | 0.003 |
| | Moderate | | 0.006 - 0.010 | | | |
| | Severe | | 0.011 - 0.020 | | | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.010 | 0.010 | 0.010 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | | | |
| | Medium | | 0.010 - 0.025 | 0.015 | 0.010 | 0.015 |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | 1.000 | 1.100 | 1.000 |
| | Appreciable | | 1.15 | | | |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | **USE:** | **0.056** | **0.058** | **0.056** |

| | |
|---|---|
| Project: | FRS Ocotillo Wash & Tributary-2 |
| Stream: | Tributary-2 |
| Photograph No: | 3574-3578 |
| Section Description: | Site 109 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | | 0.028 |
| | Cobble | | 0.030 - 0.050 | | 0.030 | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | 0.003 | 0.003 | 0.003 |
| | Moderate | | 0.006 - 0.010 | | | |
| | Severe | | 0.011 - 0.020 | | | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.005 | 0.005 | 0.005 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | 0.005 | | 0.005 |
| | Medium | | 0.010 - 0.025 | | 0.010 | |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | 1.000 | 1.120 | 1.000 |
| | Appreciable | | 1.15 | | | |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | USE: | 0.041 | 0.054 | 0.041 |

| | |
|---|---|
| Project: | FRS Ocotillo Wash & Tributary-2 |
| Stream: | Tributary-2 |
| Photograph No: | 3579-3583 |
| Section Description: | Site 110 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | | 0.028 |
| | Cobble | | 0.030 - 0.050 | | 0.030 | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | 0.003 | 0.003 | 0.003 |
| | Moderate | | 0.006 - 0.010 | | | |
| | Severe | | 0.011 - 0.020 | | | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.010 | 0.010 | 0.010 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | 0.010 | | 0.010 |
| | Medium | | 0.010 - 0.025 | | 0.010 | |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | 1.000 | 1.120 | 1.000 |
| | Appreciable | | 1.15 | | | |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | **USE:** | **0.051** | **0.059** | **0.051** |

# APPENDIX D MANNING'S "n" VALUE DETERMINATION FOR CAVE CREEK TRIBUTARY 2

# DETERMINATION OF MANNING'S ROUGHNESS COEFFICIENTS BY FCDMC METHOD

| | |
|---|---|
| Project: | FDS Cave Creek Tributary 2 |
| Stream: | Cave Creek Tributary 2 |
| Photograph No: | 3678 |
| Section Description: | Site 201 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | 0.028 | 0.028 |
| | Cobble | | 0.030 - 0.050 | | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | | 0.005 | |
| | Moderate | | 0.006 - 0.010 | 0.010 | | 0.010 |
| | Severe | | 0.011 - 0.020 | | | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | 0.002 | |
| | Minor | | 0.005 - 0.015 | 0.005 | | 0.005 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | | 0.005 | |
| | Medium | | 0.010 - 0.025 | 0.010 | | 0.010 |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | | | |
| | Appreciable | | 1.15 | 1.150 | 1.150 | 1.150 |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | USE: | **0.061** | **0.046** | **0.061** |

| | |
|---|---|
| Project: | FDS Cave Creek Tributary 2 |
| Stream: | Cave Creek Tributary 2 |
| Photograph No: | 3679 |
| Section Description: | Site 202 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | 0.028 | 0.028 |
| | Cobble | | 0.030 - 0.050 | | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | | 0.005 | |
| | Moderate | | 0.006 - 0.010 | 0.010 | | 0.010 |
| | Severe | | 0.011 - 0.020 | | | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | 0.002 | |
| | Minor | | 0.005 - 0.015 | 0.005 | | 0.005 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | | 0.005 | |
| | Medium | | 0.010 - 0.025 | 0.010 | | 0.010 |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | | | |
| | Appreciable | | 1.15 | 1.150 | 1.150 | 1.150 |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | USE: | 0.061 | 0.046 | 0.061 |

| | |
|---|---|
| Project: | FDS Cave Creek Tributary 2 |
| Stream: | Cave Creek Tributary 2 |
| Photograph No: | 3680,3681 |
| Section Description: | Site 203 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | 0.028 | 0.028 |
| | Cobble | | 0.030 - 0.050 | | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | | 0.005 | |
| | Moderate | | 0.006 - 0.010 | 0.010 | | 0.010 |
| | Severe | | 0.011 - 0.020 | | | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | 0.002 | |
| | Minor | | 0.005 - 0.015 | 0.005 | | 0.005 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | | 0.005 | |
| | Medium | | 0.010 - 0.025 | 0.010 | | 0.010 |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | | | |
| | Appreciable | | 1.15 | 1.150 | 1.150 | 1.150 |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | USE: | **0.061** | **0.046** | **0.061** |

| | |
|---|---|
| Project: | FDS Cave Creek Tributary 2 |
| Stream: | Cave Creek Tributary 2 |
| Photograph No: | 3682 |
| Section Description: | Site 204 |

Note main channel bed reduced to account for fine material, obstructions and irregularity raised to account for cobbles

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | 0.024 | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | | 0.028 |
| | Cobble | | 0.030 - 0.050 | | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | | | |
| | Moderate | | 0.006 - 0.010 | 0.010 | 0.010 | 0.010 |
| | Severe | | 0.011 - 0.020 | | | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.005 | 0.005 | 0.005 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | | 0.005 | |
| | Medium | | 0.010 - 0.025 | 0.010 | | 0.010 |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | | | |
| | Appreciable | | 1.15 | 1.150 | 1.150 | 1.150 |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | USE: | 0.061 | 0.051 | 0.061 |

| | |
|---|---|
| Project: | FDS Cave Creek Tributary 2 |
| Stream: | Cave Creek Tributary 2 |
| Photograph No: | 3683,3684 |
| Section Description: | Site 205 |

Note main channel bed reduced to account for fine material, obstructions and irregularity raised to account for cobbles

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | 0.028 | 0.028 |
| | Cobble | | 0.030 - 0.050 | | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | | 0.005 | |
| | Moderate | | 0.006 - 0.010 | 0.010 | | 0.010 |
| | Severe | | 0.011 - 0.020 | | | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.005 | 0.005 | 0.005 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | | 0.005 | |
| | Medium | | 0.010 - 0.025 | 0.010 | | 0.010 |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | | | |
| | Appreciable | | 1.15 | 1.150 | 1.150 | 1.150 |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | USE: | **0.061** | **0.049** | **0.061** |

| | |
|---|---|
| Project: | FDS Cave Creek Tributary 2 |
| Stream: | Cave Creek Tributary 2 |
| Photograph No: | 3685-3687 |
| Section Description: | Site 206 |

Note main channel bed reduced to account for fine material, obstructions and irregularity raised to account for cobbles

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | | 0.028 |
| | Cobble | | 0.030 - 0.050 | | 0.030 | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | | 0.005 | |
| | Moderate | | 0.006 - 0.010 | 0.008 | | 0.010 |
| | Severe | | 0.011 - 0.020 | | | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.005 | 0.005 | 0.005 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | | 0.005 | |
| | Medium | | 0.010 - 0.025 | 0.010 | | 0.010 |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | | | |
| | Appreciable | | 1.15 | 1.150 | 1.150 | 1.150 |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | USE: | 0.059 | 0.052 | 0.061 |

| | |
|---|---|
| Project: | FDS Cave Creek Tributary 2 |
| Stream: | Cave Creek Tributary 2 |
| Photograph No: | 3688 |
| Section Description: | Site 207 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | | 0.028 |
| | Cobble | | 0.030 - 0.050 | | 0.032 | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | | | |
| | Moderate | | 0.006 - 0.010 | 0.010 | | 0.010 |
| | Severe | | 0.011 - 0.020 | | 0.015 | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.005 | 0.005 | 0.005 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | | 0.005 | |
| | Medium | | 0.010 - 0.025 | 0.010 | | 0.010 |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | | | |
| | Appreciable | | 1.15 | 1.150 | 1.150 | 1.150 |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | USE: | 0.061 | 0.066 | 0.061 |

| | |
|---|---|
| Project: | FDS Cave Creek Tributary 2 |
| Stream: | Cave Creek Tributary 2 |
| Photograph No: | 3689 |
| Section Description: | Site 208 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | 0.025 | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | | 0.028 |
| | Cobble | | 0.030 - 0.050 | | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | | | |
| | Moderate | | 0.006 - 0.010 | | | |
| | Severe | | 0.011 - 0.020 | 0.015 | 0.020 | 0.015 |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.005 | 0.005 | 0.005 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | | 0.005 | |
| | Medium | | 0.010 - 0.025 | 0.010 | | 0.010 |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | | | |
| | Appreciable | | 1.15 | 1.150 | 1.150 | 1.150 |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | USE: | 0.067 | 0.063 | 0.067 |

| | |
|---|---|
| Project: | FDS Cave Creek Tributary 2 |
| Stream: | Cave Creek Tributary 2 |
| Photograph No: | 3690-3693 |
| Section Description: | Site 209 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | 0.024 | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | | 0.028 |
| | Cobble | | 0.030 - 0.050 | | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | | | |
| | Moderate | | 0.006 - 0.010 | 0.010 | 0.008 | 0.010 |
| | Severe | | 0.011 - 0.020 | | | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.005 | 0.005 | 0.005 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | | 0.005 | |
| | Medium | | 0.010 - 0.025 | 0.010 | | 0.010 |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | | | |
| | Appreciable | | 1.15 | 1.150 | 1.150 | 1.150 |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | USE: | 0.061 | 0.048 | 0.061 |

| | |
|---|---|
| Project: | FDS Cave Creek Tributary 2 |
| Stream: | Cave Creek Tributary 2 |
| Photograph No: | 3694-3696 |
| Section Description: | Site 210 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | | 0.028 |
| | Cobble | | 0.030 - 0.050 | | 0.035 | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | | | |
| | Moderate | | 0.006 - 0.010 | 0.010 | 0.010 | |
| | Severe | | 0.011 - 0.020 | | | 0.012 |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | 0.004 | |
| | Minor | | 0.005 - 0.015 | 0.005 | | 0.005 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | | 0.005 | |
| | Medium | | 0.010 - 0.025 | 0.010 | | 0.010 |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | | | |
| | Appreciable | | 1.15 | 1.150 | 1.150 | 1.150 |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | USE: | 0.061 | 0.062 | 0.063 |

| | |
|---|---|
| Project: | FDS Cave Creek Tributary 2 |
| Stream: | Cave Creek Tributary 2 |
| Photograph No: | 3697,3698 |
| Section Description: | Site 211 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | 0.025 | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | | 0.028 |
| | Cobble | | 0.030 - 0.050 | | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | | | |
| | Moderate | | 0.006 - 0.010 | | | |
| | Severe | | 0.011 - 0.020 | 0.012 | 0.020 | 0.012 |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.010 | 0.010 | 0.010 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | 0.008 | 0.005 | 0.008 |
| | Medium | | 0.010 - 0.025 | | | |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | | | |
| | Appreciable | | 1.15 | 1.150 | 1.150 | 1.150 |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | **USE:** | **0.067** | **0.069** | **0.067** |

| | |
|---|---|
| Project: | FDS Cave Creek Tributary 2 |
| Stream: | Cave Creek Tributary 2 |
| Photograph No: | 3699 |
| Section Description: | Site 212 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | 0.028 | 0.028 |
| | Cobble | | 0.030 - 0.050 | | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | | | |
| | Moderate | | 0.006 - 0.010 | 0.005 | | 0.005 |
| | Severe | | 0.011 - 0.020 | | 0.008 | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.010 | 0.015 | 0.010 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | | 0.005 | |
| | Medium | | 0.010 - 0.025 | 0.010 | | 0.010 |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | | | |
| | Appreciable | | 1.15 | 1.150 | 1.150 | 1.150 |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | USE: | 0.061 | 0.064 | 0.061 |

| | |
|---|---|
| Project: | FDS Cave Creek Tributary 2 |
| Stream: | Cave Creek Tributary 2 |
| Photograph No: | 3700-3703 |
| Section Description: | Site 213 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | 0.025 | | 0.025 |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | 0.024 | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | | | |
| | Cobble | | 0.030 - 0.050 | | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | | | |
| | Moderate | | 0.006 - 0.010 | | | |
| | Severe | | 0.011 - 0.020 | 0.020 | 0.012 | 0.012 |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.010 | 0.010 | 0.010 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | 0.008 | 0.005 | 0.008 |
| | Medium | | 0.010 - 0.025 | | | |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | | | |
| | Appreciable | | 1.15 | 1.150 | 1.150 | 1.150 |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | **USE:** | **0.072** | **0.059** | **0.063** |

| | |
|---|---|
| Project: | FDS Cave Creek Tributary 2 |
| Stream: | Cave Creek Tributary 2 |
| Photograph No: | 3704,3705 |
| Section Description: | Site 214 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | 0.025 | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | | 0.028 |
| | Cobble | | 0.030 - 0.050 | | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | | | |
| | Moderate | | 0.006 - 0.010 | 0.005 | | 0.005 |
| | Severe | | 0.011 - 0.020 | | 0.008 | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.010 | 0.010 | 0.015 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | 0.008 | 0.005 | 0.010 |
| | Medium | | 0.010 - 0.025 | | | |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | | | |
| | Appreciable | | 1.15 | 1.150 | 1.150 | 1.150 |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | **USE:** | **0.059** | **0.055** | **0.067** |

| | |
|---|---|
| Project: | FDS Cave Creek Tributary 2 |
| Stream: | Cave Creek Tributary 2 |
| Photograph No: | 3706-3708 |
| Section Description: | Site 215 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | 0.028 | 0.028 |
| | Cobble | | 0.030 - 0.050 | | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | | | |
| | Moderate | | 0.006 - 0.010 | 0.005 | | 0.005 |
| | Severe | | 0.011 - 0.020 | | 0.008 | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.010 | 0.015 | 0.010 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | 0.008 | 0.005 | 0.008 |
| | Medium | | 0.010 - 0.025 | | | |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | | | |
| | Appreciable | | 1.15 | 1.150 | 1.150 | 1.150 |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | **USE:** | **0.059** | **0.064** | **0.059** |

| | |
|---|---|
| Project: | FDS Cave Creek Tributary 2 |
| Stream: | Cave Creek Tributary 2 |
| Photograph No: | 3709,3710 |
| Section Description: | Site 216 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | 0.025 | 0.025 | 0.025 |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | | | |
| | Cobble | | 0.030 - 0.050 | | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | | | |
| | Moderate | | 0.006 - 0.010 | 0.005 | 0.005 | 0.005 |
| | Severe | | 0.011 - 0.020 | | | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.012 | 0.012 | 0.012 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | 0.008 | 0.005 | 0.008 |
| | Medium | | 0.010 - 0.025 | | | |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | | | |
| | Appreciable | | 1.15 | 1.150 | 1.150 | 1.150 |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | **USE:** | **0.058** | **0.054** | **0.058** |

| | |
|---|---|
| Project: | FDS Cave Creek Tributary 2 |
| Stream: | Cave Creek Tributary 2 |
| Photograph No: | 3711-3713 |
| Section Description: | Site 217 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | 0.028 | 0.028 |
| | Cobble | | 0.030 - 0.050 | | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | 0.005 | 0.005 | 0.005 |
| | Moderate | | 0.006 - 0.010 | | | |
| | Severe | | 0.011 - 0.020 | | | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | 0.002 | |
| | Minor | | 0.005 - 0.015 | 0.005 | | 0.005 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | 0.008 | 0.005 | 0.008 |
| | Medium | | 0.010 - 0.025 | | | |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | | | |
| | Appreciable | | 1.15 | 1.150 | 1.150 | 1.150 |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | USE: | **0.053** | **0.046** | **0.053** |

| | |
|---|---|
| Project: | FDS Cave Creek Tributary 2 |
| Stream: | Cave Creek Tributary 2 |
| Photograph No: | 3717-3721 |
| Section Description: | Site 218 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | 0.028 | 0.028 |
| | Cobble | | 0.030 - 0.050 | | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | | | |
| | Moderate | | 0.006 - 0.010 | 0.010 | 0.010 | 0.010 |
| | Severe | | 0.011 - 0.020 | | | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.008 | 0.008 | 0.008 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | | 0.005 | |
| | Medium | | 0.010 - 0.025 | 0.010 | | 0.010 |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | | | |
| | Appreciable | | 1.15 | 1.150 | 1.150 | 1.150 |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | **USE:** | **0.064** | **0.059** | **0.064** |

| | |
|---|---|
| Project: | FDS Cave Creek Tributary 2 |
| Stream: | Cave Creek Tributary 2 |
| Photograph No: | 3722-3724 |
| Section Description: | Site 219 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | 0.028 | 0.028 |
| | Cobble | | 0.030 - 0.050 | | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | | | |
| | Moderate | | 0.006 - 0.010 | | | |
| | Severe | | 0.011 - 0.020 | 0.012 | 0.015 | 0.012 |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.010 | 0.010 | 0.010 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | | 0.005 | |
| | Medium | | 0.010 - 0.025 | 0.010 | | 0.010 |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | | | |
| | Appreciable | | 1.15 | 1.150 | 1.150 | 1.150 |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | **USE:** | **0.069** | **0.067** | **0.069** |

| | |
|---|---|
| Project: | FDS Cave Creek Tributary 2 |
| Stream: | Cave Creek Tributary 2 |
| Photograph No: | 3714-3716, 3725,3726 |
| Section Description: | Site 220 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | 0.028 | 0.028 |
| | Cobble | | 0.030 - 0.050 | | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | | 0.005 | |
| | Moderate | | 0.006 - 0.010 | 0.010 | | 0.010 |
| | Severe | | 0.011 - 0.020 | | | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | 0.002 | |
| | Minor | | 0.005 - 0.015 | 0.005 | | 0.005 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | 0.008 | 0.005 | 0.008 |
| | Medium | | 0.010 - 0.025 | | | |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | | | |
| | Appreciable | | 1.15 | 1.150 | 1.150 | 1.150 |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | **USE:** | **0.059** | **0.046** | **0.059** |

| | |
|---|---|
| Project: | FDS Cave Creek Tributary 2 |
| Stream: | Cave Creek Tributary 2 |
| Photograph No: | 3727-3729 |
| Section Description: | Site 221 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | 0.024 | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | | 0.028 |
| | Cobble | | 0.030 - 0.050 | | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | | 0.005 | |
| | Moderate | | 0.006 - 0.010 | 0.010 | | 0.010 |
| | Severe | | 0.011 - 0.020 | | | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | 0.002 | |
| | Minor | | 0.005 - 0.015 | 0.005 | | 0.005 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | 0.008 | 0.005 | 0.008 |
| | Medium | | 0.010 - 0.025 | | | |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | | | |
| | Appreciable | | 1.15 | 1.150 | 1.150 | 1.150 |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | USE: | **0.059** | **0.041** | **0.059** |

# APPENDIX E MANNING'S "n" VALUE DETERMINATION FOR CAVE CREEK TRIBUTARY 3

# DETERMINATION OF MANNING'S ROU[illegible]SS COEFFICIENTS BY FCDMC METHOD

| | |
|---|---|
| Project: | FDS Cave Creek Tributary 3 |
| Stream: | Cave Creek Tributary 3 |
| Photograph No: | 3730-3734 |
| Section Description: | Site 301 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | 0.028 | 0.028 |
| | Cobble | | 0.030 - 0.050 | | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | | | |
| | Moderate | | 0.006 - 0.010 | 0.010 | 0.008 | 0.010 |
| | Severe | | 0.011 - 0.020 | | | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.010 | 0.010 | 0.010 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | | 0.005 | |
| | Medium | | 0.010 - 0.025 | 0.010 | | 0.010 |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | 1.000 | 1.000 | 1.000 |
| | Appreciable | | 1.15 | | | |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | USE: | 0.058 | 0.051 | 0.058 |

| | |
|---|---|
| Project: | FDS Cave Creek Tributary 3 |
| Stream: | Cave Creek Tributary 3 |
| Photograph No: | 3737-3739 |
| Section Description: | Site 302 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | 0.025 |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | | | |
| | Cobble | | 0.030 - 0.050 | 0.030 | 0.035 | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | | | |
| | Moderate | | 0.006 - 0.010 | 0.010 | 0.010 | |
| | Severe | | 0.011 - 0.020 | | | 0.020 |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.010 | 0.010 | 0.010 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | | 0.005 | |
| | Medium | | 0.010 - 0.025 | 0.010 | | 0.010 |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | 1.000 | 1.000 | 1.000 |
| | Appreciable | | 1.15 | | | |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | **USE:** | **0.060** | **0.060** | **0.065** |

| | |
|---|---|
| Project: | FDS Cave Creek Tributary 3 |
| Stream: | Cave Creek Tributary 3 |
| Photograph No: | 3740-3744 |
| Section Description: | Site 303 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | | 0.028 | 0.028 |
| | Cobble | | 0.030 - 0.050 | 0.030 | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | | | |
| | Moderate | | 0.006 - 0.010 | | 0.010 | |
| | Severe | | 0.011 - 0.020 | 0.018 | | 0.015 |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.012 | 0.012 | 0.012 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | | 0.005 | |
| | Medium | | 0.010 - 0.025 | 0.010 | | 0.010 |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | 1.000 | 1.000 | 1.000 |
| | Appreciable | | 1.15 | | | |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | **USE:** | **0.070** | **0.055** | **0.065** |

| | |
|---|---|
| Project: | FDS Cave Creek Tributary 3 |
| Stream: | Cave Creek Tributary 3 |
| Photograph No: | 3745 |
| Section Description: | Site 304 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | 0.025 | 0.025 | 0.025 |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | | | |
| | Cobble | | 0.030 - 0.050 | | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | | | |
| | Moderate | | 0.006 - 0.010 | | | |
| | Severe | | 0.011 - 0.020 | 0.018 | 0.020 | 0.018 |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.012 | 0.012 | 0.012 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | | 0.005 | |
| | Medium | | 0.010 - 0.025 | 0.010 | | 0.010 |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | 1.000 | 1.000 | 1.000 |
| | Appreciable | | 1.15 | | | |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | USE: | **0.065** | **0.062** | **0.065** |

| | |
|---|---|
| Project: | FDS Cave Creek Tributary 3 |
| Stream: | Cave Creek Tributary 3 |
| Photograph No: | 3746,3747 |
| Section Description: | Site 305 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | | 0.028 |
| | Cobble | | 0.030 - 0.050 | | 0.030 | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | | | |
| | Moderate | | 0.006 - 0.010 | 0.010 | 0.010 | 0.010 |
| | Severe | | 0.011 - 0.020 | | | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.012 | 0.015 | 0.012 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | | 0.005 | |
| | Medium | | 0.010 - 0.025 | 0.010 | | 0.010 |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | 1.000 | 1.000 | 1.000 |
| | Appreciable | | 1.15 | | | |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | **USE:** | **0.060** | **0.060** | **0.060** |

| | |
|---|---|
| Project: | FDS Cave Creek Tributary 3 |
| Stream: | Cave Creek Tributary 3 |
| Photograph No: | 3748-3750 |
| Section Description: | Site 306 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | | 0.028 |
| | Cobble | | 0.030 - 0.050 | | 0.030 | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | | | |
| | Moderate | | 0.006 - 0.010 | | 0.010 | 0.010 |
| | Severe | | 0.011 - 0.020 | 0.012 | | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.012 | 0.005 | 0.012 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | | 0.005 | |
| | Medium | | 0.010 - 0.025 | 0.010 | | 0.010 |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | 1.000 | 1.000 | 1.000 |
| | Appreciable | | 1.15 | | | |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | **USE:** | **0.062** | **0.050** | **0.060** |

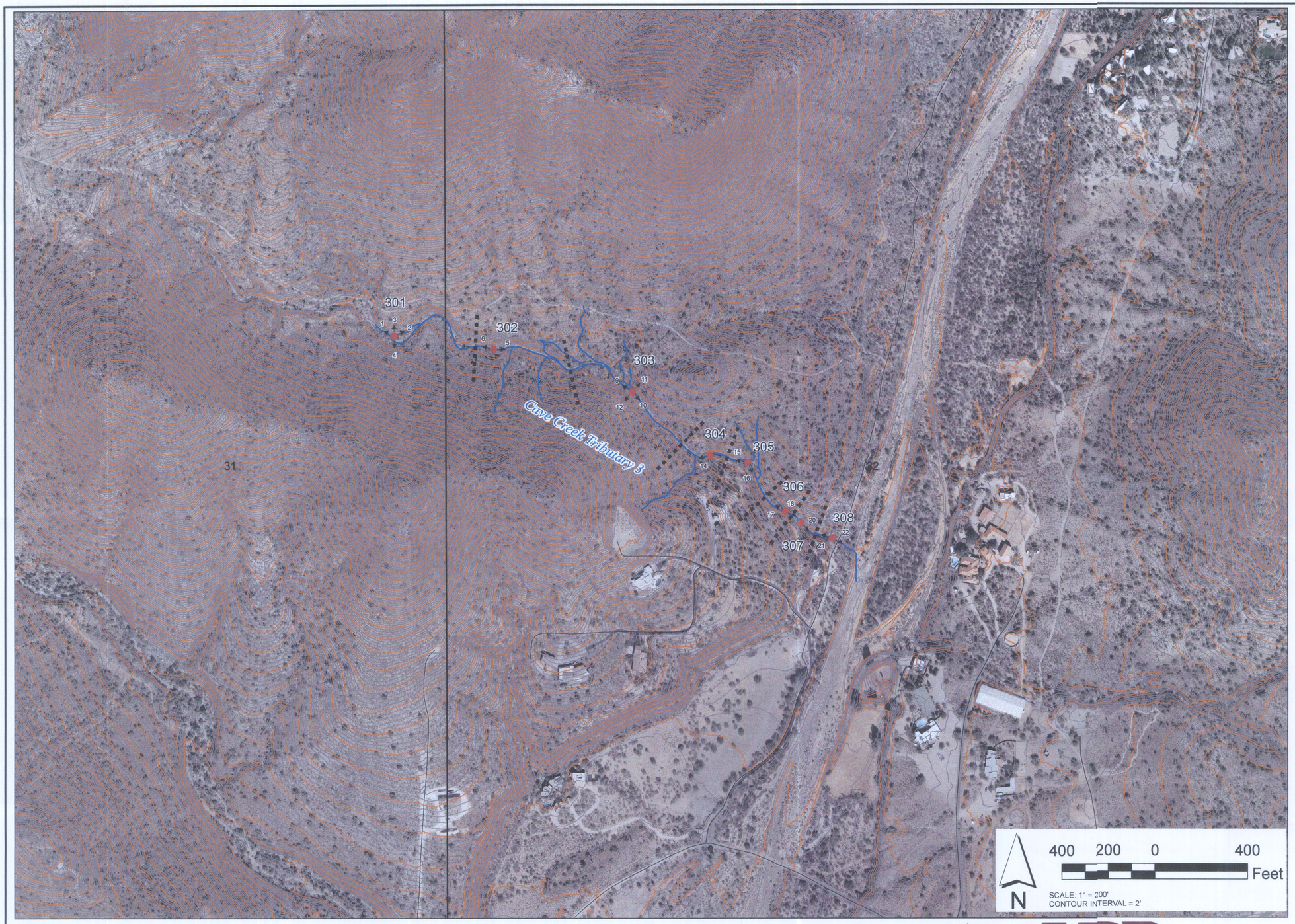
| | |
|---|---|
| Project: | FDS Cave Creek Tributary 3 |
| Stream: | Cave Creek Tributary 3 |
| Photograph No: | 3751 |
| Section Description: | Site 307 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | 0.028 | 0.028 |
| | Cobble | | 0.030 - 0.050 | | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | | | |
| | Moderate | | 0.006 - 0.010 | 0.010 | | 0.010 |
| | Severe | | 0.011 - 0.020 | | 0.018 | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.012 | 0.005 | 0.012 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | | 0.005 | |
| | Medium | | 0.010 - 0.025 | 0.010 | | 0.010 |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | 1.000 | 1.000 | 1.000 |
| | Appreciable | | 1.15 | | | |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | USE: | 0.060 | 0.056 | 0.060 |

| | |
|---|---|
| Project: | FDS Cave Creek Tributary 3 |
| Stream: | Cave Creek Tributary 3 |
| Photograph No: | 3752-3754 |
| Section Description: | Site 308 |

| Channel Conditions | | Manning's n Adjustment | | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|---|---|---|
| Channel Bed Material | Concrete | n0 | 0.012 - 0.018 | | | |
| | Rock Cut | | 0.025 | | | |
| | Firm Soil | | 0.025 - 0.032 | | | |
| | Coarse Sand | | 0.026 - 0.035 | | | |
| | Fine Gravel | | 0.024 | | | |
| | Gravel | | 0.028 - 0.035 | | | |
| | Coarse Gravel | | 0.028 | 0.028 | 0.028 | 0.028 |
| | Cobble | | 0.030 - 0.050 | | | |
| | Boulder | | 0.040 - 0.070 | | | |
| | | | | | | |
| Degre of Irregularity | Smooth | n1 | 0.000 | | | |
| | Minor | | 0.001 - 0.005 | | | |
| | Moderate | | 0.006 - 0.010 | 0.010 | 0.010 | 0.010 |
| | Severe | | 0.011 - 0.020 | | | |
| | | | | | | |
| Effects of Obstructions | Negligible | n2 | 0.000 - 0.004 | | | |
| | Minor | | 0.005 - 0.015 | 0.010 | 0.005 | 0.010 |
| | Appreciable | | 0.020 - 0.030 | | | |
| | Severe | | 0.040 - 0.060 | | | |
| | | | | | | |
| Vegetation | Small | n3 | 0.002 - 0.010 | | 0.005 | |
| | Medium | | 0.010 - 0.025 | 0.010 | | 0.010 |
| | Large | | 0.025 - 0.050 | | | |
| | Very Large | | 0.050 - 0.100 | | | |
| | | | | | | |
| Variations in the Channel Cross Sections | Gradual | n4 | 0.000 | 0.000 | 0.000 | 0.000 |
| | Alternating (occasionally) | | 0.001 - 0.005 | | | |
| | Alternating (frequently) | | 0.010 - 0.015 | | | |
| | | | | | | |
| Degree of Meandering | Minor | m | 1.00 | 1.000 | 1.000 | 1.000 |
| | Appreciable | | 1.15 | | | |
| | Severe | | 1.30 | | | |
| | | | | | | |
| n = (n0 + n1 + n2 + n3 + n4) m | | | | | | |
| | | | **USE:** | **0.058** | **0.048** | **0.058** |

# APPENDIX F MANNING'S "n" VALUE DETERMINATION EXHIBITS




## Legend

- 112 PHOTOGRAPHIC LOCATIONS
- 65 PHOTO DIRECTION/NUMBER
- MANNING'S n VALUE BOUNDARY
- STREAM
- STREET ALIGNMENTS
- 31 SECTION LINES

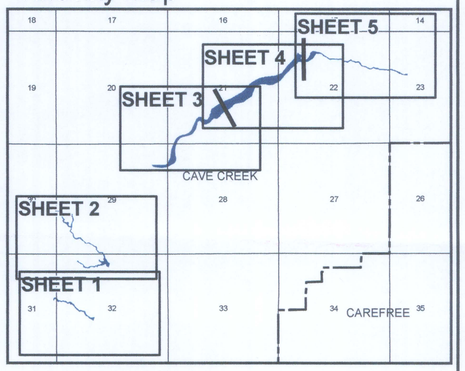
**CONTOURS-1254**

- Index
- Intermediate

| Site | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|
| Site 301 | 0.058 | 0.051 | 0.058 |
| Site 302 | 0.060 | 0.060 | 0.065 |
| Site 303 | 0.070 | 0.055 | 0.065 |
| Site 304 | 0.065 | 0.062 | 0.065 |
| Site 305 | 0.060 | 0.060 | 0.060 |
| Site 306 | 0.062 | 0.050 | 0.060 |
| Site 307 | 0.060 | 0.056 | 0.060 |
| Site 308 | 0.058 | 0.048 | 0.058 |

CERTIFICATE NO. 35371 LINDA A. POTTER
10/24/08
Expires 12/31/09

Vincinity Map




SITE FIELD DATA AND PHOTOGRAPHS COLLECTED ON AUGUST 27, 2008.

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1" = 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS.

GROUND CONTROL SURVEY DATA PROVIDED BY COOPER AERIAL SURVEYS COMPANY.
FLIGHT DATES: November 2007

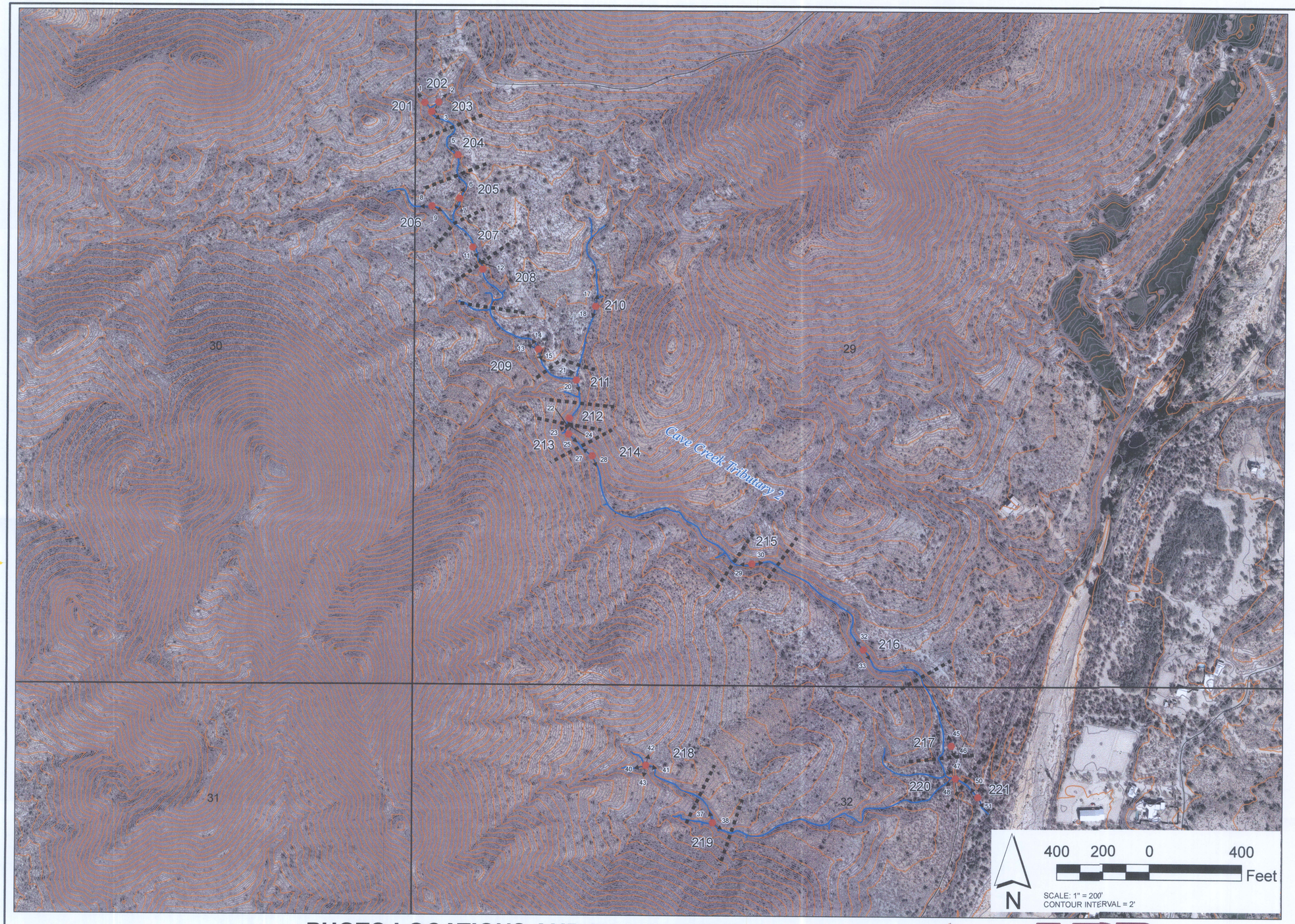
# PHOTO LOCATIONS AND MANNING'S "n" VALUE SITES FOR CAVE CREEK TRIBUTARY 3

Flood Control District of Maricopa County

HDR
3200 EAST CAMELBACK ROAD, SUITE 350
PHOENIX, AZ 85018-2311
(602) 522-7700

**FLOODPLAIN REDELINEATION STUDY OF OCOTILLO WASH AND TRIBUTARY-2, AND FLOODPLAIN DELINEATION STUDY OF CAVE CREEK TRIBUTARES 2 AND 3.**
**Project Contract Number: FCD2006C024**
**Work Assignement No. 2**
**HDR Project Number: 91427**

SHEET 1 OF 5
OCTOBER 22, 2008




## Legend

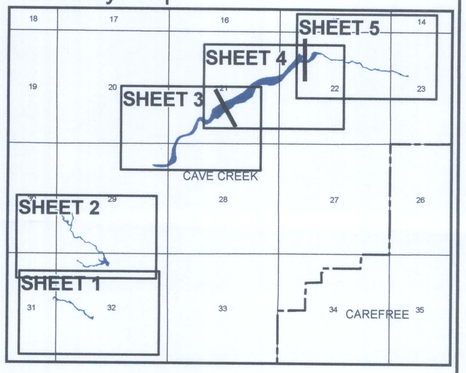
- 112 PHOTOGRAPHIC LOCATIONS
- 65 PHOTO DIRECTION/NUMBER
- MANNING'S n VALUE BOUNDARY
- STREAMS
- STREET ALIGNMENTS
- 31 SECTION LINES

**CONTOURS-1254**

- Index
- Intermediate

| Site | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|
| Site 201 | 0.061 | 0.046 | 0.061 |
| Site 202 | 0.061 | 0.046 | 0.061 |
| Site 203 | 0.061 | 0.046 | 0.061 |
| Site 204 | 0.061 | 0.051 | 0.061 |
| Site 205 | 0.061 | 0.049 | 0.061 |
| Site 206 | 0.059 | 0.052 | 0.061 |
| Site 207 | 0.061 | 0.066 | 0.061 |
| Site 208 | 0.067 | 0.063 | 0.067 |
| Site 209 | 0.061 | 0.048 | 0.061 |
| Site 210 | 0.061 | 0.062 | 0.063 |
| Site 211 | 0.067 | 0.069 | 0.067 |
| Site 212 | 0.061 | 0.064 | 0.061 |
| Site 213 | 0.072 | 0.059 | 0.063 |
| Site 214 | 0.059 | 0.055 | 0.067 |
| Site 215 | 0.059 | 0.064 | 0.059 |
| Site 216 | 0.058 | 0.054 | 0.058 |
| Site 217 | 0.053 | 0.046 | 0.053 |
| Site 218 | 0.064 | 0.059 | 0.064 |
| Site 219 | 0.069 | 0.067 | 0.069 |
| Site 220 | 0.059 | 0.046 | 0.059 |
| Site 221 | 0.059 | 0.041 | 0.059 |

## Vincinity Map




SITE FIELD DATA AND PHOTOGRAPHS COLLECTED ON AUGUST 27, 2008.

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCUARACY STANDARDS FOR 1" = 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS.

GROUND CONTROL SURVEY DATA PROVIDED BY COOPER AERIAL SURVEYS COMPANY.
FLIGHT DATES: November 2007

# PHOTO LOCATIONS AND MANNING'S "n" VALUE SITES FOR CAVE CREEK TRIBUTARY 2

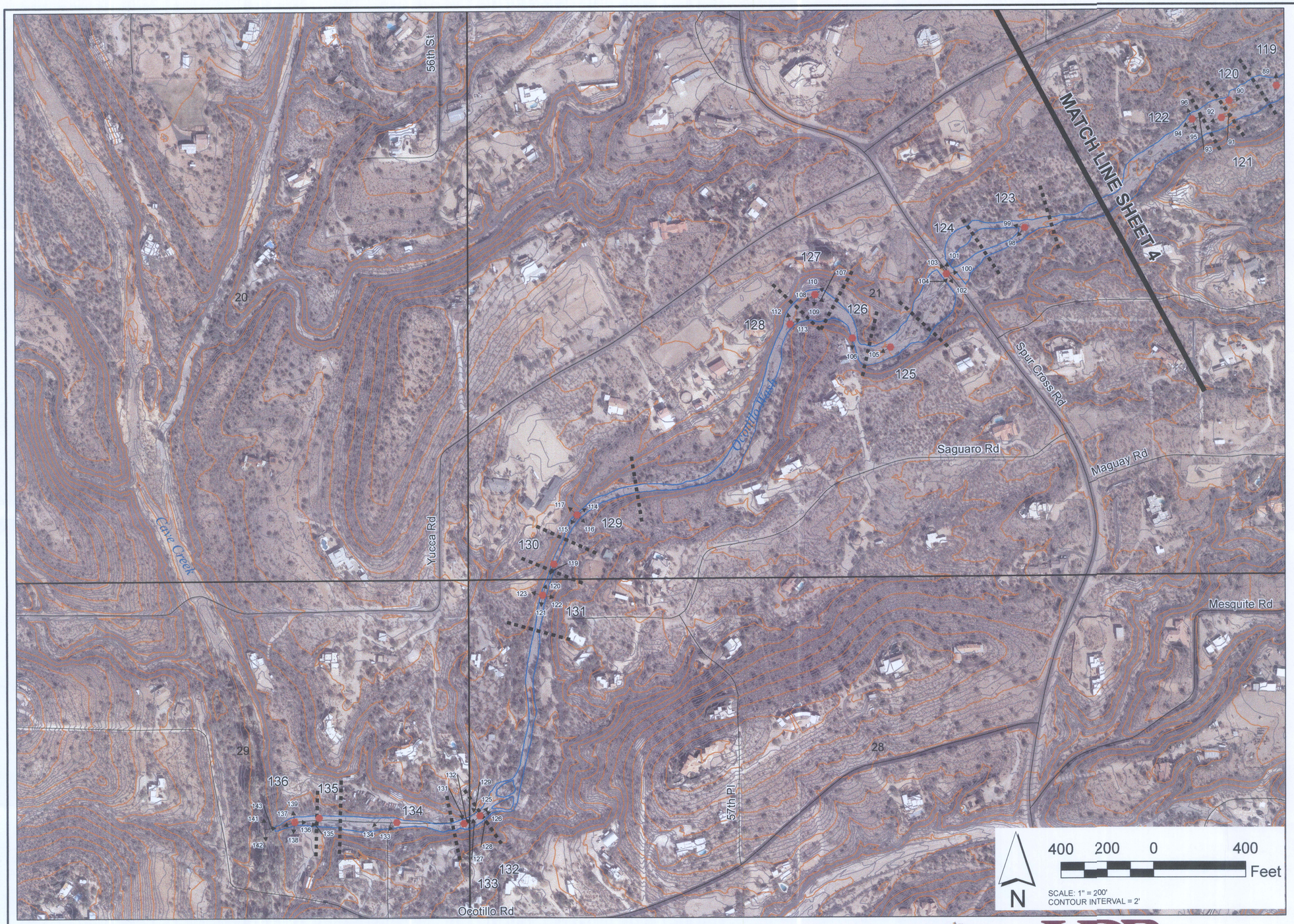
Flood Control District of Maricopa County

HDR
3200 EAST CAMELBACK ROAD, SUITE 350
PHOENIX, AZ 85018-2311
(602) 522-7700

Registered Professional Engineer (Civil) CERTIFICATE NO. 35571 LINDA A. POTTER Date Signed 10/22/08 ARIZONA U.S.A.
Expires 12/31/09

**FLOODPLAIN REDELINEATION STUDY OF OCOTILLO WASH AND TRIBUTARY-2, AND FLOODPLAIN DELINEATION STUDY OF CAVE CREEK TRIBUTARES 2 AND 3.**
**Project Contract Number: FCD2006C024**
**Work Assignement No. 2**
**HDR Project Number: 91427**

SHEET 2 OF 5
OCTOBER 22, 2008

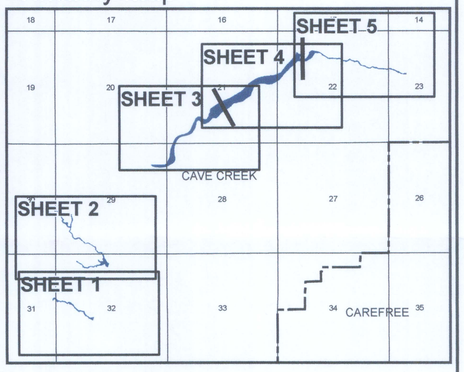



## Legend

- PHOTOGRAPHIC LOCATIONS
- PHOTO DIRECTION/NUMBER
- MATCH LINES FOR SHEETS
- MANNING'S n VALUE BOUNDARY
- APPROXIMATE WASH BOUNDARY
- STREET ALIGNMENTS
- SECTION LINES
- **CONTOURS-1254**
  - Index
  - Intermediate

| Site | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|
| Site 123 | 0.053 | 0.040 | 0.053 |
| Site 124 | 0.048 | 0.040 | 0.048 |
| Site 125 | 0.072 | 0.046 | 0.058 |
| Site 126 | 0.075 | 0.046 | 0.055 |
| Site 127 | 0.063 | 0.046 | 0.070 |
| Site 128 | 0.069 | 0.046 | 0.061 |
| Site 129 | 0.055 | 0.040 | 0.061 |
| Site 130 | 0.053 | 0.040 | 0.057 |
| Site 131 | 0.051 | 0.040 | 0.051 |
| Site 132 | 0.051 | 0.042 | 0.051 |
| Site 133 | 0.048 | 0.042 | 0.048 |
| Site 134 | 0.060 | 0.045 | 0.048 |
| Site 135 | 0.080 | 0.040 | 0.063 |
| Site 136 | 0.063 | 0.040 | 0.063 |

## Vincinity Map




SITE FIELD DATA AND PHOTOGRAPHS COLLECTED ON AUGUST 27, 2008.

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCUARACY STANDARDS FOR 1" = 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS.

GROUND CONTROL SURVEY DATA PROVIDED BY COOPER AERIAL SURVEYS COMPANY.
FLIGHT DATES: November 2007

# PHOTO LOCATIONS AND MANNING'S "n" VALUE SITES FOR OCOTILLO WASH and OCOTILLO WASH TRIBUTARY-2

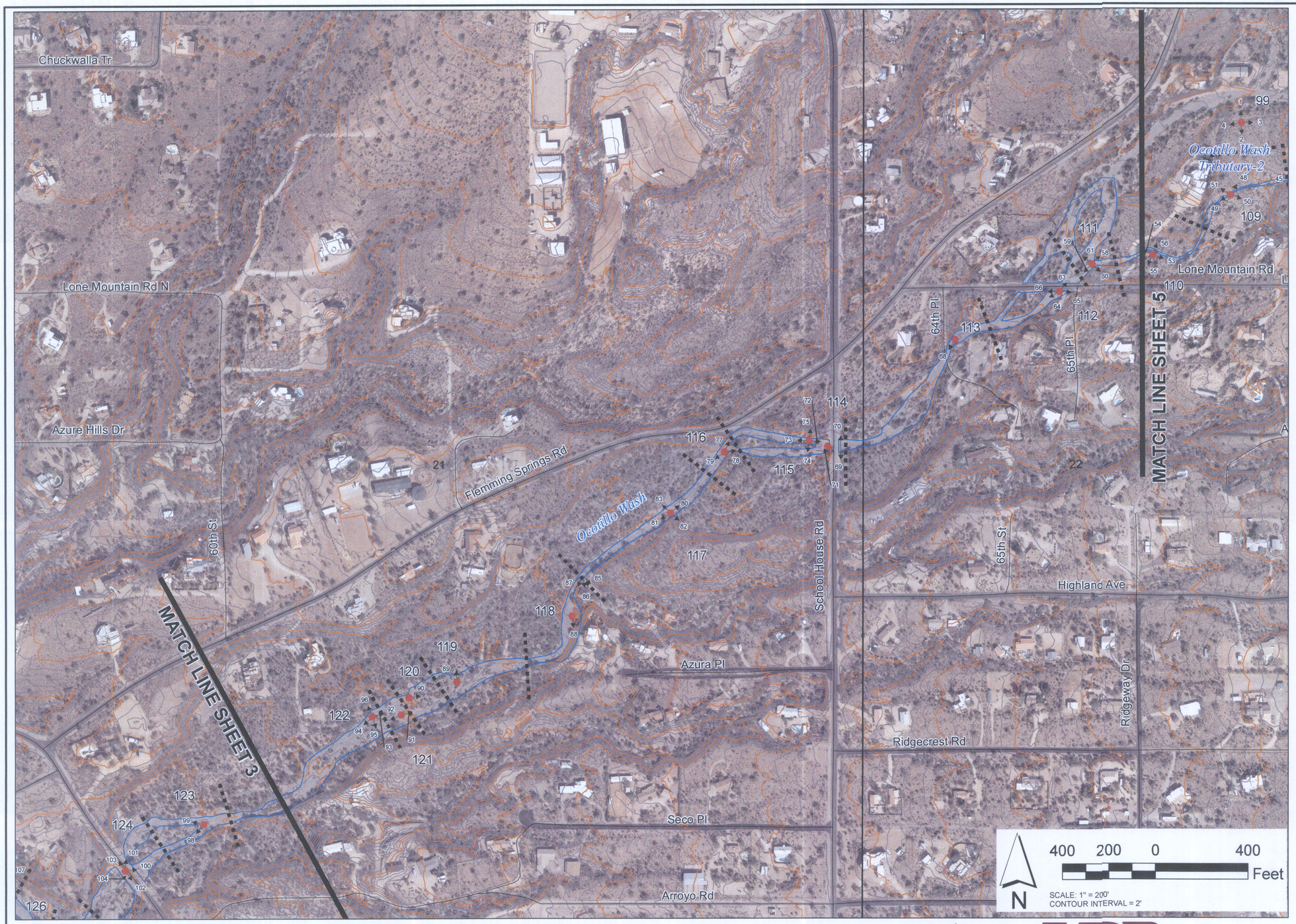
Flood Control District of Maricopa County

HDR
3200 EAST CAMELBACK ROAD, SUITE 350
PHOENIX, AZ 85018-2311
(602) 522-7700

REGISTERED PROFESSIONAL ENGINEER (CIVIL)
CERTIFICATE NO. 35571
LINDA A. POTTER
Date Signed 10/22/08
ARIZONA U.S.A.
Expires 12/31/09

**FLOODPLAIN REDELINEATION STUDY OF OCOTILLO WASH AND TRIBUTARY-2, AND FLOODPLAIN DELINEATION STUDY OF CAVE CREEK TRIBUTARES 2 AND 3.**
**Project Contract Number: FCD2006C024**
**Work Assignement No. 2**
**HDR Project Number: 91427**

SHEET 3 OF 5
OCTOBER 22, 2008




## Legend

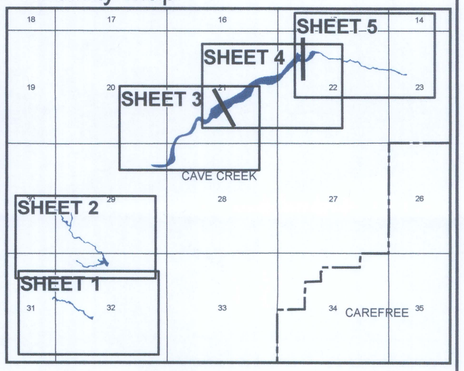
- 112 PHOTOGRAPHIC LOCATIONS
- 65 PHOTO DIRECTION/NUMBER
- MANNING'S n VALUE BOUNDARY
- MATCH LINES FOR SHEETS
- STREET ALIGNMENTS
- APPROXIMATE WASH BOUNDARY
- 31 SECTION LINES

**CONTOURS-1254**

- Index
- Intermediate

| Site | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|
| Site 111 | 0.058 | 0.053 | 0.052 |
| Site 112 | 0.053 | 0.048 | 0.049 |
| Site 113 | 0.053 | 0.040 | 0.044 |
| Site 114 | 0.048 | 0.040 | 0.048 |
| Site 115 | 0.048 | 0.040 | 0.048 |
| Site 116 | 0.053 | 0.040 | 0.059 |
| Site 117 | 0.063 | 0.040 | 0.058 |
| Site 118 | 0.068 | 0.040 | 0.053 |
| Site 119 | 0.053 | 0.055 | 0.048 |
| Site 120 | 0.058 | 0.040 | 0.053 |
| Site 121 | 0.063 | 0.040 | 0.053 |
| Site 122 | 0.063 | 0.040 | 0.053 |

Vincinity Map




SITE FIELD DATA AND PHOTOGRAPHS COLLECTED ON AUGUST 27, 2008.

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCUARACY STANDARDS FOR 1" = 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS.

GROUND CONTROL SURVEY DATA PROVIDED BY COOPER AERIAL SURVEYS COMPANY. FLIGHT DATES: November 2007

# PHOTO LOCATIONS AND MANNING'S "n" VALUE SITES FOR OCOTILLO WASH and OCOTILLO WASH TRIBUTARY-2

Flood Control District of Maricopa County

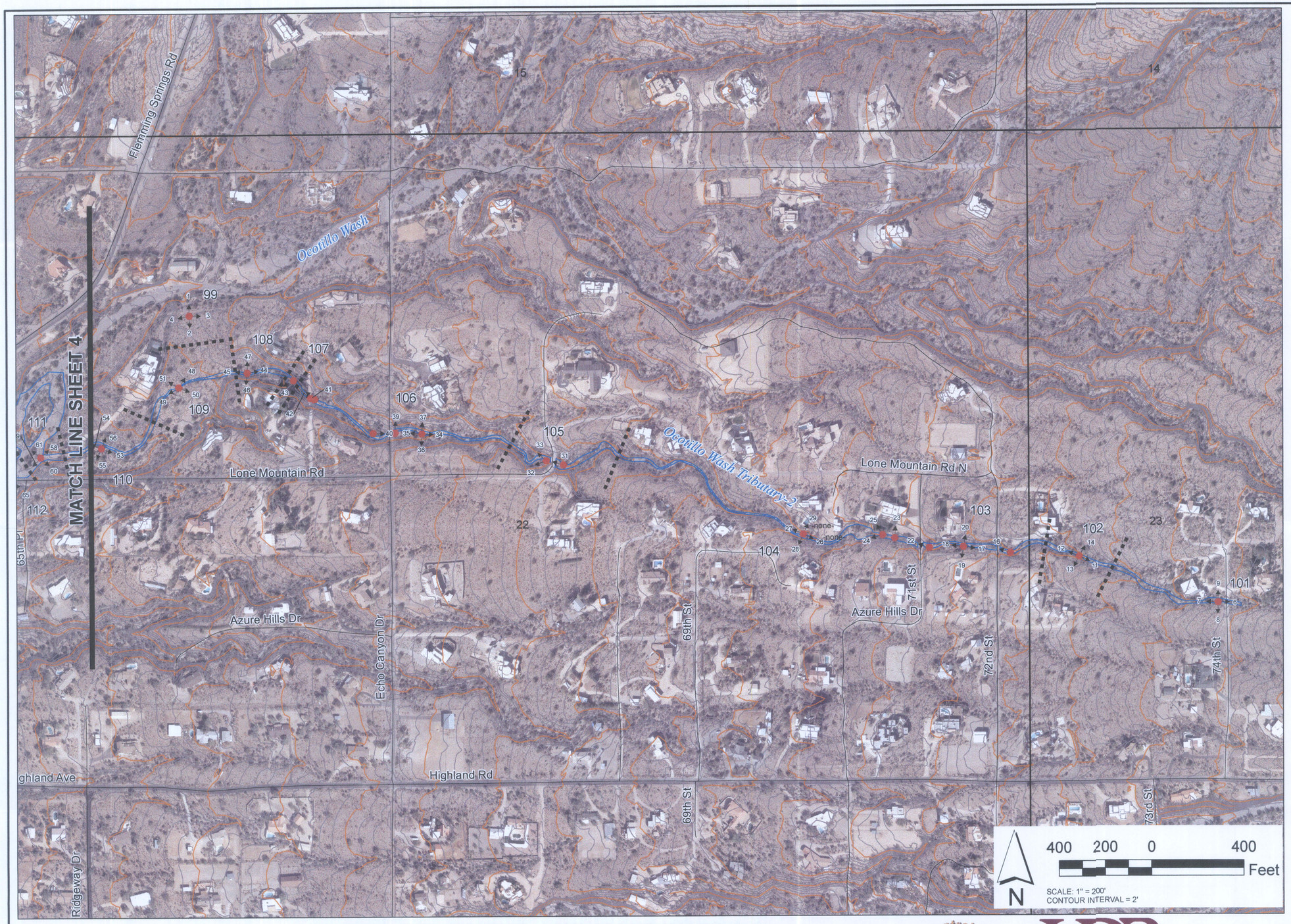
HDR

3200 EAST CAMELBACK ROAD, SUITE 350
PHOENIX, AZ 85018-2311
(602) 522-7700

Registered Professional Engineer (Civil)
CERTIFICATE NO. 35571
LINDA A. POTTER
Date Signed 10/31/08
ARIZONA, U.S.A.
Expires 12/31/09

**FLOODPLAIN REDELINEATION STUDY OF OCOTILLO WASH AND TRIBUTARY-2, AND FLOODPLAIN DELINEATION STUDY OF CAVE CREEK TRIBUTARES 2 AND 3.**
**Project Contract Number: FCD2006C024**
**Work Assignement No. 2**
**HDR Project Number: 91427**

SHEET 4 OF 5
OCTOBER 22, 2008




## Legend

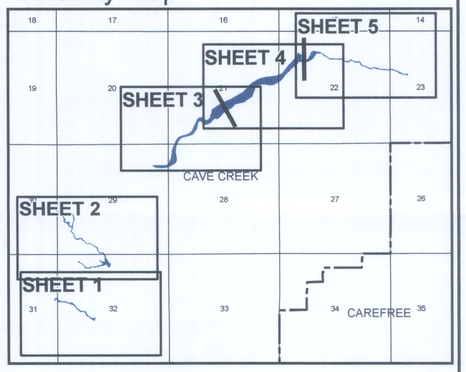
- PHOTOGRAPHIC LOCATIONS (112)
- PHOTO DIRECTION/NUMBER (65)
- MANNING'S n VALUE BOUNDARY
- MATCH LINES FOR SHEETS
- STREET ALIGNMENTS
- APPROXIMATE WASH BOUNDARY
- SECTION LINES (31)

**CONTOURS-1254**

- Index
- Intermediate

| Site | Left Overbank | Main Channel | Right Overbank |
|---|---|---|---|
| Site 99 | 0.051 | 0.039 | 0.041 |
| Site 101 | 0.061 | 0.064 | 0.066 |
| Site 102 | 0.056 | 0.086 | 0.056 |
| Site 103 | 0.061 | 0.064 | 0.061 |
| Site 104 | 0.061 | 0.064 | 0.061 |
| Site 105 | 0.063 | 0.069 | 0.059 |
| Site 106 | 0.056 | 0.056 | 0.056 |
| Site 107 | 0.088 | 0.083 | 0.081 |
| Site 108 | 0.056 | 0.058 | 0.056 |
| Site 109 | 0.041 | 0.054 | 0.041 |
| Site 110 | 0.051 | 0.059 | 0.051 |

Vincinity Map




SITE FIELD DATA AND PHOTOGRAPHS COLLECTED ON AUGUST 27, 2008.

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCUARACY STANDARDS FOR 1" = 200' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS.

GROUND CONTROL SURVEY DATA PROVIDED BY COOPER AERIAL SURVEYS COMPANY.
FLIGHT DATES: November 2007

# PHOTO LOCATIONS AND MANNING'S "n" VALUE SITES FOR OCOTILLO WASH TRIBUTARY-2

Flood Control District of Maricopa County

HDR

3200 EAST CAMELBACK ROAD, SUITE 350
PHOENIX, AZ 85018-2311
(602) 522-7700

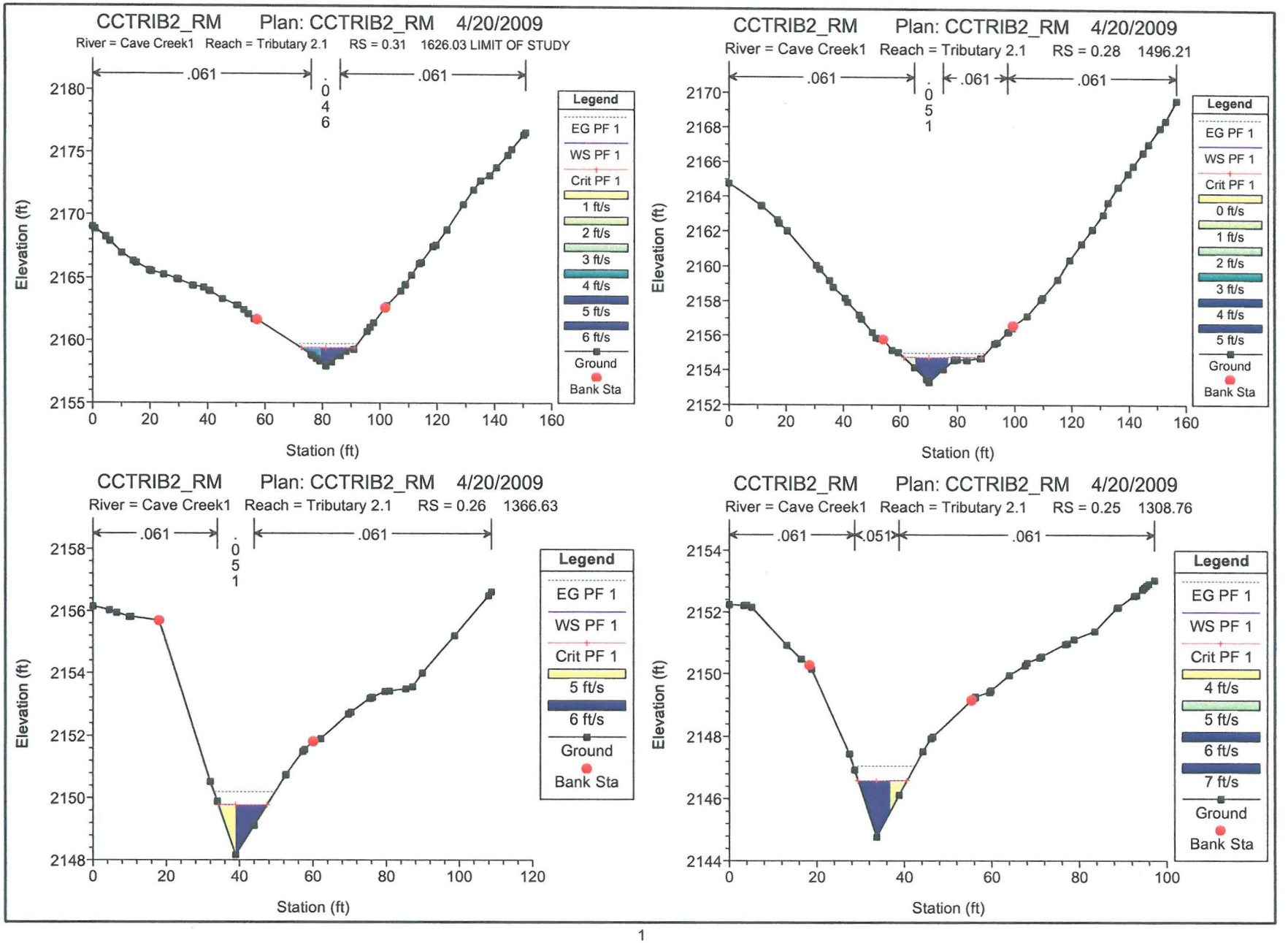
Registered Professional Engineer (Civil) CERTIFICATE NO. 35571 LINDA A. POTTER ARIZONA U.S.A. Expires 12/31/09

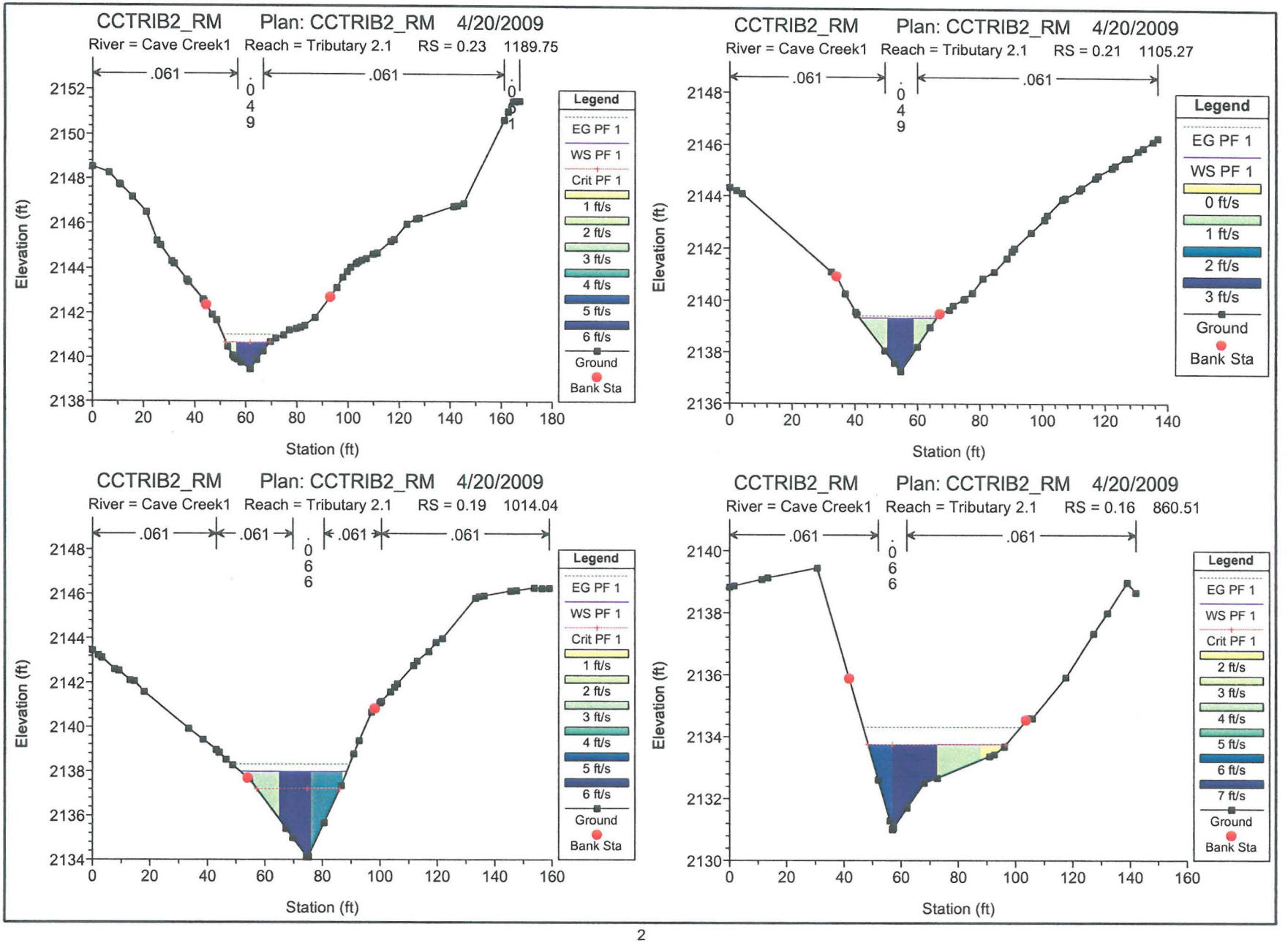
**FLOODPLAIN REDELINEATION STUDY OF OCOTILLO WASH AND TRIBUTARY-2, AND FLOODPLAIN DELINEATION STUDY OF CAVE CREEK TRIBUTARES 2 AND 3.**
**Project Contract Number: FCD2006C024**
**Work Assignement No. 2**
**HDR Project Number: 91427**

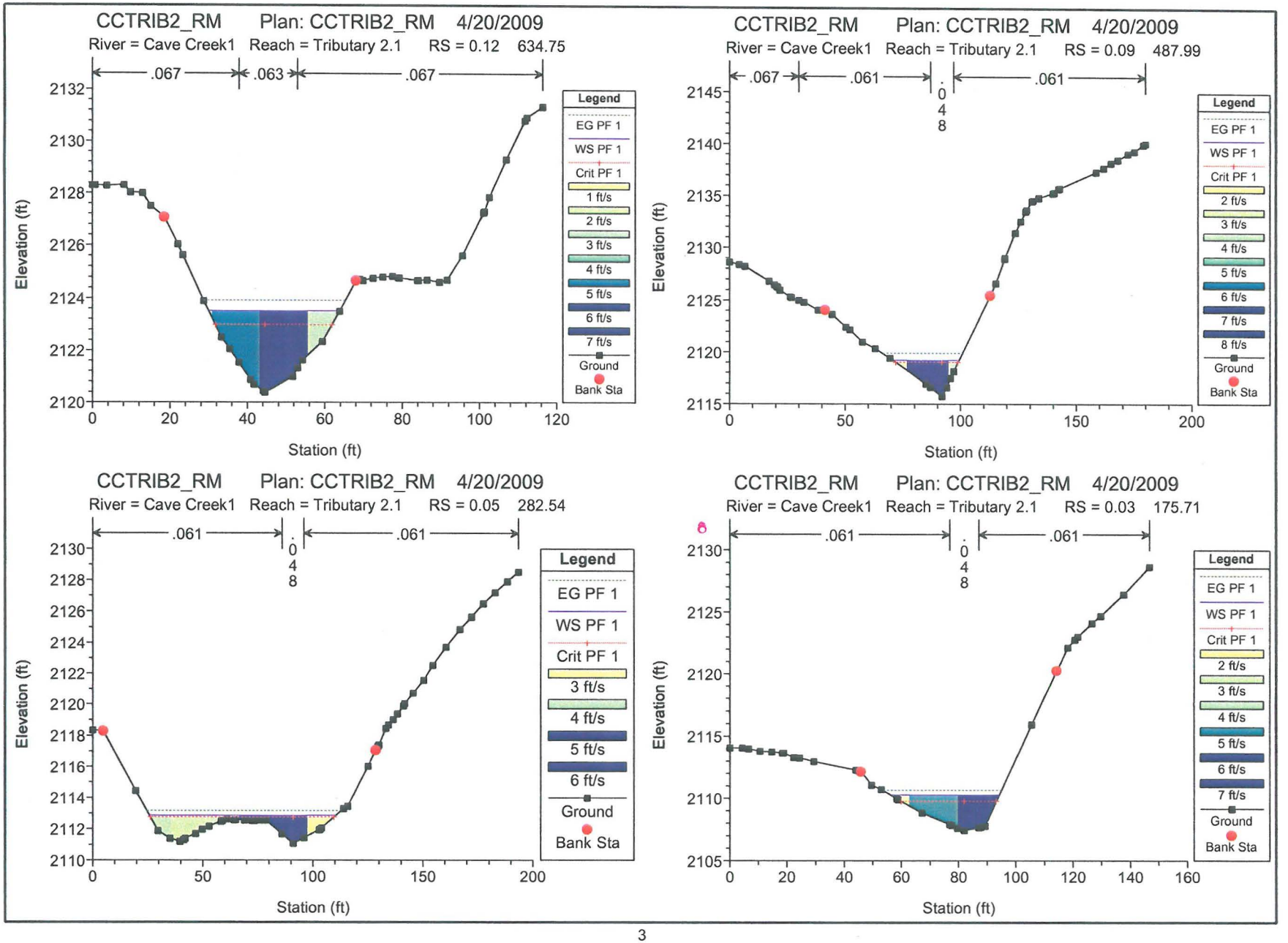
SHEET 5 OF 5
OCTOBER 22, 2008

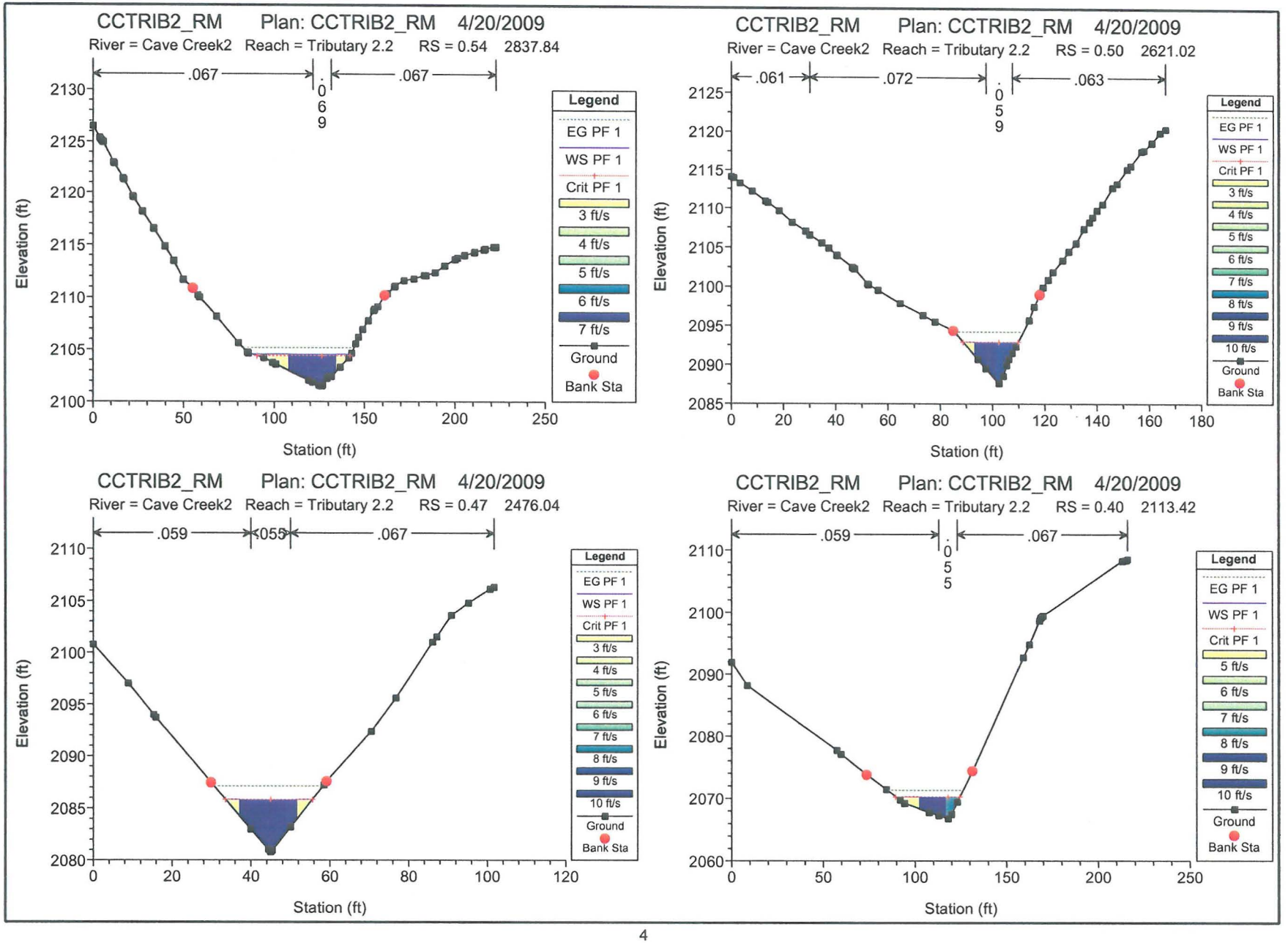
# APPENDIX G CD OF ELECTRONIC DATA FILES

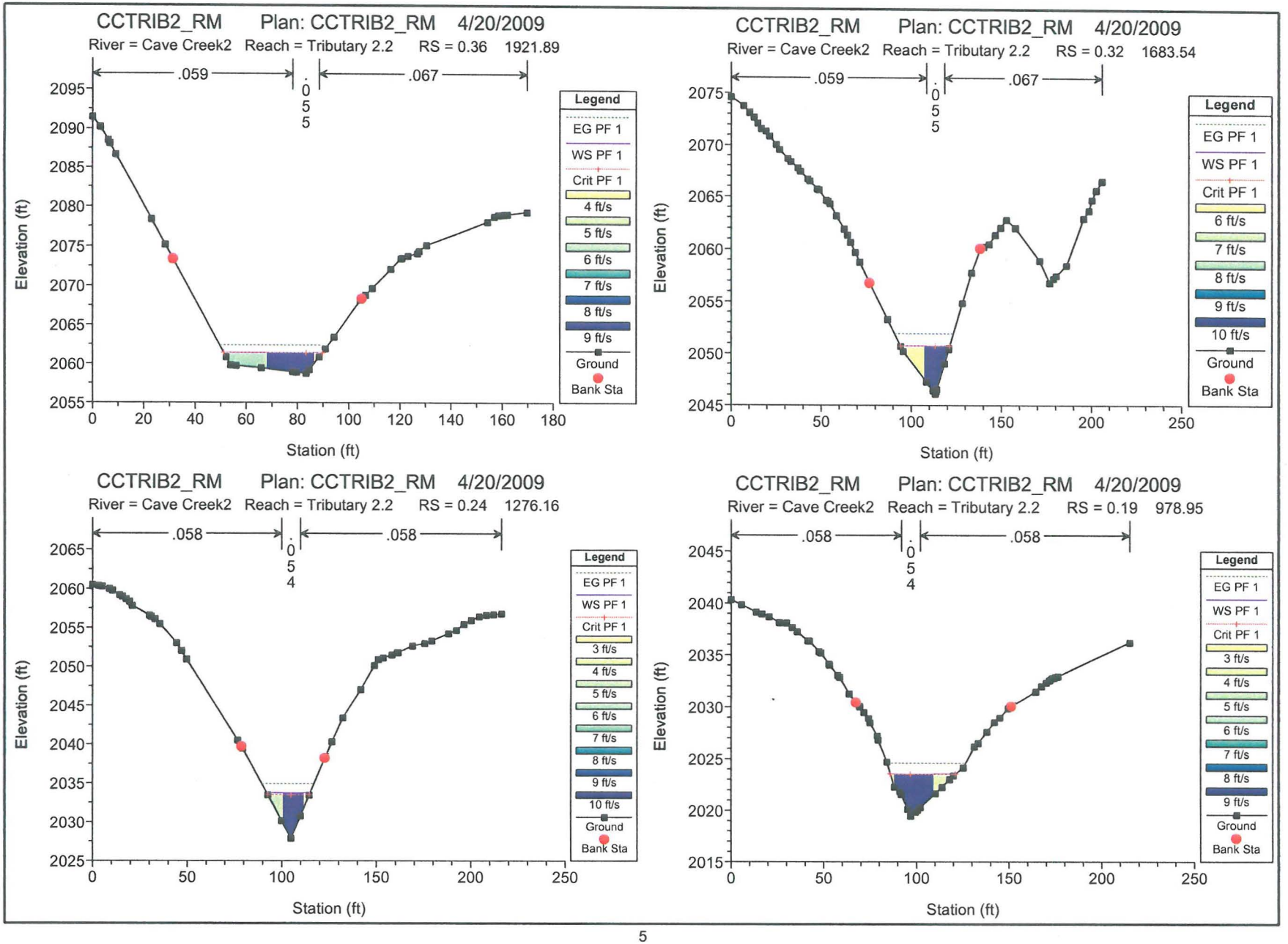
# E.2 CROSS SECTION PLOTS

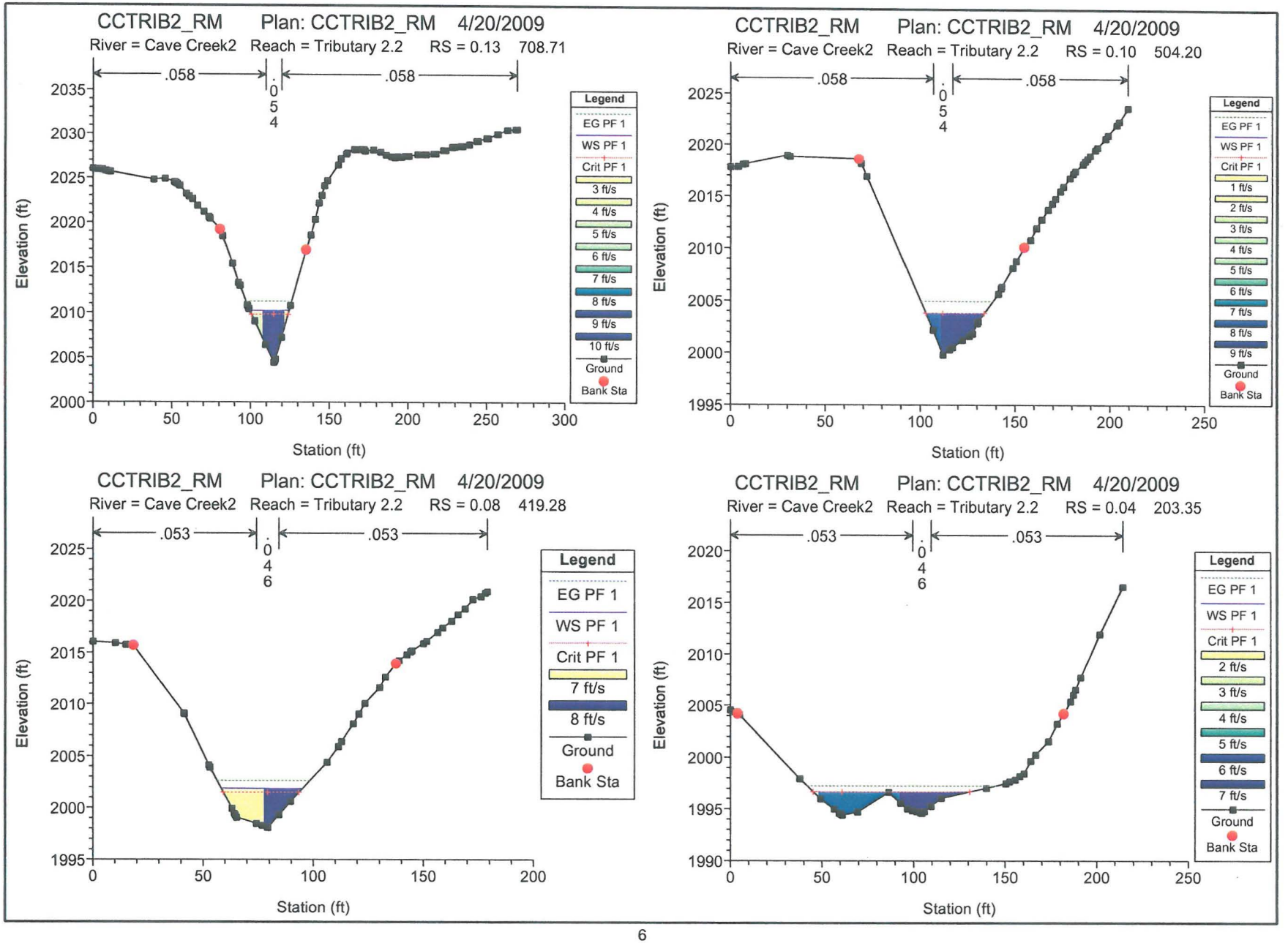

CCTRIB2_RM Plan: CCTRIB2_RM 4/20/2009
River = Cave Creek1 Reach = Tributary 2.1 RS = 0.31 1626.03 LIMIT OF STUDY
.061
.046
.061
Legend
EG PF 1
WS PF 1
Crit PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
Ground
Bank Sta
Elevation (ft)
Station (ft)
CCTRIB2_RM Plan: CCTRIB2_RM 4/20/2009
River = Cave Creek1 Reach = Tributary 2.1 RS = 0.28 1496.21
.061
.051
.061
.061
Legend
EG PF 1
WS PF 1
Crit PF 1
0 ft/s
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
Ground
Bank Sta
Elevation (ft)
Station (ft)
CCTRIB2_RM Plan: CCTRIB2_RM 4/20/2009
River = Cave Creek1 Reach = Tributary 2.1 RS = 0.26 1366.63
.061
.051
.061
Legend
EG PF 1
WS PF 1
Crit PF 1
5 ft/s
6 ft/s
Ground
Bank Sta
Elevation (ft)
Station (ft)
CCTRIB2_RM Plan: CCTRIB2_RM 4/20/2009
River = Cave Creek1 Reach = Tributary 2.1 RS = 0.25 1308.76
.061
.051
.061
Legend
EG PF 1
WS PF 1
Crit PF 1
4 ft/s
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta
Elevation (ft)
Station (ft)

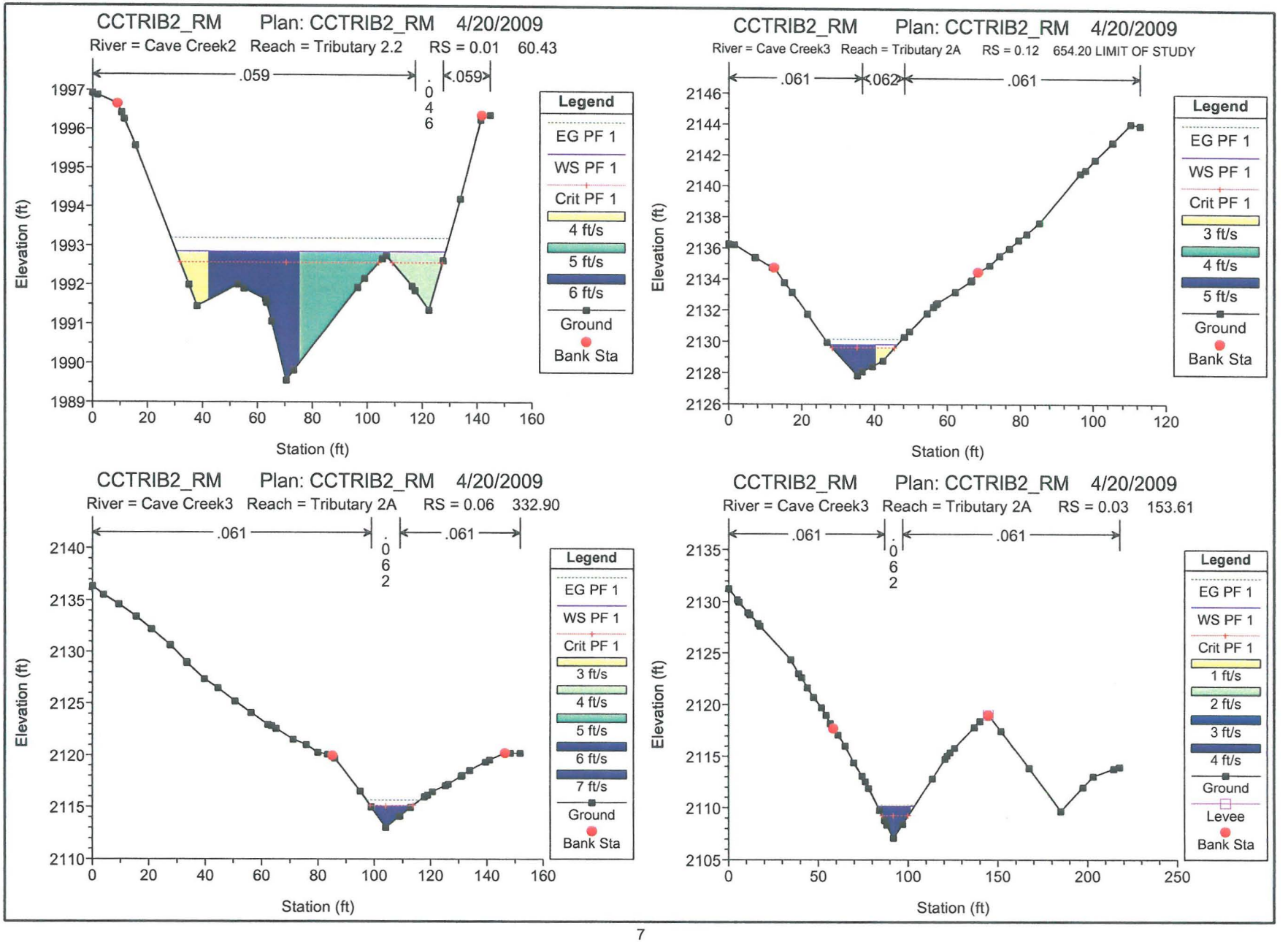

CCTRIB2_RM Plan: CCTRIB2_RM 4/20/2009
River = Cave Creek1 Reach = Tributary 2.1 RS = 0.23 1189.75
.061
.049
.061
.051
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
Ground
Bank Sta
CCTRIB2_RM Plan: CCTRIB2_RM 4/20/2009
River = Cave Creek1 Reach = Tributary 2.1 RS = 0.21 1105.27
.061
.049
.061
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
0 ft/s
1 ft/s
2 ft/s
3 ft/s
Ground
Bank Sta
CCTRIB2_RM Plan: CCTRIB2_RM 4/20/2009
River = Cave Creek1 Reach = Tributary 2.1 RS = 0.19 1014.04
.061
.061
.066
.061
.061
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
Ground
Bank Sta
CCTRIB2_RM Plan: CCTRIB2_RM 4/20/2009
River = Cave Creek1 Reach = Tributary 2.1 RS = 0.16 860.51
.061
.066
.061
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta

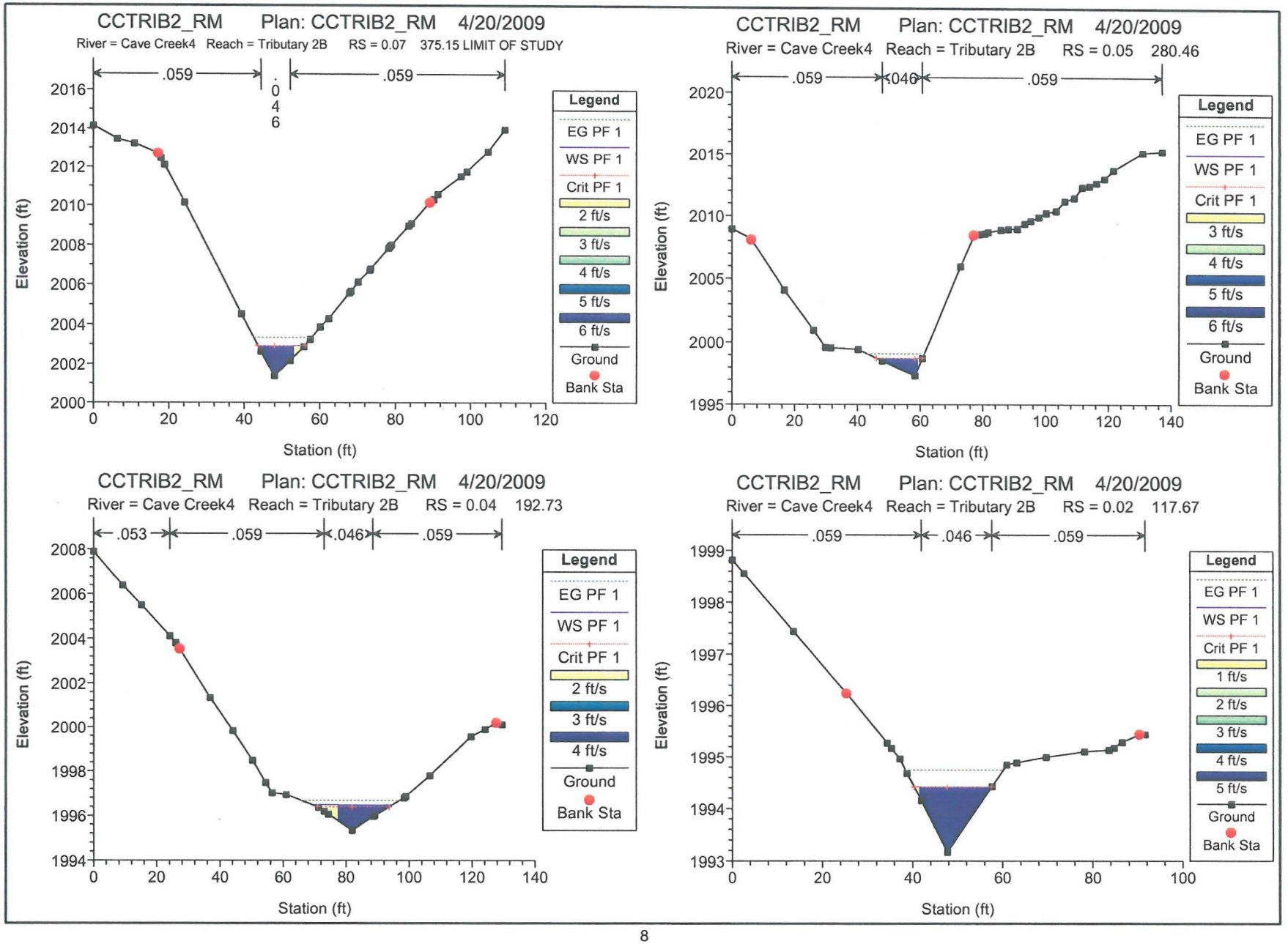

CCTRIB2_RM Plan: CCTRIB2_RM 4/20/2009
River = Cave Creek1 Reach = Tributary 2.1 RS = 0.12 634.75
.067
.063
.067
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta
CCTRIB2_RM Plan: CCTRIB2_RM 4/20/2009
River = Cave Creek1 Reach = Tributary 2.1 RS = 0.09 487.99
.067
.061
.048
.061
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
CCTRIB2_RM Plan: CCTRIB2_RM 4/20/2009
River = Cave Creek1 Reach = Tributary 2.1 RS = 0.05 282.54
.061
.048
.061
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
Ground
Bank Sta
CCTRIB2_RM Plan: CCTRIB2_RM 4/20/2009
River = Cave Creek1 Reach = Tributary 2.1 RS = 0.03 175.71
.061
.048
.061
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta

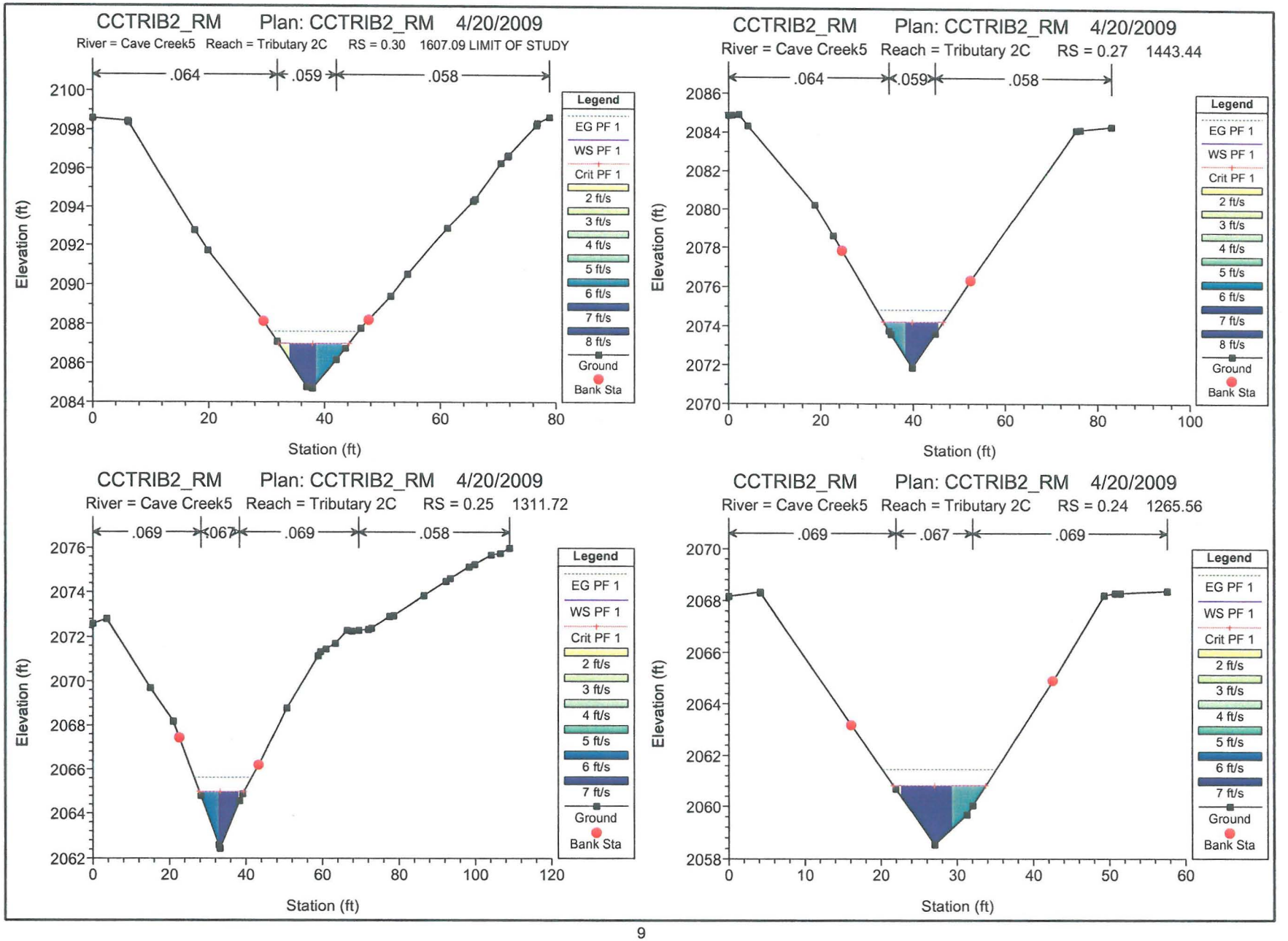

CCTRIB2_RM Plan: CCTRIB2_RM 4/20/2009
River = Cave Creek2 Reach = Tributary 2.2 RS = 0.54 2837.84
.067
.069
.067
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta
CCTRIB2_RM Plan: CCTRIB2_RM 4/20/2009
River = Cave Creek2 Reach = Tributary 2.2 RS = 0.50 2621.02
.061
.072
.059
.063
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
10 ft/s
Ground
Bank Sta
CCTRIB2_RM Plan: CCTRIB2_RM 4/20/2009
River = Cave Creek2 Reach = Tributary 2.2 RS = 0.47 2476.04
.059
.055
.067
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
10 ft/s
Ground
Bank Sta
CCTRIB2_RM Plan: CCTRIB2_RM 4/20/2009
River = Cave Creek2 Reach = Tributary 2.2 RS = 0.40 2113.42
.059
.055
.067
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
10 ft/s
Ground
Bank Sta

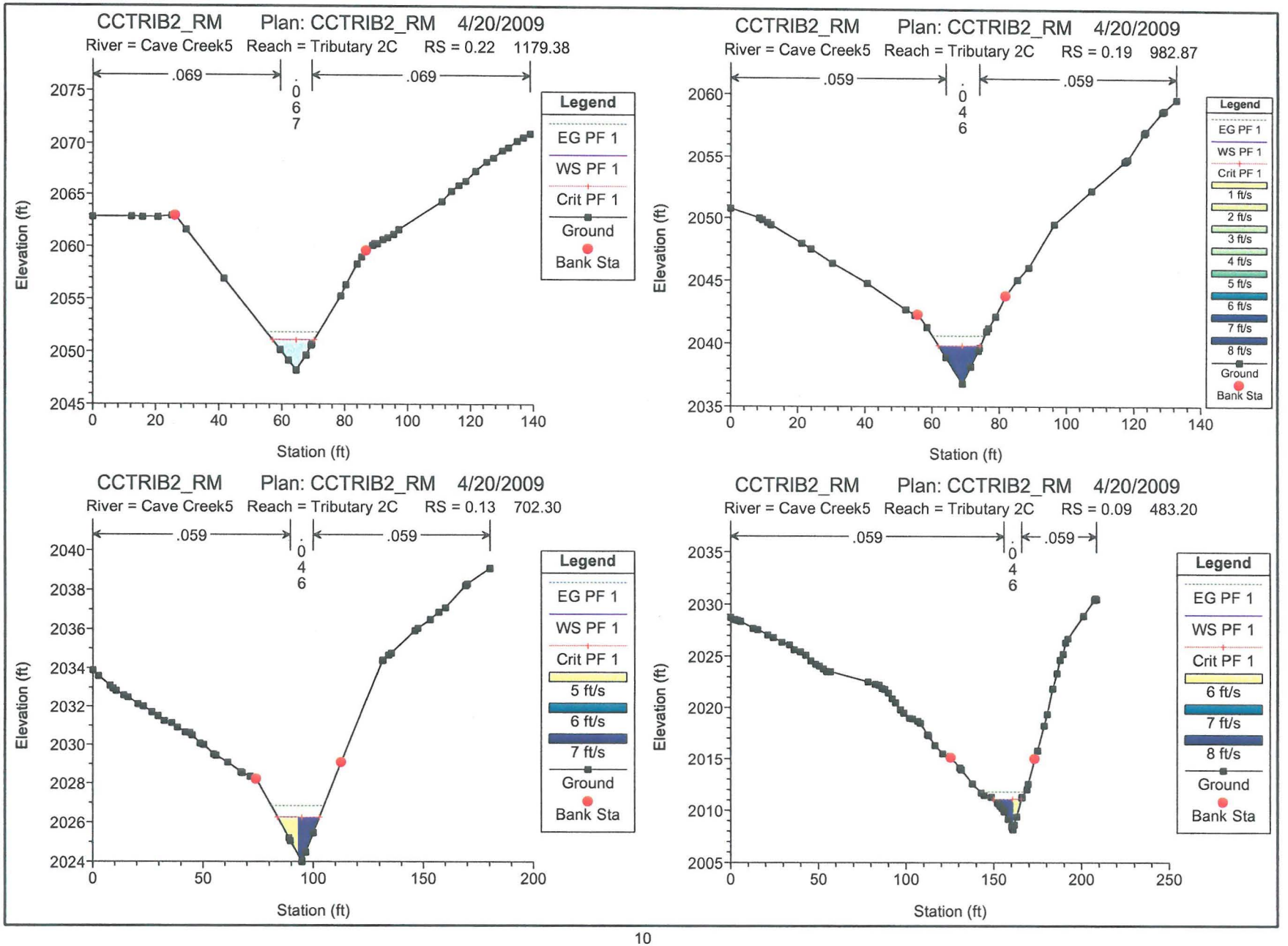

CCTRIB2_RM Plan: CCTRIB2_RM 4/20/2009
River = Cave Creek2 Reach = Tributary 2.2 RS = 0.36 1921.89
.059
.055
.067
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
Ground
Bank Sta
CCTRIB2_RM Plan: CCTRIB2_RM 4/20/2009
River = Cave Creek2 Reach = Tributary 2.2 RS = 0.32 1683.54
.059
.055
.067
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
6 ft/s
7 ft/s
8 ft/s
9 ft/s
10 ft/s
Ground
Bank Sta
CCTRIB2_RM Plan: CCTRIB2_RM 4/20/2009
River = Cave Creek2 Reach = Tributary 2.2 RS = 0.24 1276.16
.058
.054
.058
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
10 ft/s
Ground
Bank Sta
CCTRIB2_RM Plan: CCTRIB2_RM 4/20/2009
River = Cave Creek2 Reach = Tributary 2.2 RS = 0.19 978.95
.058
.054
.058
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
Ground
Bank Sta

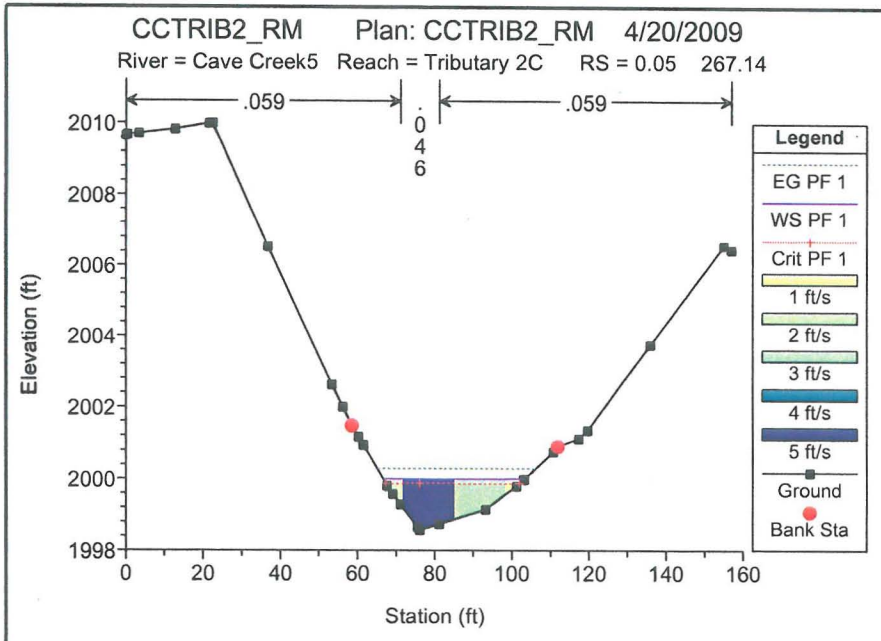

CCTRIB2_RM Plan: CCTRIB2_RM 4/20/2009
River = Cave Creek2 Reach = Tributary 2.2 RS = 0.13 708.71
.058
.054
.058
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
10 ft/s
Ground
Bank Sta
CCTRIB2_RM Plan: CCTRIB2_RM 4/20/2009
River = Cave Creek2 Reach = Tributary 2.2 RS = 0.10 504.20
.058
.054
.058
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
Ground
Bank Sta
CCTRIB2_RM Plan: CCTRIB2_RM 4/20/2009
River = Cave Creek2 Reach = Tributary 2.2 RS = 0.08 419.28
.053
.046
.053
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
7 ft/s
8 ft/s
Ground
Bank Sta
CCTRIB2_RM Plan: CCTRIB2_RM 4/20/2009
River = Cave Creek2 Reach = Tributary 2.2 RS = 0.04 203.35
.053
.046
.053
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta

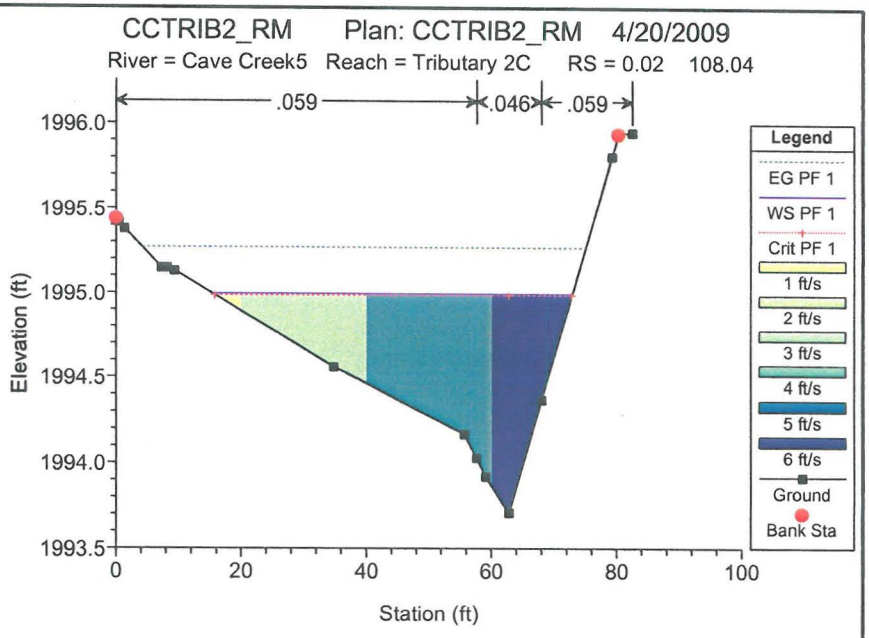

CCTRIB2_RM Plan: CCTRIB2_RM 4/20/2009
River = Cave Creek2 Reach = Tributary 2.2 RS = 0.01 60.43
.059
.046
.059
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
4 ft/s
5 ft/s
6 ft/s
Ground
Bank Sta
CCTRIB2_RM Plan: CCTRIB2_RM 4/20/2009
River = Cave Creek3 Reach = Tributary 2A RS = 0.12 654.20 LIMIT OF STUDY
.061
.062
.061
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
3 ft/s
4 ft/s
5 ft/s
Ground
Bank Sta
CCTRIB2_RM Plan: CCTRIB2_RM 4/20/2009
River = Cave Creek3 Reach = Tributary 2A RS = 0.06 332.90
.061
.062
.061
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta
CCTRIB2_RM Plan: CCTRIB2_RM 4/20/2009
River = Cave Creek3 Reach = Tributary 2A RS = 0.03 153.61
.061
.062
.061
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
Ground
Levee
Bank Sta

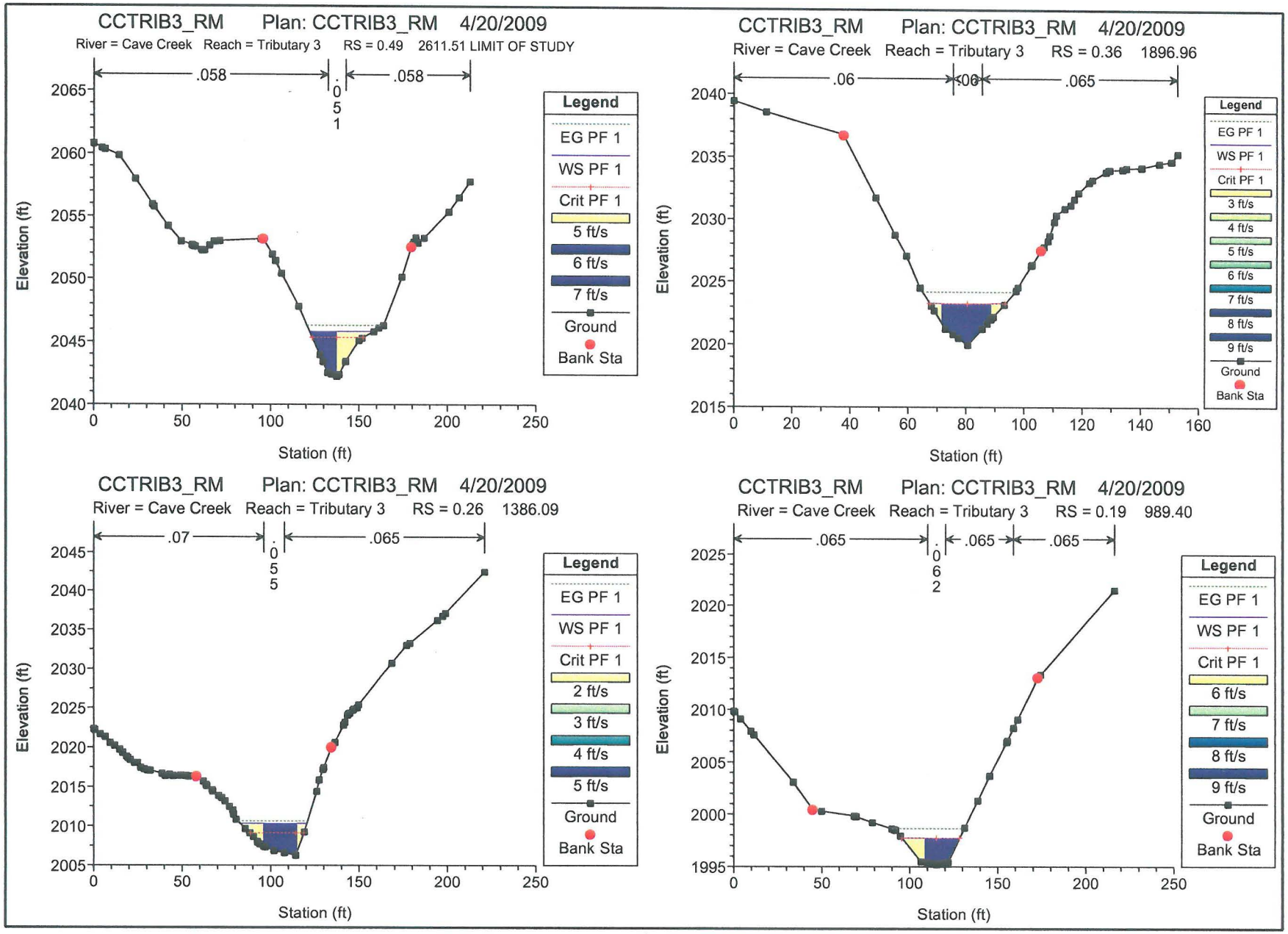

CCTRIB2_RM Plan: CCTRIB2_RM 4/20/2009
River = Cave Creek4 Reach = Tributary 2B RS = 0.07 375.15 LIMIT OF STUDY
.059
.046
.059
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
Ground
Bank Sta
CCTRIB2_RM Plan: CCTRIB2_RM 4/20/2009
River = Cave Creek4 Reach = Tributary 2B RS = 0.05 280.46
.059
.046
.059
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
Ground
Bank Sta
CCTRIB2_RM Plan: CCTRIB2_RM 4/20/2009
River = Cave Creek4 Reach = Tributary 2B RS = 0.04 192.73
.053
.059
.046
.059
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
2 ft/s
3 ft/s
4 ft/s
Ground
Bank Sta
CCTRIB2_RM Plan: CCTRIB2_RM 4/20/2009
River = Cave Creek4 Reach = Tributary 2B RS = 0.02 117.67
.059
.046
.059
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
Ground
Bank Sta

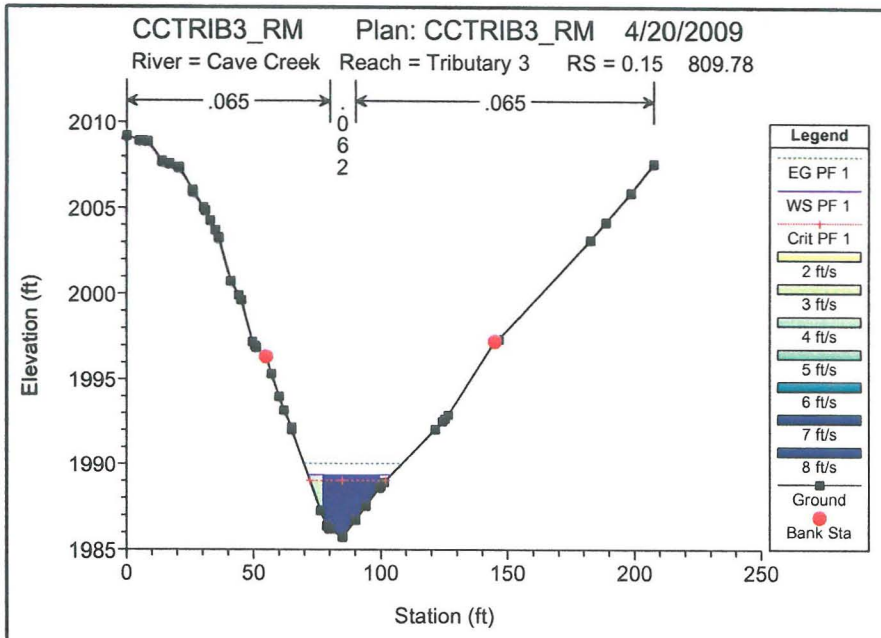

CCTRIB2_RM Plan: CCTRIB2_RM 4/20/2009
River = Cave Creek5 Reach = Tributary 2C RS = 0.30 1607.09 LIMIT OF STUDY
.064
.059
.058
Elevation (ft)
Station (ft)
CCTRIB2_RM Plan: CCTRIB2_RM 4/20/2009
River = Cave Creek5 Reach = Tributary 2C RS = 0.27 1443.44
.064
.059
.058
Elevation (ft)
Station (ft)
CCTRIB2_RM Plan: CCTRIB2_RM 4/20/2009
River = Cave Creek5 Reach = Tributary 2C RS = 0.25 1311.72
.069
.067
.069
.058
Elevation (ft)
Station (ft)
CCTRIB2_RM Plan: CCTRIB2_RM 4/20/2009
River = Cave Creek5 Reach = Tributary 2C RS = 0.24 1265.56
.069
.067
.069
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta

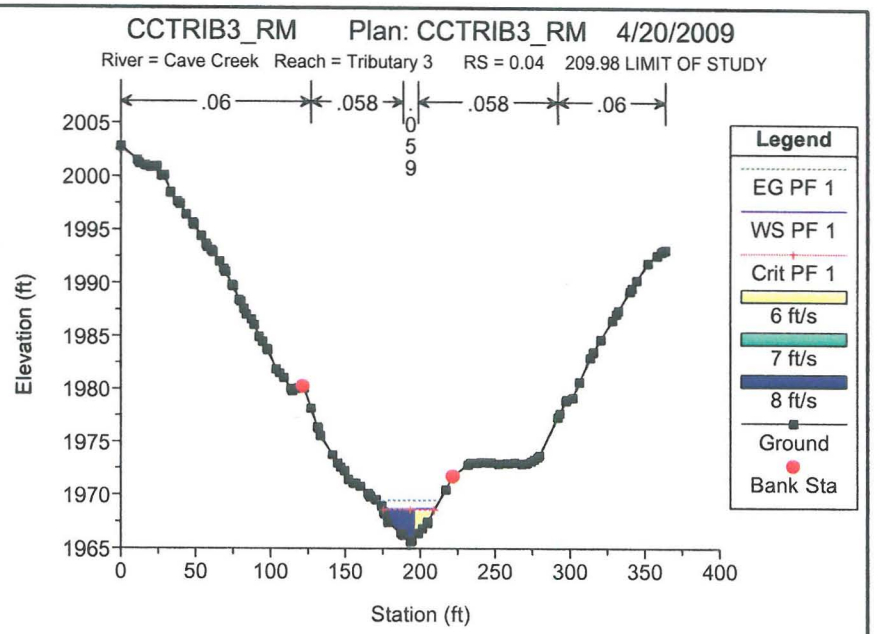

CCTRIB2_RM Plan: CCTRIB2_RM 4/20/2009
River = Cave Creek5 Reach = Tributary 2C RS = 0.22 1179.38
.069
.069
.067
Legend
EG PF 1
WS PF 1
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
CCTRIB2_RM Plan: CCTRIB2_RM 4/20/2009
River = Cave Creek5 Reach = Tributary 2C RS = 0.19 982.87
.059
.059
.046
Legend
EG PF 1
WS PF 1
Crit PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Elevation (ft)
Station (ft)
CCTRIB2_RM Plan: CCTRIB2_RM 4/20/2009
River = Cave Creek5 Reach = Tributary 2C RS = 0.13 702.30
.059
.059
.046
Legend
EG PF 1
WS PF 1
Crit PF 1
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta
Elevation (ft)
Station (ft)
CCTRIB2_RM Plan: CCTRIB2_RM 4/20/2009
River = Cave Creek5 Reach = Tributary 2C RS = 0.09 483.20
.059
.059
.046
Legend
EG PF 1
WS PF 1
Crit PF 1
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Elevation (ft)
Station (ft)

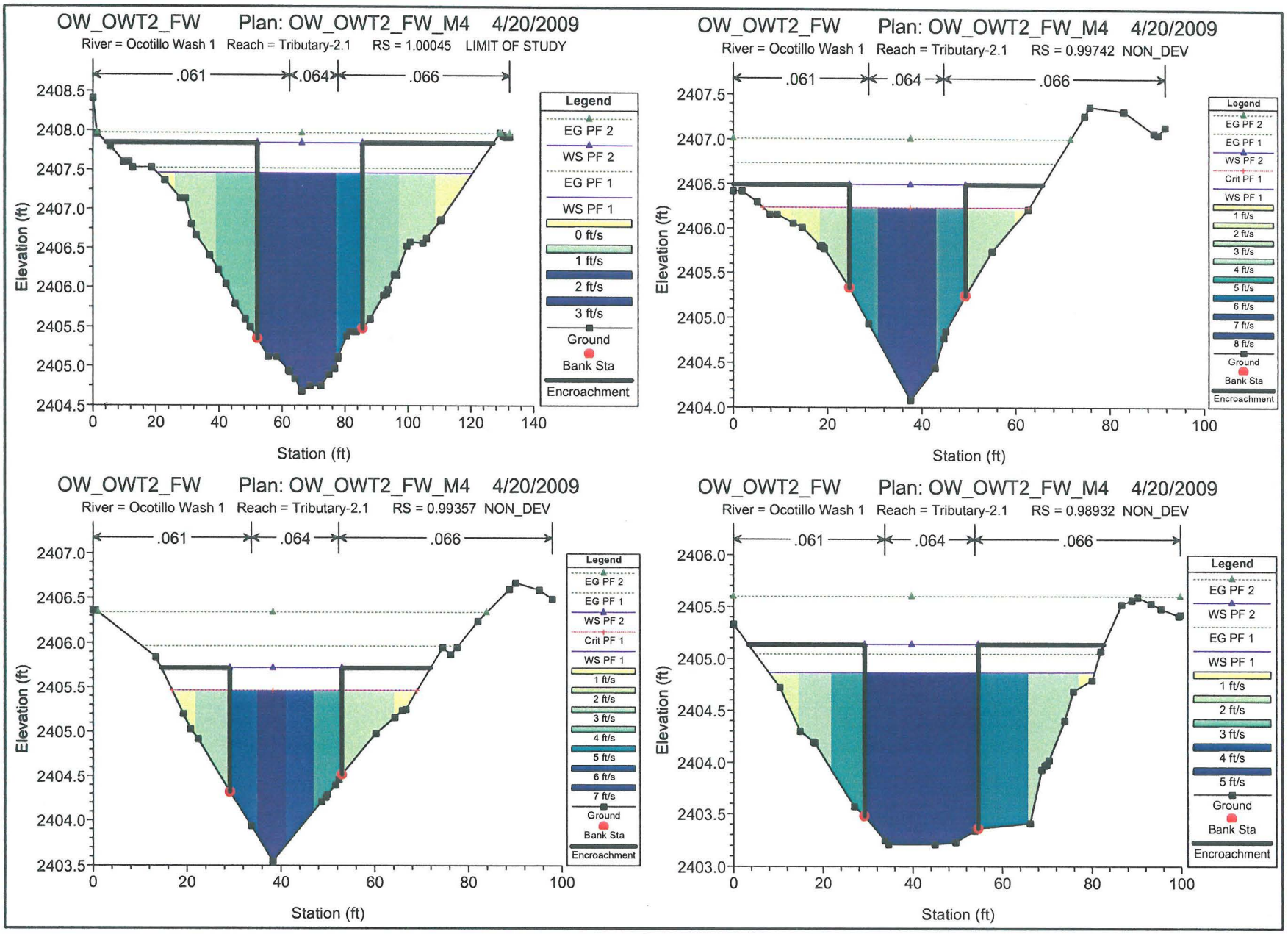

CCTRIB2_RM Plan: CCTRIB2_RM 4/20/2009
River = Cave Creek5 Reach = Tributary 2C RS = 0.05 267.14
.059
.046
.059
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
Ground
Bank Sta

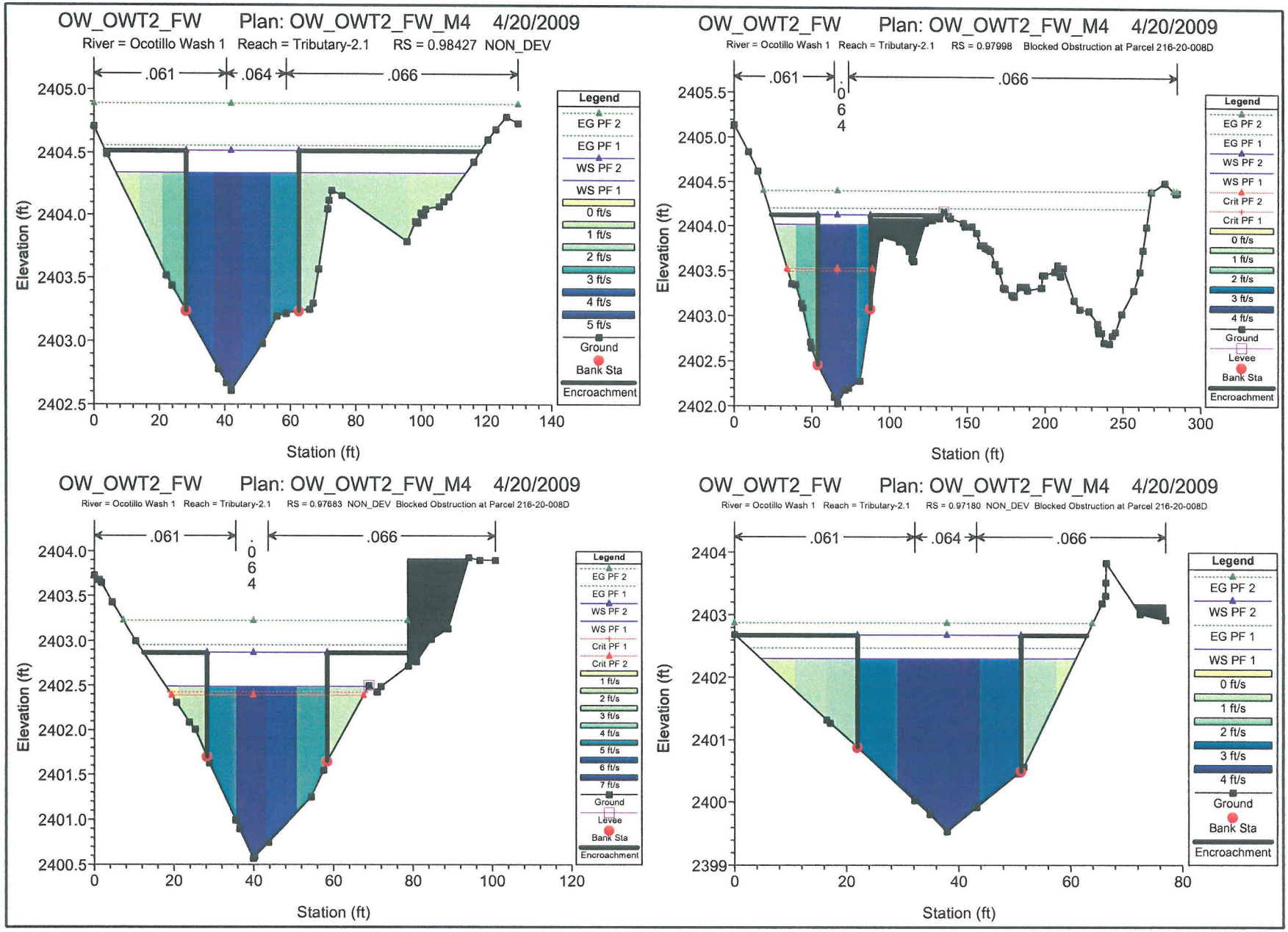

CCTRIB2_RM Plan: CCTRIB2_RM 4/20/2009
River = Cave Creek5 Reach = Tributary 2C RS = 0.02 108.04
.059
.046
.059
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
Ground
Bank Sta

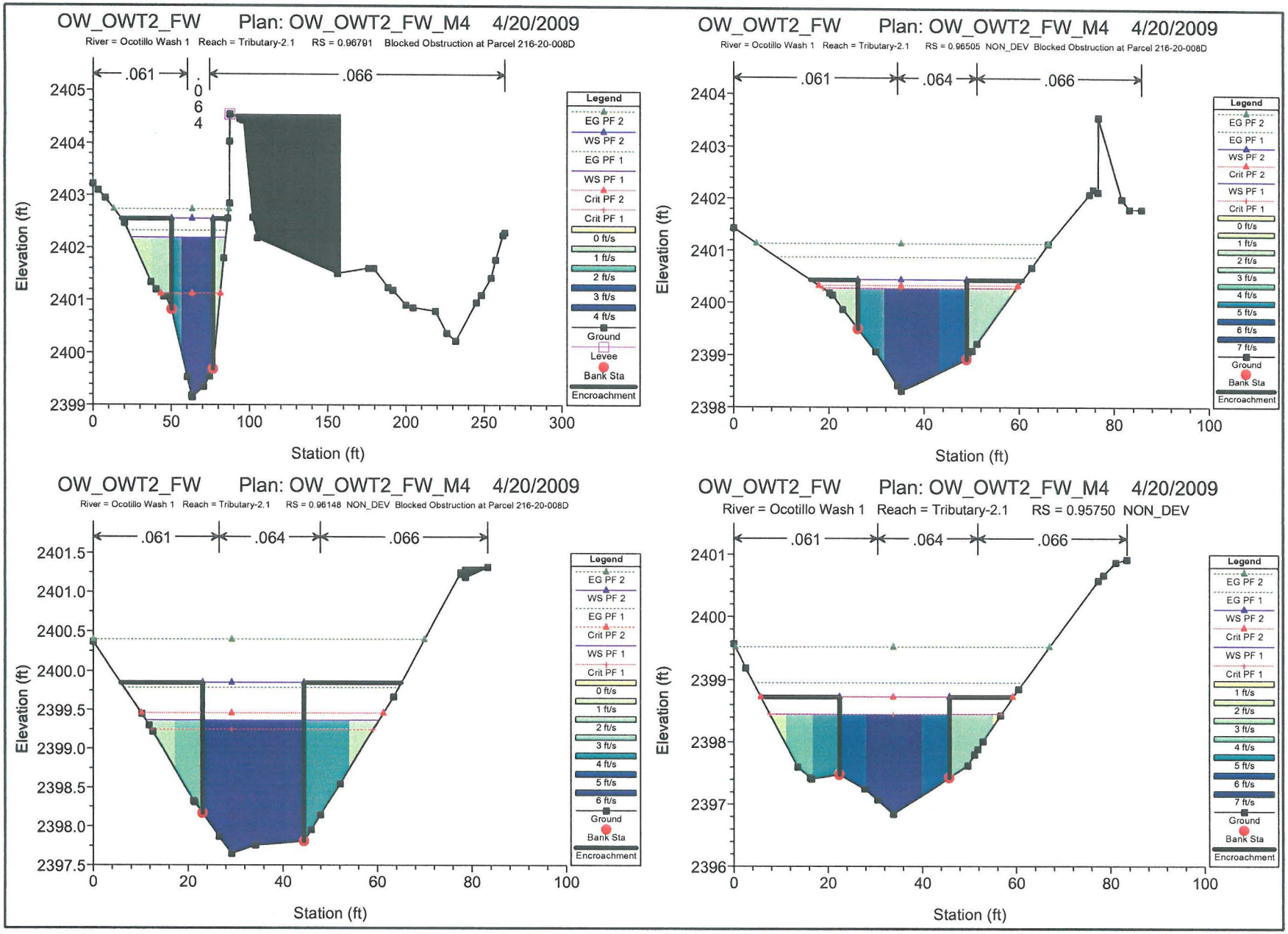

CCTRIB3_RM Plan: CCTRIB3_RM 4/20/2009
River = Cave Creek Reach = Tributary 3 RS = 0.49 2611.51 LIMIT OF STUDY
.058
.051
.058
Legend
EG PF 1
WS PF 1
Crit PF 1
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta
Elevation (ft)
Station (ft)
CCTRIB3_RM Plan: CCTRIB3_RM 4/20/2009
River = Cave Creek Reach = Tributary 3 RS = 0.36 1896.96
.06
.06
.065
Legend
EG PF 1
WS PF 1
Crit PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
Ground
Bank Sta
Elevation (ft)
Station (ft)
CCTRIB3_RM Plan: CCTRIB3_RM 4/20/2009
River = Cave Creek Reach = Tributary 3 RS = 0.26 1386.09
.07
.055
.065
Legend
EG PF 1
WS PF 1
Crit PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
Ground
Bank Sta
Elevation (ft)
Station (ft)
CCTRIB3_RM Plan: CCTRIB3_RM 4/20/2009
River = Cave Creek Reach = Tributary 3 RS = 0.19 989.40
.065
.062
.065
.065
Legend
EG PF 1
WS PF 1
Crit PF 1
6 ft/s
7 ft/s
8 ft/s
9 ft/s
Ground
Bank Sta
Elevation (ft)
Station (ft)

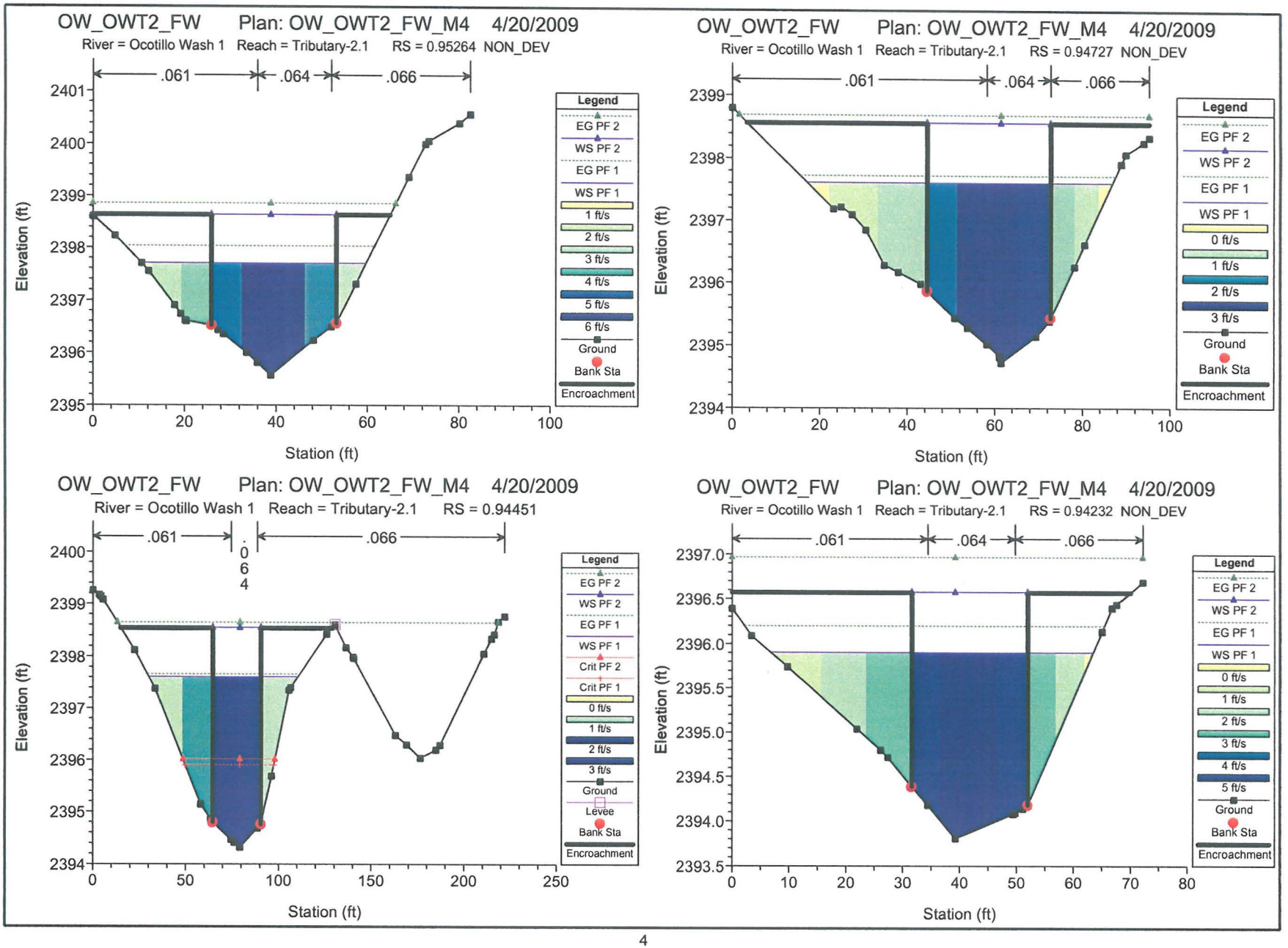

CCTRIB3_RM Plan: CCTRIB3_RM 4/20/2009
River = Cave Creek Reach = Tributary 3 RS = 0.15 809.78
.065
.062
.065
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta

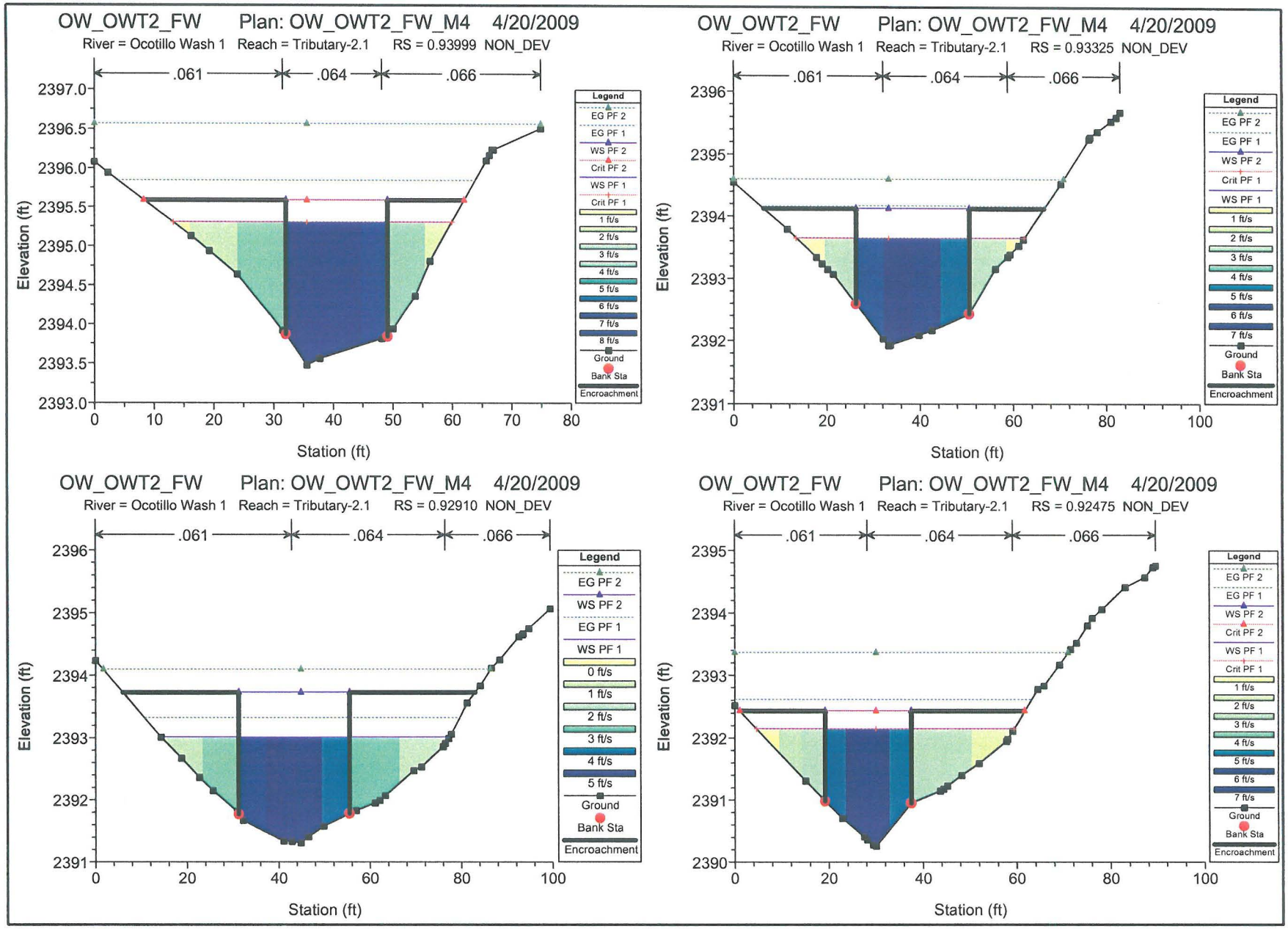

CCTRIB3_RM Plan: CCTRIB3_RM 4/20/2009
River = Cave Creek Reach = Tributary 3 RS = 0.04 209.98 LIMIT OF STUDY
.06
.058
.059
.058
.06
Elevation (ft)
Station (ft)
Legend
EG PF 1
WS PF 1
Crit PF 1
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta

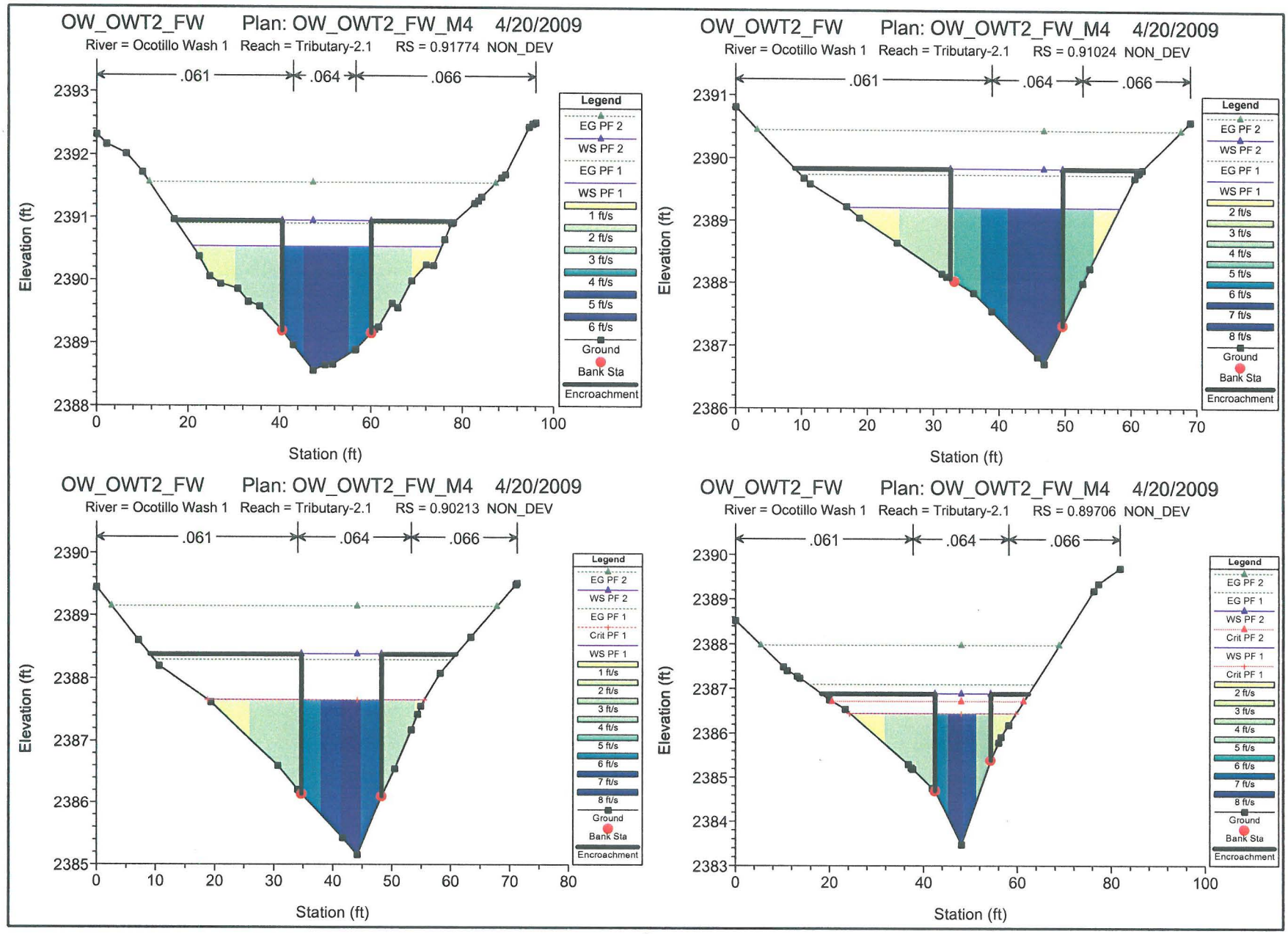

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 1.00045 LIMIT OF STUDY
.061
.064
.066
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
0 ft/s
1 ft/s
2 ft/s
3 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.99742 NON_DEV
.061
.064
.066
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 1
WS PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.99357 NON_DEV
.061
.064
.066
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 1
WS PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.98932 NON_DEV
.061
.064
.066
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
Ground
Bank Sta
Encroachment

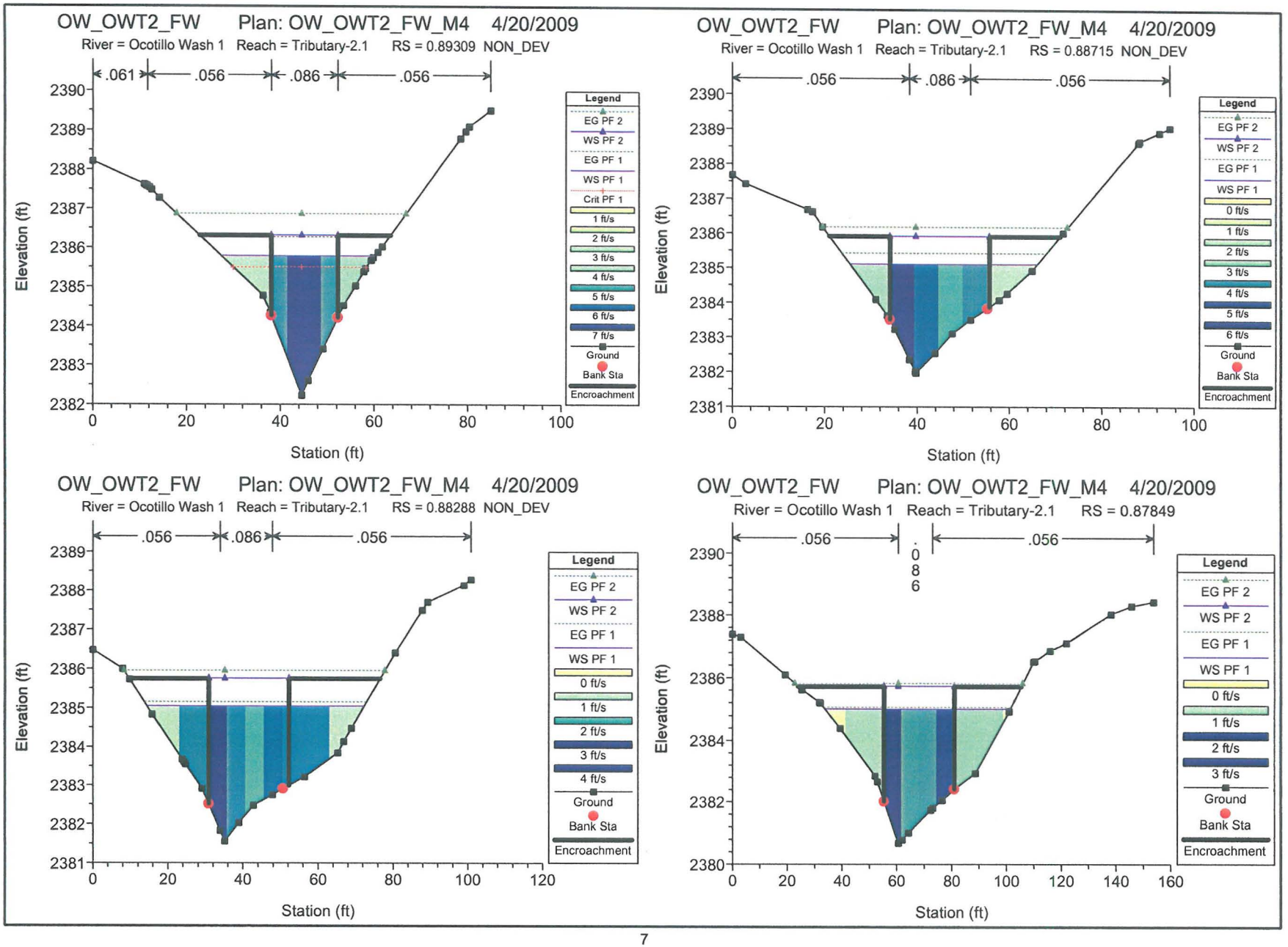

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.98427 NON_DEV
.061
.064
.066
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
0 ft/s
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.97998 Blocked Obstruction at Parcel 216-20-008D
.061
.064
.066
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
Crit PF 2
Crit PF 1
0 ft/s
1 ft/s
2 ft/s
3 ft/s
4 ft/s
Ground
Levee
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.97683 NON_DEV Blocked Obstruction at Parcel 216-20-008D
.061
.064
.066
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
Ground
Levee
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.97180 NON_DEV Blocked Obstruction at Parcel 216-20-008D
.061
.064
.066
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
0 ft/s
1 ft/s
2 ft/s
3 ft/s
4 ft/s
Ground
Bank Sta
Encroachment

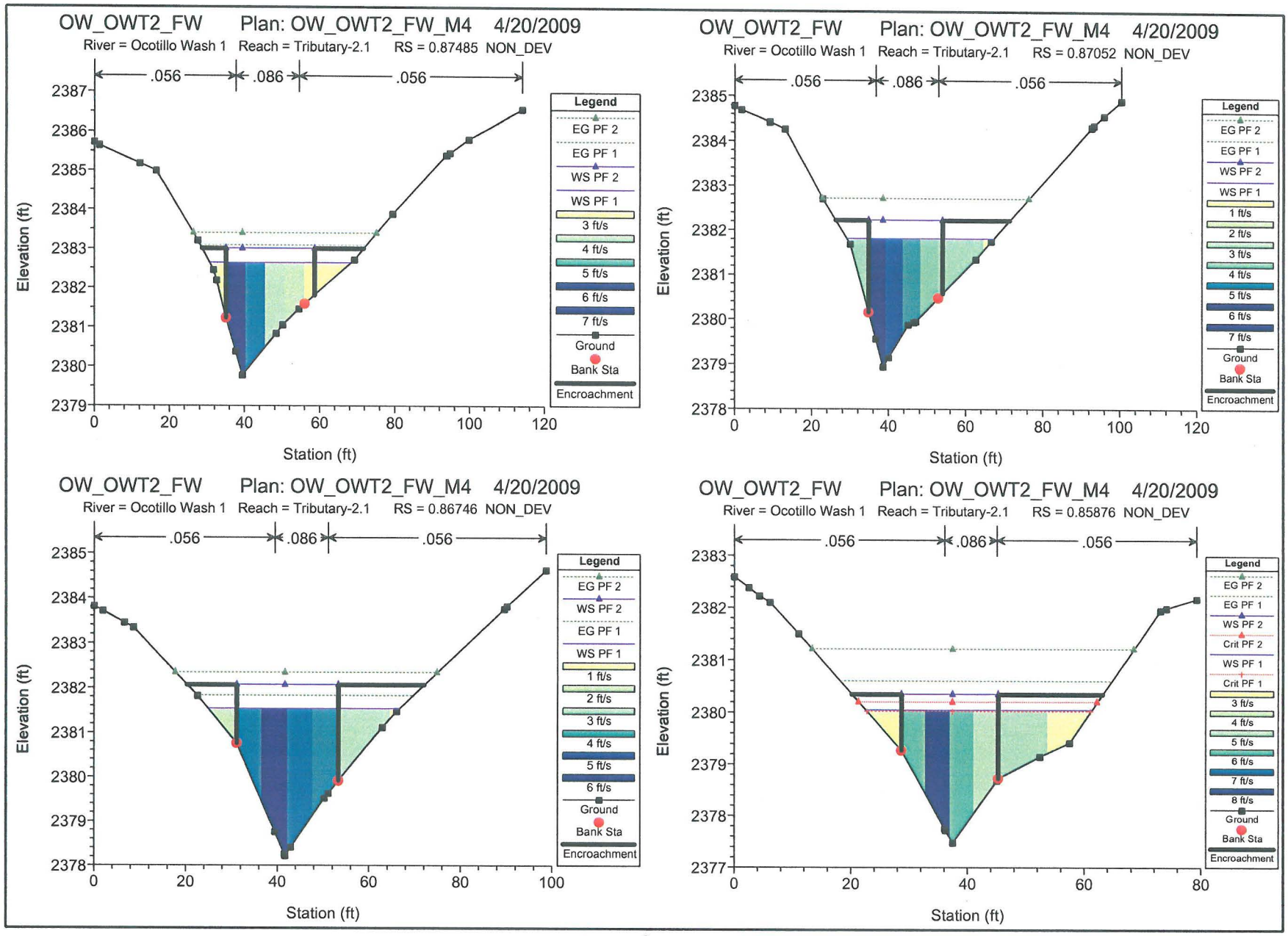

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.96791 Blocked Obstruction at Parcel 216-20-008D
.061
.064
.066
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Crit PF 2
Crit PF 1
0 ft/s
1 ft/s
2 ft/s
3 ft/s
4 ft/s
Ground
Levee
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.96505 NON_DEV Blocked Obstruction at Parcel 216-20-008D
.061
.064
.066
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 2
WS PF 1
Crit PF 1
0 ft/s
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.96148 NON_DEV Blocked Obstruction at Parcel 216-20-008D
.061
.064
.066
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
Crit PF 2
WS PF 1
Crit PF 1
0 ft/s
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.95750 NON_DEV
.061
.064
.066
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 2
WS PF 1
Crit PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta
Encroachment

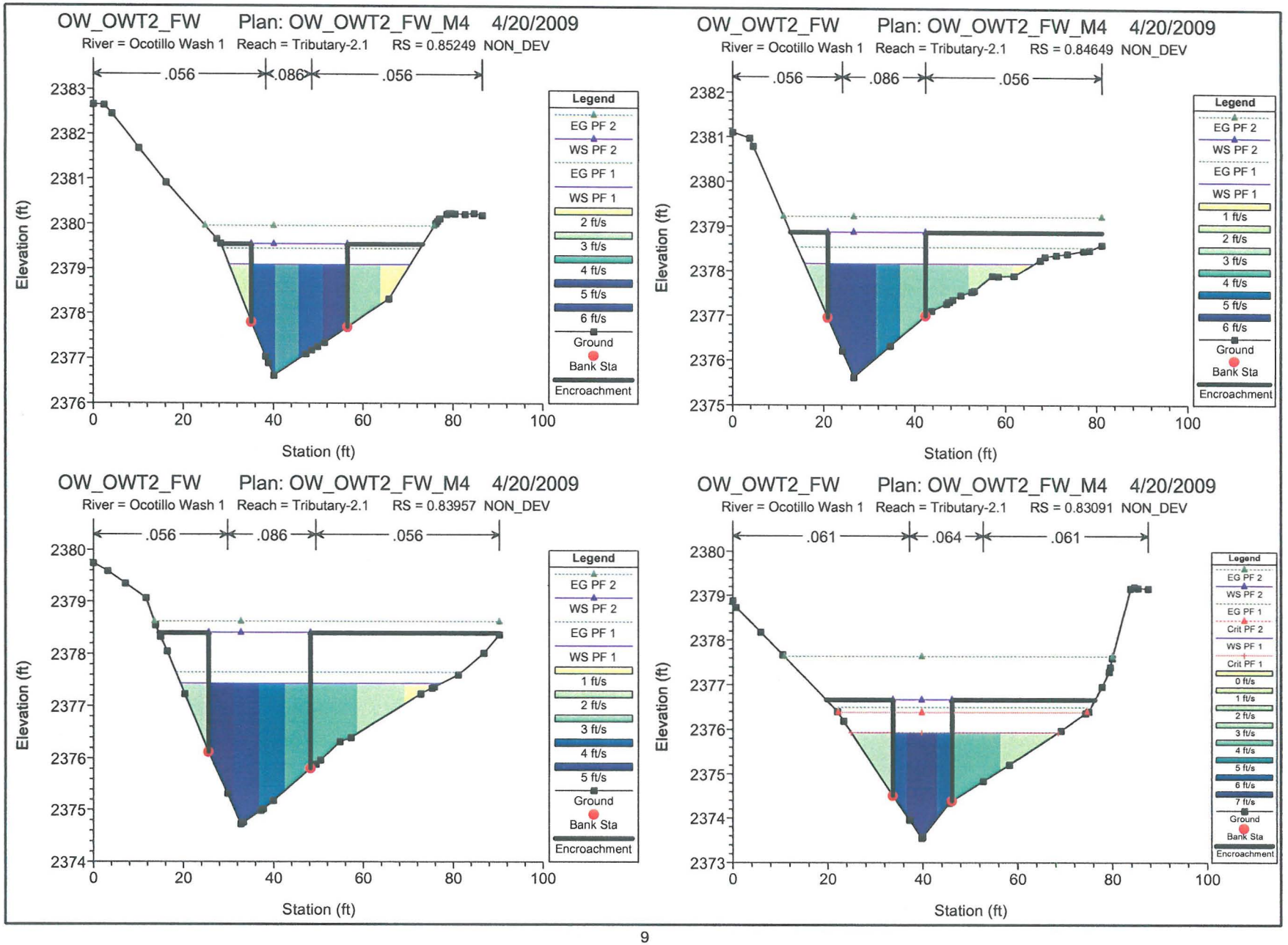

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.95264 NON_DEV
.061
.064
.066
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.94727 NON_DEV
.061
.064
.066
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
0 ft/s
1 ft/s
2 ft/s
3 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.94451
.061
.064
.066
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Crit PF 2
Crit PF 1
0 ft/s
1 ft/s
2 ft/s
3 ft/s
Ground
Levee
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.94232 NON_DEV
.061
.064
.066
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
0 ft/s
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
Ground
Bank Sta
Encroachment

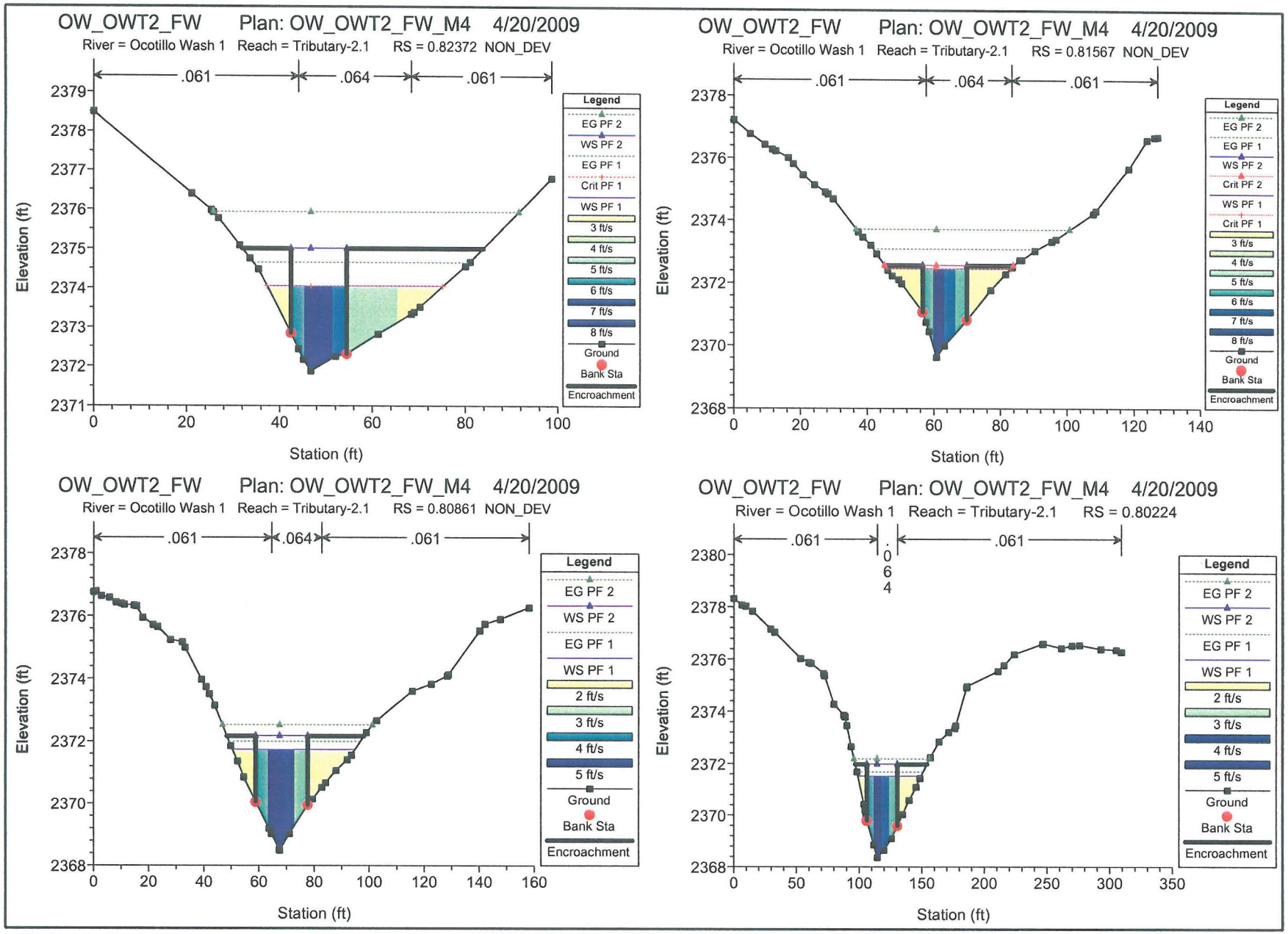

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.93999 NON_DEV
.061
.064
.066
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 2
WS PF 1
Crit PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.93325 NON_DEV
.061
.064
.066
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 1
WS PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.92910 NON_DEV
.061
.064
.066
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
0 ft/s
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.92475 NON_DEV
.061
.064
.066
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 2
WS PF 1
Crit PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta
Encroachment

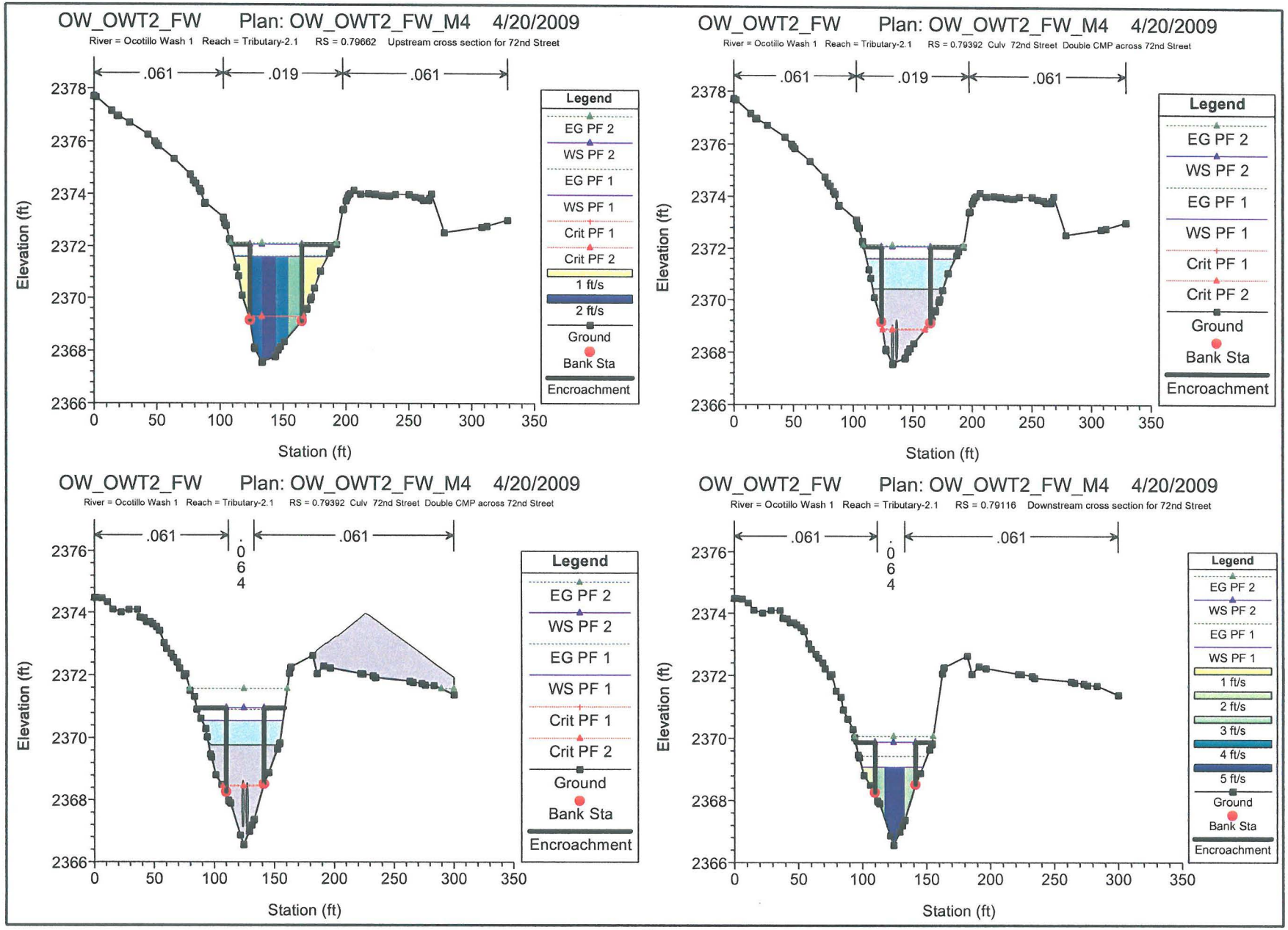

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.91774 NON_DEV
.061
.064
.066
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.91024 NON_DEV
.061
.064
.066
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.90213 NON_DEV
.061
.064
.066
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
Crit PF 1
WS PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.89706 NON_DEV
.061
.064
.066
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 2
WS PF 1
Crit PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Encroachment

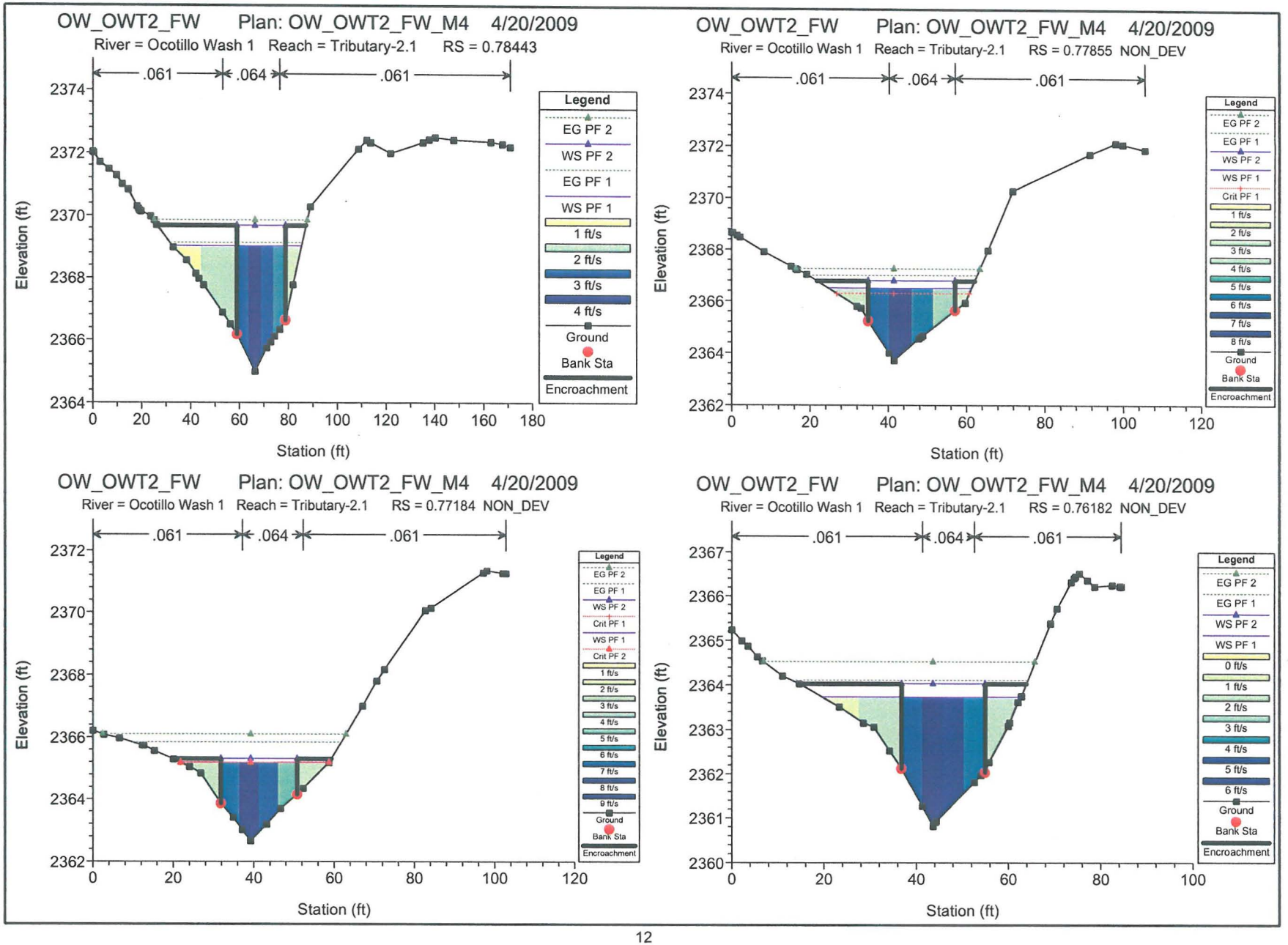

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.89309 NON_DEV
.061 .056 .086 .056
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Crit PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.88715 NON_DEV
.056 .086 .056
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
0 ft/s
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.88288 NON_DEV
.056 .086 .056
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
0 ft/s
1 ft/s
2 ft/s
3 ft/s
4 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.87849
.056 .086 .056
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
0 ft/s
1 ft/s
2 ft/s
3 ft/s
Ground
Bank Sta
Encroachment

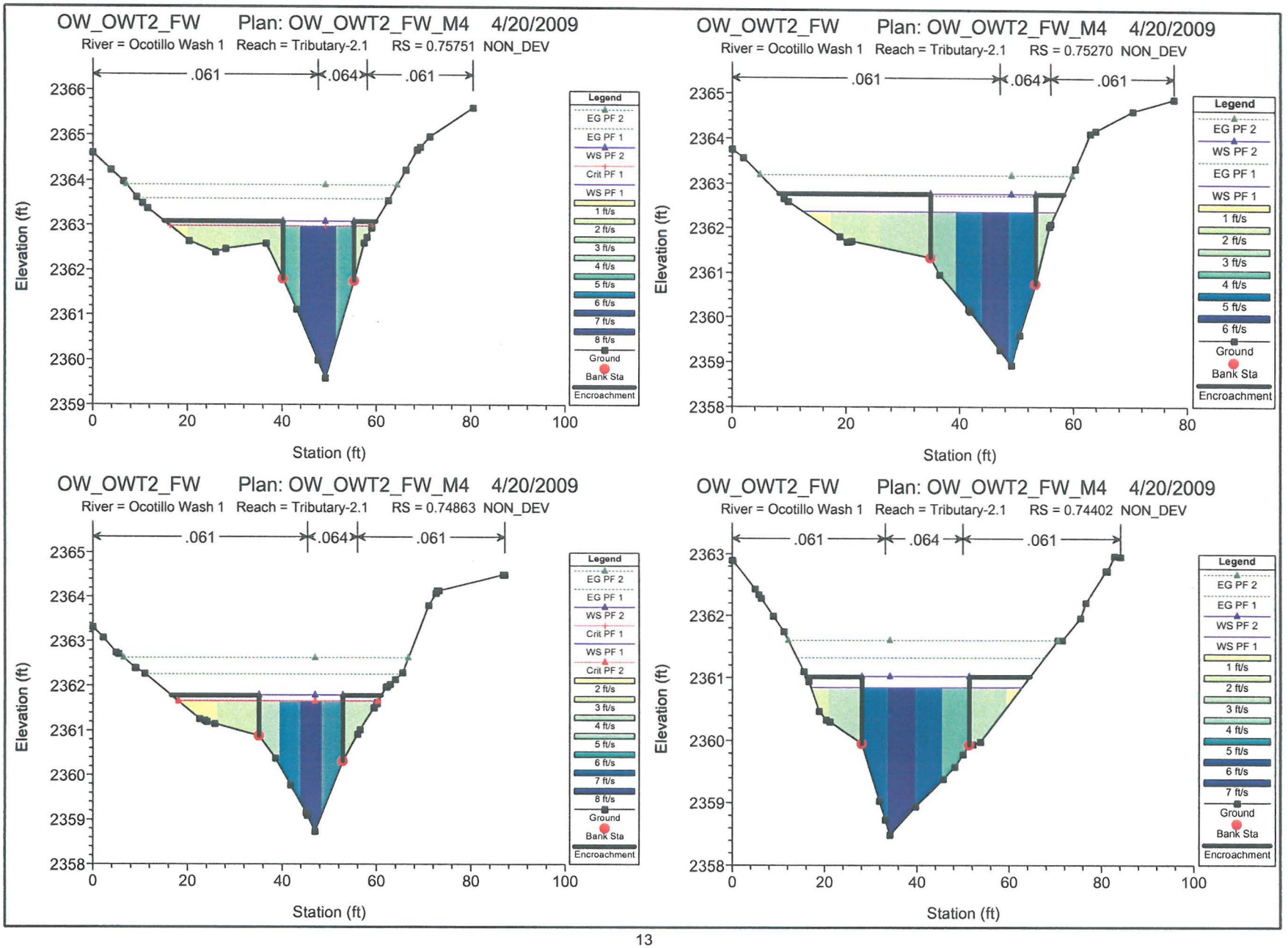

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.87485 NON_DEV
.056 .086 .056
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.87052 NON_DEV
.056 .086 .056
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.86746 NON_DEV
.056 .086 .056
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.85876 NON_DEV
.056 .086 .056
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 2
WS PF 1
Crit PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Encroachment

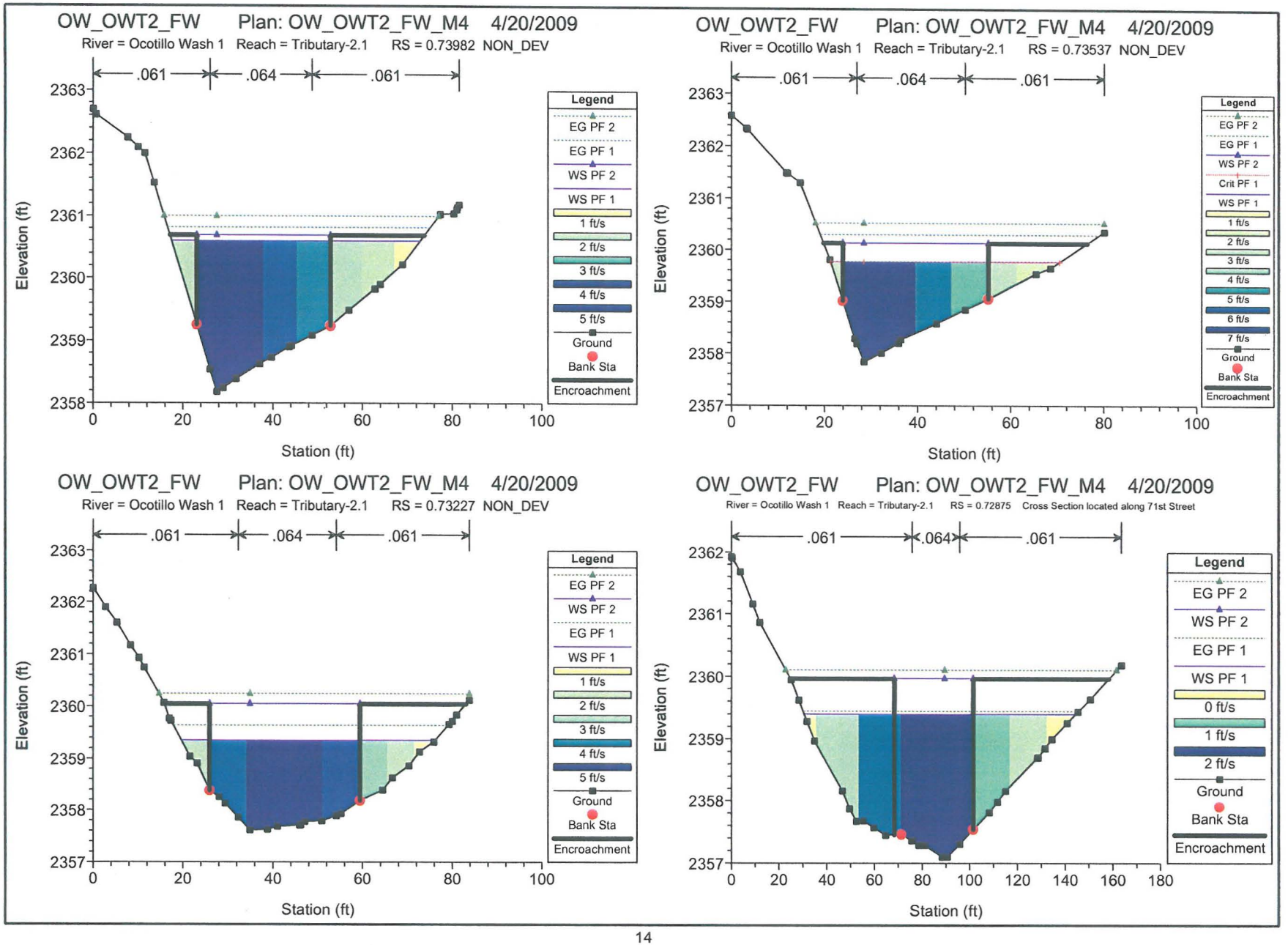

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.85249 NON_DEV
.056 .086 .056
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.84649 NON_DEV
.056 .086 .056
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.83957 NON_DEV
.056 .086 .056
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.83091 NON_DEV
.061 .064 .061
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
Crit PF 2
WS PF 1
Crit PF 1
0 ft/s
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta
Encroachment

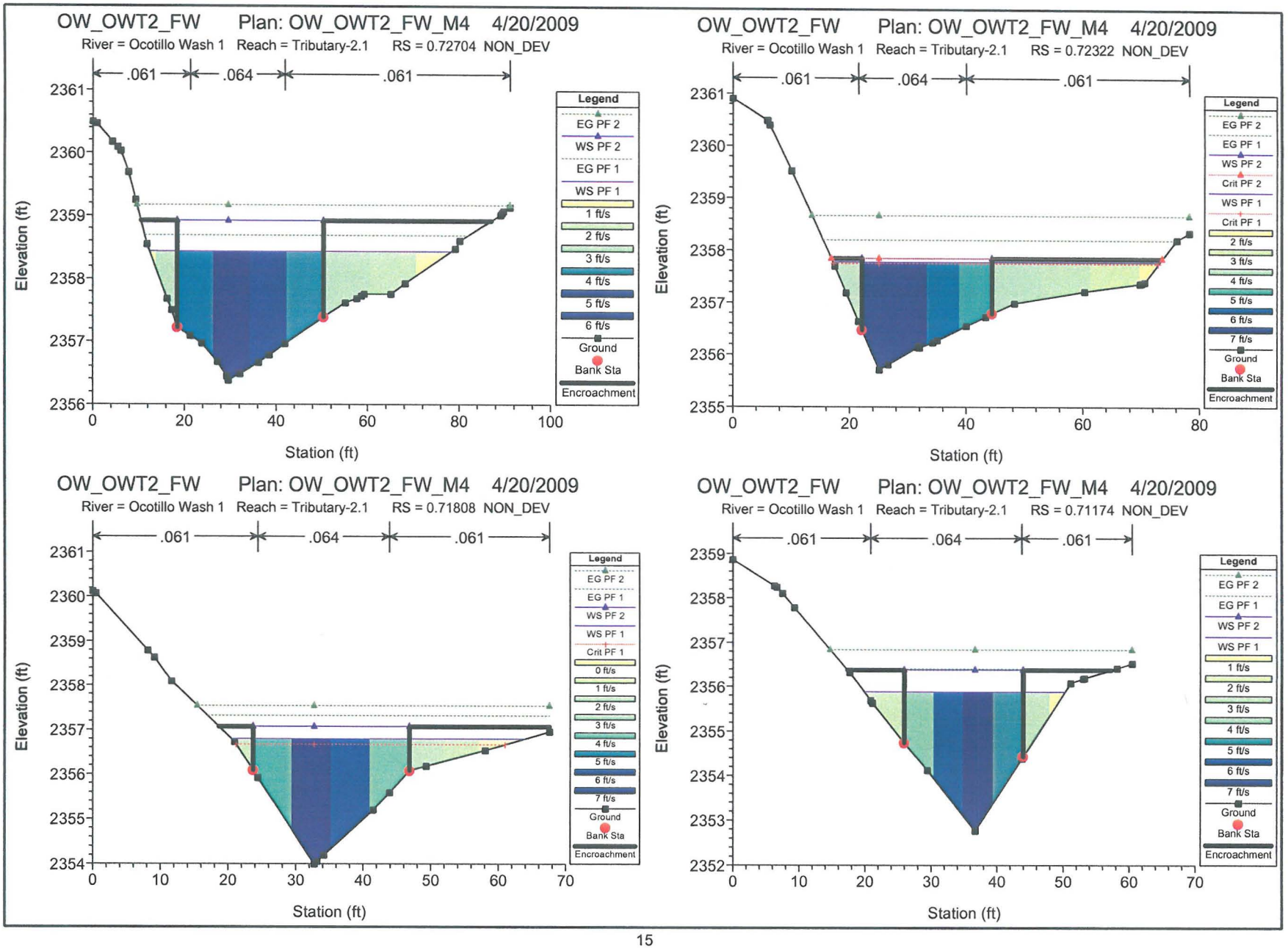

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.82372 NON_DEV
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
Crit PF 1
WS PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.81567 NON_DEV
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 2
WS PF 1
Crit PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.80861 NON_DEV
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.80224
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
Ground
Bank Sta
Encroachment

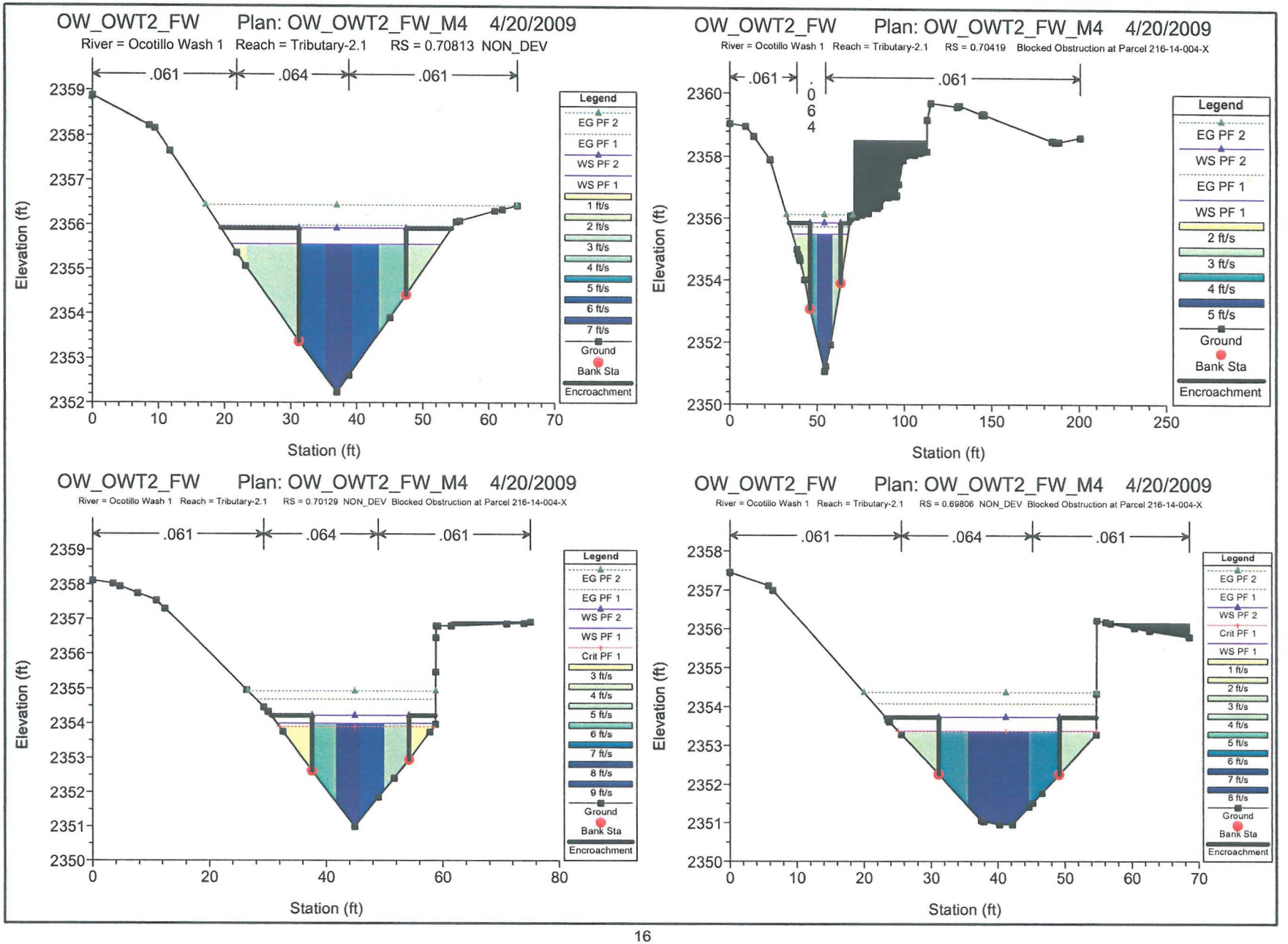

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.79662 Upstream cross section for 72nd Street
.061
.019
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Crit PF 1
Crit PF 2
1 ft/s
2 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.79392 Culv 72nd Street Double CMP across 72nd Street
.061
.019
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Crit PF 1
Crit PF 2
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.79392 Culv 72nd Street Double CMP across 72nd Street
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Crit PF 1
Crit PF 2
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.79116 Downstream cross section for 72nd Street
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
Ground
Bank Sta
Encroachment

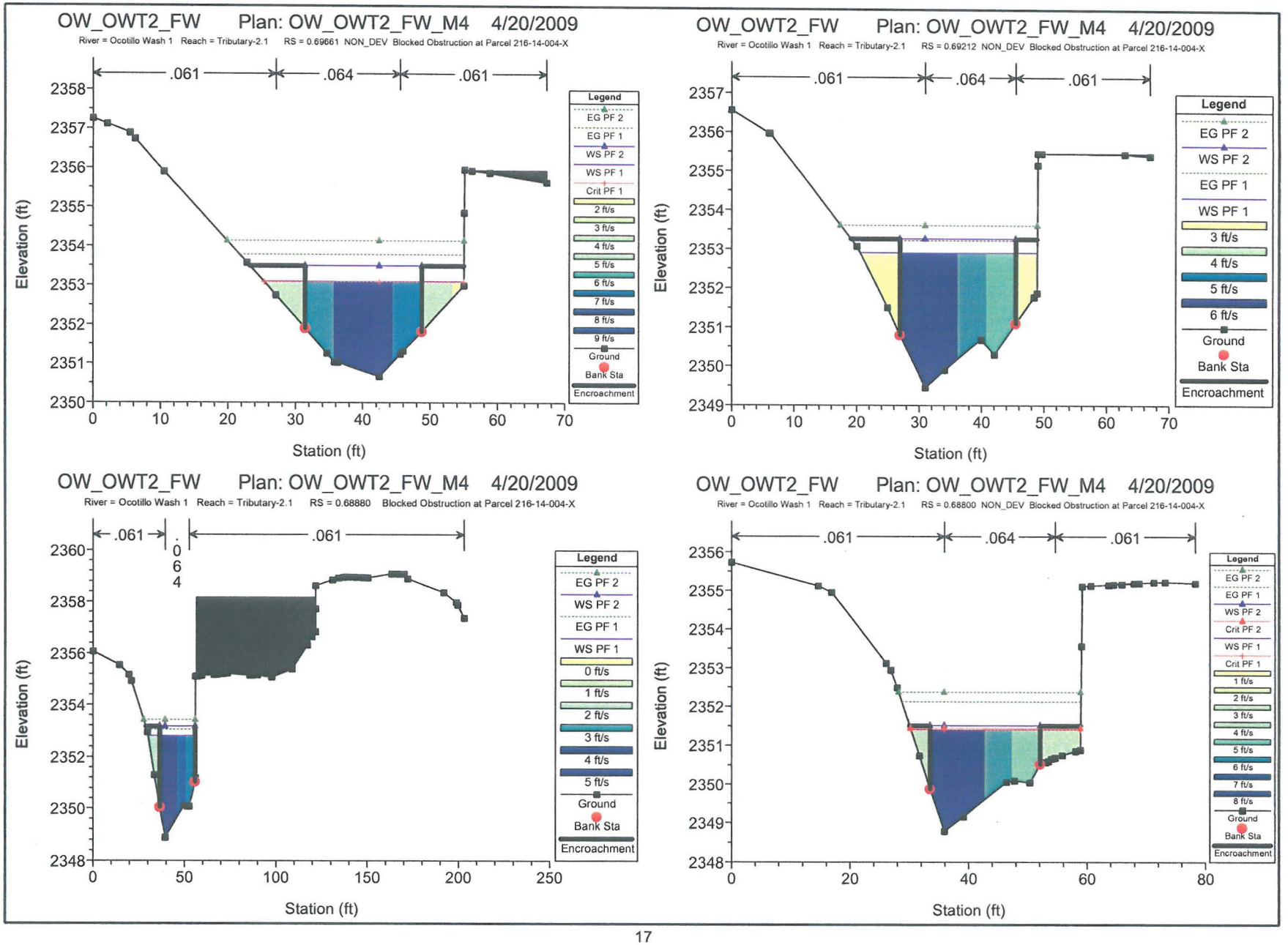

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.78443
.061 .064 .061
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.77855 NON_DEV
.061 .064 .061
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
Crit PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.77184 NON_DEV
.061 .064 .061
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 1
WS PF 1
Crit PF 2
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.76182 NON_DEV
.061 .064 .061
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
0 ft/s
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
Ground
Bank Sta
Encroachment

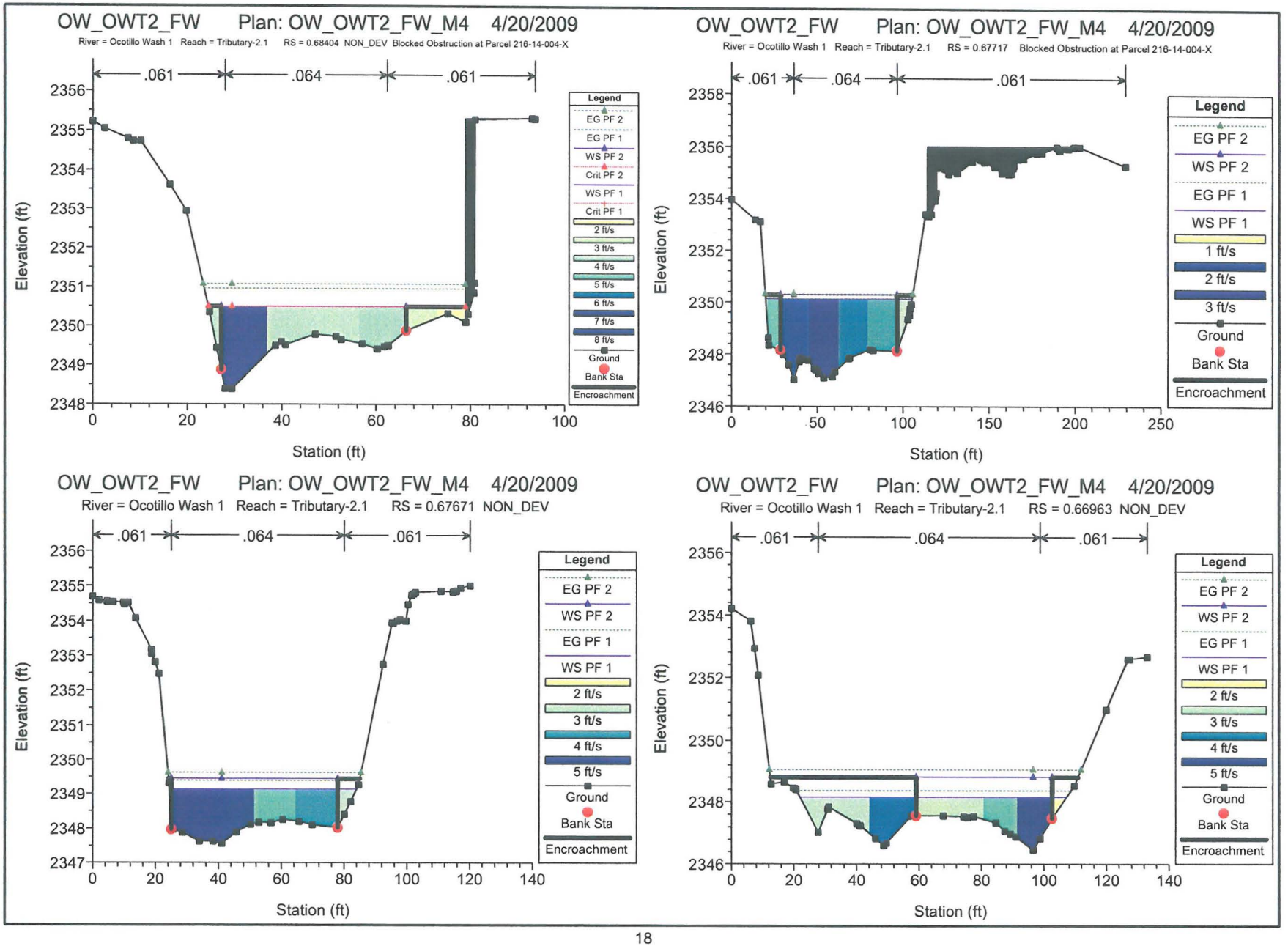

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.75751 NON_DEV
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 1
WS PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.75270 NON_DEV
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.74863 NON_DEV
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 1
WS PF 1
Crit PF 2
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.74402 NON_DEV
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta
Encroachment

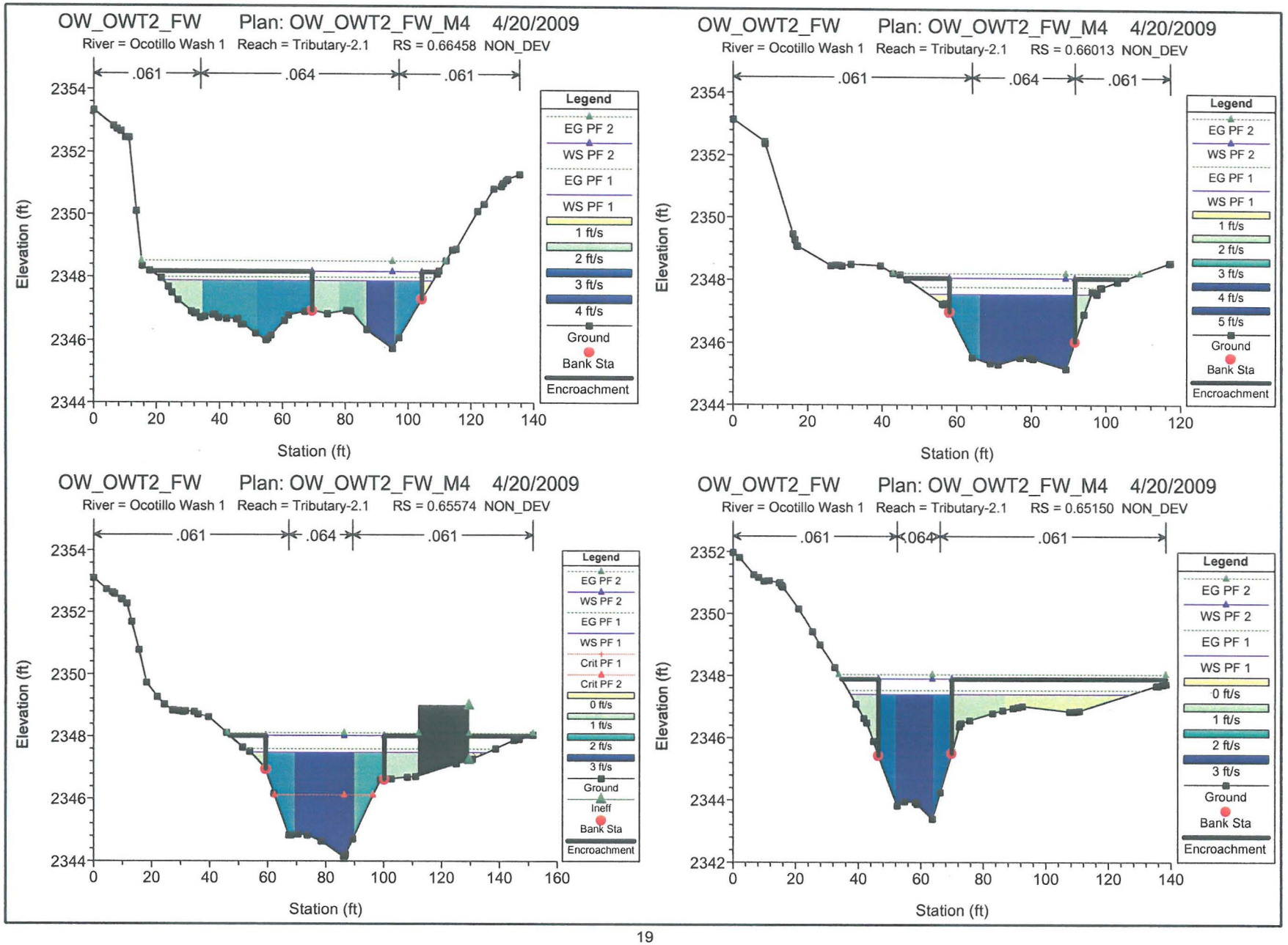

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.73982 NON_DEV
.061 .064 .061
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.73537 NON_DEV
.061 .064 .061
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 1
WS PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.73227 NON_DEV
.061 .064 .061
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.72875 Cross Section located along 71st Street
.061 .064 .061
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
0 ft/s
1 ft/s
2 ft/s
Ground
Bank Sta
Encroachment

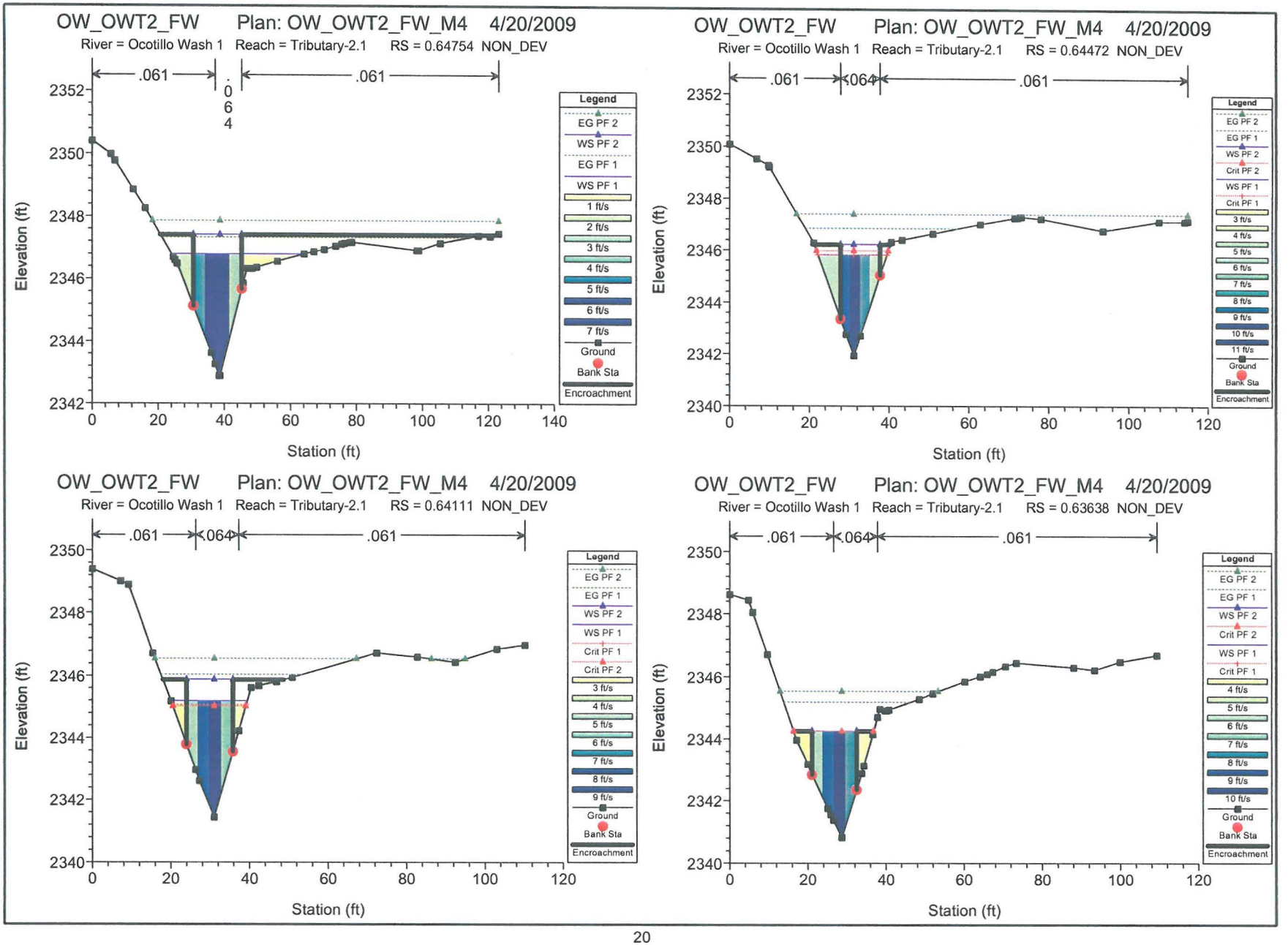

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.72704 NON_DEV
.061 .064 .061
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.72322 NON_DEV
.061 .064 .061
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 2
WS PF 1
Crit PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.71808 NON_DEV
.061 .064 .061
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
Crit PF 1
0 ft/s
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.71174 NON_DEV
.061 .064 .061
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta
Encroachment

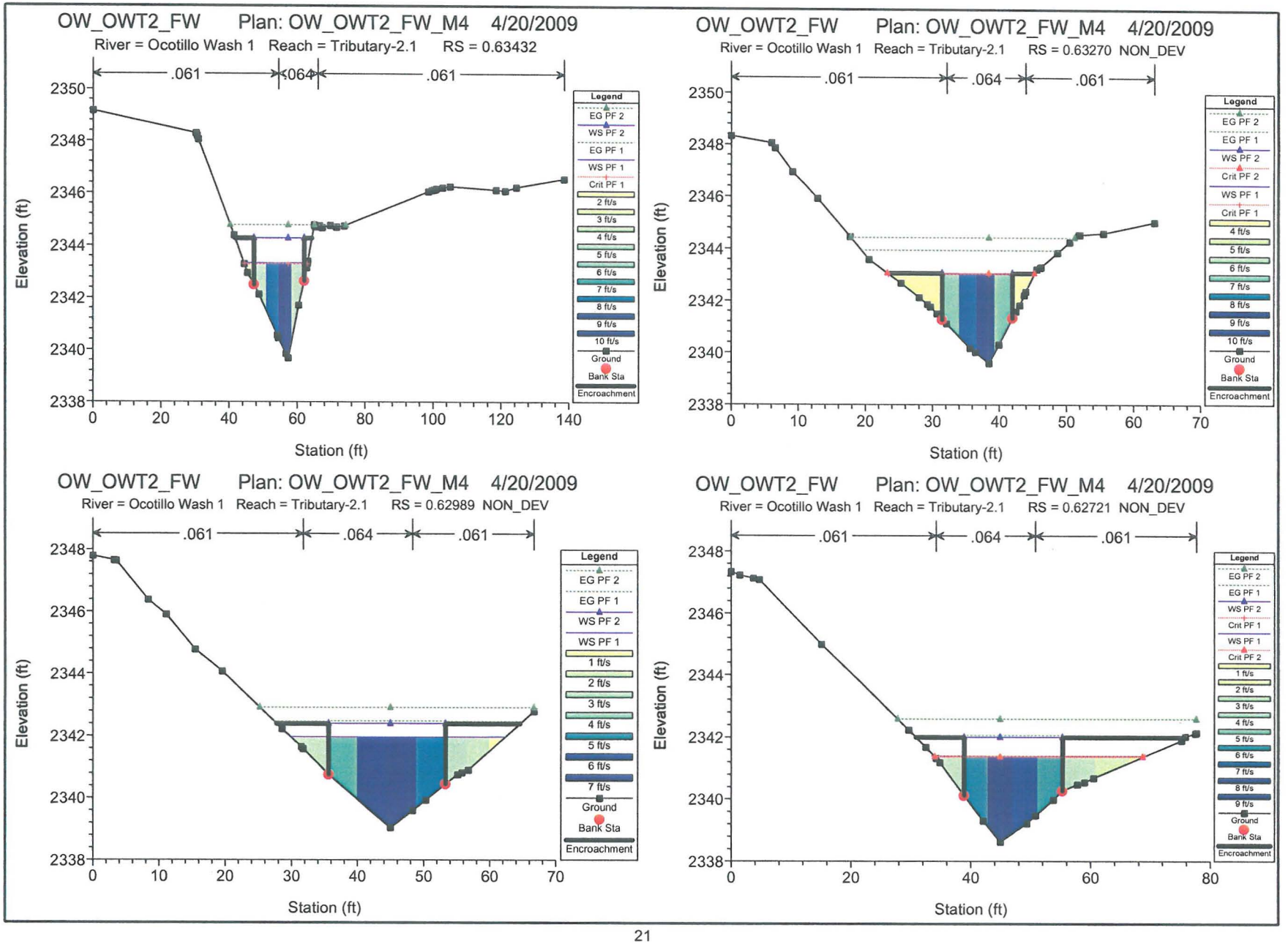

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.70813 NON_DEV
.061 .064 .061
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.70419 Blocked Obstruction at Parcel 216-14-004-X
.061 .064 .061
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.70129 NON_DEV Blocked Obstruction at Parcel 216-14-004-X
.061 .064 .061
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
Crit PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.69806 NON_DEV Blocked Obstruction at Parcel 216-14-004-X
.061 .064 .061
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 1
WS PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Encroachment

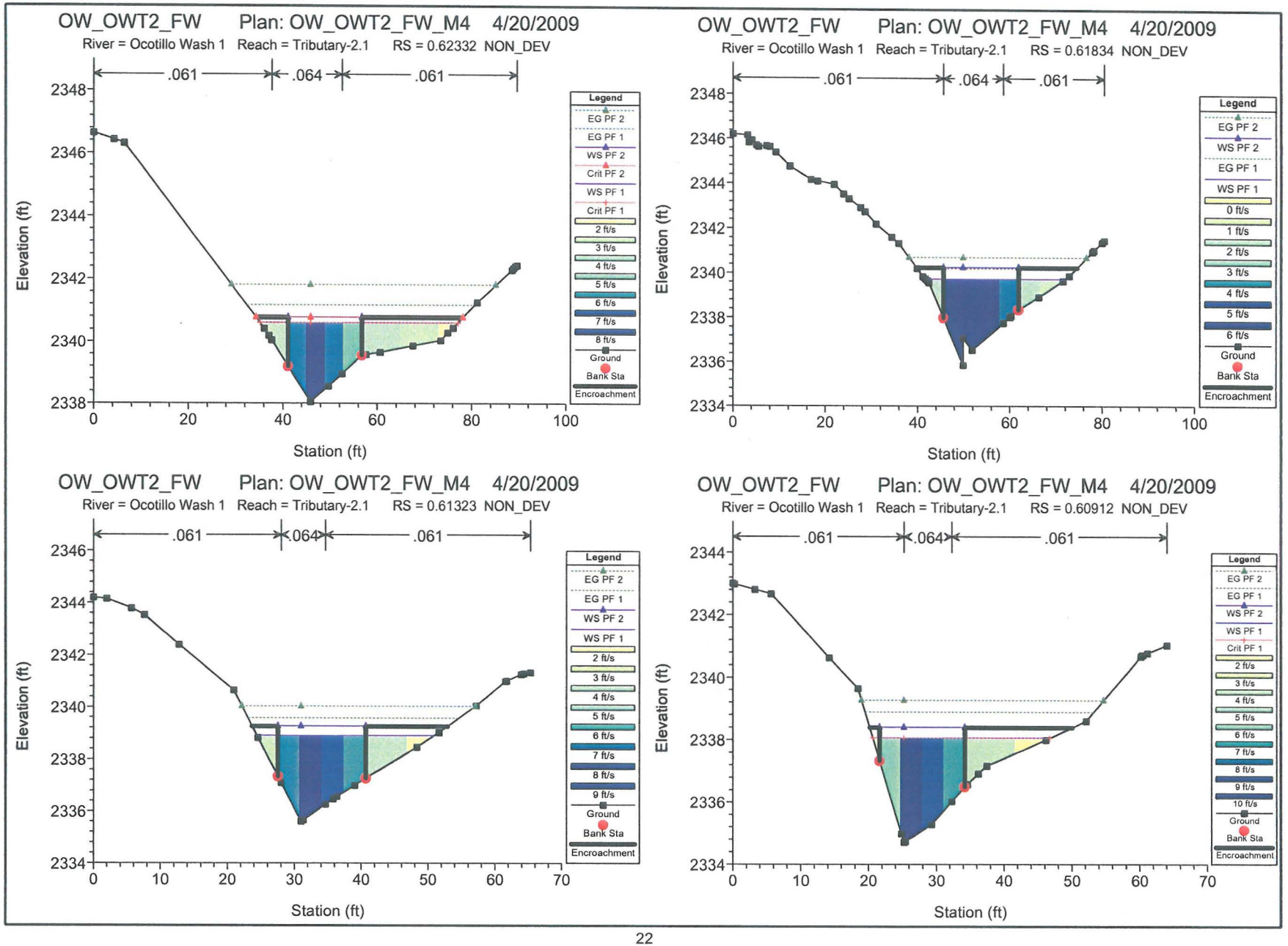

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.69661 NON_DEV Blocked Obstruction at Parcel 216-14-004-X
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
Crit PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.69212 NON_DEV Blocked Obstruction at Parcel 216-14-004-X
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.68880 Blocked Obstruction at Parcel 216-14-004-X
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
0 ft/s
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.68800 NON_DEV Blocked Obstruction at Parcel 216-14-004-X
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 2
WS PF 1
Crit PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Encroachment

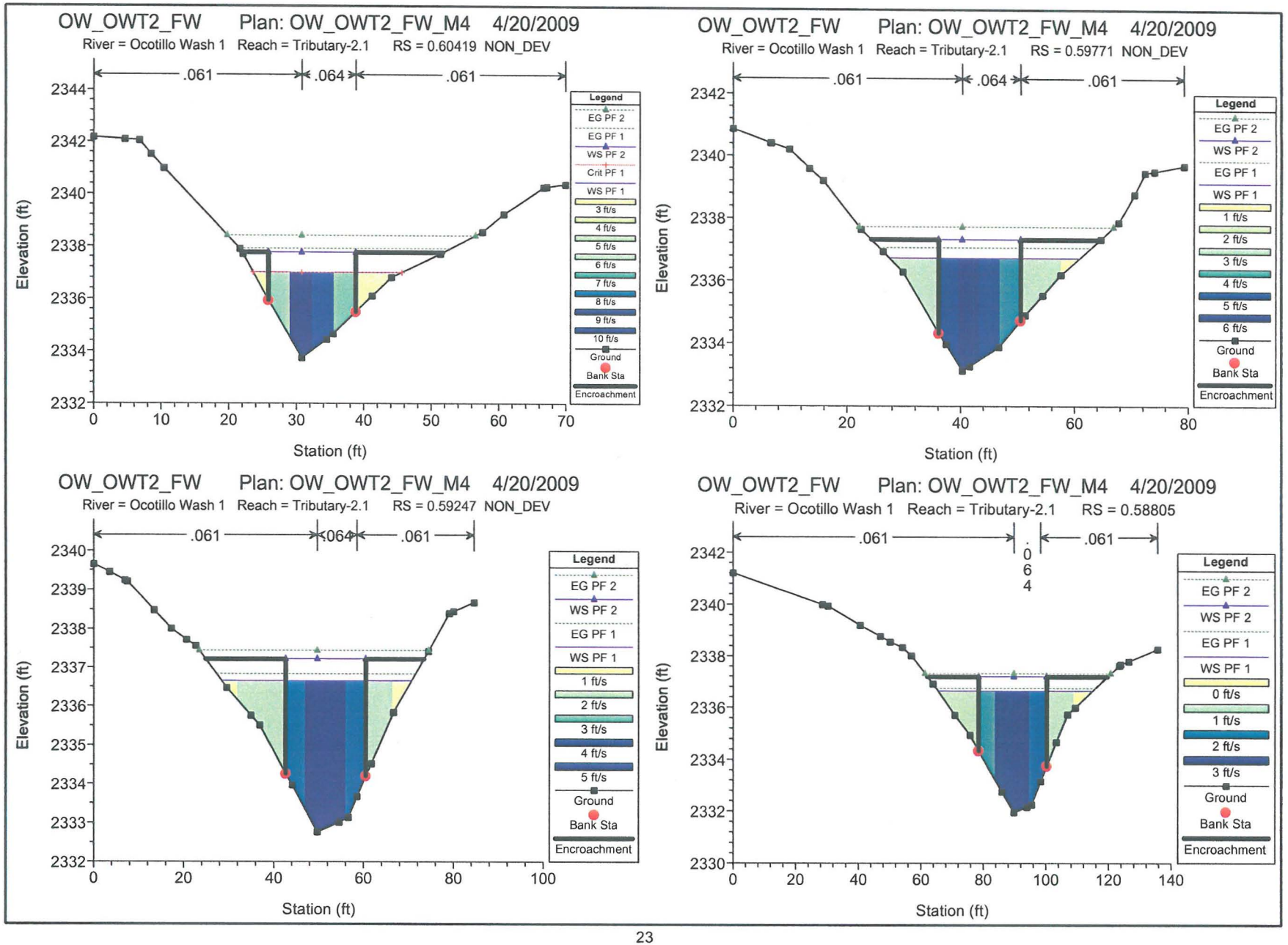

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.68404 NON_DEV Blocked Obstruction at Parcel 216-14-004-X
.061 .064 .061
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 2
WS PF 1
Crit PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.67717 Blocked Obstruction at Parcel 216-14-004-X
.061 .064 .061
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
1 ft/s
2 ft/s
3 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.67671 NON_DEV
.061 .064 .061
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.66963 NON_DEV
.061 .064 .061
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
Ground
Bank Sta
Encroachment

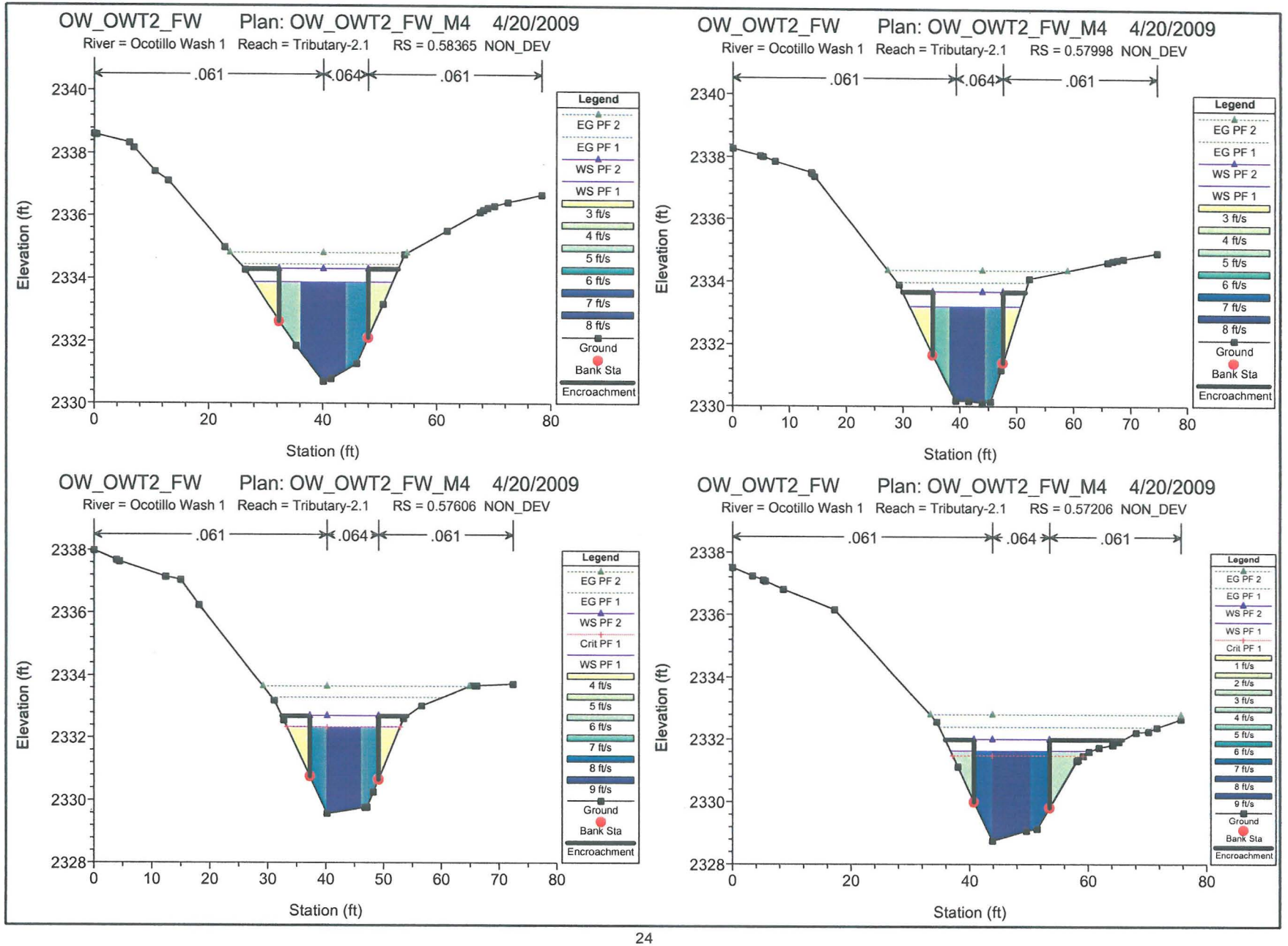

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.66458 NON_DEV
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.66013 NON_DEV
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.65574 NON_DEV
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Crit PF 1
Crit PF 2
0 ft/s
1 ft/s
2 ft/s
3 ft/s
Ground
Ineff
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.65150 NON_DEV
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
0 ft/s
1 ft/s
2 ft/s
3 ft/s
Ground
Bank Sta
Encroachment

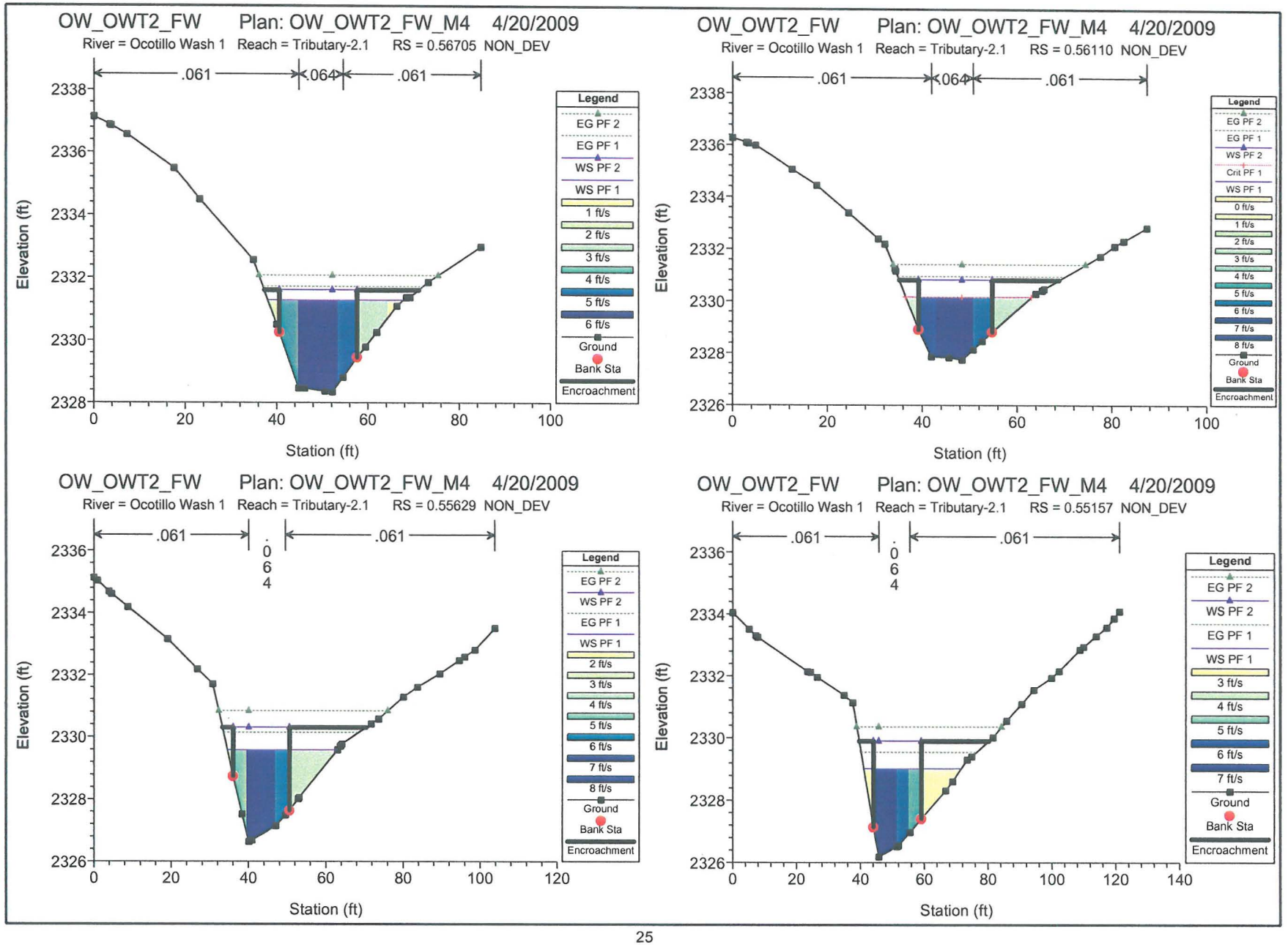

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.64754 NON_DEV
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.64472 NON_DEV
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 2
WS PF 1
Crit PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
10 ft/s
11 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.64111 NON_DEV
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.63638 NON_DEV
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 2
WS PF 1
Crit PF 1
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
10 ft/s
Ground
Bank Sta
Encroachment

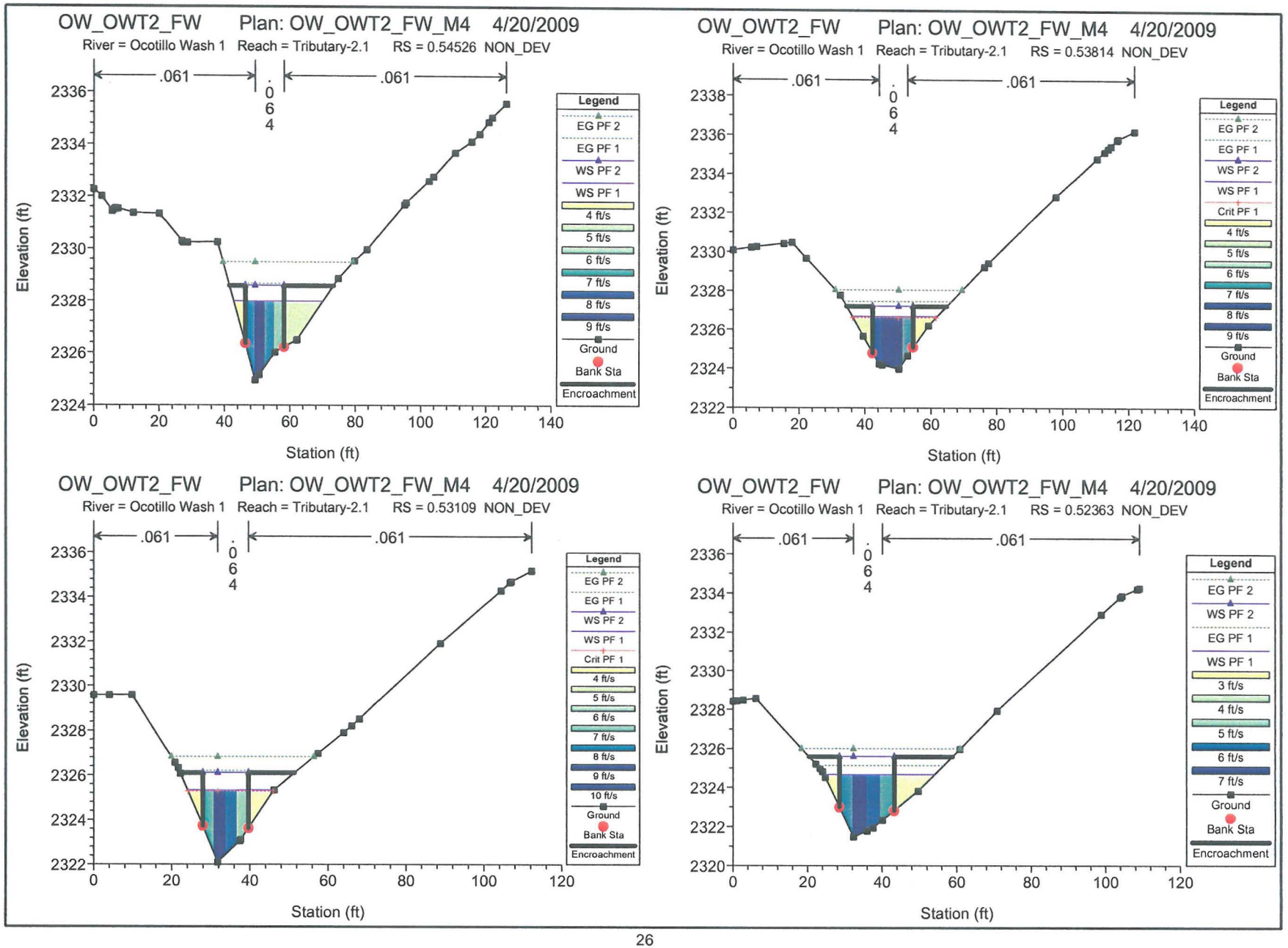

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.63432
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Crit PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
10 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.63270 NON_DEV
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 2
WS PF 1
Crit PF 1
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
10 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.62989 NON_DEV
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.62721 NON_DEV
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 1
WS PF 1
Crit PF 2
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
Ground
Bank Sta
Encroachment

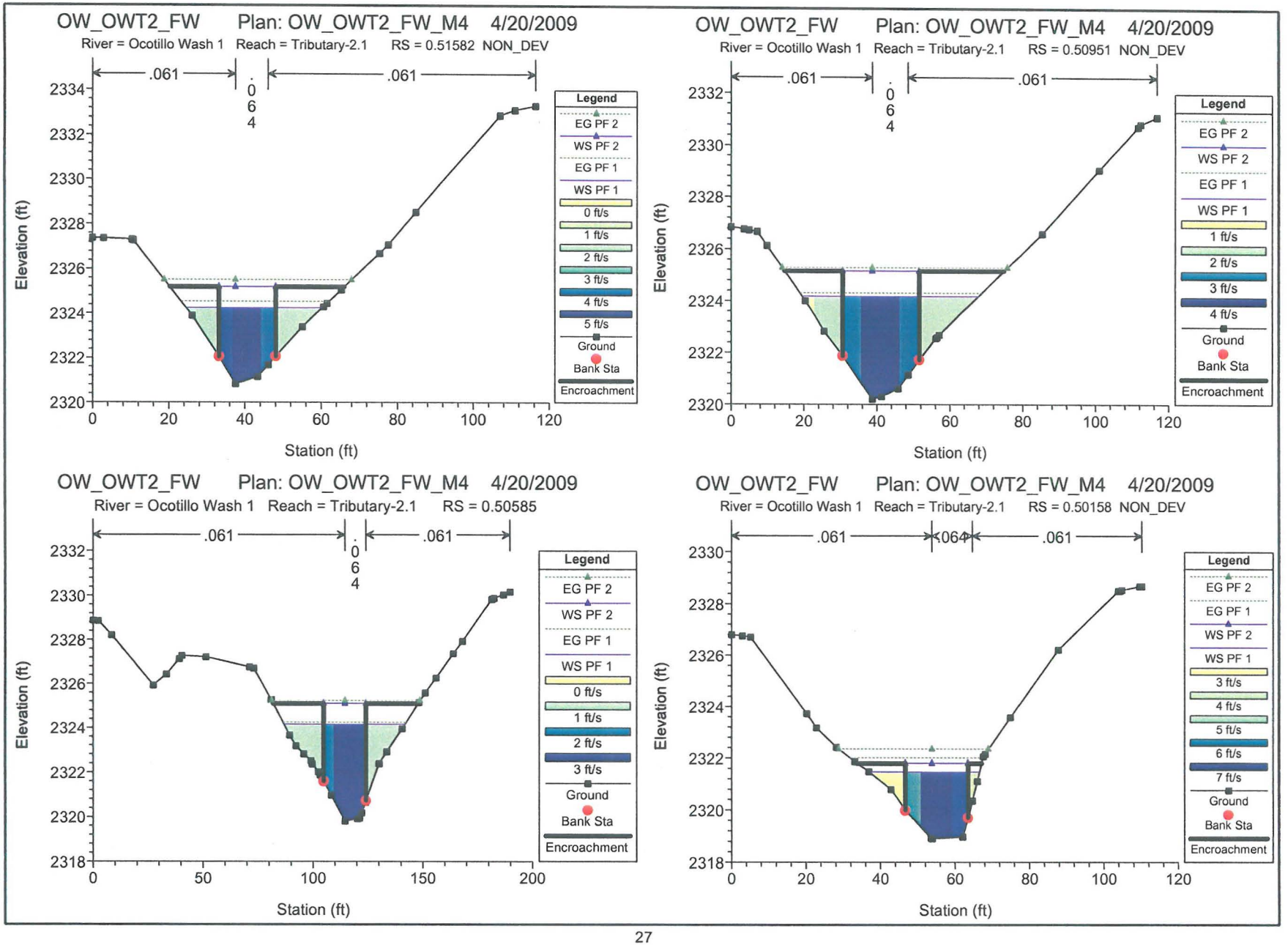

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.62332 NON_DEV
.061 .064 .061
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 2
WS PF 1
Crit PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.61834 NON_DEV
.061 .064 .061
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
0 ft/s
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.61323 NON_DEV
.061 .064 .061
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.60912 NON_DEV
.061 .064 .061
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
Crit PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
10 ft/s
Ground
Bank Sta
Encroachment

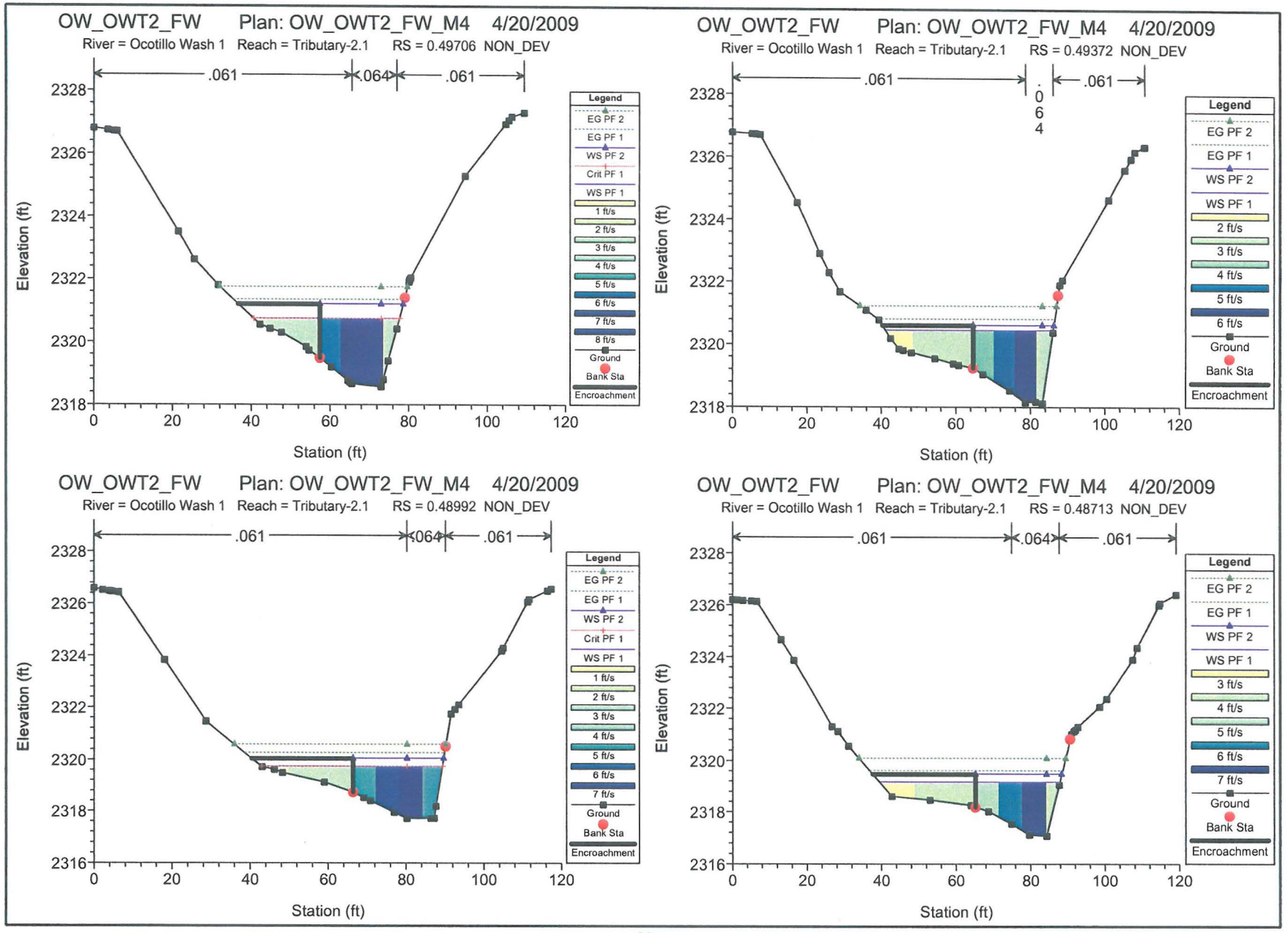

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.60419 NON_DEV
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 1
WS PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
10 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.59771 NON_DEV
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.59247 NON_DEV
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.58805
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
0 ft/s
1 ft/s
2 ft/s
3 ft/s
Ground
Bank Sta
Encroachment

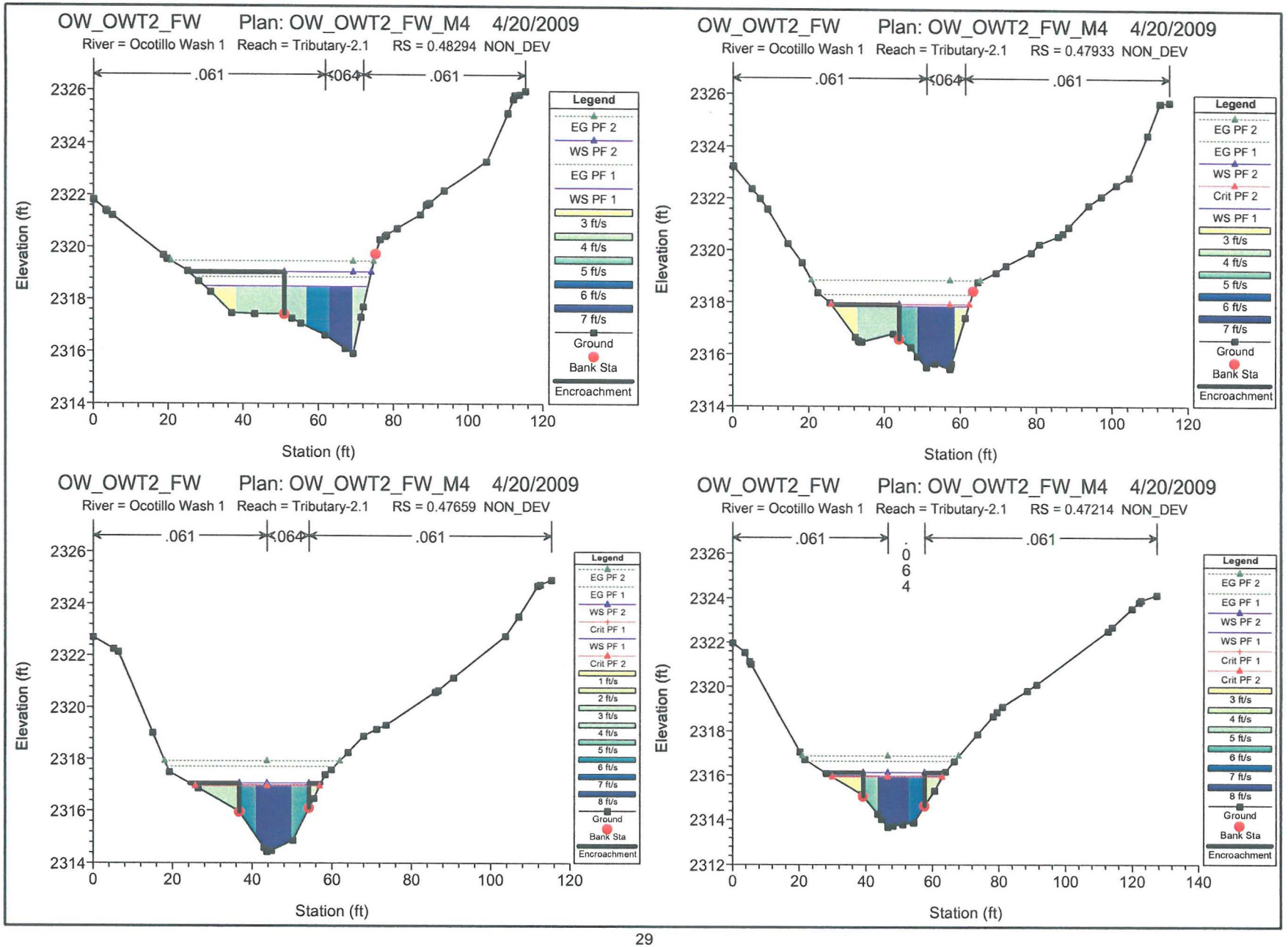

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.58365 NON_DEV
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.57998 NON_DEV
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.57606 NON_DEV
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 1
WS PF 1
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.57206 NON_DEV
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
Crit PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
Ground
Bank Sta
Encroachment

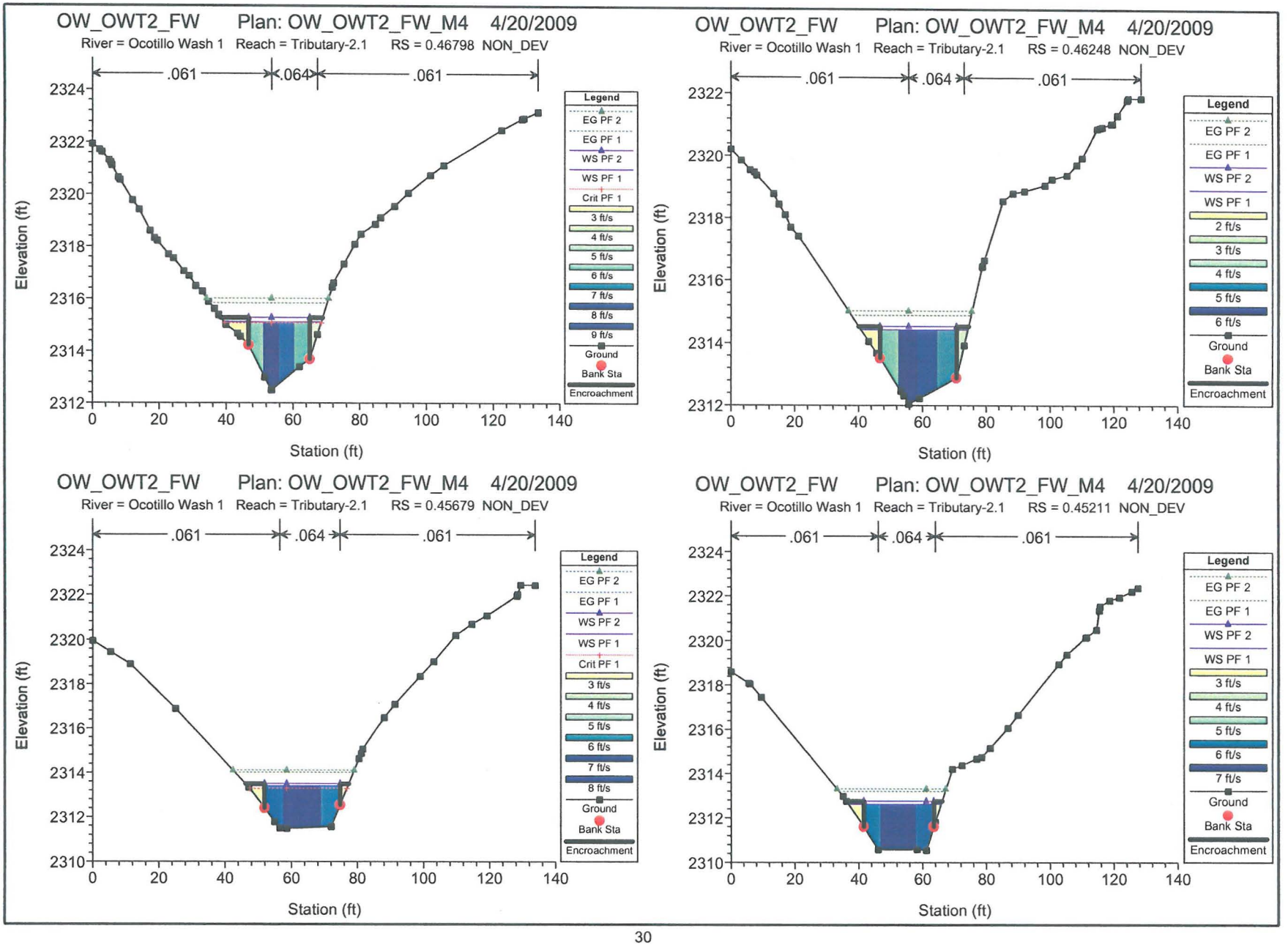

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.56705 NON_DEV
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.56110 NON_DEV
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 1
WS PF 1
0 ft/s
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.55629 NON_DEV
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.55157 NON_DEV
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta
Encroachment

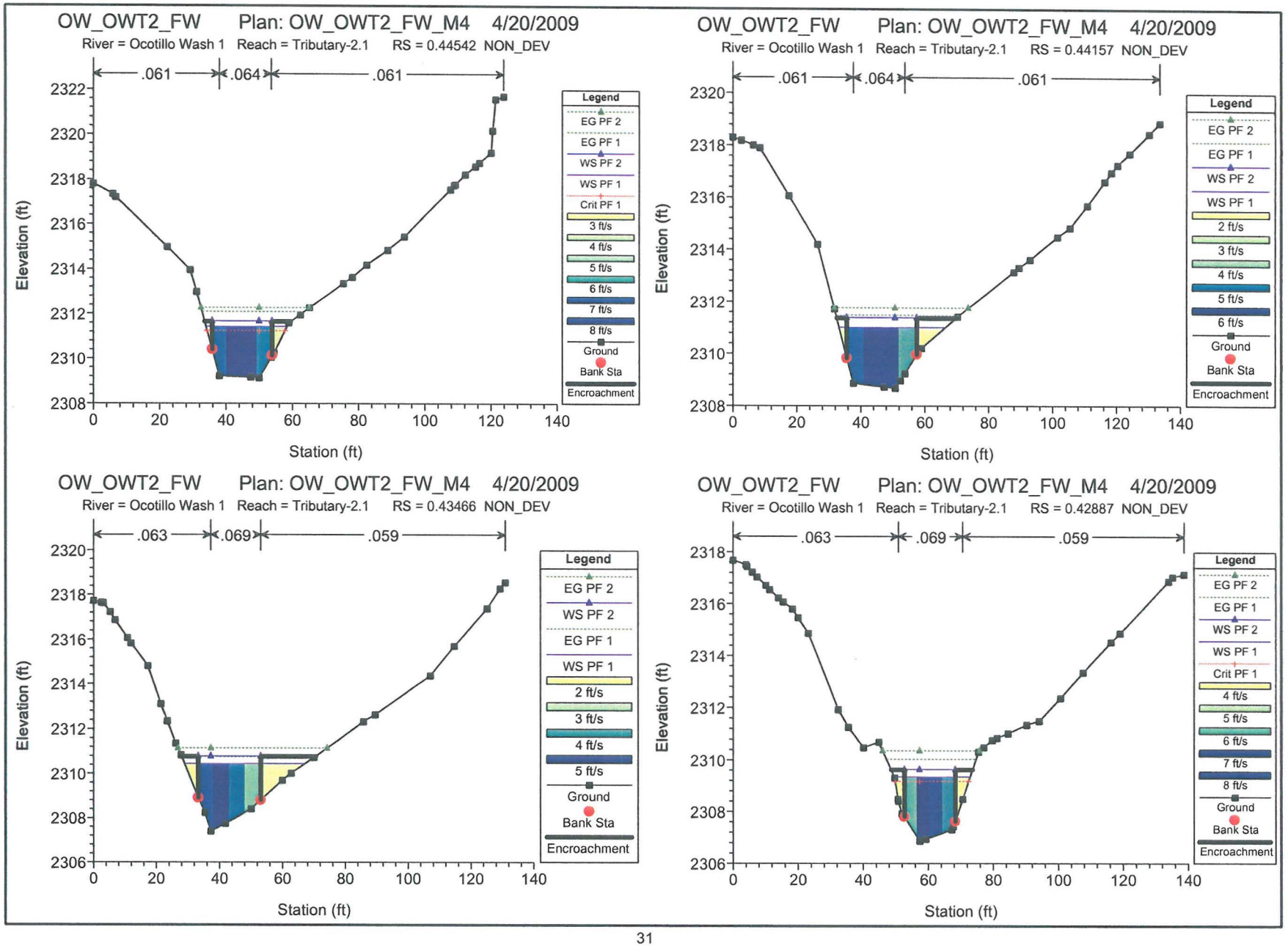

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.54526 NON_DEV
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.53814 NON_DEV
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
Crit PF 1
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.53109 NON_DEV
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
Crit PF 1
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
10 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.52363 NON_DEV
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta
Encroachment

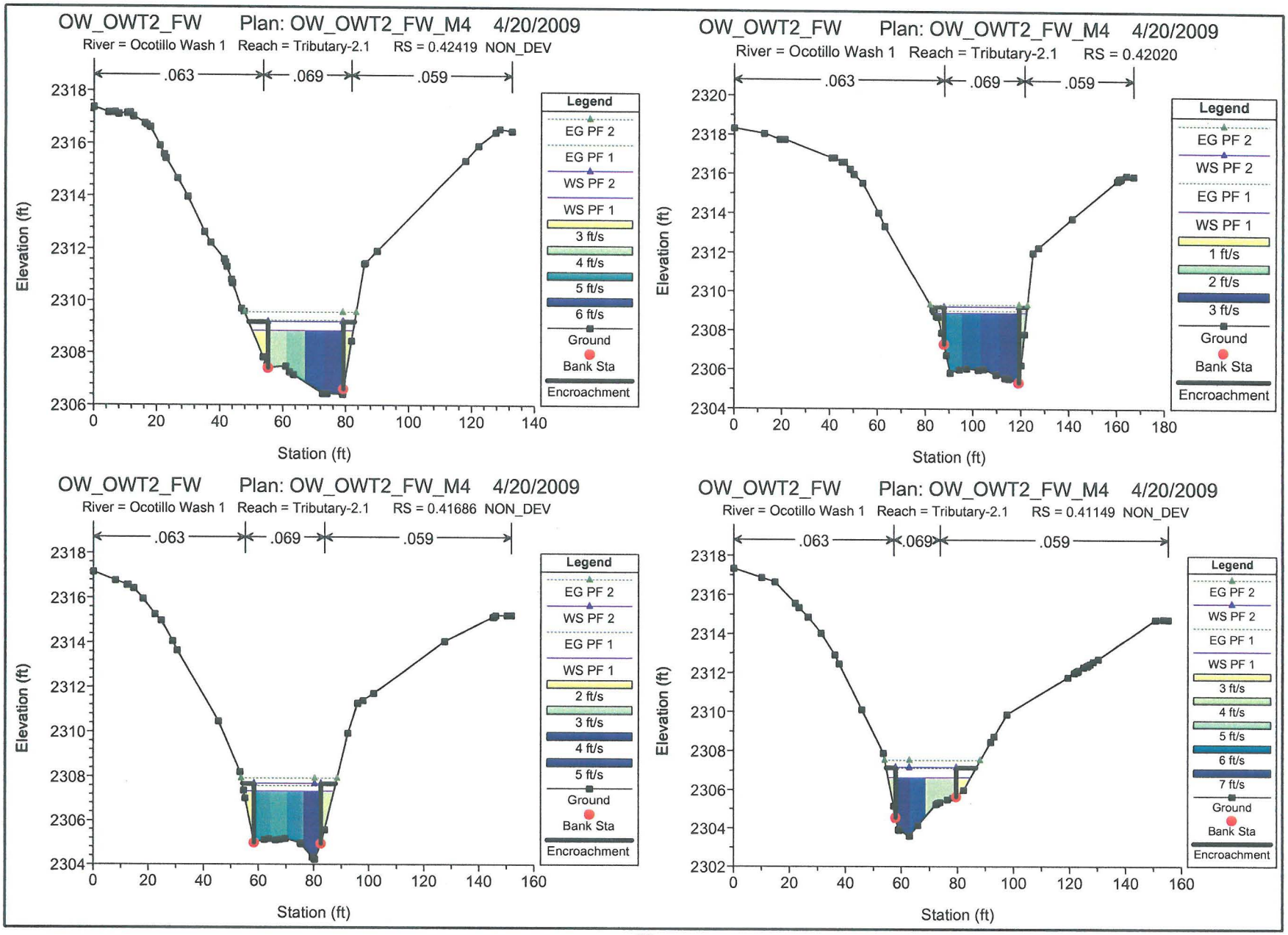

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.51582 NON_DEV
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
0 ft/s
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.50951 NON_DEV
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.50585
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
0 ft/s
1 ft/s
2 ft/s
3 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.50158 NON_DEV
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta
Encroachment

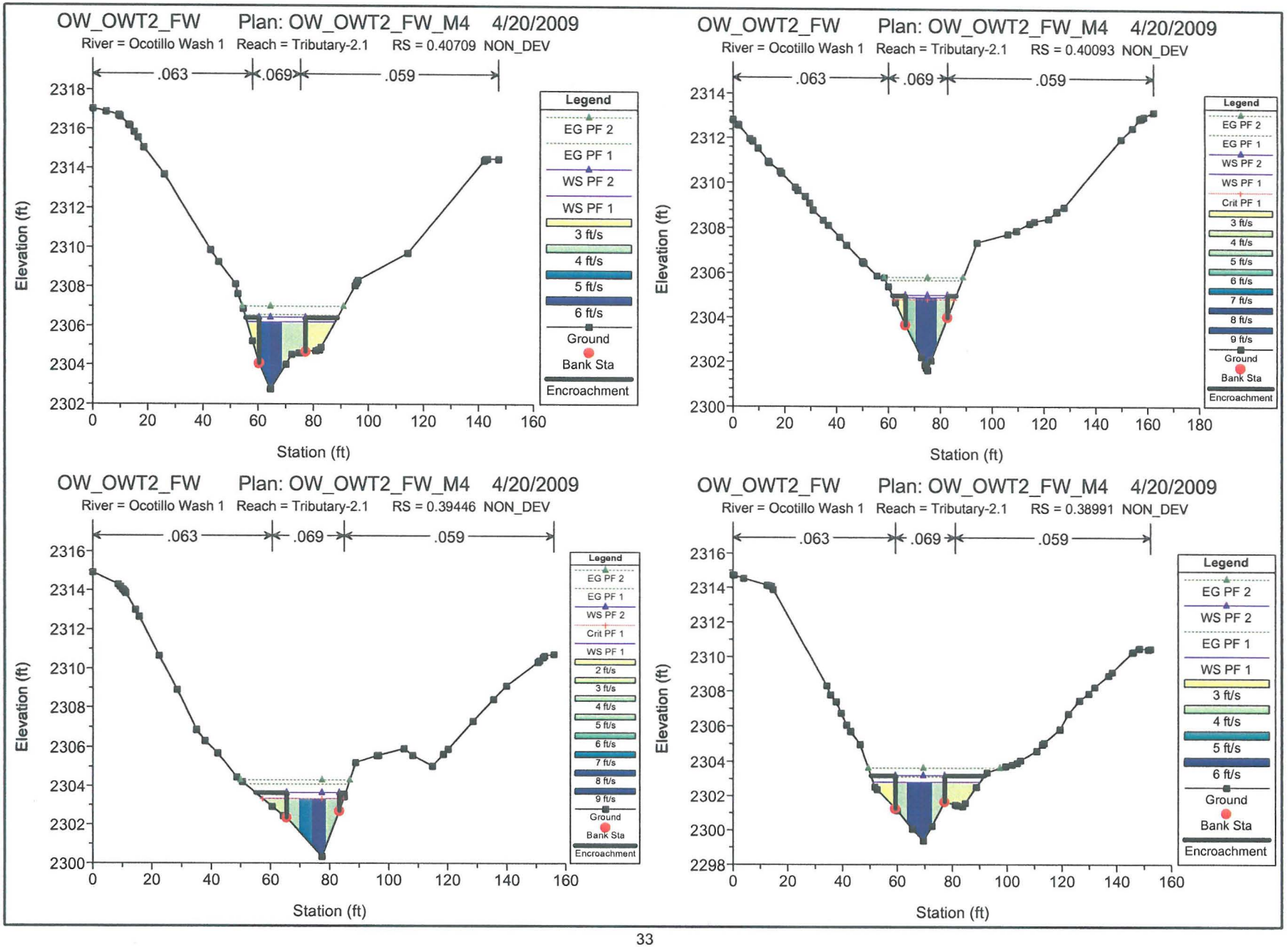

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.49706 NON_DEV
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 1
WS PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.49372 NON_DEV
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.48992 NON_DEV
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 1
WS PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.48713 NON_DEV
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta
Encroachment

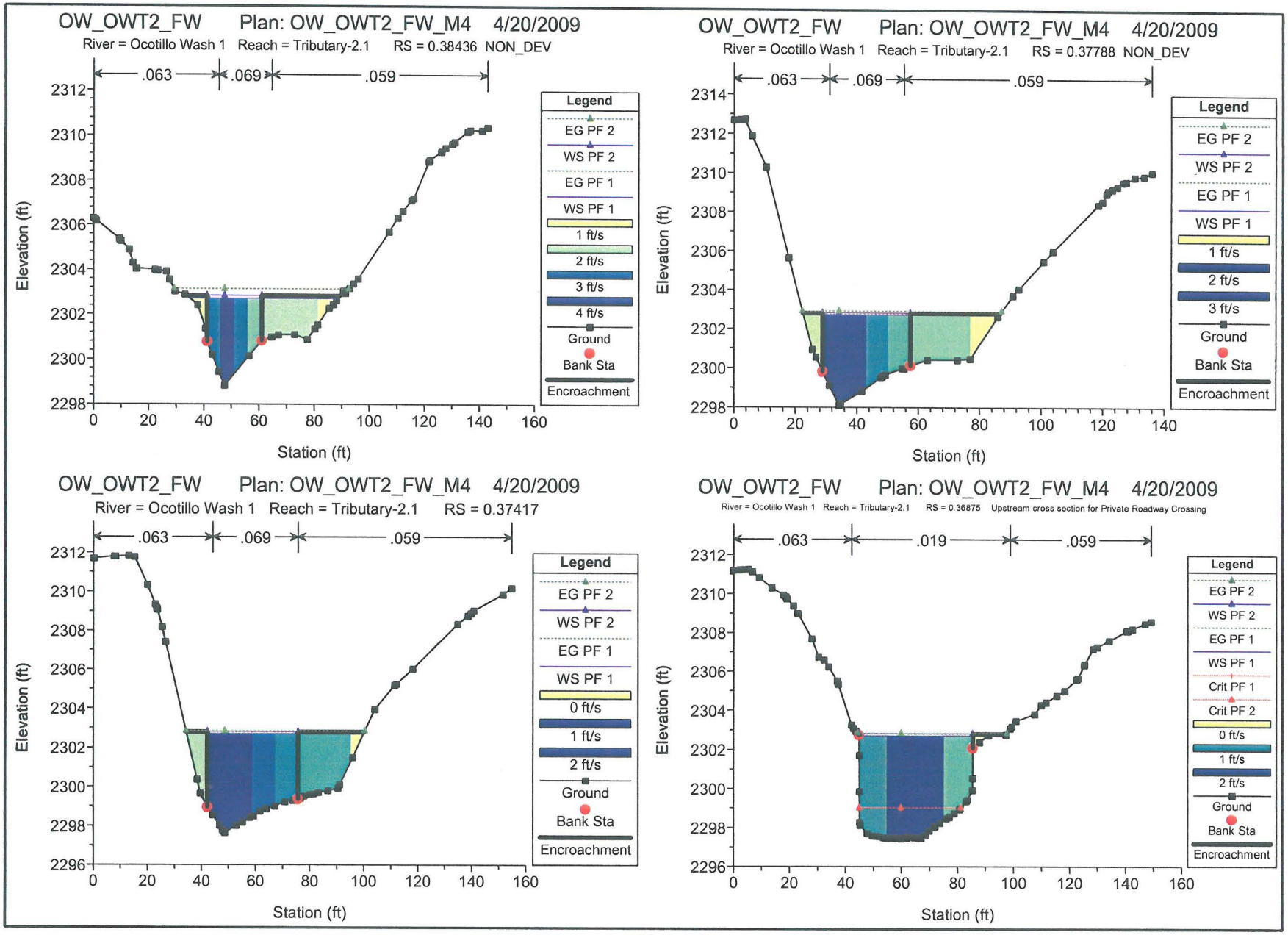

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.48294 NON_DEV
.061
.064
.061
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.47933 NON_DEV
.061
.064
.061
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 2
WS PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.47659 NON_DEV
.061
.064
.061
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 1
WS PF 1
Crit PF 2
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.47214 NON_DEV
.061
.064
.061
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

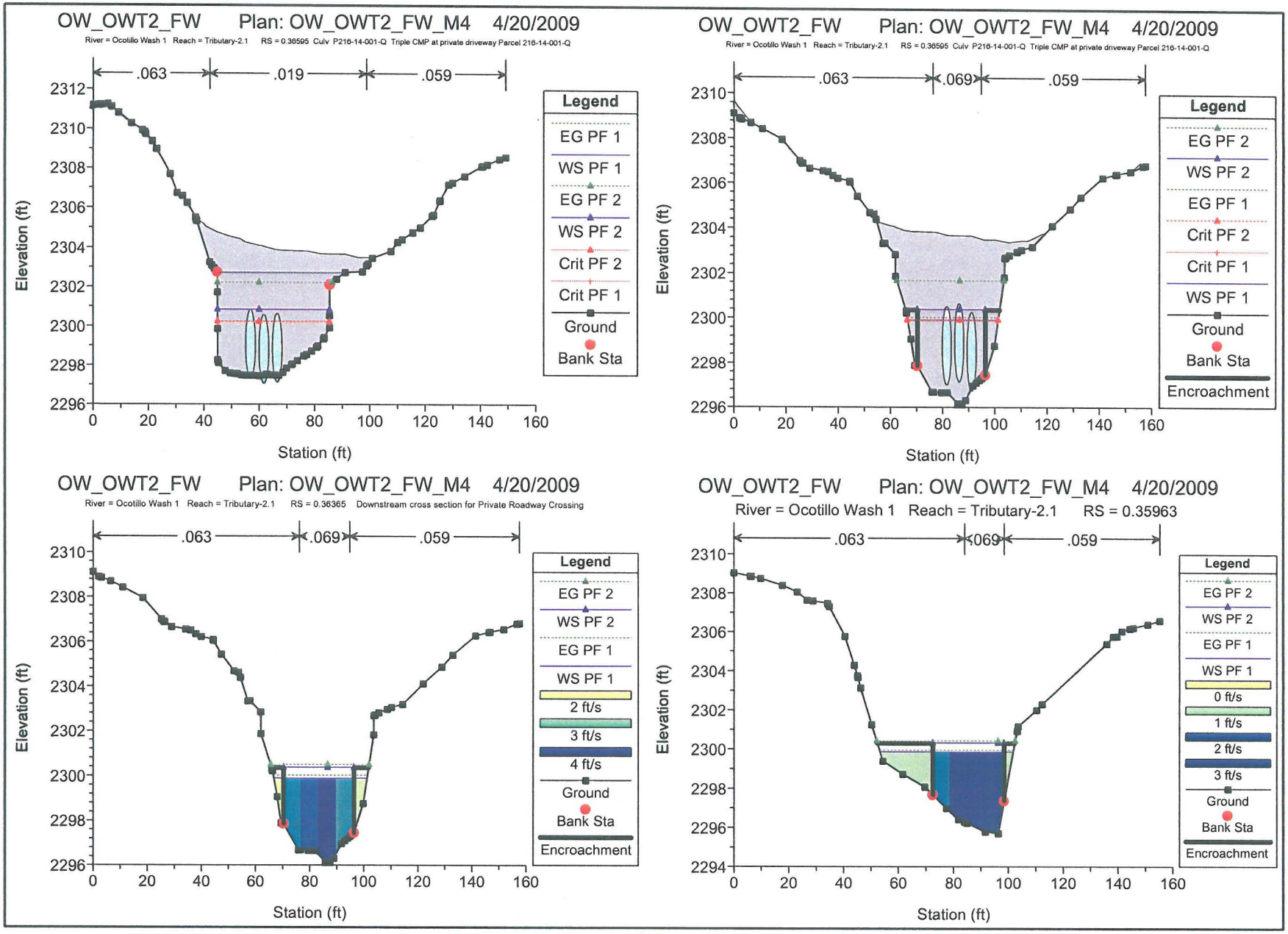

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.46798 NON_DEV
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
Crit PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.46248 NON_DEV
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.45679 NON_DEV
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
Crit PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.45211 NON_DEV
.061
.064
.061
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta
Encroachment

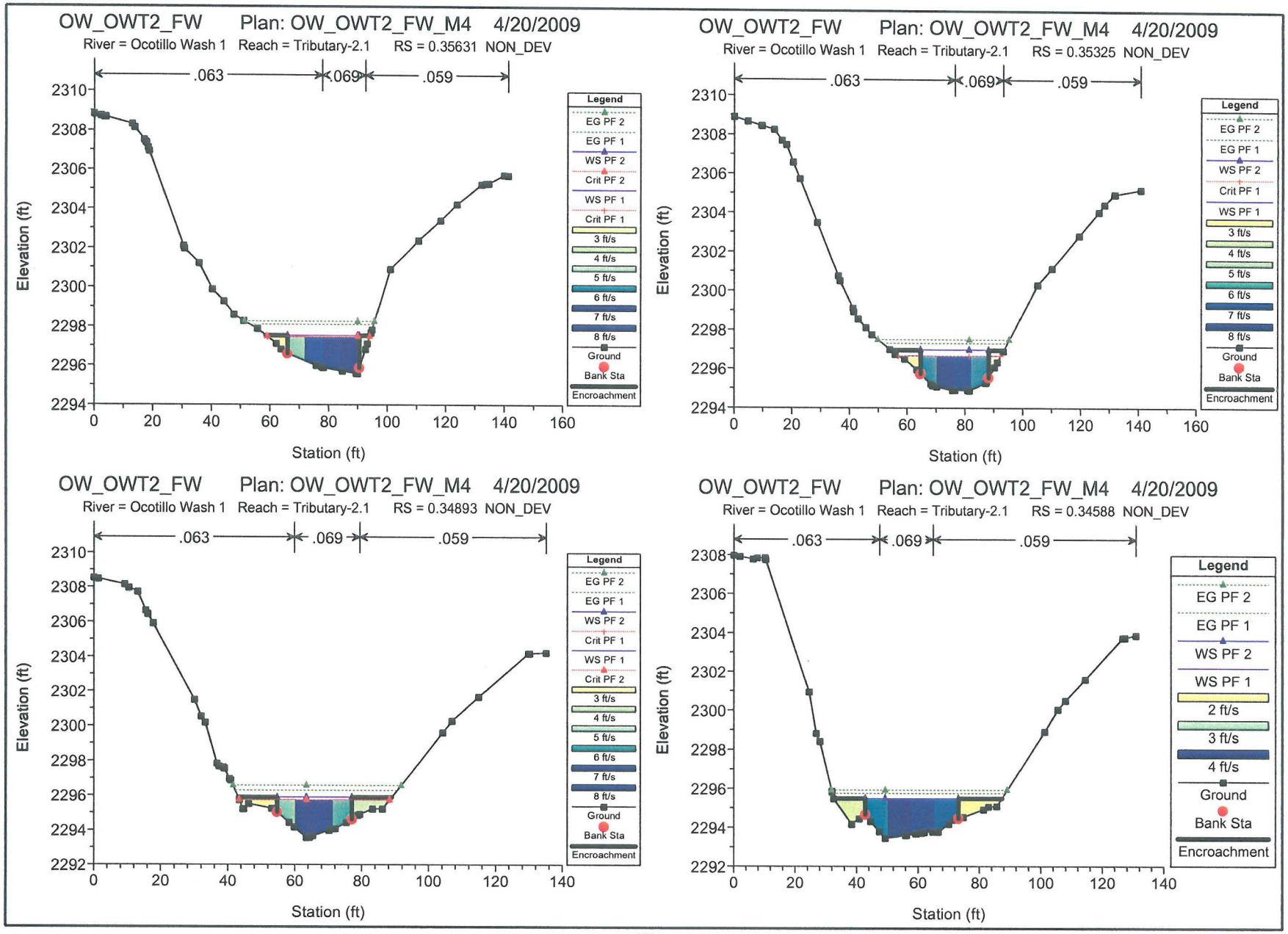

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.44542 NON_DEV
.061 .064 .061
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
Crit PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.44157 NON_DEV
.061 .064 .061
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.43466 NON_DEV
.063 .069 .059
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.42887 NON_DEV
.063 .069 .059
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
Crit PF 1
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Encroachment

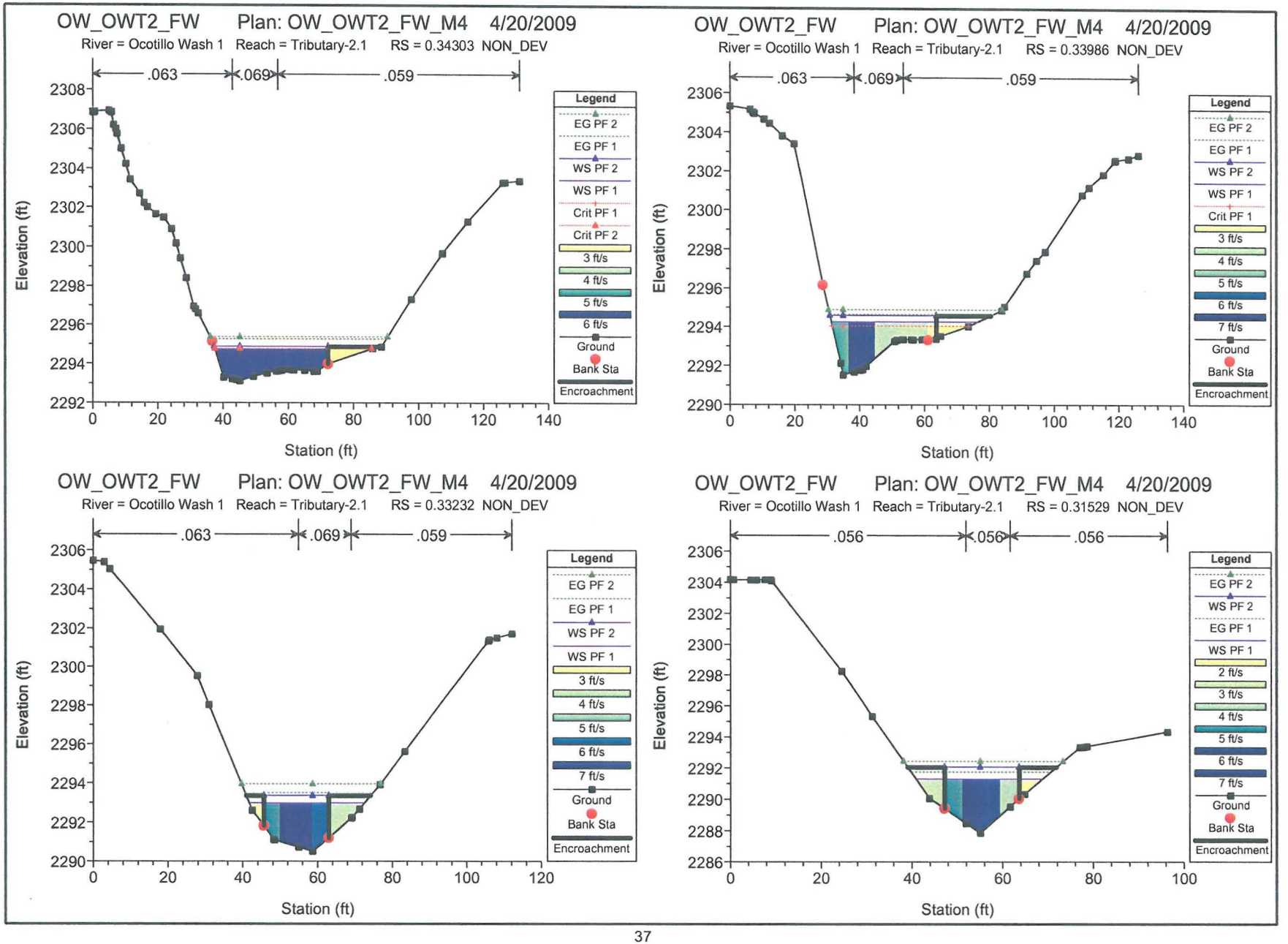

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.42419 NON_DEV
.063
.069
.059
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.42020
.063
.069
.059
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
1 ft/s
2 ft/s
3 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.41686 NON_DEV
.063
.069
.059
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.41149 NON_DEV
.063
.069
.059
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta
Encroachment

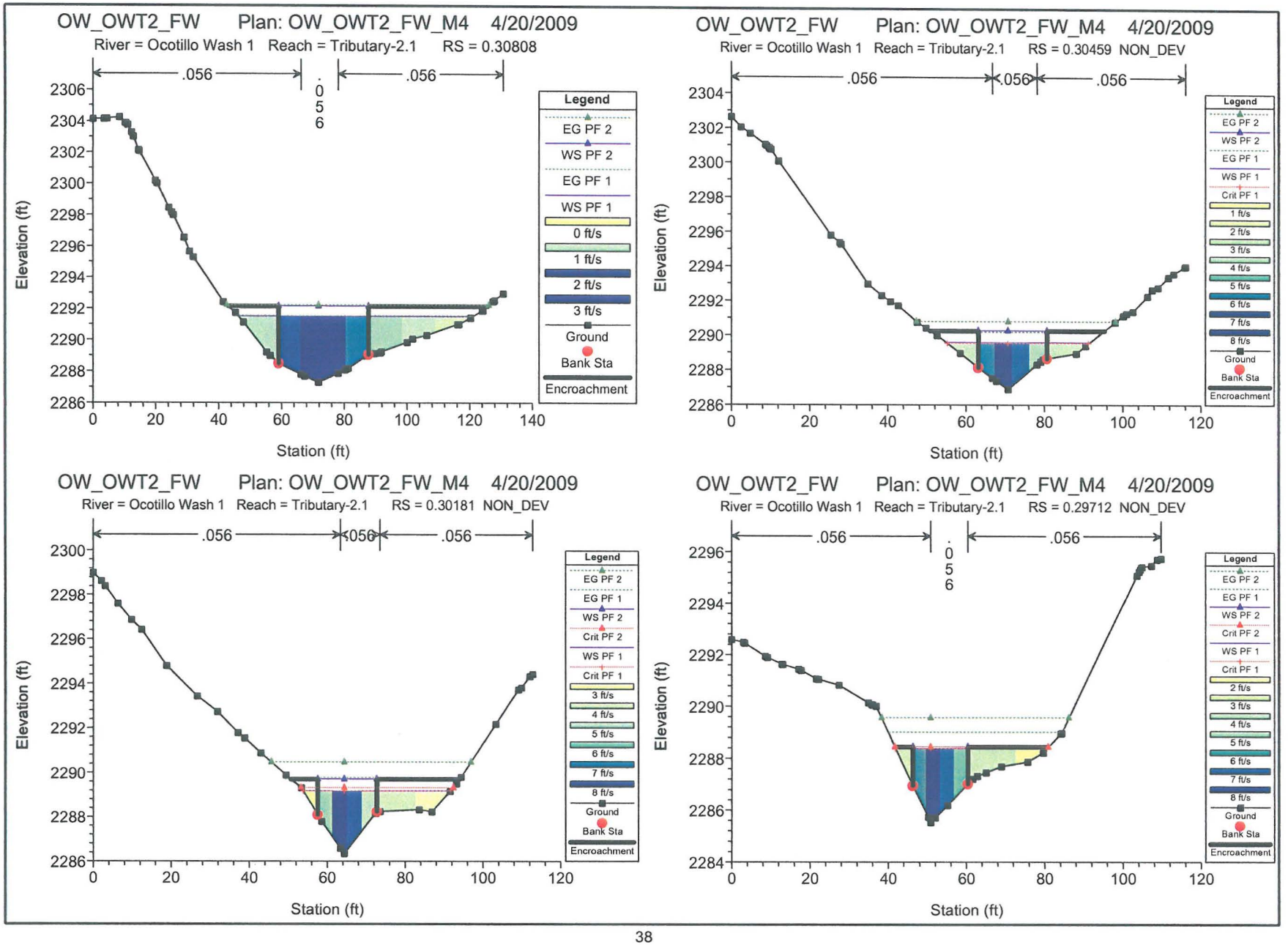

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.40709 NON_DEV
.063 .069 .059
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.40093 NON_DEV
.063 .069 .059
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
Crit PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.39446 NON_DEV
.063 .069 .059
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 1
WS PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.38991 NON_DEV
.063 .069 .059
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
Ground
Bank Sta
Encroachment

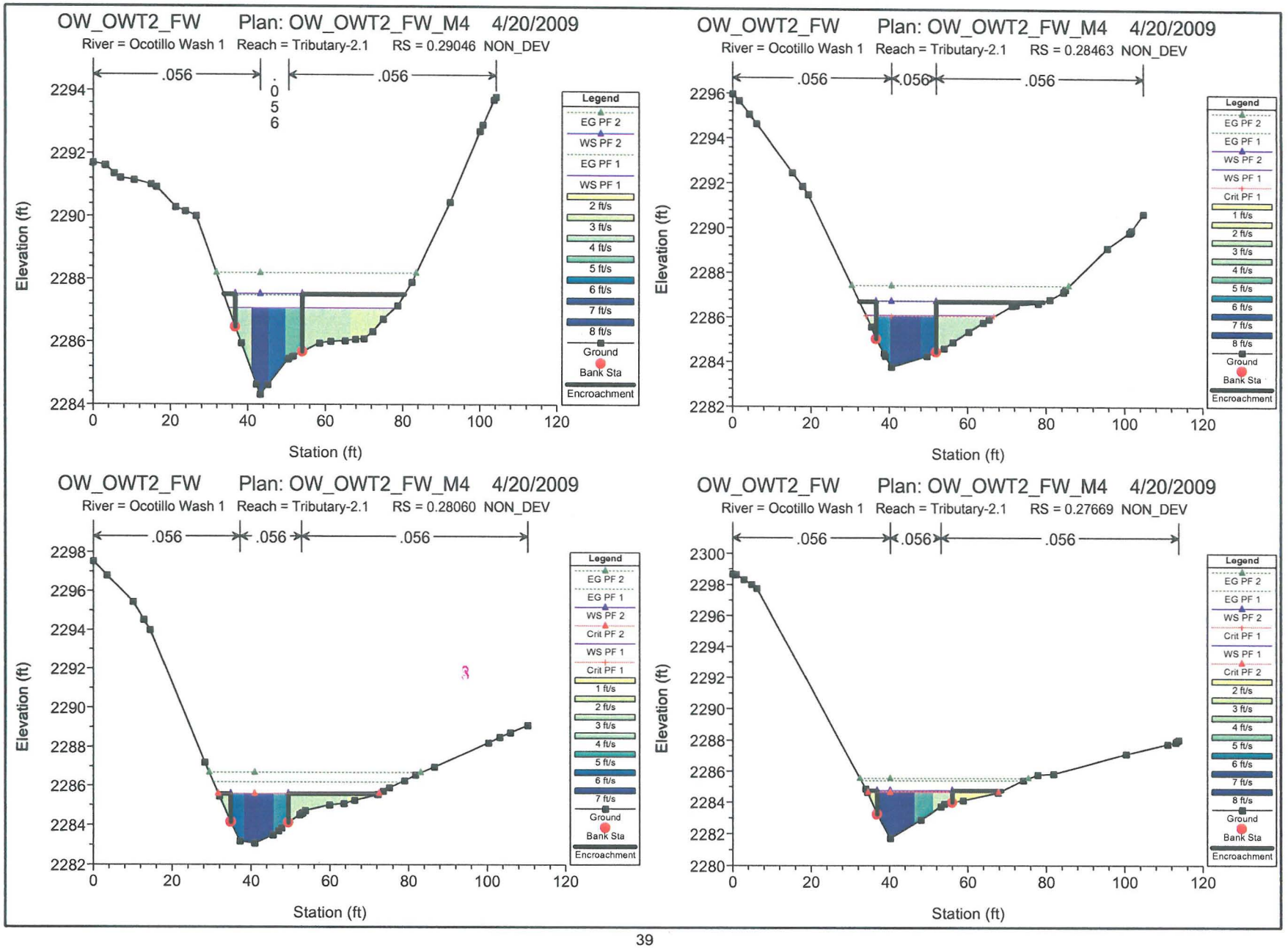

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.38436 NON_DEV
.063
.069
.059
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.37788 NON_DEV
.063
.069
.059
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
1 ft/s
2 ft/s
3 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.37417
.063
.069
.059
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
0 ft/s
1 ft/s
2 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.36875 Upstream cross section for Private Roadway Crossing
.063
.019
.059
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Crit PF 1
Crit PF 2
0 ft/s
1 ft/s
2 ft/s
Ground
Bank Sta
Encroachment

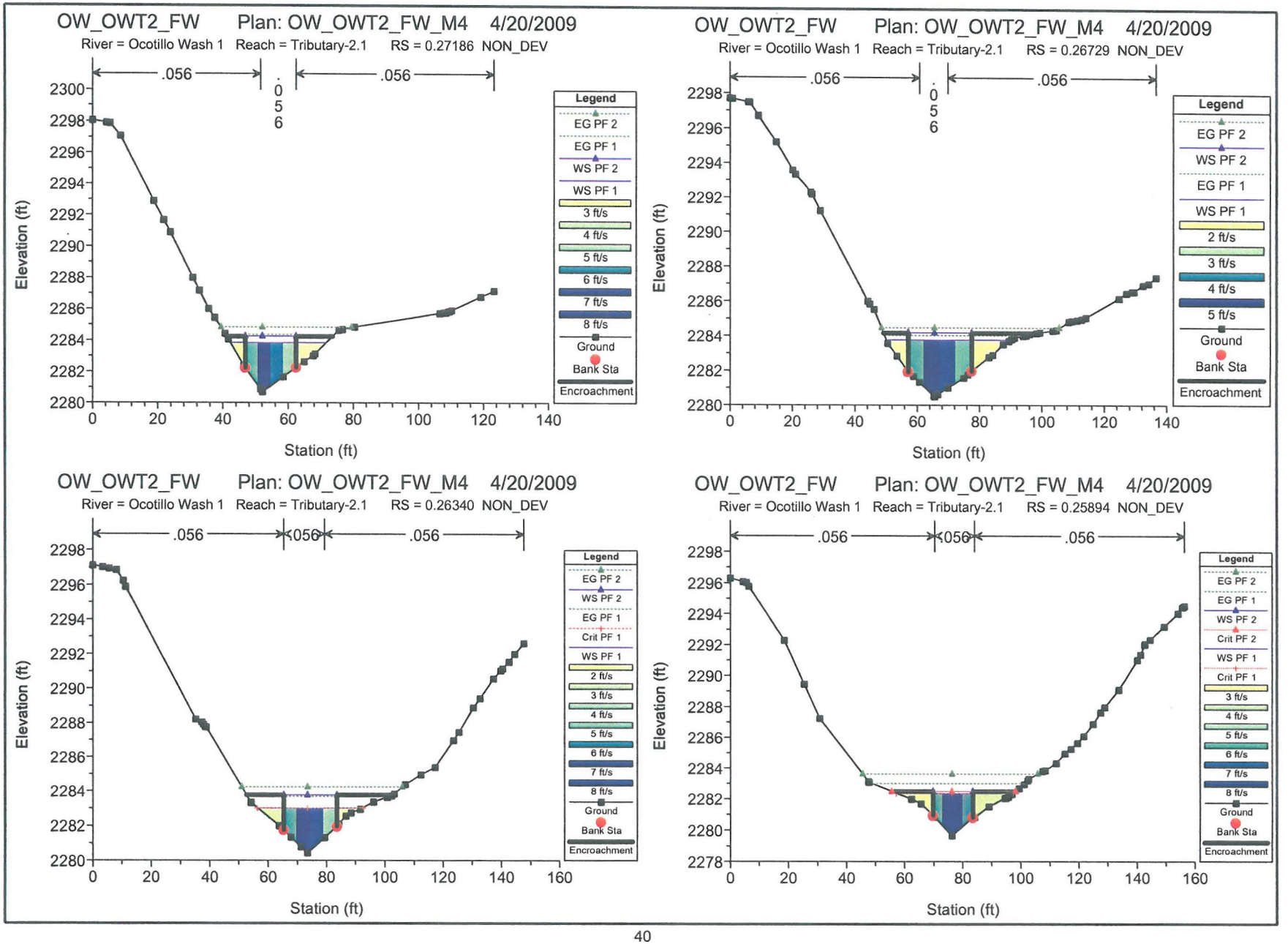

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.36595 Culv P216-14-001-Q Triple CMP at private driveway Parcel 216-14-001-Q
.063
.019
.059
Legend
EG PF 1
WS PF 1
EG PF 2
WS PF 2
Crit PF 2
Crit PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.36595 Culv P216-14-001-Q Triple CMP at private driveway Parcel 216-14-001-Q
.063
.069
.059
Legend
EG PF 2
WS PF 2
EG PF 1
Crit PF 2
Crit PF 1
WS PF 1
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.36365 Downstream cross section for Private Roadway Crossing
.063
.069
.059
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
2 ft/s
3 ft/s
4 ft/s
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.35963
.063
.069
.059
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
0 ft/s
1 ft/s
2 ft/s
3 ft/s
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

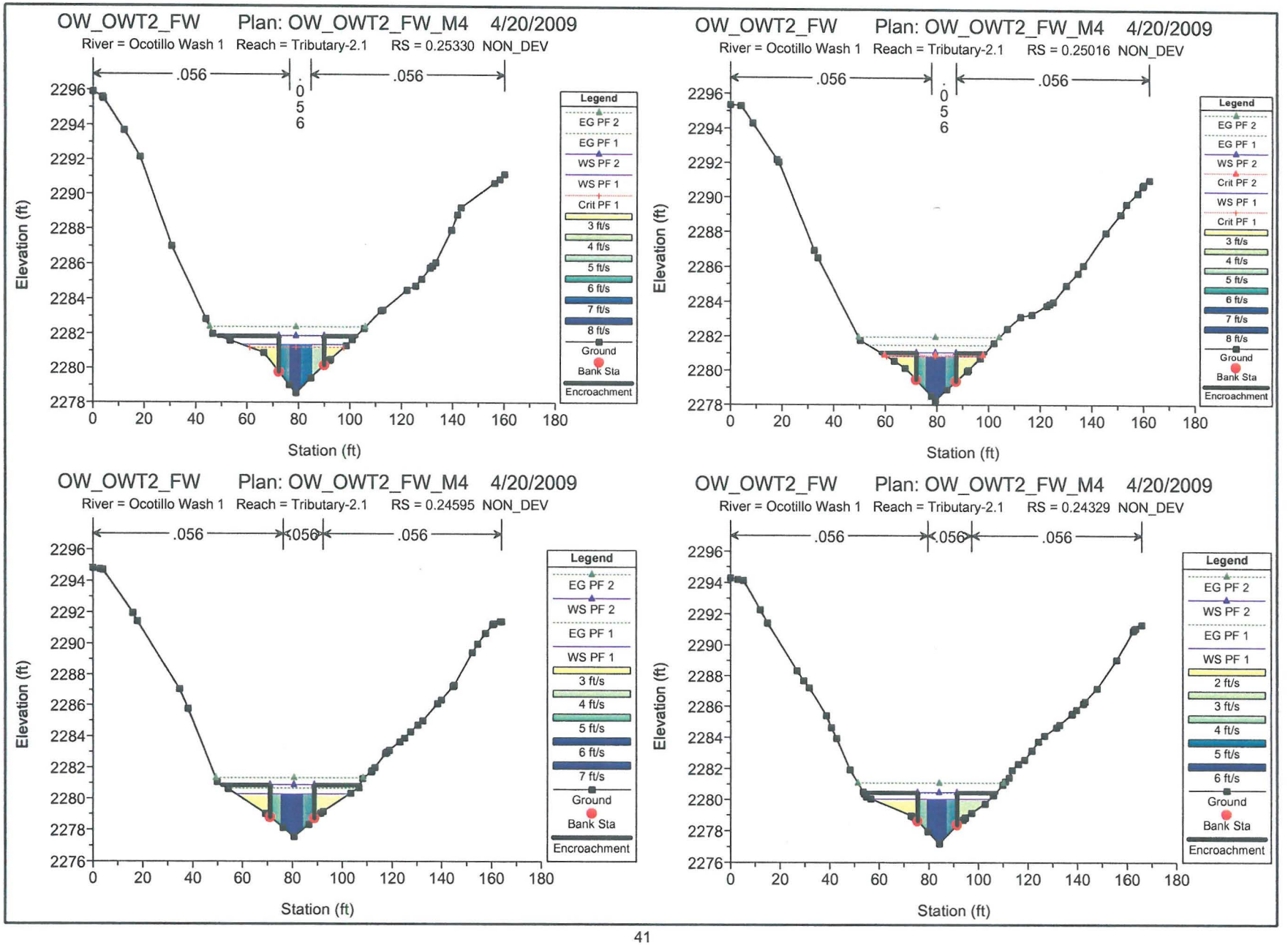

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.35631 NON_DEV
.063
.069
.059
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 2
WS PF 1
Crit PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.35325 NON_DEV
.063
.069
.059
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 1
WS PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.34893 NON_DEV
.063
.069
.059
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 1
WS PF 1
Crit PF 2
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.34588 NON_DEV
.063
.069
.059
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
2 ft/s
3 ft/s
4 ft/s
Ground
Bank Sta
Encroachment

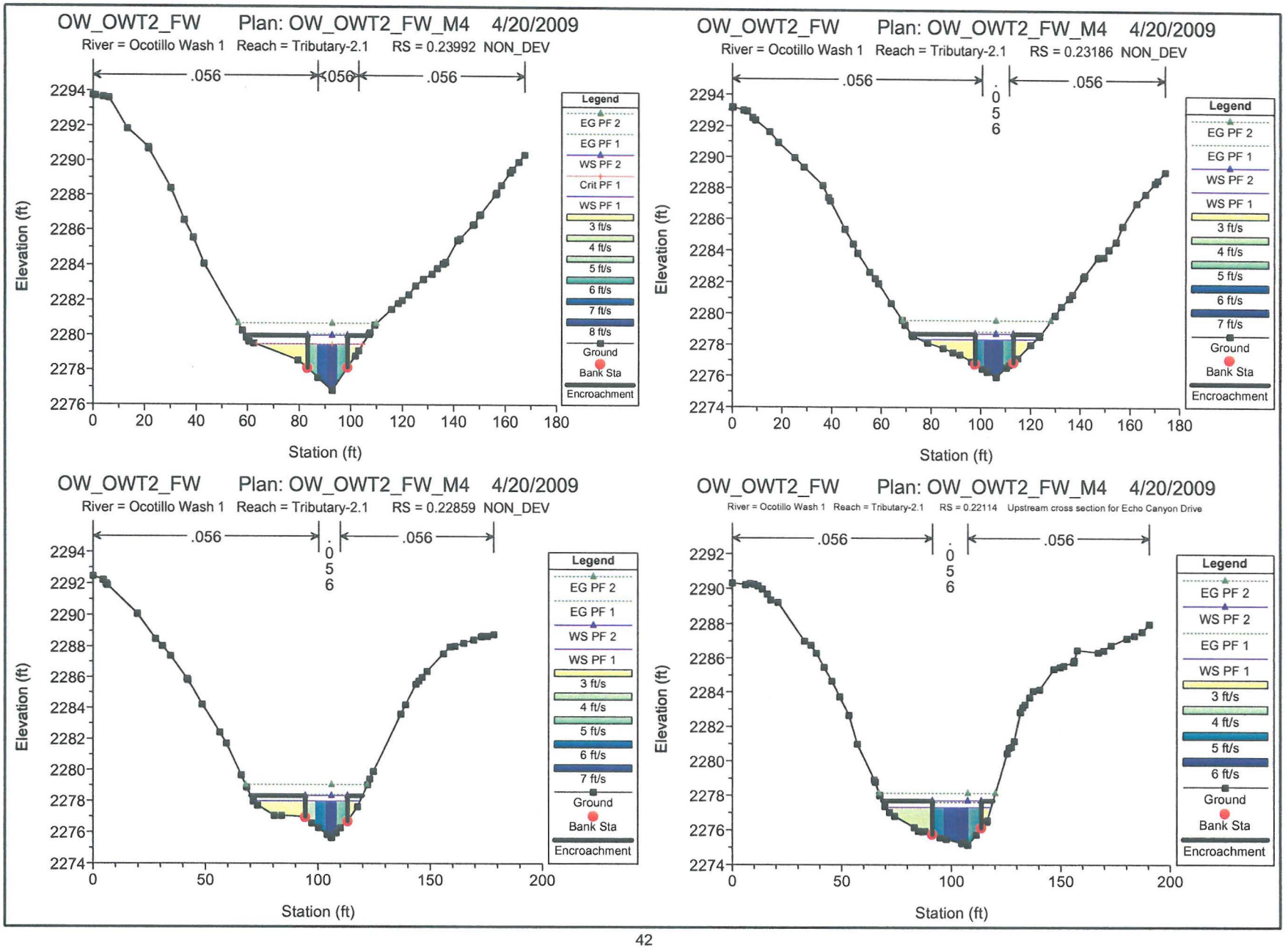

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.34303 NON_DEV
.063
.069
.059
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
3 ft/s
4 ft/s
5 ft/s
6 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.33986 NON_DEV
.063
.069
.059
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
Crit PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.33232 NON_DEV
.063
.069
.059
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.31529 NON_DEV
.056
.056
.056
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta
Encroachment

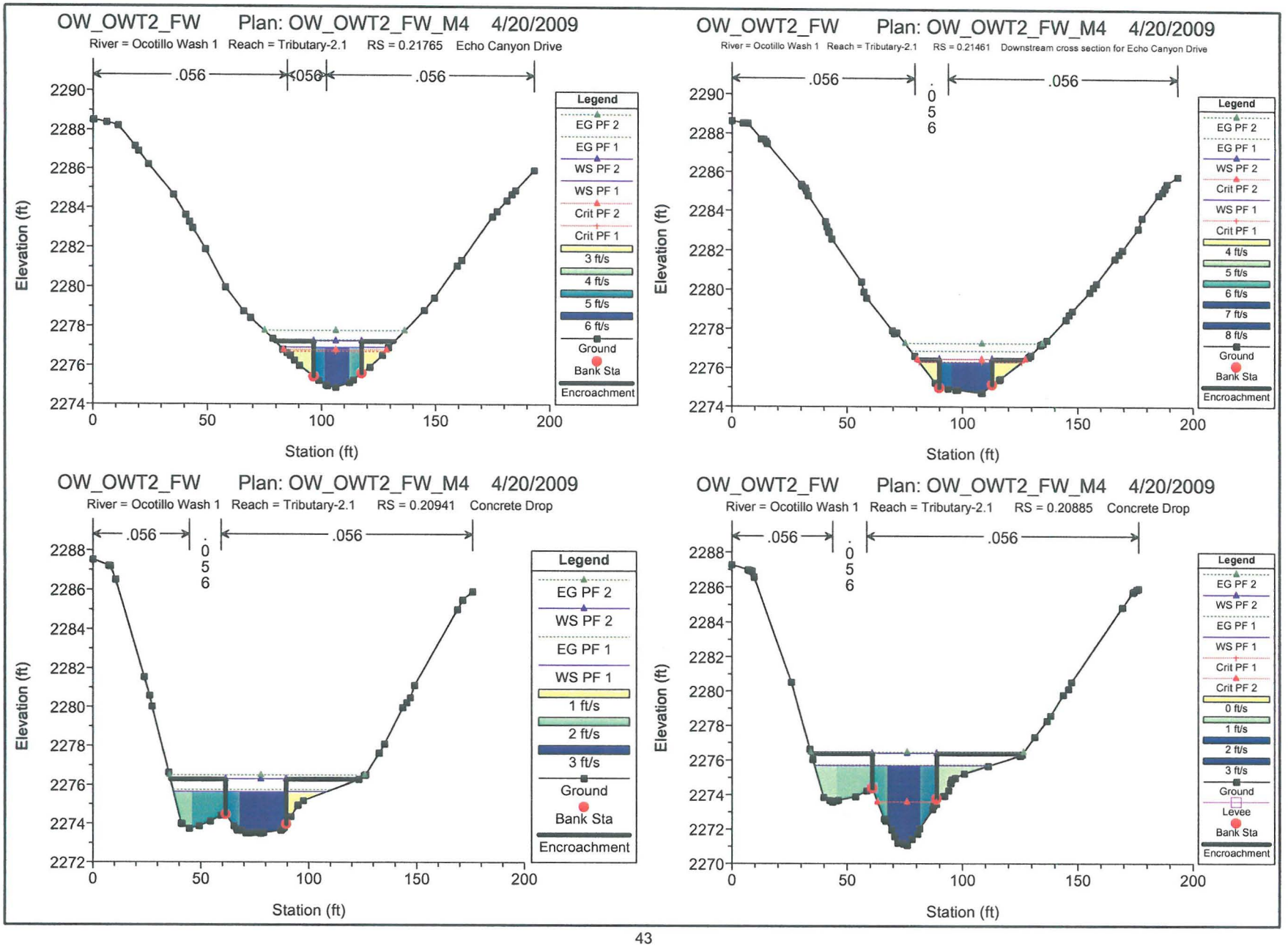

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.30808
.056
.056
.056
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
0 ft/s
1 ft/s
2 ft/s
3 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.30459 NON_DEV
.056
.056
.056
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Crit PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.30181 NON_DEV
.056
.056
.056
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 2
WS PF 1
Crit PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.29712 NON_DEV
.056
.056
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 2
WS PF 1
Crit PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Encroachment

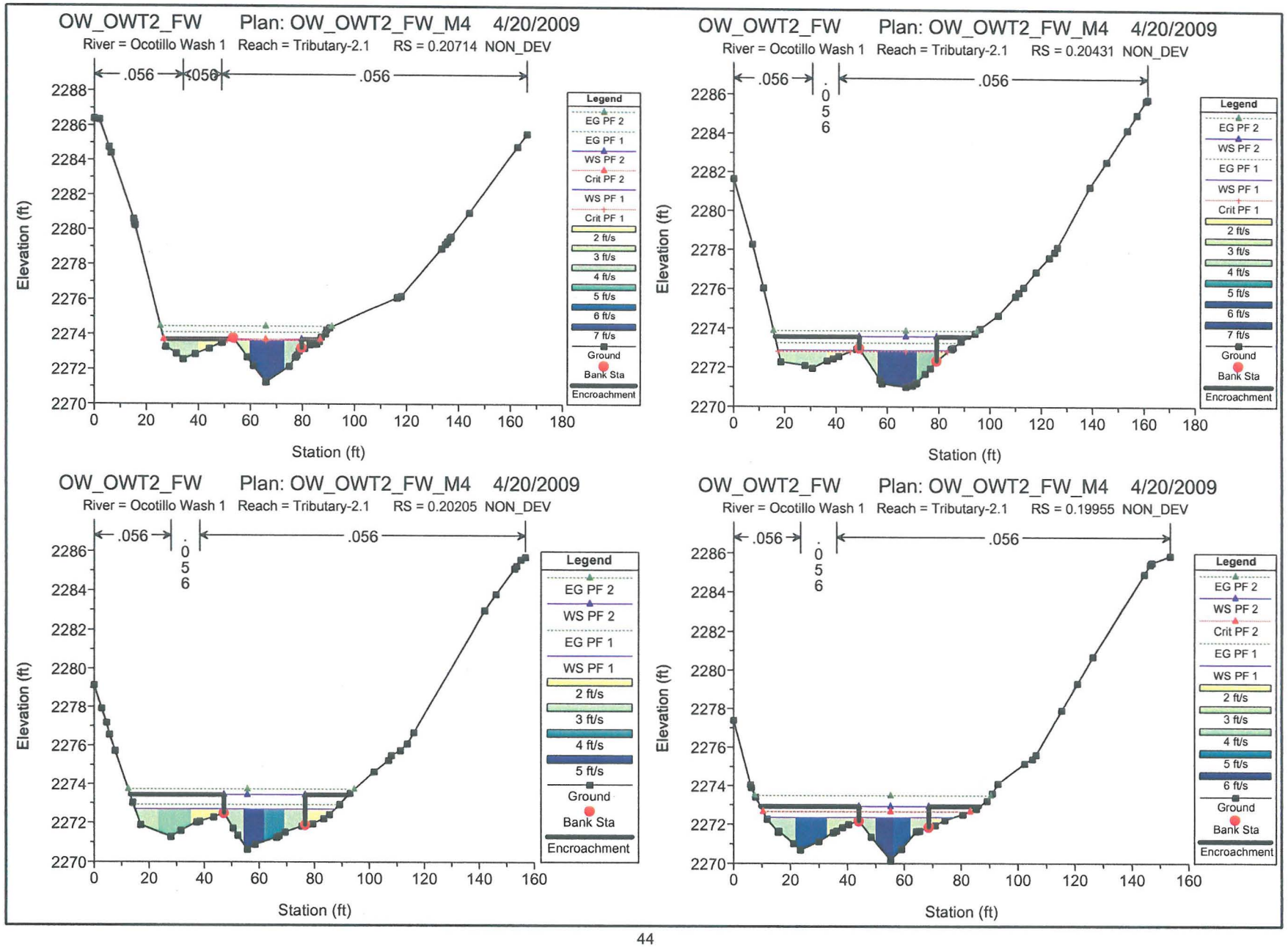

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.29046 NON_DEV
.056
.056
.056
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.28463 NON_DEV
.056
.056
.056
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
Crit PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.28060 NON_DEV
.056
.056
.056
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 2
WS PF 1
Crit PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.27669 NON_DEV
.056
.056
.056
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 1
WS PF 1
Crit PF 2
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Encroachment

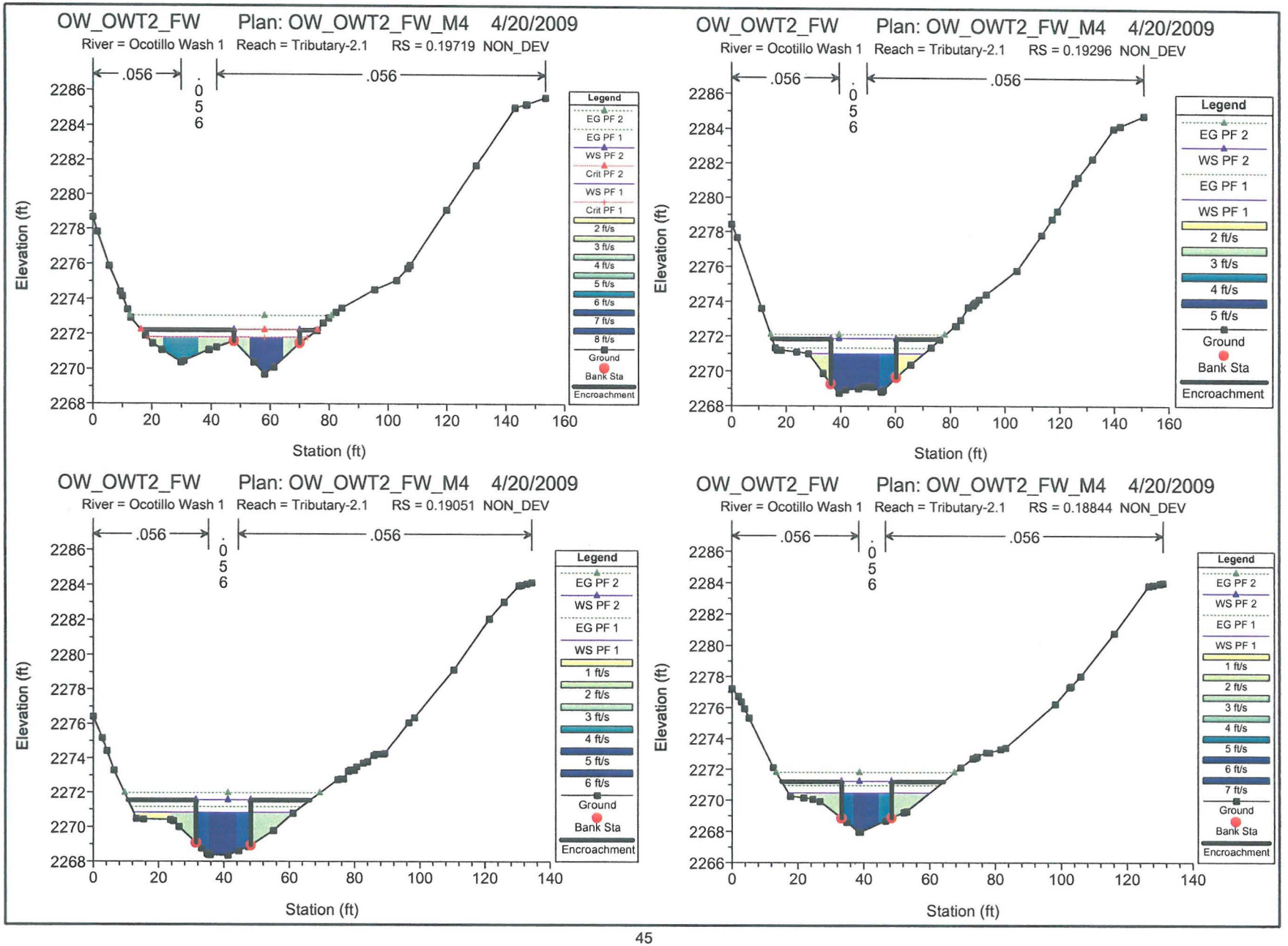

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.27186 NON_DEV
.056
.056
.056
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.26729 NON_DEV
.056
.056
.056
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.26340 NON_DEV
.056
.056
.056
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
Crit PF 1
WS PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.25894 NON_DEV
.056
.056
.056
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 2
WS PF 1
Crit PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Encroachment

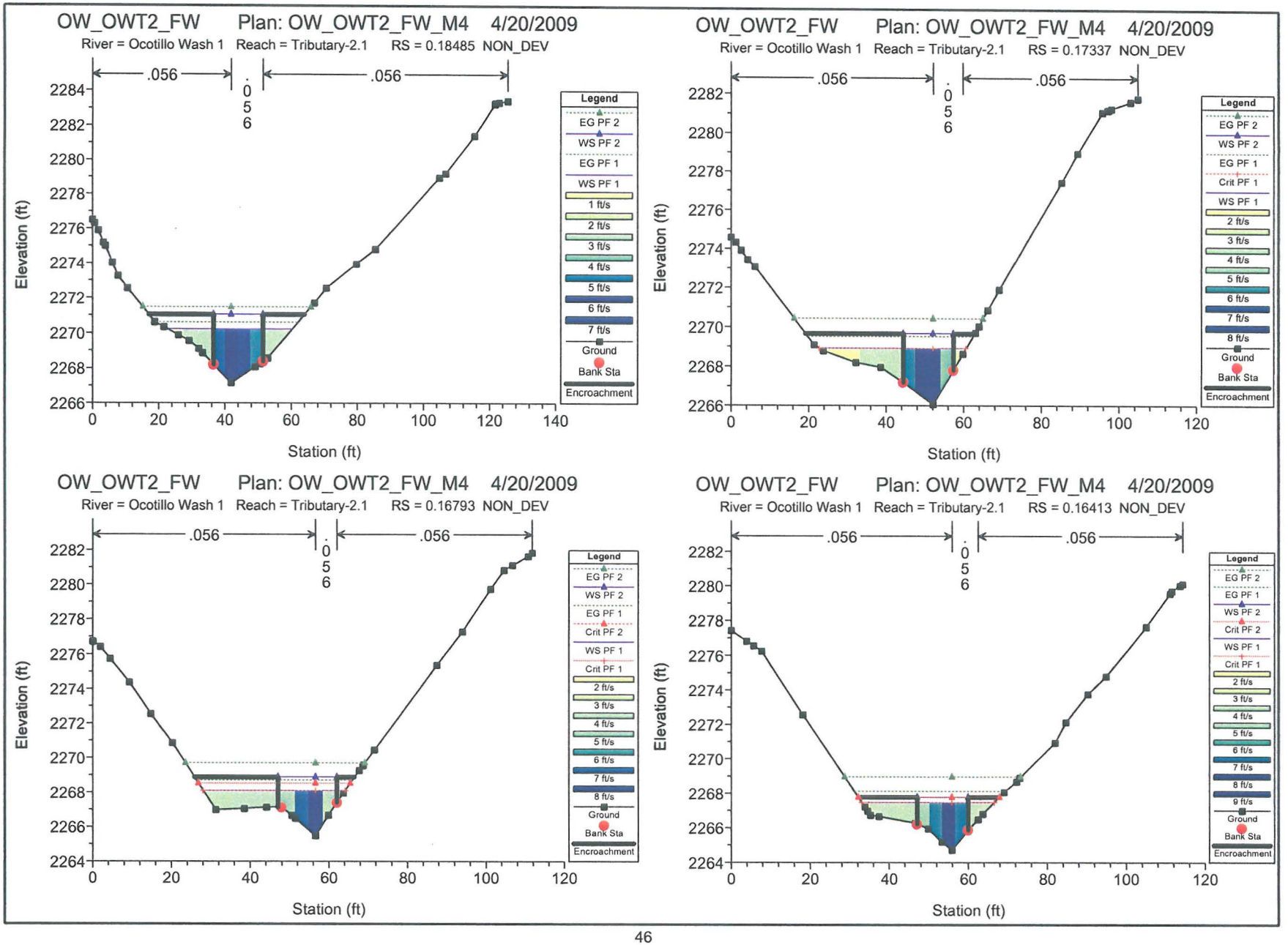

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.25330 NON_DEV
.056
.056
.056
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
Crit PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.25016 NON_DEV
.056
.056
.056
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 2
WS PF 1
Crit PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.24595 NON_DEV
.056
.056
.056
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.24329 NON_DEV
.056
.056
.056
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
Ground
Bank Sta
Encroachment

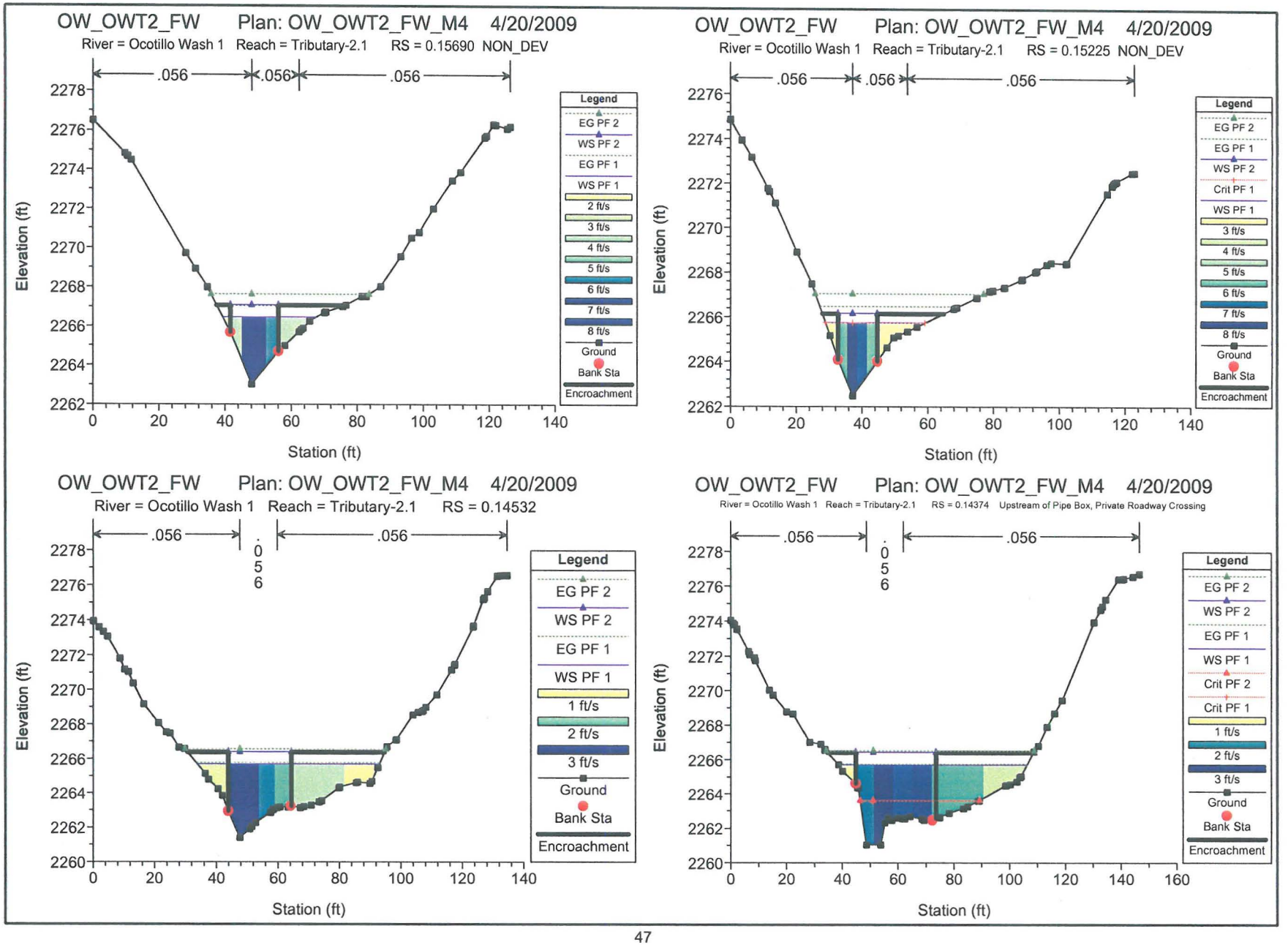

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.23992 NON_DEV
.056
.056
.056
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 1
WS PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.23186 NON_DEV
.056
.056
.056
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.22859 NON_DEV
.056
.056
.056
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.22114 Upstream cross section for Echo Canyon Drive
.056
.056
.056
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
Ground
Bank Sta
Encroachment

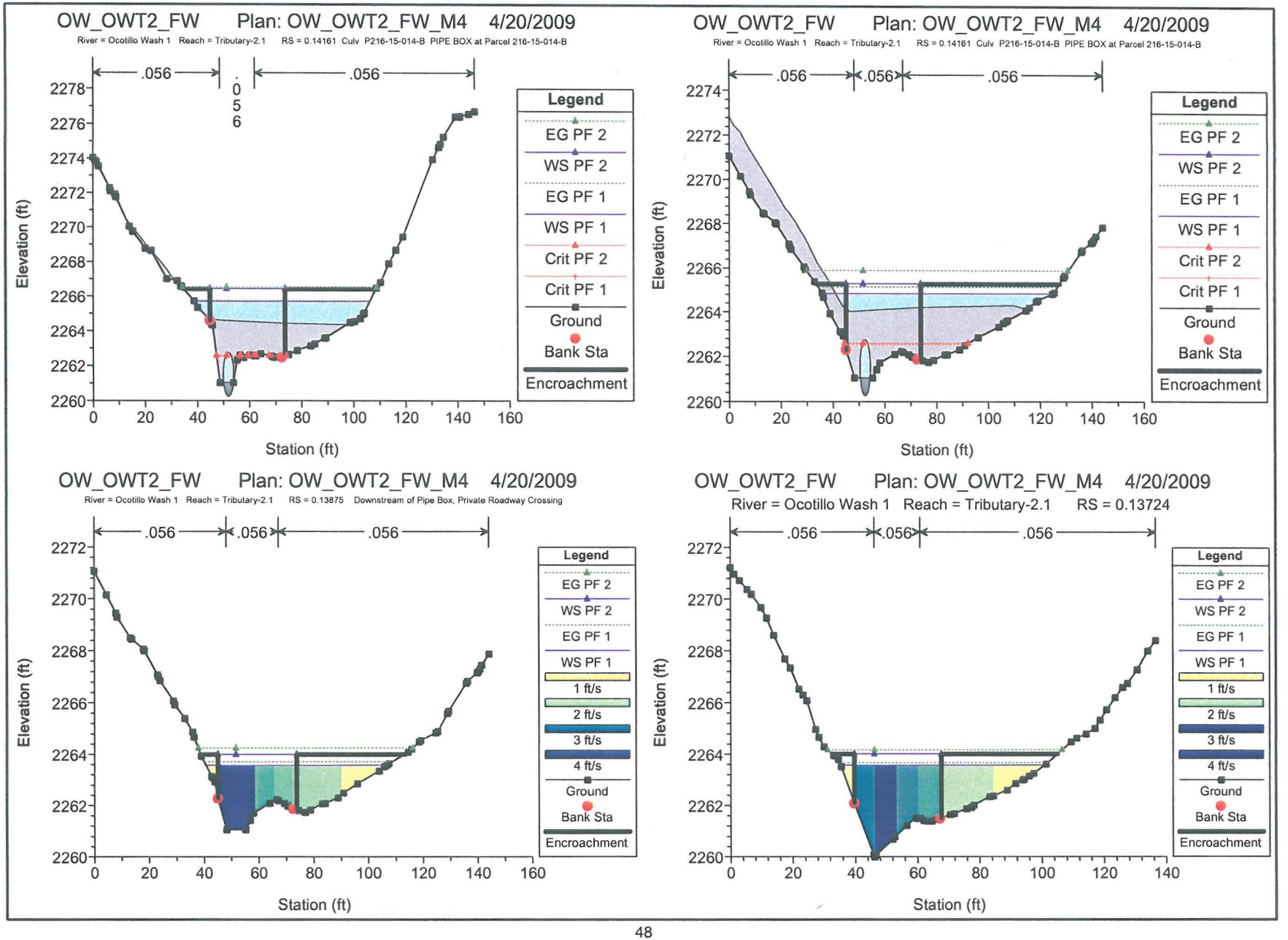

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.21765 Echo Canyon Drive
.056
.056
.056
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
Crit PF 2
Crit PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.21461 Downstream cross section for Echo Canyon Drive
.056
.056
.056
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 2
WS PF 1
Crit PF 1
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.20941 Concrete Drop
.056
.056
.056
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
1 ft/s
2 ft/s
3 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.20885 Concrete Drop
.056
.056
.056
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Crit PF 1
Crit PF 2
0 ft/s
1 ft/s
2 ft/s
3 ft/s
Ground
Levee
Bank Sta
Encroachment

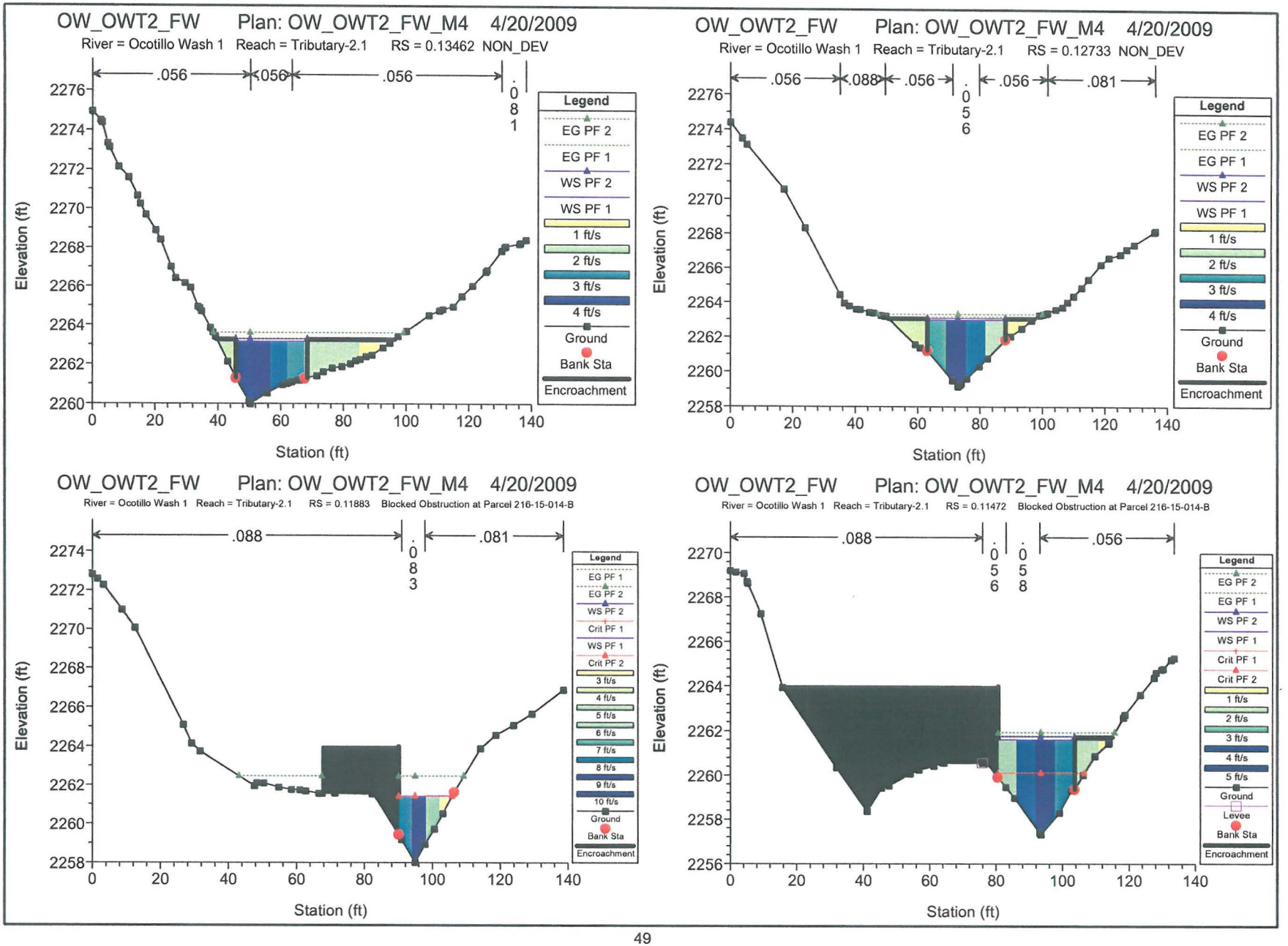

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.20714 NON_DEV
.056
.056
.056
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 2
WS PF 1
Crit PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.20431 NON_DEV
.056
.056
.056
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Crit PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.20205 NON_DEV
.056
.056
.056
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.19955 NON_DEV
.056
.056
.056
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
Crit PF 2
EG PF 1
WS PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
Ground
Bank Sta
Encroachment

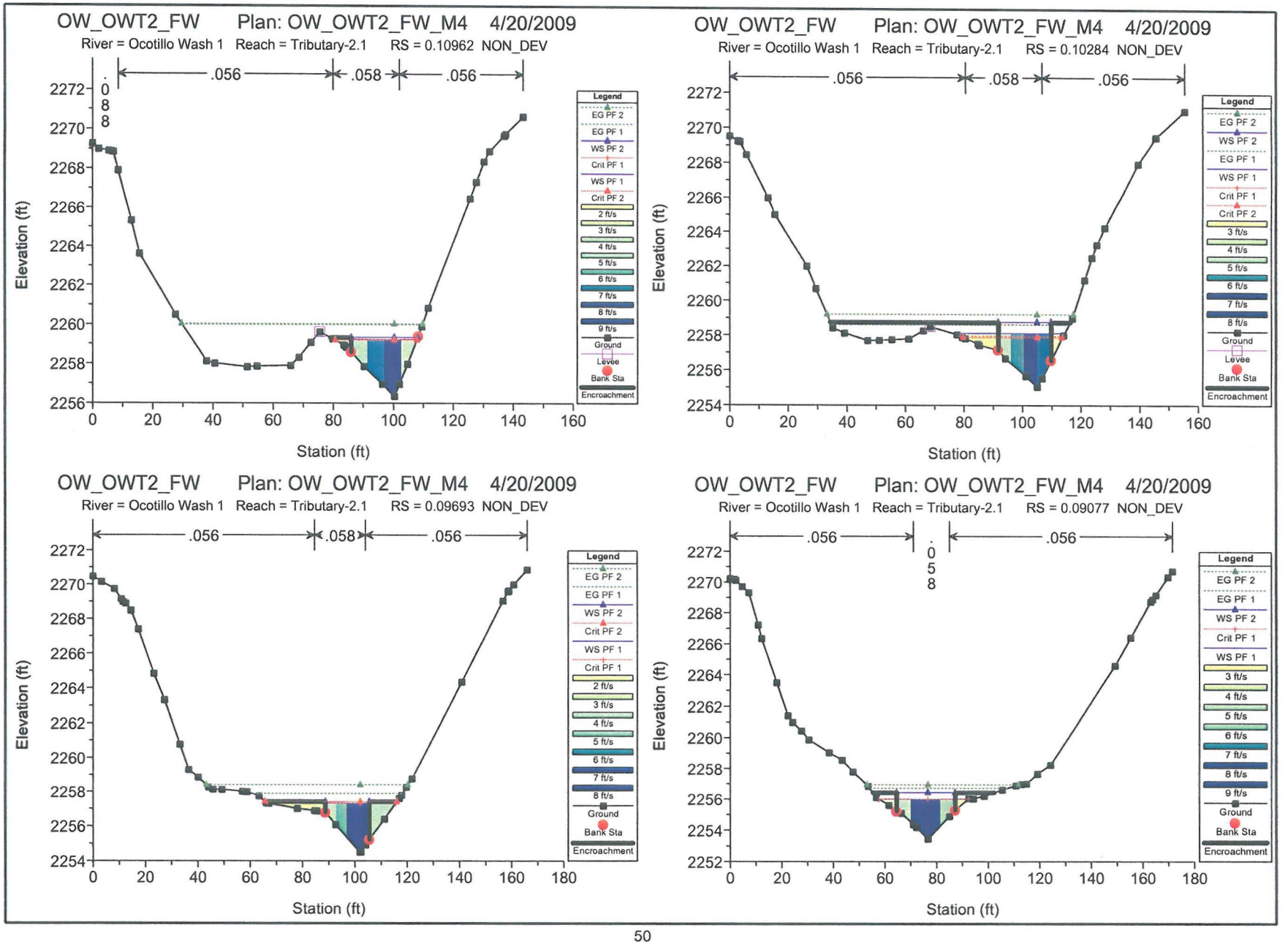

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.19719 NON_DEV
.056
.056
.056
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 2
WS PF 1
Crit PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.19296 NON_DEV
.056
.056
.056
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.19051 NON_DEV
.056
.056
.056
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.18844 NON_DEV
.056
.056
.056
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta
Encroachment

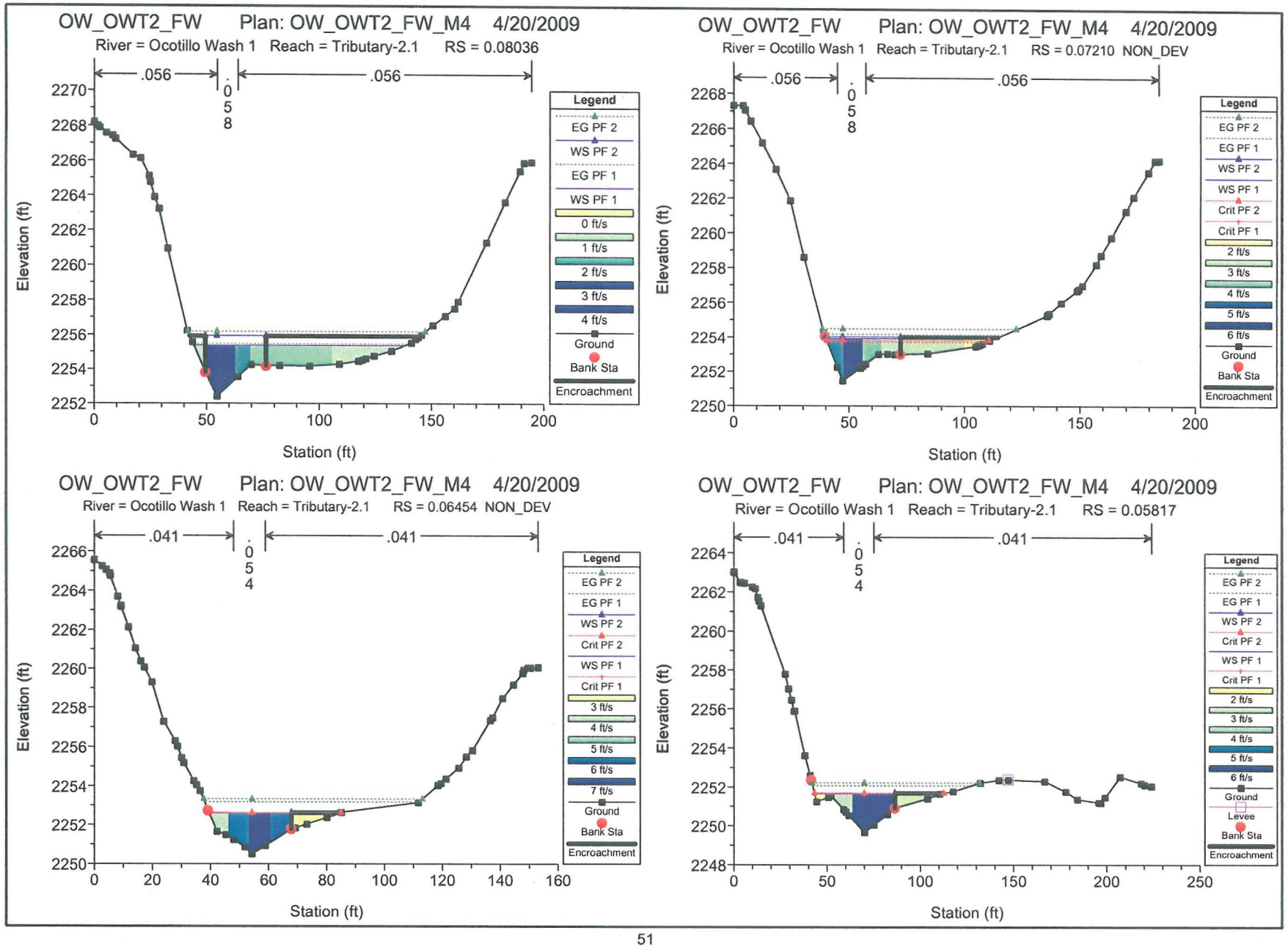

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.18485 NON_DEV
.056
.056
.056
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.17337 NON_DEV
Legend
EG PF 2
WS PF 2
EG PF 1
Crit PF 1
WS PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.16793 NON_DEV
Legend
EG PF 2
WS PF 2
EG PF 1
Crit PF 2
WS PF 1
Crit PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.16413 NON_DEV
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 2
WS PF 1
Crit PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
Ground
Bank Sta
Encroachment

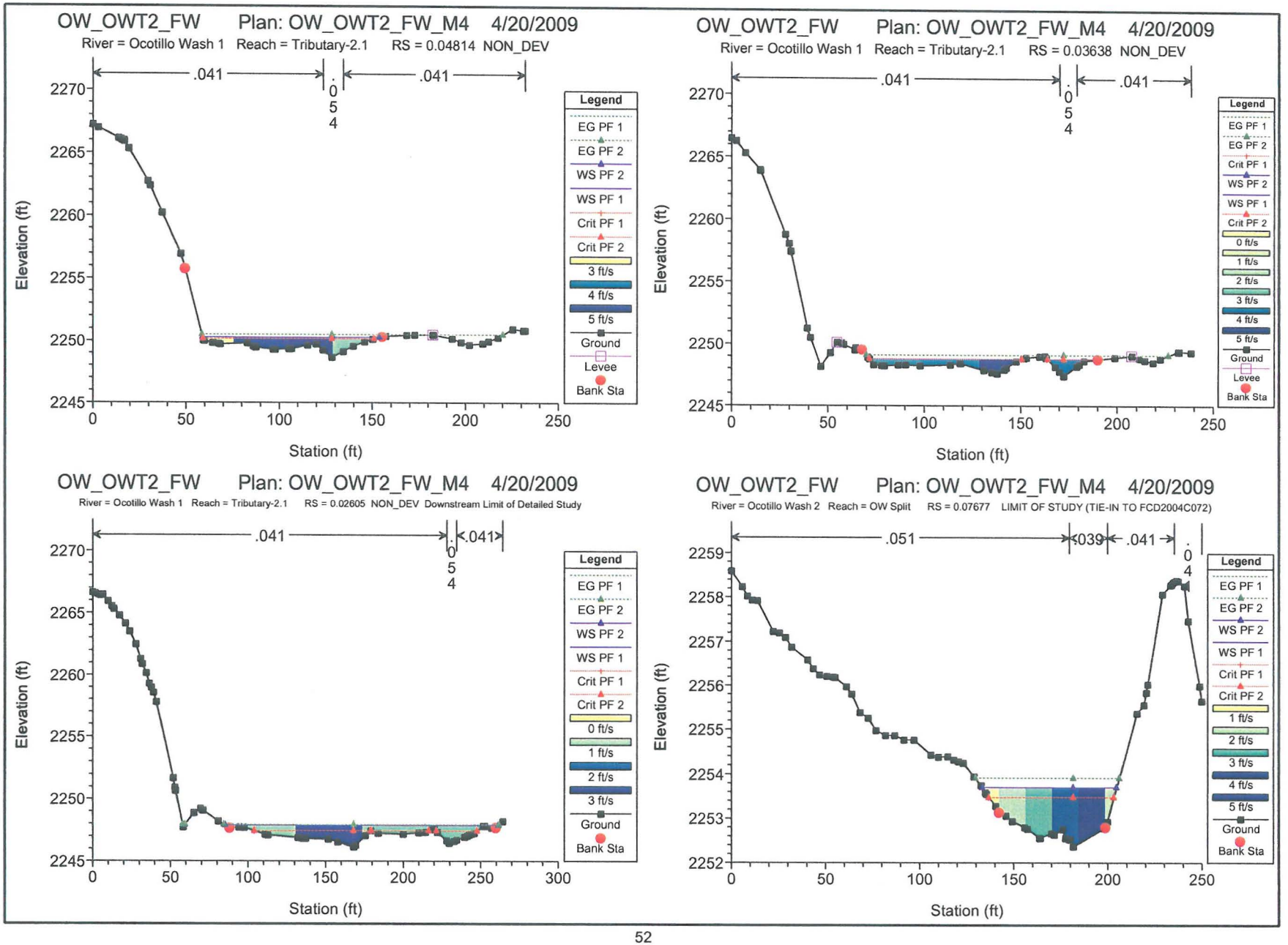

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.15690 NON_DEV
.056
.056
.056
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.15225 NON_DEV
.056
.056
.056
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 1
WS PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.14532
.056
.056
.056
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
1 ft/s
2 ft/s
3 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.14374 Upstream of Pipe Box, Private Roadway Crossing
.056
.056
.056
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Crit PF 2
Crit PF 1
1 ft/s
2 ft/s
3 ft/s
Ground
Bank Sta
Encroachment

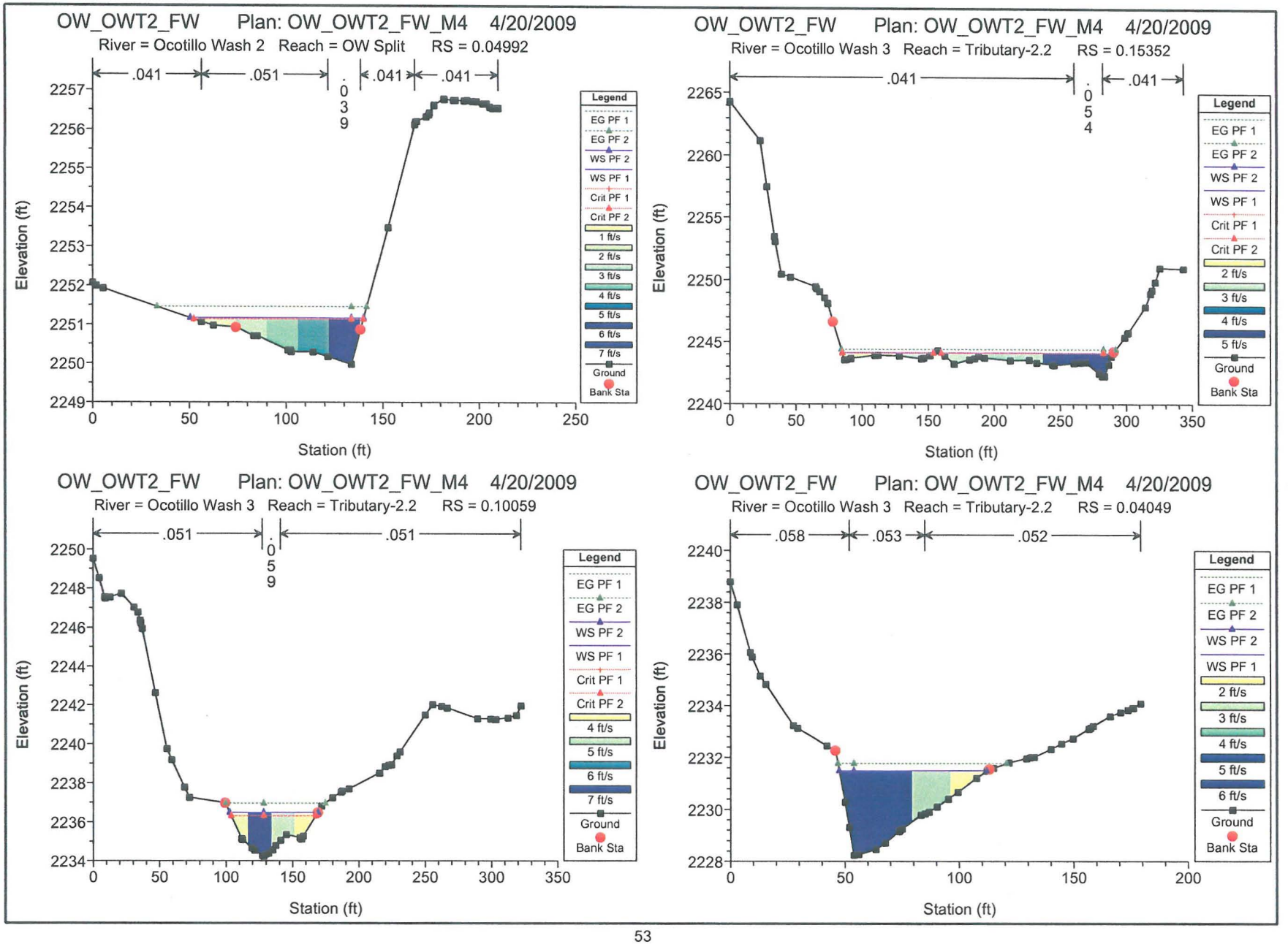

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.14161 Culv P216-15-014-B PIPE BOX at Parcel 216-15-014-B
.056
.056
.056
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Crit PF 2
Crit PF 1
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.14161 Culv P216-15-014-B PIPE BOX at Parcel 216-15-014-B
.056
.056
.056
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
Crit PF 2
Crit PF 1
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.13875 Downstream of Pipe Box, Private Roadway Crossing
.056
.056
.056
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.13724
.056
.056
.056
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
Ground
Bank Sta
Encroachment

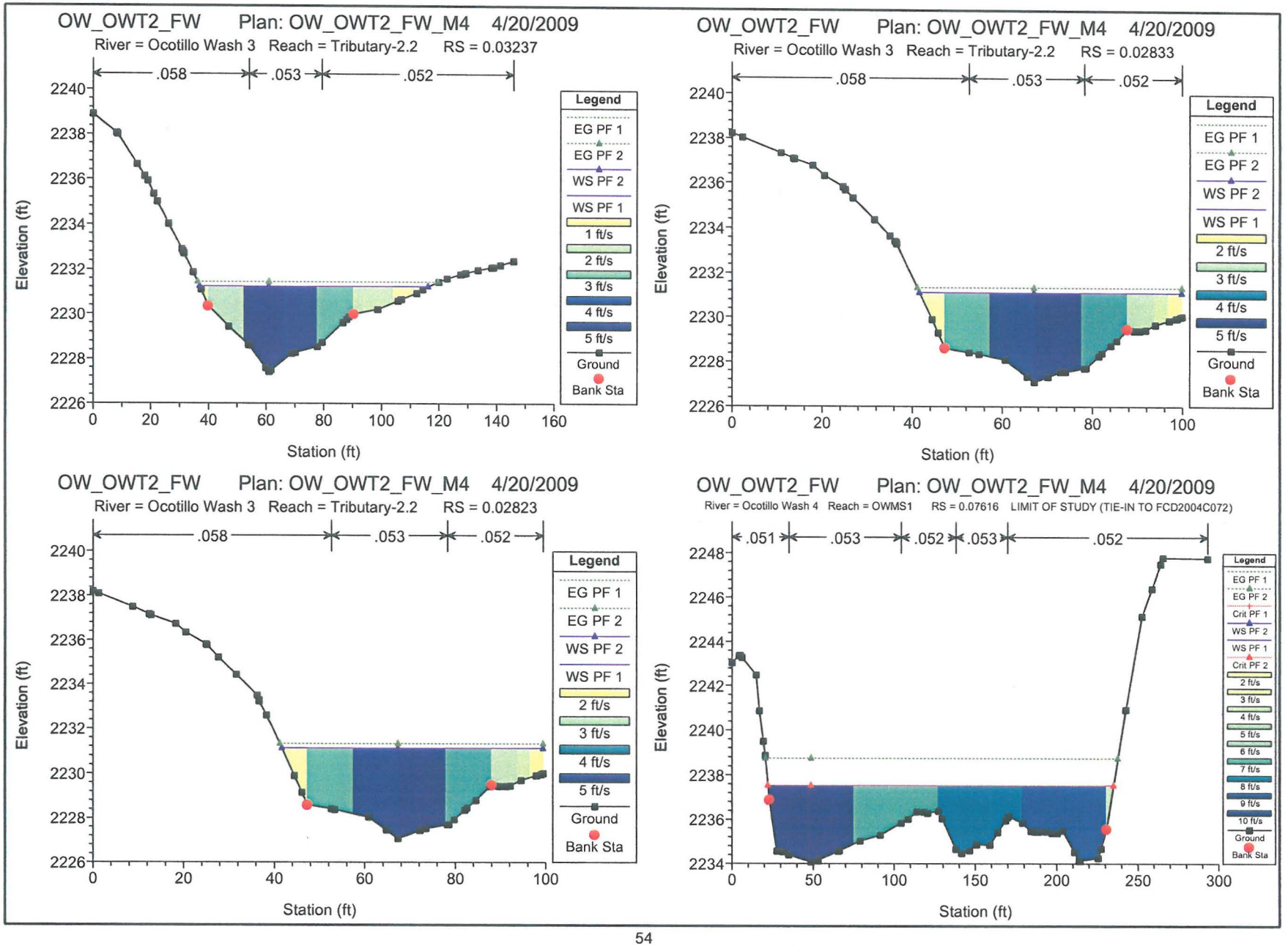

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.13462 NON_DEV
.056
.056
.056
.081
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.12733 NON_DEV
.056
.088
.056
.056
.056
.081
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.11883 Blocked Obstruction at Parcel 216-15-014-B
.088
.083
.081
Legend
EG PF 1
EG PF 2
WS PF 2
Crit PF 1
WS PF 1
Crit PF 2
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
10 ft/s
Ground
Bank Sta
Encroachment
Elevation (ft)
Station (ft)
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.11472 Blocked Obstruction at Parcel 216-15-014-B
.088
.056
.058
.056
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
Ground
Levee
Bank Sta
Encroachment
Elevation (ft)
Station (ft)

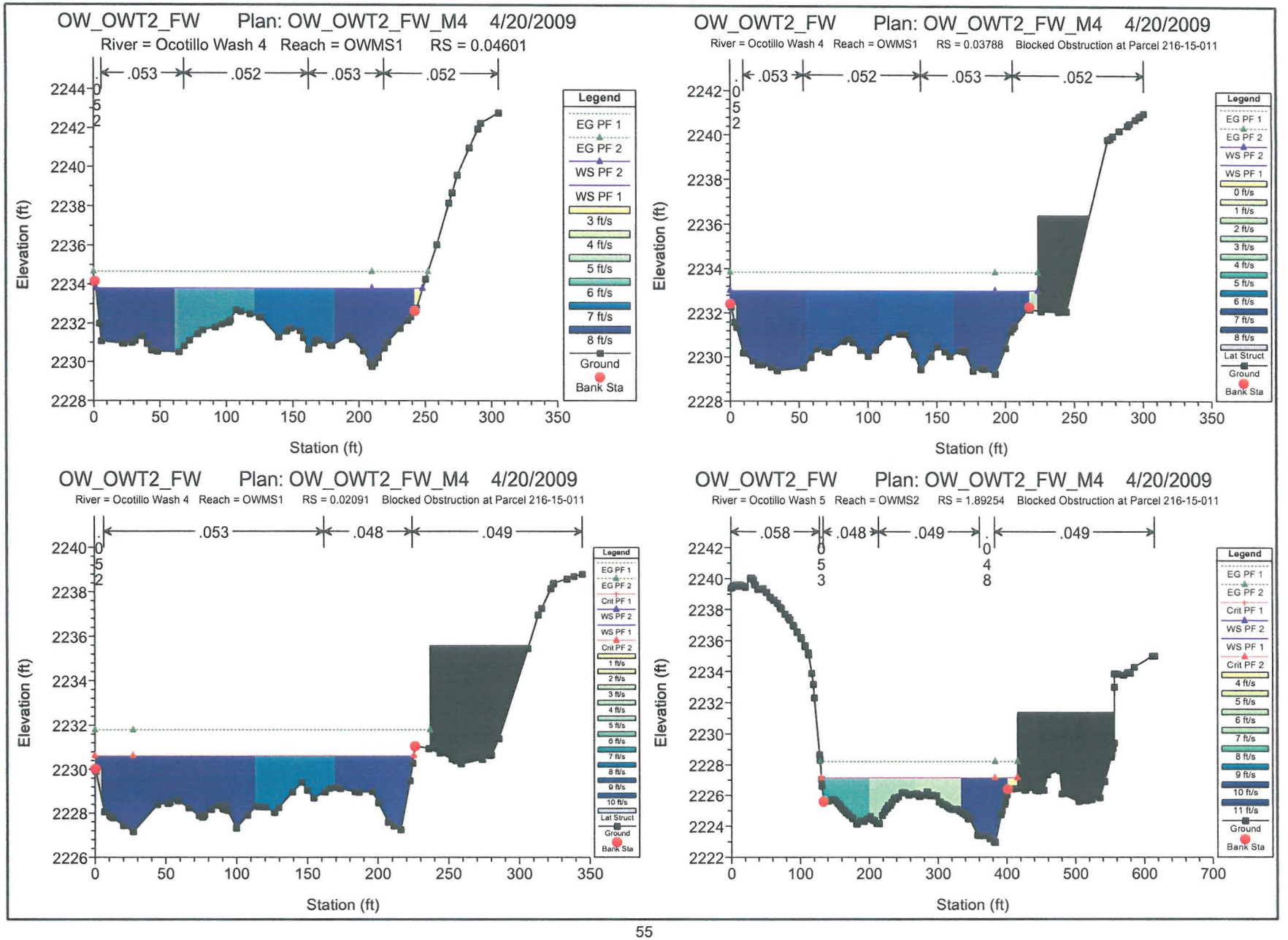

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.10962 NON_DEV
.056
.058
.056
.088
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 1
WS PF 1
Crit PF 2
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
Ground
Levee
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.10284 NON_DEV
.056
.058
.056
Elevation (ft)
Station (ft)
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.09693 NON_DEV
.056
.058
.056
Elevation (ft)
Station (ft)
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.09077 NON_DEV
.056
.058
.056
Elevation (ft)
Station (ft)

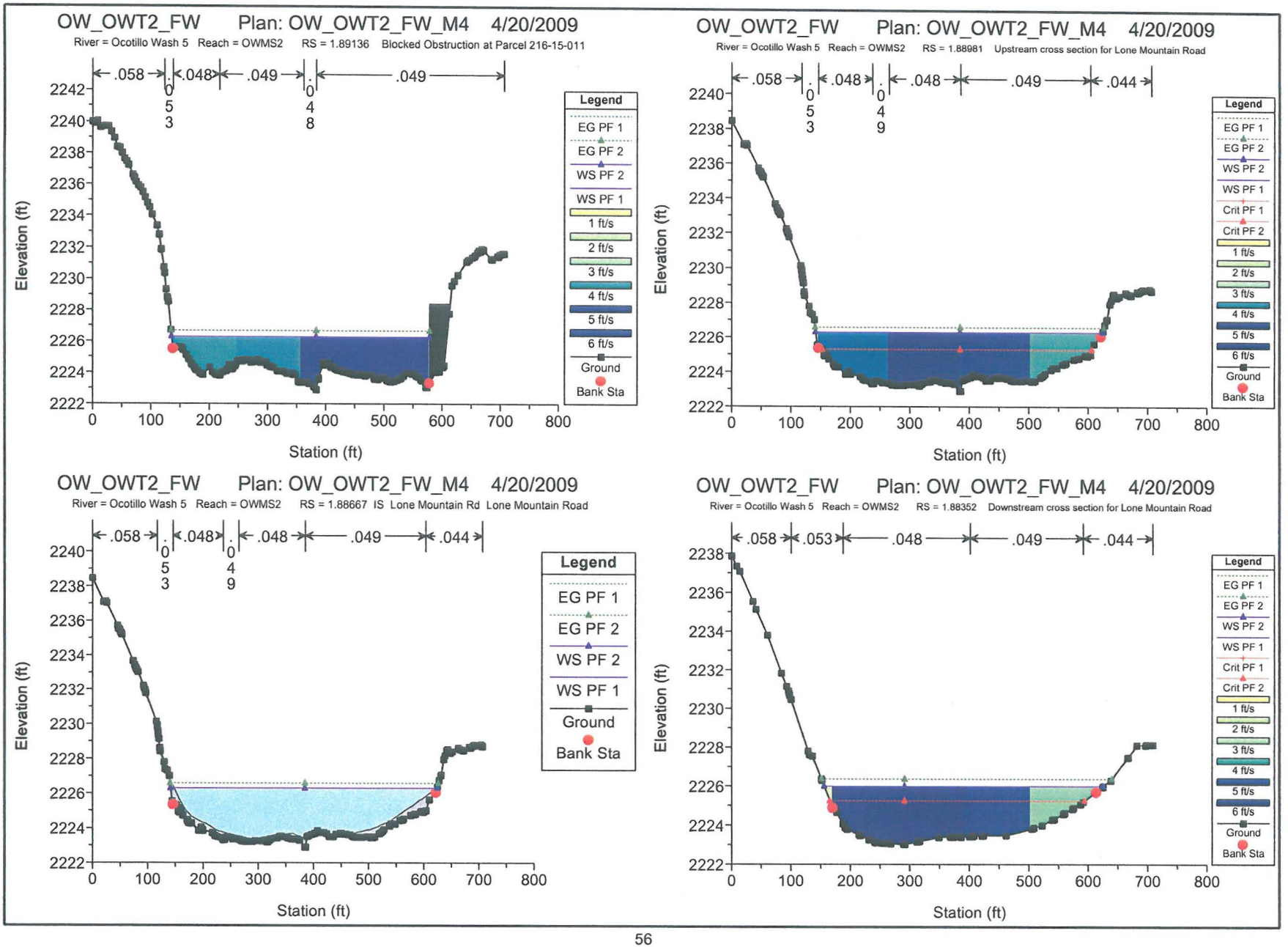

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.08036
.056
.058
.056
Elevation (ft)
Station (ft)
Legend
EG PF 2
WS PF 2
EG PF 1
WS PF 1
0 ft/s
1 ft/s
2 ft/s
3 ft/s
4 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.07210 NON_DEV
.056
.058
.056
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
WS PF 1
Crit PF 2
Crit PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.06454 NON_DEV
.041
.054
.041
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 2
WS PF 1
Crit PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta
Encroachment
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.05817
.041
.054
.041
Elevation (ft)
Station (ft)
Legend
EG PF 2
EG PF 1
WS PF 2
Crit PF 2
WS PF 1
Crit PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
Ground
Levee
Bank Sta
Encroachment

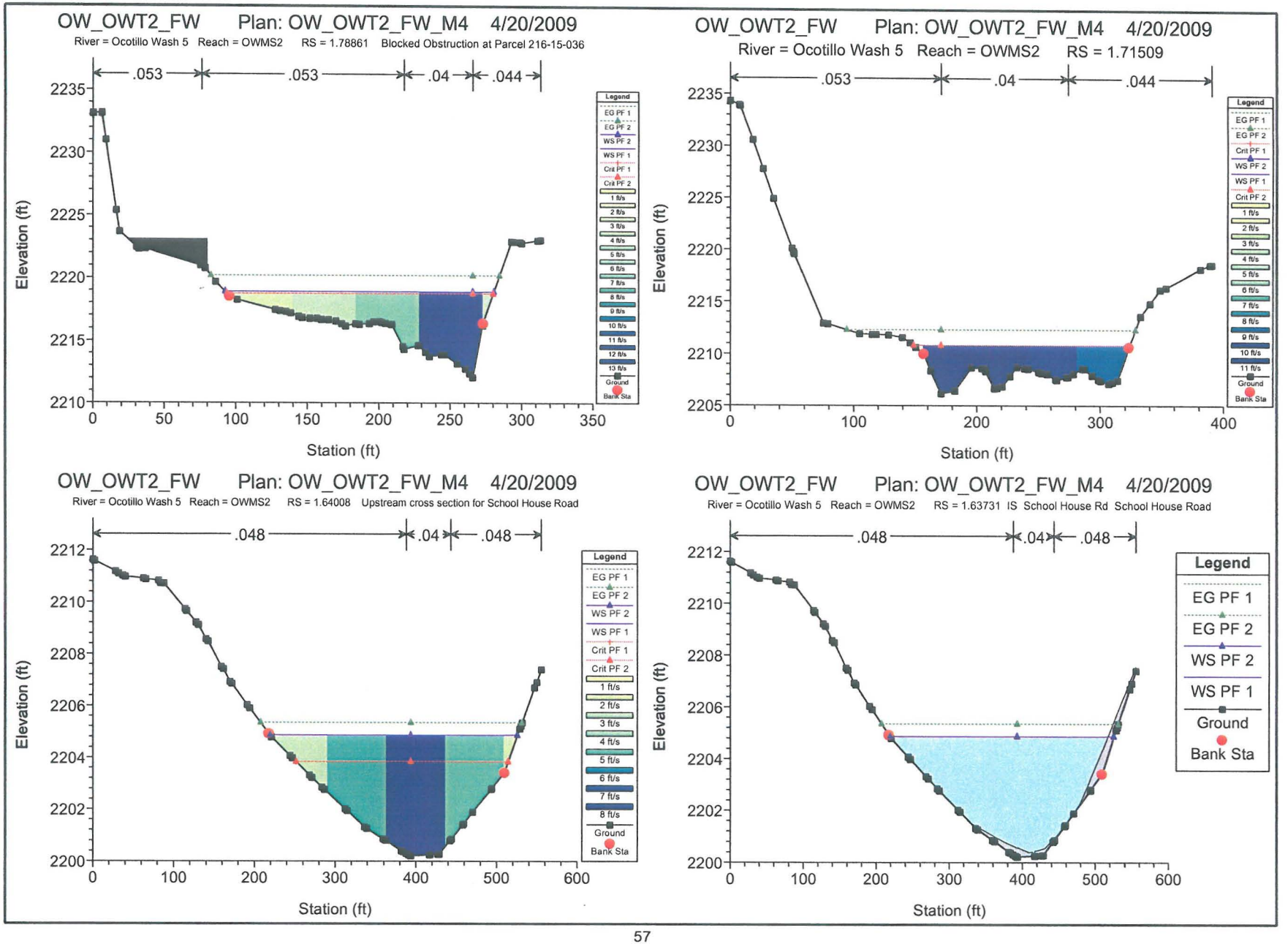

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.04814 NON_DEV
.041
.054
.041
Elevation (ft)
Station (ft)
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
3 ft/s
4 ft/s
5 ft/s
Ground
Levee
Bank Sta
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.03638 NON_DEV
.041
.054
.041
Elevation (ft)
Station (ft)
Legend
EG PF 1
EG PF 2
Crit PF 1
WS PF 2
WS PF 1
Crit PF 2
0 ft/s
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
Ground
Levee
Bank Sta
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 1 Reach = Tributary-2.1 RS = 0.02605 NON_DEV Downstream Limit of Detailed Study
.041
.054
.041
Elevation (ft)
Station (ft)
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
0 ft/s
1 ft/s
2 ft/s
3 ft/s
Ground
Bank Sta
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 2 Reach = OW Split RS = 0.07677 LIMIT OF STUDY (TIE-IN TO FCD2004C072)
.051
.039
.041
.04
Elevation (ft)
Station (ft)
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
Ground
Bank Sta

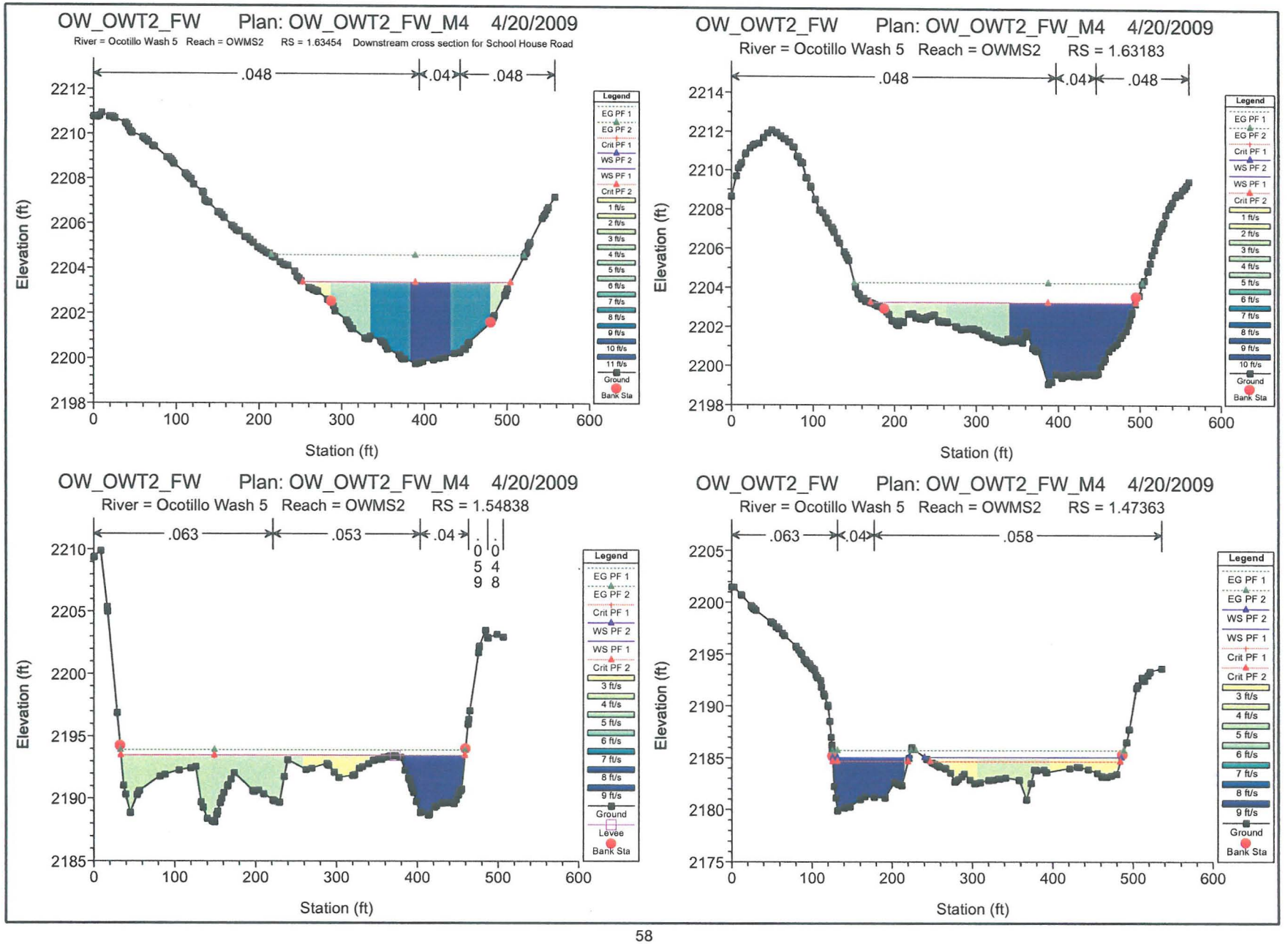

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 2 Reach = OW Split RS = 0.04992
.041
.051
.039
.041
.041
Elevation (ft)
Station (ft)
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 3 Reach = Tributary-2.2 RS = 0.15352
.041
.054
.041
Elevation (ft)
Station (ft)
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
2 ft/s
3 ft/s
4 ft/s
5 ft/s
Ground
Bank Sta
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 3 Reach = Tributary-2.2 RS = 0.10059
.051
.059
.051
Elevation (ft)
Station (ft)
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
4 ft/s
5 ft/s
6 ft/s
7 ft/s
Ground
Bank Sta
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 3 Reach = Tributary-2.2 RS = 0.04049
.058
.053
.052
Elevation (ft)
Station (ft)
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
Ground
Bank Sta

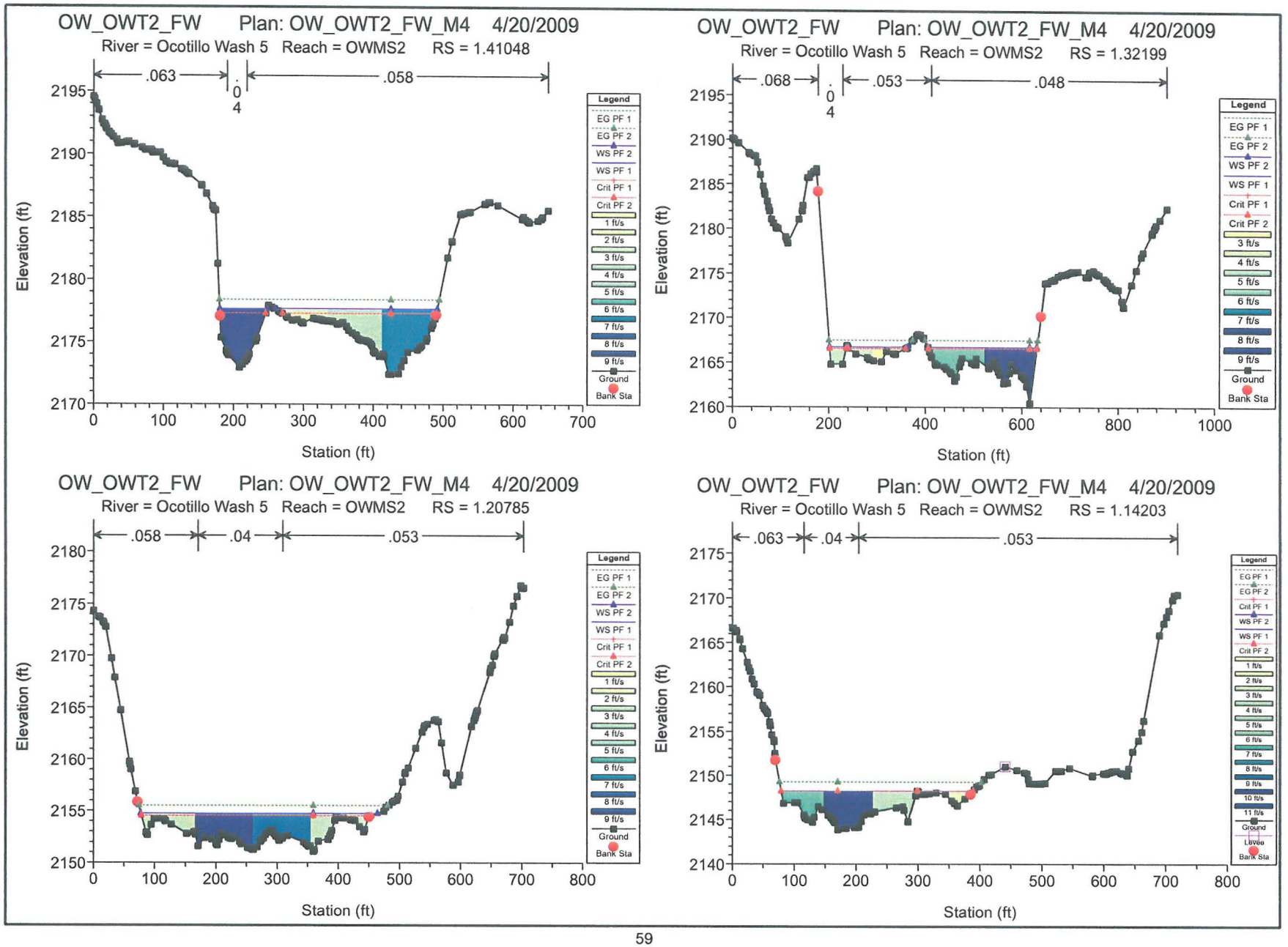

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 3 Reach = Tributary-2.2 RS = 0.03237
.058
.053
.052
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
Ground
Bank Sta
Elevation (ft)
Station (ft)
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 3 Reach = Tributary-2.2 RS = 0.02833
.058
.053
.052
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
Ground
Bank Sta
Elevation (ft)
Station (ft)
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 3 Reach = Tributary-2.2 RS = 0.02823
.058
.053
.052
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
Ground
Bank Sta
Elevation (ft)
Station (ft)
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 4 Reach = OWMS1 RS = 0.07616 LIMIT OF STUDY (TIE-IN TO FCD2004C072)
.051
.053
.052
.053
.052
Legend
EG PF 1
EG PF 2
Crit PF 1
WS PF 2
WS PF 1
Crit PF 2
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
10 ft/s
Ground
Bank Sta
Elevation (ft)
Station (ft)

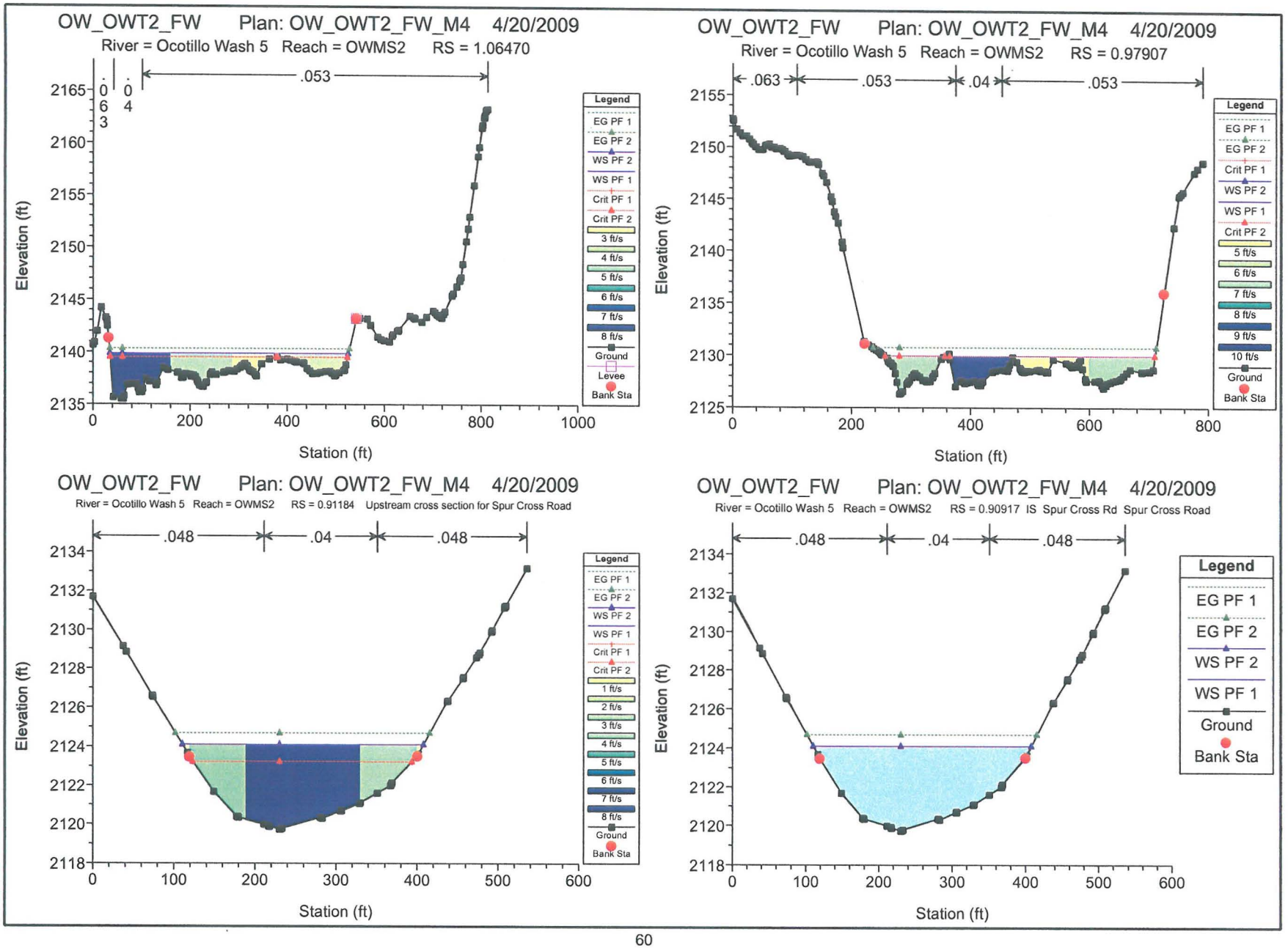

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 4 Reach = OWMS1 RS = 0.04601
.053 .052 .053 .052
Elevation (ft)
Station (ft)
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 4 Reach = OWMS1 RS = 0.03788 Blocked Obstruction at Parcel 216-15-011
.053 .052 .053 .052
Elevation (ft)
Station (ft)
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
0 ft/s
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Lat Struct
Ground
Bank Sta
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 4 Reach = OWMS1 RS = 0.02091 Blocked Obstruction at Parcel 216-15-011
.053 .048 .049
Elevation (ft)
Station (ft)
Legend
EG PF 1
EG PF 2
Crit PF 1
WS PF 2
WS PF 1
Crit PF 2
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
10 ft/s
Lat Struct
Ground
Bank Sta
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 5 Reach = OWMS2 RS = 1.89254 Blocked Obstruction at Parcel 216-15-011
.058 .048 .049 .049
Elevation (ft)
Station (ft)
Legend
EG PF 1
EG PF 2
Crit PF 1
WS PF 2
WS PF 1
Crit PF 2
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
10 ft/s
11 ft/s
Ground
Bank Sta

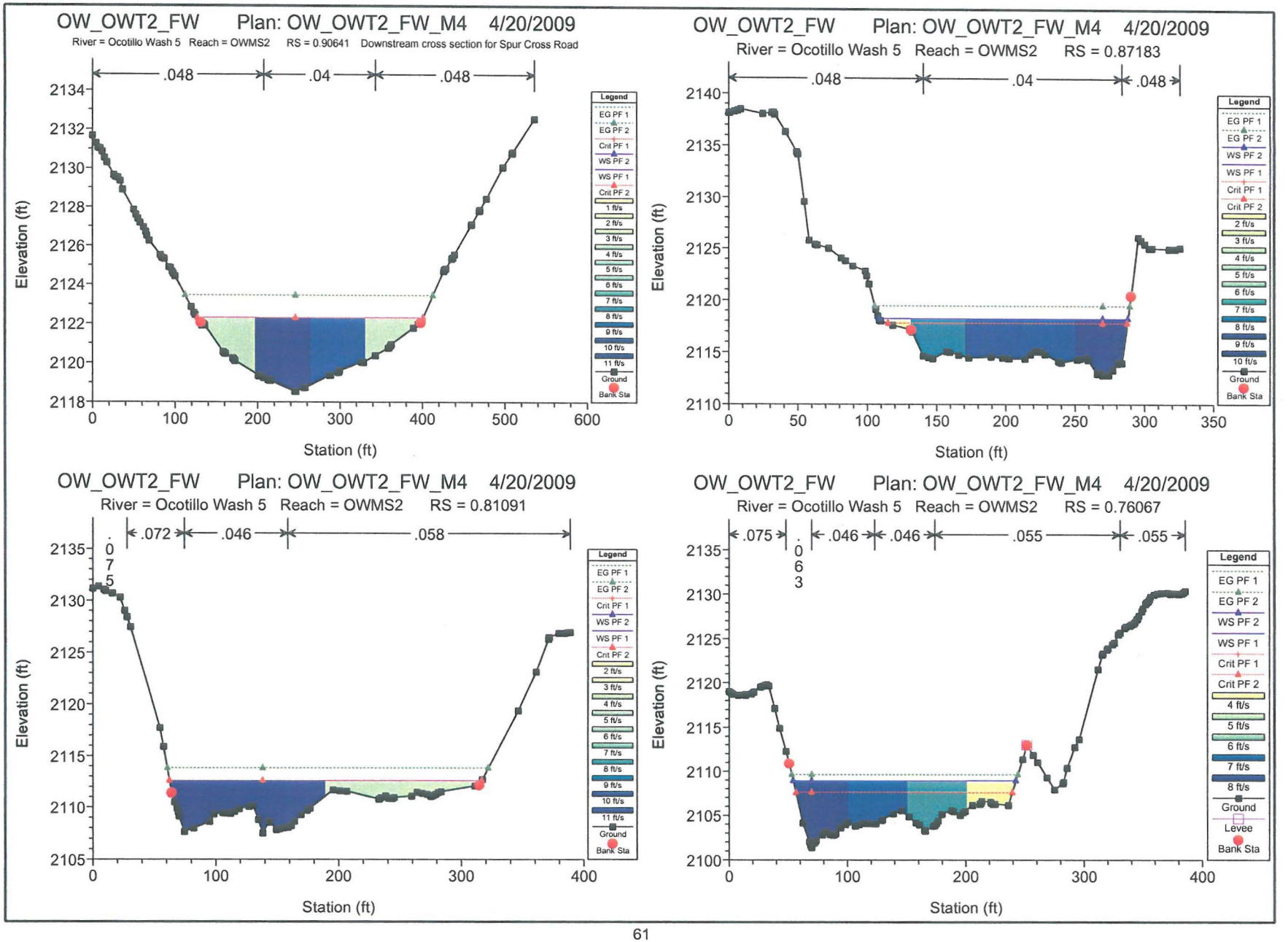

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 5 Reach = OWMS2 RS = 1.89136 Blocked Obstruction at Parcel 216-15-011
.058
.053
.048
.049
.049
Elevation (ft)
Station (ft)
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
Ground
Bank Sta
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 5 Reach = OWMS2 RS = 1.88981 Upstream cross section for Lone Mountain Road
.058
.053
.048
.049
.048
.049
.044
Elevation (ft)
Station (ft)
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
Ground
Bank Sta
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 5 Reach = OWMS2 RS = 1.88667 IS Lone Mountain Rd Lone Mountain Road
.058
.053
.048
.049
.048
.049
.044
Elevation (ft)
Station (ft)
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Ground
Bank Sta
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 5 Reach = OWMS2 RS = 1.88352 Downstream cross section for Lone Mountain Road
.058
.053
.048
.049
.044
Elevation (ft)
Station (ft)
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
Ground
Bank Sta

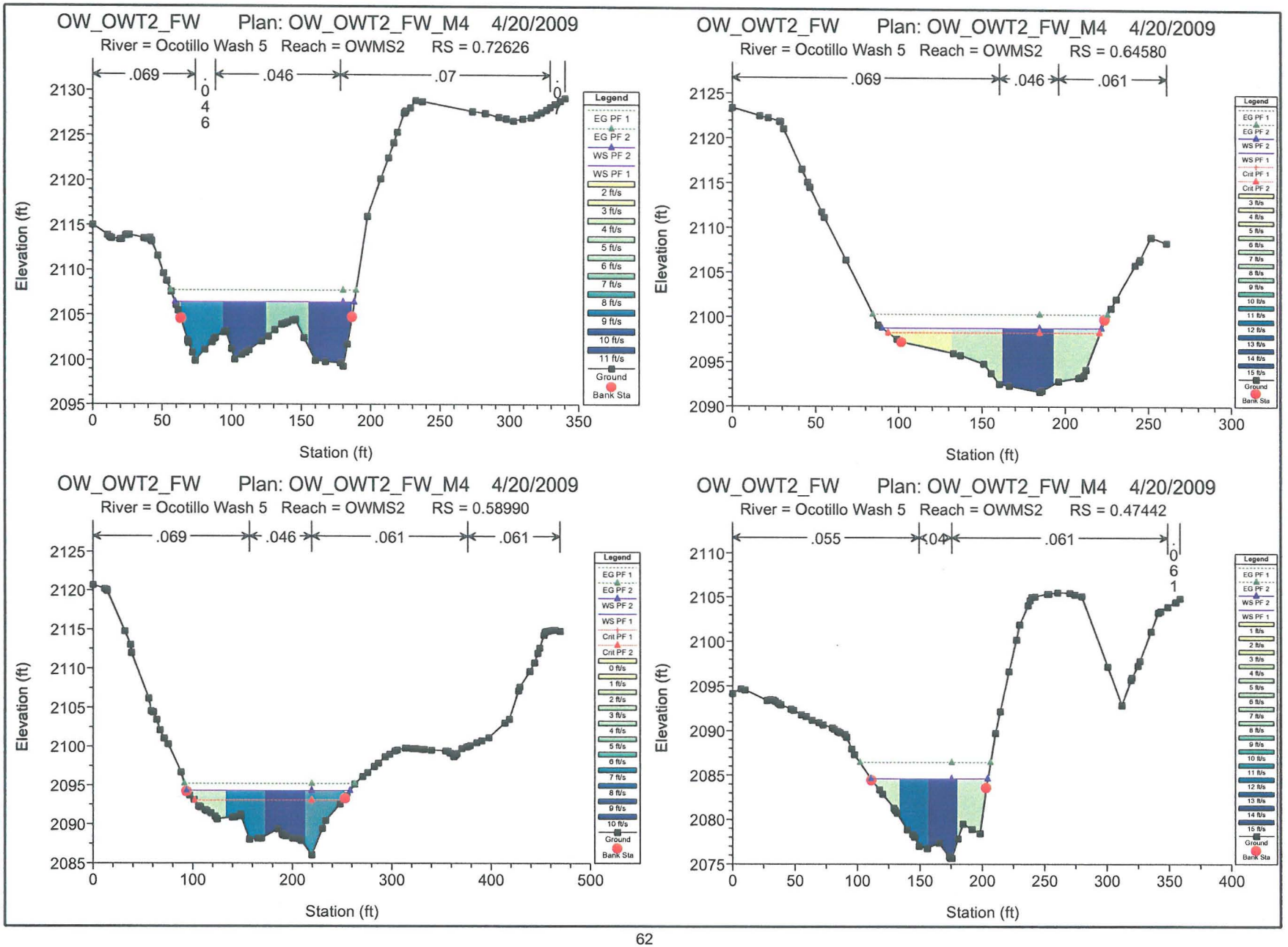

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 5 Reach = OWMS2 RS = 1.78861 Blocked Obstruction at Parcel 216-15-036
.053 .053 .04 .044
Elevation (ft)
Station (ft)
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 5 Reach = OWMS2 RS = 1.71509
.053 .04 .044
Elevation (ft)
Station (ft)
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 5 Reach = OWMS2 RS = 1.64008 Upstream cross section for School House Road
.048 .04 .048
Elevation (ft)
Station (ft)
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 5 Reach = OWMS2 RS = 1.63731 IS School House Rd School House Road
.048 .04 .048
Elevation (ft)
Station (ft)
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
10 ft/s
11 ft/s
12 ft/s
13 ft/s
Ground
Bank Sta

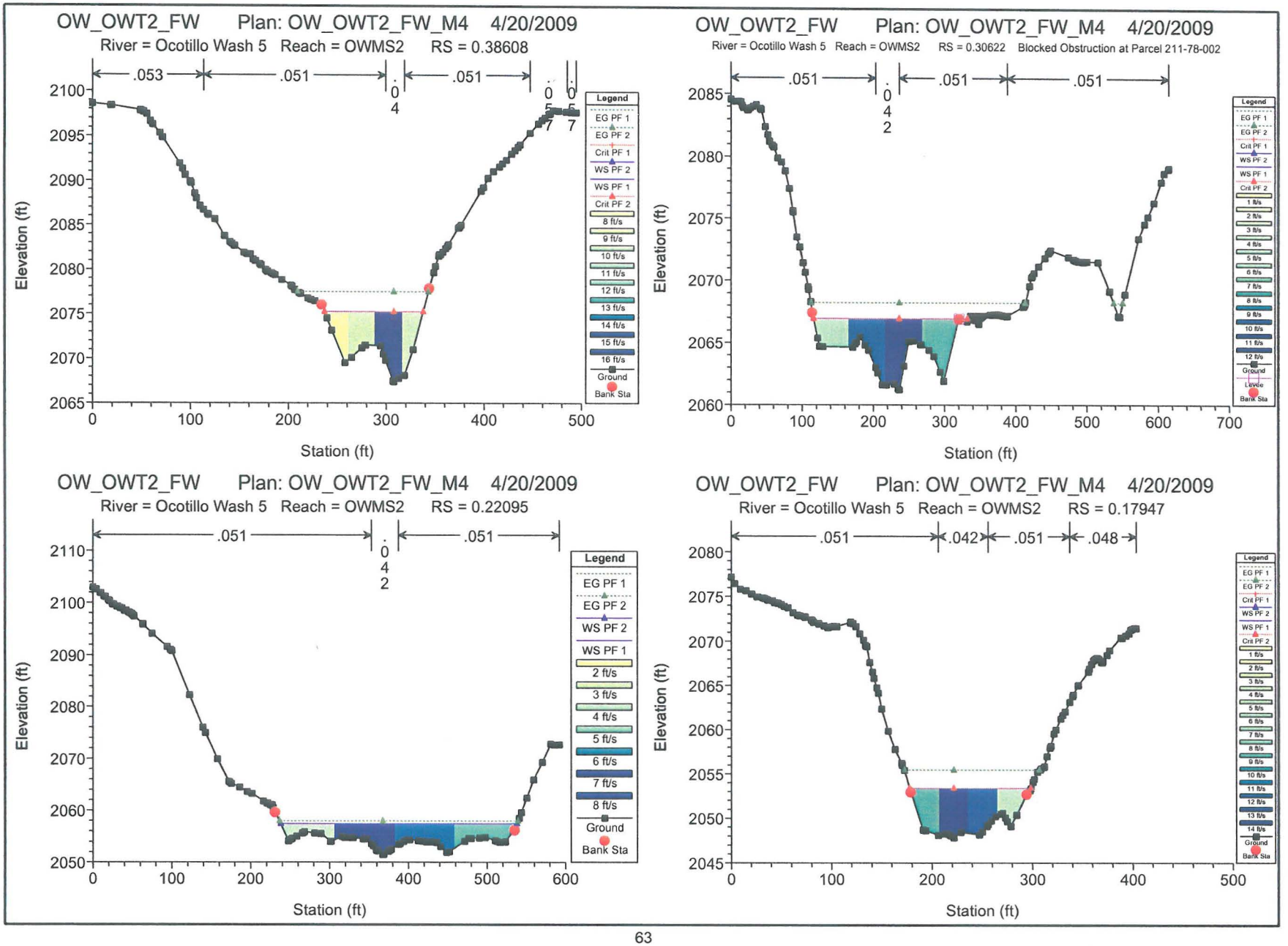

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 5 Reach = OWMS2 RS = 1.63454 Downstream cross section for School House Road
.048
.04
.048
Elevation (ft)
Station (ft)
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 5 Reach = OWMS2 RS = 1.63183
.048
.04
.048
Elevation (ft)
Station (ft)
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 5 Reach = OWMS2 RS = 1.54838
.063
.053
.04
.059
.048
Elevation (ft)
Station (ft)
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 5 Reach = OWMS2 RS = 1.47363
.063
.04
.058
Elevation (ft)
Station (ft)
Legend
EG PF 1
EG PF 2
Crit PF 1
WS PF 2
WS PF 1
Crit PF 2
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
10 ft/s
11 ft/s
Ground
Levee
Bank Sta

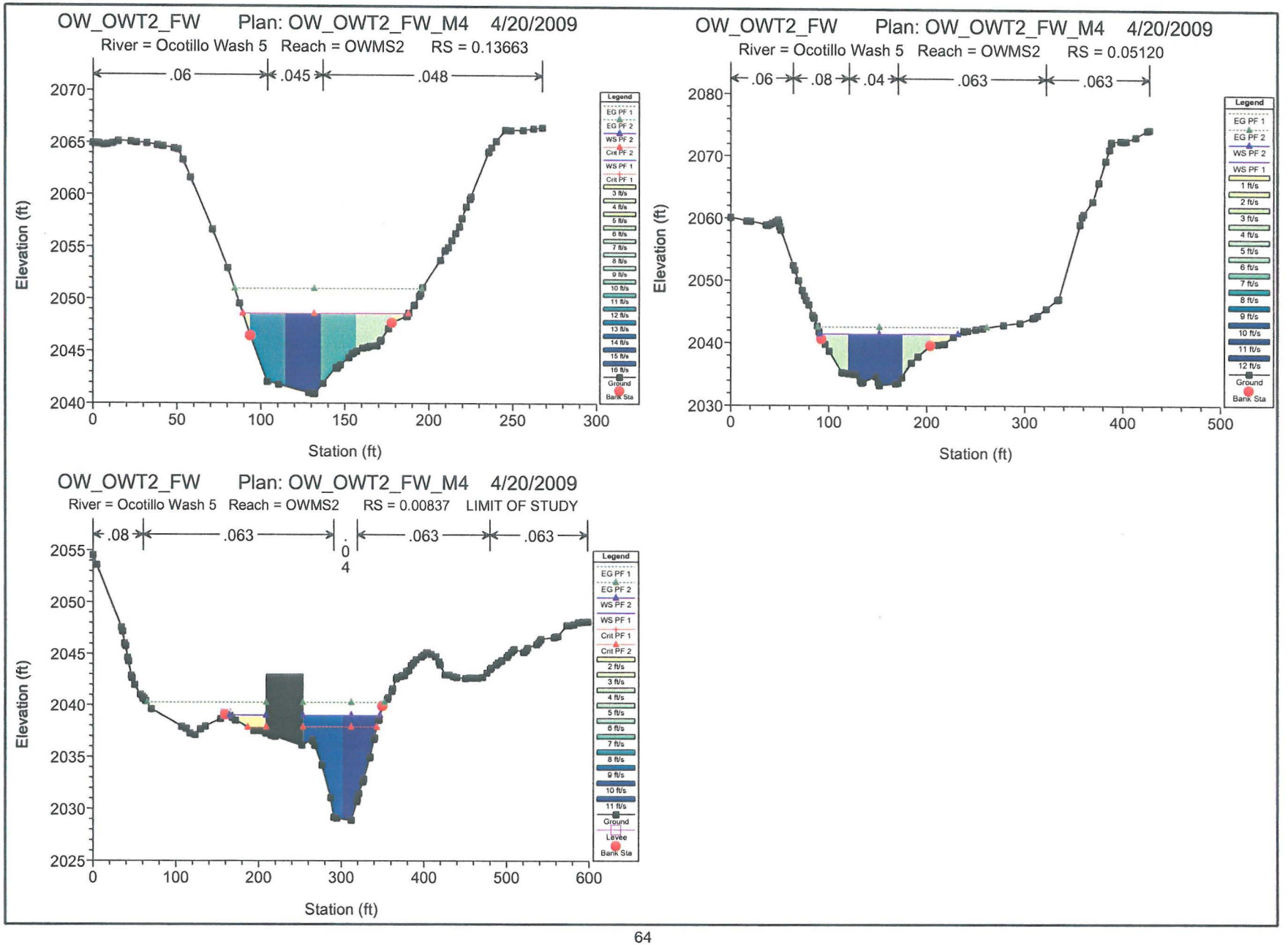

OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 5 Reach = OWMS2 RS = 1.41048
.063
.04
.058
Elevation (ft)
Station (ft)
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 5 Reach = OWMS2 RS = 1.32199
.068
.04
.053
.048
Elevation (ft)
Station (ft)
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 5 Reach = OWMS2 RS = 1.20785
.058
.04
.053
Elevation (ft)
Station (ft)
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 5 Reach = OWMS2 RS = 1.14203
.063
.04
.053
Elevation (ft)
Station (ft)
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
10 ft/s
11 ft/s
Ground
Levee
Bank Sta


OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 5 Reach = OWMS2 RS = 1.06470
.063
.04
.053
Elevation (ft)
Station (ft)
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Levee
Bank Sta
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 5 Reach = OWMS2 RS = 0.97907
.063
.053
.04
.053
Elevation (ft)
Station (ft)
Legend
EG PF 1
EG PF 2
Crit PF 1
WS PF 2
WS PF 1
Crit PF 2
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
10 ft/s
Ground
Bank Sta
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 5 Reach = OWMS2 RS = 0.91184 Upstream cross section for Spur Cross Road
.048
.04
.048
Elevation (ft)
Station (ft)
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 5 Reach = OWMS2 RS = 0.90917 IS Spur Cross Rd Spur Cross Road
.048
.04
.048
Elevation (ft)
Station (ft)
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Ground
Bank Sta


OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 5 Reach = OWMS2 RS = 0.90641 Downstream cross section for Spur Cross Road
.048
.04
.048
Elevation (ft)
Station (ft)
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 5 Reach = OWMS2 RS = 0.87183
.048
.04
.048
Elevation (ft)
Station (ft)
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 5 Reach = OWMS2 RS = 0.81091
.075
.072
.046
.058
Elevation (ft)
Station (ft)
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 5 Reach = OWMS2 RS = 0.76067
.075
.063
.046
.046
.055
.055
Elevation (ft)
Station (ft)
Legend
EG PF 1
EG PF 2
Crit PF 1
WS PF 2
WS PF 1
Crit PF 2
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
10 ft/s
11 ft/s
Ground
Levee
Bank Sta


OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 5 Reach = OWMS2 RS = 0.72626
.069
.046
.07
Elevation (ft)
Station (ft)
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
10 ft/s
11 ft/s
Ground
Bank Sta
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 5 Reach = OWMS2 RS = 0.64580
.069
.046
.061
Elevation (ft)
Station (ft)
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 5 Reach = OWMS2 RS = 0.58990
.069
.046
.061
.061
Elevation (ft)
Station (ft)
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 5 Reach = OWMS2 RS = 0.47442
.055
.061
Elevation (ft)
Station (ft)


OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 5 Reach = OWMS2 RS = 0.38608
.053
.051
.051
Elevation (ft)
Station (ft)
Legend
EG PF 1
EG PF 2
Crit PF 1
WS PF 2
WS PF 1
Crit PF 2
8 ft/s
9 ft/s
10 ft/s
11 ft/s
12 ft/s
13 ft/s
14 ft/s
15 ft/s
16 ft/s
Ground
Bank Sta
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 5 Reach = OWMS2 RS = 0.30622 Blocked Obstruction at Parcel 211-78-002
.051
.051
.051
Elevation (ft)
Station (ft)
Legend
EG PF 1
EG PF 2
Crit PF 1
WS PF 2
WS PF 1
Crit PF 2
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
10 ft/s
11 ft/s
12 ft/s
Ground
Levee
Bank Sta
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 5 Reach = OWMS2 RS = 0.22095
.051
.051
Elevation (ft)
Station (ft)
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
Ground
Bank Sta
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 5 Reach = OWMS2 RS = 0.17947
.051
.042
.051
.048
Elevation (ft)
Station (ft)
Legend
EG PF 1
EG PF 2
Crit PF 1
WS PF 2
WS PF 1
Crit PF 2
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
10 ft/s
11 ft/s
12 ft/s
13 ft/s
14 ft/s
Ground
Bank Sta


OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 5 Reach = OWMS2 RS = 0.13663
.06
.045
.048
Elevation (ft)
Station (ft)
Legend
EG PF 1
EG PF 2
WS PF 2
Crit PF 2
WS PF 1
Crit PF 1
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
10 ft/s
11 ft/s
12 ft/s
13 ft/s
14 ft/s
15 ft/s
16 ft/s
Ground
Bank Sta
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 5 Reach = OWMS2 RS = 0.05120
.06
.08
.04
.063
.063
Elevation (ft)
Station (ft)
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
1 ft/s
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
10 ft/s
11 ft/s
12 ft/s
Ground
Bank Sta
OW_OWT2_FW Plan: OW_OWT2_FW_M4 4/20/2009
River = Ocotillo Wash 5 Reach = OWMS2 RS = 0.00837 LIMIT OF STUDY
.08
.063
.04
.063
.063
Elevation (ft)
Station (ft)
Legend
EG PF 1
EG PF 2
WS PF 2
WS PF 1
Crit PF 1
Crit PF 2
2 ft/s
3 ft/s
4 ft/s
5 ft/s
6 ft/s
7 ft/s
8 ft/s
9 ft/s
10 ft/s
11 ft/s
Ground
Levee
Bank Sta

# E.3 EXPANSION AND CONTRACTION COEFFICIENTS

Normal Expansion and contraction coefficients of 0.1 and 0.3, respectively, were used throughout the washes within this study.

