FEDERAL EMERGENCY MANAGEMENT AGENCY

APPLICATION FOR LETTER OF MAP REVISION

MYRTLE AVENUE WASH

Prepared by

DAVID EVANS AND ASSOCIATES, INC.
2929 East Camelback Road, Suite 240
Phoenix, Arizona 85016

Submitted by

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
2801 West Durango Street
Phoenix, Arizona 85009

FLOOD CONTROL DISTRICT
RECEIVED
AUG 1 1 1997
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REMARKS

Federal Emergency Management Agency

Washington, D.C. 20472

Flood Control District of MC Library
2801 W. Durango
Phoenix, AZ 85009

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

IN REPLY REFER TO:
Case Nos.: 97-09-616P, 97-09-830P, and 97-09-831P

The Honorable Skip Rimsza
Mayor, City of Phoenix
200 West Washington Street
Phoenix, Arizona 85003

Community: City of Phoenix, Arizona
Community No.: 040051
Panel Affected: 04013C1670 E
Effective Date of This Revision: AUG 0 7 1997

102-I-A-C

Dear Mayor Rimsza:

This responds to requests that the Federal Emergency Management Agency (FEMA) revise the effective Flood Insurance Rate Map (FIRM) and Flood Insurance Study (FIS) report for Maricopa County, Arizona and Incorporated Areas (the effective FIRM and FIS report for your community), in accordance with Part 65 of the National Flood Insurance Program (NFIP) regulations. In a letter dated March 13, 1997, and two letters dated May 22, 1997, Mr. Hasan Mushtaq, P.E., Engineering Division, Flood Control District of Maricopa County, requested that FEMA revise the FIRM and FIS report to show the effects of channel improvements along Myrtle Avenue Wash from the Arizona Canal Diversion Channel (ACDC) to approximately 100 feet downstream of 19th Street (Case No. 97-09-616P), updated topography and construction of a 5-foot-diameter, reinforced-concrete pipe under Lincoln Drive along Flynn Lane Wash (Case No. 97-09-830P), and channel improvements along Dreamy Draw Wash East from the ACDC to approximately 900 feet upstream of Morten Avenue (Case No. 97-09-831P).

All data required to complete our review of these requests were submitted with letters from Mr. Mushtaq.

We have completed our review of the submitted data and the flood data shown on the effective FIRM and FIS report. We have revised the FIRM and FIS report to modify the elevations, floodplain and floodway boundary delineations, and zone designations of the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood) along Myrtle Avenue Wash, Flynn Lane Wash, and Dreamy Draw Wash East. As a result of the modifications along Myrtle Avenue Wash, the channel shifted to the south; the base flood elevations (BFEs) increased in some areas and decreased in other areas; the width of the Special Flood Hazard Area (SFHA), the area that would be inundated by the base flood, increased in some areas and decreased in other areas; and the width of the regulatory floodway decreased. As a result of the modifications along Flynn Lane Wash, the BFEs increased in some areas and decreased in other areas, the SFHA width increased in some areas and decreased in other areas, and the floodway width decreased. The area along the right overbank (looking downstream) along Flynn Lane Wash from approximately 870 feet downstream to approximately 150 feet upstream of Lincoln Drive designated Zone AE, an area that would be inundated by the base flood with BFEs determined, was redesignated Zone AO (Depth 1), an area that would be inundated by the base flood with an average depth of 1 foot. As a result of the modifications along Dreamy Draw Wash East, the channel shifted to the east, the BFEs increased in some areas and decreased in other areas, the SFHA width increased in some areas and decreased in other areas, and the floodway width decreased. The

modifications are shown on the enclosed annotated copy of FIRM Panel 04013C1670 E; Profile Panels 130P and 131P for Dreamy Draw Wash East, 140P for Flynn Lane Wash, and 235P and 236P for Myrtle Avenue Wash; and affected portions of the Summary of Discharges Table and Floodway Data Table. This Letter of Map Revision (LOMR) hereby revises the above-referenced panel of the effective FIRM and the affected portions of the FIS report, both dated September 30, 1995.

The modifications are effective as of the date shown above. The map panel as listed above and as modified by this letter will be used for all flood insurance policies and renewals issued for your community.

The following table is a partial listing of existing and modified BFEs:

Location	Existing BFE (feet)*	Modified BFE (feet)*
Myrtle Avenue Wash:		
At 17th Street	None	1,255
Approximately 900 feet upstream of 17th Street	1,281	1,272
Flynn Lane Wash:		
Approximately 270 feet upstream of 21st Street	1,276	1,277
Approximately 300 feet upstream of Lincoln Drive	1,316	1,313
Right overbank (looking downstream), approximately 870 feet downstream of Lincoln Drive	1,283	#1
Right overbank (looking downstream), approximately 150 feet upstream of Lincoln Drive	1,313	#1
Dreamy Draw Wash East:		
At 16th Street	1,244	1,243
Approximately 150 feet upstream of Morten Avenue	1,272	1,273

*Referenced to the National Geodetic Vertical Datum, rounded to the nearest whole foot
#Depth in feet above ground

Public notification of the proposed modified BFEs will be given in *The Arizona Republic* on or about August 22 and August 29, 1997. A copy of this notification is enclosed. In addition, a notice of changes will be published in the *Federal Register*. Within 90 days of the second publication in *The Arizona Republic*, a citizen may request that FEMA reconsider the determination made by this LOMR. Any request for reconsideration must be based on scientific or technical data. All interested parties are on notice that, until the 90-day period elapses, the determination to modify the BFEs presented in this LOMR may itself be modified.

Because this LOMR will not be printed and distributed to primary users, such as local insurance agents and mortgage lenders, your community will serve as a repository for these new data. We encourage you to disseminate the information reflected by this LOMR throughout the community, so that interested persons, such as property owners, local insurance agents, and mortgage lenders, may benefit from the information. We also encourage you to prepare a related article for publication in your community's local newspaper. This article should describe the assistance that officials of your community will give to interested persons by providing these data and interpreting the NFIP maps.

The date for the next preliminary FIRM and FIS report for Maricopa County, Arizona and Incorporated Areas is fall 1997. This LOMR will not be included in the preliminary FIRM and FIS report; however, it will be incorporated before the FIRM and FIS report become effective.

The floodway is provided to your community as a tool to regulate floodplain development. Therefore, the floodway modifications described in this LOMR, while acceptable to FEMA, must also be acceptable to your community and adopted by appropriate community action, as specified in Paragraph 60.3(d) of the NFIP regulations.

This LOMR is based on minimum floodplain management criteria established under the NFIP. Your community is responsible for approving all floodplain development, and for ensuring all necessary permits required by Federal or State law have been received. State, county, and community officials, based on knowledge of local conditions and in the interest of safety, may set higher standards for construction in the SFHA. If the State, county, or community has adopted more restrictive or comprehensive floodplain management criteria, these criteria take precedence over the minimum NFIP criteria.

The basis of this LOMR is, in whole or in part, a channel-modification project. NFIP regulations, as cited in Paragraph 60.3(b)(7), require that communities ensure that the flood-carrying capacity within the altered or relocated portion of any watercourse is maintained. This provision is incorporated into your community's existing floodplain management regulations. Consequently, the ultimate responsibility for maintenance of the modified channel rests with your community.

This determination has been made pursuant to Section 206 of the Flood Disaster Protection Act of 1973 (Public Law 93-234) and is in accordance with the National Flood Insurance Act of 1968, as amended (Title XIII of the Housing and Urban Development Act of 1968, Public Law 90-448), 42 U.S.C. 4001-4128, and 44 CFR Part 65. Pursuant to Section 1361 of the National Flood Insurance Act of 1968, as amended, communities participating in the NFIP are required to adopt and enforce floodplain management regulations that meet or exceed minimum NFIP criteria. These criteria are the minimum and do not supersede any State or local requirements of a more stringent nature. This includes adoption of the effective FIRM to which the regulations apply and the modifications described in this LOMR. Our records show that your community has met this requirement.

A Consultation Coordination Officer (CCO) has been designated to assist your community. The CCO will be the primary liaison between your community and FEMA. For information regarding your CCO, please contact:

Ms. Dorothy M. Lacey
Director, Mitigation Division
Federal Emergency Management Agency, Region IX
The Presidio of San Francisco, Building 105
San Francisco, California 94129-1250
(415) 923-7177

If you have any questions regarding floodplain management regulations for your community or the NFIP in general, please contact the CCO for your community at the telephone number cited above. If you have any technical questions regarding this LOMR, please contact Mr. John Magnotti of our staff in Washington, DC, either by telephone at (202) 646-3932 or by facsimile at (202) 646-4596.

Sincerely,

Frederick H. Sharrocks, Jr., Chief
Hazard Identification Branch
Mitigation Directorate

Enclosures

cc: Mr. Raymond U. Acuña, P.E.
Floodplain Manager
City of Phoenix

Mr. Hasan Mushtaq, P.E.
Engineering Division
Flood Control District of Maricopa County

Ms. Teri S. Mintz, P.E.
Water Resources Engineer
David Evans and Associates, Inc.

CHANGES ARE MADE IN DETERMINATIONS OF BASE FLOOD ELEVATIONS FOR THE CITY OF PHOENIX, MARICOPA COUNTY, ARIZONA, UNDER THE NATIONAL FLOOD INSURANCE PROGRAM

On September 30, 1995, the Federal Emergency Management Agency identified Special Flood Hazard Areas (SFHAs) in the City of Phoenix, Maricopa County, Arizona, through issuance of a Flood Insurance Rate Map (FIRM). The Mitigation Directorate has determined that modification of the elevations of the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood) for certain locations in this community is appropriate. The modified base flood elevations (BFEs) revise the FIRM for the community.

The changes are being made pursuant to Section 206 of the Flood Disaster Protection Act of 1973 (Public Law 93-234) and are in accordance with the National Flood Insurance Act of 1968, as amended (Title XIII of the Housing and Urban Development Act of 1968, Public Law 90-448), 42 U.S.C. 4001-4128, and 44 CFR Part 65.

Hydraulic analyses were performed to incorporate channel improvements along Myrtle Avenue Wash, updated topography and construction of a 5-foot-diameter, reinforced-concrete pipe under Lincoln Drive along Flynn Lane Wash, and channel improvements along Dreamy Draw Wash East and have resulted in a revised delineation of the regulatory floodway and SFHA boundaries and revised BFEs for Myrtle Avenue Wash, Flynn Lane Wash, and Dreamy Draw Wash East. The table below indicates existing and modified BFEs for selected locations along the affected lengths of the flooding source(s) cited above.

Location	Existing BFE (feet)*	Modified BFE (feet)*
Myrtle Avenue Wash:		
At 17th Street	None	1,255
Approximately 900 feet upstream of 17th Street	1,281	1,272
Flynn Lane Wash:		
Approximately 270 feet upstream of 21st Street	1,276	1,277
Approximately 300 feet upstream of Lincoln Drive	1,316	1,313
Right overbank (looking downstream), approximately 870 feet downstream of Lincoln Drive	1,283	#1
Right overbank (looking downstream), approximately 150 feet upstream of Lincoln Drive	1,313	#1
Dreamy Draw Wash East:		
At 16th Street	1,244	1,243
Approximately 150 feet upstream of Morten Avenue	1,272	1,273

*National Geodetic Vertical Datum, rounded to nearest whole foot
#Depth in feet above ground

Under the above-mentioned Acts of 1968 and 1973, the Mitigation Directorate must develop criteria for floodplain management. To participate in the National Flood Insurance Program (NFIP), the community must use the modified BFEs to administer the floodplain management measures of the NFIP. These modified BFEs will also be used to calculate the appropriate flood insurance premium rates for new buildings and their contents and for the second layer of insurance on existing buildings and contents.

Upon the second publication of notice of these changes in this newspaper, any person has 90 days in which he or she can request, through the Chief Executive Officer of the community, that the Mitigation Directorate reconsider the determination. Any request for reconsideration must be based on knowledge of changed conditions or new scientific or technical data. All interested parties are on notice that until the 90-day period elapses, the Mitigation Directorate's determination to modify the BFEs may itself be changed.

Any person having knowledge or wishing to comment on these changes should immediately notify:

The Honorable Skip Rimsza
Mayor, City of Phoenix
200 West Washington Street
Phoenix, AZ 85003

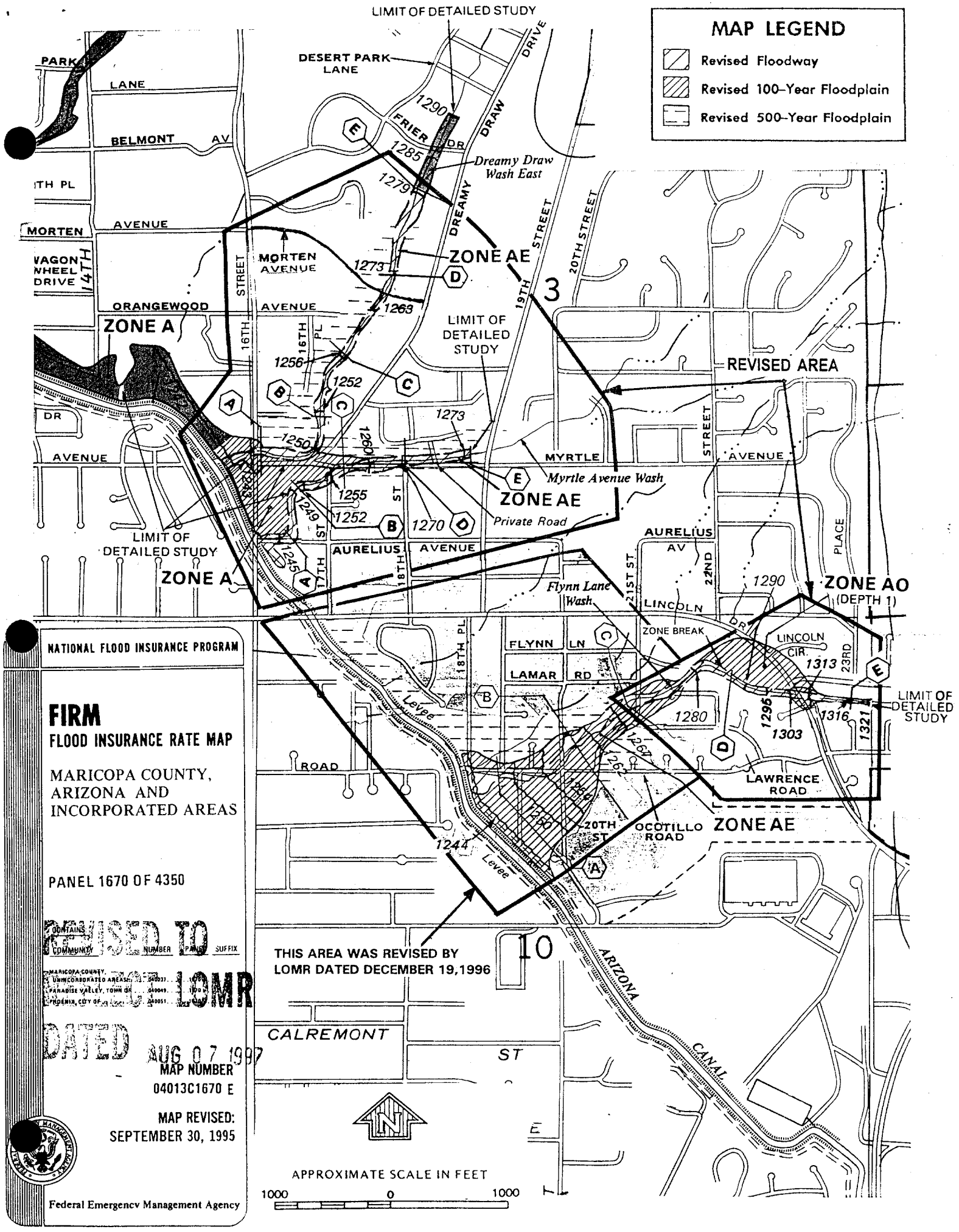

MAP LEGEND
Revised Floodway
Revised 100-Year Floodplain
Revised 500-Year Floodplain
LIMIT OF DETAILED STUDY
DESERT PARK LANE
FRIER DR
DRAW
DREAMY
Dreamy Draw Wash East
ZONE AE
MORTEN AVENUE
ORANGEWOOD AVENUE
ZONE A
LIMIT OF DETAILED STUDY
REVISED AREA
MYRTLE AVENUE
Myrtle Avenue Wash
Private Road
AURELIUS AVENUE
Flynn Lane Wash
ZONE AO
(DEPTH 1)
ZONE BREAK
LINCOLN DR
FLYNN LN
LAMAR RD
Levee
LAWRENCE ROAD
OCOTILLO ROAD
20TH ST
ARIZONA CANAL
CALREMONT ST
THIS AREA WAS REVISED BY LOMR DATED DECEMBER 19,1996
APPROXIMATE SCALE IN FEET
1000 0 1000
NATIONAL FLOOD INSURANCE PROGRAM
FIRM
FLOOD INSURANCE RATE MAP
MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS
PANEL 1670 OF 4350
REVISED TO REFLECT LOMR DATED AUG 07 1997
MAP NUMBER
04013C1670 E
MAP REVISED:
SEPTEMBER 30, 1995
Federal Emergency Management Agency

Table 3. Summary of Discharges (Cont'd)

Flooding Source and Location	Drainage Area (Square Miles)	Peak Discharges (cfs) 10-Year	50-Year	100-Year	500-Year
Atchison, Topeka & Santa Fe Railway Channel					
At confluence with Agua Fria River	1.1	180	370	435	--[1]
At Olive and 75th Avenues	5.4	490	1,020	1,340	1,920
At Peoria and 83rd Avenues	2.7	280	560	730	1,060
At Hawkins Road	0.3	100	190	230	--[1]
Echo Canyon Wash					
At Mouth	5.1	2,000	4,600	6,600	18,000
200 feet east of 40th Street	4.3	1,900	4,200	5,900	14,000
At McDonald Drive	3.5	1,600	3,500	4,900	10,200
At Tatum Road	1.9	1,200	2,550	3,600	8,650
Southern Pacific Railroad					
At Apache Road	2.6	220	450	650	--[1]
At Miller Road	2.0	50	210	410	--[1]
At Ray Road	4.7	110	270	360	--[1]
At Railroad Spur	2.2	120	280	320	--[1]
1.0 mile north of Guadalupe Road	143.9	200	2,270	4,090	--[1]
0.25 mile south of Western Canal	131.8	130	2,160	3,950	--[1]
At Airport Entrance	2.2	120	280	320	--[1]
Southern Pacific Railroad Spur					
At Ray Road	2.5	--[1]	--[1]	790	--[1]
Apache Creek (Apache Junction Alluvial Fan)					
At U.S. Highway 80 and 108th Street	2.64	433	831	1,021	--[1]
Dreamy Draw Wash East					
At Mouth	0.38	---[1]	---[1]	1,530	---[1]
500 feet upstream of 16th Street	---[1]	300	750	1,000	1,700
Flynn Lane Wash					
At Flynn Lane and Lincoln Drive	0.63	400	800	1,100	2,300
At Ocotillo Road	0.98	700	1,300	1,700	3,100

REVISED DATA

[1]Not Computed

REVISED TO REFLECT LOMR DATED AUG 07 1997

Table 3. Summary of Discharges (Cont'd)

Flooding Source and Location	Drainage Area (Square Miles)	Peak Discharges (cfs) 10-Year	50-Year	100-Year	500-Year
Granite Reef Wash					
Pima Road	6.2	74	278	644	1,431
McDowell Road	7.2	580	950	1,240	2,660
Van Buren Street	7.5	720	1,158	1,417	3,150
Indian Bend Wash					
Scottsdale Road	44.26	3,400	11,000	16,000	35,000
Indian Bend Road	59.6	3,500	12,000	17,000	39,000
Indian School Road	100.0	4,000	14,000	20,000	43,000
Downstream limit of McKellips Lake, Just upstream of McKellips Road Bridge	107.0	4,000	14,000	20,000	42,000
At 32nd Street	2.77	1,000	1,400	2,400	5,500
At 36th Street	9.17	2,000	3,500	6,000	15,500
At Cactus Road	15.07	1,500	5,600	9,000	21,000
Myrtle Avenue Wash					
At Mouth	0.87	---[1]	---[1]	665	---[1]
Upstream of Myrtle Avenue	---[1]	600	1,000	1,300	2,800
Tenth Street Wash					
At Cheryl Drive	0.81	385	--[1]	1,440	3,650
At Hatcher Road	1.59	910	--[1]	3,400	8,600
At Alice Avenue	2.25	1,170	--[1]	4,390	11,110
At Griswold Road	2.69	1,265	--[1]	4,740	12,000
Wash B					
At a point 1,100 feet downstream of 124th Street	1.95	290	1,160	1,925	4,580
At a point 4,500 feet downstream of 124th Street	2.25	340	1,390	2,300	5,500
At a point 4,500 feet downstream of 124th Street	2.25	205	835	1,380	3,300
At a point 5,500 feet downstream of 124th Street	2.50	190	820	1,300	3,200

REVISED DATA

[1]Not Computed

REVISED TO REFLECT LOMR DATED AUG 07 1997

REVISED TO REFLECT LOMR DATED AUG 07 1997

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION (FEET NGVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Dreamy Draw Wash East								
A	0.07	60	163	9.4	1,244.2	1,244.2	1,244.8	0.6
B	0.22	26	157	6.4	1,251.9	1,251.9	1,252.6	0.7
C	0.33	33	137	7.3	1,256.2	1,256.2	1,256.4	0.2
D	0.50	25	213	4.7	1,272.6	1,272.6	1,272.6	0.0
E	0.65	59	211	4.7	1,279.8	1,279.8	1,280.8	1.0
Echo Canyon Wash								
A	0.27	157	1,035	6.4	1.256.2	1.256.2	1,257.1	0.9
B	0.37	170	615	10.7	1,263.4	1,263.4	1,264.0	0.6
C	0.56	73	618	9.5	1,270.4	1,270.4	1,271.4	1.0
D	0.74[4]	205	1,172	5.0	1,278.7	1,278.7	1,279.6	0.9
E	1.04	210	1,501	3.9	1,293.1	1,293.1	1,293.5	0.4
F	1.19	180	1,169	5.0	1,298.0	1,298.0	1,298.3	0.3
G	1.43	150	635	7.8	1,308.4	1,308.4	1,308.9	0.5
H	1.49	150	377	11.9	1,310.2	1,310.2	1,310.7	0.5
I	1.54	150	734	6.1	1,314.4	1,314.4	1,314.4	0.0
J	1.60	150	774	5.8	1,316.1	1,316.1	1,316.1	0.0
K	1.71	150	729	6.2	1,317.6	1,317.6	1,318.0	0.4
L	1.86	150	451	8.0	1,321.9	1,321.9	1,322.8	0.9
M	2.02	150	609	4.9	1,327.5	1,327.5	1,327.5	0.0
Flynn Lane Wash								
A	0.037	54	169	10.1	1,245.9	1,245.9	1,246.6	0.7
B	0.188	112	239	7.1	1,258.5	1,258.5	1,259.2	0.7
C	0.304	55	206	8.3	1,269.1	1,269.1	1,269.7	0.6
D	0.500	20	84	11.7	1,286.7	1,286.7	1,287.1	0.4
E	0.716	28	107	10.3	1,316.0	1,316.0	1,316.0	0.0

REVISED DATA

THESE DATA WERE REVISED BY LOMR DATED AUGUST 7, 1996

THESE DATA WERE REVISED BY LOMR DATED DECEMBER 19, 1996

[1]Miles Above Mouth [2]Combined Floodway for Dreamy Draw Wash East and Myrtle Avenue Wash
[3]Data Not Available
[4]Station 0.740 previously shown as station 0.710; subsequent cross sections require addition of 0.030 miles

REVISED DATA

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

FLOODWAY DATA

DREAMY DRAW WASH EAST - ECHO CANYON WASH - FLYNN LANE 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)			
Myrtle Avenue Wash								
A	005	45	85	7.8	1,246.5	1,246.5	1,246.7	0.2
B	013	60	93	7.1	1,249.1	1,249.1	1,249.2	0.1
C	021	70	155	8.4	1,256.6	1,256.6	1,257.2	0.6
D	032	32	118	11.0	1,270.5	1,270.5	1,270.6	0.1
E	043	40	184	7.1	1,272.8	1,272.8	1,273.4	0.6
Ocotillo Wash								
A	0.05[4]	98	449	12.1	2,039.2	2,039.2	2,039.2	0.0
B	0.13[4]	88	443	12.2	2,045.5	2,045.5	2,045.5	0.0
C	0.18[4]	104	452	12.0	2,049.1	2,049.1	2,049.1	0.0
D	0.23[4]	305	735	7.4	2,053.7	2,053.7	2,053.7	0.0
E	0.31[4]	204	596	9.1	2,064.6	2,064.6	2,064.6	0.0
F	0.39[4]	121	523	10.4	2,074.1	2,074.1	2,074.1	0.0
G	0.46[4]	89	460	11.8	2,080.4	2,080.4	2,080.4	0.0
H	0.55[4]	102	459	11.4	2,086.6	2,086.6	2,086.6	0.0
I	0.70[4]	87	426	12.3	2,099.6	2,099.6	2,099.6	0.0
J	0.78[4]	162	617	8.5	2,105.6	2,105.6	2,105.6	0.0
K	0.89[4]	187	542	9.6	2,114.2	2,114.2	2,114.2	0.0
L	0.92[4]	277	628	8.3	2,117.0	2,117.0	2,117.0	0.0
M	0.97[4]	454	806	6.2	2,123.2	2,123.2	2,123.2	0.0
N	1.14[4]	293	614	8.2	2,142.7	2,142.7	2,142.7	0.0
O	1.36[4]	390	679	7.4	2,165.4	2,165.4	2,165.4	0.0
P	1.47[4]	297	632	7.6	2,177.9	2,177.9	2,177.9	0.0
Q	1.56[4]	416	723	6.7	2,189.1	2,189.1	2,189.1	0.0
R	1.71[4]	188	515	9.4	2,207.0	2,207.0	2,207.0	0.0
S	1.83[4]	196	579	8.3	2,220.7	2,220.7	2,220.7	0.0
T	2.03[4]	186	528	8.8	2,243.7	2,243.7	2,243.7	0.0

REVISED DATA

[1]Miles Above Mouth
[2]Combined Floodway for Myrtle Avenue Wash and Dreamy Draw Wash East
[3]Data Not Available
[4]Miles Above Confluence With Cave Creek Wash

REVISED TO REFLECT LOMR DATED AUG 07 1997

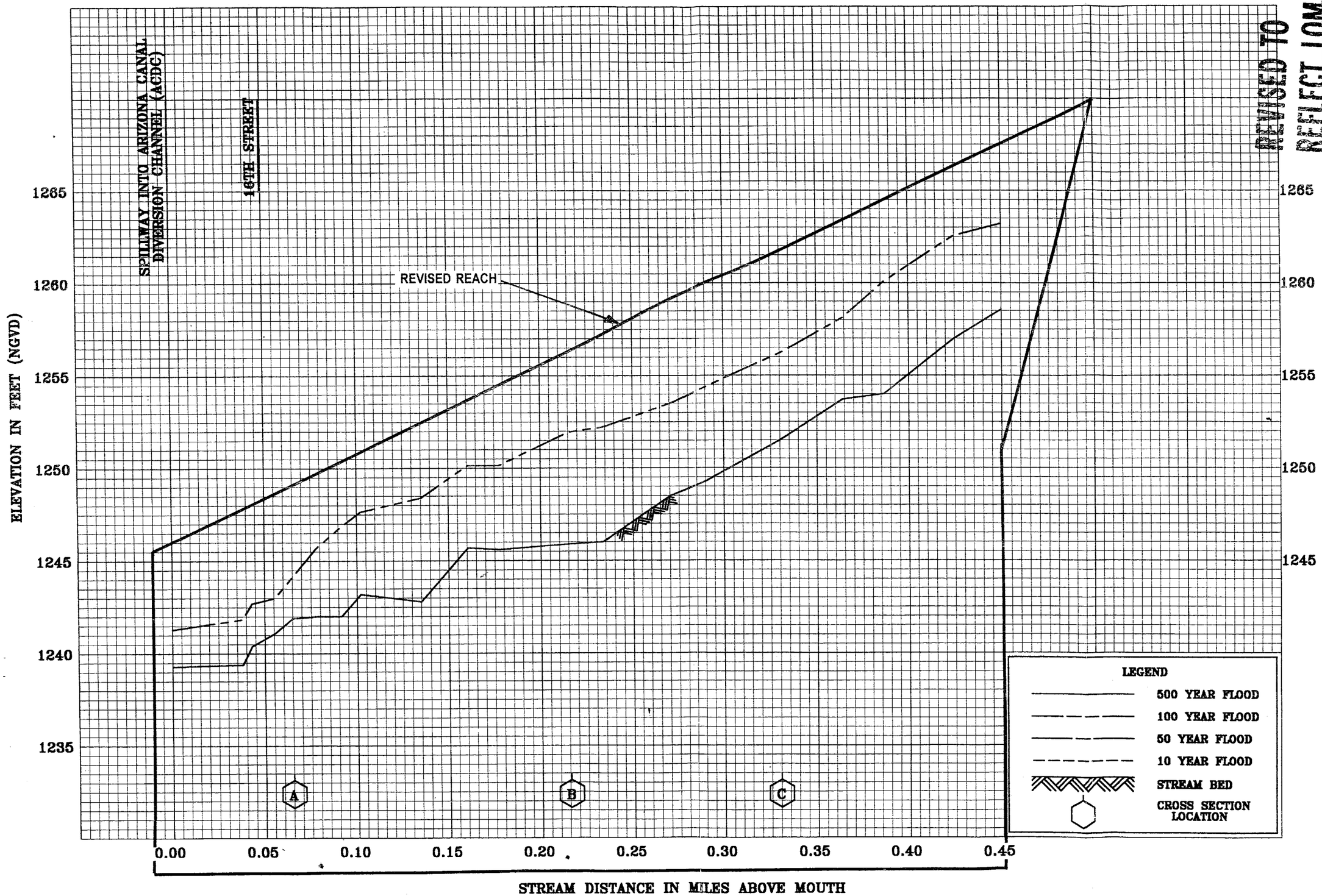
TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

FLOODWAY DATA

MYRTLE AVENUE WASH - OCOTILLO WASH



REVISED TO REFLECT LOMR DATED AUG 07 1997

FLOOD PROFILES

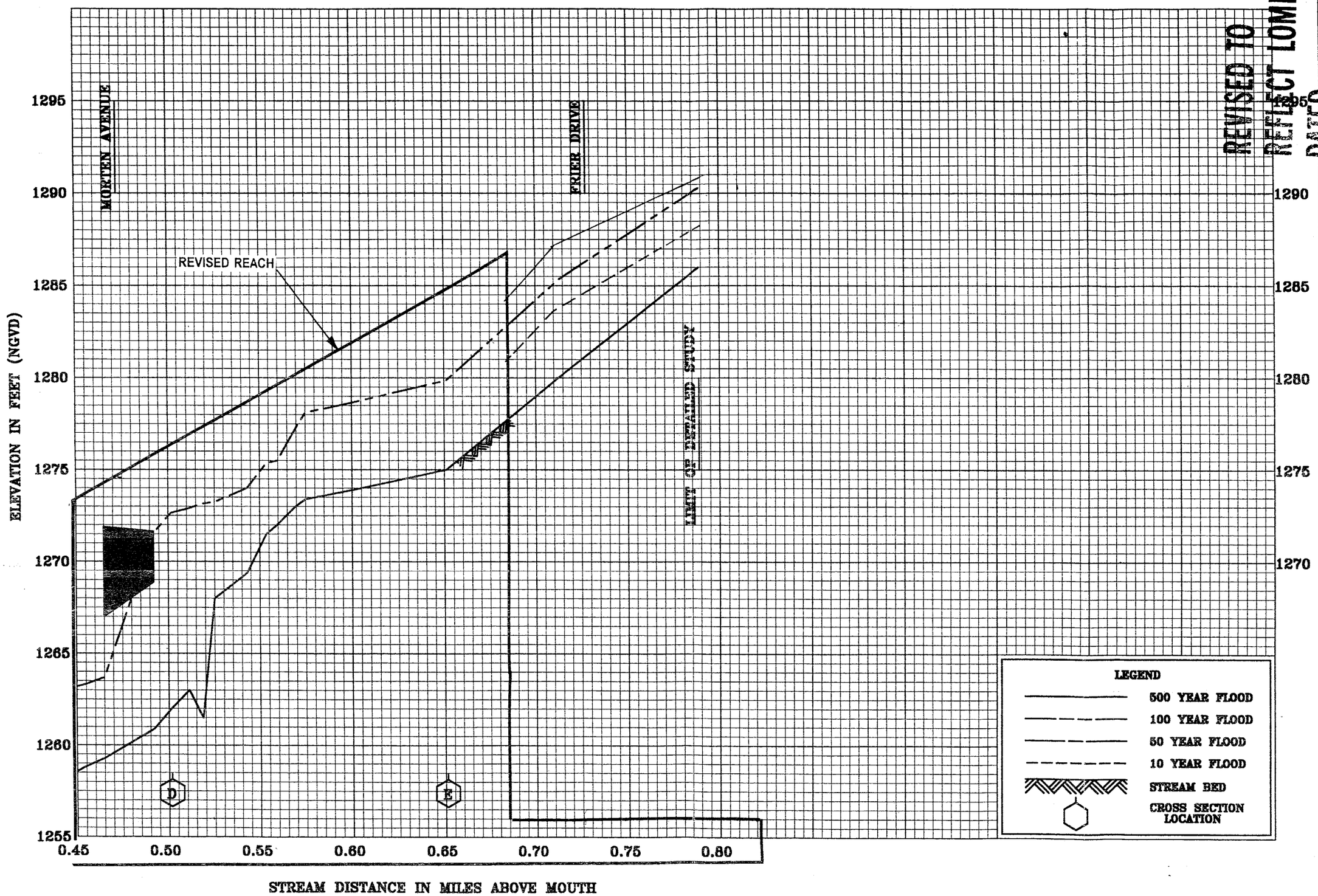
DREAMY DRAW WASH EAST

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ

AND INCORPORATED AREAS

130P



REVISED TO REFLECT LOMR DATED AUG 07 1987

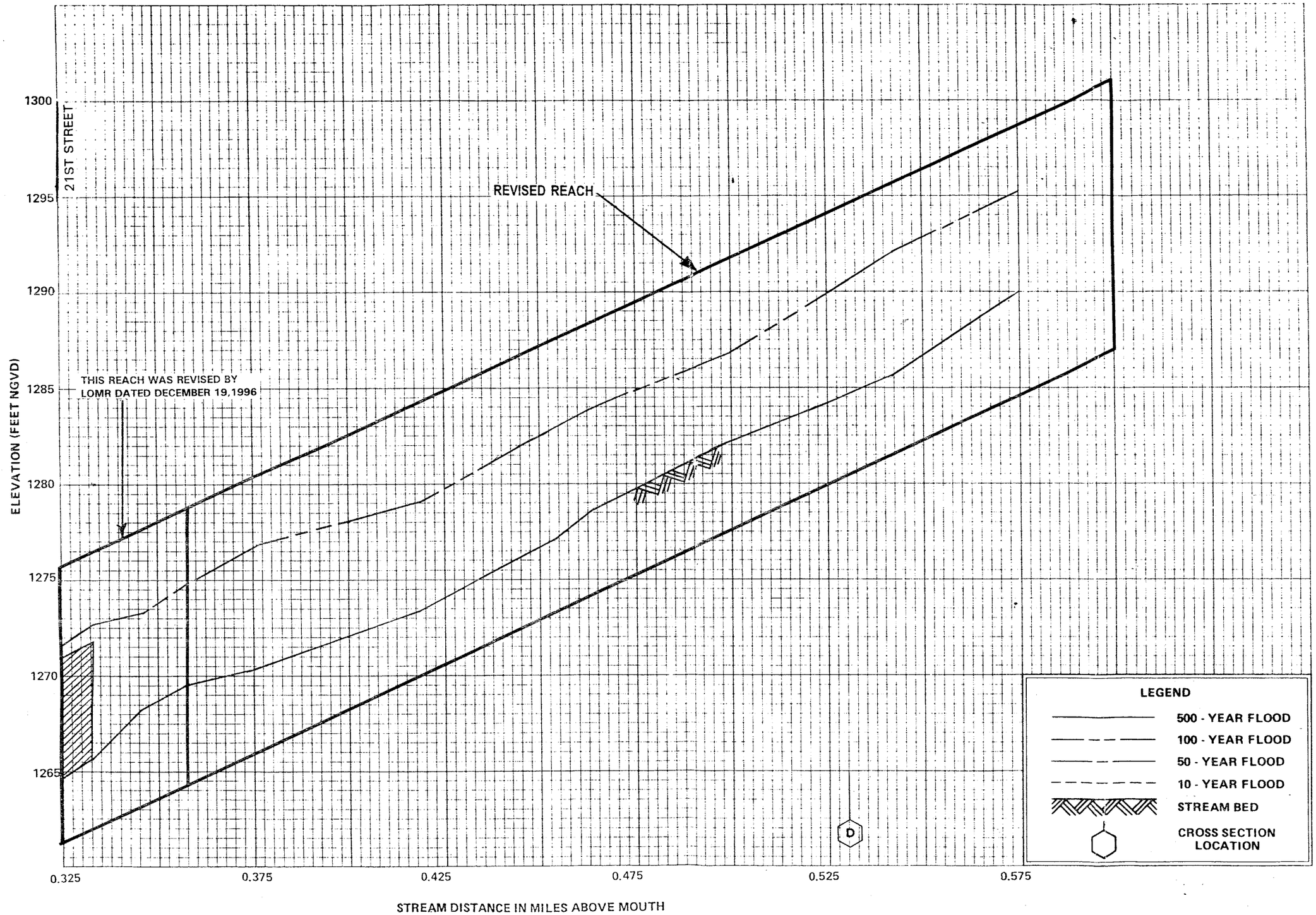
FLOOD PROFILES

DREAMY DRAW WASH EAST

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ

AND INCORPORATED AREAS



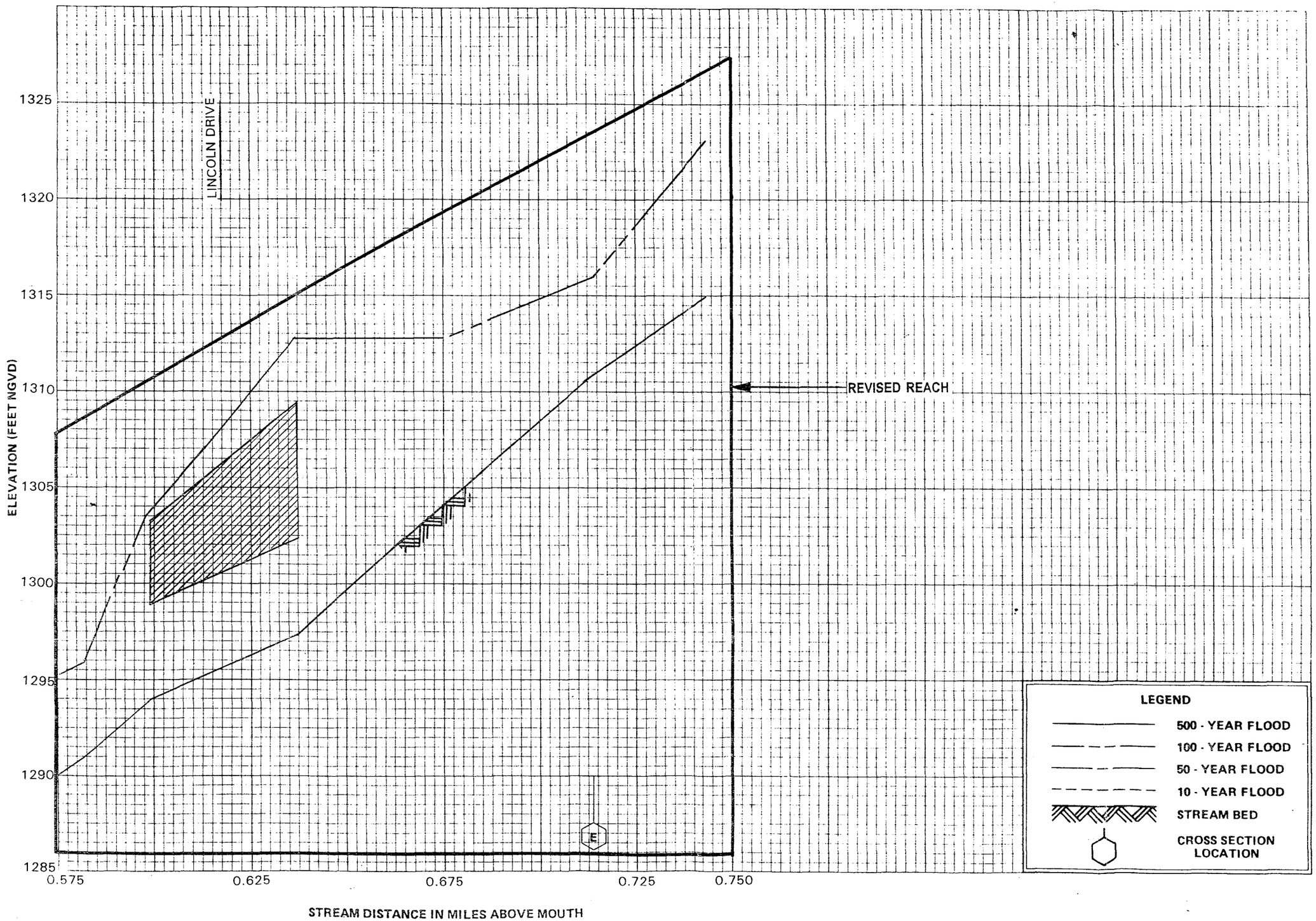
REVISED TO REFLECT LOMR DATED AUG 07 1997

FLOOD PROFILES

FLYNN LANE WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS



REVISED TO REFLECT LOMR DATED AUG 07 1997

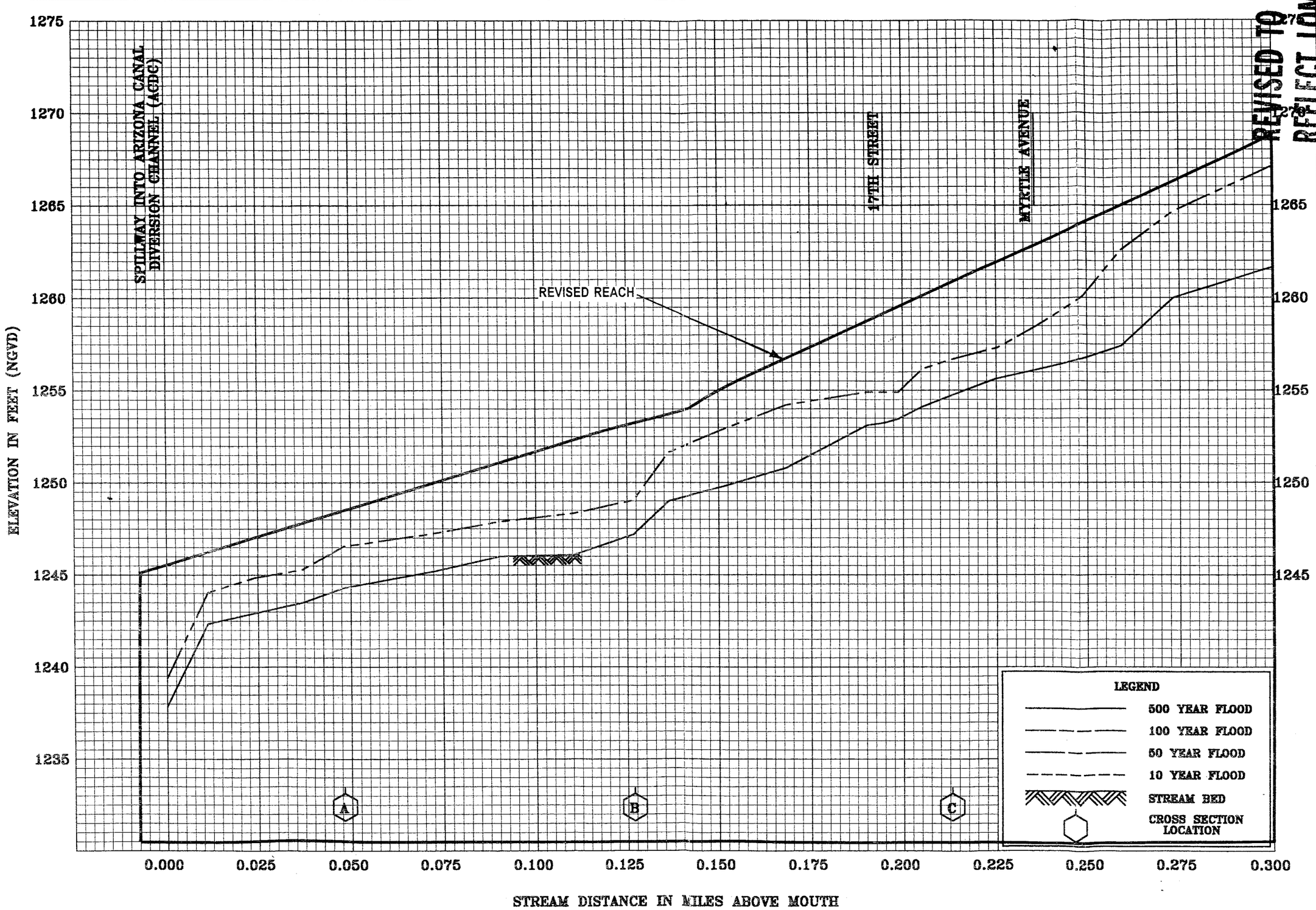
FLOOD PROFILES

FLYNN LANE WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

140PA



REVISED TO REFLECT LOMR
DATED AUG 07 1997

FLOOD PROFILES

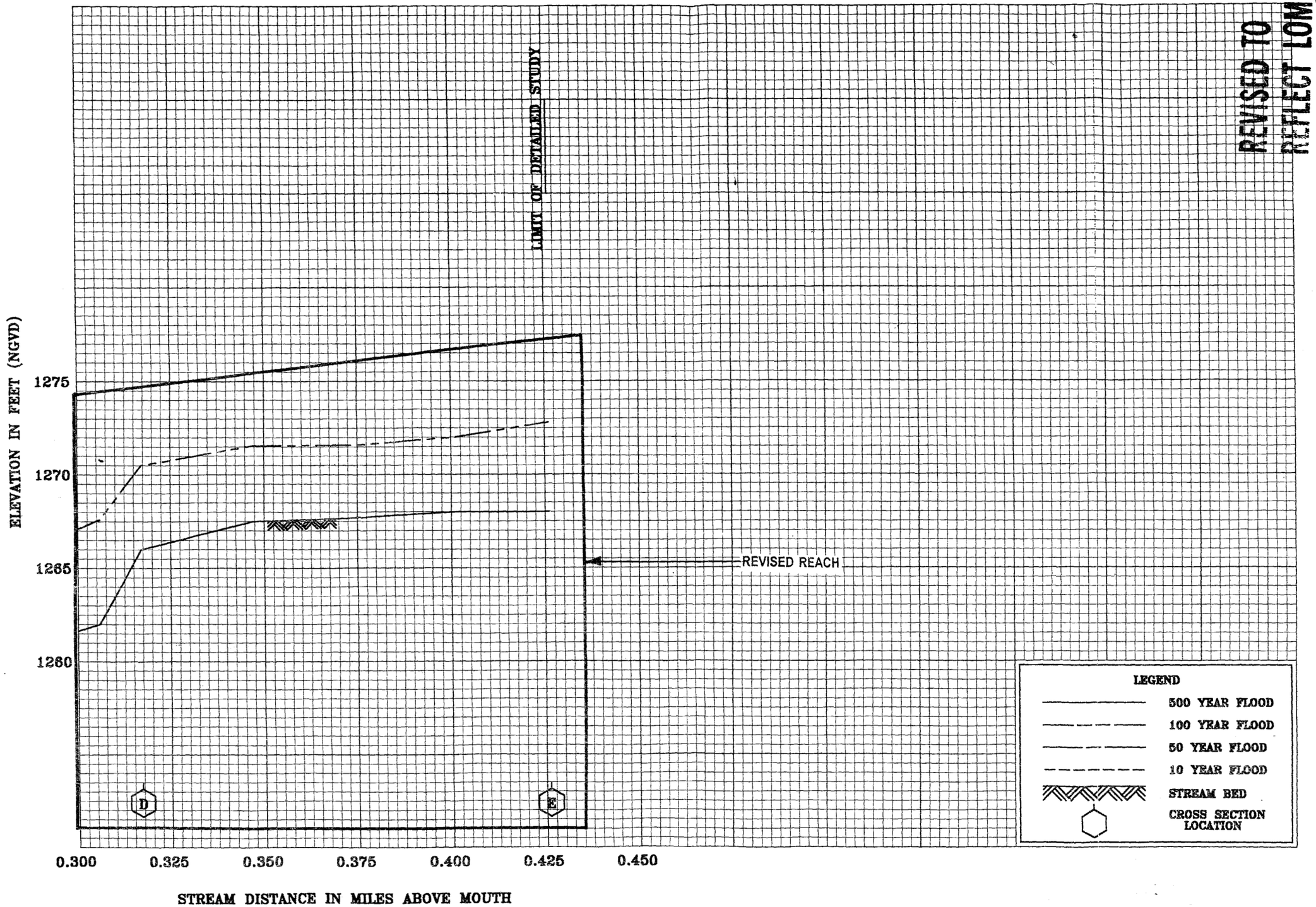
MYRTLE AVENUE WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ

AND INCORPORATED AREAS

235P



REVISED TO REFLECT LOMR DATED 1997

FLOOD PROFILES

MYRTLE AVENUE WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ

AND INCORPORATED AREAS

236P

Federal Emergency Management Agency

Washington, D.C. 20472

FLOOD CONTROL DISTRICT
RECEIVED
JUN 23 1997

June 20, 1997

Mr. Hasan Mushtaq, P.E.
Engineering Division
Flood Control District of Maricopa County
2801 West Durango Street
Phoenix, Arizona 85009-6399

IN REPLY REFER TO:
Case No.: 97-09-616P
Community: City of Phoenix, Arizona
Community No.: 040051

316-ACK.FRQ

Dear Mr. Mushtaq:

This responds to your submittal of fees received June 16, 1997, for a March 13, 1997, request that the Federal Emergency Management Agency (FEMA) issue a revision to the Flood Insurance Rate Map (FIRM) for Maricopa County, Arizona and Incorporated Areas, which is the effective FIRM for your community. Pertinent information about the request is listed below.

Flooding Source:	Myrtle Avenue Wash
FIRM Panel(s) Affected:	04013C1670 E

We have completed an inventory of the items that you submitted. We have received the data and the review and processing fee ($3,700) required to begin a detailed technical review of your request. If additional data are required, we will inform you within 30 days of the date of this letter.

Please direct all questions concerning your request to our Technical Evaluation Contractor at the following address:

Michael Baker Jr., Inc.
3601 Eisenhower Avenue, Suite 600
Alexandria, Virginia 22304

Attention: Mr. Edward Mifflin
(703) 317-6227

When you write us about your request, you must include the case number referenced above in your letter.

If you have any questions concerning FEMA policy, or the National Flood Insurance Program in general, please contact Mr. John Magnotti of our staff in Washington, DC, either by telephone at (202) 646-3932 or by facsimile at (202) 646-4596.

Sincerely,

Frederick H. Sharrocks, Jr., Chief
Hazard Identification Branch
Mitigation Directorate

cc: Mr. Raymond U. Acuña, P.E.
Floodplain Manager
City of Phoenix

Ms. Teri S. Mintz, P.E.
Water Resources Engineer
David Evans & Associates, Inc.

Federal Emergency Management Agency

Washington, D.C. 20472

FLOOD CONTROL DISTRICT
RECEIVED
MAY 26 1997

May 22, 1997

Mr. Hasan Mushtaq, P.E.
Engineering Division
Flood Control District of Maricopa County
2801 West Durango Street
Phoenix, Arizona 85009-6399

IN REPLY REFER TO:
Case No.: 97-09-616P
Community: City of Phoenix, Arizona
Community No.: 040051

316-FEE

Dear Mr. Mushtaq:

This responds to your letter dated May 7, 1997, regarding a March 13, 1997, request for a revision to the Flood Insurance Rate Map (FIRM) for Maricopa County, Arizona and Incorporated Areas, which is the effective FIRM for your community.

To minimize the financial burden on the policyholders while maintaining the National Flood Insurance Program (NFIP) as self-sustaining, the Federal Emergency Management Agency (FEMA) implemented a procedure to recover costs associated with reviewing and processing requests for modifications to published flood information and maps. Effective October 1, 1996, FEMA revised the fee schedule, establishing flat review and processing fees for most types of requests. Effective March 10, 1997, FEMA modified the fee schedule that became effective on October 1. A copy of the notice published in the *Federal Register* is enclosed for your information. The fee for your request is $3,700, and must be submitted before we can begin processing your request. Payment of this fee must be made in the form of a check or money order, made payable in U.S. funds to the National Flood Insurance Program, or credit card payment. For identification purposes, the case number referenced above must be included on the check or money order.

If you choose to forward your payment using the U.S. Postal Service, please send it to the following address:

Federal Emergency Management Agency
Fee-Collection System Administrator
P.O. Box 3173
Merrifield, VA 22116-3173

If you choose to forward your payment using an overnight service, please send it to the following address:

Fee-Collection System Administrator
c/o Dewberry & Davis, METS Division
8401 Arlington Boulevard
Fairfax, VA 22031

Upon receipt of the requested payment, we will begin our technical review of your request. When you write to us about your request, please include the case number referenced above in your letter. Unless otherwise directed by you in writing, we will keep the submitted data in our files.

If you have any questions concerning the processing of your request, please contact our Technical Evaluation Contractor at the following address: Michael Baker Jr., Inc., 3601 Eisenhower Avenue, Suite 600, Alexandria, Virginia 22304. The Revisions Coordinator for your state, Mr. Ed Mifflin, may be reached at (703) 317-6227.

If you have any questions regarding FEMA policy or the NFIP in general, please contact Mr. John Magnotti of our staff in Washington, DC, either by telephone at (202) 646-3932 or by facsimile at (202) 646-4596.

Sincerely,

Frederick H. Sharrocks, Jr., Chief
Hazard Identification Branch
Mitigation Directorate

Enclosure

cc: Mr. Raymond U. Acuña, P.E.
Floodplain Manager
City of Phoenix

Ms. Teri S. Mintz, P.E.
Water Resources Engineer
David Evans & Associates, Inc.

FEDERAL EMERGENCY MANAGEMENT AGENCY ANNOUNCES CHANGES IN USER FEES FOR FLOOD MITIGATION PRODUCTS

On August 30, 1996, FEMA published an Interim Final Rule in the *Federal Register* that detailed how and why the Federal Emergency Management Agency (FEMA) changed the fee schedule for several of the products it provides to the public in support of the National Flood Insurance Program (NFIP). These changes, which became effective on October 1, 1996, were made (1) to simplify existing administrative procedures for individuals who request Letters of Map Change and Flood Insurance Study support information and archived data from FEMA and (2) to help maintain the NFIP as a self-supporting, nontaxpayer-funded program. On August 30, 1996, FEMA also published a notice in the *Federal Register* announcing the revised fee schedule for the following NFIP products:

- Conditional Letters of Map Amendment
- Conditional Letters of Map Revision Based on Fill
- Conditional Letters of Map Revision
- Letters of Map Revision Based on Fill
- Letters of Map Revision
- Physical Map Revisions
- Flood Insurance Study Support Information and Archived Data Products

FEMA recently determined it was appropriate to refine the criteria for assessing fees for map change requests and to revise the fee schedule itself before publishing a Final Rule and final fee schedule notice in the *Federal Register*. The most significant revision FEMA made is the restoration of fee exemptions for: (1) Map change requests based on federally sponsored flood-control projects where 50 percent or more of the project's costs are federally funded; and (2) Map change requests based on detailed hydrologic and hydraulic studies conducted by Federal, State, or local agencies to replace approximate studies conducted by FEMA and shown on the effective FIRM. These and other revisions are documented in the Final Rule and the enclosed Notice. The Notice and Final Rule both were published in the *Federal Register* on February 6, 1997.

Individuals who do not have a subscription to the *Federal Register* may obtain this information through FEMA's World Wide Web site (http:/www.fema.gov/MIT/feesch.htm) or by calling the FEMA Fax-on-Demand, at (202) 646-3362, and requesting Document Number 20018. Hard copies of the Final Rule also may be obtained, free of charge, by contacting Ms. Imelda Edwards at the address shown below.

Federal Emergency Management Agency
Hazard Identification & Risk Assessment Division
500 C Street SW.
Washington, DC 20472
Telephone: (202) 646-3860
Facsimile: (202) 646-4596

FEDERAL EMERGENCY MANAGEMENT AGENCY

Fee Schedule for Processing Requests for Map Changes and for Flood Insurance Study Backup Data for Fiscal Year 1997

AGENCY: Federal Emergency Management Agency (FEMA).

ACTION: Notice.

SUMMARY: This notice contains the revised fee schedules for processing certain requests for changes to National Flood Insurance Program (NFIP) maps and for processing requests for Flood Insurance Study (FIS) backup data. The changes in the fee schedules will allow FEMA to reduce further the expenses to the NFIP by recovering more fully the costs associated with (1) processing conditional and final map change requests and (2) retrieving, reproducing, and distributing technical and administrative support data related to FIS analyses and mapping.

DATES: The revised fee schedules are effective for all requests dated October 1, 1996 or later.

FOR FURTHER INFORMATION CONTACT: Frederick H. Sharrocks, Jr., Chief, Hazard Identification Branch, 500 C Street SW., Washington, DC 20472, (202) 646–2756 or by facsimile at (202) 646–4596 (not toll-free calls).

SUPPLEMENTARY INFORMATION: This notice contains the revised fee schedules for processing certain requests for changes to NFIP maps and for processing requests for FIS backup data. The revised schedule for map changes is effective for all requests dated October 1, 1996, or later, in accordance with the final rule for changes to 44 CFR parts 65, 70, and 72 published elsewhere in this edition of the Federal Register, and supersedes the current fee schedule established on June 30, 1992.

The revised fee schedule for requests for FIS backup data also is effective for all requests dated October 1, 1996 or later, and supersedes the current fee schedule published in the Federal Register on June 30, 1992.

The basis for the fee schedule for requests for Conditional Letters of Map Amendment (CLOMAs), Conditional Letters of Map Revision Based on Fill (CLOMR–Fs), Conditional Letters of Map Revision (CLOMRs), Letters of Map Revision Based on Fill (LOMR–Fs), Letters of Map Revision (LOMRs), and Physical Map Revisions (PMRs) and for the fee schedule for requests for FIS backup data is provided in the separately published final rule.

A primary component of the fees is the prevailing private-sector rates charged to FEMA for labor and materials. Because these rates and the actual review and processing costs may vary from year to year, FEMA will evaluate the fees at the end of each fiscal year and publish revised fee schedules, when needed, as notices in the Federal Register.

Simplification of Fee Schedule for Conditional and Final Map Changes

The existing fee collection process is complex and its administration requires time-intensive efforts on the part of FEMA. It also increases the time required to provide the requesters with the product they require. The current system requires requesters to submit an initial fee that is not intended to cover the full review and processing costs or the cartographic production costs. Requesters subsequently receive invoices for the balances. The current system is complicated further by the pre-authorized spending limits placed on each product. When FEMA determines these limits will be exceeded, written authorization to proceed must be obtained before FEMA can proceed with its review. Processing of the request is delayed until the written authorization is received.