# E.4 ANALYSIS OF STRUCTURES

Site reconnaissance photography of the non-certified, non-structural features, blocked obstructions, culverts, structures and non-primary residential structural features within the floodplain delineations.

## Field Reconnaissance Photography taken August 27th, 2008.

Double CMP inlet located across 72nd Street, within Ocotillo Wash Tributary-2. (Culverts 1 and 2)

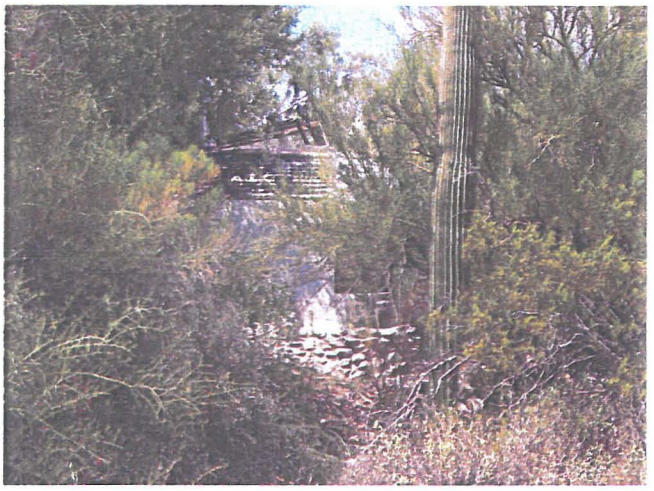
Residential property wall on right hand side of Ocotillo Wash Tributary-2 looking downstream, located west of 72nd Street.

Triple CMP inlet with concrete headwall across XX Roadway within Ocotillo Wash Tributary-2 (Culverts 3, 4 and 5)

Concrete drop structure downstream of Echo Canyon Drive within Ocotillo Wash Tributary-2.

Rectangular inlet (upstream) to elliptical CMP roadway crossing west of Echo Canyon Drive within Ocotillo Wash Tributary-2.

Outlet (downstream) of elliptical CMP at roadway crossing west of Echo Canyon Drive within Ocotillo Wash Tributary-2.



This photograph depicts a small habitable structure located adjacent and potentially within the effective floodway of Ocotillo Wash Tributary-2.

Man made drop structure with concrete and stone located at the Ocotillo Wash crossing of School House Road.

## Field Reconnaissance Photography taken August 27th, 2008.

Disturbances within the natural environment of the Cave Creek Tributary 3, located upstream of the confluence with Cave Creek approximately 200 ft.

Disturbance within the natural environment of the Cave Creek Tributary 3, located upstream of the confluence with Cave Creek by approximately 50 feet. (Stone collection and removal with debris infill from adjacent vegetation clearing. Debris noted is the darker brown area seen looking downstream toward Cave Creek in the wash bottom.)

# E.5 HYDRAULIC CALCULATIONS

# Table E.5.2.2
# HEC-RAS OUTPUT
# Manning's n Value

HEC-RAS Plan: CCTRIB2_RM Profile: PF 1 CCTRIB2.prj

| River | Reach | River Sta | Flow Area (sq ft) | Top Width (ft) | Mann Comp | Mann Wtd Total |
|---|---|---|---|---|---|---|
| Cave Creek5 | Tributary 2C | 0.3 | 14.83 | 12.17 | 0.059 | 0.059 |
| Cave Creek5 | Tributary 2C | 0.27 | 15.04 | 12.79 | 0.059 | 0.059 |
| Cave Creek5 | Tributary 2C | 0.25 | 14.66 | 11.63 | 0.067 | 0.067 |
| Cave Creek5 | Tributary 2C | 0.24 | 14.8 | 12.1 | 0.067 | 0.067 |
| Cave Creek5 | Tributary 2C | 0.22 | 19.26 | 13.24 | 0.067 | 0.067 |
| Cave Creek5 | Tributary 2C | 0.19 | 18.77 | 12.42 | 0.049 | 0.049 |
| Cave Creek5 | Tributary 2C | 0.13 | 21.59 | 19.01 | 0.052 | 0.052 |
| Cave Creek5 | Tributary 2C | 0.09 | 20.15 | 15.8 | 0.051 | 0.051 |
| Cave Creek5 | Tributary 2C | 0.05 | 30.91 | 36.66 | | 0.052 |
| Cave Creek5 | Tributary 2C | 0.02 | 31.47 | 57.53 | | 0.052 |
| Cave Creek4 | Tributary 2B | 0.07 | 9.63 | 12.39 | 0.051 | 0.051 |
| Cave Creek4 | Tributary 2B | 0.05 | 10.33 | 14.63 | 0.048 | 0.048 |
| Cave Creek4 | Tributary 2B | 0.04 | 14.15 | 25.63 | | 0.047 |
| Cave Creek4 | Tributary 2B | 0.02 | 10.87 | 17.26 | | 0.046 |
| Cave Creek3 | Tributary 2A | 0.12 | 19.47 | 18.51 | 0.062 | 0.062 |
| Cave Creek3 | Tributary 2A | 0.06 | 15.46 | 15.03 | 0.062 | 0.062 |
| Cave Creek3 | Tributary 2A | 0.03 | 30.78 | 20.24 | 0.061 | 0.061 |
| Cave Creek2 | Tributary 2.2 | 0.54 | 80.73 | 54.57 | 0.067 | 0.067 |
| Cave Creek2 | Tributary 2.2 | 0.5 | 54.7 | 20.93 | 0.065 | 0.065 |
| Cave Creek2 | Tributary 2.2 | 0.47 | 55.65 | 22.06 | 0.059 | 0.059 |
| Cave Creek2 | Tributary 2.2 | 0.4 | 69.4 | 34.92 | 0.058 | 0.058 |
| Cave Creek2 | Tributary 2.2 | 0.36 | 71.75 | 38.47 | 0.058 | 0.058 |
| Cave Creek2 | Tributary 2.2 | 0.32 | 64.09 | 27.09 | 0.058 | 0.058 |
| Cave Creek2 | Tributary 2.2 | 0.24 | 67.07 | 22.92 | 0.056 | 0.056 |
| Cave Creek2 | Tributary 2.2 | 0.19 | 71.8 | 34.99 | 0.057 | 0.057 |
| Cave Creek2 | Tributary 2.2 | 0.13 | 72.94 | 24.86 | 0.056 | 0.056 |
| Cave Creek2 | Tributary 2.2 | 0.1 | 69.31 | 30.82 | 0.057 | 0.057 |
| Cave Creek2 | Tributary 2.2 | 0.08 | 85.08 | 36.91 | 0.051 | 0.051 |
| Cave Creek2 | Tributary 2.2 | 0.04 | 97.12 | 85.93 | | 0.051 |
| Cave Creek2 | Tributary 2.2 | 0.01 | 124.95 | 98.02 | 0.058 | 0.058 |
| Cave Creek1 | Tributary 2.1 | 0.31 | 12.09 | 18.56 | 0.053 | 0.053 |
| Cave Creek1 | Tributary 2.1 | 0.28 | 13.86 | 27.16 | | 0.052 |
| Cave Creek1 | Tributary 2.1 | 0.26 | 10.64 | 13.23 | 0.054 | 0.054 |
| Cave Creek1 | Tributary 2.1 | 0.25 | 10.05 | 11.14 | 0.053 | 0.053 |
| Cave Creek1 | Tributary 2.1 | 0.23 | 11.6 | 17.12 | 0.054 | 0.054 |
| Cave Creek1 | Tributary 2.1 | 0.21 | 25.2 | 24.57 | | 0.051 |
| Cave Creek1 | Tributary 2.1 | 0.19 | 70.07 | 36.89 | 0.063 | 0.063 |
| Cave Creek1 | Tributary 2.1 | 0.16 | 53.33 | 48.15 | 0.062 | 0.062 |
| Cave Creek1 | Tributary 2.1 | 0.12 | 62.15 | 33.85 | 0.065 | 0.065 |
| Cave Creek1 | Tributary 2.1 | 0.09 | 48.13 | 28.27 | 0.056 | 0.056 |
| Cave Creek1 | Tributary 2.1 | 0.05 | 72.6 | 84.56 | | 0.056 |
| Cave Creek1 | Tributary 2.1 | 0.03 | 64.82 | 37.87 | 0.058 | 0.058 |

# Table E.5.3.2
# HEC-RAS OUTPUT
# Reach Lengths

HEC-RAS Plan: CCTRIB2_RM Profile: PF 1 CCTRIB2.prj

| River | Reach | River Sta | Q Total (cfs) | Length Chnl (ft) | LOB Elev (ft) | ROB Elev (ft) |
|---|---|---|---|---|---|---|
| Cave Creek5 | Tributary 2C | 0.3 | 94 | 163.65 | 2088.15 | 2088.22 |
| Cave Creek5 | Tributary 2C | 0.27 | 94 | 131.72 | 2077.84 | 2076.32 |
| Cave Creek5 | Tributary 2C | 0.25 | 94 | 46.17 | 2067.43 | 2066.2 |
| Cave Creek5 | Tributary 2C | 0.24 | 94 | 86.18 | 2063.18 | 2064.91 |
| Cave Creek5 | Tributary 2C | 0.22 | 132 | 196.51 | 2062.98 | 2059.63 |
| Cave Creek5 | Tributary 2C | 0.19 | 132 | 280.57 | 2042.32 | 2043.81 |
| Cave Creek5 | Tributary 2C | 0.13 | 132 | 219.1 | 2028.23 | 2029.11 |
| Cave Creek5 | Tributary 2C | 0.09 | 132 | 216.07 | 2015.13 | 2015.02 |
| Cave Creek5 | Tributary 2C | 0.05 | 132 | 159.1 | 2001.48 | 2000.91 |
| Cave Creek5 | Tributary 2C | 0.02 | 132 | | 1995.44 | 1995.94 |
| Cave Creek4 | Tributary 2B | 0.07 | 49 | 94.68 | 2012.72 | 2010.19 |
| Cave Creek4 | Tributary 2B | 0.05 | 49 | 87.73 | 2008.12 | 2008.52 |
| Cave Creek4 | Tributary 2B | 0.04 | 49 | 75.06 | 2003.54 | 2000.2 |
| Cave Creek4 | Tributary 2B | 0.02 | 49 | | 1996.24 | 1995.44 |
| Cave Creek3 | Tributary 2A | 0.12 | 90 | 321.29 | 2134.75 | 2134.47 |
| Cave Creek3 | Tributary 2A | 0.06 | 90 | 179.29 | 2120 | 2120.27 |
| Cave Creek3 | Tributary 2A | 0.03 | 90 | 153.61 | 2117.74 | 2119.02 |
| Cave Creek2 | Tributary 2.2 | 0.54 | 502 | 216.82 | 2110.87 | 2110.23 |
| Cave Creek2 | Tributary 2.2 | 0.5 | 502 | 144.99 | 2094.4 | 2099.03 |
| Cave Creek2 | Tributary 2.2 | 0.47 | 502 | 362.61 | 2087.46 | 2087.58 |
| Cave Creek2 | Tributary 2.2 | 0.4 | 560 | 191.53 | 2073.81 | 2074.42 |
| Cave Creek2 | Tributary 2.2 | 0.36 | 560 | 238.35 | 2073.39 | 2068.39 |
| Cave Creek2 | Tributary 2.2 | 0.32 | 560 | 407.38 | 2056.78 | 2060.08 |
| Cave Creek2 | Tributary 2.2 | 0.24 | 589 | 297.21 | 2039.74 | 2038.27 |
| Cave Creek2 | Tributary 2.2 | 0.19 | 589 | 270.25 | 2030.46 | 2030.07 |
| Cave Creek2 | Tributary 2.2 | 0.13 | 589 | 204.51 | 2019.25 | 2017 |
| Cave Creek2 | Tributary 2.2 | 0.1 | 589 | 84.92 | 2018.62 | 2010.16 |
| Cave Creek2 | Tributary 2.2 | 0.08 | 589 | 215.94 | 2015.69 | 2013.94 |
| Cave Creek2 | Tributary 2.2 | 0.04 | 589 | 142.91 | 2004.21 | 2004.21 |
| Cave Creek2 | Tributary 2.2 | 0.01 | 589 | | 1996.65 | 1996.37 |
| Cave Creek1 | Tributary 2.1 | 0.31 | 55 | 129.82 | 2161.67 | 2162.62 |
| Cave Creek1 | Tributary 2.1 | 0.28 | 55 | 129.57 | 2155.76 | 2156.57 |
| Cave Creek1 | Tributary 2.1 | 0.26 | 55 | 57.87 | 2155.69 | 2151.82 |
| Cave Creek1 | Tributary 2.1 | 0.25 | 55 | 119.02 | 2150.28 | 2149.16 |
| Cave Creek1 | Tributary 2.1 | 0.23 | 55 | 84.48 | 2142.37 | 2142.73 |
| Cave Creek1 | Tributary 2.1 | 0.21 | 55 | 91.23 | 2140.93 | 2139.5 |
| Cave Creek1 | Tributary 2.1 | 0.19 | 319 | 153.54 | 2137.71 | 2140.83 |
| Cave Creek1 | Tributary 2.1 | 0.16 | 319 | 225.75 | 2135.88 | 2134.54 |
| Cave Creek1 | Tributary 2.1 | 0.12 | 319 | 146.76 | 2127.08 | 2124.68 |
| Cave Creek1 | Tributary 2.1 | 0.09 | 319 | 205.45 | 2124.08 | 2125.5 |
| Cave Creek1 | Tributary 2.1 | 0.05 | 319 | 106.83 | 2118.29 | 2117.07 |
| Cave Creek1 | Tributary 2.1 | 0.03 | 319 | 175.71 | 2112.17 | 2120.27 |

# Table E.5.4.2
# HEC-RAS OUTPUT
## Junctions

HEC-RAS Plan: CCTRIB2_RM Profile: PF 1 CCTRIB2.prj

| River | Reach | River Sta | W.S. Elev | E.G. Elev | Q Total |
|---|---|---|---|---|---|
| | | | (ft) | (ft) | (cfs) |
| Tributary 2A | | 0.03 | 2110.15 | 2110.28 | 90 |
| Tributary 2.1 | | 0.03 | 2110.27 | 2110.65 | 319 |
| Junction: | J1 | | | | |
| Tributary 2.2 | | 0.54 | 2104.55 | 2105.15 | 502 |

# Table E.5.2.3
# HEC-RAS OUTPUT
# Manning's n Value

HEC-RAS Plan: CCTRIB3_RM Profile: PF 1 CCTRIB3.prj

| River | Reach | River Sta | Flow Area (sq ft) | Top Width (ft) | Mann Comp | Mann Wtd Total |
|---|---|---|---|---|---|---|
| Cave Creek | Tributary 3 | 0.49 | 64.04 | 36.35 | 0.056 | 0.056 |
| Cave Creek | Tributary 3 | 0.36 | 46.91 | 26.04 | 0.062 | 0.062 |
| Cave Creek | Tributary 3 | 0.26 | 95.50 | 37.41 | 0.064 | 0.064 |
| Cave Creek | Tributary 3 | 0.19 | 56.42 | 32.69 | 0.064 | 0.064 |
| Cave Creek | Tributary 3 | 0.15 | 64.50 | 32.52 | 0.064 | 0.064 |
| Cave Creek | Tributary 3 | 0.04 | 61.59 | 35.00 | 0.058 | 0.058 |

# Table E.5.3.3
# HEC-RAS OUTPUT
# Reach Lengths

HEC-RAS Plan: CCTRIB3_RM Profile: PF 1 CCTRIB3.prj

| River | Reach | River Sta | Q Total (cfs) | Length Chnl (ft) | LOB Elev (ft) | ROB Elev (ft) |
|---|---|---|---|---|---|---|
| Cave Creek | Tributary 3 | 0.49 | 358 | 714.55 | 2053.18 | 2052.54 |
| Cave Creek | Tributary 3 | 0.36 | 358 | 510.87 | 2036.72 | 2027.52 |
| Cave Creek | Tributary 3 | 0.26 | 424 | 576.31 | 2016.33 | 2020.03 |
| Cave Creek | Tributary 3 | 0.19 | 424 | 179.62 | 2000.44 | 2013.08 |
| Cave Creek | Tributary 3 | 0.15 | 424 | 599.80 | 1996.36 | 1997.27 |
| Cave Creek | Tributary 3 | 0.04 | 424 | | 1980.29 | 1971.75 |

# Table E.5.1.1
# STEADY FLOW OUTPUT

DRAFT_OW-OWT2-01282009
Model Run -Draft Model Q's

| ID | River | Reach | RS | PF 1 |
|---|---|---|---|---|
| 1 | Ocotillo Wash 5 | OWMS2 | 1.89254 | 2227.17 |
| 2 | Ocotillo Wash 5 | OWMS2 | 1.89136 | 2226.28 |
| 3 | Ocotillo Wash 5 | OWMS2 | 1.88981 | 2226.31 |
| 4 | Ocotillo Wash 5 | OWMS2 | 1.88667 | Inl Struct |
| 5 | Ocotillo Wash 5 | OWMS2 | 1.88352 | 2225.99 |
| 6 | Ocotillo Wash 5 | OWMS2 | 1.78861 | 2218.88 |
| 7 | Ocotillo Wash 5 | OWMS2 | 1.71509 | 2210.83 |
| 8 | Ocotillo Wash 5 | OWMS2 | 1.64008 | 2204.85 |
| 9 | Ocotillo Wash 5 | OWMS2 | 1.63731 | Inl Struct |
| 10 | Ocotillo Wash 5 | OWMS2 | 1.63454 | 2203.39 |
| 11 | Ocotillo Wash 5 | OWMS2 | 1.63183 | 2203.26 |
| 12 | Ocotillo Wash 5 | OWMS2 | 1.54838 | 2193.48 |
| 13 | Ocotillo Wash 5 | OWMS2 | 1.47363 | 2185.04 |
| 14 | Ocotillo Wash 5 | OWMS2 | 1.41048 | 2177.63 |
| 15 | Ocotillo Wash 5 | OWMS2 | 1.32199 | 2166.74 |
| 16 | Ocotillo Wash 5 | OWMS2 | 1.20785 | 2154.76 |
| 17 | Ocotillo Wash 5 | OWMS2 | 1.14203 | 2148.25 |
| 18 | Ocotillo Wash 5 | OWMS2 | 1.06470 | 2139.83 |
| 19 | Ocotillo Wash 5 | OWMS2 | 0.97907 | 2129.92 |
| 20 | Ocotillo Wash 5 | OWMS2 | 0.91184 | 2124.10 |
| 21 | Ocotillo Wash 5 | OWMS2 | 0.90917 | Inl Struct |
| 22 | Ocotillo Wash 5 | OWMS2 | 0.90641 | 2122.30 |
| 23 | Ocotillo Wash 5 | OWMS2 | 0.87183 | 2118.20 |
| 24 | Ocotillo Wash 5 | OWMS2 | 0.81091 | 2112.61 |
| 25 | Ocotillo Wash 5 | OWMS2 | 0.76067 | 2108.92 |
| 26 | Ocotillo Wash 5 | OWMS2 | 0.72626 | 2106.39 |
| 27 | Ocotillo Wash 5 | OWMS2 | 0.64580 | 2098.80 |
| 28 | Ocotillo Wash 5 | OWMS2 | 0.58990 | 2094.35 |
| 29 | Ocotillo Wash 5 | OWMS2 | 0.47442 | 2084.60 |
| 30 | Ocotillo Wash 5 | OWMS2 | 0.38608 | 2075.24 |
| 31 | Ocotillo Wash 5 | OWMS2 | 0.30622 | 2066.95 |
| 32 | Ocotillo Wash 5 | OWMS2 | 0.22095 | 2057.41 |
| 33 | Ocotillo Wash 5 | OWMS2 | 0.17947 | 2053.39 |
| 34 | Ocotillo Wash 5 | OWMS2 | 0.13663 | 2048.57 |
| 35 | Ocotillo Wash 5 | OWMS2 | 0.05120 | 2041.44 |
| 36 | Ocotillo Wash 5 | OWMS2 | 0.00837 | 2039.00 |
| 37 | Ocotillo Wash 4 | OWMS1 | 0.07616 | 2237.53 |
| 38 | Ocotillo Wash 4 | OWMS1 | 0.07615 | Lat Struct |
| 39 | Ocotillo Wash 4 | OWMS1 | 0.04601 | 2233.80 |
| 40 | Ocotillo Wash 4 | OWMS1 | 0.04599 | Lat Struct |
| 41 | Ocotillo Wash 4 | OWMS1 | 0.03788 | 2233.00 |
| 42 | Ocotillo Wash 4 | OWMS1 | 0.03786 | Lat Struct |
| 43 | Ocotillo Wash 4 | OWMS1 | 0.02091 | 2230.63 |
| 44 | Ocotillo Wash 3 | Tributary-2.2 | 0.15352 | 2244.11 |
| 45 | Ocotillo Wash 3 | Tributary-2.2 | 0.10059 | 2236.49 |
| 46 | Ocotillo Wash 3 | Tributary-2.2 | 0.04049 | 2231.48 |
| 47 | Ocotillo Wash 3 | Tributary-2.2 | 0.03237 | 2231.23 |
| 48 | Ocotillo Wash 3 | Tributary-2.2 | 0.02833 | 2231.12 |
| 49 | Ocotillo Wash 3 | Tributary-2.2 | 0.02823 | 2231.12 |
| 50 | Ocotillo Wash 2 | OW Split | 0.07677 | 2254.14 |
| 51 | Ocotillo Wash 2 | OW Split | 0.04992 | 2251.54 |
| 52 | Ocotillo Wash 1 | Tributary-2.1 | 1.00045 | 2407.46 |
| 53 | Ocotillo Wash 1 | Tributary-2.1 | 0.97998 | 2404.02 |
| 54 | Ocotillo Wash 1 | Tributary-2.1 | 0.96791 | 2402.19 |
| 55 | Ocotillo Wash 1 | Tributary-2.1 | 0.94451 | 2397.61 |
| 56 | Ocotillo Wash 1 | Tributary-2.1 | 0.87849 | 2385.01 |
| 57 | Ocotillo Wash 1 | Tributary-2.1 | 0.80224 | 2371.52 |
| 58 | Ocotillo Wash 1 | Tributary-2.1 | 0.79662 | 2371.60 |
| 59 | Ocotillo Wash 1 | Tributary-2.1 | 0.79392 | Culvert |
| 60 | Ocotillo Wash 1 | Tributary-2.1 | 0.79116 | 2369.08 |
| 61 | Ocotillo Wash 1 | Tributary-2.1 | 0.72875 | 2359.39 |
| 62 | Ocotillo Wash 1 | Tributary-2.1 | 0.70419 | 2355.50 |
| 63 | Ocotillo Wash 1 | Tributary-2.1 | 0.68880 | 2352.81 |
| 64 | Ocotillo Wash 1 | Tributary-2.1 | 0.67717 | 2350.12 |

OW-OWT2-03112009
Final Revised Model - Final Q's

| ID | River | Reach | RS | PF 1 |
|---|---|---|---|---|
| 1 | Ocotillo Wash 5 | OWMS2 | 1.89254 | 2227.17 |
| 2 | Ocotillo Wash 5 | OWMS2 | 1.89136 | 2226.28 |
| 3 | Ocotillo Wash 5 | OWMS2 | 1.88981 | 2226.31 |
| 4 | Ocotillo Wash 5 | OWMS2 | 1.88667 | Inl Struct |
| 5 | Ocotillo Wash 5 | OWMS2 | 1.88352 | 2225.99 |
| 6 | Ocotillo Wash 5 | OWMS2 | 1.78861 | 2218.88 |
| 7 | Ocotillo Wash 5 | OWMS2 | 1.71509 | 2210.83 |
| 8 | Ocotillo Wash 5 | OWMS2 | 1.64008 | 2204.85 |
| 9 | Ocotillo Wash 5 | OWMS2 | 1.63731 | Inl Struct |
| 10 | Ocotillo Wash 5 | OWMS2 | 1.63454 | 2203.39 |
| 11 | Ocotillo Wash 5 | OWMS2 | 1.63183 | 2203.26 |
| 12 | Ocotillo Wash 5 | OWMS2 | 1.54838 | 2193.48 |
| 13 | Ocotillo Wash 5 | OWMS2 | 1.47363 | 2185.04 |
| 14 | Ocotillo Wash 5 | OWMS2 | 1.41048 | 2177.63 |
| 15 | Ocotillo Wash 5 | OWMS2 | 1.32199 | 2166.74 |
| 16 | Ocotillo Wash 5 | OWMS2 | 1.20785 | 2154.76 |
| 17 | Ocotillo Wash 5 | OWMS2 | 1.14203 | 2148.25 |
| 18 | Ocotillo Wash 5 | OWMS2 | 1.06470 | 2139.83 |
| 19 | Ocotillo Wash 5 | OWMS2 | 0.97907 | 2129.92 |
| 20 | Ocotillo Wash 5 | OWMS2 | 0.91184 | 2124.10 |
| 21 | Ocotillo Wash 5 | OWMS2 | 0.90917 | Inl Struct |
| 22 | Ocotillo Wash 5 | OWMS2 | 0.90641 | 2122.30 |
| 23 | Ocotillo Wash 5 | OWMS2 | 0.87183 | 2118.20 |
| 24 | Ocotillo Wash 5 | OWMS2 | 0.81091 | 2112.61 |
| 25 | Ocotillo Wash 5 | OWMS2 | 0.76067 | 2108.92 |
| 26 | Ocotillo Wash 5 | OWMS2 | 0.72626 | 2106.39 |
| 27 | Ocotillo Wash 5 | OWMS2 | 0.64580 | 2098.80 |
| 28 | Ocotillo Wash 5 | OWMS2 | 0.58990 | 2094.35 |
| 29 | Ocotillo Wash 5 | OWMS2 | 0.47442 | 2084.60 |
| 30 | Ocotillo Wash 5 | OWMS2 | 0.38608 | 2075.24 |
| 31 | Ocotillo Wash 5 | OWMS2 | 0.30622 | 2066.95 |
| 32 | Ocotillo Wash 5 | OWMS2 | 0.22095 | 2057.41 |
| 33 | Ocotillo Wash 5 | OWMS2 | 0.17947 | 2053.39 |
| 34 | Ocotillo Wash 5 | OWMS2 | 0.13663 | 2048.57 |
| 35 | Ocotillo Wash 5 | OWMS2 | 0.05120 | 2041.44 |
| 36 | Ocotillo Wash 5 | OWMS2 | 0.00837 | 2039.00 |
| 37 | Ocotillo Wash 4 | OWMS1 | 0.07616 | 2237.53 |
| 38 | Ocotillo Wash 4 | OWMS1 | 0.07615 | Lat Struct |
| 39 | Ocotillo Wash 4 | OWMS1 | 0.04601 | 2233.80 |
| 40 | Ocotillo Wash 4 | OWMS1 | 0.04599 | Lat Struct |
| 41 | Ocotillo Wash 4 | OWMS1 | 0.03788 | 2233.00 |
| 42 | Ocotillo Wash 4 | OWMS1 | 0.03786 | Lat Struct |
| 43 | Ocotillo Wash 4 | OWMS1 | 0.02091 | 2230.63 |
| 44 | Ocotillo Wash 3 | Tributary-2.2 | 0.15352 | 2244.11 |
| 45 | Ocotillo Wash 3 | Tributary-2.2 | 0.10059 | 2236.49 |
| 46 | Ocotillo Wash 3 | Tributary-2.2 | 0.04049 | 2231.48 |
| 47 | Ocotillo Wash 3 | Tributary-2.2 | 0.03237 | 2231.23 |
| 48 | Ocotillo Wash 3 | Tributary-2.2 | 0.02833 | 2231.12 |
| 49 | Ocotillo Wash 3 | Tributary-2.2 | 0.02823 | 2231.12 |
| 50 | Ocotillo Wash 2 | OW Split | 0.07677 | 2253.70 |
| 51 | Ocotillo Wash 2 | OW Split | 0.04992 | 2251.17 |
| 52 | Ocotillo Wash 1 | Tributary-2.1 | 1.00045 | 2407.46 |
| 53 | Ocotillo Wash 1 | Tributary-2.1 | 0.97998 | 2404.02 |
| 54 | Ocotillo Wash 1 | Tributary-2.1 | 0.96791 | 2402.19 |
| 55 | Ocotillo Wash 1 | Tributary-2.1 | 0.94451 | 2397.61 |
| 56 | Ocotillo Wash 1 | Tributary-2.1 | 0.87849 | 2385.01 |
| 57 | Ocotillo Wash 1 | Tributary-2.1 | 0.80224 | 2371.52 |
| 58 | Ocotillo Wash 1 | Tributary-2.1 | 0.79662 | 2371.60 |
| 59 | Ocotillo Wash 1 | Tributary-2.1 | 0.79392 | 72nd Street |
| 60 | Ocotillo Wash 1 | Tributary-2.1 | 0.79116 | 2369.08 |
| 61 | Ocotillo Wash 1 | Tributary-2.1 | 0.72875 | 2359.40 |
| 62 | Ocotillo Wash 1 | Tributary-2.1 | 0.70419 | 2355.50 |
| 63 | Ocotillo Wash 1 | Tributary-2.1 | 0.68880 | 2352.81 |
| 64 | Ocotillo Wash 1 | Tributary-2.1 | 0.67717 | 2350.12 |

## Table E.5.1.1
## STEADY FLOW OUTPUT

| ID | River | Reach | RS | PF 1 |
|---|---|---|---|---|
| 65 | Ocotillo Wash 1 | Tributary-2.1 | 0.63432 | 2345.58 |
| 66 | Ocotillo Wash 1 | Tributary-2.1 | 0.58805 | 2336.63 |
| 67 | Ocotillo Wash 1 | Tributary-2.1 | 0.50585 | 2324.16 |
| 68 | Ocotillo Wash 1 | Tributary-2.1 | 0.42020 | 2308.89 |
| 69 | Ocotillo Wash 1 | Tributary-2.1 | 0.37417 | 2302.71 |
| 70 | Ocotillo Wash 1 | Tributary-2.1 | 0.36875 | 2302.71 |
| 71 | Ocotillo Wash 1 | Tributary-2.1 | 0.36595 | Culvert |
| 72 | Ocotillo Wash 1 | Tributary-2.1 | 0.36365 | 2299.88 |
| 73 | Ocotillo Wash 1 | Tributary-2.1 | 0.35963 | 2299.85 |
| 74 | Ocotillo Wash 1 | Tributary-2.1 | 0.30808 | 2291.48 |
| 75 | Ocotillo Wash 1 | Tributary-2.1 | 0.22114 | 2277.31 |
| 76 | Ocotillo Wash 1 | Tributary-2.1 | 0.21765 | 2276.90 |
| 77 | Ocotillo Wash 1 | Tributary-2.1 | 0.21461 | 2276.31 |
| 78 | Ocotillo Wash 1 | Tributary-2.1 | 0.20941 | 2275.64 |
| 79 | Ocotillo Wash 1 | Tributary-2.1 | 0.20885 | 2275.68 |
| 80 | Ocotillo Wash 1 | Tributary-2.1 | 0.14532 | 2265.69 |
| 81 | Ocotillo Wash 1 | Tributary-2.1 | 0.14374 | 2265.71 |
| 82 | Ocotillo Wash 1 | Tributary-2.1 | 0.14161 | Culvert |
| 83 | Ocotillo Wash 1 | Tributary-2.1 | 0.13875 | 2263.58 |
| 84 | Ocotillo Wash 1 | Tributary-2.1 | 0.13724 | 2263.57 |
| 85 | Ocotillo Wash 1 | Tributary-2.1 | 0.11883 | 2261.43 |
| 86 | Ocotillo Wash 1 | Tributary-2.1 | 0.11472 | 2261.60 |
| 87 | Ocotillo Wash 1 | Tributary-2.1 | 0.08036 | 2255.37 |
| 88 | Ocotillo Wash 1 | Tributary-2.1 | 0.05817 | 2251.66 |

| ID | River | Reach | RS | PF 1 |
|---|---|---|---|---|
| 65 | Ocotillo Wash 1 | Tributary-2.1 | 0.63432 | 2343.34 |
| 66 | Ocotillo Wash 1 | Tributary-2.1 | 0.58805 | 2336.63 |
| 67 | Ocotillo Wash 1 | Tributary-2.1 | 0.50585 | 2324.16 |
| 68 | Ocotillo Wash 1 | Tributary-2.1 | 0.42020 | 2308.89 |
| 69 | Ocotillo Wash 1 | Tributary-2.1 | 0.37417 | 2302.71 |
| 70 | Ocotillo Wash 1 | Tributary-2.1 | 0.36875 | 2302.71 |
| 71 | Ocotillo Wash 1 | Tributary-2.1 | 0.36595 | P216-14-001-Q |
| 72 | Ocotillo Wash 1 | Tributary-2.1 | 0.36365 | 2299.88 |
| 73 | Ocotillo Wash 1 | Tributary-2.1 | 0.35963 | 2299.85 |
| 74 | Ocotillo Wash 1 | Tributary-2.1 | 0.30808 | 2291.48 |
| 75 | Ocotillo Wash 1 | Tributary-2.1 | 0.22114 | 2277.31 |
| 76 | Ocotillo Wash 1 | Tributary-2.1 | 0.21765 | 2276.90 |
| 77 | Ocotillo Wash 1 | Tributary-2.1 | 0.21461 | 2276.31 |
| 78 | Ocotillo Wash 1 | Tributary-2.1 | 0.20941 | 2275.64 |
| 79 | Ocotillo Wash 1 | Tributary-2.1 | 0.20885 | 2275.68 |
| 80 | Ocotillo Wash 1 | Tributary-2.1 | 0.14532 | 2265.69 |
| 81 | Ocotillo Wash 1 | Tributary-2.1 | 0.14374 | 2265.71 |
| 82 | Ocotillo Wash 1 | Tributary-2.1 | 0.14161 | P216-15-014-B |
| 83 | Ocotillo Wash 1 | Tributary-2.1 | 0.13875 | 2263.58 |
| 84 | Ocotillo Wash 1 | Tributary-2.1 | 0.13724 | 2263.57 |
| 85 | Ocotillo Wash 1 | Tributary-2.1 | 0.11883 | 2261.43 |
| 86 | Ocotillo Wash 1 | Tributary-2.1 | 0.11472 | 2261.60 |
| 87 | Ocotillo Wash 1 | Tributary-2.1 | 0.08036 | 2255.37 |
| 88 | Ocotillo Wash 1 | Tributary-2.1 | 0.0582 | 2251.66 |

# Table E.5.2.1
# HEC-RAS OUTPUT
# Manning's n Value

HEC-RAS Plan: M4 Profile: PF 1 OW_OWT2_FW.prj

| River | Reach | River Sta | Flow Area (sq ft) | Top Width (ft) | Mann Comp | Mann Wtd Total |
|---|---|---|---|---|---|---|
| Ocotillo Wash 5 | OWMS2 | 1.89254 | 590.39 | 285.35 | | 0.048 |
| Ocotillo Wash 5 | OWMS2 | 1.89136 | 961.63 | 443.13 | | 0.049 |
| Ocotillo Wash 5 | OWMS2 | 1.88981 | 1166.14 | 482.93 | | 0.048 |
| Ocotillo Wash 5 | OWMS2 | 1.88667 Lone Mountain R | Inl Struct | | | |
| Ocotillo Wash 5 | OWMS2 | 1.88352 | 1009.17 | 469.39 | | 0.048 |
| Ocotillo Wash 5 | OWMS2 | 1.78861 | 532.86 | 188.06 | 0.049 | 0.049 |
| Ocotillo Wash 5 | OWMS2 | 1.71509 | 494.98 | 175.01 | 0.042 | 0.042 |
| Ocotillo Wash 5 | OWMS2 | 1.64008 | 860.40 | 306.22 | | 0.045 |
| Ocotillo Wash 5 | OWMS2 | 1.63731 School House R | Inl Struct | | | |
| Ocotillo Wash 5 | OWMS2 | 1.63454 | 561.69 | 251.18 | | 0.045 |
| Ocotillo Wash 5 | OWMS2 | 1.63183 | 608.56 | 324.54 | | 0.044 |
| Ocotillo Wash 5 | OWMS2 | 1.54838 | 917.07 | 425.19 | | 0.052 |
| Ocotillo Wash 5 | OWMS2 | 1.47363 | 741.08 | 341.26 | 0.056 | 0.056 |
| Ocotillo Wash 5 | OWMS2 | 1.41048 | 700.02 | 300.22 | 0.057 | 0.057 |
| Ocotillo Wash 5 | OWMS2 | 1.32199 | 714.87 | 386.52 | 0.049 | 0.049 |
| Ocotillo Wash 5 | OWMS2 | 1.20785 | 732.74 | 386.40 | | 0.045 |
| Ocotillo Wash 5 | OWMS2 | 1.14203 | 621.13 | 309.07 | | 0.045 |
| Ocotillo Wash 5 | OWMS2 | 1.06470 | 914.90 | 490.83 | 0.052 | 0.052 |
| Ocotillo Wash 5 | OWMS2 | 0.97907 | 721.09 | 445.77 | | 0.049 |
| Ocotillo Wash 5 | OWMS2 | 0.91184 | 858.62 | 297.47 | | 0.042 |
| Ocotillo Wash 5 | OWMS2 | 0.90917 Spur Cross Rd | Inl Struct | | | |
| Ocotillo Wash 5 | OWMS2 | 0.90641 | 609.56 | 273.32 | | 0.042 |
| Ocotillo Wash 5 | OWMS2 | 0.87183 | 593.65 | 179.59 | 0.041 | 0.041 |
| Ocotillo Wash 5 | OWMS2 | 0.81091 | 596.77 | 254.21 | 0.055 | 0.055 |
| Ocotillo Wash 5 | OWMS2 | 0.76067 | 785.20 | 188.16 | 0.051 | 0.051 |
| Ocotillo Wash 5 | OWMS2 | 0.72626 | 569.99 | 128.88 | 0.050 | 0.050 |
| Ocotillo Wash 5 | OWMS2 | 0.64580 | 535.34 | 131.86 | 0.061 | 0.061 |
| Ocotillo Wash 5 | OWMS2 | 0.58990 | 700.24 | 164.50 | 0.059 | 0.059 |
| Ocotillo Wash 5 | OWMS2 | 0.47442 | 501.61 | 93.70 | 0.053 | 0.053 |
| Ocotillo Wash 5 | OWMS2 | 0.38608 | 450.09 | 100.82 | 0.049 | 0.049 |
| Ocotillo Wash 5 | OWMS2 | 0.30622 | 598.34 | 216.42 | | 0.047 |
| Ocotillo Wash 5 | OWMS2 | 0.22095 | 942.24 | 300.11 | | 0.049 |
| Ocotillo Wash 5 | OWMS2 | 0.17947 | 475.78 | 120.70 | | 0.045 |
| Ocotillo Wash 5 | OWMS2 | 0.13663 | 441.42 | 98.25 | 0.048 | 0.049 |
| Ocotillo Wash 5 | OWMS2 | 0.05120 | 668.90 | 141.30 | | 0.047 |
| Ocotillo Wash 5 | OWMS2 | 0.00837 | 608.31 | 137.65 | 0.059 | 0.059 |
| Ocotillo Wash 4 | OWMS1 | 0.07616 | 502.01 | 212.81 | 0.052 | 0.052 |
| Ocotillo Wash 4 | OWMS1 | 0.07615 A | Lat Struct | | | |
| Ocotillo Wash 4 | OWMS1 | 0.04601 | 595.14 | 246.21 | 0.052 | 0.052 |
| Ocotillo Wash 4 | OWMS1 | 0.04599 B | Lat Struct | | | |
| Ocotillo Wash 4 | OWMS1 | 0.03788 | 605.83 | 223.69 | 0.053 | 0.053 |
| Ocotillo Wash 4 | OWMS1 | 0.03786 C | Lat Struct | | | |
| Ocotillo Wash 4 | OWMS1 | 0.02091 | 510.93 | 225.24 | 0.052 | 0.052 |
| Ocotillo Wash 3 | Tributary-2.2 | 0.15352 | 117.49 | 199.60 | 0.043 | 0.043 |
| Ocotillo Wash 3 | Tributary-2.2 | 0.10059 | 88.06 | 66.43 | | 0.054 |
| Ocotillo Wash 3 | Tributary-2.2 | 0.04049 | 112.50 | 64.51 | 0.053 | 0.053 |
| Ocotillo Wash 3 | Tributary-2.2 | 0.03237 | 143.28 | 79.27 | | 0.054 |
| Ocotillo Wash 3 | Tributary-2.2 | 0.02833 | 149.09 | 58.27 | | 0.053 |
| Ocotillo Wash 3 | Tributary-2.2 | 0.02823 | 148.92 | 57.73 | | 0.053 |
| Ocotillo Wash 2 | OW Split | 0.07677 | 61.86 | 71.33 | | 0.045 |
| Ocotillo Wash 2 | OW Split | 0.04992 | 53.44 | 89.73 | | 0.046 |
| Ocotillo Wash 1 | Tributary-2.1 | 1.00045 | 146.06 | 100.13 | | 0.063 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.97998 | 80.27 | 63.07 | | 0.063 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.96791 | 96.53 | 60.50 | | 0.063 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.94451 | 153.94 | 80.25 | | 0.063 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.87849 | 147.80 | 67.61 | 0.071 | 0.066 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.80224 | 86.45 | 50.23 | | 0.063 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.79662 | 179.93 | 74.14 | | 0.019 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.79392 72nd Street | Culvert | | | |
| Ocotillo Wash 1 | Tributary-2.1 | 0.79116 | 58.44 | 47.50 | | 0.063 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.78443 | 107.45 | 52.84 | | 0.063 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.72875 | 157.39 | 113.70 | | 0.062 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.70419 | 71.37 | 31.85 | 0.063 | 0.063 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.68880 | 67.43 | 25.68 | 0.063 | 0.063 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.67717 | 185.62 | 85.15 | | 0.063 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.63432 | 34.30 | 18.65 | 0.063 | 0.063 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.58805 | 112.52 | 49.32 | 0.062 | 0.062 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.50585 | 123.00 | 55.06 | | 0.062 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.42020 | 102.03 | 38.25 | | 0.069 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.37417 | 212.38 | 65.46 | 0.069 | 0.066 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.36875 | 191.44 | 45.84 | | 0.019 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.36595 P216-14-001-Q | Culvert | | | |
| Ocotillo Wash 1 | Tributary-2.1 | 0.36365 | 91.61 | 34.53 | | 0.067 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.35963 | 116.41 | 48.52 | | 0.066 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.30808 | 162.93 | 74.42 | | 0.056 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.22114 | 63.51 | 48.08 | | 0.056 |

## Table E.5.2.1
## HEC-RAS OUTPUT
## Manning's n Value

| River | Reach | River Sta | Flow Area (sq ft) | Top Width (ft) | Mann Comp | Mann Wtd Total |
|---|---|---|---|---|---|---|
| Ocotillo Wash 1 | Tributary-2.1 | 0.21765 | 56.61 | 46.86 | | 0.056 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.21461 | 46.64 | 44.52 | | 0.056 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.20941 | 100.42 | 70.85 | | 0.056 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.20885 | 152.71 | 75.75 | | 0.056 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.14532 | 124.24 | 59.11 | 0.056 | 0.056 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.14374 | 164.26 | 67.46 | 0.056 | 0.056 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.14161 P216-15-014-B | Culvert | | | |
| Ocotillo Wash 1 | Tributary-2.1 | 0.13875 | 91.36 | 65.97 | 0.056 | 0.056 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.13724 | 112.00 | 65.40 | 0.056 | 0.056 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.11883 | 31.92 | 15.75 | 0.083 | 0.083 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.11472 | 82.22 | 33.94 | 0.057 | 0.057 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.08036 | 109.21 | 93.54 | 0.057 | 0.056 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.05817 | 53.06 | 67.06 | | 0.048 |

# Table E.5.3.1
# HEC-RAS OUTPUT
# Reach Lengths

HEC-RAS Plan: M4 Profile: PF 1 OW_OWT2_FW.prj

| River | Reach | River Sta | Q Total (cfs) | Length Chnl (ft) | LOB Elev (ft) | ROB Elev (ft) |
|---|---|---|---|---|---|---|
| Ocotillo Wash 5 | OWMS2 | 1.89254 | 4820 | 6.24 | 2225.62 | 2226.40 |
| Ocotillo Wash 5 | OWMS2 | 1.89136 | 4820 | 8.14 | 2225.50 | 2223.33 |
| Ocotillo Wash 5 | OWMS2 | 1.88981 | 4820 | 33.21 | 2225.37 | 2226.07 |
| Ocotillo Wash 5 | OWMS2 | 1.88667 Lone Mountain R | Inl Struct | | | |
| Ocotillo Wash 5 | OWMS2 | 1.88352 | 4820 | 501.13 | 2224.90 | 2225.71 |
| Ocotillo Wash 5 | OWMS2 | 1.78861 | 4820 | 388.18 | 2218.53 | 2216.39 |
| Ocotillo Wash 5 | OWMS2 | 1.71509 | 4820 | 396.08 | 2210.01 | 2210.66 |
| Ocotillo Wash 5 | OWMS2 | 1.64008 | 4820 | 29.23 | 2204.92 | 2203.42 |
| Ocotillo Wash 5 | OWMS2 | 1.63731 School House R | Inl Struct | | | |
| Ocotillo Wash 5 | OWMS2 | 1.63454 | 4820 | 14.34 | 2202.56 | 2201.63 |
| Ocotillo Wash 5 | OWMS2 | 1.63183 | 4820 | 440.58 | 2202.95 | 2203.56 |
| Ocotillo Wash 5 | OWMS2 | 1.54838 | 4820 | 394.71 | 2194.26 | 2194.04 |
| Ocotillo Wash 5 | OWMS2 | 1.47363 | 4820 | 333.42 | 2185.20 | 2185.31 |
| Ocotillo Wash 5 | OWMS2 | 1.41048 | 4820 | 467.21 | 2177.06 | 2177.17 |
| Ocotillo Wash 5 | OWMS2 | 1.32199 | 5020 | 602.67 | 2184.17 | 2170.25 |
| Ocotillo Wash 5 | OWMS2 | 1.20785 | 5020 | 347.57 | 2155.88 | 2154.45 |
| Ocotillo Wash 5 | OWMS2 | 1.14203 | 5020 | 408.29 | 2151.75 | 2147.88 |
| Ocotillo Wash 5 | OWMS2 | 1.06470 | 5020 | 452.14 | 2141.28 | 2143.21 |
| Ocotillo Wash 5 | OWMS2 | 0.97907 | 5220 | 354.94 | 2131.10 | 2135.98 |
| Ocotillo Wash 5 | OWMS2 | 0.91184 | 5220 | 28.67 | 2123.48 | 2123.52 |
| Ocotillo Wash 5 | OWMS2 | 0.90917 Spur Cross Rd | Inl Struct | | | |
| Ocotillo Wash 5 | OWMS2 | 0.90641 | 5220 | 182.61 | 2122.05 | 2122.05 |
| Ocotillo Wash 5 | OWMS2 | 0.87183 | 5220 | 321.64 | 2117.15 | 2120.43 |
| Ocotillo Wash 5 | OWMS2 | 0.81091 | 5220 | 265.27 | 2111.40 | 2112.18 |
| Ocotillo Wash 5 | OWMS2 | 0.76067 | 5220 | 181.67 | 2110.91 | 2113.00 |
| Ocotillo Wash 5 | OWMS2 | 0.72626 | 5220 | 424.82 | 2104.62 | 2104.76 |
| Ocotillo Wash 5 | OWMS2 | 0.64580 | 5220 | 295.18 | 2097.25 | 2099.77 |
| Ocotillo Wash 5 | OWMS2 | 0.58990 | 5220 | 609.72 | 2094.27 | 2093.36 |
| Ocotillo Wash 5 | OWMS2 | 0.47442 | 5420 | 466.43 | 2084.48 | 2083.63 |
| Ocotillo Wash 5 | OWMS2 | 0.38608 | 5420 | 421.67 | 2076.06 | 2077.89 |
| Ocotillo Wash 5 | OWMS2 | 0.30622 | 5420 | 450.25 | 2067.42 | 2066.94 |
| Ocotillo Wash 5 | OWMS2 | 0.22095 | 5420 | 218.99 | 2059.68 | 2056.25 |
| Ocotillo Wash 5 | OWMS2 | 0.17947 | 5420 | 226.23 | 2052.97 | 2052.72 |
| Ocotillo Wash 5 | OWMS2 | 0.13663 | 5420 | 451.03 | 2046.47 | 2047.74 |
| Ocotillo Wash 5 | OWMS2 | 0.05120 | 5420 | 226.15 | 2040.64 | 2039.62 |
| Ocotillo Wash 5 | OWMS2 | 0.00837 | 5420 | | 2039.09 | 2039.94 |
| Ocotillo Wash 4 | OWMS1 | 0.07616 | 4409 | 159.23 | 2236.89 | 2235.57 |
| Ocotillo Wash 4 | OWMS1 | 0.07615 A | Lat Struct | | | |
| Ocotillo Wash 4 | OWMS1 | 0.04601 | 4409 | 42.93 | 2234.14 | 2232.65 |
| Ocotillo Wash 4 | OWMS1 | 0.04599 B | Lat Struct | | | |
| Ocotillo Wash 4 | OWMS1 | 0.03788 | 4409 | 89.56 | 2232.41 | 2232.28 |
| Ocotillo Wash 4 | OWMS1 | 0.03786 C | Lat Struct | | | |
| Ocotillo Wash 4 | OWMS1 | 0.02091 | 4409 | 110.43 | 2230.02 | 2231.06 |
| Ocotillo Wash 3 | Tributary-2.2 | 0.15352 | 482 | 279.51 | 2246.64 | 2244.20 |
| Ocotillo Wash 3 | Tributary-2.2 | 0.10059 | 482 | 317.30 | 2236.98 | 2236.48 |
| Ocotillo Wash 3 | Tributary-2.2 | 0.04049 | 482 | 42.90 | 2232.26 | 2231.55 |
| Ocotillo Wash 3 | Tributary-2.2 | 0.03237 | 488 | 21.30 | 2230.36 | 2230.00 |
| Ocotillo Wash 3 | Tributary-2.2 | 0.02833 | 522 | 0.50 | 2228.62 | 2229.48 |
| Ocotillo Wash 3 | Tributary-2.2 | 0.02823 | 522 | 162.00 | 2228.61 | 2229.50 |
| Ocotillo Wash 2 | OW Split | 0.07677 | 222 | 141.75 | 2253.14 | 2252.80 |
| Ocotillo Wash 2 | OW Split | 0.04992 | 222 | 263.59 | 2250.93 | 2250.87 |
| Ocotillo Wash 1 | Tributary-2.1 | 1.00045 | 260 | 108.10 | 2405.35 | 2405.48 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.97998 | 260 | 63.74 | 2402.46 | 2403.08 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.96791 | 260 | 123.51 | 2400.82 | 2399.69 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.94451 | 260 | 348.61 | 2394.80 | 2394.76 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.87849 | 260 | 402.60 | 2382.02 | 2382.42 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.80224 | 260 | 29.67 | 2369.80 | 2369.60 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.79662 | 260 | 28.83 | 2369.17 | 2369.13 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.79392 72nd Street | Culvert | | | |
| Ocotillo Wash 1 | Tributary-2.1 | 0.79116 | 260 | 35.52 | 2368.27 | 2368.53 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.78443 | 260 | 294.01 | 2366.18 | 2366.63 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.72875 | 260 | 129.66 | 2357.46 | 2357.54 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.70419 | 260 | 81.29 | 2353.07 | 2353.91 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.68880 | 260 | 61.39 | 2350.05 | 2351.04 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.67717 | 260 | 226.26 | 2348.16 | 2348.13 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.63432 | 260 | 8.56 | 2342.51 | 2342.65 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.58805 | 260 | 434.02 | 2334.34 | 2333.76 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.50585 | 260 | 452.20 | 2321.60 | 2320.72 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.42020 | 260 | 243.05 | 2307.29 | 2305.35 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.37417 | 260 | 28.66 | 2298.97 | 2299.38 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.36875 | 260 | 26.89 | 2302.76 | 2302.11 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.36595 P216-14-001-Q | Culvert | | | |
| Ocotillo Wash 1 | Tributary-2.1 | 0.36365 | 260 | 21.22 | 2297.87 | 2297.46 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.35963 | 260 | 272.22 | 2297.69 | 2297.38 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.30808 | 260 | 459.02 | 2288.51 | 2289.06 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.22114 | 260 | 18.41 | 2275.76 | 2276.13 |

## Table E.5.3.1
## HEC-RAS OUTPUT
## Reach Lengths

| River | Reach | River Sta | Q Total (cfs) | Length Chnl (ft) | LOB Elev (ft) | ROB Elev (ft) |
|---|---|---|---|---|---|---|
| Ocotillo Wash 1 | Tributary-2.1 | 0.21765 | 260 | 16.08 | 2275.43 | 2275.60 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.21461 | 260 | 27.43 | 2274.99 | 2275.15 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.20941 | 260 | 3.00 | 2274.49 | 2273.98 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.20885 | 260 | 475.30 | 2274.40 | 2273.78 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.14532 | 260 | 8.32 | 2262.95 | 2263.24 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.14374 | 260 | 26.34 | 2264.62 | 2262.49 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.14161 P216-15-014-B | Culvert | | | |
| Ocotillo Wash 1 | Tributary-2.1 | 0.13875 | 260 | 7.94 | 2262.30 | 2261.89 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.13724 | 260 | 97.25 | 2262.11 | 2261.49 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.11883 | 260 | 21.67 | 2264.00 | 2261.65 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.11472 | 260 | 181.41 | 2264.00 | 2259.37 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.08036 | 260 | 117.20 | 2253.82 | 2254.20 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.05817 | 260 | 51.62 | 2252.37 | 2250.91 |

# Table E.5.4.1
# HEC-RAS OUTPUT
## Junctions

HEC-RAS Plan: M4 Profile: PF 1 OW_OWT2_FW.prj

| River | Reach | River Sta | W.S. Elev | E.G. Elev | Q Total |
|---|---|---|---|---|---|
| | | | (ft) | (ft) | (cfs) |
| Ocotillo Wash 2 | OW Split | 0.04992 | 2251.17 | 2251.46 | 222.00 |
| Ocotillo Wash 1 | Tributary-2.1 | 0.02605 | 2247.88 | 2247.94 | 260.00 |
| Junction: | J2 | | | | |
| Ocotillo Wash 3 | Tributary-2.2 | 0.15352 | 2244.11 | 2244.37 | 482.00 |
| | | | | | |
| Ocotillo Wash 4 | OWMS1 | 0.02091 | 2230.63 | 2231.78 | 4409.00 |
| Ocotillo Wash 3 | Tributary-2.2 | 0.02823 | 2231.12 | 2231.33 | 522.00 |
| Junction: | J1 | | | | |
| Ocotillo Wash 5 | OWMS2 | 1.89254 | 2227.17 | 2228.22 | 4820.00 |

# Floodplain Redelineation Study of Ocotillo Wash and Tributary-2, and Floodplain Delineation Study of Cave Creek West Tributaries 2 and 3 within Cave Creek, Arizona

Reference data from the effective Ocotillo Wash Floodplain Redelineation Study FCD 2004C072 (FEMA effective 04/24/2009) has been included after this divider in support of the results for the naturally occurring, non-structural, non-certifiable lateral weir identified as Weir Number 6. Copies of the resulting tabular data, work maps and lateral weirs exhibits have been included. The resulting discharge from Weir Number 6 contributes to the Ocotillo Wash Split delineation prepared within this study.

# Table 5.9.1.1
# HEC-RAS OUTPUT
# FLOODWAY/FLOODPLAIN

HEC-RAS Plan: OcotilloFPD Profile: PF 1 OcotilloWashFPD.prj

| River | Reach | River Sta | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| Ocotillo1 | 1 | 0 | 4630 | 2217.07 | 2222.77 | 2222.65 | 2224.17 | 0.011049 | 11.65 | 583.48 | 197.12 | 0.87 |
| Ocotillo1 | 1 | 299.79 | 4409 | 2234.08 | 2237.54 | 2237.54 | 2238.72 | 0.029101 | 8.73 | 504.97 | 213.53 | 1 |
| Ocotillo1 | 1 | 439.87 | 4409 | 2235.89 | 2241.23 | 2240.4 | 2241.8 | 0.016792 | 6.08 | 724.59 | 248.9 | 0.63 |
| Ocotillo1 | 1 | 527.61 | 4409 | 2238.55 | 2242.95 | | 2243.73 | 0.027283 | 7.09 | 621.75 | 241.19 | 0.78 |
| Ocotillo1 | 1 | 595.21 | 4409 | 2239.19 | 2244.41 | | 2244.98 | 0.013113 | 6.08 | 725.58 | 252.86 | 0.63 |
| Ocotillo1 | 1 | 668.3362 | 4409 | 2240.72 | 2245.52 | 2245.52 | 2246.72 | 0.026174 | 8.78 | 501.89 | 210.07 | 1 |
| Ocotillo1 | 1 | 749.2241 | 4409 | 2242.18 | 2247.85 | 2247.28 | 2248.77 | 0.02432 | 7.7 | 572.93 | 181.86 | 0.76 |
| Ocotillo1 | 1 | 875.1199 | 4409 | 2244.84 | 2250.58 | | 2251.62 | 0.020709 | 8.18 | 538.72 | 144.02 | 0.75 |
| Ocotillo1 | 1 | 970.566 | 4409 | 2247.18 | 2252.47 | 2252.47 | 2254.52 | 0.023295 | 11.47 | 384.5 | 94.22 | 1 |
| Ocotillo1 | 1 | 1047.364 | 4446 | 2248.51 | 2254.92 | | 2255.26 | 0.003612 | 4.64 | 958.51 | 246.78 | 0.41 |
| Ocotillo1 | 1 | 1112.638 | 4630 | 2249.49 | 2255.1 | | 2255.82 | 0.015656 | 6.82 | 678.74 | 332.79 | 0.84 |
| Ocotillo2 | 2 | 156.3713 | 2715 | 2254.19 | 2258.1 | 2258.03 | 2258.88 | 0.029989 | 7.1 | 382.32 | 221.88 | 0.95 |
| Ocotillo2 | 2 | 180.6079 | 2791 | 2254.62 | 2258.93 | 2258.51 | 2259.46 | 0.018137 | 5.87 | 475.7 | 233.1 | 0.72 |
| Ocotillo2 | 2 | 210.772 | 2742 | 2255.46 | 2259.57 | | 2259.95 | 0.013512 | 4.94 | 554.6 | 259.67 | 0.6 |
| Ocotillo2 | 2 | 238.5302 | 2693 | 2256.4 | 2259.92 | 2259.8 | 2260.57 | 0.030362 | 6.49 | 414.86 | 258.59 | 0.9 |
| Ocotillo2 | 2 | 276.6784 | 2576 | 2257.26 | 2262.1 | | 2262.39 | 0.008603 | 4.3 | 599.38 | 206.11 | 0.44 |
| Ocotillo2 | 2 | 414.5065 | 2576 | 2259.95 | 2263.7 | | 2264.45 | 0.025535 | 6.95 | 370.54 | 155.22 | 0.79 |
| Ocotillo2 | 2 | 494.3954 | 2576 | 2261.33 | 2265.54 | | 2265.95 | 0.014022 | 5.16 | 499.71 | 199.63 | 0.57 |
| Ocotillo2 | 2 | 569.693 | 2576 | 2263.91 | 2267.31 | 2267.31 | 2268.25 | 0.046128 | 7.78 | 330.99 | 181.52 | 1.02 |
| Ocotillo2 | 2 | 603 | Inl Struct | | | | | | | | | |
| Ocotillo2 | 2 | 636.8529 | 2576 | 2266.69 | 2273.92 | 2269.61 | 2274 | 0.00105 | 2.24 | 1151.46 | 213.34 | 0.17 |
| Ocotillo2 | 2 | 689.6463 | 2576 | 2267.55 | 2273.95 | | 2274.1 | 0.001892 | 3.07 | 838.89 | 180.93 | 0.25 |
| Ocotillo2 | 2 | 743.0997 | 2576 | 2268.66 | 2274.05 | | 2274.25 | 0.003535 | 3.57 | 721.65 | 178.9 | 0.31 |
| Ocotillo2 | 2 | 814.875 | 2576 | 2270.88 | 2274.34 | | 2274.72 | 0.011328 | 4.95 | 520.31 | 200.84 | 0.54 |
| Ocotillo2 | 2 | 905.6604 | 2576 | 2272.73 | 2275.96 | 2275.96 | 2276.85 | 0.035801 | 7.58 | 339.92 | 190.95 | 1 |
| Ocotillo2 | 2 | 1001.524 | 2576 | 2274.97 | 2278.53 | | 2279.04 | 0.015397 | 5.72 | 450.24 | 211.86 | 0.69 |
| Ocotillo2 | 2 | 1153.302 | 2576 | 2278.91 | 2282.13 | 2282.13 | 2283.11 | 0.050148 | 7.94 | 324.28 | 169.32 | 1.01 |
| Ocotillo2 | 2 | 1276.418 | 2576 | 2281.54 | 2285.52 | | 2285.93 | 0.01247 | 5.13 | 502.57 | 211.35 | 0.59 |
| Ocotillo2 | 2 | 1363.754 | 2576 | 2283.59 | 2286.82 | 2286.82 | 2287.69 | 0.028831 | 7.49 | 344.02 | 202.88 | 1.01 |
| Ocotillo2 | 2 | 1474.264 | 2576 | 2286.38 | 2290.07 | 2289.82 | 2290.89 | 0.028939 | 7.31 | 352.62 | 155.64 | 0.86 |
| Ocotillo2 | 2 | 1630.469 | 2576 | 2290.81 | 2294.41 | | 2294.95 | 0.02352 | 5.88 | 437.79 | 216.81 | 0.73 |
| Ocotillo2 | 2 | 1838.932 | 2576 | 2295.4 | 2299.92 | 2299.75 | 2300.76 | 0.032591 | 7.37 | 349.63 | 167.17 | 0.9 |
| Ocotillo2 | 2 | 1893.224 | 2576 | 2297.55 | 2301.83 | | 2302.43 | 0.028435 | 6.23 | 413.65 | 228.74 | 0.82 |
| Ocotillo2 | 2 | 1961.665 | 2576 | 2300.18 | 2303.84 | 2303.72 | 2304.62 | 0.034261 | 7.1 | 362.86 | 193.91 | 0.91 |
| Ocotillo2 | 2 | 2091.182 | 2576 | 2303.54 | 2307.48 | 2307.01 | 2307.97 | 0.020308 | 5.64 | 457.06 | 222.37 | 0.69 |
| Ocotillo2 | 2 | 2138.547 | 2576 | 2304.53 | 2308.62 | | 2309.08 | 0.026924 | 5.43 | 474.55 | 280.03 | 0.73 |
| Ocotillo2 | 2 | 2250.737 | 2576 | 2306.24 | 2310.72 | 2310.05 | 2311.02 | 0.011971 | 4.39 | 587.42 | 300.4 | 0.55 |
| Ocotillo2 | 2 | 2275 | Inl Struct | | | | | | | | | |
| Ocotillo2 | 2 | 2300.616 | 2576 | 2308.44 | 2311.98 | 2311.42 | 2312.34 | 0.016007 | 4.77 | 540.38 | 318.14 | 0.64 |
| Ocotillo3 | 3 | 114.4412 | 1934 | 2313.46 | 2316.97 | 2316.97 | 2317.66 | 0.038457 | 6.69 | 288.95 | 208.9 | 1 |
| Ocotillo3 | 3 | 215.1731 | 1764 | 2316.62 | 2320.57 | 2320.57 | 2321.27 | 0.030184 | 6.75 | 261.22 | 187.61 | 1.01 |
| Ocotillo3 | 3 | 321.5755 | 1906 | 2319.57 | 2322.57 | | 2323.1 | 0.011239 | 5.82 | 327.77 | 155.23 | 0.71 |
| Ocotillo3 | 3 | 384.3589 | 1964 | 2322.77 | 2325.62 | 2325.62 | 2326.46 | 0.032253 | 7.34 | 267.41 | 163.58 | 1.01 |
| Ocotillo3 | 3 | 462.3848 | 2286 | 2325.82 | 2328.62 | 2328.62 | 2329.51 | 0.042469 | 7.6 | 300.78 | 168.26 | 1 |
| Ocotillo3 | 3 | 671.1304 | 2277 | 2331.14 | 2335.31 | 2335 | 2335.83 | 0.022612 | 5.81 | 392.19 | 229.55 | 0.78 |
| Ocotillo3 | 3 | 741.5216 | 2286 | 2334.58 | 2338.15 | 2338.15 | 2338.89 | 0.052464 | 6.92 | 330.35 | 223.63 | 1 |
| Ocotillo3 | 3 | 826.0362 | 2283 | 2337.7 | 2341.46 | 2341.18 | 2342.11 | 0.028472 | 6.46 | 353.38 | 178.23 | 0.81 |
| Ocotillo3 | 3 | 987.6464 | 2219 | 2341.59 | 2345.46 | 2345 | 2345.89 | 0.019316 | 5.2 | 426.34 | 232.77 | 0.68 |
| Ocotillo3 | 3 | 1054.181 | 2209 | 2343.8 | 2347.27 | 2347.27 | 2348.01 | 0.047914 | 6.91 | 319.73 | 219.27 | 1.01 |
| Ocotillo3 | 3 | 1159.029 | 2238 | 2347.7 | 2351.16 | | 2351.56 | 0.024888 | 5.1 | 439.08 | 281.77 | 0.72 |
| Ocotillo3 | 3 | 1241.236 | 2248 | 2351.59 | 2353.81 | 2353.81 | 2354.5 | 0.036696 | 6.65 | 337.97 | 248.97 | 1.01 |
| Ocotillo3 | 3 | 1321.667 | 2274 | 2353.01 | 2356.6 | 2356.6 | 2357.44 | 0.025946 | 7.36 | 309.05 | 183.6 | 1 |
| Ocotillo3 | 3 | 1382.931 | 2313 | 2354.69 | 2358.57 | 2358.57 | 2359.59 | 0.024824 | 8.1 | 285.71 | 141.44 | 1 |
| Ocotillo3 | 3 | 1458.288 | 2304 | 2356.49 | 2360.79 | 2360.25 | 2361.37 | 0.021389 | 6.11 | 376.95 | 162.04 | 0.71 |
| Ocotillo3 | 3 | 1510.756 | 2326 | 2358.55 | 2362.11 | 2362.11 | 2362.98 | 0.030499 | 7.47 | 311.55 | 177.33 | 0.99 |
| Ocotillo3 | 3 | 1619.753 | 2532 | 2363.49 | 2366.67 | 2366.67 | 2367.31 | 0.050199 | 6.46 | 392.14 | 307.46 | 1.01 |
| Ocotillo4 | 4 | 37.42422 | 2490 | 2364.92 | 2370.22 | 2369.6 | 2370.54 | 0.012443 | 4.52 | 550.76 | 384.98 | 0.67 |
| Ocotillo4 | 4 | 168.9279 | 2490 | 2370.67 | 2374.3 | 2374.3 | 2374.99 | 0.02334 | 6.65 | 374.16 | 277.59 | 1.01 |
| Ocotillo5 | 5 | 146.6624 | 2290 | 2375.06 | 2379.11 | 2379.11 | 2379.62 | 0.032612 | 5.69 | 402.3 | 421 | 1.03 |
| Ocotillo5 | 5 | 210.8846 | 2290 | 2377.89 | 2381.65 | 2381.65 | 2382.3 | 0.04182 | 6.47 | 353.76 | 278.88 | 1.01 |
| Ocotillo5 | 5 | 348.4933 | 2290 | 2385.6 | 2389 | 2389 | 2389.56 | 0.03051 | 5.98 | 383.22 | 350.88 | 1.01 |
| Ocotillo5 | 5 | 539.3184 | 2290 | 2391.74 | 2395.59 | 2395.59 | 2396.41 | 0.023236 | 7.26 | 315.42 | 193.65 | 1 |
| Ocotillo5 | 5 | 714.3696 | 2290 | 2398.55 | 2402.27 | 2402.27 | 2403.21 | 0.041677 | 7.78 | 294.28 | 155 | 1 |
| Ocotillo5 | 5 | 844.1581 | 2290 | 2403.3 | 2406.84 | 2406.84 | 2407.66 | 0.024211 | 7.28 | 314.45 | 187.44 | 0.99 |
| Ocotillo5 | 5 | 952.1411 | 2274 | 2407.62 | 2410.41 | 2410.41 | 2411.08 | 0.029261 | 6.56 | 346.65 | 254.54 | 0.99 |
| Ocotillo5 | 5 | 1011.151 | 2320 | 2409.94 | 2413.42 | 2413.42 | 2414.16 | 0.029125 | 6.88 | 337.01 | 226.02 | 0.99 |
| Ocotillo5 | 5 | 1064.645 | 2342 | 2411.98 | 2416.19 | 2416.19 | 2416.94 | 0.008196 | 6.98 | 335.72 | 218.42 | 0.99 |
| Ocotillo5 | 5 | 1136.218 | 2342 | 2414.99 | 2418.53 | 2418.53 | 2419.23 | 0.020283 | 6.67 | 351.03 | 249.59 | 0.99 |
| Ocotillo5 | 5 | 1223.727 | 2397 | 2418.37 | 2421.4 | 2421.4 | 2422.32 | 0.028774 | 7.75 | 312.35 | 166.43 | 0.99 |
| Ocotillo5 | 5 | 1332.115 | 2441 | 2421.24 | 2425.2 | 2425.2 | 2426.3 | 0.025941 | 8.43 | 289.48 | 134.12 | 1.01 |
| Ocotillo5 | 5 | 1491.168 | 2441 | 2426.69 | 2430.94 | 2430.81 | 2431.64 | 0.043325 | 6.69 | 364.85 | 213.77 | 0.9 |
| Ocotillo5 | 5 | 1656.337 | 2441 | 2433.46 | 2436.53 | 2436.16 | 2436.87 | 0.02377 | 4.64 | 525.95 | 347.5 | 0.66 |
| Ocotillo5 | 5 | 1793.631 | 2441 | 2440.44 | 2443.19 | 2443.19 | 2443.8 | 0.054363 | 6.26 | 390.23 | 332.94 | 1.02 |
| OcotilloS1 | Split1 | 119.2931 | 1115 | 2282.83 | 2284.84 | 2284.73 | 2285.36 | 0.02643 | 5.74 | 194.41 | 148.2 | 0.88 |
| OcotilloS1 | Split1 | 149.6742 | 867 | 2284.06 | 2285.7 | 2285.6 | 2286.13 | 0.023496 | 5.21 | 166.39 | 148.24 | 0.87 |
| OcotilloS1 | Split1 | 178.9694 | 711 | 2284.83 | 2286.47 | | 2286.78 | 0.020079 | 4.43 | 160.49 | 154.41 | 0.77 |

# Table 5.9.1.1
# HEC-RAS OUTPUT
# FLOODWAY/FLOODPLAIN

| River | Reach | River Sta | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| OcotilloS1 | Split1 | 199.1123 | 569 | 2285.57 | 2286.95 | 2286.95 | 2287.34 | 0.036124 | 5.01 | 113.61 | 147 | 1 |
| OcotilloS1 | Split1 | 224.0794 | 488 | 2286.24 | 2287.78 | 2287.72 | 2288.14 | 0.028188 | 4.82 | 101.27 | 116.78 | 0.91 |
| OcotilloS1 | Split1 | 253.381 | 491 | 2286.85 | 2288.62 | 2288.54 | 2289 | 0.028079 | 4.98 | 98.62 | 104.77 | 0.9 |
| OcotilloS1 | Split1 | 282.8606 | 558 | 2287.96 | 2290.15 | 2290.15 | 2290.74 | 0.031947 | 6.16 | 90.55 | 78.1 | 1.01 |
| OcotilloS1 | Split1 | 300.32 | 558 | 2288.92 | 2290.87 | 2290.87 | 2291.54 | 0.028543 | 6.55 | 85.21 | 64.49 | 1 |
| OcotilloS1 | Split1 | 371.2329 | 558 | 2291.15 | 2294.33 | | 2294.41 | 0.003442 | 2.26 | 246.82 | 155.36 | 0.32 |
| OcotilloS1 | Split1 | 487.0553 | 558 | 2294.1 | 2295.97 | 2295.97 | 2296.42 | 0.048106 | 5.43 | 102.79 | 117.56 | 1.02 |
| OcotilloS1 | Split1 | 527.9043 | 487 | 2294.75 | 2297.68 | 2297.52 | 2298 | 0.031358 | 4.48 | 108.67 | 115.77 | 0.82 |
| OcotilloS1 | Split1 | 586.8272 | 487 | 2296.49 | 2299.45 | 2299.36 | 2299.9 | 0.031911 | 5.38 | 90.53 | 81.06 | 0.9 |
| OcotilloS1 | Split1 | 662.9047 | 487 | 2299.49 | 2301.45 | 2301.26 | 2301.86 | 0.021166 | 5.11 | 95.39 | 76.95 | 0.81 |
| OcotilloS1 | Split1 | 712.6492 | 487 | 2300.79 | 2302.66 | 2302.58 | 2303.2 | 0.032903 | 5.88 | 82.83 | 68.55 | 0.94 |
| OcotilloS1 | Split1 | 759.7467 | 487 | 2302.5 | 2304.61 | 2304.59 | 2305.09 | 0.049814 | 5.57 | 87.46 | 88.27 | 0.99 |
| OcotilloS1 | Split1 | 828.3519 | 487 | 2303.5 | 2306.38 | | 2306.54 | 0.011012 | 3.21 | 151.5 | 112.7 | 0.49 |
| OcotilloS1 | Split1 | 863.3463 | 487 | 2304.17 | 2306.89 | | 2307.17 | 0.0307 | 4.23 | 115.11 | 124.8 | 0.78 |
| OcotilloS1 | Split1 | 887 | Inl Struct | | | | | | | | | |
| OcotilloS1 | Split1 | 910.7199 | 487 | 2307.15 | 2309.19 | 2308.9 | 2309.37 | 0.021965 | 3.39 | 143.65 | 157.48 | 0.63 |
| OcotilloS1 | Split1 | 948.4852 | 487 | 2308.76 | 2310.53 | 2310.53 | 2310.89 | 0.06001 | 4.84 | 100.52 | 144.49 | 1.02 |
| OcotilloS1 | Split1 | 1038.222 | 487 | 2311.24 | 2313.26 | 2312.97 | 2313.5 | 0.016531 | 3.92 | 124.13 | 115.09 | 0.67 |
| OcotilloS1 | Split1 | 1099.415 | 487 | 2313.49 | 2315.73 | 2315.73 | 2316.22 | 0.056118 | 5.65 | 86.18 | 91.78 | 1.03 |
| OcotilloS1 | Split1 | 1168.193 | 487 | 2315.74 | 2318.22 | 2317.94 | 2318.39 | 0.019936 | 3.3 | 147.73 | 175.43 | 0.63 |
| OcotilloS1 | Split1 | 1255.985 | 487 | 2318.16 | 2320.17 | 2319.89 | 2320.34 | 0.023993 | 3.29 | 147.9 | 199.31 | 0.67 |
| OcotilloS1 | Split1 | 1457.32 | 487 | 2326 | 2327.84 | 2327.84 | 2328.08 | 0.031369 | 3.97 | 122.74 | 254.34 | 1.01 |
| OcotilloS1 | Split1 | 1523.987 | 487 | 2327.17 | 2329.69 | | 2329.87 | 0.023586 | 3.48 | 139.81 | 193.2 | 0.72 |
| OcotilloS1 | Split1 | 1700.375 | 487 | 2331.76 | 2334.45 | 2334.42 | 2334.8 | 0.033039 | 4.75 | 102.53 | 129.26 | 0.94 |
| OcotilloS1 | Split1 | 1812.715 | 487 | 2335.55 | 2338.28 | | 2338.47 | 0.031289 | 3.49 | 139.47 | 190.26 | 0.72 |
| OcotilloS1 | Split1 | 1886.663 | 487 | 2337.95 | 2340.81 | 2340.67 | 2341.09 | 0.038694 | 4.23 | 115.08 | 141.27 | 0.83 |
| OcotilloS1 | Split1 | 1969.317 | 490 | 2340.99 | 2344.03 | 2343.87 | 2344.29 | 0.037867 | 4.09 | 119.7 | 147.12 | 0.8 |
| OcotilloS1 | Split1 | 2040.078 | 554 | 2344.11 | 2346.62 | 2346.47 | 2346.86 | 0.034103 | 3.92 | 141.42 | 174.6 | 0.77 |
| OcotilloS1 | Split1 | 2079.058 | 564 | 2345.84 | 2348.1 | 2348.1 | 2348.65 | 0.050185 | 5.95 | 94.78 | 91.6 | 1.03 |
| OcotilloS1 | Split1 | 2140.933 | 535 | 2346.66 | 2350 | 2349.61 | 2350.17 | 0.01305 | 3.32 | 161.21 | 147.28 | 0.56 |
| OcotilloS1 | Split1 | 2236.837 | 525 | 2351.03 | 2353.02 | 2353.02 | 2353.56 | 0.028695 | 5.92 | 88.67 | 84.31 | 1.02 |
| OcotilloS1 | Split1 | 2299.916 | 499 | 2353.48 | 2355.91 | 2355.91 | 2356.53 | 0.034653 | 6.34 | 78.66 | 62.97 | 1 |
| OcotilloS1 | Split1 | 2366.44 | 460 | 2355.73 | 2358.52 | 2358.52 | 2359.17 | 0.032715 | 6.48 | 70.98 | 54.79 | 1 |
| OcotilloS1 | Split1 | 2426.608 | 469 | 2357.29 | 2360.41 | | 2360.97 | 0.02727 | 5.98 | 78.37 | 47.79 | 0.82 |
| OcotilloS1 | Split1 | 2480.137 | 447 | 2359.18 | 2361.88 | 2361.88 | 2362.59 | 0.03239 | 6.78 | 65.97 | 47.86 | 1.02 |
| OcotilloS1 | Split1 | 2603.212 | 241 | 2362.43 | 2365.3 | | 2365.48 | 0.014277 | 3.35 | 71.93 | 58.59 | 0.53 |
| OcotilloS2 | Split2 | 133.4816 | 1915 | 2252.85 | 2257.41 | | 2257.89 | 0.01444 | 5.54 | 345.65 | 209.31 | 0.76 |
| OcotilloS2 | Split2 | 232.5308 | 1839 | 2254.76 | 2259.41 | | 2259.8 | 0.027478 | 5.01 | 366.76 | 232.32 | 0.7 |
| OcotilloS2 | Split2 | 256.7089 | 1888 | 2255.39 | 2260.1 | | 2260.46 | 0.026205 | 4.82 | 391.72 | 259.04 | 0.69 |
| OcotilloS2 | Split2 | 279.6261 | 1914 | 2255.92 | 2260.66 | | 2260.94 | 0.016774 | 4.23 | 452.83 | 266.67 | 0.57 |
| OcotilloS2 | Split2 | 289.4215 | 1926 | 2256.03 | 2260.82 | | 2261.13 | 0.019752 | 4.4 | 437.6 | 274.6 | 0.61 |
| OcotilloS2 | Split2 | 298.4141 | 1937 | 2256.16 | 2261.04 | | 2261.28 | 0.015868 | 3.97 | 488.56 | 305.05 | 0.55 |
| OcotilloS2 | Split2 | 315.9728 | 1944 | 2256.39 | 2261.32 | 2260.99 | 2261.65 | 0.02473 | 4.65 | 417.75 | 289.79 | 0.68 |
| OcotilloS2 | Split2 | 360.0553 | 1944 | 2257.88 | 2262.05 | 2261.5 | 2262.29 | 0.009147 | 3.88 | 501.58 | 321.61 | 0.55 |
| OcotilloS2 | Split2 | 416.7438 | 2054 | 2258.75 | 2263.99 | 2262.96 | 2264.22 | 0.005402 | 3.87 | 530.75 | 273.37 | 0.49 |
| OcotilloS2 | Split2 | 509.5979 | 2054 | 2260.98 | 2264.66 | 2264.56 | 2265.41 | 0.034454 | 6.93 | 296.52 | 166.41 | 0.91 |
| OcotilloS2 | Split2 | 588.5838 | 2054 | 2262.08 | 2266.56 | 2266.23 | 2267.1 | 0.014169 | 5.89 | 348.66 | 185.51 | 0.76 |
| OcotilloS2 | Split2 | 678.3232 | 2054 | 2263.8 | 2268.64 | 2268.64 | 2269.32 | 0.018127 | 6.64 | 309.23 | 224.27 | 1 |
| OcotilloS2 | Split2 | 759.1032 | 2054 | 2264.97 | 2270.32 | | 2270.6 | 0.013171 | 4.19 | 489.69 | 264.06 | 0.54 |
| OcotilloS2 | Split2 | 821.0404 | 2054 | 2266.01 | 2271.13 | | 2271.42 | 0.013656 | 4.37 | 470.46 | 254.75 | 0.57 |
| OcotilloS2 | Split2 | 870.2011 | 2054 | 2267.74 | 2271.88 | | 2272.25 | 0.019204 | 4.89 | 420.33 | 258.66 | 0.68 |
| OcotilloS2 | Split2 | 924.8907 | 2005 | 2269.94 | 2273.06 | | 2273.58 | 0.028756 | 5.76 | 348.23 | 225.83 | 0.82 |
| OcotilloS2 | Split2 | 955 | Inl Struct | | | | | | | | | |
| OcotilloS2 | Split2 | 985.217 | 2005 | 2270.85 | 2274.63 | 2273.85 | 2274.93 | 0.015124 | 4.33 | 462.96 | 273.71 | 0.59 |
| OcotilloS2 | Split2 | 1087.704 | 2005 | 2274.77 | 2278.54 | 2278.54 | 2278.94 | 0.022258 | 5.08 | 394.45 | 385.77 | 0.89 |
| OcotilloS2 | Split2 | 1194.422 | 2005 | 2278.41 | 2281.02 | 2280.97 | 2281.53 | 0.026134 | 5.73 | 350.16 | 298.56 | 0.93 |
| OcotilloT1 | Trib1 | 137.927 | 840 | 2282.34 | 2285.82 | 2285.82 | 2286.43 | 0.016161 | 6.36 | 139.45 | 116.08 | 1.01 |
| OcotilloT1 | Trib1 | 164.5459 | 1088 | 2283 | 2286.58 | | 2286.94 | 0.019671 | 4.76 | 228.5 | 133.44 | 0.64 |
| OcotilloT1 | Trib1 | 189.6257 | 1245 | 2283.7 | 2287.03 | | 2287.52 | 0.023721 | 5.63 | 221.16 | 125.28 | 0.75 |
| OcotilloT1 | Trib1 | 226.2828 | 1386 | 2284.35 | 2287.63 | | 2288.16 | 0.013279 | 5.84 | 237.35 | 138.55 | 0.79 |
| OcotilloT1 | Trib1 | 252.3619 | 1467 | 2285.16 | 2288.04 | 2287.51 | 2288.52 | 0.013337 | 5.53 | 265.41 | 123.18 | 0.66 |
| OcotilloT1 | Trib1 | 275.9736 | 1464 | 2285.56 | 2288.35 | 2288.2 | 2288.98 | 0.023522 | 6.36 | 230.34 | 137.53 | 0.87 |
| OcotilloT1 | Trib1 | 296.3438 | 1397 | 2286.03 | 2288.97 | 2288.69 | 2289.43 | 0.019553 | 5.48 | 255.01 | 158.6 | 0.76 |
| OcotilloT1 | Trib1 | 324.6569 | 1397 | 2286.62 | 2289.53 | 2289.09 | 2289.93 | 0.015402 | 5.07 | 275.75 | 155.1 | 0.67 |
| OcotilloT1 | Trib1 | 354.0213 | 1397 | 2287.71 | 2290.01 | | 2290.46 | 0.020121 | 5.36 | 260.61 | 159.26 | 0.74 |
| OcotilloT1 | Trib1 | 381.6131 | 1397 | 2287.96 | 2290.71 | | 2290.96 | 0.015327 | 4.03 | 346.99 | 253.61 | 0.61 |
| OcotilloT1 | Trib1 | 462.4158 | 1397 | 2289.75 | 2292.42 | 2292.42 | 2293.04 | 0.034596 | 6.31 | 221.34 | 178.08 | 1 |
| OcotilloT1 | Trib1 | 524.3 | 1397 | 2289.77 | 2293.51 | | 2293.9 | 0.00714 | 5.02 | 280.08 | 143.47 | 0.62 |
| OcotilloT5 | Trib5 | 115.0657 | 590 | 2313.37 | 2316.02 | 2316.02 | 2316.63 | 0.064411 | 6.25 | 94.46 | 78.58 | 1 |
| OcotilloT5 | Trib5 | 248.3488 | 760 | 2317.75 | 2321.08 | 2320.81 | 2321.46 | 0.025385 | 4.96 | 153.89 | 113.31 | 0.75 |
| OcotilloT5 | Trib5 | 290.8772 | 618 | 2320.19 | 2322.13 | 2322.1 | 2322.64 | 0.026907 | 5.74 | 107.59 | 94.52 | 0.95 |
| OcotilloT5 | Trib5 | 365.7275 | 559 | 2321.64 | 2324.33 | 2324.24 | 2324.67 | 0.027322 | 4.66 | 120.14 | 131.74 | 0.86 |
| OcotilloT5 | Trib5 | 442.2927 | 238 | 2324.45 | 2326.69 | 2326.45 | 2326.89 | 0.035341 | 3.59 | 66.23 | 86.15 | 0.72 |
| OcotilloT5 | Trib5 | 601.2568 | 247 | 2330.45 | 2332.47 | 2332.24 | 2332.71 | 0.03709 | 3.87 | 63.9 | 72.12 | 0.72 |
| OcotilloT5 | Trib5 | 716.7944 | 238 | 2334.08 | 2336.67 | | 2336.83 | 0.034018 | 3.27 | 72.8 | 99.04 | 0.67 |
| OcotilloT5 | Trib5 | 789.2246 | 238 | 2338.4 | 2339.88 | 2339.8 | 2340.11 | 0.061986 | 3.85 | 61.78 | 103.21 | 0.88 |
| OcotilloT5 | Trib5 | 970.8694 | 238 | 2343.75 | 2345.28 | 2344.99 | 2345.4 | 0.016781 | 2.79 | 85.19 | 107.89 | 0.55 |

# Table 5.9.1.1
# HEC-RAS OUTPUT
# FLOODWAY/FLOODPLAIN

| River | Reach | River Sta | Q Total | Min Ch El | W.S. Elev | Crit W.S. | E.G. Elev | E.G. Slope | Vel Chnl | Flow Area | Top Width | Froude # Chl |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (cfs) | (ft) | (ft) | (ft) | (ft) | (ft/ft) | (ft/s) | (sq ft) | (ft) | |
| OcotilloT5 | Trib5 | 1031.889 | 238 | 2345.62 | 2347.58 | 2347.58 | 2347.94 | 0.030087 | 4.76 | 50.01 | 72.04 | 1.01 |
| OcotilloT5 | Trib5 | 1091.057 | 238 | 2347.01 | 2349.46 | 2349.17 | 2349.71 | 0.028759 | 4.05 | 58.73 | 55.28 | 0.69 |
| OcotilloT5 | Trib5 | 1203.024 | 238 | 2350.24 | 2352.79 | 2352.46 | 2353.2 | 0.033575 | 5.11 | 46.55 | 39.83 | 0.83 |
| OcotilloT5 | Trib5 | 1280.26 | 238 | 2352.39 | 2354.9 | 2354.49 | 2355.3 | 0.023327 | 5.04 | 47.26 | 29.99 | 0.71 |
| OcotilloT5 | Trib5 | 1354.337 | 238 | 2354.14 | 2356.77 | | 2357.2 | 0.028567 | 5.25 | 45.3 | 32.14 | 0.78 |
| OcotilloT5 | Trib5 | 1379.424 | 238 | 2358.39 | 2359.36 | 2359.36 | 2359.58 | 0.05315 | 3.76 | 63.31 | 150.86 | 1.02 |
| OcotilloT5 | Trib5 | 1404.298 | 238 | 2357.17 | 2359.83 | | 2359.94 | 0.006427 | 2.73 | 87.2 | 52.73 | 0.37 |
| OcotilloT5 | Trib5 | 1517.323 | 238 | 2359.87 | 2361.47 | 2361.47 | 2361.99 | 0.049779 | 5.81 | 40.97 | 39.41 | 1 |
| OcotilloT5 | Trib5 | 1593.698 | 238 | 2361.53 | 2363.78 | 2363.35 | 2364.05 | 0.017143 | 4.21 | 56.57 | 39.86 | 0.62 |
| OcotilloT5 | Trib5 | 1701.022 | 238 | 2364.12 | 2366.3 | 2366.3 | 2366.97 | 0.04074 | 6.59 | 36.1 | 26.24 | 0.99 |
| OcotilloT5 | Trib5 | 1775.716 | 238 | 2366.76 | 2368.97 | | 2369.27 | 0.023166 | 4.4 | 54.07 | 42.61 | 0.69 |
| OcotilloT5 | Trib5 | 1883.052 | 238 | 2371.12 | 2373.36 | 2373.36 | 2373.66 | 0.068053 | 4.41 | 53.98 | 91.62 | 1.01 |
| OcotilloT5 | Trib5 | 1992.893 | 238 | 2374.26 | 2376.49 | 2376.3 | 2376.79 | 0.015761 | 4.4 | 54.04 | 54.73 | 0.78 |
| OcotilloT5 | Trib5 | 2078.39 | 238 | 2376.73 | 2378.77 | 2378.77 | 2379.21 | 0.058458 | 5.33 | 44.67 | 54.72 | 1.04 |
| OcotilloT5 | Trib5 | 2140.026 | 238 | 2378.54 | 2380.78 | 2380.62 | 2381.01 | 0.01765 | 3.84 | 62.04 | 75.13 | 0.74 |
| OcotilloT5 | Trib5 | 2213.957 | 238 | 2381.27 | 2382.72 | 2382.72 | 2383.15 | 0.043966 | 5.27 | 45.19 | 51.38 | 0.99 |
| OcotilloT5 | Trib5 | 2296.132 | 238 | 2383.49 | 2384.92 | | 2385.12 | 0.015229 | 3.53 | 67.43 | 74.47 | 0.65 |
| OcotilloT5 | Trib5 | 2433.259 | 238 | 2387.79 | 2389.93 | 2389.93 | 2390.35 | 0.040976 | 5.23 | 45.55 | 51.83 | 0.98 |
| OcotilloT5 | Trib5 | 2510.794 | 238 | 2390.31 | 2392.5 | | 2392.76 | 0.024808 | 4.12 | 57.79 | 49.98 | 0.67 |
| OcotilloT5 | Trib5 | 2624.559 | 238 | 2394.14 | 2396.28 | 2396.23 | 2396.65 | 0.049071 | 4.83 | 49.24 | 58.58 | 0.93 |
| OcotilloT5 | Trib5 | 2717.28 | 238 | 2398.21 | 2400.03 | 2399.85 | 2400.24 | 0.031748 | 3.68 | 64.62 | 82.78 | 0.73 |
| OcotilloT5 | Trib5 | 2800.556 | 238 | 2400.8 | 2403.41 | 2403.37 | 2403.84 | 0.060283 | 5.23 | 45.51 | 47.92 | 0.95 |
| OcotilloT5 | Trib5 | 2908.174 | 238 | 2404.57 | 2407.82 | 2407.37 | 2408.02 | 0.02743 | 3.66 | 65.05 | 64.37 | 0.64 |
| OcotilloT5 | Trib5 | 2978.538 | 208 | 2406.29 | 2409.53 | | 2409.72 | 0.021142 | 3.5 | 59.35 | 50.4 | 0.57 |
| OcotilloT5 | Trib5 | 3053.924 | 208 | 2409.89 | 2412.21 | 2412.21 | 2412.58 | 0.053759 | 4.89 | 42.54 | 57.35 | 1 |
| OcotilloT5 | Trib5 | 3125.354 | 186 | 2412.99 | 2414.71 | 2414.32 | 2414.86 | 0.01961 | 3.1 | 59.99 | 75.56 | 0.61 |
| OcotilloT5 | Trib5 | 3189.152 | 186 | 2416.72 | 2417.85 | 2417.85 | 2418.14 | 0.051041 | 4.33 | 42.98 | 75.98 | 1.01 |
| OcotilloT5 | Trib5 | 3258.669 | 131 | 2419.29 | 2420.41 | | 2420.49 | 0.021229 | 2.26 | 58.19 | 100.77 | 0.52 |
| OcotilloT5 | Trib5 | 3269.55 | 87 | 2419.49 | 2420.64 | | 2420.69 | 0.015413 | 1.83 | 47.78 | 88.17 | 0.43 |
| OcotilloT6 | Trib6 | 164.7201 | 163 | 2374.57 | 2378.14 | | 2378.19 | 0.00297 | 1.79 | 91.28 | 48.64 | 0.23 |
| OcotilloT6 | Trib6 | 231.6413 | 163 | 2375.81 | 2378.43 | | 2378.61 | 0.015236 | 3.42 | 47.61 | 32.82 | 0.5 |
| OcotilloT6 | Trib6 | 325.1506 | 163 | 2378.02 | 2380.28 | | 2380.54 | 0.028216 | 4.09 | 39.89 | 33.32 | 0.66 |
| OcotilloT6 | Trib6 | 405.3325 | 163 | 2378.54 | 2381.88 | | 2382.07 | 0.013078 | 3.44 | 47.4 | 28.16 | 0.47 |
| OcotilloT6 | Trib6 | 482.4307 | 163 | 2379.58 | 2382.84 | | 2383.03 | 0.011974 | 3.5 | 46.59 | 25.28 | 0.45 |
| OcotilloT6 | Trib6 | 582.8669 | 163 | 2381.53 | 2384.21 | | 2384.42 | 0.016628 | 3.66 | 44.53 | 29.39 | 0.52 |
| OcotilloT6 | Trib6 | 698.9221 | 163 | 2383.53 | 2386.04 | | 2386.3 | 0.015726 | 4.12 | 39.58 | 26.63 | 0.6 |

# Table E.5.2
# HEC-RAS OUTPUT
# Manning's n Value

HEC-RAS Plan: OcotilloFPD Profile: PF 1 OcotilloWashFPD.prj

| River | Reach | River Sta | Flow Area (sq ft) | Top Width (ft) | Mann Comp | Mann Wtd Total |
|---|---|---|---|---|---|---|
| Ocotillo1 | 1 | 0.00 | 583.48 | 197.12 | | 0.042 |
| Ocotillo1 | 1 | 299.7892 | 504.97 | 213.53 | 0.051 | 0.051 |
| Ocotillo1 | 1 | 439.8713 | 724.59 | 248.9 | 0.064 | 0.064 |
| Ocotillo1 | 1 | 527.6098 | 621.75 | 241.19 | 0.065 | 0.065 |
| Ocotillo1 | 1 | 595.2144 | 725.58 | 252.86 | | 0.058 |
| Ocotillo1 | 1 | 668.3362 | 501.89 | 210.07 | | 0.054 |
| Ocotillo1 | 1 | 749.2241 | 572.93 | 181.86 | 0.064 | 0.064 |
| Ocotillo1 | 1 | 875.1199 | 538.72 | 144.02 | 0.063 | 0.063 |
| Ocotillo1 | 1 | 970.566 | 384.5 | 94.22 | 0.05 | 0.05 |
| Ocotillo1 | 1 | 1047.364 | 958.51 | 246.78 | | 0.051 |
| Ocotillo1 | 1 | 1112.638 | 678.74 | 332.79 | | 0.051 |
| Ocotillo2 | 2 | 156.3713 | 382.32 | 221.88 | | 0.057 |
| Ocotillo2 | 2 | 180.6079 | 475.7 | 233.1 | | 0.058 |
| Ocotillo2 | 2 | 210.772 | 554.6 | 259.67 | | 0.06 |
| Ocotillo2 | 2 | 238.5302 | 414.86 | 258.59 | | 0.058 |
| Ocotillo2 | 2 | 276.6784 | 599.38 | 206.11 | 0.065 | 0.065 |
| Ocotillo2 | 2 | 414.5065 | 370.54 | 155.22 | 0.061 | 0.061 |
| Ocotillo2 | 2 | 494.3954 | 499.71 | 199.63 | 0.063 | 0.063 |
| Ocotillo2 | 2 | 569.693 | 330.99 | 181.52 | 0.061 | 0.061 |
| Ocotillo2 | 2 | 603 | Inl Struct | | | |
| Ocotillo2 | 2 | 636.8529 | 1151.46 | 213.34 | 0.066 | 0.066 |
| Ocotillo2 | 2 | 689.6463 | 838.89 | 180.93 | | 0.059 |
| Ocotillo2 | 2 | 743.0997 | 721.65 | 178.9 | 0.062 | 0.062 |
| Ocotillo2 | 2 | 814.875 | 520.31 | 200.84 | 0.06 | 0.06 |
| Ocotillo2 | 2 | 905.6604 | 339.92 | 190.95 | | 0.056 |
| Ocotillo2 | 2 | 1001.524 | 450.24 | 211.86 | | 0.055 |
| Ocotillo2 | 2 | 1153.302 | 324.28 | 169.32 | 0.064 | 0.064 |
| Ocotillo2 | 2 | 1276.418 | 502.57 | 211.35 | 0.057 | 0.057 |
| Ocotillo2 | 2 | 1363.754 | 344.02 | 202.88 | | 0.052 |
| Ocotillo2 | 2 | 1474.264 | 352.62 | 155.64 | 0.059 | 0.059 |
| Ocotillo2 | 2 | 1630.469 | 437.79 | 216.81 | 0.062 | 0.062 |
| Ocotillo2 | 2 | 1838.932 | 349.63 | 167.17 | 0.059 | 0.059 |
| Ocotillo2 | 2 | 1893.224 | 413.65 | 228.74 | 0.059 | 0.059 |
| Ocotillo2 | 2 | 1961.665 | 362.86 | 193.91 | 0.059 | 0.059 |
| Ocotillo2 | 2 | 2091.182 | 457.06 | 222.37 | 0.061 | 0.061 |
| Ocotillo2 | 2 | 2138.547 | 474.55 | 280.03 | 0.064 | 0.064 |
| Ocotillo2 | 2 | 2250.737 | 587.42 | 300.4 | | 0.061 |
| Ocotillo2 | 2 | 2275 | Inl Struct | | | |
| Ocotillo2 | 2 | 2300.616 | 540.38 | 318.14 | | 0.062 |
| Ocotillo3 | 3 | 114.4412 | 288.95 | 208.9 | | 0.057 |
| Ocotillo3 | 3 | 215.1731 | 261.22 | 187.61 | | 0.054 |
| Ocotillo3 | 3 | 321.5755 | 327.77 | 155.23 | | 0.046 |
| Ocotillo3 | 3 | 384.3589 | 267.41 | 163.58 | | 0.053 |
| Ocotillo3 | 3 | 462.3848 | 300.78 | 168.26 | | 0.06 |
| Ocotillo3 | 3 | 671.1304 | 392.19 | 229.55 | | 0.059 |
| Ocotillo3 | 3 | 741.5216 | 330.35 | 223.63 | 0.064 | 0.064 |
| Ocotillo3 | 3 | 826.0362 | 353.38 | 178.23 | 0.061 | 0.061 |
| Ocotillo3 | 3 | 987.6464 | 426.34 | 232.77 | 0.059 | 0.059 |
| Ocotillo3 | 3 | 1054.181 | 319.73 | 219.27 | 0.06 | 0.06 |
| Ocotillo3 | 3 | 1159.029 | 439.08 | 281.77 | 0.061 | 0.061 |
| Ocotillo3 | 3 | 1241.236 | 337.97 | 248.97 | | 0.055 |
| Ocotillo3 | 3 | 1321.667 | 309.05 | 183.6 | | 0.053 |
| Ocotillo3 | 3 | 1382.931 | 285.71 | 141.44 | | 0.053 |
| Ocotillo3 | 3 | 1458.288 | 376.95 | 162.04 | 0.062 | 0.062 |
| Ocotillo3 | 3 | 1510.756 | 311.55 | 177.33 | | 0.054 |
| Ocotillo3 | 3 | 1619.753 | 392.14 | 307.46 | | 0.062 |
| Ocotillo4 | 4 | 37.42422 | 550.76 | 384.98 | | 0.052 |
| Ocotillo4 | 4 | 168.9279 | 374.16 | 277.59 | | 0.053 |
| Ocotillo5 | 5 | 146.6624 | 402.3 | 421 | | 0.055 |
| Ocotillo5 | 5 | 210.8846 | 353.76 | 278.88 | | 0.057 |
| Ocotillo5 | 5 | 348.4933 | 383.22 | 350.88 | | 0.054 |
| Ocotillo5 | 5 | 539.3184 | 315.42 | 193.65 | | 0.05 |
| Ocotillo5 | 5 | 714.3696 | 294.28 | 155 | 0.059 | 0.059 |
| Ocotillo5 | 5 | 844.1581 | 314.45 | 187.44 | | 0.052 |
| Ocotillo5 | 5 | 952.1411 | 346.65 | 254.54 | | 0.053 |
| Ocotillo5 | 5 | 1011.151 | 337.01 | 226.02 | | 0.053 |
| Ocotillo5 | 5 | 1064.645 | 335.72 | 218.42 | | 0.032 |
| Ocotillo5 | 5 | 1136.218 | 351.03 | 249.59 | | 0.049 |
| Ocotillo5 | 5 | 1223.727 | 312.35 | 166.43 | | 0.052 |
| Ocotillo5 | 5 | 1332.115 | 289.48 | 134.12 | | 0.051 |
| Ocotillo5 | 5 | 1491.168 | 364.85 | 213.77 | 0.066 | 0.066 |
| Ocotillo5 | 5 | 1656.337 | 525.95 | 347.5 | 0.065 | 0.065 |
| Ocotillo5 | 5 | 1793.631 | 390.23 | 332.94 | | 0.063 |
| OcotilloS1 | Split1 | 119.2931 | 194.41 | 148.2 | | 0.051 |
| OcotilloS1 | Split1 | 149.6742 | 166.39 | 148.24 | | 0.049 |
| OcotilloS1 | Split1 | 178.9694 | 160.49 | 154.41 | | 0.049 |

# Table E.5.2
# HEC-RAS OUTPUT
# Manning's n Value

| River | Reach | River Sta | Flow Area (sq ft) | Top Width (ft) | Mann Comp | Mann Wtd Total |
|---|---|---|---|---|---|---|
| OcotilloS1 | Split1 | 199.1123 | 113.61 | 147 | | 0.048 |
| OcotilloS1 | Split1 | 224.0794 | 101.27 | 116.78 | | 0.047 |
| OcotilloS1 | Split1 | 253.381 | 98.62 | 104.77 | | 0.049 |
| OcotilloS1 | Split1 | 282.8606 | 90.55 | 78.1 | 0.047 | 0.047 |
| OcotilloS1 | Split1 | 300.32 | 85.21 | 64.49 | 0.046 | 0.046 |
| OcotilloS1 | Split1 | 371.2329 | 246.82 | 155.36 | 0.052 | 0.052 |
| OcotilloS1 | Split1 | 487.0553 | 102.79 | 117.56 | 0.055 | 0.055 |
| OcotilloS1 | Split1 | 527.9043 | 108.67 | 115.77 | 0.056 | 0.056 |
| OcotilloS1 | Split1 | 586.8272 | 90.53 | 81.06 | 0.052 | 0.052 |
| OcotilloS1 | Split1 | 662.9047 | 95.39 | 76.95 | 0.049 | 0.049 |
| OcotilloS1 | Split1 | 712.6492 | 82.83 | 68.55 | 0.052 | 0.052 |
| OcotilloS1 | Split1 | 759.7467 | 87.46 | 88.27 | 0.059 | 0.059 |
| OcotilloS1 | Split1 | 828.3519 | 151.5 | 112.7 | 0.058 | 0.058 |
| OcotilloS1 | Split1 | 863.3463 | 115.11 | 124.8 | 0.058 | 0.058 |
| OcotilloS1 | Split1 | 887 | Inl Struct | | | |
| OcotilloS1 | Split1 | 910.7199 | 143.65 | 157.48 | 0.061 | 0.061 |
| OcotilloS1 | Split1 | 948.4852 | 100.52 | 144.49 | 0.059 | 0.059 |
| OcotilloS1 | Split1 | 1038.222 | 124.13 | 115.09 | 0.051 | 0.051 |
| OcotilloS1 | Split1 | 1099.415 | 86.18 | 91.78 | | 0.059 |
| OcotilloS1 | Split1 | 1168.193 | 147.73 | 175.43 | | 0.059 |
| OcotilloS1 | Split1 | 1255.985 | 147.9 | 199.31 | | 0.063 |
| OcotilloS1 | Split1 | 1457.32 | 122.74 | 254.34 | | 0.053 |
| OcotilloS1 | Split1 | 1523.987 | 139.81 | 193.2 | | 0.057 |
| OcotilloS1 | Split1 | 1700.375 | 102.53 | 129.26 | | 0.051 |
| OcotilloS1 | Split1 | 1812.715 | 139.47 | 190.26 | 0.061 | 0.061 |
| OcotilloS1 | Split1 | 1886.663 | 115.08 | 141.27 | 0.06 | 0.06 |
| OcotilloS1 | Split1 | 1969.317 | 119.7 | 147.12 | 0.061 | 0.061 |
| OcotilloS1 | Split1 | 2040.078 | 141.42 | 174.6 | 0.061 | 0.061 |
| OcotilloS1 | Split1 | 2079.058 | 94.78 | 91.6 | 0.057 | 0.057 |
| OcotilloS1 | Split1 | 2140.933 | 161.21 | 147.28 | | 0.054 |
| OcotilloS1 | Split1 | 2236.837 | 88.67 | 84.31 | | 0.045 |
| OcotilloS1 | Split1 | 2299.916 | 78.66 | 62.97 | | 0.051 |
| OcotilloS1 | Split1 | 2366.44 | 70.98 | 54.79 | | 0.055 |
| OcotilloS1 | Split1 | 2426.608 | 78.37 | 47.79 | 0.056 | 0.056 |
| OcotilloS1 | Split1 | 2480.137 | 65.97 | 47.86 | | 0.049 |
| OcotilloS1 | Split1 | 2603.212 | 71.93 | 58.59 | 0.06 | 0.06 |
| OcotilloS2 | Split2 | 133.4816 | 345.65 | 209.31 | | 0.053 |
| OcotilloS2 | Split2 | 232.5308 | 366.76 | 232.32 | 0.066 | 0.066 |
| OcotilloS2 | Split2 | 256.7089 | 391.72 | 259.04 | 0.065 | 0.065 |
| OcotilloS2 | Split2 | 279.6261 | 452.83 | 266.67 | 0.064 | 0.064 |
| OcotilloS2 | Split2 | 289.4215 | 437.6 | 274.6 | 0.064 | 0.064 |
| OcotilloS2 | Split2 | 298.4141 | 488.56 | 305.05 | 0.064 | 0.064 |
| OcotilloS2 | Split2 | 315.9728 | 417.75 | 289.79 | 0.064 | 0.064 |
| OcotilloS2 | Split2 | 360.0553 | 501.58 | 321.61 | | 0.054 |
| OcotilloS2 | Split2 | 416.7438 | 530.75 | 273.37 | | 0.052 |
| OcotilloS2 | Split2 | 509.5979 | 296.52 | 166.41 | 0.058 | 0.058 |
| OcotilloS2 | Split2 | 588.5838 | 348.66 | 185.51 | | 0.049 |
| OcotilloS2 | Split2 | 678.3232 | 309.23 | 224.27 | | 0.048 |
| OcotilloS2 | Split2 | 759.1032 | 489.69 | 264.06 | 0.061 | 0.061 |
| OcotilloS2 | Split2 | 821.0404 | 470.46 | 254.75 | 0.059 | 0.059 |
| OcotilloS2 | Split2 | 870.2011 | 420.33 | 258.66 | 0.058 | 0.058 |
| OcotilloS2 | Split2 | 924.8907 | 348.23 | 225.83 | 0.058 | 0.058 |
| OcotilloS2 | Split2 | 955 | Inl Struct | | | |
| OcotilloS2 | Split2 | 985.217 | 462.96 | 273.71 | 0.06 | 0.06 |
| OcotilloS2 | Split2 | 1087.704 | 394.45 | 385.77 | | 0.054 |
| OcotilloS2 | Split2 | 1194.422 | 350.16 | 298.56 | | 0.054 |
| OcotilloT1 | Trib1 | 137.927 | 139.45 | 116.08 | | 0.048 |
| OcotilloT1 | Trib1 | 164.5459 | 228.5 | 133.44 | 0.062 | 0.062 |
| OcotilloT1 | Trib1 | 189.6257 | 221.16 | 125.28 | 0.059 | 0.059 |
| OcotilloT1 | Trib1 | 226.2828 | 237.35 | 138.55 | | 0.047 |
| OcotilloT1 | Trib1 | 252.3619 | 265.41 | 123.18 | | 0.052 |
| OcotilloT1 | Trib1 | 275.9736 | 230.34 | 137.53 | | 0.053 |
| OcotilloT1 | Trib1 | 296.3438 | 255.01 | 158.6 | | 0.054 |
| OcotilloT1 | Trib1 | 324.6569 | 275.75 | 155.1 | | 0.055 |
| OcotilloT1 | Trib1 | 354.0213 | 260.61 | 159.26 | | 0.055 |
| OcotilloT1 | Trib1 | 381.6131 | 346.99 | 253.61 | | 0.061 |
| OcotilloT1 | Trib1 | 462.4158 | 221.34 | 178.08 | | 0.057 |
| OcotilloT1 | Trib1 | 524.3047 | 280.08 | 143.47 | | 0.04 |
| OcotilloT5 | Trib5 | 115.0657 | 94.46 | 78.58 | | 0.068 |
| OcotilloT5 | Trib5 | 248.3488 | 153.89 | 113.31 | | 0.064 |
| OcotilloT5 | Trib5 | 290.8772 | 107.59 | 94.52 | | 0.048 |
| OcotilloT5 | Trib5 | 365.7275 | 120.14 | 131.74 | | 0.056 |
| OcotilloT5 | Trib5 | 442.2927 | 66.23 | 86.15 | | 0.068 |
| OcotilloT5 | Trib5 | 601.2568 | 63.9 | 72.12 | | 0.068 |
| OcotilloT5 | Trib5 | 716.7944 | 72.8 | 99.04 | | 0.068 |
| OcotilloT5 | Trib5 | 789.2246 | 61.78 | 103.21 | | 0.068 |
| OcotilloT5 | Trib5 | 970.8694 | 85.19 | 107.89 | | 0.059 |
| OcotilloT5 | Trib5 | 1031.889 | 50.01 | 72.04 | | 0.049 |

# Table E.5.2
# HEC-RAS OUTPUT
# Manning's n Value

| River | Reach | River Sta | Flow Area (sq ft) | Top Width (ft) | Mann Comp | Mann Wtd Total |
|---|---|---|---|---|---|---|
| OcotilloT5 | Trib5 | 1091.057 | 58.73 | 55.28 | 0.064 | 0.064 |
| OcotilloT5 | Trib5 | 1203.024 | 46.55 | 39.83 | 0.059 | 0.059 |
| OcotilloT5 | Trib5 | 1280.26 | 47.26 | 29.99 | 0.06 | 0.06 |
| OcotilloT5 | Trib5 | 1354.337 | 45.3 | 32.14 | 0.059 | 0.059 |
| OcotilloT5 | Trib5 | 1379.424 | 63.31 | 150.86 | | 0.06 |
| OcotilloT5 | Trib5 | 1404.298 | 87.2 | 52.73 | 0.061 | 0.061 |
| OcotilloT5 | Trib5 | 1517.323 | 40.97 | 39.41 | | 0.06 |
| OcotilloT5 | Trib5 | 1593.698 | 56.57 | 39.86 | 0.058 | 0.058 |
| OcotilloT5 | Trib5 | 1701.022 | 36.1 | 26.24 | 0.055 | 0.055 |
| OcotilloT5 | Trib5 | 1775.716 | 54.07 | 42.61 | 0.06 | 0.06 |
| OcotilloT5 | Trib5 | 1883.052 | 53.98 | 91.62 | 0.061 | 0.061 |
| OcotilloT5 | Trib5 | 1992.893 | 54.04 | 54.73 | | 0.046 |
| OcotilloT5 | Trib5 | 2078.39 | 44.67 | 54.72 | 0.058 | 0.058 |
| OcotilloT5 | Trib5 | 2140.026 | 62.04 | 75.13 | | 0.05 |
| OcotilloT5 | Trib5 | 2213.957 | 45.19 | 51.38 | | 0.054 |
| OcotilloT5 | Trib5 | 2296.132 | 67.43 | 74.47 | | 0.05 |
| OcotilloT5 | Trib5 | 2433.259 | 45.55 | 51.83 | | 0.06 |
| OcotilloT5 | Trib5 | 2510.794 | 57.79 | 49.98 | 0.062 | 0.062 |
| OcotilloT5 | Trib5 | 2624.559 | 49.24 | 58.58 | | 0.061 |
| OcotilloT5 | Trib5 | 2717.28 | 64.62 | 82.78 | | 0.061 |
| OcotilloT5 | Trib5 | 2800.556 | 45.51 | 47.92 | | 0.068 |
| OcotilloT5 | Trib5 | 2908.174 | 65.05 | 64.37 | | 0.068 |
| OcotilloT5 | Trib5 | 2978.538 | 59.35 | 50.4 | | 0.068 |
| OcotilloT5 | Trib5 | 3053.924 | 42.54 | 57.35 | | 0.065 |
| OcotilloT5 | Trib5 | 3125.354 | 59.99 | 75.56 | | 0.068 |
| OcotilloT5 | Trib5 | 3189.152 | 42.98 | 75.98 | 0.053 | 0.053 |
| OcotilloT5 | Trib5 | 3258.669 | 58.19 | 100.77 | | 0.068 |
| OcotilloT5 | Trib5 | 3269.55 | 47.78 | 88.17 | | 0.068 |
| OcotilloT6 | Trib6 | 164.7201 | 91.28 | 48.64 | | 0.068 |
| OcotilloT6 | Trib6 | 231.6413 | 47.61 | 32.82 | | 0.068 |
| OcotilloT6 | Trib6 | 325.1506 | 39.89 | 33.32 | | 0.068 |
| OcotilloT6 | Trib6 | 405.3325 | 47.4 | 28.16 | | 0.068 |
| OcotilloT6 | Trib6 | 482.4307 | 46.59 | 25.28 | | 0.068 |
| OcotilloT6 | Trib6 | 582.8669 | 44.53 | 29.39 | | 0.068 |
| OcotilloT6 | Trib6 | 698.9221 | 39.58 | 26.63 | 0.058 | 0.058 |

# Table E.5.3
# HEC-RAS OUTPUT
## Reach Lengths

HEC-RAS Plan: OcotilloFPD Profile: PF 1 OcotilloWashFPD.prj

| River | Reach | River Sta | Q Total (cfs) | Length Chnl (ft) | LOB Elev (ft) | ROB Elev (ft) |
|---|---|---|---|---|---|---|
| Ocotillo1 | 1 | 0 | 4630 | | 2218.07 | 2218.07 |
| Ocotillo1 | 1 | 299.7892 | 4409 | 633 | 2242.48 | 2247.8 |
| Ocotillo1 | 1 | 439.8713 | 4409 | 140.08 | 2249.12 | 2250.54 |
| Ocotillo1 | 1 | 527.6098 | 4409 | 87.74 | 2251.24 | 2250.69 |
| Ocotillo1 | 1 | 595.2144 | 4409 | 67.61 | 2250.73 | 2247.76 |
| Ocotillo1 | 1 | 668.3362 | 4409 | 73.12 | 2246.61 | 2247.44 |
| Ocotillo1 | 1 | 749.2241 | 4409 | 80.89 | 2255.76 | 2251.11 |
| Ocotillo1 | 1 | 875.1199 | 4409 | 125.9 | 2257.53 | 2257.71 |
| Ocotillo1 | 1 | 970.566 | 4409 | 95.45 | 2254.51 | 2259.06 |
| Ocotillo1 | 1 | 1047.364 | 4446 | 76.8 | 2253.19 | 2259.54 |
| Ocotillo1 | 1 | 1112.638 | 4630 | 65.28 | 2254.26 | 2260.35 |
| Ocotillo2 | 2 | 156.3713 | 2715 | 156.37 | 2256.57 | 2260.5 |
| Ocotillo2 | 2 | 180.6079 | 2791 | 24.24 | 2258.24 | 2262.75 |
| Ocotillo2 | 2 | 210.772 | 2742 | 30.16 | 2258.97 | 2260.73 |
| Ocotillo2 | 2 | 238.5302 | 2693 | 27.76 | 2260.25 | 2262.55 |
| Ocotillo2 | 2 | 276.6784 | 2576 | 120.31 | 2263.05 | 2264.38 |
| Ocotillo2 | 2 | 414.5065 | 2576 | 137.83 | 2268.63 | 2264.84 |
| Ocotillo2 | 2 | 494.3954 | 2576 | 80.02 | 2267.78 | 2271.26 |
| Ocotillo2 | 2 | 569.693 | 2576 | 75.3 | 2271.92 | 2275.52 |
| Ocotillo2 | 2 | 603 | Inl Struct | | | |
| Ocotillo2 | 2 | 636.8529 | 2576 | 107.68 | 2274.87 | 2275.85 |
| Ocotillo2 | 2 | 689.6463 | 2576 | 52.79 | 2275.19 | 2274.94 |
| Ocotillo2 | 2 | 743.0997 | 2576 | 53.45 | 2278.06 | 2275.76 |
| Ocotillo2 | 2 | 814.875 | 2576 | 71.78 | 2282.47 | 2277.11 |
| Ocotillo2 | 2 | 905.6604 | 2576 | 90.79 | 2285.93 | 2280.21 |
| Ocotillo2 | 2 | 1001.524 | 2576 | 95.86 | 2281.46 | 2284.39 |
| Ocotillo2 | 2 | 1153.302 | 2576 | 151.78 | 2288.08 | 2285.85 |
| Ocotillo2 | 2 | 1276.418 | 2576 | 123.12 | 2286.3 | 2287.43 |
| Ocotillo2 | 2 | 1363.754 | 2576 | 87.34 | 2291 | 2287.74 |
| Ocotillo2 | 2 | 1474.264 | 2576 | 110.51 | 2295.08 | 2300.24 |
| Ocotillo2 | 2 | 1630.469 | 2576 | 156.21 | 2300.73 | 2295.01 |
| Ocotillo2 | 2 | 1838.932 | 2576 | 208.46 | 2304.55 | 2301.08 |
| Ocotillo2 | 2 | 1893.224 | 2576 | 54.29 | 2309.27 | 2305.13 |
| Ocotillo2 | 2 | 1961.665 | 2576 | 68.44 | 2304.51 | 2304.82 |
| Ocotillo2 | 2 | 2091.182 | 2576 | 129.52 | 2308.68 | 2308.81 |
| Ocotillo2 | 2 | 2138.547 | 2576 | 47.37 | 2308.64 | 2309.21 |
| Ocotillo2 | 2 | 2250.737 | 2576 | 112.19 | 2312 | 2313.84 |
| Ocotillo2 | 2 | 2275 | Inl Struct | | | |
| Ocotillo2 | 2 | 2300.616 | 2576 | 49.88 | 2312.53 | 2313.1 |
| Ocotillo3 | 3 | 114.4412 | 1934 | 114.26 | 2319.96 | 2316.71 |
| Ocotillo3 | 3 | 215.1731 | 1764 | 100.73 | 2324.36 | 2320.44 |
| Ocotillo3 | 3 | 321.5755 | 1906 | 106.36 | 2323.62 | 2320.35 |
| Ocotillo3 | 3 | 384.3589 | 1964 | 62.78 | 2326.85 | 2324.15 |
| Ocotillo3 | 3 | 462.3848 | 2286 | 78.03 | 2331.38 | 2327.25 |
| Ocotillo3 | 3 | 671.1304 | 2277 | 208.75 | 2336.15 | 2334.96 |
| Ocotillo3 | 3 | 741.5216 | 2286 | 70.39 | 2344.64 | 2341.09 |
| Ocotillo3 | 3 | 826.0362 | 2283 | 84.51 | 2344.31 | 2344.01 |
| Ocotillo3 | 3 | 987.6464 | 2219 | 161.61 | 2346.67 | 2348.43 |
| Ocotillo3 | 3 | 1054.181 | 2209 | 66.54 | 2348.62 | 2351.95 |
| Ocotillo3 | 3 | 1159.029 | 2238 | 104.85 | 2350.07 | 2355.78 |
| Ocotillo3 | 3 | 1241.236 | 2248 | 82.21 | 2354.09 | 2357.46 |
| Ocotillo3 | 3 | 1321.667 | 2274 | 80.43 | 2355.96 | 2357.3 |
| Ocotillo3 | 3 | 1382.931 | 2313 | 61.26 | 2358.27 | 2359.13 |
| Ocotillo3 | 3 | 1458.288 | 2304 | 75.36 | 2360.22 | 2363.48 |
| Ocotillo3 | 3 | 1510.756 | 2326 | 52.47 | 2361.17 | 2362.99 |
| Ocotillo3 | 3 | 1619.753 | 2532 | 109 | 2365.09 | 2367.52 |
| Ocotillo4 | 4 | 37.42422 | 2490 | | 2374.04 | 2370.35 |
| Ocotillo4 | 4 | 168.9279 | 2490 | 131.5 | 2375.92 | 2374.64 |
| Ocotillo5 | 5 | 146.6624 | 2290 | 146.66 | 2381.18 | 2379.87 |
| Ocotillo5 | 5 | 210.8846 | 2290 | 64.22 | 2385.53 | 2382.81 |
| Ocotillo5 | 5 | 348.4933 | 2290 | 137.61 | 2391 | 2390.2 |
| Ocotillo5 | 5 | 539.3184 | 2290 | 190.82 | 2395.73 | 2397.33 |
| Ocotillo5 | 5 | 714.3696 | 2290 | 175.05 | 2402.43 | 2403.91 |
| Ocotillo5 | 5 | 844.1581 | 2290 | 129.79 | 2407.27 | 2408.54 |
| Ocotillo5 | 5 | 952.1411 | 2274 | 107.98 | 2410.55 | 2411.04 |
| Ocotillo5 | 5 | 1011.151 | 2320 | 59.01 | 2413.6 | 2412.28 |
| Ocotillo5 | 5 | 1064.645 | 2342 | 53.5 | 2416.91 | 2416.55 |
| Ocotillo5 | 5 | 1136.218 | 2342 | 71.57 | 2419.24 | 2418.73 |
| Ocotillo5 | 5 | 1223.727 | 2397 | 87.51 | 2422.36 | 2420.32 |
| Ocotillo5 | 5 | 1332.115 | 2441 | 108.39 | 2425.94 | 2426.85 |
| Ocotillo5 | 5 | 1491.168 | 2441 | 159.05 | 2441.35 | 2432.9 |
| Ocotillo5 | 5 | 1656.337 | 2441 | 165.17 | 2441.53 | 2437.48 |
| Ocotillo5 | 5 | 1793.631 | 2441 | 137.29 | 2449.32 | 2446.59 |
| OcotilloS1 | Split1 | 119.2931 | 1115 | 144.31 | 2282.83 | 2286.77 |
| OcotilloS1 | Split1 | 149.6742 | 867 | 30.38 | 2284.2 | 2289.21 |
| OcotilloS1 | Split1 | 178.9694 | 711 | 29.3 | 2285.29 | 2289.38 |

# Table E.5.3
# HEC-RAS OUTPUT
## Reach Lengths

| River | Reach | River Sta | Q Total (cfs) | Length Chnl (ft) | LOB Elev (ft) | ROB Elev (ft) |
|---|---|---|---|---|---|---|
| OcotilloS1 | Split1 | 199.1123 | 569 | 20.14 | 2286.19 | 2289.16 |
| OcotilloS1 | Split1 | 224.0794 | 488 | 24.97 | 2286.72 | 2289.48 |
| OcotilloS1 | Split1 | 253.381 | 491 | 29.3 | 2287.4 | 2290.41 |
| OcotilloS1 | Split1 | 282.8606 | 558 | 29.48 | 2290.8 | 2294.56 |
| OcotilloS1 | Split1 | 300.32 | 558 | 17.46 | 2291.34 | 2296.58 |
| OcotilloS1 | Split1 | 371.2329 | 558 | 371.23 | 2295.04 | 2300.45 |
| OcotilloS1 | Split1 | 487.0553 | 558 | 115.82 | 2300.02 | 2304.65 |
| OcotilloS1 | Split1 | 527.9043 | 487 | 40.85 | 2298.17 | 2303.47 |
| OcotilloS1 | Split1 | 586.8272 | 487 | 58.92 | 2301.06 | 2305.27 |
| OcotilloS1 | Split1 | 662.9047 | 487 | 76.08 | 2305.3 | 2306.57 |
| OcotilloS1 | Split1 | 712.6492 | 487 | 49.82 | 2304.69 | 2308.61 |
| OcotilloS1 | Split1 | 759.7467 | 487 | 47.1 | 2308.58 | 2309.67 |
| OcotilloS1 | Split1 | 828.3519 | 487 | 68.61 | 2311.17 | 2309.58 |
| OcotilloS1 | Split1 | 863.3463 | 487 | 34.99 | 2313.85 | 2309.34 |
| OcotilloS1 | Split1 | 887 | Inl Struct | | | |
| OcotilloS1 | Split1 | 910.7199 | 487 | 96.39 | 2315.68 | 2311.18 |
| OcotilloS1 | Split1 | 948.4852 | 487 | 37.76 | 2317.21 | 2312.34 |
| OcotilloS1 | Split1 | 1038.222 | 487 | 89.74 | 2316.57 | 2315.69 |
| OcotilloS1 | Split1 | 1099.415 | 487 | 61.19 | 2317.81 | 2317.31 |
| OcotilloS1 | Split1 | 1168.193 | 487 | 68.78 | 2323.85 | 2318.42 |
| OcotilloS1 | Split1 | 1255.985 | 487 | 87.79 | 2321.61 | 2324.12 |
| OcotilloS1 | Split1 | 1457.32 | 487 | 201.34 | 2330 | 2329.2 |
| OcotilloS1 | Split1 | 1523.987 | 487 | 66.67 | 2337.64 | 2333.78 |
| OcotilloS1 | Split1 | 1700.375 | 487 | 176.63 | 2339.27 | 2335.6 |
| OcotilloS1 | Split1 | 1812.715 | 487 | 112.34 | 2341.58 | 2342.32 |
| OcotilloS1 | Split1 | 1886.663 | 487 | 73.95 | 2344.58 | 2344.17 |
| OcotilloS1 | Split1 | 1969.317 | 490 | 82.65 | 2346.98 | 2344.36 |
| OcotilloS1 | Split1 | 2040.078 | 554 | 70.76 | 2347.35 | 2347.09 |
| OcotilloS1 | Split1 | 2079.058 | 564 | 38.98 | 2348.83 | 2349.23 |
| OcotilloS1 | Split1 | 2140.933 | 535 | 61.87 | 2351.72 | 2350.1 |
| OcotilloS1 | Split1 | 2236.837 | 525 | 95.9 | 2354.71 | 2354.44 |
| OcotilloS1 | Split1 | 2299.916 | 499 | 63.08 | 2356.8 | 2355.96 |
| OcotilloS1 | Split1 | 2366.44 | 460 | 66.52 | 2360.32 | 2358.27 |
| OcotilloS1 | Split1 | 2426.608 | 469 | 60.17 | 2362.05 | 2360.22 |
| OcotilloS1 | Split1 | 2480.137 | 447 | 53.53 | 2363.22 | 2361.17 |
| OcotilloS1 | Split1 | 2603.212 | 241 | 123.07 | 2367.32 | 2365.09 |
| OcotilloS2 | Split2 | 133.4816 | 1915 | 133.48 | 2258 | 2256.57 |
| OcotilloS2 | Split2 | 232.5308 | 1839 | 99.05 | 2266.31 | 2258.24 |
| OcotilloS2 | Split2 | 256.7089 | 1888 | 24.18 | 2266.78 | 2258.97 |
| OcotilloS2 | Split2 | 279.6261 | 1914 | 22.92 | 2267.37 | 2260.16 |
| OcotilloS2 | Split2 | 289.4215 | 1926 | 9.8 | 2267.64 | 2260.03 |
| OcotilloS2 | Split2 | 298.4141 | 1937 | 8.99 | 2260.89 | 2260.03 |
| OcotilloS2 | Split2 | 315.9728 | 1944 | 17.56 | 2267.25 | 2261.75 |
| OcotilloS2 | Split2 | 360.0553 | 1944 | 44.08 | 2263.8 | 2262.48 |
| OcotilloS2 | Split2 | 416.7438 | 2054 | 283.27 | 2265.14 | 2265.27 |
| OcotilloS2 | Split2 | 509.5979 | 2054 | 92.85 | 2279.37 | 2267.39 |
| OcotilloS2 | Split2 | 588.5838 | 2054 | 78.99 | 2279.83 | 2271.46 |
| OcotilloS2 | Split2 | 678.3232 | 2054 | 89.74 | 2275.26 | 2272.11 |
| OcotilloS2 | Split2 | 759.1032 | 2054 | 80.78 | 2274.43 | 2271.69 |
| OcotilloS2 | Split2 | 821.0404 | 2054 | 61.94 | 2275.1 | 2275.61 |
| OcotilloS2 | Split2 | 870.2011 | 2054 | 49.16 | 2272.95 | 2272.2 |
| OcotilloS2 | Split2 | 924.8907 | 2005 | 54.69 | 2277.15 | 2278.65 |
| OcotilloS2 | Split2 | 955 | Inl Struct | | | |
| OcotilloS2 | Split2 | 985.217 | 2005 | 60.33 | 2279.92 | 2278.46 |
| OcotilloS2 | Split2 | 1087.704 | 2005 | 102.49 | 2282.72 | 2282.85 |
| OcotilloS2 | Split2 | 1194.422 | 2005 | 106.72 | 2282.8 | 2287.58 |
| OcotilloT1 | Trib1 | 137.927 | 840 | 189.63 | 2288.77 | 2282.82 |
| OcotilloT1 | Trib1 | 164.5459 | 1088 | 26.62 | 2291.18 | 2284.2 |
| OcotilloT1 | Trib1 | 189.6257 | 1245 | 25.08 | 2288.72 | 2285.29 |
| OcotilloT1 | Trib1 | 226.2828 | 1386 | 36.66 | 2289.72 | 2286.19 |
| OcotilloT1 | Trib1 | 252.3619 | 1467 | 26.08 | 2290.87 | 2286.72 |
| OcotilloT1 | Trib1 | 275.9736 | 1464 | 23.61 | 2288.91 | 2287.4 |
| OcotilloT1 | Trib1 | 296.3438 | 1397 | 20.37 | 2289.48 | 2290.53 |
| OcotilloT1 | Trib1 | 324.6569 | 1397 | 28.31 | 2293.05 | 2290.39 |
| OcotilloT1 | Trib1 | 354.0213 | 1397 | 29.36 | 2291.65 | 2290.58 |
| OcotilloT1 | Trib1 | 381.6131 | 1397 | 27.59 | 2295.7 | 2291.31 |
| OcotilloT1 | Trib1 | 462.4158 | 1397 | 80.8 | 2293.18 | 2293.58 |
| OcotilloT1 | Trib1 | 524.3047 | 1397 | 61.89 | 2293.37 | 2292.77 |
| OcotilloT5 | Trib5 | 115.0657 | 590 | 115.07 | 2316.74 | 2317.14 |
| OcotilloT5 | Trib5 | 248.3488 | 760 | 133.28 | 2320.4 | 2322.46 |
| OcotilloT5 | Trib5 | 290.8772 | 618 | 42.53 | 2320.35 | 2323.12 |
| OcotilloT5 | Trib5 | 365.7275 | 559 | 74.85 | 2324.2 | 2324.67 |
| OcotilloT5 | Trib5 | 442.2927 | 238 | 76.57 | 2327.49 | 2326.89 |
| OcotilloT5 | Trib5 | 601.2568 | 247 | 158.96 | 2333.45 | 2333.39 |
| OcotilloT5 | Trib5 | 716.7944 | 238 | 115.54 | 2338.91 | 2336.88 |
| OcotilloT5 | Trib5 | 789.2246 | 238 | 72.43 | 2341.11 | 2340.99 |
| OcotilloT5 | Trib5 | 970.8694 | 238 | 181.65 | 2345.75 | 2345.29 |
| OcotilloT5 | Trib5 | 1031.889 | 238 | 61.32 | 2347.65 | 2348.2 |

# Table E.5.3
# HEC-RAS OUTPUT
## Reach Lengths

| River | Reach | River Sta | Q Total (cfs) | Length Chnl (ft) | LOB Elev (ft) | ROB Elev (ft) |
|---|---|---|---|---|---|---|
| OcotilloT5 | Trib5 | 1091.057 | 238 | 59.17 | 2349.84 | 2349.56 |
| OcotilloT5 | Trib5 | 1203.024 | 238 | 111.97 | 2354.43 | 2352.79 |
| OcotilloT5 | Trib5 | 1280.26 | 238 | 77.24 | 2356.84 | 2355.78 |
| OcotilloT5 | Trib5 | 1354.337 | 238 | 74.08 | 2359.53 | 2357.66 |
| OcotilloT5 | Trib5 | 1379.424 | 238 | 25.09 | 2359.37 | 2359.34 |
| OcotilloT5 | Trib5 | 1404.298 | 238 | 24.87 | 2361.27 | 2361.05 |
| OcotilloT5 | Trib5 | 1517.323 | 238 | 113.03 | 2363.73 | 2364.41 |
| OcotilloT5 | Trib5 | 1593.698 | 238 | 76.38 | 2365.15 | 2367.55 |
| OcotilloT5 | Trib5 | 1701.022 | 238 | 107.32 | 2367.04 | 2371.13 |
| OcotilloT5 | Trib5 | 1775.716 | 238 | 74.69 | 2371.27 | 2373.69 |
| OcotilloT5 | Trib5 | 1883.052 | 238 | 107.34 | 2376.91 | 2379.36 |
| OcotilloT5 | Trib5 | 1992.893 | 238 | 109.84 | 2377.7 | 2378.19 |
| OcotilloT5 | Trib5 | 2078.39 | 238 | 85.5 | 2382.54 | 2379.41 |
| OcotilloT5 | Trib5 | 2140.026 | 238 | 61.64 | 2385.03 | 2381.06 |
| OcotilloT5 | Trib5 | 2213.957 | 238 | 73.93 | 2383.32 | 2383.16 |
| OcotilloT5 | Trib5 | 2296.132 | 238 | 82.18 | 2387.57 | 2388.89 |
| OcotilloT5 | Trib5 | 2433.259 | 238 | 137.13 | 2390.37 | 2390.08 |
| OcotilloT5 | Trib5 | 2510.794 | 238 | 77.54 | 2392.93 | 2396.58 |
| OcotilloT5 | Trib5 | 2624.559 | 238 | 113.76 | 2397.54 | 2401.25 |
| OcotilloT5 | Trib5 | 2717.28 | 238 | 92.72 | 2400.23 | 2401.29 |
| OcotilloT5 | Trib5 | 2800.556 | 238 | 83.28 | 2402.13 | 2403.78 |
| OcotilloT5 | Trib5 | 2908.174 | 238 | 107.62 | 2408.24 | 2409.24 |
| OcotilloT5 | Trib5 | 2978.538 | 208 | 70.36 | 2409.71 | 2410.53 |
| OcotilloT5 | Trib5 | 3053.924 | 208 | 75.39 | 2412.55 | 2413.07 |
| OcotilloT5 | Trib5 | 3125.354 | 186 | 71.43 | 2415.58 | 2415.43 |
| OcotilloT5 | Trib5 | 3189.152 | 186 | 63.8 | 2418.4 | 2421.34 |
| OcotilloT5 | Trib5 | 3258.669 | 131 | 69.52 | 2420.18 | 2421.66 |
| OcotilloT5 | Trib5 | 3269.55 | 87 | 10.88 | 2420.53 | 2421.03 |
| OcotilloT6 | Trib6 | 164.7201 | 163 | 164.72 | 2384.03 | 2382.36 |
| OcotilloT6 | Trib6 | 231.6413 | 163 | 66.92 | 2381.87 | 2379.74 |
| OcotilloT6 | Trib6 | 325.1506 | 163 | 93.51 | 2388.6 | 2382.18 |
| OcotilloT6 | Trib6 | 405.3325 | 163 | 80.18 | 2384.09 | 2384.64 |
| OcotilloT6 | Trib6 | 482.4307 | 163 | 77.1 | 2386.65 | 2385.37 |
| OcotilloT6 | Trib6 | 582.8669 | 163 | 100.44 | 2386.66 | 2388.1 |
| OcotilloT6 | Trib6 | 698.9221 | 163 | 116.06 | 2389.16 | 2389.02 |

No. 40933

No.

# FIS Data Table

| | | | | | |
|---|---|---|---|---|---|
| Project | Cave Creek DMP, Phase I | Computed | M.FOUNTAIN | Date | 8/6/2008 |
| Subject | Technical Data Notebook | Checked | L.POTTER | Date | 8/6/2008 |
| Task | FEMA Allowable Rise for Ocotillo Wash and Tributaries. | Sheet | 1 | Of | 5 |

| Flooding Source | | | Regulatory Floodplain/Floodway Water Surface Elevation | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| River | Reach | River Station | Q Total (cfs) | Vel Chnl (fps) | Max Chl Dpth (ft) | Flow Area (sq ft) | Top Width (ft) | Regulatory (feet NAVD88) | Allowable Rise (ft) |
| Ocotillo1 | 1 | 0.00 | 4630 | 11.65 | 5.70 | 583.48 | 197.12 | 2222.77 | 0.00 |
| | | 299.79 | 4409 | 8.73 | 3.46 | 504.97 | 213.53 | 2237.54 | 0.00 |
| | | 439.87 | 4409 | 6.08 | 5.34 | 724.59 | 248.90 | 2241.23 | 0.00 |
| | | 527.61 | 4409 | 7.09 | 4.40 | 621.75 | 241.19 | 2242.95 | 0.00 |
| | | 595.21 | 4409 | 6.08 | 5.22 | 725.58 | 252.86 | 2244.41 | 0.00 |
| | | 668.34 | 4409 | 8.78 | 4.80 | 501.89 | 210.07 | 2245.52 | 0.00 |
| | | 749.22 | 4409 | 7.70 | 5.67 | 572.93 | 181.86 | 2247.85 | 0.00 |
| | | 875.12 | 4409 | 8.18 | 5.74 | 538.72 | 144.02 | 2250.58 | 0.00 |
| | | 970.57 | 4409 | 11.47 | 5.29 | 384.50 | 94.22 | 2252.47 | 0.00 |
| | | 1047.36 | 4446 | 4.64 | 6.41 | 958.51 | 246.78 | 2254.92 | 0.00 |
| | | 1112.64 | 4630 | 6.82 | 5.61 | 678.74 | 332.79 | 2255.10 | 0.00 |

| Flooding Source | | | Regulatory Floodplain/Floodway Water Surface Elevation | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| River | Reach | River Station | Q Total (cfs) | Vel Chnl (fps) | Max Chl Dpth (ft) | Flow Area (sq ft) | Top Width (ft) | Regulatory (feet NAVD88) | Allowable Rise (ft) |
| Ocotillo2 | 2 | 156.37 | 2715 | 7.10 | 3.90 | 382.32 | 221.88 | 2258.10 | 0.00 |
| | | 180.61 | 2791 | 5.87 | 4.31 | 475.70 | 233.10 | 2258.93 | 0.00 |
| | | 210.77 | 2742 | 4.94 | 4.11 | 554.60 | 259.67 | 2259.57 | 0.00 |
| | | 238.53 | 2693 | 6.49 | 3.52 | 414.86 | 258.59 | 2259.92 | 0.00 |
| | | 276.68 | 2576 | 4.30 | 4.84 | 599.38 | 206.11 | 2262.10 | 0.00 |
| | | 414.51 | 2576 | 6.95 | 3.75 | 370.54 | 155.22 | 2263.70 | 0.00 |
| | | 494.40 | 2576 | 5.16 | 4.21 | 499.71 | 199.63 | 2265.54 | 0.00 |
| | | 569.69 | 2576 | 7.78 | 3.40 | 330.99 | 181.52 | 2267.31 | 0.00 |
| | | 636.85 | 2576 | 2.24 | 7.23 | 1151.46 | 213.34 | 2273.92 | 0.00 |
| | | 689.65 | 2576 | 3.07 | 6.40 | 838.89 | 180.93 | 2273.95 | 0.00 |
| | | 743.10 | 2576 | 3.57 | 5.39 | 721.65 | 178.90 | 2274.05 | 0.00 |
| | | 814.88 | 2576 | 4.95 | 3.46 | 520.31 | 200.84 | 2274.34 | 0.00 |
| | | 905.66 | 2576 | 7.58 | 3.23 | 339.92 | 190.95 | 2275.96 | 0.00 |
| | | 1001.52 | 2576 | 5.72 | 3.56 | 450.24 | 211.86 | 2278.53 | 0.00 |
| | | 1153.30 | 2576 | 7.94 | 3.22 | 324.28 | 169.32 | 2282.13 | 0.00 |
| | | 1276.42 | 2576 | 5.13 | 3.98 | 502.57 | 211.35 | 2285.52 | 0.00 |
| | | 1363.75 | 2576 | 7.49 | 3.23 | 344.02 | 202.88 | 2286.82 | 0.00 |
| | | 1474.26 | 2576 | 7.31 | 3.69 | 352.62 | 155.64 | 2290.07 | 0.00 |
| | | 1630.47 | 2576 | 5.88 | 3.60 | 437.79 | 216.81 | 2294.41 | 0.00 |
| | | 1838.93 | 2576 | 7.37 | 4.52 | 349.63 | 167.17 | 2299.92 | 0.00 |
| | | 1893.22 | 2576 | 6.23 | 4.28 | 413.65 | 228.74 | 2301.83 | 0.00 |
| | | 1961.67 | 2576 | 7.10 | 3.66 | 362.86 | 193.91 | 2303.84 | 0.00 |
| | | 2091.18 | 2576 | 5.64 | 3.94 | 457.06 | 222.37 | 2307.48 | 0.00 |
| | | 2138.55 | 2576 | 5.43 | 4.09 | 474.55 | 280.03 | 2308.62 | 0.00 |
| | | 2250.74 | 2576 | 4.39 | 4.48 | 587.42 | 300.40 | 2310.72 | 0.00 |
| | | 2300.62 | 2576 | 4.77 | 3.54 | 540.38 | 318.14 | 2311.98 | 0.00 |

# REGULATORY ALLOWBALE RISE

| Flooding Source | | | Regulatory Floodplain/Floodway Water Surface Elevation | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| River | Reach | River Station | Q Total (cfs) | Vel Chnl (fps) | Max Chl Dpth (ft) | Flow Area (sq ft) | Top Width (ft) | Regulatory (feet NAVD88) | Allowable Rise (ft) |
| OcotilloS2 | Split2 | 133.48 | 1915 | 5.54 | 4.56 | 345.65 | 209.31 | 2257.41 | 0.00 |
| | | 232.53 | 1839 | 5.01 | 4.65 | 366.76 | 232.32 | 2259.41 | 0.00 |
| | | 256.71 | 1888 | 4.82 | 4.71 | 391.72 | 259.04 | 2260.10 | 0.00 |
| | | 279.63 | 1914 | 4.23 | 4.74 | 452.83 | 266.67 | 2260.66 | 0.00 |
| | | 289.42 | 1926 | 4.40 | 4.79 | 437.60 | 274.60 | 2260.82 | 0.00 |
| | | 298.41 | 1937 | 3.97 | 4.88 | 488.56 | 305.05 | 2261.04 | 0.00 |
| | | 315.97 | 1944 | 4.65 | 4.93 | 417.75 | 289.79 | 2261.32 | 0.00 |
| | | 360.06 | 1944 | 3.88 | 4.17 | 501.58 | 321.61 | 2262.05 | 0.00 |
| | | 416.74 | 2054 | 3.87 | 5.24 | 530.75 | 273.37 | 2263.99 | 0.00 |
| | | 509.60 | 2054 | 6.93 | 3.68 | 296.52 | 166.41 | 2264.66 | 0.00 |
| | | 588.58 | 2054 | 5.89 | 4.48 | 348.66 | 185.51 | 2266.56 | 0.00 |
| | | 678.32 | 2054 | 6.64 | 4.84 | 309.23 | 224.27 | 2268.64 | 0.00 |
| | | 759.10 | 2054 | 4.19 | 5.35 | 489.69 | 264.06 | 2270.32 | 0.00 |
| | | 821.04 | 2054 | 4.37 | 5.12 | 470.46 | 254.75 | 2271.13 | 0.00 |
| | | 870.20 | 2054 | 4.89 | 4.14 | 420.33 | 258.66 | 2271.88 | 0.00 |
| | | 924.89 | 2005 | 5.76 | 3.12 | 348.23 | 225.83 | 2273.06 | 0.00 |
| | | 985.22 | 2005 | 4.33 | 3.78 | 462.96 | 273.71 | 2274.63 | 0.00 |
| | | 1087.70 | 2005 | 5.08 | 3.77 | 394.45 | 385.77 | 2278.54 | 0.00 |
| | | 1194.42 | 2005 | 5.73 | 2.61 | 350.16 | 298.56 | 2281.02 | 0.00 |

| Flooding Source | | | Regulatory Floodplain/Floodway Water Surface Elevation | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| River | Reach | River Station | Q Total (cfs) | Vel Chnl (fps) | Max Chl Dpth (ft) | Flow Area (sq ft) | Top Width (ft) | Regulatory (feet NAVD88) | Allowable Rise (ft) |
| OcotilloT1 | Trib1 | 137.93 | 840 | 6.36 | 3.48 | 139.45 | 116.08 | 2285.82 | 0.00 |
| | | 164.55 | 1088 | 4.76 | 3.58 | 228.50 | 133.44 | 2286.58 | 0.00 |
| | | 189.63 | 1245 | 5.63 | 3.33 | 221.16 | 125.28 | 2287.03 | 0.00 |
| | | 226.28 | 1386 | 5.84 | 3.28 | 237.35 | 138.55 | 2287.63 | 0.00 |
| | | 252.36 | 1467 | 5.53 | 2.88 | 265.41 | 123.18 | 2288.04 | 0.00 |
| | | 275.97 | 1464 | 6.36 | 2.79 | 230.34 | 137.53 | 2288.35 | 0.00 |
| | | 296.34 | 1397 | 5.48 | 2.94 | 255.01 | 158.60 | 2288.97 | 0.00 |
| | | 324.66 | 1397 | 5.07 | 2.91 | 275.75 | 155.10 | 2289.53 | 0.00 |
| | | 354.02 | 1397 | 5.36 | 2.30 | 260.61 | 159.26 | 2290.01 | 0.00 |
| | | 381.61 | 1397 | 4.03 | 2.75 | 346.99 | 253.61 | 2290.71 | 0.00 |
| | | 462.42 | 1397 | 6.31 | 2.67 | 221.34 | 178.08 | 2292.42 | 0.00 |
| | | 524.30 | 1397 | 5.02 | 3.74 | 280.08 | 143.47 | 2293.51 | 0.00 |

100-YR Discharge = 4372 cfs
100-YR Water Surface Elevation = 2242.93 ft
Finish Floor Elevation = 2249.59
Depth = 4.38 ft
Velocity = 7.07 ft/s
Photo Date: September 2006

N

Feet
50 25 0 50 100
1 inch equals 100 feet

**DRAFT**

**Legend**
- Parcel Boundaries
- Preliminary Floodway/Floodplain
- Wash Alignment
- Preliminary Floodway/Floodplain Boundary
- Cross Sections

# Computation

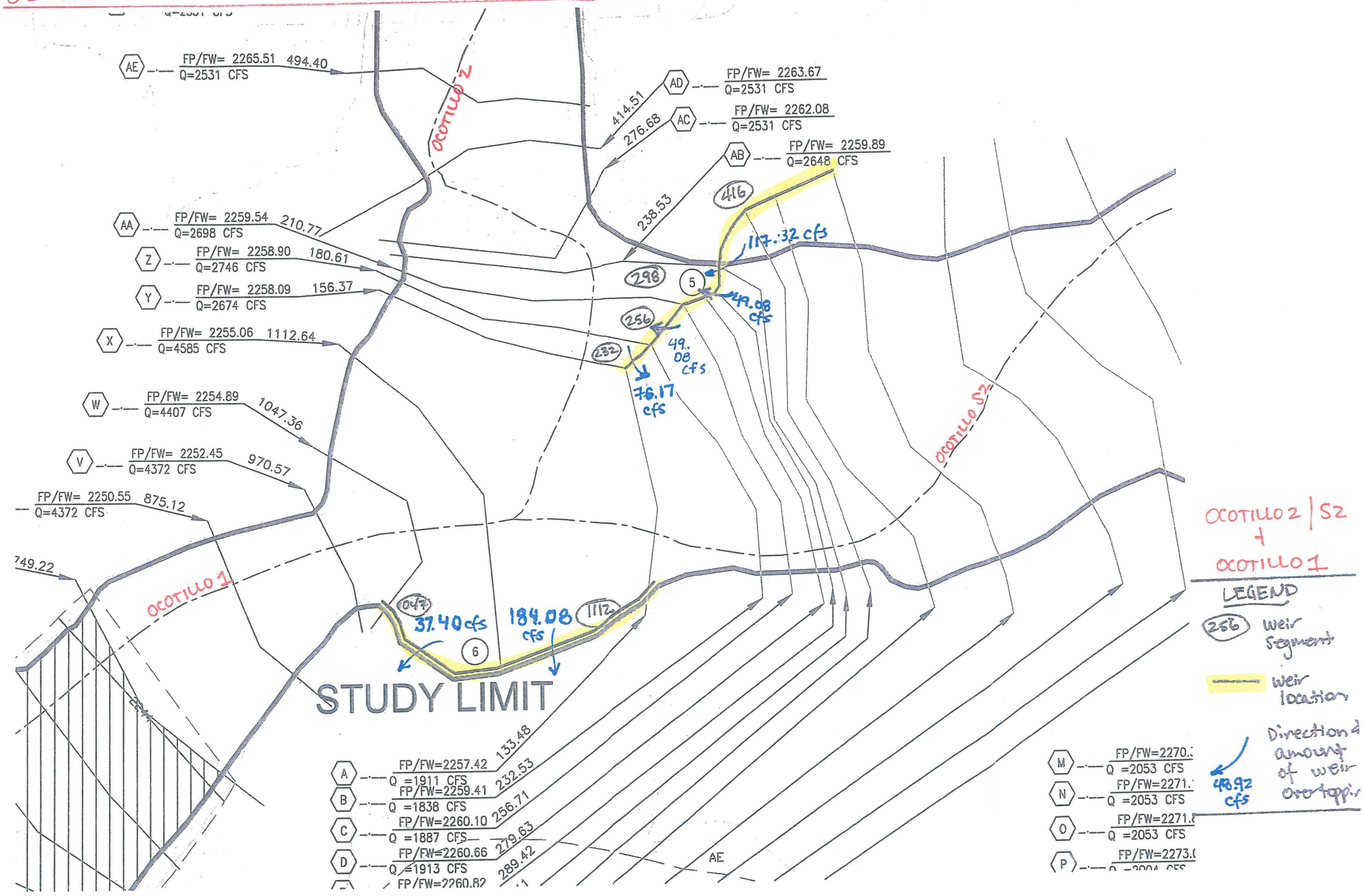
| | | | | | |
|---|---|---|---|---|---|
| Job No. | 40933 | | | No. | 44 |
| Project | Cave Creek DMP, Phase I | Computed | M. FOUNTAIN | Date | 8/31/2007 |
| Subject | Hydrology accounting across lateral weirs | Checked | L.POTTER | Date | 8/31/2007 |
| Task | Table data comparisons for flow rates | Sheet | 1 | Of | 1 |

** REFER TO APPENDIX E.4 FOR DETAILED WEIR EXHIBITS AND C.MAPS FOR SITE LOCATIONS WITHIN THE WORK MAPS.

| HEC-RAS Plan: OcotilloFPD Profile: PF 1 | | | | | Per Lateral Output Table, HEC-RAS | | | | HDR Engineering, Inc. 8/31/2007 | | | | | Per Standard Output Table 1, HEC-RAS | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| River | Reach | River Sta | Q US (cfs) | Q Leaving Total (cfs) | Q DS (cfs) | Q Weir (cfs) | Wr Top Wdth (ft) | Weir Max Depth (ft) | Weir Avg Depth (ft) | Q Leaving (cfs) | Q Entering (cfs) | Δ Q Lost (cfs) | Locations | Q Total Start (cfs) | Q Total End (cfs) | Flow Difference Q Difference | Δ* (cfs) |
| Ocotillo1 | 1 | 1047 | 4445.97 | 37.4 | 4408.58 | 37.4 | 20.53 | 1.73 | 0.87 | 221.48 | 0.00 | 221.48 | Reach 01 | 4,630.00 | 4,408.58 | 221.42 | 0.06 |
| Ocotillo1 | 1 | 1112 | 4630 | 184.08 | 4445.97 | 184.08 | 62.35 | 1.73 | 1.28 | | | | | | | | |
| Ocotillo3 | 3 | 215 | 1764.03 | -169.61 | 1933.64 | -169.61 | 91.52 | 2.22 | 0.83 | 862.45 | -265.36 | 597.09 | Reach 03 | 2,532.08 | 1,933.64 | 598.44 | -1.35 |
| Ocotillo3 | 3 | 321 | 1905.78 | 141.76 | 1764.03 | 141.76 | 88.52 | 2.7 | 1.15 | | | | | | | | |
| Ocotillo3 | 3 | 384 | 1964.42 | 58.66 | 1905.78 | 58.66 | 69.63 | 2.88 | 0.97 | | | | | | | | |
| Ocotillo3 | 3 | 462 | 2285.66 | 319.96 | 1964.42 | 319.96 | 76.46 | 1.91 | 1.63 | | | | | | | | |
| Ocotillo3 | 3 | 671 | 2276.9 | -9.14 | 2285.66 | -9.14 | 176 | 2.33 | 0.68 | | | | | | | | |
| Ocotillo3 | 3 | 741 | 2285.71 | 9.15 | 2276.9 | 9.15 | 40.61 | 0.48 | 0.21 | | | | | | | | |
| Ocotillo3 | 3 | 825 | 2283.44 | -2.26 | 2285.71 | -2.26 | 11.21 | 0.36 | 0.2 | | | | | | | | |
| Ocotillo3 | 3 | 826 | 2283.44 | 0 | 2285.71 | | | | | | | | | | | | |
| Ocotillo3 | 3 | 986 | 2219.05 | -64.91 | 2283.44 | -64.91 | 89.05 | 0.98 | 0.47 | | | | | | | | |
| Ocotillo3 | 3 | 987 | 2219.05 | 0 | 2283.44 | | | | | | | | | | | | |
| Ocotillo3 | 3 | 1053 | 2208.65 | -10.4 | 2219.05 | -10.4 | 23.1 | 0.62 | 0.34 | | | | | | | | |
| Ocotillo3 | 3 | 1054 | 2208.65 | 0 | 2219.05 | | | | | | | | | | | | |
| Ocotillo3 | 3 | 1158 | 2237.91 | 29.25 | 2208.65 | 29.25 | 35.75 | 1.1 | 0.5 | | | | | | | | |
| Ocotillo3 | 3 | 1159 | 2237.91 | 0 | 2208.65 | | | | | | | | | | | | |
| Ocotillo3 | 3 | 1241 | 2247.92 | 10.43 | 2237.91 | 10.43 | 44.13 | 1.44 | 0.82 | | | | | | | | |
| Ocotillo3 | 3 | 1321 | 2273.63 | 26.01 | 2247.92 | 26.01 | 68.71 | 0.85 | 0.28 | | | | | | | | |
| Ocotillo3 | 3 | 1382 | 2312.8 | 40.14 | 2273.63 | 40.14 | 62.1 | 1.25 | 0.77 | | | | | | | | |
| Ocotillo3 | 3 | 1458 | 2303.89 | -9.04 | 2312.8 | -9.04 | 74.86 | 1.2 | 0.84 | | | | | | | | |
| Ocotillo3 | 3 | 1510 | 2325.88 | 21.09 | 2303.89 | 21.09 | 53.18 | 0.93 | 0.61 | | | | | | | | |
| Ocotillo3 | 3 | 1619 | 2532.08 | 206 | 2325.88 | 206 | 118.47 | 2.42 | 1.67 | | | | | | | | |
| Ocotillo5 | 5 | 952 | 2274.36 | -15.18 | 2289.96 | -15.18 | 50.31 | 0.43 | 0.27 | 165.91 | -15.18 | 150.73 | Reach 05 | 2,441.00 | 2,289.96 | 151.04 | -0.31 |
| Ocotillo5 | 5 | 1011 | 2319.82 | 44.61 | 2274.36 | 44.61 | 41.3 | 1.14 | 0.61 | | | | | | | | |
| Ocotillo5 | 5 | 1064 | 2342.28 | 22.24 | 2319.82 | 22.24 | 20.94 | 1.14 | 0.62 | | | | | | | | |
| Ocotillo5 | 5 | 1136 | 2342.28 | 0 | 2342.28 | | | | | | | | | | | | |
| Ocotillo5 | 5 | 1223 | 2396.57 | 54.63 | 2342.28 | 54.63 | 78.44 | 1.16 | 0.48 | | | | | | | | |
| Ocotillo5 | 5 | 1332 | 2441 | 44.43 | 2396.57 | 44.43 | 33.61 | 1.19 | 0.72 | | | | | | | | |
| OcotilloS2 | Split2 | 232 | 1838.69 | -76.17 | 1914.84 | -76.17 | 94.3 | 1.94 | 1.33 | 215.48 | -76.17 | 139.31 | Split 2 | 2,054.24 | 1,914.84 | 139.40 | -0.09 |
| OcotilloS2 | Split2 | 256 | 1887.78 | 49.08 | 1838.69 | 49.08 | 23.03 | 1.21 | 1.04 | | | | | | | | |
| OcotilloS2 | Split2 | 298 | 1936.86 | 49.08 | 1887.78 | 49.08 | 39.22 | 1.13 | 0.71 | | | | | | | | |
| OcotilloS2 | Split2 | 416 | 2054.24 | 117.32 | 1936.86 | 117.32 | 170.03 | 0.93 | 0.46 | | | | | | | | |
| OcotilloT1 | Trib1 | 164 | 1088.41 | 248.18 | 840.16 | 248.18 | 27.28 | 3.02 | 2.74 | 626.99 | -70.30 | 556.69 | Trib 1 | 1,397.00 | 840.16 | 556.84 | -0.15 |
| OcotilloT1 | Trib1 | 189 | 1244.73 | 156.23 | 1088.41 | 156.23 | 25.08 | 2.38 | 2.13 | | | | | | | | |
| OcotilloT1 | Trib1 | 226 | 1386.02 | 141.25 | 1244.73 | 141.25 | 35.96 | 1.74 | 1.57 | | | | | | | | |
| OcotilloT1 | Trib1 | 252 | 1467.36 | 81.33 | 1386.02 | 81.33 | 25.91 | 1.44 | 1.35 | | | | | | | | |
| OcotilloT1 | Trib1 | 275 | 1463.97 | -3.3 | 1467.36 | -3.3 | 25.7 | 1.79 | 1.56 | | | | | | | | |
| OcotilloT1 | Trib1 | 296 | 1397 | -67 | 1463.97 | -67 | 16.99 | 1.98 | 1.54 | | | | | | | | |
| OcotilloT1 | Trib1 | 324 | 1397 | 0 | 1397 | | | | | | | | | | | | |

* HEC-RAS was utilized for lateral weir optimizations to balance the adjacent water surface elevations. Minor losses of less than 2 cfs were identified as a result of this process. As a result, there is no impact on the final water surface elevation or flood limits.

# OCOTILLO 1 and OCOTILLO2 | S2 LATERAL WEIR




C:\PWworking\PHX\lpotter\dms40179\LindaWork.dwg, SHEET1, 4/13/2007 3:03:26 PM, lpotter

# CAVE CREEK DRAINAGE MASTER PLAN
# FCDMC CONTRACT NUMBER 2004C072
# OCOTILLO WASH FLOODPLAIN REDELINEATION
# CAVE CREEK, ARIZONA

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

## AUTHORITY FOR STUDY

THE FLOOD CONTROL DISTRICT OF MARICOPA COUNTY (FCDMC) HAS CONTRACTED HDR TO PREPARE THIS STUDY UNDER THE CONTRACT NUMBER 2004C072 AS PART OF THE CC DMP. PROJECT CONTROL NUMBER 690.02.20.

## PROJECT LOCATION

THE PROJECT SITE IS LOCATED WITHIN THE TOWN OF CAVE CREEK, ARIZONA WITHIN SECTIONS 14, 15 AND 22 OF TOWNSHIP 6 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER MERIDIAN WITHIN THE COUNTY OF MARICOPA IN THE STATE OF ARIZONA.

## BENCHMARKS (NAVD 88)

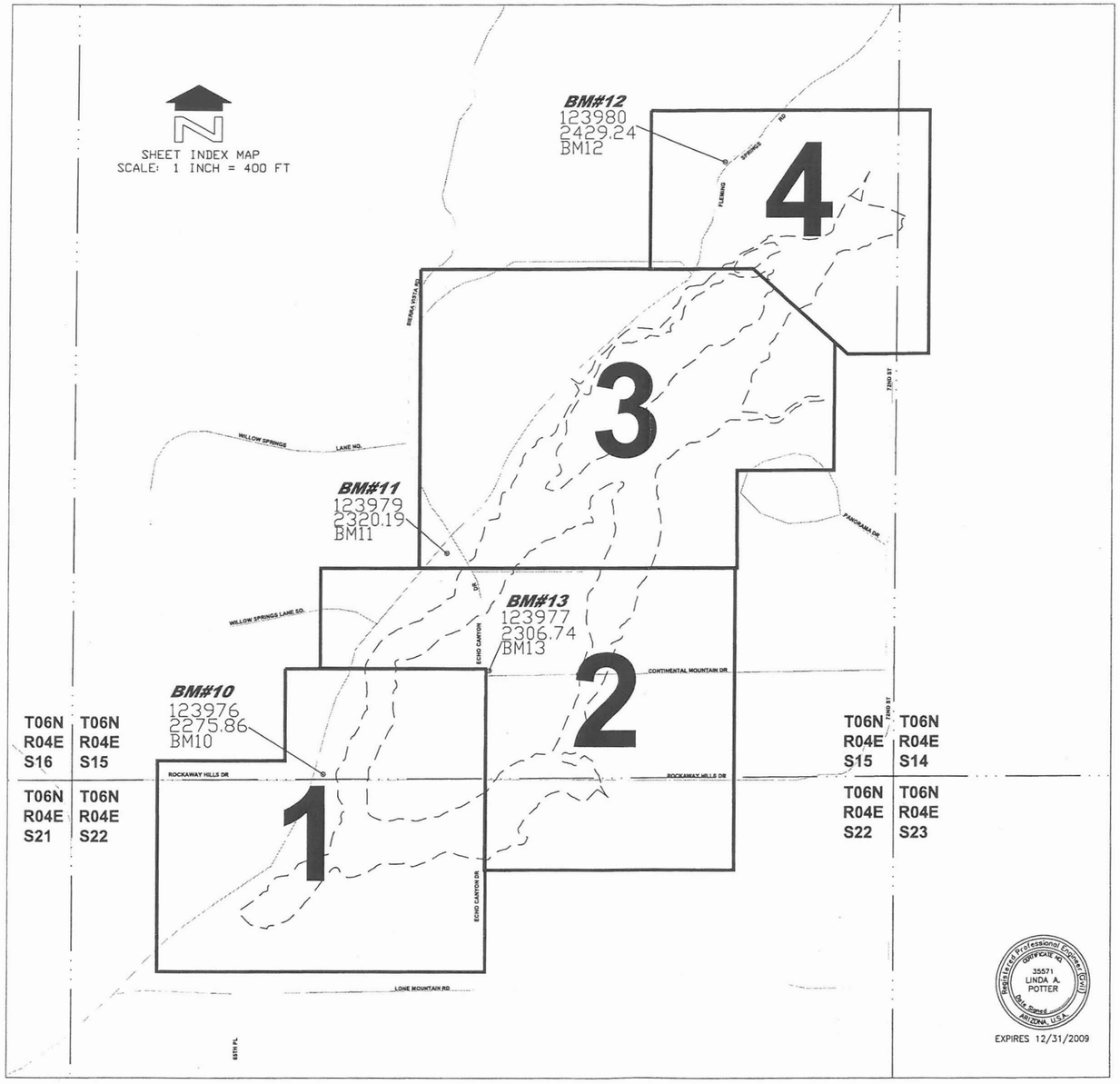
BM #10 – ELEVATION 2275.856
LOCATED AT THE INTERSECTION OF FLEMING SPRINGS ROAD AND ROCKAWAY HILLS DRIVE (NE CORNER).
BM # 13 – ELEVATION 2306.736
LOCATED AT THE INTERSECTION OF ECHO CANYON DRIVE AND CONTINENTAL MOUNTAIN DRIVE (NE CORNER).
BM # 11 – ELEVATION 2320.194
LOCATED AT THE INTERSECTION OF FLEMING SPRINGS ROAD AND ECHO CANYON DRIVE (SE CORNER).
BM # 12 O ELEVATION 2429.245
LOCATED ALONG FLEMING SPRINGS ROAD ALIGNMENT ADJACENT TO PARCEL NUMBER 21616025R OR 21616025S

## SHEET INDEX

SHEET 1 – OCOTILLO WASH REACH 01, REACH 02 & SPLIT–2.
SHEET 2 – OCOTILLO WASH REACH 02, SPLIT–1 & SPLIT–2.
SHEET 3 – OCOTILLO WASH SPLIT–1, REACH 03, REACH 04, REACH 05, TRIB–5 & TRIB–6.
SHEET 4 – OCOTILLO WASH REACH 05 & TRIB–5.

## ABBREVIATIONS

DMP – DRAINAGE MASTER PLAN
CC – CAVE CREEK
ROW – RIGHT OF WAY
EXIST – EXISTING
BCHH – BRASS CAP HAND HOLE
T. – TOWNSHIP
R. – RANGE
S. – SECTION
N.T.S. – NOT TO SCALE
BM – BENCHMARK

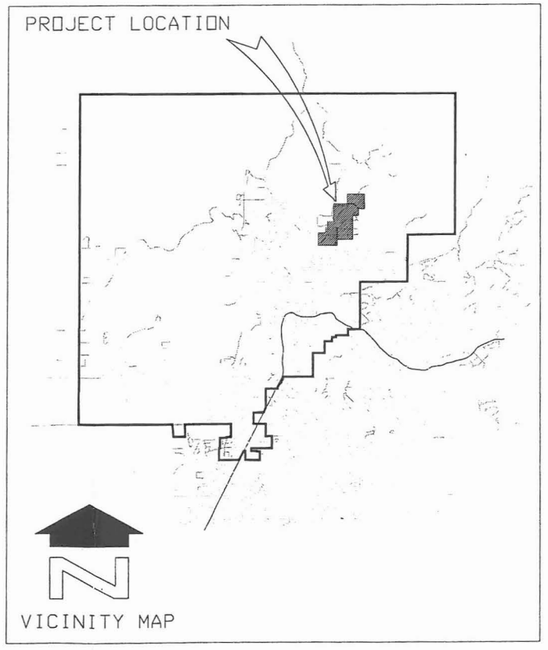



Registered Professional Engineer (Civil) CERTIFICATE NO. 35571 LINDA A. POTTER Date Signed ARIZONA, U.S.A.
EXPIRES 12/31/2009

## SURVEY STATEMENT

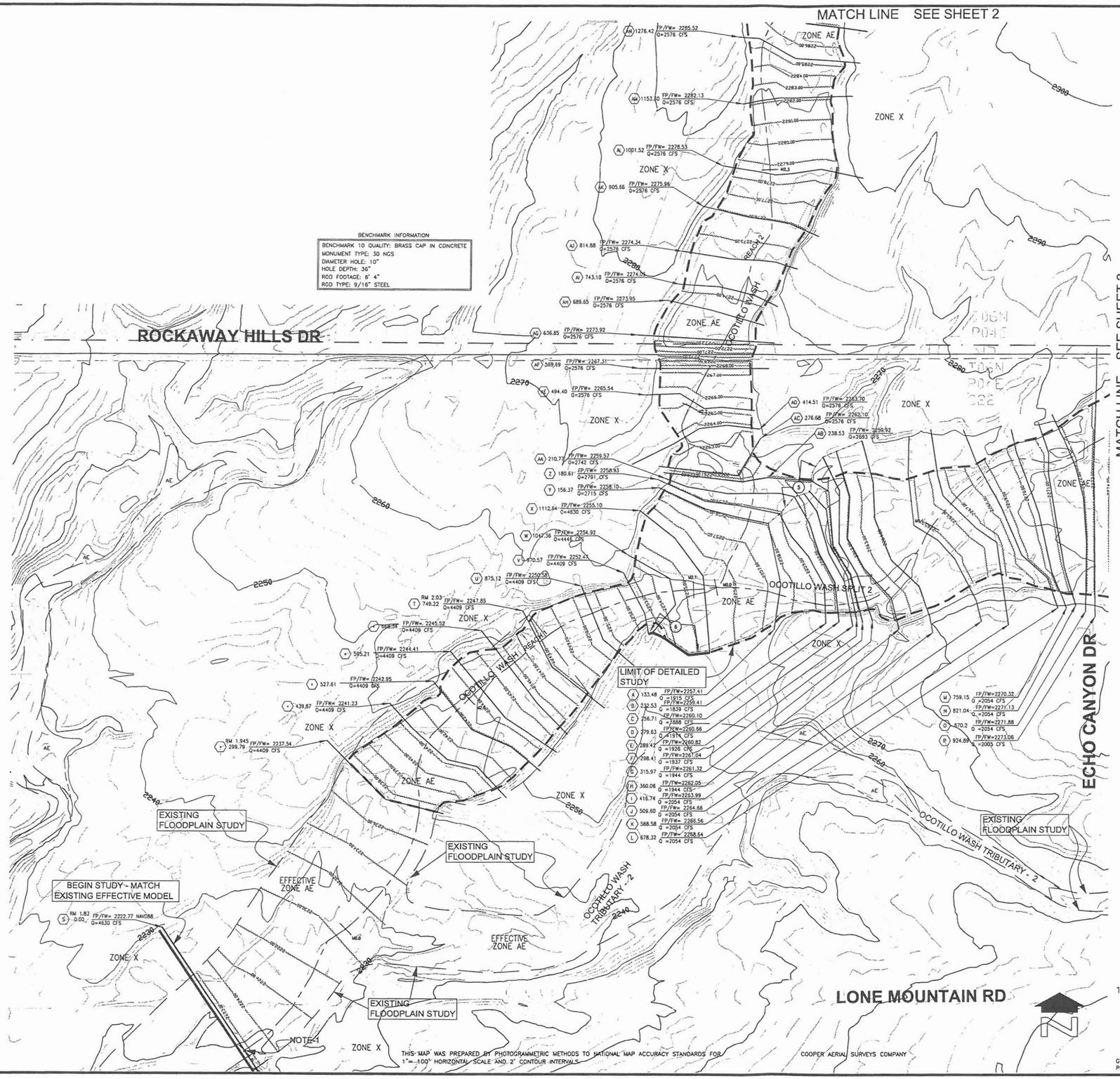
I, STONE E. WAHL, AN ARIZONA REGISTERED LAND SURVEYOR, CERTIFY THAT THE FIELD SURVEYS, DOCUMENTED HEREIN, ALONG WITH ALL FIELD, AND OFFICE PROCESS PROCEDURES, USED DURING THE COURSE OF THIS SURVEY, WERE PERFORMED UNDER MY DIRECT SUPERVISION, AND THAT THESE SURVEYS, ARE RETRACEABLE, AND REPEATABLE. FURTHER, I CERTIFY THAT THE SUREY REPORT WAS PREPARED UNDER MY DIRECT SUPERVISION.

STONE E. WAHL
AZ RLS #28237




HDR ENGINEERING, INC.
3200 East Camelback Road, Suite 350
PHOENIX, ARIZONA 85018-2311
(602) 522-7700

FNL.MAF0.08182008




THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"=100' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS.

COOPER AERIAL SURVEYS COMPANY

SCALE: 1" = 100'
CONTOUR INTERVAL = 2'
FLIGHT DATES: November 2003 through December 2005

GROUND CONTROL SURVEY DATA PROVIDED BY COOPER AERIAL SURVEYS COMPANY

## LEGEND

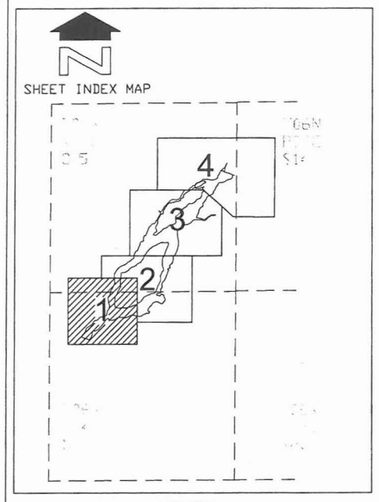
| | |
|---|---|
| 100-YR FLOODPLAIN AND FLOODWAY BOUNDARY | |
| LATERAL BASE LINES | |
| BASE FLOOD ELEVATION | |
| HYDRAULIC BASE LINE WITH RIVER MILE | M2.0 M2.5 M3.0 |
| CROSS SECTION | A 144.44 FP= 2250.55 Q =4630 CFS (CROSS SECTION STATION (FEET); FLOODPLAIN WATER SURFACE ELEVATION; 100 YEAR DISCHARGE; EXISTING RIVER MILE STATIONING (MILE); PROPOSED FEMA CROSS SECTION DESIGNATION) |
| | RM 1.945 |
| ELEVATION REFERENCE MARK | ERM 2400 |
| ZONE DESIGNATION | ZONE AE |
| ZONE DESIGNATION | ZONE X |
| BENCHMARK DESIGNATION | BM#10 |

## BENCHMARKS

NOTE: ALL ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88). CONVERSION FACTOR TO THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD29) IS = -2.07 FOOT.

| I.D. NUMBER | ELEVATION (FT) | DESCRIPTION/LOCATION |
|---|---|---|
| BM #10 | 2275.856 | THE INTERSECTION OF FLEMING SPRINGS ROAD AND ROCKAWAY HILLS DRIVE. (NE CORNER) |

SHEET INDEX MAP




## NOTES

1-THE HYDRAULIC BASE LINE FOR OCOTILLO WASH TIES INTO THE EXISTING RIVER MILE 1.83 PER THE FIS FLOOD PROFILE DATED SEPTEMBER 30, 2005

| NO. | REVISION | BY | DATE |
|---|---|---|---|
| 2 | | | |
| 1 | REVISED D/S TIE-IN, OCOTILLO WASH | MAFO | 08/08/08 |

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

# CAVE CREEK DRAINAGE MASTER PLAN
PROJECT CONTROL NUMBER: 690.02.20
CONTRACT NUMBER: FCD 2004C072

## OCOTILLO WASH FLOODPLAIN DELINEATION, CAVE CREEK, AZ

Registered Professional Engineer (Civil) CERTIFICATE NO. 35571 LINDA A. POTTER Date Signed ARIZONA, U.S.A.

EXPIRES 12/31/2009

HDR ENGINEERING, INC.
3200 East Camelback Road, Suite 350
PHOENIX, ARIZONA 85018-2311
(602) 522-7700

| | BY | DATE |
|---|---|---|
| DESIGN | M. FOUNTAIN | 08-18-08 |
| DESIGN CHK. | L. POTTER | 08-18-08 |
| PLANS | MC/MF | 08-18-08 |
| PLANS CHK. | L. POTTER | 08-18-08 |

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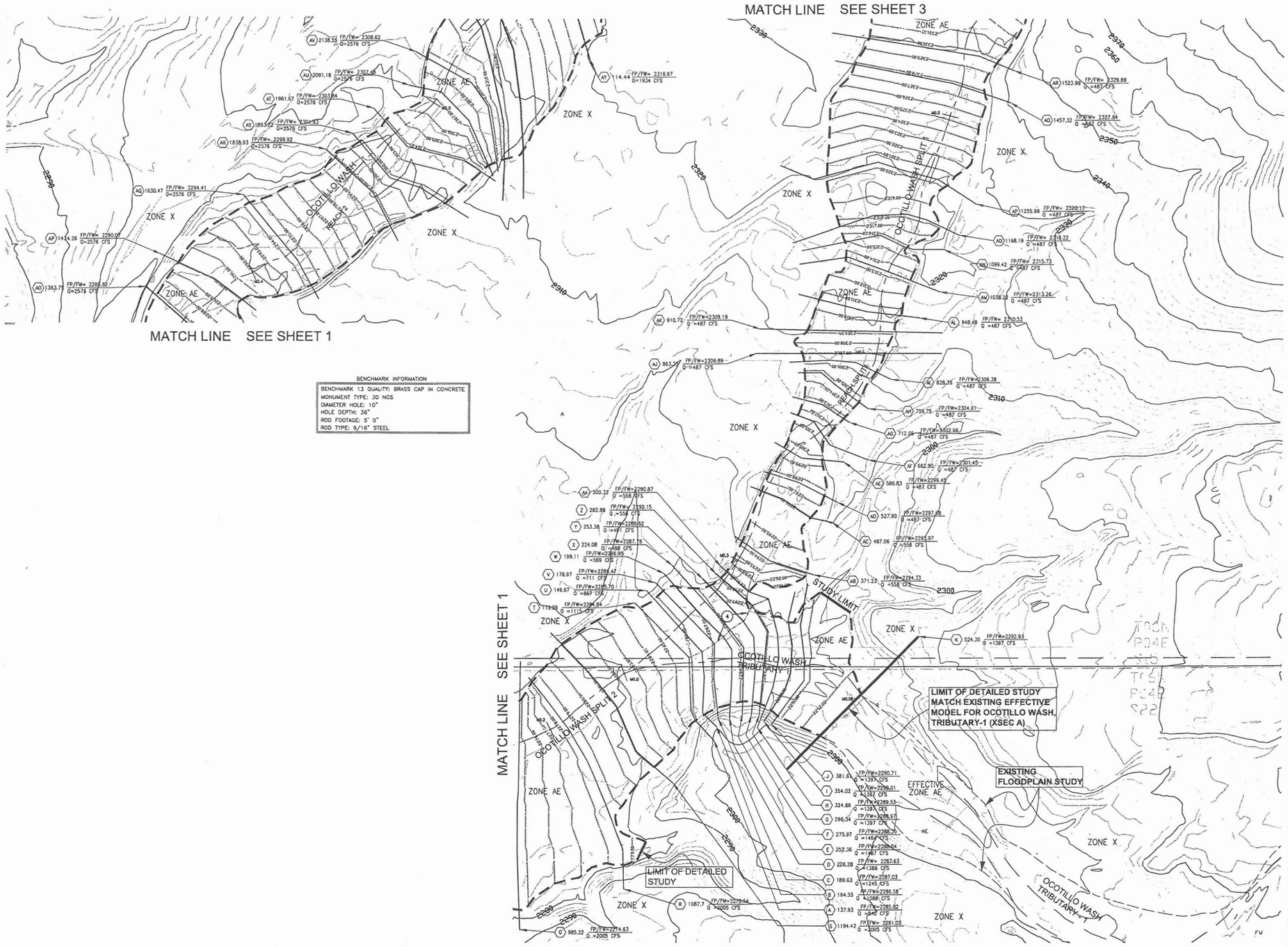



THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 100' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS.

COOPER AERIAL SURVEYS COMPANY

## LEGEND

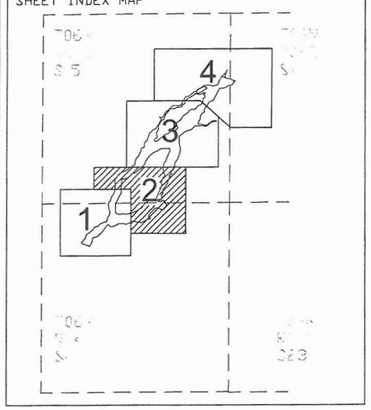
| | |
|---|---|
| 100-YR FLOODPLAIN AND FLOODWAY BOUNDARY | |
| LATERAL BASE LINES | S |
| BASE FLOOD ELEVATION | 2265.00 |
| HYDRAULIC BASE LINE WITH RIVER MILE | M2.0 M2.5 M3.0 |
| CROSS SECTION | A 144.44 FP= 2250.55 Q =4630 CFS |
| | RM 1.945 |
| ELEVATION REFERENCE MARK | ERM 2400 |
| ZONE DESIGNATION | ZONE AE |
| ZONE DESIGNATION | ZONE X |
| BENCHMARK DESIGNATION | BM#10 |

## BENCHMARKS

NOTE: ALL ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88). CONVERSION FACTOR TO THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD29) IS = -2.07 FOOT.

| I.D. NUMBER | ELEVATION (FT) | DESCRIPTION/LOCATION |
|---|---|---|
| BM #13 | 2306.736 | THE INTERSECTION OF ECHO CANYON DRIVE AND CONTINENTAL MOUNTAIN DRIVE. (NE CORNER) |

SHEET INDEX MAP




## NOTES

1-THE HYDRAULIC BASE LINE FOR OCOTILLO WASH TIES INTO THE EXISTING RIVER MILE 1.83 PER THE FIS FLOOD PROFILE DATED SEPTEMBER 30, 2005

| NO. | REVISION | BY | DATE |
|---|---|---|---|
| 2 | | | |
| 1 | REVISED U/S TIE-IN, TRIBUTARY 1 | MAFO | 08/18/08 |

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

CAVE CREEK DRAINAGE MASTER PLAN
PROJECT CONTROL NUMBER: 690.02.20
CONTRACT NUMBER: FCD 2004C072

OCOTILLO WASH FLOODPLAIN DELINEATION, CAVE CREEK, AZ

Registered Professional Engineer (Civil) CERTIFICATE NO. 35571 LINDA A. POTTER Date Signed ARIZONA, U.S.A.

EXPIRES 12/31/2009

HDR ENGINEERING, INC.
3200 East Camelback Road, Suite 350
PHOENIX, ARIZONA 85018-2311
(602) 522-7700

| | BY | DATE |
|---|---|---|
| DESIGN | M. FOUNTAIN | 08-18-08 |
| DESIGN CHK. | L. POTTER | 08-18-08 |
| PLANS | MC/MF | 08-18-08 |
| PLANS CHK. | L. POTTER | 08-18-08 |

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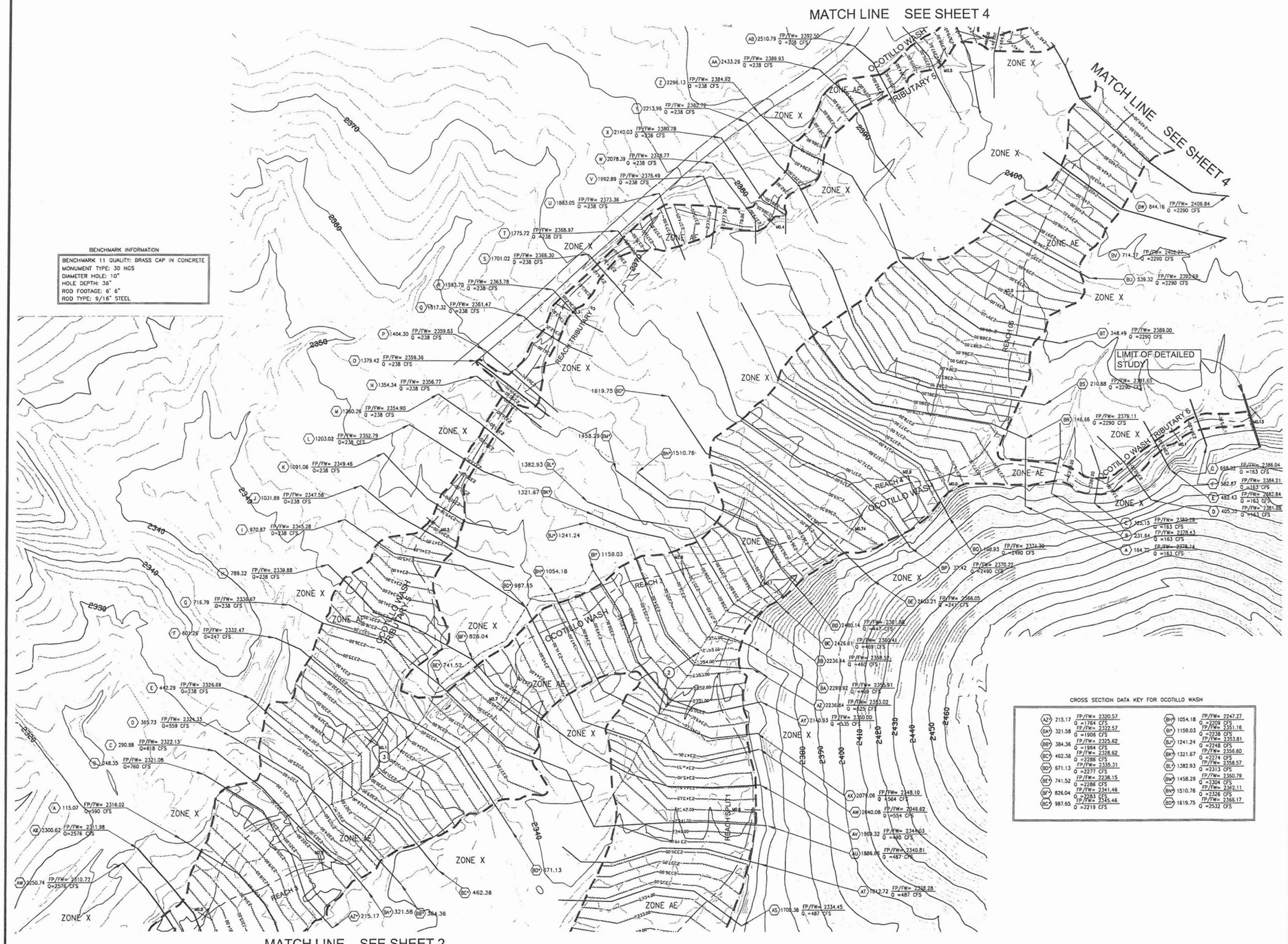



## LEGEND

100-YR FLOODPLAIN AND FLOODWAY BOUNDARY

LATERAL BASE LINES

BASE FLOOD ELEVATION

HYDRAULIC BASE LINE WITH RIVER MILE — M2.0 M2.5 M3.0

CROSS SECTION — A 144.44 FP= 2250.55 Q =4630 CFS — RM 1.945

ELEVATION REFERENCE MARK — ERM 2400

ZONE DESIGNATION — ZONE AE

ZONE DESIGNATION — ZONE X

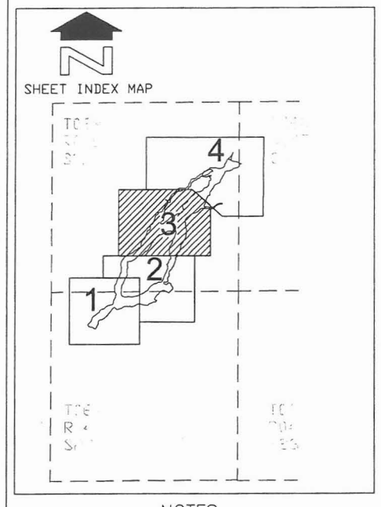
BENCHMARK DESIGNATION — BM#10

## BENCHMARKS

NOTE: ALL ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88). CONVERSION FACTOR TO THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD29) IS = -2.07 FOOT.

| I.D. NUMBER | ELEVATION (FT) | DESCRIPTION/LOCATION |
|---|---|---|
| BM #11 | 2320.194 | THE INTERSECTION OF FLEMING SPRINGS ROAD AND ECHO CANYON DRIVE. (SE CORNER) |

SHEET INDEX MAP




CROSS SECTION DATA KEY FOR OCOTILLO WASH

| | | | | | |
|---|---|---|---|---|---|
| AZ | 215.17 | FP/TW= 2320.57 Q =1764 CFS | BH | 1054.18 | FP/TW= 2347.27 Q =229 CFS |
| BA | 321.58 | FP/TW= 2322.57 Q =1906 CFS | BI | 1159.03 | FP/TW= 2351.16 Q =238 CFS |
| BB | 384.36 | FP/TW= 2325.62 Q =1964 CFS | BJ | 1241.24 | FP/TW= 2353.81 Q =248 CFS |
| BC | 462.38 | FP/TW= 2328.62 Q =2286 CFS | BK | 1321.67 | FP/TW= 2356.60 Q =2274 CFS |
| BD | 671.13 | FP/TW= 2335.31 Q =2277 CFS | BL | 1382.93 | FP/TW= 2358.57 Q =2313 CFS |
| BE | 741.52 | FP/TW= 2338.15 Q =2286 CFS | BM | 1458.29 | FP/TW= 2350.79 Q =2304 CFS |
| BF | 826.04 | FP/TW= 2341.46 Q =2283 CFS | BN | 1510.76 | FP/TW= 2362.11 Q =2326 CFS |
| BG | 987.65 | FP/TW= 2345.46 Q =2219 CFS | BO | 1619.75 | FP/TW= 2368.17 Q =2532 CFS |

## NOTES

1-THE HYDRAULIC BASE LINE FOR OCOTILLO WASH TIES INTO THE EXISTING RIVER MILE 1.83 PER THE FIS FLOOD PROFILE DATED SEPTEMBER 30, 2005

| NO. | REVISION | BY | DATE |
|---|---|---|---|
| 2 | | | |
| 1 | | | |

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

CAVE CREEK DRAINAGE MASTER PLAN
PROJECT CONTROL NUMBER: 690.02.20
CONTRACT NUMBER: FCD 2004C072

OCOTILLO WASH FLOODPLAIN DELINEATION, CAVE CREEK, AZ

100' 0' 100' 200'

SCALE: 1" = 100'
CONTOUR INTERVAL = 2'
FLIGHT DATES: November 2003 through December 2005

GROUND CONTROL SURVEY DATA PROVIDED BY COOPER AERIAL SURVEYS COMPANY

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 100' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS.

COOPER AERIAL SURVEYS COMPANY

Registered Professional Engineer (Civil) CERTIFICATE NO. 35571 LINDA A. POTTER Date Signed ARIZONA, U.S.A.

EXPIRES 12/31/2009

HDR ENGINEERING, INC.
3200 East Camelback Road, Suite 350
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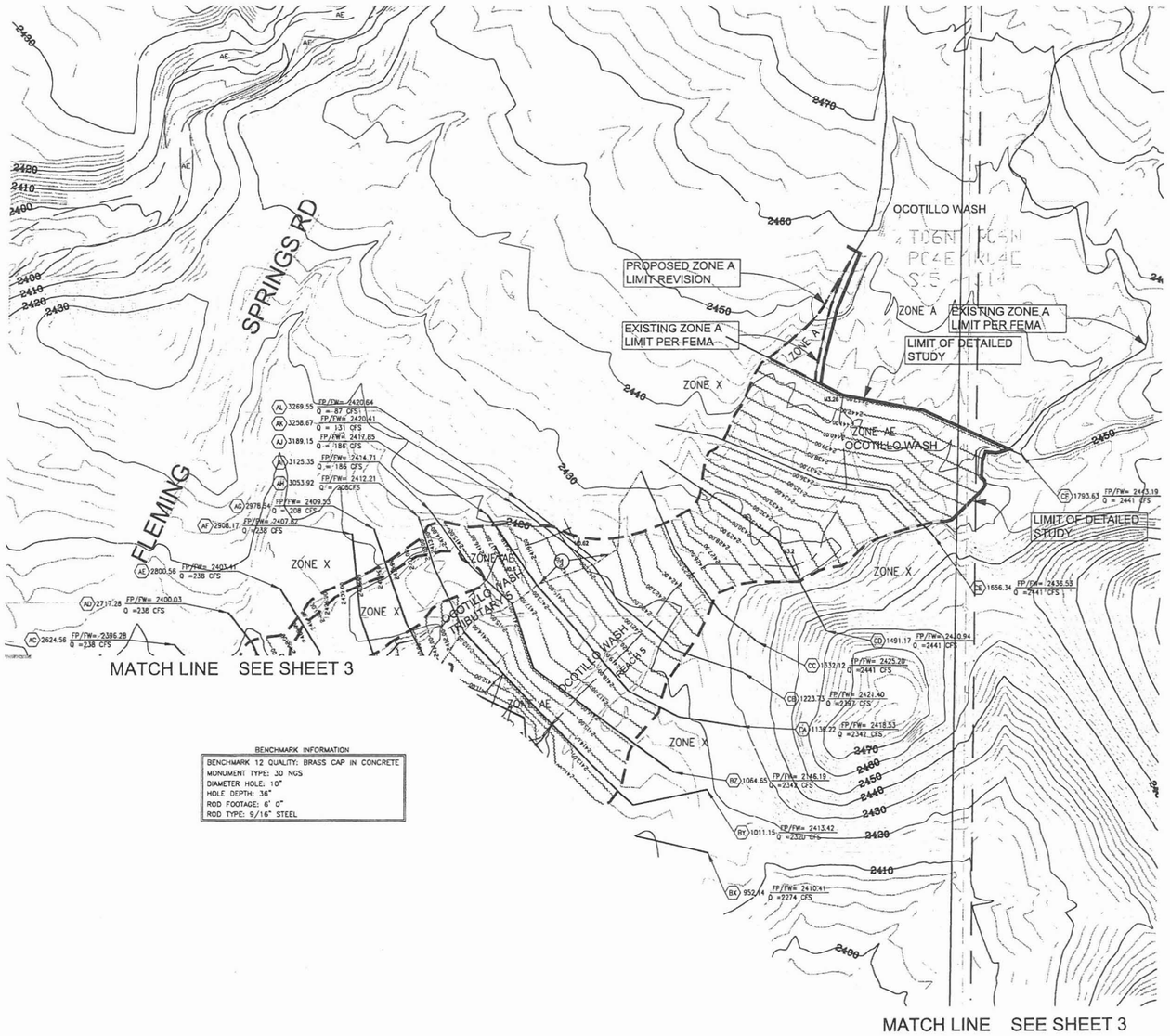
(602) 522-7700

| | BY | DATE |
|---|---|---|
| DESIGN | M. FOUNTAIN | 08-18-08 |
| DESIGN CHK. | L. POTTER | 08-18-08 |
| PLANS | MC/MF | 08-18-08 |
| PLANS CHK. | L. POTTER | 08-18-08 |

FNL.MAF0.08182008

SHEET 3 OF 4




BENCHMARK INFORMATION

BENCHMARK 12 QUALITY: BRASS CAP IN CONCRETE
MONUMENT TYPE: 30 NGS
DIAMETER HOLE: 10"
HOLE DEPTH: 36"
ROD FOOTAGE: 6' 0"
ROD TYPE: 9/16" STEEL

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 100' HORIZONTAL SCALE AND 2' CONTOUR INTERVALS.

COOPER AERIAL SURVEYS COMPANY

100' 0' 100' 200'

SCALE: 1" = 100'
CONTOUR INTERVAL = 2'
FLIGHT DATES: November 2003 through December 2005

GROUND CONTROL SURVEY DATA PROVIDED BY COOPER AERIAL SURVEYS COMPANY

## LEGEND

100-YR FLOODPLAIN AND FLOODWAY BOUNDARY

LATERAL BASE LINES

BASE FLOOD ELEVATION

HYDRAULIC BASE LINE WITH RIVER MILE — M2.0 M2.5 M3.0

CROSS SECTION — A 144.44 FP= 2250.55 Q =4630 CFS

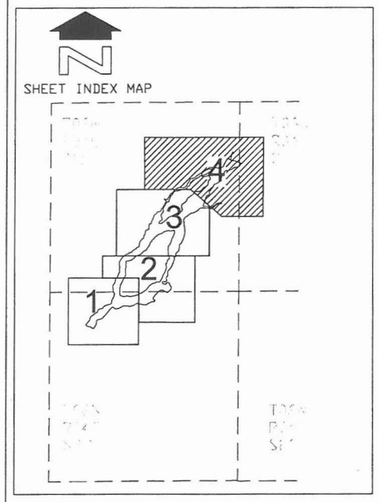
| | |
|---|---|
| | RM 1.945 |
| ELEVATION REFERENCE MARK | ERM 2400 |
| ZONE DESIGNATION | ZONE AE |
| ZONE DESIGNATION | ZONE X |
| BENCHMARK DESIGNATION | BM#10 |

## BENCHMARKS

NOTE: ALL ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88). CONVERSION FACTOR TO THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD29) IS = -2.07 FOOT.

| I.D. NUMBER | ELEVATION (FT) | DESCRIPTION/LOCATION |
|---|---|---|
| BM #12 | 2429.245 | ALONG FLEMING SPRINGS ROAD ADJACENT TO PARCEL NUMBER 21616025R OR 21616025S |

SHEET INDEX MAP




## NOTES

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| NO. | REVISION | BY | DATE |
|---|---|---|---|
| 2 | | | |
| 1 | | | |

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

CAVE CREEK DRAINAGE MASTER PLAN
PROJECT CONTROL NUMBER: 690.02.20
CONTRACT NUMBER: FCD 2004C072

OCOTILLO WASH FLOODPLAIN DELINEATION, CAVE CREEK, AZ

Registered Professional Engineer (Civil) 35571 LINDA A. POTTER Date Signed ARIZONA, U.S.A.

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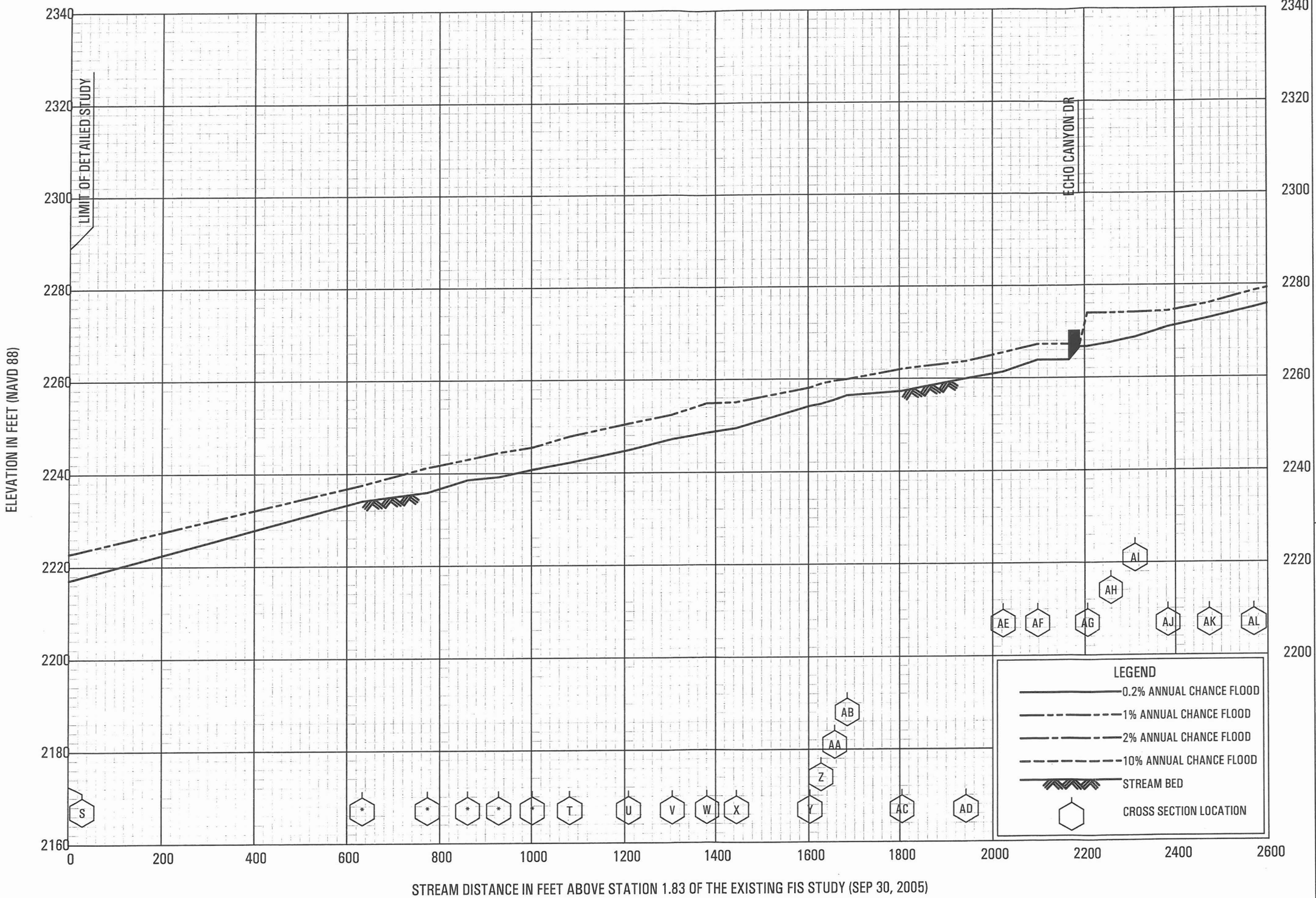
| PLANS CHK. | L. POTTER | 08-18-08 |

FNL.MAF0.08182008




FLOOD PROFILES

OCOTILLO WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWN OF CAVE CREEK, AZ

MARICOPA COUNTY

01P

CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: C:\GEORAS\91427\Hydraulic\RAS_Model\CCT2\RM\CCTRIB2.prj
Plan File: C:\GEORAS\91427\Hydraulic\RAS_Model\CCT2\RM\CCTRIB2.p01
Geometry File: C:\GEORAS\91427\Hydraulic\RAS_Model\CCT2\RM\CCTRIB2.g01
Flow File: C:\GEORAS\91427\Hydraulic\RAS_Model\CCT2\RM\CCTRIB2.f01
Report File: C:\GEORAS\91427\Hydraulic\RAS_Model\CCT2\RM\CCTRIB2.nt
Selected profiles: PF 1
Date: 3/6/2009
Time: 8:30:36 AM

| SECNO | STRUCTURE | NLOB | NCHL | NROB | CNTR | EXP |
|---|---|---|---|---|---|---|
| Cave Creek1,Tributary 2.1 | | | | | | |
| .31 | | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
| | | ----- | 0.046 | ----- | | |
| | | ----- | 0.061 | ----- | | |
| .28 | | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
| | | ----- | 0.051 | ----- | | |
| | | ----- | 0.061 | ----- | | |
| | | ----- | 0.061 | ----- | | |
| .26 | | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
| | | ----- | 0.051 | ----- | | |
| | | ----- | 0.061 | ----- | | |
| .25 | | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
| | | ----- | 0.051 | ----- | | |
| | | ----- | 0.061 | ----- | | |
| .23 | | 0.061 | 0.061 | 0.061 | 0.1 | 0.3 |
| | | ----- | 0.049 | 0.061 | | |
| | | ----- | 0.061 | ----- | | |
| .21 | | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
| | | ----- | 0.049 | ----- | | |
| | | ----- | 0.061 | ----- | | |
| .19 | | 0.061 | 0.061 | 0.061 | 0.1 | 0.3 |
| | | 0.061 | 0.066 | 0.061 | | |
| | | ----- | 0.061 | ----- | | |
| .16 | | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
| | | ----- | 0.066 | ----- | | |
| | | ----- | 0.061 | ----- | | |
| .12 | | 0.067 | 0.067 | ----- | 0.1 | 0.3 |
| | | ----- | 0.063 | ----- | | |
| | | ----- | 0.067 | ----- | | |
| .09 | | 0.067 | 0.061 | ----- | 0.1 | 0.3 |
| | | 0.061 | 0.048 | ----- | | |
| | | ----- | 0.061 | ----- | | |
| .05 | | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
| | | ----- | 0.048 | ----- | | |
| | | ----- | 0.061 | ----- | | |
| Cave Creek2,Tributary 2.2 | | | | | | |
| .03 | | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
| | | ----- | 0.048 | ----- | | |
| | | ----- | 0.061 | ----- | | |
| .54 | | 0.067 | 0.067 | ----- | 0.1 | 0.3 |
| | | ----- | 0.069 | ----- | | |
| | | ----- | 0.067 | ----- | | |
| .5 | | 0.061 | 0.072 | ----- | 0.1 | 0.3 |
| | | 0.072 | 0.059 | ----- | | |
| | | ----- | 0.063 | ----- | | |
| .47 | | 0.059 | 0.059 | ----- | 0.1 | 0.3 |
| | | ----- | 0.055 | ----- | | |
| | | ----- | 0.067 | ----- | | |
| .4 | | 0.059 | 0.059 | ----- | 0.1 | 0.3 |
| | | ----- | 0.055 | ----- | | |
| | | ----- | 0.067 | ----- | | |
| .36 | | 0.059 | 0.059 | ----- | 0.1 | 0.3 |

| | | | | | |
|---|---|---|---|---|---|
| | ----- | 0.055 | ----- | | |
| | ----- | 0.067 | ----- | | |
| .32 | 0.059 | 0.059 | ----- | 0.1 | 0.3 |
| | ----- | 0.055 | ----- | | |
| | ----- | 0.067 | ----- | | |
| .24 | 0.058 | 0.058 | ----- | 0.1 | 0.3 |
| | ----- | 0.054 | ----- | | |
| | ----- | 0.058 | ----- | | |
| .19 | 0.058 | 0.058 | ----- | 0.1 | 0.3 |
| | ----- | 0.054 | ----- | | |
| | ----- | 0.058 | ----- | | |
| .13 | 0.058 | 0.058 | ----- | 0.1 | 0.3 |
| | ----- | 0.054 | ----- | | |
| | ----- | 0.058 | ----- | | |
| .1 | 0.058 | 0.058 | ----- | 0.1 | 0.3 |
| | ----- | 0.054 | ----- | | |
| | ----- | 0.058 | ----- | | |
| .08 | 0.053 | 0.053 | ----- | 0.1 | 0.3 |
| | ----- | 0.046 | ----- | | |
| | ----- | 0.053 | ----- | | |
| .04 | 0.053 | 0.053 | ----- | 0.1 | 0.3 |
| | ----- | 0.046 | ----- | | |
| | ----- | 0.053 | ----- | | |
| Cave Creek3,Tributary 2A | | | | | |
| .01 | 0.059 | 0.059 | ----- | 0.1 | 0.3 |
| | ----- | 0.046 | ----- | | |
| | ----- | 0.059 | ----- | | |
| .12 | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
| | ----- | 0.062 | ----- | | |
| | ----- | 0.061 | ----- | | |
| .06 | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
| | ----- | 0.062 | ----- | | |
| | ----- | 0.061 | ----- | | |
| Cave Creek4,Tributary 2B | | | | | |
| .03 | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
| | ----- | 0.062 | ----- | | |
| | ----- | 0.061 | ----- | | |
| .07 | 0.059 | 0.059 | ----- | 0.1 | 0.3 |
| | ----- | 0.046 | ----- | | |
| | ----- | 0.059 | ----- | | |
| .05 | 0.059 | 0.059 | ----- | 0.1 | 0.3 |
| | ----- | 0.046 | ----- | | |
| | ----- | 0.059 | ----- | | |
| .04 | 0.053 | 0.059 | ----- | 0.1 | 0.3 |
| | 0.059 | 0.046 | ----- | | |
| | ----- | 0.059 | ----- | | |
| Cave Creek5,Tributary 2C | | | | | |
| .02 | 0.059 | 0.059 | ----- | 0.1 | 0.3 |
| | ----- | 0.046 | ----- | | |
| | ----- | 0.059 | ----- | | |
| .3 | 0.064 | 0.064 | ----- | 0.1 | 0.3 |
| | ----- | 0.059 | ----- | | |
| | ----- | 0.058 | ----- | | |
| .27 | 0.064 | 0.064 | ----- | 0.1 | 0.3 |
| | ----- | 0.059 | ----- | | |
| | ----- | 0.058 | ----- | | |
| .25 | 0.069 | 0.069 | 0.069 | 0.1 | 0.3 |
| | ----- | 0.067 | 0.058 | | |
| | ----- | 0.069 | ----- | | |
| .24 | 0.069 | 0.069 | ----- | 0.1 | 0.3 |
| | ----- | 0.067 | ----- | | |
| | ----- | 0.069 | ----- | | |
| .22 | 0.069 | 0.069 | ----- | 0.1 | 0.3 |
| | ----- | 0.067 | ----- | | |
| | ----- | 0.069 | ----- | | |
| .19 | 0.059 | 0.059 | ----- | 0.1 | 0.3 |
| | ----- | 0.046 | ----- | | |

CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: C:\GEORAS\91427\Hydraulic\RAS_Model\CCT2\RM\CCTRIB2.prj
Plan File: C:\GEORAS\91427\Hydraulic\RAS_Model\CCT2\RM\CCTRIB2.p01
Geometry File: C:\GEORAS\91427\Hydraulic\RAS_Model\CCT2\RM\CCTRIB2.g01
Flow File: C:\GEORAS\91427\Hydraulic\RAS_Model\CCT2\RM\CCTRIB2.f01
Report File: C:\GEORAS\91427\Hydraulic\RAS_Model\CCT2\RM\CCTRIB2.xs
Selected profiles: PF 1
Date: 3/6/2009
Time: 8:30:54 AM

| SECNO | Len Lob | Len Chl | Len Rob | TopWdthAct | Q Total | Flow Code |
|---|---|---|---|---|---|---|
| Cave Creek1,Tributary 2.1 | | | | | | |
| .31 | 155.73 | 129.82 | 133.24 | 18.56 | 55 | C |
| .28 | 98.07 | 129.57 | 126.89 | 27.16 | 55 | C |
| .26 | 76.91 | 57.87 | 62.59 | 13.23 | 55 | C |
| .25 | 125.88 | 119.02 | 107.52 | 11.14 | 55 | C |
| .23 | 87.11 | 84.48 | 85.06 | 17.12 | 55 | C |
| .21 | 75.7 | 91.23 | 114.85 | 24.57 | 55 | |
| .19 | 159.19 | 153.54 | 143.84 | 36.89 | 319 | |
| .16 | 230.49 | 225.75 | 214.2 | 48.15 | 319 | C |
| .12 | 132.46 | 146.76 | 153.01 | 33.85 | 319 | |
| .09 | 196.47 | 205.45 | 216.78 | 28.27 | 319 | |
| .05 | 108.46 | 106.83 | 92.34 | 84.56 | 319 | |
| .03 | 0 | 0 | 0 | 37.87 | 319 | |
| Cave Creek2,Tributary 2.2 | | | | | | |
| .54 | 235.79 | 216.82 | 200.29 | 54.57 | 502 | |
| .5 | 114.92 | 144.99 | 166.44 | 20.93 | 502 | C |
| .47 | 343.61 | 362.61 | 402.29 | 22.06 | 502 | C |
| .4 | 195.06 | 191.53 | 206.32 | 34.92 | 560 | C |
| .36 | 245.99 | 238.35 | 218.64 | 38.47 | 560 | C |
| .32 | 401.17 | 407.38 | 418.02 | 27.09 | 560 | C |
| .24 | 307.46 | 297.21 | 272.01 | 22.92 | 589 | |
| .19 | 260.46 | 270.25 | 271.65 | 34.99 | 589 | C |
| .13 | 216.53 | 204.51 | 179.6 | 24.86 | 589 | |
| .1 | 105.95 | 84.92 | 65.1 | 30.82 | 589 | C |
| .08 | 242.93 | 215.94 | 193.91 | 36.91 | 589 | |
| .04 | 161.44 | 142.91 | 158.87 | 85.93 | 589 | |
| .01 | 0 | 0 | 0 | 98.02 | 589 | |
| Cave Creek3,Tributary 2A | | | | | | |
| .12 | 312.44 | 321.29 | 330.55 | 18.51 | 90 | |
| .06 | 182.32 | 179.29 | 184.09 | 15.03 | 90 | C |
| .03 | 0 | 0 | 0 | 20.24 | 90 | |
| Cave Creek4,Tributary 2B | | | | | | |
| .07 | 48.5 | 94.68 | 140.06 | 12.39 | 49 | C |
| .05 | 53.42 | 87.73 | 101.95 | 14.63 | 49 | |
| .04 | 87.52 | 75.06 | 74.83 | 25.63 | 49 | |
| .02 | 0 | 0 | 0 | 17.26 | 49 | |
| Cave Creek5,Tributary 2C | | | | | | |
| .3 | 159.06 | 163.65 | 151.11 | 12.17 | 94 | C |
| .27 | 132.38 | 131.72 | 125.78 | 12.79 | 94 | C |
| .25 | 49.69 | 46.17 | 47.44 | 11.63 | 94 | C |
| .24 | 69.1 | 86.18 | 98.77 | 12.1 | 94 | C |
| .22 | 153.82 | 196.51 | 212.41 | 13.24 | 132 | C |
| .19 | 313.2 | 280.57 | 281.7 | 12.42 | 132 | C |
| .13 | 200.62 | 219.1 | 215.45 | 19.01 | 132 | C |
| .09 | 217.02 | 216.07 | 201.52 | 15.8 | 132 | C |
| .05 | 178.16 | 159.1 | 273.61 | 36.66 | 132 | |
| .02 | 0 | 0 | 0 | 57.53 | 132 | |

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01

```
E=cross section extended   XS SC 02
K=known water-surface      XS SC 04


DISTANCE CHECK
----------------
XS JT 01 Junction option is used.
         For flood insurance study, this option should be used
         if the tributary and main stream can have coincident peaks,
         or it may be used for the stream without floodway.
         It may also be used if the discharges at different time periods
         are known from the rainfall-runoff model.
         How to remove the junction is explained under Help.


SPACING CHECK
--------------


INEFFECTIVE FLOW CHECK
-----------------------

RS:      0.03
XS IF 01 Right Levee option is used at this river station
         Please investigate whether the NFIP requirements
         for levees are met.


DISCHARGE CHECK
----------------

XS DC 02 Constant dicharge used for the Cave Creek3,Tributary 2A

XS DC 02 Constant dicharge used for the Cave Creek4,Tributary 2B


LOCATION CHECK
---------------


BOUNDARY CONDITION CHECK
------------------------

XS BC 02 The name of the stream is Cave Creek2,Tributary 2.2
         Normal S = 0.0245 is specified as the downstream boundary
         for profile PF 1

XS BC 02 The name of the stream is Cave Creek4,Tributary 2B
         Normal S = 0.034 is specified as the downstream boundary
         for profile PF 1

XS BC 02 The name of the stream is Cave Creek5,Tributary 2C
         Normal S = 0.04 is specified as the downstream boundary
         for profile PF 1

XS BC 03 Maximum number of iterations is 0
         It should not be less than 20.


LATERAL WEIRS CHECK
-----------------------

---END---
```

| | | | | | |
|---|---|---|---|---|---|
| | ----- | 0.059 | ----- | | |
| .13 | 0.059 | 0.059 | ----- | 0.1 | 0.3 |
| | ----- | 0.046 | ----- | | |
| | ----- | 0.059 | ----- | | |
| .09 | 0.059 | 0.059 | ----- | 0.1 | 0.3 |
| | ----- | 0.046 | ----- | | |
| | ----- | 0.059 | ----- | | |
| .05 | 0.059 | 0.059 | ----- | 0.1 | 0.3 |
| | ----- | 0.046 | ----- | | |
| | ----- | 0.059 | ----- | | |
| .02 | ----- | 0.059 | ----- | 0.1 | 0.3 |
| | ----- | 0.046 | ----- | | |
| | ----- | 0.059 | ----- | | |

---

---Summary of Statistics---

| | Minimum | Maximum |
|---|---|---|
| Left Overbank n Value: | 0.053 | 0.072 |
| Right Overbank n Value: | 0.058 | 0.069 |
| Channel n Value: | 0.046 | 0.072 |
| Contraction Coefficient: | 0.1 | 0.1 |
| Expansion Coefficient: | 0.3 | 0.3 |

ROUGHNESS COEFFICIENT CHECK
---

TRANSITION LOSS COEFFICIENT CHECK
---

ROUGHNESS COEFFICIENT AT STRUCTURES
---

---END---

CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: C:\GEORAS\91427\Hydraulic\RAS_Model\CCT3\RM\CCTRIB3.prj
Plan File: C:\GEORAS\91427\Hydraulic\RAS_Model\CCT3\RM\CCTRIB3.p01
Geometry File: C:\GEORAS\91427\Hydraulic\RAS_Model\CCT3\RM\CCTRIB3.g01
Flow File: C:\GEORAS\91427\Hydraulic\RAS_Model\CCT3\RM\CCTRIB3.f01
Report File: C:\GEORAS\91427\Hydraulic\RAS_Model\CCT3\RM\CCTRIB3.nt
Selected profiles: PF 1
Date: 3/6/2009
Time: 8:36:39 AM

| SECNO | STRUCTURE | NLOB | NCHL | NROB | CNTR | EXP |
|---|---|---|---|---|---|---|
| Cave Creek,Tributary 3 | | | | | | |
| .49 | | 0.058 | 0.058 | ----- | 0.1 | 0.3 |
| | | ----- | 0.051 | ----- | | |
| | | ----- | 0.058 | ----- | | |
| .36 | | 0.06 | 0.06 | ----- | 0.1 | 0.3 |
| | | ----- | 0.06 | ----- | | |
| | | ----- | 0.065 | ----- | | |
| .26 | | 0.07 | 0.07 | ----- | 0.1 | 0.3 |
| | | ----- | 0.055 | ----- | | |
| | | ----- | 0.065 | ----- | | |
| .19 | | 0.065 | 0.065 | ----- | 0.1 | 0.3 |
| | | ----- | 0.062 | ----- | | |
| | | ----- | 0.065 | ----- | | |
| | | ----- | 0.065 | ----- | | |
| .15 | | 0.065 | 0.065 | ----- | 0.1 | 0.3 |
| | | ----- | 0.062 | ----- | | |
| | | ----- | 0.065 | ----- | | |
| .04 | | 0.06 | 0.06 | 0.058 | 0.1 | 0.3 |
| | | ----- | 0.058 | 0.06 | | |
| | | ----- | 0.059 | ----- | | |
| | | ----- | 0.058 | ----- | | |

---Summary of Statistics---

| | Minimum | Maximum |
|---|---|---|
| Left Overbank n Value: | 0.058 | 0.07 |
| Right Overbank n Value: | 0.058 | 0.06 |
| Channel n Value: | 0.051 | 0.07 |
| Contraction Coefficient: | 0.1 | 0.1 |
| Expansion Coefficient: | 0.3 | 0.3 |

ROUGHNESS COEFFICIENT CHECK
---

TRANSITION LOSS COEFFICIENT CHECK
---

ROUGHNESS COEFFICIENT AT STRUCTURES
---

---END---

CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: C:\GEORAS\91427\Hydraulic\RAS_Model\CCT3\RM\CCTRIB3.prj
Plan File: C:\GEORAS\91427\Hydraulic\RAS_Model\CCT3\RM\CCTRIB3.p01
Geometry File: C:\GEORAS\91427\Hydraulic\RAS_Model\CCT3\RM\CCTRIB3.g01
Flow File: C:\GEORAS\91427\Hydraulic\RAS_Model\CCT3\RM\CCTRIB3.f01
Report File: C:\GEORAS\91427\Hydraulic\RAS_Model\CCT3\RM\CCTRIB3.xs
Selected profiles: PF 1
Date: 3/6/2009
Time: 8:36:51 AM

| SECNO | Len Lob | Len Chl | Len Rob | TopWdthAct | Q Total | Flow Code |
|---|---|---|---|---|---|---|
| Cave Creek,Tributary 3 | | | | | | |
| .49 | 649.86 | 714.55 | 863.54 | 36.35 | 358 | |
| .36 | 497.69 | 510.87 | 510.43 | 26.04 | 358 | C |
| .26 | 580.35 | 576.31 | 598.14 | 37.41 | 424 | |
| .19 | 137.04 | 179.62 | 213.09 | 32.69 | 424 | C |
| .15 | 590.11 | 599.8 | 615.27 | 32.52 | 424 | |
| .04 | 0 | 0 | 0 | 35 | 424 | |

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK
---

SPACING CHECK
---

INEFFECTIVE FLOW CHECK
---

DISCHARGE CHECK
---

LOCATION CHECK
---

RS: 0.26
XS LC 01 Lenchl Up/TopwdthAct Dn = 17.63
MaxChlDpth Up/MaxChlDpth Dn = 1.58
TopwdthAct Up/TopwdthAct Dn = 1.14
This cross section is located too far upstream from the critical depth cross section.

BOUNDARY CONDITION CHECK
---

XS BC 02 The name of the stream is Cave Creek,Tributary 3
Normal S = 0.0351 is specified as the downstream boundary for profile PF 1

XS BC 03 Maximum number of iterations is 0

It should not be less than 20.

LATERAL WEIRS CHECK
---

---END---

CHECK-RAS Program: Floodway Check
Encroachment Method, Starting WSEL, Floodway Width, and Surcharge Review

Project File:
C:\GEORAS\91427\Hydraulic\RAS_Model\OW2\RM\FW\OW_OWT2_FW_03052009\OW_OWT2_FW.prj
Plan File:
C:\GEORAS\91427\Hydraulic\RAS_Model\OW2\RM\FW\OW_OWT2_FW_03052009\OW_OWT2_FW.p02
Geometry File:
C:\GEORAS\91427\Hydraulic\RAS_Model\OW2\RM\FW\OW_OWT2_FW_03052009\OW_OWT2_FW.g01
Flow File:
C:\GEORAS\91427\Hydraulic\RAS_Model\OW2\RM\FW\OW_OWT2_FW_03052009\OW_OWT2_FW.f02
Report File:
C:\GEORAS\91427\Hydraulic\RAS_Model\OW2\RM\FW\OW_OWT2_FW_03052009\OW_OWT2_FW.fw
Selected profiles: PF 1;PF 2
Date: 3/6/2009
Time: 8:40:47 AM

| SECNO | Method | Surcharge | EncStaL | EncStaR | LStaEff | RStaEff | Structure |
|---|---|---|---|---|---|---|---|
| Ocotillo Wash 1,Tributary-2.1 | | | | | | | |
| 1.00045 | | | | | 20.46 | 120.59 | |
| 1.00045 | 4 | 0.39 | 52.24 | 85.67 | 52.24 | 85.67 | |
| 0.99742 | | | | | 6.36 | 62.76 | |
| 0.99742 | 4 | 0.26 | 24.65 | 49.35 | 24.65 | 49.35 | |
| 0.99357 | | | | | 16.88 | 68.99 | |
| 0.99357 | 4 | 0.26 | 29.16 | 53 | 29.16 | 53 | |
| 0.98932 | | | | | 7.96 | 80.52 | |
| 0.98932 | 4 | 0.27 | 29.27 | 54.64 | 29.27 | 54.64 | |
| 0.98427 | | | | | 6.79 | 113.72 | |
| 0.98427 | 4 | 0.18 | 28.23 | 62.68 | 28.23 | 62.68 | |
| 0.97998 | | | | | 25.84 | 88.91 | |
| 0.97998 | 4 | 0.11 | 53.88 | 87.76 | 53.88 | 87.76 | |
| 0.97683 | | | | | 17.95 | 68.83 | |
| 0.97683 | 4 | 0.38 | 28.23 | 58.44 | 28.23 | 58.44 | |
| 0.9718 | | | | | 4.71 | 60.91 | |
| 0.9718 | 4 | 0.38 | 21.96 | 51.21 | 21.96 | 51.21 | |
| 0.96791 | | | | | 24.34 | 84.84 | |
| 0.96791 | 4 | 0.36 | 50.23 | 76.74 | 50.23 | 76.74 | |
| 0.96505 | | | | | 18.78 | 59.39 | |
| 0.96505 | 4 | 0.17 | 26.11 | 49.03 | 26.11 | 49.03 | |
| 0.96148 | | | | | 11.19 | 60.28 | |
| 0.96148 | 4 | 0.49 | 23.07 | 44.48 | 23.07 | 44.48 | |
| 0.9575 | | | | | 7.7 | 56.76 | |
| 0.9575 | 4 | 0.28 | 22.47 | 45.78 | 22.47 | 45.78 | |
| 0.95264 | | | | | 10.63 | 59.73 | |
| 0.95264 | 4 | 0.94 | 25.92 | 53.2 | 25.92 | 53.2 | |
| 0.94727 | | | | | 17.12 | 86.82 | |
| 0.94727 | 4 | 0.96 | 44.51 | 72.73 | 44.51 | 72.73 | |
| 0.94451 | | | | | 30.19 | 110.44 | |
| 0.94451 | 4 | 0.93 | 64.68 | 90.53 | 64.68 | 90.53 | |
| 0.94232 | | | | | 6.91 | 63.48 | |
| 0.94232 | 4 | 0.67 | 31.64 | 52 | 31.64 | 52 | |
| 0.93999 | | | | | 13.22 | 59.9 | |
| 0.93999 | 4 | 0.29 | 32.09 | 49.14 | 32.09 | 49.14 | |
| 0.93325 | | | | | 13.43 | 62.34 | |
| 0.93325 | 4 | 0.47 | 26.25 | 50.6 | 26.25 | 50.6 | |
| 0.9291 | | | | | 14.37 | 77.36 | |
| 0.9291 | 4 | 0.72 | 31.32 | 55.51 | 31.32 | 55.51 | |
| 0.92475 | | | | | 4.66 | 59.41 | |
| 0.92475 | 4 | 0.29 | 19.2 | 37.57 | 19.2 | 37.57 | |
| 0.91774 | | | | | 20.98 | 75.47 | |
| 0.91774 | 4 | 0.41 | 40.55 | 60.09 | 40.55 | 60.09 | |
| 0.91024 | | | | | 17.04 | 58.27 | |
| 0.91024 | 4 | 0.63 | 32.63 | 49.63 | 32.63 | 49.63 | |
| 0.90213 | | | | | 18.8 | 55.51 | |
| 0.90213 | 4 | 0.73 | 34.69 | 48.25 | 34.69 | 48.25 | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 0.89706 | | | | | 24.34 | 59.73 | |
| 0.89706 | 4 | 0.44 | 42.47 | 54.38 | 42.47 | 54.38 | |
| 0.89309 | | | | | 27.43 | 60.13 | |
| 0.89309 | 4 | 0.52 | 38.06 | 52.3 | 38.06 | 52.3 | |
| 0.88715 | | | | | 25.45 | 66.03 | |
| 0.88715 | 4 | 0.8 | 34.18 | 55.7 | 34.18 | 55.7 | |
| 0.88288 | | | | | 14.45 | 72.32 | |
| 0.88288 | 4 | 0.7 | 30.89 | 52.26 | 30.89 | 52.26 | |
| 0.87849 | | | | | 33.8 | 101.42 | |
| 0.87849 | 4 | 0.72 | 55.42 | 81.1 | 55.42 | 81.1 | |
| 0.87485 | | | | | 30.73 | 68.4 | |
| 0.87485 | 4 | 0.37 | 35.11 | 58.69 | 35.11 | 58.69 | |
| 0.87052 | | | | | 29.12 | 67.27 | |
| 0.87052 | 4 | 0.41 | 34.82 | 54.04 | 34.82 | 54.04 | |
| 0.86746 | | | | | 24.87 | 66.6 | |
| 0.86746 | 4 | 0.53 | 31.17 | 53.32 | 31.17 | 53.32 | |
| 0.85876 | | | | | 22.59 | 61.33 | |
| 0.85876 | 4 | 0.3 | 28.74 | 45.32 | 28.74 | 45.32 | |
| 0.85249 | | | | | 30.2 | 70.44 | |
| 0.85249 | 4 | 0.46 | 35.14 | 56.5 | 35.14 | 56.5 | |
| 0.84649 | | | | | 15.75 | 66.19 | |
| 0.84649 | 4 | 0.71 | 20.91 | 42.36 | 20.91 | 42.36 | |
| 0.83957 | | | | | 19.31 | 77.33 | |
| 0.83957 | 4 | 0.97 | 25.58 | 48.24 | 25.58 | 48.24 | |
| 0.83091 | | | | | 24.96 | 68.52 | |
| 0.83091 | 4 | 0.74 | 33.76 | 46.18 | 33.76 | 46.18 | |
| 0.82372 | | | | | 37.37 | 75.19 | |
| 0.82372 | 4 | 0.96 | 42.47 | 54.47 | 42.47 | 54.47 | |
| 0.81567 | | | | | 45.93 | 83.02 | |
| 0.81567 | 4 | 0.1 | 56.68 | 69.98 | 56.68 | 69.98 | |
| 0.80861 | | | | | 50.48 | 94.77 | |
| 0.80861 | 4 | 0.45 | 58.81 | 77.68 | 58.81 | 77.68 | |
| 0.80224 | | | | | 99.14 | 149.37 | |
| 0.80224 | 4 | 0.47 | 106.22 | 130.76 | 106.22 | 130.76 | |
| 0.79662 | | | | | 111.3 | 185.43 | |
| 0.79662 | 4 | 0.48 | 123.96 | 165.08 | 123.96 | 165.08 | |
| 0.79392 | | | | | 0 | 0 | Culvert #1-Up |
| 0.79392 | | | | | 0 | 0 | Culvert #1-Dn |
| 0.79392 | 0 | 0 | 0 | 0 | 0 | 0 | Culvert #1-Up |
| 0.79392 | 0 | 0 | 0 | 0 | 0 | 0 | Culvert #1-Dn |
| 0.79392 | | | | | 0 | 0 | Culvert #2-Up |
| 0.79392 | | | | | 0 | 0 | Culvert #2-Dn |
| 0.79392 | 0 | 0 | 0 | 0 | 0 | 0 | Culvert #2-Up |
| 0.79392 | 0 | 0 | 0 | 0 | 0 | 0 | Culvert #2-Dn |
| 0.79116 | | | | | 99.57 | 147.07 | |
| 0.79116 | 4 | 0.79 | 109.94 | 141.43 | 109.94 | 141.43 | |
| 0.78443 | | | | | 32.54 | 85.38 | |
| 0.78443 | 4 | 0.67 | 59.06 | 78.83 | 59.06 | 78.83 | |
| 0.77855 | | | | | 24.8 | 61.29 | |
| 0.77855 | 4 | 0.29 | 34.89 | 57.13 | 34.89 | 57.13 | |
| 0.77184 | | | | | 21.76 | 58.74 | |
| 0.77184 | 4 | 0.12 | 31.84 | 50.82 | 31.84 | 50.82 | |
| 0.76182 | | | | | 19.64 | 62.65 | |
| 0.76182 | 4 | 0.3 | 36.91 | 55 | 36.91 | 55 | |
| 0.75751 | | | | | 16.38 | 59.24 | |
| 0.75751 | 4 | 0.11 | 40.22 | 55.25 | 40.22 | 55.25 | |
| 0.7527 | | | | | 12.4 | 56.9 | |
| 0.7527 | 4 | 0.4 | 34.84 | 53.33 | 34.84 | 53.33 | |
| 0.74863 | | | | | 17.99 | 60.34 | |
| 0.74863 | 4 | 0.12 | 35.17 | 52.86 | 35.17 | 52.86 | |
| 0.74402 | | | | | 17.04 | 62.69 | |
| 0.74402 | 4 | 0.18 | 28.1 | 51.43 | 28.1 | 51.43 | |
| 0.73982 | | | | | 17.51 | 72.87 | |
| 0.73982 | 4 | 0.09 | 23.08 | 52.86 | 23.08 | 52.86 | |
| 0.73537 | | | | | 21.34 | 70.57 | |
| 0.73537 | 4 | 0.36 | 24 | 55.25 | 24 | 55.25 | |
| 0.73227 | | | | | 19.71 | 76.15 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 0.73227 | 4 | 0.7 | 25.91 | 59.48 | 25.91 | 59.48 |
| 0.72875 | | | | | 30.61 | 144.31 |
| 0.72875 | 4 | 0.57 | 68.47 | 101.57 | 68.47 | 101.57 |
| 0.72704 | | | | | 12.47 | 78.27 |
| 0.72704 | 4 | 0.49 | 18.43 | 50.36 | 18.43 | 50.36 |
| 0.72322 | | | | | 17.17 | 73.14 |
| 0.72322 | 4 | 0.07 | 22.15 | 44.47 | 22.15 | 44.47 |
| 0.71808 | | | | | 20.52 | 63.9 |
| 0.71808 | 4 | 0.27 | 23.73 | 46.82 | 23.73 | 46.82 |
| 0.71174 | | | | | 19.93 | 50.29 |
| 0.71174 | 4 | 0.5 | 26 | 44 | 26 | 44 |
| 0.70813 | | | | | 21.01 | 52.74 |
| 0.70813 | 4 | 0.36 | 31.28 | 47.46 | 31.28 | 47.46 |
| 0.70419 | | | | | 35.88 | 67.72 |
| 0.70419 | 4 | 0.37 | 45.96 | 63.52 | 45.96 | 63.52 |
| 0.70129 | | | | | 31.56 | 58.74 |
| 0.70129 | 4 | 0.23 | 37.58 | 54.15 | 37.58 | 54.15 |
| 0.69806 | | | | | 25.17 | 54.7 |
| 0.69806 | 4 | 0.36 | 31.17 | 49.18 | 31.17 | 49.18 |
| 0.69661 | | | | | 25.34 | 55 |
| 0.69661 | 4 | 0.4 | 31.44 | 48.77 | 31.44 | 48.77 |
| 0.69212 | | | | | 20.56 | 48.93 |
| 0.69212 | 4 | 0.36 | 26.99 | 45.51 | 26.99 | 45.51 |
| 0.6888 | | | | | 30.26 | 55.94 |
| 0.6888 | 4 | 0.36 | 36.63 | 55.89 | 36.63 | 55.89 |
| 0.688 | | | | | 30.28 | 58.88 |
| 0.688 | 4 | 0.11 | 33.51 | 52.12 | 33.51 | 52.12 |
| 0.68404 | | | | | 24.47 | 78.96 |
| 0.68404 | 4 | 0 | 27.22 | 66.34 | 27.22 | 66.34 |
| 0.67717 | | | | | 19.94 | 105.09 |
| 0.67717 | 4 | 0.16 | 28.63 | 96.6 | 28.63 | 96.6 |
| 0.67671 | | | | | 24.38 | 83.96 |
| 0.67671 | 4 | 0.31 | 25.04 | 77.92 | 25.04 | 77.92 |
| 0.66963 | | | | | 21.89 | 107.19 |
| 0.66963 | 4 | 0.65 | 59.12 | 102.61 | 59.12 | 102.61 |
| 0.66458 | | | | | 22.24 | 107.9 |
| 0.66458 | 4 | 0.29 | 69.53 | 104.4 | 69.53 | 104.4 |
| 0.66013 | | | | | 52.39 | 96.07 |
| 0.66013 | 4 | 0.51 | 58.05 | 91.71 | 58.05 | 91.71 |
| 0.65574 | | | | | 54.11 | 112.12 |
| 0.65574 | 4 | 0.53 | 59.32 | 100.24 | 59.32 | 100.24 |
| 0.6515 | | | | | 37.54 | 126.65 |
| 0.6515 | 4 | 0.51 | 46.54 | 70 | 46.54 | 70 |
| 0.64754 | | | | | 24.1 | 63.73 |
| 0.64754 | 4 | 0.63 | 30.59 | 45.28 | 30.59 | 45.28 |
| 0.64472 | | | | | 22.18 | 39.51 |
| 0.64472 | 4 | 0.41 | 27.87 | 37.78 | 27.87 | 37.78 |
| 0.64111 | | | | | 20.04 | 39.45 |
| 0.64111 | 4 | 0.69 | 23.95 | 35.8 | 23.95 | 35.8 |
| 0.63638 | | | | | 16.4 | 36.85 |
| 0.63638 | 4 | 0.01 | 21.04 | 32.51 | 21.04 | 32.51 |
| 0.63432 | | | | | 44.39 | 63.04 |
| 0.63432 | 4 | 0.94 | 47.34 | 62.12 | 47.34 | 62.12 |
| 0.6327 | | | | | 23.53 | 45.19 |
| 0.6327 | 4 | 0.04 | 31.5 | 41.98 | 31.5 | 41.98 |
| 0.62989 | | | | | 29.86 | 62.38 |
| 0.62989 | 4 | 0.43 | 35.61 | 53.34 | 35.61 | 53.34 |
| 0.62721 | | | | | 33.88 | 69.08 |
| 0.62721 | 4 | 0.61 | 38.92 | 55.32 | 38.92 | 55.32 |
| 0.62332 | | | | | 35.2 | 77.09 |
| 0.62332 | 4 | 0.17 | 41.1 | 56.75 | 41.1 | 56.75 |
| 0.61834 | | | | | 41.78 | 71.96 |
| 0.61834 | 4 | 0.53 | 45.61 | 61.92 | 45.61 | 61.92 |
| 0.61323 | | | | | 24.4 | 50.91 |
| 0.61323 | 4 | 0.36 | 27.51 | 40.72 | 27.51 | 40.72 |
| 0.60912 | | | | | 20.67 | 46.73 |
| 0.60912 | 4 | 0.34 | 21.68 | 34.26 | 21.68 | 34.26 |

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|---|---|---|---|---|---|---|
| 0.60419 | | | | | 23.65 | 45.65 |
| 0.60419 | 4 | 0.77 | 25.87 | 38.84 | 25.87 | 38.84 |
| 0.59771 | | | | | 27.5 | 60.93 |
| 0.59771 | 4 | 0.59 | 36.15 | 50.59 | 36.15 | 50.59 |
| 0.59247 | | | | | 28.4 | 70.64 |
| 0.59247 | 4 | 0.56 | 42.67 | 60.52 | 42.67 | 60.52 |
| 0.58805 | | | | | 65.51 | 114.84 |
| 0.58805 | 4 | 0.57 | 78.59 | 100.26 | 78.59 | 100.26 |
| 0.58365 | | | | | 27.92 | 52.21 |
| 0.58365 | 4 | 0.43 | 32.32 | 48 | 32.32 | 48 |
| 0.57998 | | | | | 31.14 | 50.67 |
| 0.57998 | 4 | 0.47 | 35.21 | 47.58 | 35.21 | 47.58 |
| 0.57606 | | | | | 33.3 | 52.8 |
| 0.57606 | 4 | 0.37 | 37.27 | 49.12 | 37.27 | 49.12 |
| 0.57206 | | | | | 36.82 | 60.36 |
| 0.57206 | 4 | 0.37 | 40.77 | 53.49 | 40.77 | 53.49 |
| 0.56705 | | | | | 38.08 | 67.67 |
| 0.56705 | 4 | 0.32 | 40.56 | 57.61 | 40.56 | 57.61 |
| 0.5611 | | | | | 36.6 | 63.06 |
| 0.5611 | 4 | 0.65 | 39.25 | 54.77 | 39.25 | 54.77 |
| 0.55629 | | | | | 34.54 | 62.97 |
| 0.55629 | 4 | 0.72 | 36.03 | 50.56 | 36.03 | 50.56 |
| 0.55157 | | | | | 41.08 | 71.58 |
| 0.55157 | 4 | 0.87 | 44.14 | 59.09 | 44.14 | 59.09 |
| 0.54526 | | | | | 42.84 | 70.07 |
| 0.54526 | 4 | 0.6 | 46.42 | 58.21 | 46.42 | 58.21 |
| 0.53814 | | | | | 36.19 | 61.81 |
| 0.53814 | 4 | 0.53 | 42.35 | 54.66 | 42.35 | 54.66 |
| 0.53109 | | | | | 24.09 | 46.09 |
| 0.53109 | 4 | 0.78 | 27.95 | 39.65 | 27.95 | 39.65 |
| 0.52363 | | | | | 24.42 | 54.08 |
| 0.52363 | 4 | 0.92 | 28.57 | 43.31 | 28.57 | 43.31 |
| 0.51582 | | | | | 24.62 | 60.26 |
| 0.51582 | 4 | 0.95 | 33.19 | 48.04 | 33.19 | 48.04 |
| 0.50951 | | | | | 19.49 | 67.89 |
| 0.50951 | 4 | 0.97 | 30.61 | 51.63 | 30.61 | 51.63 |
| 0.50585 | | | | | 86.77 | 141.83 |
| 0.50585 | 4 | 0.94 | 104.92 | 124.23 | 104.92 | 124.23 |
| 0.50158 | | | | | 37.04 | 66.63 |
| 0.50158 | 4 | 0.34 | 46.76 | 63.6 | 46.76 | 63.6 |
| 0.49706 | | | | | 40.67 | 77.63 |
| 0.49706 | 4 | 0.46 | 57.46 | 78.99 | 57.46 | 78.57 |
| 0.49372 | | | | | 41.11 | 86.13 |
| 0.49372 | 4 | 0.16 | 64.74 | 87.49 | 64.74 | 86.32 |
| 0.48992 | | | | | 43 | 89.37 |
| 0.48992 | 4 | 0.3 | 66.44 | 90.21 | 66.44 | 89.7 |
| 0.48713 | | | | | 39.49 | 87.85 |
| 0.48713 | 4 | 0.3 | 65.26 | 90.67 | 65.26 | 88.37 |
| 0.48294 | | | | | 29.72 | 73.29 |
| 0.48294 | 4 | 0.57 | 50.91 | 75.34 | 50.91 | 74.21 |
| 0.47933 | | | | | 26.33 | 62.25 |
| 0.47933 | 4 | 0.07 | 43.98 | 63.5 | 43.98 | 62.41 |
| 0.47659 | | | | | 25 | 57.08 |
| 0.47659 | 4 | 0.06 | 36.79 | 54.26 | 36.79 | 54.26 |
| 0.47214 | | | | | 29.49 | 63.15 |
| 0.47214 | 4 | 0.17 | 39.23 | 57.7 | 39.23 | 57.7 |
| 0.46798 | | | | | 39.35 | 68.5 |
| 0.46798 | 4 | 0.16 | 46.73 | 65.06 | 46.73 | 65.06 |
| 0.46248 | | | | | 40.72 | 74.26 |
| 0.46248 | 4 | 0.11 | 46.79 | 70.77 | 46.79 | 70.77 |
| 0.45679 | | | | | 46.82 | 77.12 |
| 0.45679 | 4 | 0.1 | 51.93 | 74.74 | 51.93 | 74.74 |
| 0.45211 | | | | | 36.81 | 65.8 |
| 0.45211 | 4 | 0.14 | 41.62 | 63.51 | 41.62 | 63.51 |
| 0.44542 | | | | | 34.02 | 58.34 |
| 0.44542 | 4 | 0.24 | 35.86 | 53.89 | 35.86 | 53.89 |
| 0.44157 | | | | | 33.28 | 66.37 |

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|---|---|---|---|---|---|---|---|
| 0.44157 | 4 | 0.37 | 35.68 | 57.59 | 35.68 | 57.59 | |
| 0.43466 | | | | | 28.93 | 67.14 | |
| 0.43466 | 4 | 0.34 | 33.21 | 53.15 | 33.21 | 53.15 | |
| 0.42887 | | | | | 49.61 | 72.97 | |
| 0.42887 | 4 | 0.27 | 52.8 | 68.38 | 52.8 | 68.38 | |
| 0.42419 | | | | | 50.37 | 82.46 | |
| 0.42419 | 4 | 0.34 | 55.38 | 79.34 | 55.38 | 79.34 | |
| 0.4202 | | | | | 84.17 | 122.41 | |
| 0.4202 | 4 | 0.33 | 87.9 | 119.3 | 87.9 | 119.3 | |
| 0.41686 | | | | | 54.69 | 87.31 | |
| 0.41686 | 4 | 0.35 | 58.38 | 82.66 | 58.38 | 82.66 | |
| 0.41149 | | | | | 55.27 | 84.71 | |
| 0.41149 | 4 | 0.52 | 58.03 | 79.66 | 58.03 | 79.66 | |
| 0.40709 | | | | | 56.02 | 87.86 | |
| 0.40709 | 4 | 0.24 | 60.39 | 77.19 | 60.39 | 77.19 | |
| 0.40093 | | | | | 61.98 | 85.78 | |
| 0.40093 | 4 | 0.11 | 66.72 | 82.79 | 66.72 | 82.79 | |
| 0.39446 | | | | | 57.46 | 84.72 | |
| 0.39446 | 4 | 0.31 | 65.45 | 83.32 | 65.45 | 83.32 | |
| 0.38991 | | | | | 51.14 | 90.11 | |
| 0.38991 | 4 | 0.39 | 59.38 | 77.25 | 59.38 | 77.25 | |
| 0.38436 | | | | | 34.92 | 88.69 | |
| 0.38436 | 4 | 0.13 | 41.18 | 61.11 | 41.18 | 61.11 | |
| 0.37788 | | | | | 22.66 | 86.33 | |
| 0.37788 | 4 | 0.09 | 28.87 | 57.59 | 28.87 | 57.59 | |
| 0.37417 | | | | | 34.49 | 99.95 | |
| 0.37417 | 4 | 0.09 | 42.19 | 75.71 | 42.19 | 75.71 | |
| 0.36875 | | | | | 44.9 | 90.74 | |
| 0.36875 | 4 | 0.11 | 44.9 | 85.5 | 44.9 | 85.5 | |
| 0.36595 | | | | | 0 | 0 | Culvert #1-Up |
| 0.36595 | | | | | 0 | 0 | Culvert #1-Dn |
| 0.36595 | 0 | 0 | 0 | 0 | 0 | 0 | Culvert #1-Up |
| 0.36595 | 0 | 0 | 0 | 0 | 0 | 0 | Culvert #1-Dn |
| 0.36595 | | | | | 0 | 0 | Culvert #2-Up |
| 0.36595 | | | | | 0 | 0 | Culvert #2-Dn |
| 0.36595 | 0 | 0 | 0 | 0 | 0 | 0 | Culvert #2-Up |
| 0.36595 | 0 | 0 | 0 | 0 | 0 | 0 | Culvert #2-Dn |
| 0.36595 | | | | | 0 | 0 | Culvert #3-Up |
| 0.36595 | | | | | 0 | 0 | Culvert #3-Dn |
| 0.36595 | 0 | 0 | 0 | 0 | 0 | 0 | Culvert #3-Up |
| 0.36595 | 0 | 0 | 0 | 0 | 0 | 0 | Culvert #3-Dn |
| 0.36365 | | | | | 66.71 | 101.25 | |
| 0.36365 | 4 | 0.48 | 70.34 | 96.39 | 70.34 | 96.39 | |
| 0.35963 | | | | | 53.34 | 101.85 | |
| 0.35963 | 4 | 0.46 | 72.51 | 98.59 | 72.51 | 98.59 | |
| 0.35631 | | | | | 59.29 | 94.02 | |
| 0.35631 | 4 | 0.08 | 65.96 | 90.49 | 65.96 | 90.49 | |
| 0.35325 | | | | | 57.11 | 92.37 | |
| 0.35325 | 4 | 0.32 | 64.64 | 88.33 | 64.64 | 88.33 | |
| 0.34893 | | | | | 43.44 | 88.31 | |
| 0.34893 | 4 | 0.15 | 54.69 | 77.1 | 54.69 | 77.1 | |
| 0.34588 | | | | | 32.58 | 87.35 | |
| 0.34588 | 4 | 0 | 42.9 | 73.19 | 42.9 | 73.19 | |
| 0.34303 | | | | | 37.44 | 85.83 | |
| 0.34303 | 4 | 0.1 | 36.71 | 72.21 | 37.25 | 72.21 | |
| 0.33986 | | | | | 31.33 | 76.36 | |
| 0.33986 | 4 | 0.33 | 28.71 | 63.72 | 30.88 | 63.72 | |
| 0.33232 | | | | | 41.79 | 72.6 | |
| 0.33232 | 4 | 0.37 | 45.7 | 62.99 | 45.7 | 62.99 | |
| 0.31529 | | | | | 40.97 | 68.72 | |
| 0.31529 | 4 | 0.77 | 47.23 | 63.7 | 47.23 | 63.7 | |
| 0.30808 | | | | | 46.51 | 120.93 | |
| 0.30808 | 4 | 0.67 | 59.11 | 87.8 | 59.11 | 87.8 | |
| 0.30459 | | | | | 54.99 | 91.58 | |
| 0.30459 | 4 | 0.69 | 63.17 | 80.7 | 63.17 | 80.7 | |
| 0.30181 | | | | | 53.88 | 91.64 | |
| 0.30181 | 4 | 0.54 | 57.6 | 72.76 | 57.6 | 72.76 | |

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|---|---|---|---|---|---|---|
| 0.29712 | | | | | 41.96 | 80.6 |
| 0.29712 | 4 | 0.06 | 46.33 | 60.44 | 46.33 | 60.44 |
| 0.29046 | | | | | 35.09 | 77.93 |
| 0.29046 | 4 | 0.45 | 36.81 | 54.1 | 36.81 | 54.1 |
| 0.28463 | | | | | 34.04 | 67.11 |
| 0.28463 | 4 | 0.63 | 36.67 | 51.96 | 36.67 | 51.96 |
| 0.2806 | | | | | 31.74 | 72.46 |
| 0.2806 | 4 | 0.01 | 34.9 | 49.46 | 34.9 | 49.46 |
| 0.27669 | | | | | 34.32 | 68.4 |
| 0.27669 | 4 | 0.05 | 36.91 | 56.07 | 36.91 | 56.07 |
| 0.27186 | | | | | 42.34 | 71.63 |
| 0.27186 | 4 | 0.41 | 46.95 | 62.44 | 46.95 | 62.44 |
| 0.26729 | | | | | 50.19 | 89.79 |
| 0.26729 | 4 | 0.42 | 57.2 | 77.56 | 57.2 | 77.56 |
| 0.2634 | | | | | 56.36 | 92.55 |
| 0.2634 | 4 | 0.74 | 65.33 | 83.55 | 65.33 | 83.55 |
| 0.25894 | | | | | 57.22 | 97.51 |
| 0.25894 | 4 | 0.12 | 69.77 | 83.6 | 69.77 | 83.6 |
| 0.2533 | | | | | 58.15 | 98.81 |
| 0.2533 | 4 | 0.52 | 72.26 | 89.91 | 72.26 | 89.91 |
| 0.25016 | | | | | 60.7 | 97.42 |
| 0.25016 | 4 | 0.22 | 72.09 | 87.52 | 72.09 | 87.52 |
| 0.24595 | | | | | 57.46 | 102.93 |
| 0.24595 | 4 | 0.59 | 71.11 | 88.84 | 71.11 | 88.84 |
| 0.24329 | | | | | 56.93 | 104.6 |
| 0.24329 | 4 | 0.43 | 75.5 | 91.49 | 75.5 | 91.49 |
| 0.23992 | | | | | 63.42 | 104.68 |
| 0.23992 | 4 | 0.51 | 83.36 | 98.8 | 83.36 | 98.8 |
| 0.23186 | | | | | 75.77 | 122.34 |
| 0.23186 | 4 | 0.37 | 97.97 | 113.25 | 97.97 | 113.25 |
| 0.22859 | | | | | 71.28 | 118.84 |
| 0.22859 | 4 | 0.34 | 94.42 | 113.26 | 94.42 | 113.26 |
| 0.22114 | | | | | 70.18 | 118.26 |
| 0.22114 | 4 | 0.38 | 91.48 | 113.84 | 91.48 | 113.84 |
| 0.21765 | | | | | 82.28 | 129.14 |
| 0.21765 | 4 | 0.33 | 96.53 | 117.63 | 96.53 | 117.63 |
| 0.21461 | | | | | 81.31 | 125.82 |
| 0.21461 | 4 | 0.14 | 90.02 | 112.92 | 90.02 | 112.92 |
| 0.20941 | | | | | 37.31 | 108.16 |
| 0.20941 | 4 | 0.66 | 61.42 | 89.47 | 61.42 | 89.47 |
| 0.20885 | | | | | 35.83 | 111.57 |
| 0.20885 | 4 | 0.7 | 60.95 | 88.77 | 60.95 | 88.77 |
| 0.20714 | | | | | 26.86 | 86.63 |
| 0.20714 | 4 | 0.07 | 53.47 | 79.68 | 53.87 | 79.68 |
| 0.20431 | | | | | 17.44 | 84.07 |
| 0.20431 | 4 | 0.72 | 49.07 | 79.16 | 49.07 | 79.16 |
| 0.20205 | | | | | 14.89 | 87.59 |
| 0.20205 | 4 | 0.74 | 47.24 | 76.64 | 47.24 | 76.64 |
| 0.19955 | | | | | 11.55 | 77.45 |
| 0.19955 | 4 | 0.57 | 44.09 | 68.63 | 44.09 | 68.63 |
| 0.19719 | | | | | 18.45 | 72.61 |
| 0.19719 | 4 | 0.43 | 47.85 | 70.03 | 47.85 | 70.03 |
| 0.19296 | | | | | 28.22 | 70.14 |
| 0.19296 | 4 | 0.87 | 36.39 | 60.33 | 36.39 | 60.33 |
| 0.19051 | | | | | 12.38 | 61.39 |
| 0.19051 | 4 | 0.72 | 31.44 | 48.26 | 31.44 | 48.26 |
| 0.18844 | | | | | 17.22 | 60 |
| 0.18844 | 4 | 0.75 | 33.35 | 48.58 | 33.35 | 48.58 |
| 0.18485 | | | | | 22.82 | 60.34 |
| 0.18485 | 4 | 0.82 | 36.53 | 51.54 | 36.53 | 51.54 |
| 0.17337 | | | | | 22.8 | 60.62 |
| 0.17337 | 4 | 0.77 | 44.5 | 57.38 | 44.5 | 57.38 |
| 0.16793 | | | | | 28.06 | 64.14 |
| 0.16793 | 4 | 0.76 | 47.08 | 62.06 | 47.08 | 62.06 |
| 0.16413 | | | | | 33.1 | 66.62 |
| 0.16413 | 4 | 0.31 | 47.08 | 60.05 | 47.08 | 60.05 |
| 0.1569 | | | | | 39.32 | 67.54 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 0.1569 | 4 | 0.62 | 41.63 | 56.11 | 41.63 | 56.11 | |
| 0.15225 | | | | | 28.95 | 59.2 | |
| 0.15225 | 4 | 0.41 | 32.79 | 44.7 | 32.79 | 44.7 | |
| 0.14532 | | | | | 33.87 | 92.97 | |
| 0.14532 | 4 | 0.7 | 43.96 | 64.38 | 43.96 | 64.38 | |
| 0.14374 | | | | | 38.8 | 106.26 | |
| 0.14374 | 4 | 0.73 | 44.83 | 73.65 | 44.83 | 73.65 | |
| 0.14161 | | | | | 0 | 0 | Culvert #1-Up |
| 0.14161 | | | | | 0 | 0 | Culvert #1-Dn |
| 0.14161 | 0 | 0 | 0 | 0 | 0 | 0 | Culvert #1-Up |
| 0.14161 | 0 | 0 | 0 | 0 | 0 | 0 | Culvert #1-Dn |
| 0.13875 | | | | | 40.7 | 106.67 | |
| 0.13875 | 4 | 0.43 | 45.05 | 73.85 | 45.05 | 73.85 | |
| 0.13724 | | | | | 35.4 | 100.8 | |
| 0.13724 | 4 | 0.45 | 39.74 | 67.7 | 39.74 | 67.7 | |
| 0.13462 | | | | | 40.07 | 95.25 | |
| 0.13462 | 4 | 0.13 | 45.77 | 68.55 | 45.77 | 68.55 | |
| 0.12733 | | | | | 51.24 | 96.58 | |
| 0.12733 | 4 | 0.1 | 63.08 | 88.24 | 63.08 | 88.24 | |
| 0.11883 | | | | | 90.02 | 105.77 | |
| 0.11883 | 4 | 0.01 | 90.02 | 106.44 | 90.02 | 105.8 | |
| 0.11472 | | | | | 80.61 | 114.55 | |
| 0.11472 | 4 | 0.13 | 80.61 | 103.69 | 80.61 | 103.69 | |
| 0.10962 | | | | | 80.22 | 108 | |
| 0.10962 | 4 | 0.09 | 86.08 | 108.4 | 86.08 | 108.24 | |
| 0.10284 | | | | | 76.45 | 114.3 | |
| 0.10284 | 4 | 0.65 | 91.8 | 109.75 | 91.8 | 109.75 | |
| 0.09693 | | | | | 66.61 | 115.63 | |
| 0.09693 | 4 | 0.09 | 88.71 | 105.62 | 88.71 | 105.62 | |
| 0.09077 | | | | | 57.84 | 92.38 | |
| 0.09077 | 4 | 0.43 | 64.68 | 87.36 | 64.68 | 87.36 | |
| 0.08036 | | | | | 44.43 | 137.97 | |
| 0.08036 | 4 | 0.57 | 49.42 | 76.48 | 49.42 | 76.48 | |
| 0.0721 | | | | | 40.07 | 112.96 | |
| 0.0721 | 4 | 0.1 | 39.7 | 72.46 | 39.8 | 72.46 | |
| 0.06454 | | | | | 39.59 | 84.54 | |
| 0.06454 | 4 | 0.02 | 39.2 | 67.88 | 39.54 | 67.88 | |
| 0.05817 | | | | | 43.33 | 110.38 | |
| 0.05817 | 4 | 0.04 | 41.44 | 86.48 | 43.21 | 86.48 | |
| 0.04814 | | | | | 58.83 | 153.98 | |
| 0.04814 | 4 | 0 | 0 | 232.1 | 58.83 | 153.98 | |
| 0.03638 | | | | | 71.54 | 191.15 | |
| 0.03638 | 4 | 0 | 0 | 238.41 | 71.54 | 191.15 | |
| 0.02605 | | | | | 58.01 | 261.23 | |
| 0.02605 | 4 | 0 | 0 | 264.1 | 58.01 | 261.23 | |
| Ocotillo Wash 2,OW Split | | | | | | | |
| 0.07677 | | | | | 133.41 | 204.74 | |
| 0.07677 | 0 | 0 | 0 | 0 | 133.41 | 204.74 | |
| 0.04992 | | | | | 50.48 | 140.21 | |
| 0.04992 | 0 | 0 | 0 | 0 | 50.48 | 140.21 | |
| Ocotillo Wash 3,Tributary-2.2 | | | | | | | |
| 0.15352 | | | | | 85.19 | 290.21 | |
| 0.15352 | 0 | 0 | 0 | 0 | 85.19 | 290.21 | |
| 0.10059 | | | | | 102.75 | 169.18 | |
| 0.10059 | 0 | 0 | 0 | 0 | 102.75 | 169.18 | |
| 0.04049 | | | | | 47.58 | 112.1 | |
| 0.04049 | 0 | 0 | 0 | 0 | 47.58 | 112.1 | |
| 0.03237 | | | | | 37.01 | 116.27 | |
| 0.03237 | 0 | 0 | 0 | 0 | 37.01 | 116.27 | |
| 0.02833 | | | | | 41.63 | 99.9 | |
| 0.02833 | 0 | 0 | 0 | 0 | 41.63 | 99.9 | |
| 0.02823 | | | | | 41.68 | 99.41 | |
| 0.02823 | 0 | 0 | 0 | 0 | 41.68 | 99.41 | |
| Ocotillo Wash 4,OWMS1 | | | | | | | |
| 0.07616 | | | | | 22.39 | 235.2 | |
| 0.07616 | 0 | 0 | 0 | 0 | 22.39 | 235.2 | |
| 0.04601 | | | | | 1.87 | 248.08 | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 0.07615 | Lateral Weirs | | | | | | |
| 0.04601 | 0 | 0 | 0 | 0 | 1.87 | 248.08 | |
| 0.03788 | | | | | 0 | 223.69 | |
| 0.04599 | Lateral Weirs | | | | | | |
| 0.03788 | 0 | 0 | 0 | 0 | 0 | 223.69 | |
| 0.02091 | | | | | 0 | 225.24 | |
| 0.03786 | Lateral Weirs | | | | | | |
| 0.02091 | 0 | 0 | 0 | 0 | 0 | 225.24 | |
| Ocotillo Wash 5,OWMS2 | | | | | | | |
| 1.89254 | | | | | 130.56 | 415.91 | |
| 1.89254 | 0 | 0 | 0 | 0 | 130.56 | 415.91 | |
| 1.89136 | | | | | 135.81 | 578.94 | |
| 1.89136 | 0 | 0 | 0 | 0 | 135.81 | 578.94 | |
| 1.88981 | | | | | 141.6 | 624.54 | |
| 1.88981 | 0 | 0 | 0 | 0 | 141.6 | 624.54 | |
| 1.88667 | | | | | 0 | 0 | Inline Weir-Up |
| 1.88667 | | | | | 0 | 0 | Inline Weir-Dn |
| 1.88667 | 0 | 0 | 0 | 0 | 0 | 0 | Inline Weir-Up |
| 1.88667 | 0 | 0 | 0 | 0 | 0 | 0 | Inline Weir-Dn |
| 1.88352 | | | | | 156.24 | 625.63 | |
| 1.88352 | 0 | 0 | 0 | 0 | 156.24 | 625.63 | |
| 1.78861 | | | | | 92.54 | 280.6 | |
| 1.78861 | 0 | 0 | 0 | 0 | 92.54 | 280.6 | |
| 1.71509 | | | | | 148.55 | 323.55 | |
| 1.71509 | 0 | 0 | 0 | 0 | 148.55 | 323.55 | |
| 1.64008 | | | | | 219.38 | 525.6 | |
| 1.64008 | 0 | 0 | 0 | 0 | 219.38 | 525.6 | |
| 1.63731 | | | | | 0 | 0 | Inline Weir-Up |
| 1.63731 | | | | | 0 | 0 | Inline Weir-Dn |
| 1.63731 | 0 | 0 | 0 | 0 | 0 | 0 | Inline Weir-Up |
| 1.63731 | 0 | 0 | 0 | 0 | 0 | 0 | Inline Weir-Dn |
| 1.63454 | | | | | 253.01 | 504.19 | |
| 1.63454 | 0 | 0 | 0 | 0 | 253.01 | 504.19 | |
| 1.63183 | | | | | 170.31 | 494.85 | |
| 1.63183 | 0 | 0 | 0 | 0 | 170.31 | 494.85 | |
| 1.54838 | | | | | 33.7 | 458.9 | |
| 1.54838 | 0 | 0 | 0 | 0 | 33.7 | 458.9 | |
| 1.47363 | | | | | 125.99 | 486.32 | |
| 1.47363 | 0 | 0 | 0 | 0 | 125.99 | 486.32 | |
| 1.41048 | | | | | 180.4 | 491.73 | |
| 1.41048 | 0 | 0 | 0 | 0 | 180.4 | 491.73 | |
| 1.32199 | | | | | 201.63 | 631.7 | |
| 1.32199 | 0 | 0 | 0 | 0 | 201.63 | 631.7 | |
| 1.20785 | | | | | 77.58 | 463.98 | |
| 1.20785 | 0 | 0 | 0 | 0 | 77.58 | 463.98 | |
| 1.14203 | | | | | 79.16 | 389.16 | |
| 1.14203 | 0 | 0 | 0 | 0 | 79.16 | 389.16 | |
| 1.0647 | | | | | 35.28 | 526.1 | |
| 1.0647 | 0 | 0 | 0 | 0 | 35.28 | 526.1 | |
| 0.97907 | | | | | 256.19 | 710.36 | |
| 0.97907 | 0 | 0 | 0 | 0 | 256.19 | 710.36 | |
| 0.91184 | | | | | 110.53 | 408 | |
| 0.91184 | 0 | 0 | 0 | 0 | 110.53 | 408 | |
| 0.90917 | | | | | 0 | 0 | Inline Weir-Up |
| 0.90917 | | | | | 0 | 0 | Inline Weir-Dn |
| 0.90917 | 0 | 0 | 0 | 0 | 0 | 0 | Inline Weir-Up |
| 0.90917 | 0 | 0 | 0 | 0 | 0 | 0 | Inline Weir-Dn |
| 0.90641 | | | | | 127.08 | 400.39 | |
| 0.90641 | 0 | 0 | 0 | 0 | 127.08 | 400.39 | |
| 0.87183 | | | | | 108.42 | 288.02 | |
| 0.87183 | 0 | 0 | 0 | 0 | 108.42 | 288.02 | |
| 0.81091 | | | | | 62.36 | 316.57 | |
| 0.81091 | 0 | 0 | 0 | 0 | 62.36 | 316.57 | |
| 0.76067 | | | | | 54.34 | 242.5 | |
| 0.76067 | 0 | 0 | 0 | 0 | 54.34 | 242.5 | |
| 0.72626 | | | | | 59.36 | 188.24 | |
| 0.72626 | 0 | 0 | 0 | 0 | 59.36 | 188.24 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 0.6458 | | | | | 90.14 | 221.99 |
| 0.6458 | 0 | 0 | 0 | 0 | 90.14 | 221.99 |
| 0.5899 | | | | | 93.81 | 258.31 |
| 0.5899 | 0 | 0 | 0 | 0 | 93.81 | 258.31 |
| 0.47442 | | | | | 110.97 | 204.67 |
| 0.47442 | 0 | 0 | 0 | 0 | 110.97 | 204.67 |
| 0.38608 | | | | | 237.04 | 337.87 |
| 0.38608 | 0 | 0 | 0 | 0 | 237.04 | 337.87 |
| 0.30622 | | | | | 115.99 | 332.41 |
| 0.30622 | 0 | 0 | 0 | 0 | 115.99 | 332.41 |
| 0.22095 | | | | | 237.99 | 538.1 |
| 0.22095 | 0 | 0 | 0 | 0 | 237.99 | 538.1 |
| 0.17947 | | | | | 177.84 | 298.54 |
| 0.17947 | 0 | 0 | 0 | 0 | 177.84 | 298.54 |
| 0.13663 | | | | | 89.42 | 187.67 |
| 0.13663 | 0 | 0 | 0 | 0 | 89.42 | 187.67 |
| 0.0512 | | | | | 91.03 | 232.33 |
| 0.0512 | 0 | 0 | 0 | 0 | 91.03 | 232.33 |
| 0.00837 | | | | | 164.84 | 346.84 |
| 0.00837 | 0 | 0 | 0 | 0 | 164.84 | 346.84 |

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ENCROACHMENT METHOD CHECK
---

RS: 0.79392
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 0.79392
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 0.36595
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 0.36595
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 0.36595
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 0.14161
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 0.04814
FW EM 04 Target surcharge value is equal to zero.
A target surcharge should be greater than 0.00 and less than or equal to the allowable surcharge value.

RS: 0.03638
FW EM 04 Target surcharge value is equal to zero.
A target surcharge should be greater than 0.00 and less than or equal to the allowable surcharge value.

RS: 0.02605
FW EM 04 Target surcharge value is equal to zero.
A target surcharge should be greater than 0.00 and less than or equal to the allowable surcharge value.

RS: 0.07677
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 0.04992
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 0.15352
FW EM 01 Floodway encroachment method is not selected at this section.

```
RS:       0.10059
FW EM 01  Floodway encroachment method is not selected at this section.

RS:       0.04049
FW EM 01  Floodway encroachment method is not selected at this section.

RS:       0.03237
FW EM 01  Floodway encroachment method is not selected at this section.

RS:       0.02833
FW EM 01  Floodway encroachment method is not selected at this section.

RS:       0.02823
FW EM 01  Floodway encroachment method is not selected at this section.

RS:       0.07616
FW EM 01  Floodway encroachment method is not selected at this section.

RS:       0.04601
FW EM 01  Floodway encroachment method is not selected at this section.

RS:       0.03788
FW EM 01  Floodway encroachment method is not selected at this section.

RS:       0.02091
FW EM 01  Floodway encroachment method is not selected at this section.

RS:       1.89254
FW EM 01  Floodway encroachment method is not selected at this section.

RS:       1.89136
FW EM 01  Floodway encroachment method is not selected at this section.

RS:       1.88981
FW EM 01  Floodway encroachment method is not selected at this section.

RS:       1.88667
FW EM 01  Floodway encroachment method is not selected at this section.

RS:       1.88352
FW EM 01  Floodway encroachment method is not selected at this section.

RS:       1.78861
FW EM 01  Floodway encroachment method is not selected at this section.

RS:       1.71509
FW EM 01  Floodway encroachment method is not selected at this section.

RS:       1.64008
FW EM 01  Floodway encroachment method is not selected at this section.

RS:       1.63731
FW EM 01  Floodway encroachment method is not selected at this section.

RS:       1.63454
FW EM 01  Floodway encroachment method is not selected at this section.

RS:       1.63183
FW EM 01  Floodway encroachment method is not selected at this section.

RS:       1.54838
FW EM 01  Floodway encroachment method is not selected at this section.

RS:       1.47363
FW EM 01  Floodway encroachment method is not selected at this section.
```

```
RS:       1.41048
FW EM 01  Floodway encroachment method is not selected at this section.

RS:       1.32199
FW EM 01  Floodway encroachment method is not selected at this section.

RS:       1.20785
FW EM 01  Floodway encroachment method is not selected at this section.

RS:       1.14203
FW EM 01  Floodway encroachment method is not selected at this section.

RS:       1.0647
FW EM 01  Floodway encroachment method is not selected at this section.

RS:       0.97907
FW EM 01  Floodway encroachment method is not selected at this section.

RS:       0.91184
FW EM 01  Floodway encroachment method is not selected at this section.

RS:       0.90917
FW EM 01  Floodway encroachment method is not selected at this section.

RS:       0.90641
FW EM 01  Floodway encroachment method is not selected at this section.

RS:       0.87183
FW EM 01  Floodway encroachment method is not selected at this section.

RS:       0.81091
FW EM 01  Floodway encroachment method is not selected at this section.

RS:       0.76067
FW EM 01  Floodway encroachment method is not selected at this section.

RS:       0.72626
FW EM 01  Floodway encroachment method is not selected at this section.

RS:       0.6458
FW EM 01  Floodway encroachment method is not selected at this section.

RS:       0.5899
FW EM 01  Floodway encroachment method is not selected at this section.

RS:       0.47442
FW EM 01  Floodway encroachment method is not selected at this section.

RS:       0.38608
FW EM 01  Floodway encroachment method is not selected at this section.

RS:       0.30622
FW EM 01  Floodway encroachment method is not selected at this section.

RS:       0.22095
FW EM 01  Floodway encroachment method is not selected at this section.

RS:       0.17947
FW EM 01  Floodway encroachment method is not selected at this section.

RS:       0.13663
FW EM 01  Floodway encroachment method is not selected at this section.

RS:       0.0512
FW EM 01  Floodway encroachment method is not selected at this section.

RS:       0.00837
```

FW EM 01 Floodway encroachment method is not selected at this section.

FLOODWAY WIDTH CHECK
---

RS: 1.00045
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.99357
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.97998
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.97998
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.97683
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.9718
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.96791
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.96505
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.96505
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.96148
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.95264
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.94727
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.94451
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.94451
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.94232
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.94232

FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.93999
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.93325
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.93325
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.9291
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.92475
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.91774
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.91024
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.90213
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.89309
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.89309
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.88715
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.88288
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.87849
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.87485
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.85249
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.84649
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.83957
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.83091
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.82372
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.81567
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.80861
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.80224
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.79662
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.78443
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.77855
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.77855
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.77184
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.77184
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.76182
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.75751
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.7527
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.73982
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.73537
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.73227
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.72875
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.72704
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.72322
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.71174
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.71174
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.70813
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.70813
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.70419
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.70419
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.70129
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.70129
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.69806
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.69661
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.69212
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.6888
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.6888
FW FW 03 The right channel bank station may not be at the proper

location.

RS: 0.688
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.67717
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.67671
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.67671
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.66963
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.66013
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.66013
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.65574
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.6515
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.64754
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.64472
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.64111
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.64111
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.63638
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.63638
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.63432
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.6327

```
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       0.62989
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       0.62721
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       0.62332
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       0.61834
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       0.61323
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       0.60419
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       0.60419
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       0.59771
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       0.59247
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       0.58805
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       0.58365
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       0.58365
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       0.57998
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       0.57606
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       0.57206
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       0.56705
FW FW 03  The Left channel bank station may not be at the proper
          location.
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RS: 0.5611
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.55629
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.55629
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.55157
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.54526
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.53814
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.53109
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.52363
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.50585
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.50585
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.50158
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.50158
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.48713
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.47933
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.47214
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.47214
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.46798
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.46248
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.45679
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.44157
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.43466
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.43466
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.42887
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.42419
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.42419
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.4202
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.4202
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.41686
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.41686
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.41149
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.41149
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.40709
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.40093
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.40093
FW FW 03 The right channel bank station may not be at the proper

location.

RS: 0.39446
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.38991
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.38436
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.37788
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.37417
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.37417
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.36365
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.35963
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.35631
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.35325
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.35325
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.34893
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.33986
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.33232
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.30808
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.30459
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.29712

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FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       0.29712
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       0.29046
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       0.29046
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       0.28463
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       0.2806
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       0.27669
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       0.27186
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       0.26729
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       0.2634
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       0.25894
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       0.2533
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       0.25016
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       0.24329
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       0.23992
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       0.23186
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       0.22859
FW FW 03  The right channel bank station may not be at the proper
          location.
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RS: 0.21765
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.21461
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.19296
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.19051
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.18844
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.18485
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.18485
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.17337
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.16793
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.16413
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.15225
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.15225
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.14532
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.14374
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.13875
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.13724
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.13724
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.13462
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.11472
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.11472
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.10284
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.09077
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.08036
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.0721
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.04814
FW FW 05 The 1% annual chance flood is contained within the channel.
Left encroachment station 0 is outside the channel.
Left channel bank station is 49.56
Left encroachment station and/or left channel bank station should be adjusted.

RS: 0.04814
FW FW 05 The 1% annual chance flood is contained within the channel.
Right encroachment station 232.1 is outside the channel.
Right channel bank station is 155.27
Right encroachment station and/or right channel bank station should be adjusted.

RS: 0.04814
FW FW 06 The left station effective of 58.83 for the floodway profile is more than the left channel bank station of 49.56
The left side of the floodway boundary is within the channel.
The left encroachment station of 0 is less than the left channel bank station.
The left encroachment station should be the same as the left channel bank station.

RS: 0.04814
FW FW 06 The right station effective of 153.98 for the floodway profile is less than the right channel bank station of 155.27
The right side of the floodway boundary is within the channel.
The right encroachment station of 232.1 is greater than the right channel bank station.
The right encroachment station should be the same as the right channel bank station.

RS: 0.03638
FW FW 04 The right station effective of 191.15 for 1% annual chance floodplain is greater than the right channel bank station (190.42).
The 1% annual chance floodplain is outside the channel.
However, the right encroachment station (238.41) is outside of 1% annual chance floodplain.

The right encroachment station should be adjusted.

RS: 0.03638
FW FW 06 The left station effective of 71.54 for the floodway profile is more than the left channel bank station of 67.86
The left side of the floodway boundary is within the channel.
The left encroachment station of 0 is less than the left channel bank station.
The left encroachment station should be the same as the left channel bank station.

RS: 0.02605
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.02605
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.02605
FW FW 04 The left station effective of 58.01 for 1% annual chance floodplain is less than the left channel bank station 88.35
The 1% annual chance floodplain is outside the channel.
However, the left encroachment station (0) is outside of 1% annual chance floodplain.
The left encroachment station should be adjusted.

RS: 0.02605
FW FW 04 The right station effective of 261.23 for 1% annual chance floodplain is greater than the right channel bank station (259.7).
The 1% annual chance floodplain is outside the channel.
However, the right encroachment station (264.1) is outside of 1% annual chance floodplain.
The right encroachment station should be adjusted.

RS: 0.07677
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.07677
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.15352
FW FW 05 The 1% annual chance flood is contained within the channel.
Left encroachment station 0 is outside the channel.
Left channel bank station is 78.06
Left encroachment station and/or left channel bank station should be adjusted.

RS: 0.15352
FW FW 06 The left station effective of 85.19 for the floodway profile is more than the left channel bank station of 78.06
The left side of the floodway boundary is within the channel.
The left encroachment station of 0 is less than the left channel bank station.
The left encroachment station should be the same as the left channel bank station.

RS: 0.10059
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.10059
FW FW 06 The left station effective of 102.75 for the floodway profile is more than the left channel bank station of 99.47
The left side of the floodway boundary is within the channel.

The left encroachment station of 0 is less than the left channel bank station.
The left encroachment station should be the same as the left channel bank station.

RS: 0.04049
FW FW 05 The 1% annual chance flood is contained within the channel.
Left encroachment station 0 is outside the channel.
Left channel bank station is 45.94
Left encroachment station and/or left channel bank station should be adjusted.

RS: 0.04049
FW FW 06 The left station effective of 47.58 for the floodway profile is more than the left channel bank station of 45.94
The left side of the floodway boundary is within the channel.
The left encroachment station of 0 is less than the left channel bank station.
The left encroachment station should be the same as the left channel bank station.

RS: 0.03237
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.02833
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.02823
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.07616
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.07616
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.04601
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.04601
FW FW 06 The left station effective of 1.87 for the floodway profile is more than the left channel bank station of 1.1
The left side of the floodway boundary is within the channel.
The left encroachment station of 0 is less than the left channel bank station.
The left encroachment station should be the same as the left channel bank station.

RS: 0.03788
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.89254
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.89136
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.89136

FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.88981
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.88981
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.88352
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.88352
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.78861
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.78861
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.64008
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.63454
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.54838
FW FW 05 The 1% annual chance flood is contained within the channel.
Left encroachment station 0 is outside the channel.
Left channel bank station is 32.71
Left encroachment station and/or left channel bank station should be adjusted.

RS: 1.54838
FW FW 06 The left station effective of 33.7 for the floodway profile is more than the left channel bank station of 32.71
The left side of the floodway boundary is within the channel.
The left encroachment station of 0 is less than the left channel bank station.
The left encroachment station should be the same as the left channel bank station.

RS: 1.47363
FW FW 05 The 1% annual chance flood is contained within the channel.
Left encroachment station 0 is outside the channel.
Left channel bank station is 125.89
Left encroachment station and/or left channel bank station should be adjusted.

RS: 1.47363
FW FW 06 The left station effective of 125.99 for the floodway profile is more than the left channel bank station of 125.89
The left side of the floodway boundary is within the channel.
The left encroachment station of 0 is less than the left channel bank station.
The left encroachment station should be the same as the left channel bank station.

RS: 1.41048
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.32199
FW FW 05 The 1% annual chance flood is contained within the channel.
Left encroachment station 0 is outside the channel.
Left channel bank station is 177.23
Left encroachment station and/or left channel bank station should be adjusted.

RS: 1.32199
FW FW 06 The left station effective of 201.63 for the floodway profile is more than the left channel bank station of 177.23
The left side of the floodway boundary is within the channel.
The left encroachment station of 0 is less than the left channel bank station.
The left encroachment station should be the same as the left channel bank station.

RS: 1.20785
FW FW 06 The left station effective of 77.58 for the floodway profile is more than the left channel bank station of 72.4
The left side of the floodway boundary is within the channel.
The left encroachment station of 0 is less than the left channel bank station.
The left encroachment station should be the same as the left channel bank station.

RS: 1.14203
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.14203
FW FW 06 The left station effective of 79.16 for the floodway profile is more than the left channel bank station of 70.18
The left side of the floodway boundary is within the channel.
The left encroachment station of 0 is less than the left channel bank station.
The left encroachment station should be the same as the left channel bank station.

RS: 1.0647
FW FW 05 The 1% annual chance flood is contained within the channel.
Left encroachment station 0 is outside the channel.
Left channel bank station is 32.88
Left encroachment station and/or left channel bank station should be adjusted.

RS: 1.0647
FW FW 06 The left station effective of 35.28 for the floodway profile is more than the left channel bank station of 32.88
The left side of the floodway boundary is within the channel.
The left encroachment station of 0 is less than the left channel bank station.
The left encroachment station should be the same as the left channel bank station.

RS: 0.97907
FW FW 05 The 1% annual chance flood is contained within the channel.
Left encroachment station 0 is outside the channel.
Left channel bank station is 222.39
Left encroachment station and/or left channel bank station should be adjusted.

RS: 0.97907
FW FW 06 The left station effective of 256.19 for the floodway profile is more

than the left channel bank station of 222.39
The left side of the floodway boundary is within the channel.
The left encroachment station of 0 is less than the left channel bank station.
The left encroachment station should be the same as the left channel bank station.

RS: 0.91184
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.91184
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.90641
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.81091
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.81091
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.76067
FW FW 05 The 1% annual chance flood is contained within the channel.
Left encroachment station 0 is outside the channel.
Left channel bank station is 50.91
Left encroachment station and/or left channel bank station should be adjusted.

RS: 0.76067
FW FW 06 The left station effective of 54.34 for the floodway profile is more than the left channel bank station of 50.91
The left side of the floodway boundary is within the channel.
The left encroachment station of 0 is less than the left channel bank station.
The left encroachment station should be the same as the left channel bank station.

RS: 0.72626
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.6458
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.5899
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.5899
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.47442
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.38608
FW FW 05 The 1% annual chance flood is contained within the channel.
Left encroachment station 0 is outside the channel.
Left channel bank station is 234.06

Left encroachment station and/or left channel bank station should be adjusted.

RS: 0.38608
FW FW 06 The left station effective of 237.04 for the floodway profile is more than the left channel bank station of 234.06
The left side of the floodway boundary is within the channel.
The left encroachment station of 0 is less than the left channel bank station.
The left encroachment station should be the same as the left channel bank station.

RS: 0.30622
FW FW 06 The left station effective of 115.99 for the floodway profile is more than the left channel bank station of 114.23
The left side of the floodway boundary is within the channel.
The left encroachment station of 0 is less than the left channel bank station.
The left encroachment station should be the same as the left channel bank station.

RS: 0.22095
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.22095
FW FW 06 The left station effective of 237.99 for the floodway profile is more than the left channel bank station of 231.04
The left side of the floodway boundary is within the channel.
The left encroachment station of 0 is less than the left channel bank station.
The left encroachment station should be the same as the left channel bank station.

RS: 0.17947
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.13663
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.0512
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.00837
FW FW 05 The 1% annual chance flood is contained within the channel.
Left encroachment station 0 is outside the channel.
Left channel bank station is 160.2
Left encroachment station and/or left channel bank station should be adjusted.

RS: 0.00837
FW FW 06 The left station effective of 164.84 for the floodway profile is more than the left channel bank station of 160.2
The left side of the floodway boundary is within the channel.
The left encroachment station of 0 is less than the left channel bank station.
The left encroachment station should be the same as the left channel bank station.

SURCHARGE CHECK
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DISCHARGE CHECK
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STARTING WATER-SURFACE ELEVATION CHECK
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---END---

CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File:
C:\GEORAS\91427\Hydraulic\RAS_Model\OW2\RM\FW\OW_OWT2_FW_03052009\OW_OWT2_FW.prj
Plan File:
C:\GEORAS\91427\Hydraulic\RAS_Model\OW2\RM\FW\OW_OWT2_FW_03052009\OW_OWT2_FW.p02
Geometry File:
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Flow File:
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Report File:
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Selected profiles: PF 1;PF 2
Date: 3/6/2009
Time: 8:40:10 AM

| SECNO | STRUCTURE | NLOB | NCHL | NROB | CNTR | EXP |
|---|---|---|---|---|---|---|
| Ocotillo Wash 1,Tributary-2.1 | | | | | | |
| 1.00045 | | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
| | | ----- | 0.064 | ----- | | |
| | | ----- | 0.066 | ----- | | |
| .99742 | | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
| | | ----- | 0.064 | ----- | | |
| | | ----- | 0.066 | ----- | | |
| .99357 | | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
| | | ----- | 0.064 | ----- | | |
| | | ----- | 0.066 | ----- | | |
| .98932 | | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
| | | ----- | 0.064 | ----- | | |
| | | ----- | 0.066 | ----- | | |
| .98427 | | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
| | | ----- | 0.064 | ----- | | |
| | | ----- | 0.066 | ----- | | |
| .97998 | | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
| | | ----- | 0.064 | ----- | | |
| | | ----- | 0.066 | ----- | | |
| .97683 | | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
| | | ----- | 0.064 | ----- | | |
| | | ----- | 0.066 | ----- | | |
| .9718 | | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
| | | ----- | 0.064 | ----- | | |
| | | ----- | 0.066 | ----- | | |
| .96791 | | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
| | | ----- | 0.064 | ----- | | |
| | | ----- | 0.066 | ----- | | |
| .96505 | | 0.061 | 0.061 | 0.064 | 0.1 | 0.3 |
| | | ----- | 0.064 | 0.066 | | |
| .96148 | | 0.061 | 0.061 | 0.064 | 0.1 | 0.3 |
| | | ----- | 0.064 | 0.066 | | |
| .9575 | | 0.061 | 0.061 | 0.064 | 0.1 | 0.3 |
| | | ----- | 0.064 | 0.066 | | |
| .95264 | | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
| | | ----- | 0.064 | ----- | | |
| | | ----- | 0.066 | ----- | | |
| .94727 | | 0.061 | 0.061 | 0.066 | 0.1 | 0.3 |
| | | ----- | 0.064 | ----- | | |
| .94451 | | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
| | | ----- | 0.064 | ----- | | |
| | | ----- | 0.066 | ----- | | |
| .94232 | | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
| | | ----- | 0.064 | ----- | | |
| | | ----- | 0.066 | ----- | | |
| .93999 | | 0.061 | 0.064 | ----- | 0.1 | 0.3 |
| | | 0.064 | 0.066 | ----- | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| .93325 | | 0.061 | 0.061 | 0.064 | 0.1 | 0.3 |
| | | ----- | 0.064 | 0.066 | | |
| .9291 | | 0.061 | 0.061 | 0.064 | 0.1 | 0.3 |
| | | ----- | 0.064 | 0.066 | | |
| .92475 | | 0.061 | 0.061 | 0.064 | 0.1 | 0.3 |
| | | ----- | 0.064 | 0.066 | | |
| .91774 | | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
| | | ----- | 0.064 | ----- | | |
| | | ----- | 0.066 | ----- | | |
| .91024 | | 0.061 | 0.061 | 0.064 | 0.1 | 0.3 |
| | | ----- | 0.064 | 0.066 | | |
| .90213 | | 0.061 | ----- | ----- | 0.1 | 0.3 |
| | | 0.064 | ----- | ----- | | |
| .89706 | | 0.061 | ----- | ----- | 0.1 | 0.3 |
| | | 0.064 | ----- | ----- | | |
| .89309 | | 0.061 | 0.086 | 0.056 | 0.1 | 0.3 |
| | | 0.056 | ----- | ----- | | |
| .88715 | | 0.056 | 0.056 | ----- | 0.1 | 0.3 |
| | | ----- | 0.086 | ----- | | |
| | | ----- | 0.056 | ----- | | |
| .88288 | | 0.056 | 0.056 | ----- | 0.1 | 0.3 |
| | | ----- | 0.086 | ----- | | |
| | | ----- | 0.056 | ----- | | |
| .87849 | | 0.056 | 0.056 | ----- | 0.1 | 0.3 |
| | | ----- | 0.086 | ----- | | |
| | | ----- | 0.056 | ----- | | |
| .87485 | | 0.056 | 0.056 | ----- | 0.1 | 0.3 |
| | | ----- | 0.086 | ----- | | |
| | | ----- | 0.056 | ----- | | |
| .87052 | | 0.056 | 0.056 | 0.056 | 0.1 | 0.3 |
| | | ----- | 0.086 | ----- | | |
| .86746 | | 0.056 | 0.056 | ----- | 0.1 | 0.3 |
| | | ----- | 0.086 | ----- | | |
| | | ----- | 0.056 | ----- | | |
| .85876 | | 0.056 | 0.056 | ----- | 0.1 | 0.3 |
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| .84649 | | 0.056 | 0.056 | 0.056 | 0.1 | 0.3 |
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| .83957 | | 0.056 | 0.056 | 0.086 | 0.1 | 0.3 |
| | | ----- | 0.086 | 0.056 | | |
| .83091 | | 0.061 | 0.061 | 0.064 | 0.1 | 0.3 |
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| .82372 | | 0.061 | 0.061 | 0.064 | 0.1 | 0.3 |
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| .81567 | | 0.061 | 0.061 | 0.064 | 0.1 | 0.3 |
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| .80861 | | 0.061 | 0.061 | 0.064 | 0.1 | 0.3 |
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| .80224 | | 0.061 | 0.061 | 0.061 | 0.1 | 0.3 |
| | | ----- | 0.064 | ----- | | |
| .79662 | | 0.061 | ----- | ----- | 0.1 | 0.3 |
| | | 0.019 | ----- | ----- | | |
| .79392 | Culvert-Up | 0.061 | ----- | ----- | 0.1 | 0.3 |
| | | 0.019 | ----- | ----- | | |
| .79392 | Culvert-Dn | 0.061 | 0.064 | ----- | 0.1 | 0.3 |
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| .79116 | | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
| | | ----- | 0.064 | ----- | | |
| | | ----- | 0.061 | ----- | | |
| .78443 | | 0.061 | 0.064 | ----- | 0.1 | 0.3 |
| | | 0.064 | 0.061 | ----- | | |
| .77855 | | 0.061 | 0.061 | 0.061 | 0.1 | 0.3 |
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| .77184 | 0.061 | 0.061 | 0.064 | 0.1 | 0.3 |
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| .76182 | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
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| .75751 | 0.061 | 0.061 | 0.064 | 0.1 | 0.3 |
| | ----- | 0.064 | 0.061 | | |
| .7527 | 0.061 | 0.061 | 0.064 | 0.1 | 0.3 |
| | ----- | 0.064 | 0.061 | | |
| .74863 | 0.061 | 0.061 | 0.064 | 0.1 | 0.3 |
| | ----- | 0.064 | 0.061 | | |
| .74402 | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
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| | ----- | 0.061 | ----- | | |
| .73982 | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
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| | ----- | 0.061 | ----- | | |
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| .72875 | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
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| | ----- | 0.061 | ----- | | |
| .72704 | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
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| | ----- | 0.061 | ----- | | |
| .72322 | 0.061 | 0.064 | ----- | 0.1 | 0.3 |
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| .71808 | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
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| .71174 | 0.061 | 0.064 | ----- | 0.1 | 0.3 |
| | 0.064 | 0.061 | ----- | | |
| .70813 | 0.061 | 0.064 | ----- | 0.1 | 0.3 |
| | 0.064 | 0.061 | ----- | | |
| .70419 | 0.061 | 0.064 | ----- | 0.1 | 0.3 |
| | 0.064 | 0.061 | ----- | | |
| .70129 | 0.061 | 0.064 | ----- | 0.1 | 0.3 |
| | 0.064 | 0.061 | ----- | | |
| .69806 | 0.061 | 0.064 | ----- | 0.1 | 0.3 |
| | 0.064 | 0.061 | ----- | | |
| .69661 | 0.061 | 0.064 | ----- | 0.1 | 0.3 |
| | 0.064 | 0.061 | ----- | | |
| .69212 | 0.061 | 0.061 | 0.061 | 0.1 | 0.3 |
| | ----- | 0.064 | ----- | | |
| .6888 | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
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| | ----- | 0.061 | ----- | | |
| .688 | 0.061 | 0.061 | 0.064 | 0.1 | 0.3 |
| | ----- | 0.064 | 0.061 | | |
| .68404 | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
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| | ----- | 0.061 | ----- | | |
| .67717 | 0.061 | 0.061 | 0.061 | 0.1 | 0.3 |
| | ----- | 0.064 | ----- | | |
| .67671 | 0.061 | 0.064 | 0.064 | 0.1 | 0.3 |
| | ----- | ----- | 0.061 | | |
| .66963 | 0.061 | 0.064 | ----- | 0.1 | 0.3 |
| | 0.064 | 0.061 | ----- | | |
| .66458 | 0.061 | 0.064 | ----- | 0.1 | 0.3 |
| | 0.064 | 0.061 | ----- | | |
| .66013 | 0.061 | 0.061 | 0.061 | 0.1 | 0.3 |
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| .65574 | 0.061 | 0.061 | ----- | 0.1 | 0.3 |

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| .6515 | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
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| | ----- | 0.061 | ----- | | |
| .64754 | 0.061 | 0.061 | 0.061 | 0.1 | 0.3 |
| | ----- | 0.064 | ----- | | |
| .64472 | 0.061 | 0.064 | 0.061 | 0.1 | 0.3 |
| .64111 | 0.061 | 0.061 | 0.064 | 0.1 | 0.3 |
| | ----- | 0.064 | 0.061 | | |
| .63638 | 0.061 | 0.061 | 0.064 | 0.1 | 0.3 |
| | ----- | 0.064 | 0.061 | | |
| .63432 | 0.061 | 0.061 | 0.064 | 0.1 | 0.3 |
| | ----- | 0.064 | 0.061 | | |
| .6327 | 0.061 | 0.061 | 0.064 | 0.1 | 0.3 |
| | ----- | 0.064 | 0.061 | | |
| .62989 | 0.061 | 0.064 | ----- | 0.1 | 0.3 |
| | 0.064 | 0.061 | ----- | | |
| .62721 | 0.061 | 0.064 | ----- | 0.1 | 0.3 |
| | 0.064 | 0.061 | ----- | | |
| .62332 | 0.061 | 0.064 | ----- | 0.1 | 0.3 |
| | 0.064 | 0.061 | ----- | | |
| .61834 | 0.061 | 0.064 | ----- | 0.1 | 0.3 |
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| .61323 | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
| | ----- | 0.064 | ----- | | |
| | ----- | 0.061 | ----- | | |
| .60912 | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
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| | ----- | 0.061 | ----- | | |
| .60419 | 0.061 | 0.061 | 0.061 | 0.1 | 0.3 |
| | ----- | 0.064 | ----- | | |
| .59771 | 0.061 | 0.061 | 0.061 | 0.1 | 0.3 |
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| .58365 | 0.061 | 0.061 | 0.061 | 0.1 | 0.3 |
| | ----- | 0.064 | ----- | | |
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| .56705 | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
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| .55629 | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
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| .55157 | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
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| .54526 | 0.061 | 0.061 | 0.061 | 0.1 | 0.3 |
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| .53814 | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
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| .53109 | 0.061 | 0.061 | 0.061 | 0.1 | 0.3 |
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| .52363 | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
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| .51582 | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
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| | ----- | 0.061 | ----- | | |
| .50951 | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
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| | ----- | 0.061 | ----- | | |
| .50585 | 0.061 | 0.061 | 0.061 | 0.1 | 0.3 |
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| .50158 | 0.061 | 0.061 | 0.064 | 0.1 | 0.3 |
| | ----- | 0.064 | 0.061 | | |
| .49706 | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
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| | ----- | 0.061 | ----- | | |
| .49372 | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
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| | ----- | 0.061 | ----- | | |
| .48992 | 0.061 | 0.061 | 0.061 | 0.1 | 0.3 |
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| .48713 | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
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| .48294 | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
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| .47933 | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
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| | ----- | 0.061 | ----- | | |
| .47659 | 0.061 | 0.061 | 0.061 | 0.1 | 0.3 |
| | ----- | 0.064 | ----- | | |
| .47214 | 0.061 | 0.061 | 0.061 | 0.1 | 0.3 |
| | ----- | 0.064 | ----- | | |
| .46798 | 0.061 | 0.061 | 0.064 | 0.1 | 0.3 |
| | ----- | 0.064 | 0.061 | | |
| .46248 | 0.061 | 0.061 | 0.064 | 0.1 | 0.3 |
| | ----- | 0.064 | 0.061 | | |
| .45679 | 0.061 | 0.061 | 0.061 | 0.1 | 0.3 |
| | ----- | 0.064 | ----- | | |
| .45211 | 0.061 | 0.061 | 0.064 | 0.1 | 0.3 |
| | ----- | 0.064 | 0.061 | | |
| .44542 | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
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| | ----- | 0.061 | ----- | | |
| .44157 | 0.061 | 0.061 | ----- | 0.1 | 0.3 |
| | ----- | 0.064 | ----- | | |
| | ----- | 0.061 | ----- | | |
| .43466 | 0.063 | 0.063 | 0.059 | 0.1 | 0.3 |
| | ----- | 0.069 | ----- | | |
| .42887 | 0.063 | ----- | ----- | 0.1 | 0.3 |
| | 0.069 | ----- | ----- | | |
| .42419 | 0.063 | ----- | ----- | 0.1 | 0.3 |
| | 0.069 | ----- | ----- | | |
| .4202 | 0.063 | 0.069 | 0.069 | 0.1 | 0.3 |
| | ----- | ----- | 0.059 | | |
| .41686 | 0.063 | ----- | ----- | 0.1 | 0.3 |
| | 0.069 | ----- | ----- | | |
| .41149 | 0.063 | 0.069 | ----- | 0.1 | 0.3 |
| | 0.069 | 0.059 | ----- | | |
| .40709 | 0.063 | 0.069 | ----- | 0.1 | 0.3 |
| | 0.069 | 0.059 | ----- | | |
| .40093 | 0.063 | ----- | ----- | 0.1 | 0.3 |
| | 0.069 | ----- | ----- | | |
| .39446 | 0.063 | ----- | ----- | 0.1 | 0.3 |
| | 0.069 | ----- | ----- | | |
| .38991 | 0.063 | 0.069 | 0.069 | 0.1 | 0.3 |

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| | | ----- | ----- | 0.059 | | |
| .38436 | | 0.063 | 0.063 | 0.069 | 0.1 | 0.3 |
| | | ----- | 0.069 | 0.059 | | |
| .37788 | | 0.063 | 0.063 | ----- | 0.1 | 0.3 |
| | | ----- | 0.069 | ----- | | |
| | | ----- | 0.059 | ----- | | |
| .37417 | | 0.063 | 0.063 | 0.059 | 0.1 | 0.3 |
| | | ----- | 0.069 | ----- | | |
| .36875 | | 0.063 | ----- | ----- | 0.1 | 0.3 |
| | | 0.019 | ----- | ----- | | |
| .36595 | Culvert-Up | 0.063 | ----- | ----- | 0.1 | 0.3 |
| | | 0.019 | ----- | ----- | | |
| .36595 | Culvert-Dn | 0.063 | 0.063 | 0.069 | 0.1 | 0.3 |
| | | ----- | 0.069 | 0.059 | | |
| .36365 | | 0.063 | 0.063 | ----- | 0.1 | 0.3 |
| | | ----- | 0.069 | ----- | | |
| | | ----- | 0.059 | ----- | | |
| .35963 | | 0.063 | 0.063 | 0.059 | 0.1 | 0.3 |
| | | ----- | 0.069 | ----- | | |
| .35631 | | 0.063 | 0.063 | 0.069 | 0.1 | 0.3 |
| | | ----- | 0.069 | 0.059 | | |
| .35325 | | 0.063 | 0.063 | 0.069 | 0.1 | 0.3 |
| | | ----- | 0.069 | 0.059 | | |
| .34893 | | 0.063 | 0.063 | 0.069 | 0.1 | 0.3 |
| | | ----- | 0.069 | 0.059 | | |
| .34588 | | 0.063 | 0.063 | ----- | 0.1 | 0.3 |
| | | ----- | 0.069 | ----- | | |
| | | ----- | 0.059 | ----- | | |
| .34303 | | 0.063 | 0.063 | ----- | 0.1 | 0.3 |
| | | ----- | 0.069 | ----- | | |
| | | ----- | 0.059 | ----- | | |
| .33986 | | 0.063 | 0.063 | ----- | 0.1 | 0.3 |
| | | ----- | 0.069 | ----- | | |
| | | ----- | 0.059 | ----- | | |
| .33232 | | 0.063 | 0.063 | 0.069 | 0.1 | 0.3 |
| | | ----- | 0.069 | 0.059 | | |
| .31529 | | 0.056 | 0.056 | ----- | 0.1 | 0.3 |
| | | ----- | 0.056 | ----- | | |
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| .30808 | | 0.056 | 0.056 | ----- | 0.1 | 0.3 |
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| .30459 | | 0.056 | 0.056 | ----- | 0.1 | 0.3 |
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| .30181 | | 0.056 | 0.056 | 0.056 | 0.1 | 0.3 |
| | | ----- | 0.056 | 0.056 | | |
| .29712 | | 0.056 | 0.056 | 0.056 | 0.1 | 0.3 |
| | | ----- | 0.056 | ----- | | |
| .29046 | | 0.056 | 0.056 | ----- | 0.1 | 0.3 |
| | | ----- | 0.056 | ----- | | |
| | | ----- | 0.056 | ----- | | |
| .28463 | | 0.056 | 0.056 | 0.056 | 0.1 | 0.3 |
| | | ----- | 0.056 | ----- | | |
| .2806 | | 0.056 | 0.056 | 0.056 | 0.1 | 0.3 |
| | | ----- | 0.056 | 0.056 | | |
| .27669 | | 0.056 | 0.056 | ----- | 0.1 | 0.3 |
| | | ----- | 0.056 | ----- | | |
| | | ----- | 0.056 | ----- | | |
| .27186 | | 0.056 | 0.056 | 0.056 | 0.1 | 0.3 |
| | | ----- | 0.056 | ----- | | |
| .26729 | | 0.056 | 0.056 | ----- | 0.1 | 0.3 |
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| .2634 | | 0.056 | 0.056 | ----- | 0.1 | 0.3 |
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| .25894 | | 0.056 | 0.056 | 0.056 | 0.1 | 0.3 |

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| | ----- | 0.056 | 0.056 | | |
| .2533 | 0.056 | 0.056 | ----- | 0.1 | 0.3 |
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| | ----- | 0.056 | ----- | | |
| .25016 | 0.056 | 0.056 | 0.056 | 0.1 | 0.3 |
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| .24595 | 0.056 | 0.056 | 0.056 | 0.1 | 0.3 |
| | ----- | 0.056 | 0.056 | | |
| .24329 | 0.056 | 0.056 | 0.056 | 0.1 | 0.3 |
| | ----- | 0.056 | 0.056 | | |
| .23992 | 0.056 | 0.056 | 0.056 | 0.1 | 0.3 |
| | ----- | 0.056 | 0.056 | | |
| .23186 | 0.056 | 0.056 | ----- | 0.1 | 0.3 |
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| .22859 | 0.056 | 0.056 | ----- | 0.1 | 0.3 |
| | ----- | 0.056 | ----- | | |
| | ----- | 0.056 | ----- | | |
| .22114 | 0.056 | 0.056 | ----- | 0.1 | 0.3 |
| | ----- | 0.056 | ----- | | |
| .21765 | 0.056 | 0.056 | ----- | 0.1 | 0.3 |
| | 0.056 | 0.056 | ----- | | |
| .21461 | 0.056 | 0.056 | ----- | 0.1 | 0.3 |
| | 0.056 | 0.056 | ----- | | |
| .20941 | 0.056 | ----- | ----- | 0.1 | 0.3 |
| | 0.056 | ----- | ----- | | |
| | 0.056 | ----- | ----- | | |
| .20885 | 0.056 | ----- | ----- | 0.1 | 0.3 |
| | 0.056 | ----- | ----- | | |
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| .20714 | 0.056 | ----- | ----- | 0.1 | 0.3 |
| | 0.056 | ----- | ----- | | |
| | 0.056 | ----- | ----- | | |
| .20431 | 0.056 | ----- | ----- | 0.1 | 0.3 |
| | 0.056 | ----- | ----- | | |
| | 0.056 | ----- | ----- | | |
| .20205 | 0.056 | ----- | ----- | 0.1 | 0.3 |
| | 0.056 | ----- | ----- | | |
| | 0.056 | ----- | ----- | | |
| .19955 | 0.056 | ----- | ----- | 0.1 | 0.3 |
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| .19719 | 0.056 | ----- | ----- | 0.1 | 0.3 |
| | 0.056 | ----- | ----- | | |
| | 0.056 | ----- | ----- | | |
| .19296 | 0.056 | 0.056 | ----- | 0.1 | 0.3 |
| | ----- | 0.056 | ----- | | |
| | ----- | 0.056 | ----- | | |
| .19051 | 0.056 | 0.056 | ----- | 0.1 | 0.3 |
| | ----- | 0.056 | ----- | | |
| | ----- | 0.056 | ----- | | |
| .18844 | 0.056 | 0.056 | ----- | 0.1 | 0.3 |
| | ----- | 0.056 | ----- | | |
| | ----- | 0.056 | ----- | | |
| .18485 | 0.056 | 0.056 | 0.056 | 0.1 | 0.3 |
| | ----- | 0.056 | ----- | | |
| .17337 | 0.056 | 0.056 | 0.056 | 0.1 | 0.3 |
| | ----- | 0.056 | 0.056 | | |
| .16793 | 0.056 | 0.056 | 0.056 | 0.1 | 0.3 |
| | ----- | 0.056 | ----- | | |
| .16413 | 0.056 | 0.056 | 0.056 | 0.1 | 0.3 |
| | ----- | 0.056 | 0.056 | | |
| .1569 | 0.056 | 0.056 | 0.056 | 0.1 | 0.3 |
| | ----- | 0.056 | 0.056 | | |
| .15225 | 0.056 | 0.056 | 0.056 | 0.1 | 0.3 |
| | ----- | 0.056 | 0.056 | | |
| .14532 | 0.056 | 0.056 | ----- | 0.1 | 0.3 |

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| | | ----- | 0.056 | ----- | | |
| | | ----- | 0.056 | ----- | | |
| .14374 | | 0.056 | 0.056 | ----- | 0.1 | 0.3 |
| | | ----- | 0.056 | ----- | | |
| | | ----- | 0.056 | ----- | | |
| .14161 | Culvert-Up | 0.056 | 0.056 | ----- | 0.1 | 0.3 |
| | | ----- | 0.056 | ----- | | |
| | | ----- | 0.056 | ----- | | |
| .14161 | Culvert-Dn | 0.056 | 0.056 | ----- | 0.1 | 0.3 |
| | | ----- | 0.056 | ----- | | |
| | | ----- | 0.056 | ----- | | |
| .13875 | | 0.056 | 0.056 | ----- | 0.1 | 0.3 |
| | | ----- | 0.056 | ----- | | |
| | | ----- | 0.056 | ----- | | |
| .13724 | | 0.056 | 0.056 | ----- | 0.1 | 0.3 |
| | | ----- | 0.056 | ----- | | |
| | | ----- | 0.056 | ----- | | |
| .13462 | | 0.056 | 0.056 | 0.056 | 0.1 | 0.3 |
| | | ----- | 0.056 | 0.081 | | |
| | | ----- | 0.056 | ----- | | |
| .12733 | | 0.056 | 0.056 | 0.056 | 0.1 | 0.3 |
| | | 0.088 | 0.056 | 0.081 | | |
| | | 0.056 | 0.056 | ----- | | |
| .11883 | | 0.088 | 0.088 | ----- | 0.1 | 0.3 |
| | | ----- | 0.083 | ----- | | |
| | | ----- | 0.081 | ----- | | |
| .11472 | | 0.088 | 0.056 | ----- | 0.1 | 0.3 |
| | | 0.056 | 0.058 | ----- | | |
| | | ----- | 0.056 | ----- | | |
| .10962 | | 0.088 | 0.058 | ----- | 0.1 | 0.3 |
| | | 0.056 | 0.056 | ----- | | |
| | | 0.058 | ----- | ----- | | |
| .10284 | | 0.056 | 0.058 | ----- | 0.1 | 0.3 |
| | | 0.058 | 0.056 | ----- | | |
| .09693 | | 0.056 | 0.058 | ----- | 0.1 | 0.3 |
| | | 0.058 | 0.056 | ----- | | |
| .09077 | | 0.056 | 0.056 | ----- | 0.1 | 0.3 |
| | | ----- | 0.058 | ----- | | |
| | | ----- | 0.056 | ----- | | |
| .08036 | | 0.056 | 0.056 | ----- | 0.1 | 0.3 |
| | | ----- | 0.058 | ----- | | |
| | | ----- | 0.056 | ----- | | |
| .0721 | | 0.056 | 0.056 | ----- | 0.1 | 0.3 |
| | | ----- | 0.058 | ----- | | |
| | | ----- | 0.056 | ----- | | |
| .06454 | | 0.041 | 0.041 | ----- | 0.1 | 0.3 |
| | | ----- | 0.054 | ----- | | |
| | | ----- | 0.041 | ----- | | |
| .05817 | | 0.041 | 0.041 | ----- | 0.1 | 0.3 |
| | | ----- | 0.054 | ----- | | |
| | | ----- | 0.041 | ----- | | |
| .04814 | | 0.041 | 0.041 | ----- | 0.1 | 0.3 |
| | | ----- | 0.054 | ----- | | |
| | | ----- | 0.041 | ----- | | |
| .03638 | | 0.041 | 0.041 | ----- | 0.1 | 0.3 |
| | | ----- | 0.054 | ----- | | |
| | | ----- | 0.041 | ----- | | |
| Ocotillo Wash 2,OW Split | | | | | | |
| .02605 | | 0.041 | 0.041 | ----- | 0.1 | 0.3 |
| | | ----- | 0.054 | ----- | | |
| | | ----- | 0.041 | ----- | | |
| .07677 | | 0.051 | 0.051 | 0.039 | 0.1 | 0.3 |
| | | ----- | 0.039 | 0.041 | | |
| | | ----- | ----- | 0.041 | | |
| Ocotillo Wash 3,Tributary-2.2 | | | | | | |
| .04992 | | 0.041 | 0.051 | 0.041 | 0.1 | 0.3 |
| | | 0.051 | 0.039 | 0.041 | | |

| | | | | | |
|---|---|---|---|---|---|
| .15352 | 0.041 | 0.041 | ----- | 0.1 | 0.3 |
| | ----- | 0.054 | ----- | | |
| | ----- | 0.041 | ----- | | |
| .10059 | 0.051 | 0.051 | ----- | 0.1 | 0.3 |
| | ----- | 0.059 | ----- | | |
| | ----- | 0.051 | ----- | | |
| .04049 | 0.058 | 0.058 | ----- | 0.1 | 0.3 |
| | ----- | 0.053 | ----- | | |
| | ----- | 0.052 | ----- | | |
| .03237 | 0.058 | 0.058 | ----- | 0.1 | 0.3 |
| | ----- | 0.053 | ----- | | |
| | ----- | 0.052 | ----- | | |
| .02833 | 0.058 | 0.058 | ----- | 0.1 | 0.3 |
| | ----- | 0.053 | ----- | | |
| | ----- | 0.052 | ----- | | |
| Ocotillo Wash 4,OWMS1 | | | | | |
| .02823 | 0.058 | 0.058 | ----- | 0.1 | 0.3 |
| | ----- | 0.053 | ----- | | |
| | ----- | 0.052 | ----- | | |
| .07616 | 0.051 | 0.051 | ----- | 0.1 | 0.3 |
| | ----- | 0.053 | ----- | | |
| | ----- | 0.052 | ----- | | |
| | ----- | 0.053 | ----- | | |
| | ----- | 0.052 | ----- | | |
| 0.07615 Lateral Weirs | | | | | |
| .04601 | 0.052 | 0.052 | ----- | 0.1 | 0.3 |
| | ----- | 0.053 | ----- | | |
| | ----- | 0.052 | ----- | | |
| | ----- | 0.053 | ----- | | |
| | ----- | 0.052 | ----- | | |
| 0.04599 Lateral Weirs | | | | | |
| .03788 | 0.052 | 0.052 | ----- | 0.1 | 0.3 |
| | ----- | 0.053 | ----- | | |
| | ----- | 0.052 | ----- | | |
| | ----- | 0.053 | ----- | | |
| | ----- | 0.052 | ----- | | |
| Ocotillo Wash 5,OWMS2 | | | | | |
| .02091 | 0.052 | 0.052 | ----- | 0.1 | 0.3 |
| | ----- | 0.053 | ----- | | |
| | ----- | 0.048 | ----- | | |
| | ----- | 0.049 | ----- | | |
| 1.89254 | 0.058 | 0.048 | ----- | 0.1 | 0.3 |
| | 0.053 | 0.049 | ----- | | |
| | ----- | 0.048 | ----- | | |
| | ----- | 0.049 | ----- | | |
| 1.89136 | 0.058 | 0.053 | ----- | 0.1 | 0.3 |
| | 0.053 | 0.048 | ----- | | |
| | ----- | 0.049 | ----- | | |
| | ----- | 0.048 | ----- | | |
| | ----- | 0.049 | ----- | | |
| 1.88981 | 0.058 | 0.048 | ----- | 0.1 | 0.3 |
| | 0.053 | 0.049 | ----- | | |
| | 0.048 | 0.048 | ----- | | |
| | ----- | 0.049 | ----- | | |
| | ----- | 0.044 | ----- | | |
| 1.88667 Inline Weir-Up | 0.058 | 0.048 | ----- | 0.1 | 0.3 |
| | 0.053 | 0.049 | ----- | | |
| | 0.048 | 0.048 | ----- | | |
| | ----- | 0.049 | ----- | | |
| | ----- | 0.044 | ----- | | |
| 1.88667 Inline Weir-Dn | 0.058 | 0.048 | ----- | 0.1 | 0.3 |
| | 0.053 | 0.049 | ----- | | |
| | 0.048 | 0.048 | ----- | | |
| | ----- | 0.049 | ----- | | |
| | ----- | 0.044 | ----- | | |
| 1.88352 | 0.058 | 0.053 | ----- | 0.1 | 0.3 |
| | 0.053 | 0.048 | ----- | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | ----- | 0.049 | ----- | | |
| | | ----- | 0.044 | ----- | | |
| 1.78861 | | 0.053 | 0.053 | ----- | 0.1 | 0.3 |
| | | 0.053 | 0.04 | ----- | | |
| | | ----- | 0.044 | ----- | | |
| 1.71509 | | 0.053 | 0.053 | ----- | 0.1 | 0.3 |
| | | ----- | 0.04 | ----- | | |
| | | ----- | 0.044 | ----- | | |
| 1.64008 | | 0.048 | 0.048 | ----- | 0.1 | 0.3 |
| | | ----- | 0.04 | ----- | | |
| | | ----- | 0.048 | ----- | | |
| 1.63731 | Inline Weir-Up | 0.048 | 0.048 | ----- | 0.1 | 0.3 |
| | | ----- | 0.04 | ----- | | |
| | | ----- | 0.048 | ----- | | |
| 1.63731 | Inline Weir-Dn | 0.048 | 0.048 | ----- | 0.1 | 0.3 |
| | | ----- | 0.04 | ----- | | |
| | | ----- | 0.048 | ----- | | |
| 1.63454 | | 0.048 | 0.048 | ----- | 0.1 | 0.3 |
| | | ----- | 0.04 | ----- | | |
| | | ----- | 0.048 | ----- | | |
| 1.63183 | | 0.048 | 0.048 | ----- | 0.1 | 0.3 |
| | | ----- | 0.04 | ----- | | |
| | | ----- | 0.048 | ----- | | |
| 1.54838 | | 0.063 | 0.063 | 0.04 | 0.1 | 0.3 |
| | | ----- | 0.053 | 0.059 | | |
| | | ----- | 0.04 | 0.048 | | |
| 1.47363 | | 0.063 | 0.063 | ----- | 0.1 | 0.3 |
| | | ----- | 0.04 | ----- | | |
| | | ----- | 0.058 | ----- | | |
| 1.41048 | | 0.063 | 0.063 | ----- | 0.1 | 0.3 |
| | | ----- | 0.04 | ----- | | |
| | | ----- | 0.058 | ----- | | |
| 1.32199 | | 0.068 | 0.04 | ----- | 0.1 | 0.3 |
| | | ----- | 0.053 | ----- | | |
| | | ----- | 0.048 | ----- | | |
| 1.20785 | | 0.058 | 0.058 | ----- | 0.1 | 0.3 |
| | | ----- | 0.04 | ----- | | |
| | | ----- | 0.053 | ----- | | |
| 1.14203 | | 0.063 | 0.063 | ----- | 0.1 | 0.3 |
| | | ----- | 0.04 | ----- | | |
| | | ----- | 0.053 | ----- | | |
| 1.0647 | | 0.063 | 0.063 | ----- | 0.1 | 0.3 |
| | | ----- | 0.04 | ----- | | |
| | | ----- | 0.053 | ----- | | |
| .97907 | | 0.063 | 0.053 | ----- | 0.1 | 0.3 |
| | | 0.053 | 0.04 | ----- | | |
| | | ----- | 0.053 | ----- | | |
| .91184 | | 0.048 | 0.048 | ----- | 0.1 | 0.3 |
| | | ----- | 0.04 | ----- | | |
| | | ----- | 0.048 | ----- | | |
| .90917 | Inline Weir-Up | 0.048 | 0.048 | ----- | 0.1 | 0.3 |
| | | ----- | 0.04 | ----- | | |
| | | ----- | 0.048 | ----- | | |
| .90917 | Inline Weir-Dn | 0.048 | 0.048 | ----- | 0.1 | 0.3 |
| | | ----- | 0.04 | ----- | | |
| | | ----- | 0.048 | ----- | | |
| .90641 | | 0.048 | 0.048 | ----- | 0.1 | 0.3 |
| | | ----- | 0.04 | ----- | | |
| | | ----- | 0.048 | ----- | | |
| .87183 | | 0.048 | 0.048 | ----- | 0.1 | 0.3 |
| | | ----- | 0.04 | ----- | | |
| | | ----- | 0.048 | ----- | | |
| .81091 | | 0.075 | 0.072 | ----- | 0.1 | 0.3 |
| | | 0.072 | 0.046 | ----- | | |
| | | ----- | 0.058 | ----- | | |
| .76067 | | 0.075 | 0.063 | 0.055 | 0.1 | 0.3 |
| | | 0.063 | 0.046 | 0.055 | | |

| | | | | | |
|---|---|---|---|---|---|
| | ----- | 0.046 | ----- | | |
| | ----- | 0.055 | ----- | | |
| .72626 | 0.069 | 0.069 | 0.07 | 0.1 | 0.3 |
| | ----- | 0.046 | 0.07 | | |
| | ----- | 0.046 | ----- | | |
| | ----- | 0.07 | ----- | | |
| .6458 | 0.069 | 0.069 | ----- | 0.1 | 0.3 |
| | ----- | 0.046 | ----- | | |
| | ----- | 0.061 | ----- | | |
| .5899 | 0.069 | 0.069 | 0.061 | 0.1 | 0.3 |
| | ----- | 0.046 | 0.061 | | |
| | ----- | 0.061 | ----- | | |
| .47442 | 0.055 | 0.055 | 0.061 | 0.1 | 0.3 |
| | ----- | 0.04 | 0.061 | | |
| | ----- | 0.061 | ----- | | |
| .38608 | 0.053 | 0.051 | 0.051 | 0.1 | 0.3 |
| | 0.051 | 0.04 | 0.057 | | |
| | ----- | 0.051 | 0.057 | | |
| .30622 | 0.051 | 0.051 | 0.051 | 0.1 | 0.3 |
| | ----- | 0.042 | 0.051 | | |
| | ----- | 0.051 | ----- | | |
| .22095 | 0.051 | 0.051 | ----- | 0.1 | 0.3 |
| | ----- | 0.042 | ----- | | |
| | ----- | 0.051 | ----- | | |
| .17947 | 0.051 | 0.051 | 0.051 | 0.1 | 0.3 |
| | ----- | 0.042 | 0.048 | | |
| | ----- | 0.051 | ----- | | |
| .13663 | 0.06 | 0.06 | ----- | 0.1 | 0.3 |
| | ----- | 0.045 | ----- | | |
| | ----- | 0.048 | ----- | | |
| .0512 | 0.06 | 0.08 | 0.063 | 0.1 | 0.3 |
| | 0.08 | 0.04 | 0.063 | | |
| | ----- | 0.063 | ----- | | |
| .00837 | 0.08 | 0.063 | 0.063 | 0.1 | 0.3 |
| | 0.063 | 0.04 | 0.063 | | |
| | ----- | 0.063 | ----- | | |

---

---Summary of Statistics---

| | Minimum | Maximum |
|---|---|---|
| Left Overbank n Value: | 0.019 | 0.088 |
| Right Overbank n Value: | 0.039 | 0.086 |
| Channel n Value: | 0.039 | 0.088 |
| Contraction Coefficient: | 0.1 | 0.1 |
| Expansion Coefficient: | 0.3 | 0.3 |

ROUGHNESS COEFFICIENT CHECK
---

RS: 0.87052
NT RC 05 The left overbank n value of 0.056 and the right overbank n value of 0.056 are less than or equal to the channel n value of 0.056 The overbank n values should be reevaluated.

RS: 0.84649
NT RC 05 The left overbank n value of 0.056 and the right overbank n value of 0.056 are less than or equal to the channel n value of 0.056 The overbank n values should be reevaluated.

RS: 0.80224
NT RC 05 The left overbank n value of 0.061 and the right overbank n value of 0.061 are less than or equal to the channel n value of 0.061 The overbank n values should be reevaluated.

RS: 0.77855

```
NT RC 05 The left overbank n value of 0.061 and the right overbank n value
         of 0.061 are less than or equal to the channel n value of 0.061
         The overbank n values should be reevaluated.

RS:      0.69212
NT RC 05 The left overbank n value of 0.061 and the right overbank n value
         of 0.061 are less than or equal to the channel n value of 0.061
         The overbank n values should be reevaluated.

RS:      0.67717
NT RC 05 The left overbank n value of 0.061 and the right overbank n value
         of 0.061 are less than or equal to the channel n value of 0.061
         The overbank n values should be reevaluated.

RS:      0.66013
NT RC 05 The left overbank n value of 0.061 and the right overbank n value
         of 0.061 are less than or equal to the channel n value of 0.061
         The overbank n values should be reevaluated.

RS:      0.64754
NT RC 05 The left overbank n value of 0.061 and the right overbank n value
         of 0.061 are less than or equal to the channel n value of 0.061
         The overbank n values should be reevaluated.

RS:      0.64472
NT RC 05 The left overbank n value of 0.061 and the right overbank n value
         of 0.061 are less than or equal to the channel n value of 0.064
         The overbank n values should be reevaluated.

RS:      0.60419
NT RC 05 The left overbank n value of 0.061 and the right overbank n value
         of 0.061 are less than or equal to the channel n value of 0.061
         The overbank n values should be reevaluated.

RS:      0.59771
NT RC 05 The left overbank n value of 0.061 and the right overbank n value
         of 0.061 are less than or equal to the channel n value of 0.061
         The overbank n values should be reevaluated.

RS:      0.58365
NT RC 05 The left overbank n value of 0.061 and the right overbank n value
         of 0.061 are less than or equal to the channel n value of 0.061
         The overbank n values should be reevaluated.

RS:      0.57998
NT RC 05 The left overbank n value of 0.061 and the right overbank n value
         of 0.061 are less than or equal to the channel n value of 0.061
         The overbank n values should be reevaluated.

RS:      0.57606
NT RC 05 The left overbank n value of 0.061 and the right overbank n value
         of 0.061 are less than or equal to the channel n value of 0.061
         The overbank n values should be reevaluated.

RS:      0.57206
NT RC 05 The left overbank n value of 0.061 and the right overbank n value
         of 0.061 are less than or equal to the channel n value of 0.061
         The overbank n values should be reevaluated.

RS:      0.54526
NT RC 05 The left overbank n value of 0.061 and the right overbank n value
         of 0.061 are less than or equal to the channel n value of 0.061
         The overbank n values should be reevaluated.

RS:      0.53109
NT RC 05 The left overbank n value of 0.061 and the right overbank n value
         of 0.061 are less than or equal to the channel n value of 0.061
```

```
         The overbank n values should be reevaluated.

RS:      0.50585
NT RC 05 The left overbank n value of 0.061 and the right overbank n value
         of 0.061 are less than or equal to the channel n value of 0.061
         The overbank n values should be reevaluated.

RS:      0.48992
NT RC 05 The left overbank n value of 0.061 and the right overbank n value
         of 0.061 are less than or equal to the channel n value of 0.061
         The overbank n values should be reevaluated.

RS:      0.47659
NT RC 05 The left overbank n value of 0.061 and the right overbank n value
         of 0.061 are less than or equal to the channel n value of 0.061
         The overbank n values should be reevaluated.

RS:      0.47214
NT RC 05 The left overbank n value of 0.061 and the right overbank n value
         of 0.061 are less than or equal to the channel n value of 0.061
         The overbank n values should be reevaluated.

RS:      0.45679
NT RC 05 The left overbank n value of 0.061 and the right overbank n value
         of 0.061 are less than or equal to the channel n value of 0.061
         The overbank n values should be reevaluated.

RS:      0.43466
NT RC 05 The left overbank n value of 0.063 and the right overbank n value
         of 0.059 are less than or equal to the channel n value of 0.063
         The overbank n values should be reevaluated.

RS:      0.37417
NT RC 05 The left overbank n value of 0.063 and the right overbank n value
         of 0.059 are less than or equal to the channel n value of 0.063
         The overbank n values should be reevaluated.

RS:      0.35963
NT RC 05 The left overbank n value of 0.063 and the right overbank n value
         of 0.059 are less than or equal to the channel n value of 0.063
         The overbank n values should be reevaluated.

RS:      0.29712
NT RC 05 The left overbank n value of 0.056 and the right overbank n value
         of 0.056 are less than or equal to the channel n value of 0.056
         The overbank n values should be reevaluated.

RS:      0.28463
NT RC 05 The left overbank n value of 0.056 and the right overbank n value
         of 0.056 are less than or equal to the channel n value of 0.056
         The overbank n values should be reevaluated.

RS:      0.27186
NT RC 05 The left overbank n value of 0.056 and the right overbank n value
         of 0.056 are less than or equal to the channel n value of 0.056
         The overbank n values should be reevaluated.

RS:      0.25016
NT RC 05 The left overbank n value of 0.056 and the right overbank n value
         of 0.056 are less than or equal to the channel n value of 0.056
         The overbank n values should be reevaluated.

RS:      0.18485
NT RC 05 The left overbank n value of 0.056 and the right overbank n value
         of 0.056 are less than or equal to the channel n value of 0.056
         The overbank n values should be reevaluated.
```

```
RS:       0.16793
NT RC 05 The left overbank n value of 0.056 and the right overbank n value
         of 0.056 are less than or equal to the channel n value of 0.056
         The overbank n values should be reevaluated.
```

TRANSITION LOSS COEFFICIENT CHECK
---

```
RS:       0.80224
NT TL 01 This is section 4
         Contraction and expansion loss coefficients are 0.1 and 0.3
         They should be equal to 0.3 and 0.5 respectively.

RS:       0.79662
NT TL 01 This is section 3
         Contraction and expansion loss coefficients are 0.1 and 0.3
         They should be equal to 0.3 and 0.5 respectively.

RS:       0.79116
NT TL 01 This is section 2
         Contraction and expansion loss coefficients are 0.1 and 0.3
         They should be equal to 0.3 and 0.5 respectively.

RS:       0.37417
NT TL 01 This is section 4
         Contraction and expansion loss coefficients are 0.1 and 0.3
         They should be equal to 0.3 and 0.5 respectively.

RS:       0.36875
NT TL 01 This is section 3
         Contraction and expansion loss coefficients are 0.1 and 0.3
         They should be equal to 0.3 and 0.5 respectively.

RS:       0.36365
NT TL 01 This is section 2
         Contraction and expansion loss coefficients are 0.1 and 0.3
         They should be equal to 0.3 and 0.5 respectively.

RS:       0.14532
NT TL 01 This is section 4
         Contraction and expansion loss coefficients are 0.1 and 0.3
         They should be equal to 0.3 and 0.5 respectively.

RS:       0.14374
NT TL 01 This is section 3
         Contraction and expansion loss coefficients are 0.1 and 0.3
         They should be equal to 0.3 and 0.5 respectively.

RS:       0.13875
NT TL 01 This is section 2
         Contraction and expansion loss coefficients are 0.1 and 0.3
         They should be equal to 0.3 and 0.5 respectively.

RS:       1.89136
NT TL 01 This is section 4
         Contraction and expansion loss coefficients are 0.1 and 0.3
         They should be equal to 0.3 and 0.5 respectively.

RS:       1.88981
NT TL 01 This is section 3
         Contraction and expansion loss coefficients are 0.1 and 0.3
         They should be equal to 0.3 and 0.5 respectively.

RS:       1.88352
NT TL 01 This is section 2
         Contraction and expansion loss coefficients are 0.1 and 0.3
         They should be equal to 0.3 and 0.5 respectively.
```

```
RS:       1.71509
NT TL 01 This is section 4
         Contraction and expansion loss coefficients are 0.1 and 0.3
         They should be equal to 0.3 and 0.5 respectively.

RS:       1.64008
NT TL 01 This is section 3
         Contraction and expansion loss coefficients are 0.1 and 0.3
         They should be equal to 0.3 and 0.5 respectively.

RS:       1.63454
NT TL 01 This is section 2
         Contraction and expansion loss coefficients are 0.1 and 0.3
         They should be equal to 0.3 and 0.5 respectively.

RS:       0.97907
NT TL 01 This is section 4
         Contraction and expansion loss coefficients are 0.1 and 0.3
         They should be equal to 0.3 and 0.5 respectively.

RS:       0.91184
NT TL 01 This is section 3
         Contraction and expansion loss coefficients are 0.1 and 0.3
         They should be equal to 0.3 and 0.5 respectively.

RS:       0.90641
NT TL 01 This is section 2
         Contraction and expansion loss coefficients are 0.1 and 0.3
         They should be equal to 0.3 and 0.5 respectively.

ROUGHNESS COEFFICIENT AT STRUCTURES
-----------------------------------

---END---
```

CHECK-RAS Program: Structure Check

Project File:
C:\GEORAS\91427\Hydraulic\RAS_Model\OW2\RM\FW\OW_OWT2_FW_03052009\OW_OWT2_FW.prj
Plan File:
C:\GEORAS\91427\Hydraulic\RAS_Model\OW2\RM\FW\OW_OWT2_FW_03052009\OW_OWT2_FW.p02
Geometry File:
C:\GEORAS\91427\Hydraulic\RAS_Model\OW2\RM\FW\OW_OWT2_FW_03052009\OW_OWT2_FW.g01
Flow File:
C:\GEORAS\91427\Hydraulic\RAS_Model\OW2\RM\FW\OW_OWT2_FW_03052009\OW_OWT2_FW.f02
Report File:
C:\GEORAS\91427\Hydraulic\RAS_Model\OW2\RM\FW\OW_OWT2_FW_03052009\OW_OWT2_FW.br
Selected profiles: PF 1;PF 2
Date: 3/6/2009
Time: 8:42:11 AM

| RS | MaxLoChord | MnTpRd | EGEL | WSEL | MinChEl | Structure |
|---|---|---|---|---|---|---|
| Ocotillo Wash 1,Tributary-2.1 | | | | | | |
| 1.00045 | | | 2407.52 | 2407.46 | 2404.68 | |
| 0.99742 | | | 2406.73 | 2406.24 | 2404.08 | |
| 0.99357 | | | 2405.96 | 2405.46 | 2403.55 | |
| 0.98932 | | | 2405.04 | 2404.86 | 2403.21 | |
| 0.98427 | | | 2404.56 | 2404.34 | 2402.61 | |
| 0.97998 | | | 2404.2 | 2404.02 | 2402.03 | |
| 0.97683 | | | 2402.95 | 2402.49 | 2400.57 | |
| 0.9718 | | | 2402.47 | 2402.3 | 2399.54 | |
| 0.96791 | | | 2402.33 | 2402.19 | 2399.15 | |
| 0.96505 | | | 2400.87 | 2400.27 | 2398.31 | |
| 0.96148 | | | 2399.79 | 2399.36 | 2397.65 | |
| 0.9575 | | | 2398.95 | 2398.45 | 2396.84 | |
| 0.95264 | | | 2398.04 | 2397.71 | 2395.57 | |
| 0.94727 | | | 2397.72 | 2397.61 | 2394.72 | |
| 0.94451 | | | 2397.66 | 2397.61 | 2394.32 | |
| 0.94232 | | | 2396.19 | 2395.9 | 2393.81 | |
| 0.93999 | | | 2395.84 | 2395.3 | 2393.48 | |
| 0.93325 | | | 2394.17 | 2393.65 | 2391.92 | |
| 0.9291 | | | 2393.32 | 2393.01 | 2391.31 | |
| 0.92475 | | | 2392.61 | 2392.15 | 2390.26 | |
| 0.91774 | | | 2390.91 | 2390.54 | 2388.56 | |
| 0.91024 | | | 2389.74 | 2389.21 | 2386.71 | |
| 0.90213 | | | 2388.3 | 2387.66 | 2385.16 | |
| 0.89706 | | | 2387.09 | 2386.45 | 2383.48 | |
| 0.89309 | | | 2386.27 | 2385.79 | 2382.23 | |
| 0.88715 | | | 2385.42 | 2385.11 | 2381.97 | |
| 0.88288 | | | 2385.15 | 2385.04 | 2381.57 | |
| 0.87849 | | | 2385.06 | 2385.01 | 2380.69 | |
| 0.87485 | | | 2383.09 | 2382.64 | 2379.78 | |
| 0.87052 | | | 2382.23 | 2381.82 | 2378.94 | |
| 0.86746 | | | 2381.83 | 2381.54 | 2378.22 | |
| 0.85876 | | | 2380.6 | 2380.05 | 2377.48 | |
| 0.85249 | | | 2379.45 | 2379.09 | 2376.61 | |
| 0.84649 | | | 2378.53 | 2378.17 | 2375.62 | |
| 0.83957 | | | 2377.64 | 2377.44 | 2374.73 | |
| 0.83091 | | | 2376.49 | 2375.93 | 2373.56 | |
| 0.82372 | | | 2374.64 | 2374.05 | 2371.88 | |
| 0.81567 | | | 2373.08 | 2372.46 | 2369.62 | |
| 0.80861 | | | 2371.99 | 2371.72 | 2368.5 | |
| 0.80224 | | | 2371.68 | 2371.52 | 2368.37 | |
| 0.79662 | | | 2371.64 | 2371.6 | 2367.56 | |
| 0.79392 | | | | | | |
| | 2369.06 | 2370.43 | 0 | 2369.06 | 2367.56 | Culvert #1-Up |
| 0.79392 | | | | | | |
| | 2368.64 | 2369.76 | 0 | 2368.64 | 2367.14 | Culvert #1-Dn |
| 0.79392 | | | | | | |
| | 2369.25 | 2370.43 | 0 | 2369.25 | 2367.75 | Culvert #2-Up |

| | | | | | | |
|---|---|---|---|---|---|---|
| 0.79392 | | | | | | |
| | 2368.56 | 2369.76 | 0 | 2368.56 | 2367.06 | Culvert #2-Dn |
| 0.79116 | | | 2369.42 | 2369.08 | 2366.56 | |
| 0.78443 | | | 2369.13 | 2369.02 | 2364.99 | |
| 0.77855 | | | 2366.99 | 2366.49 | 2363.71 | |
| 0.77184 | | | 2365.84 | 2365.19 | 2362.66 | |
| 0.76182 | | | 2364.11 | 2363.73 | 2360.82 | |
| 0.75751 | | | 2363.6 | 2362.98 | 2359.59 | |
| 0.7527 | | | 2362.73 | 2362.38 | 2358.93 | |
| 0.74863 | | | 2362.25 | 2361.66 | 2358.74 | |
| 0.74402 | | | 2361.31 | 2360.84 | 2358.49 | |
| 0.73982 | | | 2360.82 | 2360.6 | 2358.18 | |
| 0.73537 | | | 2360.29 | 2359.77 | 2357.84 | |
| 0.73227 | | | 2359.64 | 2359.35 | 2357.62 | |
| 0.72875 | | | 2359.44 | 2359.4 | 2357.1 | |
| 0.72704 | | | 2358.69 | 2358.44 | 2356.38 | |
| 0.72322 | | | 2358.2 | 2357.78 | 2355.7 | |
| 0.71808 | | | 2357.32 | 2356.8 | 2354 | |
| 0.71174 | | | 2356.41 | 2355.88 | 2352.77 | |
| 0.70813 | | | 2355.99 | 2355.57 | 2352.24 | |
| 0.70419 | | | 2355.73 | 2355.5 | 2351.07 | |
| 0.70129 | | | 2354.69 | 2353.99 | 2350.99 | |
| 0.69806 | | | 2354.08 | 2353.37 | 2350.96 | |
| 0.69661 | | | 2353.78 | 2353.09 | 2350.67 | |
| 0.69212 | | | 2353.22 | 2352.91 | 2349.45 | |
| 0.6888 | | | 2353.05 | 2352.81 | 2348.89 | |
| 0.688 | | | 2352.12 | 2351.41 | 2348.79 | |
| 0.68404 | | | 2350.95 | 2350.49 | 2348.39 | |
| 0.67717 | | | 2350.15 | 2350.12 | 2347.04 | |
| 0.67671 | | | 2349.39 | 2349.14 | 2347.57 | |
| 0.66963 | | | 2348.36 | 2348.16 | 2346.47 | |
| 0.66458 | | | 2347.99 | 2347.88 | 2345.75 | |
| 0.66013 | | | 2347.77 | 2347.56 | 2345.17 | |
| 0.65574 | | | 2347.6 | 2347.5 | 2344.15 | |
| 0.6515 | | | 2347.51 | 2347.39 | 2343.39 | |
| 0.64754 | | | 2347.32 | 2346.79 | 2342.89 | |
| 0.64472 | | | 2346.84 | 2345.82 | 2341.94 | |
| 0.64111 | | | 2346.04 | 2345.18 | 2341.44 | |
| 0.63638 | | | 2345.18 | 2344.25 | 2340.83 | |
| 0.63432 | | | 2344.28 | 2343.34 | 2339.68 | |
| 0.6327 | | | 2343.95 | 2343.04 | 2339.59 | |
| 0.62989 | | | 2342.47 | 2341.97 | 2339.05 | |
| 0.62721 | | | 2342.05 | 2341.39 | 2338.63 | |
| 0.62332 | | | 2341.16 | 2340.61 | 2338.05 | |
| 0.61834 | | | 2340.2 | 2339.73 | 2335.86 | |
| 0.61323 | | | 2339.57 | 2338.9 | 2335.61 | |
| 0.60912 | | | 2338.88 | 2338.06 | 2334.71 | |
| 0.60419 | | | 2337.92 | 2337 | 2333.74 | |
| 0.59771 | | | 2337.06 | 2336.74 | 2333.13 | |
| 0.59247 | | | 2336.83 | 2336.65 | 2332.77 | |
| 0.58805 | | | 2336.73 | 2336.63 | 2331.96 | |
| 0.58365 | | | 2334.45 | 2333.88 | 2330.71 | |
| 0.57998 | | | 2333.97 | 2333.21 | 2330.11 | |
| 0.57606 | | | 2333.29 | 2332.33 | 2329.58 | |
| 0.57206 | | | 2332.39 | 2331.63 | 2328.76 | |
| 0.56705 | | | 2331.71 | 2331.28 | 2328.34 | |
| 0.5611 | | | 2330.94 | 2330.16 | 2327.74 | |
| 0.55629 | | | 2330.13 | 2329.58 | 2326.64 | |
| 0.55157 | | | 2329.55 | 2329.02 | 2326.19 | |
| 0.54526 | | | 2328.66 | 2327.99 | 2324.97 | |
| 0.53814 | | | 2327.45 | 2326.68 | 2323.99 | |
| 0.53109 | | | 2326.19 | 2325.32 | 2322.11 | |
| 0.52363 | | | 2325.13 | 2324.67 | 2321.5 | |
| 0.51582 | | | 2324.54 | 2324.25 | 2320.83 | |
| 0.50951 | | | 2324.31 | 2324.19 | 2320.2 | |
| 0.50585 | | | 2324.25 | 2324.16 | 2319.82 | |
| 0.50158 | | | 2322.01 | 2321.46 | 2318.91 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 0.49706 | | | 2321.35 | 2320.75 | 2318.57 | |
| 0.49372 | | | 2320.8 | 2320.45 | 2318.12 | |
| 0.48992 | | | 2320.26 | 2319.74 | 2317.71 | |
| 0.48713 | | | 2319.61 | 2319.17 | 2317.08 | |
| 0.48294 | | | 2318.85 | 2318.49 | 2315.93 | |
| 0.47933 | | | 2318.29 | 2317.84 | 2315.45 | |
| 0.47659 | | | 2317.71 | 2317 | 2314.44 | |
| 0.47214 | | | 2316.64 | 2315.97 | 2313.68 | |
| 0.46798 | | | 2315.83 | 2315.12 | 2312.51 | |
| 0.46248 | | | 2314.89 | 2314.43 | 2312.05 | |
| 0.45679 | | | 2314.01 | 2313.41 | 2311.49 | |
| 0.45211 | | | 2313.18 | 2312.62 | 2310.56 | |
| 0.44542 | | | 2312.09 | 2311.42 | 2309.14 | |
| 0.44157 | | | 2311.47 | 2311 | 2308.68 | |
| 0.43466 | | | 2310.76 | 2310.44 | 2307.4 | |
| 0.42887 | | | 2310.03 | 2309.35 | 2306.87 | |
| 0.42419 | | | 2309.24 | 2308.86 | 2306.42 | |
| 0.4202 | | | 2309 | 2308.89 | 2305.35 | |
| 0.41686 | | | 2307.58 | 2307.34 | 2304.23 | |
| 0.41149 | | | 2307.11 | 2306.64 | 2303.6 | |
| 0.40709 | | | 2306.55 | 2306.18 | 2302.76 | |
| 0.40093 | | | 2305.64 | 2304.88 | 2301.62 | |
| 0.39446 | | | 2304.09 | 2303.34 | 2300.35 | |
| 0.38991 | | | 2303.1 | 2302.8 | 2299.38 | |
| 0.38436 | | | 2302.84 | 2302.72 | 2298.83 | |
| 0.37788 | | | 2302.76 | 2302.72 | 2298.12 | |
| 0.37417 | | | 2302.74 | 2302.71 | 2297.67 | |
| 0.36875 | | | 2302.74 | 2302.71 | 2297.46 | |
| 0.36595 | | | | | | |
| | 2300.82 | 2303.49 | 0 | 2300.82 | 2297.32 | Culvert #1-Up |
| 0.36595 | | | | | | |
| | 2300.51 | 2303.39 | 0 | 2299.9 | 2297.01 | Culvert #1-Dn |
| 0.36595 | | | | | | |
| | 2300.57 | 2303.49 | 0 | 2300.57 | 2297.07 | Culvert #2-Up |
| 0.36595 | | | | | | |
| | 2300.65 | 2303.39 | 0 | 2300.03 | 2297.15 | Culvert #2-Dn |
| 0.36595 | | | | | | |
| | 2300.63 | 2303.49 | 0 | 2300.63 | 2297.13 | Culvert #3-Up |
| 0.36595 | | | | | | |
| | 2300.25 | 2303.39 | 0 | 2299.88 | 2296.75 | Culvert #3-Dn |
| 0.36365 | | | 2300.02 | 2299.88 | 2296.16 | |
| 0.35963 | | | 2299.94 | 2299.85 | 2295.71 | |
| 0.35631 | | | 2298.1 | 2297.47 | 2295.59 | |
| 0.35325 | | | 2297.31 | 2296.66 | 2294.88 | |
| 0.34893 | | | 2296.28 | 2295.75 | 2293.58 | |
| 0.34588 | | | 2295.75 | 2295.5 | 2293.46 | |
| 0.34303 | | | 2295.27 | 2294.77 | 2293.13 | |
| 0.33986 | | | 2294.64 | 2294.25 | 2291.54 | |
| 0.33232 | | | 2293.51 | 2292.98 | 2290.52 | |
| 0.31529 | | | 2291.75 | 2291.29 | 2287.88 | |
| 0.30808 | | | 2291.53 | 2291.48 | 2287.29 | |
| 0.30459 | | | 2290.18 | 2289.58 | 2286.9 | |
| 0.30181 | | | 2289.77 | 2289.17 | 2286.35 | |
| 0.29712 | | | 2289 | 2288.38 | 2285.53 | |
| 0.29046 | | | 2287.48 | 2287.07 | 2284.32 | |
| 0.28463 | | | 2286.75 | 2286.1 | 2283.77 | |
| 0.2806 | | | 2286.18 | 2285.58 | 2283.08 | |
| 0.27669 | | | 2285.38 | 2284.7 | 2281.73 | |
| 0.27186 | | | 2284.37 | 2283.84 | 2280.7 | |
| 0.26729 | | | 2284.01 | 2283.75 | 2280.5 | |
| 0.2634 | | | 2283.7 | 2283.03 | 2280.45 | |
| 0.25894 | | | 2283 | 2282.38 | 2279.68 | |
| 0.2533 | | | 2281.89 | 2281.36 | 2278.56 | |
| 0.25016 | | | 2281.47 | 2280.82 | 2278.26 | |
| 0.24595 | | | 2280.66 | 2280.29 | 2277.57 | |
| 0.24329 | | | 2280.44 | 2280.03 | 2277.21 | |
| 0.23992 | | | 2280.08 | 2279.48 | 2276.82 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 0.23186 | | | 2278.84 | 2278.36 | 2275.94 | |
| 0.22859 | | | 2278.42 | 2278 | 2275.66 | |
| 0.22114 | | | 2277.6 | 2277.31 | 2275.16 | |
| 0.21765 | | | 2277.28 | 2276.9 | 2274.87 | |
| 0.21461 | | | 2276.86 | 2276.31 | 2274.71 | |
| 0.20941 | | | 2275.76 | 2275.64 | 2273.51 | |
| 0.20885 | | | 2275.73 | 2275.68 | 2271.07 | |
| 0.20714 | | | 2274.1 | 2273.64 | 2271.25 | |
| 0.20431 | | | 2273.24 | 2272.87 | 2271.01 | |
| 0.20205 | | | 2272.93 | 2272.72 | 2270.65 | |
| 0.19955 | | | 2272.66 | 2272.36 | 2270.21 | |
| 0.19719 | | | 2272.25 | 2271.79 | 2269.71 | |
| 0.19296 | | | 2271.32 | 2270.99 | 2268.74 | |
| 0.19051 | | | 2271.15 | 2270.82 | 2268.37 | |
| 0.18844 | | | 2270.95 | 2270.47 | 2267.98 | |
| 0.18485 | | | 2270.62 | 2270.23 | 2267.17 | |
| 0.17337 | | | 2269.54 | 2268.92 | 2266.07 | |
| 0.16793 | | | 2268.71 | 2268.12 | 2265.5 | |
| 0.16413 | | | 2268.13 | 2267.48 | 2264.72 | |
| 0.1569 | | | 2267.03 | 2266.44 | 2263.03 | |
| 0.15225 | | | 2266.48 | 2265.75 | 2262.49 | |
| 0.14532 | | | 2265.77 | 2265.69 | 2261.41 | |
| 0.14374 | | | 2265.75 | 2265.71 | 2261.05 | |
| 0.14161 | | | | | | |
| | 2262.75 | 2264.4 | 0 | 2262.75 | 2261.05 | Culvert #1-Up |
| 0.14161 | | | | | | |
| | 2262.76 | 2264.02 | 0 | 2262.76 | 2261.06 | Culvert #1-Dn |
| 0.13875 | | | 2263.72 | 2263.58 | 2261.07 | |
| 0.13724 | | | 2263.67 | 2263.57 | 2260 | |
| 0.13462 | | | 2263.32 | 2263.16 | 2260 | |
| 0.12733 | | | 2263.14 | 2262.96 | 2259.14 | |
| 0.11883 | | | 2262.46 | 2261.43 | 2258.02 | |
| 0.11472 | | | 2261.77 | 2261.6 | 2257.32 | |
| 0.10962 | | | 2259.99 | 2259.24 | 2256.35 | |
| 0.10284 | | | 2258.62 | 2258.11 | 2255.06 | |
| 0.09693 | | | 2257.88 | 2257.33 | 2254.51 | |
| 0.09077 | | | 2256.71 | 2256.01 | 2253.47 | |
| 0.08036 | | | 2255.47 | 2255.37 | 2252.41 | |
| 0.0721 | | | 2254.18 | 2253.94 | 2251.46 | |
| 0.06454 | | | 2253.17 | 2252.61 | 2250.51 | |
| 0.05817 | | | 2252.06 | 2251.66 | 2249.67 | |
| 0.04814 | | | 2250.5 | 2250.28 | 2248.65 | |
| 0.03638 | | | 2249.07 | 2248.77 | 2247.42 | |
| 0.02605 | | | 2247.94 | 2247.88 | 2246.15 | |
| Ocotillo Wash 2,OW Split | | | | | | |
| 0.07677 | | | 2253.92 | 2253.7 | 2252.37 | |
| 0.04992 | | | 2251.46 | 2251.17 | 2249.98 | |
| Ocotillo Wash 3,Tributary-2.2 | | | | | | |
| 0.15352 | | | 2244.37 | 2244.11 | 2242.27 | |
| 0.10059 | | | 2236.96 | 2236.49 | 2234.24 | |
| 0.04049 | | | 2231.77 | 2231.48 | 2228.24 | |
| 0.03237 | | | 2231.43 | 2231.23 | 2227.41 | |
| 0.02833 | | | 2231.33 | 2231.12 | 2227.1 | |
| 0.02823 | | | 2231.33 | 2231.12 | 2227.08 | |
| Ocotillo Wash 4,OWMS1 | | | | | | |
| 0.07616 | | | 2238.74 | 2237.53 | 2234.08 | |
| 0.04601 | | | 2234.65 | 2233.8 | 2229.77 | |
| 0.07615 | | | | | | |
| | Lateral Weirs | | | | | |
| 0.03788 | | | 2233.83 | 2233 | 2229.24 | |
| 0.04599 | | | | | | |
| | Lateral Weirs | | | | | |
| 0.02091 | | | 2231.78 | 2230.63 | 2227.17 | |
| 0.03786 | | | | | | |
| | Lateral Weirs | | | | | |
| Ocotillo Wash 5,OWMS2 | | | | | | |
| 1.89254 | | | 2228.22 | 2227.17 | 2222.97 | |

| | | | | | |
|---|---|---|---|---|---|
| 1.89136 | | 2226.67 | 2226.28 | 2222.9 | |
| 1.88981 | | 2226.58 | 2226.31 | 2222.91 | |
| 1.88667 | 2223.35 | 2226.58 | 2226.31 | 2222.91 | Inline-Up |
| 1.88667 | 2223.35 | | | | Inline-Dn |
| 1.88352 | | 2226.35 | 2225.99 | 2223.02 | |
| 1.78861 | | 2220.16 | 2218.88 | 2212.08 | |
| 1.71509 | | 2212.31 | 2210.83 | 2206.15 | |
| 1.64008 | | 2205.34 | 2204.85 | 2200.22 | |
| 1.63731 | 2200.236 | 2205.34 | 2204.85 | 2200.22 | Inline-Up |
| 1.63731 | 2200.236 | | | | Inline-Dn |
| 1.63454 | | 2204.6 | 2203.39 | 2199.77 | |
| 1.63183 | | 2204.24 | 2203.26 | 2199.09 | |
| 1.54838 | | 2193.91 | 2193.48 | 2188.14 | |
| 1.47363 | | 2185.69 | 2185.04 | 2179.92 | |
| 1.41048 | | 2178.37 | 2177.63 | 2172.42 | |
| 1.32199 | | 2167.51 | 2166.74 | 2160.48 | |
| 1.20785 | | 2155.49 | 2154.76 | 2151.1 | |
| 1.14203 | | 2149.27 | 2148.25 | 2143.89 | |
| 1.0647 | | 2140.3 | 2139.83 | 2135.53 | |
| 0.97907 | | 2130.73 | 2129.92 | 2126.32 | |
| 0.91184 | | 2124.68 | 2124.1 | 2119.74 | |
| 0.90917 | 2119.74 | 2124.68 | 2124.1 | 2119.74 | Inline-Up |
| 0.90917 | 2119.74 | | | | Inline-Dn |
| 0.90641 | | 2123.44 | 2122.3 | 2118.54 | |
| 0.87183 | | 2119.44 | 2118.2 | 2112.84 | |
| 0.81091 | | 2113.8 | 2112.61 | 2107.54 | |
| 0.76067 | | 2109.61 | 2108.92 | 2101.43 | |
| 0.72626 | | 2107.7 | 2106.39 | 2099.32 | |
| 0.6458 | | 2100.31 | 2098.8 | 2091.66 | |
| 0.5899 | | 2095.22 | 2094.35 | 2086.09 | |
| 0.47442 | | 2086.42 | 2084.6 | 2075.68 | |
| 0.38608 | | 2077.49 | 2075.24 | 2067.44 | |
| 0.30622 | | 2068.23 | 2066.95 | 2061.22 | |
| 0.22095 | | 2057.92 | 2057.41 | 2051.48 | |
| 0.17947 | | 2055.42 | 2053.39 | 2047.88 | |
| 0.13663 | | 2050.97 | 2048.57 | 2040.92 | |
| 0.0512 | | 2042.53 | 2041.44 | 2033.26 | |
| 0.00837 | | 2040.23 | 2039 | 2028.91 | |

RIVER/REACH: Ocotillo Wash 1, Tributary-2.1
RIVER STATION: 0.79392
TYPE OF STRUCTURE: Culvert

| | |
|---|---|
| Description: | Double CMP across 72nd Street |
| Distance from Upstream XS: | 5 |
| Deck/Roadway Width: | 14 |
| Weir Coefficient: | 2.6 |
| Maximum allowable submergence for weir flow: | 0.95 |
| Elevation at which weir flow begins: | 0 |
| Weir crest shape: | Broad Crested |

| Sec | River Station | Length Channel | WSEL | Surch. | EGEL | TopWidth Actual | |
|---|---|---|---|---|---|---|---|
| 4 | 0.80224 | 29.67 | 2371.52 | 0 | 2371.68 | 50.23 | |
| 4 | 0.80224 | 29.67 | 2371.99 | 0.47 | 2372.18 | 24.54 | |
| 3 | 0.79662 | 28.83 | 2371.6 | 0 | 2371.64 | 74.14 | |
| 3 | 0.79662 | 28.83 | 2372.08 | 0.48 | 2372.12 | 41.12 | |
| | 0.79392 | 20.00 | 2369.06 | 0 | 0 | 0 | Culvert #1-Up |
| | 0.79392 | 4.83 | 2368.64 | 0 | 0 | 0 | Culvert #1-Dn |
| | 0.79392 | 20.00 | 2369.06 | 0 | 0 | 0 | Culvert #1-Up |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 0.79392 | 4.83 | 2368.64 | 0 | 0 | 0 | Culvert #1-Dn |
| | 0.79392 | 20.00 | 2369.25 | 0 | 0 | 0 | Culvert #2-Up |
| | 0.79392 | 4.83 | 2368.56 | 0 | 0 | 0 | Culvert #2-Dn |
| | 0.79392 | 20.00 | 2369.25 | 0 | 0 | 0 | Culvert #2-Up |
| | 0.79392 | 4.83 | 2368.56 | 0 | 0 | 0 | Culvert #2-Dn |
| 2 | 0.79116 | 35.52 | 2369.08 | 0 | 2369.42 | 47.5 | |
| 2 | 0.79116 | 35.52 | 2369.88 | 0.79 | 2370.06 | 31.49 | |
| 1 | 0.78443 | 294.01 | 2369.02 | 0 | 2369.13 | 52.84 | |
| 1 | 0.78443 | 294.01 | 2369.69 | 0.67 | 2369.86 | 19.77 | |

| Ineffective Flow, Section 3 | | | Ineffective Flow, Section 2 | | |
|---|---|---|---|---|---|
| Sta L | Sta R | Elev | Sta L | Sta R | Elev |

| Opening Type | StagStaL | StagStaR | EncStaL | EncStaR | LIfStaS | RIfStaS |
|---|---|---|---|---|---|---|
| Culvert Group | | | | | | U |
| | | | | | | D |
| | | | 0 | 0 | | U |
| | | | 0 | 0 | | D |

CULVERT:
Culvert Name: Culvert #1
Shape: Circular Rise: 1.5 Span: 0 Barrels: 1
FHWA Chart #: # 2 - Corrugated Metal Pipe C
FHWA Scale #: # 3 - Pipe projecting from fill
Solution Crit:Highest U.S. EG

UpstrmDist: 4 Length: 20 n-Value: 0.024
EntLossCoef: 0.9 ExtLossCoef: 1 CulvInvElU 2367.56 CulvInvElD 2367.14
LCntStaU: 133.25 RCntStaU: 133.25 LCntStaD 123.99 RCntStaD 123.99
Culvert Depth Blocked: 0

| | | | | | |
|---|---|---|---|---|---|
| Culv Area: | 1.77 | CulvQ: | 12.76 | MinTopRd: | 2370.44 |
| | 1.77 | | 11.97 | | 2370.44 |

| | LAbutSt | RAbutSt | LMnTpRd | RMnTpRd | MnTpRd | MxLoCd | |
|---|---|---|---|---|---|---|---|
| Culvert #1 | 132.5 | 134 | 2370.43 | 2370.43 | 2370.43 | 2369.06 | U |
| | 123.24 | 124.74 | 2369.76 | 2369.76 | 2369.76 | 2368.64 | D |
| | 132.5 | 134 | 2370.43 | 2370.43 | 2370.43 | 2369.06 | U |
| | 123.24 | 124.74 | 2369.76 | 2369.76 | 2369.76 | 2368.64 | D |

CULVERT:
Culvert Name: Culvert #2
Shape: Circular Rise: 1.5 Span: 0 Barrels: 1
FHWA Chart #: # 2 - Corrugated Metal Pipe C
FHWA Scale #: # 3 - Pipe projecting from fill
Solution Crit:Highest U.S. EG

UpstrmDist: 4 Length: 20 n-Value: 0.024
EntLossCoef: 0.9 ExtLossCoef: 1 CulvInvElU 2367.75 CulvInvElD 2367.06

LCntStaU: 136.75 RCntStaU: 136.75 LCntStaD 127.39 RCntStaD 127.39
Culvert Depth Blocked: 0

| | | | | | |
|---|---|---|---|---|---|
| Culv Area: | 1.77 | CulvQ: | 12.81 | MinTopRd: | 2370.44 |
| | 1.77 | | 12.01 | | 2370.44 |

| | LAbutSt | RAbutSt | LMnTpRd | RMnTpRd | MnTpRd | MxLoCd | |
|---|---|---|---|---|---|---|---|
| Culvert #2 | 136 | 137.5 | 2370.43 | 2370.43 | 2370.43 | 2369.25 | U |
| | 126.64 | 128.14 | 2369.76 | 2369.76 | 2369.76 | 2368.56 | D |
| | 136 | 137.5 | 2370.43 | 2370.43 | 2370.43 | 2369.25 | U |
| | 126.64 | 128.14 | 2369.76 | 2369.76 | 2369.76 | 2368.56 | D |

| Name | Q Total. | Q Struc | Q Weir | Selected Method | Flow Type |
|---|---|---|---|---|---|
| Culvert #1 | | 12.76 | 234.43 | Highest U.S. EG | Pressure and Weir Flow |
| | | 11.97 | 235.59 | Highest U.S. EG | Pressure and Weir Flow |
| Culvert #2 | | 12.81 | 234.43 | Highest U.S. EG | Pressure and Weir Flow |
| | | 12.01 | 235.59 | Highest U.S. EG | Pressure and Weir Flow |

GEOMETRIC CHECK
---

RS: 0.79392
ST GD 03 The end station of 306.01 from downstream road/weir data is greater than the end station of 300.03 from downstream internal section.
The high chord elevation of 2371.76 for the end road/weir station is greater than the ground elevation of 2371.38 for the end ground station.
The EGEL at section 3 of 2371.64 is greater than the ground elevation.
The road/weir data should be included in the ground data

TYPE OF FLOW CHECK
---

RS: 0.79392 This is Culvert #1
CV PW 01 Type of flow is pressure and weir flow because,
1. EGEL 3 of 2371.64 is greater than MinTopRd of 2370.44.
2. CulvWSIn of 2369.06 is greater than or equal to MxLoCdU of 2369.06.
3. CulvWSOut of 2368.64 is greater than or equal to MxLoCdD of 2368.64.

RS: 0.79392 This is Culvert #2
CV PW 01 Type of flow is pressure and weir flow because,
1. EGEL 3 of 2371.64 is greater than MinTopRd of 2370.44.
2. CulvWSIn of 2369.25 is greater than or equal to MxLoCdU of 2369.25.
3. CulvWSOut of 2368.56 is greater than or equal to MxLoCdD of 2368.56.

RS: 0.79392 This is Culvert #1
CV PW 01 Type of flow is pressure and weir flow because,
1. EGEL 3 of 2372.12 is greater than MinTopRd of 2370.44.
2. CulvWSIn of 2369.06 is greater than or equal to MxLoCdU of 2369.06.
3. CulvWSOut of 2368.64 is greater than or equal to MxLoCdD of 2368.64.

RS: 0.79392 This is Culvert #2
CV PW 01 Type of flow is pressure and weir flow because,
1. EGEL 3 of 2372.12 is greater than MinTopRd of 2370.44.

2. CulvWSIn of 2369.25 is greater than or equal to MxLoCdU of 2369.25.
3. CulvWSOut of 2368.56 is greater than or equal to MxLoCdD of 2368.56.

DISTANCE CHECK
---

CULVERT COEFFICIENT CHECK
---

CULVERT CRITERIA CHECK
---

INEFFECTIVE FLOW CHECK
---

FLOODWAY CHECK
---

RS: 0.79392 This is Culvert
ST FW 01 Encroachment Method was not specified at this river station.
For flood insurance studies Encroachment Methods 4 and 1
should be used.

---

RIVER/REACH: Ocotillo Wash 1, Tributary-2.1
RIVER STATION: 0.36595
TYPE OF STRUCTURE: Culvert

---

| | |
|---|---|
| Description: | Triple CMP at private driveway |
| Parcel 216-14-001- | |
| Distance from Upstream XS: | 3 |
| Deck/Roadway Width: | 23 |
| Weir Coefficient: | 2.6 |
| Maximum allowable submergence for weir flow: | 0.95 |
| Elevation at which weir flow begins: | 2303.48 |
| Weir crest shape: | Broad Crested |

---

| Sec | River Station | Length Channel | WSEL | Surch. | EGEL | TopWidth Actual | |
|---|---|---|---|---|---|---|---|
| 4 | 0.37417 | 28.66 | 2302.71 | 0 | 2302.74 | 65.46 | |
| 4 | 0.37417 | 28.66 | 2302.8 | 0.09 | 2302.86 | 33.52 | |
| 3 | 0.36875 | 26.89 | 2302.71 | 0 | 2302.74 | 45.84 | |
| 3 | 0.36875 | 26.89 | 2302.82 | 0.11 | 2302.84 | 40.6 | |
| | 0.36595 | 22.00 | 2300.82 | 0 | 0 | 0 | Culvert #1-Up |
| | 0.36595 | 4.89 | 2299.9 | 0 | 0 | 0 | Culvert #1-Dn |
| | 0.36595 | 22.00 | 2300.82 | 0 | 0 | 0 | Culvert #1-Up |
| | 0.36595 | 4.89 | 2300.36 | 0 | 0 | 0 | Culvert #1-Dn |
| | 0.36595 | 22.00 | 2300.57 | 0 | 0 | 0 | Culvert #2-Up |
| | 0.36595 | 4.89 | 2300.03 | 0 | 0 | 0 | Culvert #2-Dn |
| | 0.36595 | 22.00 | 2300.57 | 0 | 0 | 0 | Culvert #2-Up |
| | 0.36595 | 4.89 | 2300.36 | 0 | 0 | 0 | Culvert #2-Dn |
| | 0.36595 | 22.00 | 2300.63 | 0 | 0 | 0 | Culvert #3-Up |
| | 0.36595 | 4.89 | 2299.88 | 0 | 0 | 0 | Culvert #3-Dn |
| | 0.36595 | 22.00 | 2300.63 | 0 | 0 | 0 | Culvert #3-Up |
| | 0.36595 | 4.89 | 2300.25 | 0 | 0 | 0 | Culvert #3-Dn |
| 2 | 0.36365 | 21.22 | 2299.88 | 0 | 2300.02 | 34.53 | |
| 2 | 0.36365 | 21.22 | 2300.36 | 0.48 | 2300.48 | 26.05 | |
| 1 | 0.35963 | 272.22 | 2299.85 | 0 | 2299.94 | 48.52 | |
| 1 | 0.35963 | 272.22 | 2300.31 | 0.46 | 2300.41 | 26.08 | |

---

Ineffective Flow, Section 3 Ineffective Flow, Section 2

```
         Sta L     Sta R     Elev                Sta L     Sta R     Elev
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------


Opening Type       StagStaL    StagStaR  EncStaL   EncStaR   LIfStaS   RIfStaS
-------------------------------------------------------------------------------
Culvert Group                                                                U
                                                                             D
                                         0         0                         U
                                         0         0                         D
-------------------------------------------------------------------------------

CULVERT:
Culvert Name: Culvert #1
Shape:        Circular       Rise:      3.5       Span:           0        Barrels:
1
FHWA Chart #: # 2 - Corrugated Metal Pipe C
FHWA Scale #: # 1 - Headwall
Solution Crit:Highest U.S. EG

UpstrmDist:    0        Length:         22        n-Value:        0.024
EntLossCoef:   0.5      ExtLossCoef:    1         CulvInvElU      2297.32  CulvInvElD
2297.01
LCntStaU:      56.91    RCntStaU:       56.91     LCntStaD        81.59    RCntStaD
81.59
Culvert Depth Blocked:   0


-------------------------------------------------------------------------------
Culv Area:     9.62     CulvQ:          85.95     MinTopRd:       2303.5
               9.62                     86.83                     2303.7
-------------------------------------------------------------------------------

                   LAbutSt   RAbutSt   LMnTpRd   RMnTpRd   MnTpRd    MxLoCd
-------------------------------------------------------------------------------
Culvert #1         55.16     58.66     2304.18   2303.49   2303.49   2300.82  U
                   79.84     83.34     2303.7    2303.39   2303.39   2300.51  D
                   55.16     58.66     2304.18   2303.49   2303.49   2300.82  U
                   79.84     83.34     2303.7    2303.39   2303.39   2300.51  D
-------------------------------------------------------------------------------

CULVERT:
Culvert Name: Culvert #2
Shape:        Circular       Rise:      3.5       Span:           0        Barrels:
1
FHWA Chart #: # 2 - Corrugated Metal Pipe C
FHWA Scale #: # 1 - Headwall
Solution Crit:Highest U.S. EG

UpstrmDist:    0        Length:         22        n-Value:        0.024
EntLossCoef:   0.5      ExtLossCoef:    1         CulvInvElU      2297.07  CulvInvElD
2297.15
LCntStaU:      61.71    RCntStaU:       61.71     LCntStaD        86.39    RCntStaD
86.39
Culvert Depth Blocked:   0


-------------------------------------------------------------------------------
Culv Area:     9.62     CulvQ:          85.32     MinTopRd:       2303.5
               9.62                     85.8                      2303.7
-------------------------------------------------------------------------------

                   LAbutSt   RAbutSt   LMnTpRd   RMnTpRd   MnTpRd    MxLoCd
-------------------------------------------------------------------------------
Culvert #2         59.96     63.46     2304.01   2303.49   2303.49   2300.57  U
                   84.64     88.14     2303.68   2303.39   2303.39   2300.65  D
```

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 59.96 | 63.46 | 2304.01 | 2303.49 | 2303.49 | 2300.57 | U |
| | 84.64 | 88.14 | 2303.68 | 2303.39 | 2303.39 | 2300.65 | D |

CULVERT:
Culvert Name: Culvert #3
Shape: Circular Rise: 3.5 Span: 0 Barrels: 1
FHWA Chart #: # 2 - Corrugated Metal Pipe C
FHWA Scale #: # 1 - Headwall
Solution Crit:Highest U.S. EG

UpstrmDist: 0 Length: 22 n-Value: 0.024
EntLossCoef: 0.5 ExtLossCoef: 1 CulvInvElU 2297.13 CulvInvElD 2296.75
LCntStaU: 66.46 RCntStaU: 66.46 LCntStaD 91.19 RCntStaD 91.19
Culvert Depth Blocked: 0

| | | | | | |
|---|---|---|---|---|---|
| Culv Area: | 9.62 | CulvQ: | 88.73 | MinTopRd: | 2303.5 |
| | 9.62 | | 87.37 | | 2303.7 |

| | LAbutSt | RAbutSt | LMnTpRd | RMnTpRd | MnTpRd | MxLoCd | |
|---|---|---|---|---|---|---|---|
| Culvert #3 | 64.71 | 68.21 | 2303.88 | 2303.49 | 2303.49 | 2300.63 | U |
| | 89.44 | 92.94 | 2303.61 | 2303.39 | 2303.39 | 2300.25 | D |
| | 64.71 | 68.21 | 2303.88 | 2303.49 | 2303.49 | 2300.63 | U |
| | 89.44 | 92.94 | 2303.61 | 2303.39 | 2303.39 | 2300.25 | D |

| Name | Q Total. | Q Struc | Q Weir | Selected Method | Flow Type |
|---|---|---|---|---|---|
| Culvert #1 | | 85.95 | 0 | Highest U.S. EG | Pressure Flow |
| | | 86.83 | 0 | Highest U.S. EG | Pressure Flow |
| Culvert #2 | | 85.32 | 0 | Highest U.S. EG | Pressure Flow |
| | | 85.8 | 0 | Highest U.S. EG | Pressure Flow |
| Culvert #3 | | 88.73 | 0 | Highest U.S. EG | Pressure Flow |
| | | 87.37 | 0 | Highest U.S. EG | Pressure Flow |

GEOMETRIC CHECK
---

TYPE OF FLOW CHECK
---

RS: 0.36595 This is Culvert #1
CV PF 01 Type of flow is pressure flow because,
1. EGEL 3 of 2302.74 is less than or equal to MinTopRd of 2303.50.
2. CulvWSIn of 2300.82 is greater than or equal to MxLoCdU of 2300.82.
3. CulvWSOut of 2299.9 is less than MxLoCdD of 2300.51.
4. Q/AD^0.5 of 4.78 is greater than or equal to 4.0.

RS: 0.36595 This is Culvert #2
CV PF 01 Type of flow is pressure flow because,
1. EGEL 3 of 2302.74 is less than or equal to MinTopRd of 2303.50.
2. CulvWSIn of 2300.57 is greater than or equal to MxLoCdU of 2300.57.
3. CulvWSOut of 2300.03 is less than MxLoCdD of 2300.65.
4. Q/AD^0.5 of 4.74 is greater than or equal to 4.0.

RS: 0.36595 This is Culvert #3
CV PF 01 Type of flow is pressure flow because,
1. EGEL 3 of 2302.74 is less than or equal to MinTopRd of 2303.50.

```
          2. CulvWSIn of 2300.63 is greater than or equal to MxLoCdU of 2300.63.
          3. CulvWSOut of 2299.88 is less than MxLoCdD of 2300.25.
          4. Q/AD^0.5 of 4.93 is greater than or equal to 4.0.

RS:       0.36595 This is Culvert #1
CV PF 01  Type of flow is pressure flow because,
          1. EGEL 3 of 2302.84 is less than or equal to MinTopRd of 2303.70.
          2. CulvWSIn of 2300.82 is greater than or equal to MxLoCdU of 2300.82.
          3. CulvWSOut of 2300.36 is less than MxLoCdD of 2300.51.
          4. Q/AD^0.5 of 4.82 is greater than or equal to 4.0.

RS:       0.36595 This is Culvert #2
CV PF 01  Type of flow is pressure flow because,
          1. EGEL 3 of 2302.84 is less than or equal to MinTopRd of 2303.70.
          2. CulvWSIn of 2300.57 is greater than or equal to MxLoCdU of 2300.57.
          3. CulvWSOut of 2300.36 is less than MxLoCdD of 2300.65.
          4. Q/AD^0.5 of 4.77 is greater than or equal to 4.0.

RS:       0.36595 This is Culvert #3
CV PF 01  Type of flow is pressure flow because,
          1. EGEL 3 of 2302.84 is less than or equal to MinTopRd of 2303.70.
          2. CulvWSIn of 2300.63 is greater than or equal to MxLoCdU of 2300.63.
          3. CulvWSOut of 2300.25 is greater than or equal to MxLoCdD of 2300.25.

DISTANCE CHECK
---------------

RS:       0.36595 This is Culvert #1
ST DT 01  'Culvert Upstrm Dist' of 0 is less than the height of the
          culvert opening of 3.5 .
          Section 3 should be placed at the foot of the road embankment or
          wing walls.
          Distances at Sections 4 & 3, and 'Distance from Upstream XS'
          should be adjusted.


RS:       0.36595 This is Culvert #2
ST DT 01  'Culvert Upstrm Dist' of 0 is less than the height of the
          culvert opening of 3.5 .
          Section 3 should be placed at the foot of the road embankment or
          wing walls.
          Distances at Sections 4 & 3, and 'Distance from Upstream XS'
          should be adjusted.


RS:       0.36595 This is Culvert #3
ST DT 01  'Culvert Upstrm Dist' of 0 is less than the height of the
          culvert opening of 3.5 .
          Section 3 should be placed at the foot of the road embankment or
          wing walls.
          Distances at Sections 4 & 3, and 'Distance from Upstream XS'
          should be adjusted.


CULVERT COEFFICIENT CHECK
-------------------------

CULVERT CRITERIA CHECK
----------------------

INEFFECTIVE FLOW CHECK
----------------------

FLOODWAY CHECK
---------------

RS:       0.36595 This is Culvert
```

ST FW 01 Encroachment Method was not specified at this river station.
For flood insurance studies Encroachment Methods 4 and 1
should be used.

---

RIVER/REACH: Ocotillo Wash 1, Tributary-2.1
RIVER STATION: 0.14161
TYPE OF STRUCTURE: Culvert

---

| | |
|---|---|
| Description: | PIPE BOX at Parcel 216-15-014-B |
| Distance from Upstream XS: | 6 |
| Deck/Roadway Width: | 11 |
| Weir Coefficient: | 2.6 |
| Maximum allowable submergence for weir flow: | 0.95 |
| Elevation at which weir flow begins: | 0 |
| Weir crest shape: | Broad Crested |

---

| Sec | River Station | Length Channel | WSEL | Surch. | EGEL | TopWidth Actual | |
|---|---|---|---|---|---|---|---|
| 4 | 0.14532 | 8.32 | 2265.69 | 0 | 2265.77 | 59.11 | |
| 4 | 0.14532 | 8.32 | 2266.39 | 0.7 | 2266.56 | 20.42 | |
| 3 | 0.14374 | 26.34 | 2265.71 | 0 | 2265.75 | 67.46 | |
| 3 | 0.14374 | 26.34 | 2266.44 | 0.73 | 2266.52 | 28.82 | |
| | 0.14161 | 11.00 | 2262.75 | 0 | 0 | 0 | Culvert #1-Up |
| | 0.14161 | 9.34 | 2262.76 | 0 | 0 | 0 | Culvert #1-Dn |
| | 0.14161 | 11.00 | 2262.75 | 0 | 0 | 0 | Culvert #1-Up |
| | 0.14161 | 9.34 | 2262.76 | 0 | 0 | 0 | Culvert #1-Dn |
| 2 | 0.13875 | 7.94 | 2263.58 | 0 | 2263.72 | 65.97 | |
| 2 | 0.13875 | 7.94 | 2264 | 0.43 | 2264.24 | 28.8 | |
| 1 | 0.13724 | 97.25 | 2263.57 | 0 | 2263.67 | 65.4 | |
| 1 | 0.13724 | 97.25 | 2264.02 | 0.45 | 2264.17 | 27.96 | |

---

| Ineffective Flow, Section 3 | | | Ineffective Flow, Section 2 | | |
|---|---|---|---|---|---|
| Sta L | Sta R | Elev | Sta L | Sta R | Elev |

---

---

| Opening Type | StagStaL | StagStaR | EncStaL | EncStaR | LIfStaS | RIfStaS |
|---|---|---|---|---|---|---|
| Culvert Group | | | | | | U |
| | | | | | | D |
| | | | 0 | 0 | | U |
| | | | 0 | 0 | | D |

---

CULVERT:
Culvert Name: Culvert #1
Shape: Ellipse Rise: 1.7 Span: 4 Barrels: 1
FHWA Chart #: # 29- Horizontal Ellipse; Con
FHWA Scale #: # 1 - Square edge with headwall
Solution Crit:Highest U.S. EG

UpstrmDist: 6 Length: 11 n-Value: 0.027
EntLossCoef: 0.5 ExtLossCoef: 1 CulvInvElU 2261.05 CulvInvElD 2261.06
LCntStaU: 51.92 RCntStaU: 51.92 LCntStaD 52.4 RCntStaD 52.4
Culvert Depth Blocked: 0.8

| | | | | | |
|---|---|---|---|---|---|
| Culv Area: | -9999 | CulvQ: | 47.75 | MinTopRd: | 2264.39 |
| | -9999 | | 51.35 | | 2264.46 |

| | LAbutSt | RAbutSt | LMnTpRd | RMnTpRd | MnTpRd | MxLoCd | |
|---|---|---|---|---|---|---|---|
| Culvert #1 | 49.92 | 53.92 | 2264.59 | 2264.4 | 2264.4 | 2262.75 | U |
| | 50.4 | 54.4 | 2264.02 | 2264.08 | 2264.02 | 2262.76 | D |
| | 49.92 | 53.92 | 2264.59 | 2264.4 | 2264.4 | 2262.75 | U |
| | 50.4 | 54.4 | 2264.02 | 2264.08 | 2264.02 | 2262.76 | D |

| Name | Q Total. | Q Struc | Q Weir | Selected Method | Flow Type |
|---|---|---|---|---|---|
| Culvert #1 | | 47.75 | 212.26 | Highest U.S. EG | Pressure and Weir Flow |
| | | 51.35 | 208.65 | Highest U.S. EG | Pressure and Weir Flow |

GEOMETRIC CHECK
---

TYPE OF FLOW CHECK
---

```
RS:       0.14161 This is Culvert #1
CV PW 01  Type of flow is pressure and weir flow because,
          1. EGEL 3 of 2265.75 is greater than MinTopRd of 2264.39.
          2. CulvWSIn of 2262.75 is equal to MxLoCdU of 2262.75.
          3. CulvWSOut of 2262.76 is equal to MxLoCdD of 2262.76.

RS:       0.14161 This is Culvert #1
CV PW 01  Type of flow is pressure and weir flow because,
          1. EGEL 3 of 2266.52 is greater than MinTopRd of 2264.46.
          2. CulvWSIn of 2262.75 is equal to MxLoCdU of 2262.75.
          3. CulvWSOut of 2262.76 is equal to MxLoCdD of 2262.76.
```

DISTANCE CHECK
---

CULVERT COEFFICIENT CHECK
---

```
RS:       0.14161 This is Culvert #1
CV CF 03  Type of material is Concrete. Culvert n-value is 0.027
          Culvert n-value is not within the recommended range.
          It should be within 0.011 and 0.017
          Please refer to Table 6.1 on page 6-20 and Tabble 6.2 on page 6-21
          of HEC-RAS Hydraulic Reference Manual, September 1998.
```

CULVERT CRITERIA CHECK
---

INEFFECTIVE FLOW CHECK
---

FLOODWAY CHECK
---

```
RS:       0.14161 This is Culvert
ST FW 01  Encroachment Method was not specified at this river station.
          For flood insurance studies Encroachment Methods 4 and 1
          should be used.
```

RIVER/REACH: Ocotillo Wash 5, OWMS2
RIVER STATION: 1.88667
TYPE OF STRUCTURE: Inline

| | |
|---|---|
| Description: | Lone Mountain Road |
| Distance from Upstream XS: | 5 |
| Deck/Roadway Width: | 22 |
| Weir Coefficient: | 2.6 |
| Maximum allowable submergence for weir flow: | 0.95 |
| Elevation at which weir flow begins: | 0 |
| Weir crest shape: | Broad Crested |

| Sec | River Station | Length Channel | WSEL | Surch. | EGEL | TopWidth Actual | |
|---|---|---|---|---|---|---|---|
| 4 | 1.89136 | 8.14 | 2226.28 | 0 | 2226.67 | 443.13 | |
| 4 | 1.89136 | 8.14 | 2226.28 | 0 | 2226.67 | 443.13 | |
| 3 | 1.88981 | 33.21 | 2226.31 | 0 | 2226.58 | 482.93 | |
| 3 | 1.88981 | 33.21 | 2226.31 | 0 | 2226.58 | 482.93 | |
| | 1.88667 | 22.00 | 2226.31 | | 2226.58 | 120.7 | Inline Weir-Up |
| | 1.88667 | 5.00 | | | | 120.7 | Inline Weir-Dn |
| | 1.88667 | 22.00 | 2226.31 | 0 | 2226.58 | 300.11 | Inline Weir-Up |
| | 1.88667 | 5.00 | | 0 | | 300.11 | Inline Weir-Dn |
| 2 | 1.88352 | 501.13 | 2225.99 | 0 | 2226.35 | 469.39 | |
| 2 | 1.88352 | 501.13 | 2225.99 | 0 | 2226.35 | 469.39 | |
| 1 | 1.78861 | 388.18 | 2218.88 | 0 | 2220.16 | 188.06 | |
| 1 | 1.78861 | 388.18 | 2218.88 | 0 | 2220.16 | 188.06 | |

| Ineffective Flow, Section 3 | | | Ineffective Flow, Section 2 | | |
|---|---|---|---|---|---|
| Sta L | Sta R | Elev | Sta L | Sta R | Elev |

INLINE WEIR:
Inline Weir Gate:

| | | | | | | |
|---|---|---|---|---|---|---|
| Dist IwD: | 5 | Height: | 0 | Width | 0 | Invert: |
| 0 | | | | | | |
| Gate Coeff: | 0 | GateType: | | TrunExp | 0 | OpenExp: |
| 0 | | | | | | |
| HeadExp: | 0 | TrunHght: | 0 | Weir Coeff: | 0 | WeirShape: |
| GateNumber: | 0 | | | | | |
| LCntStaU: | 0 | RCntStaU: | 0 | LCntStaD | 0 | RCntStaD |
| 0 | | | | | | |

MinTopRd: 2223.36
2223.36

| Gate ID | Gate # Open | Open Hght | Gate Q | Q Weir | Q Total | Flow Type |
|---|---|---|---|---|---|---|
| | 2225 | 1 | 2225.29 | 4820 | 4820 | Weir Flow |
| | 0 | 1 | 2184.67 | 4820 | 4820 | Weir Flow |

| Opening Type | StagStaL | StagStaR | EncStaL | EncStaR | LIfStaS | RIfStaS |
|---|---|---|---|---|---|---|

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Inline | | | | | -88 | -88 | U |
| | | | | | -88 | -88 | D |
| Inline | | | 0.00 | 0.00 | | | U |
| | | | 0.00 | 0.00 | | | D |

| | LAbutSt | RAbutSt | LMnTpRd | RMnTpRd | MnTpRd | MxLoCd | |
|---|---|---|---|---|---|---|---|
| | 0.00 | 0.00 | 2223.35 | 2223.35 | 2223.35 | 0.00 | U |
| | 0.00 | 0.00 | 2223.35 | 2223.35 | 2223.35 | 0.00 | D |
| | 0.00 | 0.00 | 2223.35 | 2223.35 | 2223.35 | 0.00 | U |
| | 0.00 | 0.00 | 2223.35 | 2223.35 | 2223.35 | 0.00 | D |

GEOMETRIC CHECK
---

TYPE OF FLOW CHECK
---

```
RS:       1.88667
IW TF 01  Type of flow is Weir Flow because,
          1. Gate Flow discharge is equal to 2225.29
          2. Weir Flow discharge is equal to 4820

RS:       1.88667
IW TF 01  Type of flow is Weir Flow because,
          1. Gate Flow discharge is equal to 2184.67
          2. Weir Flow discharge is equal to 4820
```

DISTANCE CHECK
---

INEFFECTIVE FLOW CHECK
---

FLOODWAY CHECK
---

RIVER/REACH: Ocotillo Wash 5, OWMS2
RIVER STATION: 1.63731
TYPE OF STRUCTURE: Inline

| | |
|---|---|
| Description: | School House Road |
| Distance from Upstream XS: | 1 |
| Deck/Roadway Width: | 25 |
| Weir Coefficient: | 2.6 |
| Maximum allowable submergence for weir flow: | 0.95 |
| Elevation at which weir flow begins: | 0 |
| Weir crest shape: | Broad Crested |

| Sec | River Station | Length Channel | WSEL | Surch. | EGEL | TopWidth Actual | |
|---|---|---|---|---|---|---|---|
| 4 | 1.71509 | 396.08 | 2210.83 | 0 | 2212.31 | 175.01 | |
| 4 | 1.71509 | 396.08 | 2210.83 | 0 | 2212.31 | 175.01 | |
| 3 | 1.64008 | 29.23 | 2204.85 | 0 | 2205.34 | 306.22 | |
| 3 | 1.64008 | 29.23 | 2204.85 | 0 | 2205.34 | 306.22 | |
| | 1.63731 | 25.00 | 2204.85 | | 2205.34 | 131.86 | Inline Weir-Up |
| | 1.63731 | 1.00 | | | | 131.86 | Inline Weir-Dn |
| | 1.63731 | 25.00 | 2204.85 | 0 | 2205.34 | 128.88 | Inline Weir-Up |
| | 1.63731 | 1.00 | | 0 | | 128.88 | Inline Weir-Dn |
| 2 | 1.63454 | 14.34 | 2203.39 | 0 | 2204.6 | 251.18 | |
| 2 | 1.63454 | 14.34 | 2203.39 | 0 | 2204.6 | 251.18 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | 1.63183 | 440.58 | 2203.26 | 0 | 2204.24 | 324.54 |
| 1 | 1.63183 | 440.58 | 2203.26 | 0 | 2204.24 | 324.54 |

| Ineffective Flow, Section 3 | | | Ineffective Flow, Section 2 | | |
|---|---|---|---|---|---|
| Sta L | Sta R | Elev | Sta L | Sta R | Elev |

INLINE WEIR:
Inline Weir Gate:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Dist IwD: | 1 | Height: | 0 | Width | 0 | Invert: | 0 |
| Gate Coeff: | 0 | GateType: | | TrunExp | 0 | OpenExp: | 0 |
| HeadExp: | 0 | TrunHght: | 0 | Weir Coeff: | 0 | WeirShape: | |
| GateNumber: | 0 | | | | | | |
| LCntStaU: | 0 | RCntStaU: | 0 | LCntStaD | 0 | RCntStaD | 0 |

MinTopRd: 2200.26
2200.26

| Gate ID | Gate # Open | Open Hght | Gate Q | Q Weir | Q Total | Flow Type |
|---|---|---|---|---|---|---|
| | 2204 | 1 | 2203.84 | 4820 | 4820 | Weir Flow |
| | 0 | 1 | 2184.67 | 4820 | 4820 | Weir Flow |

| Opening Type | StagStaL | StagStaR | EncStaL | EncStaR | LIfStaS | RIfStaS | |
|---|---|---|---|---|---|---|---|
| Inline | | | | | -88 | -88 | U |
| | | | | | -88 | -88 | D |
| Inline | | | 0.00 | 0.00 | | | U |
| | | | 0.00 | 0.00 | | | D |

| LAbutSt | RAbutSt | LMnTpRd | RMnTpRd | MnTpRd | MxLoCd | |
|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 2200.24 | 2200.24 | 2200.24 | 0.00 | U |
| 0.00 | 0.00 | 2200.24 | 2200.24 | 2200.24 | 0.00 | D |
| 0.00 | 0.00 | 2200.24 | 2200.24 | 2200.24 | 0.00 | U |
| 0.00 | 0.00 | 2200.24 | 2200.24 | 2200.24 | 0.00 | D |

GEOMETRIC CHECK
---

RS: 1.63731
ST GD 03 The end station of 554.94 from upstream road/weir data is less than the end station of 555.25 from upstream internal section/section 3.
The high chord elevation of 2207.57 for the end road/weir station is greater than the ground elevation of 2207.382 for the same ground station.
The road/weir profile may need to be extended.

TYPE OF FLOW CHECK
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RS: 1.63731
IW TF 01 Type of flow is Weir Flow because,
1. Gate Flow discharge is equal to 2203.84

```
          2. Weir Flow discharge is equal to 4820

RS:       1.63731
IW TF 01  Type of flow is Weir Flow because,
          1. Gate Flow discharge is equal to 2184.67
          2. Weir Flow discharge is equal to 4820

DISTANCE CHECK
---------------

INEFFECTIVE FLOW CHECK
----------------------

RS:       1.63454 This is section 2
ST GD 05  Weir flow occurs at Inline
          The velocity head at Section 2 is more than 0.5 foot and more than
          the velocity head at Section 1.
          Section 2 should be recoded to represent the natural valley
          cross section.

FLOODWAY CHECK
---------------


--------------------------------------------------------------------------------
RIVER/REACH:       Ocotillo Wash 5, OWMS2
RIVER STATION:     0.90917
TYPE OF STRUCTURE: Inline
--------------------------------------------------------------------------------
Description:                                          Spur Cross Road
Distance from Upstream XS:                             1.4
Deck/Roadway Width:                                    24
Weir Coefficient:                                      2.6
Maximum allowable submergence for weir flow:           0.95
Elevation at which weir flow begins:                   0
Weir crest shape:                                     Broad Crested
--------------------------------------------------------------------------------


Sec  River    Length   WSEL      Surch.    EGEL      TopWidth
     Station  Channel                                 Actual
--------------------------------------------------------------------------------
 4   0.97907   354.94  2129.92   0         2130.73   445.77
 4   0.97907   354.94  2129.92   0         2130.73   445.77
 3   0.91184   28.67   2124.1    0         2124.68   297.47
 3   0.91184   28.67   2124.1    0         2124.68   297.47
     0.90917 24.00     2124.1              2124.68   386.52   Inline Weir-Up
     0.90917 1.40                                    386.52   Inline Weir-Dn
     0.90917 24.00     2124.1    0         2124.68   300.22   Inline Weir-Up
     0.90917 1.40                0                   300.22   Inline Weir-Dn
 2   0.90641   182.61  2122.3    0         2123.44   273.32
 2   0.90641   182.61  2122.3    0         2123.44   273.32
 1   0.87183   321.64  2118.2    0         2119.44   179.59
 1   0.87183   321.64  2118.2    0         2119.44   179.59
--------------------------------------------------------------------------------


         Ineffective Flow, Section 3             Ineffective Flow, Section 2
         Sta L     Sta R     Elev                Sta L     Sta R     Elev
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------


INLINE WEIR:
Inline Weir Gate:
Dist IwD:      1.4      Height:         0        Width           0        Invert:
0
```

```
Gate Coeff:     0        GateType:                TrunExp         0        OpenExp:
0
HeadExp:        0        TrunHght:        0       Weir Coeff:     0        WeirShape:
GateNumber:     0
LCntStaU:       0        RCntStaU:        0       LCntStaD        0        RCntStaD
0

-------------------------------------------------------------------------------
MinTopRd:       2119.75
                2119.75
-------------------------------------------------------------------------------


Gate ID            Gate #    Open      Gate Q    Q Weir    Q Total   Flow Type
                   Open      Hght
-------------------------------------------------------------------------------
                    0         1        2123.23   5220      5220     Weir Flow
                    0         1        2184.67   5220      5220     Weir Flow
-------------------------------------------------------------------------------


Opening Type       StagStaL    StagStaR  EncStaL   EncStaR   LIfStaS   RIfStaS
-------------------------------------------------------------------------------
Inline                                                       -88       -88     U
                                                             -88       -88     D
Inline                                  0.00      0.00                        U
                                        0.00      0.00                        D
-------------------------------------------------------------------------------
                   LAbutSt     RAbutSt   LMnTpRd   RMnTpRd   MnTpRd    MxLoCd
-------------------------------------------------------------------------------
                   0.00        0.00      2119.74   2119.74   2119.74   0.00    U
                   0.00        0.00      2119.74   2119.74   2119.74   0.00    D
                   0.00        0.00      2119.74   2119.74   2119.74   0.00    U
                   0.00        0.00      2119.74   2119.74   2119.74   0.00    D

GEOMETRIC CHECK
-----------------

TYPE OF FLOW CHECK
------------------

RS:        0.90917
IW TF 01   Type of flow is Weir Flow because,
           1. Gate Flow discharge is equal to 2123.23
           2. Weir Flow discharge is equal to 5220

RS:        0.90917
IW TF 01   Type of flow is Weir Flow because,
           1. Gate Flow discharge is equal to 2184.67
           2. Weir Flow discharge is equal to 5220

DISTANCE CHECK
---------------

INEFFECTIVE FLOW CHECK
----------------------

FLOODWAY CHECK
---------------

---END
```

CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File:
C:\GEORAS\91427\Hydraulic\RAS_Model\OW2\RM\FW\OW_OWT2_FW_03052009\OW_OWT2_FW.prj
Plan File:
C:\GEORAS\91427\Hydraulic\RAS_Model\OW2\RM\FW\OW_OWT2_FW_03052009\OW_OWT2_FW.p02
Geometry File:
C:\GEORAS\91427\Hydraulic\RAS_Model\OW2\RM\FW\OW_OWT2_FW_03052009\OW_OWT2_FW.g01
Flow File:
C:\GEORAS\91427\Hydraulic\RAS_Model\OW2\RM\FW\OW_OWT2_FW_03052009\OW_OWT2_FW.f02
Report File:
C:\GEORAS\91427\Hydraulic\RAS_Model\OW2\RM\FW\OW_OWT2_FW_03052009\OW_OWT2_FW.xs
Selected profiles: PF 1;PF 2
Date: 3/6/2009
Time: 8:40:30 AM

| SECNO | Len Lob | Len Chl | Len Rob | TopWdthAct | Q Total | Flow Code |
|---|---|---|---|---|---|---|
| Ocotillo Wash 1,Tributary-2.1 | | | | | | |
| 1.00045 | 108.31 | 108.1 | 123.22 | 100.13 | 260 | |
| .99742 | 17.43 | 20.31 | 19.19 | 56.4 | 260 | C |
| .99357 | 24.68 | 22.45 | 30.66 | 52.11 | 260 | C |
| .98932 | 28.01 | 26.68 | 35.8 | 72.57 | 260 | |
| .98427 | 23.69 | 22.66 | 22.42 | 106.93 | 260 | B |
| .97998 | 63.05 | 63.74 | 66.74 | 63.07 | 260 | B |
| .97683 | 27.09 | 26.54 | 31.5 | 50.88 | 260 | B |
| .9718 | 22.35 | 20.56 | 18.27 | 56.2 | 260 | B |
| .96791 | 127.16 | 123.51 | 110.43 | 60.5 | 260 | B |
| .96505 | 20.87 | 18.87 | 14.83 | 40.61 | 260 | C,B |
| .96148 | 27.14 | 21.02 | 14.56 | 49.09 | 260 | B |
| .9575 | 24.28 | 25.63 | 18.58 | 49.06 | 260 | C |
| .95264 | 24.15 | 28.39 | 31.61 | 49.11 | 260 | |
| .94727 | 17.1 | 14.55 | 17.28 | 69.7 | 260 | |
| .94451 | 335.58 | 348.61 | 333.38 | 80.25 | 260 | |
| .94232 | 11.84 | 12.29 | 11.28 | 56.57 | 260 | |
| .93999 | 41.53 | 35.61 | 13.72 | 46.68 | 260 | C |
| .93325 | 26.32 | 21.87 | 10.86 | 48.91 | 260 | C |
| .9291 | 24.78 | 22.99 | 18.59 | 63 | 260 | |
| .92475 | 26.12 | 37.02 | 40.07 | 54.74 | 260 | C |
| .91774 | 29.19 | 39.59 | 55.86 | 54.49 | 260 | |
| .91024 | 35.65 | 42.81 | 44.81 | 41.23 | 260 | |
| .90213 | 27.04 | 26.81 | 32.58 | 36.71 | 260 | C |
| .89706 | 21.39 | 20.97 | 24.42 | 35.39 | 260 | C |
| .89309 | 32.28 | 31.37 | 17.28 | 32.7 | 260 | |
| .88715 | 24.76 | 22.54 | 22.68 | 40.59 | 260 | |
| .88288 | 25.87 | 23.17 | 28.44 | 57.88 | 260 | |
| .87849 | 393.16 | 402.6 | 399.35 | 67.61 | 260 | |
| .87485 | 22.68 | 22.85 | 22.73 | 37.68 | 260 | |
| .87052 | 16.18 | 16.15 | 12.88 | 38.16 | 260 | |
| .86746 | 46.15 | 45.94 | 47.27 | 41.73 | 260 | |
| .85876 | 24.38 | 33.09 | 35.92 | 38.74 | 260 | |
| .85249 | 39.38 | 31.7 | 25.58 | 40.24 | 260 | |
| .84649 | 32.39 | 36.56 | 35.11 | 50.44 | 260 | |
| .83957 | 36.72 | 45.71 | 56.37 | 58.02 | 260 | |
| .83091 | 22.89 | 37.94 | 62.03 | 43.56 | 260 | C |
| .82372 | 35.21 | 42.51 | 25.53 | 37.82 | 260 | C |
| .81567 | 51.02 | 37.31 | 19.74 | 37.09 | 260 | C |
| .80861 | 44.48 | 33.63 | 32.27 | 44.3 | 260 | |
| .80224 | 30.47 | 29.67 | 40.62 | 50.23 | 260 | |
| .79662 | 27.93 | 28.83 | 23.42 | 74.14 | 260 | |
| .79392 | Culvert #1-Up | | | | | |
| .79392 | Culvert #1-Dn | | | | | |
| .79392 | Culvert #2-Up | | | | | |
| .79392 | Culvert #2-Dn | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| .79116 | 28.68 | 35.52 | 39.4 | 47.5 | 260 | |
| .78443 | 293.29 | 294.01 | 294.98 | 52.84 | 260 | |
| .77855 | 36.74 | 35.45 | 27.3 | 36.49 | 260 | |
| .77184 | 43.86 | 52.89 | 69.03 | 36.98 | 260 | C |
| .76182 | 23.21 | 22.73 | 31.03 | 43.01 | 260 | |
| .75751 | 25.76 | 25.41 | 26.95 | 42.87 | 260 | C |
| .7527 | 14.97 | 21.5 | 29.89 | 44.5 | 260 | |
| .74863 | 29.83 | 24.33 | 23.81 | 42.35 | 260 | C |
| .74402 | 26.03 | 22.19 | 18.41 | 45.64 | 260 | |
| .73982 | 24.45 | 23.5 | 18.75 | 55.35 | 260 | |
| .73537 | 12.12 | 16.35 | 15.02 | 49.23 | 260 | C |
| .73227 | 27.91 | 18.6 | 17.81 | 56.44 | 260 | |
| .72875 | 128.33 | 129.66 | 132.07 | 113.7 | 260 | |
| .72704 | 15.93 | 20.18 | 16.98 | 65.8 | 260 | |
| .72322 | 26.98 | 27.14 | 29.31 | 55.97 | 260 | |
| .71808 | 31.2 | 33.44 | 33.96 | 43.38 | 260 | |
| .71174 | 17.47 | 19.08 | 22.93 | 30.36 | 260 | |
| .70813 | 20.7 | 20.79 | 20.6 | 31.73 | 260 | |
| .70419 | 81.41 | 81.29 | 81.45 | 31.85 | 260 | B |
| .70129 | 17.26 | 17.05 | 16.86 | 27.18 | 260 | B |
| .69806 | 6.67 | 7.62 | 7.45 | 29.53 | 260 | C,B |
| .69661 | 23.94 | 23.74 | 24.32 | 29.67 | 260 | B |
| .69212 | 17.19 | 17.54 | 18.08 | 28.37 | 260 | B |
| .6888 | 63.26 | 61.39 | 72.33 | 25.68 | 260 | B |
| .688 | 3.98 | 20.9 | 28.11 | 28.6 | 260 | C,B |
| .68404 | 56.21 | 36.3 | 33.38 | 54.49 | 260 | C,B |
| .67717 | 187.36 | 226.26 | 258.27 | 85.15 | 260 | B |
| .67671 | 34.43 | 37.38 | 47.46 | 59.58 | 260 | |
| .66963 | 17.97 | 26.71 | 31.61 | 85.3 | 260 | |
| .66458 | 11.9 | 23.45 | 45.33 | 85.65 | 260 | |
| .66013 | 9.74 | 23.18 | 29.36 | 43.68 | 260 | |
| .65574 | 30.4 | 22.39 | 19.31 | 58.01 | 260 | B |
| .6515 | 36.7 | 20.91 | 17.8 | 89.11 | 260 | |
| .64754 | 25.22 | 14.9 | 11.32 | 39.63 | 260 | |
| .64472 | 20.57 | 19.08 | 18.34 | 17.33 | 260 | C |
| .64111 | 31.15 | 24.95 | 19.22 | 19.41 | 260 | |
| .63638 | 12.06 | 10.91 | 11.16 | 20.45 | 260 | C |
| .63432 | 4.02 | 8.56 | 8.03 | 18.65 | 260 | |
| .6327 | 10.65 | 14.8 | 17.06 | 21.66 | 260 | C |
| .62989 | 7.63 | 14.15 | 16.52 | 32.51 | 260 | |
| .62721 | 23.37 | 20.55 | 23.34 | 35.2 | 260 | C |
| .62332 | 34.19 | 26.31 | 21.76 | 41.89 | 260 | C |
| .61834 | 36.23 | 26.97 | 9.94 | 30.18 | 260 | |
| .61323 | 23.27 | 21.72 | 19.78 | 26.5 | 260 | |
| .60912 | 24.48 | 26.02 | 22.75 | 26.06 | 260 | C |
| .60419 | 35.02 | 34.21 | 35.36 | 22 | 260 | C |
| .59771 | 25 | 27.67 | 30.7 | 33.43 | 260 | |
| .59247 | 18.65 | 23.35 | 31.42 | 42.24 | 260 | |
| .58805 | 440.33 | 434.02 | 436.3 | 49.32 | 260 | |
| .58365 | 14.58 | 19.36 | 22.22 | 24.28 | 260 | |
| .57998 | 20.58 | 20.7 | 20.58 | 19.53 | 260 | |
| .57606 | 20.66 | 21.13 | 18.33 | 19.5 | 260 | C |
| .57206 | 25.07 | 26.45 | 25.39 | 23.54 | 260 | |
| .56705 | 39.14 | 31.39 | 24.59 | 29.59 | 260 | |
| .5611 | 38.34 | 25.44 | 16.68 | 26.46 | 260 | C |
| .55629 | 41.56 | 24.88 | 19.85 | 28.43 | 260 | |
| .55157 | 38.79 | 33.34 | 25.83 | 30.5 | 260 | |
| .54526 | 44.87 | 37.57 | 27.83 | 27.23 | 260 | |
| .53814 | 41.54 | 37.25 | 27.65 | 25.62 | 260 | |
| .53109 | 41.71 | 39.38 | 34.24 | 22 | 260 | |
| .52363 | 25.41 | 41.23 | 55.5 | 29.66 | 260 | |
| .51582 | 16.75 | 33.33 | 56.19 | 35.64 | 260 | |
| .50951 | 14.83 | 19.33 | 26.56 | 48.4 | 260 | |
| .50585 | 387.34 | 452.2 | 464.68 | 55.06 | 260 | |
| .50158 | 3.56 | 23.86 | 31.44 | 29.59 | 260 | |
| .49706 | 6.18 | 17.66 | 21.88 | 36.95 | 260 | C |
| .49372 | 11.79 | 20.04 | 18.41 | 45.01 | 260 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| .48992 | 13.72 | 14.78 | 11.55 | 46.37 | 260 | C |
| .48713 | 33.34 | 22.08 | 11.57 | 48.37 | 260 | |
| .48294 | 24.21 | 19.08 | 7.93 | 43.58 | 260 | |
| .47933 | 27.39 | 14.47 | 13.27 | 35.92 | 260 | |
| .47659 | 33.24 | 23.48 | 17.28 | 32.08 | 260 | C |
| .47214 | 24.68 | 21.99 | 18.42 | 33.66 | 260 | |
| .46798 | 17.59 | 29.02 | 37.29 | 29.15 | 260 | |
| .46248 | 15.23 | 30.04 | 30.12 | 33.54 | 260 | |
| .45679 | 32.9 | 24.71 | 30.6 | 30.3 | 260 | |
| .45211 | 48.85 | 35.33 | 17.28 | 28.99 | 260 | |
| .44542 | 26.09 | 20.34 | 26.84 | 24.32 | 260 | |
| .44157 | 27.45 | 36.46 | 31.57 | 33.09 | 260 | |
| .43466 | 11.88 | 30.58 | 45.13 | 38.22 | 260 | |
| .42887 | 15.12 | 24.71 | 29.21 | 23.36 | 260 | |
| .42419 | 10.35 | 21.04 | 24.61 | 32.09 | 260 | |
| .4202 | 244.5 | 243.05 | 223.37 | 38.25 | 260 | |
| .41686 | 8.54 | 28.34 | 20.24 | 32.63 | 260 | |
| .41149 | 18.85 | 23.24 | 31.94 | 29.44 | 260 | |
| .40709 | 29.38 | 32.54 | 28.07 | 31.84 | 260 | |
| .40093 | 36.15 | 34.12 | 70.45 | 23.8 | 260 | |
| .39446 | 25.13 | 24.02 | 4.77 | 27.25 | 260 | C |
| .38991 | 46.12 | 29.34 | 8.73 | 38.97 | 260 | |
| .38436 | 48.38 | 34.2 | 14.19 | 53.77 | 260 | |
| .37788 | 26.51 | 19.57 | 15.02 | 63.68 | 260 | |
| .37417 | 14.44 | 28.66 | 29.16 | 65.46 | 260 | |
| .36875 | 43.89 | 26.89 | 27.34 | 45.84 | 260 | |
| .36595 | Culvert #1-Up | | | | | |
| .36595 | Culvert #1-Dn | | | | | |
| .36595 | Culvert #2-Up | | | | | |
| .36595 | Culvert #2-Dn | | | | | |
| .36595 | Culvert #3-Up | | | | | |
| .36595 | Culvert #3-Dn | | | | | |
| .36365 | 8.26 | 21.22 | 17.65 | 34.53 | 260 | |
| .35963 | 208.38 | 272.22 | 223.81 | 48.52 | 260 | |
| .35631 | 2.37 | 16.12 | 12.87 | 34.74 | 260 | C |
| .35325 | 7.03 | 22.82 | 10.72 | 35.26 | 260 | C |
| .34893 | 20.36 | 16.14 | 5 | 44.87 | 260 | C |
| .34588 | 47.76 | 15.03 | 7.24 | 54.77 | 260 | |
| .34303 | 29.77 | 16.75 | 6.68 | 48.39 | 260 | |
| .33986 | 19.67 | 39.79 | 30.17 | 45.04 | 260 | |
| .33232 | 69.22 | 89.93 | 97.93 | 30.81 | 260 | |
| .31529 | 9.58 | 38.07 | 38.55 | 27.75 | 260 | |
| .30808 | 454.85 | 459.02 | 461 | 74.42 | 260 | |
| .30459 | 12.08 | 14.7 | 17.7 | 36.59 | 260 | |
| .30181 | 38.67 | 24.75 | 20.53 | 37.76 | 260 | C |
| .29712 | 39.12 | 35.15 | 27.99 | 38.64 | 260 | C |
| .29046 | 32.54 | 30.77 | 22.63 | 42.84 | 260 | |
| .28463 | 21.74 | 21.3 | 19.43 | 33.07 | 260 | |
| .2806 | 19.54 | 20.64 | 20.63 | 40.72 | 260 | C |
| .27669 | 20.79 | 25.49 | 22.89 | 34.08 | 260 | C |
| .27186 | 15.48 | 24.14 | 30.62 | 29.29 | 260 | |
| .26729 | 16.43 | 20.55 | 29.34 | 39.6 | 260 | |
| .2634 | 24.35 | 23.52 | 26.71 | 36.19 | 260 | C |
| .25894 | 29.12 | 29.8 | 24.16 | 40.3 | 260 | C |
| .2533 | 23.69 | 16.58 | 16.88 | 40.67 | 260 | |
| .25016 | 20.86 | 22.24 | 18.1 | 36.72 | 260 | C |
| .24595 | 23 | 14.06 | 7.91 | 45.47 | 260 | |
| .24329 | 13.14 | 17.79 | 13.59 | 47.67 | 260 | |
| .23992 | 13.84 | 42.54 | 65.07 | 41.26 | 260 | C |
| .23186 | 18.04 | 17.26 | 21.08 | 46.56 | 260 | |
| .22859 | 60.08 | 39.34 | 32 | 47.56 | 260 | |
| .22114 | 20.2 | 18.41 | 19.98 | 48.08 | 260 | |
| .21765 | 16.45 | 16.08 | 16.23 | 46.86 | 260 | |
| .21461 | 33.84 | 27.43 | 17.81 | 44.52 | 260 | C |
| .20941 | 3.06 | 3 | 3 | 70.85 | 260 | |
| .20885 | 468.38 | 475.3 | 425.84 | 75.75 | 260 | |
| .20714 | 20.57 | 14.93 | 6.22 | 56.61 | 260 | D,C |

| | | | | | | |
|---|---|---|---|---|---|---|
| .20431 | 14.87 | 11.95 | 6.7 | 63.73 | 260 | D |
| .20205 | 13.57 | 13.2 | 10.89 | 72.7 | 260 | |
| .19955 | 12.55 | 12.48 | 12.2 | 65.9 | 260 | |
| .19719 | 23.83 | 22.35 | 20.75 | 54.16 | 260 | C |
| .19296 | 13.61 | 12.9 | 9.7 | 41.92 | 260 | |
| .19051 | 15.92 | 10.95 | 9.51 | 49.01 | 260 | |
| .18844 | 24.14 | 18.93 | 14.25 | 42.78 | 260 | |
| .18485 | 57.38 | 60.63 | 46.99 | 37.52 | 260 | |
| .17337 | 19.91 | 28.74 | 20.45 | 37.83 | 260 | C |
| .16793 | 12.51 | 20.07 | 19.45 | 36.08 | 260 | C |
| .16413 | 37.34 | 38.17 | 21.24 | 33.52 | 260 | C |
| .1569 | 28.06 | 24.55 | 23.45 | 28.21 | 260 | |
| .15225 | 15.02 | 36.61 | 88.17 | 30.25 | 260 | C |
| .14532 | 3.88 | 8.32 | 9.62 | 59.11 | 260 | |
| .14374 | 45.04 | 26.34 | 50.62 | 67.46 | 260 | |
| .14161 | Culvert #1-Up | | | | | |
| .14161 | Culvert #1-Dn | | | | | |
| .13875 | 13.85 | 7.94 | 5.83 | 65.97 | 260 | |
| .13724 | 77.3 | 97.25 | 45.4 | 65.4 | 260 | |
| .13462 | 26.86 | 38.51 | 9.17 | 55.18 | 260 | |
| .12733 | 26.39 | 44.9 | 29.2 | 45.34 | 260 | |
| .11883 | 25.93 | 21.67 | 22.86 | 15.75 | 260 | C,B |
| .11472 | 149.39 | 181.41 | 208.82 | 33.94 | 260 | B |
| .10962 | 16.48 | 35.78 | 34.39 | 27.77 | 260 | C |
| .10284 | 28.34 | 31.24 | 29.52 | 37.85 | 260 | |
| .09693 | 30.89 | 32.52 | 26.75 | 49.02 | 260 | C |
| .09077 | 52.91 | 54.92 | 79.7 | 34.55 | 260 | C |
| .08036 | 99.4 | 117.2 | 171.83 | 93.54 | 260 | |
| .0721 | 31.11 | 39.91 | 76.5 | 72.89 | 260 | |
| .06454 | 27.16 | 33.67 | 76.14 | 44.95 | 260 | C |
| .05817 | 32.72 | 51.62 | 55.51 | 67.06 | 260 | C |
| .04814 | 37.59 | 62.11 | 56.89 | 95.15 | 260 | |
| .03638 | 26.71 | 54.55 | 53.12 | 106.39 | 260 | D,C |
| .02605 | 0 | 0 | 0 | 176.97 | 260 | D |
| Ocotillo Wash 2,OW Split | | | | | | |
| .07677 | 181.95 | 141.75 | 144.78 | 71.33 | 222 | |
| .04992 | 0 | 0 | 0 | 89.73 | 222 | |
| Ocotillo Wash 3,Tributary-2.2 | | | | | | |
| .15352 | 414.01 | 279.51 | 158.82 | 199.6 | 482 | D |
| .10059 | 278.25 | 317.3 | 273.52 | 66.43 | 482 | |
| .04049 | 44.65 | 42.9 | 41.93 | 64.51 | 482 | |
| .03237 | 23.88 | 21.3 | 50.47 | 79.27 | 488 | |
| .02833 | 1.33 | 0.5 | 0.67 | 58.27 | 522 | E |
| .02823 | 0 | 0 | 0 | 57.73 | 522 | E |
| Ocotillo Wash 4,OWMS1 | | | | | | |
| .07616 | 174.6 | 159.23 | 181.303 | 212.81 | 4409 | C |
| 0.07615 | Lateral Weirs | | | | | |
| .04601 | 41.71 | 42.93 | 48.56 | 246.21 | 4409 | |
| 0.04599 | Lateral Weirs | | | | | |
| .03788 | 53.8 | 89.56 | 70.85 | 223.69 | 4409 | E,B |
| 0.03786 | Lateral Weirs | | | | | |
| .02091 | 0 | 0 | 0 | 225.24 | 4409 | E,C,B |
| Ocotillo Wash 5,OWMS2 | | | | | | |
| 1.89254 | 6.6 | 6.24 | 119.54 | 285.35 | 4820 | C,B |
| 1.89136 | 6.42 | 8.14 | 87.94 | 443.13 | 4820 | B |
| 1.88981 | 33.64 | 33.21 | 31 | 482.93 | 4820 | |
| 1.88667 | Inline Weir-Up | | | | | |
| 1.88667 | Inline Weir-Dn | | | | | |
| 1.88352 | 453.23 | 501.13 | 178.68 | 469.39 | 4820 | |
| 1.78861 | 494.59 | 388.18 | 359.83 | 188.06 | 4820 | B |
| 1.71509 | 634.74 | 396.08 | 272.49 | 175.01 | 4820 | C |
| 1.64008 | 37.18 | 29.23 | 28.7 | 306.22 | 4820 | |
| 1.63731 | Inline Weir-Up | | | | | |
| 1.63731 | Inline Weir-Dn | | | | | |
| 1.63454 | 18.17 | 14.34 | 14.35 | 251.18 | 4820 | C |
| 1.63183 | 396.96 | 440.58 | 440.79 | 324.54 | 4820 | C |
| 1.54838 | 262.66 | 394.71 | 493.36 | 425.19 | 4820 | C |

| | | | | | | |
|---|---|---|---|---|---|---|
| 1.47363 | 318.79 | 333.42 | 454.72 | 341.26 | 4820 | D |
| 1.41048 | 436.68 | 467.21 | 549.74 | 300.22 | 4820 | D |
| 1.32199 | 621.82 | 602.67 | 430.88 | 386.52 | 5020 | D |
| 1.20785 | 352.83 | 347.57 | 355.39 | 386.4 | 5020 | |
| 1.14203 | 417.36 | 408.29 | 331.68 | 309.07 | 5020 | D,C |
| 1.0647 | 449.15 | 452.14 | 709.77 | 490.83 | 5020 | |
| .97907 | 373.48 | 354.94 | 370.2 | 445.77 | 5220 | D,C |
| .91184 | 40.31 | 28.67 | 43.88 | 297.47 | 5220 | |
| .90917 | Inline Weir-Up | | | | | |
| .90917 | Inline Weir-Dn | | | | | |
| .90641 | 146.2 | 182.61 | 237.31 | 273.32 | 5220 | C |
| .87183 | 462.71 | 321.64 | 121.54 | 179.59 | 5220 | |
| .81091 | 281.96 | 265.27 | 155.28 | 254.21 | 5220 | C |
| .76067 | 50.44 | 181.67 | 327.47 | 188.16 | 5220 | |
| .72626 | 365.93 | 424.82 | 449.12 | 128.88 | 5220 | |
| .6458 | 333.74 | 295.18 | 257.8 | 131.86 | 5220 | |
| .5899 | 699.81 | 609.72 | 513.34 | 164.5 | 5220 | |
| .47442 | 431.63 | 466.43 | 495.72 | 93.7 | 5420 | |
| .38608 | 392.34 | 421.67 | 437.98 | 100.82 | 5420 | C |
| .30622 | 508.16 | 450.25 | 445.99 | 216.42 | 5420 | C,B |
| .22095 | 351.39 | 218.99 | 165.52 | 300.11 | 5420 | |
| .17947 | 335.13 | 226.23 | 196.3 | 120.7 | 5420 | C |
| .13663 | 453.45 | 451.03 | 471.21 | 98.25 | 5420 | C |
| .0512 | 217.95 | 226.15 | 246.9 | 141.3 | 5420 | |
| .00837 | 0 | 0 | 0 | 137.65 | 5420 | D,B |

---

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK
---

XS JT 01 Junction option is used.
For flood insurance study, this option should be used
if the tributary and main stream can have coincident peaks,
or it may be used for the stream without floodway.
It may also be used if the discharges at different time periods
are known from the rainfall-runoff model.
How to remove the junction is explained under Help.

RS: 1.89254
XS DT 03 Right overbank distance is greater than the channel
distance by more than five times. Right overbank
distance may be in error.

RS: 1.89136
XS DT 03 Right overbank distance is greater than the channel
distance by more than five times. Right overbank
distance may be in error.

SPACING CHECK
---

INEFFECTIVE FLOW CHECK
---

RS: 0.97998
XS IF 01 Right Levee option is used at this river station
Please investigate whether the NFIP requirements
for levees are met.

```
RS:       0.97683
XS IF 01 Right Levee option is used at this river station
         Please investigate whether the NFIP requirements
         for levees are met.

RS:       0.96791
XS IF 01 Right Levee option is used at this river station
         Please investigate whether the NFIP requirements
         for levees are met.

RS:       0.94451
XS IF 01 Right Levee option is used at this river station
         Please investigate whether the NFIP requirements
         for levees are met.

RS:       0.20885
XS IF 01 Left Levee option is used at this river station
         Please investigate whether the NFIP requirements
         for levees are met.

RS:       0.11472
XS IF 01 Left Levee option is used at this river station
         Please investigate whether the NFIP requirements
         for levees are met.

RS:       0.10962
XS IF 01 Left Levee option is used at this river station
         Please investigate whether the NFIP requirements
         for levees are met.

RS:       0.10284
XS IF 01 Left Levee option is used at this river station
         Please investigate whether the NFIP requirements
         for levees are met.

RS:       0.05817
XS IF 01 Right Levee option is used at this river station
         Please investigate whether the NFIP requirements
         for levees are met.

RS:       0.04814
XS IF 01 Right Levee option is used at this river station
         Please investigate whether the NFIP requirements
         for levees are met.

RS:       0.03638
XS IF 01 Left Levee option is used at this river station
         Please investigate whether the NFIP requirements
         for levees are met.

RS:       0.03638
XS IF 01 Right Levee option is used at this river station
         Please investigate whether the NFIP requirements
         for levees are met.

RS:       1.54838
XS IF 01 Left Levee option is used at this river station
         Please investigate whether the NFIP requirements
         for levees are met.

RS:       1.14203
XS IF 01 Right Levee option is used at this river station
         Please investigate whether the NFIP requirements
         for levees are met.

RS:       1.0647
```

```
XS IF 01 Right Levee option is used at this river station
         Please investigate whether the NFIP requirements
         for levees are met.

RS:      0.76067
XS IF 01 Right Levee option is used at this river station
         Please investigate whether the NFIP requirements
         for levees are met.

RS:      0.30622
XS IF 01 Right Levee option is used at this river station
         Please investigate whether the NFIP requirements
         for levees are met.

RS:      0.00837
XS IF 01 Left Levee option is used at this river station
         Please investigate whether the NFIP requirements
         for levees are met.


DISCHARGE CHECK
----------------

RS:      0.11472
XS DC 05 There is no flow on the right overbank at the downstream
         cross section. There is no flow on the left overbank at this section.

RS:      0.6458
XS DC 04 There is no flow on the left overbank at the downstream
         cross section. There is no flow on the right overbank at this section.

XS DC 02 Constant dicharge used for the Ocotillo Wash 1,Tributary-2.1

XS DC 02 Constant dicharge used for the Ocotillo Wash 2,OW Split

XS DC 02 Constant dicharge used for the Ocotillo Wash 4,OWMS1


LOCATION CHECK
---------------

RS:      1.00045
XS LC 01 Lenchl Up/TopwdthAct Dn = 1.92
         MaxChlDpth Up/MaxChlDpth Dn = 1.29
         TopwdthAct Up/TopwdthAct Dn = 1.78
         This cross section is located too far upstream from the
         critical depth cross section.

RS:      0.96791
XS LC 01 Lenchl Up/TopwdthAct Dn = 3.04
         MaxChlDpth Up/MaxChlDpth Dn = 1.55
         TopwdthAct Up/TopwdthAct Dn = 1.49
         This cross section is located too far upstream from the
         critical depth cross section.

RS:      0.56705
XS LC 01 Lenchl Up/TopwdthAct Dn = 1.19
         MaxChlDpth Up/MaxChlDpth Dn = 1.21
         TopwdthAct Up/TopwdthAct Dn = 1.12
         This cross section is located too far upstream from the
         critical depth cross section.

RS:      0.35963
XS LC 01 Lenchl Up/TopwdthAct Dn = 7.84
         MaxChlDpth Up/MaxChlDpth Dn = 2.20
         TopwdthAct Up/TopwdthAct Dn = 1.40
         This cross section is located too far upstream from the
```

```
         critical depth cross section.

RS:      0.20885
XS LC 01 Lenchl Up/TopwdthAct Dn = 8.40
         MaxChlDpth Up/MaxChlDpth Dn = 1.93
         TopwdthAct Up/TopwdthAct Dn = 1.34
         This cross section is located too far upstream from the
         critical depth cross section.

RS:      0.12733
XS LC 01 Lenchl Up/TopwdthAct Dn = 2.85
         MaxChlDpth Up/MaxChlDpth Dn = 1.12
         TopwdthAct Up/TopwdthAct Dn = 2.88
         This cross section is located too far upstream from the
         critical depth cross section.

RS:      0.11472
XS LC 01 Lenchl Up/TopwdthAct Dn = 6.53
         MaxChlDpth Up/MaxChlDpth Dn = 1.49
         TopwdthAct Up/TopwdthAct Dn = 1.22
         This cross section is located too far upstream from the
         critical depth cross section.


BOUNDARY CONDITION CHECK
------------------------

XS BC 02 The name of the stream is Ocotillo Wash 5,OWMS2

         Normal S = 0.0183 is specified as the downstream boundary
         for profile PF 1

XS BC 02 The name of the stream is Ocotillo Wash 5,OWMS2
         Normal S = 0.0183 is specified as the downstream boundary
         for profile PF 2

XS BC 03 Maximum number of iterations is 0
         It should not be less than 20.


LATERAL WEIRS CHECK
-------------------

---END---
```

```
                    HEC-RAS Version 3.1.3 May 2005
                     U.S. Army Corp of Engineers
                    Hydrologic Engineering Center
                          609 Second Street
                          Davis, California


          X     X  XXXXXX    XXXX        XXXX       XX      XXXX
          X     X  X        X    X       X   X     X  X    X
          X     X  X        X            X   X    X    X   X
          XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
          X     X  X        X            X  X     X    X        X
          X     X  X        X    X       X   X    X    X        X
          X     X  XXXXXX    XXXX        X    X   X    X   XXXXX

*******************************************************************************

PROJECT DATA
Project Title: CCTRIB2_RM
Project File : CCTRIB2.prj
Run Date and Time: 4/20/2009 3:25:56 PM

Project in English units

Project Description:
Cave Creek Tributary 2- Zone A Floodplain Delineation Study (FDS)

MODEL PREPARED UTILIZING RIVER MILES FOR STATIONING

Floodplain Redelineation Study of Ocotillo Wash and Tributary-2 and
Floodplain Delineation Study of Cave Creek Tributaries 2 & 3.
Prepared for the Flood Control District of Maricopa County
Contract Number: FCD 2006C024, Work Assignment No. 2
Project Control Number: 690.02.20
Project Manager: Richard Harris, P.E., CFM - rph@mail.maricopa.gov

Model created in HEC-RAS Version 3.1.3
Model Pre and Post Processing Prepared in HEC-GeoRAS Version 9.2.92
Prepared by HDR Engineering, Inc.
3200 East Camelback Road, Suite 350
Phoenix, Arizona  85018
Date Prepared: March 11, 2009
Authors: Linda Potter, P.E., CFM - lindapotter@hdrinc.com
              Mark Fountain, CFM - mark.fountain@hdrinc.com

*********************************************************************

Topo Mapping prepared by Cooper Aerial Surveys Company
Flight Dates: November 2003 and December 2004.
Prepared under contracts FCD2003C048, WA#4 and FCD2005C030
Ground Control/Elevation Reference Marks for horizontal and vertical survey control
are based on the North American Datum of 1983 (NAD83) and North American Vertical
Datum of 1988 (NAVD88) respectively.  Survey data was presented in State Plane
Coordinates, Arizona Central Zone 0202.
Data collected by HDR from the FCDMC under FCD2004C072.

Aerial Photography prepared by The Sanborn Mapping Company Inc.
Flight Dates October - December 2008
Data collected by HDR from the FCDMC on February 20, 2009

*********************************************************************

Field Reconnaissance completed by HDR on August 27, 2008.

*********************************************************************

Hydrology prepared by HDR Engineering Inc. as part of the TDN submittal for the
Floodplain Redelineation Study of Ocotillo Wash and Tributary-2 and
Floodplain Delineation Study of Cave Creek Tributaries 2 & 3.
Date: October 21, 2008
Contract FCD 2006C024, Work Assignment No. 2
HDR Project # 91427

*********************************************************************
Modeling has been prepared in support of new Zone A floodplain delineation.

Modeling Assumptions:  Low lying islands identified within the flood limits with less
than one and a half foot of vertical elevation difference between the water surface
elevation and the adjacent ground elevation were included into the final flood limits.

The downstream boundary condition of Profile 1 has been prepared to tie into the
existing Cave Creek Flood Profile at river mile 36.954 utilizing the following normal
depth slopes:  Tributary 2 = 0.0245 ft/ft, Tributary 2B = 0.0340 ft/ft, Tributary 2C
= 0.0400 ft/ft.

The WSE within the Cave Creek Flood Profile is identified as 1992.55 {NGVD 29} per FIS
dated Sep 30, 2005).  This is located between the existing cross sections of "EK" and
"EL".  Refer to profile panel 1017P, and refer to FIRM panel # 04013C0805H.

WSE converted from NGVD29 to NAVD88 (+2.02 ft) = 1994.57

Refer to VertCon output for additional details regarding the conversion.

*********************************************************************

HEC-RAS River and Reach naming relationships to the Watercourse and Wash Naming:

River/Watercourse:
        Cave Creek1 = Cave Creek
        Cave Creek2 = Cave Creek
        Cave Creek3 = Cave Creek
        Cave Creek4 = Cave Creek
        Cave Creek5 = Cave Creek
```

Reach/wash Naming
Tributary 2.1 = Tributary 2
Tributary 2.2 = Tributary 2
Tributary 2A = Tributary 2A
Tributary 2B = Tributary 2B
Tributary 2C = Tributary 2C

**********

DESIGNER NOTES:

*-*-*-MASTER HYDRAULIC MODEL FOR CAVE CREEK TRIB2, 2A, 2B & 2C: 03-11-2009

*-*-*-THIS MODEL HAS BEEN PREPARED UTILIZING RIVER MILES
*-*-*-CONTAINS REGRESSION EQUATION DISCHARGES FOR STEADY FLOW DATA
*-*-*-MODEL RIVER/REACHES RENAMED FOR REVIEW COMMENTS

**********

PLAN DATA

Plan Title: CCTRIB2_RM
Plan File : C:\GEORAS\91427\Hydraulic\RAS_Model\CCT2\RM\CCTRIB2.p01

Geometry Title: CCTRIB2_RM
Geometry File : C:\GEORAS\91427\Hydraulic\RAS_Model\CCT2\RM\CCTRIB2.g01

Flow Title : CCTRIB2_RM
Flow File : C:\GEORAS\91427\Hydraulic\RAS_Model\CCT2\RM\CCTRIB2.f01

Plan Summary Information:
Number of: Cross Sections = 42 Multiple Openings = 0
Culverts = 0 Inline Structures = 0
Bridges = 0 Lateral Structures = 0

Computational Information
Water surface calculation tolerance = 0.01
Critical depth calculation tolerance = 0.01
Maximum number of iterations = 20
Maximum difference tolerance = 0.3
Flow tolerance factor = 0.001

Computation Options
Critical depth computed only where necessary
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Subcritical Flow

**********

FLOW DATA

Flow Title: CCTRIB2_RM
Flow File : C:\GEORAS\91427\Hydraulic\RAS_Model\CCT2\RM\CCTRIB2.f01

Flow Data (cfs)

| River | Reach | RS | PF 1 |
|---|---|---|---|
| Cave Creek1 | Tributary 2.1 | 0.31 | 55 |
| Cave Creek1 | Tributary 2.1 | 0.19 | 319 |
| Cave Creek2 | Tributary 2.2 | 0.54 | 502 |
| Cave Creek2 | Tributary 2.2 | 0.40 | 560 |
| Cave Creek2 | Tributary 2.2 | 0.24 | 589 |
| Cave Creek4 | Tributary 2A | 0.12 | 90 |
| Cave Creek4 | Tributary 2B | 0.07 | 49 |
| Cave Creek5 | Tributary 2B | 0.07 | 49 |
| Cave Creek5 | Tributary 2C | 0.30 | 94 |
| Cave Creek5 | Tributary 2C | 0.22 | 132 |
| Cave Creek6 | Tributary 2C | 0.30 | 94 |
| Cave Creek6 | Tributary 2C | 0.22 | 132 |
| Cave Creek3 | Tributary 2A | 0.12 | 90 |

Boundary Conditions

| River | Reach | Profile | Upstream | Downstream |
|---|---|---|---|---|
| Cave Creek2 | Tributary 2.2 | PF 1 | | Normal S = 0.0245 |
| Cave Creek4 | Tributary 2B | PF 1 | | Normal S = 0.034 |
| Cave Creek5 | Tributary 2C | PF 1 | | Normal S = 0.04 |

**********

GEOMETRY DATA

Geometry Title: CCTRIB2_RM
Geometry File : C:\GEORAS\91427\Hydraulic\RAS_Model\CCT2\RM\CCTRIB2.g01

Reach Connection Table

| River | Reach | Upstream Boundary | Downstream Boundary |
|---|---|---|---|
| Cave Creek1 | Tributary 2.1 | | J1 |
| Cave Creek2 | Tributary 2.2 | J1 | |
| Cave Creek3 | Tributary 2A | | J1 |
| Cave Creek4 | Tributary 2B | | |
| Cave Creek5 | Tributary 2C | | |

JUNCTION INFORMATION

Name: J1

Description:
Energy computation Method

| Length across Junction River | Reach | | Tributary River | Reach | Length | Angle |
|---|---|---|---|---|---|---|
| Cave Creek3 | Tributary 2A | to | Cave Creek2 | Tributary 2.2 | 153.61 | 0 |
| Cave Creek1 | Tributary 2.1 | to | Cave Creek2 | Tributary 2.2 | 175.71 | 0 |

CROSS SECTION

RIVER: Cave Creek1
REACH: Tributary 2.1 RS: 0.31

INPUT
Description: 1626.03 LIMIT OF STUDY
Station Elevation Data num= 57

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2169.04 | .88 | 2168.87 | 4.71 | 2168.25 | 6.11 | 2167.93 | 10.15 | 2167 |
| 14.18 | 2166.35 | 15.25 | 2166.19 | 19.9 | 2165.62 | 20.62 | 2165.53 | 24.82 | 2165.27 |
| 29.45 | 2164.93 | 29.88 | 2164.87 | 34.86 | 2164.41 | 35.1 | 2164.39 | 38.7 | 2164.25 |
| 40.61 | 2164.01 | 40.93 | 2163.98 | 45.3 | 2163.33 | 50.26 | 2162.83 | 50.67 | 2162.8 |
| 52.75 | 2162.45 | 54.36 | 2162.1 | 56.37 | 2161.71 | 56.7 | 2161.69 | 57.33 | 2161.67 |
| 76.09 | 2158.86 | 76.64 | 2158.77 | 78.01 | 2158.54 | 79.17 | 2158.33 | 81.16 | 2157.95 |
| 83.13 | 2158.27 | 86.23 | 2158.78 | 88.26 | 2159.11 | 90.96 | 2159.27 | 95.64 | 2160.74 |
| 96.61 | 2161.08 | 97.84 | 2161.43 | 102 | 2162.62 | 102.5 | 2162.8 | 107.34 | 2164 |
| 108.77 | 2164.47 | 108.99 | 2164.53 | 111.11 | 2165.25 | 113.79 | 2166.16 | 114.55 | 2166.25 |
| 118.55 | 2167.54 | 119.68 | 2167.65 | 123.54 | 2168.83 | 129.16 | 2170.85 | 132.8 | 2172.02 |
| 135.17 | 2172.77 | 138.4 | 2173.19 | 140.74 | 2173.83 | 144.68 | 2174.83 | 146.07 | 2175.28 |
| 150.25 | 2176.45 | 150.88 | 2176.62 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 76.09 | .046 | 86.23 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 57.33 | 102 | 155.73 | 129.82 | 133.24 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2159.69 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.32 | Wt. n-Val. | | 0.053 | |
| W.S. Elev (ft) | 2159.37 | Reach Len. (ft) | 155.73 | 129.82 | 133.24 |
| Crit W.S. (ft) | 2159.37 | Flow Area (sq ft) | | 12.09 | |
| E.G. Slope (ft/ft) | 0.047456 | Area (sq ft) | | 12.09 | |
| Q Total (cfs) | 55.00 | Flow (cfs) | | 55.00 | |
| Top Width (ft) | 18.56 | Top Width (ft) | | 18.56 | |
| Vel Total (ft/s) | 4.55 | Avg. Vel. (ft/s) | | 4.55 | |
| Max Chl Dpth (ft) | 1.42 | Hydr. Depth (ft) | | 0.65 | |
| Conv. Total (cfs) | 252.5 | Conv. (cfs) | | 252.5 | |
| Length Wtd. (ft) | 129.82 | Wetted Per. (ft) | | 18.80 | |
| Min Ch El (ft) | 2157.95 | Shear (lb/sq ft) | | 1.91 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 8.67 | |
| Frctn Loss (ft) | 4.61 | Cum Volume (acre-ft) | 0.00 | 1.70 | |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.01 | 1.16 | |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 68.50 | 79.67 | 14.53 | 3.75 | 7.05 | 26.42 | 0.54 | 3.87 |
| 2 | Chan | 79.67 | 90.83 | 40.45 | 8.31 | 11.29 | 73.55 | 0.74 | 4.87 |
| 3 | Chan | 90.83 | 102.00 | 0.02 | 0.03 | 0.45 | 0.03 | 0.06 | 0.62 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Cave Creek1
REACH: Tributary 2.1 RS: 0.28

INPUT
Description: 1496.21
Station Elevation Data num= 57

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2164.76 | 11.31 | 2163.48 | 11.47 | 2163.47 | 11.61 | 2163.44 | 17.1 | 2162.66 |
| 17.7 | 2162.45 | 20.43 | 2162.03 | 30.69 | 2160.06 | 31.8 | 2159.84 | 35.25 | 2159.19 |
| 36.56 | 2158.82 | 40.65 | 2158.18 | 41.58 | 2157.93 | 45.63 | 2157.19 | 46.45 | 2156.96 |
| 50.17 | 2156.18 | 51.52 | 2155.86 | 52.88 | 2155.8 | 54.15 | 2155.76 | 57.17 | 2155.13 |
| 59.43 | 2155.02 | 64.96 | 2154.14 | 69.14 | 2153.47 | 70.01 | 2153.3 | 75.06 | 2154.03 |
| 78.79 | 2154.57 | 78.98 | 2154.59 | 79.05 | 2154.6 | 80.05 | 2154.61 | 83.24 | 2154.56 |
| 83.34 | 2154.57 | 83.41 | 2154.57 | 88 | 2154.68 | 88.31 | 2154.68 | 92.97 | 2155.51 |

```
   93.9 2155.58   97.65 2156.18   97.95 2156.23   99.15 2156.42   99.64 2156.57
 104.36 2157.14  109.27 2158.09  109.79 2158.23  115.04 2159.28  119.34  2160.4
 123.49 2161.34  127.29 2162.15  131.06 2162.99  132.71  2163.7   136.2  2164.6
 139.61 2165.38  141.39 2165.82  144.92 2166.59  146.89 2167.08  150.97 2168.02
 152.84 2168.44  156.67 2169.62

Manning's n Values        num=      4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*****************************************************************
       0    .061   64.96    .051   75.06    .061   97.65    .061

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          54.15   99.64             98.07  129.57  126.89             .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*********************************************************************************************
* E.G. Elev (ft)          * 2154.96  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.24  * Wt. n-Val.              *          *    0.052 *          *
* W.S. Elev (ft)          * 2154.72  * Reach Len. (ft)         *   98.07  *  129.57  *  126.89  *
* Crit W.S. (ft)          * 2154.72  * Flow Area (sq ft)       *          *    13.86 *          *
* E.G. Slope (ft/ft)      *0.027542  * Area (sq ft)            *          *    13.86 *          *
* Q Total (cfs)           *   55.00  * Flow (cfs)              *          *    55.00 *          *
* Top Width (ft)          *   27.16  * Top Width (ft)          *          *    27.16 *          *
* Vel Total (ft/s)        *    3.97  * Avg. Vel. (ft/s)        *          *     3.97 *          *
* Max Chl Dpth (ft)       *    1.42  * Hydr. Depth (ft)        *          *     0.51 *          *
* Conv. Total (cfs)       *   331.4  * Conv. (cfs)             *          *    331.4 *          *
* Length Wtd. (ft)        *  129.57  * Wetted Per. (ft)        *          *    27.38 *          *
* Min Ch El (ft)          * 2153.30  * Shear (lb/sq ft)        *          *     0.87 *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s)  *          *     3.45 *          *
* Frctn Loss (ft)         *    4.65  * Cum Volume (acre-ft)    *    0.00  *     1.66 *          *
* C & E Loss (ft)         *    0.02  * Cum SA (acres)          *    0.01  *     1.10 *          *
*********************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program selected the water surface that had the least amount of error between computed and
         assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 54.15     * 65.52     *     2.97 *    1.39 *     4.23 *     5.39 *     0.33 *     2.14 *
* 2        * Chan      * 65.52     * 76.90     *    50.43 *   10.93 *    11.51 *    91.68 *     0.96 *     4.61 *
* 3        * Chan      * 76.90     * 88.27     *     1.61 *    1.54 *    11.40 *     2.92 *     0.14 *     1.04 *
* 4        * Chan      * 88.27     * 99.64     *     0.00 *    0.00 *     0.24 *     0.00 *     0.02 *     0.30 *
*****************************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program selected the water surface that had the least amount of error between computed and
         assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.

CROSS SECTION


RIVER: Cave Creek1
REACH: Tributary 2.1      RS: 0.26

INPUT
Description: 1366.63
Station Elevation Data    num=      30
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
*******************************************************************************
       0 2156.15     4.51 2156.03     6.5 2155.95     9.91 2155.81    10.34 2155.82
   18.08 2155.69    32.01 2150.53   33.91 2149.89    38.93 2148.17    43.95 2149.12
   52.56 2150.74    52.67 2150.76   57.25  2151.5    57.73 2151.56    59.99 2151.81
    60.1 2151.82     62.1 2151.91   69.65 2152.69    70.35 2152.75     75.6 2153.19
   76.04 2153.21    76.23 2153.22   79.66 2153.41    80.83 2153.42    85.33 2153.49
   87.14 2153.56    89.88    2154   98.66 2155.21   107.93 2156.51   108.76 2156.63

Manning's n Values        num=      3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
       0    .061   33.91    .051   43.95    .061

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          18.08    60.1             76.91   57.87   62.59             .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*********************************************************************************************
* E.G. Elev (ft)          * 2150.20  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.41  * Wt. n-Val.              *          *    0.054 *          *
* W.S. Elev (ft)          * 2149.78  * Reach Len. (ft)         *   76.91  *   57.87  *   62.59  *
* Crit W.S. (ft)          * 2149.78  * Flow Area (sq ft)       *          *    10.64 *          *
* E.G. Slope (ft/ft)      *0.048584  * Area (sq ft)            *          *    10.64 *          *
* Q Total (cfs)           *   55.00  * Flow (cfs)              *          *    55.00 *          *
* Top Width (ft)          *   13.23  * Top Width (ft)          *          *    13.23 *          *
* Vel Total (ft/s)        *    5.17  * Avg. Vel. (ft/s)        *          *     5.17 *          *
* Max Chl Dpth (ft)       *    1.61  * Hydr. Depth (ft)        *          *     0.80 *          *
* Conv. Total (cfs)       *   249.5  * Conv. (cfs)             *          *    249.5 *          *
* Length Wtd. (ft)        *   57.87  * Wetted Per. (ft)        *          *    13.65 *          *
* Min Ch El (ft)          * 2148.17  * Shear (lb/sq ft)        *          *     2.37 *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s)  *          *    12.22 *          *
* Frctn Loss (ft)         *    2.74  * Cum Volume (acre-ft)    *    0.00  *     1.63 *          *
* C & E Loss (ft)         *    0.01  * Cum SA (acres)          *    0.01  *     1.04 *          *
*********************************************************************************************
```

```
Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) *  (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 28.59     * 39.09     *    19.52 *     4.04 *     5.13 *    35.49 *     0.83 *     4.83 *
* 2        * Chan      * 39.09     * 49.60     *    35.48 *     6.60 *     8.52 *    64.51 *     0.79 *     5.37 *
*****************************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: Cave Creek1
REACH: Tributary 2.1      RS: 0.25

INPUT
Description: 1308.76
Station Elevation Data    num=      43
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
       0 2152.24    3.35 2152.21    3.61 2152.23    4.04 2152.23    5.13 2152.16
   13.14 2150.92   16.42 2150.48   18.37 2150.28   18.77 2150.15   27.46 2147.45
   28.67 2146.93   33.71 2144.78   38.83 2146.12   44.21 2147.52   46.08 2147.94
   46.51 2147.99   55.47 2149.16   56.02 2149.23   56.13 2149.24   56.22 2149.25
   56.29 2149.26   59.52 2149.41   59.66 2149.43   59.83 2149.46   64.01 2149.95
   67.57 2150.27   68.05 2150.35   70.92 2150.52   71.36 2150.56   76.78 2150.96
   77.23 2150.98   78.78 2151.12   83.53 2151.38    88.6 2152.15   88.85 2152.17
   92.48 2152.54   92.87 2152.55   93.03 2152.55   94.35 2152.74   94.79  2152.8
   95.27 2152.86   95.79 2152.92   97.15 2153.04

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
       0    .061   28.67    .051   38.83    .061

Bank Sta: Left    Right    Lengths: Left Channel    Right     Coeff Contr.    Expan.
          18.37   55.47             125.88  119.02  107.52            .1        .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************************
* E.G. Elev (ft)         * 2147.05  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.46  * Wt. n-Val.              *          *    0.053 *          *
* W.S. Elev (ft)         * 2146.59  * Reach Len. (ft)         *  125.88  *   119.02 *   107.52 *
* Crit W.S. (ft)         * 2146.59  * Flow Area (sq ft)       *          *    10.05 *          *
* E.G. Slope (ft/ft)     *0.046213  * Area (sq ft)            *          *    10.05 *          *
* Q Total (cfs)          *   55.00  * Flow (cfs)               *          *    55.00 *          *
* Top Width (ft)         *   11.14  * Top Width (ft)           *          *    11.14 *          *
* Vel Total (ft/s)       *    5.47  * Avg. Vel. (ft/s)         *          *     5.47 *          *
* Max Chl Dpth (ft)      *    1.81  * Hydr. Depth (ft)         *          *     0.90 *          *
* Conv. Total (cfs)      *   255.8  * Conv. (cfs)              *          *    255.8 *          *
* Length Wtd. (ft)       *  119.02  * Wetted Per. (ft)         *          *    11.74 *          *
* Min Ch El (ft)         * 2144.78  * Shear (lb/sq ft)         *          *     2.47 *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s)   *          *    13.51 *          *
* Frctn Loss (ft)        *    5.77  * Cum Volume (acre-ft)     *     0.00 *     1.61 *          *
* C & E Loss (ft)        *    0.03  * Cum SA (acres)           *     0.01 *     1.02 *          *
*****************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program selected the water surface that had the least amount of error between computed and
         assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) *  (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 27.65     * 36.92     *    48.21 *     8.27 *     7.92 *    87.66 *     1.11 *     5.83 *
* 2        * Chan      * 36.92     * 46.20     *     6.79 *     1.78 *     3.82 *    12.34 *     0.48 *     3.81 *
*****************************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program selected the water surface that had the least amount of error between computed and
         assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: Cave Creek1
```

REACH: Tributary 2.1 RS: 0.23

INPUT
Description: 1189.75
Station Elevation Data num= 59

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2148.54 | 6.46 | 2148.26 | 10.58 | 2147.76 | 10.87 | 2147.71 | 15.61 | 2147.17 |
| 21.07 | 2146.5 | 25.34 | 2145.22 | 26.67 | 2145.03 | 31.04 | 2144.32 | 32.02 | 2144.22 |
| 36.86 | 2143.49 | 37.54 | 2143.39 | 43.28 | 2142.62 | 43.61 | 2142.54 | 44.49 | 2142.37 |
| 46.86 | 2141.93 | 48.62 | 2141.68 | 52.99 | 2140.49 | 54.88 | 2140.09 | 55.77 | 2139.99 |
| 56.74 | 2139.91 | 58.27 | 2139.77 | 61.77 | 2139.47 | 64.28 | 2139.89 | 66.79 | 2140.28 |
| 69.54 | 2140.7 | 71.69 | 2140.87 | 74.73 | 2141.02 | 77.02 | 2141.24 | 79.75 | 2141.31 |
| 81.31 | 2141.37 | 83.01 | 2141.45 | 87.08 | 2141.8 | 93 | 2142.73 | 95.58 | 2143.14 |
| 97.94 | 2143.61 | 99.65 | 2143.86 | 100.98 | 2144.06 | 103.16 | 2144.23 | 103.99 | 2144.3 |
| 105.27 | 2144.38 | 107.18 | 2144.45 | 109.82 | 2144.65 | 111.38 | 2144.7 | 116.7 | 2145.21 |
| 117.96 | 2145.3 | 122.94 | 2145.98 | 126.68 | 2146.21 | 127.72 | 2146.26 | 141.4 | 2146.77 |
| 142.85 | 2146.81 | 145.2 | 2146.91 | 161.14 | 2150.69 | 162.72 | 2151.06 | 164.65 | 2151.5 |
| 165.26 | 2151.5 | 165.66 | 2151.51 | 166.43 | 2151.52 | 167.14 | 2151.52 | | |

Manning's n Values num= 4

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|
| 0 | .061 | 56.74 | .049 | 66.79 | .061 | 161.14 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 44.49 | 93 | 87.11 | 84.48 | 85.06 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2141.03 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.35 | Wt. n-Val. | | 0.054 | |
| W.S. Elev (ft) | 2140.68 | Reach Len. (ft) | 87.11 | 84.48 | 85.06 |
| Crit W.S. (ft) | 2140.68 | Flow Area (sq ft) | | 11.60 | |
| E.G. Slope (ft/ft) | 0.050830 | Area (sq ft) | | 11.60 | |
| Q Total (cfs) | 55.00 | Flow (cfs) | | 55.00 | |
| Top Width (ft) | 17.12 | Top Width (ft) | | 17.12 | |
| Vel Total (ft/s) | 4.74 | Avg. Vel. (ft/s) | | 4.74 | |
| Max Chl Dpth (ft) | 1.21 | Hydr. Depth (ft) | | 0.68 | |
| Conv. Total (cfs) | 244.0 | Conv. (cfs) | | 244.0 | |
| Length Wtd. (ft) | 84.48 | Wetted Per. (ft) | | 17.31 | |
| Min Ch El (ft) | 2139.47 | Shear (lb/sq ft) | | 2.13 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 10.08 | |
| Frctn Loss (ft) | 0.87 | Cum Volume (acre-ft) | 0.00 | 1.58 | |
| C & E Loss (ft) | 0.08 | Cum SA (acres) | 0.01 | 0.98 | |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 44.49 | 56.62 | 5.45 | 1.99 | 4.40 | 9.92 | 0.46 | 2.74 |
| 2 | Chan | 56.62 | 68.75 | 49.52 | 9.58 | 12.23 | 90.05 | 0.79 | 5.17 |
| 3 | Chan | 68.75 | 80.87 | 0.02 | 0.03 | 0.67 | 0.04 | 0.05 | 0.63 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Cave Creek1
REACH: Tributary 2.1 RS: 0.21

INPUT
Description: 1105.27
Station Elevation Data num= 41

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2144.32 | 2.17 | 2144.2 | 4.01 | 2144.08 | 32.5 | 2141.1 | 34.17 | 2140.93 |
| 36.96 | 2140.27 | 40.25 | 2139.57 | 40.7 | 2139.47 | 49.63 | 2138.06 | 52.72 | 2137.58 |
| 54.74 | 2137.26 | 59.9 | 2138.22 | 63.99 | 2138.98 | 67.21 | 2139.5 | 70.26 | 2139.65 |
| 71.41 | 2139.82 | 74.85 | 2140.06 | 75.26 | 2140.09 | 77.55 | 2140.31 | 80.95 | 2140.86 |
| 84.57 | 2141.12 | 88.59 | 2141.65 | 90.2 | 2141.91 | 90.94 | 2142.03 | 96.3 | 2142.62 |
| 100.55 | 2143.12 | 101.41 | 2143.29 | 106.31 | 2143.9 | 107.08 | 2143.95 | 111.67 | 2144.26 |
| 112.41 | 2144.34 | 116.88 | 2144.72 | 117.66 | 2144.82 | 122.14 | 2145.12 | 123.1 | 2145.21 |
| 126.33 | 2145.5 | 127.56 | 2145.52 | 130.41 | 2145.79 | 132.06 | 2145.91 | 135.19 | 2146.16 |
| 136.76 | 2146.3 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 49.63 | .049 | 59.9 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 34.17 | 67.21 | 75.7 | 91.23 | 114.85 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2139.40 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.07 | Wt. n-Val. | | 0.051 | |
| W.S. Elev (ft) | 2139.33 | Reach Len. (ft) | 75.70 | 91.23 | 114.85 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 25.20 | |
| E.G. Slope (ft/ft) | 0.004283 | Area (sq ft) | | 25.20 | |
| Q Total (cfs) | 55.00 | Flow (cfs) | | 55.00 | |
| Top Width (ft) | 24.57 | Top Width (ft) | | 24.57 | |
| Vel Total (ft/s) | 2.18 | Avg. Vel. (ft/s) | | 2.18 | |
| Max Chl Dpth (ft) | 2.07 | Hydr. Depth (ft) | | 1.03 | |
| Conv. Total (cfs) | 840.4 | Conv. (cfs) | | 840.4 | |
| Length Wtd. (ft) | 91.22 | Wetted Per. (ft) | | 24.92 | |
| Min Ch El (ft) | 2137.26 | Shear (lb/sq ft) | | 0.27 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.59 | |
| Frctn Loss (ft) | 1.07 | Cum Volume (acre-ft) | 0.00 | 1.55 | |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.01 | 0.94 | |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 34.17 | 42.43 | 0.01 | 0.06 | 0.85 | 0.03 | 0.07 | 0.26 |
| 2 | Chan | 42.43 | 50.69 | 9.64 | 6.49 | 8.36 | 17.53 | 0.79 | 1.49 |
| 3 | Chan | 50.69 | 58.95 | 39.38 | 14.16 | 8.38 | 71.60 | 1.71 | 2.78 |
| 4 | Chan | 58.95 | 67.21 | 5.96 | 4.50 | 7.32 | 10.84 | 0.62 | 1.32 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Cave Creek1
REACH: Tributary 2.1 RS: 0.19

INPUT
Description: 1014.04
Station Elevation Data num= 44

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2143.45 | 2.07 | 2143.24 | 3.32 | 2143.13 | 7.69 | 2142.61 | 9.17 | 2142.55 |
| 13.04 | 2142.12 | 14.51 | 2142.08 | 18.03 | 2141.59 | 33.48 | 2139.92 | 38.49 | 2139.43 |
| 43.04 | 2138.96 | 44.13 | 2138.85 | 46.48 | 2138.53 | 48.82 | 2138.28 | 54.06 | 2137.71 |
| 54.72 | 2137.64 | 67.3 | 2135.42 | 69.7 | 2135 | 74.48 | 2134.17 | 75.11 | 2134.17 |
| 80.53 | 2135.68 | 86.52 | 2137.36 | 90.9 | 2138.78 | 92.8 | 2139.37 | 97.17 | 2140.67 |
| 98.2 | 2140.83 | 100.05 | 2141.09 | 100.53 | 2141.16 | 103.6 | 2141.59 | 105.05 | 2141.8 |
| 106.01 | 2141.96 | 111.66 | 2142.78 | 112.91 | 2142.98 | 117.04 | 2143.41 | 119.58 | 2143.82 |
| 121.75 | 2143.99 | 133.31 | 2145.83 | 134.53 | 2145.9 | 136.26 | 2145.93 | 145.5 | 2146.15 |
| 147.53 | 2146.17 | 153.78 | 2146.29 | 156.47 | 2146.27 | 158.99 | 2146.28 | | |

Manning's n Values num= 5

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|---|---|
| 0 | .061 | 43.04 | .061 | 69.7 | .066 | 80.53 | .061 | 100.53 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 54.06 | 98.2 | 159.19 | 153.54 | 143.84 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2138.31 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.32 | Wt. n-Val. | 0.061 | 0.063 | |
| W.S. Elev (ft) | 2137.98 | Reach Len. (ft) | 159.19 | 153.54 | 143.84 |
| Crit W.S. (ft) | 2137.21 | Flow Area (sq ft) | 0.34 | 69.73 | |
| E.G. Slope (ft/ft) | 0.014921 | Area (sq ft) | 0.34 | 69.73 | |
| Q Total (cfs) | 319.00 | Flow (cfs) | 0.27 | 318.73 | |
| Top Width (ft) | 36.89 | Top Width (ft) | 2.51 | 34.38 | |
| Vel Total (ft/s) | 4.55 | Avg. Vel. (ft/s) | 0.79 | 4.57 | |
| Max Chl Dpth (ft) | 3.81 | Hydr. Depth (ft) | 0.14 | 2.03 | |
| Conv. Total (cfs) | 2611.5 | Conv. (cfs) | 2.2 | 2609.3 | |
| Length Wtd. (ft) | 153.54 | Wetted Per. (ft) | 2.53 | 35.22 | |
| Min Ch El (ft) | 2134.17 | Shear (lb/sq ft) | 0.13 | 1.84 | |
| Alpha | 1.01 | Stream Power (lb/ft s) | 0.10 | 8.43 | |
| Frctn Loss (ft) | 3.97 | Cum Volume (acre-ft) | 0.00 | 1.45 | |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.00 | 0.88 | |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 40.55 | 54.06 | 0.27 | 0.34 | 2.53 | 0.08 | 0.14 | 0.79 |
| 2 | Chan | 54.06 | 65.10 | 39.89 | 13.26 | 11.20 | 12.51 | 1.20 | 3.01 |
| 3 | Chan | 65.10 | 76.13 | 185.75 | 34.27 | 11.22 | 58.23 | 3.11 | 5.42 |
| 4 | Chan | 76.13 | 87.17 | 92.85 | 21.93 | 11.47 | 29.11 | 1.99 | 4.23 |
| 5 | Chan | 87.17 | 98.20 | 0.24 | 0.26 | 1.34 | 0.08 | 0.21 | 0.91 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than

```
        0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: Cave Creek1
REACH: Tributary 2.1      RS: 0.16

INPUT
Description: 860.51
Station Elevation Data    num=      25
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
*******************************************************************************
       0 2138.84    1.55 2138.88   11.34 2139.09    13.4 2139.14   30.65 2139.46
   41.84 2135.88   52.02 2132.62   56.14  2131.3   56.97 2131.03   57.05 2131.01
   57.39 2131.06   62.08 2131.71   67.95 2132.52   72.61 2132.67   90.91 2133.37
   92.57 2133.43   96.03 2133.68  103.67 2134.54  104.82 2134.61  105.78  2134.6
  117.48 2135.93  127.32 2137.34  132.17 2138.01  138.96    2139  141.99 2138.67

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
       0    .061   52.02    .066   62.08    .061

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         41.84  103.67            230.49  225.75   214.2             .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)         * 2134.31  * Element                * Left OB * Channel * Right OB *
* Vel Head (ft)          *    0.56  * Wt. n-Val.             *         *   0.062 *         *
* W.S. Elev (ft)         * 2133.75  * Reach Len. (ft)        * 230.49  * 225.75  * 214.20  *
* Crit W.S. (ft)         * 2133.75  * Flow Area (sq ft)      *         *   53.33 *         *
* E.G. Slope (ft/ft)     *0.055359  * Area (sq ft)           *         *   53.33 *         *
* Q Total (cfs)          *  319.00  * Flow (cfs)             *         *  319.00 *         *
* Top Width (ft)         *   48.15  * Top Width (ft)         *         *   48.15 *         *
* Vel Total (ft/s)       *    5.98  * Avg. Vel. (ft/s)       *         *    5.98 *         *
* Max Chl Dpth (ft)      *    2.74  * Hydr. Depth (ft)       *         *    1.11 *         *
* Conv. Total (cfs)      *  1355.8  * Conv. (cfs)            *         *  1355.8 *         *
* Length Wtd. (ft)       *  225.75  * Wetted Per. (ft)       *         *   48.71 *         *
* Min Ch El (ft)         * 2131.01  * Shear (lb/sq ft)       *         *    3.78 *         *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *         *   22.63 *         *
* Frctn Loss (ft)        *    7.72  * Cum Volume (acre-ft)   *         *    1.23 *         *
* C & E Loss (ft)        *    0.04  * Cum SA (acres)         *         *    0.73 *         *
*****************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) * (sq ft) *    (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 41.84     * 57.30     *    78.73 *    12.40 *    9.23 *    24.68 *     1.41 *     6.35 *
* 2        * Chan      * 57.30     * 72.76     *   184.93 *    26.47 *   15.56 *    57.97 *     1.71 *     6.99 *
* 3        * Chan      * 72.76     * 88.21     *    50.11 *    12.03 *   15.47 *    15.71 *     0.78 *     4.17 *
* 4        * Chan      * 88.21     * 103.67    *     5.24 *     2.44 *    8.45 *     1.64 *     0.29 *     2.15 *
*****************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: Cave Creek1
REACH: Tributary 2.1      RS: 0.12

INPUT
Description: 634.75
Station Elevation Data    num=      45
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
*******************************************************************************
       0  2128.3     .75  2128.3    3.73 2128.28    8.17 2128.31    9.87 2128.03
   12.97    2128   15.15 2127.51   18.58 2127.08   22.06 2126.04   23.36 2125.63
   28.71  2123.9   33.34 2122.52   35.53 2122.06   37.86 2121.54   40.88 2120.87
   41.73  2120.7   44.11 2120.44   44.56 2120.39    51.7 2120.99   52.98 2121.32
   54.21 2121.63   59.33 2122.34   63.82  2123.5   68.06 2124.68   69.15 2124.72
    69.9 2124.68   72.47 2124.77   74.97 2124.81   77.47 2124.84   79.01 2124.79
   79.24 2124.78   83.97 2124.69   84.18 2124.69   86.47 2124.71   89.71 2124.62
   91.66 2124.71   95.58 2125.63   101.1 2127.27  101.16 2127.29  101.25 2127.31
  102.54 2127.86  106.92 2129.31  111.75 2130.83  112.28 2130.95  116.32 2131.36

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
       0    .067   37.86    .063   52.98    .067
```

```
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         18.58   68.06            132.46  146.76  153.01          .1        .3

CROSS SECTION OUTPUT  Profile #PF 1
*************************************************************************************************
* E.G. Elev (ft)          * 2123.92  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.41  * Wt. n-Val.              *          *    0.065 *          *
* W.S. Elev (ft)          * 2123.51  * Reach Len. (ft)         *  132.46  *   146.76 *   153.01 *
* Crit W.S. (ft)          * 2122.98  * Flow Area (sq ft)       *          *    62.15 *          *
* E.G. Slope (ft/ft)      *0.023181  * Area (sq ft)            *          *    62.15 *          *
* Q Total (cfs)           *  319.00  * Flow (cfs)              *          *   319.00 *          *
* Top Width (ft)          *   33.85  * Top Width (ft)          *          *    33.85 *          *
* Vel Total (ft/s)        *    5.13  * Avg. Vel. (ft/s)        *          *     5.13 *          *
* Max Chl Dpth (ft)       *    3.12  * Hydr. Depth (ft)        *          *     1.84 *          *
* Conv. Total (cfs)       *  2095.2  * Conv. (cfs)             *          *   2095.2 *          *
* Length Wtd. (ft)        *  146.76  * Wetted Per. (ft)        *          *    34.51 *          *
* Min Ch El (ft)          * 2120.39  * Shear (lb/sq ft)        *          *     2.61 *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s)  *          *    13.38 *          *
* Frctn Loss (ft)         *    4.01  * Cum Volume (acre-ft)    *          *     0.93 *          *
* C & E Loss (ft)         *    0.03  * Cum SA (acres)          *          *     0.52 *          *
*************************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          *   (ft)    *   (ft)    *    (cfs) *  (sq ft) *    (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan     * 18.58     * 30.95     *     0.10 *     0.13 *    0.98 *     0.03 *     0.14 *     0.77 *
* 2        * Chan     * 30.95     * 43.32     *   106.87 *    22.08 *   12.68 *    33.50 *     1.79 *     4.84 *
* 3        * Chan     * 43.32     * 55.69     *   189.83 *    32.09 *   12.50 *    59.51 *     2.59 *     5.91 *
* 4        * Chan     * 55.69     * 68.06     *    22.20 *     7.84 *    8.36 *     6.96 *     0.96 *     2.83 *
*****************************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: Cave Creek1
REACH: Tributary 2.1      RS: 0.09

INPUT
Description: 487.99
Station Elevation Data    num=      53
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*********************************************************************************
       0  2128.6      4.2 2128.37     6.75 2128.22    17.16  2126.8     19.5 2126.47
   20.52 2126.32    20.93 2126.25    21.89 2125.98    26.37 2125.35    26.89 2125.28
   29.99 2125.01    32.28 2124.81    38.37 2124.05    41.34 2124.08    44.33 2123.67
   44.45 2123.65    50.29 2122.45    52.09  2122.2    57.49    2121    63.05 2120.37
   69.43 2119.44    69.51 2119.43    85.04 2116.95    86.91 2116.62    91.93 2115.75
   93.95  2116.6    95.54 2117.49    96.95 2118.14   112.87  2125.5   115.23 2126.66
  119.03 2128.97   119.18 2129.06   123.59 2131.45   125.95 2132.55   128.07 2133.52
  128.47 2133.67   130.82 2134.52   131.28 2134.57   133.72 2134.83   133.77 2134.85
  133.85 2134.86   139.89 2135.29   140.43 2135.35   142.29 2135.71   142.71 2135.75
  158.57 2137.36   161.83 2137.74   165.04 2138.21   167.87 2138.54   172.21 2139.12
  175.01 2139.35   178.99 2139.99    179.9 2140.11

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*****************************************************************
       0    .067   29.99    .061   86.91    .048   96.95    .061

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         41.34  112.87            196.47  205.45  216.78          .1        .3

CROSS SECTION OUTPUT  Profile #PF 1
*************************************************************************************************
* E.G. Elev (ft)          * 2119.88  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.68  * Wt. n-Val.              *          *    0.056 *          *
* W.S. Elev (ft)          * 2119.20  * Reach Len. (ft)         *  196.47  *   205.45 *   216.78 *
* Crit W.S. (ft)          * 2119.03  * Flow Area (sq ft)       *          *    48.13 *          *
* E.G. Slope (ft/ft)      *0.032756  * Area (sq ft)            *          *    48.13 *          *
* Q Total (cfs)           *  319.00  * Flow (cfs)              *          *   319.00 *          *
* Top Width (ft)          *   28.27  * Top Width (ft)          *          *    28.27 *          *
* Vel Total (ft/s)        *    6.63  * Avg. Vel. (ft/s)        *          *     6.63 *          *
* Max Chl Dpth (ft)       *    3.45  * Hydr. Depth (ft)        *          *     1.70 *          *
* Conv. Total (cfs)       *  1762.6  * Conv. (cfs)             *          *   1762.6 *          *
* Length Wtd. (ft)        *  205.45  * Wetted Per. (ft)        *          *    29.33 *          *
* Min Ch El (ft)          * 2115.75  * Shear (lb/sq ft)        *          *     3.36 *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s)  *          *    22.24 *          *
* Frctn Loss (ft)         *    6.59  * Cum Volume (acre-ft)    *          *     0.75 *          *
* C & E Loss (ft)         *    0.11  * Cum SA (acres)          *          *     0.42 *          *
*************************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          *   (ft)    *   (ft)    *    (cfs) *  (sq ft) *    (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan     * 59.22     * 77.11     *     6.45 *     3.01 *    6.22 *     2.02 *     0.49 *     2.14 *
* 2        * Chan     * 77.11     * 94.99     *   293.81 *    40.94 *   18.41 *    92.10 *     2.29 *     7.18 *
* 3        * Chan     * 94.99     * 112.87    *    18.74 *     4.19 *    4.71 *     5.88 *     0.99 *     4.48 *
*****************************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
```

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Cave Creek1
REACH: Tributary 2.1 RS: 0.05

INPUT
Description: 282.54
Station Elevation Data num= 54

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2118.34 | 4.79 | 2118.29 | 19.5 | 2114.45 | 29.71 | 2111.88 | 35.09 | 2111.4 |
| 39.59 | 2111.21 | 41.17 | 2111.31 | 41.9 | 2111.4 | 46.68 | 2111.71 | 49.67 | 2111.97 |
| 52.8 | 2112.17 | 58.27 | 2112.49 | 58.92 | 2112.53 | 61.02 | 2112.64 | 64.14 | 2112.58 |
| 64.95 | 2112.6 | 69.04 | 2112.56 | 72.16 | 2112.55 | 73.31 | 2112.53 | 75.78 | 2112.57 |
| 78.05 | 2112.57 | 78.75 | 2112.57 | 85.88 | 2111.7 | 85.95 | 2111.69 | 90.96 | 2111.08 |
| 95.95 | 2111.45 | 102.82 | 2111.95 | 103.28 | 2111.99 | 103.9 | 2112.06 | 113.82 | 2113.31 |
| 115.76 | 2113.46 | 125.12 | 2116.04 | 128.59 | 2117.07 | 128.8 | 2117.13 | 129.49 | 2117.31 |
| 129.92 | 2117.4 | 133.06 | 2118.46 | 134.18 | 2118.68 | 136.4 | 2119.02 | 138.29 | 2119.38 |
| 141.1 | 2119.9 | 141.63 | 2120.03 | 145.47 | 2120.72 | 150.31 | 2121.56 | 154.48 | 2122.53 |
| 160.52 | 2123.71 | 166.87 | 2124.86 | 172.05 | 2125.63 | 172.12 | 2125.65 | 177.42 | 2126.49 |
| 182.85 | 2127.2 | 188.37 | 2127.91 | 188.44 | 2127.92 | 193.49 | 2128.52 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 85.95 | .048 | 95.95 | .061 |

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
4.79 128.59 108.46 106.83 92.34 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2113.17 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.30 | Wt. n-Val. | | 0.056 | |
| W.S. Elev (ft) | 2112.87 | Reach Len. (ft) | 108.46 | 106.83 | 92.34 |
| Crit W.S. (ft) | 2112.75 | Flow Area (sq ft) | | 72.60 | |
| E.G. Slope (ft/ft) | 0.031395 | Area (sq ft) | | 72.60 | |
| Q Total (cfs) | 319.00 | Flow (cfs) | | 319.00 | |
| Top Width (ft) | 84.56 | Top Width (ft) | | 84.56 | |
| Vel Total (ft/s) | 4.39 | Avg. Vel. (ft/s) | | 4.39 | |
| Max Chl Dpth (ft) | 1.79 | Hydr. Depth (ft) | | 0.86 | |
| Conv. Total (cfs) | 1800.4 | Conv. (cfs) | | 1800.4 | |
| Length Wtd. (ft) | 106.83 | Wetted Per. (ft) | | 84.94 | |
| Min Ch El (ft) | 2111.08 | Shear (lb/sq ft) | | 1.68 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 7.36 | |
| Frctn Loss (ft) | 2.52 | Cum Volume (acre-ft) | | 0.46 | |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | | 0.15 | |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 4.79 | 35.74 | 38.66 | 9.54 | 10.11 | 12.12 | 0.96 | 4.05 |
| 2 | Chan | 35.74 | 66.69 | 103.34 | 26.93 | 31.00 | 32.39 | 0.87 | 3.84 |
| 3 | Chan | 66.69 | 97.64 | 145.31 | 26.84 | 31.06 | 45.55 | 0.87 | 5.41 |
| 4 | Chan | 97.64 | 128.59 | 31.70 | 9.29 | 12.76 | 9.94 | 0.73 | 3.41 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Cave Creek1
REACH: Tributary 2.1 RS: 0.03

INPUT
Description: 175.71
Station Elevation Data num= 39

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2114.06 | 4.35 | 2114.06 | 6.56 | 2114 | 10.57 | 2113.81 | 10.64 | 2113.81 |
| 14.74 | 2113.74 | 18.44 | 2113.66 | 18.81 | 2113.65 | 22.34 | 2113.3 | 22.59 | 2113.29 |
| 24.37 | 2113.25 | 29.35 | 2112.97 | 44.06 | 2112.28 | 45.1 | 2112.23 | 45.53 | 2112.21 |
| 45.8 | 2112.18 | 45.86 | 2112.17 | 49.56 | 2111.08 | 53.01 | 2110.74 | 58.4 | 2109.98 |
| 58.59 | 2109.95 | 58.96 | 2109.9 | 67.26 | 2108.84 | 76.94 | 2107.93 | 77.71 | 2107.85 |
| 79.73 | 2107.62 | 82.02 | 2107.45 | 87.09 | 2107.68 | 87.8 | 2107.71 | 89.25 | 2107.79 |
| 105.48 | 2115.93 | 114.3 | 2120.27 | 118.08 | 2122.14 | 120.53 | 2122.77 | 121.62 | 2123.02 |
| 126.63 | 2124.12 | 129.68 | 2124.71 | 137.67 | 2126.41 | 146.72 | 2128.67 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 76.94 | .048 | 87.09 | .061 |

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
45.86 114.3 0 0 0 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2110.65 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.38 | Wt. n-Val. | | 0.058 | |
| W.S. Elev (ft) | 2110.27 | Reach Len. (ft) | 175.71 | 175.71 | 175.71 |
| Crit W.S. (ft) | 2109.77 | Flow Area (sq ft) | | 64.82 | |
| E.G. Slope (ft/ft) | 0.018324 | Area (sq ft) | | 64.82 | |
| Q Total (cfs) | 319.00 | Flow (cfs) | | 319.00 | |
| Top Width (ft) | 37.87 | Top Width (ft) | | 37.87 | |
| Vel Total (ft/s) | 4.92 | Avg. Vel. (ft/s) | | 4.92 | |

| | | | |
|---|---|---|---|
| Max Chl Dpth (ft) | 2.82 | Hydr. Depth (ft) | 1.71 |
| Conv. Total (cfs) | 2356.5 | Conv. (cfs) | 2356.5 |
| Length Wtd. (ft) | 175.71 | Wetted Per. (ft) | 38.62 |
| Min Ch El (ft) | 2107.45 | Shear (lb/sq ft) | 1.92 |
| Alpha | 1.00 | Stream Power (lb/ft s) | 9.45 |
| Frctn Loss (ft) | 5.46 | Cum Volume (acre-ft) | 0.29 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 45.86 | 62.97 | 4.88 | 3.01 | 6.70 | 1.53 | 0.45 | 1.62 |
| 2 | Chan | 62.97 | 80.08 | 141.15 | 31.12 | 17.21 | 44.25 | 1.82 | 4.54 |
| 3 | Chan | 80.08 | 97.19 | 172.96 | 30.69 | 14.72 | 54.22 | 2.17 | 5.64 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Cave Creek2
REACH: Tributary 2.2 RS: 0.54

INPUT
Description: 2837.84
Station Elevation Data num= 78

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2126.51 | 3.61 | 2125.39 | 3.77 | 2125.36 | 4.35 | 2125.21 | 4.91 | 2125.08 |
| 5.39 | 2124.97 | 5.78 | 2124.97 | 11.32 | 2123.01 | 11.84 | 2122.87 | 16.66 | 2121.43 |
| 17.07 | 2121.3 | 22.03 | 2119.64 | 22.35 | 2119.54 | 27.26 | 2118.19 | 27.46 | 2118.14 |
| 33.5 | 2116.57 | 33.65 | 2116.54 | 33.79 | 2116.51 | 39.85 | 2114.86 | 39.94 | 2114.84 |
| 44.56 | 2113.51 | 44.66 | 2113.49 | 49.8 | 2111.7 | 49.94 | 2111.67 | 55.09 | 2110.91 |
| 55.24 | 2110.87 | 57.89 | 2110.22 | 58.89 | 2110.02 | 68.27 | 2108.16 | 80.44 | 2105.64 |
| 85.39 | 2104.75 | 85.87 | 2104.66 | 94.37 | 2104.22 | 99.2 | 2103.77 | 100.9 | 2103.62 |
| 119.25 | 2102.09 | 121.42 | 2101.9 | 124.91 | 2101.61 | 126.3 | 2101.54 | 126.46 | 2101.54 |
| 126.85 | 2101.64 | 129.2 | 2102.26 | 130.1 | 2102.44 | 131.58 | 2102.44 | 131.65 | 2102.44 |
| 136.47 | 2103.34 | 141.29 | 2104.22 | 142.9 | 2104.65 | 145.12 | 2105.56 | 146.72 | 2106.21 |
| 149.01 | 2106.95 | 152.16 | 2107.78 | 155.08 | 2108.73 | 155.58 | 2108.89 | 157.31 | 2109.12 |
| 161.05 | 2110.23 | 162.52 | 2110.38 | 166.49 | 2111.05 | 166.86 | 2111.1 | 171.8 | 2111.62 |
| 177.28 | 2111.78 | 183.03 | 2112.13 | 184.1 | 2112.11 | 189.02 | 2112.4 | 189.21 | 2112.4 |
| 194.33 | 2113.04 | 194.49 | 2113.05 | 200.09 | 2113.67 | 201.35 | 2113.8 | 205.31 | 2114.06 |
| 205.42 | 2114.07 | 210.76 | 2114.32 | 211.05 | 2114.36 | 216.12 | 2114.59 | 216.76 | 2114.66 |
| 221.31 | 2114.84 | 222.41 | 2114.83 | 222.72 | 2114.85 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .067 | 121.42 | .069 | 131.58 | .067 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 55.24 | 161.05 | 235.79 | 216.82 | 200.29 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2105.15 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.60 | Wt. n-Val. | | 0.067 | |
| W.S. Elev (ft) | 2104.55 | Reach Len. (ft) | 235.79 | 216.82 | 200.29 |
| Crit W.S. (ft) | 2104.41 | Flow Area (sq ft) | | 80.73 | |
| E.G. Slope (ft/ft) | 0.047670 | Area (sq ft) | | 80.73 | |
| Q Total (cfs) | 502.00 | Flow (cfs) | | 502.00 | |
| Top Width (ft) | 54.57 | Top Width (ft) | | 54.57 | |
| Vel Total (ft/s) | 6.22 | Avg. Vel. (ft/s) | | 6.22 | |
| Max Chl Dpth (ft) | 3.01 | Hydr. Depth (ft) | | 1.48 | |
| Conv. Total (cfs) | 2299.2 | Conv. (cfs) | | 2299.2 | |
| Length Wtd. (ft) | 216.82 | Wetted Per. (ft) | | 55.01 | |
| Min Ch El (ft) | 2101.54 | Shear (lb/sq ft) | | 4.37 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 27.16 | |
| Frctn Loss (ft) | 10.83 | Cum Volume (acre-ft) | | 4.56 | |
| C & E Loss (ft) | 0.07 | Cum SA (acres) | | 2.26 | |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 81.69 | 108.15 | 46.82 | 14.15 | 20.25 | 9.33 | 0.70 | 3.31 |
| 2 | Chan | 108.15 | 134.60 | 431.44 | 60.06 | 26.67 | 85.94 | 2.27 | 7.18 |
| 3 | Chan | 134.60 | 161.05 | 23.74 | 6.52 | 8.09 | 4.73 | 0.82 | 3.64 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Cave Creek2

```
REACH: Tributary 2.2      RS: 0.50

INPUT
Description: 2621.02
Station Elevation Data    num=      59
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
       0 2114.11     .86 2113.96    3.33 2113.24    8.03 2112.17   13.19  2110.9
   14.03 2110.72   18.37 2109.65   23.37 2108.15   28.44 2107.05   29.99 2106.58
   34.59 2105.58   34.71 2105.56   37.28 2104.93   40.38 2104.04   40.56 2104.01
   46.31  2102.5   46.65 2102.42   47.17 2102.27   52.12 2100.34    52.5 2100.27
   56.25 2099.57   64.66 2097.89   73.31 2096.35   77.96 2095.53   85.06  2094.4
   85.43 2094.26   94.53 2090.73   97.52 2089.58  102.53 2087.64  104.15 2088.59
   105.4 2089.98  106.18 2090.74  107.53 2091.54  108.93 2092.37  113.96 2095.74
  115.86 2097.47  118.09 2099.03  118.45 2099.29  119.24 2099.95  121.24 2100.93
  123.09 2101.92  126.79 2103.42  129.09 2104.56  131.93  2105.6  134.93 2107.41
     137 2108.27  138.17 2108.89  139.87  2109.8   142.1  2110.6  145.89 2112.74
  147.53 2113.26  151.39 2115.17  152.68 2115.62  156.85 2117.55  157.74 2117.68
  160.77 2118.65  160.92 2118.66  164.08 2119.95  166.17 2120.45

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************************************
       0    .061   29.99    .072   97.52    .059  107.53    .063

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          85.06  118.09           114.92  144.99  166.44            .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*************************************************************************************************
* E.G. Elev (ft)          * 2094.25  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    1.31  * Wt. n-Val.              *          *    0.065 *         *
* W.S. Elev (ft)          * 2092.94  * Reach Len. (ft)        *  114.92  *  144.99  *  166.44  *
* Crit W.S. (ft)          * 2092.94  * Flow Area (sq ft)      *          *    54.70 *         *
* E.G. Slope (ft/ft)      *0.052428  * Area (sq ft)           *          *    54.70 *         *
* Q Total (cfs)           *  502.00  * Flow (cfs)             *          *   502.00 *         *
* Top Width (ft)          *   20.93  * Top Width (ft)          *          *    20.93 *         *
* Vel Total (ft/s)        *    9.18  * Avg. Vel. (ft/s)        *          *     9.18 *         *
* Max Chl Dpth (ft)       *    5.30  * Hydr. Depth (ft)        *          *     2.61 *         *
* Conv. Total (cfs)       *  2192.4  * Conv. (cfs)             *          *   2192.4 *         *
* Length Wtd. (ft)        *  144.99  * Wetted Per. (ft)        *          *    23.73 *         *
* Min Ch El (ft)          * 2087.64  * Shear (lb/sq ft)        *          *     7.54 *         *
* Alpha                   *    1.00  * Stream Power (lb/ft s)  *          *    69.24 *         *
* Frctn Loss (ft)         *    6.85  * Cum Volume (acre-ft)    *          *     4.22 *         *
* C & E Loss (ft)         *    0.01  * Cum SA (acres)          *          *     2.07 *         *
*************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program selected the water surface that had the least amount of error between computed and
         assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) *  (sq ft) *    (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 85.06     * 93.32     *    13.21 *     3.89 *    4.80 *     2.63 *     0.87 *     3.40 *
* 2        * Chan      * 93.32     * 101.58    *   272.02 *    27.50 *    8.85 *    54.19 *     3.33 *     9.89 *
* 3        * Chan      * 101.58    * 109.83    *   216.77 *    23.31 *   10.08 *    43.18 *     2.84 *     9.30 *
*****************************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program selected the water surface that had the least amount of error between computed and
         assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: Cave Creek2
REACH: Tributary 2.2      RS: 0.47

INPUT
Description: 2476.04
Station Elevation Data    num=      20
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
       0  2100.8     8.9 2097.04   15.37 2093.99   15.93 2093.73   29.84 2087.46
   39.99    2083   44.44 2081.06   45.01 2080.81   45.35 2080.96   50.05 2083.21
   58.52 2087.25   59.18 2087.58   70.56  2092.4   76.74 2095.64   86.11 2101.03
   87.21 2101.57   90.93 2103.64   95.23 2104.84  100.71 2106.18  101.74 2106.35

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************************
       0    .059   39.99    .055   50.05    .067

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          29.84  59.18            343.61  362.61  402.29            .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*************************************************************************************************
* E.G. Elev (ft)          * 2087.11  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    1.26  * Wt. n-Val.              *          *    0.059 *         *
* W.S. Elev (ft)          * 2085.85  * Reach Len. (ft)        *  343.61  *  362.61  *  402.29  *
* Crit W.S. (ft)          * 2085.85  * Flow Area (sq ft)      *          *    55.65 *         *
```

| | | | | | |
|---|---|---|---|---|---|
| * E.G. Slope (ft/ft) | *0.042827 | * Area (sq ft) | * | * 55.65 | * |
| * Q Total (cfs) | * 502.00 | * Flow (cfs) | * | * 502.00 | * |
| * Top Width (ft) | * 22.06 | * Top Width (ft) | * | * 22.06 | * |
| * Vel Total (ft/s) | * 9.02 | * Avg. Vel. (ft/s) | * | * 9.02 | * |
| * Max Chl Dpth (ft) | * 5.04 | * Hydr. Depth (ft) | * | * 2.52 | * |
| * Conv. Total (cfs) | * 2425.8 | * Conv. (cfs) | * | * 2425.8 | * |
| * Length Wtd. (ft) | * 362.61 | * Wetted Per. (ft) | * | * 24.26 | * |
| * Min Ch El (ft) | * 2080.81 | * Shear (lb/sq ft) | * | * 6.13 | * |
| * Alpha | * 1.00 | * Stream Power (lb/ft s) | * | * 55.33 | * |
| * Frctn Loss (ft) | * 15.31 | * Cum Volume (acre-ft) | * | * 4.04 | * |
| * C & E Loss (ft) | * 0.08 | * Cum SA (acres) | * | * 2.00 | * |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| * | * Pos | * Left Sta (ft) | * Right Sta (ft) | * Flow (cfs) | * Area (sq ft) | * W.P. (ft) | * Percent Conv | * Hydr Depth(ft) | * Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| * 1 | * Chan | * 29.84 | * 37.18 | * 10.22 | * 2.95 | * 4.00 | * 2.04 | * 0.80 | * 3.47 |
| * 2 | * Chan | * 37.18 | * 44.51 | * 225.36 | * 23.59 | * 8.01 | * 44.89 | * 3.22 | * 9.55 |
| * 3 | * Chan | * 44.51 | * 51.85 | * 255.67 | * 25.79 | * 8.12 | * 50.93 | * 3.52 | * 9.91 |
| * 4 | * Chan | * 51.85 | * 59.18 | * 10.75 | * 3.32 | * 4.13 | * 2.14 | * 0.89 | * 3.24 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Cave Creek2
REACH: Tributary 2.2 RS: 0.40

INPUT
Description: 2113.42
Station Elevation Data num= 31

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2091.93 | 8.62 | 2088.18 | 57.49 | 2077.71 | 59.76 | 2077.09 | 73.69 | 2073.81 |
| 84.55 | 2071.45 | 92.09 | 2069.75 | 94.33 | 2069.24 | 94.55 | 2069.22 | 107.75 | 2067.79 |
| 113.05 | 2067.3 | 118.12 | 2066.83 | 119.93 | 2067.51 | 123.19 | 2069.45 | 131.5 | 2074.42 |
| 159.15 | 2092.74 | 162.37 | 2094.86 | 167.89 | 2098.69 | 168.51 | 2099.12 | 168.6 | 2099.17 |
| 168.73 | 2099.21 | 168.89 | 2099.26 | 169.11 | 2099.32 | 169.31 | 2099.38 | 169.48 | 2099.44 |
| 169.76 | 2099.51 | 169.91 | 2099.52 | 213.13 | 2108.32 | 214.28 | 2108.39 | 215.14 | 2108.41 |
| 215.83 | 2108.55 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .059 | 113.05 | .055 | 123.19 | .067 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 73.69 | 131.5 | 195.06 | 191.53 | 206.32 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| * E.G. Elev (ft) | * 2071.31 | * Element | * Left OB | * Channel | * Right OB |
| * Vel Head (ft) | * 1.01 | * Wt. n-Val. | * | * 0.058 | * |
| * W.S. Elev (ft) | * 2070.29 | * Reach Len. (ft) | * 195.06 | * 191.53 | * 206.32 |
| * Crit W.S. (ft) | * 2070.29 | * Flow Area (sq ft) | * | * 69.40 | * |
| * E.G. Slope (ft/ft) | *0.041715 | * Area (sq ft) | * | * 69.40 | * |
| * Q Total (cfs) | * 560.00 | * Flow (cfs) | * | * 560.00 | * |
| * Top Width (ft) | * 34.92 | * Top Width (ft) | * | * 34.92 | * |
| * Vel Total (ft/s) | * 8.07 | * Avg. Vel. (ft/s) | * | * 8.07 | * |
| * Max Chl Dpth (ft) | * 3.46 | * Hydr. Depth (ft) | * | * 1.99 | * |
| * Conv. Total (cfs) | * 2741.8 | * Conv. (cfs) | * | * 2741.8 | * |
| * Length Wtd. (ft) | * 191.53 | * Wetted Per. (ft) | * | * 36.05 | * |
| * Min Ch El (ft) | * 2066.83 | * Shear (lb/sq ft) | * | * 5.01 | * |
| * Alpha | * 1.00 | * Stream Power (lb/ft s) | * | * 40.45 | * |
| * Frctn Loss (ft) | * 8.02 | * Cum Volume (acre-ft) | * | * 3.52 | * |
| * C & E Loss (ft) | * 0.02 | * Cum SA (acres) | * | * 1.76 | * |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| * | * Pos | * Left Sta (ft) | * Right Sta (ft) | * Flow (cfs) | * Area (sq ft) | * W.P. (ft) | * Percent Conv | * Hydr Depth(ft) | * Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| * 1 | * Chan | * 88.14 | * 102.60 | * 74.33 | * 14.83 | * 13.08 | * 13.27 | * 1.15 | * 5.01 |
| * 2 | * Chan | * 102.60 | * 117.05 | * 355.50 | * 38.75 | * 14.52 | * 63.48 | * 2.68 | * 9.17 |
| * 3 | * Chan | * 117.05 | * 131.50 | * 130.17 | * 15.83 | * 8.45 | * 23.24 | * 2.10 | * 8.23 |

Warning: The energy equation could not be balanced within the specified number of iterations. The

```
          program used critical depth for the water surface and continued on with the calculations.
Warning:  The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
          section.  This may indicate the need for additional cross sections.
Warning:  During the standard step iterations, when the assumed water surface was set equal to critical
          depth, the calculated water surface came back below critical depth.  This indicates that there
          is not a valid subcritical answer.  The program defaulted to critical depth.
Note:     Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: Cave Creek2
REACH: Tributary 2.2       RS: 0.36

INPUT
Description: 1921.89
Station Elevation Data     num=      37
      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*****************************************************************************************
        0 2091.49     2.98 2090.24     3.13 2090.19     6.18 2088.52     6.84 2088.11
     9.19 2086.71    23.13 2078.38    28.47 2075.21    31.46 2073.39    52.19 2060.85
       54 2059.83    56.13 2059.76    65.88 2059.46    78.15 2058.98     79.6 2058.92
    83.39 2058.77    84.62 2059.25    88.51 2060.89    90.92 2061.91    94.33 2063.44
   104.57 2068.14   105.11 2068.39   106.61 2068.83   109.28 2069.68   116.37 2072.12
   120.36 2073.46   120.71 2073.51   123.12 2073.79   126.85 2074.13    127.5 2074.41
   130.44 2075.14   154.28 2078.07   156.96 2078.74   158.56 2078.91   160.66 2078.98
   162.06 2079.02   169.78 2079.32

Manning's n Values         num=       3
      Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
        0    .059    78.15     .055    88.51     .067

Bank Sta: Left   Right     Lengths: Left Channel   Right      Coeff Contr.    Expan.
          31.46  105.11            245.99  238.35  218.64            .1        .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************************
* E.G. Elev (ft)          * 2062.35  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.95  * Wt. n-Val.              *          *    0.058 *          *
* W.S. Elev (ft)          * 2061.41  * Reach Len. (ft)         *  245.99  *  238.35  *  218.64  *
* Crit W.S. (ft)          * 2061.41  * Flow Area (sq ft)       *          *    71.75 *          *
* E.G. Slope (ft/ft)      *0.042071  * Area (sq ft)            *          *    71.75 *          *
* Q Total (cfs)           *  560.00  * Flow (cfs)              *          *   560.00 *          *
* Top Width (ft)          *   38.47  * Top Width (ft)          *          *    38.47 *          *
* Vel Total (ft/s)        *    7.80  * Avg. Vel. (ft/s)        *          *     7.80 *          *
* Max Chl Dpth (ft)       *    2.64  * Hydr. Depth (ft)        *          *     1.87 *          *
* Conv. Total (cfs)       *  2730.2  * Conv. (cfs)             *          *   2730.2 *          *
* Length Wtd. (ft)        *  238.35  * Wetted Per. (ft)        *          *    39.44 *          *
* Min Ch El (ft)          * 2058.77  * Shear (lb/sq ft)        *          *     4.78 *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s)  *          *    37.30 *          *
* Frctn Loss (ft)         *    9.88  * Cum Volume (acre-ft)    *          *     3.21 *          *
* C & E Loss (ft)         *    0.02  * Cum SA (acres)          *          *     1.60 *          *
*****************************************************************************************************

Warning:  The energy equation could not be balanced within the specified number of iterations.  The
          program used critical depth for the water surface and continued on with the calculations.
Warning:  The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
          section.  This may indicate the need for additional cross sections.
Warning:  During the standard step iterations, when the assumed water surface was set equal to critical
          depth, the calculated water surface came back below critical depth.  This indicates that there
          is not a valid subcritical answer.  The program defaulted to critical depth.
Note:     Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) *  (sq ft) *    (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 49.87     * 68.29     *   187.98 *    27.95 *   17.45 *    33.57 *     1.64 *     6.72 *
* 2        * Chan      * 68.29     * 86.70     *   363.90 *    41.85 *   18.69 *    64.98 *     2.27 *     8.70 *
* 3        * Chan      * 86.70     * 105.11    *     8.12 *     1.95 *    3.30 *     1.45 *     0.64 *     4.17 *
*****************************************************************************************************************

Warning:  The energy equation could not be balanced within the specified number of iterations.  The
          program used critical depth for the water surface and continued on with the calculations.
Warning:  The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
          section.  This may indicate the need for additional cross sections.
Warning:  During the standard step iterations, when the assumed water surface was set equal to critical
          depth, the calculated water surface came back below critical depth.  This indicates that there
          is not a valid subcritical answer.  The program defaulted to critical depth.
Note:     Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: Cave Creek2
REACH: Tributary 2.2       RS: 0.32

INPUT
Description: 1683.54
Station Elevation Data     num=      60
      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*****************************************************************************************
        0 2074.62     6.88 2073.76    10.32 2073.12    12.76 2072.68    14.91  2072.1
    16.91 2071.59     19.5 2071.33    21.47 2070.85    25.04 2070.05    26.96 2069.57
    31.51 2068.69    33.21 2068.37    37.08 2067.75    38.39 2067.45    42.49 2066.69
    43.62 2066.49    47.71 2065.71    48.75 2065.63    52.87 2064.64    53.86 2064.54
    54.95 2064.29    58.41 2063.15    62.75 2061.89    64.63 2061.34    66.34 2060.66
    68.92 2059.71    71.35 2058.77    76.87 2056.78    86.91 2053.29    94.26 2050.71
     95.7  2050.2    108.4 2047.27   112.1 2046.41   113.42 2046.09    113.8 2046.31
   114.19 2046.54   118.43 2049.03   120.78  2050.4   120.97 2050.51   128.38 2054.87
   133.51 2057.79   138.42 2060.08   138.72 2060.13   140.16 2060.24   143.24 2060.49
    146.6 2061.38   149.57 2062.07   152.81 2062.81   157.78 2062.04   171.29 2058.93
   176.76 2056.81    178.8 2057.21   180.32 2057.49   186.01 2058.48   195.67 2062.93
   198.64 2063.68   200.37 2064.72    202.7 2065.63    205.8  2066.5   205.93 2066.55
```

```
Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
       0    .059   108.4    .055  118.43    .067

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          76.87  138.42            401.17  407.38  418.02          .1        .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)         * 2051.90  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.19  * Wt. n-Val.              *          *    0.058 *          *
* W.S. Elev (ft)         * 2050.72  * Reach Len. (ft)         *  401.17  *  407.38  *  418.02  *
* Crit W.S. (ft)         * 2050.72  * Flow Area (sq ft)       *          *   64.09  *          *
* E.G. Slope (ft/ft)     *0.040870  * Area (sq ft)            *          *   64.09  *          *
* Q Total (cfs)          *  560.00  * Flow (cfs)              *          *  560.00  *          *
* Top Width (ft)         *   27.09  * Top Width (ft)          *          *   27.09  *          *
* Vel Total (ft/s)       *    8.74  * Avg. Vel. (ft/s)        *          *    8.74  *          *
* Max Chl Dpth (ft)      *    4.63  * Hydr. Depth (ft)        *          *    2.37  *          *
* Conv. Total (cfs)      *  2770.0  * Conv. (cfs)             *          *  2770.0  *          *
* Length Wtd. (ft)       *  407.38  * Wetted Per. (ft)        *          *   28.90  *          *
* Min Ch El (ft)         * 2046.09  * Shear (lb/sq ft)        *          *    5.66  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s)  *          *   49.43  *          *
* Frctn Loss (ft)        *   14.35  * Cum Volume (acre-ft)    *          *    2.84  *          *
* C & E Loss (ft)        *    0.00  * Cum SA (acres)          *          *    1.42  *          *
*****************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) *  (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 92.26     * 107.65    *   144.70 *    23.03 *    13.81 *    25.84 *     1.72 *     6.28 *
* 2        * Chan      * 107.65    * 123.03    *   415.30 *    41.06 *    15.09 *    74.16 *     3.00 *    10.11 *
*****************************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: Cave Creek2
REACH: Tributary 2.2       RS: 0.24

INPUT
Description: 1276.16
Station Elevation Data     num=      49
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
       0 2060.54    3.09 2060.42    5.15 2060.33    8.98 2060.03   10.67 2059.82
   14.38 2059.22   15.86 2059.03   17.81 2058.69   19.6 2058.36   21.01 2057.83
   30.19 2056.59    31.2 2056.44   33.18 2056.14   35.67 2055.49   44.39 2053.01
   47.09 2052.04   49.63 2050.94   76.83 2040.53   78.83 2039.74    79.5 2039.48
   92.66  2033.5   99.91 2030.19   104.9 2027.91  109.89 2030.81  114.48 2033.47
   122.8 2038.27  123.09 2038.44  126.55 2040.35  132.29 2043.44  141.71 2047.07
  149.04 2050.15  151.06 2050.92   153.5 2051.12  158.12 2051.53  160.97  2051.8
  161.02 2051.81  161.07 2051.79  161.47 2051.81   169.1 2052.66  175.49    2053
  179.29 2053.34  188.25 2054.25  192.31 2054.67  196.33 2055.46  200.23 2055.98
  204.43 2056.47  208.25 2056.64  211.97 2056.74  216.16 2056.82

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
       0    .058   99.91    .054  109.89    .058

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          78.83  122.8             307.46  297.21  272.01          .1        .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)         * 2034.96  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.20  * Wt. n-Val.              *          *    0.056 *          *
* W.S. Elev (ft)         * 2033.77  * Reach Len. (ft)         *  307.46  *  297.21  *  272.01  *
* Crit W.S. (ft)         * 2033.53  * Flow Area (sq ft)       *          *   67.07  *          *
* E.G. Slope (ft/ft)     *0.030890  * Area (sq ft)            *          *   67.07  *          *
* Q Total (cfs)          *  589.00  * Flow (cfs)              *          *  589.00  *          *
* Top Width (ft)         *   22.92  * Top Width (ft)          *          *   22.92  *          *
* Vel Total (ft/s)       *    8.78  * Avg. Vel. (ft/s)        *          *    8.78  *          *
* Max Chl Dpth (ft)      *    5.86  * Hydr. Depth (ft)        *          *    2.93  *          *
* Conv. Total (cfs)      *  3351.3  * Conv. (cfs)             *          *  3351.3  *          *
* Length Wtd. (ft)       *  297.21  * Wetted Per. (ft)        *          *   25.77  *          *
* Min Ch El (ft)         * 2027.91  * Shear (lb/sq ft)        *          *    5.02  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s)  *          *   44.08  *          *
* Frctn Loss (ft)        *   10.34  * Cum Volume (acre-ft)    *          *    2.22  *          *
* C & E Loss (ft)        *    0.05  * Cum SA (acres)          *          *    1.19  *          *
*****************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.
```

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 89.82 | 100.82 | 106.39 | 17.43 | 9.61 | 18.06 | 1.99 | 6.10 |
| 2 | Chan | 100.82 | 111.81 | 472.92 | 46.70 | 12.48 | 80.29 | 4.25 | 10.13 |
| 3 | Chan | 111.81 | 122.80 | 9.69 | 2.94 | 3.68 | 1.64 | 0.92 | 3.30 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Cave Creek2
REACH: Tributary 2.2 RS: 0.19

INPUT
Description: 978.95
Station Elevation Data num= 62

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2040.35 | 5.61 | 2039.84 | 13.54 | 2039.15 | 16.82 | 2038.97 | 20.56 | 2038.69 |
| 26.07 | 2038.14 | 26.3 | 2038.11 | 29.87 | 2038.1 | 29.97 | 2038.08 | 33.07 | 2037.65 |
| 35.72 | 2037.25 | 41.39 | 2036.35 | 41.61 | 2036.35 | 42.15 | 2036.33 | 47.36 | 2035.32 |
| 48.37 | 2035.2 | 52.76 | 2034.11 | 53.19 | 2034.02 | 57.54 | 2033.03 | 58.54 | 2032.84 |
| 63.73 | 2031.27 | 67.52 | 2030.46 | 69.29 | 2030.08 | 69.47 | 2030 | 71.67 | 2029.48 |
| 74.28 | 2028.89 | 74.99 | 2028.49 | 78.95 | 2027.19 | 79.43 | 2026.82 | 84.14 | 2024.71 |
| 88.2 | 2022.29 | 91.28 | 2021.85 | 92 | 2021.55 | 95.39 | 2020.13 | 97.01 | 2019.47 |
| 99.45 | 2019.87 | 100.5 | 2020.05 | 102.04 | 2020.3 | 110.25 | 2021.65 | 113.82 | 2022.26 |
| 117.93 | 2023.01 | 119.98 | 2023.37 | 125.26 | 2024.14 | 131.33 | 2026.18 | 133.33 | 2026.49 |
| 138.03 | 2027.61 | 142.08 | 2028.52 | 145.04 | 2028.95 | 149.54 | 2029.86 | 151.41 | 2030.07 |
| 152.17 | 2030.15 | 164.31 | 2031.48 | 167.41 | 2031.98 | 169.88 | 2032.33 | 171.52 | 2032.54 |
| 171.94 | 2032.61 | 172.92 | 2032.77 | 174.04 | 2032.78 | 174.78 | 2032.87 | 175.62 | 2032.89 |
| 176.29 | 2032.93 | 214.95 | 2036.2 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .058 | 92 | .054 | 102.04 | .058 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 67.52 | 151.41 | 260.46 | 270.25 | 271.65 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2024.58 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 1.04 | Wt. n-Val. | | 0.057 | |
| W.S. Elev (ft) | 2023.53 | Reach Len. (ft) | 260.46 | 270.25 | 271.65 |
| Crit W.S. (ft) | 2023.53 | Flow Area (sq ft) | | 71.80 | |
| E.G. Slope (ft/ft) | 0.039503 | Area (sq ft) | | 71.80 | |
| Q Total (cfs) | 589.00 | Flow (cfs) | | 589.00 | |
| Top Width (ft) | 34.99 | Top Width (ft) | | 34.99 | |
| Vel Total (ft/s) | 8.20 | Avg. Vel. (ft/s) | | 8.20 | |
| Max Chl Dpth (ft) | 4.06 | Hydr. Depth (ft) | | 2.05 | |
| Conv. Total (cfs) | 2963.5 | Conv. (cfs) | | 2963.5 | |
| Length Wtd. (ft) | 270.25 | Wetted Per. (ft) | | 36.18 | |
| Min Ch El (ft) | 2019.47 | Shear (lb/sq ft) | | 4.89 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 40.15 | |
| Frctn Loss (ft) | 8.50 | Cum Volume (acre-ft) | | 1.75 | |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | | 0.99 | |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 67.52 | 88.49 | 5.26 | 1.67 | 2.72 | 0.89 | 0.70 | 3.15 |
| 2 | Chan | 88.49 | 109.47 | 533.21 | 58.47 | 21.64 | 90.53 | 2.79 | 9.12 |
| 3 | Chan | 109.47 | 130.44 | 50.53 | 11.66 | 11.81 | 8.58 | 1.00 | 4.33 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Cave Creek2
REACH: Tributary 2.2 RS: 0.13

INPUT
Description: 708.71
Station Elevation Data num= 88

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2026.06 | 2.67 | 2025.98 | 3.44 | 2025.97 | 6.03 | 2025.95 | 8.18 | 2025.81 |
| 9.78 | 2025.74 | 11.07 | 2025.68 | 38.75 | 2024.81 | 45.76 | 2024.93 | 51.67 | 2024.56 |
| 52.06 | 2024.53 | 52.68 | 2024.46 | 53.61 | 2024.36 | 55.18 | 2024.16 | 59.3 | 2023.22 |

```
   61.07 2022.95    63.2 2022.64   66.39 2021.92   70.42 2021.21   73.62 2020.64
   74.39 2020.47   80.78 2019.25   82.31 2018.56   82.49  2018.5   88.67 2015.46
   92.56 2013.34   93.55 2013.04   98.05  2010.9   98.29 2010.78    99.1 2010.46
  102.78 2009.11  109.63 2006.43  114.67 2004.47  115.33 2004.62  115.74 2004.81
   119.7 2007.27  125.42 2010.81   135.5    2017  138.38 2018.63  141.09 2020.37
  143.49 2022.23  145.36 2023.08  147.07 2024.14  148.85 2024.72  155.75 2026.51
  157.32 2027.16  157.52 2027.24  160.75 2027.78  161.46 2027.91  165.93  2028.3
  166.54 2028.28  167.46 2028.26  170.69  2028.3  172.24 2028.27  172.88 2028.12
  173.01 2028.13  178.03 2028.23  182.64 2028.01  186.18 2027.67  189.65 2027.47
  191.79 2027.38  193.32  2027.5  195.97 2027.43   197.9 2027.52  200.57 2027.52
  206.11 2027.74  210.32 2027.73  211.71 2027.74  216.41 2027.81  217.85 2027.82
  222.57 2028.21  223.98 2028.22  228.27 2028.59  229.66  2028.6  233.75 2028.68
  234.79 2028.69  239.11 2028.88  243.72 2029.26  244.55 2029.26  249.95 2029.59
  250.56  2029.6   251.1  2029.6  256.96 2030.06  257.33 2030.06  263.18 2030.53
  263.48 2030.53  268.66 2030.61  269.48 2030.61

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**********************************************
       0    .058  109.63    .054   119.7    .058

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         80.78   135.5           216.53  204.51   179.6             .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)          * 2011.27  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    1.01  * Wt. n-Val.              *          *    0.056 *          *
* W.S. Elev (ft)          * 2010.26  * Reach Len. (ft)        *  216.53  *   204.51 *   179.60 *
* Crit W.S. (ft)          * 2009.82  * Flow Area (sq ft)      *          *    72.94 *          *
* E.G. Slope (ft/ft)      *0.025635  * Area (sq ft)           *          *    72.94 *          *
* Q Total (cfs)           *  589.00  * Flow (cfs)             *          *   589.00 *          *
* Top Width (ft)          *   24.86  * Top Width (ft)         *          *    24.86 *          *
* Vel Total (ft/s)        *    8.07  * Avg. Vel. (ft/s)       *          *     8.07 *          *
* Max Chl Dpth (ft)       *    5.78  * Hydr. Depth (ft)       *          *     2.93 *          *
* Conv. Total (cfs)       *  3678.8  * Conv. (cfs)            *          *   3678.8 *          *
* Length Wtd. (ft)        *  204.51  * Wetted Per. (ft)       *          *    27.55 *          *
* Min Ch El (ft)          * 2004.47  * Shear (lb/sq ft)       *          *     4.24 *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s) *          *    34.22 *          *
* Frctn Loss (ft)         *    6.30  * Cum Volume (acre-ft)   *          *     1.30 *          *
* C & E Loss (ft)         *    0.01  * Cum SA (acres)         *          *     0.80 *          *
*****************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) *  (sq ft) *    (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 94.46     * 108.14    *    61.24 *    13.54 *    9.08 *    10.40 *     1.60 *     4.52 *
* 2        * Chan      * 108.14    * 121.82    *   521.52 *    57.14 *   15.29 *    88.54 *     4.18 *     9.13 *
* 3        * Chan      * 121.82    * 135.50    *    6.24 *     2.26 *    3.18 *     1.06 *     0.84 *     2.76 *
*****************************************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: Cave Creek2
REACH: Tributary 2.2       RS: 0.10

INPUT
Description: 504.20
Station Elevation Data     num=      48
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
**********************************************************************************
       0  2017.8    3.83 2017.82    4.06 2017.83    6.46 2018.06     7.8  2018.1
   30.02 2018.95   31.39 2018.85   67.72 2018.62   68.76  2018.2   71.81 2016.95
  106.86 2002.25  106.95 2002.21     112 1999.82  115.47 2000.31  117.14 2000.53
  122.29 2001.24  125.97 2001.64   127.7 2001.85  130.17 2002.88  130.63 2003.03
  141.34  2005.7  142.71 2006.23  143.09 2006.37   148.8 2008.16  150.57 2008.82
  155.08 2010.16  158.18 2010.87  161.21    2012  163.98 2012.83  167.33 2013.78
   169.5 2014.36  171.22 2014.85  173.76 2015.56  175.38 2015.99  178.81 2016.84
  180.54 2017.26  181.75 2017.51  185.81 2018.19  186.97 2018.47  188.09 2018.72
  189.49 2019.01   192.2 2019.58  193.39 2019.82  197.64  2020.7  198.98 2021.01
  203.53 2022.07  204.82 2022.39  209.37 2023.71

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**********************************************
       0    .058  106.86    .054  117.14    .058

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         67.72  155.08           105.95   84.92    65.1             .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)          * 2004.96  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    1.12  * Wt. n-Val.              *          *    0.057 *          *
* W.S. Elev (ft)          * 2003.84  * Reach Len. (ft)        *  105.95  *    84.92 *    65.10 *
* Crit W.S. (ft)          * 2003.84  * Flow Area (sq ft)      *          *    69.31 *          *
* E.G. Slope (ft/ft)      *0.037704  * Area (sq ft)           *          *    69.31 *          *
* Q Total (cfs)           *  589.00  * Flow (cfs)             *          *   589.00 *          *
* Top Width (ft)          *   30.82  * Top Width (ft)         *          *    30.82 *          *
* Vel Total (ft/s)        *    8.50  * Avg. Vel. (ft/s)       *          *     8.50 *          *
* Max Chl Dpth (ft)       *    4.02  * Hydr. Depth (ft)       *          *     2.25 *          *
* Conv. Total (cfs)       *  3033.3  * Conv. (cfs)            *          *   3033.3 *          *
* Length Wtd. (ft)        *   84.92  * Wetted Per. (ft)       *          *    32.14 *          *
* Min Ch El (ft)          * 1999.82  * Shear (lb/sq ft)       *          *     5.08 *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s) *          *    43.13 *          *
* Frctn Loss (ft)         *    2.23  * Cum Volume (acre-ft)   *          *     0.97 *          *
```

```
* C & E Loss (ft)        *    0.11  * Cum SA (acres)        *          *    0.67  *          *
*****************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 89.56     * 111.40    *   115.31 *    15.11 *     9.14 *    19.58 *     1.81 *     7.63 *
* 2        * Chan      * 111.40    * 133.24    *   473.64 *    54.15 *    22.35 *    80.42 *     2.48 *     8.75 *
* 3        * Chan      * 133.24    * 155.08    *     0.04 *     0.05 *     0.66 *     0.01 *     0.08 *     0.81 *
*****************************************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: Cave Creek2
REACH: Tributary 2.2       RS: 0.08

INPUT
Description: 419.28
Station Elevation Data     num=      46
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
       0 2016.07   10.23 2015.92   14.94 2015.78   16.65 2015.74   16.97 2015.74
   17.58 2015.73   17.93 2015.72   18.24  2015.7   18.34 2015.69   41.22 2009.12
   41.44 2009.06   52.55 2004.14    53.1 2003.92   63.15 1999.94   64.29 1999.46
   64.72  1999.3   65.35 1999.08   74.27 1998.48   76.97  1998.3   79.29 1998.11
   84.32 1999.32   89.67 2000.61  106.25 2004.42  111.39 2005.93  112.79 2006.41
  118.18 2008.12  120.73 2009.06  123.53 2010.06  130.03 2011.63  132.61 2012.65
  137.47 2013.94   138.8 2014.26  142.33 2014.82  144.15 2015.11   144.7  2015.2
  150.02  2015.9  151.51 2016.14  156.56    2017  158.76 2017.42  162.89 2018.08
   165.8 2018.71  169.03 2019.28  172.54 2020.18  176.15 2020.46  178.09 2020.79
  179.05 2020.93

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
       0    .053   74.27    .046   84.32    .053

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          18.34  137.47           242.93  215.94  193.91            .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)         * 2002.62  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.74  * Wt. n-Val.              *          *    0.051 *          *
* W.S. Elev (ft)         * 2001.88  * Reach Len. (ft)         *  242.93  *  215.94  *  193.91  *
* Crit W.S. (ft)         * 2001.49  * Flow Area (sq ft)       *          *    85.08 *          *
* E.G. Slope (ft/ft)     *0.019340  * Area (sq ft)            *          *    85.08 *          *
* Q Total (cfs)          *  589.00  * Flow (cfs)              *          *   589.00 *          *
* Top Width (ft)         *   36.91  * Top Width (ft)          *          *    36.91 *          *
* Vel Total (ft/s)       *    6.92  * Avg. Vel. (ft/s)        *          *     6.92 *          *
* Max Chl Dpth (ft)      *    3.76  * Hydr. Depth (ft)        *          *     2.31 *          *
* Conv. Total (cfs)      *  4235.3  * Conv. (cfs)             *          *   4235.3 *          *
* Length Wtd. (ft)       *  215.94  * Wetted Per. (ft)        *          *    37.91 *          *
* Min Ch El (ft)         * 1998.11  * Shear (lb/sq ft)        *          *     2.71 *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s)  *          *    18.76 *          *
* Frctn Loss (ft)        *    5.31  * Cum Volume (acre-ft)    *          *     0.82 *          *
* C & E Loss (ft)        *    0.05  * Cum SA (acres)          *          *     0.61 *          *
*****************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 48.12     * 77.91     *   348.26 *    50.36 *    20.20 *    59.13 *     2.56 *     6.92 *
* 2        * Chan      * 77.91     * 107.69    *   240.74 *    34.72 *    17.71 *    40.87 *     2.01 *     6.93 *
*****************************************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: Cave Creek2
REACH: Tributary 2.2       RS: 0.04

INPUT
Description: 203.35
Station Elevation Data     num=      42
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
       0 2004.54     2.5 2004.34    3.94 2004.21    4.08 2004.19    4.55 2004.15
    4.81 2004.12    4.95  2004.1   37.84 1997.94   49.28 1995.97   56.79 1994.99
   59.44  1994.6   60.45  1994.5   61.15 1994.42   69.43 1994.71   86.56 1996.62
   93.12 1995.56   96.81 1995.02   99.47 1994.87  101.82 1994.74  103.94 1994.63
  104.48 1994.59  105.77 1994.76   109.5 1995.27  115.16 1996.04  139.82 1997.03
  150.53  1997.5  152.47 1997.67  155.52 1997.85  157.99 1998.19  160.29 1998.44
  163.99 1999.66  166.73 2000.28  173.59 2001.55  178.38 2003.25  181.71 2004.09
  182.05 2004.21   185.7 2005.39  187.16 2006.03  188.43 2006.57  191.21 2007.73
  201.75 2011.94  214.15 2016.57
```

```
Manning's n Values        num=       3
     Sta    n Val     Sta    n Val     Sta   n Val
*********************************************
       0    .053   99.47    .046   109.5    .053

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          3.94  182.05             161.44  142.91  158.87          .1        .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)         * 1997.25  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.57  * Wt. n-Val.              *          *    0.051 *          *
* W.S. Elev (ft)         * 1996.68  * Reach Len. (ft)         *  161.44  *  142.91  *  158.87  *
* Crit W.S. (ft)         * 1996.67  * Flow Area (sq ft)       *          *   97.12  *          *
* E.G. Slope (ft/ft)     *0.032270  * Area (sq ft)            *          *   97.12  *          *
* Q Total (cfs)          *  589.00  * Flow (cfs)              *          *  589.00  *          *
* Top Width (ft)         *   85.93  * Top Width (ft)           *          *   85.93  *          *
* Vel Total (ft/s)       *    6.06  * Avg. Vel. (ft/s)         *          *    6.06  *          *
* Max Chl Dpth (ft)      *    2.26  * Hydr. Depth (ft)         *          *    1.13  *          *
* Conv. Total (cfs)      *  3278.8  * Conv. (cfs)              *          *  3278.8  *          *
* Length Wtd. (ft)       *  142.91  * Wetted Per. (ft)         *          *   86.46  *          *
* Min Ch El (ft)         * 1994.42  * Shear (lb/sq ft)         *          *    2.26  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s)   *          *   13.73  *          *
* Frctn Loss (ft)        *    4.00  * Cum Volume (acre-ft)     *          *    0.36  *          *
* C & E Loss (ft)        *    0.07  * Cum SA (acres)           *          *    0.30  *          *
*****************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) *  (sq ft) *    (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 3.94      * 48.47     *     2.00 *     0.94 *    3.36 *     0.34 *    0.28 *     2.12 *
* 2        * Chan      * 48.47     * 93.00     *   329.61 *    56.85 *   44.84 *    55.96 *    1.28 *     5.80 *
* 3        * Chan      * 93.00     * 137.52    *   257.39 *    39.32 *   38.26 *    43.70 *    1.03 *     6.55 *
*****************************************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

CROSS SECTION


RIVER: Cave Creek2
REACH: Tributary 2.2       RS: 0.01

INPUT
Description: 60.43
Station Elevation Data    num=      27
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
       0 1996.93    1.86 1996.88    9.14 1996.65   10.6 1996.42   11.49 1996.26
   15.65 1995.57   35.07    1992   38.02 1991.45   53.09 1992.01   55.19 1991.91
   62.97 1991.63   63.33 1991.54   65.12 1991.07   70.44 1989.56   73.21 1989.82
   96.52 1991.93   99.02 1992.17   105.4 1992.68  106.85 1992.76  116.29 1991.97
  117.39 1991.86  122.51 1991.35  127.63 1992.63  133.89 1994.21  141.25 1996.25
  141.69 1996.37  144.69 1996.38

Manning's n Values        num=       3
     Sta    n Val     Sta    n Val     Sta   n Val
*********************************************
       0    .059  117.39    .046  127.63    .059

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          9.14  141.69               0       0       0          .1        .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)         * 1993.19  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.35  * Wt. n-Val.              *          *    0.058 *          *
* W.S. Elev (ft)         * 1992.85  * Reach Len. (ft)         *          *          *          *
* Crit W.S. (ft)         * 1992.57  * Flow Area (sq ft)       *          *  124.95  *          *
* E.G. Slope (ft/ft)     *0.024512  * Area (sq ft)            *          *  124.95  *          *
* Q Total (cfs)          *  589.00  * Flow (cfs)              *          *  589.00  *          *
* Top Width (ft)         *   98.02  * Top Width (ft)           *          *   98.02  *          *
* Vel Total (ft/s)       *    4.71  * Avg. Vel. (ft/s)         *          *    4.71  *          *
* Max Chl Dpth (ft)      *    3.29  * Hydr. Depth (ft)         *          *    1.27  *          *
* Conv. Total (cfs)      *  3762.1  * Conv. (cfs)              *          *  3762.1  *          *
* Length Wtd. (ft)       *          * Wetted Per. (ft)         *          *   98.84  *          *
* Min Ch El (ft)         * 1989.56  * Shear (lb/sq ft)         *          *    1.93  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s)   *          *    9.12  *          *
* Frctn Loss (ft)        *          * Cum Volume (acre-ft)     *          *          *          *
* C & E Loss (ft)        *          * Cum SA (acres)           *          *          *          *
*****************************************************************************************

Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) *  (sq ft) *    (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 9.14      * 42.28     *    38.74 *    10.86 *   11.94 *     6.58 *    0.92 *     3.57 *
* 2        * Chan      * 42.28     * 75.42     *   276.35 *    53.33 *   33.46 *    46.92 *    1.61 *     5.18 *
* 3        * Chan      * 75.42     * 108.55    *   206.18 *    44.63 *   33.26 *    35.00 *    1.35 *     4.62 *
* 4        * Chan      * 108.55    * 141.69    *    67.73 *    16.13 *   20.18 *    11.50 *    0.81 *     4.20 *
*****************************************************************************************************************

Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: Cave Creek3
REACH: Tributary 2A        RS: 0.12
```

```
INPUT
Description: 654.20 LIMIT OF STUDY
Station Elevation Data    num=      38
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
       0 2136.27    1.12 2136.21    1.59 2136.21    7.18 2135.41    7.41  2135.4
   11.98 2134.76   12.56 2134.75   15.35 2133.78   17.43 2133.16   21.64 2131.76
   27.04 2129.97   35.37 2127.86   36.61  2128.1   36.64  2128.1   39.48 2128.43
   42.35 2128.79   48.21 2130.32   49.57 2130.67   54.43 2131.82   56.14 2132.23
   56.93 2132.41    57.3 2132.49   62.19 2133.21   66.53 2133.91   66.68 2133.95
   68.52 2134.47   71.61 2134.93   74.33 2135.55   76.98 2136.01    79.5 2136.56
   81.79 2136.95   85.26 2137.67   96.43 2140.87   97.88  2141.1  100.52 2141.76
  105.25 2142.88  110.19 2144.08  112.81 2143.96

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***************************************************
       0    .061   36.64    .062   48.21    .061

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         12.56   68.52           312.44  321.29  330.55             .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)          * 2130.13  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.33  * Wt. n-Val.              *          *    0.062 *          *
* W.S. Elev (ft)          * 2129.80  * Reach Len. (ft)        *  312.44  *  321.29  *  330.55  *
* Crit W.S. (ft)          * 2129.61  * Flow Area (sq ft)      *          *    19.47 *          *
* E.G. Slope (ft/ft)      *0.035290  * Area (sq ft)           *          *    19.47 *          *
* Q Total (cfs)           *   90.00  * Flow (cfs)             *          *    90.00 *          *
* Top Width (ft)          *   18.51  * Top Width (ft)         *          *    18.51 *          *
* Vel Total (ft/s)        *    4.62  * Avg. Vel. (ft/s)       *          *     4.62 *          *
* Max Chl Dpth (ft)       *    1.94  * Hydr. Depth (ft)       *          *     1.05 *          *
* Conv. Total (cfs)       *   479.1  * Conv. (cfs)            *          *    479.1 *          *
* Length Wtd. (ft)        *  321.29  * Wetted Per. (ft)       *          *    18.95 *          *
* Min Ch El (ft)          * 2127.86  * Shear (lb/sq ft)       *          *     2.26 *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s) *          *    10.47 *          *
* Frctn Loss (ft)         *   14.45  * Cum Volume (acre-ft)   *          *     0.42 *          *
* C & E Loss (ft)         *    0.02  * Cum SA (acres)          *          *     0.20 *          *
*****************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) *  (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 26.55     * 40.54     *    76.58 *    15.48 *    13.12 *    85.08 *     1.21 *     4.95 *
* 2        * Chan      * 40.54     * 54.53     *    13.42 *     3.99 *     5.82 *    14.92 *     0.70 *     3.36 *
*****************************************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: Cave Creek3
REACH: Tributary 2A       RS: 0.06

INPUT
Description: 332.90
Station Elevation Data    num=      43
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
       0 2136.37    3.95 2135.54    9.37 2134.64   15.47 2133.47   15.56 2133.45
   20.96 2132.23   21.05 2132.21   27.52 2130.69   27.68 2130.64    33.4 2129.03
   33.59 2128.93   39.69 2127.37   44.54 2126.49   50.59  2125.2   56.33 2124.12
   62.26 2122.98   63.56 2122.88   65.13 2122.61   71.18 2121.56   75.86 2121.05
   79.98  2120.3   83.39 2120.11   85.21    2120   85.91 2119.72   95.07 2116.53
   98.99 2115.01  104.02 2113.06  108.79 2114.12  109.06 2114.17  112.77 2114.95
  117.86    2116  118.92 2116.16  120.65 2116.46  125.27 2117.08  126.28 2117.22
  130.91 2118.02  131.18 2118.07  133.86 2118.56  139.53 2119.37  140.89 2119.58
  146.52 2120.27  148.33 2120.26   151.8 2120.25

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***************************************************
       0    .061   98.99    .062  109.06    .061

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         85.21  146.52           182.32  179.29  184.09             .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)          * 2115.67  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.53  * Wt. n-Val.              *          *    0.062 *          *
* W.S. Elev (ft)          * 2115.14  * Reach Len. (ft)        *  182.32  *  179.29  *  184.09  *
* Crit W.S. (ft)          * 2115.14  * Flow Area (sq ft)      *          *    15.46 *          *
* E.G. Slope (ft/ft)      *0.059226  * Area (sq ft)           *          *    15.46 *          *
* Q Total (cfs)           *   90.00  * Flow (cfs)             *          *    90.00 *          *
* Top Width (ft)          *   15.03  * Top Width (ft)         *          *    15.03 *          *
* Vel Total (ft/s)        *    5.82  * Avg. Vel. (ft/s)       *          *     5.82 *          *
* Max Chl Dpth (ft)       *    2.08  * Hydr. Depth (ft)       *          *     1.03 *          *
* Conv. Total (cfs)       *   369.8  * Conv. (cfs)            *          *    369.8 *          *
* Length Wtd. (ft)        *  179.29  * Wetted Per. (ft)       *          *    15.64 *          *
* Min Ch El (ft)          * 2113.06  * Shear (lb/sq ft)       *          *     3.66 *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s) *          *    21.28 *          *
* Frctn Loss (ft)         *    3.31  * Cum Volume (acre-ft)   *          *     0.29 *          *
* C & E Loss (ft)         *    0.12  * Cum SA (acres)          *          *     0.07 *          *
*****************************************************************************************
```

```
Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) *  (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 85.21     * 100.54    *     1.87 *     0.69 *     2.02 *     2.08 *     0.36 *     2.73 *
* 2        * Chan      * 100.54    * 115.87    *    88.13 *    14.78 *    13.62 *    97.92 *     1.12 *     5.96 *
*****************************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: Cave Creek3
REACH: Tributary 2A        RS: 0.03

INPUT
Description: 153.61
Station Elevation Data    num=      42
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
       0 2131.26    4.82  2130.2    5.77 2129.98   10.71 2128.97   11.86 2128.75
   16.42 2127.89   17.56 2127.64   34.67 2124.36   38.97    2123   40.63 2122.63
   43.79 2121.62   47.39 2120.71   51.79 2119.73   54.36    2119    56.8 2118.22
   58.62 2117.74   61.05 2117.11   64.99 2116.05   69.75  2114.4   74.35 2113.09
   76.21 2112.55   78.09  2111.9    84.2 2109.77   86.98 2108.82   88.23 2108.39
   91.98 2107.11   96.99 2108.45  113.48 2112.85  120.54 2114.76  121.67 2115.07
  123.48 2115.41  125.94 2115.84  136.85 2117.85     140 2118.44  144.82 2119.02
   151.8  2117.5   167.5 2113.87  185.01 2109.69  197.45 2111.98  203.19 2113.07
  214.51 2113.81  217.67 2113.96

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
       0    .061   86.98    .062   96.99    .061

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          58.62  144.82             0       0       0            .1        .3
Right Levee     Station=  144.82     Elevation= 2119.02

CROSS SECTION OUTPUT  Profile #PF 1
*******************************************************************************************
* E.G. Elev (ft)         * 2110.28  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.13  * Wt. n-Val.              *          *    0.061 *          *
* W.S. Elev (ft)         * 2110.15  * Reach Len. (ft)         *  153.61  *   153.61 *   153.61 *
* Crit W.S. (ft)         * 2109.25  * Flow Area (sq ft)       *          *    30.78 *          *
* E.G. Slope (ft/ft)     *0.008876  * Area (sq ft)            *          *    30.78 *          *
* Q Total (cfs)          *   90.00  * Flow (cfs)              *          *    90.00 *          *
* Top Width (ft)         *   20.24  * Top Width (ft)          *          *    20.24 *          *
* Vel Total (ft/s)       *    2.92  * Avg. Vel. (ft/s)        *          *     2.92 *          *
* Max Chl Dpth (ft)      *    3.04  * Hydr. Depth (ft)        *          *     1.52 *          *
* Conv. Total (cfs)      *   955.3  * Conv. (cfs)             *          *    955.3 *          *
* Length Wtd. (ft)       *  153.61  * Wetted Per. (ft)        *          *    21.15 *          *
* Min Ch El (ft)         * 2107.11  * Shear (lb/sq ft)        *          *     0.81 *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s)   *          *     2.36 *          *
* Frctn Loss (ft)        *    5.08  * Cum Volume (acre-ft)     *          *     0.20 *          *
* C & E Loss (ft)        *    0.05  * Cum SA (acres)           *          *          *          *
*******************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) *  (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 80.17     * 101.72    *    89.75 *    30.42 *    19.45 *    99.72 *     1.64 *     2.95 *
* 2        * Chan      * 101.72    * 123.27    *     0.25 *     0.36 *     1.69 *     0.28 *     0.22 *     0.71 *
*****************************************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: Cave Creek4
REACH: Tributary 2B        RS: 0.07

INPUT
```

```
Description: 375.15 LIMIT OF STUDY
Station Elevation Data    num=      33
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
       0 2014.17     6.4 2013.45   10.89 2013.22   17.23 2012.72   17.98 2012.46
      18 2012.46   18.95 2012.12   24.23 2010.16   39.32 2004.53   44.44 2002.66
   47.93 2001.39   52.15 2002.18    55.8 2002.87   57.49 2003.26   60.13 2003.89
   62.36  2004.3   67.89  2005.6   68.26 2005.67   70.24 2006.13   73.37 2006.73
   73.54 2006.79   78.27 2007.85   78.62 2007.95   79.01 2008.03   83.62 2008.99
   84.32 2009.11   89.34 2010.19   90.32 2010.33   91.41  2010.6   97.51 2011.53
   99.12 2011.78  104.68 2012.83  109.14 2013.98

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
       0    .059   44.44    .046   52.15    .059

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          17.23   89.34             48.5   94.68  140.06            .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)         * 2003.34  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.40  * Wt. n-Val.              *          *    0.051 *          *
* W.S. Elev (ft)         * 2002.93  * Reach Len. (ft)        *   48.50  *   94.68  *  140.06  *
* Crit W.S. (ft)         * 2002.93  * Flow Area (sq ft)      *          *    9.63  *          *
* E.G. Slope (ft/ft)     *0.044712  * Area (sq ft)           *          *    9.63  *          *
* Q Total (cfs)          *   49.00  * Flow (cfs)             *          *   49.00  *          *
* Top Width (ft)         *   12.39  * Top Width (ft)         *          *   12.39  *          *
* Vel Total (ft/s)       *    5.09  * Avg. Vel. (ft/s)       *          *    5.09  *          *
* Max Chl Dpth (ft)      *    1.54  * Hydr. Depth (ft)       *          *    0.78  *          *
* Conv. Total (cfs)      *   231.7  * Conv. (cfs)            *          *   231.7  *          *
* Length Wtd. (ft)       *   94.68  * Wetted Per. (ft)       *          *   12.81  *          *
* Min Ch El (ft)         * 2001.39  * Shear (lb/sq ft)       *          *    2.10  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *   10.68  *          *
* Frctn Loss (ft)        *    3.93  * Cum Volume (acre-ft)   *          *    0.07  *          *
* C & E Loss (ft)        *    0.02  * Cum SA (acres)         *          *    0.11  *          *
*****************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program selected the water surface that had the least amount of error between computed and
         assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) *  (sq ft) *    (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 35.26     * 53.29     *    47.59 *     8.86 *    9.96 *    97.13 *     0.92 *     5.37 *
* 2        * Chan      * 53.29     * 71.31     *     1.41 *     0.77 *    2.85 *     2.87 *     0.28 *     1.83 *
*****************************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program selected the water surface that had the least amount of error between computed and
         assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: Cave Creek4
REACH: Tributary 2B       RS: 0.05

INPUT
Description: 280.46
Station Elevation Data    num=      33
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
       0 2008.95       6  2008.2    6.21 2008.12   16.78  2004.1   26.01 2000.96
   29.82  1999.6   31.56 1999.56   40.22 1999.43   47.99 1998.53   58.34 1997.34
   60.69 1998.74   72.91    2006   77.26 2008.52   78.88 2008.58    80.7 2008.64
   81.73 2008.75   85.83 2008.94   88.16 2008.99      91    2009   93.36 2009.42
   95.28 2009.64   97.86 2009.96   100.2 2010.28  103.33 2010.45  106.15 2011.21
  109.11 2011.47  111.76 2012.34  114.12 2012.44  116.26 2012.69  118.82 2013.05
  121.67 2013.74   130.9 2015.17  137.12 2015.28

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
       0    .059   47.99    .046   60.69    .059

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           6.21   77.26             53.42   87.73  101.95            .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)         * 1999.10  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.35  * Wt. n-Val.              *          *    0.048 *          *
* W.S. Elev (ft)         * 1998.75  * Reach Len. (ft)        *   53.42  *   87.73  *  101.95  *
* Crit W.S. (ft)         * 1998.74  * Flow Area (sq ft)      *          *   10.33  *          *
* E.G. Slope (ft/ft)     *0.038597  * Area (sq ft)           *          *   10.33  *          *
* Q Total (cfs)          *   49.00  * Flow (cfs)             *          *   49.00  *          *
* Top Width (ft)         *   14.63  * Top Width (ft)         *          *   14.63  *          *
* Vel Total (ft/s)       *    4.74  * Avg. Vel. (ft/s)       *          *    4.74  *          *
* Max Chl Dpth (ft)      *    1.41  * Hydr. Depth (ft)       *          *    0.71  *          *
* Conv. Total (cfs)      *   249.4  * Conv. (cfs)            *          *   249.4  *          *
```

```
* Length Wtd. (ft)       *   87.73  * Wetted Per. (ft)       *          *   15.10  *          *
* Min Ch El (ft)         * 1997.34  * Shear (lb/sq ft)       *          *    1.65  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *          *    7.82  *          *
* Frctn Loss (ft)        *    2.37  * Cum Volume (acre-ft)   *          *    0.05  *          *
* C & E Loss (ft)        *    0.05  * Cum SA (acres)         *          *    0.08  *          *
*****************************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 41.74     * 59.50     *    47.87 *     9.89 *    13.69 *    97.69 *     0.74 *     4.84 *
* 2        * Chan      * 59.50     * 77.26     *     1.13 *     0.44 *     1.41 *     2.31 *     0.36 *     2.59 *
*****************************************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: Cave Creek4
REACH: Tributary 2B       RS: 0.04

INPUT
Description: 192.73
Station Elevation Data    num=      26
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
       0 2007.89    9.21  2006.4   15.14  2005.5   24.15 2004.11   26.06 2003.81
   27.26 2003.54   36.88 2001.34    44.2 1999.83   50.41 1998.49   54.56 1997.48
   56.58 1997.02   61.01 1996.94   71.26 1996.38   73.09  1996.2   74.41 1996.07
   81.96 1995.34   88.61 1995.97   89.06 1996.01   98.37  1996.8   98.91 1996.86
  106.62  1997.8  119.69 1999.56  124.16 1999.89  127.25 2000.17  127.72  2000.2
  129.57 2000.11

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************************
       0    .053   24.15    .059   73.09    .046   88.61    .059

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          27.26  127.72             87.52   75.06   74.83            .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************************
* E.G. Elev (ft)         * 1996.68  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.19  * Wt. n-Val.              *          *    0.047  *          *
* W.S. Elev (ft)         * 1996.50  * Reach Len. (ft)         *   87.52  *    75.06  *   74.83  *
* Crit W.S. (ft)         * 1996.40  * Flow Area (sq ft)       *          *    14.15  *          *
* E.G. Slope (ft/ft)     *0.019957  * Area (sq ft)            *          *    14.15  *          *
* Q Total (cfs)          *   49.00  * Flow (cfs)              *          *    49.00  *          *
* Top Width (ft)         *   25.63  * Top Width (ft)          *          *    25.63  *          *
* Vel Total (ft/s)       *    3.46  * Avg. Vel. (ft/s)        *          *     3.46  *          *
* Max Chl Dpth (ft)      *    1.16  * Hydr. Depth (ft)        *          *     0.55  *          *
* Conv. Total (cfs)      *   346.9  * Conv. (cfs)             *          *    346.9  *          *
* Length Wtd. (ft)       *   75.06  * Wetted Per. (ft)        *          *    25.74  *          *
* Min Ch El (ft)         * 1995.34  * Shear (lb/sq ft)        *          *     0.68  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s)  *          *     2.37  *          *
* Frctn Loss (ft)        *    1.92  * Cum Volume (acre-ft)    *          *     0.02  *          *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)          *          *     0.04  *          *
*****************************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 52.38     * 77.49     *     6.80 *     2.74 *     8.38 *    13.87 *     0.33 *     2.48 *
* 2        * Chan      * 77.49     * 102.61    *    42.20 *    11.40 *    17.36 *    86.13 *     0.66 *     3.70 *
*****************************************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

CROSS SECTION


RIVER: Cave Creek4
REACH: Tributary 2B       RS: 0.02

INPUT
Description: 117.67
Station Elevation Data    num=      20
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
       0 1998.82    2.61 1998.56   13.59 1997.44   25.36 1996.24    34.4 1995.27
   35.37 1995.17   37.23 1994.97   38.83 1994.69   41.94 1994.16   47.73 1993.17
   57.62 1994.43   60.93 1994.85   63.12 1994.89   69.69    1995   78.18 1995.11
   83.64 1995.14   84.78 1995.18    86.5 1995.29   90.44 1995.44   91.58 1995.44

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
       0    .059   41.94    .046   57.62    .059

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          25.36  90.44              0       0       0            .1       .3
```

```
CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)          * 1994.75  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.32  * Wt. n-Val.              *          *    0.046 *          *
* W.S. Elev (ft)          * 1994.43  * Reach Len. (ft)         *          *          *          *
* Crit W.S. (ft)          * 1994.42  * Flow Area (sq ft)       *          *    10.87 *          *
* E.G. Slope (ft/ft)      *0.034036  * Area (sq ft)            *          *    10.87 *          *
* Q Total (cfs)           *   49.00  * Flow (cfs)              *          *    49.00 *          *
* Top Width (ft)          *   17.26  * Top Width (ft)          *          *    17.26 *          *
* Vel Total (ft/s)        *    4.51  * Avg. Vel. (ft/s)        *          *     4.51 *          *
* Max Chl Dpth (ft)       *    1.26  * Hydr. Depth (ft)        *          *     0.63 *          *
* Conv. Total (cfs)       *   265.6  * Conv. (cfs)             *          *    265.6 *          *
* Length Wtd. (ft)        *          * Wetted Per. (ft)        *          *    17.45 *          *
* Min Ch El (ft)          * 1993.17  * Shear (lb/sq ft)        *          *     1.32 *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s)  *          *     5.97 *          *
* Frctn Loss (ft)         *          * Cum Volume (acre-ft)    *          *          *          *
* C & E Loss (ft)         *          * Cum SA (acres)          *          *          *          *
*****************************************************************************************

  Profile #PF 1
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) *  (sq ft) *    (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 25.36     * 41.63     *     0.14 *     0.14 *     1.29 *     0.29 *     0.11 *     1.05 *
* 2        * Chan      * 41.63     * 57.90     *    48.86 *    10.73 *    16.16 *    99.71 *     0.67 *     4.55 *
*****************************************************************************************************************

CROSS SECTION


RIVER: Cave Creek5
REACH: Tributary 2C       RS: 0.30

INPUT
Description: 1607.09 LIMIT OF STUDY
Station Elevation Data    num=      25
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
       0 2098.59    6.06 2098.44    6.18 2098.38   17.62 2092.78   19.87 2091.73
   29.49 2088.15    31.8 2087.11   36.91  2084.8    37.9 2084.72   42.02 2086.19
   43.61 2086.76   46.27  2087.8   47.64 2088.22   51.41 2089.43   54.35 2090.54
   61.26 2092.92   65.73 2094.34   66.05 2094.44    70.5 2096.31   71.65 2096.66
   71.75 2096.69    71.8 2096.71   76.64 2098.27   76.74 2098.37   78.87 2098.68

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
       0    .064    31.8    .059   42.02    .058

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          29.49   47.64            159.06  163.65  151.11            .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)          * 2087.62  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.62  * Wt. n-Val.              *          *    0.059 *          *
* W.S. Elev (ft)          * 2087.00  * Reach Len. (ft)         *  159.06  *   163.65 *   151.11 *
* Crit W.S. (ft)          * 2087.00  * Flow Area (sq ft)       *          *    14.83 *          *
* E.G. Slope (ft/ft)      *0.053122  * Area (sq ft)            *          *    14.83 *          *
* Q Total (cfs)           *   94.00  * Flow (cfs)              *          *    94.00 *          *
* Top Width (ft)          *   12.17  * Top Width (ft)          *          *    12.17 *          *
* Vel Total (ft/s)        *    6.34  * Avg. Vel. (ft/s)        *          *     6.34 *          *
* Max Chl Dpth (ft)       *    2.28  * Hydr. Depth (ft)        *          *     1.22 *          *
* Conv. Total (cfs)       *   407.8  * Conv. (cfs)             *          *    407.8 *          *
* Length Wtd. (ft)        *  163.65  * Wetted Per. (ft)        *          *    13.05 *          *
* Min Ch El (ft)          * 2084.72  * Shear (lb/sq ft)        *          *     3.77 *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s)  *          *    23.89 *          *
* Frctn Loss (ft)         *    8.80  * Cum Volume (acre-ft)    *          *     0.71 *          *
* C & E Loss (ft)         *    0.01  * Cum SA (acres)          *          *     0.67 *          *
*****************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) *  (sq ft) *    (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 29.49     * 34.03     *     2.49 *     0.89 *     2.17 *     2.65 *     0.45 *     2.80 *
* 2        * Chan      * 34.03     * 38.57     *    58.16 *     8.11 *     4.86 *    61.87 *     1.79 *     7.17 *
* 3        * Chan      * 38.57     * 43.10     *    32.93 *     5.59 *     4.82 *    35.03 *     1.23 *     5.89 *
* 4        * Chan      * 43.10     * 47.64     *     0.43 *     0.24 *     1.19 *     0.45 *     0.21 *     1.78 *
*****************************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: Cave Creek5
REACH: Tributary 2C       RS: 0.27

INPUT
```

```
Description: 1443.44
Station Elevation Data    num=      15
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
       0 2084.86     .78 2084.88    2.24 2084.92     4.2 2084.34   18.71 2080.23
    22.7 2078.61   24.61 2077.84   34.81 2073.77   35.28 2073.58   39.81 2071.87
   44.81 2073.62   52.51 2076.32    75.4 2084.14   76.26 2084.16      83 2084.34

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***************************************************
       0    .064   34.81    .059   44.81    .058

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         24.61   52.51            132.38  131.72  125.78            .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)         * 2074.82  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.61  * Wt. n-Val.              *          *    0.059 *          *
* W.S. Elev (ft)         * 2074.21  * Reach Len. (ft)         *  132.38  *   131.72 *   125.78 *
* Crit W.S. (ft)         * 2074.21  * Flow Area (sq ft)       *          *    15.04 *          *
* E.G. Slope (ft/ft)     *0.054473  * Area (sq ft)            *          *    15.04 *          *
* Q Total (cfs)          *   94.00  * Flow (cfs)              *          *    94.00 *          *
* Top Width (ft)         *   12.79  * Top Width (ft)          *          *    12.79 *          *
* Vel Total (ft/s)       *    6.25  * Avg. Vel. (ft/s)        *          *     6.25 *          *
* Max Chl Dpth (ft)      *    2.34  * Hydr. Depth (ft)        *          *     1.18 *          *
* Conv. Total (cfs)      *   402.8  * Conv. (cfs)             *          *    402.8 *          *
* Length Wtd. (ft)       *  131.72  * Wetted Per. (ft)        *          *    13.62 *          *
* Min Ch El (ft)         * 2071.87  * Shear (lb/sq ft)        *          *     3.76 *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s)  *          *    23.48 *          *
* Frctn Loss (ft)        *    8.07  * Cum Volume (acre-ft)    *          *     0.66 *          *
* C & E Loss (ft)        *    0.00  * Cum SA (acres)          *          *     0.62 *          *
*****************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) *  (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 31.59     * 38.56     *    24.42 *     4.59 *     5.20 *    25.98 *     0.95 *     5.32 *
* 2        * Chan      * 38.56     * 45.54     *    69.33 *    10.29 *     7.40 *    73.75 *     1.48 *     6.74 *
* 3        * Chan      * 45.54     * 52.51     *     0.25 *     0.16 *     1.02 *     0.27 *     0.17 *     1.56 *
*****************************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: Cave Creek5
REACH: Tributary 2C       RS: 0.25

INPUT
Description: 1311.72
Station Elevation Data    num=      31
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
       0 2072.59    3.62 2072.81   15.04  2069.7   21.02 2068.18   22.62 2067.43
   28.21  2064.8   32.89  2062.6   33.23 2062.45   38.36 2064.57   39.11 2064.88
    43.3  2066.2   50.69 2068.78   58.84 2071.15   59.49 2071.33   60.87 2071.46
   63.37 2071.71   66.41  2072.3   67.73 2072.27   69.53  2072.3   72.08 2072.35
   72.87  2072.4   77.51 2072.93   78.59 2072.96   86.51 2073.86   92.31 2074.49
   93.42 2074.62   98.37 2075.14   99.84 2075.25  104.17 2075.68  106.55 2075.76
  108.95    2076

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
***************************************************************
       0    .069   28.21    .067   38.36    .069   69.53    .058

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         22.62    43.3            49.69   46.17   47.44            .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)         * 2065.62  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.64  * Wt. n-Val.              *          *    0.067 *          *
* W.S. Elev (ft)         * 2064.99  * Reach Len. (ft)         *   49.69  *   46.17 *   47.44  *
* Crit W.S. (ft)         * 2064.99  * Flow Area (sq ft)       *          *    14.66 *          *
* E.G. Slope (ft/ft)     *0.069410  * Area (sq ft)            *          *    14.66 *          *
* Q Total (cfs)          *   94.00  * Flow (cfs)              *          *    94.00 *          *
* Top Width (ft)         *   11.63  * Top Width (ft)          *          *    11.63 *          *
* Vel Total (ft/s)       *    6.41  * Avg. Vel. (ft/s)        *          *     6.41 *          *
* Max Chl Dpth (ft)      *    2.53  * Hydr. Depth (ft)        *          *     1.26 *          *
* Conv. Total (cfs)      *   356.8  * Conv. (cfs)             *          *    356.8 *          *
* Length Wtd. (ft)       *   46.17  * Wetted Per. (ft)        *          *    12.69 *          *
* Min Ch El (ft)         * 2062.45  * Shear (lb/sq ft)        *          *     5.01 *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s)  *          *    32.10 *          *
* Frctn Loss (ft)        *    3.21  * Cum Volume (acre-ft)    *          *     0.61 *          *
* C & E Loss (ft)        *    0.00  * Cum SA (acres)          *          *     0.59 *          *
```

```
*****************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program selected the water surface that had the least amount of error between computed and
         assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 27.79     * 32.96     *    37.17 *     6.22 *     5.68 *    39.54 *     1.21 *     5.98 *
* 2        * Chan      * 32.96     * 38.13     *    56.15 *     8.13 *     5.60 *    59.73 *     1.57 *     6.91 *
* 3        * Chan      * 38.13     * 43.30     *     0.68 *     0.32 *     1.41 *     0.73 *     0.24 *     2.14 *
*****************************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program selected the water surface that had the least amount of error between computed and
         assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: Cave Creek5
REACH: Tributary 2C        RS: 0.24

INPUT
Description: 1265.56
Station Elevation Data     num=      14
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
       0 2068.16    4.13 2068.33    4.19  2068.3   16.11 2063.18   21.97 2060.69
   27.02 2058.55   31.28 2059.68   32.06 2060.04    42.6 2064.91    49.3 2068.21
   50.77 2068.29   51.07 2068.29    51.4 2068.29    57.6 2068.37

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
       0    .069   21.97    .067   32.06    .069

Bank Sta: Left    Right    Lengths: Left Channel    Right     Coeff Contr.    Expan.
          16.11    42.6             69.1   86.18    98.77             .1        .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)         * 2061.45  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.63  * Wt. n-Val.              *          *    0.067 *          *
* W.S. Elev (ft)         * 2060.82  * Reach Len. (ft)        *    69.10 *    86.18 *    98.77 *
* Crit W.S. (ft)         * 2060.82  * Flow Area (sq ft)      *          *    14.80 *          *
* E.G. Slope (ft/ft)     *0.069497  * Area (sq ft)           *          *    14.80 *          *
* Q Total (cfs)          *   94.00  * Flow (cfs)              *          *    94.00 *          *
* Top Width (ft)         *   12.10  * Top Width (ft)          *          *    12.10 *          *
* Vel Total (ft/s)       *    6.35  * Avg. Vel. (ft/s)        *          *     6.35 *          *
* Max Chl Dpth (ft)      *    2.27  * Hydr. Depth (ft)        *          *     1.22 *          *
* Conv. Total (cfs)      *   356.6  * Conv. (cfs)             *          *    356.6 *          *
* Length Wtd. (ft)       *   86.18  * Wetted Per. (ft)        *          *    12.96 *          *
* Min Ch El (ft)         * 2058.55  * Shear (lb/sq ft)        *          *     4.95 *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s)  *          *    31.46 *          *
* Frctn Loss (ft)        *    5.81  * Cum Volume (acre-ft)    *          *     0.59 *          *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)          *          *     0.57 *          *
*****************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 16.11     * 22.73     *     0.51 *     0.25 *     1.17 *     0.55 *     0.23 *     2.09 *
* 2        * Chan      * 22.73     * 29.36     *    71.21 *    10.44 *     7.07 *    75.76 *     1.58 *     6.82 *
* 3        * Chan      * 29.36     * 35.98     *    22.27 *     4.11 *     4.72 *    23.69 *     0.93 *     5.42 *
*****************************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION
```

```
RIVER: Cave Creek5
REACH: Tributary 2C        RS: 0.22

INPUT
Description: 1179.38
Station Elevation Data     num=      40
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
       0 2062.84   12.34 2062.88   15.87 2062.82   20.72 2062.83   25.18 2062.96
   25.55 2062.97   26.11 2062.98   29.64 2061.62   41.69 2056.95   59.51 2050.18
   62.11 2049.19   64.56 2048.25   67.73 2049.67   69.34 2050.62   69.56 2050.73
    78.7  2055.3   80.36 2056.36   83.97 2058.35   85.36 2059.03   86.82 2059.63
   88.82 2060.13   89.51 2060.31    89.8 2060.31   90.35  2060.3   92.09  2060.7
    93.6 2060.88   95.45 2061.19   97.14 2061.65  110.93 2064.36  113.96 2065.37
  116.23 2065.95  118.45 2066.38  121.59 2067.36  125.02 2068.26  127.24 2068.67
  130.09  2069.4  131.99 2069.69  134.76 2070.32   136.7 2070.65  138.91 2071.02

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
       0    .069   59.51    .067   69.56    .069

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          26.11   86.82            153.82  196.51  212.41            .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)          * 2051.84  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.73  * Wt. n-Val.              *          *    0.067 *          *
* W.S. Elev (ft)          * 2051.11  * Reach Len. (ft)         *  153.82  *   196.51 *   212.41 *
* Crit W.S. (ft)          * 2051.11  * Flow Area (sq ft)       *          *    19.26 *          *
* E.G. Slope (ft/ft)      *0.065999  * Area (sq ft)            *          *    19.26 *          *
* Q Total (cfs)           *  132.00  * Flow (cfs)              *          *   132.00 *          *
* Top Width (ft)          *   13.24  * Top Width (ft)          *          *    13.24 *          *
* Vel Total (ft/s)        *    6.85  * Avg. Vel. (ft/s)        *          *     6.85 *          *
* Max Chl Dpth (ft)       *    2.86  * Hydr. Depth (ft)        *          *     1.45 *          *
* Conv. Total (cfs)       *   513.8  * Conv. (cfs)             *          *    513.8 *          *
* Length Wtd. (ft)        *  196.51  * Wetted Per. (ft)        *          *    14.45 *          *
* Min Ch El (ft)          * 2048.25  * Shear (lb/sq ft)        *          *     5.49 *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s)  *          *    37.65 *          *
* Frctn Loss (ft)         *    9.25  * Cum Volume (acre-ft)    *          *     0.56 *          *
* C & E Loss (ft)         *    0.00  * Cum SA (acres)          *          *     0.55 *          *
*****************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) *  (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 56.47     * 71.64     *   132.00 *    19.26 *    14.45 *   100.00 *     1.45 *     6.85 *
*****************************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: Cave Creek5
REACH: Tributary 2C        RS: 0.19

INPUT
Description: 982.87
Station Elevation Data     num=      36
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
       0 2050.76    8.64 2049.98    9.54 2049.85   11.08 2049.64   12.06 2049.45
   21.17 2047.97   23.86 2047.52   30.37 2046.38   40.69 2044.79   52.19 2042.69
   54.84 2042.26   55.75 2042.32   58.41  2041.3   64.11 2038.92   69.11 2036.82
   71.57 2038.19   73.76 2039.44   74.11 2039.66   76.21 2040.98   76.77 2041.22
   78.93 2042.14   81.96 2043.81   85.45 2045.09   88.78 2046.06   96.38 2049.53
  107.49 2052.26  117.21 2054.65  117.44 2054.68  117.64 2054.72   117.9 2054.79
  118.15 2054.84  123.13 2056.98  123.51 2057.09  128.59 2058.69  129.05 2058.78
  132.68 2059.66

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
       0    .059   64.11    .046   74.11    .059

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          55.75   81.96            313.2  280.57   281.7             .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)          * 2040.59  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.77  * Wt. n-Val.              *          *    0.049 *          *
*. W.S. Elev (ft)         * 2039.82  * Reach Len. (ft)         *  313.20  *   280.57 *   281.70 *
* Crit W.S. (ft)          * 2039.82  * Flow Area (sq ft)       *          *    18.77 *          *
* E.G. Slope (ft/ft)      *0.035233  * Area (sq ft)            *          *    18.77 *          *
* Q Total (cfs)           *  132.00  * Flow (cfs)              *          *   132.00 *          *
```

```
* Top Width (ft)          *   12.42  * Top Width (ft)          *          *   12.42  *          *
* Vel Total (ft/s)        *    7.03  * Avg. Vel. (ft/s)        *          *    7.03  *          *
* Max Chl Dpth (ft)       *    3.00  * Hydr. Depth (ft)        *          *    1.51  *          *
* Conv. Total (cfs)       *   703.2  * Conv. (cfs)             *          *   703.2  *          *
* Length Wtd. (ft)        *  280.57  * Wetted Per. (ft)        *          *   13.82  *          *
* Min Ch El (ft)          * 2036.82  * Shear (lb/sq ft)        *          *    2.99  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s) *          *   21.00  *          *
* Frctn Loss (ft)         *   10.56  * Cum Volume (acre-ft)    *          *    0.48  *          *
* C & E Loss (ft)         *    0.06  * Cum SA (acres)          *          *    0.49  *          *
*****************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 55.75     * 62.30     *     0.02 *     0.03 *     0.38 *     0.01 *     0.07 *     0.69 *
* 2        * Chan      * 62.30     * 68.86     *    72.15 *     9.96 *     7.11 *    54.66 *     1.52 *     7.24 *
* 3        * Chan      * 68.86     * 75.41     *    59.83 *     8.78 *     6.33 *    45.33 *     1.59 *     6.82 *
*****************************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: Cave Creek5
REACH: Tributary 2C        RS: 0.13

INPUT
Description: 702.30
Station Elevation Data     num=      50
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
       0 2033.89    2.61 2033.61    7.87 2033.11     9.2 2032.96   10.57 2032.84
   14.05  2032.6   15.95  2032.5   20.49 2032.13      23 2032.01    26.8 2031.71
   29.73 2031.52   32.56 2031.26   35.89 2031.15   38.39 2030.92   41.97 2030.66
   43.94 2030.64   45.08  2030.5   48.65 2030.08    50.2 2030.01   54.82 2029.52
   55.94 2029.45   61.25 2029.09   67.26 2028.58   67.76 2028.54   71.47 2028.36
   73.53 2028.26   73.58 2028.26   74.11 2028.23   74.16 2028.23   88.92 2025.22
   89.64 2025.07   94.85 2024.01   94.96 2024.04   96.58 2024.48  100.01 2025.47
  112.62 2029.11  131.32  2034.4  131.56 2034.43  133.98 2034.68  135.34 2034.78
  145.98 2035.93  147.44 2036.05  153.15  2036.5  156.98 2036.88  159.96 2037.11
  169.13 2038.24   169.4 2038.28  169.95 2038.32  180.11 2039.11  180.29 2039.12

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
       0    .059   89.64    .046  100.01    .059

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          74.11  112.62           200.62   219.1  215.45            .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************************
* E.G. Elev (ft)          * 2026.85  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.58  * Wt. n-Val.              *          *    0.052 *          *
* W.S. Elev (ft)          * 2026.27  * Reach Len. (ft)         *  200.62  *   219.10 *   215.45 *
* Crit W.S. (ft)          * 2026.27  * Flow Area (sq ft)       *          *    21.59 *          *
* E.G. Slope (ft/ft)      *0.040286  * Area (sq ft)            *          *    21.59 *          *
* Q Total (cfs)           *  132.00  * Flow (cfs)              *          *   132.00 *          *
* Top Width (ft)          *   19.01  * Top Width (ft)          *          *    19.01 *          *
* Vel Total (ft/s)        *    6.11  * Avg. Vel. (ft/s)        *          *     6.11 *          *
* Max Chl Dpth (ft)       *    2.26  * Hydr. Depth (ft)        *          *     1.14 *          *
* Conv. Total (cfs)       *   657.7  * Conv. (cfs)             *          *    657.7 *          *
* Length Wtd. (ft)        *  219.10  * Wetted Per. (ft)        *          *    19.56 *          *
* Min Ch El (ft)          * 2024.01  * Shear (lb/sq ft)        *          *     2.78 *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s) *          *    16.97 *          *
* Frctn Loss (ft)         *    8.80  * Cum Volume (acre-ft)    *          *     0.35 *          *
* C & E Loss (ft)         *    0.01  * Cum SA (acres)          *          *     0.39 *          *
*****************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 83.74     * 93.37     *    50.74 *     9.40 *     9.79 *    38.44 *     0.98 *     5.40 *
* 2        * Chan      * 93.37     * 102.99    *    81.26 *    12.19 *     9.76 *    61.56 *     1.29 *     6.67 *
*****************************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
```

```
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: Cave Creek5
REACH: Tributary 2C        RS: 0.09

INPUT
Description: 483.20
Station Elevation Data     num=      78
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
       0 2028.74    2.46 2028.54    3.94 2028.46    5.68 2028.36    12.7 2027.69
   15.42 2027.57   21.19 2027.06   24.44 2026.82   29.21 2026.36   33.49  2026.1
   36.27 2025.64   39.66 2025.42   42.82 2025.12   45.64 2024.58   48.39 2024.25
   50.58 2024.08   52.81  2023.8   54.67 2023.56   56.88 2023.54   78.33 2022.56
   82.34 2022.33   84.48 2022.26   84.65 2022.24   86.43 2021.92   87.97 2021.83
   89.94 2021.47   92.12 2020.91   94.15 2020.49   96.97 2019.81   98.86 2019.51
  102.01    2019  103.62 2018.93  106.64 2018.71  106.72 2018.71  108.05  2018.5
  112.18 2017.38  112.61 2017.29  116.37 2016.31   120.8 2015.51  125.13 2015.27
  125.63 2015.13  125.69 2015.12  130.59 2014.13  131.02 2014.04  131.63 2013.93
  137.92 2012.61   142.8 2011.73  144.53  2011.5  148.65 2011.32  152.11 2010.78
  152.87 2010.65  153.73 2010.47  154.77 2010.27  155.84    2010  156.17 2009.92
  158.28 2009.19  160.28 2008.46   160.9  2008.2  161.67 2008.61  162.95 2009.41
  165.94 2011.24  166.05 2011.31   168.8 2012.04  169.48 2012.56  173.36 2015.02
  174.85 2015.82  178.64 2018.25  180.43 2019.38  183.52  2021.9  185.88 2023.36
  187.61 2024.67  189.36 2025.22  190.78 2026.33  192.08 2026.71  200.98 2028.89
  207.37 2030.45  207.89 2030.59   208.6 2030.49

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
       0    .059  155.84    .046  165.94    .059

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        125.63  173.36            217.02  216.07  201.52            .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************************
* E.G. Elev (ft)          * 2011.79  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.67  * Wt. n-Val.              *          *    0.051 *          *
* W.S. Elev (ft)          * 2011.12  * Reach Len. (ft)         *  217.02  *   216.07 *   201.52 *
* Crit W.S. (ft)          * 2011.12  * Flow Area (sq ft)       *          *    20.15 *          *
* E.G. Slope (ft/ft)      *0.040038  * Area (sq ft)            *          *    20.15 *          *
* Q Total (cfs)           *  132.00  * Flow (cfs)              *          *   132.00 *          *
* Top Width (ft)          *   15.80  * Top Width (ft)          *          *    15.80 *          *
* Vel Total (ft/s)        *    6.55  * Avg. Vel. (ft/s)        *          *     6.55 *          *
* Max Chl Dpth (ft)       *    2.92  * Hydr. Depth (ft)        *          *     1.28 *          *
* Conv. Total (cfs)       *   659.7  * Conv. (cfs)             *          *    659.7 *          *
* Length Wtd. (ft)        *  216.07  * Wetted Per. (ft)        *          *    17.03 *          *
* Min Ch El (ft)          * 2008.20  * Shear (lb/sq ft)        *          *     2.96 *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s)  *          *    19.37 *          *
* Frctn Loss (ft)         *    6.82  * Cum Volume (acre-ft)    *          *     0.24 *          *
* C & E Loss (ft)         *    0.11  * Cum SA (acres)          *          *     0.30 *          *
*****************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) *  (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 149.50    * 161.43    *    99.79 *    14.45 *    11.98 *    75.60 *     1.26 *     6.91 *
* 2        * Chan      * 161.43    * 173.36    *    32.21 *     5.71 *     5.06 *    24.40 *     1.32 *     5.64 *
*****************************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: Cave Creek5
REACH: Tributary 2C        RS: 0.05

INPUT
Description: 267.14
Station Elevation Data     num=      29
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
       0 2009.66     .34 2009.68    3.33 2009.71   12.72 2009.83    21.6 2009.99
   22.42    2010   36.77 2006.53   53.41 2002.62    56.2 2002.01   58.54 2001.48
   60.26 2001.18   61.51 2000.95   67.63 1999.81   69.12 1999.58   71.16 1999.29
   75.56 1998.66   76.17 1998.57   81.19 1998.74   93.26 1999.15  101.17  1999.8
  102.93 1999.98  103.16 1999.99  110.74 2000.76  111.92 2000.91  117.29 2001.12
  119.63 2001.36  135.89 2003.76  154.97 2006.57  156.99 2006.45
```

```
Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
       0    .059   71.16    .046   81.19    .059

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          58.54  111.92             178.16   159.1  273.61          .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************************
* E.G. Elev (ft)         * 2000.28  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.28  * Wt. n-Val.              *          *    0.052  *          *
* W.S. Elev (ft)         * 2000.00  * Reach Len. (ft)         *  178.16  *   159.10  *  273.61  *
* Crit W.S. (ft)         * 1999.87  * Flow Area (sq ft)       *          *    30.91  *          *
* E.G. Slope (ft/ft)     *0.025488  * Area (sq ft)            *          *    30.91  *          *
* Q Total (cfs)          *  132.00  * Flow (cfs)              *          *   132.00  *          *
* Top Width (ft)         *   36.66  * Top Width (ft)           *          *    36.66  *          *
* Vel Total (ft/s)       *    4.27  * Avg. Vel. (ft/s)         *          *     4.27  *          *
* Max Chl Dpth (ft)      *    1.43  * Hydr. Depth (ft)         *          *     0.84  *          *
* Conv. Total (cfs)      *   826.8  * Conv. (cfs)              *          *    826.8  *          *
* Length Wtd. (ft)       *  159.10  * Wetted Per. (ft)         *          *    36.81  *          *
* Min Ch El (ft)         * 1998.57  * Shear (lb/sq ft)         *          *     1.34  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s)   *          *     5.71  *          *
* Frctn Loss (ft)        *    5.02  * Cum Volume (acre-ft)     *          *     0.11  *          *
* C & E Loss (ft)        *    0.00  * Cum SA (acres)           *          *     0.17  *          *
*****************************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

  Profile #PF 1
*****************************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 58.54     * 71.89     *     5.63 *     2.26 *     5.34 *     4.27 *     0.43 *     2.49 *
* 2        * Chan      * 71.89     * 85.23     *    86.32 *    16.37 *    13.39 *    65.39 *     1.23 *     5.27 *
* 3        * Chan      * 85.23     * 98.58     *    38.69 *    11.28 *    13.37 *    29.31 *     0.85 *     3.43 *
* 4        * Chan      * 98.58     * 111.92    *     1.36 *     1.00 *     4.71 *     1.03 *     0.21 *     1.36 *
*****************************************************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

CROSS SECTION


RIVER: Cave Creek5
REACH: Tributary 2C        RS: 0.02

INPUT
Description: 108.04
Station Elevation Data     num=      15
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
       0 1995.44     .48 1995.42    1.35 1995.38    7.28 1995.15    8.23 1995.15
    9.38 1995.13   34.89 1994.56   55.75 1994.17   57.67 1994.03   59.11 1993.92
   62.81 1993.71   67.98 1994.37   79.28 1995.81   80.38 1995.94   82.52 1995.95

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
       0    .059   57.67    .046   67.98    .059

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
              0   80.38                 0       0       0          .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************************
* E.G. Elev (ft)         * 1995.27  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.27  * Wt. n-Val.              *          *    0.052  *          *
* W.S. Elev (ft)         * 1995.00  * Reach Len. (ft)         *          *          *          *
* Crit W.S. (ft)         * 1994.99  * Flow Area (sq ft)       *          *    31.47  *          *
* E.G. Slope (ft/ft)     *0.040015  * Area (sq ft)            *          *    31.47  *          *
* Q Total (cfs)          *  132.00  * Flow (cfs)              *          *   132.00  *          *
* Top Width (ft)         *   57.53  * Top Width (ft)           *          *    57.53  *          *
* Vel Total (ft/s)       *    4.19  * Avg. Vel. (ft/s)         *          *     4.19  *          *
* Max Chl Dpth (ft)      *    1.29  * Hydr. Depth (ft)         *          *     0.55  *          *
* Conv. Total (cfs)      *   659.9  * Conv. (cfs)              *          *    659.9  *          *
* Length Wtd. (ft)       *          * Wetted Per. (ft)         *          *    57.64  *          *
* Min Ch El (ft)         * 1993.71  * Shear (lb/sq ft)         *          *     1.36  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s)   *          *     5.72  *          *
* Frctn Loss (ft)        *          * Cum Volume (acre-ft)     *          *          *          *
* C & E Loss (ft)        *          * Cum SA (acres)           *          *          *          *
*****************************************************************************************************

  Profile #PF 1
*****************************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 0.00      * 20.10     *     0.17 *     0.25 *     4.73 *     0.13 *     0.05 *     0.67 *
* 2        * Chan      * 20.10     * 40.19     *    14.84 *     6.58 *    20.10 *    11.24 *     0.33 *     2.25 *
* 3        * Chan      * 40.19     * 60.29     *    63.77 *    15.09 *    20.11 *    48.31 *     0.75 *     4.23 *
* 4        * Chan      * 60.29     * 80.38     *    53.22 *     9.55 *    12.70 *    40.32 *     0.76 *     5.57 *
*****************************************************************************************************************************

*******************************************************************************

SUMMARY OF MANNING'S N VALUES

River:Cave Creek1
*******************************************************************************
*     Reach       *   River Sta.   *   n1    *   n2    *   n3    *   n4    *   n5    *
*******************************************************************************
*Tributary 2.1    *    0.31        *    .061*    .046*    .061*         *         *
*Tributary 2.1    *    0.28        *    .061*    .051*    .061*    .061*         *
*Tributary 2.1    *    0.26        *    .061*    .051*    .061*         *         *
```

| | | | | | | |
|---|---|---|---|---|---|---|
| *Tributary 2.1 | * 0.25 | * .061* | .051* | .061* | * | * |
| *Tributary 2.1 | * 0.23 | * .061* | .049* | .061* | .061* | * |
| *Tributary 2.1 | * 0.21 | * .061* | .049* | .061* | * | * |
| *Tributary 2.1 | * 0.19 | * .061* | .061* | .066* | .061* | .061* |
| *Tributary 2.1 | * 0.16 | * .061* | .066* | .061* | * | * |
| *Tributary 2.1 | * 0.12 | * .067* | .063* | .067* | * | * |
| *Tributary 2.1 | * 0.09 | * .067* | .061* | .048* | .061* | * |
| *Tributary 2.1 | * 0.05 | * .061* | .048* | .061* | * | * |
| *Tributary 2.1 | * 0.03 | * .061* | .048* | .061* | * | * |

River:Cave Creek2

| * Reach | * River Sta. | * n1 | * n2 | * n3 | * n4 | * |
|---|---|---|---|---|---|---|
| *Tributary 2.2 | * 0.54 | * .067* | .069* | .067* | * | |
| *Tributary 2.2 | * 0.50 | * .061* | .072* | .059* | .063* | |
| *Tributary 2.2 | * 0.47 | * .059* | .055* | .067* | * | |
| *Tributary 2.2 | * 0.40 | * .059* | .055* | .067* | * | |
| *Tributary 2.2 | * 0.36 | * .059* | .055* | .067* | * | |
| *Tributary 2.2 | * 0.32 | * .059* | .055* | .067* | * | |
| *Tributary 2.2 | * 0.24 | * .058* | .054* | .058* | * | |
| *Tributary 2.2 | * 0.19 | * .058* | .054* | .058* | * | |
| *Tributary 2.2 | * 0.13 | * .058* | .054* | .058* | * | |
| *Tributary 2.2 | * 0.10 | * .058* | .054* | .058* | * | |
| *Tributary 2.2 | * 0.08 | * .053* | .046* | .053* | * | |
| *Tributary 2.2 | * 0.04 | * .053* | .046* | .053* | * | |
| *Tributary 2.2 | * 0.01 | * .059* | .046* | .059* | * | |

River:Cave Creek3

| * Reach | * River Sta. | * n1 | * n2 | * n3 | * |
|---|---|---|---|---|---|
| *Tributary 2A | * 0.12 | * .061* | .062* | .061* | |
| *Tributary 2A | * 0.06 | * .061* | .062* | .061* | |
| *Tributary 2A | * 0.03 | * .061* | .062* | .061* | |

River:Cave Creek4

| * Reach | * River Sta. | * n1 | * n2 | * n3 | * n4 | * |
|---|---|---|---|---|---|---|
| *Tributary 2B | * 0.07 | * .059* | .046* | .059* | * | |
| *Tributary 2B | * 0.05 | * .059* | .046* | .059* | * | |
| *Tributary 2B | * 0.04 | * .053* | .059* | .046* | .059* | |
| *Tributary 2B | * 0.02 | * .059* | .046* | .059* | * | |

River:Cave Creek5

| * Reach | * River Sta. | * n1 | * n2 | * n3 | * n4 | * |
|---|---|---|---|---|---|---|
| *Tributary 2C | * 0.30 | * .064* | .059* | .058* | * | |
| *Tributary 2C | * 0.27 | * .064* | .059* | .058* | * | |
| *Tributary 2C | * 0.25 | * .069* | .067* | .069* | .058* | |
| *Tributary 2C | * 0.24 | * .069* | .067* | .069* | * | |
| *Tributary 2C | * 0.22 | * .069* | .067* | .069* | * | |
| *Tributary 2C | * 0.19 | * .059* | .046* | .059* | * | |
| *Tributary 2C | * 0.13 | * .059* | .046* | .059* | * | |
| *Tributary 2C | * 0.09 | * .059* | .046* | .059* | * | |
| *Tributary 2C | * 0.05 | * .059* | .046* | .059* | * | |
| *Tributary 2C | * 0.02 | * .059* | .046* | .059* | * | |

SUMMARY OF REACH LENGTHS

River: Cave Creek1

| * Reach | * River Sta. | * Left | * Channel | * Right | * |
|---|---|---|---|---|---|
| *Tributary 2.1 | * 0.31 | * 155.73* | 129.82* | 133.24* | |
| *Tributary 2.1 | * 0.28 | * 98.07* | 129.57* | 126.89* | |
| *Tributary 2.1 | * 0.26 | * 76.91* | 57.87* | 62.59* | |
| *Tributary 2.1 | * 0.25 | * 125.88* | 119.02* | 107.52* | |
| *Tributary 2.1 | * 0.23 | * 87.11* | 84.48* | 85.06* | |
| *Tributary 2.1 | * 0.21 | * 75.7* | 91.23* | 114.85* | |
| *Tributary 2.1 | * 0.19 | * 159.19* | 153.54* | 143.84* | |
| *Tributary 2.1 | * 0.16 | * 230.49* | 225.75* | 214.2* | |
| *Tributary 2.1 | * 0.12 | * 132.46* | 146.76* | 153.01* | |
| *Tributary 2.1 | * 0.09 | * 196.47* | 205.45* | 216.78* | |
| *Tributary 2.1 | * 0.05 | * 108.46* | 106.83* | 92.34* | |
| *Tributary 2.1 | * 0.03 | * 0* | 0* | 0* | |

River: Cave Creek2

| * Reach | * River Sta. | * Left | * Channel | * Right | * |
|---|---|---|---|---|---|
| *Tributary 2.2 | * 0.54 | * 235.79* | 216.82* | 200.29* | |
| *Tributary 2.2 | * 0.50 | * 114.92* | 144.99* | 166.44* | |
| *Tributary 2.2 | * 0.47 | * 343.61* | 362.61* | 402.29* | |
| *Tributary 2.2 | * 0.40 | * 195.06* | 191.53* | 206.32* | |
| *Tributary 2.2 | * 0.36 | * 245.99* | 238.35* | 218.64* | |
| *Tributary 2.2 | * 0.32 | * 401.17* | 407.38* | 418.02* | |
| *Tributary 2.2 | * 0.24 | * 307.46* | 297.21* | 272.01* | |
| *Tributary 2.2 | * 0.19 | * 260.46* | 270.25* | 271.65* | |
| *Tributary 2.2 | * 0.13 | * 216.53* | 204.51* | 179.6* | |
| *Tributary 2.2 | * 0.10 | * 105.95* | 84.92* | 65.1* | |
| *Tributary 2.2 | * 0.08 | * 242.93* | 215.94* | 193.91* | |
| *Tributary 2.2 | * 0.04 | * 161.44* | 142.91* | 158.87* | |
| *Tributary 2.2 | * 0.01 | * 0* | 0* | 0* | |

River: Cave Creek3

| Reach | River Sta. | Left | Channel | Right |
|---|---|---|---|---|
| Tributary 2A | 0.12 | 312.44 | 321.29 | 330.55 |
| Tributary 2A | 0.06 | 182.32 | 179.29 | 184.09 |
| Tributary 2A | 0.03 | 0 | 0 | 0 |

River: Cave Creek4

| Reach | River Sta. | Left | Channel | Right |
|---|---|---|---|---|
| Tributary 2B | 0.07 | 48.5 | 94.68 | 140.06 |
| Tributary 2B | 0.05 | 53.42 | 87.73 | 101.95 |
| Tributary 2B | 0.04 | 87.52 | 75.06 | 74.83 |
| Tributary 2B | 0.02 | 0 | 0 | 0 |

River: Cave Creek5

| Reach | River Sta. | Left | Channel | Right |
|---|---|---|---|---|
| Tributary 2C | 0.30 | 159.06 | 163.65 | 151.11 |
| Tributary 2C | 0.27 | 132.38 | 131.72 | 125.78 |
| Tributary 2C | 0.25 | 49.69 | 46.17 | 47.44 |
| Tributary 2C | 0.24 | 69.1 | 86.18 | 98.77 |
| Tributary 2C | 0.22 | 153.82 | 196.51 | 212.41 |
| Tributary 2C | 0.19 | 313.2 | 280.57 | 281.7 |
| Tributary 2C | 0.13 | 200.62 | 219.1 | 215.45 |
| Tributary 2C | 0.09 | 217.02 | 216.07 | 201.52 |
| Tributary 2C | 0.05 | 178.16 | 159.1 | 273.61 |
| Tributary 2C | 0.02 | 0 | 0 | 0 |

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS

River: Cave Creek1

| Reach | River Sta. | Contr. | Expan. |
|---|---|---|---|
| Tributary 2.1 | 0.31 | .1 | .3 |
| Tributary 2.1 | 0.28 | .1 | .3 |
| Tributary 2.1 | 0.26 | .1 | .3 |
| Tributary 2.1 | 0.25 | .1 | .3 |
| Tributary 2.1 | 0.23 | .1 | .3 |
| Tributary 2.1 | 0.21 | .1 | .3 |
| Tributary 2.1 | 0.19 | .1 | .3 |
| Tributary 2.1 | 0.16 | .1 | .3 |
| Tributary 2.1 | 0.12 | .1 | .3 |
| Tributary 2.1 | 0.09 | .1 | .3 |
| Tributary 2.1 | 0.05 | .1 | .3 |
| Tributary 2.1 | 0.03 | .1 | .3 |

River: Cave Creek2

| Reach | River Sta. | Contr. | Expan. |
|---|---|---|---|
| Tributary 2.2 | 0.54 | .1 | .3 |
| Tributary 2.2 | 0.50 | .1 | .3 |
| Tributary 2.2 | 0.47 | .1 | .3 |
| Tributary 2.2 | 0.40 | .1 | .3 |
| Tributary 2.2 | 0.36 | .1 | .3 |
| Tributary 2.2 | 0.32 | .1 | .3 |
| Tributary 2.2 | 0.24 | .1 | .3 |
| Tributary 2.2 | 0.19 | .1 | .3 |
| Tributary 2.2 | 0.13 | .1 | .3 |
| Tributary 2.2 | 0.10 | .1 | .3 |
| Tributary 2.2 | 0.08 | .1 | .3 |
| Tributary 2.2 | 0.04 | .1 | .3 |
| Tributary 2.2 | 0.01 | .1 | .3 |

River: Cave Creek3

| Reach | River Sta. | Contr. | Expan. |
|---|---|---|---|
| Tributary 2A | 0.12 | .1 | .3 |
| Tributary 2A | 0.06 | .1 | .3 |
| Tributary 2A | 0.03 | .1 | .3 |

River: Cave Creek4

| Reach | River Sta. | Contr. | Expan. |
|---|---|---|---|
| Tributary 2B | 0.07 | .1 | .3 |
| Tributary 2B | 0.05 | .1 | .3 |
| Tributary 2B | 0.04 | .1 | .3 |
| Tributary 2B | 0.02 | .1 | .3 |

River: Cave Creek5

| Reach | River Sta. | Contr. | Expan. |
|---|---|---|---|
| Tributary 2C | 0.30 | .1 | .3 |
| Tributary 2C | 0.27 | .1 | .3 |
| Tributary 2C | 0.25 | .1 | .3 |
| Tributary 2C | 0.24 | .1 | .3 |
| Tributary 2C | 0.22 | .1 | .3 |
| Tributary 2C | 0.19 | .1 | .3 |
| Tributary 2C | 0.13 | .1 | .3 |

```
*Tributary 2C    *    0.09    *       .1*       .3*
*Tributary 2C    *    0.05    *       .1*       .3*
*Tributary 2C    *    0.02    *       .1*       .3*
*****************************************************

Profile Output Table - Standard Table 1
*******************************************************************************************************************************
************************************
* River        * Reach          * River Sta    * Profile * Q Total * Min Ch El * W.S. Elev * Crit W.S. * E.G. Elev * E.G. Slope * Vel Chnl *
Flow Area * Top Width * Froude # Chl *
*            *                 *              *         *   (cfs) *      (ft) *      (ft) *      (ft) *      (ft) *    (ft/ft) *   (ft/s) *
(sq ft) *      (ft) *          *
*******************************************************************************************************************************
************************************
* Cave Creek5 * Tributary 2C  * 0.30        * PF 1    *   94.00 *   2084.72 *   2087.00 *   2087.00 *   2087.62 *   0.053122 *     6.34 *
 14.83 *     12.17 *          1.01 *
* Cave Creek5 * Tributary 2C  * 0.27        * PF 1    *   94.00 *   2071.87 *   2074.21 *   2074.21 *   2074.82 *   0.054473 *     6.25 *
 15.04 *     12.79 *          1.02 *
* Cave Creek5 * Tributary 2C  * 0.25        * PF 1    *   94.00 *   2062.45 *   2064.99 *   2064.99 *   2065.62 *   0.069410 *     6.41 *
 14.66 *     11.63 *          1.01 *
* Cave Creek5 * Tributary 2C  * 0.24        * PF 1    *   94.00 *   2058.55 *   2060.82 *   2060.82 *   2061.45 *   0.069497 *     6.35 *
 14.80 *     12.10 *          1.01 *
* Cave Creek5 * Tributary 2C  * 0.22        * PF 1    *  132.00 *   2048.25 *   2051.11 *   2051.11 *   2051.84 *   0.065999 *     6.85 *
 19.26 *     13.24 *          1.00 *
* Cave Creek5 * Tributary 2C  * 0.19        * PF 1    *  132.00 *   2036.82 *   2039.82 *   2039.82 *   2040.59 *   0.035233 *     7.03 *
 18.77 *     12.42 *          1.01 *
* Cave Creek5 * Tributary 2C  * 0.13        * PF 1    *  132.00 *   2024.01 *   2026.27 *   2026.27 *   2026.85 *   0.040286 *     6.11 *
 21.59 *     19.01 *          1.01 *
* Cave Creek5 * Tributary 2C  * 0.09        * PF 1    *  132.00 *   2008.20 *   2011.12 *   2011.12 *   2011.79 *   0.040038 *     6.55 *
 20.15 *     15.80 *          1.02 *
* Cave Creek5 * Tributary 2C  * 0.05        * PF 1    *  132.00 *   1998.57 *   2000.00 *   1999.87 *   2000.28 *   0.025488 *     4.27 *
 30.91 *     36.66 *          0.82 *
* Cave Creek5 * Tributary 2C  * 0.02        * PF 1    *  132.00 *   1993.71 *   1995.00 *   1994.99 *   1995.27 *   0.040015 *     4.19 *
 31.47 *     57.53 *          1.00 *
* Cave Creek4 * Tributary 2B  * 0.07        * PF 1    *   49.00 *   2001.39 *   2002.93 *   2002.93 *   2003.34 *   0.044712 *     5.09 *
  9.63 *     12.39 *          1.02 *
* Cave Creek4 * Tributary 2B  * 0.05        * PF 1    *   49.00 *   1997.34 *   1998.75 *   1998.74 *   1999.10 *   0.038597 *     4.74 *
 10.33 *     14.63 *          1.00 *
* Cave Creek4 * Tributary 2B  * 0.04        * PF 1    *   49.00 *   1995.34 *   1996.50 *   1996.40 *   1996.68 *   0.019957 *     3.46 *
 14.15 *     25.63 *          0.82 *
* Cave Creek4 * Tributary 2B  * 0.02        * PF 1    *   49.00 *   1993.17 *   1994.43 *   1994.42 *   1994.75 *   0.034036 *     4.51 *
 10.87 *     17.26 *          1.00 *
* Cave Creek3 * Tributary 2A  * 0.12        * PF 1    *   90.00 *   2127.86 *   2129.80 *   2129.61 *   2130.13 *   0.035290 *     4.62 *
 19.47 *     18.51 *          0.79 *
* Cave Creek3 * Tributary 2A  * 0.06        * PF 1    *   90.00 *   2113.06 *   2115.14 *   2115.14 *   2115.67 *   0.059226 *     5.82 *
 15.46 *     15.03 *          1.01 *
* Cave Creek3 * Tributary 2A  * 0.03        * PF 1    *   90.00 *   2107.11 *   2110.15 *   2109.25 *   2110.28 *   0.008876 *     2.92 *
 30.78 *     20.24 *          0.42 *
* Cave Creek2 * Tributary 2.2 * 0.54        * PF 1    *  502.00 *   2101.54 *   2104.55 *   2104.41 *   2105.15 *   0.047670 *     6.22 *
 80.73 *     54.57 *          0.90 *
* Cave Creek2 * Tributary 2.2 * 0.50        * PF 1    *  502.00 *   2087.64 *   2092.94 *   2092.94 *   2094.25 *   0.052428 *     9.18 *
 54.70 *     20.93 *          1.00 *
* Cave Creek2 * Tributary 2.2 * 0.47        * PF 1    *  502.00 *   2080.81 *   2085.85 *   2085.85 *   2087.11 *   0.042827 *     9.02 *
 55.65 *     22.06 *          1.00 *
* Cave Creek2 * Tributary 2.2 * 0.40        * PF 1    *  560.00 *   2066.83 *   2070.29 *   2070.29 *   2071.31 *   0.041715 *     8.07 *
 69.40 *     34.92 *          1.01 *
* Cave Creek2 * Tributary 2.2 * 0.36        * PF 1    *  560.00 *   2058.77 *   2061.41 *   2061.41 *   2062.35 *   0.042071 *     7.80 *
 71.75 *     38.47 *          1.01 *
* Cave Creek2 * Tributary 2.2 * 0.32        * PF 1    *  560.00 *   2046.09 *   2050.72 *   2050.72 *   2051.90 *   0.040870 *     8.74 *
 64.09 *     27.09 *          1.00 *
* Cave Creek2 * Tributary 2.2 * 0.24        * PF 1    *  589.00 *   2027.91 *   2033.77 *   2033.53 *   2034.96 *   0.030890 *     8.78 *
 67.07 *     22.92 *          0.90 *
* Cave Creek2 * Tributary 2.2 * 0.19        * PF 1    *  589.00 *   2019.47 *   2023.53 *   2023.53 *   2024.58 *   0.039503 *     8.20 *
 71.80 *     34.99 *          1.01 *
* Cave Creek2 * Tributary 2.2 * 0.13        * PF 1    *  589.00 *   2004.47 *   2010.26 *   2009.82 *   2011.27 *   0.025635 *     8.07 *
 72.94 *     24.86 *          0.83 *
* Cave Creek2 * Tributary 2.2 * 0.10        * PF 1    *  589.00 *   1999.82 *   2003.84 *   2003.84 *   2004.96 *   0.037704 *     8.50 *
 69.31 *     30.82 *          1.00 *
* Cave Creek2 * Tributary 2.2 * 0.08        * PF 1    *  589.00 *   1998.11 *   2001.88 *   2001.49 *   2002.62 *   0.019340 *     6.92 *
 85.08 *     36.91 *          0.80 *
* Cave Creek2 * Tributary 2.2 * 0.04        * PF 1    *  589.00 *   1994.42 *   1996.68 *   1996.67 *   1997.25 *   0.032270 *     6.06 *
 97.12 *     85.93 *          1.01 *
* Cave Creek2 * Tributary 2.2 * 0.01        * PF 1    *  589.00 *   1989.56 *   1992.85 *   1992.57 *   1993.19 *   0.024512 *     4.71 *
124.95 *     98.02 *          0.74 *
* Cave Creek1 * Tributary 2.1 * 0.31        * PF 1    *   55.00 *   2157.95 *   2159.37 *   2159.37 *   2159.69 *   0.047456 *     4.55 *
 12.09 *     18.56 *          0.99 *
* Cave Creek1 * Tributary 2.1 * 0.28        * PF 1    *   55.00 *   2153.30 *   2154.72 *   2154.72 *   2154.96 *   0.027542 *     3.97 *
 13.86 *     27.16 *          0.98 *
* Cave Creek1 * Tributary 2.1 * 0.26        * PF 1    *   55.00 *   2148.17 *   2149.78 *   2149.78 *   2150.20 *   0.048584 *     5.17 *
 10.64 *     13.23 *          1.02 *
* Cave Creek1 * Tributary 2.1 * 0.25        * PF 1    *   55.00 *   2144.78 *   2146.59 *   2146.59 *   2147.05 *   0.046213 *     5.47 *
 10.05 *     11.14 *          1.02 *
* Cave Creek1 * Tributary 2.1 * 0.23        * PF 1    *   55.00 *   2139.47 *   2140.68 *   2140.68 *   2141.03 *   0.050830 *     4.74 *
 11.60 *     17.12 *          1.01 *
* Cave Creek1 * Tributary 2.1 * 0.21        * PF 1    *   55.00 *   2137.26 *   2139.33 *           *   2139.40 *   0.004283 *     2.18 *
 25.20 *     24.57 *          0.38 *
* Cave Creek1 * Tributary 2.1 * 0.19        * PF 1    *  319.00 *   2134.17 *   2137.98 *   2137.21 *   2138.31 *   0.014921 *     4.57 *
 70.07 *     36.89 *          0.57 *
* Cave Creek1 * Tributary 2.1 * 0.16        * PF 1    *  319.00 *   2131.01 *   2133.75 *   2133.75 *   2134.31 *   0.055359 *     5.98 *
 53.33 *     48.15 *          1.00 *
* Cave Creek1 * Tributary 2.1 * 0.12        * PF 1    *  319.00 *   2120.39 *   2123.51 *   2122.98 *   2123.92 *   0.023181 *     5.13 *
 62.15 *     33.85 *          0.67 *
* Cave Creek1 * Tributary 2.1 * 0.09        * PF 1    *  319.00 *   2115.75 *   2119.20 *   2119.03 *   2119.88 *   0.032756 *     6.63 *
 48.13 *     28.27 *          0.90 *
* Cave Creek1 * Tributary 2.1 * 0.05        * PF 1    *  319.00 *   2111.08 *   2112.87 *   2112.75 *   2113.17 *   0.031395 *     4.39 *
 72.60 *     84.56 *          0.84 *
* Cave Creek1 * Tributary 2.1 * 0.03        * PF 1    *  319.00 *   2107.45 *   2110.27 *   2109.77 *   2110.65 *   0.018324 *     4.92 *
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                    HEC-RAS Version 3.1.3 May 2005
                     U.S. Army Corp of Engineers
                    Hydrologic Engineering Center
                          609 Second Street
                          Davis, California


          X     X  XXXXXX   XXXX       XXXX       XX      XXXX
          X     X  X       X    X      X   X     X  X    X
          X     X  X       X           X   X    X    X   X
          XXXXXXX  XXXX    X      XXX  XXXX     XXXXXX   XXXX
          X     X  X       X           X  X     X    X       X
          X     X  X       X    X      X   X    X    X       X
          X     X  XXXXXX   XXXX       X    X   X    X   XXXXX

*******************************************************************************

PROJECT DATA
Project Title: CCTRIB3_RM
Project File : CCTRIB3.prj
Run Date and Time: 4/20/2009 3:27:05 PM

Project in English units

Project Description:
Cave Creek Tributary 3 - Zone A Floodplain Delineation Study (FDS)

MODEL PREPARED UTILIZING RIVER MILES FOR STATIONING

Floodplain Redelineation Study of Ocotillo Wash and Tributary-2 and
Floodplain Delineation Study of Cave Creek Tributaries 2 & 3.
Prepared for the Flood Control District of Maricopa County
Contract Number: FCD 2006C024, Work Assignment No. 2
Project Control Number: 690.02.20
Project Manager: Richard Harris, P.E., CFM - rph@mail.maricopa.gov

Model created in HEC-RAS Version 3.1.3
Model Pre and Post Processing Prepared in HEC-GeoRAS Version 9.2.92
Prepared by HDR Engineering, Inc.
3200 East Camelback Road, Suite 350
Phoenix, Arizona  85018
Date Prepared: March 11, 2009
Authors: Linda Potter, P.E., CFM - lindapotter@hdrinc.com
         Mark Fountain, CFM - mark.fountain@hdrinc.com

*********************************************************************

Topo Mapping prepared by Cooper Aerial Surveys Company
Flight Dates: November 2003 and December 2004.
Prepared under contracts FCD2003C048, WA#4 and FCD2005C030
Ground Control/Elevation Reference Marks for horizontal and vertical survey control
are based on the North American Datum of 1983 (NAD83) and North American Vertical
Datum of 1988 (NAVD88) respectively.  Survey data was presented in State Plane
Coordinates, Arizona Central Zone 0202.
Data collected by HDR from the FCDMC under FCD2004C072.

Aerial Photography prepared by The Sanborn Mapping Company Inc.
Flight Dates October - December 2008
Data collected by HDR from the FCDMC on February 20, 2009

*********************************************************************

Field Reconnaissance completed by HDR on August 27, 2008.

*********************************************************************

Hydrology prepared by HDR Engineering Inc. as part of the TDN submittal for the
Floodplain Redelineation Study of Ocotillo Wash and Tributary-2 and
Floodplain Delineation Study of Cave Creek Tributaries 2 & 3.
Date: October 21, 2008
Contract FCD 2006C024, Work Assignment No. 2
HDR Project # 91427

*********************************************************************
Modeling has been prepared in support of new Zone A floodplain delineation.

Modeling Assumptions:  Low lying islands identified within the flood limits with
less than one and a half foot of vertical elevation difference between the water
surface elevation and the adjacent ground elevation were included into the final
flood limits.

The downstream boundary condition of Profile 1 has been prepared to tie into the
existing Cave Creek Flood Profile at river mile 36.406 utilizing a normal depth
slope of 0.0351 ft/ft for Tributary 3.

The WSE within the Cave Creek Flood Profile is identified as 1968.86 {NGVD 29} per
FIS dated Sep 30, 2005).  This is located between the existing cross sections of
"EH" and "EI".  Refer to profile panel 1017P, and refer to FIRM panel # 04013C0805H.

WSE converted from NGVD29 to NAVD88 (+2.02 ft) = 1970.88

Refer to VertCon output for additional details regarding the conversion.

*********************************************************************

HEC-RAS River and Reach naming relationships to the Watercourse and Wash Naming:

River/Watercourse:
        Cave Creek = Cave Creek

Reach/Wash Naming
        Tributary 3 = Tributary 3

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DESIGNER NOTES:

*-*-*-MASTER HYDRAULIC MODEL FOR CAVE CREEK TRIB3: 03-11-2009

*-*-*-THIS MODEL HAS BEEN PREPARED UTILIZING RIVER MILES
*-*-*-CONTAINS REGRESSION EQUATION DISCHARGES FOR STEADY FLOW DATA




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PLAN DATA

Plan Title: CCTRIB3_RM
Plan File : C:\GEORAS\91427\Hydraulic\RAS_Model\CCT3\RM\CCTRIB3.p01

           Geometry Title: CCTRIB3_RM
           Geometry File : C:\GEORAS\91427\Hydraulic\RAS_Model\CCT3\RM\CCTRIB3.g01

           Flow Title    : CCTRIB3_RM
           Flow File     : C:\GEORAS\91427\Hydraulic\RAS_Model\CCT3\RM\CCTRIB3.f01

Plan Summary Information:
Number of:  Cross Sections =    6    Multiple Openings  =    0
            Culverts       =    0    Inline Structures  =    0
            Bridges        =    0    Lateral Structures =    0

Computational Information
    Water surface calculation tolerance  =  0.01
    Critical depth calculation tolerance =  0.01
    Maximum number of iterations         =  20
    Maximum difference tolerance         =  0.3
    Flow tolerance factor                =  0.001

Computation Options
    Critical depth computed only where necessary
    Conveyance Calculation Method: At breaks in n values only
    Friction Slope Method:         Average Conveyance
    Computational Flow Regime:     Subcritical Flow


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FLOW DATA

Flow Title: CCTRIB3_RM
Flow File : C:\GEORAS\91427\Hydraulic\RAS_Model\CCT3\RM\CCTRIB3.f01

Flow Data (cfs)
***************************************************************
* River           Reach           RS      *            PF 1 *
* CaveCreek       Tributary 3     0.49    *             358 *
* CaveCreek       Tributary 3     0.26    *             424 *
* Cave Creek      Tributary 3     0.49    *             358 *
* Cave Creek      Tributary 3     0.26    *             424 *
***************************************************************

Boundary Conditions
*****************************************************************************************************************
* River           Reach           Profile          *            Upstream                  Downstream    *
*****************************************************************************************************************
* Cave Creek      Tributary 3     PF 1             *                                  Normal S = 0.0351 *
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GEOMETRY DATA

Geometry Title: CCTRIB3_RM
Geometry File : C:\GEORAS\91427\Hydraulic\RAS_Model\CCT3\RM\CCTRIB3.g01

CROSS SECTION


RIVER: Cave Creek
REACH: Tributary 3        RS: 0.49

INPUT
Description: 2611.51 LIMIT OF STUDY
Station Elevation Data    num=      52
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
       0  2060.8    4.76 2060.43    6.49 2060.34   14.31 2059.85   23.57 2057.98
   33.31 2055.95   34.18 2055.77   42.16 2054.21    49.5 2052.98   55.53 2052.68
    55.9 2052.65   56.57  2052.6   57.35 2052.55   60.99 2052.29   61.67 2052.24
   62.69 2052.25   65.48 2052.66   67.82 2052.98   71.16 2053.01    94.6 2053.16
   94.97 2053.16   95.76 2053.18  101.02 2051.94  102.79 2051.42  106.14 2050.41
  115.93  2047.8  127.93 2043.95  129.75 2043.41  132.29 2042.53  132.41 2042.53
  134.43 2042.42  137.44 2042.25  138.71 2042.38  142.34 2043.41  142.49 2043.45
   149.9 2045.11  151.69 2045.29  158.42 2045.82  161.05 2046.12   163.7 2046.32
  174.04 2050.15  179.42 2052.54  180.19 2052.74  180.79 2052.95  181.99 2053.32
  182.21 2053.11  182.34 2052.98  183.24 2052.88  186.71 2053.27  200.75 2055.39
  206.49 2056.53  212.71 2057.82

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
       0    .058  132.41    .051  142.49    .058

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         95.76  179.42            649.86  714.55  863.54             .1       .3
```

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2046.31 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.49 | Wt. n-Val. | | 0.056 | |
| W.S. Elev (ft) | 2045.82 | Reach Len. (ft) | 649.86 | 714.55 | 863.54 |
| Crit W.S. (ft) | 2045.34 | Flow Area (sq ft) | | 64.04 | |
| E.G. Slope (ft/ft) | 0.021637 | Area (sq ft) | | 64.04 | |
| Q Total (cfs) | 358.00 | Flow (cfs) | | 358.00 | |
| Top Width (ft) | 36.35 | Top Width (ft) | | 36.35 | |
| Vel Total (ft/s) | 5.59 | Avg. Vel. (ft/s) | | 5.59 | |
| Max Chl Dpth (ft) | 3.57 | Hydr. Depth (ft) | | 1.76 | |
| Conv. Total (cfs) | 2433.8 | Conv. (cfs) | | 2433.8 | |
| Length Wtd. (ft) | 714.55 | Wetted Per. (ft) | | 37.24 | |
| Min Ch El (ft) | 2042.25 | Shear (lb/sq ft) | | 2.32 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 12.99 | |
| Frctn Loss (ft) | 22.08 | Cum Volume (acre-ft) | | 3.87 | |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | | 1.95 | |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 116.68 | 137.59 | 210.92 | 34.79 | 16.02 | 58.92 | 2.25 | 6.06 |
| 2 | Chan | 137.59 | 158.51 | 147.08 | 29.25 | 21.22 | 41.08 | 1.40 | 5.03 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Cave Creek
REACH: Tributary 3 RS: 0.36

INPUT
Description: 1896.96
Station Elevation Data num= 51

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2039.43 | 11.19 | 2038.57 | 37.59 | 2036.82 | 37.8 | 2036.72 | 48.89 | 2031.74 |
| 55.53 | 2028.77 | 59.52 | 2027.07 | 64.19 | 2024.52 | 68.07 | 2023.08 | 69.09 | 2022.72 |
| 72.89 | 2021.28 | 75.58 | 2020.85 | 77.47 | 2020.55 | 80.58 | 2019.97 | 85.57 | 2021.27 |
| 87.32 | 2021.72 | 88.52 | 2022.04 | 88.73 | 2022.1 | 89.43 | 2022.22 | 93.19 | 2023.18 |
| 97.26 | 2024.3 | 97.9 | 2024.56 | 102.42 | 2026.32 | 102.55 | 2026.33 | 102.71 | 2026.38 |
| 105.89 | 2027.52 | 106.16 | 2027.62 | 106.79 | 2027.81 | 108.15 | 2028.29 | 108.77 | 2028.72 |
| 110.39 | 2029.83 | 111.07 | 2030.36 | 113.97 | 2030.9 | 115.97 | 2031.17 | 117.19 | 2031.67 |
| 118.66 | 2032.18 | 122.46 | 2033.01 | 123.47 | 2033.22 | 128.21 | 2033.86 | 129.03 | 2033.98 |
| 129.5 | 2034 | 133.92 | 2034.06 | 135.15 | 2034.15 | 140.3 | 2034.2 | 140.39 | 2034.21 |
| 140.49 | 2034.22 | 146.47 | 2034.53 | 146.55 | 2034.53 | 150.68 | 2034.71 | 150.79 | 2034.71 |
| 152.87 | 2035.32 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .06 | 75.58 | .06 | 85.57 | .065 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 37.8 | 105.89 | 497.69 | 510.87 | 510.43 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2024.19 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.90 | Wt. n-Val. | | 0.062 | |
| W.S. Elev (ft) | 2023.28 | Reach Len. (ft) | 497.69 | 510.87 | 510.43 |
| Crit W.S. (ft) | 2023.28 | Flow Area (sq ft) | | 46.91 | |
| E.G. Slope (ft/ft) | 0.047670 | Area (sq ft) | | 46.91 | |
| Q Total (cfs) | 358.00 | Flow (cfs) | | 358.00 | |
| Top Width (ft) | 26.04 | Top Width (ft) | | 26.04 | |
| Vel Total (ft/s) | 7.63 | Avg. Vel. (ft/s) | | 7.63 | |
| Max Chl Dpth (ft) | 3.31 | Hydr. Depth (ft) | | 1.80 | |
| Conv. Total (cfs) | 1639.7 | Conv. (cfs) | | 1639.7 | |
| Length Wtd. (ft) | 510.87 | Wetted Per. (ft) | | 26.93 | |
| Min Ch El (ft) | 2019.97 | Shear (lb/sq ft) | | 5.18 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 39.56 | |
| Frctn Loss (ft) | 9.69 | Cum Volume (acre-ft) | | 2.96 | |
| C & E Loss (ft) | 0.18 | Cum SA (acres) | | 1.44 | |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| * 1 | * Chan | * 54.82 | * 71.85 | * 13.19 * | 3.43 * | 4.61 * | 3.68 * | 0.79 * | 3.84 * |
| * 2 | * Chan | * 71.85 | * 88.87 | * 336.25 * | 40.65 * | 17.48 * | 93.93 * | 2.39 * | 8.27 * |
| * 3 | * Chan | * 88.87 | * 105.89 | * 8.56 * | 2.83 * | 4.84 * | 2.39 * | 0.60 * | 3.02 * |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Cave Creek
REACH: Tributary 3 RS: 0.26

INPUT
Description: 1386.09
Station Elevation Data num= 72

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2022.36 | .73 | 2022.23 | 3.76 | 2021.68 | 6.61 | 2021.34 | 9.45 | 2020.59 |
| 11.96 | 2020.22 | 14.71 | 2019.76 | 16.52 | 2019.37 | 18.67 | 2018.88 | 19.5 | 2018.71 |
| 20.77 | 2018.44 | 23.15 | 2018.06 | 24.81 | 2018.06 | 26.73 | 2017.47 | 28.68 | 2017.27 |
| 30.53 | 2017.13 | 32.04 | 2017.1 | 38.72 | 2016.69 | 40.68 | 2016.43 | 42.93 | 2016.57 |
| 45 | 2016.42 | 48.94 | 2016.46 | 49.48 | 2016.46 | 52.28 | 2016.43 | 53.91 | 2016.36 |
| 58.03 | 2016.33 | 61.95 | 2015.74 | 63.59 | 2015.32 | 64.04 | 2015.16 | 67.1 | 2014.63 |
| 67.38 | 2014.48 | 70.65 | 2013.89 | 72.41 | 2013.64 | 74.28 | 2013.2 | 76.84 | 2012.49 |
| 78.74 | 2012.02 | 79.16 | 2011.53 | 80.56 | 2010.86 | 85.72 | 2009.69 | 88.44 | 2009.14 |
| 90.35 | 2008.67 | 92.52 | 2008.07 | 92.82 | 2007.97 | 94.02 | 2007.74 | 96.23 | 2007.48 |
| 97 | 2007.39 | 101.92 | 2006.9 | 107.7 | 2006.63 | 114.13 | 2006.31 | 119 | 2009.26 |
| 126.11 | 2014.43 | 127.45 | 2015.93 | 129.56 | 2017.25 | 129.91 | 2017.47 | 134.31 | 2020.03 |
| 136.28 | 2020.67 | 141.14 | 2022.86 | 141.91 | 2023.2 | 143.44 | 2024.08 | 143.95 | 2024.27 |
| 144.67 | 2024.36 | 146.35 | 2024.74 | 146.83 | 2024.88 | 148.82 | 2025.04 | 149.66 | 2025.43 |
| 168.43 | 2030.8 | 176.83 | 2033.06 | 178.69 | 2033.29 | 194.38 | 2036.23 | 197.3 | 2036.77 |
| 198.85 | 2037.13 | 220.97 | 2042.51 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .07 | 96.23 | .055 | 107.7 | .065 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 58.03 | 134.31 | 580.35 | 576.31 | 598.14 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| * E.G. Elev (ft) | * 2010.61 | * Element | * Left OB * | Channel * | Right OB * |
| * Vel Head (ft) | * 0.31 | * Wt. n-Val. | * * | 0.064 * | * |
| * W.S. Elev (ft) | * 2010.30 | * Reach Len. (ft) | * 580.35 * | 576.31 * | 598.14 * |
| * Crit W.S. (ft) | * 2009.11 | * Flow Area (sq ft) | * * | 95.50 * | * |
| * E.G. Slope (ft/ft) | *0.011029 | * Area (sq ft) | * * | 95.50 * | * |
| * Q Total (cfs) | * 424.00 | * Flow (cfs) | * * | 424.00 * | * |
| * Top Width (ft) | * 37.41 | * Top Width (ft) | * * | 37.41 * | * |
| * Vel Total (ft/s) | * 4.44 | * Avg. Vel. (ft/s) | * * | 4.44 * | * |
| * Max Chl Dpth (ft) | * 3.99 | * Hydr. Depth (ft) | * * | 2.55 * | * |
| * Conv. Total (cfs) | * 4037.4 | * Conv. (cfs) | * * | 4037.4 * | * |
| * Length Wtd. (ft) | * 576.31 | * Wetted Per. (ft) | * * | 38.93 * | * |
| * Min Ch El (ft) | * 2006.31 | * Shear (lb/sq ft) | * * | 1.69 * | * |
| * Alpha | * 1.00 | * Stream Power (lb/ft s) | * * | 7.50 * | * |
| * Frctn Loss (ft) | * 11.92 | * Cum Volume (acre-ft) | * * | 2.12 * | * |
| * C & E Loss (ft) | * 0.06 | * Cum SA (acres) | * * | 1.06 * | * |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| * | * Pos | * Left Sta (ft) | * Right Sta (ft) | * Flow (cfs) | * Area (sq ft) | * W.P. (ft) | * Percent Conv | * Hydr Depth(ft) | * Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| * 1 | * Chan | * 77.10 | * 96.17 | * 48.15 | * 19.50 | * 13.46 | * 11.36 | * 1.48 | * 2.47 |
| * 2 | * Chan | * 96.17 | * 115.24 | * 352.04 | * 67.05 | * 19.30 | * 83.03 | * 3.52 | * 5.25 |
| * 3 | * Chan | * 115.24 | * 134.31 | * 23.81 | * 8.95 | * 6.17 | * 5.62 | * 1.72 | * 2.66 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Cave Creek
REACH: Tributary 3 RS: 0.19

INPUT
Description: 989.40
Station Elevation Data num= 33

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2009.85 | .68 | 2009.76 | 3.86 | 2009.1 | 9.85 | 2007.95 | 11.5 | 2007.61 |
| 33.94 | 2003.1 | 44.94 | 2000.44 | 49.91 | 2000.3 | 68.41 | 1999.84 | 68.67 | 1999.82 |
| 69.6 | 1999.77 | 78.73 | 1999.21 | 89.81 | 1998.63 | 91.19 | 1998.55 | 92.12 | 1998.49 |
| 94.79 | 1997.93 | 106.48 | 1995.5 | 110.12 | 1995.39 | 112.78 | 1995.31 | 115.18 | 1995.22 |
| 117.18 | 1995.31 | 120.25 | 1995.37 | 121.73 | 1995.4 | 131.13 | 1998.72 | 138.65 | 2001.31 |
| 145.4 | 2003.7 | 154.98 | 2006.93 | 155.4 | 2007.07 | 158.97 | 2008.27 | 161.38 | 2009.08 |
| 172.75 | 2013.08 | 174.2 | 2013.36 | 216.35 | 2021.52 | | | | |

Manning's n Values num= 4

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|
| 0 | .065 | 110.12 | .062 | 120.25 | .065 | 158.97 | .065 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 44.94 | 172.75 | 137.04 | 179.62 | 213.09 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1998.62 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.88 | Wt. n-Val. | | 0.064 | |
| W.S. Elev (ft) | 1997.75 | Reach Len. (ft) | 137.04 | 179.62 | 213.09 |
| Crit W.S. (ft) | 1997.75 | Flow Area (sq ft) | | 56.42 | |
| E.G. Slope (ft/ft) | 0.052072 | Area (sq ft) | | 56.42 | |
| Q Total (cfs) | 424.00 | Flow (cfs) | | 424.00 | |
| Top Width (ft) | 32.69 | Top Width (ft) | | 32.69 | |
| Vel Total (ft/s) | 7.51 | Avg. Vel. (ft/s) | | 7.51 | |
| Max Chl Dpth (ft) | 2.52 | Hydr. Depth (ft) | | 1.73 | |
| Conv. Total (cfs) | 1858.1 | Conv. (cfs) | | 1858.1 | |
| Length Wtd. (ft) | 179.62 | Wetted Per. (ft) | | 33.33 | |
| Min Ch El (ft) | 1995.22 | Shear (lb/sq ft) | | 5.50 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 41.36 | |
| Frctn Loss (ft) | 7.41 | Cum Volume (acre-ft) | | 1.12 | |
| C & E Loss (ft) | 0.06 | Cum SA (acres) | | 0.60 | |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 76.89 | 108.85 | 102.58 | 17.51 | 13.39 | 24.19 | 1.33 | 5.86 |
| 2 | Chan | 108.85 | 140.80 | 321.42 | 38.91 | 19.93 | 75.81 | 1.99 | 8.26 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Cave Creek
REACH: Tributary 3 RS: 0.15

INPUT
Description: 809.78
Station Elevation Data num= 50

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2009.2 | 4.96 | 2008.92 | 6.6 | 2008.92 | 8.31 | 2008.88 | 8.38 | 2008.87 |
| 13.88 | 2007.76 | 14.1 | 2007.72 | 16.95 | 2007.61 | 20.39 | 2007.42 | 20.77 | 2007.37 |
| 25.94 | 2006.07 | 26.15 | 2005.97 | 30.41 | 2005.06 | 31.15 | 2004.87 | 33.01 | 2004.29 |
| 35.03 | 2003.72 | 36.3 | 2003.3 | 36.42 | 2003.27 | 41.04 | 2000.77 | 44.25 | 1999.94 |
| 45.19 | 1999.64 | 49.54 | 1997.21 | 50.63 | 1996.99 | 51.15 | 1996.89 | 54.88 | 1996.36 |
| 56.9 | 1995.33 | 60.03 | 1993.99 | 61.92 | 1993.19 | 64.89 | 1992.17 | 64.97 | 1992.04 |
| 76.37 | 1987.29 | 78.74 | 1986.39 | 79.96 | 1986.23 | 80.05 | 1986.22 | 85.04 | 1985.74 |
| 90.05 | 1986.73 | 94.17 | 1987.55 | 99.25 | 1988.61 | 99.85 | 1988.7 | 101.34 | 1988.93 |
| 121.32 | 1992.06 | 124.17 | 1992.52 | 125.16 | 1992.67 | 126.5 | 1992.9 | 145.04 | 1997.27 |
| 146.54 | 1997.36 | 182.69 | 2003.17 | 188.79 | 2004.21 | 198.49 | 2005.94 | 207.59 | 2007.64 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .065 | 80.05 | .062 | 90.05 | .065 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 54.88 | 145.04 | 590.11 | 599.8 | 615.27 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1990.01 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.67 | Wt. n-Val. | | 0.064 | |
| W.S. Elev (ft) | 1989.34 | Reach Len. (ft) | 590.11 | 599.80 | 615.27 |
| Crit W.S. (ft) | 1989.03 | Flow Area (sq ft) | | 64.50 | |
| E.G. Slope (ft/ft) | 0.033527 | Area (sq ft) | | 64.50 | |
| Q Total (cfs) | 424.00 | Flow (cfs) | | 424.00 | |
| Top Width (ft) | 32.52 | Top Width (ft) | | 32.52 | |
| Vel Total (ft/s) | 6.57 | Avg. Vel. (ft/s) | | 6.57 | |
| Max Chl Dpth (ft) | 3.60 | Hydr. Depth (ft) | | 1.98 | |
| Conv. Total (cfs) | 2315.6 | Conv. (cfs) | | 2315.6 | |
| Length Wtd. (ft) | 599.80 | Wetted Per. (ft) | | 33.47 | |

| | | | | | |
|---|---|---|---|---|---|
| Min Ch El (ft) | 1985.74 | Shear (lb/sq ft) | | 4.03 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 26.51 | |
| Frctn Loss (ft) | 20.58 | Cum Volume (acre-ft) | | 0.87 | |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | | 0.46 | |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 54.88 | 77.42 | 29.02 | 7.41 | 6.46 | 6.85 | 1.24 | 3.92 |
| 2 | Chan | 77.42 | 99.96 | 392.93 | 55.84 | 22.96 | 92.67 | 2.48 | 7.04 |
| 3 | Chan | 99.96 | 122.50 | 2.05 | 1.25 | 4.05 | 0.48 | 0.31 | 1.63 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Cave Creek
REACH: Tributary 3 RS: 0.04

INPUT
Description: 209.98 LIMIT OF STUDY
Station Elevation Data num= 119

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2002.79 | 11.18 | 2001.49 | 12.71 | 2001.25 | 16.44 | 2001.06 | 20.03 | 2000.93 |
| 21.78 | 2000.94 | 24.21 | 2000.97 | 27.21 | 2000.09 | 29.15 | 2000.11 | 33.27 | 1998.52 |
| 38.02 | 1997.68 | 39.68 | 1997.47 | 43.85 | 1996.44 | 48.28 | 1995.64 | 48.92 | 1995.5 |
| 53.92 | 1994.43 | 57.11 | 1993.68 | 58.04 | 1993.43 | 60.65 | 1993.12 | 61.49 | 1992.96 |
| 66.07 | 1992.06 | 68.91 | 1991.35 | 70 | 1991.08 | 74.18 | 1989.85 | 75.13 | 1989.74 |
| 78.87 | 1988.45 | 80.23 | 1988.3 | 82.43 | 1987.58 | 83.84 | 1987.09 | 87.24 | 1986.64 |
| 89.22 | 1986.09 | 92.43 | 1984.96 | 94.75 | 1984.52 | 97.96 | 1983.83 | 98.29 | 1983.74 |
| 103.81 | 1981.89 | 106.12 | 1981.54 | 108.96 | 1981.09 | 113.83 | 1980.04 | 114.59 | 1979.83 |
| 117.96 | 1980.05 | 118.77 | 1980.1 | 121.71 | 1980.29 | 122.52 | 1980.07 | 127.08 | 1978.18 |
| 131.35 | 1976.4 | 131.99 | 1976.31 | 133.49 | 1975.62 | 141.69 | 1973.82 | 145.13 | 1972.98 |
| 147.27 | 1972.61 | 149.77 | 1972.26 | 152.36 | 1971.45 | 155.58 | 1971.11 | 156.81 | 1971.07 |
| 157.25 | 1971.08 | 160.39 | 1970.83 | 165.52 | 1970.12 | 166.58 | 1969.93 | 166.86 | 1969.84 |
| 170.68 | 1969.56 | 174.15 | 1968.99 | 175.75 | 1968.39 | 176.5 | 1968.25 | 178.64 | 1967.48 |
| 187.17 | 1966.44 | 188.62 | 1966.26 | 193.64 | 1965.65 | 194.49 | 1965.76 | 198.65 | 1966.43 |
| 201.42 | 1966.88 | 204.72 | 1967.39 | 204.93 | 1967.45 | 204.98 | 1967.46 | 205.13 | 1967.5 |
| 217.24 | 1970.5 | 222.11 | 1971.75 | 231.91 | 1972.83 | 233.57 | 1973.01 | 238 | 1973.01 |
| 240.3 | 1973.08 | 241.92 | 1973.08 | 246.21 | 1973.06 | 247.47 | 1973.08 | 252.65 | 1972.93 |
| 257.85 | 1972.98 | 258.89 | 1972.98 | 263.12 | 1973.04 | 267.9 | 1972.92 | 269.37 | 1972.96 |
| 269.98 | 1972.96 | 270.49 | 1972.97 | 271.32 | 1973 | 274.04 | 1973.19 | 276.12 | 1973.37 |
| 278.46 | 1973.56 | 279.54 | 1973.76 | 291.78 | 1977.33 | 293.04 | 1977.7 | 297.19 | 1978.91 |
| 297.55 | 1979.03 | 297.67 | 1979.03 | 301.68 | 1979.2 | 306.16 | 1980.69 | 313.45 | 1983.01 |
| 315.48 | 1983.52 | 315.68 | 1983.57 | 320.54 | 1984.74 | 328.63 | 1986.56 | 331.2 | 1987.17 |
| 332.46 | 1987.46 | 340.16 | 1989.28 | 341.33 | 1989.59 | 344.67 | 1990.35 | 352.1 | 1991.97 |
| 358.13 | 1992.69 | 361 | 1993.01 | 362.3 | 1993.14 | 363.5 | 1993.2 | | |

Manning's n Values num= 5

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|---|---|
| 0 | .06 | 127.08 | .058 | 188.62 | .059 | 198.65 | .058 | 291.78 | .06 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 121.71 | 222.11 | 0 | 0 | 0 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 1969.43 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.74 | Wt. n-Val. | | 0.058 | |
| W.S. Elev (ft) | 1968.69 | Reach Len. (ft) | | | |
| Crit W.S. (ft) | 1968.58 | Flow Area (sq ft) | | 61.59 | |
| E.G. Slope (ft/ft) | 0.035126 | Area (sq ft) | | 61.59 | |
| Q Total (cfs) | 424.00 | Flow (cfs) | | 424.00 | |
| Top Width (ft) | 35.00 | Top Width (ft) | | 35.00 | |
| Vel Total (ft/s) | 6.88 | Avg. Vel. (ft/s) | | 6.88 | |
| Max Chl Dpth (ft) | 3.04 | Hydr. Depth (ft) | | 1.76 | |
| Conv. Total (cfs) | 2262.3 | Conv. (cfs) | | 2262.3 | |
| Length Wtd. (ft) | | Wetted Per. (ft) | | 35.61 | |
| Min Ch El (ft) | 1965.65 | Shear (lb/sq ft) | | 3.79 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 26.11 | |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | | | |
| C & E Loss (ft) | | Cum SA (acres) | | | |

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 171.91 | 197.01 | 319.59 | 43.50 | 22.42 | 75.37 | 1.97 | 7.35 |
| 2 | Chan | 197.01 | 222.11 | 104.41 | 18.09 | 13.19 | 24.63 | 1.40 | 5.77 |

Note: Manning's n values were composited to a single value in the main channel.

SUMMARY OF MANNING'S N VALUES

River:Cave Creek

| Reach | River Sta. | n1 | n2 | n3 | n4 | n5 |
|---|---|---|---|---|---|---|

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| *Tributary 3 | * 0.49 | * .058* | .051* | .058* | * | * | * |
| *Tributary 3 | * 0.36 | * .06* | .06* | .065* | * | * | * |
| *Tributary 3 | * 0.26 | * .07* | .055* | .065* | * | * | * |
| *Tributary 3 | * 0.19 | * .065* | .062* | .065* | .065* | * | * |
| *Tributary 3 | * 0.15 | * .065* | .062* | .065* | * | * | * |
| *Tributary 3 | * 0.04 | * .06* | .058* | .059* | .058* | .06* | |

SUMMARY OF REACH LENGTHS

River: Cave Creek

| * Reach | * River Sta. | * Left | * Channel | * Right | * |
|---|---|---|---|---|---|
| *Tributary 3 | * 0.49 | * 649.86* | 714.55* | 863.54* | |
| *Tributary 3 | * 0.36 | * 497.69* | 510.87* | 510.43* | |
| *Tributary 3 | * 0.26 | * 580.35* | 576.31* | 598.14* | |
| *Tributary 3 | * 0.19 | * 137.04* | 179.62* | 213.09* | |
| *Tributary 3 | * 0.15 | * 590.11* | 599.8* | 615.27* | |
| *Tributary 3 | * 0.04 | * 0* | 0* | 0* | |

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Cave Creek

| * Reach | * River Sta. | * Contr. | * Expan. | * |
|---|---|---|---|---|
| *Tributary 3 | * 0.49 | * .1* | .3* | |
| *Tributary 3 | * 0.36 | * .1* | .3* | |
| *Tributary 3 | * 0.26 | * .1* | .3* | |
| *Tributary 3 | * 0.19 | * .1* | .3* | |
| *Tributary 3 | * 0.15 | * .1* | .3* | |
| *Tributary 3 | * 0.04 | * .1* | .3* | |

Profile Output Table - Standard Table 1

| * Reach | * River Sta | * Profile | * Q Total | * Min Ch El | * W.S. Elev | * Crit W.S. | * E.G. Elev | * E.G. Slope | * Vel Chnl | * Flow Area | * Top Width | * Froude # Chl | * |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | * | * | * (cfs) | * (ft) | * (ft) | * (ft) | * (ft) | * (ft/ft) | * (ft/s) | * (sq ft) | * (ft) | * | |
| * Tributary 3 | * 0.49 | * PF 1 | * 358.00 | * 2042.25 | * 2045.82 | * 2045.34 | * 2046.31 | * 0.021637 | * 5.59 | * 64.04 | * 36.35 | * 0.74 | * |
| * Tributary 3 | * 0.36 | * PF 1 | * 358.00 | * 2019.97 | * 2023.28 | * 2023.28 | * 2024.19 | * 0.047670 | * 7.63 | * 46.91 | * 26.04 | * 1.00 | * |
| * Tributary 3 | * 0.26 | * PF 1 | * 424.00 | * 2006.31 | * 2010.30 | * 2009.11 | * 2010.61 | * 0.011029 | * 4.44 | * 95.50 | * 37.41 | * 0.49 | * |
| * Tributary 3 | * 0.19 | * PF 1 | * 424.00 | * 1995.22 | * 1997.75 | * 1997.75 | * 1998.62 | * 0.052072 | * 7.51 | * 56.42 | * 32.69 | * 1.01 | * |
| * Tributary 3 | * 0.15 | * PF 1 | * 424.00 | * 1985.74 | * 1989.34 | * 1989.03 | * 1990.01 | * 0.033527 | * 6.57 | * 64.50 | * 32.52 | * 0.82 | * |
| * Tributary 3 | * 0.04 | * PF 1 | * 424.00 | * 1965.65 | * 1968.69 | * 1968.58 | * 1969.43 | * 0.035126 | * 6.88 | * 61.59 | * 35.00 | * 0.91 | * |

# Floodplain Redelineation Study of Ocotillo Wash and Tributary-2, and Floodplain Delineation Study of Cave Creek West Tributaries 2 and 3 within Cave Creek, Arizona

The printed HEC-RAS report contained here-in, reflects the "With Blocked Obstruction" condition prepared within the model "OW_OWT2_FW.prj".

Refer to the data disk located in the front pocket of **Volume** 1, for a copy of the "Without Blocked Obstruction" HEC-RAS model "NO_BLKOBS_OW.prj".

```
                    HEC-RAS Version 3.1.3 May 2005
                     U.S. Army Corp of Engineers
                    Hydrologic Engineering Center
                          609 Second Street
                          Davis, California

          X     X  XXXXXX    XXXX        XXXX       XX      XXXX
          X     X  X        X    X       X   X     X  X    X
          X     X  X        X            X   X    X    X   X
          XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
          X     X  X        X            X  X     X    X        X
          X     X  X        X    X       X   X    X    X        X
          X     X  XXXXXX    XXXX        X    X   X    X   XXXXX
```

**********

PROJECT DATA
Project Title: OW_OWT2_FW
Project File : OW_OWT2_FW.prj
Run Date and Time: 4/20/2009 2:26:52 PM

Project in English units

Project Description:
Ocotillo Wash and Tributary-2 - Zone AE Floodplain Redelineation Study (FRDS)

Floodplain Redelineation Study of Ocotillo Wash and Tributary-2 and
Floodplain Delineation Study of Cave Creek Tributaries 2 & 3.
Prepared for the Flood Control District of Maricopa County
Contract Number: FCD 2006C024, Work Assignment No. 2
Project Control Number: 690.02.20
Project Manager: Richard Harris, P.E., CFM - rph@mail.maricopa.gov

Model created in HEC-RAS Version 3.1.3
Model Pre and Post Processing Prepared in HEC-GeoRAS Version 9.2.92
Prepared by:
HDR Engineering, Inc.
3200 East Camelback Road, Suite #350
Phoenix, Arizona 85018
Date Prepared: March 11, 2009
Authors: Linda Potter, P.E., CFM - lindapotter@hdrinc.com
Mark Fountain, CFM - mark.fountain@hdrinc.com

**********

Topo Mapping prepared by Cooper Aerial Surveys Company
Flight Dates: November 2003 and December 2004.
Prepared under contracts FCD2003C048, WA#4 and FCD2005C030
Ground Control/Elevation Reference Marks for horizontal and vertical survey control
are based on the North American Datum of 1983 (NAD83) and North American Vertical
Datum of 1988 (NAVD88) respectively. Survey data was presented in State Plane
Coordinates, Arizona Central Zone 0202.
Data collected by HDR from the FCDMC under FCD2004C072.

Aerial Photography prepared by The Sanborn Mapping Company Inc.
Flight Dates October - December 2008
Data collected by HDR from the FCDMC on February 20, 2009

**********

Field Reconnaissance completed by HDR on August 27, 2008.

**********
Hydrology prepared by HDR Engineering Inc. as part of the TDN submittal for the
Floodplain Redelineation Study of Ocotillo Wash and Tributary-2 and
Floodplain Delineation Study of Cave Creek Tributaries 2 & 3.
Date: October 21, 2008
Contract FCD 2006C024, Work Assignment No. 2
HDR Project # 91427

Discharges utilized here-in are primarily based on the effective FIS data
(September 20, 2005), prepared under a previous study by Harris-Toups and Associates
(January 1979).
Discharges from the effective HEC-2 model have been utilized here-in.

The Harris-Toups study was prepared for the U.S. Department of Housing and Urban
Development, Federal Insurance Administration. The reference number provided upon the
report cover reads "80.1-00-8-01/79". No FCDMC contract number was provided with
respect to this study.

**********

The directive to redelineate Ocotillo Wash (RM 0.008 - RM 0.076), the Ocotillo Wash
Split (RM 0.50 - RM 0.077) and Ocotillo Wash Tributary-2 (RM 0.028 - RM 0.154) below
the confluence with the Ocotillo Wash Split as floodplain equal floodway (FP=FW) was
provided by Wayne Anderson from the Town of Cave Creek and Richard Harris from the
Flood Control District of Maricopa County. This directive came as a result of
reviewing the preliminary redelineation results for the reaches respectively.

In addition, the directive was given to model Ocotillo Wash Tributary-2 (RM 0.058
- RM 1.000), above the confluence with the Ocotillo Wash Split as floodplain and
floodway (FP & FW).

Both directives were provided in support of tying directly into the adjacent effective
delineations and zones and made during a monthly progress meeting held on December 23, 2008.

The effective Ocotillo Wash flood zone utilizes FP=FW, while Ocotillo Wash Tributary-2
utilizes both FP & FW for the detailed delineations.

**********

Modeling has been prepared in support of the Zone AE Floodplain Redelineation.

Modeling Assumptions: Low lying islands identified within the flood limits with less than one and a half foot of vertical elevation difference between the water surface elevation and the adjacent ground elevation were included into the final flood limits.

The downstream boundary condition of Profile 1 has been prepared to tie into the existing Cave Creek Flood Profile at river mile 37.911 utilizing a normal depth slope of 0.0183 ft/ft for the Ocotillo Wash floodplain redelineation.

The WSE within the Cave Creek Flood Profile is identified as 2038.29 {NGVD 29} per FIS dated Sep 30, 2005. This is located between the existing cross sections of "ER" and "EQ". Refer to profile panel 1018P, and refer to FIRM panel # 04013C0805H.

The effective Cave Creek Flood Profile WSE will be shown as backwater on the revised flood profiles on the new Ocotillo Wash Flood Profiles.

Refer to VertCon output for additional details regarding the elevation conversion.

**********

HEC-RAS River and Reach naming relationships to the Watercourse and Wash Naming:

River/Watercourse:
Ocotillo Wash 1 = Ocotillo Wash
Ocotillo Wash 2 = Ocotillo Wash
Ocotillo Wash 3 = Ocotillo Wash
Ocotillo Wash 4 = Ocotillo Wash
Ocotillo Wash 5 = Ocotillo Wash

Reach/Wash Naming:
Tributary-2.1 = Tributary-2
Tributary-2.2 = Tributary-2
OW Split = OW Split
OWMS1 = Ocotillo Wash
OWMS2 = Ocotillo Wash

**********

DESIGNER NOTES:

*-*-*-MASTER HYDRAULIC MODEL FOR OCOTILLO WASH
AND TRIB 2: 03-11-2009
*-*-*-PREPARED FOR OCOTILLO WASH AND OWTRIB2 DETAILED FW
*-*-*-CONTAINS ADDITIONAL CROSS SECTIONS ADDED TO BASE
*-*-*-THIS MODEL HAS BEEN PREPARED UTILIZING RIVER MILES
*-*-*-CONTAINES HARD CODED Q'S FOR STEADY FLOW DATA
*-*-*-LATERAL WEIR CONDITIONS ADJUSTED
*-*-*-ENCROACHMENT METHODS 4 AND 1 ARE UTILIZED WITHIN
THIS MODEL
*-*-*-MODEL RIVER/REACHES ADJUSTED FOR REVIEW COMMENTS

**********

PLAN DATA

Plan Title: OW_OWT2_FW_M4
Plan File : C:\GEORAS\91427\Hydraulic\RAS_Model\OW2\RM\FW\OW_OWT2_FW_03052009\Deliverable04222009\OW_OWT2_FW.p02

Geometry Title: OW_OWT2_FW_M4
Geometry File : C:\GEORAS\91427\Hydraulic\RAS_Model\OW2\RM\FW\OW_OWT2_FW_03052009\Deliverable04222009\OW_OWT2_FW.g01

Flow Title : OW_OWT2_FW_M4
Flow File : C:\GEORAS\91427\Hydraulic\RAS_Model\OW2\RM\FW\OW_OWT2_FW_03052009\Deliverable04222009\OW_OWT2_FW.f02

Plan Summary Information:
Number of: Cross Sections = 246 Multiple Openings = 0
Culverts = 3 Inline Structures = 3
Bridges = 0 Lateral Structures = 3

Computational Information
Water surface calculation tolerance = 0.01
Critical depth calculation tolerance = 0.01
Maximum number of iterations = 20
Maximum difference tolerance = 0.3
Flow tolerance factor = 0.001

Computation Options
Critical depth computed only where necessary
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Subcritical Flow

Encroachment Data
Equal Conveyance = True
Left Offset = 0
Right Offset = 0

River = Ocotillo Wash 1 Reach = Tributary-2.1

| RS | Profile | Method | Value1 | Value2 |
|---|---|---|---|---|
| 1.00045 | PF 2 | 4 | .65 | |
| 0.99742 | PF 2 | 4 | .25 | |
| 0.99357 | PF 2 | 4 | .35 | |
| 0.98932 | PF 2 | 4 | .65 | |
| 0.98427 | PF 2 | 4 | .5 | |
| 0.97998 | PF 2 | 4 | 1 | |
| 0.97683 | PF 2 | 4 | 1 | |
| 0.97180 | PF 2 | 4 | 1 | |
| 0.96791 | PF 2 | 4 | 1 | |
| 0.96505 | PF 2 | 4 | 1 | |
| 0.96148 | PF 2 | 4 | 1 | |
| 0.95750 | PF 2 | 4 | 1 | |
| 0.95264 | PF 2 | 4 | 1 | |
| 0.94727 | PF 2 | 4 | 1 | |
| 0.94451 | PF 2 | 4 | 1 | |
| 0.94232 | PF 2 | 4 | 1 | |
| 0.93999 | PF 2 | 4 | 1 | |

| | | | | |
|---|---|---|---|---|
| 0.93325 | PF | 2 | 4 | 1 |
| 0.92910 | PF | 2 | 4 | 1 |
| 0.92475 | PF | 2 | 4 | 1 |
| 0.91774 | PF | 2 | 4 | .5 |
| 0.91024 | PF | 2 | 4 | .35 |
| 0.90213 | PF | 2 | 4 | 1 |
| 0.89706 | PF | 2 | 4 | 1 |
| 0.89309 | PF | 2 | 4 | .35 |
| 0.88715 | PF | 2 | 4 | .25 |
| 0.88288 | PF | 2 | 4 | 1 |
| 0.87849 | PF | 2 | 4 | 1 |
| 0.87485 | PF | 2 | 4 | .1 |
| 0.87052 | PF | 2 | 4 | .29 |
| 0.86746 | PF | 2 | 4 | 1 |
| 0.85876 | PF | 2 | 4 | 1 |
| 0.85249 | PF | 2 | 4 | 1 |
| 0.84649 | PF | 2 | 4 | 1 |
| 0.83957 | PF | 2 | 4 | 1 |
| 0.83091 | PF | 2 | 4 | 1 |
| 0.82372 | PF | 2 | 4 | 1 |
| 0.81567 | PF | 2 | 4 | 1 |
| 0.80861 | PF | 2 | 4 | 1 |
| 0.80224 | PF | 2 | 4 | 1 |
| 0.79662 | PF | 2 | 4 | 1 |
| 0.79116 | PF | 2 | 4 | 1 |
| 0.78443 | PF | 2 | 4 | 1 |
| 0.77855 | PF | 2 | 4 | 1 |
| 0.77184 | PF | 2 | 4 | 1 |
| 0.76182 | PF | 2 | 4 | 1 |
| 0.75751 | PF | 2 | 4 | 1 |
| 0.75270 | PF | 2 | 4 | 1 |
| 0.74863 | PF | 2 | 4 | 1 |
| 0.74402 | PF | 2 | 4 | 1 |
| 0.73982 | PF | 2 | 4 | 1 |
| 0.73537 | PF | 2 | 4 | 1 |
| 0.73227 | PF | 2 | 4 | 1 |
| 0.72875 | PF | 2 | 4 | 1 |
| 0.72704 | PF | 2 | 4 | 1 |
| 0.72322 | PF | 2 | 4 | 1 |
| 0.71808 | PF | 2 | 4 | 1 |
| 0.71174 | PF | 2 | 4 | .5 |
| 0.70813 | PF | 2 | 4 | .35 |
| 0.70419 | PF | 2 | 4 | .5 |
| 0.70129 | PF | 2 | 4 | 1 |
| 0.69806 | PF | 2 | 4 | 1 |
| 0.69661 | PF | 2 | 4 | 1 |
| 0.69212 | PF | 2 | 4 | 1 |
| 0.68880 | PF | 2 | 4 | 1 |
| 0.68800 | PF | 2 | 4 | 1 |
| 0.68404 | PF | 2 | 4 | 1 |
| 0.67717 | PF | 2 | 4 | 1 |
| 0.67671 | PF | 2 | 4 | 1 |
| 0.66963 | PF | 2 | 4 | 1 |
| 0.66458 | PF | 2 | 4 | 1 |
| 0.66013 | PF | 2 | 4 | 1 |
| 0.65574 | PF | 2 | 4 | 1 |
| 0.65150 | PF | 2 | 4 | 1 |
| 0.64754 | PF | 2 | 4 | 1 |
| 0.64472 | PF | 2 | 4 | .55 |
| 0.64111 | PF | 2 | 4 | .25 |
| 0.63638 | PF | 2 | 4 | .25 |
| 0.63432 | PF | 2 | 4 | .1 |
| 0.63270 | PF | 2 | 4 | .35 |
| 0.62989 | PF | 2 | 4 | 1 |
| 0.62721 | PF | 2 | 4 | 1 |
| 0.62332 | PF | 2 | 4 | 1 |
| 0.61834 | PF | 2 | 4 | 1 |
| 0.61323 | PF | 2 | 4 | 1 |
| 0.60912 | PF | 2 | 4 | 1 |
| 0.60419 | PF | 2 | 4 | 1 |
| 0.59771 | PF | 2 | 4 | 1 |
| 0.59247 | PF | 2 | 4 | 1 |
| 0.58805 | PF | 2 | 4 | 1 |
| 0.58365 | PF | 2 | 4 | 1 |
| 0.57998 | PF | 2 | 4 | 1 |
| 0.57606 | PF | 2 | 4 | 1 |
| 0.57206 | PF | 2 | 4 | 1 |
| 0.56705 | PF | 2 | 4 | 1 |
| 0.56110 | PF | 2 | 4 | 1 |
| 0.55629 | PF | 2 | 4 | 1 |
| 0.55157 | PF | 2 | 4 | 1 |
| 0.54526 | PF | 2 | 4 | 1 |
| 0.53814 | PF | 2 | 4 | 1 |
| 0.53109 | PF | 2 | 4 | 1 |
| 0.52363 | PF | 2 | 4 | .5 |
| 0.51582 | PF | 2 | 4 | .5 |
| 0.50951 | PF | 2 | 4 | .5 |
| 0.50585 | PF | 2 | 4 | .85 |
| 0.50158 | PF | 2 | 4 | .7 |
| 0.49706 | PF | 2 | 4 | 1 |
| 0.49372 | PF | 2 | 4 | 1 |
| 0.48992 | PF | 2 | 4 | 1 |
| 0.48713 | PF | 2 | 4 | 1 |
| 0.48294 | PF | 2 | 4 | 1 |
| 0.47933 | PF | 2 | 4 | 1 |
| 0.47659 | PF | 2 | 4 | 1 |
| 0.47214 | PF | 2 | 4 | 1 |
| 0.46798 | PF | 2 | 4 | 1 |
| 0.46248 | PF | 2 | 4 | 1 |
| 0.45679 | PF | 2 | 4 | 1 |
| 0.45211 | PF | 2 | 4 | 1 |
| 0.44542 | PF | 2 | 4 | 1 |
| 0.44157 | PF | 2 | 4 | 1 |
| 0.43466 | PF | 2 | 4 | 1 |
| 0.42887 | PF | 2 | 4 | 1 |
| 0.42419 | PF | 2 | 4 | 1 |

| | | | | |
|---|---|---|---|---|
| 0.42020 | PF 2 | 4 | 1 |
| 0.41686 | PF 2 | 4 | 1 |
| 0.41149 | PF 2 | 4 | 1 |
| 0.40709 | PF 2 | 4 | 1 |
| 0.40093 | PF 2 | 4 | 1 |
| 0.39446 | PF 2 | 4 | 1 |
| 0.38991 | PF 2 | 4 | 1 |
| 0.38436 | PF 2 | 4 | 1 |
| 0.37788 | PF 2 | 4 | 1 |
| 0.37417 | PF 2 | 4 | 1 |
| 0.36875 | PF 2 | 4 | 1 |
| 0.36365 | PF 2 | 4 | 1 |
| 0.35963 | PF 2 | 4 | 1 |
| 0.35631 | PF 2 | 4 | 1 |
| 0.35325 | PF 2 | 4 | .5 |
| 0.34893 | PF 2 | 4 | .2 |
| 0.34588 | PF 2 | 4 | .5 |
| 0.34303 | PF 2 | 4 | .5 |
| 0.33986 | PF 2 | 4 | .05 |
| 0.33232 | PF 2 | 4 | .7 |
| 0.31529 | PF 2 | 4 | 1 |
| 0.30808 | PF 2 | 4 | 1 |
| 0.30459 | PF 2 | 4 | 1 |
| 0.30181 | PF 2 | 4 | 1 |
| 0.29712 | PF 2 | 4 | 1 |
| 0.29046 | PF 2 | 4 | 1 |
| 0.28463 | PF 2 | 4 | 1 |
| 0.28060 | PF 2 | 4 | 1 |
| 0.27669 | PF 2 | 4 | .5 |
| 0.27186 | PF 2 | 4 | .5 |
| 0.26729 | PF 2 | 4 | .5 |
| 0.26340 | PF 2 | 4 | .5 |
| 0.25894 | PF 2 | 4 | .5 |
| 0.25330 | PF 2 | 4 | .5 |
| 0.25016 | PF 2 | 4 | .5 |
| 0.24595 | PF 2 | 4 | .5 |
| 0.24329 | PF 2 | 4 | .5 |
| 0.23992 | PF 2 | 4 | .5 |
| 0.23186 | PF 2 | 4 | .7 |
| 0.22859 | PF 2 | 4 | .7 |
| 0.22114 | PF 2 | 4 | .7 |
| 0.21765 | PF 2 | 4 | 1 |
| 0.21461 | PF 2 | 4 | .7 |
| 0.20941 | PF 2 | 4 | 1 |
| 0.20885 | PF 2 | 4 | .7 |
| 0.20714 | PF 2 | 4 | .7 |
| 0.20431 | PF 2 | 4 | .5 |
| 0.20205 | PF 2 | 4 | .7 |
| 0.19955 | PF 2 | 4 | .75 |
| 0.19719 | PF 2 | 4 | .5 |
| 0.19296 | PF 2 | 4 | .5 |
| 0.19051 | PF 2 | 4 | .5 |
| 0.18844 | PF 2 | 4 | .45 |
| 0.18485 | PF 2 | 4 | .7 |
| 0.17337 | PF 2 | 4 | .7 |
| 0.16793 | PF 2 | 4 | .5 |
| 0.16413 | PF 2 | 4 | .5 |
| 0.15690 | PF 2 | 4 | 1 |
| 0.15225 | PF 2 | 4 | 1 |
| 0.14532 | PF 2 | 4 | 1 |
| 0.14374 | PF 2 | 4 | 1 |
| 0.13875 | PF 2 | 4 | .5 |
| 0.13724 | PF 2 | 4 | .5 |
| 0.13462 | PF 2 | 4 | .5 |
| 0.12733 | PF 2 | 4 | .5 |
| 0.11883 | PF 2 | 4 | .25 |
| 0.11472 | PF 2 | 4 | .5 |
| 0.10962 | PF 2 | 4 | 1 |
| 0.10284 | PF 2 | 4 | .6 |
| 0.09693 | PF 2 | 4 | .5 |
| 0.09077 | PF 2 | 4 | .5 |
| 0.08036 | PF 2 | 4 | .75 |
| 0.07210 | PF 2 | 4 | .3 |
| 0.06454 | PF 2 | 4 | .2 |
| 0.05817 | PF 2 | 4 | .1 |
| 0.04814 | PF 2 | 4 | 0 |
| 0.03638 | PF 2 | 4 | 0 |
| 0.02605 | PF 2 | 4 | 0 |

**********

FLOW DATA

Flow Title: OW_OWT2_FW_M4
Flow File : C:\GEORAS\91427\Hydraulic\RAS_Model\OW2\RM\FW\OW_OWT2_FW_03052009\Deliverable04222009\OW_OWT2_FW.f02

Flow Data (cfs)

| River | Reach | RS | PF 1 | PF 2 |
|---|---|---|---|---|
| Ocotillo Wash 1 | Tributary-2.1 | 1.00045 | 260 | 260 |
| Ocotillo Wash 2 | OW Split | 0.07677 | 222 | 222 |
| Ocotillo Wash 3 | Tributary-2.2 | 0.15352 | 482 | 482 |
| Ocotillo Wash 3 | Tributary-2.2 | 0.10059 | 482 | 482 |
| Ocotillo Wash 3 | Tributary-2.2 | 0.04049 | 482 | 482 |
| Ocotillo Wash 3 | Tributary-2.2 | 0.03237 | 488 | 488 |
| Ocotillo Wash 3 | Tributary-2.2 | 0.02833 | 522 | 522 |
| Ocotillo Wash 3 | Tributary-2.2 | 0.02823 | 522 | 522 |
| Ocotillo Wash 4 | OWMS1 | 0.07616 | 4409 | 4409 |
| Ocotillo Wash 4 | OWMS1 | 0.04601 | 4409 | 4409 |
| Ocotillo Wash 4 | OWMS1 | 0.03788 | 4409 | 4409 |
| Ocotillo Wash 4 | OWMS1 | 0.02091 | 4409 | 4409 |
| Ocotillo Wash 5 | OWMS2 | 1.89254 | 4820 | 4820 |
| Ocotillo Wash 5 | OWMS2 | 1.89136 | 4820 | 4820 |
| Ocotillo Wash 5 | OWMS2 | 1.88981 | 4820 | 4820 |
| Ocotillo Wash 5 | OWMS2 | 1.88352 | 4820 | 4820 |

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* Ocotillo Wash 5 OWMS2          1.78861 *          4820          4820 *
* Ocotillo Wash 5 OWMS2          1.71509 *          4820          4820 *
* Ocotillo Wash 5 OWMS2          1.64008 *          4820          4820 *
* Ocotillo Wash 5 OWMS2          1.63454 *          4820          4820 *
* Ocotillo Wash 5 OWMS2          1.63183 *          4820          4820 *
* Ocotillo Wash 5 OWMS2          1.54838 *          4820          4820 *
* Ocotillo Wash 5 OWMS2          1.47363 *          4820          4820 *
* Ocotillo Wash 5 OWMS2          1.41048 *          4820          4820 *
* Ocotillo Wash 5 OWMS2          1.32199 *          5020          5020 *
* Ocotillo Wash 5 OWMS2          1.20785 *          5020          5020 *
* Ocotillo Wash 5 OWMS2          1.14203 *          5020          5020 *
* Ocotillo Wash 5 OWMS2          1.06470 *          5020          5020 *
* Ocotillo Wash 5 OWMS2          0.97907 *          5220          5220 *
* Ocotillo Wash 5 OWMS2          0.91184 *          5220          5220 *
* Ocotillo Wash 5 OWMS2          0.90641 *          5220          5220 *
* Ocotillo Wash 5 OWMS2          0.87183 *          5220          5220 *
* Ocotillo Wash 5 OWMS2          0.81091 *          5220          5220 *
* Ocotillo Wash 5 OWMS2          0.76067 *          5220          5220 *
* Ocotillo Wash 5 OWMS2          0.72626 *          5220          5220 *
* Ocotillo Wash 5 OWMS2          0.64580 *          5220          5220 *
* Ocotillo Wash 5 OWMS2          0.58990 *          5220          5220 *
* Ocotillo Wash 5 OWMS2          0.47442 *          5420          5420 *
* Ocotillo Wash 5 OWMS2          0.38608 *          5420          5420 *
* Ocotillo Wash 5 OWMS2          0.30622 *          5420          5420 *
* Ocotillo Wash 5 OWMS2          0.22095 *          5420          5420 *
* Ocotillo Wash 5 OWMS2          0.17947 *          5420          5420 *
* Ocotillo Wash 5 OWMS2          0.13663 *          5420          5420 *
* Ocotillo Wash 5 OWMS2          0.05120 *          5420          5420 *
* Ocotillo Wash 5 OWMS2          0.00837 *          5420          5420 *
*****************************************************************************

Boundary Conditions
*****************************************************************************************************
* River          Reach          Profile          *          Upstream          Downstream     *
*****************************************************************************************************
* Ocotillo Wash 5 OWMS2          PF 1             *                          Normal S = 0.0183 *
* Ocotillo Wash 5 OWMS2          PF 2             *                          Normal S = 0.0183 *
*****************************************************************************************************

*****************************************************************************

GEOMETRY DATA

Geometry Title: OW_OWT2_FW_M4
Geometry File : C:\GEORAS\91427\Hydraulic\RAS_Model\OW2\RM\FW\OW_OWT2_FW_03052009\Deliverable04222009\OW_OWT2_FW.g01

Reach Connection Table
*****************************************************************************
* River          Reach          *  Upstream Boundary  * Downstream Boundary *
*****************************************************************************
* Ocotillo Wash 1  Tributary-2.1    *                     *   J2              *
* Ocotillo Wash 2  OW Split         *                     *   J2              *
* Ocotillo Wash 3  Tributary-2.2    *   J2                *   J1              *
* Ocotillo Wash 4  OWMS1            *                     *   J1              *
* Ocotillo Wash 5  OWMS2            *   J1                *                   *
*****************************************************************************

JUNCTION INFORMATION

Name: J2
Description: Junction of Tributary-2 and OW Lateral Weir #6
Energy computation Method

    Length across Junction            Tributary
     River          Reach              River          Reach        Length   Angle
Ocotillo Wash 2 OW Split         to Ocotillo Wash 3 Tributary-2.2     263.59
Ocotillo Wash 1 Tributary-2.1    to Ocotillo Wash 3 Tributary-2.2     307.12

Name: J1
Description: Junction of Tributary-2 and OW
Energy computation Method

    Length across Junction            Tributary
     River          Reach              River          Reach        Length   Angle
Ocotillo Wash 4 OWMS1            to Ocotillo Wash 5 OWMS2             110.43
Ocotillo Wash 3 Tributary-2.2    to Ocotillo Wash 5 OWMS2                162

CROSS SECTION


RIVER: Ocotillo Wash 1
REACH: Tributary-2.1      RS: 1.00045

INPUT
Description: LIMIT OF STUDY
Station Elevation Data    num=      53
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*****************************************************************************
       0 2408.41      1.3 2407.96     5.58  2407.8     9.78  2407.6    11.49  2407.6
   12.65 2407.53    18.69 2407.53    22.91 2407.37    27.82 2407.14    29.37 2407.14
   31.27 2406.81    32.76 2406.67     37.1 2406.41    39.88 2406.22     42.3 2406.04
   45.25 2405.79    48.37  2405.6    49.96  2405.5    52.24 2405.35    55.62 2405.12
   58.23 2405.12    62.07 2404.95    62.44 2404.93    64.13 2404.84    66.14 2404.69
   66.31 2404.68       69 2404.75    72.38 2404.75    74.94  2404.9    76.73 2404.97
   77.62  2405.1    77.83 2405.12    80.49 2405.39    81.66 2405.44    83.66 2405.44
   85.67 2405.48    88.08  2405.6    92.27  2405.9     93.2 2405.92    93.67 2405.97
   95.69 2406.16     96.5 2406.16     99.7 2406.53   100.75 2406.58   104.81 2406.57
  105.91 2406.63   110.44 2406.86   110.59 2406.87   129.31 2407.98   130.29 2407.95
  130.74 2407.94   131.41 2407.93   132.41 2407.93

Manning's n Values        num=       3
     Sta    n Val      Sta    n Val      Sta    n Val
*********************************************
       0     .061    62.44     .064    77.83     .066

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
```

```
        52.24   85.67          108.31   108.1  123.22              .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*********************************************************************************************
* E.G. Elev (ft)         * 2407.52  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.06  * Wt. n-Val.              *   0.061  *   0.063  *   0.066  *
* W.S. Elev (ft)         * 2407.46  * Reach Len. (ft)         *  108.31  *  108.10  *  123.22  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)       *   31.83  *   80.99  *   33.24  *
* E.G. Slope (ft/ft)     *0.002779  * Area (sq ft)            *   31.83  *   80.99  *   33.24  *
* Q Total (cfs)          *  260.00  * Flow (cfs)              *   40.84  *  181.04  *   38.12  *
* Top Width (ft)         *  100.13  * Top Width (ft)          *   31.78  *   33.43  *   34.92  *
* Vel Total (ft/s)       *    1.78  * Avg. Vel. (ft/s)        *    1.28  *    2.24  *    1.15  *
* Max Chl Dpth (ft)      *    2.78  * Hydr. Depth (ft)        *    1.00  *    2.42  *    0.95  *
* Conv. Total (cfs)      *  4932.3  * Conv. (cfs)             *   774.8  *  3434.4  *   723.1  *
* Length Wtd. (ft)       *  109.67  * Wetted Per. (ft)        *   31.87  *   33.48  *   34.99  *
* Min Ch El (ft)         * 2404.68  * Shear (lb/sq ft)        *    0.17  *    0.42  *    0.16  *
* Alpha                  *    1.24  * Stream Power (lb/ft s)   *    0.22  *    0.94  *    0.19  *
* Frctn Loss (ft)        *    0.74  * Cum Volume (acre-ft)     *    2.31  *   12.39  *    2.52  *
* C & E Loss (ft)        *    0.04  * Cum SA (acres)           *    2.44  *    5.25  *    2.78  *
*********************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT  Profile #PF 2
*********************************************************************************************
* E.G. Elev (ft)         * 2407.97  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.12  * Wt. n-Val.              *          *   0.063  *          *
* W.S. Elev (ft)         * 2407.85  * Reach Len. (ft)         *  108.31  *  108.10  *  123.22  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)       *          *   93.99  *          *
* E.G. Slope (ft/ft)     *0.004047  * Area (sq ft)            *          *   93.99  *          *
* Q Total (cfs)          *  260.00  * Flow (cfs)              *          *  260.00  *          *
* Top Width (ft)         *   33.43  * Top Width (ft)          *          *   33.43  *          *
* Vel Total (ft/s)       *    2.77  * Avg. Vel. (ft/s)        *          *    2.77  *          *
* Max Chl Dpth (ft)      *    3.17  * Hydr. Depth (ft)        *          *    2.81  *          *
* Conv. Total (cfs)      *  4086.8  * Conv. (cfs)             *          *  4086.8  *          *
* Length Wtd. (ft)       *  108.10  * Wetted Per. (ft)        *          *   38.36  *          *
* Min Ch El (ft)         * 2404.68  * Shear (lb/sq ft)        *          *    0.62  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s)   *          *    1.71  *          *
* Frctn Loss (ft)        *    0.92  * Cum Volume (acre-ft)     *    0.02  *   14.48  *    0.03  *
* C & E Loss (ft)        *    0.04  * Cum SA (acres)           *    0.01  *    5.26  *    0.02  *
*********************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB      * 13.06     * 26.12     *     0.16 *     0.65 *     5.66 *     0.06 *     0.12 *     0.25 *
* 2        * LOB      * 26.12     * 39.18     *     7.93 *     9.33 *    13.11 *     3.05 *     0.71 *     0.85 *
* 3        * LOB      * 39.18     * 52.24     *    32.75 *    21.85 *    13.09 *    12.60 *     1.67 *     1.50 *
* 4        * Chan     * 52.24     * 60.60     *    43.31 *    19.32 *     8.37 *    16.66 *     2.31 *     2.24 *
* 5        * Chan     * 60.60     * 68.96     *    52.22 *    22.11 *     8.37 *    20.09 *     2.65 *     2.36 *
* 6        * Chan     * 68.96     * 77.31     *    51.26 *    22.00 *     8.37 *    19.71 *     2.63 *     2.33 *
* 7        * Chan     * 77.31     * 85.67     *    34.25 *    17.57 *     8.38 *    13.17 *     2.10 *     1.95 *
* 8        * ROB      * 85.67     * 97.36     *    26.45 *    18.92 *    11.72 *    10.17 *     1.62 *     1.40 *
* 9        * ROB      * 97.36     * 109.04    *     9.71 *    10.37 *    11.71 *     3.74 *     0.89 *     0.94 *
* 10       * ROB      * 109.04    * 120.73    *     1.96 *     3.95 *    11.57 *     0.75 *     0.34 *     0.50 *
*****************************************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.

  Profile #PF 2
*****************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan     * 52.24     * 60.60     *    56.76 *    22.57 *    10.87 *    21.83 *     2.70 *     2.52 *
* 2        * Chan     * 60.60     * 68.96     *    79.03 *    25.36 *     8.37 *    30.40 *     3.03 *     3.12 *
* 3        * Chan     * 68.96     * 77.31     *    77.65 *    25.25 *     8.37 *    29.87 *     3.02 *     3.08 *
* 4        * Chan     * 77.31     * 85.67     *    46.55 *    20.82 *    10.75 *    17.90 *     2.49 *     2.24 *
*****************************************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.

CROSS SECTION


RIVER: Ocotillo Wash 1
REACH: Tributary-2.1       RS: 0.99742

INPUT
Description:
Station Elevation Data     num=      26
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
       0 2406.42    1.88 2406.42    5.11  2406.3    7.83 2406.16     9.4 2406.16
   12.76 2406.06   14.66 2406.01   18.45  2405.8   18.82 2405.81   19.09 2405.79
   19.37 2405.77   24.65 2405.33   28.75 2404.94   37.64 2404.08   42.82 2404.44
   44.68 2404.77   45.09 2404.85   49.35 2405.24   54.96 2405.74   62.58 2406.22
   74.56 2407.27   75.71 2407.37   82.91 2407.32    89.3 2407.08   90.17 2407.06
   91.69 2407.15

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
       0    .061   28.75    .064   44.68    .066

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          24.65   49.35             17.43   20.31   19.19             .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*********************************************************************************************
```

| | | | | | | |
|---|---|---|---|---|---|---|
| * E.G. Elev (ft) | * 2406.73 | * Element | * Left OB | * Channel | * Right OB | * |
| * Vel Head (ft) | * 0.50 | * Wt. n-Val. | * 0.061 | * 0.064 | * 0.066 | * |
| * W.S. Elev (ft) | * 2406.24 | * Reach Len. (ft) | * 17.43 | * 20.31 | * 19.19 | * |
| * Crit W.S. (ft) | * 2406.24 | * Flow Area (sq ft) | * 6.25 | * 38.78 | * 6.13 | * |
| * E.G. Slope (ft/ft) | *0.034733 | * Area (sq ft) | * 6.25 | * 38.78 | * 6.13 | * |
| * Q Total (cfs) | * 260.00 | * Flow (cfs) | * 13.87 | * 230.89 | * 15.24 | * |
| * Top Width (ft) | * 56.40 | * Top Width (ft) | * 18.29 | * 24.70 | * 13.41 | * |
| * Vel Total (ft/s) | * 5.08 | * Avg. Vel. (ft/s) | * 2.22 | * 5.95 | * 2.49 | * |
| * Max Chl Dpth (ft) | * 2.16 | * Hydr. Depth (ft) | * 0.34 | * 1.57 | * 0.46 | * |
| * Conv. Total (cfs) | * 1395.1 | * Conv. (cfs) | * 74.4 | * 1238.9 | * 81.8 | * |
| * Length Wtd. (ft) | * 20.02 | * Wetted Per. (ft) | * 18.32 | * 24.83 | * 13.45 | * |
| * Min Ch El (ft) | * 2404.08 | * Shear (lb/sq ft) | * 0.74 | * 3.39 | * 0.99 | * |
| * Alpha | * 1.24 | * Stream Power (lb/ft s) | * 1.64 | * 20.17 | * 2.46 | * |
| * Frctn Loss (ft) | * 0.75 | * Cum Volume (acre-ft) | * 2.26 | * 12.24 | * 2.47 | * |
| * C & E Loss (ft) | * 0.00 | * Cum SA (acres) | * 2.37 | * 5.18 | * 2.71 | * |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | | |
|---|---|---|---|---|---|---|
| * E.G. Elev (ft) | * 2407.01 | * Element | * Left OB | * Channel | * Right OB | * |
| * Vel Head (ft) | * 0.51 | * Wt. n-Val. | * | * 0.064 | * | * |
| * W.S. Elev (ft) | * 2406.50 | * Reach Len. (ft) | * 17.43 | * 20.31 | * 19.19 | * |
| * Crit W.S. (ft) | * | * Flow Area (sq ft) | * | * 45.17 | * | * |
| * E.G. Slope (ft/ft) | *0.028694 | * Area (sq ft) | * | * 45.17 | * | * |
| * Q Total (cfs) | * 260.00 | * Flow (cfs) | * | * 260.00 | * | * |
| * Top Width (ft) | * 24.70 | * Top Width (ft) | * | * 24.70 | * | * |
| * Vel Total (ft/s) | * 5.76 | * Avg. Vel. (ft/s) | * | * 5.76 | * | * |
| * Max Chl Dpth (ft) | * 2.41 | * Hydr. Depth (ft) | * | * 1.83 | * | * |
| * Conv. Total (cfs) | * 1534.9 | * Conv. (cfs) | * | * 1534.9 | * | * |
| * Length Wtd. (ft) | * 20.31 | * Wetted Per. (ft) | * | * 27.25 | * | * |
| * Min Ch El (ft) | * 2404.08 | * Shear (lb/sq ft) | * | * 2.97 | * | * |
| * Alpha | * 1.00 | * Stream Power (lb/ft s) | * | * 17.09 | * | * |
| * Frctn Loss (ft) | * 0.66 | * Cum Volume (acre-ft) | * 0.02 | * 14.31 | * 0.03 | * |
| * C & E Loss (ft) | * 0.01 | * Cum SA (acres) | * 0.01 | * 5.19 | * 0.02 | * |

Profile #PF 1

| * | * Pos | * Left Sta (ft) | * Right Sta (ft) | * Flow (cfs) | * Area (sq ft) | * W.P. (ft) | * Percent Conv | * Hydr Depth(ft) | * Velocity (ft/s) | * |
|---|---|---|---|---|---|---|---|---|---|---|
| * 1 | * LOB | * 6.16 | * 12.33 | * 0.37 | * 0.52 | * 5.97 | * 0.14 | * 0.09 | * 0.71 | * |
| * 2 | * LOB | * 12.33 | * 18.49 | * 2.66 | * 1.72 | * 6.17 | * 1.02 | * 0.28 | * 1.54 | * |
| * 3 | * LOB | * 18.49 | * 24.65 | * 10.84 | * 4.01 | * 6.18 | * 4.17 | * 0.65 | * 2.70 | * |
| * 4 | * Chan | * 24.65 | * 30.83 | * 37.18 | * 7.41 | * 6.20 | * 14.30 | * 1.20 | * 5.02 | * |
| * 5 | * Chan | * 30.83 | * 37.00 | * 70.24 | * 11.08 | * 6.20 | * 27.02 | * 1.79 | * 6.34 | * |
| * 6 | * Chan | * 37.00 | * 43.18 | * 82.71 | * 12.22 | * 6.20 | * 31.81 | * 1.98 | * 6.77 | * |
| * 7 | * Chan | * 43.18 | * 49.35 | * 40.75 | * 8.06 | * 6.22 | * 15.67 | * 1.31 | * 5.05 | * |
| * 8 | * ROB | * 49.35 | * 59.94 | * 15.04 | * 5.87 | * 10.62 | * 5.78 | * 0.55 | * 2.56 | * |
| * 9 | * ROB | * 59.94 | * 70.52 | * 0.21 | * 0.26 | * 2.83 | * 0.08 | * 0.09 | * 0.78 | * |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #PF 2

| * | * Pos | * Left Sta (ft) | * Right Sta (ft) | * Flow (cfs) | * Area (sq ft) | * W.P. (ft) | * Percent Conv | * Hydr Depth(ft) | * Velocity (ft/s) | * |
|---|---|---|---|---|---|---|---|---|---|---|
| * 1 | * Chan | * 24.65 | * 30.83 | * 42.51 | * 9.01 | * 7.37 | * 16.35 | * 1.46 | * 4.72 | * |
| * 2 | * Chan | * 30.83 | * 37.00 | * 80.02 | * 12.68 | * 6.20 | * 30.78 | * 2.05 | * 6.31 | * |
| * 3 | * Chan | * 37.00 | * 43.18 | * 92.40 | * 13.82 | * 6.20 | * 35.54 | * 2.24 | * 6.69 | * |
| * 4 | * Chan | * 43.18 | * 49.35 | * 45.07 | * 9.66 | * 7.48 | * 17.34 | * 1.56 | * 4.66 | * |

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.99357

INPUT
Description:
Station Elevation Data num= 27

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2406.36 | .49 | 2406.36 | 13.43 | 2405.84 | 19.25 | 2405.2 | 20.74 | 2405.03 |
| 22.35 | 2404.92 | 29.16 | 2404.32 | 33.75 | 2403.94 | 38.28 | 2403.55 | 48.67 | 2404.21 |
| 49.52 | 2404.26 | 49.83 | 2404.29 | 51.63 | 2404.4 | 52.31 | 2404.46 | 53 | 2404.52 |
| 60.28 | 2404.98 | 64.27 | 2405.16 | 65.86 | 2405.24 | 66.59 | 2405.25 | 74.56 | 2405.95 |
| 76.22 | 2405.87 | 77.57 | 2405.95 | 82.04 | 2406.24 | 88.75 | 2406.6 | 90.08 | 2406.67 |
| 95.12 | 2406.59 | 97.95 | 2406.49 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 33.75 | .064 | 52.31 | .066 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 29.16 | 53 | 24.68 | 22.45 | 30.66 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | | |
|---|---|---|---|---|---|---|
| * E.G. Elev (ft) | * 2405.96 | * Element | * Left OB | * Channel | * Right OB | * |
| * Vel Head (ft) | * 0.50 | * Wt. n-Val. | * 0.061 | * 0.064 | * 0.066 | * |
| * W.S. Elev (ft) | * 2405.46 | * Reach Len. (ft) | * 24.68 | * 22.45 | * 30.66 | * |

| | | | | | | |
|---|---|---|---|---|---|---|
| Crit W.S. (ft) | 2405.46 | Flow Area (sq ft) | 7.33 | 35.09 | 7.56 | |
| E.G. Slope (ft/ft) | 0.040408 | Area (sq ft) | 7.33 | 35.09 | 7.56 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | 25.38 | 213.89 | 20.73 | |
| Top Width (ft) | 52.11 | Top Width (ft) | 12.28 | 23.84 | 15.99 | |
| Vel Total (ft/s) | 5.20 | Avg. Vel. (ft/s) | 3.46 | 6.10 | 2.74 | |
| Max Chl Dpth (ft) | 1.91 | Hydr. Depth (ft) | 0.60 | 1.47 | 0.47 | |
| Conv. Total (cfs) | 1293.4 | Conv. (cfs) | 126.2 | 1064.0 | 103.1 | |
| Length Wtd. (ft) | 24.09 | Wetted Per. (ft) | 12.33 | 23.90 | 16.02 | |
| Min Ch El (ft) | 2403.55 | Shear (lb/sq ft) | 1.50 | 3.70 | 1.19 | |
| Alpha | 1.19 | Stream Power (lb/ft s) | 5.19 | 22.57 | 3.26 | |
| Frctn Loss (ft) | 0.54 | Cum Volume (acre-ft) | 2.26 | 12.22 | 2.46 | |
| C & E Loss (ft) | 0.10 | Cum SA (acres) | 2.37 | 5.17 | 2.71 | |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2406.34 | Element | | | |
| Vel Head (ft) | 0.62 | Wt. n-Val. | | 0.064 | |
| W.S. Elev (ft) | 2405.72 | Reach Len. (ft) | 24.68 | 22.45 | 30.66 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 41.28 | |
| E.G. Slope (ft/ft) | 0.037423 | Area (sq ft) | | 41.28 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 23.84 | Top Width (ft) | | 23.84 | |
| Vel Total (ft/s) | 6.30 | Avg. Vel. (ft/s) | | 6.30 | |
| Max Chl Dpth (ft) | 2.17 | Hydr. Depth (ft) | | 1.73 | |
| Conv. Total (cfs) | 1344.0 | Conv. (cfs) | | 1344.0 | |
| Length Wtd. (ft) | 22.45 | Wetted Per. (ft) | | 26.51 | |
| Min Ch El (ft) | 2403.55 | Shear (lb/sq ft) | | 3.64 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 22.92 | |
| Frctn Loss (ft) | 0.69 | Cum Volume (acre-ft) | 0.02 | 14.28 | 0.03 |
| C & E Loss (ft) | 0.05 | Cum SA (acres) | 0.01 | 5.17 | 0.02 |

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 14.58 | 21.87 | 2.48 | 1.35 | 5.02 | 0.95 | 0.27 | 1.83 |
| 2 | LOB | 21.87 | 29.16 | 22.90 | 5.98 | 7.32 | 8.81 | 0.82 | 3.83 |
| 3 | Chan | 29.16 | 35.12 | 49.22 | 8.27 | 5.98 | 18.93 | 1.39 | 5.95 |
| 4 | Chan | 35.12 | 41.08 | 72.91 | 10.71 | 5.98 | 28.04 | 1.80 | 6.81 |
| 5 | Chan | 41.08 | 47.04 | 56.64 | 9.20 | 5.97 | 21.78 | 1.54 | 6.16 |
| 6 | Chan | 47.04 | 53.00 | 35.13 | 6.91 | 5.97 | 13.51 | 1.16 | 5.08 |
| 7 | ROB | 53.00 | 64.24 | 19.65 | 6.72 | 11.26 | 7.56 | 0.60 | 2.92 |
| 8 | ROB | 64.24 | 75.48 | 1.08 | 0.83 | 4.76 | 0.41 | 0.18 | 1.29 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 29.16 | 35.12 | 55.66 | 9.82 | 7.38 | 21.41 | 1.65 | 5.67 |
| 2 | Chan | 35.12 | 41.08 | 88.12 | 12.26 | 5.98 | 33.89 | 2.06 | 7.19 |
| 3 | Chan | 41.08 | 47.04 | 70.83 | 10.75 | 5.97 | 27.24 | 1.80 | 6.59 |
| 4 | Chan | 47.04 | 53.00 | 45.39 | 8.46 | 7.18 | 17.46 | 1.42 | 5.37 |

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.98932

INPUT
Description:
Station Elevation Data num= 29

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2405.33 | 10.41 | 2404.72 | 14.94 | 2404.3 | 17.81 | 2404.2 | 18.16 | 2404.19 |
| 27.01 | 2403.57 | 29.27 | 2403.48 | 33.79 | 2403.25 | 34.65 | 2403.21 | 44.91 | 2403.21 |
| 49.62 | 2403.23 | 53.86 | 2403.34 | 54.64 | 2403.36 | 66.2 | 2403.41 | 68.79 | 2403.93 |
| 69.5 | 2403.97 | 69.91 | 2403.98 | 70.43 | 2404.02 | 73.89 | 2404.4 | 75.88 | 2404.68 |
| 80 | 2404.79 | 81.99 | 2405.07 | 86.64 | 2405.52 | 88.89 | 2405.56 | 90.18 | 2405.59 |
| 93.2 | 2405.53 | 95.44 | 2405.48 | 99.43 | 2405.41 | 99.75 | 2405.42 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 33.79 | .064 | 53.86 | .066 |

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
29.27 54.64 28.01 26.68 35.8 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2405.04 | Element | | | |
| Vel Head (ft) | 0.18 | Wt. n-Val. | 0.061 | 0.064 | 0.066 |
| W.S. Elev (ft) | 2404.86 | Reach Len. (ft) | 28.01 | 26.68 | 35.80 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Crit W.S. (ft) | | Flow Area (sq ft) | 15.51 | 40.76 | 25.11 |
| E.G. Slope (ft/ft) | 0.014416 | Area (sq ft) | 15.51 | 40.76 | 25.11 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 36.63 | 157.05 | 66.32 |
| Top Width (ft) | 72.57 | Top Width (ft) | 21.31 | 25.37 | 25.88 |
| Vel Total (ft/s) | 3.20 | Avg. Vel. (ft/s) | 2.36 | 3.85 | 2.64 |
| Max Chl Dpth (ft) | 1.65 | Hydr. Depth (ft) | 0.73 | 1.61 | 0.97 |
| Conv. Total (cfs) | 2165.4 | Conv. (cfs) | 305.1 | 1308.0 | 552.4 |
| Length Wtd. (ft) | 28.63 | Wetted Per. (ft) | 21.36 | 25.38 | 25.99 |
| Min Ch El (ft) | 2403.21 | Shear (lb/sq ft) | 0.65 | 1.45 | 0.87 |
| Alpha | 1.13 | Stream Power (lb/ft s) | 1.54 | 5.57 | 2.30 |
| Frctn Loss (ft) | 0.48 | Cum Volume (acre-ft) | 2.25 | 12.20 | 2.45 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 2.36 | 5.16 | 2.69 |

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2405.60 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.46 | Wt. n-Val. | | 0.064 | |
| W.S. Elev (ft) | 2405.14 | Reach Len. (ft) | 28.01 | 26.68 | 35.80 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 47.69 | |
| E.G. Slope (ft/ft) | 0.025759 | Area (sq ft) | | 47.69 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 25.37 | Top Width (ft) | | 25.37 | |
| Vel Total (ft/s) | 5.45 | Avg. Vel. (ft/s) | | 5.45 | |
| Max Chl Dpth (ft) | 1.93 | Hydr. Depth (ft) | | 1.88 | |
| Conv. Total (cfs) | 1620.0 | Conv. (cfs) | | 1620.0 | |
| Length Wtd. (ft) | 26.68 | Wetted Per. (ft) | | 28.81 | |
| Min Ch El (ft) | 2403.21 | Shear (lb/sq ft) | | 2.66 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 14.51 | |
| Frctn Loss (ft) | 0.68 | Cum Volume (acre-ft) | 0.02 | 14.26 | 0.03 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.01 | 5.16 | 0.02 |

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 7.32 | 14.64 | 1.58 | 1.61 | 6.70 | 0.61 | 0.24 | 0.98 |
| 2 | LOB | 14.64 | 21.95 | 10.53 | 5.22 | 7.33 | 4.05 | 0.71 | 2.02 |
| 3 | LOB | 21.95 | 29.27 | 24.52 | 8.67 | 7.33 | 9.43 | 1.19 | 2.83 |
| 4 | Chan | 29.27 | 35.61 | 37.56 | 9.77 | 6.35 | 14.45 | 1.54 | 3.84 |
| 5 | Chan | 35.61 | 41.96 | 40.89 | 10.49 | 6.34 | 15.73 | 1.65 | 3.90 |
| 6 | Chan | 41.96 | 48.30 | 40.73 | 10.46 | 6.34 | 15.67 | 1.65 | 3.89 |
| 7 | Chan | 48.30 | 54.64 | 37.87 | 10.04 | 6.34 | 14.57 | 1.58 | 3.77 |
| 8 | ROB | 54.64 | 65.92 | 50.98 | 16.68 | 11.28 | 19.61 | 1.48 | 3.06 |
| 9 | ROB | 65.92 | 77.20 | 15.18 | 8.09 | 11.37 | 5.84 | 0.72 | 1.88 |
| 10 | ROB | 77.20 | 88.47 | 0.17 | 0.33 | 3.34 | 0.06 | 0.10 | 0.50 |

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 29.27 | 35.61 | 57.29 | 11.50 | 8.01 | 22.03 | 1.81 | 4.98 |
| 2 | Chan | 35.61 | 41.96 | 70.50 | 12.22 | 6.34 | 27.12 | 1.93 | 5.77 |
| 3 | Chan | 41.96 | 48.30 | 70.27 | 12.20 | 6.34 | 27.03 | 1.92 | 5.76 |
| 4 | Chan | 48.30 | 54.64 | 61.94 | 11.77 | 8.12 | 23.82 | 1.86 | 5.26 |

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.98427

INPUT
Description:
Station Elevation Data num= 33

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2404.71 | 3.99 | 2404.49 | 22.22 | 2403.52 | 23.95 | 2403.44 | 28.23 | 2403.24 |
| 38.06 | 2402.78 | 40.58 | 2402.67 | 42.02 | 2402.61 | 51.53 | 2402.98 | 55.84 | 2403.2 |
| 58.78 | 2403.22 | 62.68 | 2403.24 | 65.91 | 2403.25 | 67.05 | 2403.3 | 68.73 | 2403.57 |
| 71.45 | 2404.05 | 71.81 | 2404.12 | 72.7 | 2404.2 | 75.81 | 2404.16 | 95.66 | 2403.79 |
| 98.28 | 2403.95 | 99.04 | 2403.94 | 99.94 | 2404.02 | 100.81 | 2404 | 101.4 | 2404.05 |
| 105.65 | 2404.07 | 107 | 2404.11 | 108.52 | 2404.15 | 116.15 | 2404.43 | 120.38 | 2404.61 |
| 122.91 | 2404.69 | 126.16 | 2404.79 | 129.73 | 2404.74 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 40.58 | .064 | 58.78 | .066 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 28.23 | 62.68 | 23.69 | 22.66 | 22.42 | .1 | .3 |

Blocked Obstructions num= 1

| Sta L | Sta R | Elev |
|---|---|---|
| 72.73 | 73.462 | 404.199 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2404.56 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.22 | Wt. n-Val. | 0.061 | 0.063 | 0.066 |
| W.S. Elev (ft) | 2404.34 | Reach Len. (ft) | 23.69 | 22.66 | 22.42 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 12.10 | 47.35 | 20.41 |
| E.G. Slope (ft/ft) | 0.020108 | Area (sq ft) | 12.10 | 47.35 | 20.41 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 28.54 | 196.13 | 35.33 |
| Top Width (ft) | 106.93 | Top Width (ft) | 21.44 | 34.45 | 51.04 |
| Vel Total (ft/s) | 3.26 | Avg. Vel. (ft/s) | 2.36 | 4.14 | 1.73 |
| Max Chl Dpth (ft) | 1.73 | Hydr. Depth (ft) | 0.56 | 1.37 | 0.40 |
| Conv. Total (cfs) | 1833.5 | Conv. (cfs) | 201.2 | 1383.1 | 249.2 |
| Length Wtd. (ft) | 22.79 | Wetted Per. (ft) | 21.46 | 34.48 | 51.14 |
| Min Ch El (ft) | 2402.61 | Shear (lb/sq ft) | 0.71 | 1.72 | 0.50 |
| Alpha | 1.32 | Stream Power (lb/ft s) | 1.67 | 7.14 | 0.87 |
| Frctn Loss (ft) | 0.35 | Cum Volume (acre-ft) | 2.25 | 12.18 | 2.43 |

| | | | | | | |
|---|---|---|---|---|---|---|
| * C & E Loss (ft) | * 0.01 | * Cum SA (acres) | * 2.34 | * 5.14 | * 2.66 | * |

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | | |
|---|---|---|---|---|---|---|
| * E.G. Elev (ft) | * 2404.89 | * Element | * Left OB | * Channel | * Right OB | * |
| * Vel Head (ft) | * 0.37 | * Wt. n-Val. | * | * 0.063 | * | * |
| * W.S. Elev (ft) | * 2404.52 | * Reach Len. (ft) | * 23.69 | * 22.66 | * 22.42 | * |
| * Crit W.S. (ft) | * | * Flow Area (sq ft) | * | * 53.42 | * | * |
| * E.G. Slope (ft/ft) | *0.025558 | * Area (sq ft) | * | * 53.42 | * | * |
| * Q Total (cfs) | * 260.00 | * Flow (cfs) | * | * 260.00 | * | * |
| * Top Width (ft) | * 34.45 | * Top Width (ft) | * | * 34.45 | * | * |
| * Vel Total (ft/s) | * 4.87 | * Avg. Vel. (ft/s) | * | * 4.87 | * | * |
| * Max Chl Dpth (ft) | * 1.91 | * Hydr. Depth (ft) | * | * 1.55 | * | * |
| * Conv. Total (cfs) | * 1626.3 | * Conv. (cfs) | * | * 1626.3 | * | * |
| * Length Wtd. (ft) | * 22.66 | * Wetted Per. (ft) | * | * 37.03 | * | * |
| * Min Ch El (ft) | * 2402.61 | * Shear (lb/sq ft) | * | * 2.30 | * | * |
| * Alpha | * 1.00 | * Stream Power (lb/ft s) | * | * 11.20 | * | * |
| * Frctn Loss (ft) | * 0.45 | * Cum Volume (acre-ft) | * 0.02 | * 14.23 | * 0.03 | * |
| * C & E Loss (ft) | * 0.03 | * Cum SA (acres) | * 0.01 | * 5.14 | * 0.02 | * |

Profile #PF 1

| * | * Pos | * Left Sta (ft) | * Right Sta (ft) | * Flow (cfs) | * Area (sq ft) | * W.P. (ft) | * Percent Conv | * Hydr Depth(ft) | * Velocity (ft/s) | * |
|---|---|---|---|---|---|---|---|---|---|---|
| * 1 | * LOB | * 0.00 | * 7.06 | * 0.00 | * 0.00 | * 0.26 | * 0.00 | * 0.01 | * 0.11 | * |
| * 2 | * LOB | * 7.06 | * 14.12 | * 1.45 | * 1.42 | * 7.07 | * 0.56 | * 0.20 | * 1.02 | * |
| * 3 | * LOB | * 14.12 | * 21.17 | * 8.37 | * 4.07 | * 7.07 | * 3.22 | * 0.58 | * 2.05 | * |
| * 4 | * LOB | * 21.17 | * 28.23 | * 18.72 | * 6.60 | * 7.07 | * 7.20 | * 0.94 | * 2.83 | * |
| * 5 | * Chan | * 28.23 | * 36.84 | * 45.84 | * 11.22 | * 8.62 | * 17.63 | * 1.30 | * 4.09 | * |
| * 6 | * Chan | * 36.84 | * 45.46 | * 65.32 | * 14.10 | * 8.62 | * 25.12 | * 1.64 | * 4.63 | * |
| * 7 | * Chan | * 45.46 | * 54.07 | * 50.77 | * 12.27 | * 8.62 | * 19.53 | * 1.43 | * 4.14 | * |
| * 8 | * Chan | * 54.07 | * 62.68 | * 34.21 | * 9.76 | * 8.61 | * 13.16 | * 1.13 | * 3.51 | * |
| * 9 | * ROB | * 62.68 | * 79.44 | * 18.74 | * 9.25 | * 16.85 | * 7.21 | * 0.55 | * 2.03 | * |
| * 10 | * ROB | * 79.44 | * 96.21 | * 11.18 | * 6.77 | * 16.77 | * 4.30 | * 0.40 | * 1.65 | * |
| * 11 | * ROB | * 96.21 | * 112.97 | * 5.41 | * 4.38 | * 16.78 | * 2.08 | * 0.26 | * 1.23 | * |
| * 12 | * ROB | * 112.97 | * 129.73 | * 0.00 | * 0.01 | * 0.75 | * 0.00 | * 0.01 | * 0.17 | * |

Profile #PF 2

| * | * Pos | * Left Sta (ft) | * Right Sta (ft) | * Flow (cfs) | * Area (sq ft) | * W.P. (ft) | * Percent Conv | * Hydr Depth(ft) | * Velocity (ft/s) | * |
|---|---|---|---|---|---|---|---|---|---|---|
| * 1 | * Chan | * 28.23 | * 36.84 | * 58.12 | * 12.73 | * 9.90 | * 22.36 | * 1.48 | * 4.56 | * |
| * 2 | * Chan | * 36.84 | * 45.46 | * 87.16 | * 15.62 | * 8.62 | * 33.52 | * 1.81 | * 5.58 | * |
| * 3 | * Chan | * 45.46 | * 54.07 | * 69.39 | * 13.79 | * 8.62 | * 26.69 | * 1.60 | * 5.03 | * |
| * 4 | * Chan | * 54.07 | * 62.68 | * 45.33 | * 11.28 | * 9.89 | * 17.43 | * 1.31 | * 4.02 | * |

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.97998

INPUT
Description: Blocked Obstruction at Parcel 216-20-008D
Station Elevation Data num= 78

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2405.14 | 9.19 | 2404.84 | 15.4 | 2404.62 | 37.26 | 2403.36 | 39.76 | 2403.35 |
| 43.36 | 2403.14 | 44.32 | 2403.09 | 49.08 | 2402.71 | 49.81 | 2402.65 | 53.88 | 2402.46 |
| 64.52 | 2402.1 | 66.63 | 2402.03 | 71.36 | 2402.18 | 73.58 | 2402.2 | 80.98 | 2402.28 |
| 87.76 | 2403.08 | 87.82 | 2403.09 | 93.48 | 2403.87 | 93.62 | 2403.89 | 106.59 | 2403.83 |
| 112.77 | 2403.72 | 114.56 | 2403.64 | 115.52 | 2403.61 | 122.82 | 2404.04 | 123.35 | 2404.06 |
| 123.85 | 2404.08 | 127.45 | 2404.07 | 132.1 | 2404.09 | 135.01 | 2404.17 | 137.92 | 2404.12 |
| 139.29 | 2404.09 | 147.59 | 2404.04 | 148.61 | 2404 | 153.06 | 2404 | 156 | 2403.93 |
| 158.55 | 2403.79 | 160.83 | 2403.79 | 161.62 | 2403.76 | 163.32 | 2403.75 | 164.87 | 2403.73 |
| 167.98 | 2403.58 | 170.49 | 2403.51 | 173.21 | 2403.32 | 174.28 | 2403.31 | 178.77 | 2403.24 |
| 179.72 | 2403.23 | 180.14 | 2403.22 | 183.97 | 2403.33 | 187.81 | 2403.33 | 188.76 | 2403.29 |
| 197.54 | 2403.32 | 197.85 | 2403.32 | 198.25 | 2403.46 | 199.66 | 2403.46 | 206.21 | 2403.5 |
| 207.93 | 2403.57 | 209.93 | 2403.45 | 211.63 | 2403.54 | 218.69 | 2403.18 | 222.44 | 2403.08 |
| 228.2 | 2403.06 | 233.78 | 2402.92 | 234.48 | 2402.86 | 234.73 | 2402.82 | 236.36 | 2402.82 |
| 238.02 | 2402.71 | 241.35 | 2402.7 | 243.17 | 2402.79 | 245.18 | 2402.83 | 249.36 | 2403.03 |
| 256.95 | 2403.29 | 260.88 | 2403.5 | 262.83 | 2403.74 | 265.14 | 2404 | 268.27 | 2404.4 |
| 276.93 | 2404.5 | 284.09 | 2404.38 | 284.99 | 2404.39 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 64.52 | .064 | 73.58 | .066 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 53.88 | 87.76 | 63.05 | 63.74 | 66.74 | .1 | .3 |

Right Levee Station= 135.01 Elevation= 2404.17
Blocked Obstructions num= 1

| Sta L | Sta R | Elev |
|---|---|---|
| 88.91 | 130.63 | 2404.085 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | | |
|---|---|---|---|---|---|---|
| * E.G. Elev (ft) | * 2404.20 | * Element | * Left OB | * Channel | * Right OB | * |
| * Vel Head (ft) | * 0.18 | * Wt. n-Val. | * 0.061 | * 0.064 | * 0.066 | * |
| * W.S. Elev (ft) | * 2404.02 | * Reach Len. (ft) | * 63.05 | * 63.74 | * 66.74 | * |
| * Crit W.S. (ft) | * 2403.50 | * Flow Area (sq ft) | * 21.32 | * 57.96 | * 0.99 | * |
| * E.G. Slope (ft/ft) | *0.011880 | * Area (sq ft) | * 21.32 | * 57.96 | * 0.99 | * |
| * Q Total (cfs) | * 260.00 | * Flow (cfs) | * 47.11 | * 211.35 | * 1.54 | * |
| * Top Width (ft) | * 63.07 | * Top Width (ft) | * 28.04 | * 33.88 | * 1.15 | * |
| * Vel Total (ft/s) | * 3.24 | * Avg. Vel. (ft/s) | * 2.21 | * 3.65 | * 1.56 | * |
| * Max Chl Dpth (ft) | * 1.99 | * Hydr. Depth (ft) | * 0.76 | * 1.71 | * 0.86 | * |
| * Conv. Total (cfs) | * 2385.5 | * Conv. (cfs) | * 432.3 | * 1939.1 | * 14.1 | * |
| * Length Wtd. (ft) | * 63.74 | * Wetted Per. (ft) | * 28.09 | * 33.94 | * 1.94 | * |
| * Min Ch El (ft) | * 2402.03 | * Shear (lb/sq ft) | * 0.56 | * 1.27 | * 0.38 | * |
| * Alpha | * 1.12 | * Stream Power (lb/ft s) | * 1.24 | * 4.62 | * 0.59 | * |

```
* Frctn Loss (ft)        *    1.23  * Cum Volume (acre-ft)   *    2.24  *   12.15  *    2.43  *
* C & E Loss (ft)        *    0.03  * Cum SA (acres)         *    2.33  *    5.12  *    2.65  *
*****************************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************************
* E.G. Elev (ft)         * 2404.40  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.28  * Wt. n-Val.              *          *    0.064 *          *
* W.S. Elev (ft)         * 2404.13  * Reach Len. (ft)        *   63.05  *   63.74  *   66.74  *
* Crit W.S. (ft)         * 2403.53  * Flow Area (sq ft)      *          *   61.61  *          *
* E.G. Slope (ft/ft)     *0.016169  * Area (sq ft)           *          *   61.61  *          *
* Q Total (cfs)          *  260.00  * Flow (cfs)              *          *  260.00  *          *
* Top Width (ft)         *   33.88  * Top Width (ft)          *          *   33.88  *          *
* Vel Total (ft/s)       *    4.22  * Avg. Vel. (ft/s)        *          *    4.22  *          *
* Max Chl Dpth (ft)      *    2.10  * Hydr. Depth (ft)        *          *    1.82  *          *
* Conv. Total (cfs)      *  2044.7  * Conv. (cfs)             *          *  2044.7  *          *
* Length Wtd. (ft)       *   63.74  * Wetted Per. (ft)        *          *   36.65  *          *
* Min Ch El (ft)         * 2402.03  * Shear (lb/sq ft)        *          *    1.70  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s)  *          *    7.16  *          *
* Frctn Loss (ft)        *    1.17  * Cum Volume (acre-ft)    *    0.02  *   14.20  *    0.03  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)          *    0.01  *    5.13  *    0.02  *
*****************************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) *  (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB       * 13.47     * 26.94     *     0.01 *     0.03 *     1.10 *     0.00 *     0.03 *     0.23 *
* 2        * LOB       * 26.94     * 40.41     *     7.75 *     5.83 *    13.49 *     2.98 *     0.43 *     1.33 *
* 3        * LOB       * 40.41     * 53.88     *    39.36 *    15.46 *    13.50 *    15.14 *     1.15 *     2.55 *
* 4        * Chan      * 53.88     * 62.35     *    54.35 *    14.41 *     8.47 *    20.90 *     1.70 *     3.77 *
* 5        * Chan      * 62.35     * 70.82     *    64.09 *    16.26 *     8.47 *    24.65 *     1.92 *     3.94 *
* 6        * Chan      * 70.82     * 79.29     *    55.87 *    15.26 *     8.47 *    21.49 *     1.80 *     3.66 *
* 7        * Chan      * 79.29     * 87.76     *    37.03 *    12.03 *     8.52 *    14.24 *     1.42 *     3.08 *
* 8        * ROB       * 87.76     * 135.01    *     1.54 *     0.99 *     1.94 *     0.59 *     0.86 *     1.56 *
*****************************************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

  Profile #PF 2
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) *  (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 53.88     * 62.35     *    62.03 *    15.33 *    10.14 *    23.86 *     1.81 *     4.05 *
* 2        * Chan      * 62.35     * 70.82     *    81.53 *    17.17 *     8.47 *    31.36 *     2.03 *     4.75 *
* 3        * Chan      * 70.82     * 79.29     *    71.47 *    16.18 *     8.47 *    27.49 *     1.91 *     4.42 *
* 4        * Chan      * 79.29     * 87.76     *    44.97 *    12.94 *     9.56 *    17.30 *     1.53 *     3.48 *
*****************************************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: Ocotillo Wash 1
REACH: Tributary-2.1      RS: 0.97683

INPUT
Description: Blocked Obstruction at Parcel 216-20-008D
Station Elevation Data     num=      29
   Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
       0 2403.73     .89 2403.68    1.24 2403.68    1.79 2403.65    4.45 2403.43
   10.37    2403    20.6 2402.31   23.85 2402.09   25.33 2402.01   28.23  2401.7
   28.93 2401.63   35.54    2401   36.54  2400.9   39.96 2400.57   40.23 2400.59
   43.63 2400.75   54.42 2401.25   57.53 2401.55   58.44 2401.65   68.97  2402.5
   71.02 2402.43   71.97 2402.49   78.83 2402.72   80.85 2402.77   84.57 2403.02
   88.82 2403.14   94.06 2403.93   96.86  2403.9  100.74  2403.9

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***************************************************
       0    .061   35.54    .064   43.63    .066

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          28.23   58.44           27.09   26.54    31.5            .1       .3
Right Levee     Station=   68.97      Elevation=  2402.5
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
************************
   78.62   95.482403.916

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************************
* E.G. Elev (ft)         * 2402.95  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.46  * Wt. n-Val.              *   0.061  *   0.064  *   0.066  *
```

| | | | | | | |
|---|---|---|---|---|---|---|
| W.S. Elev (ft) | 2402.49 | Reach Len. (ft) | 27.09 | 26.54 | 31.50 | |
| Crit W.S. (ft) | 2402.42 | Flow Area (sq ft) | 3.66 | 42.83 | 4.36 | |
| E.G. Slope (ft/ft) | 0.036412 | Area (sq ft) | 3.66 | 42.83 | 4.36 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | 8.54 | 240.99 | 10.47 | |
| Top Width (ft) | 50.88 | Top Width (ft) | 10.28 | 30.21 | 10.39 | |
| Vel Total (ft/s) | 5.11 | Avg. Vel. (ft/s) | 2.33 | 5.63 | 2.40 | |
| Max Chl Dpth (ft) | 1.92 | Hydr. Depth (ft) | 0.36 | 1.42 | 0.42 | |
| Conv. Total (cfs) | 1362.5 | Conv. (cfs) | 44.7 | 1262.9 | 54.9 | |
| Length Wtd. (ft) | 26.83 | Wetted Per. (ft) | 10.31 | 30.30 | 10.42 | |
| Min Ch El (ft) | 2400.57 | Shear (lb/sq ft) | 0.81 | 3.21 | 0.95 | |
| Alpha | 1.14 | Stream Power (lb/ft s) | 1.88 | 18.08 | 2.28 | |
| Frctn Loss (ft) | 0.39 | Cum Volume (acre-ft) | 2.22 | 12.08 | 2.42 | |
| C & E Loss (ft) | 0.09 | Cum SA (acres) | 2.30 | 5.07 | 2.64 | |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF 2

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2403.22 | Element | | | |
| Vel Head (ft) | 0.36 | Wt. n-Val. | | 0.064 | |
| W.S. Elev (ft) | 2402.87 | Reach Len. (ft) | 27.09 | 26.54 | 31.50 |
| Crit W.S. (ft) | 2402.39 | Flow Area (sq ft) | | 54.29 | |
| E.G. Slope (ft/ft) | 0.021108 | Area (sq ft) | | 54.29 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 30.21 | Top Width (ft) | | 30.21 | |
| Vel Total (ft/s) | 4.79 | Avg. Vel. (ft/s) | | 4.79 | |
| Max Chl Dpth (ft) | 2.30 | Hydr. Depth (ft) | | 1.80 | |
| Conv. Total (cfs) | 1789.6 | Conv. (cfs) | | 1789.6 | |
| Length Wtd. (ft) | 26.54 | Wetted Per. (ft) | | 32.69 | |
| Min Ch El (ft) | 2400.57 | Shear (lb/sq ft) | | 2.19 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 10.48 | |
| Frctn Loss (ft) | 0.31 | Cum Volume (acre-ft) | 0.02 | 14.12 | 0.03 |
| C & E Loss (ft) | 0.05 | Cum SA (acres) | 0.01 | 5.08 | 0.02 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 14.12 | 21.17 | 0.33 | 0.35 | 3.23 | 0.13 | 0.11 | 0.94 |
| 2 | LOB | 21.17 | 28.23 | 8.21 | 3.31 | 7.08 | 3.16 | 0.47 | 2.48 |
| 3 | Chan | 28.23 | 35.78 | 44.03 | 8.70 | 7.59 | 16.93 | 1.15 | 5.06 |
| 4 | Chan | 35.78 | 43.34 | 85.89 | 13.36 | 7.58 | 33.04 | 1.77 | 6.43 |
| 5 | Chan | 43.34 | 50.89 | 69.05 | 11.91 | 7.56 | 26.56 | 1.58 | 5.80 |
| 6 | Chan | 50.89 | 58.44 | 42.02 | 8.86 | 7.58 | 16.16 | 1.17 | 4.74 |
| 7 | ROB | 58.44 | 68.97 | 10.47 | 4.36 | 10.42 | 4.03 | 0.42 | 2.40 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 28.23 | 35.78 | 48.85 | 11.57 | 8.76 | 18.79 | 1.53 | 4.22 |
| 2 | Chan | 35.78 | 43.34 | 90.09 | 16.22 | 7.58 | 34.65 | 2.15 | 5.55 |
| 3 | Chan | 43.34 | 50.89 | 75.01 | 14.78 | 7.56 | 28.85 | 1.96 | 5.08 |
| 4 | Chan | 50.89 | 58.44 | 46.04 | 11.73 | 8.79 | 17.71 | 1.55 | 3.93 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.97180

INPUT
Description: Blocked Obstruction at Parcel 216-20-008D
Station Elevation Data num= 20

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2402.69 | 16.49 | 2401.32 | 17.13 | 2401.27 | 21.96 | 2400.88 | 32.23 | 2400.03 |
| 34.93 | 2399.81 | 37.94 | 2399.54 | 43.26 | 2399.92 | 50.7 | 2400.46 | 51.21 | 2400.49 |
| 51.32 | 2400.5 | 51.41 | 2400.52 | 51.65 | 2400.56 | 65.65 | 2403.19 | 66.31 | 2403.31 |
| 66.35 | 2403.52 | 66.42 | 2403.83 | 66.48 | 2403.83 | 72.42 | 2403.02 | 77.02 | 2402.93 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 32.23 | .064 | 43.26 | .066 |

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
21.96 51.21 22.35 20.56 18.27 .1 .3

Blocked Obstructions num= 1

| Sta L | Sta R | Elev |
|---|---|---|
| 65.56 | 77.02 | 2403.173 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 2402.47 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.17 | Wt. n-Val. | 0.061 | 0.064 | 0.066 |
| W.S. Elev (ft) | 2402.30 | Reach Len. (ft) | 22.35 | 20.56 | 18.27 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 12.32 | 63.54 | 8.83 |
| E.G. Slope (ft/ft) | 0.007859 | Area (sq ft) | 12.32 | 63.54 | 8.83 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 21.21 | 222.43 | 16.37 |
| Top Width (ft) | 56.20 | Top Width (ft) | 17.25 | 29.25 | 9.70 |
| Vel Total (ft/s) | 3.07 | Avg. Vel. (ft/s) | 1.72 | 3.50 | 1.85 |
| Max Chl Dpth (ft) | 2.76 | Hydr. Depth (ft) | 0.71 | 2.17 | 0.91 |
| Conv. Total (cfs) | 2932.9 | Conv. (cfs) | 239.2 | 2509.0 | 184.6 |
| Length Wtd. (ft) | 20.58 | Wetted Per. (ft) | 17.31 | 29.34 | 9.86 |
| Min Ch El (ft) | 2399.54 | Shear (lb/sq ft) | 0.35 | 1.06 | 0.44 |
| Alpha | 1.16 | Stream Power (lb/ft s) | 0.60 | 3.72 | 0.81 |
| Frctn Loss (ft) | 0.13 | Cum Volume (acre-ft) | 2.21 | 12.04 | 2.42 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 2.29 | 5.06 | 2.63 |

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2402.87 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.19 | Wt. n-Val. | | 0.064 | |
| W.S. Elev (ft) | 2402.68 | Reach Len. (ft) | 22.35 | 20.56 | 18.27 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 74.69 | |
| E.G. Slope (ft/ft) | 0.007219 | Area (sq ft) | | 74.69 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 29.25 | Top Width (ft) | | 29.25 | |
| Vel Total (ft/s) | 3.48 | Avg. Vel. (ft/s) | | 3.48 | |
| Max Chl Dpth (ft) | 3.14 | Hydr. Depth (ft) | | 2.55 | |
| Conv. Total (cfs) | 3060.0 | Conv. (cfs) | | 3060.0 | |
| Length Wtd. (ft) | 20.56 | Wetted Per. (ft) | | 33.33 | |
| Min Ch El (ft) | 2399.54 | Shear (lb/sq ft) | | 1.01 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 3.52 | |
| Frctn Loss (ft) | 0.13 | Cum Volume (acre-ft) | 0.02 | 14.08 | 0.03 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 0.01 | 5.06 | 0.02 |

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 0.00 | 5.49 | 0.00 | 0.03 | 0.78 | 0.00 | 0.03 | 0.19 |
| 2 | LOB | 5.49 | 10.98 | 1.31 | 1.61 | 5.51 | 0.50 | 0.29 | 0.81 |
| 3 | LOB | 10.98 | 16.47 | 6.24 | 4.11 | 5.51 | 2.40 | 0.75 | 1.52 |
| 4 | LOB | 16.47 | 21.96 | 13.65 | 6.57 | 5.51 | 5.25 | 1.20 | 2.08 |
| 5 | Chan | 21.96 | 29.27 | 38.88 | 12.59 | 7.34 | 14.95 | 1.72 | 3.09 |
| 6 | Chan | 29.27 | 36.59 | 62.41 | 17.01 | 7.34 | 24.01 | 2.33 | 3.67 |
| 7 | Chan | 36.59 | 43.90 | 72.35 | 18.82 | 7.33 | 27.83 | 2.57 | 3.84 |
| 8 | Chan | 43.90 | 51.21 | 48.78 | 15.12 | 7.33 | 18.76 | 2.07 | 3.23 |
| 9 | ROB | 51.21 | 57.66 | 15.58 | 7.84 | 6.56 | 5.99 | 1.22 | 1.99 |
| 10 | ROB | 57.66 | 64.12 | 0.78 | 0.99 | 3.30 | 0.30 | 0.30 | 0.79 |

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 21.96 | 29.27 | 44.71 | 15.38 | 9.14 | 17.20 | 2.10 | 2.91 |
| 2 | Chan | 29.27 | 36.59 | 76.63 | 19.80 | 7.34 | 29.47 | 2.71 | 3.87 |
| 3 | Chan | 36.59 | 43.90 | 86.84 | 21.61 | 7.33 | 33.40 | 2.96 | 4.02 |
| 4 | Chan | 43.90 | 51.21 | 51.82 | 17.90 | 9.52 | 19.93 | 2.45 | 2.89 |

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.96791

INPUT
Description: Blocked Obstruction at Parcel 216-20-008D
Station Elevation Data num= 44

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2403.22 | 3.32 | 2403.1 | 7.88 | 2402.95 | 20.18 | 2402.47 | 37.07 | 2401.34 |
| 40.32 | 2401.2 | 45.25 | 2401.07 | 46.54 | 2401.07 | 50.23 | 2400.82 | 60.22 | 2399.54 |
| 63.05 | 2399.18 | 63.26 | 2399.15 | 63.41 | 2399.15 | 70.67 | 2399.35 | 74.36 | 2399.55 |
| 76.74 | 2399.69 | 83.52 | 2401.8 | 86.08 | 2402.56 | 87.27 | 2402.85 | 87.35 | 2404.04 |
| 87.38 | 2404.55 | 93.86 | 2404.48 | 94.26 | 2404.48 | 95.69 | 2404.46 | 96.24 | 2404.45 |
| 96.37 | 2404.45 | 102.21 | 2402.58 | 105.12 | 2402.19 | 156.26 | 2401.51 | 176.32 | 2401.61 |
| 179.3 | 2401.61 | 188.59 | 2401.24 | 191.6 | 2401.19 | 199.91 | 2400.91 | 204.55 | 2400.86 |
| 218.97 | 2400.79 | 226.26 | 2400.38 | 231.83 | 2400.23 | 245.05 | 2400.96 | 248.19 | 2401.1 |
| 254.39 | 2401.43 | 257.31 | 2401.78 | 261.98 | 2402.25 | 263.32 | 2402.3 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 60.22 | .064 | 74.36 | .066 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 50.23 | 76.74 | 127.16 | 123.51 | 110.43 | .1 | .3 |