FEMA has streamlined the process by (1) charging flat user fees for most map change products and services; (2) requiring full payment of fees before work is begun on most map change requests; (3) consolidating similar products or services into a limited number of user fee categories; and (4) limiting the number of products for which requesters may receive exemptions from payment of fees. As a result, requesters know the cost of most products before FEMA begins work.

The initial fee for requests for LOMRs and CLOMRs based on structural measures on alluvial fans has been maintained because (1) such requests are rare, (2) the FEMA review for these requests is usually very complex, and (3) the costs involved in processing the requests can fluctuate significantly.

Fees for Conditional and Final Map Revisions Based on Structural Measures on Alluvial Fans

Based on a review of actual cost data for Fiscal Year 1995, FEMA established $5,000 as the initial fee for requests for LOMRs and CLOMRs based on structural measures on alluvial fans. FEMA will recover the remainder of the review and processing costs by invoicing the requester before issuing a determination letter, consistent with current practice. The prevailing private-sector labor rate charged to FEMA ($50 per hour) will be used to calculate the total reimbursable fees.

Fee Schedule for Requests for Conditional Letters of Map Amendment and Conditional and Final Letters of Map Revision Based on Fill

Based on a review of actual cost data for Fiscal Year 1995, FEMA established the following flat user fees, which are to be submitted by requesters with all requests dated October 1, 1996 or later:

Request for single-lot/single-structure CLOMA, CLOMR–F, and LOMR–F, $400

Request for multiple-lot/multiple-structure CLOMA, $700

Request for multiple-lot/multiple-structure CLOMR–F and LOMR–F, $800

Request for single-lot/single-structure LOMR–F based on as-built information (CLOMR–F previously issued by FEMA), $300

Request for multiple-lot/multiple-structure LOMR–F based on as-built information (CLOMR–F previously issued by FEMA), $700

Fee Schedule for Requests for Map Revisions

Unless the request is otherwise exempted under 44 CFR 72.5, requesters must submit the flat user fees shown below with requests for LOMRs and PMRs dated October 1, 1996 or later that are not based on structural measures on alluvial fans. These fees are based on a review of actual cost data for Fiscal Year 1995.

Request based on bridge, culvert, channel, or combination thereof, $3,700

Request based on levee, berm, or other structural measure, $4,300

Request based on as-built information submitted as followup to CLOMR, $2,300

Request based solely on submission of more detailed data, $2,300

Fee Schedule for Requests for Conditional Map Revisions

Unless the request is otherwise exempted under 44 CFR 72.5, requesters must submit the flat user fees shown below with requests for CLOMRs dated October 1, 1996 or later that are not based on structural measures on alluvial fans. These fees are based on a review of actual cost data for Fiscal Year 1995.

Request based on new hydrology, bridge, culvert, channel, or combination thereof, $3,100

Request based on levee, berm, or other structural measure, $3,300

Federal Emergency Management Agency

Washington, D.C. 20472

March 27, 1997

Mr. Hasan Mushtaq, P.E.
Engineering Division
Flood Control District of Maricopa County
2801 West Durango Street
Phoenix, Arizona 85009-6399

IN REPLY REFER TO:
Case No.: 97-09-616P
Community: City of Phoenix, Arizona
Community No.: 040051

316-ACK.FRQ

Dear Mr. Mushtaq:

This responds to your request dated March 13, 1997, that the Federal Emergency Management Agency (FEMA) issue a revision to the Flood Insurance Rate Map (FIRM) for Maricopa County, Arizona and Incorporated Areas, which is the effective FIRM for your community. Pertinent information about the request is listed below.

Flooding Source:	Myrtle Avenue Wash
FIRM Panel(s) Affected:	04013C1670 E

To minimize the financial burden on the policyholders while maintaining the National Flood Insurance Program (NFIP) as self-sustaining, FEMA implemented a procedure to recover costs associated with reviewing and processing requests for modifications to published flood information and maps. Effective October 1, 1996, FEMA revised the fee schedule, establishing flat review and processing fees for most types of requests. A copy of the notice published in the *Federal Register* is enclosed for your information. The fee for your request is $3,700, and must be submitted before we can continue processing your request. Payment of this fee must be made in the form of a check or money order, made payable in U.S. funds to the National Flood Insurance Program, or credit card payment. For identification purposes, the case number referenced above must be included on the check or money order. We will not perform a detailed technical review of your request until we receive this payment.

Payment must be forwarded to one of the addresses listed below.

Using U.S. Postal Service:
Federal Emergency Management Agency
Fee-Collection System Administrator
P.O. Box 3173
Merrifield, VA 22116-3173

Using overnight service:
Fee-Collection System Administrator
c/o Dewberry & Davis, METS Division
8401 Arlington Boulevard
Fairfax, VA 22031

We have completed an inventory of the items that you submitted. The items identified below are required before we can begin a detailed review of your request.

1. Please provide Form 6, entitled "Channelization Form," which was omitted from your previous submittal.

FLOOD CONTROL DISTRICT
RECEIVED

2. Please submit as-built plans for the 500-foot-long, concrete-lined channel at the outlet of the culvert under Squaw Peak Parkway, and for the channel along the south side of the commercial building at the southwest corner of Myrtle Avenue and 17th Street along Myrtle Avenue Wash.

If all required items are not submitted within 90 days of the date of this letter, we will treat any subsequent request as an original submittal, and it will be subject to all submittal/payment procedures.

Please direct all required items (except the required fee) and questions concerning your request to our Technical Evaluation Contractor at the following address:

Michael Baker Jr., Inc.
3601 Eisenhower Avenue, Suite 600
Alexandria, Virginia 22304

Attention: Mr. Massoud Rezakhani
(703) 317-6239

When you write us about your request, you must include the case number referenced above in your letter.

If you have any questions concerning FEMA policy, or the NFIP in general, please contact Mr. John Magnotti of our staff in Washington, DC, either by telephone at (202) 646-3932 or by facsimile at (202) 646-4596.

Sincerely,

Frederick H. Sharrocks, Jr., Chief
Hazard Identification Branch
Mitigation Directorate

Enclosure(s)

cc: Mr. Raymond U. Acuña, P.E.
Floodplain Manager
City of Phoenix

Ms. Teri S. Mintz, P.E.
Water Resources Engineer
David Evans & Associates, Inc.

FEDERAL EMERGENCY MANAGEMENT AGENCY ANNOUNCES CHANGES IN USER FEES FOR FLOOD MITIGATION PRODUCTS

On August 30, 1996, FEMA published an Interim Final Rule in the *Federal Register* that detailed how and why the Federal Emergency Management Agency (FEMA) changed the fee schedule for several of the products it provides to the public in support of the National Flood Insurance Program (NFIP). These changes, which became effective on October 1, 1996, were made (1) to simplify existing administrative procedures for individuals who request Letters of Map Change and Flood Insurance Study support information and archived data from FEMA and (2) to help maintain the NFIP as a self-supporting, nontaxpayer-funded program. On August 30, 1996, FEMA also published a notice in the *Federal Register* announcing the revised fee schedule for the following NFIP products:

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Federal Emergency Management Agency
Hazard Identification & Risk Assessment Division
500 C Street SW.
Washington, DC 20472
Telephone: (202) 646-3860
Facsimile: (202) 646-4596

FEDERAL EMERGENCY MANAGEMENT AGENCY

Fee Schedule for Processing Requests for Map Changes and for Flood Insurance Study Backup Data for Fiscal Year 1997

AGENCY: Federal Emergency Management Agency (FEMA).

ACTION: Notice.

SUMMARY: This notice contains the revised fee schedules for processing certain requests for changes to National Flood Insurance Program (NFIP) maps and for processing requests for Flood Insurance Study (FIS) backup data. The changes in the fee schedules will allow FEMA to reduce further the expenses to the NFIP by recovering more fully the costs associated with (1) processing conditional and final map change requests and (2) retrieving, reproducing, and distributing technical and administrative support data related to FIS analyses and mapping.

DATES: The revised fee schedules are effective for all requests dated October 1, 1996 or later.

FOR FURTHER INFORMATION CONTACT: Frederick H. Sharrocks, Jr., Chief, Hazard Identification Branch, 500 C Street SW., Washington, DC 20472, (202) 646-2756 or by facsimile at (202) 646-4596 (not toll-free calls).

SUPPLEMENTARY INFORMATION: This notice contains the revised fee schedules for processing certain requests for changes to NFIP maps and for processing requests for FIS backup data. The revised schedule for map changes is effective for all requests dated October 1, 1996, or later, in accordance with the final rule for changes to 44 CFR parts 65, 70, and 72 published elsewhere in this edition of the Federal Register, and supersedes the current fee schedule established on June 30, 1992.

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The basis for the fee schedule for requests for Conditional Letters of Map Amendment (CLOMAs), Conditional Letters of Map Revision Based on Fill (CLOMR-Fs), Conditional Letters of Map Revision (CLOMRs), Letters of Map Revision Based on Fill (LOMR-Fs), Letters of Map Revision (LOMRs), and Physical Map Revisions (PMRs) and for the fee schedule for requests for FIS backup data is provided in the separately published final rule.

A primary component of the fees is the prevailing private-sector rates charged to FEMA for labor and materials. Because these rates and the actual review and processing costs may vary from year to year, FEMA will evaluate the fees at the end of each fiscal year and publish revised fee schedules, when needed, as notices in the Federal Register.

Simplification of Fee Schedule for Conditional and Final Map Changes

The existing fee collection process is complex and its administration requires time-intensive efforts on the part of FEMA. It also increases the time required to provide the requesters with the product they require. The current system requires requesters to submit an initial fee that is not intended to cover the full review and processing costs or the cartographic production costs. Requesters subsequently receive invoices for the balances. The current system is complicated further by the pre-authorized spending limits placed on each product. When FEMA determines these limits will be exceeded, written authorization to proceed must be obtained before FEMA can proceed with its review. Processing of the request is delayed until the written authorization is received.

FEMA has streamlined the process by (1) charging flat user fees for most map change products and services; (2) requiring full payment of fees before work is begun on most map change requests; (3) consolidating similar products or services into a limited number of user fee categories; and (4) limiting the number of products for which requesters may receive exemptions from payment of fees. As a result, requesters know the cost of most products before FEMA begins work.

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Fees for Conditional and Final Map Revisions Based on Structural Measures on Alluvial Fans

Based on a review of actual cost data for Fiscal Year 1995, FEMA established $5,000 as the initial fee for requests for LOMRs and CLOMRs based on structural measures on alluvial fans. FEMA will recover the remainder of the review and processing costs by invoicing the requester before issuing a determination letter, consistent with current practice. The prevailing private-sector labor rate charged to FEMA ($50 per hour) will be used to calculate the total reimbursable fees.

Fee Schedule for Requests for Conditional Letters of Map Amendment and Conditional and Final Letters of Map Revision Based on Fill

Based on a review of actual cost data for Fiscal Year 1995, FEMA established the following flat user fees, which are to be submitted by requesters with all requests dated October 1, 1996 or later:

- Request for single-lot/single-structure CLOMA, CLOMR-F, and LOMR-F, $400
- Request for multiple-lot/multiple-structure CLOMA, $700
- Request for multiple-lot/multiple-structure CLOMR-F and LOMR-F, $800
- Request for single-lot/single-structure LOMR-F based on as-built information (CLOMR-F previously issued by FEMA), $300
- Request for multiple-lot/multiple-structure LOMR-F based on as-built information (CLOMR-F previously issued by FEMA), $700

Fee Schedule for Requests for Map Revisions

Unless the request is otherwise exempted under 44 CFR 72.5, requesters must submit the flat user fees shown below with requests for LOMRs and PMRs dated October 1, 1996 or later that are not based on structural measures on alluvial fans. These fees are based on a review of actual cost data for Fiscal Year 1995.

- Request based on bridge, culvert, channel, or combination thereof, $3,700
- Request based on levee, berm, or other structural measure, $4,300
- Request based on as-built information submitted as followup to CLOMR, $2,300
- Request based solely on submission of more detailed data, $2,300

Fee Schedule for Requests for Conditional Map Revisions

Unless the request is otherwise exempted under 44 CFR 72.5, requesters must submit the flat user fees shown below with requests for CLOMRs dated October 1, 1996 or later that are not based on structural measures on alluvial fans. These fees are based on a review of actual cost data for Fiscal Year 1995.

- Request based on new hydrology, bridge, culvert, channel, or combination thereof, $3,100
- Request based on levee, berm, or other structural measure, $3,300

FLOOD CONTROL DISTRICT
of
Maricopa County

2801 West Durango Street • Phoenix, Arizona 85009-6399
Telephone (602) 506-1501
Fax (602) 506-4601
TT (602) 506-5859

BOARD OF DIRECTORS
Betsey Bayless
Jan Brewer
Fulton Brock
Don Stapley
Mary Rose Garrido Wilcox

MAY 0 7 1997

Frederick H. Sharrocks, Jr., Chief
Hazard Identification Branch
Mitigation Directorate
Federal Emergency Management Agency
500 C Street SW
Washington, D.C. 20472

Case No.: 97-09-616P
Community: City of Phoenix
Community No.: 040051

316-ACK.FRQ

Attn : Mr. John Magnotti

Re : LOMR request for Myrtle Avenue Wash
FIRM Map Panel 1670 E (9-30-1995)
When replying, please refer to :
FCD Contract No. FCD 94-51

Dear Mr. Sharrocks :

This responds to your request dated March 27, 1997, for additional items to complete your inventory of the information submitted through a request for LOMR dated March 13, 1997, to revise the Flood Insurance Rate Map (FIRM) for Maricopa County, Arizona and Incorporated Areas. Pertinent information about the request is listed below :

Identifier :	Myrtle Avenue Wash
Flooding Source :	Myrtle Avenue Wash
FIRM Panel(s) Affected :	04013C1670 E (9-30-1995)

This is a request for a LOMR for Myrtle Avenue Wash, which is located entirely within the City of Phoenix, Arizona. The wash flows in a westerly direction and discharges into the Arizona Canal Diversion Channel (ACDC), constructed by the U.S. Army Corps of Engineers as part of the Plan 6, Greater Phoenix Area Including New River flood mitigation program.

Following items are discussed as a response to your request in the letter dated March 27, 1997 :

ITEM

1. This restudy of the Myrtle Avenue Wash reflects the improvements to flow conveyance and spill capacity due to the construction of the Arizona Canal Diversion Channel (ACDC). ACDC was constructed for public benefit and primarily intended for flood loss reduction for existing insurable structures in the identified flood hazard areas which were in existence prior to the commencement of the ACDC project. This also conforms with the exemption under 44 CFR 72.5(c), stated in the fee scheduling notice published in the *Federal Register*, Vol. 62, No. 25, Thursday, February 6, 1997. A copy of the 44 CFR 72.5© is included for your kind review (Exhibit 1). Additionally, a letter from the Floodplain Manager of City of Phoenix, who is the revision requestor, supporting the arguments presented herewith, is also attached (Exhibit 2).

Therefore, the Flood Control District of Maricopa County requests that this LOMR to issue a revision to the existing Flood Insurance Rate Map (FIRM) be exempted from fee schedules as described in the notice published in the *Federal Register*, Vol 62, No. 25, Thursday, February 6, 1997.

2. The As-built plans and profile for the 500' concrete lined channel at the outlet of the culvert is included in this package (Exhibit 3). A corresponding Form 6, entitled "Channelization Form" is also attached (Exhibit 4).

3. The As-built plans and profile for the channel along the south side of the commercial building at the southwest corner of Myrtle Avenue and 17th Street along Myrtle Avenue Wash is not available from the City of Phoenix. However, supplemental survey information, HEC-2 cross-section plot and a completed Form 6, entitled "Channelization Form" are included in this package (Exhibit 5).

4. It was found that the split flow model (MA19REV.HC2), which was used to determine the split flow and the weir flow at cross sections 0.190, 0.195, 0.199, 0.205 has incorrect cross section identifications in the split flow and the weir flow records. These identifications are corrected and a revised split flow model is developed (Exhibit 6).

5. The As-built plan for the 500' concrete lined channel at the outlet of the culvert was incorporated in the revised HEC-2 model. The input/output of the revised hydraulic analysis is shown in Exhibit 7.

6. As a result of the modifications in Item 5, the water surface elevations were changed according to the revised HEC-2 output. These changes are shown on the Water Surface Elevation Check table, revised page 6 of 6 (Exhibit 8).

7. Revised cover letter, explanation sheet, pages 3-5 Form 4 are included in Exhibit 9.

8. Revised hydraulic calculations for the 17th Street breakout of 99.0 cfs (Exhibit 10).

Should additional information be required, please contact either Ms. Teri Mintz, P.E., Water Resources Engineer, David Evans and Associates, Inc., at (602)-956-9850 or Hasan Mushtaq, P.E., Project Manager, Engineering Division, Flood Control District of Maricopa County at (602)-506-1501.

Sincerely,

Hasan Mushtaq, P.E.
Engineering Division

EXHIBITS 3-10 ARE REPLACED IN THE MAIN PACKAGE.

Enclosures

Copy to : Terri Miller, State Coordinator, NFIP
Arizona Department of Water Resources
500 North 3rd Street, Phoenix, Arizona 85004

4/24/97

Ray Acuna, P.E., Floodplain Manager
City of Phoenix
200 West Washington Street, Phoenix, Arizona 85004

Teri Mintz, P.E., Water Resources Engineer
David Evans & Associates, Inc.
2929 East Camelback Road, Suite 240, Phoenix, Arizona 85016

Coord : ~~HM~~ ~~PAC~~ ~~EAR~~ ~~BGN~~

Info : HM

EXHIBIT 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

Revised as of October 1, 1994

National Flood Insurance Program and Related Regulations

NOTE: On October 25, 1994, FEMA published an interim final rule which established a new flood insurance rate zone (Zone AR) for areas designated as flood control restoration zones on National Flood Insurance Program maps. The interim final rule also established minimum floodplain management requirements and provided regulatory guidance for implementing statutory requirements, including procedure to identify and map areas as flood control restoration zones. A comment period ending on December 9, 1994, was provided. That comment period has been extended to December 23, 1994. This document, which went to printing in December 1994, does not contain the revisions included in the October 25 **Federal Register** publication.

This document will be revised to reflect flood control restoration zone revisions after the final final rule is published in the **Federal Register.**

revision requests, FEMA shall:

(1) Notify the requestor within 60 days as to the adequacy of the submittal; and

(2) Within 90 days of receipt of adequate information and fee, provide comment to the requestor on the proposed project, issue a LOMR or, in the case of a map revision, notify the requestor of the results of the review and the estimate of the costs of the cartographic preparation and processing; and

(3) Within 90 days of completion of the engineering review and receipt of the payment for the total cost of the review and processing of the map revision, including cartographic costs, issue a preliminary copy of the revised FIRM or FBFM, or both, for review and comment by the community and the requestor.

§ 72.5 Exemptions.

(a) LOMAs, LOMRs, or map revisions issued to correct map errors or to include the effects of natural changes within the areas of special flood hazard shall be exempt from fees.

(b) LOMRs, as determined to be appropriate by the Administrator, issued to remove single residential lots or structures from the area of special flood hazard based solely on the placement of fill outside of the regulatory floodway, shall be exempt from fees. The Administrator's determination will be based, in part, on whether the LOMR is being sought by an individual property owner or whether it is being requested prior to the transfer of ownership of the property in question from a developer to an individual property owner.

(c) Federal, State, and local governments and their agencies shall be exempt from fees for projects they sponsor if the Administrator determines or the requesting agency certifies that the particular project is for public benefit and primarily intended for flood loss reduction to insurable structures in identified flood hazard areas which were in existence prior to the commencement of construction of the flood control project. Projects undertaken primarily to protect planned flood plain development are not eligible for fee exemption.

§ 72.6 Unfavorable response.

(a) A request for a CLOMA or CLOMR may be denied or the determination may contain specific comments, concerns, or conditions regarding a proposed project or design and its impacts on flood hazards in a community. A requestor is not entitled to any refund if the determination contains such comments, concerns, or conditions, or if the request is denied. A requestor is not entitled to any refund if the requestor is unable to provide the appropriate scientific or technical documentation or to obtain required authorizations, permits, financing, etc., for which the CLOMA or CLOMR was sought.

(b) A request for a LOMR or map revision may be denied or may not revise the FIRM or the FBFM, or both, in the manner or to the extent desired by the requestor. A requestor is not entitled to any refund if the revision is denied or if the LOMR or map revision action does not revise the map specifically as requested.

§ 72.7 Resubmittals.

Any resubmittal of a CLOMA, CLOMR, LOMR, or map revision request more than 90 days after FEMA notification that the request has been denied or after the review has been terminated because of insufficient information or other reasons will be treated as an original submission and subject to all submittal payment procedures described in § 72.4, including the initial fee. The procedure of § 72.4, including the initial fee, will also apply to any resubmitted request (regardless of when it is submitted) if the project on which the request is based has been significantly altered in design or scope other than as necessary to respond to comments, concerns, or other findings made by FEMA regarding

EXHIBIT 2

City of Phoenix
STREET TRANSPORTATION DEPARTMENT

Winner of the Carl Bertelsmann Prize

FLOOD CONTROL DISTRICT
RECEIVED
APR 23 1997
FILE
HM

April 21, 1997

Mr. Frederick H. Sharrocks, Jr., Chief
Hazard Identification Branch
Mitigation Directorate
Federal Emergency Management Agency
500 "C" Street, S.W.
Washington, D.C. 20472

Attn: Mr. John Magnotti

Dear Mr. Sharrocks:

RE: CASE NO. 97-09-616P
COMMUNITY: CITY OF PHOENIX - COMMUNITY NO. 040051
316-ACK.FRQ
LOMR REQUEST FOR MYRTLE AVENUE WASH
FIRM PANEL 1670E (9/30/95)

I am writing this letter in response to your request dated March 27, 1997, for supplemental information to complete your inventory of the supporting documents submitted to you as a part of a LOMR request for the Myrtle Avenue Wash in the City of Phoenix. This request for a Letter of Map Revision has been conducted by the Flood Control District of Maricopa County, at the request of the City of Phoenix and as such, the city is the revision requester for this LOMR.

The design and construction of the Arizona Canal Diversion Channel (ACDC), the majority of which is in the City of Phoenix, was completed by the U.S. Army Corps of Engineers in 1994. It was primarily designed to convey runoff that created ponding upstream of the Arizona Canal, an irrigation canal, and reduce flood hazard potential to the public. These flood hazard areas, identified in the existing Flood Insurance Rate Maps (FIRM), within the City of Phoenix, were in existence prior to the construction of the ACDC. To properly reflect the benefits of the constructed ACDC, a restudy of the Myrtle Avenue Wash was required. The results, from the restudy, show that the floodplain area has been reduced.

200 West Washington Street, Fifth Floor, Phoenix, Arizona 85003-1611 602-262-6284 FAX: 602-495-2016

Recycled Paper

Therefore, this is for public benefit and intended for flood loss reduction to insurable structures in identified flood hazard areas which were in existence prior to the commencement of construction of the ACDC. I believe that this LOMR request should be exempt, under the 44 CFR 72.5(c), from the FEMA fee schedule notice, as published in the Federal Register, Vol. 62, No. 25, Thursday, February 6, 1997.

Should additional information be required in this regard, please do not hesitate to contact me at (602) 262-4960.

Sincerely,

James H. Matteson, P.E.
Street Transportation Director

Raymond U. Acuña, P.E.
Floodplain Manager

JHM/RUA/aff/970417b.wpd

FLOOD CONTROL DISTRICT
of
Maricopa County

2801 West Durango Street • Phoenix, Arizona 85009-6399
Telephone (602) 506-1501
Fax (602) 506-4601
TT (602) 506-5859

BOARD OF DIRECTORS
Betsey Bayless
Jan Brewer
Fulton Brock
Don Stapley
Mary Rose Garrido Wilcox

Michael K. Buckley, P.E., Chief
Hazard Identification Branch
Mitigation Directorate
Federal Emergency Management Agency
Washington, D.C. 20472

Attn : Mr. John Magnotti

Re : LOMR request for Myrtle Avenue Wash
FIRM Map Panel 1670 E (9-30-1995)
When replying, please refer to :
FCD Contract No. FCD 94-51

Dear Mr. Buckley :

This request is for a revision to the Flood Insurance Rate Map (FIRM) for Maricopa County, Arizona and Incorporated Areas. Pertinent information about the request is listed below :

Identifier :	Myrtle Avenue Wash
Flooding Source :	Myrtle Avenue Wash
FIRM Panel Affected :	04013C1670 E (9-30-1995)

This is a request for a LOMR for Myrtle Avenue Wash, which is located entirely within the City of Phoenix, Arizona. The wash flows in a westerly direction and discharges into the Arizona Canal Diversion Channel (ACDC), constructed by the U.S. Army Corps of Engineers as part of the Plan 6, Greater Phoenix Area Including New River flood mitigation program.

This restudy reflects the improvements to flow conveyance and spill capacity intended primarily for flood loss reduction for existing insurable structures and therefore is exempt from fees under 44CFR 72.5. These improvements and this LOMR has been prepared on behalf of and coordinated with the City of Phoenix, who is the revision requestor.

The following information is submitted in support of the LOMR request :

1. FEMA application form (Revision Requestor and Community Official Form).
2. A notarized copy of the public notice.
3. A complete set of LOMR application forms.

4. Revised profile plot showing the match point locations.
5. Revised Floodplain/floodway boundary annotated on the FIRM panel 1670 E (1"=1000').
6. Photographs of the Myrtle Avenue Wash from the box culvert at the upper limit of the study to the Spillway into the ACDC.
7. As-built plans for the spillways at the ACDC by the US Army Corps of Engineers (sheets 29 and 76 of 90).
8. Hydraulic plan and profile for the spillways at the ACDC by the US Army Corps of Engineers (plates 4 and 10).
9. A copy of the letter, stating that the As-built plans were prepared by the Corps of Engineers.
10. A complete set of survey notes.
11. Flood insurance study work maps including previous approximate delineation of Myrtle Avenue Wash (1"=100' scale).
12. Cross-section location Map for Myrtle Avenue Wash (1"=50' scale).
13. Available topographic mapping (1"=400') of Flynn Lane Wash and vicinity (sheet 76 of 111).
14. Hardcopy input/output of the duplicate effective model, split flow model and the revised model.
15. One 3-1/2" diskette with the duplicate effective model, split flow model and the revised model.
16. One 3-1/2" diskette with the MA19XSMA.ZIP file.

Following items are also discussed in relation to the LOMR application.

<u>ITEM</u>

1. Starting Water Surface Elevation for the HEC-2 model was established based on critical depth at the ACDC Spillway. The computed critical depth was 1239.53'.

2. The As-built plans for the different reaches of the ACDC were prepared by the US Army Corps of Engineers. As such, the As-built plans (sheet 29 and 76 of 90), submitted with this application package, are not certified by registered professional engineer. A copy of the letter, stating that these As-built plans were prepared by the US army Corps of Engineers, is included in this submittal as a supporting document.

3. The HEC-2 analysis shows that the apartment buildings, located at the south-east corner of the Myrtle Avenue and 16th Street, will be inundated during the 100-year storm. However, the base flood elevations are determined only around building following the flow path of the Myrtle Avenue Wash. Therefore, it is proposed that the area, as shown in Exhibit A, should be designated a flood hazard zone, Zone A - No base flood elevations determined.

4. A split flow analysis 536 was performed (model MA19REV.HC2), assuming split flow situation at cross-sections 0.190, 0.195, 0.199, 0.205. According to the results from the split flow analysis, it is found that approximately ~~552~~ cfs. of flow leaves the Myrtle Avenue Wash, spilling into Dreamy Draw Wash East, in the westerly direction. This flow no longer returns to the Myrtle Avenue Wash, and will be included in the Dreamy Draw Wash hydraulic analysis for the purposes of another LOMR application.

5. The split flow analysis also showed that another of ~~98~~.0 cfs. spills in the southerly direction, from the 93.0

cross-sections at 0.190, 0.195, 0.199, along 17th Street. A hydraulic analysis, on three cross-sections (e.g., Northern, Central and Southern), were performed, utilizing Manning's Equation.

The depth of flow at the Northern cross-section is 0.72'. The Central and Southern cross-sections show that the depth of flow is 1.46' and 1.54', respectively. This depth of flow is based on the lowest point within the cross-section; and the lowest point at these two cross-sections are in a newly constructed roadside ditch on the west of 17th Street, which is 1' lower than the bottom of the roadway. Therefore, the actual depth of water on the roadway is less than 1'. This flow is contained within the right of way of 17th Street and continues to flow south. Eventually, the flow enters a small detention basin, at the north-west corner of 17th Street and Glendale Avenue, and spills into ACDC by way of another spillway. Detailed supporting calculations are shown in Appendix A.

Should additional information be required, please contact either Ms. Teri Mintz, P.E., Water Resources Engineer, David Evans and Associates, Inc., at (602)-956-9850 or Hasan Mushtaq, P.E., Project Manager, Engineering Division, Flood Control District of Maricopa County at (602)-506-1501.

Sincerely,

Hasan Mushtaq, P.E.
Engineering Division

Enclosures

Copy to : Terri Miller, State Coordinator, NFIP
Arizona Department of Water Resources
500 North 3rd Street, Phoenix, Arizona 85004

Ray Acuna, P.E., Floodplain Manager
City of Phoenix
200 West Washington Street, Phoenix, Arizona 85004

Teri Mintz, P.E., Water Resources Engineer
David Evans & Associates, Inc.
2929 East Camelback Road, Suite 240, Phoenix, Arizona 85016

Coord : PAT EAR RGN SLS 3/13 HM 3/13

Info : HM

Introduction

David Evans and Associates was contracted by the Flood Control District of Maricopa County (FCDMC) to analyze Myrtle Avenue Wash and revise the Flood Insurance Rate Map (FIRM) as necessary. This new analysis has been performed due to the construction of the Arizona Canal Diversion Channel (ACDC) and the construction of channel improvements at the uppermost reach. The ACDC was built in 1994 by the US Army Corps of Engineers. It was designed to convey runoff that ponds upstream of the Arizona Canal, an irrigation distribution system in Phoenix.

Area Studied

Detailed hydraulic analysis was performed along Myrtle Avenue between the Squaw Peak Parkway freeway system and the spillway into the ACDC, which is located at the downstream portion of a previously studied reach of Myrtle Avenue Wash. The aerial topographic maps used in the design and construction of the ACDC were used to supplement the required ground information (GR cards) used in the revised HEC-2 model.

Several changes to the topography have occurred since the original flood insurance study performed by FEMA. The changes involve the construction of the Squaw Peak Parkway (a freeway system located along the previous 19th Street alignment), construction of a 13' by 10' box culvert under the Squaw Peak Parkway, construction of an approximately 550 foot long concrete lined channel at the outlet of the culvert, and construction of a commercial building at the southwest corner of Myrtle Avenue and 17th Street with a channel along the south side of the building.

Hydraulic Analysis

A duplicate effective model was prepared using the data available from the Federal Emergency Management Agency (FEMA). The data was provided to FCDMC on microfiche. A revised model was prepared using the current, more detailed topography. The extent of the study was from approximately 50' downstream of the culvert outlet to the spillway into the ACDC.

The Manning roughness coefficients utilized in the new analysis are 0.013 for the concrete spillway, 0.015 for the roadway, 0.022 for dirt covering, 0.025 to 0.04 for overbank ranging from sparse to relatively dense vegetation, and 0.06 for thicker vegetation with some trees.

Boundary Conditions

The starting water surface elevations for the HEC-2 model were established based on critical depth at the ACDC spillways. Due to better topographic information, 28 cross sections were modeled in the new analysis as compared to the 9 in the duplicate effective model. The cross sections are shown on Exhibit A, a 1"=100' scale topographic map located in the back pocket. Due to the new topographic data and the location and alignment of cross sections, comparing water surface elevations of cross sections by numerical order from the effective model compared to the revised model may not be relevant.

The revised model does not include a culvert and private driveway at cross section 0.370 (as shown on existing model). These items no longer exist. It was also determined that when the 100-year flow of 1300 cfs reaches the intersection of Myrtle Avenue and 17th Street, flow splits with portions flowing west on Myrtle Avenue, south on 17th Street, and southwest within the Myrtle Avenue channel.

Results

The split flow analysis, model name MA19REV.HC2, shows that 536 cfs splits from Myrtle Avenue Wash and flows west on Myrtle Avenue, spilling into the Dreamy Draw Wash East. The flow was added to the Dreamy Draw Wash East revised study, included with, but separate from this study.

An additional 99 cfs splits from Myrtle Avenue Wash and flows south on 17th Street. A Mannings analysis was performed for three cross sections within 17th Street, just south of the split, and result in a maximum depth of 0.72 feet. The central and southern cross sections show a water height of 1.46' and 1.55', respectively. The water height is based on the lowest elevation within the cross section and for these cross sections, the lowest elevation is in a newly constructed ditch along the west side of 17th Street which is one foot lower than the adjacent road. The actual depth in the roadway is less than one foot. The development currently under construction at Palamaire Place, is a minimum of 3 feet above 17th Street, thereby preventing the 99 cfs from entering the site. Based on the Mannings analysis, the split flow is contained within the right-of-way of 17th Street and continues south, where the flow enters a small detention basin at the northwest corner of 17th Street and Glendale Avenue, and then spills into the ACDC by way of another spillway.

There have been several changes in the Myrtle Avenue Wash area. These changes include the construction of the Squaw Peak Parkway freeway system, the construction of a culvert under the freeway, and an improved channel at the outlet. The culvert under the freeway, along with the 550 foot long concrete channel at the outlet, lowers the bottom of the channel and the resulting water surface elevation by 4 to 10 feet. The concrete channel extends from approximately cross section .347 to the uppermost end

of the reach. As-built drawings are included that show the typical cross section of the channel.

A commercial building has also been constructed at the southwest corner of Myrtle Avenue and 17th Street with a concrete channel that runs along the southern boundary of the site. As-builts were either not prepared or were prepared but have been lost in the years since construction of the office building. However, detailed survey information was prepared and is shown on Exhibit B. Topographic changes have occurred since the survey data was collected. Specifically, a perimeter wall was constructed as part of the new subdivision along Myrtle Avenue Wash just downstream of the 17th Street crossing. The new channel bottom is 21 feet wide with a vertical wall along the south side of the channel. The top of wall elevations are similar to the elevations at the previous top of slope. The primary change was the presence of a wall verses an embankment. The bottom width stayed roughly unchanged. Photos taken before and after the changes due to the subdivision are included in the photo section of this submittal. The information on the GR records of the HEC-2 reflect the changes.

Another change since the last study is the construction of an apartment building at the southeast corner of Myrtle Avenue and 16th Street. This building forces the flow to be directed south, then west and then into an ACDC spillway. The area where the apartment is located should remain a flood hazard zone, Zone A- no base flood elevations determined. The HEC-2 shows that the apartment and office building are inundated during the 100-year storm, however, the base flood elevations are determined only around the building.

As a result of these changes to the topography, the horizontal alignments of the floodplain and floodway have been revised. The existing and revised floodplain and floodway is depicted on the floodplain delineation map, Exhibit A, located in the back pocket.

The current topography was utilized in the revised model, MA19MENC.HC2 which uses the flow determined in the split flow model, MA19REV.HC2. Two models were prepared because a split flow analysis and an encroachment analysis could not be performed within the same analysis. Therefore, the discharges determined from MA19REV.HC2 were input into MA19MENC.HC2 on the QT records.

FEDERAL EMERGENCY MANAGEMENT AGENCY **REVISION REQUESTOR AND COMMUNITY OFFICIAL FORM**	O.M.B. Burden No. 3067-0148 Expires July 31, 1997	FEMA USE ONLY

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 2.13 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden, to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, S.W., Washington, DC 20472; and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503.

1. OVERVIEW

1. The basis for this revision request is (are): *(check all that apply)*
   - ☒ Physical change
     - ☒ Existing
     - ☐ Proposed
   - ☐ Improved methodology
   - ☐ Improved data
   - ☐ Floodway revision
   - ☐ Other _____

   Explain _____

2. Flooding Source: Myrtle Ave. Watershed
3. Project Name/Identifier: Myrtle Avenue Wash
4. FEMA zone designations affected: AE
   (example: A, AH, AO, A1-A30, A99, AE, V, V1-30, VE, B, C, D, X)
5. The NFIP map panel(s) affected for all impacted communities is (are):

Community No.	Community Name	County	State	Map No.	Panel No.	Effective Date
480301	Katy,City	Harris, Fort Bend	TX	480301	0005D	02/08/83
480287	Harris County	Harris	TX	48201C	0220G	09/28/90
40051	Phoenix, City	Maricopa	AZ	04013C	1670E	09/30/95

6. The area of revision encompasses the following types of flooding, structures, and associated disciplines: *(check all that apply)*

Types of Flooding	Structures	Disciplines*
☒ Riverine	☐ Channelization	☒ Water Resources
☐ Coastal	☐ Levee/Floodwall	☐ Hydrology
☐ Alluvial Fan	☐ Bridge/Culvert	☒ Hydraulics
☐ Shallow Flooding *(e.g. Zones AO and AH)*	☐ Dam	☐ Sediment Transport
☐ Lakes	☐ Coastal	☐ Interior Drainage
	☐ Fill	☐ Structural
Affected by wind/wave action	☐ Pump Station	☐ Geotechnical
☐ Yes	☐ None	☐ Land Surveying
☐ No	☐ Channel Relocation	☐ Other *(describe)*
	☐ Excavation	
	☐ Other *(describe)*	

☐ Other(describe) _____ _____ _____

* **Attach completed "Certification by Registered Professional Engineer and/or Land Surveyor" Form for each discipline checked. (Form 2)**

2. FLOODWAY INFORMATION

7. Does the affected flooding source have a floodway designated on the effective FIRM or FBFM? ☒ Yes ☐ No
8. Does the revised floodway delineation differ from that shown on the effective FIRM or FBFM ☒ Yes ☐ No
   If yes, give reason: Revised Channelization & Spillway

Attach copy of either a public notice distributed by the community stating the community's intent to revise the floodway or a statement by the community that it has notified all affected property owners and affected adjacent jurisdictions.

9. Does the State have jurisdiction over the floodway or its adoption by communities participating in the NFIP? ☐ Yes ☒ No

If yes, attach a copy of a letter notifying the appropriate State agency of the floodway revision and documentation of the approval of the revised floodway by the appropriate State agency.

3. PROPOSED ENCROACHMENTS

10. With floodways:

1A. Does the revision request involve fill, new construction, substantial improvement, or other development in the floodway? ☒ Yes ☐ No

1B. If yes, does the development cause the 100-year water surface elevation to increase at any location by more than 0.000 feet? ☐ Yes ☒ No

11. Without floodways:

2A. Does the revision request involve fill, new construction, substantial improvement, or other development in the 100-year floodplain? ☐ Yes ☐ No

2B. If yes, does the cumulative effect of all development that has occurred since the effective SFHA was originally identified cause the 100-year water surface elevation to increase at any location by more than one foot (*or other surcharge limit if community or state has adopted more stringent criteria*)? ☐ Yes ☐ No

If the answer to either Items 1B or 2B is yes, please provide documentation that all requirements of Section 65.12 of the NFIP regulations have been met, regarding evaluation of alternatives, notice to individual legal property owners, concurrence of CEO, and certification that no insurable structures are impacted.

4. REVISION REQUESTOR ACKNOWLEDGMENT

12. Having read NFIP Regulations, 44 CFR Ch. I, parts 59, 60, 61, and 72, I believe that the proposed revision ☒ is ☐ is not in compliance with the requirements of the aforementioned NFIP Regulations.

5. COMMUNITY OFFICIAL ACKNOWLEDGMENT

13. Was this revision request reviewed by the community for compliance with the community's adopted floodplain management ordinances? ☒ Yes ☐ No

14. Does this revision request have the endorsement of the community? ☒ Yes ☐ No

If no to either of the above questions, please explain: _____

Please note that community acknowledgment and /or notification is required for all requests as outlined in Section 65.4 (b) of the NFIP Regulations.

6. OPERATION AND MAINTENANCE

15. Does the physical change involve a flood control structure (e.g., levees, floodwalls, channelization, basins, dams)? ☒ Yes ☐ No

If yes, please provide the following information for each of the new flood control structures:

A. Inspection of the flood control project will be conducted periodically by Flood Control District of Maricopa County (entity) with a maximum interval of three months between inspections.

B. Based on the results of scheduled periodic inspections, appropriate maintenance of the flood control facilities will be conducted by Flood Control District of Maricopa County (entity) to ensure the integrity and degree of flood protection of the structure.

C. A formal plan of operation, including documentation of the flood warning system, specific actions and assignments of responsibility by individual name or title, and provisions for testing the plan at intervals not less than one year, ☒ has ☐ has not been prepared for the flood control structure.

D. The community is willing to assume responsibility for ☒ performing ☐ overseeing compliance with the maintenance and operation plans of the Myrtle Avenue Wash & Spillway & Channelization
(Name)

flood control structure. If not performed promptly by an owner other than the community, the community will provide the necessary services without cost to the Federal government.

Attach operation and maintenance plans

7. REQUESTED RESPONSE FROM FEMA

16. After examining the pertinent NFIP regulations and reviewing the document entitled "Appeals, Revisions, and Amendments to Flood Insurance Maps: A guide for Community Officials," dated January 1990, this request is for a:

____a.	CLOMR	A letter from FEMA commenting on whether a proposed project, if built as proposed, would justify a map revision *(LOMR or PMR)*, or proposed hydrology changes *(see 44 CFR Ch. I, Parts 60, 65, and 72)*.
X b.	LOMR	A letter from FEMA officially revising the current NFIP map to show changes to floodplains, floodways, or flood elevations. LOMRs typically depict decreased flood hazards. *(See 44 CFR Ch. I Parts 60 and 65.)*
____c.	PMR	A reprinted NFIP map incorporating changes to floodplains, floodways, or flood elevations. Because of the time and cost involved to change, reprint, and redistribute an NFIP map, a PMR is usually processed when a revision reflects increased flood hazards or large-scope changes. *(See 44 CFR Ch. I, Parts 60 and 65.)*
____d.	Other:	Describe_____

8. FORMS INCLUDED

1. Form 2 entitled, "Certification By Registered Professional Engineer and/or Land Surveyor" must be submitted.

The following forms should be included with this request if (check the included forms):

• Hydrologic analysis for flooding source differs from that used to develop FIRM	☐ Hydrologic Analysis Form (Form 3)
• Hydraulic analysis for riverine flooding differs from that used to develop FIRM	☒ Riverine Hydraulic Analysis Form (Form 4)
• The request is based on updated topographic information or a revised floodplain or floodway delineation is requested	☒ Riverine /Coastal Mapping Form (Form 5)
• The request involves any type of channel modification	☒ Channelization Form (Form 6)
• The request involves new bridge or culvert or revised analysis of an existing bridge or culvert	☐ Bridge/Culvert Form (Form 7)
• The request involves a new revised levee/floodwall system	☐ Levee/Floodwall System Analysis Form (Form 8)
• The request involves analysis of coastal flooding	☐ Coastal Analysis Form (Form 9)
• The request involves coastal structures credited as providing protection from the 100-year flood	☐ Coastal Structures (Form 10)
• The request involves an existing, proposed, or modified dam	☐ Dam Form (Form 11)
• The request involves structures credited as providing protection from the 100-year flood on an alluvial fan	☐ Alluvial Fan Flooding Form (Form 12)

9. INITIAL REVIEW FEE

18. The minimum initial review fee for the appropriate request category has been included. ☐ Yes ☐ No

Initial fee amount: $ _____

Check or money order only. Make check or money order payable to : **National Flood Insurance Program.** If paying by Visa or Mastercard please refer to the credit card information form which follows this form.

or

19. This request is for a project that is for public benefit and is primarily intended for flood loss reduction to insurable structures in identified flood hazard areas which were in existence prior to the commencement of construction of the flood control project. ☒ Yes ☐ No

or

20. This request is to correct map errors, to include the effects of natural changes within the areas of special flood hazard, or solely to provide more detailed data. ☐ Yes ☐ No

Note: I understand that my signature indicates that all information submitted in support of this request is correct.

Signature of Revision Requester

STANLEY L. SMITH JR
Interim Chief Engineer and General Manager
Printed Name and Title of Revision Requester

Flood Control District of Maricopa County
Company Name

602 506 1501 — Telephone No.
3-13-97 — Date

Note: Signature indicates that the community understands, from the revision requester, the impacts of the revision on flooding conditions in the community.

Signature of Community Official

Raymond A. Acuña, Floodplain Mgr
Printed Name and Title of Community Official

City of Phoenix
Community Name

March 12, 97
Date

Does this request impact any other communities? ☐ Yes ☒ No

If yes, attach letters from all affected jurisdictions acknowledging revision request and approving changes to floodway, if applicable.

Note: Although a photograph of physical changes is not required, it may be helpful for FEMA's review.

RECEIVED
SEP 1 2 1996

CH ENG		P & PM	
DEP		HYDRO	
ADMIN		MAGT	
FINANCE		FILE	
C & O			
ENGR			

REMARKS

ANNOUNCEMENT OF FLOOD HAZARD STUDY

The City of Phoenix, under authority of the National Flood Insurance Act of 1968 (P.L. 90-448), as amended, and the Flood Disaster Protection Act of 1973 (P.L. 93-234), is authorizing a re-study of the Myrtle Avenue Wash and Dreamy Draw Wash East. The re-study is being funded by the Flood Control District of Maricopa County and performed by David Evans and Associates, Inc.

The purpose of this re-study is to re-delineate the floodplain/floodway, considering the effects of the Spillway at the ACDC. These flood elevations will be used by the City of Phoenix to carry out floodplain management responsibilities and by the Federal Emergency Management Agency (FEMA) to determine flood insurance rates under the National Flood Insurance Program (NFIP).

This announcement is intended to notify the community of revisions to the floodplain/floodway boundaries of the Myrtle Avenue Wash and Dreamy Draw Wash East. Any interested person, who may have any relevant facts and technical data concerning local flood hazards, is requested to provide such information to the City of Phoenix. These should be directed to Mr. Raymond U. Acuna, P.E., Floodplain Manager, 200 West Washington Street, 5th Floor, Phoenix, Arizona 85003, telephone (602) 262-4960, fax (602) 262-7322.

Published: September 5, 1996

AFFIDAVIT OF PUBLICATION

ARIZONA **BUSINESS** GAZETTE

PO BOX 194
Phoenix, Arizona 85001-0194
(602) 271-7300

STATE OF ARIZONA
COUNTY OF MARICOPA } SS.

TOM BIANCO, being first duly sworn, upon oath deposes and says: That he is the legal advertising manager of the Arizona Business Gazette, a newspaper of general circulation in the county of Maricopa, State of Arizona, published at Phoenix, Arizona, and that the copy hereto attached is a true copy of the advertisement published in the said paper on the dates indicated.

9/ 5/1996

Sworn to before me this
5th day of
September A.D. 1996

OFFICIAL SEAL
MARY LEE BOOHER
Notary Public - State of Arizona
MARICOPA COUNTY
My Comm. Expires March 17, 1999

Notary Public

FEDERAL EMERGENCY MANAGEMENT AGENCY

CERTIFICATION BY REGISTERED PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR FORM

O.M.B. Burden No. 3067-0148
Expires July 31, 1997

FEMA USE ONLY

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average . 23 hour per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden, to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, S.W., Washington, DC 20472; and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503.

1. This certification is in accordance with 44 CFR Ch. I, Section 65.2
2. I am licensed with an expertise in Hydraulics
   [example: water resources *(hydrology, hydraulics, sediment transport, interior drainage)** structural, geotechnical, land surveying.]
3. I have 6 years experience in the expertise listed above.
4. I have ☒ prepared ☐ reviewed the attached supporting data and analyses related to my expertise.
5. I ☒ have ☐ have not visited and physically viewed the project.
6. In my opinion, the following analyses and /or designs, is/are being certified:
   Revised floodplain due to construction of spillway into ACDC. In adition channelization was constructed at upper most reach of study
7. Base upon the following review, the modifications in place have been constructed in general accordance with plans and specifications.

   Basis for above statement: (check all that apply)

   a. ☐ Viewed all phases of actual construction.
   b. ☐ Compared plans and specifications with as-built survey information.
   c. ☐ Examined plans and specifications and compared with completed projects.
   d. ☒ Other Preformed topographic survey as part of floodplain delineation process.
8. All information submitted in support of this request is correct to the best of my knowledge. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.

Name: Teri S. Mintz
(please print or type)

Title: Water Resources Engineer
(please print or type)

Registration No. 30013 Expiration Date: 03/31/99

State Arizona

Type of License Civil

Teri S. Mintz
Signature

1/22/97
Date

Registered Professional Engineer (Civil) CERTIFICATE NO. 30013 TERI S. MINTZ Date Signed 1/22/97 ARIZONA, U.S.A.

Seal
(Optional)

*Specify Subdiscipline

Note: Insert not applicable (N/A) when statement does not apply.

FEDERAL EMERGENCY MANAGEMENT AGENCY **RIVERINE HYDRAULIC ANALYSIS FORM**	O.M.B. Burden No. 3067 0148 *Expires July 31, 1997*	FEMA USE ONLY

PUBLIC BURDEN DISCLOSURE NOTICE

lic reporting burden for this form is estimated to average 2.25 hours per response. The burden estimate includes the for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden, to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, S.W., Washington, DC 20472; and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503.

Community Name: Phoenix

Flooding Source: Myrtle Avenue Watershed
(One form for each flooding source)

Project Name/Identifier: Myrtle Avenue Wash

1. REACH TO BE REVISED

Downstream limit: 0.001

Upstream limit: 0.400

2. EFFECTIVE FIS

☐ Not studied

☐ Studied by approximate methods

Downstream limit of study _____

Upstream limit of study _____

☒ Studied by detailed methods

Downstream limit of study .120

Upstream limit of study .470

☒ Floodway delineated

Downstream limit of Floodway .120

Upstream limit of Floodway .470

3. HYDRAULIC ANALYSIS

Why is the hydraulic analysis different from that used to develop the FIRM. *(Check all that apply)*

☐ Not studied in FIS

☐ Improved hydrologic data/analysis. Explain: _____

☐ Improved hydraulic analysis. Explain: _____

☒ Flood control structure. Explain: Construction of Arizona Canal Diversion Channel (ACDC) and Spillway. An improved channel section was constructed at uppermost end of reach.

☐ Other. Explain: _____

4. MODEL PARAMETERS *(from model used to revise 100-year water surface elevation)*

Discharges:	Upstream Limit	Downstream Limit
10-year		
50-year		
100-year	1300	665
500-year		

Attach diagram showing changes in 100-year discharge

2. Explain how the starting water surface elevations were determined Starting water surface elevation was set at critical depth at spillway

3. Give range of friction loss coefficients (*Manning's "N"*) Channel ..... .015-.04

Overbanks ..... .015-.06

If friction loss coefficients are different anywhere along the revised reach from those used to develop the FIRM, give location, value used in the effective FIS, and revised values and an explanation as to how the revised values were determined.

Location	FIS	Revised
.001-.073	.04-.14	.015-.022
.073-.213	.04-.14	.015-.03

Explain: Field investigation was done to determice "n" values (photos included). Channel composed of concrete to natural channel with some vegetation, overbanks from concrete to fairly dense vegetation.

4. Describe how the cross section geometry data were determined *(e.g., field survey, topographic map, taken from previous study)* and list cross sections that were added.

Topographic maps and detailed field survey data

5. Were natural channel banks selected as the location of the left and right channel banks in the model?

☒ Yes ☐ No If no, explain why not:

6. Is the discharge value used to determine the floodway anywhere different from that used to determine the natural 100-year flood elevations? ..... ☐ Yes ☒ No

If Yes, explain:

7. Do 100-year water surface elevations increase at any location? ..... ☐ Yes ☒ No

If yes, please attach a list of the locations where the increases occur, state whether or not the increases are located on the requestor's property, and provide an explanation of the reason for the increases. *(For example: State if the increase is due to fill placed within the floodway fringe or placed within the currently adopted floodway limits)*

Please attach a completed comparison table entitled: Water Surface Elevation Check (See page 6)

6. REVISED FIRM/FBFM AND FLOOD PROFILES

A. The revised water surface elevations tie into those computed by the effective FIS Model *(10-, 50-, 100-, and 500-year)*, downstream of the project at cross-section N/A within _____ feet *(vertical)* and upstream of the project at cross section N/A within _____ feet *(vertical)*.
The entire reach from just downstream of culvert under freeway to spillway into ACDC was revised

B. The revised floodway elevations tie into those computed by the effective FIS model, dowstream of the project at cross section N/A within _____ feet *(vertical)* and upstream of the project at cross section _____ within _____ feet *(vertical)*.
The entire reach from just downstream of culvert under freeway to spillway into ACDC was revised.

C. Attach profiles, at the same vertical and horizontal scale as the profiles in the effective FIS report, showing stream bed and profiles of all floods studied (without encroachment). Also, label all cross sections, road crossings (including low chord and top-of-road data), culverts, tributaries, corporate limits, and study limits. If channel distance has changed, the stationing should be revised for all profile sheets.

D. Attach a Floodway Data Table showing data for each cross section listed in the published Floodway Data Table in the FIS report.

Proceed to Riverine /Coastal Mapping Form

FEDERAL EMERGENCY MANAGEMENT AGENCY

WATER SURFACE ELEVATION CHECK

COMMUNITY NAME	FLOODING SOURCE	PROJECT NAME /IDENTIFIER
Phoenix	Myrtle Avenue	Myrtle Ave. Wash

	EFFECTIVE			DUPLICATE EFFECTIVE			CORRECTED EFFECTIVE			EXISTING/PRE-PROJECT			REVISED/PROJECT		
SECNO	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]
.001													1239.40	1239.50	+.10
.011													1244.07	1244.59	+.52
.024													1244.86	1245.38	+.52
.037													1245.31	1245.96	+.65
.048													1246.54	1246.76	+.25
.073													1247.24	1247.48	+.24
.090													1247.91	1247.95	+.04
.111													1248.36	1248.40	+.04
.127													1249.07	1249.14	+.06
**.12				1251.16	1252.47	+1.31									
.136													1251.63	1251.72	+.09
.151													1252.92	1253.04	+.12
.168													1254.21	1254.55	+.34

COMMENTS:

** Cross section for duplicate effective model placed in table according to location along wash, not numerically.

1-100 year (natural) Water Surface Elevation 2-Encroachment (floodway) Water Surface Elevation 3-Surcharge Value

Include all cross sections in the models between tie-in points. Any interpolat[illegible]es should be indicated in parentheses.

FEDERAL EMERGENCY MANAGMENT AGENCY

WATER SURFACE ELEVATION CHECK

COMMUNITY NAME	FLOODIND SOURCE	PROJECT NAME /IDENTIFIER
Phoenix	Myrtle Avenue	Myrtle Ave. Wash

	EFFECTIVE			DUPLICATE EFFECTIVE			CORRECTED EFFECTIVE			EXISTING/PRE-PROJECT			REVISED/PROJECT		
SECNO	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]
**.17				1255.68	1256.71	+1.03									
.190													1254.91	1255.32	+.41
.195													1254.92	1255.44	+.51
.199													1254.90	1255.60	+.70
.205													1256.15	1256.96	+.81
.213													1256.63	1257.21	+.58
**.22				1260.52	1260.96	+0.44									
.225													1257.29	1258.15	+.86
.236													1258.46	1258.93	+.47
.249													1260.03	1260.13	+.10
.259													1262.56	1262.68	+.12
**.27				1266.59	1266.46	-.13									
.273													1264.63	1264.70	+.07

COMMENTS:

** Cross sections for duplicate effective model placed in table according to location along wash, not numerically.

1-100-year (natural) Water Surface Elevation 2-Encroachment (floodway) Water Surface Elevation 3-Surcharge Value

Include all cross sections in the models between tie-in points. Any interpolated values should be indicated in parentheses.

Sheet 2 of 3 MT-2 Form 4 Page 6 of 6

FEDERAL EMERGENCY MANAGEMENT AGENCY
WATER-SURFACE ELEVATION CHECK

COMMUNITY NAME	FLOODING SOURCE	PROJECT NAME/IDENTIFIER
Phoenix	Myrtle Avenue	Myrtle Ave. Wash

	EFFECTIVE			DUPLICATE EFFECTIVE			CORRECTED EFFECTIVE			EXISTING/PRE-PROJECT			REVISED/PROJECT		
SECNO	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]
.306													1267.62	1267.98	+.36
.317													1270.48	1270.58	+.10
.347													1271.53	1271.90	+.37
**.35				1275.02	1275.15	+.14									
**.36				1278.54	1278.53	-.01									
**.37				1280.78	1280.77	-.01									
.376													1271.58	1271.70	+.12
**.38				1281.54	1281.55	+.01									
.401													1272.02	1272.59	+.57
.426													1272.80	1273.42	+.62
.47				1291.23	1291.98	+0.75									

COMMENTS:
**Cross section for duplicate effective model placed in table according to location along wash, not numerically

[1]100-year (natural) water-surface elevation [2]Encroachment (floodway) Water-Surface Elevation [3]Surcharge Value

Include all cross sections in the models between tie-in points. Any interpolated values should be indicated in parentheses.

FEDERAL EMERGENCY MANAGEMENT AGENCY **RIVERINE/COASTAL MAPPING FORM**	O.M.B. Burden No. 3067-0148 Expires July 31, 1997	FEMA USE ONLY

PUBLIC BURDEN DISCLOSURE NOTICE

ublic reporting burden for this form is estimated to average 1.5 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden, to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, S.W., Washington, DC 20472; and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503.

Community Name: Phoenix

Flooding Source: Myrtle Avenue Watershed

Project Name/Identifier: Myrtle Avenue

1. MAPPING CHANGES

1. A topographic work map of suitable scale, contour interval, and planimetric definition must be submitted showing *(indicate N/A when not applicable)*:

		Included		
A.	Revised approximate 100-year floodplain boundaries (Zone A)	☐ Yes	☐ No	☒ N/A
B.	Revised detailed 100- and 500-year floodplain boundaries	☒ Yes	☐ No	☐ N/A
C.	Revised 100-year floodway boundaries	☒ Yes	☐ No	☐ N/A
D.	Location and alignment of all cross sections used in the revised hydraulic model with stationing control indicated	☒ Yes	☐ No	☐ N/A
E.	Stream alignments, road and dam alignments	☒ Yes	☐ No	☐ N/A
F.	Current community boundaries	☒ Yes	☐ No	☐ N/A
G.	Effective 100- and 500-year floodplain and 100-year floodway boundaries from the FIRM/FBFM reduced or enlarged to the scale of the topographic work map	☒ Yes	☐ No	☐ N/A
H.	Tie-ins between the effective and revised 100- and 500-year floodplains and 100-year floodway boundaries	☒ Yes	☐ No	☐ N/A
I.	The requestor's property boundaries and community easements	☐ Yes	☐ No	☒ N/A
J.	The signed certification of a registered professional engineer	☒ Yes	☐ No	☐ N/A
K.	Location and description of reference marks	☒ Yes	☐ No	☐ N/A
L.	Vertical datum (example: NGVD, NAVD etc.)	☒ Yes	☐ No	☐ N/A
M.	Coastal zone designations tie into adjacent areas not being revised	☐ Yes	☐ No	☒ N/A
N.	Location and alignment of all coastal transects used to revise the coastal analyses	☐ Yes	☐ No	☒ N/A

If any of the items above are marked no or N/A, please explain: Not a zone A floodplain and not in a coastal zone.