Right Levee Station= 87.38 Elevation= 2404.55
Blocked Obstructions num= 1

| Sta L | Sta R | Elev |
|---|---|---|
| 88.17 | 157.97 | 2404.542 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2402.33 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.14 | Wt. n-Val. | 0.061 | 0.063 | 0.066 |
| W.S. Elev (ft) | 2402.19 | Reach Len. (ft) | 127.16 | 123.51 | 110.43 |
| Crit W.S. (ft) | 2401.11 | Flow Area (sq ft) | 19.67 | 66.79 | 10.07 |
| E.G. Slope (ft/ft) | 0.005255 | Area (sq ft) | 19.67 | 66.79 | 10.07 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 28.89 | 212.68 | 18.42 |
| Top Width (ft) | 60.50 | Top Width (ft) | 25.89 | 26.51 | 8.10 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Vel Total (ft/s) | 2.69 | Avg. Vel. (ft/s) | 1.47 | 3.18 | 1.83 |
| Max Chl Dpth (ft) | 3.04 | Hydr. Depth (ft) | 0.76 | 2.52 | 1.24 |
| Conv. Total (cfs) | 3586.5 | Conv. (cfs) | 398.6 | 2933.8 | 254.2 |
| Length Wtd. (ft) | 122.63 | Wetted Per. (ft) | 25.93 | 26.63 | 8.48 |
| Min Ch El (ft) | 2399.15 | Shear (lb/sq ft) | 0.25 | 0.82 | 0.39 |
| Alpha | 1.21 | Stream Power (lb/ft s) | 0.37 | 2.62 | 0.71 |
| Frctn Loss (ft) | 1.42 | Cum Volume (acre-ft) | 2.21 | 12.01 | 2.41 |
| C & E Loss (ft) | 0.05 | Cum SA (acres) | 2.28 | 5.04 | 2.63 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2402.73 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.18 | Wt. n-Val. | | 0.063 | |
| W.S. Elev (ft) | 2402.55 | Reach Len. (ft) | 127.16 | 123.51 | 110.43 |
| Crit W.S. (ft) | 2401.12 | Flow Area (sq ft) | | 76.39 | |
| E.G. Slope (ft/ft) | 0.005762 | Area (sq ft) | | 76.39 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 26.51 | Top Width (ft) | | 26.51 | |
| Vel Total (ft/s) | 3.40 | Avg. Vel. (ft/s) | | 3.40 | |
| Max Chl Dpth (ft) | 3.40 | Hydr. Depth (ft) | | 2.88 | |
| Conv. Total (cfs) | 3425.3 | Conv. (cfs) | | 3425.3 | |
| Length Wtd. (ft) | 123.51 | Wetted Per. (ft) | | 31.23 | |
| Min Ch El (ft) | 2399.15 | Shear (lb/sq ft) | | 0.88 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 2.99 | |
| Frctn Loss (ft) | 1.55 | Cum Volume (acre-ft) | 0.02 | 14.04 | 0.03 |
| C & E Loss (ft) | 0.05 | Cum SA (acres) | 0.01 | 5.05 | 0.02 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 12.56 | 25.12 | 0.00 | 0.02 | 0.78 | 0.00 | 0.03 | 0.14 |
| 2 | LOB | 25.12 | 37.67 | 5.70 | 5.92 | 12.58 | 2.19 | 0.47 | 0.96 |
| 3 | LOB | 37.67 | 50.23 | 23.19 | 13.73 | 12.57 | 8.92 | 1.09 | 1.69 |
| 4 | Chan | 50.23 | 56.86 | 30.78 | 11.90 | 6.68 | 11.84 | 1.80 | 2.59 |
| 5 | Chan | 56.86 | 63.49 | 57.32 | 17.53 | 6.68 | 22.05 | 2.64 | 3.27 |
| 6 | Chan | 63.49 | 70.11 | 67.36 | 19.54 | 6.63 | 25.91 | 2.95 | 3.45 |
| 7 | Chan | 70.11 | 76.74 | 57.21 | 17.83 | 6.64 | 22.00 | 2.69 | 3.21 |
| 8 | ROB | 76.74 | 87.38 | 18.42 | 10.07 | 8.48 | 7.09 | 1.24 | 1.83 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 50.23 | 56.86 | 37.34 | 14.30 | 8.42 | 14.36 | 2.16 | 2.61 |
| 2 | Chan | 56.86 | 63.49 | 73.92 | 19.92 | 6.68 | 28.43 | 3.01 | 3.71 |
| 3 | Chan | 63.49 | 70.11 | 85.11 | 21.94 | 6.63 | 32.73 | 3.31 | 3.88 |
| 4 | Chan | 70.11 | 76.74 | 63.64 | 20.22 | 9.50 | 24.48 | 3.05 | 3.15 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.96505

INPUT
Description: Blocked Obstruction at Parcel 216-20-008D
Station Elevation Data num= 22

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2401.43 | 20.17 | 2400.18 | 20.8 | 2400.14 | 22.94 | 2399.87 | 26.11 | 2399.5 |
| 29.87 | 2399.07 | 34.46 | 2398.42 | 35.25 | 2398.31 | 49.03 | 2398.92 | 49.18 | 2398.96 |
| 49.3 | 2399 | 50.1 | 2399.08 | 51.18 | 2399.22 | 62.63 | 2400.68 | 66.12 | 2401.13 |
| 74.81 | 2402.09 | 75.63 | 2402.18 | 76.61 | 2402.13 | 76.68 | 2403.57 | 81.59 | 2402 |
| 83.15 | 2401.8 | 85.67 | 2401.8 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 34.46 | .064 | 51.18 | .066 |

```
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         26.11   49.03             20.87   18.87   14.83          .1       .3
Blocked Obstructions      num=       1
   Sta L    Sta R    Elev
************************
   71.94   85.672401.798
```

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2400.87 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.60 | Wt. n-Val. | 0.061 | 0.063 | 0.065 |
| W.S. Elev (ft) | 2400.27 | Reach Len. (ft) | 20.87 | 18.87 | 14.83 |
| Crit W.S. (ft) | 2400.27 | Flow Area (sq ft) | 2.53 | 34.93 | 6.83 |
| E.G. Slope (ft/ft) | 0.043064 | Area (sq ft) | 2.53 | 34.93 | 6.83 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 6.26 | 227.21 | 26.53 |
| Top Width (ft) | 40.61 | Top Width (ft) | 7.33 | 22.92 | 10.36 |
| Vel Total (ft/s) | 5.87 | Avg. Vel. (ft/s) | 2.48 | 6.50 | 3.88 |
| Max Chl Dpth (ft) | 1.96 | Hydr. Depth (ft) | 0.34 | 1.52 | 0.66 |
| Conv. Total (cfs) | 1252.9 | Conv. (cfs) | 30.2 | 1094.9 | 127.8 |
| Length Wtd. (ft) | 18.41 | Wetted Per. (ft) | 7.38 | 23.01 | 10.45 |
| Min Ch El (ft) | 2398.31 | Shear (lb/sq ft) | 0.92 | 4.08 | 1.76 |
| Alpha | 1.12 | Stream Power (lb/ft s) | 2.28 | 26.55 | 6.83 |
| Frctn Loss (ft) | 0.69 | Cum Volume (acre-ft) | 2.17 | 11.87 | 2.39 |
| C & E Loss (ft) | 0.05 | Cum SA (acres) | 2.24 | 4.97 | 2.60 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2401.13 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.70 | Wt. n-Val. | | 0.063 | |
| W.S. Elev (ft) | 2400.43 | Reach Len. (ft) | 20.87 | 18.87 | 14.83 |
| Crit W.S. (ft) | 2400.32 | Flow Area (sq ft) | | 38.76 | |
| E.G. Slope (ft/ft) | 0.045679 | Area (sq ft) | | 38.76 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 22.92 | Top Width (ft) | | 22.92 | |
| Vel Total (ft/s) | 6.71 | Avg. Vel. (ft/s) | | 6.71 | |
| Max Chl Dpth (ft) | 2.12 | Hydr. Depth (ft) | | 1.69 | |
| Conv. Total (cfs) | 1216.5 | Conv. (cfs) | | 1216.5 | |
| Length Wtd. (ft) | 18.87 | Wetted Per. (ft) | | 25.46 | |
| Min Ch El (ft) | 2398.31 | Shear (lb/sq ft) | | 4.34 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 29.12 | |
| Frctn Loss (ft) | 0.69 | Cum Volume (acre-ft) | 0.02 | 13.88 | 0.03 |
| C & E Loss (ft) | 0.05 | Cum SA (acres) | 0.01 | 4.98 | 0.02 |

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 13.06 | 19.58 | 0.01 | 0.02 | 0.81 | 0.00 | 0.03 | 0.40 |
| 2 | LOB | 19.58 | 26.11 | 6.26 | 2.51 | 6.57 | 2.41 | 0.38 | 2.49 |
| 3 | Chan | 26.11 | 31.84 | 33.60 | 6.32 | 5.77 | 12.92 | 1.10 | 5.32 |
| 4 | Chan | 31.84 | 37.57 | 73.63 | 10.27 | 5.77 | 28.32 | 1.79 | 7.17 |
| 5 | Chan | 37.57 | 43.30 | 67.88 | 9.89 | 5.74 | 26.11 | 1.73 | 6.86 |
| 6 | Chan | 43.30 | 49.03 | 52.10 | 8.44 | 5.74 | 20.04 | 1.47 | 6.17 |
| 7 | ROB | 49.03 | 58.19 | 26.45 | 6.74 | 9.24 | 10.17 | 0.74 | 3.92 |
| 8 | ROB | 58.19 | 67.35 | 0.07 | 0.09 | 1.21 | 0.03 | 0.08 | 0.81 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 26.11 | 31.84 | 39.01 | 7.28 | 6.71 | 15.00 | 1.27 | 5.36 |
| 2 | Chan | 31.84 | 37.57 | 86.62 | 11.23 | 5.77 | 33.31 | 1.96 | 7.71 |
| 3 | Chan | 37.57 | 43.30 | 80.31 | 10.85 | 5.74 | 30.89 | 1.89 | 7.40 |
| 4 | Chan | 43.30 | 49.03 | 54.06 | 9.40 | 7.25 | 20.79 | 1.64 | 5.75 |

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.96148

INPUT
Description: Blocked Obstruction at Parcel 216-20-008D
Station Elevation Data num= 19

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2400.37 | 10.26 | 2399.45 | 11.86 | 2399.3 | 12.65 | 2399.22 | 21.18 | 2398.33 |
| 21.42 | 2398.31 | 23.07 | 2398.17 | 26.59 | 2397.87 | 29.22 | 2397.65 | 34.24 | 2397.76 |
| 44.48 | 2397.81 | 45.99 | 2397.96 | 47.96 | 2398.15 | 52.09 | 2398.55 | 63.37 | 2399.67 |
| 77.61 | 2401.25 | 78.01 | 2401.23 | 78.66 | 2401.19 | 83.31 | 2401.32 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|

```
************************************************
       0    .061   26.59    .064   47.96    .066

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         23.07   44.48             27.14   21.02   14.56            .1       .3
Blocked Obstructions      num=        1
   Sta L   Sta R    Elev
************************
      78   83.312401.323

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)          * 2399.79  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.42  * Wt. n-Val.              *   0.061  *   0.064  *   0.065  *
* W.S. Elev (ft)          * 2399.36  * Reach Len. (ft)         *   27.14  *   21.02  *   14.56  *
* Crit W.S. (ft)          * 2399.25  * Flow Area (sq ft)       *    7.22  *   33.42  *   12.32  *
* E.G. Slope (ft/ft)      *0.032727  * Area (sq ft)            *    7.22  *   33.42  *   12.32  *
* Q Total (cfs)           *  260.00  * Flow (cfs)              *   22.75  *  190.36  *   46.89  *
* Top Width (ft)          *   49.09  * Top Width (ft)           *   11.88  *   21.41  *   15.80  *
* Vel Total (ft/s)        *    4.91  * Avg. Vel. (ft/s)         *    3.15  *    5.70  *    3.81  *
* Max Chl Dpth (ft)       *    1.71  * Hydr. Depth (ft)         *    0.61  *    1.56  *    0.78  *
* Conv. Total (cfs)       *  1437.2  * Conv. (cfs)              *   125.7  *  1052.3  *   259.2  *
* Length Wtd. (ft)        *   20.97  * Wetted Per. (ft)         *   11.94  *   21.43  *   15.87  *
* Min Ch El (ft)          * 2397.65  * Shear (lb/sq ft)         *    1.24  *    3.19  *    1.59  *
* Alpha                   *    1.13  * Stream Power (lb/ft s)   *    3.89  *   18.15  *    6.04  *
* Frctn Loss (ft)         *    0.83  * Cum Volume (acre-ft)     *    2.17  *   11.85  *    2.39  *
* C & E Loss (ft)         *    0.01  * Cum SA (acres)           *    2.23  *    4.96  *    2.60  *
*****************************************************************************************

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************
* E.G. Elev (ft)          * 2400.40  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.55  * Wt. n-Val.              *         *   0.064  *         *
* W.S. Elev (ft)          * 2399.85  * Reach Len. (ft)         *   27.14  *   21.02  *   14.56  *
* Crit W.S. (ft)          * 2399.46  * Flow Area (sq ft)       *         *   43.84  *         *
* E.G. Slope (ft/ft)      *0.029986  * Area (sq ft)            *         *   43.84  *         *
* Q Total (cfs)           *  260.00  * Flow (cfs)              *         *  260.00  *         *
* Top Width (ft)          *   21.41  * Top Width (ft)           *         *   21.41  *         *
* Vel Total (ft/s)        *    5.93  * Avg. Vel. (ft/s)         *         *    5.93  *         *
* Max Chl Dpth (ft)       *    2.20  * Hydr. Depth (ft)         *         *    2.05  *         *
* Conv. Total (cfs)       *  1501.5  * Conv. (cfs)              *         *  1501.5  *         *
* Length Wtd. (ft)        *   21.02  * Wetted Per. (ft)         *         *   25.15  *         *
* Min Ch El (ft)          * 2397.65  * Shear (lb/sq ft)         *         *    3.26  *         *
* Alpha                   *    1.00  * Stream Power (lb/ft s)   *         *   19.35  *         *
* Frctn Loss (ft)         *    0.85  * Cum Volume (acre-ft)     *    0.02  *   13.86  *    0.03  *
* C & E Loss (ft)         *    0.02  * Cum SA (acres)           *    0.01  *    4.97  *    0.02  *
*****************************************************************************************

  Profile #PF 1
*****************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) *  (sq ft) *    (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB      * 5.77      * 11.54     *     0.00 *     0.01 *    0.35 *     0.00 *     0.02 *     0.24 *
* 2        * LOB      * 11.54     * 17.30     *     3.44 *     1.89 *    5.80 *     1.32 *     0.33 *     1.82 *
* 3        * LOB      * 17.30     * 23.07     *    19.31 *     5.32 *    5.80 *     7.43 *     0.92 *     3.63 *
* 4        * Chan     * 23.07     * 28.42     *    41.55 *     7.60 *    5.37 *    15.98 *     1.42 *     5.47 *
* 5        * Chan     * 28.42     * 33.78     *    52.56 *     8.91 *    5.36 *    20.22 *     1.67 *     5.90 *
* 6        * Chan     * 33.78     * 39.13     *    48.80 *     8.52 *    5.35 *    18.77 *     1.59 *     5.73 *
* 7        * Chan     * 39.13     * 44.48     *    47.45 *     8.38 *    5.35 *    18.25 *     1.57 *     5.66 *
* 8        * ROB      * 44.48     * 54.19     *    43.74 *    10.48 *    9.75 *    16.82 *     1.08 *     4.17 *
* 9        * ROB      * 54.19     * 63.90     *     3.16 *     1.84 *    6.12 *     1.21 *     0.30 *     1.72 *
*****************************************************************************************************************

  Profile #PF 2
*****************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) *  (sq ft) *    (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan     * 23.07     * 28.42     *    55.02 *    10.21 *    7.05 *    21.16 *     1.91 *     5.39 *
* 2        * Chan     * 28.42     * 33.78     *    76.20 *    11.52 *    5.36 *    29.31 *     2.15 *     6.61 *
* 3        * Chan     * 33.78     * 39.13     *    71.97 *    11.13 *    5.35 *    27.68 *     2.08 *     6.47 *
* 4        * Chan     * 39.13     * 44.48     *    56.81 *    10.99 *    7.39 *    21.85 *     2.05 *     5.17 *
*****************************************************************************************************************

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1      RS: 0.95750

INPUT
Description:
Station Elevation Data    num=      20
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*****************************************************************************
       0 2399.57     2.53 2399.19    13.6  2397.6    16.21 2397.43    16.52 2397.41
   22.47 2397.48    27.78 2397.25   30.54 2397.07   33.91 2396.84    45.78 2397.43
   49.72 2397.62    51.11  2397.8   51.83 2397.88   52.89 2398.01     56.6 2398.43
   60.45 2398.85    77.39 2400.58   78.48 2400.67    81.1 2400.87    83.39 2400.92

Manning's n Values        num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*************************************************
       0    .061   30.54    .064   51.83    .066

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         22.47   45.78             24.28   25.63   18.58            .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)          * 2398.95  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.50  * Wt. n-Val.              *   0.061  *   0.063  *   0.064  *
* W.S. Elev (ft)          * 2398.45  * Reach Len. (ft)         *   24.28  *   25.63  *   18.58  *
* Crit W.S. (ft)          * 2398.45  * Flow Area (sq ft)       *   11.22  *   29.91  *    6.48  *
* E.G. Slope (ft/ft)      *0.048655  * Area (sq ft)            *   11.22  *   29.91  *    6.48  *
* Q Total (cfs)           *  260.00  * Flow (cfs)              *   50.02  *  183.83  *   26.15  *
* Top Width (ft)          *   49.06  * Top Width (ft)           *   14.77  *   23.31  *   10.98  *
```

| | | | | | | |
|---|---|---|---|---|---|---|
| Vel Total (ft/s) | 5.46 | Avg. Vel. (ft/s) | 4.46 | 6.15 | 4.04 |
| Max Chl Dpth (ft) | 1.61 | Hydr. Depth (ft) | 0.76 | 1.28 | 0.59 |
| Conv. Total (cfs) | 1178.7 | Conv. (cfs) | 226.8 | 833.4 | 118.5 |
| Length Wtd. (ft) | 24.94 | Wetted Per. (ft) | 14.84 | 23.34 | 11.03 |
| Min Ch El (ft) | 2396.84 | Shear (lb/sq ft) | 2.30 | 3.89 | 1.78 |
| Alpha | 1.08 | Stream Power (lb/ft s) | 10.24 | 23.92 | 7.20 |
| Frctn Loss (ft) | 0.79 | Cum Volume (acre-ft) | 2.16 | 11.84 | 2.39 |
| C & E Loss (ft) | 0.05 | Cum SA (acres) | 2.22 | 4.95 | 2.59 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2399.52 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.79 | Wt. n-Val. | | 0.063 | |
| W.S. Elev (ft) | 2398.73 | Reach Len. (ft) | 24.28 | 25.63 | 18.58 |
| Crit W.S. (ft) | 2398.73 | Flow Area (sq ft) | | 36.38 | |
| E.G. Slope (ft/ft) | 0.058002 | Area (sq ft) | | 36.38 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 23.31 | Top Width (ft) | | 23.31 | |
| Vel Total (ft/s) | 7.15 | Avg. Vel. (ft/s) | | 7.15 | |
| Max Chl Dpth (ft) | 1.88 | Hydr. Depth (ft) | | 1.56 | |
| Conv. Total (cfs) | 1079.6 | Conv. (cfs) | | 1079.6 | |
| Length Wtd. (ft) | 25.63 | Wetted Per. (ft) | | 25.88 | |
| Min Ch El (ft) | 2396.84 | Shear (lb/sq ft) | | 5.09 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 36.37 | |
| Frctn Loss (ft) | 0.43 | Cum Volume (acre-ft) | 0.02 | 13.84 | 0.03 |
| C & E Loss (ft) | 0.17 | Cum SA (acres) | 0.01 | 4.96 | 0.02 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 5.62 | 11.24 | 1.76 | 0.90 | 3.57 | 0.68 | 0.25 | 1.97 |
| 2 | LOB | 11.24 | 16.85 | 20.51 | 4.70 | 5.65 | 7.89 | 0.84 | 4.37 |
| 3 | LOB | 16.85 | 22.47 | 27.75 | 5.62 | 5.62 | 10.67 | 1.00 | 4.94 |
| 4 | Chan | 22.47 | 28.30 | 36.14 | 6.38 | 5.83 | 13.90 | 1.09 | 5.67 |
| 5 | Chan | 28.30 | 34.13 | 54.41 | 8.30 | 5.84 | 20.93 | 1.42 | 6.56 |
| 6 | Chan | 34.13 | 39.95 | 55.19 | 8.46 | 5.83 | 21.23 | 1.45 | 6.52 |
| 7 | Chan | 39.95 | 45.78 | 38.09 | 6.77 | 5.83 | 14.65 | 1.16 | 5.62 |
| 8 | ROB | 45.78 | 55.18 | 26.01 | 6.34 | 9.45 | 10.00 | 0.67 | 4.11 |
| 9 | ROB | 55.18 | 64.59 | 0.14 | 0.14 | 1.59 | 0.05 | 0.09 | 0.97 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 22.47 | 28.30 | 49.96 | 7.99 | 7.08 | 19.22 | 1.37 | 6.25 |
| 2 | Chan | 28.30 | 34.13 | 78.96 | 9.92 | 5.84 | 30.37 | 1.70 | 7.96 |
| 3 | Chan | 34.13 | 39.95 | 79.70 | 10.08 | 5.83 | 30.65 | 1.73 | 7.91 |
| 4 | Chan | 39.95 | 45.78 | 51.38 | 8.39 | 7.13 | 19.76 | 1.44 | 6.12 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.95264

INPUT
Description:
Station Elevation Data num= 25

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2398.61 | .19 | 2398.6 | 4.88 | 2398.23 | 10.68 | 2397.7 | 12.23 | 2397.55 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 17.88 | 2396.91 | 19.24 | 2396.74 | 20.19 | 2396.62 | 20.43 | 2396.61 | 25.92 | 2396.53 |
| 27.36 | 2396.44 | 28.57 | 2396.36 | 33.63 | 2396 | 35.95 | 2395.81 | 38.87 | 2395.57 |
| 48.17 | 2396.24 | 52.08 | 2396.5 | 53.2 | 2396.57 | 57.53 | 2397.31 | 69.03 | 2399.37 |
| 72.67 | 2400.01 | 73.35 | 2400.07 | 73.41 | 2400.07 | 80.09 | 2400.41 | 82.48 | 2400.58 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 35.95 | .064 | 52.08 | .066 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 25.92 | 53.2 | 24.15 | 28.39 | 31.61 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2398.04 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.33 | Wt. n-Val. | 0.061 | 0.063 | 0.066 |
| W.S. Elev (ft) | 2397.71 | Reach Len. (ft) | 24.15 | 28.39 | 31.61 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 11.47 | 44.38 | 3.75 |
| E.G. Slope (ft/ft) | 0.022384 | Area (sq ft) | 11.47 | 44.38 | 3.75 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 34.40 | 216.97 | 8.62 |
| Top Width (ft) | 49.11 | Top Width (ft) | 15.29 | 27.28 | 6.53 |
| Vel Total (ft/s) | 4.36 | Avg. Vel. (ft/s) | 3.00 | 4.89 | 2.30 |
| Max Chl Dpth (ft) | 2.13 | Hydr. Depth (ft) | 0.75 | 1.63 | 0.57 |
| Conv. Total (cfs) | 1737.8 | Conv. (cfs) | 230.0 | 1450.2 | 57.6 |
| Length Wtd. (ft) | 28.02 | Wetted Per. (ft) | 15.36 | 27.35 | 6.63 |
| Min Ch El (ft) | 2395.57 | Shear (lb/sq ft) | 1.04 | 2.27 | 0.79 |
| Alpha | 1.12 | Stream Power (lb/ft s) | 3.13 | 11.09 | 1.82 |
| Frctn Loss (ft) | 0.25 | Cum Volume (acre-ft) | 2.16 | 11.82 | 2.38 |
| C & E Loss (ft) | 0.07 | Cum SA (acres) | 2.21 | 4.94 | 2.59 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2398.86 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.21 | Wt. n-Val. | | 0.063 | |
| W.S. Elev (ft) | 2398.64 | Reach Len. (ft) | 24.15 | 28.39 | 31.61 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 70.00 | |
| E.G. Slope (ft/ft) | 0.007929 | Area (sq ft) | | 70.00 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 27.28 | Top Width (ft) | | 27.28 | |
| Vel Total (ft/s) | 3.71 | Avg. Vel. (ft/s) | | 3.71 | |
| Max Chl Dpth (ft) | 3.07 | Hydr. Depth (ft) | | 2.57 | |
| Conv. Total (cfs) | 2919.8 | Conv. (cfs) | | 2919.8 | |
| Length Wtd. (ft) | 28.39 | Wetted Per. (ft) | | 31.54 | |
| Min Ch El (ft) | 2395.57 | Shear (lb/sq ft) | | 1.10 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 4.08 | |
| Frctn Loss (ft) | 0.14 | Cum Volume (acre-ft) | 0.02 | 13.81 | 0.03 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.01 | 4.94 | 0.02 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 6.48 | 12.96 | 0.20 | 0.27 | 2.35 | 0.08 | 0.11 | 0.75 |
| 2 | LOB | 12.96 | 19.44 | 9.01 | 3.93 | 6.52 | 3.47 | 0.61 | 2.29 |
| 3 | LOB | 19.44 | 25.92 | 25.19 | 7.27 | 6.49 | 9.69 | 1.12 | 3.47 |
| 4 | Chan | 25.92 | 32.74 | 43.15 | 9.56 | 6.84 | 16.60 | 1.40 | 4.51 |
| 5 | Chan | 32.74 | 39.56 | 70.20 | 13.00 | 6.84 | 27.00 | 1.91 | 5.40 |
| 6 | Chan | 39.56 | 46.38 | 64.65 | 12.54 | 6.84 | 24.87 | 1.84 | 5.15 |
| 7 | Chan | 46.38 | 53.20 | 38.97 | 9.27 | 6.84 | 14.99 | 1.36 | 4.21 |
| 8 | ROB | 53.20 | 60.52 | 8.62 | 3.75 | 6.63 | 3.32 | 0.57 | 2.30 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 25.92 | 32.74 | 50.42 | 15.97 | 8.95 | 19.39 | 2.34 | 3.16 |
| 2 | Chan | 32.74 | 39.56 | 81.38 | 19.41 | 6.84 | 31.30 | 2.85 | 4.19 |
| 3 | Chan | 39.56 | 46.38 | 76.50 | 18.95 | 6.84 | 29.42 | 2.78 | 4.04 |
| 4 | Chan | 46.38 | 53.20 | 51.69 | 15.67 | 8.91 | 19.88 | 2.30 | 3.30 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.94727

INPUT
Description:
Station Elevation Data num= 24

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2398.8 | 23.18 | 2397.19 | 24.9 | 2397.22 | 27.4 | 2397.1 | 30.53 | 2396.85 |
| 34.77 | 2396.28 | 38 | 2396.17 | 43.08 | 2395.98 | 44.51 | 2395.87 | 50.89 | 2395.44 |
| 53.79 | 2395.29 | 58.19 | 2395.02 | 60.99 | 2394.84 | 61.09 | 2394.81 | 61.44 | 2394.72 |
| 69.36 | 2395.15 | 72.42 | 2395.39 | 72.73 | 2395.44 | 78.2 | 2396.26 | 80.51 | 2396.62 |
| 88.79 | 2397.92 | 89.84 | 2398.08 | 93.93 | 2398.27 | 95.21 | 2398.35 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|

```
*************************************************
       0    .061   58.19    .064   72.73    .066

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         44.51   72.73             17.1   14.55   17.28            .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************************
* E.G. Elev (ft)          * 2397.72  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.11  * Wt. n-Val.              *   0.061  *   0.063  *   0.066  *
* W.S. Elev (ft)          * 2397.61  * Reach Len. (ft)         *   17.10  *   14.55  *   17.28  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *   24.21  *   67.61  *   15.46  *
* E.G. Slope (ft/ft)      *0.004719  * Area (sq ft)            *   24.21  *   67.61  *   15.46  *
* Q Total (cfs)           *  260.00  * Flow (cfs)              *   37.25  *  197.50  *   25.24  *
* Top Width (ft)          *   69.70  * Top Width (ft)           *   27.39  *   28.22  *   14.09  *
* Vel Total (ft/s)        *    2.42  * Avg. Vel. (ft/s)         *    1.54  *    2.92  *    1.63  *
* Max Chl Dpth (ft)       *    2.89  * Hydr. Depth (ft)         *    0.88  *    2.40  *    1.10  *
* Conv. Total (cfs)       *  3784.9  * Conv. (cfs)              *   542.3  *  2875.1  *   367.5  *
* Length Wtd. (ft)        *   15.33  * Wetted Per. (ft)         *   27.46  *   28.29  *   14.26  *
* Min Ch El (ft)          * 2394.72  * Shear (lb/sq ft)         *    0.26  *    0.70  *    0.32  *
* Alpha                   *    1.21  * Stream Power (lb/ft s)    *    0.40  *    2.06  *    0.52  *
* Frctn Loss (ft)         *    0.04  * Cum Volume (acre-ft)      *    2.15  *   11.78  *    2.38  *
* C & E Loss (ft)         *    0.02  * Cum SA (acres)            *    2.20  *    4.92  *    2.58  *
*****************************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************************
* E.G. Elev (ft)          * 2398.69  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.12  * Wt. n-Val.              *          *   0.063  *          *
* W.S. Elev (ft)          * 2398.57  * Reach Len. (ft)         *   17.10  *   14.55  *   17.28  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *          *   94.68  *          *
* E.G. Slope (ft/ft)      *0.003427  * Area (sq ft)            *          *   94.68  *          *
* Q Total (cfs)           *  260.00  * Flow (cfs)              *          *  260.00  *          *
* Top Width (ft)          *   28.22  * Top Width (ft)           *          *   28.22  *          *
* Vel Total (ft/s)        *    2.75  * Avg. Vel. (ft/s)         *          *    2.75  *          *
* Max Chl Dpth (ft)       *    3.85  * Hydr. Depth (ft)         *          *    3.36  *          *
* Conv. Total (cfs)       *  4441.2  * Conv. (cfs)              *          *  4441.2  *          *
* Length Wtd. (ft)        *   14.55  * Wetted Per. (ft)         *          *   34.12  *          *
* Min Ch El (ft)          * 2394.72  * Shear (lb/sq ft)         *          *    0.59  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s)    *          *    1.63  *          *
* Frctn Loss (ft)         *    0.04  * Cum Volume (acre-ft)      *    0.02  *   13.76  *    0.03  *
* C & E Loss (ft)         *    0.01  * Cum SA (acres)            *    0.01  *    4.92  *    0.02  *
*****************************************************************************************************

  Profile #PF 1
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) * (sq ft) *    (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB       * 11.13     * 22.26     *     0.41 *     0.92 *     5.15 *     0.16 *     0.18 *     0.44 *
* 2        * LOB       * 22.26     * 33.38     *     7.02 *     6.89 *    11.17 *     2.70 *     0.62 *     1.02 *
* 3        * LOB       * 33.38     * 44.51     *    29.83 *    16.41 *    11.15 *    11.47 *     1.47 *     1.82 *
* 4        * Chan      * 44.51     * 51.57     *    36.63 *    13.96 *     7.07 *    14.09 *     1.98 *     2.62 *
* 5        * Chan      * 51.57     * 58.62     *    50.56 *    16.96 *     7.07 *    19.45 *     2.40 *     2.98 *
* 6        * Chan      * 58.62     * 65.68     *    60.47 *    19.42 *     7.08 *    23.26 *     2.75 *     3.11 *
* 7        * Chan      * 65.68     * 72.73     *    49.84 *    17.28 *     7.07 *    19.17 *     2.45 *     2.88 *
* 8        * ROB       * 72.73     * 78.35     *    18.85 *     9.83 *     5.68 *     7.25 *     1.75 *     1.92 *
* 9        * ROB       * 78.35     * 83.97     *     6.09 *     4.99 *     5.69 *     2.34 *     0.89 *     1.22 *
* 10       * ROB       * 83.97     * 89.59     *     0.31 *     0.64 *     2.89 *     0.12 *     0.22 *     0.49 *
*****************************************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.

  Profile #PF 2
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) * (sq ft) *    (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 44.51     * 51.57     *    47.43 *    20.72 *     9.77 *    18.24 *     2.94 *     2.29 *
* 2        * Chan      * 51.57     * 58.62     *    73.55 *    23.73 *     7.07 *    28.29 *     3.36 *     3.10 *
* 3        * Chan      * 58.62     * 65.68     *    82.74 *    26.18 *     7.08 *    31.82 *     3.71 *     3.16 *
* 4        * Chan      * 65.68     * 72.73     *    56.28 *    24.05 *    10.20 *    21.65 *     3.41 *     2.34 *
*****************************************************************************************************************

CROSS SECTION


RIVER: Ocotillo Wash 1
REACH: Tributary-2.1       RS: 0.94451

INPUT
Description:
Station Elevation Data     num=      34
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
       0 2399.26    3.44 2399.17     4.4 2399.14    5.44 2399.08   22.52 2398.12
   33.61 2397.38   58.12 2395.15   58.28 2395.14   63.51 2394.87   64.68  2394.8
   74.65 2394.47   76.45 2394.41   79.37 2394.32   88.66 2394.69   90.53 2394.76
   96.17 2395.69   105.6 2397.35  106.49  2397.4  125.98 2398.43  130.49  2398.6
  136.41 2398.17   140.3 2397.99  140.61 2397.97  162.96 2396.48  168.96  2396.3
  176.55 2396.04  184.93  2396.2  187.16 2396.29  210.79 2398.06  214.92 2398.35
  216.37 2398.43  218.56 2398.66  222.03 2398.77  222.04 2398.77

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
       0    .061   74.65    .064   88.66    .066

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         64.68   90.53             335.58  348.61  333.38            .1       .3
Right Levee     Station=  130.49      Elevation=  2398.6

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************************
```

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 2397.66 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.05 | Wt. n-Val. | 0.061 | 0.063 | 0.066 |
| W.S. Elev (ft) | 2397.61 | Reach Len. (ft) | 335.58 | 348.61 | 333.38 |
| Crit W.S. (ft) | 2395.90 | Flow Area (sq ft) | 50.58 | 79.04 | 24.32 |
| E.G. Slope (ft/ft) | 0.001795 | Area (sq ft) | 50.58 | 79.04 | 24.32 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 67.22 | 166.46 | 26.32 |
| Top Width (ft) | 80.25 | Top Width (ft) | 34.49 | 25.85 | 19.91 |
| Vel Total (ft/s) | 1.69 | Avg. Vel. (ft/s) | 1.33 | 2.11 | 1.08 |
| Max Chl Dpth (ft) | 3.29 | Hydr. Depth (ft) | 1.47 | 3.06 | 1.22 |
| Conv. Total (cfs) | 6136.3 | Conv. (cfs) | 1586.4 | 3928.7 | 621.2 |
| Length Wtd. (ft) | 344.17 | Wetted Per. (ft) | 34.61 | 25.87 | 20.13 |
| Min Ch El (ft) | 2394.32 | Shear (lb/sq ft) | 0.16 | 0.34 | 0.14 |
| Alpha | 1.20 | Stream Power (lb/ft s) | 0.22 | 0.72 | 0.15 |
| Frctn Loss (ft) | 1.44 | Cum Volume (acre-ft) | 2.13 | 11.76 | 2.37 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 2.19 | 4.91 | 2.58 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 2398.64 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.10 | Wt. n-Val. | | 0.063 | |
| W.S. Elev (ft) | 2398.54 | Reach Len. (ft) | 335.58 | 348.61 | 333.38 |
| Crit W.S. (ft) | 2396.01 | Flow Area (sq ft) | | 103.20 | |
| E.G. Slope (ft/ft) | 0.002258 | Area (sq ft) | | 103.20 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 25.85 | Top Width (ft) | | 25.85 | |
| Vel Total (ft/s) | 2.52 | Avg. Vel. (ft/s) | | 2.52 | |
| Max Chl Dpth (ft) | 4.22 | Hydr. Depth (ft) | | 3.99 | |
| Conv. Total (cfs) | 5472.0 | Conv. (cfs) | | 5472.0 | |
| Length Wtd. (ft) | 348.61 | Wetted Per. (ft) | | 33.39 | |
| Min Ch El (ft) | 2394.32 | Shear (lb/sq ft) | | 0.44 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 1.10 | |
| Frctn Loss (ft) | 1.65 | Cum Volume (acre-ft) | 0.02 | 13.72 | 0.03 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.01 | 4.91 | 0.02 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 16.17 | 32.34 | 0.02 | 0.15 | 2.16 | 0.01 | 0.07 | 0.15 |
| 2 | LOB | 32.34 | 48.51 | 10.94 | 13.74 | 16.23 | 4.21 | 0.85 | 0.80 |
| 3 | LOB | 48.51 | 64.68 | 56.25 | 36.68 | 16.22 | 21.63 | 2.27 | 1.53 |
| 4 | Chan | 64.68 | 71.14 | 39.65 | 18.84 | 6.47 | 15.25 | 2.92 | 2.10 |
| 5 | Chan | 71.14 | 77.61 | 43.64 | 20.22 | 6.47 | 16.78 | 3.13 | 2.16 |
| 6 | Chan | 77.61 | 84.07 | 44.44 | 20.76 | 6.47 | 17.09 | 3.21 | 2.14 |
| 7 | Chan | 84.07 | 90.53 | 38.73 | 19.21 | 6.47 | 14.90 | 2.97 | 2.02 |
| 8 | ROB | 90.53 | 130.49 | 26.32 | 24.32 | 20.13 | 10.12 | 1.22 | 1.08 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 64.68 | 71.14 | 51.57 | 24.88 | 10.21 | 19.83 | 3.85 | 2.07 |
| 2 | Chan | 71.14 | 77.61 | 74.85 | 26.26 | 6.47 | 28.79 | 4.06 | 2.85 |
| 3 | Chan | 77.61 | 84.07 | 75.45 | 26.80 | 6.47 | 29.02 | 4.15 | 2.81 |
| 4 | Chan | 84.07 | 90.53 | 58.13 | 25.25 | 10.25 | 22.36 | 3.91 | 2.30 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.94232

INPUT
Description:
Station Elevation Data num= 17

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2396.39 | 3.45 | 2396.09 | 9.79 | 2395.74 | 21.95 | 2395.04 | 26.16 | 2394.8 |
| 27.42 | 2394.72 | 31.64 | 2394.39 | 34.4 | 2394.18 | 39.28 | 2393.81 | 49.39 | 2394.08 |
| 49.78 | 2394.09 | 51.15 | 2394.14 | 52 | 2394.18 | 65.09 | 2396.14 | 66.81 | 2396.4 |
| 67.59 | 2396.44 | 72.22 | 2396.69 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|

```
***********************************************
       0    .061    34.4    .064   49.78    .066

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          31.64     52             11.84   12.29   11.28            .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)         * 2396.19  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.29  * Wt. n-Val.              *   0.061  *   0.064  *   0.066  *
* W.S. Elev (ft)         * 2395.90  * Reach Len. (ft)         *   11.84  *   12.29  *   11.28  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)       *   17.65  *   38.13  *    9.87  *
* E.G. Slope (ft/ft)     *0.018879  * Area (sq ft)            *   17.65  *   38.13  *    9.87  *
* Q Total (cfs)          *  260.00  * Flow (cfs)              *   47.12  *  185.48  *   27.40  *
* Top Width (ft)         *   56.57  * Top Width (ft)           *   24.73  *   20.36  *   11.48  *
* Vel Total (ft/s)       *    3.96  * Avg. Vel. (ft/s)         *    2.67  *    4.86  *    2.78  *
* Max Chl Dpth (ft)      *    2.09  * Hydr. Depth (ft)         *    0.71  *    1.87  *    0.86  *
* Conv. Total (cfs)      *  1892.3  * Conv. (cfs)              *   342.9  *  1349.9  *   199.4  *
* Length Wtd. (ft)       *   12.10  * Wetted Per. (ft)         *   24.78  *   20.39  *   11.61  *
* Min Ch El (ft)         * 2393.81  * Shear (lb/sq ft)         *    0.84  *    2.20  *    1.00  *
* Alpha                  *    1.21  * Stream Power (lb/ft s)    *    2.24  *   10.72  *    2.78  *
* Frctn Loss (ft)        *    0.33  * Cum Volume (acre-ft)      *    1.87  *   11.29  *    2.24  *
* C & E Loss (ft)        *    0.02  * Cum SA (acres)            *    1.96  *    4.72  *    2.46  *
*****************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************
* E.G. Elev (ft)         * 2396.96  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.39  * Wt. n-Val.              *          *   0.064  *          *
* W.S. Elev (ft)         * 2396.57  * Reach Len. (ft)         *   11.84  *   12.29  *   11.28  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)       *          *   51.84  *          *
* E.G. Slope (ft/ft)     *0.015628  * Area (sq ft)            *          *   51.84  *          *
* Q Total (cfs)          *  260.00  * Flow (cfs)              *          *  260.00  *          *
* Top Width (ft)         *   20.36  * Top Width (ft)           *          *   20.36  *          *
* Vel Total (ft/s)       *    5.02  * Avg. Vel. (ft/s)         *          *    5.02  *          *
* Max Chl Dpth (ft)      *    2.76  * Hydr. Depth (ft)         *          *    2.55  *          *
* Conv. Total (cfs)      *  2079.8  * Conv. (cfs)              *          *  2079.8  *          *
* Length Wtd. (ft)       *   12.29  * Wetted Per. (ft)         *          *   24.96  *          *
* Min Ch El (ft)         * 2393.81  * Shear (lb/sq ft)         *          *    2.03  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s)    *          *   10.16  *          *
* Frctn Loss (ft)        *    0.33  * Cum Volume (acre-ft)      *    0.02  *   13.10  *    0.03  *
* C & E Loss (ft)        *    0.06  * Cum SA (acres)            *    0.01  *    4.73  *    0.02  *
*****************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. * Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) * (sq ft) *    (ft) *    Conv *Depth(ft) *   (ft/s) *
* 1        * LOB      * 0.00      * 7.91      *     0.01 *     0.03 *    1.00 *    0.00 *    0.03 *     0.26 *
* 2        * LOB      * 7.91      * 15.82     *     2.68 *     2.21 *    7.92 *    1.03 *    0.28 *     1.21 *
* 3        * LOB      * 15.82     * 23.73     *    13.40 *     5.80 *    7.92 *    5.15 *    0.73 *     2.31 *
* 4        * LOB      * 23.73     * 31.64     *    31.04 *     9.61 *    7.93 *   11.94 *    1.22 *     3.23 *
* 5        * Chan     * 31.64     * 36.73     *    40.35 *     8.67 *    5.10 *   15.52 *    1.70 *     4.66 *
* 6        * Chan     * 36.73     * 41.82     *    52.48 *    10.30 *    5.10 *   20.18 *    2.02 *     5.09 *
* 7        * Chan     * 41.82     * 46.91     *    49.51 *     9.94 *    5.09 *   19.04 *    1.95 *     4.98 *
* 8        * Chan     * 46.91     * 52.00     *    43.14 *     9.22 *    5.09 *   16.59 *    1.81 *     4.68 *
* 9        * ROB      * 52.00     * 57.06     *    21.85 *     6.78 *    5.11 *    8.40 *    1.34 *     3.22 *
* 10       * ROB      * 57.06     * 62.11     *     5.47 *     2.95 *    5.11 *    2.10 *    0.58 *     1.85 *
* 11       * ROB      * 62.11     * 67.17     *     0.08 *     0.14 *    1.39 *    0.03 *    0.10 *     0.58 *
*****************************************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.

  Profile #PF 2
*****************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. * Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) * (sq ft) *    (ft) *    Conv *Depth(ft) *   (ft/s) *
* 1        * Chan     * 31.64     * 36.73     *    53.28 *    12.09 *    7.29 *   20.49 *    2.38 *     4.41 *
* 2        * Chan     * 36.73     * 41.82     *    77.09 *    13.73 *    5.10 *   29.65 *    2.70 *     5.62 *
* 3        * Chan     * 41.82     * 46.91     *    73.82 *    13.37 *    5.09 *   28.39 *    2.63 *     5.52 *
* 4        * Chan     * 46.91     * 52.00     *    55.82 *    12.65 *    7.49 *   21.47 *    2.49 *     4.41 *
*****************************************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.

CROSS SECTION


RIVER: Ocotillo Wash 1
REACH: Tributary-2.1       RS: 0.93999

INPUT
Description:
Station Elevation Data     num=      19
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*****************************************************************************
       0 2396.08    2.29 2395.94   16.21 2395.13   19.29 2394.94   23.97 2394.64
   31.53 2393.92   32.09 2393.87   35.61 2393.48   37.79 2393.56   48.15 2393.81
   49.14 2393.84   50.05 2393.94   53.77 2394.36   56.27 2394.81   65.74  2396.1
   66.26 2396.17   66.69 2396.24   66.93 2396.24   74.88 2396.51

Manning's n Values         num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
***********************************************
```

```
      0    .061   31.53    .064   48.15    .066

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        32.09   49.14             41.53   35.61   13.72          .1          .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)          * 2395.84  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.54  * Wt. n-Val.              *   0.061  *   0.064  *   0.066  *
* W.S. Elev (ft)          * 2395.30  * Reach Len. (ft)         *   41.53  *   35.61  *   13.72  *
* Crit W.S. (ft)          * 2395.30  * Flow Area (sq ft)       *   12.03  *   27.86  *    8.27  *
* E.G. Slope (ft/ft)      *0.041856  * Area (sq ft)            *   12.03  *   27.86  *    8.27  *
* Q Total (cfs)           *  260.00  * Flow (cfs)              *   45.05  *  183.17  *   31.78  *
* Top Width (ft)          *   46.68  * Top Width (ft)          *   18.87  *   17.05  *   10.76  *
* Vel Total (ft/s)        *    5.40  * Avg. Vel. (ft/s)        *    3.75  *    6.57  *    3.84  *
* Max Chl Dpth (ft)       *    1.82  * Hydr. Depth (ft)        *    0.64  *    1.63  *    0.77  *
* Conv. Total (cfs)       *  1270.9  * Conv. (cfs)             *   220.2  *   895.3  *   155.3  *
* Length Wtd. (ft)        *   34.06  * Wetted Per. (ft)        *   18.93  *   17.08  *   10.86  *
* Min Ch El (ft)          * 2393.48  * Shear (lb/sq ft)        *    1.66  *    4.26  *    1.99  *
* Alpha                   *    1.19  * Stream Power (lb/ft s)   *    6.22  *   28.03  *    7.65  *
* Frctn Loss (ft)         *    1.41  * Cum Volume (acre-ft)    *    1.87  *   11.28  *    2.24  *
* C & E Loss (ft)         *    0.01  * Cum SA (acres)          *    1.96  *    4.72  *    2.45  *
*****************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program selected the water surface that had the least amount of error between computed and
         assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************
* E.G. Elev (ft)          * 2396.57  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.98  * Wt. n-Val.              *          *   0.064  *          *
* W.S. Elev (ft)          * 2395.59  * Reach Len. (ft)         *   41.53  *   35.61  *   13.72  *
* Crit W.S. (ft)          * 2395.59  * Flow Area (sq ft)       *          *   32.76  *          *
* E.G. Slope (ft/ft)      *0.058906  * Area (sq ft)            *          *   32.76  *          *
* Q Total (cfs)           *  260.00  * Flow (cfs)              *          *  260.00  *          *
* Top Width (ft)          *   17.05  * Top Width (ft)          *          *   17.05  *          *
* Vel Total (ft/s)        *    7.94  * Avg. Vel. (ft/s)        *          *    7.94  *          *
* Max Chl Dpth (ft)       *    2.11  * Hydr. Depth (ft)        *          *    1.92  *          *
* Conv. Total (cfs)       *  1071.3  * Conv. (cfs)             *          *  1071.3  *          *
* Length Wtd. (ft)        *   35.61  * Wetted Per. (ft)        *          *   20.55  *          *
* Min Ch El (ft)          * 2393.48  * Shear (lb/sq ft)        *          *    5.86  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s)   *          *   46.53  *          *
* Frctn Loss (ft)         *    1.36  * Cum Volume (acre-ft)    *    0.02  *   13.09  *    0.03  *
* C & E Loss (ft)         *    0.15  * Cum SA (acres)          *    0.01  *    4.72  *    0.02  *
*****************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) *  (sq ft) *    (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB      * 8.02      * 16.05     *     0.19 *     0.23 *    2.83 *     0.07 *     0.08 *     0.80 *
* 2        * LOB      * 16.05     * 24.07     *     7.83 *     3.33 *    8.04 *     3.01 *     0.41 *     2.35 *
* 3        * LOB      * 24.07     * 32.09     *    37.04 *     8.47 *    8.06 *    14.25 *     1.06 *     4.38 *
* 4        * Chan     * 32.09     * 36.35     *    46.94 *     7.08 *    4.28 *    18.05 *     1.66 *     6.63 *
* 5        * Chan     * 36.35     * 40.62     *    50.43 *     7.38 *    4.26 *    19.40 *     1.73 *     6.84 *
* 6        * Chan     * 40.62     * 44.88     *    45.39 *     6.92 *    4.26 *    17.46 *     1.62 *     6.56 *
* 7        * Chan     * 44.88     * 49.14     *    40.40 *     6.48 *    4.26 *    15.54 *     1.52 *     6.23 *
* 8        * ROB      * 49.14     * 55.58     *    29.50 *     6.99 *    6.49 *    11.35 *     1.09 *     4.22 *
* 9        * ROB      * 55.58     * 62.01     *     2.28 *     1.28 *    4.37 *     0.88 *     0.30 *     1.78 *
*****************************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program selected the water surface that had the least amount of error between computed and
         assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.

  Profile #PF 2
*****************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) *  (sq ft) *    (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan     * 32.09     * 36.35     *    57.34 *     8.30 *    6.01 *    22.06 *     1.95 *     6.91 *
* 2        * Chan     * 36.35     * 40.62     *    76.40 *     8.60 *    4.26 *    29.38 *     2.02 *     8.88 *
* 3        * Chan     * 40.62     * 44.88     *    69.84 *     8.15 *    4.26 *    26.86 *     1.91 *     8.57 *
* 4        * Chan     * 44.88     * 49.14     *    56.42 *     7.71 *    6.02 *    21.70 *     1.81 *     7.32 *
*****************************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
```

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.93325

INPUT
Description:
Station Elevation Data num= 29

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2394.55 | 11.53 | 2393.79 | 17.74 | 2393.34 | 19 | 2393.24 | 20.17 | 2393.15 |
| 21.39 | 2393.07 | 26.25 | 2392.59 | 32.09 | 2392.03 | 33.26 | 2391.92 | 33.36 | 2391.92 |
| 33.63 | 2391.93 | 39.74 | 2392.09 | 42.49 | 2392.17 | 50.44 | 2392.42 | 50.6 | 2392.43 |
| 50.68 | 2392.44 | 56.15 | 2393.16 | 58.79 | 2393.35 | 59.29 | 2393.39 | 61.17 | 2393.53 |
| 62.14 | 2393.63 | 70.21 | 2394.53 | 76.28 | 2395.25 | 76.34 | 2395.26 | 76.5 | 2395.28 |
| 78.1 | 2395.37 | 81.01 | 2395.54 | 82.16 | 2395.6 | 82.95 | 2395.68 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 32.09 | .064 | 58.79 | .066 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 26.25 | 50.6 | 26.32 | 21.87 | 10.86 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2394.17 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.52 | Wt. n-Val. | 0.061 | 0.063 | 0.064 |
| W.S. Elev (ft) | 2393.65 | Reach Len. (ft) | 26.32 | 21.87 | 10.86 |
| Crit W.S. (ft) | 2393.65 | Flow Area (sq ft) | 6.32 | 35.64 | 6.38 |
| E.G. Slope (ft/ft) | 0.040976 | Area (sq ft) | 6.32 | 35.64 | 6.38 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 19.40 | 218.22 | 22.38 |
| Top Width (ft) | 48.91 | Top Width (ft) | 12.82 | 24.35 | 11.74 |
| Vel Total (ft/s) | 5.38 | Avg. Vel. (ft/s) | 3.07 | 6.12 | 3.51 |
| Max Chl Dpth (ft) | 1.73 | Hydr. Depth (ft) | 0.49 | 1.46 | 0.54 |
| Conv. Total (cfs) | 1284.4 | Conv. (cfs) | 95.8 | 1078.0 | 110.6 |
| Length Wtd. (ft) | 20.82 | Wetted Per. (ft) | 12.86 | 24.39 | 11.81 |
| Min Ch El (ft) | 2391.92 | Shear (lb/sq ft) | 1.26 | 3.74 | 1.38 |
| Alpha | 1.15 | Stream Power (lb/ft s) | 3.86 | 22.89 | 4.85 |
| Frctn Loss (ft) | 0.67 | Cum Volume (acre-ft) | 1.86 | 11.25 | 2.23 |
| C & E Loss (ft) | 0.06 | Cum SA (acres) | 1.94 | 4.70 | 2.45 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2394.60 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.47 | Wt. n-Val. | | 0.063 | |
| W.S. Elev (ft) | 2394.13 | Reach Len. (ft) | 26.32 | 21.87 | 10.86 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 47.17 | |
| E.G. Slope (ft/ft) | 0.026788 | Area (sq ft) | | 47.17 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 24.35 | Top Width (ft) | | 24.35 | |
| Vel Total (ft/s) | 5.51 | Avg. Vel. (ft/s) | | 5.51 | |
| Max Chl Dpth (ft) | 2.21 | Hydr. Depth (ft) | | 1.94 | |
| Conv. Total (cfs) | 1588.6 | Conv. (cfs) | | 1588.6 | |
| Length Wtd. (ft) | 21.87 | Wetted Per. (ft) | | 27.62 | |
| Min Ch El (ft) | 2391.92 | Shear (lb/sq ft) | | 2.86 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 15.74 | |
| Frctn Loss (ft) | 0.47 | Cum Volume (acre-ft) | 0.02 | 13.06 | 0.03 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.01 | 4.71 | 0.02 |

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 13.13 | 19.69 | 2.28 | 1.43 | 6.27 | 0.88 | 0.23 | 1.59 |
| 2 | LOB | 19.69 | 26.25 | 17.12 | 4.89 | 6.59 | 6.59 | 0.75 | 3.50 |
| 3 | Chan | 26.25 | 32.34 | 49.32 | 8.24 | 6.12 | 18.97 | 1.35 | 5.98 |
| 4 | Chan | 32.34 | 38.43 | 66.82 | 10.15 | 6.09 | 25.70 | 1.67 | 6.58 |
| 5 | Chan | 38.43 | 44.51 | 56.67 | 9.20 | 6.09 | 21.79 | 1.51 | 6.16 |
| 6 | Chan | 44.51 | 50.60 | 45.41 | 8.05 | 6.09 | 17.47 | 1.32 | 5.64 |
| 7 | ROB | 50.60 | 58.69 | 21.54 | 5.78 | 8.14 | 8.28 | 0.71 | 3.73 |
| 8 | ROB | 58.69 | 66.77 | 0.84 | 0.61 | 3.67 | 0.32 | 0.17 | 1.39 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 26.25 | 32.34 | 56.15 | 11.12 | 7.65 | 21.60 | 1.83 | 5.05 |
| 2 | Chan | 32.34 | 38.43 | 81.07 | 13.04 | 6.09 | 31.18 | 2.14 | 6.22 |
| 3 | Chan | 38.43 | 44.51 | 71.41 | 12.08 | 6.09 | 27.47 | 1.98 | 5.91 |
| 4 | Chan | 44.51 | 50.60 | 51.36 | 10.93 | 7.79 | 19.75 | 1.80 | 4.70 |

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.92910

INPUT
Description:
Station Elevation Data num= 33

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2394.24 | 14.35 | 2393.01 | 18.8 | 2392.67 | 22.69 | 2392.36 | 25.66 | 2392.15 |
| 30.96 | 2391.81 | 31.32 | 2391.77 | 32.3 | 2391.67 | 41.09 | 2391.34 | 42.89 | 2391.33 |
| 44.86 | 2391.31 | 46.52 | 2391.41 | 49.86 | 2391.58 | 55.51 | 2391.78 | 56.93 | 2391.83 |
| 61.11 | 2391.95 | 62.06 | 2391.99 | 63.29 | 2392.07 | 69.51 | 2392.47 | 71.22 | 2392.53 |
| 76 | 2392.86 | 76.49 | 2392.91 | 77.22 | 2392.99 | 77.75 | 2393.06 | 81.22 | 2393.56 |
| 84.07 | 2393.83 | 86.54 | 2394.12 | 88.4 | 2394.25 | 92.61 | 2394.62 | 93.36 | 2394.65 |
| 93.52 | 2394.67 | 94.77 | 2394.75 | 99.5 | 2395.07 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 42.89 | .064 | 76.49 | .066 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 31.32 | 55.51 | 24.78 | 22.99 | 18.59 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2393.32 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.31 | Wt. n-Val. | 0.061 | 0.062 | 0.064 |
| W.S. Elev (ft) | 2393.01 | Reach Len. (ft) | 24.78 | 22.99 | 18.59 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 10.80 | 36.12 | 15.65 |
| E.G. Slope (ft/ft) | 0.025983 | Area (sq ft) | 10.80 | 36.12 | 15.65 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 31.35 | 180.75 | 47.90 |
| Top Width (ft) | 63.00 | Top Width (ft) | 16.95 | 24.19 | 21.85 |
| Vel Total (ft/s) | 4.16 | Avg. Vel. (ft/s) | 2.90 | 5.00 | 3.06 |
| Max Chl Dpth (ft) | 1.70 | Hydr. Depth (ft) | 0.64 | 1.49 | 0.72 |
| Conv. Total (cfs) | 1613.0 | Conv. (cfs) | 194.5 | 1121.3 | 297.1 |
| Length Wtd. (ft) | 22.31 | Wetted Per. (ft) | 17.00 | 24.21 | 21.89 |
| Min Ch El (ft) | 2391.31 | Shear (lb/sq ft) | 1.03 | 2.42 | 1.16 |
| Alpha | 1.17 | Stream Power (lb/ft s) | 2.99 | 12.11 | 3.55 |
| Frctn Loss (ft) | 0.70 | Cum Volume (acre-ft) | 1.85 | 11.23 | 2.23 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 1.93 | 4.69 | 2.45 |

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2394.09 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.37 | Wt. n-Val. | | 0.063 | |
| W.S. Elev (ft) | 2393.73 | Reach Len. (ft) | 24.78 | 22.99 | 18.59 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 53.51 | |
| E.G. Slope (ft/ft) | 0.017722 | Area (sq ft) | | 53.51 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 24.19 | Top Width (ft) | | 24.19 | |
| Vel Total (ft/s) | 4.86 | Avg. Vel. (ft/s) | | 4.86 | |
| Max Chl Dpth (ft) | 2.42 | Hydr. Depth (ft) | | 2.21 | |
| Conv. Total (cfs) | 1953.1 | Conv. (cfs) | | 1953.1 | |
| Length Wtd. (ft) | 22.99 | Wetted Per. (ft) | | 28.12 | |
| Min Ch El (ft) | 2391.31 | Shear (lb/sq ft) | | 2.11 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 10.23 | |
| Frctn Loss (ft) | 0.68 | Cum Volume (acre-ft) | 0.02 | 13.03 | 0.03 |
| C & E Loss (ft) | 0.06 | Cum SA (acres) | 0.01 | 4.70 | 0.02 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 7.83 | 15.66 | 0.03 | 0.06 | 1.30 | 0.01 | 0.05 | 0.46 |
| 2 | LOB | 15.66 | 23.49 | 5.87 | 3.15 | 7.85 | 2.26 | 0.40 | 1.86 |
| 3 | LOB | 23.49 | 31.32 | 25.45 | 7.59 | 7.85 | 9.79 | 0.97 | 3.35 |
| 4 | Chan | 31.32 | 37.37 | 41.93 | 8.53 | 6.06 | 16.13 | 1.41 | 4.92 |
| 5 | Chan | 37.37 | 43.42 | 53.08 | 9.85 | 6.05 | 20.41 | 1.63 | 5.39 |
| 6 | Chan | 43.42 | 49.46 | 49.23 | 9.67 | 6.05 | 18.93 | 1.60 | 5.09 |
| 7 | Chan | 49.46 | 55.51 | 36.52 | 8.08 | 6.05 | 14.05 | 1.34 | 4.52 |
| 8 | ROB | 55.51 | 66.51 | 39.33 | 11.26 | 11.01 | 15.13 | 1.02 | 3.49 |
| 9 | ROB | 66.51 | 77.51 | 8.57 | 4.38 | 10.88 | 3.30 | 0.40 | 1.95 |

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 31.32 | 37.37 | 56.10 | 12.88 | 8.01 | 21.58 | 2.13 | 4.36 |
| 2 | Chan | 37.37 | 43.42 | 79.25 | 14.19 | 6.05 | 30.48 | 2.35 | 5.58 |
| 3 | Chan | 43.42 | 49.46 | 74.21 | 14.01 | 6.05 | 28.54 | 2.32 | 5.30 |
| 4 | Chan | 49.46 | 55.51 | 50.45 | 12.43 | 8.00 | 19.40 | 2.05 | 4.06 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.92475

INPUT
Description:
Station Elevation Data num= 30

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2392.52 | 15.1 | 2391.31 | 18.9 | 2391.01 | 19.2 | 2390.98 | 22.91 | 2390.71 |
| 27.51 | 2390.41 | 28.17 | 2390.36 | 29.46 | 2390.28 | 30.04 | 2390.26 | 37.57 | 2390.95 |
| 43.68 | 2391.15 | 44.38 | 2391.18 | 45.24 | 2391.23 | 48.3 | 2391.4 | 52.02 | 2391.59 |
| 57.81 | 2391.95 | 58.06 | 2391.98 | 59.12 | 2392.11 | 64.42 | 2392.78 | 65.77 | 2392.83 |
| 69.05 | 2393.17 | 71.39 | 2393.42 | 72.65 | 2393.52 | 75.04 | 2393.8 | 76.08 | 2393.92 |
| 78.15 | 2394.06 | 83.07 | 2394.41 | 87.22 | 2394.57 | 88.99 | 2394.73 | 89.5 | 2394.75 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 28.17 | .064 | 59.12 | .066 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 19.2 | 37.57 | 26.12 | 37.02 | 40.07 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2392.61 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.47 | Wt. n-Val. | 0.061 | 0.063 | 0.064 |
| W.S. Elev (ft) | 2392.15 | Reach Len. (ft) | 26.12 | 37.02 | 40.07 |
| Crit W.S. (ft) | 2392.15 | Flow Area (sq ft) | 8.46 | 28.34 | 15.50 |
| E.G. Slope (ft/ft) | *0.038301 | Area (sq ft) | 8.46 | 28.34 | 15.50 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 28.03 | 175.54 | 56.43 |
| Top Width (ft) | 54.74 | Top Width (ft) | 14.54 | 18.37 | 21.84 |
| Vel Total (ft/s) | 4.97 | Avg. Vel. (ft/s) | 3.32 | 6.19 | 3.64 |
| Max Chl Dpth (ft) | 1.89 | Hydr. Depth (ft) | 0.58 | 1.54 | 0.71 |
| Conv. Total (cfs) | 1328.5 | Conv. (cfs) | 143.2 | 897.0 | 288.3 |
| Length Wtd. (ft) | 35.99 | Wetted Per. (ft) | 14.58 | 18.43 | 21.87 |
| Min Ch El (ft) | 2390.26 | Shear (lb/sq ft) | 1.39 | 3.68 | 1.69 |
| Alpha | 1.21 | Stream Power (lb/ft s) | 4.60 | 22.78 | 6.17 |
| Frctn Loss (ft) | 1.14 | Cum Volume (acre-ft) | 1.85 | 11.22 | 2.22 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 1.92 | 4.68 | 2.44 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2393.36 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.93 | Wt. n-Val. | | 0.063 | |
| W.S. Elev (ft) | 2392.43 | Reach Len. (ft) | 26.12 | 37.02 | 40.07 |
| Crit W.S. (ft) | 2392.43 | Flow Area (sq ft) | | 33.63 | |
| E.G. Slope (ft/ft) | *0.057834 | Area (sq ft) | | 33.63 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 18.37 | Top Width (ft) | | 18.37 | |
| Vel Total (ft/s) | 7.73 | Avg. Vel. (ft/s) | | 7.73 | |
| Max Chl Dpth (ft) | 2.17 | Hydr. Depth (ft) | | 1.83 | |
| Conv. Total (cfs) | 1081.1 | Conv. (cfs) | | 1081.1 | |
| Length Wtd. (ft) | 37.02 | Wetted Per. (ft) | | 21.36 | |
| Min Ch El (ft) | 2390.26 | Shear (lb/sq ft) | | 5.68 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 43.94 | |
| Frctn Loss (ft) | 1.51 | Cum Volume (acre-ft) | 0.02 | 13.01 | 0.03 |
| C & E Loss (ft) | 0.10 | Cum SA (acres) | 0.01 | 4.68 | 0.02 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 4.80 | 9.60 | 1.37 | 0.98 | 4.82 | 0.53 | 0.20 | 1.41 |
| 2 | LOB | 9.60 | 14.40 | 8.06 | 2.82 | 4.82 | 3.10 | 0.59 | 2.86 |
| 3 | LOB | 14.40 | 19.20 | 18.60 | 4.66 | 4.82 | 7.15 | 0.97 | 3.99 |
| 4 | Chan | 19.20 | 23.79 | 35.03 | 6.12 | 4.60 | 13.47 | 1.33 | 5.72 |
| 5 | Chan | 23.79 | 28.39 | 49.62 | 7.55 | 4.60 | 19.09 | 1.64 | 6.57 |
| 6 | Chan | 28.39 | 32.98 | 54.39 | 8.20 | 4.61 | 20.92 | 1.79 | 6.63 |
| 7 | Chan | 32.98 | 37.57 | 36.50 | 6.46 | 4.61 | 14.04 | 1.41 | 5.65 |
| 8 | ROB | 37.57 | 50.55 | 49.49 | 12.29 | 13.00 | 19.04 | 0.95 | 4.03 |
| 9 | ROB | 50.55 | 63.54 | 6.93 | 3.21 | 8.88 | 2.67 | 0.36 | 2.16 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 19.20 | 23.79 | 48.55 | 7.44 | 6.06 | 18.67 | 1.62 | 6.52 |
| 2 | Chan | 23.79 | 28.39 | 78.00 | 8.88 | 4.60 | 30.00 | 1.93 | 8.79 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| * 3 | * Chan | * 28.39 | * 32.98 | * 83.81 * | 9.53 * | 4.61 * | 32.23 * | 2.07 * | 8.80 * |
| * 4 | * Chan | * 32.98 | * 37.57 | * 49.65 * | 7.78 * | 6.10 * | 19.09 * | 1.69 * | 6.38 * |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.91774

INPUT
Description:
Station Elevation Data num= 37

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2392.32 | 2.22 | 2392.17 | 6.51 | 2392.02 | 10.05 | 2391.72 | 16.97 | 2390.97 |
| 22.46 | 2390.38 | 24.79 | 2390.06 | 27.17 | 2389.94 | 30.95 | 2389.86 | 33.19 | 2389.65 |
| 35.68 | 2389.58 | 40.55 | 2389.2 | 43 | 2388.97 | 47.37 | 2388.56 | 49.95 | 2388.65 |
| 51.63 | 2388.66 | 56.54 | 2388.89 | 56.7 | 2388.9 | 60.09 | 2389.16 | 60.77 | 2389.22 |
| 61.64 | 2389.26 | 64.66 | 2389.63 | 65.87 | 2389.56 | 68.92 | 2389.99 | 72.12 | 2390.25 |
| 73.72 | 2390.24 | 76.18 | 2390.66 | 77.69 | 2390.92 | 78.04 | 2390.93 | 82.69 | 2391.24 |
| 83.5 | 2391.28 | 84.19 | 2391.34 | 88.59 | 2391.65 | 89.43 | 2391.7 | 94.6 | 2392.46 |
| 95.4 | 2392.51 | 96.04 | 2392.53 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 43 | .064 | 56.7 | .066 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 40.55 | 60.09 | 29.19 | 39.59 | 55.86 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| * E.G. Elev (ft) | * 2390.91 | * Element | * Left OB * | Channel * | Right OB * |
| * Vel Head (ft) | * 0.37 | * Wt. n-Val. | * 0.061 * | 0.064 * | 0.066 * |
| * W.S. Elev (ft) | * 2390.54 | * Reach Len. (ft) | * 29.19 * | 39.59 * | 55.86 * |
| * Crit W.S. (ft) | * | * Flow Area (sq ft) | * 14.21 * | 33.51 * | 10.90 * |
| * E.G. Slope (ft/ft) | *0.026682 | * Area (sq ft) | * 14.21 * | 33.51 * | 10.90 * |
| * Q Total (cfs) | * 260.00 | * Flow (cfs) | * 45.60 * | 182.68 * | 31.72 * |
| * Top Width (ft) | * 54.49 | * Top Width (ft) | * 19.57 * | 19.54 * | 15.38 * |
| * Vel Total (ft/s) | * 4.44 | * Avg. Vel. (ft/s) | * 3.21 * | 5.45 * | 2.91 * |
| * Max Chl Dpth (ft) | * 1.98 | * Hydr. Depth (ft) | * 0.73 * | 1.72 * | 0.71 * |
| * Conv. Total (cfs) | * 1591.7 | * Conv. (cfs) | * 279.2 * | 1118.3 * | 194.2 * |
| * Length Wtd. (ft) | * 40.16 | * Wetted Per. (ft) | * 19.63 * | 19.59 * | 15.48 * |
| * Min Ch El (ft) | * 2388.56 | * Shear (lb/sq ft) | * 1.21 * | 2.85 * | 1.17 * |
| * Alpha | * 1.21 | * Stream Power (lb/ft s) | * 3.87 * | 15.54 * | 3.41 * |
| * Frctn Loss (ft) | * 1.16 | * Cum Volume (acre-ft) | * 1.84 * | 11.19 * | 2.21 * |
| * C & E Loss (ft) | * 0.02 | * Cum SA (acres) | * 1.91 * | 4.66 * | 2.42 * |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| * E.G. Elev (ft) | * 2391.56 | * Element | * Left OB * | Channel * | Right OB * |
| * Vel Head (ft) | * 0.61 | * Wt. n-Val. | * | 0.064 * | * |
| * W.S. Elev (ft) | * 2390.95 | * Reach Len. (ft) | * 29.19 * | 39.59 * | 55.86 * |
| * Crit W.S. (ft) | * | * Flow Area (sq ft) | * | 41.60 * | * |
| * E.G. Slope (ft/ft) | *0.030254 | * Area (sq ft) | * | 41.60 * | * |
| * Q Total (cfs) | * 260.00 | * Flow (cfs) | * | 260.00 * | * |
| * Top Width (ft) | * 19.54 | * Top Width (ft) | * | 19.54 * | * |
| * Vel Total (ft/s) | * 6.25 | * Avg. Vel. (ft/s) | * | 6.25 * | * |
| * Max Chl Dpth (ft) | * 2.39 | * Hydr. Depth (ft) | * | 2.13 * | * |
| * Conv. Total (cfs) | * 1494.8 | * Conv. (cfs) | * | 1494.8 * | * |
| * Length Wtd. (ft) | * 39.54 | * Wetted Per. (ft) | * | 23.13 * | * |
| * Min Ch El (ft) | * 2388.56 | * Shear (lb/sq ft) | * | 3.40 * | * |
| * Alpha | * 1.00 | * Stream Power (lb/ft s) | * | 21.23 * | * |
| * Frctn Loss (ft) | * 1.11 | * Cum Volume (acre-ft) | * 0.02 * | 12.98 * | 0.03 * |
| * C & E Loss (ft) | * 0.00 | * Cum SA (acres) | * 0.01 * | 4.67 * | 0.02 * |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Profile #PF 1

| * | * Pos | * Left Sta (ft) | * Right Sta (ft) | * Flow (cfs) | * Area (sq ft) | * W.P. (ft) | * Percent Conv | * Hydr Depth(ft) | * Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| * 1 | * LOB | * 20.28 | * 30.41 | * 9.01 | * 4.20 | * 9.47 | * 3.46 | * 0.45 | * 2.15 |
| * 2 | * LOB | * 30.41 | * 40.55 | * 36.59 | * 10.02 | * 10.16 | * 14.07 | * 0.99 | * 3.65 |
| * 3 | * Chan | * 40.55 | * 45.44 | * 40.03 | * 7.66 | * 4.91 | * 15.40 | * 1.57 | * 5.22 |
| * 4 | * Chan | * 45.44 | * 50.32 | * 54.45 | * 9.34 | * 4.90 | * 20.94 | * 1.91 | * 5.83 |
| * 5 | * Chan | * 50.32 | * 55.21 | * 50.13 | * 8.89 | * 4.89 | * 19.28 | * 1.82 | * 5.64 |
| * 6 | * Chan | * 55.21 | * 60.09 | * 38.07 | * 7.62 | * 4.90 | * 14.64 | * 1.56 | * 4.99 |
| * 7 | * ROB | * 60.09 | * 69.08 | * 28.76 | * 8.91 | * 9.05 | * 11.06 | * 0.99 | * 3.23 |
| * 8 | * ROB | * 69.08 | * 78.07 | * 2.96 | * 1.99 | * 6.43 | * 1.14 | * 0.31 | * 1.49 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Profile #PF 2

| * | * Pos | * Left Sta (ft) | * Right Sta (ft) | * Flow (cfs) | * Area (sq ft) | * W.P. (ft) | * Percent Conv | * Hydr Depth(ft) | * Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 40.55 | 45.44 | 54.14 | 9.68 | 6.66 | 20.82 | 1.98 | 5.59 |
| 2 | Chan | 45.44 | 50.32 | 80.41 | 11.37 | 4.90 | 30.93 | 2.33 | 7.08 |
| 3 | Chan | 50.32 | 55.21 | 75.16 | 10.91 | 4.89 | 28.91 | 2.23 | 6.89 |
| 4 | Chan | 55.21 | 60.09 | 50.29 | 9.65 | 6.69 | 19.34 | 1.97 | 5.21 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.91024

INPUT
Description:
Station Elevation Data num= 21

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2390.81 | 10.37 | 2389.68 | 11.3 | 2389.59 | 16.84 | 2389.23 | 18.82 | 2389.05 |
| 24.52 | 2388.65 | 31.34 | 2388.15 | 32.05 | 2388.1 | 33.26 | 2388.03 | 36.18 | 2387.84 |
| 38.9 | 2387.55 | 45.81 | 2386.82 | 46.83 | 2386.71 | 49.63 | 2387.32 | 52.69 | 2388 |
| 53.77 | 2388.24 | 60.53 | 2389.7 | 60.94 | 2389.77 | 61.2 | 2389.79 | 61.64 | 2389.83 |
| 69.01 | 2390.6 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 38.9 | .064 | 52.69 | .066 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 33.26 | 49.63 | 35.65 | 42.81 | 44.81 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2389.74 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.53 | Wt. n-Val. | 0.061 | 0.063 | 0.065 |
| W.S. Elev (ft) | 2389.21 | Reach Len. (ft) | 35.65 | 42.81 | 44.81 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 9.90 | 30.51 | 8.11 |
| E.G. Slope (ft/ft) | 0.031296 | Area (sq ft) | 9.90 | 30.51 | 8.11 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 30.66 | 194.18 | 35.15 |
| Top Width (ft) | 41.23 | Top Width (ft) | 16.22 | 16.37 | 8.64 |
| Vel Total (ft/s) | 5.36 | Avg. Vel. (ft/s) | 3.10 | 6.37 | 4.33 |
| Max Chl Dpth (ft) | 2.50 | Hydr. Depth (ft) | 0.61 | 1.86 | 0.94 |
| Conv. Total (cfs) | 1469.7 | Conv. (cfs) | 173.3 | 1097.6 | 198.7 |
| Length Wtd. (ft) | 42.02 | Wetted Per. (ft) | 16.26 | 16.50 | 8.84 |
| Min Ch El (ft) | 2386.71 | Shear (lb/sq ft) | 1.19 | 3.61 | 1.79 |
| Alpha | 1.18 | Stream Power (lb/ft s) | 3.68 | 22.99 | 7.77 |
| Frctn Loss (ft) | 1.43 | Cum Volume (acre-ft) | 1.83 | 11.16 | 2.20 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 1.90 | 4.65 | 2.40 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2390.45 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.61 | Wt. n-Val. | 0.061 | 0.063 | |
| W.S. Elev (ft) | 2389.84 | Reach Len. (ft) | 35.65 | 42.81 | 44.81 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 1.13 | 40.76 | |
| E.G. Slope (ft/ft) | 0.026024 | Area (sq ft) | 1.13 | 40.76 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | 2.69 | 257.31 | |
| Top Width (ft) | 17.00 | Top Width (ft) | 0.63 | 16.37 | |
| Vel Total (ft/s) | 6.21 | Avg. Vel. (ft/s) | 2.38 | 6.31 | |
| Max Chl Dpth (ft) | 3.13 | Hydr. Depth (ft) | 1.79 | 2.49 | |
| Conv. Total (cfs) | 1611.7 | Conv. (cfs) | 16.7 | 1595.0 | |
| Length Wtd. (ft) | 42.77 | Wetted Per. (ft) | 2.41 | 19.02 | |
| Min Ch El (ft) | 2386.71 | Shear (lb/sq ft) | 0.76 | 3.48 | |
| Alpha | 1.03 | Stream Power (lb/ft s) | 1.82 | 21.98 | |
| Frctn Loss (ft) | 1.29 | Cum Volume (acre-ft) | 0.02 | 12.94 | 0.03 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.01 | 4.65 | 0.02 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 16.63 | 24.95 | 4.28 | 2.45 | 7.93 | 1.65 | 0.31 | 1.75 |
| 2 | LOB | 24.95 | 33.26 | 26.39 | 7.45 | 8.34 | 10.15 | 0.90 | 3.54 |
| 3 | Chan | 33.26 | 37.35 | 27.92 | 5.41 | 4.11 | 10.74 | 1.32 | 5.16 |
| 4 | Chan | 37.35 | 41.45 | 41.71 | 7.02 | 4.12 | 16.04 | 1.71 | 5.95 |
| 5 | Chan | 41.45 | 45.54 | 59.61 | 8.79 | 4.12 | 22.93 | 2.15 | 6.78 |
| 6 | Chan | 45.54 | 49.63 | 64.94 | 9.30 | 4.17 | 24.98 | 2.27 | 6.99 |
| 7 | ROB | 49.63 | 54.48 | 31.89 | 6.56 | 4.96 | 12.27 | 1.35 | 4.86 |
| 8 | ROB | 54.48 | 59.32 | 3.26 | 1.56 | 3.88 | 1.26 | 0.41 | 2.10 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 24.95 | 33.26 | 2.69 | 1.13 | 2.41 | 1.04 | 1.79 | 2.38 |
| 2 | Chan | 33.26 | 37.35 | 47.97 | 7.97 | 4.11 | 18.45 | 1.95 | 6.02 |
| 3 | Chan | 37.35 | 41.45 | 63.09 | 9.58 | 4.12 | 24.26 | 2.34 | 6.59 |
| 4 | Chan | 41.45 | 45.54 | 82.22 | 11.35 | 4.12 | 31.62 | 2.77 | 7.25 |
| 5 | Chan | 45.54 | 49.63 | 64.02 | 11.86 | 6.68 | 24.62 | 2.90 | 5.40 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.90213

INPUT
Description:
Station Elevation Data num= 19

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2389.45 | 7.1 | 2388.61 | 10.63 | 2388.2 | 19.36 | 2387.62 | 30.7 | 2386.6 |
| 34.05 | 2386.21 | 34.34 | 2386.18 | 34.69 | 2386.14 | 41.67 | 2385.43 | 44.18 | 2385.16 |
| 48.25 | 2386.1 | 50.48 | 2386.55 | 53.28 | 2387.18 | 54.38 | 2387.43 | 54.9 | 2387.56 |
| 58.22 | 2388.09 | 63.4 | 2388.66 | 71.07 | 2389.5 | 71.26 | 2389.52 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 34.05 | .064 | 53.28 | .066 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 34.69 | 48.25 | 27.04 | 26.81 | 32.58 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2388.30 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.64 | Wt. n-Val. | 0.061 | 0.064 | 0.064 |
| W.S. Elev (ft) | 2387.66 | Reach Len. (ft) | 27.04 | 26.81 | 32.58 |
| Crit W.S. (ft) | 2387.66 | Flow Area (sq ft) | 11.36 | 27.25 | 5.69 |
| E.G. Slope (ft/ft) | 0.037101 | Area (sq ft) | 11.36 | 27.25 | 5.69 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 43.26 | 192.60 | 24.14 |
| Top Width (ft) | 36.71 | Top Width (ft) | 15.89 | 13.56 | 7.26 |
| Vel Total (ft/s) | 5.87 | Avg. Vel. (ft/s) | 3.81 | 7.07 | 4.24 |
| Max Chl Dpth (ft) | 2.50 | Hydr. Depth (ft) | 0.71 | 2.01 | 0.78 |
| Conv. Total (cfs) | 1349.8 | Conv. (cfs) | 224.6 | 999.9 | 125.3 |
| Length Wtd. (ft) | 27.21 | Wetted Per. (ft) | 15.97 | 13.72 | 7.43 |
| Min Ch El (ft) | 2385.16 | Shear (lb/sq ft) | 1.65 | 4.60 | 1.78 |
| Alpha | 1.19 | Stream Power (lb/ft s) | 6.28 | 32.52 | 7.53 |
| Frctn Loss (ft) | 0.98 | Cum Volume (acre-ft) | 1.82 | 11.13 | 2.19 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 1.89 | 4.63 | 2.40 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2389.15 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.76 | Wt. n-Val. | | 0.064 | |
| W.S. Elev (ft) | 2388.38 | Reach Len. (ft) | 27.04 | 26.81 | 32.58 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 37.11 | |
| E.G. Slope (ft/ft) | 0.035345 | Area (sq ft) | | 37.11 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 13.56 | Top Width (ft) | | 13.56 | |
| Vel Total (ft/s) | 7.01 | Avg. Vel. (ft/s) | | 7.01 | |
| Max Chl Dpth (ft) | 3.22 | Hydr. Depth (ft) | | 2.74 | |
| Conv. Total (cfs) | 1383.0 | Conv. (cfs) | | 1383.0 | |
| Length Wtd. (ft) | 26.81 | Wetted Per. (ft) | | 18.25 | |
| Min Ch El (ft) | 2385.16 | Shear (lb/sq ft) | | 4.49 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 31.44 | |
| Frctn Loss (ft) | 1.15 | Cum Volume (acre-ft) | 0.02 | 12.90 | 0.03 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.01 | 4.64 | 0.02 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 17.35 | 26.02 | 4.29 | 2.25 | 7.25 | 1.65 | 0.31 | 1.90 |
| 2 | LOB | 26.02 | 34.69 | 38.97 | 9.11 | 8.72 | 14.99 | 1.05 | 4.28 |
| 3 | Chan | 34.69 | 38.08 | 35.94 | 5.73 | 3.41 | 13.82 | 1.69 | 6.27 |
| 4 | Chan | 38.08 | 41.47 | 48.97 | 6.90 | 3.41 | 18.84 | 2.03 | 7.10 |
| 5 | Chan | 41.47 | 44.86 | 62.74 | 8.02 | 3.42 | 24.13 | 2.37 | 7.82 |
| 6 | Chan | 44.86 | 48.25 | 44.95 | 6.61 | 3.48 | 17.29 | 1.95 | 6.80 |
| 7 | ROB | 48.25 | 54.00 | 23.89 | 5.48 | 5.89 | 9.19 | 0.95 | 4.36 |
| 8 | ROB | 54.00 | 59.76 | 0.25 | 0.22 | 1.54 | 0.10 | 0.14 | 1.17 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 34.69 | 38.08 | 43.15 | 8.19 | 5.65 | 16.59 | 2.42 | 5.27 |
| 2 | Chan | 38.08 | 41.47 | 75.51 | 9.36 | 3.41 | 29.04 | 2.76 | 8.07 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| * 3 | * Chan | * 41.47 | * 44.86 | * 90.88 * | 10.48 * | 3.42 * | 34.95 * | 3.09 * | 8.67 * |
| * 4 | * Chan | * 44.86 | * 48.25 | * 50.46 * | 9.07 * | 5.76 * | 19.41 * | 2.68 * | 5.56 * |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.89706

INPUT
Description:
Station Elevation Data num= 20

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2388.52 | 10.23 | 2387.49 | 11.04 | 2387.41 | 13.15 | 2387.28 | 13.71 | 2387.24 |
| 20 | 2386.76 | 23.35 | 2386.54 | 36.8 | 2385.3 | 37.45 | 2385.22 | 37.74 | 2385.19 |
| 41.9 | 2384.76 | 42.47 | 2384.7 | 48.16 | 2383.48 | 54.38 | 2385.39 | 56.04 | 2385.79 |
| 56.54 | 2385.92 | 58.17 | 2386.19 | 76.29 | 2389.19 | 77.26 | 2389.35 | 81.86 | 2389.7 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 37.74 | .064 | 58.17 | .066 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 42.47 | 54.38 | 21.39 | 20.97 | 24.42 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| * E.G. Elev (ft) | * 2387.09 | * Element | * Left OB * | Channel * | Right OB * |
| * Vel Head (ft) | * 0.64 | * Wt. n-Val. | * 0.063 * | 0.064 * | 0.064 * |
| * W.S. Elev (ft) | * 2386.45 | * Reach Len. (ft) | * 21.39 * | 20.97 * | 24.42 * |
| * Crit W.S. (ft) | * 2386.45 | * Flow Area (sq ft) | * 15.40 * | 25.95 * | 2.57 * |
| * E.G. Slope (ft/ft) | *0.034878 | * Area (sq ft) | * 15.40 * | 25.95 * | 2.57 * |
| * Q Total (cfs) | * 260.00 | * Flow (cfs) | * 67.61 * | 184.80 * | 7.59 * |
| * Top Width (ft) | * 35.39 | * Top Width (ft) | * 18.13 * | 11.91 * | 5.35 * |
| * Vel Total (ft/s) | * 5.92 | * Avg. Vel. (ft/s) | * 4.39 * | 7.12 * | 2.96 * |
| * Max Chl Dpth (ft) | * 2.97 | * Hydr. Depth (ft) | * 0.85 * | 2.18 * | 0.48 * |
| * Conv. Total (cfs) | * 1392.2 | * Conv. (cfs) | * 362.0 * | 989.5 * | 40.6 * |
| * Length Wtd. (ft) | * 21.25 | * Wetted Per. (ft) | * 18.21 * | 12.33 * | 5.46 * |
| * Min Ch El (ft) | * 2383.48 | * Shear (lb/sq ft) | * 1.84 * | 4.58 * | 1.02 * |
| * Alpha | * 1.18 | * Stream Power (lb/ft s) | * 8.08 * | 32.65 * | 3.03 * |
| * Frctn Loss (ft) | * 0.74 | * Cum Volume (acre-ft) | * 1.82 * | 11.12 * | 2.19 * |
| * C & E Loss (ft) | * 0.05 | * Cum SA (acres) | * 1.88 * | 4.62 * | 2.39 * |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| * E.G. Elev (ft) | * 2387.97 | * Element | * Left OB * | Channel * | Right OB * |
| * Vel Head (ft) | * 1.08 | * Wt. n-Val. | * | 0.064 * | * |
| * W.S. Elev (ft) | * 2386.89 | * Reach Len. (ft) | * 21.39 * | 20.97 * | 24.42 * |
| * Crit W.S. (ft) | * 2386.72 | * Flow Area (sq ft) | * | 31.23 * | * |
| * E.G. Slope (ft/ft) | *0.052814 | * Area (sq ft) | * | 31.23 * | * |
| * Q Total (cfs) | * 260.00 | * Flow (cfs) | * | 260.00 * | * |
| * Top Width (ft) | * 11.91 | * Top Width (ft) | * | 11.91 * | * |
| * Vel Total (ft/s) | * 8.33 | * Avg. Vel. (ft/s) | * | 8.33 * | * |
| * Max Chl Dpth (ft) | * 3.41 | * Hydr. Depth (ft) | * | 2.62 * | * |
| * Conv. Total (cfs) | * 1131.4 | * Conv. (cfs) | * | 1131.4 * | * |
| * Length Wtd. (ft) | * 20.97 | * Wetted Per. (ft) | * | 16.02 * | * |
| * Min Ch El (ft) | * 2383.48 | * Shear (lb/sq ft) | * | 6.43 * | * |
| * Alpha | * 1.00 | * Stream Power (lb/ft s) | * | 53.51 * | * |
| * Frctn Loss (ft) | * 0.94 | * Cum Volume (acre-ft) | * 0.02 * | 12.88 * | 0.03 * |
| * C & E Loss (ft) | * 0.16 | * Cum SA (acres) | * 0.01 * | 4.63 * | 0.02 * |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Profile #PF 1

| * | * Pos | * Left Sta (ft) | * Right Sta (ft) | * Flow (cfs) | * Area (sq ft) | * W.P. (ft) | * Percent Conv | * Hydr Depth(ft) | * Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| * 1 | * LOB | * 21.24 | * 31.85 | * 5.52 | * 2.60 | * 7.54 | * 2.12 | * 0.35 | * 2.12 * |
| * 2 | * LOB | * 31.85 | * 42.47 | * 62.10 | * 12.80 | * 10.67 | * 23.88 | * 1.21 | * 4.85 * |
| * 3 | * Chan | * 42.47 | * 45.45 | * 41.68 | * 6.16 | * 3.05 | * 16.03 | * 2.07 | * 6.77 * |
| * 4 | * Chan | * 45.45 | * 48.43 | * 64.92 | * 8.04 | * 3.05 | * 24.97 | * 2.70 | * 8.08 * |
| * 5 | * Chan | * 48.43 | * 51.40 | * 53.73 | * 7.24 | * 3.11 | * 20.66 | * 2.43 | * 7.42 * |
| * 6 | * Chan | * 51.40 | * 54.38 | * 24.47 | * 4.51 | * 3.11 | * 9.41 | * 1.52 | * 5.42 * |
| * 7 | * ROB | * 54.38 | * 61.25 | * 7.59 | * 2.57 | * 5.46 | * 2.92 | * 0.48 | * 2.96 * |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #PF 2

| * | * Pos | * Left Sta (ft) | * Right Sta (ft) | * Flow (cfs) | * Area (sq ft) | * W.P. (ft) | * Percent Conv | * Hydr Depth(ft) | * Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| * 1 | * Chan | * 42.47 | * 45.45 | * 46.65 | * 7.48 | * 5.24 | * 17.94 | * 2.51 | * 6.24 * |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2 | Chan | 45.45 | 48.43 | 97.23 | 9.36 | 3.05 | 37.40 | 3.14 | 10.39 |
| 3 | Chan | 48.43 | 51.40 | 82.57 | 8.56 | 3.11 | 31.76 | 2.87 | 9.65 |
| 4 | Chan | 51.40 | 54.38 | 33.55 | 5.83 | 4.62 | 12.90 | 1.96 | 5.75 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.89309

INPUT
Description:
Station Elevation Data num= 29

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2388.21 | 10.99 | 2387.63 | 11.34 | 2387.61 | 11.52 | 2387.59 | 11.64 | 2387.59 |
| 11.68 | 2387.58 | 12.15 | 2387.55 | 12.6 | 2387.49 | 14.24 | 2387.28 | 36.34 | 2384.79 |
| 37.84 | 2384.34 | 38.06 | 2384.27 | 44.59 | 2382.23 | 45.94 | 2382.61 | 49.08 | 2383.41 |
| 52.3 | 2384.22 | 53.49 | 2384.53 | 56.06 | 2385.03 | 57.83 | 2385.39 | 58.18 | 2385.47 |
| 59.39 | 2385.68 | 59.82 | 2385.75 | 60.82 | 2385.89 | 61.75 | 2386.03 | 78.5 | 2388.8 |
| 79.61 | 2388.98 | 80.32 | 2389.1 | 80.38 | 2389.11 | 84.92 | 2389.51 | | |

Manning's n Values num= 4

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|
| 0 | .061 | 11.68 | .056 | 38.06 | .086 | 52.3 | .056 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 38.06 | 52.3 | 32.28 | 31.37 | 17.28 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2386.27 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.48 | Wt. n-Val. | 0.056 | 0.086 | 0.056 |
| W.S. Elev (ft) | 2385.79 | Reach Len. (ft) | 32.28 | 31.37 | 17.28 |
| Crit W.S. (ft) | 2385.50 | Flow Area (sq ft) | 6.64 | 36.28 | 5.76 |
| E.G. Slope (ft/ft) | 0.034997 | Area (sq ft) | 6.64 | 36.28 | 5.76 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 23.89 | 213.13 | 22.98 |
| Top Width (ft) | 32.70 | Top Width (ft) | 10.63 | 14.24 | 7.83 |
| Vel Total (ft/s) | 5.34 | Avg. Vel. (ft/s) | 3.60 | 5.87 | 3.99 |
| Max Chl Dpth (ft) | 3.56 | Hydr. Depth (ft) | 0.62 | 2.55 | 0.74 |
| Conv. Total (cfs) | 1389.8 | Conv. (cfs) | 127.7 | 1139.3 | 122.8 |
| Length Wtd. (ft) | 30.24 | Wetted Per. (ft) | 10.76 | 14.80 | 7.99 |
| Min Ch El (ft) | 2382.23 | Shear (lb/sq ft) | 1.35 | 5.35 | 1.57 |
| Alpha | 1.08 | Stream Power (lb/ft s) | 4.85 | 31.45 | 6.28 |
| Frctn Loss (ft) | 0.80 | Cum Volume (acre-ft) | 1.81 | 11.10 | 2.19 |
| C & E Loss (ft) | 0.05 | Cum SA (acres) | 1.87 | 4.62 | 2.39 |

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2386.87 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.55 | Wt. n-Val. | | 0.086 | |
| W.S. Elev (ft) | 2386.32 | Reach Len. (ft) | 32.28 | 31.37 | 17.28 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 43.74 | |
| E.G. Slope (ft/ft) | 0.038806 | Area (sq ft) | | 43.74 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 14.24 | Top Width (ft) | | 14.24 | |
| Vel Total (ft/s) | 5.94 | Avg. Vel. (ft/s) | | 5.94 | |
| Max Chl Dpth (ft) | 4.09 | Hydr. Depth (ft) | | 3.07 | |
| Conv. Total (cfs) | 1319.9 | Conv. (cfs) | | 1319.9 | |
| Length Wtd. (ft) | 31.34 | Wetted Per. (ft) | | 18.95 | |
| Min Ch El (ft) | 2382.23 | Shear (lb/sq ft) | | 5.59 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 33.24 | |
| Frctn Loss (ft) | 0.60 | Cum Volume (acre-ft) | 0.02 | 12.86 | 0.03 |
| C & E Loss (ft) | 0.09 | Cum SA (acres) | 0.01 | 4.62 | 0.02 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 19.03 | 28.55 | 0.05 | 0.07 | 1.12 | 0.02 | 0.06 | 0.74 |
| 2 | LOB | 28.55 | 38.06 | 23.84 | 6.57 | 9.64 | 9.17 | 0.69 | 3.63 |
| 3 | Chan | 38.06 | 41.62 | 37.00 | 7.40 | 3.73 | 14.23 | 2.08 | 5.00 |
| 4 | Chan | 41.62 | 45.18 | 74.49 | 11.26 | 3.72 | 28.65 | 3.16 | 6.62 |
| 5 | Chan | 45.18 | 48.74 | 65.96 | 10.42 | 3.68 | 25.37 | 2.93 | 6.33 |
| 6 | Chan | 48.74 | 52.30 | 35.67 | 7.20 | 3.67 | 13.72 | 2.02 | 4.96 |
| 7 | ROB | 52.30 | 60.46 | 22.98 | 5.76 | 7.99 | 8.84 | 0.74 | 3.99 |

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 38.06 | 41.62 | 39.90 | 9.27 | 5.78 | 15.35 | 2.60 | 4.30 |
| 2 | Chan | 41.62 | 45.18 | 95.47 | 13.12 | 3.72 | 36.72 | 3.69 | 7.27 |
| 3 | Chan | 45.18 | 48.74 | 86.17 | 12.28 | 3.68 | 33.14 | 3.45 | 7.02 |
| 4 | Chan | 48.74 | 52.30 | 38.46 | 9.06 | 5.77 | 14.79 | 2.55 | 4.24 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.88715

INPUT
Description:
Station Elevation Data num= 24

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2387.68 | 2.88 | 2387.42 | 16.25 | 2386.69 | 17.3 | 2386.63 | 19.54 | 2386.18 |
| 31.07 | 2384.1 | 33.55 | 2383.63 | 34.18 | 2383.52 | 35.21 | 2383.24 | 38.38 | 2382.36 |
| 39.62 | 2382.01 | 39.78 | 2381.97 | 43.82 | 2382.54 | 47.61 | 2383.12 | 51.63 | 2383.51 |
| 55.28 | 2383.84 | 57.79 | 2384.09 | 59.51 | 2384.27 | 64.91 | 2384.93 | 71.57 | 2386.02 |
| 87.87 | 2388.63 | 88.14 | 2388.67 | 92.49 | 2388.92 | 94.73 | 2389.06 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .056 | 38.38 | .086 | 51.63 | .056 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 34.18 | 55.28 | 24.76 | 22.54 | 22.68 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2385.42 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.31 | Wt. n-Val. | 0.056 | 0.075 | 0.056 |
| W.S. Elev (ft) | 2385.11 | Reach Len. (ft) | 24.76 | 22.54 | 22.68 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 6.92 | 45.94 | 7.37 |
| E.G. Slope (ft/ft) | 0.020624 | Area (sq ft) | 6.92 | 45.94 | 7.37 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 22.32 | 215.96 | 21.72 |
| Top Width (ft) | 40.59 | Top Width (ft) | 8.73 | 21.10 | 10.75 |
| Vel Total (ft/s) | 4.32 | Avg. Vel. (ft/s) | 3.23 | 4.70 | 2.95 |
| Max Chl Dpth (ft) | 3.14 | Hydr. Depth (ft) | 0.79 | 2.18 | 0.69 |
| Conv. Total (cfs) | 1810.4 | Conv. (cfs) | 155.4 | 1503.7 | 151.3 |
| Length Wtd. (ft) | 22.84 | Wetted Per. (ft) | 8.88 | 21.43 | 10.83 |
| Min Ch El (ft) | 2381.97 | Shear (lb/sq ft) | 1.00 | 2.76 | 0.88 |
| Alpha | 1.07 | Stream Power (lb/ft s) | 3.24 | 12.98 | 2.58 |
| Frctn Loss (ft) | 0.22 | Cum Volume (acre-ft) | 1.81 | 11.07 | 2.18 |
| C & E Loss (ft) | 0.06 | Cum SA (acres) | 1.86 | 4.61 | 2.38 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2386.18 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.26 | Wt. n-Val. | | 0.074 | 0.056 |
| W.S. Elev (ft) | 2385.92 | Reach Len. (ft) | 24.76 | 22.54 | 22.68 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 62.91 | 0.87 |
| E.G. Slope (ft/ft) | 0.011391 | Area (sq ft) | | 62.91 | 0.87 |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 258.78 | 1.22 |
| Top Width (ft) | 21.52 | Top Width (ft) | | 21.10 | 0.42 |
| Vel Total (ft/s) | 4.08 | Avg. Vel. (ft/s) | | 4.11 | 1.41 |
| Max Chl Dpth (ft) | 3.95 | Hydr. Depth (ft) | | 2.98 | 2.06 |
| Conv. Total (cfs) | 2436.0 | Conv. (cfs) | | 2424.6 | 11.5 |
| Length Wtd. (ft) | 22.54 | Wetted Per. (ft) | | 23.83 | 2.46 |
| Min Ch El (ft) | 2381.97 | Shear (lb/sq ft) | | 1.88 | 0.25 |
| Alpha | 1.01 | Stream Power (lb/ft s) | | 7.72 | 0.35 |
| Frctn Loss (ft) | 0.21 | Cum Volume (acre-ft) | 0.02 | 12.82 | 0.03 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.01 | 4.61 | 0.02 |

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 17.09 | 25.64 | 0.00 | 0.00 | 0.19 | 0.00 | 0.02 | 0.24 |
| 2 | LOB | 25.64 | 34.18 | 22.32 | 6.91 | 8.69 | 8.58 | 0.81 | 3.23 |
| 3 | Chan | 34.18 | 39.46 | 69.81 | 12.24 | 5.47 | 26.85 | 2.32 | 5.70 |
| 4 | Chan | 39.46 | 44.73 | 70.33 | 14.84 | 5.34 | 27.05 | 2.81 | 4.74 |
| 5 | Chan | 44.73 | 50.01 | 41.99 | 10.87 | 5.32 | 16.15 | 2.06 | 3.86 |
| 6 | Chan | 50.01 | 55.28 | 33.82 | 7.99 | 5.30 | 13.01 | 1.51 | 4.24 |
| 7 | ROB | 55.28 | 65.14 | 21.68 | 7.30 | 9.93 | 8.34 | 0.74 | 2.97 |
| 8 | ROB | 65.14 | 75.01 | 0.04 | 0.07 | 0.90 | 0.02 | 0.07 | 0.63 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 34.18 | 39.46 | 69.67 | 16.49 | 7.87 | 26.79 | 3.13 | 4.23 |
| 2 | Chan | 39.46 | 44.73 | 81.26 | 19.08 | 5.34 | 31.25 | 3.62 | 4.26 |
| 3 | Chan | 44.73 | 50.01 | 55.24 | 15.12 | 5.32 | 21.25 | 2.87 | 3.65 |
| 4 | Chan | 50.01 | 55.28 | 52.61 | 12.23 | 5.30 | 20.23 | 2.32 | 4.30 |
| 5 | ROB | 55.28 | 65.14 | 1.22 | 0.87 | 2.46 | 0.47 | 2.06 | 1.41 |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.88288

INPUT
Description:
Station Elevation Data num= 24

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2386.48 | 7.89 | 2386 | 9.77 | 2385.73 | 15.83 | 2384.84 | 23.86 | 2383.68 |
| 24.38 | 2383.61 | 24.76 | 2383.55 | 29.13 | 2382.91 | 30.89 | 2382.52 | 33.99 | 2381.84 |
| 35.2 | 2381.57 | 38.98 | 2382.04 | 42.85 | 2382.48 | 47.83 | 2382.75 | 50.65 | 2382.91 |
| 56.42 | 2383.22 | 65.27 | 2383.85 | 66.88 | 2384.14 | 68.92 | 2384.48 | 80.59 | 2386.41 |
| 87.89 | 2387.49 | 89.3 | 2387.7 | 98.98 | 2388.14 | 100.92 | 2388.28 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .056 | 33.99 | .086 | 47.83 | .056 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 30.89 | 50.65 | 25.87 | 23.17 | 28.44 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2385.15 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.10 | Wt. n-Val. | 0.056 | 0.078 | 0.056 |
| W.S. Elev (ft) | 2385.04 | Reach Len. (ft) | 25.87 | 23.17 | 28.44 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 19.73 | 54.26 | 28.90 |
| E.G. Slope (ft/ft) | 0.005403 | Area (sq ft) | 19.73 | 54.26 | 28.90 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 43.11 | 148.88 | 68.01 |
| Top Width (ft) | 57.88 | Top Width (ft) | 16.44 | 19.76 | 21.67 |
| Vel Total (ft/s) | 2.53 | Avg. Vel. (ft/s) | 2.19 | 2.74 | 2.35 |
| Max Chl Dpth (ft) | 3.47 | Hydr. Depth (ft) | 1.20 | 2.75 | 1.33 |
| Conv. Total (cfs) | 3537.2 | Conv. (cfs) | 586.5 | 2025.5 | 925.2 |
| Length Wtd. (ft) | 24.73 | Wetted Per. (ft) | 16.64 | 19.93 | 21.81 |
| Min Ch El (ft) | 2381.57 | Shear (lb/sq ft) | 0.40 | 0.92 | 0.45 |
| Alpha | 1.03 | Stream Power (lb/ft s) | 0.87 | 2.52 | 1.05 |
| Frctn Loss (ft) | 0.07 | Cum Volume (acre-ft) | 1.80 | 11.05 | 2.18 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 1.86 | 4.59 | 2.38 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2385.95 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.20 | Wt. n-Val. | | 0.075 | 0.056 |
| W.S. Elev (ft) | 2385.75 | Reach Len. (ft) | 25.87 | 23.17 | 28.44 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 68.13 | 4.51 |
| E.G. Slope (ft/ft) | 0.008027 | Area (sq ft) | | 68.13 | 4.51 |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 249.05 | 10.95 |
| Top Width (ft) | 21.37 | Top Width (ft) | | 19.76 | 1.61 |
| Vel Total (ft/s) | 3.58 | Avg. Vel. (ft/s) | | 3.66 | 2.43 |
| Max Chl Dpth (ft) | 4.18 | Hydr. Depth (ft) | | 3.45 | 2.79 |
| Conv. Total (cfs) | 2902.0 | Conv. (cfs) | | 2779.8 | 122.2 |
| Length Wtd. (ft) | 23.28 | Wetted Per. (ft) | | 23.15 | 4.37 |
| Min Ch El (ft) | 2381.57 | Shear (lb/sq ft) | | 1.47 | 0.52 |
| Alpha | 1.02 | Stream Power (lb/ft s) | | 5.39 | 1.26 |
| Frctn Loss (ft) | 0.10 | Cum Volume (acre-ft) | 0.02 | 12.79 | 0.03 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.01 | 4.60 | 0.02 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 7.72 | 15.45 | 0.02 | 0.07 | 1.01 | 0.01 | 0.07 | 0.29 |
| 2 | LOB | 15.45 | 23.17 | 7.26 | 5.44 | 7.80 | 2.79 | 0.71 | 1.33 |
| 3 | LOB | 23.17 | 30.89 | 35.83 | 14.21 | 7.83 | 13.78 | 1.84 | 2.52 |
| 4 | Chan | 30.89 | 35.83 | 49.88 | 15.08 | 5.05 | 19.18 | 3.05 | 3.31 |
| 5 | Chan | 35.83 | 40.77 | 39.39 | 15.27 | 4.98 | 15.15 | 3.09 | 2.58 |
| 6 | Chan | 40.77 | 45.71 | 28.99 | 12.69 | 4.96 | 11.15 | 2.57 | 2.29 |
| 7 | Chan | 45.71 | 50.65 | 30.62 | 11.22 | 4.95 | 11.78 | 2.27 | 2.73 |
| 8 | ROB | 50.65 | 63.22 | 58.16 | 22.16 | 12.59 | 22.37 | 1.76 | 2.62 |
| 9 | ROB | 63.22 | 75.79 | 9.85 | 6.74 | 9.21 | 3.79 | 0.74 | 1.46 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 30.89 | 35.83 | 65.97 | 18.55 | 8.27 | 25.37 | 3.75 | 3.56 |
| 2 | Chan | 35.83 | 40.77 | 69.08 | 18.74 | 4.98 | 26.57 | 3.79 | 3.69 |
| 3 | Chan | 40.77 | 45.71 | 54.08 | 16.16 | 4.96 | 20.80 | 3.27 | 3.35 |
| 4 | Chan | 45.71 | 50.65 | 59.92 | 14.69 | 4.95 | 23.05 | 2.97 | 4.08 |
| 5 | ROB | 50.65 | 63.22 | 10.95 | 4.51 | 4.37 | 4.21 | 2.79 | 2.43 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.87849

INPUT
Description:
Station Elevation Data num= 26

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|

```
*******************************************************************************
       0 2387.39    3.04  2387.3   19.28  2386.1   25.29 2385.62   31.71 2385.22
   32.04  2385.2   39.34  2384.4   52.11 2382.85   52.96 2382.66   55.42 2382.02
   60.68 2380.69      62 2380.79   64.27 2381.02   72.33 2381.74   73.09  2381.8
   76.61 2382.05    81.1 2382.42   88.71 2382.94  101.04 2384.94  109.97 2386.52
  110.37 2386.54  115.95 2386.87  121.96 2387.12  138.25 2388.04  145.74  2388.3
  153.78 2388.44

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
***********************************************
       0    .056    60.68    .086    73.09    .056

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         55.42    81.1            393.16   402.6  399.35            .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)          * 2385.06  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.05  * Wt. n-Val.              *   0.056  *   0.071  *   0.056  *
* W.S. Elev (ft)          * 2385.01  * Reach Len. (ft)         *  393.16  *  402.60  *  399.35  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *   27.80  *   89.13  *   30.87  *
* E.G. Slope (ft/ft)      *0.001771  * Area (sq ft)            *   27.80  *   89.13  *   30.87  *
* Q Total (cfs)           *  260.00  * Flow (cfs)              *   36.44  *  178.28  *   45.28  *
* Top Width (ft)          *   67.61  * Top Width (ft)          *   21.62  *   25.68  *   20.32  *
* Vel Total (ft/s)        *    1.76  * Avg. Vel. (ft/s)        *    1.31  *    2.00  *    1.47  *
* Max Chl Dpth (ft)       *    4.32  * Hydr. Depth (ft)        *    1.29  *    3.47  *    1.52  *
* Conv. Total (cfs)       *  6179.0  * Conv. (cfs)             *   866.0  *  4236.9  *  1076.1  *
* Length Wtd. (ft)        *  401.34  * Wetted Per. (ft)        *   21.85  *   25.92  *   20.50  *
* Min Ch El (ft)          * 2380.69  * Shear (lb/sq ft)        *    0.14  *    0.38  *    0.17  *
* Alpha                   *    1.09  * Stream Power (lb/ft s)   *    0.18  *    0.76  *    0.24  *
* Frctn Loss (ft)         *    1.93  * Cum Volume (acre-ft)     *    1.78  *   11.01  *    2.16  *
* C & E Loss (ft)         *    0.04  * Cum SA (acres)           *    1.84  *    4.58  *    2.36  *
*****************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************
* E.G. Elev (ft)          * 2385.82  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.09  * Wt. n-Val.              *          *   0.068  *          *
* W.S. Elev (ft)          * 2385.73  * Reach Len. (ft)         *  393.16  *  402.60  *  399.35  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *          *  107.63  *          *
* E.G. Slope (ft/ft)      *0.002529  * Area (sq ft)            *          *  107.63  *          *
* Q Total (cfs)           *  260.00  * Flow (cfs)              *          *  260.00  *          *
* Top Width (ft)          *   25.68  * Top Width (ft)          *          *   25.68  *          *
* Vel Total (ft/s)        *    2.42  * Avg. Vel. (ft/s)        *          *    2.42  *          *
* Max Chl Dpth (ft)       *    5.04  * Hydr. Depth (ft)        *          *    4.19  *          *
* Conv. Total (cfs)       *  5169.9  * Conv. (cfs)             *          *  5169.9  *          *
* Length Wtd. (ft)        *  402.51  * Wetted Per. (ft)        *          *   32.93  *          *
* Min Ch El (ft)          * 2380.69  * Shear (lb/sq ft)        *          *    0.52  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s)   *          *    1.25  *          *
* Frctn Loss (ft)         *    2.38  * Cum Volume (acre-ft)     *    0.02  *   12.74  *    0.03  *
* C & E Loss (ft)         *    0.03  * Cum SA (acres)           *    0.01  *    4.59  *    0.02  *
*****************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB       * 27.71     * 41.57     *     1.84 *     3.33 *     7.81 *     0.71 *     0.43 *     0.55 *
* 2        * LOB       * 41.57     * 55.42     *    34.60 *    24.47 *    14.04 *    13.31 *     1.77 *     1.41 *
* 3        * Chan      * 55.42     * 61.84     *    57.21 *    24.16 *     6.59 *    22.00 *     3.76 *     2.37 *
* 4        * Chan      * 61.84     * 68.26     *    43.82 *    25.18 *     6.45 *    16.85 *     3.92 *     1.74 *
* 5        * Chan      * 68.26     * 74.68     *    37.76 *    21.50 *     6.44 *    14.52 *     3.35 *     1.76 *
* 6        * Chan      * 74.68     * 81.10     *    39.50 *    18.28 *     6.44 *    15.19 *     2.85 *     2.16 *
* 7        * ROB       * 81.10     * 99.27     *    45.15 *    30.49 *    18.33 *    17.37 *     1.68 *     1.48 *
* 8        * ROB       * 99.27     * 117.44    *     0.13 *     0.38 *     2.18 *     0.05 *     0.18 *     0.33 *
*****************************************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 2
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 55.42     * 61.84     *    70.88 *    28.79 *    10.30 *    27.26 *     4.48 *     2.46 *
* 2        * Chan      * 61.84     * 68.26     *    71.27 *    29.81 *     6.45 *    27.41 *     4.64 *     2.39 *
* 3        * Chan      * 68.26     * 74.68     *    64.27 *    26.13 *     6.44 *    24.72 *     4.07 *     2.46 *
* 4        * Chan      * 74.68     * 81.10     *    53.58 *    22.91 *     9.75 *    20.61 *     3.57 *     2.34 *
*****************************************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: Ocotillo Wash 1
```

REACH: Tributary-2.1 RS: 0.87485

INPUT
Description:
Station Elevation Data num= 21

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2385.72 | 1.3 | 2385.64 | 12.14 | 2385.18 | 16.54 | 2384.99 | 27.61 | 2383.21 |
| 31.74 | 2382.46 | 32.57 | 2382.19 | 35.11 | 2381.23 | 37.72 | 2380.39 | 39.45 | 2379.78 |
| 48.38 | 2380.84 | 50.17 | 2381.06 | 54.55 | 2381.46 | 56.05 | 2381.6 | 69.3 | 2382.72 |
| 79.44 | 2383.9 | 93.83 | 2385.41 | 93.92 | 2385.41 | 94.77 | 2385.47 | 99.82 | 2385.81 |
| 114.08 | 2386.58 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .056 | 37.72 | .086 | 54.55 | .056 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 35.11 | 56.05 | 22.68 | 22.85 | 22.73 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 2383.09 | Element | Left OB | Channel | Right OB | |
| Vel Head (ft) | 0.45 | Wt. n-Val. | 0.056 | 0.080 | 0.056 | |
| W.S. Elev (ft) | 2382.64 | Reach Len. (ft) | 22.68 | 22.85 | 22.73 | |
| Crit W.S. (ft) | | Flow Area (sq ft) | 2.73 | 40.82 | 6.45 | |
| E.G. Slope (ft/ft) | 0.038478 | Area (sq ft) | 2.73 | 40.82 | 6.45 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | 10.01 | 228.28 | 21.70 | |
| Top Width (ft) | 37.68 | Top Width (ft) | 4.38 | 20.94 | 12.35 | |
| Vel Total (ft/s) | 5.20 | Avg. Vel. (ft/s) | 3.67 | 5.59 | 3.37 | |
| Max Chl Dpth (ft) | 2.86 | Hydr. Depth (ft) | 0.62 | 1.95 | 0.52 | |
| Conv. Total (cfs) | 1325.5 | Conv. (cfs) | 51.0 | 1163.8 | 110.6 | |
| Length Wtd. (ft) | 22.83 | Wetted Per. (ft) | 4.62 | 21.28 | 12.40 | |
| Min Ch El (ft) | 2379.78 | Shear (lb/sq ft) | 1.42 | 4.61 | 1.25 | |
| Alpha | 1.07 | Stream Power (lb/ft s) | 5.21 | 25.77 | 4.21 | |
| Frctn Loss (ft) | 0.85 | Cum Volume (acre-ft) | 1.65 | 10.41 | 1.98 | |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 1.73 | 4.37 | 2.21 | |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 2383.40 | Element | Left OB | Channel | Right OB | |
| Vel Head (ft) | 0.39 | Wt. n-Val. | | 0.079 | 0.056 | |
| W.S. Elev (ft) | 2383.01 | Reach Len. (ft) | 22.68 | 22.85 | 22.73 | |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 48.53 | 3.43 | |
| E.G. Slope (ft/ft) | 0.026778 | Area (sq ft) | | 48.53 | 3.43 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 246.16 | 13.84 | |
| Top Width (ft) | 23.58 | Top Width (ft) | | 20.94 | 2.64 | |
| Vel Total (ft/s) | 5.00 | Avg. Vel. (ft/s) | | 5.07 | 4.03 | |
| Max Chl Dpth (ft) | 3.23 | Hydr. Depth (ft) | | 2.32 | 1.30 | |
| Conv. Total (cfs) | 1588.9 | Conv. (cfs) | | 1504.3 | 84.6 | |
| Length Wtd. (ft) | 22.85 | Wetted Per. (ft) | | 23.06 | 3.84 | |
| Min Ch El (ft) | 2379.78 | Shear (lb/sq ft) | | 3.52 | 1.50 | |
| Alpha | 1.01 | Stream Power (lb/ft s) | | 17.85 | 6.03 | |
| Frctn Loss (ft) | 0.68 | Cum Volume (acre-ft) | 0.02 | 12.02 | 0.01 | |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.01 | 4.37 | 0.01 | |

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 26.33 | 35.11 | 10.01 | 2.73 | 4.62 | 3.85 | 0.62 | 3.67 |
| 2 | Chan | 35.11 | 40.35 | 77.05 | 11.73 | 5.48 | 29.64 | 2.24 | 6.57 |
| 3 | Chan | 40.35 | 45.58 | 75.67 | 12.81 | 5.27 | 29.10 | 2.45 | 5.91 |
| 4 | Chan | 45.58 | 50.82 | 46.39 | 9.55 | 5.27 | 17.84 | 1.82 | 4.86 |
| 5 | Chan | 50.82 | 56.05 | 29.17 | 6.73 | 5.26 | 11.22 | 1.29 | 4.33 |
| 6 | ROB | 56.05 | 70.56 | 21.70 | 6.45 | 12.40 | 8.35 | 0.52 | 3.37 |

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 35.11 | 40.35 | 73.38 | 13.66 | 7.26 | 28.22 | 2.61 | 5.37 |
| 2 | Chan | 40.35 | 45.58 | 81.27 | 14.74 | 5.27 | 31.26 | 2.82 | 5.51 |
| 3 | Chan | 45.58 | 50.82 | 53.59 | 11.48 | 5.27 | 20.61 | 2.19 | 4.67 |
| 4 | Chan | 50.82 | 56.05 | 37.92 | 8.66 | 5.26 | 14.59 | 1.65 | 4.38 |
| 5 | ROB | 56.05 | 70.56 | 13.84 | 3.43 | 3.84 | 5.32 | 1.30 | 4.03 |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.87052

INPUT
Description:
Station Elevation Data num= 20

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2384.78 | 1.79 | 2384.69 | 9.18 | 2384.42 | 13.11 | 2384.27 | 22.85 | 2382.71 |
| 30.05 | 2381.69 | 34.82 | 2380.16 | 36.64 | 2379.57 | 38.59 | 2378.94 | 40.01 | 2379.15 |
| 45.13 | 2379.88 | 46.54 | 2379.93 | 47.03 | 2379.95 | 52.92 | 2380.48 | 62.67 | 2381.35 |
| 66.64 | 2381.76 | 92.78 | 2384.33 | 93.3 | 2384.37 | 95.94 | 2384.58 | 100.47 | 2384.92 |

```
Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**********************************************
       0    .056   36.64    .086   52.92    .056

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          34.82  52.92             16.18   16.15   12.88          .1        .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)          * 2382.23  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.41  * Wt. n-Val.              *   0.056  *   0.083  *   0.056  *
* W.S. Elev (ft)          * 2381.82  * Reach Len. (ft)         *   16.18  *   16.15  *   12.88  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *    4.34  *   37.42  *    9.93  *
* E.G. Slope (ft/ft)      *0.035874  * Area (sq ft)            *    4.34  *   37.42  *    9.93  *
* Q Total (cfs)           *  260.00  * Flow (cfs)              *   17.68  *  203.42  *   38.90  *
* Top Width (ft)          *   38.16  * Top Width (ft)           *    5.70  *   18.10  *   14.35  *
* Vel Total (ft/s)        *    5.03  * Avg. Vel. (ft/s)         *    4.07  *    5.44  *    3.92  *
* Max Chl Dpth (ft)       *    2.88  * Hydr. Depth (ft)         *    0.76  *    2.07  *    0.69  *
* Conv. Total (cfs)       *  1372.7  * Conv. (cfs)              *    93.4  *  1074.0  *   205.4  *
* Length Wtd. (ft)        *   15.71  * Wetted Per. (ft)         *    5.95  *   18.38  *   14.42  *
* Min Ch El (ft)          * 2378.94  * Shear (lb/sq ft)         *    1.63  *    4.56  *    1.54  *
* Alpha                   *    1.05  * Stream Power (lb/ft s)   *    6.65  *   24.78  *    6.04  *
* Frctn Loss (ft)         *    0.37  * Cum Volume (acre-ft)     *    1.64  *   10.39  *    1.98  *
* C & E Loss (ft)         *    0.04  * Cum SA (acres)           *    1.72  *    4.36  *    2.20  *
*****************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************
* E.G. Elev (ft)          * 2382.72  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.49  * Wt. n-Val.              *          *   0.081  *   0.056  *
* W.S. Elev (ft)          * 2382.23  * Reach Len. (ft)         *   16.18  *   16.15  *   12.88  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *          *   44.86  *    1.91  *
* E.G. Slope (ft/ft)      *0.032818  * Area (sq ft)            *          *   44.86  *    1.91  *
* Q Total (cfs)           *  260.00  * Flow (cfs)              *          *  252.84  *    7.17  *
* Top Width (ft)          *   19.22  * Top Width (ft)           *          *   18.10  *    1.12  *
* Vel Total (ft/s)        *    5.56  * Avg. Vel. (ft/s)         *          *    5.64  *    3.75  *
* Max Chl Dpth (ft)       *    3.29  * Hydr. Depth (ft)         *          *    2.48  *    1.70  *
* Conv. Total (cfs)       *  1435.2  * Conv. (cfs)              *          *  1395.7  *    39.6  *
* Length Wtd. (ft)        *   16.10  * Wetted Per. (ft)         *          *   20.46  *    2.78  *
* Min Ch El (ft)          * 2378.94  * Shear (lb/sq ft)         *          *    4.49  *    1.41  *
* Alpha                   *    1.01  * Stream Power (lb/ft s)   *          *   25.32  *    5.28  *
* Frctn Loss (ft)         *    0.31  * Cum Volume (acre-ft)     *    0.02  *   12.00  *    0.01  *
* C & E Loss (ft)         *    0.06  * Cum SA (acres)           *    0.01  *    4.36  *    0.01  *
*****************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB      * 26.12     * 34.82     *    17.68 *    4.34 *     5.95 *     6.80 *     0.76 *     4.07 *
* 2        * Chan     * 34.82     * 39.35     *    68.40 *   10.70 *     4.73 *    26.31 *     2.37 *     6.39 *
* 3        * Chan     * 39.35     * 43.87     *    63.24 *   11.06 *     4.57 *    24.32 *     2.44 *     5.72 *
* 4        * Chan     * 43.87     * 48.40     *    42.20 *    8.66 *     4.54 *    16.23 *     1.91 *     4.87 *
* 5        * Chan     * 48.40     * 52.92     *    29.58 *    7.00 *     4.54 *    11.38 *     1.55 *     4.23 *
* 6        * ROB      * 52.92     * 64.81     *    38.54 *    9.62 *    11.94 *    14.82 *     0.81 *     4.01 *
* 7        * ROB      * 64.81     * 76.70     *     0.35 *    0.31 *     2.48 *     0.14 *     0.12 *     1.15 *
*****************************************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 2
*****************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan     * 34.82     * 39.35     *    73.70 *   12.56 *     6.80 *    28.35 *     2.78 *     5.87 *
* 2        * Chan     * 39.35     * 43.87     *    79.72 *   12.92 *     4.57 *    30.66 *     2.86 *     6.17 *
* 3        * Chan     * 43.87     * 48.40     *    56.79 *   10.52 *     4.54 *    21.84 *     2.32 *     5.40 *
* 4        * Chan     * 48.40     * 52.92     *    42.63 *    8.86 *     4.54 *    16.40 *     1.96 *     4.81 *
* 5        * ROB      * 52.92     * 64.81     *     7.16 *    1.91 *     2.78 *     2.76 *     1.70 *     3.75 *
*****************************************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: Ocotillo Wash 1
REACH: Tributary-2.1       RS: 0.86746

INPUT
Description:
Station Elevation Data     num=      18
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
**********************************************************************************
       0 2383.82    1.92 2383.71    6.63 2383.45    8.59 2383.34   22.58 2381.82
   31.17 2380.76   39.43 2378.76   41.49 2378.26   41.65 2378.22   42.89 2378.41
    50.2 2379.52   51.09 2379.63   53.32 2379.92   62.92 2381.12      66 2381.48
   89.57 2383.76   90.15 2383.82   98.68 2384.63

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
**********************************************
       0    .056   39.43    .086   51.09    .056
```

```
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         31.17   53.32             46.15   45.94   47.27          .1        .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)         * 2381.83  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.29  * Wt. n-Val.              *   0.056  *   0.073  *   0.056  *
* W.S. Elev (ft)         * 2381.54  * Reach Len. (ft)         *   46.15  *   45.94  *   47.27  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)       *    2.45  *   49.93  *   10.52  *
* E.G. Slope (ft/ft)     *0.016749  * Area (sq ft)            *    2.45  *   49.93  *   10.52  *
* Q Total (cfs)          *  260.00  * Flow (cfs)              *    4.46  *  224.77  *   30.77  *
* Top Width (ft)         *   41.73  * Top Width (ft)           *    6.30  *   22.15  *   13.28  *
* Vel Total (ft/s)       *    4.13  * Avg. Vel. (ft/s)         *    1.82  *    4.50  *    2.93  *
* Max Chl Dpth (ft)      *    3.32  * Hydr. Depth (ft)         *    0.39  *    2.25  *    0.79  *
* Conv. Total (cfs)      *  2009.0  * Conv. (cfs)              *    34.5  *  1736.8  *   237.8  *
* Length Wtd. (ft)       *   46.18  * Wetted Per. (ft)         *    6.35  *   22.58  *   13.37  *
* Min Ch El (ft)         * 2378.22  * Shear (lb/sq ft)         *    0.40  *    2.31  *    0.82  *
* Alpha                  *    1.09  * Stream Power (lb/ft s)    *    0.73  *   10.41  *    2.41  *
* Frctn Loss (ft)        *    1.20  * Cum Volume (acre-ft)      *    1.64  *   10.37  *    1.98  *
* C & E Loss (ft)        *    0.03  * Cum SA (acres)            *    1.72  *    4.35  *    2.20  *
*****************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************
* E.G. Elev (ft)         * 2382.35  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.28  * Wt. n-Val.              *          *   0.070  *          *
* W.S. Elev (ft)         * 2382.07  * Reach Len. (ft)         *   46.15  *   45.94  *   47.27  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)       *          *   61.72  *          *
* E.G. Slope (ft/ft)     *0.012615  * Area (sq ft)            *          *   61.72  *          *
* Q Total (cfs)          *  260.00  * Flow (cfs)              *          *  260.00  *          *
* Top Width (ft)         *   22.15  * Top Width (ft)           *          *   22.15  *          *
* Vel Total (ft/s)       *    4.21  * Avg. Vel. (ft/s)         *          *    4.21  *          *
* Max Chl Dpth (ft)      *    3.85  * Hydr. Depth (ft)         *          *    2.79  *          *
* Conv. Total (cfs)      *  2314.9  * Conv. (cfs)              *          *  2314.9  *          *
* Length Wtd. (ft)       *   45.94  * Wetted Per. (ft)         *          *   26.04  *          *
* Min Ch El (ft)         * 2378.22  * Shear (lb/sq ft)         *          *    1.87  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s)    *          *    7.86  *          *
* Frctn Loss (ft)        *    1.08  * Cum Volume (acre-ft)      *   0.02  *   11.98  *    0.01  *
* C & E Loss (ft)        *    0.06  * Cum SA (acres)            *   0.01  *    4.35  *    0.01  *
*****************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB      * 23.38     * 31.17     *     4.46 *     2.45 *     6.35 *     1.71 *     0.39 *     1.82 *
* 2        * Chan     * 31.17     * 36.71     *    33.76 *     8.02 *     5.70 *    12.98 *     1.45 *     4.21 *
* 3        * Chan     * 36.71     * 42.25     *    79.53 *    15.38 *     5.69 *    30.59 *     2.78 *     5.17 *
* 4        * Chan     * 42.25     * 47.78     *    66.94 *    15.53 *     5.60 *    25.75 *     2.81 *     4.31 *
* 5        * Chan     * 47.78     * 53.32     *    44.54 *    11.00 *     5.59 *    17.13 *     1.99 *     4.05 *
* 6        * ROB      * 53.32     * 64.66     *    30.63 *    10.32 *    11.43 *    11.78 *     0.91 *     2.97 *
* 7        * ROB      * 64.66     * 76.00     *     0.14 *     0.20 *     1.95 *     0.05 *     0.10 *     0.70 *
*************************************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 2
*************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan     * 31.17     * 36.71     *    42.69 *    10.97 *     7.01 *    16.42 *     1.98 *     3.89 *
* 2        * Chan     * 36.71     * 42.25     *    92.19 *    18.32 *     5.69 *    35.46 *     3.31 *     5.03 *
* 3        * Chan     * 42.25     * 47.78     *    77.04 *    18.48 *     5.60 *    29.63 *     3.34 *     4.17 *
* 4        * Chan     * 47.78     * 53.32     *    48.08 *    13.95 *     7.74 *    18.49 *     2.52 *     3.45 *
*************************************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: Ocotillo Wash 1
REACH: Tributary-2.1      RS: 0.85876

INPUT
Description:
Station Elevation Data    num=      16
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
       0 2382.59    2.52 2382.38    4.35 2382.22    6.14  2382.1   11.05  2381.5
   28.74 2379.27   36.07 2377.75   36.23 2377.72   37.47 2377.48   45.08 2378.69
```

```
   45.32 2378.73   52.42 2379.15   57.47 2379.42   73.09 2381.95   74.08 2381.99
   79.29 2382.17

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
       0    .056   36.07    .086   45.08    .056

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          28.74   45.32             24.38   33.09   35.92          .1        .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)         * 2380.60  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.55  * Wt. n-Val.              *   0.056  *   0.073  *   0.056  *
* W.S. Elev (ft)         * 2380.05  * Reach Len. (ft)         *   24.38  *   33.09  *   35.92  *
* Crit W.S. (ft)         * 2380.02  * Flow Area (sq ft)       *    2.38  *   29.90  *   12.90  *
* E.G. Slope (ft/ft)     *0.045415  * Area (sq ft)            *    2.38  *   29.90  *   12.90  *
* Q Total (cfs)          *  260.00  * Flow (cfs)              *    7.13  *  189.92  *   62.95  *
* Top Width (ft)         *   38.74  * Top Width (ft)           *    6.15  *   16.58  *   16.01  *
* Vel Total (ft/s)       *    5.76  * Avg. Vel. (ft/s)         *    2.99  *    6.35  *    4.88  *
* Max Chl Dpth (ft)      *    2.57  * Hydr. Depth (ft)         *    0.39  *    1.80  *    0.81  *
* Conv. Total (cfs)      *  1220.0  * Conv. (cfs)              *    33.5  *   891.2  *   295.4  *
* Length Wtd. (ft)       *   33.39  * Wetted Per. (ft)         *    6.20  *   16.86  *   16.08  *
* Min Ch El (ft)         * 2377.48  * Shear (lb/sq ft)         *    1.09  *    5.03  *    2.27  *
* Alpha                  *    1.07  * Stream Power (lb/ft s)   *    3.26  *   31.94  *   11.10  *
* Frctn Loss (ft)        *    1.09  * Cum Volume (acre-ft)     *    1.64  *   10.33  *    1.96  *
* C & E Loss (ft)        *    0.06  * Cum SA (acres)           *    1.72  *    4.33  *    2.18  *
*****************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************
* E.G. Elev (ft)         * 2381.21  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.86  * Wt. n-Val.              *          *   0.071  *          *
* W.S. Elev (ft)         * 2380.35  * Reach Len. (ft)         *   24.38  *   33.09  *   35.92  *
* Crit W.S. (ft)         * 2380.20  * Flow Area (sq ft)       *          *   34.93  *          *
* E.G. Slope (ft/ft)     *0.058047  * Area (sq ft)            *          *   34.93  *          *
* Q Total (cfs)          *  260.00  * Flow (cfs)              *          *  260.00  *          *
* Top Width (ft)         *   16.58  * Top Width (ft)           *          *   16.58  *          *
* Vel Total (ft/s)       *    7.44  * Avg. Vel. (ft/s)         *          *    7.44  *          *
* Max Chl Dpth (ft)      *    2.87  * Hydr. Depth (ft)         *          *    2.11  *          *
* Conv. Total (cfs)      *  1079.2  * Conv. (cfs)              *          *  1079.2  *          *
* Length Wtd. (ft)       *   33.09  * Wetted Per. (ft)         *          *   19.56  *          *
* Min Ch El (ft)         * 2377.48  * Shear (lb/sq ft)         *          *    6.47  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s)   *          *   48.17  *          *
* Frctn Loss (ft)        *    1.12  * Cum Volume (acre-ft)     *    0.02  *   11.93  *    0.01  *
* C & E Loss (ft)        *    0.14  * Cum SA (acres)           *    0.01  *    4.33  *    0.01  *
*****************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) *  (sq ft) *    (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB       * 21.56     * 28.74     *     7.13 *     2.38 *    6.20 *     2.74 *     0.39 *     2.99 *
* 2        * Chan      * 28.74     * 32.89     *    30.37 *     5.00 *    4.23 *    11.68 *     1.21 *     6.08 *
* 3        * Chan      * 32.89     * 37.03     *    67.05 *     8.55 *    4.23 *    25.79 *     2.06 *     7.84 *
* 4        * Chan      * 37.03     * 41.18     *    58.27 *     9.52 *    4.20 *    22.41 *     2.30 *     6.12 *
* 5        * Chan      * 41.18     * 45.32     *    34.23 *     6.83 *    4.20 *    13.17 *     1.65 *     5.02 *
* 6        * ROB       * 45.32     * 53.81     *    49.94 *     9.04 *    8.51 *    19.21 *     1.06 *     5.52 *
* 7        * ROB       * 53.81     * 62.31     *    13.01 *     3.85 *    7.57 *     5.01 *     0.51 *     3.38 *
*****************************************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 2
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) *  (sq ft) *    (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 28.74     * 32.89     *    41.58 *     6.25 *    5.31 *    15.99 *     1.51 *     6.65 *
* 2        * Chan      * 32.89     * 37.03     *    92.54 *     9.81 *    4.23 *    35.59 *     2.37 *     9.43 *
* 3        * Chan      * 37.03     * 41.18     *    78.50 *    10.78 *    4.20 *    30.19 *     2.60 *     7.28 *
* 4        * Chan      * 41.18     * 45.32     *    47.37 *     8.08 *    5.82 *    18.22 *     1.95 *     5.86 *
*****************************************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: Ocotillo Wash 1
REACH: Tributary-2.1      RS: 0.85249

INPUT
Description:
Station Elevation Data     num=      28
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
       0 2382.67    2.39 2382.65     4.1 2382.46    10.1 2381.69   16.16 2380.92
   27.49 2379.67   28.37 2379.57   35.14 2377.81   38.35 2377.04   38.94 2376.89
   40.14 2376.61   47.28  2377.1   48.55 2377.18   49.86 2377.26    51.4 2377.35
```

```
    56.5  2377.7    65.7 2378.33    76.19 2380.02    76.55 2380.07    76.94 2380.13
    77.1 2380.13    78.64 2380.23    79.05 2380.25     79.6 2380.25    80.45 2380.24
   82.71 2380.23    84.72 2380.25    86.52 2380.21

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
**********************************************
       0    .056    38.35    .086    48.55    .056

Bank Sta: Left    Right     Lengths: Left Channel    Right      Coeff Contr.    Expan.
          35.14    56.5              39.38    31.7    25.58             .1        .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)          * 2379.45  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.35  * Wt. n-Val.              *   0.056  *   0.071  *   0.056  *
* W.S. Elev (ft)          * 2379.09  * Reach Len. (ft)         *   39.38  *   31.70  *   25.58  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *    3.17  *   41.10  *   11.73  *
* E.G. Slope (ft/ft)      *0.024557  * Area (sq ft)            *    3.17  *   41.10  *   11.73  *
* Q Total (cfs)           *  260.00  * Flow (cfs)              *    9.59  *  207.08  *   43.33  *
* Top Width (ft)          *   40.24  * Top Width (ft)           *    4.94  *   21.36  *   13.94  *
* Vel Total (ft/s)        *    4.64  * Avg. Vel. (ft/s)         *    3.03  *    5.04  *    3.69  *
* Max Chl Dpth (ft)       *    2.48  * Hydr. Depth (ft)         *    0.64  *    1.92  *    0.84  *
* Conv. Total (cfs)       *  1659.2  * Conv. (cfs)              *    61.2  *  1321.4  *   276.5  *
* Length Wtd. (ft)        *   31.00  * Wetted Per. (ft)         *    5.10  *   21.54  *   14.02  *
* Min Ch El (ft)          * 2376.61  * Shear (lb/sq ft)         *    0.95  *    2.93  *    1.28  *
* Alpha                   *    1.06  * Stream Power (lb/ft s)   *    2.88  *   14.74  *    4.74  *
* Frctn Loss (ft)         *    0.91  * Cum Volume (acre-ft)     *    1.64  *   10.30  *    1.95  *
* C & E Loss (ft)         *    0.00  * Cum SA (acres)           *    1.71  *    4.31  *    2.17  *
*****************************************************************************************

Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************
* E.G. Elev (ft)          * 2379.96  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.41  * Wt. n-Val.              *          *   0.069  *          *
* W.S. Elev (ft)          * 2379.55  * Reach Len. (ft)         *   39.38  *   31.70  *   25.58  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *          *   50.89  *          *
* E.G. Slope (ft/ft)      *0.021996  * Area (sq ft)            *          *   50.89  *          *
* Q Total (cfs)           *  260.00  * Flow (cfs)              *          *  260.00  *          *
* Top Width (ft)          *   21.36  * Top Width (ft)           *          *   21.36  *          *
* Vel Total (ft/s)        *    5.11  * Avg. Vel. (ft/s)         *          *    5.11  *          *
* Max Chl Dpth (ft)       *    2.94  * Hydr. Depth (ft)         *          *    2.38  *          *
* Conv. Total (cfs)       *  1753.1  * Conv. (cfs)              *          *  1753.1  *          *
* Length Wtd. (ft)        *   31.70  * Wetted Per. (ft)         *          *   25.13  *          *
* Min Ch El (ft)          * 2376.61  * Shear (lb/sq ft)         *          *    2.78  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s)   *          *   14.21  *          *
* Frctn Loss (ft)         *    0.71  * Cum Volume (acre-ft)     *    0.02  *   11.89  *    0.01  *
* C & E Loss (ft)         *    0.02  * Cum SA (acres)           *    0.01  *    4.32  *    0.01  *
*****************************************************************************************

Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB       * 26.36     * 35.14     *     9.59 *     3.17 *     5.10 *     3.69 *     0.64 *     3.03 *
* 2        * Chan      * 35.14     * 40.48     *    52.55 *    10.27 *     5.48 *    20.21 *     1.92 *     5.12 *
* 3        * Chan      * 40.48     * 45.82     *    55.80 *    12.16 *     5.35 *    21.46 *     2.28 *     4.59 *
* 4        * Chan      * 45.82     * 51.16     *    52.26 *    10.25 *     5.35 *    20.10 *     1.92 *     5.10 *
* 5        * Chan      * 51.16     * 56.50     *    46.46 *     8.42 *     5.35 *    17.87 *     1.58 *     5.52 *
* 6        * ROB       * 56.50     * 64.01     *    35.65 *     8.53 *     7.52 *    13.71 *     1.14 *     4.18 *
* 7        * ROB       * 64.01     * 71.51     *     7.68 *     3.20 *     6.50 *     2.95 *     0.50 *     2.40 *
*****************************************************************************************************************

Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 2
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 35.14     * 40.48     *    61.24 *    12.71 *     7.23 *    23.55 *     2.38 *     4.82 *
* 2        * Chan      * 40.48     * 45.82     *    72.07 *    14.61 *     5.35 *    27.72 *     2.74 *     4.93 *
* 3        * Chan      * 45.82     * 51.16     *    71.22 *    12.70 *     5.35 *    27.39 *     2.38 *     5.61 *
* 4        * Chan      * 51.16     * 56.50     *    55.47 *    10.87 *     7.20 *    21.33 *     2.04 *     5.10 *
*****************************************************************************************************************

Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: Ocotillo Wash 1
REACH: Tributary-2.1       RS: 0.84649

INPUT
Description:
Station Elevation Data     num=      27
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
**********************************************************************************
       0  2381.1    3.74 2380.97    4.53 2380.79   20.91 2376.96   24.12 2376.21
   26.62 2375.62   34.61 2376.32   34.73 2376.33   42.36    2377    43.7 2377.11
   46.97 2377.27   47.37 2377.31   47.63 2377.31   48.32 2377.36   50.14 2377.46
   52.57 2377.54   53.11 2377.56   57.11  2377.9    58.4 2377.89   61.83  2377.9
   67.54 2378.25   68.58 2378.33   71.09 2378.37   73.51  2378.4   77.08 2378.47
   78.37 2378.48   81.15  2378.6

Manning's n Values          num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
**********************************************
       0    .056    24.12    .086    42.36    .056

Bank Sta: Left    Right     Lengths: Left Channel    Right      Coeff Contr.    Expan.
          20.91   42.36              32.39   36.56   35.11             .1        .3
```

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 2378.53 | Element | Left OB | Channel | Right OB | |
| Vel Head (ft) | 0.37 | Wt. n-Val. | 0.056 | 0.082 | 0.056 | |
| W.S. Elev (ft) | 2378.17 | Reach Len. (ft) | 32.39 | 36.56 | 35.11 | |
| Crit W.S. (ft) | | Flow Area (sq ft) | 3.12 | 39.94 | 12.78 | |
| E.G. Slope (ft/ft) | 0.035894 | Area (sq ft) | 3.12 | 39.94 | 12.78 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | 10.99 | 206.66 | 42.35 | |
| Top Width (ft) | 50.44 | Top Width (ft) | 5.16 | 21.45 | 23.83 | |
| Vel Total (ft/s) | 4.66 | Avg. Vel. (ft/s) | 3.53 | 5.17 | 3.31 | |
| Max Chl Dpth (ft) | 2.55 | Hydr. Depth (ft) | 0.60 | 1.86 | 0.54 | |
| Conv. Total (cfs) | 1372.3 | Conv. (cfs) | 58.0 | 1090.8 | 223.6 | |
| Length Wtd. (ft) | 36.10 | Wetted Per. (ft) | 5.30 | 21.67 | 23.87 | |
| Min Ch El (ft) | 2375.62 | Shear (lb/sq ft) | 1.32 | 4.13 | 1.20 | |
| Alpha | 1.09 | Stream Power (lb/ft s) | 4.64 | 21.37 | 3.98 | |
| Frctn Loss (ft) | 0.84 | Cum Volume (acre-ft) | 1.64 | 10.27 | 1.95 | |
| C & E Loss (ft) | 0.05 | Cum SA (acres) | 1.71 | 4.30 | 2.16 | |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 2379.23 | Element | Left OB | Channel | Right OB | |
| Vel Head (ft) | 0.34 | Wt. n-Val. | | 0.080 | | |
| W.S. Elev (ft) | 2378.88 | Reach Len. (ft) | 32.39 | 36.56 | 35.11 | |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 55.27 | | |
| E.G. Slope (ft/ft) | 0.023026 | Area (sq ft) | | 55.27 | | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | | |
| Top Width (ft) | 21.45 | Top Width (ft) | | 21.45 | | |
| Vel Total (ft/s) | 4.70 | Avg. Vel. (ft/s) | | 4.70 | | |
| Max Chl Dpth (ft) | 3.26 | Hydr. Depth (ft) | | 2.58 | | |
| Conv. Total (cfs) | 1713.4 | Conv. (cfs) | | 1713.4 | | |
| Length Wtd. (ft) | 36.56 | Wetted Per. (ft) | | 25.47 | | |
| Min Ch El (ft) | 2375.62 | Shear (lb/sq ft) | | 3.12 | | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 14.68 | | |
| Frctn Loss (ft) | 0.57 | Cum Volume (acre-ft) | 0.02 | 11.86 | 0.01 | |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 0.01 | 4.30 | 0.01 | |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 15.68 | 20.91 | 10.99 | 3.12 | 5.30 | 4.23 | 0.60 | 3.53 |
| 2 | Chan | 20.91 | 26.27 | 58.32 | 9.84 | 5.51 | 22.43 | 1.83 | 5.93 |
| 3 | Chan | 26.27 | 31.64 | 70.04 | 12.54 | 5.39 | 26.94 | 2.34 | 5.58 |
| 4 | Chan | 31.64 | 37.00 | 48.41 | 10.04 | 5.38 | 18.62 | 1.87 | 4.82 |
| 5 | Chan | 37.00 | 42.36 | 29.89 | 7.52 | 5.38 | 11.50 | 1.40 | 3.97 |
| 6 | ROB | 42.36 | 52.06 | 33.43 | 8.50 | 9.71 | 12.86 | 0.88 | 3.93 |
| 7 | ROB | 52.06 | 61.76 | 8.24 | 3.67 | 9.71 | 3.17 | 0.38 | 2.25 |
| 8 | ROB | 61.76 | 71.45 | 0.68 | 0.60 | 4.44 | 0.26 | 0.14 | 1.13 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 20.91 | 26.27 | 68.17 | 13.67 | 7.43 | 26.22 | 2.55 | 4.99 |
| 2 | Chan | 26.27 | 31.64 | 87.01 | 16.37 | 5.39 | 33.46 | 3.05 | 5.31 |
| 3 | Chan | 31.64 | 37.00 | 66.09 | 13.87 | 5.38 | 25.42 | 2.59 | 4.76 |
| 4 | Chan | 37.00 | 42.36 | 38.73 | 11.35 | 7.26 | 14.90 | 2.12 | 3.41 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.83957

INPUT
Description:
Station Elevation Data num= 27

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2379.74 | 3.22 | 2379.59 | 7.11 | 2379.35 | 11.71 | 2379.07 | 13.8 | 2378.55 |
| 14.91 | 2378.33 | 16.42 | 2378.05 | 20.28 | 2377.23 | 25.58 | 2376.12 | 29.84 | 2375.32 |
| 32.79 | 2374.73 | 33.39 | 2374.76 | 37.21 | 2374.99 | 37.75 | 2375.02 | 39.94 | 2375.18 |
| 48.24 | 2375.81 | 49.43 | 2375.89 | 50.45 | 2375.97 | 54.78 | 2376.32 | 57.25 | 2376.4 |
| 72.76 | 2377.23 | 72.8 | 2377.24 | 75.27 | 2377.35 | 75.82 | 2377.37 | 81.12 | 2377.6 |
| 86.83 | 2378.02 | 90.3 | 2378.37 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .056 | 29.84 | .086 | 49.43 | .056 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 25.58 | 48.24 | 36.72 | 45.71 | 56.37 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 2377.64 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.21 | Wt. n-Val. | 0.056 | 0.080 | 0.059 |
| W.S. Elev (ft) | 2377.44 | Reach Len. (ft) | 36.72 | 45.71 | 56.37 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 4.13 | 48.35 | 21.75 |
| E.G. Slope (ft/ft) | 0.016453 | Area (sq ft) | 4.13 | 48.35 | 21.75 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 10.50 | 190.00 | 59.50 |
| Top Width (ft) | 58.02 | Top Width (ft) | 6.27 | 22.66 | 29.09 |
| Vel Total (ft/s) | 3.50 | Avg. Vel. (ft/s) | 2.54 | 3.93 | 2.74 |
| Max Chl Dpth (ft) | 2.71 | Hydr. Depth (ft) | 0.66 | 2.13 | 0.75 |
| Conv. Total (cfs) | 2027.0 | Conv. (cfs) | 81.8 | 1481.3 | 463.8 |
| Length Wtd. (ft) | 47.85 | Wetted Per. (ft) | 6.41 | 22.83 | 29.14 |
| Min Ch El (ft) | 2374.73 | Shear (lb/sq ft) | 0.66 | 2.18 | 0.77 |
| Alpha | 1.08 | Stream Power (lb/ft s) | 1.68 | 8.55 | 2.10 |
| Frctn Loss (ft) | 1.13 | Cum Volume (acre-ft) | 1.63 | 10.24 | 1.93 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 1.70 | 4.28 | 2.14 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2378.62 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.21 | Wt. n-Val. | | 0.081 | |
| W.S. Elev (ft) | 2378.40 | Reach Len. (ft) | 36.72 | 45.71 | 56.37 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 70.28 | |
| E.G. Slope (ft/ft) | 0.011245 | Area (sq ft) | | 70.28 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 22.66 | Top Width (ft) | | 22.66 | |
| Vel Total (ft/s) | 3.70 | Avg. Vel. (ft/s) | | 3.70 | |
| Max Chl Dpth (ft) | 3.67 | Hydr. Depth (ft) | | 3.10 | |
| Conv. Total (cfs) | 2451.9 | Conv. (cfs) | | 2451.9 | |
| Length Wtd. (ft) | 45.71 | Wetted Per. (ft) | | 27.71 | |
| Min Ch El (ft) | 2374.73 | Shear (lb/sq ft) | | 1.78 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 6.59 | |
| Frctn Loss (ft) | 0.91 | Cum Volume (acre-ft) | 0.02 | 11.80 | 0.01 |
| C & E Loss (ft) | 0.08 | Cum SA (acres) | 0.01 | 4.29 | 0.01 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 19.19 | 25.58 | 10.50 | 4.13 | 6.41 | 4.04 | 0.66 | 2.54 |
| 2 | Chan | 25.58 | 31.25 | 46.82 | 10.48 | 5.77 | 18.01 | 1.85 | 4.47 |
| 3 | Chan | 31.25 | 36.91 | 60.12 | 14.60 | 5.70 | 23.12 | 2.58 | 4.12 |
| 4 | Chan | 36.91 | 42.58 | 48.68 | 12.85 | 5.68 | 18.72 | 2.27 | 3.79 |
| 5 | Chan | 42.58 | 48.24 | 34.39 | 10.43 | 5.68 | 13.23 | 1.84 | 3.30 |
| 6 | ROB | 48.24 | 58.76 | 42.20 | 13.17 | 10.54 | 16.23 | 1.25 | 3.20 |
| 7 | ROB | 58.76 | 69.27 | 15.89 | 7.09 | 10.53 | 6.11 | 0.67 | 2.24 |
| 8 | ROB | 69.27 | 79.79 | 1.41 | 1.49 | 8.07 | 0.54 | 0.18 | 0.95 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 25.58 | 31.25 | 62.32 | 15.96 | 8.05 | 23.97 | 2.82 | 3.90 |
| 2 | Chan | 31.25 | 36.91 | 82.71 | 20.08 | 5.70 | 31.81 | 3.55 | 4.12 |
| 3 | Chan | 36.91 | 42.58 | 71.20 | 18.33 | 5.68 | 27.38 | 3.24 | 3.89 |
| 4 | Chan | 42.58 | 48.24 | 43.77 | 15.91 | 8.27 | 16.83 | 2.81 | 2.75 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.83091

INPUT
Description:
Station Elevation Data num= 25

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2378.88 | .68 | 2378.73 | 5.93 | 2378.18 | 10.53 | 2377.67 | 22.08 | 2376.4 |
| 23.34 | 2376.19 | 33.76 | 2374.51 | 37.25 | 2373.96 | 39.81 | 2373.56 | 40.01 | 2373.58 |
| 45.61 | 2374.34 | 46.18 | 2374.39 | 52.75 | 2374.84 | 58.28 | 2375.21 | 69.1 | 2375.97 |
| 74.32 | 2376.36 | 74.98 | 2376.4 | 77.8 | 2376.96 | 79.28 | 2377.29 | 79.51 | 2377.4 |
| 79.91 | 2377.6 | 83.76 | 2379.16 | 84.54 | 2379.2 | 85.34 | 2379.17 | 87.5 | 2379.16 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 37.25 | .064 | 52.75 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 33.76 | 46.18 | 22.89 | 37.94 | 62.03 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 2376.49 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.56 | Wt. n-Val. | 0.061 | 0.063 | 0.063 |
| W.S. Elev (ft) | 2375.93 | Reach Len. (ft) | 22.89 | 37.94 | 62.03 |
| Crit W.S. (ft) | 2375.93 | Flow Area (sq ft) | 6.24 | 23.85 | 17.31 |
| E.G. Slope (ft/ft) | 0.036344 | Area (sq ft) | 6.24 | 23.85 | 17.31 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 22.87 | 164.34 | 72.79 |
| Top Width (ft) | 43.56 | Top Width (ft) | 8.80 | 12.42 | 22.34 |
| Vel Total (ft/s) | 5.48 | Avg. Vel. (ft/s) | 3.66 | 6.89 | 4.20 |
| Max Chl Dpth (ft) | 2.37 | Hydr. Depth (ft) | 0.71 | 1.92 | 0.78 |
| Conv. Total (cfs) | 1363.8 | Conv. (cfs) | 120.0 | 862.0 | 381.8 |
| Length Wtd. (ft) | 44.76 | Wetted Per. (ft) | 8.91 | 12.55 | 22.39 |
| Min Ch El (ft) | 2373.56 | Shear (lb/sq ft) | 1.59 | 4.31 | 1.75 |
| Alpha | 1.20 | Stream Power (lb/ft s) | 5.82 | 29.71 | 7.38 |
| Frctn Loss (ft) | 1.71 | Cum Volume (acre-ft) | 1.63 | 10.20 | 1.91 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 1.70 | 4.26 | 2.11 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2377.63 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.96 | Wt. n-Val. | | 0.063 | |
| W.S. Elev (ft) | 2376.67 | Reach Len. (ft) | 22.89 | 37.94 | 62.03 |
| Crit W.S. (ft) | 2376.38 | Flow Area (sq ft) | | 33.00 | |
| E.G. Slope (ft/ft) | 0.045123 | Area (sq ft) | | 33.00 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 12.42 | Top Width (ft) | | 12.42 | |
| Vel Total (ft/s) | 7.88 | Avg. Vel. (ft/s) | | 7.88 | |
| Max Chl Dpth (ft) | 3.10 | Hydr. Depth (ft) | | 2.66 | |
| Conv. Total (cfs) | 1224.0 | Conv. (cfs) | | 1224.0 | |
| Length Wtd. (ft) | 37.94 | Wetted Per. (ft) | | 16.98 | |
| Min Ch El (ft) | 2373.56 | Shear (lb/sq ft) | | 5.47 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 43.14 | |
| Frctn Loss (ft) | 1.68 | Cum Volume (acre-ft) | 0.02 | 11.75 | 0.01 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.01 | 4.27 | 0.01 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 16.88 | 25.32 | 0.00 | 0.01 | 0.37 | 0.00 | 0.03 | 0.43 |
| 2 | LOB | 25.32 | 33.76 | 22.87 | 6.23 | 8.55 | 8.80 | 0.74 | 3.67 |
| 3 | Chan | 33.76 | 36.87 | 33.24 | 5.17 | 3.14 | 12.79 | 1.66 | 6.44 |
| 4 | Chan | 36.87 | 39.97 | 48.90 | 6.68 | 3.14 | 18.81 | 2.15 | 7.32 |
| 5 | Chan | 39.97 | 43.08 | 48.45 | 6.66 | 3.13 | 18.63 | 2.14 | 7.28 |
| 6 | Chan | 43.08 | 46.18 | 33.74 | 5.36 | 3.13 | 12.98 | 1.72 | 6.30 |
| 7 | ROB | 46.18 | 56.51 | 59.28 | 12.25 | 10.35 | 22.80 | 1.19 | 4.84 |
| 8 | ROB | 56.51 | 66.84 | 13.44 | 4.96 | 10.36 | 5.17 | 0.48 | 2.71 |
| 9 | ROB | 66.84 | 77.17 | 0.07 | 0.10 | 1.68 | 0.03 | 0.06 | 0.67 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 33.76 | 36.87 | 45.92 | 7.45 | 5.30 | 17.66 | 2.40 | 6.16 |
| 2 | Chan | 36.87 | 39.97 | 84.85 | 8.96 | 3.14 | 32.64 | 2.89 | 9.47 |
| 3 | Chan | 39.97 | 43.08 | 84.19 | 8.94 | 3.13 | 32.38 | 2.88 | 9.42 |
| 4 | Chan | 43.08 | 46.18 | 45.04 | 7.64 | 5.41 | 17.32 | 2.46 | 5.89 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.82372

INPUT
Description:
Station Elevation Data num= 22

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2378.5 | 21.11 | 2376.4 | 25.27 | 2375.99 | 25.42 | 2375.97 | 25.78 | 2375.93 |
| 26.9 | 2375.78 | 31.46 | 2375.09 | 33.68 | 2374.76 | 35.49 | 2374.48 | 42.47 | 2372.86 |
| 44.12 | 2372.44 | 45.19 | 2372.17 | 46.74 | 2371.88 | 52.07 | 2372.25 | 54.47 | 2372.31 |
| 61.28 | 2372.83 | 68.37 | 2373.34 | 68.96 | 2373.39 | 70.24 | 2373.52 | 80.05 | 2374.56 |
| 81.11 | 2374.67 | 98.68 | 2376.8 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|

```
*************************************************
       0    .061   44.12    .064   68.37    .061

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         42.47   54.47             35.21   42.51   25.53          .1          .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)         * 2374.64  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.60  * Wt. n-Val.              *   0.061  *   0.064  *   0.064  *
* W.S. Elev (ft)         * 2374.05  * Reach Len. (ft)         *   35.21  *   42.51  *   25.53  *
* Crit W.S. (ft)         * 2374.05  * Flow Area (sq ft)       *    3.02  *   22.08  *   19.30  *
* E.G. Slope (ft/ft)     *0.040348  * Area (sq ft)            *    3.02  *   22.08  *   19.30  *
* Q Total (cfs)          *  260.00  * Flow (cfs)              *   10.25  *  154.56  *   95.19  *
* Top Width (ft)         *   37.82  * Top Width (ft)           *    5.10  *   12.00  *   20.72  *
* Vel Total (ft/s)       *    5.86  * Avg. Vel. (ft/s)         *    3.39  *    7.00  *    4.93  *
* Max Chl Dpth (ft)      *    2.16  * Hydr. Depth (ft)         *    0.59  *    1.84  *    0.93  *
* Conv. Total (cfs)      *  1294.4  * Conv. (cfs)              *    51.0  *   769.4  *   473.9  *
* Length Wtd. (ft)       *   37.75  * Wetted Per. (ft)         *    5.24  *   12.13  *   20.79  *
* Min Ch El (ft)         * 2371.88  * Shear (lb/sq ft)         *    1.45  *    4.59  *    2.34  *
* Alpha                  *    1.12  * Stream Power (lb/ft s)    *    4.93  *   32.10  *   11.53  *
* Frctn Loss (ft)        *    1.37  * Cum Volume (acre-ft)      *    1.63  *   10.18  *    1.88  *
* C & E Loss (ft)        *    0.00  * Cum SA (acres)            *    1.69  *    4.25  *    2.08  *
*****************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program selected the water surface that had the least amount of error between computed and
         assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************
* E.G. Elev (ft)         * 2375.94  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.93  * Wt. n-Val.              *          *   0.063  *          *
* W.S. Elev (ft)         * 2375.01  * Reach Len. (ft)         *   35.21  *   42.51  *   25.53  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)       *          *   33.62  *          *
* E.G. Slope (ft/ft)     *0.043661  * Area (sq ft)            *          *   33.62  *          *
* Q Total (cfs)          *  260.00  * Flow (cfs)              *          *  260.00  *          *
* Top Width (ft)         *   12.00  * Top Width (ft)           *          *   12.00  *          *
* Vel Total (ft/s)       *    7.73  * Avg. Vel. (ft/s)         *          *    7.73  *          *
* Max Chl Dpth (ft)      *    3.13  * Hydr. Depth (ft)         *          *    2.80  *          *
* Conv. Total (cfs)      *  1244.3  * Conv. (cfs)              *          *  1244.3  *          *
* Length Wtd. (ft)       *   42.51  * Wetted Per. (ft)         *          *   16.97  *          *
* Min Ch El (ft)         * 2371.88  * Shear (lb/sq ft)         *          *    5.40  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s)    *          *   41.76  *          *
* Frctn Loss (ft)        *    2.20  * Cum Volume (acre-ft)      *    0.02  *   11.72  *    0.01  *
* C & E Loss (ft)        *    0.02  * Cum SA (acres)            *    0.01  *    4.26  *    0.01  *
*****************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) *  (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB      * 31.85     * 42.47     *    10.25 *     3.02 *     5.24 *     3.94 *     0.59 *     3.39 *
* 2        * Chan     * 42.47     * 45.47     *    29.63 *     4.69 *     3.09 *    11.40 *     1.56 *     6.31 *
* 3        * Chan     * 45.47     * 48.47     *    46.85 *     6.24 *     3.03 *    18.02 *     2.08 *     7.51 *
* 4        * Chan     * 48.47     * 51.47     *    41.91 *     5.82 *     3.01 *    16.12 *     1.94 *     7.20 *
* 5        * Chan     * 51.47     * 54.47     *    36.16 *     5.32 *     3.00 *    13.91 *     1.77 *     6.79 *
* 6        * ROB      * 54.47     * 65.52     *    80.10 *    14.55 *    11.08 *    30.81 *     1.32 *     5.51 *
* 7        * ROB      * 65.52     * 76.58     *    15.09 *     4.75 *     9.71 *     5.81 *     0.49 *     3.18 *
*****************************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program selected the water surface that had the least amount of error between computed and
         assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 2
*****************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) *  (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan     * 42.47     * 45.47     *    49.84 *     7.58 *     5.24 *    19.17 *     2.53 *     6.58 *
* 2        * Chan     * 45.47     * 48.47     *    84.79 *     9.12 *     3.03 *    32.61 *     3.04 *     9.29 *
* 3        * Chan     * 48.47     * 51.47     *    78.75 *     8.71 *     3.01 *    30.29 *     2.90 *     9.05 *
* 4        * Chan     * 51.47     * 54.47     *    46.63 *     8.21 *     5.70 *    17.93 *     2.74 *     5.68 *
*****************************************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: Ocotillo Wash 1
REACH: Tributary-2.1       RS: 0.81567

INPUT
Description:
Station Elevation Data    num=      42
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
```

```
       0 2377.22    4.99 2376.78    9.38 2376.43   11.64 2376.28   12.63 2376.23
   16.38 2376.01   17.88 2375.81   20.78 2375.45   24.15 2375.13   27.44  2374.9
   28.27 2374.84    29.8 2374.69   37.31 2373.63   38.67 2373.47   41.08 2373.21
   42.86 2372.93   46.25 2372.41    47.6 2372.23   49.58 2372.11   50.44 2371.98
   56.68 2371.08   57.67 2370.75   58.56 2370.46   60.82 2369.62   63.14 2369.99
   69.98 2370.82   77.05 2371.78   81.57 2372.29   83.45 2372.51   83.64 2372.53
   85.82 2372.74   86.36 2372.74   90.34 2373.04   95.34 2373.34   96.54 2373.41
   96.61 2373.41  107.94 2374.23  108.58 2374.32  118.41 2375.68   123.9 2376.61
  126.15  2376.7  127.16 2376.72

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
       0    .061   57.67    .064   83.45    .061

Bank Sta: Left    Right    Lengths: Left Channel    Right     Coeff Contr.    Expan.
          56.68   69.98             51.02   37.31   19.74            .1          .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)         * 2373.08  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.62  * Wt. n-Val.              *   0.061  *   0.064  *   0.064  *
* W.S. Elev (ft)         * 2372.46  * Reach Len. (ft)         *   51.02  *   37.31  *   19.74  *
* Crit W.S. (ft)         * 2372.46  * Flow Area (sq ft)       *    6.93  *   28.86  *   10.24  *
* E.G. Slope (ft/ft)     *0.032810  * Area (sq ft)            *    6.93  *   28.86  *   10.24  *
* Q Total (cfs)          *  260.00  * Flow (cfs)              *   22.67  *  200.86  *   36.47  *
* Top Width (ft)         *   37.09  * Top Width (ft)           *   10.75  *   13.30  *   13.04  *
* Vel Total (ft/s)       *    5.65  * Avg. Vel. (ft/s)         *    3.27  *    6.96  *    3.56  *
* Max Chl Dpth (ft)      *    2.84  * Hydr. Depth (ft)         *    0.64  *    2.17  *    0.79  *
* Conv. Total (cfs)      *  1435.4  * Conv. (cfs)              *   125.2  *  1108.9  *   201.3  *
* Length Wtd. (ft)       *   35.86  * Wetted Per. (ft)         *   10.85  *   13.63  *   13.14  *
* Min Ch El (ft)         * 2369.62  * Shear (lb/sq ft)         *    1.31  *    4.34  *    1.60  *
* Alpha                  *    1.26  * Stream Power (lb/ft s)    *    4.28  *   30.19  *    5.68  *
* Frctn Loss (ft)        *    0.63  * Cum Volume (acre-ft)      *    1.62  *   10.15  *    1.87  *
* C & E Loss (ft)        *    0.11  * Cum SA (acres)            *    1.69  *    4.24  *    2.07  *
*****************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program selected the water surface that had the least amount of error between computed and
         assumed values.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************
* E.G. Elev (ft)         * 2373.71  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.15  * Wt. n-Val.              *          *   0.064  *          *
* W.S. Elev (ft)         * 2372.56  * Reach Len. (ft)         *   51.02  *   37.31  *   19.74  *
* Crit W.S. (ft)         * 2372.56  * Flow Area (sq ft)       *          *   30.18  *          *
* E.G. Slope (ft/ft)     *0.062392  * Area (sq ft)            *          *   30.18  *          *
* Q Total (cfs)          *  260.00  * Flow (cfs)              *          *  260.00  *          *
* Top Width (ft)         *   13.30  * Top Width (ft)           *          *   13.30  *          *
* Vel Total (ft/s)       *    8.61  * Avg. Vel. (ft/s)         *          *    8.61  *          *
* Max Chl Dpth (ft)      *    2.94  * Hydr. Depth (ft)         *          *    2.27  *          *
* Conv. Total (cfs)      *  1040.9  * Conv. (cfs)              *          *  1040.9  *          *
* Length Wtd. (ft)       *   37.31  * Wetted Per. (ft)         *          *   16.85  *          *
* Min Ch El (ft)         * 2369.62  * Shear (lb/sq ft)         *          *    6.98  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s)    *          *   60.11  *          *
* Frctn Loss (ft)        *    0.90  * Cum Volume (acre-ft)      *    0.02  *   11.69  *    0.01  *
* C & E Loss (ft)        *    0.24  * Cum SA (acres)            *    0.01  *    4.24  *    0.01  *
*****************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program selected the water surface that had the least amount of error between computed and
         assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB      * 42.51     * 56.68     *    22.67 *    6.93 *    10.85 *     8.72 *     0.64 *     3.27 *
* 2        * Chan     * 56.68     * 60.01     *    40.97 *    6.46 *     3.52 *    15.76 *     1.94 *     6.34 *
* 3        * Chan     * 60.01     * 63.33     *    68.98 *    8.82 *     3.41 *    26.53 *     2.65 *     7.82 *
* 4        * Chan     * 63.33     * 66.66     *    52.89 *    7.46 *     3.35 *    20.34 *     2.24 *     7.09 *
* 5        * Chan     * 66.66     * 69.98     *    38.02 *    6.12 *     3.35 *    14.62 *     1.84 *     6.21 *
* 6        * ROB      * 69.98     * 84.28     *    36.47 *   10.24 *    13.14 *    14.03 *     0.79 *     3.56 *
*****************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program selected the water surface that had the least amount of error between computed and
         assumed values.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.
```

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 56.68 | 60.01 | 51.85 | 6.79 | 5.00 | 19.94 | 2.04 | 7.64 |
| 2 | Chan | 60.01 | 63.33 | 94.47 | 9.15 | 3.41 | 36.33 | 2.75 | 10.33 |
| 3 | Chan | 63.33 | 66.66 | 73.24 | 7.79 | 3.35 | 28.17 | 2.34 | 9.40 |
| 4 | Chan | 66.66 | 69.98 | 40.45 | 6.45 | 5.09 | 15.56 | 1.94 | 6.27 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.80861

INPUT
Description:
Station Elevation Data num= 46

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2376.77 | .85 | 2376.79 | 2.81 | 2376.64 | 5.81 | 2376.59 | 8.18 | 2376.44 |
| 10.09 | 2376.4 | 11.1 | 2376.36 | 14.61 | 2376.34 | 15.61 | 2376.32 | 17.85 | 2375.95 |
| 21.64 | 2375.72 | 23.26 | 2375.66 | 27.94 | 2375.25 | 32.18 | 2375.18 | 32.24 | 2375.17 |
| 33.21 | 2375 | 39.11 | 2373.97 | 40.79 | 2373.74 | 41.98 | 2373.51 | 43.97 | 2373.14 |
| 49.83 | 2371.85 | 52.29 | 2371.37 | 54.57 | 2370.86 | 58.81 | 2370.06 | 63.63 | 2369.2 |
| 64.53 | 2369.03 | 67.26 | 2368.52 | 67.44 | 2368.5 | 71.03 | 2369.03 | 77.68 | 2369.96 |
| 79.42 | 2370.15 | 82.77 | 2370.53 | 84.14 | 2370.68 | 87.97 | 2371.07 | 92.05 | 2371.42 |
| 93.53 | 2371.56 | 98.99 | 2372.28 | 102.74 | 2372.67 | 115.65 | 2373.6 | 122.62 | 2373.83 |
| 128.38 | 2374.09 | 128.82 | 2374.14 | 140.19 | 2375.54 | 142.1 | 2375.75 | 147.71 | 2375.9 |
| 158.13 | 2376.27 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 64.53 | .064 | 82.77 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 58.81 | 77.68 | 44.48 | 33.63 | 32.27 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2371.99 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.26 | Wt. n-Val. | 0.061 | 0.063 | 0.063 |
| W.S. Elev (ft) | 2371.72 | Reach Len. (ft) | 44.48 | 33.63 | 32.27 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 7.07 | 46.51 | 14.73 |
| E.G. Slope (ft/ft) | 0.010929 | Area (sq ft) | 7.07 | 46.51 | 14.73 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 15.91 | 207.45 | 36.64 |
| Top Width (ft) | 44.30 | Top Width (ft) | 8.33 | 18.87 | 17.09 |
| Vel Total (ft/s) | 3.81 | Avg. Vel. (ft/s) | 2.25 | 4.46 | 2.49 |
| Max Chl Dpth (ft) | 3.22 | Hydr. Depth (ft) | 0.85 | 2.46 | 0.86 |
| Conv. Total (cfs) | 2487.0 | Conv. (cfs) | 152.2 | 1984.3 | 350.5 |
| Length Wtd. (ft) | 33.98 | Wetted Per. (ft) | 8.50 | 19.11 | 17.18 |
| Min Ch El (ft) | 2368.50 | Shear (lb/sq ft) | 0.57 | 1.66 | 0.58 |
| Alpha | 1.18 | Stream Power (lb/ft s) | 1.28 | 7.41 | 1.45 |
| Frctn Loss (ft) | 0.27 | Cum Volume (acre-ft) | 1.61 | 10.12 | 1.87 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 1.68 | 4.23 | 2.06 |

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2372.52 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.35 | Wt. n-Val. | | 0.063 | |
| W.S. Elev (ft) | 2372.17 | Reach Len. (ft) | 44.48 | 33.63 | 32.27 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 54.93 | |
| E.G. Slope (ft/ft) | 0.012772 | Area (sq ft) | | 54.93 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 18.87 | Top Width (ft) | | 18.87 | |
| Vel Total (ft/s) | 4.73 | Avg. Vel. (ft/s) | | 4.73 | |
| Max Chl Dpth (ft) | 3.67 | Hydr. Depth (ft) | | 2.91 | |
| Conv. Total (cfs) | 2300.7 | Conv. (cfs) | | 2300.7 | |
| Length Wtd. (ft) | 33.63 | Wetted Per. (ft) | | 23.43 | |
| Min Ch El (ft) | 2368.50 | Shear (lb/sq ft) | | 1.87 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 8.85 | |
| Frctn Loss (ft) | 0.29 | Cum Volume (acre-ft) | 0.02 | 11.65 | 0.01 |
| C & E Loss (ft) | 0.05 | Cum SA (acres) | 0.01 | 4.23 | 0.01 |

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 44.11 | 58.81 | 15.92 | 7.07 | 8.50 | 6.12 | 0.85 | 2.25 |
| 2 | Chan | 58.81 | 63.53 | 40.04 | 9.83 | 4.79 | 15.40 | 2.08 | 4.07 |
| 3 | Chan | 63.53 | 68.25 | 67.68 | 13.78 | 4.79 | 26.03 | 2.92 | 4.91 |
| 4 | Chan | 68.25 | 72.96 | 61.13 | 13.02 | 4.77 | 23.51 | 2.76 | 4.70 |
| 5 | Chan | 72.96 | 77.68 | 38.59 | 9.88 | 4.76 | 14.84 | 2.09 | 3.91 |
| 6 | ROB | 77.68 | 97.79 | 36.64 | 14.73 | 17.18 | 14.09 | 0.86 | 2.49 |

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 58.81 | 63.53 | 45.31 | 11.94 | 6.90 | 17.43 | 2.53 | 3.80 |
| 2 | Chan | 63.53 | 68.25 | 89.57 | 15.89 | 4.79 | 34.45 | 3.37 | 5.64 |
| 3 | Chan | 68.25 | 72.96 | 81.98 | 15.12 | 4.77 | 31.53 | 3.21 | 5.42 |
| 4 | Chan | 72.96 | 77.68 | 43.15 | 11.98 | 6.97 | 16.59 | 2.54 | 3.60 |

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.80224

INPUT
Description:
Station Elevation Data num= 52

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2378.32 | 6.43 | 2378.07 | 9.63 | 2378.03 | 14.91 | 2377.84 | 29.64 | 2377.16 |
| 32.81 | 2377.04 | 53.25 | 2376.03 | 59.79 | 2375.88 | 61.61 | 2375.85 | 71.6 | 2375.46 |
| 72.05 | 2375.41 | 72.39 | 2375.37 | 79.88 | 2374.28 | 87.92 | 2373.86 | 88.45 | 2373.83 |
| 88.95 | 2373.8 | 90.36 | 2373.47 | 93.72 | 2372.66 | 98.41 | 2371.69 | 103.83 | 2370.43 |
| 104.76 | 2370.2 | 105.47 | 2370.03 | 106.22 | 2369.8 | 111.81 | 2368.86 | 114.56 | 2368.37 |
| 114.58 | 2368.37 | 119.94 | 2368.65 | 125.96 | 2369.1 | 130.76 | 2369.6 | 135.03 | 2370.04 |
| 140.08 | 2370.59 | 145.5 | 2371.1 | 148.55 | 2371.44 | 156.76 | 2372.24 | 163.78 | 2372.85 |
| 171.5 | 2373.21 | 176.49 | 2373.37 | 177.13 | 2373.47 | 185.78 | 2374.91 | 186.18 | 2374.96 |
| 210.82 | 2375.55 | 215.6 | 2375.77 | 223.89 | 2376.2 | 246.31 | 2376.6 | 246.71 | 2376.6 |
| 246.94 | 2376.61 | 261.36 | 2376.43 | 269.99 | 2376.53 | 276.02 | 2376.55 | 293.05 | 2376.4 |
| 305.32 | 2376.37 | 309.34 | 2376.29 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 114.58 | .064 | 130.76 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 106.22 | 130.76 | 30.47 | 29.67 | 40.62 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2371.68 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.16 | Wt. n-Val. | 0.061 | 0.063 | 0.061 |
| W.S. Elev (ft) | 2371.52 | Reach Len. (ft) | 30.47 | 29.67 | 40.62 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 5.88 | 62.77 | 17.80 |
| E.G. Slope (ft/ft) | 0.006204 | Area (sq ft) | 5.88 | 62.77 | 17.80 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 9.78 | 217.19 | 33.04 |
| Top Width (ft) | 50.23 | Top Width (ft) | 7.08 | 24.54 | 18.61 |
| Vel Total (ft/s) | 3.01 | Avg. Vel. (ft/s) | 1.66 | 3.46 | 1.86 |
| Max Chl Dpth (ft) | 3.15 | Hydr. Depth (ft) | 0.83 | 2.56 | 0.96 |
| Conv. Total (cfs) | 3300.9 | Conv. (cfs) | 124.1 | 2757.3 | 419.4 |
| Length Wtd. (ft) | 30.82 | Wetted Per. (ft) | 7.29 | 24.71 | 18.71 |
| Min Ch El (ft) | 2368.37 | Shear (lb/sq ft) | 0.31 | 0.98 | 0.37 |
| Alpha | 1.17 | Stream Power (lb/ft s) | 0.52 | 3.40 | 0.68 |
| Frctn Loss (ft) | 0.01 | Cum Volume (acre-ft) | 1.61 | 10.08 | 1.86 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 1.67 | 4.21 | 2.05 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2372.18 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.19 | Wt. n-Val. | | 0.063 | |
| W.S. Elev (ft) | 2371.99 | Reach Len. (ft) | 30.47 | 29.67 | 40.62 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 74.20 | |
| E.G. Slope (ft/ft) | 0.006358 | Area (sq ft) | | 74.20 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 24.54 | Top Width (ft) | | 24.54 | |
| Vel Total (ft/s) | 3.50 | Avg. Vel. (ft/s) | | 3.50 | |
| Max Chl Dpth (ft) | 3.62 | Hydr. Depth (ft) | | 3.02 | |
| Conv. Total (cfs) | 3260.7 | Conv. (cfs) | | 3260.7 | |
| Length Wtd. (ft) | 29.67 | Wetted Per. (ft) | | 29.28 | |
| Min Ch El (ft) | 2368.37 | Shear (lb/sq ft) | | 1.01 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 3.52 | |
| Frctn Loss (ft) | 0.01 | Cum Volume (acre-ft) | 0.02 | 11.60 | 0.01 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 0.01 | 4.21 | 0.01 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 79.67 | 106.22 | 9.78 | 5.88 | 7.29 | 3.76 | 0.83 | 1.66 |
| 2 | Chan | 106.22 | 112.36 | 44.20 | 13.72 | 6.22 | 17.00 | 2.24 | 3.22 |
| 3 | Chan | 112.36 | 118.49 | 70.86 | 18.49 | 6.18 | 27.25 | 3.01 | 3.83 |
| 4 | Chan | 118.49 | 124.63 | 59.76 | 16.84 | 6.15 | 22.99 | 2.75 | 3.55 |
| 5 | Chan | 124.63 | 130.76 | 42.36 | 13.71 | 6.16 | 16.29 | 2.24 | 3.09 |
| 6 | ROB | 130.76 | 175.41 | 33.04 | 17.80 | 18.71 | 12.71 | 0.96 | 1.86 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 106.22 | 112.36 | 48.83 | 16.58 | 8.41 | 18.78 | 2.70 | 2.95 |
| 2 | Chan | 112.36 | 118.49 | 88.71 | 21.35 | 6.18 | 34.12 | 3.48 | 4.15 |
| 3 | Chan | 118.49 | 124.63 | 76.45 | 19.70 | 6.15 | 29.41 | 3.21 | 3.88 |
| 4 | Chan | 124.63 | 130.76 | 46.00 | 16.57 | 8.55 | 17.69 | 2.70 | 2.78 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.79662

INPUT
Description: Upstream cross section for 72nd Street

NOTE - ASPHALT PAVEMENT
(MANUALY ADJUSTED N VALUE)
Station Elevation Data num= 82

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2377.73 | 1.76 | 2377.67 | 14.17 | 2377.17 | 18.44 | 2376.99 | 18.82 | 2376.98 |
| 19.37 | 2376.98 | 28.32 | 2376.73 | 43.03 | 2376.27 | 48.52 | 2376.01 | 49.76 | 2375.93 |
| 51.24 | 2375.84 | 63.7 | 2375.34 | 76.44 | 2374.75 | 78.93 | 2374.52 | 80.79 | 2374.41 |
| 83.62 | 2374.2 | 84.9 | 2374.1 | 87.76 | 2373.67 | 88.05 | 2373.64 | 88.43 | 2373.68 |
| 102.72 | 2373.11 | 102.88 | 2373.08 | 103.83 | 2372.89 | 105.18 | 2372.8 | 107.69 | 2372.3 |
| 107.93 | 2372.26 | 113.39 | 2371.19 | 114.89 | 2370.85 | 117.86 | 2370.11 | 123.96 | 2369.17 |
| 127.46 | 2368.14 | 127.82 | 2368.1 | 128.05 | 2368.08 | 133.4 | 2367.56 | 133.8 | 2367.59 |
| 143.67 | 2367.77 | 144.02 | 2367.8 | 146.01 | 2368.03 | 147.77 | 2368.15 | 150.88 | 2368.34 |
| 165.08 | 2369.13 | 166.12 | 2369.23 | 168.88 | 2369.57 | 169.24 | 2369.61 | 171.95 | 2369.94 |
| 172.65 | 2370.04 | 175 | 2370.39 | 179.75 | 2371.03 | 179.9 | 2371.05 | 186.94 | 2371.75 |
| 188.57 | 2371.91 | 192.55 | 2372.08 | 197.54 | 2373.41 | 197.75 | 2373.42 | 198.23 | 2373.44 |
| 200.09 | 2373.76 | 201.02 | 2373.87 | 202.02 | 2373.98 | 203.45 | 2374.03 | 206.57 | 2374.15 |
| 211.78 | 2374.02 | 212.06 | 2374.02 | 218.07 | 2374.04 | 218.3 | 2374.04 | 223.21 | 2374.01 |
| 223.8 | 2374.02 | 228.9 | 2373.96 | 233.72 | 2373.95 | 234.68 | 2373.95 | 239.44 | 2374.01 |
| 250.1 | 2374.01 | 250.53 | 2374 | 255.2 | 2373.91 | 259.98 | 2373.87 | 261.88 | 2373.78 |
| 265.97 | 2373.78 | 266.59 | 2373.87 | 268.18 | 2374.03 | 278.45 | 2372.55 | 308.23 | 2372.76 |
| 312.2 | 2372.8 | 328.72 | 2373.02 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 102.72 | .019 | 197.54 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 123.96 | 165.08 | 27.93 | 28.83 | 23.42 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2371.64 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.04 | Wt. n-Val. | 0.019 | 0.019 | 0.019 |
| W.S. Elev (ft) | 2371.60 | Reach Len. (ft) | 27.93 | 28.83 | 23.42 |
| Crit W.S. (ft) | 2369.30 | Flow Area (sq ft) | 16.59 | 138.87 | 24.48 |
| E.G. Slope (ft/ft) | 0.000086 | Area (sq ft) | 16.59 | 138.87 | 24.48 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 14.21 | 225.81 | 19.97 |
| Top Width (ft) | 74.14 | Top Width (ft) | 12.66 | 41.12 | 20.35 |
| Vel Total (ft/s) | 1.44 | Avg. Vel. (ft/s) | 0.86 | 1.63 | 0.82 |
| Max Chl Dpth (ft) | 4.04 | Hydr. Depth (ft) | 1.31 | 3.38 | 1.20 |
| Conv. Total (cfs) | 28044.5 | Conv. (cfs) | 1533.3 | 24356.9 | 2154.3 |
| Length Wtd. (ft) | 28.83 | Wetted Per. (ft) | 12.90 | 41.35 | 20.51 |
| Min Ch El (ft) | 2367.56 | Shear (lb/sq ft) | 0.01 | 0.02 | 0.01 |
| Alpha | 1.14 | Stream Power (lb/ft s) | 0.01 | 0.03 | 0.01 |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | 1.60 | 10.01 | 1.84 |
| C & E Loss (ft) | | Cum SA (acres) | 1.66 | 4.19 | 2.03 |

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2372.12 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.04 | Wt. n-Val. | | 0.019 | |
| W.S. Elev (ft) | 2372.08 | Reach Len. (ft) | 27.93 | 28.83 | 23.42 |
| Crit W.S. (ft) | 2369.29 | Flow Area (sq ft) | | 158.64 | |
| E.G. Slope (ft/ft) | 0.000087 | Area (sq ft) | | 158.64 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 41.12 | Top Width (ft) | | 41.12 | |
| Vel Total (ft/s) | 1.64 | Avg. Vel. (ft/s) | | 1.64 | |
| Max Chl Dpth (ft) | 4.52 | Hydr. Depth (ft) | | 3.86 | |
| Conv. Total (cfs) | 27835.8 | Conv. (cfs) | | 27835.8 | |
| Length Wtd. (ft) | 28.83 | Wetted Per. (ft) | | 47.21 | |
| Min Ch El (ft) | 2367.56 | Shear (lb/sq ft) | | 0.02 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.03 | |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | 0.02 | 11.52 | 0.01 |
| C & E Loss (ft) | | Cum SA (acres) | 0.01 | 4.19 | 0.01 |

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 92.97 | 123.96 | 14.21 | 16.59 | 12.90 | 5.47 | 1.31 | 0.86 |
| 2 | Chan | 123.96 | 134.24 | 58.93 | 35.97 | 10.46 | 22.67 | 3.50 | 1.64 |
| 3 | Chan | 134.24 | 144.52 | 71.58 | 40.15 | 10.29 | 27.53 | 3.91 | 1.78 |
| 4 | Chan | 144.52 | 154.80 | 55.29 | 34.41 | 10.31 | 21.26 | 3.35 | 1.61 |
| 5 | Chan | 154.80 | 165.08 | 40.02 | 28.34 | 10.30 | 15.39 | 2.76 | 1.41 |
| 6 | ROB | 165.08 | 205.99 | 19.97 | 24.48 | 20.51 | 7.68 | 1.20 | 0.82 |

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 123.96 | 134.24 | 61.48 | 40.91 | 13.37 | 23.64 | 3.98 | 1.50 |
| 2 | Chan | 134.24 | 144.52 | 86.12 | 45.10 | 10.29 | 33.12 | 4.39 | 1.91 |
| 3 | Chan | 144.52 | 154.80 | 68.56 | 39.36 | 10.31 | 26.37 | 3.83 | 1.74 |
| 4 | Chan | 154.80 | 165.08 | 43.85 | 33.28 | 13.25 | 16.86 | 3.24 | 1.32 |

CULVERT

```
RIVER: Ocotillo Wash 1
REACH: Tributary-2.1      RS: 0.79392

INPUT
Description: Double CMP across 72nd Street
Double CMP across 72nd
          Street
Double CMP across 72nd Street
Distance from Upstream XS =       5
Deck/Roadway Width        =      14
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=      70
     Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord
*************************************************************************
       0 2373.81            1.62 2373.74             3.76 2373.68
    4.09 2373.68           11.86 2373.62            17.85 2373.57
   19.79 2373.53           24.84 2373.49            27.41 2373.43
   32.15 2373.38           35.29 2373.31             39.7 2373.25
   43.34 2373.17           47.93 2372.97            53.26 2372.68
   56.86 2372.52           63.24 2372.17            65.39 2372.07
   69.12 2371.87            71.5 2371.72            72.19 2371.68
   80.92 2370.92           83.99 2370.66            92.25 2370.43
   97.19 2370.43          101.38 2370.43           102.75 2370.43
  103.38 2370.43          106.98 2370.43           111.61 2370.43
  120.83 2370.43          122.19 2370.43            128.2 2370.43
  129.43 2370.43          135.68 2370.43           138.36 2370.43
  140.86 2370.43          144.53 2370.43           151.69 2370.43
  152.66 2370.43           175.5 2370.43           179.75 2371.03
  186.94 2371.75          188.57 2371.91           192.55 2372.08
  197.54 2373.41          201.31 2373.24           201.82 2373.25
  202.75 2373.25          218.02 2373.72           218.43 2373.72
  226.01 2373.97          226.21 2373.97           229.42 2373.91
  238.31 2373.66          238.31 2373.66           238.31 2373.66
   238.7 2373.65          250.53 2373.31           250.56 2373.31
  262.78 2372.97          274.99 2372.63           275.01 2372.63
  286.58 2372.29          288.74 2372.24           300.19 2371.92
  306.01 2371.76          308.23 2372.76            312.2  2372.8
  328.72 2373.02

Upstream Bridge Cross Section Data
Station Elevation Data     num=      82
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
*******************************************************************************
       0 2377.73     1.76 2377.67    14.17 2377.17    18.44 2376.99    18.82 2376.98
   19.37 2376.98    28.32 2376.73    43.03 2376.27    48.52 2376.01    49.76 2375.93
   51.24 2375.84     63.7 2375.34    76.44 2374.75    78.93 2374.52    80.79 2374.41
   83.62  2374.2     84.9  2374.1    87.76 2373.67    88.05 2373.64    88.43 2373.68
  102.72 2373.11   102.88 2373.08   103.83 2372.89   105.18  2372.8   107.69  2372.3
  107.93 2372.26   113.39 2371.19   114.89 2370.85   117.86 2370.11   123.96 2369.17
  127.46 2368.14   127.82  2368.1   128.05 2368.08    133.4 2367.56    133.8 2367.59
  143.67 2367.77   144.02  2367.8   146.01 2368.03   147.77 2368.15   150.88 2368.34
  165.08 2369.13   166.12 2369.23   168.88 2369.57   169.24 2369.61   171.95 2369.94
  172.65 2370.04      175 2370.39   179.75 2371.03    179.9 2371.05   186.94 2371.75
  188.57 2371.91   192.55 2372.08   197.54 2373.41   197.75 2373.42   198.23 2373.44
  200.09 2373.76   201.02 2373.87   202.02 2373.98   203.45 2374.03   206.57 2374.15
  211.78 2374.02   212.06 2374.02   218.07 2374.04    218.3 2374.04   223.21 2374.01
   223.8 2374.02    228.9 2373.96   233.72 2373.95   234.68 2373.95   239.44 2374.01
   250.1 2374.01   250.53    2374    255.2 2373.91   259.98 2373.87   261.88 2373.78
  265.97 2373.78   266.59 2373.87   268.18 2374.03   278.45 2372.55   308.23 2372.76
   312.2  2372.8   328.72 2373.02

Manning's n Values         num=       3
     Sta    n Val     Sta    n Val     Sta    n Val
*********************************************
       0     .061  102.72     .019  197.54     .061

Bank Sta: Left   Right    Coeff Contr.   Expan.
        123.96  165.08            .1       .3

Downstream  Deck/Roadway Coordinates
    num=      75
     Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord      Sta Hi Cord Lo Cord
*************************************************************************
       0 2373.81            1.62 2373.74             3.76 2373.68
    4.09 2373.68           11.86 2373.62            17.85 2373.57
   19.79 2373.53           24.84 2373.49            27.41 2373.43
   32.15 2373.38           35.29 2373.31             39.7 2373.25
   43.34 2373.17           47.93 2372.97            53.26 2372.68
   56.86 2372.52           63.24 2372.17            65.39 2372.07
   69.12 2371.87            71.5 2371.72            72.19 2371.68
   80.92 2370.92           83.99 2370.66            92.25 2369.95
   97.19 2369.76          101.38 2369.76           102.75 2369.76
  103.38 2369.76          106.98 2369.76           111.61 2369.76
  120.83 2369.76          122.19 2369.76            128.2 2369.76
  129.43 2369.76          135.68 2369.76           138.36 2369.76
  140.86 2369.76          144.53 2369.76           151.69 2369.76
  152.66 2369.76          160.48 2370.44           160.48 2370.44
  160.48 2370.44           161.1 2370.51            168.7 2371.26
   169.3 2371.29          176.97 2372.01           177.06 2372.02
  177.17 2372.02          177.25 2372.03           184.49 2372.74
  185.96 2372.81          193.21 2373.02           193.84 2373.02
  201.31 2373.24          201.82 2373.25           202.75 2373.25
  218.02 2373.72          218.43 2373.72           226.01 2373.97
  226.21 2373.97          229.42 2373.91           238.31 2373.66
  238.31 2373.66          238.31 2373.66            238.7 2373.65
  250.53 2373.31          250.56 2373.31           262.78 2372.97
  274.99 2372.63          275.01 2372.63           286.58 2372.29
  288.74 2372.24          300.19 2371.92           306.01 2371.76

Downstream Bridge Cross Section Data
Station Elevation Data     num=      66
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
*******************************************************************************
```

```
      0  2374.5    1.72 2374.49    6.24 2374.48   10.81 2374.35   15.37 2374.11
  22.09 2374.02   28.73  2374.1   35.77  2374.1   38.09 2373.85   41.33 2373.83
  43.64 2373.71    46.5 2373.71   48.79 2373.64   51.98 2373.55   54.36 2373.43
  58.02 2373.03   59.99 2372.85   63.72 2372.69   65.73 2372.56   68.94 2372.41
  70.88 2372.22   74.72 2371.98   76.09 2372.04   79.35 2371.51   83.14 2371.32
  85.13 2370.92   88.47 2370.62   92.62 2370.29   93.89 2370.03    96.6 2369.48
  97.64 2369.39  101.24 2368.82  106.22  2368.5  109.94 2368.27  111.88    2368
 112.09 2367.97   113.7 2367.91  121.87 2366.87  124.51 2366.56  129.38 2366.99
  131.4 2367.19  133.16 2367.36  133.36 2367.38  141.43 2368.53  145.17 2368.89
 152.49 2369.64  154.09  2369.8  154.33 2369.82  154.52 2369.84   162.4 2372.06
 163.23 2372.23  163.79 2372.26  182.04 2372.63  185.55 2372.05  191.23 2372.29
 196.74 2372.23  222.04 2372.05   224.1 2372.04  232.64 2371.98  234.57 2371.92
  263.1 2371.81  265.86 2371.77  273.11 2371.74  276.06 2371.69   283.4 2371.67
 300.03 2371.38

Manning's n Values        num=       3
    Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
      0    .061  111.88    .064  133.36    .061

Bank Sta: Left   Right    Coeff Contr.   Expan.
        109.94  141.43             .1       .3

Upstream Embankment side slope              =      .5 horiz. to 1.0 vertical
Downstream Embankment side slope            =      .5 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Culverts =  2

Culvert Name     Shape      Rise    Span
Culvert #1      Circular     1.5
FHWA Chart # 2 - Corrugated Metal Pipe Culvert
FHWA Scale # 3 - Pipe projecting from fill
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    Top n  Bottom n  Depth Blocked  Entrance Loss Coef   Exit Loss Coef
              4       20     .024     .024        0                  .9                  1
Upstream   Elevation =  2367.56
           Centerline Station =  133.25
Downstream Elevation =  2367.14
           Centerline Station =  123.99

Culvert Name     Shape      Rise    Span
Culvert #2      Circular     1.5
FHWA Chart # 2 - Corrugated Metal Pipe Culvert
FHWA Scale # 3 - Pipe projecting from fill
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    Top n  Bottom n  Depth Blocked  Entrance Loss Coef   Exit Loss Coef
              4       20     .024     .024        0                  .9                  1
Upstream   Elevation =  2367.75
           Centerline Station =  136.75
Downstream Elevation =  2367.06
           Centerline Station =  127.39

CULVERT OUTPUT  Profile #PF 1  Culv Group:  Culvert #1
*************************************************************************
* Q Culv Group (cfs)      *   12.76  * Culv Full Len (ft)     *   20.00  *
* # Barrels               *       1  * Culv Vel US (ft/s)     *    7.22  *
* Q Barrel (cfs)          *   12.76  * Culv Vel DS (ft/s)     *    7.22  *
* E.G. US. (ft)           * 2371.64  * Culv Inv El Up (ft)    * 2367.56  *
* W.S. US. (ft)           * 2371.60  * Culv Inv El Dn (ft)    * 2367.14  *
* E.G. DS (ft)            * 2369.42  * Culv Frctn Ls (ft)     *    1.02  *
* W.S. DS (ft)            * 2369.08  * Culv Exit Loss (ft)    *    0.47  *
* Delta EG (ft)           *    2.22  * Culv Entr Loss (ft)    *    0.73  *
* Delta WS (ft)           *    2.52  * Q Weir (cfs)           *  234.43  *
* E.G. IC (ft)            * 2371.24  * Weir Sta Lft (ft)      *  110.89  *
* E.G. OC (ft)            * 2371.63  * Weir Sta Rgt (ft)      *  186.23  *
* Culvert Control         *  Outlet  * Weir Submerg           *    0.00  *
* Culv WS Inlet (ft)      * 2369.06  * Weir Max Depth (ft)    *    1.25  *
* Culv WS Outlet (ft)     * 2368.64  * Weir Avg Depth (ft)    *    1.10  *
* Culv Nml Depth (ft)     *          * Weir Flow Area (sq ft) *   83.00  *
* Culv Crt Depth (ft)     *    1.34  * Min El Weir Flow (ft)  * 2370.44  *
*************************************************************************

CULVERT OUTPUT  Profile #PF 2  Culv Group:  Culvert #1
*************************************************************************
* Q Culv Group (cfs)      *   11.97  * Culv Full Len (ft)     *   20.00  *
* # Barrels               *       1  * Culv Vel US (ft/s)     *    6.77  *
* Q Barrel (cfs)          *   11.97  * Culv Vel DS (ft/s)     *    6.77  *
* E.G. US. (ft)           * 2372.12  * Culv Inv El Up (ft)    * 2367.56  *
* W.S. US. (ft)           * 2372.08  * Culv Inv El Dn (ft)    * 2367.14  *
* E.G. DS (ft)            * 2370.06  * Culv Frctn Ls (ft)     *    0.89  *
* W.S. DS (ft)            * 2369.88  * Culv Exit Loss (ft)    *    0.53  *
* Delta EG (ft)           *    2.07  * Culv Entr Loss (ft)    *    0.64  *
* Delta WS (ft)           *    2.20  * Q Weir (cfs)           *  235.59  *
* E.G. IC (ft)            * 2370.89  * Weir Sta Lft (ft)      *  123.96  *
* E.G. OC (ft)            * 2372.12  * Weir Sta Rgt (ft)      *  165.08  *
* Culvert Control         *  Outlet  * Weir Submerg           *    0.00  *
* Culv WS Inlet (ft)      * 2369.06  * Weir Max Depth (ft)    *    1.69  *
* Culv WS Outlet (ft)     * 2368.64  * Weir Avg Depth (ft)    *    1.69  *
* Culv Nml Depth (ft)     *          * Weir Flow Area (sq ft) *   69.63  *
* Culv Crt Depth (ft)     *    1.31  * Min El Weir Flow (ft)  * 2370.44  *
*************************************************************************

Warning: During subcritical analysis, while trying to calculate culvert and weir flow, the program could not
         get a balance of energy within the specified tolerance and number of trials.  The program used
         the solution with the minimum error.

CULVERT OUTPUT  Profile #PF 1  Culv Group:  Culvert #2
*************************************************************************
* Q Culv Group (cfs)      *   12.81  * Culv Full Len (ft)     *   20.00  *
* # Barrels               *       1  * Culv Vel US (ft/s)     *    7.25  *
* Q Barrel (cfs)          *   12.81  * Culv Vel DS (ft/s)     *    7.25  *
```

```
* E.G. US. (ft)          * 2371.64  * Culv Inv El Up (ft)    * 2367.75  *
* W.S. US. (ft)          * 2371.60  * Culv Inv El Dn (ft)    * 2367.06  *
* E.G. DS (ft)           * 2369.42  * Culv Frctn Ls (ft)     *    1.00  *
* W.S. DS (ft)           * 2369.08  * Culv Exit Loss (ft)    *    0.48  *
* Delta EG (ft)          *    2.22  * Culv Entr Loss (ft)    *    0.73  *
* Delta WS (ft)          *    2.52  * Q Weir (cfs)           *  234.43  *
* E.G. IC (ft)           * 2371.44  * Weir Sta Lft (ft)      *  110.89  *
* E.G. OC (ft)           * 2371.65  * Weir Sta Rgt (ft)      *  186.23  *
* Culvert Control        *  Outlet  * Weir Submerg           *    0.00  *
* Culv WS Inlet (ft)     * 2369.25  * Weir Max Depth (ft)    *    1.25  *
* Culv WS Outlet (ft)    * 2368.56  * Weir Avg Depth (ft)    *    1.10  *
* Culv Nml Depth (ft)    *          * Weir Flow Area (sq ft) *   83.00  *
* Culv Crt Depth (ft)    *    1.34  * Min El Weir Flow (ft)  * 2370.44  *
*******************************************************************************

CULVERT OUTPUT  Profile #PF 2  Culv Group:  Culvert #2
*******************************************************************************
* Q Culv Group (cfs)     *   12.01  * Culv Full Len (ft)     *   20.00  *
* # Barrels              *       1  * Culv Vel US (ft/s)     *    6.80  *
* Q Barrel (cfs)         *   12.01  * Culv Vel DS (ft/s)     *    6.80  *
* E.G. US. (ft)          * 2372.12  * Culv Inv El Up (ft)    * 2367.75  *
* W.S. US. (ft)          * 2372.08  * Culv Inv El Dn (ft)    * 2367.06  *
* E.G. DS (ft)           * 2370.06  * Culv Frctn Ls (ft)     *    0.88  *
* W.S. DS (ft)           * 2369.88  * Culv Exit Loss (ft)    *    0.54  *
* Delta EG (ft)          *    2.07  * Culv Entr Loss (ft)    *    0.65  *
* Delta WS (ft)          *    2.20  * Q Weir (cfs)           *  235.59  *
* E.G. IC (ft)           * 2371.09  * Weir Sta Lft (ft)      *  123.96  *
* E.G. OC (ft)           * 2372.13  * Weir Sta Rgt (ft)      *  165.08  *
* Culvert Control        *  Outlet  * Weir Submerg           *    0.00  *
* Culv WS Inlet (ft)     * 2369.25  * Weir Max Depth (ft)    *    1.69  *
* Culv WS Outlet (ft)    * 2368.56  * Weir Avg Depth (ft)    *    1.69  *
* Culv Nml Depth (ft)    *          * Weir Flow Area (sq ft) *   69.63  *
* Culv Crt Depth (ft)    *    1.31  * Min El Weir Flow (ft)  * 2370.44  *
*******************************************************************************

Warning: During subcritical analysis, while trying to calculate culvert and weir flow, the program could not
         get a balance of energy within the specified tolerance and number of trials.  The program used
         the solution with the minimum error.

CROSS SECTION


RIVER: Ocotillo Wash 1
REACH: Tributary-2.1      RS: 0.79116

INPUT
Description: Downstream cross section for 72nd Street
Station Elevation Data    num=      66
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
       0  2374.5    1.72 2374.49    6.24 2374.48   10.81 2374.35   15.37 2374.11
   22.09 2374.02   28.73  2374.1   35.77  2374.1   38.09 2373.85   41.33 2373.83
   43.64 2373.71    46.5 2373.71   48.79 2373.64   51.98 2373.55   54.36 2373.43
   58.02 2373.03   59.99 2372.85   63.72 2372.69   65.73 2372.56   68.94 2372.41
   70.88 2372.22   74.72 2371.98   76.09 2372.04   79.35 2371.51   83.14 2371.32
   85.13 2370.92   88.47 2370.62   92.62 2370.29   93.89 2370.03    96.6 2369.48
   97.64 2369.39  101.24 2368.82  106.22  2368.5  109.94 2368.27  111.88    2368
  112.09 2367.97   113.7 2367.91  121.87 2366.87  124.51 2366.56  129.38 2366.99
   131.4 2367.19  133.16 2367.36  133.36 2367.38  141.43 2368.53  145.17 2368.89
  152.49 2369.64  154.09  2369.8  154.33 2369.82  154.52 2369.84   162.4 2372.06
  163.23 2372.23  163.79 2372.26  182.04 2372.63  185.55 2372.05  191.23 2372.29
  196.74 2372.23  222.04 2372.05   224.1 2372.04  232.64 2371.98  234.57 2371.92
   263.1 2371.81  265.86 2371.77  273.11 2371.74  276.06 2371.69   283.4 2371.67
  300.03 2371.38

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
       0    .061  111.88    .064  133.36    .061

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        109.94  141.43             28.68   35.52    39.4             .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)         * 2369.42  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.34  * Wt. n-Val.              *   0.061  *   0.064  *   0.061  *
* W.S. Elev (ft)         * 2369.08  * Reach Len. (ft)         *   28.68  *   35.52  *   39.40  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)       *    4.93  *   51.93  *    1.58  *
* E.G. Slope (ft/ft)     *0.020206  * Area (sq ft)            *    4.93  *   51.93  *    1.58  *
* Q Total (cfs)          *  260.00  * Flow (cfs)              *   10.39  *  247.27  *    2.35  *
* Top Width (ft)         *   47.50  * Top Width (ft)          *   10.37  *   31.49  *    5.64  *
* Vel Total (ft/s)       *    4.45  * Avg. Vel. (ft/s)        *    2.11  *    4.76  *    1.48  *
* Max Chl Dpth (ft)      *    2.52  * Hydr. Depth (ft)        *    0.48  *    1.65  *    0.28  *
* Conv. Total (cfs)      *  1829.1  * Conv. (cfs)             *    73.1  *  1739.5  *    16.5  *
* Length Wtd. (ft)       *   34.65  * Wetted Per. (ft)        *   10.41  *   31.72  *    5.66  *
* Min Ch El (ft)         * 2366.56  * Shear (lb/sq ft)        *    0.60  *    2.07  *    0.35  *
* Alpha                  *    1.10  * Stream Power (lb/ft s)   *    1.26  *    9.83  *    0.52  *
* Frctn Loss (ft)        *    0.23  * Cum Volume (acre-ft)    *    1.59  *    9.95  *    1.83  *
* C & E Loss (ft)        *    0.07  * Cum SA (acres)          *    1.65  *    4.16  *    2.02  *
*****************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************
* E.G. Elev (ft)         * 2370.06  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.18  * Wt. n-Val.              *          *   0.063  *          *
* W.S. Elev (ft)         * 2369.88  * Reach Len. (ft)         *   28.68  *   35.52  *   39.40  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)       *          *   76.90  *          *
* E.G. Slope (ft/ft)     *0.006580  * Area (sq ft)            *          *   76.90  *          *
* Q Total (cfs)          *  260.00  * Flow (cfs)              *          *  260.00  *          *
* Top Width (ft)         *   31.49  * Top Width (ft)          *          *   31.49  *          *
* Vel Total (ft/s)       *    3.38  * Avg. Vel. (ft/s)        *          *    3.38  *          *
* Max Chl Dpth (ft)      *    3.32  * Hydr. Depth (ft)        *          *    2.44  *          *
```

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Conv. Total (cfs) | 3205.3 | Conv. (cfs) | | 3205.3 | | | |
| Length Wtd. (ft) | 35.52 | Wetted Per. (ft) | | 34.67 | | | |
| Min Ch El (ft) | 2366.56 | Shear (lb/sq ft) | | 0.91 | | | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 3.08 | | | |
| Frctn Loss (ft) | 0.19 | Cum Volume (acre-ft) | 0.02 | 11.45 | 0.01 | | |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 0.01 | 4.17 | 0.01 | | |

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 82.46 | 109.94 | 10.39 | 4.93 | 10.41 | 4.00 | 0.48 | 2.11 |
| 2 | Chan | 109.94 | 117.81 | 37.46 | 9.82 | 7.93 | 14.41 | 1.25 | 3.81 |
| 3 | Chan | 117.81 | 125.69 | 92.64 | 17.10 | 7.93 | 35.63 | 2.17 | 5.42 |
| 4 | Chan | 125.69 | 133.56 | 85.22 | 16.23 | 7.91 | 32.78 | 2.06 | 5.25 |
| 5 | Chan | 133.56 | 141.43 | 31.95 | 8.78 | 7.95 | 12.29 | 1.12 | 3.64 |
| 6 | ROB | 141.43 | 181.08 | 2.35 | 1.58 | 5.66 | 0.90 | 0.28 | 1.48 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 109.94 | 117.81 | 45.56 | 16.06 | 9.54 | 17.52 | 2.04 | 2.84 |
| 2 | Chan | 117.81 | 125.69 | 89.56 | 23.34 | 7.93 | 34.45 | 2.96 | 3.84 |
| 3 | Chan | 125.69 | 133.56 | 84.34 | 22.47 | 7.91 | 32.44 | 2.85 | 3.75 |
| 4 | Chan | 133.56 | 141.43 | 40.54 | 15.02 | 9.30 | 15.59 | 1.91 | 2.70 |

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.78443

INPUT
Description:
Station Elevation Data num= 41

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2372.04 | .35 | 2372.01 | 2.97 | 2371.7 | 6.69 | 2371.48 | 9.75 | 2371.28 |
| 12.14 | 2371 | 14.51 | 2370.83 | 18.12 | 2370.3 | 18.85 | 2370.22 | 19.16 | 2370.16 |
| 19.75 | 2370.14 | 23.74 | 2369.98 | 25.2 | 2369.85 | 26.18 | 2369.7 | 32.92 | 2368.98 |
| 38.34 | 2368.56 | 42.16 | 2368.13 | 43.47 | 2367.97 | 45.38 | 2367.76 | 53.12 | 2366.87 |
| 56.31 | 2366.51 | 59.06 | 2366.18 | 66.4 | 2364.99 | 71.09 | 2365.74 | 72.69 | 2365.93 |
| 74.26 | 2366.12 | 76.42 | 2366.34 | 78.83 | 2366.63 | 81.88 | 2367.77 | 88.94 | 2370.29 |
| 108.71 | 2372.14 | 112.19 | 2372.42 | 113.71 | 2372.34 | 121.86 | 2372 | 135.12 | 2372.35 |
| 137.62 | 2372.44 | 140.16 | 2372.51 | 147.76 | 2372.43 | 162.97 | 2372.37 | 167.71 | 2372.3 |
| 170.91 | 2372.21 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 53.12 | .064 | 76.42 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 59.06 | 78.83 | 293.29 | 294.01 | 294.98 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2369.13 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.11 | Wt. n-Val. | 0.063 | 0.064 | 0.061 |
| W.S. Elev (ft) | 2369.02 | Reach Len. (ft) | 293.29 | 294.01 | 294.98 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 35.41 | 64.29 | 7.74 |
| E.G. Slope (ft/ft) | 0.003180 | Area (sq ft) | 35.41 | 64.29 | 7.74 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 63.68 | 184.92 | 11.40 |
| Top Width (ft) | 52.84 | Top Width (ft) | 26.52 | 19.77 | 6.55 |
| Vel Total (ft/s) | 2.42 | Avg. Vel. (ft/s) | 1.80 | 2.88 | 1.47 |
| Max Chl Dpth (ft) | 4.03 | Hydr. Depth (ft) | 1.34 | 3.25 | 1.18 |
| Conv. Total (cfs) | 4610.3 | Conv. (cfs) | 1129.1 | 3279.1 | 202.1 |
| Length Wtd. (ft) | 293.94 | Wetted Per. (ft) | 26.67 | 19.98 | 6.98 |
| Min Ch El (ft) | 2364.99 | Shear (lb/sq ft) | 0.26 | 0.64 | 0.22 |
| Alpha | 1.16 | Stream Power (lb/ft s) | 0.47 | 1.84 | 0.32 |
| Frctn Loss (ft) | 2.09 | Cum Volume (acre-ft) | 1.58 | 9.90 | 1.82 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 1.64 | 4.14 | 2.02 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2369.86 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.18 | Wt. n-Val. | | 0.064 | |
| W.S. Elev (ft) | 2369.69 | Reach Len. (ft) | 293.29 | 294.01 | 294.98 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 77.44 | |
| E.G. Slope (ft/ft) | 0.004601 | Area (sq ft) | | 77.44 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 19.77 | Top Width (ft) | | 19.77 | |
| Vel Total (ft/s) | 3.36 | Avg. Vel. (ft/s) | | 3.36 | |
| Max Chl Dpth (ft) | 4.70 | Hydr. Depth (ft) | | 3.92 | |
| Conv. Total (cfs) | 3832.9 | Conv. (cfs) | | 3832.9 | |
| Length Wtd. (ft) | 294.01 | Wetted Per. (ft) | | 26.54 | |
| Min Ch El (ft) | 2364.99 | Shear (lb/sq ft) | | 0.84 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 2.81 | |
| Frctn Loss (ft) | 2.59 | Cum Volume (acre-ft) | 0.02 | 11.38 | 0.01 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.01 | 4.15 | 0.01 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than

0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 29.53 | 44.30 | 5.04 | 6.12 | 11.81 | 1.94 | 0.52 | 0.82 |
| 2 | LOB | 44.30 | 59.06 | 58.63 | 29.29 | 14.86 | 22.55 | 1.98 | 2.00 |
| 3 | Chan | 59.06 | 64.00 | 45.31 | 16.02 | 5.01 | 17.43 | 3.24 | 2.83 |
| 4 | Chan | 64.00 | 68.95 | 59.89 | 18.94 | 5.01 | 23.04 | 3.83 | 3.16 |
| 5 | Chan | 68.95 | 73.89 | 45.87 | 16.11 | 4.99 | 17.64 | 3.26 | 2.85 |
| 6 | Chan | 73.89 | 78.83 | 33.85 | 13.23 | 4.97 | 13.02 | 2.68 | 2.56 |
| 7 | ROB | 78.83 | 101.85 | 11.40 | 7.74 | 6.98 | 4.38 | 1.18 | 1.47 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 59.06 | 64.00 | 50.49 | 19.31 | 8.51 | 19.42 | 3.91 | 2.62 |
| 2 | Chan | 64.00 | 68.95 | 90.95 | 22.22 | 5.01 | 34.98 | 4.50 | 4.09 |
| 3 | Chan | 68.95 | 73.89 | 72.69 | 19.40 | 4.99 | 27.96 | 3.93 | 3.75 |
| 4 | Chan | 73.89 | 78.83 | 45.87 | 16.51 | 8.03 | 17.64 | 3.34 | 2.78 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.77855

INPUT
Description:
Station Elevation Data num= 26

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2368.66 | .31 | 2368.65 | 1.43 | 2368.55 | 2.17 | 2368.48 | 8.29 | 2367.91 |
| 15.24 | 2367.35 | 16.4 | 2367.25 | 16.81 | 2367.21 | 19.13 | 2367.04 | 32.01 | 2365.8 |
| 33.08 | 2365.73 | 34.89 | 2365.24 | 40.28 | 2364 | 41.52 | 2363.71 | 47.81 | 2364.56 |
| 48.33 | 2364.62 | 48.82 | 2364.68 | 57.13 | 2365.64 | 59.72 | 2365.94 | 65.49 | 2367.98 |
| 71.77 | 2370.29 | 91.46 | 2371.71 | 98.03 | 2372.14 | 98.1 | 2372.14 | 99.81 | 2372.09 |
| 105.49 | 2371.88 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 40.28 | .064 | 57.13 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 34.89 | 57.13 | 36.74 | 35.45 | 27.3 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2366.99 | Element | | | |
| Vel Head (ft) | 0.50 | Wt. n-Val. | 0.061 | 0.063 | 0.061 |
| W.S. Elev (ft) | 2366.49 | Reach Len. (ft) | 36.74 | 35.45 | 27.30 |
| Crit W.S. (ft) | 2366.29 | Flow Area (sq ft) | 5.11 | 41.20 | 2.26 |
| E.G. Slope (ft/ft) | 0.027730 | Area (sq ft) | 5.11 | 41.20 | 2.26 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 13.09 | 240.92 | 5.99 |
| Top Width (ft) | 36.49 | Top Width (ft) | 10.09 | 22.24 | 4.16 |
| Vel Total (ft/s) | 5.35 | Avg. Vel. (ft/s) | 2.56 | 5.85 | 2.65 |
| Max Chl Dpth (ft) | 2.78 | Hydr. Depth (ft) | 0.51 | 1.85 | 0.54 |
| Conv. Total (cfs) | 1561.3 | Conv. (cfs) | 78.6 | 1446.8 | 36.0 |
| Length Wtd. (ft) | 35.22 | Wetted Per. (ft) | 10.19 | 22.53 | 4.27 |
| Min Ch El (ft) | 2363.71 | Shear (lb/sq ft) | 0.87 | 3.17 | 0.92 |
| Alpha | 1.12 | Stream Power (lb/ft s) | 2.22 | 18.51 | 2.43 |
| Frctn Loss (ft) | 1.14 | Cum Volume (acre-ft) | 1.44 | 9.54 | 1.79 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 1.52 | 4.00 | 1.98 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2367.25 | Element | | | |
| Vel Head (ft) | 0.46 | Wt. n-Val. | | 0.063 | |
| W.S. Elev (ft) | 2366.78 | Reach Len. (ft) | 36.74 | 35.45 | 27.30 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 47.62 | |
| E.G. Slope (ft/ft) | 0.023078 | Area (sq ft) | | 47.62 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 22.24 | Top Width (ft) | | 22.24 | |
| Vel Total (ft/s) | 5.46 | Avg. Vel. (ft/s) | | 5.46 | |
| Max Chl Dpth (ft) | 3.07 | Hydr. Depth (ft) | | 2.14 | |
| Conv. Total (cfs) | 1711.5 | Conv. (cfs) | | 1711.5 | |
| Length Wtd. (ft) | 35.45 | Wetted Per. (ft) | | 25.22 | |
| Min Ch El (ft) | 2363.71 | Shear (lb/sq ft) | | 2.72 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 14.85 | |
| Frctn Loss (ft) | 1.12 | Cum Volume (acre-ft) | 0.02 | 10.96 | 0.01 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.01 | 4.00 | 0.01 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than

```
        0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
        section.  This may indicate the need for additional cross sections.
Note:   Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) *  (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB      * 17.45     * 26.17     *     0.06 *     0.09 *     1.38 *     0.02 *     0.07 *     0.61 *
* 2        * LOB      * 26.17     * 34.89     *    13.03 *     5.02 *     8.82 *     5.01 *     0.58 *     2.60 *
* 3        * Chan     * 34.89     * 40.45     *    61.97 *    10.53 *     5.71 *    23.83 *     1.89 *     5.88 *
* 4        * Chan     * 40.45     * 46.01     *    95.67 *    13.98 *     5.63 *    36.80 *     2.52 *     6.84 *
* 5        * Chan     * 46.01     * 51.57     *    56.24 *    10.15 *     5.60 *    21.63 *     1.83 *     5.54 *
* 6        * Chan     * 51.57     * 57.13     *    27.04 *     6.54 *     5.60 *    10.40 *     1.18 *     4.14 *
* 7        * ROB      * 57.13     * 69.22     *     5.99 *     2.26 *     4.27 *     2.31 *     0.54 *     2.65 *
*****************************************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
        section.  This may indicate the need for additional cross sections.
Note:   Manning's n values were composited to a single value in the main channel.

  Profile #PF 2
*****************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) *  (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan     * 34.89     * 40.45     *    60.59 *    12.14 *     7.25 *    23.30 *     2.18 *     4.99 *
* 2        * Chan     * 40.45     * 46.01     *   103.49 *    15.59 *     5.63 *    39.80 *     2.80 *     6.64 *
* 3        * Chan     * 46.01     * 51.57     *    64.84 *    11.75 *     5.60 *    24.94 *     2.11 *     5.52 *
* 4        * Chan     * 51.57     * 57.13     *    31.09 *     8.14 *     6.74 *    11.96 *     1.46 *     3.82 *
*****************************************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
        0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
        section.  This may indicate the need for additional cross sections.
Note:   Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: Ocotillo Wash 1
REACH: Tributary-2.1      RS: 0.77184

INPUT
Description:
Station Elevation Data     num=      27
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
*********************************************************************************
       0 2366.21      2.7 2366.08     6.61 2365.97    12.32 2365.74    12.68 2365.73
   15.32 2365.56    20.06 2365.29    24.03 2365.05    26.82 2364.84    31.84 2363.86
   34.96 2363.41    37.18 2363.02    39.27 2362.66    43.12 2363.19    46.63  2363.7
   50.82 2364.16    52.28 2364.35     58.7 2365.18    67.14    2367    70.58 2367.81
   72.48 2368.18    82.69 2370.06    84.12 2370.14    97.12 2371.28    98.01 2371.35
     102 2371.27   102.78 2371.26

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
       0    .061   37.18    .064   52.28    .061

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          31.84   50.82             43.86   52.89   69.03             .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************************
* E.G. Elev (ft)          * 2365.84  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.65  * Wt. n-Val.              *   0.061  *    0.063  *   0.062  *
* W.S. Elev (ft)          * 2365.19  * Reach Len. (ft)         *   43.86  *    52.89  *   69.03  *
* Crit W.S. (ft)          * 2365.19  * Flow Area (sq ft)       *    5.04  *    34.23  *    4.07  *
* E.G. Slope (ft/ft)      *0.038312  * Area (sq ft)            *    5.04  *    34.23  *    4.07  *
* Q Total (cfs)           *  260.00  * Flow (cfs)              *   15.01  *   231.90  *   13.09  *
* Top Width (ft)          *   36.98  * Top Width (ft)           *   10.08  *    18.98  *    7.92  *
* Vel Total (ft/s)        *    6.00  * Avg. Vel. (ft/s)         *    2.98  *     6.78  *    3.21  *
* Max Chl Dpth (ft)       *    2.53  * Hydr. Depth (ft)         *    0.50  *     1.80  *    0.51  *
* Conv. Total (cfs)       *  1328.3  * Conv. (cfs)              *    76.7  *   1184.8  *    66.9  *
* Length Wtd. (ft)        *   53.16  * Wetted Per. (ft)         *   10.19  *    19.18  *    7.98  *
* Min Ch El (ft)          * 2362.66  * Shear (lb/sq ft)         *    1.18  *     4.27  *    1.22  *
* Alpha                   *    1.17  * Stream Power (lb/ft s)    *    3.52  *    28.93  *    3.92  *
* Frctn Loss (ft)         *    1.30  * Cum Volume (acre-ft)      *    1.44  *     9.51  *    1.79  *
* C & E Loss (ft)         *    0.08  * Cum SA (acres)            *    1.51  *     3.98  *    1.98  *
*****************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
        program selected the water surface that had the least amount of error between computed and
        assumed values.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
        0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
        section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
        depth, the calculated water surface came back below critical depth.  This indicates that there
        is not a valid subcritical answer.  The program defaulted to critical depth.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************************
* E.G. Elev (ft)          * 2366.10  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.79  * Wt. n-Val.              *          *    0.063  *          *
* W.S. Elev (ft)          * 2365.31  * Reach Len. (ft)         *   43.86  *    52.89  *   69.03  *
* Crit W.S. (ft)          * 2365.18  * Flow Area (sq ft)       *          *    36.47  *          *
* E.G. Slope (ft/ft)      *0.045782  * Area (sq ft)            *          *    36.47  *          *
* Q Total (cfs)           *  260.00  * Flow (cfs)              *          *   260.00  *          *
* Top Width (ft)          *   18.98  * Top Width (ft)           *          *    18.98  *          *
* Vel Total (ft/s)        *    7.13  * Avg. Vel. (ft/s)         *          *     7.13  *          *
* Max Chl Dpth (ft)       *    2.65  * Hydr. Depth (ft)         *          *     1.92  *          *
* Conv. Total (cfs)       *  1215.1  * Conv. (cfs)              *          *   1215.1  *          *
```

| | | | | | |
|---|---|---|---|---|---|
| Length Wtd. (ft) | 52.89 | Wetted Per. (ft) | | 21.77 | |
| Min Ch El (ft) | 2362.66 | Shear (lb/sq ft) | | 4.79 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 34.14 | |
| Frctn Loss (ft) | 1.48 | Cum Volume (acre-ft) | 0.02 | 10.93 | 0.01 |
| C & E Loss (ft) | 0.09 | Cum SA (acres) | 0.01 | 3.99 | 0.01 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 15.92 | 23.88 | 0.09 | 0.14 | 2.13 | 0.04 | 0.06 | 0.68 |
| 2 | LOB | 23.88 | 31.84 | 14.92 | 4.90 | 8.06 | 5.74 | 0.62 | 3.04 |
| 3 | Chan | 31.84 | 36.59 | 51.97 | 7.96 | 4.80 | 19.99 | 1.68 | 6.53 |
| 4 | Chan | 36.59 | 41.33 | 86.37 | 11.08 | 4.80 | 33.22 | 2.33 | 7.80 |
| 5 | Chan | 41.33 | 46.08 | 61.54 | 9.06 | 4.79 | 23.67 | 1.91 | 6.79 |
| 6 | Chan | 46.08 | 50.82 | 32.03 | 6.12 | 4.78 | 12.32 | 1.29 | 5.24 |
| 7 | ROB | 50.82 | 63.81 | 13.09 | 4.07 | 7.98 | 5.03 | 0.51 | 3.21 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 31.84 | 36.59 | 52.32 | 8.53 | 6.25 | 20.12 | 1.80 | 6.14 |
| 2 | Chan | 36.59 | 41.33 | 100.43 | 11.64 | 4.80 | 38.63 | 2.45 | 8.63 |
| 3 | Chan | 41.33 | 46.08 | 72.85 | 9.63 | 4.79 | 28.02 | 2.03 | 7.57 |
| 4 | Chan | 46.08 | 50.82 | 34.40 | 6.68 | 5.92 | 13.23 | 1.41 | 5.15 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.76182

INPUT
Description:
Station Elevation Data num= 37

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2365.24 | 2.2 | 2364.99 | 3.53 | 2364.87 | 5.58 | 2364.63 | 6.71 | 2364.54 |
| 11.06 | 2364.21 | 14.69 | 2364.03 | 23.34 | 2363.51 | 28.58 | 2363.15 | 30.85 | 2363.06 |
| 34.27 | 2362.53 | 36.91 | 2362.13 | 41.33 | 2361.27 | 43.62 | 2360.82 | 44.16 | 2360.91 |
| 44.33 | 2360.93 | 52.61 | 2361.82 | 54.07 | 2361.98 | 55 | 2362.04 | 55.8 | 2362.27 |
| 60.01 | 2363.09 | 60.3 | 2363.16 | 62.08 | 2363.62 | 62.74 | 2363.75 | 62.84 | 2363.76 |
| 69.07 | 2365.39 | 70.51 | 2365.72 | 73.6 | 2366.32 | 74.17 | 2366.41 | 74.39 | 2366.43 |
| 74.54 | 2366.45 | 75.39 | 2366.52 | 77.18 | 2366.36 | 78.75 | 2366.22 | 82.52 | 2366.25 |
| 84.17 | 2366.23 | 84.42 | 2366.22 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 41.33 | .064 | 52.61 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 36.91 | 55 | 23.21 | 22.73 | 31.03 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2364.11 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.38 | Wt. n-Val. | 0.061 | 0.063 | 0.061 |
| W.S. Elev (ft) | 2363.73 | Reach Len. (ft) | 23.21 | 22.73 | 31.03 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 10.85 | 40.96 | 6.51 |
| E.G. Slope (ft/ft) | 0.016950 | Area (sq ft) | 10.85 | 40.96 | 6.51 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 25.16 | 216.60 | 18.24 |
| Top Width (ft) | 43.01 | Top Width (ft) | 17.27 | 18.09 | 7.65 |
| Vel Total (ft/s) | 4.46 | Avg. Vel. (ft/s) | 2.32 | 5.29 | 2.80 |
| Max Chl Dpth (ft) | 2.91 | Hydr. Depth (ft) | 0.63 | 2.26 | 0.85 |
| Conv. Total (cfs) | 1997.0 | Conv. (cfs) | 193.3 | 1663.7 | 140.1 |
| Length Wtd. (ft) | 23.16 | Wetted Per. (ft) | 17.36 | 18.28 | 7.84 |
| Min Ch El (ft) | 2360.82 | Shear (lb/sq ft) | 0.66 | 2.37 | 0.88 |
| Alpha | 1.23 | Stream Power (lb/ft s) | 1.53 | 12.54 | 2.46 |
| Frctn Loss (ft) | 0.49 | Cum Volume (acre-ft) | 1.43 | 9.47 | 1.78 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 1.50 | 3.96 | 1.96 |

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2364.52 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.49 | Wt. n-Val. | | 0.063 | |
| W.S. Elev (ft) | 2364.04 | Reach Len. (ft) | 23.21 | 22.73 | 31.03 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 46.45 | |
| E.G. Slope (ft/ft) | 0.018898 | Area (sq ft) | | 46.45 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Top Width (ft) | 18.09 | Top Width (ft) | | 18.09 | | | |
| Vel Total (ft/s) | 5.60 | Avg. Vel. (ft/s) | | 5.60 | | | |
| Max Chl Dpth (ft) | 3.22 | Hydr. Depth (ft) | | 2.57 | | | |
| Conv. Total (cfs) | 1891.3 | Conv. (cfs) | | 1891.3 | | | |
| Length Wtd. (ft) | 22.73 | Wetted Per. (ft) | | 22.18 | | | |
| Min Ch El (ft) | 2360.82 | Shear (lb/sq ft) | | 2.47 | | | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 13.83 | | | |
| Frctn Loss (ft) | 0.59 | Cum Volume (acre-ft) | 0.02 | 10.88 | | 0.01 | |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.01 | 3.97 | | 0.01 | |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 18.46 | 27.68 | 2.17 | 2.03 | 8.06 | 0.84 | 0.25 | 1.07 |
| 2 | LOB | 27.68 | 36.91 | 22.99 | 8.83 | 9.30 | 8.84 | 0.96 | 2.60 |
| 3 | Chan | 36.91 | 41.43 | 46.35 | 9.24 | 4.61 | 17.83 | 2.04 | 5.02 |
| 4 | Chan | 41.43 | 45.96 | 71.90 | 12.34 | 4.58 | 27.65 | 2.73 | 5.83 |
| 5 | Chan | 45.96 | 50.48 | 57.73 | 10.78 | 4.55 | 22.20 | 2.38 | 5.35 |
| 6 | Chan | 50.48 | 55.00 | 40.62 | 8.60 | 4.55 | 15.62 | 1.90 | 4.72 |
| 7 | ROB | 55.00 | 62.36 | 18.24 | 6.50 | 7.54 | 7.01 | 0.88 | 2.81 |
| 8 | ROB | 62.36 | 69.71 | 0.00 | 0.01 | 0.30 | 0.00 | 0.03 | 0.29 |

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 36.91 | 41.43 | 49.11 | 10.61 | 6.51 | 18.89 | 2.35 | 4.63 |
| 2 | Chan | 41.43 | 45.96 | 90.56 | 13.71 | 4.58 | 34.83 | 3.03 | 6.60 |
| 3 | Chan | 45.96 | 50.48 | 74.46 | 12.16 | 4.55 | 28.64 | 2.69 | 6.13 |
| 4 | Chan | 50.48 | 55.00 | 45.87 | 9.97 | 6.54 | 17.64 | 2.20 | 4.60 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.75751

INPUT
Description:
Station Elevation Data num= 24

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2364.61 | 3.85 | 2364.23 | 6.52 | 2363.98 | 9.28 | 2363.63 | 10.55 | 2363.5 |
| 11.61 | 2363.38 | 20.4 | 2362.65 | 25.98 | 2362.4 | 28.14 | 2362.48 | 36.64 | 2362.6 |
| 40.22 | 2361.81 | 43.11 | 2361.12 | 47.62 | 2359.99 | 49.21 | 2359.59 | 55.25 | 2361.76 |
| 57.42 | 2362.61 | 58.04 | 2362.74 | 59.05 | 2362.95 | 62.49 | 2363.56 | 66.21 | 2364.24 |
| 68.6 | 2364.69 | 69.24 | 2364.75 | 71.31 | 2364.98 | 80.44 | 2365.62 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 47.62 | .064 | 58.04 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 40.22 | 55.25 | 25.76 | 25.41 | 26.95 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2363.60 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.61 | Wt. n-Val. | 0.061 | 0.063 | 0.064 |
| W.S. Elev (ft) | 2362.98 | Reach Len. (ft) | 25.76 | 25.41 | 26.95 |
| Crit W.S. (ft) | 2362.98 | Flow Area (sq ft) | 10.97 | 34.37 | 2.07 |
| E.G. Slope (ft/ft) | 0.027385 | Area (sq ft) | 10.97 | 34.37 | 2.07 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 26.29 | 228.02 | 5.69 |
| Top Width (ft) | 42.87 | Top Width (ft) | 23.84 | 15.03 | 3.99 |
| Vel Total (ft/s) | 5.48 | Avg. Vel. (ft/s) | 2.40 | 6.63 | 2.75 |
| Max Chl Dpth (ft) | 3.39 | Hydr. Depth (ft) | 0.46 | 2.29 | 0.52 |
| Conv. Total (cfs) | 1571.1 | Conv. (cfs) | 158.9 | 1377.9 | 34.4 |
| Length Wtd. (ft) | 25.49 | Wetted Per. (ft) | 23.95 | 15.68 | 4.19 |
| Min Ch El (ft) | 2359.59 | Shear (lb/sq ft) | 0.78 | 3.75 | 0.84 |
| Alpha | 1.31 | Stream Power (lb/ft s) | 1.88 | 24.87 | 2.32 |
| Frctn Loss (ft) | 0.51 | Cum Volume (acre-ft) | 1.42 | 9.45 | 1.78 |
| C & E Loss (ft) | 0.08 | Cum SA (acres) | 1.49 | 3.95 | 1.96 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2363.90 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.81 | Wt. n-Val. | | 0.063 | |
| W.S. Elev (ft) | 2363.09 | Reach Len. (ft) | 25.76 | 25.41 | 26.95 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 36.02 | |
| E.G. Slope (ft/ft) | 0.037421 | Area (sq ft) | | 36.02 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 15.03 | Top Width (ft) | | 15.03 | |
| Vel Total (ft/s) | 7.22 | Avg. Vel. (ft/s) | | 7.22 | |
| Max Chl Dpth (ft) | 3.50 | Hydr. Depth (ft) | | 2.40 | |
| Conv. Total (cfs) | 1344.0 | Conv. (cfs) | | 1344.0 | |
| Length Wtd. (ft) | 25.41 | Wetted Per. (ft) | | 18.30 | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| * Min Ch El (ft) | * 2359.59 | * Shear (lb/sq ft) | * | * | * 4.60 | * | * |
| * Alpha | * 1.00 | * Stream Power (lb/ft s) | * | * | * 33.20 | * | * |
| * Frctn Loss (ft) | * 0.59 | * Cum Volume (acre-ft) | * | 0.02 | * 10.85 | * | 0.01 * |
| * C & E Loss (ft) | * 0.12 | * Cum SA (acres) | * | 0.01 | * 3.96 | * | 0.01 * |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| * | * Pos | * Left Sta (ft) | * Right Sta (ft) | * Flow (cfs) | * Area (sq ft) | * W.P. (ft) | * Percent Conv | * Hydr Depth(ft) | * Velocity (ft/s) * |
|---|---|---|---|---|---|---|---|---|---|
| * 1 | * LOB | * 10.06 | * 20.11 | * 0.64 | * 0.58 | * 3.75 | * 0.25 | * 0.16 | * 1.10 * |
| * 2 | * LOB | * 20.11 | * 30.17 | * 11.32 | * 4.82 | * 10.06 | * 4.36 | * 0.48 | * 2.35 * |
| * 3 | * LOB | * 30.17 | * 40.22 | * 14.33 | * 5.57 | * 10.14 | * 5.51 | * 0.55 | * 2.57 * |
| * 4 | * Chan | * 40.22 | * 43.98 | * 32.34 | * 6.10 | * 3.87 | * 12.44 | * 1.62 | * 5.30 * |
| * 5 | * Chan | * 43.98 | * 47.74 | * 68.53 | * 9.59 | * 3.87 | * 26.36 | * 2.55 | * 7.15 * |
| * 6 | * Chan | * 47.74 | * 51.49 | * 87.99 | * 11.54 | * 3.95 | * 33.84 | * 3.07 | * 7.62 * |
| * 7 | * Chan | * 51.49 | * 55.25 | * 39.16 | * 7.14 | * 3.99 | * 15.06 | * 1.90 | * 5.49 * |
| * 8 | * ROB | * 55.25 | * 61.55 | * 5.69 | * 2.07 | * 4.19 | * 2.19 | * 0.52 | * 2.75 * |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| * | * Pos | * Left Sta (ft) | * Right Sta (ft) | * Flow (cfs) | * Area (sq ft) | * W.P. (ft) | * Percent Conv | * Hydr Depth(ft) | * Velocity (ft/s) * |
|---|---|---|---|---|---|---|---|---|---|
| * 1 | * Chan | * 40.22 | * 43.98 | * 33.37 | * 6.51 | * 5.15 | * 12.84 | * 1.73 | * 5.12 * |
| * 2 | * Chan | * 43.98 | * 47.74 | * 82.35 | * 10.00 | * 3.87 | * 31.67 | * 2.66 | * 8.23 * |
| * 3 | * Chan | * 47.74 | * 51.49 | * 104.52 | * 11.96 | * 3.95 | * 40.20 | * 3.18 | * 8.74 * |
| * 4 | * Chan | * 51.49 | * 55.25 | * 39.76 | * 7.55 | * 5.33 | * 15.29 | * 2.01 | * 5.27 * |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.75270

INPUT
Description:
Station Elevation Data num= 24

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2363.76 | 1.94 | 2363.57 | 9.11 | 2362.66 | 9.85 | 2362.6 | 18.94 | 2361.81 |
| 20.21 | 2361.69 | 20.72 | 2361.7 | 21.01 | 2361.71 | 34.84 | 2361.34 | 36.47 | 2360.96 |
| 41.6 | 2360.18 | 41.74 | 2360.16 | 41.93 | 2360.13 | 47.07 | 2359.27 | 49.1 | 2358.93 |
| 50.54 | 2359.6 | 53.33 | 2360.75 | 55.76 | 2362.05 | 55.94 | 2362.1 | 60.27 | 2363.35 |
| 62.93 | 2364.13 | 63.89 | 2364.19 | 70.38 | 2364.63 | 77.62 | 2364.9 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 47.07 | .064 | 55.94 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 34.84 | 53.33 | 14.97 | 21.5 | 29.89 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| * E.G. Elev (ft) | * 2362.73 | * Element | * Left OB | * Channel | * Right OB * |
| * Vel Head (ft) | * 0.35 | * Wt. n-Val. | * 0.061 | * 0.062 | * 0.064 * |
| * W.S. Elev (ft) | * 2362.38 | * Reach Len. (ft) | * 14.97 | * 21.50 | * 29.89 * |
| * Crit W.S. (ft) | * | * Flow Area (sq ft) | * 15.00 | * 43.07 | * 2.57 * |
| * E.G. Slope (ft/ft) | *0.015262 | * Area (sq ft) | * 15.00 | * 43.07 | * 2.57 * |
| * Q Total (cfs) | * 260.00 | * Flow (cfs) | * 34.48 | * 219.27 | * 6.25 * |
| * Top Width (ft) | * 44.50 | * Top Width (ft) | * 22.44 | * 18.49 | * 3.57 * |
| * Vel Total (ft/s) | * 4.29 | * Avg. Vel. (ft/s) | * 2.30 | * 5.09 | * 2.44 * |
| * Max Chl Dpth (ft) | * 3.45 | * Hydr. Depth (ft) | * 0.67 | * 2.33 | * 0.72 * |
| * Conv. Total (cfs) | * 2104.6 | * Conv. (cfs) | * 279.1 | * 1774.9 | * 50.6 * |
| * Length Wtd. (ft) | * 21.16 | * Wetted Per. (ft) | * 22.47 | * 19.07 | * 3.95 * |
| * Min Ch El (ft) | * 2358.93 | * Shear (lb/sq ft) | * 0.64 | * 2.15 | * 0.62 * |
| * Alpha | * 1.23 | * Stream Power (lb/ft s) | * 1.46 | * 10.95 | * 1.51 * |
| * Frctn Loss (ft) | * 0.46 | * Cum Volume (acre-ft) | * 1.42 | * 9.42 | * 1.78 * |
| * C & E Loss (ft) | * 0.02 | * Cum SA (acres) | * 1.47 | * 3.94 | * 1.96 * |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| * E.G. Elev (ft) | * 2363.19 | * Element | * Left OB | * Channel | * Right OB * |
| * Vel Head (ft) | * 0.41 | * Wt. n-Val. | * | * 0.062 | * * |
| * W.S. Elev (ft) | * 2362.78 | * Reach Len. (ft) | * 14.97 | * 21.50 | * 29.89 * |
| * Crit W.S. (ft) | * | * Flow Area (sq ft) | * | * 50.48 | * * |
| * E.G. Slope (ft/ft) | *0.015844 | * Area (sq ft) | * | * 50.48 | * * |
| * Q Total (cfs) | * 260.00 | * Flow (cfs) | * | * 260.00 | * * |
| * Top Width (ft) | * 18.49 | * Top Width (ft) | * | * 18.49 | * * |
| * Vel Total (ft/s) | * 5.15 | * Avg. Vel. (ft/s) | * | * 5.15 | * * |
| * Max Chl Dpth (ft) | * 3.85 | * Hydr. Depth (ft) | * | * 2.73 | * * |
| * Conv. Total (cfs) | * 2065.6 | * Conv. (cfs) | * | * 2065.6 | * * |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| * Length Wtd. (ft) | * 21.50 | * Wetted Per. (ft) | * | * | 22.54 | * | * |
| * Min Ch El (ft) | * 2358.93 | * Shear (lb/sq ft) | * | * | 2.22 | * | * |
| * Alpha | * 1.00 | * Stream Power (lb/ft s) | * | * | 11.41 | * | * |
| * Frctn Loss (ft) | * 0.54 | * Cum Volume (acre-ft) | * | 0.02 | * | 10.83 | * | 0.01 | * |
| * C & E Loss (ft) | * 0.04 | * Cum SA (acres) | * | 0.01 | * | 3.95 | * | 0.01 | * |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| * | * Pos | * Left Sta (ft) | * Right Sta (ft) | * Flow (cfs) | * Area (sq ft) | * W.P. (ft) | * Percent Conv | * Hydr Depth(ft) | * Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| * 1 | * LOB | * 8.71 | * 17.42 | * 1.09 | * 1.09 | * 5.04 | * 0.42 | * 0.22 | * 1.00 |
| * 2 | * LOB | * 17.42 | * 26.13 | * 12.45 | * 5.88 | * 8.72 | * 4.79 | * 0.67 | * 2.12 |
| * 3 | * LOB | * 26.13 | * 34.84 | * 20.95 | * 8.03 | * 8.71 | * 8.06 | * 0.92 | * 2.61 |
| * 4 | * Chan | * 34.84 | * 39.46 | * 26.27 | * 6.93 | * 4.70 | * 10.10 | * 1.50 | * 3.79 |
| * 5 | * Chan | * 39.46 | * 44.09 | * 51.18 | * 10.32 | * 4.68 | * 19.68 | * 2.23 | * 4.96 |
| * 6 | * Chan | * 44.09 | * 48.71 | * 82.07 | * 13.85 | * 4.69 | * 31.57 | * 3.00 | * 5.93 |
| * 7 | * Chan | * 48.71 | * 53.33 | * 59.75 | * 11.97 | * 5.00 | * 22.98 | * 2.59 | * 4.99 |
| * 8 | * ROB | * 53.33 | * 59.40 | * 6.25 | * 2.57 | * 3.95 | * 2.40 | * 0.72 | * 2.44 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| * | * Pos | * Left Sta (ft) | * Right Sta (ft) | * Flow (cfs) | * Area (sq ft) | * W.P. (ft) | * Percent Conv | * Hydr Depth(ft) | * Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| * 1 | * Chan | * 34.84 | * 39.46 | * 32.42 | * 8.78 | * 6.14 | * 12.47 | * 1.90 | * 3.69 |
| * 2 | * Chan | * 39.46 | * 44.09 | * 66.95 | * 12.17 | * 4.68 | * 25.75 | * 2.63 | * 5.50 |
| * 3 | * Chan | * 44.09 | * 48.71 | * 100.50 | * 15.70 | * 4.69 | * 38.65 | * 3.40 | * 6.40 |
| * 4 | * Chan | * 48.71 | * 53.33 | * 60.13 | * 13.83 | * 7.03 | * 23.13 | * 2.99 | * 4.35 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.74863

INPUT
Description:
Station Elevation Data num= 35

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2363.31 | 2.19 | 2363.08 | 4.9 | 2362.74 | 5.46 | 2362.71 | 8.94 | 2362.4 |
| 9.1 | 2362.39 | 10.97 | 2362.27 | 22.59 | 2361.26 | 23.69 | 2361.23 | 24.15 | 2361.2 |
| 25.8 | 2361.15 | 35.17 | 2360.88 | 38.64 | 2360.38 | 41.81 | 2359.78 | 45.16 | 2359.16 |
| 45.42 | 2359.1 | 46.98 | 2358.74 | 52.86 | 2360.32 | 56 | 2360.92 | 56.5 | 2361.02 |
| 59.46 | 2361.51 | 60.03 | 2361.6 | 60.13 | 2361.62 | 62 | 2361.97 | 62.22 | 2361.98 |
| 62.85 | 2362.03 | 63.92 | 2362.14 | 65.5 | 2362.29 | 71.08 | 2363.8 | 72.61 | 2364.08 |
| 72.66 | 2364.09 | 72.89 | 2364.14 | 73.26 | 2364.14 | 86.88 | 2364.5 | 87.22 | 2364.5 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 45.42 | .064 | 56 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 35.17 | 52.86 | 29.83 | 24.33 | 23.81 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | | |
|---|---|---|---|---|---|---|
| * E.G. Elev (ft) | * 2362.25 | * Element | * Left OB | * Channel | * Right OB | * |
| * Vel Head (ft) | * 0.59 | * Wt. n-Val. | * 0.061 | * 0.063 | * 0.063 | * |
| * W.S. Elev (ft) | * 2361.66 | * Reach Len. (ft) | * 29.83 | * 24.33 | * 23.81 | * |
| * Crit W.S. (ft) | * 2361.66 | * Flow Area (sq ft) | * 8.42 | * 33.37 | * 4.85 | * |
| * E.G. Slope (ft/ft) | *0.033017 | * Area (sq ft) | * 8.42 | * 33.37 | * 4.85 | * |
| * Q Total (cfs) | * 260.00 | * Flow (cfs) | * 23.15 | * 219.34 | * 17.50 | * |
| * Top Width (ft) | * 42.35 | * Top Width (ft) | * 17.18 | * 17.69 | * 7.48 | * |
| * Vel Total (ft/s) | * 5.57 | * Avg. Vel. (ft/s) | * 2.75 | * 6.57 | * 3.61 | * |
| * Max Chl Dpth (ft) | * 2.92 | * Hydr. Depth (ft) | * 0.49 | * 1.89 | * 0.65 | * |
| * Conv. Total (cfs) | * 1430.9 | * Conv. (cfs) | * 127.4 | * 1207.1 | * 96.3 | * |
| * Length Wtd. (ft) | * 24.74 | * Wetted Per. (ft) | * 17.20 | * 18.10 | * 7.60 | * |
| * Min Ch El (ft) | * 2358.74 | * Shear (lb/sq ft) | * 1.01 | * 3.80 | * 1.31 | * |
| * Alpha | * 1.22 | * Stream Power (lb/ft s) | * 2.77 | * 24.99 | * 4.75 | * |
| * Frctn Loss (ft) | * 0.80 | * Cum Volume (acre-ft) | * 1.41 | * 9.41 | * 1.77 | * |
| * C & E Loss (ft) | * 0.04 | * Cum SA (acres) | * 1.46 | * 3.93 | * 1.95 | * |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | | |
|---|---|---|---|---|---|---|
| * E.G. Elev (ft) | * 2362.61 | * Element | * Left OB | * Channel | * Right OB | * |
| * Vel Head (ft) | * 0.83 | * Wt. n-Val. | * | * 0.063 | * | * |
| * W.S. Elev (ft) | * 2361.78 | * Reach Len. (ft) | * 29.83 | * 24.33 | * 23.81 | * |
| * Crit W.S. (ft) | * 2361.65 | * Flow Area (sq ft) | * | * 35.56 | * | * |
| * E.G. Slope (ft/ft) | *0.044849 | * Area (sq ft) | * | * 35.56 | * | * |
| * Q Total (cfs) | * 260.00 | * Flow (cfs) | * | * 260.00 | * | * |
| * Top Width (ft) | * 17.69 | * Top Width (ft) | * | * 17.69 | * | * |
| * Vel Total (ft/s) | * 7.31 | * Avg. Vel. (ft/s) | * | * 7.31 | * | * |

| | | | | | |
|---|---|---|---|---|---|
| Max Chl Dpth (ft) | 3.04 | Hydr. Depth (ft) | | 2.01 | |
| Conv. Total (cfs) | 1227.7 | Conv. (cfs) | | 1227.7 | |
| Length Wtd. (ft) | 24.33 | Wetted Per. (ft) | | 20.46 | |
| Min Ch El (ft) | 2358.74 | Shear (lb/sq ft) | | 4.87 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 35.58 | |
| Frctn Loss (ft) | 0.94 | Cum Volume (acre-ft) | 0.02 | 10.81 | 0.01 |
| C & E Loss (ft) | 0.08 | Cum SA (acres) | 0.01 | 3.94 | 0.01 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 17.59 | 26.38 | 5.19 | 2.68 | 8.41 | 2.00 | 0.32 | 1.94 |
| 2 | LOB | 26.38 | 35.17 | 17.96 | 5.74 | 8.80 | 6.91 | 0.65 | 3.13 |
| 3 | Chan | 35.17 | 39.59 | 22.18 | 4.88 | 4.48 | 8.53 | 1.10 | 4.55 |
| 4 | Chan | 39.59 | 44.02 | 53.56 | 8.30 | 4.50 | 20.60 | 1.88 | 6.45 |
| 5 | Chan | 44.02 | 48.44 | 90.55 | 11.64 | 4.54 | 34.83 | 2.63 | 7.78 |
| 6 | Chan | 48.44 | 52.86 | 53.06 | 8.55 | 4.58 | 20.41 | 1.93 | 6.20 |
| 7 | ROB | 52.86 | 61.45 | 17.50 | 4.85 | 7.60 | 6.73 | 0.65 | 3.61 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 35.17 | 39.59 | 26.51 | 5.42 | 5.38 | 10.20 | 1.23 | 4.89 |
| 2 | Chan | 39.59 | 44.02 | 67.44 | 8.84 | 4.50 | 25.94 | 2.00 | 7.63 |
| 3 | Chan | 44.02 | 48.44 | 110.68 | 12.19 | 4.54 | 42.57 | 2.76 | 9.08 |
| 4 | Chan | 48.44 | 52.86 | 55.37 | 9.10 | 6.04 | 21.30 | 2.06 | 6.09 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.74402

INPUT
Description:
Station Elevation Data num= 32

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2362.9 | .13 | 2362.89 | 5.01 | 2362.43 | 5.82 | 2362.34 | 6.34 | 2362.28 |
| 8.94 | 2361.99 | 11.24 | 2361.74 | 15.53 | 2361.1 | 16.54 | 2360.94 | 18.86 | 2360.47 |
| 20.39 | 2360.33 | 21.23 | 2360.3 | 28.1 | 2359.95 | 31.96 | 2359.03 | 33.21 | 2358.73 |
| 34.23 | 2358.49 | 39.68 | 2358.94 | 45.72 | 2359.38 | 48.25 | 2359.58 | 50.02 | 2359.78 |
| 51.43 | 2359.93 | 52.15 | 2359.94 | 53.83 | 2359.98 | 70.56 | 2361.6 | 71.5 | 2361.6 |
| 75.49 | 2361.96 | 76.67 | 2362.21 | 81.05 | 2362.73 | 81.18 | 2362.73 | 81.31 | 2362.72 |
| 82.89 | 2362.97 | 84.16 | 2362.96 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 33.21 | .064 | 50.02 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 28.1 | 51.43 | 26.03 | 22.19 | 18.41 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2361.31 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.47 | Wt. n-Val. | 0.061 | 0.063 | 0.061 |
| W.S. Elev (ft) | 2360.84 | Reach Len. (ft) | 26.03 | 22.19 | 18.41 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 6.34 | 38.49 | 5.92 |
| E.G. Slope (ft/ft) | 0.031881 | Area (sq ft) | 6.34 | 38.49 | 5.92 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 18.96 | 224.29 | 16.75 |
| Top Width (ft) | 45.64 | Top Width (ft) | 11.06 | 23.33 | 11.26 |
| Vel Total (ft/s) | 5.12 | Avg. Vel. (ft/s) | 2.99 | 5.83 | 2.83 |
| Max Chl Dpth (ft) | 2.35 | Hydr. Depth (ft) | 0.57 | 1.65 | 0.53 |
| Conv. Total (cfs) | 1456.2 | Conv. (cfs) | 106.2 | 1256.2 | 93.8 |
| Length Wtd. (ft) | 22.02 | Wetted Per. (ft) | 11.11 | 23.56 | 11.30 |
| Min Ch El (ft) | 2358.49 | Shear (lb/sq ft) | 1.14 | 3.25 | 1.04 |
| Alpha | 1.16 | Stream Power (lb/ft s) | 3.40 | 18.95 | 2.95 |
| Frctn Loss (ft) | 0.41 | Cum Volume (acre-ft) | 1.41 | 9.39 | 1.77 |
| C & E Loss (ft) | 0.08 | Cum SA (acres) | 1.46 | 3.92 | 1.95 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2361.59 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.58 | Wt. n-Val. | | 0.063 | |
| W.S. Elev (ft) | 2361.02 | Reach Len. (ft) | 26.03 | 22.19 | 18.41 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 42.70 | |
| E.G. Slope (ft/ft) | 0.033874 | Area (sq ft) | | 42.70 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 23.33 | Top Width (ft) | | 23.33 | |
| Vel Total (ft/s) | 6.09 | Avg. Vel. (ft/s) | | 6.09 | |
| Max Chl Dpth (ft) | 2.53 | Hydr. Depth (ft) | | 1.83 | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Conv. Total (cfs) | 1412.7 | Conv. (cfs) | | | 1412.7 | | |
| Length Wtd. (ft) | 22.19 | Wetted Per. (ft) | | | 25.72 | | |
| Min Ch El (ft) | 2358.49 | Shear (lb/sq ft) | | | 3.51 | | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | | 21.38 | | |
| Frctn Loss (ft) | 0.51 | Cum Volume (acre-ft) | 0.02 | | 10.79 | 0.01 | |
| C & E Loss (ft) | 0.08 | Cum SA (acres) | 0.01 | | 3.93 | 0.01 | |

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 14.05 | 21.08 | 2.69 | 1.36 | 4.07 | 1.04 | 0.34 | 1.98 |
| 2 | LOB | 21.08 | 28.10 | 16.27 | 4.98 | 7.03 | 6.26 | 0.71 | 3.27 |
| 3 | Chan | 28.10 | 33.93 | 52.44 | 9.23 | 6.00 | 20.17 | 1.58 | 5.68 |
| 4 | Chan | 33.93 | 39.77 | 83.06 | 12.42 | 5.86 | 31.95 | 2.13 | 6.69 |
| 5 | Chan | 39.77 | 45.60 | 56.00 | 9.79 | 5.85 | 21.54 | 1.68 | 5.72 |
| 6 | Chan | 45.60 | 51.43 | 32.80 | 7.05 | 5.86 | 12.61 | 1.21 | 4.65 |
| 7 | ROB | 51.43 | 59.61 | 16.24 | 5.46 | 8.21 | 6.25 | 0.67 | 2.97 |
| 8 | ROB | 59.61 | 67.80 | 0.50 | 0.46 | 3.09 | 0.19 | 0.15 | 1.09 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 28.10 | 33.93 | 57.43 | 10.29 | 7.06 | 22.09 | 1.76 | 5.58 |
| 2 | Chan | 33.93 | 39.77 | 96.16 | 13.47 | 5.86 | 36.98 | 2.31 | 7.14 |
| 3 | Chan | 39.77 | 45.60 | 67.10 | 10.85 | 5.85 | 25.81 | 1.86 | 6.19 |
| 4 | Chan | 45.60 | 51.43 | 39.31 | 8.10 | 6.95 | 15.12 | 1.39 | 4.85 |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.73982

INPUT
Description:
Station Elevation Data num= 27

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2362.7 | .05 | 2362.69 | .66 | 2362.61 | 7.77 | 2362.25 | 10.09 | 2362.1 |
| 11.61 | 2362 | 13.66 | 2361.53 | 23.08 | 2359.26 | 26.06 | 2358.54 | 27.55 | 2358.18 |
| 28.98 | 2358.24 | 31.9 | 2358.39 | 37.11 | 2358.63 | 39.71 | 2358.73 | 43.64 | 2358.9 |
| 44.2 | 2358.92 | 48.78 | 2359.09 | 52.86 | 2359.24 | 56.98 | 2359.49 | 62.79 | 2359.83 |
| 63.93 | 2359.9 | 68.92 | 2360.22 | 77.4 | 2361.04 | 80.4 | 2361.05 | 81.02 | 2361.11 |
| 81.2 | 2361.15 | 81.55 | 2361.19 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 26.06 | .064 | 48.78 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 23.08 | 52.86 | 24.45 | 23.5 | 18.75 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2360.82 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.22 | Wt. n-Val. | 0.061 | 0.063 | 0.061 |
| W.S. Elev (ft) | 2360.60 | Reach Len. (ft) | 24.45 | 23.50 | 18.75 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 3.73 | 55.54 | 14.86 |
| E.G. Slope (ft/ft) | 0.012409 | Area (sq ft) | 3.73 | 55.54 | 14.86 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 7.62 | 219.36 | 33.02 |
| Top Width (ft) | 55.35 | Top Width (ft) | 5.57 | 29.78 | 20.01 |
| Vel Total (ft/s) | 3.51 | Avg. Vel. (ft/s) | 2.04 | 3.95 | 2.22 |
| Max Chl Dpth (ft) | 2.42 | Hydr. Depth (ft) | 0.67 | 1.87 | 0.74 |
| Conv. Total (cfs) | 2334.1 | Conv. (cfs) | 68.4 | 1969.2 | 296.4 |
| Length Wtd. (ft) | 23.09 | Wetted Per. (ft) | 5.73 | 29.93 | 20.05 |
| Min Ch El (ft) | 2358.18 | Shear (lb/sq ft) | 0.51 | 1.44 | 0.57 |
| Alpha | 1.13 | Stream Power (lb/ft s) | 1.03 | 5.68 | 1.28 |
| Frctn Loss (ft) | 0.49 | Cum Volume (acre-ft) | 1.41 | 9.36 | 1.77 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 1.45 | 3.91 | 1.94 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 2361.00 | Element | Left OB | Channel | Right OB | |
| Vel Head (ft) | 0.31 | Wt. n-Val. | | 0.063 | | |
| W.S. Elev (ft) | 2360.69 | Reach Len. (ft) | 24.45 | 23.50 | 18.75 | |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 58.26 | | |
| E.G. Slope (ft/ft) | 0.016707 | Area (sq ft) | | 58.26 | | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | | |
| Top Width (ft) | 29.78 | Top Width (ft) | | 29.78 | | |
| Vel Total (ft/s) | 4.46 | Avg. Vel. (ft/s) | | 4.46 | | |
| Max Chl Dpth (ft) | 2.51 | Hydr. Depth (ft) | | 1.96 | | |
| Conv. Total (cfs) | 2011.5 | Conv. (cfs) | | 2011.5 | | |
| Length Wtd. (ft) | 23.50 | Wetted Per. (ft) | | 32.82 | | |
| Min Ch El (ft) | 2358.18 | Shear (lb/sq ft) | | 1.85 | | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 8.26 | | |
| Frctn Loss (ft) | 0.47 | Cum Volume (acre-ft) | 0.02 | 10.76 | 0.01 | |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.01 | 3.91 | 0.01 | |

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 17.31 | 23.08 | 7.62 | 3.73 | 5.73 | 2.93 | 0.67 | 2.04 |
| 2 | Chan | 23.08 | 30.53 | 65.10 | 15.42 | 7.58 | 25.04 | 2.07 | 4.22 |
| 3 | Chan | 30.53 | 37.97 | 65.81 | 15.67 | 7.45 | 25.31 | 2.10 | 4.20 |
| 4 | Chan | 37.97 | 45.42 | 50.08 | 13.30 | 7.45 | 19.26 | 1.79 | 3.77 |
| 5 | Chan | 45.42 | 52.86 | 38.36 | 11.16 | 7.45 | 14.75 | 1.50 | 3.44 |
| 6 | ROB | 52.86 | 60.03 | 21.62 | 8.21 | 7.19 | 8.32 | 1.15 | 2.63 |
| 7 | ROB | 60.03 | 67.21 | 9.91 | 5.14 | 7.19 | 3.81 | 0.72 | 1.93 |
| 8 | ROB | 67.21 | 74.38 | 1.49 | 1.50 | 5.68 | 0.57 | 0.27 | 0.99 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 23.08 | 30.53 | 74.19 | 16.10 | 9.01 | 28.54 | 2.16 | 4.61 |
| 2 | Chan | 30.53 | 37.97 | 80.37 | 16.35 | 7.45 | 30.91 | 2.20 | 4.92 |
| 3 | Chan | 37.97 | 45.42 | 61.92 | 13.98 | 7.45 | 23.81 | 1.88 | 4.43 |
| 4 | Chan | 45.42 | 52.86 | 43.52 | 11.84 | 8.90 | 16.74 | 1.59 | 3.68 |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.73537

INPUT
Description:
Station Elevation Data num= 21

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2362.58 | 3.23 | 2362.34 | 3.43 | 2362.32 | 11.82 | 2361.49 | 12.09 | 2361.48 |
| 14.77 | 2361.3 | 21.21 | 2359.81 | 24 | 2359.02 | 26.53 | 2358.29 | 26.97 | 2358.19 |
| 28.48 | 2357.84 | 32.22 | 2358.01 | 35.99 | 2358.2 | 36.45 | 2358.27 | 44.07 | 2358.59 |
| 50.29 | 2358.85 | 55.25 | 2359.06 | 65.48 | 2359.54 | 68.56 | 2359.65 | 80.14 | 2360.36 |
| 80.15 | 2360.36 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 26.97 | .064 | 50.29 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 24 | 55.25 | 12.12 | 16.35 | 15.02 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2360.29 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.52 | Wt. n-Val. | 0.061 | 0.063 | 0.061 |
| W.S. Elev (ft) | 2359.77 | Reach Len. (ft) | 12.12 | 16.35 | 15.02 |
| Crit W.S. (ft) | 2359.77 | Flow Area (sq ft) | 1.00 | 40.91 | 5.51 |
| E.G. Slope (ft/ft) | 0.044965 | Area (sq ft) | 1.00 | 40.91 | 5.51 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 2.63 | 242.97 | 14.40 |
| Top Width (ft) | 49.23 | Top Width (ft) | 2.66 | 31.25 | 15.32 |
| Vel Total (ft/s) | 5.48 | Avg. Vel. (ft/s) | 2.63 | 5.94 | 2.61 |
| Max Chl Dpth (ft) | 1.93 | Hydr. Depth (ft) | 0.38 | 1.31 | 0.36 |
| Conv. Total (cfs) | 1226.1 | Conv. (cfs) | 12.4 | 1145.8 | 67.9 |
| Length Wtd. (ft) | 16.17 | Wetted Per. (ft) | 2.76 | 31.43 | 15.34 |
| Min Ch El (ft) | 2357.84 | Shear (lb/sq ft) | 1.02 | 3.65 | 1.01 |
| Alpha | 1.11 | Stream Power (lb/ft s) | 2.67 | 21.70 | 2.64 |
| Frctn Loss (ft) | 0.49 | Cum Volume (acre-ft) | 1.40 | 9.34 | 1.76 |
| C & E Loss (ft) | 0.07 | Cum SA (acres) | 1.45 | 3.89 | 1.93 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2360.52 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.38 | Wt. n-Val. | | 0.063 | |
| W.S. Elev (ft) | 2360.14 | Reach Len. (ft) | 12.12 | 16.35 | 15.02 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 52.30 | |
| E.G. Slope (ft/ft) | 0.024729 | Area (sq ft) | | 52.30 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 31.25 | Top Width (ft) | | 31.25 | |
| Vel Total (ft/s) | 4.97 | Avg. Vel. (ft/s) | | 4.97 | |
| Max Chl Dpth (ft) | 2.30 | Hydr. Depth (ft) | | 1.67 | |
| Conv. Total (cfs) | 1653.4 | Conv. (cfs) | | 1653.4 | |
| Length Wtd. (ft) | 16.35 | Wetted Per. (ft) | | 33.63 | |
| Min Ch El (ft) | 2357.84 | Shear (lb/sq ft) | | 2.40 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 11.94 | |
| Frctn Loss (ft) | 0.22 | Cum Volume (acre-ft) | 0.02 | 10.73 | 0.01 |
| C & E Loss (ft) | 0.06 | Cum SA (acres) | 0.01 | 3.90 | 0.01 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 18.00 | 24.00 | 2.63 | 1.00 | 2.76 | 1.01 | 0.38 | 2.63 |
| 2 | Chan | 24.00 | 31.81 | 81.85 | 12.35 | 7.97 | 31.48 | 1.58 | 6.63 |
| 3 | Chan | 31.81 | 39.63 | 79.19 | 12.28 | 7.83 | 30.46 | 1.57 | 6.45 |
| 4 | Chan | 39.63 | 47.44 | 50.94 | 9.42 | 7.82 | 19.59 | 1.21 | 5.41 |
| 5 | Chan | 47.44 | 55.25 | 31.00 | 6.86 | 7.82 | 11.92 | 0.88 | 4.52 |
| 6 | ROB | 55.25 | 61.48 | 10.85 | 3.53 | 6.23 | 4.17 | 0.57 | 3.07 |
| 7 | ROB | 61.48 | 67.70 | 3.34 | 1.74 | 6.23 | 1.28 | 0.28 | 1.92 |
| 8 | ROB | 67.70 | 73.93 | 0.21 | 0.24 | 2.87 | 0.08 | 0.08 | 0.87 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 24.00 | 31.81 | 80.81 | 15.20 | 9.09 | 31.08 | 1.95 | 5.32 |
| 2 | Chan | 31.81 | 39.63 | 82.87 | 15.13 | 7.83 | 31.87 | 1.94 | 5.48 |
| 3 | Chan | 39.63 | 47.44 | 58.48 | 12.27 | 7.82 | 22.49 | 1.57 | 4.77 |
| 4 | Chan | 47.44 | 55.25 | 37.84 | 9.71 | 8.90 | 14.55 | 1.24 | 3.90 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.73227

INPUT
Description:
Station Elevation Data num= 34

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2362.27 | 2.79 | 2361.9 | 5.34 | 2361.6 | 8.35 | 2361.17 | 10.23 | 2360.93 |
| 11.41 | 2360.75 | 15.84 | 2360.07 | 16.99 | 2359.77 | 17.36 | 2359.73 | 21.57 | 2359.04 |
| 23.21 | 2358.91 | 25.91 | 2358.38 | 28.12 | 2358.26 | 29.39 | 2358.13 | 32.37 | 2357.86 |
| 34.97 | 2357.62 | 38.84 | 2357.63 | 41.01 | 2357.69 | 46.01 | 2357.71 | 46.25 | 2357.72 |
| 47.15 | 2357.78 | 50.91 | 2357.79 | 54.16 | 2357.89 | 55.17 | 2357.93 | 59.48 | 2358.18 |
| 64.47 | 2358.39 | 66.61 | 2358.63 | 70.34 | 2358.86 | 72.7 | 2359.13 | 75.91 | 2359.32 |
| 79.26 | 2359.66 | 80.02 | 2359.72 | 80.96 | 2359.84 | 83.81 | 2360.12 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 32.37 | .064 | 54.16 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 25.91 | 59.48 | 27.91 | 18.6 | 17.81 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2359.64 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.29 | Wt. n-Val. | 0.061 | 0.063 | 0.061 |
| W.S. Elev (ft) | 2359.35 | Reach Len. (ft) | 27.91 | 18.60 | 17.81 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 2.78 | 50.04 | 10.52 |
| E.G. Slope (ft/ft) | 0.021470 | Area (sq ft) | 2.78 | 50.04 | 10.52 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 5.76 | 226.65 | 27.59 |
| Top Width (ft) | 56.44 | Top Width (ft) | 6.20 | 33.57 | 16.67 |
| Vel Total (ft/s) | 4.10 | Avg. Vel. (ft/s) | 2.07 | 4.53 | 2.62 |
| Max Chl Dpth (ft) | 1.72 | Hydr. Depth (ft) | 0.45 | 1.49 | 0.63 |
| Conv. Total (cfs) | 1774.4 | Conv. (cfs) | 39.3 | 1546.8 | 188.3 |
| Length Wtd. (ft) | 20.10 | Wetted Per. (ft) | 6.28 | 33.62 | 16.72 |
| Min Ch El (ft) | 2357.62 | Shear (lb/sq ft) | 0.59 | 2.00 | 0.84 |
| Alpha | 1.11 | Stream Power (lb/ft s) | 1.23 | 9.04 | 2.21 |
| Frctn Loss (ft) | 0.12 | Cum Volume (acre-ft) | 1.40 | 9.32 | 1.76 |
| C & E Loss (ft) | 0.07 | Cum SA (acres) | 1.45 | 3.88 | 1.93 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2360.24 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.19 | Wt. n-Val. | | 0.063 | |
| W.S. Elev (ft) | 2360.05 | Reach Len. (ft) | 27.91 | 18.60 | 17.81 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 73.62 | |
| E.G. Slope (ft/ft) | 0.008659 | Area (sq ft) | | 73.62 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 33.57 | Top Width (ft) | | 33.57 | |
| Vel Total (ft/s) | 3.53 | Avg. Vel. (ft/s) | | 3.53 | |
| Max Chl Dpth (ft) | 2.43 | Hydr. Depth (ft) | | 2.19 | |
| Conv. Total (cfs) | 2794.1 | Conv. (cfs) | | 2794.1 | |
| Length Wtd. (ft) | 18.89 | Wetted Per. (ft) | | 37.15 | |
| Min Ch El (ft) | 2357.62 | Shear (lb/sq ft) | | 1.07 | |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| * Alpha | * | 1.00 | * Stream Power (lb/ft s) | * | | * | 3.78 | * | | * |
| * Frctn Loss (ft) | * | 0.12 | * Cum Volume (acre-ft) | * | 0.02 | * | 10.71 | * | 0.01 | * |
| * C & E Loss (ft) | * | 0.02 | * Cum SA (acres) | * | 0.01 | * | 3.88 | * | 0.01 | * |

Profile #PF 1

| * | * Pos | * Left Sta (ft) | * Right Sta (ft) | * Flow (cfs) | * Area (sq ft) | * W.P. (ft) | * Percent Conv | * Hydr Depth(ft) | * Velocity (ft/s) | * |
|---|---|---|---|---|---|---|---|---|---|---|
| * 1 | * LOB | * 19.43 | * 25.91 | * 5.76 | * 2.78 | * 6.28 | * 2.22 | * 0.45 | * 2.07 | * |
| * 2 | * Chan | * 25.91 | * 34.30 | * 45.07 | * 10.79 | * 8.42 | * 17.33 | * 1.29 | * 4.18 | * |
| * 3 | * Chan | * 34.30 | * 42.70 | * 68.72 | * 14.22 | * 8.40 | * 26.43 | * 1.69 | * 4.83 | * |
| * 4 | * Chan | * 42.70 | * 51.09 | * 62.28 | * 13.41 | * 8.39 | * 23.95 | * 1.60 | * 4.64 | * |
| * 5 | * Chan | * 51.09 | * 59.48 | * 50.58 | * 11.62 | * 8.40 | * 19.45 | * 1.38 | * 4.35 | * |
| * 6 | * ROB | * 59.48 | * 65.56 | * 19.38 | * 6.26 | * 6.09 | * 7.46 | * 1.03 | * 3.09 | * |
| * 7 | * ROB | * 65.56 | * 71.65 | * 7.63 | * 3.58 | * 6.10 | * 2.93 | * 0.59 | * 2.13 | * |
| * 8 | * ROB | * 71.65 | * 77.73 | * 0.58 | * 0.68 | * 4.52 | * 0.22 | * 0.15 | * 0.86 | * |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Profile #PF 2

| * | * Pos | * Left Sta (ft) | * Right Sta (ft) | * Flow (cfs) | * Area (sq ft) | * W.P. (ft) | * Percent Conv | * Hydr Depth(ft) | * Velocity (ft/s) | * |
|---|---|---|---|---|---|---|---|---|---|---|
| * 1 | * Chan | * 25.91 | * 34.30 | * 52.99 | * 16.68 | * 10.09 | * 20.38 | * 1.99 | * 3.18 | * |
| * 2 | * Chan | * 34.30 | * 42.70 | * 77.81 | * 20.12 | * 8.40 | * 29.93 | * 2.40 | * 3.87 | * |
| * 3 | * Chan | * 42.70 | * 51.09 | * 72.62 | * 19.30 | * 8.39 | * 27.93 | * 2.30 | * 3.76 | * |
| * 4 | * Chan | * 51.09 | * 59.48 | * 56.58 | * 17.52 | * 10.27 | * 21.76 | * 2.09 | * 3.23 | * |

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.72875

INPUT
Description: Cross Section located along 71st Street
Station Elevation Data num= 36

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2361.93 | .31 | 2361.91 | 3.77 | 2361.68 | 8.98 | 2361.16 | 11.96 | 2360.86 |
| 25.06 | 2359.95 | 28.38 | 2359.62 | 31.75 | 2359.28 | 34.83 | 2358.97 | 46.65 | 2358.16 |
| 49.57 | 2357.87 | 52.47 | 2357.67 | 55.42 | 2357.68 | 59.81 | 2357.57 | 64.83 | 2357.45 |
| 71.56 | 2357.46 | 75.73 | 2357.36 | 78.66 | 2357.29 | 81.05 | 2357.29 | 88.37 | 2357.1 |
| 90.47 | 2357.1 | 90.62 | 2357.1 | 95.79 | 2357.31 | 101.44 | 2357.54 | 101.57 | 2357.54 |
| 108.13 | 2357.81 | 111.64 | 2357.98 | 115.13 | 2358.16 | 128.4 | 2358.7 | 128.7 | 2358.71 |
| 131.56 | 2358.85 | 134.46 | 2359 | 140.86 | 2359.26 | 145.46 | 2359.44 | 150.62 | 2359.64 |
| 163.6 | 2360.19 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 75.73 | .064 | 95.79 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 71.56 | 101.57 | 128.33 | 129.66 | 132.07 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| * | | * | | * | Left OB | * | Channel | * | Right OB | * |
|---|---|---|---|---|---|---|---|---|---|---|
| * E.G. Elev (ft) | * | 2359.44 | * Element | * | | * | | * | | * |
| * Vel Head (ft) | * | 0.05 | * Wt. n-Val. | * | 0.061 | * | 0.063 | * | 0.061 | * |
| * W.S. Elev (ft) | * | 2359.40 | * Reach Len. (ft) | * | 128.33 | * | 129.66 | * | 132.07 | * |
| * Crit W.S. (ft) | * | | * Flow Area (sq ft) | * | 54.81 | * | 63.33 | * | 39.24 | * |
| * E.G. Slope (ft/ft) | * | 0.002727 | * Area (sq ft) | * | 54.81 | * | 63.33 | * | 39.24 | * |
| * Q Total (cfs) | * | 260.00 | * Flow (cfs) | * | 84.59 | * | 128.29 | * | 47.12 | * |
| * Top Width (ft) | * | 113.70 | * Top Width (ft) | * | 40.95 | * | 30.01 | * | 42.74 | * |
| * Vel Total (ft/s) | * | 1.65 | * Avg. Vel. (ft/s) | * | 1.54 | * | 2.03 | * | 1.20 | * |
| * Max Chl Dpth (ft) | * | 2.29 | * Hydr. Depth (ft) | * | 1.34 | * | 2.11 | * | 0.92 | * |
| * Conv. Total (cfs) | * | 4978.8 | * Conv. (cfs) | * | 1619.9 | * | 2456.7 | * | 902.2 | * |
| * Length Wtd. (ft) | * | 129.81 | * Wetted Per. (ft) | * | 41.02 | * | 30.02 | * | 42.78 | * |
| * Min Ch El (ft) | * | 2357.10 | * Shear (lb/sq ft) | * | 0.23 | * | 0.36 | * | 0.16 | * |
| * Alpha | * | 1.12 | * Stream Power (lb/ft s) | * | 0.35 | * | 0.73 | * | 0.19 | * |
| * Frctn Loss (ft) | * | 0.74 | * Cum Volume (acre-ft) | * | 1.38 | * | 9.29 | * | 1.75 | * |
| * C & E Loss (ft) | * | 0.02 | * Cum SA (acres) | * | 1.43 | * | 3.87 | * | 1.92 | * |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

| * | | * | | * | Left OB | * | Channel | * | Right OB | * |
|---|---|---|---|---|---|---|---|---|---|---|
| * E.G. Elev (ft) | * | 2360.11 | * Element | * | | * | | * | | * |
| * Vel Head (ft) | * | 0.14 | * Wt. n-Val. | * | 0.061 | * | 0.063 | * | | * |
| * W.S. Elev (ft) | * | 2359.97 | * Reach Len. (ft) | * | 128.33 | * | 129.66 | * | 132.07 | * |
| * Crit W.S. (ft) | * | | * Flow Area (sq ft) | * | 7.75 | * | 80.51 | * | | * |
| * E.G. Slope (ft/ft) | * | 0.004782 | * Area (sq ft) | * | 7.75 | * | 80.51 | * | | * |
| * Q Total (cfs) | * | 260.00 | * Flow (cfs) | * | 16.20 | * | 243.80 | * | | * |
| * Top Width (ft) | * | 33.10 | * Top Width (ft) | * | 3.09 | * | 30.01 | * | | * |
| * Vel Total (ft/s) | * | 2.95 | * Avg. Vel. (ft/s) | * | 2.09 | * | 3.03 | * | | * |
| * Max Chl Dpth (ft) | * | 2.87 | * Hydr. Depth (ft) | * | 2.51 | * | 2.68 | * | | * |
| * Conv. Total (cfs) | * | 3759.9 | * Conv. (cfs) | * | 234.3 | * | 3525.7 | * | | * |
| * Length Wtd. (ft) | * | 129.62 | * Wetted Per. (ft) | * | 5.60 | * | 32.45 | * | | * |
| * Min Ch El (ft) | * | 2357.10 | * Shear (lb/sq ft) | * | 0.41 | * | 0.74 | * | | * |
| * Alpha | * | 1.02 | * Stream Power (lb/ft s) | * | 0.86 | * | 2.24 | * | | * |
| * Frctn Loss (ft) | * | 0.92 | * Cum Volume (acre-ft) | * | 0.01 | * | 10.67 | * | 0.01 | * |
| * C & E Loss (ft) | * | 0.01 | * Cum SA (acres) | * | 0.01 | * | 3.87 | * | 0.01 | * |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 17.89 | 35.78 | 0.63 | 1.33 | 5.19 | 0.24 | 0.26 | 0.47 |
| 2 | LOB | 35.78 | 53.67 | 25.40 | 20.19 | 17.94 | 9.77 | 1.13 | 1.26 |
| 3 | LOB | 53.67 | 71.56 | 58.57 | 33.30 | 17.89 | 22.53 | 1.86 | 1.76 |
| 4 | Chan | 71.56 | 79.06 | 30.24 | 15.19 | 7.50 | 11.63 | 2.02 | 1.99 |
| 5 | Chan | 79.06 | 86.57 | 32.75 | 16.19 | 7.50 | 12.60 | 2.16 | 2.02 |
| 6 | Chan | 86.57 | 94.07 | 35.31 | 16.93 | 7.51 | 13.58 | 2.26 | 2.08 |
| 7 | Chan | 94.07 | 101.57 | 29.99 | 15.02 | 7.51 | 11.54 | 2.00 | 2.00 |
| 8 | ROB | 101.57 | 117.08 | 33.52 | 23.50 | 15.52 | 12.89 | 1.52 | 1.43 |
| 9 | ROB | 117.08 | 132.59 | 12.46 | 12.98 | 15.52 | 4.79 | 0.84 | 0.96 |
| 10 | ROB | 132.59 | 148.09 | 1.14 | 2.76 | 11.74 | 0.44 | 0.24 | 0.41 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 53.67 | 71.56 | 16.20 | 7.75 | 5.60 | 6.23 | 2.51 | 2.09 |
| 2 | Chan | 71.56 | 79.06 | 60.66 | 19.48 | 7.50 | 23.33 | 2.60 | 3.11 |
| 3 | Chan | 79.06 | 86.57 | 64.20 | 20.48 | 7.50 | 24.69 | 2.73 | 3.13 |
| 4 | Chan | 86.57 | 94.07 | 68.14 | 21.23 | 7.51 | 26.21 | 2.83 | 3.21 |
| 5 | Chan | 94.07 | 101.57 | 50.81 | 19.32 | 9.94 | 19.54 | 2.57 | 2.63 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.72704

INPUT
Description:
Station Elevation Data num= 33

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2360.5 | .87 | 2360.47 | 4.31 | 2360.17 | 5.48 | 2360.09 | 6.18 | 2360.03 |
| 7.8 | 2359.69 | 9.39 | 2359.25 | 11.89 | 2358.55 | 16.28 | 2357.68 | 17.26 | 2357.5 |
| 18.43 | 2357.22 | 21.27 | 2357.09 | 23.83 | 2356.97 | 27.24 | 2356.67 | 29.29 | 2356.44 |
| 29.62 | 2356.38 | 32.2 | 2356.48 | 36.24 | 2356.66 | 38.52 | 2356.78 | 41.9 | 2356.96 |
| 50.36 | 2357.39 | 55.12 | 2357.62 | 57.66 | 2357.69 | 58.63 | 2357.73 | 59.3 | 2357.76 |
| 65.06 | 2357.76 | 68.17 | 2357.93 | 79.16 | 2358.48 | 80.16 | 2358.61 | 89.08 | 2359.02 |
| 89.37 | 2359.05 | 89.67 | 2359.08 | 91.12 | 2359.14 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 21.27 | .064 | 41.9 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 18.43 | 50.36 | 15.93 | 20.18 | 16.98 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2358.69 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.26 | Wt. n-Val. | 0.061 | 0.063 | 0.061 |
| W.S. Elev (ft) | 2358.44 | Reach Len. (ft) | 15.93 | 20.18 | 16.98 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 3.53 | 49.84 | 15.85 |
| E.G. Slope (ft/ft) | 0.018423 | Area (sq ft) | 3.53 | 49.84 | 15.85 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 8.10 | 215.97 | 35.93 |
| Top Width (ft) | 65.80 | Top Width (ft) | 5.96 | 31.93 | 27.91 |
| Vel Total (ft/s) | 3.76 | Avg. Vel. (ft/s) | 2.30 | 4.33 | 2.27 |
| Max Chl Dpth (ft) | 2.06 | Hydr. Depth (ft) | 0.59 | 1.56 | 0.57 |
| Conv. Total (cfs) | 1915.6 | Conv. (cfs) | 59.7 | 1591.2 | 264.7 |
| Length Wtd. (ft) | 19.48 | Wetted Per. (ft) | 6.08 | 31.99 | 27.93 |
| Min Ch El (ft) | 2356.38 | Shear (lb/sq ft) | 0.67 | 1.79 | 0.65 |
| Alpha | 1.17 | Stream Power (lb/ft s) | 1.53 | 7.76 | 1.48 |
| Frctn Loss (ft) | 0.47 | Cum Volume (acre-ft) | 1.30 | 9.13 | 1.67 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 1.36 | 3.77 | 1.81 |

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2359.17 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.24 | Wt. n-Val. | | 0.063 | |
| W.S. Elev (ft) | 2358.93 | Reach Len. (ft) | 15.93 | 20.18 | 16.98 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 65.53 | |
| E.G. Slope (ft/ft) | 0.011746 | Area (sq ft) | | 65.53 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 31.93 | Top Width (ft) | | 31.93 | |
| Vel Total (ft/s) | 3.97 | Avg. Vel. (ft/s) | | 3.97 | |
| Max Chl Dpth (ft) | 2.55 | Hydr. Depth (ft) | | 2.05 | |
| Conv. Total (cfs) | 2399.0 | Conv. (cfs) | | 2399.0 | |
| Length Wtd. (ft) | 20.18 | Wetted Per. (ft) | | 35.24 | |
| Min Ch El (ft) | 2356.38 | Shear (lb/sq ft) | | 1.36 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 5.41 | |
| Frctn Loss (ft) | 0.45 | Cum Volume (acre-ft) | 0.00 | 10.46 | 0.01 |
| C & E Loss (ft) | 0.06 | Cum SA (acres) | 0.00 | 3.78 | 0.01 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 9.22 | 13.82 | 0.14 | 0.18 | 1.38 | 0.05 | 0.13 | 0.77 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2 | LOB | 13.82 | 18.43 | 7.96 | 3.34 | 4.70 | 3.06 | 0.73 | 2.38 |
| 3 | Chan | 18.43 | 26.41 | 45.51 | 11.31 | 8.00 | 17.50 | 1.42 | 4.02 |
| 4 | Chan | 26.41 | 34.40 | 74.03 | 15.31 | 8.01 | 28.47 | 1.92 | 4.83 |
| 5 | Chan | 34.40 | 42.38 | 58.42 | 13.25 | 7.99 | 22.47 | 1.66 | 4.41 |
| 6 | Chan | 42.38 | 50.36 | 38.00 | 9.96 | 7.99 | 14.62 | 1.25 | 3.81 |
| 7 | ROB | 50.36 | 60.55 | 21.99 | 8.42 | 10.20 | 8.46 | 0.83 | 2.61 |
| 8 | ROB | 60.55 | 70.74 | 12.55 | 6.01 | 10.20 | 4.83 | 0.59 | 2.09 |
| 9 | ROB | 70.74 | 80.93 | 1.38 | 1.42 | 7.54 | 0.53 | 0.19 | 0.97 |

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 18.43 | 26.41 | 54.51 | 15.23 | 9.71 | 20.97 | 1.91 | 3.58 |
| 2 | Chan | 26.41 | 34.40 | 86.55 | 19.24 | 8.01 | 33.29 | 2.41 | 4.50 |
| 3 | Chan | 34.40 | 42.38 | 71.95 | 17.17 | 7.99 | 27.67 | 2.15 | 4.19 |
| 4 | Chan | 42.38 | 50.36 | 46.99 | 13.89 | 9.53 | 18.07 | 1.74 | 3.38 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.72322

INPUT
Description:
Station Elevation Data num= 27

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2360.9 | 5.93 | 2360.49 | 5.95 | 2360.48 | 6.02 | 2360.48 | 6.34 | 2360.4 |
| 10.1 | 2359.52 | 17.48 | 2357.7 | 19.45 | 2357.19 | 21.53 | 2356.64 | 22.15 | 2356.47 |
| 25.11 | 2355.7 | 26.63 | 2355.8 | 31.7 | 2356.14 | 31.85 | 2356.16 | 31.98 | 2356.13 |
| 34.25 | 2356.23 | 35.01 | 2356.27 | 40.03 | 2356.55 | 43.37 | 2356.73 | 44.47 | 2356.79 |
| 48.28 | 2356.99 | 60.31 | 2357.22 | 69.81 | 2357.37 | 70.04 | 2357.38 | 70.57 | 2357.4 |
| 76.11 | 2358.21 | 78.26 | 2358.35 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 21.53 | .064 | 40.03 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 22.15 | 44.47 | 26.98 | 27.14 | 29.31 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2358.20 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.42 | Wt. n-Val. | 0.062 | 0.064 | 0.061 |
| W.S. Elev (ft) | 2357.78 | Reach Len. (ft) | 26.98 | 27.14 | 29.31 |
| Crit W.S. (ft) | 2357.75 | Flow Area (sq ft) | 3.21 | 34.26 | 16.81 |
| E.G. Slope (ft/ft) | 0.033649 | Area (sq ft) | 3.21 | 34.26 | 16.81 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 10.92 | 196.52 | 52.56 |
| Top Width (ft) | 55.97 | Top Width (ft) | 4.98 | 22.32 | 28.67 |
| Vel Total (ft/s) | 4.79 | Avg. Vel. (ft/s) | 3.40 | 5.74 | 3.13 |
| Max Chl Dpth (ft) | 2.08 | Hydr. Depth (ft) | 0.65 | 1.53 | 0.59 |
| Conv. Total (cfs) | 1417.4 | Conv. (cfs) | 59.5 | 1071.3 | 286.5 |
| Length Wtd. (ft) | 27.41 | Wetted Per. (ft) | 5.15 | 22.46 | 28.71 |
| Min Ch El (ft) | 2355.70 | Shear (lb/sq ft) | 1.31 | 3.20 | 1.23 |
| Alpha | 1.19 | Stream Power (lb/ft s) | 4.46 | 18.38 | 3.85 |
| Frctn Loss (ft) | 0.88 | Cum Volume (acre-ft) | 1.30 | 9.11 | 1.66 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 1.36 | 3.76 | 1.80 |

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2358.67 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.82 | Wt. n-Val. | | 0.064 | |
| W.S. Elev (ft) | 2357.85 | Reach Len. (ft) | 26.98 | 27.14 | 29.31 |
| Crit W.S. (ft) | 2357.85 | Flow Area (sq ft) | | 35.84 | |
| E.G. Slope (ft/ft) | 0.057242 | Area (sq ft) | | 35.84 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 22.32 | Top Width (ft) | | 22.32 | |
| Vel Total (ft/s) | 7.25 | Avg. Vel. (ft/s) | | 7.25 | |
| Max Chl Dpth (ft) | 2.15 | Hydr. Depth (ft) | | 1.61 | |
| Conv. Total (cfs) | 1086.7 | Conv. (cfs) | | 1086.7 | |
| Length Wtd. (ft) | 27.14 | Wetted Per. (ft) | | 24.89 | |
| Min Ch El (ft) | 2355.70 | Shear (lb/sq ft) | | 5.15 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 37.33 | |
| Frctn Loss (ft) | 0.95 | Cum Volume (acre-ft) | 0.00 | 10.43 | 0.01 |
| C & E Loss (ft) | 0.11 | Cum SA (acres) | 0.00 | 3.77 | 0.01 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 16.61 | 22.15 | 10.92 | 3.21 | 5.15 | 4.20 | 0.65 | 3.40 |
| 2 | Chan | 22.15 | 27.73 | 63.99 | 10.22 | 5.68 | 24.61 | 1.83 | 6.26 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3 | Chan | 27.73 | 33.31 | 58.58 | 9.63 | 5.59 | 22.53 | 1.73 | 6.08 |
| 4 | Chan | 33.31 | 38.89 | 43.55 | 8.06 | 5.59 | 16.75 | 1.44 | 5.40 |
| 5 | Chan | 38.89 | 44.47 | 30.40 | 6.35 | 5.59 | 11.69 | 1.14 | 4.79 |
| 6 | ROB | 44.47 | 52.92 | 25.03 | 6.82 | 8.45 | 9.63 | 0.81 | 3.67 |
| 7 | ROB | 52.92 | 61.37 | 16.01 | 5.21 | 8.45 | 6.16 | 0.62 | 3.07 |
| 8 | ROB | 61.37 | 69.81 | 10.27 | 4.00 | 8.45 | 3.95 | 0.47 | 2.57 |
| 9 | ROB | 69.81 | 78.26 | 1.25 | 0.78 | 3.36 | 0.48 | 0.23 | 1.60 |

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 22.15 | 27.73 | 77.07 | 10.62 | 7.06 | 29.64 | 1.90 | 7.26 |
| 2 | Chan | 27.73 | 33.31 | 81.85 | 10.03 | 5.59 | 31.48 | 1.80 | 8.16 |
| 3 | Chan | 33.31 | 38.89 | 61.63 | 8.45 | 5.59 | 23.70 | 1.51 | 7.29 |
| 4 | Chan | 38.89 | 44.47 | 39.45 | 6.74 | 6.65 | 15.17 | 1.21 | 5.85 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.71808

INPUT
Description:
Station Elevation Data num= 17

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2360.12 | .45 | 2360.07 | 8.15 | 2358.79 | 9.13 | 2358.63 | 11.64 | 2358.09 |
| 20.98 | 2356.73 | 23.73 | 2356.09 | 24.45 | 2355.92 | 32.75 | 2354 | 33.16 | 2354.06 |
| 34.16 | 2354.2 | 41.48 | 2355.2 | 43.87 | 2355.59 | 46.82 | 2356.08 | 49.33 | 2356.18 |
| 58.05 | 2356.54 | 67.6 | 2356.96 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 24.45 | .064 | 43.87 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 23.73 | 46.82 | 31.2 | 33.44 | 33.96 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2357.32 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.52 | Wt. n-Val. | 0.061 | 0.064 | 0.061 |
| W.S. Elev (ft) | 2356.80 | Reach Len. (ft) | 31.20 | 33.44 | 33.96 |
| Crit W.S. (ft) | 2356.67 | Flow Area (sq ft) | 1.08 | 41.16 | 6.24 |
| E.G. Slope (ft/ft) | 0.030462 | Area (sq ft) | 1.08 | 41.16 | 6.24 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 2.19 | 244.27 | 13.54 |
| Top Width (ft) | 43.38 | Top Width (ft) | 3.21 | 23.09 | 17.08 |
| Vel Total (ft/s) | 5.36 | Avg. Vel. (ft/s) | 2.02 | 5.93 | 2.17 |
| Max Chl Dpth (ft) | 2.80 | Hydr. Depth (ft) | 0.34 | 1.78 | 0.37 |
| Conv. Total (cfs) | 1489.7 | Conv. (cfs) | 12.5 | 1399.6 | 77.6 |
| Length Wtd. (ft) | 33.42 | Wetted Per. (ft) | 3.29 | 23.48 | 17.09 |
| Min Ch El (ft) | 2354.00 | Shear (lb/sq ft) | 0.62 | 3.33 | 0.69 |
| Alpha | 1.16 | Stream Power (lb/ft s) | 1.26 | 19.78 | 1.51 |
| Frctn Loss (ft) | 0.91 | Cum Volume (acre-ft) | 1.30 | 9.08 | 1.65 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 1.36 | 3.75 | 1.78 |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2357.54 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.47 | Wt. n-Val. | | 0.063 | |
| W.S. Elev (ft) | 2357.07 | Reach Len. (ft) | 31.20 | 33.44 | 33.96 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 47.46 | |
| E.G. Slope (ft/ft) | 0.023761 | Area (sq ft) | | 47.46 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 23.09 | Top Width (ft) | | 23.09 | |
| Vel Total (ft/s) | 5.48 | Avg. Vel. (ft/s) | | 5.48 | |
| Max Chl Dpth (ft) | 3.07 | Hydr. Depth (ft) | | 2.06 | |
| Conv. Total (cfs) | 1686.7 | Conv. (cfs) | | 1686.7 | |
| Length Wtd. (ft) | 33.44 | Wetted Per. (ft) | | 25.45 | |
| Min Ch El (ft) | 2354.00 | Shear (lb/sq ft) | | 2.77 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 15.15 | |
| Frctn Loss (ft) | 0.70 | Cum Volume (acre-ft) | 0.00 | 10.41 | 0.01 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 0.00 | 3.75 | 0.01 |

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 17.80 | 23.73 | 2.19 | 1.08 | 3.29 | 0.84 | 0.34 | 2.02 |
| 2 | Chan | 23.73 | 29.50 | 38.06 | 7.95 | 5.93 | 14.64 | 1.38 | 4.78 |
| 3 | Chan | 29.50 | 35.28 | 101.96 | 14.48 | 5.88 | 39.21 | 2.51 | 7.04 |
| 4 | Chan | 35.28 | 41.05 | 73.37 | 11.84 | 5.83 | 28.22 | 2.05 | 6.20 |
| 5 | Chan | 41.05 | 46.82 | 30.89 | 6.89 | 5.85 | 11.88 | 1.19 | 4.48 |
| 6 | ROB | 46.82 | 52.02 | 8.36 | 3.18 | 5.20 | 3.21 | 0.61 | 2.63 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7 | ROB | 52.02 | 57.21 | 4.09 | 2.07 | 5.20 | 1.57 | 0.40 | 1.97 |
| 8 | ROB | 57.21 | 62.41 | 1.08 | 0.93 | 5.20 | 0.42 | 0.18 | 1.16 |
| 9 | ROB | 62.41 | 67.60 | 0.02 | 0.05 | 1.49 | 0.01 | 0.03 | 0.37 |

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 23.73 | 29.50 | 42.97 | 9.53 | 6.91 | 16.53 | 1.65 | 4.51 |
| 2 | Chan | 29.50 | 35.28 | 104.38 | 16.05 | 5.88 | 40.15 | 2.78 | 6.50 |
| 3 | Chan | 35.28 | 41.05 | 77.87 | 13.41 | 5.83 | 29.95 | 2.32 | 5.81 |
| 4 | Chan | 41.05 | 46.82 | 34.78 | 8.47 | 6.84 | 13.38 | 1.47 | 4.11 |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.71174

INPUT
Description:
Station Elevation Data num= 18

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2358.86 | 6.32 | 2358.27 | 6.69 | 2358.24 | 7.55 | 2358.1 | 9.32 | 2357.78 |
| 17.7 | 2356.32 | 20.88 | 2355.69 | 21.19 | 2355.63 | 26 | 2354.74 | 29.46 | 2354.12 |
| 36.73 | 2352.77 | 43.78 | 2354.38 | 44 | 2354.43 | 51.16 | 2356.08 | 53.07 | 2356.18 |
| 53.25 | 2356.19 | 58.18 | 2356.42 | 60.45 | 2356.53 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 20.88 | .064 | 43.78 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 26 | 44 | 17.47 | 19.08 | 22.93 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2356.41 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.53 | Wt. n-Val. | 0.064 | 0.064 | 0.061 |
| W.S. Elev (ft) | 2355.88 | Reach Len. (ft) | 17.47 | 19.08 | 22.93 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 3.49 | 39.27 | 4.55 |
| E.G. Slope (ft/ft) | 0.024484 | Area (sq ft) | 3.49 | 39.27 | 4.55 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 9.38 | 236.87 | 13.75 |
| Top Width (ft) | 30.36 | Top Width (ft) | 6.07 | 18.00 | 6.28 |
| Vel Total (ft/s) | 5.50 | Avg. Vel. (ft/s) | 2.69 | 6.03 | 3.02 |
| Max Chl Dpth (ft) | 3.11 | Hydr. Depth (ft) | 0.58 | 2.18 | 0.72 |
| Conv. Total (cfs) | 1661.6 | Conv. (cfs) | 60.0 | 1513.8 | 87.9 |
| Length Wtd. (ft) | 19.08 | Wetted Per. (ft) | 6.18 | 18.37 | 6.45 |
| Min Ch El (ft) | 2352.77 | Shear (lb/sq ft) | 0.86 | 3.27 | 1.08 |
| Alpha | 1.12 | Stream Power (lb/ft s) | 2.32 | 19.71 | 3.26 |
| Frctn Loss (ft) | 0.38 | Cum Volume (acre-ft) | 1.29 | 9.05 | 1.65 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 1.35 | 3.73 | 1.77 |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2356.83 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.45 | Wt. n-Val. | | 0.064 | |
| W.S. Elev (ft) | 2356.38 | Reach Len. (ft) | 17.47 | 19.08 | 22.93 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 48.29 | |
| E.G. Slope (ft/ft) | 0.018627 | Area (sq ft) | | 48.29 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 18.00 | Top Width (ft) | | 18.00 | |
| Vel Total (ft/s) | 5.38 | Avg. Vel. (ft/s) | | 5.38 | |
| Max Chl Dpth (ft) | 3.61 | Hydr. Depth (ft) | | 2.68 | |
| Conv. Total (cfs) | 1905.0 | Conv. (cfs) | | 1905.0 | |
| Length Wtd. (ft) | 19.08 | Wetted Per. (ft) | | 21.96 | |
| Min Ch El (ft) | 2352.77 | Shear (lb/sq ft) | | 2.56 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 13.77 | |
| Frctn Loss (ft) | 0.38 | Cum Volume (acre-ft) | 0.00 | 10.37 | 0.01 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.00 | 3.74 | 0.01 |

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 19.50 | 26.00 | 9.38 | 3.49 | 6.18 | 3.61 | 0.58 | 2.69 |
| 2 | Chan | 26.00 | 30.50 | 32.41 | 6.94 | 4.57 | 12.47 | 1.54 | 4.67 |
| 3 | Chan | 30.50 | 35.00 | 66.25 | 10.66 | 4.58 | 25.48 | 2.37 | 6.21 |
| 4 | Chan | 35.00 | 39.50 | 89.93 | 12.83 | 4.60 | 34.59 | 2.85 | 7.01 |
| 5 | Chan | 39.50 | 44.00 | 48.27 | 8.83 | 4.62 | 18.57 | 1.96 | 5.47 |
| 6 | ROB | 44.00 | 48.11 | 13.04 | 4.01 | 4.22 | 5.01 | 0.97 | 3.25 |
| 7 | ROB | 48.11 | 52.23 | 0.72 | 0.54 | 2.23 | 0.28 | 0.25 | 1.31 |

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 26.00 | 30.50 | 34.34 | 9.20 | 6.21 | 13.21 | 2.04 | 3.73 |
| 2 | Chan | 30.50 | 35.00 | 74.17 | 12.92 | 4.58 | 28.53 | 2.87 | 5.74 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| * 3 | * Chan | * 35.00 | * 39.50 | * 95.76 * | 15.09 * | 4.60 * | 36.83 * | 3.35 * | 6.35 * |
| * 4 | * Chan | * 39.50 | * 44.00 | * 55.73 * | 11.09 * | 6.57 * | 21.44 * | 2.46 * | 5.03 * |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.70813

INPUT
Description:
Station Elevation Data num= 16

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2358.88 | 8.62 | 2358.23 | 9.47 | 2358.17 | 11.73 | 2357.67 | 21.85 | 2355.38 |
| 23.18 | 2355.08 | 31.28 | 2353.38 | 36.99 | 2352.24 | 38.8 | 2352.62 | 44.98 | 2353.91 |
| 47.46 | 2354.43 | 55.1 | 2356.08 | 55.59 | 2356.1 | 60.91 | 2356.33 | 62.05 | 2356.36 |
| 64.36 | 2356.45 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 21.85 | .064 | 38.8 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 31.28 | 47.46 | 20.7 | 20.79 | 20.6 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| * E.G. Elev (ft) | * 2355.99 | * Element | * Left OB * | Channel * | Right OB * |
| * Vel Head (ft) | * 0.42 | * Wt. n-Val. | * 0.064 * | 0.062 * | 0.061 * |
| * W.S. Elev (ft) | * 2355.57 | * Reach Len. (ft) | * 20.70 * | 20.79 * | 20.60 * |
| * Crit W.S. (ft) | * | * Flow Area (sq ft) | * 11.38 * | 39.16 * | 3.01 * |
| * E.G. Slope (ft/ft) | *0.016908 | * Area (sq ft) | * 11.38 * | 39.16 * | 3.01 * |
| * Q Total (cfs) | * 260.00 | * Flow (cfs) | * 38.00 * | 215.54 * | 6.45 * |
| * Top Width (ft) | * 31.73 | * Top Width (ft) | * 10.27 * | 16.18 * | 5.28 * |
| * Vel Total (ft/s) | * 4.86 | * Avg. Vel. (ft/s) | * 3.34 * | 5.50 * | 2.14 * |
| * Max Chl Dpth (ft) | * 3.33 | * Hydr. Depth (ft) | * 1.11 * | 2.42 * | 0.57 * |
| * Conv. Total (cfs) | * 1999.5 | * Conv. (cfs) | * 292.3 * | 1657.6 * | 49.6 * |
| * Length Wtd. (ft) | * 20.78 | * Wetted Per. (ft) | * 10.50 * | 16.52 * | 5.40 * |
| * Min Ch El (ft) | * 2352.24 | * Shear (lb/sq ft) | * 1.14 * | 2.50 * | 0.59 * |
| * Alpha | * 1.14 | * Stream Power (lb/ft s) | * 3.82 * | 13.77 * | 1.26 * |
| * Frctn Loss (ft) | * 0.20 | * Cum Volume (acre-ft) | * 1.29 * | 9.03 * | 1.65 * |
| * C & E Loss (ft) | * 0.06 | * Cum SA (acres) | * 1.35 * | 3.72 * | 1.77 * |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| * E.G. Elev (ft) | * 2356.45 | * Element | * Left OB * | Channel * | Right OB * |
| * Vel Head (ft) | * 0.52 | * Wt. n-Val. | * | 0.062 * | * |
| * W.S. Elev (ft) | * 2355.93 | * Reach Len. (ft) | * 20.70 * | 20.79 * | 20.60 * |
| * Crit W.S. (ft) | * | * Flow Area (sq ft) | * | 44.94 * | * |
| * E.G. Slope (ft/ft) | *0.020885 | * Area (sq ft) | * | 44.94 * | * |
| * Q Total (cfs) | * 260.00 | * Flow (cfs) | * | 260.00 * | * |
| * Top Width (ft) | * 16.18 | * Top Width (ft) | * | 16.18 * | * |
| * Vel Total (ft/s) | * 5.79 | * Avg. Vel. (ft/s) | * | 5.79 * | * |
| * Max Chl Dpth (ft) | * 3.69 | * Hydr. Depth (ft) | * | 2.78 * | * |
| * Conv. Total (cfs) | * 1799.1 | * Conv. (cfs) | * | 1799.1 * | * |
| * Length Wtd. (ft) | * 20.79 | * Wetted Per. (ft) | * | 20.56 * | * |
| * Min Ch El (ft) | * 2352.24 | * Shear (lb/sq ft) | * | 2.85 * | * |
| * Alpha | * 1.00 | * Stream Power (lb/ft s) | * | 16.49 * | * |
| * Frctn Loss (ft) | * 0.25 | * Cum Volume (acre-ft) | * 0.00 * | 10.35 * | 0.01 * |
| * C & E Loss (ft) | * 0.08 | * Cum SA (acres) | * 0.00 * | 3.73 * | 0.01 * |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| * | * Pos | * Left Sta (ft) | * Right Sta (ft) | * Flow (cfs) | * Area (sq ft) | * W.P. (ft) | * Percent Conv | * Hydr Depth(ft) | * Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| * 1 | * LOB | * 15.64 | * 23.46 | * 0.91 | * 0.68 | * 2.51 | * 0.35 | * 0.28 | * 1.35 |
| * 2 | * LOB | * 23.46 | * 31.28 | * 37.09 | * 10.71 | * 7.99 | * 14.27 | * 1.37 | * 3.46 |
| * 3 | * Chan | * 31.28 | * 35.33 | * 57.61 | * 10.49 | * 4.12 | * 22.16 | * 2.59 | * 5.49 |
| * 4 | * Chan | * 35.33 | * 39.37 | * 78.60 | * 12.60 | * 4.13 | * 30.23 | * 3.11 | * 6.24 |
| * 5 | * Chan | * 39.37 | * 43.42 | * 53.36 | * 9.74 | * 4.13 | * 20.52 | * 2.41 | * 5.48 |
| * 6 | * Chan | * 43.42 | * 47.46 | * 25.97 | * 6.33 | * 4.13 | * 9.99 | * 1.56 | * 4.11 |
| * 7 | * ROB | * 47.46 | * 51.69 | * 6.37 | * 2.89 | * 4.32 | * 2.45 | * 0.68 | * 2.21 |
| * 8 | * ROB | * 51.69 | * 55.91 | * 0.08 | * 0.12 | * 1.08 | * 0.03 | * 0.11 | * 0.67 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| * | * Pos | * Left Sta (ft) | * Right Sta (ft) | * Flow (cfs) | * Area (sq ft) | * W.P. (ft) | * Percent Conv | * Hydr Depth(ft) | * Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| * 1 | * Chan | * 31.28 | * 35.33 | * 55.46 | * 11.94 | * 6.67 | * 21.33 | * 2.95 | * 4.65 |
| * 2 | * Chan | * 35.33 | * 39.37 | * 100.78 | * 14.04 | * 4.13 | * 38.76 | * 3.47 | * 7.18 |
| * 3 | * Chan | * 39.37 | * 43.42 | * 71.89 | * 11.19 | * 4.13 | * 27.65 | * 2.77 | * 6.43 |
| * 4 | * Chan | * 43.42 | * 47.46 | * 31.86 | * 7.77 | * 5.63 | * 12.25 | * 1.92 | * 4.10 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.70419

INPUT
Description: Blocked Obstruction at Parcel 216-14-004-X
Station Elevation Data num= 55

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2359.05 | 9 | 2358.97 | 13.69 | 2358.65 | 23.08 | 2357.91 | 23.18 | 2357.89 |
| 38.45 | 2355.01 | 39.23 | 2354.86 | 39.9 | 2354.74 | 40.26 | 2354.65 | 42.79 | 2354.01 |
| 45.96 | 2353.07 | 54.23 | 2351.07 | 54.86 | 2351.23 | 57.63 | 2351.93 | 63.52 | 2353.91 |
| 69.06 | 2356 | 69.12 | 2356.1 | 71.06 | 2356.13 | 71.28 | 2356.06 | 71.39 | 2356.08 |
| 71.8 | 2356.09 | 71.99 | 2356.08 | 72.31 | 2356.06 | 75.28 | 2356.12 | 75.57 | 2356.12 |
| 79.31 | 2356.18 | 84.35 | 2356.35 | 84.52 | 2356.35 | 85.85 | 2356.42 | 90.42 | 2356.71 |
| 91.05 | 2356.7 | 95.15 | 2356.73 | 95.69 | 2356.76 | 96.76 | 2357.12 | 99.26 | 2357.89 |
| 105.67 | 2358.07 | 108.56 | 2358.13 | 109.81 | 2358.16 | 112.83 | 2358.18 | 112.9 | 2359.19 |
| 115.14 | 2359.71 | 130.32 | 2359.6 | 130.83 | 2359.63 | 131.68 | 2359.63 | 144.43 | 2359.36 |
| 144.61 | 2359.36 | 144.99 | 2359.38 | 145.85 | 2359.35 | 184.49 | 2358.53 | 184.57 | 2358.53 |
| 185.03 | 2358.54 | 186.32 | 2358.5 | 186.78 | 2358.5 | 188.35 | 2358.51 | 200.68 | 2358.64 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 38.45 | .064 | 54.86 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 45.96 | 63.52 | 81.41 | 81.29 | 81.45 | .1 | .3 |

Blocked Obstructions num= 1

| Sta L | Sta R | Elev |
|---|---|---|
| 71.06 | 190.97 | 2358.54 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2355.73 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.23 | Wt. n-Val. | 0.064 | 0.063 | 0.061 |
| W.S. Elev (ft) | 2355.50 | Reach Len. (ft) | 81.41 | 81.29 | 81.45 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 10.96 | 57.08 | 3.33 |
| E.G. Slope (ft/ft) | 0.006335 | Area (sq ft) | 10.96 | 57.08 | 3.33 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 23.59 | 231.12 | 5.29 |
| Top Width (ft) | 31.85 | Top Width (ft) | 10.08 | 17.56 | 4.20 |
| Vel Total (ft/s) | 3.64 | Avg. Vel. (ft/s) | 2.15 | 4.05 | 1.59 |
| Max Chl Dpth (ft) | 4.43 | Hydr. Depth (ft) | 1.09 | 3.25 | 0.79 |
| Conv. Total (cfs) | 3266.6 | Conv. (cfs) | 296.4 | 2903.7 | 66.5 |
| Length Wtd. (ft) | 81.30 | Wetted Per. (ft) | 10.38 | 18.23 | 4.49 |
| Min Ch El (ft) | 2351.07 | Shear (lb/sq ft) | 0.42 | 1.24 | 0.29 |
| Alpha | 1.13 | Stream Power (lb/ft s) | 0.90 | 5.01 | 0.47 |
| Frctn Loss (ft) | 1.00 | Cum Volume (acre-ft) | 1.29 | 9.01 | 1.64 |
| C & E Loss (ft) | 0.05 | Cum SA (acres) | 1.35 | 3.72 | 1.77 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2356.12 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.26 | Wt. n-Val. | | 0.063 | |
| W.S. Elev (ft) | 2355.86 | Reach Len. (ft) | 81.41 | 81.29 | 81.45 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 63.51 | |
| E.G. Slope (ft/ft) | 0.007658 | Area (sq ft) | | 63.51 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 17.56 | Top Width (ft) | | 17.56 | |
| Vel Total (ft/s) | 4.09 | Avg. Vel. (ft/s) | | 4.09 | |
| Max Chl Dpth (ft) | 4.79 | Hydr. Depth (ft) | | 3.62 | |
| Conv. Total (cfs) | 2971.0 | Conv. (cfs) | | 2971.0 | |
| Length Wtd. (ft) | 81.29 | Wetted Per. (ft) | | 22.97 | |
| Min Ch El (ft) | 2351.07 | Shear (lb/sq ft) | | 1.32 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 5.41 | |
| Frctn Loss (ft) | 1.14 | Cum Volume (acre-ft) | 0.00 | 10.32 | 0.01 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 0.00 | 3.72 | 0.01 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 34.47 | 45.96 | 23.59 | 10.96 | 10.38 | 9.07 | 1.09 | 2.15 |
| 2 | Chan | 45.96 | 50.35 | 47.42 | 12.98 | 4.52 | 18.24 | 2.96 | 3.65 |
| 3 | Chan | 50.35 | 54.74 | 78.58 | 17.57 | 4.52 | 30.22 | 4.00 | 4.47 |
| 4 | Chan | 54.74 | 59.13 | 72.37 | 16.33 | 4.56 | 27.84 | 3.72 | 4.43 |
| 5 | Chan | 59.13 | 63.52 | 32.75 | 10.20 | 4.63 | 12.60 | 2.32 | 3.21 |
| 6 | ROB | 63.52 | 97.81 | 5.29 | 3.33 | 4.49 | 2.04 | 0.79 | 1.59 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 45.96 | 50.35 | 43.40 | 14.59 | 7.31 | 16.69 | 3.32 | 2.98 |
| 2 | Chan | 50.35 | 54.74 | 94.40 | 19.18 | 4.52 | 36.31 | 4.37 | 4.92 |
| 3 | Chan | 54.74 | 59.13 | 87.87 | 17.94 | 4.56 | 33.80 | 4.09 | 4.90 |
| 4 | Chan | 59.13 | 63.52 | 34.33 | 11.81 | 6.58 | 13.20 | 2.69 | 2.91 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.70129

INPUT
Description: Blocked Obstruction at Parcel 216-14-004-X
Station Elevation Data num= 25

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2358.12 | 3.52 | 2358.03 | 4.68 | 2357.95 | 7.74 | 2357.75 | 10.94 | 2357.55 |
| 12.38 | 2357.31 | 26.41 | 2354.96 | 29.32 | 2354.46 | 30.06 | 2354.34 | 32.55 | 2353.76 |
| 37.58 | 2352.62 | 44.91 | 2350.99 | 48.9 | 2351.85 | 51.62 | 2352.41 | 54.15 | 2352.94 |
| 57.77 | 2353.75 | 58.74 | 2353.97 | 58.8 | 2355.48 | 58.83 | 2356.47 | 58.85 | 2356.81 |
| 59.15 | 2356.8 | 61.47 | 2356.81 | 70.99 | 2356.87 | 73.94 | 2356.88 | 75.04 | 2356.92 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 29.32 | .064 | 48.9 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 37.58 | 54.15 | 17.26 | 17.05 | 16.86 | .1 | .3 |

Blocked Obstructions num= 1

| Sta L | Sta R | Elev |
|---|---|---|
| 61.46 | 75.04 | 2356.92 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2354.69 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.70 | Wt. n-Val. | 0.064 | 0.063 | 0.061 |
| W.S. Elev (ft) | 2353.99 | Reach Len. (ft) | 17.26 | 17.05 | 16.86 |
| Crit W.S. (ft) | 2353.89 | Flow Area (sq ft) | 4.14 | 34.66 | 2.46 |
| E.G. Slope (ft/ft) | 0.033146 | Area (sq ft) | 4.14 | 34.66 | 2.46 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 13.40 | 239.53 | 7.07 |
| Top Width (ft) | 27.18 | Top Width (ft) | 6.02 | 16.57 | 4.59 |
| Vel Total (ft/s) | 6.30 | Avg. Vel. (ft/s) | 3.24 | 6.91 | 2.87 |
| Max Chl Dpth (ft) | 3.00 | Hydr. Depth (ft) | 0.69 | 2.09 | 0.54 |
| Conv. Total (cfs) | 1428.1 | Conv. (cfs) | 73.6 | 1315.6 | 38.8 |
| Length Wtd. (ft) | 17.05 | Wetted Per. (ft) | 6.17 | 16.95 | 4.72 |
| Min Ch El (ft) | 2350.99 | Shear (lb/sq ft) | 1.39 | 4.23 | 1.08 |
| Alpha | 1.13 | Stream Power (lb/ft s) | 4.49 | 29.24 | 3.10 |
| Frctn Loss (ft) | 0.60 | Cum Volume (acre-ft) | 1.27 | 8.93 | 1.64 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 1.33 | 3.68 | 1.76 |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2354.93 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.71 | Wt. n-Val. | | 0.063 | |
| W.S. Elev (ft) | 2354.22 | Reach Len. (ft) | 17.26 | 17.05 | 16.86 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 38.51 | |
| E.G. Slope (ft/ft) | 0.033836 | Area (sq ft) | | 38.51 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 16.57 | Top Width (ft) | | 16.57 | |
| Vel Total (ft/s) | 6.75 | Avg. Vel. (ft/s) | | 6.75 | |
| Max Chl Dpth (ft) | 3.23 | Hydr. Depth (ft) | | 2.32 | |
| Conv. Total (cfs) | 1413.5 | Conv. (cfs) | | 1413.5 | |
| Length Wtd. (ft) | 17.05 | Wetted Per. (ft) | | 19.84 | |
| Min Ch El (ft) | 2350.99 | Shear (lb/sq ft) | | 4.10 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 27.69 | |
| Frctn Loss (ft) | 0.54 | Cum Volume (acre-ft) | 0.00 | 10.23 | 0.01 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.00 | 3.69 | 0.01 |

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 28.19 | 37.58 | 13.40 | 4.14 | 6.17 | 5.15 | 0.69 | 3.24 |
| 2 | Chan | 37.58 | 41.72 | 46.11 | 7.58 | 4.24 | 17.73 | 1.83 | 6.08 |
| 3 | Chan | 41.72 | 45.87 | 88.34 | 11.20 | 4.24 | 33.98 | 2.70 | 7.89 |
| 4 | Chan | 45.87 | 50.01 | 70.95 | 9.73 | 4.24 | 27.29 | 2.35 | 7.29 |
| 5 | Chan | 50.01 | 54.15 | 34.12 | 6.14 | 4.23 | 13.12 | 1.48 | 5.55 |
| 6 | ROB | 54.15 | 59.37 | 7.07 | 2.46 | 4.72 | 2.72 | 0.54 | 2.87 |

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 37.58 | 41.72 | 44.38 | 8.55 | 5.85 | 17.07 | 2.06 | 5.19 |
| 2 | Chan | 41.72 | 45.87 | 98.97 | 12.16 | 4.24 | 38.06 | 2.94 | 8.14 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3 | Chan | 45.87 | 50.01 | 81.05 | 10.69 | 4.24 | 31.17 | 2.58 | 7.58 |
| 4 | Chan | 50.01 | 54.15 | 35.60 | 7.11 | 5.51 | 13.69 | 1.72 | 5.01 |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.69806

INPUT
Description: Blocked Obstruction at Parcel 216-14-004-X
Station Elevation Data num= 23

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2357.46 | 5.78 | 2357.12 | 6.43 | 2357 | 23.58 | 2353.67 | 23.84 | 2353.62 |
| 25.61 | 2353.29 | 31.17 | 2352.27 | 37.52 | 2351.06 | 37.92 | 2351.04 | 40.26 | 2350.96 |
| 42.19 | 2350.96 | 44.62 | 2351.42 | 45.18 | 2351.52 | 46.56 | 2351.78 | 49.18 | 2352.26 |
| 54.7 | 2353.29 | 54.74 | 2354.34 | 54.8 | 2356.22 | 56.12 | 2356.18 | 56.85 | 2356.15 |
| 60.39 | 2356.03 | 62.67 | 2355.96 | 68.58 | 2355.8 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 25.61 | .064 | 45.18 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 31.17 | 49.18 | 6.67 | 7.62 | 7.45 | .1 | .3 |

Blocked Obstructions num= 1

| Sta L | Sta R | Elev |
|---|---|---|
| 56.86 | 68.58 | 2356.151 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2354.08 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.71 | Wt. n-Val. | 0.064 | 0.064 | 0.061 |
| W.S. Elev (ft) | 2353.37 | Reach Len. (ft) | 6.67 | 7.62 | 7.45 |
| Crit W.S. (ft) | 2353.37 | Flow Area (sq ft) | 3.31 | 34.25 | 3.29 |
| E.G. Slope (ft/ft) | 0.037792 | Area (sq ft) | 3.31 | 34.25 | 3.29 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 10.35 | 238.84 | 10.81 |
| Top Width (ft) | 29.53 | Top Width (ft) | 6.00 | 18.01 | 5.52 |
| Vel Total (ft/s) | 6.37 | Avg. Vel. (ft/s) | 3.13 | 6.97 | 3.29 |
| Max Chl Dpth (ft) | 2.41 | Hydr. Depth (ft) | 0.55 | 1.90 | 0.60 |
| Conv. Total (cfs) | 1337.4 | Conv. (cfs) | 53.2 | 1228.6 | 55.6 |
| Length Wtd. (ft) | 7.57 | Wetted Per. (ft) | 6.10 | 18.25 | 5.70 |
| Min Ch El (ft) | 2350.96 | Shear (lb/sq ft) | 1.28 | 4.43 | 1.36 |
| Alpha | 1.12 | Stream Power (lb/ft s) | 4.01 | 30.88 | 4.48 |
| Frctn Loss (ft) | 0.28 | Cum Volume (acre-ft) | 1.27 | 8.91 | 1.64 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 1.33 | 3.68 | 1.76 |

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2354.37 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.63 | Wt. n-Val. | | 0.064 | |
| W.S. Elev (ft) | 2353.73 | Reach Len. (ft) | 6.67 | 7.62 | 7.45 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 40.78 | |
| E.G. Slope (ft/ft) | 0.029904 | Area (sq ft) | | 40.78 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 18.01 | Top Width (ft) | | 18.01 | |
| Vel Total (ft/s) | 6.38 | Avg. Vel. (ft/s) | | 6.38 | |
| Max Chl Dpth (ft) | 2.77 | Hydr. Depth (ft) | | 2.26 | |
| Conv. Total (cfs) | 1503.5 | Conv. (cfs) | | 1503.5 | |
| Length Wtd. (ft) | 7.62 | Wetted Per. (ft) | | 21.18 | |
| Min Ch El (ft) | 2350.96 | Shear (lb/sq ft) | | 3.59 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 22.91 | |
| Frctn Loss (ft) | 0.23 | Cum Volume (acre-ft) | 0.00 | 10.21 | 0.01 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 0.00 | 3.68 | 0.01 |

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 23.38 | 31.17 | 10.35 | 3.31 | 6.10 | 3.98 | 0.55 | 3.13 |
| 2 | Chan | 31.17 | 35.67 | 40.22 | 6.89 | 4.58 | 15.47 | 1.53 | 5.84 |
| 3 | Chan | 35.67 | 40.18 | 78.08 | 10.22 | 4.54 | 30.03 | 2.27 | 7.64 |
| 4 | Chan | 40.18 | 44.68 | 78.67 | 10.27 | 4.55 | 30.26 | 2.28 | 7.66 |
| 5 | Chan | 44.68 | 49.18 | 41.87 | 6.87 | 4.58 | 16.10 | 1.53 | 6.10 |
| 6 | ROB | 49.18 | 54.03 | 10.71 | 3.20 | 4.93 | 4.12 | 0.66 | 3.35 |
| 7 | ROB | 54.03 | 58.88 | 0.11 | 0.10 | 0.76 | 0.04 | 0.14 | 1.13 |

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 31.17 | 35.67 | 41.53 | 8.52 | 6.05 | 15.97 | 1.89 | 4.87 |
| 2 | Chan | 35.67 | 40.18 | 87.11 | 11.85 | 4.54 | 33.50 | 2.63 | 7.35 |
| 3 | Chan | 40.18 | 44.68 | 87.66 | 11.90 | 4.55 | 33.71 | 2.64 | 7.36 |
| 4 | Chan | 44.68 | 49.18 | 43.71 | 8.50 | 6.05 | 16.81 | 1.89 | 5.14 |

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.69661

INPUT
Description: Blocked Obstruction at Parcel 216-14-004-X
Station Elevation Data num= 21

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2357.26 | 2.1 | 2357.12 | 5.47 | 2356.89 | 6.24 | 2356.74 | 10.54 | 2355.9 |
| 22.85 | 2353.58 | 27.09 | 2352.75 | 31.44 | 2351.92 | 34.68 | 2351.26 | 35.76 | 2351.04 |
| 36.29 | 2351.03 | 42.45 | 2350.67 | 45.53 | 2351.24 | 45.96 | 2351.32 | 48.77 | 2351.83 |
| 55 | 2353 | 55.06 | 2354.86 | 55.1 | 2355.96 | 56.22 | 2355.93 | 58.82 | 2355.88 |
| 67.28 | 2355.64 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 27.09 | .064 | 45.53 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 31.44 | 48.77 | 23.94 | 23.74 | 24.32 | .1 | .3 |

Blocked Obstructions num= 1

| Sta L | Sta R | Elev |
|---|---|---|
| 56.21 | 67.28 | 2355.934 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2353.78 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.69 | Wt. n-Val. | 0.064 | 0.064 | 0.061 |
| W.S. Elev (ft) | 2353.09 | Reach Len. (ft) | 23.94 | 23.74 | 24.32 |
| Crit W.S. (ft) | 2353.08 | Flow Area (sq ft) | 3.60 | 33.51 | 4.22 |
| E.G. Slope (ft/ft) | 0.036840 | Area (sq ft) | 3.60 | 33.51 | 4.22 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 12.50 | 232.58 | 14.92 |
| Top Width (ft) | 29.67 | Top Width (ft) | 6.10 | 17.33 | 6.23 |
| Vel Total (ft/s) | 6.29 | Avg. Vel. (ft/s) | 3.47 | 6.94 | 3.53 |
| Max Chl Dpth (ft) | 2.42 | Hydr. Depth (ft) | 0.59 | 1.93 | 0.68 |
| Conv. Total (cfs) | 1354.6 | Conv. (cfs) | 65.1 | 1211.7 | 77.7 |
| Length Wtd. (ft) | 23.78 | Wetted Per. (ft) | 6.21 | 17.53 | 6.43 |
| Min Ch El (ft) | 2350.67 | Shear (lb/sq ft) | 1.33 | 4.39 | 1.51 |
| Alpha | 1.12 | Stream Power (lb/ft s) | 4.63 | 30.51 | 5.34 |
| Frctn Loss (ft) | 0.44 | Cum Volume (acre-ft) | 1.27 | 8.91 | 1.64 |
| C & E Loss (ft) | 0.11 | Cum SA (acres) | 1.33 | 3.67 | 1.76 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2354.14 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.64 | Wt. n-Val. | | 0.064 | |
| W.S. Elev (ft) | 2353.50 | Reach Len. (ft) | 23.94 | 23.74 | 24.32 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 40.50 | |
| E.G. Slope (ft/ft) | 0.029784 | Area (sq ft) | | 40.50 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 17.33 | Top Width (ft) | | 17.33 | |
| Vel Total (ft/s) | 6.42 | Avg. Vel. (ft/s) | | 6.42 | |
| Max Chl Dpth (ft) | 2.83 | Hydr. Depth (ft) | | 2.34 | |
| Conv. Total (cfs) | 1506.5 | Conv. (cfs) | | 1506.5 | |
| Length Wtd. (ft) | 23.74 | Wetted Per. (ft) | | 20.78 | |
| Min Ch El (ft) | 2350.67 | Shear (lb/sq ft) | | 3.62 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 23.27 | |
| Frctn Loss (ft) | 0.43 | Cum Volume (acre-ft) | 0.00 | 10.21 | 0.01 |
| C & E Loss (ft) | 0.09 | Cum SA (acres) | 0.00 | 3.68 | 0.01 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 23.58 | 31.44 | 12.50 | 3.60 | 6.21 | 4.81 | 0.59 | 3.47 |
| 2 | Chan | 31.44 | 35.77 | 41.87 | 6.99 | 4.42 | 16.11 | 1.61 | 5.99 |
| 3 | Chan | 35.77 | 40.11 | 68.92 | 9.36 | 4.34 | 26.51 | 2.16 | 7.36 |
| 4 | Chan | 40.11 | 44.44 | 76.21 | 9.97 | 4.37 | 29.31 | 2.30 | 7.64 |
| 5 | Chan | 44.44 | 48.77 | 45.57 | 7.18 | 4.40 | 17.53 | 1.66 | 6.35 |
| 6 | ROB | 48.77 | 53.40 | 14.30 | 3.83 | 4.71 | 5.50 | 0.83 | 3.73 |
| 7 | ROB | 53.40 | 58.03 | 0.62 | 0.39 | 1.72 | 0.24 | 0.24 | 1.59 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 31.44 | 35.77 | 43.60 | 8.74 | 6.00 | 16.77 | 2.02 | 4.99 |
| 2 | Chan | 35.77 | 40.11 | 80.65 | 11.11 | 4.34 | 31.02 | 2.56 | 7.26 |
| 3 | Chan | 40.11 | 44.44 | 87.76 | 11.72 | 4.37 | 33.75 | 2.70 | 7.49 |
| 4 | Chan | 44.44 | 48.77 | 47.99 | 8.93 | 6.07 | 18.46 | 2.06 | 5.38 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.69212

```
INPUT
Description: Blocked Obstruction at Parcel 216-14-004-X
Station Elevation Data    num=      19
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
       0 2356.56    5.99 2355.97    6.14 2355.96   20.05 2353.07   24.99 2351.51
   26.99 2350.81   30.98 2349.45   34.08  2349.9   39.96  2350.7   40.04 2350.68
   42.05  2350.3   45.51 2351.11   48.39 2351.78    48.9 2351.88   48.99 2355.16
      49 2355.46   49.62 2355.46   62.88 2355.45   66.96  2355.4

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
       0    .061   30.98    .064   45.51    .061

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          26.99   45.51            17.19   17.54   18.08             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
************************
   49.62   66.962355.462

CROSS SECTION OUTPUT  Profile #PF 1
*************************************************************************************************
* E.G. Elev (ft)         * 2353.22  * Element                * Left OB * Channel * Right OB *
* Vel Head (ft)          *    0.31  * Wt. n-Val.             *  0.061  *  0.063  *   0.061  *
* W.S. Elev (ft)         * 2352.91  * Reach Len. (ft)        *  17.19  *  17.54  *   18.08  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)      *   6.60  *  49.12  *    4.78  *
* E.G. Slope (ft/ft)     *0.011235  * Area (sq ft)           *   6.60  *  49.12  *    4.78  *
* Q Total (cfs)          *  260.00  * Flow (cfs)             *  16.75  * 230.40  *   12.84  *
* Top Width (ft)         *   28.37  * Top Width (ft)         *   6.43  *  18.52  *    3.42  *
* Vel Total (ft/s)       *    4.30  * Avg. Vel. (ft/s)       *   2.54  *   4.69  *    2.69  *
* Max Chl Dpth (ft)      *    3.46  * Hydr. Depth (ft)       *   1.03  *   2.65  *    1.40  *
* Conv. Total (cfs)      *  2452.9  * Conv. (cfs)            *  158.1  * 2173.7  *   121.2  *
* Length Wtd. (ft)       *   17.53  * Wetted Per. (ft)       *   6.77  *  18.96  *    4.51  *
* Min Ch El (ft)         * 2349.45  * Shear (lb/sq ft)       *   0.68  *   1.82  *    0.74  *
* Alpha                  *    1.10  * Stream Power (lb/ft s) *   1.74  *   8.52  *    2.00  *
* Frctn Loss (ft)        *    0.15  * Cum Volume (acre-ft)   *   1.27  *   8.88  *    1.63  *
* C & E Loss (ft)        *    0.02  * Cum SA (acres)         *   1.32  *   3.66  *    1.75  *
*************************************************************************************************

Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT  Profile #PF 2
*************************************************************************************************
* E.G. Elev (ft)         * 2353.61  * Element                * Left OB * Channel * Right OB *
* Vel Head (ft)          *    0.34  * Wt. n-Val.             *        *  0.063  *          *
* W.S. Elev (ft)         * 2353.27  * Reach Len. (ft)        *  17.19  *  17.54  *   18.08  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)      *        *  55.88  *          *
* E.G. Slope (ft/ft)     *0.012385  * Area (sq ft)           *        *  55.88  *          *
* Q Total (cfs)          *  260.00  * Flow (cfs)             *        * 260.00  *          *
* Top Width (ft)         *   18.52  * Top Width (ft)         *        *  18.52  *          *
* Vel Total (ft/s)       *    4.65  * Avg. Vel. (ft/s)       *        *   4.65  *          *
* Max Chl Dpth (ft)      *    3.82  * Hydr. Depth (ft)       *        *   3.02  *          *
* Conv. Total (cfs)      *  2336.3  * Conv. (cfs)            *        * 2336.3  *          *
* Length Wtd. (ft)       *   17.54  * Wetted Per. (ft)       *        *  23.59  *          *
* Min Ch El (ft)         * 2349.45  * Shear (lb/sq ft)       *        *   1.83  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s) *        *   8.52  *          *
* Frctn Loss (ft)        *    0.17  * Cum Volume (acre-ft)   *   0.00  *  10.18  *    0.01  *
* C & E Loss (ft)        *    0.03  * Cum SA (acres)         *   0.00  *   3.67  *    0.01  *
*************************************************************************************************

Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) *  (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB      * 20.24     * 26.99     *    16.75 *     6.60 *     6.77 *     6.44 *     1.03 *     2.54 *
* 2        * Chan     * 26.99     * 31.62     *    66.04 *    13.27 *     4.86 *    25.40 *     2.87 *     4.98 *
* 3        * Chan     * 31.62     * 36.25     *    71.34 *    14.05 *     4.68 *    27.44 *     3.03 *     5.08 *
* 4        * Chan     * 36.25     * 40.88     *    49.20 *    11.25 *     4.68 *    18.92 *     2.43 *     4.37 *
* 5        * Chan     * 40.88     * 45.51     *    43.82 *    10.55 *     4.74 *    16.85 *     2.28 *     4.15 *
* 6        * ROB      * 45.51     * 50.87     *    12.84 *     4.78 *     4.51 *     4.94 *     1.40 *     2.69 *
*****************************************************************************************************************

Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 2
*****************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) *  (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan     * 26.99     * 31.62     *    64.26 *    14.96 *     7.33 *    24.72 *     3.23 *     4.29 *
* 2        * Chan     * 31.62     * 36.25     *    87.87 *    15.74 *     4.68 *    33.80 *     3.40 *     5.58 *
* 3        * Chan     * 36.25     * 40.88     *    63.33 *    12.94 *     4.68 *    24.36 *     2.79 *     4.89 *
* 4        * Chan     * 40.88     * 45.51     *    44.53 *    12.24 *     6.91 *    17.13 *     2.64 *     3.64 *
*****************************************************************************************************************

Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: Ocotillo Wash 1
REACH: Tributary-2.1      RS: 0.68880

INPUT
Description: Blocked Obstruction at Parcel 216-14-004-X
Station Elevation Data    num=      60
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
       0 2356.07   14.49 2355.55   19.67 2355.18   20.95 2354.93   29.93 2352.95
   33.73  2351.3   36.63 2350.05   39.55 2348.89   49.74 2350.11   51.44 2350.09
   52.61 2350.07   52.62 2350.07   55.89 2351.04    55.9 2351.19      56 2355.11
   56.52 2355.11   56.95 2355.12   57.41 2355.13   57.99 2355.13   59.38 2355.15
   66.37 2355.18   67.76 2355.19   69.65 2355.21    70.3 2355.22   71.22 2355.22
```

```
   71.59 2355.23   72.64 2355.24   73.41 2355.24   85.84 2355.16   86.96 2355.16
   88.04 2355.17   89.91 2355.17    97.7 2355.09  108.86  2355.4  117.19 2356.33
   119.7 2356.64  121.69 2356.83  121.74 2357.72  121.81 2358.62  130.96 2358.85
  134.25 2358.92   136.6 2358.95  138.44 2358.97  140.01 2358.96  142.84 2358.96
  144.01 2358.95  146.6 2358.95  147.88 2358.94  149.26 2358.94   150.3 2358.93
   150.5 2358.93  163.36 2359.09  166.07 2359.09  167.18 2359.08  170.25 2359.08
   172.1  2358.9  191.97 2358.36  198.78 2357.97  199.67 2357.87  203.09 2357.37

Manning's n Values          num=        3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
       0    .061   39.55    .064   52.62    .061

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          36.63   55.89             63.26   61.39   72.33            .1       .3
Blocked Obstructions      num=        1
   Sta L   Sta R    Elev
************************
   56.52  195.262358.171

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************************
* E.G. Elev (ft)          * 2353.05  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.24  * Wt. n-Val.              *   0.061  *   0.063  *   0.061  *
* W.S. Elev (ft)          * 2352.81  * Reach Len. (ft)         *   63.26  *   61.39  *   72.33  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *    8.79  *   58.59  *    0.05  *
* E.G. Slope (ft/ft)      *0.006996  * Area (sq ft)            *    8.79  *   58.59  *    0.05  *
* Q Total (cfs)           *  260.00  * Flow (cfs)              *   20.96  *  239.04  *    0.01  *
* Top Width (ft)          *   25.68  * Top Width (ft)           *    6.37  *   19.26  *    0.05  *
* Vel Total (ft/s)        *    3.86  * Avg. Vel. (ft/s)         *    2.39  *    4.08  *    0.19  *
* Max Chl Dpth (ft)       *    3.92  * Hydr. Depth (ft)         *    1.38  *    3.04  *    0.98  *
* Conv. Total (cfs)       *  3108.6  * Conv. (cfs)              *   250.5  *  2857.9  *     0.1  *
* Length Wtd. (ft)        *   61.86  * Wetted Per. (ft)         *    6.94  *   19.70  *    1.77  *
* Min Ch El (ft)          * 2348.89  * Shear (lb/sq ft)         *    0.55  *    1.30  *    0.01  *
* Alpha                   *    1.06  * Stream Power (lb/ft s)    *    1.32  *    5.30  *    0.00  *
* Frctn Loss (ft)         *    0.88  * Cum Volume (acre-ft)      *    1.26  *    8.86  *    1.63  *
* C & E Loss (ft)         *    0.05  * Cum SA (acres)            *    1.32  *    3.66  *    1.75  *
*****************************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************************
* E.G. Elev (ft)          * 2353.41  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.24  * Wt. n-Val.              *         *   0.063  *         *
* W.S. Elev (ft)          * 2353.17  * Reach Len. (ft)         *   63.26  *   61.39  *   72.33  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *         *   65.62  *         *
* E.G. Slope (ft/ft)      *0.007672  * Area (sq ft)            *         *   65.62  *         *
* Q Total (cfs)           *  260.00  * Flow (cfs)              *         *  260.00  *         *
* Top Width (ft)          *   19.26  * Top Width (ft)           *         *   19.26  *         *
* Vel Total (ft/s)        *    3.96  * Avg. Vel. (ft/s)         *         *    3.96  *         *
* Max Chl Dpth (ft)       *    4.28  * Hydr. Depth (ft)         *         *    3.41  *         *
* Conv. Total (cfs)       *  2968.3  * Conv. (cfs)              *         *  2968.3  *         *
* Length Wtd. (ft)        *   61.39  * Wetted Per. (ft)         *         *   24.95  *         *
* Min Ch El (ft)          * 2348.89  * Shear (lb/sq ft)         *         *    1.26  *         *
* Alpha                   *    1.00  * Stream Power (lb/ft s)    *         *    4.99  *         *
* Frctn Loss (ft)         *    0.99  * Cum Volume (acre-ft)      *    0.00  *   10.16  *    0.01  *
* C & E Loss (ft)         *    0.06  * Cum SA (acres)            *    0.00  *    3.66  *    0.01  *
*****************************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB       * 27.47     * 36.63     *    20.95 *    8.79 *    6.94 *    8.06 *     1.38 *     2.38 *
* 2        * Chan      * 36.63     * 41.45     *    75.19 *   16.94 *    5.05 *   28.92 *     3.52 *     4.44 *
* 3        * Chan      * 41.45     * 46.26     *    70.70 *   16.37 *    4.85 *   27.19 *     3.40 *     4.32 *
* 4        * Chan      * 46.26     * 51.08     *    52.68 *   13.71 *    4.84 *   20.26 *     2.85 *     3.84 *
* 5        * Chan      * 51.08     * 55.89     *    40.46 *   11.56 *    4.96 *   15.56 *     2.40 *     3.50 *
* 6        * ROB       * 55.89     * 92.69     *     0.01 *    0.05 *    1.77 *    0.00 *     0.98 *     0.19 *
*****************************************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 2
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 36.63     * 41.45     *    70.09 *   18.70 *    8.17 *   26.96 *     3.88 *     3.75 *
* 2        * Chan      * 41.45     * 46.26     *    83.49 *   18.13 *    4.85 *   32.11 *     3.76 *     4.61 *
* 3        * Chan      * 46.26     * 51.08     *    64.18 *   15.47 *    4.84 *   24.68 *     3.21 *     4.15 *
* 4        * Chan      * 51.08     * 55.89     *    42.24 *   13.32 *    7.09 *   16.25 *     2.77 *     3.17 *
*****************************************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION
```

```
RIVER: Ocotillo Wash 1
REACH: Tributary-2.1      RS: 0.68800

INPUT
Description: Blocked Obstruction at Parcel 216-14-004-X
Station Elevation Data    num=      33
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
       0 2355.73   14.63 2355.12    16.9 2354.95   26.12 2353.12   26.92 2352.95
   27.98 2352.49    31.7 2350.74   33.51 2349.88   35.91 2348.79   39.16 2349.16
    46.4 2350.07   47.77  2350.1   50.34 2350.05   52.12 2350.52   52.98 2350.57
   53.46  2350.6   53.95 2350.66   54.49 2350.68   54.61 2350.69   55.79 2350.75
   58.05 2350.86   58.84 2350.89   59.05 2353.57   59.16 2355.11   60.66 2355.13
   63.61 2355.15   64.46 2355.16   65.84 2355.17   67.88 2355.19   68.74  2355.2
   71.24 2355.22   73.16 2355.23   78.24  2355.2

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
       0    .061   35.91    .064   54.61    .061

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          33.51   52.12             3.98    20.9   28.11             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
************************
   63.61   78.24  2355.2

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)         * 2352.12  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.72  * Wt. n-Val.              *   0.061  *   0.064  *   0.062  *
* W.S. Elev (ft)         * 2351.41  * Reach Len. (ft)         *    3.98  *   20.90  *   28.11  *
* Crit W.S. (ft)         * 2351.41  * Flow Area (sq ft)       *    2.46  *   33.06  *    4.60  *
* E.G. Slope (ft/ft)     *0.043451  * Area (sq ft)            *    2.46  *   33.06  *    4.60  *
* Q Total (cfs)          *  260.00  * Flow (cfs)              *    9.72  *  233.13  *   17.16  *
* Top Width (ft)         *   28.60  * Top Width (ft)           *    3.23  *   18.61  *    6.76  *
* Vel Total (ft/s)       *    6.48  * Avg. Vel. (ft/s)         *    3.96  *    7.05  *    3.73  *
* Max Chl Dpth (ft)      *    2.62  * Hydr. Depth (ft)         *    0.76  *    1.78  *    0.68  *
* Conv. Total (cfs)      *  1247.3  * Conv. (cfs)              *    46.6  *  1118.4  *    82.3  *
* Length Wtd. (ft)       *   20.68  * Wetted Per. (ft)         *    3.57  *   18.99  *    7.25  *
* Min Ch El (ft)         * 2348.79  * Shear (lb/sq ft)         *    1.87  *    4.72  *    1.72  *
* Alpha                  *    1.10  * Stream Power (lb/ft s)   *    7.39  *   33.31  *    6.42  *
* Frctn Loss (ft)        *    0.97  * Cum Volume (acre-ft)     *    1.26  *    8.80  *    1.63  *
* C & E Loss (ft)        *    0.08  * Cum SA (acres)           *    1.32  *    3.63  *    1.75  *
*****************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program selected the water surface that had the least amount of error between computed and
         assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************
* E.G. Elev (ft)         * 2352.37  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.85  * Wt. n-Val.              *          *   0.063  *          *
* W.S. Elev (ft)         * 2351.51  * Reach Len. (ft)         *    3.98  *   20.90  *   28.11  *
* Crit W.S. (ft)         * 2351.45  * Flow Area (sq ft)       *          *   35.07  *          *
* E.G. Slope (ft/ft)     *0.052511  * Area (sq ft)            *          *   35.07  *          *
* Q Total (cfs)          *  260.00  * Flow (cfs)              *          *  260.00  *          *
* Top Width (ft)         *   18.61  * Top Width (ft)           *          *   18.61  *          *
* Vel Total (ft/s)       *    7.41  * Avg. Vel. (ft/s)         *          *    7.41  *          *
* Max Chl Dpth (ft)      *    2.72  * Hydr. Depth (ft)         *          *    1.88  *          *
* Conv. Total (cfs)      *  1134.6  * Conv. (cfs)              *          *  1134.6  *          *
* Length Wtd. (ft)       *   20.90  * Wetted Per. (ft)         *          *   21.61  *          *
* Min Ch El (ft)         * 2348.79  * Shear (lb/sq ft)         *          *    5.32  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s)   *          *   39.44  *          *
* Frctn Loss (ft)        *    1.21  * Cum Volume (acre-ft)     *    0.00  *   10.08  *    0.01  *
* C & E Loss (ft)        *    0.08  * Cum SA (acres)           *    0.00  *    3.63  *    0.01  *
*****************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) *  (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB      * 25.13     * 33.51     *     9.72 *     2.46 *     3.57 *     3.74 *     0.76 *     3.96 *
* 2        * Chan     * 33.51     * 38.16     *    85.35 *    10.57 *     4.90 *    32.83 *     2.27 *     8.07 *
* 3        * Chan     * 38.16     * 42.82     *    73.43 *     9.67 *     4.69 *    28.24 *     2.08 *     7.60 *
* 4        * Chan     * 42.82     * 47.47     *    43.03 *     7.01 *     4.68 *    16.55 *     1.51 *     6.14 *
* 5        * Chan     * 47.47     * 52.12     *    31.33 *     5.81 *     4.71 *    12.05 *     1.25 *     5.39 *
* 6        * ROB      * 52.12     * 58.65     *    17.00 *     4.49 *     6.54 *     6.54 *     0.69 *     3.79 *
* 7        * ROB      * 58.65     * 65.18     *     0.16 *     0.11 *     0.71 *     0.06 *     0.47 *     1.42 *
*****************************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program selected the water surface that had the least amount of error between computed and
         assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 2
*****************************************************************************************************************
```

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 33.51 | 38.16 | 87.45 | 11.08 | 6.54 | 33.63 | 2.38 | 7.90 |
| 2 | Chan | 38.16 | 42.82 | 86.25 | 10.17 | 4.69 | 33.17 | 2.19 | 8.48 |
| 3 | Chan | 42.82 | 47.47 | 52.12 | 7.51 | 4.68 | 20.05 | 1.61 | 6.94 |
| 4 | Chan | 47.47 | 52.12 | 34.18 | 6.31 | 5.71 | 13.15 | 1.36 | 5.41 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.68404

INPUT
Description: Blocked Obstruction at Parcel 216-14-004-X
Station Elevation Data num= 33

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2355.23 | 2.49 | 2355.05 | 7.45 | 2354.8 | 8.64 | 2354.74 | 10.19 | 2354.74 |
| 16.36 | 2353.62 | 19.8 | 2352.95 | 24.74 | 2350.35 | 26.24 | 2349.44 | 27.22 | 2348.89 |
| 28.02 | 2348.4 | 29.5 | 2348.39 | 38.62 | 2349.5 | 39.91 | 2349.6 | 40.76 | 2349.52 |
| 47.11 | 2349.79 | 51.48 | 2349.74 | 52.61 | 2349.66 | 57.07 | 2349.55 | 60.25 | 2349.42 |
| 61.68 | 2349.48 | 62.32 | 2349.5 | 62.58 | 2349.51 | 66.34 | 2349.89 | 75.21 | 2350.32 |
| 78.96 | 2350.11 | 79.04 | 2350.11 | 79.47 | 2350.31 | 80.76 | 2350.86 | 80.88 | 2351.11 |
| 80.97 | 2355.3 | 93.05 | 2355.33 | 93.75 | 2355.32 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 28.02 | .064 | 62.32 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 27.22 | 66.34 | 56.21 | 36.3 | 33.38 | .1 | .3 |

Blocked Obstructions num= 1

| Sta L | Sta R | Elev |
|---|---|---|
| 78.96 | 93.752 | 355.323 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2350.95 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.46 | Wt. n-Val. | 0.061 | 0.064 | 0.061 |
| W.S. Elev (ft) | 2350.49 | Reach Len. (ft) | 56.21 | 36.30 | 33.38 |
| Crit W.S. (ft) | 2350.49 | Flow Area (sq ft) | 2.22 | 42.69 | 4.50 |
| E.G. Slope (ft/ft) | 0.051210 | Area (sq ft) | 2.22 | 42.69 | 4.50 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 9.62 | 238.17 | 12.21 |
| Top Width (ft) | 54.49 | Top Width (ft) | 2.75 | 39.12 | 12.62 |
| Vel Total (ft/s) | 5.26 | Avg. Vel. (ft/s) | 4.33 | 5.58 | 2.71 |
| Max Chl Dpth (ft) | 2.10 | Hydr. Depth (ft) | 0.81 | 1.09 | 0.36 |
| Conv. Total (cfs) | 1148.9 | Conv. (cfs) | 42.5 | 1052.5 | 54.0 |
| Length Wtd. (ft) | 37.18 | Wetted Per. (ft) | 3.19 | 39.37 | 13.02 |
| Min Ch El (ft) | 2348.39 | Shear (lb/sq ft) | 2.23 | 3.47 | 1.10 |
| Alpha | 1.07 | Stream Power (lb/ft s) | 9.65 | 19.34 | 3.00 |
| Frctn Loss (ft) | 0.14 | Cum Volume (acre-ft) | 1.26 | 8.78 | 1.63 |
| C & E Loss (ft) | 0.13 | Cum SA (acres) | 1.31 | 3.62 | 1.74 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2351.07 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.57 | Wt. n-Val. | | 0.063 | |
| W.S. Elev (ft) | 2350.50 | Reach Len. (ft) | 56.21 | 36.30 | 33.38 |
| Crit W.S. (ft) | 2350.50 | Flow Area (sq ft) | | 42.86 | |
| E.G. Slope (ft/ft) | 0.064499 | Area (sq ft) | | 42.86 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 39.12 | Top Width (ft) | | 39.12 | |
| Vel Total (ft/s) | 6.07 | Avg. Vel. (ft/s) | | 6.07 | |
| Max Chl Dpth (ft) | 2.11 | Hydr. Depth (ft) | | 1.10 | |
| Conv. Total (cfs) | 1023.8 | Conv. (cfs) | | 1023.8 | |
| Length Wtd. (ft) | 36.30 | Wetted Per. (ft) | | 41.58 | |
| Min Ch El (ft) | 2348.39 | Shear (lb/sq ft) | | 4.15 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 25.18 | |
| Frctn Loss (ft) | 0.15 | Cum Volume (acre-ft) | 0.00 | 10.07 | 0.01 |
| C & E Loss (ft) | 0.16 | Cum SA (acres) | 0.00 | 3.62 | 0.01 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 20.42 | 27.22 | 9.62 | 2.22 | 3.19 | 3.70 | 0.81 | 4.33 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2 | Chan | 27.22 | 37.00 | 120.10 | 16.94 | 9.97 | 46.19 | 1.73 | 7.09 |
| 3 | Chan | 37.00 | 46.78 | 41.16 | 8.88 | 9.81 | 15.83 | 0.91 | 4.64 |
| 4 | Chan | 46.78 | 56.56 | 33.28 | 7.81 | 9.78 | 12.80 | 0.80 | 4.26 |
| 5 | Chan | 56.56 | 66.34 | 43.63 | 9.07 | 9.80 | 16.78 | 0.93 | 4.81 |
| 6 | ROB | 66.34 | 73.19 | 9.13 | 3.00 | 6.86 | 3.51 | 0.44 | 3.04 |
| 7 | ROB | 73.19 | 80.05 | 3.08 | 1.50 | 6.16 | 1.18 | 0.26 | 2.06 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 27.22 | 37.00 | 128.77 | 16.99 | 11.58 | 49.53 | 1.74 | 7.58 |
| 2 | Chan | 37.00 | 46.78 | 46.25 | 8.92 | 9.81 | 17.79 | 0.91 | 5.19 |
| 3 | Chan | 46.78 | 56.56 | 37.43 | 7.85 | 9.78 | 14.40 | 0.80 | 4.77 |
| 4 | Chan | 56.56 | 66.34 | 47.55 | 9.11 | 10.41 | 18.29 | 0.93 | 5.22 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.67717

INPUT
Description: Blocked Obstruction at Parcel 216-14-004-X
Station Elevation Data num= 68

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2353.96 | 14.01 | 2353.18 | 16.83 | 2353.1 | 21.49 | 2348.64 | 21.81 | 2348.35 |
| 27.9 | 2348.15 | 28.63 | 2348.16 | 30.08 | 2347.98 | 33.42 | 2347.59 | 36.39 | 2347.04 |
| 39.44 | 2347.72 | 40.05 | 2347.86 | 41.9 | 2347.8 | 44.53 | 2347.77 | 48.1 | 2347.46 |
| 49.04 | 2347.41 | 49.74 | 2347.39 | 50.63 | 2347.27 | 53.81 | 2347.1 | 58.76 | 2347.15 |
| 60.29 | 2347.34 | 68.37 | 2347.84 | 68.74 | 2347.86 | 80.68 | 2348.19 | 82.44 | 2348.15 |
| 96.6 | 2348.13 | 102.77 | 2349.36 | 103.6 | 2349.5 | 104.07 | 2349.76 | 104.63 | 2349.93 |
| 112.98 | 2353.42 | 113.82 | 2353.38 | 114.9 | 2353.34 | 116.38 | 2353.41 | 118.37 | 2353.94 |
| 118.69 | 2354.13 | 119.25 | 2354.25 | 119.33 | 2355.21 | 126.49 | 2354.97 | 131.58 | 2355.01 |
| 140.19 | 2355.46 | 141.63 | 2355.61 | 143 | 2355.62 | 143.06 | 2355.61 | 144.61 | 2355.56 |
| 145.48 | 2355.52 | 147.52 | 2355.44 | 153.3 | 2355.26 | 157.61 | 2355.01 | 161.44 | 2354.98 |
| 162.94 | 2355 | 163.87 | 2355.21 | 164.43 | 2355.29 | 166.72 | 2355.55 | 170.04 | 2355.57 |
| 177.93 | 2355.78 | 180.72 | 2355.8 | 189.31 | 2356.03 | 189.37 | 2356.03 | 189.94 | 2355.99 |
| 190.82 | 2355.93 | 191.05 | 2355.9 | 194.14 | 2355.97 | 196.17 | 2355.96 | 198.94 | 2356.01 |
| 199.81 | 2356.04 | 202.64 | 2356.03 | 229.33 | 2355.3 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 36.39 | .064 | 96.6 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 28.63 | 96.6 | 187.36 | 226.26 | 258.27 | .1 | .3 |

Blocked Obstructions num= 1

| Sta L | Sta R | Elev |
|---|---|---|
| 113.82 | 200.15 | 2356.042 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2350.15 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.03 | Wt. n-Val. | 0.061 | 0.064 | 0.061 |
| W.S. Elev (ft) | 2350.12 | Reach Len. (ft) | 187.36 | 226.26 | 258.27 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 14.51 | 161.61 | 9.51 |
| E.G. Slope (ft/ft) | 0.001226 | Area (sq ft) | 14.51 | 161.61 | 9.51 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 16.53 | 234.90 | 8.56 |
| Top Width (ft) | 85.15 | Top Width (ft) | 8.69 | 67.97 | 8.49 |
| Vel Total (ft/s) | 1.40 | Avg. Vel. (ft/s) | 1.14 | 1.45 | 0.90 |
| Max Chl Dpth (ft) | 3.08 | Hydr. Depth (ft) | 1.67 | 2.38 | 1.12 |
| Conv. Total (cfs) | 7425.3 | Conv. (cfs) | 472.1 | 6708.6 | 244.6 |
| Length Wtd. (ft) | 226.09 | Wetted Per. (ft) | 9.40 | 68.21 | 8.76 |
| Min Ch El (ft) | 2347.04 | Shear (lb/sq ft) | 0.12 | 0.18 | 0.08 |
| Alpha | 1.03 | Stream Power (lb/ft s) | 0.13 | 0.26 | 0.07 |
| Frctn Loss (ft) | 0.75 | Cum Volume (acre-ft) | 1.25 | 8.69 | 1.62 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 1.31 | 3.57 | 1.73 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2350.32 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.04 | Wt. n-Val. | | 0.064 | |
| W.S. Elev (ft) | 2350.29 | Reach Len. (ft) | 187.36 | 226.26 | 258.27 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 172.66 | |
| E.G. Slope (ft/ft) | 0.001304 | Area (sq ft) | | 172.66 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Top Width (ft) | 67.97 | Top Width (ft) | | | 67.97 | | |
| Vel Total (ft/s) | 1.51 | Avg. Vel. (ft/s) | | | 1.51 | | |
| Max Chl Dpth (ft) | 3.25 | Hydr. Depth (ft) | | | 2.54 | | |
| Conv. Total (cfs) | 7200.2 | Conv. (cfs) | | | 7200.2 | | |
| Length Wtd. (ft) | 226.26 | Wetted Per. (ft) | | | 72.49 | | |
| Min Ch El (ft) | 2347.04 | Shear (lb/sq ft) | | | 0.19 | | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | | 0.29 | | |
| Frctn Loss (ft) | 0.69 | Cum Volume (acre-ft) | 0.00 | | 9.98 | 0.01 | |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.00 | | 3.58 | 0.01 | |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 14.32 | 21.47 | 0.58 | 1.12 | 2.12 | 0.22 | 0.73 | 0.52 |
| 2 | LOB | 21.47 | 28.63 | 15.95 | 13.39 | 7.28 | 6.13 | 1.87 | 1.19 |
| 3 | Chan | 28.63 | 45.62 | 62.58 | 41.92 | 17.17 | 24.07 | 2.47 | 1.49 |
| 4 | Chan | 45.62 | 62.62 | 77.48 | 48.13 | 17.03 | 29.80 | 2.83 | 1.61 |
| 5 | Chan | 62.62 | 79.61 | 52.21 | 37.96 | 17.01 | 20.08 | 2.23 | 1.38 |
| 6 | Chan | 79.61 | 96.60 | 42.63 | 33.60 | 16.99 | 16.40 | 1.98 | 1.27 |
| 7 | ROB | 96.60 | 129.78 | 8.57 | 9.51 | 8.76 | 3.29 | 1.12 | 0.90 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 28.63 | 45.62 | 66.48 | 44.68 | 19.30 | 25.57 | 2.63 | 1.49 |
| 2 | Chan | 45.62 | 62.62 | 87.24 | 50.89 | 17.03 | 33.55 | 3.00 | 1.71 |
| 3 | Chan | 62.62 | 79.61 | 60.21 | 40.72 | 17.01 | 23.16 | 2.40 | 1.48 |
| 4 | Chan | 79.61 | 96.60 | 46.07 | 36.36 | 19.15 | 17.72 | 2.14 | 1.27 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.67671

INPUT
Description:
Station Elevation Data num= 49

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2354.7 | 1.99 | 2354.59 | 4.55 | 2354.56 | 4.93 | 2354.54 | 5.01 | 2354.54 |
| 6.48 | 2354.54 | 9.79 | 2354.53 | 10.13 | 2354.47 | 11.22 | 2354.53 | 13.64 | 2354.08 |
| 18.72 | 2353.16 | 18.77 | 2353.05 | 19.93 | 2352.81 | 21.1 | 2352.48 | 24.27 | 2349.32 |
| 25.04 | 2347.98 | 25.46 | 2347.97 | 28.54 | 2347.89 | 33.94 | 2347.64 | 38.33 | 2347.64 |
| 41.08 | 2347.57 | 45.69 | 2347.9 | 50.28 | 2348.13 | 52.85 | 2348.18 | 56.7 | 2348.17 |
| 60.44 | 2348.26 | 65.64 | 2348.21 | 69.92 | 2348.11 | 77.92 | 2348.03 | 80.05 | 2348.41 |
| 82.08 | 2348.78 | 84.66 | 2349.27 | 92.36 | 2352.75 | 95.25 | 2353.95 | 95.62 | 2353.94 |
| 96.88 | 2354 | 97.75 | 2354.04 | 99.63 | 2354 | 100.31 | 2354.47 | 101.49 | 2354.74 |
| 102.1 | 2354.78 | 102.74 | 2354.82 | 110.96 | 2354.85 | 114.73 | 2354.83 | 115.38 | 2354.85 |
| 115.69 | 2354.85 | 115.79 | 2354.86 | 117.14 | 2354.94 | 120.21 | 2355.01 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 25.04 | .064 | 80.05 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 25.04 | 77.92 | 34.43 | 37.38 | 47.46 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2349.39 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.25 | Wt. n-Val. | 0.061 | 0.064 | 0.063 |
| W.S. Elev (ft) | 2349.14 | Reach Len. (ft) | 34.43 | 37.38 | 47.46 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 0.38 | 61.10 | 3.39 |
| E.G. Slope (ft/ft) | 0.025585 | Area (sq ft) | 0.38 | 61.10 | 3.39 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 0.65 | 249.73 | 9.61 |
| Top Width (ft) | 59.58 | Top Width (ft) | 0.66 | 52.88 | 6.04 |
| Vel Total (ft/s) | 4.01 | Avg. Vel. (ft/s) | 1.70 | 4.09 | 2.84 |
| Max Chl Dpth (ft) | 1.57 | Hydr. Depth (ft) | 0.58 | 1.16 | 0.56 |
| Conv. Total (cfs) | 1625.5 | Conv. (cfs) | 4.1 | 1561.3 | 60.1 |
| Length Wtd. (ft) | 36.97 | Wetted Per. (ft) | 1.33 | 52.91 | 6.14 |
| Min Ch El (ft) | 2347.57 | Shear (lb/sq ft) | 0.46 | 1.84 | 0.88 |
| Alpha | 1.02 | Stream Power (lb/ft s) | 0.78 | 7.54 | 2.50 |
| Frctn Loss (ft) | 1.02 | Cum Volume (acre-ft) | 1.21 | 8.12 | 1.58 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 1.29 | 3.26 | 1.69 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2349.62 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.18 | Wt. n-Val. | | 0.064 | |
| W.S. Elev (ft) | 2349.44 | Reach Len. (ft) | 34.43 | 37.38 | 47.46 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 77.27 | |
| E.G. Slope (ft/ft) | 0.013601 | Area (sq ft) | | 77.27 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 52.88 | Top Width (ft) | | 52.88 | |
| Vel Total (ft/s) | 3.36 | Avg. Vel. (ft/s) | | 3.36 | |
| Max Chl Dpth (ft) | 1.87 | Hydr. Depth (ft) | | 1.46 | |

| | | | | | |
|---|---|---|---|---|---|
| Conv. Total (cfs) | 2229.4 | Conv. (cfs) | | 2229.4 | |
| Length Wtd. (ft) | 37.38 | Wetted Per. (ft) | | 55.78 | |
| Min Ch El (ft) | 2347.57 | Shear (lb/sq ft) | | 1.18 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 3.96 | |
| Frctn Loss (ft) | 0.57 | Cum Volume (acre-ft) | 0.00 | 9.33 | 0.01 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.00 | 3.26 | 0.01 |

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 18.78 | 25.04 | 0.65 | 0.38 | 1.33 | 0.25 | 0.58 | 1.70 |
| 2 | Chan | 25.04 | 38.26 | 81.60 | 18.08 | 13.23 | 31.39 | 1.37 | 4.51 |
| 3 | Chan | 38.26 | 51.48 | 74.49 | 17.13 | 13.24 | 28.65 | 1.30 | 4.35 |
| 4 | Chan | 51.48 | 64.70 | 42.97 | 12.30 | 13.22 | 16.53 | 0.93 | 3.49 |
| 5 | Chan | 64.70 | 77.92 | 50.67 | 13.58 | 13.22 | 19.49 | 1.03 | 3.73 |
| 6 | ROB | 77.92 | 88.49 | 9.61 | 3.39 | 6.14 | 3.70 | 0.56 | 2.84 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 25.04 | 38.26 | 78.08 | 22.13 | 14.69 | 30.03 | 1.67 | 3.53 |
| 2 | Chan | 38.26 | 51.48 | 77.74 | 21.17 | 13.24 | 29.90 | 1.60 | 3.67 |
| 3 | Chan | 51.48 | 64.70 | 50.58 | 16.35 | 13.22 | 19.45 | 1.24 | 3.09 |
| 4 | Chan | 64.70 | 77.92 | 53.59 | 17.63 | 14.63 | 20.61 | 1.33 | 3.04 |

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.66963

INPUT
Description:
Station Elevation Data num= 37

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2354.21 | 6.18 | 2353.81 | 7.39 | 2352.93 | 8.57 | 2352.08 | 12.75 | 2348.58 |
| 16.93 | 2348.65 | 19.85 | 2348.45 | 20.38 | 2348.44 | 20.63 | 2348.4 | 27.73 | 2347.03 |
| 30.82 | 2347.77 | 31.1 | 2347.84 | 40.17 | 2347.31 | 41.06 | 2347.25 | 41.17 | 2347.25 |
| 41.31 | 2347.24 | 46.11 | 2346.84 | 48.76 | 2346.61 | 49.58 | 2346.69 | 57.52 | 2347.55 |
| 59.12 | 2347.56 | 67.8 | 2347.56 | 74.38 | 2347.53 | 75.64 | 2347.51 | 77.55 | 2347.54 |
| 84.63 | 2347.34 | 87.54 | 2347.08 | 89.35 | 2346.99 | 91.04 | 2346.9 | 96.58 | 2346.47 |
| 98.74 | 2346.84 | 102.61 | 2347.48 | 109.73 | 2348.53 | 119.95 | 2350.99 | 126.8 | 2352.59 |
| 127.35 | 2352.59 | 132.96 | 2352.67 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 27.73 | .064 | 98.74 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 59.12 | 102.61 | 17.97 | 26.71 | 31.61 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2348.36 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.21 | Wt. n-Val. | 0.064 | 0.064 | 0.061 |
| W.S. Elev (ft) | 2348.16 | Reach Len. (ft) | 17.97 | 26.71 | 31.61 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 31.57 | 38.34 | 1.55 |
| E.G. Slope (ft/ft) | 0.029880 | Area (sq ft) | 31.57 | 38.34 | 1.55 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 114.77 | 142.09 | 3.14 |
| Top Width (ft) | 85.30 | Top Width (ft) | 37.23 | 43.49 | 4.58 |
| Vel Total (ft/s) | 3.64 | Avg. Vel. (ft/s) | 3.64 | 3.71 | 2.03 |
| Max Chl Dpth (ft) | 1.69 | Hydr. Depth (ft) | 0.85 | 0.88 | 0.34 |
| Conv. Total (cfs) | 1504.1 | Conv. (cfs) | 663.9 | 822.0 | 18.2 |
| Length Wtd. (ft) | 22.55 | Wetted Per. (ft) | 37.52 | 43.61 | 4.63 |
| Min Ch El (ft) | 2346.47 | Shear (lb/sq ft) | 1.57 | 1.64 | 0.62 |
| Alpha | 1.01 | Stream Power (lb/ft s) | 5.71 | 6.08 | 1.27 |
| Frctn Loss (ft) | 0.34 | Cum Volume (acre-ft) | 1.20 | 8.07 | 1.58 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 1.27 | 3.22 | 1.68 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2349.04 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.24 | Wt. n-Val. | | 0.064 | |
| W.S. Elev (ft) | 2348.80 | Reach Len. (ft) | 17.97 | 26.71 | 31.61 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 66.54 | |
| E.G. Slope (ft/ft) | 0.017193 | Area (sq ft) | | 66.54 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 43.49 | Top Width (ft) | | 43.49 | |
| Vel Total (ft/s) | 3.91 | Avg. Vel. (ft/s) | | 3.91 | |
| Max Chl Dpth (ft) | 2.33 | Hydr. Depth (ft) | | 1.53 | |
| Conv. Total (cfs) | 1982.9 | Conv. (cfs) | | 1982.9 | |
| Length Wtd. (ft) | 26.71 | Wetted Per. (ft) | | 46.18 | |
| Min Ch El (ft) | 2346.47 | Shear (lb/sq ft) | | 1.55 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 6.04 | |
| Frctn Loss (ft) | 0.52 | Cum Volume (acre-ft) | 0.00 | 9.27 | 0.01 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.00 | 3.22 | 0.01 |

Profile #PF 1

| Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 14.78 | 29.56 | 15.05 | 4.95 | 7.83 | 5.79 | 0.65 | 3.04 |
| 2 | LOB | 29.56 | 44.34 | 31.09 | 10.21 | 14.85 | 11.96 | 0.69 | 3.05 |
| 3 | LOB | 44.34 | 59.12 | 68.63 | 16.41 | 14.85 | 26.40 | 1.11 | 4.18 |
| 4 | Chan | 59.12 | 69.99 | 17.30 | 6.49 | 10.87 | 6.65 | 0.60 | 2.67 |
| 5 | Chan | 69.99 | 80.87 | 19.18 | 6.91 | 10.87 | 7.38 | 0.64 | 2.78 |
| 6 | Chan | 80.87 | 91.74 | 39.11 | 10.59 | 10.89 | 15.04 | 0.97 | 3.69 |
| 7 | Chan | 91.74 | 102.61 | 66.50 | 14.35 | 10.97 | 25.58 | 1.32 | 4.63 |
| 8 | ROB | 102.61 | 110.20 | 3.14 | 1.55 | 4.63 | 1.21 | 0.34 | 2.03 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 59.12 | 69.99 | 43.12 | 13.54 | 12.12 | 16.59 | 1.25 | 3.18 |
| 2 | Chan | 69.99 | 80.87 | 48.74 | 13.96 | 10.87 | 18.75 | 1.28 | 3.49 |
| 3 | Chan | 80.87 | 91.74 | 71.98 | 17.65 | 10.89 | 27.68 | 1.62 | 4.08 |
| 4 | Chan | 91.74 | 102.61 | 96.16 | 21.40 | 12.30 | 36.98 | 1.97 | 4.49 |

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.66458

INPUT
Description:
Station Elevation Data num= 57

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2353.33 | 6.33 | 2352.83 | 7.48 | 2352.74 | 8.69 | 2352.67 | 10.07 | 2352.47 |
| 11.23 | 2352.46 | 11.25 | 2352.46 | 11.27 | 2352.46 | 13.54 | 2350.11 | 15.42 | 2348.35 |
| 17.88 | 2348.2 | 21.56 | 2347.97 | 23.79 | 2347.69 | 24.99 | 2347.51 | 26.95 | 2347.27 |
| 31.13 | 2346.91 | 32.14 | 2346.85 | 32.67 | 2346.86 | 34.02 | 2346.72 | 35.34 | 2346.76 |
| 37.9 | 2346.81 | 38.59 | 2346.82 | 39.75 | 2346.72 | 42.32 | 2346.69 | 45.54 | 2346.68 |
| 46 | 2346.68 | 47.05 | 2346.51 | 47.61 | 2346.51 | 51.59 | 2346.23 | 54.84 | 2346.01 |
| 55.34 | 2346.07 | 56.32 | 2346.17 | 60.58 | 2346.63 | 61.87 | 2346.8 | 67.15 | 2346.91 |
| 69.53 | 2346.94 | 74.34 | 2346.84 | 80.37 | 2346.95 | 81.81 | 2346.93 | 86.93 | 2346.35 |
| 94.98 | 2345.75 | 97.06 | 2346.1 | 104.4 | 2347.32 | 109.3 | 2348.11 | 109.88 | 2348.21 |
| 112.11 | 2348.53 | 114.14 | 2348.88 | 115.25 | 2348.91 | 122.16 | 2350.12 | 124.16 | 2350.35 |
| 127.24 | 2350.85 | 129.67 | 2350.92 | 130.07 | 2351.01 | 130.31 | 2351.03 | 131.2 | 2351.11 |
| 131.73 | 2351.16 | 135.46 | 2351.31 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 34.02 | .064 | 97.06 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 69.53 | 104.4 | 11.9 | 23.45 | 45.33 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2347.99 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.11 | Wt. n-Val. | 0.064 | 0.063 | 0.061 |
| W.S. Elev (ft) | 2347.88 | Reach Len. (ft) | 11.90 | 23.45 | 45.33 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 53.69 | 45.93 | 0.99 |
| E.G. Slope (ft/ft) | 0.009230 | Area (sq ft) | 53.69 | 45.93 | 0.99 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 135.06 | 123.95 | 0.98 |
| Top Width (ft) | 85.65 | Top Width (ft) | 47.29 | 34.87 | 3.50 |
| Vel Total (ft/s) | 2.58 | Avg. Vel. (ft/s) | 2.52 | 2.70 | 1.00 |
| Max Chl Dpth (ft) | 2.13 | Hydr. Depth (ft) | 1.14 | 1.32 | 0.28 |
| Conv. Total (cfs) | 2706.3 | Conv. (cfs) | 1405.9 | 1290.2 | 10.2 |
| Length Wtd. (ft) | 20.73 | Wetted Per. (ft) | 47.43 | 35.06 | 3.54 |
| Min Ch El (ft) | 2345.75 | Shear (lb/sq ft) | 0.65 | 0.75 | 0.16 |
| Alpha | 1.01 | Stream Power (lb/ft s) | 1.64 | 2.04 | 0.16 |
| Frctn Loss (ft) | 0.20 | Cum Volume (acre-ft) | 1.18 | 8.05 | 1.58 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 1.25 | 3.19 | 1.68 |

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2348.51 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.33 | Wt. n-Val. | | 0.063 | |
| W.S. Elev (ft) | 2348.18 | Reach Len. (ft) | 11.90 | 23.45 | 45.33 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 56.11 | |
| E.G. Slope (ft/ft) | 0.022454 | Area (sq ft) | | 56.11 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 34.87 | Top Width (ft) | | 34.87 | |
| Vel Total (ft/s) | 4.63 | Avg. Vel. (ft/s) | | 4.63 | |
| Max Chl Dpth (ft) | 2.43 | Hydr. Depth (ft) | | 1.61 | |
| Conv. Total (cfs) | 1735.1 | Conv. (cfs) | | 1735.1 | |
| Length Wtd. (ft) | 23.45 | Wetted Per. (ft) | | 37.15 | |
| Min Ch El (ft) | 2345.75 | Shear (lb/sq ft) | | 2.12 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 9.81 | |
| Frctn Loss (ft) | 0.24 | Cum Volume (acre-ft) | 0.00 | 9.23 | 0.01 |
| C & E Loss (ft) | 0.06 | Cum SA (acres) | 0.00 | 3.20 | 0.01 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 17.38 | 34.77 | 15.96 | 8.67 | 12.59 | 6.14 | 0.69 | 1.84 |
| 2 | LOB | 34.77 | 52.15 | 57.42 | 22.02 | 17.41 | 22.09 | 1.27 | 2.61 |
| 3 | LOB | 52.15 | 69.53 | 61.68 | 23.00 | 17.43 | 23.72 | 1.32 | 2.68 |
| 4 | Chan | 69.53 | 78.25 | 18.77 | 8.72 | 8.72 | 7.22 | 1.00 | 2.15 |
| 5 | Chan | 78.25 | 86.97 | 22.77 | 9.81 | 8.75 | 8.76 | 1.12 | 2.32 |
| 6 | Chan | 86.97 | 95.68 | 52.40 | 16.17 | 8.75 | 20.15 | 1.85 | 3.24 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7 | Chan | 95.68 | 104.40 | 30.02 | 11.23 | 8.84 | 11.54 | 1.29 | 2.67 |
| 8 | ROB | 104.40 | 112.17 | 0.98 | 0.99 | 3.54 | 0.38 | 0.28 | 1.00 |

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 69.53 | 78.25 | 41.15 | 11.27 | 9.96 | 15.83 | 1.29 | 3.65 |
| 2 | Chan | 78.25 | 86.97 | 52.27 | 12.35 | 8.75 | 20.10 | 1.42 | 4.23 |
| 3 | Chan | 86.97 | 95.68 | 104.46 | 18.71 | 8.75 | 40.18 | 2.15 | 5.58 |
| 4 | Chan | 95.68 | 104.40 | 62.12 | 13.78 | 9.69 | 23.89 | 1.58 | 4.51 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.66013

INPUT
Description:
Station Elevation Data num= 39

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2353.14 | 8.46 | 2352.43 | 8.61 | 2352.37 | 16.08 | 2349.47 | 16.57 | 2349.29 |
| 17.1 | 2349.09 | 17.35 | 2349.07 | 26.23 | 2348.46 | 27.38 | 2348.48 | 28.4 | 2348.47 |
| 29.23 | 2348.45 | 31.61 | 2348.5 | 39.52 | 2348.46 | 42.96 | 2348.21 | 44.86 | 2348.17 |
| 46.73 | 2348.02 | 56.13 | 2347.25 | 56.69 | 2347.23 | 56.95 | 2347.27 | 58.05 | 2346.99 |
| 64.2 | 2345.54 | 68.99 | 2345.35 | 71.12 | 2345.31 | 77.02 | 2345.52 | 79.59 | 2345.53 |
| 79.76 | 2345.52 | 80.54 | 2345.49 | 89.27 | 2345.17 | 91.71 | 2346.04 | 94.15 | 2346.92 |
| 96.32 | 2347.64 | 96.64 | 2347.64 | 97.59 | 2347.57 | 97.65 | 2347.6 | 98.56 | 2347.76 |
| 98.86 | 2347.77 | 103.12 | 2347.95 | 117 | 2348.56 | 117.26 | 2348.56 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 64.2 | .064 | 91.71 | .061 |

Bank Sta: Left 58.05 Right 91.71 Lengths: Left 9.74 Channel 23.18 Right 29.36 Coeff Contr. .1 Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2347.77 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.22 | Wt. n-Val. | 0.061 | 0.063 | 0.061 |
| W.S. Elev (ft) | 2347.56 | Reach Len. (ft) | 9.74 | 23.18 | 29.36 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 1.30 | 66.80 | 3.24 |
| E.G. Slope (ft/ft) | 0.010577 | Area (sq ft) | 1.30 | 66.80 | 3.24 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 1.21 | 252.39 | 6.40 |
| Top Width (ft) | 43.68 | Top Width (ft) | 5.66 | 33.66 | 4.36 |
| Vel Total (ft/s) | 3.64 | Avg. Vel. (ft/s) | 0.93 | 3.78 | 1.98 |
| Max Chl Dpth (ft) | 2.39 | Hydr. Depth (ft) | 0.23 | 1.98 | 0.74 |
| Conv. Total (cfs) | 2528.1 | Conv. (cfs) | 11.8 | 2454.1 | 62.2 |
| Length Wtd. (ft) | 23.35 | Wetted Per. (ft) | 5.71 | 33.99 | 4.61 |
| Min Ch El (ft) | 2345.17 | Shear (lb/sq ft) | 0.15 | 1.30 | 0.46 |
| Alpha | 1.05 | Stream Power (lb/ft s) | 0.14 | 4.90 | 0.92 |
| Frctn Loss (ft) | 0.14 | Cum Volume (acre-ft) | 1.18 | 8.02 | 1.58 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 1.25 | 3.17 | 1.68 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2348.21 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.15 | Wt. n-Val. | | 0.063 | |
| W.S. Elev (ft) | 2348.06 | Reach Len. (ft) | 9.74 | 23.18 | 29.36 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 83.80 | |
| E.G. Slope (ft/ft) | 0.005912 | Area (sq ft) | | 83.80 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 33.66 | Top Width (ft) | | 33.66 | |
| Vel Total (ft/s) | 3.10 | Avg. Vel. (ft/s) | | 3.10 | |
| Max Chl Dpth (ft) | 2.89 | Hydr. Depth (ft) | | 2.49 | |
| Conv. Total (cfs) | 3381.4 | Conv. (cfs) | | 3381.4 | |
| Length Wtd. (ft) | 23.18 | Wetted Per. (ft) | | 37.09 | |
| Min Ch El (ft) | 2345.17 | Shear (lb/sq ft) | | 0.83 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 2.59 | |
| Frctn Loss (ft) | 0.08 | Cum Volume (acre-ft) | 0.00 | 9.19 | 0.01 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.00 | 3.18 | 0.01 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 43.54 | 58.05 | 1.21 | 1.30 | 5.71 | 0.47 | 0.23 | 0.93 |
| 2 | Chan | 58.05 | 66.47 | 40.70 | 12.61 | 8.59 | 15.65 | 1.50 | 3.23 |
| 3 | Chan | 66.47 | 74.88 | 72.92 | 18.38 | 8.42 | 28.05 | 2.18 | 3.97 |
| 4 | Chan | 74.88 | 83.30 | 66.79 | 17.44 | 8.42 | 25.69 | 2.07 | 3.83 |
| 5 | Chan | 83.30 | 91.71 | 71.97 | 18.37 | 8.57 | 27.68 | 2.18 | 3.92 |
| 6 | ROB | 91.71 | 98.10 | 6.40 | 3.24 | 4.61 | 2.46 | 0.74 | 1.98 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 58.05 | 66.47 | 45.74 | 16.86 | 9.66 | 17.59 | 2.00 | 2.71 |
| 2 | Chan | 66.47 | 74.88 | 76.83 | 22.63 | 8.42 | 29.55 | 2.69 | 3.39 |
| 3 | Chan | 74.88 | 83.30 | 71.57 | 21.69 | 8.42 | 27.53 | 2.58 | 3.30 |
| 4 | Chan | 83.30 | 91.71 | 65.86 | 22.62 | 10.59 | 25.33 | 2.69 | 2.91 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.65574

INPUT
Description:
Station Elevation Data num= 49

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2353.11 | 4.45 | 2352.74 | 6.54 | 2352.64 | 7.27 | 2352.59 | 9.58 | 2352.43 |
| 9.88 | 2352.41 | 11.48 | 2352.28 | 13.09 | 2351.69 | 15.6 | 2350.79 | 18.23 | 2349.74 |
| 21.96 | 2349.27 | 24.47 | 2349.03 | 27.2 | 2348.84 | 27.55 | 2348.85 | 29.34 | 2348.83 |
| 30.78 | 2348.8 | 31.68 | 2348.82 | 34.68 | 2348.8 | 35.97 | 2348.71 | 39.61 | 2348.63 |
| 45.83 | 2348.12 | 51.42 | 2347.65 | 53.84 | 2347.52 | 59.07 | 2347.02 | 59.32 | 2346.96 |
| 62.1 | 2346.18 | 67.31 | 2344.84 | 67.58 | 2344.84 | 68 | 2344.84 | 70.47 | 2344.87 |
| 73.63 | 2344.84 | 78.51 | 2344.65 | 86.21 | 2344.16 | 86.36 | 2344.15 | 86.43 | 2344.15 |
| 86.6 | 2344.18 | 86.83 | 2344.23 | 89.33 | 2344.72 | 98.86 | 2346.62 | 100.24 | 2346.63 |
| 102.57 | 2346.65 | 108.17 | 2346.7 | 111.02 | 2346.72 | 125.1 | 2347.14 | 130.63 | 2347.28 |
| 138.64 | 2347.61 | 145.05 | 2347.89 | 146.77 | 2347.92 | 151.54 | 2348.06 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 67.31 | .064 | 89.33 | .061 |

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
59.32 100.24 30.4 22.39 19.31 .1 .3

Ineffective Flow num= 1

| Sta L | Sta R | Elev | Permanent |
|---|---|---|---|
| 129.5 | 151.54 | 2349 | F |

Blocked Obstructions num= 1

| Sta L | Sta R | Elev |
|---|---|---|
| 112.12 | 129.5 | 2349 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2347.60 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.10 | Wt. n-Val. | 0.061 | 0.063 | 0.061 |
| W.S. Elev (ft) | 2347.50 | Reach Len. (ft) | 30.40 | 22.39 | 19.31 |
| Crit W.S. (ft) | 2346.13 | Flow Area (sq ft) | 1.30 | 95.01 | 9.65 |
| E.G. Slope (ft/ft) | 0.003966 | Area (sq ft) | 1.30 | 95.01 | 10.47 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 0.79 | 246.83 | 12.38 |
| Top Width (ft) | 64.35 | Top Width (ft) | 5.21 | 40.92 | 18.22 |
| Vel Total (ft/s) | 2.45 | Avg. Vel. (ft/s) | 0.61 | 2.60 | 1.28 |
| Max Chl Dpth (ft) | 3.34 | Hydr. Depth (ft) | 0.25 | 2.32 | 0.81 |
| Conv. Total (cfs) | 4128.5 | Conv. (cfs) | 12.6 | 3919.3 | 196.6 |
| Length Wtd. (ft) | 22.33 | Wetted Per. (ft) | 5.24 | 41.46 | 12.62 |
| Min Ch El (ft) | 2344.15 | Shear (lb/sq ft) | 0.06 | 0.57 | 0.19 |
| Alpha | 1.08 | Stream Power (lb/ft s) | 0.04 | 1.47 | 0.24 |
| Frctn Loss (ft) | 0.08 | Cum Volume (acre-ft) | 1.18 | 7.97 | 1.57 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 1.25 | 3.15 | 1.67 |

Warning: Divided flow computed for this cross-section.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2348.11 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.08 | Wt. n-Val. | | 0.063 | |
| W.S. Elev (ft) | 2348.03 | Reach Len. (ft) | 30.40 | 22.39 | 19.31 |
| Crit W.S. (ft) | 2346.13 | Flow Area (sq ft) | | 116.90 | |
| E.G. Slope (ft/ft) | 0.002375 | Area (sq ft) | | 116.90 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 40.92 | Top Width (ft) | | 40.92 | |
| Vel Total (ft/s) | 2.22 | Avg. Vel. (ft/s) | | 2.22 | |
| Max Chl Dpth (ft) | 3.88 | Hydr. Depth (ft) | | 2.86 | |
| Conv. Total (cfs) | 5335.2 | Conv. (cfs) | | 5335.2 | |
| Length Wtd. (ft) | 22.39 | Wetted Per. (ft) | | 43.93 | |
| Min Ch El (ft) | 2344.15 | Shear (lb/sq ft) | | 0.39 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.88 | |
| Frctn Loss (ft) | 0.06 | Cum Volume (acre-ft) | 0.00 | 9.14 | 0.01 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.00 | 3.16 | 0.01 |

Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 44.49 | 59.32 | 0.79 | 1.30 | 5.24 | 0.30 | 0.25 | 0.61 |
| 2 | Chan | 59.32 | 69.55 | 41.78 | 18.84 | 10.51 | 16.07 | 1.84 | 2.22 |
| 3 | Chan | 69.55 | 79.78 | 76.62 | 27.84 | 10.24 | 29.47 | 2.72 | 2.75 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4 | Chan | 79.78 | 90.01 | 94.34 | 31.57 | 10.31 | 36.28 | 3.09 | 2.99 |
| 5 | Chan | 90.01 | 100.24 | 34.09 | 16.75 | 10.40 | 13.11 | 1.64 | 2.04 |
| 6 | ROB | 100.24 | 114.87 | 12.38 | 9.65 | 12.62 | 4.76 | 0.81 | 1.28 |
| 7 | ROB | 114.87 | 129.50 | | | | | | |
| 8 | ROB | 129.50 | 140.52 | 0.00 | 0.82 | 6.59 | 0.00 | 0.13 | 0.00 |

Warning: Divided flow computed for this cross-section.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 59.32 | 69.55 | 46.36 | 24.31 | 11.58 | 17.83 | 2.38 | 1.91 |
| 2 | Chan | 69.55 | 79.78 | 79.80 | 33.32 | 10.24 | 30.69 | 3.26 | 2.40 |
| 3 | Chan | 79.78 | 90.01 | 95.08 | 37.05 | 10.31 | 36.57 | 3.62 | 2.57 |
| 4 | Chan | 90.01 | 100.24 | 38.76 | 22.22 | 11.80 | 14.91 | 2.17 | 1.74 |

Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.65150

INPUT
Description:
Station Elevation Data num= 47

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2351.98 | 2.03 | 2351.82 | 6.64 | 2351.27 | 8.19 | 2351.18 | 9.93 | 2351.06 |
| 11.09 | 2351.07 | 11.61 | 2351.07 | 14.76 | 2351 | 15.03 | 2351.01 | 15.56 | 2350.92 |
| 15.7 | 2350.9 | 15.94 | 2350.86 | 20.94 | 2350.16 | 25.33 | 2349.42 | 27.75 | 2349 |
| 32.46 | 2348.27 | 39.27 | 2347.09 | 41.87 | 2346.63 | 42.72 | 2346.49 | 44.93 | 2345.89 |
| 46.54 | 2345.43 | 52.56 | 2343.82 | 54.92 | 2343.95 | 58.31 | 2343.93 | 58.86 | 2343.87 |
| 63.73 | 2343.39 | 66.23 | 2344.25 | 70 | 2345.5 | 70.14 | 2345.54 | 72.4 | 2346.37 |
| 72.62 | 2346.46 | 72.96 | 2346.47 | 75.72 | 2346.56 | 83.01 | 2346.8 | 86.28 | 2346.89 |
| 89.54 | 2346.96 | 91.09 | 2346.99 | 92.48 | 2347.02 | 107.59 | 2346.85 | 108.7 | 2346.85 |
| 109.52 | 2346.86 | 110.64 | 2346.87 | 135.28 | 2347.67 | 135.71 | 2347.68 | 135.88 | 2347.67 |
| 137.28 | 2347.71 | 138.32 | 2347.73 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 52.56 | .064 | 66.23 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 46.54 | 70 | 36.7 | 20.91 | 17.8 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2347.51 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.12 | Wt. n-Val. | 0.061 | 0.063 | 0.061 |
| W.S. Elev (ft) | 2347.39 | Reach Len. (ft) | 36.70 | 20.91 | 17.80 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 7.78 | 75.25 | 28.76 |
| E.G. Slope (ft/ft) | 0.003450 | Area (sq ft) | 7.78 | 75.25 | 28.76 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 9.94 | 223.94 | 26.12 |
| Top Width (ft) | 89.11 | Top Width (ft) | 9.00 | 23.46 | 56.65 |
| Vel Total (ft/s) | 2.33 | Avg. Vel. (ft/s) | 1.28 | 2.98 | 0.91 |
| Max Chl Dpth (ft) | 4.00 | Hydr. Depth (ft) | 0.86 | 3.21 | 0.51 |
| Conv. Total (cfs) | 4426.9 | Conv. (cfs) | 169.2 | 3812.9 | 444.8 |
| Length Wtd. (ft) | 21.43 | Wetted Per. (ft) | 9.22 | 24.05 | 56.84 |
| Min Ch El (ft) | 2343.39 | Shear (lb/sq ft) | 0.18 | 0.67 | 0.11 |
| Alpha | 1.44 | Stream Power (lb/ft s) | 0.23 | 2.01 | 0.10 |
| Frctn Loss (ft) | 0.15 | Cum Volume (acre-ft) | 1.17 | 7.93 | 1.56 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 1.24 | 3.14 | 1.65 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2348.04 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.14 | Wt. n-Val. | | 0.062 | |
| W.S. Elev (ft) | 2347.90 | Reach Len. (ft) | 36.70 | 20.91 | 17.80 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 87.15 | |
| E.G. Slope (ft/ft) | 0.003610 | Area (sq ft) | | 87.15 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 23.46 | Top Width (ft) | | 23.46 | |
| Vel Total (ft/s) | 2.98 | Avg. Vel. (ft/s) | | 2.98 | |
| Max Chl Dpth (ft) | 4.51 | Hydr. Depth (ft) | | 3.71 | |
| Conv. Total (cfs) | 4327.3 | Conv. (cfs) | | 4327.3 | |
| Length Wtd. (ft) | 20.91 | Wetted Per. (ft) | | 28.91 | |
| Min Ch El (ft) | 2343.39 | Shear (lb/sq ft) | | 0.68 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 2.03 | |
| Frctn Loss (ft) | 0.14 | Cum Volume (acre-ft) | 0.00 | 9.08 | 0.01 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.00 | 3.14 | 0.01 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 34.91 | 46.54 | 9.94 | 7.78 | 9.22 | 3.82 | 0.86 | 1.28 |
| 2 | Chan | 46.54 | 52.41 | 43.68 | 16.09 | 6.07 | 16.80 | 2.74 | 2.71 |
| 3 | Chan | 52.41 | 58.27 | 63.16 | 20.38 | 5.87 | 24.29 | 3.47 | 3.10 |
| 4 | Chan | 58.27 | 64.14 | 71.11 | 21.96 | 5.92 | 27.35 | 3.74 | 3.24 |
| 5 | Chan | 64.14 | 70.00 | 45.99 | 16.81 | 6.19 | 17.69 | 2.87 | 2.74 |
| 6 | ROB | 70.00 | 87.08 | 15.41 | 13.80 | 17.26 | 5.93 | 0.81 | 1.12 |
| 7 | ROB | 87.08 | 104.16 | 5.48 | 7.39 | 17.08 | 2.11 | 0.43 | 0.74 |
| 8 | ROB | 104.16 | 121.24 | 5.12 | 7.10 | 17.09 | 1.97 | 0.42 | 0.72 |
| 9 | ROB | 121.24 | 138.32 | 0.12 | 0.48 | 5.42 | 0.05 | 0.09 | 0.26 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 46.54 | 52.41 | 45.36 | 19.07 | 8.54 | 17.44 | 3.25 | 2.38 |
| 2 | Chan | 52.41 | 58.27 | 77.86 | 23.35 | 5.87 | 29.95 | 3.98 | 3.33 |
| 3 | Chan | 58.27 | 64.14 | 86.33 | 24.94 | 5.92 | 33.21 | 4.25 | 3.46 |
| 4 | Chan | 64.14 | 70.00 | 50.45 | 19.79 | 8.58 | 19.40 | 3.37 | 2.55 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.64754

INPUT
Description:
Station Elevation Data num= 38

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2350.41 | 5.73 | 2349.99 | 6.97 | 2349.78 | 12.43 | 2348.86 | 16.12 | 2348.27 |
| 24.57 | 2346.7 | 25.14 | 2346.6 | 25.73 | 2346.49 | 30.59 | 2345.14 | 36.06 | 2343.63 |
| 37.22 | 2343.27 | 38.43 | 2342.9 | 38.71 | 2342.89 | 45.28 | 2345.67 | 45.71 | 2345.85 |
| 46.86 | 2346.33 | 46.87 | 2346.33 | 46.88 | 2346.33 | 47.51 | 2346.33 | 48.43 | 2346.33 |
| 49.79 | 2346.37 | 56.03 | 2346.56 | 64.14 | 2346.8 | 67.08 | 2346.87 | 70.28 | 2346.94 |
| 73.7 | 2347.05 | 75.53 | 2347.12 | 76.33 | 2347.14 | 77.98 | 2347.17 | 78.62 | 2347.18 |
| 98.32 | 2346.92 | 98.52 | 2346.92 | 98.67 | 2346.92 | 98.88 | 2346.92 | 105.45 | 2347.15 |
| 116.96 | 2347.39 | 120.53 | 2347.37 | 123.11 | 2347.46 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 37.22 | .064 | 45.28 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 30.59 | 45.28 | 25.22 | 14.9 | 11.32 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2347.32 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.54 | Wt. n-Val. | 0.061 | 0.063 | 0.061 |
| W.S. Elev (ft) | 2346.79 | Reach Len. (ft) | 25.22 | 14.90 | 11.32 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 4.97 | 39.06 | 5.45 |
| E.G. Slope (ft/ft) | 0.019379 | Area (sq ft) | 4.97 | 39.06 | 5.45 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 13.81 | 238.04 | 8.15 |
| Top Width (ft) | 39.63 | Top Width (ft) | 6.49 | 14.69 | 18.45 |
| Vel Total (ft/s) | 5.25 | Avg. Vel. (ft/s) | 2.78 | 6.09 | 1.50 |
| Max Chl Dpth (ft) | 3.90 | Hydr. Depth (ft) | 0.77 | 2.66 | 0.30 |
| Conv. Total (cfs) | 1867.7 | Conv. (cfs) | 99.2 | 1709.9 | 58.6 |
| Length Wtd. (ft) | 15.86 | Wetted Per. (ft) | 6.70 | 15.57 | 18.59 |
| Min Ch El (ft) | 2342.89 | Shear (lb/sq ft) | 0.90 | 3.04 | 0.35 |
| Alpha | 1.25 | Stream Power (lb/ft s) | 2.49 | 18.50 | 0.53 |
| Frctn Loss (ft) | 0.44 | Cum Volume (acre-ft) | 1.17 | 7.90 | 1.56 |
| C & E Loss (ft) | 0.05 | Cum SA (acres) | 1.23 | 3.13 | 1.64 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2347.87 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.45 | Wt. n-Val. | | 0.063 | |
| W.S. Elev (ft) | 2347.42 | Reach Len. (ft) | 25.22 | 14.90 | 11.32 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 48.31 | |
| E.G. Slope (ft/ft) | 0.015433 | Area (sq ft) | | 48.31 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 14.69 | Top Width (ft) | | 14.69 | |
| Vel Total (ft/s) | 5.38 | Avg. Vel. (ft/s) | | 5.38 | |
| Max Chl Dpth (ft) | 4.53 | Hydr. Depth (ft) | | 3.29 | |
| Conv. Total (cfs) | 2092.9 | Conv. (cfs) | | 2092.9 | |
| Length Wtd. (ft) | 14.90 | Wetted Per. (ft) | | 19.59 | |
| Min Ch El (ft) | 2342.89 | Shear (lb/sq ft) | | 2.38 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 12.79 | |
| Frctn Loss (ft) | 0.39 | Cum Volume (acre-ft) | 0.00 | 9.05 | 0.01 |
| C & E Loss (ft) | 0.07 | Cum SA (acres) | 0.00 | 3.13 | 0.01 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 22.94 | 30.59 | 13.81 | 4.97 | 6.70 | 5.31 | 0.77 | 2.78 |
| 2 | Chan | 30.59 | 34.26 | 42.24 | 7.91 | 3.81 | 16.25 | 2.15 | 5.34 |
| 3 | Chan | 34.26 | 37.94 | 80.04 | 11.70 | 3.83 | 30.79 | 3.18 | 6.84 |
| 4 | Chan | 37.94 | 41.61 | 84.23 | 12.50 | 3.94 | 32.40 | 3.40 | 6.74 |
| 5 | Chan | 41.61 | 45.28 | 31.52 | 6.96 | 3.99 | 12.12 | 1.89 | 4.53 |
| 6 | ROB | 45.28 | 64.74 | 8.15 | 5.45 | 18.59 | 3.14 | 0.30 | 1.50 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 30.59 | 34.26 | 40.11 | 10.23 | 6.09 | 15.43 | 2.78 | 3.92 |
| 2 | Chan | 34.26 | 37.94 | 91.49 | 14.01 | 3.83 | 35.19 | 3.81 | 6.53 |
| 3 | Chan | 37.94 | 41.61 | 94.62 | 14.81 | 3.94 | 36.39 | 4.03 | 6.39 |
| 4 | Chan | 41.61 | 45.28 | 33.78 | 9.27 | 5.74 | 12.99 | 2.52 | 3.64 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.64472

INPUT
Description:
Station Elevation Data num= 28

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2350.08 | .08 | 2350.08 | 6.82 | 2349.52 | 9.77 | 2349.28 | 10.01 | 2349.21 |
| 21.09 | 2346.29 | 27.87 | 2343.36 | 29.24 | 2342.77 | 31.17 | 2341.94 | 32.79 | 2342.71 |
| 37.78 | 2345.02 | 40.61 | 2346.33 | 43.34 | 2346.41 | 50.97 | 2346.65 | 62.91 | 2347.02 |
| 71.57 | 2347.27 | 71.86 | 2347.28 | 72.19 | 2347.28 | 72.57 | 2347.3 | 72.79 | 2347.3 |
| 72.89 | 2347.31 | 73.09 | 2347.31 | 73.17 | 2347.31 | 78.12 | 2347.24 | 93.64 | 2346.78 |
| 107.69 | 2347.14 | 114.11 | 2347.14 | 114.88 | 2347.17 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 27.87 | .064 | 37.78 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 27.87 | 37.78 | 20.57 | 19.08 | 18.34 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2346.84 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 1.02 | Wt. n-Val. | 0.061 | 0.064 | 0.061 |
| W.S. Elev (ft) | 2345.82 | Reach Len. (ft) | 20.57 | 19.08 | 18.34 |
| Crit W.S. (ft) | 2345.82 | Flow Area (sq ft) | 7.00 | 25.88 | 0.69 |
| E.G. Slope (ft/ft) | 0.042335 | Area (sq ft) | 7.00 | 25.88 | 0.69 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 38.04 | 220.20 | 1.76 |
| Top Width (ft) | 17.33 | Top Width (ft) | 5.69 | 9.91 | 1.73 |
| Vel Total (ft/s) | 7.75 | Avg. Vel. (ft/s) | 5.43 | 8.51 | 2.55 |
| Max Chl Dpth (ft) | 3.88 | Hydr. Depth (ft) | 1.23 | 2.61 | 0.40 |
| Conv. Total (cfs) | 1263.6 | Conv. (cfs) | 184.9 | 1070.2 | 8.6 |
| Length Wtd. (ft) | 19.20 | Wetted Per. (ft) | 6.20 | 10.89 | 1.90 |
| Min Ch El (ft) | 2341.94 | Shear (lb/sq ft) | 2.98 | 6.28 | 0.96 |
| Alpha | 1.09 | Stream Power (lb/ft s) | 16.21 | 53.47 | 2.45 |
| Frctn Loss (ft) | 0.71 | Cum Volume (acre-ft) | 1.16 | 7.89 | 1.56 |
| C & E Loss (ft) | 0.05 | Cum SA (acres) | 1.23 | 3.12 | 1.64 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2347.40 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 1.17 | Wt. n-Val. | | 0.064 | |
| W.S. Elev (ft) | 2346.23 | Reach Len. (ft) | 20.57 | 19.08 | 18.34 |
| Crit W.S. (ft) | 2345.98 | Flow Area (sq ft) | | 29.91 | |
| E.G. Slope (ft/ft) | 0.055631 | Area (sq ft) | | 29.91 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 9.91 | Top Width (ft) | | 9.91 | |
| Vel Total (ft/s) | 8.69 | Avg. Vel. (ft/s) | | 8.69 | |
| Max Chl Dpth (ft) | 4.29 | Hydr. Depth (ft) | | 3.02 | |
| Conv. Total (cfs) | 1102.3 | Conv. (cfs) | | 1102.3 | |
| Length Wtd. (ft) | 19.08 | Wetted Per. (ft) | | 14.96 | |
| Min Ch El (ft) | 2341.94 | Shear (lb/sq ft) | | 6.94 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 60.36 | |
| Frctn Loss (ft) | 0.70 | Cum Volume (acre-ft) | 0.00 | 9.04 | 0.01 |
| C & E Loss (ft) | 0.15 | Cum SA (acres) | 0.00 | 3.13 | 0.01 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 20.90 | 27.87 | 38.04 | 7.00 | 6.20 | 14.63 | 1.23 | 5.43 |
| 2 | Chan | 27.87 | 30.35 | 65.93 | 7.42 | 2.70 | 25.36 | 2.99 | 8.89 |
| 3 | Chan | 30.35 | 32.83 | 87.31 | 8.82 | 2.73 | 33.58 | 3.56 | 9.90 |
| 4 | Chan | 32.83 | 35.30 | 49.10 | 6.24 | 2.73 | 18.89 | 2.52 | 7.86 |
| 5 | Chan | 35.30 | 37.78 | 17.85 | 3.40 | 2.73 | 6.87 | 1.37 | 5.25 |
| 6 | ROB | 37.78 | 57.06 | 1.76 | 0.69 | 1.90 | 0.68 | 0.40 | 2.55 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 27.87 | 30.35 | 54.63 | 8.42 | 5.56 | 21.01 | 3.40 | 6.48 |
| 2 | Chan | 30.35 | 32.83 | 113.54 | 9.82 | 2.73 | 43.67 | 3.97 | 11.56 |
| 3 | Chan | 32.83 | 35.30 | 68.42 | 7.25 | 2.73 | 26.32 | 2.93 | 9.43 |
| 4 | Chan | 35.30 | 37.78 | 23.40 | 4.41 | 3.94 | 9.00 | 1.78 | 5.31 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.64111

INPUT
Description:
Station Elevation Data num= 20

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2349.4 | 7.22 | 2349.01 | 9.19 | 2348.9 | 15.4 | 2346.73 | 20.04 | 2345.18 |
| 23.95 | 2343.79 | 26.28 | 2342.97 | 27.27 | 2342.62 | 30.98 | 2341.44 | 35.8 | 2343.56 |
| 37.29 | 2344.22 | 40.45 | 2345.62 | 42.37 | 2345.68 | 46.84 | 2345.81 | 50.86 | 2345.95 |
| 72.41 | 2346.74 | 82.72 | 2346.61 | 92.43 | 2346.45 | 103.04 | 2346.87 | 110.21 | 2347 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 26.28 | .064 | 37.29 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 23.95 | 35.8 | 31.15 | 24.95 | 19.22 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2346.04 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.86 | Wt. n-Val. | 0.061 | 0.063 | 0.063 |
| W.S. Elev (ft) | 2345.18 | Reach Len. (ft) | 31.15 | 24.95 | 19.22 |
| Crit W.S. (ft) | 2345.06 | Flow Area (sq ft) | 2.71 | 31.15 | 2.96 |
| E.G. Slope (ft/ft) | 0.032476 | Area (sq ft) | 2.71 | 31.15 | 2.96 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 8.98 | 239.43 | 11.59 |
| Top Width (ft) | 19.41 | Top Width (ft) | 3.91 | 11.85 | 3.65 |
| Vel Total (ft/s) | 7.06 | Avg. Vel. (ft/s) | 3.31 | 7.69 | 3.92 |
| Max Chl Dpth (ft) | 3.74 | Hydr. Depth (ft) | 0.69 | 2.63 | 0.81 |
| Conv. Total (cfs) | 1442.8 | Conv. (cfs) | 49.8 | 1328.6 | 64.3 |
| Length Wtd. (ft) | 24.89 | Wetted Per. (ft) | 4.15 | 12.68 | 4.00 |
| Min Ch El (ft) | 2341.44 | Shear (lb/sq ft) | 1.33 | 4.98 | 1.50 |
| Alpha | 1.11 | Stream Power (lb/ft s) | 4.39 | 38.29 | 5.88 |
| Frctn Loss (ft) | 0.86 | Cum Volume (acre-ft) | 1.16 | 7.88 | 1.55 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 1.23 | 3.12 | 1.63 |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2346.55 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.68 | Wt. n-Val. | | 0.063 | |
| W.S. Elev (ft) | 2345.87 | Reach Len. (ft) | 31.15 | 24.95 | 19.22 |
| Crit W.S. (ft) | 2345.01 | Flow Area (sq ft) | | 39.37 | |
| E.G. Slope (ft/ft) | 0.025903 | Area (sq ft) | | 39.37 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 11.85 | Top Width (ft) | | 11.85 | |
| Vel Total (ft/s) | 6.60 | Avg. Vel. (ft/s) | | 6.60 | |
| Max Chl Dpth (ft) | 4.43 | Hydr. Depth (ft) | | 3.32 | |
| Conv. Total (cfs) | 1615.5 | Conv. (cfs) | | 1615.5 | |
| Length Wtd. (ft) | 24.95 | Wetted Per. (ft) | | 17.07 | |
| Min Ch El (ft) | 2341.44 | Shear (lb/sq ft) | | 3.73 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 24.62 | |
| Frctn Loss (ft) | 0.96 | Cum Volume (acre-ft) | 0.00 | 9.02 | 0.01 |
| C & E Loss (ft) | 0.06 | Cum SA (acres) | 0.00 | 3.12 | 0.01 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| Pos | Left Sta | Right Sta | Flow | Area | W.P. | Percent | Hydr | Velocity |
|---|---|---|---|---|---|---|---|---|

| | | (ft) | (ft) | (cfs) | (sq ft) | (ft) | Conv | Depth(ft) | (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 17.96 | 23.95 | 8.98 | 2.71 | 4.15 | 3.45 | 0.69 | 3.31 |
| 2 | Chan | 23.95 | 26.91 | 35.67 | 5.66 | 3.14 | 13.72 | 1.91 | 6.30 |
| 3 | Chan | 26.91 | 29.88 | 69.68 | 8.64 | 3.11 | 26.80 | 2.92 | 8.07 |
| 4 | Chan | 29.88 | 32.84 | 89.34 | 10.12 | 3.19 | 34.36 | 3.42 | 8.82 |
| 5 | Chan | 32.84 | 35.80 | 44.75 | 6.73 | 3.24 | 17.21 | 2.27 | 6.65 |
| 6 | ROB | 35.80 | 54.40 | 11.59 | 2.96 | 4.00 | 4.46 | 0.81 | 3.92 |

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 23.95 | 26.91 | 37.11 | 7.72 | 5.22 | 14.27 | 2.60 | 4.81 |
| 2 | Chan | 26.91 | 29.88 | 82.18 | 10.69 | 3.11 | 31.61 | 3.61 | 7.68 |
| 3 | Chan | 29.88 | 32.84 | 100.45 | 12.18 | 3.19 | 38.64 | 4.11 | 8.25 |
| 4 | Chan | 32.84 | 35.80 | 40.26 | 8.78 | 5.55 | 15.48 | 2.96 | 4.58 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.63638

INPUT
Description:
Station Elevation Data num= 32

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2348.62 | 4.8 | 2348.44 | 5.9 | 2348.05 | 9.66 | 2346.73 | 17.16 | 2343.97 |
| 19.95 | 2343.19 | 21.04 | 2342.85 | 25.11 | 2341.76 | 25.9 | 2341.56 | 26.61 | 2341.38 |
| 28.72 | 2340.83 | 32.51 | 2342.36 | 33.74 | 2342.89 | 34.31 | 2343.14 | 36.62 | 2344.15 |
| 37.86 | 2344.7 | 38.47 | 2344.96 | 39.84 | 2344.91 | 40.27 | 2344.92 | 40.79 | 2344.94 |
| 48.5 | 2345.29 | 52.02 | 2345.47 | 60.2 | 2345.85 | 64.18 | 2346.02 | 65.87 | 2346.09 |
| 67.36 | 2346.17 | 70.58 | 2346.35 | 73.35 | 2346.46 | 88.05 | 2346.31 | 93.43 | 2346.23 |
| 99.88 | 2346.5 | 109.33 | 2346.71 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 26.61 | .064 | 37.86 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 21.04 | 32.51 | 12.06 | 10.91 | 11.16 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2345.18 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.93 | Wt. n-Val. | 0.061 | 0.063 | 0.064 |
| W.S. Elev (ft) | 2344.25 | Reach Len. (ft) | 12.06 | 10.91 | 11.16 |
| Crit W.S. (ft) | 2344.25 | Flow Area (sq ft) | 3.32 | 28.64 | 4.11 |
| E.G. Slope (ft/ft) | 0.036429 | Area (sq ft) | 3.32 | 28.64 | 4.11 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 11.98 | 231.42 | 16.60 |
| Top Width (ft) | 20.45 | Top Width (ft) | 4.64 | 11.47 | 4.34 |
| Vel Total (ft/s) | 7.21 | Avg. Vel. (ft/s) | 3.61 | 8.08 | 4.04 |
| Max Chl Dpth (ft) | 3.42 | Hydr. Depth (ft) | 0.71 | 2.50 | 0.95 |
| Conv. Total (cfs) | 1362.2 | Conv. (cfs) | 62.7 | 1212.5 | 87.0 |
| Length Wtd. (ft) | 10.95 | Wetted Per. (ft) | 4.85 | 12.03 | 4.73 |
| Min Ch El (ft) | 2340.83 | Shear (lb/sq ft) | 1.56 | 5.41 | 1.98 |
| Alpha | 1.15 | Stream Power (lb/ft s) | 5.62 | 43.76 | 7.98 |
| Frctn Loss (ft) | 0.43 | Cum Volume (acre-ft) | 1.16 | 7.86 | 1.55 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 1.23 | 3.11 | 1.63 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2345.53 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 1.27 | Wt. n-Val. | | 0.063 | |
| W.S. Elev (ft) | 2344.26 | Reach Len. (ft) | 12.06 | 10.91 | 11.16 |
| Crit W.S. (ft) | 2344.26 | Flow Area (sq ft) | | 28.70 | |
| E.G. Slope (ft/ft) | 0.063115 | Area (sq ft) | | 28.70 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 11.47 | Top Width (ft) | | 11.47 | |
| Vel Total (ft/s) | 9.06 | Avg. Vel. (ft/s) | | 9.06 | |
| Max Chl Dpth (ft) | 3.43 | Hydr. Depth (ft) | | 2.50 | |
| Conv. Total (cfs) | 1034.9 | Conv. (cfs) | | 1034.9 | |
| Length Wtd. (ft) | 10.91 | Wetted Per. (ft) | | 15.33 | |
| Min Ch El (ft) | 2340.83 | Shear (lb/sq ft) | | 7.38 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 66.83 | |
| Frctn Loss (ft) | 0.32 | Cum Volume (acre-ft) | 0.00 | 9.00 | 0.01 |
| C & E Loss (ft) | 0.24 | Cum SA (acres) | 0.00 | 3.12 | 0.01 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 15.78 | 21.04 | 11.98 | 3.32 | 4.85 | 4.61 | 0.71 | 3.61 |
| 2 | Chan | 21.04 | 23.91 | 33.60 | 5.12 | 2.97 | 12.92 | 1.78 | 6.57 |
| 3 | Chan | 23.91 | 26.78 | 60.66 | 7.30 | 2.96 | 23.33 | 2.55 | 8.31 |
| 4 | Chan | 26.78 | 29.64 | 83.60 | 9.14 | 3.00 | 32.16 | 3.19 | 9.14 |
| 5 | Chan | 29.64 | 32.51 | 53.56 | 7.08 | 3.09 | 20.60 | 2.47 | 7.56 |
| 6 | ROB | 32.51 | 51.72 | 16.60 | 4.11 | 4.73 | 6.39 | 0.95 | 4.04 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 21.04 | 23.91 | 32.31 | 5.13 | 4.37 | 12.43 | 1.79 | 6.30 |
| 2 | Chan | 23.91 | 26.78 | 75.41 | 7.32 | 2.96 | 29.00 | 2.55 | 10.31 |
| 3 | Chan | 26.78 | 29.64 | 103.86 | 9.16 | 3.00 | 39.95 | 3.19 | 11.34 |
| 4 | Chan | 29.64 | 32.51 | 48.42 | 7.10 | 4.99 | 18.62 | 2.47 | 6.82 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.63432

INPUT
Description:
Station Elevation Data num= 41

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2349.16 | 30.2 | 2348.3 | 30.34 | 2348.29 | 30.59 | 2348.2 | 30.98 | 2348.06 |
| 41.5 | 2344.39 | 44.5 | 2343.3 | 45.49 | 2342.97 | 47.34 | 2342.51 | 48.81 | 2342.14 |
| 54.1 | 2340.56 | 54.47 | 2340.45 | 56.66 | 2339.85 | 57.36 | 2339.68 | 60.47 | 2341.71 |
| 62.12 | 2342.65 | 62.77 | 2343.16 | 63 | 2343.31 | 63.15 | 2343.41 | 65.04 | 2344.78 |
| 65.17 | 2344.75 | 65.34 | 2344.73 | 66.03 | 2344.71 | 66.04 | 2344.72 | 66.35 | 2344.73 |
| 66.61 | 2344.74 | 67.37 | 2344.68 | 69.79 | 2344.76 | 71.64 | 2344.7 | 73.87 | 2344.74 |
| 98.59 | 2346.06 | 99.59 | 2346.11 | 100.22 | 2346.13 | 100.57 | 2346.14 | 100.86 | 2346.16 |
| 102.79 | 2346.21 | 105.02 | 2346.25 | 118.49 | 2346.13 | 121.19 | 2346.09 | 124.49 | 2346.23 |
| 138.6 | 2346.55 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 54.47 | .064 | 66.04 | .061 |

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
47.34 62.12 4.02 8.56 8.03 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2344.28 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.94 | Wt. n-Val. | 0.061 | 0.063 | 0.064 |
| W.S. Elev (ft) | 2343.34 | Reach Len. (ft) | 4.02 | 8.56 | 8.03 |
| Crit W.S. (ft) | 2343.30 | Flow Area (sq ft) | 1.31 | 32.68 | 0.31 |
| E.G. Slope (ft/ft) | 0.042022 | Area (sq ft) | 1.31 | 32.68 | 0.31 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 3.72 | 255.67 | 0.60 |
| Top Width (ft) | 18.65 | Top Width (ft) | 2.95 | 14.78 | 0.92 |
| Vel Total (ft/s) | 7.58 | Avg. Vel. (ft/s) | 2.84 | 7.82 | 1.97 |
| Max Chl Dpth (ft) | 3.66 | Hydr. Depth (ft) | 0.45 | 2.21 | 0.33 |
| Conv. Total (cfs) | 1268.3 | Conv. (cfs) | 18.2 | 1247.2 | 2.9 |
| Length Wtd. (ft) | 8.29 | Wetted Per. (ft) | 3.06 | 16.03 | 1.15 |
| Min Ch El (ft) | 2339.68 | Shear (lb/sq ft) | 1.12 | 5.35 | 0.70 |
| Alpha | 1.05 | Stream Power (lb/ft s) | 3.19 | 41.85 | 1.37 |
| Frctn Loss (ft) | 0.32 | Cum Volume (acre-ft) | 1.16 | 7.85 | 1.55 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 1.23 | 3.11 | 1.63 |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2344.77 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.48 | Wt. n-Val. | | 0.063 | |
| W.S. Elev (ft) | 2344.28 | Reach Len. (ft) | 4.02 | 8.56 | 8.03 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 46.64 | |
| E.G. Slope (ft/ft) | 0.017158 | Area (sq ft) | | 46.64 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |

| | | | | | |
|---|---|---|---|---|---|
| Top Width (ft) | 14.78 | Top Width (ft) | | 14.78 | |
| Vel Total (ft/s) | 5.57 | Avg. Vel. (ft/s) | | 5.57 | |
| Max Chl Dpth (ft) | 4.60 | Hydr. Depth (ft) | | 3.16 | |
| Conv. Total (cfs) | 1984.9 | Conv. (cfs) | | 1984.9 | |
| Length Wtd. (ft) | 8.56 | Wetted Per. (ft) | | 19.43 | |
| Min Ch El (ft) | 2339.68 | Shear (lb/sq ft) | | 2.57 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 14.33 | |
| Frctn Loss (ft) | 0.26 | Cum Volume (acre-ft) | 0.00 | 8.99 | 0.01 |
| C & E Loss (ft) | 0.09 | Cum SA (acres) | 0.00 | 3.11 | 0.01 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 35.51 | 47.34 | 3.72 | 1.31 | 3.06 | 1.43 | 0.45 | 2.84 |
| 2 | Chan | 47.34 | 51.04 | 27.12 | 4.90 | 3.84 | 10.43 | 1.33 | 5.54 |
| 3 | Chan | 51.04 | 54.73 | 73.30 | 8.92 | 3.85 | 28.19 | 2.42 | 8.21 |
| 4 | Chan | 54.73 | 58.43 | 116.03 | 12.25 | 3.99 | 44.63 | 3.32 | 9.47 |
| 5 | Chan | 58.43 | 62.12 | 39.23 | 6.61 | 4.34 | 15.09 | 1.79 | 5.94 |
| 6 | ROB | 62.12 | 81.24 | 0.60 | 0.31 | 1.15 | 0.23 | 0.33 | 1.97 |

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 47.34 | 51.04 | 32.02 | 8.39 | 5.61 | 12.31 | 2.27 | 3.82 |
| 2 | Chan | 51.04 | 54.73 | 78.79 | 12.41 | 3.85 | 30.30 | 3.36 | 6.35 |
| 3 | Chan | 54.73 | 58.43 | 109.32 | 15.74 | 3.99 | 42.05 | 4.26 | 6.94 |
| 4 | Chan | 58.43 | 62.12 | 39.88 | 10.10 | 5.97 | 15.34 | 2.73 | 3.95 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.63270

INPUT
Description:
Station Elevation Data num= 32

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2348.32 | 6.03 | 2348.05 | 6.56 | 2347.86 | 9.18 | 2346.93 | 12.89 | 2345.92 |
| 17.76 | 2344.45 | 20.58 | 2343.59 | 25.39 | 2342.69 | 28.05 | 2342.14 | 29.29 | 2341.87 |
| 29.73 | 2341.77 | 30.68 | 2341.51 | 31.5 | 2341.28 | 32.14 | 2341.12 | 35.65 | 2340.17 |
| 36.48 | 2340.02 | 38.48 | 2339.59 | 39.96 | 2340.31 | 41.98 | 2341.34 | 42.48 | 2341.59 |
| 43.04 | 2341.84 | 43.69 | 2342.23 | 43.93 | 2342.36 | 45.55 | 2343.23 | 46.09 | 2343.29 |
| 46.2 | 2343.31 | 48.65 | 2343.86 | 50.47 | 2344.27 | 51.83 | 2344.54 | 52.02 | 2344.54 |
| 55.55 | 2344.61 | 63.11 | 2345.03 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 32.14 | .064 | 43.93 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 31.5 | 41.98 | 10.65 | 14.8 | 17.06 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2343.95 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.91 | Wt. n-Val. | 0.061 | 0.064 | 0.064 |
| W.S. Elev (ft) | 2343.04 | Reach Len. (ft) | 10.65 | 14.80 | 17.06 |
| Crit W.S. (ft) | 2343.04 | Flow Area (sq ft) | 6.47 | 27.52 | 2.78 |
| E.G. Slope (ft/ft) | 0.035982 | Area (sq ft) | 6.47 | 27.52 | 2.78 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 25.60 | 222.66 | 11.74 |
| Top Width (ft) | 21.66 | Top Width (ft) | 7.97 | 10.48 | 3.21 |
| Vel Total (ft/s) | 7.07 | Avg. Vel. (ft/s) | 3.96 | 8.09 | 4.22 |
| Max Chl Dpth (ft) | 3.45 | Hydr. Depth (ft) | 0.81 | 2.63 | 0.87 |
| Conv. Total (cfs) | 1370.7 | Conv. (cfs) | 135.0 | 1173.8 | 61.9 |
| Length Wtd. (ft) | 14.67 | Wetted Per. (ft) | 8.16 | 11.10 | 3.64 |
| Min Ch El (ft) | 2339.59 | Shear (lb/sq ft) | 1.78 | 5.57 | 1.72 |
| Alpha | 1.17 | Stream Power (lb/ft s) | 7.05 | 45.07 | 7.25 |
| Frctn Loss (ft) | 0.43 | Cum Volume (acre-ft) | 1.16 | 7.85 | 1.55 |
| C & E Loss (ft) | 0.12 | Cum SA (acres) | 1.22 | 3.11 | 1.63 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2344.42 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 1.35 | Wt. n-Val. | | 0.064 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| W.S. Elev (ft) | 2343.08 | Reach Len. (ft) | 10.65 | 14.80 | 17.06 | |
| Crit W.S. (ft) | 2343.08 | Flow Area (sq ft) | | 27.91 | | |
| E.G. Slope (ft/ft) | 0.066979 | Area (sq ft) | | 27.91 | | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | | |
| Top Width (ft) | 10.48 | Top Width (ft) | | 10.48 | | |
| Vel Total (ft/s) | 9.32 | Avg. Vel. (ft/s) | | 9.32 | | |
| Max Chl Dpth (ft) | 3.48 | Hydr. Depth (ft) | | 2.66 | | |
| Conv. Total (cfs) | 1004.6 | Conv. (cfs) | | 1004.6 | | |
| Length Wtd. (ft) | 14.80 | Wetted Per. (ft) | | 14.63 | | |
| Min Ch El (ft) | 2339.59 | Shear (lb/sq ft) | | 7.98 | | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 74.32 | | |
| Frctn Loss (ft) | 0.52 | Cum Volume (acre-ft) | 0.00 | 8.99 | 0.01 | |
| C & E Loss (ft) | 0.25 | Cum SA (acres) | 0.00 | 3.11 | 0.01 | |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 23.63 | 31.50 | 25.60 | 6.47 | 8.07 | 9.85 | 0.82 | 3.96 |
| 2 | Chan | 31.50 | 34.12 | 38.70 | 5.50 | 2.71 | 14.88 | 2.10 | 7.03 |
| 3 | Chan | 34.12 | 36.74 | 61.54 | 7.30 | 2.69 | 23.67 | 2.79 | 8.42 |
| 4 | Chan | 36.74 | 39.36 | 78.28 | 8.52 | 2.76 | 30.11 | 3.25 | 9.19 |
| 5 | Chan | 39.36 | 41.98 | 44.15 | 6.19 | 2.93 | 16.98 | 2.36 | 7.13 |
| 6 | ROB | 41.98 | 47.26 | 11.74 | 2.78 | 3.64 | 4.51 | 0.87 | 4.22 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 31.50 | 34.12 | 43.25 | 5.60 | 4.51 | 16.63 | 2.14 | 7.72 |
| 2 | Chan | 34.12 | 36.74 | 77.51 | 7.40 | 2.69 | 29.81 | 2.83 | 10.47 |
| 3 | Chan | 36.74 | 39.36 | 98.28 | 8.62 | 2.76 | 37.80 | 3.29 | 11.41 |
| 4 | Chan | 39.36 | 41.98 | 40.96 | 6.29 | 4.67 | 15.75 | 2.40 | 6.51 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.62989

INPUT
Description:
Station Elevation Data num= 20

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2347.79 | 3.23 | 2347.65 | 3.4 | 2347.64 | 3.55 | 2347.64 | 8.36 | 2346.39 |
| 11.08 | 2345.91 | 15.44 | 2344.78 | 19.53 | 2344.07 | 28.57 | 2342.22 | 31.5 | 2341.65 |
| 31.81 | 2341.58 | 35.61 | 2340.76 | 44.96 | 2339.05 | 48.32 | 2339.6 | 50.31 | 2339.93 |
| 53.34 | 2340.46 | 55.14 | 2340.76 | 55.81 | 2340.82 | 56.76 | 2340.9 | 66.7 | 2342.79 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 31.81 | .064 | 48.32 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 35.61 | 53.34 | 7.63 | 14.15 | 16.52 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2342.47 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.50 | Wt. n-Val. | 0.064 | 0.063 | 0.061 |
| W.S. Elev (ft) | 2341.97 | Reach Len. (ft) | 7.63 | 14.15 | 16.52 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 3.40 | 37.93 | 7.29 |
| E.G. Slope (ft/ft) | 0.023903 | Area (sq ft) | 3.40 | 37.93 | 7.29 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 9.68 | 226.78 | 23.54 |
| Top Width (ft) | 32.51 | Top Width (ft) | 5.75 | 17.73 | 9.04 |
| Vel Total (ft/s) | 5.35 | Avg. Vel. (ft/s) | 2.84 | 5.98 | 3.23 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Max Chl Dpth (ft) | 2.92 | Hydr. Depth (ft) | 0.59 | 2.14 | 0.81 |
| Conv. Total (cfs) | 1681.7 | Conv. (cfs) | 62.6 | 1466.8 | 152.3 |
| Length Wtd. (ft) | 14.12 | Wetted Per. (ft) | 5.87 | 18.00 | 9.17 |
| Min Ch El (ft) | 2339.05 | Shear (lb/sq ft) | 0.86 | 3.14 | 1.19 |
| Alpha | 1.13 | Stream Power (lb/ft s) | 2.46 | 18.80 | 3.83 |
| Frctn Loss (ft) | 0.40 | Cum Volume (acre-ft) | 1.16 | 7.84 | 1.55 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 1.22 | 3.10 | 1.63 |

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2342.90 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.51 | Wt. n-Val. | | 0.063 | |
| W.S. Elev (ft) | 2342.39 | Reach Len. (ft) | 7.63 | 14.15 | 16.52 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 45.47 | |
| E.G. Slope (ft/ft) | 0.021492 | Area (sq ft) | | 45.47 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 17.73 | Top Width (ft) | | 17.73 | |
| Vel Total (ft/s) | 5.72 | Avg. Vel. (ft/s) | | 5.72 | |
| Max Chl Dpth (ft) | 3.34 | Hydr. Depth (ft) | | 2.56 | |
| Conv. Total (cfs) | 1773.5 | Conv. (cfs) | | 1773.5 | |
| Length Wtd. (ft) | 14.15 | Wetted Per. (ft) | | 21.57 | |
| Min Ch El (ft) | 2339.05 | Shear (lb/sq ft) | | 2.83 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 16.17 | |
| Frctn Loss (ft) | 0.32 | Cum Volume (acre-ft) | 0.00 | 8.97 | 0.01 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.00 | 3.11 | 0.01 |

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 26.71 | 35.61 | 9.68 | 3.40 | 5.87 | 3.72 | 0.59 | 2.84 |
| 2 | Chan | 35.61 | 40.04 | 34.29 | 7.15 | 4.51 | 13.19 | 1.61 | 4.80 |
| 3 | Chan | 40.04 | 44.48 | 67.59 | 10.74 | 4.51 | 26.00 | 2.42 | 6.29 |
| 4 | Chan | 44.48 | 48.91 | 77.85 | 11.64 | 4.49 | 29.94 | 2.63 | 6.69 |
| 5 | Chan | 48.91 | 53.34 | 47.05 | 8.39 | 4.50 | 18.10 | 1.89 | 5.61 |
| 6 | ROB | 53.34 | 56.68 | 15.97 | 4.20 | 3.37 | 6.14 | 1.26 | 3.80 |
| 7 | ROB | 56.68 | 60.02 | 6.94 | 2.56 | 3.40 | 2.67 | 0.77 | 2.72 |
| 8 | ROB | 60.02 | 63.36 | 0.63 | 0.53 | 2.40 | 0.24 | 0.22 | 1.20 |

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 35.61 | 40.04 | 38.05 | 9.04 | 6.14 | 14.63 | 2.04 | 4.21 |
| 2 | Chan | 40.04 | 44.48 | 81.69 | 12.63 | 4.51 | 31.42 | 2.85 | 6.47 |
| 3 | Chan | 44.48 | 48.91 | 92.29 | 13.52 | 4.49 | 35.50 | 3.05 | 6.82 |
| 4 | Chan | 48.91 | 53.34 | 47.97 | 10.28 | 6.43 | 18.45 | 2.32 | 4.67 |

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.62721

INPUT
Description:
Station Elevation Data num= 23

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2347.34 | 1.47 | 2347.23 | 3.74 | 2347.13 | 4.76 | 2347.09 | 15.09 | 2344.99 |
| 29.68 | 2342.24 | 32.48 | 2341.68 | 34.24 | 2341.32 | 34.87 | 2341.19 | 38.92 | 2340.13 |
| 42.14 | 2339.31 | 44.97 | 2338.63 | 49.34 | 2339.23 | 50.8 | 2339.48 | 53.78 | 2339.98 |
| 55.32 | 2340.28 | 57.85 | 2340.49 | 59 | 2340.56 | 60.55 | 2340.69 | 75.21 | 2341.9 |
| 75.83 | 2342.03 | 77.54 | 2342.13 | 77.69 | 2342.15 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 34.24 | .064 | 50.8 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 38.92 | 55.32 | 23.37 | 20.55 | 23.34 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2342.05 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.66 | Wt. n-Val. | 0.064 | 0.063 | 0.061 |
| W.S. Elev (ft) | 2341.39 | Reach Len. (ft) | 23.37 | 20.55 | 23.34 |
| Crit W.S. (ft) | 2341.39 | Flow Area (sq ft) | 3.07 | 32.90 | 7.74 |
| E.G. Slope (ft/ft) | 0.034252 | Area (sq ft) | 3.07 | 32.90 | 7.74 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 9.70 | 226.55 | 23.75 |
| Top Width (ft) | 35.20 | Top Width (ft) | 5.04 | 16.40 | 13.76 |
| Vel Total (ft/s) | 5.95 | Avg. Vel. (ft/s) | 3.16 | 6.89 | 3.07 |
| Max Chl Dpth (ft) | 2.76 | Hydr. Depth (ft) | 0.61 | 2.01 | 0.56 |
| Conv. Total (cfs) | 1404.9 | Conv. (cfs) | 52.4 | 1224.1 | 128.3 |
| Length Wtd. (ft) | 21.09 | Wetted Per. (ft) | 5.20 | 16.72 | 13.80 |
| Min Ch El (ft) | 2338.63 | Shear (lb/sq ft) | 1.26 | 4.21 | 1.20 |
| Alpha | 1.20 | Stream Power (lb/ft s) | 3.99 | 28.98 | 3.68 |
| Frctn Loss (ft) | 0.72 | Cum Volume (acre-ft) | 1.16 | 7.83 | 1.55 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 1.22 | 3.10 | 1.62 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2342.58 | Element | Left OB | Channel | Right OB |

```
* Vel Head (ft)          *    0.57  * Wt. n-Val.              *          *   0.063  *          *
* W.S. Elev (ft)         * 2342.01  * Reach Len. (ft)         *   23.37  *   20.55  *   23.34  *
* Crit W.S. (ft)         * 2341.36  * Flow Area (sq ft)       *          *   42.96  *          *
* E.G. Slope (ft/ft)     *0.023685  * Area (sq ft)            *          *   42.96  *          *
* Q Total (cfs)          *  260.00  * Flow (cfs)              *          *  260.00  *          *
* Top Width (ft)         *   16.40  * Top Width (ft)          *          *   16.40  *          *
* Vel Total (ft/s)       *    6.05  * Avg. Vel. (ft/s)        *          *    6.05  *          *
* Max Chl Dpth (ft)      *    3.38  * Hydr. Depth (ft)        *          *    2.62  *          *
* Conv. Total (cfs)      *  1689.4  * Conv. (cfs)             *          *  1689.4  *          *
* Length Wtd. (ft)       *   20.55  * Wetted Per. (ft)        *          *   20.32  *          *
* Min Ch El (ft)         * 2338.63  * Shear (lb/sq ft)        *          *    3.13  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s)   *          *   18.92  *          *
* Frctn Loss (ft)        *    0.72  * Cum Volume (acre-ft)     *    0.00  *    8.96  *    0.01  *
* C & E Loss (ft)        *    0.05  * Cum SA (acres)           *    0.00  *    3.10  *    0.01  *
*****************************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.

  Profile #PF 1
*****************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *    Flow *    Area *    W.P. * Percent *    Hydr * Velocity *
*          *          * (ft)      * (ft)      *   (cfs) * (sq ft) *    (ft) *    Conv *Depth(ft) *   (ft/s) *
* 1        * LOB      * 29.19     * 38.92     *    9.70 *    3.07 *    5.20 *    3.73 *    0.61 *    3.16 *
* 2        * Chan     * 38.92     * 43.02     *   44.80 *    7.32 *    4.23 *   17.23 *    1.78 *    6.12 *
* 3        * Chan     * 43.02     * 47.12     *   83.23 *   10.56 *    4.18 *   32.01 *    2.58 *    7.88 *
* 4        * Chan     * 47.12     * 51.22     *   63.31 *    8.91 *    4.15 *   24.35 *    2.17 *    7.11 *
* 5        * Chan     * 51.22     * 55.32     *   35.21 *    6.12 *    4.16 *   13.54 *    1.49 *    5.76 *
* 6        * ROB      * 55.32     * 60.91     *   17.93 *    4.99 *    5.61 *    6.90 *    0.89 *    3.59 *
* 7        * ROB      * 60.91     * 66.51     *    5.58 *    2.48 *    5.61 *    2.15 *    0.44 *    2.25 *
* 8        * ROB      * 66.51     * 72.10     *    0.24 *    0.27 *    2.58 *    0.09 *    0.11 *    0.87 *
*****************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program selected the water surface that had the least amount of error between computed and
         assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.

  Profile #PF 2
*****************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *    Flow *    Area *    W.P. * Percent *    Hydr * Velocity *
*          *          * (ft)      * (ft)      *   (cfs) * (sq ft) *    (ft) *    Conv *Depth(ft) *   (ft/s) *
* 1        * Chan     * 38.92     * 43.02     *   46.38 *    9.83 *    6.11 *   17.84 *    2.40 *    4.72 *
* 2        * Chan     * 43.02     * 47.12     *   96.07 *   13.07 *    4.18 *   36.95 *    3.19 *    7.35 *
* 3        * Chan     * 47.12     * 51.22     *   77.44 *   11.42 *    4.15 *   29.79 *    2.79 *    6.78 *
* 4        * Chan     * 51.22     * 55.32     *   40.10 *    8.63 *    5.89 *   15.42 *    2.11 *    4.65 *
*****************************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.

CROSS SECTION


RIVER: Ocotillo Wash 1
REACH: Tributary-2.1        RS: 0.62332

INPUT
Description:
Station Elevation Data     num=      22
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
       0 2346.64    4.32 2346.43    6.48 2346.32   36.11 2340.43   37.05  2340.2
   37.65 2340.05   41.1  2339.2   45.88 2338.05   49.67 2338.55   52.57 2338.96
   56.75 2339.56   57.62 2339.58   60.61 2339.66   67.54 2339.87   73.46 2340.04
   74.94  2340.3   76.08 2340.45   81.18 2341.26   88.57 2342.29   88.88 2342.35
   89.26 2342.41   89.62 2342.44

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
       0    .061   37.65    .064   52.57    .061

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          41.1   56.75             34.19   26.31   21.76            .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************************
* E.G. Elev (ft)         * 2341.16  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.55  * Wt. n-Val.              *   0.064  *   0.064  *   0.061  *
* W.S. Elev (ft)         * 2340.61  * Reach Len. (ft)         *   34.19  *   26.31  *   21.76  *
* Crit W.S. (ft)         * 2340.61  * Flow Area (sq ft)       *    4.05  *   29.27  *   14.61  *
* E.G. Slope (ft/ft)     *0.033854  * Area (sq ft)            *    4.05  *   29.27  *   14.61  *
* Q Total (cfs)          *  260.00  * Flow (cfs)              *   15.29  *  192.28  *   52.42  *
* Top Width (ft)         *   41.89  * Top Width (ft)          *    5.90  *   15.65  *   20.34  *
* Vel Total (ft/s)       *    5.42  * Avg. Vel. (ft/s)        *    3.77  *    6.57  *    3.59  *
* Max Chl Dpth (ft)      *    2.56  * Hydr. Depth (ft)        *    0.69  *    1.87  *    0.72  *
* Conv. Total (cfs)      *  1413.1  * Conv. (cfs)             *    83.1  *  1045.0  *   284.9  *
* Length Wtd. (ft)       *   26.04  * Wetted Per. (ft)        *    6.07  *   15.89  *   20.39  *
* Min Ch El (ft)         * 2338.05  * Shear (lb/sq ft)        *    1.41  *    3.89  *    1.51  *
* Alpha                  *    1.20  * Stream Power (lb/ft s)   *    5.33  *   25.57  *    5.43  *
* Frctn Loss (ft)        *    0.68  * Cum Volume (acre-ft)     *    1.15  *    7.81  *    1.54  *
* C & E Loss (ft)        *    0.02  * Cum SA (acres)           *    1.22  *    3.09  *    1.62  *
*****************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program selected the water surface that had the least amount of error between computed and
         assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************************
```

| | | | | | | |
|---|---|---|---|---|---|---|
| * E.G. Elev (ft) | * 2341.81 | * Element | * Left OB | * Channel | * Right OB | * |
| * Vel Head (ft) | * 1.03 | * Wt. n-Val. | * | * 0.064 | * | * |
| * W.S. Elev (ft) | * 2340.78 | * Reach Len. (ft) | * 34.19 | * 26.31 | * 21.76 | * |
| * Crit W.S. (ft) | * 2340.78 | * Flow Area (sq ft) | * | * 31.87 | * | * |
| * E.G. Slope (ft/ft) | *0.056972 | * Area (sq ft) | * | * 31.87 | * | * |
| * Q Total (cfs) | * 260.00 | * Flow (cfs) | * | * 260.00 | * | * |
| * Top Width (ft) | * 15.65 | * Top Width (ft) | * | * 15.65 | * | * |
| * Vel Total (ft/s) | * 8.16 | * Avg. Vel. (ft/s) | * | * 8.16 | * | * |
| * Max Chl Dpth (ft) | * 2.73 | * Hydr. Depth (ft) | * | * 2.04 | * | * |
| * Conv. Total (cfs) | * 1089.3 | * Conv. (cfs) | * | * 1089.3 | * | * |
| * Length Wtd. (ft) | * 26.31 | * Wetted Per. (ft) | * | * 18.68 | * | * |
| * Min Ch El (ft) | * 2338.05 | * Shear (lb/sq ft) | * | * 6.07 | * | * |
| * Alpha | * 1.00 | * Stream Power (lb/ft s) | * | * 49.49 | * | * |
| * Frctn Loss (ft) | * 0.76 | * Cum Volume (acre-ft) | * 0.00 | * 8.94 | * 0.01 | * |
| * C & E Loss (ft) | * 0.18 | * Cum SA (acres) | * 0.00 | * 3.09 | * 0.01 | * |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 30.83 | 41.10 | 15.29 | 4.05 | 6.07 | 5.88 | 0.69 | 3.77 |
| 2 | Chan | 41.10 | 45.01 | 46.72 | 7.36 | 4.02 | 17.97 | 1.88 | 6.35 |
| 3 | Chan | 45.01 | 48.93 | 69.90 | 9.32 | 3.96 | 26.88 | 2.38 | 7.50 |
| 4 | Chan | 48.93 | 52.84 | 47.78 | 7.39 | 3.95 | 18.38 | 1.89 | 6.47 |
| 5 | Chan | 52.84 | 56.75 | 27.88 | 5.21 | 3.95 | 10.72 | 1.33 | 5.35 |
| 6 | ROB | 56.75 | 64.97 | 31.26 | 7.72 | 8.22 | 12.02 | 0.94 | 4.05 |
| 7 | ROB | 64.97 | 73.19 | 19.00 | 5.73 | 8.22 | 7.31 | 0.70 | 3.32 |
| 8 | ROB | 73.19 | 81.40 | 2.16 | 1.16 | 3.95 | 0.83 | 0.30 | 1.86 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 41.10 | 45.01 | 54.81 | 8.01 | 5.60 | 21.08 | 2.05 | 6.84 |
| 2 | Chan | 45.01 | 48.93 | 99.34 | 9.97 | 3.96 | 38.21 | 2.55 | 9.97 |
| 3 | Chan | 48.93 | 52.84 | 69.83 | 8.04 | 3.95 | 26.86 | 2.05 | 8.69 |
| 4 | Chan | 52.84 | 56.75 | 36.02 | 5.86 | 5.17 | 13.85 | 1.50 | 6.15 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.61834

INPUT
Description:
Station Elevation Data num= 41

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2346.21 | 3.19 | 2346.15 | 3.48 | 2345.84 | 4.14 | 2345.93 | 5.11 | 2345.71 |
| 5.55 | 2345.65 | 7.32 | 2345.68 | 8.03 | 2345.65 | 9.28 | 2345.39 | 12.3 | 2344.76 |
| 12.38 | 2344.75 | 16.92 | 2344.16 | 18.33 | 2344.09 | 21.94 | 2343.95 | 23.98 | 2343.52 |
| 25.15 | 2343.31 | 27.64 | 2342.92 | 28.59 | 2342.74 | 31.02 | 2342.19 | 34.46 | 2341.61 |
| 35.95 | 2341.34 | 39.91 | 2340.21 | 41.11 | 2339.84 | 41.71 | 2339.74 | 42.14 | 2339.66 |
| 42.47 | 2339.57 | 45.61 | 2338 | 49.9 | 2335.86 | 49.91 | 2337.09 | 51.87 | 2336.55 |
| 58.62 | 2337.78 | 60.03 | 2338.03 | 60.32 | 2338.09 | 61.92 | 2338.36 | 66.29 | 2338.93 |
| 71.51 | 2339.65 | 72.87 | 2339.88 | 77.94 | 2340.97 | 78.22 | 2341.03 | 80.01 | 2341.39 |
| 80.5 | 2341.48 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 45.61 | .064 | 58.62 | .061 |

Bank Sta: Left 45.61 Right 61.92 Lengths: Left 36.23 Channel 26.97 Right 9.94 Coeff Contr. .1 Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

| | | | | |
|---|---|---|---|---|
| * E.G. Elev (ft) | * 2340.20 | * Element | * Left OB | * Channel * Right OB * |

| | | | | | | |
|---|---|---|---|---|---|---|
| Vel Head (ft) | 0.47 | Wt. n-Val. | 0.061 | 0.064 | 0.061 |
| W.S. Elev (ft) | 2339.73 | Reach Len. (ft) | 36.23 | 26.97 | 9.94 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 3.00 | 40.46 | 7.02 |
| E.G. Slope (ft/ft) | 0.020602 | Area (sq ft) | 3.00 | 40.46 | 7.02 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 8.38 | 232.41 | 19.21 |
| Top Width (ft) | 30.18 | Top Width (ft) | 3.83 | 16.31 | 10.04 |
| Vel Total (ft/s) | 5.15 | Avg. Vel. (ft/s) | 2.79 | 5.74 | 2.74 |
| Max Chl Dpth (ft) | 3.87 | Hydr. Depth (ft) | 0.79 | 2.48 | 0.70 |
| Conv. Total (cfs) | 1811.4 | Conv. (cfs) | 58.4 | 1619.2 | 133.8 |
| Length Wtd. (ft) | 25.66 | Wetted Per. (ft) | 4.21 | 18.27 | 10.13 |
| Min Ch El (ft) | 2335.86 | Shear (lb/sq ft) | 0.92 | 2.85 | 0.89 |
| Alpha | 1.14 | Stream Power (lb/ft s) | 2.56 | 16.36 | 2.44 |
| Frctn Loss (ft) | 0.61 | Cum Volume (acre-ft) | 1.15 | 7.79 | 1.54 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 1.22 | 3.08 | 1.61 |

CROSS SECTION OUTPUT Profile #PF 2

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2340.69 | Element | | | |
| Vel Head (ft) | 0.44 | Wt. n-Val. | | 0.064 | |
| W.S. Elev (ft) | 2340.25 | Reach Len. (ft) | 36.23 | 26.97 | 9.94 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 49.08 | |
| E.G. Slope (ft/ft) | 0.017275 | Area (sq ft) | | 49.08 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 16.31 | Top Width (ft) | | 16.31 | |
| Vel Total (ft/s) | 5.30 | Avg. Vel. (ft/s) | | 5.30 | |
| Max Chl Dpth (ft) | 4.39 | Hydr. Depth (ft) | | 3.01 | |
| Conv. Total (cfs) | 1978.1 | Conv. (cfs) | | 1978.1 | |
| Length Wtd. (ft) | 26.97 | Wetted Per. (ft) | | 22.42 | |
| Min Ch El (ft) | 2335.86 | Shear (lb/sq ft) | | 2.36 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 12.51 | |
| Frctn Loss (ft) | 0.63 | Cum Volume (acre-ft) | 0.00 | 8.92 | 0.01 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.00 | 3.08 | 0.01 |

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 34.21 | 45.61 | 8.38 | 3.00 | 4.21 | 3.22 | 0.79 | 2.79 |
| 2 | Chan | 45.61 | 49.69 | 67.73 | 11.18 | 4.56 | 26.05 | 2.74 | 6.06 |
| 3 | Chan | 49.69 | 53.77 | 69.96 | 12.23 | 5.43 | 26.91 | 3.00 | 5.72 |
| 4 | Chan | 53.77 | 57.84 | 60.14 | 10.03 | 4.14 | 23.13 | 2.46 | 6.00 |
| 5 | Chan | 57.84 | 61.92 | 34.58 | 7.02 | 4.14 | 13.30 | 1.72 | 4.93 |
| 6 | ROB | 61.92 | 66.57 | 15.63 | 4.94 | 4.68 | 6.01 | 1.06 | 3.16 |
| 7 | ROB | 66.57 | 71.21 | 3.56 | 2.03 | 4.69 | 1.37 | 0.44 | 1.75 |
| 8 | ROB | 71.21 | 75.86 | 0.02 | 0.05 | 0.76 | 0.01 | 0.06 | 0.47 |

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 45.61 | 49.69 | 62.84 | 13.34 | 6.81 | 24.17 | 3.27 | 4.71 |
| 2 | Chan | 49.69 | 53.77 | 82.91 | 14.38 | 5.43 | 31.89 | 3.53 | 5.76 |
| 3 | Chan | 53.77 | 57.84 | 75.22 | 12.18 | 4.14 | 28.93 | 2.99 | 6.18 |
| 4 | Chan | 57.84 | 61.92 | 39.03 | 9.17 | 6.04 | 15.01 | 2.25 | 4.25 |

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.61323

INPUT
Description:
Station Elevation Data num= 24

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2344.2 | 1.97 | 2344.15 | 5.67 | 2343.78 | 7.62 | 2343.53 | 12.79 | 2342.4 |
| 20.96 | 2340.65 | 24.57 | 2338.81 | 27.51 | 2337.35 | 28.02 | 2337.1 | 31.01 | 2335.61 |
| 31.35 | 2335.66 | 34.65 | 2336.27 | 35.78 | 2336.47 | 36.33 | 2336.57 | 39.03 | 2337 |
| 40.72 | 2337.28 | 48.32 | 2338.46 | 51.65 | 2339.02 | 57.21 | 2340.05 | 61.61 | 2341 |
| 61.75 | 2341.02 | 63.94 | 2341.28 | 64.3 | 2341.3 | 65.34 | 2341.35 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 28.02 | .064 | 34.65 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 27.51 | 40.72 | 23.27 | 21.72 | 19.78 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 2339.57 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.67 | Wt. n-Val. | 0.061 | 0.063 | 0.061 |
| W.S. Elev (ft) | 2338.90 | Reach Len. (ft) | 23.27 | 21.72 | 19.78 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 2.40 | 32.05 | 8.35 |
| E.G. Slope (ft/ft) | 0.027772 | Area (sq ft) | 2.40 | 32.05 | 8.35 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 7.64 | 222.90 | 29.46 |
| Top Width (ft) | 26.50 | Top Width (ft) | 3.11 | 13.21 | 10.19 |
| Vel Total (ft/s) | 6.07 | Avg. Vel. (ft/s) | 3.18 | 6.96 | 3.53 |
| Max Chl Dpth (ft) | 3.28 | Hydr. Depth (ft) | 0.77 | 2.43 | 0.82 |
| Conv. Total (cfs) | 1560.2 | Conv. (cfs) | 45.8 | 1337.6 | 176.8 |
| Length Wtd. (ft) | 21.53 | Wetted Per. (ft) | 3.47 | 13.76 | 10.31 |
| Min Ch El (ft) | 2335.61 | Shear (lb/sq ft) | 1.20 | 4.04 | 1.40 |
| Alpha | 1.17 | Stream Power (lb/ft s) | 3.82 | 28.08 | 4.95 |
| Frctn Loss (ft) | 0.67 | Cum Volume (acre-ft) | 1.15 | 7.77 | 1.53 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 1.21 | 3.07 | 1.61 |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2340.03 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.77 | Wt. n-Val. | | 0.062 | |
| W.S. Elev (ft) | 2339.26 | Reach Len. (ft) | 23.27 | 21.72 | 19.78 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 36.80 | |
| E.G. Slope (ft/ft) | 0.032815 | Area (sq ft) | | 36.80 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 13.21 | Top Width (ft) | | 13.21 | |
| Vel Total (ft/s) | 7.06 | Avg. Vel. (ft/s) | | 7.06 | |
| Max Chl Dpth (ft) | 3.65 | Hydr. Depth (ft) | | 2.79 | |
| Conv. Total (cfs) | 1435.3 | Conv. (cfs) | | 1435.3 | |
| Length Wtd. (ft) | 21.72 | Wetted Per. (ft) | | 17.64 | |
| Min Ch El (ft) | 2335.61 | Shear (lb/sq ft) | | 4.27 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 30.19 | |
| Frctn Loss (ft) | 0.75 | Cum Volume (acre-ft) | 0.00 | 8.89 | 0.01 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.00 | 3.08 | 0.01 |

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 20.63 | 27.51 | 7.64 | 2.40 | 3.47 | 2.94 | 0.77 | 3.18 |
| 2 | Chan | 27.51 | 30.81 | 49.73 | 7.81 | 3.69 | 19.13 | 2.36 | 6.37 |
| 3 | Chan | 30.81 | 34.12 | 78.46 | 9.99 | 3.38 | 30.18 | 3.02 | 7.86 |
| 4 | Chan | 34.12 | 37.42 | 57.00 | 8.02 | 3.35 | 21.92 | 2.43 | 7.10 |
| 5 | Chan | 37.42 | 40.72 | 37.71 | 6.23 | 3.35 | 14.50 | 1.89 | 6.05 |
| 6 | ROB | 40.72 | 46.88 | 27.14 | 7.00 | 6.23 | 10.44 | 1.14 | 3.88 |
| 7 | ROB | 46.88 | 53.03 | 2.32 | 1.35 | 4.09 | 0.89 | 0.34 | 1.72 |

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 27.51 | 30.81 | 58.45 | 9.00 | 5.59 | 22.48 | 2.72 | 6.50 |
| 2 | Chan | 30.81 | 34.12 | 93.76 | 11.18 | 3.38 | 36.06 | 3.38 | 8.39 |
| 3 | Chan | 34.12 | 37.42 | 71.09 | 9.21 | 3.35 | 27.34 | 2.79 | 7.72 |
| 4 | Chan | 37.42 | 40.72 | 36.69 | 7.42 | 5.32 | 14.11 | 2.25 | 4.95 |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.60912

INPUT
Description:
Station Elevation Data num= 24

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2343.01 | .24 | 2342.98 | 3.26 | 2342.81 | 5.68 | 2342.67 | 14.22 | 2340.63 |
| 18.47 | 2339.65 | 21.68 | 2337.33 | 24.89 | 2334.98 | 25.29 | 2334.71 | 25.48 | 2334.73 |
| 29.33 | 2335.28 | 32.32 | 2336.02 | 34.26 | 2336.5 | 34.62 | 2336.58 | 36.25 | 2336.92 |
| 37.5 | 2337.17 | 46.18 | 2338 | 52.14 | 2338.61 | 60.17 | 2340.68 | 60.31 | 2340.72 |
| 60.4 | 2340.73 | 60.46 | 2340.73 | 61.13 | 2340.79 | 64.03 | 2341.04 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 25.29 | .064 | 32.32 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 21.68 | 34.26 | 24.48 | 26.02 | 22.75 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2338.88 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.82 | Wt. n-Val. | 0.061 | 0.063 | 0.061 |
| W.S. Elev (ft) | 2338.06 | Reach Len. (ft) | 24.48 | 26.02 | 22.75 |
| Crit W.S. (ft) | 2338.06 | Flow Area (sq ft) | 0.37 | 30.45 | 8.05 |
| E.G. Slope (ft/ft) | 0.035200 | Area (sq ft) | 0.37 | 30.45 | 8.05 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 0.74 | 231.95 | 27.31 |
| Top Width (ft) | 26.06 | Top Width (ft) | 1.01 | 12.58 | 12.47 |
| Vel Total (ft/s) | 6.69 | Avg. Vel. (ft/s) | 2.02 | 7.62 | 3.39 |
| Max Chl Dpth (ft) | 3.35 | Hydr. Depth (ft) | 0.36 | 2.42 | 0.65 |
| Conv. Total (cfs) | 1385.8 | Conv. (cfs) | 3.9 | 1236.3 | 145.6 |
| Length Wtd. (ft) | 25.73 | Wetted Per. (ft) | 1.24 | 13.62 | 12.58 |
| Min Ch El (ft) | 2334.71 | Shear (lb/sq ft) | 0.65 | 4.91 | 1.41 |
| Alpha | 1.18 | Stream Power (lb/ft s) | 1.31 | 37.42 | 4.77 |
| Frctn Loss (ft) | 0.95 | Cum Volume (acre-ft) | 1.15 | 7.75 | 1.53 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 1.21 | 3.06 | 1.60 |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2339.27 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.87 | Wt. n-Val. | | 0.062 | |
| W.S. Elev (ft) | 2338.40 | Reach Len. (ft) | 24.48 | 26.02 | 22.75 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 34.76 | |
| E.G. Slope (ft/ft) | 0.036694 | Area (sq ft) | | 34.76 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 12.58 | Top Width (ft) | | 12.58 | |
| Vel Total (ft/s) | 7.48 | Avg. Vel. (ft/s) | | 7.48 | |
| Max Chl Dpth (ft) | 3.69 | Hydr. Depth (ft) | | 2.76 | |
| Conv. Total (cfs) | 1357.3 | Conv. (cfs) | | 1357.3 | |
| Length Wtd. (ft) | 26.02 | Wetted Per. (ft) | | 16.59 | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Min Ch El (ft) | 2334.71 | Shear (lb/sq ft) | | | 4.80 | | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | | 35.91 | | |
| Frctn Loss (ft) | 0.78 | Cum Volume (acre-ft) | 0.00 | | 8.87 | | 0.01 |
| C & E Loss (ft) | 0.07 | Cum SA (acres) | 0.00 | | 3.07 | | 0.01 |

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 16.26 | 21.68 | 0.74 | 0.37 | 1.24 | 0.28 | 0.36 | 2.02 |
| 2 | Chan | 21.68 | 24.83 | 34.41 | 5.91 | 3.90 | 13.24 | 1.88 | 5.83 |
| 3 | Chan | 24.83 | 27.97 | 88.86 | 9.96 | 3.27 | 34.18 | 3.17 | 8.92 |
| 4 | Chan | 27.97 | 31.12 | 68.06 | 8.47 | 3.21 | 26.18 | 2.69 | 8.03 |
| 5 | Chan | 31.12 | 34.26 | 40.62 | 6.12 | 3.24 | 15.62 | 1.95 | 6.64 |
| 6 | ROB | 34.26 | 41.70 | 25.41 | 6.82 | 7.53 | 9.77 | 0.92 | 3.72 |
| 7 | ROB | 41.70 | 49.15 | 1.90 | 1.23 | 5.05 | 0.73 | 0.24 | 1.55 |

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 21.68 | 24.83 | 37.32 | 6.98 | 4.97 | 14.35 | 2.22 | 5.35 |
| 2 | Chan | 24.83 | 27.97 | 101.66 | 11.03 | 3.27 | 39.10 | 3.51 | 9.21 |
| 3 | Chan | 27.97 | 31.12 | 80.10 | 9.55 | 3.21 | 30.81 | 3.04 | 8.39 |
| 4 | Chan | 31.12 | 34.26 | 40.92 | 7.20 | 5.14 | 15.74 | 2.29 | 5.69 |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.60419

INPUT
Description:
Station Elevation Data num= 20

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2342.17 | 4.62 | 2342.09 | 6.78 | 2342.05 | 8.54 | 2341.52 | 10.43 | 2340.98 |
| 21.69 | 2337.9 | 22.16 | 2337.71 | 25.87 | 2335.95 | 30.82 | 2333.74 | 34.48 | 2334.44 |
| 35.43 | 2334.65 | 38.84 | 2335.5 | 41.24 | 2336.11 | 44.1 | 2336.81 | 51.38 | 2337.72 |
| 57.62 | 2338.56 | 60.77 | 2339.24 | 66.66 | 2340.27 | 67.13 | 2340.29 | 69.92 | 2340.39 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 30.82 | .064 | 38.84 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 25.87 | 38.84 | 35.02 | 34.21 | 35.36 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2337.92 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.92 | Wt. n-Val. | 0.061 | 0.063 | 0.061 |
| W.S. Elev (ft) | 2337.00 | Reach Len. (ft) | 35.02 | 34.21 | 35.36 |
| Crit W.S. (ft) | 2337.00 | Flow Area (sq ft) | 1.17 | 30.27 | 4.58 |
| E.G. Slope (ft/ft) | 0.038799 | Area (sq ft) | 1.17 | 30.27 | 4.58 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 3.43 | 239.97 | 16.61 |
| Top Width (ft) | 22.00 | Top Width (ft) | 2.22 | 12.97 | 6.81 |
| Vel Total (ft/s) | 7.22 | Avg. Vel. (ft/s) | 2.93 | 7.93 | 3.62 |
| Max Chl Dpth (ft) | 3.26 | Hydr. Depth (ft) | 0.53 | 2.33 | 0.67 |
| Conv. Total (cfs) | 1320.0 | Conv. (cfs) | 17.4 | 1218.3 | 84.3 |
| Length Wtd. (ft) | 34.34 | Wetted Per. (ft) | 2.46 | 13.63 | 6.98 |
| Min Ch El (ft) | 2333.74 | Shear (lb/sq ft) | 1.15 | 5.38 | 1.59 |
| Alpha | 1.13 | Stream Power (lb/ft s) | 3.37 | 42.63 | 5.76 |
| Frctn Loss (ft) | 0.64 | Cum Volume (acre-ft) | 1.15 | 7.73 | 1.53 |
| C & E Loss (ft) | 0.18 | Cum SA (acres) | 1.21 | 3.06 | 1.60 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2338.42 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.65 | Wt. n-Val. | | 0.063 | |
| W.S. Elev (ft) | 2337.77 | Reach Len. (ft) | 35.02 | 34.21 | 35.36 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 40.21 | |
| E.G. Slope (ft/ft) | 0.025039 | Area (sq ft) | | 40.21 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 12.97 | Top Width (ft) | | 12.97 | |
| Vel Total (ft/s) | 6.47 | Avg. Vel. (ft/s) | | 6.47 | |
| Max Chl Dpth (ft) | 4.03 | Hydr. Depth (ft) | | 3.10 | |
| Conv. Total (cfs) | 1643.1 | Conv. (cfs) | | 1643.1 | |
| Length Wtd. (ft) | 34.21 | Wetted Per. (ft) | | 17.73 | |
| Min Ch El (ft) | 2333.74 | Shear (lb/sq ft) | | 3.55 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 22.93 | |
| Frctn Loss (ft) | 0.62 | Cum Volume (acre-ft) | 0.00 | 8.85 | 0.01 |

| | | | | | |
|---|---|---|---|---|---|
| C & E Loss (ft) | 0.07 | Cum SA (acres) | 0.00 | 3.06 | 0.01 |

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 19.40 | 25.87 | 3.43 | 1.17 | 2.46 | 1.32 | 0.53 | 2.93 |
| 2 | Chan | 25.87 | 29.11 | 37.20 | 5.76 | 3.55 | 14.31 | 1.78 | 6.45 |
| 3 | Chan | 29.11 | 32.36 | 88.76 | 9.71 | 3.43 | 34.14 | 2.99 | 9.14 |
| 4 | Chan | 32.36 | 35.60 | 72.48 | 8.61 | 3.31 | 27.88 | 2.65 | 8.42 |
| 5 | Chan | 35.60 | 38.84 | 41.53 | 6.19 | 3.34 | 15.97 | 1.91 | 6.71 |
| 6 | ROB | 38.84 | 46.61 | 16.61 | 4.58 | 6.98 | 6.39 | 0.67 | 3.62 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 25.87 | 29.11 | 38.86 | 8.25 | 5.37 | 14.95 | 2.54 | 4.71 |
| 2 | Chan | 29.11 | 32.36 | 98.27 | 12.19 | 3.43 | 37.79 | 3.76 | 8.06 |
| 3 | Chan | 32.36 | 35.60 | 83.79 | 11.09 | 3.31 | 32.23 | 3.42 | 7.55 |
| 4 | Chan | 35.60 | 38.84 | 39.09 | 8.67 | 5.61 | 15.03 | 2.67 | 4.51 |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.59771

INPUT
Description:
Station Elevation Data num= 25

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2340.86 | 6.58 | 2340.42 | 6.77 | 2340.41 | 9.89 | 2340.21 | 13.4 | 2339.59 |
| 15.83 | 2339.2 | 22.52 | 2337.65 | 26.4 | 2336.94 | 29.92 | 2336.28 | 36.15 | 2334.32 |
| 37.46 | 2333.97 | 40.35 | 2333.13 | 41.6 | 2333.27 | 46.7 | 2333.88 | 50.59 | 2334.73 |
| 51.37 | 2334.9 | 54.43 | 2335.54 | 57.59 | 2336.19 | 57.67 | 2336.2 | 64.68 | 2337.35 |
| 67.76 | 2337.88 | 70.49 | 2338.79 | 72.37 | 2339.47 | 74.03 | 2339.52 | 79.25 | 2339.7 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 40.35 | .064 | 50.59 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 36.15 | 50.59 | 25 | 27.67 | 30.7 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2337.06 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.33 | Wt. n-Val. | 0.061 | 0.063 | 0.061 |
| W.S. Elev (ft) | 2336.74 | Reach Len. (ft) | 25.00 | 27.67 | 30.70 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 9.49 | 42.58 | 9.79 |
| E.G. Slope (ft/ft) | 0.010818 | Area (sq ft) | 9.49 | 42.58 | 9.79 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 24.91 | 211.45 | 23.64 |
| Top Width (ft) | 33.43 | Top Width (ft) | 8.65 | 14.44 | 10.34 |
| Vel Total (ft/s) | 4.20 | Avg. Vel. (ft/s) | 2.62 | 4.97 | 2.41 |
| Max Chl Dpth (ft) | 3.60 | Hydr. Depth (ft) | 1.10 | 2.95 | 0.95 |
| Conv. Total (cfs) | 2499.8 | Conv. (cfs) | 239.5 | 2033.1 | 227.3 |
| Length Wtd. (ft) | 27.67 | Wetted Per. (ft) | 9.00 | 14.74 | 10.53 |
| Min Ch El (ft) | 2333.13 | Shear (lb/sq ft) | 0.71 | 1.95 | 0.63 |
| Alpha | 1.20 | Stream Power (lb/ft s) | 1.87 | 9.69 | 1.52 |
| Frctn Loss (ft) | 0.19 | Cum Volume (acre-ft) | 1.14 | 7.71 | 1.52 |
| C & E Loss (ft) | 0.05 | Cum SA (acres) | 1.21 | 3.05 | 1.59 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2337.73 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.40 | Wt. n-Val. | | 0.063 | |
| W.S. Elev (ft) | 2337.33 | Reach Len. (ft) | 25.00 | 27.67 | 30.70 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 51.16 | |
| E.G. Slope (ft/ft) | 0.013543 | Area (sq ft) | | 51.16 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 14.44 | Top Width (ft) | | 14.44 | |
| Vel Total (ft/s) | 5.08 | Avg. Vel. (ft/s) | | 5.08 | |
| Max Chl Dpth (ft) | 4.20 | Hydr. Depth (ft) | | 3.54 | |
| Conv. Total (cfs) | 2234.1 | Conv. (cfs) | | 2234.1 | |
| Length Wtd. (ft) | 27.67 | Wetted Per. (ft) | | 20.35 | |
| Min Ch El (ft) | 2333.13 | Shear (lb/sq ft) | | 2.13 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 10.80 | |
| Frctn Loss (ft) | 0.24 | Cum Volume (acre-ft) | 0.00 | 8.82 | 0.01 |
| C & E Loss (ft) | 0.05 | Cum SA (acres) | 0.00 | 3.05 | 0.01 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 27.11 | 36.15 | 24.91 | 9.49 | 9.00 | 9.58 | 1.10 | 2.62 |
| 2 | Chan | 36.15 | 39.76 | 52.47 | 10.52 | 3.75 | 20.18 | 2.91 | 4.99 |
| 3 | Chan | 39.76 | 43.37 | 67.83 | 12.44 | 3.65 | 26.09 | 3.45 | 5.45 |
| 4 | Chan | 43.37 | 46.98 | 54.63 | 10.96 | 3.64 | 21.01 | 3.04 | 4.98 |
| 5 | Chan | 46.98 | 50.59 | 36.53 | 8.66 | 3.70 | 14.05 | 2.40 | 4.22 |
| 6 | ROB | 50.59 | 57.76 | 22.90 | 8.97 | 7.32 | 8.81 | 1.25 | 2.55 |
| 7 | ROB | 57.76 | 64.92 | 0.74 | 0.83 | 3.22 | 0.29 | 0.26 | 0.90 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 36.15 | 39.76 | 50.75 | 12.67 | 6.76 | 19.52 | 3.51 | 4.01 |
| 2 | Chan | 39.76 | 43.37 | 92.96 | 14.59 | 3.65 | 35.75 | 4.04 | 6.37 |
| 3 | Chan | 43.37 | 46.98 | 77.36 | 13.11 | 3.64 | 29.75 | 3.63 | 5.90 |
| 4 | Chan | 46.98 | 50.59 | 38.93 | 10.81 | 6.29 | 14.97 | 2.99 | 3.60 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.59247

INPUT
Description:
Station Elevation Data num= 24

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2339.65 | 3.55 | 2339.45 | 6.95 | 2339.24 | 7.49 | 2339.21 | 13.46 | 2338.48 |
| 17.25 | 2338.01 | 20.63 | 2337.72 | 22.66 | 2337.56 | 29.57 | 2336.47 | 35 | 2335.76 |
| 36.96 | 2335.51 | 42.67 | 2334.27 | 44.17 | 2333.97 | 49.71 | 2332.77 | 54.54 | 2333.02 |
| 56.61 | 2333.14 | 58.57 | 2333.67 | 60.52 | 2334.21 | 61.77 | 2334.53 | 66.62 | 2335.84 |
| 74.42 | 2337.42 | 79.06 | 2338.4 | 80.01 | 2338.45 | 84.61 | 2338.68 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 49.71 | .064 | 58.57 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 42.67 | 60.52 | 18.65 | 23.35 | 31.42 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2336.83 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.17 | Wt. n-Val. | 0.061 | 0.062 | 0.061 |
| W.S. Elev (ft) | 2336.65 | Reach Len. (ft) | 18.65 | 23.35 | 31.42 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 15.10 | 59.21 | 11.62 |
| E.G. Slope (ft/ft) | 0.004735 | Area (sq ft) | 15.10 | 59.21 | 11.62 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 26.04 | 213.02 | 20.94 |
| Top Width (ft) | 42.24 | Top Width (ft) | 14.27 | 17.85 | 10.12 |
| Vel Total (ft/s) | 3.03 | Avg. Vel. (ft/s) | 1.72 | 3.60 | 1.80 |
| Max Chl Dpth (ft) | 3.88 | Hydr. Depth (ft) | 1.06 | 3.32 | 1.15 |
| Conv. Total (cfs) | 3778.5 | Conv. (cfs) | 378.5 | 3095.8 | 304.3 |
| Length Wtd. (ft) | 23.58 | Wetted Per. (ft) | 14.48 | 18.16 | 10.41 |
| Min Ch El (ft) | 2332.77 | Shear (lb/sq ft) | 0.31 | 0.96 | 0.33 |
| Alpha | 1.22 | Stream Power (lb/ft s) | 0.53 | 3.47 | 0.59 |
| Frctn Loss (ft) | 0.07 | Cum Volume (acre-ft) | 1.14 | 7.67 | 1.51 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 1.20 | 3.03 | 1.58 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2337.44 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.22 | Wt. n-Val. | | 0.062 | |
| W.S. Elev (ft) | 2337.22 | Reach Len. (ft) | 18.65 | 23.35 | 31.42 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 69.25 | |
| E.G. Slope (ft/ft) | 0.006037 | Area (sq ft) | | 69.25 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 17.85 | Top Width (ft) | | 17.85 | |
| Vel Total (ft/s) | 3.75 | Avg. Vel. (ft/s) | | 3.75 | |
| Max Chl Dpth (ft) | 4.45 | Hydr. Depth (ft) | | 3.88 | |
| Conv. Total (cfs) | 3346.3 | Conv. (cfs) | | 3346.3 | |
| Length Wtd. (ft) | 23.35 | Wetted Per. (ft) | | 24.11 | |
| Min Ch El (ft) | 2332.77 | Shear (lb/sq ft) | | 1.08 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 4.06 | |
| Frctn Loss (ft) | 0.09 | Cum Volume (acre-ft) | 0.00 | 8.78 | 0.01 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.00 | 3.04 | 0.01 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 21.34 | 32.00 | 0.58 | 0.94 | 3.63 | 0.22 | 0.26 | 0.61 |
| 2 | LOB | 32.00 | 42.67 | 25.47 | 14.16 | 10.84 | 9.80 | 1.33 | 1.80 |
| 3 | Chan | 42.67 | 47.13 | 41.86 | 12.70 | 4.56 | 16.10 | 2.85 | 3.30 |
| 4 | Chan | 47.13 | 51.60 | 63.90 | 16.52 | 4.52 | 24.58 | 3.70 | 3.87 |
| 5 | Chan | 51.60 | 56.06 | 61.75 | 16.37 | 4.47 | 23.75 | 3.67 | 3.77 |
| 6 | Chan | 56.06 | 60.52 | 45.51 | 13.61 | 4.61 | 17.50 | 3.05 | 3.34 |
| 7 | ROB | 60.52 | 66.54 | 19.59 | 9.92 | 6.23 | 7.53 | 1.65 | 1.98 |
| 8 | ROB | 66.54 | 72.57 | 1.35 | 1.70 | 4.18 | 0.52 | 0.41 | 0.80 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 42.67 | 47.13 | 42.24 | 15.21 | 7.51 | 16.25 | 3.41 | 2.78 |
| 2 | Chan | 47.13 | 51.60 | 84.25 | 19.03 | 4.52 | 32.40 | 4.26 | 4.43 |
| 3 | Chan | 51.60 | 56.06 | 81.58 | 18.88 | 4.47 | 31.38 | 4.23 | 4.32 |
| 4 | Chan | 56.06 | 60.52 | 51.93 | 16.12 | 7.61 | 19.97 | 3.61 | 3.22 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.58805

INPUT
Description:
Station Elevation Data num= 26

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2341.2 | 28.56 | 2340 | 30.39 | 2339.95 | 40.67 | 2339.2 | 47.14 | 2338.78 |
| 50.23 | 2338.56 | 50.39 | 2338.55 | 54.18 | 2338.34 | 56.97 | 2338.02 | 63.87 | 2336.91 |
| 70.91 | 2335.71 | 75.85 | 2334.95 | 78.59 | 2334.34 | 85.99 | 2332.75 | 89.87 | 2331.96 |
| 93.91 | 2332.16 | 95.47 | 2332.25 | 98.34 | 2333.16 | 100.26 | 2333.76 | 103.29 | 2334.68 |
| 106.93 | 2335.74 | 109.4 | 2336 | 123.47 | 2337.63 | 123.88 | 2337.68 | 126.44 | 2337.8 |
| 135.68 | 2338.28 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 89.87 | .064 | 98.34 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 78.59 | 100.26 | 440.33 | 434.02 | 436.3 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2336.73 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.10 | Wt. n-Val. | 0.061 | 0.062 | 0.061 |
| W.S. Elev (ft) | 2336.63 | Reach Len. (ft) | 440.33 | 434.02 | 436.30 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 14.34 | 82.13 | 16.06 |
| E.G. Slope (ft/ft) | 0.002252 | Area (sq ft) | 14.34 | 82.13 | 16.06 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 17.45 | 223.06 | 19.50 |
| Top Width (ft) | 49.32 | Top Width (ft) | 13.08 | 21.67 | 14.58 |
| Vel Total (ft/s) | 2.31 | Avg. Vel. (ft/s) | 1.22 | 2.72 | 1.21 |
| Max Chl Dpth (ft) | 4.67 | Hydr. Depth (ft) | 1.10 | 3.79 | 1.10 |
| Conv. Total (cfs) | 5479.0 | Conv. (cfs) | 367.7 | 4700.5 | 410.9 |
| Length Wtd. (ft) | 434.45 | Wetted Per. (ft) | 13.28 | 22.16 | 14.91 |
| Min Ch El (ft) | 2331.96 | Shear (lb/sq ft) | 0.15 | 0.52 | 0.15 |
| Alpha | 1.22 | Stream Power (lb/ft s) | 0.18 | 1.42 | 0.18 |
| Frctn Loss (ft) | 2.23 | Cum Volume (acre-ft) | 1.13 | 7.64 | 1.50 |
| C & E Loss (ft) | 0.05 | Cum SA (acres) | 1.19 | 3.02 | 1.57 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2337.32 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.12 | Wt. n-Val. | | 0.062 | |
| W.S. Elev (ft) | 2337.20 | Reach Len. (ft) | 440.33 | 434.02 | 436.30 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 94.43 | |
| E.G. Slope (ft/ft) | 0.002659 | Area (sq ft) | | 94.43 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 21.67 | Top Width (ft) | | 21.67 | |
| Vel Total (ft/s) | 2.75 | Avg. Vel. (ft/s) | | 2.75 | |
| Max Chl Dpth (ft) | 5.24 | Hydr. Depth (ft) | | 4.36 | |
| Conv. Total (cfs) | 5041.9 | Conv. (cfs) | | 5041.9 | |
| Length Wtd. (ft) | 434.02 | Wetted Per. (ft) | | 28.45 | |
| Min Ch El (ft) | 2331.96 | Shear (lb/sq ft) | | 0.55 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 1.52 | |
| Frctn Loss (ft) | 2.46 | Cum Volume (acre-ft) | 0.00 | 8.73 | 0.01 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 0.00 | 3.03 | 0.01 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 58.94 | 78.59 | 17.45 | 14.34 | 13.28 | 6.71 | 1.10 | 1.22 |
| 2 | Chan | 78.59 | 84.01 | 35.30 | 15.56 | 5.54 | 13.58 | 2.87 | 2.27 |
| 3 | Chan | 84.01 | 89.43 | 61.99 | 21.80 | 5.53 | 23.84 | 4.02 | 2.84 |
| 4 | Chan | 89.43 | 94.84 | 73.78 | 24.66 | 5.43 | 28.38 | 4.55 | 2.99 |
| 5 | Chan | 94.84 | 100.26 | 51.98 | 20.11 | 5.65 | 19.99 | 3.71 | 2.58 |
| 6 | ROB | 100.26 | 109.12 | 18.61 | 14.16 | 9.15 | 7.16 | 1.60 | 1.31 |
| 7 | ROB | 109.12 | 117.97 | 0.89 | 1.89 | 5.76 | 0.34 | 0.33 | 0.47 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 78.59 | 84.01 | 36.19 | 18.63 | 8.40 | 13.92 | 3.44 | 1.94 |
| 2 | Chan | 84.01 | 89.43 | 77.34 | 24.87 | 5.53 | 29.75 | 4.59 | 3.11 |
| 3 | Chan | 89.43 | 94.84 | 89.86 | 27.74 | 5.43 | 34.56 | 5.12 | 3.24 |
| 4 | Chan | 94.84 | 100.26 | 56.61 | 23.18 | 9.09 | 21.77 | 4.28 | 2.44 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.58365

INPUT
Description:
Station Elevation Data num= 23

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2338.62 | .41 | 2338.6 | 6.18 | 2338.34 | 6.96 | 2338.18 | 10.69 | 2337.42 |
| 12.98 | 2337.12 | 22.87 | 2335 | 26.49 | 2334.28 | 32.32 | 2332.64 | 35.35 | 2331.86 |
| 40.12 | 2330.71 | 41.44 | 2330.8 | 45.98 | 2331.29 | 48 | 2332.12 | 50.57 | 2333.18 |
| 54.3 | 2334.77 | 61.8 | 2335.53 | 67.57 | 2336.13 | 68.14 | 2336.2 | 68.89 | 2336.27 |
| 70.1 | 2336.33 | 72.46 | 2336.45 | 78.39 | 2336.69 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 40.12 | .064 | 48 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 32.32 | 48 | 14.58 | 19.36 | 22.22 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2334.45 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.57 | Wt. n-Val. | 0.061 | 0.063 | 0.061 |
| W.S. Elev (ft) | 2333.88 | Reach Len. (ft) | 14.58 | 19.36 | 22.22 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 2.72 | 38.66 | 3.72 |
| E.G. Slope (ft/ft) | 0.021498 | Area (sq ft) | 2.72 | 38.66 | 3.72 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 6.88 | 241.50 | 11.62 |
| Top Width (ft) | 24.28 | Top Width (ft) | 4.40 | 15.68 | 4.21 |
| Vel Total (ft/s) | 5.76 | Avg. Vel. (ft/s) | 2.53 | 6.25 | 3.12 |
| Max Chl Dpth (ft) | 3.17 | Hydr. Depth (ft) | 0.62 | 2.47 | 0.89 |
| Conv. Total (cfs) | 1773.3 | Conv. (cfs) | 46.9 | 1647.1 | 79.3 |
| Length Wtd. (ft) | 19.32 | Wetted Per. (ft) | 4.57 | 16.11 | 4.56 |
| Min Ch El (ft) | 2330.71 | Shear (lb/sq ft) | 0.80 | 3.22 | 1.10 |
| Alpha | 1.11 | Stream Power (lb/ft s) | 2.02 | 20.12 | 3.42 |
| Frctn Loss (ft) | 0.46 | Cum Volume (acre-ft) | 1.04 | 7.03 | 1.40 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 1.11 | 2.84 | 1.48 |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2334.82 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.51 | Wt. n-Val. | | 0.063 | |
| W.S. Elev (ft) | 2334.31 | Reach Len. (ft) | 14.58 | 19.36 | 22.22 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 45.45 | |
| E.G. Slope (ft/ft) | 0.019375 | Area (sq ft) | | 45.45 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 15.68 | Top Width (ft) | | 15.68 | |
| Vel Total (ft/s) | 5.72 | Avg. Vel. (ft/s) | | 5.72 | |
| Max Chl Dpth (ft) | 3.60 | Hydr. Depth (ft) | | 2.90 | |
| Conv. Total (cfs) | 1867.9 | Conv. (cfs) | | 1867.9 | |
| Length Wtd. (ft) | 19.36 | Wetted Per. (ft) | | 19.97 | |
| Min Ch El (ft) | 2330.71 | Shear (lb/sq ft) | | 2.75 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 15.75 | |
| Frctn Loss (ft) | 0.44 | Cum Volume (acre-ft) | 0.00 | 8.04 | 0.01 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.00 | 2.84 | 0.01 |

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 24.24 | 32.32 | 6.88 | 2.72 | 4.57 | 2.64 | 0.62 | 2.53 |
| 2 | Chan | 32.32 | 36.24 | 33.88 | 6.82 | 4.04 | 13.03 | 1.74 | 4.97 |
| 3 | Chan | 36.24 | 40.16 | 70.76 | 10.60 | 4.03 | 27.22 | 2.70 | 6.68 |
| 4 | Chan | 40.16 | 44.08 | 81.27 | 11.74 | 3.94 | 31.26 | 3.00 | 6.92 |
| 5 | Chan | 44.08 | 48.00 | 55.60 | 9.50 | 4.09 | 21.39 | 2.42 | 5.85 |
| 6 | ROB | 48.00 | 55.60 | 11.62 | 3.72 | 4.56 | 4.47 | 0.89 | 3.12 |

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 32.32 | 36.24 | 35.38 | 8.52 | 5.71 | 13.61 | 2.17 | 4.15 |
| 2 | Chan | 36.24 | 40.16 | 82.30 | 12.30 | 4.03 | 31.65 | 3.14 | 6.69 |
| 3 | Chan | 40.16 | 44.08 | 92.42 | 13.44 | 3.94 | 35.54 | 3.43 | 6.88 |
| 4 | Chan | 44.08 | 48.00 | 49.91 | 11.19 | 6.28 | 19.20 | 2.86 | 4.46 |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.57998

INPUT
Description:
Station Elevation Data num= 22

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2338.27 | 4.85 | 2338.04 | 5.36 | 2338.01 | 7.45 | 2337.86 | 13.76 | 2337.5 |
| 13.87 | 2337.47 | 13.94 | 2337.46 | 14.34 | 2337.37 | 29.31 | 2333.9 | 35.21 | 2331.66 |
| 39.3 | 2330.18 | 41.57 | 2330.17 | 43.97 | 2330.11 | 45.37 | 2330.15 | 47.21 | 2331.18 |
| 47.58 | 2331.4 | 52.2 | 2334.1 | 65.99 | 2334.64 | 66.82 | 2334.68 | 67.59 | 2334.71 |
| 68.69 | 2334.75 | 74.66 | 2334.94 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 39.3 | .064 | 47.58 | .061 |

Bank Sta: Left 35.21 Right 47.58 Lengths: Left 20.58 Channel 20.7 Right 20.58 Coeff Contr. .1 Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2333.97 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.76 | Wt. n-Val. | 0.061 | 0.063 | 0.061 |
| W.S. Elev (ft) | 2333.21 | Reach Len. (ft) | 20.58 | 20.70 | 20.58 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 3.15 | 33.29 | 2.79 |
| E.G. Slope (ft/ft) | 0.026678 | Area (sq ft) | 3.15 | 33.29 | 2.79 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 10.10 | 240.49 | 9.41 |
| Top Width (ft) | 19.53 | Top Width (ft) | 4.07 | 12.37 | 3.09 |
| Vel Total (ft/s) | 6.63 | Avg. Vel. (ft/s) | 3.20 | 7.22 | 3.37 |
| Max Chl Dpth (ft) | 3.10 | Hydr. Depth (ft) | 0.77 | 2.69 | 0.90 |
| Conv. Total (cfs) | 1591.8 | Conv. (cfs) | 61.8 | 1472.4 | 57.6 |
| Length Wtd. (ft) | 20.69 | Wetted Per. (ft) | 4.36 | 12.96 | 3.58 |
| Min Ch El (ft) | 2330.11 | Shear (lb/sq ft) | 1.20 | 4.28 | 1.30 |
| Alpha | 1.12 | Stream Power (lb/ft s) | 3.86 | 30.91 | 4.38 |
| Frctn Loss (ft) | 0.66 | Cum Volume (acre-ft) | 1.04 | 7.02 | 1.40 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 1.10 | 2.83 | 1.48 |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2334.36 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.69 | Wt. n-Val. | | 0.063 | |
| W.S. Elev (ft) | 2333.68 | Reach Len. (ft) | 20.58 | 20.70 | 20.58 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 39.08 | |
| E.G. Slope (ft/ft) | 0.026665 | Area (sq ft) | | 39.08 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 12.37 | Top Width (ft) | | 12.37 | |
| Vel Total (ft/s) | 6.65 | Avg. Vel. (ft/s) | | 6.65 | |
| Max Chl Dpth (ft) | 3.56 | Hydr. Depth (ft) | | 3.16 | |
| Conv. Total (cfs) | 1592.2 | Conv. (cfs) | | 1592.2 | |
| Length Wtd. (ft) | 20.70 | Wetted Per. (ft) | | 17.25 | |
| Min Ch El (ft) | 2330.11 | Shear (lb/sq ft) | | 3.77 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 25.09 | |
| Frctn Loss (ft) | 0.69 | Cum Volume (acre-ft) | 0.00 | 8.02 | 0.01 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.00 | 2.84 | 0.01 |

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 26.41 | 35.21 | 10.10 | 3.15 | 4.36 | 3.88 | 0.77 | 3.20 |
| 2 | Chan | 35.21 | 38.30 | 40.36 | 6.51 | 3.29 | 15.52 | 2.11 | 6.20 |
| 3 | Chan | 38.30 | 41.40 | 71.31 | 9.19 | 3.16 | 27.43 | 2.97 | 7.76 |
| 4 | Chan | 41.40 | 44.49 | 75.02 | 9.49 | 3.09 | 28.85 | 3.07 | 7.91 |
| 5 | Chan | 44.49 | 47.58 | 53.81 | 8.09 | 3.42 | 20.70 | 2.62 | 6.65 |
| 6 | ROB | 47.58 | 54.35 | 9.41 | 2.79 | 3.58 | 3.62 | 0.90 | 3.37 |

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 35.21 | 38.30 | 38.43 | 7.96 | 5.30 | 14.78 | 2.57 | 4.83 |
| 2 | Chan | 38.30 | 41.40 | 85.27 | 10.64 | 3.16 | 32.80 | 3.44 | 8.02 |
| 3 | Chan | 41.40 | 44.49 | 89.08 | 10.94 | 3.09 | 34.26 | 3.54 | 8.14 |
| 4 | Chan | 44.49 | 47.58 | 47.23 | 9.54 | 5.70 | 18.16 | 3.09 | 4.95 |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.57606

INPUT
Description:
Station Elevation Data num= 19

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2337.99 | 3.87 | 2337.68 | 4.41 | 2337.64 | 12.4 | 2337.15 | 14.95 | 2337.05 |
| 18.11 | 2336.24 | 31.11 | 2333.2 | 32.73 | 2332.56 | 37.27 | 2330.76 | 40.21 | 2329.58 |
| 46.79 | 2329.78 | 47.19 | 2329.79 | 48.24 | 2330.26 | 49.12 | 2330.66 | 53.43 | 2332.62 |
| 56.58 | 2333.03 | 65.19 | 2333.68 | 66.15 | 2333.68 | 72.38 | 2333.73 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 40.21 | .064 | 49.12 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 37.27 | 49.12 | 20.66 | 21.13 | 18.33 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2333.29 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.96 | Wt. n-Val. | 0.061 | 0.063 | 0.061 |
| W.S. Elev (ft) | 2332.33 | Reach Len. (ft) | 20.66 | 21.13 | 18.33 |
| Crit W.S. (ft) | 2332.33 | Flow Area (sq ft) | 3.12 | 28.91 | 3.08 |
| E.G. Slope (ft/ft) | 0.038374 | Area (sq ft) | 3.12 | 28.91 | 3.08 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 12.09 | 235.66 | 12.25 |
| Top Width (ft) | 19.50 | Top Width (ft) | 3.97 | 11.85 | 3.68 |
| Vel Total (ft/s) | 7.41 | Avg. Vel. (ft/s) | 3.87 | 8.15 | 3.98 |
| Max Chl Dpth (ft) | 2.75 | Hydr. Depth (ft) | 0.79 | 2.44 | 0.84 |
| Conv. Total (cfs) | 1327.3 | Conv. (cfs) | 61.7 | 1203.0 | 62.5 |
| Length Wtd. (ft) | 20.95 | Wetted Per. (ft) | 4.27 | 12.27 | 4.04 |
| Min Ch El (ft) | 2329.58 | Shear (lb/sq ft) | 1.75 | 5.65 | 1.82 |
| Alpha | 1.12 | Stream Power (lb/ft s) | 6.78 | 46.02 | 7.26 |
| Frctn Loss (ft) | 0.71 | Cum Volume (acre-ft) | 1.04 | 7.00 | 1.40 |
| C & E Loss (ft) | 0.06 | Cum SA (acres) | 1.10 | 2.83 | 1.47 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2333.65 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.95 | Wt. n-Val. | | 0.063 | |
| W.S. Elev (ft) | 2332.70 | Reach Len. (ft) | 20.66 | 21.13 | 18.33 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 33.26 | |
| E.G. Slope (ft/ft) | 0.042352 | Area (sq ft) | | 33.26 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 11.85 | Top Width (ft) | | 11.85 | |
| Vel Total (ft/s) | 7.82 | Avg. Vel. (ft/s) | | 7.82 | |
| Max Chl Dpth (ft) | 3.12 | Hydr. Depth (ft) | | 2.81 | |
| Conv. Total (cfs) | 1263.4 | Conv. (cfs) | | 1263.4 | |
| Length Wtd. (ft) | 21.13 | Wetted Per. (ft) | | 16.25 | |
| Min Ch El (ft) | 2329.58 | Shear (lb/sq ft) | | 5.41 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 42.31 | |
| Frctn Loss (ft) | 0.81 | Cum Volume (acre-ft) | 0.00 | 8.00 | 0.01 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 0.00 | 2.83 | 0.01 |

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 27.95 | 37.27 | 12.09 | 3.12 | 4.27 | 4.65 | 0.79 | 3.87 |
| 2 | Chan | 37.27 | 40.23 | 48.53 | 6.42 | 3.19 | 18.67 | 2.17 | 7.56 |
| 3 | Chan | 40.23 | 43.20 | 70.38 | 8.02 | 2.96 | 27.07 | 2.71 | 8.77 |
| 4 | Chan | 43.20 | 46.16 | 66.52 | 7.75 | 2.96 | 25.59 | 2.62 | 8.58 |
| 5 | Chan | 46.16 | 49.12 | 50.23 | 6.71 | 3.15 | 19.32 | 2.27 | 7.48 |
| 6 | ROB | 49.12 | 54.94 | 12.25 | 3.08 | 4.04 | 4.71 | 0.84 | 3.98 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 37.27 | 40.23 | 45.63 | 7.51 | 5.13 | 17.55 | 2.53 | 6.08 |
| 2 | Chan | 40.23 | 43.20 | 86.32 | 9.11 | 2.96 | 33.20 | 3.07 | 9.48 |
| 3 | Chan | 43.20 | 46.16 | 82.16 | 8.84 | 2.96 | 31.60 | 2.98 | 9.29 |
| 4 | Chan | 46.16 | 49.12 | 45.89 | 7.80 | 5.19 | 17.65 | 2.63 | 5.88 |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.57206

INPUT
Description:
Station Elevation Data num= 24

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2337.5 | 3.36 | 2337.24 | 5.21 | 2337.11 | 5.57 | 2337.07 | 8.58 | 2336.81 |
| 17.22 | 2336.16 | 34.47 | 2332.57 | 38.08 | 2331.12 | 40.77 | 2330 | 43.87 | 2328.76 |
| 49.6 | 2329.08 | 51.4 | 2329.14 | 53.49 | 2329.82 | 58.09 | 2331.31 | 58.3 | 2331.34 |
| 59.16 | 2331.47 | 60.17 | 2331.61 | 61.88 | 2331.74 | 64.17 | 2331.82 | 65.17 | 2331.93 |
| 68.07 | 2332.23 | 70.19 | 2332.26 | 71.6 | 2332.39 | 75.67 | 2332.67 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 43.87 | .064 | 53.49 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 40.77 | 53.49 | 25.07 | 26.45 | 25.39 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2332.39 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.76 | Wt. n-Val. | 0.061 | 0.063 | 0.061 |
| W.S. Elev (ft) | 2331.63 | Reach Len. (ft) | 25.07 | 26.45 | 25.39 |
| Crit W.S. (ft) | 2331.47 | Flow Area (sq ft) | 3.18 | 31.46 | 5.21 |
| E.G. Slope (ft/ft) | 0.030282 | Area (sq ft) | 3.18 | 31.46 | 5.21 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 11.08 | 230.99 | 17.93 |
| Top Width (ft) | 23.54 | Top Width (ft) | 3.95 | 12.72 | 6.87 |
| Vel Total (ft/s) | 6.52 | Avg. Vel. (ft/s) | 3.48 | 7.34 | 3.44 |
| Max Chl Dpth (ft) | 2.86 | Hydr. Depth (ft) | 0.81 | 2.47 | 0.76 |
| Conv. Total (cfs) | 1494.1 | Conv. (cfs) | 63.7 | 1327.4 | 103.0 |
| Length Wtd. (ft) | 26.33 | Wetted Per. (ft) | 4.27 | 13.08 | 7.13 |
| Min Ch El (ft) | 2328.76 | Shear (lb/sq ft) | 1.41 | 4.55 | 1.38 |
| Alpha | 1.16 | Stream Power (lb/ft s) | 4.91 | 33.39 | 4.76 |
| Frctn Loss (ft) | 0.57 | Cum Volume (acre-ft) | 1.04 | 6.99 | 1.40 |
| C & E Loss (ft) | 0.10 | Cum SA (acres) | 1.10 | 2.82 | 1.47 |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2332.80 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.80 | Wt. n-Val. | | 0.063 | |
| W.S. Elev (ft) | 2332.00 | Reach Len. (ft) | 25.07 | 26.45 | 25.39 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 36.20 | |
| E.G. Slope (ft/ft) | 0.034589 | Area (sq ft) | | 36.20 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 12.72 | Top Width (ft) | | 12.72 | |
| Vel Total (ft/s) | 7.18 | Avg. Vel. (ft/s) | | 7.18 | |
| Max Chl Dpth (ft) | 3.24 | Hydr. Depth (ft) | | 2.85 | |
| Conv. Total (cfs) | 1398.0 | Conv. (cfs) | | 1398.0 | |
| Length Wtd. (ft) | 26.45 | Wetted Per. (ft) | | 17.25 | |
| Min Ch El (ft) | 2328.76 | Shear (lb/sq ft) | | 4.53 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 32.55 | |
| Frctn Loss (ft) | 0.63 | Cum Volume (acre-ft) | 0.00 | 7.98 | 0.01 |
| C & E Loss (ft) | 0.10 | Cum SA (acres) | 0.00 | 2.83 | 0.01 |

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 30.58 | 40.77 | 11.08 | 3.18 | 4.27 | 4.26 | 0.81 | 3.48 |
| 2 | Chan | 40.77 | 43.95 | 49.71 | 7.19 | 3.42 | 19.12 | 2.26 | 6.92 |
| 3 | Chan | 43.95 | 47.13 | 69.80 | 8.81 | 3.18 | 26.84 | 2.77 | 7.92 |
| 4 | Chan | 47.13 | 50.31 | 62.58 | 8.25 | 3.18 | 24.07 | 2.60 | 7.58 |
| 5 | Chan | 50.31 | 53.49 | 48.90 | 7.21 | 3.29 | 18.81 | 2.27 | 6.78 |
| 6 | ROB | 53.49 | 59.04 | 17.86 | 5.10 | 5.79 | 6.87 | 0.92 | 3.50 |
| 7 | ROB | 59.04 | 64.58 | 0.08 | 0.11 | 1.34 | 0.03 | 0.08 | 0.71 |

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 40.77 | 43.95 | 48.09 | 8.37 | 5.42 | 18.50 | 2.63 | 5.74 |
| 2 | Chan | 43.95 | 47.13 | 87.20 | 10.00 | 3.18 | 33.54 | 3.14 | 8.72 |
| 3 | Chan | 47.13 | 50.31 | 79.24 | 9.44 | 3.18 | 30.48 | 2.97 | 8.39 |
| 4 | Chan | 50.31 | 53.49 | 45.47 | 8.40 | 5.47 | 17.49 | 2.64 | 5.42 |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

```
RIVER: Ocotillo Wash 1
REACH: Tributary-2.1       RS: 0.56705

INPUT
Description:
Station Elevation Data     num=      23
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
       0 2337.15    3.47  2336.9     3.8 2336.87    7.27 2336.57   17.54 2335.49
   23.14 2334.49   34.93 2332.57   39.97 2330.51   40.56 2330.26   44.84 2328.46
   46.12 2328.46   50.58 2328.36   52.19 2328.34   54.53 2328.81   57.61 2329.45
   59.48 2329.79   61.92 2330.26   66.26  2331.1   68.33 2331.37    68.5 2331.38
   69.17 2331.38   73.21 2331.85   84.69 2332.99

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
       0    .061   44.84    .064   54.53    .061

Bank Sta: Left    Right    Lengths: Left Channel    Right     Coeff Contr.    Expan.
          40.56   57.61             39.14   31.39   24.59          .1          .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)          * 2331.71  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.43  * Wt. n-Val.              *   0.061  *   0.063  *   0.061  *
* W.S. Elev (ft)          * 2331.28  * Reach Len. (ft)         *   39.14  *   31.39  *   24.59  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *    1.26  *   42.36  *    8.93  *
* E.G. Slope (ft/ft)      *0.016470  * Area (sq ft)            *    1.26  *   42.36  *    8.93  *
* Q Total (cfs)           *  260.00  * Flow (cfs)              *    2.39  *  232.10  *   25.51  *
* Top Width (ft)          *   29.59  * Top Width (ft)          *    2.48  *   17.05  *   10.06  *
* Vel Total (ft/s)        *    4.95  * Avg. Vel. (ft/s)        *    1.89  *    5.48  *    2.86  *
* Max Chl Dpth (ft)       *    2.94  * Hydr. Depth (ft)        *    0.51  *    2.48  *    0.89  *
* Conv. Total (cfs)       *  2026.0  * Conv. (cfs)             *    18.6  *  1808.6  *   198.8  *
* Length Wtd. (ft)        *   30.91  * Wetted Per. (ft)        *    2.69  *   17.53  *   10.23  *
* Min Ch El (ft)          * 2328.34  * Shear (lb/sq ft)        *    0.48  *    2.48  *    0.90  *
* Alpha                   *    1.13  * Stream Power (lb/ft s)   *    0.91  *   13.62  *    2.57  *
* Frctn Loss (ft)         *    0.74  * Cum Volume (acre-ft)     *    1.04  *    6.97  *    1.40  *
* C & E Loss (ft)         *    0.03  * Cum SA (acres)           *    1.10  *    2.81  *    1.47  *
*****************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************
* E.G. Elev (ft)          * 2332.07  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.46  * Wt. n-Val.              *          *   0.062  *          *
* W.S. Elev (ft)          * 2331.61  * Reach Len. (ft)         *   39.14  *   31.39  *   24.59  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *          *   47.90  *          *
* E.G. Slope (ft/ft)      *0.017346  * Area (sq ft)            *          *   47.90  *          *
* Q Total (cfs)           *  260.00  * Flow (cfs)              *          *  260.00  *          *
* Top Width (ft)          *   17.05  * Top Width (ft)          *          *   17.05  *          *
* Vel Total (ft/s)        *    5.43  * Avg. Vel. (ft/s)        *          *    5.43  *          *
* Max Chl Dpth (ft)       *    3.27  * Hydr. Depth (ft)        *          *    2.81  *          *
* Conv. Total (cfs)       *  1974.1  * Conv. (cfs)             *          *  1974.1  *          *
* Length Wtd. (ft)        *   31.39  * Wetted Per. (ft)        *          *   21.03  *          *
* Min Ch El (ft)          * 2328.34  * Shear (lb/sq ft)        *          *    2.47  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s)   *          *   13.39  *          *
* Frctn Loss (ft)         *    0.64  * Cum Volume (acre-ft)     *    0.00  *    7.96  *    0.01  *
* C & E Loss (ft)         *    0.01  * Cum SA (acres)           *    0.00  *    2.82  *    0.01  *
*****************************************************************************************

Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB      * 30.42     * 40.56     *     2.39 *     1.26 *     2.69 *     0.92 *     0.51 *     1.89 *
* 2        * Chan     * 40.56     * 44.82     *    36.88 *     8.18 *     4.62 *    14.19 *     1.92 *     4.51 *
* 3        * Chan     * 44.82     * 49.09     *    71.54 *    12.13 *     4.26 *    27.52 *     2.85 *     5.90 *
* 4        * Chan     * 49.09     * 53.35     *    73.33 *    12.34 *     4.29 *    28.20 *     2.90 *     5.94 *
* 5        * Chan     * 53.35     * 57.61     *    50.35 *     9.70 *     4.35 *    19.37 *     2.28 *     5.19 *
* 6        * ROB      * 57.61     * 64.38     *    24.64 *     8.11 *     6.89 *     9.48 *     1.20 *     3.04 *
* 7        * ROB      * 64.38     * 71.15     *     0.87 *     0.82 *     3.33 *     0.33 *     0.25 *     1.07 *
*****************************************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 2
*****************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan     * 40.56     * 44.82     *    39.75 *     9.57 *     5.97 *    15.29 *     2.24 *     4.15 *
* 2        * Chan     * 44.82     * 49.09     *    84.38 *    13.52 *     4.26 *    32.46 *     3.17 *     6.24 *
* 3        * Chan     * 49.09     * 53.35     *    86.24 *    13.73 *     4.29 *    33.17 *     3.22 *     6.28 *
* 4        * Chan     * 53.35     * 57.61     *    49.62 *    11.08 *     6.51 *    19.09 *     2.60 *     4.48 *
*****************************************************************************************************************

Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: Ocotillo Wash 1
REACH: Tributary-2.1       RS: 0.56110

INPUT
Description:
Station Elevation Data     num=      25
```

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2336.27 | 2.94 | 2336.09 | 3.37 | 2336.06 | 4.87 | 2335.98 | 12.58 | 2335.06 |
| 17.71 | 2334.43 | 24.49 | 2333.39 | 30.77 | 2332.4 | 32.14 | 2332.2 | 34.26 | 2331.26 |
| 34.49 | 2331.16 | 39.25 | 2328.91 | 41.94 | 2327.86 | 45.66 | 2327.83 | 48.42 | 2327.74 |
| 50.76 | 2328.14 | 52.65 | 2328.47 | 54.77 | 2328.82 | 63.91 | 2330.3 | 65.28 | 2330.42 |
| 65.65 | 2330.47 | 77.59 | 2331.74 | 80.6 | 2332.13 | 82.46 | 2332.33 | 87.33 | 2332.84 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 41.94 | .064 | 50.76 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 39.25 | 54.77 | 38.34 | 25.44 | 16.68 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2330.94 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.78 | Wt. n-Val. | 0.061 | 0.063 | 0.061 |
| W.S. Elev (ft) | 2330.16 | Reach Len. (ft) | 38.34 | 25.44 | 16.68 |
| Crit W.S. (ft) | 2330.16 | Flow Area (sq ft) | 1.66 | 31.90 | 5.57 |
| E.G. Slope (ft/ft) | 0.037761 | Area (sq ft) | 1.66 | 31.90 | 5.57 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 5.38 | 234.59 | 20.03 |
| Top Width (ft) | 26.46 | Top Width (ft) | 2.65 | 15.52 | 8.29 |
| Vel Total (ft/s) | 6.65 | Avg. Vel. (ft/s) | 3.24 | 7.35 | 3.60 |
| Max Chl Dpth (ft) | 2.42 | Hydr. Depth (ft) | 0.63 | 2.06 | 0.67 |
| Conv. Total (cfs) | 1338.0 | Conv. (cfs) | 27.7 | 1207.2 | 103.1 |
| Length Wtd. (ft) | 24.53 | Wetted Per. (ft) | 2.93 | 15.81 | 8.40 |
| Min Ch El (ft) | 2327.74 | Shear (lb/sq ft) | 1.34 | 4.76 | 1.56 |
| Alpha | 1.13 | Stream Power (lb/ft s) | 4.33 | 34.98 | 5.62 |
| Frctn Loss (ft) | 0.73 | Cum Volume (acre-ft) | 1.04 | 6.94 | 1.39 |
| C & E Loss (ft) | 0.07 | Cum SA (acres) | 1.10 | 2.80 | 1.46 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2331.41 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.60 | Wt. n-Val. | | 0.062 | |
| W.S. Elev (ft) | 2330.81 | Reach Len. (ft) | 38.34 | 25.44 | 16.68 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 41.98 | |
| E.G. Slope (ft/ft) | 0.024642 | Area (sq ft) | | 41.98 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 15.52 | Top Width (ft) | | 15.52 | |
| Vel Total (ft/s) | 6.19 | Avg. Vel. (ft/s) | | 6.19 | |
| Max Chl Dpth (ft) | 3.07 | Hydr. Depth (ft) | | 2.70 | |
| Conv. Total (cfs) | 1656.3 | Conv. (cfs) | | 1656.3 | |
| Length Wtd. (ft) | 25.44 | Wetted Per. (ft) | | 19.71 | |
| Min Ch El (ft) | 2327.74 | Shear (lb/sq ft) | | 3.28 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 20.30 | |
| Frctn Loss (ft) | 0.56 | Cum Volume (acre-ft) | 0.00 | 7.93 | 0.01 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.00 | 2.80 | 0.01 |

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 29.44 | 39.25 | 5.38 | 1.66 | 2.93 | 2.07 | 0.63 | 3.24 |
| 2 | Chan | 39.25 | 43.13 | 52.86 | 7.53 | 4.08 | 20.33 | 1.94 | 7.02 |
| 3 | Chan | 43.13 | 47.01 | 71.24 | 9.05 | 3.88 | 27.40 | 2.33 | 7.87 |
| 4 | Chan | 47.01 | 50.89 | 68.22 | 8.85 | 3.92 | 26.24 | 2.28 | 7.71 |
| 5 | Chan | 50.89 | 54.77 | 42.27 | 6.47 | 3.94 | 16.26 | 1.67 | 6.53 |
| 6 | ROB | 54.77 | 62.91 | 20.03 | 5.57 | 8.25 | 7.70 | 0.68 | 3.60 |
| 7 | ROB | 62.91 | 71.05 | 0.00 | 0.00 | 0.15 | 0.00 | 0.01 | 0.25 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 39.25 | 43.13 | 54.14 | 10.05 | 5.98 | 20.82 | 2.59 | 5.39 |
| 2 | Chan | 43.13 | 47.01 | 82.85 | 11.58 | 3.88 | 31.87 | 2.98 | 7.16 |
| 3 | Chan | 47.01 | 50.89 | 80.02 | 11.37 | 3.92 | 30.78 | 2.93 | 7.04 |
| 4 | Chan | 50.89 | 54.77 | 42.99 | 8.99 | 5.93 | 16.54 | 2.32 | 4.78 |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.55629

INPUT
Description:
Station Elevation Data num= 30

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2335.13 | .89 | 2335.04 | 3.92 | 2334.69 | 4.59 | 2334.61 | 8.75 | 2334.19 |
| 19.06 | 2333.17 | 26.71 | 2332.19 | 30.75 | 2331.7 | 36.03 | 2328.75 | 38.37 | 2327.52 |
| 40.09 | 2326.64 | 40.91 | 2326.69 | 47.04 | 2327.15 | 49.53 | 2327.49 | 50.56 | 2327.64 |
| 52.86 | 2328.02 | 53.08 | 2328.06 | 63.03 | 2329.59 | 63.73 | 2329.7 | 63.86 | 2329.72 |
| 64.16 | 2329.76 | 71.8 | 2330.41 | 73.72 | 2330.57 | 80.11 | 2331.28 | 83.77 | 2331.6 |
| 89.57 | 2332.04 | 94.6 | 2332.48 | 95.98 | 2332.59 | 98.68 | 2332.82 | 103.83 | 2333.52 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 40.09 | .064 | 49.53 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 36.03 | 50.56 | 41.56 | 24.88 | 19.85 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2330.13 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.55 | Wt. n-Val. | 0.061 | 0.063 | 0.061 |
| W.S. Elev (ft) | 2329.58 | Reach Len. (ft) | 41.56 | 24.88 | 19.85 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 0.62 | 34.09 | 11.89 |
| E.G. Slope (ft/ft) | 0.024149 | Area (sq ft) | 0.62 | 34.09 | 11.89 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 1.19 | 215.44 | 43.37 |
| Top Width (ft) | 28.43 | Top Width (ft) | 1.49 | 14.53 | 12.41 |
| Vel Total (ft/s) | 5.58 | Avg. Vel. (ft/s) | 1.93 | 6.32 | 3.65 |
| Max Chl Dpth (ft) | 2.94 | Hydr. Depth (ft) | 0.42 | 2.35 | 0.96 |
| Conv. Total (cfs) | 1673.1 | Conv. (cfs) | 7.7 | 1386.4 | 279.1 |
| Length Wtd. (ft) | 24.45 | Wetted Per. (ft) | 1.70 | 15.10 | 12.56 |
| Min Ch El (ft) | 2326.64 | Shear (lb/sq ft) | 0.55 | 3.40 | 1.43 |
| Alpha | 1.13 | Stream Power (lb/ft s) | 1.05 | 21.51 | 5.21 |
| Frctn Loss (ft) | 0.58 | Cum Volume (acre-ft) | 1.04 | 6.92 | 1.39 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 1.09 | 2.79 | 1.46 |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2330.83 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.53 | Wt. n-Val. | | 0.062 | |
| W.S. Elev (ft) | 2330.30 | Reach Len. (ft) | 41.56 | 24.88 | 19.85 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 44.52 | |
| E.G. Slope (ft/ft) | 0.019791 | Area (sq ft) | | 44.52 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 14.53 | Top Width (ft) | | 14.53 | |
| Vel Total (ft/s) | 5.84 | Avg. Vel. (ft/s) | | 5.84 | |
| Max Chl Dpth (ft) | 3.66 | Hydr. Depth (ft) | | 3.06 | |
| Conv. Total (cfs) | 1848.2 | Conv. (cfs) | | 1848.2 | |
| Length Wtd. (ft) | 24.88 | Wetted Per. (ft) | | 19.31 | |
| Min Ch El (ft) | 2326.64 | Shear (lb/sq ft) | | 2.85 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 16.64 | |
| Frctn Loss (ft) | 0.45 | Cum Volume (acre-ft) | 0.00 | 7.90 | 0.01 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.00 | 2.80 | 0.01 |

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 27.02 | 36.03 | 1.19 | 0.62 | 1.70 | 0.46 | 0.42 | 1.93 |
| 2 | Chan | 36.03 | 39.66 | 32.65 | 6.47 | 4.10 | 12.56 | 1.78 | 5.04 |
| 3 | Chan | 39.66 | 43.30 | 72.53 | 10.28 | 3.69 | 27.89 | 2.83 | 7.05 |
| 4 | Chan | 43.30 | 46.93 | 62.15 | 9.36 | 3.64 | 23.91 | 2.58 | 6.64 |
| 5 | Chan | 46.93 | 50.56 | 48.11 | 7.98 | 3.67 | 18.51 | 2.20 | 6.03 |
| 6 | ROB | 50.56 | 63.88 | 43.37 | 11.89 | 12.56 | 16.68 | 0.96 | 3.65 |

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 36.03 | 39.66 | 38.73 | 9.08 | 5.64 | 14.89 | 2.50 | 4.26 |
| 2 | Chan | 39.66 | 43.30 | 88.33 | 12.89 | 3.69 | 33.97 | 3.55 | 6.85 |
| 3 | Chan | 43.30 | 46.93 | 78.24 | 11.96 | 3.64 | 30.09 | 3.29 | 6.54 |
| 4 | Chan | 46.93 | 50.56 | 54.71 | 10.59 | 6.33 | 21.04 | 2.91 | 5.17 |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.55157

INPUT
Description:
Station Elevation Data num= 32

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2334.05 | 5.2 | 2333.52 | 7.29 | 2333.31 | 7.88 | 2333.26 | 23.49 | 2332.15 |
| 24.35 | 2332.12 | 26.46 | 2331.96 | 34.89 | 2331.37 | 37.63 | 2331.13 | 44.14 | 2327.15 |
| 45.83 | 2326.19 | 51.54 | 2326.52 | 51.91 | 2326.54 | 52.06 | 2326.56 | 55.55 | 2326.98 |
| 59.09 | 2327.41 | 66.75 | 2328.32 | 68.95 | 2328.62 | 73.47 | 2329.31 | 74.91 | 2329.41 |
| 81.57 | 2330.01 | 85.8 | 2330.55 | 90.53 | 2331.09 | 94.34 | 2331.54 | 99.83 | 2331.94 |
| 102.18 | 2332.16 | 108.77 | 2332.86 | 109.86 | 2332.95 | 113.89 | 2333.3 | 117.19 | 2333.58 |
| 119.49 | 2333.87 | 121.21 | 2334.09 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|

```
************************************************
       0    .061   45.83    .064   55.55    .061

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         44.14   59.09             38.79   33.34   25.83            .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)         * 2329.55  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.52  * Wt. n-Val.              *   0.061  *   0.063  *   0.061  *
* W.S. Elev (ft)         * 2329.02  * Reach Len. (ft)         *   38.79  *   33.34  *   25.83  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)       *    2.86  *   34.82  *   10.60  *
* E.G. Slope (ft/ft)     *0.022993  * Area (sq ft)            *    2.86  *   34.82  *   10.60  *
* Q Total (cfs)          *  260.00  * Flow (cfs)              *    9.11  *  215.99  *   34.90  *
* Top Width (ft)         *   30.50  * Top Width (ft)           *    3.06  *   14.95  *   12.49  *
* Vel Total (ft/s)       *    5.39  * Avg. Vel. (ft/s)         *    3.18  *    6.20  *    3.29  *
* Max Chl Dpth (ft)      *    2.83  * Hydr. Depth (ft)         *    0.94  *    2.33  *    0.85  *
* Conv. Total (cfs)      *  1714.7  * Conv. (cfs)              *    60.1  *  1424.4  *   230.2  *
* Length Wtd. (ft)       *   32.25  * Wetted Per. (ft)         *    3.59  *   15.27  *   12.59  *
* Min Ch El (ft)         * 2326.19  * Shear (lb/sq ft)         *    1.15  *    3.27  *    1.21  *
* Alpha                  *    1.16  * Stream Power (lb/ft s)    *    3.64  *   20.31  *    3.98  *
* Frctn Loss (ft)        *    0.87  * Cum Volume (acre-ft)      *    1.03  *    6.90  *    1.38  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)            *    1.09  *    2.78  *    1.45  *
*****************************************************************************************

Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************
* E.G. Elev (ft)         * 2330.35  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.46  * Wt. n-Val.              *          *   0.062  *          *
* W.S. Elev (ft)         * 2329.90  * Reach Len. (ft)         *   38.79  *   33.34  *   25.83  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)       *          *   47.89  *          *
* E.G. Slope (ft/ft)     *0.016784  * Area (sq ft)            *          *   47.89  *          *
* Q Total (cfs)          *  260.00  * Flow (cfs)              *          *  260.00  *          *
* Top Width (ft)         *   14.95  * Top Width (ft)           *          *   14.95  *          *
* Vel Total (ft/s)       *    5.43  * Avg. Vel. (ft/s)         *          *    5.43  *          *
* Max Chl Dpth (ft)      *    3.71  * Hydr. Depth (ft)         *          *    3.20  *          *
* Conv. Total (cfs)      *  2006.9  * Conv. (cfs)              *          *  2006.9  *          *
* Length Wtd. (ft)       *   33.34  * Wetted Per. (ft)         *          *   20.50  *          *
* Min Ch El (ft)         * 2326.19  * Shear (lb/sq ft)         *          *    2.45  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s)    *          *   13.29  *          *
* Frctn Loss (ft)        *    0.82  * Cum Volume (acre-ft)      *    0.00  *    7.87  *    0.01  *
* C & E Loss (ft)        *    0.04  * Cum SA (acres)            *    0.00  *    2.79  *    0.01  *
*****************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) * (sq ft) *    (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB      * 33.11     * 44.14     *     9.11 *     2.86 *    3.59 *     3.50 *     0.94 *     3.18 *
* 2        * Chan     * 44.14     * 47.88     *    62.53 *     9.65 *    3.99 *    24.05 *     2.58 *     6.48 *
* 3        * Chan     * 47.88     * 51.62     *    64.30 *     9.74 *    3.74 *    24.73 *     2.61 *     6.60 *
* 4        * Chan     * 51.62     * 55.35     *    51.67 *     8.56 *    3.76 *    19.87 *     2.29 *     6.04 *
* 5        * Chan     * 55.35     * 59.09     *    37.50 *     6.87 *    3.76 *    14.42 *     1.84 *     5.46 *
* 6        * ROB      * 59.09     * 74.62     *    34.90 *    10.60 *   12.59 *    13.42 *     0.85 *     3.29 *
*****************************************************************************************************************

Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 2
*****************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) * (sq ft) *    (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan     * 44.14     * 47.88     *    66.38 *    12.92 *    6.74 *    25.53 *     3.46 *     5.14 *
* 2        * Chan     * 47.88     * 51.62     *    82.52 *    13.01 *    3.74 *    31.74 *     3.48 *     6.34 *
* 3        * Chan     * 51.62     * 55.35     *    70.19 *    11.83 *    3.76 *    27.00 *     3.16 *     5.93 *
* 4        * Chan     * 55.35     * 59.09     *    40.91 *    10.14 *    6.25 *    15.73 *     2.71 *     4.03 *
*****************************************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: Ocotillo Wash 1
REACH: Tributary-2.1       RS: 0.54526

INPUT
Description:
Station Elevation Data     num=      33
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
       0 2332.26     2.5 2332.01    5.65 2331.44    6.13  2331.5     6.6 2331.55
    7.31 2331.53    7.44 2331.53   12.11 2331.37   20.12 2331.34   26.98  2330.3
   27.42 2330.24   28.65 2330.24   37.84 2330.26   46.42 2326.36   49.39 2324.97
   50.65 2325.17   55.35 2326.02   58.21 2326.22   62.05 2326.49   62.19 2326.51
    74.8 2328.87   79.81 2329.55   83.66 2329.98    95.1  2331.7    95.6 2331.78
  102.63 2332.61  104.04 2332.78  110.68 2333.69  115.68 2334.13  118.15 2334.42
  120.92 2334.88  121.95 2335.05   126.3 2335.58

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
************************************************
       0    .061   49.39    .064   58.21    .061

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         46.42   58.21             44.87   37.57   27.83            .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
```

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2328.66 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.67 | Wt. n-Val. | 0.061 | 0.063 | 0.061 |
| W.S. Elev (ft) | 2327.99 | Reach Len. (ft) | 44.87 | 37.57 | 27.83 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 2.91 | 27.13 | 12.28 |
| E.G. Slope (ft/ft) | 0.032208 | Area (sq ft) | 2.91 | 27.13 | 12.28 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 10.39 | 195.10 | 54.51 |
| Top Width (ft) | 27.23 | Top Width (ft) | 3.58 | 11.79 | 11.86 |
| Vel Total (ft/s) | 6.14 | Avg. Vel. (ft/s) | 3.58 | 7.19 | 4.44 |
| Max Chl Dpth (ft) | 3.02 | Hydr. Depth (ft) | 0.81 | 2.30 | 1.04 |
| Conv. Total (cfs) | 1448.7 | Conv. (cfs) | 57.9 | 1087.1 | 303.7 |
| Length Wtd. (ft) | 36.68 | Wetted Per. (ft) | 3.93 | 12.20 | 12.01 |
| Min Ch El (ft) | 2324.97 | Shear (lb/sq ft) | 1.49 | 4.47 | 2.06 |
| Alpha | 1.15 | Stream Power (lb/ft s) | 5.32 | 32.16 | 9.13 |
| Frctn Loss (ft) | 1.20 | Cum Volume (acre-ft) | 1.03 | 6.88 | 1.38 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 1.09 | 2.77 | 1.45 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2329.48 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.89 | Wt. n-Val. | | 0.063 | |
| W.S. Elev (ft) | 2328.59 | Reach Len. (ft) | 44.87 | 37.57 | 27.83 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 34.26 | |
| E.G. Slope (ft/ft) | 0.040042 | Area (sq ft) | | 34.26 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 11.79 | Top Width (ft) | | 11.79 | |
| Vel Total (ft/s) | 7.59 | Avg. Vel. (ft/s) | | 7.59 | |
| Max Chl Dpth (ft) | 3.62 | Hydr. Depth (ft) | | 2.91 | |
| Conv. Total (cfs) | 1299.3 | Conv. (cfs) | | 1299.3 | |
| Length Wtd. (ft) | 37.57 | Wetted Per. (ft) | | 16.80 | |
| Min Ch El (ft) | 2324.97 | Shear (lb/sq ft) | | 5.10 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 38.69 | |
| Frctn Loss (ft) | 1.42 | Cum Volume (acre-ft) | 0.00 | 7.84 | 0.01 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.00 | 2.78 | 0.01 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 34.82 | 46.42 | 10.39 | 2.91 | 3.93 | 4.00 | 0.81 | 3.58 |
| 2 | Chan | 46.42 | 49.37 | 48.37 | 6.82 | 3.25 | 18.60 | 2.32 | 7.09 |
| 3 | Chan | 49.37 | 52.32 | 65.95 | 8.18 | 2.99 | 25.37 | 2.77 | 8.06 |
| 4 | Chan | 52.32 | 55.26 | 46.38 | 6.63 | 3.00 | 17.84 | 2.25 | 7.00 |
| 5 | Chan | 55.26 | 58.21 | 34.39 | 5.51 | 2.96 | 13.23 | 1.87 | 6.24 |
| 6 | ROB | 58.21 | 75.23 | 54.51 | 12.28 | 12.01 | 20.97 | 1.04 | 4.44 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 46.42 | 49.37 | 52.73 | 8.61 | 5.48 | 20.28 | 2.92 | 6.13 |
| 2 | Chan | 49.37 | 52.32 | 96.06 | 9.96 | 2.99 | 36.95 | 3.38 | 9.64 |
| 3 | Chan | 52.32 | 55.26 | 72.35 | 8.41 | 3.00 | 27.83 | 2.85 | 8.61 |
| 4 | Chan | 55.26 | 58.21 | 38.86 | 7.29 | 5.33 | 14.95 | 2.47 | 5.33 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.53814

INPUT
Description:
Station Elevation Data num= 25

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2330.09 | 5.59 | 2330.23 | 7.17 | 2330.26 | 15.43 | 2330.42 | 17.9 | 2330.48 |
| 22.2 | 2329.68 | 32.54 | 2327.79 | 39.47 | 2325.68 | 42.35 | 2324.79 | 44.34 | 2324.24 |
| 45.25 | 2324.2 | 50.36 | 2323.99 | 52.98 | 2324.66 | 54.66 | 2325.09 | 59.22 | 2326.22 |
| 76.29 | 2329.24 | 77.45 | 2329.45 | 97.86 | 2332.86 | 110.48 | 2334.81 | 112.7 | 2335.15 |
| 113.73 | 2335.32 | 114.61 | 2335.45 | 116.5 | 2335.78 | 116.76 | 2335.83 | 121.71 | 2336.23 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 44.34 | .064 | 52.98 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 42.35 | 54.66 | 41.54 | 37.25 | 27.65 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2327.45 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.77 | Wt. n-Val. | 0.061 | 0.063 | 0.061 |
| W.S. Elev (ft) | 2326.68 | Reach Len. (ft) | 41.54 | 37.25 | 27.65 |
| Crit W.S. (ft) | 2326.62 | Flow Area (sq ft) | 5.79 | 28.94 | 5.26 |

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Slope (ft/ft) | 0.033281 | Area (sq ft) | 5.79 | 28.94 | 5.26 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 23.99 | 217.26 | 18.74 |
| Top Width (ft) | 25.62 | Top Width (ft) | 6.16 | 12.31 | 7.15 |
| Vel Total (ft/s) | 6.50 | Avg. Vel. (ft/s) | 4.14 | 7.51 | 3.56 |
| Max Chl Dpth (ft) | 2.69 | Hydr. Depth (ft) | 0.94 | 2.35 | 0.74 |
| Conv. Total (cfs) | 1425.2 | Conv. (cfs) | 131.5 | 1190.9 | 102.7 |
| Length Wtd. (ft) | 36.80 | Wetted Per. (ft) | 6.44 | 12.53 | 7.33 |
| Min Ch El (ft) | 2323.99 | Shear (lb/sq ft) | 1.87 | 4.80 | 1.49 |
| Alpha | 1.17 | Stream Power (lb/ft s) | 7.74 | 36.03 | 5.31 |
| Frctn Loss (ft) | 1.25 | Cum Volume (acre-ft) | 1.03 | 6.85 | 1.37 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 1.08 | 2.76 | 1.44 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2328.04 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.83 | Wt. n-Val. | | 0.063 | |
| W.S. Elev (ft) | 2327.21 | Reach Len. (ft) | 41.54 | 37.25 | 27.65 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 35.49 | |
| E.G. Slope (ft/ft) | 0.035816 | Area (sq ft) | | 35.49 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 12.31 | Top Width (ft) | | 12.31 | |
| Vel Total (ft/s) | 7.32 | Avg. Vel. (ft/s) | | 7.32 | |
| Max Chl Dpth (ft) | 3.22 | Hydr. Depth (ft) | | 2.88 | |
| Conv. Total (cfs) | 1373.8 | Conv. (cfs) | | 1373.8 | |
| Length Wtd. (ft) | 37.25 | Wetted Per. (ft) | | 17.07 | |
| Min Ch El (ft) | 2323.99 | Shear (lb/sq ft) | | 4.65 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 34.06 | |
| Frctn Loss (ft) | 1.18 | Cum Volume (acre-ft) | 0.00 | 7.81 | 0.01 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.00 | 2.77 | 0.01 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 31.76 | 42.35 | 23.99 | 5.79 | 6.44 | 9.23 | 0.94 | 4.14 |
| 2 | Chan | 42.35 | 45.43 | 51.58 | 6.98 | 3.15 | 19.84 | 2.27 | 7.39 |
| 3 | Chan | 45.43 | 48.51 | 61.60 | 7.84 | 3.08 | 23.69 | 2.55 | 7.85 |
| 4 | Chan | 48.51 | 51.58 | 63.28 | 8.01 | 3.12 | 24.34 | 2.60 | 7.90 |
| 5 | Chan | 51.58 | 54.66 | 40.81 | 6.10 | 3.18 | 15.69 | 1.98 | 6.69 |
| 6 | ROB | 54.66 | 71.42 | 18.74 | 5.26 | 7.33 | 7.21 | 0.74 | 3.56 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 42.35 | 45.43 | 52.31 | 8.62 | 5.57 | 20.12 | 2.80 | 6.07 |
| 2 | Chan | 45.43 | 48.51 | 80.12 | 9.48 | 3.08 | 30.82 | 3.08 | 8.45 |
| 3 | Chan | 48.51 | 51.58 | 81.81 | 9.65 | 3.12 | 31.47 | 3.14 | 8.48 |
| 4 | Chan | 51.58 | 54.66 | 45.75 | 7.74 | 5.30 | 17.60 | 2.51 | 5.91 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.53109

INPUT
Description:
Station Elevation Data num= 22

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2329.58 | 3.98 | 2329.58 | 9.79 | 2329.59 | 20.86 | 2326.57 | 21.69 | 2326.33 |
| 22.24 | 2326.08 | 27.95 | 2323.74 | 31.78 | 2322.11 | 37.4 | 2323.07 | 37.49 | 2323.09 |
| 37.65 | 2323.13 | 39.65 | 2323.64 | 46.16 | 2325.34 | 57.42 | 2326.98 | 63.98 | 2327.91 |
| 66.06 | 2328.22 | 68.06 | 2328.53 | 88.84 | 2331.93 | 104.41 | 2334.3 | 106.69 | 2334.67 |
| 107.01 | 2334.7 | 112.2 | 2335.19 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 31.78 | .064 | 39.65 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 27.95 | 39.65 | 41.71 | 39.38 | 34.24 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2326.19 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.86 | Wt. n-Val. | 0.061 | 0.063 | 0.061 |
| W.S. Elev (ft) | 2325.32 | Reach Len. (ft) | 41.71 | 39.38 | 34.24 |
| Crit W.S. (ft) | 2325.29 | Flow Area (sq ft) | 3.06 | 28.97 | 5.42 |
| E.G. Slope (ft/ft) | 0.034835 | Area (sq ft) | 3.06 | 28.97 | 5.42 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 11.28 | 227.23 | 21.48 |
| Top Width (ft) | 22.00 | Top Width (ft) | 3.86 | 11.70 | 6.44 |
| Vel Total (ft/s) | 6.94 | Avg. Vel. (ft/s) | 3.69 | 7.84 | 3.96 |
| Max Chl Dpth (ft) | 3.21 | Hydr. Depth (ft) | 0.79 | 2.48 | 0.84 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Conv. Total (cfs) | 1393.0 | Conv. (cfs) | 60.5 | 1217.5 | 115.1 | |
| Length Wtd. (ft) | 38.94 | Wetted Per. (ft) | 4.17 | 12.18 | 6.66 | |
| Min Ch El (ft) | 2322.11 | Shear (lb/sq ft) | 1.59 | 5.17 | 1.77 | |
| Alpha | 1.15 | Stream Power (lb/ft s) | 5.88 | 40.56 | 7.02 | |
| Frctn Loss (ft) | 0.93 | Cum Volume (acre-ft) | 1.02 | 6.83 | 1.37 | |
| C & E Loss (ft) | 0.12 | Cum SA (acres) | 1.08 | 2.75 | 1.44 | |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 2326.83 | Element | Left OB | Channel | Right OB | |
| Vel Head (ft) | 0.72 | Wt. n-Val. | | 0.063 | | |
| W.S. Elev (ft) | 2326.11 | Reach Len. (ft) | 41.71 | 39.38 | 34.24 | |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 38.12 | | |
| E.G. Slope (ft/ft) | 0.028386 | Area (sq ft) | | 38.12 | | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | | |
| Top Width (ft) | 11.70 | Top Width (ft) | | 11.70 | | |
| Vel Total (ft/s) | 6.82 | Avg. Vel. (ft/s) | | 6.82 | | |
| Max Chl Dpth (ft) | 3.99 | Hydr. Depth (ft) | | 3.26 | | |
| Conv. Total (cfs) | 1543.2 | Conv. (cfs) | | 1543.2 | | |
| Length Wtd. (ft) | 39.38 | Wetted Per. (ft) | | 17.01 | | |
| Min Ch El (ft) | 2322.11 | Shear (lb/sq ft) | | 3.97 | | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 27.08 | | |
| Frctn Loss (ft) | 0.74 | Cum Volume (acre-ft) | 0.00 | 7.78 | 0.01 | |
| C & E Loss (ft) | 0.10 | Cum SA (acres) | 0.00 | 2.76 | 0.01 | |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 20.96 | 27.95 | 11.28 | 3.06 | 4.17 | 4.34 | 0.79 | 3.69 |
| 2 | Chan | 27.95 | 30.88 | 46.35 | 6.45 | 3.18 | 17.83 | 2.20 | 7.19 |
| 3 | Chan | 30.88 | 33.80 | 78.78 | 8.87 | 3.03 | 30.30 | 3.03 | 8.88 |
| 4 | Chan | 33.80 | 36.73 | 61.56 | 7.66 | 2.97 | 23.68 | 2.62 | 8.04 |
| 5 | Chan | 36.73 | 39.65 | 40.55 | 5.99 | 3.01 | 15.59 | 2.05 | 6.77 |
| 6 | ROB | 39.65 | 57.79 | 21.48 | 5.42 | 6.66 | 8.26 | 0.84 | 3.96 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 27.95 | 30.88 | 44.46 | 8.74 | 5.54 | 17.10 | 2.99 | 5.09 |
| 2 | Chan | 30.88 | 33.80 | 96.73 | 11.16 | 3.03 | 37.20 | 3.82 | 8.67 |
| 3 | Chan | 33.80 | 36.73 | 79.74 | 9.95 | 2.97 | 30.67 | 3.40 | 8.02 |
| 4 | Chan | 36.73 | 39.65 | 39.07 | 8.28 | 5.47 | 15.03 | 2.83 | 4.72 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.52363

INPUT
Description:
Station Elevation Data num= 22

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2328.41 | .99 | 2328.44 | 2.7 | 2328.47 | 6.14 | 2328.55 | 22.2 | 2325.21 |
| 23.33 | 2324.98 | 24.04 | 2324.83 | 24.78 | 2324.52 | 28.57 | 2323.01 | 32.3 | 2321.5 |
| 35.94 | 2321.8 | 37.55 | 2321.95 | 40.13 | 2322.34 | 43.31 | 2322.82 | 49.68 | 2323.83 |
| 60.9 | 2325.98 | 70.85 | 2327.94 | 98.78 | 2332.92 | 103.92 | 2333.82 | 104.37 | 2333.89 |
| 108.45 | 2334.24 | 109.02 | 2334.28 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 32.3 | .064 | 40.13 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 28.57 | 43.31 | 25.41 | 41.23 | 55.5 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 2325.13 | Element | Left OB | Channel | Right OB | |
| Vel Head (ft) | 0.46 | Wt. n-Val. | 0.061 | 0.063 | 0.061 | |
| W.S. Elev (ft) | 2324.67 | Reach Len. (ft) | 25.41 | 41.23 | 55.50 | |
| Crit W.S. (ft) | | Flow Area (sq ft) | 3.47 | 37.70 | 10.44 | |
| E.G. Slope (ft/ft) | 0.017518 | Area (sq ft) | 3.47 | 37.70 | 10.44 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | 9.44 | 217.92 | 32.64 | |
| Top Width (ft) | 29.66 | Top Width (ft) | 4.15 | 14.74 | 10.77 | |
| Vel Total (ft/s) | 5.04 | Avg. Vel. (ft/s) | 2.72 | 5.78 | 3.13 | |
| Max Chl Dpth (ft) | 3.17 | Hydr. Depth (ft) | 0.83 | 2.56 | 0.97 | |
| Conv. Total (cfs) | 1964.4 | Conv. (cfs) | 71.3 | 1646.5 | 246.6 | |
| Length Wtd. (ft) | 42.02 | Wetted Per. (ft) | 4.48 | 15.12 | 10.93 | |
| Min Ch El (ft) | 2321.50 | Shear (lb/sq ft) | 0.85 | 2.73 | 1.04 | |
| Alpha | 1.16 | Stream Power (lb/ft s) | 2.31 | 15.76 | 3.27 | |
| Frctn Loss (ft) | 0.54 | Cum Volume (acre-ft) | 1.02 | 6.80 | 1.36 | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| * C & E Loss (ft) | * | 0.05 | * Cum SA (acres) | * | 1.08 | * | 2.74 | * | 1.43 * |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| * E.G. Elev (ft) | * | 2326.00 | * Element | * | Left OB | * | Channel | * | Right OB * |
| * Vel Head (ft) | * | 0.40 | * Wt. n-Val. | * | | * | 0.062 | * | * |
| * W.S. Elev (ft) | * | 2325.60 | * Reach Len. (ft) | * | 25.41 | * | 41.23 | * | 55.50 * |
| * Crit W.S. (ft) | * | | * Flow Area (sq ft) | * | | * | 51.31 | * | * |
| * E.G. Slope (ft/ft) | * | 0.013205 | * Area (sq ft) | * | | * | 51.31 | * | * |
| * Q Total (cfs) | * | 260.00 | * Flow (cfs) | * | | * | 260.00 | * | * |
| * Top Width (ft) | * | 14.74 | * Top Width (ft) | * | | * | 14.74 | * | * |
| * Vel Total (ft/s) | * | 5.07 | * Avg. Vel. (ft/s) | * | | * | 5.07 | * | * |
| * Max Chl Dpth (ft) | * | 4.10 | * Hydr. Depth (ft) | * | | * | 3.48 | * | * |
| * Conv. Total (cfs) | * | 2262.6 | * Conv. (cfs) | * | | * | 2262.6 | * | * |
| * Length Wtd. (ft) | * | 41.23 | * Wetted Per. (ft) | * | | * | 20.48 | * | * |
| * Min Ch El (ft) | * | 2321.50 | * Shear (lb/sq ft) | * | | * | 2.07 | * | * |
| * Alpha | * | 1.00 | * Stream Power (lb/ft s) | * | | * | 10.46 | * | * |
| * Frctn Loss (ft) | * | 0.46 | * Cum Volume (acre-ft) | * | 0.00 | * | 7.74 | * | 0.01 * |
| * C & E Loss (ft) | * | 0.02 | * Cum SA (acres) | * | 0.00 | * | 2.74 | * | 0.01 * |

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| * | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| * 1 | * LOB | * 21.43 | * 28.57 | * 9.44 | * 3.47 | * 4.48 | * 3.63 | * 0.83 | * 2.72 * |
| * 2 | * Chan | * 28.57 | * 32.26 | * 48.54 | * 8.88 | * 3.98 | * 18.67 | * 2.41 | * 5.47 * |
| * 3 | * Chan | * 32.26 | * 35.94 | * 70.97 | * 11.15 | * 3.70 | * 27.29 | * 3.02 | * 6.37 * |
| * 4 | * Chan | * 35.94 | * 39.63 | * 57.37 | * 9.83 | * 3.72 | * 22.06 | * 2.67 | * 5.84 * |
| * 5 | * Chan | * 39.63 | * 43.31 | * 41.05 | * 7.85 | * 3.73 | * 15.79 | * 2.13 | * 5.23 * |
| * 6 | * ROB | * 43.31 | * 59.74 | * 32.64 | * 10.44 | * 10.93 | * 12.56 | * 0.97 | * 3.13 * |

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| * | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| * 1 | * Chan | * 28.57 | * 32.26 | * 48.86 | * 12.28 | * 6.56 | * 18.79 | * 3.33 | * 3.98 * |
| * 2 | * Chan | * 32.26 | * 35.94 | * 90.56 | * 14.55 | * 3.70 | * 34.83 | * 3.95 | * 6.22 * |
| * 3 | * Chan | * 35.94 | * 39.63 | * 77.06 | * 13.23 | * 3.72 | * 29.64 | * 3.59 | * 5.82 * |
| * 4 | * Chan | * 39.63 | * 43.31 | * 43.52 | * 11.25 | * 6.50 | * 16.74 | * 3.05 | * 3.87 * |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.51582

INPUT
Description:
Station Elevation Data num= 20

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2327.38 | 2.91 | 2327.37 | 10.41 | 2327.32 | 10.72 | 2327.29 | 26.2 | 2323.9 |
| 33.19 | 2322.06 | 37.58 | 2320.83 | 43.31 | 2321.16 | 46.09 | 2321.69 | 48.04 | 2322.07 |
| 55.07 | 2323.4 | 60.6 | 2324.3 | 61.56 | 2324.46 | 65.33 | 2325.07 | 75.41 | 2326.72 |
| 77.65 | 2327.09 | 84.96 | 2328.54 | 107.05 | 2332.89 | 111 | 2333.12 | 116.42 | 2333.31 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 37.58 | .064 | 46.09 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 33.19 | 48.04 | 16.75 | 33.33 | 56.19 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| * E.G. Elev (ft) | * | 2324.54 | * Element | * | Left OB | * | Channel | * | Right OB * |
| * Vel Head (ft) | * | 0.30 | * Wt. n-Val. | * | 0.061 | * | 0.063 | * | 0.061 * |
| * W.S. Elev (ft) | * | 2324.25 | * Reach Len. (ft) | * | 16.75 | * | 33.33 | * | 56.19 * |
| * Crit W.S. (ft) | * | | * Flow Area (sq ft) | * | 9.11 | * | 43.36 | * | 12.81 * |
| * E.G. Slope (ft/ft) | * | 0.009850 | * Area (sq ft) | * | 9.11 | * | 43.36 | * | 12.81 * |
| * Q Total (cfs) | * | 260.00 | * Flow (cfs) | * | 22.48 | * | 205.90 | * | 31.62 * |
| * Top Width (ft) | * | 35.64 | * Top Width (ft) | * | 8.57 | * | 14.85 | * | 12.22 * |
| * Vel Total (ft/s) | * | 3.98 | * Avg. Vel. (ft/s) | * | 2.47 | * | 4.75 | * | 2.47 * |
| * Max Chl Dpth (ft) | * | 3.41 | * Hydr. Depth (ft) | * | 1.06 | * | 2.92 | * | 1.05 * |
| * Conv. Total (cfs) | * | 2619.7 | * Conv. (cfs) | * | 226.5 | * | 2074.6 | * | 318.5 * |
| * Length Wtd. (ft) | * | 34.59 | * Wetted Per. (ft) | * | 8.84 | * | 15.12 | * | 12.41 * |
| * Min Ch El (ft) | * | 2320.83 | * Shear (lb/sq ft) | * | 0.63 | * | 1.76 | * | 0.63 * |
| * Alpha | * | 1.21 | * Stream Power (lb/ft s) | * | 1.56 | * | 8.38 | * | 1.57 * |
| * Frctn Loss (ft) | * | 0.18 | * Cum Volume (acre-ft) | * | 1.02 | * | 6.76 | * | 1.35 * |
| * C & E Loss (ft) | * | 0.05 | * Cum SA (acres) | * | 1.07 | * | 2.73 | * | 1.41 * |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| * E.G. Elev (ft) | * | 2325.51 | * Element | * | Left OB | * | Channel | * | Right OB * |
| * Vel Head (ft) | * | 0.32 | * Wt. n-Val. | * | | * | 0.062 | * | * |
| * W.S. Elev (ft) | * | 2325.19 | * Reach Len. (ft) | * | 16.75 | * | 33.33 | * | 56.19 * |
| * Crit W.S. (ft) | * | | * Flow Area (sq ft) | * | | * | 57.41 | * | * |
| * E.G. Slope (ft/ft) | * | 0.009627 | * Area (sq ft) | * | | * | 57.41 | * | * |

| | | | | | |
|---|---|---|---|---|---|
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 14.85 | Top Width (ft) | | 14.85 | |
| Vel Total (ft/s) | 4.53 | Avg. Vel. (ft/s) | | 4.53 | |
| Max Chl Dpth (ft) | 4.36 | Hydr. Depth (ft) | | 3.87 | |
| Conv. Total (cfs) | 2649.9 | Conv. (cfs) | | 2649.9 | |
| Length Wtd. (ft) | 33.33 | Wetted Per. (ft) | | 21.37 | |
| Min Ch El (ft) | 2320.83 | Shear (lb/sq ft) | | 1.61 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 7.31 | |
| Frctn Loss (ft) | 0.17 | Cum Volume (acre-ft) | 0.00 | 7.69 | 0.01 |
| C & E Loss (ft) | 0.06 | Cum SA (acres) | 0.00 | 2.73 | 0.01 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 16.60 | 24.89 | 0.00 | 0.01 | 0.27 | 0.00 | 0.03 | 0.22 |
| 2 | LOB | 24.89 | 33.19 | 22.48 | 9.11 | 8.57 | 8.65 | 1.10 | 2.47 |
| 3 | Chan | 33.19 | 36.90 | 45.71 | 10.04 | 3.86 | 17.58 | 2.70 | 4.55 |
| 4 | Chan | 36.90 | 40.62 | 63.27 | 12.35 | 3.74 | 24.33 | 3.33 | 5.12 |
| 5 | Chan | 40.62 | 44.33 | 56.29 | 11.56 | 3.74 | 21.65 | 3.11 | 4.87 |
| 6 | Chan | 44.33 | 48.04 | 40.63 | 9.41 | 3.78 | 15.63 | 2.53 | 4.32 |
| 7 | ROB | 48.04 | 65.14 | 31.62 | 12.81 | 12.41 | 12.16 | 1.05 | 2.47 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 33.19 | 36.90 | 45.88 | 13.55 | 6.99 | 17.65 | 3.65 | 3.39 |
| 2 | Chan | 36.90 | 40.62 | 86.90 | 15.86 | 3.74 | 33.42 | 4.27 | 5.48 |
| 3 | Chan | 40.62 | 44.33 | 79.26 | 15.07 | 3.74 | 30.49 | 4.06 | 5.26 |
| 4 | Chan | 44.33 | 48.04 | 47.95 | 12.92 | 6.90 | 18.44 | 3.48 | 3.71 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.50951

INPUT
Description:
Station Elevation Data num= 21

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2326.84 | 3.53 | 2326.76 | 4.95 | 2326.72 | 7.18 | 2326.67 | 9.86 | 2326.14 |
| 20.35 | 2324.01 | 25.5 | 2322.83 | 30.61 | 2321.87 | 38.78 | 2320.2 | 41.29 | 2320.3 |
| 45.88 | 2320.61 | 48.57 | 2321.15 | 51.63 | 2321.72 | 56.15 | 2322.56 | 56.46 | 2322.6 |
| 57.08 | 2322.69 | 85.34 | 2326.6 | 101 | 2329.05 | 111.58 | 2330.73 | 112.29 | 2330.84 |
| 116.81 | 2331.11 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 38.78 | .064 | 48.57 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 30.61 | 51.63 | 14.83 | 19.33 | 26.56 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2324.31 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.12 | Wt. n-Val. | 0.061 | 0.062 | 0.061 |
| W.S. Elev (ft) | 2324.19 | Reach Len. (ft) | 14.83 | 19.33 | 26.56 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 13.39 | 70.04 | 18.78 |
| E.G. Slope (ft/ft) | 0.003263 | Area (sq ft) | 13.39 | 70.04 | 18.78 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 20.80 | 210.66 | 28.54 |
| Top Width (ft) | 48.40 | Top Width (ft) | 11.12 | 21.02 | 16.26 |
| Vel Total (ft/s) | 2.54 | Avg. Vel. (ft/s) | 1.55 | 3.01 | 1.52 |
| Max Chl Dpth (ft) | 3.99 | Hydr. Depth (ft) | 1.20 | 3.33 | 1.16 |
| Conv. Total (cfs) | 4551.5 | Conv. (cfs) | 364.1 | 3687.8 | 499.7 |
| Length Wtd. (ft) | 19.78 | Wetted Per. (ft) | 11.36 | 21.31 | 16.45 |
| Min Ch El (ft) | 2320.20 | Shear (lb/sq ft) | 0.24 | 0.67 | 0.23 |
| Alpha | 1.20 | Stream Power (lb/ft s) | 0.37 | 2.01 | 0.35 |
| Frctn Loss (ft) | 0.05 | Cum Volume (acre-ft) | 1.01 | 6.72 | 1.33 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 1.07 | 2.71 | 1.40 |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2325.29 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.13 | Wt. n-Val. | | 0.062 | |
| W.S. Elev (ft) | 2325.16 | Reach Len. (ft) | 14.83 | 19.33 | 26.56 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 90.49 | |
| E.G. Slope (ft/ft) | 0.003019 | Area (sq ft) | | 90.49 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 21.02 | Top Width (ft) | | 21.02 | |
| Vel Total (ft/s) | 2.87 | Avg. Vel. (ft/s) | | 2.87 | |
| Max Chl Dpth (ft) | 4.96 | Hydr. Depth (ft) | | 4.30 | |
| Conv. Total (cfs) | 4732.0 | Conv. (cfs) | | 4732.0 | |
| Length Wtd. (ft) | 19.33 | Wetted Per. (ft) | | 28.03 | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| * Min Ch El (ft) | * 2320.20 | * Shear (lb/sq ft) | * | * | 0.61 | * | * |
| * Alpha | * 1.00 | * Stream Power (lb/ft s) | * | * | 1.75 | * | * |
| * Frctn Loss (ft) | * 0.06 | * Cum Volume (acre-ft) | * 0.00 | * | 7.63 | * | 0.01 * |
| * C & E Loss (ft) | * 0.00 | * Cum SA (acres) | * 0.00 | * | 2.72 | * | 0.01 * |

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| * | * Pos | * Left Sta (ft) | * Right Sta (ft) | * Flow (cfs) | * Area (sq ft) | * W.P. (ft) | * Percent Conv | * Hydr Depth(ft) | * Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| * 1 | * LOB | * 15.31 | * 22.96 | * 0.83 | * 1.31 | * 3.56 | * 0.32 | * 0.38 | * 0.64 * |
| * 2 | * LOB | * 22.96 | * 30.61 | * 19.96 | * 12.08 | * 7.81 | * 7.68 | * 1.58 | * 1.65 * |
| * 3 | * Chan | * 30.61 | * 35.87 | * 41.06 | * 14.99 | * 5.36 | * 15.79 | * 2.85 | * 2.74 * |
| * 4 | * Chan | * 35.87 | * 41.12 | * 65.17 | * 19.97 | * 5.32 | * 25.07 | * 3.80 | * 3.26 * |
| * 5 | * Chan | * 41.12 | * 46.38 | * 61.49 | * 19.53 | * 5.28 | * 23.65 | * 3.72 | * 3.15 * |
| * 6 | * Chan | * 46.38 | * 51.63 | * 42.94 | * 15.56 | * 5.35 | * 16.51 | * 2.96 | * 2.76 * |
| * 7 | * ROB | * 51.63 | * 67.93 | * 28.54 | * 18.78 | * 16.45 | * 10.98 | * 1.16 | * 1.52 * |

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| * | * Pos | * Left Sta (ft) | * Right Sta (ft) | * Flow (cfs) | * Area (sq ft) | * W.P. (ft) | * Percent Conv | * Hydr Depth(ft) | * Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| * 1 | * Chan | * 30.61 | * 35.87 | * 43.82 | * 20.10 | * 8.65 | * 16.85 | * 3.82 | * 2.18 * |
| * 2 | * Chan | * 35.87 | * 41.12 | * 85.78 | * 25.08 | * 5.32 | * 32.99 | * 4.77 | * 3.42 * |
| * 3 | * Chan | * 41.12 | * 46.38 | * 81.55 | * 24.64 | * 5.28 | * 31.37 | * 4.69 | * 3.31 * |
| * 4 | * Chan | * 46.38 | * 51.63 | * 48.85 | * 20.67 | * 8.79 | * 18.79 | * 3.93 | * 2.36 * |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.50585

INPUT
Description:
Station Elevation Data num= 40

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2328.87 | 2.38 | 2328.85 | 8.48 | 2328.21 | 27.49 | 2325.93 | 33.36 | 2326.44 |
| 39.17 | 2327.13 | 40.4 | 2327.28 | 51.23 | 2327.22 | 71.14 | 2326.76 | 73.18 | 2326.71 |
| 81.03 | 2325.27 | 89.34 | 2323.66 | 92.34 | 2323.17 | 95.85 | 2322.81 | 99.24 | 2322.51 |
| 99.78 | 2322.37 | 102.49 | 2322.01 | 103.34 | 2321.88 | 104.51 | 2321.68 | 104.92 | 2321.6 |
| 108.33 | 2320.97 | 114.64 | 2319.82 | 120.33 | 2319.92 | 121.27 | 2319.94 | 122.22 | 2320.18 |
| 123.95 | 2320.65 | 124.23 | 2320.72 | 130.12 | 2322.38 | 133.51 | 2322.91 | 140.55 | 2323.96 |
| 148.19 | 2325.15 | 151.08 | 2325.59 | 156.11 | 2326.27 | 163.95 | 2327.38 | 168.14 | 2327.93 |
| 181.38 | 2329.84 | 181.68 | 2329.86 | 182.41 | 2329.89 | 186.76 | 2330.05 | 189.75 | 2330.17 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 114.64 | .064 | 124.23 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 104.92 | 124.23 | 387.34 | 452.2 | 464.68 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| * E.G. Elev (ft) | * 2324.25 | * Element | * Left OB | * Channel | * Right OB * |
| * Vel Head (ft) | * 0.09 | * Wt. n-Val. | * 0.061 | * 0.063 | * 0.061 * |
| * W.S. Elev (ft) | * 2324.16 | * Reach Len. (ft) | * 387.34 | * 452.20 | * 464.68 * |
| * Crit W.S. (ft) | * | * Flow Area (sq ft) | * 24.02 | * 73.27 | * 25.72 * |
| * E.G. Slope (ft/ft) | *0.002078 | * Area (sq ft) | * 24.02 | * 73.27 | * 25.72 * |
| * Q Total (cfs) | * 260.00 | * Flow (cfs) | * 31.91 | * 191.81 | * 36.28 * |
| * Top Width (ft) | * 55.06 | * Top Width (ft) | * 18.15 | * 19.31 | * 17.60 * |
| * Vel Total (ft/s) | * 2.11 | * Avg. Vel. (ft/s) | * 1.33 | * 2.62 | * 1.41 * |
| * Max Chl Dpth (ft) | * 4.34 | * Hydr. Depth (ft) | * 1.32 | * 3.79 | * 1.46 * |
| * Conv. Total (cfs) | * 5703.7 | * Conv. (cfs) | * 700.0 | * 4207.7 | * 796.0 * |
| * Length Wtd. (ft) | * 447.28 | * Wetted Per. (ft) | * 18.35 | * 19.57 | * 17.96 * |
| * Min Ch El (ft) | * 2319.82 | * Shear (lb/sq ft) | * 0.17 | * 0.49 | * 0.19 * |
| * Alpha | * 1.24 | * Stream Power (lb/ft s) | * 0.23 | * 1.27 | * 0.26 * |
| * Frctn Loss (ft) | * 2.20 | * Cum Volume (acre-ft) | * 1.01 | * 6.68 | * 1.31 * |
| * C & E Loss (ft) | * 0.05 | * Cum SA (acres) | * 1.06 | * 2.70 | * 1.39 * |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| * E.G. Elev (ft) | * 2325.23 | * Element | * Left OB | * Channel | * Right OB * |
| * Vel Head (ft) | * 0.13 | * Wt. n-Val. | * | * 0.063 | * * |
| * W.S. Elev (ft) | * 2325.10 | * Reach Len. (ft) | * 387.34 | * 452.20 | * 464.68 * |
| * Crit W.S. (ft) | * | * Flow Area (sq ft) | * | * 91.50 | * * |
| * E.G. Slope (ft/ft) | *0.002874 | * Area (sq ft) | * | * 91.50 | * * |
| * Q Total (cfs) | * 260.00 | * Flow (cfs) | * | * 260.00 | * * |
| * Top Width (ft) | * 19.31 | * Top Width (ft) | * | * 19.31 | * * |
| * Vel Total (ft/s) | * 2.84 | * Avg. Vel. (ft/s) | * | * 2.84 | * * |
| * Max Chl Dpth (ft) | * 5.28 | * Hydr. Depth (ft) | * | * 4.74 | * * |
| * Conv. Total (cfs) | * 4849.9 | * Conv. (cfs) | * | * 4849.9 | * * |
| * Length Wtd. (ft) | * 452.20 | * Wetted Per. (ft) | * | * 27.46 | * * |
| * Min Ch El (ft) | * 2319.82 | * Shear (lb/sq ft) | * | * 0.60 | * * |
| * Alpha | * 1.00 | * Stream Power (lb/ft s) | * | * 1.70 | * * |
| * Frctn Loss (ft) | * 2.84 | * Cum Volume (acre-ft) | * 0.00 | * 7.59 | * 0.01 * |
| * C & E Loss (ft) | * 0.04 | * Cum SA (acres) | * 0.00 | * 2.71 | * 0.01 * |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 78.69 | 104.92 | 31.91 | 24.02 | 18.35 | 12.27 | 1.32 | 1.33 |
| 2 | Chan | 104.92 | 109.75 | 33.00 | 14.50 | 4.91 | 12.69 | 3.00 | 2.28 |
| 3 | Chan | 109.75 | 114.58 | 50.71 | 18.76 | 4.91 | 19.50 | 3.89 | 2.70 |
| 4 | Chan | 114.58 | 119.40 | 57.78 | 20.75 | 4.83 | 22.22 | 4.30 | 2.79 |
| 5 | Chan | 119.40 | 124.23 | 50.32 | 19.26 | 4.93 | 19.35 | 3.99 | 2.61 |
| 6 | ROB | 124.23 | 140.61 | 36.26 | 25.60 | 16.73 | 13.95 | 1.56 | 1.42 |
| 7 | ROB | 140.61 | 156.99 | 0.03 | 0.12 | 1.23 | 0.01 | 0.09 | 0.22 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 104.92 | 109.75 | 39.94 | 19.06 | 8.41 | 15.36 | 3.95 | 2.10 |
| 2 | Chan | 109.75 | 114.58 | 80.07 | 23.32 | 4.91 | 30.80 | 4.83 | 3.43 |
| 3 | Chan | 114.58 | 119.40 | 88.43 | 25.30 | 4.83 | 34.01 | 5.24 | 3.49 |
| 4 | Chan | 119.40 | 124.23 | 51.56 | 23.82 | 9.31 | 19.83 | 4.93 | 2.16 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.50158

INPUT
Description:
Station Elevation Data num= 28

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2326.8 | 2.91 | 2326.75 | 5.1 | 2326.71 | 20.18 | 2323.73 | 22.75 | 2323.18 |
| 28.14 | 2322.42 | 33.11 | 2321.87 | 36.9 | 2321.48 | 42.88 | 2320.8 | 46.66 | 2320.02 |
| 46.76 | 2320 | 53.61 | 2318.93 | 53.71 | 2318.92 | 53.75 | 2318.91 | 53.92 | 2318.91 |
| 62.1 | 2318.98 | 63.6 | 2319.71 | 64.71 | 2320.35 | 66.02 | 2321.11 | 67.65 | 2322.06 |
| 68.1 | 2322.15 | 74.91 | 2323.58 | 87.75 | 2326.22 | 103.85 | 2328.51 | 104.3 | 2328.52 |
| 104.81 | 2328.54 | 109.55 | 2328.69 | 110.14 | 2328.69 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 53.75 | .064 | 64.71 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 46.76 | 63.6 | 3.56 | 23.86 | 31.44 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2322.01 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.54 | Wt. n-Val. | 0.061 | 0.063 | 0.063 |
| W.S. Elev (ft) | 2321.46 | Reach Len. (ft) | 3.56 | 23.86 | 31.44 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 6.07 | 38.27 | 2.66 |
| E.G. Slope (ft/ft) | 0.022874 | Area (sq ft) | 6.07 | 38.27 | 2.66 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 16.19 | 234.93 | 8.88 |
| Top Width (ft) | 29.59 | Top Width (ft) | 9.72 | 16.84 | 3.03 |
| Vel Total (ft/s) | 5.53 | Avg. Vel. (ft/s) | 2.67 | 6.14 | 3.34 |
| Max Chl Dpth (ft) | 2.55 | Hydr. Depth (ft) | 0.62 | 2.27 | 0.88 |
| Conv. Total (cfs) | 1719.1 | Conv. (cfs) | 107.1 | 1553.3 | 58.7 |
| Length Wtd. (ft) | 22.03 | Wetted Per. (ft) | 9.84 | 17.09 | 3.50 |
| Min Ch El (ft) | 2318.91 | Shear (lb/sq ft) | 0.88 | 3.20 | 1.09 |
| Alpha | 1.14 | Stream Power (lb/ft s) | 2.35 | 19.63 | 3.62 |
| Frctn Loss (ft) | 0.65 | Cum Volume (acre-ft) | 0.87 | 6.11 | 1.16 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.94 | 2.52 | 1.28 |

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2322.35 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.54 | Wt. n-Val. | | 0.063 | |
| W.S. Elev (ft) | 2321.80 | Reach Len. (ft) | 3.56 | 23.86 | 31.44 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 43.97 | |
| E.G. Slope (ft/ft) | 0.023140 | Area (sq ft) | | 43.97 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 16.84 | Top Width (ft) | | 16.84 | |
| Vel Total (ft/s) | 5.91 | Avg. Vel. (ft/s) | | 5.91 | |
| Max Chl Dpth (ft) | 2.89 | Hydr. Depth (ft) | | 2.61 | |
| Conv. Total (cfs) | 1709.2 | Conv. (cfs) | | 1709.2 | |
| Length Wtd. (ft) | 23.86 | Wetted Per. (ft) | | 20.99 | |
| Min Ch El (ft) | 2318.91 | Shear (lb/sq ft) | | 3.03 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 17.90 | |
| Frctn Loss (ft) | 0.59 | Cum Volume (acre-ft) | 0.00 | 6.89 | 0.01 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 0.00 | 2.52 | 0.01 |

Profile #PF 1

| Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 35.07 | 46.76 | 16.19 | 6.07 | 9.84 | 6.23 | 0.62 | 2.67 |
| 2 | Chan | 46.76 | 50.97 | 40.52 | 7.55 | 4.26 | 15.59 | 1.79 | 5.37 |
| 3 | Chan | 50.97 | 55.18 | 65.46 | 10.15 | 4.24 | 25.18 | 2.41 | 6.45 |
| 4 | Chan | 55.18 | 59.39 | 68.91 | 10.63 | 4.21 | 26.51 | 2.53 | 6.48 |
| 5 | Chan | 59.39 | 63.60 | 60.04 | 9.94 | 4.38 | 23.09 | 2.36 | 6.04 |
| 6 | ROB | 63.60 | 75.24 | 8.88 | 2.66 | 3.50 | 3.41 | 0.88 | 3.34 |

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 46.76 | 50.97 | 41.61 | 8.97 | 6.06 | 16.00 | 2.13 | 4.64 |
| 2 | Chan | 50.97 | 55.18 | 79.33 | 11.57 | 4.24 | 30.51 | 2.75 | 6.85 |
| 3 | Chan | 55.18 | 59.39 | 82.74 | 12.06 | 4.21 | 31.82 | 2.86 | 6.86 |
| 4 | Chan | 59.39 | 63.60 | 56.32 | 11.37 | 6.47 | 21.66 | 2.70 | 4.95 |

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.49706

INPUT
Description:
Station Elevation Data num= 32

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2326.81 | 3.53 | 2326.75 | 5.09 | 2326.72 | 5.32 | 2326.72 | 5.9 | 2326.71 |
| 21.48 | 2323.52 | 25.52 | 2322.62 | 31.62 | 2321.8 | 42.26 | 2320.56 | 44.77 | 2320.43 |
| 47.65 | 2320.3 | 53.98 | 2319.84 | 54.72 | 2319.73 | 57.46 | 2319.48 | 60.35 | 2319.2 |
| 64.57 | 2318.77 | 65.11 | 2318.72 | 65.62 | 2318.67 | 72.99 | 2318.57 | 73.57 | 2318.79 |
| 74.75 | 2319.39 | 76.96 | 2320.42 | 78.99 | 2321.41 | 80.04 | 2321.91 | 80.16 | 2321.97 |
| 80.29 | 2322 | 80.52 | 2322.04 | 94.45 | 2325.3 | 104.74 | 2326.97 | 105.5 | 2327.09 |
| 106.25 | 2327.2 | 109.42 | 2327.33 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 65.62 | .064 | 76.96 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 57.46 | 78.99 | 6.18 | 17.66 | 21.88 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2321.35 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.61 | Wt. n-Val. | 0.061 | 0.063 | |
| W.S. Elev (ft) | 2320.75 | Reach Len. (ft) | 6.18 | 17.66 | 21.88 |
| Crit W.S. (ft) | 2320.75 | Flow Area (sq ft) | 9.98 | 34.39 | |
| E.G. Slope (ft/ft) | 0.039107 | Area (sq ft) | 9.98 | 34.39 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | 33.90 | 226.10 | |
| Top Width (ft) | 36.95 | Top Width (ft) | 16.79 | 20.17 | |
| Vel Total (ft/s) | 5.86 | Avg. Vel. (ft/s) | 3.40 | 6.57 | |
| Max Chl Dpth (ft) | 2.18 | Hydr. Depth (ft) | 0.59 | 1.71 | |
| Conv. Total (cfs) | 1314.8 | Conv. (cfs) | 171.4 | 1143.3 | |
| Length Wtd. (ft) | 15.51 | Wetted Per. (ft) | 16.84 | 20.69 | |
| Min Ch El (ft) | 2318.57 | Shear (lb/sq ft) | 1.45 | 4.06 | |
| Alpha | 1.14 | Stream Power (lb/ft s) | 4.91 | 26.67 | |
| Frctn Loss (ft) | 0.45 | Cum Volume (acre-ft) | 0.87 | 6.09 | 1.16 |
| C & E Loss (ft) | 0.08 | Cum SA (acres) | 0.94 | 2.51 | 1.27 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2321.75 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.54 | Wt. n-Val. | | 0.063 | |
| W.S. Elev (ft) | 2321.21 | Reach Len. (ft) | 6.18 | 17.66 | 21.88 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 43.90 | |
| E.G. Slope (ft/ft) | 0.026938 | Area (sq ft) | | 43.90 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 21.11 | Top Width (ft) | | 21.11 | |
| Vel Total (ft/s) | 5.92 | Avg. Vel. (ft/s) | | 5.92 | |
| Max Chl Dpth (ft) | 2.64 | Hydr. Depth (ft) | | 2.08 | |
| Conv. Total (cfs) | 1584.1 | Conv. (cfs) | | 1584.1 | |
| Length Wtd. (ft) | 17.66 | Wetted Per. (ft) | | 23.47 | |
| Min Ch El (ft) | 2318.57 | Shear (lb/sq ft) | | 3.15 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 18.63 | |
| Frctn Loss (ft) | 0.52 | Cum Volume (acre-ft) | 0.00 | 6.86 | 0.01 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.00 | 2.51 | 0.01 |

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 28.73 | 43.10 | 0.37 | 0.32 | 2.43 | 0.14 | 0.13 | 1.17 |
| 2 | LOB | 43.10 | 57.46 | 33.53 | 9.66 | 14.41 | 12.89 | 0.67 | 3.47 |
| 3 | Chan | 57.46 | 62.84 | 49.85 | 8.23 | 5.41 | 19.17 | 1.53 | 6.06 |
| 4 | Chan | 62.84 | 68.23 | 77.17 | 10.84 | 5.40 | 29.68 | 2.01 | 7.12 |
| 5 | Chan | 68.23 | 73.61 | 82.59 | 11.48 | 5.43 | 31.76 | 2.13 | 7.19 |
| 6 | Chan | 73.61 | 78.99 | 16.50 | 3.85 | 4.46 | 6.35 | 0.96 | 4.29 |

Warning: The energy equation could not be balanced within the specified number of iterations. The

program selected the water surface that had the least amount of error between computed and assumed values.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 57.46 | 62.84 | 52.56 | 10.71 | 7.13 | 20.21 | 1.99 | 4.91 |
| 2 | Chan | 62.84 | 68.23 | 88.93 | 13.32 | 5.40 | 34.20 | 2.47 | 6.68 |
| 3 | Chan | 68.23 | 73.61 | 93.52 | 13.96 | 5.43 | 35.97 | 2.59 | 6.70 |
| 4 | Chan | 73.61 | 78.99 | 24.99 | 5.91 | 5.51 | 9.61 | 1.19 | 4.23 |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.49372

INPUT
Description:
Station Elevation Data num= 34

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2326.78 | 5.25 | 2326.73 | 5.97 | 2326.73 | 6.38 | 2326.72 | 7.47 | 2326.7 |
| 17.39 | 2324.54 | 23.39 | 2322.9 | 25.95 | 2322.28 | 28.83 | 2321.67 | 35.89 | 2321.09 |
| 39.37 | 2320.78 | 42.49 | 2320.19 | 44.8 | 2319.85 | 45.91 | 2319.8 | 48.07 | 2319.73 |
| 54.32 | 2319.54 | 59.35 | 2319.37 | 60.77 | 2319.33 | 64.74 | 2319.24 | 67.32 | 2319.04 |
| 74.44 | 2318.53 | 78.71 | 2318.15 | 81.45 | 2318.17 | 83.27 | 2318.12 | 86.04 | 2320.38 |
| 87.49 | 2321.57 | 87.87 | 2321.9 | 88.57 | 2322.05 | 101.04 | 2324.66 | 105.25 | 2325.6 |
| 106.89 | 2325.96 | 107.89 | 2326.18 | 110.45 | 2326.34 | 110.63 | 2326.35 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 78.71 | .064 | 86.04 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 64.74 | 87.49 | 11.79 | 20.04 | 18.41 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2320.80 | Element | | | |
| Vel Head (ft) | 0.35 | Wt. n-Val. | 0.061 | 0.062 | |
| W.S. Elev (ft) | 2320.45 | Reach Len. (ft) | 11.79 | 20.04 | 18.41 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 19.65 | 38.06 | |
| E.G. Slope (ft/ft) | 0.022737 | Area (sq ft) | 19.65 | 38.06 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | 63.70 | 196.30 | |
| Top Width (ft) | 45.01 | Top Width (ft) | 23.63 | 21.39 | |
| Vel Total (ft/s) | 4.51 | Avg. Vel. (ft/s) | 3.24 | 5.16 | |
| Max Chl Dpth (ft) | 2.33 | Hydr. Depth (ft) | 0.83 | 1.78 | |
| Conv. Total (cfs) | 1724.3 | Conv. (cfs) | 422.5 | 1301.8 | |
| Length Wtd. (ft) | 18.52 | Wetted Per. (ft) | 23.69 | 22.26 | |
| Min Ch El (ft) | 2318.12 | Shear (lb/sq ft) | 1.18 | 2.43 | |
| Alpha | 1.12 | Stream Power (lb/ft s) | 3.82 | 12.52 | |
| Frctn Loss (ft) | 0.52 | Cum Volume (acre-ft) | 0.87 | 6.07 | 1.16 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.93 | 2.50 | 1.27 |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2321.22 | Element | | | |
| Vel Head (ft) | 0.61 | Wt. n-Val. | | 0.062 | |
| W.S. Elev (ft) | 2320.61 | Reach Len. (ft) | 11.79 | 20.04 | 18.41 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 41.43 | |
| E.G. Slope (ft/ft) | 0.032906 | Area (sq ft) | | 41.43 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 21.58 | Top Width (ft) | | 21.58 | |
| Vel Total (ft/s) | 6.28 | Avg. Vel. (ft/s) | | 6.28 | |
| Max Chl Dpth (ft) | 2.49 | Hydr. Depth (ft) | | 1.92 | |
| Conv. Total (cfs) | 1433.3 | Conv. (cfs) | | 1433.3 | |
| Length Wtd. (ft) | 20.04 | Wetted Per. (ft) | | 23.88 | |
| Min Ch El (ft) | 2318.12 | Shear (lb/sq ft) | | 3.57 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 22.37 | |
| Frctn Loss (ft) | 0.62 | Cum Volume (acre-ft) | 0.00 | 6.85 | 0.01 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.00 | 2.50 | 0.01 |

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 32.37 | 48.56 | 8.15 | 3.70 | 7.50 | 3.13 | 0.50 | 2.20 |
| 2 | LOB | 48.56 | 64.74 | 55.55 | 15.94 | 16.19 | 21.37 | 0.99 | 3.48 |
| 3 | Chan | 64.74 | 70.43 | 36.64 | 8.11 | 5.70 | 14.09 | 1.43 | 4.52 |
| 4 | Chan | 70.43 | 76.12 | 56.08 | 10.47 | 5.70 | 21.57 | 1.84 | 5.35 |
| 5 | Chan | 76.12 | 81.80 | 75.91 | 12.75 | 5.70 | 29.19 | 2.24 | 5.95 |
| 6 | Chan | 81.80 | 87.49 | 27.68 | 6.72 | 5.15 | 10.65 | 1.55 | 4.12 |

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 64.74 | 70.43 | 44.77 | 9.01 | 7.07 | 17.22 | 1.58 | 4.97 |
| 2 | Chan | 70.43 | 76.12 | 76.15 | 11.37 | 5.70 | 29.29 | 2.00 | 6.70 |
| 3 | Chan | 76.12 | 81.80 | 100.67 | 13.65 | 5.70 | 38.72 | 2.40 | 7.38 |
| 4 | Chan | 81.80 | 87.49 | 38.41 | 7.41 | 5.40 | 14.77 | 1.64 | 5.18 |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.48992

INPUT
Description:
Station Elevation Data num= 30

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2326.59 | 2.23 | 2326.52 | 3.98 | 2326.48 | 4.65 | 2326.46 | 6.33 | 2326.43 |
| 18.1 | 2323.84 | 28.64 | 2321.47 | 28.69 | 2321.46 | 43.14 | 2319.72 | 46.2 | 2319.61 |
| 48.27 | 2319.49 | 59.03 | 2319.12 | 66.44 | 2318.72 | 69.18 | 2318.52 | 70.92 | 2318.4 |
| 76.92 | 2317.95 | 80.22 | 2317.71 | 86.39 | 2317.72 | 87.25 | 2317.72 | 87.67 | 2318.18 |
| 90.21 | 2320.51 | 91.57 | 2321.75 | 92.56 | 2321.92 | 93.55 | 2322.1 | 104.58 | 2324.19 |
| 104.96 | 2324.3 | 111.25 | 2326.08 | 111.59 | 2326.17 | 116.36 | 2326.5 | 117.31 | 2326.57 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 80.22 | .064 | 90.21 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 66.44 | 90.21 | 13.72 | 14.78 | 11.55 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2320.26 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.52 | Wt. n-Val. | 0.061 | 0.062 | |
| W.S. Elev (ft) | 2319.74 | Reach Len. (ft) | 13.72 | 14.78 | 11.55 |
| Crit W.S. (ft) | 2319.74 | Flow Area (sq ft) | 11.32 | 37.24 | |
| E.G. Slope (ft/ft) | 0.036118 | Area (sq ft) | 11.32 | 37.24 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | 32.22 | 227.78 | |
| Top Width (ft) | 46.37 | Top Width (ft) | 23.44 | 22.93 | |
| Vel Total (ft/s) | 5.35 | Avg. Vel. (ft/s) | 2.85 | 6.12 | |
| Max Chl Dpth (ft) | 2.03 | Hydr. Depth (ft) | 0.48 | 1.62 | |
| Conv. Total (cfs) | 1368.1 | Conv. (cfs) | 169.5 | 1198.6 | |
| Length Wtd. (ft) | 14.59 | Wetted Per. (ft) | 23.47 | 23.77 | |
| Min Ch El (ft) | 2317.71 | Shear (lb/sq ft) | 1.09 | 3.53 | |
| Alpha | 1.18 | Stream Power (lb/ft s) | 3.10 | 21.60 | |
| Frctn Loss (ft) | 0.52 | Cum Volume (acre-ft) | 0.87 | 6.05 | 1.16 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.93 | 2.49 | 1.27 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2320.58 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.54 | Wt. n-Val. | | 0.062 | |
| W.S. Elev (ft) | 2320.04 | Reach Len. (ft) | 13.72 | 14.78 | 11.55 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 44.27 | |
| E.G. Slope (ft/ft) | 0.029056 | Area (sq ft) | | 44.27 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 23.26 | Top Width (ft) | | 23.26 | |
| Vel Total (ft/s) | 5.87 | Avg. Vel. (ft/s) | | 5.87 | |
| Max Chl Dpth (ft) | 2.33 | Hydr. Depth (ft) | | 1.90 | |
| Conv. Total (cfs) | 1525.3 | Conv. (cfs) | | 1525.3 | |
| Length Wtd. (ft) | 14.78 | Wetted Per. (ft) | | 25.55 | |
| Min Ch El (ft) | 2317.71 | Shear (lb/sq ft) | | 3.14 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 18.46 | |
| Frctn Loss (ft) | 0.48 | Cum Volume (acre-ft) | 0.00 | 6.83 | 0.01 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.00 | 2.49 | 0.01 |

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 33.22 | 49.83 | 1.23 | 1.04 | 6.84 | 0.47 | 0.15 | 1.18 |
| 2 | LOB | 49.83 | 66.44 | 30.99 | 10.28 | 16.63 | 11.92 | 0.62 | 3.02 |
| 3 | Chan | 66.44 | 72.38 | 38.15 | 7.32 | 5.96 | 14.67 | 1.23 | 5.21 |
| 4 | Chan | 72.38 | 78.33 | 63.31 | 9.92 | 5.96 | 24.35 | 1.67 | 6.38 |
| 5 | Chan | 78.33 | 84.27 | 83.11 | 11.90 | 5.95 | 31.96 | 2.00 | 6.98 |
| 6 | Chan | 84.27 | 90.21 | 43.22 | 8.09 | 5.91 | 16.62 | 1.59 | 5.34 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 66.44 | 72.38 | 42.83 | 9.13 | 7.28 | 16.47 | 1.54 | 4.69 |
| 2 | Chan | 72.38 | 78.33 | 74.34 | 11.73 | 5.96 | 28.59 | 1.97 | 6.34 |
| 3 | Chan | 78.33 | 84.27 | 93.44 | 13.71 | 5.95 | 35.94 | 2.31 | 6.81 |
| 4 | Chan | 84.27 | 90.21 | 49.39 | 9.70 | 6.36 | 19.00 | 1.79 | 5.09 |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.48713

INPUT
Description:
Station Elevation Data num= 31

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2326.2 | 1.34 | 2326.19 | 2.8 | 2326.17 | 5.09 | 2326.15 | 6.51 | 2326.14 |
| 13.06 | 2324.66 | 16.44 | 2323.86 | 26.7 | 2321.3 | 28.29 | 2321.12 | 31.13 | 2320.56 |
| 42.85 | 2318.61 | 53.01 | 2318.46 | 64.05 | 2318.25 | 65.26 | 2318.18 | 68.75 | 2318.02 |
| 74.99 | 2317.54 | 79.71 | 2317.12 | 84.3 | 2317.08 | 87.67 | 2319.06 | 90.67 | 2320.83 |
| 90.95 | 2321.02 | 91.58 | 2321.13 | 92.03 | 2321.19 | 92.66 | 2321.29 | 98.54 | 2322.06 |
| 100.48 | 2322.37 | 107.34 | 2323.9 | 108.54 | 2324.36 | 114.47 | 2326 | 114.74 | 2326.08 |
| 119.14 | 2326.42 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 74.99 | .064 | 87.67 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 65.26 | 90.67 | 33.34 | 22.08 | 11.57 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2319.61 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.44 | Wt. n-Val. | 0.061 | 0.063 | |
| W.S. Elev (ft) | 2319.17 | Reach Len. (ft) | 33.34 | 22.08 | 11.57 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 17.53 | 34.29 | |
| E.G. Slope (ft/ft) | 0.035304 | Area (sq ft) | 17.53 | 34.29 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | 61.95 | 198.05 | |
| Top Width (ft) | 48.37 | Top Width (ft) | 25.77 | 22.59 | |
| Vel Total (ft/s) | 5.02 | Avg. Vel. (ft/s) | 3.53 | 5.78 | |
| Max Chl Dpth (ft) | 2.09 | Hydr. Depth (ft) | 0.68 | 1.52 | |
| Conv. Total (cfs) | 1383.8 | Conv. (cfs) | 329.7 | 1054.0 | |
| Length Wtd. (ft) | 24.80 | Wetted Per. (ft) | 25.82 | 23.20 | |
| Min Ch El (ft) | 2317.08 | Shear (lb/sq ft) | 1.50 | 3.26 | |
| Alpha | 1.13 | Stream Power (lb/ft s) | 5.29 | 18.81 | |
| Frctn Loss (ft) | 0.74 | Cum Volume (acre-ft) | 0.86 | 6.04 | 1.16 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.92 | 2.48 | 1.27 |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2320.09 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.62 | Wt. n-Val. | | 0.063 | |
| W.S. Elev (ft) | 2319.47 | Reach Len. (ft) | 33.34 | 22.08 | 11.57 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 41.25 | |
| E.G. Slope (ft/ft) | 0.036329 | Area (sq ft) | | 41.25 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 23.11 | Top Width (ft) | | 23.11 | |
| Vel Total (ft/s) | 6.30 | Avg. Vel. (ft/s) | | 6.30 | |
| Max Chl Dpth (ft) | 2.39 | Hydr. Depth (ft) | | 1.79 | |
| Conv. Total (cfs) | 1364.1 | Conv. (cfs) | | 1364.1 | |
| Length Wtd. (ft) | 22.08 | Wetted Per. (ft) | | 25.10 | |
| Min Ch El (ft) | 2317.08 | Shear (lb/sq ft) | | 3.73 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 23.50 | |
| Frctn Loss (ft) | 0.56 | Cum Volume (acre-ft) | 0.00 | 6.81 | 0.01 |
| C & E Loss (ft) | 0.06 | Cum SA (acres) | 0.00 | 2.48 | 0.01 |

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 32.63 | 48.95 | 12.75 | 4.62 | 9.50 | 4.90 | 0.49 | 2.76 |
| 2 | LOB | 48.95 | 65.26 | 49.21 | 12.90 | 16.32 | 18.93 | 0.79 | 3.81 |
| 3 | Chan | 65.26 | 71.61 | 35.34 | 7.34 | 6.36 | 13.59 | 1.15 | 4.82 |
| 4 | Chan | 71.61 | 77.97 | 60.84 | 10.30 | 6.37 | 23.40 | 1.62 | 5.90 |
| 5 | Chan | 77.97 | 84.32 | 87.13 | 12.97 | 6.36 | 33.51 | 2.04 | 6.72 |
| 6 | Chan | 84.32 | 90.67 | 14.74 | 3.68 | 4.10 | 5.67 | 1.04 | 4.01 |

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 65.26 | 71.61 | 46.25 | 9.27 | 7.66 | 17.79 | 1.46 | 4.99 |
| 2 | Chan | 71.61 | 77.97 | 81.20 | 12.24 | 6.37 | 31.23 | 1.93 | 6.63 |
| 3 | Chan | 77.97 | 84.32 | 110.10 | 14.91 | 6.36 | 42.35 | 2.35 | 7.38 |
| 4 | Chan | 84.32 | 90.67 | 22.44 | 4.83 | 4.70 | 8.63 | 1.19 | 4.64 |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.48294

INPUT
Description:
Station Elevation Data num= 37

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2321.84 | .12 | 2321.81 | 3.36 | 2321.42 | 3.76 | 2321.37 | 5.11 | 2321.22 |
| 18.75 | 2319.69 | 19.76 | 2319.55 | 25.17 | 2319.09 | 28.09 | 2318.69 | 31.34 | 2318.28 |
| 36.94 | 2317.47 | 43.06 | 2317.43 | 50.91 | 2317.43 | 52.92 | 2317.27 | 55.38 | 2317.08 |
| 61.81 | 2316.63 | 67.17 | 2316.12 | 69.34 | 2315.93 | 71.41 | 2317.31 | 72.05 | 2317.71 |
| 75.34 | 2319.76 | 76.48 | 2320.31 | 77.79 | 2320.43 | 78.19 | 2320.49 | 81.03 | 2320.73 |
| 87.22 | 2321.27 | 88.79 | 2321.65 | 89.32 | 2321.69 | 89.64 | 2321.71 | 89.77 | 2321.72 |
| 93.64 | 2322.19 | 104.85 | 2323.31 | 110.6 | 2325.16 | 112.03 | 2325.69 | 112.44 | 2325.84 |
| 113.59 | 2325.86 | 115.25 | 2326 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 61.81 | .064 | 72.05 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 50.91 | 75.34 | 24.21 | 19.08 | 7.93 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| E.G. Elev (ft) | 2318.85 | Element | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| Vel Head (ft) | 0.37 | Wt. n-Val. | 0.061 | 0.062 | |
| W.S. Elev (ft) | 2318.49 | Reach Len. (ft) | 24.21 | 19.08 | 7.93 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 18.20 | 37.60 | |
| E.G. Slope (ft/ft) | 0.025301 | Area (sq ft) | 18.20 | 37.60 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | 63.55 | 196.45 | |
| Top Width (ft) | 43.58 | Top Width (ft) | 21.19 | 22.38 | |
| Vel Total (ft/s) | 4.66 | Avg. Vel. (ft/s) | 3.49 | 5.23 | |
| Max Chl Dpth (ft) | 2.55 | Hydr. Depth (ft) | 0.86 | 1.68 | |
| Conv. Total (cfs) | 1634.6 | Conv. (cfs) | 399.5 | 1235.0 | |
| Length Wtd. (ft) | 20.43 | Wetted Per. (ft) | 21.27 | 23.20 | |
| Min Ch El (ft) | 2315.93 | Shear (lb/sq ft) | 1.35 | 2.56 | |
| Alpha | 1.09 | Stream Power (lb/ft s) | 4.72 | 13.38 | |
| Frctn Loss (ft) | 0.55 | Cum Volume (acre-ft) | 0.85 | 6.02 | 1.16 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.90 | 2.47 | 1.27 |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| E.G. Elev (ft) | 2319.46 | Element | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| Vel Head (ft) | 0.41 | Wt. n-Val. | | 0.062 | |
| W.S. Elev (ft) | 2319.05 | Reach Len. (ft) | 24.21 | 19.08 | 7.93 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 50.60 | |
| E.G. Slope (ft/ft) | 0.018980 | Area (sq ft) | | 50.60 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 23.30 | Top Width (ft) | | 23.30 | |
| Vel Total (ft/s) | 5.14 | Avg. Vel. (ft/s) | | 5.14 | |
| Max Chl Dpth (ft) | 3.12 | Hydr. Depth (ft) | | 2.17 | |
| Conv. Total (cfs) | 1887.2 | Conv. (cfs) | | 1887.2 | |
| Length Wtd. (ft) | 19.08 | Wetted Per. (ft) | | 25.90 | |
| Min Ch El (ft) | 2315.93 | Shear (lb/sq ft) | | 2.31 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 11.89 | |
| Frctn Loss (ft) | 0.57 | Cum Volume (acre-ft) | 0.00 | 6.79 | 0.01 |
| C & E Loss (ft) | 0.05 | Cum SA (acres) | 0.00 | 2.47 | 0.01 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 25.46 | 38.18 | 12.35 | 4.85 | 8.54 | 4.75 | 0.57 | 2.55 |
| 2 | LOB | 38.18 | 50.91 | 51.20 | 13.35 | 12.73 | 19.69 | 1.05 | 3.84 |
| 3 | Chan | 50.91 | 57.02 | 34.56 | 7.90 | 6.13 | 13.29 | 1.29 | 4.38 |
| 4 | Chan | 57.02 | 63.13 | 55.93 | 10.61 | 6.13 | 21.51 | 1.74 | 5.27 |
| 5 | Chan | 63.13 | 69.23 | 83.94 | 13.85 | 6.13 | 32.29 | 2.27 | 6.06 |
| 6 | Chan | 69.23 | 75.34 | 22.02 | 5.24 | 4.82 | 8.47 | 1.29 | 4.20 |

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 50.91 | 57.02 | 46.43 | 11.37 | 7.75 | 17.86 | 1.86 | 4.08 |
| 2 | Chan | 57.02 | 63.13 | 76.73 | 14.08 | 6.13 | 29.51 | 2.31 | 5.45 |
| 3 | Chan | 63.13 | 69.23 | 104.30 | 17.33 | 6.13 | 40.12 | 2.84 | 6.02 |
| 4 | Chan | 69.23 | 75.34 | 32.54 | 7.81 | 5.89 | 12.52 | 1.57 | 4.17 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.47933

```
INPUT
Description:
Station Elevation Data    num=      41
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
*********************************************************************************
       0 2323.24      .2 2323.22     5.05 2322.36     7.19 2321.99     9.19 2321.58
   14.53 2320.25   18.26 2319.52    22.38 2318.37    25.62 2317.98    32.34 2316.66
   33.13 2316.53   33.29  2316.5     33.7 2316.47    34.07 2316.48    42.34 2316.79
   43.98 2316.59   47.01 2316.27     48.6 2315.92    51.03 2315.51    53.25 2315.66
   57.25 2315.45   57.42 2315.54    57.62 2315.64    61.32  2317.4     63.5 2318.43
   64.58 2318.79    69.4 2319.15    72.03 2319.42    78.66 2319.92    80.77 2320.25
   85.71 2320.56   86.92 2320.67    88.47 2320.91    93.78 2321.76    97.09  2322.1
  101.05 2322.53  104.34 2322.84   109.22 2324.47   112.49 2325.67   112.66 2325.67
  115.02 2325.72

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
       0    .061   51.03    .064   61.32    .061

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          43.98   63.5             27.39   14.47   13.27            .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*************************************************************************************************
* E.G. Elev (ft)          * 2318.29  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.45  * Wt. n-Val.              *   0.061  *   0.063  *         *
* W.S. Elev (ft)          * 2317.84  * Reach Len. (ft)        *   27.39  *   14.47  *   13.27  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *   17.66  *   32.31  *          *
* E.G. Slope (ft/ft)      *0.029191  * Area (sq ft)            *   17.66  *   32.31  *          *
* Q Total (cfs)           *  260.00  * Flow (cfs)              *   73.13  *  186.87  *          *
* Top Width (ft)          *   35.92  * Top Width (ft)          *   17.65  *   18.27  *          *
* Vel Total (ft/s)        *    5.20  * Avg. Vel. (ft/s)        *    4.14  *    5.78  *          *
* Max Chl Dpth (ft)       *    2.39  * Hydr. Depth (ft)        *    1.00  *    1.77  *          *
* Conv. Total (cfs)       *  1521.8  * Conv. (cfs)             *   428.0  *  1093.7  *          *
* Length Wtd. (ft)        *   16.74  * Wetted Per. (ft)        *   17.80  *   18.91  *          *
* Min Ch El (ft)          * 2315.45  * Shear (lb/sq ft)        *    1.81  *    3.11  *          *
* Alpha                   *    1.07  * Stream Power (lb/ft s)   *    7.49  *   18.00  *          *
* Frctn Loss (ft)         *    0.55  * Cum Volume (acre-ft)     *    0.84  *    6.01  *    1.16  *
* C & E Loss (ft)         *    0.03  * Cum SA (acres)           *    0.89  *    2.46  *    1.27  *
*************************************************************************************************

Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT  Profile #PF 2
*************************************************************************************************
* E.G. Elev (ft)          * 2318.84  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.93  * Wt. n-Val.              *          *   0.063  *         *
* W.S. Elev (ft)          * 2317.92  * Reach Len. (ft)        *   27.39  *   14.47  *   13.27  *
* Crit W.S. (ft)          * 2317.92  * Flow Area (sq ft)       *          *   33.68  *          *
* E.G. Slope (ft/ft)      *0.054233  * Area (sq ft)            *          *   33.68  *          *
* Q Total (cfs)           *  260.00  * Flow (cfs)              *          *  260.00  *          *
* Top Width (ft)          *   18.43  * Top Width (ft)          *          *   18.43  *          *
* Vel Total (ft/s)        *    7.72  * Avg. Vel. (ft/s)        *          *    7.72  *          *
* Max Chl Dpth (ft)       *    2.47  * Hydr. Depth (ft)        *          *    1.83  *          *
* Conv. Total (cfs)       *  1116.5  * Conv. (cfs)             *          *  1116.5  *          *
* Length Wtd. (ft)        *   14.47  * Wetted Per. (ft)        *          *   20.42  *          *
* Min Ch El (ft)          * 2315.45  * Shear (lb/sq ft)        *          *    5.59  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s)   *          *   43.12  *          *
* Frctn Loss (ft)         *    0.72  * Cum Volume (acre-ft)     *    0.00  *    6.77  *    0.01  *
* C & E Loss (ft)         *    0.02  * Cum SA (acres)           *    0.00  *    2.46  *    0.01  *
*************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program selected the water surface that had the least amount of error between computed and
         assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB      * 21.99     * 32.99     *    12.87 *    4.34 *     6.78 *     4.95 *     0.65 *     2.96 *
* 2        * LOB      * 32.99     * 43.98     *    60.26 *   13.32 *    11.02 *    23.18 *     1.21 *     4.52 *
* 3        * Chan     * 43.98     * 48.86     *    39.23 *    7.55 *     4.94 *    15.09 *     1.55 *     5.19 *
* 4        * Chan     * 48.86     * 53.74     *    68.87 *   10.74 *     4.92 *    26.49 *     2.20 *     6.41 *
* 5        * Chan     * 53.74     * 58.62     *    67.76 *   10.88 *     5.04 *    26.06 *     2.23 *     6.23 *
* 6        * Chan     * 58.62     * 63.50     *    11.01 *    3.13 *     4.02 *     4.24 *     0.86 *     3.52 *
*****************************************************************************************************************

Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 2
*****************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan     * 43.98     * 48.86     *    48.78 *    7.92 *     6.26 *    18.76 *     1.62 *     6.16 *
* 2        * Chan     * 48.86     * 53.74     *    98.07 *   11.11 *     4.92 *    37.72 *     2.28 *     8.83 *
* 3        * Chan     * 53.74     * 58.62     *    96.42 *   11.25 *     5.04 *    37.08 *     2.30 *     8.57 *
* 4        * Chan     * 58.62     * 63.50     *    16.73 *    3.41 *     4.20 *     6.43 *     0.90 *     4.91 *
*****************************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program selected the water surface that had the least amount of error between computed and
         assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION
```

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.47659

INPUT
Description:
Station Elevation Data num= 27

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2322.7 | 5.13 | 2322.24 | 6.32 | 2322.14 | 15.03 | 2319.01 | 19.17 | 2317.49 |
| 26.41 | 2316.88 | 36.79 | 2315.96 | 42.99 | 2314.59 | 43.72 | 2314.44 | 44.77 | 2314.48 |
| 50.22 | 2314.87 | 54.26 | 2316.11 | 55.45 | 2316.47 | 58.29 | 2317.39 | 59.83 | 2317.58 |
| 64.08 | 2318.25 | 68.01 | 2318.89 | 71.3 | 2319.16 | 73.61 | 2319.32 | 86.05 | 2320.59 |
| 86.76 | 2320.64 | 90.6 | 2321.14 | 103.66 | 2322.75 | 107.01 | 2323.51 | 111.75 | 2324.7 |
| 112.41 | 2324.74 | 115.28 | 2324.92 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 43.72 | .064 | 54.26 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 36.79 | 54.26 | 33.24 | 23.48 | 17.28 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2317.71 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.71 | Wt. n-Val. | 0.061 | 0.063 | 0.061 |
| W.S. Elev (ft) | 2317.00 | Reach Len. (ft) | 33.24 | 23.48 | 17.28 |
| Crit W.S. (ft) | 2317.00 | Flow Area (sq ft) | 6.09 | 33.92 | 1.27 |
| E.G. Slope (ft/ft) | 0.037384 | Area (sq ft) | 6.09 | 33.92 | 1.27 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 18.42 | 238.16 | 3.42 |
| Top Width (ft) | 32.08 | Top Width (ft) | 11.79 | 17.47 | 2.82 |
| Vel Total (ft/s) | 6.30 | Avg. Vel. (ft/s) | 3.02 | 7.02 | 2.69 |
| Max Chl Dpth (ft) | 2.56 | Hydr. Depth (ft) | 0.52 | 1.94 | 0.45 |
| Conv. Total (cfs) | 1344.7 | Conv. (cfs) | 95.3 | 1231.8 | 17.7 |
| Length Wtd. (ft) | 23.83 | Wetted Per. (ft) | 11.83 | 17.84 | 2.96 |
| Min Ch El (ft) | 2314.44 | Shear (lb/sq ft) | 1.20 | 4.44 | 1.01 |
| Alpha | 1.16 | Stream Power (lb/ft s) | 3.63 | 31.16 | 2.70 |
| Frctn Loss (ft) | 0.88 | Cum Volume (acre-ft) | 0.83 | 6.00 | 1.16 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.88 | 2.45 | 1.27 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2317.92 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.86 | Wt. n-Val. | | 0.063 | |
| W.S. Elev (ft) | 2317.06 | Reach Len. (ft) | 33.24 | 23.48 | 17.28 |
| Crit W.S. (ft) | 2316.95 | Flow Area (sq ft) | | 35.02 | |
| E.G. Slope (ft/ft) | 0.046274 | Area (sq ft) | | 35.02 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 17.47 | Top Width (ft) | | 17.47 | |
| Vel Total (ft/s) | 7.42 | Avg. Vel. (ft/s) | | 7.42 | |
| Max Chl Dpth (ft) | 2.62 | Hydr. Depth (ft) | | 2.00 | |
| Conv. Total (cfs) | 1208.7 | Conv. (cfs) | | 1208.7 | |
| Length Wtd. (ft) | 23.48 | Wetted Per. (ft) | | 19.89 | |
| Min Ch El (ft) | 2314.44 | Shear (lb/sq ft) | | 5.09 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 37.77 | |
| Frctn Loss (ft) | 1.01 | Cum Volume (acre-ft) | 0.00 | 6.76 | 0.01 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.00 | 2.46 | 0.01 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 18.40 | 27.59 | 0.28 | 0.29 | 2.60 | 0.11 | 0.11 | 0.98 |
| 2 | LOB | 27.59 | 36.79 | 18.14 | 5.80 | 9.23 | 6.98 | 0.63 | 3.13 |
| 3 | Chan | 36.79 | 41.16 | 39.70 | 6.64 | 4.47 | 15.27 | 1.52 | 5.98 |
| 4 | Chan | 41.16 | 45.53 | 82.72 | 10.40 | 4.43 | 31.82 | 2.38 | 7.95 |
| 5 | Chan | 45.53 | 49.89 | 76.91 | 10.08 | 4.38 | 29.58 | 2.31 | 7.63 |
| 6 | Chan | 49.89 | 54.26 | 38.82 | 6.79 | 4.55 | 14.93 | 1.56 | 5.71 |
| 7 | ROB | 54.26 | 69.52 | 3.42 | 1.27 | 2.96 | 1.32 | 0.45 | 2.69 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 36.79 | 41.16 | 39.73 | 6.92 | 5.57 | 15.28 | 1.58 | 5.74 |
| 2 | Chan | 41.16 | 45.53 | 93.57 | 10.68 | 4.43 | 35.99 | 2.44 | 8.76 |
| 3 | Chan | 45.53 | 49.89 | 87.12 | 10.36 | 4.38 | 33.51 | 2.37 | 8.41 |
| 4 | Chan | 49.89 | 54.26 | 39.58 | 7.07 | 5.51 | 15.22 | 1.62 | 5.60 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.47214

INPUT
Description:
Station Elevation Data num= 31

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2321.97 | 3.71 | 2321.53 | 5.11 | 2321.12 | 5.5 | 2321.01 | 20.28 | 2317.06 |
| 21.67 | 2316.71 | 28.11 | 2316.09 | 38.8 | 2315.14 | 39.23 | 2315.05 | 43.56 | 2314.26 |
| 44.8 | 2314.03 | 46.71 | 2313.68 | 48.23 | 2313.73 | 51.19 | 2313.79 | 54.44 | 2313.87 |
| 57.7 | 2314.62 | 60.63 | 2315.3 | 63.88 | 2316.16 | 66.57 | 2316.64 | 73.64 | 2317.86 |
| 78.32 | 2318.68 | 79.43 | 2318.87 | 81.02 | 2319.11 | 88.52 | 2319.81 | 91.36 | 2320.1 |
| 112.8 | 2322.52 | 114.03 | 2322.7 | 119.85 | 2323.53 | 122.08 | 2323.83 | 122.62 | 2323.91 |
| 127.41 | 2324.14 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 46.71 | .064 | 57.7 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 39.23 | 57.7 | 24.68 | 21.99 | 18.42 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2316.64 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.67 | Wt. n-Val. | 0.061 | 0.063 | 0.061 |
| W.S. Elev (ft) | 2315.97 | Reach Len. (ft) | 24.68 | 21.99 | 18.42 |
| Crit W.S. (ft) | 2315.95 | Flow Area (sq ft) | 4.23 | 34.51 | 3.79 |
| E.G. Slope (ft/ft) | 0.036299 | Area (sq ft) | 4.23 | 34.51 | 3.79 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 11.21 | 235.25 | 13.55 |
| Top Width (ft) | 33.66 | Top Width (ft) | 9.74 | 18.47 | 5.45 |
| Vel Total (ft/s) | 6.11 | Avg. Vel. (ft/s) | 2.65 | 6.82 | 3.57 |
| Max Chl Dpth (ft) | 2.29 | Hydr. Depth (ft) | 0.43 | 1.87 | 0.70 |
| Conv. Total (cfs) | 1364.7 | Conv. (cfs) | 58.8 | 1234.7 | 71.1 |
| Length Wtd. (ft) | 21.93 | Wetted Per. (ft) | 9.78 | 18.68 | 5.62 |
| Min Ch El (ft) | 2313.68 | Shear (lb/sq ft) | 0.98 | 4.19 | 1.53 |
| Alpha | 1.15 | Stream Power (lb/ft s) | 2.60 | 28.54 | 5.47 |
| Frctn Loss (ft) | 0.80 | Cum Volume (acre-ft) | 0.83 | 5.98 | 1.16 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 0.87 | 2.44 | 1.27 |

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2316.88 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.74 | Wt. n-Val. | | 0.063 | |
| W.S. Elev (ft) | 2316.13 | Reach Len. (ft) | 24.68 | 21.99 | 18.42 |
| Crit W.S. (ft) | 2315.92 | Flow Area (sq ft) | | 37.57 | |
| E.G. Slope (ft/ft) | 0.039760 | Area (sq ft) | | 37.57 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 18.47 | Top Width (ft) | | 18.47 | |
| Vel Total (ft/s) | 6.92 | Avg. Vel. (ft/s) | | 6.92 | |
| Max Chl Dpth (ft) | 2.45 | Hydr. Depth (ft) | | 2.03 | |
| Conv. Total (cfs) | 1303.9 | Conv. (cfs) | | 1303.9 | |
| Length Wtd. (ft) | 21.99 | Wetted Per. (ft) | | 21.28 | |
| Min Ch El (ft) | 2313.68 | Shear (lb/sq ft) | | 4.38 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 30.33 | |
| Frctn Loss (ft) | 0.86 | Cum Volume (acre-ft) | 0.00 | 6.74 | 0.01 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 0.00 | 2.45 | 0.01 |

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 29.42 | 39.23 | 11.21 | 4.23 | 9.78 | 4.31 | 0.43 | 2.65 |
| 2 | Chan | 39.23 | 43.85 | 34.08 | 6.18 | 4.69 | 13.11 | 1.34 | 5.51 |
| 3 | Chan | 43.85 | 48.47 | 71.94 | 9.76 | 4.67 | 27.67 | 2.11 | 7.37 |
| 4 | Chan | 48.47 | 53.08 | 74.24 | 10.08 | 4.62 | 28.55 | 2.18 | 7.36 |
| 5 | Chan | 53.08 | 57.70 | 54.99 | 8.48 | 4.70 | 21.15 | 1.84 | 6.48 |
| 6 | ROB | 57.70 | 75.13 | 13.55 | 3.79 | 5.62 | 5.21 | 0.70 | 3.57 |

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 39.23 | 43.85 | 36.87 | 6.95 | 5.78 | 14.18 | 1.50 | 5.31 |
| 2 | Chan | 43.85 | 48.47 | 83.43 | 10.53 | 4.67 | 32.09 | 2.28 | 7.93 |
| 3 | Chan | 48.47 | 53.08 | 85.77 | 10.85 | 4.62 | 32.99 | 2.35 | 7.90 |
| 4 | Chan | 53.08 | 57.70 | 53.93 | 9.25 | 6.22 | 20.74 | 2.00 | 5.83 |

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.46798

INPUT
Description:
Station Elevation Data num= 46

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2321.94 | 2.18 | 2321.72 | 2.92 | 2321.63 | 5.03 | 2321.31 | 5.6 | 2321.22 |
| 5.88 | 2321.11 | 7.81 | 2320.64 | 8.29 | 2320.55 | 12.07 | 2319.77 | 14.06 | 2319.42 |
| 17.26 | 2318.61 | 18.62 | 2318.33 | 19.49 | 2318.23 | 22.73 | 2317.7 | 24.26 | 2317.56 |
| 27.36 | 2317.05 | 28.92 | 2316.87 | 30.89 | 2316.48 | 32.85 | 2316.28 | 34.75 | 2315.88 |
| 36.48 | 2315.62 | 37.74 | 2315.39 | 39.95 | 2315.02 | 43.49 | 2314.69 | 44.38 | 2314.57 |
| 46.73 | 2314.24 | 51.57 | 2313 | 53.55 | 2312.51 | 61.93 | 2313.4 | 65.06 | 2313.7 |
| 67.34 | 2314.64 | 71.68 | 2316.44 | 72.02 | 2316.6 | 75.25 | 2317.34 | 78.51 | 2318.1 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 80.43 | 2318.49 | 84.67 | 2318.87 | 86.23 | 2319.12 | 90.38 | 2319.56 | 94.51 | 2320.06 |
| 101.2 | 2320.74 | 105.23 | 2321.12 | 122.51 | 2322.5 | 128.67 | 2322.92 | 129.15 | 2322.95 |
| 133.42 | 2323.19 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 53.55 | .064 | 67.34 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 46.73 | 65.06 | 17.59 | 29.02 | 37.29 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2315.83 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.71 | Wt. n-Val. | 0.061 | 0.063 | 0.064 |
| W.S. Elev (ft) | 2315.12 | Reach Len. (ft) | 17.59 | 29.02 | 37.29 |
| Crit W.S. (ft) | 2315.09 | Flow Area (sq ft) | 3.09 | 35.02 | 2.45 |
| E.G. Slope (ft/ft) | 0.036984 | Area (sq ft) | 3.09 | 35.02 | 2.45 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 8.06 | 242.57 | 9.36 |
| Top Width (ft) | 29.15 | Top Width (ft) | 7.38 | 18.33 | 3.44 |
| Vel Total (ft/s) | 6.41 | Avg. Vel. (ft/s) | 2.61 | 6.93 | 3.83 |
| Max Chl Dpth (ft) | 2.61 | Hydr. Depth (ft) | 0.42 | 1.91 | 0.71 |
| Conv. Total (cfs) | 1352.0 | Conv. (cfs) | 41.9 | 1261.4 | 48.7 |
| Length Wtd. (ft) | 28.99 | Wetted Per. (ft) | 7.44 | 18.61 | 3.72 |
| Min Ch El (ft) | 2312.51 | Shear (lb/sq ft) | 0.96 | 4.34 | 1.52 |
| Alpha | 1.11 | Stream Power (lb/ft s) | 2.50 | 30.10 | 5.81 |
| Frctn Loss (ft) | 0.86 | Cum Volume (acre-ft) | 0.82 | 5.96 | 1.16 |
| C & E Loss (ft) | 0.08 | Cum SA (acres) | 0.87 | 2.43 | 1.27 |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2316.01 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.73 | Wt. n-Val. | | 0.063 | |
| W.S. Elev (ft) | 2315.28 | Reach Len. (ft) | 17.59 | 29.02 | 37.29 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 37.98 | |
| E.G. Slope (ft/ft) | 0.038625 | Area (sq ft) | | 37.98 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 18.33 | Top Width (ft) | | 18.33 | |
| Vel Total (ft/s) | 6.85 | Avg. Vel. (ft/s) | | 6.85 | |
| Max Chl Dpth (ft) | 2.77 | Hydr. Depth (ft) | | 2.07 | |
| Conv. Total (cfs) | 1322.9 | Conv. (cfs) | | 1322.9 | |
| Length Wtd. (ft) | 29.02 | Wetted Per. (ft) | | 21.23 | |
| Min Ch El (ft) | 2312.51 | Shear (lb/sq ft) | | 4.31 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 29.53 | |
| Frctn Loss (ft) | 0.91 | Cum Volume (acre-ft) | 0.00 | 6.72 | 0.01 |
| C & E Loss (ft) | 0.07 | Cum SA (acres) | 0.00 | 2.44 | 0.01 |

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 35.05 | 46.73 | 8.06 | 3.09 | 7.44 | 3.10 | 0.42 | 2.61 |
| 2 | Chan | 46.73 | 51.31 | 39.05 | 6.73 | 4.73 | 15.02 | 1.47 | 5.81 |
| 3 | Chan | 51.31 | 55.90 | 88.00 | 11.05 | 4.66 | 33.84 | 2.41 | 7.96 |
| 4 | Chan | 55.90 | 60.48 | 69.81 | 9.71 | 4.61 | 26.85 | 2.12 | 7.19 |
| 5 | Chan | 60.48 | 65.06 | 45.72 | 7.53 | 4.61 | 17.58 | 1.64 | 6.07 |
| 6 | ROB | 65.06 | 82.15 | 9.36 | 2.45 | 3.72 | 3.60 | 0.71 | 3.83 |

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 46.73 | 51.31 | 40.46 | 7.47 | 5.77 | 15.56 | 1.63 | 5.42 |
| 2 | Chan | 51.31 | 55.90 | 97.46 | 11.79 | 4.66 | 37.48 | 2.57 | 8.26 |
| 3 | Chan | 55.90 | 60.48 | 78.44 | 10.45 | 4.61 | 30.17 | 2.28 | 7.51 |
| 4 | Chan | 60.48 | 65.06 | 43.64 | 8.27 | 6.19 | 16.79 | 1.80 | 5.28 |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.46248

INPUT
Description:
Station Elevation Data num= 39

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2320.21 | 3.25 | 2319.85 | 6.05 | 2319.54 | 7.4 | 2319.47 | 8.09 | 2319.37 |
| 13.41 | 2318.78 | 15.05 | 2318.45 | 17.02 | 2318.11 | 18.73 | 2317.71 | 21.2 | 2317.42 |
| 43.17 | 2314.06 | 45.71 | 2313.68 | 46.79 | 2313.52 | 53.38 | 2312.46 | 54.32 | 2312.31 |
| 55.77 | 2312.05 | 59.05 | 2312.23 | 70.77 | 2312.89 | 73.13 | 2313.93 | 78.75 | 2316.44 |
| 78.81 | 2316.47 | 79.41 | 2316.65 | 85.21 | 2318.56 | 88.42 | 2318.81 | 91.95 | 2318.88 |
| 98.36 | 2319.07 | 100.57 | 2319.26 | 105.23 | 2319.39 | 108.32 | 2319.73 | 110.03 | 2319.96 |
| 114.87 | 2320.91 | 115.66 | 2320.94 | 116.42 | 2320.96 | 119.29 | 2321.07 | 119.56 | 2321.07 |
| 121.09 | 2321.34 | 124.11 | 2321.82 | 124.43 | 2321.87 | 128.46 | 2321.87 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 55.77 | .064 | 73.13 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|

46.79 70.77 15.23 30.04 30.12 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2314.89 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.46 | Wt. n-Val. | 0.061 | 0.063 | 0.064 |
| W.S. Elev (ft) | 2314.43 | Reach Len. (ft) | 15.23 | 30.04 | 30.12 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 2.79 | 44.21 | 2.70 |
| E.G. Slope (ft/ft) | 0.024416 | Area (sq ft) | 2.79 | 44.21 | 2.70 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 6.29 | 244.90 | 8.81 |
| Top Width (ft) | 33.54 | Top Width (ft) | 6.07 | 23.98 | 3.49 |
| Vel Total (ft/s) | 5.23 | Avg. Vel. (ft/s) | 2.25 | 5.54 | 3.26 |
| Max Chl Dpth (ft) | 2.38 | Hydr. Depth (ft) | 0.46 | 1.84 | 0.77 |
| Conv. Total (cfs) | 1663.9 | Conv. (cfs) | 40.2 | 1567.3 | 56.4 |
| Length Wtd. (ft) | 29.66 | Wetted Per. (ft) | 6.14 | 24.12 | 3.82 |
| Min Ch El (ft) | 2312.05 | Shear (lb/sq ft) | 0.69 | 2.79 | 1.08 |
| Alpha | 1.07 | Stream Power (lb/ft s) | 1.56 | 15.47 | 3.52 |
| Frctn Loss (ft) | 0.86 | Cum Volume (acre-ft) | 0.82 | 5.93 | 1.16 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.87 | 2.42 | 1.27 |

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2315.02 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.48 | Wt. n-Val. | | 0.063 | |
| W.S. Elev (ft) | 2314.55 | Reach Len. (ft) | 15.23 | 30.04 | 30.12 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 46.85 | |
| E.G. Slope (ft/ft) | 0.026100 | Area (sq ft) | | 46.85 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 23.98 | Top Width (ft) | | 23.98 | |
| Vel Total (ft/s) | 5.55 | Avg. Vel. (ft/s) | | 5.55 | |
| Max Chl Dpth (ft) | 2.49 | Hydr. Depth (ft) | | 1.95 | |
| Conv. Total (cfs) | 1609.4 | Conv. (cfs) | | 1609.4 | |
| Length Wtd. (ft) | 30.04 | Wetted Per. (ft) | | 26.80 | |
| Min Ch El (ft) | 2312.05 | Shear (lb/sq ft) | | 2.85 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 15.81 | |
| Frctn Loss (ft) | 0.90 | Cum Volume (acre-ft) | 0.00 | 6.69 | 0.01 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.00 | 2.42 | 0.01 |

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 35.09 | 46.79 | 6.29 | 2.79 | 6.14 | 2.42 | 0.46 | 2.25 |
| 2 | Chan | 46.79 | 52.79 | 38.99 | 8.37 | 6.07 | 14.99 | 1.40 | 4.66 |
| 3 | Chan | 52.79 | 58.78 | 82.25 | 13.27 | 6.04 | 31.64 | 2.21 | 6.20 |
| 4 | Chan | 58.78 | 64.77 | 71.03 | 12.29 | 6.00 | 27.32 | 2.05 | 5.78 |
| 5 | Chan | 64.77 | 70.77 | 52.63 | 10.27 | 6.00 | 20.24 | 1.71 | 5.12 |
| 6 | ROB | 70.77 | 85.19 | 8.81 | 2.70 | 3.82 | 3.39 | 0.77 | 3.26 |

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 46.79 | 52.79 | 40.47 | 9.03 | 7.10 | 15.56 | 1.51 | 4.48 |
| 2 | Chan | 52.79 | 58.78 | 90.50 | 13.93 | 6.04 | 34.81 | 2.32 | 6.50 |
| 3 | Chan | 58.78 | 64.77 | 78.65 | 12.96 | 6.00 | 30.25 | 2.16 | 6.07 |
| 4 | Chan | 64.77 | 70.77 | 50.38 | 10.93 | 7.66 | 19.38 | 1.82 | 4.61 |

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.45679

INPUT
Description:
Station Elevation Data num= 25

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2319.95 | 5.46 | 2319.45 | 11.39 | 2318.91 | 25.05 | 2316.88 | 47.25 | 2313.34 |
| 51.93 | 2312.41 | 55.02 | 2311.78 | 56.5 | 2311.51 | 58.62 | 2311.49 | 72.05 | 2311.57 |
| 74.74 | 2312.54 | 80.5 | 2314.64 | 81.16 | 2314.87 | 81.63 | 2315.07 | 88.03 | 2316.49 |
| 91.3 | 2317.1 | 98.94 | 2318.36 | 103.07 | 2319.03 | 109.76 | 2320.2 | 114.58 | 2320.7 |
| 119.18 | 2321.08 | 128.28 | 2321.96 | 128.45 | 2322.03 | 129.4 | 2322.45 | 133.75 | 2322.44 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 56.5 | .064 | 74.74 | .061 |

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
51.93 74.74 32.9 24.71 30.6 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2314.01 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.60 | Wt. n-Val. | 0.061 | 0.064 | 0.061 |
| W.S. Elev (ft) | 2313.41 | Reach Len. (ft) | 32.90 | 24.71 | 30.60 |
| Crit W.S. (ft) | 2313.29 | Flow Area (sq ft) | 2.51 | 39.59 | 1.03 |
| E.G. Slope (ft/ft) | 0.035300 | Area (sq ft) | 2.51 | 39.59 | 1.03 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 7.07 | 250.32 | 2.61 |
| Top Width (ft) | 30.30 | Top Width (ft) | 5.11 | 22.81 | 2.38 |
| Vel Total (ft/s) | 6.03 | Avg. Vel. (ft/s) | 2.82 | 6.32 | 2.52 |
| Max Chl Dpth (ft) | 1.92 | Hydr. Depth (ft) | 0.49 | 1.74 | 0.43 |
| Conv. Total (cfs) | 1383.8 | Conv. (cfs) | 37.6 | 1332.3 | 13.9 |
| Length Wtd. (ft) | 24.99 | Wetted Per. (ft) | 5.21 | 23.07 | 2.54 |
| Min Ch El (ft) | 2311.49 | Shear (lb/sq ft) | 1.06 | 3.78 | 0.90 |
| Alpha | 1.07 | Stream Power (lb/ft s) | 2.99 | 23.91 | 2.26 |
| Frctn Loss (ft) | 0.81 | Cum Volume (acre-ft) | 0.82 | 5.91 | 1.15 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.87 | 2.40 | 1.27 |

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2314.11 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.60 | Wt. n-Val. | | 0.064 | |
| W.S. Elev (ft) | 2313.51 | Reach Len. (ft) | 32.90 | 24.71 | 30.60 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 41.84 | |
| E.G. Slope (ft/ft) | 0.035042 | Area (sq ft) | | 41.84 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 22.81 | Top Width (ft) | | 22.81 | |
| Vel Total (ft/s) | 6.21 | Avg. Vel. (ft/s) | | 6.21 | |
| Max Chl Dpth (ft) | 2.02 | Hydr. Depth (ft) | | 1.83 | |
| Conv. Total (cfs) | 1388.9 | Conv. (cfs) | | 1388.9 | |
| Length Wtd. (ft) | 24.71 | Wetted Per. (ft) | | 25.13 | |
| Min Ch El (ft) | 2311.49 | Shear (lb/sq ft) | | 3.64 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 22.63 | |
| Frctn Loss (ft) | 0.79 | Cum Volume (acre-ft) | 0.00 | 6.66 | 0.01 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.00 | 2.41 | 0.01 |

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 38.95 | 51.93 | 7.07 | 2.51 | 5.21 | 2.72 | 0.49 | 2.82 |
| 2 | Chan | 51.93 | 57.63 | 53.05 | 8.83 | 5.79 | 20.40 | 1.55 | 6.01 |
| 3 | Chan | 57.63 | 63.34 | 72.66 | 10.87 | 5.70 | 27.94 | 1.91 | 6.68 |
| 4 | Chan | 63.34 | 69.04 | 70.59 | 10.68 | 5.70 | 27.15 | 1.87 | 6.61 |
| 5 | Chan | 69.04 | 74.74 | 54.02 | 9.21 | 5.87 | 20.78 | 1.61 | 5.87 |
| 6 | ROB | 74.74 | 89.49 | 2.61 | 1.03 | 2.54 | 1.00 | 0.43 | 2.52 |

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 51.93 | 57.63 | 52.51 | 9.39 | 6.89 | 20.20 | 1.65 | 5.59 |
| 2 | Chan | 57.63 | 63.34 | 78.16 | 11.43 | 5.70 | 30.06 | 2.00 | 6.84 |
| 3 | Chan | 63.34 | 69.04 | 76.05 | 11.25 | 5.70 | 29.25 | 1.97 | 6.76 |
| 4 | Chan | 69.04 | 74.74 | 53.28 | 9.77 | 6.84 | 20.49 | 1.71 | 5.45 |

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.45211

INPUT
Description:
Station Elevation Data num= 30

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2318.6 | 5.52 | 2318.09 | 5.89 | 2318.06 | 9.55 | 2317.45 | 35.13 | 2312.98 |
| 36.15 | 2312.76 | 41.62 | 2311.61 | 46.13 | 2310.59 | 58.32 | 2310.6 | 61.18 | 2310.56 |
| 63.51 | 2311.61 | 63.97 | 2311.81 | 69.38 | 2314.21 | 72.38 | 2314.38 | 76.98 | 2314.68 |
| 78.55 | 2314.75 | 81.21 | 2315.16 | 86.8 | 2316.07 | 89.99 | 2316.66 | 102.64 | 2318.95 |
| 105.2 | 2319.39 | 111.17 | 2320.15 | 111.41 | 2320.17 | 114.55 | 2320.49 | 115.41 | 2321.36 |
| 115.67 | 2321.54 | 118.66 | 2321.81 | 121.7 | 2321.95 | 125.56 | 2322.22 | 127.47 | 2322.37 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 46.13 | .064 | 63.97 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 41.62 | 63.51 | 48.85 | 35.33 | 17.28 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2313.18 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.56 | Wt. n-Val. | 0.061 | 0.063 | 0.062 |
| W.S. Elev (ft) | 2312.62 | Reach Len. (ft) | 48.85 | 35.33 | 17.28 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 2.44 | 40.99 | 1.16 |
| E.G. Slope (ft/ft) | 0.030029 | Area (sq ft) | 2.44 | 40.99 | 1.16 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 6.44 | 250.45 | 3.12 |
| Top Width (ft) | 28.99 | Top Width (ft) | 4.81 | 21.89 | 2.29 |
| Vel Total (ft/s) | 5.83 | Avg. Vel. (ft/s) | 2.64 | 6.11 | 2.68 |
| Max Chl Dpth (ft) | 2.06 | Hydr. Depth (ft) | 0.51 | 1.87 | 0.51 |
| Conv. Total (cfs) | 1500.4 | Conv. (cfs) | 37.1 | 1445.3 | 18.0 |
| Length Wtd. (ft) | 35.12 | Wetted Per. (ft) | 4.92 | 22.23 | 2.50 |
| Min Ch El (ft) | 2310.56 | Shear (lb/sq ft) | 0.93 | 3.46 | 0.87 |
| Alpha | 1.07 | Stream Power (lb/ft s) | 2.45 | 21.12 | 2.33 |
| Frctn Loss (ft) | 1.09 | Cum Volume (acre-ft) | 0.82 | 5.88 | 1.15 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.86 | 2.39 | 1.26 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2313.30 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.54 | Wt. n-Val. | | 0.063 | |
| W.S. Elev (ft) | 2312.76 | Reach Len. (ft) | 48.85 | 35.33 | 17.28 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 43.98 | |
| E.G. Slope (ft/ft) | 0.029111 | Area (sq ft) | | 43.98 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 21.89 | Top Width (ft) | | 21.89 | |
| Vel Total (ft/s) | 5.91 | Avg. Vel. (ft/s) | | 5.91 | |
| Max Chl Dpth (ft) | 2.20 | Hydr. Depth (ft) | | 2.01 | |
| Conv. Total (cfs) | 1523.9 | Conv. (cfs) | | 1523.9 | |
| Length Wtd. (ft) | 35.33 | Wetted Per. (ft) | | 24.53 | |
| Min Ch El (ft) | 2310.56 | Shear (lb/sq ft) | | 3.26 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 19.27 | |
| Frctn Loss (ft) | 1.03 | Cum Volume (acre-ft) | 0.00 | 6.64 | 0.01 |

| | | | | | |
|---|---|---|---|---|---|
| * C & E Loss (ft) | * 0.01 | * Cum SA (acres) | * 0.00 | * 2.39 | * 0.01 * |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 31.22 | 41.62 | 6.44 | 2.44 | 4.92 | 2.48 | 0.51 | 2.64 |
| 2 | Chan | 41.62 | 47.09 | 50.07 | 8.82 | 5.59 | 19.26 | 1.61 | 5.68 |
| 3 | Chan | 47.09 | 52.57 | 71.24 | 11.10 | 5.47 | 27.40 | 2.03 | 6.42 |
| 4 | Chan | 52.57 | 58.04 | 70.97 | 11.08 | 5.47 | 27.30 | 2.02 | 6.41 |
| 5 | Chan | 58.04 | 63.51 | 58.17 | 9.99 | 5.70 | 22.37 | 1.83 | 5.82 |
| 6 | ROB | 63.51 | 79.50 | 3.12 | 1.16 | 2.50 | 1.20 | 0.51 | 2.68 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 41.62 | 47.09 | 49.82 | 9.57 | 6.73 | 19.16 | 1.75 | 5.21 |
| 2 | Chan | 47.09 | 52.57 | 77.06 | 11.85 | 5.47 | 29.64 | 2.17 | 6.50 |
| 3 | Chan | 52.57 | 58.04 | 76.79 | 11.83 | 5.47 | 29.54 | 2.16 | 6.49 |
| 4 | Chan | 58.04 | 63.51 | 56.33 | 10.74 | 6.85 | 21.66 | 1.96 | 5.24 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.44542

INPUT
Description:
Station Elevation Data num= 31

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2317.81 | 5.91 | 2317.34 | 6.79 | 2317.21 | 22.29 | 2314.98 | 29.21 | 2313.97 |
| 31.15 | 2312.99 | 35.86 | 2310.41 | 37.96 | 2309.22 | 47.5 | 2309.17 | 50.02 | 2309.14 |
| 53.55 | 2310.04 | 53.89 | 2310.13 | 54.42 | 2310.25 | 58.95 | 2311.6 | 62.44 | 2311.96 |
| 65.19 | 2312.28 | 75.39 | 2313.36 | 78.13 | 2313.64 | 82.5 | 2314.2 | 88.76 | 2314.85 |
| 93.81 | 2315.45 | 107.81 | 2317.57 | 108.89 | 2317.76 | 109.21 | 2317.79 | 112.26 | 2318.24 |
| 115.35 | 2318.6 | 116.56 | 2318.76 | 120.04 | 2319.22 | 120.47 | 2320.19 | 121.39 | 2321.59 |
| 123.82 | 2321.71 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 37.96 | .064 | 53.55 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 35.86 | 53.89 | 26.09 | 20.34 | 26.84 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2312.09 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.67 | Wt. n-Val. | 0.061 | 0.064 | 0.061 |
| W.S. Elev (ft) | 2311.42 | Reach Len. (ft) | 26.09 | 20.34 | 26.84 |
| Crit W.S. (ft) | 2311.23 | Flow Area (sq ft) | 0.93 | 37.20 | 2.94 |
| E.G. Slope (ft/ft) | 0.032019 | Area (sq ft) | 0.93 | 37.20 | 2.94 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 2.35 | 248.17 | 9.47 |
| Top Width (ft) | 24.32 | Top Width (ft) | 1.84 | 18.03 | 4.45 |
| Vel Total (ft/s) | 6.33 | Avg. Vel. (ft/s) | 2.53 | 6.67 | 3.22 |
| Max Chl Dpth (ft) | 2.28 | Hydr. Depth (ft) | 0.50 | 2.06 | 0.66 |
| Conv. Total (cfs) | 1453.0 | Conv. (cfs) | 13.1 | 1386.9 | 52.9 |
| Length Wtd. (ft) | 20.64 | Wetted Per. (ft) | 2.10 | 18.47 | 4.64 |
| Min Ch El (ft) | 2309.14 | Shear (lb/sq ft) | 0.88 | 4.03 | 1.27 |
| Alpha | 1.07 | Stream Power (lb/ft s) | 2.24 | 26.86 | 4.09 |
| Frctn Loss (ft) | 0.55 | Cum Volume (acre-ft) | 0.82 | 5.85 | 1.15 |
| C & E Loss (ft) | 0.06 | Cum SA (acres) | 0.86 | 2.37 | 1.26 |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2312.27 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.61 | Wt. n-Val. | | 0.063 | |
| W.S. Elev (ft) | 2311.66 | Reach Len. (ft) | 26.09 | 20.34 | 26.84 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 41.54 | |
| E.G. Slope (ft/ft) | 0.029021 | Area (sq ft) | | 41.54 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 18.03 | Top Width (ft) | | 18.03 | |
| Vel Total (ft/s) | 6.26 | Avg. Vel. (ft/s) | | 6.26 | |
| Max Chl Dpth (ft) | 2.52 | Hydr. Depth (ft) | | 2.30 | |
| Conv. Total (cfs) | 1526.2 | Conv. (cfs) | | 1526.2 | |
| Length Wtd. (ft) | 20.34 | Wetted Per. (ft) | | 21.25 | |
| Min Ch El (ft) | 2309.14 | Shear (lb/sq ft) | | 3.54 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 22.17 | |
| Frctn Loss (ft) | 0.44 | Cum Volume (acre-ft) | 0.00 | 6.60 | 0.01 |
| C & E Loss (ft) | 0.07 | Cum SA (acres) | 0.00 | 2.38 | 0.01 |

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 26.90 | 35.86 | 2.35 | 0.93 | 2.10 | 0.90 | 0.50 | 2.53 |
| 2 | Chan | 35.86 | 40.37 | 55.13 | 8.68 | 4.82 | 21.20 | 1.92 | 6.35 |
| 3 | Chan | 40.37 | 44.88 | 70.20 | 10.02 | 4.51 | 27.00 | 2.22 | 7.01 |
| 4 | Chan | 44.88 | 49.38 | 71.59 | 10.14 | 4.51 | 27.53 | 2.25 | 7.06 |
| 5 | Chan | 49.38 | 53.89 | 51.26 | 8.36 | 4.63 | 19.71 | 1.85 | 6.13 |
| 6 | ROB | 53.89 | 71.37 | 9.47 | 2.94 | 4.64 | 3.64 | 0.66 | 3.22 |

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 35.86 | 40.37 | 54.93 | 9.76 | 6.07 | 21.13 | 2.17 | 5.63 |
| 2 | Chan | 40.37 | 44.88 | 74.66 | 11.11 | 4.51 | 28.72 | 2.46 | 6.72 |
| 3 | Chan | 44.88 | 49.38 | 75.99 | 11.22 | 4.51 | 29.23 | 2.49 | 6.77 |
| 4 | Chan | 49.38 | 53.89 | 54.41 | 9.44 | 6.16 | 20.93 | 2.10 | 5.76 |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.44157

INPUT
Description:
Station Elevation Data num= 28

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2318.29 | 2.69 | 2318.18 | 6.45 | 2318 | 8.48 | 2317.9 | 17.6 | 2316.06 |
| 26.47 | 2314.2 | 31.83 | 2311.72 | 35.68 | 2309.82 | 37.74 | 2308.87 | 47.36 | 2308.72 |
| 50.84 | 2308.68 | 52.44 | 2308.97 | 53.84 | 2309.24 | 57.59 | 2309.96 | 58.94 | 2310.21 |
| 70.36 | 2311.43 | 87.98 | 2313.16 | 89.52 | 2313.32 | 92.97 | 2313.63 | 101.55 | 2314.5 |
| 105.47 | 2314.85 | 110.9 | 2315.7 | 116.35 | 2316.63 | 118.43 | 2316.99 | 120.35 | 2317.27 |
| 124.07 | 2317.71 | 130.26 | 2318.46 | 133.57 | 2318.89 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .061 | 37.74 | .064 | 53.84 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 35.68 | 57.59 | 27.45 | 36.46 | 31.57 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2311.47 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.47 | Wt. n-Val. | 0.061 | 0.063 | 0.061 |
| W.S. Elev (ft) | 2311.00 | Reach Len. (ft) | 27.45 | 36.46 | 31.57 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 1.42 | 44.09 | 4.19 |
| E.G. Slope (ft/ft) | 0.022829 | Area (sq ft) | 1.42 | 44.09 | 4.19 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 3.42 | 247.21 | 9.37 |
| Top Width (ft) | 33.09 | Top Width (ft) | 2.40 | 21.91 | 8.78 |
| Vel Total (ft/s) | 5.23 | Avg. Vel. (ft/s) | 2.41 | 5.61 | 2.24 |
| Max Chl Dpth (ft) | 2.32 | Hydr. Depth (ft) | 0.59 | 2.01 | 0.48 |
| Conv. Total (cfs) | 1720.8 | Conv. (cfs) | 22.7 | 1636.1 | 62.0 |
| Length Wtd. (ft) | 35.92 | Wetted Per. (ft) | 2.67 | 22.24 | 8.84 |
| Min Ch El (ft) | 2308.68 | Shear (lb/sq ft) | 0.76 | 2.83 | 0.67 |
| Alpha | 1.10 | Stream Power (lb/ft s) | 1.82 | 15.84 | 1.51 |
| Frctn Loss (ft) | 0.66 | Cum Volume (acre-ft) | 0.82 | 5.83 | 1.15 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 0.86 | 2.37 | 1.26 |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2311.76 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.39 | Wt. n-Val. | | 0.063 | |
| W.S. Elev (ft) | 2311.37 | Reach Len. (ft) | 27.45 | 36.46 | 31.57 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 52.19 | |
| E.G. Slope (ft/ft) | 0.016867 | Area (sq ft) | | 52.19 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 21.91 | Top Width (ft) | | 21.91 | |
| Vel Total (ft/s) | 4.98 | Avg. Vel. (ft/s) | | 4.98 | |
| Max Chl Dpth (ft) | 2.69 | Hydr. Depth (ft) | | 2.38 | |
| Conv. Total (cfs) | 2002.0 | Conv. (cfs) | | 2002.0 | |
| Length Wtd. (ft) | 36.46 | Wetted Per. (ft) | | 25.21 | |
| Min Ch El (ft) | 2308.68 | Shear (lb/sq ft) | | 2.18 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 10.86 | |
| Frctn Loss (ft) | 0.60 | Cum Volume (acre-ft) | 0.00 | 6.58 | 0.01 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.00 | 2.37 | 0.01 |

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 26.76 | 35.68 | 3.42 | 1.42 | 2.67 | 1.32 | 0.59 | 2.41 |
| 2 | Chan | 35.68 | 41.16 | 59.03 | 10.80 | 5.69 | 22.70 | 1.97 | 5.47 |
| 3 | Chan | 41.16 | 46.64 | 72.18 | 12.21 | 5.48 | 27.76 | 2.23 | 5.91 |
| 4 | Chan | 46.64 | 52.11 | 74.63 | 12.48 | 5.50 | 28.70 | 2.28 | 5.98 |
| 5 | Chan | 52.11 | 57.59 | 41.37 | 8.60 | 5.58 | 15.91 | 1.57 | 4.81 |
| 6 | ROB | 57.59 | 76.59 | 9.37 | 4.19 | 8.84 | 3.60 | 0.48 | 2.24 |

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 35.68 | 41.16 | 59.59 | 12.82 | 7.24 | 22.92 | 2.34 | 4.65 |
| 2 | Chan | 41.16 | 46.64 | 77.47 | 14.24 | 5.48 | 29.79 | 2.60 | 5.44 |
| 3 | Chan | 46.64 | 52.11 | 79.69 | 14.50 | 5.50 | 30.65 | 2.65 | 5.49 |
| 4 | Chan | 52.11 | 57.59 | 43.25 | 10.62 | 6.99 | 16.63 | 1.94 | 4.07 |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.43466

INPUT
Description:
Station Elevation Data num= 29

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2317.73 | 2.5 | 2317.66 | 3.07 | 2317.64 | 5.31 | 2317.23 | 6.86 | 2316.86 |
| 10.8 | 2316.07 | 11.94 | 2315.83 | 17.25 | 2314.81 | 21.38 | 2313.11 | 23.42 | 2312.35 |
| 26.1 | 2311.36 | 27.79 | 2310.85 | 33.21 | 2308.91 | 35.46 | 2308.25 | 37.24 | 2307.4 |
| 41.92 | 2307.75 | 50.11 | 2308.41 | 53.15 | 2308.81 | 59.91 | 2309.71 | 62.83 | 2310.02 |
| 70.06 | 2310.73 | 85.79 | 2312.32 | 89.47 | 2312.63 | 107.03 | 2314.37 | 114.66 | 2315.7 |
| 125.12 | 2317.39 | 125.14 | 2317.4 | 129.3 | 2318.29 | 130.97 | 2318.56 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .063 | 37.24 | .069 | 53.15 | .059 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 33.21 | 53.15 | 11.88 | 30.58 | 45.13 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2310.76 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.32 | Wt. n-Val. | 0.063 | 0.068 | 0.059 |
| W.S. Elev (ft) | 2310.44 | Reach Len. (ft) | 11.88 | 30.58 | 45.13 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 3.29 | 47.21 | 10.60 |
| E.G. Slope (ft/ft) | 0.015307 | Area (sq ft) | 3.29 | 47.21 | 10.60 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 7.72 | 224.95 | 27.34 |
| Top Width (ft) | 38.22 | Top Width (ft) | 4.28 | 19.94 | 13.99 |
| Vel Total (ft/s) | 4.26 | Avg. Vel. (ft/s) | 2.35 | 4.76 | 2.58 |
| Max Chl Dpth (ft) | 3.04 | Hydr. Depth (ft) | 0.77 | 2.37 | 0.76 |
| Conv. Total (cfs) | 2101.5 | Conv. (cfs) | 62.4 | 1818.2 | 221.0 |
| Length Wtd. (ft) | 31.06 | Wetted Per. (ft) | 4.55 | 20.29 | 14.09 |
| Min Ch El (ft) | 2307.40 | Shear (lb/sq ft) | 0.69 | 2.22 | 0.72 |
| Alpha | 1.13 | Stream Power (lb/ft s) | 1.62 | 10.59 | 1.85 |
| Frctn Loss (ft) | 0.70 | Cum Volume (acre-ft) | 0.82 | 5.79 | 1.15 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 0.85 | 2.35 | 1.25 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2311.15 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.36 | Wt. n-Val. | | 0.067 | |
| W.S. Elev (ft) | 2310.79 | Reach Len. (ft) | 11.88 | 30.58 | 45.13 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 54.02 | |
| E.G. Slope (ft/ft) | 0.016326 | Area (sq ft) | | 54.02 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 19.94 | Top Width (ft) | | 19.94 | |
| Vel Total (ft/s) | 4.81 | Avg. Vel. (ft/s) | | 4.81 | |
| Max Chl Dpth (ft) | 3.39 | Hydr. Depth (ft) | | 2.71 | |
| Conv. Total (cfs) | 2034.9 | Conv. (cfs) | | 2034.9 | |
| Length Wtd. (ft) | 30.58 | Wetted Per. (ft) | | 24.14 | |
| Min Ch El (ft) | 2307.40 | Shear (lb/sq ft) | | 2.28 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 10.98 | |
| Frctn Loss (ft) | 0.76 | Cum Volume (acre-ft) | 0.00 | 6.54 | 0.01 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 0.00 | 2.35 | 0.01 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 24.91 | 33.21 | 7.72 | 3.29 | 4.55 | 2.97 | 0.77 | 2.35 |
| 2 | Chan | 33.21 | 38.20 | 57.02 | 11.73 | 5.28 | 21.93 | 2.35 | 4.86 |
| 3 | Chan | 38.20 | 43.18 | 72.30 | 13.88 | 5.00 | 27.81 | 2.78 | 5.21 |
| 4 | Chan | 43.18 | 48.17 | 56.07 | 11.92 | 5.00 | 21.57 | 2.39 | 4.70 |
| 5 | Chan | 48.17 | 53.15 | 39.56 | 9.68 | 5.02 | 15.22 | 1.94 | 4.09 |
| 6 | ROB | 53.15 | 72.61 | 27.34 | 10.60 | 14.09 | 10.51 | 0.76 | 2.58 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 33.21 | 38.20 | 60.27 | 13.43 | 7.15 | 23.18 | 2.69 | 4.49 |
| 2 | Chan | 38.20 | 43.18 | 87.88 | 15.59 | 5.00 | 33.80 | 3.13 | 5.64 |
| 3 | Chan | 43.18 | 48.17 | 70.21 | 13.62 | 5.00 | 27.01 | 2.73 | 5.15 |
| 4 | Chan | 48.17 | 53.15 | 41.64 | 11.38 | 6.99 | 16.01 | 2.28 | 3.66 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.42887

INPUT
Description:
Station Elevation Data num= 41

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2317.67 | 3.96 | 2317.5 | 4.38 | 2317.43 | 5.95 | 2317.22 | 7.41 | 2317.03 |
| 10.18 | 2316.71 | 11.3 | 2316.54 | 13.99 | 2316.23 | 15.43 | 2316.07 | 18.25 | 2315.8 |
| 20.02 | 2315.47 | 23.15 | 2314.87 | 32.35 | 2311.93 | 35.5 | 2311.26 | 40.08 | 2310.48 |
| 44.86 | 2310.7 | 49.76 | 2309.31 | 50.77 | 2308.49 | 50.94 | 2308.41 | 51.98 | 2307.93 |
| 52.8 | 2307.82 | 57.38 | 2306.87 | 59.28 | 2306.94 | 67.22 | 2307.31 | 67.78 | 2307.43 |
| 68.38 | 2307.63 | 70.68 | 2308.49 | 75.54 | 2310.32 | 77.1 | 2310.49 | 79.72 | 2310.77 |
| 81.16 | 2310.85 | 84.59 | 2311.02 | 90.31 | 2311.35 | 94.12 | 2311.49 | 100.68 | 2312.36 |
| 107.65 | 2313.35 | 116.25 | 2314.53 | 119.04 | 2314.88 | 133.96 | 2316.88 | 135.21 | 2317.04 |
| 138.72 | 2317.15 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .063 | 50.94 | .069 | 70.68 | .059 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 52.8 | 68.38 | 15.12 | 24.71 | 29.21 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2310.03 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.67 | Wt. n-Val. | 0.068 | 0.069 | 0.067 |
| W.S. Elev (ft) | 2309.35 | Reach Len. (ft) | 15.12 | 24.71 | 29.21 |
| Crit W.S. (ft) | 2309.18 | Flow Area (sq ft) | 3.06 | 33.74 | 3.96 |
| E.G. Slope (ft/ft) | 0.036402 | Area (sq ft) | 3.06 | 33.74 | 3.96 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 13.00 | 230.53 | 16.47 |
| Top Width (ft) | 23.36 | Top Width (ft) | 3.19 | 15.58 | 4.59 |
| Vel Total (ft/s) | 6.38 | Avg. Vel. (ft/s) | 4.25 | 6.83 | 4.16 |
| Max Chl Dpth (ft) | 2.48 | Hydr. Depth (ft) | 0.96 | 2.17 | 0.86 |
| Conv. Total (cfs) | 1362.7 | Conv. (cfs) | 68.1 | 1208.3 | 86.3 |
| Length Wtd. (ft) | 24.52 | Wetted Per. (ft) | 3.62 | 15.73 | 4.90 |
| Min Ch El (ft) | 2306.87 | Shear (lb/sq ft) | 1.92 | 4.87 | 1.84 |
| Alpha | 1.07 | Stream Power (lb/ft s) | 8.16 | 33.30 | 7.63 |
| Frctn Loss (ft) | 0.70 | Cum Volume (acre-ft) | 0.81 | 5.77 | 1.14 |
| C & E Loss (ft) | 0.09 | Cum SA (acres) | 0.85 | 2.34 | 1.24 |

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2310.35 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.73 | Wt. n-Val. | | 0.069 | |
| W.S. Elev (ft) | 2309.63 | Reach Len. (ft) | 15.12 | 24.71 | 29.21 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 37.98 | |
| E.G. Slope (ft/ft) | 0.041651 | Area (sq ft) | | 37.98 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 15.58 | Top Width (ft) | | 15.58 | |
| Vel Total (ft/s) | 6.85 | Avg. Vel. (ft/s) | | 6.85 | |
| Max Chl Dpth (ft) | 2.75 | Hydr. Depth (ft) | | 2.44 | |
| Conv. Total (cfs) | 1274.0 | Conv. (cfs) | | 1274.0 | |
| Length Wtd. (ft) | 24.71 | Wetted Per. (ft) | | 19.53 | |
| Min Ch El (ft) | 2306.87 | Shear (lb/sq ft) | | 5.06 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 34.61 | |
| Frctn Loss (ft) | 0.70 | Cum Volume (acre-ft) | 0.00 | 6.50 | 0.01 |
| C & E Loss (ft) | 0.11 | Cum SA (acres) | 0.00 | 2.34 | 0.01 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 39.60 | 52.80 | 13.00 | 3.06 | 3.62 | 5.00 | 0.96 | 4.25 |
| 2 | Chan | 52.80 | 56.70 | 47.25 | 7.54 | 3.98 | 18.17 | 1.94 | 6.26 |
| 3 | Chan | 56.70 | 60.59 | 69.24 | 9.42 | 3.91 | 26.63 | 2.42 | 7.35 |
| 4 | Chan | 60.59 | 64.49 | 61.99 | 8.81 | 3.90 | 23.84 | 2.26 | 7.04 |
| 5 | Chan | 64.49 | 68.38 | 52.05 | 7.97 | 3.94 | 20.02 | 2.04 | 6.53 |
| 6 | ROB | 68.38 | 85.97 | 16.47 | 3.96 | 4.90 | 6.34 | 0.86 | 4.16 |

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 52.80 | 56.70 | 47.25 | 8.60 | 5.78 | 18.17 | 2.21 | 5.49 |
| 2 | Chan | 56.70 | 60.59 | 85.24 | 10.48 | 3.91 | 32.79 | 2.69 | 8.13 |
| 3 | Chan | 60.59 | 64.49 | 77.22 | 9.87 | 3.90 | 29.70 | 2.53 | 7.83 |
| 4 | Chan | 64.49 | 68.38 | 50.28 | 9.02 | 5.94 | 19.34 | 2.32 | 5.57 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.42419

INPUT
Description:
Station Elevation Data num= 47

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2317.37 | 4.64 | 2317.18 | 6.77 | 2317.19 | 7.9 | 2317.12 | 10.61 | 2317.16 |
| 11.57 | 2317.17 | 12.56 | 2317.03 | 16.24 | 2316.79 | 16.86 | 2316.72 | 17.98 | 2316.63 |
| 18.04 | 2316.62 | 21.14 | 2315.92 | 22.47 | 2315.58 | 23 | 2315.43 | 26.69 | 2314.67 |
| 29.96 | 2313.97 | 35.22 | 2312.64 | 37.13 | 2312.24 | 41.49 | 2311.61 | 41.89 | 2311.49 |
| 42.38 | 2311.32 | 43.77 | 2310.82 | 44.08 | 2310.71 | 44.18 | 2310.68 | 46.99 | 2309.7 |
| 47.86 | 2309.58 | 53.85 | 2307.85 | 55.03 | 2307.51 | 55.38 | 2307.43 | 61.01 | 2307.49 |
| 62.19 | 2307.28 | 63.46 | 2307.17 | 72.64 | 2306.45 | 72.72 | 2306.44 | 74.13 | 2306.44 |
| 79.05 | 2306.42 | 79.21 | 2306.52 | 79.34 | 2306.61 | 81.9 | 2308.45 | 86.05 | 2311.44 |
| 86.32 | 2311.47 | 90.02 | 2311.93 | 118.08 | 2315.36 | 122.22 | 2315.94 | 127.62 | 2316.46 |
| 128.91 | 2316.59 | 132.83 | 2316.51 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .063 | 53.85 | .069 | 81.9 | .059 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 55.38 | 79.34 | 10.35 | 21.04 | 24.61 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2309.24 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.38 | Wt. n-Val. | 0.067 | 0.069 | 0.069 |
| W.S. Elev (ft) | 2308.86 | Reach Len. (ft) | 10.35 | 21.04 | 24.61 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 3.62 | 46.64 | 3.51 |
| E.G. Slope (ft/ft) | 0.023144 | Area (sq ft) | 3.62 | 46.64 | 3.51 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 10.70 | 237.50 | 11.80 |
| Top Width (ft) | 32.09 | Top Width (ft) | 5.01 | 23.96 | 3.12 |
| Vel Total (ft/s) | 4.84 | Avg. Vel. (ft/s) | 2.96 | 5.09 | 3.37 |
| Max Chl Dpth (ft) | 2.44 | Hydr. Depth (ft) | 0.72 | 1.95 | 1.12 |
| Conv. Total (cfs) | 1709.0 | Conv. (cfs) | 70.3 | 1561.1 | 77.6 |
| Length Wtd. (ft) | 20.92 | Wetted Per. (ft) | 5.21 | 24.07 | 3.85 |
| Min Ch El (ft) | 2306.42 | Shear (lb/sq ft) | 1.00 | 2.80 | 1.32 |
| Alpha | 1.05 | Stream Power (lb/ft s) | 2.97 | 14.26 | 4.43 |
| Frctn Loss (ft) | 0.15 | Cum Volume (acre-ft) | 0.81 | 5.74 | 1.14 |
| C & E Loss (ft) | 0.08 | Cum SA (acres) | 0.85 | 2.32 | 1.24 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2309.54 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.35 | Wt. n-Val. | | 0.069 | |
| W.S. Elev (ft) | 2309.19 | Reach Len. (ft) | 10.35 | 21.04 | 24.61 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 54.74 | |
| E.G. Slope (ft/ft) | 0.020292 | Area (sq ft) | | 54.74 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 23.96 | Top Width (ft) | | 23.96 | |
| Vel Total (ft/s) | 4.75 | Avg. Vel. (ft/s) | | 4.75 | |
| Max Chl Dpth (ft) | 2.77 | Hydr. Depth (ft) | | 2.28 | |
| Conv. Total (cfs) | 1825.2 | Conv. (cfs) | | 1825.2 | |
| Length Wtd. (ft) | 21.04 | Wetted Per. (ft) | | 28.42 | |
| Min Ch El (ft) | 2306.42 | Shear (lb/sq ft) | | 2.44 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 11.59 | |
| Frctn Loss (ft) | 0.14 | Cum Volume (acre-ft) | 0.00 | 6.48 | 0.01 |
| C & E Loss (ft) | 0.08 | Cum SA (acres) | 0.00 | 2.33 | 0.01 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 41.54 | 55.38 | 10.70 | 3.62 | 5.21 | 4.12 | 0.72 | 2.96 |
| 2 | Chan | 55.38 | 61.37 | 33.38 | 8.36 | 6.00 | 12.84 | 1.40 | 3.99 |
| 3 | Chan | 61.37 | 67.36 | 48.48 | 10.47 | 6.02 | 18.65 | 1.75 | 4.63 |
| 4 | Chan | 67.36 | 73.35 | 72.52 | 13.32 | 6.01 | 27.89 | 2.22 | 5.44 |
| 5 | Chan | 73.35 | 79.34 | 83.12 | 14.49 | 6.05 | 31.97 | 2.42 | 5.73 |
| 6 | ROB | 79.34 | 92.71 | 11.80 | 3.51 | 3.85 | 4.54 | 1.12 | 3.37 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 55.38 | 61.37 | 37.64 | 10.38 | 7.76 | 14.48 | 1.73 | 3.63 |
| 2 | Chan | 61.37 | 67.36 | 60.71 | 12.50 | 6.02 | 23.35 | 2.09 | 4.86 |
| 3 | Chan | 67.36 | 73.35 | 85.62 | 15.35 | 6.01 | 32.93 | 2.56 | 5.58 |
| 4 | Chan | 73.35 | 79.34 | 76.04 | 16.52 | 8.63 | 29.25 | 2.76 | 4.60 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.42020

```
INPUT
Description:
Station Elevation Data    num=      44
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
*********************************************************************************
       0 2318.34   12.67 2318.06   19.21 2317.76   20.06 2317.75   21.22 2317.75
    40.8 2316.81   41.91 2316.81   45.01  2316.6   46.04  2316.6    48.5 2316.23
   50.11 2315.98    53.7 2315.54   60.51 2314.03   63.11 2313.35   83.17  2309.1
    83.8    2309    84.7 2308.74   85.45  2308.7   86.83  2307.9    87.9 2307.29
   88.87 2306.75   90.52 2305.85   94.37 2306.01   97.42 2306.06  102.33    2306
  104.52 2306.04  109.78 2305.76  113.45 2305.59  115.09 2305.56   119.3 2305.35
  120.12 2306.25   121.5 2307.84  125.12 2312.02  127.38 2312.29   141.4 2313.77
  160.24 2315.68  160.69 2315.73  160.94  2315.8  161.18 2315.78  161.41 2315.77
  161.55  2315.8  161.83 2315.82  163.97 2315.96  166.92 2315.92

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
       0    .063    87.9    .069   121.5    .059

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          87.9   119.3             244.5  243.05  223.37            .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*************************************************************************************************
* E.G. Elev (ft)          * 2309.00  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.11  * Wt. n-Val.              *   0.063  *   0.069  *   0.069  *
* W.S. Elev (ft)          * 2308.89  * Reach Len. (ft)         *  244.50  *  243.05  *  223.37  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *    2.38  *   94.08  *    5.57  *
* E.G. Slope (ft/ft)      *0.003546  * Area (sq ft)            *    2.38  *   94.08  *    5.57  *
* Q Total (cfs)           *  260.00  * Flow (cfs)              *    2.32  *  248.66  *    9.03  *
* Top Width (ft)          *   38.25  * Top Width (ft)          *    3.73  *   31.40  *    3.11  *
* Vel Total (ft/s)        *    2.55  * Avg. Vel. (ft/s)        *    0.97  *    2.64  *    1.62  *
* Max Chl Dpth (ft)       *    3.54  * Hydr. Depth (ft)        *    0.64  *    3.00  *    1.79  *
* Conv. Total (cfs)       *  4366.4  * Conv. (cfs)             *    38.9  *  4175.9  *   151.6  *
* Length Wtd. (ft)        *  242.16  * Wetted Per. (ft)        *    4.13  *   31.79  *    4.72  *
* Min Ch El (ft)          * 2305.35  * Shear (lb/sq ft)        *    0.13  *    0.66  *    0.26  *
* Alpha                   *    1.04  * Stream Power (lb/ft s)   *    0.12  *    1.73  *    0.42  *
* Frctn Loss (ft)         *    1.40  * Cum Volume (acre-ft)     *    0.81  *    5.71  *    1.13  *
* C & E Loss (ft)         *    0.01  * Cum SA (acres)           *    0.85  *    2.31  *    1.24  *
*************************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT  Profile #PF 2
*************************************************************************************************
* E.G. Elev (ft)          * 2309.32  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.10  * Wt. n-Val.              *          *   0.069  *          *
* W.S. Elev (ft)          * 2309.23  * Reach Len. (ft)         *  244.50  *  243.05  *  223.37  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *          *  104.50  *          *
* E.G. Slope (ft/ft)      *0.003416  * Area (sq ft)            *          *  104.50  *          *
* Q Total (cfs)           *  260.00  * Flow (cfs)              *          *  260.00  *          *
* Top Width (ft)          *   31.40  * Top Width (ft)          *          *   31.40  *          *
* Vel Total (ft/s)        *    2.49  * Avg. Vel. (ft/s)        *          *    2.49  *          *
* Max Chl Dpth (ft)       *    3.88  * Hydr. Depth (ft)        *          *    3.33  *          *
* Conv. Total (cfs)       *  4448.4  * Conv. (cfs)             *          *  4448.4  *          *
* Length Wtd. (ft)        *  243.05  * Wetted Per. (ft)        *          *   37.60  *          *
* Min Ch El (ft)          * 2305.35  * Shear (lb/sq ft)        *          *    0.59  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s)   *          *    1.47  *          *
* Frctn Loss (ft)         *    1.39  * Cum Volume (acre-ft)     *    0.00  *    6.44  *    0.01  *
* C & E Loss (ft)         *    0.01  * Cum SA (acres)           *    0.00  *    2.31  *    0.01  *
*************************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos      * Left Sta * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)     * (ft)      *    (cfs) *  (sq ft) *    (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB      * 65.93    * 87.90     *     2.32 *     2.38 *    4.13 *     0.89 *     0.64 *     0.97 *
* 2        * Chan     * 87.90    * 95.75     *    51.98 *    21.48 *    8.22 *    19.99 *     2.74 *     2.42 *
* 3        * Chan     * 95.75    * 103.60    *    57.86 *    22.48 *    7.85 *    22.25 *     2.86 *     2.57 *
* 4        * Chan     * 103.60   * 111.45    *    63.06 *    23.68 *    7.86 *    24.25 *     3.02 *     2.66 *
* 5        * Chan     * 111.45   * 119.30    *    75.77 *    26.44 *    7.86 *    29.14 *     3.37 *     2.87 *
* 6        * ROB      * 119.30   * 131.21    *     9.03 *     5.57 *    4.72 *     3.47 *     1.79 *     1.62 *
*****************************************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

  Profile #PF 2
*****************************************************************************************************************
*          * Pos      * Left Sta * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)     * (ft)      *    (cfs) *  (sq ft) *    (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan     * 87.90    * 95.75     *    53.21 *    24.08 *   10.16 *    20.47 *     3.07 *     2.21 *
* 2        * Chan     * 95.75    * 103.60    *    67.65 *    25.09 *    7.85 *    26.02 *     3.20 *     2.70 *
* 3        * Chan     * 103.60   * 111.45    *    73.08 *    26.29 *    7.86 *    28.11 *     3.35 *     2.78 *
* 4        * Chan     * 111.45   * 119.30    *    66.06 *    29.04 *   11.73 *    25.41 *     3.70 *     2.27 *
*****************************************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

CROSS SECTION
```

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.41686

INPUT
Description:
Station Elevation Data num= 38

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2317.16 | 8.02 | 2316.78 | 12.24 | 2316.57 | 12.6 | 2316.57 | 14.67 | 2316.43 |
| 18.05 | 2315.96 | 22.37 | 2315.27 | 24.63 | 2314.99 | 28.82 | 2314.06 | 30.38 | 2313.65 |
| 45.39 | 2310.47 | 53.34 | 2308.21 | 54.62 | 2307.38 | 55.18 | 2307.02 | 58.38 | 2304.99 |
| 62.16 | 2305.14 | 63.57 | 2305.18 | 66.06 | 2305.12 | 67.58 | 2305.15 | 69.4 | 2305.18 |
| 69.63 | 2305.19 | 75.09 | 2304.99 | 75.46 | 2304.94 | 79.51 | 2304.33 | 80.39 | 2304.23 |
| 82.66 | 2304.95 | 83.9 | 2305.58 | 92.37 | 2309.94 | 95.86 | 2311.27 | 95.95 | 2311.28 |
| 97.91 | 2311.4 | 101.74 | 2311.73 | 127.56 | 2314.07 | 144.97 | 2315.16 | 145.41 | 2315.18 |
| 146 | 2315.23 | 150.18 | 2315.24 | 151.69 | 2315.24 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .063 | 55.18 | .069 | 83.9 | .059 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 58.38 | 82.66 | 8.54 | 28.34 | 20.24 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2307.58 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.24 | Wt. n-Val. | 0.069 | 0.069 | 0.065 |
| W.S. Elev (ft) | 2307.34 | Reach Len. (ft) | 8.54 | 28.34 | 20.24 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 4.34 | 57.91 | 5.57 |
| E.G. Slope (ft/ft) | 0.011145 | Area (sq ft) | 4.34 | 57.91 | 5.57 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 10.53 | 233.92 | 15.55 |
| Top Width (ft) | 32.63 | Top Width (ft) | 3.69 | 24.28 | 4.65 |
| Vel Total (ft/s) | 3.83 | Avg. Vel. (ft/s) | 2.43 | 4.04 | 2.79 |
| Max Chl Dpth (ft) | 3.11 | Hydr. Depth (ft) | 1.18 | 2.39 | 1.20 |
| Conv. Total (cfs) | 2462.8 | Conv. (cfs) | 99.7 | 2215.7 | 147.3 |
| Length Wtd. (ft) | 27.19 | Wetted Per. (ft) | 4.38 | 24.45 | 5.23 |
| Min Ch El (ft) | 2304.23 | Shear (lb/sq ft) | 0.69 | 1.65 | 0.74 |
| Alpha | 1.05 | Stream Power (lb/ft s) | 1.67 | 6.66 | 2.07 |
| Frctn Loss (ft) | 0.44 | Cum Volume (acre-ft) | 0.79 | 5.28 | 1.10 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.83 | 2.16 | 1.22 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2307.92 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.24 | Wt. n-Val. | | 0.069 | |
| W.S. Elev (ft) | 2307.68 | Reach Len. (ft) | 8.54 | 28.34 | 20.24 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 66.29 | |
| E.G. Slope (ft/ft) | 0.011461 | Area (sq ft) | | 66.29 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 24.28 | Top Width (ft) | | 24.28 | |
| Vel Total (ft/s) | 3.92 | Avg. Vel. (ft/s) | | 3.92 | |
| Max Chl Dpth (ft) | 3.45 | Hydr. Depth (ft) | | 2.73 | |
| Conv. Total (cfs) | 2428.6 | Conv. (cfs) | | 2428.6 | |
| Length Wtd. (ft) | 28.34 | Wetted Per. (ft) | | 29.88 | |
| Min Ch El (ft) | 2304.23 | Shear (lb/sq ft) | | 1.59 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 6.23 | |
| Frctn Loss (ft) | 0.39 | Cum Volume (acre-ft) | 0.00 | 5.96 | 0.01 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.00 | 2.16 | 0.01 |

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 43.79 | 58.38 | 10.53 | 4.34 | 4.38 | 4.05 | 1.18 | 2.43 |
| 2 | Chan | 58.38 | 64.45 | 52.44 | 13.57 | 6.07 | 20.17 | 2.23 | 3.87 |
| 3 | Chan | 64.45 | 70.52 | 50.49 | 13.26 | 6.07 | 19.42 | 2.18 | 3.81 |
| 4 | Chan | 70.52 | 76.59 | 55.34 | 14.03 | 6.09 | 21.29 | 2.31 | 3.95 |
| 5 | Chan | 76.59 | 82.66 | 75.65 | 17.06 | 6.22 | 29.10 | 2.81 | 4.43 |
| 6 | ROB | 82.66 | 99.92 | 15.55 | 5.57 | 5.23 | 5.98 | 1.20 | 2.79 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 58.38 | 64.45 | 52.48 | 15.66 | 8.77 | 20.19 | 2.58 | 3.35 |
| 2 | Chan | 64.45 | 70.52 | 64.87 | 15.35 | 6.07 | 24.95 | 2.53 | 4.22 |
| 3 | Chan | 70.52 | 76.59 | 70.23 | 16.12 | 6.09 | 27.01 | 2.66 | 4.36 |
| 4 | Chan | 76.59 | 82.66 | 72.42 | 19.16 | 8.95 | 27.86 | 3.16 | 3.78 |

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.41149

INPUT
Description:
Station Elevation Data num= 42

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2317.32 | 10.01 | 2316.87 | 14.77 | 2316.65 | 22 | 2315.56 | 23.35 | 2315.35 |
| 26.55 | 2314.86 | 31.22 | 2314.03 | 36.2 | 2312.92 | 37.74 | 2312.46 | 45.83 | 2310.11 |
| 53.6 | 2307.89 | 57.23 | 2305.16 | 58.03 | 2304.56 | 58.92 | 2303.94 | 59.2 | 2303.91 |

```
   62.93  2303.6   65.79 2304.16   72.39 2305.25    72.9 2305.32   73.69 2305.36
   76.44  2305.5   78.35 2305.59   79.66 2305.65   82.27 2306.01   91.86 2308.47
   92.99 2308.75   97.65 2309.88  119.34 2311.79  121.62 2312.02  122.42 2312.08
   122.8  2312.1   123.1 2312.13  124.99  2312.3  126.16 2312.36  126.54  2312.4
  127.24 2312.46  128.47 2312.58  130.23 2312.72  150.59 2314.74  150.86 2314.76
  153.44 2314.77  155.17 2314.76

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
       0    .063   57.23    .069   73.69    .059

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          58.03   79.66            18.85   23.24   31.94            .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)         * 2307.11  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.48  * Wt. n-Val.              *   0.067  *   0.068  *   0.059  *
* W.S. Elev (ft)         * 2306.64  * Reach Len. (ft)         *   18.85  *   23.24  *   31.94  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)       *    2.87  *   42.68  *    2.86  *
* E.G. Slope (ft/ft)     *0.025700  * Area (sq ft)            *    2.87  *   42.68  *    2.86  *
* Q Total (cfs)          *  260.00  * Flow (cfs)              *   10.04  *  242.15  *    7.81  *
* Top Width (ft)         *   29.44  * Top Width (ft)           *    2.76  *   21.63  *    5.05  *
* Vel Total (ft/s)       *    5.37  * Avg. Vel. (ft/s)         *    3.50  *    5.67  *    2.73  *
* Max Chl Dpth (ft)      *    3.03  * Hydr. Depth (ft)         *    1.04  *    1.97  *    0.57  *
* Conv. Total (cfs)      *  1621.8  * Conv. (cfs)              *    62.6  *  1510.5  *    48.7  *
* Length Wtd. (ft)       *   23.85  * Wetted Per. (ft)         *    3.45  *   22.00  *    5.15  *
* Min Ch El (ft)         * 2303.60  * Shear (lb/sq ft)         *    1.33  *    3.11  *    0.89  *
* Alpha                  *    1.06  * Stream Power (lb/ft s)    *    4.66  *   17.66  *    2.43  *
* Frctn Loss (ft)        *    0.53  * Cum Volume (acre-ft)      *    0.79  *    5.25  *    1.10  *
* C & E Loss (ft)        *    0.03  * Cum SA (acres)            *    0.83  *    2.14  *    1.21  *
*****************************************************************************************

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************
* E.G. Elev (ft)         * 2307.52  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.36  * Wt. n-Val.              *          *   0.068  *          *
* W.S. Elev (ft)         * 2307.15  * Reach Len. (ft)         *   18.85  *   23.24  *   31.94  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)       *          *   53.90  *          *
* E.G. Slope (ft/ft)     *0.017190  * Area (sq ft)            *          *   53.90  *          *
* Q Total (cfs)          *  260.00  * Flow (cfs)              *          *  260.00  *          *
* Top Width (ft)         *   21.63  * Top Width (ft)           *          *   21.63  *          *
* Vel Total (ft/s)       *    4.82  * Avg. Vel. (ft/s)         *          *    4.82  *          *
* Max Chl Dpth (ft)      *    3.55  * Hydr. Depth (ft)         *          *    2.49  *          *
* Conv. Total (cfs)      *  1983.1  * Conv. (cfs)              *          *  1983.1  *          *
* Length Wtd. (ft)       *   23.24  * Wetted Per. (ft)         *          *   26.09  *          *
* Min Ch El (ft)         * 2303.60  * Shear (lb/sq ft)         *          *    2.22  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s)    *          *   10.69  *          *
* Frctn Loss (ft)        *    0.51  * Cum Volume (acre-ft)      *    0.00  *    5.92  *    0.01  *
* C & E Loss (ft)        *    0.02  * Cum SA (acres)            *    0.00  *    2.14  *    0.01  *
*****************************************************************************************

  Profile #PF 1
*****************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB      * 43.52     * 58.03     *    10.04 *    2.87 *     3.45 *     3.86 *     1.04 *     3.50 *
* 2        * Chan     * 58.03     * 63.44     *    98.96 *   15.14 *     5.63 *    38.06 *     2.80 *     6.54 *
* 3        * Chan     * 63.44     * 68.85     *    79.56 *   13.15 *     5.49 *    30.60 *     2.43 *     6.05 *
* 4        * Chan     * 68.85     * 74.25     *    38.13 *    8.37 *     5.46 *    14.66 *     1.55 *     4.56 *
* 5        * Chan     * 74.25     * 79.66     *    25.51 *    6.02 *     5.41 *     9.81 *     1.11 *     4.24 *
* 6        * ROB      * 79.66     * 98.54     *     7.81 *    2.86 *     5.15 *     3.01 *     0.57 *     2.73 *
*****************************************************************************************************************

  Profile #PF 2
*****************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan     * 58.03     * 63.44     *    84.33 *   17.94 *     8.22 *    32.43 *     3.32 *     4.70 *
* 2        * Chan     * 63.44     * 68.85     *    90.75 *   15.96 *     5.49 *    34.90 *     2.95 *     5.69 *
* 3        * Chan     * 68.85     * 74.25     *    51.04 *   11.17 *     5.46 *    19.63 *     2.07 *     4.57 *
* 4        * Chan     * 74.25     * 79.66     *    33.88 *    8.82 *     6.92 *    13.03 *     1.63 *     3.84 *
*****************************************************************************************************************

CROSS SECTION


RIVER: Ocotillo Wash 1
REACH: Tributary-2.1      RS: 0.40709

INPUT
Description:
Station Elevation Data    num=      38
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
       0 2317.04    4.83 2316.88    9.41 2316.71    9.52 2316.7    9.93 2316.65
   13.04 2316.22   13.42 2316.18   14.98 2315.84   16.45 2315.55   18.52 2315.04
   25.99 2313.68   42.72 2309.88   45.65 2309.27   51.86 2308.13   52.73 2307.64
   54.59 2306.87   58.01 2305.22   60.39 2304.07   64.48 2302.76   70.05 2304.01
   72.16 2304.52   74.78 2304.59   75.38  2304.6   77.19 2304.67   80.87 2304.72
   81.94 2304.76   82.29 2304.75   82.84  2304.9   95.21 2308.06   95.66 2308.18
   95.92 2308.25   96.31 2308.34  114.28 2309.73  114.36 2309.74  142.13 2314.42
  142.56 2314.49  143.25  2314.5  147.31 2314.49

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
       0    .063   58.01    .069   75.38    .059

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          60.39   77.19            29.38   32.54   28.07            .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)         * 2306.55  * Element                 *  Left OB *  Channel * Right OB *
```

| | | | | | | |
|---|---|---|---|---|---|---|
| Vel Head (ft) | 0.37 | Wt. n-Val. | 0.068 | 0.068 | 0.059 |
| W.S. Elev (ft) | 2306.18 | Reach Len. (ft) | 29.38 | 32.54 | 28.07 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 4.61 | 38.95 | 11.47 |
| E.G. Slope (ft/ft) | 0.019128 | Area (sq ft) | 4.61 | 38.95 | 11.47 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 15.31 | 203.22 | 41.47 |
| Top Width (ft) | 31.84 | Top Width (ft) | 4.37 | 16.80 | 10.67 |
| Vel Total (ft/s) | 4.72 | Avg. Vel. (ft/s) | 3.32 | 5.22 | 3.62 |
| Max Chl Dpth (ft) | 3.42 | Hydr. Depth (ft) | 1.06 | 2.32 | 1.08 |
| Conv. Total (cfs) | 1879.9 | Conv. (cfs) | 110.7 | 1469.3 | 299.9 |
| Length Wtd. (ft) | 32.00 | Wetted Per. (ft) | 4.86 | 17.21 | 10.85 |
| Min Ch El (ft) | 2302.76 | Shear (lb/sq ft) | 1.13 | 2.70 | 1.26 |
| Alpha | 1.08 | Stream Power (lb/ft s) | 3.77 | 14.10 | 4.57 |
| Frctn Loss (ft) | 0.87 | Cum Volume (acre-ft) | 0.79 | 5.23 | 1.10 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 0.83 | 2.13 | 1.21 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2306.99 | Element | | | |
| Vel Head (ft) | 0.57 | Wt. n-Val. | | 0.069 | |
| W.S. Elev (ft) | 2306.42 | Reach Len. (ft) | 29.38 | 32.54 | 28.07 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 42.90 | |
| E.G. Slope (ft/ft) | 0.028619 | Area (sq ft) | | 42.90 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 16.80 | Top Width (ft) | | 16.80 | |
| Vel Total (ft/s) | 6.06 | Avg. Vel. (ft/s) | | 6.06 | |
| Max Chl Dpth (ft) | 3.66 | Hydr. Depth (ft) | | 2.55 | |
| Conv. Total (cfs) | 1536.9 | Conv. (cfs) | | 1536.9 | |
| Length Wtd. (ft) | 32.54 | Wetted Per. (ft) | | 21.30 | |
| Min Ch El (ft) | 2302.76 | Shear (lb/sq ft) | | 3.60 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 21.81 | |
| Frctn Loss (ft) | 1.18 | Cum Volume (acre-ft) | 0.00 | 5.90 | 0.01 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.00 | 2.13 | 0.01 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 45.29 | 60.39 | 15.31 | 4.61 | 4.86 | 5.89 | 1.06 | 3.32 |
| 2 | Chan | 60.39 | 64.59 | 65.28 | 11.69 | 4.41 | 25.11 | 2.78 | 5.58 |
| 3 | Chan | 64.59 | 68.79 | 72.06 | 12.29 | 4.30 | 27.72 | 2.93 | 5.86 |
| 4 | Chan | 68.79 | 72.99 | 37.75 | 8.33 | 4.29 | 14.52 | 1.98 | 4.53 |
| 5 | Chan | 72.99 | 77.19 | 28.12 | 6.64 | 4.20 | 10.82 | 1.58 | 4.23 |
| 6 | ROB | 77.19 | 94.72 | 41.48 | 11.47 | 10.85 | 15.95 | 1.08 | 3.62 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 60.39 | 64.59 | 68.53 | 12.68 | 6.75 | 26.36 | 3.02 | 5.41 |
| 2 | Chan | 64.59 | 68.79 | 99.92 | 13.27 | 4.30 | 38.43 | 3.16 | 7.53 |
| 3 | Chan | 68.79 | 72.99 | 55.47 | 9.31 | 4.29 | 21.34 | 2.22 | 5.96 |
| 4 | Chan | 72.99 | 77.19 | 36.07 | 7.63 | 5.95 | 13.87 | 1.82 | 4.73 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.40093

INPUT
Description:
Station Elevation Data num= 51

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2312.83 | 1.85 | 2312.62 | 2.1 | 2312.6 | 2.21 | 2312.59 | 6.43 | 2311.96 |
| 7.45 | 2311.88 | 7.64 | 2311.85 | 9.66 | 2311.54 | 13.6 | 2310.94 | 13.94 | 2310.89 |
| 18.18 | 2310.5 | 18.81 | 2310.42 | 24.02 | 2309.8 | 25.06 | 2309.66 | 27.9 | 2309.41 |
| 29.47 | 2309.11 | 30.9 | 2308.81 | 34.79 | 2308.36 | 36.81 | 2308.13 | 41.18 | 2307.6 |
| 43.82 | 2307.24 | 49.94 | 2306.52 | 50.17 | 2306.48 | 50.6 | 2306.44 | 55.56 | 2305.87 |
| 58.42 | 2305.79 | 60.01 | 2305.38 | 62.79 | 2304.67 | 66.72 | 2303.66 | 72.71 | 2302.2 |
| 74.1 | 2301.84 | 74.52 | 2301.72 | 75.02 | 2301.62 | 76.3 | 2302.05 | 82.74 | 2303.98 |
| 82.79 | 2303.99 | 94.17 | 2307.37 | 106.06 | 2307.76 | 109.35 | 2307.91 | 114.39 | 2308.22 |
| 116.23 | 2308.32 | 121.69 | 2308.45 | 124.81 | 2308.75 | 124.91 | 2308.76 | 127.6 | 2308.95 |
| 149.69 | 2311.99 | 153.92 | 2312.51 | 156.73 | 2312.93 | 157.35 | 2312.96 | 158.36 | 2313.01 |
| 162.14 | 2313.22 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .063 | 60.01 | .069 | 82.79 | .059 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 66.72 | 82.79 | 36.15 | 34.12 | 70.45 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2305.64 | Element | | | |
| Vel Head (ft) | 0.77 | Wt. n-Val. | 0.069 | 0.069 | 0.059 |
| W.S. Elev (ft) | 2304.88 | Reach Len. (ft) | 36.15 | 34.12 | 70.45 |
| Crit W.S. (ft) | 2304.78 | Flow Area (sq ft) | 2.88 | 34.46 | 1.32 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| * E.G. Slope (ft/ft) | *0.042127 | * Area (sq ft) | * 2.88 | * 34.46 | * 1.32 | * | |
| * Q Total (cfs) | * 260.00 | * Flow (cfs) | * 8.95 | * 247.19 | * 3.87 | * | |
| * Top Width (ft) | * 23.80 | * Top Width (ft) | * 4.74 | * 16.07 | * 2.99 | * | |
| * Vel Total (ft/s) | * 6.72 | * Avg. Vel. (ft/s) | * 3.10 | * 7.17 | * 2.92 | * | |
| * Max Chl Dpth (ft) | * 3.26 | * Hydr. Depth (ft) | * 0.61 | * 2.14 | * 0.44 | * | |
| * Conv. Total (cfs) | * 1266.8 | * Conv. (cfs) | * 43.6 | * 1204.3 | * 18.8 | * | |
| * Length Wtd. (ft) | * 34.54 | * Wetted Per. (ft) | * 4.89 | * 16.67 | * 3.11 | * | |
| * Min Ch El (ft) | * 2301.62 | * Shear (lb/sq ft) | * 1.55 | * 5.44 | * 1.12 | * | |
| * Alpha | * 1.09 | * Stream Power (lb/ft s) | * 4.81 | * 38.99 | * 3.27 | * | |
| * Frctn Loss (ft) | * 1.55 | * Cum Volume (acre-ft) | * 0.79 | * 5.20 | * 1.09 | * | |
| * C & E Loss (ft) | * 0.00 | * Cum SA (acres) | * 0.82 | * 2.12 | * 1.20 | * | |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| * E.G. Elev (ft) | * 2305.79 | * Element | * Left OB | * Channel | * Right OB * |
| * Vel Head (ft) | * 0.80 | * Wt. n-Val. | * | * 0.069 | * * |
| * W.S. Elev (ft) | * 2304.99 | * Reach Len. (ft) | * 36.15 | * 34.12 | * 70.45 * |
| * Crit W.S. (ft) | * | * Flow Area (sq ft) | * | * 36.20 | * * |
| * E.G. Slope (ft/ft) | *0.047062 | * Area (sq ft) | * | * 36.20 | * * |
| * Q Total (cfs) | * 260.00 | * Flow (cfs) | * | * 260.00 | * * |
| * Top Width (ft) | * 16.07 | * Top Width (ft) | * | * 16.07 | * * |
| * Vel Total (ft/s) | * 7.18 | * Avg. Vel. (ft/s) | * | * 7.18 | * * |
| * Max Chl Dpth (ft) | * 3.36 | * Hydr. Depth (ft) | * | * 2.25 | * * |
| * Conv. Total (cfs) | * 1198.5 | * Conv. (cfs) | * | * 1198.5 | * * |
| * Length Wtd. (ft) | * 34.12 | * Wetted Per. (ft) | * | * 18.99 | * * |
| * Min Ch El (ft) | * 2301.62 | * Shear (lb/sq ft) | * | * 5.60 | * * |
| * Alpha | * 1.00 | * Stream Power (lb/ft s) | * | * 40.22 | * * |
| * Frctn Loss (ft) | * 1.44 | * Cum Volume (acre-ft) | * 0.00 | * 5.87 | * 0.01 * |
| * C & E Loss (ft) | * 0.04 | * Cum SA (acres) | * 0.00 | * 2.12 | * 0.01 * |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 50.04 | 66.72 | 8.95 | 2.88 | 4.89 | 3.44 | 0.61 | 3.10 |
| 2 | Chan | 66.72 | 70.74 | 40.92 | 6.86 | 4.14 | 15.74 | 1.71 | 5.97 |
| 3 | Chan | 70.74 | 74.76 | 87.50 | 10.82 | 4.14 | 33.66 | 2.69 | 8.08 |
| 4 | Chan | 74.76 | 78.77 | 86.65 | 10.82 | 4.20 | 33.33 | 2.69 | 8.01 |
| 5 | Chan | 78.77 | 82.79 | 32.12 | 5.96 | 4.19 | 12.35 | 1.48 | 5.39 |
| 6 | ROB | 82.79 | 102.63 | 3.87 | 1.32 | 3.11 | 1.49 | 0.44 | 2.92 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 66.72 | 70.74 | 38.41 | 7.29 | 5.46 | 14.77 | 1.81 | 5.27 |
| 2 | Chan | 70.74 | 74.76 | 95.28 | 11.26 | 4.14 | 36.65 | 2.80 | 8.46 |
| 3 | Chan | 74.76 | 78.77 | 94.35 | 11.26 | 4.20 | 36.29 | 2.80 | 8.38 |
| 4 | Chan | 78.77 | 82.79 | 31.95 | 6.40 | 5.19 | 12.29 | 1.59 | 5.00 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.39446

INPUT
Description:
Station Elevation Data num= 38

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2314.91 | 8.6 | 2314.3 | 9.38 | 2314.18 | 10.12 | 2314.05 | 10.47 | 2314.01 |
| 10.82 | 2313.94 | 11.12 | 2313.85 | 14.44 | 2312.99 | 15.73 | 2312.64 | 22.44 | 2310.65 |
| 28.45 | 2308.91 | 35.01 | 2306.87 | 37.88 | 2306.31 | 42.17 | 2305.7 | 48.67 | 2304.47 |
| 50.65 | 2304.22 | 60.61 | 2302.93 | 64.37 | 2302.45 | 65.45 | 2302.36 | 77.42 | 2300.35 |
| 83.32 | 2302.7 | 84.94 | 2303.44 | 88.82 | 2305.21 | 96.14 | 2305.57 | 96.56 | 2305.59 |
| 105.12 | 2305.92 | 108.11 | 2305.59 | 114.84 | 2305.03 | 118.5 | 2305.65 | 120.16 | 2305.9 |
| 128.52 | 2307.3 | 135.45 | 2308.41 | 139.89 | 2309.11 | 150.57 | 2310.34 | 151.09 | 2310.41 |
| 152.27 | 2310.58 | 152.74 | 2310.65 | 156 | 2310.74 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .063 | 60.61 | .069 | 84.94 | .059 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 65.45 | 83.32 | 25.13 | 24.02 | 4.77 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| * E.G. Elev (ft) | * 2304.09 | * Element | * Left OB | * Channel | * Right OB * |
| * Vel Head (ft) | * 0.75 | * Wt. n-Val. | * 0.069 | * 0.069 | * 0.069 * |
| * W.S. Elev (ft) | * 2303.34 | * Reach Len. (ft) | * 25.13 | * 24.02 | * 4.77 * |
| * Crit W.S. (ft) | * 2303.34 | * Flow Area (sq ft) | * 4.08 | * 34.42 | * 0.44 * |
| * E.G. Slope (ft/ft) | *0.047738 | * Area (sq ft) | * 4.08 | * 34.42 | * 0.44 * |
| * Q Total (cfs) | * 260.00 | * Flow (cfs) | * 13.98 | * 245.11 | * 0.92 * |
| * Top Width (ft) | * 27.25 | * Top Width (ft) | * 7.99 | * 17.87 | * 1.40 * |
| * Vel Total (ft/s) | * 6.68 | * Avg. Vel. (ft/s) | * 3.42 | * 7.12 | * 2.06 * |
| * Max Chl Dpth (ft) | * 2.99 | * Hydr. Depth (ft) | * 0.51 | * 1.93 | * 0.32 * |
| * Conv. Total (cfs) | * 1190.0 | * Conv. (cfs) | * 64.0 | * 1121.8 | * 4.2 * |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Length Wtd. (ft) | 22.63 | Wetted Per. (ft) | 8.05 | 18.49 | 1.53 |
| Min Ch El (ft) | 2300.35 | Shear (lb/sq ft) | 1.51 | 5.55 | 0.86 |
| Alpha | 1.09 | Stream Power (lb/ft s) | 5.18 | 39.51 | 1.78 |
| Frctn Loss (ft) | 0.56 | Cum Volume (acre-ft) | 0.79 | 5.18 | 1.09 |
| C & E Loss (ft) | 0.14 | Cum SA (acres) | 0.82 | 2.10 | 1.20 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2304.31 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.65 | Wt. n-Val. | | 0.069 | |
| W.S. Elev (ft) | 2303.65 | Reach Len. (ft) | 25.13 | 24.02 | 4.77 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 40.04 | |
| E.G. Slope (ft/ft) | 0.037814 | Area (sq ft) | | 40.04 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 17.87 | Top Width (ft) | | 17.87 | |
| Vel Total (ft/s) | 6.49 | Avg. Vel. (ft/s) | | 6.49 | |
| Max Chl Dpth (ft) | 3.30 | Hydr. Depth (ft) | | 2.24 | |
| Conv. Total (cfs) | 1337.0 | Conv. (cfs) | | 1337.0 | |
| Length Wtd. (ft) | 24.02 | Wetted Per. (ft) | | 20.73 | |
| Min Ch El (ft) | 2300.35 | Shear (lb/sq ft) | | 4.56 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 29.61 | |
| Frctn Loss (ft) | 0.63 | Cum Volume (acre-ft) | 0.00 | 5.84 | 0.01 |
| C & E Loss (ft) | 0.07 | Cum SA (acres) | 0.00 | 2.11 | 0.01 |

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 49.09 | 65.45 | 13.98 | 4.08 | 8.05 | 5.38 | 0.51 | 3.42 |
| 2 | Chan | 65.45 | 69.92 | 32.98 | 6.04 | 4.53 | 12.69 | 1.35 | 5.46 |
| 3 | Chan | 69.92 | 74.38 | 68.82 | 9.39 | 4.53 | 26.47 | 2.10 | 7.33 |
| 4 | Chan | 74.38 | 78.85 | 104.50 | 12.16 | 4.62 | 40.19 | 2.72 | 8.59 |
| 5 | Chan | 78.85 | 83.32 | 38.81 | 6.82 | 4.81 | 14.93 | 1.53 | 5.69 |
| 6 | ROB | 83.32 | 101.49 | 0.92 | 0.44 | 1.53 | 0.35 | 0.32 | 2.06 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 65.45 | 69.92 | 34.41 | 7.45 | 5.82 | 13.23 | 1.67 | 4.62 |
| 2 | Chan | 69.92 | 74.38 | 75.56 | 10.80 | 4.53 | 29.06 | 2.42 | 7.00 |
| 3 | Chan | 74.38 | 78.85 | 109.13 | 13.57 | 4.62 | 41.97 | 3.04 | 8.04 |
| 4 | Chan | 78.85 | 83.32 | 40.91 | 8.23 | 5.76 | 15.73 | 1.84 | 4.97 |

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.38991

INPUT
Description:
Station Elevation Data num= 48

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2314.74 | .46 | 2314.71 | 3.89 | 2314.54 | 12.48 | 2314.14 | 13.3 | 2314.11 |
| 14.11 | 2314.07 | 14.73 | 2313.88 | 34.18 | 2308.31 | 35.62 | 2307.79 | 37.61 | 2307.39 |
| 39.47 | 2306.74 | 41.45 | 2306.07 | 42.88 | 2305.71 | 46.36 | 2304.96 | 51.74 | 2302.53 |
| 52.61 | 2302.39 | 59.38 | 2301.26 | 60.11 | 2301.14 | 65.6 | 2300.06 | 69.46 | 2299.38 |
| 72.57 | 2300.22 | 77.25 | 2301.65 | 81.19 | 2301.47 | 81.96 | 2301.43 | 83.82 | 2301.38 |
| 84.74 | 2301.57 | 88.82 | 2302.52 | 92.68 | 2303.36 | 99.44 | 2303.71 | 101.82 | 2303.81 |
| 103.65 | 2303.91 | 104.85 | 2304.06 | 110.79 | 2304.6 | 112.91 | 2304.96 | 113.46 | 2305.05 |
| 119.21 | 2305.82 | 122.37 | 2306.7 | 126.41 | 2307.46 | 129.82 | 2307.86 | 132.04 | 2308.23 |
| 137.12 | 2308.91 | 138.38 | 2309.12 | 145.74 | 2310.26 | 146.03 | 2310.3 | 148.01 | 2310.47 |
| 148.3 | 2310.5 | 151.54 | 2310.43 | 152.33 | 2310.47 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .063 | 59.38 | .069 | 81.19 | .059 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 59.38 | 77.25 | 46.12 | 29.34 | 8.73 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2303.10 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.30 | Wt. n-Val. | 0.063 | 0.069 | 0.063 |
| W.S. Elev (ft) | 2302.80 | Reach Len. (ft) | 46.12 | 29.34 | 8.73 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 6.99 | 43.21 | 13.01 |
| E.G. Slope (ft/ft) | 0.015284 | Area (sq ft) | 6.99 | 43.21 | 13.01 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 18.01 | 203.49 | 38.50 |
| Top Width (ft) | 38.97 | Top Width (ft) | 8.24 | 17.87 | 12.86 |
| Vel Total (ft/s) | 4.11 | Avg. Vel. (ft/s) | 2.58 | 4.71 | 2.96 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Max Chl Dpth (ft) | 3.42 | Hydr. Depth (ft) | 0.85 | 2.42 | 1.01 |
| Conv. Total (cfs) | 2103.1 | Conv. (cfs) | 145.7 | 1646.0 | 311.4 |
| Length Wtd. (ft) | 25.36 | Wetted Per. (ft) | 8.40 | 18.37 | 13.03 |
| Min Ch El (ft) | 2299.38 | Shear (lb/sq ft) | 0.79 | 2.24 | 0.95 |
| Alpha | 1.13 | Stream Power (lb/ft s) | 2.05 | 10.57 | 2.82 |
| Frctn Loss (ft) | 0.20 | Cum Volume (acre-ft) | 0.78 | 5.15 | 1.09 |
| C & E Loss (ft) | 0.05 | Cum SA (acres) | 0.81 | 2.09 | 1.20 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2303.61 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.42 | Wt. n-Val. | | 0.069 | |
| W.S. Elev (ft) | 2303.19 | Reach Len. (ft) | 46.12 | 29.34 | 8.73 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 50.18 | |
| E.G. Slope (ft/ft) | 0.019096 | Area (sq ft) | | 50.18 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 17.87 | Top Width (ft) | | 17.87 | |
| Vel Total (ft/s) | 5.18 | Avg. Vel. (ft/s) | | 5.18 | |
| Max Chl Dpth (ft) | 3.81 | Hydr. Depth (ft) | | 2.81 | |
| Conv. Total (cfs) | 1881.5 | Conv. (cfs) | | 1881.5 | |
| Length Wtd. (ft) | 29.34 | Wetted Per. (ft) | | 21.84 | |
| Min Ch El (ft) | 2299.38 | Shear (lb/sq ft) | | 2.74 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 14.19 | |
| Frctn Loss (ft) | 0.43 | Cum Volume (acre-ft) | 0.00 | 5.81 | 0.01 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 0.00 | 2.10 | 0.01 |

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 44.54 | 59.38 | 18.01 | 6.99 | 8.40 | 6.93 | 0.85 | 2.58 |
| 2 | Chan | 59.38 | 63.85 | 35.07 | 8.75 | 4.55 | 13.49 | 1.96 | 4.01 |
| 3 | Chan | 63.85 | 68.32 | 64.37 | 12.59 | 4.54 | 24.76 | 2.82 | 5.11 |
| 4 | Chan | 68.32 | 72.78 | 73.19 | 13.68 | 4.61 | 28.15 | 3.06 | 5.35 |
| 5 | Chan | 72.78 | 77.25 | 30.86 | 8.19 | 4.67 | 11.87 | 1.83 | 3.77 |
| 6 | ROB | 77.25 | 96.02 | 38.50 | 13.01 | 13.03 | 14.81 | 1.01 | 2.96 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 59.38 | 63.85 | 40.28 | 10.49 | 6.48 | 15.49 | 2.35 | 3.84 |
| 2 | Chan | 63.85 | 68.32 | 85.85 | 14.33 | 4.54 | 33.02 | 3.21 | 5.99 |
| 3 | Chan | 68.32 | 72.78 | 96.05 | 15.42 | 4.61 | 36.94 | 3.45 | 6.23 |
| 4 | Chan | 72.78 | 77.25 | 37.81 | 9.93 | 6.21 | 14.54 | 2.22 | 3.81 |

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.38436

INPUT
Description:
Station Elevation Data num= 56

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2306.3 | .57 | 2306.24 | 1.01 | 2306.18 | 9.39 | 2305.38 | 9.49 | 2305.35 |
| 9.97 | 2305.28 | 12.9 | 2304.9 | 14.31 | 2304.3 | 15.52 | 2304.04 | 15.64 | 2304.05 |
| 22.32 | 2304 | 23.43 | 2303.97 | 26.45 | 2303.92 | 27.54 | 2303.56 | 29.57 | 2303.04 |
| 33.21 | 2302.9 | 37.85 | 2302.42 | 40.54 | 2301.38 | 41.18 | 2300.79 | 43.09 | 2300.21 |
| 45.51 | 2299.46 | 47.54 | 2298.83 | 56.4 | 2300.15 | 61.11 | 2300.83 | 64.66 | 2300.99 |
| 67.01 | 2301.09 | 67.07 | 2301.09 | 73 | 2301.1 | 77.56 | 2300.88 | 80.29 | 2301.37 |
| 81.37 | 2301.55 | 85.5 | 2302.29 | 86.94 | 2302.44 | 88.14 | 2302.62 | 90.55 | 2303.07 |
| 91.45 | 2302.96 | 92.86 | 2303.17 | 94.38 | 2303.39 | 96.06 | 2303.61 | 107.2 | 2305.72 |
| 110.36 | 2306.34 | 112.2 | 2306.64 | 115.36 | 2307.13 | 116.11 | 2307.22 | 121.66 | 2308.86 |
| 122.01 | 2308.92 | 126.25 | 2309.3 | 126.32 | 2309.31 | 127.74 | 2309.48 | 130.16 | 2309.66 |
| 131.17 | 2309.74 | 135.82 | 2310.21 | 136.01 | 2310.22 | 136.77 | 2310.27 | 141.03 | 2310.26 |
| 143.06 | 2310.4 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .063 | 45.51 | .069 | 64.66 | .059 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 41.18 | 61.11 | 48.38 | 34.2 | 14.19 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2302.84 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.12 | Wt. n-Val. | 0.063 | 0.068 | 0.061 |
| W.S. Elev (ft) | 2302.72 | Reach Len. (ft) | 48.38 | 34.20 | 14.19 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 3.71 | 57.66 | 37.87 |
| E.G. Slope (ft/ft) | 0.004832 | Area (sq ft) | 3.71 | 57.66 | 37.87 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 4.10 | 176.07 | 79.83 |
| Top Width (ft) | 53.77 | Top Width (ft) | 6.26 | 19.93 | 27.58 |
| Vel Total (ft/s) | 2.62 | Avg. Vel. (ft/s) | 1.10 | 3.05 | 2.11 |
| Max Chl Dpth (ft) | 3.89 | Hydr. Depth (ft) | 0.59 | 2.89 | 1.37 |
| Conv. Total (cfs) | 3740.2 | Conv. (cfs) | 58.9 | 2532.9 | 1148.4 |
| Length Wtd. (ft) | 28.69 | Wetted Per. (ft) | 6.70 | 20.37 | 27.75 |
| Min Ch El (ft) | 2298.83 | Shear (lb/sq ft) | 0.17 | 0.85 | 0.41 |
| Alpha | 1.12 | Stream Power (lb/ft s) | 0.18 | 2.61 | 0.87 |
| Frctn Loss (ft) | 0.06 | Cum Volume (acre-ft) | 0.78 | 5.12 | 1.09 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.81 | 2.08 | 1.20 |

```
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************
* E.G. Elev (ft)          * 2303.14  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.29  * Wt. n-Val.              *          *    0.067 *          *
* W.S. Elev (ft)          * 2302.85  * Reach Len. (ft)         *   48.38  *    34.20 *    14.19 *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *          *    60.22 *          *
* E.G. Slope (ft/ft)      *0.011538  * Area (sq ft)            *          *    60.22 *          *
* Q Total (cfs)           *  260.00  * Flow (cfs)              *          *   260.00 *          *
* Top Width (ft)          *   19.93  * Top Width (ft)          *          *    19.93 *          *
* Vel Total (ft/s)        *    4.32  * Avg. Vel. (ft/s)        *          *     4.32 *          *
* Max Chl Dpth (ft)       *    4.02  * Hydr. Depth (ft)        *          *     3.02 *          *
* Conv. Total (cfs)       *  2420.5  * Conv. (cfs)             *          *   2420.5 *          *
* Length Wtd. (ft)        *   34.20  * Wetted Per. (ft)        *          *    24.45 *          *
* Min Ch El (ft)          * 2298.83  * Shear (lb/sq ft)        *          *     1.77 *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s)  *          *     7.66 *          *
* Frctn Loss (ft)         *    0.18  * Cum Volume (acre-ft)    *    0.00  *     5.78 *     0.01 *
* C & E Loss (ft)         *    0.06  * Cum SA (acres)          *    0.00  *     2.09 *     0.01 *
*****************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB       * 30.89     * 41.18     *     4.10 *     3.71 *     6.70 *     1.58 *     0.59 *     1.10 *
* 2        * Chan      * 41.18     * 46.16     *    40.30 *    13.43 *     5.21 *    15.50 *     2.70 *     3.00 *
* 3        * Chan      * 46.16     * 51.15     *    62.40 *    18.13 *     5.09 *    24.00 *     3.64 *     3.44 *
* 4        * Chan      * 51.15     * 56.13     *    45.13 *    14.87 *     5.04 *    17.36 *     2.98 *     3.03 *
* 5        * Chan      * 56.13     * 61.11     *    28.25 *    11.22 *     5.03 *    10.86 *     2.25 *     2.52 *
* 6        * ROB       * 61.11     * 81.60     *    75.71 *    34.04 *    20.56 *    29.12 *     1.66 *     2.22 *
* 7        * ROB       * 81.60     * 102.09    *     4.12 *     3.83 *     7.19 *     1.58 *     0.54 *     1.08 *
*****************************************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 2
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 41.18     * 46.16     *    52.89 *    14.07 *     7.27 *    20.34 *     2.82 *     3.76 *
* 2        * Chan      * 46.16     * 51.15     *    98.32 *    18.77 *     5.09 *    37.82 *     3.77 *     5.24 *
* 3        * Chan      * 51.15     * 56.13     *    72.00 *    15.51 *     5.04 *    27.69 *     3.11 *     4.64 *
* 4        * Chan      * 56.13     * 61.11     *    36.79 *    11.86 *     7.06 *    14.15 *     2.38 *     3.10 *
*****************************************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: Ocotillo Wash 1
REACH: Tributary-2.1       RS: 0.37788

INPUT
Description:
Station Elevation Data     num=      40
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
*****************************************************************************
       0  2312.7     2.03 2312.71     2.52 2312.71      3.6 2312.73     5.91 2311.89
   10.53  2310.3    17.92 2305.65    25.53 2300.94    26.71 2300.56    28.87 2299.83
   31.09 2299.13    34.27 2298.12    34.83 2298.18    41.62 2298.82    47.82 2299.52
   48.36 2299.58    48.97 2299.65    49.33 2299.67    54.93 2299.99    55.56 2299.98
   57.59 2300.13    63.01 2300.42    72.86 2300.42    76.96 2300.48    85.94 2302.63
   90.82 2303.73    92.72 2304.07   100.81 2305.48   103.81 2306.01   118.62  2308.4
  119.97 2308.57   121.35 2308.98   121.78 2309.11   123.13  2309.2   124.81 2309.34
  126.78 2309.56   127.54 2309.59   130.37 2309.82   133.38 2309.87   136.01 2310.07

Manning's n Values         num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
       0    .063   31.09    .069   55.44    .059

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          28.87   57.59            26.51   19.57   15.02            .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)          * 2302.76  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.04  * Wt. n-Val.              *   0.063  *    0.068 *    0.059 *
* W.S. Elev (ft)          * 2302.72  * Reach Len. (ft)         *   26.51  *    19.57 *    15.02 *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *   10.33  *   101.41 *    55.65 *
* E.G. Slope (ft/ft)      *0.001173  * Area (sq ft)            *   10.33  *   101.41 *    55.65 *
* Q Total (cfs)           *  260.00  * Flow (cfs)              *   10.92  *   175.00 *    74.08 *
* Top Width (ft)          *   63.68  * Top Width (ft)          *    6.21  *    28.72 *    28.74 *
* Vel Total (ft/s)        *    1.55  * Avg. Vel. (ft/s)        *    1.06  *     1.73 *     1.33 *
* Max Chl Dpth (ft)       *    4.60  * Hydr. Depth (ft)        *    1.66  *     3.53 *     1.94 *
* Conv. Total (cfs)       *  7592.5  * Conv. (cfs)             *   318.8  *   5110.4 *   2163.3 *
* Length Wtd. (ft)        *   18.72  * Wetted Per. (ft)        *    6.90  *    29.08 *    29.01 *
* Min Ch El (ft)          * 2298.12  * Shear (lb/sq ft)        *    0.11  *     0.26 *     0.14 *
* Alpha                   *    1.06  * Stream Power (lb/ft s)  *    0.12  *     0.44 *     0.19 *
* Frctn Loss (ft)         *    0.01  * Cum Volume (acre-ft)    *    0.77  *     5.06 *     1.07 *
* C & E Loss (ft)         *    0.00  * Cum SA (acres)          *    0.80  *     2.06 *     1.19 *
*****************************************************************************************
```

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 2302.91 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.10 | Wt. n-Val. | | 0.067 | |
| W.S. Elev (ft) | 2302.81 | Reach Len. (ft) | 26.51 | 19.57 | 15.02 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 104.01 | |
| E.G. Slope (ft/ft) | 0.002921 | Area (sq ft) | | 104.01 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 28.72 | Top Width (ft) | | 28.72 | |
| Vel Total (ft/s) | 2.50 | Avg. Vel. (ft/s) | | 2.50 | |
| Max Chl Dpth (ft) | 4.69 | Hydr. Depth (ft) | | 3.62 | |
| Conv. Total (cfs) | 4810.6 | Conv. (cfs) | | 4810.6 | |
| Length Wtd. (ft) | 19.57 | Wetted Per. (ft) | | 34.74 | |
| Min Ch El (ft) | 2298.12 | Shear (lb/sq ft) | | 0.55 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 1.36 | |
| Frctn Loss (ft) | 0.04 | Cum Volume (acre-ft) | 0.00 | 5.71 | 0.01 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.00 | 2.07 | 0.01 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 21.65 | 28.87 | 10.92 | 10.33 | 6.90 | 4.20 | 1.66 | 1.06 |
| 2 | Chan | 28.87 | 36.05 | 51.58 | 28.23 | 7.45 | 19.84 | 3.93 | 1.83 |
| 3 | Chan | 36.05 | 43.23 | 54.47 | 29.31 | 7.21 | 20.95 | 4.08 | 1.86 |
| 4 | Chan | 43.23 | 50.41 | 38.58 | 23.83 | 7.22 | 14.84 | 3.32 | 1.62 |
| 5 | Chan | 50.41 | 57.59 | 30.36 | 20.04 | 7.19 | 11.68 | 2.79 | 1.51 |
| 6 | ROB | 57.59 | 77.20 | 65.64 | 45.70 | 19.62 | 25.25 | 2.33 | 1.44 |
| 7 | ROB | 77.20 | 96.80 | 8.44 | 9.95 | 9.39 | 3.25 | 1.09 | 0.85 |

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 28.87 | 36.05 | 72.44 | 28.88 | 10.43 | 27.86 | 4.02 | 2.51 |
| 2 | Chan | 36.05 | 43.23 | 84.96 | 29.96 | 7.21 | 32.68 | 4.17 | 2.84 |
| 3 | Chan | 43.23 | 50.41 | 60.68 | 24.48 | 7.22 | 23.34 | 3.41 | 2.48 |
| 4 | Chan | 50.41 | 57.59 | 41.92 | 20.69 | 9.87 | 16.12 | 2.88 | 2.03 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.37417

INPUT
Description:
Station Elevation Data num= 50

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2311.69 | .37 | 2311.69 | 7.72 | 2311.79 | 8.24 | 2311.8 | 13.07 | 2311.83 |
| 15.25 | 2311.77 | 20.04 | 2310.33 | 22.93 | 2309.35 | 23.41 | 2309.16 | 23.64 | 2309.11 |
| 23.77 | 2309.08 | 25.44 | 2308.19 | 26.7 | 2307.42 | 38.36 | 2300.38 | 39.53 | 2299.67 |
| 42.19 | 2298.97 | 44.16 | 2298.56 | 46.77 | 2298.03 | 47.85 | 2297.78 | 48.63 | 2297.67 |
| 52.85 | 2298.03 | 55.21 | 2298.2 | 57.76 | 2298.44 | 59.24 | 2298.51 | 61.62 | 2298.76 |
| 63.98 | 2298.88 | 67.12 | 2299.02 | 70.78 | 2299.23 | 73.76 | 2299.31 | 75.71 | 2299.38 |
| 76.6 | 2299.42 | 77.9 | 2299.54 | 80 | 2299.62 | 81.35 | 2299.65 | 83.25 | 2299.72 |
| 86.79 | 2299.81 | 90.47 | 2299.94 | 91.05 | 2300.11 | 95.92 | 2301.52 | 104.16 | 2303.96 |
| 111.37 | 2305.19 | 112.01 | 2305.26 | 118.07 | 2306.04 | 134.82 | 2308.34 | 138.56 | 2308.77 |
| 139.52 | 2308.89 | 139.77 | 2308.91 | 140.81 | 2309.04 | 151.56 | 2309.88 | 154.8 | 2310.19 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .063 | 44.16 | .069 | 75.71 | .059 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 42.19 | 75.71 | 14.44 | 28.66 | 29.16 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 2302.74 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.02 | Wt. n-Val. | 0.063 | 0.069 | 0.059 |
| W.S. Elev (ft) | 2302.71 | Reach Len. (ft) | 14.44 | 28.66 | 29.16 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 16.69 | 137.95 | 57.75 |
| E.G. Slope (ft/ft) | 0.000578 | Area (sq ft) | 16.69 | 137.95 | 57.75 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 14.68 | 183.64 | 61.68 |
| Top Width (ft) | 65.46 | Top Width (ft) | 7.70 | 33.52 | 24.24 |
| Vel Total (ft/s) | 1.22 | Avg. Vel. (ft/s) | 0.88 | 1.33 | 1.07 |
| Max Chl Dpth (ft) | 5.04 | Hydr. Depth (ft) | 2.17 | 4.12 | 2.38 |
| Conv. Total (cfs) | 10814.4 | Conv. (cfs) | 610.6 | 7638.4 | 2565.4 |
| Length Wtd. (ft) | 28.32 | Wetted Per. (ft) | 8.64 | 33.71 | 24.65 |
| Min Ch El (ft) | 2297.67 | Shear (lb/sq ft) | 0.07 | 0.15 | 0.08 |
| Alpha | 1.04 | Stream Power (lb/ft s) | 0.06 | 0.20 | 0.09 |
| Frctn Loss (ft) | 0.00 | Cum Volume (acre-ft) | 0.76 | 5.00 | 1.05 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 0.80 | 2.05 | 1.18 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 2302.86 | Element | Left OB | Channel | Right OB | |
| Vel Head (ft) | 0.05 | Wt. n-Val. | | 0.068 | | |
| W.S. Elev (ft) | 2302.80 | Reach Len. (ft) | 14.44 | 28.66 | 29.16 | |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 140.88 | | |
| E.G. Slope (ft/ft) | 0.001381 | Area (sq ft) | | 140.88 | | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | | |
| Top Width (ft) | 33.52 | Top Width (ft) | | 33.52 | | |
| Vel Total (ft/s) | 1.85 | Avg. Vel. (ft/s) | | 1.85 | | |
| Max Chl Dpth (ft) | 5.13 | Hydr. Depth (ft) | | 4.20 | | |
| Conv. Total (cfs) | 6997.4 | Conv. (cfs) | | 6997.4 | | |
| Length Wtd. (ft) | 28.66 | Wetted Per. (ft) | | 40.97 | | |
| Min Ch El (ft) | 2297.67 | Shear (lb/sq ft) | | 0.30 | | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.55 | | |
| Frctn Loss (ft) | 0.00 | Cum Volume (acre-ft) | 0.00 | 5.66 | 0.01 | |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.00 | 2.05 | 0.01 | |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 31.64 | 42.19 | 14.68 | 16.69 | 8.64 | 5.65 | 2.17 | 0.88 |
| 2 | Chan | 42.19 | 50.57 | 54.10 | 38.02 | 8.52 | 20.81 | 4.54 | 1.42 |
| 3 | Chan | 50.57 | 58.95 | 53.44 | 38.01 | 8.41 | 20.55 | 4.54 | 1.41 |
| 4 | Chan | 58.95 | 67.33 | 41.63 | 32.71 | 8.40 | 16.01 | 3.90 | 1.27 |
| 5 | Chan | 67.33 | 75.71 | 34.47 | 29.20 | 8.39 | 13.26 | 3.48 | 1.18 |
| 6 | ROB | 75.71 | 95.48 | 60.45 | 54.79 | 19.99 | 23.25 | 2.77 | 1.10 |
| 7 | ROB | 95.48 | 115.26 | 1.23 | 2.96 | 4.66 | 0.47 | 0.66 | 0.42 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 42.19 | 50.57 | 73.62 | 38.76 | 12.35 | 28.32 | 4.63 | 1.90 |
| 2 | Chan | 50.57 | 58.95 | 80.98 | 38.75 | 8.41 | 31.15 | 4.62 | 2.09 |
| 3 | Chan | 58.95 | 67.33 | 63.41 | 33.45 | 8.40 | 24.39 | 3.99 | 1.90 |
| 4 | Chan | 67.33 | 75.71 | 41.98 | 29.93 | 11.81 | 16.15 | 3.57 | 1.40 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.36875

INPUT
Description: Upstream cross section for Private Roadway Crossing

NOTE -
ASPHALT PAVEMENT (MANUALY ADJUSTED N VALUE)
Station Elevation Data num= 84

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2311.19 | 2.15 | 2311.22 | 2.95 | 2311.23 | 5.29 | 2311.25 | 6.73 | 2311.12 |
| 9.16 | 2310.82 | 13.79 | 2310.3 | 17.86 | 2309.94 | 18.75 | 2309.85 | 19.06 | 2309.74 |
| 21.46 | 2309.38 | 22.89 | 2309 | 23.07 | 2308.98 | 27.91 | 2307.69 | 30.39 | 2306.74 |
| 32.34 | 2306.59 | 33.97 | 2306.25 | 37.01 | 2305.51 | 37.24 | 2305.4 | 37.46 | 2305.34 |
| 42.17 | 2303.26 | 42.9 | 2303.1 | 43.77 | 2302.95 | 44.9 | 2302.76 | 44.92 | 2301.73 |
| 44.96 | 2299.87 | 45.01 | 2298.28 | 45.29 | 2298.13 | 47.76 | 2297.72 | 49.65 | 2297.6 |
| 51.1 | 2297.58 | 51.63 | 2297.58 | 52.15 | 2297.57 | 53.69 | 2297.51 | 54.48 | 2297.5 |
| 55.56 | 2297.49 | 56.83 | 2297.5 | 57.97 | 2297.48 | 59.97 | 2297.46 | 61.96 | 2297.5 |
| 62.49 | 2297.54 | 62.87 | 2297.54 | 64.74 | 2297.51 | 65.44 | 2297.51 | 66.2 | 2297.5 |
| 66.98 | 2297.48 | 68.47 | 2297.64 | 69.8 | 2297.86 | 71.59 | 2298.04 | 71.91 | 2298.07 |
| 73.73 | 2298.25 | 76.02 | 2298.49 | 77.08 | 2298.56 | 78.87 | 2298.74 | 80.68 | 2298.93 |
| 81.08 | 2298.99 | 83.17 | 2299.35 | 83.47 | 2299.43 | 85.38 | 2299.93 | 85.43 | 2300.55 |
| 85.5 | 2302.11 | 87.9 | 2302.39 | 91.05 | 2302.74 | 97.33 | 2302.78 | 98.83 | 2303.09 |
| 99.41 | 2303.19 | 100.92 | 2303.48 | 107.54 | 2303.83 | 109.94 | 2304.29 | 111.59 | 2304.42 |
| 115.44 | 2304.77 | 118.23 | 2305.01 | 122.47 | 2305.6 | 122.97 | 2305.65 | 125.27 | 2306.35 |
| 125.38 | 2306.39 | 128.49 | 2307.19 | 129.88 | 2307.28 | 134.22 | 2307.61 | 140.4 | 2308.11 |
| 140.86 | 2308.14 | 142.39 | 2308.21 | 146.89 | 2308.49 | 149.14 | 2308.6 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .063 | 42.17 | .019 | 98.83 | .059 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 44.9 | 85.5 | 43.89 | 26.89 | 27.34 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 2302.74 | Element | Left OB | Channel | Right OB | |
| Vel Head (ft) | 0.03 | Wt. n-Val. | | 0.019 | 0.019 | |
| W.S. Elev (ft) | 2302.71 | Reach Len. (ft) | 43.89 | 26.89 | 27.34 | |
| Crit W.S. (ft) | 2299.02 | Flow Area (sq ft) | | 189.90 | 1.54 | |
| E.G. Slope (ft/ft) | 0.000048 | Area (sq ft) | | 189.90 | 1.54 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 259.63 | 0.37 | |
| Top Width (ft) | 45.84 | Top Width (ft) | | 40.60 | 5.24 | |
| Vel Total (ft/s) | 1.36 | Avg. Vel. (ft/s) | | 1.37 | 0.24 | |
| Max Chl Dpth (ft) | 5.25 | Hydr. Depth (ft) | | 4.68 | 0.29 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Conv. Total (cfs) | 37594.9 | Conv. (cfs) | | 37541.8 | 53.2 | |
| Length Wtd. (ft) | 26.89 | Wetted Per. (ft) | | 47.25 | 5.28 | |
| Min Ch El (ft) | 2297.46 | Shear (lb/sq ft) | | 0.01 | 0.00 | |
| Alpha | 1.01 | Stream Power (lb/ft s) | | 0.02 | 0.00 | |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | 0.76 | 4.90 | 1.03 | |
| C & E Loss (ft) | | Cum SA (acres) | 0.79 | 2.02 | 1.17 | |

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2302.84 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.03 | Wt. n-Val. | | 0.019 | |
| W.S. Elev (ft) | 2302.82 | Reach Len. (ft) | 43.89 | 26.89 | 27.34 |
| Crit W.S. (ft) | 2299.01 | Flow Area (sq ft) | | 194.36 | |
| E.G. Slope (ft/ft) | 0.000045 | Area (sq ft) | | 194.36 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 40.60 | Top Width (ft) | | 40.60 | |
| Vel Total (ft/s) | 1.34 | Avg. Vel. (ft/s) | | 1.34 | |
| Max Chl Dpth (ft) | 5.36 | Hydr. Depth (ft) | | 4.79 | |
| Conv. Total (cfs) | 38580.3 | Conv. (cfs) | | 38580.3 | |
| Length Wtd. (ft) | 26.89 | Wetted Per. (ft) | | 48.07 | |
| Min Ch El (ft) | 2297.46 | Shear (lb/sq ft) | | 0.01 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.02 | |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | 0.00 | 5.55 | 0.01 |
| C & E Loss (ft) | | Cum SA (acres) | 0.00 | 2.03 | 0.01 |

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 44.90 | 55.05 | 61.43 | 50.71 | 14.54 | 23.63 | 5.00 | 1.21 |
| 2 | Chan | 55.05 | 65.20 | 83.72 | 52.88 | 10.15 | 32.20 | 5.21 | 1.58 |
| 3 | Chan | 65.20 | 75.35 | 73.18 | 48.88 | 10.21 | 28.15 | 4.82 | 1.50 |
| 4 | Chan | 75.35 | 85.50 | 41.30 | 37.43 | 12.35 | 15.88 | 3.69 | 1.10 |
| 5 | ROB | 85.50 | 101.41 | 0.37 | 1.54 | 5.28 | 0.14 | 0.29 | 0.24 |

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 44.90 | 55.05 | 61.52 | 51.82 | 14.65 | 23.66 | 5.11 | 1.19 |
| 2 | Chan | 55.05 | 65.20 | 84.15 | 54.00 | 10.15 | 32.36 | 5.32 | 1.56 |
| 3 | Chan | 65.20 | 75.35 | 73.76 | 50.00 | 10.21 | 28.37 | 4.93 | 1.48 |
| 4 | Chan | 75.35 | 85.50 | 40.57 | 38.54 | 13.05 | 15.60 | 3.80 | 1.05 |

CULVERT

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.36595

INPUT
Description: Triple CMP at private driveway Parcel 216-14-001-Q
Distance from Upstream XS = 3
Deck/Roadway Width = 23
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 54

| Sta | Hi Cord | Lo Cord | Sta | Hi Cord | Lo Cord | Sta | Hi Cord | Lo Cord |
|---|---|---|---|---|---|---|---|---|
| 0 | 2309.66 | | 1.37 | 2309.42 | | 8.56 | 2308.39 | |
| 10.1 | 2308.29 | | 10.68 | 2308.2 | | 17.49 | 2307.27 | |
| 21.94 | 2307.03 | | 26.75 | 2306.58 | | 30.16 | 2306.26 | |
| 31.76 | 2306.06 | | 33.73 | 2305.82 | | 35.29 | 2305.67 | |
| 37.41 | 2305.41 | | 40.06 | 2305.16 | | 40.76 | 2305.04 | |
| 42.11 | 2304.94 | | 44.71 | 2304.77 | | 48.63 | 2304.59 | |
| 53.19 | 2304.43 | | 55 | 2304.28 | | 59.87 | 2304.11 | |
| 61.05 | 2304.09 | | 65.49 | 2303.9 | | 68.54 | 2303.85 | |
| 69.47 | 2303.86 | | 70.58 | 2303.86 | | 74.18 | 2303.83 | |
| 75.83 | 2303.83 | | 77.54 | 2303.82 | | 81.88 | 2303.7 | |
| 83.6 | 2303.69 | | 89.17 | 2303.68 | | 91.03 | 2303.68 | |
| 95.87 | 2303.51 | | 99.93 | 2303.51 | | 105.39 | 2303.39 | |
| 109.57 | 2303.45 | | 112.62 | 2303.46 | | 112.87 | 2303.47 | |
| 118.33 | 2303.77 | | 120.42 | 2303.76 | | 124.94 | 2304.15 | |
| 126.17 | 2304.31 | | 128.32 | 2304.47 | | 132.97 | 2304.63 | |
| 136.1 | 2304.98 | | 137.14 | 2305.11 | | 143.77 | 2305.79 | |
| 147.11 | 2306.14 | | 147.4 | 2306.18 | | 149.43 | 2306.24 | |
| 155.56 | 2306.95 | | 156.18 | 2306.85 | | 164.4 | 2307.52 | |

Upstream Bridge Cross Section Data
Station Elevation Data num= 84

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2311.19 | 2.15 | 2311.22 | 2.95 | 2311.23 | 5.29 | 2311.25 | 6.73 | 2311.12 |
| 9.16 | 2310.82 | 13.79 | 2310.3 | 17.86 | 2309.94 | 18.75 | 2309.85 | 19.06 | 2309.74 |
| 21.46 | 2309.38 | 22.89 | 2309 | 23.07 | 2308.98 | 27.91 | 2307.69 | 30.39 | 2306.74 |
| 32.34 | 2306.59 | 33.97 | 2306.25 | 37.01 | 2305.51 | 37.24 | 2305.4 | 37.46 | 2305.34 |
| 42.17 | 2303.26 | 42.9 | 2303.1 | 43.77 | 2302.95 | 44.9 | 2302.76 | 44.92 | 2301.73 |
| 44.96 | 2299.87 | 45.01 | 2298.28 | 45.29 | 2298.13 | 47.76 | 2297.72 | 49.65 | 2297.6 |
| 51.1 | 2297.58 | 51.63 | 2297.58 | 52.15 | 2297.57 | 53.69 | 2297.51 | 54.48 | 2297.5 |
| 55.56 | 2297.49 | 56.83 | 2297.5 | 57.97 | 2297.48 | 59.97 | 2297.46 | 61.96 | 2297.5 |
| 62.49 | 2297.54 | 62.87 | 2297.54 | 64.74 | 2297.51 | 65.44 | 2297.51 | 66.2 | 2297.5 |
| 66.98 | 2297.48 | 68.47 | 2297.64 | 69.8 | 2297.86 | 71.59 | 2298.04 | 71.91 | 2298.07 |
| 73.73 | 2298.25 | 76.02 | 2298.49 | 77.08 | 2298.56 | 78.87 | 2298.74 | 80.68 | 2298.93 |
| 81.08 | 2298.99 | 83.17 | 2299.35 | 83.47 | 2299.43 | 85.38 | 2299.93 | 85.43 | 2300.55 |
| 85.5 | 2302.11 | 87.9 | 2302.39 | 91.05 | 2302.74 | 97.33 | 2302.78 | 98.83 | 2303.09 |
| 99.41 | 2303.19 | 100.92 | 2303.48 | 107.54 | 2303.83 | 109.94 | 2304.29 | 111.59 | 2304.42 |
| 115.44 | 2304.77 | 118.23 | 2305.01 | 122.47 | 2305.6 | 122.97 | 2305.65 | 125.27 | 2306.35 |
| 125.38 | 2306.39 | 128.49 | 2307.19 | 129.88 | 2307.28 | 134.22 | 2307.61 | 140.4 | 2308.11 |
| 140.86 | 2308.14 | 142.39 | 2308.21 | 146.89 | 2308.49 | 149.14 | 2308.6 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|

```
*************************************************
       0    .063   42.17    .019   98.83    .059

Bank Sta: Left   Right    Coeff Contr.   Expan.
          44.9    85.5              .1       .3

Downstream  Deck/Roadway Coordinates
    num=        54
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
***************************************************************************
       0 2309.66            1.37 2309.42            8.56 2308.39
    10.1 2308.29           10.68  2308.2           17.49 2307.27
   21.94 2307.03           26.75 2306.58           30.16 2306.26
   31.76 2306.06           33.73 2305.82           35.29 2305.67
   37.41 2305.41           40.06 2305.16           40.76 2305.04
   42.11 2304.94           44.71 2304.77           48.63 2304.59
   53.19 2304.43              55 2304.28           59.87 2304.11
   61.05 2304.09           65.49  2303.9           68.54 2303.85
   69.47 2303.86           70.58 2303.86           74.18 2303.83
   75.83 2303.83           77.54 2303.82           81.88  2303.7
    83.6 2303.69           89.17 2303.68           91.03 2303.68
   95.87 2303.51           99.93 2303.51          105.39 2303.39
  109.57 2303.45          112.62 2303.46          112.87 2303.47
  118.33 2303.77          120.42 2303.76          124.94 2304.15
  126.17 2304.31          128.32 2304.47          132.97 2304.63
   136.1 2304.98          137.14 2305.11          143.77 2305.79
  147.11 2306.14           147.4 2306.18          149.43 2306.24
  155.56 2306.95          156.18 2306.85           164.4 2307.52

Downstream Bridge Cross Section Data
Station Elevation Data    num=      62
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
***************************************************************************************
       0 2309.11    2.14  2308.9    3.03 2308.86     6.5  2308.7   10.96 2308.43
   18.45 2307.95   25.26    2307   25.96 2306.91   26.39 2306.88   28.95 2306.65
   34.14 2306.55   36.02  2306.5   37.98 2306.34   39.84 2306.21   44.27 2306.08
   44.43 2306.04   47.29 2305.42   47.39 2305.42   52.11 2304.69    53.7 2304.63
   54.47 2304.39   57.18 2303.34   57.97 2303.35   61.95 2302.84   62.02 2301.87
   66.06 2300.32   66.21 2300.22   67.93 2299.07   69.34 2297.89   70.34 2297.87
   75.84 2296.69   76.25 2296.69   76.54 2296.69   79.49 2296.67   81.03 2296.67
   81.85 2296.66   85.82 2296.16   87.49 2296.16   88.86 2296.31   91.64 2296.98
   92.91 2297.11   94.07 2297.22   94.84  2297.3   95.22 2297.34   96.39 2297.46
   99.84 2298.77  103.71 2301.83  103.82 2302.68  104.21 2302.71  105.57 2302.81
  108.61 2302.97  110.24 2303.05  114.36 2303.19  121.97 2304.12  128.88 2304.87
  132.96  2305.4  141.34 2306.26   146.3 2306.42   146.7 2306.43  151.87 2306.55
  156.62  2306.8   157.6 2306.82

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************
       0    .063   76.25    .069   94.84    .059

Bank Sta: Left   Right    Coeff Contr.   Expan.
          70.34  96.39              .1       .3

Upstream Embankment side slope              =     .25 horiz. to 1.0 vertical
Downstream Embankment side slope            =      .5 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         = 2303.48
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Culverts =  3

Culvert Name     Shape      Rise    Span
Culvert #1      Circular     3.5
FHWA Chart # 2 - Corrugated Metal Pipe Culvert
FHWA Scale # 1 - Headwall
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    Top n  Bottom n  Depth Blocked  Entrance Loss Coef   Exit Loss Coef
                 0      22     .024     .024        0                .5                 1
Upstream   Elevation =  2297.32
           Centerline Station =  56.91
Downstream Elevation =  2297.01
           Centerline Station =  81.59

Culvert Name     Shape      Rise    Span
Culvert #2      Circular     3.5
FHWA Chart # 2 - Corrugated Metal Pipe Culvert
FHWA Scale # 1 - Headwall
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    Top n  Bottom n  Depth Blocked  Entrance Loss Coef   Exit Loss Coef
                 0      22     .024     .024        0                .5                 1
Upstream   Elevation =  2297.07
           Centerline Station =  61.71
Downstream Elevation =  2297.15
           Centerline Station =  86.39

Culvert Name     Shape      Rise    Span
Culvert #3      Circular     3.5
FHWA Chart # 2 - Corrugated Metal Pipe Culvert
FHWA Scale # 1 - Headwall
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    Top n  Bottom n  Depth Blocked  Entrance Loss Coef   Exit Loss Coef
                 0      22     .024     .024        0                .5                 1
Upstream   Elevation =  2297.13
           Centerline Station =  66.46
Downstream Elevation =  2296.75
           Centerline Station =  91.19

CULVERT OUTPUT  Profile #PF 1  Culv Group:  Culvert #1
***************************************************************************
* Q Culv Group (cfs)     *   85.95  * Culv Full Len (ft)     *          *
* # Barrels              *       1  * Culv Vel US (ft/s)     *    8.93  *
* Q Barrel (cfs)         *   85.95  * Culv Vel DS (ft/s)     *   10.13  *
```

```
* E.G. US. (ft)          * 2302.74  * Culv Inv El Up (ft)    * 2297.32  *
* W.S. US. (ft)          * 2302.71  * Culv Inv El Dn (ft)    * 2297.01  *
* E.G. DS (ft)           * 2300.02  * Culv Frctn Ls (ft)     *    0.63  *
* W.S. DS (ft)           * 2299.88  * Culv Exit Loss (ft)    *    1.47  *
* Delta EG (ft)          *    2.72  * Culv Entr Loss (ft)    *    0.62  *
* Delta WS (ft)          *    2.82  * Q Weir (cfs)           *          *
* E.G. IC (ft)           * 2302.74  * Weir Sta Lft (ft)      *          *
* E.G. OC (ft)           * 2302.60  * Weir Sta Rgt (ft)      *          *
* Culvert Control        *   Inlet  * Weir Submerg           *          *
* Culv WS Inlet (ft)     * 2300.82  * Weir Max Depth (ft)    *          *
* Culv WS Outlet (ft)    * 2299.90  * Weir Avg Depth (ft)    *          *
* Culv Nml Depth (ft)    *    3.50  * Weir Flow Area (sq ft) *          *
* Culv Crt Depth (ft)    *    2.89  * Min El Weir Flow (ft)  * 2303.50  *
*****************************************************************************
```

Note: The normal depth exceeds the height of the culvert. The program assumes that the normal depth is equal to the height of the culvert.
Note: During supercritical analysis, the culvert direct step method went to critical depth. The program then assumed critical depth at the outlet.
Note: During the supercritical calculations a hydraulic jump occurred inside of the culvert.

```
CULVERT OUTPUT  Profile #PF 2  Culv Group:  Culvert #1
*****************************************************************************
* Q Culv Group (cfs)     *   86.83  * Culv Full Len (ft)      *   10.25  *
* # Barrels              *       1  * Culv Vel US (ft/s)      *    9.03  *
* Q Barrel (cfs)         *   86.83  * Culv Vel DS (ft/s)      *    9.16  *
* E.G. US. (ft)          * 2302.84  * Culv Inv El Up (ft)    * 2297.32  *
* W.S. US. (ft)          * 2302.82  * Culv Inv El Dn (ft)    * 2297.01  *
* E.G. DS (ft)           * 2300.48  * Culv Frctn Ls (ft)     *    0.55  *
* W.S. DS (ft)           * 2300.36  * Culv Exit Loss (ft)    *    1.18  *
* Delta EG (ft)          *    2.36  * Culv Entr Loss (ft)    *    0.63  *
* Delta WS (ft)          *    2.45  * Q Weir (cfs)           *          *
* E.G. IC (ft)           * 2302.80  * Weir Sta Lft (ft)      *          *
* E.G. OC (ft)           * 2302.83  * Weir Sta Rgt (ft)      *          *
* Culvert Control        *  Outlet  * Weir Submerg           *          *
* Culv WS Inlet (ft)     * 2300.82  * Weir Max Depth (ft)    *          *
* Culv WS Outlet (ft)    * 2300.36  * Weir Avg Depth (ft)    *          *
* Culv Nml Depth (ft)    *    3.50  * Weir Flow Area (sq ft) *          *
* Culv Crt Depth (ft)    *    2.90  * Min El Weir Flow (ft)  * 2303.70  *
*****************************************************************************
```

Note: The normal depth exceeds the height of the culvert. The program assumes that the normal depth is equal to the height of the culvert.

```
CULVERT OUTPUT  Profile #PF 1  Culv Group:  Culvert #2
*****************************************************************************
* Q Culv Group (cfs)     *   85.32  * Culv Full Len (ft)      *   11.71  *
* # Barrels              *       1  * Culv Vel US (ft/s)      *    8.87  *
* Q Barrel (cfs)         *   85.32  * Culv Vel DS (ft/s)      *   10.08  *
* E.G. US. (ft)          * 2302.74  * Culv Inv El Up (ft)    * 2297.07  *
* W.S. US. (ft)          * 2302.71  * Culv Inv El Dn (ft)    * 2297.15  *
* E.G. DS (ft)           * 2300.02  * Culv Frctn Ls (ft)     *    0.52  *
* W.S. DS (ft)           * 2299.88  * Culv Exit Loss (ft)    *    1.59  *
* Delta EG (ft)          *    2.72  * Culv Entr Loss (ft)    *    0.61  *
* Delta WS (ft)          *    2.82  * Q Weir (cfs)           *          *
* E.G. IC (ft)           * 2302.47  * Weir Sta Lft (ft)      *          *
* E.G. OC (ft)           * 2302.73  * Weir Sta Rgt (ft)      *          *
* Culvert Control        *  Outlet  * Weir Submerg           *          *
* Culv WS Inlet (ft)     * 2300.57  * Weir Max Depth (ft)    *          *
* Culv WS Outlet (ft)    * 2300.03  * Weir Avg Depth (ft)    *          *
* Culv Nml Depth (ft)    *          * Weir Flow Area (sq ft) *          *
* Culv Crt Depth (ft)    *    2.88  * Min El Weir Flow (ft)  * 2303.50  *
*****************************************************************************

CULVERT OUTPUT  Profile #PF 2  Culv Group:  Culvert #2
*****************************************************************************
* Q Culv Group (cfs)     *   85.80  * Culv Full Len (ft)      *   15.05  *
* # Barrels              *       1  * Culv Vel US (ft/s)      *    8.92  *
* Q Barrel (cfs)         *   85.80  * Culv Vel DS (ft/s)      *    9.28  *
* E.G. US. (ft)          * 2302.84  * Culv Inv El Up (ft)    * 2297.07  *
* W.S. US. (ft)          * 2302.82  * Culv Inv El Dn (ft)    * 2297.15  *
* E.G. DS (ft)           * 2300.48  * Culv Frctn Ls (ft)     *    0.53  *
* W.S. DS (ft)           * 2300.36  * Culv Exit Loss (ft)    *    1.22  *
* Delta EG (ft)          *    2.36  * Culv Entr Loss (ft)    *    0.62  *
* Delta WS (ft)          *    2.45  * Q Weir (cfs)           *          *
* E.G. IC (ft)           * 2302.51  * Weir Sta Lft (ft)      *          *
* E.G. OC (ft)           * 2302.85  * Weir Sta Rgt (ft)      *          *
* Culvert Control        *  Outlet  * Weir Submerg           *          *
* Culv WS Inlet (ft)     * 2300.57  * Weir Max Depth (ft)    *          *
* Culv WS Outlet (ft)    * 2300.36  * Weir Avg Depth (ft)    *          *
* Culv Nml Depth (ft)    *          * Weir Flow Area (sq ft) *          *
* Culv Crt Depth (ft)    *    2.88  * Min El Weir Flow (ft)  * 2303.70  *
*****************************************************************************

CULVERT OUTPUT  Profile #PF 1  Culv Group:  Culvert #3
*****************************************************************************
* Q Culv Group (cfs)     *   88.73  * Culv Full Len (ft)      *          *
* # Barrels              *       1  * Culv Vel US (ft/s)      *    9.22  *
* Q Barrel (cfs)         *   88.73  * Culv Vel DS (ft/s)      *    9.77  *
* E.G. US. (ft)          * 2302.74  * Culv Inv El Up (ft)    * 2297.13  *
* W.S. US. (ft)          * 2302.71  * Culv Inv El Dn (ft)    * 2296.75  *
* E.G. DS (ft)           * 2300.02  * Culv Frctn Ls (ft)     *    0.71  *
* W.S. DS (ft)           * 2299.88  * Culv Exit Loss (ft)    *    1.35  *
* Delta EG (ft)          *    2.72  * Culv Entr Loss (ft)    *    0.66  *
* Delta WS (ft)          *    2.82  * Q Weir (cfs)           *          *
* E.G. IC (ft)           * 2302.74  * Weir Sta Lft (ft)      *          *
* E.G. OC (ft)           * 2302.54  * Weir Sta Rgt (ft)      *          *
* Culvert Control        *   Inlet  * Weir Submerg           *          *
* Culv WS Inlet (ft)     * 2300.63  * Weir Max Depth (ft)    *          *
* Culv WS Outlet (ft)    * 2299.88  * Weir Avg Depth (ft)    *          *
* Culv Nml Depth (ft)    *    3.50  * Weir Flow Area (sq ft) *          *
* Culv Crt Depth (ft)    *    2.93  * Min El Weir Flow (ft)  * 2303.50  *
*****************************************************************************
```

Note: The normal depth exceeds the height of the culvert. The program assumes that the normal depth is equal to the height of the culvert.