2. What is the source and date of the updated topographic information *(example: orthophoto maps, July 1985; field survey, May 1979, beach profiles, June 1987, etc.)*? see attached

3. What is the scale and contour interval of the following workmaps?
   a. Effective FIS 1"= 1000' scale 20' Contour interval
   b. Revision Request 1" = 100' scale 2 foot Contour interval

NOTE: Revised topographic information must be of equal or greater detail.

4. Attach an annotated FIRM and FBFM at the scale of the effective FIRM and FBFM showing the revised 100-ye and 500-year floodplains and the 100-year floodway boundaries and how they tie into those shown on the effective FIRM and FBFM downstream and upstream of the revision or adjacent to the area of revision for coastal studies.

Attach additional pages if needed.

2. EARTH FILL PLACEMENT

No fill placed

1. The fill is: ☐ Existing ☐ Proposed

2. Has fill been/will be placed in the regulatory floodway? ..... ☐ Yes ☐ No
If yes, please attach completed Riverine Hydraulic Analysis Form.

3. Has fill been/will be placed in floodway fringe *(area between the floodway and 100-year floodplain boundaries)*? ..... ☐ Yes ☐ No

If yes, then complete A, B, C, and D below.

A. Are fill slopes for granular materials steeper than one vertical on one-and-one-half horizontal? ..... ☐ Yes ☐ No

If yes, justify steeper slopes _____

_____

B. Is adequate erosion protection provided for fill slopes exposed to moving flood waters? *(Slopes exposed to flows with velocities of up to 5 feet per second (fps) during the 100-year flood must, at a minimum, be protected by a cover of grass, vines, weeds, or similar vegetation; slopes exposed to flows with velocities greater than 5 fps during the 100-year flood must, at a minimum, be protected by stone or rock riprap.)* ..... ☐ Yes ☐ No

If no, describe erosion protection provided _____

_____

C. Has all fill placed in revised 100-year floodplain been compacted to 95 percent of the maximum density obtainable with the Standard Proctor Test Method or acceptable equivalent method? ☐ Yes ☐ No

D. Can structures conceivably be constructed on the fill at any time in the future? ☐ Yes ☐ No

If yes, provide certification of fill compaction (item C. above) by the community's NFIP permit official, a registered professional engineer, or an accredited soils engineer.

4. Has fill been/will be placed in a V-zone? ☐ Yes ☐ No

If yes, is the fill protected from erosion by a flood control structure such as a revetment or seawall? ☐ Yes ☐ No

If yes, attach the coastal structures form.

Explanations

Form 4, Section 5, Part 1a
Vertical extension warnings at the spillway--assumed critical depth at spillway, however, slope gradually drops off to the southeast at the spillway.

Vertical extension warnings at sections 0.190 to 0.199 were analyzed as split flow analysis. Model MA19REV.HC2 determined flows that split west and south at Myrtle Avenue and 17th Street intersection. Flows that split west on Myrtle Avenue were added to Dreamy Draw East LOMR that will be submitted next. Flow that splits south and continues along 17th Street alignment was analyzed with a Mannings computer program (FlowMaster).

Form 4, Section 5, Part 1b and 1c
Critical depth is assumed at several locations along the wash. A subcritical analysis was performed for Myrtle Avenue Wash which is a conservative approach to the revision of a floodplain boundary.

Form 4, Section 5, Part 7
In the revised model, cross sections are either more detailed or in different locations with respect to the duplicate effective model and should not be compared.

Form 5, Section 1, Part 1K
Reference marker used was B.C.H.H. at 16th Street and Glendale Avenue.

Form 5, Section 1, Part 1L
Vertical Datum was B.C.H.H. at 16th Street and Glendale Avenue, elevation 1229.69. Vertical Control is based on the National Geodetic Vertical Datum of 1929.

Form 5, Section 1, Part 2
Field survey based on horizontal and vertical control as stated in Part 1K and 1L (above) on October of 1996 by David Evans and Associates, Inc.

Form 6, Section 4
Channel design and construction was not part of this Letter of Map Revision. No record of sediment transport analysis.

Attachment to Form 4, Section 6

OPERATIONAL INSPECTIONS SCHEDULE - 1996				
O&M INSPECTION	1/17/96 OPER INSP	4/17/96 OPER INSP	7/17/96 OPER INSP	10/16/96 OPER INSP
SADDLEBACK FRS		X	X	X
SADDLEBACK FLOODWAY		X	X	X
HARQUAHALA FRS		X	X	X
HARQUAHALA FLOODWAY		X	X	X
CENTENNIAL DIVERSION		X	X	X
DYSART DRAIN		X	X	X
ELMIRAGE DRAIN		X	X	X
48TH STREET DRAIN		X	X	X
ALMA SCHOOL DRAIN		X	X	X
AGUA FRIA FLOODWAY		X	X	X
INDIAN SCHOOL DRAIN		X	X	X
ADOBE DAM		X	X	X
DREAMY DRAW DAM		X	X	X
CAVE BUTTES AND CAVE CREEK DAMS		X	X	X
SCATTER WASH (BEARDSLEY TO 43RD AVE)		X	X	X
NEW RIVER DAM		X	X	X
SKUNK CREEK AT I-17		X	X	X
McMICKEN DAM	X		X	X
McMICKEN FLOODWAY	X		X	X
SUNSET FRS	X		X	X
SUNNY COVE FRS	X		X	X
SUNSET/SUNNY COVE PIPELINE	X		X	X
OLD CROSS-CUT CANAL	X		X	X
IBW INLET AND INTERCEPTOR	X		X	X
IBW OUTLET	X		X	X
IBW SIDE DRAINS	X		X	X
IBW GREENBELT	X		X	X
BUCKEYE #1	X		X	X
BUCKEYE #2	X		X	X
BUCKEYE #3	X		X	X
WHITE TANKS #3	X		X	X
WHITE TANKS #4	X		X	X
POWERLINE FRS	X	X		X
POWERLINE FLOODWAY	X	X		X
VINEYARD FRS	X	X		X
RITTENHOUSE FRS	X	X		X
SOSSAMAN DRAIN	X	X		X
GUADALUPE ROAD CHANNEL AND BOX	X	X		X
SPOOK HILL FRS	X	X		X
GUADALUPE DAM	X	X		X
SIGNAL BUTTE FRS	X	X		X
PASS MTN. DIVERSION AND FLOODWAY	X	X		X
APACHE JUNCTION FRS	X	X		X
E.M.F. & UNIVERSITY DET. BASIN	X	X		X
SIGNAL BUTTE FLOODWAY	X	X		X
BULLDOG FLOODWAY	X	X		X
APACHE JUNCTION FLOODWAY	X	X		X
SPOOKHILL FLOODWAY AND SED. BASIN	X	X		X
HOLLY ACRES	X	X	X	
PERYVILLE RIPRAP	X	X	X	
SALT/GILA CLEARING	X	X	X	
SALT/GILA LOW FLOW	X	X	X	
SALT RIVER CHANNEL (ADOT)	X	X	X	
SALT RIVER CHANNEL- RIO SALADO	X	X	X	
SALT RIVER CHANNEL - WARNING SIGNS	X	X	X	X
ACDC	X	X	X	
EAST FORK/ CAVE CREEK/ BASIN #4	X	X	X	
NEW RIVER CHANNEL	X	X	X	
SUN CITY DRAINS	X	X	X	
SUN CITY WEST DRAINS	X	X	X	
SKUNK CREEK CHANNELIZATION	X	X	X	
10TH STREET BASIN	X	X	X	X

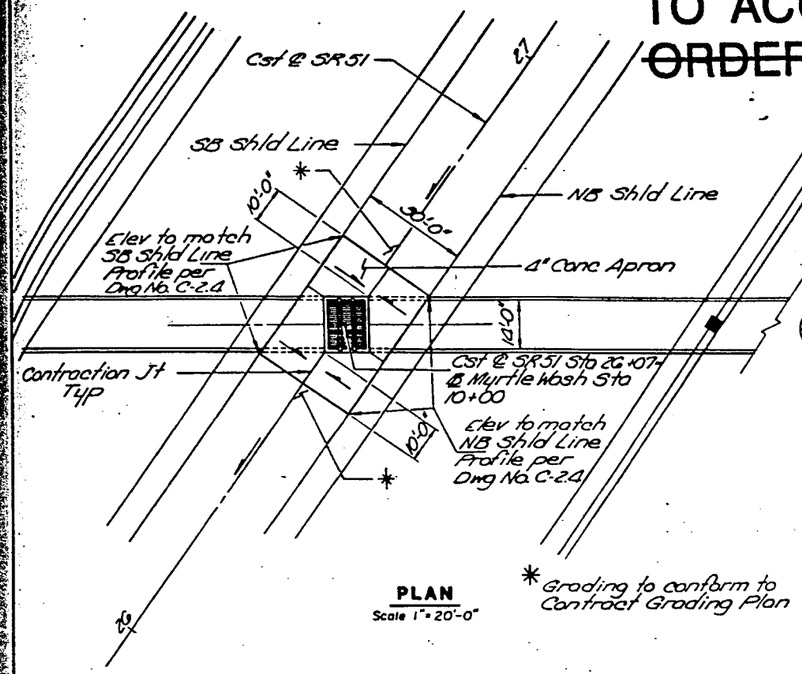
INSPECTION SCHEDULE FOR 1996
FCDMC DAMS, FLOODWAYS AND DIVERSIONS

STATE # DAM		LAST INSPECTION 95	ANNUAL INSPECTION 96	INFORMAL INSPECTION 96
	COE STRUCTURES (DAM)			
07.57	ADOBE	5/24/95	5/22/96	12/18/96
#07.58	CAVE BUTTES/CAVE CREEK	5/24/95	5/22/96	12/18/96
#07.56	DREAMY DRAW	5/24/95	5/22/96	12/18/96
#07.55	NEW RIVER DAM	5/24/95	5/22/96	12/18/96
	COE CHANNELS AND FLOODWAYS			
	ACDC (AND CAVE CREEK)	5/25/95	5/23/96	12/19/96
	SKUNK CREEK (I-17) CHAN.	5/25/95	5/23/96	12/19/96
	SKUNK CREEK/NEW RIV. FDY.	5/25/95	5/23/96	12/19/96
	SCS STRUCTURES (FRS)			
#07.52	SADDLEBACK	3/22/95	3/21/96	
#07.53	HARQUAHALA	3/22/95	3/21/96	
#07.48	SUNNY COVE	9/28/95	9/26/96	
#07.49	SUNSET	9/28/95	9/26/96	
#07.28	WHITE TANKS #3	9/28/95	9/26/96	
#07.29	WHITE TANKS #4	9/28/95	9/26/96	
#07.42	BUCKEYE #1	8/24/95	8/22/96	
#07.44	BUCKEYE #2	8/24/95	8/22/96	
#07.45	BUCKEYE #3	8/24/95	8/22/96	
#11.02	POWERLINE	6/22/95	6/27/96	
#11.12	RITTENHOUSE	6/22/95	6/27/96	
#11.11	VINEYARD	6/22/95	6/27/96	
#07.43	GUADALUPE	10/26/95	10/24/96	
#07.50	SPOOK HILL	10/26/95	10/24/96	
#07.60	SIGNAL BUTTE	10/26/95	10/24/96	
	APACHE JUNCTION	10/26/95	10/24/96	
	SCS FLOODWAYS			
	HARQUAHALA	3/23/95	3/21/96	
	SADDLEBACK	3/23/95	3/21/96	
	POWERLINE	6/22/95	6/27/96	
	SPK HILL FDWY AND SD BASIN	11/30/95	11/21/96	
	E.M.F.	11/30/95	11/21/96	
	SIGNAL BUTTE	11/30/95	11/21/96	
	PASS MOUNTAIN	11/30/95	11/21/96	
	BULLDOG	11/30/95	11/21/96	
	SCS DIVERSIONS			
N.A.	CENTENNIAL LEVEE #1	3/23/95	3/21/96	
N.A.	PASS MOUNTAIN	11/30/95	11/21/96	
	MISCELLANEOUS STRUCTURES, CHANNELS AND FLOODWAYS			
	HOLLY ACRES RIPRAP	1/26/95	1/25/96	
	PERRYVILLE RIPRAP	1/26/95	1/25/96	
	SALT/GILA LOW FLOW	1/26/95	1/25/96	
	COLTER CHANNEL	1/26/95	1/25/96	
	RIO SALADO	1/26/95	1/25/96	
	ALMA SCHOOL DRAIN	4/27/95	4/25/96	
	AGUA FRIA FLOODWAY	4/27/95	4/25/96	
	INDIAN SCHOOL RD. DRAIN	4/27/95	4/25/96	
	48TH ST. DRAIN	4/27/95	4/25/96	
	DYSART DRAIN	4/27/95	4/25/96	
	EL MIRAGE DRAIN	4/27/95	4/25/96	
#07.21	McMICKEN DAM**	6/29/95	6/20/96	
	McMICKEN FLOODWAY	6/29/95	6/20/96	
	INDIAN BEND WASH (COE)	7/27/95	7/25/96	
	SCATTERWASH	7/27/95	7/25/96	
	EAST FORK/ CAVE CREEK	7/27/95	7/25/96	
	OLD CROSS CUT CANAL	7/27/95	7/25/96	
	SOSSMAN ROAD DRAIN	6/22/95	6/27/96	
	GUADALUPE CHNL AND BOX	6/22/95	6/27/96	
	SALT/GILA CREARING	1/26/95	1/25/96	
	SUN CITY DRAINS	2/23/95	2/22/96	
	SUN CITY WEST DRAINS	2/23/95	2/22/96	
	PARADISE VALY RETN BSN	2/23/95	2/22/96	

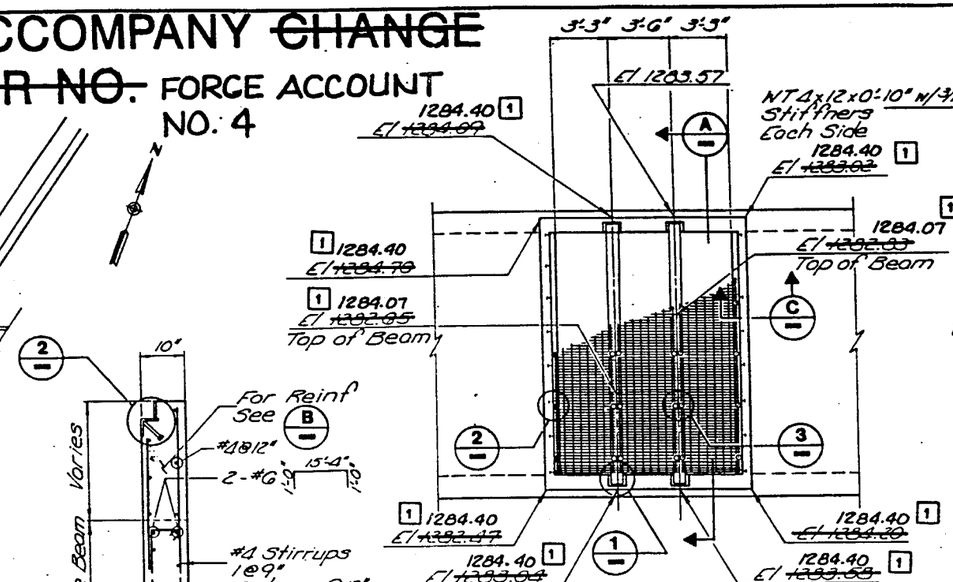
*FCD C&O DIV. ONLY **FCD & ADWR ONLY

TO ACCOMPANY ~~CHANGE ORDER NO.~~ FORCE ACCOUNT NO. 4

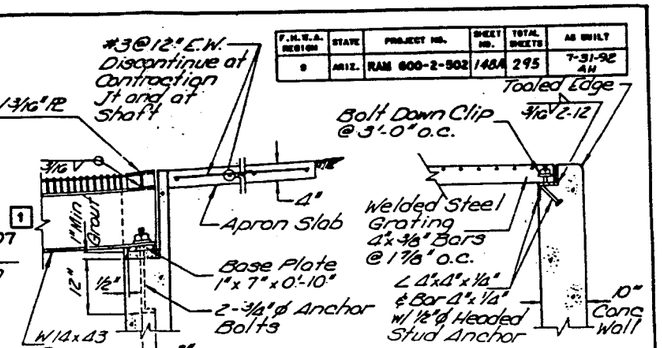
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	RAM 600-2-502	148A	295	7-31-92 AM



PLAN
Scale 1" = 20'-0"

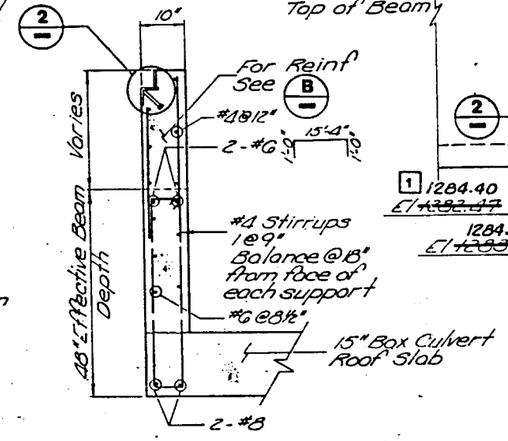


GRATING PLAN
Scale 1/4" = 1'-0"

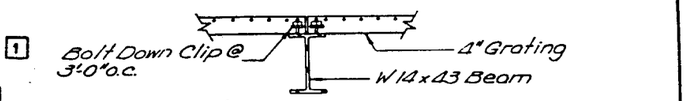


1 DETAIL
Scale 3/4" = 1'-0"

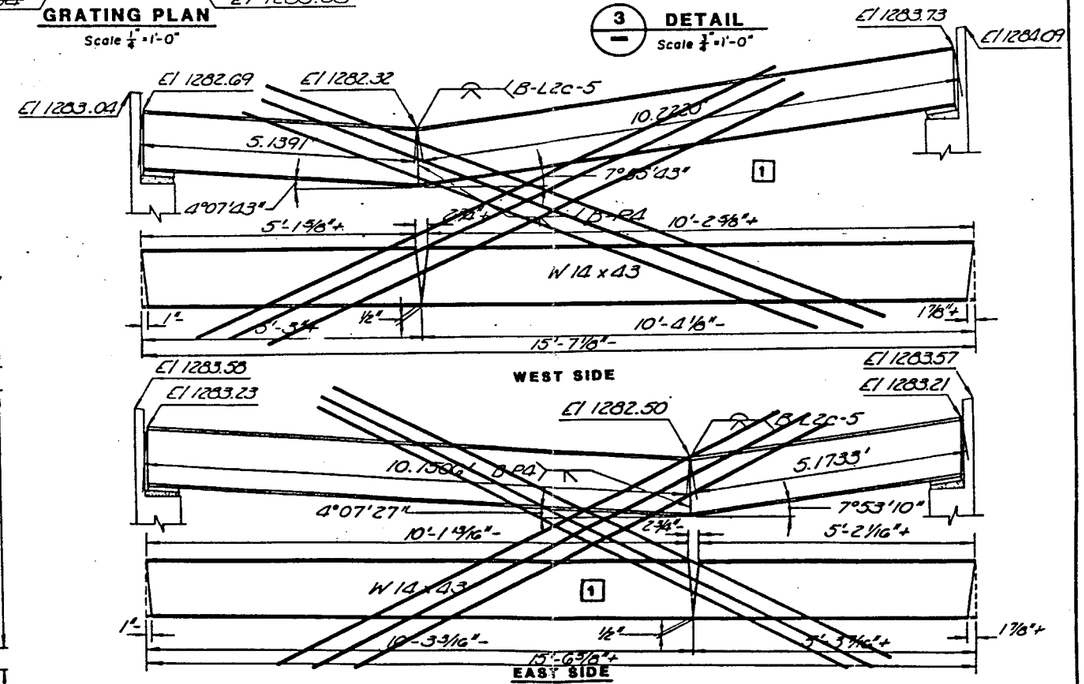
2 DETAIL
Scale 3/4" = 1'-0"



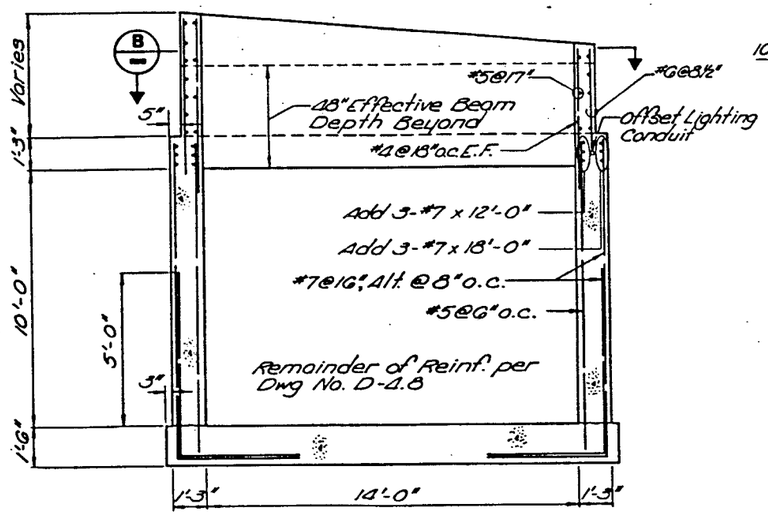
C SECTION
Scale 3/4" = 1'-0"



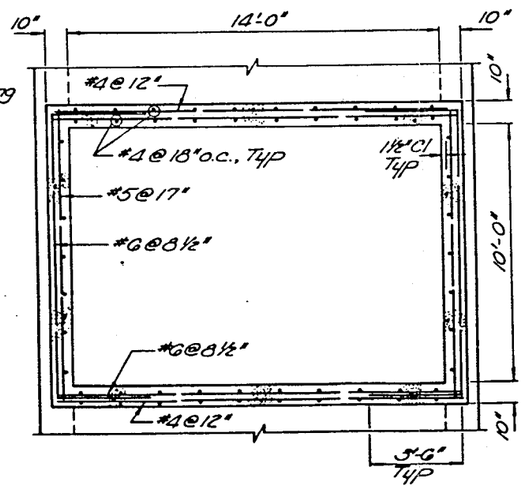
3 DETAIL
Scale 3/4" = 1'-0"



BENT BEAM DETAIL
Scale 3/4" = 1'-0"



A SECTION
Scale 3/4" = 1'-0"



B SECTION
Scale 3/4" = 1'-0"

	NAME	DATE
DESIGNED	D.G.G.	4-01
DRAWN	E.N.G.	1-90
CHECKED	C.D.S.	1-90

HNTB

ARIZONA DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION

MYRTLE WASH
BOX CULVERT SKY LIGHT DETAILS

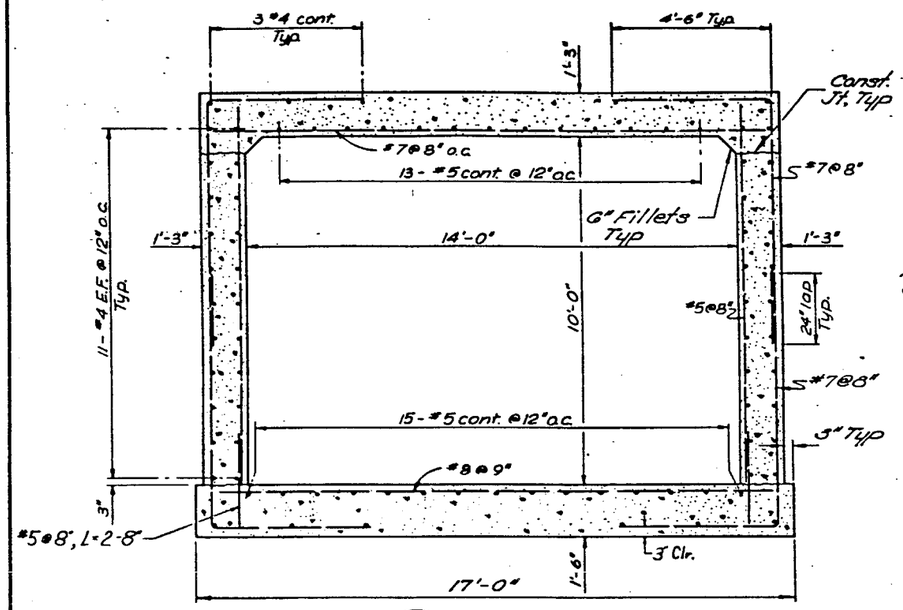
LOCATION: GLENDALE AVE TO NORTHERN AVE

DWG. NO. D4.9A

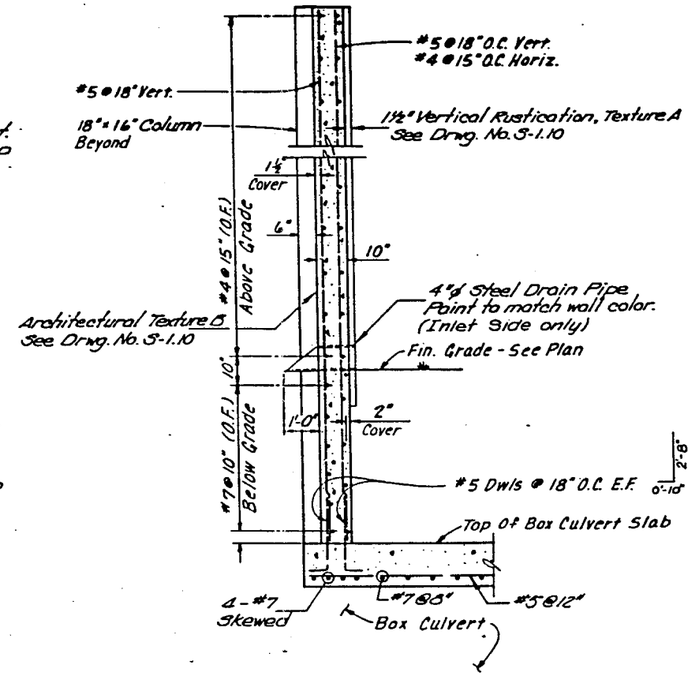
SR 51

RAM 600-2-502 | 148A-F11-DC43 | 51 MA 5 H0836 01C | 148A of 295

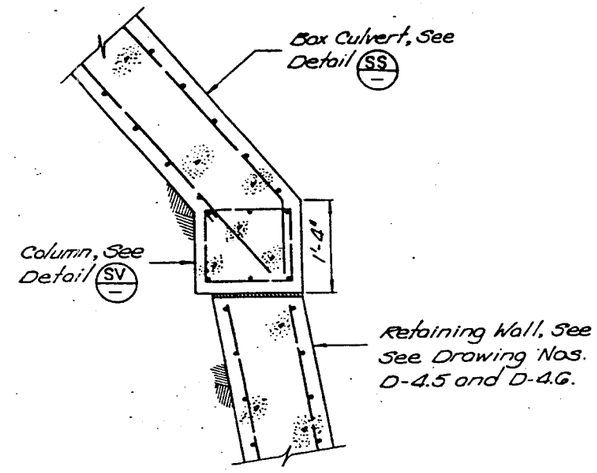
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	RAM 600-2-502	148	295	7-31-92 AH



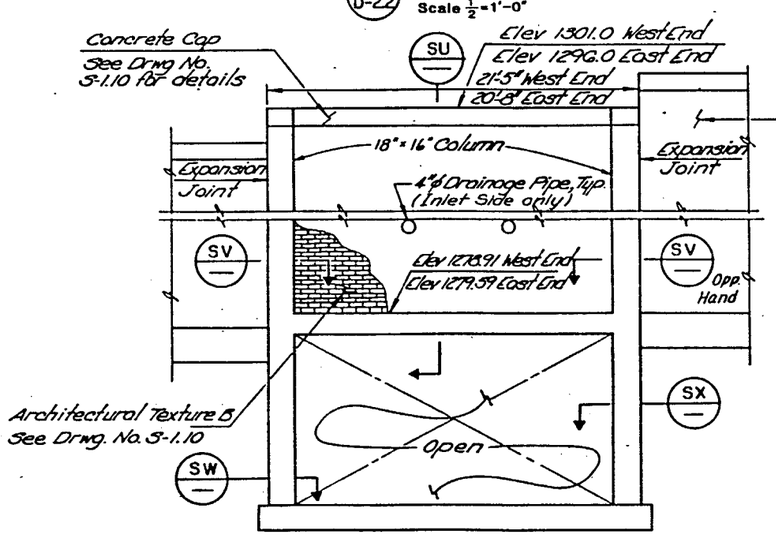
SS D-22 DETAIL
Scale $\frac{1}{2}$"=1'-0"



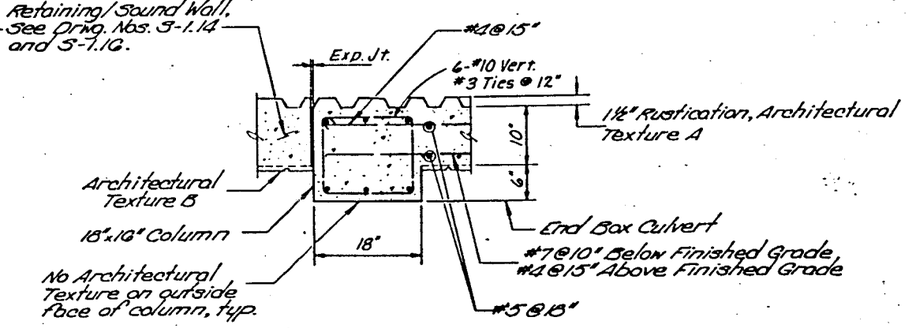
SU SECTION
Scale $\frac{1}{2}$"=1'-0"



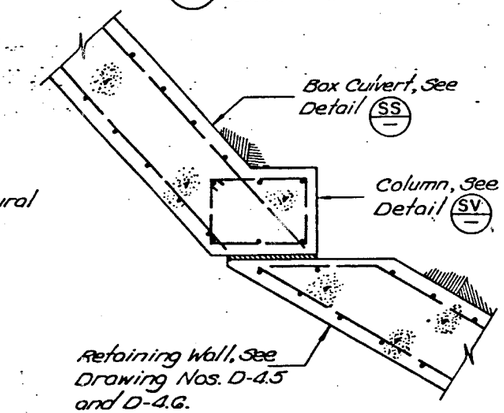
SW SECTION
Scale 1"=1'-0"



ST D-22 ELEVATION
Scale $\frac{1}{4}$"=1'-0"



SV SECTION
Scale 1"=1'-0"



SX SECTION
Scale 1"=1'-0"

Note:
- The Sound Wall on the Box Culvert quantities are included with the Box Culvert.
- For General Notes, See Drwg. S-1.1.

1 FOR QUANTITIES, SEE BOX CULVERT QUANTITIES (PER ADD. #3)

	NAME	DATE
DESIGN	D.G.G.	6/89
DRAWN	J.M.C.	6/89
CHECKED	F.J.M.	7/89

HNTB

ARIZONA DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION

SR 51
MYRTLE WASH
BOX CULVERT DETAILS

ROUTE: SR 51
MILEPOST:
LOCATION: GLENDALE AVE TO NORTHERN AVE

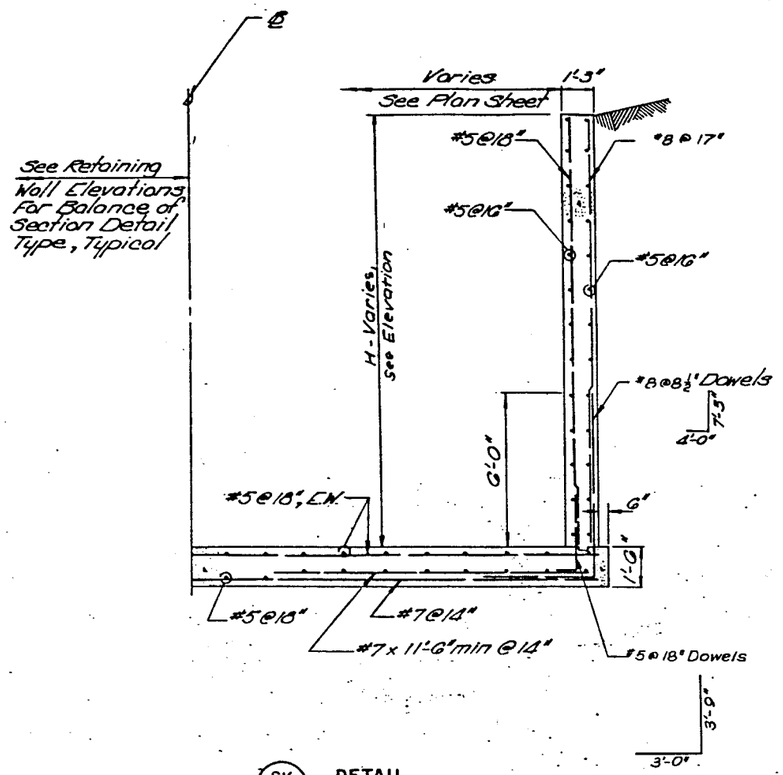
DWG. NO. D-4.8

RAM 600-2-502 TRACS NO.

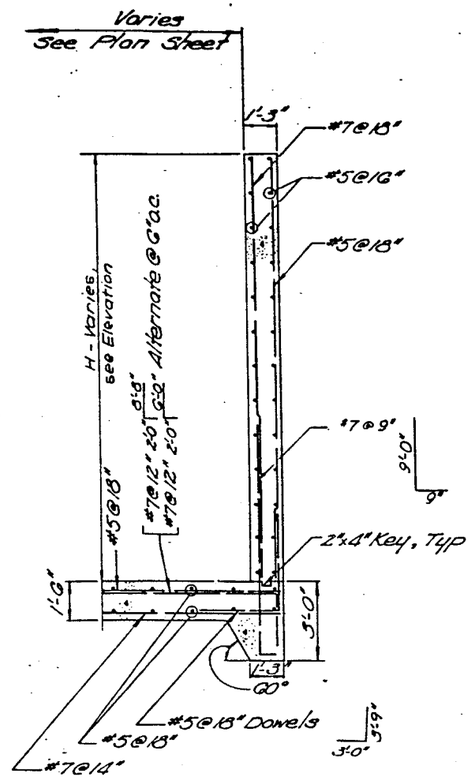
51 MA 5 H0836 01C

148 OF 295

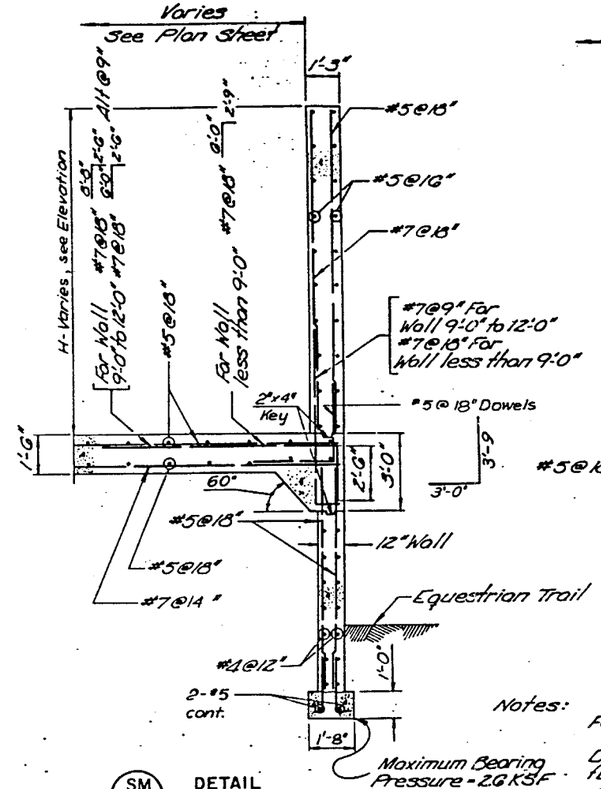
F.A.H.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	RAM 600-2-502	147	295	7-31-92 AH



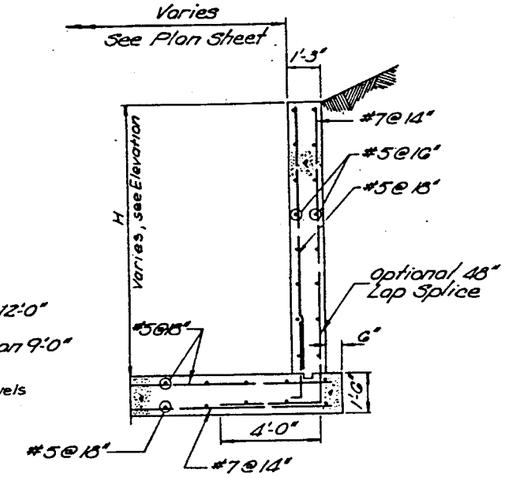
SK DETAIL
D-4.5 SCALE: 3/8" = 1'-0"



SL DETAIL
D-4.5 SCALE: 3/8" = 1'-0"



SM DETAIL
D-4.5 SCALE: 3/8" = 1'-0"



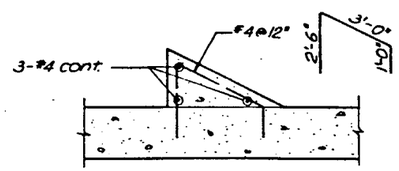
SN DETAIL
D-4.5 D-4.6 SCALE: 3/8" = 1'-0"

Notes:

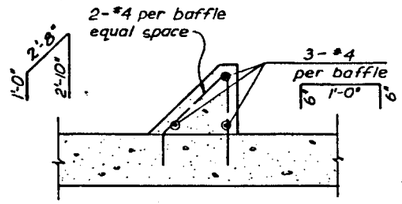
For General Notes, see Drawing No. S-1.1.

Dissipator bottom slab to be poured full width with no longitudinal construction joints. Expansion joints in walls shall be continued across slab.

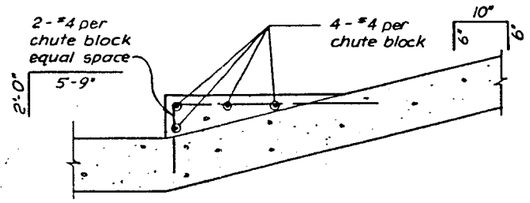
For wall layout, see Drawing No. D-2.2 and D-2.3.



SP DETAIL
D-4.5 SCALE 1/2" = 1'-0"



SQ DETAIL
D-4.5 SCALE 1/2" = 1'-0"



SR DETAIL
D-4.5 SCALE 1/2" = 1'-0"

	NAME	DATE
DESIGN	D.G.G.	6/89
DRAWN	E.M.G.	6/89
CHECKED	F.J.M.	7/89
APPROVED		

ROUTE: SR 51
MILEPOST:

ARIZONA DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION

SR 51
DISSIPATOR WALL DETAILS

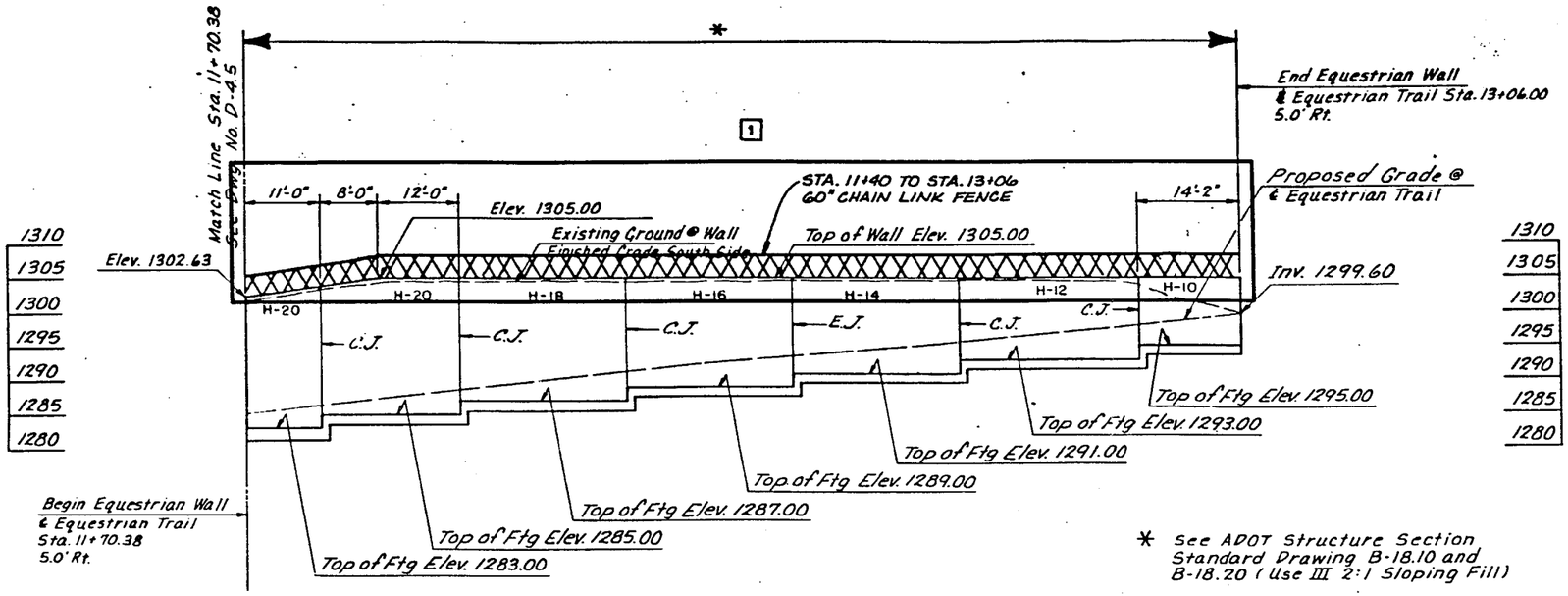
LOCATION: GLENDALE AVE TO NORTHERN AVE

DWG. NO. D-4.7

RAM 600-2-502

51 MA 5 H0836 01C

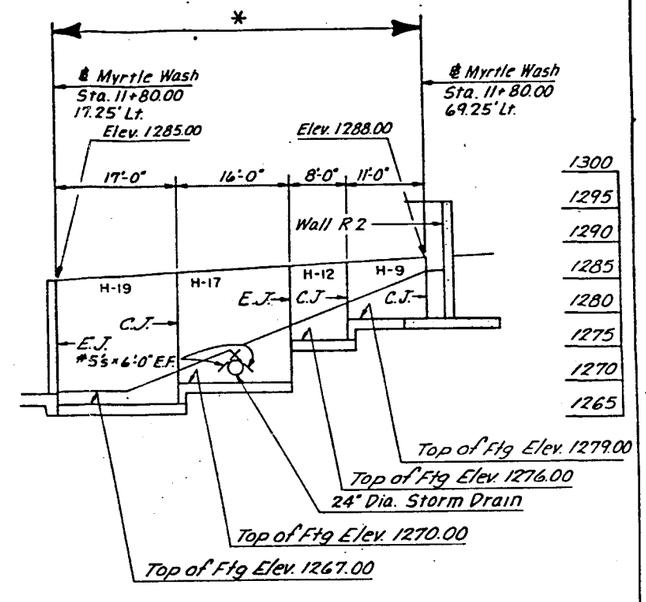
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	RAM 600-2-502	146	295	7-31-92 AJJ



* See ADOT Structure Section Standard Drawing B-18.10 and B-18.20 (Use III 2:1 Sloping Fill)

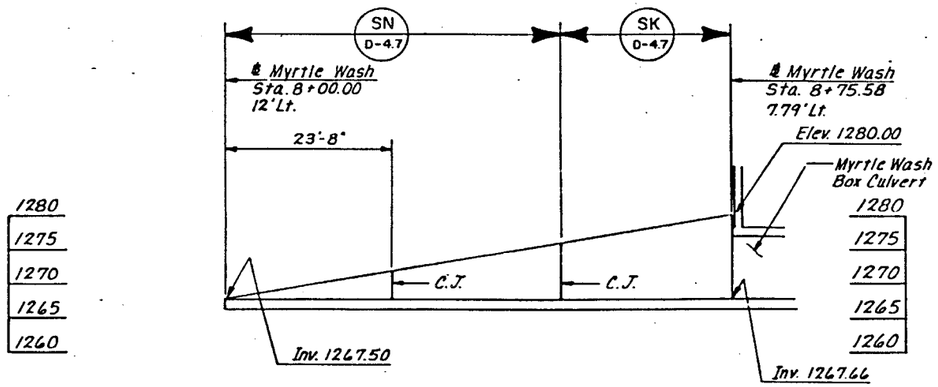
EQUESTRIAN WALL ELEVATION – VIEWING NORTH

SCALE: 1"=10'



MYRTLE WASH CUT-OFF RETAINING WALL

SCALE: 1"=10'



OUTLET NORTH RETAINING WALL ELEVATION – VIEWING NORTH

SCALE: 1"=10'

NOTES:

Wall Panels are 24'-0" long unless noted otherwise.

For Construction Joints (C.J.) Details, see Wall Details, Drawing No. S-1.9

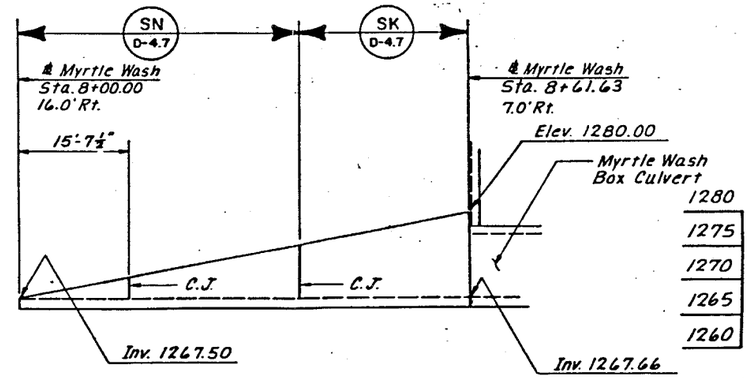
For Expansion Joints (E.J.) Detail, see ADOT Structures Section Standard No. B-18.10.

The north side of the Equestrian Wall and the east side of the Myrtle Wash Cut-off wall will have ~~Texture B~~ CLASS ~~II~~ FINISH [1] Architectural Treatment. See Drawing No. S-1.10 for details. The south side of the Equestrian Wall and both outlet walls will not have Architectural Treatment.

For Equestrian Wall Layout, see Drawing No. D-3.1.

For Myrtle Wash Cut-off Wall and both Outlet Wall Layouts, see Drawing No. D-2.2.

The Outlet and Cut-off Retaining Wall Quantities are included with the Box Culvert. The Equestrian Wall Quantities are included with Retaining Walls.



OUTLET SOUTH RETAINING WALL ELEVATION – VIEWING NORTH

SCALE: 1"=10'

	NAME	DATE
DESIGN	D.G.G.	6/89
DRAWN	J.M.C.	6/89
CHECKED	F.J.M.	7/89

HNTB

ARIZONA DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION

SR 51

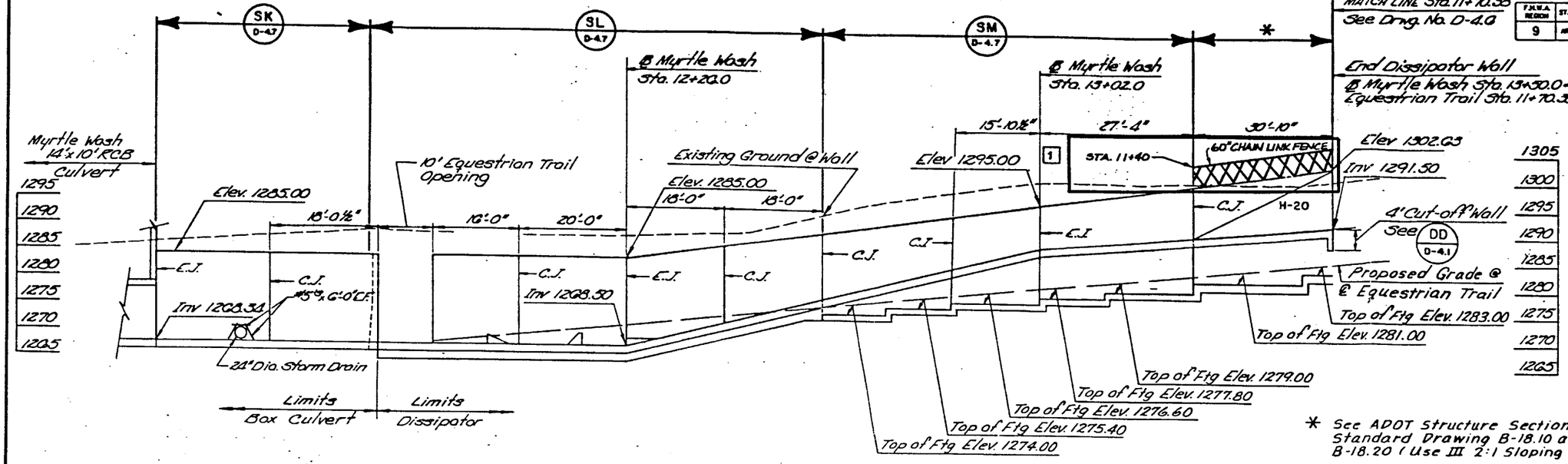
MYRTLE WASH WALL ELEVATIONS

ROUTE: SR 51 | MILEPOST | LOCATION: GLENDALE AVE TO NORTHERN AVE

DWG. NO. D-4.6

RAM 600-2-502 | 51 MA 5 H0836 01C | 146 OF 295

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	RAM 600-2-502	145	295	7-30-92 AN



NORTH DISSIPATOR WALL ELEVATION – VIEWING NORTH

SCALE: 1" = 10'

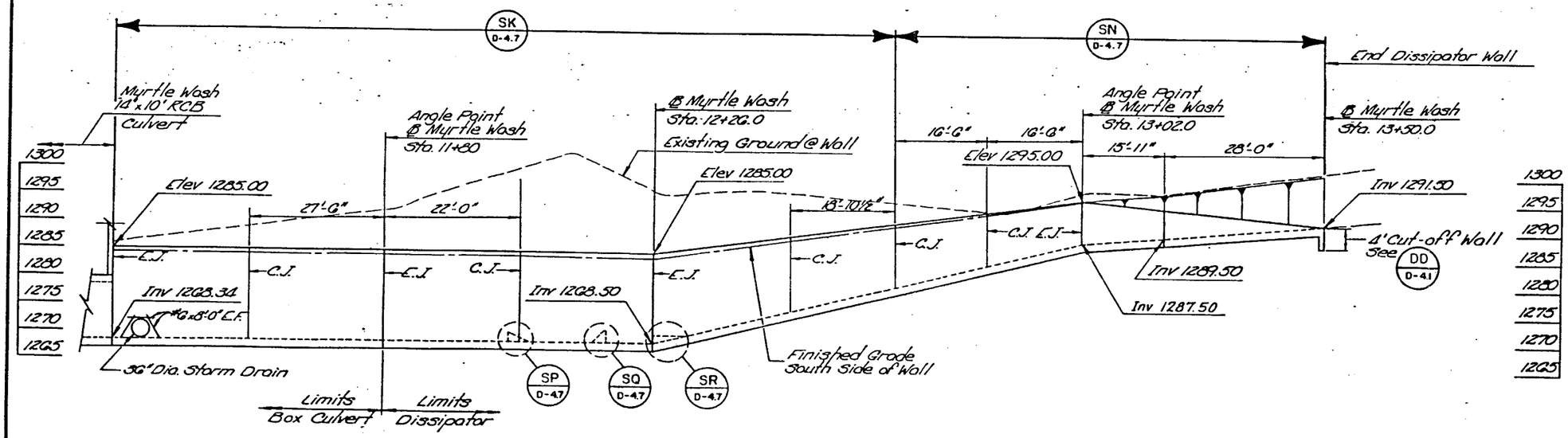
* See ADOT Structure Section Standard Drawing B-18.10 and B-18.20 (Use III 2:1 Sloping Fill)

For General Notes, See Drawing No. S-1.1.
For Footing Step Detail, See Drawing No. S-1.8.

Notes:

Wall Panels are 24'-0" long unless noted otherwise.
For Construction Joint (C.J.) Detail see Wall Details, Drawing No. S-1.9.
For Expansion Joint (E.J.) Detail see A.D.O.T. Structures Section Standard No. B-18.10.

North Dissipator Wall will have Texture B architectural treatment on the Equestrain Trail Side (North), see Drawing No. S-1.10 for details. South side of North Dissipator Wall and South Dissipator Wall will not have Architectural Treatment.
For Dissipator Wall Layout, see Drawing No. D-2.2 and D-2.3.



SOUTH DISSIPATOR WALL ELEVATION – VIEWING NORTH

SCALE: 1" = 10'

	NAME	DATE
DESIGN	D.G.G.	6/89
DRAWN	E.M.G.	6/89
CHECKED	F.J.M.	7/89

HNTB

ARIZONA DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION

SR 51
ENERGY DISSIPATOR ELEVATIONS

ROUTE: SR 51 | MILEPOST | LOCATION: GLENDALE AVE TO NORTHERN AVE

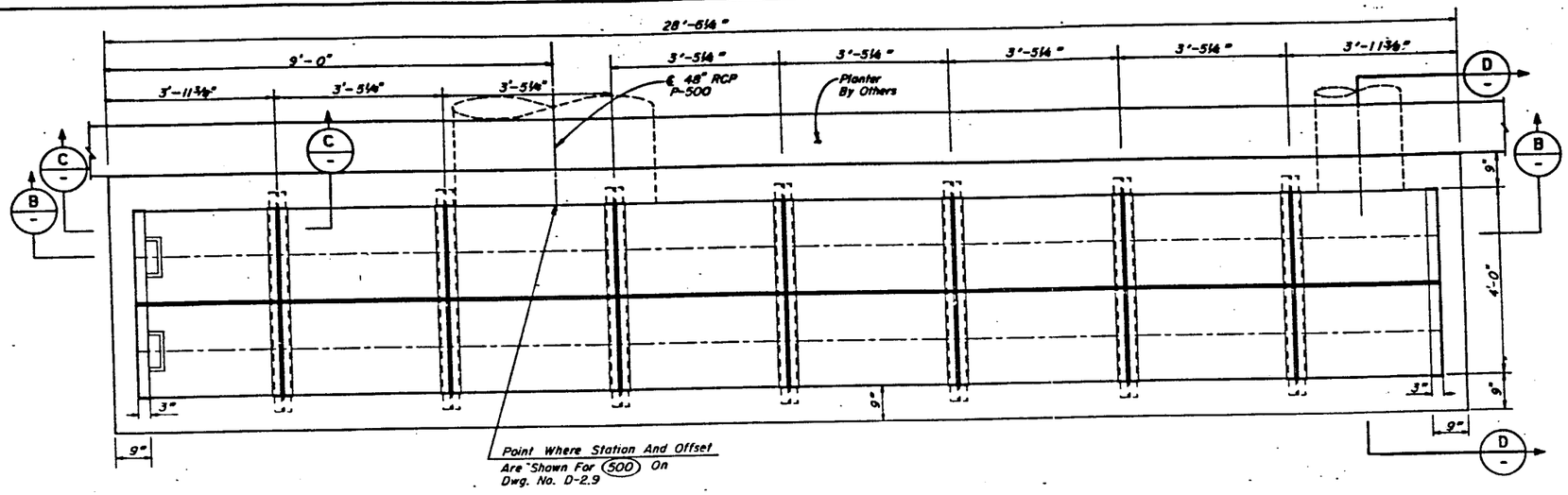
DWG NO. D-4.5

RAM 600-2-502 TRACS NO.

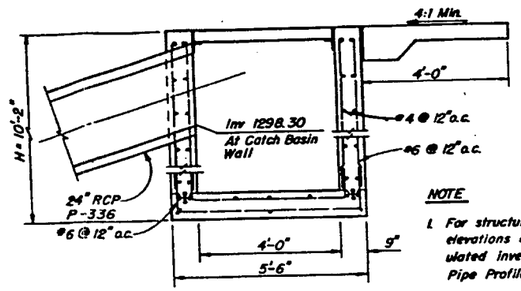
51 MA 5 H0836 01C

145 OF 295

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	RAM 600-2-502	144	295	7-30-92 AM



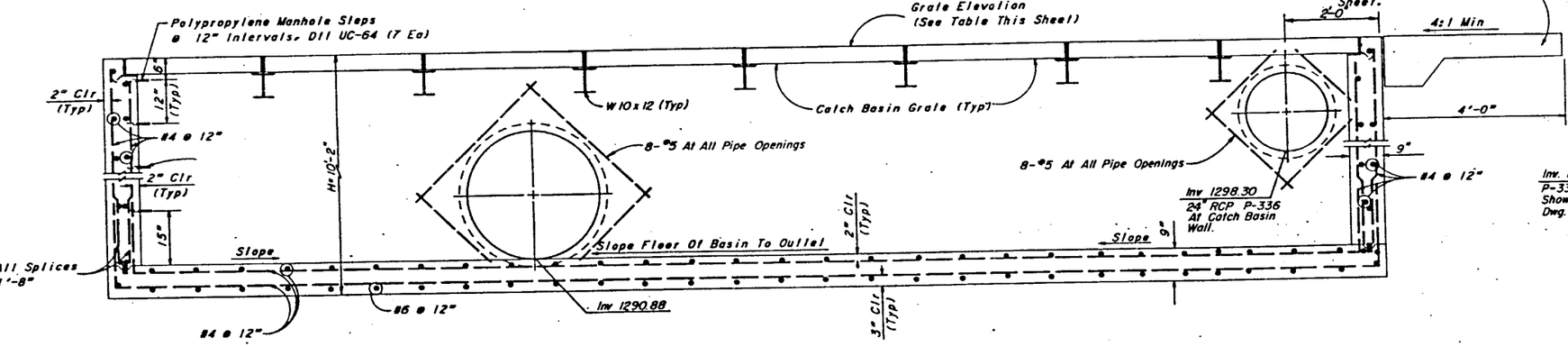
CATCH BASIN PLAN
NTS



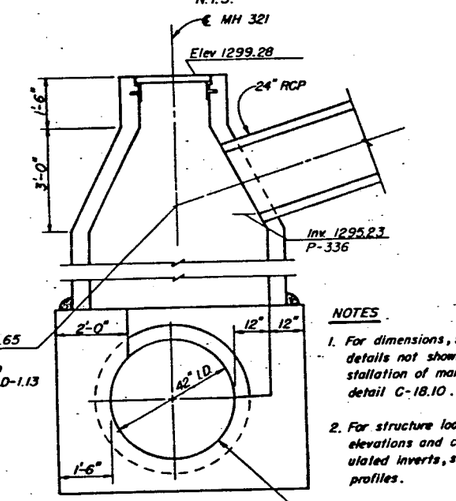
NOTE

1. For structure location, elevations and calculated inverts See Pipe Profiles.

SECTION D-D
N.T.S.



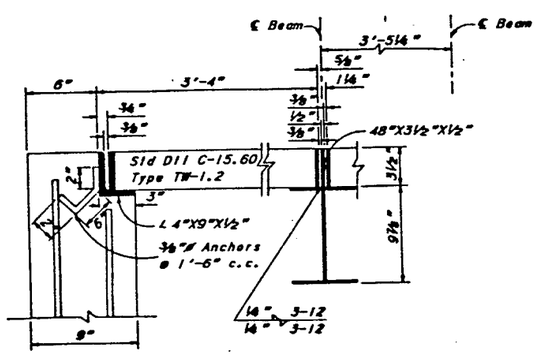
SECTION B-B
CATCH BASIN ELEVATION
NTS



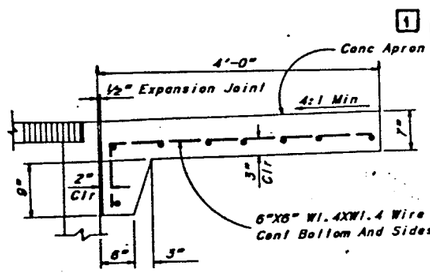
MANHOLE CONNECTION
NTS

NOTES

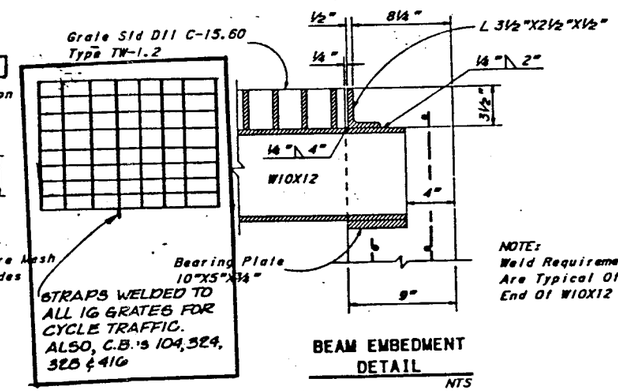
1. For dimensions, sizes and details not shown for installation of manhole, see detail C-18.10.
2. For structure locations, elevations and calculated inverts, see pipe profiles.



SECTION C-C
NTS



APRON DETAIL
(TYPICAL AROUND CATCH BASIN)
NTS



BEAM EMBEDMENT DETAIL
NTS

NOTE: Weld Requirements Are Typical Of Each End Of W10X12

NOTES

1. All Concrete Shall Be Class 'S' (fc=3000 psi).
2. Catch Basin Grates Shall Conform To Std Dtl C-15.60- Type TW-1.2
3. Round All Exposed Concrete Edges And Corners
4. One Inch Deep Transverse Contraction Joints Shall Be Placed At Intervals Of Approximately 5 Feet. Joints Shall Be Either Formed With A Tool Having A ½ Inch Radius Or Saw Cut.

	NAME	DATE
DESIGN	DJL	9/89
DRAWN	KAL	9/89
CHECKED	BGS	9/89

HNTB

ARIZONA DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION

DRAINAGE DETAILS

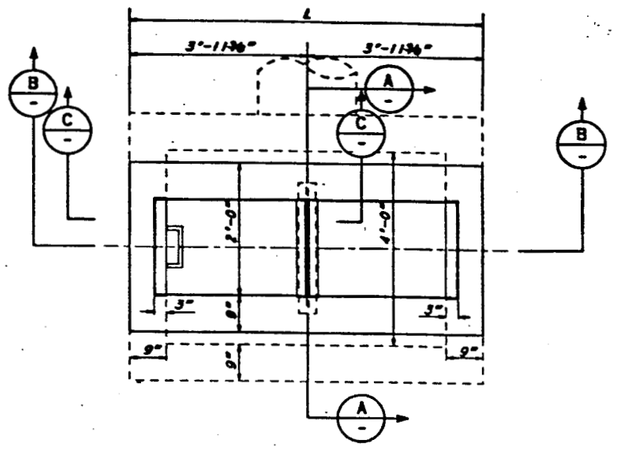
ROUTE: SR 51 | MILEPOST | LOCATION: GLENDALE AVE TO NORTHERN AVE

DWG. NO. D-4.4

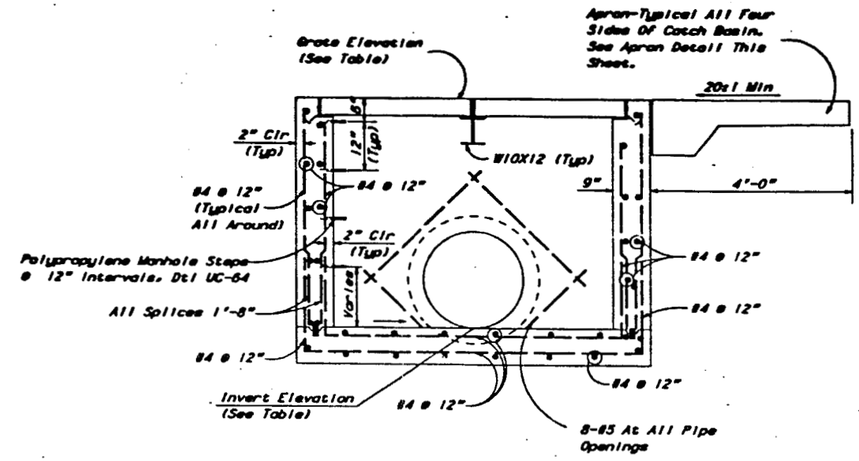
RAM 600-2-502

51 MA 5 H0836 01 C

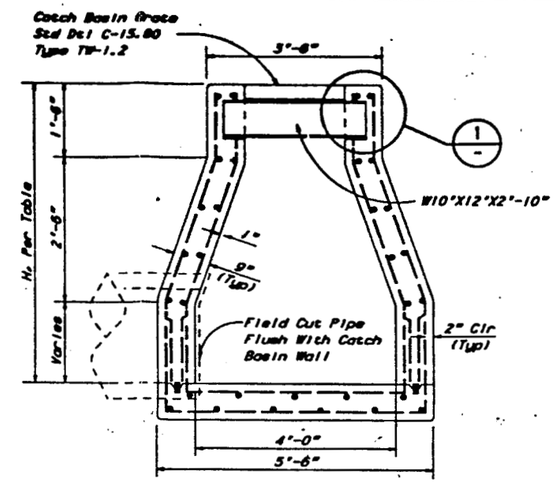
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	AR.Z.	RAM 600-2-502	143	295	7-30-92 AN



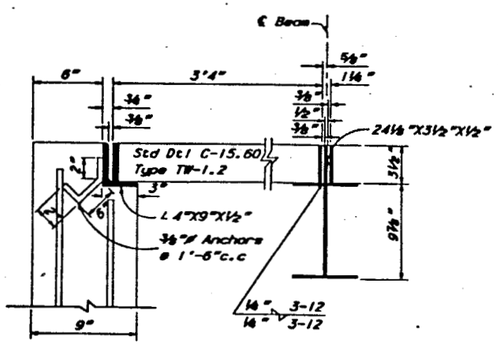
SPECIAL CATCH BASIN PLAN
NTS



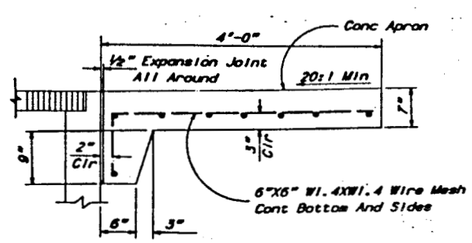
SECTION B-B
CATCH BASIN ELEVATION
NTS



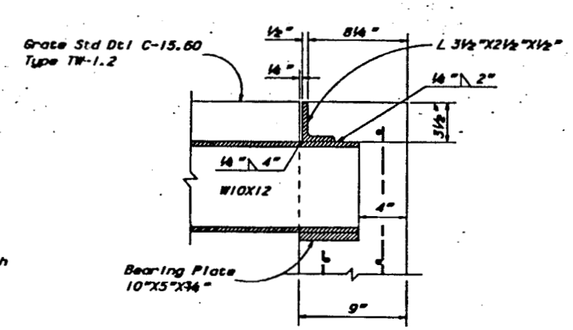
SECTION A-A
NTS



SECTION C-C
NTS



APRON DETAIL
(TYPICAL AROUND CATCH BASIN)
NTS



1 DETAIL
NTS

SPECIAL CATCH BASIN TABLE

PLAN REFERENCE NUMBER	STATION	LENGTH L	HEIGHT H	GRATE ELEVATION	INVERT ELEVATION	NUMBER OF GRATES	NO. MH STEPS
502	52+80 150' (RT)	7'-10¾"	13'-11"	1316.67	1302.78	2	14
506	58+85 103' (RT)	7'-10¾"	6'-6"	1319.46	1312.97	2	8
508	73+11 122' (RT)	7'-10¾"	4'-3½"	1340.12	1335.83	2	4
510	75+27 144' (RT)	7'-10¾"	4'-11"	1345.70	1340.81	2	4

NOTES

1. All Concrete Shall Be Class "S" (fc=3000 psi)
2. Catch Basin Grates Shall Conform To Std Dtl C-15.50, Type TW-1.2
3. Round All Exposed Concrete Edges And Corners
4. One Inch Deep Transverse Contraction Joints Shall Be Placed At Intervals Of Approximately 5 Feet. Joints Shall Be Either Formed With A Tool Having A ½ Inch Radius Or Saw Cut.

	NAME	DATE
DESIGN	[illegible]	9/89
DRAWN	KAL	9/89
CHECKED	BGG	9/89

HNTB
ARCHITECTS ENGINEERS PLANNERS

ARIZONA DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION

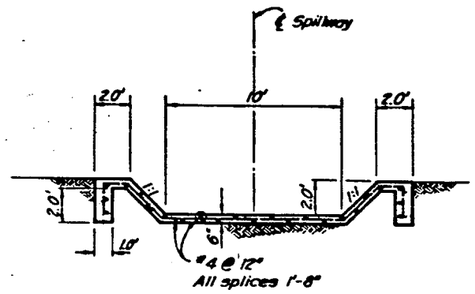
DRAINAGE DETAILS

ROUTE: SR 51 | MILEPOST: | LOCATION: GLENDALE AVE TO NORTHERN AVE

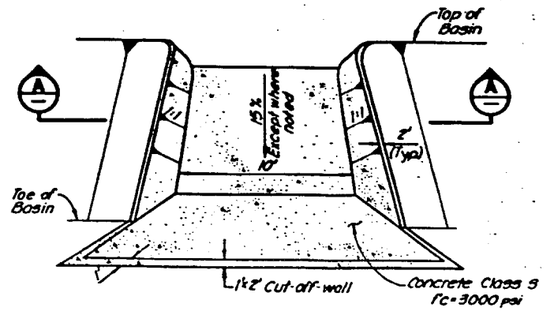
DWG. NO. D-4.3

RAM 600-2-502 | 51 MA 5 H0836 01 C | 143 OF 295

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	RAM 600-2-502	142	295	7-30-98 AH

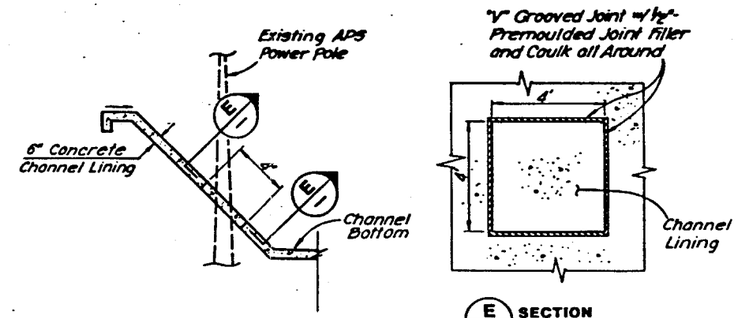


CROSS SECTION A-A
N.T.S.



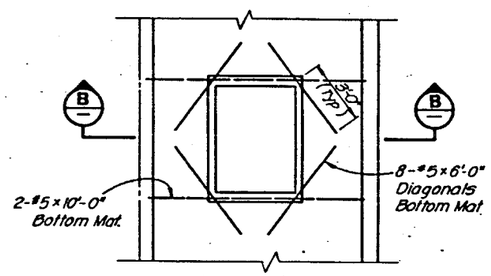
END VIEW
N.T.S.

DF / D-3.1 EMERGENCY SPILLWAY DETAILS
N.T.S.

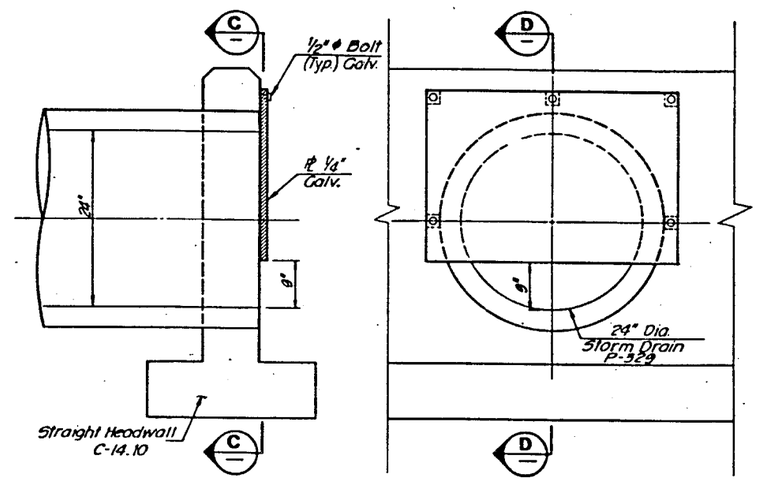


E / — SECTION

DI / D-2.1 BONDBREAKER CONSTRUCTION JOINT
N.T.S.



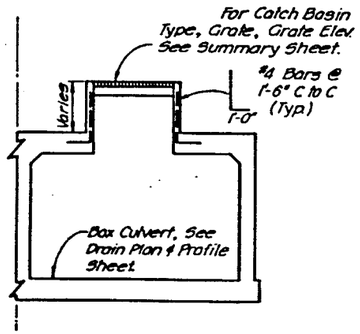
DG / TYP. PLAN
CATCH BASIN CONNECTION DETAIL
N.T.S.



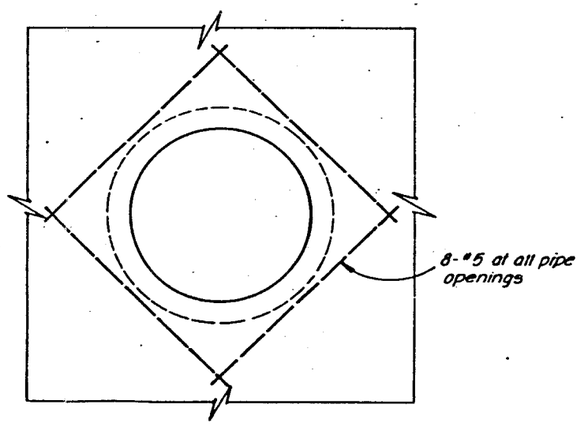
D / — SECTION

C / — SECTION

DH / D-3.1 INLET RESTRICTOR
N.T.S.



CROSS SECTION B-B
N.T.S.



DJ / TYP. PIPE CONNECTION DETAIL
N.T.S.

	NAME	DATE
DESIGN	BGS	9/97
DRAWN	DES	9/97
CHECKED	RJH	9/97

HNTB

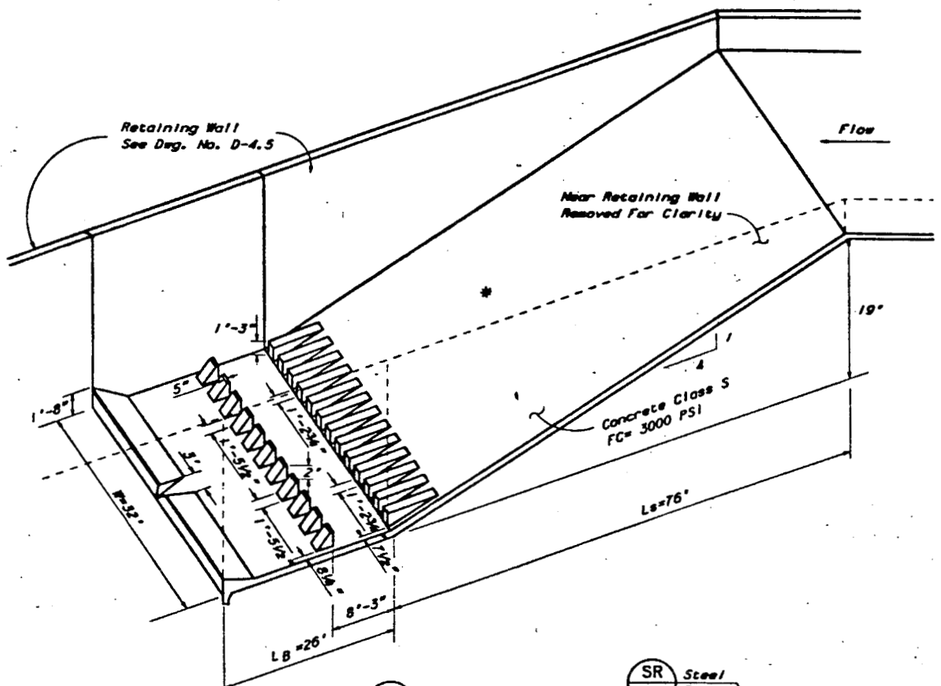
ARIZONA DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION

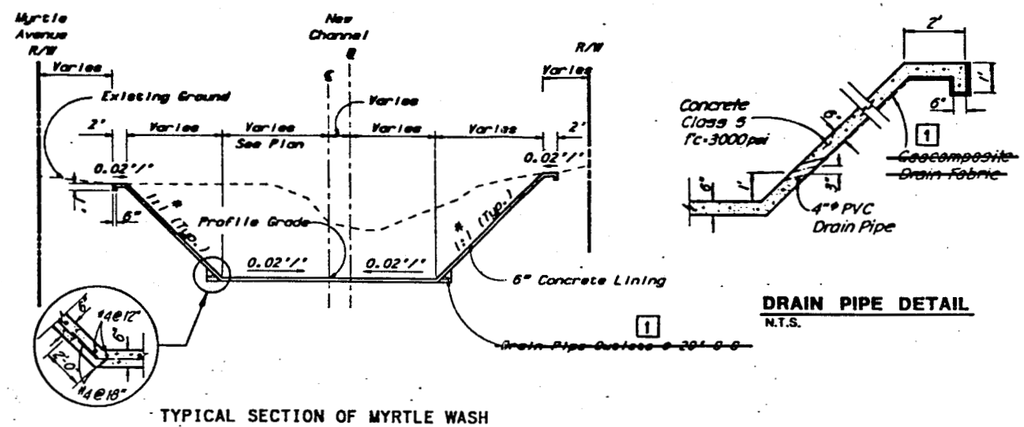
DRAINAGE DETAILS

ROUTE: SR 51
MILEPOST:
LOCATION: GLENDALE AVE TO NORTHERN AVE

DWG. NO. D-4.2

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	RAM 600-2-502	141	295	9-30-92 AM



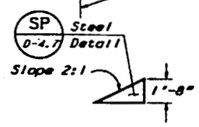


DRAIN PIPE DETAIL
N.T.S.

TYPICAL SECTION OF MYRTLE WASH
CHANNEL LINING
(LOOKING DOWNSTREAM)
N.T.S.

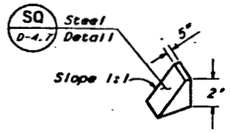
DB / TYP

SP / D-4.7 Steel Detail



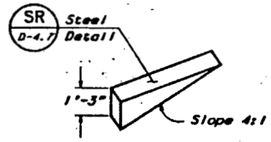
END SILL

SQ / D-4.7 Steel Detail



BAFFLE PIER

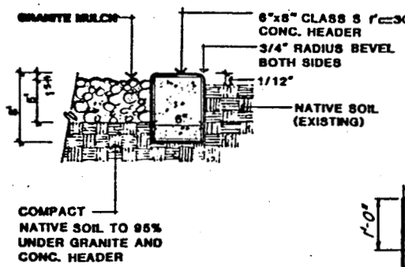
SR / D-4.7 Steel Detail



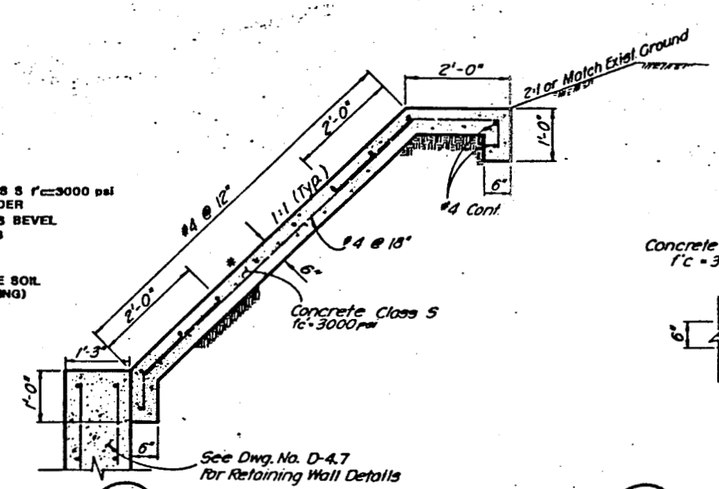
CHUTE BLOCK

* NOTE:
Provide Coarse Broom Finish to Concrete Slab Transverse to Flow Direction to Increase Surface Roughness.

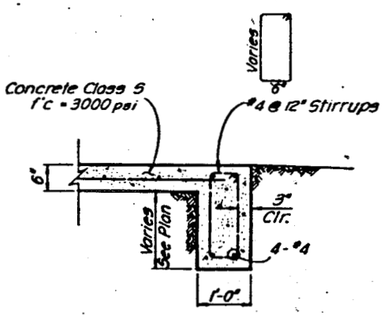
DA / D-2.2 MYRTLE WASH ENERGY DISSIPATOR
N.T.S.



DE / D-3.1 SURFACE AND EDGE TREATMENT
MYRTLE WASH EQUESTRIAN TRAIL
N.T.S. Sta. 10+00 to Sta. 13+70



DC / TYP. TYPICAL SLOPE PAVING
N.T.S.



DD / TYP. CUT-OFF WALL DETAIL
N.T.S.

	NAME	DATE
DESIGN	BGS	9/89
DRAWN	RAL	9/89
CHECKED	RJH	9/89

HNTB

ARIZONA DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION

DRAINAGE DETAILS

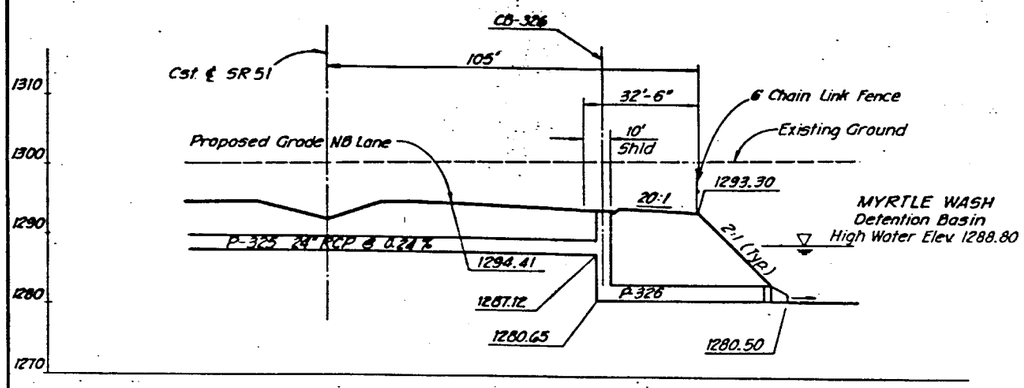
ROUTE: SR 51 | MILEPOST:

LOCATION: GLENDALE AVE TO NORTHERN AVE

DWG. NO. D-4.1

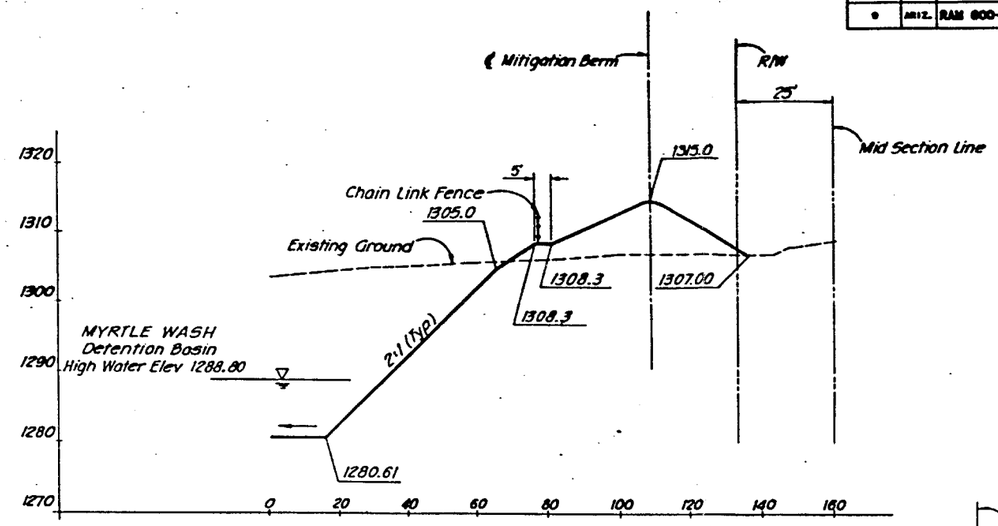
RAM 600-2-502 | 51 MA 5 H0836 01 C | 141 of 295

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	RAM 600-2-502	140	295	7-30-92 AH



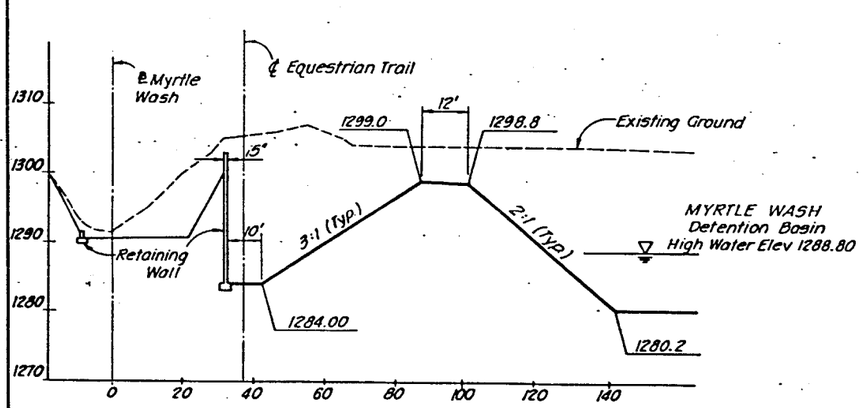
SECTION A-A

Scale: Hor. 1"=20'
Vert. 1"=10'



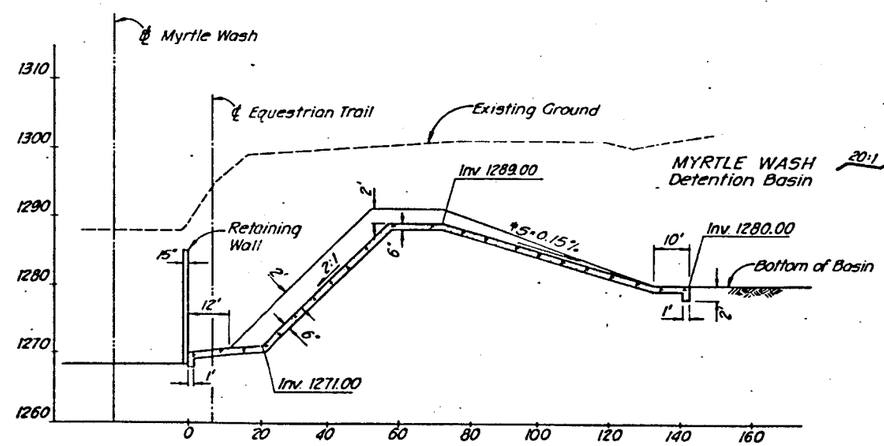
SECTION B-B

Scale: Hor. 1"=20'
Vert. 1"=10'



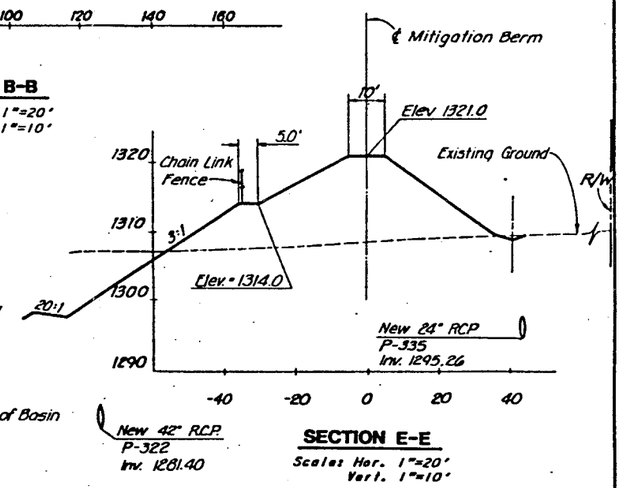
SECTION C-C

Scale: Hor. 1"=20'
Vert. 1"=10'



SECTION D-D
EMERGENCY OVERFLOW SPILLWAY

Scale: Hor. 1"=20'
Vert. 1"=10'



SECTION E-E

Scale: Hor. 1"=20'
Vert. 1"=10'

* See Dwg. No. D-4.1

	NAME	DATE
DESIGN	BGS/DGS	9/89
DRAWN	DES	9/89
CHECKED	DJL	9/89

HNTB

ROUTE: SR 51
MILEPOST:

ARIZONA DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION

MYRTLE WASH
BASIN & BERM CROSS SECTIONS

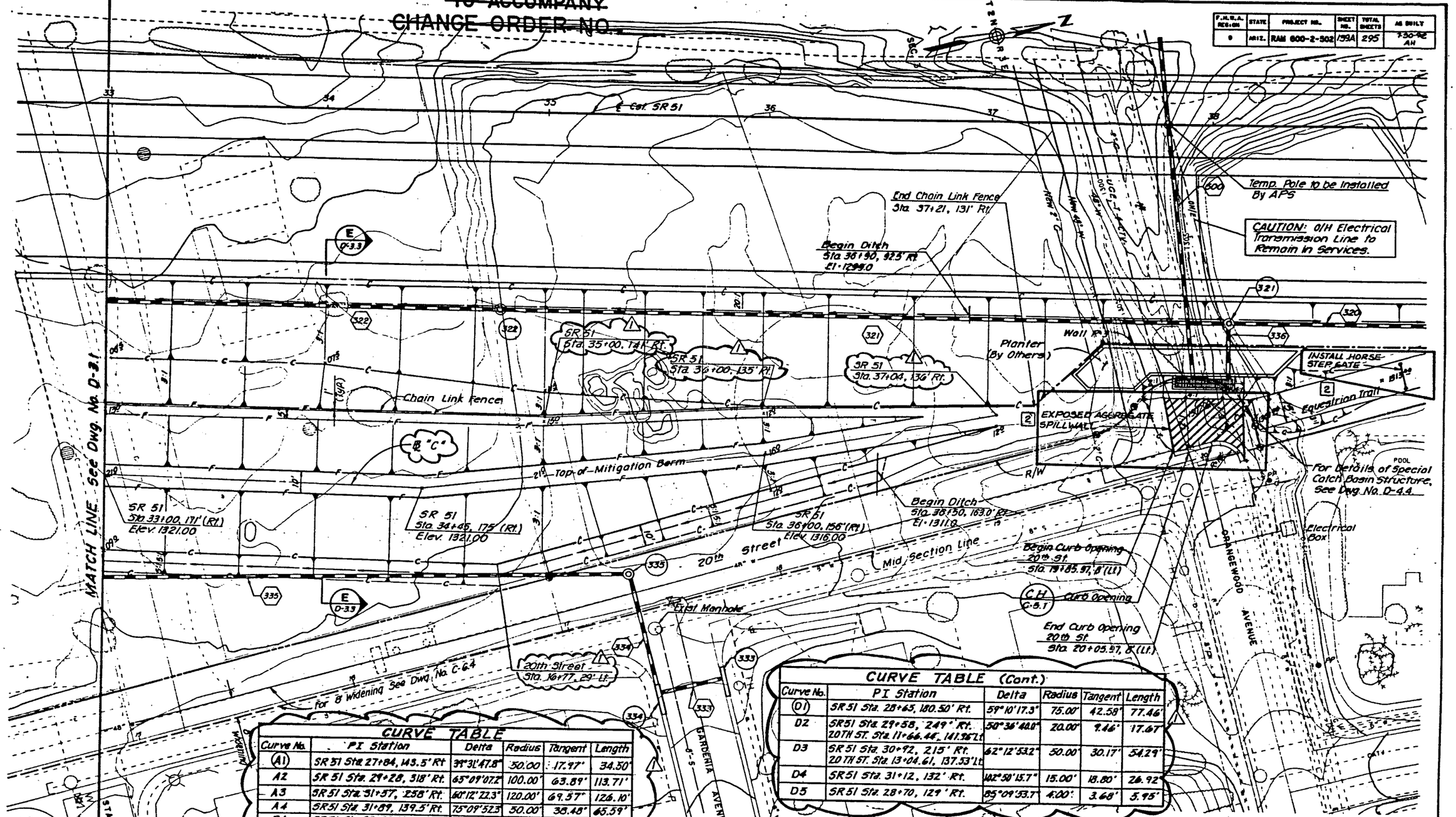
LOCATION: GLENDALE AVE TO NORTHERN AVE

DWG. NO. D-3.3

RAM 600-2-502 | 51 MA 5 H0836 01 C | 140 of 295

~~TO ACCOMPANY~~
~~CHANGE ORDER NO.~~

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	RAM 600-2-502	189A	295	7-30-92 AH



CURVE TABLE

Curve No.	PI Station	Delta	Radius	Tangent	Length
A1	SR 51 Sta. 27+84, 143.5' Rt	39°31'47.8"	50.00	17.97'	34.50'
A2	SR 51 Sta. 29+28, 318' Rt.	65°09'07.2"	100.00'	63.89'	113.71'
A3	SR 51 Sta. 31+57, 258' Rt.	60°12'22.3"	120.00'	69.57'	126.10'
A4	SR 51 Sta. 31+89, 139.5' Rt.	75°09'52.3"	50.00'	38.48'	65.59'
B1	SR 51 Sta. 28+92.12, 274.52' Rt. 20TH St. Sta. 10+96.07, 135.67' Lt.	53°56'34.0"	30.00'	15.27'	28.24'
B2	20TH St. Sta. 10+58, 71' Lt.	30°29'02.9"	70.00'	19.07'	37.24'
C1	20TH St. Sta. 13+54, 47' Lt.	48°59'28.6"	150.00'	68.34'	128.26'
C2	SR 51 Sta. 32+25.08, 168.73' Rt. 20TH St. Sta. 14+45.24, 144.96' Rt.	64°41'04.6"	75.00'	47.49'	84.67'

CURVE TABLE (Cont.)

Curve No.	PI Station	Delta	Radius	Tangent	Length
D1	SR 51 Sta. 28+65, 180.50' Rt.	59°10'17.3"	75.00'	42.58'	77.46'
D2	SR 51 Sta. 29+58, 249' Rt. 20TH St. Sta. 11+66.44, 141.36' Lt.	50°36'40.0"	20.00'	9.46'	17.67'
D3	SR 51 Sta. 30+92, 215' Rt. 20TH St. Sta. 13+04.61, 137.53' Lt.	62°12'53.2"	50.00'	30.17'	54.29'
D4	SR 51 Sta. 31+12, 132' Rt.	102°50'15.7"	15.00'	18.80'	26.92'
D5	SR 51 Sta. 28+70, 129' Rt.	85°09'53.7"	4.00'	3.68'	5.95'

	NAME	DATE
DESIGN	BGS BGS	9/89
DRAWN	KAL	9/89
CHECKED	QJL	9/89

HNTB
ARCHITECTS ENGINEERS PLANNERS

ROUTE: SR 51
SH LEPROST

ARIZONA DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION

MYRTLE WASH
DETENTION BASIN & BERM

LOCATION: GLENDALE AVE TO NORTHERN AVE

DWG. NO. D-3.2A

RAM 600-2-502

S1 MA 5 H0836 01 C

F.A.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	RAM 600-2-502	138A	295	7-30-92 AM

~~TO ACCOMPANY~~
~~CHANGE ORDER NO.~~

CURVE TABLE				
Curve No.	Delta	Radius	Tangent	Length
M1	34°00'00"	50.00'	15.29'	29.67'
M2	74°00'00"	35.00'	26.37'	45.20'

For Curve Nos. A1 Thru D5 See Dwg. No. D-3.2

NOTE: A 12' Clearance Shall Be Maintained Between The Channel Flowline And The Chain Link Fabric.

Begin Chain Link Fence ℄ SR 51 Sta. 27+84 108' (Rt.)

Begin Chain Link Fence ℄ SR 51 Sta. 28+39 106' (Rt.)

℄ Cst. SR 51

℄ SR 51 Sta. 31+57 101' (Rt.)

End Chain Link Fence and Tie To Other Chain Link Fence ℄ SR 51 Sta. 32+02 145' (Rt.)

Begin Equestrian Trail ℄ Sta 10+00± ℄ Sta 11+90, 22.25' (Lt.) Elev 1269.00

Wall R-2

SR 51 Sta. 28+74, 106' (Rt.) Elev. 1291.00

16' GATE

6' Chain Link Fence

Traffic sign Structure

Retaining Wall

Inlet Restrictor DH D-4.21

EXTEND CONC. PAD

See Note On This Sheet

Inv. 1280.0

SR 51 Sta. 30+95, 131' (Rt.) Inv. 1280.70

SR 51 Sta. 32+12, 170' (Rt.) Elev. 1318.00

MYRTLE WASH DETENTION BASIN

High Water Elev. 1288.0
Bottom Elev. 1280.0
See Dwg. No. D-3.3 for Sections

Emergency Overflow Spillway DF D-4.2

SR 51 Sta. 27+49 Elev 1271.00

STA. 13+43 156' LT.

STA. 12+89 126' LT.

SR 51 Sta. 33+00, 17' (Rt.) Elev. 1321.00

SR 51 Sta. 29+51, 240' (Rt.) Inv. 1280.50

Myrtle Wash Drainage Bldg. & Double Box Culvert Dwg. No. D-2.3

Equestrian Trail

"V" CUT DITCH

6' Chain Link Fence

SR 51 Sta. 28+90, 272' (Rt.) Elev. 1305.00

PC Sta. 11+50.00 Elev. 1284.00

END FENCE AT WALL

NEW DRAINAGE EASEMENT

PT Sta. 11+79.67 Elev 1286.97

Begin Equestrian Trail Wall Sta. 11+70.38, 5.0' (Rt.)

Gate

Equestrian Trail Surface & edge Treatment

DE D-4.1

PC Sta. 12+29.67 Elev. 1291.97

PT Sta. 12+74.87 Elev. 1296.49

End Equestrian Trail Wall Sta. 13+06, 5.0' (Rt.)

℄ "A" ℄ "B" ℄ "C" ℄ "D"

Top of Mitigation Berm

20th Street Sta. 12+37, 51' Lt.

20th Street Sta. 11+67, 52' Lt.

20th Street Sta. 11+10, 54' Lt.

R-5' (Typ.)

Existing 10" S Manhole to be Adjusted

Pt. Sta. 13+14.00 Elev. 1306.40

8" Widening

Mid Section Line

End of Equestrian Trail 20th St. Sta. 11+20, 25' (Lt.) Elev. 1306.00

Begin Curb Transition Sta. 12+81, 14.6' (Rt.)

End Curb Transition Sta. 13+06, 14.6' (Rt.)

Curb Transition CK D-5.2

20th Street

For 8" Widening See Dwg. No. C-6.3

STATE AVENUE

MATCH LINE See Dwg. No. D-3.2

	NAME	DATE
DESIGN	BGS DAA	5/91
DRAWN	KAL	9/89
CHECKED	DJL	9/89

HNTB
ARCHITECTS ENGINEERS PLANNERS

ARIZONA DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION

MYRTLE WASH
DETENTION BASIN & BERM

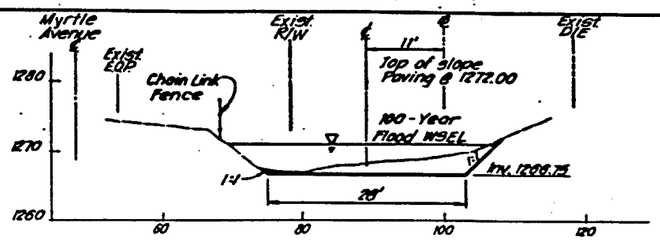
ROUTE: SR 51 | MILEPOST:

LOCATION: GLENDALE AVE TO NORTHERN AVE

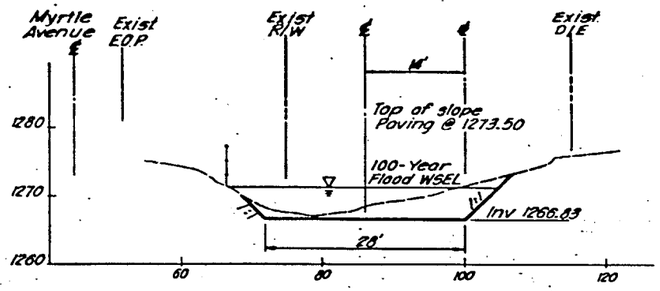
DWG. NO. D-3.1

RAM 600-2-502 | 51 MA 5 H0836 01 C | 138A OF 295

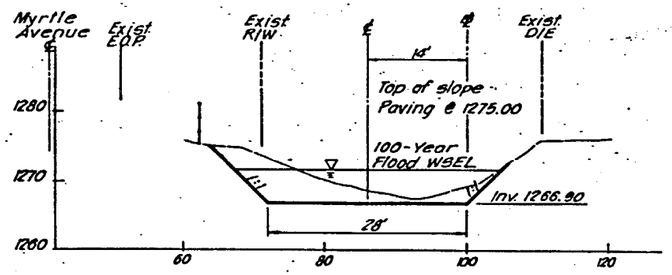
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	RAM 600-2-502	131	295	1-30-92 AH



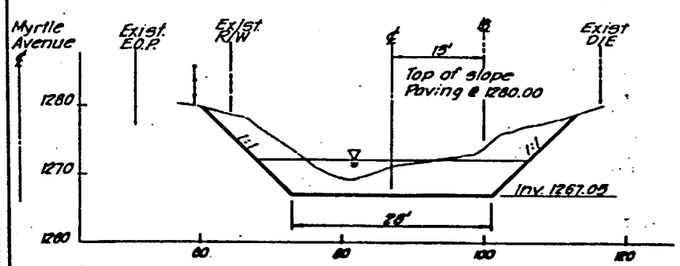
CROSS-SECTION @ STA. 3+00



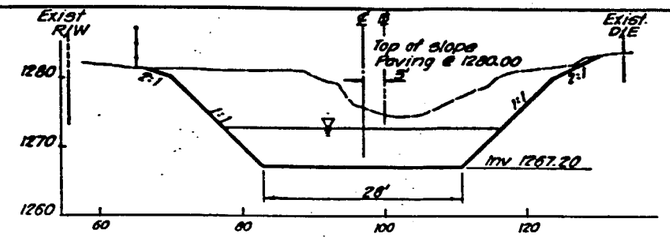
CROSS-SECTION @ STA. 3+50



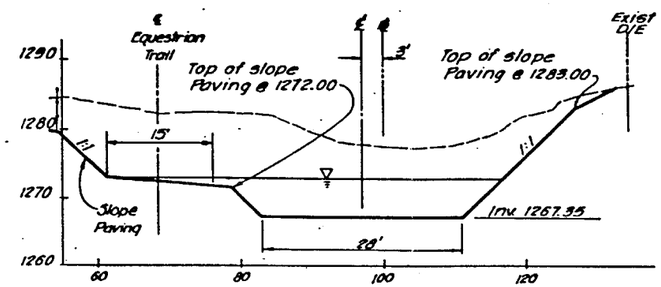
CROSS-SECTION @ STA. 4+00



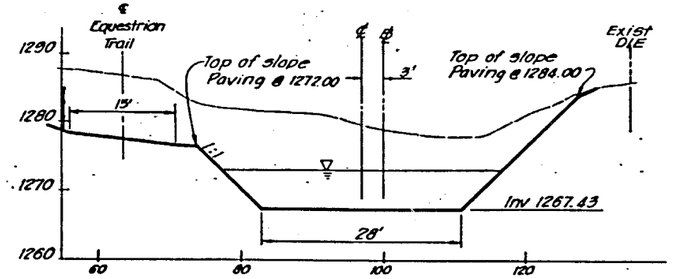
CROSS-SECTION @ STA. 5+00



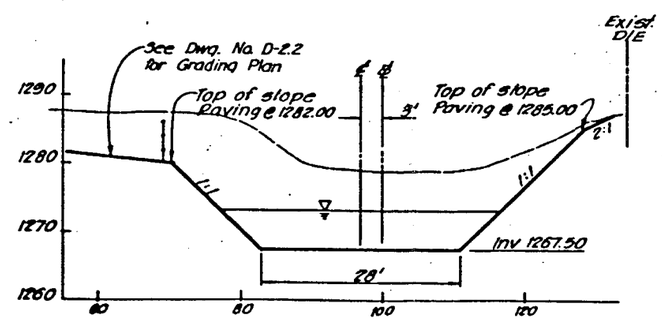
CROSS-SECTION @ STA. 6+00



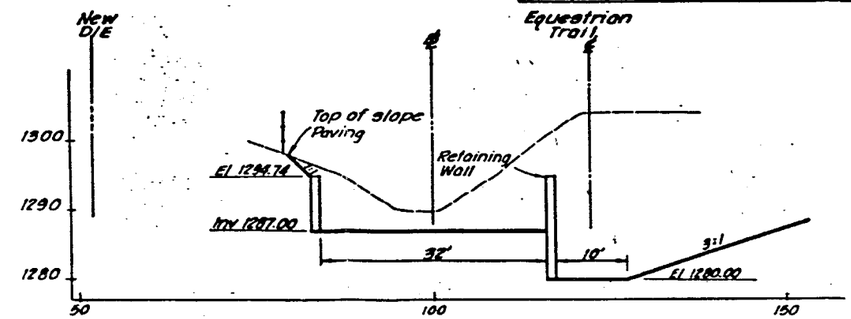
CROSS-SECTION @ STA. 7+00



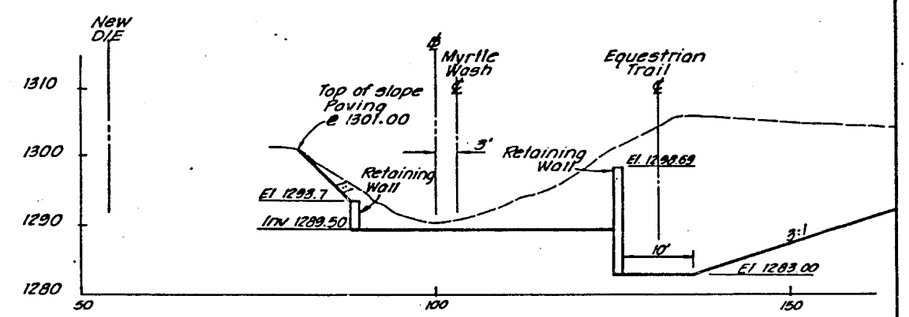
CROSS-SECTION @ STA. 7+50



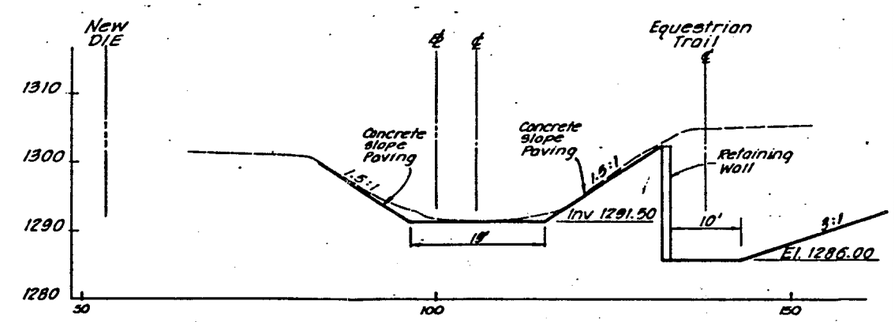
CROSS-SECTION @ STA. 8+00



CROSS-SECTION @ STA. 13+00



CROSS-SECTION @ STA. 13+22



CROSS-SECTION @ STA. 13+50

NOTE: Cross sections are taken looking downstream along the baseline for Myrtle Wash.

	NAME	DATE
DESIGN	BGS	9/89
DRAWN	DES	9/89
CHECKED	DJL	9/89

HNTB

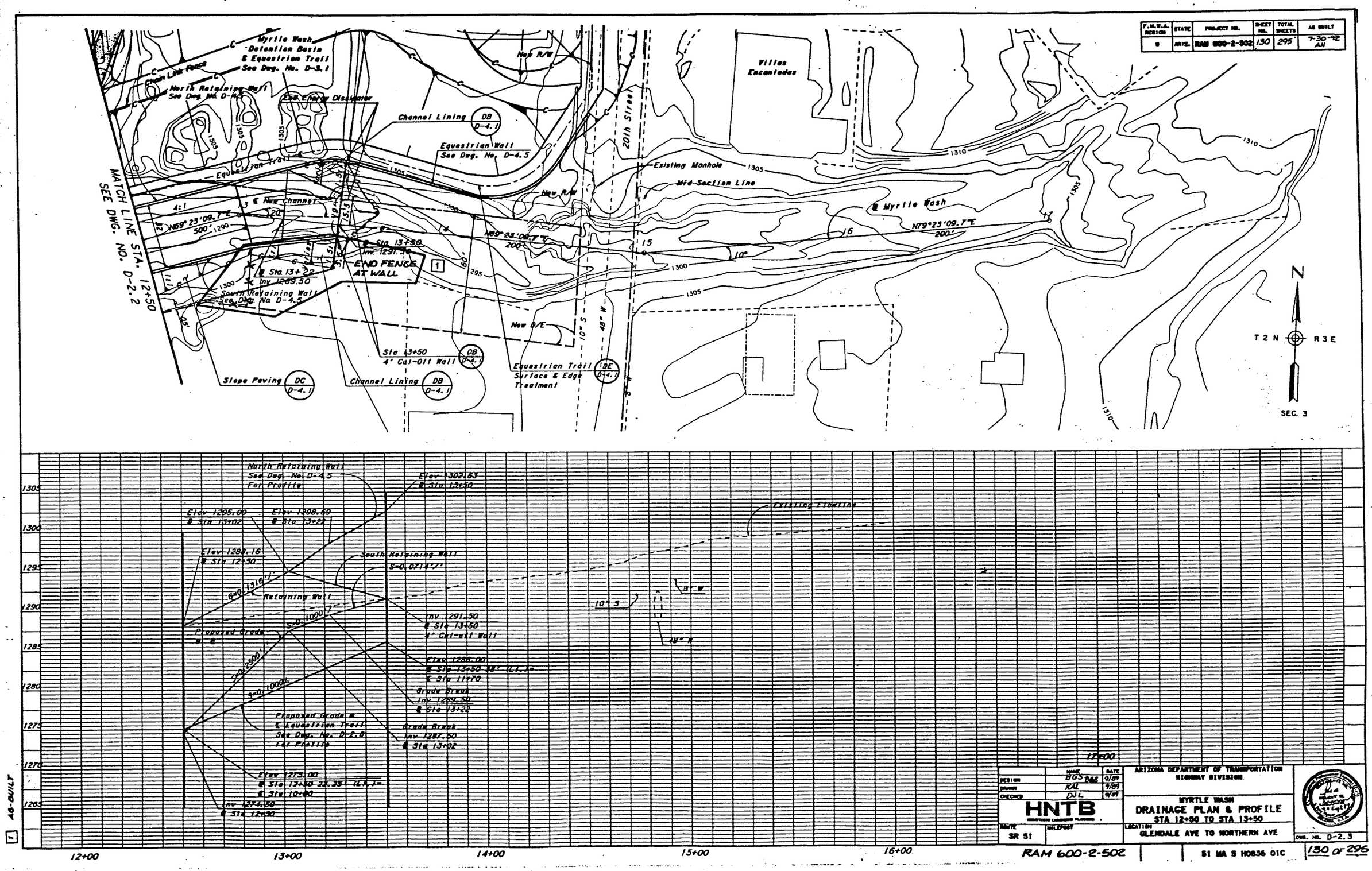
ARIZONA DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION

MYRTLE WASH
CHANNEL CROSS SECTIONS

ROUTE: SR 51
MILEPOST:
LOCATION: GLENDALE AVE TO NORTHERN AVE

DWG. NO. D-2A

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	RAM 600-2-502	130	295	7-30-92 AH



	NAME	DATE
DESIGNED	BGS BAS	9/89
DRAWN	KAL	9/89
CHECKED	DJL	9/89

HNTB

ARIZONA DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION

MYRTLE WASH
DRAINAGE PLAN & PROFILE
STA 12+50 TO STA 13+50

ROUTE: SR 51
MP: 1.0-FREE
LOCATION: GLENDALE AVE TO NORTHERN AVE

DWG. NO. D-2.3

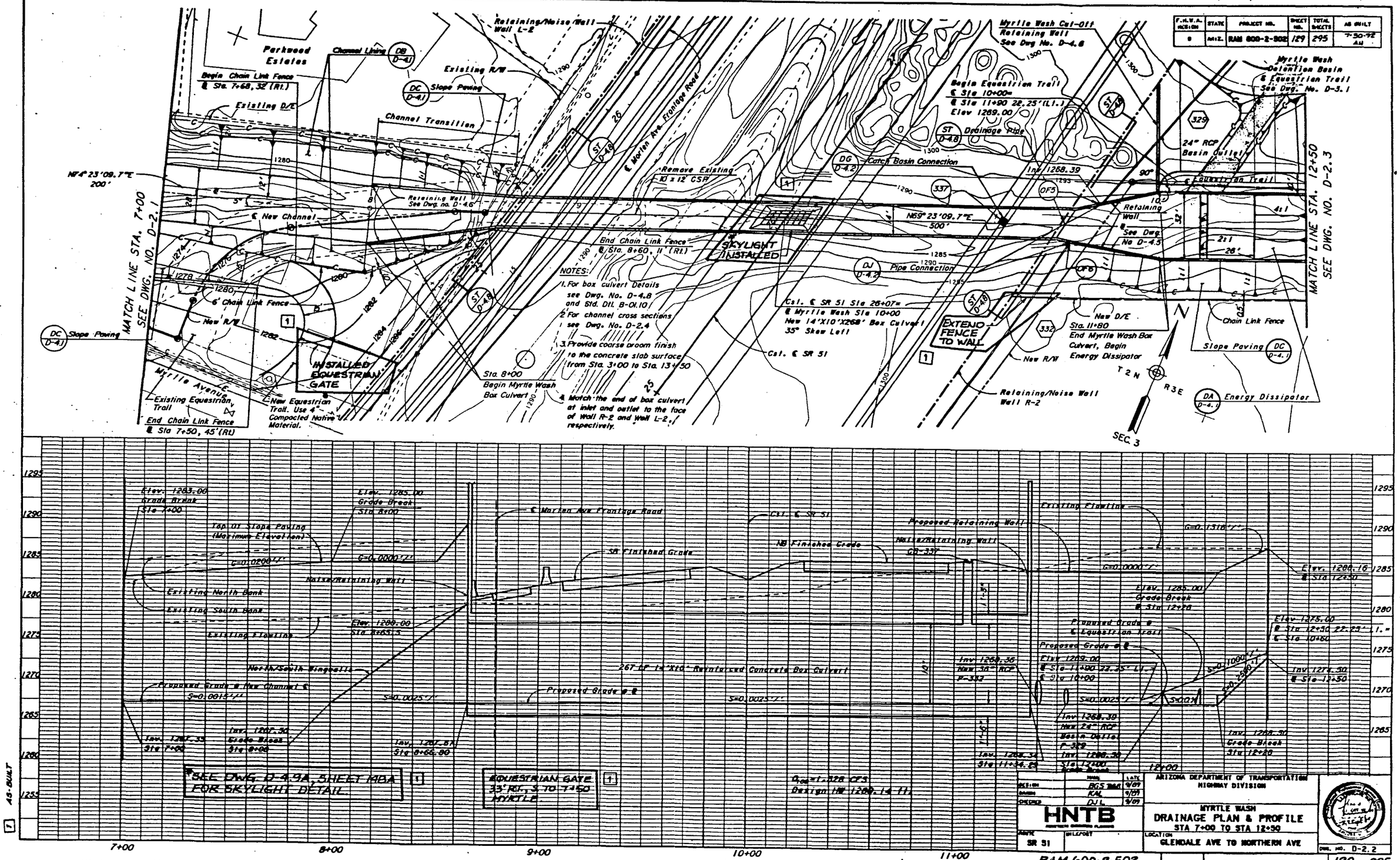
RAM 600-2-502

51 MA 5 H0836 01C

130 OF 295

AS-BUILT

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	RAM 600-2-502	129	295	7-30-92 AH



DES. BY	BGS	9/89
DRAWN	KAL	9/89
CHECKED	DJL	9/89

HNTB

ARIZONA DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION

MYRTLE WASH
DRAINAGE PLAN & PROFILE
STA 7+00 TO STA 12+50

ROUTE: SR 51
SHEET/PORT
LOCATION: GLENDALE AVE TO NORTHERN AVE

DWG. NO. D-2.2

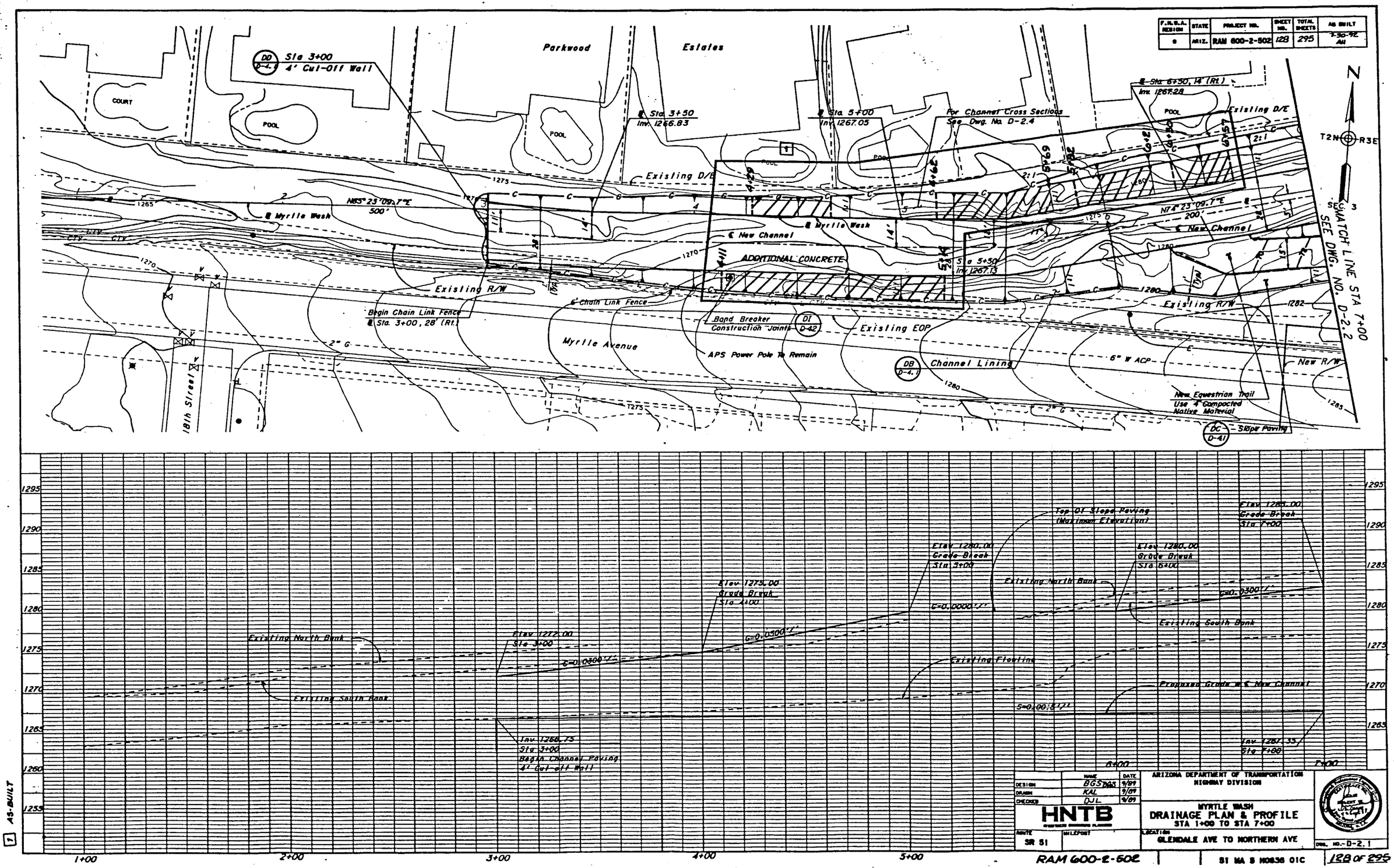
RAM 600-2-502

SI MA 5 H0836 01C

129 OF 295

AS-BUILT

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	RAM 600-2-502	128	295	4-30-92 AH



	NAME	DATE
DESIGN	BGS	9/89
DRAWN	KAL	9/89
CHECKED	DJL	9/89

HNTB

ARIZONA DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION

MYRTLE WASH
DRAINAGE PLAN & PROFILE
STA 1+00 TO STA 7+00

ROUTE: SR 51 | MILEPOST:
LOCATION: GLENDALE AVE TO NORTHERN AVE

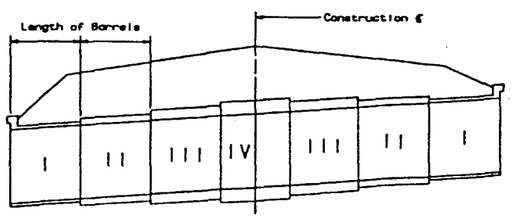
DWG. NO. D-2.1

RAM 600-2-502 | 51 MA S H0836 01C | 128 OF 295

AS-BUILT

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	RAM 600-2-502	26	295	7-24-92 AH

DESCRIPTION				DRAWINGS REQUIRED		LENGTH OF BARRELS										APPROXIMATE QUANTITIES						
STATION on ℄	STR. No.	M.P.	SIZE	Special Sheet No.	STANDARDS	Left of ℄ *					Right of ℄ *					Struct. Excav. Cu. Yds.	Class S f'_c=3000psi Concrete Cu. Yds.	Reinforcing Steel Lbs.	Struct. Backfill CU. Yds.	Remove Str.Conc Cu. Yds.	Place Dowels Each	Drainage Excav. Cu. Yds.
						I	II	III	IV	V	V	IV	III	II	I							
26+07.00 SKEW 35° LT.			1-14'X10'X268'-0"	D-2.2	B-01.10											5500	1080	138,444	1600			
MYRTLE **				D-4.5																		
66+78.61 SKEW 5° LT.			1-10'X10'X232'-0"	D-2.5	B-01.10	126'									108'	2040	439	51,867	1194			
PLEASANT					B-02.10																	
					B-04.20																	
					B-04.40																	
					B-05.10																	
					B-06.10																	
					B-06.30																	
83+41.00 SKEW 14° LT.			2-10'X4'X482'-0"	D-2.7	B-01.10	96'	20'	20'	110'			98'	20'	22'	96'	2358	1259	159,850	857			
DREAMY DRAW					B-02.25																	
					B-04.10																	
					B-04.30																	
					B-05.10																	
					B-06.10																	
					B-06.30																	
MYRTLE WASH				D-4.1												4380	582	63,300	0			
ENERGY DISSIPATOR				D-4.5																		
				D-4.7																		



* CONSTRUCTION ℄ (LOOKING AHEAD).