Note: During the supercritical calculations a hydraulic jump occurred inside of the culvert.

CULVERT OUTPUT Profile #PF 2 Culv Group: Culvert #3

| | | | |
|---|---|---|---|
| Q Culv Group (cfs) | 87.37 | Culv Full Len (ft) | 22.00 |
| # Barrels | 1 | Culv Vel US (ft/s) | 9.08 |
| Q Barrel (cfs) | 87.37 | Culv Vel DS (ft/s) | 9.08 |
| E.G. US. (ft) | 2302.84 | Culv Inv El Up (ft) | 2297.13 |
| W.S. US. (ft) | 2302.82 | Culv Inv El Dn (ft) | 2296.75 |
| E.G. DS (ft) | 2300.48 | Culv Frctn Ls (ft) | 0.56 |
| W.S. DS (ft) | 2300.36 | Culv Exit Loss (ft) | 1.16 |
| Delta EG (ft) | 2.36 | Culv Entr Loss (ft) | 0.64 |
| Delta WS (ft) | 2.45 | Q Weir (cfs) | |
| E.G. IC (ft) | 2302.64 | Weir Sta Lft (ft) | |
| E.G. OC (ft) | 2302.85 | Weir Sta Rgt (ft) | |
| Culvert Control | Outlet | Weir Submerg | |
| Culv WS Inlet (ft) | 2300.63 | Weir Max Depth (ft) | |
| Culv WS Outlet (ft) | 2300.25 | Weir Avg Depth (ft) | |
| Culv Nml Depth (ft) | | Weir Flow Area (sq ft) | |
| Culv Crt Depth (ft) | 2.91 | Min El Weir Flow (ft) | 2303.70 |

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.36365

INPUT
Description: Downstream cross section for Private Roadway Crossing
Station Elevation Data num= 62

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2309.11 | 2.14 | 2308.9 | 3.03 | 2308.86 | 6.5 | 2308.7 | 10.96 | 2308.43 |
| 18.45 | 2307.95 | 25.26 | 2307 | 25.96 | 2306.91 | 26.39 | 2306.88 | 28.95 | 2306.65 |
| 34.14 | 2306.55 | 36.02 | 2306.5 | 37.98 | 2306.34 | 39.84 | 2306.21 | 44.27 | 2306.08 |
| 44.43 | 2306.04 | 47.29 | 2305.42 | 47.39 | 2305.42 | 52.11 | 2304.69 | 53.7 | 2304.63 |
| 54.47 | 2304.39 | 57.18 | 2303.34 | 57.97 | 2303.35 | 61.95 | 2302.84 | 62.02 | 2301.87 |
| 66.06 | 2300.32 | 66.21 | 2300.22 | 67.93 | 2299.07 | 69.34 | 2297.89 | 70.34 | 2297.87 |
| 75.84 | 2296.69 | 76.25 | 2296.69 | 76.54 | 2296.69 | 79.49 | 2296.67 | 81.03 | 2296.67 |
| 81.85 | 2296.66 | 85.82 | 2296.16 | 87.49 | 2296.16 | 88.86 | 2296.31 | 91.64 | 2296.98 |
| 92.91 | 2297.11 | 94.07 | 2297.22 | 94.84 | 2297.3 | 95.22 | 2297.34 | 96.39 | 2297.46 |
| 99.84 | 2298.77 | 103.71 | 2301.83 | 103.82 | 2302.68 | 104.21 | 2302.71 | 105.57 | 2302.81 |
| 108.61 | 2302.97 | 110.24 | 2303.05 | 114.36 | 2303.19 | 121.97 | 2304.12 | 128.88 | 2304.87 |
| 132.96 | 2305.4 | 141.34 | 2306.26 | 146.3 | 2306.42 | 146.7 | 2306.43 | 151.87 | 2306.55 |
| 156.62 | 2306.8 | 157.6 | 2306.82 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .063 | 76.25 | .069 | 94.84 | .059 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 70.34 | 96.39 | 8.26 | 21.22 | 17.65 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2300.02 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.13 | Wt. n-Val. | 0.063 | 0.067 | 0.059 |
| W.S. Elev (ft) | 2299.88 | Reach Len. (ft) | 8.26 | 21.22 | 17.65 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 4.48 | 80.25 | 6.88 |
| E.G. Slope (ft/ft) | 0.004119 | Area (sq ft) | 4.48 | 80.25 | 6.88 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 6.96 | 240.10 | 12.94 |
| Top Width (ft) | 34.53 | Top Width (ft) | 3.63 | 26.05 | 4.86 |
| Vel Total (ft/s) | 2.84 | Avg. Vel. (ft/s) | 1.55 | 2.99 | 1.88 |
| Max Chl Dpth (ft) | 3.72 | Hydr. Depth (ft) | 1.23 | 3.08 | 1.42 |
| Conv. Total (cfs) | 4051.1 | Conv. (cfs) | 108.4 | 3741.0 | 201.7 |
| Length Wtd. (ft) | 20.16 | Wetted Per. (ft) | 4.30 | 26.32 | 5.48 |
| Min Ch El (ft) | 2296.16 | Shear (lb/sq ft) | 0.27 | 0.78 | 0.32 |
| Alpha | 1.06 | Stream Power (lb/ft s) | 0.42 | 2.35 | 0.61 |
| Frctn Loss (ft) | 0.06 | Cum Volume (acre-ft) | 0.76 | 4.81 | 1.03 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.79 | 2.00 | 1.16 |

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2300.48 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.12 | Wt. n-Val. | | 0.068 | |
| W.S. Elev (ft) | 2300.36 | Reach Len. (ft) | 8.26 | 21.22 | 17.65 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 92.71 | |
| E.G. Slope (ft/ft) | 0.003419 | Area (sq ft) | | 92.71 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 26.05 | Top Width (ft) | | 26.05 | |
| Vel Total (ft/s) | 2.80 | Avg. Vel. (ft/s) | | 2.80 | |
| Max Chl Dpth (ft) | 4.20 | Hydr. Depth (ft) | | 3.56 | |
| Conv. Total (cfs) | 4446.9 | Conv. (cfs) | | 4446.9 | |
| Length Wtd. (ft) | 21.22 | Wetted Per. (ft) | | 31.71 | |
| Min Ch El (ft) | 2296.16 | Shear (lb/sq ft) | | 0.62 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 1.75 | |
| Frctn Loss (ft) | 0.07 | Cum Volume (acre-ft) | 0.00 | 5.46 | 0.01 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.00 | 2.01 | 0.01 |

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 52.76 | 70.34 | 6.96 | 4.48 | 4.30 | 2.68 | 1.23 | 1.55 |
| 2 | Chan | 70.34 | 76.85 | 50.20 | 17.55 | 6.64 | 19.31 | 2.69 | 2.86 |
| 3 | Chan | 76.85 | 83.37 | 63.39 | 21.07 | 6.52 | 24.38 | 3.23 | 3.01 |
| 4 | Chan | 83.37 | 89.88 | 75.65 | 23.49 | 6.57 | 29.10 | 3.61 | 3.22 |
| 5 | Chan | 89.88 | 96.39 | 50.87 | 18.15 | 6.59 | 19.56 | 2.79 | 2.80 |
| 6 | ROB | 96.39 | 111.69 | 12.94 | 6.88 | 5.48 | 4.98 | 1.42 | 1.88 |

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 70.34 | 76.85 | 49.07 | 20.66 | 9.13 | 18.87 | 3.17 | 2.37 |
| 2 | Chan | 76.85 | 83.37 | 72.71 | 24.18 | 6.52 | 27.97 | 3.71 | 3.01 |
| 3 | Chan | 83.37 | 89.88 | 84.86 | 26.60 | 6.57 | 32.64 | 4.08 | 3.19 |
| 4 | Chan | 89.88 | 96.39 | 53.35 | 21.26 | 9.49 | 20.52 | 3.26 | 2.51 |

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.35963

INPUT
Description:
Station Elevation Data num= 40

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2309.02 | 5.91 | 2308.85 | 6.36 | 2308.84 | 9.82 | 2308.75 | 17.78 | 2308.39 |
| 23.12 | 2308.06 | 26.74 | 2307.63 | 28.83 | 2307.6 | 34.13 | 2307.48 | 34.32 | 2307.43 |
| 34.79 | 2307.31 | 40.52 | 2305.77 | 43.89 | 2304.29 | 45.06 | 2303.76 | 45.25 | 2303.67 |
| 46.14 | 2303.14 | 50.22 | 2301.25 | 54.36 | 2299.39 | 61.73 | 2298.73 | 69.59 | 2298.09 |
| 72.51 | 2297.69 | 77.58 | 2296.99 | 81.92 | 2296.43 | 84.18 | 2296.29 | 85.11 | 2296.24 |
| 91.68 | 2295.8 | 96.38 | 2295.71 | 98.59 | 2297.38 | 103.28 | 2300.93 | 103.62 | 2301.17 |
| 110.38 | 2302 | 112.34 | 2302.3 | 136 | 2305.39 | 138.39 | 2305.76 | 139.64 | 2305.78 |
| 141.48 | 2306.04 | 144.34 | 2306.17 | 145.51 | 2306.22 | 150.84 | 2306.41 | 155.28 | 2306.6 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .063 | 84.18 | .069 | 98.59 | .059 |

Bank Sta: Left 72.51 Right 98.59 Lengths: Left 208.38 Channel 272.22 Right 223.81 Coeff Contr. .1 Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2299.94 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.09 | Wt. n-Val. | 0.063 | 0.067 | 0.059 |
| W.S. Elev (ft) | 2299.85 | Reach Len. (ft) | 208.38 | 272.22 | 223.81 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 23.10 | 89.28 | 4.03 |
| E.G. Slope (ft/ft) | 0.002517 | Area (sq ft) | 23.10 | 89.28 | 4.03 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 30.75 | 224.21 | 5.04 |
| Top Width (ft) | 48.52 | Top Width (ft) | 19.17 | 26.08 | 3.26 |
| Vel Total (ft/s) | 2.23 | Avg. Vel. (ft/s) | 1.33 | 2.51 | 1.25 |
| Max Chl Dpth (ft) | 4.14 | Hydr. Depth (ft) | 1.20 | 3.42 | 1.23 |
| Conv. Total (cfs) | 5182.0 | Conv. (cfs) | 612.9 | 4468.7 | 100.5 |
| Length Wtd. (ft) | 265.69 | Wetted Per. (ft) | 19.36 | 26.75 | 4.09 |
| Min Ch El (ft) | 2295.71 | Shear (lb/sq ft) | 0.19 | 0.52 | 0.15 |
| Alpha | 1.14 | Stream Power (lb/ft s) | 0.25 | 1.32 | 0.19 |
| Frctn Loss (ft) | 1.79 | Cum Volume (acre-ft) | 0.75 | 4.77 | 1.03 |
| C & E Loss (ft) | 0.05 | Cum SA (acres) | 0.79 | 1.99 | 1.16 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2300.41 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.10 | Wt. n-Val. | | 0.067 | |
| W.S. Elev (ft) | 2300.31 | Reach Len. (ft) | 208.38 | 272.22 | 223.81 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 101.26 | |
| E.G. Slope (ft/ft) | 0.002860 | Area (sq ft) | | 101.26 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 26.08 | Top Width (ft) | | 26.08 | |
| Vel Total (ft/s) | 2.57 | Avg. Vel. (ft/s) | | 2.57 | |
| Max Chl Dpth (ft) | 4.60 | Hydr. Depth (ft) | | 3.88 | |
| Conv. Total (cfs) | 4861.8 | Conv. (cfs) | | 4861.8 | |
| Length Wtd. (ft) | 272.22 | Wetted Per. (ft) | | 32.29 | |
| Min Ch El (ft) | 2295.71 | Shear (lb/sq ft) | | 0.56 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 1.44 | |
| Frctn Loss (ft) | 2.08 | Cum Volume (acre-ft) | 0.00 | 5.41 | 0.01 |
| C & E Loss (ft) | 0.06 | Cum SA (acres) | 0.00 | 1.99 | 0.01 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 36.26 | 54.38 | 0.10 | 0.25 | 1.14 | 0.04 | 0.23 | 0.41 |
| 2 | LOB | 54.38 | 72.51 | 30.65 | 22.85 | 18.21 | 11.79 | 1.26 | 1.34 |
| 3 | Chan | 72.51 | 79.03 | 37.76 | 17.01 | 6.58 | 14.52 | 2.61 | 2.22 |
| 4 | Chan | 79.03 | 85.55 | 57.72 | 22.16 | 6.55 | 22.20 | 3.40 | 2.60 |
| 5 | Chan | 85.55 | 92.07 | 66.48 | 25.15 | 6.53 | 25.57 | 3.86 | 2.64 |
| 6 | Chan | 92.07 | 98.59 | 62.26 | 24.97 | 7.08 | 23.95 | 3.83 | 2.49 |
| 7 | ROB | 98.59 | 112.76 | 5.04 | 4.03 | 4.09 | 1.94 | 1.23 | 1.25 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 72.51 | 79.03 | 41.03 | 20.00 | 9.20 | 15.78 | 3.07 | 2.05 |
| 2 | Chan | 79.03 | 85.55 | 73.93 | 25.15 | 6.55 | 28.43 | 3.86 | 2.94 |
| 3 | Chan | 85.55 | 92.07 | 83.14 | 28.14 | 6.53 | 31.98 | 4.32 | 2.95 |
| 4 | Chan | 92.07 | 98.59 | 61.90 | 27.96 | 10.01 | 23.81 | 4.29 | 2.21 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.35631

INPUT
Description:
Station Elevation Data num= 43

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2308.83 | 2.37 | 2308.74 | 3.55 | 2308.69 | 3.98 | 2308.68 | 12.97 | 2308.32 |
| 13.87 | 2308.15 | 17.11 | 2307.51 | 17.66 | 2307.4 | 17.91 | 2307.36 | 18.47 | 2307.11 |
| 18.9 | 2306.95 | 30.55 | 2302.11 | 30.88 | 2301.98 | 35.79 | 2301.21 | 40.3 | 2299.89 |
| 44.31 | 2299.28 | 47.8 | 2298.6 | 51.13 | 2298.28 | 55.79 | 2297.9 | 62.1 | 2297.12 |
| 63.8 | 2296.84 | 65.96 | 2296.61 | 75.78 | 2296 | 77.82 | 2295.92 | 78.22 | 2295.9 |
| 84.73 | 2295.71 | 89.44 | 2295.61 | 89.98 | 2295.59 | 90.49 | 2295.87 | 92.62 | 2296.82 |
| 93.25 | 2297.11 | 94.48 | 2297.68 | 94.86 | 2297.84 | 101.09 | 2300.92 | 110.69 | 2302.39 |
| 118.29 | 2303.41 | 123.86 | 2304.24 | 132.3 | 2305.26 | 133.67 | 2305.29 | 134.62 | 2305.31 |
| 139.99 | 2305.74 | 141.3 | 2305.72 | 141.36 | 2305.72 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .063 | 77.82 | .069 | 92.62 | .059 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 65.96 | 90.49 | 2.37 | 16.12 | 12.87 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2298.10 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.63 | Wt. n-Val. | 0.063 | 0.067 | 0.068 |
| W.S. Elev (ft) | 2297.47 | Reach Len. (ft) | 2.37 | 16.12 | 12.87 |
| Crit W.S. (ft) | 2297.47 | Flow Area (sq ft) | 2.92 | 36.35 | 2.85 |
| E.G. Slope (ft/ft) | 0.050099 | Area (sq ft) | 2.92 | 36.35 | 2.85 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 8.85 | 238.30 | 12.85 |
| Top Width (ft) | 34.74 | Top Width (ft) | 6.67 | 24.53 | 3.53 |
| Vel Total (ft/s) | 6.17 | Avg. Vel. (ft/s) | 3.03 | 6.56 | 4.52 |
| Max Chl Dpth (ft) | 1.88 | Hydr. Depth (ft) | 0.44 | 1.48 | 0.81 |
| Conv. Total (cfs) | 1161.6 | Conv. (cfs) | 39.5 | 1064.7 | 57.4 |
| Length Wtd. (ft) | 15.54 | Wetted Per. (ft) | 6.73 | 24.63 | 3.88 |
| Min Ch El (ft) | 2295.59 | Shear (lb/sq ft) | 1.36 | 4.62 | 2.30 |
| Alpha | 1.07 | Stream Power (lb/ft s) | 4.11 | 30.26 | 10.37 |
| Frctn Loss (ft) | 0.77 | Cum Volume (acre-ft) | 0.69 | 4.38 | 1.01 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 0.73 | 1.83 | 1.14 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2298.26 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.72 | Wt. n-Val. | | 0.067 | |
| W.S. Elev (ft) | 2297.55 | Reach Len. (ft) | 2.37 | 16.12 | 12.87 |
| Crit W.S. (ft) | 2297.50 | Flow Area (sq ft) | | 38.29 | |
| E.G. Slope (ft/ft) | 0.057864 | Area (sq ft) | | 38.29 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 24.53 | Top Width (ft) | | 24.53 | |
| Vel Total (ft/s) | 6.79 | Avg. Vel. (ft/s) | | 6.79 | |
| Max Chl Dpth (ft) | 1.96 | Hydr. Depth (ft) | | 1.56 | |
| Conv. Total (cfs) | 1080.9 | Conv. (cfs) | | 1080.9 | |
| Length Wtd. (ft) | 16.12 | Wetted Per. (ft) | | 27.24 | |
| Min Ch El (ft) | 2295.59 | Shear (lb/sq ft) | | 5.08 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 34.48 | |
| Frctn Loss (ft) | 0.70 | Cum Volume (acre-ft) | 0.00 | 4.98 | 0.01 |
| C & E Loss (ft) | 0.05 | Cum SA (acres) | 0.00 | 1.84 | 0.01 |

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 49.47 | 65.96 | 8.85 | 2.92 | 6.73 | 3.40 | 0.44 | 3.03 |
| 2 | Chan | 65.96 | 72.09 | 34.80 | 6.43 | 6.14 | 13.38 | 1.05 | 5.41 |
| 3 | Chan | 72.09 | 78.23 | 57.25 | 8.70 | 6.14 | 22.02 | 1.42 | 6.58 |
| 4 | Chan | 78.23 | 84.36 | 68.26 | 10.16 | 6.14 | 26.25 | 1.66 | 6.72 |
| 5 | Chan | 84.36 | 90.49 | 78.00 | 11.06 | 6.21 | 30.00 | 1.80 | 7.05 |
| 6 | ROB | 90.49 | 103.21 | 12.85 | 2.85 | 3.88 | 4.94 | 0.81 | 4.52 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 65.96 | 72.09 | 38.14 | 6.91 | 7.08 | 14.67 | 1.13 | 5.52 |
| 2 | Chan | 72.09 | 78.23 | 66.88 | 9.18 | 6.14 | 25.72 | 1.50 | 7.28 |
| 3 | Chan | 78.23 | 84.36 | 78.74 | 10.65 | 6.14 | 30.28 | 1.74 | 7.39 |
| 4 | Chan | 84.36 | 90.49 | 76.24 | 11.55 | 7.88 | 29.32 | 1.88 | 6.60 |

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.35325

INPUT
Description:
Station Elevation Data num= 44

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2308.89 | 4.73 | 2308.67 | 9.5 | 2308.45 | 9.77 | 2308.44 | 13.88 | 2308.26 |
| 16.59 | 2307.7 | 18.11 | 2307.48 | 20.43 | 2306.57 | 22.81 | 2305.73 | 28.79 | 2303.49 |
| 36.15 | 2300.76 | 36.67 | 2300.5 | 41.17 | 2299.12 | 41.48 | 2298.92 | 42.99 | 2298.56 |
| 45.72 | 2298.13 | 47.71 | 2297.77 | 54.08 | 2296.99 | 55.96 | 2296.74 | 59.21 | 2296.5 |
| 63.39 | 2295.95 | 64.64 | 2295.75 | 68.18 | 2295.24 | 68.82 | 2295.15 | 70.21 | 2295.09 |
| 75.81 | 2294.9 | 76.56 | 2294.9 | 81.04 | 2294.91 | 81.62 | 2294.88 | 87.18 | 2295.28 |
| 87.35 | 2295.29 | 87.62 | 2295.37 | 88.33 | 2295.55 | 90.28 | 2296.09 | 91.27 | 2296.34 |
| 93.27 | 2296.91 | 105.13 | 2300.31 | 110.09 | 2301.15 | 119.54 | 2302.85 | 126.42 | 2304.06 |
| 128.36 | 2304.45 | 131.8 | 2304.97 | 131.93 | 2304.97 | 140.76 | 2305.21 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .063 | 76.56 | .069 | 93.27 | .059 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 64.64 | 88.33 | 7.03 | 22.82 | 10.72 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2297.31 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.65 | Wt. n-Val. | 0.063 | 0.066 | 0.069 |
| W.S. Elev (ft) | 2296.66 | Reach Len. (ft) | 7.03 | 22.82 | 10.72 |
| Crit W.S. (ft) | 2296.66 | Flow Area (sq ft) | 2.96 | 36.84 | 2.24 |
| E.G. Slope (ft/ft) | 0.048590 | Area (sq ft) | 2.96 | 36.84 | 2.24 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 8.24 | 244.77 | 6.98 |
| Top Width (ft) | 35.26 | Top Width (ft) | 7.53 | 23.69 | 4.04 |
| Vel Total (ft/s) | 6.18 | Avg. Vel. (ft/s) | 2.78 | 6.64 | 3.12 |
| Max Chl Dpth (ft) | 1.77 | Hydr. Depth (ft) | 0.39 | 1.56 | 0.55 |
| Conv. Total (cfs) | 1179.5 | Conv. (cfs) | 37.4 | 1110.4 | 31.7 |
| Length Wtd. (ft) | 21.46 | Wetted Per. (ft) | 7.58 | 23.79 | 4.19 |
| Min Ch El (ft) | 2294.88 | Shear (lb/sq ft) | 1.19 | 4.70 | 1.62 |
| Alpha | 1.10 | Stream Power (lb/ft s) | 3.30 | 31.22 | 5.05 |
| Frctn Loss (ft) | 0.97 | Cum Volume (acre-ft) | 0.69 | 4.37 | 1.01 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 0.73 | 1.82 | 1.14 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2297.51 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.53 | Wt. n-Val. | | 0.066 | |
| W.S. Elev (ft) | 2296.97 | Reach Len. (ft) | 7.03 | 22.82 | 10.72 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 44.31 | |
| E.G. Slope (ft/ft) | 0.034084 | Area (sq ft) | | 44.31 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 23.69 | Top Width (ft) | | 23.69 | |
| Vel Total (ft/s) | 5.87 | Avg. Vel. (ft/s) | | 5.87 | |
| Max Chl Dpth (ft) | 2.09 | Hydr. Depth (ft) | | 1.87 | |
| Conv. Total (cfs) | 1408.3 | Conv. (cfs) | | 1408.3 | |
| Length Wtd. (ft) | 22.82 | Wetted Per. (ft) | | 26.43 | |
| Min Ch El (ft) | 2294.88 | Shear (lb/sq ft) | | 3.57 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 20.93 | |
| Frctn Loss (ft) | 0.91 | Cum Volume (acre-ft) | 0.00 | 4.96 | 0.01 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.00 | 1.83 | 0.01 |

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 48.48 | 64.64 | 8.24 | 2.96 | 7.58 | 3.17 | 0.39 | 2.78 |
| 2 | Chan | 64.64 | 70.56 | 47.42 | 7.73 | 5.97 | 18.24 | 1.30 | 6.14 |
| 3 | Chan | 70.56 | 76.49 | 72.31 | 9.93 | 5.93 | 27.81 | 1.68 | 7.29 |
| 4 | Chan | 76.49 | 82.41 | 71.08 | 10.37 | 5.93 | 27.34 | 1.75 | 6.86 |
| 5 | Chan | 82.41 | 88.33 | 53.96 | 8.82 | 5.97 | 20.75 | 1.49 | 6.12 |
| 6 | ROB | 88.33 | 101.44 | 6.98 | 2.24 | 4.19 | 2.69 | 0.55 | 3.12 |

Warning: The energy equation could not be balanced within the specified number of iterations. The

program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 64.64 | 70.56 | 49.66 | 9.59 | 7.19 | 19.10 | 1.62 | 5.18 |
| 2 | Chan | 70.56 | 76.49 | 79.65 | 11.79 | 5.93 | 30.64 | 1.99 | 6.75 |
| 3 | Chan | 76.49 | 82.41 | 77.42 | 12.23 | 5.93 | 29.78 | 2.07 | 6.33 |
| 4 | Chan | 82.41 | 88.33 | 53.27 | 10.69 | 7.39 | 20.49 | 1.80 | 4.99 |

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.34893

INPUT
Description:
Station Elevation Data num= 42

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2308.54 | 1.35 | 2308.48 | 9.19 | 2308.15 | 10.5 | 2307.97 | 13.12 | 2307.73 |
| 15.49 | 2306.65 | 16.14 | 2306.44 | 17.81 | 2305.92 | 30.04 | 2301.49 | 32 | 2300.54 |
| 33.22 | 2300.18 | 36.79 | 2297.85 | 37.43 | 2297.69 | 38.67 | 2297.63 | 39.04 | 2297.57 |
| 40.53 | 2296.97 | 40.96 | 2296.89 | 43.48 | 2295.73 | 44.54 | 2295.22 | 44.79 | 2295.22 |
| 46.3 | 2295.51 | 53.11 | 2295.24 | 54.69 | 2295.04 | 58.32 | 2294.45 | 59.86 | 2294.19 |
| 63.51 | 2293.58 | 64.3 | 2293.59 | 65.36 | 2293.69 | 70.22 | 2294 | 72.08 | 2294.09 |
| 75.37 | 2294.45 | 77.1 | 2294.62 | 78.88 | 2294.87 | 79.41 | 2294.91 | 83.29 | 2295.22 |
| 86.14 | 2295.22 | 104.23 | 2299.61 | 107.01 | 2300.28 | 114.91 | 2301.66 | 129.79 | 2304.19 |
| 130.14 | 2304.2 | 135.09 | 2304.24 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .063 | 59.86 | .069 | 79.41 | .059 |

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
54.69 77.1 20.36 16.14 5 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2296.28 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.54 | Wt. n-Val. | 0.063 | 0.068 | 0.063 |
| W.S. Elev (ft) | 2295.75 | Reach Len. (ft) | 20.36 | 16.14 | 5.00 |
| Crit W.S. (ft) | 2295.75 | Flow Area (sq ft) | 4.49 | 35.94 | 6.96 |
| E.G. Slope (ft/ft) | 0.042192 | Area (sq ft) | 4.49 | 35.94 | 6.96 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 11.68 | 222.77 | 25.55 |
| Top Width (ft) | 44.87 | Top Width (ft) | 11.25 | 22.41 | 11.21 |
| Vel Total (ft/s) | 5.49 | Avg. Vel. (ft/s) | 2.60 | 6.20 | 3.67 |
| Max Chl Dpth (ft) | 2.17 | Hydr. Depth (ft) | 0.40 | 1.60 | 0.62 |
| Conv. Total (cfs) | 1265.8 | Conv. (cfs) | 56.9 | 1084.5 | 124.4 |
| Length Wtd. (ft) | 15.41 | Wetted Per. (ft) | 11.41 | 22.57 | 11.31 |
| Min Ch El (ft) | 2293.58 | Shear (lb/sq ft) | 1.04 | 4.19 | 1.62 |
| Alpha | 1.15 | Stream Power (lb/ft s) | 2.70 | 25.99 | 5.95 |
| Frctn Loss (ft) | 0.41 | Cum Volume (acre-ft) | 0.69 | 4.35 | 1.01 |
| C & E Loss (ft) | 0.09 | Cum SA (acres) | 0.73 | 1.81 | 1.14 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2296.58 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.68 | Wt. n-Val. | | 0.068 | |
| W.S. Elev (ft) | 2295.90 | Reach Len. (ft) | 20.36 | 16.14 | 5.00 |
| Crit W.S. (ft) | 2295.75 | Flow Area (sq ft) | | 39.33 | |
| E.G. Slope (ft/ft) | 0.047670 | Area (sq ft) | | 39.33 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 22.41 | Top Width (ft) | | 22.41 | |
| Vel Total (ft/s) | 6.61 | Avg. Vel. (ft/s) | | 6.61 | |
| Max Chl Dpth (ft) | 2.32 | Hydr. Depth (ft) | | 1.76 | |
| Conv. Total (cfs) | 1190.8 | Conv. (cfs) | | 1190.8 | |
| Length Wtd. (ft) | 16.14 | Wetted Per. (ft) | | 24.71 | |
| Min Ch El (ft) | 2293.58 | Shear (lb/sq ft) | | 4.74 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 31.31 | |
| Frctn Loss (ft) | 0.58 | Cum Volume (acre-ft) | 0.00 | 4.94 | 0.01 |
| C & E Loss (ft) | 0.08 | Cum SA (acres) | 0.00 | 1.82 | 0.01 |

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 41.02 | 54.69 | 11.68 | 4.49 | 11.41 | 4.49 | 0.40 | 2.60 |
| 2 | Chan | 54.69 | 60.29 | 34.18 | 6.52 | 5.68 | 13.15 | 1.16 | 5.24 |
| 3 | Chan | 60.29 | 65.90 | 76.75 | 11.14 | 5.65 | 29.52 | 1.99 | 6.89 |
| 4 | Chan | 65.90 | 71.50 | 68.16 | 10.35 | 5.61 | 26.22 | 1.85 | 6.59 |
| 5 | Chan | 71.50 | 77.10 | 43.67 | 7.93 | 5.63 | 16.80 | 1.42 | 5.51 |
| 6 | ROB | 77.10 | 91.60 | 25.55 | 6.96 | 11.31 | 9.83 | 0.62 | 3.67 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 54.69 | 60.29 | 40.17 | 7.37 | 6.54 | 15.45 | 1.32 | 5.45 |
| 2 | Chan | 60.29 | 65.90 | 90.97 | 11.99 | 5.65 | 34.99 | 2.14 | 7.59 |
| 3 | Chan | 65.90 | 71.50 | 81.52 | 11.19 | 5.61 | 31.36 | 2.00 | 7.28 |
| 4 | Chan | 71.50 | 77.10 | 47.33 | 8.78 | 6.91 | 18.21 | 1.57 | 5.39 |

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.34588

INPUT
Description:
Station Elevation Data num= 41

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2307.97 | 2.01 | 2307.91 | 6.32 | 2307.78 | 7.71 | 2307.84 | 10.19 | 2307.86 |
| 10.35 | 2307.81 | 10.43 | 2307.75 | 24.53 | 2300.94 | 26.84 | 2298.82 | 28.01 | 2298.41 |
| 31.94 | 2295.87 | 32.02 | 2295.82 | 32.61 | 2295.48 | 38.4 | 2294.17 | 40.89 | 2294.45 |
| 42.9 | 2294.67 | 44.56 | 2294.32 | 47.48 | 2293.8 | 49.39 | 2293.46 | 56.12 | 2293.6 |
| 56.3 | 2293.61 | 59.4 | 2293.69 | 61.1 | 2293.73 | 62.04 | 2293.76 | 64.87 | 2293.78 |
| 65.99 | 2293.78 | 66.61 | 2293.79 | 69.98 | 2294.19 | 71.79 | 2294.39 | 73.19 | 2294.46 |
| 74.77 | 2294.53 | 81.39 | 2294.92 | 83.01 | 2295.06 | 85.71 | 2295.09 | 101.18 | 2298.92 |
| 105.47 | 2300.05 | 107.96 | 2300.51 | 114.38 | 2301.6 | 126.66 | 2303.75 | 127.27 | 2303.77 |
| 130.83 | 2303.88 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .063 | 47.48 | .069 | 64.87 | .059 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 42.9 | 73.19 | 47.76 | 15.03 | 7.24 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2295.75 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.25 | Wt. n-Val. | 0.063 | 0.066 | 0.059 |
| W.S. Elev (ft) | 2295.50 | Reach Len. (ft) | 47.76 | 15.03 | 7.24 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 8.72 | 50.03 | 8.98 |
| E.G. Slope (ft/ft) | 0.018020 | Area (sq ft) | 8.72 | 50.03 | 8.98 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 24.42 | 213.25 | 22.33 |
| Top Width (ft) | 54.77 | Top Width (ft) | 10.32 | 30.29 | 14.16 |
| Vel Total (ft/s) | 3.84 | Avg. Vel. (ft/s) | 2.80 | 4.26 | 2.49 |
| Max Chl Dpth (ft) | 2.04 | Hydr. Depth (ft) | 0.85 | 1.65 | 0.63 |
| Conv. Total (cfs) | 1936.9 | Conv. (cfs) | 181.9 | 1588.6 | 166.4 |
| Length Wtd. (ft) | 16.00 | Wetted Per. (ft) | 10.50 | 30.44 | 14.23 |
| Min Ch El (ft) | 2293.46 | Shear (lb/sq ft) | 0.93 | 1.85 | 0.71 |
| Alpha | 1.10 | Stream Power (lb/ft s) | 2.62 | 7.88 | 1.77 |
| Frctn Loss (ft) | 0.45 | Cum Volume (acre-ft) | 0.69 | 4.33 | 1.01 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.72 | 1.80 | 1.14 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2295.92 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.42 | Wt. n-Val. | | 0.066 | |
| W.S. Elev (ft) | 2295.50 | Reach Len. (ft) | 47.76 | 15.03 | 7.24 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 50.05 | |
| E.G. Slope (ft/ft) | 0.028309 | Area (sq ft) | | 50.05 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 30.29 | Top Width (ft) | | 30.29 | |
| Vel Total (ft/s) | 5.19 | Avg. Vel. (ft/s) | | 5.19 | |
| Max Chl Dpth (ft) | 2.04 | Hydr. Depth (ft) | | 1.65 | |
| Conv. Total (cfs) | 1545.3 | Conv. (cfs) | | 1545.3 | |
| Length Wtd. (ft) | 15.03 | Wetted Per. (ft) | | 32.31 | |
| Min Ch El (ft) | 2293.46 | Shear (lb/sq ft) | | 2.74 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 14.22 | |
| Frctn Loss (ft) | 0.53 | Cum Volume (acre-ft) | 0.00 | 4.92 | 0.01 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.00 | 1.81 | 0.01 |

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 32.18 | 42.90 | 24.42 | 8.72 | 10.50 | 9.39 | 0.85 | 2.80 |
| 2 | Chan | 42.90 | 50.47 | 47.09 | 11.61 | 7.69 | 18.11 | 1.53 | 4.06 |
| 3 | Chan | 50.47 | 58.05 | 65.54 | 14.63 | 7.57 | 25.21 | 1.93 | 4.48 |
| 4 | Chan | 58.05 | 65.62 | 56.95 | 13.32 | 7.57 | 21.90 | 1.76 | 4.27 |
| 5 | Chan | 65.62 | 73.19 | 43.67 | 10.46 | 7.61 | 16.79 | 1.38 | 4.17 |
| 6 | ROB | 73.19 | 87.60 | 22.33 | 8.98 | 14.23 | 8.59 | 0.63 | 2.49 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 42.90 | 50.47 | 56.24 | 11.62 | 8.51 | 21.63 | 1.53 | 4.84 |
| 2 | Chan | 50.47 | 58.05 | 82.13 | 14.64 | 7.57 | 31.59 | 1.93 | 5.61 |
| 3 | Chan | 58.05 | 65.62 | 71.37 | 13.33 | 7.57 | 27.45 | 1.76 | 5.35 |
| 4 | Chan | 65.62 | 73.19 | 50.26 | 10.47 | 8.65 | 19.33 | 1.38 | 4.80 |

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.34303

INPUT
Description:
Station Elevation Data num= 51

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2306.86 | .58 | 2306.88 | 5.03 | 2306.94 | 5.73 | 2306.87 | 6.37 | 2306.23 |
| 7.08 | 2306.02 | 7.47 | 2305.77 | 8.78 | 2305.03 | 10.21 | 2304.24 | 11.51 | 2303.43 |
| 14.4 | 2302.72 | 15.81 | 2302.23 | 16.83 | 2302.01 | 19.45 | 2301.65 | 21.83 | 2301.5 |
| 24.23 | 2300.9 | 25.58 | 2300.18 | 26.89 | 2299.43 | 28.7 | 2298.42 | 30.95 | 2296.96 |
| 31.58 | 2296.82 | 32.33 | 2296.6 | 36.71 | 2295.15 | 40.22 | 2293.31 | 42.84 | 2293.23 |
| 44.14 | 2293.2 | 45.19 | 2293.13 | 49.3 | 2293.36 | 53.44 | 2293.53 | 53.49 | 2293.53 |
| 56.28 | 2293.63 | 56.72 | 2293.64 | 57.02 | 2293.65 | 57.54 | 2293.67 | 57.89 | 2293.67 |
| 59.51 | 2293.71 | 61.32 | 2293.69 | 61.73 | 2293.69 | 65.09 | 2293.66 | 67.88 | 2293.62 |
| 68.88 | 2293.63 | 72.21 | 2293.99 | 85.86 | 2294.77 | 88.58 | 2294.87 | 97.81 | 2297.33 |
| 107.36 | 2299.69 | 107.41 | 2299.7 | 115.22 | 2301.3 | 125.97 | 2303.3 | 126.62 | 2303.31 |
| 131.08 | 2303.38 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .063 | 42.84 | .069 | 56.72 | .059 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 36.71 | 72.21 | 29.77 | 16.75 | 6.68 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2295.27 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.50 | Wt. n-Val. | | 0.064 | 0.059 |
| W.S. Elev (ft) | 2294.77 | Reach Len. (ft) | 29.77 | 16.75 | 6.68 |
| Crit W.S. (ft) | 2294.76 | Flow Area (sq ft) | | 41.85 | 5.30 |
| E.G. Slope (ft/ft) | 0.049594 | Area (sq ft) | | 41.85 | 5.30 |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 244.17 | 15.83 |
| Top Width (ft) | 48.39 | Top Width (ft) | | 34.77 | 13.62 |
| Vel Total (ft/s) | 5.51 | Avg. Vel. (ft/s) | | 5.83 | 2.99 |
| Max Chl Dpth (ft) | 1.64 | Hydr. Depth (ft) | | 1.20 | 0.39 |
| Conv. Total (cfs) | 1167.5 | Conv. (cfs) | | 1096.4 | 71.1 |
| Length Wtd. (ft) | 16.04 | Wetted Per. (ft) | | 35.17 | 13.64 |
| Min Ch El (ft) | 2293.13 | Shear (lb/sq ft) | | 3.68 | 1.20 |
| Alpha | 1.07 | Stream Power (lb/ft s) | | 21.50 | 3.59 |
| Frctn Loss (ft) | 0.60 | Cum Volume (acre-ft) | 0.68 | 4.31 | 1.00 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.72 | 1.79 | 1.14 |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2295.38 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.51 | Wt. n-Val. | | 0.064 | |
| W.S. Elev (ft) | 2294.87 | Reach Len. (ft) | 29.77 | 16.75 | 6.68 |
| Crit W.S. (ft) | 2294.76 | Flow Area (sq ft) | | 45.32 | |
| E.G. Slope (ft/ft) | 0.044741 | Area (sq ft) | | 45.32 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 34.96 | Top Width (ft) | | 34.96 | |
| Vel Total (ft/s) | 5.74 | Avg. Vel. (ft/s) | | 5.74 | |
| Max Chl Dpth (ft) | 1.74 | Hydr. Depth (ft) | | 1.30 | |
| Conv. Total (cfs) | 1229.2 | Conv. (cfs) | | 1229.2 | |
| Length Wtd. (ft) | 16.57 | Wetted Per. (ft) | | 36.26 | |
| Min Ch El (ft) | 2293.13 | Shear (lb/sq ft) | | 3.49 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 20.03 | |
| Frctn Loss (ft) | 0.44 | Cum Volume (acre-ft) | 0.00 | 4.91 | 0.01 |
| C & E Loss (ft) | 0.06 | Cum SA (acres) | 0.00 | 1.79 | 0.01 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 36.71 | 45.59 | 60.03 | 10.30 | 8.51 | 23.09 | 1.26 | 5.83 |
| 2 | Chan | 45.59 | 54.46 | 73.42 | 12.34 | 8.88 | 28.24 | 1.39 | 5.95 |
| 3 | Chan | 54.46 | 63.34 | 56.10 | 9.79 | 8.88 | 21.58 | 1.10 | 5.73 |
| 4 | Chan | 63.34 | 72.21 | 54.63 | 9.41 | 8.89 | 21.01 | 1.06 | 5.80 |
| 5 | ROB | 72.21 | 86.93 | 15.83 | 5.30 | 13.64 | 6.09 | 0.39 | 2.99 |

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 36.71 | 45.59 | 63.76 | 11.12 | 8.73 | 24.52 | 1.33 | 5.73 |
| 2 | Chan | 45.59 | 54.46 | 78.19 | 13.23 | 8.88 | 30.07 | 1.49 | 5.91 |
| 3 | Chan | 54.46 | 63.34 | 61.50 | 10.68 | 8.88 | 23.65 | 1.20 | 5.76 |
| 4 | Chan | 63.34 | 72.21 | 56.55 | 10.30 | 9.77 | 21.75 | 1.16 | 5.49 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.33986

INPUT
Description:
Station Elevation Data num= 41

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2305.32 | 6.26 | 2305.17 | 7.1 | 2305.02 | 7.55 | 2304.98 | 10.53 | 2304.68 |
| 10.68 | 2304.67 | 12.24 | 2304.47 | 16.19 | 2303.81 | 19.82 | 2303.42 | 28.71 | 2296.17 |
| 34.21 | 2292.13 | 34.96 | 2291.54 | 38.3 | 2291.7 | 40.13 | 2291.78 | 40.72 | 2291.81 |
| 40.95 | 2291.82 | 42.03 | 2291.98 | 50.87 | 2293.26 | 51.52 | 2293.32 | 51.67 | 2293.33 |
| 53.24 | 2293.36 | 53.59 | 2293.36 | 55.97 | 2293.35 | 56.58 | 2293.34 | 59.23 | 2293.35 |
| 61.16 | 2293.33 | 63.6 | 2293.38 | 64.97 | 2293.53 | 73.62 | 2294.03 | 83.96 | 2294.85 |
| 84.75 | 2295.05 | 91.64 | 2296.77 | 94.56 | 2297.44 | 97.31 | 2297.9 | 108.74 | 2300.8 |
| 110.83 | 2301.18 | 115.26 | 2301.85 | 118.83 | 2302.56 | 118.99 | 2302.6 | 122.92 | 2302.68 |
| 126 | 2302.86 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .063 | 38.3 | .069 | 53.59 | .059 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 28.71 | 61.16 | 19.67 | 39.79 | 30.17 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2294.64 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.39 | Wt. n-Val. | | 0.065 | 0.059 |
| W.S. Elev (ft) | 2294.25 | Reach Len. (ft) | 19.67 | 39.79 | 30.17 |
| Crit W.S. (ft) | 2294.03 | Flow Area (sq ft) | | 46.46 | 7.61 |
| E.G. Slope (ft/ft) | 0.029473 | Area (sq ft) | | 46.46 | 7.61 |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 239.30 | 20.70 |
| Top Width (ft) | 45.04 | Top Width (ft) | | 29.83 | 15.20 |
| Vel Total (ft/s) | 4.81 | Avg. Vel. (ft/s) | | 5.15 | 2.72 |
| Max Chl Dpth (ft) | 2.71 | Hydr. Depth (ft) | | 1.56 | 0.50 |
| Conv. Total (cfs) | 1514.5 | Conv. (cfs) | | 1393.9 | 120.6 |
| Length Wtd. (ft) | 38.47 | Wetted Per. (ft) | | 30.85 | 15.23 |
| Min Ch El (ft) | 2291.54 | Shear (lb/sq ft) | | 2.77 | 0.92 |
| Alpha | 1.08 | Stream Power (lb/ft s) | | 14.28 | 2.50 |
| Frctn Loss (ft) | 1.12 | Cum Volume (acre-ft) | 0.68 | 4.30 | 1.00 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.72 | 1.78 | 1.14 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2294.88 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.30 | Wt. n-Val. | | 0.065 | 0.059 |
| W.S. Elev (ft) | 2294.58 | Reach Len. (ft) | 19.67 | 39.79 | 30.17 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 56.33 | 3.12 |
| E.G. Slope (ft/ft) | 0.017427 | Area (sq ft) | | 56.33 | 3.12 |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 250.81 | 9.19 |
| Top Width (ft) | 32.84 | Top Width (ft) | | 30.28 | 2.56 |
| Vel Total (ft/s) | 4.37 | Avg. Vel. (ft/s) | | 4.45 | 2.94 |
| Max Chl Dpth (ft) | 3.04 | Hydr. Depth (ft) | | 1.86 | 1.22 |
| Conv. Total (cfs) | 1969.5 | Conv. (cfs) | | 1899.9 | 69.6 |
| Length Wtd. (ft) | 39.62 | Wetted Per. (ft) | | 31.40 | 3.74 |
| Min Ch El (ft) | 2291.54 | Shear (lb/sq ft) | | 1.95 | 0.91 |
| Alpha | 1.02 | Stream Power (lb/ft s) | | 8.69 | 2.67 |
| Frctn Loss (ft) | 0.90 | Cum Volume (acre-ft) | 0.00 | 4.89 | 0.01 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.00 | 1.78 | 0.01 |

Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 28.71 | 36.82 | 50.14 | 9.82 | 6.40 | 19.29 | 1.79 | 5.11 |
| 2 | Chan | 36.82 | 44.94 | 118.69 | 18.92 | 8.16 | 45.65 | 2.33 | 6.27 |
| 3 | Chan | 44.94 | 53.05 | 42.87 | 10.42 | 8.18 | 16.49 | 1.28 | 4.12 |
| 4 | Chan | 53.05 | 61.16 | 27.60 | 7.30 | 8.11 | 10.61 | 0.90 | 3.78 |
| 5 | ROB | 61.16 | 77.37 | 20.70 | 7.61 | 15.23 | 7.96 | 0.50 | 2.72 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 28.71 | 36.82 | 49.74 | 11.70 | 6.95 | 19.13 | 1.97 | 4.25 |
| 2 | Chan | 36.82 | 44.94 | 115.70 | 21.59 | 8.16 | 44.50 | 2.66 | 5.36 |
| 3 | Chan | 44.94 | 53.05 | 49.08 | 13.08 | 8.18 | 18.88 | 1.61 | 3.75 |
| 4 | Chan | 53.05 | 61.16 | 36.30 | 9.96 | 8.11 | 13.96 | 1.23 | 3.64 |
| 5 | ROB | 61.16 | 77.37 | 9.19 | 3.12 | 3.74 | 3.53 | 1.22 | 2.94 |

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.33232

INPUT
Description:
Station Elevation Data num= 22

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2305.47 | 2.99 | 2305.4 | 4.51 | 2305.05 | 17.95 | 2301.95 | 27.83 | 2299.53 |
| 30.92 | 2298.03 | 42.57 | 2292.62 | 45.7 | 2291.83 | 48.29 | 2291.15 | 48.43 | 2291.11 |
| 54.97 | 2290.74 | 58.69 | 2290.52 | 62.99 | 2291.21 | 69.07 | 2292.22 | 69.28 | 2292.26 |
| 71.27 | 2292.68 | 76.77 | 2293.92 | 83.35 | 2295.62 | 105.8 | 2301.35 | 106.06 | 2301.42 |
| 108.1 | 2301.51 | 112.14 | 2301.72 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .063 | 54.97 | .069 | 69.07 | .059 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 45.7 | 62.99 | 69.22 | 89.93 | 97.93 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2293.51 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.52 | Wt. n-Val. | 0.063 | 0.066 | 0.068 |
| W.S. Elev (ft) | 2292.98 | Reach Len. (ft) | 69.22 | 89.93 | 97.93 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 2.51 | 35.41 | 9.07 |
| E.G. Slope (ft/ft) | 0.028725 | Area (sq ft) | 2.51 | 35.41 | 9.07 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 7.23 | 217.13 | 35.64 |
| Top Width (ft) | 30.81 | Top Width (ft) | 3.91 | 17.29 | 9.61 |
| Vel Total (ft/s) | 5.53 | Avg. Vel. (ft/s) | 2.89 | 6.13 | 3.93 |
| Max Chl Dpth (ft) | 2.46 | Hydr. Depth (ft) | 0.64 | 2.05 | 0.94 |
| Conv. Total (cfs) | 1534.1 | Conv. (cfs) | 42.7 | 1281.1 | 210.3 |
| Length Wtd. (ft) | 89.40 | Wetted Per. (ft) | 4.08 | 17.46 | 9.78 |
| Min Ch El (ft) | 2290.52 | Shear (lb/sq ft) | 1.10 | 3.64 | 1.66 |
| Alpha | 1.10 | Stream Power (lb/ft s) | 3.17 | 22.31 | 6.54 |
| Frctn Loss (ft) | 1.74 | Cum Volume (acre-ft) | 0.68 | 4.26 | 1.00 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.72 | 1.76 | 1.13 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2293.95 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.60 | Wt. n-Val. | | 0.066 | |
| W.S. Elev (ft) | 2293.35 | Reach Len. (ft) | 69.22 | 89.93 | 97.93 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 41.80 | |
| E.G. Slope (ft/ft) | 0.030593 | Area (sq ft) | | 41.80 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 17.29 | Top Width (ft) | | 17.29 | |
| Vel Total (ft/s) | 6.22 | Avg. Vel. (ft/s) | | 6.22 | |
| Max Chl Dpth (ft) | 2.83 | Hydr. Depth (ft) | | 2.42 | |
| Conv. Total (cfs) | 1486.5 | Conv. (cfs) | | 1486.5 | |
| Length Wtd. (ft) | 89.93 | Wetted Per. (ft) | | 21.12 | |
| Min Ch El (ft) | 2290.52 | Shear (lb/sq ft) | | 3.78 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 23.52 | |
| Frctn Loss (ft) | 1.46 | Cum Volume (acre-ft) | 0.00 | 4.84 | 0.01 |
| C & E Loss (ft) | 0.07 | Cum SA (acres) | 0.00 | 1.76 | 0.00 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 34.28 | 45.70 | 7.23 | 2.51 | 4.08 | 2.78 | 0.64 | 2.89 |
| 2 | Chan | 45.70 | 50.02 | 39.37 | 7.17 | 4.42 | 15.14 | 1.66 | 5.49 |
| 3 | Chan | 50.02 | 54.35 | 58.33 | 9.00 | 4.33 | 22.43 | 2.08 | 6.48 |
| 4 | Chan | 54.35 | 58.67 | 65.10 | 10.08 | 4.33 | 25.04 | 2.33 | 6.46 |
| 5 | Chan | 58.67 | 62.99 | 54.33 | 9.15 | 4.38 | 20.90 | 2.12 | 5.94 |
| 6 | ROB | 62.99 | 75.28 | 35.64 | 9.07 | 9.78 | 13.71 | 0.94 | 3.93 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 45.70 | 50.02 | 45.30 | 8.77 | 5.94 | 17.42 | 2.03 | 5.17 |
| 2 | Chan | 50.02 | 54.35 | 76.74 | 10.60 | 4.33 | 29.51 | 2.45 | 7.24 |
| 3 | Chan | 54.35 | 58.67 | 83.37 | 11.68 | 4.33 | 32.06 | 2.70 | 7.14 |
| 4 | Chan | 58.67 | 62.99 | 54.59 | 10.75 | 6.52 | 21.00 | 2.49 | 5.08 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.31529

INPUT
Description:
Station Elevation Data num= 21

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2304.2 | .74 | 2304.18 | 4.51 | 2304.16 | 5.88 | 2304.16 | 7.65 | 2304.17 |
| 8.95 | 2304.17 | 9.14 | 2304.1 | 24.58 | 2298.25 | 31.27 | 2295.34 | 43.89 | 2290.07 |
| 47.23 | 2289.44 | 51.97 | 2288.49 | 55.13 | 2287.88 | 61.72 | 2289.54 | 63.7 | 2290.05 |
| 64.88 | 2290.34 | 77.05 | 2293.34 | 77.73 | 2293.36 | 77.99 | 2293.38 | 78.67 | 2293.41 |
| 96.36 | 2294.36 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .056 | 51.97 | .056 | 61.72 | .056 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 47.23 | 63.7 | 9.58 | 38.07 | 38.55 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2291.75 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.46 | Wt. n-Val. | 0.056 | 0.056 | 0.056 |
| W.S. Elev (ft) | 2291.29 | Reach Len. (ft) | 9.58 | 38.07 | 38.55 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 6.89 | 40.76 | 3.11 |
| E.G. Slope (ft/ft) | 0.014054 | Area (sq ft) | 6.89 | 40.76 | 3.11 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 22.42 | 230.61 | 6.97 |
| Top Width (ft) | 27.75 | Top Width (ft) | 6.26 | 16.47 | 5.02 |
| Vel Total (ft/s) | 5.12 | Avg. Vel. (ft/s) | 3.25 | 5.66 | 2.24 |
| Max Chl Dpth (ft) | 3.41 | Hydr. Depth (ft) | 1.10 | 2.47 | 0.62 |
| Conv. Total (cfs) | 2193.1 | Conv. (cfs) | 189.1 | 1945.3 | 58.8 |
| Length Wtd. (ft) | 35.68 | Wetted Per. (ft) | 6.56 | 16.89 | 5.17 |
| Min Ch El (ft) | 2287.88 | Shear (lb/sq ft) | 0.92 | 2.12 | 0.53 |
| Alpha | 1.12 | Stream Power (lb/ft s) | 3.00 | 11.98 | 1.18 |
| Frctn Loss (ft) | 0.09 | Cum Volume (acre-ft) | 0.67 | 4.18 | 0.98 |
| C & E Loss (ft) | 0.12 | Cum SA (acres) | 0.71 | 1.72 | 1.11 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2292.42 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.37 | Wt. n-Val. | | 0.056 | |
| W.S. Elev (ft) | 2292.06 | Reach Len. (ft) | 9.58 | 38.07 | 38.55 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 53.41 | |
| E.G. Slope (ft/ft) | 0.010011 | Area (sq ft) | | 53.41 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 16.47 | Top Width (ft) | | 16.47 | |
| Vel Total (ft/s) | 4.87 | Avg. Vel. (ft/s) | | 4.87 | |
| Max Chl Dpth (ft) | 4.18 | Hydr. Depth (ft) | | 3.24 | |
| Conv. Total (cfs) | 2598.5 | Conv. (cfs) | | 2598.5 | |
| Length Wtd. (ft) | 38.07 | Wetted Per. (ft) | | 21.52 | |
| Min Ch El (ft) | 2287.88 | Shear (lb/sq ft) | | 1.55 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 7.55 | |
| Frctn Loss (ft) | 0.10 | Cum Volume (acre-ft) | 0.00 | 4.74 | 0.01 |
| C & E Loss (ft) | 0.09 | Cum SA (acres) | 0.00 | 1.73 | 0.00 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 35.42 | 47.23 | 22.42 | 6.89 | 6.56 | 8.62 | 1.10 | 3.25 |
| 2 | Chan | 47.23 | 51.35 | 48.61 | 9.31 | 4.20 | 18.70 | 2.26 | 5.22 |
| 3 | Chan | 51.35 | 55.47 | 80.92 | 12.63 | 4.20 | 31.12 | 3.07 | 6.40 |
| 4 | Chan | 55.47 | 59.58 | 69.14 | 11.55 | 4.25 | 26.59 | 2.80 | 5.99 |
| 5 | Chan | 59.58 | 63.70 | 31.93 | 7.27 | 4.25 | 12.28 | 1.76 | 4.39 |
| 6 | ROB | 63.70 | 71.87 | 6.97 | 3.11 | 5.17 | 2.68 | 0.62 | 2.24 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 47.23 | 51.35 | 45.38 | 12.47 | 6.82 | 17.45 | 3.03 | 3.64 |
| 2 | Chan | 51.35 | 55.47 | 92.96 | 15.80 | 4.20 | 35.75 | 3.84 | 5.88 |
| 3 | Chan | 55.47 | 59.58 | 81.94 | 14.71 | 4.25 | 31.51 | 3.57 | 5.57 |
| 4 | Chan | 59.58 | 63.70 | 39.72 | 10.43 | 6.26 | 15.28 | 2.53 | 3.81 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.30808

INPUT
Description:
Station Elevation Data num= 54

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2304.14 | 3.54 | 2304.16 | 3.87 | 2304.17 | 4.42 | 2304.18 | 8.46 | 2304.27 |
| 10.28 | 2303.9 | 10.52 | 2303.89 | 11.09 | 2303.78 | 12.28 | 2303.29 | 12.89 | 2303.01 |
| 14.58 | 2302.16 | 14.8 | 2302.1 | 19.98 | 2300.18 | 20.48 | 2300.01 | 24.18 | 2298.48 |
| 25.14 | 2298.19 | 25.66 | 2298.01 | 29.02 | 2296.57 | 30.79 | 2295.67 | 31.96 | 2295.31 |
| 41.53 | 2292.43 | 45.46 | 2291.73 | 48.02 | 2291.13 | 55.37 | 2289.22 | 56.49 | 2289 |
| 59.11 | 2288.51 | 66.24 | 2287.81 | 67.49 | 2287.69 | 71.88 | 2287.29 | 78.07 | 2287.87 |
| 80.23 | 2288.08 | 80.77 | 2288.15 | 81.3 | 2288.19 | 87.1 | 2288.97 | 87.37 | 2289.01 |
| 87.8 | 2289.06 | 88.76 | 2289.12 | 89.56 | 2289.14 | 91.36 | 2289.17 | 91.85 | 2289.24 |
| 100.05 | 2289.85 | 101.79 | 2290.06 | 101.87 | 2290.07 | 106.38 | 2290.3 | 116.22 | 2291 |
| 116.41 | 2290.99 | 116.66 | 2291 | 120.33 | 2291.41 | 124.1 | 2291.87 | 124.23 | 2291.87 |
| 127.41 | 2292.47 | 127.64 | 2292.48 | 127.97 | 2292.55 | 130.73 | 2292.99 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .056 | 66.24 | .056 | 78.07 | .056 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 59.11 | 87.8 | 454.85 | 459.02 | 461 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2291.53 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.05 | Wt. n-Val. | 0.056 | 0.056 | 0.056 |
| W.S. Elev (ft) | 2291.48 | Reach Len. (ft) | 454.85 | 459.02 | 461.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 19.69 | 99.77 | 43.47 |
| E.G. Slope (ft/ft) | 0.001014 | Area (sq ft) | 19.69 | 99.77 | 43.47 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 21.99 | 194.08 | 43.92 |
| Top Width (ft) | 74.42 | Top Width (ft) | 12.60 | 28.69 | 33.13 |
| Vel Total (ft/s) | 1.60 | Avg. Vel. (ft/s) | 1.12 | 1.95 | 1.01 |
| Max Chl Dpth (ft) | 4.19 | Hydr. Depth (ft) | 1.56 | 3.48 | 1.31 |
| Conv. Total (cfs) | 8166.6 | Conv. (cfs) | 690.9 | 6096.2 | 1379.6 |
| Length Wtd. (ft) | 458.93 | Wetted Per. (ft) | 12.95 | 28.85 | 33.23 |
| Min Ch El (ft) | 2287.29 | Shear (lb/sq ft) | 0.10 | 0.22 | 0.08 |
| Alpha | 1.22 | Stream Power (lb/ft s) | 0.11 | 0.43 | 0.08 |
| Frctn Loss (ft) | 1.30 | Cum Volume (acre-ft) | 0.67 | 4.12 | 0.96 |
| C & E Loss (ft) | 0.06 | Cum SA (acres) | 0.71 | 1.70 | 1.09 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2292.23 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.07 | Wt. n-Val. | | 0.056 | |
| W.S. Elev (ft) | 2292.16 | Reach Len. (ft) | 454.85 | 459.02 | 461.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 119.09 | |
| E.G. Slope (ft/ft) | 0.001258 | Area (sq ft) | | 119.09 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 28.69 | Top Width (ft) | | 28.69 | |
| Vel Total (ft/s) | 2.18 | Avg. Vel. (ft/s) | | 2.18 | |
| Max Chl Dpth (ft) | 4.87 | Hydr. Depth (ft) | | 4.15 | |
| Conv. Total (cfs) | 7330.3 | Conv. (cfs) | | 7330.3 | |
| Length Wtd. (ft) | 459.02 | Wetted Per. (ft) | | 35.59 | |
| Min Ch El (ft) | 2287.29 | Shear (lb/sq ft) | | 0.26 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.57 | |
| Frctn Loss (ft) | 1.40 | Cum Volume (acre-ft) | 0.00 | 4.67 | 0.01 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 0.00 | 1.71 | 0.00 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 44.33 | 59.11 | 22.00 | 19.69 | 12.95 | 8.46 | 1.56 | 1.12 |
| 2 | Chan | 59.11 | 66.28 | 44.71 | 23.85 | 7.21 | 17.20 | 3.33 | 1.87 |
| 3 | Chan | 66.28 | 73.46 | 60.28 | 28.53 | 7.20 | 23.18 | 3.98 | 2.11 |
| 4 | Chan | 73.46 | 80.63 | 53.60 | 26.59 | 7.21 | 20.62 | 3.71 | 2.02 |
| 5 | Chan | 80.63 | 87.80 | 35.50 | 20.80 | 7.23 | 13.65 | 2.90 | 1.71 |
| 6 | ROB | 87.80 | 98.53 | 27.86 | 22.82 | 10.76 | 10.72 | 2.13 | 1.22 |
| 7 | ROB | 98.53 | 109.27 | 12.80 | 14.31 | 10.76 | 4.92 | 1.33 | 0.89 |
| 8 | ROB | 109.27 | 120.00 | 3.25 | 6.29 | 10.77 | 1.25 | 0.59 | 0.52 |
| 9 | ROB | 120.00 | 130.73 | 0.01 | 0.05 | 0.94 | 0.00 | 0.06 | 0.11 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 59.11 | 66.28 | 51.21 | 28.68 | 10.85 | 19.70 | 4.00 | 1.79 |
| 2 | Chan | 66.28 | 73.46 | 86.58 | 33.36 | 7.20 | 33.30 | 4.65 | 2.60 |
| 3 | Chan | 73.46 | 80.63 | 78.34 | 31.42 | 7.21 | 30.13 | 4.38 | 2.49 |
| 4 | Chan | 80.63 | 87.80 | 43.87 | 25.63 | 10.33 | 16.87 | 3.57 | 1.71 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.30459

INPUT
Description:
Station Elevation Data num= 41

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2302.64 | 2.46 | 2302.05 | 4.79 | 2301.68 | 8.75 | 2301.04 | 9.06 | 2300.97 |
| 9.68 | 2300.87 | 9.81 | 2300.81 | 10.15 | 2300.76 | 12.09 | 2300.06 | 25.47 | 2295.82 |
| 27.75 | 2295.39 | 28.1 | 2295.28 | 34.91 | 2292.97 | 38.45 | 2292.3 | 40.76 | 2291.94 |
| 42.71 | 2291.72 | 47.5 | 2290.75 | 49.76 | 2290.43 | 52.61 | 2289.99 | 58.55 | 2288.97 |
| 63.17 | 2288.14 | 66.72 | 2287.55 | 67.8 | 2287.37 | 70.76 | 2286.9 | 78.13 | 2288.32 |
| 79.06 | 2288.49 | 79.69 | 2288.6 | 80.7 | 2288.66 | 88.16 | 2288.95 | 90.58 | 2289.4 |
| 98.08 | 2290.76 | 100.13 | 2291.13 | 100.9 | 2291.26 | 102.52 | 2291.37 | 106.31 | 2292.27 |
| 107.53 | 2292.65 | 109.04 | 2292.77 | 111.71 | 2293.37 | 113.04 | 2293.58 | 115.89 | 2294 |
| 116.08 | 2294.02 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .056 | 66.72 | .056 | 78.13 | .056 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 63.17 | 80.7 | 12.08 | 14.7 | 17.7 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2290.18 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.60 | Wt. n-Val. | 0.056 | 0.056 | 0.056 |
| W.S. Elev (ft) | 2289.58 | Reach Len. (ft) | 12.08 | 14.70 | 17.70 |
| Crit W.S. (ft) | 2289.54 | Flow Area (sq ft) | 5.83 | 32.93 | 6.87 |
| E.G. Slope (ft/ft) | 0.026334 | Area (sq ft) | 5.83 | 32.93 | 6.87 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 19.83 | 218.51 | 21.67 |
| Top Width (ft) | 36.59 | Top Width (ft) | 8.18 | 17.53 | 10.88 |
| Vel Total (ft/s) | 5.70 | Avg. Vel. (ft/s) | 3.40 | 6.64 | 3.16 |
| Max Chl Dpth (ft) | 2.68 | Hydr. Depth (ft) | 0.71 | 1.88 | 0.63 |
| Conv. Total (cfs) | 1602.2 | Conv. (cfs) | 122.2 | 1346.5 | 133.5 |
| Length Wtd. (ft) | 15.02 | Wetted Per. (ft) | 8.31 | 17.79 | 10.94 |
| Min Ch El (ft) | 2286.90 | Shear (lb/sq ft) | 1.15 | 3.04 | 1.03 |
| Alpha | 1.19 | Stream Power (lb/ft s) | 3.92 | 20.19 | 3.25 |
| Frctn Loss (ft) | 0.41 | Cum Volume (acre-ft) | 0.54 | 3.42 | 0.70 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 0.60 | 1.46 | 0.86 |

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2290.79 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.52 | Wt. n-Val. | | 0.056 | |
| W.S. Elev (ft) | 2290.27 | Reach Len. (ft) | 12.08 | 14.70 | 17.70 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 44.98 | |
| E.G. Slope (ft/ft) | 0.015545 | Area (sq ft) | | 44.98 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 17.53 | Top Width (ft) | | 17.53 | |
| Vel Total (ft/s) | 5.78 | Avg. Vel. (ft/s) | | 5.78 | |
| Max Chl Dpth (ft) | 3.37 | Hydr. Depth (ft) | | 2.57 | |
| Conv. Total (cfs) | 2085.3 | Conv. (cfs) | | 2085.3 | |
| Length Wtd. (ft) | 14.70 | Wetted Per. (ft) | | 21.53 | |
| Min Ch El (ft) | 2286.90 | Shear (lb/sq ft) | | 2.03 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 11.72 | |
| Frctn Loss (ft) | 0.30 | Cum Volume (acre-ft) | 0.00 | 3.80 | 0.01 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.00 | 1.46 | 0.00 |

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 47.38 | 63.17 | 19.83 | 5.83 | 8.31 | 7.63 | 0.71 | 3.40 |
| 2 | Chan | 63.17 | 67.55 | 49.57 | 7.91 | 4.44 | 19.06 | 1.81 | 6.26 |
| 3 | Chan | 67.55 | 71.94 | 83.23 | 10.80 | 4.44 | 32.01 | 2.46 | 7.71 |
| 4 | Chan | 71.94 | 76.32 | 60.21 | 8.91 | 4.46 | 23.16 | 2.03 | 6.76 |
| 5 | Chan | 76.32 | 80.70 | 25.50 | 5.31 | 4.44 | 9.81 | 1.21 | 4.80 |
| 6 | ROB | 80.70 | 89.55 | 21.18 | 6.49 | 8.87 | 8.14 | 0.73 | 3.26 |
| 7 | ROB | 89.55 | 98.39 | 0.49 | 0.38 | 2.07 | 0.19 | 0.19 | 1.29 |

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 63.17 | 67.55 | 50.69 | 10.93 | 6.57 | 19.50 | 2.49 | 4.64 |
| 2 | Chan | 67.55 | 71.94 | 97.26 | 13.81 | 4.44 | 37.41 | 3.15 | 7.04 |
| 3 | Chan | 71.94 | 76.32 | 75.87 | 11.92 | 4.46 | 29.18 | 2.72 | 6.36 |
| 4 | Chan | 76.32 | 80.70 | 36.18 | 8.32 | 6.05 | 13.92 | 1.90 | 4.35 |

CROSS SECTION

```
RIVER: Ocotillo Wash 1
REACH: Tributary-2.1      RS: 0.30181

INPUT
Description:
Station Elevation Data    num=      32
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
       0    2299    2.14 2298.63    3.07  2298.4    6.37  2297.6    9.81 2296.86
   12.44 2296.42   18.88 2294.79   26.68 2293.42   31.86 2292.73   37.16 2291.78
   38.86 2291.54   43.02 2290.88   49.44 2289.89   53.41 2289.31    57.6  2288.1
   58.63  2287.8   63.42 2286.59   64.36 2286.35    72.4 2288.15   72.65 2288.21
   72.76 2288.24   73.56 2288.24   83.65 2288.32    86.9 2288.23   91.57 2289.16
   93.24 2289.49   94.35 2289.79   103.3 2292.17  109.12 2293.72  109.86  2293.8
  112.07 2294.32  112.79 2294.42

Manning's n Values        num=       3
    Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
       0    .056   63.42    .056   73.56    .056

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          57.6   72.76             38.67   24.75   20.53             .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)          * 2289.77  * Element                * Left OB * Channel * Right OB *
* Vel Head (ft)           *    0.59  * Wt. n-Val.             *  0.056  *  0.056  *   0.056  *
* W.S. Elev (ft)          * 2289.17  * Reach Len. (ft)        *  38.67  *  24.75  *   20.53  *
* Crit W.S. (ft)          * 2289.17  * Flow Area (sq ft)      *   2.00  *  29.10  *   14.93  *
* E.G. Slope (ft/ft)      *0.028408  * Area (sq ft)           *   2.00  *  29.10  *   14.93  *
* Q Total (cfs)           *  260.00  * Flow (cfs)             *   5.75  * 197.31  *   56.94  *
* Top Width (ft)          *   37.76  * Top Width (ft)         *   3.72  *  15.16  *   18.88  *
* Vel Total (ft/s)        *    5.65  * Avg. Vel. (ft/s)       *   2.88  *   6.78  *    3.81  *
* Max Chl Dpth (ft)       *    2.82  * Hydr. Depth (ft)       *   0.54  *   1.92  *    0.79  *
* Conv. Total (cfs)       *  1542.6  * Conv. (cfs)            *   34.1  * 1170.7  *   337.8  *
* Length Wtd. (ft)        *   24.35  * Wetted Per. (ft)       *   3.87  *  15.59  *   18.98  *
* Min Ch El (ft)          * 2286.35  * Shear (lb/sq ft)       *   0.91  *   3.31  *    1.40  *
* Alpha                   *    1.20  * Stream Power (lb/ft s) *   2.63  *  22.44  *    5.32  *
* Frctn Loss (ft)         *    0.65  * Cum Volume (acre-ft)   *   0.54  *   3.41  *    0.69  *
* C & E Loss (ft)         *    0.00  * Cum SA (acres)         *   0.59  *   1.45  *    0.85  *
*****************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program selected the water surface that had the least amount of error between computed and
         assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Warning: The composite Mannings n value for the channel was larger than the largest entered n value or
         smaller than the smallest entered n value.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************
* E.G. Elev (ft)          * 2290.47  * Element                * Left OB * Channel * Right OB *
* Vel Head (ft)           *    0.76  * Wt. n-Val.             *        *   0.056  *        *
* W.S. Elev (ft)          * 2289.71  * Reach Len. (ft)        *  38.67  *  24.75  *   20.53  *
* Crit W.S. (ft)          * 2289.33  * Flow Area (sq ft)      *        *  37.24  *        *
* E.G. Slope (ft/ft)      *0.027592  * Area (sq ft)           *        *  37.24  *        *
* Q Total (cfs)           *  260.00  * Flow (cfs)             *        * 260.00  *        *
* Top Width (ft)          *   15.16  * Top Width (ft)         *        *  15.16  *        *
* Vel Total (ft/s)        *    6.98  * Avg. Vel. (ft/s)       *        *   6.98  *        *
* Max Chl Dpth (ft)       *    3.36  * Hydr. Depth (ft)       *        *   2.46  *        *
* Conv. Total (cfs)       *  1565.2  * Conv. (cfs)            *        * 1565.2  *        *
* Length Wtd. (ft)        *   24.75  * Wetted Per. (ft)       *        *  18.67  *        *
* Min Ch El (ft)          * 2286.35  * Shear (lb/sq ft)       *        *   3.43  *        *
* Alpha                   *    1.00  * Stream Power (lb/ft s) *        *  23.98  *        *
* Frctn Loss (ft)         *    0.88  * Cum Volume (acre-ft)   *   0.00  *   3.79  *    0.01  *
* C & E Loss (ft)         *    0.04  * Cum SA (acres)         *   0.00  *   1.46  *    0.00  *
*****************************************************************************************

Warning: The composite Mannings n value for the channel was larger than the largest entered n value or
         smaller than the smallest entered n value.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. * Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *    Conv *Depth(ft) *   (ft/s) *
* 1        * LOB      * 43.20     * 57.60     *     5.75 *     2.00 *     3.87 *    2.21 *     0.54 *     2.88 *
* 2        * Chan     * 57.60     * 61.39     *    34.68 *     6.02 *     3.92 *   13.34 *     1.59 *     5.76 *
* 3        * Chan     * 61.39     * 65.18     *    74.56 *     9.51 *     3.90 *   28.68 *     2.51 *     7.84 *
* 4        * Chan     * 65.18     * 68.97     *    60.86 *     8.40 *     3.88 *   23.41 *     2.22 *     7.25 *
* 5        * Chan     * 68.97     * 72.76     *    27.21 *     5.18 *     3.89 *   10.46 *     1.37 *     5.25 *
* 6        * ROB      * 72.76     * 82.77     *    37.13 *     9.01 *    10.01 *   14.28 *     0.90 *     4.12 *
* 7        * ROB      * 82.77     * 92.78     *    19.81 *     5.92 *     8.97 *    7.62 *     0.67 *     3.35 *
*****************************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program selected the water surface that had the least amount of error between computed and
         assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Warning: The composite Mannings n value for the channel was larger than the largest entered n value or
         smaller than the smallest entered n value.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 2
*****************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. * Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *    Conv *Depth(ft) *   (ft/s) *
* 1        * Chan     * 57.60     * 61.39     *    42.61 *     8.05 *     5.53 *   16.39 *     2.12 *     5.29 *
* 2        * Chan     * 61.39     * 65.18     *    97.99 *    11.54 *     3.90 *   37.69 *     3.04 *     8.49 *
* 3        * Chan     * 65.18     * 68.97     *    83.11 *    10.43 *     3.88 *   31.97 *     2.75 *     7.97 *
```

```
* 4         * Chan      * 68.97     * 72.76     *    36.28 *     7.22 *     5.36 *    13.96 *     1.90 *     5.03 *
*****************************************************************************************************************

Warning: The composite Mannings n value for the channel was larger than the largest entered n value or
         smaller than the smallest entered n value.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: Ocotillo Wash 1
REACH: Tributary-2.1      RS: 0.29712

INPUT
Description:
Station Elevation Data    num=      39
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
       0 2292.58    2.99 2292.48    3.16 2292.46    3.36 2292.44    8.67 2291.94
    9.18 2291.89   12.88 2291.64   13.12 2291.62   17.13 2291.44   17.78 2291.39
   21.58 2291.07   22.19 2291.05   27.45 2290.82   34.96 2290.14   35.83 2290.07
   36.09 2290.05   36.98 2290.01   46.33 2286.96   50.23 2285.74   50.84 2285.53
   51.98 2285.71   55.19 2286.19   60.44 2287.02   61.63 2287.21   62.84 2287.32
   65.06 2287.46   68.99 2287.69   75.62 2287.87   79.59 2288.22    84.1 2288.95
   84.34 2288.97  103.59  2295.1  104.09 2295.25  104.41 2295.34  104.73 2295.42
  104.87 2295.43  107.29 2295.48  108.81 2295.72  109.75 2295.76

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***************************************************
       0    .056   50.84    .056   60.44    .056

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        46.33   60.44             39.12   35.15   27.99             .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*************************************************************************************************
* E.G. Elev (ft)         * 2289.00  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.61  * Wt. n-Val.              *   0.056  *   0.056  *   0.056  *
* W.S. Elev (ft)         * 2288.38  * Reach Len. (ft)         *   39.12  *   35.15  *   27.99  *
* Crit W.S. (ft)         * 2288.38  * Flow Area (sq ft)       *    3.11  *   29.91  *   13.68  *
* E.G. Slope (ft/ft)     *0.025352  * Area (sq ft)            *    3.11  *   29.91  *   13.68  *
* Q Total (cfs)          *  260.00  * Flow (cfs)              *   10.12  *  205.32  *   44.56  *
* Top Width (ft)         *   38.64  * Top Width (ft)           *    4.37  *   14.11  *   20.16  *
* Vel Total (ft/s)       *    5.57  * Avg. Vel. (ft/s)         *    3.26  *    6.86  *    3.26  *
* Max Chl Dpth (ft)      *    2.85  * Hydr. Depth (ft)         *    0.71  *    2.12  *    0.68  *
* Conv. Total (cfs)      *  1632.9  * Conv. (cfs)              *    63.6  *  1289.5  *   279.8  *
* Length Wtd. (ft)       *   33.57  * Wetted Per. (ft)         *    4.59  *   14.45  *   20.23  *
* Min Ch El (ft)         * 2285.53  * Shear (lb/sq ft)         *    1.07  *    3.28  *    1.07  *
* Alpha                  *    1.27  * Stream Power (lb/ft s)   *    3.49  *   22.49  *    3.49  *
* Frctn Loss (ft)        *    0.78  * Cum Volume (acre-ft)     *    0.54  *    3.39  *    0.69  *
* C & E Loss (ft)        *    0.06  * Cum SA (acres)           *    0.59  *    1.45  *    0.85  *
*************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Warning: The composite Mannings n value for the channel was larger than the largest entered n value or
         smaller than the smallest entered n value.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT  Profile #PF 2
*************************************************************************************************
* E.G. Elev (ft)         * 2289.55  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.11  * Wt. n-Val.              *          *   0.056  *          *
* W.S. Elev (ft)         * 2288.44  * Reach Len. (ft)         *   39.12  *   35.15  *   27.99  *
* Crit W.S. (ft)         * 2288.44  * Flow Area (sq ft)       *          *   30.74  *          *
* E.G. Slope (ft/ft)     *0.047395  * Area (sq ft)            *          *   30.74  *          *
* Q Total (cfs)          *  260.00  * Flow (cfs)              *          *  260.00  *          *
* Top Width (ft)         *   14.11  * Top Width (ft)           *          *   14.11  *          *
* Vel Total (ft/s)       *    8.46  * Avg. Vel. (ft/s)         *          *    8.46  *          *
* Max Chl Dpth (ft)      *    2.91  * Hydr. Depth (ft)         *          *    2.18  *          *
* Conv. Total (cfs)      *  1194.3  * Conv. (cfs)              *          *  1194.3  *          *
* Length Wtd. (ft)       *   35.15  * Wetted Per. (ft)         *          *   17.35  *          *
* Min Ch El (ft)         * 2285.53  * Shear (lb/sq ft)         *          *    5.24  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s)   *          *   44.34  *          *
* Frctn Loss (ft)        *    1.19  * Cum Volume (acre-ft)     *    0.00  *    3.77  *    0.01  *
* C & E Loss (ft)        *    0.13  * Cum SA (acres)           *    0.00  *    1.45  *    0.00  *
*************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program selected the water surface that had the least amount of error between computed and
         assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Warning: The composite Mannings n value for the channel was larger than the largest entered n value or
         smaller than the smallest entered n value.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) * (sq ft) *    (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB      * 34.75     * 46.33     *    10.12 *    3.11 *    4.59 *     3.89 *     0.71 *     3.26 *
* 2        * Chan     * 46.33     * 49.86     *    44.19 *    6.97 *    3.70 *    17.00 *     1.98 *     6.34 *
* 3        * Chan     * 49.86     * 53.39     *    73.91 *    9.40 *    3.61 *    28.43 *     2.66 *     7.86 *
* 4        * Chan     * 53.39     * 56.91     *    53.97 *    7.75 *    3.57 *    20.76 *     2.20 *     6.97 *
* 5        * Chan     * 56.91     * 60.44     *    33.24 *    5.80 *    3.57 *    12.79 *     1.64 *     5.74 *
* 6        * ROB      * 60.44     * 72.77     *    38.30 *   10.68 *   12.36 *    14.73 *     0.87 *     3.59 *
```

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| * 7 | * ROB | * 72.77 | * 85.10 | * 6.26 * | 3.01 * | 7.87 * | 2.41 * | 0.38 * | 2.08 * |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| * | * Pos | * Left Sta (ft) | * Right Sta (ft) | * Flow (cfs) | * Area (sq ft) | * W.P. (ft) | * Percent Conv | * Hydr Depth(ft) | * Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| * 1 | * Chan | * 46.33 | * 49.86 | * 48.59 | * 7.18 | * 5.18 | * 18.69 | * 2.03 | * 6.77 |
| * 2 | * Chan | * 49.86 | * 53.39 | * 100.50 | * 9.61 | * 3.61 | * 38.66 | * 2.72 | * 10.46 |
| * 3 | * Chan | * 53.39 | * 56.91 | * 73.95 | * 7.96 | * 3.57 | * 28.44 | * 2.26 | * 9.30 |
| * 4 | * Chan | * 56.91 | * 60.44 | * 36.96 | * 6.00 | * 4.99 | * 14.21 | * 1.70 | * 6.16 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.29046

INPUT
Description:
Station Elevation Data num= 35

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2291.7 | 3.05 | 2291.62 | 3.22 | 2291.61 | 5.48 | 2291.35 | 7.13 | 2291.22 |
| 10.58 | 2291.15 | 15.04 | 2291.01 | 16.42 | 2290.93 | 21.32 | 2290.29 | 23.84 | 2290.16 |
| 26.6 | 2290.01 | 36.81 | 2286.47 | 38.41 | 2285.95 | 42.23 | 2284.63 | 43.22 | 2284.32 |
| 45.16 | 2284.62 | 50.35 | 2285.44 | 50.52 | 2285.46 | 51.45 | 2285.52 | 51.75 | 2285.54 |
| 54.1 | 2285.68 | 58.57 | 2285.95 | 61.42 | 2286.01 | 65.16 | 2286.03 | 67.91 | 2286.08 |
| 70.06 | 2286.1 | 72.34 | 2286.33 | 75.02 | 2286.73 | 78.73 | 2287.16 | 82.44 | 2287.91 |
| 92.32 | 2290.46 | 100.05 | 2292.72 | 100.78 | 2292.93 | 103.67 | 2293.72 | 104.26 | 2293.81 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .056 | 43.22 | .056 | 50.52 | .056 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 36.81 | 54.1 | 32.54 | 30.77 | 22.63 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| * E.G. Elev (ft) | * 2287.48 | * Element | * Left OB | * Channel | * Right OB |
| * Vel Head (ft) | * 0.41 | * Wt. n-Val. | * 0.056 | * 0.056 | * 0.056 |
| * W.S. Elev (ft) | * 2287.07 | * Reach Len. (ft) | * 32.54 | * 30.77 | * 22.63 |
| * Crit W.S. (ft) | * | * Flow Area (sq ft) | * 0.51 | * 31.96 | * 21.36 |
| * E.G. Slope (ft/ft) | *0.021153 | * Area (sq ft) | * 0.51 | * 31.96 | * 21.36 |
| * Q Total (cfs) | * 260.00 | * Flow (cfs) | * 0.85 | * 182.64 | * 76.50 |
| * Top Width (ft) | * 42.84 | * Top Width (ft) | * 1.72 | * 17.29 | * 23.83 |
| * Vel Total (ft/s) | * 4.83 | * Avg. Vel. (ft/s) | * 1.66 | * 5.71 | * 3.58 |
| * Max Chl Dpth (ft) | * 2.75 | * Hydr. Depth (ft) | * 0.30 | * 1.85 | * 0.90 |
| * Conv. Total (cfs) | * 1787.7 | * Conv. (cfs) | * 5.9 | * 1255.8 | * 526.0 |
| * Length Wtd. (ft) | * 28.80 | * Wetted Per. (ft) | * 1.82 | * 17.74 | * 23.90 |
| * Min Ch El (ft) | * 2284.32 | * Shear (lb/sq ft) | * 0.37 | * 2.38 | * 1.18 |
| * Alpha | * 1.15 | * Stream Power (lb/ft s) | * 0.62 | * 13.60 | * 4.23 |
| * Frctn Loss (ft) | * 0.71 | * Cum Volume (acre-ft) | * 0.53 | * 3.37 | * 0.67 |
| * C & E Loss (ft) | * 0.02 | * Cum SA (acres) | * 0.59 | * 1.43 | * 0.83 |

Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| * E.G. Elev (ft) | * 2288.18 | * Element | * Left OB | * Channel | * Right OB |
| * Vel Head (ft) | * 0.66 | * Wt. n-Val. | * | * 0.056 | * |
| * W.S. Elev (ft) | * 2287.52 | * Reach Len. (ft) | * 32.54 | * 30.77 | * 22.63 |
| * Crit W.S. (ft) | * | * Flow Area (sq ft) | * | * 39.82 | * |
| * E.G. Slope (ft/ft) | *0.025203 | * Area (sq ft) | * | * 39.82 | * |
| * Q Total (cfs) | * 260.00 | * Flow (cfs) | * | * 260.00 | * |
| * Top Width (ft) | * 17.29 | * Top Width (ft) | * | * 17.29 | * |
| * Vel Total (ft/s) | * 6.53 | * Avg. Vel. (ft/s) | * | * 6.53 | * |
| * Max Chl Dpth (ft) | * 3.20 | * Hydr. Depth (ft) | * | * 2.30 | * |
| * Conv. Total (cfs) | * 1637.8 | * Conv. (cfs) | * | * 1637.8 | * |
| * Length Wtd. (ft) | * 30.77 | * Wetted Per. (ft) | * | * 20.63 | * |
| * Min Ch El (ft) | * 2284.32 | * Shear (lb/sq ft) | * | * 3.04 | * |
| * Alpha | * 1.00 | * Stream Power (lb/ft s) | * | * 19.83 | * |
| * Frctn Loss (ft) | * 0.76 | * Cum Volume (acre-ft) | * 0.00 | * 3.74 | * 0.01 |
| * C & E Loss (ft) | * 0.00 | * Cum SA (acres) | * 0.00 | * 1.44 | * 0.00 |

Warning: The composite Mannings n value for the channel was larger than the largest entered n value or

smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 27.61 | 36.81 | 0.85 | 0.51 | 1.82 | 0.33 | 0.30 | 1.66 |
| 2 | Chan | 36.81 | 41.13 | 24.59 | 5.69 | 4.56 | 9.46 | 1.32 | 4.32 |
| 3 | Chan | 41.13 | 45.46 | 72.42 | 10.79 | 4.46 | 27.85 | 2.50 | 6.71 |
| 4 | Chan | 45.46 | 49.78 | 53.23 | 8.90 | 4.38 | 20.47 | 2.06 | 5.98 |
| 5 | Chan | 49.78 | 54.10 | 32.41 | 6.58 | 4.34 | 12.46 | 1.52 | 4.92 |
| 6 | ROB | 54.10 | 66.64 | 56.63 | 14.12 | 12.55 | 21.78 | 1.13 | 4.01 |
| 7 | ROB | 66.64 | 79.18 | 19.88 | 7.24 | 11.35 | 7.64 | 0.64 | 2.75 |

Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 36.81 | 41.13 | 37.19 | 7.66 | 5.61 | 14.31 | 1.77 | 4.86 |
| 2 | Chan | 41.13 | 45.46 | 101.43 | 12.75 | 4.46 | 39.01 | 2.95 | 7.96 |
| 3 | Chan | 45.46 | 49.78 | 78.66 | 10.86 | 4.38 | 30.25 | 2.51 | 7.24 |
| 4 | Chan | 49.78 | 54.10 | 42.72 | 8.55 | 6.18 | 16.43 | 1.98 | 5.00 |

Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.28463

INPUT
Description:
Station Elevation Data num= 31

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2295.98 | 1.66 | 2295.67 | 4.3 | 2295.07 | 6.14 | 2294.65 | 15.22 | 2292.46 |
| 17.8 | 2291.86 | 19.26 | 2291.49 | 35.44 | 2285.59 | 36.67 | 2285.04 | 38.69 | 2284.39 |
| 39.04 | 2284.26 | 40.61 | 2283.77 | 49.56 | 2284.26 | 51.96 | 2284.45 | 53.99 | 2284.61 |
| 56.24 | 2284.89 | 60.29 | 2285.37 | 64 | 2285.78 | 65.49 | 2285.93 | 71.37 | 2286.55 |
| 72.19 | 2286.57 | 72.34 | 2286.59 | 78 | 2286.66 | 80.92 | 2286.83 | 84.45 | 2287.16 |
| 84.9 | 2287.27 | 95.63 | 2289.12 | 101.19 | 2289.82 | 101.49 | 2289.86 | 101.73 | 2289.93 |
| 104.73 | 2290.67 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .056 | 40.61 | .056 | 51.96 | .056 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 36.67 | 51.96 | 21.74 | 21.3 | 19.43 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2286.75 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.65 | Wt. n-Val. | 0.056 | 0.056 | 0.056 |
| W.S. Elev (ft) | 2286.10 | Reach Len. (ft) | 21.74 | 21.30 | 19.43 |
| Crit W.S. (ft) | 2286.06 | Flow Area (sq ft) | 1.32 | 29.56 | 12.62 |
| E.G. Slope (ft/ft) | 0.029188 | Area (sq ft) | 1.32 | 29.56 | 12.62 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 3.61 | 205.95 | 50.43 |
| Top Width (ft) | 33.07 | Top Width (ft) | 2.63 | 15.29 | 15.15 |
| Vel Total (ft/s) | 5.98 | Avg. Vel. (ft/s) | 2.73 | 6.97 | 4.00 |
| Max Chl Dpth (ft) | 2.33 | Hydr. Depth (ft) | 0.50 | 1.93 | 0.83 |
| Conv. Total (cfs) | 1521.8 | Conv. (cfs) | 21.1 | 1205.5 | 295.2 |
| Length Wtd. (ft) | 20.97 | Wetted Per. (ft) | 2.84 | 15.51 | 15.24 |
| Min Ch El (ft) | 2283.77 | Shear (lb/sq ft) | 0.85 | 3.47 | 1.51 |
| Alpha | 1.17 | Stream Power (lb/ft s) | 2.32 | 24.20 | 6.03 |
| Frctn Loss (ft) | 0.56 | Cum Volume (acre-ft) | 0.53 | 3.35 | 0.67 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.59 | 1.42 | 0.82 |

Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2287.42 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.68 | Wt. n-Val. | | 0.056 | |
| W.S. Elev (ft) | 2286.74 | Reach Len. (ft) | 21.74 | 21.30 | 19.43 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 39.25 | |
| E.G. Slope (ft/ft) | 0.024505 | Area (sq ft) | | 39.25 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 15.29 | Top Width (ft) | | 15.29 | |
| Vel Total (ft/s) | 6.62 | Avg. Vel. (ft/s) | | 6.62 | |
| Max Chl Dpth (ft) | 2.97 | Hydr. Depth (ft) | | 2.57 | |
| Conv. Total (cfs) | 1660.9 | Conv. (cfs) | | 1660.9 | |
| Length Wtd. (ft) | 21.30 | Wetted Per. (ft) | | 19.49 | |
| Min Ch El (ft) | 2283.77 | Shear (lb/sq ft) | | 3.08 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 20.41 | |
| Frctn Loss (ft) | 0.70 | Cum Volume (acre-ft) | 0.00 | 3.71 | 0.01 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 0.00 | 1.42 | 0.00 |

Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 27.50 | 36.67 | 3.61 | 1.32 | 2.84 | 1.39 | 0.50 | 2.73 |
| 2 | Chan | 36.67 | 40.49 | 39.50 | 6.42 | 4.02 | 15.19 | 1.68 | 6.15 |
| 3 | Chan | 40.49 | 44.32 | 65.38 | 8.53 | 3.83 | 25.14 | 2.23 | 7.66 |
| 4 | Chan | 44.32 | 48.14 | 55.57 | 7.74 | 3.83 | 21.37 | 2.02 | 7.18 |
| 5 | Chan | 48.14 | 51.96 | 45.51 | 6.86 | 3.83 | 17.51 | 1.80 | 6.63 |
| 6 | ROB | 51.96 | 65.15 | 50.25 | 12.42 | 13.27 | 19.33 | 0.94 | 4.05 |
| 7 | ROB | 65.15 | 78.35 | 0.19 | 0.20 | 1.97 | 0.07 | 0.10 | 0.93 |

Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 36.67 | 40.49 | 46.92 | 8.85 | 5.71 | 18.04 | 2.31 | 5.30 |
| 2 | Chan | 40.49 | 44.32 | 87.38 | 10.96 | 3.83 | 33.61 | 2.87 | 7.98 |
| 3 | Chan | 44.32 | 48.14 | 77.11 | 10.16 | 3.83 | 29.66 | 2.66 | 7.59 |
| 4 | Chan | 48.14 | 51.96 | 48.60 | 9.29 | 6.12 | 18.69 | 2.43 | 5.23 |

Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.28060

INPUT
Description:
Station Elevation Data num= 31

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2297.53 | 3.5 | 2296.81 | 10.12 | 2295.44 | 12.83 | 2294.53 | 14.42 | 2294 |
| 28.29 | 2287.2 | 32.01 | 2285.45 | 34.9 | 2284.15 | 37.24 | 2283.2 | 40.98 | 2283.08 |
| 45.56 | 2283.5 | 46.93 | 2283.7 | 47.78 | 2283.85 | 49.46 | 2284.11 | 52.38 | 2284.51 |
| 52.83 | 2284.57 | 53.16 | 2284.61 | 53.82 | 2284.71 | 59.92 | 2285 | 63.62 | 2285.08 |
| 66.33 | 2285.25 | 72.23 | 2285.55 | 73.57 | 2285.72 | 75.13 | 2285.9 | 78.94 | 2286.26 |
| 81.78 | 2286.56 | 86.58 | 2286.97 | 100.31 | 2288.21 | 103.18 | 2288.5 | 105.91 | 2288.73 |
| 110.31 | 2289.11 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .056 | 37.24 | .056 | 52.83 | .056 |

Bank Sta: Left 34.9 Right 49.46 Lengths: Left 19.54 Channel 20.64 Right 20.63 Coeff Contr. .1 Expan. .3

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2286.18 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.60 | Wt. n-Val. | 0.056 | 0.056 | 0.056 |
| W.S. Elev (ft) | 2285.58 | Reach Len. (ft) | 19.54 | 20.64 | 20.63 |
| Crit W.S. (ft) | 2285.58 | Flow Area (sq ft) | 2.27 | 30.99 | 13.69 |
| E.G. Slope (ft/ft) | 0.024165 | Area (sq ft) | 2.27 | 30.99 | 13.69 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 7.04 | 209.04 | 43.92 |
| Top Width (ft) | 40.72 | Top Width (ft) | 3.16 | 14.56 | 23.00 |
| Vel Total (ft/s) | 5.54 | Avg. Vel. (ft/s) | 3.11 | 6.75 | 3.21 |
| Max Chl Dpth (ft) | 2.50 | Hydr. Depth (ft) | 0.72 | 2.13 | 0.60 |
| Conv. Total (cfs) | 1672.5 | Conv. (cfs) | 45.3 | 1344.7 | 282.5 |
| Length Wtd. (ft) | 20.61 | Wetted Per. (ft) | 3.47 | 14.81 | 23.06 |
| Min Ch El (ft) | 2283.08 | Shear (lb/sq ft) | 0.99 | 3.16 | 0.90 |
| Alpha | 1.26 | Stream Power (lb/ft s) | 3.06 | 21.29 | 2.87 |
| Frctn Loss (ft) | 0.56 | Cum Volume (acre-ft) | 0.53 | 3.33 | 0.66 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.59 | 1.41 | 0.81 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2286.67 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 1.09 | Wt. n-Val. | | 0.056 | |
| W.S. Elev (ft) | 2285.59 | Reach Len. (ft) | 19.54 | 20.64 | 20.63 |
| Crit W.S. (ft) | 2285.59 | Flow Area (sq ft) | | 31.10 | |
| E.G. Slope (ft/ft) | 0.046933 | Area (sq ft) | | 31.10 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 14.56 | Top Width (ft) | | 14.56 | |
| Vel Total (ft/s) | 8.36 | Avg. Vel. (ft/s) | | 8.36 | |
| Max Chl Dpth (ft) | 2.51 | Hydr. Depth (ft) | | 2.14 | |
| Conv. Total (cfs) | 1200.1 | Conv. (cfs) | | 1200.1 | |
| Length Wtd. (ft) | 20.64 | Wetted Per. (ft) | | 17.73 | |
| Min Ch El (ft) | 2283.08 | Shear (lb/sq ft) | | 5.14 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 42.98 | |
| Frctn Loss (ft) | 0.86 | Cum Volume (acre-ft) | 0.00 | 3.70 | 0.01 |
| C & E Loss (ft) | 0.09 | Cum SA (acres) | 0.00 | 1.42 | 0.00 |

```
Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program selected the water surface that had the least amount of error between computed and
         assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Warning: The composite Mannings n value for the channel was larger than the largest entered n value or
         smaller than the smallest entered n value.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB      * 26.18     * 34.90     *     7.04 *     2.27 *     3.47 *     2.71 *     0.72 *     3.11 *
* 2        * Chan     * 34.90     * 38.54     *    48.82 *     7.57 *     3.83 *    18.78 *     2.08 *     6.45 *
* 3        * Chan     * 38.54     * 42.18     *    66.38 *     8.93 *     3.65 *    25.53 *     2.45 *     7.43 *
* 4        * Chan     * 42.18     * 45.82     *    56.10 *     8.08 *     3.66 *    21.58 *     2.22 *     6.94 *
* 5        * Chan     * 45.82     * 49.46     *    37.75 *     6.39 *     3.68 *    14.52 *     1.76 *     5.90 *
* 6        * ROB      * 49.46     * 64.67     *    41.45 *    12.00 *    15.26 *    15.94 *     0.79 *     3.45 *
* 7        * ROB      * 64.67     * 79.88     *     2.47 *     1.69 *     7.80 *     0.95 *     0.22 *     1.46 *
*****************************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program selected the water surface that had the least amount of error between computed and
         assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Warning: The composite Mannings n value for the channel was larger than the largest entered n value or
         smaller than the smallest entered n value.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 2
*****************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan     * 34.90     * 38.54     *    53.44 *     7.60 *     5.26 *    20.55 *     2.09 *     7.03 *
* 2        * Chan     * 38.54     * 42.18     *    89.78 *     8.96 *     3.65 *    34.53 *     2.46 *    10.02 *
* 3        * Chan     * 42.18     * 45.82     *    75.91 *     8.11 *     3.66 *    29.20 *     2.23 *     9.36 *
* 4        * Chan     * 45.82     * 49.46     *    40.87 *     6.42 *     5.16 *    15.72 *     1.76 *     6.36 *
*****************************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program selected the water surface that had the least amount of error between computed and
         assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Warning: The composite Mannings n value for the channel was larger than the largest entered n value or
         smaller than the smallest entered n value.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: Ocotillo Wash 1
REACH: Tributary-2.1      RS: 0.27669

INPUT
Description:
Station Elevation Data    num=      23
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
       0 2298.69     .89 2298.64    2.88 2298.33     4.9 2298.01    6.17 2297.76
   33.94 2284.87   34.43 2284.65   36.91 2283.25   40.24 2281.73   48.01 2282.88
   53.13 2283.73   54.06 2283.89   56.07    2284   58.88 2284.11   67.78 2284.62
   74.19 2285.42   77.85 2285.77   81.88 2285.83  100.37 2287.12  111.01 2287.76
  113.06 2287.88  113.29 2287.95  113.81 2288.02

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
       0    .056   40.24    .056   53.13    .056

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          36.91   56.07             20.79   25.49   22.89            .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************************
* E.G. Elev (ft)         * 2285.38  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.68  * Wt. n-Val.              *   0.056  *   0.056  *   0.056  *
* W.S. Elev (ft)         * 2284.70  * Reach Len. (ft)         *   20.79  *   25.49  *   22.89  *
* Crit W.S. (ft)         * 2284.70  * Flow Area (sq ft)       *    1.86  *   35.42  *    4.79  *
* E.G. Slope (ft/ft)     *0.030240  * Area (sq ft)            *    1.86  *   35.42  *    4.79  *
* Q Total (cfs)          *  260.00  * Flow (cfs)              *    6.28  *  241.96  *   11.77  *
* Top Width (ft)         *   34.08  * Top Width (ft)           *    2.59  *   19.16  *   12.33  *
* Vel Total (ft/s)       *    6.18  * Avg. Vel. (ft/s)         *    3.38  *    6.83  *    2.45  *
* Max Chl Dpth (ft)      *    2.97  * Hydr. Depth (ft)         *    0.72  *    1.85  *    0.39  *
* Conv. Total (cfs)      *  1495.1  * Conv. (cfs)              *    36.1  *  1391.4  *    67.7  *
* Length Wtd. (ft)       *   25.15  * Wetted Per. (ft)         *    2.97  *   19.66  *   12.36  *
* Min Ch El (ft)         * 2281.73  * Shear (lb/sq ft)         *    1.18  *    3.40  *    0.73  *
* Alpha                  *    1.15  * Stream Power (lb/ft s)    *    4.00  *   23.23  *    1.80  *
* Frctn Loss (ft)        *    0.57  * Cum Volume (acre-ft)      *    0.53  *    3.32  *    0.66  *
* C & E Loss (ft)        *    0.05  * Cum SA (acres)            *    0.58  *    1.41  *    0.80  *
*****************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program selected the water surface that had the least amount of error between computed and
         assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
```

```
        section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Warning: The composite Mannings n value for the channel was larger than the largest entered n value or
         smaller than the smallest entered n value.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************************
* E.G. Elev (ft)         * 2285.54  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.79  * Wt. n-Val.              *          *    0.056 *          *
* W.S. Elev (ft)         * 2284.75  * Reach Len. (ft)         *   20.79  *    25.49 *    22.89 *
* Crit W.S. (ft)         * 2284.63  * Flow Area (sq ft)       *          *    36.36 *          *
* E.G. Slope (ft/ft)     *0.036958  * Area (sq ft)            *          *    36.36 *          *
* Q Total (cfs)          *  260.00  * Flow (cfs)              *          *   260.00 *          *
* Top Width (ft)         *   19.16  * Top Width (ft)          *          *    19.16 *          *
* Vel Total (ft/s)       *    7.15  * Avg. Vel. (ft/s)        *          *     7.15 *          *
* Max Chl Dpth (ft)      *    3.02  * Hydr. Depth (ft)        *          *     1.90 *          *
* Conv. Total (cfs)      *  1352.4  * Conv. (cfs)             *          *   1352.4 *          *
* Length Wtd. (ft)       *   25.49  * Wetted Per. (ft)        *          *    21.91 *          *
* Min Ch El (ft)         * 2281.73  * Shear (lb/sq ft)        *          *     3.83 *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s)  *          *    27.38 *          *
* Frctn Loss (ft)        *    0.65  * Cum Volume (acre-ft)    *    0.00  *     3.68 *     0.01 *
* C & E Loss (ft)        *    0.07  * Cum SA (acres)          *    0.00  *     1.41 *     0.00 *
*****************************************************************************************************

Warning: The composite Mannings n value for the channel was larger than the largest entered n value or
         smaller than the smallest entered n value.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) *  (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB       * 27.68     * 36.91     *     6.28 *     1.86 *     2.97 *     2.41 *     0.72 *     3.38 *
* 2        * Chan      * 36.91     * 41.70     *    86.17 *    11.53 *     5.14 *    33.14 *     2.41 *     7.47 *
* 3        * Chan      * 41.70     * 46.49     *    89.05 *    11.48 *     4.84 *    34.25 *     2.40 *     7.75 *
* 4        * Chan      * 46.49     * 51.28     *    48.61 *     7.99 *     4.85 *    18.70 *     1.67 *     6.08 *
* 5        * Chan      * 51.28     * 56.07     *    18.12 *     4.41 *     4.83 *     6.97 *     0.92 *     4.11 *
* 6        * ROB       * 56.07     * 70.51     *    11.77 *     4.79 *    12.36 *     4.53 *     0.39 *     2.45 *
*****************************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program selected the water surface that had the least amount of error between computed and
         assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Warning: The composite Mannings n value for the channel was larger than the largest entered n value or
         smaller than the smallest entered n value.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 2
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) *  (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 36.91     * 41.70     *    82.45 *    11.76 *     6.63 *    31.71 *     2.46 *     7.01 *
* 2        * Chan      * 41.70     * 46.49     *   101.06 *    11.72 *     4.84 *    38.87 *     2.45 *     8.62 *
* 3        * Chan      * 46.49     * 51.28     *    55.97 *     8.23 *     4.85 *    21.53 *     1.72 *     6.80 *
* 4        * Chan      * 51.28     * 56.07     *    20.51 *     4.65 *     5.58 *     7.89 *     0.97 *     4.41 *
*****************************************************************************************************************

Warning: The composite Mannings n value for the channel was larger than the largest entered n value or
         smaller than the smallest entered n value.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: Ocotillo Wash 1
REACH: Tributary-2.1       RS: 0.27186

INPUT
Description:
Station Elevation Data    num=      36
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
       0 2298.05    4.29 2297.91    5.34 2297.87    8.61 2297.07   18.84 2292.89
   21.89 2291.68   23.96 2290.91   30.76    2288   32.79 2287.18   35.61    2286
    37.5 2285.44   40.68 2284.44   41.69 2284.07   46.44 2282.38   46.95 2282.25
   51.59 2280.87   52.15  2280.7   58.45 2281.68   62.44 2282.26   64.92 2282.64
   67.69 2283.02   68.23 2283.13   75.58 2284.66   76.64 2284.71   80.47 2284.86
  106.65 2285.73   107.7 2285.76  108.15 2285.77  108.39 2285.78  108.53 2285.78
  109.17 2285.83  109.29 2285.84   109.5 2285.85   110.2 2285.92  119.19 2286.78
  123.21 2287.17

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
       0    .056   51.59    .056   62.44    .056

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          46.95   62.44             15.48   24.14   30.62            .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************************
* E.G. Elev (ft)         * 2284.37  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.53  * Wt. n-Val.              *    0.056 *    0.056 *    0.056 *
* W.S. Elev (ft)         * 2283.84  * Reach Len. (ft)         *   15.48  *    24.14 *    30.62 *
* Crit W.S. (ft)         *          * Flow Area (sq ft)       *    3.76  *    36.42 *     7.85 *
* E.G. Slope (ft/ft)     *0.017714  * Area (sq ft)            *    3.76  *    36.42 *     7.85 *
* Q Total (cfs)          *  260.00  * Flow (cfs)              *   11.19  *   224.09 *    24.72 *
* Top Width (ft)         *   29.29  * Top Width (ft)          *    4.61  *    15.49 *     9.19 *
```

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| * Vel Total (ft/s) | * | 5.41 | * Avg. Vel. (ft/s) | * | 2.97 | * | 6.15 | * | 3.15 | * |
| * Max Chl Dpth (ft) | * | 3.14 | * Hydr. Depth (ft) | * | 0.82 | * | 2.35 | * | 0.85 | * |
| * Conv. Total (cfs) | * | 1953.5 | * Conv. (cfs) | * | 84.1 | * | 1683.7 | * | 185.7 | * |
| * Length Wtd. (ft) | * | 24.30 | * Wetted Per. (ft) | * | 4.88 | * | 15.83 | * | 9.33 | * |
| * Min Ch El (ft) | * | 2280.70 | * Shear (lb/sq ft) | * | 0.85 | * | 2.54 | * | 0.93 | * |
| * Alpha | * | 1.16 | * Stream Power (lb/ft s) | * | 2.54 | * | 15.65 | * | 2.93 | * |
| * Frctn Loss (ft) | * | 0.27 | * Cum Volume (acre-ft) | * | 0.53 | * | 3.30 | * | 0.65 | * |
| * C & E Loss (ft) | * | 0.08 | * Cum SA (acres) | * | 0.58 | * | 1.40 | * | 0.80 | * |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| * E.G. Elev (ft) | * | 2284.82 | * Element | * | Left OB | * | Channel | * | Right OB | * |
| * Vel Head (ft) | * | 0.57 | * Wt. n-Val. | * | | * | 0.056 | * | | * |
| * W.S. Elev (ft) | * | 2284.25 | * Reach Len. (ft) | * | 15.48 | * | 24.14 | * | 30.62 | * |
| * Crit W.S. (ft) | * | | * Flow Area (sq ft) | * | | * | 42.78 | * | | * |
| * E.G. Slope (ft/ft) | * | 0.018807 | * Area (sq ft) | * | | * | 42.78 | * | | * |
| * Q Total (cfs) | * | 260.00 | * Flow (cfs) | * | | * | 260.00 | * | | * |
| * Top Width (ft) | * | 15.49 | * Top Width (ft) | * | | * | 15.49 | * | | * |
| * Vel Total (ft/s) | * | 6.08 | * Avg. Vel. (ft/s) | * | | * | 6.08 | * | | * |
| * Max Chl Dpth (ft) | * | 3.55 | * Hydr. Depth (ft) | * | | * | 2.76 | * | | * |
| * Conv. Total (cfs) | * | 1895.9 | * Conv. (cfs) | * | | * | 1895.9 | * | | * |
| * Length Wtd. (ft) | * | 24.14 | * Wetted Per. (ft) | * | | * | 19.82 | * | | * |
| * Min Ch El (ft) | * | 2280.70 | * Shear (lb/sq ft) | * | | * | 2.53 | * | | * |
| * Alpha | * | 1.00 | * Stream Power (lb/ft s) | * | | * | 15.40 | * | | * |
| * Frctn Loss (ft) | * | 0.27 | * Cum Volume (acre-ft) | * | 0.00 | * | 3.66 | * | 0.01 | * |
| * C & E Loss (ft) | * | 0.09 | * Cum SA (acres) | * | 0.00 | * | 1.40 | * | 0.00 | * |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| * | * Pos | * Left Sta (ft) | * Right Sta (ft) | * Flow (cfs) | * Area (sq ft) | * W.P. (ft) | * Percent Conv | * Hydr Depth(ft) | * Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| * 1 | * LOB | * 35.21 | * 46.95 | * 11.19 | * 3.76 | * 4.88 | * 4.30 | * 0.82 | * 2.97 |
| * 2 | * Chan | * 46.95 | * 50.82 | * 47.39 | * 8.38 | * 4.04 | * 18.23 | * 2.16 | * 5.65 |
| * 3 | * Chan | * 50.82 | * 54.70 | * 79.99 | * 11.38 | * 3.96 | * 30.76 | * 2.94 | * 7.03 |
| * 4 | * Chan | * 54.70 | * 58.57 | * 59.12 | * 9.45 | * 3.92 | * 22.74 | * 2.44 | * 6.25 |
| * 5 | * Chan | * 58.57 | * 62.44 | * 37.60 | * 7.20 | * 3.91 | * 14.46 | * 1.86 | * 5.22 |
| * 6 | * ROB | * 62.44 | * 77.63 | * 24.72 | * 7.85 | * 9.33 | * 9.51 | * 0.85 | * 3.15 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| * | * Pos | * Left Sta (ft) | * Right Sta (ft) | * Flow (cfs) | * Area (sq ft) | * W.P. (ft) | * Percent Conv | * Hydr Depth(ft) | * Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| * 1 | * Chan | * 46.95 | * 50.82 | * 47.62 | * 9.97 | * 6.04 | * 18.32 | * 2.57 | * 4.78 |
| * 2 | * Chan | * 50.82 | * 54.70 | * 97.82 | * 12.97 | * 3.96 | * 37.62 | * 3.35 | * 7.54 |
| * 3 | * Chan | * 54.70 | * 58.57 | * 75.34 | * 11.04 | * 3.92 | * 28.98 | * 2.85 | * 6.82 |
| * 4 | * Chan | * 58.57 | * 62.44 | * 39.21 | * 8.79 | * 5.90 | * 15.08 | * 2.27 | * 4.46 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.26729

INPUT
Description:
Station Elevation Data num= 52

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2297.7 | .78 | 2297.68 | 5.9 | 2297.49 | 6.31 | 2297.47 | 9.14 | 2296.71 |
| 14.83 | 2295.22 | 20.11 | 2293.59 | 21.05 | 2293.35 | 25.84 | 2292.31 | 26.21 | 2292.21 |
| 28.97 | 2291.23 | 44.16 | 2286 | 44.84 | 2285.84 | 46.24 | 2285.53 | 50.55 | 2283.59 |
| 53.58 | 2282.85 | 57.2 | 2281.94 | 58.88 | 2281.69 | 60.8 | 2281.35 | 65.34 | 2280.54 |
| 65.41 | 2280.52 | 65.56 | 2280.5 | 66.67 | 2280.63 | 69.9 | 2281 | 75.01 | 2281.59 |
| 76.29 | 2281.78 | 77.56 | 2281.98 | 83.02 | 2282.78 | 84.19 | 2282.9 | 87.57 | 2283.53 |
| 89.42 | 2283.71 | 90.35 | 2283.82 | 91.18 | 2283.9 | 94.02 | 2284 | 94.92 | 2284.03 |
| 96.01 | 2284.11 | 98.21 | 2284.17 | 99.28 | 2284.21 | 103.53 | 2284.31 | 104.58 | 2284.35 |
| 108.62 | 2284.83 | 109.52 | 2284.87 | 111.24 | 2284.92 | 112.69 | 2284.97 | 114.1 | 2285.07 |
| 124.68 | 2286.17 | 127.01 | 2286.48 | 128.87 | 2286.55 | 129.43 | 2286.57 | 132.38 | 2286.94 |
| 134.2 | 2287.03 | 136.62 | 2287.4 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .056 | 60.8 | .056 | 69.9 | .056 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 57.2 | 77.56 | 16.43 | 20.55 | 29.34 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 2284.01 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.26 | Wt. n-Val. | 0.056 | 0.056 | 0.056 |
| W.S. Elev (ft) | 2283.75 | Reach Len. (ft) | 16.43 | 20.55 | 29.34 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 6.56 | 51.63 | 10.65 |
| E.G. Slope (ft/ft) | 0.007642 | Area (sq ft) | 6.56 | 51.63 | 10.65 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 14.25 | 223.40 | 22.35 |
| Top Width (ft) | 39.60 | Top Width (ft) | 7.01 | 20.36 | 12.23 |
| Vel Total (ft/s) | 3.78 | Avg. Vel. (ft/s) | 2.17 | 4.33 | 2.10 |
| Max Chl Dpth (ft) | 3.25 | Hydr. Depth (ft) | 0.94 | 2.54 | 0.87 |
| Conv. Total (cfs) | 2974.3 | Conv. (cfs) | 163.0 | 2555.6 | 255.7 |
| Length Wtd. (ft) | 20.82 | Wetted Per. (ft) | 7.25 | 20.58 | 12.36 |
| Min Ch El (ft) | 2280.50 | Shear (lb/sq ft) | 0.43 | 1.20 | 0.41 |
| Alpha | 1.17 | Stream Power (lb/ft s) | 0.94 | 5.18 | 0.86 |
| Frctn Loss (ft) | 0.28 | Cum Volume (acre-ft) | 0.53 | 3.27 | 0.65 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 0.58 | 1.39 | 0.79 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2284.47 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.29 | Wt. n-Val. | | 0.056 | |
| W.S. Elev (ft) | 2284.18 | Reach Len. (ft) | 16.43 | 20.55 | 29.34 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 60.25 | |
| E.G. Slope (ft/ft) | 0.007456 | Area (sq ft) | | 60.25 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 20.36 | Top Width (ft) | | 20.36 | |
| Vel Total (ft/s) | 4.32 | Avg. Vel. (ft/s) | | 4.32 | |
| Max Chl Dpth (ft) | 3.68 | Hydr. Depth (ft) | | 2.96 | |
| Conv. Total (cfs) | 3011.0 | Conv. (cfs) | | 3011.0 | |
| Length Wtd. (ft) | 20.55 | Wetted Per. (ft) | | 25.01 | |
| Min Ch El (ft) | 2280.50 | Shear (lb/sq ft) | | 1.12 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 4.84 | |
| Frctn Loss (ft) | 0.21 | Cum Volume (acre-ft) | 0.00 | 3.63 | 0.01 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.00 | 1.39 | 0.00 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 42.90 | 57.20 | 14.25 | 6.56 | 7.25 | 5.48 | 0.94 | 2.17 |
| 2 | Chan | 57.20 | 62.29 | 44.29 | 11.33 | 5.16 | 17.03 | 2.22 | 3.91 |
| 3 | Chan | 62.29 | 67.38 | 74.09 | 15.41 | 5.15 | 28.50 | 3.03 | 4.81 |
| 4 | Chan | 67.38 | 72.47 | 63.36 | 14.00 | 5.12 | 24.37 | 2.75 | 4.53 |
| 5 | Chan | 72.47 | 77.56 | 41.66 | 10.90 | 5.14 | 16.02 | 2.14 | 3.82 |
| 6 | ROB | 77.56 | 92.33 | 22.35 | 10.65 | 12.36 | 8.60 | 0.87 | 2.10 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 57.20 | 62.29 | 45.95 | 13.48 | 7.40 | 17.67 | 2.65 | 3.41 |
| 2 | Chan | 62.29 | 67.38 | 90.91 | 17.57 | 5.15 | 34.96 | 3.45 | 5.18 |
| 3 | Chan | 67.38 | 72.47 | 79.36 | 16.15 | 5.12 | 30.52 | 3.17 | 4.91 |
| 4 | Chan | 72.47 | 77.56 | 43.79 | 13.05 | 7.33 | 16.84 | 2.56 | 3.36 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.26340

INPUT
Description:
Station Elevation Data num= 41

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2297.12 | 3.37 | 2297.02 | 5.64 | 2296.94 | 8.09 | 2296.86 | 10.44 | 2296.25 |
| 11.23 | 2295.89 | 35.25 | 2288.21 | 37.35 | 2288.03 | 37.87 | 2287.9 | 38.56 | 2287.76 |
| 38.79 | 2287.75 | 54.17 | 2283.34 | 54.28 | 2283.32 | 63.7 | 2282.01 | 65.33 | 2281.76 |
| 67.88 | 2281.36 | 71.37 | 2280.8 | 73.51 | 2280.45 | 79.32 | 2281.33 | 83.55 | 2281.97 |
| 84.25 | 2282.1 | 86.66 | 2282.56 | 88.42 | 2282.74 | 91.64 | 2282.95 | 96.21 | 2283.36 |
| 100.81 | 2283.64 | 102.26 | 2283.72 | 103.12 | 2283.83 | 106.95 | 2284.39 | 112.35 | 2284.96 |
| 117.26 | 2285.39 | 123.58 | 2286.96 | 125.42 | 2287.45 | 130.35 | 2288.89 | 132.7 | 2289.42 |
| 137.26 | 2290.56 | 139.74 | 2291.03 | 140.37 | 2291.15 | 142.56 | 2291.54 | 144.56 | 2291.98 |
| 147.71 | 2292.61 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .056 | 65.33 | .056 | 79.32 | .056 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 65.33 | 83.55 | 24.35 | 23.52 | 26.71 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2283.70 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.66 | Wt. n-Val. | 0.056 | 0.056 | 0.056 |
| W.S. Elev (ft) | 2283.03 | Reach Len. (ft) | 24.35 | 23.52 | 26.71 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Crit W.S. (ft) | 2283.03 | Flow Area (sq ft) | 5.62 | 34.00 | 3.70 | |
| E.G. Slope (ft/ft) | 0.028710 | Area (sq ft) | 5.62 | 34.00 | 3.70 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | 18.37 | 232.49 | 9.14 | |
| Top Width (ft) | 36.19 | Top Width (ft) | 8.98 | 18.22 | 9.00 | |
| Vel Total (ft/s) | 6.00 | Avg. Vel. (ft/s) | 3.27 | 6.84 | 2.47 | |
| Max Chl Dpth (ft) | 2.58 | Hydr. Depth (ft) | 0.63 | 1.87 | 0.41 | |
| Conv. Total (cfs) | 1534.5 | Conv. (cfs) | 108.4 | 1372.1 | 53.9 | |
| Length Wtd. (ft) | 23.88 | Wetted Per. (ft) | 9.06 | 18.44 | 9.07 | |
| Min Ch El (ft) | 2280.45 | Shear (lb/sq ft) | 1.11 | 3.30 | 0.73 | |
| Alpha | 1.19 | Stream Power (lb/ft s) | 3.63 | 22.60 | 1.80 | |
| Frctn Loss (ft) | 0.65 | Cum Volume (acre-ft) | 0.53 | 3.25 | 0.64 | |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.58 | 1.38 | 0.78 | |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2284.24 | Element | | | |
| Vel Head (ft) | 0.46 | Wt. n-Val. | | 0.056 | |
| W.S. Elev (ft) | 2283.77 | Reach Len. (ft) | 24.35 | 23.52 | 26.71 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 47.52 | |
| E.G. Slope (ft/ft) | 0.014858 | Area (sq ft) | | 47.52 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 18.22 | Top Width (ft) | | 18.22 | |
| Vel Total (ft/s) | 5.47 | Avg. Vel. (ft/s) | | 5.47 | |
| Max Chl Dpth (ft) | 3.32 | Hydr. Depth (ft) | | 2.61 | |
| Conv. Total (cfs) | 2133.0 | Conv. (cfs) | | 2133.0 | |
| Length Wtd. (ft) | 23.52 | Wetted Per. (ft) | | 22.26 | |
| Min Ch El (ft) | 2280.45 | Shear (lb/sq ft) | | 1.98 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 10.84 | |
| Frctn Loss (ft) | 0.56 | Cum Volume (acre-ft) | 0.00 | 3.60 | 0.01 |
| C & E Loss (ft) | 0.07 | Cum SA (acres) | 0.00 | 1.38 | 0.00 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 49.00 | 65.33 | 18.37 | 5.62 | 9.06 | 7.07 | 0.63 | 3.27 |
| 2 | Chan | 65.33 | 69.89 | 45.42 | 7.43 | 4.61 | 17.47 | 1.63 | 6.12 |
| 3 | Chan | 69.89 | 74.44 | 82.47 | 10.62 | 4.61 | 31.72 | 2.33 | 7.76 |
| 4 | Chan | 74.44 | 79.00 | 69.08 | 9.55 | 4.61 | 26.57 | 2.10 | 7.24 |
| 5 | Chan | 79.00 | 83.55 | 35.52 | 6.40 | 4.61 | 13.66 | 1.41 | 5.55 |
| 6 | ROB | 83.55 | 99.59 | 9.13 | 3.70 | 9.07 | 3.51 | 0.41 | 2.47 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 65.33 | 69.89 | 46.82 | 10.81 | 6.63 | 18.01 | 2.37 | 4.33 |
| 2 | Chan | 69.89 | 74.44 | 91.79 | 14.00 | 4.61 | 35.30 | 3.07 | 6.56 |
| 3 | Chan | 74.44 | 79.00 | 80.41 | 12.93 | 4.61 | 30.93 | 2.84 | 6.22 |
| 4 | Chan | 79.00 | 83.55 | 40.98 | 9.78 | 6.41 | 15.76 | 2.15 | 4.19 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.25894

INPUT
Description:
Station Elevation Data num= 48

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2296.29 | 4.39 | 2296.08 | 5.57 | 2296.02 | 6.42 | 2295.78 | 18.62 | 2292.28 |
| 25.42 | 2289.43 | 30.77 | 2287.25 | 47.54 | 2283.14 | 47.78 | 2283.08 | 62.4 | 2281.99 |
| 65.7 | 2281.7 | 69.77 | 2280.95 | 70.33 | 2280.85 | 76.38 | 2279.68 | 83.6 | 2280.82 |
| 84.13 | 2280.83 | 84.18 | 2280.83 | 89.09 | 2281.51 | 94.55 | 2282.05 | 95.03 | 2282.07 |
| 95.76 | 2282.14 | 97.02 | 2282.3 | 99.41 | 2282.67 | 101.14 | 2282.95 | 102.33 | 2283.19 |
| 102.68 | 2283.29 | 107.56 | 2283.8 | 108.35 | 2283.85 | 112.16 | 2284.32 | 115.15 | 2284.95 |
| 117.26 | 2285.25 | 119.54 | 2285.63 | 121.68 | 2286.08 | 124.94 | 2286.89 | 127.52 | 2287.64 |
| 128.9 | 2287.97 | 133.74 | 2289.09 | 140.1 | 2291.02 | 141.22 | 2291.35 | 142.6 | 2292 |
| 142.74 | 2292.06 | 144.51 | 2292.33 | 149.39 | 2293.19 | 154.2 | 2294.04 | 155.63 | 2294.43 |
| 155.76 | 2294.43 | 156.09 | 2294.48 | 156.35 | 2294.51 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .056 | 70.33 | .056 | 84.13 | .056 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 69.77 | 83.6 | 29.12 | 29.8 | 24.16 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2283.00 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.62 | Wt. n-Val. | 0.056 | 0.056 | 0.056 |
| W.S. Elev (ft) | 2282.38 | Reach Len. (ft) | 29.12 | 29.80 | 24.16 |
| Crit W.S. (ft) | 2282.38 | Flow Area (sq ft) | 7.04 | 28.95 | 10.65 |
| E.G. Slope (ft/ft) | 0.025952 | Area (sq ft) | 7.04 | 28.95 | 10.65 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 20.34 | 200.94 | 38.72 |
| Top Width (ft) | 40.30 | Top Width (ft) | 12.55 | 13.83 | 13.91 |
| Vel Total (ft/s) | 5.58 | Avg. Vel. (ft/s) | 2.89 | 6.94 | 3.64 |
| Max Chl Dpth (ft) | 2.70 | Hydr. Depth (ft) | 0.56 | 2.09 | 0.77 |
| Conv. Total (cfs) | 1614.0 | Conv. (cfs) | 126.3 | 1247.4 | 240.4 |
| Length Wtd. (ft) | 29.18 | Wetted Per. (ft) | 12.65 | 14.04 | 14.01 |
| Min Ch El (ft) | 2279.68 | Shear (lb/sq ft) | 0.90 | 3.34 | 1.23 |
| Alpha | 1.28 | Stream Power (lb/ft s) | 2.61 | 23.19 | 4.48 |
| Frctn Loss (ft) | 0.67 | Cum Volume (acre-ft) | 0.52 | 3.23 | 0.64 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.57 | 1.37 | 0.78 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2283.62 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 1.12 | Wt. n-Val. | | 0.056 | |
| W.S. Elev (ft) | 2282.50 | Reach Len. (ft) | 29.12 | 29.80 | 24.16 |
| Crit W.S. (ft) | 2282.50 | Flow Area (sq ft) | | 30.60 | |
| E.G. Slope (ft/ft) | 0.043398 | Area (sq ft) | | 30.60 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 13.83 | Top Width (ft) | | 13.83 | |
| Vel Total (ft/s) | 8.50 | Avg. Vel. (ft/s) | | 8.50 | |
| Max Chl Dpth (ft) | 2.82 | Hydr. Depth (ft) | | 2.21 | |
| Conv. Total (cfs) | 1248.1 | Conv. (cfs) | | 1248.1 | |
| Length Wtd. (ft) | 29.80 | Wetted Per. (ft) | | 17.26 | |
| Min Ch El (ft) | 2279.68 | Shear (lb/sq ft) | | 4.80 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 40.81 | |
| Frctn Loss (ft) | 0.72 | Cum Volume (acre-ft) | 0.00 | 3.58 | 0.01 |
| C & E Loss (ft) | 0.18 | Cum SA (acres) | 0.00 | 1.37 | 0.00 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 52.33 | 69.77 | 20.34 | 7.04 | 12.65 | 7.82 | 0.56 | 2.89 |
| 2 | Chan | 69.77 | 73.23 | 36.87 | 6.06 | 3.52 | 14.18 | 1.75 | 6.08 |
| 3 | Chan | 73.23 | 76.69 | 62.94 | 8.35 | 3.52 | 24.21 | 2.42 | 7.53 |
| 4 | Chan | 76.69 | 80.14 | 61.40 | 8.21 | 3.50 | 23.62 | 2.38 | 7.48 |
| 5 | Chan | 80.14 | 83.60 | 39.73 | 6.32 | 3.50 | 15.28 | 1.83 | 6.28 |
| 6 | ROB | 83.60 | 101.79 | 38.72 | 10.65 | 14.01 | 14.89 | 0.77 | 3.64 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 69.77 | 73.23 | 41.73 | 6.47 | 5.07 | 16.05 | 1.87 | 6.45 |
| 2 | Chan | 73.23 | 76.69 | 88.18 | 8.76 | 3.52 | 33.92 | 2.54 | 10.06 |
| 3 | Chan | 76.69 | 80.14 | 86.13 | 8.62 | 3.50 | 33.13 | 2.49 | 9.99 |
| 4 | Chan | 80.14 | 83.60 | 43.96 | 6.74 | 5.18 | 16.91 | 1.95 | 6.53 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.25330

INPUT
Description:
Station Elevation Data num= 36

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2295.92 | 3.67 | 2295.61 | 4.02 | 2295.53 | 12.15 | 2293.7 | 18.44 | 2292.16 |
| 30.72 | 2287.01 | 43.99 | 2282.84 | 46.62 | 2282.01 | 53.46 | 2281.61 | 66.52 | 2280.9 |
| 72.26 | 2279.78 | 76.39 | 2279.03 | 78.98 | 2278.56 | 84.81 | 2279.42 | 89.91 | 2280.17 |
| 91.92 | 2280.45 | 92.1 | 2280.48 | 92.27 | 2280.49 | 92.44 | 2280.52 | 98.51 | 2281.31 |
| 100.87 | 2281.66 | 105.57 | 2282.31 | 112.11 | 2283.33 | 112.77 | 2283.38 | 122.14 | 2284.52 |
| 125.57 | 2284.74 | 127.95 | 2285.14 | 131.29 | 2285.8 | 132.21 | 2285.91 | 133.46 | 2286.11 |
| 139.59 | 2287.97 | 141.95 | 2288.84 | 143.28 | 2289.27 | 156.38 | 2290.68 | 158.38 | 2290.9 |
| 160.24 | 2291.19 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .056 | 76.39 | .056 | 84.81 | .056 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 72.26 | 89.91 | 23.69 | 16.58 | 16.88 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2281.89 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.54 | Wt. n-Val. | 0.056 | 0.056 | 0.056 |
| W.S. Elev (ft) | 2281.36 | Reach Len. (ft) | 23.69 | 16.58 | 16.88 |
| Crit W.S. (ft) | 2281.20 | Flow Area (sq ft) | 7.73 | 36.43 | 5.23 |
| E.G. Slope (ft/ft) | 0.020510 | Area (sq ft) | 7.73 | 36.43 | 5.23 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 19.57 | 226.56 | 13.87 |
| Top Width (ft) | 40.67 | Top Width (ft) | 14.11 | 17.65 | 8.90 |
| Vel Total (ft/s) | 5.26 | Avg. Vel. (ft/s) | 2.53 | 6.22 | 2.65 |
| Max Chl Dpth (ft) | 2.80 | Hydr. Depth (ft) | 0.55 | 2.06 | 0.59 |
| Conv. Total (cfs) | 1815.5 | Conv. (cfs) | 136.6 | 1582.0 | 96.8 |
| Length Wtd. (ft) | 17.16 | Wetted Per. (ft) | 14.23 | 17.88 | 8.98 |
| Min Ch El (ft) | 2278.56 | Shear (lb/sq ft) | 0.70 | 2.61 | 0.75 |
| Alpha | 1.25 | Stream Power (lb/ft s) | 1.76 | 16.23 | 1.98 |
| Frctn Loss (ft) | 0.41 | Cum Volume (acre-ft) | 0.52 | 3.21 | 0.63 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.56 | 1.36 | 0.77 |

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2282.38 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.50 | Wt. n-Val. | | 0.056 | |
| W.S. Elev (ft) | 2281.88 | Reach Len. (ft) | 23.69 | 16.58 | 16.88 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 45.60 | |
| E.G. Slope (ft/ft) | 0.015476 | Area (sq ft) | | 45.60 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 17.65 | Top Width (ft) | | 17.65 | |
| Vel Total (ft/s) | 5.70 | Avg. Vel. (ft/s) | | 5.70 | |
| Max Chl Dpth (ft) | 3.31 | Hydr. Depth (ft) | | 2.58 | |
| Conv. Total (cfs) | 2090.0 | Conv. (cfs) | | 2090.0 | |
| Length Wtd. (ft) | 16.58 | Wetted Per. (ft) | | 21.68 | |
| Min Ch El (ft) | 2278.56 | Shear (lb/sq ft) | | 2.03 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 11.59 | |
| Frctn Loss (ft) | 0.38 | Cum Volume (acre-ft) | 0.00 | 3.56 | 0.01 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 0.00 | 1.36 | 0.00 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 54.20 | 72.26 | 19.57 | 7.73 | 14.23 | 7.53 | 0.55 | 2.53 |
| 2 | Chan | 72.26 | 76.67 | 51.50 | 8.72 | 4.48 | 19.81 | 1.98 | 5.91 |
| 3 | Chan | 76.67 | 81.09 | 82.13 | 11.52 | 4.47 | 31.59 | 2.61 | 7.13 |
| 4 | Chan | 81.09 | 85.50 | 59.93 | 9.53 | 4.46 | 23.05 | 2.16 | 6.29 |
| 5 | Chan | 85.50 | 89.91 | 33.01 | 6.66 | 4.46 | 12.70 | 1.51 | 4.96 |
| 6 | ROB | 89.91 | 107.49 | 13.87 | 5.23 | 8.98 | 5.33 | 0.59 | 2.65 |

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 72.26 | 76.67 | 51.12 | 11.01 | 6.58 | 19.66 | 2.50 | 4.64 |
| 2 | Chan | 76.67 | 81.09 | 96.51 | 13.82 | 4.47 | 37.12 | 3.13 | 6.99 |
| 3 | Chan | 81.09 | 85.50 | 74.55 | 11.82 | 4.46 | 28.67 | 2.68 | 6.31 |
| 4 | Chan | 85.50 | 89.91 | 37.82 | 8.95 | 6.16 | 14.55 | 2.03 | 4.22 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.25016

INPUT
Description:
Station Elevation Data num= 36

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2295.35 | 3.91 | 2295.3 | 4.08 | 2295.29 | 8.65 | 2294.31 | 18.01 | 2292.19 |
| 18.72 | 2292.03 | 32.44 | 2286.95 | 33.85 | 2286.53 | 50.24 | 2281.77 | 63.54 | 2280.56 |

```
  67.74 2280.14   72.09 2279.48   77.86 2278.52   79.45 2278.26   83.91 2278.89
  87.52 2279.38   91.86 2279.97   92.25 2280.03   96.85 2280.72  102.13 2281.63
 107.31 2282.47  112.41 2283.14  116.77 2283.28  122.52  2283.8  123.59 2283.89
 124.96 2284.01  130.07 2284.95  134.61 2285.65  136.69 2286.12  145.49    2288
 151.16 2289.06  153.34 2289.66  157.65 2290.28  159.55 2290.69  159.98 2290.78
 162.28 2291.04

Manning's n Values        num=       3
    Sta   n Val     Sta   n Val     Sta   n Val
**********************************************
      0    .056   77.86    .056   87.52    .056

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         72.09   87.52             20.86   22.24    18.1            .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)         * 2281.47  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.65  * Wt. n-Val.              *   0.056  *   0.056  *   0.056  *
* W.S. Elev (ft)         * 2280.82  * Reach Len. (ft)         *   20.86  *   22.24  *   18.10  *
* Crit W.S. (ft)         * 2280.82  * Flow Area (sq ft)       *    6.72  *   30.44  *    7.35  *
* E.G. Slope (ft/ft)     *0.028237  * Area (sq ft)            *    6.72  *   30.44  *    7.35  *
* Q Total (cfs)          *  260.00  * Flow (cfs)              *   20.99  *  212.32  *   26.69  *
* Top Width (ft)         *   36.72  * Top Width (ft)          *   11.39  *   15.43  *    9.90  *
* Vel Total (ft/s)       *    5.84  * Avg. Vel. (ft/s)        *    3.12  *    6.98  *    3.63  *
* Max Chl Dpth (ft)      *    2.56  * Hydr. Depth (ft)        *    0.59  *    1.97  *    0.74  *
* Conv. Total (cfs)      *  1547.3  * Conv. (cfs)             *   124.9  *  1263.5  *   158.8  *
* Length Wtd. (ft)       *   21.65  * Wetted Per. (ft)        *   11.47  *   15.61  *   10.01  *
* Min Ch El (ft)         * 2278.26  * Shear (lb/sq ft)        *    1.03  *    3.44  *    1.30  *
* Alpha                  *    1.23  * Stream Power (lb/ft s)   *    3.22  *   23.98  *    4.70  *
* Frctn Loss (ft)        *    0.43  * Cum Volume (acre-ft)    *    0.51  *    3.20  *    0.63  *
* C & E Loss (ft)        *    0.08  * Cum SA (acres)          *    0.56  *    1.35  *    0.77  *
*****************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program selected the water surface that had the least amount of error between computed and
         assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************
* E.G. Elev (ft)         * 2281.96  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.92  * Wt. n-Val.              *          *   0.056  *          *
* W.S. Elev (ft)         * 2281.04  * Reach Len. (ft)         *   20.86  *   22.24  *   18.10  *
* Crit W.S. (ft)         * 2280.90  * Flow Area (sq ft)       *          *   33.80  *          *
* E.G. Slope (ft/ft)     *0.038137  * Area (sq ft)            *          *   33.80  *          *
* Q Total (cfs)          *  260.00  * Flow (cfs)              *          *  260.00  *          *
* Top Width (ft)         *   15.43  * Top Width (ft)          *          *   15.43  *          *
* Vel Total (ft/s)       *    7.69  * Avg. Vel. (ft/s)        *          *    7.69  *          *
* Max Chl Dpth (ft)      *    2.78  * Hydr. Depth (ft)        *          *    2.19  *          *
* Conv. Total (cfs)      *  1331.4  * Conv. (cfs)             *          *  1331.4  *          *
* Length Wtd. (ft)       *   22.24  * Wetted Per. (ft)        *          *   18.82  *          *
* Min Ch El (ft)         * 2278.26  * Shear (lb/sq ft)        *          *    4.28  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s)   *          *   32.89  *          *
* Frctn Loss (ft)        *    0.49  * Cum Volume (acre-ft)    *    0.00  *    3.54  *    0.01  *
* C & E Loss (ft)        *    0.14  * Cum SA (acres)          *    0.00  *    1.35  *    0.00  *
*****************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) *  (sq ft) *    (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB       * 54.07     * 72.09     *    20.99 *     6.72 *   11.47 *     8.07 *     0.59 *     3.12 *
* 2        * Chan      * 72.09     * 75.95     *    39.25 *     6.40 *    3.91 *    15.10 *     1.66 *     6.13 *
* 3        * Chan      * 75.95     * 79.80     *    67.39 *     8.85 *    3.91 *    25.92 *     2.29 *     7.61 *
* 4        * Chan      * 79.80     * 83.66     *    64.68 *     8.63 *    3.90 *    24.88 *     2.24 *     7.50 *
* 5        * Chan      * 83.66     * 87.52     *    41.00 *     6.56 *    3.89 *    15.77 *     1.70 *     6.25 *
* 6        * ROB       * 87.52     * 106.21    *    26.69 *     7.35 *   10.01 *    10.26 *     0.74 *     3.63 *
*****************************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program selected the water surface that had the least amount of error between computed and
         assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.

  Profile #PF 2
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) *  (sq ft) *    (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 72.09     * 75.95     *    43.20 *     7.24 *    5.47 *    16.62 *     1.88 *     5.97 *
* 2        * Chan      * 75.95     * 79.80     *    87.84 *     9.69 *    3.91 *    33.78 *     2.51 *     9.06 *
* 3        * Chan      * 79.80     * 83.66     *    84.62 *     9.46 *    3.90 *    32.55 *     2.45 *     8.94 *
* 4        * Chan      * 83.66     * 87.52     *    44.34 *     7.40 *    5.55 *    17.05 *     1.92 *     5.99 *
*****************************************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.

CROSS SECTION


RIVER: Ocotillo Wash 1
REACH: Tributary-2.1       RS: 0.24595

INPUT
Description:
Station Elevation Data     num=      45
     Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev      Sta     Elev
*****************************************************************************************
```

```
       0 2294.83    2.81 2294.76    3.99 2294.72   15.99 2291.97   17.85 2291.45
   34.71 2287.06   38.14 2285.78    49.8 2281.09   54.26 2280.63   69.29 2279.03
   71.11 2278.81   76.25 2278.14   80.63 2277.57   86.61 2278.34   88.84 2278.73
   91.32 2279.04   92.33 2279.15  103.41 2280.34  106.72  2280.7  108.24  2281.3
   111.8 2281.73  111.98 2281.81  113.06    2282  117.42 2282.92  117.89 2282.99
  118.83  2283.1  123.11 2283.64  124.98 2283.89  127.46 2284.29  130.35 2284.74
  132.32 2285.01  138.33 2286.11  139.84 2286.34  144.51 2287.23  144.83  2287.3
  144.94 2287.33  152.28 2289.46  154.49 2289.99  157.65 2290.69  160.45 2291.26
  160.65  2291.3   160.9 2291.31  163.53 2291.44  163.97 2291.44  164.09 2291.45

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val
***********************************************
       0    .056   76.25    .056   92.33    .056

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.    Expan.
         71.11   88.84                 23   14.06    7.91            .1        .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)          * 2280.66  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.37  * Wt. n-Val.              *   0.056  *   0.056  *   0.056  *
* W.S. Elev (ft)          * 2280.29  * Reach Len. (ft)         *   23.00  *   14.06  *    7.91  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *    9.93  *   37.85  *   10.73  *
* E.G. Slope (ft/ft)      *0.014813  * Area (sq ft)            *    9.93  *   37.85  *   10.73  *
* Q Total (cfs)           *  260.00  * Flow (cfs)              *   25.86  *  202.46  *   31.68  *
* Top Width (ft)          *   45.47  * Top Width (ft)          *   13.65  *   17.73  *   14.09  *
* Vel Total (ft/s)        *    4.44  * Avg. Vel. (ft/s)        *    2.60  *    5.35  *    2.95  *
* Max Chl Dpth (ft)       *    2.72  * Hydr. Depth (ft)        *    0.73  *    2.13  *    0.76  *
* Conv. Total (cfs)       *  2136.3  * Conv. (cfs)             *   212.5  *  1663.4  *   260.3  *
* Length Wtd. (ft)        *   14.19  * Wetted Per. (ft)        *   13.73  *   17.89  *   14.18  *
* Min Ch El (ft)          * 2277.57  * Shear (lb/sq ft)        *    0.67  *    1.96  *    0.70  *
* Alpha                   *    1.22  * Stream Power (lb/ft s)   *    1.74  *   10.46  *    2.07  *
* Frctn Loss (ft)         *    0.22  * Cum Volume (acre-ft)     *    0.51  *    3.18  *    0.63  *
* C & E Loss (ft)         *    0.00  * Cum SA (acres)           *    0.55  *    1.34  *    0.76  *
*****************************************************************************************

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************
* E.G. Elev (ft)          * 2281.33  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.45  * Wt. n-Val.              *          *   0.056  *          *
* W.S. Elev (ft)          * 2280.88  * Reach Len. (ft)         *   23.00  *   14.06  *    7.91  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *          *   48.30  *          *
* E.G. Slope (ft/ft)      *0.014145  * Area (sq ft)            *          *   48.30  *          *
* Q Total (cfs)           *  260.00  * Flow (cfs)              *          *  260.00  *          *
* Top Width (ft)          *   17.73  * Top Width (ft)          *          *   17.73  *          *
* Vel Total (ft/s)        *    5.38  * Avg. Vel. (ft/s)        *          *    5.38  *          *
* Max Chl Dpth (ft)       *    3.31  * Hydr. Depth (ft)        *          *    2.72  *          *
* Conv. Total (cfs)       *  2186.1  * Conv. (cfs)             *          *  2186.1  *          *
* Length Wtd. (ft)        *   14.06  * Wetted Per. (ft)        *          *   22.11  *          *
* Min Ch El (ft)          * 2277.57  * Shear (lb/sq ft)        *          *    1.93  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s)   *          *   10.38  *          *
* Frctn Loss (ft)         *    0.24  * Cum Volume (acre-ft)     *    0.00  *    3.52  *    0.01  *
* C & E Loss (ft)         *    0.02  * Cum SA (acres)           *    0.00  *    1.35  *    0.00  *
*****************************************************************************************

  Profile #PF 1
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) *  (sq ft) *    (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB       * 53.33     * 71.11     *    25.86 *     9.93 *   13.73 *     9.95 *     0.73 *     2.60 *
* 2        * Chan      * 71.11     * 75.54     *    36.57 *     7.84 *    4.47 *    14.06 *     1.77 *     4.67 *
* 3        * Chan      * 75.54     * 79.98     *    58.58 *    10.40 *    4.47 *    22.53 *     2.35 *     5.63 *
* 4        * Chan      * 79.98     * 84.41     *    65.39 *    11.10 *    4.47 *    25.15 *     2.51 *     5.89 *
* 5        * Chan      * 84.41     * 88.84     *    41.92 *     8.52 *    4.48 *    16.12 *     1.92 *     4.92 *
* 6        * ROB       * 88.84     * 107.65    *    31.68 *    10.73 *   14.18 *    12.19 *     0.76 *     2.95 *
*****************************************************************************************************************

  Profile #PF 2
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) *  (sq ft) *    (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 71.11     * 75.54     *    43.44 *    10.45 *    6.54 *    16.71 *     2.36 *     4.16 *
* 2        * Chan      * 75.54     * 79.98     *    80.65 *    13.01 *    4.47 *    31.02 *     2.93 *     6.20 *
* 3        * Chan      * 79.98     * 84.41     *    88.12 *    13.72 *    4.47 *    33.89 *     3.09 *     6.42 *
* 4        * Chan      * 84.41     * 88.84     *    47.79 *    11.13 *    6.63 *    18.38 *     2.51 *     4.30 *
*****************************************************************************************************************

CROSS SECTION


RIVER: Ocotillo Wash 1
REACH: Tributary-2.1       RS: 0.24329

INPUT
Description:
Station Elevation Data     num=      51
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
***********************************************************************************
       0  2294.3     2.9 2294.21     5.2 2294.14   12.03 2292.28      15 2291.43
   26.88 2288.36   29.51 2287.69   31.66 2287.22   38.74 2285.41   40.69 2284.65
   42.81 2283.95   48.21 2281.94   53.49 2280.53   53.95 2280.37   54.81 2280.18
   56.63 2280.05   72.93 2278.97   73.88 2278.91    75.5 2278.64   79.59 2277.97
   84.23 2277.21   91.49  2278.4   93.87  2278.7   94.61 2278.81   94.79 2278.85
   97.38 2279.13  102.77 2279.72  106.07 2280.28  109.91 2280.98  110.92 2281.19
   112.4 2281.43  113.67 2281.91  116.14  2282.3  118.58 2282.58  121.55 2283.17
  124.25 2283.74  126.67 2284.11  131.48 2284.66   132.7 2284.82  137.76  2285.5
  137.98 2285.54  139.58 2285.79  142.39 2286.18  143.11 2286.32   147.9 2287.18
  155.84 2289.06  162.41 2290.93   162.6 2290.98  162.88 2291.06  163.37  2291.1
  165.84 2291.32

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val
***********************************************
       0    .056   79.59    .056   97.38    .056
```

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 75.5 | 91.49 | 13.14 | 17.79 | 13.59 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2280.44 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.41 | Wt. n-Val. | 0.056 | 0.056 | 0.056 |
| W.S. Elev (ft) | 2280.03 | Reach Len. (ft) | 13.14 | 17.79 | 13.59 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 11.55 | 34.54 | 10.92 |
| E.G. Slope (ft/ft) | 0.016291 | Area (sq ft) | 11.55 | 34.54 | 10.92 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 28.45 | 195.23 | 36.32 |
| Top Width (ft) | 47.67 | Top Width (ft) | 18.57 | 15.99 | 13.11 |
| Vel Total (ft/s) | 4.56 | Avg. Vel. (ft/s) | 2.46 | 5.65 | 3.32 |
| Max Chl Dpth (ft) | 2.82 | Hydr. Depth (ft) | 0.62 | 2.16 | 0.83 |
| Conv. Total (cfs) | 2037.1 | Conv. (cfs) | 222.9 | 1529.6 | 284.5 |
| Length Wtd. (ft) | 16.81 | Wetted Per. (ft) | 18.63 | 16.20 | 13.21 |
| Min Ch El (ft) | 2277.21 | Shear (lb/sq ft) | 0.63 | 2.17 | 0.84 |
| Alpha | 1.26 | Stream Power (lb/ft s) | 1.55 | 12.25 | 2.80 |
| Frctn Loss (ft) | 0.34 | Cum Volume (acre-ft) | 0.50 | 3.17 | 0.62 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.54 | 1.34 | 0.76 |

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2281.08 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.61 | Wt. n-Val. | | 0.056 | |
| W.S. Elev (ft) | 2280.47 | Reach Len. (ft) | 13.14 | 17.79 | 13.59 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 41.49 | |
| E.G. Slope (ft/ft) | 0.020423 | Area (sq ft) | | 41.49 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 15.99 | Top Width (ft) | | 15.99 | |
| Vel Total (ft/s) | 6.27 | Avg. Vel. (ft/s) | | 6.27 | |
| Max Chl Dpth (ft) | 3.26 | Hydr. Depth (ft) | | 2.59 | |
| Conv. Total (cfs) | 1819.3 | Conv. (cfs) | | 1819.3 | |
| Length Wtd. (ft) | 17.79 | Wetted Per. (ft) | | 20.09 | |
| Min Ch El (ft) | 2277.21 | Shear (lb/sq ft) | | 2.63 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 16.50 | |
| Frctn Loss (ft) | 0.39 | Cum Volume (acre-ft) | 0.00 | 3.51 | 0.01 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.00 | 1.34 | 0.00 |

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 56.63 | 75.50 | 28.45 | 11.55 | 18.63 | 10.94 | 0.62 | 2.46 |
| 2 | Chan | 75.50 | 79.50 | 32.86 | 6.87 | 4.05 | 12.64 | 1.72 | 4.79 |
| 3 | Chan | 79.50 | 83.50 | 56.29 | 9.48 | 4.05 | 21.65 | 2.37 | 5.94 |
| 4 | Chan | 83.50 | 87.49 | 65.20 | 10.36 | 4.05 | 25.08 | 2.59 | 6.29 |
| 5 | Chan | 87.49 | 91.49 | 40.88 | 7.83 | 4.05 | 15.72 | 1.96 | 5.22 |
| 6 | ROB | 91.49 | 110.08 | 36.32 | 10.92 | 13.21 | 13.97 | 0.83 | 3.32 |

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 75.50 | 79.50 | 40.52 | 8.60 | 5.88 | 15.58 | 2.15 | 4.71 |
| 2 | Chan | 79.50 | 83.50 | 80.83 | 11.22 | 4.05 | 31.09 | 2.81 | 7.20 |
| 3 | Chan | 83.50 | 87.49 | 91.59 | 12.10 | 4.05 | 35.23 | 3.03 | 7.57 |
| 4 | Chan | 87.49 | 91.49 | 47.06 | 9.57 | 6.12 | 18.10 | 2.39 | 4.92 |

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.23992

INPUT
Description:
Station Elevation Data num= 52

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2293.75 | 1.02 | 2293.73 | 4 | 2293.66 | 6.17 | 2293.61 | 13.38 | 2291.84 |
| 21.48 | 2290.75 | 21.65 | 2290.72 | 21.75 | 2290.69 | 30.22 | 2288.39 | 35.42 | 2286.56 |
| 38.91 | 2285.55 | 43.01 | 2284.08 | 58.05 | 2280.27 | 59.62 | 2279.87 | 60.63 | 2279.64 |
| 62.47 | 2279.53 | 79.59 | 2278.55 | 83.36 | 2278.1 | 87.26 | 2277.55 | 92.76 | 2276.82 |
| 92.82 | 2276.83 | 98.8 | 2278.13 | 101.82 | 2278.79 | 103.11 | 2279.1 | 107.12 | 2280.06 |
| 107.53 | 2280.15 | 109.39 | 2280.59 | 115.83 | 2281.49 | 118.37 | 2281.84 | 119.94 | 2282.02 |
| 122.56 | 2282.34 | 125.21 | 2282.84 | 128.23 | 2283.21 | 131.65 | 2283.51 | 133.68 | 2283.83 |
| 135.86 | 2284.09 | 136.83 | 2284.18 | 141.58 | 2285.44 | 142.44 | 2285.51 | 147.54 | 2286.31 |
| 147.87 | 2286.34 | 150.14 | 2286.88 | 150.34 | 2286.91 | 156.35 | 2288.08 | 156.42 | 2288.1 |
| 156.74 | 2288.17 | 158.6 | 2288.61 | 161.94 | 2289.36 | 161.99 | 2289.38 | 162.8 | 2289.52 |
| 165.25 | 2289.97 | 167.55 | 2290.39 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .056 | 87.26 | .056 | 103.11 | .056 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 83.36 | 98.8 | 13.84 | 42.54 | 65.07 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2280.08 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.60 | Wt. n-Val. | 0.056 | 0.056 | 0.056 |
| W.S. Elev (ft) | 2279.48 | Reach Len. (ft) | 13.84 | 42.54 | 65.07 |
| Crit W.S. (ft) | 2279.48 | Flow Area (sq ft) | 11.82 | 31.13 | 4.05 |
| E.G. Slope (ft/ft) | 0.025574 | Area (sq ft) | 11.82 | 31.13 | 4.05 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 35.33 | 209.99 | 14.68 |
| Top Width (ft) | 41.26 | Top Width (ft) | 19.94 | 15.44 | 5.88 |
| Vel Total (ft/s) | 5.53 | Avg. Vel. (ft/s) | 2.99 | 6.75 | 3.63 |
| Max Chl Dpth (ft) | 2.66 | Hydr. Depth (ft) | 0.59 | 2.02 | 0.69 |
| Conv. Total (cfs) | 1625.8 | Conv. (cfs) | 220.9 | 1313.1 | 91.8 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| * Length Wtd. (ft) | * | 39.30 | * Wetted Per. (ft) | * | 19.99 | * | 15.67 | * | 6.03 | * |
| * Min Ch El (ft) | * | 2276.82 | * Shear (lb/sq ft) | * | 0.94 | * | 3.17 | * | 1.07 | * |
| * Alpha | * | 1.26 | * Stream Power (lb/ft s) | * | 2.82 | * | 21.40 | * | 3.89 | * |
| * Frctn Loss (ft) | * | 0.94 | * Cum Volume (acre-ft) | * | 0.50 | * | 3.16 | * | 0.62 | * |
| * C & E Loss (ft) | * | 0.04 | * Cum SA (acres) | * | 0.54 | * | 1.33 | * | 0.76 | * |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| * E.G. Elev (ft) | * | 2280.68 | * Element | * | Left OB | * | Channel | * | Right OB | * |
| * Vel Head (ft) | * | 0.69 | * Wt. n-Val. | * | | * | 0.056 | * | | * |
| * W.S. Elev (ft) | * | 2279.99 | * Reach Len. (ft) | * | 13.84 | * | 42.54 | * | 65.07 | * |
| * Crit W.S. (ft) | * | | * Flow Area (sq ft) | * | | * | 39.00 | * | | * |
| * E.G. Slope (ft/ft) | * | 0.023975 | * Area (sq ft) | * | | * | 39.00 | * | | * |
| * Q Total (cfs) | * | 260.00 | * Flow (cfs) | * | | * | 260.00 | * | | * |
| * Top Width (ft) | * | 15.44 | * Top Width (ft) | * | | * | 15.44 | * | | * |
| * Vel Total (ft/s) | * | 6.67 | * Avg. Vel. (ft/s) | * | | * | 6.67 | * | | * |
| * Max Chl Dpth (ft) | * | 3.17 | * Hydr. Depth (ft) | * | | * | 2.53 | * | | * |
| * Conv. Total (cfs) | * | 1679.2 | * Conv. (cfs) | * | | * | 1679.2 | * | | * |
| * Length Wtd. (ft) | * | 42.54 | * Wetted Per. (ft) | * | | * | 19.41 | * | | * |
| * Min Ch El (ft) | * | 2276.82 | * Shear (lb/sq ft) | * | | * | 3.01 | * | | * |
| * Alpha | * | 1.00 | * Stream Power (lb/ft s) | * | | * | 20.05 | * | | * |
| * Frctn Loss (ft) | * | 1.11 | * Cum Volume (acre-ft) | * | 0.00 | * | 3.49 | * | 0.01 | * |
| * C & E Loss (ft) | * | 0.01 | * Cum SA (acres) | * | 0.00 | * | 1.33 | * | 0.00 | * |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Profile #PF 1

| * | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| * 1 | LOB | 62.52 | 83.36 | 35.33 | 11.82 | 19.99 | 13.59 | 0.59 | 2.99 |
| * 2 | Chan | 83.36 | 87.22 | 37.07 | 6.36 | 3.90 | 14.26 | 1.65 | 5.83 |
| * 3 | Chan | 87.22 | 91.08 | 59.00 | 8.40 | 3.89 | 22.69 | 2.18 | 7.02 |
| * 4 | Chan | 91.08 | 94.94 | 72.70 | 9.55 | 3.93 | 27.96 | 2.47 | 7.61 |
| * 5 | Chan | 94.94 | 98.80 | 41.22 | 6.81 | 3.95 | 15.85 | 1.77 | 6.05 |
| * 6 | ROB | 98.80 | 115.99 | 14.68 | 4.05 | 6.03 | 5.64 | 0.69 | 3.63 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #PF 2

| * | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| * 1 | Chan | 83.36 | 87.22 | 42.01 | 8.33 | 5.78 | 16.16 | 2.16 | 5.04 |
| * 2 | Chan | 87.22 | 91.08 | 78.80 | 10.37 | 3.89 | 30.31 | 2.69 | 7.60 |
| * 3 | Chan | 91.08 | 94.94 | 93.43 | 11.52 | 3.93 | 35.93 | 2.98 | 8.11 |
| * 4 | Chan | 94.94 | 98.80 | 45.77 | 8.78 | 5.81 | 17.60 | 2.28 | 5.21 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.23186

INPUT
Description:
Station Elevation Data num= 58

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2293.2 | .25 | 2293.19 | 4.53 | 2293.01 | 6.06 | 2292.94 | 8.25 | 2292.53 |
| 9.41 | 2292.38 | 15.05 | 2291.63 | 18.59 | 2290.94 | 25.19 | 2289.97 | 28.82 | 2289.36 |
| 36.39 | 2288.16 | 38.67 | 2287.39 | 39.44 | 2287.16 | 45.35 | 2285.36 | 48.7 | 2284.42 |
| 50.5 | 2283.84 | 55.3 | 2282.65 | 57.62 | 2282.23 | 58.89 | 2281.92 | 64.08 | 2280.67 |
| 68.5 | 2279.58 | 69.63 | 2279.28 | 72.42 | 2278.68 | 72.88 | 2278.57 | 78.69 | 2278.14 |
| 84.88 | 2277.79 | 88.87 | 2277.52 | 91.76 | 2277.38 | 96.37 | 2276.93 | 97.97 | 2276.77 |
| 100.66 | 2276.48 | 102.64 | 2276.28 | 106.31 | 2275.94 | 110.32 | 2276.55 | 111.5 | 2276.72 |
| 113.25 | 2276.87 | 114.9 | 2277.15 | 120.1 | 2278.01 | 123.59 | 2278.55 | 123.65 | 2278.56 |
| 129.78 | 2279.89 | 129.94 | 2279.91 | 132.5 | 2280.48 | 135.69 | 2281 | 136.96 | 2281.25 |
| 141.37 | 2282.32 | 141.9 | 2282.45 | 147.26 | 2283.58 | 147.52 | 2283.63 | 149.56 | 2283.63 |
| 151.53 | 2284.1 | 154.49 | 2284.61 | 157.03 | 2285.6 | 162.63 | 2287.08 | 166.2 | 2287.68 |
| 170.15 | 2288.39 | 171.18 | 2288.57 | 174.21 | 2289.12 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .056 | 100.66 | .056 | 111.5 | .056 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 97.97 | 113.25 | 18.04 | 17.26 | 21.08 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 2278.84 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.48 | Wt. n-Val. | 0.056 | 0.056 | 0.056 |
| W.S. Elev (ft) | 2278.36 | Reach Len. (ft) | 18.04 | 17.26 | 21.08 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 16.10 | 30.04 | 6.64 |
| E.G. Slope (ft/ft) | 0.022381 | Area (sq ft) | 16.10 | 30.04 | 6.64 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 51.48 | 187.30 | 21.21 |
| Top Width (ft) | 46.56 | Top Width (ft) | 22.20 | 15.28 | 9.09 |
| Vel Total (ft/s) | 4.93 | Avg. Vel. (ft/s) | 3.20 | 6.24 | 3.19 |
| Max Chl Dpth (ft) | 2.42 | Hydr. Depth (ft) | 0.73 | 1.97 | 0.73 |
| Conv. Total (cfs) | 1737.9 | Conv. (cfs) | 344.1 | 1252.0 | 141.8 |
| Length Wtd. (ft) | 17.67 | Wetted Per. (ft) | 22.26 | 15.39 | 9.21 |
| Min Ch El (ft) | 2275.94 | Shear (lb/sq ft) | 1.01 | 2.73 | 1.01 |
| Alpha | 1.27 | Stream Power (lb/ft s) | 3.23 | 17.01 | 3.22 |
| Frctn Loss (ft) | 0.40 | Cum Volume (acre-ft) | 0.50 | 3.13 | 0.61 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.53 | 1.32 | 0.75 |

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2279.55 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.83 | Wt. n-Val. | | 0.056 | |
| W.S. Elev (ft) | 2278.72 | Reach Len. (ft) | 18.04 | 17.26 | 21.08 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 35.65 | |
| E.G. Slope (ft/ft) | 0.028662 | Area (sq ft) | | 35.65 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 15.28 | Top Width (ft) | | 15.28 | |
| Vel Total (ft/s) | 7.29 | Avg. Vel. (ft/s) | | 7.29 | |
| Max Chl Dpth (ft) | 2.78 | Hydr. Depth (ft) | | 2.33 | |
| Conv. Total (cfs) | 1535.8 | Conv. (cfs) | | 1535.8 | |
| Length Wtd. (ft) | 17.26 | Wetted Per. (ft) | | 19.19 | |
| Min Ch El (ft) | 2275.94 | Shear (lb/sq ft) | | 3.32 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 24.24 | |
| Frctn Loss (ft) | 0.48 | Cum Volume (acre-ft) | 0.00 | 3.45 | 0.01 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 0.00 | 1.32 | 0.00 |

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 73.48 | 97.97 | 51.48 | 16.10 | 22.26 | 19.80 | 0.73 | 3.20 |
| 2 | Chan | 97.97 | 101.79 | 39.81 | 6.84 | 3.84 | 15.31 | 1.79 | 5.82 |
| 3 | Chan | 101.79 | 105.61 | 55.01 | 8.30 | 3.84 | 21.16 | 2.17 | 6.63 |
| 4 | Chan | 105.61 | 109.43 | 56.62 | 8.47 | 3.86 | 21.78 | 2.22 | 6.69 |
| 5 | Chan | 109.43 | 113.25 | 35.86 | 6.43 | 3.85 | 13.79 | 1.68 | 5.58 |
| 6 | ROB | 113.25 | 128.49 | 21.21 | 6.64 | 9.21 | 8.16 | 0.73 | 3.19 |

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 97.97 | 101.79 | 47.14 | 8.24 | 5.79 | 18.13 | 2.16 | 5.72 |
| 2 | Chan | 101.79 | 105.61 | 81.45 | 9.70 | 3.84 | 31.33 | 2.54 | 8.39 |
| 3 | Chan | 105.61 | 109.43 | 83.44 | 9.87 | 3.86 | 32.09 | 2.58 | 8.46 |
| 4 | Chan | 109.43 | 113.25 | 47.96 | 7.83 | 5.70 | 18.45 | 2.05 | 6.12 |

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.22859

INPUT
Description:
Station Elevation Data num= 47

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2292.46 | 4.4 | 2292.22 | 4.62 | 2292.21 | 5.91 | 2291.99 | 6.45 | 2291.91 |
| 19.75 | 2290.08 | 27.85 | 2288.5 | 30.85 | 2288.04 | 34.51 | 2287.39 | 41.72 | 2285.91 |
| 42.17 | 2285.83 | 48.55 | 2284.23 | 56.44 | 2282.43 | 59.4 | 2281.73 | 65.96 | 2279.67 |
| 68.42 | 2278.89 | 71.34 | 2277.98 | 73.26 | 2277.73 | 80.59 | 2277.08 | 83.81 | 2277.07 |
| 94.42 | 2276.99 | 97.3 | 2276.59 | 100.32 | 2276.31 | 104.14 | 2275.87 | 106.05 | 2275.66 |
| 108.11 | 2275.98 | 109.96 | 2276.3 | 113.26 | 2276.72 | 117.67 | 2277.63 | 122.22 | 2279.06 |
| 123.11 | 2279.43 | 124.74 | 2279.92 | 136.82 | 2283.61 | 138.94 | 2284.21 | 143.56 | 2285.55 |
| 144.85 | 2285.77 | 146.32 | 2286 | 148.51 | 2286.4 | 155.95 | 2287.54 | 158.92 | 2287.99 |
| 160.94 | 2288.04 | 164.92 | 2288.24 | 169.3 | 2288.45 | 172.74 | 2288.66 | 173.48 | 2288.7 |
| 175.46 | 2288.69 | 178.25 | 2288.8 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .056 | 100.32 | .056 | 109.96 | .056 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 94.42 | 113.26 | 60.08 | 39.34 | 32 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2278.42 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.42 | Wt. n-Val. | 0.056 | 0.056 | 0.056 |
| W.S. Elev (ft) | 2278.00 | Reach Len. (ft) | 60.08 | 39.34 | 32.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 17.86 | 32.54 | 3.84 |
| E.G. Slope (ft/ft) | 0.022504 | Area (sq ft) | 17.86 | 32.54 | 3.84 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 59.73 | 188.54 | 11.73 |
| Top Width (ft) | 47.56 | Top Width (ft) | 23.14 | 18.84 | 5.58 |
| Vel Total (ft/s) | 4.79 | Avg. Vel. (ft/s) | 3.34 | 5.79 | 3.05 |
| Max Chl Dpth (ft) | 2.34 | Hydr. Depth (ft) | 0.77 | 1.73 | 0.69 |
| Conv. Total (cfs) | 1733.2 | Conv. (cfs) | 398.2 | 1256.8 | 78.2 |
| Length Wtd. (ft) | 43.84 | Wetted Per. (ft) | 23.19 | 19.00 | 5.73 |
| Min Ch El (ft) | 2275.66 | Shear (lb/sq ft) | 1.08 | 2.41 | 0.94 |
| Alpha | 1.19 | Stream Power (lb/ft s) | 3.62 | 13.94 | 2.88 |
| Frctn Loss (ft) | 0.78 | Cum Volume (acre-ft) | 0.49 | 3.11 | 0.61 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 0.52 | 1.31 | 0.74 |

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2279.03 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.69 | Wt. n-Val. | | 0.056 | |
| W.S. Elev (ft) | 2278.34 | Reach Len. (ft) | 60.08 | 39.34 | 32.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 38.98 | |
| E.G. Slope (ft/ft) | 0.026902 | Area (sq ft) | | 38.98 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 18.84 | Top Width (ft) | | 18.84 | |
| Vel Total (ft/s) | 6.67 | Avg. Vel. (ft/s) | | 6.67 | |
| Max Chl Dpth (ft) | 2.68 | Hydr. Depth (ft) | | 2.07 | |
| Conv. Total (cfs) | 1585.2 | Conv. (cfs) | | 1585.2 | |
| Length Wtd. (ft) | 39.34 | Wetted Per. (ft) | | 21.97 | |
| Min Ch El (ft) | 2275.66 | Shear (lb/sq ft) | | 2.98 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 19.88 | |
| Frctn Loss (ft) | 0.83 | Cum Volume (acre-ft) | 0.00 | 3.44 | 0.01 |
| C & E Loss (ft) | 0.08 | Cum SA (acres) | 0.00 | 1.31 | 0.00 |

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 70.82 | 94.42 | 59.74 | 17.86 | 23.19 | 22.98 | 0.77 | 3.34 |
| 2 | Chan | 94.42 | 99.13 | 29.52 | 6.21 | 4.75 | 11.36 | 1.32 | 4.75 |
| 3 | Chan | 99.13 | 103.84 | 50.82 | 8.60 | 4.74 | 19.55 | 1.83 | 5.91 |
| 4 | Chan | 103.84 | 108.55 | 68.04 | 10.26 | 4.75 | 26.17 | 2.18 | 6.63 |
| 5 | Chan | 108.55 | 113.26 | 40.15 | 7.48 | 4.76 | 15.44 | 1.59 | 5.37 |
| 6 | ROB | 113.26 | 129.51 | 11.73 | 3.84 | 5.73 | 4.51 | 0.69 | 3.05 |

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 94.42 | 99.13 | 39.99 | 7.82 | 6.10 | 15.38 | 1.66 | 5.11 |
| 2 | Chan | 99.13 | 103.84 | 73.74 | 10.21 | 4.74 | 28.36 | 2.17 | 7.22 |
| 3 | Chan | 103.84 | 108.55 | 94.55 | 11.87 | 4.75 | 36.36 | 2.52 | 7.97 |
| 4 | Chan | 108.55 | 113.26 | 51.72 | 9.09 | 6.38 | 19.89 | 1.93 | 5.69 |

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.22114

INPUT
Description: Upstream cross section for Echo Canyon Drive
Station Elevation Data num= 64

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2290.31 | 6.02 | 2290.22 | 8.1 | 2290.29 | 10.03 | 2290.25 | 11.82 | 2290.15 |
| 13.75 | 2289.98 | 16.01 | 2289.69 | 17.67 | 2289.35 | 20.88 | 2289.22 | 32.98 | 2287.01 |
| 35.89 | 2286.78 | 38.33 | 2286.3 | 41.89 | 2285.47 | 45.41 | 2284.66 | 49.1 | 2283.73 |
| 53.28 | 2282.65 | 57.12 | 2280.99 | 64.82 | 2278.92 | 65.37 | 2278.78 | 67.34 | 2278.03 |
| 67.49 | 2277.99 | 69.77 | 2277.37 | 71.94 | 2277.03 | 74.29 | 2276.81 | 83.27 | 2276.16 |
| 85.07 | 2275.96 | 86.93 | 2275.93 | 88.15 | 2275.94 | 91.48 | 2275.76 | 94.93 | 2275.57 |
| 97.75 | 2275.5 | 104.89 | 2275.25 | 106.32 | 2275.3 | 107.68 | 2275.16 | 107.72 | 2275.16 |
| 111.44 | 2275.74 | 113.84 | 2276.13 | 116.21 | 2276.49 | 116.43 | 2276.52 | 116.52 | 2276.56 |
| 125.61 | 2280.46 | 126.42 | 2280.77 | 127.5 | 2280.83 | 128.86 | 2281.17 | 131.58 | 2282.84 |
| 132.61 | 2283.12 | 133.61 | 2283.29 | 135.86 | 2283.7 | 137.41 | 2284.07 | 140.32 | 2284.16 |
| 146.79 | 2285.37 | 149.63 | 2285.49 | 151.37 | 2285.56 | 155.79 | 2285.77 | 155.9 | 2285.77 |
| 156.12 | 2285.88 | 157.56 | 2286.49 | 167.15 | 2286.35 | 169.64 | 2286.46 | 173.04 | 2286.78 |
| 180.17 | 2287.18 | 183.49 | 2287.33 | 187.1 | 2287.56 | 190.38 | 2288 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .056 | 91.48 | .056 | 107.72 | .056 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 91.48 | 113.84 | 20.2 | 18.41 | 19.98 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2277.60 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.29 | Wt. n-Val. | 0.056 | 0.056 | 0.056 |
| W.S. Elev (ft) | 2277.31 | Reach Len. (ft) | 20.20 | 18.41 | 19.98 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 19.81 | 40.44 | 3.25 |
| E.G. Slope (ft/ft) | 0.014497 | Area (sq ft) | 19.81 | 40.44 | 3.25 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 60.18 | 191.58 | 8.24 |
| Top Width (ft) | 48.08 | Top Width (ft) | 21.30 | 22.36 | 4.42 |
| Vel Total (ft/s) | 4.09 | Avg. Vel. (ft/s) | 3.04 | 4.74 | 2.53 |
| Max Chl Dpth (ft) | 2.15 | Hydr. Depth (ft) | 0.93 | 1.81 | 0.74 |
| Conv. Total (cfs) | 2159.4 | Conv. (cfs) | 499.8 | 1591.2 | 68.4 |
| Length Wtd. (ft) | 18.84 | Wetted Per. (ft) | 21.37 | 22.45 | 4.61 |
| Min Ch El (ft) | 2275.16 | Shear (lb/sq ft) | 0.84 | 1.63 | 0.64 |
| Alpha | 1.13 | Stream Power (lb/ft s) | 2.55 | 7.72 | 1.62 |
| Frctn Loss (ft) | 0.31 | Cum Volume (acre-ft) | 0.46 | 3.08 | 0.61 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.49 | 1.29 | 0.74 |

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2278.13 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.44 | Wt. n-Val. | | 0.056 | |
| W.S. Elev (ft) | 2277.69 | Reach Len. (ft) | 20.20 | 18.41 | 19.98 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 48.97 | |
| E.G. Slope (ft/ft) | 0.016995 | Area (sq ft) | | 48.97 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 22.36 | Top Width (ft) | | 22.36 | |
| Vel Total (ft/s) | 5.31 | Avg. Vel. (ft/s) | | 5.31 | |
| Max Chl Dpth (ft) | 2.53 | Hydr. Depth (ft) | | 2.19 | |
| Conv. Total (cfs) | 1994.4 | Conv. (cfs) | | 1994.4 | |

| | | | | | |
|---|---|---|---|---|---|
| Length Wtd. (ft) | 18.41 | Wetted Per. (ft) | | 25.94 | |
| Min Ch El (ft) | 2275.16 | Shear (lb/sq ft) | | 2.00 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 10.64 | |
| Frctn Loss (ft) | 0.35 | Cum Volume (acre-ft) | 0.00 | 3.40 | 0.01 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.00 | 1.29 | 0.00 |

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 68.61 | 91.48 | 60.18 | 19.81 | 21.37 | 23.15 | 0.93 | 3.04 |
| 2 | Chan | 91.48 | 97.07 | 42.53 | 9.43 | 5.60 | 16.36 | 1.69 | 4.51 |
| 3 | Chan | 97.07 | 102.66 | 50.96 | 10.51 | 5.59 | 19.60 | 1.88 | 4.85 |
| 4 | Chan | 102.66 | 108.25 | 58.48 | 11.42 | 5.61 | 22.49 | 2.04 | 5.12 |
| 5 | Chan | 108.25 | 113.84 | 39.61 | 9.08 | 5.66 | 15.23 | 1.62 | 4.36 |
| 6 | ROB | 113.84 | 132.98 | 8.24 | 3.25 | 4.61 | 3.17 | 0.74 | 2.53 |

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 91.48 | 97.07 | 52.25 | 11.56 | 7.52 | 20.10 | 2.07 | 4.52 |
| 2 | Chan | 97.07 | 102.66 | 73.87 | 12.64 | 5.59 | 28.41 | 2.26 | 5.84 |
| 3 | Chan | 102.66 | 108.25 | 82.87 | 13.56 | 5.61 | 31.87 | 2.42 | 6.11 |
| 4 | Chan | 108.25 | 113.84 | 51.01 | 11.21 | 7.22 | 19.62 | 2.00 | 4.55 |

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.21765

INPUT
Description: Echo Canyon Drive
Station Elevation Data num= 42

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2288.52 | .36 | 2288.51 | 6.05 | 2288.39 | 11 | 2288.23 | 18.44 | 2287.17 |
| 20 | 2286.92 | 24.33 | 2286.22 | 35.25 | 2284.66 | 40.64 | 2283.63 | 42.25 | 2283.28 |
| 43.66 | 2282.97 | 49.24 | 2281.9 | 58.06 | 2279.97 | 66.01 | 2278.75 | 69.04 | 2278.43 |
| 78.67 | 2277.38 | 83 | 2276.81 | 84.88 | 2276.65 | 86.44 | 2276.51 | 88.22 | 2276.27 |
| 90.32 | 2276 | 96.53 | 2275.43 | 98.82 | 2275.23 | 101.96 | 2275 | 102.58 | 2274.95 |
| 106.21 | 2274.87 | 112.24 | 2275.12 | 113.96 | 2275.25 | 117.63 | 2275.6 | 121.27 | 2275.92 |
| 126.62 | 2276.53 | 129.25 | 2276.92 | 144.98 | 2278.81 | 149.42 | 2279.45 | 159.4 | 2281.09 |
| 161.37 | 2281.37 | 174.87 | 2283.58 | 176.77 | 2283.85 | 181.09 | 2284.4 | 183.36 | 2284.72 |
| 184.83 | 2284.91 | 193.04 | 2285.96 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .056 | 84.88 | .056 | 101.96 | .056 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 96.53 | 117.63 | 16.45 | 16.08 | 16.23 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2277.28 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.38 | Wt. n-Val. | 0.056 | 0.056 | 0.056 |
| W.S. Elev (ft) | 2276.90 | Reach Len. (ft) | 16.45 | 16.08 | 16.23 |
| Crit W.S. (ft) | 2276.70 | Flow Area (sq ft) | 10.78 | 37.56 | 8.27 |
| E.G. Slope (ft/ft) | 0.018809 | Area (sq ft) | 10.78 | 37.56 | 8.27 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 35.44 | 200.52 | 24.04 |
| Top Width (ft) | 46.86 | Top Width (ft) | 14.25 | 21.10 | 11.51 |
| Vel Total (ft/s) | 4.59 | Avg. Vel. (ft/s) | 3.29 | 5.34 | 2.91 |
| Max Chl Dpth (ft) | 2.03 | Hydr. Depth (ft) | 0.76 | 1.78 | 0.72 |
| Conv. Total (cfs) | 1895.8 | Conv. (cfs) | 258.4 | 1462.1 | 175.3 |
| Length Wtd. (ft) | 16.14 | Wetted Per. (ft) | 14.32 | 21.15 | 11.59 |
| Min Ch El (ft) | 2274.87 | Shear (lb/sq ft) | 0.88 | 2.09 | 0.84 |
| Alpha | 1.15 | Stream Power (lb/ft s) | 2.90 | 11.13 | 2.44 |
| Frctn Loss (ft) | 0.41 | Cum Volume (acre-ft) | 0.46 | 3.06 | 0.61 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.48 | 1.28 | 0.73 |

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2277.76 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.53 | Wt. n-Val. | | 0.056 | |
| W.S. Elev (ft) | 2277.23 | Reach Len. (ft) | 16.45 | 16.08 | 16.23 |
| Crit W.S. (ft) | 2276.79 | Flow Area (sq ft) | | 44.45 | |
| E.G. Slope (ft/ft) | 0.021781 | Area (sq ft) | | 44.45 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 21.10 | Top Width (ft) | | 21.10 | |
| Vel Total (ft/s) | 5.85 | Avg. Vel. (ft/s) | | 5.85 | |
| Max Chl Dpth (ft) | 2.36 | Hydr. Depth (ft) | | 2.11 | |
| Conv. Total (cfs) | 1761.7 | Conv. (cfs) | | 1761.7 | |
| Length Wtd. (ft) | 16.08 | Wetted Per. (ft) | | 24.58 | |
| Min Ch El (ft) | 2274.87 | Shear (lb/sq ft) | | 2.46 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 14.38 | |
| Frctn Loss (ft) | 0.49 | Cum Volume (acre-ft) | 0.00 | 3.38 | 0.01 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.00 | 1.28 | 0.00 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 72.40 | 96.53 | 35.44 | 10.78 | 14.32 | 13.63 | 0.76 | 3.29 |
| 2 | Chan | 96.53 | 101.81 | 45.84 | 8.93 | 5.29 | 17.63 | 1.69 | 5.13 |
| 3 | Chan | 101.81 | 107.08 | 59.99 | 10.48 | 5.28 | 23.07 | 1.99 | 5.72 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4 | Chan | 107.08 | 112.36 | 55.10 | 9.96 | 5.28 | 21.19 | 1.89 | 5.53 |
| 5 | Chan | 112.36 | 117.63 | 39.59 | 8.18 | 5.30 | 15.23 | 1.55 | 4.84 |
| 6 | ROB | 117.63 | 136.48 | 24.04 | 8.27 | 11.59 | 9.25 | 0.72 | 2.91 |

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 96.53 | 101.81 | 53.63 | 10.65 | 7.09 | 20.63 | 2.02 | 5.03 |
| 2 | Chan | 101.81 | 107.08 | 81.93 | 12.21 | 5.28 | 31.51 | 2.31 | 6.71 |
| 3 | Chan | 107.08 | 112.36 | 76.18 | 11.69 | 5.28 | 29.30 | 2.22 | 6.52 |
| 4 | Chan | 112.36 | 117.63 | 48.25 | 9.91 | 6.93 | 18.56 | 1.88 | 4.87 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.21461

INPUT
Description: Downstream cross section for Echo Canyon Drive
Station Elevation Data num= 66

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2288.64 | 4.76 | 2288.53 | 5.88 | 2288.53 | 6.97 | 2288.52 | 12.68 | 2287.71 |
| 13.93 | 2287.7 | 14.77 | 2287.59 | 15.3 | 2287.47 | 30.06 | 2285.36 | 30.48 | 2285.26 |
| 31.77 | 2285.16 | 32.24 | 2285.01 | 32.97 | 2284.77 | 40.54 | 2283.45 | 41.23 | 2283.2 |
| 41.95 | 2282.97 | 42.21 | 2282.9 | 43.31 | 2282.58 | 56.24 | 2280.39 | 57.26 | 2279.89 |
| 58.48 | 2279.58 | 69.7 | 2277.92 | 70.5 | 2277.81 | 70.63 | 2277.78 | 71.67 | 2277.81 |
| 79.31 | 2276.62 | 88.15 | 2275.24 | 89.68 | 2275.01 | 89.91 | 2275 | 90.02 | 2274.99 |
| 93.82 | 2274.93 | 97.34 | 2274.87 | 97.61 | 2274.87 | 97.97 | 2274.88 | 108.34 | 2274.71 |
| 108.66 | 2274.71 | 112.92 | 2275.15 | 115.96 | 2275.39 | 116.03 | 2275.4 | 116.12 | 2275.42 |
| 116.29 | 2275.42 | 116.55 | 2275.45 | 128.54 | 2276.56 | 129.25 | 2276.63 | 129.54 | 2276.65 |
| 133.76 | 2277.19 | 134.12 | 2277.21 | 134.87 | 2277.26 | 136.49 | 2277.43 | 144.78 | 2278.49 |
| 146.16 | 2278.73 | 147.54 | 2278.92 | 155.23 | 2279.9 | 156.82 | 2280.14 | 158.13 | 2280.34 |
| 166.02 | 2281.61 | 167.76 | 2281.84 | 169.24 | 2282.05 | 176.1 | 2283.14 | 177.75 | 2283.68 |
| 184.94 | 2284.85 | 186.62 | 2285.01 | 187.58 | 2285.18 | 187.75 | 2285.22 | 188.53 | 2285.43 |
| 193.21 | 2285.8 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .056 | 79.31 | .056 | 93.82 | .056 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 90.02 | 112.92 | 33.84 | 27.43 | 17.81 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2276.86 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.55 | Wt. n-Val. | 0.056 | 0.056 | 0.056 |
| W.S. Elev (ft) | 2276.31 | Reach Len. (ft) | 33.84 | 27.43 | 17.81 |
| Crit W.S. (ft) | 2276.31 | Flow Area (sq ft) | 5.91 | 33.07 | 7.66 |
| E.G. Slope (ft/ft) | 0.035283 | Area (sq ft) | 5.91 | 33.07 | 7.66 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 22.58 | 210.52 | 26.90 |
| Top Width (ft) | 44.52 | Top Width (ft) | 8.71 | 22.90 | 12.90 |
| Vel Total (ft/s) | 5.57 | Avg. Vel. (ft/s) | 3.82 | 6.37 | 3.51 |
| Max Chl Dpth (ft) | 1.60 | Hydr. Depth (ft) | 0.68 | 1.44 | 0.59 |
| Conv. Total (cfs) | 1384.2 | Conv. (cfs) | 120.2 | 1120.7 | 143.2 |
| Length Wtd. (ft) | 28.04 | Wetted Per. (ft) | 8.82 | 22.93 | 12.96 |
| Min Ch El (ft) | 2274.71 | Shear (lb/sq ft) | 1.48 | 3.18 | 1.30 |
| Alpha | 1.14 | Stream Power (lb/ft s) | 5.64 | 20.23 | 4.57 |
| Frctn Loss (ft) | 0.30 | Cum Volume (acre-ft) | 0.45 | 3.05 | 0.60 |
| C & E Loss (ft) | 0.13 | Cum SA (acres) | 0.48 | 1.27 | 0.73 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2277.25 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.80 | Wt. n-Val. | | 0.056 | |
| W.S. Elev (ft) | 2276.45 | Reach Len. (ft) | 33.84 | 27.43 | 17.81 |
| Crit W.S. (ft) | 2276.45 | Flow Area (sq ft) | | 36.21 | |
| E.G. Slope (ft/ft) | 0.045542 | Area (sq ft) | | 36.21 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 22.90 | Top Width (ft) | | 22.90 | |
| Vel Total (ft/s) | 7.18 | Avg. Vel. (ft/s) | | 7.18 | |
| Max Chl Dpth (ft) | 1.74 | Hydr. Depth (ft) | | 1.58 | |
| Conv. Total (cfs) | 1218.3 | Conv. (cfs) | | 1218.3 | |
| Length Wtd. (ft) | 27.43 | Wetted Per. (ft) | | 25.68 | |
| Min Ch El (ft) | 2274.71 | Shear (lb/sq ft) | | 4.01 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 28.79 | |
| Frctn Loss (ft) | 0.36 | Cum Volume (acre-ft) | 0.00 | 3.36 | 0.01 |
| C & E Loss (ft) | 0.18 | Cum SA (acres) | 0.00 | 1.28 | 0.00 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than

0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 67.52 | 90.02 | 22.58 | 5.91 | 8.82 | 8.68 | 0.68 | 3.82 |
| 2 | Chan | 90.02 | 95.75 | 47.85 | 7.81 | 5.73 | 18.41 | 1.36 | 6.13 |
| 3 | Chan | 95.75 | 101.47 | 52.73 | 8.28 | 5.73 | 20.28 | 1.45 | 6.37 |
| 4 | Chan | 101.47 | 107.20 | 58.12 | 8.78 | 5.73 | 22.35 | 1.53 | 6.62 |
| 5 | Chan | 107.20 | 112.92 | 51.81 | 8.20 | 5.75 | 19.93 | 1.43 | 6.32 |
| 6 | ROB | 112.92 | 132.99 | 26.90 | 7.66 | 12.96 | 10.35 | 0.59 | 3.51 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 90.02 | 95.75 | 54.73 | 8.60 | 7.18 | 21.05 | 1.50 | 6.37 |
| 2 | Chan | 95.75 | 101.47 | 69.53 | 9.06 | 5.73 | 26.74 | 1.58 | 7.67 |
| 3 | Chan | 101.47 | 107.20 | 76.01 | 9.56 | 5.73 | 29.23 | 1.67 | 7.95 |
| 4 | Chan | 107.20 | 112.92 | 59.74 | 8.99 | 7.04 | 22.98 | 1.57 | 6.65 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.20941

INPUT
Description: Concrete Drop
Station Elevation Data num= 54

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2287.53 | 7.34 | 2287.22 | 8.11 | 2287.19 | 10.56 | 2286.52 | 23.77 | 2281.55 |
| 26.33 | 2280.59 | 27.48 | 2280.02 | 35.08 | 2276.65 | 40.9 | 2274.02 | 41.4 | 2273.99 |
| 44.64 | 2273.75 | 49.18 | 2273.88 | 54.32 | 2274.12 | 59.38 | 2274.42 | 59.77 | 2274.44 |
| 61.42 | 2274.49 | 65.41 | 2273.88 | 66.7 | 2273.72 | 67.05 | 2273.67 | 67.13 | 2273.66 |
| 68.95 | 2273.65 | 71.06 | 2273.52 | 72.46 | 2273.52 | 73.37 | 2273.55 | 74.17 | 2273.55 |
| 75.02 | 2273.54 | 77.08 | 2273.54 | 77.84 | 2273.51 | 78.91 | 2273.54 | 79 | 2273.55 |
| 87.03 | 2273.67 | 87.59 | 2273.73 | 88.09 | 2273.77 | 88.56 | 2273.81 | 89.47 | 2273.98 |
| 91.66 | 2274.37 | 94.85 | 2274.95 | 95.01 | 2274.97 | 95.07 | 2274.97 | 97.53 | 2275.18 |
| 123.32 | 2276.3 | 125.67 | 2276.49 | 126.06 | 2276.49 | 126.43 | 2276.54 | 132.59 | 2277.63 |
| 135 | 2278.09 | 143.44 | 2279.97 | 145.33 | 2280.23 | 147 | 2280.48 | 148.98 | 2281.12 |
| 168.97 | 2285.02 | 171.38 | 2285.5 | 175.97 | 2285.92 | 176 | 2285.93 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .056 | 44.64 | .056 | 59.38 | .056 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 61.42 | 89.47 | 3.06 | 3 | 3 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2275.76 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.11 | Wt. n-Val. | 0.056 | 0.056 | 0.056 |
| W.S. Elev (ft) | 2275.64 | Reach Len. (ft) | 3.06 | 3.00 | 3.00 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 35.55 | 54.52 | 10.34 |
| E.G. Slope (ft/ft) | 0.005064 | Area (sq ft) | 35.55 | 54.52 | 10.34 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 86.89 | 160.01 | 13.11 |
| Top Width (ft) | 70.85 | Top Width (ft) | 24.11 | 28.05 | 18.69 |
| Vel Total (ft/s) | 2.59 | Avg. Vel. (ft/s) | 2.44 | 2.93 | 1.27 |
| Max Chl Dpth (ft) | 2.13 | Hydr. Depth (ft) | 1.47 | 1.94 | 0.55 |
| Conv. Total (cfs) | 3653.7 | Conv. (cfs) | 1221.0 | 2248.5 | 184.2 |
| Length Wtd. (ft) | 3.02 | Wetted Per. (ft) | 24.49 | 28.14 | 18.80 |
| Min Ch El (ft) | 2273.51 | Shear (lb/sq ft) | 0.46 | 0.61 | 0.17 |
| Alpha | 1.10 | Stream Power (lb/ft s) | 1.12 | 1.80 | 0.22 |
| Frctn Loss (ft) | 0.01 | Cum Volume (acre-ft) | 0.44 | 3.02 | 0.60 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.46 | 1.26 | 0.72 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2276.50 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.20 | Wt. n-Val. | | 0.056 | |
| W.S. Elev (ft) | 2276.30 | Reach Len. (ft) | 3.06 | 3.00 | 3.00 |

| | | | | | |
|---|---|---|---|---|---|
| Crit W.S. (ft) | | Flow Area (sq ft) | | 72.99 | |
| E.G. Slope (ft/ft) | 0.006069 | Area (sq ft) | | 72.99 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 28.05 | Top Width (ft) | | 28.05 | |
| Vel Total (ft/s) | 3.56 | Avg. Vel. (ft/s) | | 3.56 | |
| Max Chl Dpth (ft) | 2.79 | Hydr. Depth (ft) | | 2.60 | |
| Conv. Total (cfs) | 3337.4 | Conv. (cfs) | | 3337.4 | |
| Length Wtd. (ft) | 3.00 | Wetted Per. (ft) | | 32.27 | |
| Min Ch El (ft) | 2273.51 | Shear (lb/sq ft) | | 0.86 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 3.05 | |
| Frctn Loss (ft) | 0.01 | Cum Volume (acre-ft) | 0.00 | 3.33 | 0.01 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.00 | 1.26 | 0.00 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 30.71 | 46.07 | 27.93 | 12.13 | 9.11 | 10.74 | 1.39 | 2.30 |
| 2 | LOB | 46.07 | 61.42 | 58.96 | 23.42 | 15.37 | 22.68 | 1.53 | 2.52 |
| 3 | Chan | 61.42 | 68.43 | 30.37 | 11.61 | 7.07 | 11.68 | 1.66 | 2.62 |
| 4 | Chan | 68.43 | 75.45 | 44.74 | 14.61 | 7.02 | 17.21 | 2.08 | 3.06 |
| 5 | Chan | 75.45 | 82.46 | 44.93 | 14.64 | 7.01 | 17.28 | 2.09 | 3.07 |
| 6 | Chan | 82.46 | 89.47 | 39.97 | 13.66 | 7.04 | 15.37 | 1.95 | 2.93 |
| 7 | ROB | 89.47 | 111.10 | 13.11 | 10.34 | 18.80 | 5.04 | 0.55 | 1.27 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 61.42 | 68.43 | 49.19 | 16.23 | 8.88 | 18.92 | 2.31 | 3.03 |
| 2 | Chan | 68.43 | 75.45 | 76.31 | 19.22 | 7.02 | 29.35 | 2.74 | 3.97 |
| 3 | Chan | 75.45 | 82.46 | 76.56 | 19.26 | 7.01 | 29.45 | 2.75 | 3.98 |
| 4 | Chan | 82.46 | 89.47 | 57.94 | 18.28 | 9.36 | 22.29 | 2.61 | 3.17 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.20885

INPUT
Description: Concrete Drop
Station Elevation Data num= 53

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2287.27 | 7.06 | 2286.98 | 7.93 | 2286.94 | 8.86 | 2286.9 | 9.69 | 2286.58 |
| 25.83 | 2280.52 | 33.68 | 2276.64 | 35.02 | 2276.04 | 39.85 | 2273.86 | 42.54 | 2273.68 |
| 43.7 | 2273.58 | 45.08 | 2273.65 | 46.24 | 2273.69 | 53.69 | 2273.89 | 58.41 | 2274.23 |
| 60.95 | 2274.4 | 66.11 | 2272.61 | 66.79 | 2272.48 | 69.38 | 2271.97 | 70.74 | 2271.59 |
| 72.07 | 2271.21 | 74.6 | 2271.15 | 76.09 | 2271.07 | 78.05 | 2271.43 | 80.52 | 2271.74 |
| 81.31 | 2272.04 | 87.01 | 2273.16 | 87.5 | 2273.35 | 88.73 | 2273.46 | 88.77 | 2273.78 |
| 91.66 | 2273.92 | 92.3 | 2273.94 | 94 | 2274.25 | 94.84 | 2274.67 | 95.05 | 2274.71 |
| 95.32 | 2274.87 | 95.38 | 2274.87 | 96.87 | 2274.97 | 100.84 | 2275.23 | 111.19 | 2275.66 |
| 125.04 | 2276.26 | 125.86 | 2276.33 | 131.31 | 2277.34 | 136.6 | 2278.28 | 138.17 | 2278.58 |
| 143.66 | 2279.79 | 145.97 | 2280.13 | 147.26 | 2280.54 | 169.39 | 2284.87 | 173.82 | 2285.73 |
| 174.22 | 2285.77 | 175.51 | 2285.89 | 176.26 | 2285.94 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .056 | 43.7 | .056 | 58.41 | .056 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 60.95 | 88.77 | 468.38 | 475.3 | 425.84 | .1 | .3 |

Left Levee Station= 60.95 Elevation= 2274.4

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2275.73 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.05 | Wt. n-Val. | 0.056 | 0.056 | 0.056 |
| W.S. Elev (ft) | 2275.68 | Reach Len. (ft) | 468.38 | 475.30 | 425.84 |
| Crit W.S. (ft) | 2273.59 | Flow Area (sq ft) | 41.47 | 94.81 | 16.42 |
| E.G. Slope (ft/ft) | 0.001218 | Area (sq ft) | 41.47 | 94.81 | 16.42 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 53.67 | 194.19 | 12.14 |
| Top Width (ft) | 75.75 | Top Width (ft) | 25.12 | 27.82 | 22.80 |
| Vel Total (ft/s) | 1.70 | Avg. Vel. (ft/s) | 1.29 | 2.05 | 0.74 |
| Max Chl Dpth (ft) | 4.61 | Hydr. Depth (ft) | 1.65 | 3.41 | 0.72 |
| Conv. Total (cfs) | 7449.1 | Conv. (cfs) | 1537.6 | 5563.5 | 347.9 |
| Length Wtd. (ft) | 472.42 | Wetted Per. (ft) | 25.55 | 28.83 | 23.00 |
| Min Ch El (ft) | 2271.07 | Shear (lb/sq ft) | 0.12 | 0.25 | 0.05 |
| Alpha | 1.21 | Stream Power (lb/ft s) | 0.16 | 0.51 | 0.04 |
| Frctn Loss (ft) | 1.60 | Cum Volume (acre-ft) | 0.43 | 3.02 | 0.60 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 0.46 | 1.25 | 0.72 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 2276.45 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.08 | Wt. n-Val. | | 0.056 | |
| W.S. Elev (ft) | 2276.37 | Reach Len. (ft) | 468.38 | 475.30 | 425.84 |
| Crit W.S. (ft) | 2273.59 | Flow Area (sq ft) | | 114.21 | |
| E.G. Slope (ft/ft) | 0.001429 | Area (sq ft) | | 114.21 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 27.82 | Top Width (ft) | | 27.82 | |
| Vel Total (ft/s) | 2.28 | Avg. Vel. (ft/s) | | 2.28 | |
| Max Chl Dpth (ft) | 5.30 | Hydr. Depth (ft) | | 4.11 | |
| Conv. Total (cfs) | 6878.7 | Conv. (cfs) | | 6878.7 | |
| Length Wtd. (ft) | 475.30 | Wetted Per. (ft) | | 33.40 | |
| Min Ch El (ft) | 2271.07 | Shear (lb/sq ft) | | 0.31 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 0.69 | |
| Frctn Loss (ft) | 1.94 | Cum Volume (acre-ft) | 0.00 | 3.32 | 0.01 |
| C & E Loss (ft) | 0.07 | Cum SA (acres) | 0.00 | 1.26 | 0.00 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 30.48 | 45.71 | 18.58 | 15.28 | 10.29 | 7.14 | 1.55 | 1.22 |
| 2 | LOB | 45.71 | 60.95 | 35.09 | 26.20 | 15.26 | 13.50 | 1.72 | 1.34 |
| 3 | Chan | 60.95 | 67.91 | 26.85 | 17.02 | 7.29 | 10.33 | 2.45 | 1.58 |
| 4 | Chan | 67.91 | 74.86 | 65.70 | 28.79 | 7.09 | 25.27 | 4.14 | 2.28 |
| 5 | Chan | 74.86 | 81.81 | 67.39 | 29.21 | 7.07 | 25.92 | 4.20 | 2.31 |
| 6 | Chan | 81.81 | 88.77 | 34.24 | 19.79 | 7.38 | 13.17 | 2.85 | 1.73 |
| 7 | ROB | 88.77 | 110.64 | 12.14 | 16.40 | 22.07 | 4.67 | 0.75 | 0.74 |
| 8 | ROB | 110.64 | 132.52 | 0.00 | 0.02 | 0.93 | 0.00 | 0.02 | 0.07 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 60.95 | 67.91 | 36.54 | 21.87 | 9.26 | 14.05 | 3.14 | 1.67 |
| 2 | Chan | 67.91 | 74.86 | 89.52 | 33.64 | 7.09 | 34.43 | 4.84 | 2.66 |
| 3 | Chan | 74.86 | 81.81 | 91.51 | 34.06 | 7.07 | 35.20 | 4.90 | 2.69 |
| 4 | Chan | 81.81 | 88.77 | 42.43 | 24.64 | 9.97 | 16.32 | 3.54 | 1.72 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.20714

INPUT
Description:
Station Elevation Data num= 45

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2286.41 | 1.97 | 2286.36 | 5.75 | 2284.75 | 6.53 | 2284.42 | 15.25 | 2280.6 |
| 15.52 | 2280.41 | 15.78 | 2280.25 | 27.48 | 2273.27 | 31.63 | 2272.89 | 34.19 | 2272.57 |
| 38.78 | 2272.86 | 44.17 | 2273.17 | 48.9 | 2273.51 | 49.22 | 2273.53 | 53.47 | 2273.79 |
| 58.84 | 2272.69 | 61.26 | 2272.2 | 65.98 | 2271.25 | 74.9 | 2272.16 | 77.23 | 2272.69 |
| 77.87 | 2272.79 | 78.73 | 2273.03 | 79.68 | 2273.22 | 80.84 | 2273.17 | 82.87 | 2273.39 |
| 85.41 | 2273.43 | 86.49 | 2273.59 | 87.2 | 2273.84 | 88.85 | 2274.03 | 89.28 | 2274.29 |
| 90.44 | 2274.39 | 116.32 | 2276.11 | 116.53 | 2276.13 | 117.92 | 2276.19 | 133.55 | 2278.92 |
| 134.9 | 2279.17 | 135.63 | 2279.3 | 135.85 | 2279.34 | 136.63 | 2279.52 | 136.81 | 2279.54 |
| 136.97 | 2279.57 | 137.16 | 2279.63 | 144.16 | 2281 | 162.69 | 2284.82 | 166.31 | 2285.57 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .056 | 34.19 | .056 | 48.9 | .056 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 53.47 | 79.68 | 20.57 | 14.93 | 6.22 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2274.10 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.45 | Wt. n-Val. | 0.056 | 0.056 | 0.056 |
| W.S. Elev (ft) | 2273.64 | Reach Len. (ft) | 20.57 | 14.93 | 6.22 |
| Crit W.S. (ft) | 2273.64 | Flow Area (sq ft) | 13.96 | 35.94 | 1.98 |
| E.G. Slope (ft/ft) | 0.030967 | Area (sq ft) | 13.96 | 35.94 | 1.98 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 47.15 | 208.86 | 3.99 |
| Top Width (ft) | 56.61 | Top Width (ft) | 24.17 | 25.48 | 6.95 |
| Vel Total (ft/s) | 5.01 | Avg. Vel. (ft/s) | 3.38 | 5.81 | 2.02 |
| Max Chl Dpth (ft) | 2.39 | Hydr. Depth (ft) | 0.58 | 1.41 | 0.28 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| * Conv. Total (cfs) | * | 1477.5 | * Conv. (cfs) | * | 267.9 | * | 1186.9 | * | 22.7 | * |
| * Length Wtd. (ft) | * | 15.88 | * Wetted Per. (ft) | * | 24.35 | * | 25.89 | * | 6.99 | * |
| * Min Ch El (ft) | * | 2271.25 | * Shear (lb/sq ft) | * | 1.11 | * | 2.68 | * | 0.55 | * |
| * Alpha | * | 1.17 | * Stream Power (lb/ft s) | * | 3.74 | * | 15.60 | * | 1.10 | * |
| * Frctn Loss (ft) | * | 0.46 | * Cum Volume (acre-ft) | * | 0.14 | * | 2.31 | * | 0.51 | * |
| * C & E Loss (ft) | * | 0.02 | * Cum SA (acres) | * | 0.20 | * | 0.96 | * | 0.58 | * |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| * E.G. Elev (ft) | * | 2274.45 | * Element | * | Left OB | * | Channel | * | Right OB | * |
| * Vel Head (ft) | * | 0.74 | * Wt. n-Val. | * | | * | 0.056 | * | | * |
| * W.S. Elev (ft) | * | 2273.71 | * Reach Len. (ft) | * | 20.57 | * | 14.93 | * | 6.22 | * |
| * Crit W.S. (ft) | * | 2273.71 | * Flow Area (sq ft) | * | | * | 37.69 | * | | * |
| * E.G. Slope (ft/ft) | * | 0.042725 | * Area (sq ft) | * | | * | 37.69 | * | | * |
| * Q Total (cfs) | * | 260.00 | * Flow (cfs) | * | | * | 260.00 | * | | * |
| * Top Width (ft) | * | 25.81 | * Top Width (ft) | * | | * | 25.81 | * | | * |
| * Vel Total (ft/s) | * | 6.90 | * Avg. Vel. (ft/s) | * | | * | 6.90 | * | | * |
| * Max Chl Dpth (ft) | * | 2.46 | * Hydr. Depth (ft) | * | | * | 1.46 | * | | * |
| * Conv. Total (cfs) | * | 1257.9 | * Conv. (cfs) | * | | * | 1257.9 | * | | * |
| * Length Wtd. (ft) | * | 14.93 | * Wetted Per. (ft) | * | | * | 26.72 | * | | * |
| * Min Ch El (ft) | * | 2271.25 | * Shear (lb/sq ft) | * | | * | 3.76 | * | | * |
| * Alpha | * | 1.00 | * Stream Power (lb/ft s) | * | | * | 25.96 | * | | * |
| * Frctn Loss (ft) | * | 0.29 | * Cum Volume (acre-ft) | * | 0.00 | * | 2.49 | * | 0.01 | * |
| * C & E Loss (ft) | * | 0.14 | * Cum SA (acres) | * | 0.00 | * | 0.97 | * | 0.00 | * |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #PF 1

| * | * Pos | * Left Sta (ft) | * Right Sta (ft) | * Flow (cfs) | * Area (sq ft) | * W.P. (ft) | * Percent Conv | * Hydr Depth(ft) | * Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| * 1 | * LOB | * 26.74 | * 40.10 | * 37.92 | * 10.01 | * 13.39 | * 14.59 | * 0.76 | * 3.79 |
| * 2 | * LOB | * 40.10 | * 53.47 | * 9.23 | * 3.95 | * 10.95 | * 3.55 | * 0.36 | * 2.33 |
| * 3 | * Chan | * 53.47 | * 60.02 | * 10.39 | * 3.47 | * 5.94 | * 4.00 | * 0.60 | * 2.99 |
| * 4 | * Chan | * 60.02 | * 66.58 | * 76.75 | * 12.08 | * 6.68 | * 29.52 | * 1.84 | * 6.36 |
| * 5 | * Chan | * 66.58 | * 73.13 | * 88.45 | * 13.08 | * 6.59 | * 34.02 | * 2.00 | * 6.76 |
| * 6 | * Chan | * 73.13 | * 79.68 | * 33.26 | * 7.31 | * 6.68 | * 12.79 | * 1.12 | * 4.55 |
| * 7 | * ROB | * 79.68 | * 101.34 | * 3.99 | * 1.98 | * 6.99 | * 1.54 | * 0.28 | * 2.02 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #PF 2

| * | * Pos | * Left Sta (ft) | * Right Sta (ft) | * Flow (cfs) | * Area (sq ft) | * W.P. (ft) | * Percent Conv | * Hydr Depth(ft) | * Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| * 1 | * Chan | * 53.47 | * 60.02 | * 14.10 | * 3.88 | * 6.28 | * 5.42 | * 0.63 | * 3.63 |
| * 2 | * Chan | * 60.02 | * 66.58 | * 95.43 | * 12.52 | * 6.68 | * 36.70 | * 1.91 | * 7.62 |
| * 3 | * Chan | * 66.58 | * 73.13 | * 109.48 | * 13.52 | * 6.59 | * 42.11 | * 2.06 | * 8.09 |
| * 4 | * Chan | * 73.13 | * 79.68 | * 40.99 | * 7.76 | * 7.17 | * 15.76 | * 1.18 | * 5.28 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.20431

INPUT
Description:
Station Elevation Data num= 40

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2281.65 | 7.36 | 2278.28 | 11.71 | 2276.04 | 18.5 | 2272.28 | 27.85 | 2272.1 |
| 30.7 | 2271.95 | 36.4 | 2272.34 | 38.81 | 2272.45 | 41.01 | 2272.57 | 47.97 | 2272.93 |
| 49.07 | 2272.98 | 57.15 | 2271.37 | 57.96 | 2271.18 | 67.32 | 2271.01 | 69.74 | 2271.07 |
| 70.97 | 2271.18 | 71.46 | 2271.23 | 74.67 | 2271.68 | 76.72 | 2271.95 | 79.16 | 2272.34 |
| 84.76 | 2272.94 | 85.05 | 2272.97 | 85.61 | 2273.01 | 88.72 | 2273.34 | 94.23 | 2273.75 |
| 96.12 | 2274.01 | 103.22 | 2274.67 | 109.9 | 2275.66 | 111.19 | 2275.84 | 113.08 | 2276.1 |
| 117.89 | 2276.9 | 123.06 | 2277.62 | 125.09 | 2277.9 | 126.17 | 2278.16 | 138.89 | 2281.27 |
| 145.4 | 2282.56 | 153.4 | 2284.23 | 157.2 | 2285.01 | 160.75 | 2285.74 | 161.38 | 2285.79 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .056 | 30.7 | .056 | 41.01 | .056 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 49.07 | 79.16 | 14.87 | 11.95 | 6.7 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2273.24 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.38 | Wt. n-Val. | 0.056 | 0.056 | 0.056 |
| W.S. Elev (ft) | 2272.87 | Reach Len. (ft) | 14.87 | 11.95 | 6.70 |
| Crit W.S. (ft) | 2272.81 | Flow Area (sq ft) | 15.91 | 39.30 | 1.29 |
| E.G. Slope (ft/ft) | 0.027390 | Area (sq ft) | 15.91 | 39.30 | 1.29 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 49.99 | 207.69 | 2.32 |
| Top Width (ft) | 63.73 | Top Width (ft) | 29.30 | 29.52 | 4.91 |
| Vel Total (ft/s) | 4.60 | Avg. Vel. (ft/s) | 3.14 | 5.28 | 1.80 |
| Max Chl Dpth (ft) | 1.86 | Hydr. Depth (ft) | 0.54 | 1.33 | 0.26 |
| Conv. Total (cfs) | 1571.0 | Conv. (cfs) | 302.1 | 1254.9 | 14.0 |
| Length Wtd. (ft) | 12.56 | Wetted Per. (ft) | 29.48 | 29.78 | 4.94 |
| Min Ch El (ft) | 2271.01 | Shear (lb/sq ft) | 0.92 | 2.26 | 0.45 |
| Alpha | 1.14 | Stream Power (lb/ft s) | 2.90 | 11.93 | 0.80 |
| Frctn Loss (ft) | 0.26 | Cum Volume (acre-ft) | 0.13 | 2.29 | 0.51 |
| C & E Loss (ft) | 0.05 | Cum SA (acres) | 0.18 | 0.95 | 0.58 |

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2273.87 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.28 | Wt. n-Val. | | 0.056 | |
| W.S. Elev (ft) | 2273.58 | Reach Len. (ft) | 14.87 | 11.95 | 6.70 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 60.88 | |
| E.G. Slope (ft/ft) | 0.011086 | Area (sq ft) | | 60.88 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 30.09 | Top Width (ft) | | 30.09 | |
| Vel Total (ft/s) | 4.27 | Avg. Vel. (ft/s) | | 4.27 | |
| Max Chl Dpth (ft) | 2.57 | Hydr. Depth (ft) | | 2.02 | |
| Conv. Total (cfs) | 2469.3 | Conv. (cfs) | | 2469.3 | |
| Length Wtd. (ft) | 11.95 | Wetted Per. (ft) | | 32.21 | |
| Min Ch El (ft) | 2271.01 | Shear (lb/sq ft) | | 1.31 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 5.59 | |
| Frctn Loss (ft) | 0.13 | Cum Volume (acre-ft) | 0.00 | 2.48 | 0.01 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 0.00 | 0.96 | 0.00 |

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 12.27 | 24.54 | 12.72 | 4.20 | 7.25 | 4.89 | 0.59 | 3.03 |
| 2 | LOB | 24.54 | 36.80 | 32.76 | 9.15 | 12.29 | 12.60 | 0.75 | 3.58 |
| 3 | LOB | 36.80 | 49.07 | 4.51 | 2.56 | 9.95 | 1.74 | 0.26 | 1.76 |
| 4 | Chan | 49.07 | 56.59 | 15.31 | 4.81 | 7.09 | 5.89 | 0.69 | 3.18 |
| 5 | Chan | 56.59 | 64.12 | 75.01 | 12.82 | 7.56 | 28.85 | 1.70 | 5.85 |
| 6 | Chan | 64.12 | 71.64 | 82.18 | 13.52 | 7.53 | 31.61 | 1.80 | 6.08 |
| 7 | Chan | 71.64 | 79.16 | 35.19 | 8.16 | 7.60 | 13.53 | 1.08 | 4.31 |
| 8 | ROB | 79.16 | 99.72 | 2.32 | 1.29 | 4.94 | 0.89 | 0.26 | 1.80 |

Warning: Divided flow computed for this cross-section.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 49.07 | 56.59 | 31.21 | 10.18 | 8.27 | 12.00 | 1.35 | 3.06 |
| 2 | Chan | 56.59 | 64.12 | 87.40 | 18.22 | 7.56 | 33.62 | 2.42 | 4.80 |
| 3 | Chan | 64.12 | 71.64 | 93.30 | 18.92 | 7.53 | 35.88 | 2.52 | 4.93 |
| 4 | Chan | 71.64 | 79.16 | 48.10 | 13.56 | 8.84 | 18.50 | 1.80 | 3.55 |

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.20205

INPUT
Description:
Station Elevation Data num= 40

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2279.13 | 2.72 | 2277.92 | 4.53 | 2277.18 | 5.63 | 2276.56 | 7.63 | 2275.73 |
| 14.06 | 2273.04 | 17 | 2271.9 | 27.9 | 2271.29 | 31.52 | 2271.6 | 37.19 | 2272.04 |
| 38.35 | 2272.08 | 43.43 | 2272.29 | 47.24 | 2272.51 | 50.58 | 2271.73 | 52.32 | 2271.36 |
| 55.77 | 2270.65 | 58.5 | 2270.9 | 66.23 | 2271.27 | 67.1 | 2271.34 | 69.33 | 2271.53 |
| 75.52 | 2271.83 | 76.64 | 2271.91 | 77.33 | 2271.93 | 79.47 | 2271.95 | 83.37 | 2272.22 |
| 85.48 | 2272.42 | 89.18 | 2272.94 | 92.96 | 2273.53 | 101.76 | 2274.66 | 106.92 | 2275.25 |
| 107.94 | 2275.5 | 111.21 | 2275.75 | 113.76 | 2276.11 | 116.16 | 2276.68 | 141.9 | 2282.98 |
| 146.06 | 2283.8 | 152.87 | 2285.12 | 153.52 | 2285.25 | 155.11 | 2285.58 | 156.72 | 2285.71 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .056 | 27.9 | .056 | 38.35 | .056 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 47.24 | 76.64 | 13.57 | 13.2 | 10.89 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2272.93 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.21 | Wt. n-Val. | 0.056 | 0.056 | 0.056 |
| W.S. Elev (ft) | 2272.72 | Reach Len. (ft) | 13.57 | 13.20 | 10.89 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 27.44 | 39.30 | 5.82 |
| E.G. Slope (ft/ft) | 0.016216 | Area (sq ft) | 27.44 | 39.30 | 5.82 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 86.86 | 160.25 | 12.89 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Top Width (ft) | 72.70 | Top Width (ft) | 32.35 | 29.40 | 10.95 |
| Vel Total (ft/s) | 3.58 | Avg. Vel. (ft/s) | 3.17 | 4.08 | 2.21 |
| Max Chl Dpth (ft) | 2.07 | Hydr. Depth (ft) | 0.85 | 1.34 | 0.53 |
| Conv. Total (cfs) | 2041.7 | Conv. (cfs) | 682.1 | 1258.4 | 101.2 |
| Length Wtd. (ft) | 13.27 | Wetted Per. (ft) | 32.56 | 29.64 | 10.99 |
| Min Ch El (ft) | 2270.65 | Shear (lb/sq ft) | 0.85 | 1.34 | 0.54 |
| Alpha | 1.08 | Stream Power (lb/ft s) | 2.70 | 5.47 | 1.19 |
| Frctn Loss (ft) | 0.26 | Cum Volume (acre-ft) | 0.12 | 2.28 | 0.51 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.17 | 0.95 | 0.57 |

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2273.74 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.28 | Wt. n-Val. | | 0.056 | |
| W.S. Elev (ft) | 2273.45 | Reach Len. (ft) | 13.57 | 13.20 | 10.89 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 60.92 | |
| E.G. Slope (ft/ft) | 0.011024 | Area (sq ft) | | 60.92 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 29.40 | Top Width (ft) | | 29.40 | |
| Vel Total (ft/s) | 4.27 | Avg. Vel. (ft/s) | | 4.27 | |
| Max Chl Dpth (ft) | 2.80 | Hydr. Depth (ft) | | 2.07 | |
| Conv. Total (cfs) | 2476.3 | Conv. (cfs) | | 2476.3 | |
| Length Wtd. (ft) | 13.20 | Wetted Per. (ft) | | 32.13 | |
| Min Ch El (ft) | 2270.65 | Shear (lb/sq ft) | | 1.30 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 5.57 | |
| Frctn Loss (ft) | 0.22 | Cum Volume (acre-ft) | 0.00 | 2.46 | 0.01 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.00 | 0.95 | 0.00 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 11.81 | 23.62 | 22.27 | 7.49 | 8.89 | 8.57 | 0.86 | 2.97 |
| 2 | LOB | 23.62 | 35.43 | 51.95 | 13.97 | 11.84 | 19.98 | 1.18 | 3.72 |
| 3 | LOB | 35.43 | 47.24 | 12.64 | 5.98 | 11.83 | 4.86 | 0.51 | 2.11 |
| 4 | Chan | 47.24 | 54.59 | 25.15 | 7.64 | 7.53 | 9.67 | 1.04 | 3.29 |
| 5 | Chan | 54.59 | 61.94 | 66.24 | 13.56 | 7.39 | 25.48 | 1.85 | 4.88 |
| 6 | Chan | 61.94 | 69.29 | 44.61 | 10.68 | 7.37 | 17.16 | 1.45 | 4.18 |
| 7 | Chan | 69.29 | 76.64 | 24.26 | 7.41 | 7.36 | 9.33 | 1.01 | 3.27 |
| 8 | ROB | 76.64 | 96.66 | 12.89 | 5.82 | 10.99 | 4.96 | 0.53 | 2.21 |

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 47.24 | 54.59 | 46.94 | 13.05 | 8.47 | 18.05 | 1.77 | 3.60 |
| 2 | Chan | 54.59 | 61.94 | 95.91 | 18.97 | 7.39 | 36.89 | 2.58 | 5.06 |
| 3 | Chan | 61.94 | 69.29 | 73.07 | 16.09 | 7.37 | 28.10 | 2.19 | 4.54 |
| 4 | Chan | 69.29 | 76.64 | 44.08 | 12.82 | 8.90 | 16.95 | 1.74 | 3.44 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.19955

INPUT
Description:
Station Elevation Data num= 40

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2277.39 | 5.97 | 2274.06 | 6.26 | 2273.9 | 7.76 | 2273.4 | 11.89 | 2272.27 |
| 15.77 | 2271.6 | 16.06 | 2271.65 | 21.15 | 2271.02 | 23.56 | 2270.7 | 29.98 | 2271.14 |
| 35.1 | 2271.58 | 36.19 | 2271.67 | 38.32 | 2271.85 | 40.46 | 2272 | 44.09 | 2272.19 |
| 48.42 | 2271.36 | 55.33 | 2270.21 | 59.15 | 2270.74 | 64.22 | 2271.64 | 64.98 | 2271.67 |
| 65.43 | 2271.67 | 68.63 | 2271.87 | 70.89 | 2271.95 | 74.31 | 2272.22 | 80.68 | 2272.51 |
| 85.43 | 2272.81 | 89.1 | 2273.21 | 90.96 | 2273.61 | 92.94 | 2274.12 | 102.29 | 2275.16 |
| 105.02 | 2275.39 | 106.28 | 2275.61 | 115.33 | 2277.91 | 120.89 | 2279.31 | 126.33 | 2280.7 |
| 144.37 | 2284.93 | 146.39 | 2285.42 | 146.8 | 2285.5 | 147.07 | 2285.52 | 153.46 | 2285.87 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .056 | 23.56 | .056 | 36.19 | .056 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 44.09 | 68.63 | 12.55 | 12.48 | 12.2 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2272.66 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.30 | Wt. n-Val. | 0.056 | 0.056 | 0.056 |
| W.S. Elev (ft) | 2272.36 | Reach Len. (ft) | 12.55 | 12.48 | 12.20 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 29.15 | 29.36 | 2.20 |
| E.G. Slope (ft/ft) | 0.024570 | Area (sq ft) | 29.15 | 29.36 | 2.20 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 119.87 | 136.51 | 3.62 |
| Top Width (ft) | 65.90 | Top Width (ft) | 32.54 | 24.54 | 8.82 |
| Vel Total (ft/s) | 4.28 | Avg. Vel. (ft/s) | 4.11 | 4.65 | 1.65 |
| Max Chl Dpth (ft) | 2.15 | Hydr. Depth (ft) | 0.90 | 1.20 | 0.25 |
| Conv. Total (cfs) | 1658.7 | Conv. (cfs) | 764.8 | 870.9 | 23.1 |
| Length Wtd. (ft) | 12.51 | Wetted Per. (ft) | 32.73 | 24.84 | 8.84 |
| Min Ch El (ft) | 2270.21 | Shear (lb/sq ft) | 1.37 | 1.81 | 0.38 |
| Alpha | 1.05 | Stream Power (lb/ft s) | 5.62 | 8.43 | 0.63 |
| Frctn Loss (ft) | 0.39 | Cum Volume (acre-ft) | 0.11 | 2.27 | 0.51 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.16 | 0.94 | 0.57 |

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2273.49 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.56 | Wt. n-Val. | | 0.056 | |
| W.S. Elev (ft) | 2272.93 | Reach Len. (ft) | 12.55 | 12.48 | 12.20 |
| Crit W.S. (ft) | 2272.67 | Flow Area (sq ft) | | 43.31 | |
| E.G. Slope (ft/ft) | 0.026785 | Area (sq ft) | | 43.31 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 24.54 | Top Width (ft) | | 24.54 | |
| Vel Total (ft/s) | 6.00 | Avg. Vel. (ft/s) | | 6.00 | |
| Max Chl Dpth (ft) | 2.72 | Hydr. Depth (ft) | | 1.76 | |
| Conv. Total (cfs) | 1588.7 | Conv. (cfs) | | 1588.7 | |
| Length Wtd. (ft) | 12.48 | Wetted Per. (ft) | | 26.64 | |
| Min Ch El (ft) | 2270.21 | Shear (lb/sq ft) | | 2.72 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 16.32 | |
| Frctn Loss (ft) | 0.42 | Cum Volume (acre-ft) | 0.00 | 2.44 | 0.01 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.00 | 0.94 | 0.00 |

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 11.02 | 22.05 | 29.31 | 8.38 | 10.62 | 11.27 | 0.80 | 3.50 |
| 2 | LOB | 22.05 | 33.07 | 75.25 | 15.00 | 11.06 | 28.94 | 1.36 | 5.02 |
| 3 | LOB | 33.07 | 44.09 | 15.31 | 5.77 | 11.05 | 5.89 | 0.52 | 2.66 |
| 4 | Chan | 44.09 | 50.23 | 14.48 | 4.63 | 6.24 | 5.57 | 0.75 | 3.13 |
| 5 | Chan | 50.23 | 56.36 | 61.15 | 10.97 | 6.22 | 23.52 | 1.79 | 5.58 |
| 6 | Chan | 56.36 | 62.50 | 48.18 | 9.50 | 6.21 | 18.53 | 1.55 | 5.07 |
| 7 | Chan | 62.50 | 68.63 | 12.70 | 4.26 | 6.17 | 4.89 | 0.69 | 2.98 |
| 8 | ROB | 68.63 | 89.84 | 3.62 | 2.20 | 8.84 | 1.39 | 0.25 | 1.65 |

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 44.09 | 50.23 | 36.62 | 8.11 | 6.98 | 14.09 | 1.32 | 4.51 |
| 2 | Chan | 50.23 | 56.36 | 103.57 | 14.45 | 6.22 | 39.83 | 2.36 | 7.17 |
| 3 | Chan | 56.36 | 62.50 | 86.71 | 12.99 | 6.21 | 33.35 | 2.12 | 6.67 |
| 4 | Chan | 62.50 | 68.63 | 33.11 | 7.75 | 7.23 | 12.73 | 1.26 | 4.27 |

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.19719

INPUT
Description:
Station Elevation Data num= 36

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2278.69 | 1.52 | 2277.84 | 5.56 | 2275.89 | 9.32 | 2274.42 | 9.99 | 2274.16 |
| 11.82 | 2273.4 | 12.82 | 2272.93 | 17.78 | 2271.91 | 20.28 | 2271.46 | 23.45 | 2271.09 |
| 29.87 | 2270.39 | 30.82 | 2270.47 | 39.22 | 2271.1 | 39.41 | 2271.11 | 41.88 | 2271.25 |
| 47.85 | 2271.58 | 54.56 | 2270.39 | 58.15 | 2269.71 | 61.21 | 2270.11 | 70.03 | 2271.48 |
| 75.96 | 2272.19 | 78.01 | 2272.64 | 79.87 | 2272.93 | 82.31 | 2273.25 | 84.35 | 2273.5 |
| 95.49 | 2274.56 | 102.88 | 2275.08 | 106.62 | 2275.78 | 107.26 | 2275.93 | 107.47 | 2275.96 |
| 119.91 | 2279.14 | 129.87 | 2281.74 | 143.03 | 2285.06 | 146.88 | 2285.24 | 147.06 | 2285.25 |
| 153.46 | 2285.64 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .056 | 29.87 | .056 | 41.88 | .056 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 47.85 | 70.03 | 23.83 | 22.35 | 20.75 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2272.25 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.46 | Wt. n-Val. | 0.056 | 0.056 | 0.056 |
| W.S. Elev (ft) | 2271.79 | Reach Len. (ft) | 23.83 | 22.35 | 20.75 |
| Crit W.S. (ft) | 2271.79 | Flow Area (sq ft) | 22.26 | 26.16 | 0.40 |
| E.G. Slope (ft/ft) | 0.041148 | Area (sq ft) | 22.26 | 26.16 | 0.40 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 103.65 | 155.74 | 0.62 |
| Top Width (ft) | 54.16 | Top Width (ft) | 29.40 | 22.18 | 2.58 |
| Vel Total (ft/s) | 5.33 | Avg. Vel. (ft/s) | 4.66 | 5.95 | 1.54 |
| Max Chl Dpth (ft) | 2.08 | Hydr. Depth (ft) | 0.76 | 1.18 | 0.15 |
| Conv. Total (cfs) | 1281.7 | Conv. (cfs) | 511.0 | 767.8 | 3.0 |
| Length Wtd. (ft) | 22.65 | Wetted Per. (ft) | 29.53 | 22.48 | 2.60 |
| Min Ch El (ft) | 2269.71 | Shear (lb/sq ft) | 1.94 | 2.99 | 0.39 |
| Alpha | 1.05 | Stream Power (lb/ft s) | 9.02 | 17.80 | 0.61 |
| Frctn Loss (ft) | 0.51 | Cum Volume (acre-ft) | 0.11 | 2.26 | 0.51 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 0.15 | 0.93 | 0.57 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2273.04 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.82 | Wt. n-Val. | | 0.056 | |
| W.S. Elev (ft) | 2272.22 | Reach Len. (ft) | 23.83 | 22.35 | 20.75 |
| Crit W.S. (ft) | 2272.22 | Flow Area (sq ft) | | 35.70 | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| * E.G. Slope (ft/ft) | *0.044030 | * Area (sq ft) | * | * | 35.70 | * | * |
| * Q Total (cfs) | * 260.00 | * Flow (cfs) | * | * | 260.00 | * | * |
| * Top Width (ft) | * 22.18 | * Top Width (ft) | * | * | 22.18 | * | * |
| * Vel Total (ft/s) | * 7.28 | * Avg. Vel. (ft/s) | * | * | 7.28 | * | * |
| * Max Chl Dpth (ft) | * 2.51 | * Hydr. Depth (ft) | * | * | 1.61 | * | * |
| * Conv. Total (cfs) | * 1239.1 | * Conv. (cfs) | * | * | 1239.1 | * | * |
| * Length Wtd. (ft) | * 22.35 | * Wetted Per. (ft) | * | * | 23.86 | * | * |
| * Min Ch El (ft) | * 2269.71 | * Shear (lb/sq ft) | * | * | 4.11 | * | * |
| * Alpha | * 1.00 | * Stream Power (lb/ft s) | * | * | 29.95 | * | * |
| * Frctn Loss (ft) | * 0.31 | * Cum Volume (acre-ft) | * 0.00 | * | 2.43 | * | 0.01 * |
| * C & E Loss (ft) | * 0.18 | * Cum SA (acres) | * 0.00 | * | 0.93 | * | 0.00 * |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 11.96 | 23.93 | 6.49 | 2.27 | 5.53 | 2.50 | 0.42 | 2.85 |
| 2 | LOB | 23.93 | 35.89 | 74.39 | 13.40 | 12.02 | 28.61 | 1.12 | 5.55 |
| 3 | LOB | 35.89 | 47.85 | 22.76 | 6.58 | 11.99 | 8.75 | 0.55 | 3.46 |
| 4 | Chan | 47.85 | 53.40 | 15.05 | 3.89 | 5.63 | 5.79 | 0.70 | 3.87 |
| 5 | Chan | 53.40 | 58.94 | 65.06 | 9.35 | 5.63 | 25.02 | 1.69 | 6.95 |
| 6 | Chan | 58.94 | 64.49 | 59.12 | 8.81 | 5.60 | 22.74 | 1.59 | 6.71 |
| 7 | Chan | 64.49 | 70.03 | 16.51 | 4.10 | 5.61 | 6.35 | 0.74 | 4.02 |
| 8 | ROB | 70.03 | 90.89 | 0.62 | 0.40 | 2.60 | 0.24 | 0.15 | 1.54 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 47.85 | 53.40 | 32.76 | 6.27 | 6.27 | 12.60 | 1.13 | 5.22 |
| 2 | Chan | 53.40 | 58.94 | 100.05 | 11.74 | 5.63 | 38.48 | 2.12 | 8.52 |
| 3 | Chan | 58.94 | 64.49 | 92.82 | 11.20 | 5.60 | 35.70 | 2.02 | 8.29 |
| 4 | Chan | 64.49 | 70.03 | 34.37 | 6.49 | 6.35 | 13.22 | 1.17 | 5.30 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.19296

INPUT
Description:
Station Elevation Data num= 48

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2278.43 | 2.03 | 2277.66 | 11.02 | 2273.61 | 16.05 | 2271.34 | 16.82 | 2271.22 |
| 18.15 | 2271.21 | 23.83 | 2271.11 | 28.06 | 2271.02 | 33.55 | 2269.89 | 36.39 | 2269.27 |
| 39.39 | 2268.74 | 41.71 | 2268.94 | 46.46 | 2269 | 48.3 | 2269.12 | 49.5 | 2269.13 |
| 50.55 | 2269.14 | 51.43 | 2269.1 | 54.72 | 2268.84 | 54.86 | 2268.84 | 54.95 | 2268.82 |
| 55.06 | 2268.84 | 55.58 | 2268.91 | 60.33 | 2269.66 | 65.57 | 2270.38 | 72.96 | 2271.36 |
| 76.14 | 2271.83 | 81.81 | 2272.62 | 81.95 | 2272.61 | 82.2 | 2272.6 | 83.8 | 2272.95 |
| 86.56 | 2273.69 | 88.2 | 2273.8 | 88.51 | 2273.86 | 88.71 | 2273.91 | 88.96 | 2273.94 |
| 89.32 | 2273.99 | 90.5 | 2274.13 | 93.13 | 2274.43 | 104.33 | 2275.81 | 113.4 | 2277.86 |
| 117.15 | 2278.78 | 119.04 | 2279.25 | 125.52 | 2280.91 | 126.77 | 2281.22 | 132.04 | 2282.31 |
| 139.75 | 2284.07 | 142.05 | 2284.22 | 150.73 | 2284.81 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .056 | 39.39 | .056 | 49.5 | .056 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 36.39 | 60.33 | 13.61 | 12.9 | 9.7 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | | |
|---|---|---|---|---|---|---|
| * E.G. Elev (ft) | * 2271.32 | * Element | * Left OB | * Channel | * Right OB | * |
| * Vel Head (ft) | * 0.33 | * Wt. n-Val. | * 0.056 | * 0.056 | * 0.056 | * |
| * W.S. Elev (ft) | * 2270.99 | * Reach Len. (ft) | * 13.61 | * 12.90 | * 9.70 | * |
| * Crit W.S. (ft) | * | * Flow Area (sq ft) | * 6.92 | * 46.42 | * 6.45 | * |
| * E.G. Slope (ft/ft) | *0.013967 | * Area (sq ft) | * 6.92 | * 46.42 | * 6.45 | * |
| * Q Total (cfs) | * 260.00 | * Flow (cfs) | * 19.13 | * 225.66 | * 15.21 | * |
| * Top Width (ft) | * 41.92 | * Top Width (ft) | * 8.17 | * 23.94 | * 9.81 | * |
| * Vel Total (ft/s) | * 4.35 | * Avg. Vel. (ft/s) | * 2.77 | * 4.86 | * 2.36 | * |

| | | | | | | |
|---|---|---|---|---|---|---|
| Max Chl Dpth (ft) | 2.25 | Hydr. Depth (ft) | 0.85 | 1.94 | 0.66 |
| Conv. Total (cfs) | 2200.0 | Conv. (cfs) | 161.9 | 1909.4 | 128.7 |
| Length Wtd. (ft) | 12.63 | Wetted Per. (ft) | 8.35 | 24.08 | 9.90 |
| Min Ch El (ft) | 2268.74 | Shear (lb/sq ft) | 0.72 | 1.68 | 0.57 |
| Alpha | 1.13 | Stream Power (lb/ft s) | 2.00 | 8.17 | 1.34 |
| Frctn Loss (ft) | 0.17 | Cum Volume (acre-ft) | 0.10 | 2.24 | 0.50 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 0.14 | 0.92 | 0.57 |

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2272.09 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.23 | Wt. n-Val. | | 0.056 | |
| W.S. Elev (ft) | 2271.86 | Reach Len. (ft) | 13.61 | 12.90 | 9.70 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 67.24 | |
| E.G. Slope (ft/ft) | 0.006552 | Area (sq ft) | | 67.24 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 23.94 | Top Width (ft) | | 23.94 | |
| Vel Total (ft/s) | 3.87 | Avg. Vel. (ft/s) | | 3.87 | |
| Max Chl Dpth (ft) | 3.12 | Hydr. Depth (ft) | | 2.81 | |
| Conv. Total (cfs) | 3212.0 | Conv. (cfs) | | 3212.0 | |
| Length Wtd. (ft) | 12.90 | Wetted Per. (ft) | | 28.86 | |
| Min Ch El (ft) | 2268.74 | Shear (lb/sq ft) | | 0.95 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 3.69 | |
| Frctn Loss (ft) | 0.11 | Cum Volume (acre-ft) | 0.00 | 2.41 | 0.01 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.00 | 0.92 | 0.00 |

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 27.29 | 36.39 | 19.13 | 6.92 | 8.35 | 7.36 | 0.85 | 2.77 |
| 2 | Chan | 36.39 | 42.38 | 61.79 | 12.28 | 6.04 | 23.77 | 2.05 | 5.03 |
| 3 | Chan | 42.38 | 48.36 | 58.76 | 11.88 | 5.99 | 22.60 | 1.98 | 4.95 |
| 4 | Chan | 48.36 | 54.35 | 55.99 | 11.54 | 6.00 | 21.54 | 1.93 | 4.85 |
| 5 | Chan | 54.35 | 60.33 | 49.11 | 10.71 | 6.05 | 18.89 | 1.79 | 4.58 |
| 6 | ROB | 60.33 | 82.93 | 15.21 | 6.45 | 9.90 | 5.85 | 0.66 | 2.36 |

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 36.39 | 42.38 | 60.56 | 17.49 | 8.63 | 23.29 | 2.92 | 3.46 |
| 2 | Chan | 42.38 | 48.36 | 74.28 | 17.08 | 5.99 | 28.57 | 2.85 | 4.35 |
| 3 | Chan | 48.36 | 54.35 | 71.83 | 16.75 | 6.00 | 27.63 | 2.80 | 4.29 |
| 4 | Chan | 54.35 | 60.33 | 53.33 | 15.92 | 8.25 | 20.51 | 2.66 | 3.35 |

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.19051

INPUT
Description:
Station Elevation Data num= 43

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2276.41 | 2.76 | 2275.18 | 4.19 | 2274.44 | 6.41 | 2273.3 | 13.19 | 2270.48 |
| 15.38 | 2270.44 | 23.63 | 2270.41 | 24.62 | 2270.35 | 26.23 | 2270.01 | 31.44 | 2269.08 |
| 33.16 | 2268.78 | 34.81 | 2268.48 | 35.3 | 2268.41 | 35.73 | 2268.4 | 41.31 | 2268.37 |
| 44.55 | 2268.62 | 47.62 | 2268.86 | 48.26 | 2268.94 | 55.16 | 2269.79 | 61.13 | 2270.78 |
| 74.83 | 2272.75 | 75.9 | 2272.79 | 76.6 | 2272.79 | 78.13 | 2273.24 | 78.75 | 2273.32 |
| 79.94 | 2273.3 | 80.67 | 2273.5 | 82.69 | 2273.72 | 84 | 2273.79 | 85.95 | 2274.16 |
| 86.68 | 2274.25 | 87.73 | 2274.24 | 88.8 | 2274.24 | 89.24 | 2274.28 | 96.59 | 2276.08 |
| 98.35 | 2276.36 | 110.46 | 2279.14 | 121.37 | 2282.08 | 125.9 | 2283.04 | 130.5 | 2283.98 |
| 131.21 | 2284.01 | 132.89 | 2284.08 | 134.43 | 2284.16 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .056 | 35.3 | .056 | 44.55 | .056 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 31.44 | 48.26 | 15.92 | 10.95 | 9.51 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2271.15 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.33 | Wt. n-Val. | 0.056 | 0.056 | 0.056 |
| W.S. Elev (ft) | 2270.82 | Reach Len. (ft) | 15.92 | 10.95 | 9.51 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 12.24 | 37.75 | 13.20 |
| E.G. Slope (ft/ft) | 0.012705 | Area (sq ft) | 12.24 | 37.75 | 13.20 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 27.07 | 193.57 | 39.36 |
| Top Width (ft) | 49.01 | Top Width (ft) | 19.06 | 16.82 | 13.13 |
| Vel Total (ft/s) | 4.11 | Avg. Vel. (ft/s) | 2.21 | 5.13 | 2.98 |
| Max Chl Dpth (ft) | 2.45 | Hydr. Depth (ft) | 0.64 | 2.24 | 1.01 |
| Conv. Total (cfs) | 2306.7 | Conv. (cfs) | 240.2 | 1717.3 | 349.2 |
| Length Wtd. (ft) | 11.27 | Wetted Per. (ft) | 19.25 | 16.90 | 13.26 |
| Min Ch El (ft) | 2268.37 | Shear (lb/sq ft) | 0.50 | 1.77 | 0.79 |
| Alpha | 1.27 | Stream Power (lb/ft s) | 1.12 | 9.08 | 2.35 |
| Frctn Loss (ft) | 0.18 | Cum Volume (acre-ft) | 0.09 | 2.23 | 0.50 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.14 | 0.91 | 0.57 |

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2271.96 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.42 | Wt. n-Val. | | 0.056 | |
| W.S. Elev (ft) | 2271.54 | Reach Len. (ft) | 15.92 | 10.95 | 9.51 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 49.86 | |
| E.G. Slope (ft/ft) | 0.011629 | Area (sq ft) | | 49.86 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |

| | | | | | |
|---|---|---|---|---|---|
| Top Width (ft) | 16.82 | Top Width (ft) | | 16.82 | |
| Vel Total (ft/s) | 5.21 | Avg. Vel. (ft/s) | | 5.21 | |
| Max Chl Dpth (ft) | 3.17 | Hydr. Depth (ft) | | 2.96 | |
| Conv. Total (cfs) | 2411.0 | Conv. (cfs) | | 2411.0 | |
| Length Wtd. (ft) | 10.95 | Wetted Per. (ft) | | 21.96 | |
| Min Ch El (ft) | 2268.37 | Shear (lb/sq ft) | | 1.65 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 8.60 | |
| Frctn Loss (ft) | 0.15 | Cum Volume (acre-ft) | 0.00 | 2.39 | 0.01 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.00 | 0.92 | 0.00 |

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 7.86 | 15.72 | 1.25 | 1.05 | 3.41 | 0.48 | 0.31 | 1.19 |
| 2 | LOB | 15.72 | 23.58 | 4.34 | 3.09 | 7.86 | 1.67 | 0.39 | 1.41 |
| 3 | LOB | 23.58 | 31.44 | 21.48 | 8.11 | 7.98 | 8.26 | 1.03 | 2.65 |
| 4 | Chan | 31.44 | 35.65 | 43.07 | 8.85 | 4.26 | 16.57 | 2.10 | 4.87 |
| 5 | Chan | 35.65 | 39.85 | 55.17 | 10.21 | 4.21 | 21.22 | 2.43 | 5.40 |
| 6 | Chan | 39.85 | 44.06 | 53.17 | 9.99 | 4.21 | 20.45 | 2.38 | 5.32 |
| 7 | Chan | 44.06 | 48.26 | 42.16 | 8.70 | 4.22 | 16.21 | 2.07 | 4.85 |
| 8 | ROB | 48.26 | 69.80 | 39.36 | 13.20 | 13.26 | 15.14 | 1.01 | 2.98 |

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 31.44 | 35.65 | 49.82 | 11.88 | 6.72 | 19.16 | 2.82 | 4.20 |
| 2 | Chan | 35.65 | 39.85 | 81.60 | 13.24 | 4.21 | 31.38 | 3.15 | 6.16 |
| 3 | Chan | 39.85 | 44.06 | 79.28 | 13.02 | 4.21 | 30.49 | 3.10 | 6.09 |
| 4 | Chan | 44.06 | 48.26 | 49.30 | 11.73 | 6.82 | 18.96 | 2.79 | 4.20 |

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.18844

INPUT
Description:
Station Elevation Data num= 36

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2277.22 | 1.97 | 2276.73 | 2.84 | 2276.37 | 3.87 | 2275.94 | 5.24 | 2275.34 |
| 12.58 | 2272.12 | 17.81 | 2270.26 | 21.81 | 2270.16 | 24.56 | 2270.07 | 26.78 | 2269.92 |
| 33.35 | 2268.85 | 34.92 | 2268.6 | 38.55 | 2267.98 | 38.57 | 2267.98 | 38.96 | 2267.98 |
| 46.71 | 2268.69 | 48.58 | 2268.87 | 52.31 | 2269.21 | 53.12 | 2269.28 | 69.52 | 2272.12 |
| 73.26 | 2272.71 | 74.01 | 2272.75 | 74.56 | 2272.84 | 77.35 | 2273.11 | 78.26 | 2273.09 |
| 81.62 | 2273.32 | 83.1 | 2273.41 | 98.22 | 2276.24 | 102.59 | 2277.31 | 103.03 | 2277.38 |
| 105.94 | 2278.04 | 116.15 | 2280.8 | 126.61 | 2283.83 | 127.95 | 2283.88 | 130.05 | 2283.96 |
| 131 | 2284.01 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .056 | 38.57 | .056 | 46.71 | .056 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 33.35 | 48.58 | 24.14 | 18.93 | 14.25 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2270.95 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.48 | Wt. n-Val. | 0.056 | 0.056 | 0.056 |
| W.S. Elev (ft) | 2270.47 | Reach Len. (ft) | 24.14 | 18.93 | 14.25 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 10.27 | 31.39 | 10.42 |
| E.G. Slope (ft/ft) | 0.020740 | Area (sq ft) | 10.27 | 31.39 | 10.42 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 28.90 | 193.88 | 37.22 |
| Top Width (ft) | 42.78 | Top Width (ft) | 16.13 | 15.23 | 11.42 |
| Vel Total (ft/s) | 4.99 | Avg. Vel. (ft/s) | 2.81 | 6.18 | 3.57 |
| Max Chl Dpth (ft) | 2.49 | Hydr. Depth (ft) | 0.64 | 2.06 | 0.91 |
| Conv. Total (cfs) | 1805.4 | Conv. (cfs) | 200.7 | 1346.2 | 258.5 |
| Length Wtd. (ft) | 18.98 | Wetted Per. (ft) | 16.26 | 15.34 | 11.54 |
| Min Ch El (ft) | 2267.98 | Shear (lb/sq ft) | 0.82 | 2.65 | 1.17 |
| Alpha | 1.25 | Stream Power (lb/ft s) | 2.30 | 16.36 | 4.18 |
| Frctn Loss (ft) | 0.31 | Cum Volume (acre-ft) | 0.09 | 2.22 | 0.50 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.13 | 0.91 | 0.56 |

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2271.79 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.57 | Wt. n-Val. | | 0.056 | |
| W.S. Elev (ft) | 2271.22 | Reach Len. (ft) | 24.14 | 18.93 | 14.25 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 42.76 | |
| E.G. Slope (ft/ft) | 0.017025 | Area (sq ft) | | 42.76 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 15.23 | Top Width (ft) | | 15.23 | |
| Vel Total (ft/s) | 6.08 | Avg. Vel. (ft/s) | | 6.08 | |
| Max Chl Dpth (ft) | 3.24 | Hydr. Depth (ft) | | 2.81 | |
| Conv. Total (cfs) | 1992.6 | Conv. (cfs) | | 1992.6 | |
| Length Wtd. (ft) | 18.93 | Wetted Per. (ft) | | 20.06 | |
| Min Ch El (ft) | 2267.98 | Shear (lb/sq ft) | | 2.27 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 13.78 | |
| Frctn Loss (ft) | 0.27 | Cum Volume (acre-ft) | 0.00 | 2.38 | 0.01 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 0.00 | 0.91 | 0.00 |

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 16.68 | 25.01 | 3.30 | 2.27 | 7.83 | 1.27 | 0.29 | 1.45 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2 | LOB | 25.01 | 33.35 | 25.60 | 8.00 | 8.43 | 9.85 | 0.96 | 3.20 |
| 3 | Chan | 33.35 | 37.16 | 43.01 | 7.35 | 3.86 | 16.54 | 1.93 | 5.85 |
| 4 | Chan | 37.16 | 40.97 | 61.98 | 9.13 | 3.84 | 23.84 | 2.40 | 6.79 |
| 5 | Chan | 40.97 | 44.77 | 51.06 | 8.12 | 3.82 | 19.64 | 2.13 | 6.29 |
| 6 | Chan | 44.77 | 48.58 | 37.83 | 6.78 | 3.82 | 14.55 | 1.78 | 5.58 |
| 7 | ROB | 48.58 | 69.19 | 37.22 | 10.42 | 11.54 | 14.32 | 0.91 | 3.57 |

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 33.35 | 37.16 | 48.29 | 10.20 | 6.23 | 18.57 | 2.68 | 4.74 |
| 2 | Chan | 37.16 | 40.97 | 87.22 | 11.98 | 3.84 | 33.55 | 3.15 | 7.28 |
| 3 | Chan | 40.97 | 44.77 | 75.43 | 10.96 | 3.82 | 29.01 | 2.88 | 6.88 |
| 4 | Chan | 44.77 | 48.58 | 49.06 | 9.63 | 6.17 | 18.87 | 2.53 | 5.10 |

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.18485

INPUT
Description:
Station Elevation Data num= 31

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2276.51 | .64 | 2276.32 | 1.8 | 2275.89 | 3.32 | 2275.18 | 3.91 | 2275 |
| 6.04 | 2274.04 | 7.75 | 2273.26 | 10.6 | 2272.55 | 18.84 | 2270.63 | 21.59 | 2270.36 |
| 25.97 | 2269.89 | 29.21 | 2269.57 | 32.11 | 2269.11 | 33.25 | 2268.87 | 36.53 | 2268.21 |
| 41.95 | 2267.17 | 49.07 | 2268.09 | 50.6 | 2268.26 | 51.54 | 2268.39 | 52.89 | 2268.58 |
| 67.03 | 2271.71 | 70.61 | 2272.57 | 79.74 | 2273.97 | 85.49 | 2274.83 | 104.85 | 2278.96 |
| 106.7 | 2279.21 | 115.47 | 2281.42 | 121.61 | 2283.25 | 121.78 | 2283.3 | 122.88 | 2283.34 |
| 125.53 | 2283.43 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .056 | 41.95 | .056 | 51.54 | .056 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 36.53 | 51.54 | 57.38 | 60.63 | 46.99 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2270.62 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.39 | Wt. n-Val. | 0.056 | 0.056 | 0.056 |
| W.S. Elev (ft) | 2270.23 | Reach Len. (ft) | 57.38 | 60.63 | 46.99 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 11.68 | 37.19 | 8.49 |
| E.G. Slope (ft/ft) | 0.012933 | Area (sq ft) | 11.68 | 37.19 | 8.49 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 31.40 | 203.93 | 24.67 |
| Top Width (ft) | 37.52 | Top Width (ft) | 13.71 | 15.01 | 8.80 |
| Vel Total (ft/s) | 4.53 | Avg. Vel. (ft/s) | 2.69 | 5.48 | 2.90 |
| Max Chl Dpth (ft) | 3.06 | Hydr. Depth (ft) | 0.85 | 2.48 | 0.97 |
| Conv. Total (cfs) | 2286.2 | Conv. (cfs) | 276.1 | 1793.2 | 216.9 |
| Length Wtd. (ft) | 59.27 | Wetted Per. (ft) | 13.88 | 15.19 | 8.99 |
| Min Ch El (ft) | 2267.17 | Shear (lb/sq ft) | 0.68 | 1.98 | 0.76 |
| Alpha | 1.23 | Stream Power (lb/ft s) | 1.83 | 10.84 | 2.22 |
| Frctn Loss (ft) | 1.05 | Cum Volume (acre-ft) | 0.08 | 2.21 | 0.50 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.13 | 0.90 | 0.56 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2271.48 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.43 | Wt. n-Val. | | 0.056 | |
| W.S. Elev (ft) | 2271.05 | Reach Len. (ft) | 57.38 | 60.63 | 46.99 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 49.50 | |
| E.G. Slope (ft/ft) | 0.012166 | Area (sq ft) | | 49.50 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 15.01 | Top Width (ft) | | 15.01 | |
| Vel Total (ft/s) | 5.25 | Avg. Vel. (ft/s) | | 5.25 | |
| Max Chl Dpth (ft) | 3.88 | Hydr. Depth (ft) | | 3.30 | |
| Conv. Total (cfs) | 2357.2 | Conv. (cfs) | | 2357.2 | |
| Length Wtd. (ft) | 60.63 | Wetted Per. (ft) | | 20.68 | |
| Min Ch El (ft) | 2267.17 | Shear (lb/sq ft) | | 1.82 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 9.55 | |
| Frctn Loss (ft) | 1.02 | Cum Volume (acre-ft) | 0.00 | 2.36 | 0.01 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.00 | 0.90 | 0.00 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 18.27 | 27.40 | 1.14 | 1.12 | 4.61 | 0.44 | 0.24 | 1.02 |
| 2 | LOB | 27.40 | 36.53 | 30.26 | 10.56 | 9.27 | 11.64 | 1.16 | 2.87 |
| 3 | Chan | 36.53 | 40.28 | 47.04 | 8.93 | 3.82 | 18.09 | 2.38 | 5.27 |
| 4 | Chan | 40.28 | 44.04 | 66.17 | 10.93 | 3.80 | 25.45 | 2.91 | 6.05 |
| 5 | Chan | 44.04 | 47.79 | 53.05 | 9.56 | 3.78 | 20.40 | 2.55 | 5.55 |
| 6 | Chan | 47.79 | 51.54 | 37.67 | 7.78 | 3.78 | 14.49 | 2.07 | 4.84 |
| 7 | ROB | 51.54 | 70.04 | 24.67 | 8.49 | 8.99 | 9.49 | 0.97 | 2.90 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 36.53 | 40.28 | 48.75 | 12.00 | 6.66 | 18.75 | 3.20 | 4.06 |
| 2 | Chan | 40.28 | 44.04 | 91.66 | 14.01 | 3.80 | 35.25 | 3.73 | 6.54 |
| 3 | Chan | 44.04 | 47.79 | 77.40 | 12.63 | 3.78 | 29.77 | 3.37 | 6.13 |
| 4 | Chan | 47.79 | 51.54 | 42.18 | 10.86 | 6.44 | 16.22 | 2.89 | 3.88 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.17337

INPUT
Description:
Station Elevation Data num= 25

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2274.58 | 1.19 | 2274.33 | 2.63 | 2273.92 | 4.31 | 2273.43 | 6.17 | 2273.07 |
| 21.4 | 2269.1 | 23.81 | 2268.79 | 32.18 | 2268.21 | 38.63 | 2267.97 | 44.5 | 2267.21 |
| 52.08 | 2266.07 | 57.38 | 2267.82 | 59.79 | 2268.64 | 63.03 | 2269.73 | 63.92 | 2270.05 |
| 66.2 | 2270.86 | 69.18 | 2271.91 | 85.18 | 2277.45 | 89.35 | 2278.97 | 95.74 | 2281.09 |
| 97.02 | 2281.19 | 97.34 | 2281.21 | 98.08 | 2281.27 | 102.94 | 2281.62 | 104.83 | 2281.8 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .056 | 52.08 | .056 | 59.79 | .056 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 44.5 | 57.38 | 19.91 | 28.74 | 20.45 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2269.54 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.62 | Wt. n-Val. | 0.056 | 0.056 | 0.056 |
| W.S. Elev (ft) | 2268.92 | Reach Len. (ft) | 19.91 | 28.74 | 20.45 |
| Crit W.S. (ft) | 2268.92 | Flow Area (sq ft) | 16.75 | 27.75 | 1.78 |
| E.G. Slope (ft/ft) | 0.025983 | Area (sq ft) | 16.75 | 27.75 | 1.78 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 60.13 | 194.38 | 5.49 |
| Top Width (ft) | 37.83 | Top Width (ft) | 21.70 | 12.88 | 3.24 |
| Vel Total (ft/s) | 5.62 | Avg. Vel. (ft/s) | 3.59 | 7.00 | 3.08 |
| Max Chl Dpth (ft) | 2.85 | Hydr. Depth (ft) | 0.77 | 2.15 | 0.55 |
| Conv. Total (cfs) | 1613.0 | Conv. (cfs) | 373.0 | 1205.9 | 34.1 |
| Length Wtd. (ft) | 26.06 | Wetted Per. (ft) | 21.79 | 13.25 | 3.43 |
| Min Ch El (ft) | 2266.07 | Shear (lb/sq ft) | 1.25 | 3.40 | 0.84 |
| Alpha | 1.26 | Stream Power (lb/ft s) | 4.48 | 23.80 | 2.60 |
| Frctn Loss (ft) | 0.77 | Cum Volume (acre-ft) | 0.07 | 2.16 | 0.49 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.10 | 0.88 | 0.55 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2270.43 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.74 | Wt. n-Val. | | 0.056 | |
| W.S. Elev (ft) | 2269.69 | Reach Len. (ft) | 19.91 | 28.74 | 20.45 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 37.62 | |
| E.G. Slope (ft/ft) | 0.024621 | Area (sq ft) | | 37.62 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 12.88 | Top Width (ft) | | 12.88 | |
| Vel Total (ft/s) | 6.91 | Avg. Vel. (ft/s) | | 6.91 | |
| Max Chl Dpth (ft) | 3.62 | Hydr. Depth (ft) | | 2.92 | |
| Conv. Total (cfs) | 1657.0 | Conv. (cfs) | | 1657.0 | |
| Length Wtd. (ft) | 28.66 | Wetted Per. (ft) | | 17.59 | |
| Min Ch El (ft) | 2266.07 | Shear (lb/sq ft) | | 3.29 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 22.72 | |
| Frctn Loss (ft) | 0.73 | Cum Volume (acre-ft) | 0.00 | 2.30 | 0.01 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.00 | 0.89 | 0.00 |

Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 22.25 | 33.38 | 9.65 | 4.46 | 10.61 | 3.71 | 0.42 | 2.16 |
| 2 | LOB | 33.38 | 44.50 | 50.48 | 12.29 | 11.18 | 19.42 | 1.10 | 4.11 |
| 3 | Chan | 44.50 | 47.72 | 40.92 | 6.29 | 3.26 | 15.74 | 1.95 | 6.51 |
| 4 | Chan | 47.72 | 50.94 | 59.20 | 7.85 | 3.26 | 22.77 | 2.44 | 7.54 |
| 5 | Chan | 50.94 | 54.16 | 64.73 | 8.37 | 3.34 | 24.89 | 2.60 | 7.74 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6 | Chan | 54.16 | 57.38 | 29.54 | 5.25 | 3.39 | 11.36 | 1.63 | 5.62 |
| 7 | ROB | 57.38 | 69.24 | 5.49 | 1.78 | 3.43 | 2.11 | 0.55 | 3.08 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 44.50 | 47.72 | 44.68 | 8.75 | 5.73 | 17.18 | 2.72 | 5.10 |
| 2 | Chan | 47.72 | 50.94 | 85.61 | 10.31 | 3.26 | 32.93 | 3.20 | 8.30 |
| 3 | Chan | 50.94 | 54.16 | 91.30 | 10.83 | 3.34 | 35.12 | 3.36 | 8.43 |
| 4 | Chan | 54.16 | 57.38 | 38.40 | 7.72 | 5.26 | 14.77 | 2.40 | 4.97 |

Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.16793

INPUT
Description:
Station Elevation Data num= 28

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2276.73 | .13 | 2276.71 | 2 | 2276.42 | 4.46 | 2275.74 | 9.33 | 2274.39 |
| 14.82 | 2272.54 | 20.26 | 2270.85 | 31.28 | 2266.99 | 38.6 | 2267.06 | 44.2 | 2267.14 |
| 47.99 | 2267.14 | 50.63 | 2266.66 | 51.58 | 2266.5 | 56.61 | 2265.5 | 59.89 | 2266.67 |
| 62.06 | 2267.41 | 63.65 | 2267.96 | 67.74 | 2269.27 | 68.65 | 2269.53 | 68.85 | 2269.58 |
| 71.61 | 2270.45 | 87.49 | 2275.38 | 93.99 | 2277.29 | 101.19 | 2279.74 | 104.61 | 2280.84 |
| 106.78 | 2281.13 | 110.71 | 2281.65 | 111.74 | 2281.85 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .056 | 56.61 | .056 | 62.06 | .056 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 47.99 | 62.06 | 12.51 | 20.07 | 19.45 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2268.71 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.59 | Wt. n-Val. | 0.056 | 0.056 | 0.056 |
| W.S. Elev (ft) | 2268.12 | Reach Len. (ft) | 12.51 | 20.07 | 19.45 |
| Crit W.S. (ft) | 2268.12 | Flow Area (sq ft) | 19.22 | 24.33 | 0.73 |
| E.G. Slope (ft/ft) | 0.033834 | Area (sq ft) | 19.22 | 24.33 | 0.73 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 90.97 | 167.33 | 1.70 |
| Top Width (ft) | 36.08 | Top Width (ft) | 19.93 | 14.07 | 2.08 |
| Vel Total (ft/s) | 5.87 | Avg. Vel. (ft/s) | 4.73 | 6.88 | 2.33 |
| Max Chl Dpth (ft) | 2.62 | Hydr. Depth (ft) | 0.96 | 1.73 | 0.35 |
| Conv. Total (cfs) | 1413.5 | Conv. (cfs) | 494.6 | 909.7 | 9.2 |
| Length Wtd. (ft) | 17.97 | Wetted Per. (ft) | 20.12 | 14.55 | 2.20 |
| Min Ch El (ft) | 2265.50 | Shear (lb/sq ft) | 2.02 | 3.53 | 0.70 |
| Alpha | 1.11 | Stream Power (lb/ft s) | 9.55 | 24.29 | 1.63 |
| Frctn Loss (ft) | 0.57 | Cum Volume (acre-ft) | 0.06 | 2.15 | 0.49 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.09 | 0.87 | 0.55 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2269.69 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.81 | Wt. n-Val. | 0.056 | 0.056 | |
| W.S. Elev (ft) | 2268.88 | Reach Len. (ft) | 12.51 | 20.07 | 19.45 |
| Crit W.S. (ft) | 2268.54 | Flow Area (sq ft) | 1.59 | 35.08 | |
| E.G. Slope (ft/ft) | 0.026419 | Area (sq ft) | 1.59 | 35.08 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | 4.87 | 255.13 | |
| Top Width (ft) | 14.98 | Top Width (ft) | 0.91 | 14.07 | |
| Vel Total (ft/s) | 7.09 | Avg. Vel. (ft/s) | 3.06 | 7.27 | |
| Max Chl Dpth (ft) | 3.38 | Hydr. Depth (ft) | 1.74 | 2.49 | |
| Conv. Total (cfs) | 1599.6 | Conv. (cfs) | 30.0 | 1569.7 | |
| Length Wtd. (ft) | 20.00 | Wetted Per. (ft) | 2.65 | 16.02 | |
| Min Ch El (ft) | 2265.50 | Shear (lb/sq ft) | 0.99 | 3.61 | |
| Alpha | 1.04 | Stream Power (lb/ft s) | 3.03 | 26.26 | |
| Frctn Loss (ft) | 0.70 | Cum Volume (acre-ft) | 0.00 | 2.27 | 0.01 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 0.00 | 0.88 | 0.00 |

Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 24.00 | 35.99 | 31.00 | 7.02 | 8.12 | 11.92 | 0.89 | 4.41 |
| 2 | LOB | 35.99 | 47.99 | 59.97 | 12.20 | 12.00 | 23.06 | 1.02 | 4.92 |
| 3 | Chan | 47.99 | 51.51 | 25.23 | 4.56 | 3.57 | 9.71 | 1.30 | 5.54 |
| 4 | Chan | 51.51 | 55.03 | 49.85 | 6.87 | 3.59 | 19.17 | 1.95 | 7.26 |
| 5 | Chan | 55.03 | 58.54 | 67.21 | 8.29 | 3.67 | 25.85 | 2.36 | 8.10 |
| 6 | Chan | 58.54 | 62.06 | 25.04 | 4.61 | 3.72 | 9.63 | 1.31 | 5.43 |
| 7 | ROB | 62.06 | 74.48 | 1.70 | 0.73 | 2.20 | 0.65 | 0.35 | 2.33 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 35.99 | 47.99 | 4.87 | 1.59 | 2.65 | 1.87 | 1.74 | 3.06 |
| 2 | Chan | 47.99 | 51.51 | 47.82 | 7.25 | 3.57 | 18.39 | 2.06 | 6.60 |
| 3 | Chan | 51.51 | 55.03 | 75.66 | 9.56 | 3.59 | 29.10 | 2.72 | 7.92 |
| 4 | Chan | 55.03 | 58.54 | 93.93 | 10.98 | 3.67 | 36.13 | 3.12 | 8.56 |
| 5 | Chan | 58.54 | 62.06 | 37.73 | 7.30 | 5.20 | 14.51 | 2.08 | 5.17 |

Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.16413

INPUT
Description:
Station Elevation Data num= 29

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2277.43 | 3.96 | 2276.81 | 5.72 | 2276.55 | 7.73 | 2276.25 | 18.12 | 2272.56 |
| 33.87 | 2267.22 | 34.59 | 2266.97 | 35.32 | 2266.73 | 37.46 | 2266.66 | 46.59 | 2266.28 |
| 47.08 | 2266.23 | 49.88 | 2265.96 | 53.33 | 2265.19 | 55.89 | 2264.72 | 60.05 | 2265.87 |
| 62.53 | 2266.49 | 63.73 | 2266.79 | 69.1 | 2268.07 | 72.25 | 2268.69 | 73.02 | 2268.9 |
| 81.94 | 2270.93 | 84.69 | 2272.14 | 90.3 | 2273.78 | 94.88 | 2274.81 | 105.01 | 2277.66 |
| 111.09 | 2279.59 | 111.51 | 2279.72 | 113.6 | 2280.05 | 114.25 | 2280.14 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .056 | 55.89 | .056 | 62.53 | .056 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 47.08 | 60.05 | 37.34 | 38.17 | 21.24 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2268.13 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.65 | Wt. n-Val. | 0.056 | 0.056 | 0.056 |
| W.S. Elev (ft) | 2267.48 | Reach Len. (ft) | 37.34 | 38.17 | 21.24 |
| Crit W.S. (ft) | 2267.48 | Flow Area (sq ft) | 12.34 | 26.00 | 5.23 |
| E.G. Slope (ft/ft) | 0.029572 | Area (sq ft) | 12.34 | 26.00 | 5.23 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 51.46 | 185.80 | 22.75 |
| Top Width (ft) | 33.52 | Top Width (ft) | 13.98 | 12.97 | 6.57 |
| Vel Total (ft/s) | 5.97 | Avg. Vel. (ft/s) | 4.17 | 7.15 | 4.35 |
| Max Chl Dpth (ft) | 2.76 | Hydr. Depth (ft) | 0.88 | 2.00 | 0.80 |
| Conv. Total (cfs) | 1511.9 | Conv. (cfs) | 299.2 | 1080.4 | 132.3 |
| Length Wtd. (ft) | 36.13 | Wetted Per. (ft) | 14.11 | 13.27 | 6.77 |
| Min Ch El (ft) | 2264.72 | Shear (lb/sq ft) | 1.61 | 3.62 | 1.43 |
| Alpha | 1.17 | Stream Power (lb/ft s) | 6.73 | 25.86 | 6.20 |
| Frctn Loss (ft) | 0.87 | Cum Volume (acre-ft) | 0.05 | 2.13 | 0.49 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.09 | 0.87 | 0.55 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2268.95 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 1.16 | Wt. n-Val. | | 0.056 | |
| W.S. Elev (ft) | 2267.79 | Reach Len. (ft) | 37.34 | 38.17 | 21.24 |
| Crit W.S. (ft) | 2267.79 | Flow Area (sq ft) | | 30.07 | |
| E.G. Slope (ft/ft) | 0.048684 | Area (sq ft) | | 30.07 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 12.97 | Top Width (ft) | | 12.97 | |
| Vel Total (ft/s) | 8.65 | Avg. Vel. (ft/s) | | 8.65 | |
| Max Chl Dpth (ft) | 3.07 | Hydr. Depth (ft) | | 2.32 | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Conv. Total (cfs) | 1178.4 | Conv. (cfs) | | 1178.4 | | | |
| Length Wtd. (ft) | 38.17 | Wetted Per. (ft) | | 16.75 | | | |
| Min Ch El (ft) | 2264.72 | Shear (lb/sq ft) | | 5.46 | | | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 47.17 | | | |
| Frctn Loss (ft) | 1.03 | Cum Volume (acre-ft) | 0.00 | 2.26 | | 0.01 | |
| C & E Loss (ft) | 0.18 | Cum SA (acres) | 0.00 | 0.87 | | 0.00 | |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 23.54 | 35.31 | 1.82 | 0.83 | 2.33 | 0.70 | 0.38 | 2.20 |
| 2 | LOB | 35.31 | 47.08 | 49.63 | 11.51 | 11.78 | 19.09 | 0.98 | 4.31 |
| 3 | Chan | 47.08 | 50.32 | 25.53 | 4.57 | 3.27 | 9.82 | 1.41 | 5.58 |
| 4 | Chan | 50.32 | 53.57 | 44.47 | 6.42 | 3.32 | 17.11 | 1.98 | 6.93 |
| 5 | Chan | 53.57 | 56.81 | 68.79 | 8.34 | 3.32 | 26.46 | 2.57 | 8.25 |
| 6 | Chan | 56.81 | 60.05 | 47.01 | 6.67 | 3.36 | 18.08 | 2.06 | 7.05 |
| 7 | ROB | 60.05 | 73.60 | 22.75 | 5.23 | 6.77 | 8.75 | 0.80 | 4.35 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 47.08 | 50.32 | 33.76 | 5.59 | 4.83 | 12.99 | 1.72 | 6.04 |
| 2 | Chan | 50.32 | 53.57 | 69.79 | 7.44 | 3.32 | 26.84 | 2.29 | 9.38 |
| 3 | Chan | 53.57 | 56.81 | 102.35 | 9.35 | 3.32 | 39.36 | 2.88 | 10.94 |
| 4 | Chan | 56.81 | 60.05 | 54.10 | 7.69 | 5.29 | 20.81 | 2.37 | 7.04 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.15690

INPUT
Description:
Station Elevation Data num= 35

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2276.51 | 9.72 | 2274.84 | 10.51 | 2274.71 | 10.67 | 2274.68 | 11.67 | 2274.49 |
| 28.08 | 2269.72 | 31.04 | 2268.93 | 34.65 | 2267.99 | 41.63 | 2265.68 | 48.07 | 2263.03 |
| 56.11 | 2264.69 | 58.01 | 2264.98 | 62.39 | 2265.7 | 62.96 | 2265.8 | 63.59 | 2265.89 |
| 65.61 | 2266.26 | 70.02 | 2266.68 | 70.45 | 2266.72 | 75.6 | 2267.01 | 76.52 | 2267.08 |
| 81.41 | 2267.53 | 82.77 | 2267.53 | 87.03 | 2268.02 | 93.12 | 2269.56 | 96.46 | 2270.52 |
| 98.77 | 2270.8 | 103.07 | 2272.02 | 108.84 | 2273.45 | 111.32 | 2273.88 | 118.61 | 2275.67 |
| 119.1 | 2275.76 | 121.29 | 2276.35 | 121.99 | 2276.31 | 125.49 | 2276.13 | 126.32 | 2276.23 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .056 | 48.07 | .056 | 62.39 | .056 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 41.63 | 56.11 | 28.06 | 24.55 | 23.45 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2267.03 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.59 | Wt. n-Val. | 0.056 | 0.056 | 0.056 |

| | | | | | | |
|---|---|---|---|---|---|---|
| W.S. Elev (ft) | 2266.44 | Reach Len. (ft) | 28.06 | 24.55 | 23.45 | |
| Crit W.S. (ft) | | Flow Area (sq ft) | 0.88 | 34.22 | 9.58 | |
| E.G. Slope (ft/ft) | 0.020049 | Area (sq ft) | 0.88 | 34.22 | 9.58 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | 1.68 | 221.10 | 37.22 | |
| Top Width (ft) | 28.21 | Top Width (ft) | 2.31 | 14.48 | 11.43 | |
| Vel Total (ft/s) | 5.82 | Avg. Vel. (ft/s) | 1.91 | 6.46 | 3.88 | |
| Max Chl Dpth (ft) | 3.41 | Hydr. Depth (ft) | 0.38 | 2.36 | 0.84 | |
| Conv. Total (cfs) | 1836.3 | Conv. (cfs) | 11.9 | 1561.5 | 262.9 | |
| Length Wtd. (ft) | 24.49 | Wetted Per. (ft) | 2.43 | 15.17 | 11.56 | |
| Min Ch El (ft) | 2263.03 | Shear (lb/sq ft) | 0.45 | 2.82 | 1.04 | |
| Alpha | 1.11 | Stream Power (lb/ft s) | 0.87 | 18.24 | 4.03 | |
| Frctn Loss (ft) | 0.53 | Cum Volume (acre-ft) | 0.05 | 2.11 | 0.49 | |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.08 | 0.86 | 0.55 | |

Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2267.63 | Element | | | |
| Vel Head (ft) | 0.56 | Wt. n-Val. | | 0.056 | |
| W.S. Elev (ft) | 2267.07 | Reach Len. (ft) | 28.06 | 24.55 | 23.45 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 43.22 | |
| E.G. Slope (ft/ft) | 0.017105 | Area (sq ft) | | 43.22 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 14.48 | Top Width (ft) | | 14.48 | |
| Vel Total (ft/s) | 6.02 | Avg. Vel. (ft/s) | | 6.02 | |
| Max Chl Dpth (ft) | 4.03 | Hydr. Depth (ft) | | 2.98 | |
| Conv. Total (cfs) | 1988.0 | Conv. (cfs) | | 1988.0 | |
| Length Wtd. (ft) | 24.55 | Wetted Per. (ft) | | 18.93 | |
| Min Ch El (ft) | 2263.03 | Shear (lb/sq ft) | | 2.44 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 14.66 | |
| Frctn Loss (ft) | 0.55 | Cum Volume (acre-ft) | 0.00 | 2.23 | 0.01 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.00 | 0.86 | 0.00 |

Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 31.22 | 41.63 | 1.68 | 0.88 | 2.43 | 0.65 | 0.38 | 1.91 |
| 2 | Chan | 41.63 | 45.25 | 24.68 | 5.46 | 3.91 | 9.49 | 1.51 | 4.52 |
| 3 | Chan | 45.25 | 48.87 | 75.82 | 10.65 | 3.87 | 29.16 | 2.94 | 7.12 |
| 4 | Chan | 48.87 | 52.49 | 75.12 | 10.41 | 3.70 | 28.89 | 2.87 | 7.22 |
| 5 | Chan | 52.49 | 56.11 | 45.48 | 7.70 | 3.70 | 17.49 | 2.13 | 5.91 |
| 6 | ROB | 56.11 | 73.66 | 37.22 | 9.58 | 11.56 | 14.32 | 0.84 | 3.88 |

Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 41.63 | 45.25 | 31.66 | 7.71 | 5.30 | 12.18 | 2.13 | 4.11 |
| 2 | Chan | 45.25 | 48.87 | 92.17 | 12.90 | 3.87 | 35.45 | 3.56 | 7.14 |
| 3 | Chan | 48.87 | 52.49 | 91.94 | 12.65 | 3.70 | 35.36 | 3.50 | 7.27 |
| 4 | Chan | 52.49 | 56.11 | 44.23 | 9.95 | 6.07 | 17.01 | 2.75 | 4.45 |

Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.15225

INPUT
Description:
Station Elevation Data num= 43

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2274.87 | 3.53 | 2273.95 | 6.51 | 2273.18 | 11.46 | 2271.78 | 11.97 | 2271.64 |
| 13.72 | 2271.12 | 20.23 | 2268.92 | 24.72 | 2267.49 | 30.33 | 2265.18 | 32.79 | 2264.09 |
| 37.18 | 2262.49 | 44.7 | 2264.02 | 47.61 | 2264.63 | 49.7 | 2265.08 | 51.17 | 2265.17 |
| 53.85 | 2265.36 | 56.7 | 2265.57 | 67.98 | 2266.38 | 68.48 | 2266.42 | 68.91 | 2266.45 |
| 74.88 | 2266.88 | 75.07 | 2266.89 | 78.82 | 2267.17 | 79.75 | 2267.2 | 79.86 | 2267.2 |
| 83.24 | 2267.33 | 83.52 | 2267.34 | 88.55 | 2267.68 | 88.86 | 2267.71 | 92.75 | 2268.03 |
| 93.22 | 2268.08 | 96.23 | 2268.37 | 97.48 | 2268.45 | 102.05 | 2268.41 | 102.3 | 2268.43 |
| 114.69 | 2271.58 | 116.14 | 2271.92 | 116.53 | 2272.02 | 116.94 | 2272.07 | 117.04 | 2272.08 |
| 117.43 | 2272.11 | 122.08 | 2272.51 | 122.86 | 2272.52 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .056 | 37.18 | .056 | 53.85 | .056 |

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
32.79 44.7 15.02 36.61 88.17 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2266.48 | Element | | | |
| Vel Head (ft) | 0.73 | Wt. n-Val. | 0.056 | 0.056 | 0.056 |
| W.S. Elev (ft) | 2265.75 | Reach Len. (ft) | 15.02 | 36.61 | 88.17 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Crit W.S. (ft) | 2265.75 | Flow Area (sq ft) | 3.13 | 29.55 | 9.26 | |
| E.G. Slope (ft/ft) | 0.023877 | Area (sq ft) | 3.13 | 29.55 | 9.26 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | 10.60 | 216.82 | 32.58 | |
| Top Width (ft) | 30.25 | Top Width (ft) | 3.84 | 11.91 | 14.50 | |
| Vel Total (ft/s) | 6.20 | Avg. Vel. (ft/s) | 3.38 | 7.34 | 3.52 | |
| Max Chl Dpth (ft) | 3.26 | Hydr. Depth (ft) | 0.82 | 2.48 | 0.64 | |
| Conv. Total (cfs) | 1682.6 | Conv. (cfs) | 68.6 | 1403.2 | 210.8 | |
| Length Wtd. (ft) | 46.66 | Wetted Per. (ft) | 4.19 | 12.35 | 14.63 | |
| Min Ch El (ft) | 2262.49 | Shear (lb/sq ft) | 1.12 | 3.57 | 0.94 | |
| Alpha | 1.22 | Stream Power (lb/ft s) | 3.77 | 26.18 | 3.32 | |
| Frctn Loss (ft) | 0.23 | Cum Volume (acre-ft) | 0.05 | 2.09 | 0.48 | |
| C & E Loss (ft) | 0.19 | Cum SA (acres) | 0.08 | 0.85 | 0.54 | |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2267.04 | Element | | | |
| Vel Head (ft) | 0.89 | Wt. n-Val. | | 0.056 | |
| W.S. Elev (ft) | 2266.16 | Reach Len. (ft) | 15.02 | 36.61 | 88.17 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 34.42 | |
| E.G. Slope (ft/ft) | 0.030532 | Area (sq ft) | | 34.42 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 11.91 | Top Width (ft) | | 11.91 | |
| Vel Total (ft/s) | 7.55 | Avg. Vel. (ft/s) | | 7.55 | |
| Max Chl Dpth (ft) | 3.67 | Hydr. Depth (ft) | | 2.89 | |
| Conv. Total (cfs) | 1488.0 | Conv. (cfs) | | 1488.0 | |
| Length Wtd. (ft) | 36.65 | Wetted Per. (ft) | | 16.55 | |
| Min Ch El (ft) | 2262.49 | Shear (lb/sq ft) | | 3.96 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 29.94 | |
| Frctn Loss (ft) | 0.27 | Cum Volume (acre-ft) | 0.00 | 2.20 | 0.01 |
| C & E Loss (ft) | 0.22 | Cum SA (acres) | 0.00 | 0.85 | 0.00 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 24.59 | 32.79 | 10.60 | 3.13 | 4.19 | 4.08 | 0.82 | 3.38 |
| 2 | Chan | 32.79 | 35.77 | 43.02 | 6.56 | 3.17 | 16.55 | 2.20 | 6.56 |
| 3 | Chan | 35.77 | 38.75 | 75.29 | 9.09 | 3.10 | 28.96 | 3.05 | 8.28 |
| 4 | Chan | 38.75 | 41.72 | 59.80 | 7.85 | 3.04 | 23.00 | 2.64 | 7.61 |
| 5 | Chan | 41.72 | 44.70 | 38.71 | 6.05 | 3.04 | 14.89 | 2.03 | 6.40 |
| 6 | ROB | 44.70 | 64.24 | 32.58 | 9.26 | 14.63 | 12.53 | 0.64 | 3.52 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 32.79 | 35.77 | 43.11 | 7.77 | 5.24 | 16.58 | 2.61 | 5.55 |
| 2 | Chan | 35.77 | 38.75 | 97.88 | 10.31 | 3.10 | 37.65 | 3.46 | 9.50 |
| 3 | Chan | 38.75 | 41.72 | 80.17 | 9.07 | 3.04 | 30.83 | 3.05 | 8.84 |
| 4 | Chan | 41.72 | 44.70 | 38.84 | 7.27 | 5.18 | 14.94 | 2.44 | 5.34 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.14532

INPUT

Description:
Station Elevation Data num= 65

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2273.96 | .08 | 2273.94 | 1.94 | 2273.6 | 3.32 | 2273.34 | 4.66 | 2273.07 |
| 8.72 | 2271.82 | 10.19 | 2271.19 | 11.47 | 2271.05 | 12.98 | 2270.38 | 16.48 | 2269.16 |
| 21.3 | 2268.08 | 23.79 | 2267.55 | 24.96 | 2267.48 | 27.87 | 2266.66 | 29.7 | 2266.59 |
| 36.44 | 2265.14 | 37.52 | 2264.81 | 40.58 | 2264.25 | 42.03 | 2263.85 | 43.96 | 2262.95 |
| 47.69 | 2261.41 | 50.88 | 2261.93 | 51.57 | 2262.06 | 52.79 | 2262.28 | 57.53 | 2262.86 |
| 58.22 | 2263.01 | 58.53 | 2263.06 | 59.66 | 2263.14 | 59.76 | 2263.15 | 60.65 | 2263.18 |
| 63.35 | 2263.16 | 64.13 | 2263.24 | 67.31 | 2263.14 | 68.43 | 2263.21 | 70.86 | 2263.28 |
| 73.4 | 2263.47 | 74.24 | 2263.54 | 79.87 | 2264.32 | 80.09 | 2264.36 | 85.54 | 2264.61 |
| 85.98 | 2264.66 | 89.99 | 2264.57 | 90.61 | 2264.7 | 92.5 | 2265.5 | 95.45 | 2266.7 |
| 98.38 | 2267.1 | 98.5 | 2267.11 | 103.85 | 2268.55 | 105.56 | 2268.7 | 106.91 | 2268.75 |
| 107.29 | 2268.81 | 108.14 | 2269 | 111.71 | 2269.72 | 116.45 | 2271.17 | 117.4 | 2271.45 |
| 117.53 | 2271.5 | 123.56 | 2273.64 | 123.66 | 2273.69 | 126.83 | 2275.2 | 127.14 | 2275.3 |
| 128.25 | 2275.65 | 131.4 | 2276.54 | 132.26 | 2276.56 | 133.87 | 2276.57 | 134.59 | 2276.57 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .056 | 47.69 | .056 | 59.76 | .056 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 43.96 | 64.13 | 3.88 | 8.32 | 9.62 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2265.77 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.08 | Wt. n-Val. | 0.056 | 0.056 | 0.056 |
| W.S. Elev (ft) | 2265.69 | Reach Len. (ft) | 3.88 | 8.32 | 9.62 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 11.85 | 64.51 | 47.87 |
| E.G. Slope (ft/ft) | 0.002029 | Area (sq ft) | 11.85 | 64.51 | 47.87 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 15.36 | 164.97 | 79.67 |
| Top Width (ft) | 59.11 | Top Width (ft) | 10.09 | 20.17 | 28.84 |
| Vel Total (ft/s) | 2.09 | Avg. Vel. (ft/s) | 1.30 | 2.56 | 1.66 |
| Max Chl Dpth (ft) | 4.28 | Hydr. Depth (ft) | 1.17 | 3.20 | 1.66 |
| Conv. Total (cfs) | 5772.1 | Conv. (cfs) | 340.9 | 3662.4 | 1768.7 |
| Length Wtd. (ft) | 8.59 | Wetted Per. (ft) | 10.50 | 20.61 | 29.14 |
| Min Ch El (ft) | 2261.41 | Shear (lb/sq ft) | 0.14 | 0.40 | 0.21 |
| Alpha | 1.16 | Stream Power (lb/ft s) | 0.19 | 1.01 | 0.35 |
| Frctn Loss (ft) | 0.01 | Cum Volume (acre-ft) | 0.04 | 2.05 | 0.42 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.08 | 0.84 | 0.49 |

Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2266.56 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.17 | Wt. n-Val. | | 0.056 | 0.056 |
| W.S. Elev (ft) | 2266.39 | Reach Len. (ft) | 3.88 | 8.32 | 9.62 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 78.55 | 0.78 |
| E.G. Slope (ft/ft) | 0.003200 | Area (sq ft) | | 78.55 | 0.78 |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 259.56 | 0.44 |
| Top Width (ft) | 20.42 | Top Width (ft) | | 20.17 | 0.25 |
| Vel Total (ft/s) | 3.28 | Avg. Vel. (ft/s) | | 3.30 | 0.56 |
| Max Chl Dpth (ft) | 4.98 | Hydr. Depth (ft) | | 3.89 | 3.15 |
| Conv. Total (cfs) | 4596.1 | Conv. (cfs) | | 4588.4 | 7.7 |
| Length Wtd. (ft) | 8.33 | Wetted Per. (ft) | | 24.05 | 3.40 |
| Min Ch El (ft) | 2261.41 | Shear (lb/sq ft) | | 0.65 | 0.05 |
| Alpha | 1.01 | Stream Power (lb/ft s) | | 2.16 | 0.03 |
| Frctn Loss (ft) | 0.02 | Cum Volume (acre-ft) | 0.00 | 2.16 | 0.01 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.00 | 0.84 | 0.00 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 32.97 | 43.96 | 15.36 | 11.85 | 10.50 | 5.91 | 1.17 | 1.30 |
| 2 | Chan | 43.96 | 49.00 | 50.32 | 18.59 | 5.37 | 19.35 | 3.69 | 2.71 |
| 3 | Chan | 49.00 | 54.05 | 51.08 | 18.39 | 5.11 | 19.65 | 3.65 | 2.78 |
| 4 | Chan | 54.05 | 59.09 | 35.66 | 14.80 | 5.09 | 13.71 | 2.94 | 2.41 |
| 5 | Chan | 59.09 | 64.13 | 27.91 | 12.74 | 5.05 | 10.73 | 2.53 | 2.19 |
| 6 | ROB | 64.13 | 81.75 | 67.53 | 36.82 | 17.69 | 25.97 | 2.09 | 1.83 |
| 7 | ROB | 81.75 | 99.36 | 12.14 | 11.05 | 11.45 | 4.67 | 0.98 | 1.10 |

Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 43.96 | 49.00 | 59.84 | 22.10 | 8.80 | 23.02 | 4.38 | 2.71 |
| 2 | Chan | 49.00 | 54.05 | 84.75 | 21.90 | 5.11 | 32.60 | 4.34 | 3.87 |
| 3 | Chan | 54.05 | 59.09 | 63.04 | 18.31 | 5.09 | 24.25 | 3.63 | 3.44 |
| 4 | Chan | 59.09 | 64.13 | 51.93 | 16.25 | 5.05 | 19.97 | 3.22 | 3.20 |
| 5 | ROB | 64.13 | 81.75 | 0.44 | 0.78 | 3.40 | 0.17 | 3.15 | 0.56 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.14374

INPUT
Description: Upstream of Pipe Box, Private Roadway Crossing
Station Elevation Data num= 62

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2274.05 | .86 | 2273.89 | 1.35 | 2273.8 | 2.18 | 2273.55 | 6.4 | 2272.27 |
| 6.81 | 2272.09 | 8.52 | 2271.92 | 8.88 | 2271.76 | 13.92 | 2270.05 | 15.28 | 2269.76 |
| 20.07 | 2268.78 | 22.38 | 2268.66 | 28.36 | 2267.02 | 32.29 | 2266.91 | 33.72 | 2266.61 |
| 33.94 | 2266.55 | 38.71 | 2265.73 | 40.14 | 2265.35 | 44.83 | 2264.62 | 45.43 | 2264.39 |
| 45.84 | 2264.36 | 48.65 | 2261.05 | 53.82 | 2261.05 | 55.28 | 2262.33 | 56.45 | 2262.61 |
| 57.81 | 2262.47 | 60 | 2262.61 | 61.76 | 2262.58 | 61.99 | 2262.57 | 62.38 | 2262.57 |
| 64.27 | 2262.69 | 68.57 | 2262.55 | 69.35 | 2262.49 | 72.34 | 2262.49 | 74.73 | 2262.62 |
| 75.01 | 2262.65 | 78.36 | 2262.88 | 83.49 | 2263.15 | 83.58 | 2263.15 | 85.01 | 2263.26 |
| 88.81 | 2263.58 | 89.24 | 2263.61 | 98.61 | 2264.5 | 98.91 | 2264.52 | 100.31 | 2264.56 |
| 102.63 | 2264.73 | 103.77 | 2264.98 | 104.15 | 2265.04 | 108.73 | 2266.49 | 110.28 | 2266.81 |
| 113.48 | 2267.91 | 116.14 | 2268.7 | 118.87 | 2269.46 | 130.35 | 2273.96 | 132.76 | 2274.68 |
| 133.36 | 2274.85 | 134.57 | 2275.26 | 139.16 | 2276.43 | 140.53 | 2276.43 | 140.91 | 2276.45 |
| 144.22 | 2276.58 | 146.52 | 2276.73 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .056 | 48.65 | .056 | 61.99 | .056 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 44.83 | 72.34 | 45.04 | 26.34 | 50.62 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2265.75 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.04 | Wt. n-Val. | 0.056 | 0.056 | 0.056 |
| W.S. Elev (ft) | 2265.71 | Reach Len. (ft) | 45.04 | 26.34 | 50.62 |
| Crit W.S. (ft) | 2263.58 | Flow Area (sq ft) | 3.63 | 93.29 | 67.34 |
| E.G. Slope (ft/ft) | 0.001006 | Area (sq ft) | 3.63 | 93.29 | 67.34 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 2.15 | 168.71 | 89.15 |
| Top Width (ft) | 67.46 | Top Width (ft) | 6.03 | 27.51 | 33.92 |
| Vel Total (ft/s) | 1.58 | Avg. Vel. (ft/s) | 0.59 | 1.81 | 1.32 |
| Max Chl Dpth (ft) | 4.66 | Hydr. Depth (ft) | 0.60 | 3.39 | 1.99 |
| Conv. Total (cfs) | 8196.7 | Conv. (cfs) | 67.7 | 5318.6 | 2810.4 |
| Length Wtd. (ft) | 26.34 | Wetted Per. (ft) | 6.14 | 29.62 | 34.14 |
| Min Ch El (ft) | 2261.05 | Shear (lb/sq ft) | 0.04 | 0.20 | 0.12 |
| Alpha | 1.09 | Stream Power (lb/ft s) | 0.02 | 0.36 | 0.16 |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | 0.04 | 2.04 | 0.41 |
| C & E Loss (ft) | | Cum SA (acres) | 0.08 | 0.83 | 0.49 |

Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2266.52 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.08 | Wt. n-Val. | | 0.056 | 0.056 |
| W.S. Elev (ft) | 2266.44 | Reach Len. (ft) | 45.04 | 26.34 | 50.62 |
| Crit W.S. (ft) | 2263.62 | Flow Area (sq ft) | | 113.38 | 5.11 |
| E.G. Slope (ft/ft) | 0.001300 | Area (sq ft) | | 113.38 | 5.11 |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 255.16 | 4.84 |
| Top Width (ft) | 28.82 | Top Width (ft) | | 27.51 | 1.31 |
| Vel Total (ft/s) | 2.19 | Avg. Vel. (ft/s) | | 2.25 | 0.95 |
| Max Chl Dpth (ft) | 5.39 | Hydr. Depth (ft) | | 4.12 | 3.91 |
| Conv. Total (cfs) | 7209.8 | Conv. (cfs) | | 7075.5 | 134.2 |
| Length Wtd. (ft) | 26.34 | Wetted Per. (ft) | | 31.44 | 5.18 |
| Min Ch El (ft) | 2261.05 | Shear (lb/sq ft) | | 0.29 | 0.08 |
| Alpha | 1.04 | Stream Power (lb/ft s) | | 0.66 | 0.08 |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | 0.00 | 2.14 | 0.01 |
| C & E Loss (ft) | | Cum SA (acres) | 0.00 | 0.83 | 0.00 |

Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 33.62 | 44.83 | 2.15 | 3.63 | 6.14 | 0.83 | 0.60 | 0.59 |
| 2 | Chan | 44.83 | 51.71 | 40.18 | 23.94 | 8.45 | 15.45 | 3.48 | 1.68 |
| 3 | Chan | 51.71 | 58.59 | 51.30 | 26.29 | 7.40 | 19.73 | 3.82 | 1.95 |
| 4 | Chan | 58.59 | 65.46 | 37.92 | 21.30 | 6.89 | 14.59 | 3.10 | 1.78 |
| 5 | Chan | 65.46 | 72.34 | 39.30 | 21.76 | 6.88 | 15.11 | 3.16 | 1.81 |
| 6 | ROB | 72.34 | 90.88 | 72.78 | 48.79 | 18.59 | 27.99 | 2.63 | 1.49 |
| 7 | ROB | 90.88 | 109.43 | 16.37 | 18.55 | 15.55 | 6.29 | 1.21 | 0.88 |

Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 44.83 | 51.71 | 54.57 | 28.97 | 10.27 | 20.99 | 4.21 | 1.88 |
| 2 | Chan | 51.71 | 58.59 | 77.30 | 31.31 | 7.40 | 29.73 | 4.55 | 2.47 |
| 3 | Chan | 58.59 | 65.46 | 60.76 | 26.33 | 6.89 | 23.37 | 3.83 | 2.31 |
| 4 | Chan | 65.46 | 72.34 | 62.54 | 26.78 | 6.88 | 24.05 | 3.89 | 2.34 |
| 5 | ROB | 72.34 | 90.88 | 4.84 | 5.11 | 5.18 | 1.86 | 3.91 | 0.95 |

Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.

CULVERT

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.14161

INPUT
Description: PIPE BOX at Parcel 216-15-014-B
Distance from Upstream XS = 6
Deck/Roadway Width = 11
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 28

| Sta | Hi Cord | Lo Cord | Sta | Hi Cord | Lo Cord | Sta | Hi Cord | Lo Cord |
|---|---|---|---|---|---|---|---|---|
| 0 | 2272.84 | | 1.76 | 2272.46 | | 4.15 | 2272.16 | |
| 7.52 | 2271.44 | | 12.35 | 2270.54 | | 17.08 | 2269.62 | |
| 19.13 | 2269.23 | | 21.8 | 2268.69 | | 23.11 | 2268.52 | |
| 25.68 | 2268.07 | | 27.6 | 2267.68 | | 29.79 | 2267.24 | |
| 34.03 | 2266.23 | | 37.43 | 2265.74 | | 43.67 | 2264.74 | |
| 46.57 | 2264.64 | | 73.33 | 2264.45 | | 109.75 | 2264.34 | |
| 115.01 | 2264.13 | | 120.37 | 2264.25 | | 125.15 | 2264.52 | |
| 130.32 | 2264.87 | | 133.64 | 2265.05 | | 135.66 | 2265.43 | |
| 140.94 | 2266.07 | | 144.49 | 2266.66 | | 149.45 | 2266.79 | |
| 149.63 | 2266.81 | | | | | | | |

Upstream Bridge Cross Section Data
Station Elevation Data num= 62

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2274.05 | .86 | 2273.89 | 1.35 | 2273.8 | 2.18 | 2273.55 | 6.4 | 2272.27 |
| 6.81 | 2272.09 | 8.52 | 2271.92 | 8.88 | 2271.76 | 13.92 | 2270.05 | 15.28 | 2269.76 |
| 20.07 | 2268.78 | 22.38 | 2268.66 | 28.36 | 2267.02 | 32.29 | 2266.91 | 33.72 | 2266.61 |
| 33.94 | 2266.55 | 38.71 | 2265.73 | 40.14 | 2265.35 | 44.83 | 2264.62 | 45.43 | 2264.39 |
| 45.84 | 2264.36 | 48.65 | 2261.05 | 53.82 | 2261.05 | 55.28 | 2262.33 | 56.45 | 2262.61 |
| 57.81 | 2262.47 | 60 | 2262.61 | 61.76 | 2262.58 | 61.99 | 2262.57 | 62.38 | 2262.57 |
| 64.27 | 2262.69 | 68.57 | 2262.55 | 69.35 | 2262.49 | 72.34 | 2262.49 | 74.73 | 2262.62 |
| 75.01 | 2262.65 | 78.36 | 2262.88 | 83.49 | 2263.15 | 83.58 | 2263.15 | 85.01 | 2263.26 |
| 88.81 | 2263.58 | 89.24 | 2263.61 | 98.61 | 2264.5 | 98.91 | 2264.52 | 100.31 | 2264.56 |
| 102.63 | 2264.73 | 103.77 | 2264.98 | 104.15 | 2265.04 | 108.73 | 2266.49 | 110.28 | 2266.81 |
| 113.48 | 2267.91 | 116.14 | 2268.7 | 118.87 | 2269.46 | 130.35 | 2273.96 | 132.76 | 2274.68 |
| 133.36 | 2274.85 | 134.57 | 2275.26 | 139.16 | 2276.43 | 140.53 | 2276.43 | 140.91 | 2276.45 |
| 144.22 | 2276.58 | 146.52 | 2276.73 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .056 | 48.65 | .056 | 61.99 | .056 |

Bank Sta: Left Right Coeff Contr. Expan.
44.83 72.34 .1 .3

Downstream Deck/Roadway Coordinates
num= 28

| Sta | Hi Cord | Lo Cord | Sta | Hi Cord | Lo Cord | Sta | Hi Cord | Lo Cord |
|---|---|---|---|---|---|---|---|---|
| 0 | 2272.84 | | 1.76 | 2272.46 | | 4.15 | 2272.16 | |
| 7.52 | 2271.44 | | 12.35 | 2270.54 | | 17.08 | 2269.62 | |
| 19.13 | 2269.23 | | 21.8 | 2268.69 | | 23.11 | 2268.52 | |
| 25.68 | 2268.07 | | 27.6 | 2267.68 | | 29.79 | 2267.24 | |
| 34.03 | 2266.23 | | 37.43 | 2265.64 | | 43.67 | 2264.3 | |
| 46.57 | 2264.02 | | 73.33 | 2264.21 | | 109.75 | 2264.31 | |
| 115.01 | 2264.13 | | 120.37 | 2264.25 | | 125.15 | 2264.52 | |
| 130.32 | 2264.87 | | 133.64 | 2265.05 | | 135.66 | 2265.43 | |
| 140.94 | 2266.07 | | 144.49 | 2266.66 | | 149.45 | 2266.79 | |
| 149.63 | 2266.81 | | | | | | | |

Downstream Bridge Cross Section Data
Station Elevation Data num= 59

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2271.07 | 4.44 | 2270.15 | 7.91 | 2269.46 | 8.34 | 2269.3 | 13.17 | 2268.5 |
| 13.68 | 2268.45 | 17.88 | 2268.06 | 18.28 | 2268 | 23.12 | 2267.09 | 23.47 | 2267 |
| 24.04 | 2266.86 | 28.87 | 2266.07 | 29.4 | 2265.93 | 33 | 2265.4 | 35.85 | 2264.88 |
| 36.37 | 2264.68 | 38.94 | 2263.94 | 42.75 | 2263.15 | 42.96 | 2263.14 | 43.33 | 2263.09 |
| 43.98 | 2262.94 | 45.05 | 2262.3 | 48.23 | 2261.07 | 55.2 | 2261.07 | 56.84 | 2261.43 |
| 58.04 | 2261.72 | 63.92 | 2262.1 | 66.44 | 2262.24 | 67.21 | 2262.2 | 69.38 | 2262.09 |
| 70.62 | 2261.99 | 72.52 | 2261.89 | 74.62 | 2261.83 | 76.83 | 2261.75 | 78.8 | 2261.84 |
| 83.25 | 2262.08 | 84.16 | 2262.09 | 88.92 | 2262.31 | 90.89 | 2262.5 | 96.05 | 2262.86 |
| 104.01 | 2263.35 | 105.79 | 2263.52 | 106.74 | 2263.58 | 107.46 | 2263.64 | 114.54 | 2264.08 |
| 115.82 | 2264.2 | 118.52 | 2264.49 | 119.15 | 2264.54 | 124.66 | 2264.84 | 125.41 | 2264.9 |
| 128.97 | 2265.59 | 129.44 | 2265.68 | 135.87 | 2266.76 | 136.3 | 2266.83 | 139.84 | 2267.16 |
| 140.23 | 2267.2 | 140.83 | 2267.3 | 141.51 | 2267.45 | 144.14 | 2267.87 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .056 | 48.23 | .056 | 67.21 | .056 |

Bank Sta: Left Right Coeff Contr. Expan.
45.05 72.52 .1 .3

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
Downstream Embankment side slope = 0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .95
Elevation at which weir flow begins =
Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad Crested

Number of Culverts = 1

Culvert Name Shape Rise Span

```
Culvert #1        Ellipse      2.5       4
FHWA Chart # 29- Horizontal Ellipse; Concrete
FHWA Scale # 1 - Square edge with headwall
Solution Criteria = Highest U.S. EG
Culvert Upstrm Dist  Length    Top n  Bottom n  Depth Blocked  Entrance Loss Coef   Exit Loss Coef
                 6      11      .027     .027       .8                  .5                  1
Upstream   Elevation =  2260.25
           Centerline Station =  51.92
Downstream Elevation =  2260.26
           Centerline Station =  52.4

CULVERT OUTPUT  Profile #PF 1  Culv Group:  Culvert #1
*************************************************************************
* Q Culv Group (cfs)      *   47.75  * Culv Full Len (ft)      *   11.00  *
* # Barrels               *       1  * Culv Vel US (ft/s)      *    8.39  *
* Q Barrel (cfs)          *   47.75  * Culv Vel DS (ft/s)      *    8.39  *
* E.G. US. (ft)           * 2265.75  * Culv Inv El Up (ft)    * 2260.25  *
* W.S. US. (ft)           * 2265.71  * Culv Inv El Dn (ft)    * 2260.26  *
* E.G. DS (ft)            * 2263.72  * Culv Frctn Ls (ft)     *    0.53  *
* W.S. DS (ft)            * 2263.58  * Culv Exit Loss (ft)    *    0.96  *
* Delta EG (ft)           *    2.04  * Culv Entr Loss (ft)    *    0.55  *
* Delta WS (ft)           *    2.13  * Q Weir (cfs)           *  212.26  *
* E.G. IC (ft)            * 2265.67  * Weir Sta Lft (ft)      *   38.80  *
* E.G. OC (ft)            * 2265.75  * Weir Sta Rgt (ft)      *  106.26  *
* Culvert Control         *  Outlet  * Weir Submerg           *    0.00  *
* Culv WS Inlet (ft)      * 2262.75  * Weir Max Depth (ft)    *    1.33  *
* Culv WS Outlet (ft)     * 2262.76  * Weir Avg Depth (ft)    *    1.12  *
* Culv Nml Depth (ft)     *          * Weir Flow Area (sq ft) *   75.52  *
* Culv Crt Depth (ft)     *    2.29  * Min El Weir Flow (ft)  * 2264.39  *
*************************************************************************

CULVERT OUTPUT  Profile #PF 2  Culv Group:  Culvert #1
*************************************************************************
* Q Culv Group (cfs)      *   51.35  * Culv Full Len (ft)      *   11.00  *
* # Barrels               *       1  * Culv Vel US (ft/s)      *    9.03  *
* Q Barrel (cfs)          *   51.35  * Culv Vel DS (ft/s)      *    9.03  *
* E.G. US. (ft)           * 2266.52  * Culv Inv El Up (ft)    * 2260.25  *
* W.S. US. (ft)           * 2266.44  * Culv Inv El Dn (ft)    * 2260.26  *
* E.G. DS (ft)            * 2264.24  * Culv Frctn Ls (ft)     *    0.62  *
* W.S. DS (ft)            * 2264.00  * Culv Exit Loss (ft)    *    1.02  *
* Delta EG (ft)           *    2.27  * Culv Entr Loss (ft)    *    0.63  *
* Delta WS (ft)           *    2.44  * Q Weir (cfs)           *  208.65  *
* E.G. IC (ft)            * 2266.48  * Weir Sta Lft (ft)      *   44.83  *
* E.G. OC (ft)            * 2266.52  * Weir Sta Rgt (ft)      *   73.65  *
* Culvert Control         *  Outlet  * Weir Submerg           *    0.00  *
* Culv WS Inlet (ft)      * 2262.75  * Weir Max Depth (ft)    *    2.08  *
* Culv WS Outlet (ft)     * 2262.76  * Weir Avg Depth (ft)    *    1.98  *
* Culv Nml Depth (ft)     *          * Weir Flow Area (sq ft) *   57.03  *
* Culv Crt Depth (ft)     *    2.33  * Min El Weir Flow (ft)  * 2264.46  *
*************************************************************************

CROSS SECTION


RIVER: Ocotillo Wash 1
REACH: Tributary-2.1       RS: 0.13875

INPUT
Description: Downstream of Pipe Box, Private Roadway Crossing
Station Elevation Data    num=      59
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
       0 2271.07    4.44 2270.15    7.91 2269.46    8.34  2269.3   13.17  2268.5
   13.68 2268.45   17.88 2268.06   18.28    2268   23.12 2267.09   23.47    2267
   24.04 2266.86   28.87 2266.07    29.4 2265.93      33  2265.4   35.85 2264.88
   36.37 2264.68   38.94 2263.94   42.75 2263.15   42.96 2263.14   43.33 2263.09
   43.98 2262.94   45.05  2262.3   48.23 2261.07    55.2 2261.07   56.84 2261.43
   58.04 2261.72   63.92  2262.1   66.44 2262.24   67.21  2262.2   69.38 2262.09
   70.62 2261.99   72.52 2261.89   74.62 2261.83   76.83 2261.75    78.8 2261.84
   83.25 2262.08   84.16 2262.09   88.92 2262.31   90.89  2262.5   96.05 2262.86
  104.01 2263.35  105.79 2263.52  106.74 2263.58  107.46 2263.64  114.54 2264.08
  115.82  2264.2  118.52 2264.49  119.15 2264.54  124.66 2264.84  125.41  2264.9
  128.97 2265.59  129.44 2265.68  135.87 2266.76   136.3 2266.83  139.84 2267.16
  140.23  2267.2  140.83  2267.3  141.51 2267.45  144.14 2267.87

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
       0    .056   48.23    .056   67.21    .056

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          45.05   72.52             13.85    7.94    5.83            .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)          * 2263.72  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.14  * Wt. n-Val.              *   0.056  *   0.056  *   0.056  *
* W.S. Elev (ft)          * 2263.58  * Reach Len. (ft)         *   13.85  *    7.94  *    5.83  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *    2.08  *   52.18  *   37.09  *
* E.G. Slope (ft/ft)      *0.006692  * Area (sq ft)            *    2.08  *   52.18  *   37.09  *
* Q Total (cfs)           *  260.00  * Flow (cfs)              *    2.67  *  172.36  *   84.97  *
* Top Width (ft)          *   65.97  * Top Width (ft)           *    4.35  *   27.47  *   34.15  *
* Vel Total (ft/s)        *    2.85  * Avg. Vel. (ft/s)         *    1.28  *    3.30  *    2.29  *
* Max Chl Dpth (ft)       *    2.51  * Hydr. Depth (ft)         *    0.48  *    1.90  *    1.09  *
* Conv. Total (cfs)       *  3178.2  * Conv. (cfs)              *    32.7  *  2106.9  *  1038.7  *
* Length Wtd. (ft)        *    7.41  * Wetted Per. (ft)         *    4.59  *   27.80  *   34.21  *
* Min Ch El (ft)          * 2261.07  * Shear (lb/sq ft)         *    0.19  *    0.78  *    0.45  *
* Alpha                   *    1.11  * Stream Power (lb/ft s)   *    0.24  *    2.59  *    1.04  *
* Frctn Loss (ft)         *    0.03  * Cum Volume (acre-ft)     *    0.04  *    1.99  *    0.35  *
* C & E Loss (ft)         *    0.01  * Cum SA (acres)           *    0.07  *    0.81  *    0.45  *
*****************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The composite Mannings n value for the channel was larger than the largest entered n value or
         smaller than the smallest entered n value.
```

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 2264.24 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.24 | Wt. n-Val. | | 0.056 | 0.056 |
| W.S. Elev (ft) | 2264.00 | Reach Len. (ft) | 13.85 | 7.94 | 5.83 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 63.86 | 2.82 |
| E.G. Slope (ft/ft) | 0.008035 | Area (sq ft) | | 63.86 | 2.82 |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 254.15 | 5.85 |
| Top Width (ft) | 28.80 | Top Width (ft) | | 27.47 | 1.33 |
| Vel Total (ft/s) | 3.90 | Avg. Vel. (ft/s) | | 3.98 | 2.07 |
| Max Chl Dpth (ft) | 2.93 | Hydr. Depth (ft) | | 2.32 | 2.13 |
| Conv. Total (cfs) | 2900.6 | Conv. (cfs) | | 2835.4 | 65.2 |
| Length Wtd. (ft) | 7.91 | Wetted Per. (ft) | | 29.50 | 3.47 |
| Min Ch El (ft) | 2261.07 | Shear (lb/sq ft) | | 1.09 | 0.41 |
| Alpha | 1.02 | Stream Power (lb/ft s) | | 4.32 | 0.84 |
| Frctn Loss (ft) | 0.04 | Cum Volume (acre-ft) | 0.00 | 2.08 | 0.00 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.00 | 0.82 | 0.00 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 33.79 | 45.05 | 2.67 | 2.08 | 4.59 | 1.03 | 0.48 | 1.28 |
| 2 | Chan | 45.05 | 51.92 | 54.12 | 15.25 | 7.10 | 20.81 | 2.22 | 3.55 |
| 3 | Chan | 51.92 | 58.79 | 58.27 | 15.80 | 6.94 | 22.41 | 2.30 | 3.69 |
| 4 | Chan | 58.79 | 65.65 | 31.57 | 10.90 | 6.88 | 12.14 | 1.59 | 2.90 |
| 5 | Chan | 65.65 | 72.52 | 28.39 | 10.23 | 6.88 | 10.92 | 1.49 | 2.78 |
| 6 | ROB | 72.52 | 90.43 | 72.88 | 27.94 | 17.93 | 28.03 | 1.56 | 2.61 |
| 7 | ROB | 90.43 | 108.33 | 12.09 | 9.15 | 16.28 | 4.65 | 0.56 | 1.32 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 45.05 | 51.92 | 69.35 | 18.17 | 8.80 | 26.67 | 2.65 | 3.82 |
| 2 | Chan | 51.92 | 58.79 | 85.37 | 18.72 | 6.94 | 32.83 | 2.73 | 4.56 |
| 3 | Chan | 58.79 | 65.65 | 51.78 | 13.82 | 6.88 | 19.92 | 2.01 | 3.75 |
| 4 | Chan | 65.65 | 72.52 | 47.65 | 13.15 | 6.88 | 18.33 | 1.91 | 3.62 |
| 5 | ROB | 72.52 | 90.43 | 5.85 | 2.82 | 3.47 | 2.25 | 2.13 | 2.07 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.13724

INPUT
Description:
Station Elevation Data num= 65

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2271.21 | 1.22 | 2270.97 | 2.92 | 2270.72 | 5.4 | 2270.37 | 6.8 | 2270.19 |
| 9.84 | 2269.68 | 11.65 | 2269.28 | 13.98 | 2268.61 | 17.46 | 2267.69 | 19.25 | 2267.35 |
| 21.99 | 2266.53 | 23.33 | 2266.31 | 24.47 | 2266.08 | 27.29 | 2264.98 | 28.33 | 2264.67 |
| 30.03 | 2264.3 | 33.13 | 2263.97 | 33.41 | 2263.95 | 34.7 | 2263.8 | 35.56 | 2263.52 |
| 39.74 | 2262.11 | 45.9 | 2260.09 | 46.18 | 2260 | 46.67 | 2260.06 | 52.08 | 2260.7 |
| 52.76 | 2260.79 | 52.81 | 2260.79 | 56.62 | 2261.23 | 59.41 | 2261.53 | 59.65 | 2261.53 |
| 59.9 | 2261.5 | 60.55 | 2261.52 | 60.89 | 2261.51 | 61.18 | 2261.5 | 62.11 | 2261.42 |
| 63.45 | 2261.4 | 64.64 | 2261.4 | 65.82 | 2261.46 | 67.31 | 2261.49 | 70.57 | 2261.66 |
| 71.83 | 2261.69 | 75.85 | 2261.88 | 77.37 | 2261.94 | 78.21 | 2262.02 | 83.3 | 2262.35 |
| 84.43 | 2262.38 | 88.85 | 2262.61 | 91.6 | 2262.87 | 93.88 | 2263 | 94.33 | 2263.03 |
| 95.88 | 2263.16 | 97.42 | 2263.26 | 101.32 | 2263.62 | 109.38 | 2264.49 | 111.23 | 2264.63 |
| 114.31 | 2264.8 | 117.05 | 2265.01 | 118.75 | 2265.34 | 120.85 | 2265.74 | 123.55 | 2266.2 |
| 126 | 2266.6 | 127.52 | 2266.75 | 130.59 | 2267.28 | 134.05 | 2268 | 136.58 | 2268.41 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .056 | 46.18 | .056 | 60.89 | .056 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 39.74 | 67.31 | 77.3 | 97.25 | 45.4 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 2263.67 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.10 | Wt. n-Val. | 0.056 | 0.056 | 0.056 |
| W.S. Elev (ft) | 2263.57 | Reach Len. (ft) | 77.30 | 97.25 | 45.40 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 3.17 | 69.89 | 38.94 |
| E.G. Slope (ft/ft) | 0.003168 | Area (sq ft) | 3.17 | 69.89 | 38.94 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 3.70 | 192.08 | 64.22 |
| Top Width (ft) | 65.40 | Top Width (ft) | 4.34 | 27.57 | 33.49 |
| Vel Total (ft/s) | 2.32 | Avg. Vel. (ft/s) | 1.17 | 2.75 | 1.65 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Max Chl Dpth (ft) | 3.57 | Hydr. Depth (ft) | 0.73 | 2.54 | 1.16 | |
| Conv. Total (cfs) | 4619.0 | Conv. (cfs) | 65.7 | 3412.3 | 1140.9 | |
| Length Wtd. (ft) | 84.12 | Wetted Per. (ft) | 4.58 | 28.00 | 33.56 | |
| Min Ch El (ft) | 2260.00 | Shear (lb/sq ft) | 0.14 | 0.49 | 0.23 | |
| Alpha | 1.16 | Stream Power (lb/ft s) | 0.16 | 1.36 | 0.38 | |
| Frctn Loss (ft) | 0.35 | Cum Volume (acre-ft) | 0.04 | 1.98 | 0.34 | |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.07 | 0.81 | 0.44 | |

Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2264.17 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.15 | Wt. n-Val. | | 0.056 | 0.056 |
| W.S. Elev (ft) | 2264.02 | Reach Len. (ft) | 77.30 | 97.25 | 45.40 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 82.24 | 0.97 |
| E.G. Slope (ft/ft) | 0.003664 | Area (sq ft) | | 82.24 | 0.97 |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 259.25 | 0.75 |
| Top Width (ft) | 27.96 | Top Width (ft) | | 27.57 | 0.39 |
| Vel Total (ft/s) | 3.12 | Avg. Vel. (ft/s) | | 3.15 | 0.78 |
| Max Chl Dpth (ft) | 4.02 | Hydr. Depth (ft) | | 2.98 | 2.52 |
| Conv. Total (cfs) | 4295.4 | Conv. (cfs) | | 4282.9 | 12.5 |
| Length Wtd. (ft) | 96.87 | Wetted Per. (ft) | | 29.91 | 2.90 |
| Min Ch El (ft) | 2260.00 | Shear (lb/sq ft) | | 0.63 | 0.08 |
| Alpha | 1.02 | Stream Power (lb/ft s) | | 1.98 | 0.06 |
| Frctn Loss (ft) | 0.55 | Cum Volume (acre-ft) | 0.00 | 2.07 | 0.00 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.00 | 0.81 | 0.00 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 29.81 | 39.74 | 3.70 | 3.17 | 4.58 | 1.42 | 0.73 | 1.17 |
| 2 | Chan | 39.74 | 46.63 | 47.99 | 17.82 | 7.23 | 18.46 | 2.58 | 2.69 |
| 3 | Chan | 46.63 | 53.53 | 67.05 | 21.42 | 6.94 | 25.79 | 3.11 | 3.13 |
| 4 | Chan | 53.53 | 60.42 | 41.22 | 15.99 | 6.93 | 15.85 | 2.32 | 2.58 |
| 5 | Chan | 60.42 | 67.31 | 35.82 | 14.67 | 6.90 | 13.78 | 2.13 | 2.44 |
| 6 | ROB | 67.31 | 84.63 | 53.89 | 28.60 | 17.34 | 20.73 | 1.65 | 1.88 |
| 7 | ROB | 84.63 | 101.95 | 10.33 | 10.34 | 16.21 | 3.97 | 0.64 | 1.00 |

Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 39.74 | 46.63 | 57.38 | 20.90 | 9.14 | 22.07 | 3.03 | 2.74 |
| 2 | Chan | 46.63 | 53.53 | 89.87 | 24.51 | 6.94 | 34.57 | 3.56 | 3.67 |
| 3 | Chan | 53.53 | 60.42 | 59.25 | 19.08 | 6.93 | 22.79 | 2.77 | 3.11 |
| 4 | Chan | 60.42 | 67.31 | 52.74 | 17.76 | 6.90 | 20.28 | 2.58 | 2.97 |
| 5 | ROB | 67.31 | 84.63 | 0.75 | 0.97 | 2.90 | 0.29 | 2.52 | 0.78 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.13462

INPUT
Description:
Station Elevation Data num= 64

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2274.94 | 2.65 | 2274.49 | 3.07 | 2274.4 | 4.91 | 2273.33 | 5.53 | 2273.14 |
| 8.44 | 2272.14 | 11.6 | 2271.6 | 14.39 | 2270.65 | 15.27 | 2270.24 | 17.14 | 2269.69 |
| 20.3 | 2268.89 | 21.77 | 2268.41 | 25.1 | 2267.01 | 26.52 | 2266.42 | 29.57 | 2266.16 |
| 31.26 | 2265.92 | 33.6 | 2264.95 | 34.24 | 2264.87 | 34.72 | 2264.7 | 37.64 | 2263.86 |
| 38.48 | 2263.63 | 39.26 | 2263.42 | 43.2 | 2262.14 | 45.77 | 2261.3 | 49.99 | 2260.11 |
| 50.36 | 2260 | 55.67 | 2260.54 | 60.55 | 2260.97 | 61.82 | 2261.02 | 62.4 | 2261.06 |
| 63.52 | 2261.11 | 65.45 | 2261.19 | 66.12 | 2261.2 | 67.72 | 2261.28 | 71.51 | 2261.41 |
| 73.59 | 2261.62 | 76.42 | 2261.81 | 79.57 | 2261.88 | 82.25 | 2262.03 | 83.92 | 2262.19 |
| 85.31 | 2262.26 | 87.19 | 2262.4 | 89.13 | 2262.47 | 92.59 | 2262.85 | 94.73 | 2263.09 |
| 97.41 | 2263.44 | 100.15 | 2263.71 | 107.37 | 2264.5 | 110.67 | 2264.74 | 110.84 | 2264.75 |
| 111.75 | 2264.82 | 115.08 | 2264.96 | 117.86 | 2265.49 | 121.23 | 2266.03 | 125.43 | 2266.77 |
| 125.84 | 2266.85 | 130.53 | 2267.85 | 131.39 | 2268.04 | 131.42 | 2268.04 | 131.79 | 2268.09 |
| 136.26 | 2268.22 | 136.55 | 2268.26 | 138.18 | 2268.42 | 138.3 | 2268.43 | | |

Manning's n Values num= 4

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|
| 0 | .056 | 50.36 | .056 | 63.52 | .056 | 130.53 | .081 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 45.77 | 67.72 | 26.86 | 38.51 | 9.17 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 2263.32 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.16 | Wt. n-Val. | 0.056 | 0.056 | 0.056 |
| W.S. Elev (ft) | 2263.16 | Reach Len. (ft) | 26.86 | 38.51 | 9.17 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 5.29 | 53.11 | 29.87 |
| E.G. Slope (ft/ft) | 0.005561 | Area (sq ft) | 5.29 | 53.11 | 29.87 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 9.62 | 188.07 | 62.30 |
| Top Width (ft) | 55.18 | Top Width (ft) | 5.70 | 21.95 | 27.53 |
| Vel Total (ft/s) | 2.95 | Avg. Vel. (ft/s) | 1.82 | 3.54 | 2.09 |
| Max Chl Dpth (ft) | 3.16 | Hydr. Depth (ft) | 0.93 | 2.42 | 1.09 |
| Conv. Total (cfs) | 3486.7 | Conv. (cfs) | 129.1 | 2522.1 | 835.5 |
| Length Wtd. (ft) | 33.94 | Wetted Per. (ft) | 6.00 | 22.18 | 27.61 |
| Min Ch El (ft) | 2260.00 | Shear (lb/sq ft) | 0.31 | 0.83 | 0.38 |
| Alpha | 1.18 | Stream Power (lb/ft s) | 0.56 | 2.94 | 0.78 |
| Frctn Loss (ft) | 0.18 | Cum Volume (acre-ft) | 0.03 | 1.84 | 0.31 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 0.06 | 0.75 | 0.41 |

Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2263.61 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.32 | Wt. n-Val. | | 0.056 | 0.056 |
| W.S. Elev (ft) | 2263.29 | Reach Len. (ft) | 26.86 | 38.51 | 9.17 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 55.96 | 1.65 |
| E.G. Slope (ft/ft) | 0.009778 | Area (sq ft) | | 55.96 | 1.65 |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 256.97 | 3.03 |
| Top Width (ft) | 22.78 | Top Width (ft) | | 21.95 | 0.83 |
| Vel Total (ft/s) | 4.51 | Avg. Vel. (ft/s) | | 4.59 | 1.84 |
| Max Chl Dpth (ft) | 3.29 | Hydr. Depth (ft) | | 2.55 | 1.99 |
| Conv. Total (cfs) | 2629.3 | Conv. (cfs) | | 2598.7 | 30.6 |
| Length Wtd. (ft) | 38.34 | Wetted Per. (ft) | | 24.17 | 2.81 |
| Min Ch El (ft) | 2260.00 | Shear (lb/sq ft) | | 1.41 | 0.36 |
| Alpha | 1.03 | Stream Power (lb/ft s) | | 6.49 | 0.66 |
| Frctn Loss (ft) | 0.30 | Cum Volume (acre-ft) | 0.00 | 1.92 | 0.00 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.00 | 0.76 | 0.00 |

Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 34.33 | 45.77 | 9.62 | 5.29 | 6.00 | 3.70 | 0.93 | 1.82 |
| 2 | Chan | 45.77 | 51.26 | 51.93 | 14.29 | 5.67 | 19.97 | 2.60 | 3.63 |
| 3 | Chan | 51.26 | 56.75 | 59.32 | 15.30 | 5.51 | 22.81 | 2.79 | 3.88 |
| 4 | Chan | 56.75 | 62.23 | 42.87 | 12.58 | 5.50 | 16.49 | 2.29 | 3.41 |
| 5 | Chan | 62.23 | 67.72 | 33.95 | 10.93 | 5.49 | 13.06 | 1.99 | 3.11 |
| 6 | ROB | 67.72 | 85.37 | 56.47 | 24.82 | 17.68 | 21.72 | 1.41 | 2.27 |
| 7 | ROB | 85.37 | 103.01 | 5.84 | 5.05 | 9.93 | 2.25 | 0.51 | 1.16 |

Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 45.77 | 51.26 | 60.81 | 15.00 | 7.66 | 23.39 | 2.73 | 4.05 |
| 2 | Chan | 51.26 | 56.75 | 84.42 | 16.02 | 5.51 | 32.47 | 2.92 | 5.27 |
| 3 | Chan | 56.75 | 62.23 | 61.99 | 13.30 | 5.50 | 23.84 | 2.42 | 4.66 |
| 4 | Chan | 62.23 | 67.72 | 49.76 | 11.64 | 5.49 | 19.14 | 2.12 | 4.27 |
| 5 | ROB | 67.72 | 85.37 | 3.03 | 1.65 | 2.81 | 1.16 | 1.99 | 1.84 |

Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.12733

INPUT
Description:
Station Elevation Data num= 46

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2274.41 | 3.77 | 2273.5 | 5.24 | 2273.15 | 17.19 | 2270.55 | 23.92 | 2268.33 |
| 35.12 | 2264.44 | 36.55 | 2263.94 | 38.18 | 2263.78 | 40.38 | 2263.59 | 41.6 | 2263.57 |
| 44.56 | 2263.4 | 45.88 | 2263.36 | 48.34 | 2263.22 | 49.59 | 2263.19 | 49.95 | 2263.18 |
| 59.28 | 2261.56 | 60.84 | 2261.37 | 63.08 | 2261.2 | 71.25 | 2259.5 | 72.98 | 2259.14 |
| 73.62 | 2259.23 | 74.06 | 2259.32 | 75.73 | 2259.6 | 79.74 | 2260.29 | 82.39 | 2260.76 |
| 88.24 | 2261.83 | 89.78 | 2262.04 | 93.36 | 2262.49 | 96.52 | 2262.95 | 98.97 | 2263.24 |
| 100.01 | 2263.28 | 101.17 | 2263.33 | 101.64 | 2263.37 | 104.18 | 2263.58 | 106.41 | 2263.71 |
| 107.96 | 2264.02 | 109.93 | 2264.36 | 112.55 | 2264.85 | 114.73 | 2265.34 | 118.75 | 2266.22 |
| 121.28 | 2266.62 | 124.9 | 2266.82 | 126.9 | 2267.11 | 129.3 | 2267.38 | 135.82 | 2268.14 |
| 136.16 | 2268.19 | | | | | | | | |

Manning's n Values num= 6

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|---|---|
| 0 | .056 | 35.12 | .088 | 49.59 | .056 | 71.25 | .056 | 79.74 | .056 |
| 101.64 | .081 | | | | | | | | |

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

63.08 88.24 26.39 44.9 29.2 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 2263.14 | Element | Left OB | Channel | Right OB | |
| Vel Head (ft) | 0.18 | Wt. n-Val. | 0.056 | 0.056 | 0.056 | |
| W.S. Elev (ft) | 2262.96 | Reach Len. (ft) | 26.39 | 44.90 | 29.20 | |
| Crit W.S. (ft) | | Flow Area (sq ft) | 11.69 | 65.70 | 4.80 | |
| E.G. Slope (ft/ft) | 0.005048 | Area (sq ft) | 11.69 | 65.70 | 4.80 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | 21.67 | 232.11 | 6.22 | |
| Top Width (ft) | 45.34 | Top Width (ft) | 11.84 | 25.16 | 8.34 | |
| Vel Total (ft/s) | 3.16 | Avg. Vel. (ft/s) | 1.85 | 3.53 | 1.30 | |
| Max Chl Dpth (ft) | 3.82 | Hydr. Depth (ft) | 0.99 | 2.61 | 0.58 | |
| Conv. Total (cfs) | 3659.6 | Conv. (cfs) | 305.0 | 3267.0 | 87.5 | |
| Length Wtd. (ft) | 43.94 | Wetted Per. (ft) | 11.98 | 25.61 | 8.41 | |
| Min Ch El (ft) | 2259.14 | Shear (lb/sq ft) | 0.31 | 0.81 | 0.18 | |
| Alpha | 1.15 | Stream Power (lb/ft s) | 0.57 | 2.86 | 0.23 | |
| Frctn Loss (ft) | 0.59 | Cum Volume (acre-ft) | 0.03 | 1.79 | 0.30 | |
| C & E Loss (ft) | 0.09 | Cum SA (acres) | 0.05 | 0.73 | 0.41 | |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 2263.28 | Element | Left OB | Channel | Right OB | |
| Vel Head (ft) | 0.23 | Wt. n-Val. | | 0.056 | | |
| W.S. Elev (ft) | 2263.05 | Reach Len. (ft) | 26.39 | 44.90 | 29.20 | |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 68.13 | | |
| E.G. Slope (ft/ft) | 0.006529 | Area (sq ft) | | 68.13 | | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | | |
| Top Width (ft) | 25.16 | Top Width (ft) | | 25.16 | | |
| Vel Total (ft/s) | 3.82 | Avg. Vel. (ft/s) | | 3.82 | | |
| Max Chl Dpth (ft) | 3.91 | Hydr. Depth (ft) | | 2.71 | | |
| Conv. Total (cfs) | 3217.8 | Conv. (cfs) | | 3217.8 | | |
| Length Wtd. (ft) | 44.90 | Wetted Per. (ft) | | 28.68 | | |
| Min Ch El (ft) | 2259.14 | Shear (lb/sq ft) | | 0.97 | | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 3.69 | | |
| Frctn Loss (ft) | 0.74 | Cum Volume (acre-ft) | 0.00 | 1.86 | 0.00 | |
| C & E Loss (ft) | 0.08 | Cum SA (acres) | 0.00 | 0.73 | 0.00 | |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 47.31 | 63.08 | 21.67 | 11.69 | 11.98 | 8.33 | 0.99 | 1.85 |
| 2 | Chan | 63.08 | 69.37 | 48.96 | 15.17 | 6.42 | 18.83 | 2.41 | 3.23 |
| 3 | Chan | 69.37 | 75.66 | 91.62 | 22.06 | 6.41 | 35.24 | 3.51 | 4.15 |
| 4 | Chan | 75.66 | 81.95 | 64.04 | 17.77 | 6.38 | 24.63 | 2.83 | 3.60 |
| 5 | Chan | 81.95 | 88.24 | 27.48 | 10.70 | 6.39 | 10.57 | 1.70 | 2.57 |
| 6 | ROB | 88.24 | 100.22 | 6.22 | 4.80 | 8.41 | 2.39 | 0.58 | 1.30 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 63.08 | 69.37 | 48.94 | 15.77 | 8.28 | 18.82 | 2.51 | 3.10 |
| 2 | Chan | 69.37 | 75.66 | 106.26 | 22.67 | 6.41 | 40.87 | 3.60 | 4.69 |
| 3 | Chan | 75.66 | 81.95 | 75.08 | 18.38 | 6.38 | 28.88 | 2.92 | 4.09 |
| 4 | Chan | 81.95 | 88.24 | 29.72 | 11.31 | 7.62 | 11.43 | 1.80 | 2.63 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The composite Mannings n value for the channel was larger than the largest entered n value or smaller than the smallest entered n value.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.11883

INPUT
Description: Blocked Obstruction at Parcel 216-15-014-B
Station Elevation Data num= 32

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2272.82 | 1.53 | 2272.59 | 3.27 | 2272.28 | 8.68 | 2270.99 | 12.5 | 2270.07 |

```
   26.73 2265.09   29.16 2264.14   31.61 2263.74   47.61 2261.96   48.37 2262.12
   50.38  2262.1   54.73 2261.89   58.52 2261.77   60.97 2261.75   62.72 2261.69
   66.54 2261.57   67.46 2261.57   71.29 2261.58   82.32 2261.55    82.6 2261.55
   90.02 2259.45   90.88 2259.19   94.83 2258.02   97.79 2258.95  100.54 2259.73
  103.04 2260.52  106.44 2261.65  114.12 2263.89  118.63 2264.58  123.88 2265.08
  129.28 2265.66  138.64 2266.89

Manning's n Values        num=       3
    Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
       0    .088   90.88    .083   97.79    .081

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         90.02  106.44             25.93   21.67   22.86            .1       .3
Blocked Obstructions      num=       1
    Sta L   Sta R    Elev
************************
   67.46   90.02    2264

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)          * 2262.46  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    1.03  * Wt. n-Val.              *          *    0.083 *          *
* W.S. Elev (ft)          * 2261.43  * Reach Len. (ft)         *   25.93  *   21.67  *   22.86  *
* Crit W.S. (ft)          * 2261.43  * Flow Area (sq ft)       *          *   31.92  *          *
* E.G. Slope (ft/ft)      *0.099454  * Area (sq ft)            *          *   31.92  *          *
* Q Total (cfs)           *  260.00  * Flow (cfs)              *          *  260.00  *          *
* Top Width (ft)          *   15.75  * Top Width (ft)           *          *   15.75  *          *
* Vel Total (ft/s)        *    8.14  * Avg. Vel. (ft/s)         *          *    8.14  *          *
* Max Chl Dpth (ft)       *    3.41  * Hydr. Depth (ft)         *          *    2.03  *          *
* Conv. Total (cfs)       *   824.4  * Conv. (cfs)              *          *   824.4  *          *
* Length Wtd. (ft)        *   21.71  * Wetted Per. (ft)         *          *   18.46  *          *
* Min Ch El (ft)          * 2258.02  * Shear (lb/sq ft)         *          *   10.74  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s)   *          *   87.45  *          *
* Frctn Loss (ft)         *    0.25  * Cum Volume (acre-ft)     *    0.02  *    1.74  *    0.30  *
* C & E Loss (ft)         *    0.26  * Cum SA (acres)           *    0.05  *    0.71  *    0.40  *
*****************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program selected the water surface that had the least amount of error between computed and
         assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************
* E.G. Elev (ft)          * 2262.46  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    1.02  * Wt. n-Val.              *          *    0.083 *          *
* W.S. Elev (ft)          * 2261.44  * Reach Len. (ft)         *   25.93  *   21.67  *   22.86  *
* Crit W.S. (ft)          * 2261.43  * Flow Area (sq ft)       *          *   32.07  *          *
* E.G. Slope (ft/ft)      *0.098191  * Area (sq ft)            *          *   32.07  *          *
* Q Total (cfs)           *  260.00  * Flow (cfs)              *          *  260.00  *          *
* Top Width (ft)          *   15.78  * Top Width (ft)           *          *   15.78  *          *
* Vel Total (ft/s)        *    8.11  * Avg. Vel. (ft/s)         *          *    8.11  *          *
* Max Chl Dpth (ft)       *    3.42  * Hydr. Depth (ft)         *          *    2.03  *          *
* Conv. Total (cfs)       *   829.7  * Conv. (cfs)              *          *   829.7  *          *
* Length Wtd. (ft)        *   21.67  * Wetted Per. (ft)         *          *   18.50  *          *
* Min Ch El (ft)          * 2258.02  * Shear (lb/sq ft)         *          *   10.63  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s)   *          *   86.15  *          *
* Frctn Loss (ft)         *    0.28  * Cum Volume (acre-ft)     *    0.00  *    1.81  *    0.00  *
* C & E Loss (ft)         *    0.25  * Cum SA (acres)           *    0.00  *    0.71  *    0.00  *
*****************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) *  (sq ft) *    (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 90.02     * 94.13     *    86.48 *    10.64 *    6.26 *    33.26 *     2.59 *     8.13 *
* 2        * Chan      * 94.13     * 98.23     *   116.68 *    12.11 *    4.30 *    44.88 *     2.95 *     9.64 *
* 3        * Chan      * 98.23     * 102.34    *    50.42 *     7.22 *    4.28 *    19.39 *     1.76 *     6.98 *
* 4        * Chan      * 102.34    * 106.44    *     6.42 *     1.96 *    3.62 *     2.47 *     0.57 *     3.28 *
*****************************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program selected the water surface that had the least amount of error between computed and
         assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 2
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) *  (sq ft) *    (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 90.02     * 94.13     *    86.40 *    10.68 *    6.27 *    33.23 *     2.60 *     8.09 *
* 2        * Chan      * 94.13     * 98.23     *   116.53 *    12.14 *    4.30 *    44.82 *     2.96 *     9.60 *
* 3        * Chan      * 98.23     * 102.34    *    50.54 *     7.26 *    4.28 *    19.44 *     1.77 *     6.96 *
* 4        * Chan      * 102.34    * 106.44    *     6.52 *     1.99 *    3.65 *     2.51 *     0.57 *     3.27 *
*****************************************************************************************************************
```

```
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: Ocotillo Wash 1
REACH: Tributary-2.1       RS: 0.11472

INPUT
Description: Blocked Obstruction at Parcel 216-15-014-B
Station Elevation Data    num=      40
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
       0  2269.2    1.73 2269.13    4.11 2269.07    5.06 2268.71    5.25 2268.64
    9.19 2267.26   15.76 2263.94   32.03 2260.35   41.14 2258.36   45.56 2259.43
    47.8 2259.54   54.16 2260.08   56.76 2260.25   61.32 2260.43   63.89 2260.58
   64.22 2260.58   64.31 2260.57   75.95 2260.57   77.47 2260.56   80.61 2259.92
   83.05 2259.47   85.65 2258.98   93.16 2257.39    93.5 2257.32   99.07  2258.3
  102.57 2259.31  103.69 2259.37  106.31 2260.02  109.85 2260.89  113.96 2261.45
   114.1 2261.48  118.33 2262.61  118.76 2262.74  123.43 2263.63  127.61 2264.39
  128.18 2264.61   129.9 2264.76  130.32 2264.79  132.75  2265.2   133.6 2265.27

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
***************************************************************
       0    .088   75.95    .056   83.05    .058   93.16    .056

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          80.61  103.69             149.39  181.41  208.82          .1       .3
Left Levee      Station=   75.95       Elevation= 2260.57
Blocked Obstructions     num=       2
   Sta L   Sta R    Elev   Sta L   Sta R    Elev
***********************************************
   12.95   75.74 2264.01    56.8   80.61    2264

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************************
* E.G. Elev (ft)         * 2261.77  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.17  * Wt. n-Val.              *          *    0.057 *    0.056  *
* W.S. Elev (ft)         * 2261.60  * Reach Len. (ft)         *  149.39  *   181.41 *   208.82  *
* Crit W.S. (ft)         * 2260.12  * Flow Area (sq ft)       *          *    71.36 *    10.87  *
* E.G. Slope (ft/ft)     *0.004196  * Area (sq ft)            *          *    71.36 *    10.87  *
* Q Total (cfs)          *  260.00  * Flow (cfs)              *          *   241.59 *    18.41  *
* Top Width (ft)         *   33.94  * Top Width (ft)          *          *    23.08 *    10.86  *
* Vel Total (ft/s)       *    3.16  * Avg. Vel. (ft/s)        *          *     3.39 *     1.69  *
* Max Chl Dpth (ft)      *    4.28  * Hydr. Depth (ft)        *          *     3.09 *     1.00  *
* Conv. Total (cfs)      *  4014.0  * Conv. (cfs)             *          *   3729.7 *    284.2  *
* Length Wtd. (ft)       *  182.17  * Wetted Per. (ft)        *          *    25.25 *    11.10  *
* Min Ch El (ft)         * 2257.32  * Shear (lb/sq ft)        *          *     0.74 *     0.26  *
* Alpha                  *    1.09  * Stream Power (lb/ft s)   *          *     2.51 *     0.43  *
* Frctn Loss (ft)        *    1.73  * Cum Volume (acre-ft)     *    0.02  *     1.71 *     0.30  *
* C & E Loss (ft)        *    0.06  * Cum SA (acres)           *    0.05  *     0.70 *     0.40  *
*****************************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************************
* E.G. Elev (ft)         * 2261.92  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.19  * Wt. n-Val.              *          *    0.057 *          *
* W.S. Elev (ft)         * 2261.73  * Reach Len. (ft)         *  149.39  *   181.41 *   208.82  *
* Crit W.S. (ft)         * 2260.09  * Flow Area (sq ft)       *          *    74.42 *          *
* E.G. Slope (ft/ft)     *0.004778  * Area (sq ft)            *          *    74.42 *          *
* Q Total (cfs)          *  260.00  * Flow (cfs)              *          *   260.00 *          *
* Top Width (ft)         *   23.08  * Top Width (ft)          *          *    23.08 *          *
* Vel Total (ft/s)       *    3.49  * Avg. Vel. (ft/s)        *          *     3.49 *          *
* Max Chl Dpth (ft)      *    4.41  * Hydr. Depth (ft)        *          *     3.22 *          *
* Conv. Total (cfs)      *  3761.3  * Conv. (cfs)             *          *   3761.3 *          *
* Length Wtd. (ft)       *  181.41  * Wetted Per. (ft)        *          *    27.75 *          *
* Min Ch El (ft)         * 2257.32  * Shear (lb/sq ft)        *          *     0.80 *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s)   *          *     2.80 *          *
* Frctn Loss (ft)        *    1.85  * Cum Volume (acre-ft)     *    0.00  *     1.78 *     0.00  *
* C & E Loss (ft)        *    0.05  * Cum SA (acres)           *    0.00  *     0.70 *     0.00  *
*****************************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

  Profile #PF 1
*******************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 80.61     * 86.38     *    31.04 *    12.80 *     7.55 *    11.94 *     2.22 *     2.43 *
* 2        * Chan      * 86.38     * 92.15     *    68.09 *    19.54 *     5.90 *    26.19 *     3.39 *     3.48 *
* 3        * Chan      * 92.15     * 97.92     *    90.89 *    22.79 *     5.87 *    34.96 *     3.95 *     3.99 *
* 4        * Chan      * 97.92     * 103.69    *    51.56 *    16.23 *     5.93 *    19.83 *     2.81 *     3.18 *
```

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5 | ROB | 103.69 | 111.17 | 17.74 | 9.87 | 7.67 | 6.82 | 1.32 | 1.80 |
| 6 | ROB | 111.17 | 118.65 | 0.67 | 1.00 | 3.43 | 0.26 | 0.30 | 0.67 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 80.61 | 86.38 | 35.70 | 13.56 | 7.69 | 13.73 | 2.35 | 2.63 |
| 2 | Chan | 86.38 | 92.15 | 76.39 | 20.30 | 5.90 | 29.38 | 3.52 | 3.76 |
| 3 | Chan | 92.15 | 97.92 | 101.06 | 23.56 | 5.87 | 38.87 | 4.08 | 4.29 |
| 4 | Chan | 97.92 | 103.69 | 46.85 | 16.99 | 8.30 | 18.02 | 2.95 | 2.76 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.10962

INPUT
Description:
Station Elevation Data num= 38

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2269.26 | 2.11 | 2268.99 | 5.54 | 2268.91 | 6.5 | 2268.87 | 6.96 | 2268.85 |
| 8.57 | 2267.9 | 12.93 | 2265.33 | 15.66 | 2263.62 | 27.59 | 2260.5 | 37.91 | 2258.12 |
| 40.6 | 2258.02 | 51.5 | 2257.84 | 54.68 | 2257.87 | 65.89 | 2257.91 | 68.57 | 2258.32 |
| 72.6 | 2259.08 | 75.59 | 2259.62 | 79.92 | 2259.26 | 83.53 | 2258.96 | 83.96 | 2258.92 |
| 84.45 | 2258.84 | 86.08 | 2258.59 | 90.37 | 2257.86 | 96.39 | 2256.97 | 100.39 | 2256.35 |
| 102.01 | 2256.97 | 104.73 | 2257.98 | 108.4 | 2259.39 | 109.56 | 2259.9 | 111.69 | 2260.85 |
| 125.62 | 2266.5 | 127.7 | 2267.34 | 130.22 | 2268.38 | 132.14 | 2268.92 | 136.99 | 2269.69 |
| 137.23 | 2269.73 | 137.41 | 2269.78 | 143.28 | 2270.66 | | | | |

Manning's n Values num= 4

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|
| 0 | .088 | 8.57 | .056 | 79.92 | .058 | 102.01 | .056 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 86.08 | 108.4 | 16.48 | 35.78 | 34.39 | .1 | .3 |

Left Levee Station= 75.59 Elevation= 2259.62

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2259.99 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.75 | Wt. n-Val. | 0.058 | 0.057 | |
| W.S. Elev (ft) | 2259.24 | Reach Len. (ft) | 16.48 | 35.78 | 34.39 |
| Crit W.S. (ft) | 2259.24 | Flow Area (sq ft) | 1.60 | 36.59 | |
| E.G. Slope (ft/ft) | 0.038688 | Area (sq ft) | 1.60 | 36.59 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | 3.39 | 256.61 | |
| Top Width (ft) | 27.77 | Top Width (ft) | 5.86 | 21.92 | |
| Vel Total (ft/s) | 6.81 | Avg. Vel. (ft/s) | 2.11 | 7.01 | |
| Max Chl Dpth (ft) | 2.88 | Hydr. Depth (ft) | 0.27 | 1.67 | |
| Conv. Total (cfs) | 1321.9 | Conv. (cfs) | 17.2 | 1304.6 | |
| Length Wtd. (ft) | 34.82 | Wetted Per. (ft) | 5.90 | 22.62 | |
| Min Ch El (ft) | 2256.35 | Shear (lb/sq ft) | 0.66 | 3.91 | |
| Alpha | 1.05 | Stream Power (lb/ft s) | 1.39 | 27.40 | |
| Frctn Loss (ft) | 0.96 | Cum Volume (acre-ft) | 0.02 | 1.49 | 0.27 |
| C & E Loss (ft) | 0.08 | Cum SA (acres) | 0.04 | 0.61 | 0.38 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2260.03 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.70 | Wt. n-Val. | | 0.057 | |
| W.S. Elev (ft) | 2259.33 | Reach Len. (ft) | 16.48 | 35.78 | 34.39 |
| Crit W.S. (ft) | 2259.20 | Flow Area (sq ft) | | 38.62 | |
| E.G. Slope (ft/ft) | 0.035140 | Area (sq ft) | | 38.62 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 22.16 | Top Width (ft) | | 22.16 | |
| Vel Total (ft/s) | 6.73 | Avg. Vel. (ft/s) | | 6.73 | |
| Max Chl Dpth (ft) | 2.98 | Hydr. Depth (ft) | | 1.74 | |
| Conv. Total (cfs) | 1387.0 | Conv. (cfs) | | 1387.0 | |
| Length Wtd. (ft) | 35.78 | Wetted Per. (ft) | | 23.61 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Min Ch El (ft) | 2256.35 | Shear (lb/sq ft) | | 3.59 | | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 24.15 | | |
| Frctn Loss (ft) | 0.75 | Cum Volume (acre-ft) | 0.00 | 1.55 | 0.00 | |
| C & E Loss (ft) | 0.08 | Cum SA (acres) | 0.00 | 0.61 | 0.00 | |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 75.59 | 86.08 | 3.39 | 1.60 | 5.90 | 1.30 | 0.27 | 2.11 |
| 2 | Chan | 86.08 | 91.66 | 31.00 | 6.23 | 5.66 | 11.92 | 1.12 | 4.98 |
| 3 | Chan | 91.66 | 97.24 | 80.60 | 11.04 | 5.64 | 31.00 | 1.98 | 7.30 |
| 4 | Chan | 97.24 | 102.82 | 121.49 | 14.20 | 5.79 | 46.73 | 2.55 | 8.55 |
| 5 | Chan | 102.82 | 108.40 | 23.52 | 5.12 | 5.54 | 9.05 | 0.99 | 4.59 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 86.08 | 91.66 | 30.82 | 6.74 | 6.39 | 11.85 | 1.21 | 4.57 |
| 2 | Chan | 91.66 | 97.24 | 82.21 | 11.55 | 5.64 | 31.62 | 2.07 | 7.12 |
| 3 | Chan | 97.24 | 102.82 | 121.86 | 14.72 | 5.79 | 46.87 | 2.64 | 8.28 |
| 4 | Chan | 102.82 | 108.40 | 25.10 | 5.61 | 5.79 | 9.65 | 1.04 | 4.47 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.10284

INPUT
Description:
Station Elevation Data num= 37

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2269.51 | 2.81 | 2269.25 | 3.5 | 2269.2 | 5.72 | 2268.46 | 13.13 | 2265.99 |
| 15.45 | 2265 | 26.31 | 2261.99 | 29.45 | 2260.68 | 35.22 | 2258.43 | 39.2 | 2258.13 |
| 47.07 | 2257.69 | 51.11 | 2257.71 | 55.46 | 2257.75 | 61.12 | 2257.79 | 66.13 | 2258.28 |
| 68.55 | 2258.51 | 77.71 | 2258.05 | 79.53 | 2257.88 | 80.58 | 2257.81 | 84.8 | 2257.52 |
| 85.33 | 2257.44 | 91.8 | 2257.15 | 94.19 | 2256.68 | 101.18 | 2255.67 | 105.07 | 2255.06 |
| 106.62 | 2255.55 | 109.75 | 2256.55 | 113.95 | 2258 | 116.98 | 2258.99 | 121.23 | 2261.2 |
| 123.74 | 2262.51 | 125.44 | 2263.27 | 128.12 | 2264.27 | 139.4 | 2267.98 | 145.48 | 2269.51 |
| 145.52 | 2269.52 | 155.37 | 2271.02 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .056 | 80.58 | .058 | 106.62 | .056 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 91.8 | 109.75 | 28.34 | 31.24 | 29.52 | .1 | .3 |

Left Levee Station= 68.55 Elevation= 2258.51

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2258.62 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.50 | Wt. n-Val. | 0.058 | 0.058 | 0.056 |
| W.S. Elev (ft) | 2258.11 | Reach Len. (ft) | 28.34 | 31.24 | 29.52 |
| Crit W.S. (ft) | 2257.95 | Flow Area (sq ft) | 8.11 | 37.91 | 3.54 |
| E.G. Slope (ft/ft) | 0.020545 | Area (sq ft) | 8.11 | 37.91 | 3.54 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 21.74 | 227.28 | 10.98 |
| Top Width (ft) | 37.85 | Top Width (ft) | 15.35 | 17.95 | 4.55 |
| Vel Total (ft/s) | 5.25 | Avg. Vel. (ft/s) | 2.68 | 5.99 | 3.10 |
| Max Chl Dpth (ft) | 3.05 | Hydr. Depth (ft) | 0.53 | 2.11 | 0.78 |
| Conv. Total (cfs) | 1813.9 | Conv. (cfs) | 151.7 | 1585.6 | 76.6 |
| Length Wtd. (ft) | 30.86 | Wetted Per. (ft) | 15.38 | 18.35 | 4.81 |
| Min Ch El (ft) | 2255.06 | Shear (lb/sq ft) | 0.68 | 2.65 | 0.94 |
| Alpha | 1.18 | Stream Power (lb/ft s) | 1.81 | 15.89 | 2.93 |
| Frctn Loss (ft) | 0.74 | Cum Volume (acre-ft) | 0.02 | 1.46 | 0.27 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 0.04 | 0.59 | 0.37 |

Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2259.19 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.43 | Wt. n-Val. | | 0.058 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| W.S. Elev (ft) | 2258.77 | Reach Len. (ft) | 28.34 | 31.24 | 29.52 | |
| Crit W.S. (ft) | 2257.86 | Flow Area (sq ft) | | 49.65 | | |
| E.G. Slope (ft/ft) | 0.014027 | Area (sq ft) | | 49.65 | | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | | |
| Top Width (ft) | 17.95 | Top Width (ft) | | 17.95 | | |
| Vel Total (ft/s) | 5.24 | Avg. Vel. (ft/s) | | 5.24 | | |
| Max Chl Dpth (ft) | 3.71 | Hydr. Depth (ft) | | 2.77 | | |
| Conv. Total (cfs) | 2195.3 | Conv. (cfs) | | 2195.3 | | |
| Length Wtd. (ft) | 31.24 | Wetted Per. (ft) | | 22.18 | | |
| Min Ch El (ft) | 2255.06 | Shear (lb/sq ft) | | 1.96 | | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 10.26 | | |
| Frctn Loss (ft) | 0.75 | Cum Volume (acre-ft) | 0.00 | 1.51 | 0.00 | |
| C & E Loss (ft) | 0.06 | Cum SA (acres) | 0.00 | 0.59 | 0.00 | |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 68.55 | 91.80 | 21.75 | 8.11 | 15.38 | 8.36 | 0.53 | 2.68 |
| 2 | Chan | 91.80 | 96.29 | 27.00 | 6.19 | 4.56 | 10.39 | 1.38 | 4.36 |
| 3 | Chan | 96.29 | 100.78 | 52.90 | 9.25 | 4.53 | 20.35 | 2.06 | 5.72 |
| 4 | Chan | 100.78 | 105.26 | 84.36 | 12.25 | 4.55 | 32.45 | 2.73 | 6.89 |
| 5 | Chan | 105.26 | 109.75 | 63.01 | 10.23 | 4.71 | 24.24 | 2.28 | 6.16 |
| 6 | ROB | 109.75 | 121.16 | 10.98 | 3.54 | 4.81 | 4.22 | 0.78 | 3.10 |

Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 91.80 | 96.29 | 33.69 | 9.12 | 6.17 | 12.96 | 2.03 | 3.69 |
| 2 | Chan | 96.29 | 100.78 | 67.01 | 12.18 | 4.53 | 25.77 | 2.71 | 5.50 |
| 3 | Chan | 100.78 | 105.26 | 96.55 | 15.18 | 4.55 | 37.14 | 3.38 | 6.36 |
| 4 | Chan | 105.26 | 109.75 | 62.74 | 13.16 | 6.93 | 24.13 | 2.93 | 4.77 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.09693

INPUT
Description:
Station Elevation Data num= 41

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2270.46 | 3.37 | 2270.15 | 8.18 | 2269.74 | 10.82 | 2269.15 | 11.57 | 2268.99 |
| 12.58 | 2268.89 | 14.49 | 2268.48 | 17.3 | 2267.4 | 23.3 | 2264.83 | 27.37 | 2263.33 |
| 33.18 | 2260.77 | 36.54 | 2259.3 | 40.2 | 2258.85 | 44.17 | 2258.26 | 45.85 | 2258.14 |
| 49.26 | 2258.13 | 57.1 | 2258.02 | 58.9 | 2257.99 | 63.48 | 2257.75 | 66.17 | 2257.34 |
| 67.07 | 2257.31 | 78.04 | 2257.02 | 84.69 | 2256.89 | 85.61 | 2256.88 | 88.71 | 2256.8 |
| 92.75 | 2256.09 | 102.03 | 2254.51 | 102.34 | 2254.51 | 104.18 | 2254.92 | 105.62 | 2255.24 |
| 111.29 | 2256.4 | 116.92 | 2257.6 | 117.9 | 2257.79 | 119.64 | 2258.26 | 121.88 | 2258.76 |
| 140.93 | 2264.34 | 156.73 | 2269.05 | 158.68 | 2269.6 | 158.93 | 2269.65 | 160.82 | 2270 |
| 166.02 | 2270.88 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .056 | 84.69 | .058 | 104.18 | .056 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 88.71 | 105.62 | 30.89 | 32.52 | 26.75 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2257.88 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.55 | Wt. n-Val. | 0.057 | 0.058 | 0.056 |
| W.S. Elev (ft) | 2257.33 | Reach Len. (ft) | 30.89 | 32.52 | 26.75 |
| Crit W.S. (ft) | 2257.33 | Flow Area (sq ft) | 6.14 | 31.26 | 10.55 |
| E.G. Slope (ft/ft) | 0.027959 | Area (sq ft) | 6.14 | 31.26 | 10.55 |
| Q Total (cfs) | 260.00 | Flow (cfs) | 12.10 | 200.15 | 47.75 |
| Top Width (ft) | 49.02 | Top Width (ft) | 22.10 | 16.91 | 10.01 |
| Vel Total (ft/s) | 5.42 | Avg. Vel. (ft/s) | 1.97 | 6.40 | 4.53 |
| Max Chl Dpth (ft) | 2.82 | Hydr. Depth (ft) | 0.28 | 1.85 | 1.05 |
| Conv. Total (cfs) | 1554.9 | Conv. (cfs) | 72.3 | 1197.0 | 285.6 |
| Length Wtd. (ft) | 31.88 | Wetted Per. (ft) | 22.11 | 17.19 | 10.23 |
| Min Ch El (ft) | 2254.51 | Shear (lb/sq ft) | 0.48 | 3.18 | 1.80 |
| Alpha | 1.21 | Stream Power (lb/ft s) | 0.96 | 20.33 | 8.15 |
| Frctn Loss (ft) | 1.00 | Cum Volume (acre-ft) | 0.01 | 1.43 | 0.27 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.02 | 0.58 | 0.37 |