** QUANTITIES INCLUDE INLET AND OUTLET WALLS, MYRTLE WASH CUT-OFF RETAINING WALL, AND SOUND WALLS ON END OF BOX.

	NAME	DATE
DESIGN	RGH	9/89
DRAWN	KAL	9/89
CHECKED	DGS	9/89

HNTB
ARCHITECTS ENGINEERS PLANNERS

ARIZONA DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION

REINFORCED CONCRETE BOX CULVERT SUMMARY SHEET

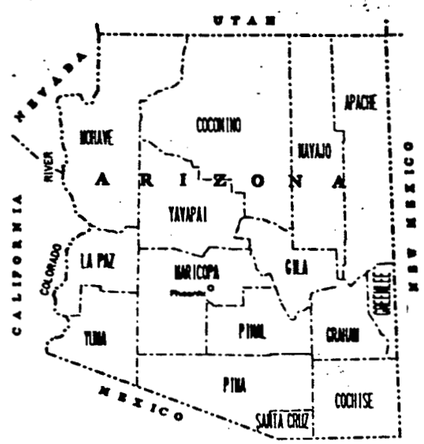
ROUTE: SR 51
MILEPOST:
LOCATION: GLENDALE AVE TO NORTHERN AVE

DWG. NO. G-4.118

REVISIONS	DATE	LOCATION	DATE

RAM 600-2-502 | 51 MA 5 H0836 01 C | 26 OF 295

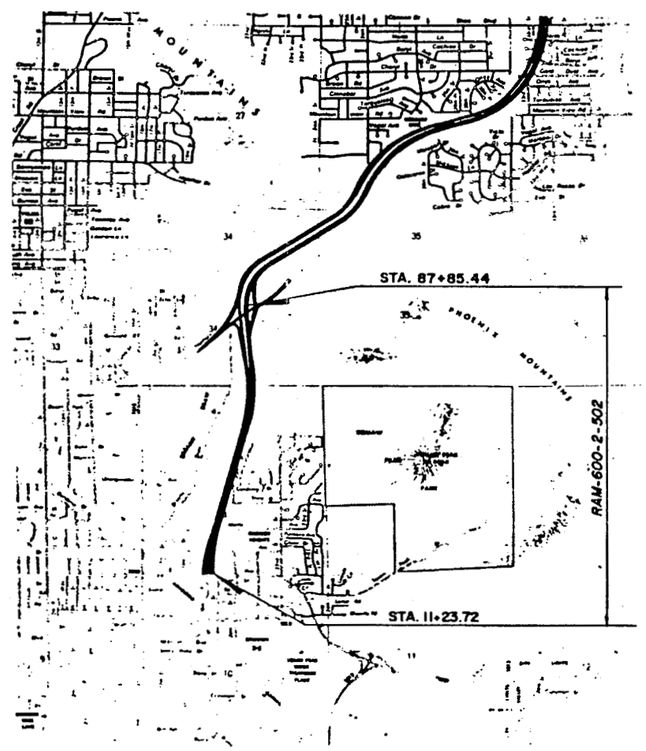
RAM-600-2-502



STATE OF ARIZONA
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PLAN AND PROFILE OF PROPOSED

PHOENIX URBANIZED AREA
SQUAW PEAK HWY (SR 51)
RAM-600-2-502
051 MA 005



AS BUILT

SUPERVISED BY:
EVAN LEANDER, P.E.
A.D.O.T. DISTRICT I

APRIL , 1992

ARIZONA DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
APPROVED: THOMAS A. BRYANT, II
STATE ENGINEER

APPROVED DATE

DEPUTY STATE ENGINEER

U. S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED DATE

DIVISION ADMINISTRATOR

SQUAW PEAK (GLENDALE - NORTHERN)

AS-BUILT AM 11-6-92

TRACS NO. H0836 01C

RAM 600-2-502 | 1 OF 295

FEDERAL EMERGENCY MANAGEMENT AGENCY **CHANNELIZATION FORM**	O.M.B. Burden No. 3067-0148 Expires July 31, 1997	FEMA USE ONLY

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 1.75 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, S.W., Washington, DC 20472; and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503.

Community Name: Phoenix

Flooding Source: Myrtle Avenue Watershed

Project Name/Identifier: Myrtle Avenue

1. EXTENT OF CHANNELIZATION

Downstream limit: .347

Upstream limit: .426

2. CHANNEL DESCRIPTION

1. Describe the inlet to the channel:
   14' x 10' Box Culvert

2. Briefly describe the shape of the channel *(both cross sectional and planimetric configuration)* and its lining *(channel bottom and sides)*:
   28' bottom with 1:1 side slopes, straight concrete channel

3. Describe the outlet from the channel:
   Cut-off wall, natural channel with short grasses on channel bottom and scrubs on side slopes

4. The channelization includes:

   __ Levees *(Attach Levee Form)*
   __ Drop structures
   __ Superelevated sections
   __ Transitions in cross sectional geometry
   __ Debris basin/detention basin
   __ Energy dissipater
   __ Other:

5. Attach the following:

   a. Certified engineering drawings showing channel alignment and locations of inlet, outlet, and items checked in item 4

   b. Typical cross sections and profiles of channel banks and invert

3. HYDRAULIC CONSIDERATIONS 'See explanations sheet'

1. What is the 100-year discharge? ..... 1300 cfs
2. Do the cross sections in the hydraulic model match the typical cross sections in the plans?: ..... X Yes __ No
3. Are the channel banks higher than the 100-year flood elevations everywhere? ..... X Yes __ No
4. Are the channel banks higher than the 100-year flood energy grade lines everywhere? ..... X Yes __ No
5. Is the land on both sides of the channel above the adjacent 100-year flood elevation at all points along the channel? ..... X Yes __ No
6. What is the range of freeboard? ..... 2-7 feet
7. What is the lining type? (both bottom and sides): Concrete on both bottom and side slopes.

   Explain how the channel lining prevents erosion and maintains channel stability *(attach documentation)*:

   No erosion due to concrete.

9. What is the design elevation in the channel based on?

   X Subcritical flow
   __ Critical flow
   __ Supercritical flow
   __ Energy grade line

   Is 100-year flood profile based on the above type of flow? ..... X Yes __ No

   If no, explain:

10. Is there the potential for a hydraulic jump at the following locations?

    Inlet to channel ..... __ Yes X No
    Outlet of channel ..... __ Yes X No
    At Drop Structures ..... __ Yes X No
    At Transitions ..... __ Yes X No
    Other locations. Explain:

    If the answer to any of the above is yes, please explain how the hydraulic jump is controlled and the effects of the hydraulic jump on the stability of the channel.

    Explain:

4. SEDIMENT TRANSPORT CONSIDERATIONS 'See explanations sheet'

1. A. Is there any indication from historical records that sediment transport (including scour and deposition) can affect the 100-year water-surface elevations and/or the capacity of the channel? ....._ Yes _ No

   B. Based on the conditions of the watershed and stream bed, is there a potential for sediment transport (including scour and deposition) to affect the 100-year water-surface elevations and/or the capacity of the channel? ....._ Yes _ No

2. If the answer to either 1A or 1B is yes:

   A. What is the estimated sediment (bed) load?

   _____ cfs (attach gradation curve)

   Explain method used to estimate load:

   B. Is the 100-year flood velocity anywhere within the channel less than the 100-year flood velocity of the inlet?....._ Yes _ No

   C. Will sediment accumulate anywhere within the channel? ....._ Yes _ No

   D. Will deposition or scour occur at or near the inlet? ....._ Yes _ No

   E. Will deposition or scour occur at or near the outlet? ....._ Yes _ No

Attach documentation showing affects on the Hydrologic and Hydraulic Analyses

MYRTLE DRAINAGE STUDY/EAST OF 16TH STREET

Project: mari0018 Thu Oct 10 09:36:13 1996

Point statistics:

Starting point number: 1
Max point number used: 5414
Min point number used: 1
Current point number: 8

Current Coordinate Listing (All)

Point	Northing	Easting	Elevation	Description
1	5000.00	5000.00	1242.86	DEA CONTROL MON
2	5018.63	5280.50	1245.41	DEA CONTROL MON
3	5650.22	5011.42	1242.38	DEA CONTROL MON
4	5339.00	5322.72	1251.27	DEA CONTROL MON
5	5625.29	5782.63	1255.63	DEA CONTROL MON
6	5672.06	5240.75	1247.08	DEA CONTROL MON
7	5650.21	5011.43	1242.35	CHECK SHOT
100	6960.48	5000.00	1254.58	FD BC
101	4330.17	4953.47	1229.69	FD BC
5000	6960.51	5000.00	1254.54	CHECK SHOT
5001	5643.96	4758.93	1238.53	CONC FLATWORK
5002	5665.54	4745.84	1236.06	CONC FLATWORK
5003	5747.51	4691.37	1235.95	CONC FLATWORK
5004	5699.83	4755.02	1244.58	CONC FLATWORK
5005	5699.84	4755.02	1244.57	CONC FLATWORK
5006	5868.92	4609.24	1235.98	CONC FLATWORK
5007	5887.21	4596.27	1238.00	CONC FLATWORK
5008	5892.83	4607.35	1238.12	CONC FLATWORK
5009	5876.36	4618.74	1236.40	CONC FLATWORK
5010	5808.58	4664.86	1236.42	CONC FLATWORK
5011	5749.37	4706.62	1236.41	CONC FLATWORK
5012	5708.24	4735.49	1236.53	CONC FLATWORK
5013	5673.59	4757.42	1236.40	CONC FLATWORK
5014	5651.70	4768.94	1238.86	CONC FLATWORK
5015	5660.12	4782.37	1245.58	CONC FLATWORK
5016	5716.15	4746.89	1239.30	CONC FLATWORK
5017	5757.23	4719.87	1239.33	CONC FLATWORK
5018	5797.29	4692.41	1239.31	CONC FLATWORK
5019	5796.94	4688.63	1238.66	CONC FLATWORK
5020	5807.96	4681.01	1240.27	CONC FLATWORK
5021	4819.08	5176.32	1238.81	CONC FLATWORK
5022	4810.55	5183.21	1237.92	CONC FLATWORK
5023	4802.09	5189.08	1237.86	CONC FLATWORK
5024	4793.64	5194.96	1237.91	CONC FLATWORK
5025	4785.34	5199.67	1238.84	CONC FLATWORK
5026	4791.88	5211.27	1239.24	CONC FLATWORK
5027	4801.39	5205.12	1238.39	CONC FLATWORK
5028	4808.99	5199.99	1238.29	CONC FLATWORK
5029	4818.76	5193.37	1238.36	CONC FLATWORK
5030	4827.57	5187.06	1239.24	CONC FLATWORK
5031	4832.47	5194.50	1245.96	CONC FLATWORK
5032	4813.75	5206.95	1244.90	CONC FLATWORK
5033	4797.41	5218.79	1246.03	CONC FLATWORK
5034	4930.30	5098.43	1238.80	GUTTER

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
28742
CARL
SITTERLEY
4/25/97
Date Signed
ARIZONA U.S.A.

Pages 1-9
CRS.

MYRTLE DRAINAGE STUDY/EAST OF 16TH STREET

Project: mari0018 Thu Oct 10 09:36:17 1996

Current Coordinate Listing (All)

Point	Northing	Easting	Elevation	Description
5035	4931.87	5100.93	1238.83	GUTTER
5036	4939.39	5109.80	1239.27	GUTTER
5037	4943.49	5116.86	1245.52	CONC FLATWORK
5038	4978.77	5075.52	1241.47	GUTTER
5039	4982.36	5086.35	1241.36	GUTTER
5040	4986.72	5090.34	1244.36	GRADE @ WALL
5041	4994.57	5079.88	1241.83	GUTTER
5042	4991.77	5069.38	1241.87	GUTTER
5043	5004.60	5063.07	1242.22	GUTTER
5044	5013.13	5077.64	1242.52	GUTTER
5045	5017.43	5082.19	1242.69	GUTTER
5046	5017.89	5046.62	1242.59	GUTTER
5047	4998.78	5051.60	1238.77	CONC FLATWORK
5048	5006.79	5088.55	1242.51	GROUND SHOT
5049	5017.65	5088.40	1242.69	GUTTER
5050	5057.65	5095.04	1243.72	AC
5051	5061.40	5088.60	1244.03	CONC FLATWORK
5052	5062.03	5046.48	1243.99	CONC FLATWORK
5053	5057.88	5043.06	1243.38	GUTTER
5054	5052.82	5043.02	1243.15	GUTTER
5055	5049.23	5038.48	1242.80	GUTTER
5056	5052.37	5012.16	1243.14	GUTTER
5057	5018.06	5006.24	1242.97	GUTTER
5058	4986.52	5131.10	1245.09	GRADE @ WALL
5059	5009.21	5131.91	1242.56	GROUND SHOT
5060	5017.23	5133.24	1242.90	GUTTER
5061	5057.09	5131.64	1243.82	AC
5062	5061.15	5131.79	1244.17	CONC FLATWORK
5063	5060.67	5200.48	1244.27	CONC FLATWORK
5064	5056.96	5200.39	1244.27	AC
5065	5016.78	5199.32	1243.56	GUTTER
5066	5006.35	5200.06	1242.68	GROUND SHOT
5067	6853.47	4965.34	1253.74	SEE NOTES
5068	6853.40	4965.34	1253.76	SEE NOTES
5069	5000.00	5000.02	1242.89	CHECK SHOT
5070	4986.07	5198.34	1246.67	GRADE @ WALL
5071	4985.66	5241.84	1246.87	GRADE @ WALL
5072	5009.69	5241.36	1243.86	GROUND SHOT
5073	5016.31	5241.40	1243.89	GUTTER
5074	5043.72	5242.29	1246.18	CONC FLATWORK
5075	5039.67	5246.00	1245.61	GUTTER
5076	5016.15	5271.15	1244.38	GUTTER
5077	5015.57	5271.30	1244.66	T/C@B/C
5078	5011.17	5275.47	1244.26	GROUND SHOT
5079	4985.16	5296.51	1247.12	GRADE @ WALL
5080	5043.59	5296.95	1244.97	GRADE @ WALL
5081	5044.10	5292.52	1244.74	GROUND SHOT
5082	5044.28	5290.85	1245.83	T/C@B/C
5083	5044.55	5290.30	1244.82	GUTTER

MYRTLE DRAINAGE STUDY/EAST OF 16TH STREET

Project: mari0018 Thu Oct 10 09:36:20 1996

Current Coordinate Listing (All)

Point	Northing	Easting	Elevation	Description
5084	5043.98	5282.66	1244.49	AC
5085	5046.60	5261.49	1245.11	GUTTER
5086	5047.09	5246.36	1245.74	GUTTER
5087	5047.09	5242.49	1246.20	CONC FLATWORK
5088	5142.54	5244.15	1246.35	CONC FLATWORK
5089	5142.47	5248.01	1245.97	AC
5090	5141.98	5283.30	1245.21	AC
5091	5142.30	5291.13	1245.46	GUTTER
5092	5142.53	5291.77	1246.47	T/C@B/C
5093	5142.61	5294.41	1245.27	GROUND SHOT
5094	5142.15	5297.96	1245.56	GRADE @ WALL
5095	5142.67	5293.23	1245.55	FD 1/2" REBAR
5096	5235.92	5310.87	1250.92	TOP
5097	5236.72	5303.48	1246.07	TOE
5098	5236.92	5298.44	1245.92	GROUND SHOT
5099	5236.93	5294.05	1247.12	T/C@B/C
5100	5237.07	5293.41	1246.13	GUTTER
5101	5236.59	5284.76	1245.97	AC
5102	5236.86	5239.67	1246.61	AC
5103	5233.94	5235.80	1246.84	CONC FLATWORK
5104	5344.14	5263.63	1248.05	AC
5105	5343.40	5286.03	1246.76	AC
5106	5342.79	5294.17	1246.83	GUTTER
5107	5342.91	5294.92	1247.84	T/C@B/C
5108	5342.52	5300.81	1247.03	TOE
5109	5343.89	5311.66	1250.41	TOP
5110	4999.99	5000.02	1242.89	CHECK SHOT
5111	5018.62	5280.50	1245.42	CHECK SHOT
5112	5459.97	5239.58	1248.34	CONC FLATWORK
5113	5459.82	5243.40	1247.97	AC
5114	5458.71	5285.70	1247.24	AC
5115	5458.59	5294.18	1247.31	GUTTER
5116	5458.85	5294.89	1248.33	T/C@B/C
5117	5458.87	5295.38	1247.35	TOE
5118	5458.40	5301.47	1250.63	TOP
5119	5447.12	5314.67	1250.93	TOP
5120	5442.76	5316.57	1249.36	TOE
5121	5424.34	5321.70	1249.25	TOE
5122	5417.67	5325.46	1251.12	TOP
5123	5430.56	5386.93	1252.43	TOP
5124	5438.39	5441.85	1252.93	TOP
5125	5437.06	5516.51	1254.33	TOP
5126	5467.94	5579.35	1253.59	TOP
5127	5492.23	5562.82	1251.32	CONC FLATWORK
5128	5500.54	5558.19	1251.37	CONC FLATWORK
5129	5475.84	5522.16	1251.06	CONC FLATWORK
5130	5467.77	5527.67	1251.02	CONC FLATWORK
5131	5460.83	5530.51	1250.98	CONC FLATWORK
5132	5454.68	5511.79	1250.87	CONC FLATWORK

MYRTLE DRAINAGE STUDY/EAST OF 16TH STREET

Project: mari0018 Thu Oct 10 09:36:24 1996

Current Coordinate Listing (All)

Point	Northing	Easting	Elevation	Description
5133	5474.26	5510.91	1250.88	CONC FLATWORK
5134	5455.27	5424.12	1249.86	CONC FLATWORK
5135	5474.86	5431.17	1249.94	CONC FLATWORK
5136	5475.10	5421.36	1249.89	CONC FLATWORK
5137	5445.33	5385.51	1249.46	CONC FLATWORK
5138	5464.27	5379.97	1249.43	CONC FLATWORK
5139	5433.99	5340.84	1249.01	CONC FLATWORK
5140	5453.90	5339.25	1249.05	CONC FLATWORK
5141	5472.34	5351.49	1250.37	AC
5142	5476.58	5422.89	1251.32	GROUND SHOT
5143	5377.61	5586.08	1253.69	GROUND SHOT
5144	5375.96	5598.85	1253.66	WALL CONC.
5145	5376.48	5602.81	1253.62	T/C@B/C
5146	5376.68	5603.35	1253.14	GUTTER
5147	5375.75	5621.22	1253.60	AC
5148	5375.79	5636.67	1253.22	GUTTER
5149	5375.96	5638.10	1253.55	T/C@B/C
5150	5376.27	5641.85	1253.59	WALL CONC.
5151	5376.67	5649.87	1255.14	GROUND SHOT
5152	5466.05	5647.48	1254.51	GROUND SHOT
5153	5465.90	5638.79	1253.90	T/C@B/C
5154	5463.85	5621.22	1253.89	AC
5155	5456.88	5604.20	1253.44	GUTTER
5156	5456.54	5603.55	1253.88	T/C@B/C
5157	5458.26	5599.67	1253.99	WALL CONC.
5158	5455.01	5590.71	1253.85	GROUND SHOT
5160	5339.00	5322.72	1251.29	CHECK SHOT
5161	5540.46	5640.01	1253.43	CONC FLATWORK
5162	5567.10	5640.56	1253.43	CONC FLATWORK
5163	5549.62	5599.58	1253.09	CONC FLATWORK
5164	5580.10	5600.82	1253.99	CONC FLATWORK
5165	5580.15	5585.84	1253.79	CONC FLATWORK
5166	5537.64	5585.54	1253.99	CONC FLATWORK
5167	5518.96	5586.18	1251.83	CONC FLATWORK
5168	5513.56	5593.46	1251.83	CONC FLATWORK
5169	5517.56	5600.44	1253.91	CONC FLATWORK
5170	5523.68	5601.78	1253.15	CONC FLATWORK
5171	5540.54	5648.84	1255.20	TOP
5172	5545.54	5647.36	1253.05	TOE
5173	5560.78	5645.39	1253.36	TOE
5174	5569.76	5646.73	1255.13	TOP
5175	5576.00	5658.97	1255.71	TOP
5176	5606.02	5658.48	1256.05	TOP
5177	5607.63	5666.48	1254.80	TOE
5178	5578.18	5667.32	1254.28	TOE
5179	5569.07	5663.32	1253.92	TOE
5180	5558.04	5672.24	1253.91	TOE
5181	5555.71	5675.09	1255.38	TOP
5182	5617.35	5662.19	1255.04	CONC FLATWORK

MYRTLE DRAINAGE STUDY/EAST OF 16TH STREET

Project: mari0018 Thu Oct 10 09:36:27 1996

Current Coordinate Listing (All)

Point	Northing	Easting	Elevation	Description
5183	5610.32	5666.04	1254.94	CONC FLATWORK
5184	5602.90	5667.54	1254.75	CONC FLATWORK
5185	5575.47	5667.43	1254.23	CONC FLATWORK
5186	5559.49	5674.68	1254.16	CONC FLATWORK
5187	5560.24	5677.13	1254.24	CONC FLATWORK
5188	5574.07	5723.73	1254.77	CONC FLATWORK
5189	5594.07	5791.83	1255.64	CONC FLATWORK
5190	5600.42	5803.13	1255.89	CONC FLATWORK
5191	5607.94	5809.11	1256.13	CONC FLATWORK
5192	5610.47	5810.96	1256.15	CONC FLATWORK
5193	5631.23	5825.03	1255.84	CONC FLATWORK
5194	5638.30	5781.37	1255.48	CONC FLATWORK
5195	5613.04	5767.39	1255.75	CONC FLATWORK
5196	5601.16	5753.90	1255.17	CONC FLATWORK
5197	5598.43	5726.33	1254.91	CONC FLATWORK
5198	5597.74	5703.99	1254.71	CONC FLATWORK
5199	5603.17	5688.84	1254.62	CONC FLATWORK
5200	5617.07	5684.60	1255.09	CONC FLATWORK
5201	5597.39	5983.56	1263.67	GROUND SHOT
5202	5607.54	5983.56	1262.50	T/C@B/C
5203	5608.13	5983.82	1262.07	GUTTER
5204	5625.11	5985.92	1262.30	AC
5205	5640.16	5988.07	1262.41	AC
5206	5644.47	5988.55	1262.45	TOP
5207	5657.81	5990.38	1257.88	TOE
5208	5665.28	5984.06	1262.02	TOP
5209	5684.92	5979.89	1262.67	GROUND SHOT
5210	5684.38	5948.02	1261.78	GROUND SHOT
5211	5665.11	5943.84	1261.53	TOP
5212	5654.24	5943.48	1257.37	TOE
5213	5641.83	5945.70	1260.07	TOP
5214	5639.90	5946.04	1260.01	AC
5215	5627.87	5946.34	1260.26	AC
5216	5607.86	5944.61	1260.33	T/C@B/C
5217	5600.23	5940.35	1261.88	GROUND SHOT
5218	5600.95	5898.73	1259.52	GROUND SHOT
5219	5611.86	5899.81	1257.62	T/C@B/C
5220	5633.38	5903.21	1257.53	AC
5221	5643.87	5903.83	1257.45	AC
5222	5646.88	5903.26	1257.92	TOP
5223	5653.12	5902.76	1256.47	TOE
5224	5662.89	5901.37	1260.65	TOP
5225	5679.22	5901.84	1260.62	GROUND SHOT
5226	5660.32	5882.70	1259.53	TOP
5227	5648.19	5885.97	1256.67	TOE
5228	5633.56	5815.46	1255.71	T/C@B/C
5229	5639.82	5745.49	1255.40	T/C@B/C
5230	5640.76	5661.13	1254.99	T/C@B/C
5231	5635.27	5647.16	1254.62	T/C@B/C

MYRTLE DRAINAGE STUDY/EAST OF 16TH STREET

Project: mari0018 Thu Oct 10 09:36:31 1996

Current Coordinate Listing (All)

Point	Northing	Easting	Elevation	Description
5232	5622.43	5641.24	1254.17	T/C@B/C
5233	5622.77	5660.01	1254.89	GROUND SHOT
5234	5622.17	5733.86	1255.66	GROUND SHOT
5235	5699.98	5821.97	1260.15	GROUND SHOT
5236	5704.78	5752.80	1258.23	GROUND SHOT
5237	5718.25	5693.12	1256.91	GROUND SHOT
5238	5768.86	5702.55	1256.94	GROUND SHOT
5239	5778.27	5679.63	1256.06	TOP
5240	5695.56	5659.77	1256.12	TOP
5241	5680.77	5753.22	1257.80	TOP
5242	5674.95	5814.30	1259.22	TOP
5243	5665.61	5816.35	1256.29	T/C@B/C
5244	5673.67	5751.43	1255.41	T/C@B/C
5245	5681.86	5666.42	1254.72	T/C@B/C
5246	5691.42	5649.64	1254.21	T/C@B/C
5247	5707.15	5644.80	1254.27	T/C@B/C
5248	5781.34	5664.12	1254.72	T/C@B/C
5249	5795.34	5629.88	1254.74	T/C@B/C
5250	5720.88	5610.27	1254.28	T/C@B/C
5251	5696.28	5598.84	1253.73	T/C@B/C
5252	5687.10	5572.10	1253.20	T/C@B/C
5253	5646.28	5587.27	1253.65	T/C@B/C
5254	5639.88	5601.03	1253.69	T/C@B/C
5255	5625.34	5605.43	1254.33	T/C@B/C
5256	5617.40	5577.91	1253.78	GROUND SHOT
5257	5625.72	5606.04	1253.88	GUTTER
5258	5646.99	5587.40	1253.21	GUTTER
5259	5686.66	5572.08	1252.73	GUTTER
5260	5721.09	5610.91	1253.85	GUTTER
5261	5795.04	5630.25	1254.32	GUTTER
5262	5781.58	5663.64	1254.23	GUTTER
5263	5706.95	5644.24	1253.84	GUTTER
5264	5681.38	5666.33	1254.14	GUTTER
5265	5673.13	5751.54	1254.95	GUTTER
5266	5664.74	5819.03	1255.77	GUTTER
5267	5647.31	5812.12	1255.68	AC
5268	5652.86	5748.14	1255.44	AC
5269	5656.67	5661.60	1254.74	AC
5270	5657.99	5624.42	1254.15	AC
5271	5665.36	5572.93	1253.15	AC
5272	5620.20	5623.43	1254.21	AC
5273	5645.30	5624.83	1254.24	AC
5274	5685.30	5625.16	1253.60	AC
5275	5716.04	5627.00	1254.16	AC
5276	5789.18	5645.73	1254.72	AC
5277	5795.56	5624.83	1254.62	TOP
5278	5725.59	5605.71	1254.13	TOP
5279	5698.97	5574.36	1254.23	TOP
5280	5707.25	5525.19	1253.34	TOP

MYRTLE DRAINAGE STUDY/EAST OF 16TH STREET

Project: mari0018 Thu Oct 10 09:36:33 1996

Current Coordinate Listing (All)

Point	Northing	Easting	Elevation	Description
5281	5752.63	5530.19	1253.82	TOP
5282	5740.90	5587.95	1254.06	TOP
5283	5813.83	5611.85	1254.40	TOP
5284	5805.45	5620.25	1252.83	TOE
5285	5730.15	5596.00	1252.42	TOE
5286	5720.72	5577.09	1251.82	TOE
5287	5724.60	5526.88	1251.39	TOE
5288	5730.40	5505.95	1252.75	TOP
5289	5729.59	5507.20	1251.50	INVERT
5290	5687.68	5524.85	1252.18	T/C@B/C
5291	5687.00	5524.75	1251.68	GUTTER
5292	5662.25	5524.02	1252.25	AC
5293	5647.62	5524.13	1251.93	GUTTER
5294	5646.91	5524.00	1252.37	T/C@B/C
5295	5639.57	5525.09	1252.58	GROUND SHOT
5296	5339.01	5322.77	1251.28	CHECK SHOT
5297	5625.29	5782.62	1255.60	CHECK SHOT
5298	5718.99	4917.68	1239.47	GROUND SHOT
5299	5714.02	4923.93	1241.28	GROUND SHOT
5300	5769.78	4922.54	1240.12	GROUND SHOT
5301	5773.38	4918.86	1239.45	GROUND SHOT
5302	5790.89	4919.19	1239.41	GROUND SHOT
5303	5797.14	4947.54	1240.53	GROUND SHOT
5304	5770.23	4937.37	1240.72	GROUND SHOT
5305	5775.33	4923.57	1239.49	CONC FLATWORK
5306	5775.01	4940.47	1239.95	CONC FLATWORK
5307	5775.03	4940.72	1239.94	CONC FLATWORK
5308	5779.83	4947.93	1240.38	CONC FLATWORK
5309	5770.02	4947.10	1240.43	CONC FLATWORK
5310	5750.55	4946.76	1240.55	GUTTER
5311	5750.48	4946.20	1241.05	T/C@B/C
5312	5701.16	4945.42	1241.69	T/C@B/C
5313	5701.12	4945.79	1241.15	GUTTER
5314	5616.61	5008.29	1242.45	GUTTER
5315	5616.60	5008.95	1242.88	T/C@B/C
5316	5654.32	5009.22	1242.03	CONC FLATWORK
5317	5691.40	5009.83	1241.69	CONC FLATWORK
5318	5731.19	5010.52	1241.47	GUTTER
5319	5731.14	5010.71	1241.94	T/C@B/C
5320	5751.31	5010.97	1241.25	GUTTER
5321	5751.21	5011.60	1241.30	T/C@B/C
5322	5691.99	5045.03	1243.26	GUTTER
5323	5692.58	5045.47	1243.74	T/C@B/C
5324	5671.08	5045.39	1243.53	AC
5325	5652.46	5044.26	1243.24	GUTTER
5326	5651.43	5043.89	1243.67	T/C@B/C
5327	5632.25	5045.38	1244.63	GROUND SHOT
5328	5632.00	5113.47	1245.19	GROUND SHOT
5329	5651.00	5114.25	1244.89	T/C@B/C

MYRTLE DRAINAGE STUDY/EAST OF 16TH STREET

Project: mari0018 Thu Oct 10 09:36:35 1996

Current Coordinate Listing (All)

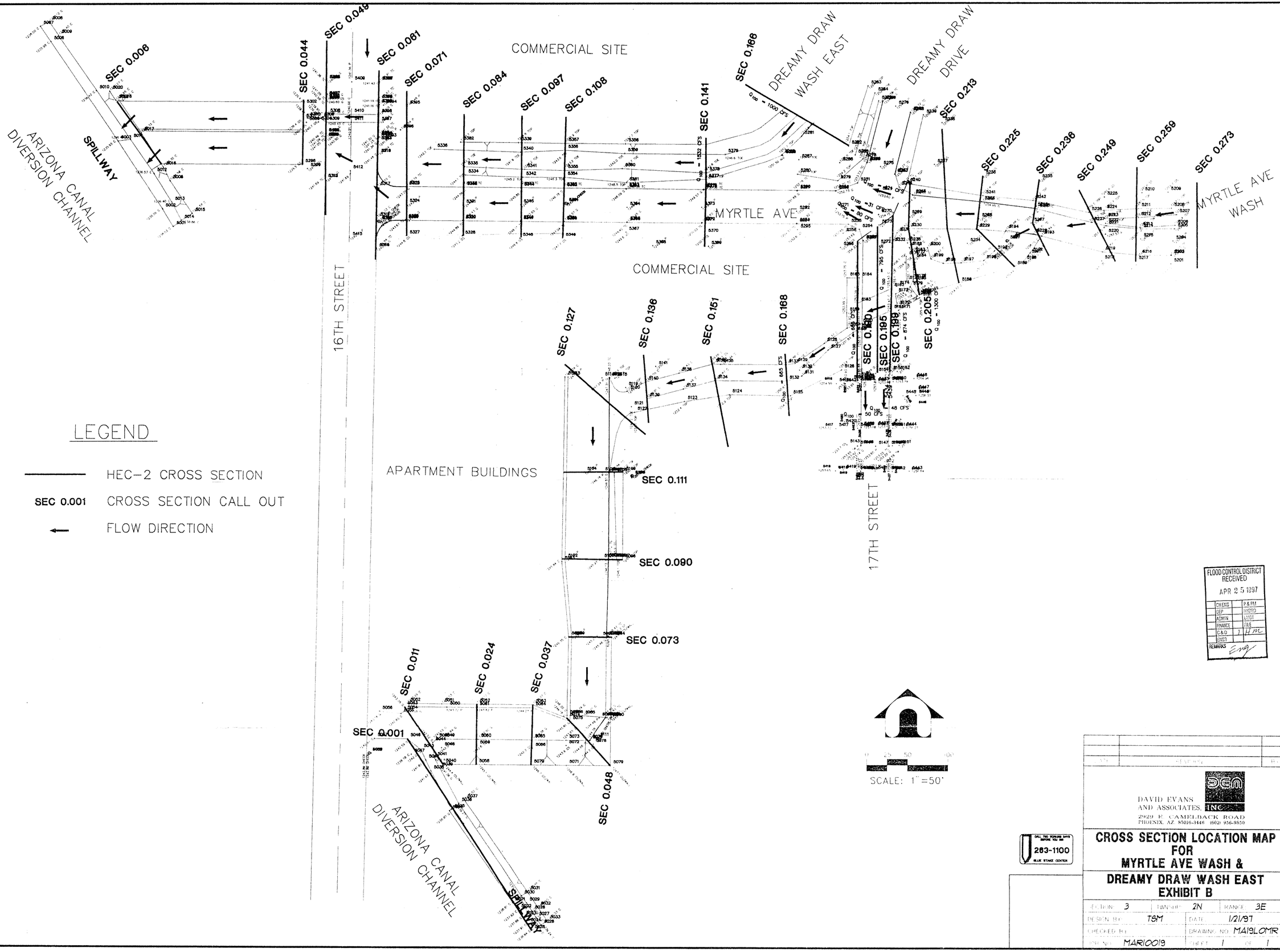
Point	Northing	Easting	Elevation	Description
5330	5651.57	5114.25	1244.43	GUTTER
5331	5670.11	5114.90	1244.82	AC
5332	5691.48	5115.87	1244.56	GUTTER
5333	5691.94	5115.83	1245.04	T/C@B/C
5334	5706.53	5117.44	1244.14	TOP
5335	5716.23	5116.74	1242.00	TOE
5336	5737.43	5079.47	1242.08	TOE
5337	5625.30	5782.63	1255.62	CHECK SHOT
5338	5650.22	5011.42	1242.37	CHECK SHOT
5339	5745.30	5182.68	1244.62	TOP
5340	5733.95	5184.81	1241.87	TOE
5341	5713.04	5189.83	1242.24	TOE
5342	5703.87	5188.19	1245.20	TOP
5343	5691.30	5185.73	1246.32	T/C@B/C
5344	5690.72	5185.89	1245.86	GUTTER
5345	5670.54	5185.17	1246.19	AC
5346	5650.88	5184.95	1245.65	GUTTER
5347	5650.20	5184.92	1246.11	T/C@B/C
5348	5629.27	5184.16	1246.61	GROUND SHOT
5349	5629.16	5236.74	1247.69	GROUND SHOT
5350	5649.62	5238.24	1247.04	T/C@B/C
5351	5650.35	5238.36	1246.57	GUTTER
5352	5690.24	5238.52	1246.76	GUTTER
5353	5690.78	5238.56	1247.26	T/C@B/C
5354	5703.83	5239.09	1246.27	TOP
5355	5711.85	5239.63	1243.24	TOE
5356	5736.18	5239.87	1243.59	TOE
5357	5744.41	5240.80	1245.85	TOP
5358	5743.82	5314.32	1247.68	TOP
5359	5732.21	5313.63	1242.01	TOE
5360	5713.84	5310.35	1242.71	TOE
5361	5696.93	5315.49	1248.49	TOP
5362	5689.97	5315.12	1248.59	T/C@B/C
5363	5689.37	5315.20	1248.08	GUTTER
5364	5667.09	5316.15	1248.32	AC
5365	5649.46	5316.34	1247.95	GUTTER
5366	5648.83	5316.43	1248.40	T/C@B/C
5367	5636.77	5315.01	1249.56	GROUND SHOT
5368	5619.94	5347.90	1249.40	AC
5369	5619.00	5416.01	1251.35	AC
5370	5634.20	5412.04	1250.01	GROUND SHOT
5371	5647.96	5407.37	1250.03	T/C@B/C
5372	5648.58	5408.07	1249.60	GUTTER
5373	5667.12	5407.72	1249.84	AC
5374	5688.33	5410.09	1249.57	GUTTER
5375	5688.92	5410.40	1250.08	T/C@B/C
5376	5688.86	5410.36	1250.06	T/C@B/C
5377	5700.89	5412.88	1248.49	TOP
5378	5708.76	5413.66	1242.81	TOE

MYRTLE DRAINAGE STUDY/EAST OF 16TH STREET

Project: mari0018 Thu Oct 10 09:36:37 1996

Current Coordinate Listing (All)

Point	Northing	Easting	Elevation	Description
5379	5730.97	5436.50	1246.63	TOE
5380	5650.24	5011.54	1242.36	CHECK SHOT
5381	5672.06	5240.74	1247.11	CHECK SHOT
5382	5745.97	5111.86	1243.66	TOP
5383	5746.26	5011.13	1241.82	T/CaB/C
5384	5752.58	5011.34	1241.32	T/CaB/C
5385	5791.16	5011.99	1241.17	T/CaB/C
5386	5796.93	5012.17	1241.67	T/CaB/C
5387	5819.15	5012.57	1241.91	T/CaB/C
5388	5819.20	5011.76	1241.43	GUTTER
5389	5796.68	5011.58	1241.18	GUTTER
5390	5791.72	5011.46	1241.16	GUTTER
5391	5751.55	5010.68	1241.30	GUTTER
5392	5746.41	5010.55	1241.34	GUTTER
5393	5749.71	5016.87	1241.81	AC
5394	5790.67	5017.21	1241.70	AC
5395	5789.66	5045.76	1242.48	AC
5396	5760.56	5038.02	1241.84	AC
5397	5769.79	5011.09	1241.14	CONC FLATWORK
5398	5779.32	5011.26	1241.09	CONC FLATWORK
5399	5820.66	4947.10	1241.36	T/CaB/C
5400	5800.81	4946.81	1241.09	T/CaB/C
5401	5795.74	4946.81	1240.58	T/CaB/C
5402	5755.79	4946.21	1240.49	T/CaB/C
5403	5750.45	4946.05	1241.09	T/CaB/C
5404	5750.52	4946.69	1240.59	GUTTER
5405	5755.71	4946.78	1240.50	GUTTER
5406	5795.89	4947.48	1240.59	GUTTER
5407	5800.98	4947.55	1240.60	GUTTER
5408	5820.76	4947.86	1240.84	GUTTER
5409	5819.17	4978.21	1241.36	AC
5410	5779.62	4977.62	1240.86	CONC FLATWORK
5411	5769.82	4977.76	1240.91	CONC FLATWORK
5412	5711.41	4976.37	1241.69	AC
5413	5630.14	4975.42	1242.85	AC
5414	5672.06	5240.72	1247.10	CHECK SHOT



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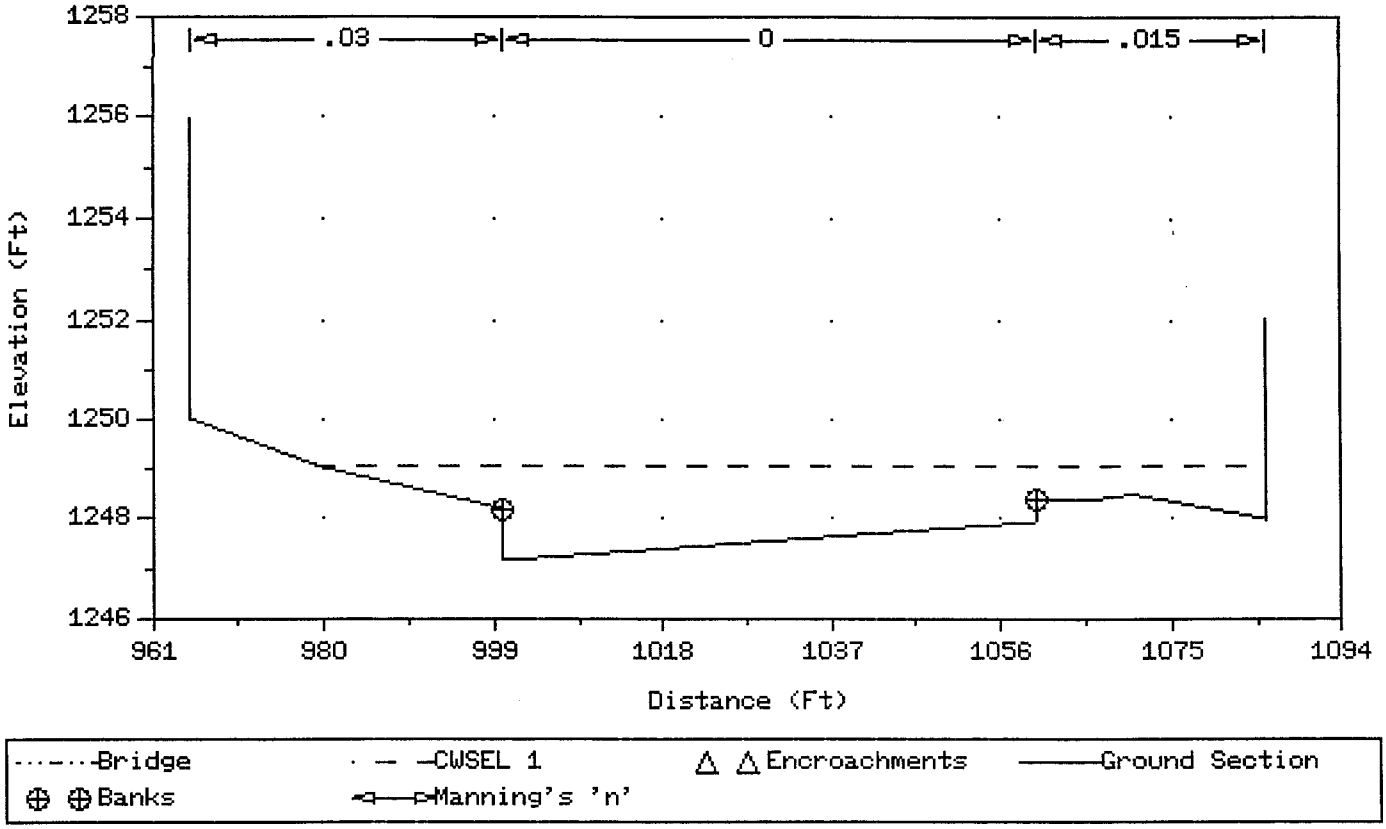
CROSS SECTION LOCATION MAP FOR MYRTLE AVE WASH & DREAMY DRAW WASH EAST EXHIBIT B

SECTION 3	TWNSHP 2N	RANGE 3E	
DESIGN BY TSM		DATE 1/21/97	
CHECKED BY		DRAWING NO MA19LOMR	
JOB NO MAR10019		SHEET 1 OF 1	

MAR10019 PH014 04/25/97 13:21:15 Tsm: S:\CAD\MAR10019\M-19LOMR

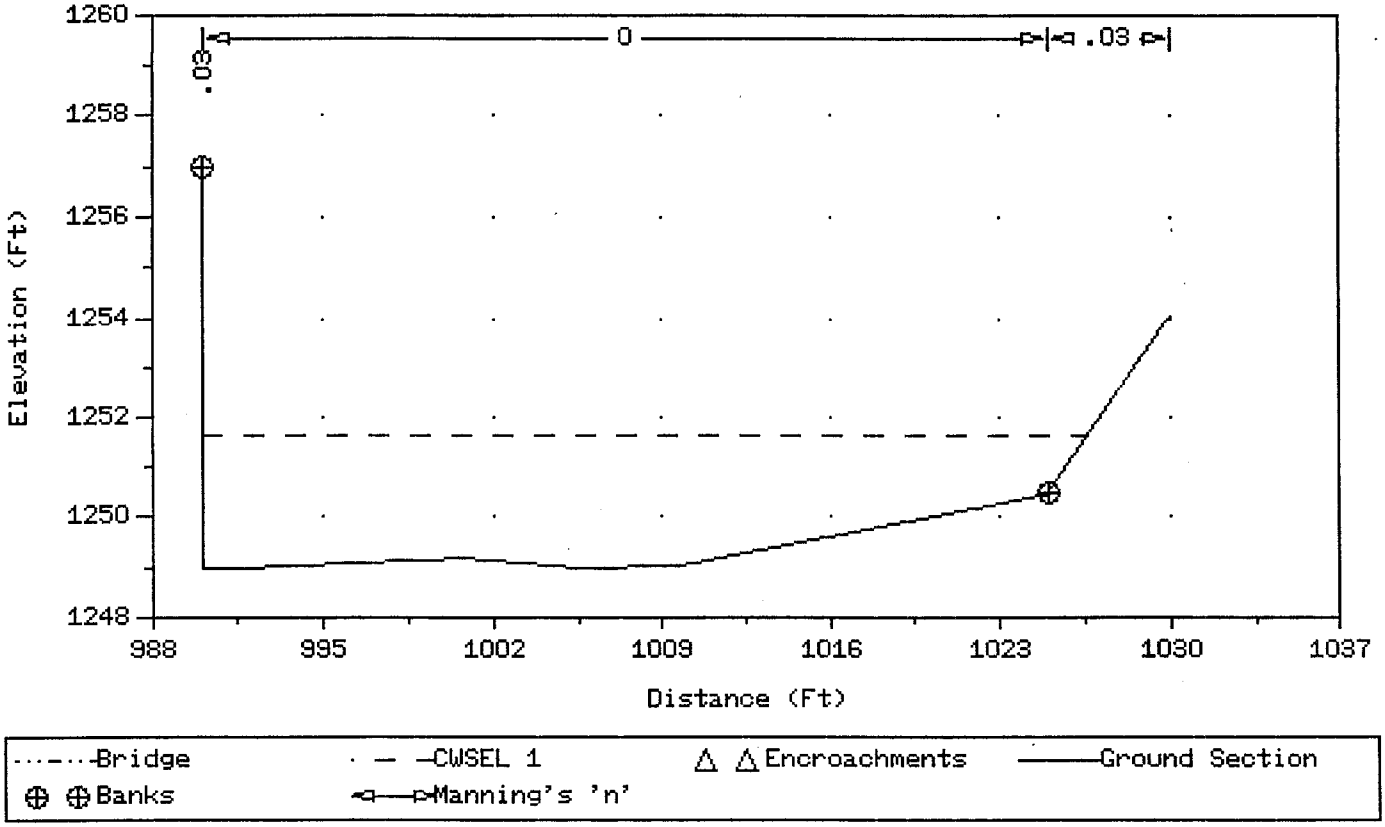
100 YEAR PROFILE RUN

Cross-Section .127



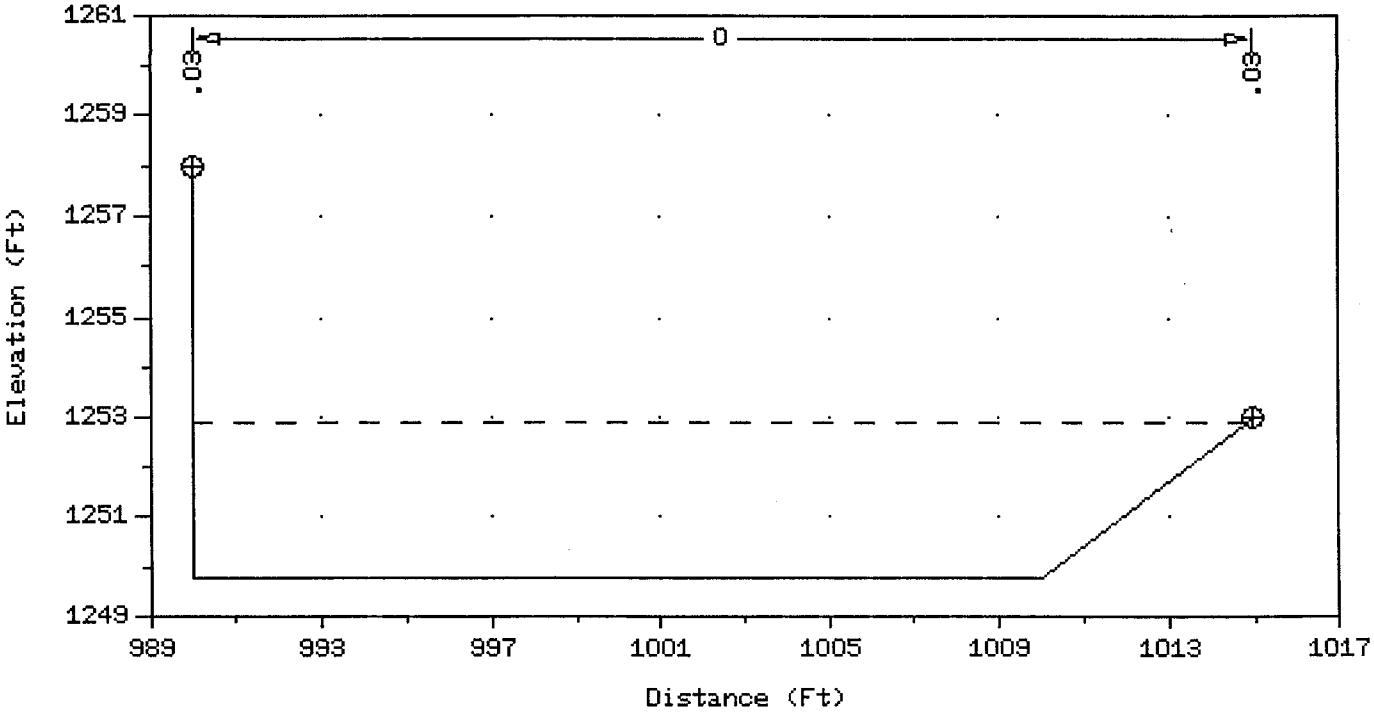
100 YEAR PROFILE RUN

Cross-Section .136



100 YEAR PROFILE RUN

Cross-Section .151

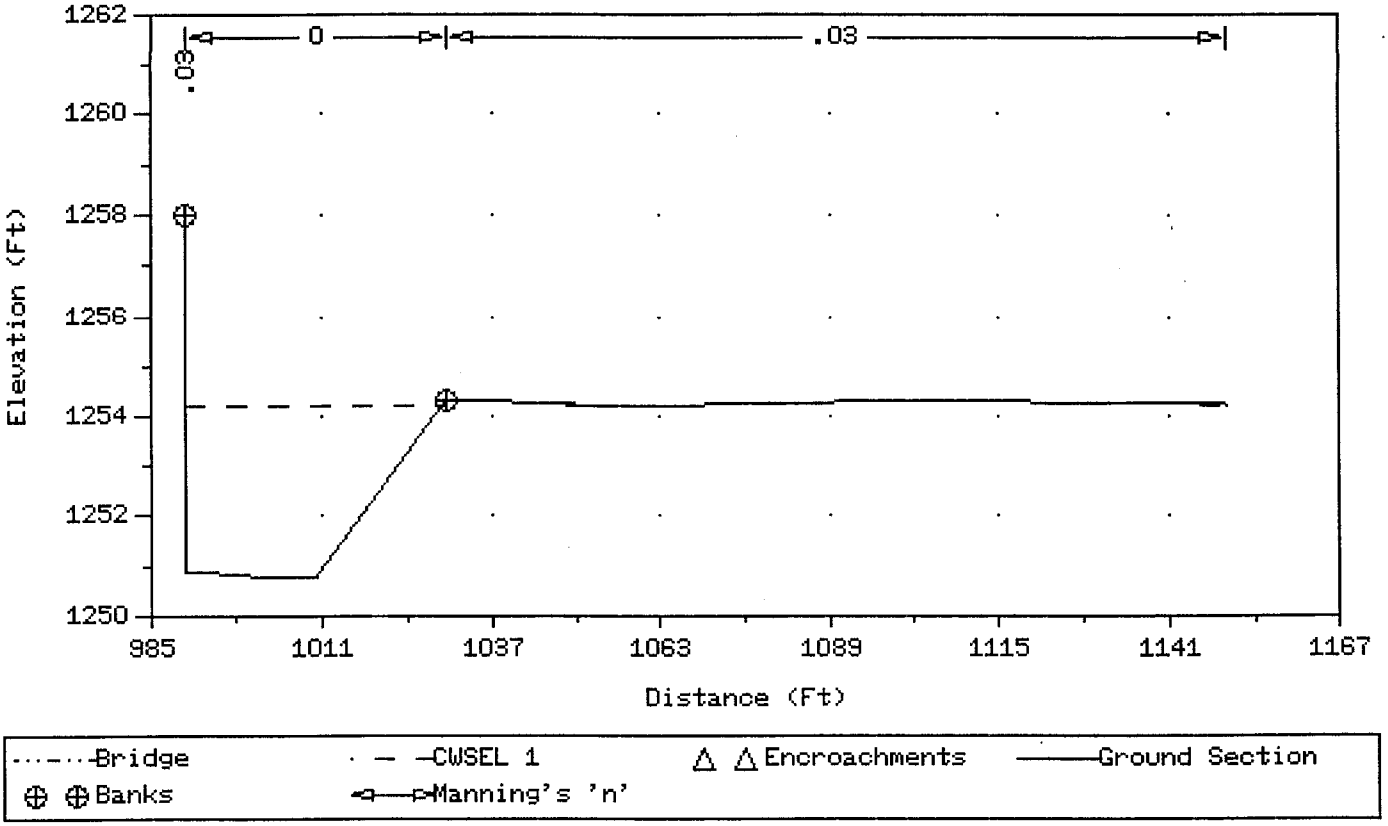


Bridge | CWSEL 1 | Encroachments | Ground Section

Banks | Manning's 'n'

100 YEAR PROFILE RUN

Cross-Section .168



FEDERAL EMERGENCY MANAGEMENT AGENCY **CHANNELIZATION FORM**	O.M.B. Burden No. 3067-0148 Expires July 31, 1997	FEMA USE ONLY

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 1.75 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, S.W., Washington, DC 20472; and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503.

Community Name: Phoenix

Flooding Source: Myrtle Avenue Watershed

Project Name/Identifier: Myrtle Avenue

1. EXTENT OF CHANNELIZATION

Downstream limit: .127

Upstream limit: .190

2. CHANNEL DESCRIPTION

1. Describe the inlet to the channel:
   Roadway dip section

2. Briefly describe the shape of the channel *(both cross sectional and planimetric configuration)* and its lining *(channel bottom and sides)*:
   20' concrete bottom, 2' to 3' landscape wall on right side, approximate 4 foot high embankment and perimeter wall along left side of channel

3. Describe the outlet from the channel:
   Spills out onto asphalt parking area

4. The channelization includes:

   __ Levees *(Attach Levee Form)*
   __ Drop structures
   __ Superelevated sections
   X Transitions in cross sectional geometry
   __ Debris basin/detention basin
   __ Energy dissipater
   __ Other:

5. Attach the following:

   a. Certified engineering drawings showing channel alignment and locations of inlet, outlet, and items checked in item 4 Not Available

   b. Typical cross sections and profiles of channel banks and invert Not Available

3. HYDRAULIC CONSIDERATIONS 'See explanation sheet'

1. What is the 100-year discharge? ..... 665 cfs

N/A no as-builts

2. Do the cross sections in the hydraulic model match the typical cross sections in the plans?: ..... __ Yes __ No

3. Are the channel banks higher than the 100-year flood elevations everywhere? ..... __ Yes X No

4. Are the channel banks higher than the 100-year flood energy grade lines everywhere? ..... __ Yes X No

5. Is the land on both sides of the channel above the adjacent 100-year flood elevation at all points along the channel? ..... __ Yes X No

6. What is the range of freeboard? ..... 0 feet

7. What is the lining type? (both bottom and sides): Concrete bottom, side are masonry walls.

Explain how the channel lining prevents erosion and maintains channel stability *(attach documentation)*:

No erosion due to concrete bottom.

9. What is the design elevation in the channel based on?

X Subcritical flow
__ Critical flow
__ Supercritical flow
__ Energy grade line

Is 100-year flood profile based on the above type of flow? ..... X Yes __ No

If no, explain:

10. Is there the potential for a hydraulic jump at the following locations?

Inlet to channel ..... __ Yes X No
Outlet of channel ..... __ Yes X No
At Drop Structures ..... __ Yes X No
At Transitions ..... __ Yes X No
Other locations. Explain:

If the answer to any of the above is yes, please explain how the hydraulic jump is controlled and the effects of the hydraulic jump on the stability of the channel.

Explain:

Questions 3, 4, & 5 - Runoff isn't contained due to overtopping on right side of channel; therefore, area will remain in floodplain.

4. SEDIMENT TRANSPORT CONSIDERATIONS 'See explanation sheet'

1. A. Is there any indication from historical records that sediment transport (including scour and deposition) can affect the 100-year water-surface elevations and/or the capacity of the channel? ..... __ Yes __ No

   B. Based on the conditions of the watershed and stream bed, is there a potential for sediment transport (including scour and deposition) to affect the 100-year water-surface elevations and/or the capacity of the channel? ..... __ Yes __ No

2. If the answer to either 1A or 1B is yes:

   A. What is the estimated sediment (bed) load?

   _____ cfs (attach gradation curve)

   Explain method used to estimate load:

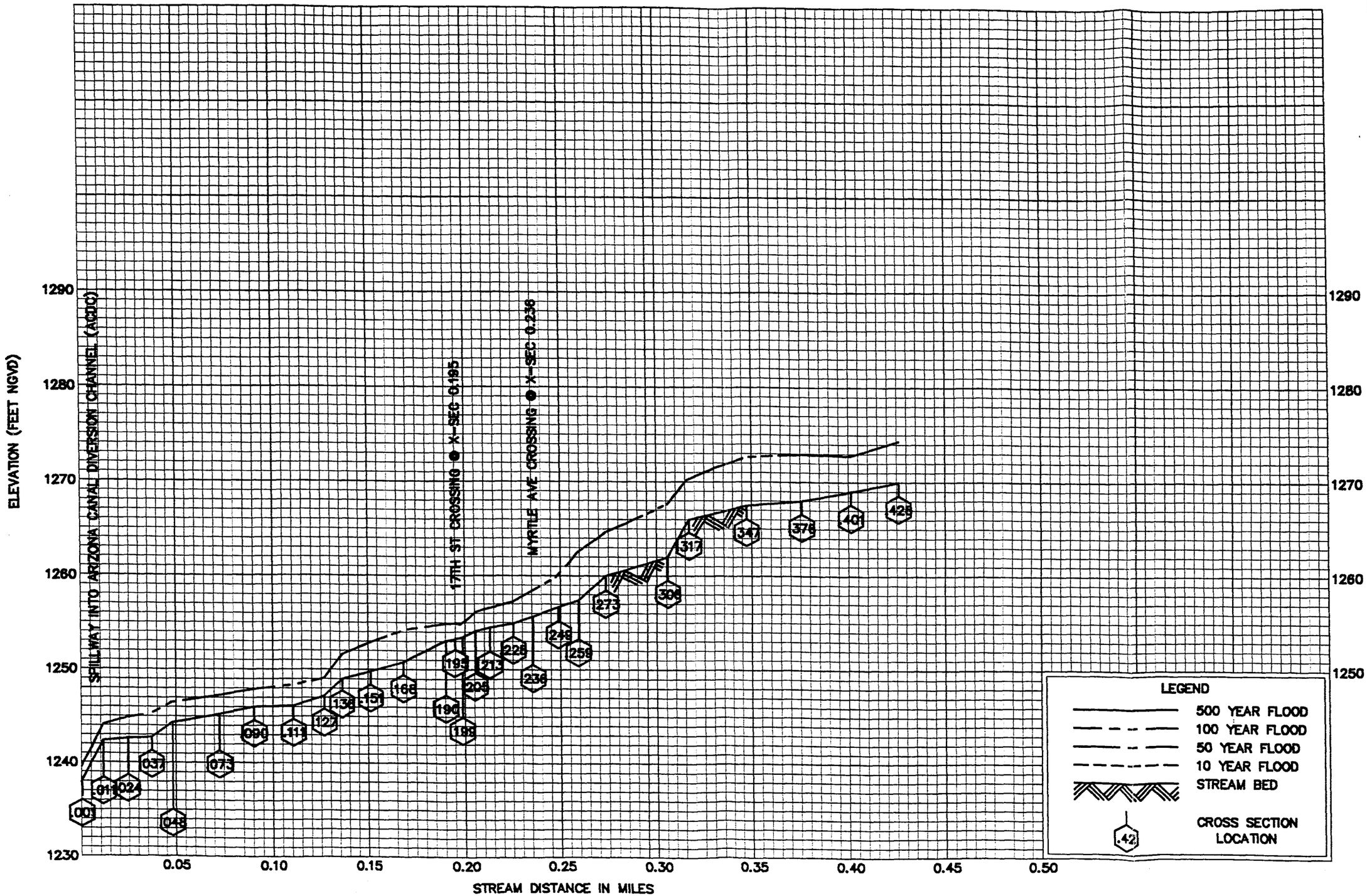
   B. Is the 100-year flood velocity anywhere within the channel less than the 100-year flood velocity of the inlet? ..... __ Yes __ No

   C. Will sediment accumulate anywhere within the channel? ..... __ Yes __ No

   D. Will deposition or scour occur at or near the inlet? ..... __ Yes __ No

   E. Will deposition or scour occur at or near the outlet? ..... __ Yes __ No

Attach documentation showing affects on the Hydrologic and Hydraulic Analyses



FLOOD PROFILES

MYRTLE AVENUE WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

MAR 19 PH014 01/21/97 09:58:18 TSM S:\CA ARI0019\MA19PROM

1670 F

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 1670 OF 4350

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY, UNINCORPORATED AREAS	040037	1670	E
PARADISE VALLEY, TOWN OF	040049	1670	E
PHOENIX, CITY OF	040051	1670	E

LOMR 8-7-96

MAP NUMBER
04013C1670 E

MAP REVISED:
SEPTEMBER 30, 1995

Federal Emergency Management Agency

FIRM PANEL

LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

- **ZONE A** — No base flood elevations determined.
- **ZONE AE** — Base flood elevations determined.
- **ZONE AH** — Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- **ZONE AO** — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE A99** — To be protected from 100-year flood by Federal flood protection system under construction; no base elevations determined.
- **ZONE V** — Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- **ZONE VE** — Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- **ZONE X** — Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

- **ZONE X** — Areas determined to be outside 500-year flood plain.
- **ZONE D** — Areas in which flood hazards are undetermined.

Flood Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.

513 — Base Flood Elevation Line; Elevation in Feet*

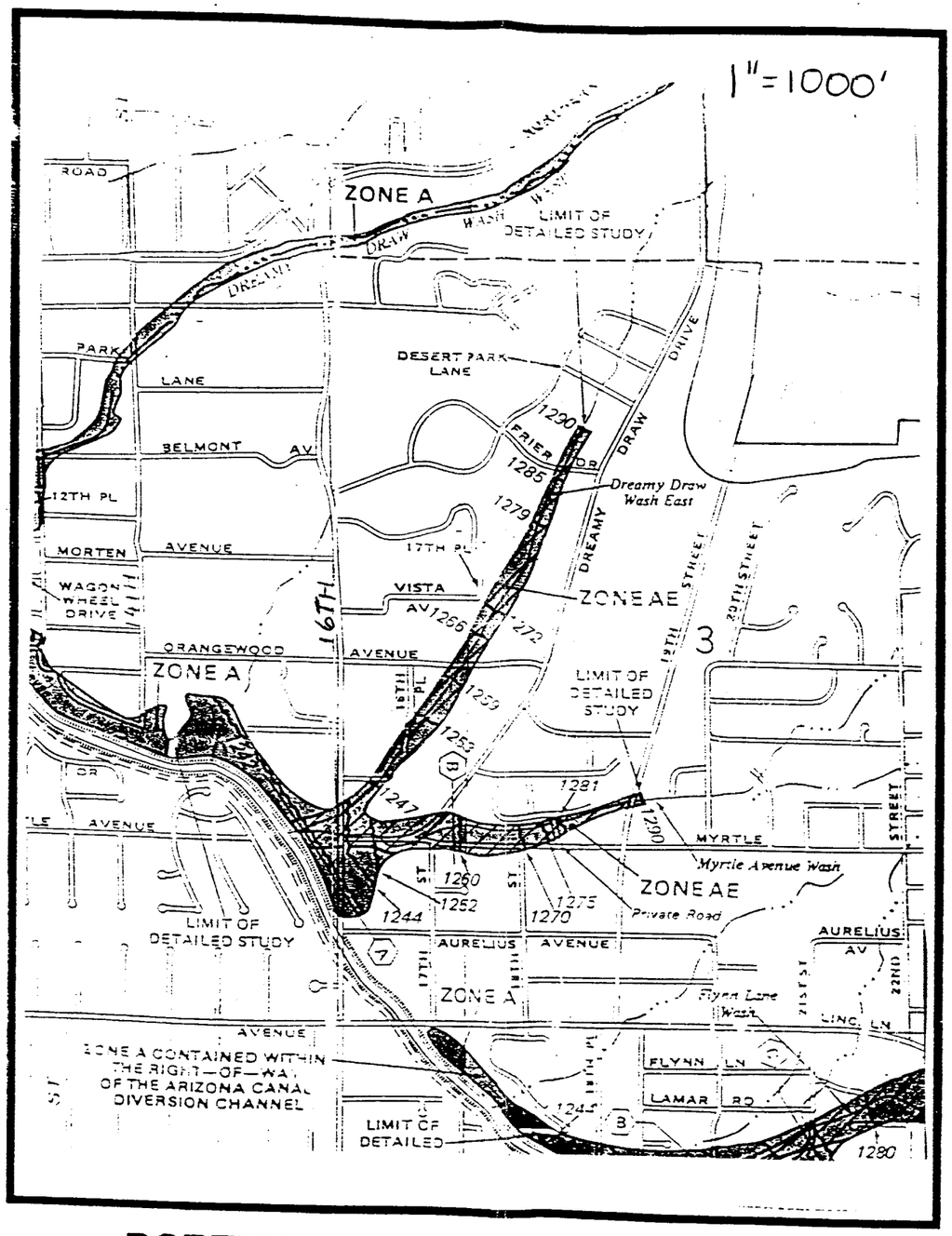
D — D — Cross Section Line

(EL 987) — Base Flood Elevation in Feet Where Uniform Within Zone*

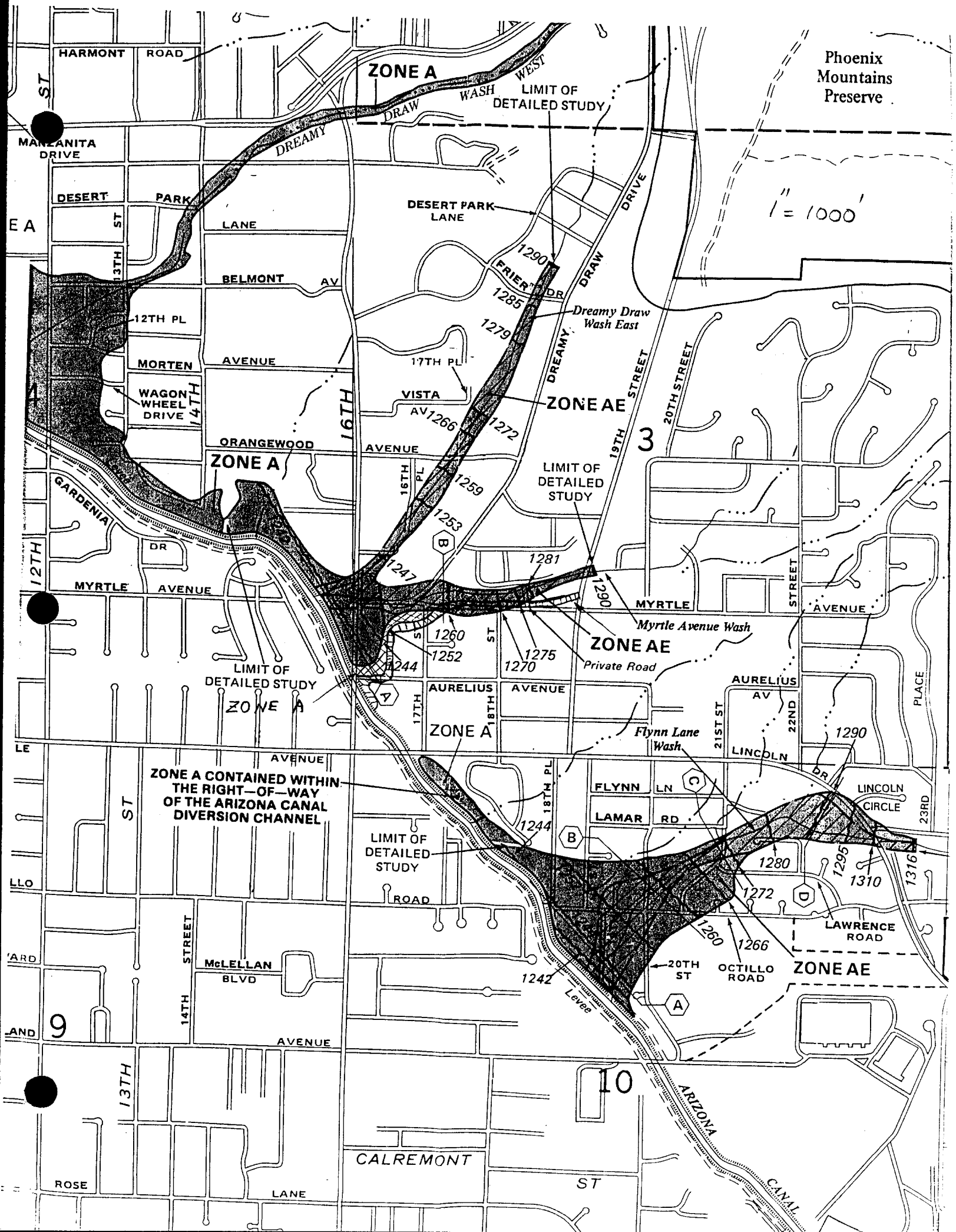
RM7X — Elevation Reference Mark

*Referenced to the National Geodetic Vertical Datum of 1929

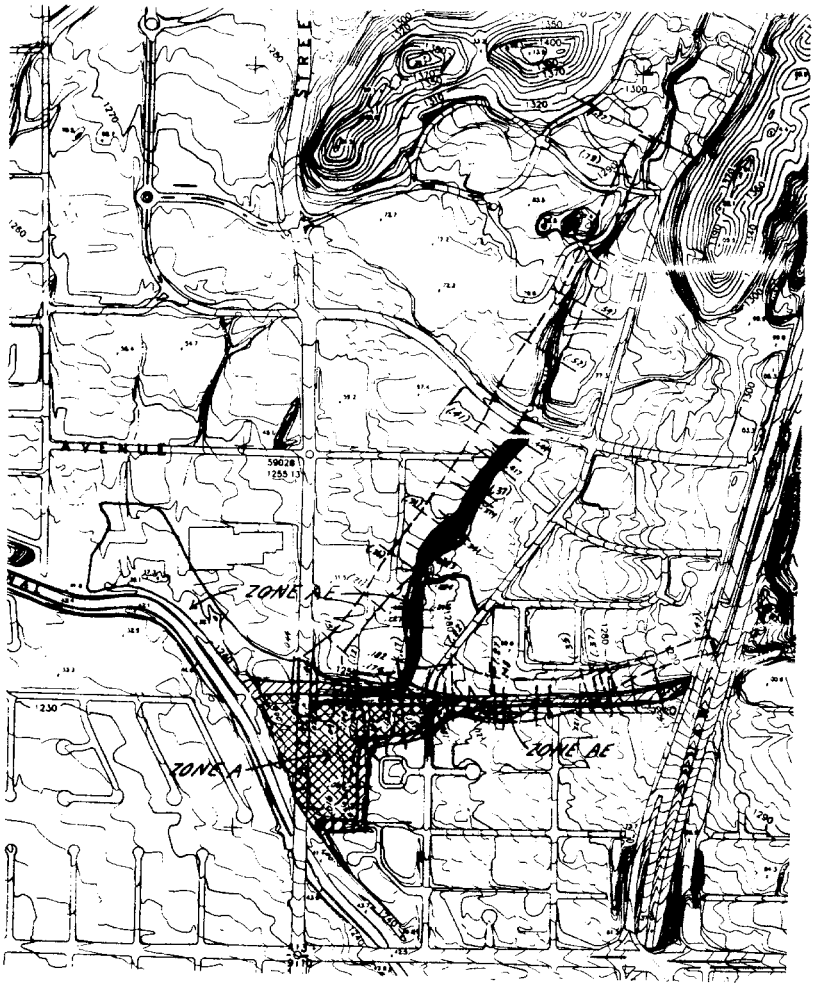
MAP LEGEND

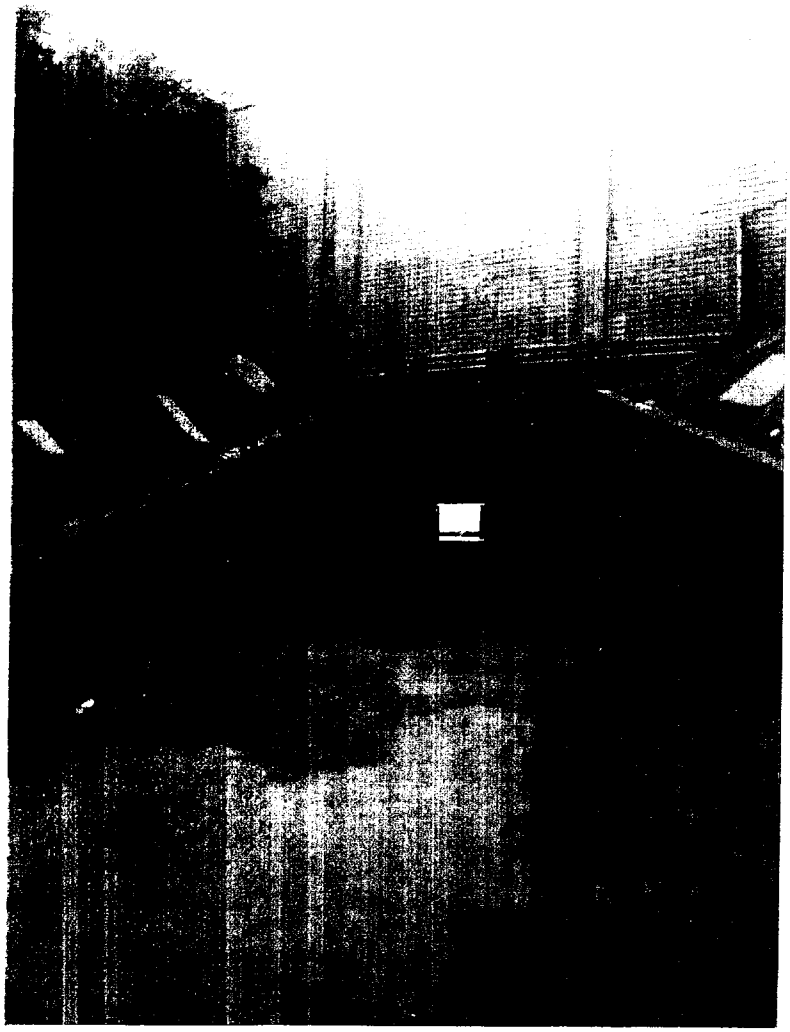


PORTION OF PANEL SHOWING SITE


Phoenix Mountains Preserve
1" = 1000'
ZONE A
DREAMY DRAW WASH WEST
LIMIT OF DETAILED STUDY
HARMONT ROAD
MANZANITA DRIVE
DESERT PARK LANE
BELMONT AV
12TH PL
MORTEN AVENUE
WAGON WHEEL DRIVE
14TH
16TH
17TH PL
VISTA AV
ORANGEWOOD AVENUE
GARDENIA DR
MYRTLE AVENUE
Dreamy Draw Wash East
ZONE AE
19TH STREET
20TH STREET
Myrtle Avenue Wash
Private Road
AURELIUS AVENUE
Flynn Lane Wash
LINCOLN DR
LINCOLN CIRCLE
FLYNN LN
LAMAR RD
ZONE A CONTAINED WITHIN THE RIGHT—OF—WAY OF THE ARIZONA CANAL DIVERSION CHANNEL
McLELLAN BLVD
LAWRENCE ROAD
20TH ST
OCTILLO ROAD
Levee
ARIZONA CANAL
CALREMONT ST
ROSE LANE
1290
1285
1279
1266
1272
1259
1253
1247
1281
1260
1252
1244
1275
1270
1280
1295
1310
1316
1242
9
10

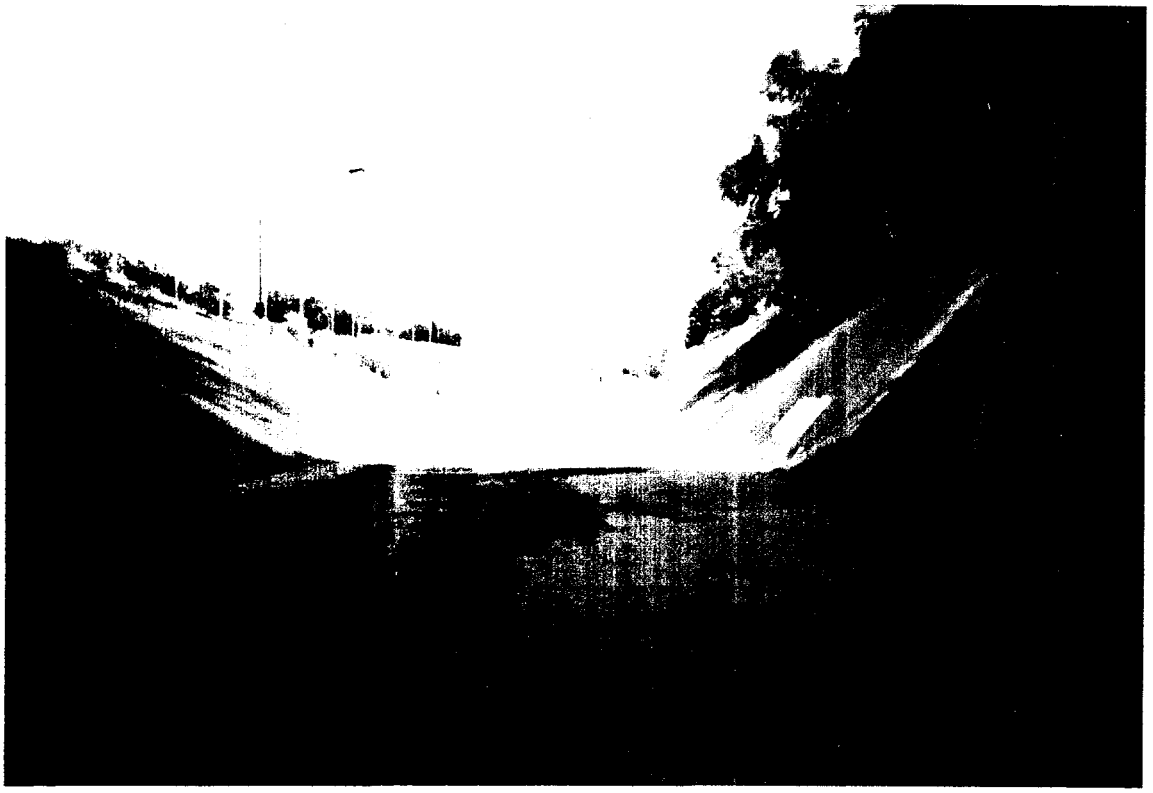
1" = 1000'



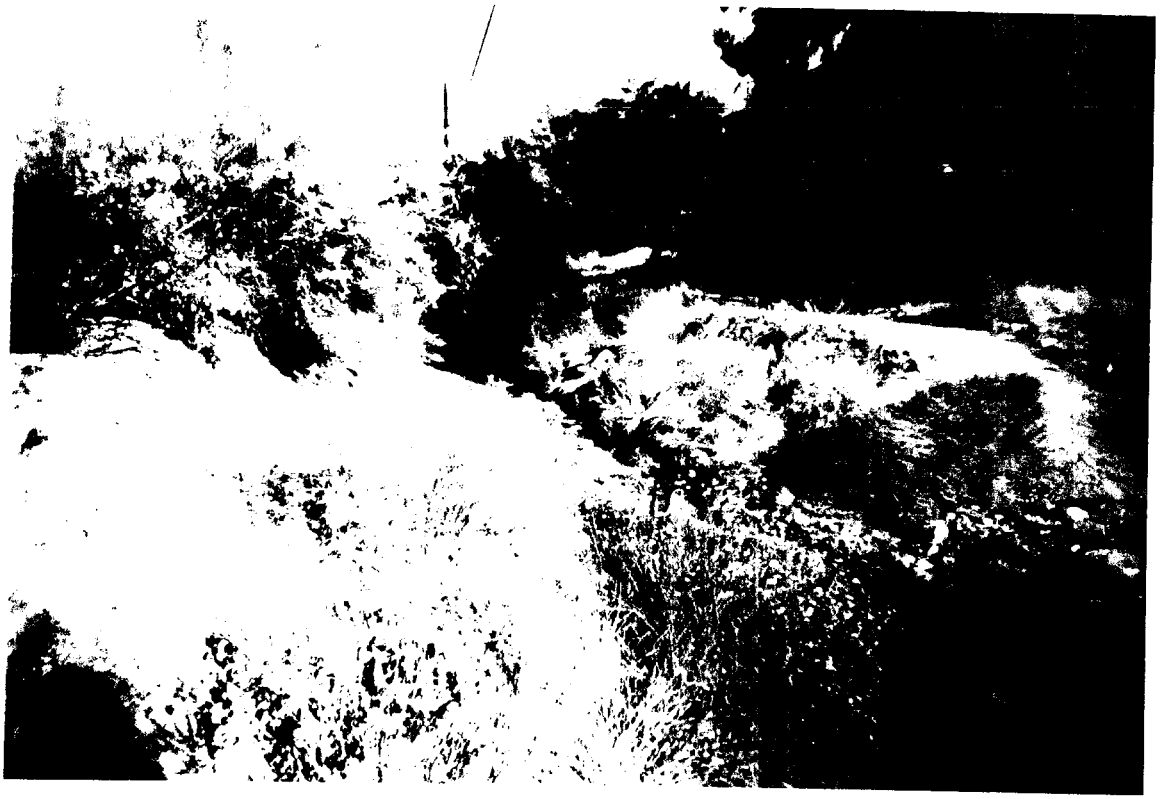


MYRTLE AVENUE WASH, CULVERT UNDER FREEWAY
APPROXIMATELY CROSS SECTION .426
LOOKING EAST

MYRTLE AVENUE WASH
APPROXIMATELY CROSS SECTION .347
LOOKING WEST



MYRTLE AVENUE WASH
APPROXIMATELY CROSS SECTION .426
LOOKING WEST



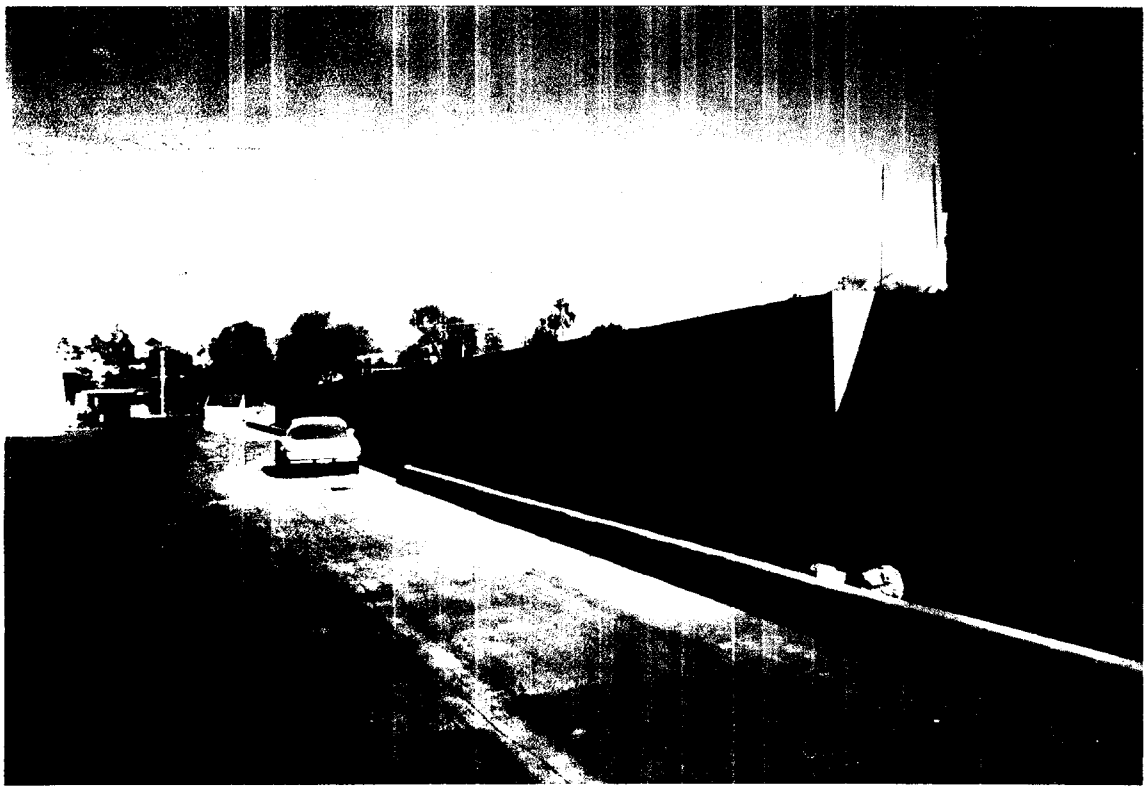
MYRTLE AVENUE WASH
APPROXIMATELY CROSS SECTION .317
LOOKING WEST

MYRTLE AVENUE & 17TH STREET INTERSECTION
APPROXIMATELY CROSS SECTION .213
LOOKING WEST, FLOW SPLITS TO WEST & SOUTHWEST

MYRTLE AVENUE WASH .190
LOOKING WEST (BEFORE CONSTRUCTION OF WALL)

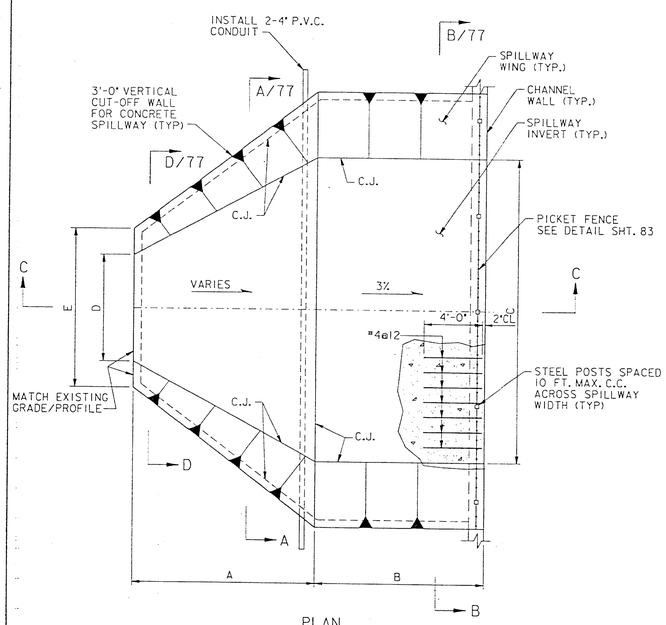
MYRTLE AVENUE WASH
APPROXIMATELY .190
LOOKING WEST (AFTER CONSTRUCTION OF WALL)

PARKING AREA BEHIND APARTMENTS
APPROXIMATELY CROSS SECTION .090
LOOKING NORTH (PRIOR TO CONSTRUCTION OF WALL)



PARKING AREA BEHIND APARTMENTS
APPROXIMATELY CROSS SECTION .090
LOOKING NORTH (AFTER CONSTRUCTION OF WALL)

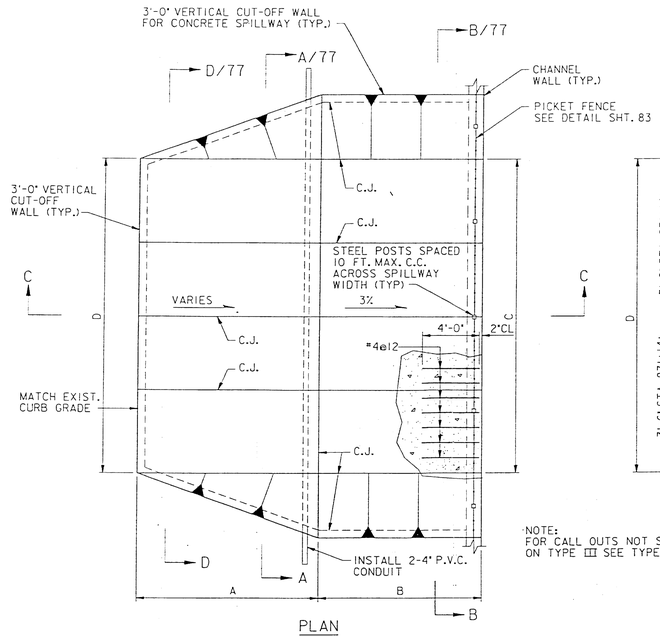
MYRTLE AVENUE SPILLWAY INTO ACDC
LOOKING SOUTHEAST



PLAN

TYPE I OVERFLOW SPILLWAY

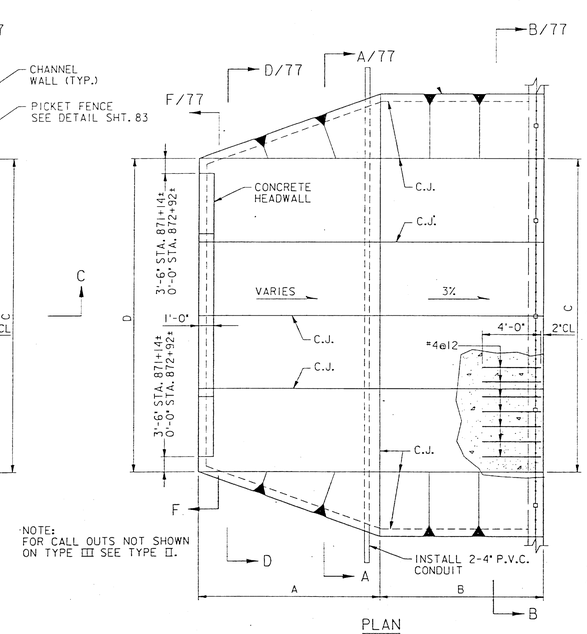
N.T.S.



PLAN

TYPE II OVERFLOW SPILLWAY

N.T.S.



PLAN

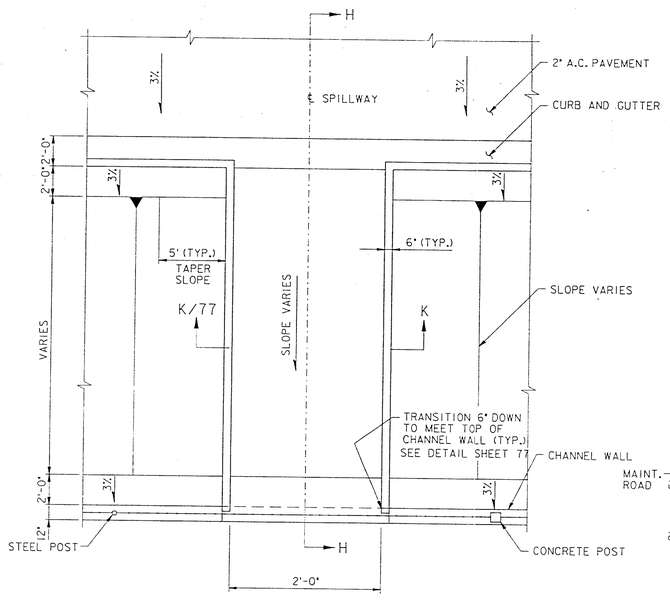
TYPE III OVERFLOW SPILLWAY

N.T.S.

OVERFLOW SPILLWAY TABULATION										
SPILLWAY No.	LOCATION SHT No.	LOCATION ℄ STA.	TYPE	DIST. A	DIST. B	DIST. C	DIST. D	DIST. E	ELEV. Y	ELEV. Z
1	15	1003+65±	II	12	15	20	20	-	1247.05	1235.39
2	16	995+25±	II	7	15	20	20	-	1246.29	1225.79
3	17	983+13±	II	10	15	25	25	-	1244.82	1224.82
4	17	977+56±	II	10	15	35	35	-	1245.37	1224.37
5	20	945+32±	II	10	15	40	40	-	1242.80	1221.80
6	24	883+20±	II	15	10	70	53	-	1240.33	1216.83
7	25	878+48±	II	10	15	20	12	-	1239.99	1216.49
8	25	876+23±	II	10	15	20	20	-	1239.93	1216.43
9	25	872+92±	III	10	15	20	5	-	1239.83	1216.33
10	25	871+14±	III	10	15	20	16	-	1239.77	1216.27
11	25	868+60±	II	10	15	28	28	-	1239.70	1216.20
12	26	861+60±	I	10	15	20	4	-	1239.49	1215.99
13	26	856+35±	I	10	15'L / 3'R	36	28	32	1239.33	1215.83
14	27	849+14±	I	10	15	35	35	37	1239.11	1215.61
15	27	843+16±	I	12	15	25	5	9	1238.43	1215.43
16	28	839+00±	I	5	15	25	3	14	1238.31	1215.31
17	28	835+25±	I	7	15	25	2	15	1238.20	1215.20
18	29	824+82±	I	10	15	20	4	8	1237.88	1214.88
19	29,30	814+00±	II	8-14	15	280	280	-	1236.06	1214.56
20	30	810+32±	II	6	15	20	20	-	1236.95	1214.45
21	30	807+25±	II	4	15	30	30	-	1236.36	1214.36
22	31	800+99±	I	10	15	88	36	40	1236.67	1214.17
23	31,32	791+94±	II	15	38	25	25	-	1235.00	1213.90
24	26	865+10±	I	10	15	10	4	-	1239.59	1216.09

NOTES:

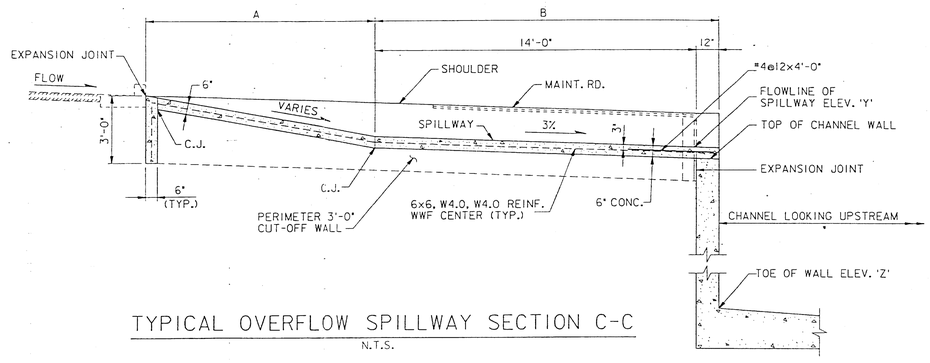
1. FOR IRRIGATION SLEEVES UNDER SPILLWAYS SEE LANDSCAPE PLANS AND PROJECT SPECIFICATIONS.
2. THE CONTRACTION JOINT SPACING OF OVERFLOW SPILLWAY SHALL BE: A UNIFORM MAXIMUM OF 10' CENTER-CENTER PARALLEL TO THE FLOWLINE. AND 20' MAXIMUM CENTER-CENTER PERPENDICULAR TO THE FLOWLINE.
3. FOR PURPOSE OF THIS SHEET ONLY C.J. MEANS CONTRACTION JOINT.
4. FOR GENERAL NOTES AND MISCELLANEOUS DETAILS ---------- SEE SHEET 45.



PLAN

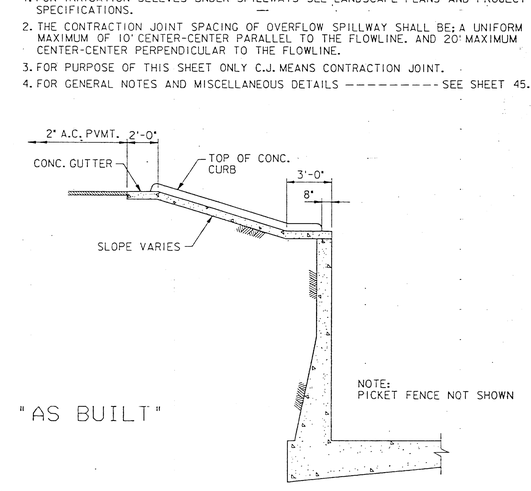
MAINTENANCE ROAD OVERFLOW SPILLWAY

N.T.S.



TYPICAL OVERFLOW SPILLWAY SECTION C-C

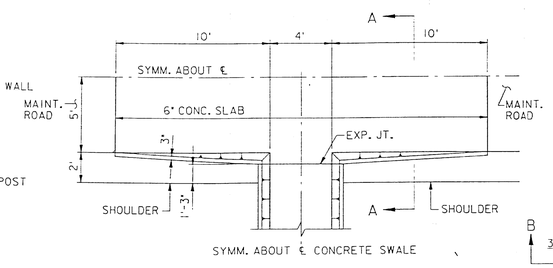
N.T.S.



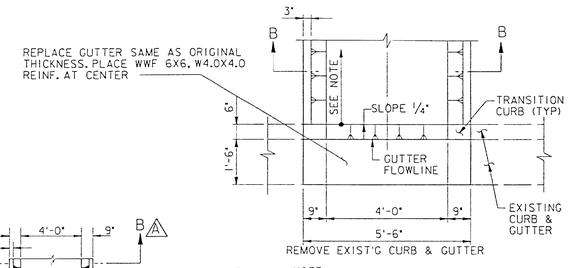
"AS BUILT"

MAINT. RD. OVERFLOW SPILLWAY SECTION H-H

N.T.S.

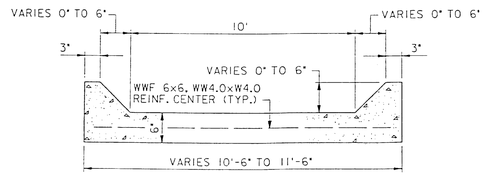


SYMM. ABOUT ℄ CONCRETE SWALE



NOTE:
SWALE PROFILE TO FOLLOW GROUND LINE AND ROAD SURFACE TO TOP OF CHANNEL WALL. MINIMUM SLOPE IS 3%

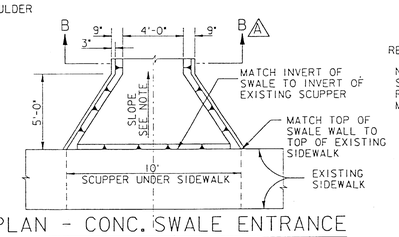
PLAN - CONC. SWALE ENTRANCE AT STATE STREET SHT 31



SECTION A-A

PLAN - THRU MAINT. ROAD

N.T.S.

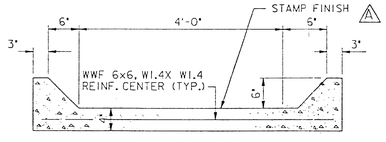


PLAN - CONC. SWALE ENTRANCE AT 20TH STREET SHT 26

N.T.S.

CONCRETE SWALE DETAILS

N.T.S.



SECTION B-B

SCALE: 1/4 IN = 1 FT

DATUM IS NATIONAL GEODETIC VERTICAL DATUM OF 1929

SYMBOL	DESCRIPTIONS	DATE	APPROVAL
A	REVISED SPILLWAY, ADDED SPILLWAY, SWALE DETAIL, AND ADDED LABEL.	7/29/90	SLGJP

REVISIONS

U.S. ARMY ENGINEER DISTRICT ST. LOUIS CORPS OF ENGINEERS

U.S. ARMY ENGINEER DISTRICT LOS ANGELES CORPS OF ENGINEERS

DESIGNED BY: G. LEE

DRAWN BY: R. L. HOLT

CHECKED BY: G. LEE

GILA RIVER BASIN
PHOENIX, ARIZONA AND VICINITY (INCLUDING NEW RIVER)

ARIZONA CANAL DIVERSION CHANNEL
(CUDIA CITY WASH TO DREAMY DRAW, INCLUDING CUDIA CITY WASH SEDIMENT BASIN)

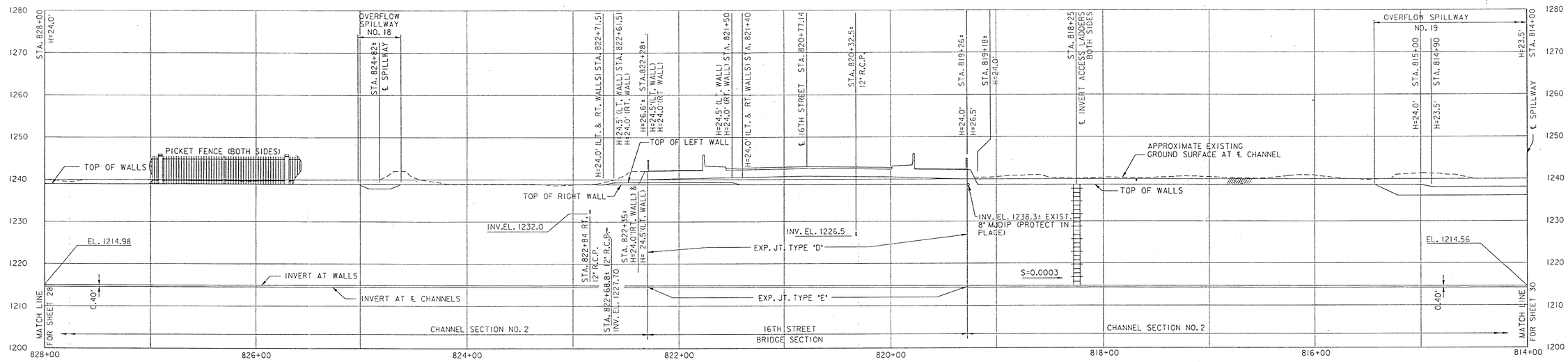
OVERFLOW SPILLWAY DETAILS

SUBMITTED BY:
BOBBY R. HUCHEY
CHIEF, DESIGN BRANCH
ST. LOUIS DISTRICT

SPEC. NO. DACW09-90-B-0029
DISTRICT FILE NO. 252/915 REV"A"

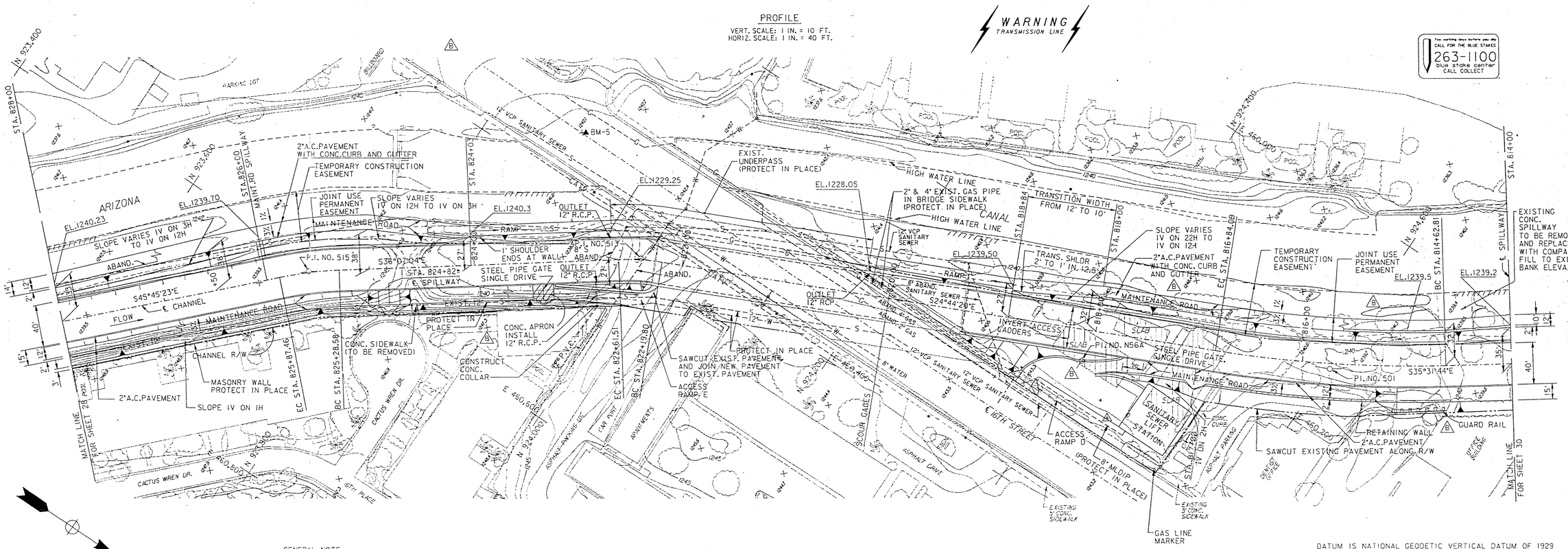
SHEET 76 OF 90 SHEETS

PLOT 4 ACDC76.DGN



PROFILE

VERT. SCALE: 1 IN. = 10 FT.
HORIZ. SCALE: 1 IN. = 40 FT.



GENERAL NOTE

SEE SHEET 14 FOR GENERAL NOTES.

CHANNEL ℄ CURVE DATA				NORTH MAINT. RD. ℄ CURVE DATA
P.I. NO.	515	513	501	N56A
NORTHING	923,739.36	923,995.84	924,602.17	924,399.97
EASTING	460,606.46	460,419.31	460,139.93	460,266.13
Δ	9°38'19"	11°22'44"	10°47'24"	65°30'26"
R	350'	210'	1175'	60'
T	29.51'	20.92'	110.97'	38.60'
L	58.88'	41.71'	221.28'	68.60'
B.C. STA.	825+28.58	822+19.80	814+62.81	817+70.00
E.C. STA.	825+87.46	822+61.51	816+84.09	———

NOTES:

1. FOR MAINTENANCE ROAD AND GATE DETAILS — SEE SHEET 35.
2. FOR PICKET FENCE DETAILS — SEE SHEET 83.
3. FOR STRUCTURAL DETAILS OF CHANNEL — SEE SHEETS 53 THRU 59.
4. FOR MAINTENANCE ROAD ACCESS RAMP DETAILS — SEE SHEET 36.
5. FOR PIPE GATE DETAILS — SEE SHEET 84.
6. FOR SIDE DRAIN DETAILS — SEE SHEET 79.
7. FOR OVERFLOW AND MAINT. RD. SPILLWAY DETAILS — SEE SHEETS 76 & 77.
8. FOR SCOUR GAGE DETAILS — SEE SHEET 45.
9. FOR UNDERPASS RAMP DETAILS — SEE SHEET 73.
10. FOR INVERT ACCESS LADDER DETAILS — SEE SHEET 85.
11. FOR 16TH STREET BRIDGE PROFILE DETAILS — SEE SHEET 46.

PLAN

SCALE: 1 IN. = 40 FT.

SCALE: 1 IN. = 10 FT.
10' 0 10' 20' 30'

SCALE: 1 IN. = 40 FT.
50' 0 50' 100'

"AS BUILT"

SYMBOL	DESCRIPTIONS	DATE	APPROVAL
8	REVISED LABELS & ACCESS RAMP D. AND ADDED GUARD RAIL		
	CONC. APRON, AND RETAINING WALL	5/13/94	CWF
4	REVISED ACCESS RAMP 'D'	7/27/90	/S/ C.J.D.

REVISIONS

DATUM IS NATIONAL GEODETIC VERTICAL DATUM OF 1929

U.S. ARMY ENGINEER DISTRICT ST. LOUIS CORPS OF ENGINEERS

U.S. ARMY ENGINEER DISTRICT LOS ANGELES CORPS OF ENGINEERS

DESIGNED BY: M. E. HAMM
DRAWN BY: L. H. WHITT
CHECKED BY: M. E. HAMM

GILA RIVER BASIN
PHOENIX, ARIZONA AND VICINITY (INCLUDING NEW RIVER)

ARIZONA CANAL DIVERSION CHANNEL
(CUDIA CITY WASH TO DREAMY DRAW, INCLUDING CUDIA CITY WASH SEDIMENT BASIN)

DETAIL PLAN
STA. 828+00 TO STA. 814+00

SUBMITTED BY:
BOBBY R. HUGHEY
CHIEF, DESIGN BRANCH
ST. LOUIS DISTRICT

SPEC. NO. DACW09-90-B-0029
DISTRICT FILE NO. 252/868REV.'B'

SHEET 29 OF 90 SHEETS

US Army Corps of Engineers
Los Angeles District

Gila River Basin

Phoenix, Arizona, and Vicinity
(Including New River)

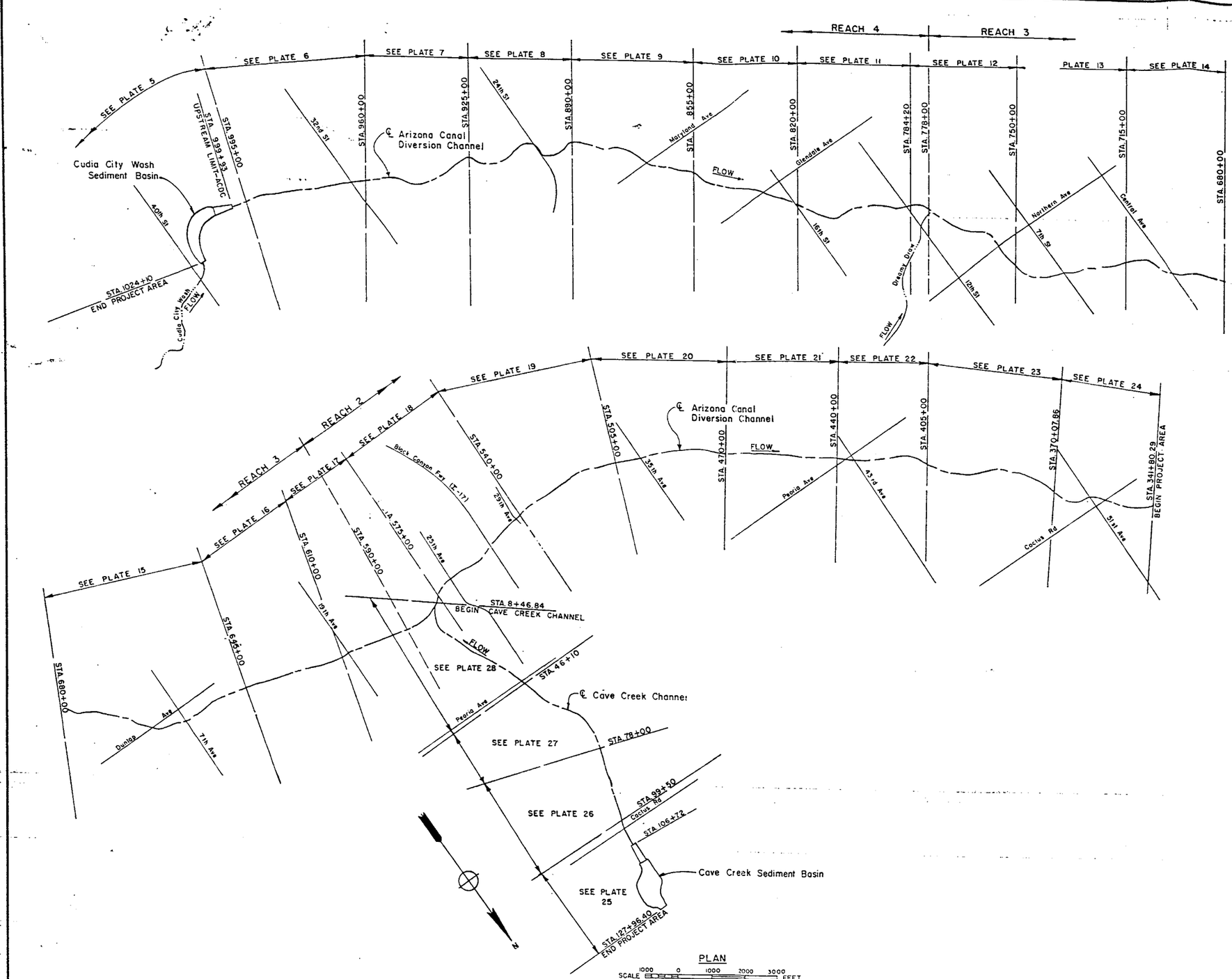
219

Arizona Canal Diversion Channel

40th Street to Cactus Road
(Including Cudia City Wash Sediment Basin, Cave Creek Sediment Basin, and Cave Creek Channel)

FINAL
April 1986

Design Memorandum No. 12
Feature Design for Arizona Canal Diversion Channel - 40th Street to Cactus Road



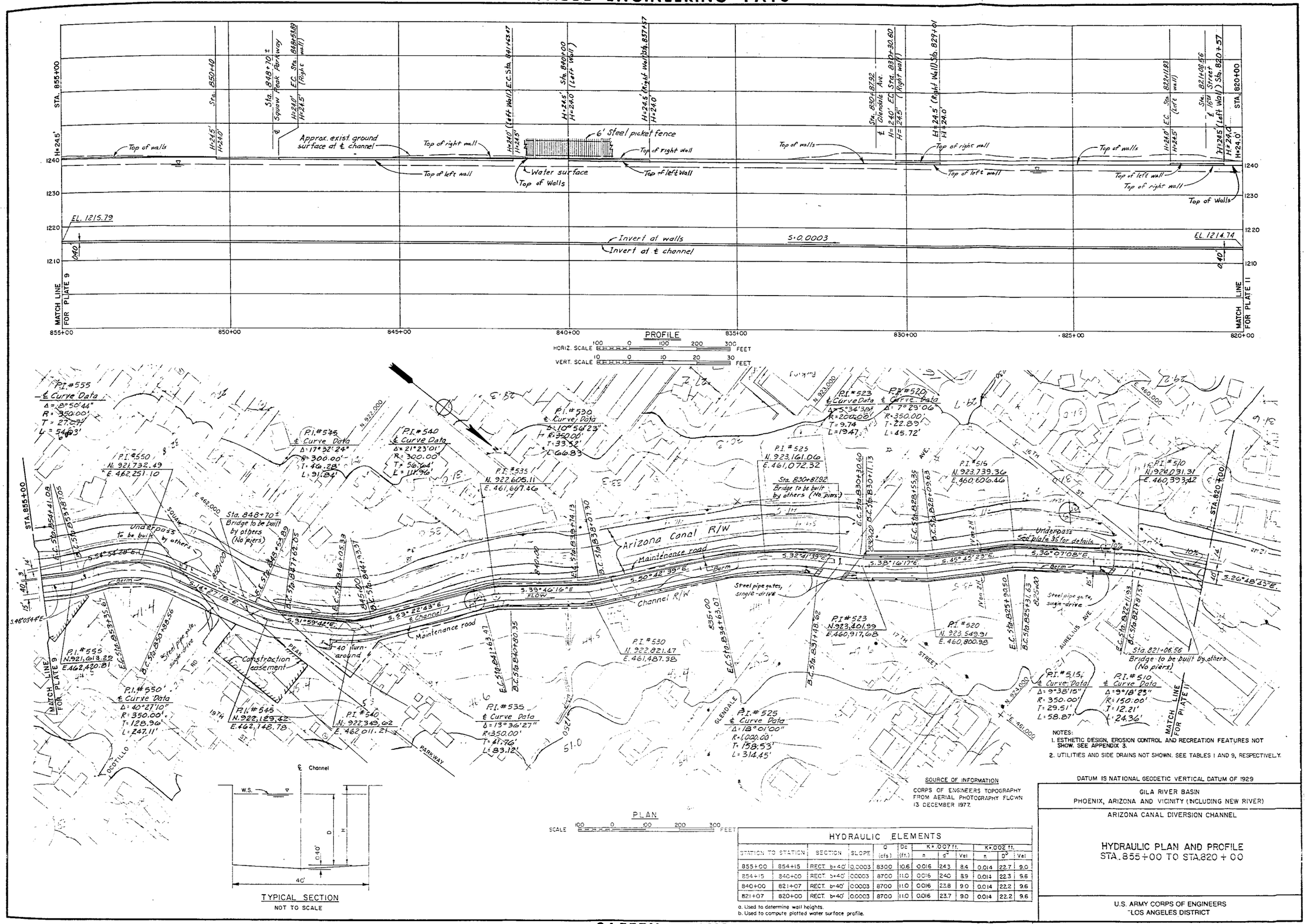
DATUM IS NATIONAL GEODETIC VERTICAL DATUM OF 1929

GILA RIVER BASIN
PHOENIX, ARIZONA AND VICINITY (INCLUDING NEW RIVER)

ARIZONA CANAL DIVERSION CHANNEL

PROJECT
KEY MAP OF HYDRAULIC PLAN AND PROFILE
STA. 1024+10 TO STA. 341+80.29

U.S. ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT



HYDRAULIC ELEMENTS

STATION TO STATION		SECTION	SLOPE	Q (cfs)	Dc (ft.)	K=.007 ft. n	K=.007 ft. d[a]	K=.007 ft. Vel	K=.002 ft. n	K=.002 ft. D[b]	K=.002 ft. Vel
855+00	854+15	RECT. b=40'	0.0003	8300	10.6	0.016	24.3	8.4	0.014	22.7	9.0
854+15	840+00	RECT. b=40'	0.0003	8700	11.0	0.016	24.0	8.9	0.014	22.3	9.6
840+00	821+07	RECT. b=40'	0.0003	8700	11.0	0.016	23.8	9.0	0.014	22.2	9.6
821+07	820+00	RECT. b=40'	0.0003	8700	11.0	0.016	23.7	9.0	0.014	22.2	9.6

a. Used to determine wall heights.
b. Used to compute plotted water surface profile.

DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT, CORPS OF ENGINEERS
P.O. BOX 2711
LOS ANGELES, CALIFORNIA 90053-2325

FLOOD CONTROL DISTRICT
RECEIVED
SEP 26 1994

CHENG		P & PM	
DEP		HYDRO	
ADMIN		LMGT	
FINANCE		FILE	
C & O			
ENGR			

REMARKS

REPLY TO
ATTENTION OF:

September 19, 1994

Office of the Chief
Design Branch

Mr. Donald J. Rerick
Project Manager
Flood Control District of Maricopa County
3335 West Durango Street
Phoenix, Arizona 85009

Note:
19 Sheets NOT 1.
full size set.

Dear Mr. Rerick:

We have completed As-Built drawings for the flood control channel, appendix 'A' (Geotechnical reference drawings), and appendix B (Landscape drawings) of Reach 4 entitled "Arizona Canal Diversion Channel (Cudia City Wash to Dreamy Draw including Cudia City Wash Sediment Basin)." We have also revised 10 As-Built drawings of Reach 3 (Arizona Canal Diversion Channel from Dreamy Draw to Cave Creek), and 19 As-Built drawings of Reach 2C (Arizona Canal Diversion Channel from Cave Creek to 29th Avenue). Please replace above drawings of Reach 3 and 2C with the drawings previously sent to you.

As per our requirements, we are sending you one set of full size drawings, one set of half-size reproducibles, and one set of half size prints for the above reaches of the Arizona Canal Diversion Channel.

If you have any questions, please call Mr. Desai (213/894-3702) of my staff.

Sincerely,

Robert E. Koplin, PE
Chief, Engineering Division

SOKKIA™

MADE IN U.S.A.

[redacted]

SOKKIA™

ECONOMY FIELD BOOK

MARI 0018

Book 1

David Evans & Assoc.

No. 8152-05

FORMULA[illegible]

$\sin A = \frac{a}{c} = \cos B$ $\quad \cot A = \frac{b}{a} = \tan B$

$\cos A = \frac{b}{c} = \sin B$ $\quad \sec A = \frac{c}{b} = \operatorname{cosec} B$

$\tan A = \frac{a}{b} = \cot B$ $\quad \operatorname{cosec} A = \frac{c}{a} = \sec B$

Given	Required	Solution
A, c	B, a, b	$B = 90° - A,\ a = c \sin A,\ b = c \cos A$
A, b	B, a, c	$B = 90° - A,\ a = b \tan A,\ c = \frac{b}{\cos A}$
A, a	B, b, c	$B = 90° - A,\ b = a \cot A,\ c = \frac{a}{\sin A}$
a, c	A, B, b	$\sin A = \frac{a}{c} = \cos B,\ b = \sqrt{(c+a)(c-a)}$
a, b	A, B, c	$\tan A = \frac{a}{b} = \cot B,\ c = \sqrt{a^2 + b^2}$

FORMULAE FOR SOLVING OBLIQUE TRIANGLES

Given	Required	Solution
A, a, b	B, c	$\sin B = \frac{b \sin A}{a},\ c = \frac{a \sin C}{\sin A}$
A, B, a	C, b, c	$C = 180° - (A + B),\ b = \frac{a \sin B}{\sin A},\ c = \frac{a \sin C}{\sin A}$
a, b, C	A, c	$A + B = 180° - C,\ c = \frac{a \sin C}{\sin A}$
a, b, c	Area	side $= \frac{a+b+c}{2}$, area $= \sqrt{s(s-a)(s-b)(s-c)}$
A, b, c	Area	area $= \frac{bc \sin A}{2}$
A, B, C, a	Area	area $= \frac{a^2 \sin B \sin C}{2 \sin A}$

MADE IN U.S.A.

6.8 N 6.2 | 1243 55 | 1-1

1243.A26
1242.86
1242.867

1254.2

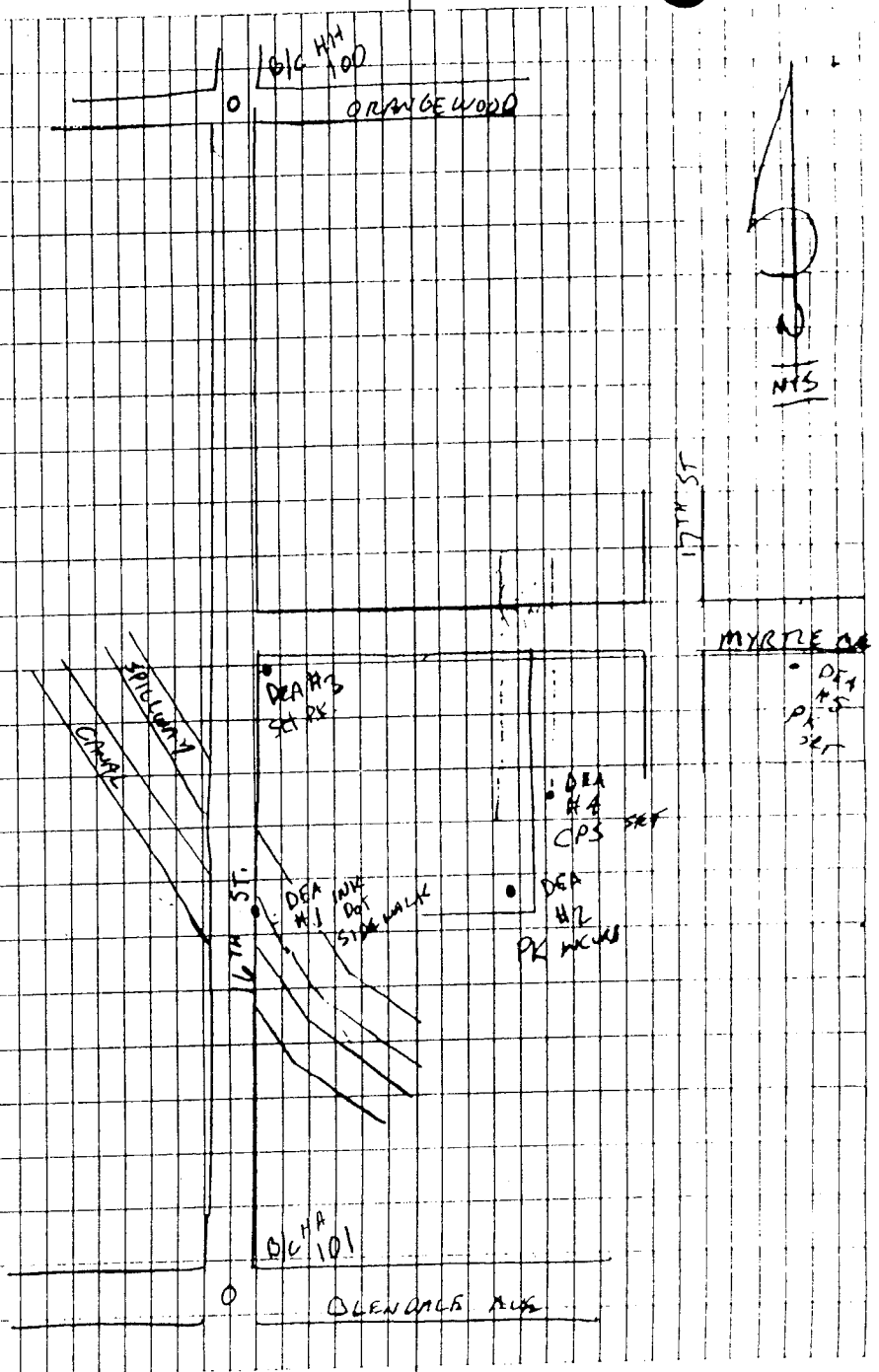
F. RADKE
K. RADKE
10-5-96

TOPO OF
FLOOD PLAIN

USING BENCH MARK ON TDS
WAS ABLE TO DETERMINE
ELEV OF #1 AS 1242.86.3

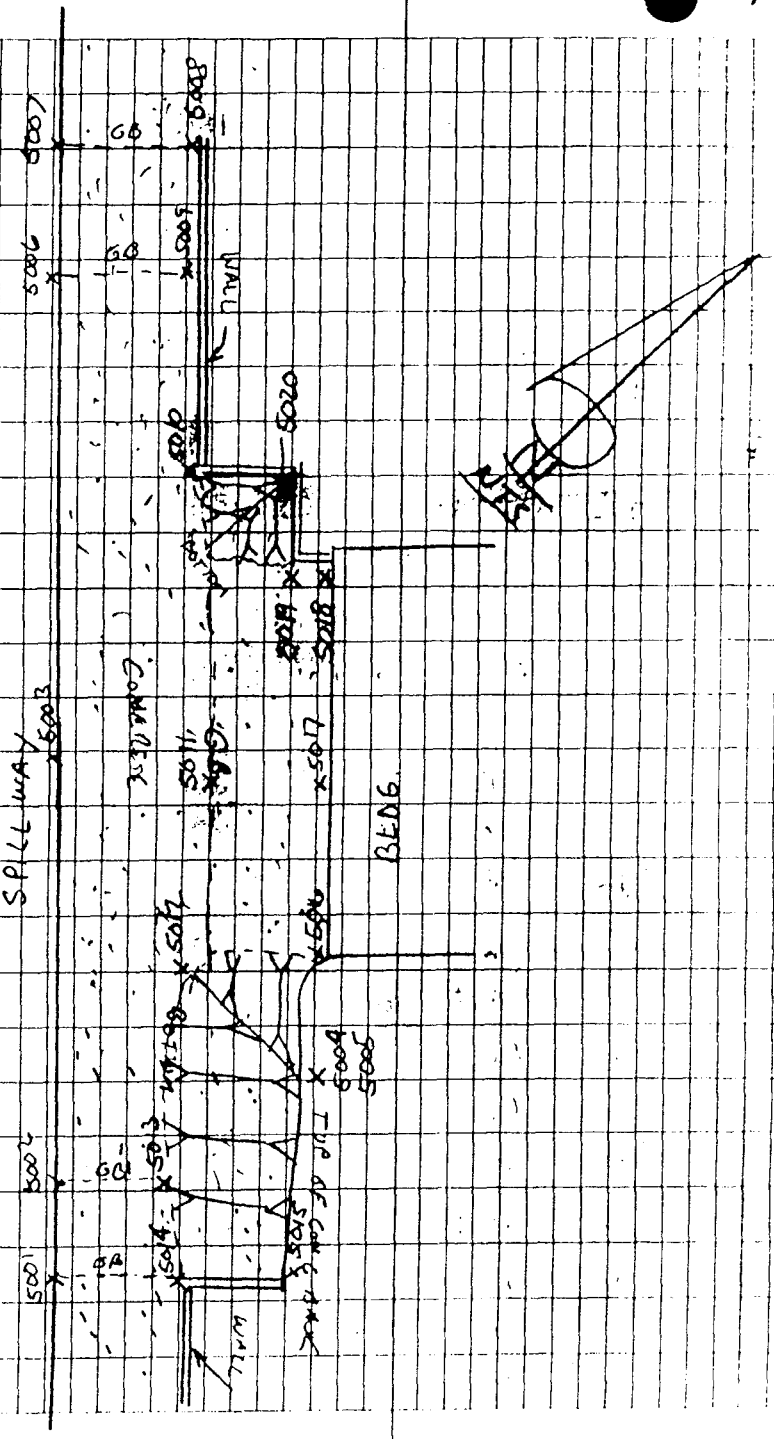
ELEV OF PT 101 = 1229.69

ELEV OF PT 100 = 1254.58
NOT 1255.13 AS THAT IS
GROUND ELEVATION NOT B/C HH
ELEVATION HH IS .55 DEEP
WHEN YOU TAKE THAT OFF
PT 100 AND 101 WORK WITHIN
THOUSANDTHS



TC B/S 100

PT. #	CODE	DESC.	HR
5000	252	BACK ✓	4.835
5001	161	Conc. Flat.	"
5005	161	CHK. SHT. SAME AS 5004	12.835
5006	161	CONC. FLAT	12,835
5021	161	CONC. Flat	"
5034	302	Gutter	"
5037	161	CONC. Flat	"
5038	302	Gutter	"
5040	306	M/G @ WALL	"
5041	302	Gutter	"
5047	161	CONC. Flat	"
5048	187	Ground	"
5049	302	Gut.	"
5050	251	AC	"
5051	161	CON. Flat	"
5053	302	Gut.	"
5058	306	M/G @ WALL	"
5059	187	Ground	"
5060	302	Gut	"
5061	251	A/C	"
5062	161	CON. Flat	"
5064	251	A/C	"

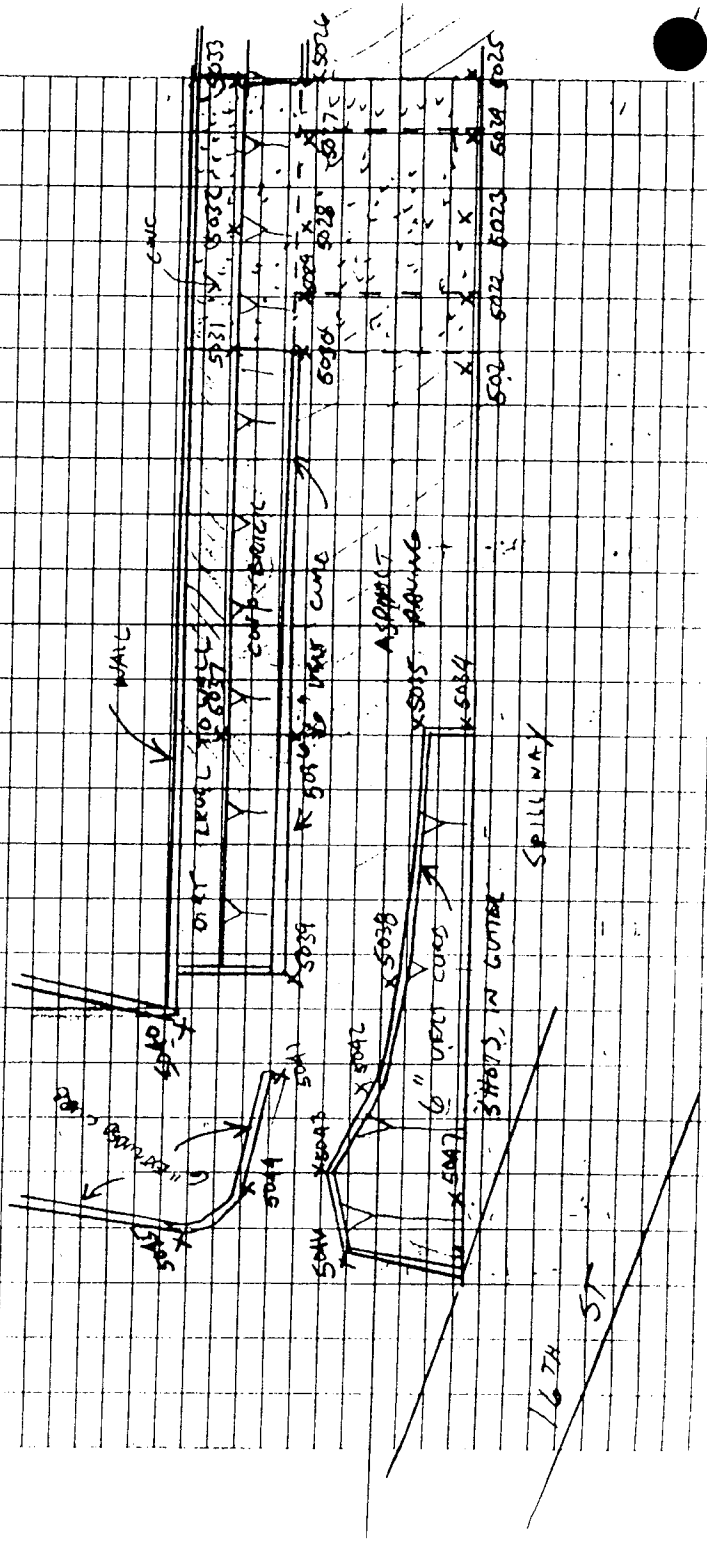


T@ 1 BS 100

PT #	CODE	DESC.	HR
5065	302	Gut	12.835
5066	187	Ground	"
~~5067~~	~~252~~	~~BACK ✓ to~~	~~100~~
5067	247		"
5068	247		4.835
~~5069~~	~~252~~	~~BACK ✓ to~~	~~100~~

T@ 2 BS 1 FS

PT#	CODE	DESC.	HR
5069	252	BACK ✓ TO 1	5.77
5070	306	M/G @ WALL	"
5072	187	GROUND	"
5073	302	Gut	"
5074	161	Look Flat	"
5075	302	Gut	"
5077	301	B/C T/C	"
5078	187	GROUND	"
5079	306	M/G @ WALL	"
5081	187	GROUND	"
5082	301	B/C T/C	"



T@ B/S 1

PT. #	CODE	DESC	HA
5083	302	Gutter	5.77
5084	251	A/C	"
5085	302	Gutter	"
5086	161	Conc. Flat	"
5089	251	A/C	"
5091	302	Gutter	"
5092	301	B/C T/C	"
5093	187	Ground	"
5094	306	M6 @ WALL	"
5095	204	1/2 B/B END	"
5096	230	Top of Bank	"
5097	229	TOE	"
5098	187	GROUND	"
5099	301	B/C T/C	"
5100	302	Gut	"
5101	251	A/C	"
5103	161	CONC.	"
5104	251	A/C	"
5106	302	Gut	"
5107	301	B/C T/C	"
5108	229	TOE	"
5109	230	TOP SLOPE	"
5110	252	BACK ✓	"

F. RADTKE
K RADTKE
10-7-96

TOPO CONTINUED

T @ 4 BS 2 FS

PT#	CODE	DESC.		H.R.
5111	252	BACK	✓	4.835
5112	161	Conc.	Flat	"
5113	251	A/C		"
5115	302	GUT		"
5116	301	BK T/C		"
5117	229	TOE of	Slope	"
5118	230	Top of	Slope	"
5120	229	TOE		"
5122	230	TOP of	Slope	"
5129	161	Conc	Flat	"
5133	161	CONC FLAT	BASE 5' WALL	"
5135	161	CONC. FLAT	BASE 6', 2' WALL STEP	"
5136	161	Conc Flat	BASE of 2' TO 1½' WALL STEP	"
5137	161	Conc	Flat	"
5138	161	CONC. FLAT	BASE 1½' WALL	"
5139	161	Conc	Flat	"
5140	161	Conc.	Flat BASE 1½' WALL	"
5141	251	A/C		"
5142	197	GROUND		"
5144	237	WALK	CONC.	"
5145	301	BK T/C		"
5146	302	Gutter		"
5147	251	A/C		"

B 4 BS 2

Pt. #	CODE	DESC	HR
5148	302	Gutter	4.835
5149	301	B/C T/C	"
5150	237	WALK CONC	"
5151	187	Ground	"
5153	301	B/C T/C	"
5154	251	A/C	"
5155	302	Gutter	"
5156	301	B/C T/C	"
5157	237	WALK CONC	"
5158	187	Ground	"
5159	252	BACK ✓	"

T @ 5 BS 4 FS

Pt#	CODE	DESC.	HR
5160	252	BACK ✓	4.835
5161	161	CONC. FLAT	
5171	230	Top Slope	
5172	229	TOE Slope	
5174	230	TOP Slope	
5177	229	TOE Slope	
5181	230	TOP Slope	
5182	161	Conc. Flat	
5186	161	CONC FLAT	BASE OF 2 INCH WALL
5187	161	CONC FLAT	BASE OF 1 1/2' WALL

100 5 B/S 4

PT.#	CODE	DESC		HR
5188	161	CONC FIAT	BASE 1½' WALL	4.835
5192	161	CONC FIAT	BASE 2INCH WALL	
5193	161	CONC FIAT		
5195	161	CONC FIAT	BASE 6" VERT CURB	
5201	187	GROUND		
5202	301	B/C T/C		
5203	302	Gutter		
5204	251	A/C		
5206	230	TOP SLOPE		
5207	229	TOE SLOPE		
5208	230	TOP SLOPE		
5209	187	GROUND		
5211	230	TOP SLOPE		
5212	229	TOE SLOPE		
5213	230	TOP SLOPE		
5214	251	A/C		
5216	301	B/C T/C	FLAT CURB	
5217	187	GROUND		
5219	301	B/C T/C	FLAT CURB	
5220	251	A/C		
5222	230	TOP SLOPE		
5223	229	TOE SLOPE		
5224	230	TOP SLOPE		

I@5 B/S4

PT #	CODE	DESC	HR
5225	187	GROUND	4.835
5226	230	TOP SLOPE	
5227	229	TOE SLOPE	
5228	301	B/C TK FLAT CURB	
5233	187	GROUND	
5239	230	TOP SLOPE	
5243	301	B/C TK 6" VERT CURB	
5256	187	GROUND	
5257	302	Gutter	
5267	251	A/C	
5277	230	TOP SLOPE	
5284	229	TOE SLOPE	
5288	230	TOP SLOPE	
5289	191	INV. 12" PIPE	
5290	301	B/C T/C	
5291	302	Gutter	
5292	251	A/C	
5293	302	Gutter	
5294	301	B/C T/C	
5295	187	GROUND	
5296	252	BACK	

6 B/S 5

PT. #	CODE	DESC	HR
7	252	SAME AS #3	4.835

TO 6 B/S 5

PT. #	CODE	DESC.	HR
5297	252	BACK	4.835
5298	187	GROUND	
5305	161	Conc. Flat	
5307	161	Conc Flat (SAME POINT)	12.835
5310	302	Gutter	
5311	301	B/C T/C	
5313	302	Gutter	
5315	301	B/C T/C	
5316	161	Conc. Flat	
5318	302	Gutter	
5319	301	B/C T/C	
5320	302	Gutter	
5321	301	B/C T/C	
5322	302	Gutter	
5323	301	B/C T/C	

T[illegible] B/S5

PT. #	CODE	DESC	HR
5324	251	A/C	12.835
5325	302	Gutter	
5326	301	B/C T/C	
5327	187	GROUND	
5329	301	B/C T/C	
5330	302	Gutter	
5331	251	A/C	
5332	302	Gutter	
5333	301	B/C T/C	
5334	230	TOP SLOPE	
5335	229	TOE SLOPE	
5337	252	BACK ✓	9835

BATTERY'S DEAD

F RADTKE
K RADTKE
R

CONTINUE TOPO

T @ 6 BS 3 FS

PT #	CODE	DESCRIP	HR
5338	252	BACK ✓	4.835
5339	230	TOP SLOPE	
5340	229	Toe Slope	
5342	230	Top slope	
5343	301	B/C T/C	
5344	302	Gutter	
5345	251	A/C	
5346	302	Gutter	
5347	301	B/C T/C	
5348	187	Ground	
5350	301	B/C T/C	
5351	302	Gutter	
6	251	A/C	
5352	302	Gutter	
5353	301	B/C T/C	
5354	230	Top Slope	
5355	229	Toe Slope	
5357	230	Top Slope	
5359	229	Toe Slope	
5361	230	Top Slope	
5362	301	B/C @ T/C	
5363	302	Gutter	
5364	251	A/C	
5365	302	Gutter	

@ 6 BS 3 FS

PTH	CODE	DESC.	HR
5366	301	B/C @ T/C	4.835
5367	187	Ground	
5369	251	A/C	
5370	187	Ground	
5371	301	B/C @ T/C	
5372	302	Gutter	
5373	251	A/C	
5374	302	Gutter	
5375	301	B/C @ T/C	
5376	301	B/C T/C SAME AS 5375	12.835
5377	230	Top slope	
5378	229	Toe slope	
5380	252	BACK ✓	

↑ @ 3 BS 6 FS

PTH	CODE	DESC.	HR
5381	252	BACK ✓	4.835
5382	230	TOP SLOPE	
5387	301	B/C @ T/C	
5388	302	Gutter	
5393	251	A/C	
5397	161	Conc Flat	
5399	301	B/C @ T/C	

			6	15
OPT #	CODE	DESC		HR
5404	302	Gutter		4.835
5408	251	A/C		
5410	161	Conc. Flat		
5412	251	A/C		
5414	252	Back	✓	

MYRTLE DRAINAGE STUDY/EAST OF 16TH STREET

Project: mari0018 Thu Oct 10 09:36:13 1996

Point statistics:

Starting point number: 1
Max point number used: 5414
Min point number used: 1
Current point number: 8

Current Coordinate Listing (All)

Point	Northing	Easting	Elevation	Description
1	5000.00	5000.00	1242.86	DEA CONTROL MON
2	5018.63	5280.50	1245.41	DEA CONTROL MON
3	5650.22	5011.42	1242.38	DEA CONTROL MON
4	5339.00	5322.72	1251.27	DEA CONTROL MON
5	5625.29	5782.63	1255.63	DEA CONTROL MON
6	5672.06	5240.75	1247.08	DEA CONTROL MON
7	5650.21	5011.43	1242.35	CHECK SHOT
100	6960.48	5000.00	1254.58	FD BC
101	4330.17	4953.47	1229.69	FD BC
5000	6960.51	5000.00	1254.54	CHECK SHOT
5001	5643.96	4758.93	1238.53	CONC FLATWORK
5002	5665.54	4745.84	1236.06	CONC FLATWORK
5003	5747.51	4691.37	1235.95	CONC FLATWORK
5004	5699.83	4755.02	1244.58	CONC FLATWORK
5005	5699.84	4755.02	1244.57	CONC FLATWORK
5006	5868.92	4609.24	1235.98	CONC FLATWORK
5007	5887.21	4596.27	1238.00	CONC FLATWORK
5008	5892.83	4607.35	1238.12	CONC FLATWORK
5009	5876.36	4618.74	1236.40	CONC FLATWORK
5010	5808.58	4664.86	1236.42	CONC FLATWORK
5011	5749.37	4706.62	1236.41	CONC FLATWORK
5012	5708.24	4735.49	1236.53	CONC FLATWORK
5013	5673.59	4757.42	1236.40	CONC FLATWORK
5014	5651.70	4768.94	1238.86	CONC FLATWORK
5015	5660.12	4782.37	1245.58	CONC FLATWORK
5016	5716.15	4746.89	1239.30	CONC FLATWORK
5017	5757.23	4719.87	1239.33	CONC FLATWORK
5018	5797.29	4692.41	1239.31	CONC FLATWORK
5019	5796.94	4688.63	1238.66	CONC FLATWORK
5020	5807.96	4681.01	1240.27	CONC FLATWORK
5021	4819.08	5176.32	1238.81	CONC FLATWORK
5022	4810.55	5183.21	1237.92	CONC FLATWORK
5023	4802.09	5189.08	1237.86	CONC FLATWORK
5024	4793.64	5194.96	1237.91	CONC FLATWORK
5025	4785.34	5199.67	1238.84	CONC FLATWORK
5026	4791.88	5211.27	1239.24	CONC FLATWORK
5027	4801.39	5205.12	1238.39	CONC FLATWORK
5028	4808.99	5199.99	1238.29	CONC FLATWORK
5029	4818.76	5193.37	1238.36	CONC FLATWORK
5030	4827.57	5187.06	1239.24	CONC FLATWORK
5031	4832.47	5194.50	1245.96	CONC FLATWORK
5032	4813.75	5206.95	1244.90	CONC FLATWORK
5033	4797.41	5218.79	1246.03	CONC FLATWORK
5034	4930.30	5098.43	1238.80	GUTTER

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
28742
CARL
SITTERLEY
Date Signed 4/25/97
ARIZONA U.S.A.

Pages 1 - 9
CRS.

MYRTLE DRAINAGE STUDY/EAST OF 16TH STREET

Project: mari0018 Thu Oct 10 09:36:17 1996

Current Coordinate Listing (All)

Point	Northing	Easting	Elevation	Description
5035	4931.87	5100.93	1238.83	GUTTER
5036	4939.39	5109.80	1239.27	GUTTER
5037	4943.49	5116.86	1245.52	CONC FLATWORK
5038	4978.77	5075.52	1241.47	GUTTER
5039	4982.36	5086.35	1241.36	GUTTER
5040	4986.72	5090.34	1244.36	GRADE @ WALL
5041	4994.57	5079.88	1241.83	GUTTER
5042	4991.77	5069.38	1241.87	GUTTER
5043	5004.60	5063.07	1242.22	GUTTER
5044	5013.13	5077.64	1242.52	GUTTER
5045	5017.43	5082.19	1242.69	GUTTER
5046	5017.89	5046.62	1242.59	GUTTER
5047	4998.78	5051.60	1238.77	CONC FLATWORK
5048	5006.79	5088.55	1242.51	GROUND SHOT
5049	5017.65	5088.40	1242.69	GUTTER
5050	5057.65	5095.04	1243.72	AC
5051	5061.40	5088.60	1244.03	CONC FLATWORK
5052	5062.03	5046.48	1243.99	CONC FLATWORK
5053	5057.88	5043.06	1243.38	GUTTER
5054	5052.82	5043.02	1243.15	GUTTER
5055	5049.23	5038.48	1242.80	GUTTER
5056	5052.37	5012.16	1243.14	GUTTER
5057	5018.06	5006.24	1242.97	GUTTER
5058	4986.52	5131.10	1245.09	GRADE @ WALL
5059	5009.21	5131.91	1242.56	GROUND SHOT
5060	5017.23	5133.24	1242.90	GUTTER
5061	5057.09	5131.64	1243.82	AC
5062	5061.15	5131.79	1244.17	CONC FLATWORK
5063	5060.67	5200.48	1244.27	CONC FLATWORK
5064	5056.96	5200.39	1244.27	AC
5065	5016.78	5199.32	1243.56	GUTTER
5066	5006.35	5200.06	1242.68	GROUND SHOT
5067	6853.47	4965.34	1253.74	SEE NOTES
5068	6853.40	4965.34	1253.76	SEE NOTES
5069	5000.00	5000.02	1242.89	CHECK SHOT
5070	4986.07	5198.34	1246.67	GRADE @ WALL
5071	4985.66	5241.84	1246.87	GRADE @ WALL
5072	5009.69	5241.36	1243.86	GROUND SHOT
5073	5016.31	5241.40	1243.89	GUTTER
5074	5043.72	5242.29	1246.18	CONC FLATWORK
5075	5039.67	5246.00	1245.61	GUTTER
5076	5016.15	5271.15	1244.38	GUTTER
5077	5015.57	5271.30	1244.66	T/C@B/C
5078	5011.17	5275.47	1244.26	GROUND SHOT
5079	4985.16	5296.51	1247.12	GRADE @ WALL
5080	5043.59	5296.95	1244.97	GRADE @ WALL
5081	5044.10	5292.52	1244.74	GROUND SHOT
5082	5044.28	5290.85	1245.83	T/C@B/C
5083	5044.55	5290.30	1244.82	GUTTER

MYRTLE DRAINAGE STUDY/EAST OF 16TH STREET

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Current Coordinate Listing (All)

Point	Northing	Easting	Elevation	Description
5084	5043.98	5282.66	1244.49	AC
5085	5046.60	5261.49	1245.11	GUTTER
5086	5047.09	5246.36	1245.74	GUTTER
5087	5047.09	5242.49	1246.20	CONC FLATWORK
5088	5142.54	5244.15	1246.35	CONC FLATWORK
5089	5142.47	5248.01	1245.97	AC
5090	5141.98	5283.30	1245.21	AC
5091	5142.30	5291.13	1245.46	GUTTER
5092	5142.53	5291.77	1246.47	T/C@B/C
5093	5142.61	5294.41	1245.27	GROUND SHOT
5094	5142.15	5297.96	1245.56	GRADE @ WALL
5095	5142.67	5293.23	1245.55	FD 1/2" REBAR
5096	5235.92	5310.87	1250.92	TOP
5097	5236.72	5303.48	1246.07	TOE
5098	5236.92	5298.44	1245.92	GROUND SHOT
5099	5236.93	5294.05	1247.12	T/C@B/C
5100	5237.07	5293.41	1246.13	GUTTER
5101	5236.59	5284.76	1245.97	AC
102	5236.86	5239.67	1246.61	AC
5103	5233.94	5235.80	1246.84	CONC FLATWORK
5104	5344.14	5263.63	1248.05	AC
5105	5343.40	5286.03	1246.76	AC
5106	5342.79	5294.17	1246.83	GUTTER
5107	5342.91	5294.92	1247.84	T/C@B/C
5108	5342.52	5300.81	1247.03	TOE
5109	5343.89	5311.66	1250.41	TOP
5110	4999.99	5000.02	1242.89	CHECK SHOT
5111	5018.62	5280.50	1245.42	CHECK SHOT
5112	5459.97	5239.58	1248.34	CONC FLATWORK
5113	5459.82	5243.40	1247.97	AC
5114	5458.71	5285.70	1247.24	AC
5115	5458.59	5294.18	1247.31	GUTTER
5116	5458.85	5294.89	1248.33	T/C@B/C
5117	5458.87	5295.38	1247.35	TOE
5118	5458.40	5301.47	1250.63	TOP
5119	5447.12	5314.67	1250.93	TOP
5120	5442.76	5316.57	1249.36	TOE
5121	5424.34	5321.70	1249.25	TOE
5122	5417.67	5325.46	1251.12	TOP
5123	5430.56	5386.93	1252.43	TOP
5124	5438.39	5441.85	1252.93	TOP
5125	5437.06	5516.51	1254.33	TOP
5126	5467.94	5579.35	1253.59	TOP
127	5492.23	5562.82	1251.32	CONC FLATWORK
128	5500.54	5558.19	1251.37	CONC FLATWORK
5129	5475.84	5522.16	1251.06	CONC FLATWORK
5130	5467.77	5527.67	1251.02	CONC FLATWORK
5131	5460.83	5530.51	1250.98	CONC FLATWORK
5132	5454.68	5511.79	1250.87	CONC FLATWORK

MYRTLE DRAINAGE STUDY/EAST OF 16TH STREET

Project: mari0018 Thu Oct 10 09:36:24 1996

Current Coordinate Listing (All)

Point	Northing	Easting	Elevation	Description
5133	5474.26	5510.91	1250.88	CONC FLATWORK
5134	5455.27	5424.12	1249.86	CONC FLATWORK
5135	5474.86	5431.17	1249.94	CONC FLATWORK
5136	5475.10	5421.36	1249.89	CONC FLATWORK
5137	5445.33	5385.51	1249.46	CONC FLATWORK
5138	5464.27	5379.97	1249.43	CONC FLATWORK
5139	5433.99	5340.84	1249.01	CONC FLATWORK
5140	5453.90	5339.25	1249.05	CONC FLATWORK
5141	5472.34	5351.49	1250.37	AC
5142	5476.58	5422.89	1251.32	GROUND SHOT
5143	5377.61	5586.08	1253.69	GROUND SHOT
5144	5375.96	5598.85	1253.66	WALL CONC.
5145	5376.48	5602.81	1253.62	T/C@B/C
5146	5376.68	5603.35	1253.14	GUTTER
5147	5375.75	5621.22	1253.60	AC
5148	5375.79	5636.67	1253.22	GUTTER
5149	5375.96	5638.10	1253.55	T/C@B/C
5150	5376.27	5641.85	1253.59	WALL CONC.
151	5376.67	5649.87	1255.14	GROUND SHOT
152	5466.05	5647.48	1254.51	GROUND SHOT
5153	5465.90	5638.79	1253.90	T/C@B/C
5154	5463.85	5621.22	1253.89	AC
5155	5456.88	5604.20	1253.44	GUTTER
5156	5456.54	5603.55	1253.88	T/C@B/C
5157	5458.26	5599.67	1253.99	WALL CONC.
5158	5455.01	5590.71	1253.85	GROUND SHOT
5160	5339.00	5322.72	1251.29	CHECK SHOT
5161	5540.46	5640.01	1253.43	CONC FLATWORK
5162	5567.10	5640.56	1253.43	CONC FLATWORK
5163	5549.62	5599.58	1253.09	CONC FLATWORK
5164	5580.10	5600.82	1253.99	CONC FLATWORK
5165	5580.15	5585.84	1253.79	CONC FLATWORK
5166	5537.64	5585.54	1253.99	CONC FLATWORK
5167	5518.96	5586.18	1251.83	CONC FLATWORK
5168	5513.56	5593.46	1251.83	CONC FLATWORK
5169	5517.56	5600.44	1253.91	CONC FLATWORK
5170	5523.68	5601.78	1253.15	CONC FLATWORK
5171	5540.54	5648.84	1255.20	TOP
5172	5545.54	5647.36	1253.05	TOE
5173	5560.78	5645.39	1253.36	TOE
5174	5569.76	5646.73	1255.13	TOP
5175	5576.00	5658.97	1255.71	TOP
5176	5606.02	5658.48	1256.05	TOP
177	5607.63	5666.48	1254.80	TOE
178	5578.18	5667.32	1254.28	TOE
5179	5569.07	5663.32	1253.92	TOE
5180	5558.04	5672.24	1253.91	TOE
5181	5555.71	5675.09	1255.38	TOP
5182	5617.35	5662.19	1255.04	CONC FLATWORK

MYRTLE DRAINAGE STUDY/EAST OF 16TH STREET

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Current Coordinate Listing (All)

Point	Northing	Easting	Elevation	Description
5183	5610.32	5666.04	1254.94	CONC FLATWORK
5184	5602.90	5667.54	1254.75	CONC FLATWORK
5185	5575.47	5667.43	1254.23	CONC FLATWORK
5186	5559.49	5674.68	1254.16	CONC FLATWORK
5187	5560.24	5677.13	1254.24	CONC FLATWORK
5188	5574.07	5723.73	1254.77	CONC FLATWORK
5189	5594.07	5791.83	1255.64	CONC FLATWORK
5190	5600.42	5803.13	1255.89	CONC FLATWORK
5191	5607.94	5809.11	1256.13	CONC FLATWORK
5192	5610.47	5810.96	1256.15	CONC FLATWORK
5193	5631.23	5825.03	1255.84	CONC FLATWORK
5194	5638.30	5781.37	1255.48	CONC FLATWORK
5195	5613.04	5767.39	1255.75	CONC FLATWORK
5196	5601.16	5753.90	1255.17	CONC FLATWORK
5197	5598.43	5726.33	1254.91	CONC FLATWORK
5198	5597.74	5703.99	1254.71	CONC FLATWORK
5199	5603.17	5688.84	1254.62	CONC FLATWORK
5200	5617.07	5684.60	1255.09	CONC FLATWORK
5201	5597.39	5983.56	1263.67	GROUND SHOT
5202	5607.54	5983.56	1262.50	T/C@B/C
5203	5608.13	5983.82	1262.07	GUTTER
5204	5625.11	5985.92	1262.30	AC
5205	5640.16	5988.07	1262.41	AC
5206	5644.47	5988.55	1262.45	TOP
5207	5657.81	5990.38	1257.88	TOE
5208	5665.28	5984.06	1262.02	TOP
5209	5684.92	5979.89	1262.67	GROUND SHOT
5210	5684.38	5948.02	1261.78	GROUND SHOT
5211	5665.11	5943.84	1261.53	TOP
5212	5654.24	5943.48	1257.37	TOE
5213	5641.83	5945.70	1260.07	TOP
5214	5639.90	5946.04	1260.01	AC
5215	5627.87	5946.34	1260.26	AC
5216	5607.86	5944.61	1260.33	T/C@B/C
5217	5600.23	5940.35	1261.88	GROUND SHOT
5218	5600.95	5898.73	1259.52	GROUND SHOT
5219	5611.86	5899.81	1257.62	T/C@B/C
5220	5633.38	5903.21	1257.53	AC
5221	5643.87	5903.83	1257.45	AC
5222	5646.88	5903.26	1257.92	TOP
5223	5653.12	5902.76	1256.47	TOE
5224	5662.89	5901.37	1260.65	TOP
5225	5679.22	5901.84	1260.62	GROUND SHOT
5226	5660.32	5882.70	1259.53	TOP
5227	5648.19	5885.97	1256.67	TOE
5228	5633.56	5815.46	1255.71	T/C@B/C
5229	5639.82	5745.49	1255.40	T/C@B/C
5230	5640.76	5661.13	1254.99	T/C@B/C
5231	5635.27	5647.16	1254.62	T/C@B/C

MYRTLE DRAINAGE STUDY/EAST OF 16TH STREET

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Current Coordinate Listing (All)

Point	Northing	Easting	Elevation	Description
5232	5622.43	5641.24	1254.17	T/C@B/C
5233	5622.77	5660.01	1254.89	GROUND SHOT
5234	5622.17	5733.86	1255.66	GROUND SHOT
5235	5699.98	5821.97	1260.15	GROUND SHOT
5236	5704.78	5752.80	1258.23	GROUND SHOT
5237	5718.25	5693.12	1256.91	GROUND SHOT
5238	5768.86	5702.55	1256.94	GROUND SHOT
5239	5778.27	5679.63	1256.06	TOP
5240	5695.56	5659.77	1256.12	TOP
5241	5680.77	5753.22	1257.80	TOP
5242	5674.95	5814.30	1259.22	TOP
5243	5665.61	5816.35	1256.29	T/C@B/C
5244	5673.67	5751.43	1255.41	T/C@B/C
5245	5681.86	5666.42	1254.72	T/C@B/C
5246	5691.42	5649.64	1254.21	T/C@B/C
5247	5707.15	5644.80	1254.27	T/C@B/C
5248	5781.34	5664.12	1254.72	T/C@B/C
5249	5795.34	5629.88	1254.74	T/C@B/C
5250	5720.88	5610.27	1254.28	T/C@B/C
5251	5696.28	5598.84	1253.73	T/C@B/C
5252	5687.10	5572.10	1253.20	T/C@B/C
5253	5646.28	5587.27	1253.65	T/C@B/C
5254	5639.88	5601.03	1253.69	T/C@B/C
5255	5625.34	5605.43	1254.33	T/C@B/C
5256	5617.40	5577.91	1253.78	GROUND SHOT
5257	5625.72	5606.04	1253.88	GUTTER
5258	5646.99	5587.40	1253.21	GUTTER
5259	5686.66	5572.08	1252.73	GUTTER
5260	5721.09	5610.91	1253.85	GUTTER
5261	5795.04	5630.25	1254.32	GUTTER
5262	5781.58	5663.64	1254.23	GUTTER
5263	5706.95	5644.24	1253.84	GUTTER
5264	5681.38	5666.33	1254.14	GUTTER
5265	5673.13	5751.54	1254.95	GUTTER
5266	5664.74	5819.03	1255.77	GUTTER
5267	5647.31	5812.12	1255.68	AC
5268	5652.86	5748.14	1255.44	AC
5269	5656.67	5661.60	1254.74	AC
5270	5657.99	5624.42	1254.15	AC
5271	5665.36	5572.93	1253.15	AC
5272	5620.20	5623.43	1254.21	AC
5273	5645.30	5624.83	1254.24	AC
5274	5685.30	5625.16	1253.60	AC
5275	5716.04	5627.00	1254.16	AC
5276	5789.18	5645.73	1254.72	AC
5277	5795.56	5624.83	1254.62	TOP
5278	5725.59	5605.71	1254.13	TOP
5279	5698.97	5574.36	1254.23	TOP
5280	5707.25	5525.19	1253.34	TOP

MYRTLE DRAINAGE STUDY/EAST OF 16TH STREET

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Current Coordinate Listing (All)

Point	Northing	Easting	Elevation	Description
5281	5752.63	5530.19	1253.82	TOP
5282	5740.90	5587.95	1254.06	TOP
5283	5813.83	5611.85	1254.40	TOP
5284	5805.45	5620.25	1252.83	TOE
5285	5730.15	5596.00	1252.42	TOE
5286	5720.72	5577.09	1251.82	TOE
5287	5724.60	5526.88	1251.39	TOE
5288	5730.40	5505.95	1252.75	TOP
5289	5729.59	5507.20	1251.50	INVERT
5290	5687.68	5524.85	1252.18	T/C@B/C
5291	5687.00	5524.75	1251.68	GUTTER
5292	5662.25	5524.02	1252.25	AC
5293	5647.62	5524.13	1251.93	GUTTER
5294	5646.91	5524.00	1252.37	T/C@B/C
5295	5639.57	5525.09	1252.58	GROUND SHOT
5296	5339.01	5322.77	1251.28	CHECK SHOT
5297	5625.29	5782.62	1255.60	CHECK SHOT
5298	5718.99	4917.68	1239.47	GROUND SHOT
5299	5714.02	4923.93	1241.28	GROUND SHOT
5300	5769.78	4922.54	1240.12	GROUND SHOT
5301	5773.38	4918.86	1239.45	GROUND SHOT
5302	5790.89	4919.19	1239.41	GROUND SHOT
5303	5797.14	4947.54	1240.53	GROUND SHOT
5304	5770.23	4937.37	1240.72	GROUND SHOT
5305	5775.33	4923.57	1239.49	CONC FLATWORK
5306	5775.01	4940.47	1239.95	CONC FLATWORK
5307	5775.03	4940.72	1239.94	CONC FLATWORK
5308	5779.83	4947.93	1240.38	CONC FLATWORK
5309	5770.02	4947.10	1240.43	CONC FLATWORK
5310	5750.55	4946.76	1240.55	GUTTER
5311	5750.48	4946.20	1241.05	T/C@B/C
5312	5701.16	4945.42	1241.69	T/C@B/C
5313	5701.12	4945.79	1241.15	GUTTER
5314	5616.61	5008.29	1242.45	GUTTER
5315	5616.60	5008.95	1242.88	T/C@B/C
5316	5654.32	5009.22	1242.03	CONC FLATWORK
5317	5691.40	5009.83	1241.69	CONC FLATWORK
5318	5731.19	5010.52	1241.47	GUTTER
5319	5731.14	5010.71	1241.94	T/C@B/C
5320	5751.31	5010.97	1241.25	GUTTER
5321	5751.21	5011.60	1241.30	T/C@B/C
5322	5691.99	5045.03	1243.26	GUTTER
5323	5692.58	5045.47	1243.74	T/C@B/C
5324	5671.08	5045.39	1243.53	AC
5325	5652.46	5044.26	1243.24	GUTTER
5326	5651.43	5043.89	1243.67	T/C@B/C
5327	5632.25	5045.38	1244.63	GROUND SHOT
5328	5632.00	5113.47	1245.19	GROUND SHOT
5329	5651.00	5114.25	1244.89	T/C@B/C

MYRTLE DRAINAGE STUDY/EAST OF 16TH STREET

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Current Coordinate Listing (All)

Point	Northing	Easting	Elevation	Description
5330	5651.57	5114.25	1244.43	GUTTER
5331	5670.11	5114.90	1244.82	AC
5332	5691.48	5115.87	1244.56	GUTTER
5333	5691.94	5115.83	1245.04	T/C@B/C
5334	5706.53	5117.44	1244.14	TOP
5335	5716.23	5116.74	1242.00	TOE
5336	5737.43	5079.47	1242.08	TOE
5337	5625.30	5782.63	1255.62	CHECK SHOT
5338	5650.22	5011.42	1242.37	CHECK SHOT
5339	5745.30	5182.68	1244.62	TOP
5340	5733.95	5184.81	1241.87	TOE
5341	5713.04	5189.83	1242.24	TOE
5342	5703.87	5188.19	1245.20	TOP
5343	5691.30	5185.73	1246.32	T/C@B/C
5344	5690.72	5185.89	1245.86	GUTTER
5345	5670.54	5185.17	1246.19	AC
5346	5650.88	5184.95	1245.65	GUTTER
5347	5650.20	5184.92	1246.11	T/C@B/C
5348	5629.27	5184.16	1246.61	GROUND SHOT
5349	5629.16	5236.74	1247.69	GROUND SHOT
5350	5649.62	5238.24	1247.04	T/C@B/C
5351	5650.35	5238.36	1246.57	GUTTER
5352	5690.24	5238.52	1246.76	GUTTER
5353	5690.78	5238.56	1247.26	T/C@B/C
5354	5703.83	5239.09	1246.27	TOP
5355	5711.85	5239.63	1243.24	TOE
5356	5736.18	5239.87	1243.59	TOE
5357	5744.41	5240.80	1245.85	TOP
5358	5743.82	5314.32	1247.68	TOP
5359	5732.21	5313.63	1242.01	TOE
5360	5713.84	5310.35	1242.71	TOE
5361	5696.93	5315.49	1248.49	TOP
5362	5689.97	5315.12	1248.59	T/C@B/C
5363	5689.37	5315.20	1248.08	GUTTER
5364	5667.09	5316.15	1248.32	AC
5365	5649.46	5316.34	1247.95	GUTTER
5366	5648.83	5316.43	1248.40	T/C@B/C
5367	5636.77	5315.01	1249.56	GROUND SHOT
5368	5619.94	5347.90	1249.40	AC
5369	5619.00	5416.01	1251.35	AC
5370	5634.20	5412.04	1250.01	GROUND SHOT
5371	5647.96	5407.37	1250.03	T/C@B/C
5372	5648.58	5408.07	1249.60	GUTTER
5373	5667.12	5407.72	1249.84	AC
5374	5688.33	5410.09	1249.57	GUTTER
5375	5688.92	5410.40	1250.08	T/C@B/C
5376	5688.86	5410.36	1250.06	T/C@B/C
5377	5700.89	5412.88	1248.49	TOP
5378	5708.76	5413.66	1242.81	TOE

MYRTLE DRAINAGE STUDY/EAST OF 16TH STREET

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Current Coordinate Listing (All)

Point	Northing	Easting	Elevation	Description
5379	5730.97	5436.50	1246.63	TOE
5380	5650.24	5011.54	1242.36	CHECK SHOT
5381	5672.06	5240.74	1247.11	CHECK SHOT
5382	5745.97	5111.86	1243.66	TOP
5383	5746.26	5011.13	1241.82	T/C@B/C
5384	5752.58	5011.34	1241.32	T/C@B/C
5385	5791.16	5011.99	1241.17	T/C@B/C
5386	5796.93	5012.17	1241.67	T/C@B/C
5387	5819.15	5012.57	1241.91	T/C@B/C
5388	5819.20	5011.76	1241.43	GUTTER
5389	5796.68	5011.58	1241.18	GUTTER
5390	5791.72	5011.46	1241.16	GUTTER
5391	5751.55	5010.68	1241.30	GUTTER
5392	5746.41	5010.55	1241.34	GUTTER
5393	5749.71	5016.87	1241.81	AC
5394	5790.67	5017.21	1241.70	AC
5395	5789.66	5045.76	1242.48	AC
5396	5760.56	5038.02	1241.84	AC
5397	5769.79	5011.09	1241.14	CONC FLATWORK
5398	5779.32	5011.26	1241.09	CONC FLATWORK
5399	5820.66	4947.10	1241.36	T/C@B/C
5400	5800.81	4946.81	1241.09	T/C@B/C
5401	5795.74	4946.81	1240.58	T/C@B/C
5402	5755.79	4946.21	1240.49	T/C@B/C
5403	5750.45	4946.05	1241.09	T/C@B/C
5404	5750.52	4946.69	1240.59	GUTTER
5405	5755.71	4946.78	1240.50	GUTTER
5406	5795.89	4947.48	1240.59	GUTTER
5407	5800.98	4947.55	1240.60	GUTTER
5408	5820.76	4947.86	1240.84	GUTTER
5409	5819.17	4978.21	1241.36	AC
5410	5779.62	4977.62	1240.86	CONC FLATWORK
5411	5769.82	4977.76	1240.91	CONC FLATWORK
5412	5711.41	4976.37	1241.69	AC
5413	5630.14	4975.42	1242.85	AC
5414	5672.06	5240.72	1247.10	CHECK SHOT

1

1-22-97
F RADTKE
L ADAMS

3 EXTRA CROSS
SECTIONS

X:\DI_TERI\MR18SECT.DWG

TO 8 BS 5 FS 6

RE SECTION TO CREATE
#8 SEE RAW DATA

TO 8 BS 5 FS

P#	CODE	HR	DESCRIPTION
5415	252	4.84	✓ SHOT
5416	306		NATURAL GRADE @ WALL
5419	181		GROUND
5424	235		B/W
5425	301		T/C B/C
5428	302		GUTTER
5431	251		A/C SHOT
5434	302		GUTTER
5437	301		T/C B/C
5440	235		B/W
5443	181		GROUND SHOT
5444	306		GROUND @ WALL
5447	181		GROUND SHOT
5449	252		✓ SHOT