Warning: The energy equation could not be balanced within the specified number of iterations. The

```
        program selected the water surface that had the least amount of error between computed and
        assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
        section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
        depth, the calculated water surface came back below critical depth.  This indicates that there
        is not a valid subcritical answer.  The program defaulted to critical depth.
Note:   Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT  Profile #PF 2
*********************************************************************************************
* E.G. Elev (ft)        * 2258.39  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)         *    0.98  * Wt. n-Val.              *          *    0.058 *          *
* W.S. Elev (ft)        * 2257.41  * Reach Len. (ft)         *   30.89  *    32.52 *   26.75  *
* Crit W.S. (ft)        * 2257.41  * Flow Area (sq ft)       *          *    32.71 *          *
* E.G. Slope (ft/ft)    *0.049223  * Area (sq ft)            *          *    32.71 *          *
* Q Total (cfs)         *  260.00  * Flow (cfs)              *          *   260.00 *          *
* Top Width (ft)        *   16.91  * Top Width (ft)          *          *    16.91 *          *
* Vel Total (ft/s)      *    7.95  * Avg. Vel. (ft/s)        *          *     7.95 *          *
* Max Chl Dpth (ft)     *    2.90  * Hydr. Depth (ft)        *          *     1.93 *          *
* Conv. Total (cfs)     *  1171.9  * Conv. (cfs)             *          *   1171.9 *          *
* Length Wtd. (ft)      *   32.52  * Wetted Per. (ft)        *          *    19.97 *          *
* Min Ch El (ft)        * 2254.51  * Shear (lb/sq ft)        *          *     5.03 *          *
* Alpha                 *    1.00  * Stream Power (lb/ft s)  *          *    40.01 *          *
* Frctn Loss (ft)       *    0.95  * Cum Volume (acre-ft)    *    0.00  *     1.48 *    0.00  *
* C & E Loss (ft)       *    0.15  * Cum SA (acres)          *    0.00  *     0.58 *    0.00  *
*********************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
        program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
        0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
        section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
        depth, the calculated water surface came back below critical depth.  This indicates that there
        is not a valid subcritical answer.  The program defaulted to critical depth.
Note:   Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) *  (sq ft) *    (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB       * 66.53     * 88.71     *    12.10 *     6.14 *   22.11 *     4.65 *     0.28 *     1.97 *
* 2        * Chan      * 88.71     * 92.94     *    13.96 *     3.79 *    4.29 *     5.37 *     0.90 *     3.68 *
* 3        * Chan      * 92.94     * 97.17     *    37.70 *     6.88 *    4.29 *    14.50 *     1.63 *     5.48 *
* 4        * Chan      * 97.17     * 101.39    *    69.41 *     9.92 *    4.29 *    26.70 *     2.35 *     7.00 *
* 5        * Chan      * 101.39    * 105.62    *    79.08 *    10.67 *    4.32 *    30.41 *     2.52 *     7.41 *
* 6        * ROB       * 105.62    * 120.72    *    47.75 *    10.55 *   10.23 *    18.37 *     1.05 *     4.53 *
*****************************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
        program selected the water surface that had the least amount of error between computed and
        assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
        section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
        depth, the calculated water surface came back below critical depth.  This indicates that there
        is not a valid subcritical answer.  The program defaulted to critical depth.
Note:   Manning's n values were composited to a single value in the main channel.

  Profile #PF 2
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) *  (sq ft) *    (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 88.71     * 92.94     *    19.11 *     4.15 *    4.90 *     7.35 *     0.98 *     4.60 *
* 2        * Chan      * 92.94     * 97.17     *    52.78 *     7.24 *    4.29 *    20.30 *     1.71 *     7.29 *
* 3        * Chan      * 97.17     * 101.39    *    94.70 *    10.28 *    4.29 *    36.42 *     2.43 *     9.21 *
* 4        * Chan      * 101.39    * 105.62    *    93.41 *    11.03 *    6.49 *    35.93 *     2.61 *     8.47 *
*****************************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
        program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
        0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
        section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
        depth, the calculated water surface came back below critical depth.  This indicates that there
        is not a valid subcritical answer.  The program defaulted to critical depth.
Note:   Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: Ocotillo Wash 1
REACH: Tributary-2.1      RS: 0.09077

INPUT
Description:
Station Elevation Data    num=      42
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*********************************************************************************
       0 2270.23    1.15 2270.19    1.62 2270.19    2.26 2270.12    4.77 2269.71
    7.28 2269.31   10.89 2267.22   12.29 2266.34   18.11  2263.5   22.46 2261.41
   24.35 2260.99   27.71 2260.45    30.5 2259.87   38.41 2259.04   43.41 2258.56
   47.68 2257.79   53.59 2256.84   56.78 2256.12   61.66  2255.6   64.68 2255.23
   66.47 2255.11   71.07 2254.39   72.31  2254.2   76.68 2253.47   85.09  2254.9
   87.36 2255.29   92.61 2256.04   94.34 2256.02   98.54 2256.21   105.6 2256.62
  110.83 2256.89  112.85 2256.97  114.89    2257  119.18 2257.65  124.19 2258.25
  149.22  2264.6  155.19 2266.42  163.08 2268.74  163.76 2268.89  165.05 2269.16
  169.77 2270.36  171.51 2270.74

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
```

```
      0    .056   71.07    .058   85.09    .056

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          64.68   87.36             52.91   54.92    79.7          .1        .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)          * 2256.71  * Element                 *  Left OB  *  Channel  * Right OB *
* Vel Head (ft)           *    0.70  * Wt. n-Val.              *   0.056   *   0.058   *   0.056   *
* W.S. Elev (ft)          * 2256.01  * Reach Len. (ft)         *   52.91   *   54.92   *   79.70   *
* Crit W.S. (ft)          * 2256.01  * Flow Area (sq ft)       *    2.57   *   36.30   *    1.80   *
* E.G. Slope (ft/ft)      *0.035628  * Area (sq ft)            *    2.57   *   36.30   *    1.80   *
* Q Total (cfs)           *  260.00  * Flow (cfs)              *    6.66   *  248.81   *    4.53   *
* Top Width (ft)          *   34.55  * Top Width (ft)           *    6.84   *   22.68   *    5.02   *
* Vel Total (ft/s)        *    6.39  * Avg. Vel. (ft/s)         *    2.59   *    6.85   *    2.51   *
* Max Chl Dpth (ft)       *    2.54  * Hydr. Depth (ft)         *    0.38   *    1.60   *    0.36   *
* Conv. Total (cfs)       *  1377.5  * Conv. (cfs)              *    35.3   *  1318.2   *    24.0   *
* Length Wtd. (ft)        *   60.05  * Wetted Per. (ft)         *    6.89   *   22.97   *    5.07   *
* Min Ch El (ft)          * 2253.47  * Shear (lb/sq ft)         *    0.83   *    3.52   *    0.79   *
* Alpha                   *    1.11  * Stream Power (lb/ft s)    *    2.15   *   24.09   *    1.98   *
* Frctn Loss (ft)         *    0.71  * Cum Volume (acre-ft)      *    0.01   *    1.41   *    0.26   *
* C & E Loss (ft)         *    0.18  * Cum SA (acres)            *    0.01   *    0.57   *    0.36   *
*****************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************
* E.G. Elev (ft)          * 2256.93  * Element                 *  Left OB  *  Channel  * Right OB *
* Vel Head (ft)           *    0.50  * Wt. n-Val.              *           *   0.058   *           *
* W.S. Elev (ft)          * 2256.44  * Reach Len. (ft)         *   52.91   *   54.92   *   79.70   *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *           *   45.99   *           *
* E.G. Slope (ft/ft)      *0.019342  * Area (sq ft)            *           *   45.99   *           *
* Q Total (cfs)           *  260.00  * Flow (cfs)              *           *  260.00   *           *
* Top Width (ft)          *   22.68  * Top Width (ft)           *           *   22.68   *           *
* Vel Total (ft/s)        *    5.65  * Avg. Vel. (ft/s)         *           *    5.65   *           *
* Max Chl Dpth (ft)       *    2.96  * Hydr. Depth (ft)         *           *    2.03   *           *
* Conv. Total (cfs)       *  1869.5  * Conv. (cfs)              *           *  1869.5   *           *
* Length Wtd. (ft)        *   54.92  * Wetted Per. (ft)         *           *   25.32   *           *
* Min Ch El (ft)          * 2253.47  * Shear (lb/sq ft)         *           *    2.19   *           *
* Alpha                   *    1.00  * Stream Power (lb/ft s)    *           *   12.40   *           *
* Frctn Loss (ft)         *    0.68  * Cum Volume (acre-ft)      *    0.00   *    1.45   *    0.00   *
* C & E Loss (ft)         *    0.08  * Cum SA (acres)            *    0.00   *    0.57   *    0.00   *
*****************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) *  (sq ft) *    (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB       * 48.51     * 64.68     *     6.66 *     2.57 *    6.89 *     2.56 *     0.38 *     2.59 *
* 2        * Chan      * 64.68     * 70.35     *    32.00 *     6.16 *    5.72 *    12.31 *     1.09 *     5.19 *
* 3        * Chan      * 70.35     * 76.02     *    82.79 *    11.10 *    5.74 *    31.84 *     1.96 *     7.46 *
* 4        * Chan      * 76.02     * 81.69     *    96.41 *    12.22 *    5.75 *    37.08 *     2.15 *     7.89 *
* 5        * Chan      * 81.69     * 87.36     *    37.61 *     6.82 *    5.75 *    14.47 *     1.20 *     5.51 *
* 6        * ROB       * 87.36     * 108.40    *     4.53 *     1.80 *    5.07 *     1.74 *     0.36 *     2.51 *
*****************************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.

  Profile #PF 2
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) *  (sq ft) *    (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 64.68     * 70.35     *    36.18 *     8.58 *    6.93 *    13.92 *     1.51 *     4.22 *
* 2        * Chan      * 70.35     * 76.02     *    84.94 *    13.53 *    5.74 *    32.67 *     2.39 *     6.28 *
* 3        * Chan      * 76.02     * 81.69     *    96.31 *    14.64 *    5.75 *    37.04 *     2.58 *     6.58 *
* 4        * Chan      * 81.69     * 87.36     *    42.58 *     9.24 *    6.90 *    16.38 *     1.63 *     4.61 *
*****************************************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.

CROSS SECTION


RIVER: Ocotillo Wash 1
REACH: Tributary-2.1       RS: 0.08036

INPUT
Description:
Station Elevation Data    num=      43
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
*******************************************************************************
```

```
      0 2268.22     1.7 2268.02    2.55 2267.89    5.48 2267.58    8.33 2267.44
   9.63 2267.24   17.35 2266.33   20.77 2266.15   24.57 2265.13   25.14 2264.77
  27.03 2263.91      29 2263.23    32.8 2260.94   41.42 2256.24   43.77 2255.57
  49.42 2253.82   54.66 2252.41   54.67 2252.41   64.01 2253.56   69.85 2254.27
  76.48  2254.2    82.4 2254.21   95.85 2254.19  109.03 2254.29  117.59 2254.47
 117.89 2254.48  119.35 2254.54  120.97 2254.62  124.55 2254.77  132.19 2255.06
 141.08 2255.53  142.88 2255.75  144.17 2255.86  145.56    2256  150.71 2256.56
 156.21 2257.08  160.39 2257.51  161.94 2257.92  174.53 2261.33  182.85 2263.65
 189.48 2265.44   191.3 2265.92  194.56 2265.96

Manning's n Values          num=       3
    Sta   n Val      Sta   n Val      Sta   n Val
*********************************************
       0    .056    54.67    .058    64.01    .056

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          49.42  76.48             99.4   117.2  171.83            .1        .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)          * 2255.47  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.10  * Wt. n-Val.              *   0.056  *   0.057  *   0.056  *
* W.S. Elev (ft)          * 2255.37  * Reach Len. (ft)         *   99.40  *  117.20  *  171.83  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *    3.86  *   50.02  *   55.33  *
* E.G. Slope (ft/ft)      *0.005807  * Area (sq ft)            *    3.86  *   50.02  *   55.33  *
* Q Total (cfs)           *  260.00  * Flow (cfs)              *    6.37  *  149.38  *  104.25  *
* Top Width (ft)          *   93.54  * Top Width (ft)           *    4.99  *   27.06  *   61.49  *
* Vel Total (ft/s)        *    2.38  * Avg. Vel. (ft/s)         *    1.65  *    2.99  *    1.88  *
* Max Chl Dpth (ft)       *    2.96  * Hydr. Depth (ft)         *    0.77  *    1.85  *    0.90  *
* Conv. Total (cfs)       *  3411.9  * Conv. (cfs)              *    83.6  *  1960.3  *  1368.0  *
* Length Wtd. (ft)        *  135.32  * Wetted Per. (ft)         *    5.22  *   27.36  *   61.51  *
* Min Ch El (ft)          * 2252.41  * Shear (lb/sq ft)         *    0.27  *    0.66  *    0.33  *
* Alpha                   *    1.17  * Stream Power (lb/ft s)   *    0.44  *    1.98  *    0.61  *
* Frctn Loss (ft)         *    1.27  * Cum Volume (acre-ft)     *    0.01  *    1.35  *    0.21  *
* C & E Loss (ft)         *    0.01  * Cum SA (acres)           *    0.01  *    0.53  *    0.30  *
*****************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************
* E.G. Elev (ft)          * 2256.18  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.25  * Wt. n-Val.              *          *   0.057  *          *
* W.S. Elev (ft)          * 2255.93  * Reach Len. (ft)         *   99.40  *  117.20  *  171.83  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *          *   65.33  *          *
* E.G. Slope (ft/ft)      *0.008582  * Area (sq ft)            *          *   65.33  *          *
* Q Total (cfs)           *  260.00  * Flow (cfs)              *          *  260.00  *          *
* Top Width (ft)          *   27.06  * Top Width (ft)           *          *   27.06  *          *
* Vel Total (ft/s)        *    3.98  * Avg. Vel. (ft/s)         *          *    3.98  *          *
* Max Chl Dpth (ft)       *    3.52  * Hydr. Depth (ft)         *          *    2.41  *          *
* Conv. Total (cfs)       *  2806.6  * Conv. (cfs)              *          *  2806.6  *          *
* Length Wtd. (ft)        *  117.20  * Wetted Per. (ft)         *          *   31.20  *          *
* Min Ch El (ft)          * 2252.41  * Shear (lb/sq ft)         *          *    1.12  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s)   *          *    4.46  *          *
* Frctn Loss (ft)         *    1.67  * Cum Volume (acre-ft)     *    0.00  *    1.38  *    0.00  *
* C & E Loss (ft)         *    0.02  * Cum SA (acres)           *    0.00  *    0.53  *    0.00  *
*****************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB       * 37.07     * 49.42     *     6.37 *    3.86 *     5.22 *     2.45 *     0.77 *     1.65 *
* 2        * Chan      * 49.42     * 56.19     *    54.71 *   16.16 *     6.96 *    21.04 *     2.39 *     3.39 *
* 3        * Chan      * 56.19     * 62.95     *    52.39 *   15.91 *     6.82 *    20.15 *     2.35 *     3.29 *
* 4        * Chan      * 62.95     * 69.72     *    26.23 *   10.30 *     6.82 *    10.09 *     1.52 *     2.55 *
* 5        * Chan      * 69.72     * 76.48     *    16.06 *    7.64 *     6.77 *     6.18 *     1.13 *     2.10 *
* 6        * ROB       * 76.48     * 106.00    *    71.92 *   34.09 *    29.52 *    27.66 *     1.15 *     2.11 *
* 7        * ROB       * 106.00    * 135.52    *    32.28 *   21.08 *    29.54 *    12.41 *     0.71 *     1.53 *
* 8        * ROB       * 135.52    * 165.04    *     0.05 *    0.16 *     2.45 *     0.02 *     0.06 *     0.31 *
*****************************************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 2
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 49.42     * 56.19     *    81.47 *   19.99 *     9.07 *    31.33 *     2.95 *     4.08 *
* 2        * Chan      * 56.19     * 62.95     *    91.43 *   19.74 *     6.82 *    35.17 *     2.92 *     4.63 *
* 3        * Chan      * 62.95     * 69.72     *    54.02 *   14.13 *     6.82 *    20.78 *     2.09 *     3.82 *
* 4        * Chan      * 69.72     * 76.48     *    33.08 *   11.47 *     8.50 *    12.72 *     1.70 *     2.88 *
*****************************************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION
```

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.07210

INPUT
Description:
Station Elevation Data num= 43

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2267.32 | 4.07 | 2267.31 | 4.99 | 2267.07 | 7.41 | 2266.44 | 12.5 | 2265.19 |
| 18.36 | 2263.67 | 24.65 | 2261.86 | 30.46 | 2258.61 | 39.01 | 2254.26 | 39.7 | 2254.07 |
| 44.95 | 2252.26 | 47.27 | 2251.46 | 54.92 | 2252.2 | 55.95 | 2252.31 | 57.22 | 2252.44 |
| 62.87 | 2253.02 | 66.85 | 2253.03 | 70.04 | 2253 | 72.46 | 2253.01 | 84.15 | 2253.06 |
| 105.04 | 2253.48 | 106.01 | 2253.53 | 106.35 | 2253.55 | 106.92 | 2253.58 | 107.89 | 2253.64 |
| 110.89 | 2253.82 | 135.77 | 2255.27 | 136.24 | 2255.33 | 136.72 | 2255.39 | 141.96 | 2256 |
| 148.8 | 2256.72 | 149.59 | 2256.82 | 151.16 | 2257 | 157.14 | 2258.23 | 159.25 | 2258.75 |
| 163.72 | 2259.79 | 169.92 | 2261.31 | 173.24 | 2262.13 | 179.62 | 2263.56 | 182.52 | 2264.22 |
| 182.89 | 2264.21 | 183.04 | 2264.21 | 184.22 | 2264.24 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .056 | 44.95 | .058 | 57.22 | .056 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 39.7 | 72.46 | 31.11 | 39.91 | 76.5 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2254.18 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.24 | Wt. n-Val. | | 0.057 | 0.056 |
| W.S. Elev (ft) | 2253.94 | Reach Len. (ft) | 31.11 | 39.91 | 76.50 |
| Crit W.S. (ft) | 2253.72 | Flow Area (sq ft) | | 44.50 | 26.46 |
| E.G. Slope (ft/ft) | 0.017705 | Area (sq ft) | | 44.50 | 26.46 |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 189.70 | 70.30 |
| Top Width (ft) | 72.89 | Top Width (ft) | | 32.39 | 40.50 |
| Vel Total (ft/s) | 3.66 | Avg. Vel. (ft/s) | | 4.26 | 2.66 |
| Max Chl Dpth (ft) | 2.48 | Hydr. Depth (ft) | | 1.37 | 0.65 |
| Conv. Total (cfs) | 1954.0 | Conv. (cfs) | | 1425.6 | 528.4 |
| Length Wtd. (ft) | 46.44 | Wetted Per. (ft) | | 32.88 | 40.52 |
| Min Ch El (ft) | 2251.46 | Shear (lb/sq ft) | | 1.50 | 0.72 |
| Alpha | 1.13 | Stream Power (lb/ft s) | | 6.38 | 1.92 |
| Frctn Loss (ft) | 0.97 | Cum Volume (acre-ft) | 0.00 | 1.23 | 0.05 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.00 | 0.45 | 0.10 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2254.50 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.46 | Wt. n-Val. | | 0.057 | |
| W.S. Elev (ft) | 2254.04 | Reach Len. (ft) | 31.11 | 39.91 | 76.50 |
| Crit W.S. (ft) | 2253.81 | Flow Area (sq ft) | | 47.63 | |
| E.G. Slope (ft/ft) | 0.027938 | Area (sq ft) | | 47.63 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 32.66 | Top Width (ft) | | 32.66 | |
| Vel Total (ft/s) | 5.46 | Avg. Vel. (ft/s) | | 5.46 | |
| Max Chl Dpth (ft) | 2.58 | Hydr. Depth (ft) | | 1.46 | |
| Conv. Total (cfs) | 1555.5 | Conv. (cfs) | | 1555.5 | |
| Length Wtd. (ft) | 39.91 | Wetted Per. (ft) | | 34.20 | |
| Min Ch El (ft) | 2251.46 | Shear (lb/sq ft) | | 2.43 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 13.26 | |
| Frctn Loss (ft) | 1.15 | Cum Volume (acre-ft) | 0.00 | 1.23 | 0.00 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.00 | 0.45 | 0.00 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 39.70 | 47.89 | 44.45 | 10.44 | 8.23 | 17.10 | 1.34 | 4.26 |
| 2 | Chan | 47.89 | 56.08 | 84.39 | 16.58 | 8.23 | 32.46 | 2.02 | 5.09 |
| 3 | Chan | 56.08 | 64.27 | 37.07 | 9.91 | 8.23 | 14.26 | 1.21 | 3.74 |
| 4 | Chan | 64.27 | 72.46 | 23.78 | 7.58 | 8.19 | 9.15 | 0.93 | 3.14 |
| 5 | ROB | 72.46 | 100.40 | 63.56 | 22.25 | 27.94 | 24.45 | 0.80 | 2.86 |
| 6 | ROB | 100.40 | 128.34 | 6.74 | 4.21 | 12.58 | 2.59 | 0.33 | 1.60 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 39.70 | 47.89 | 60.99 | 11.21 | 8.53 | 23.46 | 1.38 | 5.44 |
| 2 | Chan | 47.89 | 56.08 | 114.00 | 17.36 | 8.23 | 43.85 | 2.12 | 6.57 |
| 3 | Chan | 56.08 | 64.27 | 52.60 | 10.69 | 8.23 | 20.23 | 1.31 | 4.92 |
| 4 | Chan | 64.27 | 72.46 | 32.40 | 8.36 | 9.22 | 12.46 | 1.02 | 3.87 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.06454

INPUT
Description:
Station Elevation Data num= 49

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2265.57 | 2.8 | 2265.25 | 4.18 | 2265.07 | 5.38 | 2264.89 | 5.53 | 2264.77 |
| 8.09 | 2263.69 | 9.14 | 2263.22 | 9.23 | 2263.18 | 11.79 | 2262.14 | 14.11 | 2261.06 |
| 16 | 2260.39 | 17.27 | 2260.08 | 19.83 | 2259.31 | 23.99 | 2257.29 | 27.85 | 2256.31 |
| 28.68 | 2256.03 | 30.06 | 2255.45 | 30.81 | 2255.19 | 34.27 | 2254.27 | 35.22 | 2254.07 |
| 36.48 | 2253.77 | 39.2 | 2252.75 | 42.26 | 2251.67 | 45.34 | 2251.5 | 48.1 | 2251.24 |
| 52 | 2250.87 | 54.34 | 2250.51 | 58.91 | 2250.94 | 67.88 | 2251.79 | 69.26 | 2251.85 |
| 73.29 | 2252.04 | 80.11 | 2252.38 | 85.1 | 2252.64 | 111.72 | 2253.15 | 118.47 | 2254.06 |
| 119.51 | 2254.15 | 121.26 | 2254.38 | 125.66 | 2254.93 | 128.28 | 2255.52 | 130.44 | 2255.83 |
| 136.57 | 2257.36 | 137.39 | 2257.5 | 140.81 | 2258.5 | 144.51 | 2259.19 | 147.7 | 2259.79 |
| 148.03 | 2259.95 | 149.47 | 2260.06 | 150.43 | 2260.06 | 153.08 | 2260.09 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .041 | 48.1 | .054 | 58.91 | .041 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 39.2 | 67.88 | 27.16 | 33.67 | 76.14 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2253.17 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.56 | Wt. n-Val. | | 0.048 | 0.041 |
| W.S. Elev (ft) | 2252.61 | Reach Len. (ft) | 27.16 | 33.67 | 76.14 |
| Crit W.S. (ft) | 2252.61 | Flow Area (sq ft) | | 38.19 | 7.02 |
| E.G. Slope (ft/ft) | 0.024945 | Area (sq ft) | | 38.19 | 7.02 |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 237.43 | 22.57 |
| Top Width (ft) | 44.95 | Top Width (ft) | | 28.29 | 16.66 |
| Vel Total (ft/s) | 5.75 | Avg. Vel. (ft/s) | | 6.22 | 3.21 |
| Max Chl Dpth (ft) | 2.10 | Hydr. Depth (ft) | | 1.35 | 0.42 |
| Conv. Total (cfs) | 1646.2 | Conv. (cfs) | | 1503.3 | 142.9 |
| Length Wtd. (ft) | 37.83 | Wetted Per. (ft) | | 28.57 | 16.68 |
| Min Ch El (ft) | 2250.51 | Shear (lb/sq ft) | | 2.08 | 0.66 |
| Alpha | 1.09 | Stream Power (lb/ft s) | | 12.94 | 2.11 |
| Frctn Loss (ft) | 0.90 | Cum Volume (acre-ft) | 0.00 | 1.19 | 0.02 |
| C & E Loss (ft) | 0.05 | Cum SA (acres) | 0.00 | 0.43 | 0.05 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2253.33 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.70 | Wt. n-Val. | | 0.048 | |
| W.S. Elev (ft) | 2252.63 | Reach Len. (ft) | 27.16 | 33.67 | 76.14 |
| Crit W.S. (ft) | 2252.63 | Flow Area (sq ft) | | 38.78 | |
| E.G. Slope (ft/ft) | 0.029552 | Area (sq ft) | | 38.78 | |
| Q Total (cfs) | 260.00 | Flow (cfs) | | 260.00 | |
| Top Width (ft) | 28.34 | Top Width (ft) | | 28.34 | |
| Vel Total (ft/s) | 6.70 | Avg. Vel. (ft/s) | | 6.70 | |
| Max Chl Dpth (ft) | 2.12 | Hydr. Depth (ft) | | 1.37 | |
| Conv. Total (cfs) | 1512.4 | Conv. (cfs) | | 1512.4 | |
| Length Wtd. (ft) | 33.67 | Wetted Per. (ft) | | 29.47 | |
| Min Ch El (ft) | 2250.51 | Shear (lb/sq ft) | | 2.43 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 16.28 | |
| Frctn Loss (ft) | 0.94 | Cum Volume (acre-ft) | 0.00 | 1.19 | 0.00 |
| C & E Loss (ft) | 0.06 | Cum SA (acres) | 0.00 | 0.43 | 0.00 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 39.20 | 46.37 | 27.58 | 5.61 | 6.95 | 10.61 | 0.83 | 4.92 |
| 2 | Chan | 46.37 | 53.54 | 68.24 | 11.16 | 7.21 | 26.25 | 1.56 | 6.11 |
| 3 | Chan | 53.54 | 60.71 | 89.63 | 13.10 | 7.21 | 34.47 | 1.83 | 6.84 |
| 4 | Chan | 60.71 | 67.88 | 51.97 | 8.32 | 7.20 | 19.99 | 1.16 | 6.25 |
| 5 | ROB | 67.88 | 89.18 | 22.57 | 7.02 | 16.68 | 8.68 | 0.42 | 3.21 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 39.20 | 46.37 | 31.04 | 5.75 | 7.01 | 11.94 | 0.84 | 5.40 |
| 2 | Chan | 46.37 | 53.54 | 75.77 | 11.31 | 7.21 | 29.14 | 1.58 | 6.70 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| * 3 | * Chan | * 53.54 | * 60.71 | * 99.19 * | 13.25 * | 7.21 * | 38.15 * | 1.85 * | 7.48 * |
| * 4 | * Chan | * 60.71 | * 67.88 | * 54.00 * | 8.47 * | 8.04 * | 20.77 * | 1.18 * | 6.38 * |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.05817

INPUT
Description:
Station Elevation Data num= 45

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2263.03 | .25 | 2263.01 | 3.39 | 2262.5 | 3.69 | 2262.5 | 4.21 | 2262.48 |
| 5.78 | 2262.45 | 10.02 | 2262.26 | 11.61 | 2262.18 | 13.01 | 2261.72 | 13.71 | 2261.54 |
| 14.62 | 2261.3 | 27.55 | 2257.8 | 29.3 | 2257.04 | 31 | 2256.46 | 32.4 | 2255.89 |
| 32.81 | 2255.89 | 38.05 | 2253.62 | 40.85 | 2252.6 | 41.44 | 2252.37 | 44.43 | 2251.24 |
| 50.75 | 2251.47 | 52.31 | 2251.55 | 58.99 | 2250.85 | 60.18 | 2250.73 | 61.82 | 2250.53 |
| 70.06 | 2249.67 | 75.19 | 2250.05 | 82.52 | 2250.6 | 86.48 | 2250.91 | 103.87 | 2251.4 |
| 110.47 | 2251.66 | 117.65 | 2251.79 | 132.17 | 2252.22 | 142.21 | 2252.37 | 147.29 | 2252.38 |
| 166.73 | 2252.31 | 178.01 | 2251.78 | 184.33 | 2251.37 | 195.9 | 2251.2 | 196.82 | 2251.18 |
| 199.15 | 2251.48 | 207.23 | 2252.54 | 218.5 | 2252.21 | 220.41 | 2252.13 | 224.06 | 2252.07 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .041 | 58.99 | .054 | 75.19 | .041 |

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
41.44 86.48 32.72 51.62 55.51 .1 .3
Right Levee Station= 147.29 Elevation= 2252.38

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| * E.G. Elev (ft) | * 2252.06 | * Element | * Left OB * | Channel * | Right OB * |
| * Vel Head (ft) | * 0.41 | * Wt. n-Val. | * | 0.049 * | 0.041 * |
| * W.S. Elev (ft) | * 2251.66 | * Reach Len. (ft) | * 32.72 * | 51.62 * | 55.51 * |
| * Crit W.S. (ft) | * 2251.66 | * Flow Area (sq ft) | * | 43.50 * | 9.56 * |
| * E.G. Slope (ft/ft) | *0.022755 | * Area (sq ft) | * | 43.50 * | 9.56 * |
| * Q Total (cfs) | * 260.00 | * Flow (cfs) | * | 231.65 * | 28.35 * |
| * Top Width (ft) | * 67.06 | * Top Width (ft) | * | 43.15 * | 23.90 * |
| * Vel Total (ft/s) | * 4.90 | * Avg. Vel. (ft/s) | * | 5.33 * | 2.97 * |
| * Max Chl Dpth (ft) | * 1.99 | * Hydr. Depth (ft) | * | 1.01 * | 0.40 * |
| * Conv. Total (cfs) | * 1723.6 | * Conv. (cfs) | * | 1535.6 * | 188.0 * |
| * Length Wtd. (ft) | * 51.83 | * Wetted Per. (ft) | * | 43.38 * | 23.92 * |
| * Min Ch El (ft) | * 2249.67 | * Shear (lb/sq ft) | * | 1.42 * | 0.57 * |
| * Alpha | * 1.09 | * Stream Power (lb/ft s) | * | 7.59 * | 1.68 * |
| * Frctn Loss (ft) | * 1.03 | * Cum Volume (acre-ft) | * 0.00 * | 1.16 * | 0.01 * |
| * C & E Loss (ft) | * 0.06 | * Cum SA (acres) | * 0.00 * | 0.40 * | 0.02 * |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| * E.G. Elev (ft) | * 2252.21 | * Element | * Left OB * | Channel * | Right OB * |
| * Vel Head (ft) | * 0.51 | * Wt. n-Val. | * | 0.049 * | * |
| * W.S. Elev (ft) | * 2251.70 | * Reach Len. (ft) | * 32.72 * | 51.62 * | 55.51 * |
| * Crit W.S. (ft) | * 2251.70 | * Flow Area (sq ft) | * | 45.37 * | * |
| * E.G. Slope (ft/ft) | *0.026179 | * Area (sq ft) | * | 45.37 * | * |
| * Q Total (cfs) | * 260.00 | * Flow (cfs) | * | 260.00 * | * |
| * Top Width (ft) | * 43.27 | * Top Width (ft) | * | 43.27 * | * |
| * Vel Total (ft/s) | * 5.73 | * Avg. Vel. (ft/s) | * | 5.73 * | * |
| * Max Chl Dpth (ft) | * 2.03 | * Hydr. Depth (ft) | * | 1.05 * | * |
| * Conv. Total (cfs) | * 1606.9 | * Conv. (cfs) | * | 1606.9 * | * |
| * Length Wtd. (ft) | * 51.62 | * Wetted Per. (ft) | * | 44.29 * | * |
| * Min Ch El (ft) | * 2249.67 | * Shear (lb/sq ft) | * | 1.67 * | * |
| * Alpha | * 1.00 | * Stream Power (lb/ft s) | * | 9.59 * | * |
| * Frctn Loss (ft) | * 1.09 | * Cum Volume (acre-ft) | * 0.00 * | 1.16 * | 0.00 * |
| * C & E Loss (ft) | * 0.09 | * Cum SA (acres) | * 0.00 * | 0.40 * | 0.00 * |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

Profile #PF 1

| * | * Pos | * Left Sta (ft) | * Right Sta (ft) | * Flow (cfs) | * Area (sq ft) | * W.P. (ft) | * Percent Conv | * Hydr Depth(ft) | * Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| * 1 | * Chan | * 41.44 | * 52.70 | * 5.22 | * 2.41 | * 9.46 | * 2.01 | * 0.26 | * 2.16 |
| * 2 | * Chan | * 52.70 | * 63.96 | * 32.77 | * 8.36 | * 11.32 | * 12.61 | * 0.74 | * 3.92 |
| * 3 | * Chan | * 63.96 | * 75.22 | * 114.04 | * 19.44 | * 11.31 | * 43.86 | * 1.73 | * 5.87 |
| * 4 | * Chan | * 75.22 | * 86.48 | * 79.61 | * 13.28 | * 11.29 | * 30.62 | * 1.18 | * 5.99 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| * 5 | * ROB | * 86.48 | * 116.89 | * 28.35 * | 9.56 * | 23.92 * | 10.90 * | 0.40 * | 2.97 * |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

Profile #PF 2

| * | * Pos | * Left Sta (ft) | * Right Sta (ft) | * Flow (cfs) | * Area (sq ft) | * W.P. (ft) | * Percent Conv | * Hydr Depth(ft) | * Velocity (ft/s) * |
|---|---|---|---|---|---|---|---|---|---|
| * 1 | * Chan | * 41.44 | * 52.70 | * 7.21 | * 2.82 | * 9.58 | * 2.77 | * 0.30 | * 2.56 * |
| * 2 | * Chan | * 52.70 | * 63.96 | * 38.49 | * 8.85 | * 11.32 | * 14.80 | * 0.79 | * 4.35 * |
| * 3 | * Chan | * 63.96 | * 75.22 | * 127.57 | * 19.93 | * 11.31 | * 49.06 | * 1.77 | * 6.40 * |
| * 4 | * Chan | * 75.22 | * 86.48 | * 86.74 | * 13.77 | * 12.08 | * 33.36 | * 1.22 | * 6.30 * |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.04814

INPUT
Description:
Station Elevation Data num= 53

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2267.25 | 2.95 | 2266.99 | 13.89 | 2266.15 | 15.17 | 2266.07 | 15.9 | 2266.01 |
| 16.69 | 2265.98 | 16.92 | 2265.93 | 19.26 | 2265.35 | 29.64 | 2262.72 | 30.94 | 2262.39 |
| 37.23 | 2260.23 | 47.34 | 2256.96 | 49.56 | 2255.76 | 59.23 | 2250.04 | 59.72 | 2250.01 |
| 59.78 | 2250 | 59.9 | 2250 | 64.21 | 2249.82 | 64.8 | 2249.82 | 67.64 | 2249.77 |
| 68.34 | 2249.72 | 82.95 | 2249.8 | 86.26 | 2249.54 | 87.62 | 2249.46 | 96.7 | 2249.3 |
| 97.71 | 2249.3 | 105.24 | 2249.34 | 105.33 | 2249.34 | 106.24 | 2249.35 | 106.64 | 2249.36 |
| 115.24 | 2249.64 | 119.9 | 2249.74 | 123.57 | 2249.26 | 128.29 | 2248.65 | 134.39 | 2249.13 |
| 139.8 | 2249.56 | 145.9 | 2249.93 | 150.19 | 2250.13 | 155.27 | 2250.33 | 157.04 | 2250.37 |
| 168.39 | 2250.46 | 172.73 | 2250.48 | 182.54 | 2250.5 | 183.06 | 2250.48 | 192.94 | 2250.19 |
| 197.7 | 2249.89 | 202.27 | 2249.67 | 209.34 | 2249.78 | 212.39 | 2249.96 | 217.6 | 2250.28 |
| 225.42 | 2250.97 | 231.13 | 2250.87 | 232.1 | 2250.86 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .041 | 123.57 | .054 | 134.39 | .041 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 49.56 | 155.27 | 37.59 | 62.11 | 56.89 | .1 | .3 |

Right Levee Station= 182.66 Elevation= 2250.5

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| * E.G. Elev (ft) | * 2250.50 | * Element | * Left OB | * Channel | * Right OB * |
| * Vel Head (ft) | * 0.22 | * Wt. n-Val. | * | * 0.044 | * * |
| * W.S. Elev (ft) | * 2250.28 | * Reach Len. (ft) | * 37.59 | * 62.11 | * 56.89 * |
| * Crit W.S. (ft) | * 2250.16 | * Flow Area (sq ft) | * | * 68.86 | * * |
| * E.G. Slope (ft/ft) | *0.017467 | * Area (sq ft) | * | * 68.86 | * * |
| * Q Total (cfs) | * 260.00 | * Flow (cfs) | * | * 260.00 | * * |
| * Top Width (ft) | * 95.15 | * Top Width (ft) | * | * 95.15 | * * |
| * Vel Total (ft/s) | * 3.78 | * Avg. Vel. (ft/s) | * | * 3.78 | * * |
| * Max Chl Dpth (ft) | * 1.63 | * Hydr. Depth (ft) | * | * 0.72 | * * |
| * Conv. Total (cfs) | * 1967.3 | * Conv. (cfs) | * | * 1967.3 | * * |
| * Length Wtd. (ft) | * 62.11 | * Wetted Per. (ft) | * | * 95.37 | * * |
| * Min Ch El (ft) | * 2248.65 | * Shear (lb/sq ft) | * | * 0.79 | * * |
| * Alpha | * 1.00 | * Stream Power (lb/ft s) | * | * 2.97 | * * |
| * Frctn Loss (ft) | * 1.42 | * Cum Volume (acre-ft) | * 0.00 | * 1.09 | * 0.00 * |
| * C & E Loss (ft) | * 0.01 | * Cum SA (acres) | * 0.00 | * 0.32 | * 0.00 * |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| * E.G. Elev (ft) | * 2250.50 | * Element | * Left OB | * Channel | * Right OB * |
| * Vel Head (ft) | * 0.22 | * Wt. n-Val. | * | * 0.044 | * * |
| * W.S. Elev (ft) | * 2250.28 | * Reach Len. (ft) | * 37.59 | * 62.11 | * 56.89 * |
| * Crit W.S. (ft) | * 2250.16 | * Flow Area (sq ft) | * | * 68.86 | * * |
| * E.G. Slope (ft/ft) | *0.017467 | * Area (sq ft) | * | * 68.86 | * * |
| * Q Total (cfs) | * 260.00 | * Flow (cfs) | * | * 260.00 | * * |
| * Top Width (ft) | * 95.15 | * Top Width (ft) | * | * 95.15 | * * |
| * Vel Total (ft/s) | * 3.78 | * Avg. Vel. (ft/s) | * | * 3.78 | * * |
| * Max Chl Dpth (ft) | * 1.63 | * Hydr. Depth (ft) | * | * 0.72 | * * |
| * Conv. Total (cfs) | * 1967.3 | * Conv. (cfs) | * | * 1967.3 | * * |
| * Length Wtd. (ft) | * 62.11 | * Wetted Per. (ft) | * | * 95.37 | * * |
| * Min Ch El (ft) | * 2248.65 | * Shear (lb/sq ft) | * | * 0.79 | * * |
| * Alpha | * 1.00 | * Stream Power (lb/ft s) | * | * 2.97 | * * |
| * Frctn Loss (ft) | * 1.42 | * Cum Volume (acre-ft) | * 0.00 | * 1.09 | * 0.00 * |
| * C & E Loss (ft) | * 0.01 | * Cum SA (acres) | * 0.00 | * 0.32 | * 0.00 * |

```
*****************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) *  (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 49.56     * 75.99     *    22.40 *     7.95 *    17.23 *     8.62 *     0.46 *     2.82 *
* 2        * Chan      * 75.99     * 102.42    *    80.01 *    20.24 *    26.44 *    30.77 *     0.77 *     3.95 *
* 3        * Chan      * 102.42    * 128.84    *    95.68 *    23.42 *    26.51 *    36.80 *     0.89 *     4.09 *
* 4        * Chan      * 128.84    * 155.27    *    61.91 *    17.25 *    25.19 *    23.81 *     0.69 *     3.59 *
*****************************************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

  Profile #PF 2
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) *  (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 49.56     * 75.99     *    22.40 *     7.95 *    17.23 *     8.62 *     0.46 *     2.82 *
* 2        * Chan      * 75.99     * 102.42    *    80.01 *    20.24 *    26.44 *    30.77 *     0.77 *     3.95 *
* 3        * Chan      * 102.42    * 128.84    *    95.68 *    23.42 *    26.51 *    36.80 *     0.89 *     4.09 *
* 4        * Chan      * 128.84    * 155.27    *    61.91 *    17.25 *    25.19 *    23.81 *     0.69 *     3.59 *
*****************************************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION


RIVER: Ocotillo Wash 1
REACH: Tributary-2.1      RS: 0.03638

INPUT
Description:
Station Elevation Data    num=      58
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
       0 2266.48    2.39 2266.27    7.17 2265.28    14.9 2263.91   15.21 2263.85
   28.15 2258.78   30.11 2258.04   30.91 2257.42   39.22 2251.26   40.98 2250.51
   46.33 2248.14    51.3 2249.27   54.91  2250.1   57.17 2250.07   58.32 2249.94
   64.08 2249.48   64.34 2249.68   67.86 2249.52   70.78 2248.91   71.55 2248.77
   73.82  2248.3   77.91 2248.24   79.05 2248.23    79.4 2248.21   86.58 2248.28
    90.4  2248.3   97.87 2248.22  113.64 2248.29   118.6 2248.44  118.97 2248.42
  130.99 2247.86  135.15  2247.7  137.98 2247.61  141.44 2247.91   142.6 2248.04
  147.72 2248.58  151.58 2248.83  152.98 2248.89     160 2248.97  160.29 2248.97
  162.46 2249.01  163.33 2248.86  168.01 2248.14  170.27 2247.77  172.39 2247.42
  179.19 2248.19  180.49 2248.34  182.96 2248.62  190.42 2248.76  198.97  2248.9
  207.71 2249.04  211.54 2248.82  214.46 2248.67  218.77  2248.5  222.54 2248.81
  231.76  2249.4   232.3 2249.39  238.41 2249.33

Manning's n Values        num=       3
     Sta    n Val     Sta    n Val     Sta    n Val
*********************************************
       0     .041  170.27     .054  179.19     .041

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          67.86  190.42            26.71   54.55   53.12          .1          .3
Left Levee      Station=   54.89      Elevation=  2250.1
Right Levee     Station=  207.67      Elevation= 2249.04

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************************
* E.G. Elev (ft)         * 2249.07  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.30  * Wt. n-Val.              *          *    0.043 *    0.000  *
* W.S. Elev (ft)         * 2248.77  * Reach Len. (ft)         *   26.71  *    54.55 *    53.12  *
* Crit W.S. (ft)         * 2248.77  * Flow Area (sq ft)       *          *    59.31 *     0.00  *
* E.G. Slope (ft/ft)     *0.031462  * Area (sq ft)            *          *    59.31 *     0.00  *
* Q Total (cfs)          *  260.00  * Flow (cfs)              *          *   260.00 *     0.00  *
* Top Width (ft)         *  106.39  * Top Width (ft)          *          *   105.66 *     0.73  *
* Vel Total (ft/s)       *    4.38  * Avg. Vel. (ft/s)        *          *     4.38 *     0.21  *
* Max Chl Dpth (ft)      *    1.35  * Hydr. Depth (ft)        *          *     0.56 *     0.01  *
* Conv. Total (cfs)      *  1465.8  * Conv. (cfs)             *          *   1465.8 *      0.0  *
* Length Wtd. (ft)       *   54.54  * Wetted Per. (ft)        *          *   105.96 *     0.73  *
* Min Ch El (ft)         * 2247.42  * Shear (lb/sq ft)        *          *     1.10 *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s)  *          *     4.82 *          *
* Frctn Loss (ft)        *    0.49  * Cum Volume (acre-ft)    *    0.00  *     1.00 *     0.00  *
* C & E Loss (ft)        *    0.07  * Cum SA (acres)          *    0.00  *     0.17 *     0.00  *
*****************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************************
* E.G. Elev (ft)         * 2249.07  * Element                 *  Left OB *  Channel * Right OB *
```

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vel Head (ft) | 0.30 | Wt. n-Val. | | | 0.043 | | 0.000 |
| W.S. Elev (ft) | 2248.77 | Reach Len. (ft) | | 26.71 | 54.55 | | 53.12 |
| Crit W.S. (ft) | 2248.77 | Flow Area (sq ft) | | | 59.31 | | 0.00 |
| E.G. Slope (ft/ft) | 0.031462 | Area (sq ft) | | | 59.31 | | 0.00 |
| Q Total (cfs) | 260.00 | Flow (cfs) | | | 260.00 | | 0.00 |
| Top Width (ft) | 106.39 | Top Width (ft) | | | 105.66 | | 0.73 |
| Vel Total (ft/s) | 4.38 | Avg. Vel. (ft/s) | | | 4.38 | | 0.21 |
| Max Chl Dpth (ft) | 1.35 | Hydr. Depth (ft) | | | 0.56 | | 0.01 |
| Conv. Total (cfs) | 1465.8 | Conv. (cfs) | | | 1465.8 | | 0.0 |
| Length Wtd. (ft) | 54.54 | Wetted Per. (ft) | | | 105.96 | | 0.73 |
| Min Ch El (ft) | 2247.42 | Shear (lb/sq ft) | | | 1.10 | | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | | 4.82 | | |
| Frctn Loss (ft) | 0.49 | Cum Volume (acre-ft) | | 0.00 | 1.00 | | 0.00 |
| C & E Loss (ft) | 0.07 | Cum SA (acres) | | 0.00 | 0.17 | | 0.00 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 67.86 | 98.50 | 51.82 | 13.19 | 27.01 | 19.93 | 0.49 | 3.93 |
| 2 | Chan | 98.50 | 129.14 | 65.29 | 15.94 | 30.65 | 25.11 | 0.52 | 4.10 |
| 3 | Chan | 129.14 | 159.78 | 82.69 | 15.97 | 21.60 | 31.81 | 0.74 | 5.18 |
| 4 | Chan | 159.78 | 190.42 | 60.19 | 14.21 | 26.69 | 23.15 | 0.54 | 4.24 |
| 5 | ROB | 190.42 | 207.67 | 0.00 | 0.00 | 0.73 | 0.00 | 0.01 | 0.21 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 67.86 | 98.50 | 51.82 | 13.19 | 27.01 | 19.93 | 0.49 | 3.93 |
| 2 | Chan | 98.50 | 129.14 | 65.29 | 15.94 | 30.65 | 25.11 | 0.52 | 4.10 |
| 3 | Chan | 129.14 | 159.78 | 82.69 | 15.97 | 21.60 | 31.81 | 0.74 | 5.18 |
| 4 | Chan | 159.78 | 190.42 | 60.19 | 14.21 | 26.69 | 23.15 | 0.54 | 4.24 |
| 5 | ROB | 190.42 | 207.67 | 0.00 | 0.00 | 0.73 | 0.00 | 0.01 | 0.21 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: Ocotillo Wash 1
REACH: Tributary-2.1 RS: 0.02605

INPUT
Description: Downstream Limit of Detailed Study
Station Elevation Data num= 66

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2266.65 | 1.64 | 2266.57 | 3.77 | 2266.48 | 4.95 | 2266.41 | 5.53 | 2266.43 |
| 6.06 | 2266.48 | 6.41 | 2266.47 | 6.59 | 2266.47 | 9.89 | 2265.95 | 12.37 | 2265.54 |
| 13.8 | 2265.33 | 17.17 | 2264.79 | 21.1 | 2264.15 | 23.75 | 2263.52 | 27.74 | 2262.5 |
| 30.85 | 2261.3 | 31.88 | 2260.9 | 34.41 | 2260.16 | 36.52 | 2259.29 | 37.8 | 2258.97 |
| 39.13 | 2258.55 | 41.02 | 2257.79 | 51.83 | 2251.69 | 52.99 | 2250.94 | 53.41 | 2250.68 |
| 58.24 | 2247.74 | 65.05 | 2248.88 | 69.44 | 2249.2 | 70.93 | 2249.08 | 80.79 | 2248.2 |
| 88.35 | 2247.67 | 94.3 | 2247.73 | 97.59 | 2247.71 | 111.05 | 2247.17 | 112.75 | 2247.12 |
| 132.19 | 2246.91 | 135.38 | 2246.85 | 137.04 | 2246.85 | 151.75 | 2246.8 | 157.89 | 2246.57 |
| 168.04 | 2246.15 | 169.27 | 2246.29 | 175.73 | 2247.07 | 179.14 | 2247.46 | 183.93 | 2247.27 |
| 199.93 | 2247.18 | 210.04 | 2247.3 | 214.44 | 2247.34 | 218.12 | 2247.54 | 220.02 | 2247.6 |
| 222.18 | 2247.34 | 228.09 | 2246.67 | 229.75 | 2246.48 | 232.79 | 2246.62 | 234.48 | 2246.71 |
| 239.62 | 2246.96 | 241.15 | 2247.04 | 242.3 | 2247.13 | 243.66 | 2247.19 | 245.05 | 2247.24 |
| 245.88 | 2247.27 | 251.63 | 2247.82 | 252.53 | 2247.83 | 257.15 | 2247.7 | 259.7 | 2247.71 |
| 264.1 | 2248.2 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|

```
      0    .041  228.09    .054  234.48    .041

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          88.35  259.7               0       0       0          .1          .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)         * 2247.94  * Element                 *  Left OB  *  Channel  * Right OB *
* Vel Head (ft)          *    0.06  * Wt. n-Val.              *   0.041   *   0.042   *   0.041   *
* W.S. Elev (ft)         * 2247.88  * Reach Len. (ft)         *  307.12   *  307.12   *  307.12   *
* Crit W.S. (ft)         * 2247.45  * Flow Area (sq ft)       *    0.39   *  132.22   *    0.13   *
* E.G. Slope (ft/ft)     *0.004181  * Area (sq ft)            *    0.39   *  132.22   *    0.13   *
* Q Total (cfs)          *  260.00  * Flow (cfs)              *    0.20   *  259.75   *    0.06   *
* Top Width (ft)         *  176.97  * Top Width (ft)          *    4.08   *  171.35   *    1.53   *
* Vel Total (ft/s)       *    1.96  * Avg. Vel. (ft/s)        *    0.50   *    1.96   *    0.45   *
* Max Chl Dpth (ft)      *    1.73  * Hydr. Depth (ft)        *    0.10   *    0.77   *    0.09   *
* Conv. Total (cfs)      *  4021.1  * Conv. (cfs)             *     3.0   *  4017.1   *     0.9   *
* Length Wtd. (ft)       *  307.12  * Wetted Per. (ft)        *    4.14   *  171.58   *    1.54   *
* Min Ch El (ft)         * 2246.15  * Shear (lb/sq ft)        *    0.02   *    0.20   *    0.02   *
* Alpha                  *    1.01  * Stream Power (lb/ft s)  *    0.01   *    0.40   *    0.01   *
* Frctn Loss (ft)        *    3.55  * Cum Volume (acre-ft)    *    0.00   *    0.88   *    0.00   *
* C & E Loss (ft)        *    0.02  * Cum SA (acres)          *           *           *           *
*****************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************
* E.G. Elev (ft)         * 2247.94  * Element                 *  Left OB  *  Channel  * Right OB *
* Vel Head (ft)          *    0.06  * Wt. n-Val.              *   0.041   *   0.042   *   0.041   *
* W.S. Elev (ft)         * 2247.88  * Reach Len. (ft)         *  307.12   *  307.12   *  307.12   *
* Crit W.S. (ft)         * 2247.45  * Flow Area (sq ft)       *    0.39   *  132.22   *    0.13   *
* E.G. Slope (ft/ft)     *0.004181  * Area (sq ft)            *    0.39   *  132.22   *    0.13   *
* Q Total (cfs)          *  260.00  * Flow (cfs)              *    0.20   *  259.75   *    0.06   *
* Top Width (ft)         *  176.97  * Top Width (ft)          *    4.08   *  171.35   *    1.53   *
* Vel Total (ft/s)       *    1.96  * Avg. Vel. (ft/s)        *    0.50   *    1.96   *    0.45   *
* Max Chl Dpth (ft)      *    1.73  * Hydr. Depth (ft)        *    0.10   *    0.77   *    0.09   *
* Conv. Total (cfs)      *  4021.1  * Conv. (cfs)             *     3.0   *  4017.1   *     0.9   *
* Length Wtd. (ft)       *  307.12  * Wetted Per. (ft)        *    4.14   *  171.58   *    1.54   *
* Min Ch El (ft)         * 2246.15  * Shear (lb/sq ft)        *    0.02   *    0.20   *    0.02   *
* Alpha                  *    1.01  * Stream Power (lb/ft s)  *    0.01   *    0.40   *    0.01   *
* Frctn Loss (ft)        *    3.55  * Cum Volume (acre-ft)    *    0.00   *    0.88   *    0.00   *
* C & E Loss (ft)        *    0.02  * Cum SA (acres)          *           *           *           *
*****************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) *  (sq ft) *    (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB      * 44.18     * 66.26     *     0.03 *     0.08 *    1.12 *     0.01 *     0.07 *     0.39 *
* 2        * LOB      * 66.26     * 88.35     *     0.17 *     0.32 *    3.02 *     0.06 *     0.11 *     0.52 *
* 3        * Chan     * 88.35     * 131.19    *    37.69 *    24.66 *   42.85 *    14.50 *     0.58 *     1.53 *
* 4        * Chan     * 131.19    * 174.03    *   132.42 *    52.42 *   42.89 *    50.93 *     1.22 *     2.53 *
* 5        * Chan     * 174.03    * 216.86    *    43.08 *    26.72 *   42.88 *    16.57 *     0.62 *     1.61 *
* 6        * Chan     * 216.86    * 259.70    *    46.55 *    28.42 *   42.95 *    17.90 *     0.66 *     1.64 *
* 7        * ROB      * 259.70    * 260.80    *     0.06 *     0.12 *    1.11 *     0.02 *     0.11 *     0.48 *
* 8        * ROB      * 260.80    * 261.90    *     0.00 *     0.01 *    0.44 *     0.00 *     0.02 *     0.17 *
*****************************************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

  Profile #PF 2
*****************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) *  (sq ft) *    (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB      * 44.18     * 66.26     *     0.03 *     0.08 *    1.12 *     0.01 *     0.07 *     0.39 *
* 2        * LOB      * 66.26     * 88.35     *     0.17 *     0.32 *    3.02 *     0.06 *     0.11 *     0.52 *
* 3        * Chan     * 88.35     * 131.19    *    37.69 *    24.66 *   42.85 *    14.50 *     0.58 *     1.53 *
* 4        * Chan     * 131.19    * 174.03    *   132.42 *    52.42 *   42.89 *    50.93 *     1.22 *     2.53 *
* 5        * Chan     * 174.03    * 216.86    *    43.08 *    26.72 *   42.88 *    16.57 *     0.62 *     1.61 *
* 6        * Chan     * 216.86    * 259.70    *    46.55 *    28.42 *   42.95 *    17.90 *     0.66 *     1.64 *
* 7        * ROB      * 259.70    * 260.80    *     0.06 *     0.12 *    1.11 *     0.02 *     0.11 *     0.48 *
* 8        * ROB      * 260.80    * 261.90    *     0.00 *     0.01 *    0.44 *     0.00 *     0.02 *     0.17 *
*****************************************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

CROSS SECTION


RIVER: Ocotillo Wash 2
REACH: OW Split            RS: 0.07677

INPUT
Description: LIMIT OF STUDY (TIE-IN TO FCD2004C072)
Station Elevation Data    num=      69
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
       0 2258.59    5.77 2258.23    8.46 2258.02   11.18 2257.93    13.9 2257.92
   22.33 2257.22   25.51 2257.19   28.75 2257.09   32.07 2256.87   40.38 2256.58
   43.43 2256.38   46.85 2256.24   50.65 2256.21   54.09 2256.19   55.03 2256.18
   61.07 2255.97   63.89  2255.8    68.3 2255.38    72.7 2255.25   76.87 2254.97
   81.95 2254.86   86.82 2254.86   91.79 2254.76   97.02 2254.76  105.93 2254.43
  110.02 2254.38  114.93 2254.39  118.21 2254.32  120.74 2254.28  123.24 2254.25
  129.04 2253.95  132.78 2253.75  134.99 2253.59  135.63 2253.55  140.48 2253.28
  142.58 2253.14  146.05 2253.06  149.37 2252.94  155.87  2252.8  157.45 2252.77
```

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 163.8 | 2252.57 | 163.87 | 2252.56 | 164.15 | 2252.56 | 170.05 | 2252.67 | 171.6 | 2252.64 | | |
| 176.02 | 2252.76 | 177.61 | 2252.56 | 179.46 | 2252.54 | 180.17 | 2252.53 | 181.69 | 2252.37 | | |
| 198.17 | 2252.78 | 198.92 | 2252.8 | 198.98 | 2252.8 | 199.77 | 2252.93 | 215.37 | 2255.36 | | |
| 219.06 | 2255.56 | 220.37 | 2255.84 | 221.07 | 2256.03 | 229.04 | 2258.07 | 233.3 | 2258.28 | | |
| 233.8 | 2258.3 | 234.59 | 2258.34 | 235.24 | 2258.36 | 236.41 | 2258.39 | 237.42 | 2258.37 | | |
| 240.75 | 2258.26 | 242.66 | 2257.47 | 248.76 | 2255.99 | 249.84 | 2255.65 | | | | |

Manning's n Values num= 4

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|
| 0 | .051 | 179.46 | .039 | 199.77 | .041 | 235.24 | .041 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 142.58 | 198.98 | 181.95 | 141.75 | 144.78 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2253.92 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.21 | Wt. n-Val. | 0.051 | 0.045 | 0.040 |
| W.S. Elev (ft) | 2253.70 | Reach Len. (ft) | 181.95 | 141.75 | 144.78 |
| Crit W.S. (ft) | 2253.48 | Flow Area (sq ft) | 2.62 | 56.66 | 2.59 |
| E.G. Slope (ft/ft) | 0.012704 | Area (sq ft) | 2.62 | 56.66 | 2.59 |
| Q Total (cfs) | 222.00 | Flow (cfs) | 3.72 | 211.62 | 6.66 |
| Top Width (ft) | 71.33 | Top Width (ft) | 9.17 | 56.40 | 5.76 |
| Vel Total (ft/s) | 3.59 | Avg. Vel. (ft/s) | 1.42 | 3.74 | 2.57 |
| Max Chl Dpth (ft) | 1.33 | Hydr. Depth (ft) | 0.29 | 1.00 | 0.45 |
| Conv. Total (cfs) | 1969.6 | Conv. (cfs) | 33.0 | 1877.6 | 59.0 |
| Length Wtd. (ft) | 142.61 | Wetted Per. (ft) | 9.19 | 56.44 | 5.83 |
| Min Ch El (ft) | 2252.37 | Shear (lb/sq ft) | 0.23 | 0.80 | 0.35 |
| Alpha | 1.05 | Stream Power (lb/ft s) | 0.32 | 2.97 | 0.91 |
| Frctn Loss (ft) | 2.45 | Cum Volume (acre-ft) | 0.02 | 0.68 | 0.01 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.07 | 0.20 | 0.01 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2253.92 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.21 | Wt. n-Val. | 0.051 | 0.045 | 0.040 |
| W.S. Elev (ft) | 2253.70 | Reach Len. (ft) | 181.95 | 141.75 | 144.78 |
| Crit W.S. (ft) | 2253.48 | Flow Area (sq ft) | 2.62 | 56.66 | 2.59 |
| E.G. Slope (ft/ft) | 0.012704 | Area (sq ft) | 2.62 | 56.66 | 2.59 |
| Q Total (cfs) | 222.00 | Flow (cfs) | 3.72 | 211.62 | 6.66 |
| Top Width (ft) | 71.33 | Top Width (ft) | 9.17 | 56.40 | 5.76 |
| Vel Total (ft/s) | 3.59 | Avg. Vel. (ft/s) | 1.42 | 3.74 | 2.57 |
| Max Chl Dpth (ft) | 1.33 | Hydr. Depth (ft) | 0.29 | 1.00 | 0.45 |
| Conv. Total (cfs) | 1969.6 | Conv. (cfs) | 33.0 | 1877.6 | 59.0 |
| Length Wtd. (ft) | 142.61 | Wetted Per. (ft) | 9.19 | 56.44 | 5.83 |
| Min Ch El (ft) | 2252.37 | Shear (lb/sq ft) | 0.23 | 0.80 | 0.35 |
| Alpha | 1.05 | Stream Power (lb/ft s) | 0.32 | 2.97 | 0.91 |
| Frctn Loss (ft) | 2.45 | Cum Volume (acre-ft) | 0.02 | 0.68 | 0.01 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.07 | 0.20 | 0.01 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 106.94 | 142.58 | 3.72 | 2.62 | 9.19 | 1.68 | 0.29 | 1.42 |
| 2 | Chan | 142.58 | 156.68 | 28.52 | 10.60 | 14.10 | 12.85 | 0.75 | 2.69 |
| 3 | Chan | 156.68 | 170.78 | 50.15 | 14.87 | 14.11 | 22.59 | 1.05 | 3.37 |
| 4 | Chan | 170.78 | 184.88 | 64.75 | 15.97 | 14.12 | 29.17 | 1.13 | 4.06 |
| 5 | Chan | 184.88 | 198.98 | 68.19 | 15.22 | 14.10 | 30.72 | 1.08 | 4.48 |
| 6 | ROB | 198.98 | 211.70 | 6.66 | 2.59 | 5.83 | 3.00 | 0.45 | 2.57 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 106.94 | 142.58 | 3.72 | 2.62 | 9.19 | 1.68 | 0.29 | 1.42 |
| 2 | Chan | 142.58 | 156.68 | 28.52 | 10.60 | 14.10 | 12.85 | 0.75 | 2.69 |
| 3 | Chan | 156.68 | 170.78 | 50.15 | 14.87 | 14.11 | 22.59 | 1.05 | 3.37 |
| 4 | Chan | 170.78 | 184.88 | 64.75 | 15.97 | 14.12 | 29.17 | 1.13 | 4.06 |
| 5 | Chan | 184.88 | 198.98 | 68.19 | 15.22 | 14.10 | 30.72 | 1.08 | 4.48 |
| 6 | ROB | 198.98 | 211.70 | 6.66 | 2.59 | 5.83 | 3.00 | 0.45 | 2.57 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Ocotillo Wash 2
REACH: OW Split RS: 0.04992

INPUT
Description:
Station Elevation Data num= 38

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2252.07 | 2 | 2252 | 5.53 | 2251.93 | 56.26 | 2251.07 | 62.42 | 2250.98 |
| 74.14 | 2250.93 | 83.36 | 2250.71 | 85.18 | 2250.71 | 100.91 | 2250.34 | 102.22 | 2250.34 |
| 102.68 | 2250.3 | 113.98 | 2250.29 | 121.6 | 2250.17 | 121.71 | 2250.17 | 133.82 | 2249.98 |
| 138.6 | 2250.87 | 152.73 | 2253.48 | 166.46 | 2256.14 | 166.78 | 2256.21 | 167.47 | 2256.22 |
| 172.37 | 2256.34 | 173.7 | 2256.39 | 174.18 | 2256.44 | 176.44 | 2256.62 | 176.6 | 2256.63 |
| 181.57 | 2256.78 | 181.91 | 2256.77 | 186.64 | 2256.75 | 187.6 | 2256.75 | 192.05 | 2256.74 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 193.49 | 2256.75 | 196.48 | 2256.73 | 198.54 | 2256.72 | 201.91 | 2256.67 | 203.64 | 2256.67 |
| 205.44 | 2256.59 | 206.82 | 2256.56 | 209.62 | 2256.56 | | | | |

Manning's n Values num= 5

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|---|---|
| 0 | .041 | 56.26 | .051 | 121.6 | .039 | 138.6 | .041 | 166.46 | .041 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 74.14 | 138.6 | 0 | 0 | 0 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2251.46 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.29 | Wt. n-Val. | 0.051 | 0.045 | 0.041 |
| W.S. Elev (ft) | 2251.17 | Reach Len. (ft) | 263.59 | 263.59 | 263.59 |
| Crit W.S. (ft) | 2251.14 | Flow Area (sq ft) | 3.66 | 49.54 | 0.24 |
| E.G. Slope (ft/ft) | 0.024572 | Area (sq ft) | 3.66 | 49.54 | 0.24 |
| Q Total (cfs) | 222.00 | Flow (cfs) | 5.29 | 216.33 | 0.38 |
| Top Width (ft) | 89.73 | Top Width (ft) | 23.66 | 64.46 | 1.61 |
| Vel Total (ft/s) | 4.15 | Avg. Vel. (ft/s) | 1.45 | 4.37 | 1.58 |
| Max Chl Dpth (ft) | 1.19 | Hydr. Depth (ft) | 0.15 | 0.77 | 0.15 |
| Conv. Total (cfs) | 1416.2 | Conv. (cfs) | 33.8 | 1380.0 | 2.4 |
| Length Wtd. (ft) | 263.59 | Wetted Per. (ft) | 23.66 | 64.55 | 1.64 |
| Min Ch El (ft) | 2249.98 | Shear (lb/sq ft) | 0.24 | 1.18 | 0.22 |
| Alpha | 1.08 | Stream Power (lb/ft s) | 0.34 | 5.14 | 0.35 |
| Frctn Loss (ft) | 7.08 | Cum Volume (acre-ft) | 0.01 | 0.51 | 0.00 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | | | |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2251.46 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.29 | Wt. n-Val. | 0.051 | 0.045 | 0.041 |
| W.S. Elev (ft) | 2251.17 | Reach Len. (ft) | 263.59 | 263.59 | 263.59 |
| Crit W.S. (ft) | 2251.14 | Flow Area (sq ft) | 3.66 | 49.54 | 0.24 |
| E.G. Slope (ft/ft) | 0.024572 | Area (sq ft) | 3.66 | 49.54 | 0.24 |
| Q Total (cfs) | 222.00 | Flow (cfs) | 5.29 | 216.33 | 0.38 |
| Top Width (ft) | 89.73 | Top Width (ft) | 23.66 | 64.46 | 1.61 |
| Vel Total (ft/s) | 4.15 | Avg. Vel. (ft/s) | 1.45 | 4.37 | 1.58 |
| Max Chl Dpth (ft) | 1.19 | Hydr. Depth (ft) | 0.15 | 0.77 | 0.15 |
| Conv. Total (cfs) | 1416.2 | Conv. (cfs) | 33.8 | 1380.0 | 2.4 |
| Length Wtd. (ft) | 263.59 | Wetted Per. (ft) | 23.66 | 64.55 | 1.64 |
| Min Ch El (ft) | 2249.98 | Shear (lb/sq ft) | 0.24 | 1.18 | 0.22 |
| Alpha | 1.08 | Stream Power (lb/ft s) | 0.34 | 5.14 | 0.35 |
| Frctn Loss (ft) | 7.08 | Cum Volume (acre-ft) | 0.01 | 0.51 | 0.00 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | | | |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 37.07 | 55.61 | 0.16 | 0.22 | 5.12 | 0.07 | 0.04 | 0.70 |
| 2 | LOB | 55.61 | 74.14 | 5.14 | 3.44 | 18.54 | 2.31 | 0.19 | 1.49 |
| 3 | Chan | 74.14 | 90.26 | 16.47 | 6.67 | 16.12 | 7.42 | 0.41 | 2.47 |
| 4 | Chan | 90.26 | 106.37 | 44.86 | 12.17 | 16.12 | 20.21 | 0.76 | 3.69 |
| 5 | Chan | 106.37 | 122.49 | 62.64 | 14.69 | 16.12 | 28.22 | 0.91 | 4.26 |
| 6 | Chan | 122.49 | 138.60 | 92.36 | 16.01 | 16.20 | 41.60 | 0.99 | 5.77 |
| 7 | ROB | 138.60 | 156.36 | 0.38 | 0.24 | 1.64 | 0.17 | 0.15 | 1.58 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 37.07 | 55.61 | 0.16 | 0.22 | 5.12 | 0.07 | 0.04 | 0.70 |
| 2 | LOB | 55.61 | 74.14 | 5.14 | 3.44 | 18.54 | 2.31 | 0.19 | 1.49 |
| 3 | Chan | 74.14 | 90.26 | 16.47 | 6.67 | 16.12 | 7.42 | 0.41 | 2.47 |
| 4 | Chan | 90.26 | 106.37 | 44.86 | 12.17 | 16.12 | 20.21 | 0.76 | 3.69 |
| 5 | Chan | 106.37 | 122.49 | 62.64 | 14.69 | 16.12 | 28.22 | 0.91 | 4.26 |
| 6 | Chan | 122.49 | 138.60 | 92.36 | 16.01 | 16.20 | 41.60 | 0.99 | 5.77 |
| 7 | ROB | 138.60 | 156.36 | 0.38 | 0.24 | 1.64 | 0.17 | 0.15 | 1.58 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Ocotillo Wash 3
REACH: Tributary-2.2 RS: 0.15352

INPUT
Description:
Station Elevation Data num= 61

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2264.29 | 23.01 | 2261.2 | 27.91 | 2257.46 | 33.75 | 2253.46 | 34.39 | 2253.07 |
| 38.89 | 2250.47 | 39.01 | 2250.46 | 39.07 | 2250.46 | 45.85 | 2250.21 | 64.81 | 2249.48 |
| 65.58 | 2249.33 | 67.97 | 2249.08 | 71.73 | 2248.6 | 73.99 | 2248.16 | 74.27 | 2248.11 |
| 78.06 | 2246.64 | 86.8 | 2243.54 | 88.01 | 2243.57 | 91.31 | 2243.64 | 91.7 | 2243.68 |
| 109.86 | 2243.91 | 112.22 | 2243.92 | 128.52 | 2243.86 | 144.95 | 2243.64 | 146.63 | 2243.7 |
| 151.05 | 2243.88 | 151.58 | 2243.91 | 157.29 | 2244.32 | 162.86 | 2243.86 | 169.71 | 2243.23 |
| 169.86 | 2243.22 | 181.54 | 2243.56 | 185.2 | 2243.66 | 188.41 | 2243.83 | 192.83 | 2243.71 |
| 212.51 | 2243.5 | 226.66 | 2243.54 | 232.46 | 2243.32 | 244.04 | 2243.18 | 245.33 | 2243.13 |

```
  260.43 2243.29  265.02 2243.33  269.63 2243.36  279.67 2242.48  282.26 2242.27
  282.27 2242.27  283.46 2242.27  283.57 2242.28  286.57 2243.19  288.68 2243.82
  289.89 2244.06  290.77  2244.2  298.72  2245.4  300.75 2245.71  301.16 2245.78
  314.45 2247.89  318.35 2248.98  319.41 2249.26  321.87 2249.89  325.42 2251.02
  343.31 2250.98

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
       0    .041  260.43    .054  282.27    .041

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         78.06  290.77           414.01  279.51  158.82            .1        .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)          * 2244.37  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.26  * Wt. n-Val.              *          *    0.043 *          *
* W.S. Elev (ft)          * 2244.11  * Reach Len. (ft)         *  414.01  *  279.51  *  158.82  *
* Crit W.S. (ft)          * 2244.09  * Flow Area (sq ft)       *          *  117.49  *          *
* E.G. Slope (ft/ft)      *0.028023  * Area (sq ft)            *          *  117.49  *          *
* Q Total (cfs)           *  482.00  * Flow (cfs)              *          *  482.00  *          *
* Top Width (ft)          *  199.60  * Top Width (ft)          *          *  199.60  *          *
* Vel Total (ft/s)        *    4.10  * Avg. Vel. (ft/s)         *          *    4.10  *          *
* Max Chl Dpth (ft)       *    1.84  * Hydr. Depth (ft)         *          *    0.59  *          *
* Conv. Total (cfs)       *  2879.3  * Conv. (cfs)              *          *  2879.3  *          *
* Length Wtd. (ft)        *  279.51  * Wetted Per. (ft)         *          *  200.08  *          *
* Min Ch El (ft)          * 2242.27  * Shear (lb/sq ft)         *          *    1.03  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s)   *          *    4.21  *          *
* Frctn Loss (ft)         *    7.40  * Cum Volume (acre-ft)     *    0.02  *    2.87  *    0.08  *
* C & E Loss (ft)         *    0.02  * Cum SA (acres)           *    0.00  *    1.41  *    0.04  *
*****************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************
* E.G. Elev (ft)          * 2244.37  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.26  * Wt. n-Val.              *          *    0.043 *          *
* W.S. Elev (ft)          * 2244.11  * Reach Len. (ft)         *  414.01  *  279.51  *  158.82  *
* Crit W.S. (ft)          * 2244.09  * Flow Area (sq ft)       *          *  117.49  *          *
* E.G. Slope (ft/ft)      *0.028023  * Area (sq ft)            *          *  117.49  *          *
* Q Total (cfs)           *  482.00  * Flow (cfs)              *          *  482.00  *          *
* Top Width (ft)          *  199.60  * Top Width (ft)          *          *  199.60  *          *
* Vel Total (ft/s)        *    4.10  * Avg. Vel. (ft/s)         *          *    4.10  *          *
* Max Chl Dpth (ft)       *    1.84  * Hydr. Depth (ft)         *          *    0.59  *          *
* Conv. Total (cfs)       *  2879.3  * Conv. (cfs)              *          *  2879.3  *          *
* Length Wtd. (ft)        *  279.51  * Wetted Per. (ft)         *          *  200.08  *          *
* Min Ch El (ft)          * 2242.27  * Shear (lb/sq ft)         *          *    1.03  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s)   *          *    4.21  *          *
* Frctn Loss (ft)         *    7.40  * Cum Volume (acre-ft)     *    0.02  *    2.87  *    0.08  *
* C & E Loss (ft)         *    0.02  * Cum SA (acres)           *    0.00  *    1.41  *    0.04  *
*****************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan     * 78.06     * 131.24    *    33.81 *    13.54 *    46.15 *     7.01 *     0.29 *     2.50 *
* 2        * Chan     * 131.24    * 184.42    *    74.52 *    22.07 *    47.81 *    15.46 *     0.46 *     3.38 *
* 3        * Chan     * 184.42    * 237.59    *   113.01 *    29.56 *    53.19 *    23.45 *     0.56 *     3.82 *
* 4        * Chan     * 237.59    * 290.77    *   260.67 *    52.31 *    52.93 *    54.08 *     0.99 *     4.98 *
*****************************************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 2
*****************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan     * 78.06     * 131.24    *    33.81 *    13.54 *    46.15 *     7.01 *     0.29 *     2.50 *
* 2        * Chan     * 131.24    * 184.42    *    74.52 *    22.07 *    47.81 *    15.46 *     0.46 *     3.38 *
* 3        * Chan     * 184.42    * 237.59    *   113.01 *    29.56 *    53.19 *    23.45 *     0.56 *     3.82 *
* 4        * Chan     * 237.59    * 290.77    *   260.67 *    52.31 *    52.93 *    54.08 *     0.99 *     4.98 *
*****************************************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: Ocotillo Wash 3
REACH: Tributary-2.2       RS: 0.10059

INPUT
Description:
Station Elevation Data     num=      58
     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev     Sta     Elev
*****************************************************************************************
       0  2249.53     4.64 2248.53     8.76 2247.56     9.3  2247.5    12.76 2247.55
   21.37 2247.74    30.76 2247.03    33.85 2246.78    35.35 2246.36    35.86 2246.23
   36.98 2245.94    46.74 2242.63    55.56 2239.75    59.07 2239.19    68.75 2237.79
```

```
   72.5 2237.26   98.47 2236.99   98.67 2236.98   99.47 2236.98  111.72 2235.15
 112.21 2235.12  112.42  2235.1  119.45 2234.67  121.78 2234.55  127.34 2234.28
 128.26 2234.24  129.84 2234.35  131.82  2234.4  134.92 2234.57  137.21  2234.8
 140.97 2235.06  145.19 2235.35   155.5 2235.19  156.79 2235.14  157.96 2235.28
  169.1 2236.48  171.97 2236.82  180.02 2237.24  186.48 2237.53  187.32 2237.59
 192.61  2237.7  215.43 2238.51  219.52 2238.84  222.23 2238.91  224.31 2238.94
 228.44 2239.39  230.72  2239.6  249.93 2241.49  255.61 2242.02  262.51 2241.94
 266.75 2241.86  289.49  2241.3  299.23 2241.29  302.43 2241.26  303.38 2241.26
 312.43 2241.34  318.65 2241.47  322.21 2241.96

Manning's n Values        num=       3
    Sta    n Val     Sta    n Val     Sta    n Val
*************************************************
      0     .051  127.34     .059  140.97     .051

Bank Sta: Left    Right    Lengths: Left Channel   Right     Coeff Contr.    Expan.
          99.47   169.1              278.25   317.3  273.52          .1        .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)          * 2236.96  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.47  * Wt. n-Val.              *          *    0.054 *   0.000  *
* W.S. Elev (ft)          * 2236.49  * Reach Len. (ft)         *  278.25  *   317.30 *  273.52  *
* Crit W.S. (ft)          * 2236.31  * Flow Area (sq ft)       *          *    88.06 *    0.00  *
* E.G. Slope (ft/ft)      *0.025042  * Area (sq ft)            *          *    88.06 *    0.00  *
* Q Total (cfs)           *  482.00  * Flow (cfs)              *          *   482.00 *    0.00  *
* Top Width (ft)          *   66.43  * Top Width (ft)          *          *    66.35 *    0.08  *
* Vel Total (ft/s)        *    5.47  * Avg. Vel. (ft/s)        *          *     5.47 *    0.13  *
* Max Chl Dpth (ft)       *    2.25  * Hydr. Depth (ft)        *          *     1.33 *    0.00  *
* Conv. Total (cfs)       *  3045.9  * Conv. (cfs)             *          *   3045.9 *     0.0  *
* Length Wtd. (ft)        *  317.30  * Wetted Per. (ft)        *          *    66.59 *    0.08  *
* Min Ch El (ft)          * 2234.24  * Shear (lb/sq ft)        *          *     2.07 *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s)  *          *    11.32 *          *
* Frctn Loss (ft)         *    5.14  * Cum Volume (acre-ft)    *    0.02  *     2.22 *    0.08  *
* C & E Loss (ft)         *    0.05  * Cum SA (acres)          *    0.00  *     0.56 *    0.03  *
*****************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************
* E.G. Elev (ft)          * 2236.96  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.47  * Wt. n-Val.              *          *    0.054 *   0.000  *
* W.S. Elev (ft)          * 2236.49  * Reach Len. (ft)         *  278.25  *   317.30 *  273.52  *
* Crit W.S. (ft)          * 2236.31  * Flow Area (sq ft)       *          *    88.06 *    0.00  *
* E.G. Slope (ft/ft)      *0.025042  * Area (sq ft)            *          *    88.06 *    0.00  *
* Q Total (cfs)           *  482.00  * Flow (cfs)              *          *   482.00 *    0.00  *
* Top Width (ft)          *   66.43  * Top Width (ft)          *          *    66.35 *    0.08  *
* Vel Total (ft/s)        *    5.47  * Avg. Vel. (ft/s)        *          *     5.47 *    0.13  *
* Max Chl Dpth (ft)       *    2.25  * Hydr. Depth (ft)        *          *     1.33 *    0.00  *
* Conv. Total (cfs)       *  3045.9  * Conv. (cfs)             *          *   3045.9 *     0.0  *
* Length Wtd. (ft)        *  317.30  * Wetted Per. (ft)        *          *    66.59 *    0.08  *
* Min Ch El (ft)          * 2234.24  * Shear (lb/sq ft)        *          *     2.07 *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s)  *          *    11.32 *          *
* Frctn Loss (ft)         *    5.14  * Cum Volume (acre-ft)    *    0.02  *     2.22 *    0.08  *
* C & E Loss (ft)         *    0.05  * Cum SA (acres)          *    0.00  *     0.56 *    0.03  *
*****************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

  Profile #PF 1
*************************************************************************************************
*          * Pos      * Left Sta * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)     * (ft)     *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan     * 99.47    * 116.88   *    59.94 *    13.76 *    14.23 *    12.44 *     0.97 *     4.36 *
* 2        * Chan     * 116.88   * 134.29   *   234.75 *    35.08 *    17.43 *    48.70 *     2.02 *     6.69 *
* 3        * Chan     * 134.29   * 151.69   *   128.09 *    24.38 *    17.44 *    26.58 *     1.40 *     5.25 *
* 4        * Chan     * 151.69   * 169.10   *    59.22 *    14.83 *    17.48 *    12.29 *     0.85 *     3.99 *
*************************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

  Profile #PF 2
*************************************************************************************************
*          * Pos      * Left Sta * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)     * (ft)     *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan     * 99.47    * 116.88   *    59.94 *    13.76 *    14.23 *    12.44 *     0.97 *     4.36 *
* 2        * Chan     * 116.88   * 134.29   *   234.75 *    35.08 *    17.43 *    48.70 *     2.02 *     6.69 *
* 3        * Chan     * 134.29   * 151.69   *   128.09 *    24.38 *    17.44 *    26.58 *     1.40 *     5.25 *
* 4        * Chan     * 151.69   * 169.10   *    59.22 *    14.83 *    17.48 *    12.29 *     0.85 *     3.99 *
*************************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

CROSS SECTION


RIVER: Ocotillo Wash 3
REACH: Tributary-2.2       RS: 0.04049

INPUT
Description:
Station Elevation Data    num=      47
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
```

```
*******************************************************************************
       0 2238.79    2.97 2237.91    8.76 2236.06    9.59 2235.89   13.08 2235.15
    15.5 2234.82   27.54 2233.23   29.34 2233.13   42.14 2232.45   45.94 2232.26
   50.11 2230.29   51.93 2229.32   53.96 2228.24   55.98 2228.27   63.63 2228.47
   67.71 2228.72   73.69 2229.16   74.14  2229.2   75.11 2229.26   83.25 2229.79
   84.97 2229.85   86.72 2229.91   90.25 2230.11   95.27 2230.41   99.46 2230.67
  107.52 2231.21  112.04 2231.48  113.34 2231.55   114.9 2231.59  121.76  2231.8
  129.32 2231.96  130.87    2232  131.36 2232.02  132.68 2232.02  139.97 2232.33
  140.03 2232.33  144.66 2232.53  149.69 2232.73  156.61  2233.1   157.4 2233.14
  158.51 2233.21  165.98 2233.59  170.53 2233.75  173.69 2233.84   175.7 2233.91
  176.02 2233.92  179.25 2234.09

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***********************************************
       0    .058   51.93    .053   84.97    .052

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          45.94  113.34            44.65    42.9   41.93            .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************************
* E.G. Elev (ft)          * 2231.77  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.29  * Wt. n-Val.              *          *    0.053 *          *
* W.S. Elev (ft)          * 2231.48  * Reach Len. (ft)         *   44.65  *    42.90 *   41.93  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *          *   112.50 *          *
* E.G. Slope (ft/ft)      *0.011314  * Area (sq ft)            *          *   112.50 *          *
* Q Total (cfs)           *  482.00  * Flow (cfs)              *          *   482.00 *          *
* Top Width (ft)          *   64.51  * Top Width (ft)          *          *    64.51 *          *
* Vel Total (ft/s)        *    4.28  * Avg. Vel. (ft/s)        *          *     4.28 *          *
* Max Chl Dpth (ft)       *    3.24  * Hydr. Depth (ft)        *          *     1.74 *          *
* Conv. Total (cfs)       *  4531.4  * Conv. (cfs)             *          *   4531.4 *          *
* Length Wtd. (ft)        *   42.87  * Wetted Per. (ft)        *          *    65.39 *          *
* Min Ch El (ft)          * 2228.24  * Shear (lb/sq ft)        *          *     1.22 *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s)  *          *     5.21 *          *
* Frctn Loss (ft)         *    0.31  * Cum Volume (acre-ft)    *    0.02  *     1.48 *    0.08  *
* C & E Loss (ft)         *    0.03  * Cum SA (acres)          *    0.00  *     0.08 *    0.03  *
*****************************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************************
* E.G. Elev (ft)          * 2231.77  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.29  * Wt. n-Val.              *          *    0.053 *          *
* W.S. Elev (ft)          * 2231.48  * Reach Len. (ft)         *   44.65  *    42.90 *   41.93  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *          *   112.50 *          *
* E.G. Slope (ft/ft)      *0.011314  * Area (sq ft)            *          *   112.50 *          *
* Q Total (cfs)           *  482.00  * Flow (cfs)              *          *   482.00 *          *
* Top Width (ft)          *   64.51  * Top Width (ft)          *          *    64.51 *          *
* Vel Total (ft/s)        *    4.28  * Avg. Vel. (ft/s)        *          *     4.28 *          *
* Max Chl Dpth (ft)       *    3.24  * Hydr. Depth (ft)        *          *     1.74 *          *
* Conv. Total (cfs)       *  4531.4  * Conv. (cfs)             *          *   4531.4 *          *
* Length Wtd. (ft)        *   42.87  * Wetted Per. (ft)        *          *    65.39 *          *
* Min Ch El (ft)          * 2228.24  * Shear (lb/sq ft)        *          *     1.22 *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s)  *          *     5.21 *          *
* Frctn Loss (ft)         *    0.31  * Cum Volume (acre-ft)    *    0.02  *     1.48 *    0.08  *
* C & E Loss (ft)         *    0.03  * Cum SA (acres)          *    0.00  *     0.08 *    0.03  *
*****************************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*******************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan     * 45.94     * 62.79     *   187.07 *    37.84 *    15.99 *    38.81 *     2.49 *     4.94 *
* 2        * Chan     * 62.79     * 79.64     *   198.60 *    42.16 *    16.89 *    41.20 *     2.50 *     4.71 *
* 3        * Chan     * 79.64     * 96.49     *    83.83 *    24.81 *    16.88 *    17.39 *     1.47 *     3.38 *
* 4        * Chan     * 96.49     * 113.34    *    12.50 *     7.69 *    15.64 *     2.59 *     0.49 *     1.63 *
*******************************************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 2
*******************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan     * 45.94     * 62.79     *   187.07 *    37.84 *    15.99 *    38.81 *     2.49 *     4.94 *
* 2        * Chan     * 62.79     * 79.64     *   198.60 *    42.16 *    16.89 *    41.20 *     2.50 *     4.71 *
* 3        * Chan     * 79.64     * 96.49     *    83.83 *    24.81 *    16.88 *    17.39 *     1.47 *     3.38 *
* 4        * Chan     * 96.49     * 113.34    *    12.50 *     7.69 *    15.64 *     2.59 *     0.49 *     1.63 *
*******************************************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: Ocotillo Wash 3
REACH: Tributary-2.2       RS: 0.03237

INPUT
Description:
Station Elevation Data    num=      46
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
       0  2238.9    8.15 2238.07    8.29 2238.05    8.51 2238.01    15.3 2236.65
```

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 17.95 | 2236.13 | 19.04 | 2235.92 | 21.1 | 2235.34 | 22.34 | 2235.01 | 26.19 | 2234.03 | | |
| 30.85 | 2232.9 | 31.22 | 2232.82 | 31.56 | 2232.73 | 34.69 | 2231.88 | 37.44 | 2231.11 | | |
| 39.91 | 2230.36 | 47.06 | 2229.44 | 53.94 | 2228.65 | 54.12 | 2228.62 | 59.89 | 2227.58 | | |
| 60.96 | 2227.41 | 61.66 | 2227.49 | 68.84 | 2228.25 | 70.12 | 2228.29 | 77.77 | 2228.56 | | |
| 79.37 | 2228.75 | 86.65 | 2229.62 | 87.89 | 2229.77 | 88.73 | 2229.87 | 90.37 | 2230 | | |
| 98.76 | 2230.21 | 105.65 | 2230.6 | 106.59 | 2230.67 | 106.91 | 2230.68 | 112.24 | 2230.95 | | |
| 114.39 | 2231.12 | 119.95 | 2231.45 | 122.85 | 2231.61 | 127.5 | 2231.8 | 128.66 | 2231.83 | | |
| 129.38 | 2231.86 | 133.65 | 2232 | 138.27 | 2232.11 | 138.99 | 2232.12 | 141.38 | 2232.22 | | |
| 145.92 | 2232.41 | | | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .058 | 54.12 | .053 | 79.37 | .052 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 39.91 | 90.37 | 23.88 | 21.3 | 50.47 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2231.43 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.20 | Wt. n-Val. | 0.058 | 0.054 | 0.052 |
| W.S. Elev (ft) | 2231.23 | Reach Len. (ft) | 23.88 | 21.30 | 50.47 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 1.25 | 123.39 | 18.64 |
| E.G. Slope (ft/ft) | 0.005041 | Area (sq ft) | 1.25 | 123.39 | 18.64 |
| Q Total (cfs) | 488.00 | Flow (cfs) | 1.26 | 456.40 | 30.34 |
| Top Width (ft) | 79.27 | Top Width (ft) | 2.90 | 50.46 | 25.90 |
| Vel Total (ft/s) | 3.41 | Avg. Vel. (ft/s) | 1.01 | 3.70 | 1.63 |
| Max Chl Dpth (ft) | 3.82 | Hydr. Depth (ft) | 0.43 | 2.45 | 0.72 |
| Conv. Total (cfs) | 6873.2 | Conv. (cfs) | 17.8 | 6428.1 | 427.3 |
| Length Wtd. (ft) | 23.33 | Wetted Per. (ft) | 3.03 | 50.81 | 25.93 |
| Min Ch El (ft) | 2227.41 | Shear (lb/sq ft) | 0.13 | 0.76 | 0.23 |
| Alpha | 1.12 | Stream Power (lb/ft s) | 0.13 | 2.83 | 0.37 |
| Frctn Loss (ft) | 0.11 | Cum Volume (acre-ft) | 0.02 | 1.37 | 0.07 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 0.00 | 0.02 | 0.02 |

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2231.43 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.20 | Wt. n-Val. | 0.058 | 0.054 | 0.052 |
| W.S. Elev (ft) | 2231.23 | Reach Len. (ft) | 23.88 | 21.30 | 50.47 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 1.25 | 123.39 | 18.64 |
| E.G. Slope (ft/ft) | 0.005041 | Area (sq ft) | 1.25 | 123.39 | 18.64 |
| Q Total (cfs) | 488.00 | Flow (cfs) | 1.26 | 456.40 | 30.34 |
| Top Width (ft) | 79.27 | Top Width (ft) | 2.90 | 50.46 | 25.90 |
| Vel Total (ft/s) | 3.41 | Avg. Vel. (ft/s) | 1.01 | 3.70 | 1.63 |
| Max Chl Dpth (ft) | 3.82 | Hydr. Depth (ft) | 0.43 | 2.45 | 0.72 |
| Conv. Total (cfs) | 6873.2 | Conv. (cfs) | 17.8 | 6428.1 | 427.3 |
| Length Wtd. (ft) | 23.33 | Wetted Per. (ft) | 3.03 | 50.81 | 25.93 |
| Min Ch El (ft) | 2227.41 | Shear (lb/sq ft) | 0.13 | 0.76 | 0.23 |
| Alpha | 1.12 | Stream Power (lb/ft s) | 0.13 | 2.83 | 0.37 |
| Frctn Loss (ft) | 0.11 | Cum Volume (acre-ft) | 0.02 | 1.37 | 0.07 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 0.00 | 0.02 | 0.02 |

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 29.93 | 39.91 | 1.26 | 1.25 | 3.03 | 0.26 | 0.43 | 1.01 |
| 2 | Chan | 39.91 | 52.53 | 53.28 | 21.03 | 12.71 | 10.92 | 1.67 | 2.53 |
| 3 | Chan | 52.53 | 65.14 | 177.22 | 41.10 | 12.76 | 36.31 | 3.26 | 4.31 |
| 4 | Chan | 65.14 | 77.76 | 149.94 | 36.98 | 12.64 | 30.72 | 2.93 | 4.05 |
| 5 | Chan | 77.76 | 90.37 | 75.96 | 24.28 | 12.70 | 15.57 | 1.92 | 3.13 |
| 6 | ROB | 90.37 | 104.26 | 26.21 | 14.21 | 13.90 | 5.37 | 1.02 | 1.84 |
| 7 | ROB | 104.26 | 118.15 | 4.12 | 4.42 | 12.04 | 0.84 | 0.37 | 0.93 |

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 29.93 | 39.91 | 1.26 | 1.25 | 3.03 | 0.26 | 0.43 | 1.01 |
| 2 | Chan | 39.91 | 52.53 | 53.28 | 21.03 | 12.71 | 10.92 | 1.67 | 2.53 |
| 3 | Chan | 52.53 | 65.14 | 177.22 | 41.10 | 12.76 | 36.31 | 3.26 | 4.31 |
| 4 | Chan | 65.14 | 77.76 | 149.94 | 36.98 | 12.64 | 30.72 | 2.93 | 4.05 |
| 5 | Chan | 77.76 | 90.37 | 75.96 | 24.28 | 12.70 | 15.57 | 1.92 | 3.13 |
| 6 | ROB | 90.37 | 104.26 | 26.21 | 14.21 | 13.90 | 5.37 | 1.02 | 1.84 |
| 7 | ROB | 104.26 | 118.15 | 4.12 | 4.42 | 12.04 | 0.84 | 0.37 | 0.93 |

CROSS SECTION

RIVER: Ocotillo Wash 3
REACH: Tributary-2.2 RS: 0.02833

INPUT
Description:
Station Elevation Data num= 44

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2238.23 | 2.29 | 2238.04 | 10.86 | 2237.34 | 13.62 | 2237.1 | 13.88 | 2237.07 |
| 17.89 | 2236.78 | 20.52 | 2236.31 | 24.64 | 2235.82 | 25.15 | 2235.69 | 26.81 | 2235.33 |
| 31.63 | 2234.37 | 35.08 | 2233.66 | 36.19 | 2233.43 | 36.48 | 2233.39 | 36.62 | 2233.31 |
| 44.4 | 2229.91 | 45.74 | 2229.32 | 47.26 | 2228.62 | 52.68 | 2228.43 | 54.89 | 2228.35 |
| 60.69 | 2228.1 | 65.53 | 2227.34 | 67.12 | 2227.1 | 70.13 | 2227.33 | 72.92 | 2227.56 |
| 74 | 2227.56 | 78.26 | 2227.72 | 78.59 | 2227.73 | 81.42 | 2228.27 | 82.11 | 2228.41 |
| 84.08 | 2228.76 | 85.4 | 2228.98 | 87.68 | 2229.45 | 87.78 | 2229.48 | 88.44 | 2229.44 |
| 89.3 | 2229.42 | 90.52 | 2229.42 | 91.77 | 2229.45 | 93.97 | 2229.69 | 97.05 | 2229.88 |
| 98.55 | 2229.96 | 98.83 | 2229.97 | 99.56 | 2230.03 | 99.9 | 2230.05 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|

```
      0    .058   52.68    .053   78.26    .052

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        47.26   87.78             1.33      .5     .67            .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)         * 2231.33  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.21  * Wt. n-Val.              *   0.058  *   0.053  *   0.052  *
* W.S. Elev (ft)         * 2231.12  * Reach Len. (ft)         *    1.33  *    0.50  *    0.67  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)       *    6.96  *  124.57  *   17.56  *
* E.G. Slope (ft/ft)     *0.004073  * Area (sq ft)            *    6.96  *  124.57  *   17.56  *
* Q Total (cfs)          *  522.00  * Flow (cfs)              *   12.35  *  470.94  *   38.71  *
* Top Width (ft)         *   58.27  * Top Width (ft)           *    5.63  *   40.52  *   12.12  *
* Vel Total (ft/s)       *    3.50  * Avg. Vel. (ft/s)         *    1.77  *    3.78  *    2.20  *
* Max Chl Dpth (ft)      *    4.02  * Hydr. Depth (ft)         *    1.24  *    3.07  *    1.45  *
* Conv. Total (cfs)      *  8178.9  * Conv. (cfs)              *   193.5  *  7378.9  *   606.5  *
* Length Wtd. (ft)       *    0.53  * Wetted Per. (ft)         *    6.16  *   40.80  *   13.22  *
* Min Ch El (ft)         * 2227.10  * Shear (lb/sq ft)         *    0.29  *    0.78  *    0.34  *
* Alpha                  *    1.09  * Stream Power (lb/ft s)   *    0.51  *    2.94  *    0.74  *
* Frctn Loss (ft)        *    0.00  * Cum Volume (acre-ft)     *    0.02  *    1.31  *    0.05  *
* C & E Loss (ft)        *    0.00  * Cum SA (acres)           *    0.00  *    0.00  *    0.00  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************
* E.G. Elev (ft)         * 2231.33  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.21  * Wt. n-Val.              *   0.058  *   0.053  *   0.052  *
* W.S. Elev (ft)         * 2231.12  * Reach Len. (ft)         *    1.33  *    0.50  *    0.67  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)       *    6.96  *  124.57  *   17.56  *
* E.G. Slope (ft/ft)     *0.004073  * Area (sq ft)            *    6.96  *  124.57  *   17.56  *
* Q Total (cfs)          *  522.00  * Flow (cfs)              *   12.35  *  470.94  *   38.71  *
* Top Width (ft)         *   58.27  * Top Width (ft)           *    5.63  *   40.52  *   12.12  *
* Vel Total (ft/s)       *    3.50  * Avg. Vel. (ft/s)         *    1.77  *    3.78  *    2.20  *
* Max Chl Dpth (ft)      *    4.02  * Hydr. Depth (ft)         *    1.24  *    3.07  *    1.45  *
* Conv. Total (cfs)      *  8178.9  * Conv. (cfs)              *   193.5  *  7378.9  *   606.5  *
* Length Wtd. (ft)       *    0.53  * Wetted Per. (ft)         *    6.16  *   40.80  *   13.22  *
* Min Ch El (ft)         * 2227.10  * Shear (lb/sq ft)         *    0.29  *    0.78  *    0.34  *
* Alpha                  *    1.09  * Stream Power (lb/ft s)   *    0.51  *    2.94  *    0.74  *
* Frctn Loss (ft)        *    0.00  * Cum Volume (acre-ft)     *    0.02  *    1.31  *    0.05  *
* C & E Loss (ft)        *    0.00  * Cum SA (acres)           *    0.00  *    0.00  *    0.00  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB      * 35.45     * 47.26     *    12.35 *    6.96 *     6.16 *     2.37 *     1.24 *     1.77 *
* 2        * Chan     * 47.26     * 57.39     *    89.40 *   27.16 *    10.14 *    17.13 *     2.68 *     3.29 *
* 3        * Chan     * 57.39     * 67.52     *   135.12 *   33.99 *    10.21 *    25.89 *     3.36 *     3.98 *
* 4        * Chan     * 67.52     * 77.65     *   156.24 *   36.99 *    10.15 *    29.93 *     3.65 *     4.22 *
* 5        * Chan     * 77.65     * 87.78     *    90.18 *   26.42 *    10.30 *    17.28 *     2.61 *     3.41 *
* 6        * ROB      * 87.78     * 90.81     *    12.76 *    5.12 *     3.03 *     2.44 *     1.69 *     2.49 *
* 7        * ROB      * 90.81     * 93.84     *    11.60 *    4.84 *     3.04 *     2.22 *     1.60 *     2.40 *
* 8        * ROB      * 93.84     * 96.87     *     8.73 *    4.07 *     3.04 *     1.67 *     1.34 *     2.14 *
* 9        * ROB      * 96.87     * 99.90     *     5.62 *    3.53 *     4.11 *     1.08 *     1.17 *     1.59 *
*****************************************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

  Profile #PF 2
*****************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB      * 35.45     * 47.26     *    12.35 *    6.96 *     6.16 *     2.37 *     1.24 *     1.77 *
* 2        * Chan     * 47.26     * 57.39     *    89.40 *   27.16 *    10.14 *    17.13 *     2.68 *     3.29 *
* 3        * Chan     * 57.39     * 67.52     *   135.12 *   33.99 *    10.21 *    25.89 *     3.36 *     3.98 *
* 4        * Chan     * 67.52     * 77.65     *   156.24 *   36.99 *    10.15 *    29.93 *     3.65 *     4.22 *
* 5        * Chan     * 77.65     * 87.78     *    90.18 *   26.42 *    10.30 *    17.28 *     2.61 *     3.41 *
* 6        * ROB      * 87.78     * 90.81     *    12.76 *    5.12 *     3.03 *     2.44 *     1.69 *     2.49 *
* 7        * ROB      * 90.81     * 93.84     *    11.60 *    4.84 *     3.04 *     2.22 *     1.60 *     2.40 *
* 8        * ROB      * 93.84     * 96.87     *     8.73 *    4.07 *     3.04 *     1.67 *     1.34 *     2.14 *
* 9        * ROB      * 96.87     * 99.90     *     5.62 *    3.53 *     4.11 *     1.08 *     1.17 *     1.59 *
*****************************************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.

CROSS SECTION


RIVER: Ocotillo Wash 3
REACH: Tributary-2.2       RS: 0.02823

INPUT
Description:
Station Elevation Data     num=      45
     Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev      Sta    Elev
*****************************************************************************************
       0 2238.21    1.24  2238.1    8.71  2237.5    12.4 2237.17   12.82 2237.13
   18.25 2236.74   20.43 2236.35   24.88 2235.82   24.97  2235.8    25.1 2235.78
   27.68 2235.22   31.64 2234.44   36.22  2233.5   36.64  2233.3   36.68 2233.23
    38.3  2232.6   44.43 2229.91   46.15 2229.16   47.35 2228.61   52.59 2228.43
   53.36  2228.4   60.94 2228.06   64.73 2227.47   67.32 2227.08    72.2 2227.45
   73.16 2227.53   73.53 2227.54    78.3 2227.71   78.63 2227.72   79.77 2227.94
   82.08 2228.38   82.58 2228.47   84.58 2228.81   87.61 2229.43    88.1  2229.5
   88.76 2229.46   89.77 2229.44    91.2 2229.44   92.18 2229.46   94.54 2229.72
   97.86 2229.93   97.97 2229.93   98.89 2229.98   99.31 2230.01   99.41 2230.02

Manning's n Values         num=       3
     Sta   n Val      Sta   n Val      Sta   n Val
*************************************************
       0    .058   52.59    .053    78.3    .052
```

```
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         47.35   88.1                 0       0       0            .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)        * 2231.33 * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)         *    0.21 * Wt. n-Val.              *   0.058  *   0.053  *   0.052  *
* W.S. Elev (ft)        * 2231.12 * Reach Len. (ft)         *  162.00  *  162.00  *  162.00  *
* Crit W.S. (ft)        *         * Flow Area (sq ft)       *    7.06  *  125.38  *   16.48  *
* E.G. Slope (ft/ft)    *0.004049 * Area (sq ft)            *    7.06  *  125.38  *   16.48  *
* Q Total (cfs)         *  522.00 * Flow (cfs)               *   12.56  *  473.29  *   36.15  *
* Top Width (ft)        *   57.73 * Top Width (ft)           *    5.67  *   40.75  *   11.31  *
* Vel Total (ft/s)      *    3.51 * Avg. Vel. (ft/s)         *    1.78  *    3.77  *    2.19  *
* Max Chl Dpth (ft)     *    4.04 * Hydr. Depth (ft)         *    1.25  *    3.08  *    1.46  *
* Conv. Total (cfs)     *  8203.7 * Conv. (cfs)              *   197.4  *  7438.2  *   568.1  *
* Length Wtd. (ft)      *  162.00 * Wetted Per. (ft)         *    6.20  *   41.02  *   12.43  *
* Min Ch El (ft)        * 2227.08 * Shear (lb/sq ft)         *    0.29  *    0.77  *    0.33  *
* Alpha                 *    1.08 * Stream Power (lb/ft s)   *    0.51  *    2.92  *    0.73  *
* Frctn Loss (ft)       *    3.02 * Cum Volume (acre-ft)     *    0.02  *    1.31  *    0.05  *
* C & E Loss (ft)       *    0.08 * Cum SA (acres)           *          *          *          *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************
* E.G. Elev (ft)        * 2231.33 * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)         *    0.21 * Wt. n-Val.              *   0.058  *   0.053  *   0.052  *
* W.S. Elev (ft)        * 2231.12 * Reach Len. (ft)         *  162.00  *  162.00  *  162.00  *
* Crit W.S. (ft)        *         * Flow Area (sq ft)       *    7.06  *  125.38  *   16.48  *
* E.G. Slope (ft/ft)    *0.004049 * Area (sq ft)            *    7.06  *  125.38  *   16.48  *
* Q Total (cfs)         *  522.00 * Flow (cfs)               *   12.56  *  473.29  *   36.15  *
* Top Width (ft)        *   57.73 * Top Width (ft)           *    5.67  *   40.75  *   11.31  *
* Vel Total (ft/s)      *    3.51 * Avg. Vel. (ft/s)         *    1.78  *    3.77  *    2.19  *
* Max Chl Dpth (ft)     *    4.04 * Hydr. Depth (ft)         *    1.25  *    3.08  *    1.46  *
* Conv. Total (cfs)     *  8203.7 * Conv. (cfs)              *   197.4  *  7438.2  *   568.1  *
* Length Wtd. (ft)      *  162.00 * Wetted Per. (ft)         *    6.20  *   41.02  *   12.43  *
* Min Ch El (ft)        * 2227.08 * Shear (lb/sq ft)         *    0.29  *    0.77  *    0.33  *
* Alpha                 *    1.08 * Stream Power (lb/ft s)   *    0.51  *    2.92  *    0.73  *
* Frctn Loss (ft)       *    3.02 * Cum Volume (acre-ft)     *    0.02  *    1.31  *    0.05  *
* C & E Loss (ft)       *    0.08 * Cum SA (acres)           *          *          *          *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

  Profile #PF 1
*************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB      * 35.51     * 47.35     *    12.56 *    7.06 *     6.20 *     2.41 *     1.25 *     1.78 *
* 2        * Chan     * 47.35     * 57.54     *    90.50 *   27.44 *    10.20 *    17.34 *     2.69 *     3.30 *
* 3        * Chan     * 57.54     * 67.73     *   137.14 *   34.43 *    10.27 *    26.27 *     3.38 *     3.98 *
* 4        * Chan     * 67.73     * 77.91     *   157.44 *   37.32 *    10.21 *    30.16 *     3.66 *     4.22 *
* 5        * Chan     * 77.91     * 88.10     *    88.22 *   26.19 *    10.35 *    16.90 *     2.57 *     3.37 *
* 6        * ROB      * 88.10     * 90.93     *    11.59 *    4.71 *     2.83 *     2.22 *     1.66 *     2.46 *
* 7        * ROB      * 90.93     * 93.76     *    10.99 *    4.57 *     2.84 *     2.11 *     1.61 *     2.41 *
* 8        * ROB      * 93.76     * 96.58     *     8.29 *    3.85 *     2.84 *     1.59 *     1.36 *     2.15 *
* 9        * ROB      * 96.58     * 99.41     *     5.28 *    3.35 *     3.93 *     1.01 *     1.19 *     1.58 *
*************************************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

  Profile #PF 2
*************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB      * 35.51     * 47.35     *    12.56 *    7.06 *     6.20 *     2.41 *     1.25 *     1.78 *
* 2        * Chan     * 47.35     * 57.54     *    90.50 *   27.44 *    10.20 *    17.34 *     2.69 *     3.30 *
* 3        * Chan     * 57.54     * 67.73     *   137.14 *   34.43 *    10.27 *    26.27 *     3.38 *     3.98 *
* 4        * Chan     * 67.73     * 77.91     *   157.44 *   37.32 *    10.21 *    30.16 *     3.66 *     4.22 *
* 5        * Chan     * 77.91     * 88.10     *    88.22 *   26.19 *    10.35 *    16.90 *     2.57 *     3.37 *
* 6        * ROB      * 88.10     * 90.93     *    11.59 *    4.71 *     2.83 *     2.22 *     1.66 *     2.46 *
* 7        * ROB      * 90.93     * 93.76     *    10.99 *    4.57 *     2.84 *     2.11 *     1.61 *     2.41 *
* 8        * ROB      * 93.76     * 96.58     *     8.29 *    3.85 *     2.84 *     1.59 *     1.36 *     2.15 *
* 9        * ROB      * 96.58     * 99.41     *     5.28 *    3.35 *     3.93 *     1.01 *     1.19 *     1.58 *
*************************************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

CROSS SECTION


RIVER: Ocotillo Wash 4
REACH: OWMS1              RS: 0.07616

INPUT
Description: LIMIT OF STUDY (TIE-IN TO FCD2004C072)
Station Elevation Data    num=      59
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
```

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2243.03 | 4.34 | 2243.36 | 4.88 | 2243.38 | 5.31 | 2243.34 | 6.21 | 2243.27 |
| 14.94 | 2242.48 | 16.98 | 2240.86 | 19.43 | 2239.5 | 20.57 | 2238.87 | 23.27 | 2236.89 |
| 27.78 | 2234.57 | 31.66 | 2234.54 | 35.11 | 2234.4 | 48.77 | 2234.08 | 53.06 | 2234.17 |
| 65.61 | 2234.57 | 66.03 | 2234.59 | 66.17 | 2234.59 | 78.91 | 2235.03 | 91.49 | 2235.3 |
| 104.4 | 2235.85 | 108.53 | 2236.03 | 113.8 | 2236.37 | 118.07 | 2236.35 | 120.54 | 2236.3 |
| 127.31 | 2236.4 | 129.57 | 2236.06 | 137.98 | 2234.67 | 141.7 | 2234.48 | 146.41 | 2234.6 |
| 150.49 | 2234.87 | 150.64 | 2234.88 | 150.79 | 2234.88 | 158.89 | 2234.86 | 163.72 | 2235.43 |
| 168.64 | 2235.96 | 169.81 | 2236.1 | 170.32 | 2236.16 | 170.7 | 2236.17 | 179.13 | 2235.86 |
| 184.37 | 2235.49 | 186.72 | 2235.46 | 189.01 | 2235.46 | 193.28 | 2235.47 | 197.34 | 2235.39 |
| 200.24 | 2235.39 | 203.94 | 2235.51 | 211.01 | 2234.54 | 213.96 | 2234.14 | 214.52 | 2234.15 |
| 225.64 | 2234.26 | 227.43 | 2234.69 | 230.97 | 2235.57 | 242.52 | 2240.93 | 252.38 | 2245.16 |
| 258.69 | 2246.41 | 264.07 | 2247.51 | 265.47 | 2247.8 | 293.08 | 2247.77 | | |

Manning's n Values num= 5

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|---|---|
| 0 | .051 | 35.11 | .053 | 104.4 | .052 | 137.98 | .053 | 169.81 | .052 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 23.27 | 230.97 | 174.6 | 159.23 | 181.303 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2238.74 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 1.20 | Wt. n-Val. | 0.051 | 0.052 | 0.052 |
| W.S. Elev (ft) | 2237.53 | Reach Len. (ft) | 174.60 | 159.23 | 181.30 |
| Crit W.S. (ft) | 2237.53 | Flow Area (sq ft) | 0.28 | 497.58 | 4.15 |
| E.G. Slope (ft/ft) | 0.030436 | Area (sq ft) | 0.28 | 497.58 | 4.15 |
| Q Total (cfs) | 4409.00 | Flow (cfs) | 0.58 | 4389.27 | 19.15 |
| Top Width (ft) | 212.81 | Top Width (ft) | 0.88 | 207.70 | 4.23 |
| Vel Total (ft/s) | 8.78 | Avg. Vel. (ft/s) | 2.07 | 8.82 | 4.61 |
| Max Chl Dpth (ft) | 3.45 | Hydr. Depth (ft) | 0.32 | 2.40 | 0.98 |
| Conv. Total (cfs) | 25272.5 | Conv. (cfs) | 3.3 | 25159.4 | 109.7 |
| Length Wtd. (ft) | 159.31 | Wetted Per. (ft) | 1.09 | 208.82 | 4.66 |
| Min Ch El (ft) | 2234.08 | Shear (lb/sq ft) | 0.49 | 4.53 | 1.69 |
| Alpha | 1.01 | Stream Power (lb/ft s) | 1.02 | 39.94 | 7.80 |
| Frctn Loss (ft) | 3.99 | Cum Volume (acre-ft) | 0.00 | 5.10 | 0.04 |
| C & E Loss (ft) | 0.10 | Cum SA (acres) | 0.00 | 1.50 | 0.03 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2238.74 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 1.20 | Wt. n-Val. | 0.051 | 0.052 | 0.052 |
| W.S. Elev (ft) | 2237.53 | Reach Len. (ft) | 174.60 | 159.23 | 181.30 |
| Crit W.S. (ft) | 2237.53 | Flow Area (sq ft) | 0.28 | 497.58 | 4.15 |
| E.G. Slope (ft/ft) | 0.030436 | Area (sq ft) | 0.28 | 497.58 | 4.15 |
| Q Total (cfs) | 4409.00 | Flow (cfs) | 0.58 | 4389.27 | 19.15 |
| Top Width (ft) | 212.81 | Top Width (ft) | 0.88 | 207.70 | 4.23 |
| Vel Total (ft/s) | 8.78 | Avg. Vel. (ft/s) | 2.07 | 8.82 | 4.61 |
| Max Chl Dpth (ft) | 3.45 | Hydr. Depth (ft) | 0.32 | 2.40 | 0.98 |
| Conv. Total (cfs) | 25272.5 | Conv. (cfs) | 3.3 | 25159.4 | 109.7 |
| Length Wtd. (ft) | 159.31 | Wetted Per. (ft) | 1.09 | 208.82 | 4.66 |
| Min Ch El (ft) | 2234.08 | Shear (lb/sq ft) | 0.49 | 4.53 | 1.69 |
| Alpha | 1.01 | Stream Power (lb/ft s) | 1.02 | 39.94 | 7.80 |
| Frctn Loss (ft) | 3.99 | Cum Volume (acre-ft) | 0.00 | 5.10 | 0.04 |
| C & E Loss (ft) | 0.10 | Cum SA (acres) | 0.00 | 1.50 | 0.03 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 17.45 | 23.27 | 0.58 | 0.28 | 1.09 | 0.01 | 0.32 | 2.07 |
| 2 | Chan | 23.27 | 75.20 | 1558.64 | 156.34 | 52.51 | 35.35 | 3.01 | 9.97 |
| 3 | Chan | 75.20 | 127.12 | 690.58 | 93.98 | 51.96 | 15.66 | 1.81 | 7.35 |
| 4 | Chan | 127.12 | 179.05 | 970.12 | 116.49 | 52.16 | 22.00 | 2.24 | 8.33 |
| 5 | Chan | 179.05 | 230.97 | 1169.93 | 130.77 | 52.19 | 26.54 | 2.52 | 8.95 |
| 6 | ROB | 230.97 | 246.50 | 19.15 | 4.15 | 4.66 | 0.43 | 0.98 | 4.61 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 17.45 | 23.27 | 0.58 | 0.28 | 1.09 | 0.01 | 0.32 | 2.07 |
| 2 | Chan | 23.27 | 75.20 | 1558.64 | 156.34 | 52.51 | 35.35 | 3.01 | 9.97 |
| 3 | Chan | 75.20 | 127.12 | 690.58 | 93.98 | 51.96 | 15.66 | 1.81 | 7.35 |
| 4 | Chan | 127.12 | 179.05 | 970.12 | 116.49 | 52.16 | 22.00 | 2.24 | 8.33 |
| 5 | Chan | 179.05 | 230.97 | 1169.93 | 130.77 | 52.19 | 26.54 | 2.52 | 8.95 |
| 6 | ROB | 230.97 | 246.50 | 19.15 | 4.15 | 4.66 | 0.43 | 0.98 | 4.61 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

LATERAL STRUCTURE

RIVER: Ocotillo Wash 4
REACH: OWMS1 RS: 0.07615

```
INPUT
Description: NATURALLY OCCURING
NON-STRUCTURAL
NON-CERTIFIABLE
LATERAL
                WEIR
Weir Coefficient (Cd) set at 2.63

Lateral structure position      = Left overbank
Distance from Upstream XS =      .01
Deck/Roadway Width          =      5
Weir Coefficient            =    2.63
Weir Flow Reference         = Water Surface
 Weir Embankment Coordinates     num =       66
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
       0 2242.52    1.91 2242.12   4.096 2241.46   4.462  2241.3   4.799 2241.24
   4.888 2241.21   9.242 2240.83   9.538 2240.76   9.637 2240.75  14.872 2240.05
  14.971 2240.03   15.04 2240.03  18.513 2239.88  20.056 2239.81  21.155 2239.58
  25.815 2237.83  26.893  2237.8  29.387 2237.71  32.801 2237.65   35.71 2237.47
  37.847 2237.41  39.786 2237.41  43.685 2237.41  50.413 2237.06  53.639  2236.9
  56.924 2236.76  60.941 2236.78  65.047 2236.58  69.618 2236.55  70.687 2236.55
  73.418 2236.59  74.724 2236.56  79.295 2236.39  82.936 2236.15  87.626 2236.01
  88.339    2236  93.098  2235.7  94.246 2235.63   99.52 2235.54 100.094 2235.53
 105.744 2235.31 108.366 2235.32 114.174 2235.24 117.894 2235.28 118.102 2235.28
 123.069 2235.27 127.709 2235.13 131.994  2234.9 133.023 2234.78  137.04 2234.79
 138.168 2234.74 142.086 2234.75 143.402 2234.73 143.897 2234.73 148.399 2234.75
 149.567 2234.75 154.831 2234.73  155.85 2234.72 158.521 2234.57 159.511 2234.54
 164.804 2234.44 165.823 2234.44 168.663 2234.26 171.137 2234.16 172.017 2234.14
  174.59 2234.09

Weir crest shape                          = Broad Crested


LATERAL STRUCTURE OUTPUT  Profile #PF 1  Lat Struct
***************************************************************************
* E.G. US. (ft)          * 2238.74  * Weir Sta US (ft)       *          *
* W.S. US. (ft)          * 2237.53  * Weir Sta DS (ft)       *          *
* E.G. DS (ft)           * 2234.65  * Weir Max Depth (ft)    *          *
* W.S. DS (ft)           * 2233.80  * Weir Avg Depth (ft)    *          *
* Q US (cfs)             * 4409.00  * Weir Submerg           *          *
* Q Leaving Total (cfs)  *    0.00  * Min El Weir Flow (ft)  * 2234.09  *
* Q DS (cfs)             * 4409.00  * Wr Top Wdth (ft)       *          *
* Perc Q Leaving         *    0.00  * Q Gate Group (cfs)     *          *
* Q Weir (cfs)           *          * Gate Open Ht (ft)       *          *
* Q Gates (cfs)          *          * Gate #Open              *          *
* Q Culv (cfs)           *          * Gate Area (sq ft)       *          *
* Q Lat RC (cfs)         *          * Gate Submerg            *          *
* Weir Flow Area (sq ft) *          * Gate Invert (ft)        *          *
***************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.

LATERAL STRUCTURE OUTPUT  Profile #PF 2  Lat Struct
***************************************************************************
* E.G. US. (ft)          * 2238.74  * Weir Sta US (ft)       *          *
* W.S. US. (ft)          * 2237.53  * Weir Sta DS (ft)       *          *
* E.G. DS (ft)           * 2234.65  * Weir Max Depth (ft)    *          *
* W.S. DS (ft)           * 2233.80  * Weir Avg Depth (ft)    *          *
* Q US (cfs)             * 4409.00  * Weir Submerg           *          *
* Q Leaving Total (cfs)  *    0.00  * Min El Weir Flow (ft)  * 2234.09  *
* Q DS (cfs)             * 4409.00  * Wr Top Wdth (ft)       *          *
* Perc Q Leaving         *    0.00  * Q Gate Group (cfs)     *          *
* Q Weir (cfs)           *          * Gate Open Ht (ft)       *          *
* Q Gates (cfs)          *          * Gate #Open              *          *
* Q Culv (cfs)           *          * Gate Area (sq ft)       *          *
* Q Lat RC (cfs)         *          * Gate Submerg            *          *
* Weir Flow Area (sq ft) *          * Gate Invert (ft)        *          *
***************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.

CROSS SECTION


RIVER: Ocotillo Wash 4
REACH: OWMS1              RS: 0.04601

INPUT
Description:
Station Elevation Data    num=      66
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
       0 2234.09     1.1 2234.14    1.37 2234.15    4.37 2232.01    5.87 2231.09
   21.95 2230.97   22.47 2230.96   22.76 2230.96   28.79    2231   31.12  2231.1
    36.7 2231.36   40.54 2230.94   43.81 2230.62   44.45 2230.61   48.29 2230.54
   64.42 2230.52   68.15 2230.84   72.03 2231.12    78.3 2231.46   81.97 2231.67
   91.61 2231.81    96.6 2231.97  101.11 2232.05  101.92 2232.07   102.2  2232.1
  103.04 2232.18   107.6 2232.71  111.06 2232.62  117.92  2232.5  125.05 2232.34
   126.4 2232.33  139.39  2231.3  145.15 2231.61  147.71 2231.76  148.92 2231.76
  155.71 2231.63  158.12 2231.26  162.05 2230.65  165.96 2230.98  167.84 2231.19
  170.06 2231.12  178.15  2230.9  179.29 2230.85  192.57 2231.38  195.14 2231.17
  203.56 2230.57  208.57 2229.95  210.05 2229.77  211.72 2229.94  214.33 2230.22
  218.79 2230.72  221.56 2231.04  230.73 2231.75   236.7 2232.18   238.9 2232.35
  242.24 2232.65   243.5 2232.79  250.28 2234.28  258.81 2236.06  268.04 2238.19
  270.38  2238.7  274.31 2239.59   283.5 2241.01  290.05 2241.99  291.92 2242.27
  305.57  2242.8

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*******************************************************************************
       0    .052    5.87    .053   68.15    .052  162.05    .053  218.79    .052

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
```

```
          1.1  242.24            41.71   42.93   48.56            .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)         * 2234.65  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.86  * Wt. n-Val.              *          *    0.052 *   0.052  *
* W.S. Elev (ft)         * 2233.80  * Reach Len. (ft)         *   41.71  *   42.93  *   48.56  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)       *          *  591.48  *    3.66  *
* E.G. Slope (ft/ft)     *0.020927  * Area (sq ft)            *          *  591.48  *    3.66  *
* Q Total (cfs)          * 4409.00  * Flow (cfs)              *          * 4398.06  *   10.94  *
* Top Width (ft)         *  246.21  * Top Width (ft)           *          *  240.37  *    5.84  *
* Vel Total (ft/s)       *    7.41  * Avg. Vel. (ft/s)         *          *    7.44  *    2.99  *
* Max Chl Dpth (ft)      *    4.03  * Hydr. Depth (ft)         *          *    2.46  *    0.63  *
* Conv. Total (cfs)      * 30477.9  * Conv. (cfs)              *          * 30402.3  *    75.6  *
* Length Wtd. (ft)       *   42.95  * Wetted Per. (ft)         *          *  241.72  *    5.96  *
* Min Ch El (ft)         * 2229.77  * Shear (lb/sq ft)         *          *    3.20  *    0.80  *
* Alpha                  *    1.01  * Stream Power (lb/ft s)    *          *   23.77  *    2.40  *
* Frctn Loss (ft)        *    0.82  * Cum Volume (acre-ft)      *    0.00  *    3.11  *    0.02  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)            *    0.00  *    0.68  *    0.01  *
*****************************************************************************************

Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************
* E.G. Elev (ft)         * 2234.65  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.86  * Wt. n-Val.              *          *    0.052 *   0.052  *
* W.S. Elev (ft)         * 2233.80  * Reach Len. (ft)         *   41.71  *   42.93  *   48.56  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)       *          *  591.48  *    3.66  *
* E.G. Slope (ft/ft)     *0.020927  * Area (sq ft)            *          *  591.48  *    3.66  *
* Q Total (cfs)          * 4409.00  * Flow (cfs)              *          * 4398.06  *   10.94  *
* Top Width (ft)         *  246.21  * Top Width (ft)           *          *  240.37  *    5.84  *
* Vel Total (ft/s)       *    7.41  * Avg. Vel. (ft/s)         *          *    7.44  *    2.99  *
* Max Chl Dpth (ft)      *    4.03  * Hydr. Depth (ft)         *          *    2.46  *    0.63  *
* Conv. Total (cfs)      * 30477.9  * Conv. (cfs)              *          * 30402.3  *    75.6  *
* Length Wtd. (ft)       *   42.95  * Wetted Per. (ft)         *          *  241.72  *    5.96  *
* Min Ch El (ft)         * 2229.77  * Shear (lb/sq ft)         *          *    3.20  *    0.80  *
* Alpha                  *    1.01  * Stream Power (lb/ft s)    *          *   23.77  *    2.40  *
* Frctn Loss (ft)        *    0.82  * Cum Volume (acre-ft)      *    0.00  *    3.11  *    0.02  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)            *    0.00  *    0.68  *    0.01  *
*****************************************************************************************

Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan     * 1.10      * 61.39     *  1330.86 *   167.27 *    60.40 *    30.19 *     2.81 *     7.96 *
* 2        * Chan     * 61.39     * 121.67    *   787.78 *   120.64 *    60.37 *    17.87 *     2.00 *     6.53 *
* 3        * Chan     * 121.67    * 181.96    *  1006.86 *   141.16 *    60.45 *    22.84 *     2.34 *     7.13 *
* 4        * Chan     * 181.96    * 242.24    *  1272.56 *   162.41 *    60.51 *    28.86 *     2.69 *     7.84 *
* 5        * ROB      * 242.24    * 258.07    *    10.94 *     3.66 *     5.96 *     0.25 *     0.63 *     2.99 *
*****************************************************************************************************************

Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 2
*****************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan     * 1.10      * 61.39     *  1330.86 *   167.27 *    60.40 *    30.19 *     2.81 *     7.96 *
* 2        * Chan     * 61.39     * 121.67    *   787.78 *   120.64 *    60.37 *    17.87 *     2.00 *     6.53 *
* 3        * Chan     * 121.67    * 181.96    *  1006.86 *   141.16 *    60.45 *    22.84 *     2.34 *     7.13 *
* 4        * Chan     * 181.96    * 242.24    *  1272.56 *   162.41 *    60.51 *    28.86 *     2.69 *     7.84 *
* 5        * ROB      * 242.24    * 258.07    *    10.94 *     3.66 *     5.96 *     0.25 *     0.63 *     2.99 *
*****************************************************************************************************************

Note:    Manning's n values were composited to a single value in the main channel.

LATERAL STRUCTURE


RIVER: Ocotillo Wash 4
REACH: OWMS1              RS: 0.04599

INPUT
Description: NATURALLY OCCURING
NON-STRUCTURAL
NON-CERTIFIABLE
LATERAL
            WEIR
Weir Coefficient (Cd) set at 2.63

Lateral structure position      = Left overbank
Distance from Upstream XS =      .01
Deck/Roadway Width        =        5
Weir Coefficient          =     2.63
Weir Flow Reference       = Water Surface
 Weir Embankment Coordinates    num =       21
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
       0 2234.09   3.054 2234.01   3.421 2234.01   3.639 2234.01   8.241 2233.93
   9.322 2233.91   9.441 2233.91  13.824 2233.72  13.874 2233.72  19.734 2233.48
  19.863 2233.48  20.002 2233.47  26.329 2233.27  26.408 2233.27  26.696 2233.26
  32.785 2233.03  33.102 2233.01  38.368  2232.6  38.447  2232.6  38.725  2232.6
    41.7 2232.41

Weir crest shape                          = Broad Crested


LATERAL STRUCTURE OUTPUT  Profile #PF 1  Lat Struct
*********************************************************************
* E.G. US. (ft)          * 2234.65  * Weir Sta US (ft)       *   24.45  *
* W.S. US. (ft)          * 2233.80  * Weir Sta DS (ft)       *   41.70  *
* E.G. DS (ft)           * 2233.83  * Weir Max Depth (ft)    *    0.59  *
```

```
* W.S. DS (ft)           * 2233.00  * Weir Avg Depth (ft)    *    0.23  *
* Q US (cfs)             * 4409.00  * Weir Submerg           *    0.00  *
* Q Leaving Total (cfs)  *    6.18   * Min El Weir Flow (ft)  * 2232.41  *
* Q DS (cfs)             * 4409.00  * Wr Top Wdth (ft)       *   17.25  *
* Perc Q Leaving         *    0.14   * Q Gate Group (cfs)     *          *
* Q Weir (cfs)           *    6.18   * Gate Open Ht (ft)      *          *
* Q Gates (cfs)          *           * Gate #Open             *          *
* Q Culv (cfs)           *           * Gate Area (sq ft)      *          *
* Q Lat RC (cfs)         *           * Gate Submerg           *          *
* Weir Flow Area (sq ft) *    3.93   * Gate Invert (ft)       *          *
*****************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.

LATERAL STRUCTURE OUTPUT  Profile #PF 2  Lat Struct
*****************************************************************************
* E.G. US. (ft)          * 2234.65  * Weir Sta US (ft)       *   24.45  *
* W.S. US. (ft)          * 2233.80  * Weir Sta DS (ft)       *   41.70  *
* E.G. DS (ft)           * 2233.83  * Weir Max Depth (ft)    *    0.59  *
* W.S. DS (ft)           * 2233.00  * Weir Avg Depth (ft)    *    0.23  *
* Q US (cfs)             * 4409.00  * Weir Submerg           *    0.00  *
* Q Leaving Total (cfs)  *    6.18   * Min El Weir Flow (ft)  * 2232.41  *
* Q DS (cfs)             * 4409.00  * Wr Top Wdth (ft)       *   17.25  *
* Perc Q Leaving         *    0.14   * Q Gate Group (cfs)     *          *
* Q Weir (cfs)           *    6.18   * Gate Open Ht (ft)      *          *
* Q Gates (cfs)          *           * Gate #Open             *          *
* Q Culv (cfs)           *           * Gate Area (sq ft)      *          *
* Q Lat RC (cfs)         *           * Gate Submerg           *          *
* Weir Flow Area (sq ft) *    3.93   * Gate Invert (ft)       *          *
*****************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.

CROSS SECTION


RIVER: Ocotillo Wash 4
REACH: OWMS1              RS: 0.03788

INPUT
Description: Blocked Obstruction at Parcel 216-15-011
Station Elevation Data    num=      67
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
       0 2232.41     .16 2232.41     .66 2232.28     3.3 2231.59     4.7 2231.36
    9.54 2230.19    9.56 2230.19   16.48 2229.83   20.46 2229.65   23.41 2229.66
   23.72 2229.66   29.97 2229.54   34.29 2229.38   34.43 2229.38   53.24 2229.52
   58.54 2229.99   62.77 2230.38   68.88 2230.28    71.6 2230.22   82.67 2230.71
   85.85 2230.86      87 2230.81   89.36 2230.66   94.64 2230.31  100.42 2230.04
  105.56 2230.32  114.54 2230.94  114.75 2230.95  114.85 2230.96  123.53 2231.06
  127.43 2231.05  133.89 2230.12  138.48 2229.44  138.49 2229.44  145.86 2230.03
  150.12 2230.47  156.11 2230.25  159.69 2230.04     168 2230.28  170.02 2230.33
   170.7 2230.24  176.67 2229.37  183.18 2229.49  183.79 2229.49  184.62 2229.46
  192.68 2229.24   200.2 2230.41  203.91 2231.17  205.38 2231.31  206.62 2231.42
  217.73 2232.28  217.97 2232.16  225.95 2232.09  238.54 2232.07  242.32 2232.09
  243.06 2232.08  244.16 2232.08  274.47 2239.82  276.06 2239.87  278.04 2239.98
  282.68 2240.23   288.7 2240.46  290.18 2240.55  294.37 2240.73  297.08 2240.86
  298.02 2240.89  300.49 2241.01

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*******************************************************************************
       0    .052    9.56    .053   53.24    .052  138.49    .053  205.38    .052

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           .16  217.73             53.8   89.56   70.85             .1       .3
Blocked Obstructions      num=       1
   Sta L   Sta R    Elev
************************
  223.69  284.75 2236.43

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)         * 2233.83  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.83  * Wt. n-Val.              *   0.052  *    0.053  *   0.052  *
* W.S. Elev (ft)         * 2233.00  * Reach Len. (ft)         *   53.80  *    89.56  *   70.85  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)       *    0.09  *   600.60  *    5.14  *
* E.G. Slope (ft/ft)     *0.017342  * Area (sq ft)            *    0.09  *   600.60  *    5.14  *
* Q Total (cfs)          * 4409.00  * Flow (cfs)              *    0.09  *  4393.01  *   15.91  *
* Top Width (ft)         *  223.69  * Top Width (ft)          *    0.16  *   217.57  *    5.96  *
* Vel Total (ft/s)       *    7.28  * Avg. Vel. (ft/s)        *    0.95  *     7.31  *    3.10  *
* Max Chl Dpth (ft)      *    3.76  * Hydr. Depth (ft)        *    0.59  *     2.76  *    0.86  *
* Conv. Total (cfs)      * 33479.9  * Conv. (cfs)             *     0.7  *  33358.5  *   120.8  *
* Length Wtd. (ft)       *   89.52  * Wetted Per. (ft)        *    0.75  *   218.42  *    6.88  *
* Min Ch El (ft)         * 2229.24  * Shear (lb/sq ft)        *    0.14  *     2.98  *    0.81  *
* Alpha                  *    1.01  * Stream Power (lb/ft s)   *    0.13  *    21.78  *    2.50  *
* Frctn Loss (ft)        *    2.01  * Cum Volume (acre-ft)     *    0.00  *     2.52  *    0.02  *
* C & E Loss (ft)        *    0.03  * Cum SA (acres)           *    0.00  *     0.45  *    0.00  *
*****************************************************************************************

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************
* E.G. Elev (ft)         * 2233.83  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.83  * Wt. n-Val.              *   0.052  *    0.053  *   0.052  *
* W.S. Elev (ft)         * 2233.00  * Reach Len. (ft)         *   53.80  *    89.56  *   70.85  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)       *    0.09  *   600.60  *    5.14  *
* E.G. Slope (ft/ft)     *0.017342  * Area (sq ft)            *    0.09  *   600.60  *    5.14  *
* Q Total (cfs)          * 4409.00  * Flow (cfs)              *    0.09  *  4393.01  *   15.91  *
* Top Width (ft)         *  223.69  * Top Width (ft)          *    0.16  *   217.57  *    5.96  *
```

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Vel Total (ft/s) | 7.28 | Avg. Vel. (ft/s) | 0.95 | 7.31 | 3.10 | | |
| Max Chl Dpth (ft) | 3.76 | Hydr. Depth (ft) | 0.59 | 2.76 | 0.86 | | |
| Conv. Total (cfs) | 33479.9 | Conv. (cfs) | 0.7 | 33358.5 | 120.8 | | |
| Length Wtd. (ft) | 89.52 | Wetted Per. (ft) | 0.75 | 218.42 | 6.88 | | |
| Min Ch El (ft) | 2229.24 | Shear (lb/sq ft) | 0.14 | 2.98 | 0.81 | | |
| Alpha | 1.01 | Stream Power (lb/ft s) | 0.13 | 21.78 | 2.50 | | |
| Frctn Loss (ft) | 2.01 | Cum Volume (acre-ft) | 0.00 | 2.52 | 0.02 | | |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.00 | 0.45 | 0.00 | | |

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 0.00 | 0.04 | 0.00 | 0.02 | 0.63 | 0.00 | 0.59 | 0.19 |
| 2 | LOB | 0.04 | 0.08 | 0.03 | 0.02 | 0.04 | 0.00 | 0.59 | 1.20 |
| 3 | LOB | 0.08 | 0.12 | 0.03 | 0.02 | 0.04 | 0.00 | 0.59 | 1.20 |
| 4 | LOB | 0.12 | 0.16 | 0.03 | 0.02 | 0.04 | 0.00 | 0.59 | 1.20 |
| 5 | Chan | 0.16 | 54.55 | 1330.64 | 168.99 | 54.68 | 30.18 | 3.11 | 7.87 |
| 6 | Chan | 54.55 | 108.95 | 1014.11 | 144.13 | 54.48 | 23.00 | 2.65 | 7.04 |
| 7 | Chan | 108.95 | 163.34 | 972.71 | 140.93 | 54.58 | 22.06 | 2.59 | 6.90 |
| 8 | Chan | 163.34 | 217.73 | 1075.54 | 146.55 | 54.68 | 24.39 | 2.69 | 7.34 |
| 9 | ROB | 217.73 | 238.42 | 15.91 | 5.14 | 6.88 | 0.36 | 0.86 | 3.10 |

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 0.00 | 0.04 | 0.00 | 0.02 | 0.63 | 0.00 | 0.59 | 0.19 |
| 2 | LOB | 0.04 | 0.08 | 0.03 | 0.02 | 0.04 | 0.00 | 0.59 | 1.20 |
| 3 | LOB | 0.08 | 0.12 | 0.03 | 0.02 | 0.04 | 0.00 | 0.59 | 1.20 |
| 4 | LOB | 0.12 | 0.16 | 0.03 | 0.02 | 0.04 | 0.00 | 0.59 | 1.20 |
| 5 | Chan | 0.16 | 54.55 | 1330.64 | 168.99 | 54.68 | 30.18 | 3.11 | 7.87 |
| 6 | Chan | 54.55 | 108.95 | 1014.11 | 144.13 | 54.48 | 23.00 | 2.65 | 7.04 |
| 7 | Chan | 108.95 | 163.34 | 972.71 | 140.93 | 54.58 | 22.06 | 2.59 | 6.90 |
| 8 | Chan | 163.34 | 217.73 | 1075.54 | 146.55 | 54.68 | 24.39 | 2.69 | 7.34 |
| 9 | ROB | 217.73 | 238.42 | 15.91 | 5.14 | 6.88 | 0.36 | 0.86 | 3.10 |

Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

LATERAL STRUCTURE

RIVER: Ocotillo Wash 4
REACH: OWMS1 RS: 0.03786

INPUT
Description: NATURALLY OCCURING
NON-STRUCTURAL
NON-CERTIFIABLE
LATERAL
WEIR
Weir Coefficient (Cd) set at 2.63
Lateral structure position = Left overbank
Distance from Upstream XS = .01
Deck/Roadway Width = 5
Weir Coefficient = 2.63
Weir Flow Reference = Water Surface
Weir Embankment Coordinates num = 23

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2232.41 | 2.921 | 2232.2 | 3.457 | 2232.2 | 3.598 | 2232.19 | 5.721 | 2232.11 |
| 8.702 | 2231.98 | 10.976 | 2231.89 | 11.28 | 2231.88 | 17.455 | 2231.6 | 18.162 | 2231.56 |
| 23.58 | 2231.29 | 23.903 | 2231.26 | 24.297 | 2231.23 | 27.461 | 2231.12 | 31.858 | 2231.01 |
| 32.656 | 2230.97 | 37.962 | 2230.87 | 38.761 | 2230.85 | 42.349 | 2230.73 | 44.32 | 2230.65 |
| 45.735 | 2230.54 | 49.99 | 2230.26 | 53.79 | 2230.02 | | | | |

Weir crest shape = Broad Crested

LATERAL STRUCTURE OUTPUT Profile #PF 1 Lat Struct

| | | | |
|---|---|---|---|
| E.G. US. (ft) | 2233.83 | Weir Sta US (ft) | 0.00 |
| W.S. US. (ft) | 2233.00 | Weir Sta DS (ft) | 53.79 |
| E.G. DS (ft) | 2231.78 | Weir Max Depth (ft) | 1.10 |
| W.S. DS (ft) | 2230.63 | Weir Avg Depth (ft) | 0.63 |
| Q US (cfs) | 4409.00 | Weir Submerg | 0.25 |
| Q Leaving Total (cfs) | 33.14 | Min El Weir Flow (ft) | 2230.02 |
| Q DS (cfs) | 4409.00 | Wr Top Wdth (ft) | 53.79 |
| Perc Q Leaving | 0.75 | Q Gate Group (cfs) | |
| Q Weir (cfs) | 33.14 | Gate Open Ht (ft) | |
| Q Gates (cfs) | | Gate #Open | |
| Q Culv (cfs) | | Gate Area (sq ft) | |
| Q Lat RC (cfs) | | Gate Submerg | |
| Weir Flow Area (sq ft) | 33.87 | Gate Invert (ft) | |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

LATERAL STRUCTURE OUTPUT Profile #PF 2 Lat Struct

```
*************************************************************************
* E.G. US. (ft)          * 2233.83  * Weir Sta US (ft)        *   0.00  *
* W.S. US. (ft)          * 2233.00  * Weir Sta DS (ft)        *  53.79  *
* E.G. DS (ft)           * 2231.78  * Weir Max Depth (ft)     *   1.10  *
* W.S. DS (ft)           * 2230.63  * Weir Avg Depth (ft)     *   0.63  *
* Q US (cfs)             * 4409.00  * Weir Submerg            *   0.25  *
* Q Leaving Total (cfs)  *   33.14  * Min El Weir Flow (ft)   * 2230.02  *
* Q DS (cfs)             * 4409.00  * Wr Top Wdth (ft)        *  53.79  *
* Perc Q Leaving         *    0.75  * Q Gate Group (cfs)      *         *
* Q Weir (cfs)           *   33.14  * Gate Open Ht (ft)       *         *
* Q Gates (cfs)          *          * Gate #Open              *         *
* Q Culv (cfs)           *          * Gate Area (sq ft)       *         *
* Q Lat RC (cfs)         *          * Gate Submerg            *         *
* Weir Flow Area (sq ft) *   33.87  * Gate Invert (ft)        *         *
*************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.

CROSS SECTION


RIVER: Ocotillo Wash 4
REACH: OWMS1              RS: 0.02091

INPUT
Description: Blocked Obstruction at Parcel 216-15-011
Station Elevation Data    num=      72
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*************************************************************************
       0 2230.02     .45 2230.02     .62 2229.96     .74 2229.92    6.69 2228.07
   10.47 2227.89   11.68 2227.84   13.03 2227.79   20.19 2227.45   26.97 2227.17
   44.26  2228.4   51.73 2228.45   52.86 2228.49   58.26 2228.61   58.94 2228.57
   66.44 2228.25   73.54 2227.89   75.83 2227.83   76.29 2227.86   76.98 2227.91
   77.28 2227.92   82.04 2228.18   86.45 2228.36   88.95 2228.34   90.44 2228.21
   91.84 2228.17   92.56 2228.36   93.93 2228.13   99.92 2227.33   107.7 2227.91
  113.65 2228.33  115.84  2228.3  120.16 2228.29  126.79 2228.04  129.63 2228.26
  139.41 2228.97  146.02 2229.42  150.14 2229.05  154.51 2228.69  162.14 2228.97
  162.38 2228.98  165.48 2229.14     169 2229.19   173.2 2229.12  183.72 2228.98
  186.41 2228.96   196.2 2228.99   200.4 2228.47  207.07 2227.59  211.09 2227.43
  215.93 2227.26  222.38 2229.48   224.4 2230.29  226.33 2231.06  235.96 2230.95
  243.92 2230.75  252.51 2230.48  255.36  2230.4  258.75 2230.27  273.85 2230.47
  278.83 2230.63  280.21 2230.66  285.46  2231.4  306.17 2235.45  313.47 2236.96
  315.99 2237.25  322.64 2238.15  324.27 2238.36  324.62  2238.4  334.11 2238.59
   339.1  2238.7  344.97  2238.8

Manning's n Values        num=      4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************************
       0    .052    6.69    .053  162.14    .048   224.4    .049

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          .45  226.33                 0       0       0             .1       .3
Blocked Obstructions      num=      1
   Sta L   Sta R    Elev
************************
  236.89  344.97 2235.59

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)         * 2231.78  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.16  * Wt. n-Val.              *   0.052  *   0.052  *         *
* W.S. Elev (ft)         * 2230.63  * Reach Len. (ft)         *  110.43  *  110.43  *  110.43  *
* Crit W.S. (ft)         * 2230.63  * Flow Area (sq ft)       *    0.27  *  510.66  *         *
* E.G. Slope (ft/ft)     *0.030316  * Area (sq ft)            *    0.27  *  510.66  *         *
* Q Total (cfs)          * 4409.00  * Flow (cfs)              *    0.55  * 4408.45  *         *
* Top Width (ft)         *  225.24  * Top Width (ft)          *    0.45  *  224.79  *         *
* Vel Total (ft/s)       *    8.63  * Avg. Vel. (ft/s)        *    2.02  *    8.63  *         *
* Max Chl Dpth (ft)      *    3.45  * Hydr. Depth (ft)        *    0.60  *    2.27  *         *
* Conv. Total (cfs)      * 25322.2  * Conv. (cfs)             *     3.2  * 25319.0  *         *
* Length Wtd. (ft)       *  110.43  * Wetted Per. (ft)        *    1.05  *  226.11  *         *
* Min Ch El (ft)         * 2227.17  * Shear (lb/sq ft)        *    0.49  *    4.27  *         *
* Alpha                  *    1.00  * Stream Power (lb/ft s)   *    0.98  *   36.90  *         *
* Frctn Loss (ft)        *    2.97  * Cum Volume (acre-ft)     *    0.00  *    1.38  *    0.01 *
* C & E Loss (ft)        *    0.03  * Cum SA (acres)           *          *          *         *
*****************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************
* E.G. Elev (ft)         * 2231.78  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.16  * Wt. n-Val.              *   0.052  *   0.052  *         *
* W.S. Elev (ft)         * 2230.63  * Reach Len. (ft)         *  110.43  *  110.43  *  110.43  *
* Crit W.S. (ft)         * 2230.63  * Flow Area (sq ft)       *    0.27  *  510.66  *         *
* E.G. Slope (ft/ft)     *0.030316  * Area (sq ft)            *    0.27  *  510.66  *         *
* Q Total (cfs)          * 4409.00  * Flow (cfs)              *    0.55  * 4408.45  *         *
* Top Width (ft)         *  225.24  * Top Width (ft)          *    0.45  *  224.79  *         *
* Vel Total (ft/s)       *    8.63  * Avg. Vel. (ft/s)        *    2.02  *    8.63  *         *
* Max Chl Dpth (ft)      *    3.45  * Hydr. Depth (ft)        *    0.60  *    2.27  *         *
* Conv. Total (cfs)      * 25322.2  * Conv. (cfs)             *     3.2  * 25319.0  *         *
* Length Wtd. (ft)       *  110.43  * Wetted Per. (ft)        *    1.05  *  226.11  *         *
* Min Ch El (ft)         * 2227.17  * Shear (lb/sq ft)        *    0.49  *    4.27  *         *
* Alpha                  *    1.00  * Stream Power (lb/ft s)   *    0.98  *   36.90  *         *
* Frctn Loss (ft)        *    2.97  * Cum Volume (acre-ft)     *    0.00  *    1.38  *    0.01 *
* C & E Loss (ft)        *    0.03  * Cum SA (acres)           *          *          *         *
*****************************************************************************************
```

```
Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.
```

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 0.00 | 0.11 | 0.05 | 0.07 | 0.72 | 0.00 | 0.60 | 0.71 |
| 2 | LOB | 0.11 | 0.23 | 0.17 | 0.07 | 0.11 | 0.00 | 0.60 | 2.45 |
| 3 | LOB | 0.23 | 0.34 | 0.17 | 0.07 | 0.11 | 0.00 | 0.60 | 2.45 |
| 4 | LOB | 0.34 | 0.45 | 0.17 | 0.07 | 0.11 | 0.00 | 0.60 | 2.45 |
| 5 | Chan | 0.45 | 56.92 | 1360.24 | 147.46 | 56.83 | 30.85 | 2.61 | 9.22 |
| 6 | Chan | 56.92 | 113.39 | 1298.03 | 144.38 | 56.64 | 29.44 | 2.56 | 8.99 |
| 7 | Chan | 113.39 | 169.86 | 797.54 | 106.88 | 56.57 | 18.09 | 1.89 | 7.46 |
| 8 | Chan | 169.86 | 226.33 | 952.64 | 111.94 | 56.07 | 21.61 | 2.02 | 8.51 |

```
Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.
```

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 0.00 | 0.11 | 0.05 | 0.07 | 0.72 | 0.00 | 0.60 | 0.71 |
| 2 | LOB | 0.11 | 0.23 | 0.17 | 0.07 | 0.11 | 0.00 | 0.60 | 2.45 |
| 3 | LOB | 0.23 | 0.34 | 0.17 | 0.07 | 0.11 | 0.00 | 0.60 | 2.45 |
| 4 | LOB | 0.34 | 0.45 | 0.17 | 0.07 | 0.11 | 0.00 | 0.60 | 2.45 |
| 5 | Chan | 0.45 | 56.92 | 1360.24 | 147.46 | 56.83 | 30.85 | 2.61 | 9.22 |
| 6 | Chan | 56.92 | 113.39 | 1298.03 | 144.38 | 56.64 | 29.44 | 2.56 | 8.99 |
| 7 | Chan | 113.39 | 169.86 | 797.54 | 106.88 | 56.57 | 18.09 | 1.89 | 7.46 |
| 8 | Chan | 169.86 | 226.33 | 952.64 | 111.94 | 56.07 | 21.61 | 2.02 | 8.51 |

```
Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The cross-section end points had to be extended vertically for the computed water surface.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: Ocotillo Wash 5
REACH: OWMS2              RS: 1.89254

INPUT
Description: Blocked Obstruction at Parcel 216-15-011
Station Elevation Data    num=     186
```

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2239.4 | 1.23 | 2239.43 | 2.34 | 2239.53 | 6.91 | 2239.62 | 10.83 | 2239.52 |
| 13.48 | 2239.62 | 16.94 | 2239.56 | 20.68 | 2239.47 | 28.47 | 2240.06 | 30.56 | 2240.06 |
| 32.76 | 2239.93 | 34.34 | 2239.62 | 35.74 | 2239.62 | 39.28 | 2239.31 | 40.86 | 2239.32 |
| 45.15 | 2239.33 | 46.18 | 2239.36 | 46.95 | 2239.37 | 51.67 | 2239.14 | 52.3 | 2239.12 |
| 57.06 | 2238.82 | 57.78 | 2238.78 | 62.24 | 2238.62 | 62.87 | 2238.64 | 67.55 | 2238.43 |
| 68.04 | 2238.41 | 71.68 | 2238.16 | 72.82 | 2238.08 | 73.23 | 2238.07 | 78.44 | 2237.72 |
| 78.75 | 2237.72 | 83.5 | 2237.49 | 85.51 | 2237.35 | 90.61 | 2237.01 | 91.04 | 2236.95 |
| 96.04 | 2236.58 | 96.36 | 2236.54 | 101.43 | 2236.22 | 101.99 | 2236.13 | 107.03 | 2235.69 |
| 107.59 | 2235.62 | 111.91 | 2235.23 | 112.12 | 2235.17 | 112.35 | 2235.09 | 116.87 | 2233.88 |
| 118.95 | 2233.17 | 120.61 | 2232.32 | 128.08 | 2228.68 | 128.59 | 2228.37 | 130.75 | 2227.05 |
| 131.55 | 2226.62 | 134.13 | 2225.62 | 140.14 | 2225.63 | 143.55 | 2225.69 | 145.54 | 2225.71 |
| 147.73 | 2225.76 | 149.77 | 2225.69 | 152.15 | 2225.63 | 155.07 | 2225.49 | 156.92 | 2225.42 |
| 158.61 | 2225.29 | 161.51 | 2225.12 | 164.66 | 2225.01 | 166.53 | 2224.88 | 169.37 | 2224.84 |
| 170.95 | 2224.72 | 175.34 | 2224.56 | 176.44 | 2224.51 | 176.55 | 2224.5 | 181.57 | 2224.17 |
| 182.49 | 2224.16 | 187.23 | 2224.37 | 189.12 | 2224.36 | 192.38 | 2224.33 | 196.84 | 2224.49 |
| 201.81 | 2224.64 | 205.48 | 2224.42 | 208.07 | 2224.37 | 211.11 | 2224.19 | 214.67 | 2224.17 |
| 219.19 | 2224.7 | 222.24 | 2224.92 | 224.46 | 2225.11 | 226.54 | 2225.19 | 227.77 | 2225.35 |
| 231.19 | 2225.37 | 233.07 | 2225.54 | 236.17 | 2225.77 | 237.22 | 2225.85 | 238.78 | 2225.76 |
| 242.7 | 2225.91 | 247.86 | 2226.17 | 247.98 | 2226.18 | 249.91 | 2226.21 | 253.08 | 2226.18 |
| 253.14 | 2226.18 | 258.15 | 2226.02 | 263.25 | 2226.08 | 263.4 | 2226.08 | 268.37 | 2226.13 |
| 268.48 | 2226.12 | 269.99 | 2226.11 | 272.96 | 2225.94 | 273.3 | 2225.94 | 278.37 | 2226.02 |
| 279.24 | 2226.02 | 284.12 | 2226.25 | 285.29 | 2226.22 | 288.66 | 2225.98 | 291.19 | 2226.02 |
| 292.76 | 2226.02 | 296.51 | 2225.97 | 298.24 | 2225.98 | 301.6 | 2225.58 | 303.79 | 2225.57 |
| 307.3 | 2225.42 | 309.21 | 2225.41 | 311.92 | 2225.36 | 314.23 | 2225.28 | 317.42 | 2225.16 |
| 320.83 | 2225.1 | 322.91 | 2225.09 | 326.43 | 2225.11 | 328.18 | 2225.11 | 331.4 | 2225.01 |
| 333.14 | 2224.97 | 336.45 | 2224.84 | 338.47 | 2224.86 | 340.3 | 2224.73 | 342.33 | 2224.75 |
| 343.89 | 2224.53 | 344.6 | 2224.48 | 346.88 | 2224.47 | 357.63 | 2223.45 | 358.53 | 2223.43 |
| 361.6 | 2223.4 | 370.42 | 2223.4 | 375.87 | 2223.21 | 381.8 | 2223.03 | 382.42 | 2223 |
| 382.96 | 2222.99 | 383.26 | 2222.97 | 391.49 | 2224.75 | 393.05 | 2224.99 | 396.85 | 2225.43 |
| 398.04 | 2225.57 | 400.02 | 2226 | 400.78 | 2226.11 | 401.89 | 2226.4 | 406.74 | 2226.45 |
| 409.96 | 2226.44 | 416.17 | 2226.47 | 419.48 | 2226.48 | 426.46 | 2226.35 | 427.42 | 2226.36 |
| 442.49 | 2226.35 | 445.72 | 2226.3 | 453.79 | 2226.34 | 458.98 | 2227.37 | 477.03 | 2227.7 |
| 477.16 | 2227.64 | 480.35 | 2226.1 | 505.16 | 2225.6 | 505.92 | 2225.65 | 509.72 | 2225.97 |
| 515.24 | 2225.71 | 516.47 | 2225.67 | 523.76 | 2225.72 | 535.52 | 2225.84 | 542.22 | 2226.91 |
| 542.35 | 2226.93 | 551.87 | 2228.51 | 553.04 | 2228.74 | 554.74 | 2229.07 | 556.58 | 2229.42 |
| 556.67 | 2232.99 | 556.69 | 2233.86 | 560.5 | 2233.84 | 562.3 | 2233.82 | 570.04 | 2233.76 |
| 575.22 | 2233.91 | 576.49 | 2233.95 | 579.61 | 2233.89 | 585.25 | 2234.28 | 611.89 | 2235 |

```
  615.28 2235.01

Manning's n Values        num=       6
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
**********************************************************************************
       0    .058  128.59    .053  134.13    .048  214.67    .049   361.6    .048
  383.26    .049

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        134.13  401.89              6.6    6.24  119.54            .1        .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
************************
  415.91  615.28 2231.39

CROSS SECTION OUTPUT  Profile #PF 1
**************************************************************************************************
* E.G. Elev (ft)         * 2228.22  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.05  * Wt. n-Val.              *   0.053  *   0.048  *   0.049  *
* W.S. Elev (ft)         * 2227.17  * Reach Len. (ft)         *    6.60  *    6.24  *  119.54  *
* Crit W.S. (ft)         * 2227.17  * Flow Area (sq ft)       *    2.97  *  577.27  *   10.15  *
* E.G. Slope (ft/ft)     *0.024318  * Area (sq ft)            *    2.97  *  577.27  *   10.15  *
* Q Total (cfs)          * 4820.00  * Flow (cfs)              *   10.85  * 4771.70  *   37.45  *
* Top Width (ft)         *  285.35  * Top Width (ft)           *    3.57  *  267.76  *   14.02  *
* Vel Total (ft/s)       *    8.16  * Avg. Vel. (ft/s)         *    3.65  *    8.27  *    3.69  *
* Max Chl Dpth (ft)      *    4.20  * Hydr. Depth (ft)         *    0.83  *    2.16  *    0.72  *
* Conv. Total (cfs)      * 30909.0  * Conv. (cfs)              *    69.6  * 30599.2  *   240.2  *
* Length Wtd. (ft)       *    6.76  * Wetted Per. (ft)         *    3.90  *  268.39  *   14.72  *
* Min Ch El (ft)         * 2222.97  * Shear (lb/sq ft)         *    1.16  *    3.27  *    1.05  *
* Alpha                  *    1.02  * Stream Power (lb/ft s)    *    4.23  *   26.99  *    3.86  *
* Frctn Loss (ft)        *    0.10  * Cum Volume (acre-ft)     *    0.38  *  151.90  *    0.57  *
* C & E Loss (ft)        *    0.20  * Cum SA (acres)           *    0.74  *   57.48  *    0.93  *
**************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.

CROSS SECTION OUTPUT  Profile #PF 2
**************************************************************************************************
* E.G. Elev (ft)         * 2228.22  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.05  * Wt. n-Val.              *   0.053  *   0.048  *   0.049  *
* W.S. Elev (ft)         * 2227.17  * Reach Len. (ft)         *    6.60  *    6.24  *  119.54  *
* Crit W.S. (ft)         * 2227.17  * Flow Area (sq ft)       *    2.97  *  577.27  *   10.15  *
* E.G. Slope (ft/ft)     *0.024318  * Area (sq ft)            *    2.97  *  577.27  *   10.15  *
* Q Total (cfs)          * 4820.00  * Flow (cfs)              *   10.85  * 4771.70  *   37.45  *
* Top Width (ft)         *  285.35  * Top Width (ft)           *    3.57  *  267.76  *   14.02  *
* Vel Total (ft/s)       *    8.16  * Avg. Vel. (ft/s)         *    3.65  *    8.27  *    3.69  *
* Max Chl Dpth (ft)      *    4.20  * Hydr. Depth (ft)         *    0.83  *    2.16  *    0.72  *
* Conv. Total (cfs)      * 30909.0  * Conv. (cfs)              *    69.6  * 30599.2  *   240.2  *
* Length Wtd. (ft)       *    6.76  * Wetted Per. (ft)         *    3.90  *  268.39  *   14.72  *
* Min Ch El (ft)         * 2222.97  * Shear (lb/sq ft)         *    1.16  *    3.27  *    1.05  *
* Alpha                  *    1.02  * Stream Power (lb/ft s)    *    4.23  *   26.99  *    3.86  *
* Frctn Loss (ft)        *    0.10  * Cum Volume (acre-ft)     *    0.38  *  151.90  *    0.57  *
* C & E Loss (ft)        *    0.20  * Cum SA (acres)           *    0.74  *   57.48  *    0.93  *
**************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.

  Profile #PF 1
**************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) *  (sq ft) *    (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB       * 100.60    * 134.13    *    10.85 *     2.97 *    3.90 *     0.23 *     0.83 *     3.65 *
* 2        * Chan      * 134.13    * 201.07    *  1180.32 *   147.48 *   66.99 *    24.49 *     2.20 *     8.00 *
* 3        * Chan      * 201.07    * 268.01    *   850.41 *   118.83 *   67.05 *    17.64 *     1.78 *     7.16 *
* 4        * Chan      * 268.01    * 334.95    *   637.33 *   103.17 *   67.00 *    13.22 *     1.54 *     6.18 *
* 5        * Chan      * 334.95    * 401.89    *  2103.64 *   207.80 *   67.35 *    43.64 *     3.10 *    10.12 *
* 6        * ROB       * 401.89    * 455.24    *    37.45 *    10.15 *   14.72 *     0.78 *     0.72 *     3.69 *
**************************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.

  Profile #PF 2
**************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) *  (sq ft) *    (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB       * 100.60    * 134.13    *    10.85 *     2.97 *    3.90 *     0.23 *     0.83 *     3.65 *
```

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| * 2 | * Chan | * 134.13 | * 201.07 | * 1180.32 * | 147.48 * | 66.99 * | 24.49 * | 2.20 * | 8.00 * |
| * 3 | * Chan | * 201.07 | * 268.01 | * 850.41 * | 118.83 * | 67.05 * | 17.64 * | 1.78 * | 7.16 * |
| * 4 | * Chan | * 268.01 | * 334.95 | * 637.33 * | 103.17 * | 67.00 * | 13.22 * | 1.54 * | 6.18 * |
| * 5 | * Chan | * 334.95 | * 401.89 | * 2103.64 * | 207.80 * | 67.35 * | 43.64 * | 3.10 * | 10.12 * |
| * 6 | * ROB | * 401.89 | * 455.24 | * 37.45 * | 10.15 * | 14.72 * | 0.78 * | 0.72 * | 3.69 * |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: Ocotillo Wash 5
REACH: OWMS2 RS: 1.89136

INPUT
Description: Blocked Obstruction at Parcel 216-15-011
Station Elevation Data num= 238

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2240.01 | 1.2 | 2239.98 | 5.4 | 2239.91 | 8.49 | 2240.06 | 14.02 | 2239.65 |
| 18.01 | 2239.71 | 22.77 | 2239.72 | 27.57 | 2239.7 | 32.44 | 2239.36 | 37.84 | 2238.96 |
| 42.62 | 2238.4 | 47.1 | 2238.34 | 51.4 | 2238.01 | 55.33 | 2237.64 | 58.87 | 2237.46 |
| 62.35 | 2237.24 | 69.74 | 2236.62 | 71.61 | 2236.47 | 72.75 | 2236.37 | 75.34 | 2236.15 |
| 79.25 | 2235.92 | 82.83 | 2235.78 | 86.73 | 2235.5 | 90.72 | 2235.17 | 94.66 | 2234.81 |
| 98.56 | 2234.53 | 102.4 | 2234.07 | 110.86 | 2233.37 | 114.53 | 2232.8 | 117.93 | 2231.88 |
| 122.43 | 2230.74 | 123.44 | 2230.35 | 126.05 | 2229.33 | 128.31 | 2228.83 | 129.07 | 2228.76 |
| 130.04 | 2228.54 | 134.5 | 2226.72 | 138.12 | 2225.5 | 138.14 | 2225.5 | 139.72 | 2225.51 |
| 140.47 | 2225.53 | 143.72 | 2225.59 | 145.91 | 2225.57 | 147.48 | 2225.61 | 148.88 | 2225.64 |
| 152.43 | 2225.62 | 152.71 | 2225.62 | 154.1 | 2225.54 | 155.47 | 2225.44 | 160.48 | 2225.14 |
| 161.45 | 2225.11 | 165.1 | 2224.85 | 166.19 | 2224.84 | 169.66 | 2224.57 | 171.4 | 2224.51 |
| 174.85 | 2224.34 | 175.23 | 2224.29 | 177.15 | 2224.17 | 180.52 | 2224.13 | 184.82 | 2223.94 |
| 187.03 | 2223.93 | 188.95 | 2223.86 | 201.06 | 2224.34 | 205.83 | 2224.04 | 205.88 | 2224.04 |
| 210.23 | 2223.93 | 212.75 | 2223.85 | 217.96 | 2223.81 | 218.79 | 2223.88 | 222.35 | 2224.02 |
| 222.6 | 2224.06 | 229.08 | 2224.1 | 229.73 | 2224.16 | 230.81 | 2224.25 | 234.12 | 2224.5 |
| 239.05 | 2224.21 | 240.24 | 2224.26 | 243.85 | 2224.42 | 245.61 | 2224.52 | 248.64 | 2224.71 |
| 250.95 | 2224.75 | 253.95 | 2224.79 | 256.53 | 2224.73 | 259.02 | 2224.76 | 261.83 | 2224.8 |
| 264.16 | 2224.82 | 266.93 | 2224.82 | 269.42 | 2224.8 | 271.9 | 2224.66 | 274.83 | 2224.68 |
| 277.54 | 2224.73 | 280.86 | 2224.72 | 283.46 | 2224.84 | 286.31 | 2224.78 | 288.06 | 2224.66 |
| 289.38 | 2224.68 | 292.47 | 2224.68 | 294.43 | 2224.66 | 297.8 | 2224.69 | 299.59 | 2224.48 |
| 303.77 | 2224.47 | 305.62 | 2224.39 | 309.13 | 2224.36 | 310.54 | 2224.34 | 316.37 | 2224.13 |
| 318.13 | 2224.1 | 322.13 | 2224.1 | 323.83 | 2224.11 | 327.33 | 2224.1 | 328.77 | 2224.06 |
| 332.42 | 2224 | 333.82 | 2223.94 | 338.12 | 2223.99 | 338.85 | 2223.94 | 343.13 | 2223.99 |
| 343.75 | 2223.9 | 344.04 | 2223.88 | 348.21 | 2223.87 | 352.87 | 2223.43 | 355.13 | 2223.39 |
| 356.7 | 2223.37 | 360.91 | 2223.39 | 362.15 | 2223.4 | 362.18 | 2223.4 | 367.01 | 2223.4 |
| 370.39 | 2223.36 | 372.13 | 2223.29 | 379.84 | 2223.09 | 384.01 | 2222.9 | 384.02 | 2222.91 |
| 387.08 | 2223.57 | 387.66 | 2223.66 | 395.07 | 2224.53 | 396.1 | 2224.64 | 398.22 | 2224.49 |
| 399.49 | 2224.63 | 402.51 | 2224.51 | 402.75 | 2224.5 | 404.56 | 2224.65 | 409.42 | 2224.36 |
| 411.1 | 2224.43 | 414.68 | 2224.37 | 416.2 | 2224.26 | 419.01 | 2224.22 | 420.68 | 2224.17 |
| 424.52 | 2224.18 | 426 | 2224.13 | 430.57 | 2224.06 | 432.25 | 2224.05 | 435.98 | 2224.04 |
| 437.43 | 2224.02 | 441.63 | 2223.98 | 442.95 | 2223.95 | 447.28 | 2223.91 | 448.68 | 2223.89 |
| 453.26 | 2223.88 | 454.67 | 2223.85 | 459.68 | 2223.93 | 461.15 | 2223.9 | 466.27 | 2223.84 |
| 467.53 | 2223.85 | 468.72 | 2223.8 | 472.57 | 2223.88 | 477.14 | 2223.87 | 478.19 | 2223.87 |
| 483.64 | 2223.64 | 483.86 | 2223.64 | 484.91 | 2223.58 | 489.09 | 2223.57 | 489.58 | 2223.57 |
| 494.65 | 2223.71 | 495.69 | 2223.71 | 500.13 | 2223.69 | 501.84 | 2223.65 | 505.06 | 2223.53 |
| 506.91 | 2223.48 | 509.06 | 2223.47 | 511.78 | 2223.42 | 514.88 | 2223.45 | 516.57 | 2223.45 |
| 519.83 | 2223.52 | 521.56 | 2223.52 | 525.33 | 2223.6 | 526.14 | 2223.6 | 526.94 | 2223.61 |
| 528.55 | 2223.64 | 532.3 | 2223.78 | 533.75 | 2223.81 | 537.92 | 2223.99 | 543.15 | 2223.99 |
| 544.59 | 2223.97 | 548.43 | 2223.93 | 550.87 | 2223.94 | 552.88 | 2223.91 | 555.71 | 2223.8 |
| 559.16 | 2223.74 | 563.84 | 2223.55 | 565.8 | 2223.5 | 572.16 | 2223.08 | 572.49 | 2223.08 |
| 574.12 | 2223.07 | 576.23 | 2223.27 | 577.12 | 2223.31 | 577.94 | 2223.33 | 589.26 | 2224.04 |
| 595.49 | 2224.07 | 601.32 | 2224.35 | 603.45 | 2224.46 | 612.51 | 2227.78 | 616.98 | 2229.6 |
| 621.12 | 2229.89 | 627.31 | 2230.26 | 642.36 | 2231.12 | 644.56 | 2231.23 | 646.85 | 2231.26 |
| 651.45 | 2231.4 | 655.67 | 2231.47 | 656.93 | 2231.54 | 661.03 | 2231.71 | 663.42 | 2231.84 |
| 665.13 | 2231.8 | 665.68 | 2231.79 | 665.78 | 2231.79 | 667.95 | 2231.92 | 668.43 | 2231.91 |
| 670.34 | 2231.9 | 671.08 | 2231.88 | 684.49 | 2231.32 | 684.81 | 2231.31 | 686 | 2231.28 |
| 695.24 | 2231.48 | 696.04 | 2231.47 | 696.98 | 2231.44 | 698.8 | 2231.58 | 699.84 | 2231.6 |
| 703.64 | 2231.65 | 706.91 | 2231.64 | 706.96 | 2231.64 | | | | |

Manning's n Values num= 6

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|---|---|
| 0 | .058 | 123.44 | .053 | 138.14 | .048 | 217.96 | .049 | 362.18 | .048 |
| 384.02 | .049 | | | | | | | | |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 138.12 | 577.94 | 6.42 | 8.14 | 87.94 | .1 | .3 |

Blocked Obstructions num= 1

| Sta L | Sta R | Elev |
|---|---|---|
| 578.94 | 706.96 | 2228.42 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | | |
|---|---|---|---|---|---|---|
| * E.G. Elev (ft) | * 2226.67 | * Element | * Left OB | * Channel | * Right OB | * |
| * Vel Head (ft) | * 0.39 | * Wt. n-Val. | * 0.053 | * 0.049 | * 0.049 | * |
| * W.S. Elev (ft) | * 2226.28 | * Reach Len. (ft) | * 6.42 | * 8.14 | * 87.94 | * |
| * Crit W.S. (ft) | * | * Flow Area (sq ft) | * 0.90 | * 957.82 | * 2.92 | * |
| * E.G. Slope (ft/ft) | *0.009388 | * Area (sq ft) | * 0.90 | * 957.82 | * 2.92 | * |
| * Q Total (cfs) | * 4820.00 | * Flow (cfs) | * 1.26 | * 4811.67 | * 7.08 | * |
| * Top Width (ft) | * 443.13 | * Top Width (ft) | * 2.31 | * 439.82 | * 1.00 | * |
| * Vel Total (ft/s) | * 5.01 | * Avg. Vel. (ft/s) | * 1.40 | * 5.02 | * 2.43 | * |
| * Max Chl Dpth (ft) | * 3.38 | * Hydr. Depth (ft) | * 0.39 | * 2.18 | * 2.92 | * |
| * Conv. Total (cfs) | * 49745.3 | * Conv. (cfs) | * 13.0 | * 49659.3 | * 73.0 | * |
| * Length Wtd. (ft) | * 8.20 | * Wetted Per. (ft) | * 2.44 | * 440.25 | * 3.89 | * |
| * Min Ch El (ft) | * 2222.90 | * Shear (lb/sq ft) | * 0.22 | * 1.28 | * 0.44 | * |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| * Alpha | * | 1.00 | * Stream Power (lb/ft s) | * | 0.30 | * | 6.41 | * | 1.07 * |
| * Frctn Loss (ft) | * | 0.06 | * Cum Volume (acre-ft) | * | 0.38 | * | 151.79 | * | 0.55 * |
| * C & E Loss (ft) | * | 0.04 | * Cum SA (acres) | * | 0.74 | * | 57.43 | * | 0.91 * |

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| * E.G. Elev (ft) | * | 2226.67 | * Element | * | Left OB | * | Channel | * | Right OB * |
| * Vel Head (ft) | * | 0.39 | * Wt. n-Val. | * | 0.053 | * | 0.049 | * | 0.049 * |
| * W.S. Elev (ft) | * | 2226.28 | * Reach Len. (ft) | * | 6.42 | * | 8.14 | * | 87.94 * |
| * Crit W.S. (ft) | * | | * Flow Area (sq ft) | * | 0.90 | * | 957.82 | * | 2.92 * |
| * E.G. Slope (ft/ft) | * | 0.009388 | * Area (sq ft) | * | 0.90 | * | 957.82 | * | 2.92 * |
| * Q Total (cfs) | * | 4820.00 | * Flow (cfs) | * | 1.26 | * | 4811.67 | * | 7.08 * |
| * Top Width (ft) | * | 443.13 | * Top Width (ft) | * | 2.31 | * | 439.82 | * | 1.00 * |
| * Vel Total (ft/s) | * | 5.01 | * Avg. Vel. (ft/s) | * | 1.40 | * | 5.02 | * | 2.43 * |
| * Max Chl Dpth (ft) | * | 3.38 | * Hydr. Depth (ft) | * | 0.39 | * | 2.18 | * | 2.92 * |
| * Conv. Total (cfs) | * | 49745.3 | * Conv. (cfs) | * | 13.0 | * | 49659.3 | * | 73.0 * |
| * Length Wtd. (ft) | * | 8.20 | * Wetted Per. (ft) | * | 2.44 | * | 440.25 | * | 3.89 * |
| * Min Ch El (ft) | * | 2222.90 | * Shear (lb/sq ft) | * | 0.22 | * | 1.28 | * | 0.44 * |
| * Alpha | * | 1.00 | * Stream Power (lb/ft s) | * | 0.30 | * | 6.41 | * | 1.07 * |
| * Frctn Loss (ft) | * | 0.06 | * Cum Volume (acre-ft) | * | 0.38 | * | 151.79 | * | 0.55 * |
| * C & E Loss (ft) | * | 0.04 | * Cum SA (acres) | * | 0.74 | * | 57.43 | * | 0.91 * |

Profile #PF 1

| * | * Pos | * Left Sta (ft) | * Right Sta (ft) | * Flow (cfs) | * Area (sq ft) | * W.P. (ft) | * Percent Conv | * Hydr Depth(ft) | * Velocity (ft/s) * |
|---|---|---|---|---|---|---|---|---|---|
| * 1 | * LOB | * 103.59 | * 138.12 | * 1.26 | * 0.90 | * 2.44 | * 0.03 | * 0.39 | * 1.40 * |
| * 2 | * Chan | * 138.12 | * 248.08 | * 866.92 | * 197.22 | * 110.08 | * 17.99 | * 1.79 | * 4.40 * |
| * 3 | * Chan | * 248.08 | * 358.03 | * 954.13 | * 211.05 | * 110.02 | * 19.80 | * 1.92 | * 4.52 * |
| * 4 | * Chan | * 358.03 | * 467.99 | * 1386.38 | * 261.30 | * 110.14 | * 28.76 | * 2.38 | * 5.31 * |
| * 5 | * Chan | * 467.99 | * 577.94 | * 1604.23 | * 288.25 | * 110.01 | * 33.28 | * 2.62 | * 5.57 * |
| * 6 | * ROB | * 577.94 | * 610.20 | * 7.08 | * 2.92 | * 3.89 | * 0.15 | * 2.92 | * 2.43 * |

Profile #PF 2

| * | * Pos | * Left Sta (ft) | * Right Sta (ft) | * Flow (cfs) | * Area (sq ft) | * W.P. (ft) | * Percent Conv | * Hydr Depth(ft) | * Velocity (ft/s) * |
|---|---|---|---|---|---|---|---|---|---|
| * 1 | * LOB | * 103.59 | * 138.12 | * 1.26 | * 0.90 | * 2.44 | * 0.03 | * 0.39 | * 1.40 * |
| * 2 | * Chan | * 138.12 | * 248.08 | * 866.92 | * 197.22 | * 110.08 | * 17.99 | * 1.79 | * 4.40 * |
| * 3 | * Chan | * 248.08 | * 358.03 | * 954.13 | * 211.05 | * 110.02 | * 19.80 | * 1.92 | * 4.52 * |
| * 4 | * Chan | * 358.03 | * 467.99 | * 1386.38 | * 261.30 | * 110.14 | * 28.76 | * 2.38 | * 5.31 * |
| * 5 | * Chan | * 467.99 | * 577.94 | * 1604.23 | * 288.25 | * 110.01 | * 33.28 | * 2.62 | * 5.57 * |
| * 6 | * ROB | * 577.94 | * 610.20 | * 7.08 | * 2.92 | * 3.89 | * 0.15 | * 2.92 | * 2.43 * |

CROSS SECTION

RIVER: Ocotillo Wash 5
REACH: OWMS2 RS: 1.88981

INPUT
Description: Upstream cross section for Lone Mountain Road
Station Elevation Data num= 180

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2238.47 | 20.2 | 2237.1 | 21.36 | 2237.12 | 22.78 | 2237.13 | 24.23 | 2237.13 |
| 25.72 | 2237.04 | 45.31 | 2235.72 | 46.83 | 2235.55 | 48.28 | 2235.55 | 49.7 | 2235.45 |
| 51.01 | 2235.33 | 52.2 | 2235.28 | 53.39 | 2235.21 | 73.55 | 2233.68 | 73.77 | 2233.66 |
| 76.52 | 2233.43 | 77.98 | 2233.3 | 79.51 | 2233.21 | 80.9 | 2233.15 | 82.41 | 2233.04 |
| 92.14 | 2232.23 | 93.69 | 2232.08 | 95.22 | 2231.97 | 96.72 | 2231.79 | 116.07 | 2230.15 |
| 117.46 | 2229.93 | 117.78 | 2229.84 | 118.74 | 2229.58 | 119.46 | 2229.4 | 120.43 | 2229.15 |
| 121.8 | 2228.62 | 122.64 | 2228.43 | 130.16 | 2227.81 | 131.93 | 2227.4 | 135.62 | 2227.32 |
| 139.33 | 2227.01 | 144.1 | 2225.54 | 145.83 | 2225.36 | 146.2 | 2225.37 | 146.29 | 2225.37 |
| 149.62 | 2225.35 | 150.11 | 2225.33 | 152.57 | 2225.3 | 155.54 | 2224.97 | 157.27 | 2224.92 |
| 158.33 | 2225.13 | 160.94 | 2224.96 | 163.74 | 2224.74 | 171.18 | 2224.49 | 172.28 | 2224.43 |
| 174.2 | 2224.35 | 174.55 | 2224.31 | 179.49 | 2224.29 | 191.96 | 2223.87 | 196.68 | 2224.06 |
| 198.51 | 2223.94 | 200.11 | 2223.87 | 216.66 | 2223.75 | 218.02 | 2223.73 | 221.77 | 2223.58 |
| 225.3 | 2223.52 | 233.21 | 2223.46 | 236.46 | 2223.35 | 237.02 | 2223.33 | 237.04 | 2223.33 |
| 237.77 | 2223.35 | 239.24 | 2223.35 | 243.66 | 2223.52 | 250.88 | 2223.47 | 254.55 | 2223.39 |
| 258.23 | 2223.38 | 261.8 | 2223.38 | 265.16 | 2223.36 | 266.82 | 2223.35 | 270.69 | 2223.26 |
| 275.04 | 2223.26 | 278.25 | 2223.24 | 289.37 | 2223.24 | 294.59 | 2223.28 | 306.04 | 2223.28 |
| 311.91 | 2223.32 | 316.1 | 2223.21 | 319.8 | 2223.3 | 322.51 | 2223.38 | 330.96 | 2223.44 |
| 333.99 | 2223.45 | 337.14 | 2223.52 | 340.09 | 2223.55 | 343.19 | 2223.52 | 352.64 | 2223.48 |
| 354.17 | 2223.44 | 360.58 | 2223.39 | 367.24 | 2223.39 | 370.75 | 2223.38 | 371.71 | 2223.37 |
| 375.2 | 2223.31 | 384.5 | 2222.91 | 385.55 | 2222.91 | 385.86 | 2222.91 | 388.34 | 2223.52 |
| 391.28 | 2223.58 | 396.49 | 2223.64 | 396.59 | 2223.64 | 401.74 | 2223.7 | 402 | 2223.71 |
| 407.38 | 2223.88 | 407.48 | 2223.88 | 412.75 | 2223.76 | 412.87 | 2223.76 | 418.77 | 2223.77 |
| 418.9 | 2223.77 | 424.03 | 2223.7 | 428.86 | 2223.52 | 435.47 | 2223.52 | 440.95 | 2223.67 |
| 443.96 | 2223.67 | 448.47 | 2223.72 | 450.9 | 2223.73 | 455.26 | 2223.67 | 459.24 | 2223.67 |
| 463.97 | 2223.63 | 466.73 | 2223.63 | 471.2 | 2223.53 | 475.57 | 2223.49 | 479.65 | 2223.5 |
| 487.93 | 2223.5 | 497.44 | 2223.52 | 501.37 | 2223.52 | 505.26 | 2223.46 | 507.9 | 2223.47 |
| 510.79 | 2223.51 | 519.51 | 2223.7 | 522.28 | 2223.77 | 525.04 | 2223.83 | 527.53 | 2223.93 |
| 537.62 | 2224.15 | 540.43 | 2224.27 | 542.79 | 2224.27 | 545.14 | 2224.25 | 547.49 | 2224.26 |
| 556.65 | 2224.46 | 558.86 | 2224.48 | 561 | 2224.49 | 562.9 | 2224.54 | 576.05 | 2224.74 |
| 582.45 | 2224.8 | 584.69 | 2224.81 | 594.56 | 2224.95 | 596.34 | 2224.97 | 598.93 | 2224.93 |
| 603.94 | 2225.01 | 604.3 | 2225.01 | 610.09 | 2225.64 | 621.22 | 2226.04 | 622.43 | 2226.07 |
| 625.07 | 2226.37 | 628.05 | 2226.75 | 630.84 | 2227.02 | 631.73 | 2227.06 | 636.54 | 2227.97 |
| 638.83 | 2228.19 | 641.73 | 2228.49 | 643.09 | 2228.54 | 644.26 | 2228.53 | 647.58 | 2228.33 |
| 649.48 | 2228.39 | 652.05 | 2228.42 | 662.83 | 2228.62 | 665.26 | 2228.56 | 669.61 | 2228.52 |
| 671.92 | 2228.48 | 682.26 | 2228.68 | 683.96 | 2228.64 | 685.47 | 2228.66 | 688.97 | 2228.73 |
| 691.16 | 2228.8 | 693.82 | 2228.78 | 703.37 | 2228.83 | 705.63 | 2228.76 | 706.52 | 2228.72 |

Manning's n Values num= 7

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|---|---|
| 0 | .058 | 117.78 | .053 | 145.83 | .048 | 237.04 | .049 | 265.16 | .048 |
| 385.55 | .049 | 603.94 | .044 | | | | | | |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 146.2 | 622.43 | 33.64 | 33.21 | 31 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2226.58 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.27 | Wt. n-Val. | 0.052 | 0.048 | 0.044 |
| W.S. Elev (ft) | 2226.31 | Reach Len. (ft) | 33.64 | 33.21 | 31.00 |
| Crit W.S. (ft) | 2225.29 | Flow Area (sq ft) | 2.80 | 1163.09 | 0.25 |
| E.G. Slope (ft/ft) | 0.005307 | Area (sq ft) | 2.80 | 1163.09 | 0.25 |
| Q Total (cfs) | 4820.00 | Flow (cfs) | 4.16 | 4815.69 | 0.15 |
| Top Width (ft) | 482.93 | Top Width (ft) | 4.60 | 476.23 | 2.11 |
| Vel Total (ft/s) | 4.13 | Avg. Vel. (ft/s) | 1.49 | 4.14 | 0.59 |
| Max Chl Dpth (ft) | 3.40 | Hydr. Depth (ft) | 0.61 | 2.44 | 0.12 |
| Conv. Total (cfs) | 66165.2 | Conv. (cfs) | 57.1 | 66106.0 | 2.1 |
| Length Wtd. (ft) | 33.21 | Wetted Per. (ft) | 4.72 | 476.49 | 2.12 |
| Min Ch El (ft) | 2222.91 | Shear (lb/sq ft) | 0.20 | 0.81 | 0.04 |
| Alpha | 1.00 | Stream Power (lb/ft s) | 0.29 | 3.35 | 0.02 |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | 0.38 | 151.59 | 0.55 |
| C & E Loss (ft) | | Cum SA (acres) | 0.74 | 57.34 | 0.90 |

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2226.58 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.27 | Wt. n-Val. | 0.052 | 0.048 | 0.044 |
| W.S. Elev (ft) | 2226.31 | Reach Len. (ft) | 33.64 | 33.21 | 31.00 |
| Crit W.S. (ft) | 2225.29 | Flow Area (sq ft) | 2.80 | 1163.09 | 0.25 |
| E.G. Slope (ft/ft) | 0.005307 | Area (sq ft) | 2.80 | 1163.09 | 0.25 |
| Q Total (cfs) | 4820.00 | Flow (cfs) | 4.16 | 4815.69 | 0.15 |
| Top Width (ft) | 482.93 | Top Width (ft) | 4.60 | 476.23 | 2.11 |
| Vel Total (ft/s) | 4.13 | Avg. Vel. (ft/s) | 1.49 | 4.14 | 0.59 |
| Max Chl Dpth (ft) | 3.40 | Hydr. Depth (ft) | 0.61 | 2.44 | 0.12 |
| Conv. Total (cfs) | 66165.2 | Conv. (cfs) | 57.1 | 66106.0 | 2.1 |
| Length Wtd. (ft) | 33.21 | Wetted Per. (ft) | 4.72 | 476.49 | 2.12 |
| Min Ch El (ft) | 2222.91 | Shear (lb/sq ft) | 0.20 | 0.81 | 0.04 |
| Alpha | 1.00 | Stream Power (lb/ft s) | 0.29 | 3.35 | 0.02 |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | 0.38 | 151.59 | 0.55 |
| C & E Loss (ft) | | Cum SA (acres) | 0.74 | 57.34 | 0.90 |

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 109.65 | 146.20 | 4.16 | 2.80 | 4.72 | 0.09 | 0.61 | 1.49 |
| 2 | Chan | 146.20 | 265.26 | 1088.38 | 276.15 | 119.15 | 22.58 | 2.32 | 3.94 |
| 3 | Chan | 265.26 | 384.32 | 1643.01 | 354.16 | 119.07 | 34.09 | 2.97 | 4.64 |
| 4 | Chan | 384.32 | 503.37 | 1373.57 | 321.98 | 119.15 | 28.50 | 2.70 | 4.27 |
| 5 | Chan | 503.37 | 622.43 | 710.73 | 210.80 | 119.12 | 14.75 | 1.77 | 3.37 |
| 6 | ROB | 622.43 | 643.45 | 0.15 | 0.25 | 2.12 | 0.00 | 0.12 | 0.59 |

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 109.65 | 146.20 | 4.16 | 2.80 | 4.72 | 0.09 | 0.61 | 1.49 |
| 2 | Chan | 146.20 | 265.26 | 1088.38 | 276.15 | 119.15 | 22.58 | 2.32 | 3.94 |
| 3 | Chan | 265.26 | 384.32 | 1643.01 | 354.16 | 119.07 | 34.09 | 2.97 | 4.64 |
| 4 | Chan | 384.32 | 503.37 | 1373.57 | 321.98 | 119.15 | 28.50 | 2.70 | 4.27 |
| 5 | Chan | 503.37 | 622.43 | 710.73 | 210.80 | 119.12 | 14.75 | 1.77 | 3.37 |
| 6 | ROB | 622.43 | 643.45 | 0.15 | 0.25 | 2.12 | 0.00 | 0.12 | 0.59 |

INLINE STRUCTURE

RIVER: Ocotillo Wash 5
REACH: OWMS2 RS: 1.88667

INPUT
Description: Lone Mountain Road
Distance from Upstream XS = 5
Deck/Roadway Width = 22
Weir Coefficient = 2.6
Weir Embankment Coordinates num = 86

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2237.89 | 14.41 | 2237.12 | 22.15 | 2236.59 | 29.06 | 2236.11 | 51.2 | 2234.41 |
| 58.69 | 2233.76 | 78.32 | 2232.42 | 82.31 | 2232.14 | 85.27 | 2231.89 | 97.16 | 2230.65 |
| 109.2 | 2229.39 | 114.69 | 2228.94 | 133.1 | 2227.41 | 135.71 | 2227.2 | 139.23 | 2226.9 |
| 154.65 | 2225.86 | 156.95 | 2225.67 | 168.83 | 2225.01 | 172.17 | 2224.9 | 173.64 | 2224.85 |
| 178.84 | 2224.67 | 198.37 | 2224.33 | 203.78 | 2224.29 | 215.76 | 2224.06 | 227.8 | 2223.83 |
| 232.74 | 2223.8 | 244.52 | 2223.7 | 248.99 | 2223.67 | 260.64 | 2223.58 | 264.98 | 2223.55 |
| 276.39 | 2223.46 | 279.61 | 2223.44 | 291.08 | 2223.35 | 295.38 | 2223.38 | 308.67 | 2223.47 |
| 313.12 | 2223.5 | 326.39 | 2223.59 | 331.27 | 2223.62 | 342.55 | 2223.67 | 347.5 | 2223.65 |
| 358.9 | 2223.7 | 363.3 | 2223.69 | 370.62 | 2223.58 | 376.51 | 2223.5 | 380.38 | 2223.48 |
| 393.57 | 2223.3 | 395.26 | 2223.29 | 395.37 | 2223.32 | 409.84 | 2223.46 | 413.31 | 2223.46 |
| 417 | 2223.46 | 431.59 | 2223.6 | 435.29 | 2223.61 | 448.55 | 2223.63 | 451.04 | 2223.64 |
| 464.41 | 2223.66 | 467.6 | 2223.67 | 481.18 | 2223.78 | 484.65 | 2223.79 | 498.23 | 2223.91 |
| 502.23 | 2223.91 | 517.52 | 2224.1 | 521.58 | 2224.19 | 536.86 | 2224.38 | 541.2 | 2224.47 |
| 555.7 | 2224.79 | 559.13 | 2224.86 | 566.21 | 2225.02 | 573.78 | 2225.18 | 578.2 | 2225.25 |
| 592.83 | 2225.61 | 596.42 | 2225.67 | 597.63 | 2225.68 | 612.22 | 2226.05 | 616.39 | 2226.2 |
| 634.85 | 2226.8 | 638 | 2226.91 | 640.08 | 2226.99 | 658.37 | 2227.58 | 662.74 | 2227.68 |
| 676.47 | 2227.96 | 679.89 | 2228.04 | 694.1 | 2228.33 | 695.08 | 2228.35 | 697.93 | 2228.38 |
| 706.42 | 2228.57 | | | | | | | | |

Upstream Embankment side slope = .5 horiz. to 1.0 vertical
Downstream Embankment side slope = .3 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .95
Elevation at which weir flow begins =
Weir crest shape = Broad Crested

INLINE STRUCTURE OUTPUT Profile #PF 1 Inl Struct:

| | | | |
|---|---|---|---|
| E.G. Elev (ft) | 2226.58 | Q Gates (cfs) | |
| W.S. Elev (ft) | 2226.31 | Q Gate Group (cfs) | 2225.29 |
| Q Total (cfs) | 4820.00 | Gate Open Ht (ft) | 1.00 |

```
* Q Weir (cfs)           * 4820.00  * Gate #Open              *    2225  *
* Weir Flow Area (sq ft) * 1150.73  * Gate Area (sq ft)       *          *
* Weir Sta Lft (ft)      *  144.04  * Gate Submerg            *          *
* Weir Sta Rgt (ft)      *  626.68  * Gate Invert (ft)        * 2226.06  *
* Weir Max Depth (ft)    *    3.23  *                         *          *
* Weir Avg Depth (ft)    *    2.38  *                         *          *
* Weir Submerg           *    0.77  *                         *          *
* Min El Weir Flow (ft)  * 2223.36  *                         *          *
* Wr Top Wdth (ft)       *  482.63  *                         *          *
*************************************************************************

INLINE STRUCTURE OUTPUT  Profile #PF 2  Inl Struct:
*************************************************************************
* E.G. Elev (ft)         * 2226.58  * Q Gates (cfs)            *          *
* W.S. Elev (ft)         * 2226.31  * Q Gate Group (cfs)       * 2184.67  *
* Q Total (cfs)          * 4820.00  * Gate Open Ht (ft)        *    1.00  *
* Q Weir (cfs)           * 4820.00  * Gate #Open               *          *
* Weir Flow Area (sq ft) * 1150.73  * Gate Area (sq ft)        *          *
* Weir Sta Lft (ft)      *  144.04  * Gate Submerg             *          *
* Weir Sta Rgt (ft)      *  626.68  * Gate Invert (ft)         *          *
* Weir Max Depth (ft)    *    3.23  *                          *          *
* Weir Avg Depth (ft)    *    2.38  *                          *          *
* Weir Submerg           *    0.77  *                          *          *
* Min El Weir Flow (ft)  * 2223.36  *                          *          *
* Wr Top Wdth (ft)       *  482.63  *                          *          *
*************************************************************************

CROSS SECTION


RIVER: Ocotillo Wash 5
REACH: OWMS2              RS: 1.88352

INPUT
Description: Downstream cross section for Lone Mountain Road
Station Elevation Data    num=      75
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*************************************************************************
       0 2237.87     .36 2237.85    8.72 2237.35   13.74 2237.08   36.17 2235.54
   41.42 2235.13   60.65  2233.8   84.28 2231.84   92.95 2231.14   95.96 2230.89
   96.96 2230.79   97.94 2230.68  100.32 2230.46  128.55 2227.81  130.99 2227.61
  136.01 2227.55  136.22 2227.55  151.29 2226.37  152.39 2226.29  170.47  2224.9
  172.13 2224.81  177.38 2224.67  187.52 2224.09  191.06 2223.89  194.73 2223.81
  214.59 2223.53  216.59 2223.49  231.24 2223.28  233.13 2223.25  241.59 2223.13
  243.38 2223.11  253.84  2223.1   255.7 2223.09  266.12 2223.08  267.99 2223.06
  289.75 2223.04  291.75 2223.02  312.24 2223.16  314.46 2223.17  316.68 2223.19
  348.93 2223.39  368.51 2223.42   370.4  2223.4  373.14  2223.4  384.79 2223.43
  386.64  2223.4  401.15 2223.43  401.77 2223.43  405.61 2223.44   407.6 2223.46
  421.95 2223.46  424.15 2223.48  462.53 2223.49  505.67 2223.84  508.71 2223.88
  522.76    2224  540.37 2224.29  542.98 2224.32  558.58 2224.58  560.58 2224.62
  573.79 2224.84  575.36 2224.88  587.32 2225.07  591.78 2225.18  613.53  2225.7
  614.29 2225.71  624.74 2225.96  625.47 2225.99   638.6 2226.29  666.25 2227.48
  666.94 2227.49  681.71 2228.12  696.68 2228.12  697.72 2228.14  708.97 2228.14

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************************************
       0    .058  100.32    .053  187.52    .048  401.77    .049  591.78    .044

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        170.47  614.29            453.23  501.13  178.68             .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)         * 2226.35  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.36  * Wt. n-Val.              *   0.053  *   0.048  *   0.044  *
* W.S. Elev (ft)         * 2225.99  * Reach Len. (ft)         *  453.23  *  501.13  *  178.68  *
* Crit W.S. (ft)         * 2225.25  * Flow Area (sq ft)       *    7.78  *  999.72  *    1.67  *
* E.G. Slope (ft/ft)     *0.007788  * Area (sq ft)            *    7.78  *  999.72  *    1.67  *
* Q Total (cfs)          * 4820.00  * Flow (cfs)              *   12.85  * 4805.76  *    1.39  *
* Top Width (ft)         *  469.39  * Top Width (ft)          *   14.23  *  443.82  *   11.34  *
* Vel Total (ft/s)       *    4.78  * Avg. Vel. (ft/s)        *    1.65  *    4.81  *    0.83  *
* Max Chl Dpth (ft)      *    2.97  * Hydr. Depth (ft)        *    0.55  *    2.25  *    0.15  *
* Conv. Total (cfs)      * 54619.4  * Conv. (cfs)             *   145.6  * 54458.1  *    15.8  *
* Length Wtd. (ft)       *  499.25  * Wetted Per. (ft)        *   14.27  *  443.87  *   11.34  *
* Min Ch El (ft)         * 2223.02  * Shear (lb/sq ft)        *    0.27  *    1.09  *    0.07  *
* Alpha                  *    1.01  * Stream Power (lb/ft s)  *    0.44  *    5.26  *    0.06  *
* Frctn Loss (ft)        *    6.10  * Cum Volume (acre-ft)    *    0.38  *  150.77  *    0.54  *
* C & E Loss (ft)        *    0.09  * Cum SA (acres)          *    0.74  *   56.99  *    0.90  *
*****************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************
* E.G. Elev (ft)         * 2226.35  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.36  * Wt. n-Val.              *   0.053  *   0.048  *   0.044  *
* W.S. Elev (ft)         * 2225.99  * Reach Len. (ft)         *  453.23  *  501.13  *  178.68  *
* Crit W.S. (ft)         * 2225.25  * Flow Area (sq ft)       *    7.78  *  999.72  *    1.67  *
* E.G. Slope (ft/ft)     *0.007788  * Area (sq ft)            *    7.78  *  999.72  *    1.67  *
* Q Total (cfs)          * 4820.00  * Flow (cfs)              *   12.85  * 4805.76  *    1.39  *
* Top Width (ft)         *  469.39  * Top Width (ft)          *   14.23  *  443.82  *   11.34  *
* Vel Total (ft/s)       *    4.78  * Avg. Vel. (ft/s)        *    1.65  *    4.81  *    0.83  *
* Max Chl Dpth (ft)      *    2.97  * Hydr. Depth (ft)        *    0.55  *    2.25  *    0.15  *
* Conv. Total (cfs)      * 54619.4  * Conv. (cfs)             *   145.6  * 54458.1  *    15.8  *
* Length Wtd. (ft)       *  499.25  * Wetted Per. (ft)        *   14.27  *  443.87  *   11.34  *
* Min Ch El (ft)         * 2223.02  * Shear (lb/sq ft)        *    0.27  *    1.09  *    0.07  *
* Alpha                  *    1.01  * Stream Power (lb/ft s)  *    0.44  *    5.26  *    0.06  *
* Frctn Loss (ft)        *    6.10  * Cum Volume (acre-ft)    *    0.38  *  150.77  *    0.54  *
* C & E Loss (ft)        *    0.09  * Cum SA (acres)          *    0.74  *   56.99  *    0.90  *
*****************************************************************************************
```

```
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB       * 127.85    * 170.47    *    12.85 *    7.78 *    14.27 *     0.27 *     0.55 *     1.65 *
* 2        * Chan      * 170.47    * 281.43    *  1371.19 *  274.02 *   110.99 *    28.45 *     2.47 *     5.00 *
* 3        * Chan      * 281.43    * 392.38    *  1594.32 *  302.05 *   110.96 *    33.08 *     2.72 *     5.28 *
* 4        * Chan      * 392.38    * 503.34    *  1319.33 *  272.64 *   110.96 *    27.37 *     2.46 *     4.84 *
* 5        * Chan      * 503.34    * 614.29    *   520.93 *  151.01 *   110.97 *    10.81 *     1.36 *     3.45 *
* 6        * ROB       * 614.29    * 637.96    *     1.39 *    1.67 *    11.34 *     0.03 *     0.15 *     0.83 *
*****************************************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

  Profile #PF 2
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB       * 127.85    * 170.47    *    12.85 *    7.78 *    14.27 *     0.27 *     0.55 *     1.65 *
* 2        * Chan      * 170.47    * 281.43    *  1371.19 *  274.02 *   110.99 *    28.45 *     2.47 *     5.00 *
* 3        * Chan      * 281.43    * 392.38    *  1594.32 *  302.05 *   110.96 *    33.08 *     2.72 *     5.28 *
* 4        * Chan      * 392.38    * 503.34    *  1319.33 *  272.64 *   110.96 *    27.37 *     2.46 *     4.84 *
* 5        * Chan      * 503.34    * 614.29    *   520.93 *  151.01 *   110.97 *    10.81 *     1.36 *     3.45 *
* 6        * ROB       * 614.29    * 637.96    *     1.39 *    1.67 *    11.34 *     0.03 *     0.15 *     0.83 *
*****************************************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

CROSS SECTION


RIVER: Ocotillo Wash 5
REACH: OWMS2              RS: 1.78861

INPUT
Description: Blocked Obstruction at Parcel 216-15-036
Station Elevation Data    num=      60
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************************
       0 2233.14     .38 2233.14     6.2 2233.16    6.29 2233.16    9.03 2231.01
   16.33 2225.38   18.66 2223.68   30.66 2222.47    32.2 2222.31   36.75 2222.35
   75.34    2221   75.98    2221   76.15    2221   78.51 2220.77   85.83 2219.67
   95.49 2218.53  101.03 2218.24  127.44 2217.44  130.96 2217.35  135.07 2217.29
  138.41 2217.18  144.06 2216.91  146.55 2216.82  151.77 2216.77  156.66 2216.77
  160.08 2216.67   164.9 2216.66  169.92 2216.56  174.13 2216.36  176.68 2216.18
  183.83 2216.36  186.44 2216.31   193.5 2216.38  196.35  2216.5  200.66 2216.52
  202.07 2216.47  204.75  2216.4  208.57 2216.31  209.06 2216.29  216.69 2214.54
  217.62 2214.31  227.44 2214.62     228 2214.64  232.79 2214.09  235.38 2213.76
  244.09 2213.91  246.25 2213.91     255 2213.19   260.7 2212.76  263.71 2212.38
  265.81 2212.08  272.59 2216.23  272.68 2216.29     273 2216.39     293 2222.94
  294.48 2222.91  298.89  2222.9  300.15  2222.8  311.27 2223.02  313.34 2223.07

Manning's n Values        num=       4
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************************
       0    .053   75.98    .053  217.62     .04  265.81    .044

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          95.49    273            494.59  388.18  359.83             .1       .3
Blocked Obstructions      num=       1
   Sta L   Sta R    Elev
************************
   24.47   79.772223.091

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************************
* E.G. Elev (ft)          * 2220.16  * Element                  *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    1.28  * Wt. n-Val.               *    0.053 *    0.049 *    0.044 *
* W.S. Elev (ft)          * 2218.88  * Reach Len. (ft)          *   494.59 *   388.18 *   359.83 *
* Crit W.S. (ft)          * 2218.73  * Flow Area (sq ft)        *     0.51 *   522.90 *     9.45 *
* E.G. Slope (ft/ft)      *0.021880  * Area (sq ft)             *     0.51 *   522.90 *     9.45 *
* Q Total (cfs)           * 4820.00  * Flow (cfs)               *     0.66 *  4766.54 *    52.80 *
* Top Width (ft)          *  188.06  * Top Width (ft)            *     2.95 *   177.51 *     7.60 *
* Vel Total (ft/s)        *    9.05  * Avg. Vel. (ft/s)          *     1.29 *     9.12 *     5.59 *
* Max Chl Dpth (ft)       *    6.80  * Hydr. Depth (ft)          *     0.17 *     2.95 *     1.24 *
* Conv. Total (cfs)       * 32585.3  * Conv. (cfs)               *      4.5 * 32223.9 *    356.9 *
* Length Wtd. (ft)        *  388.11  * Wetted Per. (ft)          *     2.97 *   179.14 *     7.99 *
* Min Ch El (ft)          * 2212.08  * Shear (lb/sq ft)          *     0.24 *     3.99 *     1.62 *
* Alpha                   *    1.01  * Stream Power (lb/ft s)    *     0.30 *    36.35 *     9.02 *
* Frctn Loss (ft)         *    7.83  * Cum Volume (acre-ft)      *     0.33 *   142.01 *     0.52 *
* C & E Loss (ft)         *    0.02  * Cum SA (acres)            *     0.65 *    53.42 *     0.86 *
*****************************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT  Profile #PF 2
```

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 2220.16 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 1.28 | Wt. n-Val. | 0.053 | 0.049 | 0.044 |
| W.S. Elev (ft) | 2218.88 | Reach Len. (ft) | 494.59 | 388.18 | 359.83 |
| Crit W.S. (ft) | 2218.73 | Flow Area (sq ft) | 0.51 | 522.90 | 9.45 |
| E.G. Slope (ft/ft) | 0.021880 | Area (sq ft) | 0.51 | 522.90 | 9.45 |
| Q Total (cfs) | 4820.00 | Flow (cfs) | 0.66 | 4766.54 | 52.80 |
| Top Width (ft) | 188.06 | Top Width (ft) | 2.95 | 177.51 | 7.60 |
| Vel Total (ft/s) | 9.05 | Avg. Vel. (ft/s) | 1.29 | 9.12 | 5.59 |
| Max Chl Dpth (ft) | 6.80 | Hydr. Depth (ft) | 0.17 | 2.95 | 1.24 |
| Conv. Total (cfs) | 32585.3 | Conv. (cfs) | 4.5 | 32223.9 | 356.9 |
| Length Wtd. (ft) | 388.11 | Wetted Per. (ft) | 2.97 | 179.14 | 7.99 |
| Min Ch El (ft) | 2212.08 | Shear (lb/sq ft) | 0.24 | 3.99 | 1.62 |
| Alpha | 1.01 | Stream Power (lb/ft s) | 0.30 | 36.35 | 9.02 |
| Frctn Loss (ft) | 7.83 | Cum Volume (acre-ft) | 0.33 | 142.01 | 0.52 |
| C & E Loss (ft) | 0.02 | Cum SA (acres) | 0.65 | 53.42 | 0.86 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 71.62 | 95.49 | 0.66 | 0.51 | 2.97 | 0.01 | 0.17 | 1.29 |
| 2 | Chan | 95.49 | 139.87 | 172.37 | 49.79 | 44.40 | 3.58 | 1.12 | 3.46 |
| 3 | Chan | 139.87 | 184.25 | 551.02 | 99.99 | 44.40 | 11.43 | 2.25 | 5.51 |
| 4 | Chan | 184.25 | 228.62 | 1129.02 | 140.38 | 44.62 | 23.42 | 3.16 | 8.04 |
| 5 | Chan | 228.62 | 273.00 | 2914.13 | 232.73 | 45.72 | 60.46 | 5.24 | 12.52 |
| 6 | ROB | 273.00 | 283.09 | 52.80 | 9.45 | 7.99 | 1.10 | 1.24 | 5.59 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 71.62 | 95.49 | 0.66 | 0.51 | 2.97 | 0.01 | 0.17 | 1.29 |
| 2 | Chan | 95.49 | 139.87 | 172.37 | 49.79 | 44.40 | 3.58 | 1.12 | 3.46 |
| 3 | Chan | 139.87 | 184.25 | 551.02 | 99.99 | 44.40 | 11.43 | 2.25 | 5.51 |
| 4 | Chan | 184.25 | 228.62 | 1129.02 | 140.38 | 44.62 | 23.42 | 3.16 | 8.04 |
| 5 | Chan | 228.62 | 273.00 | 2914.13 | 232.73 | 45.72 | 60.46 | 5.24 | 12.52 |
| 6 | ROB | 273.00 | 283.09 | 52.80 | 9.45 | 7.99 | 1.10 | 1.24 | 5.59 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 5
REACH: OWMS2 RS: 1.71509

INPUT
Description:
Station Elevation Data num= 58

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2234.31 | 7.18 | 2233.93 | 8.02 | 2233.88 | 18.34 | 2230.59 | 26.65 | 2227.76 |
| 35.09 | 2224.91 | 50.13 | 2220.12 | 51.21 | 2219.77 | 51.81 | 2219.59 | 75.39 | 2212.95 |
| 79.07 | 2212.87 | 104.83 | 2211.94 | 115.07 | 2211.88 | 118.3 | 2211.88 | 128.47 | 2211.84 |
| 139.62 | 2211.59 | 145.94 | 2211.09 | 150.38 | 2210.64 | 156.83 | 2210.01 | 162.56 | 2208.4 |
| 170.98 | 2206.15 | 182.17 | 2206.43 | 195.43 | 2208.68 | 204.18 | 2208.61 | 206.33 | 2208.59 |
| 207.41 | 2208.34 | 214.18 | 2206.66 | 216.22 | 2206.69 | 220.43 | 2206.86 | 226.9 | 2207.84 |
| 232.31 | 2208.73 | 238.68 | 2208.61 | 241.56 | 2208.57 | 250.24 | 2208.27 | 252.46 | 2208.17 |
| 257.04 | 2208.1 | 263.88 | 2207.55 | 264.78 | 2207.48 | 272.69 | 2207.78 | 273.86 | 2207.81 |
| 278.22 | 2208.11 | 285.28 | 2208.63 | 286.26 | 2208.6 | 287.29 | 2208.58 | 293.64 | 2207.94 |
| 298.53 | 2207.53 | 300.44 | 2207.41 | 306.97 | 2207.15 | 309.94 | 2207.27 | 314.03 | 2207.46 |
| 323.03 | 2210.66 | 332.43 | 2213.63 | 340.19 | 2214.85 | 348.3 | 2216.17 | 353.03 | 2216.36 |
| 381.15 | 2218.18 | 388.88 | 2218.57 | 390.38 | 2218.59 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .053 | 170.98 | .04 | 273.86 | .044 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 156.83 | 323.03 | 634.74 | 396.08 | 272.49 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2212.31 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 1.49 | Wt. n-Val. | 0.053 | 0.042 | 0.044 |
| W.S. Elev (ft) | 2210.83 | Reach Len. (ft) | 634.74 | 396.08 | 272.49 |
| Crit W.S. (ft) | 2210.83 | Flow Area (sq ft) | 3.40 | 491.53 | 0.04 |
| E.G. Slope (ft/ft) | 0.018654 | Area (sq ft) | 3.40 | 491.53 | 0.04 |
| Q Total (cfs) | 4820.00 | Flow (cfs) | 7.17 | 4812.80 | 0.04 |
| Top Width (ft) | 175.01 | Top Width (ft) | 8.28 | 166.20 | 0.52 |
| Vel Total (ft/s) | 9.74 | Avg. Vel. (ft/s) | 2.11 | 9.79 | 0.85 |
| Max Chl Dpth (ft) | 4.68 | Hydr. Depth (ft) | 0.41 | 2.96 | 0.08 |
| Conv. Total (cfs) | 35291.1 | Conv. (cfs) | 52.5 | 35238.3 | 0.3 |
| Length Wtd. (ft) | 395.97 | Wetted Per. (ft) | 8.32 | 167.98 | 0.55 |
| Min Ch El (ft) | 2206.15 | Shear (lb/sq ft) | 0.48 | 3.41 | 0.09 |
| Alpha | 1.01 | Stream Power (lb/ft s) | 1.00 | 33.37 | 0.08 |
| Frctn Loss (ft) | 4.03 | Cum Volume (acre-ft) | 0.31 | 137.49 | 0.48 |
| C & E Loss (ft) | 0.30 | Cum SA (acres) | 0.58 | 51.89 | 0.83 |

Warning: The energy equation could not be balanced within the specified number of iterations. The

```
         program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT  Profile #PF 2
*********************************************************************************************
* E.G. Elev (ft)        * 2212.31  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)         *    1.49  * Wt. n-Val.              *   0.053  *    0.042  *   0.044  *
* W.S. Elev (ft)        * 2210.83  * Reach Len. (ft)         *  634.74  *   396.08  *  272.49  *
* Crit W.S. (ft)        * 2210.83  * Flow Area (sq ft)       *    3.40  *   491.53  *    0.04  *
* E.G. Slope (ft/ft)    *0.018654  * Area (sq ft)            *    3.40  *   491.53  *    0.04  *
* Q Total (cfs)         * 4820.00  * Flow (cfs)              *    7.17  *  4812.80  *    0.04  *
* Top Width (ft)        *  175.01  * Top Width (ft)           *    8.28  *   166.20  *    0.52  *
* Vel Total (ft/s)      *    9.74  * Avg. Vel. (ft/s)         *    2.11  *     9.79  *    0.85  *
* Max Chl Dpth (ft)     *    4.68  * Hydr. Depth (ft)         *    0.41  *     2.96  *    0.08  *
* Conv. Total (cfs)     * 35291.1  * Conv. (cfs)              *    52.5  *  35238.3  *     0.3  *
* Length Wtd. (ft)      *  395.97  * Wetted Per. (ft)         *    8.32  *   167.98  *    0.55  *
* Min Ch El (ft)        * 2206.15  * Shear (lb/sq ft)         *    0.48  *     3.41  *    0.09  *
* Alpha                 *    1.01  * Stream Power (lb/ft s)   *    1.00  *    33.37  *    0.08  *
* Frctn Loss (ft)       *    4.03  * Cum Volume (acre-ft)     *    0.31  *   137.49  *    0.48  *
* C & E Loss (ft)       *    0.30  * Cum SA (acres)           *    0.58  *    51.89  *    0.83  *
*********************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) *  (sq ft) *    (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB      * 117.62    * 156.83    *     7.17 *     3.40 *    8.32 *     0.15 *     0.41 *     2.11 *
* 2        * Chan     * 156.83    * 198.38    *  1463.30 *   139.67 *   42.26 *    30.36 *     3.36 *    10.48 *
* 3        * Chan     * 198.38    * 239.93    *  1214.40 *   120.83 *   41.94 *    25.20 *     2.91 *    10.05 *
* 4        * Chan     * 239.93    * 281.48    *  1120.89 *   115.93 *   41.61 *    23.25 *     2.79 *     9.67 *
* 5        * Chan     * 281.48    * 323.03    *  1014.21 *   115.10 *   42.18 *    21.04 *     2.77 *     8.81 *
* 6        * ROB      * 323.03    * 339.87    *     0.04 *     0.04 *    0.55 *     0.00 *     0.08 *     0.85 *
*****************************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 2
*****************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) *  (sq ft) *    (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB      * 117.62    * 156.83    *     7.17 *     3.40 *    8.32 *     0.15 *     0.41 *     2.11 *
* 2        * Chan     * 156.83    * 198.38    *  1463.30 *   139.67 *   42.26 *    30.36 *     3.36 *    10.48 *
* 3        * Chan     * 198.38    * 239.93    *  1214.40 *   120.83 *   41.94 *    25.20 *     2.91 *    10.05 *
* 4        * Chan     * 239.93    * 281.48    *  1120.89 *   115.93 *   41.61 *    23.25 *     2.79 *     9.67 *
* 5        * Chan     * 281.48    * 323.03    *  1014.21 *   115.10 *   42.18 *    21.04 *     2.77 *     8.81 *
* 6        * ROB      * 323.03    * 339.87    *     0.04 *     0.04 *    0.55 *     0.00 *     0.08 *     0.85 *
*****************************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: Ocotillo Wash 5
REACH: OWMS2              RS: 1.64008

INPUT
Description: Upstream cross section for School House Road
Station Elevation Data    num=      63
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
       0 2211.64    1.99 2211.59   28.15 2211.19   31.86  2211.1    37.1 2211.02
```

```
   40.15 2210.98   62.74 2210.91   65.53 2210.88   81.32 2210.83   83.98 2210.73
   87.84 2210.72  114.07 2209.73  115.77 2209.66  127.59 2209.21  130.46 2209.12
   139.7 2208.57  142.45 2208.49  158.85 2207.51  161.34 2207.43  169.57 2206.93
  171.95 2206.86  191.04 2206.04   194.3 2205.91  217.53 2204.92  220.85 2204.79
  243.97 2204.07  247.04 2203.98  268.15 2203.32  271.21 2203.23  283.55 2202.85
  286.63 2202.77  312.08 2202.02  315.04 2201.95  336.38 2201.32  339.28 2201.27
  359.32 2200.86  362.34 2200.81  381.84 2200.41  384.23 2200.38  388.01 2200.31
  391.01 2200.25   393.5 2200.22  416.83 2200.25  417.35 2200.26  417.86 2200.26
  427.27 2200.27  428.86 2200.28  442.08  2200.8  443.31 2200.84  444.12 2200.86
  457.68  2201.4  458.93 2201.44  470.12 2201.89  493.34 2202.78   493.8 2202.81
  509.71 2203.42  509.97 2203.44  528.52 2205.11  530.11 2205.22  531.49 2205.35
  546.83 2206.71  549.61 2206.91  555.25 2207.41

Manning's n Values        num=       3
     Sta    n Val      Sta    n Val      Sta    n Val
*********************************************
       0     .048   388.01      .04   443.31     .048

Bank Sta: Left    Right     Lengths: Left Channel    Right      Coeff Contr.    Expan.
          217.53  509.71             37.18   29.23    28.7              .1        .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)          * 2205.34  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.49  * Wt. n-Val.              *          *    0.045 *   0.048  *
* W.S. Elev (ft)          * 2204.85  * Reach Len. (ft)         *   37.18  *    29.23 *   28.70  *
* Crit W.S. (ft)          * 2203.84  * Flow Area (sq ft)       *          *   849.03 *   11.37  *
* E.G. Slope (ft/ft)      *0.006394  * Area (sq ft)            *          *   849.03 *   11.37  *
* Q Total (cfs)           * 4820.00  * Flow (cfs)              *          * 4797.55 *   22.45  *
* Top Width (ft)          *  306.22  * Top Width (ft)          *          *   290.33 *   15.89  *
* Vel Total (ft/s)        *    5.60  * Avg. Vel. (ft/s)         *          *     5.65 *    1.97  *
* Max Chl Dpth (ft)       *    4.63  * Hydr. Depth (ft)         *          *     2.92 *    0.72  *
* Conv. Total (cfs)       * 60276.5  * Conv. (cfs)             *          * 59995.7  *   280.8  *
* Length Wtd. (ft)        *   29.23  * Wetted Per. (ft)         *          *   290.45 *   15.96  *
* Min Ch El (ft)          * 2200.22  * Shear (lb/sq ft)        *          *     1.17 *    0.28  *
* Alpha                   *    1.01  * Stream Power (lb/ft s)   *          *     6.59 *    0.56  *
* Frctn Loss (ft)         *          * Cum Volume (acre-ft)     *    0.29  *   131.40 *    0.45  *
* C & E Loss (ft)         *          * Cum SA (acres)           *    0.52  *    49.81 *    0.78  *
*****************************************************************************************

Warning: The inline structure solution failed to converge.  The program used the solution with the least
         error.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************
* E.G. Elev (ft)          * 2205.34  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.49  * Wt. n-Val.              *          *    0.045 *   0.048  *
* W.S. Elev (ft)          * 2204.85  * Reach Len. (ft)         *   37.18  *    29.23 *   28.70  *
* Crit W.S. (ft)          * 2203.84  * Flow Area (sq ft)       *          *   849.03 *   11.37  *
* E.G. Slope (ft/ft)      *0.006394  * Area (sq ft)            *          *   849.03 *   11.37  *
* Q Total (cfs)           * 4820.00  * Flow (cfs)              *          * 4797.55 *   22.45  *
* Top Width (ft)          *  306.22  * Top Width (ft)          *          *   290.33 *   15.89  *
* Vel Total (ft/s)        *    5.60  * Avg. Vel. (ft/s)         *          *     5.65 *    1.97  *
* Max Chl Dpth (ft)       *    4.63  * Hydr. Depth (ft)         *          *     2.92 *    0.72  *
* Conv. Total (cfs)       * 60276.5  * Conv. (cfs)             *          * 59995.7  *   280.8  *
* Length Wtd. (ft)        *   29.23  * Wetted Per. (ft)         *          *   290.45 *   15.96  *
* Min Ch El (ft)          * 2200.22  * Shear (lb/sq ft)        *          *     1.17 *    0.28  *
* Alpha                   *    1.01  * Stream Power (lb/ft s)   *          *     6.59 *    0.56  *
* Frctn Loss (ft)         *          * Cum Volume (acre-ft)     *    0.29  *   131.40 *    0.45  *
* C & E Loss (ft)         *          * Cum SA (acres)           *    0.52  *    49.81 *    0.78  *
*****************************************************************************************

Warning: The inline structure solution failed to converge.  The program used the solution with the least
         error.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) *  (sq ft) *    (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 217.53    * 290.58    *   199.97 *    79.31 *   71.23 *     4.15 *     1.11 *     2.52 *
* 2        * Chan      * 290.58    * 363.62    *  1196.83 *   234.42 *   73.07 *    24.83 *     3.21 *     5.11 *
* 3        * Chan      * 363.62    * 436.67    *  2377.89 *   327.47 *   73.06 *    49.33 *     4.48 *     7.26 *
* 4        * Chan      * 436.67    * 509.71    *  1022.85 *   207.83 *   73.10 *    21.22 *     2.85 *     4.92 *
* 5        * ROB       * 509.71    * 521.10    *    21.76 *    10.45 *   11.43 *     0.45 *     0.92 *     2.08 *
* 6        * ROB       * 521.10    * 532.48    *     0.70 *     0.91 *    4.53 *     0.01 *     0.20 *     0.76 *
*****************************************************************************************************************

Warning: The inline structure solution failed to converge.  The program used the solution with the least
         error.

  Profile #PF 2
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) *  (sq ft) *    (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 217.53    * 290.58    *   199.97 *    79.31 *   71.23 *     4.15 *     1.11 *     2.52 *
* 2        * Chan      * 290.58    * 363.62    *  1196.83 *   234.42 *   73.07 *    24.83 *     3.21 *     5.11 *
* 3        * Chan      * 363.62    * 436.67    *  2377.89 *   327.47 *   73.06 *    49.33 *     4.48 *     7.26 *
* 4        * Chan      * 436.67    * 509.71    *  1022.85 *   207.83 *   73.10 *    21.22 *     2.85 *     4.92 *
* 5        * ROB       * 509.71    * 521.10    *    21.76 *    10.45 *   11.43 *     0.45 *     0.92 *     2.08 *
* 6        * ROB       * 521.10    * 532.48    *     0.70 *     0.91 *    4.53 *     0.01 *     0.20 *     0.76 *
*****************************************************************************************************************

Warning: The inline structure solution failed to converge.  The program used the solution with the least
         error.

INLINE STRUCTURE


RIVER: Ocotillo Wash 5
REACH: OWMS2              RS: 1.63731

INPUT
Description: School House Road
Distance from Upstream XS =       1
Deck/Roadway Width        =      25
Weir Coefficient          =     2.6
```

```
 Weir Embankment Coordinates     num =       64
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
       0 2211.25   10.25    2211   12.91 2210.96   31.74 2210.49      35 2210.44
   51.66 2210.21   54.45 2210.16   71.49 2209.93   72.48 2209.89   74.77 2209.82
   92.76 2209.14   94.49 2209.09  113.02 2208.39  114.05 2208.35  131.78 2207.81
  133.15 2207.76  150.65 2207.23   167.7 2206.71  169.36 2206.65  170.94 2206.59
   187.9 2206.07  189.53 2206.01  211.71 2205.11  212.85 2205.07  215.03    2205
  226.37 2204.54  236.59 2204.13  239.28 2204.04  258.76 2203.45  261.67 2203.36
  281.24 2202.76  284.25 2202.67   287.5 2202.58  306.72  2202.1  310.57 2201.98
   329.3 2201.52   332.9 2201.46  347.09 2201.24  352.01 2201.16   355.5  2201.1
  375.22  2200.8     378 2200.76  392.95 2200.57  394.72 2200.57  409.39 2200.39
  411.29  2200.4  414.35 2200.42   415.7 2200.13  417.49 2200.45  419.33 2200.45
   429.3 2200.53  430.72 2200.54  449.15 2201.08  450.22 2201.12  464.79 2201.55
   468.7 2201.67  471.88 2201.77  492.04 2203.12  493.88 2203.26  513.66 2204.58
  516.91 2204.82  535.08 2206.13  538.61 2206.38  554.94 2207.57

Upstream Embankment side slope              =      .4 horiz. to 1.0 vertical
Downstream Embankment side slope            =      .4 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .95
Elevation at which weir flow begins         =
Weir crest shape                            = Broad Crested


INLINE STRUCTURE OUTPUT  Profile #PF 1  Inl Struct:
***********************************************************************
* E.G. Elev (ft)          * 2205.34  * Q Gates (cfs)            *         *
* W.S. Elev (ft)          * 2204.85  * Q Gate Group (cfs)       * 2203.84  *
* Q Total (cfs)           * 4820.00  * Gate Open Ht (ft)        *    1.00  *
* Q Weir (cfs)            * 4820.00  * Gate #Open               *    2204  *
* Weir Flow Area (sq ft)  *  966.74  * Gate Area (sq ft)        *         *
* Weir Sta Lft (ft)       *  207.64  * Gate Submerg             *         *
* Weir Sta Rgt (ft)       *  524.14  * Gate Invert (ft)         * 2204.94  *
* Weir Max Depth (ft)     *    5.09  *                          *         *
* Weir Avg Depth (ft)     *    3.05  *                          *         *
* Weir Submerg            *    0.48  *                          *         *
* Min El Weir Flow (ft)   * 2200.26  *                          *         *
* Wr Top Wdth (ft)        *  316.50  *                          *         *
***********************************************************************

Warning: The inline structure solution failed to converge.  The program used the solution with the least
         error.

INLINE STRUCTURE OUTPUT  Profile #PF 2  Inl Struct:
***********************************************************************
* E.G. Elev (ft)          * 2205.34  * Q Gates (cfs)            *         *
* W.S. Elev (ft)          * 2204.85  * Q Gate Group (cfs)       * 2184.67  *
* Q Total (cfs)           * 4820.00  * Gate Open Ht (ft)        *    1.00  *
* Q Weir (cfs)            * 4820.00  * Gate #Open               *         *
* Weir Flow Area (sq ft)  *  966.74  * Gate Area (sq ft)        *         *
* Weir Sta Lft (ft)       *  207.64  * Gate Submerg             *         *
* Weir Sta Rgt (ft)       *  524.14  * Gate Invert (ft)         *         *
* Weir Max Depth (ft)     *    5.09  *                          *         *
* Weir Avg Depth (ft)     *    3.05  *                          *         *
* Weir Submerg            *    0.48  *                          *         *
* Min El Weir Flow (ft)   * 2200.26  *                          *         *
* Wr Top Wdth (ft)        *  316.50  *                          *         *
***********************************************************************

Warning: The inline structure solution failed to converge.  The program used the solution with the least
         error.

CROSS SECTION


RIVER: Ocotillo Wash 5
REACH: OWMS2              RS: 1.63454

INPUT
Description: Downstream cross section for School House Road
Station Elevation Data    num=     136
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
       0 2210.79    1.92 2210.81    4.85 2210.77    7.35 2210.83    9.61 2210.94
   19.32 2210.79   21.69 2210.79   23.77 2210.76   25.82 2210.71   38.49 2210.51
   40.49 2210.44   42.48 2210.29   44.77 2210.13   46.73 2210.06   59.75 2209.87
   62.14 2209.78   64.56 2209.73    66.6 2209.65   71.99 2209.48   74.02 2209.43
   89.15 2208.95   91.37 2208.95   93.57 2208.88   94.44 2208.83   95.65 2208.77
   97.55 2208.66  111.03 2208.23  112.79 2208.17  114.63 2208.09  116.82    2208
  118.04 2207.98  121.27 2207.73  131.47 2207.41  132.82 2207.37  134.54 2207.05
  137.32 2206.97  139.57 2206.94  150.37 2206.52  152.82  2206.5  155.43 2206.39
  157.99 2206.27  167.18 2205.92  169.97 2205.84  172.99 2205.71  176.35 2205.67
   183.1 2205.41  186.44  2205.4  189.65 2205.27  193.35 2205.16  198.72 2204.96
  202.25 2204.88  205.65 2204.81  208.89 2204.71  212.26 2204.67     216 2204.56
  218.89  2204.5  225.64 2204.29  229.18 2204.19  229.45 2204.18  232.01 2204.16
  235.04 2204.13  243.23 2203.87  246.13 2203.64  248.76 2203.57  251.03 2203.45
  260.53 2203.15  263.44 2203.12  265.97 2203.06  268.59 2203.04  270.88 2202.99
  283.09 2202.63  285.37  2202.6  287.36 2202.56   289.8 2202.36  291.94 2202.12
  305.52 2201.72  307.52 2201.63  309.47 2201.51   311.6 2201.35  313.59 2201.34
  328.04 2200.91  330.04 2200.92  331.97 2200.87  332.73 2200.88  334.77 2201.01
  347.35  2200.8  349.22 2200.72  351.14 2200.72  352.93 2200.55  355.07 2200.42
  369.09 2200.18  370.86 2200.12  372.27 2200.01  374.31 2199.97  376.04 2199.98
  389.17 2199.77  391.25 2199.79  393.04 2199.82  393.56 2199.83   397.9 2199.87
  410.93 2199.94  417.89 2200.02  425.09 2200.06  435.81 2200.24  442.18 2200.27
  443.16  2200.3  447.34 2200.45  448.14 2200.46  449.29 2200.42  452.47 2200.62
  452.78 2200.65  453.52 2200.71  454.21 2200.74  480.51 2201.63  481.12 2201.67
  481.45  2201.7  482.09 2201.73  482.84 2201.81  483.32 2201.86  484.46 2201.94
  497.15 2202.86  497.91 2202.84   499.2 2202.99  500.65 2203.13  520.46 2204.57
  521.95 2204.69  523.68 2204.76  525.34 2205.04  526.94 2205.13  527.78  2205.2
  542.68 2206.28  544.45  2206.4  546.17 2206.48  548.19 2206.66  550.07 2206.76
  557.85 2207.23

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
***************************************************
       0    .048  393.56     .04  443.16    .048
```

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 287.36 | 480.51 | 18.17 | 14.34 | 14.35 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2204.60 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 1.22 | Wt. n-Val. | 0.048 | 0.045 | 0.048 |
| W.S. Elev (ft) | 2203.39 | Reach Len. (ft) | 18.17 | 14.34 | 14.35 |
| Crit W.S. (ft) | 2203.39 | Flow Area (sq ft) | 14.54 | 526.32 | 20.83 |
| E.G. Slope (ft/ft) | 0.018698 | Area (sq ft) | 14.54 | 526.32 | 20.83 |
| Q Total (cfs) | 4820.00 | Flow (cfs) | 34.68 | 4704.57 | 80.75 |
| Top Width (ft) | 251.18 | Top Width (ft) | 34.35 | 193.15 | 23.68 |
| Vel Total (ft/s) | 8.58 | Avg. Vel. (ft/s) | 2.39 | 8.94 | 3.88 |
| Max Chl Dpth (ft) | 3.62 | Hydr. Depth (ft) | 0.42 | 2.72 | 0.88 |
| Conv. Total (cfs) | 35249.4 | Conv. (cfs) | 253.6 | 34405.3 | 590.5 |
| Length Wtd. (ft) | 14.36 | Wetted Per. (ft) | 34.36 | 193.26 | 23.75 |
| Min Ch El (ft) | 2199.77 | Shear (lb/sq ft) | 0.49 | 3.18 | 1.02 |
| Alpha | 1.06 | Stream Power (lb/ft s) | 1.18 | 28.42 | 3.97 |
| Frctn Loss (ft) | 0.27 | Cum Volume (acre-ft) | 0.28 | 130.93 | 0.44 |
| C & E Loss (ft) | 0.07 | Cum SA (acres) | 0.51 | 49.65 | 0.76 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2204.60 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 1.22 | Wt. n-Val. | 0.048 | 0.045 | 0.048 |
| W.S. Elev (ft) | 2203.39 | Reach Len. (ft) | 18.17 | 14.34 | 14.35 |
| Crit W.S. (ft) | 2203.39 | Flow Area (sq ft) | 14.54 | 526.32 | 20.83 |
| E.G. Slope (ft/ft) | 0.018698 | Area (sq ft) | 14.54 | 526.32 | 20.83 |
| Q Total (cfs) | 4820.00 | Flow (cfs) | 34.68 | 4704.57 | 80.75 |
| Top Width (ft) | 251.18 | Top Width (ft) | 34.35 | 193.15 | 23.68 |
| Vel Total (ft/s) | 8.58 | Avg. Vel. (ft/s) | 2.39 | 8.94 | 3.88 |
| Max Chl Dpth (ft) | 3.62 | Hydr. Depth (ft) | 0.42 | 2.72 | 0.88 |
| Conv. Total (cfs) | 35249.4 | Conv. (cfs) | 253.6 | 34405.3 | 590.5 |
| Length Wtd. (ft) | 14.36 | Wetted Per. (ft) | 34.36 | 193.26 | 23.75 |
| Min Ch El (ft) | 2199.77 | Shear (lb/sq ft) | 0.49 | 3.18 | 1.02 |
| Alpha | 1.06 | Stream Power (lb/ft s) | 1.18 | 28.42 | 3.97 |
| Frctn Loss (ft) | 0.27 | Cum Volume (acre-ft) | 0.28 | 130.94 | 0.44 |
| C & E Loss (ft) | 0.07 | Cum SA (acres) | 0.51 | 49.65 | 0.76 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 215.52 | 287.36 | 34.68 | 14.54 | 34.36 | 0.72 | 0.42 | 2.39 |
| 2 | Chan | 287.36 | 335.65 | 581.52 | 91.28 | 48.34 | 12.06 | 1.89 | 6.37 |
| 3 | Chan | 335.65 | 383.94 | 1247.19 | 144.25 | 48.31 | 25.88 | 2.99 | 8.65 |
| 4 | Chan | 383.94 | 432.22 | 1831.48 | 166.34 | 48.29 | 38.00 | 3.44 | 11.01 |
| 5 | Chan | 432.22 | 480.51 | 1044.39 | 124.46 | 48.32 | 21.67 | 2.58 | 8.39 |
| 6 | ROB | 480.51 | 499.85 | 79.96 | 20.13 | 19.39 | 1.66 | 1.04 | 3.97 |
| 7 | ROB | 499.85 | 519.18 | 0.79 | 0.69 | 4.36 | 0.02 | 0.16 | 1.14 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 215.52 | 287.36 | 34.68 | 14.54 | 34.36 | 0.72 | 0.42 | 2.39 |
| 2 | Chan | 287.36 | 335.65 | 581.52 | 91.28 | 48.34 | 12.06 | 1.89 | 6.37 |
| 3 | Chan | 335.65 | 383.94 | 1247.19 | 144.25 | 48.31 | 25.88 | 2.99 | 8.65 |
| 4 | Chan | 383.94 | 432.22 | 1831.48 | 166.34 | 48.29 | 38.00 | 3.44 | 11.01 |
| 5 | Chan | 432.22 | 480.51 | 1044.39 | 124.46 | 48.32 | 21.67 | 2.58 | 8.39 |
| 6 | ROB | 480.51 | 499.85 | 79.96 | 20.13 | 19.39 | 1.66 | 1.04 | 3.97 |
| 7 | ROB | 499.85 | 519.18 | 0.79 | 0.69 | 4.36 | 0.02 | 0.16 | 1.14 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: Ocotillo Wash 5
REACH: OWMS2 RS: 1.63183

INPUT
Description:
Station Elevation Data num= 204

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2208.66 | 6.14 | 2209.69 | 8.35 | 2210.1 | 10.93 | 2210.27 | 12.34 | 2210.37 |
| 16.89 | 2210.81 | 17.58 | 2210.88 | 22.82 | 2211.14 | 22.89 | 2211.14 | 26.44 | 2211.29 |
| 28.21 | 2211.35 | 28.27 | 2211.34 | 33.84 | 2211.39 | 33.98 | 2211.39 | 39.31 | 2211.69 |
| 39.4 | 2211.68 | 44.43 | 2211.93 | 44.53 | 2211.92 | 49.63 | 2212.09 | 49.89 | 2212.07 |
| 55.39 | 2211.96 | 56 | 2211.93 | 60.84 | 2211.78 | 64.8 | 2211.63 | 65.93 | 2211.63 |
| 70.14 | 2211.47 | 71.3 | 2211.45 | 75.57 | 2211.21 | 76.96 | 2211.19 | 80.54 | 2210.72 |
| 82.2 | 2210.68 | 84.89 | 2210.43 | 85.5 | 2210.37 | 86.9 | 2210.37 | 91.26 | 2209.63 |
| 92.42 | 2209.59 | 96.69 | 2209.18 | 97.49 | 2209.13 | 102.47 | 2208.52 | 102.79 | 2208.5 |
| 107.97 | 2207.98 | 108.32 | 2207.98 | 112.1 | 2207.85 | 115.54 | 2207.59 | 116.41 | 2207.54 |
| 118.79 | 2207.31 | 122.99 | 2207.1 | 124.32 | 2207 | 125.87 | 2206.85 | 129.8 | 2206.53 |
| 132.37 | 2206.29 | 138.28 | 2205.84 | 140.31 | 2205.69 | 142.09 | 2205.53 | 143.82 | 2205.4 |
| 151.9 | 2204.05 | 154.99 | 2203.73 | 156.66 | 2203.67 | 159.68 | 2203.46 | 162.2 | 2203.48 |
| 164.6 | 2203.32 | 167.21 | 2203.34 | 170.29 | 2203.26 | 172.79 | 2203.23 | 176.04 | 2203.17 |
| 178.82 | 2203.09 | 181.88 | 2203.07 | 184.98 | 2202.99 | 187.48 | 2202.95 | 190.48 | 2202.77 |
| 193.33 | 2202.66 | 196.69 | 2202.34 | 199.27 | 2202.31 | 202.52 | 2202.15 | 204.68 | 2202.09 |
| 206.06 | 2202.32 | 208.31 | 2202.3 | 210.71 | 2202.25 | 217.08 | 2202.67 | 218.86 | 2202.68 |
| 222.29 | 2202.71 | 225.72 | 2202.49 | 227.64 | 2202.54 | 231.36 | 2202.44 | 231.71 | 2202.45 |
| 233.25 | 2202.48 | 237.65 | 2202.4 | 239.24 | 2202.52 | 242.58 | 2202.56 | 243.94 | 2202.59 |
| 247.72 | 2202.64 | 248.73 | 2202.63 | 253.35 | 2202.36 | 254.37 | 2202.28 | 258.63 | 2202.32 |
| 259.62 | 2202.27 | 264.15 | 2202.3 | 264.76 | 2202.25 | 274.74 | 2202.06 | 276.01 | 2202.05 |
| 276.27 | 2202.02 | 281.62 | 2201.91 | 281.85 | 2201.89 | 287.26 | 2201.91 | 287.97 | 2201.92 |
| 292.44 | 2201.94 | 292.65 | 2201.93 | 297.37 | 2201.94 | 297.77 | 2201.89 | 302.76 | 2201.87 |
| 303.44 | 2201.83 | 307.69 | 2201.69 | 308.73 | 2201.63 | 313.12 | 2201.62 | 314.67 | 2201.5 |
| 318.37 | 2201.48 | 324.01 | 2201.38 | 326.03 | 2201.37 | 329.65 | 2201.32 | 332.82 | 2201.25 |
| 335.85 | 2201.26 | 338.47 | 2201.42 | 341.7 | 2201.43 | 344.2 | 2201.31 | 352.5 | 2201.31 |
| 354.13 | 2201.44 | 356.58 | 2201.21 | 359.49 | 2201.54 | 360.48 | 2201.82 | 362.73 | 2201.71 |
| 369.02 | 2200.92 | 370.87 | 2200.91 | 372.1 | 2200.82 | 373.89 | 2200.78 | 375.58 | 2200.76 |
| 387.93 | 2199.09 | 389.66 | 2199.2 | 392.07 | 2199.19 | 396.61 | 2199.61 | 397.08 | 2199.6 |
| 397.17 | 2199.59 | 397.56 | 2199.57 | 398.62 | 2199.6 | 404.81 | 2199.41 | 406.43 | 2199.49 |
| 407.6 | 2199.53 | 409.47 | 2199.52 | 410.05 | 2199.54 | 410.84 | 2199.54 | 414.3 | 2199.53 |
| 418.12 | 2199.61 | 419.68 | 2199.5 | 424.8 | 2199.5 | 425.26 | 2199.48 | 430.25 | 2199.58 |
| 430.56 | 2199.58 | 431.06 | 2199.6 | 435.31 | 2199.58 | 437.05 | 2199.61 | 438.96 | 2199.61 |
| 444.72 | 2199.56 | 446.56 | 2199.59 | 448.98 | 2199.63 | 452.14 | 2200 | 456.03 | 2200.25 |
| 457.8 | 2200.39 | 462.15 | 2200.78 | 466.21 | 2200.97 | 470 | 2201.1 | 472.46 | 2201.18 |
| 476.38 | 2201.47 | 478.54 | 2201.62 | 482.63 | 2201.83 | 485.31 | 2202.13 | 487.44 | 2202.42 |
| 489.79 | 2202.71 | 490.2 | 2202.81 | 494.69 | 2203.21 | 495.79 | 2203.56 | 498.78 | 2203.65 |
| 502.83 | 2204.22 | 505.19 | 2204.39 | 509.47 | 2204.88 | 510.07 | 2204.91 | 512.77 | 2205.3 |
| 514.75 | 2205.73 | 517.98 | 2205.99 | 519.57 | 2206.38 | 522.61 | 2206.69 | 523.95 | 2206.96 |
| 526.7 | 2207.1 | 527.62 | 2207.28 | 529.4 | 2207.38 | 531.77 | 2207.78 | 535.48 | 2208.11 |
| 537.65 | 2208.26 | 539.91 | 2208.41 | 543.5 | 2208.71 | 545.69 | 2208.83 | 549.29 | 2208.81 |
| 551.76 | 2209.04 | 555.07 | 2209.14 | 557.06 | 2209.28 | 559.95 | 2209.47 | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .048 | 397.17 | .04 | 446.56 | .048 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 187.48 | 495.79 | 396.96 | 440.58 | 440.79 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2204.24 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.98 | Wt. n-Val. | 0.048 | 0.044 | |
| W.S. Elev (ft) | 2203.26 | Reach Len. (ft) | 396.96 | 440.58 | 440.79 |
| Crit W.S. (ft) | 2203.26 | Flow Area (sq ft) | 2.58 | 605.98 | |
| E.G. Slope (ft/ft) | 0.019359 | Area (sq ft) | 2.58 | 605.98 | |
| Q Total (cfs) | 4820.00 | Flow (cfs) | 3.14 | 4816.86 | |
| Top Width (ft) | 324.54 | Top Width (ft) | 17.17 | 307.37 | |
| Vel Total (ft/s) | 7.92 | Avg. Vel. (ft/s) | 1.22 | 7.95 | |
| Max Chl Dpth (ft) | 4.17 | Hydr. Depth (ft) | 0.15 | 1.97 | |
| Conv. Total (cfs) | 34642.1 | Conv. (cfs) | 22.6 | 34619.6 | |
| Length Wtd. (ft) | 440.57 | Wetted Per. (ft) | 17.17 | 307.94 | |
| Min Ch El (ft) | 2199.09 | Shear (lb/sq ft) | 0.18 | 2.38 | |
| Alpha | 1.01 | Stream Power (lb/ft s) | 0.22 | 18.90 | |
| Frctn Loss (ft) | 6.11 | Cum Volume (acre-ft) | 0.28 | 130.75 | 0.43 |
| C & E Loss (ft) | 0.17 | Cum SA (acres) | 0.50 | 49.57 | 0.76 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2204.24 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.98 | Wt. n-Val. | 0.048 | 0.044 | |
| W.S. Elev (ft) | 2203.26 | Reach Len. (ft) | 396.96 | 440.58 | 440.79 |
| Crit W.S. (ft) | 2203.26 | Flow Area (sq ft) | 2.58 | 605.98 | |
| E.G. Slope (ft/ft) | 0.019359 | Area (sq ft) | 2.58 | 605.98 | |
| Q Total (cfs) | 4820.00 | Flow (cfs) | 3.14 | 4816.86 | |
| Top Width (ft) | 324.54 | Top Width (ft) | 17.17 | 307.37 | |
| Vel Total (ft/s) | 7.92 | Avg. Vel. (ft/s) | 1.22 | 7.95 | |
| Max Chl Dpth (ft) | 4.17 | Hydr. Depth (ft) | 0.15 | 1.97 | |
| Conv. Total (cfs) | 34642.1 | Conv. (cfs) | 22.6 | 34619.6 | |
| Length Wtd. (ft) | 440.57 | Wetted Per. (ft) | 17.17 | 307.94 | |
| Min Ch El (ft) | 2199.09 | Shear (lb/sq ft) | 0.18 | 2.38 | |
| Alpha | 1.01 | Stream Power (lb/ft s) | 0.22 | 18.90 | |
| Frctn Loss (ft) | 6.11 | Cum Volume (acre-ft) | 0.28 | 130.75 | 0.43 |
| C & E Loss (ft) | 0.17 | Cum SA (acres) | 0.50 | 49.57 | 0.76 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical

depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 140.61 | 187.48 | 3.14 | 2.58 | 17.17 | 0.07 | 0.15 | 1.22 |
| 2 | Chan | 187.48 | 264.56 | 216.44 | 61.25 | 77.17 | 4.49 | 0.79 | 3.53 |
| 3 | Chan | 264.56 | 341.64 | 646.97 | 118.11 | 77.10 | 13.42 | 1.53 | 5.48 |
| 4 | Chan | 341.64 | 418.71 | 2086.34 | 225.42 | 77.35 | 43.29 | 2.92 | 9.26 |
| 5 | Chan | 418.71 | 495.79 | 1867.12 | 201.20 | 76.31 | 38.74 | 2.64 | 9.28 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 140.61 | 187.48 | 3.14 | 2.58 | 17.17 | 0.07 | 0.15 | 1.22 |
| 2 | Chan | 187.48 | 264.56 | 216.44 | 61.25 | 77.17 | 4.49 | 0.79 | 3.53 |
| 3 | Chan | 264.56 | 341.64 | 646.97 | 118.11 | 77.10 | 13.42 | 1.53 | 5.48 |
| 4 | Chan | 341.64 | 418.71 | 2086.34 | 225.42 | 77.35 | 43.29 | 2.92 | 9.26 |
| 5 | Chan | 418.71 | 495.79 | 1867.12 | 201.20 | 76.31 | 38.74 | 2.64 | 9.28 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: Ocotillo Wash 5
REACH: OWMS2 RS: 1.54838

INPUT
Description:
Station Elevation Data num= 121

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2209.38 | .58 | 2209.41 | 8.69 | 2209.89 | 16.57 | 2205.38 | 16.8 | 2205.23 |
| 17.12 | 2205 | 28.99 | 2196.88 | 32.71 | 2194.26 | 36.77 | 2191.06 | 39.59 | 2190.34 |
| 45.11 | 2188.87 | 53.57 | 2190.3 | 55.54 | 2190.58 | 56.54 | 2190.63 | 81.89 | 2191.79 |
| 87.94 | 2191.94 | 105.58 | 2192.29 | 119.8 | 2192.46 | 126.03 | 2192.57 | 132.52 | 2189.71 |
| 135.22 | 2189.29 | 140.26 | 2188.42 | 146.16 | 2188.22 | 148.01 | 2188.16 | 149.11 | 2188.14 |
| 151.8 | 2188.73 | 152.89 | 2188.96 | 156.31 | 2189.66 | 157.86 | 2189.99 | 160.51 | 2190.47 |
| 165.2 | 2191 | 165.87 | 2191.09 | 169.57 | 2191.56 | 173.78 | 2192.07 | 196.72 | 2190.66 |
| 197.89 | 2190.59 | 198.34 | 2190.57 | 203.93 | 2190.68 | 210.06 | 2190.38 | 221.34 | 2189.88 |
| 223.14 | 2189.8 | 229.28 | 2189.7 | 235.15 | 2191.77 | 239.68 | 2193.13 | 239.77 | 2193.13 |
| 262.27 | 2192.34 | 269.54 | 2192.45 | 288.24 | 2192.84 | 288.79 | 2192.81 | 290.08 | 2192.69 |
| 297.22 | 2192.13 | 303.18 | 2191.7 | 320.13 | 2191.86 | 321.72 | 2191.88 | 322.37 | 2191.93 |
| 328.25 | 2192.45 | 332.08 | 2192.57 | 339.63 | 2192.83 | 345.59 | 2193.09 | 346.71 | 2193.1 |
| 347.33 | 2193.13 | 352.54 | 2193.2 | 355.67 | 2193.18 | 358.23 | 2193.34 | 363.23 | 2193.38 |
| 365.9 | 2193.45 | 371.07 | 2193.45 | 372.22 | 2193.46 | 372.83 | 2193.47 | 378.79 | 2193.34 |
| 379.01 | 2193.34 | 380 | 2193.29 | 384.81 | 2192.29 | 389.11 | 2191.65 | 390.63 | 2191.53 |
| 392.38 | 2191.11 | 393.42 | 2190.83 | 395.48 | 2190.48 | 398.74 | 2189.77 | 403.83 | 2188.9 |
| 405.1 | 2188.95 | 405.21 | 2188.96 | 413.53 | 2188.69 | 414.16 | 2188.74 | 414.75 | 2188.78 |
| 415.25 | 2188.82 | 421.22 | 2189.34 | 423.65 | 2189.43 | 429.73 | 2189.63 | 429.88 | 2189.63 |
| 430.25 | 2189.65 | 431.36 | 2189.67 | 432.18 | 2189.66 | 432.44 | 2189.66 | 434.93 | 2189.69 |
| 439 | 2189.67 | 445.62 | 2189.61 | 447.79 | 2189.91 | 448.07 | 2189.94 | 450.45 | 2190.28 |
| 451.11 | 2190.4 | 453.08 | 2190.62 | 453.75 | 2190.67 | 454.32 | 2190.72 | 454.81 | 2190.78 |
| 459.75 | 2194.04 | 462.88 | 2195.99 | 462.96 | 2196.03 | 463.71 | 2196.36 | 465.28 | 2197.06 |
| 475.82 | 2201.73 | 476.78 | 2202.17 | 476.97 | 2202.24 | 477.18 | 2202.27 | 484.87 | 2203.53 |
| 487.33 | 2202.96 | 487.42 | 2202.94 | 487.52 | 2202.92 | 487.92 | 2202.93 | 498.81 | 2203.22 |
| 506.63 | 2202.98 | | | | | | | | |

Manning's n Values num= 5

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|---|---|
| 0 | .063 | 221.34 | .053 | 403.83 | .04 | 463.71 | .059 | 487.42 | .048 |

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
32.71 459.75 262.66 394.71 493.36 .1 .3
Left Levee Station= 372.83 Elevation= 2193.47

CROSS SECTION OUTPUT Profile #PF 1

| | | | | Left OB | Channel | Right OB |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 2193.91 | Element | | | | |
| Vel Head (ft) | 0.43 | Wt. n-Val. | | | 0.052 | |
| W.S. Elev (ft) | 2193.48 | Reach Len. (ft) | | 262.66 | 394.71 | 493.36 |
| Crit W.S. (ft) | 2193.48 | Flow Area (sq ft) | | | 917.07 | |
| E.G. Slope (ft/ft) | 0.010435 | Area (sq ft) | | | 917.07 | |
| Q Total (cfs) | 4820.00 | Flow (cfs) | | | 4820.00 | |
| Top Width (ft) | 425.19 | Top Width (ft) | | | 425.19 | |
| Vel Total (ft/s) | 5.26 | Avg. Vel. (ft/s) | | | 5.26 | |
| Max Chl Dpth (ft) | 5.34 | Hydr. Depth (ft) | | | 2.16 | |
| Conv. Total (cfs) | 47184.2 | Conv. (cfs) | | | 47184.2 | |
| Length Wtd. (ft) | 394.71 | Wetted Per. (ft) | | | 429.62 | |
| Min Ch El (ft) | 2188.14 | Shear (lb/sq ft) | | | 1.39 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | | 7.31 | |

```
* Frctn Loss (ft)        *    5.74  * Cum Volume (acre-ft)   *    0.26  *  123.05  *    0.43  *
* C & E Loss (ft)        *    0.02  * Cum SA (acres)         *    0.42  *   45.86  *    0.76  *
*****************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************************
* E.G. Elev (ft)         * 2193.91  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.43  * Wt. n-Val.              *          *   0.052  *          *
* W.S. Elev (ft)         * 2193.48  * Reach Len. (ft)         *  262.66  *  394.71  *  493.36  *
* Crit W.S. (ft)         * 2193.48  * Flow Area (sq ft)       *          *  917.07  *          *
* E.G. Slope (ft/ft)     *0.010435  * Area (sq ft)            *          *  917.07  *          *
* Q Total (cfs)          * 4820.00  * Flow (cfs)              *          * 4820.00  *          *
* Top Width (ft)         *  425.19  * Top Width (ft)           *          *  425.19  *          *
* Vel Total (ft/s)       *    5.26  * Avg. Vel. (ft/s)         *          *    5.26  *          *
* Max Chl Dpth (ft)      *    5.34  * Hydr. Depth (ft)         *          *    2.16  *          *
* Conv. Total (cfs)      * 47184.2  * Conv. (cfs)              *          * 47184.2  *          *
* Length Wtd. (ft)       *  394.71  * Wetted Per. (ft)         *          *  429.62  *          *
* Min Ch El (ft)         * 2188.14  * Shear (lb/sq ft)         *          *    1.39  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s)   *          *    7.31  *          *
* Frctn Loss (ft)        *    5.74  * Cum Volume (acre-ft)     *    0.26  *  123.05  *    0.43  *
* C & E Loss (ft)        *    0.02  * Cum SA (acres)           *    0.42  *   45.86  *    0.76  *
*****************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *  (ft/s) *
* 1        * Chan      * 32.71     * 146.08    * 1117.73 *   266.89 *   114.39 *    23.19 *     2.37 *     4.19 *
* 2        * Chan      * 146.08    * 259.46    * 1299.53 *   281.38 *   114.34 *    26.96 *     2.48 *     4.62 *
* 3        * Chan      * 259.46    * 372.83    *  268.80 *   101.98 *   113.47 *     5.58 *     0.90 *     2.64 *
* 4        * Chan      * 372.83    * 459.75    * 2133.95 *   266.81 *    87.42 *    44.27 *     3.10 *     8.00 *
*****************************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.

  Profile #PF 2
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *  (ft/s) *
* 1        * Chan      * 32.71     * 146.08    * 1117.73 *   266.89 *   114.39 *    23.19 *     2.37 *     4.19 *
* 2        * Chan      * 146.08    * 259.46    * 1299.53 *   281.38 *   114.34 *    26.96 *     2.48 *     4.62 *
* 3        * Chan      * 259.46    * 372.83    *  268.80 *   101.98 *   113.47 *     5.58 *     0.90 *     2.64 *
* 4        * Chan      * 372.83    * 459.75    * 2133.95 *   266.81 *    87.42 *    44.27 *     3.10 *     8.00 *
*****************************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.

CROSS SECTION


RIVER: Ocotillo Wash 5
REACH: OWMS2              RS: 1.47363

INPUT
Description:
Station Elevation Data    num=     135
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
       0  2201.5    2.79 2201.48   11.84 2200.75    12.6 2200.68   24.25 2199.68
   25.43 2199.58    25.7 2199.55   25.82 2199.54   27.41 2199.41   27.86 2199.38
   28.07 2199.36   28.59 2199.34    30.5 2199.24   49.01 2198.09   49.37 2198.13
   49.74  2198.1   49.84  2198.1   51.82 2197.96   52.28 2197.96   55.81 2197.62
   56.62 2197.64   58.94 2197.46   63.64 2197.04   66.03  2196.8   79.94 2195.79
   80.62 2195.67   83.96  2195.4   86.08 2195.13   86.67 2195.06   87.66 2194.97
   90.27 2194.47   90.76 2194.47   91.23 2194.46   92.19 2194.43   92.73 2194.29
   93.67 2194.21   94.73  2194.1   96.78  2194.1   97.98  2193.9   99.63 2193.65
  100.65 2193.66  102.85 2193.53   103.2 2193.47  105.02 2192.99  106.56 2192.77
   107.2 2192.72  110.84 2192.47  111.63  2191.8  114.67 2191.17  115.93 2190.97
  120.02  2190.1  120.23 2189.98  122.15 2188.53     124 2186.98  124.82 2186.23
  125.21 2185.85  125.32 2185.74  125.89  2185.2  127.78 2182.25     130 2181.12
```

```
  132.01 2179.92  132.02 2179.92  140.43 2180.17  146.04 2180.27  147.59 2180.29
  160.25 2180.98  165.62 2181.24  177.64 2181.19  191.21 2181.13  202.67 2182.61
  203.35 2182.68  208.05 2182.47  209.18 2182.44   212.2 2182.33  221.25 2184.97
  224.78 2185.99  243.16 2184.88  249.99 2184.55  253.41 2184.43  256.38  2184.3
  257.34 2184.27  258.57 2184.18  259.41 2184.15  265.94 2184.05  266.72 2184.01
   267.2 2183.96  273.03 2183.55  278.24  2182.7   280.2 2182.78  282.47 2182.94
  286.78 2183.19  290.07 2183.47  297.37 2182.87  303.09 2182.54  304.52 2182.55
  310.11 2182.63  320.53 2182.84  325.99 2182.88  332.18 2182.99  334.34 2182.98
   341.7 2183.08  358.22 2182.88  359.05 2182.85  367.51 2180.94  373.24 2182.56
  377.34 2183.87  378.84 2183.86  380.72 2183.79   389.5 2183.87  391.96 2183.62
  392.56 2183.59  421.41    2184  430.63 2184.17  432.38 2184.13   433.6 2184.11
  444.48 2183.89  455.94 2183.54  461.47 2183.26  461.84  2183.2  467.86 2183.17
   472.9 2183.27   479.7 2183.45  487.46 2185.31  492.09 2186.51  495.17 2187.76
  504.33 2191.74  506.28 2192.02  511.25 2192.76  512.63 2192.63  514.36 2192.44
  518.46 2192.96  520.68 2193.26  520.83 2193.27  521.44 2193.35  536.02 2193.64

Manning's n Values        num=      3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
       0    .063  132.02     .04  177.64    .058

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        125.89  487.46            318.79  333.42  454.72            .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)          * 2185.69  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.66  * Wt. n-Val.              *          *    0.056 *          *
* W.S. Elev (ft)          * 2185.04  * Reach Len. (ft)         *  318.79  *  333.42  *  454.72  *
* Crit W.S. (ft)          * 2184.67  * Flow Area (sq ft)       *          *  741.08  *          *
* E.G. Slope (ft/ft)      *0.021610  * Area (sq ft)            *          *  741.08  *          *
* Q Total (cfs)           * 4820.00  * Flow (cfs)              *          * 4820.00  *          *
* Top Width (ft)          *  341.26  * Top Width (ft)           *          *  341.26  *          *
* Vel Total (ft/s)        *    6.50  * Avg. Vel. (ft/s)         *          *    6.50  *          *
* Max Chl Dpth (ft)       *    5.12  * Hydr. Depth (ft)         *          *    2.17  *          *
* Conv. Total (cfs)       * 32788.7  * Conv. (cfs)              *          * 32788.7  *          *
* Length Wtd. (ft)        *  333.43  * Wetted Per. (ft)         *          *  344.96  *          *
* Min Ch El (ft)          * 2179.92  * Shear (lb/sq ft)         *          *    2.90  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s)   *          *   18.85  *          *
* Frctn Loss (ft)         *    7.32  * Cum Volume (acre-ft)     *    0.26  *  115.53  *    0.43  *
* C & E Loss (ft)         *    0.01  * Cum SA (acres)           *    0.42  *   42.39  *    0.76  *
*****************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************
* E.G. Elev (ft)          * 2185.69  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    0.66  * Wt. n-Val.              *          *    0.056 *          *
* W.S. Elev (ft)          * 2185.04  * Reach Len. (ft)         *  318.79  *  333.42  *  454.72  *
* Crit W.S. (ft)          * 2184.67  * Flow Area (sq ft)       *          *  741.08  *          *
* E.G. Slope (ft/ft)      *0.021610  * Area (sq ft)            *          *  741.08  *          *
* Q Total (cfs)           * 4820.00  * Flow (cfs)              *          * 4820.00  *          *
* Top Width (ft)          *  341.26  * Top Width (ft)           *          *  341.26  *          *
* Vel Total (ft/s)        *    6.50  * Avg. Vel. (ft/s)         *          *    6.50  *          *
* Max Chl Dpth (ft)       *    5.12  * Hydr. Depth (ft)         *          *    2.17  *          *
* Conv. Total (cfs)       * 32788.7  * Conv. (cfs)              *          * 32788.7  *          *
* Length Wtd. (ft)        *  333.43  * Wetted Per. (ft)         *          *  344.96  *          *
* Min Ch El (ft)          * 2179.92  * Shear (lb/sq ft)         *          *    2.90  *          *
* Alpha                   *    1.00  * Stream Power (lb/ft s)   *          *   18.85  *          *
* Frctn Loss (ft)         *    7.32  * Cum Volume (acre-ft)     *    0.26  *  115.53  *    0.43  *
* C & E Loss (ft)         *    0.01  * Cum SA (acres)           *    0.42  *   42.39  *    0.76  *
*****************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) *  (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan     * 125.89    * 216.28    *  3149.31 *   339.88 *    92.72 *    65.34 *     3.76 *     9.27 *
* 2        * Chan     * 216.28    * 306.68    *   351.51 *    96.95 *    71.71 *     7.29 *     1.36 *     3.63 *
* 3        * Chan     * 306.68    * 397.07    *   921.56 *   190.19 *    91.06 *    19.12 *     2.10 *     4.85 *
* 4        * Chan     * 397.07    * 487.46    *   397.62 *   114.05 *    89.47 *     8.25 *     1.28 *     3.49 *
*************************************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 2
*************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) *  (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan     * 125.89    * 216.28    *  3149.31 *   339.88 *    92.72 *    65.34 *     3.76 *     9.27 *
* 2        * Chan     * 216.28    * 306.68    *   351.51 *    96.95 *    71.71 *     7.29 *     1.36 *     3.63 *
* 3        * Chan     * 306.68    * 397.07    *   921.56 *   190.19 *    91.06 *    19.12 *     2.10 *     4.85 *
* 4        * Chan     * 397.07    * 487.46    *   397.62 *   114.05 *    89.47 *     8.25 *     1.28 *     3.49 *
*************************************************************************************************************

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 5
```

REACH: OWMS2 RS: 1.41048

INPUT
Description:
Station Elevation Data num= 181

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2194.57 | 1.6 | 2194.38 | 4.53 | 2194.01 | 7.48 | 2193.5 | 12.3 | 2192.73 |
| 14.14 | 2192.42 | 15.94 | 2192.41 | 17.2 | 2192.23 | 18.06 | 2192.09 | 18.71 | 2192.02 |
| 22.1 | 2191.75 | 22.55 | 2191.7 | 25.29 | 2191.57 | 28.59 | 2191.36 | 33.49 | 2191.14 |
| 35.07 | 2190.86 | 39.57 | 2190.88 | 47.12 | 2190.95 | 49.43 | 2190.98 | 50.35 | 2190.97 |
| 58.24 | 2190.79 | 58.51 | 2190.76 | 69.46 | 2190.53 | 74.31 | 2190.35 | 76.51 | 2190.37 |
| 76.71 | 2190.35 | 80.63 | 2190.37 | 82.46 | 2190.37 | 82.58 | 2190.35 | 84.11 | 2190.24 |
| 85.07 | 2190.14 | 85.28 | 2190.12 | 90.46 | 2190.13 | 94.72 | 2190.13 | 95.5 | 2190.11 |
| 100.04 | 2189.73 | 104.1 | 2189.39 | 104.15 | 2189.4 | 104.35 | 2189.4 | 109.12 | 2189.22 |
| 111.31 | 2189.22 | 111.77 | 2189.23 | 115.03 | 2189.2 | 116.11 | 2189.17 | 125.76 | 2188.82 |
| 126.99 | 2188.78 | 127.21 | 2188.78 | 127.53 | 2188.77 | 128.18 | 2188.76 | 129.96 | 2188.68 |
| 130.89 | 2188.64 | 133.77 | 2188.5 | 135.72 | 2188.4 | 154.21 | 2187.52 | 154.77 | 2187.46 |
| 161.12 | 2186.84 | 169.84 | 2185.85 | 171.7 | 2185.63 | 172.54 | 2185.58 | 174.4 | 2185.52 |
| 177.36 | 2181.27 | 180.87 | 2177.06 | 182.2 | 2175.35 | 189.51 | 2174.3 | 190.89 | 2174.1 |
| 190.91 | 2174.1 | 193.34 | 2173.94 | 208.76 | 2172.96 | 212.55 | 2173.18 | 216.44 | 2173.44 |
| 219.14 | 2173.59 | 220.74 | 2173.78 | 222.58 | 2174.01 | 231.49 | 2175.06 | 233.39 | 2175.29 |
| 246.11 | 2177.27 | 250.02 | 2177.93 | 254.44 | 2177.78 | 255.88 | 2177.72 | 258.34 | 2177.66 |
| 264.21 | 2177.47 | 266.19 | 2177.38 | 269.6 | 2177.25 | 275.44 | 2177.05 | 276.95 | 2176.94 |
| 284.05 | 2176.74 | 284.3 | 2176.74 | 291.53 | 2176.77 | 297.01 | 2176.58 | 298.49 | 2176.54 |
| 299.68 | 2176.5 | 314.2 | 2176.89 | 318.6 | 2176.83 | 322.84 | 2176.81 | 325.62 | 2176.77 |
| 328.49 | 2176.71 | 332.72 | 2176.69 | 335.13 | 2176.67 | 340.22 | 2176.65 | 341.89 | 2176.64 |
| 348.58 | 2176.42 | 351.43 | 2176.47 | 355.74 | 2176.56 | 356.12 | 2176.55 | 356.67 | 2176.54 |
| 361.7 | 2176.25 | 362.12 | 2176.23 | 364.63 | 2175.94 | 370 | 2175.73 | 374.86 | 2175.59 |
| 376.29 | 2175.52 | 378.7 | 2175.26 | 380.66 | 2175.22 | 382.39 | 2175.16 | 383.95 | 2175.14 |
| 384.99 | 2175.13 | 386.42 | 2175.13 | 389.13 | 2175.11 | 390.14 | 2175.1 | 391.48 | 2175.06 |
| 394.25 | 2175 | 396.8 | 2174.85 | 398.29 | 2174.7 | 400.42 | 2174.27 | 401.05 | 2174.24 |
| 401.83 | 2174.18 | 402.86 | 2174.11 | 408.66 | 2173.86 | 413.48 | 2174.05 | 414.3 | 2174.06 |
| 415.2 | 2173.85 | 422.01 | 2172.43 | 424.88 | 2172.42 | 435.52 | 2172.47 | 439.11 | 2173.03 |
| 443.51 | 2173.54 | 448.56 | 2174.19 | 462.86 | 2174.38 | 466.15 | 2174.55 | 466.65 | 2174.6 |
| 467.34 | 2174.66 | 468.37 | 2174.7 | 469.06 | 2174.74 | 475.36 | 2175.09 | 476.6 | 2175.3 |
| 476.99 | 2175.34 | 483.09 | 2176.13 | 484.35 | 2176.36 | 485.21 | 2176.49 | 488.12 | 2176.87 |
| 488.62 | 2176.93 | 490.12 | 2177.17 | 490.17 | 2177.18 | 506.19 | 2181.78 | 512.39 | 2183.05 |
| 512.45 | 2183.06 | 512.58 | 2183.09 | 524.72 | 2185.24 | 525.33 | 2185.25 | 529.42 | 2185.32 |
| 535.51 | 2185.41 | 536.94 | 2185.42 | 538.33 | 2185.44 | 538.57 | 2185.44 | 559.31 | 2186.06 |
| 560.19 | 2186.09 | 564.46 | 2186.22 | 566.58 | 2186.22 | 577.99 | 2185.96 | 613.01 | 2184.87 |
| 614.05 | 2184.99 | 614.72 | 2185.06 | 617.66 | 2184.84 | 620.87 | 2184.73 | 622.22 | 2184.65 |
| 623.15 | 2184.61 | 635.19 | 2184.74 | 639.97 | 2184.87 | 641.57 | 2184.99 | 642.14 | 2185.04 |
| 650.24 | 2185.58 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .063 | 190.91 | .04 | 219.14 | .058 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 180.87 | 490.12 | 436.68 | 467.21 | 549.74 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2178.37 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.74 | Wt. n-Val. | 0.063 | 0.057 | 0.058 |
| W.S. Elev (ft) | 2177.63 | Reach Len. (ft) | 436.68 | 467.21 | 549.74 |
| Crit W.S. (ft) | 2177.25 | Flow Area (sq ft) | 0.13 | 699.51 | 0.37 |
| E.G. Slope (ft/ft) | 0.022291 | Area (sq ft) | 0.13 | 699.51 | 0.37 |
| Q Total (cfs) | 4820.00 | Flow (cfs) | 0.15 | 4819.33 | 0.52 |
| Top Width (ft) | 300.22 | Top Width (ft) | 0.47 | 298.13 | 1.61 |
| Vel Total (ft/s) | 6.89 | Avg. Vel. (ft/s) | 1.13 | 6.89 | 1.40 |
| Max Chl Dpth (ft) | 5.21 | Hydr. Depth (ft) | 0.28 | 2.35 | 0.23 |
| Conv. Total (cfs) | 32283.4 | Conv. (cfs) | 1.0 | 32278.9 | 3.5 |
| Length Wtd. (ft) | 467.21 | Wetted Per. (ft) | 0.74 | 300.01 | 1.67 |
| Min Ch El (ft) | 2172.42 | Shear (lb/sq ft) | 0.25 | 3.24 | 0.31 |
| Alpha | 1.00 | Stream Power (lb/ft s) | 0.29 | 22.36 | 0.43 |
| Frctn Loss (ft) | 10.86 | Cum Volume (acre-ft) | 0.26 | 110.02 | 0.43 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 0.42 | 39.94 | 0.75 |

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2178.37 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.74 | Wt. n-Val. | 0.063 | 0.057 | 0.058 |
| W.S. Elev (ft) | 2177.63 | Reach Len. (ft) | 436.68 | 467.21 | 549.74 |
| Crit W.S. (ft) | 2177.25 | Flow Area (sq ft) | 0.13 | 699.51 | 0.37 |
| E.G. Slope (ft/ft) | 0.022291 | Area (sq ft) | 0.13 | 699.51 | 0.37 |
| Q Total (cfs) | 4820.00 | Flow (cfs) | 0.15 | 4819.33 | 0.52 |
| Top Width (ft) | 300.22 | Top Width (ft) | 0.47 | 298.13 | 1.61 |
| Vel Total (ft/s) | 6.89 | Avg. Vel. (ft/s) | 1.13 | 6.89 | 1.40 |
| Max Chl Dpth (ft) | 5.21 | Hydr. Depth (ft) | 0.28 | 2.35 | 0.23 |
| Conv. Total (cfs) | 32283.4 | Conv. (cfs) | 1.0 | 32278.9 | 3.5 |
| Length Wtd. (ft) | 467.21 | Wetted Per. (ft) | 0.74 | 300.01 | 1.67 |
| Min Ch El (ft) | 2172.42 | Shear (lb/sq ft) | 0.25 | 3.24 | 0.31 |
| Alpha | 1.00 | Stream Power (lb/ft s) | 0.29 | 22.36 | 0.43 |
| Frctn Loss (ft) | 10.86 | Cum Volume (acre-ft) | 0.26 | 110.02 | 0.43 |
| C & E Loss (ft) | 0.00 | Cum SA (acres) | 0.42 | 39.94 | 0.75 |

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 135.65 | 180.87 | 0.15 | 0.13 | 0.74 | 0.00 | 0.28 | 1.13 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| * 2 | * Chan | * 180.87 | * 258.18 | * 1873.56 * | 208.44 * | 68.62 * | 38.87 * | 3.09 * | 8.99 * |
| * 3 | * Chan | * 258.18 | * 335.50 | * 150.30 * | 57.60 * | 76.18 * | 3.12 * | 0.76 * | 2.61 * |
| * 4 | * Chan | * 335.50 | * 412.81 | * 836.68 * | 162.42 * | 77.44 * | 17.36 * | 2.10 * | 5.15 * |
| * 5 | * Chan | * 412.81 | * 490.12 | * 1958.79 * | 271.05 * | 77.77 * | 40.64 * | 3.51 * | 7.23 * |
| * 6 | * ROB | * 490.12 | * 530.15 | * 0.52 * | 0.37 * | 1.67 * | 0.01 * | 0.23 * | 1.40 * |

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| * | * Pos | * Left Sta (ft) | * Right Sta (ft) | * Flow (cfs) | * Area (sq ft) | * W.P. (ft) | * Percent Conv | * Hydr Depth(ft) | * Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| * 1 | * LOB | * 135.65 | * 180.87 | * 0.15 | * 0.13 | * 0.74 | * 0.00 | * 0.28 | * 1.13 * |
| * 2 | * Chan | * 180.87 | * 258.18 | * 1873.56 | * 208.44 | * 68.62 | * 38.87 | * 3.09 | * 8.99 * |
| * 3 | * Chan | * 258.18 | * 335.50 | * 150.30 | * 57.60 | * 76.18 | * 3.12 | * 0.76 | * 2.61 * |
| * 4 | * Chan | * 335.50 | * 412.81 | * 836.68 | * 162.42 | * 77.44 | * 17.36 | * 2.10 | * 5.15 * |
| * 5 | * Chan | * 412.81 | * 490.12 | * 1958.79 | * 271.05 | * 77.77 | * 40.64 | * 3.51 | * 7.23 * |
| * 6 | * ROB | * 490.12 | * 530.15 | * 0.52 | * 0.37 | * 1.67 | * 0.01 | * 0.23 | * 1.40 * |

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 5
REACH: OWMS2 RS: 1.32199

INPUT
Description:
Station Elevation Data num= 182

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2190.16 | 1.78 | 2190.08 | 3.91 | 2189.99 | 12 | 2189.63 | 33.5 | 2188.56 |
| 36.23 | 2188.4 | 44.47 | 2188.25 | 46.47 | 2188.2 | 47.83 | 2188.17 | 48.1 | 2188.16 |
| 51.68 | 2187.48 | 57.79 | 2186.09 | 63.41 | 2184.75 | 65.79 | 2184.15 | 67.64 | 2183.87 |
| 72.38 | 2183.09 | 75.51 | 2182.42 | 77.24 | 2182.02 | 80.97 | 2181.1 | 84.87 | 2180.64 |
| 85.37 | 2180.64 | 85.43 | 2180.63 | 90.44 | 2180.22 | 90.77 | 2180.08 | 93.32 | 2180.08 |
| 94.81 | 2180.05 | 110.24 | 2179.11 | 110.98 | 2179.07 | 112.94 | 2178.77 | 115.06 | 2178.41 |
| 137.91 | 2181.1 | 143.94 | 2182.04 | 145.7 | 2182.64 | 155.14 | 2185.77 | 158.95 | 2185.8 |
| 161.78 | 2186.18 | 167.05 | 2186.43 | 168.03 | 2186.48 | 173.58 | 2186.78 | 173.66 | 2186.72 |
| 174.17 | 2186.36 | 177.23 | 2184.17 | 204.3 | 2164.83 | 228.84 | 2164.83 | 236.81 | 2166.78 |
| 237.22 | 2166.9 | 237.45 | 2166.91 | 237.89 | 2166.87 | 239.31 | 2166.71 | 239.85 | 2166.59 |
| 255.89 | 2165.96 | 279.83 | 2165.56 | 284.61 | 2165.36 | 293.1 | 2165.22 | 309.27 | 2165.13 |
| 309.37 | 2165.13 | 319.82 | 2166.3 | 321.32 | 2166.25 | 334.56 | 2166.02 | 337.61 | 2165.96 |
| 338.08 | 2165.95 | 338.66 | 2165.98 | 360.39 | 2166.59 | 362.77 | 2166.65 | 363.65 | 2166.71 |
| 372.81 | 2167.45 | 376.15 | 2167.62 | 381.6 | 2168.06 | 384.51 | 2168.2 | 388.33 | 2168.11 |
| 388.77 | 2168.09 | 389.96 | 2168.12 | 395.95 | 2167.82 | 396.23 | 2167.78 | 396.31 | 2167.77 |
| 405.24 | 2166.73 | 409.04 | 2166.2 | 412.73 | 2165.71 | 413.47 | 2165.61 | 420.38 | 2164.94 |
| 420.86 | 2164.89 | 421.12 | 2164.86 | 421.31 | 2164.84 | 421.44 | 2164.82 | 422.73 | 2164.77 |
| 423.22 | 2164.76 | 425.31 | 2164.74 | 439.69 | 2164.56 | 444.22 | 2164.29 | 451.86 | 2164.02 |
| 454.67 | 2163.8 | 461.24 | 2162.99 | 464.68 | 2163.44 | 471.14 | 2164.58 | 474.03 | 2165.07 |
| 476.51 | 2165.52 | 496.76 | 2165.01 | 497.1 | 2165 | 502.12 | 2164.87 | 503.23 | 2164.85 |
| 503.6 | 2164.84 | 503.84 | 2164.83 | 504.83 | 2164.81 | 505.05 | 2164.81 | 505.25 | 2164.8 |
| 505.58 | 2164.8 | 506 | 2165.5 | 531.6 | 2164.47 | 532.03 | 2164.47 | 532.37 | 2164.39 |
| 535.22 | 2164.68 | 541.65 | 2165.17 | 545.85 | 2164.74 | 548.78 | 2164.46 | 551.76 | 2164.04 |
| 555.06 | 2163.66 | 562.95 | 2162.73 | 570.66 | 2162.79 | 574.8 | 2163.86 | 579.09 | 2164.83 |
| 587.45 | 2164.17 | 599.83 | 2163.59 | 601.37 | 2163.54 | 603.88 | 2163.38 | 607.54 | 2163.16 |
| 610.47 | 2162.38 | 616.77 | 2160.48 | 640.07 | 2170.25 | 648.65 | 2173.95 | 653.57 | 2174 |
| 653.82 | 2174.01 | 660.74 | 2174.25 | 665.45 | 2174.3 | 665.95 | 2174.3 | 668.13 | 2174.41 |
| 674.8 | 2174.72 | 681.89 | 2174.93 | 682.25 | 2174.9 | 683.54 | 2174.94 | 690.49 | 2174.95 |
| 694.44 | 2175.04 | 698.85 | 2175.16 | 703.66 | 2175.28 | 705.92 | 2175.21 | 708.94 | 2175.24 |
| 711.54 | 2175.28 | 713.85 | 2175.27 | 716.47 | 2175.29 | 733.21 | 2174.7 | 734.86 | 2174.68 |
| 735.74 | 2174.68 | 736.68 | 2174.67 | 737.51 | 2174.7 | 738.39 | 2174.72 | 739.83 | 2175.17 |
| 740.81 | 2175.22 | 748.18 | 2175.39 | 749.86 | 2175.28 | 754.54 | 2175.06 | 756.11 | 2175 |
| 760.34 | 2174.88 | 770.65 | 2174.46 | 774.31 | 2174.28 | 777.67 | 2174.1 | 783.98 | 2173.75 |
| 788 | 2173.48 | 794.58 | 2173.31 | 800.05 | 2173.24 | 807.21 | 2171.98 | 810.89 | 2171.29 |
| 826.97 | 2173.81 | 836.94 | 2175.45 | 847.43 | 2176.98 | 851.01 | 2177.42 | 869.41 | 2179.52 |
| 870.66 | 2179.66 | 874.2 | 2180.08 | 876.31 | 2180.31 | 877.61 | 2180.49 | 877.96 | 2180.52 |
| 886.31 | 2181.11 | 900.58 | 2182.4 | | | | | | |

Manning's n Values num= 4

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|
| 0 | .068 | 177.23 | .04 | 228.84 | .053 | 412.73 | .048 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 177.23 | 640.07 | 621.82 | 602.67 | 430.88 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| * E.G. Elev (ft) | * 2167.51 | * Element | * | Left OB | * | Channel | * | Right OB | * |
| * Vel Head (ft) | * 0.77 | * Wt. n-Val. | * | | * | 0.049 | * | | * |
| * W.S. Elev (ft) | * 2166.74 | * Reach Len. (ft) | * | 621.82 | * | 602.67 | * | 430.88 | * |
| * Crit W.S. (ft) | * 2166.57 | * Flow Area (sq ft) | * | | * | 714.87 | * | | * |
| * E.G. Slope (ft/ft) | *0.024228 | * Area (sq ft) | * | | * | 714.87 | * | | * |
| * Q Total (cfs) | * 5020.00 | * Flow (cfs) | * | | * | 5020.00 | * | | * |
| * Top Width (ft) | * 386.52 | * Top Width (ft) | * | | * | 386.52 | * | | * |
| * Vel Total (ft/s) | * 7.02 | * Avg. Vel. (ft/s) | * | | * | 7.02 | * | | * |
| * Max Chl Dpth (ft) | * 6.26 | * Hydr. Depth (ft) | * | | * | 1.85 | * | | * |
| * Conv. Total (cfs) | * 32251.0 | * Conv. (cfs) | * | | * | 32251.0 | * | | * |
| * Length Wtd. (ft) | * 602.63 | * Wetted Per. (ft) | * | | * | 390.43 | * | | * |
| * Min Ch El (ft) | * 2160.48 | * Shear (lb/sq ft) | * | | * | 2.77 | * | | * |
| * Alpha | * 1.00 | * Stream Power (lb/ft s) | * | | * | 19.45 | * | | * |
| * Frctn Loss (ft) | * 12.01 | * Cum Volume (acre-ft) | * | 0.26 | * | 102.44 | * | 0.43 | * |
| * C & E Loss (ft) | * 0.01 | * Cum SA (acres) | * | 0.42 | * | 36.27 | * | 0.74 | * |

Warning: Divided flow computed for this cross-section.

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 2167.51 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.77 | Wt. n-Val. | | 0.049 | |
| W.S. Elev (ft) | 2166.74 | Reach Len. (ft) | 621.82 | 602.67 | 430.88 |
| Crit W.S. (ft) | 2166.57 | Flow Area (sq ft) | | 714.87 | |
| E.G. Slope (ft/ft) | 0.024228 | Area (sq ft) | | 714.87 | |
| Q Total (cfs) | 5020.00 | Flow (cfs) | | 5020.00 | |
| Top Width (ft) | 386.52 | Top Width (ft) | | 386.52 | |
| Vel Total (ft/s) | 7.02 | Avg. Vel. (ft/s) | | 7.02 | |
| Max Chl Dpth (ft) | 6.26 | Hydr. Depth (ft) | | 1.85 | |
| Conv. Total (cfs) | 32251.0 | Conv. (cfs) | | 32251.0 | |
| Length Wtd. (ft) | 602.63 | Wetted Per. (ft) | | 390.43 | |
| Min Ch El (ft) | 2160.48 | Shear (lb/sq ft) | | 2.77 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 19.45 | |
| Frctn Loss (ft) | 12.01 | Cum Volume (acre-ft) | 0.26 | 102.44 | 0.43 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.42 | 36.27 | 0.74 |

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 177.23 | 292.94 | 565.66 | 105.99 | 89.79 | 11.27 | 1.19 | 5.34 |
| 2 | Chan | 292.94 | 408.65 | 192.57 | 59.28 | 74.68 | 3.84 | 0.79 | 3.25 |
| 3 | Chan | 408.65 | 524.36 | 1515.37 | 229.00 | 116.50 | 30.19 | 1.98 | 6.62 |
| 4 | Chan | 524.36 | 640.07 | 2746.40 | 320.61 | 109.47 | 54.71 | 2.99 | 8.57 |

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 177.23 | 292.94 | 565.66 | 105.99 | 89.79 | 11.27 | 1.19 | 5.34 |
| 2 | Chan | 292.94 | 408.65 | 192.57 | 59.28 | 74.68 | 3.84 | 0.79 | 3.25 |
| 3 | Chan | 408.65 | 524.36 | 1515.37 | 229.00 | 116.50 | 30.19 | 1.98 | 6.62 |
| 4 | Chan | 524.36 | 640.07 | 2746.40 | 320.61 | 109.47 | 54.71 | 2.99 | 8.57 |

Warning: Divided flow computed for this cross-section.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 5
REACH: OWMS2 RS: 1.20785

INPUT
Description:
Station Elevation Data num= 170

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2174.34 | 8.3 | 2173.81 | 10.69 | 2173.68 | 15.64 | 2173.31 | 17.08 | 2173.14 |
| 20.23 | 2172.79 | 29.42 | 2169.75 | 34.84 | 2167.89 | 44.56 | 2164.74 | 58.94 | 2159.78 |
| 59.75 | 2159.51 | 61 | 2159.05 | 68.59 | 2156.9 | 72.4 | 2155.88 | 86.07 | 2152.91 |
| 88.25 | 2152.7 | 94.59 | 2153.66 | 99.34 | 2154.24 | 106.92 | 2154.25 | 108.89 | 2154.28 |
| 115.21 | 2154.23 | 117.19 | 2154.04 | 117.85 | 2154 | 118.09 | 2154 | 127.5 | 2153.68 |
| 152.07 | 2152.8 | 163.25 | 2152.94 | 166.11 | 2152.99 | 166.93 | 2152.74 | 170.65 | 2151.6 |
| 170.68 | 2151.6 | 181.12 | 2152.43 | 193.31 | 2152.28 | 199.92 | 2151.85 | 202.22 | 2151.69 |
| 204.94 | 2152.23 | 208.17 | 2152.82 | 210.36 | 2152.74 | 212.6 | 2152.68 | 213.84 | 2152.64 |
| 220.65 | 2152.44 | 224.08 | 2152.36 | 225.3 | 2152.34 | 225.4 | 2152.34 | 225.59 | 2152.32 |
| 228.95 | 2152.46 | 239.2 | 2152.04 | 241.73 | 2151.81 | 251.94 | 2151.45 | 253.47 | 2151.43 |
| 254.57 | 2151.42 | 255.76 | 2151.44 | 256.67 | 2151.4 | 257.8 | 2151.39 | 259.34 | 2151.42 |
| 260.24 | 2151.27 | 261.16 | 2151.27 | 261.35 | 2151.28 | 267.34 | 2151.51 | 271.99 | 2152.06 |
| 272.14 | 2152.1 | 272.81 | 2152.13 | 274.13 | 2152.22 | 277.53 | 2152.37 | 280.54 | 2152.72 |
| 283.78 | 2152.92 | 288.85 | 2153.13 | 289.75 | 2153.17 | 291.81 | 2153.14 | 295.44 | 2152.8 |
| 297.7 | 2152.61 | 298.71 | 2152.53 | 302.64 | 2152.18 | 303.1 | 2152.17 | 307.98 | 2152.37 |
| 308.95 | 2152.5 | 316.57 | 2152.62 | 343.42 | 2152.02 | 347.48 | 2151.81 | 351.53 | 2151.58 |
| 354.69 | 2151.66 | 359.12 | 2151.1 | 360.24 | 2151.21 | 360.5 | 2151.24 | 360.63 | 2151.25 |
| 367.27 | 2152.08 | 383.13 | 2152.3 | 383.34 | 2152.27 | 385.94 | 2152.58 | 386.52 | 2152.64 |
| 387.28 | 2152.8 | 388.93 | 2153.1 | 394.17 | 2154.07 | 396.09 | 2154.43 | 398.7 | 2154.38 |
| 405.02 | 2154.33 | 409.11 | 2154.32 | 420.3 | 2154.15 | 423.44 | 2154.12 | 425.03 | 2154.11 |
| 427.15 | 2154.07 | 435.21 | 2153.49 | 441.77 | 2152.98 | 443.29 | 2153.21 | 449.88 | 2154.39 |
| 450.21 | 2154.45 | 450.3 | 2154.46 | 450.58 | 2154.46 | 451.45 | 2154.48 | 474.24 | 2154.98 |
| 477.28 | 2155.33 | 482.51 | 2155.56 | 488.02 | 2155.83 | 490.79 | 2155.98 | 495.01 | 2156.04 |
| 495.74 | 2156.16 | 497.23 | 2156.45 | 504.67 | 2157.82 | 508.44 | 2158.65 | 509.47 | 2158.76 |
| 514.16 | 2159.18 | 526.3 | 2161.11 | 536.81 | 2162.66 | 539.4 | 2163.09 | 540.53 | 2163.3 |
| 545.35 | 2163.45 | 556.39 | 2163.81 | 559.36 | 2163.89 | 563.47 | 2163.69 | 568.84 | 2161.63 |
| 576.6 | 2158.71 | 587.37 | 2157.56 | 587.62 | 2157.54 | 587.72 | 2157.53 | 587.95 | 2157.54 |
| 596.06 | 2157.86 | 598.22 | 2158.46 | 598.71 | 2158.53 | 617.68 | 2163.24 | 621.77 | 2163.81 |
| 623.2 | 2164.05 | 624.36 | 2164.26 | 625.5 | 2164.54 | 626.17 | 2164.66 | 626.82 | 2164.72 |
| 627.7 | 2164.78 | 647.51 | 2168.44 | 648.6 | 2168.84 | 651.67 | 2169.14 | 654.07 | 2169.99 |
| 654.22 | 2170.01 | 654.35 | 2170 | 654.76 | 2170.06 | 654.88 | 2170.08 | 655.24 | 2170.16 |
| 656.16 | 2170.24 | 668.64 | 2171.63 | 670.02 | 2171.56 | 670.59 | 2171.86 | 671.27 | 2171.8 |
| 671.71 | 2171.75 | 679.94 | 2173.31 | 686.28 | 2174.86 | 691.87 | 2175.8 | 698.26 | 2176.81 |
| 698.54 | 2176.76 | 698.79 | 2176.74 | 699.68 | 2176.58 | 701.66 | 2176.57 | 702.95 | 2176.58 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|

```
**************************************************
       0    .058  170.68     .04  308.95    .053

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          72.4  450.21             352.83  347.57  355.39          .1        .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)         * 2155.49  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.73  * Wt. n-Val.              *          *    0.045 *   0.053  *
* W.S. Elev (ft)         * 2154.76  * Reach Len. (ft)         *  352.83  *  347.57  *  355.39  *
* Crit W.S. (ft)         * 2154.55  * Flow Area (sq ft)       *          *  730.66  *    2.08  *
* E.G. Slope (ft/ft)     *0.016693  * Area (sq ft)            *          *  730.66  *    2.08  *
* Q Total (cfs)          * 5020.00  * Flow (cfs)              *          * 5017.86  *    2.14  *
* Top Width (ft)         *  386.40  * Top Width (ft)          *          *  372.63  *   13.77  *
* Vel Total (ft/s)       *    6.85  * Avg. Vel. (ft/s)         *          *    6.87  *    1.03  *
* Max Chl Dpth (ft)      *    3.65  * Hydr. Depth (ft)         *          *    1.96  *    0.15  *
* Conv. Total (cfs)      * 38853.8  * Conv. (cfs)             *          * 38837.3  *    16.5  *
* Length Wtd. (ft)       *  347.57  * Wetted Per. (ft)         *          *  374.01  *   13.77  *
* Min Ch El (ft)         * 2151.10  * Shear (lb/sq ft)         *          *    2.04  *    0.16  *
* Alpha                  *    1.00  * Stream Power (lb/ft s)   *          *   13.98  *    0.16  *
* Frctn Loss (ft)        *    6.20  * Cum Volume (acre-ft)     *    0.26  *   92.44  *    0.42  *
* C & E Loss (ft)        *    0.03  * Cum SA (acres)           *    0.42  *   31.02  *    0.67  *
*****************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************
* E.G. Elev (ft)         * 2155.49  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.73  * Wt. n-Val.              *          *    0.045 *   0.053  *
* W.S. Elev (ft)         * 2154.76  * Reach Len. (ft)         *  352.83  *  347.57  *  355.39  *
* Crit W.S. (ft)         * 2154.55  * Flow Area (sq ft)       *          *  730.66  *    2.08  *
* E.G. Slope (ft/ft)     *0.016693  * Area (sq ft)            *          *  730.66  *    2.08  *
* Q Total (cfs)          * 5020.00  * Flow (cfs)              *          * 5017.86  *    2.14  *
* Top Width (ft)         *  386.40  * Top Width (ft)          *          *  372.63  *   13.77  *
* Vel Total (ft/s)       *    6.85  * Avg. Vel. (ft/s)         *          *    6.87  *    1.03  *
* Max Chl Dpth (ft)      *    3.65  * Hydr. Depth (ft)         *          *    1.96  *    0.15  *
* Conv. Total (cfs)      * 38853.8  * Conv. (cfs)             *          * 38837.3  *    16.5  *
* Length Wtd. (ft)       *  347.57  * Wetted Per. (ft)         *          *  374.01  *   13.77  *
* Min Ch El (ft)         * 2151.10  * Shear (lb/sq ft)         *          *    2.04  *    0.16  *
* Alpha                  *    1.00  * Stream Power (lb/ft s)   *          *   13.98  *    0.16  *
* Frctn Loss (ft)        *    6.20  * Cum Volume (acre-ft)     *    0.26  *   92.44  *    0.42  *
* C & E Loss (ft)        *    0.03  * Cum SA (acres)           *    0.42  *   31.02  *    0.67  *
*****************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) *  (sq ft) *    (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan     * 72.40     * 166.85    *   406.32 *   109.19 *    89.66 *     8.09 *     1.22 *     3.72 *
* 2        * Chan     * 166.85    * 261.31    *  2225.17 *   249.62 *    94.84 *    44.33 *     2.64 *     8.91 *
* 3        * Chan     * 261.31    * 355.76    *  1740.38 *   232.08 *    94.62 *    34.67 *     2.46 *     7.50 *
* 4        * Chan     * 355.76    * 450.21    *   645.99 *   139.76 *    94.90 *    12.87 *     1.48 *     4.62 *
* 5        * ROB      * 450.21    * 513.40    *     2.14 *     2.08 *    13.77 *     0.04 *     0.15 *     1.03 *
*****************************************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

  Profile #PF 2
*****************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) *  (sq ft) *    (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan     * 72.40     * 166.85    *   406.32 *   109.19 *    89.66 *     8.09 *     1.22 *     3.72 *
* 2        * Chan     * 166.85    * 261.31    *  2225.17 *   249.62 *    94.84 *    44.33 *     2.64 *     8.91 *
* 3        * Chan     * 261.31    * 355.76    *  1740.38 *   232.08 *    94.62 *    34.67 *     2.46 *     7.50 *
* 4        * Chan     * 355.76    * 450.21    *   645.99 *   139.76 *    94.90 *    12.87 *     1.48 *     4.62 *
* 5        * ROB      * 450.21    * 513.40    *     2.14 *     2.08 *    13.77 *     0.04 *     0.15 *     1.03 *
*****************************************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

CROSS SECTION


RIVER: Ocotillo Wash 5
REACH: OWMS2                RS: 1.14203

INPUT
Description:
Station Elevation Data    num=     136
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*****************************************************************************
       0 2166.63    1.47 2166.62    5.97 2166.36    6.36 2166.29    6.97 2166.21
   11.65 2165.41   12.18 2165.32   16.34 2164.32   23.91 2162.77   26.69 2162.16
   28.76 2161.75   31.88 2160.89   35.57 2160.32   39.44 2159.43    41.6 2159.31
   42.06 2159.29   44.55 2159.05   49.29 2157.91   51.77  2157.6   52.56 2157.56
   54.34 2157.36    56.3 2157.22   57.37 2157.02   60.44 2156.08   61.68 2155.69
    63.9 2154.63   67.39 2154.04   67.68 2153.87   68.95 2152.51   69.49 2152.03
   70.18 2151.75    82.8 2146.83  100.91 2146.92  105.66 2146.92  115.53 2145.51
  116.77 2145.33  118.17 2145.14  122.13    2145  129.38 2144.73  132.06 2145.28
   138.8 2146.47  145.18 2146.16  154.89  2145.5  159.93 2145.19  161.97 2145.05
  162.68 2144.99  164.59 2144.81  165.86 2144.66  170.38 2143.89  181.57 2144.02
  183.74 2144.03  197.65 2144.12  200.12 2144.14  204.18 2144.16  208.24  2144.8
  212.47 2145.53  220.25 2145.67  223.57 2145.68  226.91 2145.85  230.36 2145.89
  265.16 2146.34   275.9 2146.46  277.81 2146.08  283.91 2144.78  296.16 2147.71
   298.4 2148.25  299.31 2148.25  301.13 2148.12  305.72 2147.89  310.59  2147.9
  314.56 2147.98  318.07 2147.98  329.11 2148.09  344.33 2147.91  354.89 2147.16
  358.86 2146.86  363.82 2146.57  375.85 2147.36  385.41 2147.88  386.18 2147.96
  386.37 2147.98  391.04 2148.43  394.62 2148.76  397.75 2148.83  399.56 2148.94
```

```
  406.82 2149.61  414.29  2150.1   418.4 2150.15  441.09 2151.02  459.82 2150.65
  472.09 2150.38  476.29 2150.28  478.42 2149.59  479.83 2149.16  485.16 2149.13
  491.32 2149.12  493.05 2149.11  497.69  2149.1  498.51 2149.14  499.16 2149.15
  505.04 2149.19  522.21 2150.55  526.09 2150.53  529.57 2150.56  531.27 2150.55
  544.49 2150.87  581.44 2149.98  582.16 2150.07  599.66 2150.29  600.39 2150.29
  602.44 2150.23  604.26 2150.27  605.76 2150.35   607.4 2150.39  609.25  2150.4
  611.13 2150.45  612.99 2150.54  614.58 2150.51  616.77 2150.55  618.77 2150.58
  620.85 2150.58  627.44 2150.37  630.45 2150.26  637.33 2150.07  639.66 2150.86
  646.33 2152.78  655.61 2154.03  660.91 2155.02  664.11 2156.28  689.46 2165.94
  696.78 2167.23     701    2168  704.87 2168.69  711.02 2169.87  713.71 2170.38
  718.93 2170.49

Manning's n Values          num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
       0    .063  115.53     .04  204.18    .053

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          70.18  385.41            417.36  408.29  331.68          .1        .3
Right Levee     Station=  441.09      Elevation= 2151.02

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)         * 2149.27  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.02  * Wt. n-Val.              *          *    0.045 *    0.053 *
* W.S. Elev (ft)         * 2148.25  * Reach Len. (ft)         *  417.36  *  408.29  *  331.68  *
* Crit W.S. (ft)         * 2148.25  * Flow Area (sq ft)       *          *  620.45  *    0.68  *
* E.G. Slope (ft/ft)     *0.019079  * Area (sq ft)            *          *  620.45  *    0.68  *
* Q Total (cfs)          * 5020.00  * Flow (cfs)              *          * 5019.16  *    0.84  *
* Top Width (ft)         *  309.07  * Top Width (ft)          *          *  305.32  *    3.75  *
* Vel Total (ft/s)       *    8.08  * Avg. Vel. (ft/s)         *          *    8.09  *    1.24  *
* Max Chl Dpth (ft)      *    4.36  * Hydr. Depth (ft)         *          *    2.03  *    0.18  *
* Conv. Total (cfs)      * 36343.6  * Conv. (cfs)             *          * 36337.5  *     6.1  *
* Length Wtd. (ft)       *  408.28  * Wetted Per. (ft)         *          *  306.81  *    3.77  *
* Min Ch El (ft)         * 2143.89  * Shear (lb/sq ft)         *          *    2.41  *    0.22  *
* Alpha                  *    1.00  * Stream Power (lb/ft s)   *          *   19.49  *    0.27  *
* Frctn Loss (ft)        *    7.12  * Cum Volume (acre-ft)     *    0.26  *   87.05  *    0.41  *
* C & E Loss (ft)        *    0.16  * Cum SA (acres)           *    0.42  *   28.31  *    0.60  *
*****************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************
* E.G. Elev (ft)         * 2149.27  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.02  * Wt. n-Val.              *          *    0.045 *    0.053 *
* W.S. Elev (ft)         * 2148.25  * Reach Len. (ft)         *  417.36  *  408.29  *  331.68  *
* Crit W.S. (ft)         * 2148.25  * Flow Area (sq ft)       *          *  620.45  *    0.68  *
* E.G. Slope (ft/ft)     *0.019079  * Area (sq ft)            *          *  620.45  *    0.68  *
* Q Total (cfs)          * 5020.00  * Flow (cfs)              *          * 5019.16  *    0.84  *
* Top Width (ft)         *  309.07  * Top Width (ft)          *          *  305.32  *    3.75  *
* Vel Total (ft/s)       *    8.08  * Avg. Vel. (ft/s)         *          *    8.09  *    1.24  *
* Max Chl Dpth (ft)      *    4.36  * Hydr. Depth (ft)         *          *    2.03  *    0.18  *
* Conv. Total (cfs)      * 36343.6  * Conv. (cfs)             *          * 36337.5  *     6.1  *
* Length Wtd. (ft)       *  408.28  * Wetted Per. (ft)         *          *  306.81  *    3.77  *
* Min Ch El (ft)         * 2143.89  * Shear (lb/sq ft)         *          *    2.41  *    0.22  *
* Alpha                  *    1.00  * Stream Power (lb/ft s)   *          *   19.49  *    0.27  *
* Frctn Loss (ft)        *    7.12  * Cum Volume (acre-ft)     *    0.26  *   87.05  *    0.41  *
* C & E Loss (ft)        *    0.16  * Cum SA (acres)           *    0.42  *   28.31  *    0.60  *
*****************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
         water surface was used.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) *  (sq ft) *    (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan      * 70.18     * 148.99    *  1065.64 *   144.17 *   70.40 *    21.23 *     2.06 *     7.39 *
* 2        * Chan      * 148.99    * 227.80    *  2981.73 *   277.17 *   79.04 *    59.40 *     3.52 *    10.76 *
* 3        * Chan      * 227.80    * 306.60    *   830.34 *   147.87 *   78.47 *    16.54 *     1.90 *     5.62 *
* 4        * Chan      * 306.60    * 385.41    *   141.44 *    51.24 *   78.90 *     2.82 *     0.65 *     2.76 *
* 5        * ROB       * 385.41    * 441.09    *     0.84 *     0.68 *    3.77 *     0.02 *     0.18 *     1.24 *
*****************************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
```

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 70.18 | 148.99 | 1065.64 | 144.17 | 70.40 | 21.23 | 2.06 | 7.39 |
| 2 | Chan | 148.99 | 227.80 | 2981.73 | 277.17 | 79.04 | 59.40 | 3.52 | 10.76 |
| 3 | Chan | 227.80 | 306.60 | 830.34 | 147.87 | 78.47 | 16.54 | 1.90 | 5.62 |
| 4 | Chan | 306.60 | 385.41 | 141.44 | 51.24 | 78.90 | 2.82 | 0.65 | 2.76 |
| 5 | ROB | 385.41 | 441.09 | 0.84 | 0.68 | 3.77 | 0.02 | 0.18 | 1.24 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: Ocotillo Wash 5
REACH: OWMS2 RS: 1.06470

INPUT
Description:
Station Elevation Data num= 160

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2140.65 | 2.94 | 2140.91 | 8.6 | 2141.99 | 16.88 | 2144.21 | 16.97 | 2144.22 |
| 17.08 | 2144.21 | 26.49 | 2143.26 | 28.82 | 2143.03 | 29.81 | 2142.5 | 32.88 | 2141.28 |
| 42.18 | 2135.65 | 58.64 | 2135.53 | 62.6 | 2135.53 | 64.09 | 2135.8 | 70.93 | 2136.88 |
| 80.09 | 2136.93 | 81.11 | 2136.97 | 82.22 | 2136.94 | 90.48 | 2136.94 | 93.47 | 2136.5 |
| 95.74 | 2136.12 | 98.66 | 2136.14 | 100.61 | 2136.16 | 102.65 | 2136.45 | 109.19 | 2137.44 |
| 116.8 | 2137.19 | 130.72 | 2136.81 | 132.45 | 2137.1 | 145.2 | 2138.53 | 147.03 | 2138.47 |
| 154.4 | 2138.31 | 174 | 2138.03 | 175.24 | 2138.05 | 182.76 | 2137.53 | 183.68 | 2137.56 |
| 184.81 | 2137.58 | 185.64 | 2137.59 | 187.4 | 2137.88 | 189.83 | 2137.91 | 191.9 | 2137.91 |
| 193.79 | 2137.89 | 196.16 | 2137.85 | 197.87 | 2137.85 | 201.99 | 2137.82 | 203.06 | 2137.68 |
| 207.31 | 2137.78 | 207.39 | 2137.78 | 211.26 | 2137.63 | 214.45 | 2137.29 | 216.28 | 2137.1 |
| 219.5 | 2136.81 | 222.72 | 2136.74 | 223.58 | 2136.77 | 226.74 | 2136.67 | 232.39 | 2137.04 |
| 233.72 | 2137.11 | 241.43 | 2137.82 | 242.73 | 2137.91 | 244.96 | 2138.08 | 252.21 | 2137.88 |
| 252.92 | 2137.87 | 253.83 | 2137.84 | 268.72 | 2138.04 | 271.44 | 2138.07 | 278.13 | 2138.17 |
| 279.1 | 2138.19 | 279.95 | 2138.22 | 283.11 | 2138.18 | 290.86 | 2138.14 | 296.45 | 2138.38 |
| 303.57 | 2138.53 | 306.62 | 2138.69 | 311.47 | 2138.84 | 311.85 | 2138.86 | 313.39 | 2138.91 |
| 317.56 | 2138.68 | 318.64 | 2138.63 | 323.09 | 2138.28 | 326.07 | 2138.21 | 327.6 | 2138.15 |
| 329.99 | 2138.1 | 330.2 | 2138.09 | 335.01 | 2137.85 | 336.77 | 2137.72 | 346.95 | 2138.86 |
| 347.06 | 2138.86 | 347.27 | 2138.87 | 362.96 | 2139.33 | 379.28 | 2139.47 | 386.23 | 2139.26 |
| 399.6 | 2139.31 | 407.12 | 2139.24 | 415.08 | 2139.11 | 419.37 | 2139.05 | 433.54 | 2138.98 |
| 434.42 | 2138.94 | 434.96 | 2138.91 | 441.45 | 2138.44 | 447.15 | 2138.22 | 452.41 | 2137.96 |
| 461.29 | 2137.98 | 467.53 | 2138.07 | 478.78 | 2138.16 | 488.42 | 2138.2 | 492.84 | 2138.01 |
| 498.21 | 2137.76 | 500.05 | 2137.86 | 506.87 | 2138.05 | 516.21 | 2138.26 | 517.79 | 2138.31 |
| 518.71 | 2138.32 | 521 | 2138.8 | 542.84 | 2143.21 | 549.76 | 2143.24 | 565.58 | 2143.18 |
| 572.41 | 2142.6 | 586.94 | 2141.46 | 593.13 | 2141.25 | 599.53 | 2141.14 | 610.69 | 2141.02 |
| 616 | 2141.57 | 617.97 | 2141.73 | 626.59 | 2142.07 | 628.37 | 2142.07 | 629.54 | 2142.15 |
| 653.22 | 2143.47 | 660.71 | 2143.33 | 662.48 | 2143.27 | 663.86 | 2143.22 | 678.05 | 2142.92 |
| 687.24 | 2143.36 | 701.55 | 2143.96 | 705.19 | 2143.8 | 709.65 | 2143.57 | 713.84 | 2143.44 |
| 719.14 | 2143.3 | 722.41 | 2143.64 | 725.24 | 2143.87 | 725.51 | 2143.9 | 739.92 | 2145.43 |
| 742.21 | 2145.63 | 749.58 | 2146.29 | 755.54 | 2146.84 | 756.78 | 2146.94 | 758.63 | 2147.15 |
| 762.11 | 2148.45 | 769.3 | 2150.64 | 772.98 | 2151.86 | 776.39 | 2153 | 785.44 | 2155.99 |
| 793.58 | 2158.81 | 796.33 | 2159.7 | 801.62 | 2161.56 | 802.36 | 2161.83 | 806.2 | 2162.53 |
| 806.59 | 2162.6 | 807.18 | 2162.72 | 809.47 | 2163.16 | 810.3 | 2163.3 | 812.67 | 2163.32 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .063 | 42.18 | .04 | 100.61 | .053 |

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
32.88 542.84 449.15 452.14 709.77 .1 .3
Right Levee Station= 542.84 Elevation= 2143.21

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2140.30 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.47 | Wt. n-Val. | | 0.052 | |
| W.S. Elev (ft) | 2139.83 | Reach Len. (ft) | 449.15 | 452.14 | 709.77 |
| Crit W.S. (ft) | 2139.45 | Flow Area (sq ft) | | 914.90 | |
| E.G. Slope (ft/ft) | 0.015986 | Area (sq ft) | | 914.90 | |
| Q Total (cfs) | 5020.00 | Flow (cfs) | | 5020.00 | |
| Top Width (ft) | 490.83 | Top Width (ft) | | 490.83 | |
| Vel Total (ft/s) | 5.49 | Avg. Vel. (ft/s) | | 5.49 | |
| Max Chl Dpth (ft) | 4.30 | Hydr. Depth (ft) | | 1.86 | |
| Conv. Total (cfs) | 39703.5 | Conv. (cfs) | | 39703.5 | |
| Length Wtd. (ft) | 452.14 | Wetted Per. (ft) | | 492.87 | |
| Min Ch El (ft) | 2135.53 | Shear (lb/sq ft) | | 1.85 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 10.17 | |
| Frctn Loss (ft) | 9.53 | Cum Volume (acre-ft) | 0.26 | 79.85 | 0.40 |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.42 | 24.58 | 0.59 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 2140.30 | Element | Left OB | Channel | Right OB | |
| Vel Head (ft) | 0.47 | Wt. n-Val. | | 0.052 | | |
| W.S. Elev (ft) | 2139.83 | Reach Len. (ft) | 449.15 | 452.14 | 709.77 | |
| Crit W.S. (ft) | 2139.45 | Flow Area (sq ft) | | 914.90 | | |
| E.G. Slope (ft/ft) | 0.015986 | Area (sq ft) | | 914.90 | | |
| Q Total (cfs) | 5020.00 | Flow (cfs) | | 5020.00 | | |
| Top Width (ft) | 490.83 | Top Width (ft) | | 490.83 | | |
| Vel Total (ft/s) | 5.49 | Avg. Vel. (ft/s) | | 5.49 | | |
| Max Chl Dpth (ft) | 4.30 | Hydr. Depth (ft) | | 1.86 | | |
| Conv. Total (cfs) | 39703.5 | Conv. (cfs) | | 39703.5 | | |
| Length Wtd. (ft) | 452.14 | Wetted Per. (ft) | | 492.87 | | |
| Min Ch El (ft) | 2135.53 | Shear (lb/sq ft) | | 1.85 | | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 10.17 | | |
| Frctn Loss (ft) | 9.53 | Cum Volume (acre-ft) | 0.26 | 79.85 | 0.40 | |
| C & E Loss (ft) | 0.03 | Cum SA (acres) | 0.42 | 24.58 | 0.59 | |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 32.88 | 160.37 | 2714.62 | 361.03 | 126.65 | 54.08 | 2.89 | 7.52 |
| 2 | Chan | 160.37 | 287.86 | 1299.10 | 265.43 | 127.65 | 25.88 | 2.08 | 4.89 |
| 3 | Chan | 287.86 | 415.35 | 369.55 | 124.83 | 127.62 | 7.36 | 0.98 | 2.96 |
| 4 | Chan | 415.35 | 542.84 | 636.73 | 163.60 | 110.95 | 12.68 | 1.48 | 3.89 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 32.88 | 160.37 | 2714.62 | 361.03 | 126.65 | 54.08 | 2.89 | 7.52 |
| 2 | Chan | 160.37 | 287.86 | 1299.10 | 265.43 | 127.65 | 25.88 | 2.08 | 4.89 |
| 3 | Chan | 287.86 | 415.35 | 369.55 | 124.83 | 127.62 | 7.36 | 0.98 | 2.96 |
| 4 | Chan | 415.35 | 542.84 | 636.73 | 163.60 | 110.95 | 12.68 | 1.48 | 3.89 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: Ocotillo Wash 5
REACH: OWMS2 RS: 0.97907

INPUT
Description:
Station Elevation Data num= 212

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2152.69 | .97 | 2152.55 | 6.24 | 2151.72 | 6.62 | 2151.7 | 12.03 | 2151.33 |
| 12.12 | 2151.33 | 16.69 | 2151.04 | 16.77 | 2151.04 | 22.96 | 2151.03 | 27.89 | 2150.75 |
| 28.01 | 2150.74 | 31.99 | 2150.44 | 32.19 | 2150.42 | 34.18 | 2150.27 | 34.61 | 2150.27 |
| 38.67 | 2149.99 | 39.61 | 2149.99 | 43.68 | 2149.75 | 45.15 | 2149.74 | 47.02 | 2149.74 |
| 48.64 | 2149.73 | 50.85 | 2149.76 | 54.52 | 2150.12 | 56.23 | 2150.18 | 60.19 | 2150.25 |
| 61.63 | 2150.27 | 65.43 | 2149.98 | 66.59 | 2150 | 67.99 | 2150 | 69.66 | 2150.01 |
| 73.57 | 2149.83 | 76.91 | 2149.87 | 79.87 | 2149.87 | 83.88 | 2149.74 | 86.23 | 2149.58 |
| 87.48 | 2149.6 | 92.61 | 2149.32 | 93.27 | 2149.28 | 93.87 | 2149.24 | 94.89 | 2149.14 |
| 95.52 | 2149.12 | 99.48 | 2149.16 | 99.87 | 2149.18 | 100.68 | 2149.17 | 105.93 | 2149.21 |
| 106.66 | 2149.22 | 108 | 2149.21 | 112.43 | 2149.19 | 112.8 | 2149.19 | 116.75 | 2149.09 |
| 117.81 | 2149.07 | 122.55 | 2148.79 | 122.93 | 2148.79 | 127.82 | 2148.57 | 130.39 | 2148.52 |
| 130.96 | 2148.52 | 139.93 | 2148.58 | 140.07 | 2148.58 | 141.88 | 2148.53 | 142.58 | 2148.48 |
| 143.87 | 2148.32 | 150.33 | 2147.49 | 152.6 | 2147.23 | 157.4 | 2146.59 | 165.12 | 2145.22 |
| 166.9 | 2144.78 | 170.51 | 2143.77 | 172.87 | 2143.35 | 177.4 | 2142.69 | 183.75 | 2140.86 |
| 184.22 | 2140.88 | 185.36 | 2140.3 | 220.92 | 2131.33 | 222.39 | 2131.1 | 226.74 | 2131.02 |
| 228.02 | 2131.02 | 234.05 | 2130.83 | 237.26 | 2130.66 | 241.36 | 2130.51 | 245.39 | 2130.4 |
| 247.4 | 2130.31 | 249.2 | 2130.2 | 250.38 | 2130.08 | 253.84 | 2130.03 | 260 | 2129.74 |
| 261.58 | 2129.5 | 262.23 | 2129.42 | 265.39 | 2129.29 | 265.93 | 2129.22 | 267.51 | 2129.25 |
| 269.88 | 2129.02 | 270.93 | 2128.95 | 273.95 | 2128.27 | 276.98 | 2127.44 | 281.03 | 2126.32 |
| 283.53 | 2126.38 | 286.25 | 2126.54 | 293.35 | 2127.27 | 294.89 | 2127.4 | 295.89 | 2127.47 |
| 297.45 | 2127.6 | 301.78 | 2127.92 | 305.03 | 2128.18 | 305.64 | 2128.2 | 307.07 | 2128.3 |
| 310.24 | 2128.11 | 313.96 | 2127.94 | 315.03 | 2127.96 | 319.9 | 2127.63 | 323.23 | 2127.68 |
| 326.03 | 2127.52 | 330.42 | 2127.57 | 331.47 | 2127.55 | 332.05 | 2127.54 | 335.92 | 2127.9 |
| 337.31 | 2128 | 339.88 | 2128.3 | 350.7 | 2129.67 | 354.07 | 2129.84 | 363.52 | 2130.15 |
| 364.03 | 2130.17 | 365.85 | 2129.64 | 374.65 | 2127.03 | 382.91 | 2127.52 | 384.29 | 2127.6 |
| 386.9 | 2127.52 | 390.54 | 2127.35 | 392.13 | 2127.4 | 393.6 | 2127.41 | 399.25 | 2127.46 |
| 407.2 | 2127.59 | 407.37 | 2127.59 | 412.58 | 2127.29 | 414.13 | 2127.17 | 417.12 | 2127.16 |
| 418.69 | 2127.39 | 421.02 | 2127.51 | 436.8 | 2128.44 | 442.25 | 2128.55 | 452.64 | 2128.65 |
| 458.5 | 2128.59 | 462.52 | 2128.57 | 464.04 | 2128.83 | 466.17 | 2129.16 | 470.79 | 2129.8 |
| 471.36 | 2129.87 | 477.74 | 2129.38 | 483.54 | 2128.85 | 484.89 | 2128.71 | 486.89 | 2128.53 |
| 489.69 | 2128.46 | 491.81 | 2128.49 | 493.86 | 2128.56 | 495.26 | 2128.58 | 497.19 | 2128.56 |
| 499.53 | 2128.52 | 510.66 | 2128.61 | 511.87 | 2128.64 | 515.47 | 2128.68 | 516.54 | 2128.64 |
| 517.71 | 2128.57 | 519 | 2128.56 | 525.11 | 2128.55 | 527.66 | 2128.45 | 529.94 | 2128.44 |
| 538.97 | 2129.63 | 539.04 | 2129.64 | 560.79 | 2129.29 | 560.91 | 2129.29 | 566.7 | 2129.18 |
| 569.58 | 2129.02 | 571.21 | 2128.94 | 577.41 | 2128.98 | 578.77 | 2129.19 | 582.46 | 2129.43 |
| 585.42 | 2129.6 | 588.78 | 2128.75 | 593.55 | 2127.82 | 594.31 | 2127.65 | 594.92 | 2127.55 |
| 609.54 | 2127.57 | 611.41 | 2127.57 | 616.35 | 2127.64 | 616.71 | 2127.65 | 618.42 | 2127.49 |
| 621.35 | 2127.17 | 623.8 | 2126.89 | 627.74 | 2127.16 | 630.34 | 2127.37 | 635.33 | 2127.46 |
| 640.25 | 2127.58 | 644.63 | 2127.65 | 650.56 | 2127.72 | 652.68 | 2127.83 | 657.21 | 2128.08 |

```
662.83 2128.38  668.31 2128.69  687.82 2128.45  688.23 2128.46  689.01 2128.46
699.81  2128.5  701.13 2128.51  707.18 2128.68  725.91 2135.98  741.89  2142.4
750.03 2145.38  753.34 2145.59  756.36 2145.79  775.97 2147.67  780.81 2148.08
789.69 2148.63  790.08 2148.64

Manning's n Values        num=       4
    Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*************************************************************
       0    .063     108    .053  374.65     .04  452.64    .053

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        222.39  725.91            373.48  354.94   370.2             .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)         * 2130.73  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.81  * Wt. n-Val.              *          *    0.049 *         *
* W.S. Elev (ft)         * 2129.92  * Reach Len. (ft)         *  373.48  *   354.94 *  370.20  *
* Crit W.S. (ft)         * 2129.92  * Flow Area (sq ft)       *          *   721.09 *          *
* E.G. Slope (ft/ft)     *0.028638  * Area (sq ft)            *          *   721.09 *          *
* Q Total (cfs)          * 5220.00  * Flow (cfs)              *          *  5220.00 *          *
* Top Width (ft)         *  445.77  * Top Width (ft)          *          *   445.77 *          *
* Vel Total (ft/s)       *    7.24  * Avg. Vel. (ft/s)        *          *     7.24 *          *
* Max Chl Dpth (ft)      *    3.60  * Hydr. Depth (ft)        *          *     1.62 *          *
* Conv. Total (cfs)      * 30845.9  * Conv. (cfs)             *          *  30845.9 *          *
* Length Wtd. (ft)       *  354.95  * Wetted Per. (ft)        *          *   447.73 *          *
* Min Ch El (ft)         * 2126.32  * Shear (lb/sq ft)        *          *     2.88 *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s)  *          *    20.84 *          *
* Frctn Loss (ft)        *    4.22  * Cum Volume (acre-ft)    *    0.26  *    71.36 *    0.40  *
* C & E Loss (ft)        *    0.07  * Cum SA (acres)          *    0.42  *    19.72 *    0.59  *
*****************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************
* E.G. Elev (ft)         * 2130.73  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    0.81  * Wt. n-Val.              *          *    0.049 *         *
* W.S. Elev (ft)         * 2129.92  * Reach Len. (ft)         *  373.48  *   354.94 *  370.20  *
* Crit W.S. (ft)         * 2129.92  * Flow Area (sq ft)       *          *   721.09 *          *
* E.G. Slope (ft/ft)     *0.028638  * Area (sq ft)            *          *   721.09 *          *
* Q Total (cfs)          * 5220.00  * Flow (cfs)              *          *  5220.00 *          *
* Top Width (ft)         *  445.77  * Top Width (ft)          *          *   445.77 *          *
* Vel Total (ft/s)       *    7.24  * Avg. Vel. (ft/s)        *          *     7.24 *          *
* Max Chl Dpth (ft)      *    3.60  * Hydr. Depth (ft)        *          *     1.62 *          *
* Conv. Total (cfs)      * 30845.9  * Conv. (cfs)             *          *  30845.9 *          *
* Length Wtd. (ft)       *  354.95  * Wetted Per. (ft)        *          *   447.73 *          *
* Min Ch El (ft)         * 2126.32  * Shear (lb/sq ft)        *          *     2.88 *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s)  *          *    20.84 *          *
* Frctn Loss (ft)        *    4.22  * Cum Volume (acre-ft)    *    0.26  *    71.36 *    0.40  *
* C & E Loss (ft)        *    0.07  * Cum SA (acres)          *    0.42  *    19.72 *    0.59  *
*****************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.

  Profile #PF 1
*************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) *  (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan     * 222.39    * 348.27    *  1251.30 *   176.66 *    92.68 *    23.97 *     1.92 *     7.08 *
* 2        * Chan     * 348.27    * 474.15    *  1872.37 *   203.94 *   118.11 *    35.87 *     1.74 *     9.18 *
* 3        * Chan     * 474.15    * 600.03    *   617.05 *   130.81 *   126.28 *    11.82 *     1.04 *     4.72 *
* 4        * Chan     * 600.03    * 725.91    *  1479.29 *   209.68 *   110.66 *    28.34 *     1.90 *     7.06 *
*************************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.

  Profile #PF 2
*************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) *  (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan     * 222.39    * 348.27    *  1251.30 *   176.66 *    92.68 *    23.97 *     1.92 *     7.08 *
* 2        * Chan     * 348.27    * 474.15    *  1872.37 *   203.94 *   118.11 *    35.87 *     1.74 *     9.18 *
* 3        * Chan     * 474.15    * 600.03    *   617.05 *   130.81 *   126.28 *    11.82 *     1.04 *     4.72 *
* 4        * Chan     * 600.03    * 725.91    *  1479.29 *   209.68 *   110.66 *    28.34 *     1.90 *     7.06 *
*************************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
```

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: Ocotillo Wash 5
REACH: OWMS2 RS: 0.91184

INPUT
Description: Upstream cross section for Spur Cross Road
Station Elevation Data num= 72

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2131.69 | 37.49 | 2129.14 | 41.28 | 2128.85 | 73.07 | 2126.6 | 73.32 | 2126.59 |
| 74.05 | 2126.55 | 74.32 | 2126.53 | 116.88 | 2123.67 | 118.74 | 2123.52 | 119.34 | 2123.48 |
| 149.14 | 2121.69 | 177.61 | 2120.4 | 178.66 | 2120.4 | 179.07 | 2120.38 | 179.43 | 2120.37 |
| 179.78 | 2120.35 | 211.16 | 2119.99 | 216.82 | 2119.93 | 217.08 | 2119.91 | 217.66 | 2119.88 |
| 230.06 | 2119.74 | 230.68 | 2119.74 | 232.86 | 2119.77 | 233.01 | 2119.78 | 280.43 | 2120.35 |
| 281.46 | 2120.36 | 282.92 | 2120.31 | 305.34 | 2120.69 | 306.23 | 2120.73 | 306.45 | 2120.69 |
| 329.09 | 2121.08 | 329.22 | 2121.08 | 329.45 | 2121.1 | 329.73 | 2121.1 | 330.26 | 2121.11 |
| 350.93 | 2121.62 | 367.2 | 2122.01 | 367.9 | 2122.08 | 368.26 | 2122.1 | 368.55 | 2122.14 |
| 368.83 | 2122.15 | 398.59 | 2123.45 | 399.02 | 2123.46 | 399.34 | 2123.47 | 399.73 | 2123.51 |
| 400.12 | 2123.52 | 400.55 | 2123.52 | 401.09 | 2123.6 | 401.66 | 2123.62 | 437.47 | 2126.31 |
| 437.77 | 2126.31 | 437.93 | 2126.32 | 438.09 | 2126.34 | 456.71 | 2127.5 | 456.92 | 2127.51 |
| 457.13 | 2127.55 | 457.37 | 2127.56 | 473.41 | 2128.57 | 475.68 | 2128.71 | 476.29 | 2128.71 |
| 476.49 | 2128.72 | 477.76 | 2128.82 | 491.9 | 2129.91 | 492.02 | 2129.92 | 492.34 | 2129.94 |
| 492.66 | 2129.98 | 507.82 | 2131.15 | 508.2 | 2131.21 | 508.48 | 2131.2 | 508.9 | 2131.2 |
| 509.48 | 2131.25 | 535.53 | 2133.19 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .048 | 211.16 | .04 | 350.93 | .048 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 119.34 | 400.55 | 40.31 | 28.67 | 43.88 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2124.68 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.58 | Wt. n-Val. | 0.048 | 0.042 | 0.048 |
| W.S. Elev (ft) | 2124.10 | Reach Len. (ft) | 40.31 | 28.67 | 43.88 |
| Crit W.S. (ft) | 2123.23 | Flow Area (sq ft) | 2.65 | 853.89 | 2.08 |
| E.G. Slope (ft/ft) | 0.006472 | Area (sq ft) | 2.65 | 853.89 | 2.08 |
| Q Total (cfs) | 5220.00 | Flow (cfs) | 2.95 | 5214.84 | 2.21 |
| Top Width (ft) | 297.47 | Top Width (ft) | 8.81 | 281.21 | 7.45 |
| Vel Total (ft/s) | 6.08 | Avg. Vel. (ft/s) | 1.12 | 6.11 | 1.06 |
| Max Chl Dpth (ft) | 4.36 | Hydr. Depth (ft) | 0.30 | 3.04 | 0.28 |
| Conv. Total (cfs) | 64883.7 | Conv. (cfs) | 36.7 | 64819.6 | 27.4 |
| Length Wtd. (ft) | 28.67 | Wetted Per. (ft) | 8.83 | 281.36 | 7.48 |
| Min Ch El (ft) | 2119.74 | Shear (lb/sq ft) | 0.12 | 1.23 | 0.11 |
| Alpha | 1.01 | Stream Power (lb/ft s) | 0.14 | 7.49 | 0.12 |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | 0.25 | 64.94 | 0.40 |
| C & E Loss (ft) | | Cum SA (acres) | 0.38 | 16.76 | 0.56 |

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2124.68 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.58 | Wt. n-Val. | 0.048 | 0.042 | 0.048 |
| W.S. Elev (ft) | 2124.10 | Reach Len. (ft) | 40.31 | 28.67 | 43.88 |
| Crit W.S. (ft) | 2123.23 | Flow Area (sq ft) | 2.65 | 853.89 | 2.08 |
| E.G. Slope (ft/ft) | 0.006472 | Area (sq ft) | 2.65 | 853.89 | 2.08 |
| Q Total (cfs) | 5220.00 | Flow (cfs) | 2.95 | 5214.84 | 2.21 |
| Top Width (ft) | 297.47 | Top Width (ft) | 8.81 | 281.21 | 7.45 |
| Vel Total (ft/s) | 6.08 | Avg. Vel. (ft/s) | 1.12 | 6.11 | 1.06 |
| Max Chl Dpth (ft) | 4.36 | Hydr. Depth (ft) | 0.30 | 3.04 | 0.28 |
| Conv. Total (cfs) | 64883.7 | Conv. (cfs) | 36.7 | 64819.6 | 27.4 |
| Length Wtd. (ft) | 28.67 | Wetted Per. (ft) | 8.83 | 281.36 | 7.48 |
| Min Ch El (ft) | 2119.74 | Shear (lb/sq ft) | 0.12 | 1.23 | 0.11 |
| Alpha | 1.01 | Stream Power (lb/ft s) | 0.14 | 7.49 | 0.12 |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | 0.25 | 64.94 | 0.40 |
| C & E Loss (ft) | | Cum SA (acres) | 0.38 | 16.76 | 0.56 |

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 89.51 | 119.34 | 2.95 | 2.65 | 8.83 | 0.06 | 0.30 | 1.12 |
| 2 | Chan | 119.34 | 189.64 | 808.21 | 177.49 | 70.39 | 15.48 | 2.52 | 4.55 |
| 3 | Chan | 189.64 | 259.95 | 2101.36 | 290.53 | 70.31 | 40.26 | 4.13 | 7.23 |
| 4 | Chan | 259.95 | 330.25 | 1708.47 | 249.20 | 70.32 | 32.73 | 3.54 | 6.86 |
| 5 | Chan | 330.25 | 400.55 | 596.80 | 136.68 | 70.35 | 11.43 | 1.94 | 4.37 |
| 6 | ROB | 400.55 | 434.30 | 2.21 | 2.08 | 7.48 | 0.04 | 0.28 | 1.06 |

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 89.51 | 119.34 | 2.95 | 2.65 | 8.83 | 0.06 | 0.30 | 1.12 |
| 2 | Chan | 119.34 | 189.64 | 808.21 | 177.49 | 70.39 | 15.48 | 2.52 | 4.55 |
| 3 | Chan | 189.64 | 259.95 | 2101.36 | 290.53 | 70.31 | 40.26 | 4.13 | 7.23 |
| 4 | Chan | 259.95 | 330.25 | 1708.47 | 249.20 | 70.32 | 32.73 | 3.54 | 6.86 |
| 5 | Chan | 330.25 | 400.55 | 596.80 | 136.68 | 70.35 | 11.43 | 1.94 | 4.37 |
| 6 | ROB | 400.55 | 434.30 | 2.21 | 2.08 | 7.48 | 0.04 | 0.28 | 1.06 |

INLINE STRUCTURE

RIVER: Ocotillo Wash 5
REACH: OWMS2 RS: 0.90917

INPUT
Description: Spur Cross Road
Distance from Upstream XS = 1.4
Deck/Roadway Width = 24
Weir Coefficient = 2.6
Weir Embankment Coordinates num = 49

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2131.85 | 5.15 | 2131.43 | 22.32 | 2130.27 | 33.31 | 2129.41 | 49.22 | 2128.16 |
| 62.84 | 2127.2 | 67.38 | 2126.93 | 80.74 | 2126.16 | 85.66 | 2125.75 | 104.56 | 2124.49 |
| 121.2 | 2123.12 | 126.58 | 2122.8 | 139.94 | 2122 | 155.49 | 2121.07 | 169.63 | 2120.43 |
| 170.43 | 2120.41 | 174.87 | 2120.29 | 190.68 | 2119.88 | 210.13 | 2119.66 | 215.89 | 2119.55 |
| 222.38 | 2119.47 | 238.74 | 2119.15 | 251.37 | 2119.3 | 256.53 | 2119.41 | 269.17 | 2119.56 |
| 284.65 | 2119.89 | 296.66 | 2120.08 | 301.62 | 2120.16 | 316.99 | 2120.4 | 328.57 | 2120.59 |
| 345.3 | 2121 | 364.18 | 2121.47 | 382.28 | 2122.02 | 389.12 | 2122.32 | 397.71 | 2122.7 |
| 413.61 | 2124.2 | 432.64 | 2125.62 | 436.73 | 2125.91 | 446.11 | 2126.5 | 458.2 | 2127.34 |
| 462.96 | 2127.71 | 472.53 | 2128.31 | 477.56 | 2128.7 | 486.71 | 2129.4 | 494.87 | 2130.04 |
| 503.13 | 2130.68 | 508.56 | 2131.06 | 524.42 | 2132.23 | 535.55 | 2133 | | |

Upstream Embankment side slope = .4 horiz. to 1.0 vertical
Downstream Embankment side slope = .5 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .95
Elevation at which weir flow begins =
Weir crest shape = Broad Crested

INLINE STRUCTURE OUTPUT Profile #PF 1 Inl Struct:

| | | | |
|---|---|---|---|
| E.G. Elev (ft) | 2124.68 | Q Gates (cfs) | |
| W.S. Elev (ft) | 2124.10 | Q Gate Group (cfs) | 2123.23 |
| Q Total (cfs) | 5220.00 | Gate Open Ht (ft) | 1.00 |
| Q Weir (cfs) | 5220.00 | Gate #Open | |
| Weir Flow Area (sq ft) | 1035.46 | Gate Area (sq ft) | |
| Weir Sta Lft (ft) | 101.92 | Gate Submerg | |
| Weir Sta Rgt (ft) | 415.71 | Gate Invert (ft) | |
| Weir Max Depth (ft) | 4.94 | | |
| Weir Avg Depth (ft) | 3.30 | | |
| Weir Submerg | 0.38 | | |
| Min El Weir Flow (ft) | 2119.75 | | |
| Wr Top Wdth (ft) | 313.79 | | |

INLINE STRUCTURE OUTPUT Profile #PF 2 Inl Struct:

| | | | |
|---|---|---|---|
| E.G. Elev (ft) | 2124.68 | Q Gates (cfs) | |
| W.S. Elev (ft) | 2124.10 | Q Gate Group (cfs) | 2184.67 |
| Q Total (cfs) | 5220.00 | Gate Open Ht (ft) | 1.00 |
| Q Weir (cfs) | 5220.00 | Gate #Open | |
| Weir Flow Area (sq ft) | 1035.46 | Gate Area (sq ft) | |
| Weir Sta Lft (ft) | 101.92 | Gate Submerg | |
| Weir Sta Rgt (ft) | 415.71 | Gate Invert (ft) | |
| Weir Max Depth (ft) | 4.94 | | |
| Weir Avg Depth (ft) | 3.30 | | |
| Weir Submerg | 0.38 | | |
| Min El Weir Flow (ft) | 2119.75 | | |
| Wr Top Wdth (ft) | 313.79 | | |

CROSS SECTION

RIVER: Ocotillo Wash 5
REACH: OWMS2 RS: 0.90641

INPUT
Description: Downstream cross section for Spur Cross Road
Station Elevation Data num= 115

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2131.67 | 4.51 | 2131.29 | 6.96 | 2131.05 | 9.45 | 2131.02 | 12.04 | 2130.85 |
| 14.83 | 2130.54 | 17.69 | 2130.29 | 25.97 | 2129.65 | 28.55 | 2129.55 | 31.28 | 2129.52 |
| 33.79 | 2129.35 | 36.46 | 2128.91 | 49.94 | 2127.86 | 52.55 | 2127.61 | 55.17 | 2127.4 |
| 57.69 | 2127.19 | 62.04 | 2126.95 | 64.46 | 2126.72 | 66.03 | 2126.52 | 68.91 | 2126.27 |
| 82.28 | 2125.53 | 84.38 | 2125.4 | 86.91 | 2125.35 | 92.52 | 2124.9 | 94.56 | 2124.87 |
| 96.64 | 2124.66 | 97.97 | 2124.55 | 100.11 | 2124.42 | 119.54 | 2122.86 | 122.8 | 2122.56 |
| 124.38 | 2122.45 | 131.33 | 2122.05 | 132.3 | 2121.91 | 133.83 | 2122.01 | 134.65 | 2121.98 |
| 135.93 | 2121.91 | 158.5 | 2120.57 | 159.33 | 2120.53 | 160.08 | 2120.5 | 160.82 | 2120.48 |
| 161.51 | 2120.47 | 170.22 | 2120.25 | 170.68 | 2120.23 | 171.27 | 2120.21 | 171.92 | 2120.17 |
| 173.07 | 2120.11 | 200.9 | 2119.38 | 201.37 | 2119.36 | 201.76 | 2119.34 | 203.04 | 2119.34 |
| 207.58 | 2119.25 | 212.97 | 2119.15 | 214.42 | 2119.15 | 214.97 | 2119.14 | 215.64 | 2119.11 |
| 245.34 | 2118.54 | 246.52 | 2118.54 | 256.31 | 2118.75 | 256.6 | 2118.74 | 257.65 | 2118.74 |
| 286.97 | 2119.37 | 287.74 | 2119.37 | 288.03 | 2119.38 | 288.35 | 2119.38 | 297.59 | 2119.52 |
| 298.05 | 2119.55 | 298.39 | 2119.55 | 299.27 | 2119.61 | 326.24 | 2120.05 | 326.9 | 2120.06 |
| 327.62 | 2120.05 | 328.15 | 2120.03 | 328.65 | 2120.03 | 342.81 | 2120.38 | 358.18 | 2120.76 |
| 359.04 | 2120.77 | 360.71 | 2120.88 | 361.14 | 2120.88 | 361.35 | 2120.94 | 361.76 | 2120.96 |
| 388.7 | 2121.79 | 394.53 | 2121.98 | 394.9 | 2121.98 | 395.56 | 2121.99 | 396.21 | 2121.99 |
| 397.04 | 2122.02 | 397.81 | 2122.05 | 425.69 | 2124.69 | 426.31 | 2124.76 | 426.87 | 2124.76 |
| 427.48 | 2124.82 | 428.22 | 2124.83 | 435.21 | 2125.35 | 435.85 | 2125.4 | 436.48 | 2125.41 |
| 436.88 | 2125.41 | 438.78 | 2125.56 | 459.13 | 2127.09 | 459.29 | 2127.1 | 459.43 | 2127.12 |
| 459.52 | 2127.12 | 468.77 | 2127.81 | 468.95 | 2127.83 | 469.11 | 2127.85 | 469.45 | 2127.87 |
| 477.35 | 2128.46 | 497.39 | 2130.07 | 497.52 | 2130.07 | 497.58 | 2130.08 | 508.41 | 2130.79 |
| 508.77 | 2130.79 | 508.91 | 2130.8 | 509.11 | 2130.85 | 509.31 | 2130.85 | 535.56 | 2132.57 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .048 | 207.58 | .04 | 342.81 | .048 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 131.33 | 397.81 | 146.2 | 182.61 | 237.31 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 2123.44 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 1.14 | Wt. n-Val. | 0.048 | 0.042 | 0.048 |
| W.S. Elev (ft) | 2122.30 | Reach Len. (ft) | 146.20 | 182.61 | 237.31 |
| Crit W.S. (ft) | 2122.30 | Flow Area (sq ft) | 0.52 | 608.73 | 0.32 |
| E.G. Slope (ft/ft) | 0.017039 | Area (sq ft) | 0.52 | 608.73 | 0.32 |
| Q Total (cfs) | 5220.00 | Flow (cfs) | 0.52 | 5219.17 | 0.31 |
| Top Width (ft) | 273.32 | Top Width (ft) | 4.25 | 266.48 | 2.58 |
| Vel Total (ft/s) | 8.56 | Avg. Vel. (ft/s) | 0.99 | 8.57 | 0.99 |
| Max Chl Dpth (ft) | 3.75 | Hydr. Depth (ft) | 0.12 | 2.28 | 0.12 |
| Conv. Total (cfs) | 39989.2 | Conv. (cfs) | 4.0 | 39982.8 | 2.4 |
| Length Wtd. (ft) | 182.49 | Wetted Per. (ft) | 4.26 | 266.62 | 2.60 |
| Min Ch El (ft) | 2118.54 | Shear (lb/sq ft) | 0.13 | 2.43 | 0.13 |
| Alpha | 1.00 | Stream Power (lb/ft s) | 0.13 | 20.82 | 0.13 |
| Frctn Loss (ft) | 2.44 | Cum Volume (acre-ft) | 0.25 | 64.46 | 0.39 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.37 | 16.58 | 0.55 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 2123.44 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 1.14 | Wt. n-Val. | 0.048 | 0.042 | 0.048 |
| W.S. Elev (ft) | 2122.30 | Reach Len. (ft) | 146.20 | 182.61 | 237.31 |
| Crit W.S. (ft) | 2122.30 | Flow Area (sq ft) | 0.52 | 608.73 | 0.32 |
| E.G. Slope (ft/ft) | 0.017039 | Area (sq ft) | 0.52 | 608.73 | 0.32 |
| Q Total (cfs) | 5220.00 | Flow (cfs) | 0.52 | 5219.17 | 0.31 |
| Top Width (ft) | 273.32 | Top Width (ft) | 4.25 | 266.48 | 2.58 |
| Vel Total (ft/s) | 8.56 | Avg. Vel. (ft/s) | 0.99 | 8.57 | 0.99 |
| Max Chl Dpth (ft) | 3.75 | Hydr. Depth (ft) | 0.12 | 2.28 | 0.12 |
| Conv. Total (cfs) | 39989.2 | Conv. (cfs) | 4.0 | 39982.8 | 2.4 |
| Length Wtd. (ft) | 182.49 | Wetted Per. (ft) | 4.26 | 266.62 | 2.60 |
| Min Ch El (ft) | 2118.54 | Shear (lb/sq ft) | 0.13 | 2.43 | 0.13 |
| Alpha | 1.00 | Stream Power (lb/ft s) | 0.13 | 20.82 | 0.13 |
| Frctn Loss (ft) | 2.44 | Cum Volume (acre-ft) | 0.25 | 64.46 | 0.39 |
| C & E Loss (ft) | 0.01 | Cum SA (acres) | 0.37 | 16.58 | 0.55 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 98.50 | 131.33 | 0.52 | 0.52 | 4.26 | 0.01 | 0.12 | 0.99 |
| 2 | Chan | 131.33 | 197.95 | 669.10 | 116.03 | 66.69 | 12.82 | 1.74 | 5.77 |
| 3 | Chan | 197.95 | 264.57 | 2389.93 | 225.56 | 66.63 | 45.78 | 3.39 | 10.60 |
| 4 | Chan | 264.57 | 331.19 | 1722.68 | 183.37 | 66.63 | 33.00 | 2.75 | 9.39 |
| 5 | Chan | 331.19 | 397.81 | 437.46 | 83.77 | 66.66 | 8.38 | 1.26 | 5.22 |
| 6 | ROB | 397.81 | 432.25 | 0.31 | 0.32 | 2.60 | 0.01 | 0.12 | 0.99 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 98.50 | 131.33 | 0.52 | 0.52 | 4.26 | 0.01 | 0.12 | 0.99 |
| 2 | Chan | 131.33 | 197.95 | 669.10 | 116.03 | 66.69 | 12.82 | 1.74 | 5.77 |
| 3 | Chan | 197.95 | 264.57 | 2389.93 | 225.56 | 66.63 | 45.78 | 3.39 | 10.60 |
| 4 | Chan | 264.57 | 331.19 | 1722.68 | 183.37 | 66.63 | 33.00 | 2.75 | 9.39 |
| 5 | Chan | 331.19 | 397.81 | 437.46 | 83.77 | 66.66 | 8.38 | 1.26 | 5.22 |
| 6 | ROB | 397.81 | 432.25 | 0.31 | 0.32 | 2.60 | 0.01 | 0.12 | 0.99 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: Ocotillo Wash 5
REACH: OWMS2 RS: 0.87183

INPUT
Description:
Station Elevation Data num= 77

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|

```
      0 2138.14      .9 2138.16      4 2138.29    6.46 2138.38    8.59 2138.49
  24.79 2138.05   31.22 2138.16  31.49 2138.16   32.52 2138.18   33.34   2138
  41.04 2136.34   48.96 2134.38  49.83 2134.17    54.4 2129.56   57.98  2125.8
   62.3  2125.4   63.77 2125.34  72.19 2125.02   81.26  2124.1   84.38 2123.83
  89.55  2123.3   98.48  2122.8  99.63 2122.33  101.32 2121.53  106.15 2119.11
 107.67 2118.51  108.75 2118.07  109.92 2118.02  118.51 2117.61  130.47 2117.21
 131.15 2117.18   131.8 2117.15  132.51 2116.94  140.44 2114.65   144.3  2114.5
 147.27  2114.4  157.34 2115.09  159.71 2115.02  166.16 2114.76  173.36 2114.49
 189.55 2114.56  197.74 2114.49  202.37 2114.42  213.83 2114.38  217.79 2114.79
 220.71 2115.08  221.78 2115.17  225.19 2115.08  228.47 2114.82  238.11 2114.15
 238.88 2114.11  239.11  2114.1   239.9 2114.02   251.7 2114.33  253.82 2114.38
  258.5  2114.5  259.64 2114.27  266.26 2112.98  268.11 2113.08  270.14 2112.84
 274.35 2112.86  277.24 2113.33  280.29 2113.94  281.99 2114.04  282.78 2114.04
 283.65 2113.98  283.66 2113.99  290.32 2120.43  295.54 2126.11  297.46 2125.82
 300.17 2125.47  303.41 2125.06  304.33 2125.07  305.43 2125.07   317.8 2124.99
 322.31 2125.01  325.63 2125.11

Manning's n Values        num=      3
     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************
       0    .048  140.44     .04  283.66    .048

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          131.8  290.32           462.71  321.64  121.54          .1        .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)         * 2119.44  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.24  * Wt. n-Val.              *   0.048  *   0.041  *         *
* W.S. Elev (ft)         * 2118.20  * Reach Len. (ft)        *  462.71  *  321.64  *  121.54 *
* Crit W.S. (ft)         * 2117.78  * Flow Area (sq ft)      *   14.37  *  579.27  *         *
* E.G. Slope (ft/ft)     *0.010748  * Area (sq ft)           *   14.37  *  579.27  *         *
* Q Total (cfs)          * 5220.00  * Flow (cfs)             *   33.32  * 5186.68  *         *
* Top Width (ft)         *  179.59  * Top Width (ft)          *   23.38  *  156.22  *         *
* Vel Total (ft/s)       *    8.79  * Avg. Vel. (ft/s)        *    2.32  *    8.95  *         *
* Max Chl Dpth (ft)      *    5.36  * Hydr. Depth (ft)        *    0.61  *    3.71  *         *
* Conv. Total (cfs)      * 50350.8  * Conv. (cfs)            *   321.4  * 50029.4  *         *
* Length Wtd. (ft)       *  322.11  * Wetted Per. (ft)        *   23.42  *  158.67  *         *
* Min Ch El (ft)         * 2112.84  * Shear (lb/sq ft)        *    0.41  *    2.45  *         *
* Alpha                  *    1.03  * Stream Power (lb/ft s) *    0.95  *   21.93  *         *
* Frctn Loss (ft)        *    5.63  * Cum Volume (acre-ft)   *    0.23  *   61.97  *    0.39 *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)         *    0.33  *   15.69  *    0.54 *
*****************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************
* E.G. Elev (ft)         * 2119.44  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.24  * Wt. n-Val.              *   0.048  *   0.041  *         *
* W.S. Elev (ft)         * 2118.20  * Reach Len. (ft)        *  462.71  *  321.64  *  121.54 *
* Crit W.S. (ft)         * 2117.78  * Flow Area (sq ft)      *   14.37  *  579.27  *         *
* E.G. Slope (ft/ft)     *0.010748  * Area (sq ft)           *   14.37  *  579.27  *         *
* Q Total (cfs)          * 5220.00  * Flow (cfs)             *   33.32  * 5186.68  *         *
* Top Width (ft)         *  179.59  * Top Width (ft)          *   23.38  *  156.22  *         *
* Vel Total (ft/s)       *    8.79  * Avg. Vel. (ft/s)        *    2.32  *    8.95  *         *
* Max Chl Dpth (ft)      *    5.36  * Hydr. Depth (ft)        *    0.61  *    3.71  *         *
* Conv. Total (cfs)      * 50350.8  * Conv. (cfs)            *   321.4  * 50029.4  *         *
* Length Wtd. (ft)       *  322.11  * Wetted Per. (ft)        *   23.42  *  158.67  *         *
* Min Ch El (ft)         * 2112.84  * Shear (lb/sq ft)        *    0.41  *    2.45  *         *
* Alpha                  *    1.03  * Stream Power (lb/ft s) *    0.95  *   21.93  *         *
* Frctn Loss (ft)        *    5.63  * Cum Volume (acre-ft)   *    0.23  *   61.97  *    0.39 *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)         *    0.33  *   15.69  *    0.54 *
*****************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) *  (sq ft) *    (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB      * 98.85     * 131.80    *    33.32 *    14.37 *   23.42 *     0.64 *     0.61 *     2.32 *
* 2        * Chan     * 131.80    * 171.43    *  1021.04 *   127.37 *   40.02 *    19.56 *     3.21 *     8.02 *
* 3        * Chan     * 171.43    * 211.06    *  1313.42 *   147.11 *   39.63 *    25.16 *     3.71 *     8.93 *
* 4        * Chan     * 211.06    * 250.69    *  1290.59 *   145.69 *   39.71 *    24.72 *     3.68 *     8.86 *
* 5        * Chan     * 250.69    * 290.32    *  1561.63 *   159.10 *   39.30 *    29.92 *     4.26 *     9.82 *
*************************************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 2
*************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) *  (sq ft) *    (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB      * 98.85     * 131.80    *    33.32 *    14.37 *   23.42 *     0.64 *     0.61 *     2.32 *
* 2        * Chan     * 131.80    * 171.43    *  1021.04 *   127.37 *   40.02 *    19.56 *     3.21 *     8.02 *
* 3        * Chan     * 171.43    * 211.06    *  1313.42 *   147.11 *   39.63 *    25.16 *     3.71 *     8.93 *
* 4        * Chan     * 211.06    * 250.69    *  1290.59 *   145.69 *   39.71 *    24.72 *     3.68 *     8.86 *
* 5        * Chan     * 250.69    * 290.32    *  1561.63 *   159.10 *   39.30 *    29.92 *     4.26 *     9.82 *
*************************************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
```

section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 5
REACH: OWMS2 RS: 0.81091

INPUT
Description:
Station Elevation Data num= 77

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2131.17 | 4.61 | 2131.39 | 9.2 | 2131.06 | 10.63 | 2130.95 | 15.92 | 2130.72 |
| 16.16 | 2130.71 | 22.36 | 2130.31 | 26 | 2129.02 | 27.78 | 2128.42 | 30.65 | 2127.46 |
| 54.72 | 2117.73 | 57.67 | 2115.91 | 64.08 | 2111.4 | 66.51 | 2110.49 | 68.47 | 2109.92 |
| 69.42 | 2109.57 | 70.36 | 2109.15 | 74.56 | 2107.67 | 81.94 | 2108.02 | 94.77 | 2108.65 |
| 98.28 | 2109.35 | 105.75 | 2109.49 | 108.26 | 2109.45 | 111.91 | 2109.41 | 115.23 | 2109.61 |
| 119.08 | 2109.86 | 127.2 | 2110.1 | 130.56 | 2110.19 | 134.72 | 2108.83 | 138.23 | 2107.54 |
| 143.05 | 2108.58 | 143.57 | 2108.69 | 143.73 | 2108.66 | 149.13 | 2107.85 | 151.85 | 2107.93 |
| 155 | 2108.03 | 157.31 | 2108.09 | 158.53 | 2108.08 | 161.36 | 2108.23 | 163.92 | 2108.66 |
| 169.43 | 2109.29 | 174.42 | 2109.72 | 176.64 | 2109.92 | 195.4 | 2111.69 | 201 | 2111.6 |
| 206.66 | 2111.55 | 232.86 | 2110.79 | 234.22 | 2110.92 | 238.06 | 2111.11 | 238.42 | 2111.05 |
| 238.72 | 2111.05 | 240.54 | 2110.89 | 243.51 | 2110.87 | 244.95 | 2110.94 | 259.36 | 2111.09 |
| 263.79 | 2111.46 | 268.25 | 2111.36 | 272.29 | 2111.26 | 275.43 | 2111.06 | 277.03 | 2111.15 |
| 278.96 | 2111.27 | 281.18 | 2111.42 | 283.49 | 2111.52 | 311.18 | 2112.08 | 314.63 | 2112.18 |
| 317.08 | 2112.72 | 346.33 | 2119.42 | 361 | 2123.14 | 371.15 | 2126.33 | 371.46 | 2126.46 |
| 371.89 | 2126.49 | 379.57 | 2126.89 | 379.71 | 2126.9 | 384.34 | 2126.89 | 385.95 | 2126.94 |
| 388.15 | 2126.99 | 389.14 | 2126.99 | | | | | | |

Manning's n Values num= 4

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|
| 0 | .075 | 27.78 | .072 | 74.56 | .046 | 158.53 | .058 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 64.08 | 314.63 | 281.96 | 265.27 | 155.28 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | |
|---|---|---|---|---|
| E.G. Elev (ft) | 2113.80 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 1.19 | Wt. n-Val. | 0.072 | 0.055 | 0.058 |
| W.S. Elev (ft) | 2112.61 | Reach Len. (ft) | 281.96 | 265.27 | 155.28 |
| Crit W.S. (ft) | 2112.61 | Flow Area (sq ft) | 1.04 | 595.32 | 0.42 |
| E.G. Slope (ft/ft) | 0.033229 | Area (sq ft) | 1.04 | 595.32 | 0.42 |
| Q Total (cfs) | 5220.00 | Flow (cfs) | 2.44 | 5216.88 | 0.68 |
| Top Width (ft) | 254.21 | Top Width (ft) | 1.72 | 250.55 | 1.94 |
| Vel Total (ft/s) | 8.75 | Avg. Vel. (ft/s) | 2.35 | 8.76 | 1.64 |
| Max Chl Dpth (ft) | 5.07 | Hydr. Depth (ft) | 0.60 | 2.38 | 0.21 |
| Conv. Total (cfs) | 28636.0 | Conv. (cfs) | 13.4 | 28618.8 | 3.7 |
| Length Wtd. (ft) | 265.27 | Wetted Per. (ft) | 2.10 | 252.22 | 1.99 |
| Min Ch El (ft) | 2107.54 | Shear (lb/sq ft) | 1.02 | 4.90 | 0.43 |
| Alpha | 1.00 | Stream Power (lb/ft s) | 2.41 | 42.91 | 0.71 |
| Frctn Loss (ft) | 3.79 | Cum Volume (acre-ft) | 0.14 | 57.63 | 0.39 |
| C & E Loss (ft) | 0.15 | Cum SA (acres) | 0.19 | 14.19 | 0.54 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | |
|---|---|---|---|---|
| E.G. Elev (ft) | 2113.80 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 1.19 | Wt. n-Val. | 0.072 | 0.055 | 0.058 |
| W.S. Elev (ft) | 2112.61 | Reach Len. (ft) | 281.96 | 265.27 | 155.28 |
| Crit W.S. (ft) | 2112.61 | Flow Area (sq ft) | 1.04 | 595.32 | 0.42 |
| E.G. Slope (ft/ft) | 0.033229 | Area (sq ft) | 1.04 | 595.32 | 0.42 |
| Q Total (cfs) | 5220.00 | Flow (cfs) | 2.44 | 5216.88 | 0.68 |
| Top Width (ft) | 254.21 | Top Width (ft) | 1.72 | 250.55 | 1.94 |
| Vel Total (ft/s) | 8.75 | Avg. Vel. (ft/s) | 2.35 | 8.76 | 1.64 |
| Max Chl Dpth (ft) | 5.07 | Hydr. Depth (ft) | 0.60 | 2.38 | 0.21 |
| Conv. Total (cfs) | 28636.0 | Conv. (cfs) | 13.4 | 28618.8 | 3.7 |
| Length Wtd. (ft) | 265.27 | Wetted Per. (ft) | 2.10 | 252.22 | 1.99 |
| Min Ch El (ft) | 2107.54 | Shear (lb/sq ft) | 1.02 | 4.90 | 0.43 |
| Alpha | 1.00 | Stream Power (lb/ft s) | 2.41 | 42.91 | 0.71 |
| Frctn Loss (ft) | 3.79 | Cum Volume (acre-ft) | 0.14 | 57.63 | 0.39 |
| C & E Loss (ft) | 0.15 | Cum SA (acres) | 0.19 | 14.19 | 0.54 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 48.06 | 64.08 | 2.44 | 1.04 | 2.10 | 0.05 | 0.60 | 2.35 |
| 2 | Chan | 64.08 | 126.72 | 2282.89 | 219.55 | 63.40 | 43.73 | 3.51 | 10.40 |
| 3 | Chan | 126.72 | 189.36 | 2256.16 | 220.96 | 63.43 | 43.22 | 3.53 | 10.21 |
| 4 | Chan | 189.36 | 251.99 | 413.61 | 87.75 | 62.70 | 7.92 | 1.40 | 4.71 |
| 5 | Chan | 251.99 | 314.63 | 264.22 | 67.06 | 62.68 | 5.06 | 1.07 | 3.94 |
| 6 | ROB | 314.63 | 333.26 | 0.68 | 0.42 | 1.99 | 0.01 | 0.21 | 1.64 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 48.06 | 64.08 | 2.44 | 1.04 | 2.10 | 0.05 | 0.60 | 2.35 |
| 2 | Chan | 64.08 | 126.72 | 2282.89 | 219.55 | 63.40 | 43.73 | 3.51 | 10.40 |
| 3 | Chan | 126.72 | 189.36 | 2256.16 | 220.96 | 63.43 | 43.22 | 3.53 | 10.21 |
| 4 | Chan | 189.36 | 251.99 | 413.61 | 87.75 | 62.70 | 7.92 | 1.40 | 4.71 |
| 5 | Chan | 251.99 | 314.63 | 264.22 | 67.06 | 62.68 | 5.06 | 1.07 | 3.94 |
| 6 | ROB | 314.63 | 333.26 | 0.68 | 0.42 | 1.99 | 0.01 | 0.21 | 1.64 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 5
REACH: OWMS2 RS: 0.76067

INPUT
Description:
Station Elevation Data num= 126

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2119 | 1.47 | 2118.91 | 2.32 | 2118.8 | 3.09 | 2118.72 | 7.84 | 2118.62 |
| 13.51 | 2118.68 | 14.01 | 2118.62 | 18.84 | 2118.76 | 20.47 | 2118.92 | 21.04 | 2118.99 |
| 26.62 | 2119.5 | 28.18 | 2119.6 | 30.51 | 2119.75 | 31.99 | 2119.8 | 33.77 | 2119.64 |
| 38.63 | 2117.16 | 42.82 | 2114.91 | 48.11 | 2112.29 | 50.91 | 2110.91 | 62.55 | 2104.16 |
| 67.87 | 2102.05 | 68.75 | 2101.67 | 69.81 | 2101.43 | 71.85 | 2101.89 | 72.73 | 2102.05 |
| 73.61 | 2102.2 | 78.78 | 2102.83 | 80.91 | 2103.19 | 81.78 | 2103.15 | 82.24 | 2103.12 |
| 85.52 | 2102.89 | 88.29 | 2102.79 | 89.79 | 2102.93 | 90.3 | 2102.99 | 93.32 | 2103.61 |
| 94.4 | 2103.61 | 98.04 | 2104 | 98.39 | 2103.98 | 100.36 | 2104.26 | 106.75 | 2103.82 |
| 109.96 | 2103.99 | 112.91 | 2104.12 | 114.81 | 2104.18 | 117.61 | 2104.12 | 123.23 | 2104.08 |
| 124.18 | 2104.08 | 128.77 | 2104.47 | 129.93 | 2104.53 | 139 | 2105.19 | 146.15 | 2105.58 |
| 152.22 | 2104.89 | 158.08 | 2104.2 | 161.04 | 2103.95 | 165.17 | 2103.4 | 165.79 | 2103.27 |
| 172.6 | 2103.83 | 173.91 | 2103.9 | 173.92 | 2103.9 | 175.31 | 2104.11 | 176.7 | 2104.42 |
| 179.7 | 2105.14 | 179.99 | 2105.18 | 188.15 | 2105.6 | 190.04 | 2105.47 | 195.55 | 2105.05 |
| 197.98 | 2105.36 | 199.71 | 2105.48 | 205.77 | 2106.16 | 211.93 | 2106.29 | 212.77 | 2106.37 |
| 213.77 | 2106.59 | 221.15 | 2106.51 | 221.65 | 2106.42 | 223.31 | 2106.29 | 224.83 | 2106.27 |
| 236.21 | 2106.14 | 248.07 | 2111.39 | 251.85 | 2113 | 256.92 | 2111.89 | 260.75 | 2111.06 |
| 268.71 | 2109.32 | 275.07 | 2107.93 | 282.09 | 2108.64 | 282.66 | 2108.79 | 285.65 | 2110.4 |
| 292.06 | 2112.77 | 295.91 | 2113.66 | 311.99 | 2121.57 | 315.57 | 2123.24 | 316.08 | 2123.39 |
| 319.51 | 2123.82 | 320.2 | 2123.97 | 324.01 | 2124.42 | 325.6 | 2124.59 | 329.1 | 2125.53 |
| 330.3 | 2125.71 | 330.49 | 2125.74 | 334.07 | 2126.24 | 335.35 | 2126.39 | 338.47 | 2126.51 |
| 339.92 | 2126.63 | 341.91 | 2126.73 | 342.91 | 2126.89 | 344.26 | 2127.19 | 345.3 | 2127.33 |
| 346.28 | 2127.62 | 348.55 | 2128.12 | 349.67 | 2128.43 | 351.8 | 2128.94 | 352.56 | 2129.08 |
| 353.5 | 2129.16 | 354.37 | 2129.26 | 355.18 | 2129.44 | 356.09 | 2129.74 | 359.06 | 2129.98 |
| 361.84 | 2130.13 | 365 | 2130.16 | 370.51 | 2130.2 | 373.16 | 2130.1 | 375.06 | 2130.15 |
| 377.17 | 2130.13 | 378.08 | 2130.11 | 380.11 | 2130.06 | 382.85 | 2130.14 | 384.09 | 2130.24 |
| 385.46 | 2130.4 | | | | | | | | |

Manning's n Values num= 6

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|---|---|
| 0 | .075 | 48.11 | .063 | 69.81 | .046 | 123.23 | .046 | 173.92 | .055 |
| 330.3 | .055 | | | | | | | | |

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
50.91 251.85 50.44 181.67 327.47 .1 .3
Right Levee Station= 251.85 Elevation= 2113

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2109.61 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.69 | Wt. n-Val. | | 0.051 | |
| W.S. Elev (ft) | 2108.92 | Reach Len. (ft) | 50.44 | 181.67 | 327.47 |
| Crit W.S. (ft) | 2107.59 | Flow Area (sq ft) | | 785.20 | |
| E.G. Slope (ft/ft) | 0.007911 | Area (sq ft) | | 785.20 | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Q Total (cfs) | 5220.00 | Flow (cfs) | | 5220.00 | | | |
| Top Width (ft) | 188.16 | Top Width (ft) | | 188.16 | | | |
| Vel Total (ft/s) | 6.65 | Avg. Vel. (ft/s) | | 6.65 | | | |
| Max Chl Dpth (ft) | 7.49 | Hydr. Depth (ft) | | 4.17 | | | |
| Conv. Total (cfs) | 58689.9 | Conv. (cfs) | | 58689.9 | | | |
| Length Wtd. (ft) | 181.60 | Wetted Per. (ft) | | 191.33 | | | |
| Min Ch El (ft) | 2101.43 | Shear (lb/sq ft) | | 2.03 | | | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 13.47 | | | |
| Frctn Loss (ft) | 1.84 | Cum Volume (acre-ft) | 0.14 | 53.43 | | 0.39 | |
| C & E Loss (ft) | 0.06 | Cum SA (acres) | 0.19 | 12.86 | | 0.54 | |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2109.61 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.69 | Wt. n-Val. | | 0.051 | |
| W.S. Elev (ft) | 2108.92 | Reach Len. (ft) | 50.44 | 181.67 | 327.47 |
| Crit W.S. (ft) | 2107.59 | Flow Area (sq ft) | | 785.20 | |
| E.G. Slope (ft/ft) | 0.007911 | Area (sq ft) | | 785.20 | |
| Q Total (cfs) | 5220.00 | Flow (cfs) | | 5220.00 | |
| Top Width (ft) | 188.16 | Top Width (ft) | | 188.16 | |
| Vel Total (ft/s) | 6.65 | Avg. Vel. (ft/s) | | 6.65 | |
| Max Chl Dpth (ft) | 7.49 | Hydr. Depth (ft) | | 4.17 | |
| Conv. Total (cfs) | 58689.9 | Conv. (cfs) | | 58689.9 | |
| Length Wtd. (ft) | 181.60 | Wetted Per. (ft) | | 191.33 | |
| Min Ch El (ft) | 2101.43 | Shear (lb/sq ft) | | 2.03 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 13.47 | |
| Frctn Loss (ft) | 1.84 | Cum Volume (acre-ft) | 0.14 | 53.43 | 0.39 |
| C & E Loss (ft) | 0.06 | Cum SA (acres) | 0.19 | 12.86 | 0.54 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 50.91 | 101.15 | 1878.30 | 249.50 | 48.87 | 35.98 | 5.33 | 7.53 |
| 2 | Chan | 101.15 | 151.38 | 1544.58 | 219.81 | 50.34 | 29.59 | 4.38 | 7.03 |
| 3 | Chan | 151.38 | 201.62 | 1399.22 | 215.48 | 50.57 | 26.80 | 4.29 | 6.49 |
| 4 | Chan | 201.62 | 251.85 | 397.90 | 100.42 | 41.54 | 7.62 | 2.46 | 3.96 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 50.91 | 101.15 | 1878.30 | 249.50 | 48.87 | 35.98 | 5.33 | 7.53 |
| 2 | Chan | 101.15 | 151.38 | 1544.58 | 219.81 | 50.34 | 29.59 | 4.38 | 7.03 |
| 3 | Chan | 151.38 | 201.62 | 1399.22 | 215.48 | 50.57 | 26.80 | 4.29 | 6.49 |
| 4 | Chan | 201.62 | 251.85 | 397.90 | 100.42 | 41.54 | 7.62 | 2.46 | 3.96 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION

RIVER: Ocotillo Wash 5
REACH: OWMS2 RS: 0.72626

INPUT
Description:
Station Elevation Data num= 81

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2115.04 | 10.79 | 2113.9 | 12.45 | 2113.67 | 13.72 | 2113.56 | 19.6 | 2113.43 |
| 20.71 | 2113.44 | 23.55 | 2113.88 | 24.65 | 2113.96 | 26.29 | 2113.92 | 36.86 | 2113.56 |
| 38.96 | 2113.48 | 39.2 | 2113.47 | 41.23 | 2113.6 | 42.33 | 2113.3 | 42.56 | 2113.22 |
| 46.97 | 2111.61 | 51.1 | 2109.63 | 53.34 | 2108.78 | 56.49 | 2107.56 | 60.08 | 2106.09 |
| 61.58 | 2105.48 | 63.55 | 2104.62 | 68.27 | 2102.28 | 68.43 | 2102.12 | 69.07 | 2101.91 |
| 71.87 | 2100.84 | 73.64 | 2099.93 | 73.65 | 2099.93 | 80.62 | 2101.17 | 85.78 | 2102 |
| 87.38 | 2102.41 | 88.31 | 2102.51 | 94.42 | 2103.13 | 96.04 | 2103.26 | 99.94 | 2101.26 |
| 102.28 | 2100.09 | 107.1 | 2100.61 | 110.11 | 2100.86 | 112.53 | 2101.12 | 121.45 | 2102.1 |
| 126.16 | 2102.65 | 130.89 | 2103.36 | 135.92 | 2103.97 | 138.13 | 2104.09 | 140.02 | 2104.22 |
| 143.7 | 2104.42 | 145.84 | 2104.5 | 152.11 | 2102.5 | 160.2 | 2099.96 | 167.42 | 2099.84 |
| 178.12 | 2099.71 | 180.14 | 2099.32 | 183.07 | 2101.79 | 186.63 | 2104.76 | 197.76 | 2116 |
| 197.82 | 2116.03 | 207.17 | 2120.2 | 212.75 | 2122.55 | 216.61 | 2124.25 | 219.15 | 2125.42 |

```
  224.04 2127.56  224.75  2127.7  225.27 2127.78  228.47 2128.13  232.49 2128.94
  237.21  2128.8  273.42 2127.74  282.63 2127.55  292.35 2127.13  297.58 2126.98
  297.78 2126.97   302.9 2126.72  309.59 2126.97  315.52 2127.09  319.56 2127.42
  322.81 2127.64  326.57 2127.95  329.29 2128.23  332.76 2128.58  336.69 2128.93
  340.04 2129.24

Manning's n Values        num=      5
     Sta    n Val     Sta    n Val     Sta    n Val     Sta    n Val     Sta    n Val
*******************************************************************************
       0     .069   73.65     .046   88.31     .046  178.12      .07  329.29      .07

Bank Sta: Left    Right    Lengths: Left Channel    Right     Coeff Contr.    Expan.
          63.55  186.63             365.93  424.82  449.12              .1        .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)          * 2107.70  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    1.32  * Wt. n-Val.              *   0.069  *   0.050  *   0.070  *
* W.S. Elev (ft)          * 2106.39  * Reach Len. (ft)         *  365.93  *  424.82  *  449.12  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *    3.64  *  565.05  *    1.31  *
* E.G. Slope (ft/ft)      *0.013496  * Area (sq ft)            *    3.64  *  565.05  *    1.31  *
* Q Total (cfs)           * 5220.00  * Flow (cfs)              *    7.84  * 5209.94  *    2.22  *
* Top Width (ft)          *  128.88  * Top Width (ft)          *    4.19  *  123.08  *    1.61  *
* Vel Total (ft/s)        *    9.16  * Avg. Vel. (ft/s)        *    2.16  *    9.22  *    1.70  *
* Max Chl Dpth (ft)       *    7.07  * Hydr. Depth (ft)        *    0.87  *    4.59  *    0.81  *
* Conv. Total (cfs)       * 44933.1  * Conv. (cfs)             *    67.5  * 44846.5  *    19.1  *
* Length Wtd. (ft)        *  424.64  * Wetted Per. (ft)        *    4.55  *  128.13  *    2.29  *
* Min Ch El (ft)          * 2099.32  * Shear (lb/sq ft)        *    0.67  *    3.72  *    0.48  *
* Alpha                   *    1.01  * Stream Power (lb/ft s)   *    1.45  *   34.26  *    0.82  *
* Frctn Loss (ft)         *    7.39  * Cum Volume (acre-ft)     *    0.14  *   50.62  *    0.39  *
* C & E Loss (ft)         *    0.02  * Cum SA (acres)           *    0.18  *   12.21  *    0.53  *
*****************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************
* E.G. Elev (ft)          * 2107.70  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    1.32  * Wt. n-Val.              *   0.069  *   0.050  *   0.070  *
* W.S. Elev (ft)          * 2106.39  * Reach Len. (ft)         *  365.93  *  424.82  *  449.12  *
* Crit W.S. (ft)          *          * Flow Area (sq ft)       *    3.64  *  565.05  *    1.31  *
* E.G. Slope (ft/ft)      *0.013496  * Area (sq ft)            *    3.64  *  565.05  *    1.31  *
* Q Total (cfs)           * 5220.00  * Flow (cfs)              *    7.84  * 5209.94  *    2.22  *
* Top Width (ft)          *  128.88  * Top Width (ft)          *    4.19  *  123.08  *    1.61  *
* Vel Total (ft/s)        *    9.16  * Avg. Vel. (ft/s)        *    2.16  *    9.22  *    1.70  *
* Max Chl Dpth (ft)       *    7.07  * Hydr. Depth (ft)        *    0.87  *    4.59  *    0.81  *
* Conv. Total (cfs)       * 44933.1  * Conv. (cfs)             *    67.5  * 44846.5  *    19.1  *
* Length Wtd. (ft)        *  424.64  * Wetted Per. (ft)        *    4.55  *  128.13  *    2.29  *
* Min Ch El (ft)          * 2099.32  * Shear (lb/sq ft)        *    0.67  *    3.72  *    0.48  *
* Alpha                   *    1.01  * Stream Power (lb/ft s)   *    1.45  *   34.26  *    0.82  *
* Frctn Loss (ft)         *    7.39  * Cum Volume (acre-ft)     *    0.14  *   50.62  *    0.39  *
* C & E Loss (ft)         *    0.02  * Cum SA (acres)           *    0.18  *   12.21  *    0.53  *
*****************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB      * 47.66     * 63.55     *     7.84 *     3.64 *     4.55 *     0.15 *     0.87 *     2.16 *
* 2        * Chan     * 63.55     * 94.32     *  1170.14 *   139.27 *    32.10 *    22.42 *     4.53 *     8.40 *
* 3        * Chan     * 94.32     * 125.09    *  1487.16 *   151.52 *    31.67 *    28.49 *     4.92 *     9.82 *
* 4        * Chan     * 125.09    * 155.86    *   625.09 *    89.74 *    31.37 *    11.98 *     2.92 *     6.97 *
* 5        * Chan     * 155.86    * 186.63    *  1927.54 *   184.51 *    33.00 *    36.93 *     6.00 *    10.45 *
* 6        * ROB      * 186.63    * 224.98    *     2.22 *     1.31 *     2.29 *     0.04 *     0.81 *     1.70 *
*****************************************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 2
*****************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB      * 47.66     * 63.55     *     7.84 *     3.64 *     4.55 *     0.15 *     0.87 *     2.16 *
* 2        * Chan     * 63.55     * 94.32     *  1170.14 *   139.27 *    32.10 *    22.42 *     4.53 *     8.40 *
* 3        * Chan     * 94.32     * 125.09    *  1487.16 *   151.52 *    31.67 *    28.49 *     4.92 *     9.82 *
* 4        * Chan     * 125.09    * 155.86    *   625.09 *    89.74 *    31.37 *    11.98 *     2.92 *     6.97 *
* 5        * Chan     * 155.86    * 186.63    *  1927.54 *   184.51 *    33.00 *    36.93 *     6.00 *    10.45 *
* 6        * ROB      * 186.63    * 224.98    *     2.22 *     1.31 *     2.29 *     0.04 *     0.81 *     1.70 *
*****************************************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: Ocotillo Wash 5
REACH: OWMS2                RS: 0.64580

INPUT
Description:
Station Elevation Data    num=      40
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
       0  2123.4   16.63 2122.53   21.67 2122.31   28.35 2121.93   28.98 2121.89
   30.95 2121.08   41.85 2116.55   45.21 2115.11   46.51 2114.56   53.66  2111.8
   55.25  2111.2   68.26 2106.41   87.56 2099.15   87.62 2099.13   87.72 2099.12
```

```
  99.09 2097.61  101.88 2097.25  132.94 2095.99  137.14 2095.77  151.23 2094.84
 155.55 2093.77  160.59 2092.57  166.49 2092.36  184.83 2091.66  186.05 2091.79
 196.02 2092.89   208.2 2093.28  209.23 2093.32  209.48 2093.34  211.32 2093.55
 212.55 2094.18  223.98 2099.77  227.64 2101.03  230.74 2102.05  241.89 2105.89
 244.31 2106.34  244.82 2106.56  251.39 2109.06  251.66 2109.04  260.83 2108.39

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
************************************************
       0    .069  160.59    .046  196.02    .061

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        101.88  223.98            333.74  295.18   257.8            .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)         * 2100.31  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.51  * Wt. n-Val.              *   0.069  *   0.061  *         *
* W.S. Elev (ft)         * 2098.80  * Reach Len. (ft)         *  333.74  *  295.18  *  257.80  *
* Crit W.S. (ft)         * 2098.30  * Flow Area (sq ft)       *    9.14  *  526.20  *         *
* E.G. Slope (ft/ft)     *0.023267  * Area (sq ft)            *    9.14  *  526.20  *         *
* Q Total (cfs)          * 5220.00  * Flow (cfs)              *   25.26  * 5194.74  *         *
* Top Width (ft)         *  131.86  * Top Width (ft)          *   11.74  *  120.11  *         *
* Vel Total (ft/s)       *    9.75  * Avg. Vel. (ft/s)         *    2.76  *    9.87  *         *
* Max Chl Dpth (ft)      *    7.14  * Hydr. Depth (ft)         *    0.78  *    4.38  *         *
* Conv. Total (cfs)      * 34221.5  * Conv. (cfs)             *   165.6  * 34055.9  *         *
* Length Wtd. (ft)       *  295.26  * Wetted Per. (ft)         *   11.84  *  121.77  *         *
* Min Ch El (ft)         * 2091.66  * Shear (lb/sq ft)        *    1.12  *    6.28  *         *
* Alpha                  *    1.02  * Stream Power (lb/ft s)   *    3.10  *   61.97  *         *
* Frctn Loss (ft)        *    4.89  * Cum Volume (acre-ft)     *    0.08  *   45.29  *    0.38 *
* C & E Loss (ft)        *    0.19  * Cum SA (acres)           *    0.12  *   11.02  *    0.52 *
*****************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************
* E.G. Elev (ft)         * 2100.31  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.51  * Wt. n-Val.              *   0.069  *   0.061  *         *
* W.S. Elev (ft)         * 2098.80  * Reach Len. (ft)         *  333.74  *  295.18  *  257.80  *
* Crit W.S. (ft)         * 2098.30  * Flow Area (sq ft)       *    9.14  *  526.20  *         *
* E.G. Slope (ft/ft)     *0.023267  * Area (sq ft)            *    9.14  *  526.20  *         *
* Q Total (cfs)          * 5220.00  * Flow (cfs)              *   25.26  * 5194.74  *         *
* Top Width (ft)         *  131.86  * Top Width (ft)          *   11.74  *  120.11  *         *
* Vel Total (ft/s)       *    9.75  * Avg. Vel. (ft/s)         *    2.76  *    9.87  *         *
* Max Chl Dpth (ft)      *    7.14  * Hydr. Depth (ft)         *    0.78  *    4.38  *         *
* Conv. Total (cfs)      * 34221.5  * Conv. (cfs)             *   165.6  * 34055.9  *         *
* Length Wtd. (ft)       *  295.26  * Wetted Per. (ft)         *   11.84  *  121.77  *         *
* Min Ch El (ft)         * 2091.66  * Shear (lb/sq ft)        *    1.12  *    6.28  *         *
* Alpha                  *    1.02  * Stream Power (lb/ft s)   *    3.10  *   61.97  *         *
* Frctn Loss (ft)        *    4.89  * Cum Volume (acre-ft)     *    0.08  *   45.29  *    0.38 *
* C & E Loss (ft)        *    0.19  * Cum SA (acres)           *    0.12  *   11.02  *    0.52 *
*****************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB      * 76.41     * 101.88    *    25.26 *    9.14 *    11.84 *     0.48 *     0.78 *     2.76 *
* 2        * Chan     * 101.88    * 132.41    *   293.09 *   66.18 *    30.55 *     5.61 *     2.17 *     4.43 *
* 3        * Chan     * 132.41    * 162.93    *   922.36 *  125.44 *    30.83 *    17.67 *     4.11 *     7.35 *
* 4        * Chan     * 162.93    * 193.46    *  2884.55 *  204.71 *    30.59 *    55.26 *     6.71 *    14.09 *
* 5        * Chan     * 193.46    * 223.98    *  1094.74 *  129.88 *    29.80 *    20.97 *     4.55 *     8.43 *
*****************************************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 2
*****************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB      * 76.41     * 101.88    *    25.26 *    9.14 *    11.84 *     0.48 *     0.78 *     2.76 *
* 2        * Chan     * 101.88    * 132.41    *   293.09 *   66.18 *    30.55 *     5.61 *     2.17 *     4.43 *
* 3        * Chan     * 132.41    * 162.93    *   922.36 *  125.44 *    30.83 *    17.67 *     4.11 *     7.35 *
* 4        * Chan     * 162.93    * 193.46    *  2884.55 *  204.71 *    30.59 *    55.26 *     6.71 *    14.09 *
* 5        * Chan     * 193.46    * 223.98    *  1094.74 *  129.88 *    29.80 *    20.97 *     4.55 *     8.43 *
*****************************************************************************************************************

Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: Ocotillo Wash 5
REACH: OWMS2              RS: 0.58990

INPUT
Description:
```

Station Elevation Data num= 102

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2120.7 | 11.77 | 2120.17 | 13.8 | 2120.09 | 13.87 | 2120.09 | 14.34 | 2119.92 |
| 31.84 | 2114.77 | 37.54 | 2113.03 | 38.59 | 2111.99 | 55.89 | 2106.17 | 58.26 | 2104.59 |
| 60.76 | 2104.44 | 64.03 | 2103.45 | 67.46 | 2102.12 | 71.45 | 2101.08 | 75.56 | 2100.31 |
| 88.4 | 2096.69 | 94 | 2094.27 | 97.05 | 2093.75 | 101.38 | 2093.19 | 106.1 | 2092.34 |
| 106.39 | 2092.34 | 107.9 | 2092.21 | 112.57 | 2091.86 | 114.36 | 2091.74 | 118.38 | 2091.45 |
| 122.65 | 2091.04 | 124.59 | 2090.67 | 139.95 | 2090.9 | 141.81 | 2090.95 | 142.48 | 2090.98 |
| 148.21 | 2091.32 | 149 | 2091.05 | 157.25 | 2088.09 | 165.52 | 2088.22 | 169.22 | 2088.23 |
| 185.46 | 2089.41 | 189.86 | 2088.77 | 191.06 | 2088.63 | 193.51 | 2088.54 | 200.48 | 2088.22 |
| 207.14 | 2088.14 | 208.31 | 2088.14 | 209.34 | 2087.93 | 219.68 | 2086.09 | 219.7 | 2086.1 |
| 230.06 | 2089.45 | 233.38 | 2090.49 | 248.02 | 2092.6 | 251.92 | 2093.17 | 253.19 | 2093.36 |
| 253.28 | 2093.38 | 253.5 | 2093.43 | 254.92 | 2093.7 | 262.71 | 2095.2 | 270.86 | 2096.16 |
| 275.88 | 2096.68 | 282.57 | 2097.47 | 286.6 | 2097.88 | 293.15 | 2098.71 | 297.74 | 2099.03 |
| 303.06 | 2099.44 | 305.35 | 2099.57 | 313.37 | 2099.82 | 314.98 | 2099.8 | 321.11 | 2099.75 |
| 323.46 | 2099.74 | 324.82 | 2099.72 | 330.6 | 2099.65 | 333.04 | 2099.64 | 340.23 | 2099.54 |
| 354.33 | 2099.44 | 356.72 | 2099.43 | 358.89 | 2099.18 | 362.59 | 2098.73 | 364.26 | 2098.94 |
| 365.54 | 2099.13 | 370.38 | 2099.75 | 375.29 | 2099.96 | 376.63 | 2100.03 | 378.65 | 2100.14 |
| 385.52 | 2100.54 | 390.35 | 2100.79 | 397.55 | 2101.18 | 413.76 | 2103.06 | 418.33 | 2103.54 |
| 427.47 | 2107.16 | 428.69 | 2107.64 | 438.72 | 2109.66 | 443.66 | 2110.76 | 446.97 | 2111.97 |
| 448.74 | 2112.63 | 453.12 | 2114.28 | 453.93 | 2114.58 | 454.08 | 2114.62 | 454.29 | 2114.71 |
| 455.44 | 2114.76 | 456.06 | 2114.78 | 457.7 | 2114.82 | 460.15 | 2114.9 | 462.65 | 2114.94 |
| 464.41 | 2114.95 | 469.44 | 2114.81 | | | | | | |

Manning's n Values num= 4

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|
| 0 | .069 | 157.25 | .046 | 219.7 | .061 | 376.63 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 94 | 253.19 | 699.81 | 609.72 | 513.34 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2095.22 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.87 | Wt. n-Val. | 0.069 | 0.059 | 0.061 |
| W.S. Elev (ft) | 2094.35 | Reach Len. (ft) | 699.81 | 609.72 | 513.34 |
| Crit W.S. (ft) | 2093.09 | Flow Area (sq ft) | 0.01 | 697.71 | 2.52 |
| E.G. Slope (ft/ft) | 0.012405 | Area (sq ft) | 0.01 | 697.71 | 2.52 |
| Q Total (cfs) | 5220.00 | Flow (cfs) | 0.00 | 5215.78 | 4.21 |
| Top Width (ft) | 164.50 | Top Width (ft) | 0.19 | 159.19 | 5.12 |
| Vel Total (ft/s) | 7.45 | Avg. Vel. (ft/s) | 0.27 | 7.48 | 1.67 |
| Max Chl Dpth (ft) | 8.26 | Hydr. Depth (ft) | 0.04 | 4.38 | 0.49 |
| Conv. Total (cfs) | 46867.4 | Conv. (cfs) | 0.0 | 46829.5 | 37.8 |
| Length Wtd. (ft) | 609.67 | Wetted Per. (ft) | 0.21 | 161.19 | 5.21 |
| Min Ch El (ft) | 2086.09 | Shear (lb/sq ft) | 0.03 | 3.35 | 0.37 |
| Alpha | 1.00 | Stream Power (lb/ft s) | 0.01 | 25.06 | 0.63 |
| Frctn Loss (ft) | 8.70 | Cum Volume (acre-ft) | 0.05 | 41.15 | 0.37 |
| C & E Loss (ft) | 0.09 | Cum SA (acres) | 0.07 | 10.08 | 0.51 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2095.22 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.87 | Wt. n-Val. | 0.069 | 0.059 | 0.061 |
| W.S. Elev (ft) | 2094.35 | Reach Len. (ft) | 699.81 | 609.72 | 513.34 |
| Crit W.S. (ft) | 2093.09 | Flow Area (sq ft) | 0.01 | 697.71 | 2.52 |
| E.G. Slope (ft/ft) | 0.012405 | Area (sq ft) | 0.01 | 697.71 | 2.52 |
| Q Total (cfs) | 5220.00 | Flow (cfs) | 0.00 | 5215.78 | 4.21 |
| Top Width (ft) | 164.50 | Top Width (ft) | 0.19 | 159.19 | 5.12 |
| Vel Total (ft/s) | 7.45 | Avg. Vel. (ft/s) | 0.27 | 7.48 | 1.67 |
| Max Chl Dpth (ft) | 8.26 | Hydr. Depth (ft) | 0.04 | 4.38 | 0.49 |
| Conv. Total (cfs) | 46867.4 | Conv. (cfs) | 0.0 | 46829.5 | 37.8 |
| Length Wtd. (ft) | 609.67 | Wetted Per. (ft) | 0.21 | 161.19 | 5.21 |
| Min Ch El (ft) | 2086.09 | Shear (lb/sq ft) | 0.03 | 3.35 | 0.37 |
| Alpha | 1.00 | Stream Power (lb/ft s) | 0.01 | 25.06 | 0.63 |
| Frctn Loss (ft) | 8.70 | Cum Volume (acre-ft) | 0.05 | 41.15 | 0.37 |
| C & E Loss (ft) | 0.09 | Cum SA (acres) | 0.07 | 10.08 | 0.51 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 70.50 | 94.00 | 0.00 | 0.01 | 0.21 | 0.00 | 0.04 | 0.27 |
| 2 | Chan | 94.00 | 133.80 | 336.88 | 95.88 | 40.04 | 6.45 | 2.41 | 3.51 |
| 3 | Chan | 133.80 | 173.60 | 1414.63 | 190.49 | 40.38 | 27.10 | 4.79 | 7.43 |
| 4 | Chan | 173.60 | 213.39 | 2203.31 | 231.83 | 39.98 | 42.21 | 5.83 | 9.50 |
| 5 | Chan | 213.39 | 253.19 | 1260.96 | 179.50 | 40.79 | 24.16 | 4.51 | 7.02 |
| 6 | ROB | 253.19 | 307.25 | 4.21 | 2.52 | 5.21 | 0.08 | 0.49 | 1.67 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 70.50 | 94.00 | 0.00 | 0.01 | 0.21 | 0.00 | 0.04 | 0.27 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2 | Chan | 94.00 | 133.80 | 336.88 | 95.88 | 40.04 | 6.45 | 2.41 | 3.51 |
| 3 | Chan | 133.80 | 173.60 | 1414.63 | 190.49 | 40.38 | 27.10 | 4.79 | 7.43 |
| 4 | Chan | 173.60 | 213.39 | 2203.31 | 231.83 | 39.98 | 42.21 | 5.83 | 9.50 |
| 5 | Chan | 213.39 | 253.19 | 1260.96 | 179.50 | 40.79 | 24.16 | 4.51 | 7.02 |
| 6 | ROB | 253.19 | 307.25 | 4.21 | 2.52 | 5.21 | 0.08 | 0.49 | 1.67 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 5
REACH: OWMS2 RS: 0.47442

INPUT
Description:
Station Elevation Data num= 78

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2094.17 | 6.53 | 2094.7 | 10.04 | 2094.55 | 27.86 | 2093.4 | 30.51 | 2093.51 |
| 32.86 | 2093.44 | 34.3 | 2093.32 | 36.65 | 2093.11 | 38.11 | 2092.95 | 38.81 | 2092.91 |
| 46.82 | 2092.44 | 48.93 | 2092.31 | 55.15 | 2091.82 | 58.9 | 2091.62 | 63.62 | 2091.21 |
| 69.22 | 2090.93 | 72.47 | 2090.69 | 79.93 | 2090.36 | 81.68 | 2090.21 | 84.34 | 2089.96 |
| 85.2 | 2089.89 | 86.44 | 2089.82 | 90.12 | 2089.62 | 91.36 | 2089.3 | 95.37 | 2087.96 |
| 97.71 | 2087.33 | 111.56 | 2084.48 | 117.92 | 2083.4 | 120.32 | 2082.91 | 129.41 | 2081.31 |
| 130.48 | 2081.08 | 132.08 | 2080.75 | 140.16 | 2078.88 | 144.51 | 2078.36 | 146.15 | 2078.05 |
| 149.52 | 2077.06 | 155.96 | 2076.79 | 156.04 | 2076.79 | 156.16 | 2076.8 | 165.51 | 2077.4 |
| 173.69 | 2075.86 | 174.59 | 2075.7 | 175.63 | 2075.68 | 175.65 | 2075.68 | 180.72 | 2077.84 |
| 184.86 | 2079.53 | 191.99 | 2078.94 | 192.08 | 2078.93 | 198.32 | 2078.47 | 203.55 | 2083.63 |
| 210.6 | 2089.76 | 214.49 | 2092.18 | 221.51 | 2096.64 | 227.56 | 2100.21 | 229.86 | 2101.91 |
| 236.66 | 2104.09 | 238.3 | 2104.63 | 239.61 | 2105.01 | 242.32 | 2105.07 | 252.19 | 2105.37 |
| 253.45 | 2105.39 | 260.4 | 2105.53 | 270.27 | 2105.49 | 274.27 | 2105.31 | 279.82 | 2105.11 |
| 300.58 | 2097.19 | 311.94 | 2092.89 | 319.02 | 2095.72 | 319.62 | 2095.95 | 324.55 | 2097.3 |
| 326.06 | 2097.83 | 335.16 | 2101.15 | 340.98 | 2103.29 | 342.9 | 2103.45 | 348.64 | 2103.94 |
| 354.85 | 2104.46 | 355.15 | 2104.49 | 358.39 | 2104.88 | | | | |

Manning's n Values num= 4

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|
| 0 | .055 | 149.52 | .04 | 175.65 | .061 | 348.64 | .061 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 111.56 | 203.55 | 431.63 | 466.43 | 495.72 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2086.42 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 1.82 | Wt. n-Val. | 0.055 | 0.053 | 0.061 |
| W.S. Elev (ft) | 2084.60 | Reach Len. (ft) | 431.63 | 466.43 | 495.72 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 0.04 | 501.03 | 0.54 |
| E.G. Slope (ft/ft) | 0.016497 | Area (sq ft) | 0.04 | 501.03 | 0.54 |
| Q Total (cfs) | 5420.00 | Flow (cfs) | 0.02 | 5419.11 | 0.87 |
| Top Width (ft) | 93.70 | Top Width (ft) | 0.59 | 91.99 | 1.12 |
| Vel Total (ft/s) | 10.81 | Avg. Vel. (ft/s) | 0.53 | 10.82 | 1.60 |
| Max Chl Dpth (ft) | 8.92 | Hydr. Depth (ft) | 0.06 | 5.45 | 0.49 |
| Conv. Total (cfs) | 42198.9 | Conv. (cfs) | 0.2 | 42191.9 | 6.8 |
| Length Wtd. (ft) | 466.43 | Wetted Per. (ft) | 0.61 | 95.86 | 1.48 |
| Min Ch El (ft) | 2075.68 | Shear (lb/sq ft) | 0.06 | 5.38 | 0.38 |
| Alpha | 1.00 | Stream Power (lb/ft s) | 0.03 | 58.22 | 0.61 |
| Frctn Loss (ft) | 8.89 | Cum Volume (acre-ft) | 0.05 | 32.76 | 0.35 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 0.06 | 8.32 | 0.47 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2086.42 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 1.82 | Wt. n-Val. | 0.055 | 0.053 | 0.061 |
| W.S. Elev (ft) | 2084.60 | Reach Len. (ft) | 431.63 | 466.43 | 495.72 |
| Crit W.S. (ft) | | Flow Area (sq ft) | 0.04 | 501.03 | 0.54 |
| E.G. Slope (ft/ft) | 0.016497 | Area (sq ft) | 0.04 | 501.03 | 0.54 |
| Q Total (cfs) | 5420.00 | Flow (cfs) | 0.02 | 5419.11 | 0.87 |
| Top Width (ft) | 93.70 | Top Width (ft) | 0.59 | 91.99 | 1.12 |
| Vel Total (ft/s) | 10.81 | Avg. Vel. (ft/s) | 0.53 | 10.82 | 1.60 |
| Max Chl Dpth (ft) | 8.92 | Hydr. Depth (ft) | 0.06 | 5.45 | 0.49 |
| Conv. Total (cfs) | 42198.9 | Conv. (cfs) | 0.2 | 42191.9 | 6.8 |
| Length Wtd. (ft) | 466.43 | Wetted Per. (ft) | 0.61 | 95.86 | 1.48 |
| Min Ch El (ft) | 2075.68 | Shear (lb/sq ft) | 0.06 | 5.38 | 0.38 |
| Alpha | 1.00 | Stream Power (lb/ft s) | 0.03 | 58.22 | 0.61 |
| Frctn Loss (ft) | 8.89 | Cum Volume (acre-ft) | 0.05 | 32.76 | 0.35 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 0.06 | 8.32 | 0.47 |

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 83.67 | 111.56 | 0.02 | 0.04 | 0.61 | 0.00 | 0.06 | 0.53 |
| 2 | Chan | 111.56 | 134.56 | 237.76 | 50.14 | 23.40 | 4.39 | 2.18 | 4.74 |
| 3 | Chan | 134.56 | 157.56 | 1760.68 | 150.52 | 23.36 | 32.48 | 6.54 | 11.70 |
| 4 | Chan | 157.56 | 180.55 | 2555.97 | 180.55 | 23.60 | 47.16 | 7.85 | 14.16 |
| 5 | Chan | 180.55 | 203.55 | 864.70 | 119.82 | 25.50 | 15.95 | 5.21 | 7.22 |
| 6 | ROB | 203.55 | 242.26 | 0.87 | 0.54 | 1.48 | 0.02 | 0.49 | 1.60 |

```
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 2
*****************************************************************************************************************
*          * Pos       * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *           * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB       * 83.67     * 111.56    *     0.02 *     0.04 *     0.61 *     0.00 *     0.06 *     0.53 *
* 2        * Chan      * 111.56    * 134.56    *   237.76 *    50.14 *    23.40 *     4.39 *     2.18 *     4.74 *
* 3        * Chan      * 134.56    * 157.56    *  1760.68 *   150.52 *    23.36 *    32.48 *     6.54 *    11.70 *
* 4        * Chan      * 157.56    * 180.55    *  2555.97 *   180.55 *    23.60 *    47.16 *     7.85 *    14.16 *
* 5        * Chan      * 180.55    * 203.55    *   864.70 *   119.82 *    25.50 *    15.95 *     5.21 *     7.22 *
* 6        * ROB       * 203.55    * 242.26    *     0.87 *     0.54 *     1.48 *     0.02 *     0.49 *     1.60 *
*****************************************************************************************************************

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: Ocotillo Wash 5
REACH: OWMS2              RS: 0.38608

INPUT
Description:
Station Elevation Data    num=     119
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
       0 2098.59   18.56  2098.4   19.25  2098.4   19.52 2098.39   48.84 2097.86
   48.97 2097.84   49.14 2097.84   49.24 2097.83   49.35 2097.82   50.13 2097.82
   52.11 2097.72   52.51 2097.67   55.59 2097.43   59.37 2096.68   61.67 2096.34
   68.91 2095.36   71.54 2094.85   89.18 2091.91   92.07 2091.32   94.79 2090.64
   99.82 2089.91  100.79 2089.72  104.56 2088.55  106.31 2087.99  109.73 2087.16
  110.05 2087.08  113.43 2086.71  117.67 2086.24  118.45 2086.14  118.51 2086.14
   125.1 2085.66  134.81 2083.79  135.15 2083.76  140.45 2083.11   140.7 2083.09
  142.78 2082.93     145 2082.71  145.43 2082.69  154.71 2081.93  158.26 2081.76
  161.38 2081.74  164.16 2081.18  166.75 2080.99  170.99 2080.66  172.56 2080.51
  176.74 2079.99  178.42 2079.82   178.8 2079.79  182.76 2079.62  184.28 2079.48
  186.45 2079.39  193.28 2078.84   202.6 2078.19  203.83 2078.09  206.62 2077.71
  211.13 2077.37  212.59 2077.29  220.12 2076.79  223.38 2076.64  227.06 2076.48
  232.14 2076.18  232.86 2076.14  233.29 2076.11  234.06 2076.06  239.56 2074.55
  244.33 2073.21  257.89 2069.55  264.52 2070.12  275.24  2071.2  278.47 2071.52
  279.16 2071.52  294.05 2071.43  297.09 2070.51  299.38 2069.81   306.9  2067.5
  307.59 2067.44  312.63  2067.8  318.67 2068.11  327.62 2071.03  344.31 2077.89
  348.82 2079.68   350.6  2080.4  353.85 2081.56  354.26 2081.72  354.92 2081.74
  355.71 2081.71  357.91 2081.99  360.98  2082.4  362.76 2082.66  363.83 2082.85
  373.98 2084.71  374.58 2084.77  374.99  2084.8  375.25 2084.82  376.53 2085.04
  397.25 2088.87  399.55 2089.29  404.31 2090.33  409.68 2091.07  416.12  2091.6
  419.08 2091.94  423.15 2092.37   428.5 2093.08  431.85 2093.49  434.92 2093.85
     437 2094.11  447.33 2095.43  455.67 2096.49  459.27 2096.87  462.51 2097.12
  466.52 2097.55  467.98 2097.61  470.99 2097.93  476.81 2097.89  484.33 2097.81
  485.47  2097.8  489.29 2097.76  492.28 2097.72  494.67 2097.73

Manning's n Values        num=       6
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*******************************************************************************
       0    .053  113.43    .051  299.38     .04  318.67    .051  447.33    .057
  485.47    .057

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        234.06  344.31            392.34  421.67  437.98            .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************************
* E.G. Elev (ft)         * 2077.49  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    2.25  * Wt. n-Val.              *          *    0.049 *          *
* W.S. Elev (ft)         * 2075.24  * Reach Len. (ft)         *  392.34  *  421.67  *  437.98  *
* Crit W.S. (ft)         * 2075.24  * Flow Area (sq ft)       *          *  450.09  *          *
* E.G. Slope (ft/ft)     *0.022249  * Area (sq ft)            *          *  450.09  *          *
* Q Total (cfs)          * 5420.00  * Flow (cfs)              *          * 5420.00  *          *
* Top Width (ft)         *  100.82  * Top Width (ft)          *          *  100.82  *          *
* Vel Total (ft/s)       *   12.04  * Avg. Vel. (ft/s)        *          *   12.04  *          *
* Max Chl Dpth (ft)      *    7.80  * Hydr. Depth (ft)        *          *    4.46  *          *
* Conv. Total (cfs)      * 36336.9  * Conv. (cfs)             *          * 36336.9  *          *
* Length Wtd. (ft)       *  421.67  * Wetted Per. (ft)        *          *  103.59  *          *
* Min Ch El (ft)         * 2067.44  * Shear (lb/sq ft)        *          *    6.04  *          *
* Alpha                  *    1.00  * Stream Power (lb/ft s)  *          *   72.68  *          *
* Frctn Loss (ft)        *    8.32  * Cum Volume (acre-ft)    *    0.05  *   27.67  *    0.35  *
* C & E Loss (ft)        *    0.29  * Cum SA (acres)          *    0.06  *    7.29  *    0.46  *
*****************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************************
* E.G. Elev (ft)         * 2077.49  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    2.25  * Wt. n-Val.              *          *    0.049 *          *
* W.S. Elev (ft)         * 2075.24  * Reach Len. (ft)         *  392.34  *  421.67  *  437.98  *
* Crit W.S. (ft)         * 2075.24  * Flow Area (sq ft)       *          *  450.09  *          *
* E.G. Slope (ft/ft)     *0.022249  * Area (sq ft)            *          *  450.09  *          *
* Q Total (cfs)          * 5420.00  * Flow (cfs)              *          * 5420.00  *          *
* Top Width (ft)         *  100.82  * Top Width (ft)          *          *  100.82  *          *
* Vel Total (ft/s)       *   12.04  * Avg. Vel. (ft/s)        *          *   12.04  *          *
```

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| * Max Chl Dpth (ft) | * | 7.80 | * Hydr. Depth (ft) | * | | * | 4.46 | * | * |
| * Conv. Total (cfs) | * | 36336.9 | * Conv. (cfs) | * | | * | 36336.9 | * | * |
| * Length Wtd. (ft) | * | 421.67 | * Wetted Per. (ft) | * | | * | 103.59 | * | * |
| * Min Ch El (ft) | * | 2067.44 | * Shear (lb/sq ft) | * | | * | 6.04 | * | * |
| * Alpha | * | 1.00 | * Stream Power (lb/ft s) | * | | * | 72.68 | * | * |
| * Frctn Loss (ft) | * | 8.32 | * Cum Volume (acre-ft) | * | 0.05 | * | 27.67 | * | 0.35 * |
| * C & E Loss (ft) | * | 0.29 | * Cum SA (acres) | * | 0.06 | * | 7.29 | * | 0.46 * |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 234.06 | 261.62 | 672.28 | 80.36 | 25.36 | 12.40 | 3.27 | 8.37 |
| 2 | Chan | 261.62 | 289.19 | 1187.31 | 117.02 | 27.64 | 21.91 | 4.25 | 10.15 |
| 3 | Chan | 289.19 | 316.75 | 2656.51 | 166.59 | 28.17 | 49.01 | 6.04 | 15.95 |
| 4 | Chan | 316.75 | 344.31 | 903.90 | 86.13 | 22.42 | 16.68 | 4.08 | 10.49 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 234.06 | 261.62 | 672.28 | 80.36 | 25.36 | 12.40 | 3.27 | 8.37 |
| 2 | Chan | 261.62 | 289.19 | 1187.31 | 117.02 | 27.64 | 21.91 | 4.25 | 10.15 |
| 3 | Chan | 289.19 | 316.75 | 2656.51 | 166.59 | 28.17 | 49.01 | 6.04 | 15.95 |
| 4 | Chan | 316.75 | 344.31 | 903.90 | 86.13 | 22.42 | 16.68 | 4.08 | 10.49 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.
Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: Ocotillo Wash 5
REACH: OWMS2 RS: 0.30622

INPUT
Description: Blocked Obstruction at Parcel 211-78-002
Station Elevation Data num= 123

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2084.57 | 6.13 | 2084.4 | 11.53 | 2084.4 | 14.16 | 2084.35 | 15.98 | 2084.07 |
| 17.42 | 2083.91 | 23.53 | 2083.72 | 24.7 | 2083.78 | 27.22 | 2083.88 | 31.11 | 2084 |
| 35.73 | 2084.13 | 41.27 | 2083.85 | 42.21 | 2083.81 | 42.38 | 2083.79 | 42.55 | 2083.76 |
| 48.4 | 2082.41 | 51.81 | 2081.75 | 54.34 | 2081.22 | 54.4 | 2081.21 | 58.09 | 2080.93 |
| 60.22 | 2080.8 | 60.43 | 2080.77 | 65.66 | 2079.89 | 65.89 | 2079.87 | 71.18 | 2079.56 |
| 76.24 | 2078.84 | 82.03 | 2077.43 | 82.09 | 2077.43 | 87.06 | 2075.63 | 87.13 | 2075.6 |
| 87.31 | 2075.51 | 92.45 | 2073.52 | 96.64 | 2072.7 | 101.26 | 2071.44 | 104.11 | 2070.67 |
| 107.98 | 2069.49 | 108.8 | 2069.3 | 111.83 | 2068.34 | 112.2 | 2068.27 | 114.23 | 2067.42 |
| 121.8 | 2065.39 | 124.21 | 2064.72 | 129.32 | 2064.69 | 171.01 | 2064.65 | 174.31 | 2064.93 |
| 176.27 | 2065.08 | 181.35 | 2065.51 | 188.41 | 2064.83 | 193.4 | 2064.41 | 203.26 | 2063.02 |
| 206.39 | 2062.58 | 212.66 | 2061.64 | 218.49 | 2061.62 | 229.86 | 2061.69 | 235.07 | 2061.31 |
| 236.76 | 2061.22 | 236.77 | 2061.22 | 243.15 | 2063.13 | 249.64 | 2065.12 | 255.73 | 2065.17 |
| 266.31 | 2064.89 | 267.08 | 2064.86 | 278.18 | 2064.43 | 284.98 | 2063.92 | 294.04 | 2062.65 |
| 298.88 | 2061.95 | 319.37 | 2066.87 | 320.65 | 2066.94 | 322.31 | 2066.94 | 331.57 | 2066.74 |
| 348.24 | 2066.55 | 363.64 | 2067.27 | 366.27 | 2067.25 | 368.97 | 2067.29 | 371.91 | 2067.25 |
| 373.37 | 2067.31 | 376.7 | 2067.27 | 381.05 | 2067.23 | 382.96 | 2067.19 | 387.25 | 2067.14 |
| 388.08 | 2067.17 | 410.17 | 2067.91 | 411.02 | 2067.94 | 411.62 | 2068.03 | 412.34 | 2068.07 |
| 413.08 | 2068.18 | 413.36 | 2068.25 | 413.56 | 2068.29 | 419.19 | 2069.58 | 421.89 | 2070.28 |
| 423.33 | 2070.39 | 425.62 | 2070.63 | 431.69 | 2071.18 | 440.65 | 2071.86 | 445.46 | 2072.24 |
| 447.27 | 2072.37 | 448.56 | 2072.48 | 473.9 | 2071.94 | 481.01 | 2071.74 | 483.52 | 2071.69 |
| 484.46 | 2071.66 | 487.79 | 2071.59 | 488.68 | 2071.59 | 489.1 | 2071.6 | 489.59 | 2071.59 |
| 490.06 | 2071.6 | 492.17 | 2071.59 | 493.4 | 2071.56 | 495.16 | 2071.53 | 500.08 | 2071.57 |
| 515.64 | 2071.54 | 531.56 | 2069.19 | 544.03 | 2067.19 | 545.47 | 2067.12 | 553 | 2068.95 |
| 571.9 | 2073.44 | 580.71 | 2074.62 | 585.35 | 2075.19 | 593.95 | 2076.32 | 604.15 | 2078.02 |
| 608.14 | 2078.72 | 614.04 | 2079.05 | 614.83 | 2079.11 | | | | |

Manning's n Values num= 4

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|
| 0 | .051 | 203.26 | .042 | 236.77 | .051 | 388.08 | .051 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 114.23 | 320.65 | 508.16 | 450.25 | 445.99 | .1 | .3 |

```
Right Levee     Station=  320.65      Elevation= 2066.94
Blocked Obstructions     num=       1
   Sta L    Sta R    Elev
************************
  332.41  395.182067.404

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)          * 2068.23  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    1.28  * Wt. n-Val.              *          *    0.047 *    0.051 *
* W.S. Elev (ft)          * 2066.95  * Reach Len. (ft)         *  508.16  *  450.25  *  445.99  *
* Crit W.S. (ft)          * 2066.95  * Flow Area (sq ft)       *          *  597.15  *    1.19  *
* E.G. Slope (ft/ft)      *0.017607  * Area (sq ft)            *          *  597.15  *    1.19  *
* Q Total (cfs)           * 5420.00  * Flow (cfs)              *          * 5419.02  *    0.98  *
* Top Width (ft)          *  216.42  * Top Width (ft)          *          *  204.66  *   11.76  *
* Vel Total (ft/s)        *    9.06  * Avg. Vel. (ft/s)        *          *    9.07  *    0.83  *
* Max Chl Dpth (ft)       *    5.73  * Hydr. Depth (ft)        *          *    2.92  *    0.10  *
* Conv. Total (cfs)       * 40847.1  * Conv. (cfs)             *          * 40839.7  *     7.4  *
* Length Wtd. (ft)        *  450.25  * Wetted Per. (ft)        *          *  206.59  *   11.98  *
* Min Ch El (ft)          * 2061.22  * Shear (lb/sq ft)        *          *    3.18  *    0.11  *
* Alpha                   *    1.00  * Stream Power (lb/ft s)  *          *   28.83  *    0.09  *
* Frctn Loss (ft)         *    4.83  * Cum Volume (acre-ft)    *    0.05  *   22.60  *    0.35  *
* C & E Loss (ft)         *    0.23  * Cum SA (acres)          *    0.06  *    5.81  *    0.41  *
*****************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************
* E.G. Elev (ft)          * 2068.23  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)           *    1.28  * Wt. n-Val.              *          *    0.047 *    0.051 *
* W.S. Elev (ft)          * 2066.95  * Reach Len. (ft)         *  508.16  *  450.25  *  445.99  *
* Crit W.S. (ft)          * 2066.95  * Flow Area (sq ft)       *          *  597.15  *    1.19  *
* E.G. Slope (ft/ft)      *0.017607  * Area (sq ft)            *          *  597.15  *    1.19  *
* Q Total (cfs)           * 5420.00  * Flow (cfs)              *          * 5419.02  *    0.98  *
* Top Width (ft)          *  216.42  * Top Width (ft)          *          *  204.66  *   11.76  *
* Vel Total (ft/s)        *    9.06  * Avg. Vel. (ft/s)        *          *    9.07  *    0.83  *
* Max Chl Dpth (ft)       *    5.73  * Hydr. Depth (ft)        *          *    2.92  *    0.10  *
* Conv. Total (cfs)       * 40847.1  * Conv. (cfs)             *          * 40839.7  *     7.4  *
* Length Wtd. (ft)        *  450.25  * Wetted Per. (ft)        *          *  206.59  *   11.98  *
* Min Ch El (ft)          * 2061.22  * Shear (lb/sq ft)        *          *    3.18  *    0.11  *
* Alpha                   *    1.00  * Stream Power (lb/ft s)  *          *   28.83  *    0.09  *
* Frctn Loss (ft)         *    4.83  * Cum Volume (acre-ft)    *    0.05  *   22.60  *    0.35  *
* C & E Loss (ft)         *    0.23  * Cum SA (acres)          *    0.06  *    5.81  *    0.41  *
*****************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.

  Profile #PF 1
*************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan     * 114.23    * 165.84    *   649.06 *   103.62 *    50.14 *    11.98 *     2.08 *     6.26 *
* 2        * Chan     * 165.84    * 217.44    *  1508.41 *   155.96 *    51.89 *    27.83 *     3.02 *     9.67 *
* 3        * Chan     * 217.44    * 269.05    *  2119.74 *   189.61 *    52.21 *    39.11 *     3.67 *    11.18 *
* 4        * Chan     * 269.05    * 320.65    *  1141.82 *   147.96 *    52.35 *    21.07 *     2.87 *     7.72 *
* 5        * ROB      * 320.65    * 394.20    *     0.98 *     1.19 *    11.98 *     0.02 *     0.10 *     0.83 *
*************************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.

  Profile #PF 2
*************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * Chan     * 114.23    * 165.84    *   649.06 *   103.62 *    50.14 *    11.98 *     2.08 *     6.26 *
* 2        * Chan     * 165.84    * 217.44    *  1508.41 *   155.96 *    51.89 *    27.83 *     3.02 *     9.67 *
* 3        * Chan     * 217.44    * 269.05    *  2119.74 *   189.61 *    52.21 *    39.11 *     3.67 *    11.18 *
* 4        * Chan     * 269.05    * 320.65    *  1141.82 *   147.96 *    52.35 *    21.07 *     2.87 *     7.72 *
* 5        * ROB      * 320.65    * 394.20    *     0.98 *     1.19 *    11.98 *     0.02 *     0.10 *     0.83 *
*************************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
```

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: Ocotillo Wash 5
REACH: OWMS2 RS: 0.22095

INPUT
Description:
Station Elevation Data num= 120

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2102.97 | 3.76 | 2102.69 | 4.61 | 2102.62 | 9.27 | 2101.94 | 10.31 | 2101.9 |
| 14.33 | 2101.27 | 15.8 | 2101.17 | 19.75 | 2100.53 | 21.26 | 2100.35 | 25.06 | 2099.78 |
| 26.78 | 2099.68 | 30.65 | 2099.34 | 31.39 | 2099.34 | 34.87 | 2099.06 | 36.88 | 2098.95 |
| 40.36 | 2098.5 | 42.31 | 2098.53 | 45.29 | 2098.24 | 47.23 | 2098.09 | 49.22 | 2097.9 |
| 50.62 | 2097.71 | 52.23 | 2097.47 | 63.26 | 2095.99 | 63.62 | 2095.94 | 75.51 | 2094.18 |
| 94.17 | 2091.64 | 98.52 | 2091.1 | 98.71 | 2091.05 | 100.38 | 2090.85 | 122.66 | 2082.32 |
| 139.32 | 2076.02 | 142.56 | 2074.97 | 157.96 | 2069.97 | 172.25 | 2065.59 | 173.46 | 2065.47 |
| 175.8 | 2065.22 | 186.24 | 2064.49 | 195.94 | 2063.61 | 201.8 | 2063.25 | 216.35 | 2061.77 |
| 221.08 | 2061.41 | 221.72 | 2061.37 | 225.08 | 2061.1 | 225.37 | 2061.07 | 226.36 | 2061.02 |
| 227.27 | 2060.98 | 228.64 | 2060.44 | 231.04 | 2059.68 | 247.86 | 2054.18 | 250.62 | 2054.46 |
| 252.46 | 2054.64 | 258.32 | 2055.07 | 265.55 | 2055.67 | 268.03 | 2055.88 | 281.03 | 2055.64 |
| 289.32 | 2055.58 | 301.24 | 2054.08 | 301.44 | 2054.06 | 301.84 | 2054.08 | 316.16 | 2055.01 |
| 319.44 | 2054.84 | 324.86 | 2054.86 | 328.37 | 2054.81 | 330.1 | 2054.8 | 342.85 | 2054.56 |
| 347.54 | 2054.59 | 347.69 | 2054.6 | 353.53 | 2053.64 | 356.15 | 2053.21 | 359.72 | 2052.36 |
| 362.18 | 2052.23 | 367.54 | 2051.48 | 368.81 | 2051.6 | 374.18 | 2052.13 | 376.25 | 2052.37 |
| 377.94 | 2052.55 | 387.53 | 2053.51 | 389.24 | 2053.68 | 393.58 | 2054.05 | 398.27 | 2054.41 |
| 401.5 | 2054.39 | 412.65 | 2054.22 | 413.02 | 2054.21 | 418.79 | 2054.1 | 423.44 | 2054 |
| 428.22 | 2053.97 | 429.37 | 2053.96 | 431.05 | 2054.04 | 432.58 | 2054 | 436.75 | 2053.85 |
| 441.4 | 2053.08 | 448.81 | 2051.93 | 448.91 | 2051.93 | 449.06 | 2051.94 | 452.31 | 2052.07 |
| 471.46 | 2054.11 | 476.56 | 2054.67 | 479.89 | 2054.68 | 490.26 | 2054.76 | 497.08 | 2054.83 |
| 497.55 | 2054.84 | 510.63 | 2054.24 | 512.94 | 2054.13 | 516.61 | 2053.93 | 516.92 | 2053.92 |
| 522.74 | 2053.97 | 523.04 | 2053.97 | 523.38 | 2054.05 | 533.14 | 2055.99 | 534.22 | 2056.09 |
| 535.07 | 2056.25 | 540.99 | 2058.51 | 543.58 | 2059.59 | 550.56 | 2062.42 | 559.3 | 2065.94 |
| 570.15 | 2069.33 | 580.96 | 2072.86 | 585.3 | 2072.68 | 586 | 2072.65 | 592.28 | 2072.72 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .051 | 353.53 | .042 | 387.53 | .051 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 231.04 | 535.07 | 351.39 | 218.99 | 165.52 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2057.92 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.51 | Wt. n-Val. | | 0.049 | 0.051 |
| W.S. Elev (ft) | 2057.41 | Reach Len. (ft) | 351.39 | 218.99 | 165.52 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 940.49 | 1.75 |
| E.G. Slope (ft/ft) | 0.007209 | Area (sq ft) | | 940.49 | 1.75 |
| Q Total (cfs) | 5420.00 | Flow (cfs) | | 5417.13 | 2.87 |
| Top Width (ft) | 300.11 | Top Width (ft) | | 297.08 | 3.03 |
| Vel Total (ft/s) | 5.75 | Avg. Vel. (ft/s) | | 5.76 | 1.64 |
| Max Chl Dpth (ft) | 5.93 | Hydr. Depth (ft) | | 3.17 | 0.58 |
| Conv. Total (cfs) | 63835.7 | Conv. (cfs) | | 63801.8 | 33.8 |
| Length Wtd. (ft) | 218.97 | Wetted Per. (ft) | | 298.75 | 3.24 |
| Min Ch El (ft) | 2051.48 | Shear (lb/sq ft) | | 1.42 | 0.24 |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 8.16 | 0.40 |
| Frctn Loss (ft) | 2.35 | Cum Volume (acre-ft) | 0.05 | 14.65 | 0.33 |
| C & E Loss (ft) | 0.15 | Cum SA (acres) | 0.06 | 3.21 | 0.33 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2057.92 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 0.51 | Wt. n-Val. | | 0.049 | 0.051 |
| W.S. Elev (ft) | 2057.41 | Reach Len. (ft) | 351.39 | 218.99 | 165.52 |
| Crit W.S. (ft) | | Flow Area (sq ft) | | 940.49 | 1.75 |
| E.G. Slope (ft/ft) | 0.007209 | Area (sq ft) | | 940.49 | 1.75 |
| Q Total (cfs) | 5420.00 | Flow (cfs) | | 5417.13 | 2.87 |
| Top Width (ft) | 300.11 | Top Width (ft) | | 297.08 | 3.03 |
| Vel Total (ft/s) | 5.75 | Avg. Vel. (ft/s) | | 5.76 | 1.64 |
| Max Chl Dpth (ft) | 5.93 | Hydr. Depth (ft) | | 3.17 | 0.58 |
| Conv. Total (cfs) | 63835.7 | Conv. (cfs) | | 63801.8 | 33.8 |
| Length Wtd. (ft) | 218.97 | Wetted Per. (ft) | | 298.75 | 3.24 |
| Min Ch El (ft) | 2051.48 | Shear (lb/sq ft) | | 1.42 | 0.24 |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 8.16 | 0.40 |
| Frctn Loss (ft) | 2.35 | Cum Volume (acre-ft) | 0.05 | 14.65 | 0.33 |
| C & E Loss (ft) | 0.15 | Cum SA (acres) | 0.06 | 3.21 | 0.33 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 231.04 | 307.05 | 606.50 | 148.85 | 69.75 | 11.19 | 2.16 | 4.07 |
| 2 | Chan | 307.05 | 383.06 | 1915.73 | 276.73 | 76.38 | 35.35 | 3.64 | 6.92 |
| 3 | Chan | 383.06 | 459.06 | 1741.59 | 287.96 | 76.27 | 32.13 | 3.79 | 6.05 |
| 4 | Chan | 459.06 | 535.07 | 1153.30 | 226.95 | 76.35 | 21.28 | 2.99 | 5.08 |
| 5 | ROB | 535.07 | 549.37 | 2.87 | 1.75 | 3.24 | 0.05 | 0.58 | 1.64 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 231.04 | 307.05 | 606.50 | 148.85 | 69.75 | 11.19 | 2.16 | 4.07 |
| 2 | Chan | 307.05 | 383.06 | 1915.73 | 276.73 | 76.38 | 35.35 | 3.64 | 6.92 |
| 3 | Chan | 383.06 | 459.06 | 1741.59 | 287.96 | 76.27 | 32.13 | 3.79 | 6.05 |
| 4 | Chan | 459.06 | 535.07 | 1153.30 | 226.95 | 76.35 | 21.28 | 2.99 | 5.08 |
| 5 | ROB | 535.07 | 549.37 | 2.87 | 1.75 | 3.24 | 0.05 | 0.58 | 1.64 |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Ocotillo Wash 5
REACH: OWMS2 RS: 0.17947

INPUT
Description:
Station Elevation Data num= 137

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2077.17 | 3.36 | 2076.47 | 3.44 | 2076.47 | 9.06 | 2075.83 | 14.45 | 2075.68 |
| 14.76 | 2075.66 | 14.88 | 2075.65 | 14.96 | 2075.64 | 20.19 | 2075.29 | 20.5 | 2075.28 |
| 20.78 | 2075.28 | 25.92 | 2074.96 | 26.51 | 2074.95 | 31.63 | 2074.84 | 33.67 | 2074.77 |
| 35.81 | 2074.68 | 37.03 | 2074.58 | 41.41 | 2074.54 | 43.51 | 2074.33 | 45.69 | 2074.29 |
| 47.12 | 2074.24 | 49.89 | 2074.11 | 53.07 | 2073.91 | 56.72 | 2073.74 | 61.6 | 2073.2 |
| 66.13 | 2072.93 | 68.53 | 2072.85 | 73.18 | 2072.74 | 74.01 | 2072.69 | 79.72 | 2072.41 |
| 80.17 | 2072.35 | 80.87 | 2072.3 | 82.08 | 2072.13 | 87.28 | 2071.99 | 87.6 | 2071.95 |
| 92.79 | 2071.73 | 96.13 | 2071.58 | 96.36 | 2071.55 | 99.93 | 2071.63 | 102.28 | 2071.69 |
| 105.15 | 2071.66 | 105.42 | 2071.65 | 118.72 | 2072.11 | 118.81 | 2072.09 | 119.19 | 2072.15 |
| 121.29 | 2072.01 | 124.4 | 2071.65 | 128.17 | 2070.87 | 131.93 | 2070.16 | 133.8 | 2069.58 |
| 134.01 | 2069.51 | 135.08 | 2069.44 | 138.05 | 2067.66 | 140.69 | 2066.57 | 142.28 | 2065.85 |
| 144.99 | 2064.77 | 146.6 | 2064.17 | 149.83 | 2062.37 | 156.43 | 2059.86 | 163.28 | 2057.81 |
| 169.9 | 2056.25 | 170.28 | 2056.14 | 170.63 | 2056 | 172.69 | 2055.42 | 178.91 | 2052.97 |
| 190.91 | 2048.73 | 191.67 | 2048.7 | 193.63 | 2048.63 | 206.27 | 2048.13 | 206.28 | 2048.13 |
| 212.13 | 2048.3 | 216.87 | 2048.24 | 218.93 | 2048.1 | 221.99 | 2047.88 | 228.49 | 2048.45 |
| 228.96 | 2048.49 | 247.35 | 2048.19 | 250.12 | 2048.52 | 254.52 | 2049.13 | 256.01 | 2049.32 |
| 259.11 | 2049.73 | 263.08 | 2050.22 | 268.93 | 2050.49 | 270.55 | 2050.59 | 273.43 | 2050.07 |
| 275.15 | 2049.65 | 278.63 | 2049.12 | 284.28 | 2050.38 | 294.55 | 2052.72 | 297.32 | 2053.14 |
| 297.49 | 2053.16 | 298.48 | 2053.37 | 300.67 | 2054.1 | 301.74 | 2054.41 | 305.03 | 2055.23 |
| 307.55 | 2055.47 | 308.62 | 2055.64 | 311.25 | 2055.77 | 311.81 | 2055.87 | 314.31 | 2057.02 |
| 317.34 | 2057.99 | 318.3 | 2058.18 | 321.42 | 2059.56 | 323.21 | 2060.01 | 328.17 | 2061.27 |
| 330.08 | 2061.67 | 332.41 | 2062.09 | 337.19 | 2063.16 | 340 | 2063.79 | 340.77 | 2064.01 |
| 345.28 | 2065.03 | 345.81 | 2065.09 | 355.85 | 2066.63 | 356.94 | 2066.95 | 358.91 | 2067.46 |
| 360.92 | 2067.85 | 361.72 | 2067.98 | 362.41 | 2068.03 | 363.33 | 2068.12 | 364.11 | 2068.17 |
| 365.22 | 2068.16 | 367.04 | 2068.04 | 369.15 | 2067.69 | 369.76 | 2067.67 | 370.07 | 2067.72 |
| 370.59 | 2067.8 | 374.49 | 2068.49 | 377.09 | 2069.02 | 388.41 | 2070.47 | 389.32 | 2070.41 |
| 392.98 | 2070.68 | 395.99 | 2070.92 | 397.77 | 2071.31 | 399.08 | 2071.43 | 400.97 | 2071.51 |
| 402.17 | 2071.53 | 403.29 | 2071.49 | | | | | | |

Manning's n Values num= 4

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|
| 0 | .051 | 206.28 | .042 | 256.01 | .051 | 337.19 | .048 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 178.91 | 294.55 | 335.13 | 226.23 | 196.3 | .1 | .3 |

CROSS SECTION OUTPUT Profile #PF 1

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2055.42 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 2.03 | Wt. n-Val. | 0.051 | 0.045 | 0.051 |
| W.S. Elev (ft) | 2053.39 | Reach Len. (ft) | 335.13 | 226.23 | 196.30 |
| Crit W.S. (ft) | 2053.39 | Flow Area (sq ft) | 0.22 | 474.12 | 1.44 |
| E.G. Slope (ft/ft) | 0.017728 | Area (sq ft) | 0.22 | 474.12 | 1.44 |
| Q Total (cfs) | 5420.00 | Flow (cfs) | 0.29 | 5416.90 | 2.81 |
| Top Width (ft) | 120.70 | Top Width (ft) | 1.07 | 115.64 | 3.99 |
| Vel Total (ft/s) | 11.39 | Avg. Vel. (ft/s) | 1.31 | 11.43 | 1.95 |
| Max Chl Dpth (ft) | 5.51 | Hydr. Depth (ft) | 0.21 | 4.10 | 0.36 |
| Conv. Total (cfs) | 40706.5 | Conv. (cfs) | 2.2 | 40683.3 | 21.1 |
| Length Wtd. (ft) | 226.34 | Wetted Per. (ft) | 1.15 | 117.10 | 4.05 |
| Min Ch El (ft) | 2047.88 | Shear (lb/sq ft) | 0.22 | 4.48 | 0.39 |
| Alpha | 1.01 | Stream Power (lb/ft s) | 0.28 | 51.20 | 0.77 |
| Frctn Loss (ft) | 4.18 | Cum Volume (acre-ft) | 0.05 | 11.09 | 0.32 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 0.06 | 2.18 | 0.32 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | | |
|---|---|---|---|---|---|---|
| E.G. Elev (ft) | 2055.42 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 2.03 | Wt. n-Val. | 0.051 | 0.045 | 0.051 |
| W.S. Elev (ft) | 2053.39 | Reach Len. (ft) | 335.13 | 226.23 | 196.30 |
| Crit W.S. (ft) | 2053.39 | Flow Area (sq ft) | 0.22 | 474.12 | 1.44 |
| E.G. Slope (ft/ft) | 0.017728 | Area (sq ft) | 0.22 | 474.12 | 1.44 |
| Q Total (cfs) | 5420.00 | Flow (cfs) | 0.29 | 5416.90 | 2.81 |
| Top Width (ft) | 120.70 | Top Width (ft) | 1.07 | 115.64 | 3.99 |
| Vel Total (ft/s) | 11.39 | Avg. Vel. (ft/s) | 1.31 | 11.43 | 1.95 |
| Max Chl Dpth (ft) | 5.51 | Hydr. Depth (ft) | 0.21 | 4.10 | 0.36 |
| Conv. Total (cfs) | 40706.5 | Conv. (cfs) | 2.2 | 40683.3 | 21.1 |
| Length Wtd. (ft) | 226.34 | Wetted Per. (ft) | 1.15 | 117.10 | 4.05 |
| Min Ch El (ft) | 2047.88 | Shear (lb/sq ft) | 0.22 | 4.48 | 0.39 |
| Alpha | 1.01 | Stream Power (lb/ft s) | 0.28 | 51.20 | 0.77 |
| Frctn Loss (ft) | 4.17 | Cum Volume (acre-ft) | 0.05 | 11.09 | 0.32 |
| C & E Loss (ft) | 0.04 | Cum SA (acres) | 0.06 | 2.18 | 0.32 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 134.18 | 178.91 | 0.29 | 0.22 | 1.15 | 0.01 | 0.21 | 1.31 |
| 2 | Chan | 178.91 | 207.82 | 1120.42 | 114.75 | 29.65 | 20.67 | 3.97 | 9.76 |
| 3 | Chan | 207.82 | 236.73 | 2080.75 | 148.61 | 28.95 | 38.39 | 5.14 | 14.00 |
| 4 | Chan | 236.73 | 265.64 | 1577.87 | 128.06 | 29.04 | 29.11 | 4.43 | 12.32 |
| 5 | Chan | 265.64 | 294.55 | 637.87 | 82.70 | 29.46 | 11.77 | 2.86 | 7.71 |
| 6 | ROB | 294.55 | 321.74 | 2.81 | 1.44 | 4.05 | 0.05 | 0.36 | 1.95 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | LOB | 134.18 | 178.91 | 0.29 | 0.22 | 1.15 | 0.01 | 0.21 | 1.31 |
| 2 | Chan | 178.91 | 207.82 | 1120.42 | 114.75 | 29.65 | 20.67 | 3.97 | 9.76 |
| 3 | Chan | 207.82 | 236.73 | 2080.75 | 148.61 | 28.95 | 38.39 | 5.14 | 14.00 |
| 4 | Chan | 236.73 | 265.64 | 1577.87 | 128.06 | 29.04 | 29.11 | 4.43 | 12.32 |
| 5 | Chan | 265.64 | 294.55 | 637.87 | 82.70 | 29.46 | 11.77 | 2.86 | 7.71 |
| 6 | ROB | 294.55 | 321.74 | 2.81 | 1.44 | 4.05 | 0.05 | 0.36 | 1.95 |

Warning: The energy equation could not be balanced within the specified number of iterations. The program selected the water surface that had the least amount of error between computed and assumed values.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: Ocotillo Wash 5
REACH: OWMS2 RS: 0.13663

INPUT
Description:
Station Elevation Data num= 77

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2064.97 | .17 | 2064.97 | 2.35 | 2064.95 | 3.08 | 2064.94 | 3.81 | 2064.9 |
| 6.46 | 2064.83 | 8.52 | 2064.87 | 11.57 | 2064.95 | 11.68 | 2064.95 | 14.88 | 2065.14 |
| 15.1 | 2065.15 | 22.63 | 2065.12 | 25.86 | 2065.03 | 32.07 | 2064.96 | 38.37 | 2064.77 |
| 41.61 | 2064.68 | 48.28 | 2064.47 | 50.72 | 2064.4 | 53.6 | 2063.38 | 58.05 | 2061.65 |
| 71.1 | 2056.7 | 80.24 | 2052.98 | 87.34 | 2049.56 | 93.79 | 2046.47 | 103.77 | 2042.1 |
| 110.57 | 2041.83 | 128.6 | 2041.05 | 131.02 | 2040.94 | 131.23 | 2040.93 | 131.78 | 2040.92 |
| 132.06 | 2041 | 136.77 | 2041.93 | 144.62 | 2043.47 | 145.09 | 2043.38 | 145.76 | 2043.51 |
| 147.2 | 2043.7 | 152.33 | 2044.39 | 154.12 | 2044.76 | 154.99 | 2044.83 | 156.69 | 2044.97 |
| 156.96 | 2044.99 | 160.57 | 2045.3 | 163.32 | 2045.37 | 165 | 2045.48 | 168.92 | 2045.53 |
| 170.89 | 2045.96 | 171.42 | 2046.06 | 175.83 | 2047.17 | 178 | 2047.74 | 186.72 | 2048.32 |
| 187.08 | 2048.34 | 187.89 | 2048.65 | 191.07 | 2049.36 | 191.35 | 2049.44 | 194.23 | 2050.29 |
| 195.08 | 2050.52 | 196.27 | 2051.11 | 206.95 | 2053.75 | 209.59 | 2054.69 | 211.58 | 2054.97 |
| 213.76 | 2055.66 | 215.98 | 2056.35 | 218.25 | 2057 | 219.76 | 2057.79 | 222.28 | 2058.9 |
| 224.58 | 2059.64 | 225.14 | 2059.84 | 235.56 | 2064.15 | 235.76 | 2064.23 | 237.32 | 2064.62 |
| 240.1 | 2065.22 | 245.6 | 2066.31 | 245.73 | 2066.33 | 248.89 | 2066.28 | 256.16 | 2066.31 |
| 262.45 | 2066.47 | 267.65 | 2066.55 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|
| 0 | .06 | 103.77 | .045 | 136.77 | .048 |

```
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        93.79     178            453.45  451.03  471.21            .1        .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)         * 2050.97  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    2.41  * Wt. n-Val.              *   0.060  *   0.048  *   0.048  *
* W.S. Elev (ft)         * 2048.57  * Reach Len. (ft)         *  453.45  *  451.03  *  471.21  *
* Crit W.S. (ft)         * 2048.57  * Flow Area (sq ft)       *    4.58  *  432.02  *    4.82  *
* E.G. Slope (ft/ft)     *0.019212  * Area (sq ft)            *    4.58  *  432.02  *    4.82  *
* Q Total (cfs)          * 5420.00  * Flow (cfs)              *   15.14  * 5391.92  *   12.94  *
* Top Width (ft)         *   98.25  * Top Width (ft)          *    4.37  *   84.21  *    9.67  *
* Vel Total (ft/s)       *   12.28  * Avg. Vel. (ft/s)        *    3.31  *   12.48  *    2.69  *
* Max Chl Dpth (ft)      *    7.65  * Hydr. Depth (ft)        *    1.05  *    5.13  *    0.50  *
* Conv. Total (cfs)      * 39103.3  * Conv. (cfs)             *   109.2  * 38900.7  *    93.3  *
* Length Wtd. (ft)       *  451.20  * Wetted Per. (ft)        *    4.85  *   85.81  *    9.73  *
* Min Ch El (ft)         * 2040.92  * Shear (lb/sq ft)        *    1.13  *    6.04  *    0.59  *
* Alpha                  *    1.03  * Stream Power (lb/ft s)   *    3.75  *   75.36  *    1.59  *
* Frctn Loss (ft)        *    4.64  * Cum Volume (acre-ft)     *    0.03  *    8.74  *    0.31  *
* C & E Loss (ft)        *    0.39  * Cum SA (acres)           *    0.04  *    1.66  *    0.29  *
*****************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************
* E.G. Elev (ft)         * 2050.97  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    2.41  * Wt. n-Val.              *   0.060  *   0.048  *   0.048  *
* W.S. Elev (ft)         * 2048.57  * Reach Len. (ft)         *  453.45  *  451.03  *  471.21  *
* Crit W.S. (ft)         * 2048.57  * Flow Area (sq ft)       *    4.58  *  432.08  *    4.82  *
* E.G. Slope (ft/ft)     *0.019203  * Area (sq ft)            *    4.58  *  432.08  *    4.82  *
* Q Total (cfs)          * 5420.00  * Flow (cfs)              *   15.15  * 5391.88  *   12.96  *
* Top Width (ft)         *   98.26  * Top Width (ft)          *    4.37  *   84.21  *    9.67  *
* Vel Total (ft/s)       *   12.28  * Avg. Vel. (ft/s)        *    3.31  *   12.48  *    2.69  *
* Max Chl Dpth (ft)      *    7.65  * Hydr. Depth (ft)        *    1.05  *    5.13  *    0.50  *
* Conv. Total (cfs)      * 39112.9  * Conv. (cfs)             *   109.4  * 38910.0  *    93.5  *
* Length Wtd. (ft)       *  451.20  * Wetted Per. (ft)        *    4.85  *   85.81  *    9.73  *
* Min Ch El (ft)         * 2040.92  * Shear (lb/sq ft)        *    1.13  *    6.04  *    0.59  *
* Alpha                  *    1.03  * Stream Power (lb/ft s)   *    3.74  *   75.32  *    1.60  *
* Frctn Loss (ft)        *    4.64  * Cum Volume (acre-ft)     *    0.03  *    8.74  *    0.31  *
* C & E Loss (ft)        *    0.39  * Cum SA (acres)           *    0.04  *    1.66  *    0.29  *
*****************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. * Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *    Conv *Depth(ft) *   (ft/s) *
* 1        * LOB      * 70.34     * 93.79     *    15.14 *    4.58 *     4.85 *    0.28 *     1.05 *     3.31 *
* 2        * Chan     * 93.79     * 114.84    *  1413.12 *  116.77 *    21.98 *   26.07 *     5.55 *    12.10 *
* 3        * Chan     * 114.84    * 135.90    *  2364.60 *  153.11 *    21.15 *   43.63 *     7.27 *    15.44 *
* 4        * Chan     * 135.90    * 156.95    *  1196.19 *  105.68 *    21.35 *   22.07 *     5.02 *    11.32 *
* 5        * Chan     * 156.95    * 178.00    *   418.00 *   56.47 *    21.34 *    7.71 *     2.68 *     7.40 *
* 6        * ROB      * 178.00    * 200.41    *    12.94 *    4.82 *     9.73 *    0.24 *     0.50 *     2.69 *
*****************************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
         program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

  Profile #PF 2
*****************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. * Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) * (sq ft) *     (ft) *    Conv *Depth(ft) *   (ft/s) *
* 1        * LOB      * 70.34     * 93.79     *    15.15 *    4.58 *     4.85 *    0.28 *     1.05 *     3.31 *
* 2        * Chan     * 93.79     * 114.84    *  1413.10 *  116.78 *    21.98 *   26.07 *     5.55 *    12.10 *
* 3        * Chan     * 114.84    * 135.90    *  2364.47 *  153.13 *    21.15 *   43.62 *     7.27 *    15.44 *
* 4        * Chan     * 135.90    * 156.95    *  1196.21 *  105.69 *    21.35 *   22.07 *     5.02 *    11.32 *
* 5        * Chan     * 156.95    * 178.00    *   418.10 *   56.48 *    21.34 *    7.71 *     2.68 *     7.40 *
* 6        * ROB      * 178.00    * 200.41    *    12.96 *    4.82 *     9.73 *    0.24 *     0.50 *     2.69 *
*****************************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The
```

```
         program used critical depth for the water surface and continued on with the calculations.
Warning: The velocity head has changed by more than 0.5 ft (0.15 m).  This may indicate the need for
         additional cross sections.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical
         depth, the calculated water surface came back below critical depth.  This indicates that there
         is not a valid subcritical answer.  The program defaulted to critical depth.
Note:    Manning's n values were composited to a single value in the main channel.

CROSS SECTION


RIVER: Ocotillo Wash 5
REACH: OWMS2              RS: 0.05120

INPUT
Description:
Station Elevation Data    num=      83
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
*******************************************************************************
       0 2060.14   16.34 2059.55   20.38 2059.54    36.2 2058.95   37.97 2058.88
   40.22 2059.03   42.43 2059.22    45.9  2059.5   48.31 2059.74   49.23 2059.32
   50.17 2058.64   51.44 2058.14   63.88 2052.42   65.45  2051.7   69.15 2049.98
   72.94 2048.39   75.22 2047.53   77.03 2046.82   79.69  2046.1   83.43  2044.4
   84.85 2044.05   85.12 2043.98   88.32  2042.7    90.1 2041.85   92.83 2040.64
   96.47 2039.79  100.61 2038.72   113.5 2035.32   115.4 2035.23  120.36 2035.15
  120.87 2035.14  125.41 2035.05  127.89 2035.03  132.19    2034  133.63 2033.66
  135.07 2033.77  148.43 2034.67  150.64 2033.74  151.88 2033.26  168.77 2033.55
  171.12 2033.65  174.74 2034.52  184.28 2036.85   191.1 2037.86  204.06 2039.62
  205.11 2039.61  210.68 2039.72  217.02 2039.83  218.15 2039.87  227.42    2041
  237.82 2041.93  238.15 2041.96  238.43 2041.98  241.84 2042.04  250.07  2042.2
  257.04 2042.42  278.37 2042.92  295.26 2043.26  308.54 2044.08  310.15 2044.17
  313.13 2044.45   321.9 2045.54  333.52 2046.99  334.25 2047.07  334.48 2047.11
  334.61 2047.12  356.37 2059.14  358.47 2060.35  360.12 2060.77  369.31 2062.85
  375.71 2065.83   382.6 2069.37  386.37 2071.23  388.33 2072.29  388.72  2072.5
  398.09 2072.64  399.61  2072.6  400.56 2072.58  401.15 2072.57  403.38  2072.6
  413.06 2073.24  425.05 2074.36  427.26 2074.44

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*******************************************************************************
       0     .06   63.88     .08  120.87     .04  171.12    .063   321.9    .063

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         92.83  204.06            217.95  226.15   246.9             .1       .3

CROSS SECTION OUTPUT  Profile #PF 1
*****************************************************************************************
* E.G. Elev (ft)         * 2042.53  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.09  * Wt. n-Val.              *   0.080  *   0.046  *   0.063  *
* W.S. Elev (ft)         * 2041.44  * Reach Len. (ft)         *  217.95  *  226.15  *  246.90  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)       *    0.72  *  633.65  *   34.53  *
* E.G. Slope (ft/ft)     *0.006387  * Area (sq ft)            *    0.72  *  633.65  *   34.53  *
* Q Total (cfs)          * 5420.00  * Flow (cfs)              *    0.55  * 5345.24  *   74.21  *
* Top Width (ft)         *  141.30  * Top Width (ft)          *    1.80  *  111.23  *   28.27  *
* Vel Total (ft/s)       *    8.10  * Avg. Vel. (ft/s)        *    0.76  *    8.44  *    2.15  *
* Max Chl Dpth (ft)      *    8.18  * Hydr. Depth (ft)        *    0.40  *    5.70  *    1.22  *
* Conv. Total (cfs)      * 67817.4  * Conv. (cfs)             *     6.8  * 66882.0  *   928.6  *
* Length Wtd. (ft)       *  226.29  * Wetted Per. (ft)        *    1.97  *  112.96  *   28.36  *
* Min Ch El (ft)         * 2033.26  * Shear (lb/sq ft)        *    0.15  *    2.24  *    0.49  *
* Alpha                  *    1.07  * Stream Power (lb/ft s)  *    0.11  *   18.87  *    1.04  *
* Frctn Loss (ft)        *    2.29  * Cum Volume (acre-ft)    *    0.00  *    3.22  *    0.10  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)          *    0.00  *    0.65  *    0.08  *
*****************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT  Profile #PF 2
*****************************************************************************************
* E.G. Elev (ft)         * 2042.53  * Element                 *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.09  * Wt. n-Val.              *   0.080  *   0.046  *   0.063  *
* W.S. Elev (ft)         * 2041.44  * Reach Len. (ft)         *  217.95  *  226.15  *  246.90  *
* Crit W.S. (ft)         *          * Flow Area (sq ft)       *    0.72  *  633.65  *   34.53  *
* E.G. Slope (ft/ft)     *0.006387  * Area (sq ft)            *    0.72  *  633.65  *   34.53  *
* Q Total (cfs)          * 5420.00  * Flow (cfs)              *    0.55  * 5345.24  *   74.21  *
* Top Width (ft)         *  141.30  * Top Width (ft)          *    1.80  *  111.23  *   28.27  *
* Vel Total (ft/s)       *    8.10  * Avg. Vel. (ft/s)        *    0.76  *    8.44  *    2.15  *
* Max Chl Dpth (ft)      *    8.18  * Hydr. Depth (ft)        *    0.40  *    5.70  *    1.22  *
* Conv. Total (cfs)      * 67817.4  * Conv. (cfs)             *     6.8  * 66882.0  *   928.6  *
* Length Wtd. (ft)       *  226.29  * Wetted Per. (ft)        *    1.97  *  112.96  *   28.36  *
* Min Ch El (ft)         * 2033.26  * Shear (lb/sq ft)        *    0.15  *    2.24  *    0.49  *
* Alpha                  *    1.07  * Stream Power (lb/ft s)  *    0.11  *   18.87  *    1.04  *
* Frctn Loss (ft)        *    2.29  * Cum Volume (acre-ft)    *    0.00  *    3.22  *    0.10  *
* C & E Loss (ft)        *    0.01  * Cum SA (acres)          *    0.00  *    0.65  *    0.08  *
*****************************************************************************************

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than
         0.7 or greater than 1.4.  This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross
         section.  This may indicate the need for additional cross sections.

  Profile #PF 1
*****************************************************************************************************************
*          * Pos      * Left Sta  * Right Sta *     Flow *     Area *     W.P. *  Percent *     Hydr * Velocity *
*          *          * (ft)      * (ft)      *    (cfs) *  (sq ft) *    (ft) *     Conv *Depth(ft) *   (ft/s) *
* 1        * LOB      * 69.62     * 92.83     *     0.55 *     0.72 *    1.97 *     0.01 *     0.40 *     0.76 *
* 2        * Chan     * 92.83     * 120.64    *   429.38 *   114.91 *   28.49 *     7.92 *     4.13 *     3.74 *
* 3        * Chan     * 120.64    * 148.45    *  2081.25 *   194.54 *   28.01 *    38.40 *     7.00 *    10.70 *
* 4        * Chan     * 148.45    * 176.25    *  2343.56 *   216.65 *   28.24 *    43.24 *     7.79 *    10.82 *
* 5        * Chan     * 176.25    * 204.06    *   491.06 *   107.54 *   28.24 *     9.06 *     3.87 *     4.57 *
```

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| * 6 | * ROB | * 204.06 | * 259.86 | * 74.21 * | 34.53 * | 28.36 * | 1.37 * | 1.22 * | 2.15 * |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

Profile #PF 2

| * | * Pos | * Left Sta (ft) | * Right Sta (ft) | * Flow (cfs) | * Area (sq ft) | * W.P. (ft) | * Percent Conv | * Hydr Depth(ft) | * Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| * 1 | * LOB | * 69.62 | * 92.83 | * 0.55 | * 0.72 | * 1.97 | * 0.01 | * 0.40 | * 0.76 |
| * 2 | * Chan | * 92.83 | * 120.64 | * 429.38 | * 114.91 | * 28.49 | * 7.92 | * 4.13 | * 3.74 |
| * 3 | * Chan | * 120.64 | * 148.45 | * 2081.25 | * 194.54 | * 28.01 | * 38.40 | * 7.00 | * 10.70 |
| * 4 | * Chan | * 148.45 | * 176.25 | * 2343.56 | * 216.65 | * 28.24 | * 43.24 | * 7.79 | * 10.82 |
| * 5 | * Chan | * 176.25 | * 204.06 | * 491.06 | * 107.54 | * 28.24 | * 9.06 | * 3.87 | * 4.57 |
| * 6 | * ROB | * 204.06 | * 259.86 | * 74.21 | * 34.53 | * 28.36 | * 1.37 | * 1.22 | * 2.15 |

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Ocotillo Wash 5
REACH: OWMS2 RS: 0.00837

INPUT
Description: LIMIT OF STUDY
Tie-in to effective Cave Creek floodplain delineation
Blocked Obstruction at Parcel 211-17-018
Station Elevation Data num= 140

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 2054.54 | 4.62 | 2053.63 | 34.37 | 2047.57 | 35.74 | 2047.2 | 38.13 | 2046.04 |
| 39.31 | 2045.79 | 41.8 | 2044.63 | 42.93 | 2044.29 | 45.95 | 2042.88 | 47.18 | 2042.65 |
| 50.27 | 2041.99 | 57.3 | 2041.04 | 59.72 | 2040.83 | 60.51 | 2040.6 | 60.84 | 2040.62 |
| 61.84 | 2040.69 | 63.8 | 2040.41 | 70.73 | 2039.61 | 107.22 | 2037.92 | 112.63 | 2037.74 |
| 117.14 | 2037.28 | 123.18 | 2037.12 | 129.4 | 2037.67 | 135.51 | 2037.95 | 154.1 | 2038.66 |
| 160.2 | 2039.09 | 160.75 | 2039.11 | 161.8 | 2039.07 | 165.11 | 2038.99 | 165.61 | 2038.97 |
| 168.44 | 2038.78 | 172.43 | 2038.54 | 194.43 | 2037.53 | 198.73 | 2037.55 | 199.68 | 2037.58 |
| 203.39 | 2037.53 | 209.02 | 2037.28 | 215.5 | 2037.09 | 217.44 | 2037.07 | 218.68 | 2037.05 |
| 219.91 | 2037 | 252.45 | 2036.14 | 265.17 | 2036.67 | 265.35 | 2036.64 | 265.5 | 2036.61 |
| 265.87 | 2036.54 | 268.08 | 2036.11 | 276.6 | 2034.23 | 287.3 | 2031.09 | 290.88 | 2029.2 |
| 294.33 | 2029.12 | 312.19 | 2028.91 | 318.84 | 2030.7 | 319.72 | 2030.96 | 321.4 | 2031.46 |
| 325.49 | 2032.57 | 326.05 | 2032.63 | 326.77 | 2032.75 | 327.17 | 2032.87 | 334.04 | 2034.9 |
| 335.05 | 2035.01 | 339.29 | 2036.69 | 340.11 | 2036.85 | 344.8 | 2038.53 | 345.7 | 2038.65 |
| 349.95 | 2039.94 | 350.93 | 2040.1 | 355.33 | 2040.57 | 356.38 | 2040.74 | 360.89 | 2041.35 |
| 361.9 | 2041.64 | 366.06 | 2042.6 | 367.38 | 2042.73 | 371.49 | 2042.81 | 373.33 | 2042.91 |
| 376.09 | 2042.9 | 378.43 | 2043.3 | 381.22 | 2043.4 | 384.15 | 2043.9 | 386.93 | 2044.13 |
| 390.32 | 2044.45 | 396.86 | 2044.72 | 399.44 | 2044.92 | 402.63 | 2045.14 | 403.13 | 2045.14 |
| 404.08 | 2045.13 | 408.73 | 2044.98 | 414.17 | 2044.76 | 414.39 | 2044.76 | 418.13 | 2044.26 |
| 419.72 | 2043.96 | 425.72 | 2042.99 | 430.74 | 2042.97 | 435.82 | 2042.8 | 439.72 | 2042.71 |
| 450.15 | 2042.62 | 454.66 | 2042.69 | 459.72 | 2042.66 | 465.43 | 2042.66 | 470.8 | 2042.73 |
| 475.8 | 2043.17 | 479.87 | 2043.54 | 481.3 | 2043.67 | 487.15 | 2043.96 | 487.37 | 2043.97 |
| 489.61 | 2044.16 | 493.38 | 2044.31 | 494.18 | 2044.39 | 500.15 | 2044.7 | 501.97 | 2044.9 |
| 505.69 | 2045.17 | 507.89 | 2045.38 | 509.14 | 2045.48 | 520.57 | 2045.17 | 521.09 | 2045.21 |
| 523.6 | 2045.36 | 525.29 | 2045.61 | 536.25 | 2045.94 | 538.55 | 2046.12 | 540.42 | 2046.35 |
| 541.78 | 2046.47 | 557.79 | 2046.64 | 558.56 | 2046.68 | 559.23 | 2046.7 | 559.92 | 2046.71 |
| 560.62 | 2046.71 | 561.19 | 2046.74 | 561.74 | 2046.74 | 562.35 | 2046.75 | 573.18 | 2047.8 |
| 573.62 | 2047.8 | 575.61 | 2047.81 | 581 | 2047.88 | 581.4 | 2047.89 | 586.86 | 2048.1 |
| 587.14 | 2048.1 | 592.3 | 2048.15 | 592.5 | 2048.15 | 597.86 | 2048.17 | 598.27 | 2048.17 |

Manning's n Values num= 5

| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
|---|---|---|---|---|---|---|---|---|---|
| 0 | .08 | 60.84 | .063 | 290.88 | .04 | 319.72 | .063 | 479.87 | .063 |

| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
|---|---|---|---|---|---|---|
| 160.2 | 349.95 | 0 | 0 | 0 | .1 | .3 |

Left Levee Station= 160.75 Elevation= 2039.11
Blocked Obstructions num= 1

| Sta L | Sta R | Elev |
|---|---|---|
| 209.3 | 253.65 | 2043 |

CROSS SECTION OUTPUT Profile #PF 1

| * | | * | | * | | * | | * | |
|---|---|---|---|---|---|---|---|---|---|
| * E.G. Elev (ft) | * | 2040.23 | * Element | * | Left OB | * | Channel | * | Right OB |
| * Vel Head (ft) | * | 1.23 | * Wt. n-Val. | * | | * | 0.059 | * | |
| * W.S. Elev (ft) | * | 2039.00 | * Reach Len. (ft) | * | | * | | * | |
| * Crit W.S. (ft) | * | 2037.86 | * Flow Area (sq ft) | * | | * | 608.31 | * | |
| * E.G. Slope (ft/ft) | * | 0.018336 | * Area (sq ft) | * | | * | 608.31 | * | |
| * Q Total (cfs) | * | 5420.00 | * Flow (cfs) | * | | * | 5420.00 | * | |
| * Top Width (ft) | * | 137.65 | * Top Width (ft) | * | | * | 137.65 | * | |
| * Vel Total (ft/s) | * | 8.91 | * Avg. Vel. (ft/s) | * | | * | 8.91 | * | |
| * Max Chl Dpth (ft) | * | 10.09 | * Hydr. Depth (ft) | * | | * | 4.42 | * | |
| * Conv. Total (cfs) | * | 40026.9 | * Conv. (cfs) | * | | * | 40026.9 | * | |
| * Length Wtd. (ft) | * | | * Wetted Per. (ft) | * | | * | 144.93 | * | |
| * Min Ch El (ft) | * | 2028.91 | * Shear (lb/sq ft) | * | | * | 4.80 | * | |
| * Alpha | * | 1.00 | * Stream Power (lb/ft s) | * | | * | 42.81 | * | |
| * Frctn Loss (ft) | * | | * Cum Volume (acre-ft) | * | | * | | * | |
| * C & E Loss (ft) | * | | * Cum SA (acres) | * | | * | | * | |

Warning: Divided flow computed for this cross-section.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

CROSS SECTION OUTPUT Profile #PF 2

| | | | | | |
|---|---|---|---|---|---|
| E.G. Elev (ft) | 2040.23 | Element | Left OB | Channel | Right OB |
| Vel Head (ft) | 1.23 | Wt. n-Val. | | 0.059 | |
| W.S. Elev (ft) | 2039.00 | Reach Len. (ft) | | | |
| Crit W.S. (ft) | 2037.86 | Flow Area (sq ft) | | 608.31 | |
| E.G. Slope (ft/ft) | 0.018336 | Area (sq ft) | | 608.31 | |
| Q Total (cfs) | 5420.00 | Flow (cfs) | | 5420.00 | |
| Top Width (ft) | 137.65 | Top Width (ft) | | 137.65 | |
| Vel Total (ft/s) | 8.91 | Avg. Vel. (ft/s) | | 8.91 | |
| Max Chl Dpth (ft) | 10.09 | Hydr. Depth (ft) | | 4.42 | |
| Conv. Total (cfs) | 40026.9 | Conv. (cfs) | | 40026.9 | |
| Length Wtd. (ft) | | Wetted Per. (ft) | | 144.93 | |
| Min Ch El (ft) | 2028.91 | Shear (lb/sq ft) | | 4.80 | |
| Alpha | 1.00 | Stream Power (lb/ft s) | | 42.81 | |
| Frctn Loss (ft) | | Cum Volume (acre-ft) | | | |
| C & E Loss (ft) | | Cum SA (acres) | | | |

Warning: Divided flow computed for this cross-section.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

Profile #PF 1

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 160.75 | 208.05 | 83.86 | 43.14 | 43.26 | 1.55 | 1.00 | 1.94 |
| 2 | Chan | 208.05 | 255.35 | 12.54 | 6.84 | 7.48 | 0.23 | 2.32 | 1.83 |
| 3 | Chan | 255.35 | 302.65 | 2518.63 | 281.04 | 48.49 | 46.47 | 5.94 | 8.96 |
| 4 | Chan | 302.65 | 349.95 | 2804.98 | 277.29 | 45.71 | 51.75 | 6.27 | 10.12 |

Warning: Divided flow computed for this cross-section.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

Profile #PF 2

| | Pos | Left Sta (ft) | Right Sta (ft) | Flow (cfs) | Area (sq ft) | W.P. (ft) | Percent Conv | Hydr Depth(ft) | Velocity (ft/s) |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Chan | 160.75 | 208.05 | 83.86 | 43.14 | 43.26 | 1.55 | 1.00 | 1.94 |
| 2 | Chan | 208.05 | 255.35 | 12.54 | 6.84 | 7.48 | 0.23 | 2.32 | 1.83 |
| 3 | Chan | 255.35 | 302.65 | 2518.63 | 281.04 | 48.49 | 46.47 | 5.94 | 8.96 |
| 4 | Chan | 302.65 | 349.95 | 2804.98 | 277.29 | 45.71 | 51.75 | 6.27 | 10.12 |

Warning: Divided flow computed for this cross-section.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, water surface was used.

SUMMARY OF MANNING'S N VALUES

River:Ocotillo Wash 1

| Reach | River Sta. | n1 | n2 | n3 | n4 | n5 | n6 |
|---|---|---|---|---|---|---|---|
| Tributary-2.1 | 1.00045 | .061 | .064 | .066 | | | |
| Tributary-2.1 | 0.99742 | .061 | .064 | .066 | | | |
| Tributary-2.1 | 0.99357 | .061 | .064 | .066 | | | |
| Tributary-2.1 | 0.98932 | .061 | .064 | .066 | | | |
| Tributary-2.1 | 0.98427 | .061 | .064 | .066 | | | |
| Tributary-2.1 | 0.97998 | .061 | .064 | .066 | | | |
| Tributary-2.1 | 0.97683 | .061 | .064 | .066 | | | |
| Tributary-2.1 | 0.97180 | .061 | .064 | .066 | | | |
| Tributary-2.1 | 0.96791 | .061 | .064 | .066 | | | |
| Tributary-2.1 | 0.96505 | .061 | .064 | .066 | | | |
| Tributary-2.1 | 0.96148 | .061 | .064 | .066 | | | |
| Tributary-2.1 | 0.95750 | .061 | .064 | .066 | | | |
| Tributary-2.1 | 0.95264 | .061 | .064 | .066 | | | |
| Tributary-2.1 | 0.94727 | .061 | .064 | .066 | | | |
| Tributary-2.1 | 0.94451 | .061 | .064 | .066 | | | |
| Tributary-2.1 | 0.94232 | .061 | .064 | .066 | | | |
| Tributary-2.1 | 0.93999 | .061 | .064 | .066 | | | |
| Tributary-2.1 | 0.93325 | .061 | .064 | .066 | | | |
| Tributary-2.1 | 0.92910 | .061 | .064 | .066 | | | |
| Tributary-2.1 | 0.92475 | .061 | .064 | .066 | | | |
| Tributary-2.1 | 0.91774 | .061 | .064 | .066 | | | |
| Tributary-2.1 | 0.91024 | .061 | .064 | .066 | | | |
| Tributary-2.1 | 0.90213 | .061 | .064 | .066 | | | |
| Tributary-2.1 | 0.89706 | .061 | .064 | .066 | | | |
| Tributary-2.1 | 0.89309 | .061 | .056 | .086 | .056 | | |
| Tributary-2.1 | 0.88715 | .056 | .086 | .056 | | | |
| Tributary-2.1 | 0.88288 | .056 | .086 | .056 | | | |
| Tributary-2.1 | 0.87849 | .056 | .086 | .056 | | | |
| Tributary-2.1 | 0.87485 | .056 | .086 | .056 | | | |
| Tributary-2.1 | 0.87052 | .056 | .086 | .056 | | | |
| Tributary-2.1 | 0.86746 | .056 | .086 | .056 | | | |
| Tributary-2.1 | 0.85876 | .056 | .086 | .056 | | | |
| Tributary-2.1 | 0.85249 | .056 | .086 | .056 | | | |
| Tributary-2.1 | 0.84649 | .056 | .086 | .056 | | | |
| Tributary-2.1 | 0.83957 | .056 | .086 | .056 | | | |
| Tributary-2.1 | 0.83091 | .061 | .064 | .061 | | | |
| Tributary-2.1 | 0.82372 | .061 | .064 | .061 | | | |
| Tributary-2.1 | 0.81567 | .061 | .064 | .061 | | | |
| Tributary-2.1 | 0.80861 | .061 | .064 | .061 | | | |
| Tributary-2.1 | 0.80224 | .061 | .064 | .061 | | | |
| Tributary-2.1 | 0.79662 | .061 | .019 | .061 | | | |
| Tributary-2.1 | 0.79392 | Culvert | | | | | |
| Tributary-2.1 | 0.79116 | .061 | .064 | .061 | | | |
| Tributary-2.1 | 0.78443 | .061 | .064 | .061 | | | |
| Tributary-2.1 | 0.77855 | .061 | .064 | .061 | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| *Tributary-2.1 | * | 0.77184 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.76182 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.75751 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.75270 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.74863 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.74402 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.73982 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.73537 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.73227 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.72875 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.72704 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.72322 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.71808 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.71174 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.70813 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.70419 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.70129 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.69806 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.69661 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.69212 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.68880 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.68800 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.68404 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.67717 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.67671 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.66963 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.66458 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.66013 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.65574 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.65150 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.64754 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.64472 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.64111 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.63638 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.63432 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.63270 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.62989 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.62721 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.62332 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.61834 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.61323 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.60912 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.60419 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.59771 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.59247 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.58805 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.58365 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.57998 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.57606 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.57206 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.56705 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.56110 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.55629 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.55157 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.54526 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.53814 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.53109 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.52363 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.51582 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.50951 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.50585 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.50158 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.49706 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.49372 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.48992 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.48713 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.48294 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.47933 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.47659 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.47214 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.46798 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.46248 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.45679 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.45211 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.44542 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.44157 | * | .061* | .064* | .061* | * | * | * |
| *Tributary-2.1 | * | 0.43466 | * | .063* | .069* | .059* | * | * | * |
| *Tributary-2.1 | * | 0.42887 | * | .063* | .069* | .059* | * | * | * |
| *Tributary-2.1 | * | 0.42419 | * | .063* | .069* | .059* | * | * | * |
| *Tributary-2.1 | * | 0.42020 | * | .063* | .069* | .059* | * | * | * |
| *Tributary-2.1 | * | 0.41686 | * | .063* | .069* | .059* | * | * | * |
| *Tributary-2.1 | * | 0.41149 | * | .063* | .069* | .059* | * | * | * |
| *Tributary-2.1 | * | 0.40709 | * | .063* | .069* | .059* | * | * | * |
| *Tributary-2.1 | * | 0.40093 | * | .063* | .069* | .059* | * | * | * |
| *Tributary-2.1 | * | 0.39446 | * | .063* | .069* | .059* | * | * | * |
| *Tributary-2.1 | * | 0.38991 | * | .063* | .069* | .059* | * | * | * |
| *Tributary-2.1 | * | 0.38436 | * | .063* | .069* | .059* | * | * | * |
| *Tributary-2.1 | * | 0.37788 | * | .063* | .069* | .059* | * | * | * |
| *Tributary-2.1 | * | 0.37417 | * | .063* | .069* | .059* | * | * | * |
| *Tributary-2.1 | * | 0.36875 | * | .063* | .019* | .059* | * | * | * |
| *Tributary-2.1 | * | 0.36595 | *Culvert | * | * | * | * | * | * |
| *Tributary-2.1 | * | 0.36365 | * | .063* | .069* | .059* | * | * | * |
| *Tributary-2.1 | * | 0.35963 | * | .063* | .069* | .059* | * | * | * |
| *Tributary-2.1 | * | 0.35631 | * | .063* | .069* | .059* | * | * | * |
| *Tributary-2.1 | * | 0.35325 | * | .063* | .069* | .059* | * | * | * |
| *Tributary-2.1 | * | 0.34893 | * | .063* | .069* | .059* | * | * | * |
| *Tributary-2.1 | * | 0.34588 | * | .063* | .069* | .059* | * | * | * |
| *Tributary-2.1 | * | 0.34303 | * | .063* | .069* | .059* | * | * | * |
| *Tributary-2.1 | * | 0.33986 | * | .063* | .069* | .059* | * | * | * |
| *Tributary-2.1 | * | 0.33232 | * | .063* | .069* | .059* | * | * | * |
| *Tributary-2.1 | * | 0.31529 | * | .056* | .056* | .056* | * | * | * |
| *Tributary-2.1 | * | 0.30808 | * | .056* | .056* | .056* | * | * | * |
| *Tributary-2.1 | * | 0.30459 | * | .056* | .056* | .056* | * | * | * |
| *Tributary-2.1 | * | 0.30181 | * | .056* | .056* | .056* | * | * | * |
| *Tributary-2.1 | * | 0.29712 | * | .056* | .056* | .056* | * | * | * |
| *Tributary-2.1 | * | 0.29046 | * | .056* | .056* | .056* | * | * | * |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Tributary-2.1 | * | 0.28463 | * .056* | .056* | .056* | * | * | * |
| *Tributary-2.1 | * | 0.28060 | * .056* | .056* | .056* | * | * | * |
| *Tributary-2.1 | * | 0.27669 | * .056* | .056* | .056* | * | * | * |
| *Tributary-2.1 | * | 0.27186 | * .056* | .056* | .056* | * | * | * |
| *Tributary-2.1 | * | 0.26729 | * .056* | .056* | .056* | * | * | * |
| *Tributary-2.1 | * | 0.26340 | * .056* | .056* | .056* | * | * | * |
| *Tributary-2.1 | * | 0.25894 | * .056* | .056* | .056* | * | * | * |
| *Tributary-2.1 | * | 0.25330 | * .056* | .056* | .056* | * | * | * |
| *Tributary-2.1 | * | 0.25016 | * .056* | .056* | .056* | * | * | * |
| *Tributary-2.1 | * | 0.24595 | * .056* | .056* | .056* | * | * | * |
| *Tributary-2.1 | * | 0.24329 | * .056* | .056* | .056* | * | * | * |
| *Tributary-2.1 | * | 0.23992 | * .056* | .056* | .056* | * | * | * |
| *Tributary-2.1 | * | 0.23186 | * .056* | .056* | .056* | * | * | * |
| *Tributary-2.1 | * | 0.22859 | * .056* | .056* | .056* | * | * | * |
| *Tributary-2.1 | * | 0.22114 | * .056* | .056* | .056* | * | * | * |
| *Tributary-2.1 | * | 0.21765 | * .056* | .056* | .056* | * | * | * |
| *Tributary-2.1 | * | 0.21461 | * .056* | .056* | .056* | * | * | * |
| *Tributary-2.1 | * | 0.20941 | * .056* | .056* | .056* | * | * | * |
| *Tributary-2.1 | * | 0.20885 | * .056* | .056* | .056* | * | * | * |
| *Tributary-2.1 | * | 0.20714 | * .056* | .056* | .056* | * | * | * |
| *Tributary-2.1 | * | 0.20431 | * .056* | .056* | .056* | * | * | * |
| *Tributary-2.1 | * | 0.20205 | * .056* | .056* | .056* | * | * | * |
| *Tributary-2.1 | * | 0.19955 | * .056* | .056* | .056* | * | * | * |
| *Tributary-2.1 | * | 0.19719 | * .056* | .056* | .056* | * | * | * |
| *Tributary-2.1 | * | 0.19296 | * .056* | .056* | .056* | * | * | * |
| *Tributary-2.1 | * | 0.19051 | * .056* | .056* | .056* | * | * | * |
| *Tributary-2.1 | * | 0.18844 | * .056* | .056* | .056* | * | * | * |
| *Tributary-2.1 | * | 0.18485 | * .056* | .056* | .056* | * | * | * |
| *Tributary-2.1 | * | 0.17337 | * .056* | .056* | .056* | * | * | * |
| *Tributary-2.1 | * | 0.16793 | * .056* | .056* | .056* | * | * | * |
| *Tributary-2.1 | * | 0.16413 | * .056* | .056* | .056* | * | * | * |
| *Tributary-2.1 | * | 0.15690 | * .056* | .056* | .056* | * | * | * |
| *Tributary-2.1 | * | 0.15225 | * .056* | .056* | .056* | * | * | * |
| *Tributary-2.1 | * | 0.14532 | * .056* | .056* | .056* | * | * | * |
| *Tributary-2.1 | * | 0.14374 | * .056* | .056* | .056* | * | * | * |
| *Tributary-2.1 | * | 0.14161 | *Culvert * | * | * | * | * | * |
| *Tributary-2.1 | * | 0.13875 | * .056* | .056* | .056* | * | * | * |
| *Tributary-2.1 | * | 0.13724 | * .056* | .056* | .056* | * | * | * |
| *Tributary-2.1 | * | 0.13462 | * .056* | .056* | .056* | .081* | * | * |
| *Tributary-2.1 | * | 0.12733 | * .056* | .088* | .056* | .056* | .056* | .081* |
| *Tributary-2.1 | * | 0.11883 | * .088* | .083* | .081* | * | * | * |
| *Tributary-2.1 | * | 0.11472 | * .088* | .056* | .058* | .056* | * | * |
| *Tributary-2.1 | * | 0.10962 | * .088* | .056* | .058* | .056* | * | * |
| *Tributary-2.1 | * | 0.10284 | * .056* | .058* | .056* | * | * | * |
| *Tributary-2.1 | * | 0.09693 | * .056* | .058* | .056* | * | * | * |
| *Tributary-2.1 | * | 0.09077 | * .056* | .058* | .056* | * | * | * |
| *Tributary-2.1 | * | 0.08036 | * .056* | .058* | .056* | * | * | * |
| *Tributary-2.1 | * | 0.07210 | * .056* | .058* | .056* | * | * | * |
| *Tributary-2.1 | * | 0.06454 | * .041* | .054* | .041* | * | * | * |
| *Tributary-2.1 | * | 0.05817 | * .041* | .054* | .041* | * | * | * |
| *Tributary-2.1 | * | 0.04814 | * .041* | .054* | .041* | * | * | * |
| *Tributary-2.1 | * | 0.03638 | * .041* | .054* | .041* | * | * | * |
| *Tributary-2.1 | * | 0.02605 | * .041* | .054* | .041* | * | * | * |

River:Ocotillo Wash 2

| * Reach | * | River Sta. | * n1 | * n2 | * n3 | * n4 | * n5 | * |
|---|---|---|---|---|---|---|---|---|
| *OW Split | * | 0.07677 | * .051* | .039* | .041* | .041* | | * |
| *OW Split | * | 0.04992 | * .041* | .051* | .039* | .041* | .041* | |

River:Ocotillo Wash 3

| * Reach | * | River Sta. | * n1 | * n2 | * n3 | * |
|---|---|---|---|---|---|---|
| *Tributary-2.2 | * | 0.15352 | * .041* | .054* | .041* | |
| *Tributary-2.2 | * | 0.10059 | * .051* | .059* | .051* | |
| *Tributary-2.2 | * | 0.04049 | * .058* | .053* | .052* | |
| *Tributary-2.2 | * | 0.03237 | * .058* | .053* | .052* | |
| *Tributary-2.2 | * | 0.02833 | * .058* | .053* | .052* | |
| *Tributary-2.2 | * | 0.02823 | * .058* | .053* | .052* | |

River:Ocotillo Wash 4

| * Reach | * | River Sta. | * n1 | * n2 | * n3 | * n4 | * n5 | * |
|---|---|---|---|---|---|---|---|---|
| *OWMS1 | * | 0.07616 | * .051* | .053* | .052* | .053* | .052* | |
| *OWMS1 | * | 0.07615 | *Lat Struct* | * | * | * | * | |
| *OWMS1 | * | 0.04601 | * .052* | .053* | .052* | .053* | .052* | |
| *OWMS1 | * | 0.04599 | *Lat Struct* | * | * | * | * | |
| *OWMS1 | * | 0.03788 | * .052* | .053* | .052* | .053* | .052* | |
| *OWMS1 | * | 0.03786 | *Lat Struct* | * | * | * | * | |
| *OWMS1 | * | 0.02091 | * .052* | .053* | .048* | .049* | | * |

River:Ocotillo Wash 5

| * Reach | * | River Sta. | * n1 | * n2 | * n3 | * n4 | * n5 | * n6 | * n7 | * |
|---|---|---|---|---|---|---|---|---|---|---|
| *OWMS2 | * | 1.89254 | * .058* | .053* | .048* | .049* | .048* | .049* | | * |
| *OWMS2 | * | 1.89136 | * .058* | .053* | .048* | .049* | .048* | .049* | | * |
| *OWMS2 | * | 1.88981 | * .058* | .053* | .048* | .049* | .048* | .049* | .044* | |
| *OWMS2 | * | 1.88667 | *Inl Struct* | * | * | * | * | * | * | |
| *OWMS2 | * | 1.88352 | * .058* | .053* | .048* | .049* | .044* | * | | * |
| *OWMS2 | * | 1.78861 | * .053* | .053* | .04* | .044* | * | * | | * |
| *OWMS2 | * | 1.71509 | * .053* | .04* | .044* | * | * | * | | * |
| *OWMS2 | * | 1.64008 | * .048* | .04* | .048* | * | * | * | | * |
| *OWMS2 | * | 1.63731 | *Inl Struct* | * | * | * | * | * | * | |
| *OWMS2 | * | 1.63454 | * .048* | .04* | .048* | * | * | * | | * |
| *OWMS2 | * | 1.63183 | * .048* | .04* | .048* | * | * | * | | * |
| *OWMS2 | * | 1.54838 | * .063* | .053* | .04* | .059* | .048* | * | | * |
| *OWMS2 | * | 1.47363 | * .063* | .04* | .058* | * | * | * | | * |
| *OWMS2 | * | 1.41048 | * .063* | .04* | .058* | * | * | * | | * |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| *OWMS2 | * | 1.32199 | * | .068* | .04* | .053* | .048* | * | * | * |
| *OWMS2 | * | 1.20785 | * | .058* | .04* | .053* | * | * | * | * |
| *OWMS2 | * | 1.14203 | * | .063* | .04* | .053* | * | * | * | * |
| *OWMS2 | * | 1.06470 | * | .063* | .04* | .053* | * | * | * | * |
| *OWMS2 | * | 0.97907 | * | .063* | .053* | .04* | .053* | * | * | * |
| *OWMS2 | * | 0.91184 | * | .048* | .04* | .048* | * | * | * | * |
| *OWMS2 | * | 0.90917 | *Inl Struct* | | * | * | * | * | * | * |
| *OWMS2 | * | 0.90641 | * | .048* | .04* | .048* | * | * | * | * |
| *OWMS2 | * | 0.87183 | * | .048* | .04* | .048* | * | * | * | * |
| *OWMS2 | * | 0.81091 | * | .075* | .072* | .046* | .058* | * | * | * |
| *OWMS2 | * | 0.76067 | * | .075* | .063* | .046* | .046* | .055* | .055* | * |
| *OWMS2 | * | 0.72626 | * | .069* | .046* | .046* | .07* | .07* | * | * |
| *OWMS2 | * | 0.64580 | * | .069* | .046* | .061* | * | * | * | * |
| *OWMS2 | * | 0.58990 | * | .069* | .046* | .061* | .061* | * | * | * |
| *OWMS2 | * | 0.47442 | * | .055* | .04* | .061* | .061* | * | * | * |
| *OWMS2 | * | 0.38608 | * | .053* | .051* | .04* | .051* | .057* | .057* | * |
| *OWMS2 | * | 0.30622 | * | .051* | .042* | .051* | .051* | * | * | * |
| *OWMS2 | * | 0.22095 | * | .051* | .042* | .051* | * | * | * | * |
| *OWMS2 | * | 0.17947 | * | .051* | .042* | .051* | .048* | * | * | * |
| *OWMS2 | * | 0.13663 | * | .06* | .045* | .048* | * | * | * | * |
| *OWMS2 | * | 0.05120 | * | .06* | .08* | .04* | .063* | .063* | * | * |
| *OWMS2 | * | 0.00837 | * | .08* | .063* | .04* | .063* | .063* | * | * |

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SUMMARY OF REACH LENGTHS

River: Ocotillo Wash 1

| Reach | River Sta. | Left | Channel | Right |
|---|---|---|---|---|
| *Tributary-2.1 | 1.00045 | 108.31* | 108.1* | 123.22* |
| *Tributary-2.1 | 0.99742 | 17.43* | 20.31* | 19.19* |
| *Tributary-2.1 | 0.99357 | 24.68* | 22.45* | 30.66* |
| *Tributary-2.1 | 0.98932 | 28.01* | 26.68* | 35.8* |
| *Tributary-2.1 | 0.98427 | 23.69* | 22.66* | 22.42* |
| *Tributary-2.1 | 0.97998 | 63.05* | 63.74* | 66.74* |
| *Tributary-2.1 | 0.97683 | 27.09* | 26.54* | 31.5* |
| *Tributary-2.1 | 0.97180 | 22.35* | 20.56* | 18.27* |
| *Tributary-2.1 | 0.96791 | 127.16* | 123.51* | 110.43* |
| *Tributary-2.1 | 0.96505 | 20.87* | 18.87* | 14.83* |
| *Tributary-2.1 | 0.96148 | 27.14* | 21.02* | 14.56* |
| *Tributary-2.1 | 0.95750 | 24.28* | 25.63* | 18.58* |
| *Tributary-2.1 | 0.95264 | 24.15* | 28.39* | 31.61* |
| *Tributary-2.1 | 0.94727 | 17.1* | 14.55* | 17.28* |
| *Tributary-2.1 | 0.94451 | 335.58* | 348.61* | 333.38* |
| *Tributary-2.1 | 0.94232 | 11.84* | 12.29* | 11.28* |
| *Tributary-2.1 | 0.93999 | 41.53* | 35.61* | 13.72* |
| *Tributary-2.1 | 0.93325 | 26.32* | 21.87* | 10.86* |
| *Tributary-2.1 | 0.92910 | 24.78* | 22.99* | 18.59* |
| *Tributary-2.1 | 0.92475 | 26.12* | 37.02* | 40.07* |
| *Tributary-2.1 | 0.91774 | 29.19* | 39.59* | 55.86* |
| *Tributary-2.1 | 0.91024 | 35.65* | 42.81* | 44.81* |
| *Tributary-2.1 | 0.90213 | 27.04* | 26.81* | 32.58* |
| *Tributary-2.1 | 0.89706 | 21.39* | 20.97* | 24.42* |
| *Tributary-2.1 | 0.89309 | 32.28* | 31.37* | 17.28* |
| *Tributary-2.1 | 0.88715 | 24.76* | 22.54* | 22.68* |
| *Tributary-2.1 | 0.88288 | 25.87* | 23.17* | 28.44* |
| *Tributary-2.1 | 0.87849 | 393.16* | 402.6* | 399.35* |
| *Tributary-2.1 | 0.87485 | 22.68* | 22.85* | 22.73* |
| *Tributary-2.1 | 0.87052 | 16.18* | 16.15* | 12.88* |
| *Tributary-2.1 | 0.86746 | 46.15* | 45.94* | 47.27* |
| *Tributary-2.1 | 0.85876 | 24.38* | 33.09* | 35.92* |
| *Tributary-2.1 | 0.85249 | 39.38* | 31.7* | 25.58* |
| *Tributary-2.1 | 0.84649 | 32.39* | 36.56* | 35.11* |
| *Tributary-2.1 | 0.83957 | 36.72* | 45.71* | 56.37* |
| *Tributary-2.1 | 0.83091 | 22.89* | 37.94* | 62.03* |
| *Tributary-2.1 | 0.82372 | 35.21* | 42.51* | 25.53* |
| *Tributary-2.1 | 0.81567 | 51.02* | 37.31* | 19.74* |
| *Tributary-2.1 | 0.80861 | 44.48* | 33.63* | 32.27* |
| *Tributary-2.1 | 0.80224 | 30.47* | 29.67* | 40.62* |
| *Tributary-2.1 | 0.79662 | 27.93* | 28.83* | 23.42* |
| *Tributary-2.1 | 0.79392 | *Culvert * | * | * |
| *Tributary-2.1 | 0.79116 | 28.68* | 35.52* | 39.4* |
| *Tributary-2.1 | 0.78443 | 293.29* | 294.01* | 294.98* |
| *Tributary-2.1 | 0.77855 | 36.74* | 35.45* | 27.3* |
| *Tributary-2.1 | 0.77184 | 43.86* | 52.89* | 69.03* |
| *Tributary-2.1 | 0.76182 | 23.21* | 22.73* | 31.03* |
| *Tributary-2.1 | 0.75751 | 25.76* | 25.41* | 26.95* |
| *Tributary-2.1 | 0.75270 | 14.97* | 21.5* | 29.89* |
| *Tributary-2.1 | 0.74863 | 29.83* | 24.33* | 23.81* |
| *Tributary-2.1 | 0.74402 | 26.03* | 22.19* | 18.41* |
| *Tributary-2.1 | 0.73982 | 24.45* | 23.5* | 18.75* |
| *Tributary-2.1 | 0.73537 | 12.12* | 16.35* | 15.02* |
| *Tributary-2.1 | 0.73227 | 27.91* | 18.6* | 17.81* |
| *Tributary-2.1 | 0.72875 | 128.33* | 129.66* | 132.07* |
| *Tributary-2.1 | 0.72704 | 15.93* | 20.18* | 16.98* |
| *Tributary-2.1 | 0.72322 | 26.98* | 27.14* | 29.31* |
| *Tributary-2.1 | 0.71808 | 31.2* | 33.44* | 33.96* |
| *Tributary-2.1 | 0.71174 | 17.47* | 19.08* | 22.93* |
| *Tributary-2.1 | 0.70813 | 20.7* | 20.79* | 20.6* |
| *Tributary-2.1 | 0.70419 | 81.41* | 81.29* | 81.45* |
| *Tributary-2.1 | 0.70129 | 17.26* | 17.05* | 16.86* |
| *Tributary-2.1 | 0.69806 | 6.67* | 7.62* | 7.45* |
| *Tributary-2.1 | 0.69661 | 23.94* | 23.74* | 24.32* |
| *Tributary-2.1 | 0.69212 | 17.19* | 17.54* | 18.08* |
| *Tributary-2.1 | 0.68880 | 63.26* | 61.39* | 72.33* |
| *Tributary-2.1 | 0.68800 | 3.98* | 20.9* | 28.11* |
| *Tributary-2.1 | 0.68404 | 56.21* | 36.3* | 33.38* |
| *Tributary-2.1 | 0.67717 | 187.36* | 226.26* | 258.27* |
| *Tributary-2.1 | 0.67671 | 34.43* | 37.38* | 47.46* |
| *Tributary-2.1 | 0.66963 | 17.97* | 26.71* | 31.61* |
| *Tributary-2.1 | 0.66458 | 11.9* | 23.45* | 45.33* |
| *Tributary-2.1 | 0.66013 | 9.74* | 23.18* | 29.36* |
| *Tributary-2.1 | 0.65574 | 30.4* | 22.39* | 19.31* |

| | | | | | | |
|---|---|---|---|---|---|---|
| *Tributary-2.1 | * | 0.65150 | * | 36.7* | 20.91* | 17.8* |
| *Tributary-2.1 | * | 0.64754 | * | 25.22* | 14.9* | 11.32* |
| *Tributary-2.1 | * | 0.64472 | * | 20.57* | 19.08* | 18.34* |
| *Tributary-2.1 | * | 0.64111 | * | 31.15* | 24.95* | 19.22* |
| *Tributary-2.1 | * | 0.63638 | * | 12.06* | 10.91* | 11.16* |
| *Tributary-2.1 | * | 0.63432 | * | 4.02* | 8.56* | 8.03* |
| *Tributary-2.1 | * | 0.63270 | * | 10.65* | 14.8* | 17.06* |
| *Tributary-2.1 | * | 0.62989 | * | 7.63* | 14.15* | 16.52* |
| *Tributary-2.1 | * | 0.62721 | * | 23.37* | 20.55* | 23.34* |
| *Tributary-2.1 | * | 0.62332 | * | 34.19* | 26.31* | 21.76* |
| *Tributary-2.1 | * | 0.61834 | * | 36.23* | 26.97* | 9.94* |
| *Tributary-2.1 | * | 0.61323 | * | 23.27* | 21.72* | 19.78* |
| *Tributary-2.1 | * | 0.60912 | * | 24.48* | 26.02* | 22.75* |
| *Tributary-2.1 | * | 0.60419 | * | 35.02* | 34.21* | 35.36* |
| *Tributary-2.1 | * | 0.59771 | * | 25* | 27.67* | 30.7* |
| *Tributary-2.1 | * | 0.59247 | * | 18.65* | 23.35* | 31.42* |
| *Tributary-2.1 | * | 0.58805 | * | 440.33* | 434.02* | 436.3* |
| *Tributary-2.1 | * | 0.58365 | * | 14.58* | 19.36* | 22.22* |
| *Tributary-2.1 | * | 0.57998 | * | 20.58* | 20.7* | 20.58* |
| *Tributary-2.1 | * | 0.57606 | * | 20.66* | 21.13* | 18.33* |
| *Tributary-2.1 | * | 0.57206 | * | 25.07* | 26.45* | 25.39* |
| *Tributary-2.1 | * | 0.56705 | * | 39.14* | 31.39* | 24.59* |
| *Tributary-2.1 | * | 0.56110 | * | 38.34* | 25.44* | 16.68* |
| *Tributary-2.1 | * | 0.55629 | * | 41.56* | 24.88* | 19.85* |
| *Tributary-2.1 | * | 0.55157 | * | 38.79* | 33.34* | 25.83* |
| *Tributary-2.1 | * | 0.54526 | * | 44.87* | 37.57* | 27.83* |
| *Tributary-2.1 | * | 0.53814 | * | 41.54* | 37.25* | 27.65* |
| *Tributary-2.1 | * | 0.53109 | * | 41.71* | 39.38* | 34.24* |
| *Tributary-2.1 | * | 0.52363 | * | 25.41* | 41.23* | 55.5* |
| *Tributary-2.1 | * | 0.51582 | * | 16.75* | 33.33* | 56.19* |
| *Tributary-2.1 | * | 0.50951 | * | 14.83* | 19.33* | 26.56* |
| *Tributary-2.1 | * | 0.50585 | * | 387.34* | 452.2* | 464.68* |
| *Tributary-2.1 | * | 0.50158 | * | 3.56* | 23.86* | 31.44* |
| *Tributary-2.1 | * | 0.49706 | * | 6.18* | 17.66* | 21.88* |
| *Tributary-2.1 | * | 0.49372 | * | 11.79* | 20.04* | 18.41* |
| *Tributary-2.1 | * | 0.48992 | * | 13.72* | 14.78* | 11.55* |
| *Tributary-2.1 | * | 0.48713 | * | 33.34* | 22.08* | 11.57* |
| *Tributary-2.1 | * | 0.48294 | * | 24.21* | 19.08* | 7.93* |
| *Tributary-2.1 | * | 0.47933 | * | 27.39* | 14.47* | 13.27* |
| *Tributary-2.1 | * | 0.47659 | * | 33.24* | 23.48* | 17.28* |
| *Tributary-2.1 | * | 0.47214 | * | 24.68* | 21.99* | 18.42* |
| *Tributary-2.1 | * | 0.46798 | * | 17.59* | 29.02* | 37.29* |
| *Tributary-2.1 | * | 0.46248 | * | 15.23* | 30.04* | 30.12* |
| *Tributary-2.1 | * | 0.45679 | * | 32.9* | 24.71* | 30.6* |
| *Tributary-2.1 | * | 0.45211 | * | 48.85* | 35.33* | 17.28* |
| *Tributary-2.1 | * | 0.44542 | * | 26.09* | 20.34* | 26.84* |
| *Tributary-2.1 | * | 0.44157 | * | 27.45* | 36.46* | 31.57* |
| *Tributary-2.1 | * | 0.43466 | * | 11.88* | 30.58* | 45.13* |
| *Tributary-2.1 | * | 0.42887 | * | 15.12* | 24.71* | 29.21* |
| *Tributary-2.1 | * | 0.42419 | * | 10.35* | 21.04* | 24.61* |
| *Tributary-2.1 | * | 0.42020 | * | 244.5* | 243.05* | 223.37* |
| *Tributary-2.1 | * | 0.41686 | * | 8.54* | 28.34* | 20.24* |
| *Tributary-2.1 | * | 0.41149 | * | 18.85* | 23.24* | 31.94* |
| *Tributary-2.1 | * | 0.40709 | * | 29.38* | 32.54* | 28.07* |
| *Tributary-2.1 | * | 0.40093 | * | 36.15* | 34.12* | 70.45* |
| *Tributary-2.1 | * | 0.39446 | * | 25.13* | 24.02* | 4.77* |
| *Tributary-2.1 | * | 0.38991 | * | 46.12* | 29.34* | 8.73* |
| *Tributary-2.1 | * | 0.38436 | * | 48.38* | 34.2* | 14.19* |
| *Tributary-2.1 | * | 0.37788 | * | 26.51* | 19.57* | 15.02* |
| *Tributary-2.1 | * | 0.37417 | * | 14.44* | 28.66* | 29.16* |
| *Tributary-2.1 | * | 0.36875 | * | 43.89* | 26.89* | 27.34* |
| *Tributary-2.1 | * | 0.36595 | *Culvert | * | * | * |
| *Tributary-2.1 | * | 0.36365 | * | 8.26* | 21.22* | 17.65* |
| *Tributary-2.1 | * | 0.35963 | * | 208.38* | 272.22* | 223.81* |
| *Tributary-2.1 | * | 0.35631 | * | 2.37* | 16.12* | 12.87* |
| *Tributary-2.1 | * | 0.35325 | * | 7.03* | 22.82* | 10.72* |
| *Tributary-2.1 | * | 0.34893 | * | 20.36* | 16.14* | 5* |
| *Tributary-2.1 | * | 0.34588 | * | 47.76* | 15.03* | 7.24* |
| *Tributary-2.1 | * | 0.34303 | * | 29.77* | 16.75* | 6.68* |
| *Tributary-2.1 | * | 0.33986 | * | 19.67* | 39.79* | 30.17* |
| *Tributary-2.1 | * | 0.33232 | * | 69.22* | 89.93* | 97.93* |
| *Tributary-2.1 | * | 0.31529 | * | 9.58* | 38.07* | 38.55* |
| *Tributary-2.1 | * | 0.30808 | * | 454.85* | 459.02* | 461* |
| *Tributary-2.1 | * | 0.30459 | * | 12.08* | 14.7* | 17.7* |
| *Tributary-2.1 | * | 0.30181 | * | 38.67* | 24.75* | 20.53* |
| *Tributary-2.1 | * | 0.29712 | * | 39.12* | 35.15* | 27.99* |
| *Tributary-2.1 | * | 0.29046 | * | 32.54* | 30.77* | 22.63* |
| *Tributary-2.1 | * | 0.28463 | * | 21.74* | 21.3* | 19.43* |
| *Tributary-2.1 | * | 0.28060 | * | 19.54* | 20.64* | 20.63* |
| *Tributary-2.1 | * | 0.27669 | * | 20.79* | 25.49* | 22.89* |
| *Tributary-2.1 | * | 0.27186 | * | 15.48* | 24.14* | 30.62* |
| *Tributary-2.1 | * | 0.26729 | * | 16.43* | 20.55* | 29.34* |
| *Tributary-2.1 | * | 0.26340 | * | 24.35* | 23.52* | 26.71* |
| *Tributary-2.1 | * | 0.25894 | * | 29.12* | 29.8* | 24.16* |
| *Tributary-2.1 | * | 0.25330 | * | 23.69* | 16.58* | 16.88* |
| *Tributary-2.1 | * | 0.25016 | * | 20.86* | 22.24* | 18.1* |
| *Tributary-2.1 | * | 0.24595 | * | 23* | 14.06* | 7.91* |
| *Tributary-2.1 | * | 0.24329 | * | 13.14* | 17.79* | 13.59* |
| *Tributary-2.1 | * | 0.23992 | * | 13.84* | 42.54* | 65.07* |
| *Tributary-2.1 | * | 0.23186 | * | 18.04* | 17.26* | 21.08* |
| *Tributary-2.1 | * | 0.22859 | * | 60.08* | 39.34* | 32* |
| *Tributary-2.1 | * | 0.22114 | * | 20.2* | 18.41* | 19.98* |
| *Tributary-2.1 | * | 0.21765 | * | 16.45* | 16.08* | 16.23* |
| *Tributary-2.1 | * | 0.21461 | * | 33.84* | 27.43* | 17.81* |
| *Tributary-2.1 | * | 0.20941 | * | 3.06* | 3* | 3* |
| *Tributary-2.1 | * | 0.20885 | * | 468.38* | 475.3* | 425.84* |
| *Tributary-2.1 | * | 0.20714 | * | 20.57* | 14.93* | 6.22* |
| *Tributary-2.1 | * | 0.20431 | * | 14.87* | 11.95* | 6.7* |
| *Tributary-2.1 | * | 0.20205 | * | 13.57* | 13.2* | 10.89* |
| *Tributary-2.1 | * | 0.19955 | * | 12.55* | 12.48* | 12.2* |
| *Tributary-2.1 | * | 0.19719 | * | 23.83* | 22.35* | 20.75* |
| *Tributary-2.1 | * | 0.19296 | * | 13.61* | 12.9* | 9.7* |
| *Tributary-2.1 | * | 0.19051 | * | 15.92* | 10.95* | 9.51* |
| *Tributary-2.1 | * | 0.18844 | * | 24.14* | 18.93* | 14.25* |
| *Tributary-2.1 | * | 0.18485 | * | 57.38* | 60.63* | 46.99* |
| *Tributary-2.1 | * | 0.17337 | * | 19.91* | 28.74* | 20.45* |

| | | | | |
|---|---|---|---|---|
| *Tributary-2.1 | 0.16793 | 12.51* | 20.07* | 19.45* |
| *Tributary-2.1 | 0.16413 | 37.34* | 38.17* | 21.24* |
| *Tributary-2.1 | 0.15690 | 28.06* | 24.55* | 23.45* |
| *Tributary-2.1 | 0.15225 | 15.02* | 36.61* | 88.17* |
| *Tributary-2.1 | 0.14532 | 3.88* | 8.32* | 9.62* |
| *Tributary-2.1 | 0.14374 | 45.04* | 26.34* | 50.62* |
| *Tributary-2.1 | 0.14161 | *Culvert * | * | * |
| *Tributary-2.1 | 0.13875 | 13.85* | 7.94* | 5.83* |
| *Tributary-2.1 | 0.13724 | 77.3* | 97.25* | 45.4* |
| *Tributary-2.1 | 0.13462 | 26.86* | 38.51* | 9.17* |
| *Tributary-2.1 | 0.12733 | 26.39* | 44.9* | 29.2* |
| *Tributary-2.1 | 0.11883 | 25.93* | 21.67* | 22.86* |
| *Tributary-2.1 | 0.11472 | 149.39* | 181.41* | 208.82* |
| *Tributary-2.1 | 0.10962 | 16.48* | 35.78* | 34.39* |
| *Tributary-2.1 | 0.10284 | 28.34* | 31.24* | 29.52* |
| *Tributary-2.1 | 0.09693 | 30.89* | 32.52* | 26.75* |
| *Tributary-2.1 | 0.09077 | 52.91* | 54.92* | 79.7* |
| *Tributary-2.1 | 0.08036 | 99.4* | 117.2* | 171.83* |
| *Tributary-2.1 | 0.07210 | 31.11* | 39.91* | 76.5* |
| *Tributary-2.1 | 0.06454 | 27.16* | 33.67* | 76.14* |
| *Tributary-2.1 | 0.05817 | 32.72* | 51.62* | 55.51* |
| *Tributary-2.1 | 0.04814 | 37.59* | 62.11* | 56.89* |
| *Tributary-2.1 | 0.03638 | 26.71* | 54.55* | 53.12* |
| *Tributary-2.1 | 0.02605 | 0* | 0* | 0* |

River: Ocotillo Wash 2

| Reach | River Sta. | Left | Channel | Right |
|---|---|---|---|---|
| *OW Split | 0.07677 | 181.95* | 141.75* | 144.78* |
| *OW Split | 0.04992 | 0* | 0* | 0* |

River: Ocotillo Wash 3

| Reach | River Sta. | Left | Channel | Right |
|---|---|---|---|---|
| *Tributary-2.2 | 0.15352 | 414.01* | 279.51* | 158.82* |
| *Tributary-2.2 | 0.10059 | 278.25* | 317.3* | 273.52* |
| *Tributary-2.2 | 0.04049 | 44.65* | 42.9* | 41.93* |
| *Tributary-2.2 | 0.03237 | 23.88* | 21.3* | 50.47* |
| *Tributary-2.2 | 0.02833 | 1.33* | .5* | .67* |
| *Tributary-2.2 | 0.02823 | 0* | 0* | 0* |

River: Ocotillo Wash 4

| Reach | River Sta. | Left | Channel | Right |
|---|---|---|---|---|
| *OWMS1 | 0.07616 | 174.6* | 159.23* | 181.303* |
| *OWMS1 | 0.07615 | *Lat Struct* | * | * |
| *OWMS1 | 0.04601 | 41.71* | 42.93* | 48.56* |
| *OWMS1 | 0.04599 | *Lat Struct* | * | * |
| *OWMS1 | 0.03788 | 53.8* | 89.56* | 70.85* |
| *OWMS1 | 0.03786 | *Lat Struct* | * | * |
| *OWMS1 | 0.02091 | 0* | 0* | 0* |

River: Ocotillo Wash 5

| Reach | River Sta. | Left | Channel | Right |
|---|---|---|---|---|
| *OWMS2 | 1.89254 | 6.6* | 6.24* | 119.54* |
| *OWMS2 | 1.89136 | 6.42* | 8.14* | 87.94* |
| *OWMS2 | 1.88981 | 33.64* | 33.21* | 31* |
| *OWMS2 | 1.88667 | *Inl Struct* | * | * |
| *OWMS2 | 1.88352 | 453.23* | 501.13* | 178.68* |
| *OWMS2 | 1.78861 | 494.59* | 388.18* | 359.83* |
| *OWMS2 | 1.71509 | 634.74* | 396.08* | 272.49* |
| *OWMS2 | 1.64008 | 37.18* | 29.23* | 28.7* |
| *OWMS2 | 1.63731 | *Inl Struct* | * | * |
| *OWMS2 | 1.63454 | 18.17* | 14.34* | 14.35* |
| *OWMS2 | 1.63183 | 396.96* | 440.58* | 440.79* |
| *OWMS2 | 1.54838 | 262.66* | 394.71* | 493.36* |
| *OWMS2 | 1.47363 | 318.79* | 333.42* | 454.72* |
| *OWMS2 | 1.41048 | 436.68* | 467.21* | 549.74* |
| *OWMS2 | 1.32199 | 621.82* | 602.67* | 430.88* |
| *OWMS2 | 1.20785 | 352.83* | 347.57* | 355.39* |
| *OWMS2 | 1.14203 | 417.36* | 408.29* | 331.68* |
| *OWMS2 | 1.06470 | 449.15* | 452.14* | 709.77* |
| *OWMS2 | 0.97907 | 373.48* | 354.94* | 370.2* |
| *OWMS2 | 0.91184 | 40.31* | 28.67* | 43.88* |
| *OWMS2 | 0.90917 | *Inl Struct* | * | * |
| *OWMS2 | 0.90641 | 146.2* | 182.61* | 237.31* |
| *OWMS2 | 0.87183 | 462.71* | 321.64* | 121.54* |
| *OWMS2 | 0.81091 | 281.96* | 265.27* | 155.28* |
| *OWMS2 | 0.76067 | 50.44* | 181.67* | 327.47* |
| *OWMS2 | 0.72626 | 365.93* | 424.82* | 449.12* |
| *OWMS2 | 0.64580 | 333.74* | 295.18* | 257.8* |
| *OWMS2 | 0.58990 | 699.81* | 609.72* | 513.34* |
| *OWMS2 | 0.47442 | 431.63* | 466.43* | 495.72* |
| *OWMS2 | 0.38608 | 392.34* | 421.67* | 437.98* |
| *OWMS2 | 0.30622 | 508.16* | 450.25* | 445.99* |
| *OWMS2 | 0.22095 | 351.39* | 218.99* | 165.52* |
| *OWMS2 | 0.17947 | 335.13* | 226.23* | 196.3* |
| *OWMS2 | 0.13663 | 453.45* | 451.03* | 471.21* |
| *OWMS2 | 0.05120 | 217.95* | 226.15* | 246.9* |
| *OWMS2 | 0.00837 | 0* | 0* | 0* |

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Ocotillo Wash 1

| Reach | River Sta. | Contr. | Expan. |
|---|---|---|---|
| Tributary-2.1 | 1.00045 | .1 | .3 |
| Tributary-2.1 | 0.99742 | .1 | .3 |
| Tributary-2.1 | 0.99357 | .1 | .3 |
| Tributary-2.1 | 0.98932 | .1 | .3 |
| Tributary-2.1 | 0.98427 | .1 | .3 |
| Tributary-2.1 | 0.97998 | .1 | .3 |
| Tributary-2.1 | 0.97683 | .1 | .3 |
| Tributary-2.1 | 0.97180 | .1 | .3 |
| Tributary-2.1 | 0.96791 | .1 | .3 |
| Tributary-2.1 | 0.96505 | .1 | .3 |
| Tributary-2.1 | 0.96148 | .1 | .3 |
| Tributary-2.1 | 0.95750 | .1 | .3 |
| Tributary-2.1 | 0.95264 | .1 | .3 |
| Tributary-2.1 | 0.94727 | .1 | .3 |
| Tributary-2.1 | 0.94451 | .1 | .3 |
| Tributary-2.1 | 0.94232 | .1 | .3 |
| Tributary-2.1 | 0.93999 | .1 | .3 |
| Tributary-2.1 | 0.93325 | .1 | .3 |
| Tributary-2.1 | 0.92910 | .1 | .3 |
| Tributary-2.1 | 0.92475 | .1 | .3 |
| Tributary-2.1 | 0.91774 | .1 | .3 |
| Tributary-2.1 | 0.91024 | .1 | .3 |
| Tributary-2.1 | 0.90213 | .1 | .3 |
| Tributary-2.1 | 0.89706 | .1 | .3 |
| Tributary-2.1 | 0.89309 | .1 | .3 |
| Tributary-2.1 | 0.88715 | .1 | .3 |
| Tributary-2.1 | 0.88288 | .1 | .3 |
| Tributary-2.1 | 0.87849 | .1 | .3 |
| Tributary-2.1 | 0.87485 | .1 | .3 |
| Tributary-2.1 | 0.87052 | .1 | .3 |
| Tributary-2.1 | 0.86746 | .1 | .3 |
| Tributary-2.1 | 0.85876 | .1 | .3 |
| Tributary-2.1 | 0.85249 | .1 | .3 |
| Tributary-2.1 | 0.84649 | .1 | .3 |
| Tributary-2.1 | 0.83957 | .1 | .3 |
| Tributary-2.1 | 0.83091 | .1 | .3 |
| Tributary-2.1 | 0.82372 | .1 | .3 |
| Tributary-2.1 | 0.81567 | .1 | .3 |
| Tributary-2.1 | 0.80861 | .1 | .3 |
| Tributary-2.1 | 0.80224 | .1 | .3 |
| Tributary-2.1 | 0.79662 | .1 | .3 |
| Tributary-2.1 | 0.79392 | Culvert | |
| Tributary-2.1 | 0.79116 | .1 | .3 |
| Tributary-2.1 | 0.78443 | .1 | .3 |
| Tributary-2.1 | 0.77855 | .1 | .3 |
| Tributary-2.1 | 0.77184 | .1 | .3 |
| Tributary-2.1 | 0.76182 | .1 | .3 |
| Tributary-2.1 | 0.75751 | .1 | .3 |
| Tributary-2.1 | 0.75270 | .1 | .3 |
| Tributary-2.1 | 0.74863 | .1 | .3 |
| Tributary-2.1 | 0.74402 | .1 | .3 |
| Tributary-2.1 | 0.73982 | .1 | .3 |
| Tributary-2.1 | 0.73537 | .1 | .3 |
| Tributary-2.1 | 0.73227 | .1 | .3 |
| Tributary-2.1 | 0.72875 | .1 | .3 |
| Tributary-2.1 | 0.72704 | .1 | .3 |
| Tributary-2.1 | 0.72322 | .1 | .3 |
| Tributary-2.1 | 0.71808 | .1 | .3 |
| Tributary-2.1 | 0.71174 | .1 | .3 |
| Tributary-2.1 | 0.70813 | .1 | .3 |
| Tributary-2.1 | 0.70419 | .1 | .3 |
| Tributary-2.1 | 0.70129 | .1 | .3 |
| Tributary-2.1 | 0.69806 | .1 | .3 |
| Tributary-2.1 | 0.69661 | .1 | .3 |
| Tributary-2.1 | 0.69212 | .1 | .3 |
| Tributary-2.1 | 0.68880 | .1 | .3 |
| Tributary-2.1 | 0.68800 | .1 | .3 |
| Tributary-2.1 | 0.68404 | .1 | .3 |
| Tributary-2.1 | 0.67717 | .1 | .3 |
| Tributary-2.1 | 0.67671 | .1 | .3 |
| Tributary-2.1 | 0.66963 | .1 | .3 |
| Tributary-2.1 | 0.66458 | .1 | .3 |
| Tributary-2.1 | 0.66013 | .1 | .3 |
| Tributary-2.1 | 0.65574 | .1 | .3 |
| Tributary-2.1 | 0.65150 | .1 | .3 |
| Tributary-2.1 | 0.64754 | .1 | .3 |
| Tributary-2.1 | 0.64472 | .1 | .3 |
| Tributary-2.1 | 0.64111 | .1 | .3 |
| Tributary-2.1 | 0.63638 | .1 | .3 |
| Tributary-2.1 | 0.63432 | .1 | .3 |
| Tributary-2.1 | 0.63270 | .1 | .3 |
| Tributary-2.1 | 0.62989 | .1 | .3 |
| Tributary-2.1 | 0.62721 | .1 | .3 |
| Tributary-2.1 | 0.62332 | .1 | .3 |
| Tributary-2.1 | 0.61834 | .1 | .3 |
| Tributary-2.1 | 0.61323 | .1 | .3 |
| Tributary-2.1 | 0.60912 | .1 | .3 |
| Tributary-2.1 | 0.60419 | .1 | .3 |
| Tributary-2.1 | 0.59771 | .1 | .3 |
| Tributary-2.1 | 0.59247 | .1 | .3 |
| Tributary-2.1 | 0.58805 | .1 | .3 |
| Tributary-2.1 | 0.58365 | .1 | .3 |
| Tributary-2.1 | 0.57998 | .1 | .3 |
| Tributary-2.1 | 0.57606 | .1 | .3 |
| Tributary-2.1 | 0.57206 | .1 | .3 |
| Tributary-2.1 | 0.56705 | .1 | .3 |
| Tributary-2.1 | 0.56110 | .1 | .3 |
| Tributary-2.1 | 0.55629 | .1 | .3 |
| Tributary-2.1 | 0.55157 | .1 | .3 |
| Tributary-2.1 | 0.54526 | .1 | .3 |
| Tributary-2.1 | 0.53814 | .1 | .3 |
| Tributary-2.1 | 0.53109 | .1 | .3 |
| Tributary-2.1 | 0.52363 | .1 | .3 |

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*Tributary-2.1   *    0.51582 *       .1*       .3*
*Tributary-2.1   *    0.50951 *       .1*       .3*
*Tributary-2.1   *    0.50585 *       .1*       .3*
*Tributary-2.1   *    0.50158 *       .1*       .3*
*Tributary-2.1   *    0.49706 *       .1*       .3*
*Tributary-2.1   *    0.49372 *       .1*       .3*
*Tributary-2.1   *    0.48992 *       .1*       .3*
*Tributary-2.1   *    0.48713 *       .1*       .3*
*Tributary-2.1   *    0.48294 *       .1*       .3*
*Tributary-2.1   *    0.47933 *       .1*       .3*
*Tributary-2.1   *    0.47659 *       .1*       .3*
*Tributary-2.1   *    0.47214 *       .1*       .3*
*Tributary-2.1   *    0.46798 *       .1*       .3*
*Tributary-2.1   *    0.46248 *       .1*       .3*
*Tributary-2.1   *    0.45679 *       .1*       .3*
*Tributary-2.1   *    0.45211 *       .1*       .3*
*Tributary-2.1   *    0.44542 *       .1*       .3*
*Tributary-2.1   *    0.44157 *       .1*       .3*
*Tributary-2.1   *    0.43466 *       .1*       .3*
*Tributary-2.1   *    0.42887 *       .1*       .3*
*Tributary-2.1   *    0.42419 *       .1*       .3*
*Tributary-2.1   *    0.42020 *       .1*       .3*
*Tributary-2.1   *    0.41686 *       .1*       .3*
*Tributary-2.1   *    0.41149 *       .1*       .3*
*Tributary-2.1   *    0.40709 *       .1*       .3*
*Tributary-2.1   *    0.40093 *       .1*       .3*
*Tributary-2.1   *    0.39446 *       .1*       .3*
*Tributary-2.1   *    0.38991 *       .1*       .3*
*Tributary-2.1   *    0.38436 *       .1*       .3*
*Tributary-2.1   *    0.37788 *       .1*       .3*
*Tributary-2.1   *    0.37417 *       .1*       .3*
*Tributary-2.1   *    0.36875 *       .1*       .3*
*Tributary-2.1   *    0.36595 *Culvert  *         *
*Tributary-2.1   *    0.36365 *       .1*       .3*
*Tributary-2.1   *    0.35963 *       .1*       .3*
*Tributary-2.1   *    0.35631 *       .1*       .3*
*Tributary-2.1   *    0.35325 *       .1*       .3*
*Tributary-2.1   *    0.34893 *       .1*       .3*
*Tributary-2.1   *    0.34588 *       .1*       .3*
*Tributary-2.1   *    0.34303 *       .1*       .3*
*Tributary-2.1   *    0.33986 *       .1*       .3*
*Tributary-2.1   *    0.33232 *       .1*       .3*
*Tributary-2.1   *    0.31529 *       .1*       .3*
*Tributary-2.1   *    0.30808 *       .1*       .3*
*Tributary-2.1   *    0.30459 *       .1*       .3*
*Tributary-2.1   *    0.30181 *       .1*       .3*
*Tributary-2.1   *    0.29712 *       .1*       .3*
*Tributary-2.1   *    0.29046 *       .1*       .3*
*Tributary-2.1   *    0.28463 *       .1*       .3*
*Tributary-2.1   *    0.28060 *       .1*       .3*
*Tributary-2.1   *    0.27669 *       .1*       .3*
*Tributary-2.1   *    0.27186 *       .1*       .3*
*Tributary-2.1   *    0.26729 *       .1*       .3*
*Tributary-2.1   *    0.26340 *       .1*       .3*
*Tributary-2.1   *    0.25894 *       .1*       .3*
*Tributary-2.1   *    0.25330 *       .1*       .3*
*Tributary-2.1   *    0.25016 *       .1*       .3*
*Tributary-2.1   *    0.24595 *       .1*       .3*
*Tributary-2.1   *    0.24329 *       .1*       .3*
*Tributary-2.1   *    0.23992 *       .1*       .3*
*Tributary-2.1   *    0.23186 *       .1*       .3*
*Tributary-2.1   *    0.22859 *       .1*       .3*
*Tributary-2.1   *    0.22114 *       .1*       .3*
*Tributary-2.1   *    0.21765 *       .1*       .3*
*Tributary-2.1   *    0.21461 *       .1*       .3*
*Tributary-2.1   *    0.20941 *       .1*       .3*
*Tributary-2.1   *    0.20885 *       .1*       .3*
*Tributary-2.1   *    0.20714 *       .1*       .3*
*Tributary-2.1   *    0.20431 *       .1*       .3*
*Tributary-2.1   *    0.20205 *       .1*       .3*
*Tributary-2.1   *    0.19955 *       .1*       .3*
*Tributary-2.1   *    0.19719 *       .1*       .3*
*Tributary-2.1   *    0.19296 *       .1*       .3*
*Tributary-2.1   *    0.19051 *       .1*       .3*
*Tributary-2.1   *    0.18844 *       .1*       .3*
*Tributary-2.1   *    0.18485 *       .1*       .3*
*Tributary-2.1   *    0.17337 *       .1*       .3*
*Tributary-2.1   *    0.16793 *       .1*       .3*
*Tributary-2.1   *    0.16413 *       .1*       .3*
*Tributary-2.1   *    0.15690 *       .1*       .3*
*Tributary-2.1   *    0.15225 *       .1*       .3*
*Tributary-2.1   *    0.14532 *       .1*       .3*
*Tributary-2.1   *    0.14374 *       .1*       .3*
*Tributary-2.1   *    0.14161 *Culvert  *         *
*Tributary-2.1   *    0.13875 *       .1*       .3*
*Tributary-2.1   *    0.13724 *       .1*       .3*
*Tributary-2.1   *    0.13462 *       .1*       .3*
*Tributary-2.1   *    0.12733 *       .1*       .3*
*Tributary-2.1   *    0.11883 *       .1*       .3*
*Tributary-2.1   *    0.11472 *       .1*       .3*
*Tributary-2.1   *    0.10962 *       .1*       .3*
*Tributary-2.1   *    0.10284 *       .1*       .3*
*Tributary-2.1   *    0.09693 *       .1*       .3*
*Tributary-2.1   *    0.09077 *       .1*       .3*
*Tributary-2.1   *    0.08036 *       .1*       .3*
*Tributary-2.1   *    0.07210 *       .1*       .3*
*Tributary-2.1   *    0.06454 *       .1*       .3*
*Tributary-2.1   *    0.05817 *       .1*       .3*
*Tributary-2.1   *    0.04814 *       .1*       .3*
*Tributary-2.1   *    0.03638 *       .1*       .3*
*Tributary-2.1   *    0.02605 *       .1*       .3*
*******************************************************
River: Ocotillo Wash 2

*******************************************************
*     Reach       *   River Sta.   * Contr.  * Expan.  *
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*******************************************************
*OW Split          *    0.07677 *       .1*       .3*
*OW Split          *    0.04992 *       .1*       .3*
*******************************************************
River: Ocotillo Wash 3

*******************************************************
*     Reach        *   River Sta.   * Contr.  * Expan.  *
*******************************************************
*Tributary-2.2     *    0.15352 *       .1*       .3*
*Tributary-2.2     *    0.10059 *       .1*       .3*
*Tributary-2.2     *    0.04049 *       .1*       .3*
*Tributary-2.2     *    0.03237 *       .1*       .3*
*Tributary-2.2     *    0.02833 *       .1*       .3*
*Tributary-2.2     *    0.02823 *       .1*       .3*
*******************************************************
River: Ocotillo Wash 4

*******************************************************
*     Reach        *   River Sta.   * Contr.  * Expan.  *
*******************************************************
*OWMS1              *    0.07616 *       .1*       .3*
*OWMS1              *    0.07615 *Lat Struct*         *
*OWMS1              *    0.04601 *       .1*       .3*
*OWMS1              *    0.04599 *Lat Struct*         *
*OWMS1              *    0.03788 *       .1*       .3*
*OWMS1              *    0.03786 *Lat Struct*         *
*OWMS1              *    0.02091 *       .1*       .3*
*******************************************************
River: Ocotillo Wash 5

*******************************************************
*     Reach        *   River Sta.   * Contr.  * Expan.  *
*******************************************************
*OWMS2              *    1.89254 *       .1*       .3*
*OWMS2              *    1.89136 *       .1*       .3*
*OWMS2              *    1.88981 *       .1*       .3*
*OWMS2              *    1.88667 *Inl Struct*         *
*OWMS2              *    1.88352 *       .1*       .3*
*OWMS2              *    1.78861 *       .1*       .3*
*OWMS2              *    1.71509 *       .1*       .3*
*OWMS2              *    1.64008 *       .1*       .3*
*OWMS2              *    1.63731 *Inl Struct*         *
*OWMS2              *    1.63454 *       .1*       .3*
*OWMS2              *    1.63183 *       .1*       .3*
*OWMS2              *    1.54838 *       .1*       .3*
*OWMS2              *    1.47363 *       .1*       .3*
*OWMS2              *    1.41048 *       .1*       .3*
*OWMS2              *    1.32199 *       .1*       .3*
*OWMS2              *    1.20785 *       .1*       .3*
*OWMS2              *    1.14203 *       .1*       .3*
*OWMS2              *    1.06470 *       .1*       .3*
*OWMS2              *    0.97907 *       .1*       .3*
*OWMS2              *    0.91184 *       .1*       .3*
*OWMS2              *    0.90917 *Inl Struct*         *
*OWMS2              *    0.90641 *       .1*       .3*
*OWMS2              *    0.87183 *       .1*       .3*
*OWMS2              *    0.81091 *       .1*       .3*
*OWMS2              *    0.76067 *       .1*       .3*
*OWMS2              *    0.72626 *       .1*       .3*
*OWMS2              *    0.64580 *       .1*       .3*
*OWMS2              *    0.58990 *       .1*       .3*
*OWMS2              *    0.47442 *       .1*       .3*
*OWMS2              *    0.38608 *       .1*       .3*
*OWMS2              *    0.30622 *       .1*       .3*
*OWMS2              *    0.22095 *       .1*       .3*
*OWMS2              *    0.17947 *       .1*       .3*
*OWMS2              *    0.13663 *       .1*       .3*
*OWMS2              *    0.05120 *       .1*       .3*
*OWMS2              *    0.00837 *       .1*       .3*
*******************************************************

Profile Output Table - Standard Table 1
*******************************************************************************************************************************
*******************************************************
* River          * Reach          * River Sta              * Profile *    Q Total * Min Ch El * W.S. Elev * Crit W.S. * E.G. Elev * E.G.
Slope * Vel Chnl * Flow Area * Top Width * Froude # Chl *
*                *                *                        *         *      (cfs) *      (ft) *      (ft) *      (ft) *      (ft) *
(ft/ft) *   (ft/s) *   (sq ft) *      (ft) *                *
*******************************************************************************************************************************
*******************************************************
* Ocotillo Wash 5 * OWMS2          * 1.89254                * PF 1    *    4820.00 *   2222.97 *   2227.17 *   2227.17 *   2228.22 *
0.024318 *     8.27 *    590.39 *    285.35 *         0.99 *
* Ocotillo Wash 5 * OWMS2          * 1.89254                * PF 2    *    4820.00 *   2222.97 *   2227.17 *   2227.17 *   2228.22 *
0.024318 *     8.27 *    590.39 *    285.35 *         0.99 *
*                *                *                        *         *            *           *           *           *           *
*                *                *                        *
* Ocotillo Wash 5 * OWMS2          * 1.89136                * PF 1    *    4820.00 *   2222.90 *   2226.28 *           *   2226.67 *
0.009388 *     5.02 *    961.63 *    443.13 *         0.60 *
* Ocotillo Wash 5 * OWMS2          * 1.89136                * PF 2    *    4820.00 *   2222.90 *   2226.28 *           *   2226.67 *
0.009388 *     5.02 *    961.63 *    443.13 *         0.60 *
*                *                *                        *         *            *           *           *           *           *
*                *                *                        *
* Ocotillo Wash 5 * OWMS2          * 1.88981                * PF 1    *    4820.00 *   2222.91 *   2226.31 *   2225.29 *   2226.58 *
0.005307 *     4.14 *   1166.14 *    482.93 *         0.47 *
* Ocotillo Wash 5 * OWMS2          * 1.88981                * PF 2    *    4820.00 *   2222.91 *   2226.31 *   2225.29 *   2226.58 *
0.005307 *     4.14 *   1166.14 *    482.93 *         0.47 *
*                *                *                        *         *            *           *           *           *           *
*                *                *                        *
* Ocotillo Wash 5 * OWMS2          * 1.88667  Lone Mountain Rd *      * Inl Struct *           *           *           *           *
*                *                *                        *         *            *           *           *           *           *
*                *                *                        *
* Ocotillo Wash 5 * OWMS2          * 1.88352                * PF 1    *    4820.00 *   2223.02 *   2225.99 *   2225.25 *   2226.35 *
0.007788 *     4.81 *   1009.17 *    469.39 *         0.56 *
* Ocotillo Wash 5 * OWMS2          * 1.88352                * PF 2    *    4820.00 *   2223.02 *   2225.99 *   2225.25 *   2226.35 *
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0.007788 *      4.81 *   1009.17 *     469.39 *            0.56 *
*                  *                *                            *             *             *             *             *             *             *
     *          *          *          *               *
* Ocotillo Wash 5 * OWMS2        * 1.78861                    * PF 1    *     4820.00 *   2212.08 *   2218.88 *   2218.73 *   2220.16 *
0.021880 *      9.12 *    532.86 *     188.06 *            0.94 *
* Ocotillo Wash 5 * OWMS2        * 1.78861                    * PF 2    *     4820.00 *   2212.08 *   2218.88 *   2218.73 *   2220.16 *
0.021880 *      9.12 *    532.86 *     188.06 *            0.94 *
*                  *                *                            *             *             *             *             *             *             *
     *          *          *          *               *
* Ocotillo Wash 5 * OWMS2        * 1.71509                    * PF 1    *     4820.00 *   2206.15 *   2210.83 *   2210.83 *   2212.31 *
0.018654 *      9.79 *    494.98 *     175.01 *            1.00 *
* Ocotillo Wash 5 * OWMS2        * 1.71509                    * PF 2    *     4820.00 *   2206.15 *   2210.83 *   2210.83 *   2212.31 *
0.018654 *      9.79 *    494.98 *     175.01 *            1.00 *
*                  *                *                            *             *             *             *             *             *             *
     *          *          *          *               *
* Ocotillo Wash 5 * OWMS2        * 1.64008                    * PF 1    *     4820.00 *   2200.22 *   2204.85 *   2203.84 *   2205.34 *
0.006394 *      5.65 *    860.40 *     306.22 *            0.58 *
* Ocotillo Wash 5 * OWMS2        * 1.64008                    * PF 2    *     4820.00 *   2200.22 *   2204.85 *   2203.84 *   2205.34 *
0.006394 *      5.65 *    860.40 *     306.22 *            0.58 *
*                  *                *                            *             *             *             *             *             *             *
     *          *          *          *               *
* Ocotillo Wash 5 * OWMS2        * 1.63731  School House Rd  *         * Inl Struct *             *             *             *             *
     *          *          *          *               *
*                  *                *                            *             *             *             *             *             *             *
     *          *          *          *               *
* Ocotillo Wash 5 * OWMS2        * 1.63454                    * PF 1    *     4820.00 *   2199.77 *   2203.39 *   2203.39 *   2204.60 *
0.018698 *      8.94 *    561.69 *     251.18 *            0.95 *
* Ocotillo Wash 5 * OWMS2        * 1.63454                    * PF 2    *     4820.00 *   2199.77 *   2203.39 *   2203.39 *   2204.60 *
0.018698 *      8.94 *    561.69 *     251.18 *            0.95 *
*                  *                *                            *             *             *             *             *             *             *
     *          *          *          *               *
* Ocotillo Wash 5 * OWMS2        * 1.63183                    * PF 1    *     4820.00 *   2199.09 *   2203.26 *   2203.26 *   2204.24 *
0.019359 *      7.95 *    608.56 *     324.54 *            1.00 *
* Ocotillo Wash 5 * OWMS2        * 1.63183                    * PF 2    *     4820.00 *   2199.09 *   2203.26 *   2203.26 *   2204.24 *
0.019359 *      7.95 *    608.56 *     324.54 *            1.00 *
*                  *                *                            *             *             *             *             *             *             *
     *          *          *          *               *
* Ocotillo Wash 5 * OWMS2        * 1.54838                    * PF 1    *     4820.00 *   2188.14 *   2193.48 *   2193.48 *   2193.91 *
0.010435 *      5.26 *    917.07 *     425.19 *            0.63 *
* Ocotillo Wash 5 * OWMS2        * 1.54838                    * PF 2    *     4820.00 *   2188.14 *   2193.48 *   2193.48 *   2193.91 *
0.010435 *      5.26 *    917.07 *     425.19 *            0.63 *
*                  *                *                            *             *             *             *             *             *             *
     *          *          *          *               *
* Ocotillo Wash 5 * OWMS2        * 1.47363                    * PF 1    *     4820.00 *   2179.92 *   2185.04 *   2184.67 *   2185.69 *
0.021610 *      6.50 *    741.08 *     341.26 *            0.78 *
* Ocotillo Wash 5 * OWMS2        * 1.47363                    * PF 2    *     4820.00 *   2179.92 *   2185.04 *   2184.67 *   2185.69 *
0.021610 *      6.50 *    741.08 *     341.26 *            0.78 *
*                  *                *                            *             *             *             *             *             *             *
     *          *          *          *               *
* Ocotillo Wash 5 * OWMS2        * 1.41048                    * PF 1    *     4820.00 *   2172.42 *   2177.63 *   2177.25 *   2178.37 *
0.022291 *      6.89 *    700.02 *     300.22 *            0.79 *
* Ocotillo Wash 5 * OWMS2        * 1.41048                    * PF 2    *     4820.00 *   2172.42 *   2177.63 *   2177.25 *   2178.37 *
0.022291 *      6.89 *    700.02 *     300.22 *            0.79 *
*                  *                *                            *             *             *             *             *             *             *
     *          *          *          *               *
* Ocotillo Wash 5 * OWMS2        * 1.32199                    * PF 1    *     5020.00 *   2160.48 *   2166.74 *   2166.57 *   2167.51 *
0.024228 *      7.02 *    714.87 *     386.52 *            0.91 *
* Ocotillo Wash 5 * OWMS2        * 1.32199                    * PF 2    *     5020.00 *   2160.48 *   2166.74 *   2166.57 *   2167.51 *
0.024228 *      7.02 *    714.87 *     386.52 *            0.91 *
*                  *                *                            *             *             *             *             *             *             *
     *          *          *          *               *
* Ocotillo Wash 5 * OWMS2        * 1.20785                    * PF 1    *     5020.00 *   2151.10 *   2154.76 *   2154.55 *   2155.49 *
0.016693 *      6.87 *    732.74 *     386.40 *            0.86 *
* Ocotillo Wash 5 * OWMS2        * 1.20785                    * PF 2    *     5020.00 *   2151.10 *   2154.76 *   2154.55 *   2155.49 *
0.016693 *      6.87 *    732.74 *     386.40 *            0.86 *
*                  *                *                            *             *             *             *             *             *             *
     *          *          *          *               *
* Ocotillo Wash 5 * OWMS2        * 1.14203                    * PF 1    *     5020.00 *   2143.89 *   2148.25 *   2148.25 *   2149.27 *
0.019079 *      8.09 *    621.13 *     309.07 *            1.00 *
* Ocotillo Wash 5 * OWMS2        * 1.14203                    * PF 2    *     5020.00 *   2143.89 *   2148.25 *   2148.25 *   2149.27 *
0.019079 *      8.09 *    621.13 *     309.07 *            1.00 *
*                  *                *                            *             *             *             *             *             *             *
     *          *          *          *               *
* Ocotillo Wash 5 * OWMS2        * 1.06470                    * PF 1    *     5020.00 *   2135.53 *   2139.83 *   2139.45 *   2140.30 *
0.015986 *      5.49 *    914.90 *     490.83 *            0.71 *
* Ocotillo Wash 5 * OWMS2        * 1.06470                    * PF 2    *     5020.00 *   2135.53 *   2139.83 *   2139.45 *   2140.30 *
0.015986 *      5.49 *    914.90 *     490.83 *            0.71 *
*                  *                *                            *             *             *             *             *             *             *
     *          *          *          *               *
* Ocotillo Wash 5 * OWMS2        * 0.97907                    * PF 1    *     5220.00 *   2126.32 *   2129.92 *   2129.92 *   2130.73 *
0.028638 *      7.24 *    721.09 *     445.77 *            1.00 *
* Ocotillo Wash 5 * OWMS2        * 0.97907                    * PF 2    *     5220.00 *   2126.32 *   2129.92 *   2129.92 *   2130.73 *
0.028638 *      7.24 *    721.09 *     445.77 *            1.00 *
*                  *                *                            *             *             *             *             *             *             *
     *          *          *          *               *
* Ocotillo Wash 5 * OWMS2        * 0.91184                    * PF 1    *     5220.00 *   2119.74 *   2124.10 *   2123.23 *   2124.68 *
0.006472 *      6.11 *    858.62 *     297.47 *            0.62 *
* Ocotillo Wash 5 * OWMS2        * 0.91184                    * PF 2    *     5220.00 *   2119.74 *   2124.10 *   2123.23 *   2124.68 *
0.006472 *      6.11 *    858.62 *     297.47 *            0.62 *
*                  *                *                            *             *             *             *             *             *             *
     *          *          *          *               *
* Ocotillo Wash 5 * OWMS2        * 0.90917  Spur Cross Rd    *         * Inl Struct *             *             *             *             *
     *          *          *          *               *
*                  *                *                            *             *             *             *             *             *             *
     *          *          *          *               *
* Ocotillo Wash 5 * OWMS2        * 0.90641                    * PF 1    *     5220.00 *   2118.54 *   2122.30 *   2122.30 *   2123.44 *
0.017039 *      8.57 *    609.56 *     273.32 *            1.00 *
* Ocotillo Wash 5 * OWMS2        * 0.90641                    * PF 2    *     5220.00 *   2118.54 *   2122.30 *   2122.30 *   2123.44 *
0.017039 *      8.57 *    609.56 *     273.32 *            1.00 *
*                  *                *                            *             *             *             *             *             *             *
     *          *          *          *               *
* Ocotillo Wash 5 * OWMS2        * 0.87183                    * PF 1    *     5220.00 *   2112.84 *   2118.20 *   2117.78 *   2119.44 *
0.010748 *      8.95 *    593.65 *     179.59 *            0.82 *
* Ocotillo Wash 5 * OWMS2        * 0.87183                    * PF 2    *     5220.00 *   2112.84 *   2118.20 *   2117.78 *   2119.44 *
0.010748 *      8.95 *    593.65 *     179.59 *            0.82 *
*                  *                *                            *             *             *             *             *             *             *
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* Ocotillo Wash 5 * OWMS2 * 0.81091 * PF 1 * 5220.00 * 2107.54 * 2112.61 * 2112.61 * 2113.80 *
0.033229 * 8.76 * 596.77 * 254.21 * 1.00 *
* Ocotillo Wash 5 * OWMS2 * 0.81091 * PF 2 * 5220.00 * 2107.54 * 2112.61 * 2112.61 * 2113.80 *
0.033229 * 8.76 * 596.77 * 254.21 * 1.00 *
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* Ocotillo Wash 5 * OWMS2 * 0.76067 * PF 1 * 5220.00 * 2101.43 * 2108.92 * 2107.59 * 2109.61 *
0.007911 * 6.65 * 785.20 * 188.16 * 0.57 *
* Ocotillo Wash 5 * OWMS2 * 0.76067 * PF 2 * 5220.00 * 2101.43 * 2108.92 * 2107.59 * 2109.61 *
0.007911 * 6.65 * 785.20 * 188.16 * 0.57 *
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* Ocotillo Wash 5 * OWMS2 * 0.72626 * PF 1 * 5220.00 * 2099.32 * 2106.39 * * 2107.70 *
0.013496 * 9.22 * 569.99 * 128.88 * 0.76 *
* Ocotillo Wash 5 * OWMS2 * 0.72626 * PF 2 * 5220.00 * 2099.32 * 2106.39 * * 2107.70 *
0.013496 * 9.22 * 569.99 * 128.88 * 0.76 *
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* Ocotillo Wash 5 * OWMS2 * 0.64580 * PF 1 * 5220.00 * 2091.66 * 2098.80 * 2098.30 * 2100.31 *
0.023267 * 9.87 * 535.34 * 131.86 * 0.83 *
* Ocotillo Wash 5 * OWMS2 * 0.64580 * PF 2 * 5220.00 * 2091.66 * 2098.80 * 2098.30 * 2100.31 *
0.023267 * 9.87 * 535.34 * 131.86 * 0.83 *
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* Ocotillo Wash 5 * OWMS2 * 0.58990 * PF 1 * 5220.00 * 2086.09 * 2094.35 * 2093.09 * 2095.22 *
0.012405 * 7.48 * 700.24 * 164.50 * 0.63 *
* Ocotillo Wash 5 * OWMS2 * 0.58990 * PF 2 * 5220.00 * 2086.09 * 2094.35 * 2093.09 * 2095.22 *
0.012405 * 7.48 * 700.24 * 164.50 * 0.63 *
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* Ocotillo Wash 5 * OWMS2 * 0.47442 * PF 1 * 5420.00 * 2075.68 * 2084.60 * * 2086.42 *
0.016497 * 10.82 * 501.61 * 93.70 * 0.82 *
* Ocotillo Wash 5 * OWMS2 * 0.47442 * PF 2 * 5420.00 * 2075.68 * 2084.60 * * 2086.42 *
0.016497 * 10.82 * 501.61 * 93.70 * 0.82 *
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* Ocotillo Wash 5 * OWMS2 * 0.38608 * PF 1 * 5420.00 * 2067.44 * 2075.24 * 2075.24 * 2077.49 *
0.022249 * 12.04 * 450.09 * 100.82 * 1.00 *
* Ocotillo Wash 5 * OWMS2 * 0.38608 * PF 2 * 5420.00 * 2067.44 * 2075.24 * 2075.24 * 2077.49 *
0.022249 * 12.04 * 450.09 * 100.82 * 1.00 *
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* Ocotillo Wash 5 * OWMS2 * 0.30622 * PF 1 * 5420.00 * 2061.22 * 2066.95 * 2066.95 * 2068.23 *
0.017607 * 9.07 * 598.34 * 216.42 * 0.94 *
* Ocotillo Wash 5 * OWMS2 * 0.30622 * PF 2 * 5420.00 * 2061.22 * 2066.95 * 2066.95 * 2068.23 *
0.017607 * 9.07 * 598.34 * 216.42 * 0.94 *
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* Ocotillo Wash 5 * OWMS2 * 0.22095 * PF 1 * 5420.00 * 2051.48 * 2057.41 * * 2057.92 *
0.007209 * 5.76 * 942.24 * 300.11 * 0.57 *
* Ocotillo Wash 5 * OWMS2 * 0.22095 * PF 2 * 5420.00 * 2051.48 * 2057.41 * * 2057.92 *
0.007209 * 5.76 * 942.24 * 300.11 * 0.57 *
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* Ocotillo Wash 5 * OWMS2 * 0.17947 * PF 1 * 5420.00 * 2047.88 * 2053.39 * 2053.39 * 2055.42 *
0.017728 * 11.43 * 475.78 * 120.70 * 0.99 *
* Ocotillo Wash 5 * OWMS2 * 0.17947 * PF 2 * 5420.00 * 2047.88 * 2053.39 * 2053.39 * 2055.42 *
0.017728 * 11.43 * 475.78 * 120.70 * 0.99 *
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* Ocotillo Wash 5 * OWMS2 * 0.13663 * PF 1 * 5420.00 * 2040.92 * 2048.57 * 2048.57 * 2050.97 *
0.019212 * 12.48 * 441.42 * 98.25 * 0.97 *
* Ocotillo Wash 5 * OWMS2 * 0.13663 * PF 2 * 5420.00 * 2040.92 * 2048.57 * 2048.57 * 2050.97 *
0.019203 * 12.48 * 441.49 * 98.26 * 0.97 *
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* Ocotillo Wash 5 * OWMS2 * 0.05120 * PF 1 * 5420.00 * 2033.26 * 2041.44 * * 2042.53 *
0.006387 * 8.44 * 668.90 * 141.30 * 0.62 *
* Ocotillo Wash 5 * OWMS2 * 0.05120 * PF 2 * 5420.00 * 2033.26 * 2041.44 * * 2042.53 *
0.006387 * 8.44 * 668.90 * 141.30 * 0.62 *
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* Ocotillo Wash 5 * OWMS2 * 0.00837 * PF 1 * 5420.00 * 2028.91 * 2039.00 * 2037.86 * 2040.23 *
0.018336 * 8.91 * 608.31 * 137.65 * 0.75 *
* Ocotillo Wash 5 * OWMS2 * 0.00837 * PF 2 * 5420.00 * 2028.91 * 2039.00 * 2037.86 * 2040.23 *
0.018336 * 8.91 * 608.31 * 137.65 * 0.75 *
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* Ocotillo Wash 4 * OWMS1 * 0.07616 * PF 1 * 4409.00 * 2234.08 * 2237.53 * 2237.53 * 2238.74 *
0.030436 * 8.82 * 502.01 * 212.81 * 1.00 *
* Ocotillo Wash 4 * OWMS1 * 0.07616 * PF 2 * 4409.00 * 2234.08 * 2237.53 * 2237.53 * 2238.74 *
0.030436 * 8.82 * 502.01 * 212.81 * 1.00 *
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* Ocotillo Wash 4 * OWMS1 * 0.07615 A * * Lat Struct * * * * *
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* Ocotillo Wash 4 * OWMS1 * 0.04601 * PF 1 * 4409.00 * 2229.77 * 2233.80 * * 2234.65 *
0.020927 * 7.44 * 595.14 * 246.21 * 0.84 *
* Ocotillo Wash 4 * OWMS1 * 0.04601 * PF 2 * 4409.00 * 2229.77 * 2233.80 * * 2234.65 *
0.020927 * 7.44 * 595.14 * 246.21 * 0.84 *
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* Ocotillo Wash 4 * OWMS1 * 0.04599 B * * Lat Struct * * * * *
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* Ocotillo Wash 4 * OWMS1 * 0.03788 * PF 1 * 4409.00 * 2229.24 * 2233.00 * * 2233.83 *
0.017342 * 7.31 * 605.83 * 223.69 * 0.78 *
* Ocotillo Wash 4 * OWMS1 * 0.03788 * PF 2 * 4409.00 * 2229.24 * 2233.00 * * 2233.83 *
0.017342 * 7.31 * 605.83 * 223.69 * 0.78 *
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* Ocotillo Wash 4 * OWMS1 * 0.03786 C * * Lat Struct * * * * *
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* Ocotillo Wash 4 * OWMS1 * 0.02091 * PF 1 * 4409.00 * 2227.17 * 2230.63 * 2230.63 * 2231.78 *
0.030316 * 8.63 * 510.93 * 225.24 * 1.01 *
* Ocotillo Wash 4 * OWMS1 * 0.02091 * PF 2 * 4409.00 * 2227.17 * 2230.63 * 2230.63 * 2231.78 *
0.030316 * 8.63 * 510.93 * 225.24 * 1.01 *
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* Ocotillo Wash 3 * Tributary-2.2 * 0.15352 * PF 1 * 482.00 * 2242.27 * 2244.11 * 2244.09 * 2244.37 *
0.028023 * 4.10 * 117.49 * 199.60 * 0.94 *
* Ocotillo Wash 3 * Tributary-2.2 * 0.15352 * PF 2 * 482.00 * 2242.27 * 2244.11 * 2244.09 * 2244.37 *
0.028023 * 4.10 * 117.49 * 199.60 * 0.94 *
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* Ocotillo Wash 3 * Tributary-2.2 * 0.10059 * PF 1 * 482.00 * 2234.24 * 2236.49 * 2236.31 * 2236.96 *
0.025042 * 5.47 * 88.06 * 66.43 * 0.84 *
* Ocotillo Wash 3 * Tributary-2.2 * 0.10059 * PF 2 * 482.00 * 2234.24 * 2236.49 * 2236.31 * 2236.96 *
0.025042 * 5.47 * 88.06 * 66.43 * 0.84 *
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* Ocotillo Wash 3 * Tributary-2.2 * 0.04049 * PF 1 * 482.00 * 2228.24 * 2231.48 * * 2231.77 *
0.011314 * 4.28 * 112.50 * 64.51 * 0.57 *
* Ocotillo Wash 3 * Tributary-2.2 * 0.04049 * PF 2 * 482.00 * 2228.24 * 2231.48 * * 2231.77 *
0.011314 * 4.28 * 112.50 * 64.51 * 0.57 *
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* Ocotillo Wash 3 * Tributary-2.2 * 0.03237 * PF 1 * 488.00 * 2227.41 * 2231.23 * * 2231.43 *
0.005041 * 3.70 * 143.28 * 79.27 * 0.42 *
* Ocotillo Wash 3 * Tributary-2.2 * 0.03237 * PF 2 * 488.00 * 2227.41 * 2231.23 * * 2231.43 *
0.005041 * 3.70 * 143.28 * 79.27 * 0.42 *
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* Ocotillo Wash 3 * Tributary-2.2 * 0.02833 * PF 1 * 522.00 * 2227.10 * 2231.12 * * 2231.33 *
0.004073 * 3.78 * 149.09 * 58.27 * 0.38 *
* Ocotillo Wash 3 * Tributary-2.2 * 0.02833 * PF 2 * 522.00 * 2227.10 * 2231.12 * * 2231.33 *
0.004073 * 3.78 * 149.09 * 58.27 * 0.38 *
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* Ocotillo Wash 3 * Tributary-2.2 * 0.02823 * PF 1 * 522.00 * 2227.08 * 2231.12 * * 2231.33 *
0.004049 * 3.77 * 148.92 * 57.73 * 0.38 *
* Ocotillo Wash 3 * Tributary-2.2 * 0.02823 * PF 2 * 522.00 * 2227.08 * 2231.12 * * 2231.33 *
0.004049 * 3.77 * 148.92 * 57.73 * 0.38 *
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* Ocotillo Wash 2 * OW Split * 0.07677 * PF 1 * 222.00 * 2252.37 * 2253.70 * 2253.48 * 2253.92 *
0.012704 * 3.74 * 61.86 * 71.33 * 0.66 *
* Ocotillo Wash 2 * OW Split * 0.07677 * PF 2 * 222.00 * 2252.37 * 2253.70 * 2253.48 * 2253.92 *
0.012704 * 3.74 * 61.86 * 71.33 * 0.66 *
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* Ocotillo Wash 2 * OW Split * 0.04992 * PF 1 * 222.00 * 2249.98 * 2251.17 * 2251.14 * 2251.46 *
0.024572 * 4.37 * 53.44 * 89.73 * 0.88 *
* Ocotillo Wash 2 * OW Split * 0.04992 * PF 2 * 222.00 * 2249.98 * 2251.17 * 2251.14 * 2251.46 *
0.024572 * 4.37 * 53.44 * 89.73 * 0.88 *
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* Ocotillo Wash 1 * Tributary-2.1 * 1.00045 * PF 1 * 260.00 * 2404.68 * 2407.46 * * 2407.52 *
0.002779 * 2.24 * 146.06 * 100.13 * 0.25 *
* Ocotillo Wash 1 * Tributary-2.1 * 1.00045 * PF 2 * 260.00 * 2404.68 * 2407.85 * * 2407.97 *
0.004047 * 2.77 * 93.99 * 33.43 * 0.29 *
* * * * * * * * * *
* * * * *
* Ocotillo Wash 1 * Tributary-2.1 * 0.99742 NON_DEV * PF 1 * 260.00 * 2404.08 * 2406.24 * 2406.24 * 2406.73 *
0.034733 * 5.95 * 51.16 * 56.40 * 0.84 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.99742 NON_DEV * PF 2 * 260.00 * 2404.08 * 2406.50 * * 2407.01 *
0.028694 * 5.76 * 45.17 * 24.70 * 0.75 *
* * * * * * * * * *
* * * * *
* Ocotillo Wash 1 * Tributary-2.1 * 0.99357 NON_DEV * PF 1 * 260.00 * 2403.55 * 2405.46 * 2405.46 * 2405.96 *
0.040408 * 6.10 * 49.98 * 52.11 * 0.89 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.99357 NON_DEV * PF 2 * 260.00 * 2403.55 * 2405.72 * * 2406.34 *
0.037423 * 6.30 * 41.28 * 23.84 * 0.84 *
* * * * * * * * * *
* * * * *
* Ocotillo Wash 1 * Tributary-2.1 * 0.98932 NON_DEV * PF 1 * 260.00 * 2403.21 * 2404.86 * * 2405.04 *
0.014416 * 3.85 * 81.38 * 72.57 * 0.54 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.98932 NON_DEV * PF 2 * 260.00 * 2403.21 * 2405.14 * * 2405.60 *
0.025759 * 5.45 * 47.69 * 25.37 * 0.70 *
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* * * * *
* Ocotillo Wash 1 * Tributary-2.1 * 0.98427 NON_DEV * PF 1 * 260.00 * 2402.61 * 2404.34 * * 2404.56 *
0.020108 * 4.14 * 79.87 * 106.93 * 0.62 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.98427 NON_DEV * PF 2 * 260.00 * 2402.61 * 2404.52 * * 2404.89 *
0.025558 * 4.87 * 53.42 * 34.45 * 0.69 *
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* Ocotillo Wash 1 * Tributary-2.1 * 0.97998 * PF 1 * 260.00 * 2402.03 * 2404.02 * 2403.50 * 2404.20 *
0.011880 * 3.65 * 80.27 * 63.07 * 0.49 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.97998 * PF 2 * 260.00 * 2402.03 * 2404.13 * 2403.53 * 2404.40 *
0.016169 * 4.22 * 61.61 * 33.88 * 0.55 *
* * * * * * * * * *
* * * * *
* Ocotillo Wash 1 * Tributary-2.1 * 0.97683 NON_DEV * PF 1 * 260.00 * 2400.57 * 2402.49 * 2402.42 * 2402.95 *
0.036412 * 5.63 * 50.85 * 50.88 * 0.83 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.97683 NON_DEV * PF 2 * 260.00 * 2400.57 * 2402.87 * 2402.39 * 2403.22 *
0.021108 * 4.79 * 54.29 * 30.21 * 0.63 *
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* * * * *
* Ocotillo Wash 1 * Tributary-2.1 * 0.97180 NON_DEV * PF 1 * 260.00 * 2399.54 * 2402.30 * * 2402.47 *
0.007859 * 3.50 * 84.69 * 56.20 * 0.42 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.97180 NON_DEV * PF 2 * 260.00 * 2399.54 * 2402.68 * * 2402.87 *
0.007219 * 3.48 * 74.69 * 29.25 * 0.38 *
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* Ocotillo Wash 1 * Tributary-2.1 * 0.96791 * PF 1 * 260.00 * 2399.15 * 2402.19 * 2401.11 * 2402.33 *

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0.005255 *     3.18 *     96.53 *     60.50 *         0.35 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.96791                    * PF 2    *    260.00 *  2399.15 *  2402.55 *  2401.12 *  2402.73 *
0.005762 *     3.40 *     76.39 *     26.51 *         0.35 *
*          *          *          *                           *         *          *         *         *         *         *
* Ocotillo Wash 1 * Tributary-2.1 * 0.96505  NON_DEV          * PF 1    *    260.00 *  2398.31 *  2400.27 *  2400.27 *  2400.87 *
0.043064 *     6.50 *     44.29 *     40.61 *         0.93 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.96505  NON_DEV          * PF 2    *    260.00 *  2398.31 *  2400.43 *  2400.32 *  2401.13 *
0.045679 *     6.71 *     38.76 *     22.92 *         0.91 *
*          *          *          *                           *         *          *         *         *         *         *
* Ocotillo Wash 1 * Tributary-2.1 * 0.96148  NON_DEV          * PF 1    *    260.00 *  2397.65 *  2399.36 *  2399.25 *  2399.79 *
0.032727 *     5.70 *     52.96 *     49.09 *         0.80 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.96148  NON_DEV          * PF 2    *    260.00 *  2397.65 *  2399.85 *  2399.46 *  2400.40 *
0.029986 *     5.93 *     43.84 *     21.41 *         0.73 *
*          *          *          *                           *         *          *         *         *         *         *
* Ocotillo Wash 1 * Tributary-2.1 * 0.95750  NON_DEV          * PF 1    *    260.00 *  2396.84 *  2398.45 *  2398.45 *  2398.95 *
0.048655 *     6.15 *     47.60 *     49.06 *         0.96 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.95750  NON_DEV          * PF 2    *    260.00 *  2396.84 *  2398.73 *  2398.73 *  2399.52 *
0.058002 *     7.15 *     36.38 *     23.31 *         1.01 *
*          *          *          *                           *         *          *         *         *         *         *
* Ocotillo Wash 1 * Tributary-2.1 * 0.95264  NON_DEV          * PF 1    *    260.00 *  2395.57 *  2397.71 *         *  2398.04 *
0.022384 *     4.89 *     59.59 *     49.11 *         0.68 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.95264  NON_DEV          * PF 2    *    260.00 *  2395.57 *  2398.64 *         *  2398.86 *
0.007929 *     3.71 *     70.00 *     27.28 *         0.41 *
*          *          *          *                           *         *          *         *         *         *         *
* Ocotillo Wash 1 * Tributary-2.1 * 0.94727  NON_DEV          * PF 1    *    260.00 *  2394.72 *  2397.61 *         *  2397.72 *
0.004719 *     2.92 *    107.29 *     69.70 *         0.33 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.94727  NON_DEV          * PF 2    *    260.00 *  2394.72 *  2398.57 *         *  2398.69 *
0.003427 *     2.75 *     94.68 *     28.22 *         0.26 *
*          *          *          *                           *         *          *         *         *         *         *
* Ocotillo Wash 1 * Tributary-2.1 * 0.94451                   * PF 1    *    260.00 *  2394.32 *  2397.61 *  2395.90 *  2397.66 *
0.001795 *     2.11 *    153.94 *     80.25 *         0.21 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.94451                   * PF 2    *    260.00 *  2394.32 *  2398.54 *  2396.01 *  2398.64 *
0.002258 *     2.52 *    103.20 *     25.85 *         0.22 *
*          *          *          *                           *         *          *         *         *         *         *
* Ocotillo Wash 1 * Tributary-2.1 * 0.94232  NON_DEV          * PF 1    *    260.00 *  2393.81 *  2395.90 *         *  2396.19 *
0.018879 *     4.86 *     65.66 *     56.57 *         0.63 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.94232  NON_DEV          * PF 2    *    260.00 *  2393.81 *  2396.57 *         *  2396.96 *
0.015628 *     5.02 *     51.84 *     20.36 *         0.55 *
*          *          *          *                           *         *          *         *         *         *         *
* Ocotillo Wash 1 * Tributary-2.1 * 0.93999  NON_DEV          * PF 1    *    260.00 *  2393.48 *  2395.30 *  2395.30 *  2395.84 *
0.041856 *     6.57 *     48.16 *     46.68 *         0.91 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.93999  NON_DEV          * PF 2    *    260.00 *  2393.48 *  2395.59 *  2395.59 *  2396.57 *
0.058906 *     7.94 *     32.76 *     17.05 *         1.01 *
*          *          *          *                           *         *          *         *         *         *         *
* Ocotillo Wash 1 * Tributary-2.1 * 0.93325  NON_DEV          * PF 1    *    260.00 *  2391.92 *  2393.65 *  2393.65 *  2394.17 *
0.040976 *     6.12 *     48.34 *     48.91 *         0.89 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.93325  NON_DEV          * PF 2    *    260.00 *  2391.92 *  2394.13 *         *  2394.60 *
0.026788 *     5.51 *     47.17 *     24.35 *         0.70 *
*          *          *          *                           *         *          *         *         *         *         *
* Ocotillo Wash 1 * Tributary-2.1 * 0.92910  NON_DEV          * PF 1    *    260.00 *  2391.31 *  2393.01 *         *  2393.32 *
0.025983 *     5.00 *     62.57 *     63.00 *         0.72 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.92910  NON_DEV          * PF 2    *    260.00 *  2391.31 *  2393.73 *         *  2394.09 *
0.017722 *     4.86 *     53.51 *     24.19 *         0.58 *
*          *          *          *                           *         *          *         *         *         *         *
* Ocotillo Wash 1 * Tributary-2.1 * 0.92475  NON_DEV          * PF 1    *    260.00 *  2390.26 *  2392.15 *  2392.15 *  2392.61 *
0.038301 *     6.19 *     52.29 *     54.74 *         0.88 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.92475  NON_DEV          * PF 2    *    260.00 *  2390.26 *  2392.43 *  2392.43 *  2393.36 *
0.057834 *     7.73 *     33.63 *     18.37 *         1.01 *
*          *          *          *                           *         *          *         *         *         *         *
* Ocotillo Wash 1 * Tributary-2.1 * 0.91774  NON_DEV          * PF 1    *    260.00 *  2388.56 *  2390.54 *         *  2390.91 *
0.026682 *     5.45 *     58.62 *     54.49 *         0.73 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.91774  NON_DEV          * PF 2    *    260.00 *  2388.56 *  2390.95 *         *  2391.56 *
0.030254 *     6.25 *     41.60 *     19.54 *         0.75 *
*          *          *          *                           *         *          *         *         *         *         *
* Ocotillo Wash 1 * Tributary-2.1 * 0.91024  NON_DEV          * PF 1    *    260.00 *  2386.71 *  2389.21 *         *  2389.74 *
0.031296 *     6.37 *     48.53 *     41.23 *         0.82 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.91024  NON_DEV          * PF 2    *    260.00 *  2386.71 *  2389.84 *         *  2390.45 *
0.026024 *     6.31 *     41.89 *     17.00 *         0.71 *
*          *          *          *                           *         *          *         *         *         *         *
* Ocotillo Wash 1 * Tributary-2.1 * 0.90213  NON_DEV          * PF 1    *    260.00 *  2385.16 *  2387.66 *  2387.66 *  2388.30 *
0.037101 *     7.07 *     44.31 *     36.71 *         0.88 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.90213  NON_DEV          * PF 2    *    260.00 *  2385.16 *  2388.38 *         *  2389.15 *
0.035345 *     7.01 *     37.11 *     13.56 *         0.75 *
*          *          *          *                           *         *          *         *         *         *         *
* Ocotillo Wash 1 * Tributary-2.1 * 0.89706  NON_DEV          * PF 1    *    260.00 *  2383.48 *  2386.45 *  2386.45 *  2387.09 *
0.034878 *     7.12 *     43.91 *     35.39 *         0.85 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.89706  NON_DEV          * PF 2    *    260.00 *  2383.48 *  2386.89 *  2386.72 *  2387.97 *
0.052814 *     8.33 *     31.23 *     11.91 *         0.91 *
*          *          *          *                           *         *          *         *         *         *         *
* Ocotillo Wash 1 * Tributary-2.1 * 0.89309  NON_DEV          * PF 1    *    260.00 *  2382.23 *  2385.79 *  2385.50 *  2386.27 *
0.034997 *     5.87 *     48.68 *     32.70 *         0.65 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.89309  NON_DEV          * PF 2    *    260.00 *  2382.23 *  2386.32 *         *  2386.87 *
0.038806 *     5.94 *     43.74 *     14.24 *         0.60 *
*          *          *          *                           *         *          *         *         *         *         *
* Ocotillo Wash 1 * Tributary-2.1 * 0.88715  NON_DEV          * PF 1    *    260.00 *  2381.97 *  2385.11 *         *  2385.42 *
0.020624 *     4.70 *     60.23 *     40.59 *         0.56 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.88715  NON_DEV          * PF 2    *    260.00 *  2381.97 *  2385.92 *         *  2386.18 *
0.011391 *     4.11 *     63.77 *     21.52 *         0.42 *
*          *          *          *                           *         *          *         *         *         *         *
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     *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.88288  NON_DEV          * PF 1    *    260.00 *   2381.57 *   2385.04 *           *   2385.15 *
0.005403 *     2.74 *    102.88 *     57.88 *          0.29 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.88288  NON_DEV          * PF 2    *    260.00 *   2381.57 *   2385.75 *           *   2385.95 *
0.008027 *     3.66 *     72.64 *     21.37 *          0.35 *
*          *          *          *          *          *          *          *          *          *          *          *
     *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.87849                   * PF 1    *    260.00 *   2380.69 *   2385.01 *           *   2385.06 *
0.001771 *     2.00 *    147.80 *     67.61 *          0.19 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.87849                   * PF 2    *    260.00 *   2380.69 *   2385.73 *           *   2385.82 *
0.002529 *     2.42 *    107.63 *     25.68 *          0.21 *
*          *          *          *          *          *          *          *          *          *          *          *
     *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.87485  NON_DEV          * PF 1    *    260.00 *   2379.78 *   2382.64 *           *   2383.09 *
0.038478 *     5.59 *     50.00 *     37.68 *          0.71 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.87485  NON_DEV          * PF 2    *    260.00 *   2379.78 *   2383.01 *           *   2383.40 *
0.026778 *     5.07 *     51.96 *     23.58 *          0.59 *
*          *          *          *          *          *          *          *          *          *          *          *
     *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.87052  NON_DEV          * PF 1    *    260.00 *   2378.94 *   2381.82 *           *   2382.23 *
0.035874 *     5.44 *     51.69 *     38.16 *          0.67 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.87052  NON_DEV          * PF 2    *    260.00 *   2378.94 *   2382.23 *           *   2382.72 *
0.032818 *     5.64 *     46.77 *     19.22 *          0.63 *
*          *          *          *          *          *          *          *          *          *          *          *
     *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.86746  NON_DEV          * PF 1    *    260.00 *   2378.22 *   2381.54 *           *   2381.83 *
0.016749 *     4.50 *     62.89 *     41.73 *          0.53 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.86746  NON_DEV          * PF 2    *    260.00 *   2378.22 *   2382.07 *           *   2382.35 *
0.012615 *     4.21 *     61.72 *     22.15 *          0.44 *
*          *          *          *          *          *          *          *          *          *          *          *
     *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.85876  NON_DEV          * PF 1    *    260.00 *   2377.48 *   2380.05 *   2380.02 *   2380.60 *
0.045415 *     6.35 *     45.18 *     38.74 *          0.83 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.85876  NON_DEV          * PF 2    *    260.00 *   2377.48 *   2380.35 *   2380.20 *   2381.21 *
0.058047 *     7.44 *     34.93 *     16.58 *          0.90 *
*          *          *          *          *          *          *          *          *          *          *          *
     *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.85249  NON_DEV          * PF 1    *    260.00 *   2376.61 *   2379.09 *           *   2379.45 *
0.024557 *     5.04 *     56.00 *     40.24 *          0.64 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.85249  NON_DEV          * PF 2    *    260.00 *   2376.61 *   2379.55 *           *   2379.96 *
0.021996 *     5.11 *     50.89 *     21.36 *          0.58 *
*          *          *          *          *          *          *          *          *          *          *          *
     *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.84649  NON_DEV          * PF 1    *    260.00 *   2375.62 *   2378.17 *           *   2378.53 *
0.035894 *     5.17 *     55.84 *     50.44 *          0.67 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.84649  NON_DEV          * PF 2    *    260.00 *   2375.62 *   2378.88 *           *   2379.23 *
0.023026 *     4.70 *     55.27 *     21.45 *          0.52 *
*          *          *          *          *          *          *          *          *          *          *          *
     *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.83957  NON_DEV          * PF 1    *    260.00 *   2374.73 *   2377.44 *           *   2377.64 *
0.016453 *     3.93 *     74.23 *     58.02 *          0.47 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.83957  NON_DEV          * PF 2    *    260.00 *   2374.73 *   2378.40 *           *   2378.62 *
0.011245 *     3.70 *     70.28 *     22.66 *          0.37 *
*          *          *          *          *          *          *          *          *          *          *          *
     *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.83091  NON_DEV          * PF 1    *    260.00 *   2373.56 *   2375.93 *   2375.93 *   2376.49 *
0.036344 *     6.89 *     47.41 *     43.56 *          0.88 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.83091  NON_DEV          * PF 2    *    260.00 *   2373.56 *   2376.67 *   2376.38 *   2377.63 *
0.045123 *     7.88 *     33.00 *     12.42 *          0.85 *
*          *          *          *          *          *          *          *          *          *          *          *
     *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.82372  NON_DEV          * PF 1    *    260.00 *   2371.88 *   2374.05 *   2374.05 *   2374.64 *
0.040348 *     7.00 *     44.40 *     37.82 *          0.91 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.82372  NON_DEV          * PF 2    *    260.00 *   2371.88 *   2375.01 *           *   2375.94 *
0.043661 *     7.73 *     33.62 *     12.00 *          0.81 *
*          *          *          *          *          *          *          *          *          *          *          *
     *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.81567  NON_DEV          * PF 1    *    260.00 *   2369.62 *   2372.46 *   2372.46 *   2373.08 *
0.032810 *     6.96 *     46.03 *     37.09 *          0.83 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.81567  NON_DEV          * PF 2    *    260.00 *   2369.62 *   2372.56 *   2372.56 *   2373.71 *
0.062392 *     8.61 *     30.18 *     13.30 *          1.01 *
*          *          *          *          *          *          *          *          *          *          *          *
     *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.80861  NON_DEV          * PF 1    *    260.00 *   2368.50 *   2371.72 *           *   2371.99 *
0.010929 *     4.46 *     68.31 *     44.30 *          0.50 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.80861  NON_DEV          * PF 2    *    260.00 *   2368.50 *   2372.17 *           *   2372.52 *
0.012772 *     4.73 *     54.93 *     18.87 *          0.49 *
*          *          *          *          *          *          *          *          *          *          *          *
     *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.80224                   * PF 1    *    260.00 *   2368.37 *   2371.52 *           *   2371.68 *
0.006204 *     3.46 *     86.45 *     50.23 *          0.38 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.80224                   * PF 2    *    260.00 *   2368.37 *   2371.99 *           *   2372.18 *
0.006358 *     3.50 *     74.20 *     24.54 *          0.36 *
*          *          *          *          *          *          *          *          *          *          *          *
     *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.79662                   * PF 1    *    260.00 *   2367.56 *   2371.60 *   2369.30 *   2371.64 *
0.000086 *     1.63 *    179.93 *     74.14 *          0.16 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.79662                   * PF 2    *    260.00 *   2367.56 *   2372.08 *   2369.29 *   2372.12 *
0.000087 *     1.64 *    158.64 *     41.12 *          0.15 *
*          *          *          *          *          *          *          *          *          *          *          *
     *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.79392  72nd Street      *          *   Culvert *          *          *          *          *
     *          *          *          *          *
*          *          *          *          *          *          *          *          *          *          *          *
     *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.79116                   * PF 1    *    260.00 *   2366.56 *   2369.08 *           *   2369.42 *
0.020206 *     4.76 *     58.44 *     47.50 *          0.65 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.79116                   * PF 2    *    260.00 *   2366.56 *   2369.88 *           *   2370.06 *
0.006580 *     3.38 *     76.90 *     31.49 *          0.38 *
*          *          *          *          *          *          *          *          *          *          *          *
     *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.78443                   * PF 1    *    260.00 *   2364.99 *   2369.02 *           *   2369.13 *
0.003180 *     2.88 *    107.45 *     52.84 *          0.28 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.78443                   * PF 2    *    260.00 *   2364.99 *   2369.69 *           *   2369.86 *
0.004601 *     3.36 *     77.44 *     19.77 *          0.30 *
*          *          *          *          *          *          *          *          *          *          *          *
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    *          *          *          *                    *
* Ocotillo Wash 1 * Tributary-2.1 * 0.77855  NON_DEV        * PF 1   *    260.00 *  2363.71 *  2366.49 *  2366.29 *  2366.99 *
0.027730 *     5.85 *     48.57 *     36.49 *        0.76 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.77855  NON_DEV        * PF 2   *    260.00 *  2363.71 *  2366.78 *          *  2367.25 *
0.023078 *     5.46 *     47.62 *     22.24 *        0.66 *
*          *          *          *                    *         *          *          *          *          *          *
    *          *          *          *                    *
* Ocotillo Wash 1 * Tributary-2.1 * 0.77184  NON_DEV        * PF 1   *    260.00 *  2362.66 *  2365.19 *  2365.19 *  2365.84 *
0.038312 *     6.78 *     43.34 *     36.98 *        0.89 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.77184  NON_DEV        * PF 2   *    260.00 *  2362.66 *  2365.31 *  2365.18 *  2366.10 *
0.045782 *     7.13 *     36.47 *     18.98 *        0.91 *
*          *          *          *                    *         *          *          *          *          *          *
    *          *          *          *                    *
* Ocotillo Wash 1 * Tributary-2.1 * 0.76182  NON_DEV        * PF 1   *    260.00 *  2360.82 *  2363.73 *          *  2364.11 *
0.016950 *     5.29 *     58.32 *     43.01 *        0.62 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.76182  NON_DEV        * PF 2   *    260.00 *  2360.82 *  2364.04 *          *  2364.52 *
0.018898 *     5.60 *     46.45 *     18.09 *        0.62 *
*          *          *          *                    *         *          *          *          *          *          *
    *          *          *          *                    *
* Ocotillo Wash 1 * Tributary-2.1 * 0.75751  NON_DEV        * PF 1   *    260.00 *  2359.59 *  2362.98 *  2362.98 *  2363.60 *
0.027385 *     6.63 *     47.41 *     42.87 *        0.77 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.75751  NON_DEV        * PF 2   *    260.00 *  2359.59 *  2363.09 *          *  2363.90 *
0.037421 *     7.22 *     36.02 *     15.03 *        0.82 *
*          *          *          *                    *         *          *          *          *          *          *
    *          *          *          *                    *
* Ocotillo Wash 1 * Tributary-2.1 * 0.75270  NON_DEV        * PF 1   *    260.00 *  2358.93 *  2362.38 *          *  2362.73 *
0.015262 *     5.09 *     60.64 *     44.50 *        0.59 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.75270  NON_DEV        * PF 2   *    260.00 *  2358.93 *  2362.78 *          *  2363.19 *
0.015844 *     5.15 *     50.48 *     18.49 *        0.55 *
*          *          *          *                    *         *          *          *          *          *          *
    *          *          *          *                    *
* Ocotillo Wash 1 * Tributary-2.1 * 0.74863  NON_DEV        * PF 1   *    260.00 *  2358.74 *  2361.66 *  2361.66 *  2362.25 *
0.033017 *     6.57 *     46.64 *     42.35 *        0.84 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.74863  NON_DEV        * PF 2   *    260.00 *  2358.74 *  2361.78 *  2361.65 *  2362.61 *
0.044849 *     7.31 *     35.56 *     17.69 *        0.91 *
*          *          *          *                    *         *          *          *          *          *          *
    *          *          *          *                    *
* Ocotillo Wash 1 * Tributary-2.1 * 0.74402  NON_DEV        * PF 1   *    260.00 *  2358.49 *  2360.84 *          *  2361.31 *
0.031881 *     5.83 *     50.75 *     45.64 *        0.80 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.74402  NON_DEV        * PF 2   *    260.00 *  2358.49 *  2361.02 *          *  2361.59 *
0.033874 *     6.09 *     42.70 *     23.33 *        0.79 *
*          *          *          *                    *         *          *          *          *          *          *
    *          *          *          *                    *
* Ocotillo Wash 1 * Tributary-2.1 * 0.73982  NON_DEV        * PF 1   *    260.00 *  2358.18 *  2360.60 *          *  2360.82 *
0.012409 *     3.95 *     74.14 *     55.35 *        0.51 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.73982  NON_DEV        * PF 2   *    260.00 *  2358.18 *  2360.69 *          *  2361.00 *
0.016707 *     4.46 *     58.26 *     29.78 *        0.56 *
*          *          *          *                    *         *          *          *          *          *          *
    *          *          *          *                    *
* Ocotillo Wash 1 * Tributary-2.1 * 0.73537  NON_DEV        * PF 1   *    260.00 *  2357.84 *  2359.77 *  2359.77 *  2360.29 *
0.044965 *     5.94 *     47.42 *     49.23 *        0.91 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.73537  NON_DEV        * PF 2   *    260.00 *  2357.84 *  2360.14 *          *  2360.52 *
0.024729 *     4.97 *     52.30 *     31.25 *        0.68 *
*          *          *          *                    *         *          *          *          *          *          *
    *          *          *          *                    *
* Ocotillo Wash 1 * Tributary-2.1 * 0.73227  NON_DEV        * PF 1   *    260.00 *  2357.62 *  2359.35 *          *  2359.64 *
0.021470 *     4.53 *     63.35 *     56.44 *        0.65 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.73227  NON_DEV        * PF 2   *    260.00 *  2357.62 *  2360.05 *          *  2360.24 *
0.008659 *     3.53 *     73.62 *     33.57 *        0.42 *
*          *          *          *                    *         *          *          *          *          *          *
    *          *          *          *                    *
* Ocotillo Wash 1 * Tributary-2.1 * 0.72875                 * PF 1   *    260.00 *  2357.10 *  2359.40 *          *  2359.44 *
0.002727 *     2.03 *    157.39 *    113.70 *        0.25 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.72875                 * PF 2   *    260.00 *  2357.10 *  2359.97 *          *  2360.11 *
0.004782 *     3.03 *     88.25 *     33.10 *        0.33 *
*          *          *          *                    *         *          *          *          *          *          *
    *          *          *          *                    *
* Ocotillo Wash 1 * Tributary-2.1 * 0.72704  NON_DEV        * PF 1   *    260.00 *  2356.38 *  2358.44 *          *  2358.69 *
0.018423 *     4.33 *     69.22 *     65.80 *        0.61 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.72704  NON_DEV        * PF 2   *    260.00 *  2356.38 *  2358.93 *          *  2359.17 *
0.011746 *     3.97 *     65.53 *     31.93 *        0.49 *
*          *          *          *                    *         *          *          *          *          *          *
    *          *          *          *                    *
* Ocotillo Wash 1 * Tributary-2.1 * 0.72322  NON_DEV        * PF 1   *    260.00 *  2355.70 *  2357.78 *  2357.75 *  2358.20 *
0.033649 *     5.74 *     54.28 *     55.97 *        0.82 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.72322  NON_DEV        * PF 2   *    260.00 *  2355.70 *  2357.85 *  2357.85 *  2358.67 *
0.057242 *     7.25 *     35.84 *     22.32 *        1.01 *
*          *          *          *                    *         *          *          *          *          *          *
    *          *          *          *                    *
* Ocotillo Wash 1 * Tributary-2.1 * 0.71808  NON_DEV        * PF 1   *    260.00 *  2354.00 *  2356.80 *  2356.67 *  2357.32 *
0.030462 *     5.93 *     48.48 *     43.38 *        0.78 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.71808  NON_DEV        * PF 2   *    260.00 *  2354.00 *  2357.07 *          *  2357.54 *
0.023761 *     5.48 *     47.46 *     23.09 *        0.67 *
*          *          *          *                    *         *          *          *          *          *          *
    *          *          *          *                    *
* Ocotillo Wash 1 * Tributary-2.1 * 0.71174  NON_DEV        * PF 1   *    260.00 *  2352.77 *  2355.88 *          *  2356.41 *
0.024484 *     6.03 *     47.31 *     30.36 *        0.72 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.71174  NON_DEV        * PF 2   *    260.00 *  2352.77 *  2356.38 *          *  2356.83 *
0.018627 *     5.38 *     48.29 *     18.00 *        0.58 *
*          *          *          *                    *         *          *          *          *          *          *
    *          *          *          *                    *
* Ocotillo Wash 1 * Tributary-2.1 * 0.70813  NON_DEV        * PF 1   *    260.00 *  2352.24 *  2355.57 *          *  2355.99 *
0.016908 *     5.50 *     53.55 *     31.73 *        0.62 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.70813  NON_DEV        * PF 2   *    260.00 *  2352.24 *  2355.93 *          *  2356.45 *
0.020885 *     5.79 *     44.94 *     16.18 *        0.61 *
*          *          *          *                    *         *          *          *          *          *          *
    *          *          *          *                    *
* Ocotillo Wash 1 * Tributary-2.1 * 0.70419                 * PF 1   *    260.00 *  2351.07 *  2355.50 *          *  2355.73 *
0.006335 *     4.05 *     71.37 *     31.85 *        0.40 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.70419                 * PF 2   *    260.00 *  2351.07 *  2355.86 *          *  2356.12 *
0.007658 *     4.09 *     63.51 *     17.56 *        0.38 *
*          *          *          *                    *         *          *          *          *          *          *
    *          *          *          *                    *
* Ocotillo Wash 1 * Tributary-2.1 * 0.70129  NON_DEV        * PF 1   *    260.00 *  2350.99 *  2353.99 *  2353.89 *  2354.69 *
0.033146 *     6.91 *     41.26 *     27.18 *        0.84 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.70129  NON_DEV        * PF 2   *    260.00 *  2350.99 *  2354.22 *          *  2354.93 *
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0.033836 *     6.75 *    38.51 *    16.57 *          0.78 *
*                *              *                           *         *          *          *          *          *          *
     *          *          *          *              *
* Ocotillo Wash 1 * Tributary-2.1 * 0.69806  NON_DEV          * PF 1    *     260.00 *  2350.96 *  2353.37 *  2353.37 *  2354.08 *
0.037792 *     6.97 *    40.85 *    29.53 *          0.89 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.69806  NON_DEV          * PF 2    *     260.00 *  2350.96 *  2353.73 *           *  2354.37 *
0.029904 *     6.38 *    40.78 *    18.01 *          0.75 *
*                *              *                           *         *          *          *          *          *          *
     *          *          *          *              *
* Ocotillo Wash 1 * Tributary-2.1 * 0.69661  NON_DEV          * PF 1    *     260.00 *  2350.67 *  2353.09 *  2353.08 *  2353.78 *
0.036840 *     6.94 *    41.33 *    29.67 *          0.88 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.69661  NON_DEV          * PF 2    *     260.00 *  2350.67 *  2353.50 *           *  2354.14 *
0.029784 *     6.42 *    40.50 *    17.33 *          0.74 *
*                *              *                           *         *          *          *          *          *          *
     *          *          *          *              *
* Ocotillo Wash 1 * Tributary-2.1 * 0.69212  NON_DEV          * PF 1    *     260.00 *  2349.45 *  2352.91 *           *  2353.22 *
0.011235 *     4.69 *    60.50 *    28.37 *          0.51 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.69212  NON_DEV          * PF 2    *     260.00 *  2349.45 *  2353.27 *           *  2353.61 *
0.012385 *     4.65 *    55.88 *    18.52 *          0.47 *
*                *              *                           *         *          *          *          *          *          *
     *          *          *          *              *
* Ocotillo Wash 1 * Tributary-2.1 * 0.68880                   * PF 1    *     260.00 *  2348.89 *  2352.81 *           *  2353.05 *
0.006996 *     4.08 *    67.43 *    25.68 *          0.41 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.68880                   * PF 2    *     260.00 *  2348.89 *  2353.17 *           *  2353.41 *
0.007672 *     3.96 *    65.62 *    19.26 *          0.38 *
*                *              *                           *         *          *          *          *          *          *
     *          *          *          *              *
* Ocotillo Wash 1 * Tributary-2.1 * 0.68800  NON_DEV          * PF 1    *     260.00 *  2348.79 *  2351.41 *  2351.41 *  2352.12 *
0.043451 *     7.05 *    40.12 *    28.60 *          0.93 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.68800  NON_DEV          * PF 2    *     260.00 *  2348.79 *  2351.51 *  2351.45 *  2352.37 *
0.052511 *     7.41 *    35.07 *    18.61 *          0.95 *
*                *              *                           *         *          *          *          *          *          *
     *          *          *          *              *
* Ocotillo Wash 1 * Tributary-2.1 * 0.68404  NON_DEV          * PF 1    *     260.00 *  2348.39 *  2350.49 *  2350.49 *  2350.95 *
0.051210 *     5.58 *    49.41 *    54.49 *          0.94 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.68404  NON_DEV          * PF 2    *     260.00 *  2348.39 *  2350.50 *  2350.50 *  2351.07 *
0.064499 *     6.07 *    42.86 *    39.12 *          1.02 *
*                *              *                           *         *          *          *          *          *          *
     *          *          *          *              *
* Ocotillo Wash 1 * Tributary-2.1 * 0.67717                   * PF 1    *     260.00 *  2347.04 *  2350.12 *           *  2350.15 *
0.001226 *     1.45 *   185.62 *    85.15 *          0.17 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.67717                   * PF 2    *     260.00 *  2347.04 *  2350.29 *           *  2350.32 *
0.001304 *     1.51 *   172.66 *    67.97 *          0.17 *
*                *              *                           *         *          *          *          *          *          *
     *          *          *          *              *
* Ocotillo Wash 1 * Tributary-2.1 * 0.67671  NON_DEV          * PF 1    *     260.00 *  2347.57 *  2349.14 *           *  2349.39 *
0.025585 *     4.09 *    64.87 *    59.58 *          0.67 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.67671  NON_DEV          * PF 2    *     260.00 *  2347.57 *  2349.44 *           *  2349.62 *
0.013601 *     3.36 *    77.27 *    52.88 *          0.49 *
*                *              *                           *         *          *          *          *          *          *
     *          *          *          *              *
* Ocotillo Wash 1 * Tributary-2.1 * 0.66963  NON_DEV          * PF 1    *     260.00 *  2346.47 *  2348.16 *           *  2348.36 *
0.029880 *     3.71 *    71.46 *    85.30 *          0.70 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.66963  NON_DEV          * PF 2    *     260.00 *  2346.47 *  2348.80 *           *  2349.04 *
0.017193 *     3.91 *    66.54 *    43.49 *          0.56 *
*                *              *                           *         *          *          *          *          *          *
     *          *          *          *              *
* Ocotillo Wash 1 * Tributary-2.1 * 0.66458  NON_DEV          * PF 1    *     260.00 *  2345.75 *  2347.88 *           *  2347.99 *
0.009230 *     2.70 *   100.61 *    85.65 *          0.41 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.66458  NON_DEV          * PF 2    *     260.00 *  2345.75 *  2348.18 *           *  2348.51 *
0.022454 *     4.63 *    56.11 *    34.87 *          0.64 *
*                *              *                           *         *          *          *          *          *          *
     *          *          *          *              *
* Ocotillo Wash 1 * Tributary-2.1 * 0.66013  NON_DEV          * PF 1    *     260.00 *  2345.17 *  2347.56 *           *  2347.77 *
0.010577 *     3.78 *    71.33 *    43.68 *          0.47 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.66013  NON_DEV          * PF 2    *     260.00 *  2345.17 *  2348.06 *           *  2348.21 *
0.005912 *     3.10 *    83.80 *    33.66 *          0.35 *
*                *              *                           *         *          *          *          *          *          *
     *          *          *          *              *
* Ocotillo Wash 1 * Tributary-2.1 * 0.65574  NON_DEV          * PF 1    *     260.00 *  2344.15 *  2347.50 *  2346.13 *  2347.60 *
0.003966 *     2.60 *   105.96 *    64.35 *          0.30 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.65574  NON_DEV          * PF 2    *     260.00 *  2344.15 *  2348.03 *  2346.13 *  2348.11 *
0.002375 *     2.22 *   116.90 *    40.92 *          0.23 *
*                *              *                           *         *          *          *          *          *          *
     *          *          *          *              *
* Ocotillo Wash 1 * Tributary-2.1 * 0.65150  NON_DEV          * PF 1    *     260.00 *  2343.39 *  2347.39 *           *  2347.51 *
0.003450 *     2.98 *   111.79 *    89.11 *          0.29 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.65150  NON_DEV          * PF 2    *     260.00 *  2343.39 *  2347.90 *           *  2348.04 *
0.003610 *     2.98 *    87.15 *    23.46 *          0.27 *
*                *              *                           *         *          *          *          *          *          *
     *          *          *          *              *
* Ocotillo Wash 1 * Tributary-2.1 * 0.64754  NON_DEV          * PF 1    *     260.00 *  2342.89 *  2346.79 *           *  2347.32 *
0.019379 *     6.09 *    49.48 *    39.63 *          0.66 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.64754  NON_DEV          * PF 2    *     260.00 *  2342.89 *  2347.42 *           *  2347.87 *
0.015433 *     5.38 *    48.31 *    14.69 *          0.52 *
*                *              *                           *         *          *          *          *          *          *
     *          *          *          *              *
* Ocotillo Wash 1 * Tributary-2.1 * 0.64472  NON_DEV          * PF 1    *     260.00 *  2341.94 *  2345.82 *  2345.82 *  2346.84 *
0.042335 *     8.51 *    33.57 *    17.33 *          0.93 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.64472  NON_DEV          * PF 2    *     260.00 *  2341.94 *  2346.23 *  2345.98 *  2347.40 *
0.055631 *     8.69 *    29.91 *     9.91 *          0.88 *
*                *              *                           *         *          *          *          *          *          *
     *          *          *          *              *
* Ocotillo Wash 1 * Tributary-2.1 * 0.64111  NON_DEV          * PF 1    *     260.00 *  2341.44 *  2345.18 *  2345.06 *  2346.04 *
0.032476 *     7.69 *    36.82 *    19.41 *          0.84 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.64111  NON_DEV          * PF 2    *     260.00 *  2341.44 *  2345.87 *  2345.01 *  2346.55 *
0.025903 *     6.60 *    39.37 *    11.85 *          0.64 *
*                *              *                           *         *          *          *          *          *          *
     *          *          *          *              *
* Ocotillo Wash 1 * Tributary-2.1 * 0.63638  NON_DEV          * PF 1    *     260.00 *  2340.83 *  2344.25 *  2344.25 *  2345.18 *
0.036429 *     8.08 *    36.07 *    20.45 *          0.90 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.63638  NON_DEV          * PF 2    *     260.00 *  2340.83 *  2344.26 *  2344.26 *  2345.53 *
0.063115 *     9.06 *    28.70 *    11.47 *          1.01 *
*                *              *                           *         *          *          *          *          *          *
     *          *          *          *              *
* Ocotillo Wash 1 * Tributary-2.1 * 0.63432                   * PF 1    *     260.00 *  2339.68 *  2343.34 *  2343.30 *  2344.28 *
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0.042022 *     7.82 *     34.30 *     18.65 *        0.93 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.63432                  * PF 2    *    260.00 *  2339.68 *  2344.28 *          *  2344.77 *
0.017158 *     5.57 *     46.64 *     14.78 *        0.55 *
*          *          *          *          *                *         *          *         *         *         *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.63270  NON_DEV         * PF 1    *    260.00 *  2339.59 *  2343.04 *  2343.04 *  2343.95 *
0.035982 *     8.09 *     36.77 *     21.66 *        0.88 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.63270  NON_DEV         * PF 2    *    260.00 *  2339.59 *  2343.08 *  2343.08 *  2344.42 *
0.066979 *     9.32 *     27.91 *     10.48 *        1.01 *
*          *          *          *          *                *         *          *         *         *         *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.62989  NON_DEV         * PF 1    *    260.00 *  2339.05 *  2341.97 *          *  2342.47 *
0.023903 *     5.98 *     48.61 *     32.51 *        0.72 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.62989  NON_DEV         * PF 2    *    260.00 *  2339.05 *  2342.39 *          *  2342.90 *
0.021492 *     5.72 *     45.47 *     17.73 *        0.63 *
*          *          *          *          *                *         *          *         *         *         *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.62721  NON_DEV         * PF 1    *    260.00 *  2338.63 *  2341.39 *  2341.39 *  2342.05 *
0.034252 *     6.89 *     43.71 *     35.20 *        0.86 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.62721  NON_DEV         * PF 2    *    260.00 *  2338.63 *  2342.01 *  2341.36 *  2342.58 *
0.023685 *     6.05 *     42.96 *     16.40 *        0.66 *
*          *          *          *          *                *         *          *         *         *         *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.62332  NON_DEV         * PF 1    *    260.00 *  2338.05 *  2340.61 *  2340.61 *  2341.16 *
0.033854 *     6.57 *     47.94 *     41.89 *        0.85 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.62332  NON_DEV         * PF 2    *    260.00 *  2338.05 *  2340.78 *  2340.78 *  2341.81 *
0.056972 *     8.16 *     31.87 *     15.65 *        1.01 *
*          *          *          *          *                *         *          *         *         *         *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.61834  NON_DEV         * PF 1    *    260.00 *  2335.86 *  2339.73 *          *  2340.20 *
0.020602 *     5.74 *     50.48 *     30.18 *        0.64 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.61834  NON_DEV         * PF 2    *    260.00 *  2335.86 *  2340.25 *          *  2340.69 *
0.017275 *     5.30 *     49.08 *     16.31 *        0.54 *
*          *          *          *          *                *         *          *         *         *         *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.61323  NON_DEV         * PF 1    *    260.00 *  2335.61 *  2338.90 *          *  2339.57 *
0.027772 *     6.96 *     42.80 *     26.50 *        0.79 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.61323  NON_DEV         * PF 2    *    260.00 *  2335.61 *  2339.26 *          *  2340.03 *
0.032815 *     7.06 *     36.80 *     13.21 *        0.75 *
*          *          *          *          *                *         *          *         *         *         *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.60912  NON_DEV         * PF 1    *    260.00 *  2334.71 *  2338.06 *  2338.06 *  2338.88 *
0.035200 *     7.62 *     38.87 *     26.06 *        0.86 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.60912  NON_DEV         * PF 2    *    260.00 *  2334.71 *  2338.40 *          *  2339.27 *
0.036694 *     7.48 *     34.76 *     12.58 *        0.79 *
*          *          *          *          *                *         *          *         *         *         *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.60419  NON_DEV         * PF 1    *    260.00 *  2333.74 *  2337.00 *  2337.00 *  2337.92 *
0.038799 *     7.93 *     36.02 *     22.00 *        0.91 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.60419  NON_DEV         * PF 2    *    260.00 *  2333.74 *  2337.77 *          *  2338.42 *
0.025039 *     6.47 *     40.21 *     12.97 *        0.65 *
*          *          *          *          *                *         *          *         *         *         *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.59771  NON_DEV         * PF 1    *    260.00 *  2333.13 *  2336.74 *          *  2337.06 *
0.010818 *     4.97 *     61.86 *     33.43 *        0.51 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.59771  NON_DEV         * PF 2    *    260.00 *  2333.13 *  2337.33 *          *  2337.73 *
0.013543 *     5.08 *     51.16 *     14.44 *        0.48 *
*          *          *          *          *                *         *          *         *         *         *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.59247  NON_DEV         * PF 1    *    260.00 *  2332.77 *  2336.65 *          *  2336.83 *
0.004735 *     3.60 *     85.93 *     42.24 *        0.35 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.59247  NON_DEV         * PF 2    *    260.00 *  2332.77 *  2337.22 *          *  2337.44 *
0.006037 *     3.75 *     69.25 *     17.85 *        0.34 *
*          *          *          *          *                *         *          *         *         *         *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.58805                  * PF 1    *    260.00 *  2331.96 *  2336.63 *          *  2336.73 *
0.002252 *     2.72 *    112.52 *     49.32 *        0.25 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.58805                  * PF 2    *    260.00 *  2331.96 *  2337.20 *          *  2337.32 *
0.002659 *     2.75 *     94.43 *     21.67 *        0.23 *
*          *          *          *          *                *         *          *         *         *         *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.58365  NON_DEV         * PF 1    *    260.00 *  2330.71 *  2333.88 *          *  2334.45 *
0.021498 *     6.25 *     45.10 *     24.28 *        0.70 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.58365  NON_DEV         * PF 2    *    260.00 *  2330.71 *  2334.31 *          *  2334.82 *
0.019375 *     5.72 *     45.45 *     15.68 *        0.59 *
*          *          *          *          *                *         *          *         *         *         *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.57998  NON_DEV         * PF 1    *    260.00 *  2330.11 *  2333.21 *          *  2333.97 *
0.026678 *     7.22 *     39.23 *     19.53 *        0.78 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.57998  NON_DEV         * PF 2    *    260.00 *  2330.11 *  2333.68 *          *  2334.36 *
0.026665 *     6.65 *     39.08 *     12.37 *        0.66 *
*          *          *          *          *                *         *          *         *         *         *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.57606  NON_DEV         * PF 1    *    260.00 *  2329.58 *  2332.33 *  2332.33 *  2333.29 *
0.038374 *     8.15 *     35.11 *     19.50 *        0.92 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.57606  NON_DEV         * PF 2    *    260.00 *  2329.58 *  2332.70 *          *  2333.65 *
0.042352 *     7.82 *     33.26 *     11.85 *        0.82 *
*          *          *          *          *                *         *          *         *         *         *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.57206  NON_DEV         * PF 1    *    260.00 *  2328.76 *  2331.63 *  2331.47 *  2332.39 *
0.030282 *     7.34 *     39.85 *     23.54 *        0.82 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.57206  NON_DEV         * PF 2    *    260.00 *  2328.76 *  2332.00 *          *  2332.80 *
0.034589 *     7.18 *     36.20 *     12.72 *        0.75 *
*          *          *          *          *                *         *          *         *         *         *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.56705  NON_DEV         * PF 1    *    260.00 *  2328.34 *  2331.28 *          *  2331.71 *
0.016470 *     5.48 *     52.55 *     29.59 *        0.61 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.56705  NON_DEV         * PF 2    *    260.00 *  2328.34 *  2331.61 *          *  2332.07 *
0.017346 *     5.43 *     47.90 *     17.05 *        0.57 *
*          *          *          *          *                *         *          *         *         *         *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.56110  NON_DEV         * PF 1    *    260.00 *  2327.74 *  2330.16 *  2330.16 *  2330.94 *
0.037761 *     7.35 *     39.13 *     26.46 *        0.90 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.56110  NON_DEV         * PF 2    *    260.00 *  2327.74 *  2330.81 *          *  2331.41 *
0.024642 *     6.19 *     41.98 *     15.52 *        0.66 *
*          *          *          *          *                *         *          *         *         *         *          *
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*          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.55629  NON_DEV          * PF 1    *   260.00 *   2326.64 *   2329.58 *           *   2330.13 *
0.024149 *     6.32 *     46.60 *     28.43 *          0.73 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.55629  NON_DEV          * PF 2    *   260.00 *   2326.64 *   2330.30 *           *   2330.83 *
0.019791 *     5.84 *     44.52 *     14.53 *          0.59 *
*          *          *          *          *          *          *          *          *          *          *          *
*          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.55157  NON_DEV          * PF 1    *   260.00 *   2326.19 *   2329.02 *           *   2329.55 *
0.022993 *     6.20 *     48.28 *     30.50 *          0.72 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.55157  NON_DEV          * PF 2    *   260.00 *   2326.19 *   2329.90 *           *   2330.35 *
0.016784 *     5.43 *     47.89 *     14.95 *          0.53 *
*          *          *          *          *          *          *          *          *          *          *          *
*          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.54526  NON_DEV          * PF 1    *   260.00 *   2324.97 *   2327.99 *           *   2328.66 *
0.032208 *     7.19 *     42.32 *     27.23 *          0.84 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.54526  NON_DEV          * PF 2    *   260.00 *   2324.97 *   2328.59 *           *   2329.48 *
0.040042 *     7.59 *     34.26 *     11.79 *          0.78 *
*          *          *          *          *          *          *          *          *          *          *          *
*          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.53814  NON_DEV          * PF 1    *   260.00 *   2323.99 *   2326.68 *   2326.62 *   2327.45 *
0.033281 *     7.51 *     40.00 *     25.62 *          0.86 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.53814  NON_DEV          * PF 2    *   260.00 *   2323.99 *   2327.21 *           *   2328.04 *
0.035816 *     7.32 *     35.49 *     12.31 *          0.76 *
*          *          *          *          *          *          *          *          *          *          *          *
*          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.53109  NON_DEV          * PF 1    *   260.00 *   2322.11 *   2325.32 *   2325.29 *   2326.19 *
0.034835 *     7.84 *     37.45 *     22.00 *          0.88 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.53109  NON_DEV          * PF 2    *   260.00 *   2322.11 *   2326.11 *           *   2326.83 *
0.028386 *     6.82 *     38.12 *     11.70 *          0.67 *
*          *          *          *          *          *          *          *          *          *          *          *
*          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.52363  NON_DEV          * PF 1    *   260.00 *   2321.50 *   2324.67 *           *   2325.13 *
0.017518 *     5.78 *     51.61 *     29.66 *          0.64 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.52363  NON_DEV          * PF 2    *   260.00 *   2321.50 *   2325.60 *           *   2326.00 *
0.013205 *     5.07 *     51.31 *     14.74 *          0.48 *
*          *          *          *          *          *          *          *          *          *          *          *
*          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.51582  NON_DEV          * PF 1    *   260.00 *   2320.83 *   2324.25 *           *   2324.54 *
0.009850 *     4.75 *     65.28 *     35.64 *          0.49 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.51582  NON_DEV          * PF 2    *   260.00 *   2320.83 *   2325.19 *           *   2325.51 *
0.009627 *     4.53 *     57.41 *     14.85 *          0.41 *
*          *          *          *          *          *          *          *          *          *          *          *
*          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.50951  NON_DEV          * PF 1    *   260.00 *   2320.20 *   2324.19 *           *   2324.31 *
0.003263 *     3.01 *    102.22 *     48.40 *          0.29 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.50951  NON_DEV          * PF 2    *   260.00 *   2320.20 *   2325.16 *           *   2325.29 *
0.003019 *     2.87 *     90.49 *     21.02 *          0.24 *
*          *          *          *          *          *          *          *          *          *          *          *
*          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.50585                   * PF 1    *   260.00 *   2319.82 *   2324.16 *           *   2324.25 *
0.002078 *     2.62 *    123.00 *     55.06 *          0.24 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.50585                   * PF 2    *   260.00 *   2319.82 *   2325.10 *           *   2325.23 *
0.002874 *     2.84 *     91.50 *     19.31 *          0.23 *
*          *          *          *          *          *          *          *          *          *          *          *
*          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.50158  NON_DEV          * PF 1    *   260.00 *   2318.91 *   2321.46 *           *   2322.01 *
0.022874 *     6.14 *     46.99 *     29.59 *          0.72 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.50158  NON_DEV          * PF 2    *   260.00 *   2318.91 *   2321.80 *           *   2322.35 *
0.023140 *     5.91 *     43.97 *     16.84 *          0.64 *
*          *          *          *          *          *          *          *          *          *          *          *
*          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.49706  NON_DEV          * PF 1    *   260.00 *   2318.57 *   2320.75 *   2320.75 *   2321.35 *
0.039107 *     6.57 *     44.37 *     36.95 *          0.89 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.49706  NON_DEV          * PF 2    *   260.00 *   2318.57 *   2321.21 *           *   2321.75 *
0.026938 *     5.92 *     43.90 *     21.11 *          0.72 *
*          *          *          *          *          *          *          *          *          *          *          *
*          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.49372  NON_DEV          * PF 1    *   260.00 *   2318.12 *   2320.45 *           *   2320.80 *
0.022737 *     5.16 *     57.70 *     45.01 *          0.68 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.49372  NON_DEV          * PF 2    *   260.00 *   2318.12 *   2320.61 *           *   2321.22 *
0.032906 *     6.28 *     41.43 *     21.58 *          0.80 *
*          *          *          *          *          *          *          *          *          *          *          *
*          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.48992  NON_DEV          * PF 1    *   260.00 *   2317.71 *   2319.74 *   2319.74 *   2320.26 *
0.036118 *     6.12 *     48.55 *     46.37 *          0.85 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.48992  NON_DEV          * PF 2    *   260.00 *   2317.71 *   2320.04 *           *   2320.58 *
0.029056 *     5.87 *     44.27 *     23.26 *          0.75 *
*          *          *          *          *          *          *          *          *          *          *          *
*          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.48713  NON_DEV          * PF 1    *   260.00 *   2317.08 *   2319.17 *           *   2319.61 *
0.035304 *     5.78 *     51.82 *     48.37 *          0.83 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.48713  NON_DEV          * PF 2    *   260.00 *   2317.08 *   2319.47 *           *   2320.09 *
0.036329 *     6.30 *     41.25 *     23.11 *          0.83 *
*          *          *          *          *          *          *          *          *          *          *          *
*          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.48294  NON_DEV          * PF 1    *   260.00 *   2315.93 *   2318.49 *           *   2318.85 *
0.025301 *     5.23 *     55.79 *     43.58 *          0.71 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.48294  NON_DEV          * PF 2    *   260.00 *   2315.93 *   2319.05 *           *   2319.46 *
0.018980 *     5.14 *     50.60 *     23.30 *          0.61 *
*          *          *          *          *          *          *          *          *          *          *          *
*          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.47933  NON_DEV          * PF 1    *   260.00 *   2315.45 *   2317.84 *           *   2318.29 *
0.029191 *     5.78 *     49.97 *     35.92 *          0.77 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.47933  NON_DEV          * PF 2    *   260.00 *   2315.45 *   2317.92 *   2317.92 *   2318.84 *
0.054233 *     7.72 *     33.68 *     18.43 *          1.01 *
*          *          *          *          *          *          *          *          *          *          *          *
*          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.47659  NON_DEV          * PF 1    *   260.00 *   2314.44 *   2317.00 *   2317.00 *   2317.71 *
0.037384 *     7.02 *     41.29 *     32.08 *          0.89 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.47659  NON_DEV          * PF 2    *   260.00 *   2314.44 *   2317.06 *   2316.95 *   2317.92 *
0.046274 *     7.42 *     35.02 *     17.47 *          0.92 *
*          *          *          *          *          *          *          *          *          *          *          *
*          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.47214  NON_DEV          * PF 1    *   260.00 *   2313.68 *   2315.97 *   2315.95 *   2316.64 *
0.036299 *     6.82 *     42.53 *     33.66 *          0.88 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.47214  NON_DEV          * PF 2    *   260.00 *   2313.68 *   2316.13 *   2315.92 *   2316.88 *
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0.039760 *     6.92 *     37.57 *     18.47 *          0.85 *
*          *          *          *          *
    *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.46798  NON_DEV          * PF 1    *     260.00 *  2312.51 *  2315.12 *  2315.09 *  2315.83 *
0.036984 *     6.93 *     40.55 *     29.15 *          0.88 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.46798  NON_DEV          * PF 2    *     260.00 *  2312.51 *  2315.28 *          *  2316.01 *
0.038625 *     6.85 *     37.98 *     18.33 *          0.84 *
*          *          *          *          *          *          *          *          *          *          *          *
    *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.46248  NON_DEV          * PF 1    *     260.00 *  2312.05 *  2314.43 *          *  2314.89 *
0.024416 *     5.54 *     49.70 *     33.54 *          0.72 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.46248  NON_DEV          * PF 2    *     260.00 *  2312.05 *  2314.55 *          *  2315.02 *
0.026100 *     5.55 *     46.85 *     23.98 *          0.70 *
*          *          *          *          *          *          *          *          *          *          *          *
    *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.45679  NON_DEV          * PF 1    *     260.00 *  2311.49 *  2313.41 *  2313.29 *  2314.01 *
0.035300 *     6.32 *     43.14 *     30.30 *          0.85 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.45679  NON_DEV          * PF 2    *     260.00 *  2311.49 *  2313.51 *          *  2314.11 *
0.035042 *     6.21 *     41.84 *     22.81 *          0.81 *
*          *          *          *          *          *          *          *          *          *          *          *
    *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.45211  NON_DEV          * PF 1    *     260.00 *  2310.56 *  2312.62 *          *  2313.18 *
0.030029 *     6.11 *     44.59 *     28.99 *          0.79 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.45211  NON_DEV          * PF 2    *     260.00 *  2310.56 *  2312.76 *          *  2313.30 *
0.029111 *     5.91 *     43.98 *     21.89 *          0.73 *
*          *          *          *          *          *          *          *          *          *          *          *
    *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.44542  NON_DEV          * PF 1    *     260.00 *  2309.14 *  2311.42 *  2311.23 *  2312.09 *
0.032019 *     6.67 *     41.07 *     24.32 *          0.82 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.44542  NON_DEV          * PF 2    *     260.00 *  2309.14 *  2311.66 *          *  2312.27 *
0.029021 *     6.26 *     41.54 *     18.03 *          0.73 *
*          *          *          *          *          *          *          *          *          *          *          *
    *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.44157  NON_DEV          * PF 1    *     260.00 *  2308.68 *  2311.00 *          *  2311.47 *
0.022829 *     5.61 *     49.70 *     33.09 *          0.70 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.44157  NON_DEV          * PF 2    *     260.00 *  2308.68 *  2311.37 *          *  2311.76 *
0.016867 *     4.98 *     52.19 *     21.91 *          0.57 *
*          *          *          *          *          *          *          *          *          *          *          *
    *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.43466  NON_DEV          * PF 1    *     260.00 *  2307.40 *  2310.44 *          *  2310.76 *
0.015307 *     4.76 *     61.10 *     38.22 *          0.55 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.43466  NON_DEV          * PF 2    *     260.00 *  2307.40 *  2310.79 *          *  2311.15 *
0.016326 *     4.81 *     54.02 *     19.94 *          0.52 *
*          *          *          *          *          *          *          *          *          *          *          *
    *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.42887  NON_DEV          * PF 1    *     260.00 *  2306.87 *  2309.35 *  2309.18 *  2310.03 *
0.036402 *     6.83 *     40.76 *     23.36 *          0.82 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.42887  NON_DEV          * PF 2    *     260.00 *  2306.87 *  2309.63 *          *  2310.35 *
0.041651 *     6.85 *     37.98 *     15.58 *          0.77 *
*          *          *          *          *          *          *          *          *          *          *          *
    *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.42419  NON_DEV          * PF 1    *     260.00 *  2306.42 *  2308.86 *          *  2309.24 *
0.023144 *     5.09 *     53.77 *     32.09 *          0.64 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.42419  NON_DEV          * PF 2    *     260.00 *  2306.42 *  2309.19 *          *  2309.54 *
0.020292 *     4.75 *     54.74 *     23.96 *          0.55 *
*          *          *          *          *          *          *          *          *          *          *          *
    *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.42020                   * PF 1    *     260.00 *  2305.35 *  2308.89 *          *  2309.00 *
0.003546 *     2.64 *    102.03 *     38.25 *          0.27 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.42020                   * PF 2    *     260.00 *  2305.35 *  2309.23 *          *  2309.32 *
0.003416 *     2.49 *    104.50 *     31.40 *          0.24 *
*          *          *          *          *          *          *          *          *          *          *          *
    *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.41686  NON_DEV          * PF 1    *     260.00 *  2304.23 *  2307.34 *          *  2307.58 *
0.011145 *     4.04 *     67.82 *     32.63 *          0.46 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.41686  NON_DEV          * PF 2    *     260.00 *  2304.23 *  2307.68 *          *  2307.92 *
0.011461 *     3.92 *     66.29 *     24.28 *          0.42 *
*          *          *          *          *          *          *          *          *          *          *          *
    *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.41149  NON_DEV          * PF 1    *     260.00 *  2303.60 *  2306.64 *          *  2307.11 *
0.025700 *     5.67 *     48.41 *     29.44 *          0.71 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.41149  NON_DEV          * PF 2    *     260.00 *  2303.60 *  2307.15 *          *  2307.52 *
0.017190 *     4.82 *     53.90 *     21.63 *          0.54 *
*          *          *          *          *          *          *          *          *          *          *          *
    *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.40709  NON_DEV          * PF 1    *     260.00 *  2302.76 *  2306.18 *          *  2306.55 *
0.019128 *     5.22 *     55.03 *     31.84 *          0.60 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.40709  NON_DEV          * PF 2    *     260.00 *  2302.76 *  2306.42 *          *  2306.99 *
0.028619 *     6.06 *     42.90 *     16.80 *          0.67 *
*          *          *          *          *          *          *          *          *          *          *          *
    *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.40093  NON_DEV          * PF 1    *     260.00 *  2301.62 *  2304.88 *  2304.78 *  2305.64 *
0.042127 *     7.17 *     38.67 *     23.80 *          0.86 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.40093  NON_DEV          * PF 2    *     260.00 *  2301.62 *  2304.99 *          *  2305.79 *
0.047062 *     7.18 *     36.20 *     16.07 *          0.84 *
*          *          *          *          *          *          *          *          *          *          *          *
    *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.39446  NON_DEV          * PF 1    *     260.00 *  2300.35 *  2303.34 *  2303.34 *  2304.09 *
0.047738 *     7.12 *     38.95 *     27.25 *          0.90 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.39446  NON_DEV          * PF 2    *     260.00 *  2300.35 *  2303.65 *          *  2304.31 *
0.037814 *     6.49 *     40.04 *     17.87 *          0.76 *
*          *          *          *          *          *          *          *          *          *          *          *
    *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.38991  NON_DEV          * PF 1    *     260.00 *  2299.38 *  2302.80 *          *  2303.10 *
0.015284 *     4.71 *     63.21 *     38.97 *          0.53 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.38991  NON_DEV          * PF 2    *     260.00 *  2299.38 *  2303.19 *          *  2303.61 *
0.019096 *     5.18 *     50.18 *     17.87 *          0.54 *
*          *          *          *          *          *          *          *          *          *          *          *
    *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.38436  NON_DEV          * PF 1    *     260.00 *  2298.83 *  2302.72 *          *  2302.84 *
0.004832 *     3.05 *     99.24 *     53.77 *          0.32 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.38436  NON_DEV          * PF 2    *     260.00 *  2298.83 *  2302.85 *          *  2303.14 *
0.011538 *     4.32 *     60.22 *     19.93 *          0.44 *
*          *          *          *          *          *          *          *          *          *          *          *
    *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.37788  NON_DEV          * PF 1    *     260.00 *  2298.12 *  2302.72 *          *  2302.76 *
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0.001173 *      1.73 *    167.39 *     63.68 *          0.16 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.37788  NON_DEV          * PF 2    *     260.00 *   2298.12 *   2302.81 *           *   2302.91 *
0.002921 *      2.50 *    104.01 *     28.72 *          0.23 *
*          *          *          *          *                *         *            *           *           *           *           *
* Ocotillo Wash 1 * Tributary-2.1 * 0.37417                   * PF 1    *     260.00 *   2297.67 *   2302.71 *           *   2302.74 *
0.000578 *      1.33 *    212.38 *     65.46 *          0.12 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.37417                   * PF 2    *     260.00 *   2297.67 *   2302.80 *           *   2302.86 *
0.001381 *      1.85 *    140.88 *     33.52 *          0.16 *
*          *          *          *          *                *         *            *           *           *           *           *
* Ocotillo Wash 1 * Tributary-2.1 * 0.36875                   * PF 1    *     260.00 *   2297.46 *   2302.71 *   2299.02 *   2302.74 *
0.000048 *      1.37 *    191.44 *     45.84 *          0.11 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.36875                   * PF 2    *     260.00 *   2297.46 *   2302.82 *   2299.01 *   2302.84 *
0.000045 *      1.34 *    194.36 *     40.60 *          0.11 *
*          *          *          *          *                *         *            *           *           *           *           *
* Ocotillo Wash 1 * Tributary-2.1 * 0.36595  P216-14-001-Q    *         *    Culvert *           *           *           *           *
*          *          *          *          *                *         *            *           *           *           *           *
* Ocotillo Wash 1 * Tributary-2.1 * 0.36365                   * PF 1    *     260.00 *   2296.16 *   2299.88 *           *   2300.02 *
0.004119 *      2.99 *     91.61 *     34.53 *          0.30 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.36365                   * PF 2    *     260.00 *   2296.16 *   2300.36 *           *   2300.48 *
0.003419 *      2.80 *     92.71 *     26.05 *          0.26 *
*          *          *          *          *                *         *            *           *           *           *           *
* Ocotillo Wash 1 * Tributary-2.1 * 0.35963                   * PF 1    *     260.00 *   2295.71 *   2299.85 *           *   2299.94 *
0.002517 *      2.51 *    116.41 *     48.52 *          0.24 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.35963                   * PF 2    *     260.00 *   2295.71 *   2300.31 *           *   2300.41 *
0.002860 *      2.57 *    101.26 *     26.08 *          0.23 *
*          *          *          *          *                *         *            *           *           *           *           *
* Ocotillo Wash 1 * Tributary-2.1 * 0.35631  NON_DEV          * PF 1    *     260.00 *   2295.59 *   2297.47 *   2297.47 *   2298.10 *
0.050099 *      6.56 *     42.12 *     34.74 *          0.95 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.35631  NON_DEV          * PF 2    *     260.00 *   2295.59 *   2297.55 *   2297.50 *   2298.26 *
0.057864 *      6.79 *     38.29 *     24.53 *          0.96 *
*          *          *          *          *                *         *            *           *           *           *           *
* Ocotillo Wash 1 * Tributary-2.1 * 0.35325  NON_DEV          * PF 1    *     260.00 *   2294.88 *   2296.66 *   2296.66 *   2297.31 *
0.048590 *      6.64 *     42.04 *     35.26 *          0.94 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.35325  NON_DEV          * PF 2    *     260.00 *   2294.88 *   2296.97 *           *   2297.51 *
0.034084 *      5.87 *     44.31 *     23.69 *          0.76 *
*          *          *          *          *                *         *            *           *           *           *           *
* Ocotillo Wash 1 * Tributary-2.1 * 0.34893  NON_DEV          * PF 1    *     260.00 *   2293.58 *   2295.75 *   2295.75 *   2296.28 *
0.042192 *      6.20 *     47.39 *     44.87 *          0.86 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.34893  NON_DEV          * PF 2    *     260.00 *   2293.58 *   2295.90 *   2295.75 *   2296.58 *
0.047670 *      6.61 *     39.33 *     22.41 *          0.88 *
*          *          *          *          *                *         *            *           *           *           *           *
* Ocotillo Wash 1 * Tributary-2.1 * 0.34588  NON_DEV          * PF 1    *     260.00 *   2293.46 *   2295.50 *           *   2295.75 *
0.018020 *      4.26 *     67.73 *     54.77 *          0.58 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.34588  NON_DEV          * PF 2    *     260.00 *   2293.46 *   2295.50 *           *   2295.92 *
0.028309 *      5.19 *     50.05 *     30.29 *          0.71 *
*          *          *          *          *                *         *            *           *           *           *           *
* Ocotillo Wash 1 * Tributary-2.1 * 0.34303  NON_DEV          * PF 1    *     260.00 *   2293.13 *   2294.77 *   2294.76 *   2295.27 *
0.049594 *      5.83 *     47.15 *     48.39 *          0.94 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.34303  NON_DEV          * PF 2    *     260.00 *   2293.13 *   2294.87 *   2294.76 *   2295.38 *
0.044741 *      5.74 *     45.32 *     34.96 *          0.89 *
*          *          *          *          *                *         *            *           *           *           *           *
* Ocotillo Wash 1 * Tributary-2.1 * 0.33986  NON_DEV          * PF 1    *     260.00 *   2291.54 *   2294.25 *   2294.03 *   2294.64 *
0.029473 *      5.15 *     54.07 *     45.04 *          0.73 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.33986  NON_DEV          * PF 2    *     260.00 *   2291.54 *   2294.58 *           *   2294.88 *
0.017427 *      4.45 *     59.45 *     32.84 *          0.58 *
*          *          *          *          *                *         *            *           *           *           *           *
* Ocotillo Wash 1 * Tributary-2.1 * 0.33232  NON_DEV          * PF 1    *     260.00 *   2290.52 *   2292.98 *           *   2293.51 *
0.028725 *      6.13 *     46.98 *     30.81 *          0.76 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.33232  NON_DEV          * PF 2    *     260.00 *   2290.52 *   2293.35 *           *   2293.95 *
0.030593 *      6.22 *     41.80 *     17.29 *          0.70 *
*          *          *          *          *                *         *            *           *           *           *           *
* Ocotillo Wash 1 * Tributary-2.1 * 0.31529  NON_DEV          * PF 1    *     260.00 *   2287.88 *   2291.29 *           *   2291.75 *
0.014054 *      5.66 *     50.76 *     27.75 *          0.63 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.31529  NON_DEV          * PF 2    *     260.00 *   2287.88 *   2292.06 *           *   2292.42 *
0.010011 *      4.87 *     53.41 *     16.47 *          0.48 *
*          *          *          *          *                *         *            *           *           *           *           *
* Ocotillo Wash 1 * Tributary-2.1 * 0.30808                   * PF 1    *     260.00 *   2287.29 *   2291.48 *           *   2291.53 *
0.001014 *      1.95 *    162.93 *     74.42 *          0.18 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.30808                   * PF 2    *     260.00 *   2287.29 *   2292.16 *           *   2292.23 *
0.001258 *      2.18 *    119.09 *     28.69 *          0.19 *
*          *          *          *          *                *         *            *           *           *           *           *
* Ocotillo Wash 1 * Tributary-2.1 * 0.30459  NON_DEV          * PF 1    *     260.00 *   2286.90 *   2289.58 *   2289.54 *   2290.18 *
0.026334 *      6.64 *     45.63 *     36.59 *          0.85 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.30459  NON_DEV          * PF 2    *     260.00 *   2286.90 *   2290.27 *           *   2290.79 *
0.015545 *      5.78 *     44.98 *     17.53 *          0.64 *
*          *          *          *          *                *         *            *           *           *           *           *
* Ocotillo Wash 1 * Tributary-2.1 * 0.30181  NON_DEV          * PF 1    *     260.00 *   2286.35 *   2289.17 *   2289.17 *   2289.77 *
0.028408 *      6.78 *     46.03 *     37.76 *          0.86 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.30181  NON_DEV          * PF 2    *     260.00 *   2286.35 *   2289.71 *   2289.33 *   2290.47 *
0.027592 *      6.98 *     37.24 *     15.16 *          0.79 *
*          *          *          *          *                *         *            *           *           *           *           *
* Ocotillo Wash 1 * Tributary-2.1 * 0.29712  NON_DEV          * PF 1    *     260.00 *   2285.53 *   2288.38 *   2288.38 *   2289.00 *
0.025352 *      6.86 *     46.71 *     38.64 *          0.83 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.29712  NON_DEV          * PF 2    *     260.00 *   2285.53 *   2288.44 *   2288.44 *   2289.55 *
0.047395 *      8.46 *     30.74 *     14.11 *          1.01 *
*          *          *          *          *                *         *            *           *           *           *           *
* Ocotillo Wash 1 * Tributary-2.1 * 0.29046  NON_DEV          * PF 1    *     260.00 *   2284.32 *   2287.07 *           *   2287.48 *
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0.021153 *      5.71 *     53.84 *      42.84 *           0.74 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.29046  NON_DEV    * PF 2   *   260.00 *  2284.32 *  2287.52 *            *  2288.18 *
0.025203 *      6.53 *     39.82 *      17.29 *           0.76 *
*              *           *                              *       *          *          *          *          *          *
     *         *           *           *                 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.28463  NON_DEV    * PF 1   *   260.00 *  2283.77 *  2286.10 *  2286.06 *  2286.75 *
0.029188 *      6.97 *     43.50 *      33.07 *           0.88 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.28463  NON_DEV    * PF 2   *   260.00 *  2283.77 *  2286.74 *            *  2287.42 *
0.024505 *      6.62 *     39.25 *      15.29 *           0.73 *
*              *           *                              *       *          *          *          *          *          *
     *         *           *           *                 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.28060  NON_DEV    * PF 1   *   260.00 *  2283.08 *  2285.58 *  2285.58 *  2286.18 *
0.024165 *      6.75 *     46.94 *      40.72 *           0.81 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.28060  NON_DEV    * PF 2   *   260.00 *  2283.08 *  2285.59 *  2285.59 *  2286.67 *
0.046933 *      8.36 *     31.10 *      14.56 *           1.01 *
*              *           *                              *       *          *          *          *          *          *
     *         *           *           *                 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.27669  NON_DEV    * PF 1   *   260.00 *  2281.73 *  2284.70 *  2284.70 *  2285.38 *
0.030240 *      6.83 *     42.07 *      34.08 *           0.89 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.27669  NON_DEV    * PF 2   *   260.00 *  2281.73 *  2284.75 *  2284.63 *  2285.54 *
0.036958 *      7.15 *     36.36 *      19.16 *           0.91 *
*              *           *                              *       *          *          *          *          *          *
     *         *           *           *                 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.27186  NON_DEV    * PF 1   *   260.00 *  2280.70 *  2283.84 *            *  2284.37 *
0.017714 *      6.15 *     48.03 *      29.29 *           0.71 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.27186  NON_DEV    * PF 2   *   260.00 *  2280.70 *  2284.25 *            *  2284.82 *
0.018807 *      6.08 *     42.78 *      15.49 *           0.64 *
*              *           *                              *       *          *          *          *          *          *
     *         *           *           *                 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.26729  NON_DEV    * PF 1   *   260.00 *  2280.50 *  2283.75 *            *  2284.01 *
0.007642 *      4.33 *     68.84 *      39.60 *           0.48 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.26729  NON_DEV    * PF 2   *   260.00 *  2280.50 *  2284.18 *            *  2284.47 *
0.007456 *      4.32 *     60.25 *      20.36 *           0.44 *
*              *           *                              *       *          *          *          *          *          *
     *         *           *           *                 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.26340  NON_DEV    * PF 1   *   260.00 *  2280.45 *  2283.03 *  2283.03 *  2283.70 *
0.028710 *      6.84 *     43.32 *      36.19 *           0.88 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.26340  NON_DEV    * PF 2   *   260.00 *  2280.45 *  2283.77 *            *  2284.24 *
0.014858 *      5.47 *     47.52 *      18.22 *           0.60 *
*              *           *                              *       *          *          *          *          *          *
     *         *           *           *                 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.25894  NON_DEV    * PF 1   *   260.00 *  2279.68 *  2282.38 *  2282.38 *  2283.00 *
0.025952 *      6.94 *     46.64 *      40.30 *           0.85 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.25894  NON_DEV    * PF 2   *   260.00 *  2279.68 *  2282.50 *  2282.50 *  2283.62 *
0.043398 *      8.50 *     30.60 *      13.83 *           1.01 *
*              *           *                              *       *          *          *          *          *          *
     *         *           *           *                 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.25330  NON_DEV    * PF 1   *   260.00 *  2278.56 *  2281.36 *  2281.20 *  2281.89 *
0.020510 *      6.22 *     49.40 *      40.67 *           0.76 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.25330  NON_DEV    * PF 2   *   260.00 *  2278.56 *  2281.88 *            *  2282.38 *
0.015476 *      5.70 *     45.60 *      17.65 *           0.63 *
*              *           *                              *       *          *          *          *          *          *
     *         *           *           *                 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.25016  NON_DEV    * PF 1   *   260.00 *  2278.26 *  2280.82 *  2280.82 *  2281.47 *
0.028237 *      6.98 *     44.51 *      36.72 *           0.88 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.25016  NON_DEV    * PF 2   *   260.00 *  2278.26 *  2281.04 *  2280.90 *  2281.96 *
0.038137 *      7.69 *     33.80 *      15.43 *           0.92 *
*              *           *                              *       *          *          *          *          *          *
     *         *           *           *                 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.24595  NON_DEV    * PF 1   *   260.00 *  2277.57 *  2280.29 *            *  2280.66 *
0.014813 *      5.35 *     58.51 *      45.47 *           0.65 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.24595  NON_DEV    * PF 2   *   260.00 *  2277.57 *  2280.88 *            *  2281.33 *
0.014145 *      5.38 *     48.30 *      17.73 *           0.57 *
*              *           *                              *       *          *          *          *          *          *
     *         *           *           *                 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.24329  NON_DEV    * PF 1   *   260.00 *  2277.21 *  2280.03 *            *  2280.44 *
0.016291 *      5.65 *     57.01 *      47.67 *           0.68 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.24329  NON_DEV    * PF 2   *   260.00 *  2277.21 *  2280.47 *            *  2281.08 *
0.020423 *      6.27 *     41.49 *      15.99 *           0.69 *
*              *           *                              *       *          *          *          *          *          *
     *         *           *           *                 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.23992  NON_DEV    * PF 1   *   260.00 *  2276.82 *  2279.48 *  2279.48 *  2280.08 *
0.025574 *      6.75 *     46.99 *      41.26 *           0.84 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.23992  NON_DEV    * PF 2   *   260.00 *  2276.82 *  2279.99 *            *  2280.68 *
0.023975 *      6.67 *     39.00 *      15.44 *           0.74 *
*              *           *                              *       *          *          *          *          *          *
     *         *           *           *                 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.23186  NON_DEV    * PF 1   *   260.00 *  2275.94 *  2278.36 *            *  2278.84 *
0.022381 *      6.24 *     52.78 *      46.56 *           0.78 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.23186  NON_DEV    * PF 2   *   260.00 *  2275.94 *  2278.72 *            *  2279.55 *
0.028662 *      7.29 *     35.65 *      15.28 *           0.84 *
*              *           *                              *       *          *          *          *          *          *
     *         *           *           *                 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.22859  NON_DEV    * PF 1   *   260.00 *  2275.66 *  2278.00 *            *  2278.42 *
0.022504 *      5.79 *     54.24 *      47.56 *           0.78 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.22859  NON_DEV    * PF 2   *   260.00 *  2275.66 *  2278.34 *            *  2279.03 *
0.026902 *      6.67 *     38.98 *      18.84 *           0.82 *
*              *           *                              *       *          *          *          *          *          *
     *         *           *           *                 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.22114             * PF 1   *   260.00 *  2275.16 *  2277.31 *            *  2277.60 *
0.014497 *      4.74 *     63.51 *      48.08 *           0.62 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.22114             * PF 2   *   260.00 *  2275.16 *  2277.69 *            *  2278.13 *
0.016995 *      5.31 *     48.97 *      22.36 *           0.63 *
*              *           *                              *       *          *          *          *          *          *
     *         *           *           *                 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.21765             * PF 1   *   260.00 *  2274.87 *  2276.90 *  2276.70 *  2277.28 *
0.018809 *      5.34 *     56.61 *      46.86 *           0.71 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.21765             * PF 2   *   260.00 *  2274.87 *  2277.23 *  2276.79 *  2277.76 *
0.021781 *      5.85 *     44.45 *      21.10 *           0.71 *
*              *           *                              *       *          *          *          *          *          *
     *         *           *           *                 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.21461             * PF 1   *   260.00 *  2274.71 *  2276.31 *  2276.31 *  2276.86 *
0.035283 *      6.37 *     46.64 *      44.52 *           0.93 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.21461             * PF 2   *   260.00 *  2274.71 *  2276.45 *  2276.45 *  2277.25 *
0.045542 *      7.18 *     36.21 *      22.90 *           1.01 *
*              *           *                              *       *          *          *          *          *          *
```

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      *          *            *            *                   *
* Ocotillo Wash 1 * Tributary-2.1 * 0.20941                        * PF 1    *    260.00 *  2273.51 *  2275.64 *           *  2275.76 *
0.005064 *     2.93 *   100.42 *    70.85 *              0.37 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.20941                        * PF 2    *    260.00 *  2273.51 *  2276.30 *           *  2276.50 *
0.006069 *     3.56 *    72.99 *    28.05 *              0.39 *
*               *            *                                     *         *           *          *          *           *          *
      *          *            *            *                   *
* Ocotillo Wash 1 * Tributary-2.1 * 0.20885                        * PF 1    *    260.00 *  2271.07 *  2275.68 *  2273.59 *  2275.73 *
0.001218 *     2.05 *   152.71 *    75.75 *              0.20 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.20885                        * PF 2    *    260.00 *  2271.07 *  2276.37 *  2273.59 *  2276.45 *
0.001429 *     2.28 *   114.21 *    27.82 *              0.20 *
*               *            *                                     *         *           *          *          *           *          *
      *          *            *            *                   *
* Ocotillo Wash 1 * Tributary-2.1 * 0.20714  NON_DEV               * PF 1    *    260.00 *  2271.25 *  2273.64 *  2273.64 *  2274.10 *
0.030967 *     5.81 *    51.88 *    56.61 *              0.86 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.20714  NON_DEV               * PF 2    *    260.00 *  2271.25 *  2273.71 *  2273.71 *  2274.45 *
0.042725 *     6.90 *    37.69 *    25.81 *              1.01 *
*               *            *                                     *         *           *          *          *           *          *
      *          *            *            *                   *
* Ocotillo Wash 1 * Tributary-2.1 * 0.20431  NON_DEV               * PF 1    *    260.00 *  2271.01 *  2272.87 *  2272.81 *  2273.24 *
0.027390 *     5.28 *    56.50 *    63.73 *              0.81 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.20431  NON_DEV               * PF 2    *    260.00 *  2271.01 *  2273.58 *           *  2273.87 *
0.011086 *     4.27 *    60.88 *    30.09 *              0.53 *
*               *            *                                     *         *           *          *          *           *          *
      *          *            *            *                   *
* Ocotillo Wash 1 * Tributary-2.1 * 0.20205  NON_DEV               * PF 1    *    260.00 *  2270.65 *  2272.72 *           *  2272.93 *
0.016216 *     4.08 *    72.56 *    72.70 *              0.62 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.20205  NON_DEV               * PF 2    *    260.00 *  2270.65 *  2273.45 *           *  2273.74 *
0.011024 *     4.27 *    60.92 *    29.40 *              0.52 *
*               *            *                                     *         *           *          *          *           *          *
      *          *            *            *                   *
* Ocotillo Wash 1 * Tributary-2.1 * 0.19955  NON_DEV               * PF 1    *    260.00 *  2270.21 *  2272.36 *           *  2272.66 *
0.024570 *     4.65 *    60.70 *    65.90 *              0.75 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.19955  NON_DEV               * PF 2    *    260.00 *  2270.21 *  2272.93 *  2272.67 *  2273.49 *
0.026785 *     6.00 *    43.31 *    24.54 *              0.80 *
*               *            *                                     *         *           *          *          *           *          *
      *          *            *            *                   *
* Ocotillo Wash 1 * Tributary-2.1 * 0.19719  NON_DEV               * PF 1    *    260.00 *  2269.71 *  2271.79 *  2271.79 *  2272.25 *
0.041148 *     5.95 *    48.81 *    54.16 *              0.97 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.19719  NON_DEV               * PF 2    *    260.00 *  2269.71 *  2272.22 *  2272.22 *  2273.04 *
0.044030 *     7.28 *    35.70 *    22.18 *              1.01 *
*               *            *                                     *         *           *          *          *           *          *
      *          *            *            *                   *
* Ocotillo Wash 1 * Tributary-2.1 * 0.19296  NON_DEV               * PF 1    *    260.00 *  2268.74 *  2270.99 *           *  2271.32 *
0.013967 *     4.86 *    59.79 *    41.92 *              0.62 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.19296  NON_DEV               * PF 2    *    260.00 *  2268.74 *  2271.86 *           *  2272.09 *
0.006552 *     3.87 *    67.24 *    23.94 *              0.41 *
*               *            *                                     *         *           *          *          *           *          *
      *          *            *            *                   *
* Ocotillo Wash 1 * Tributary-2.1 * 0.19051  NON_DEV               * PF 1    *    260.00 *  2268.37 *  2270.82 *           *  2271.15 *
0.012705 *     5.13 *    63.19 *    49.01 *              0.60 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.19051  NON_DEV               * PF 2    *    260.00 *  2268.37 *  2271.54 *           *  2271.96 *
0.011629 *     5.21 *    49.86 *    16.82 *              0.53 *
*               *            *                                     *         *           *          *          *           *          *
      *          *            *            *                   *
* Ocotillo Wash 1 * Tributary-2.1 * 0.18844  NON_DEV               * PF 1    *    260.00 *  2267.98 *  2270.47 *           *  2270.95 *
0.020740 *     6.18 *    52.09 *    42.78 *              0.76 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.18844  NON_DEV               * PF 2    *    260.00 *  2267.98 *  2271.22 *           *  2271.79 *
0.017025 *     6.08 *    42.76 *    15.23 *              0.64 *
*               *            *                                     *         *           *          *          *           *          *
      *          *            *            *                   *
* Ocotillo Wash 1 * Tributary-2.1 * 0.18485  NON_DEV               * PF 1    *    260.00 *  2267.17 *  2270.23 *           *  2270.62 *
0.012933 *     5.48 *    57.36 *    37.52 *              0.61 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.18485  NON_DEV               * PF 2    *    260.00 *  2267.17 *  2271.05 *           *  2271.48 *
0.012166 *     5.25 *    49.50 *    15.01 *              0.51 *
*               *            *                                     *         *           *          *          *           *          *
      *          *            *            *                   *
* Ocotillo Wash 1 * Tributary-2.1 * 0.17337  NON_DEV               * PF 1    *    260.00 *  2266.07 *  2268.92 *  2268.92 *  2269.54 *
0.025983 *     7.00 *    46.29 *    37.83 *              0.84 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.17337  NON_DEV               * PF 2    *    260.00 *  2266.07 *  2269.69 *           *  2270.43 *
0.024621 *     6.91 *    37.62 *    12.88 *              0.71 *
*               *            *                                     *         *           *          *          *           *          *
      *          *            *            *                   *
* Ocotillo Wash 1 * Tributary-2.1 * 0.16793  NON_DEV               * PF 1    *    260.00 *  2265.50 *  2268.12 *  2268.12 *  2268.71 *
0.033834 *     6.88 *    44.28 *    36.08 *              0.92 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.16793  NON_DEV               * PF 2    *    260.00 *  2265.50 *  2268.88 *  2268.54 *  2269.69 *
0.026419 *     7.27 *    36.67 *    14.98 *              0.81 *
*               *            *                                     *         *           *          *          *           *          *
      *          *            *            *                   *
* Ocotillo Wash 1 * Tributary-2.1 * 0.16413  NON_DEV               * PF 1    *    260.00 *  2264.72 *  2267.48 *  2267.48 *  2268.13 *
0.029572 *     7.15 *    43.56 *    33.52 *              0.89 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.16413  NON_DEV               * PF 2    *    260.00 *  2264.72 *  2267.79 *  2267.79 *  2268.95 *
0.048684 *     8.65 *    30.07 *    12.97 *              1.00 *
*               *            *                                     *         *           *          *          *           *          *
      *          *            *            *                   *
* Ocotillo Wash 1 * Tributary-2.1 * 0.15690  NON_DEV               * PF 1    *    260.00 *  2263.03 *  2266.44 *           *  2267.03 *
0.020049 *     6.46 *    44.68 *    28.21 *              0.74 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.15690  NON_DEV               * PF 2    *    260.00 *  2263.03 *  2267.07 *           *  2267.63 *
0.017105 *     6.02 *    43.22 *    14.48 *              0.61 *
*               *            *                                     *         *           *          *          *           *          *
      *          *            *            *                   *
* Ocotillo Wash 1 * Tributary-2.1 * 0.15225  NON_DEV               * PF 1    *    260.00 *  2262.49 *  2265.75 *  2265.75 *  2266.48 *
0.023877 *     7.34 *    41.95 *    30.25 *              0.82 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.15225  NON_DEV               * PF 2    *    260.00 *  2262.49 *  2266.16 *           *  2267.04 *
0.030532 *     7.55 *    34.42 *    11.91 *              0.78 *
*               *            *                                     *         *           *          *          *           *          *
      *          *            *            *                   *
* Ocotillo Wash 1 * Tributary-2.1 * 0.14532                        * PF 1    *    260.00 *  2261.41 *  2265.69 *           *  2265.77 *
0.002029 *     2.56 *   124.24 *    59.11 *              0.25 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.14532                        * PF 2    *    260.00 *  2261.41 *  2266.39 *           *  2266.56 *
0.003200 *     3.30 *    79.33 *    20.42 *              0.30 *
*               *            *                                     *         *           *          *          *           *          *
      *          *            *            *                   *
* Ocotillo Wash 1 * Tributary-2.1 * 0.14374                        * PF 1    *    260.00 *  2261.05 *  2265.71 *  2263.58 *  2265.75 *
0.001006 *     1.81 *   164.26 *    67.46 *              0.17 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.14374                        * PF 2    *    260.00 *  2261.05 *  2266.44 *  2263.62 *  2266.52 *
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0.001300 *     2.25 *    118.49 *     28.82 *         0.20 *
*          *          *          *          *          *          *          *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.14161  P216-15-014-B    *          *   Culvert *          *          *          *          *
*          *          *          *          *          *          *          *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.13875                   * PF 1     *     260.00 *   2261.07 *   2263.58 *          *   2263.72 *
0.006692 *     3.30 *     91.36 *     65.97 *         0.42 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.13875                   * PF 2     *     260.00 *   2261.07 *   2264.00 *          *   2264.24 *
0.008035 *     3.98 *     66.68 *     28.80 *         0.46 *
*          *          *          *          *          *          *          *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.13724                   * PF 1     *     260.00 *   2260.00 *   2263.57 *          *   2263.67 *
0.003168 *     2.75 *    112.00 *     65.40 *         0.30 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.13724                   * PF 2     *     260.00 *   2260.00 *   2264.02 *          *   2264.17 *
0.003664 *     3.15 *     83.22 *     27.96 *         0.32 *
*          *          *          *          *          *          *          *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.13462  NON_DEV          * PF 1     *     260.00 *   2260.00 *   2263.16 *          *   2263.32 *
0.005561 *     3.54 *     88.27 *     55.18 *         0.40 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.13462  NON_DEV          * PF 2     *     260.00 *   2260.00 *   2263.29 *          *   2263.61 *
0.009778 *     4.59 *     57.61 *     22.78 *         0.51 *
*          *          *          *          *          *          *          *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.12733  NON_DEV          * PF 1     *     260.00 *   2259.14 *   2262.96 *          *   2263.14 *
0.005048 *     3.53 *     82.18 *     45.34 *         0.39 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.12733  NON_DEV          * PF 2     *     260.00 *   2259.14 *   2263.05 *          *   2263.28 *
0.006529 *     3.82 *     68.13 *     25.16 *         0.41 *
*          *          *          *          *          *          *          *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.11883                   * PF 1     *     260.00 *   2258.02 *   2261.43 *   2261.43 *   2262.46 *
0.099454 *     8.14 *     31.92 *     15.75 *         1.01 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.11883                   * PF 2     *     260.00 *   2258.02 *   2261.44 *   2261.43 *   2262.46 *
0.098191 *     8.11 *     32.07 *     15.78 *         1.00 *
*          *          *          *          *          *          *          *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.11472                   * PF 1     *     260.00 *   2257.32 *   2261.60 *   2260.12 *   2261.77 *
0.004196 *     3.39 *     82.22 *     33.94 *         0.34 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.11472                   * PF 2     *     260.00 *   2257.32 *   2261.73 *   2260.09 *   2261.92 *
0.004778 *     3.49 *     74.42 *     23.08 *         0.34 *
*          *          *          *          *          *          *          *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.10962  NON_DEV          * PF 1     *     260.00 *   2256.35 *   2259.24 *   2259.24 *   2259.99 *
0.038688 *     7.01 *     38.20 *     27.77 *         0.96 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.10962  NON_DEV          * PF 2     *     260.00 *   2256.35 *   2259.33 *   2259.20 *   2260.03 *
0.035140 *     6.73 *     38.62 *     22.16 *         0.90 *
*          *          *          *          *          *          *          *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.10284  NON_DEV          * PF 1     *     260.00 *   2255.06 *   2258.11 *   2257.95 *   2258.62 *
0.020545 *     5.99 *     49.57 *     37.85 *         0.73 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.10284  NON_DEV          * PF 2     *     260.00 *   2255.06 *   2258.77 *   2257.86 *   2259.19 *
0.014027 *     5.24 *     49.65 *     17.95 *         0.55 *
*          *          *          *          *          *          *          *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.09693  NON_DEV          * PF 1     *     260.00 *   2254.51 *   2257.33 *   2257.33 *   2257.88 *
0.027959 *     6.40 *     47.94 *     49.02 *         0.83 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.09693  NON_DEV          * PF 2     *     260.00 *   2254.51 *   2257.41 *   2257.41 *   2258.39 *
0.049223 *     7.95 *     32.71 *     16.91 *         1.01 *
*          *          *          *          *          *          *          *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.09077  NON_DEV          * PF 1     *     260.00 *   2253.47 *   2256.01 *   2256.01 *   2256.71 *
0.035628 *     6.85 *     40.67 *     34.55 *         0.95 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.09077  NON_DEV          * PF 2     *     260.00 *   2253.47 *   2256.44 *          *   2256.93 *
0.019342 *     5.65 *     45.99 *     22.68 *         0.70 *
*          *          *          *          *          *          *          *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.08036                   * PF 1     *     260.00 *   2252.41 *   2255.37 *          *   2255.47 *
0.005807 *     2.99 *    109.21 *     93.54 *         0.39 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.08036                   * PF 2     *     260.00 *   2252.41 *   2255.93 *          *   2256.18 *
0.008582 *     3.98 *     65.33 *     27.06 *         0.45 *
*          *          *          *          *          *          *          *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.07210  NON_DEV          * PF 1     *     260.00 *   2251.46 *   2253.94 *   2253.72 *   2254.18 *
0.017705 *     4.26 *     70.96 *     72.89 *         0.64 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.07210  NON_DEV          * PF 2     *     260.00 *   2251.46 *   2254.04 *   2253.81 *   2254.50 *
0.027938 *     5.46 *     47.63 *     32.66 *         0.80 *
*          *          *          *          *          *          *          *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.06454  NON_DEV          * PF 1     *     260.00 *   2250.51 *   2252.61 *   2252.61 *   2253.17 *
0.024945 *     6.22 *     45.21 *     44.95 *         0.94 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.06454  NON_DEV          * PF 2     *     260.00 *   2250.51 *   2252.63 *   2252.63 *   2253.33 *
0.029552 *     6.70 *     38.78 *     28.34 *         1.01 *
*          *          *          *          *          *          *          *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.05817                   * PF 1     *     260.00 *   2249.67 *   2251.66 *   2251.66 *   2252.06 *
0.022755 *     5.33 *     53.06 *     67.06 *         0.93 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.05817                   * PF 2     *     260.00 *   2249.67 *   2251.70 *   2251.70 *   2252.21 *
0.026179 *     5.73 *     45.37 *     43.27 *         0.99 *
*          *          *          *          *          *          *          *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.04814  NON_DEV          * PF 1     *     260.00 *   2248.65 *   2250.28 *   2250.16 *   2250.50 *
0.017467 *     3.78 *     68.86 *     95.15 *         0.78 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.04814  NON_DEV          * PF 2     *     260.00 *   2248.65 *   2250.28 *   2250.16 *   2250.50 *
0.017467 *     3.78 *     68.86 *     95.15 *         0.78 *
*          *          *          *          *          *          *          *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.03638  NON_DEV          * PF 1     *     260.00 *   2247.42 *   2248.77 *   2248.77 *   2249.07 *
0.031462 *     4.38 *     59.31 *    106.39 *         1.03 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.03638  NON_DEV          * PF 2     *     260.00 *   2247.42 *   2248.77 *   2248.77 *   2249.07 *
0.031462 *     4.38 *     59.31 *    106.39 *         1.03 *
*          *          *          *          *          *          *          *          *          *          *          *
* Ocotillo Wash 1 * Tributary-2.1 * 0.02605  NON_DEV          * PF 1     *     260.00 *   2246.15 *   2247.88 *   2247.45 *   2247.94 *
0.004181 *     1.96 *    132.75 *    176.97 *         0.39 *
* Ocotillo Wash 1 * Tributary-2.1 * 0.02605  NON_DEV          * PF 2     *     260.00 *   2246.15 *   2247.88 *   2247.45 *   2247.94 *
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0.004181 *     1.96 *    132.75 *    176.97 *         0.39 *
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# E.6 EFFECTIVE FLOOD INSURANCE PROFILES

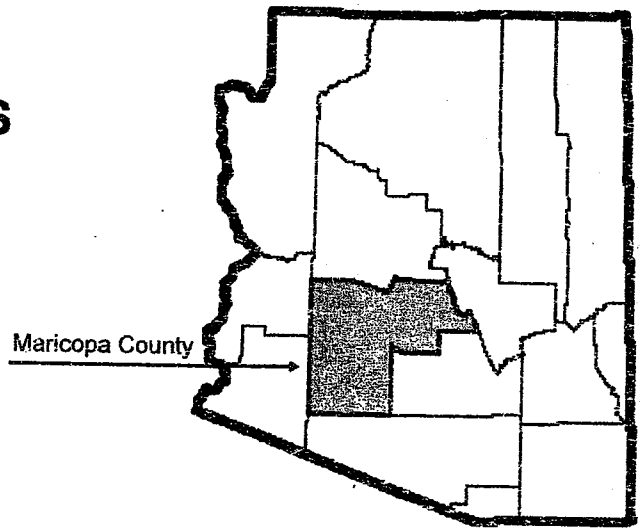
# FLOOD INSURANCE STUDY

# MARICOPA COUNTY, ARIZONA

## AND INCORPORATED AREAS

### VOLUME 1 OF 17

| COMMUNITY NAME | COMMUNITY NUMBER |
|---|---|
| AVONDALE, CITY OF | 040038 |
| BUCKEYE, TOWN OF | 040039 |
| CAREFREE, TOWN OF | 040126 |
| CAVE CREEK, TOWN OF | 040129 |
| CHANDLER, CITY OF | 040040 |
| EL MIRAGE, CITY OF | 040041 |
| FOUNTAIN HILLS, TOWN OF | 040135 |
| GILA BEND, TOWN OF | 040043 |
| GILBERT, TOWN OF | 040044 |
| GLENDALE, CITY OF | 040045 |
| GOODYEAR, CITY OF | 040046 |
| GUADALUPE, TOWN OF | 040111 |
| LITCHFIELD PARK, CITY O | 040128 |
| MARICOPA COUNTY (UNINCORPORATED AREAS) | 040037 |
| MESA, CITY OF | 040048 |
| PARADISE VALLEY, TOWN OF | 040049 |
| PEORIA, CITY OF | 040050 |
| PHOENIX, CITY OF | 040051 |
| QUEEN CREEK, TOWN OF | 040132 |
| SCOTTSDALE, CITY O | 045012 |
| SURPRISE, CITY OF | 040053 |
| TEMPE, CITY OF | 040054 |
| TOLLESON, CITY OF | 040055 |
| WICKENBURG, TOWN OF | 040056 |
| YOUNGTOWN, TOWN OF | 040057 |




REVISED

September 30, 2005

Federal Emergency Management Agency

FLOOD INSURANCE STUDY NUMBER
04013CV001A

**Table 3. Summary of Discharges**

| Flooding Source and Location | Drainage Area (Square Miles) | Peak Discharges (cfs) 10-Year | 50-Year | 100-Year | 500-Year |
|---|---|---|---|---|---|
| **Cottonwood Creek** | | | | | |
| Above confluence with Cave Creek | 10.06 | 5,952 | 9,253 | 10,956 | 14,038 |
| Above confluence with Cottonwood Creek Tributary 1 | 9.62 | 5,905 | 9,202 | 10,925 | 14,016 |
| At River Mile 1.85 above Minor Tributary | 8.31 | 5,127 | 7,963 | 9,424 | 12,075 |
| At River Mile 2.11 above Minor Tributary | 1.64 | 746 | 1,154 | 1,366 | 1,747 |
| **Cottonwood Creek Tributary 1** | | | | | |
| Above confluence with Cottonwood Creek | 0.82 | 764 | 1,187 | 1,410 | 1,804 |
| Above confluence with Cottonwood Creek Tributary 2 | 0.74 | 688 | 1,068 | 1,269 | 1,624 |
| **Cottonwood Creek Tributary 2** | | | | | |
| Above confluence with Cottonwood Creek Tributary 1 | 0.08 | 76 | 119 | 141 | 180 |
| **Grapevine Wash** | | | | | |
| Above confluence with Rowe Wash | 3.80 | 2,865 | 4,266 | 5,004 | 6,316 |
| **Ocotillo Wash Tributary 1** | | | | | |
| Above confluence with Ocotillo Wash | 0.76 | 802 | 1,201 | 1,397 | 1,743 |
| Above confluence with Ocotillo Wash Tributary 1A | 0.15 | 126 | 190 | 223 | 283 |
| **Ocotillo Wash Tributary 1A** | | | | | |
| Above confluence with Ocotillo Wash Tributary 1 | 0.61 | 693 | 1,030 | 1,206 | 1,517 |

**Table 3. Summary of Discharges (Continued)**

| Flooding Source and Location | Drainage Area (Square Miles) | Peak Discharges (cfs) 10-Year | 50-Year | 100-Year | 500-Year |
|---|---|---|---|---|---|
| **Ocotillo Wash Tributary 2** | | | | | |
| Above confluence with Ocotillo Wash | 0.19 | 145 | 222 | 260 | 330 |
| **Ocotillo Wash Tributary 3** | | | | | |
| Above confluence with Ocotillo Wash | 0.21 | 164 | 252 | 296 | 375 |
| **Ocotillo Wash Tributary 4** | | | | | |
| Above confluence with Ocotillo Wash | 0.06 | 46 | 71 | 83 | 105 |
| **Willow Springs Wash** | | | | | |
| Above confluence with Cave Creek | 5.0 | 3,740 | 5,570 | 6,240 | 8,250 |
| 0.8 mile above confluence with Cave Creek | 3.1 | 2,920 | 4,300 | 4,800 | 6,220 |
| At River Mile 1.78 Cave Creek | 2.76 | 2,652 | 4,004 | 4,682 | 5,877 |
| Above confluence with Willow Springs Wash Tributary 2 | 1.64 | 1,835 | 2,746 | 3,193 | 3,978 |
| Above confluence with Willow Springs Wash Tributary 4 | 1.41 | 1,698 | 2,528 | 2,932 | 3,640 |
| At River Mile 3.81 below CP 16 | 0.88 | 1,189 | 1,755 | 2,027 | 2,502 |
| At River Mile 4.31 above confluence with Minor Tributary | 0.32 | 420 | 626 | 724 | 897 |
| At River Mile 4.95 above confluence with Minor Tributary | 0.16 | 210 | 313 | 362 | 449 |
| **Willow Springs Wash Tributary 1** | | | | | |
| Above confluence with Willow Springs Wash | 1.65 | 816 | 1,226 | 1,438 | 1,822 |
| At River Mile 0.98 above confluence with Minor Tributary | 1.31 | 604 | 908 | 1,065 | 1,385 |

**Table 3. Summary of Discharges (Continued)**

| Flooding Source and Location | Drainage Area (Square Miles) | Peak Discharges (cfs) 10-Year | 50-Year | 100-Year | 500-Year |
|---|---|---|---|---|---|
| **Unnamed Tributary to Galloway Wash** | | | | | |
| At confluence with Galloway Wash | 7.1 | --[1] | --[1] | 5,722 | --[1] |
| **Ocotillo Wash** | | | | | |
| Above confluence with Cave Creek | 3.8 | 3,200 | 4,820 | 5,420 | 7,200 |
| Near intersection of Rockaway Hills Drive and Fleming Springs Road | 2.8 | 2,800 | 4,140 | 4,630 | 6,200 |
| **Cave Creek** | | | | | |
| At confluence with Salt River | 25.0 | --[1] | --[1] | 2,257 | --[1] |
| At 35th Avenue | 22.6 | --[1] | --[1] | 2,226 | --[1] |
| At Interstate 10 Freeway downstream of Durango Exit | 21.0 | --[1] | --[1] | 2,217 | --[1] |
| At Interstate 10 Freeway upstream of Durango Exit | 21.0 | --[1] | --[1] | 2,523 | --[1] |
| At Jackson Street | 16.1 | --[1] | --[1] | 1,890 | --[1] |
| At Van Buren Street | 15.3 | --[1] | --[1] | 1,865 | --[1] |
| At McDowell Road | 12.9 | --[1] | --[1] | 1,691 | --[1] |
| At Encanto Street | 9.3 | --[1] | --[1] | 1,375 | --[1] |
| At Thomas Road | 7.9 | --[1] | --[1] | 1,210 | --[1] |
| At Indian School Road | 7.2 | --[1] | --[1] | 1,237 | --[1] |
| At confluence with Arizona Canal Diversion Channel (contributing drainage area below Cave Buttes Dam only, and discharges are regulated) | 34.7 | 10, 300 | 16, 100 | 18,500 | --[1] |
| Below confluence with Moon Valley Wash (contributing drainage area below Cave Buttes Dam only, and discharges are regulated) | 33.1 | 10,100 | 15,300 | 17,500 | --[1] |

--[1] Not Computed

Table 3. Summary of Discharges (Continued)

| Flooding Source and Location | Drainage Area (Square Miles) | Peak Discharges (cfs) 10-Year | 50-Year | 100-Year | 500-Year |
|---|---|---|---|---|---|
| **Cave Creek (Continued)** | | | | | |
| Below confluence with East Fork of Cave Creek (contributing drainage area below Cave Buttes Dam only and discharges are regulated) | 22.5 | 3,100 | 8,700 | 11,000 | 25,000 |
| Below Deer Valley Road (contributing drainage area below Cave Buttes Dam only and discharges are regulated) | 5.0 | 1,400 | 3,800 | 5,400 | 11,000 |
| Above Deer Valley Road (contributing drainage area below Cave Buttes Dam only and discharges are regulated) | 4.5 | 1,300 | 3,500 | 5,000 | 10,000 |
| Above Cave Buttes Dam Ponding Area | 142.5 | --[1] | --[1] | 38,200 | --[1] |
| Above confluence with Minor Tributary | 137.9 | --[1] | --[1] | 36,800 | --[1] |
| At Carefree Highway | 124.4 | --[1] | --[1] | 33,800 | --[1] |
| Below New River Road | 118.1 | --[1] | --[1] | 31,400 | --[1] |
| Near Andora Hills Wash Drive | 115.0 | --[1] | --[1] | 31,200 | --[1] |
| Below confluence with Andora Hills Wash | 112.2 | --[1] | --[1] | 30,900 | --[1] |
| Below confluence with Galloway Wash | 91.4 | --[1] | --[1] | 24,700 | --[1] |
| Below confluence with Willow Springs Wash | 86.0 | --[1] | --[1] | 24,700 | --[1] |
| Above confluence with Willow Springs Wash | 80.1 | --[1] | --[1] | 23,400 | --[1] |
| Below Cahava Ranch Road | 77.5 | --[1] | --[1] | 23,200 | --[1] |
| At northeast corner of Section 4 above Cottonwood | 61.64 | --[1] | --[1] | 20,680 | --[1] |

--[1] Not Computed

**Table 3. Summary of Discharges (Continued)**

| Flooding Source and Location | Drainage Area (Square Miles) | Peak Discharges (cfs) 10-Year | 50-Year | 100-Year | 500-Year |
|---|---|---|---|---|---|
| **Tributary to Cave Creek** | | | | | |
| At upstream limit of detailed study | --[2] | --[1] | --[1] | 469 | --[1] |
| Above confluence with Cave Creek | --[2] | --[1] | --[1] | 1,000 | --[1] |
| **Tributary to Tributary to Cave Creek** | | | | | |
| At upstream limit of detailed study | --[2] | --[1] | --[1] | 451 | --[1] |
| **East Fork of Cave Creek** | | | | | |
| Near Coral Gables and Seventh Avenue | 14.1 | 5,500 | 8,200 | 9,400 | --[1] |
| Near Paradise Lane and Central Avenue | 13.4 | 5,300 | 7,900 | 9,100 | --[1] |
| Below Seventh Street | 12.4 | 2,200 | 5,900 | 8,400 | 17,000 |
| Above Seventh Street | 10.0 | 1,900 | 5,300 | 7,500 | 15,200 |
| At Bell Road | 3.4 | 1,100 | 2,900 | 4,200 | 8,200 |
| Below Cave Creek Road | 3.0 | 1,000 | 2,800 | 3,900 | 7,900 |
| At Utopia Road | 1.8 | 800 | 2,100 | 3,000 | 5,800 |
| At Beardsley Road | 1.0 | 600 | 1,500 | 2,100 | 4,300 |
| **Eastern Pima Wash** | | | | | |
| Approximately 40 feet upstream of Stage Coach Pass | 0.13 | --[1] | --[1] | 323 | --[1] |
| **Unnamed Tributary to Stagecoach Pass Wash** | | | | | |
| At confluence with Stagecoach Pass Wash | 0.12 | --[1] | --[1] | 225 | --[1] |

--[1] Not Computed

--[2] Flow affected by overflows, diversions, or obstructions; drainage area does not apply

Table 3. Summary of Discharges (Continued)

| Flooding Source and Location | Drainage Area (Square Miles) | Peak Discharges (cfs) 10-Year | 50-Year | 100-Year | 500-Year |
|---|---|---|---|---|---|
| **Unnamed Central Tributary to Cave Creek** | | | | | |
| Approximately 300 feet upstream of Terravita Sunset Trail | 2.44 | --[1] | --[1] | 2,849 | --[1] |
| **Windmill Wash** | | | | | |
| Approximately 400 feet upstream of Stage Coach Pass | 0.04 | --[1] | --[1] | 338 | --[1] |
| **Windmill Wash North Branch** | | | | | |
| Approximately 6,500 feet upstream of Stage Coach Pass | 0.08 | --[1] | --[1] | 131 | --[1] |
| **Windmill Wash South Branch** | | | | | |
| Approximately 200 feet upstream of confluence with Windmill Wash | 0.08 | --[1] | --[1] | 131 | --[1] |
| **Skunk Creek** | | | | | |
| At confluence with Arizona Canal | 19.9 | 2,200 | 6,700 | 11,000 | 33,000 |
| Below confluence with Scatter Wash (At 59th Avenue) | 0.4 | 2,000 | 5,500 | 8,400 | 22,000 |
| Above confluence with Scatter Wash | 0.9 | 1,600 | 2,200 | 2,600 | 4,600 |
| At Outflow of Adobe Dam | 0.0 | 1,370 | 1,650 | 1,730 | 2,000 |
| At Inflow of Adobe Dam | 89.6 | 15,000 | 29,000 | 39,000 | 85,000 |
| At Granite Reef Aqueduct | 63.49 | --[1] | --[1] | 26,700 | --[1] |
| At Carefree Highway | 40.11 | --[1] | --[1] | 27,300 | --[1] |
| At confluence with Rodger Creek | 32.67 | --[1] | --[1] | 24,400 | --[1] |
| At confluence with Cline Creek | 15.76 | --[1] | --[1] | 11,800 | --[1] |
| At New River Road | 8.04 | --[1] | --[1] | 7,800 | --[1] |

[1] Not Computed

| FLOODING SOURCE | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|
| CROSS SECTION | DISTANCE[1] | WIDTH (FEET) | SECTION AREA (SQUARE FEET) | MEAN VELOCITY (FEET PER SECOND) | REGULATORY | WITHOUT FLOODWAY | WITH FLOODWAY | INCREASE |
| | | | | | (FEET NGVD) | | | |
| Cave Creek (Cont'd) | | | | | | | | |
| DR | 33.721 | 713 | 2,492 | 13.6 | 1,842.9 | 1,842.9 | 1,842.9 | 0.0 |
| DS | 33.850 | 729 | 5,006 | 6.8 | 1,849.6 | 1,849.6 | 1,850.0 | 0.4 |
| DT | 34.001 | 721 | 3,046 | 11.1 | 1,855.0 | 1,855.0 | 1,855.2 | 0.2 |
| DU | 34.126 | 450 | 3,215 | 10.5 | 1,864.5 | 1,864.5 | 1,864.5 | 0.0 |
| DV | 34.232 | 270 | 2,480 | 13.6 | 1,867.5 | 1,867.5 | 1,867.9 | 0.4 |
| DW | 34.555 | 709 | 3,922 | 8.6 | 1,880.2 | 1,880.2 | 1,880.5 | 0.3 |
| DX | 34.657 | 706 | 3,323 | 10.2 | 1,885.7 | 1,885.7 | 1,886.2 | 0.5 |
| DY | 34.737 | 576 | 3,140 | 10.8 | 1,891.5 | 1,891.5 | 1,891.9 | 0.4 |
| DZ | 34.978 | 576 | 3,011 | 11.2 | 1,902.2 | 1,902.2 | 1,902.6 | 0.4 |
| EA | 35.202 | 457 | 3,893 | 8.7 | 1,913.9 | 1,913.9 | 1,914.5 | 0.6 |
| EB | 35.412 | 743 | 4,299 | 7.3 | 1,922.0 | 1,922.0 | 1,922.8 | 0.8 |
| EC | 35.594 | 756 | 3,295 | 9.5 | 1,929.5 | 1,929.5 | 1,929.8 | 0.3 |
| ED | 35.706 | 597 | 3,092 | 10.2 | 1,934.9 | 1,934.9 | 1,935.5 | 0.6 |
| EE | 35.908 | 543 | 3,460 | 9.1 | 1,944.8 | 1,944.8 | 1,945.6 | 0.8 |
| EF | 36.086 | 578 | 3,502 | 9.0 | 1,952.3 | 1,952.3 | 1,952.6 | 0.3 |
| EG | 36.277 | 340 | 2,508 | 12.5 | 1,962.4 | 1,962.4 | 1,963.2 | 0.8 |
| EH | 36.362 | 324 | 3,210 | 9.8 | 1,967.0 | 1,967.0 | 1,967.8 | 0.8 |
| EI | 36.528 | 393 | 3,060 | 10.2 | 1,974.0 | 1,974.0 | 1,974.6 | 0.6 |
| EJ | 36.696 | 371 | 2,619 | 12.0 | 1,981.1 | 1,981.1 | 1,981.6 | 0.5 |
| EK | 36.894 | 499 | 3,792 | 8.3 | 1,990.0 | 1,990.0 | 1,990.7 | 0.7 |
| EL | 36.976 | 560 | 3,792 | 8.2 | 1,993.5 | 1,993.5 | 1,994.5 | 1.0 |
| EM | 37.156 | 302 | 2,483 | 12.6 | 2,002.2 | 2,002.2 | 2,002.4 | 0.2 |
| EN | 37.357 | 314 | 2,963 | 10.4 | 2,011.8 | 2,011.8 | 2,012.5 | 0.7 |
| EO | 37.534 | 361 | 2,894 | 10.7 | 2,020.2 | 2,020.2 | 2,020.9 | 0.7 |
| EP | 37.715 | 297 | 3,001 | 10.3 | 2,029.9 | 2,029.9 | 2,030.7 | 0.8 |

[1]Miles Above Confluence With Salt River

| FLOODING SOURCE | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|
| CROSS SECTION | DISTANCE[1] | WIDTH (FEET) | SECTION AREA (SQUARE FEET) | MEAN VELOCITY (FEET PER SECOND) | REGULATORY | WITHOUT FLOODWAY | WITH FLOODWAY | INCREASE |
| | | | | | (FEET NGVD) | | | |
| Cave Creek (Cont'd) | | | | | | | | |
| EQ | 37.819 | 275 | 2,795 | 8.8 | 2,034.8 | 2,034.8 | 2,035.1 | 0.3 |
| ER | 38.011 | 188 | 1,836 | 13.3 | 2,042.1 | 2,042.1 | 2,042.4 | 0.3 |
| ES | 38.122 | 113 | 1,311 | 18.3 | 2,049.0 | 2,049.0 | 2,049.1 | 0.1 |
| ET | 38.226 | 200 | 2,948 | 8.1 | 2,057.1 | 2,057.1 | 2,058.0 | 0.9 |
| EU | 38.341 | 238 | 2,253 | 10.4 | 2,060.1 | 2,060.1 | 2,060.6 | 0.5 |
| EV | 38.435 | 457 | 2,809 | 8.3 | 2,064.6 | 2,064.6 | 2,064.9 | 0.3 |
| EW | 38.538 | 363 | 2,241 | 10.4 | 2,068.6 | 2,068.6 | 2,069.3 | 0.7 |
| EX | 38.646 | 329 | 2,651 | 8.8 | 2,075.4 | 2,075.4 | 2,075.9 | 0.5 |
| EY | 38.724 | 159 | 1,682 | 13.9 | 2,079.8 | 2,079.8 | 2,080.5 | 0.7 |
| EZ | 38.816 | 441 | 3,464 | 6.8 | 2,085.8 | 2,085.8 | 2,086.8 | 1.0 |
| FA | 38.903 | 419 | 2,359 | 9.9 | 2,089.3 | 2,089.3 | 2,089.9 | 0.6 |
| FB | 38.997 | 443 | 3,156 | 7.4 | 2,095.8 | 2,095.8 | 2,096.8 | 1.0 |
| FC | 39.089 | 341 | 2,741 | 8.5 | 2,100.2 | 2,100.2 | 2,100.9 | 0.7 |
| FD | 39.185 | 271 | 1,851 | 12.6 | 2,105.9 | 2,105.9 | 2,106.5 | 0.6 |
| FE | 39.331 | 301 | 1,930 | 12.1 | 2,114.3 | 2,114.3 | 2,114.7 | 0.4 |
| FF | 39.461 | 367 | 2,483 | 9.3 | 2,121.9 | 2,121.9 | 2,122.7 | 0.8 |
| FG | 39.603 | 411 | 2,274 | 10.2 | 2,129.1 | 2,129.1 | 2,129.9 | 0.8 |
| FH | 39.698 | 593 | 2,066 | 11.2 | 2,136.2 | 2,136.2 | 2,136.2 | 0.0 |
| FI | 39.824 | 442 | 3,451 | 6.7 | 2,142.8 | 2,142.8 | 2,142.9 | 0.1 |
| FJ | 40.000 | 360 | 2,643 | 8.8 | 2,151.3 | 2,151.3 | 2,152.3 | 1.0 |

[1]Miles Above Confluence With Salt River

| FLOODING SOURCE | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|
| CROSS SECTION | DISTANCE | WIDTH (FEET) | SECTION AREA (SQUARE FEET) | MEAN VELOCITY (FEET PER SECOND) | REGULATORY | WITHOUT FLOODWAY | WITH FLOODWAY | INCREASE |
| | | | | | (FEET NGVD) | | | |
| Myrtle Avenue Wash | | | | | | | | |
| A | 0.05[1] | 45 | 85 | 7.8 | 1,246.5 | 1,246.5 | 1,246.7 | 0.2 |
| B | 0.13[1] | 60 | 93 | 7.1 | 1,249.1 | 1,249.1 | 1,249.2 | 0.1 |
| C | 0.21[1] | 70 | 155 | 8.4 | 1,256.6 | 1,256.6 | 1,257.2 | 0.6 |
| D | 0.32[1] | 32 | 118 | 11.0 | 1,270.5 | 1,270.5 | 1,270.6 | 0.1 |
| E | 0.43[1] | 40 | 184 | 7.1 | 1,272.8 | 1,272.8 | 1,273.4 | 0.6 |
| Ocotillo Wash | | | | | | | | |
| A | 0.05[2] | 98 | 449 | 12.1 | 2,039.2 | 2,039.2 | 2,039.2 | 0.0 |
| B | 0.13[2] | 88 | 443 | 12.2 | 2,045.5 | 2,045.5 | 2,045.5 | 0.0 |
| C | 0.18[2] | 104 | 452 | 12.0 | 2,049.1 | 2,049.1 | 2,049.1 | 0.0 |
| D | 0.23[2] | 305 | 735 | 7.4 | 2,053.7 | 2,053.7 | 2,053.7 | 0.0 |
| E | 0.31[2] | 204 | 596 | 9.1 | 2,064.6 | 2,064.6 | 2,064.6 | 0.0 |
| F | 0.39[2] | 121 | 523 | 10.4 | 2,074.1 | 2,074.1 | 2,074.1 | 0.0 |
| G | 0.46[2] | 89 | 460 | 11.8 | 2,080.4 | 2,080.4 | 2,080.4 | 0.0 |
| H | 0.55[2] | 102 | 459 | 11.4 | 2,086.6 | 2,086.6 | 2,086.6 | 0.0 |
| I | 0.70[2] | 87 | 426 | 12.3 | 2,099.6 | 2,099.6 | 2,099.6 | 0.0 |
| J | 0.78[2] | 162 | 617 | 8.5 | 2,105.6 | 2,105.6 | 2,105.6 | 0.0 |
| K | 0.89[2] | 187 | 542 | 9.6 | 2,114.2 | 2,114.2 | 2,114.2 | 0.0 |
| L | 0.92[2] | 277 | 628 | 8.3 | 2,117.0 | 2,117.0 | 2,117.0 | 0.0 |
| M | 0.97[2] | 454 | 806 | 6.2 | 2,123.2 | 2,123.2 | 2,123.2 | 0.0 |
| N | 1.14[2] | 293 | 614 | 8.2 | 2,142.7 | 2,142.7 | 2,142.7 | 0.0 |
| O | 1.36[2] | 390 | 679 | 7.4 | 2,165.4 | 2,165.4 | 2,165.4 | 0.0 |
| P | 1.47[2] | 297 | 632 | 7.6 | 2,177.9 | 2,177.9 | 2,177.9 | 0.0 |
| Q | 1.56[2] | 416 | 723 | 6.7 | 2,189.1 | 2,189.1 | 2,189.1 | 0.0 |
| R | 1.71[2] | 188 | 515 | 9.4 | 2,207.0 | 2,207.0 | 2,207.0 | 0.0 |
| S | 1.83[2] | 196 | 579 | 8.3 | 2,220.7 | 2,220.7 | 2,220.7 | 0.0 |
| T | 2.03[2] | 186 | 528 | 8.8 | 2,243.7 | 2,243.7 | 2,243.7 | 0.0 |

[1]Distance in miles above the mouth [2]Distance in miles above confluence with Cave Creek

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

**MARICOPA COUNTY, AZ AND INCORPORATED AREAS**

**FLOODWAY DATA**

**MYRTLE AVENUE WASH - OCOTILLO WASH**

| CROSS SECTION | DISTANCE | WIDTH (FEET) | SECTION AREA (SQUARE FEET) | MEAN VELOCITY (FEET PER SECOND) | REGULATORY | WITHOUT FLOODWAY | WITH FLOODWAY | INCREASE |
|---|---|---|---|---|---|---|---|---|
| | | | | | (FEET NGVD) | | | |
| **Myrtle Avenue Wash** | | | | | | | | |
| A | 0.05[1] | 45 | 85 | 7.8 | 1,246.5 | 1,246.5 | 1,246.7 | 0.2 |
| B | 0.13[1] | 60 | 93 | 7.1 | 1,249.1 | 1,249.1 | 1,249.2 | 0.1 |
| C | 0.21[1] | 70 | 155 | 8.4 | 1,256.6 | 1,256.6 | 1,257.2 | 0.6 |
| D | 0.32[1] | 32 | 118 | 11.0 | 1,270.5 | 1,270.5 | 1,270.6 | 0.1 |
| E | 0.43[1] | 40 | 184 | 7.1 | 1,272.8 | 1,272.8 | 1,273.4 | 0.6 |
| **Ocotillo Wash** | | | | | | | | |
| A 5420 | 0.05[2] | 98 | 449 | 12.1 | 2,039.2 | 2,039.2 | 2,039.2 | 0.0 |
| B 5420 | 0.13[2] | 88 | 443 | 12.2 | 2,045.5 | 2,045.5 | 2,045.5 | 0.0 |
| C 5420 | 0.18[2] | 104 | 452 | 12.0 | 2,049.1 | 2,049.1 | 2,049.1 | 0.0 |
| D 5420 | 0.23[2] | 305 | 735 | 7.4 | 2,053.7 | 2,053.7 | 2,053.7 | 0.0 |
| E 5420 | 0.31[2] | 204 | 596 | 9.1 | 2,064.6 | 2,064.6 | 2,064.6 | 0.0 |
| F 5420 | 0.39[2] | 121 | 523 | 10.4 | 2,074.1 | 2,074.1 | 2,074.1 | 0.0 |
| G 5420 | 0.46[2] | 89 | 460 | 11.8 | 2,080.4 | 2,080.4 | 2,080.4 | 0.0 |
| H 5220 | 0.55[2] | 102 | 459 | 11.4 | 2,086.6 | 2,086.6 | 2,086.6 | 0.0 |
| I 5220 | 0.70[2] | 87 | 426 | 12.3 | 2,099.6 | 2,099.6 | 2,099.6 | 0.0 |
| J 5220 | 0.78[2] | 162 | 617 | 8.5 | 2,105.6 | 2,105.6 | 2,105.6 | 0.0 |
| K 5220 | 0.89[2] | 187 | 542 | 9.6 | 2,114.2 | 2,114.2 | 2,114.2 | 0.0 |
| L 5220 | 0.92[2] | 277 | 628 | 8.3 | 2,117.0 | 2,117.0 | 2,117.0 | 0.0 |
| M 5020 | 0.97[2] | 454 | 806 | 6.2 | 2,123.2 | 2,123.2 | 2,123.2 | 0.0 |
| N 5020 | 1.14[2] | 293 | 614 | 8.2 | 2,142.7 | 2,142.7 | 2,142.7 | 0.0 |
| O 5020 | 1.36[2] | 390 | 679 | 7.4 | 2,165.4 | 2,165.4 | 2,165.4 | 0.0 |
| P 4820 | 1.47[2] | 297 | 632 | 7.6 | 2,177.9 | 2,177.9 | 2,177.9 | 0.0 |
| Q 4820 | 1.56[2] | 416 | 723 | 6.7 | 2,189.1 | 2,189.1 | 2,189.1 | 0.0 |
| R 4820 | 1.71[2] | 188 | 515 | 9.4 | 2,207.0 | 2,207.0 | 2,207.0 | 0.0 |
| S 4820 | 1.83[2] | 196 | 579 | 8.3 | 2,220.7 | 2,220.7 | 2,220.7 | 0.0 |
| T 4630 | 2.03[2] | 186 | 528 | 8.8 | 2,243.7 | 2,243.7 | 2,243.7 | 0.0 |

[1]Distance in miles above the mouth [2]Distance in miles above confluence with Cave Creek

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

**MARICOPA COUNTY, AZ AND INCORPORATED AREAS**

**FLOODWAY DATA**

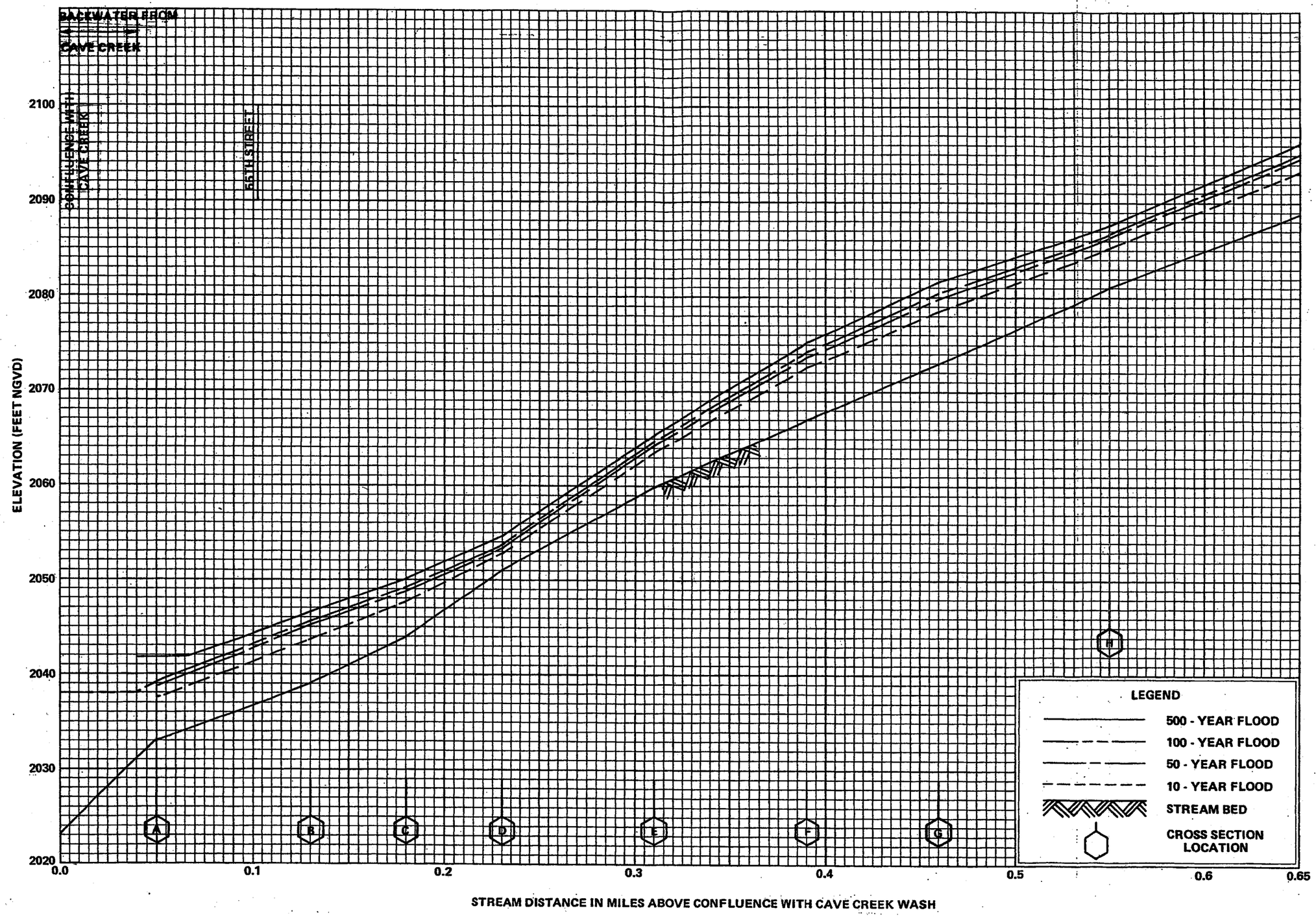
**MYRTLE AVENUE WASH - OCOTILLO WASH**

| FLOODING SOURCE | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|
| CROSS SECTION | DISTANCE | WIDTH (FEET) | SECTION AREA (SQUARE FEET) | MEAN VELOCITY (FEET PER SECOND) | REGULATORY | WITHOUT FLOODWAY | WITH FLOODWAY | INCREASE |
| | | | | | (FEET NGVD) | | | |
| Ocotillo Wash Tributary 1 | | | | | | | | |
| A | 0.09[1] | 133 | 197 | 7.1 | 2,290.8 | 2,290.8 | 2,290.8 | 0.0 |
| B | 0.24[1] | 69 | 161 | 8.7 | 2,310.5 | 2,310.5 | 2,311.0 | 0.5 |
| C | 0.42[1] | 29 | 35 | 6.3 | 2,329.7 | 2,329.7 | 2,329.7 | 0.0 |
| D | 0.63[1] | 22 | 35 | 6.4 | 2,367.2 | 2,367.2 | 2,367.2 | 0.0 |
| E | 0.81[1] | 30 | 36 | 6.2 | 2,401.2 | 2,401.2 | 2,401.3 | 0.1 |
| F | 1.10[1] | 34 | 36 | 6.1 | 2,450.2 | 2,450.2 | 2,450.2 | 0.0 |
| Ocotillo Wash Tributary 1A | | | | | | | | |
| A | 0.12[2] | 45 | 130 | 9.3 | 2,338.1 | 2,338.1 | 2,338.5 | 0.4 |
| B | 0.35[2] | 36 | 119 | 10.1 | 2,382.2 | 2,382.2 | 2,382.4 | 0.2 |
| C | 0.54[2] | 33 | 119 | 10.2 | 2,427.2 | 2,427.2 | 2,427.5 | 0.3 |
| D | 0.69[2] | 46 | 127 | 9.5 | 2,452.5 | 2,452.5 | 2,452.6 | 0.1 |
| Ocotillo Wash Tributary 2 | | | | | | | | |
| A | 0.07[1] | 105 | 52 | 5.0 | 2,234.1 | 2,234.1 | 2,234.1 | 0.0 |
| B | 0.15[1] | 247 | 91 | 2.9 | 2,244.2 | 2,244.2 | 2,244.3 | 0.1 |
| C | 0.31[1] | 34 | 41 | 6.4 | 2,269.2 | 2,269.2 | 2,269.2 | 0.0 |
| D | 0.48[1] | 51 | 50 | 5.2 | 2,298.4 | 2,298.4 | 2,298.4 | 0.0 |
| E | 0.67[1] | 28 | 39 | 6.7 | 2,328.7 | 2,328.7 | 2,328.7 | 0.0 |
| F | 0.88[1] | 26 | 38 | 6.9 | 2,364.7 | 2,364.7 | 2,364.7 | 0.0 |
| G | 1.07[1] | 62 | 53 | 4.9 | 2,401.6 | 2,401.6 | 2,401.6 | 0.0 |

[1]Miles above confluence with Ocotillo Wash [2]Miles above confluence with Ocotillo Wash Tributary 1

| FLOODING SOURCE | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|
| CROSS SECTION | DISTANCE[1] | WIDTH (FEET) | SECTION AREA (SQUARE FEET) | MEAN VELOCITY (FEET PER SECOND) | REGULATORY | WITHOUT FLOODWAY | WITH FLOODWAY | INCREASE |
| | | | | | (FEET NGVD) | | | |
| Ocotillo Wash Tributary 3 | | | | | | | | |
| A | 0.07 | 89 | 61 | 4.8 | 2,173.8 | 2,173.8 | 2,173.8 | 0.0 |
| B | 0.26 | 46 | 52 | 5.7 | 2,195.8 | 2,195.8 | 2,195.8 | 0.0 |
| C | 0.28 | 85 | 784 | 0.4 | 2,209.2 | 2,209.2 | 2,209.2 | 0.0 |
| D | 0.45 | 99 | 75 | 4.0 | 2,220.9 | 2,220.9 | 2,220.9 | 0.0 |
| E | 0.46 | 110 | 651 | 0.5 | 2,226.7 | 2,226.7 | 2,226.7 | 0.0 |
| F | 0.65 | 38 | 46 | 6.4 | 2,247.4 | 2,247.4 | 2,247.4 | 0.0 |
| G | 0.86 | 47 | 54 | 5.5 | 2,283.2 | 2,283.2 | 2,283.3 | 0.1 |
| H | 1.07 | 34 | 46 | 6.5 | 2,313.2 | 2,313.2 | 2,313.2 | 0.0 |
| I | 1.30 | 52 | 54 | 5.4 | 2,352.6 | 2,352.6 | 2,352.7 | 0.1 |
| J | 1.43 | 29 | 42 | 7.0 | 2,374.3 | 2,374.3 | 2,374.3 | 0.0 |
| Ocotillo Wash Tributary 4 | | | | | | | | |
| A | 0.17 | 17 | 15 | 5.5 | 2,145.4 | 2,145.4 | 2,145.4 | 0.0 |
| B | 0.38 | 16 | 15 | 5.5 | 2,173.6 | 2,173.6 | 2,173.6 | 0.0 |
| C | 0.58 | 2 | 8 | 10.4 | 2,204.1 | 2,204.1 | 2,204.1 | 0.0 |
| D | 0.60 | 2 | 23 | 3.7 | 2,214.4 | 2,214.4 | 2,214.4 | 0.0 |
| E | 0.77 | 19 | 16 | 5.2 | 2,234.3 | 2,234.3 | 2,234.3 | 0.0 |
| F | 0.97 | 23 | 18 | 4.5 | 2,265.7 | 2,265.7 | 2,265.7 | 0.0 |
| C | 1.16 | 39 | 22 | 3.8 | 2,297.2 | 2,297.2 | 2,297.2 | 0.0 |
| H | 1.25 | 27 | 18 | 4.6 | 2,314.3 | 2,314.3 | 2,314.3 | 0.0 |

[1]Miles above confluence with Ocotillo Wash

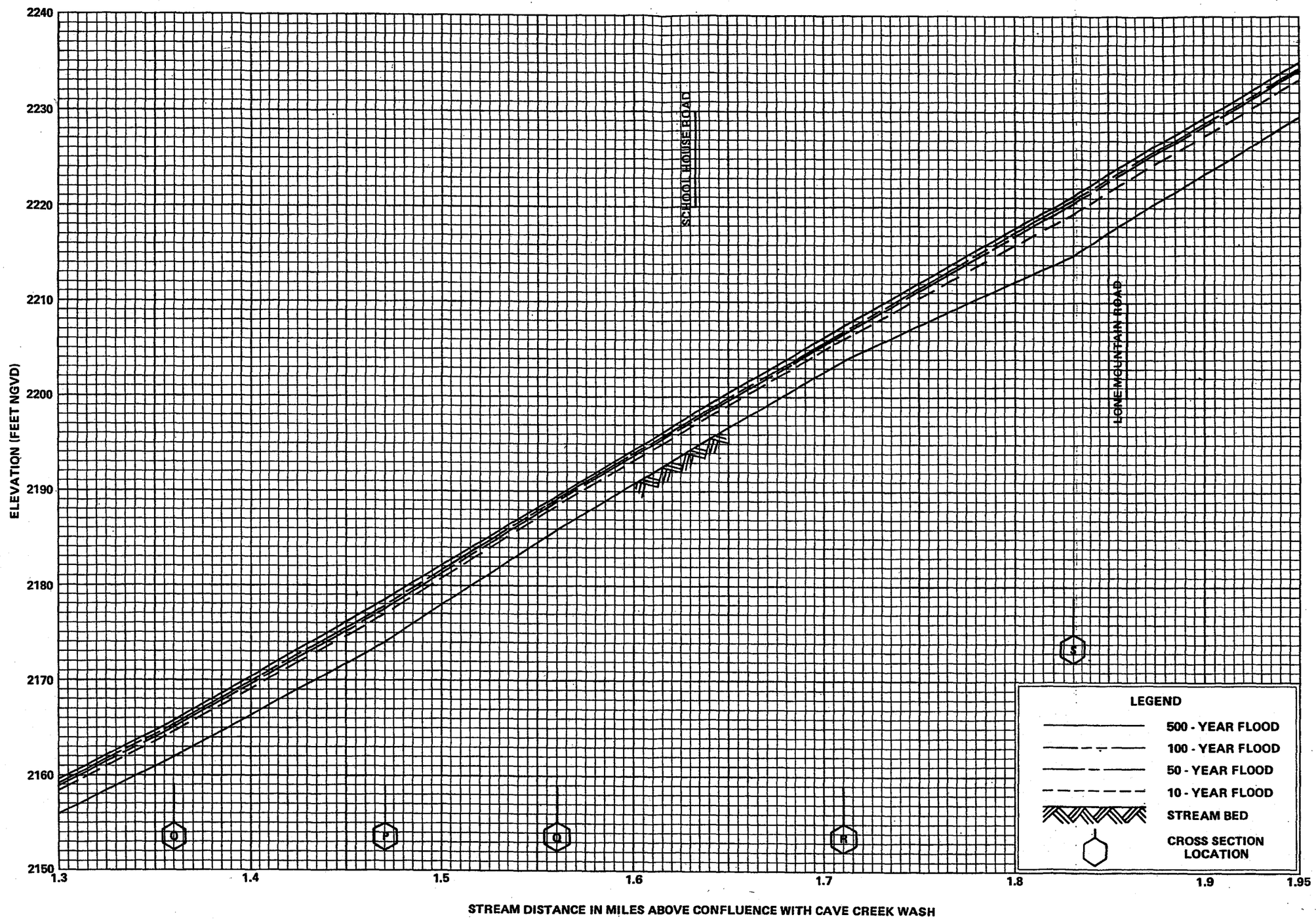



FLOOD PROFILES

OCOTILLO WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

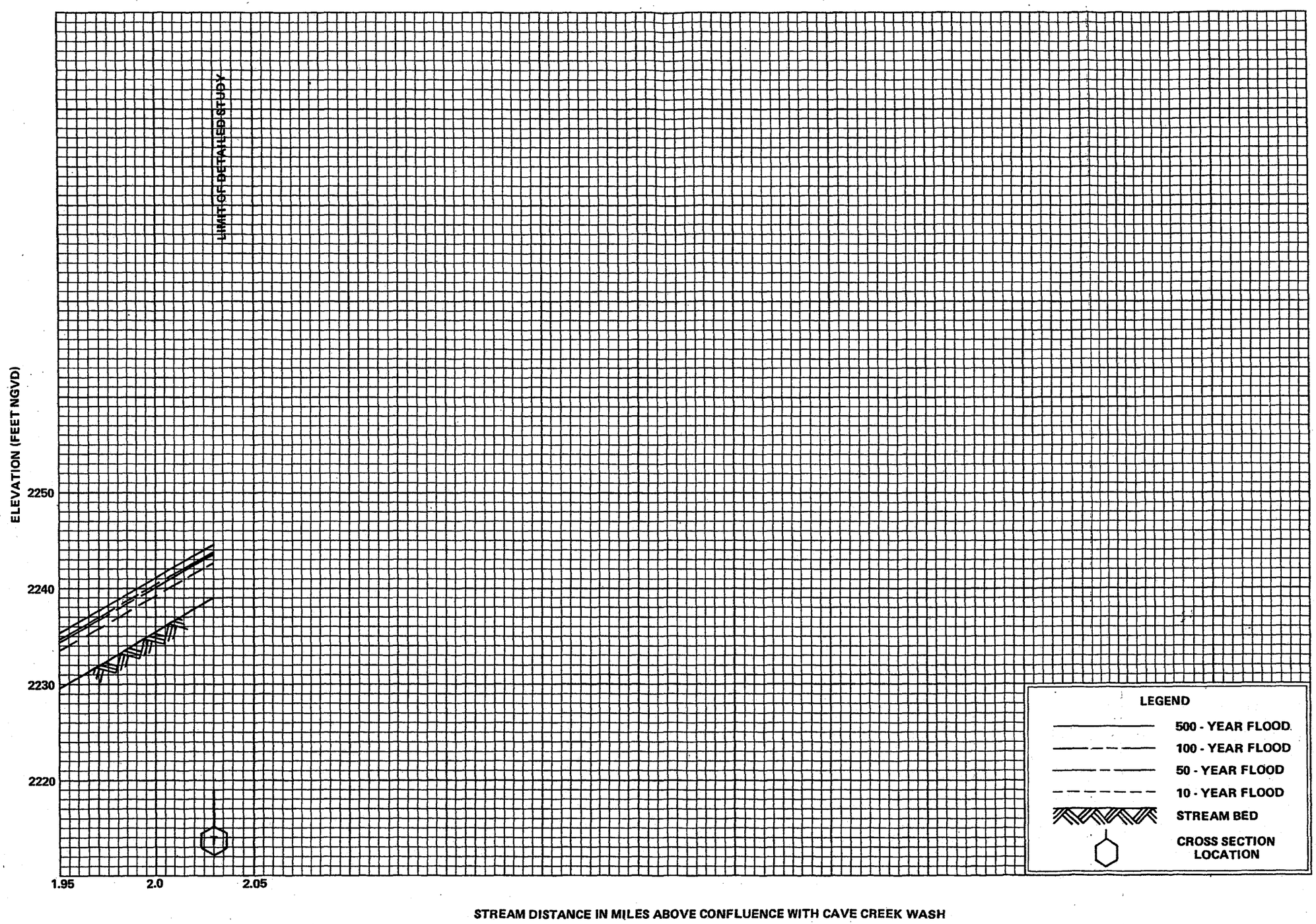



FLOOD PROFILES

OCOTILLO WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

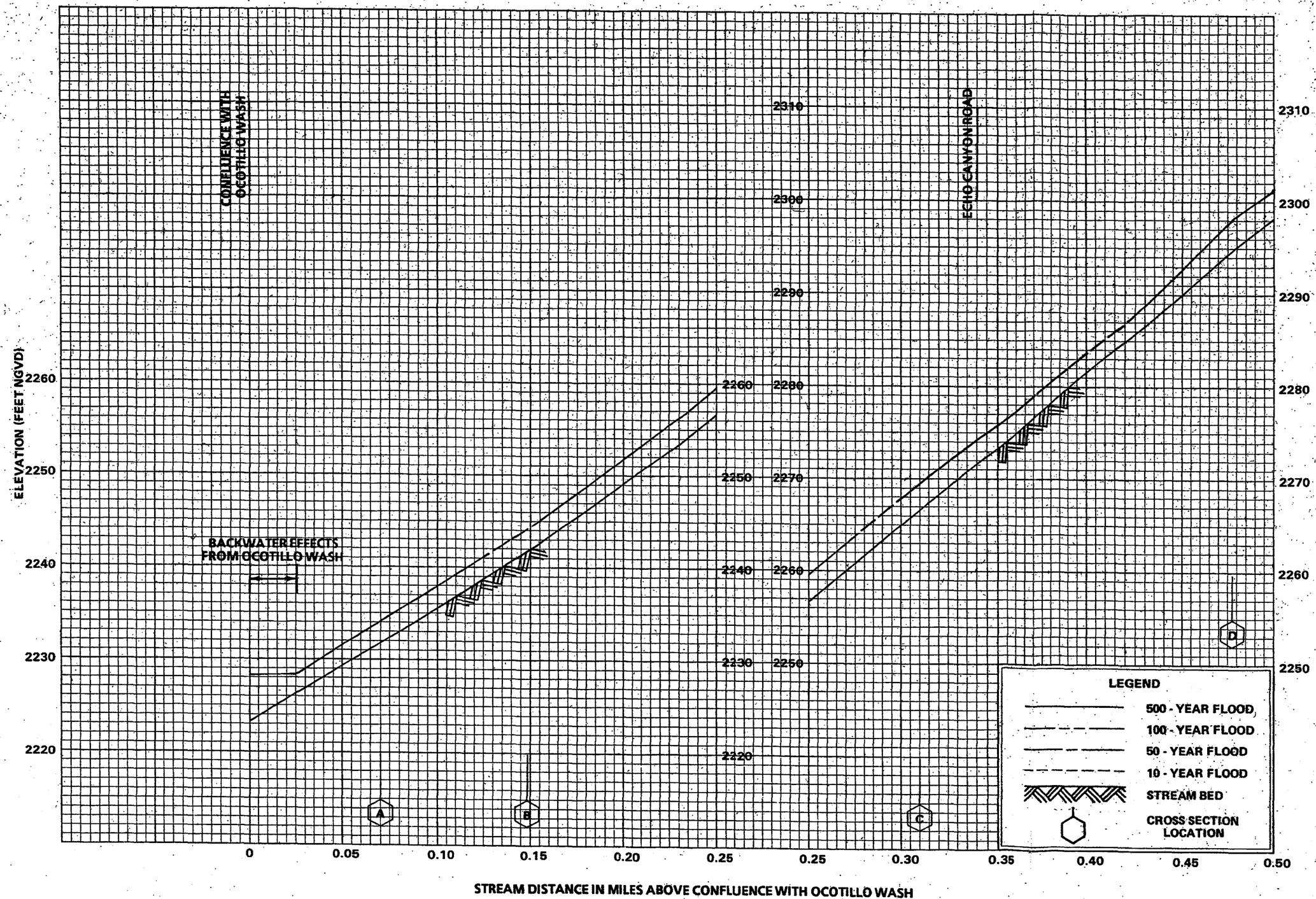



# FLOOD PROFILES

OCOTILLO WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

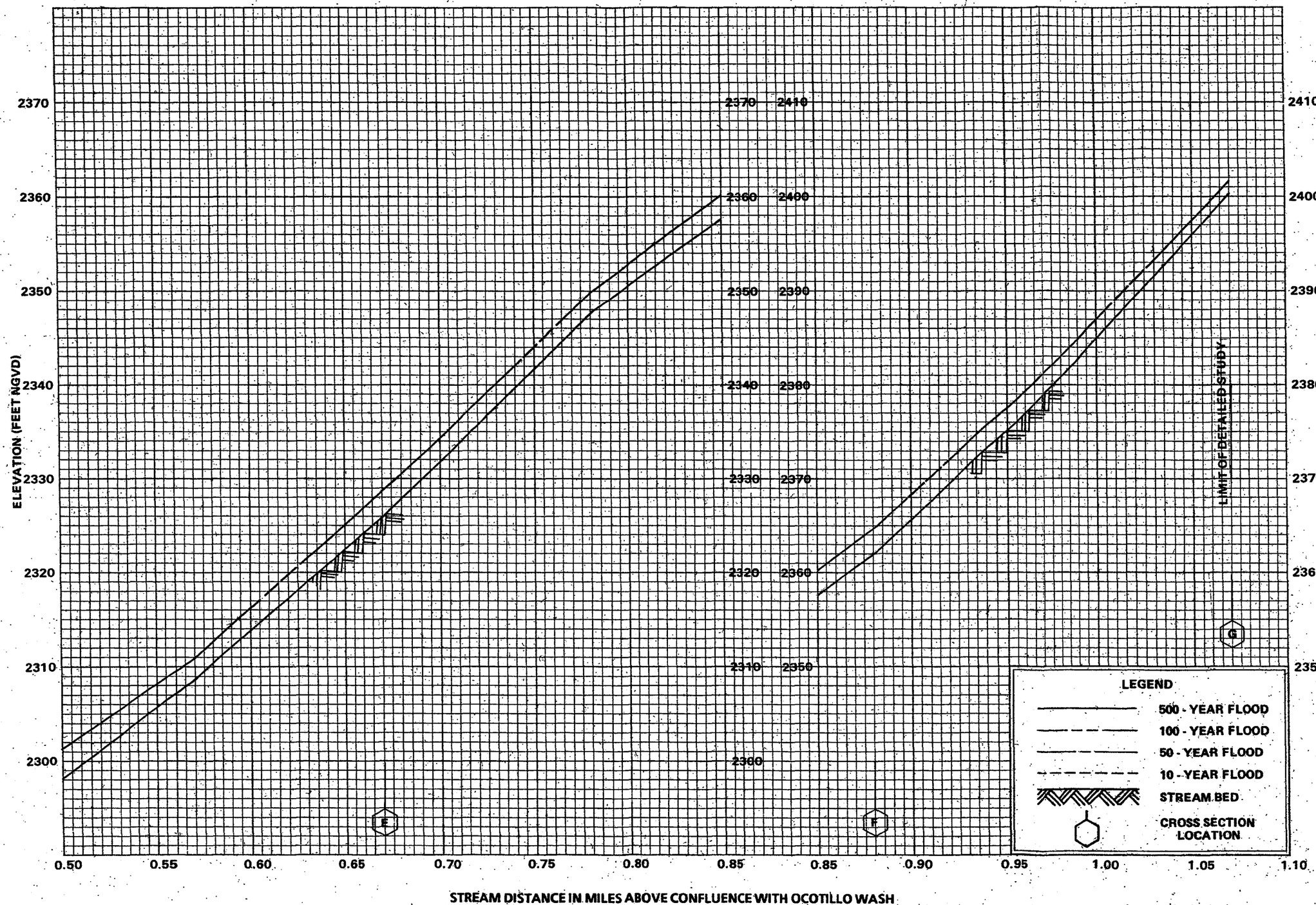



FLOOD PROFILES

OCOTILLO WASH - TRIBUTARY 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

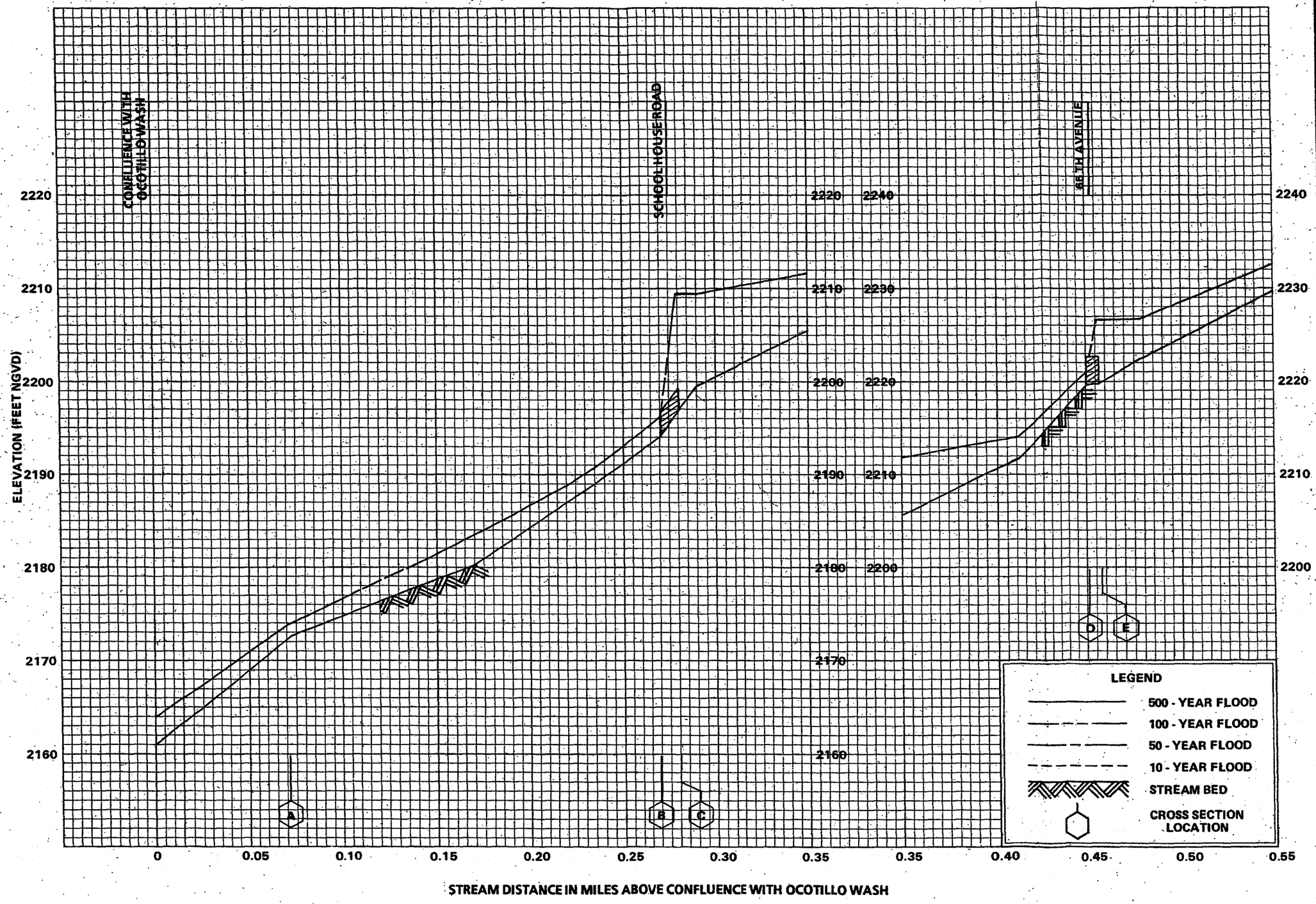



FLOOD PROFILES

OCOTILLO WASH - TRIBUTARY 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

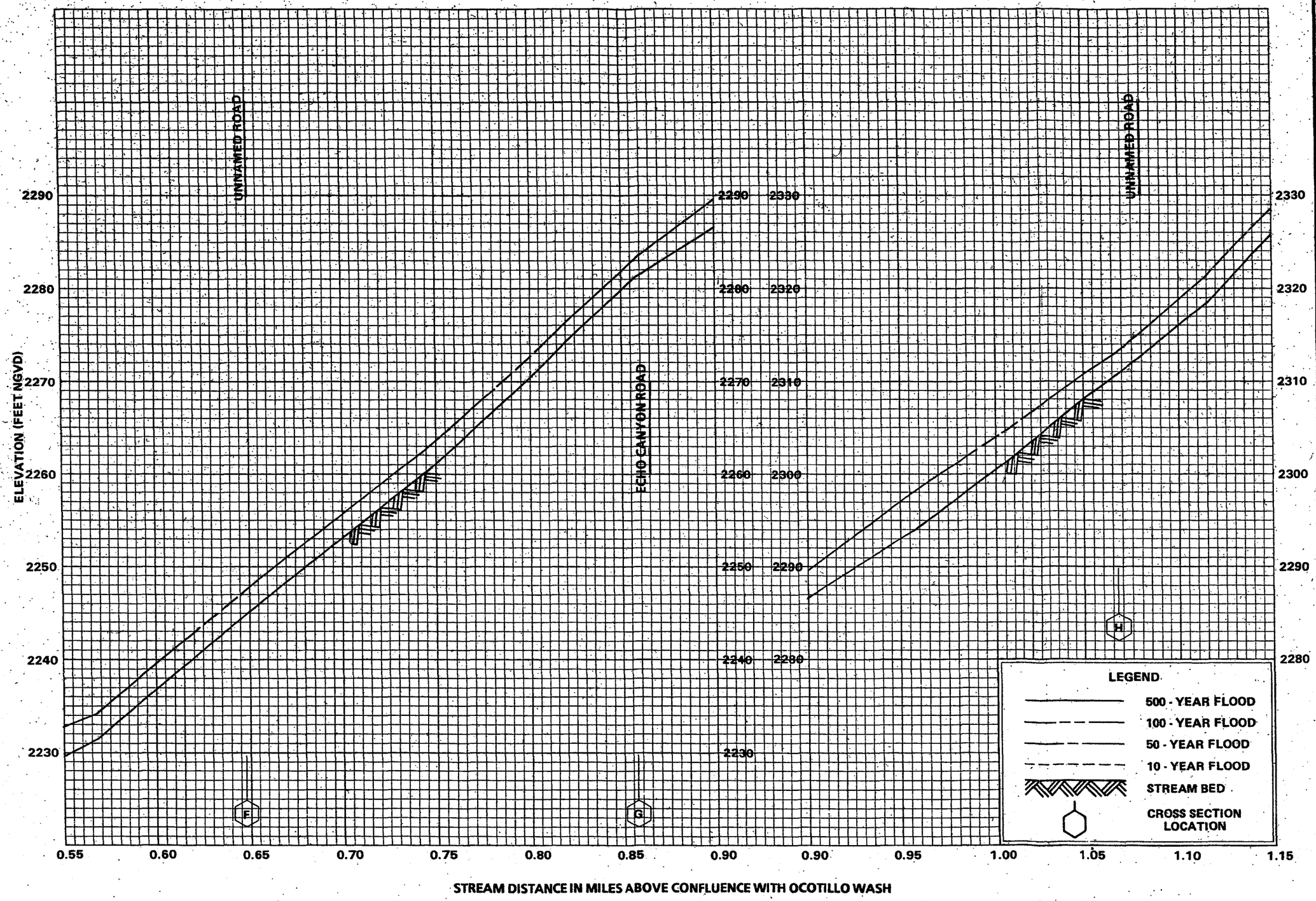



FLOOD PROFILES

OCOTILLO WASH - TRIBUTARY 3

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS



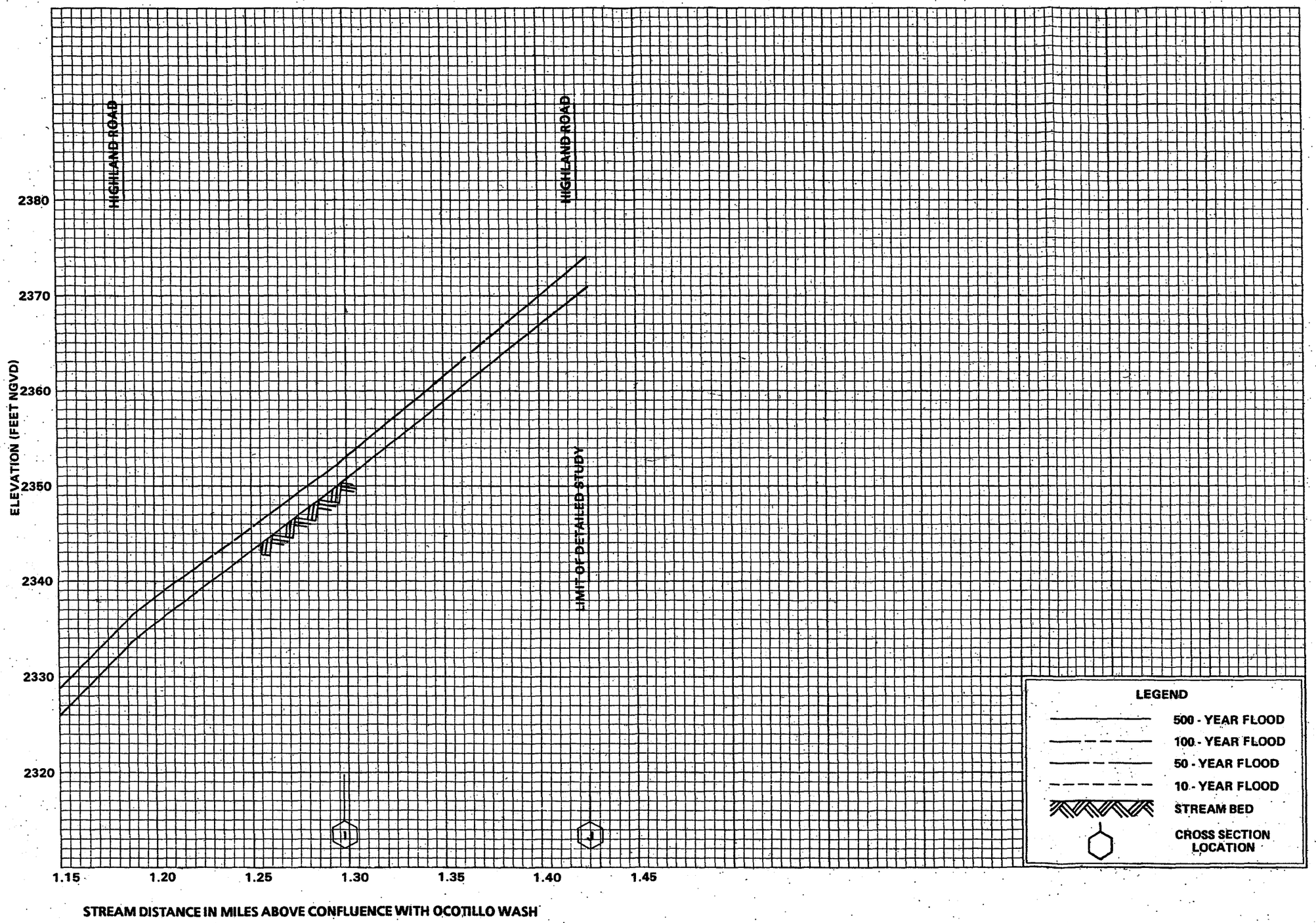

FLOOD PROFILES

OCOTILLO WASH - TRIBUTARY 3

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

508P

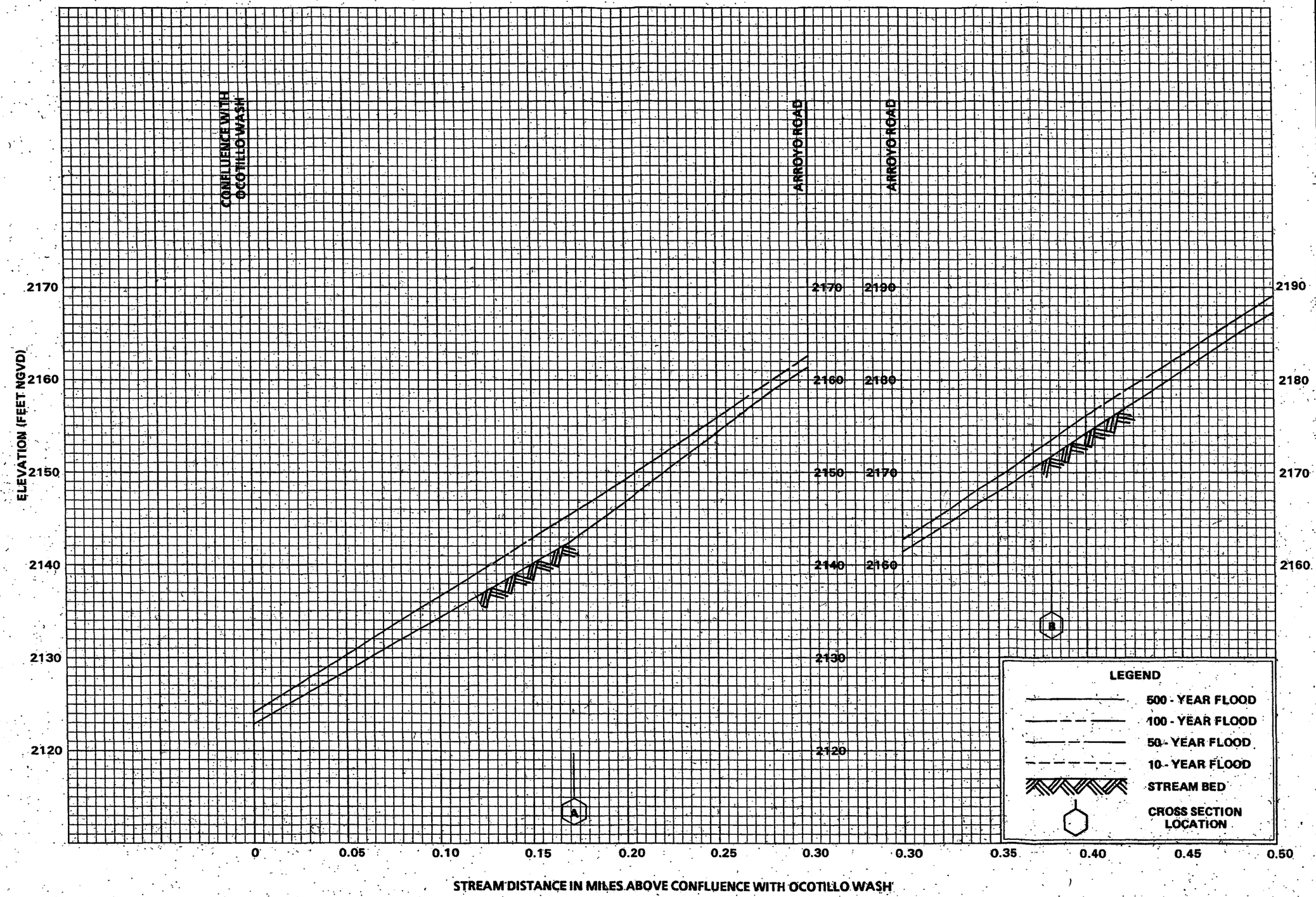



FLOOD PROFILES

OCOTILLO WASH - TRIBUTARY 3

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

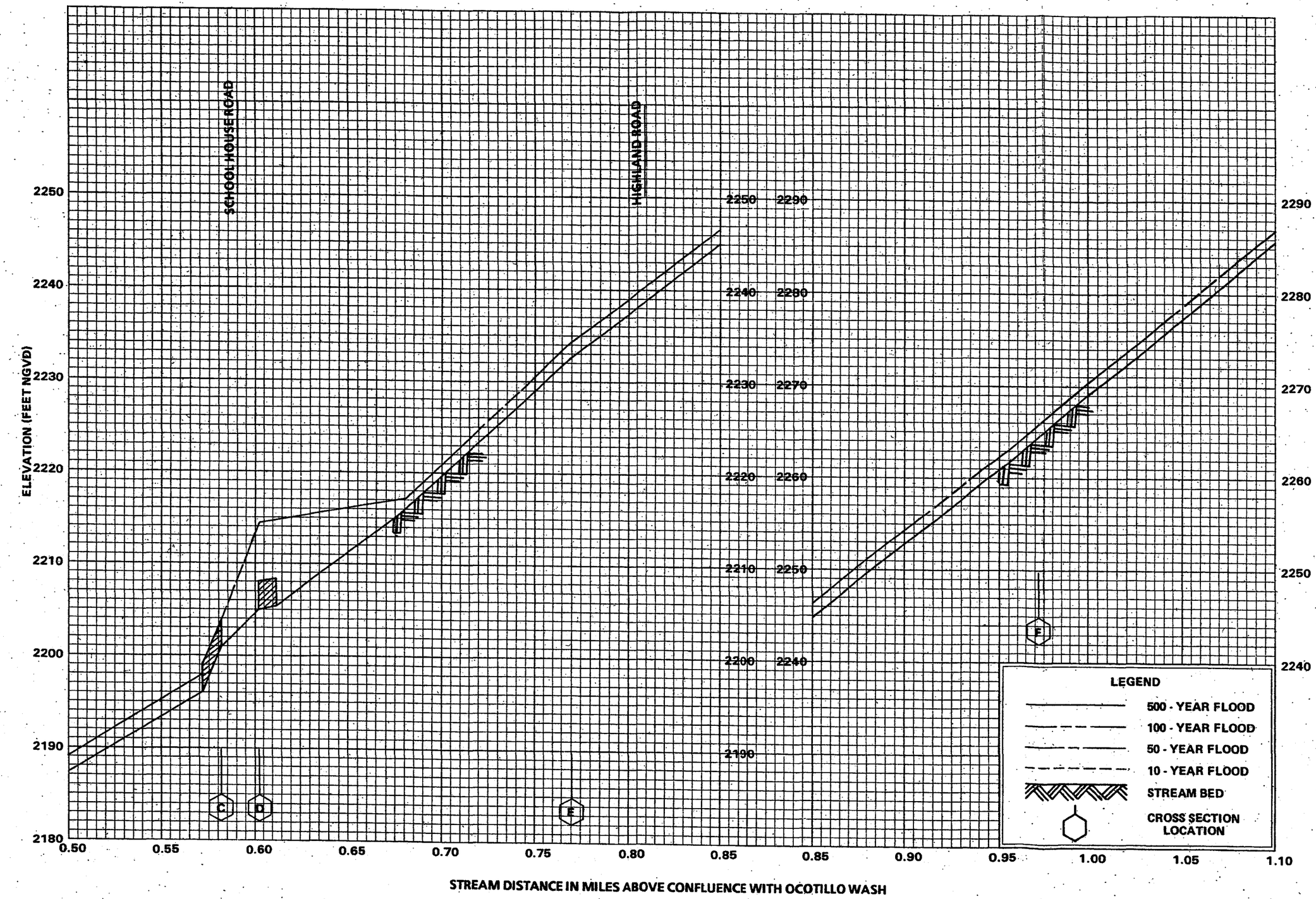



FLOOD PROFILES

OCOTILLO WASH - TRIBUTARY 4

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS



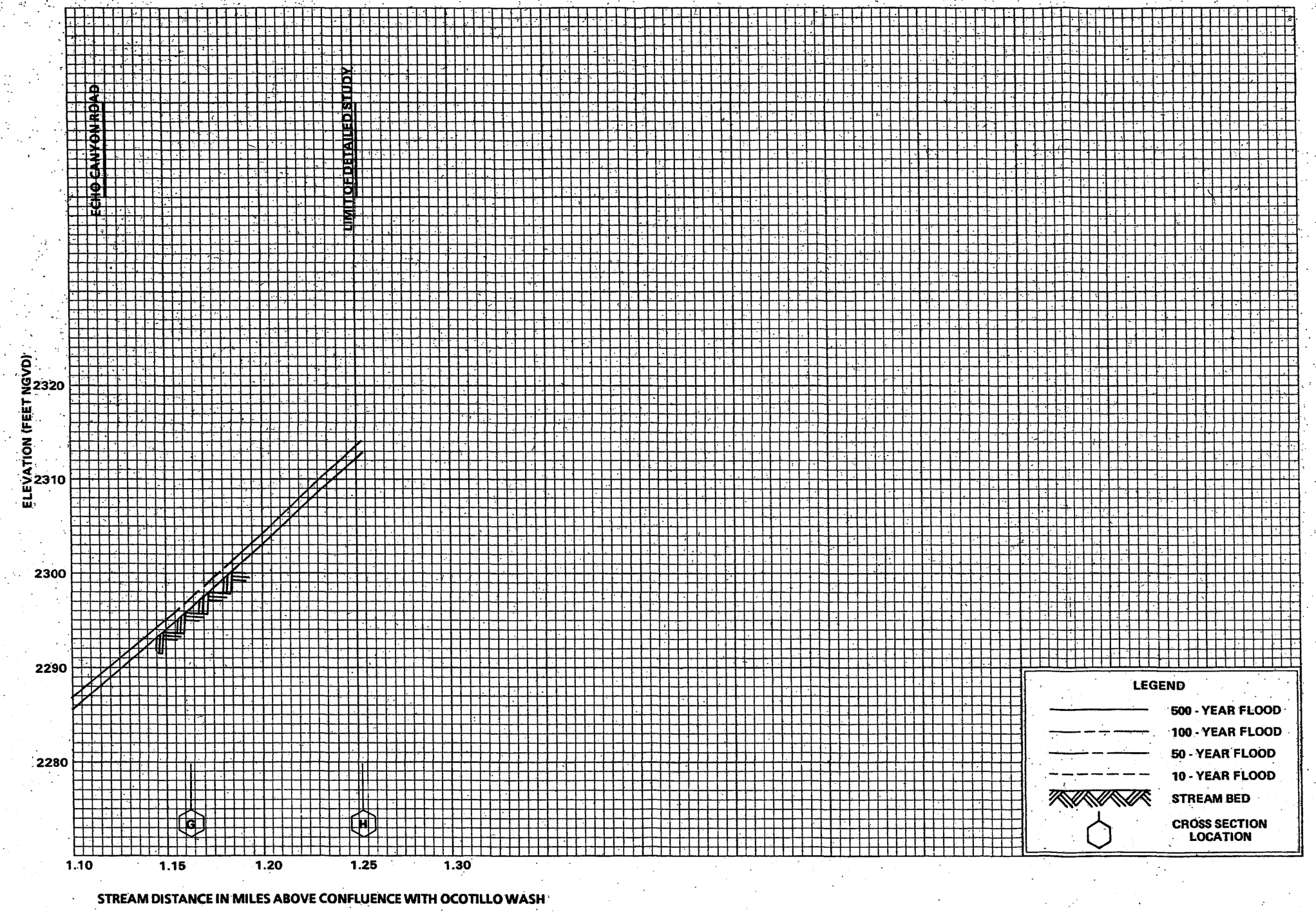

FLOOD PROFILES

OCOTILLO WASH - TRIBUTARY 4

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

511P

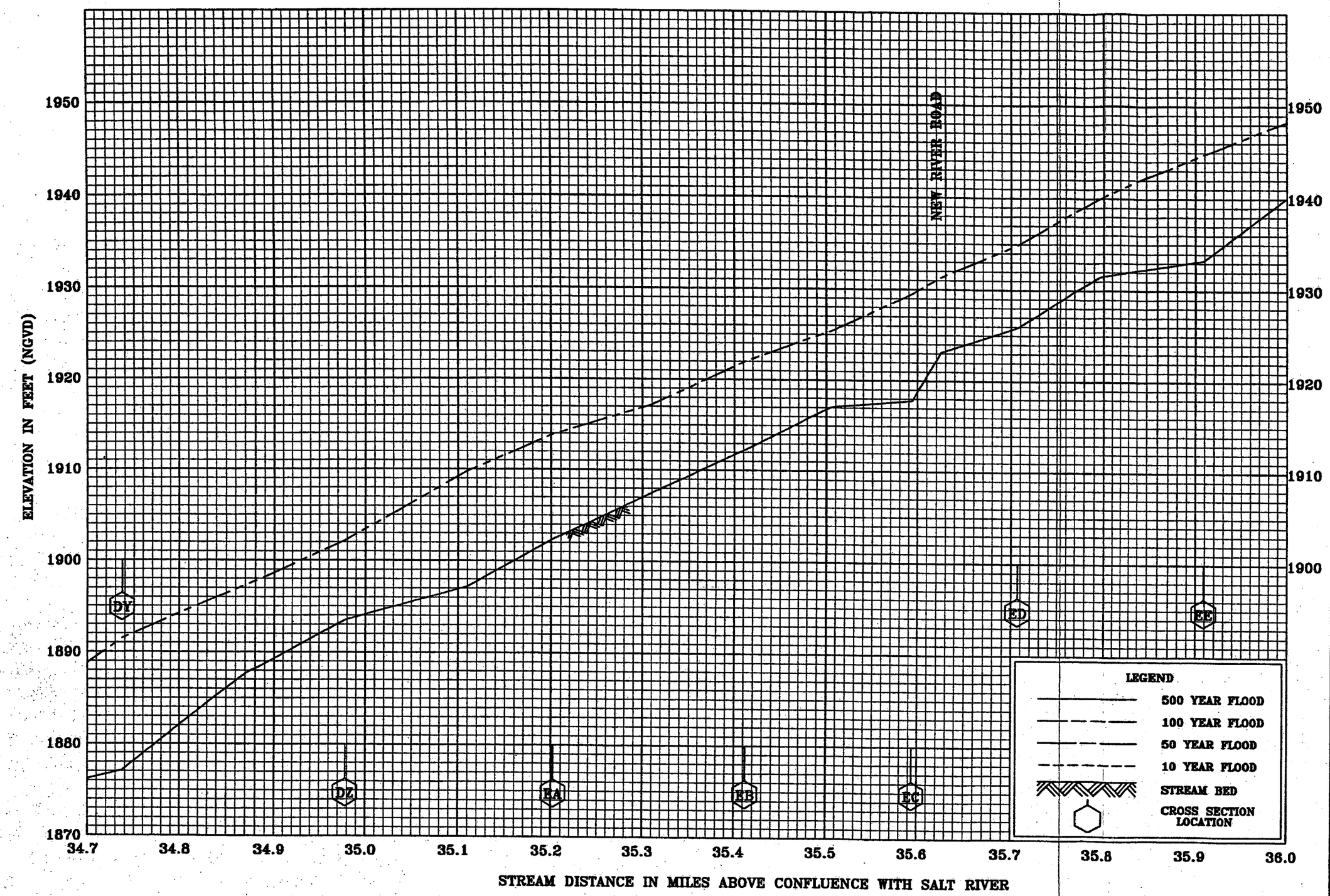



FLOOD PROFILES

OCOTILLO WASH - TRIBUTARY 4

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS




FLOOD PROFILES

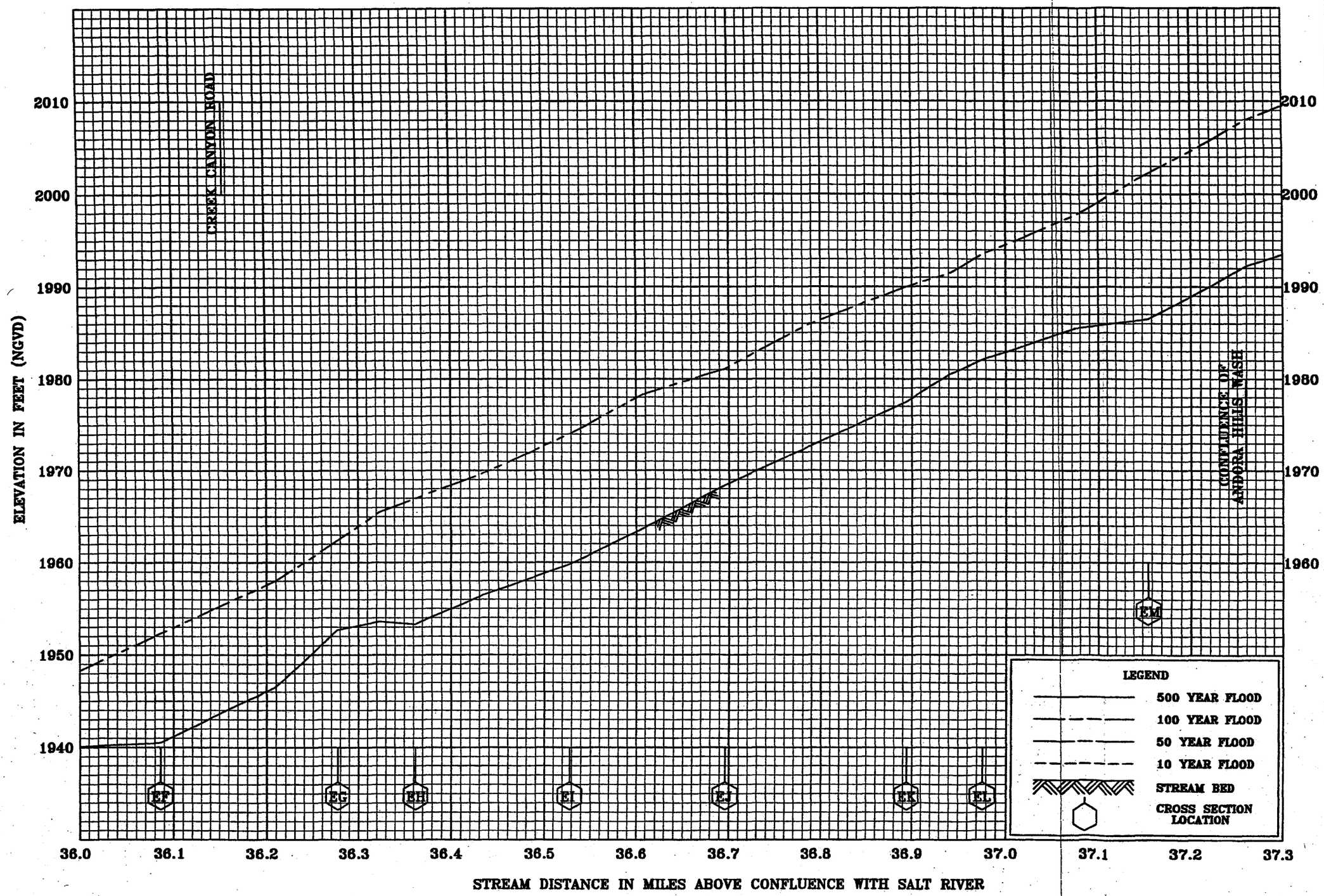
CAVE CREEK WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ

AND INCORPORATED AREAS

1016P




FLOOD PROFILES

CAVE CREEK WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ

AND INCORPORATED AREAS

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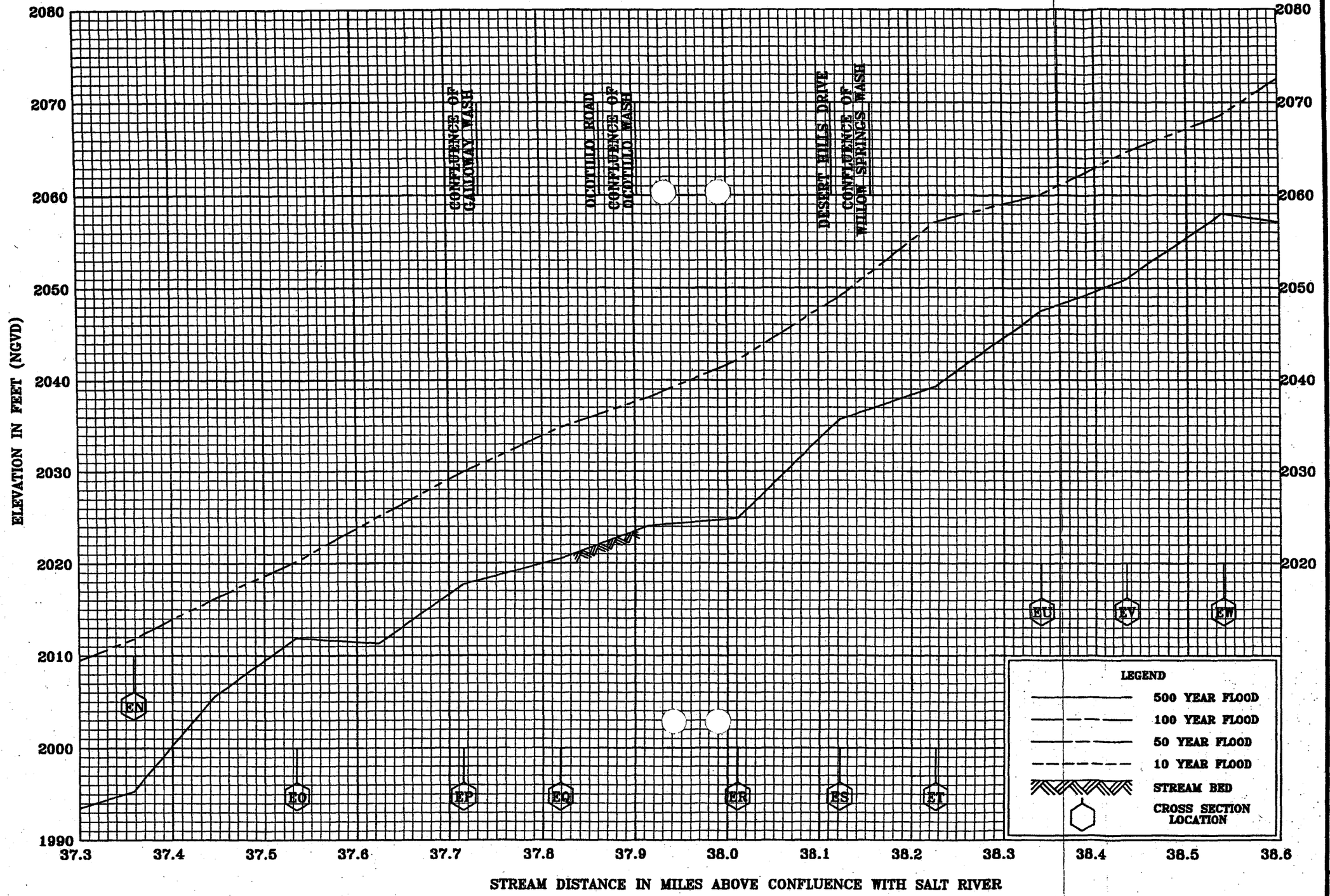



FLOOD PROFILES

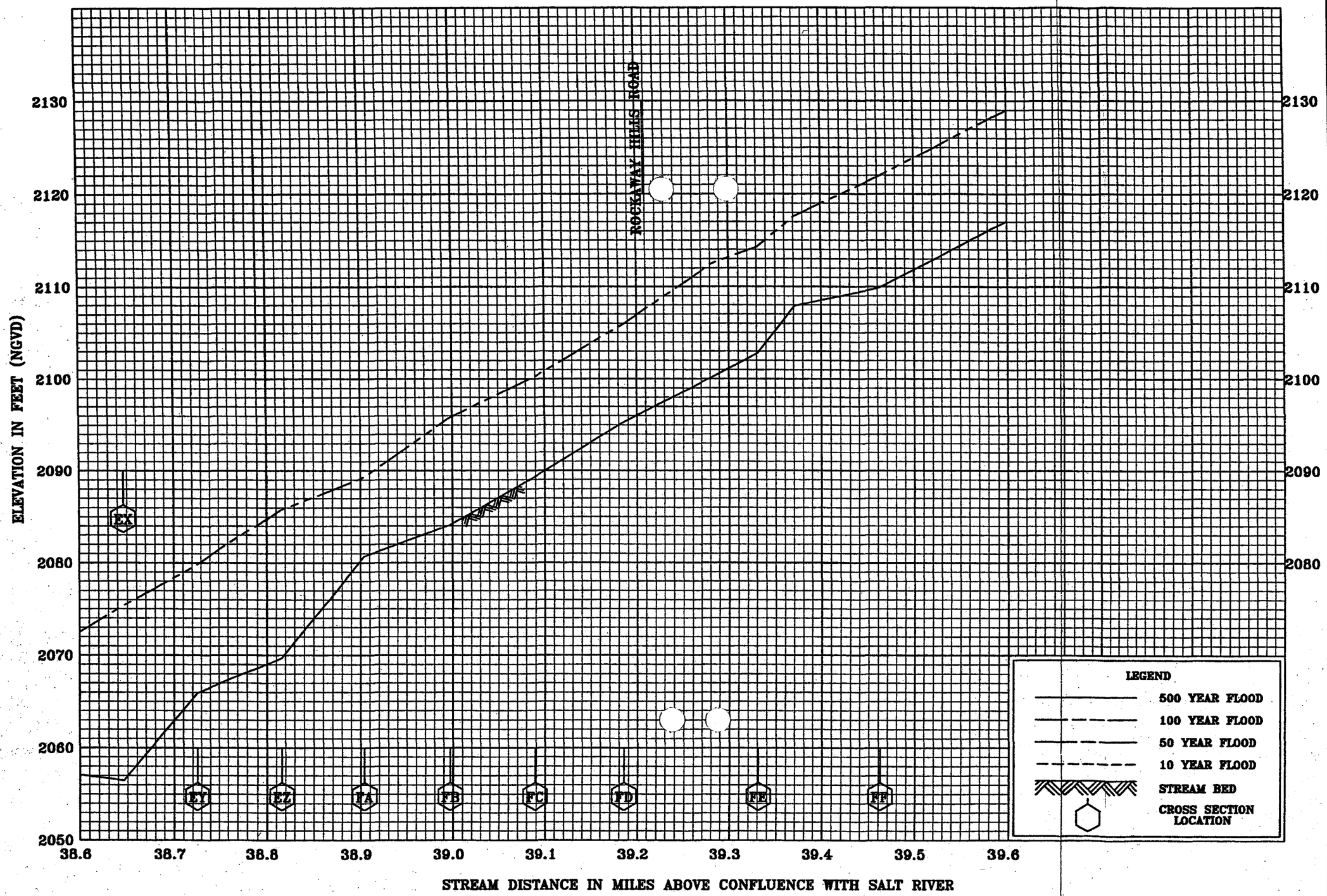
CAVE CREEK WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ

AND INCORPORATED AREAS

1018P




FLOOD PROFILES

CAVE CREEK WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ

AND INCORPORATED AREAS

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