302	GUTTER
306	GRADE @ WALL
181	GROUND
301	C/C T/C
251	A/C SHOT
235	BACK WALK

```
MAR10018
  JOB: 012297.RW5            TIME: 15:37  DATE: 01-22-1997
  :TIONS AER LAA
  'M012297,DT1-21-1997,TM07:29:54.59
  .  .D0,UN0,SF1.0000000,EC1,EO0.0
SP,PN5415,N 5000.0000,E 5000.0000,EL100.0000,--START
OC,OP8,N 5639.3268,E 5624.0825,EL1254.288,--DEA MON
BK,OP8,BP5,BS95.0334,BC0.0000
LS,HI5.225,HR4.840
-- BS point check:8-5, Horiz err: -0.001, Vert err: -0.004
-- BS angle check: 1.0000E-5, Circle error= 1.0000E-5
SS,OP8,FP5415,AR359.59596,ZE89.39231,SD159.170,--252
SS,OP8,FP5416,AR100.12339,ZE90.03062,SD194.630,--306
SS,OP8,FP5417,AR97.01534,ZE90.13165,SD247.030,--306
SS,OP8,FP5418,AR95.00127,ZE90.11462,SD298.900,--306
SS,OP8,FP5419,AR93.11085,ZE90.31302,SD296.200,--187
SS,OP8,FP5420,AR95.12144,ZE90.35010,SD240.840,--187
SS,OP8,FP5421,AR96.55577,ZE90.13202,SD192.200,--187
SS,OP8,FP5422,AR92.22437,ZE90.13585,SD188.500,--235
SS,OP8,FP5423,AR90.51367,ZE90.13267,SD242.670,--235
SS,OP8,FP5424,AR89.54282,ZE90.13050,SD295.560,--235
SS,OP8,FP5425,AR89.07299,ZE90.13208,SD295.600,--301
SS,OP8,FP5426,AR89.56229,ZE90.14176,SD241.180,--301
SS,OP8,FP5427,AR91.13213,ZE90.15049,SD186.960,--301
SS,OP8,FP5428,AR91.01556,ZE90.23115,SD186.990,--302
SS,OP8,FP5429,AR89.47343,ZE90.21074,SD240.960,--302
SS,OP8,FP5430,AR89.01157,ZE90.19194,SD295.560,--302
  P8,FP5431,AR85.38551,ZE90.14104,SD294.640,--251
  P8,FP5432,AR85.43282,ZE90.16058,SD239.540,--251
S   8,FP5433,AR85.48125,ZE90.18115,SD186.630,--251
SS,OP8,FP5434,AR80.51341,ZE90.22136,SD186.590,--302
SS,OP8,FP5435,AR81.54270,ZE90.20135,SD241.470,--302
SS,OP8,FP5436,AR82.34459,ZE90.19240,SD295.290,--302
SS,OP8,FP5437,AR82.18197,ZE90.14500,SD295.370,--301
SS,OP8,FP5438,AR81.35303,ZE90.15176,SD241.480,--301
SS,OP8,FP5439,AR80.25310,ZE90.19503,SD186.310,--301
SS,OP8,FP5440,AR79.14507,ZE90.16191,SD186.450,--235
SS,OP8,FP5441,AR80.39010,ZE90.14454,SD241.950,--235
SS,OP8,FP5442,AR81.32580,ZE90.14340,SD295.910,--235
SS,OP8,FP5443,AR77.32083,ZE89.37145,SD297.400,--187
SS,OP8,FP5444,AR77.33417,ZE89.37231,SD242.680,--306
SS,OP8,FP5445,AR76.21556,ZE89.35537,SD204.460,--306
SS,OP8,FP5446,AR71.58087,ZE89.32343,SD207.200,--306
SS,OP8,FP5447,AR71.35513,ZE89.56287,SD201.820,--187
SS,OP8,FP5448,AR71.17348,ZE89.54452,SD186.970,--187
BK,OP8,BP5,BS95.0334,BC0.0000
-- BS point check:8-5, Horiz err: -0.011, Vert err: -0.005
-- BS angle check: 0.0007, Circle error= 0.0007
SS,OP8,FP5449,AR359.59528,ZE89.39262,SD159.160,--252
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MARI0018

'08: MARI0018.RW5 TIME: 15:37 DATE: 01-22-1997

CTIONS AER LAA

MMARI0018,DT1-21-1997,TM07:04:58.18

.DO,UNO,SF1.0000000,EC1,EO0.0

SP,PN5,N 5625.2900,E 5782.6300,EL1255.6300,--DEA MON

SP,PN6,N 5672.0600,E 5240.7500,EL1247.0800,--DEA MON

RS,PN6,CR56.42000,ZE90.24590,SD182.140

LS,HI5.225,HR5.530

RS,PN6,CR359.59594,ZE91.01338,SD384.800

RS,PN5,CR180.10427,ZE89.26029,SD159.180

LS,HI5.225,HR5.470

--Resection, Hor precision=35165

SP,PN8,N 5639.3268,E 5624.0825,EL1254.2875,--DEA MON

MARI0018

JOB: MARI0018.CR5 TIME: 15:38 DATE: 01-22-1997

TIONS AER LAA

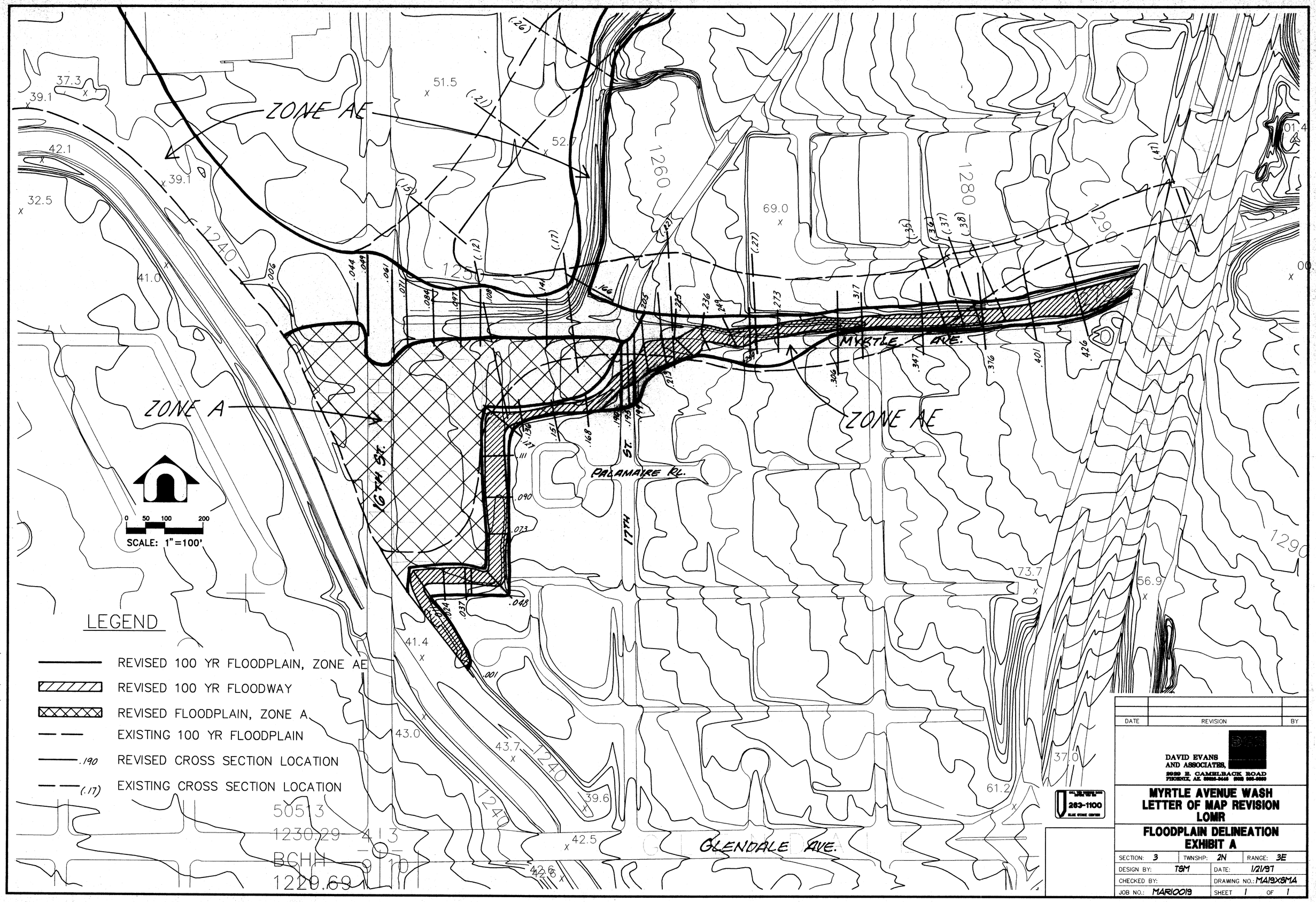
5,	5625.290000,	5782.630000,	1255.630000,	DEA MON
6,	5672.060000,	5240.750000,	1247.080000,	DEA MON
8,	5639.326783,	5624.082451,	1254.287516,	DEA MON

MAR10018

JOB: 012297.CR5 TIME: 15:37 DATE: 01-22-1997

X-SECTIONS AER LAA

415,	5625.290358,	5782.629461,	1255.627519,252
416,	5451.567132,	5572.827010,	1254.497597,306
417,	5397.778568,	5572.339085,	1253.719854,306
5418,	5345.026648,	5571.856004,	1253.650992,306
5419,	5346.200684,	5581.606765,	1251.959993,187
5420,	5402.352726,	5581.173284,	1252.220568,187
5421,	5451.322717,	5584.148033,	1253.927640,187
5422,	5452.414541,	5599.680009,	1253.906964,235
5423,	5397.952635,	5599.055388,	1253.724647,235
5424,	5344.878916,	5598.491223,	1253.549473,235
5425,	5344.516940,	5602.513764,	1253.526678,301
5426,	5399.066283,	5603.066168,	1253.670944,301
5427,	5453.491185,	5603.625125,	1253.853028,301
5428,	5453.396812,	5604.240100,	1253.411775,302
5429,	5399.234874,	5603.700775,	1253.193131,302
5430,	5344.520622,	5603.051655,	1253.012996,302
5431,	5344.711768,	5620.441480,	1253.459543,251
5432,	5399.811816,	5620.805251,	1253.552092,251
5433,	5452.720551,	5621.271925,	1253.685638,251
5434,	5453.213801,	5637.361549,	1253.466846,302
5435,	5398.199206,	5636.859059,	1253.253101,302
5436,	5344.292167,	5636.247792,	1253.007925,302
5437,	5344.271844,	5637.662044,	1253.399836,301
5438,	5398.261512,	5638.188372,	1253.599456,301
5439,	5453.598111,	5638.749561,	1253.598089,301
5440,	5453.798550,	5642.578307,	1253.788190,235
441,	5398.056988,	5642.182596,	1253.635141,235
442,	5343.937562,	5641.585998,	1253.420466,235
443,	5344.413579,	5662.410907,	1256.643144,187
5444,	5398.661814,	5655.249712,	1256.270168,306
5445,	5437.157393,	5654.567999,	1256.107007,306
5446,	5437.420593,	5670.590422,	1256.326541,306
5447,	5442.954833,	5670.658478,	1254.880099,187
5448,	5457.636029,	5668.197850,	1254.958586,187
5449,	5625.296465,	5782.619977,	1255.625067,252



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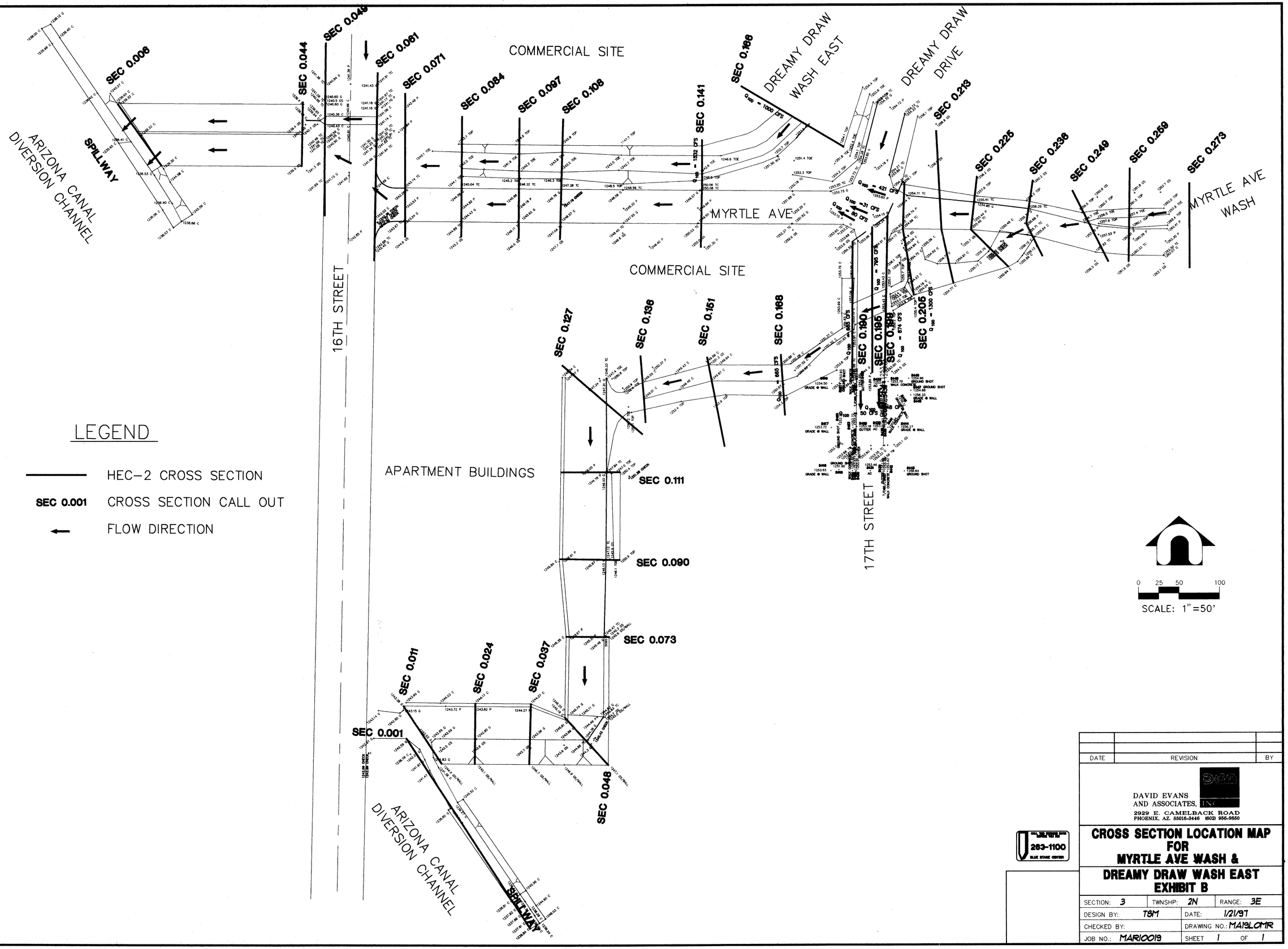


DATE	REVISION	BY

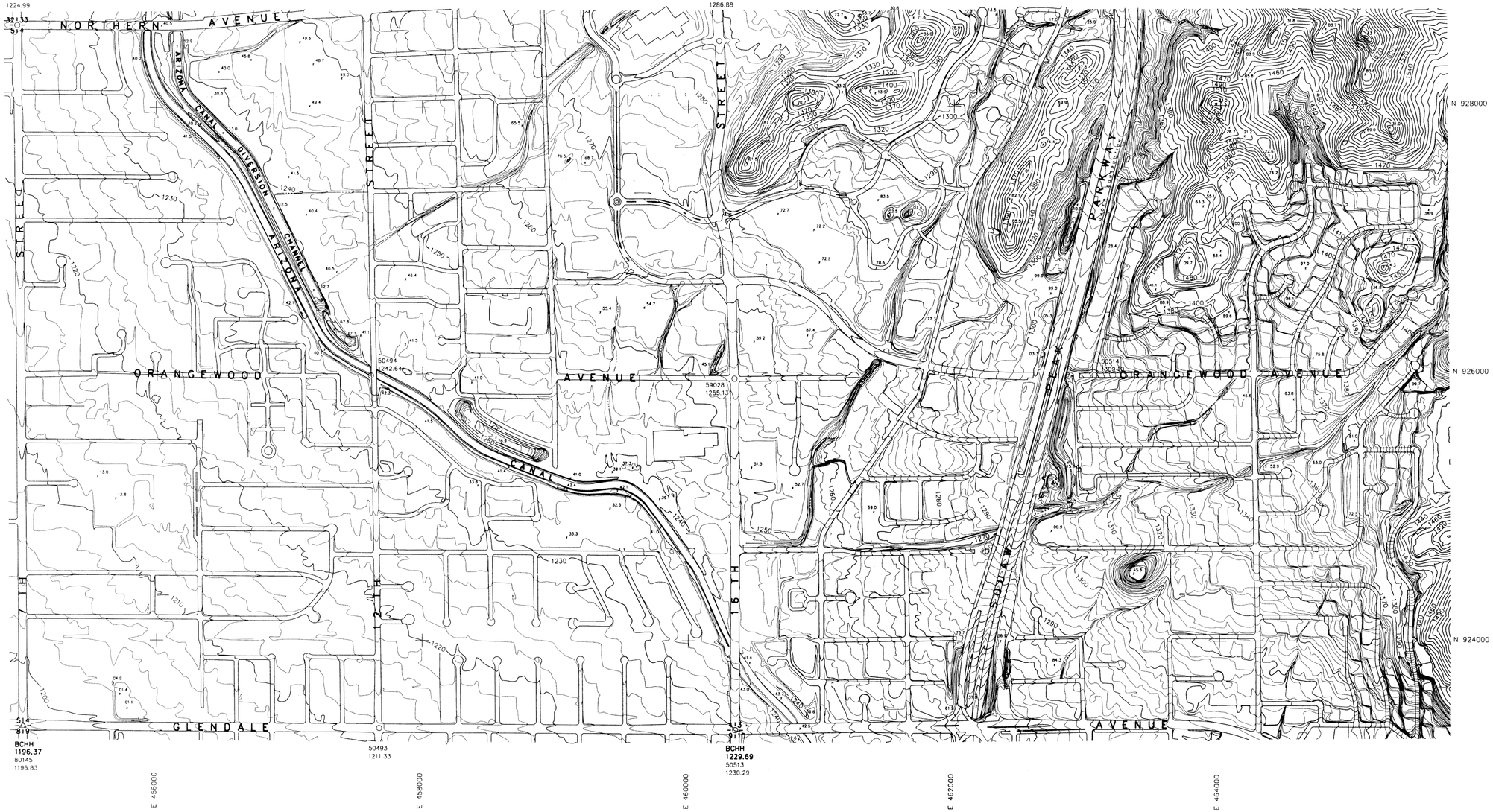
DAVID EVANS AND ASSOCIATES, INC.
2929 E. CAMELBACK ROAD
PHOENIX, AZ. 85016-4446 (602) 956-9850

CALL BLUE STAKE, INC. 263-1100 BLUE STAKE CENTER

CROSS SECTION LOCATION MAP FOR MYRTLE AVE WASH & DREAMY DRAW WASH EAST EXHIBIT B

SECTION: 3	TWNSHP: 2N	RANGE: 3E
DESIGN BY: TSM	DATE: 1/21/97	
CHECKED BY:	DRAWING NO.: MA19LOMR	
JOB NO.: MAR10019	SHEET 1 OF 1	

MAR10019 PH010 03/06/97 09:46:43 SKT S:\CAD\MAR10019\MA19LOMR



KAMINSKI HUBBARD engineering, inc.

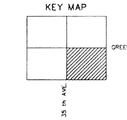
SURVEYING • CIVIL • HYDROLOGY
4550 N. BLACK CANYON HWY., SUITE C
PHOENIX, ARIZONA 85017
(602) 242-5588

REGISTERED LAND SURVEYOR
CERTIFICATE NO.
16559
DANIEL L.
KAMINSKI
DATE SIGNED 7-2-91
ARIZONA, U.S.A.

PHOTOGRAMMETRIC SURVEY CERTIFICATION

I, Daniel L. Kaminski, of KAMINSKI-HUBBARD Engineering, Inc., Arizona Registered Land Surveyor #16559, Certify That The Survey Control Used To Complete Photogrammetric Maps For This Project Is Correct And Accurate Within Contract Specifications.

KEY MAP



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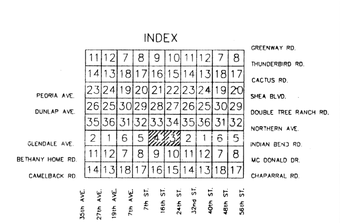

DATE FLOWN : 11-15-1990

NORTH

FLOOD CONTROL DISTRICT
OF
MARICOPA COUNTY

ARIZONA CANAL DIVERSION CHANNEL
AREA DRAINAGE MASTER STUDY
PHASE 1

DRN:	DATE:	SCALE:	JOB NO.	SHEET
DES:	DATE:	1" = 400' HORIZ.	0146	76 of 111
CHD:	DATE:	1" = ___ VERT.		

SEC. 4,3 T. 2 N. R. 3 E.

KENNEY AERIAL MAPPING INC.
PHOENIX ARIZONA

```
T1          MYRTLE AVENUE WASH                                                  T1          039
T2          STATIONS ARE LEFT TO RIGHT LOOKING UPSTREAM                         T2          040
T3          100 YEAR PROFILE RUN                                                T3          041
T4          FILE: MA19MAEX.HC2 DUPLICATE, EFFECTIVE MODEL                       T4          042
J1    -1       2       0       0     0.0       0       1       0 251.000      0J1          018
J2 1.000     0.0     0.0     0.0     0.0     0.0  -1.000     0.0     0.0    0.0J2          019
J3    1.      34.     27.     28.     31.     32.     33.     0.0     0.0    0.0J3          020
NC  .120    .120   0.040   0.100   0.300                                        NC          029
QT   2.01300.0001300.000                                   0.0     0.0    0.0QT          034
ET           0.0    10.4     0.0     0.0     0.0     0.0     0.0     0.0    0.0ET          014
X1  .120   16.00 848.000 872.000     0.0     0.0     0.0     0.0     0.0    0.0X1          053
GR252.00 425.000 250.000 455.000 251.000 500.000 248.000 563.000 251.000 584.000GR         015
GR249.00 594.000 249.000 620.000 250.400 638.000 250.000 688.000 251.000 760.000GR         015
GR251.00 848.000 248.000 855.000 248.000 863.000 250.600 872.000 251.000 952.000GR         015
GR252.301028.000     0.0     0.0     0.0     0.0     0.0     0.0     0.0    0.0GR          015
NC 0.120   0.140     0.0     0.0     0.0                                        NC          029
X1 0.170  13.000 769.000 808.000 240.000 240.000 240.000     0.0     0.0    0.0X1          053
GR256.00 400.000 254.000 540.000 253.000 562.000 253.000 590.000 255.000 602.000GR         015
GR256.00 698.000 255.000 710.000 255.000 747.000 254.000 769.000 253.000 785.000GR         015
GR253.00 795.000 255.500 808.000 256.000 910.000     0.0     0.0     0.0    0.0GR          015
X1 0.220  19.000 763.000 830.000 260.000 260.000 260.000     0.0     0.0    0.0X1          053
GR264.00 400.000 262.000 495.000 262.500 527.000 261.500 563.000 262.500 625.000GR         015
GR261.00 705.000 261.000 720.000 260.000 763.000 257.000 795.000 259.000 830.000GR         015
GR260.00 870.000 262.000 900.000 261.000 955.000 262.2001004.000 261.5001060.000GR         015
GR262.201120.000 261.0001135.000 262.7001320.000 263.0001470.000     0.0    0.0GR          015
NC   0.0     0.0   0.045     0.0     0.0                                        NC          029
X1 0.270  13.000 595.000 640.000 240.000 240.000 240.000     0.0     0.0    0.0X1          053
GR269.00 258.000 268.000 327.000 268.500 385.000 267.500 465.000 268.000 510.000GR         015
GR267.00 555.000 267.500 595.000 262.000 613.000 262.000 630.000 267.000 640.000GR         015
GR268.00 731.000 266.000 804.000 267.500 865.000     0.0     0.0     0.0    0.0GR          015
NC 0.100     0.0     0.0     0.6     0.8                                        NC          029
X1 0.350  10.0001025.0001120.000 480.000 480.000 480.000     0.0     0.0    0.0X1          053
GR281.00 500.000 279.5001025.000 270.0001075.000 270.0001085.000 279.0001120.000GR         015
GR280.201250.000 279.0001308.000 280.8001422.000 280.0001528.000 281.0001705.000GR         015
X1 0.360  21.0001055.0001100.000  55.000  60.000  57.000     0.0     0.0    0.0X1          053
GR282.00 500.000 281.0001013.000 280.0001055.000 275.0001065.000 273.9001065.400GR         015
GR273.501066.500 273.9001067.600 275.0001068.000 275.0001071.000 273.9001071.400GR         015
GR273.501072.500 273.9001073.600 275.0001074.000 275.0001078.000 273.9001078.400GR         015
GR273.501079.500 273.9001080.600 273.0001081.000 279.0001100.000 280.0001180.000GR         015
GR283.001280.000     0.0     0.0     0.0     0.0     0.0     0.0     0.0    0.0GR          015
SB 1.250   2.083   2.500     0.0 12.3000  4.8000  14.730     0.0 274.900 273.500SB          036
X1 0.370  20.0001055.0001115.000  30.000  30.000  30.000     0.0     0.0    0.0X1          053
X2   0.0     0.0   1.000 277.900 279.000     0.0     0.0     0.0     0.0    0.0X2          054
BT19.000 500.000 282.000 200.0001018.000 280.000 200.0001055.000 280.000 200.000BT         005
BT1065.0 279.200 276.2001065.400 279.000 277.1001066.300 279.000 277.4001067.100BT         005
BT279.00 277.1001067.500 279.000 276.2001069.800 279.000 276.2001070.200 279.000BT         005
BT277.101071.100 279.000 277.4001072.000 279.000 277.1001072.300 279.000 276.200BT         005
BT1074.8 279.000 276.2001075.200 279.000 277.1001076.100 279.000 277.4001077.000BT         005
BT279.00 277.1001077.300 279.000 276.2001115.000 279.000 200.000     0.0    0.0BT          005
GR283.00 500.000 282.000 800.000 283.0001000.000 280.0001055.000 276.2001065.000GR         015
GR275.301065.400 274.9001066.800 275.3001067.100 276.2001067.500 276.2001069.800GR         015
GR275.301070.200 274.9001071.100 275.3001072.000 276.2001072.300 276.2001074.800GR         015
GR275.301075.200 274.9001076.100 275.8001077.000 276.2001077.300 279.0001115.000GR         015
X1 0.380   7.000 712.000 840.000  70.000  60.000  63.000     0.0     0.0    0.0X1          053
GR286.00 600.000 284.000 712.000 280.000 755.000 275.000 778.000 283.000 840.000GR         015
GR285.50 988.000 286.0001153.000     0.0     0.0     0.0     0.0     0.0    0.0GR          015
NC   0.0     0.0     0.0   0.100   0.300                                        NC          029
X1 0.470   9.000 360.000 440.000 522.000 522.000 522.000     0.0     0.0    0.0X1          053
GR296.00   0.000 295.600 280.000 287.000 300.000 296.000 360.000 286.000 383.000GR         015
GR284.50 390.000 296.000 400.000 296.000 440.000 297.000 493.000     0.0    0.0GR          015
EJ                                                                              EJ          012
T1      MYRTLE AVENUE WSH 100 YEAR PROFILE WITH 1' ENCROACHMENT                 T1          039
T3      100 YR PROFILE W/1' ENCR                                                T3          041
J1            3                                                 251.600         J1          018
J2     2                                                                        J2          019
                                                                                BLANK_LINE  004
                                                                                BLANK_LINE  004
                                                                                BLANK_LINE  004
                                                                                BLANK_LINE  004
ER                                                                              ER          013
```

```
1*****************************************
 *  HEC-2 WATER SURFACE PROFILES          *
 *                                        *
 *  Version   4.6.2;  May 1991            *
 *                                        *
 *  RUN DATE    05MAR97    TIME   09:24:35 *
 *****************************************
```

```
*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*          (916) 756-1104           *
*************************************
```

```
X     X  XXXXXXX   XXXXX              XXXXX
X     X  X         X     X           X     X
X     X  X         X                       X
XXXXXXX  XXXX      X          XXXXX    XXXXX
X     X  X         X                  X
X     X  X         X     X            X
X     X  XXXXXXX   XXXXX              XXXXXXX
```

1

05MAR97 09:24:35 PAGE 1

THIS RUN EXECUTED 05MAR97 09:24:35

```
************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
************************************
```

```
T1          MYRTLE AVENUE WASH
T2          STATIONS ARE LEFT TO RIGHT LOOKING UPSTREAM
T3          100 YEAR PROFILE RUN
T4          FILE: MA19MAEX.HC2 DUPLICATE, EFFECTIVE MODEL

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

     -1        2        0        0       0.0        0        1        0    251.000    0

J2  NPROF    IPLOT    PRFVS    XSECV    XSECH     FN      ALLDC    IBW      CHNIM    ITRACE

   1.000     0.0      0.0      0.0      0.0      0.0    -1.000    0.0      0.0      0.0

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     1.       34.      27.      28.      31.      32.      33.      0.0      0.0      0.0

NC    .120     .120    0.040    0.100    0.300
QT     2.0  1300.000 1300.000                                      0.0      0.0      0.0
ET            0.0      10.4      0.0      0.0      0.0      0.0      0.0      0.0      0.0
X1    .120    16.00   848.000  872.000    0.0      0.0      0.0      0.0      0.0      0.0
GR  252.00  425.000  250.000  455.000  251.000  500.000  248.000  563.000  251.000  584.000
GR  249.00  594.000  249.000  620.000  250.400  638.000  250.000  688.000  251.000  760.000
GR  251.00  848.000  248.000  855.000  248.000  863.000  250.600  872.000  251.000  952.000
GR  252.30 1028.000    0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0

NC   0.120   0.140    0.0      0.0      0.0
X1   0.170  13.000  769.000  808.000  240.000  240.000  240.000    0.0      0.0      0.0
GR  256.00  400.000  254.000  540.000  253.000  562.000  253.000  590.000  255.000  602.000
GR  256.00  698.000  255.000  710.000  255.000  747.000  254.000  769.000  253.000  785.000
GR  253.00  795.000  255.500  808.000  256.000  910.000    0.0      0.0      0.0      0.0

X1   0.220  19.000  763.000  830.000  260.000  260.000  260.000    0.0      0.0      0.0
GR  264.00  400.000  262.000  495.000  262.500  527.000  261.500  563.000  262.500  625.000
GR  261.00  705.000  261.000  720.000  260.000  763.000  257.000  795.000  259.000  830.000
GR  260.00  870.000  262.000  900.000  261.000  955.000  262.200 1004.000  261.500 1060.000
GR  262.20 1120.000  261.000 1135.000  262.700 1320.000  263.000 1470.000    0.0      0.0

NC    0.0     0.0    0.045    0.0      0.0
X1   0.270  13.000  595.000  640.000  240.000  240.000  240.000    0.0      0.0      0.0
GR  269.00  258.000  268.000  327.000  268.500  385.000  267.500  465.000  268.000  510.000
GR  267.00  555.000  267.500  595.000  262.000  613.000  262.000  630.000  267.000  640.000
GR  268.00  731.000  266.000  804.000  267.500  865.000    0.0      0.0      0.0      0.0
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NC   0.100    0.0      0.0      0.6      0.8
X1   0.350   10.000 1025.000 1120.000  480.000  480.000  480.000    0.0      0.0      0.0
GR  281.00  500.000  279.500 1025.000  270.000 1075.000  270.000 1085.000  279.000 1120.000
GR  280.20 1250.000  279.000 1308.000  280.800 1422.000  280.000 1528.000  281.000 1705.000

X1   0.360  21.000 1055.000 1100.000   55.000   60.000   57.000    0.0      0.0      0.0
GR  282.00  500.000  281.000 1013.000  280.000 1055.000  275.000 1065.000  273.900 1065.400
GR  273.50 1066.500  273.900 1067.600  275.000 1068.000  275.000 1071.000  273.900 1071.400
GR  273.50 1072.500  273.900 1073.600  275.000 1074.000  275.000 1078.000  273.900 1078.400
GR  273.50 1079.500  273.900 1080.600  273.000 1081.000  279.000 1100.000  280.000 1180.000
GR  283.00 1280.000    0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0

SB   1.250   2.083    2.500    0.0     12.3000   4.8000  14.730    0.0    274.900  273.500
X1   0.370  20.000 1055.000 1115.000   30.000   30.000   30.000    0.0      0.0      0.0
X2    0.0     0.0    1.000  277.900  279.000    0.0      0.0      0.0      0.0      0.0
BT  19.000  500.000  282.000  200.000 1018.000  280.000  200.000 1055.000  280.000  200.000
BT  1065.0  279.200  276.200 1065.400  279.000  277.100 1066.300  279.000  277.400 1067.100
BT  279.00  277.100 1067.500  279.000  276.200 1069.800  279.000  276.200 1070.200  279.000
BT  277.10 1071.100  279.000  277.400 1072.000  279.000  277.100 1072.300  279.000  276.200
BT  1074.8  279.000  276.200 1075.200  279.000  277.100 1076.100  279.000  277.400 1077.000
BT  279.00  277.100 1077.300  279.000  276.200 1115.000  279.000  200.000    0.0      0.0
GR  283.00  500.000  282.000  800.000  283.000 1000.000  280.000 1055.000  276.200 1065.000
GR  275.30 1065.400  274.900 1066.800  275.300 1067.100  276.200 1067.500  276.200 1069.800
GR  275.30 1070.200  274.900 1071.100  275.300 1072.000  276.200 1072.300  276.200 1074.800
GR  275.30 1075.200  274.900 1076.100  275.800 1077.000  276.200 1077.300  279.000 1115.000

X1   0.380   7.000  712.000  840.000   70.000   60.000   63.000    0.0      0.0      0.0
GR  286.00  600.000  284.000  712.000  280.000  755.000  275.000  778.000  283.000  840.000
GR  285.50  988.000  286.000 1153.000    0.0      0.0      0.0      0.0      0.0      0.0

NC    0.0     0.0    0.0      0.100    0.300
X1   0.470   9.000  360.000  440.000  522.000  522.000  522.000    0.0      0.0      0.0
GR  296.00    0.000  295.600  280.000  287.000  300.000  296.000  360.000  286.000  383.000
GR  284.50  390.000  296.000  400.000  296.000  440.000  297.000  493.000    0.0      0.0
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SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST
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*PROF 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS
0

CCHV=     .100 CEHV=     .300
*SECNO  .120
3720 CRITICAL DEPTH ASSUMED
      .120      3.16    251.16    251.16    251.00    251.64       .49       .00       .00    251.00
    1300.0    799.4     474.8      25.8     381.7      53.6      29.3        .0        .0    250.60
       .00      2.09      8.86       .88      .120      .040      .120      .000    248.00    437.64
   .020586        0.        0.        0         0         7         0       .00    523.54    961.19


*SECNO  .170

3265 DIVIDED FLOW

      .170      2.68    255.68    255.53       .00    256.19       .51      4.54       .01    254.00
    1300.0    661.8     637.2       1.0     319.8      80.5       3.5       2.4       2.5    255.50
       .01      2.07      7.92       .29      .120      .040      .140      .000    253.00    422.01
   .017443      240.      240.      240.         3        16         0       .00    389.87    845.85


*SECNO  .220
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .220      3.52    260.52    260.52       .00    261.50       .98      4.35       .14    260.00
    1300.0       3.6    1240.1      56.3       5.7     152.6      42.6       4.2       4.1    259.00
       .02       .64      8.13      1.32      .120      .040      .140      .000    257.00    740.81
   .016040      260.      260.      260.         0        11         0       .00    136.93    877.74


*SECNO  .270

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .270      4.59    266.59    266.59       .00    268.03      1.44      4.16       .14    267.50
    1300.0        .0    1291.2       8.8        .0     133.7      13.6       5.2       4.7    267.00
       .03       .00      9.65       .65      .000      .045      .140      .000    262.00    597.96
   .018819      240.      240.      240.         0        11         0       .00     87.08    828.17


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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


CCHV=     .600 CEHV=     .800
*SECNO  .350
      .350      5.02    275.02    274.49       .00    275.98       .96      7.66       .29    279.50
    1300.0        .0    1300.0        .0        .0     165.3        .0       6.9       5.5    279.00
       .05       .00      7.86       .00      .000      .045      .000      .000    270.00   1048.60
   .013711      480.      480.      480.         3         5         0       .00     55.91   1104.51


*SECNO  .360
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .360      5.54    278.54    278.54       .00    280.14      1.60      1.03       .51    280.00
    1300.0        .0    1300.0        .0        .0     128.1        .0       7.1       5.6    279.00
       .05       .00     10.15       .00      .000      .045      .000      .000    273.00   1057.92
   .024940       55.       57.       60.         0         8         0       .00     40.63   1098.54


SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS     277.74 , NOT     278.54 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     1.25      2.08      2.50       .00     12.30      4.80     14.73       .00    274.90    273.50

*SECNO  .370
3280 CROSS SECTION       .37 EXTENDED      1.78 FEET


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.81

PRESSURE AND WEIR FLOW,  Weir Submergence Based on TRAPEZOIDAL Shape

 EGPRS     EGLWC     H3        QWEIR     QPR       BAREA     TRAPEZOID     ELLC      ELTRD     WEIRLN
                                                              AREA
    530.47    292.05       .00      1165.      138.       15.       23.    277.90    279.00      452.


      .370      5.88    280.78       .00       .00    281.37       .59      1.23       .00    280.00
    1300.0       3.8    1296.2        .0       5.5     209.4        .0       7.2       5.6    279.00
       .05       .69      6.19       .00      .100      .045      .000      .000    274.90   1040.74
   .007635       30.       30.       30.         3         0        10       .00     74.26   1115.00


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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


*SECNO  .380
      .380      6.53    281.53    279.84       .00    281.89       .36       .38       .14    284.00
    1300.0        .0    1300.0        .0        .0     270.5        .0       7.5       5.7    283.00
       .05       .00      4.81       .00      .000      .045      .000      .000    275.00    738.55
   .004961       70.       63.       60.         3        15         0       .00     90.05    828.61


CCHV=     .100 CEHV=     .300
*SECNO  .470

1645 INT SEC ADDED BY RAISING SEC       .47,  -4.750 FT AND MULTIPLYING BY   1.958


3265 DIVIDED FLOW
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7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     1.010      5.31    285.06    285.06       .00    286.25      1.19      2.31       .25    291.25
    1300.0     182.2    1117.8        .0      69.5     119.2        .0       8.9       6.3    291.25
       .06      2.62      9.38       .00      .100      .045      .000      .000    279.75    574.69
   .019969      261.      261.      261.         0        15         0       .00     89.40    772.78


1645 INT SEC ADDED BY RAISING SEC      1.01,   4.750 FT AND MULTIPLYING BY    .511


3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
      .470      6.73    291.23    291.23       .00    292.69      1.46      5.59       .08    296.00
    1300.0     292.3    1007.7        .0      80.3      92.9        .0      10.0       6.7    296.00
       .07      3.64     10.85       .00      .100      .045      .000      .000    284.50    290.17
   .023024      261.      261.      261.         0        11         0       .00     62.87    395.85

1
PROFILE FOR STREAM      100 YEAR PROFILE RUN


PLOTTED POINTS (BY PRIORITY) E-ENERGY,W-WATER SURFACE,I-INVERT,C-CRITICAL W.S.,L-LEFT BANK,R-RIGHT BANK,M-LOWER END STA


ELEVATION   248.      253.      258.      263.      268.      273.      278.      283.      288.      293.
    SECNO   CUMDIS

      .12     0.  I    RWEM .         .         .         .         .         .         .         .         .
             50.  . I    LWEM         .         .         .         .         .         .         .         .
            100.  .   I    LWE         .         .         .         .         .         .         .         .
            150.  .     I   LRWE       .         .         .         .         .         .         .         .
            200.  .       I .L RWE     .         .         .         .         .         .         .         .
      .17   250.  .         I L  WE    .         .         .         .         .         .         .         .
            300.  .         . I L RWEM.         .         .         .         .         .         .         .
            350.  .         .  I   LRWEM         .         .         .         .         .         .         .
            400.  .         .    I   L.W EM      .         .         .         .         .         .         .
            450.  .         .     I   RL W E M   .         .         .         .         .         .         .
      .22   500.  .         .       I . R LW E  M         .         .         .         .         .         .
            550.  .         .         I   R LW E M         .         .         .         .         .         .
            600.  .         .         . I     RW E M       .         .         .         .         .         .
            650.  .         .         .   I     . RW EM    .         .         .         .         .         .
            700.  .         .         .     I   .    W LE .         .         .         .         .         .
      .27   750.  .         .         .       I .     WRLE         .         .         .         .         .
            800.  .         .         .         I        W.RE       .         .         .         .         .
            850.  .         .         .          .I       CW ELM    .         .         .         .         .
            900.  .         .         .           .  I      . W  ERL .         .         .         .         .
            950.  .         .         .            .    I    .   W  ERLM         .         .         .         .
           1000.  .         .         .            .     I   .    CW E .RLM      .         .         .         .
           1050.  .         .         .            .       I .      CW E  RL M   .         .         .         .
           1100.  .         .         .            .         I        W. E   RL M.         .         .         .
           1150.  .         .         .            .          .I       CW E    RL. M         .         .         .
           1200.  .         .         .            .           .  I      . CW E    .RL M      .         .         .
      .35  1250.  .         .         .            .           .    I     .  CW E   . RL  M .         .         .
      .36  1300.  .         .         .            .           .         I         .WR E  M .         .         .
      .37  1350.  C         .         .            .           .          .  I     . R L WE  .         .         .
      .38  1400.  .         .         .            .           .          .  I     .    C  WE R L   M .         .         .
           1450.  .         .         .            .           .          .    I   .     C WE.  R L  M .         .         .
           1500.  .         .         .            .           .          .      I .       C WE    R L M         .         .
           1550.  .         .         .            .           .          .       I.          CW E     RL M         .         .
           1600.  .         .         .            .           .          .         .I         . W E     .  LM         .         .
     1.01  1650.  .         .         .            .           .          .          .   I      .   W  E .      L .         .         .
           1700.  .         .         .            .           .          .           .  I     .     W  E.       L .         .         .
           1750.  .         .         .            .           .          .            .    I .       W.E         L         .         .
           1800.  .         .         .            .           .          .             .      I.         .W  E     . L         .         .
           1850.  .         .         .            .           .          .              .I         .   W E    .  L         .         .
      .47  1900.  .         .         .            .           .          .               .  I       .    W  E.     L         .
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T1      MYRTLE AVENUE WSH 100 YEAR PROFILE WITH 1' ENCROACHMENT
T3      100 YR PROFILE W/1' ENCR

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                3                                                                   251.600
MULTIPLE PROFILE RUN WITH INTERPOLATED CROSS SECTIONS

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      2



1
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    SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 *PROF 2
0

 CCHV=     .100 CEHV=     .300
 *SECNO  .120
  2800 NAT Q1=      90.61  WSELK=     251.16  ENC Q1=      90.61  WSEL=     252.16  RATIO=    .0000
  NAT Q1=     242.  RATIOS LOB, CH, ROB=    .6639   .2540   .0822  WSEL=     252.16
 3280 CROSS SECTION        .12 EXTENDED       .47 FEET

 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=      700.4     872.0  TYPE=      4  TARGET=         .625
       .120      4.47    252.47    252.47    251.16    253.37       .90       .00       .00    251.00
     1300.0     491.1     808.9        .0     241.7      85.1        .0        .0        .0    250.60
        .00      2.03      9.51       .00      .120      .040      .000      .000    248.00    700.38
    .014072        0.        0.        0.         0        10         0       .00    171.62    872.00


 *SECNO  .170
  2800 NAT Q1=      98.43  WSELK=     255.68  ENC Q1=      98.43  WSEL=     256.68  RATIO=    .0000
  NAT Q1=     239.  RATIOS LOB, CH, ROB=    .5708   .3892   .0400  WSEL=     256.68
 3280 CROSS SECTION        .17 EXTENDED       .71 FEET


 3301 HV CHANGED MORE THAN HVINS
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7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      757.7     808.0  TYPE=      4  TARGET=          .588
      .170      3.71    256.71    256.71    255.68    258.23      1.53      3.77       .19    254.00
    1300.0      73.7    1226.3        .0      27.8     120.3        .0       1.3        .6    255.30
       .01      2.65     10.19       .00      .120      .040      .000      .000    253.00    757.66
   .017610      240.      240.      240.         9        15         0       .00     50.34    808.00


*SECNO  .220
 2800 NAT Q1=     102.65  WSELK=     260.52  ENC Q1=     179.62  WSEL=     261.52  RATIO=   -.7499
 NAT Q1=     202.  RATIOS LOB, CH, ROB=    .0318   .8871   .0811  WSEL=     261.52

3301 HV CHANGED MORE THAN HVINS

1
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3470 ENCROACHMENT STATIONS=      763.0     830.0  TYPE=      4  TARGET=          .113
      .220      3.96    260.96       .00    260.52    261.75       .79      3.44       .07    260.00
    1300.0        .0    1300.0        .0        .0     182.2        .0       2.3       1.0    259.00
       .02       .00      7.13       .00      .000      .040      .000      .000    257.00    763.00
   .010322      260.      260.      260.         3         0         0       .00     67.00    830.00


*SECNO  .270
 2800 NAT Q1=      94.77  WSELK=     266.59  ENC Q1=     141.80  WSEL=     267.59  RATIO=   -.4964
 NAT Q1=     153.  RATIOS LOB, CH, ROB=    .0084   .9271   .0645  WSEL=     267.59

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      595.0     640.0  TYPE=      4  TARGET=          .073
      .270      4.46    266.46    266.46    266.59    268.06      1.59      3.45       .24    267.50
    1300.0        .0    1300.0        .0        .0     128.3        .0       3.1       1.3    267.00
       .02       .00     10.13       .00      .000      .045      .000      .000    262.00    598.40
   .021401      240.      240.      240.        20         8         0       .00     40.52    638.92


CCHV=     .600 CEHV=     .800
*SECNO  .350
 2800 NAT Q1=     111.02  WSELK=     275.02  ENC Q1=     168.88  WSEL=     276.02  RATIO=   -.5211
 NAT Q1=     169.  RATIOS LOB, CH, ROB=    .0000  1.0000   .0000  WSEL=     276.02

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     1025.0    1120.0  TYPE=      4  TARGET=          .000
      .350      5.16    275.16       .00    275.02    276.04       .87      7.55       .43    279.50
    1300.0        .0    1300.0        .0        .0     173.5        .0       4.8       1.8    279.00
       .04       .00      7.49       .00      .000      .045      .000      .000    270.00   1047.83
   .012038      480.      480.      480.         4         0         0       .00     57.24   1105.07


*SECNO  .360
 2800 NAT Q1=      82.32  WSELK=     278.54  ENC Q1=     126.40  WSEL=     279.54  RATIO=   -.5355
 NAT Q1=     127.  RATIOS LOB, CH, ROB=    .0000   .9959   .0041  WSEL=     279.54
1
   05MAR97      09:24:35                                                                                                PAGE    9

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     1055.0    1100.0  TYPE=      4  TARGET=          .004
      .360      5.53    278.53    278.53    278.54    280.14      1.61       .96       .59    280.00
    1300.0        .0    1300.0        .0        .0     127.7        .0       5.0       1.9    279.00
       .04       .00     10.18       .00      .000      .045      .000      .000    273.00   1057.94
   .025130       55.       57.       60.        20         8         0       .00     40.58   1098.52


SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS     277.74 , NOT     278.53 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     1.25      2.08      2.50       .00     12.30      4.80     14.73       .00    274.90    273.50

*SECNO  .370
 2800 NAT Q1=     148.78  WSELK=     280.78  ENC Q1=     223.41  WSEL=     281.78  RATIO=   -.5016
 NAT Q1=     227.  RATIOS LOB, CH, ROB=    .0174   .9826   .0000  WSEL=     281.78
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE
3280 CROSS SECTION        .37 EXTENDED      1.77 FEET


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.79


3470 ENCROACHMENT STATIONS=     1055.0    1115.0  TYPE=      4  TARGET=          .017
      .370      5.87    280.77       .00    280.78    281.37       .60       .39       .60    280.00
    1300.0        .0    1300.0        .0        .0     208.8        .0       5.1       1.9    279.00
       .04       .00      6.23       .00      .000      .045      .000      .000    274.90   1055.00
   .007870       30.       30.       30.         0         0        10       .00     60.00   1115.00


*SECNO  .380
 2800 NAT Q1=     184.56  WSELK=     281.53  ENC Q1=     275.09  WSEL=     282.53  RATIO=   -.4905
 NAT Q1=     275.  RATIOS LOB, CH, ROB=    .0000  1.0000   .0000  WSEL=     282.53

3470 ENCROACHMENT STATIONS=      712.0     840.0  TYPE=      4  TARGET=          .000
      .380      6.55    281.55       .00    281.53    281.90       .35       .39       .15    284.00
    1300.0        .0    1300.0        .0        .0     272.1        .0       5.5       2.0    283.00
       .05       .00      4.78       .00      .000      .045      .000      .000    275.00    738.36
   .004887       70.       63.       60.         3         0         0       .00     90.39    828.75
```

```
SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


CCHV=     .100 CEHV=     .300
*SECNO  .470
 2800 NAT Q1=      85.68  WSELK=     291.23  ENC Q1=      92.86  WSEL=     292.23  RATIO=   -.0839
 NAT Q1=     127.  RATIOS LOB, CH, ROB=    .2677   .7323   .0000  WSEL=     292.23

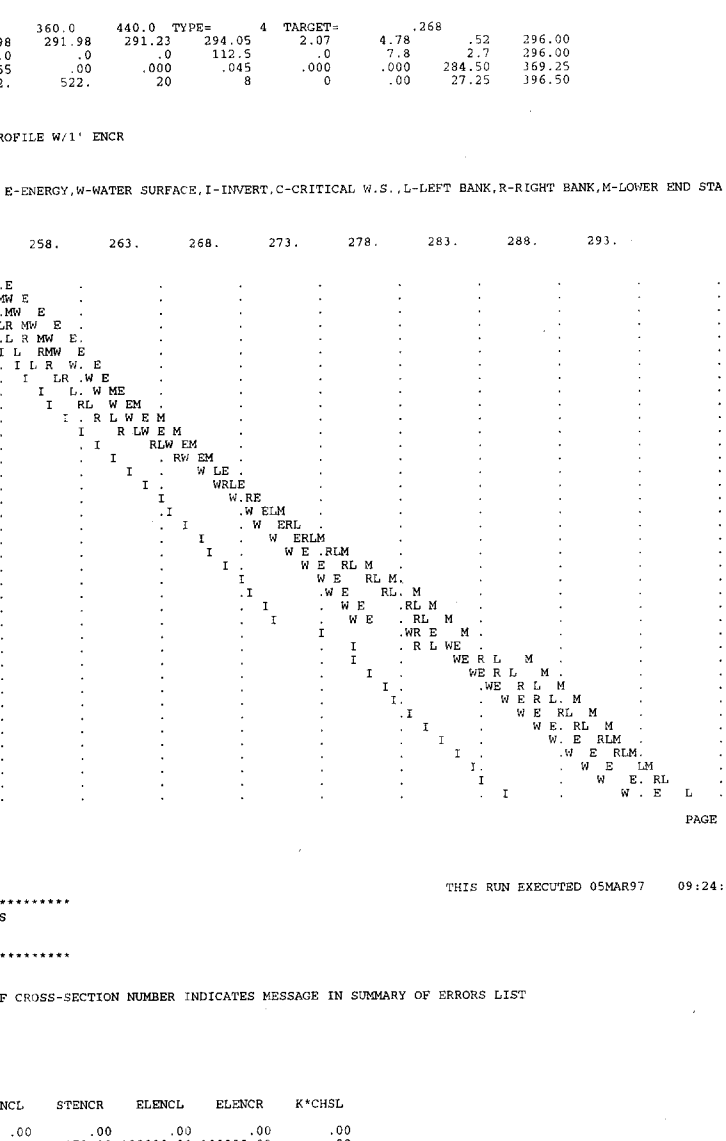
3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      360.0     440.0  TYPE=      4  TARGET=          .268
     .470      7.48    291.98    291.98    291.23    294.05      2.07      4.78       .52    296.00
    1300.0       .0    1300.0       .0        .0     112.5        .0       7.8      2.7    296.00
      .06       .00     11.55       .00      .000      .045      .000      .000    284.50    369.25
   .022958      522.      522.      522.        20         8         0       .00     27.25    396.50
```


PROFILE FOR STREAM 100 YR PROFILE W/1' ENCR

PLOTTED POINTS (BY PRIORITY) E-ENERGY,W-WATER SURFACE,I-INVERT,C-CRITICAL W.S.,L-LEFT BANK,R-RIGHT BANK,M-LOWER END STA



THIS RUN EXECUTED 05MAR97 09:24:41

```
************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
************************************
```

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

100 YEAR PROFILE RUN

SUMMARY PRINTOUT

	CWSEL	.01K	STENCL	STENCR	ELENCL	ELENCR	K*CHSL
*	251.157	90.61	.00	.00	.00	.00	.00
*	252.470	109.59	700.38	872.00	100000.00	100000.00	.00
	255.681	98.43	.00	.00	.00	.00	20.83
*	256.707	97.96	757.66	808.00	100000.00	100000.00	20.83
*	260.516	102.65	.00	.00	.00	.00	15.38
	260.962	127.96	763.00	830.00	100000.00	100000.00	15.38
*	266.594	94.77	.00	.00	.00	.00	20.83
*	266.461	88.86	595.00	640.00	100000.00	100000.00	20.83
	275.020	111.02	.00	.00	.00	.00	16.67
	275.165	118.49	1025.00	1120.00	100000.00	100000.00	16.67
*	278.540	82.32	.00	.00	.00	.00	52.63
*	278.532	82.01	1055.00	1100.00	100000.00	100000.00	52.63
*	280.776	148.78	.00	.00	.00	.00	63.33
*	280.768	146.54	1055.00	1115.00	100000.00	100000.00	63.33
	281.535	184.56	.00	.00	.00	.00	1.59
	281.549	185.96	712.00	840.00	100000.00	100000.00	1.59

```
*    291.226     85.68       .00        .00        .00        .00     18.20
*    291.978     85.80    360.00     440.00 100000.00 100000.00     18.20
```


SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION SECNO=    251.157  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    251.157  PROFILE=  2  CRITICAL DEPTH ASSUMED

CAUTION SECNO=    251.157  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    251.157  PROFILE=  2  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=    251.157  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    251.157  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=    251.157  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    251.157  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=    251.157  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    251.157  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=    251.157  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=    251.157  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    251.157  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=    251.157  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    251.157  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=    251.157  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=    251.157  PROFILE=  1  HYDRAULIC JUMP D.S.
WARNING SECNO=    251.157  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=    251.157  PROFILE=  2  HYDRAULIC JUMP D.S.
WARNING SECNO=    251.157  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=    251.157  PROFILE=  1  INTERPOLATED X-SECTIONS USED
CAUTION SECNO=    251.157  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    251.157  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=    251.157  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL
```

HEC2 S/N: 1363000967 HMVersion: 6.52 Data File: MA19REVM.HC2

```
*********************************************
*  HEC-2 WATER SURFACE PROFILES             *
*                                           *
*  Version   4.6.2;  May 1991               *
*                                           *
*  RUN DATE    21AUG97    TIME    8:54:51   *
*********************************************
```

```
****************************************
*  U.S. ARMY CORPS OF ENGINEERS        *
*  HYDROLOGIC ENGINEERING CENTER       *
*  609 SECOND STREET, SUITE D          *
*  DAVIS, CALIFORNIA 95616-4687        *
*          (916) 756-1104              *
****************************************
```

Model used to Determine Split Flow @ Myrtle Av. & 17th St.

```
X     X  XXXXXXX   XXXXX              XXXXX
X     X  X       X     X            X     X
X     X  X       X                        X
XXXXXXX  XXXX     X          XXXXX   XXXXX
X     X  X       X                  X
X     X  X       X     X            X
X     X  XXXXXXX   XXXXX            XXXXXXX
```

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::::::::::::::::::::::::::::::::::::::::::::
::::::::::::::::::::::::::::::::::::::::::::
:::                                      :::
:::   FULL MICRO-COMPUTER IMPLEMENTATION   :::
:::                                      :::
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::::::::::::::::::::::::::::::::::::::::::::
```

```
============================
H A E S T A D   M E T H O D S
============================
```

37 Brookside Road * Waterbury, Connecticut 06708 * (203) 755-1666

```
SF          WEIR FLOW STA .190 TO .199, SPLIT FLOW STA .190 TO .205
JC          WATER SURFACE IS TO DETERMINE SPLIT FLOW
JP
            WEIR FLOW FROM LEFT BANK
WS     2    .190    .195      -1    2.63
WC     0 1253.88      18 1253.88
TW          WEIR FLOW FROM LEFT BANK
WS     2    .195    .199      -1    2.63
WC     0 1253.89      18 1253.90
TN          SPLIT FLOW FROM RIGHT BANK
NS     4    .190    .195      -1    0.02    .002
NG     0  1254.4       7 1254.33       8 1253.88      35 1254.24
TN          SPLIT FLOW FROM RIGHT BANK
NS     2    .195    .199      -1    0.02   .0025
NG     0 1254.24      20  1254.4
TN          SPLIT FLOW FROM RIGHT BANK
NS     4    .199    .205      -1    0.02     .03
NG     0  1254.4      32  1254.4      32  1254.9      45  1256.1
EE
T1          MYRTLE AVENUE WASH
T2          STATIONS ARE LEFT TO RIGHT LOOKING DOWNSTREAM
T3          100 YEAR PROFILE RUN
T4          FILE: MA19REVM.HC2 REVISED MODEL
J1    -1      2       0       0      -1       0       0       0  1238.5       0
J2     1      0       0       0       0       0      -1       0       0       0
J3    38     43       1      53      54       4       8      26      27      28
J3    31     32      33
NC  .022   .015    .016     .10     .30
      1   1300
            ENTRANCE INTO ACDC
X1  .001     10     200     425       0       0       0
GR1238.8    200 1237.91     210 1237.86     220 1237.92     230 1238.81     240
GR1238.8    375 1241.97     425 1242.37     440 1242.72     455 1243.09     480
X1  .011      8     200     250      60      60      60
GR1250.0    170  1244.4     170 1242.33     180  1242.5     200 1243.15     250
GR1243.8    255  1244.0     260  1250.0     260
X1  .024      9     200     240      60      85      68
GR1250.0    170  1245.1     170  1242.6     192  1243.4     200  1242.9     200
GR1243.8    240  1244.2     240 1244.17     245  1250.0     245
X1  .037      8     200     240      68      68      68
GR1252.0    170  1246.7     170  1242.7     190 1244.06     200 1243.56     200
GR1244.3    240  1244.3     245  1250.0     245
X1  .048      9     200     235      70      45      58
GR1255.0    160  1247.1     160  1244.3     192 1244.66     200 1244.38     200
GR1245.6    235  1246.1     235 1246.18     240  1250.0     240
X1  .073     10     200     243     153     100     130
GR1250.0    193  1245.6     193  1245.3     198 1246.47     200 1245.46     200
GR1245.2    208 1245.97     243  1246.3     243 1246.35     258  1250.0     258
*           CHANGES MADE TO SURVEY DATA DUE TO CONSTRUCTION OF WALL 2' BEHIND
*             CURB IN APARTMENT PARKING AREA
NC   .03
X1  .090      9     200     253      93      95      93
GR1255.0    198  1247.1     198 1247.12     200 1246.13     200    1246     208
GR1246.6    253  1246.8     253 1246.84     258  1250.0     258
    .111     10     200     252     107     107     107
GR1255.0    198  1247.8     198 1247.84     200 1246.83     200 1246.76     208
GR1246.1    210 1247.26     252  1247.5     257 1247.55     257  1251.0     257
X1  .127     11    1000    1060      75     120      85
GR1256.0    965  1250.0     965    1249     980 1248.19    1000 1247.18    1000
GR  1248   1060  1248.4    1060  1248.4    1065  1248.5    1070  1248.0  1085.5
```

```
GR1252.0  1085.5
*          CHANGE MADE TO SURVEY DATA BASED ON CONSTRUCTION OF WALL
*            RESULTING IN A 20' CHANNEL BOTTOM
           .03    .025
X1 0.136     7     990    1025      35      65      50
GR1257.0   990 1249.01     990  1249.2    1000    1249    1005  1249.1    1010
GR1250.5  1025  1254.0    1030
X1 0.151     5     990    1015      80      80      80
GR1258.0   990  1249.8     990  1249.8    1000  1249.8    1010  1253.0    1015
X1 0.168     8     990    1030     100      80      90
GR1258.0   990 1250.88     990  1250.8    1000  1250.8    1010  1254.3    1030
GR1254.2  1050  1254.3    1090  1254.2    1150
NH     3  .016     200    .013     225    .016     300
X1  .190     6     193     255     130     125     115
GR1253.8   130 1253.91     193 1253.15     200 1253.09     225    1254     255
GR1254.4   300
NH     3  .016     200    .013     225    .016     310
*          INTERSECTION OF 17th STREET & MYRTLE AVENUE
*          SPLIT FLOW ANALYSIS PERFORMED TO DETERMINE FLOW THAT ENTERS
*            DREAMY DRAW EAST WASH
X1  .195     8     185     250      20      25      25
GR1253.9   130 1253.42     185 1253.29     200 1253.26     225 1253.77     250
GR1254.2   285  1254.2     295  1254.4     310
NH     3  .016     200    .013     225    .016     320
X1  .199     8     190     240      20      20      20
GR1253.9   125 1253.49     190 1253.43     200 1253.43     225 1253.63     240
GR1254.1   280  1254.6     295  1254.4     320
NH     5  .025     200    .016     220    .022     285    .016     320    .025
     340
     .205    12     190     260      40      24      35
GR1258.0   180  1256.0     190  1255.4     200 1254.23     220 1254.75     245
GR  1255   260  1254.9     280 1254.99     285 1254.74     295 1254.14     320
GR1254.1   320  1256.2     340
NH     5  .025     200    .016     225    .022     268    .016     305     .03
NH   340
X1  .213    11     198     260      40      40      40
GR1258.0   197  1256.0     198 1254.77     200 1254.83     225  1255.3     260
GR1255.2   268 1255.11     285 1254.52     305 1255.04     305 1256.96     315
GR1257.2   340
NH     5  .035     195    .016     233    .022     267    .016     295    .035
NH   325
X1  .225    11     195     233      70      55      65
GR1260.0   100  1258.0     195  1255.6     200 1255.75     233  1255.7     245
GR1255.4   267 1255.44     275 1254.95     295 1255.41     295  1257.8     303
GR1258.2   325
NC  .025   .04    .016
*          MYRTLE AVENUE CROSSING
X1  .236     9     183     247      45      70      55
GR1260.0   100  1258.0     170  1256.9     183 1255.84     200 1255.68     220
GR1255.7   240 1256.29     240  1259.2     247  1260.2     273
NH     3  .035     958    .016     995     .04    1100
X1  .249    10     947    1015      70      75      70
GR1262.2   900    1262     910    1261     930  1260.4     947  1257.6     958
GR1257.3   980 1257.26     995  1256.7    1000  1259.5    1015  1262.0    1100
     4  .035     955    .016     985     .04    1010     .06    1050
X1  .259    12     990    1010      35      70      55
GR1262.7   900  1262.1     940  1261.9     946 1260.33     955 1259.83     955
GR1260.0   985  1260.0     990  1257.4    1000  1261.5    1010  1261.7    1030
GR1264.0  1040  1266.0    1050
NH     4  .035     950    .016     980     .04    1015     .06    1045
```

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X1  .273      12     970    1030      75      75      75
GR1264.8     900  1264.0     950  1264.0     970  1262.0     980  1260.0     989
GR1260.0    1000  1262.0    1008  1263.0    1015  1264.0    1030  1265.0    1035
[illegible]266.0    1040  1268.0    1045
NC   .06     .06     .04
X1 0.306      12     975    1011     170     170     170
GR1268.0     870  1269.0     960  1268.0     975  1266.0     980  1264.0     985
GR1262.0    1000  1264.0    1004  1266.0    1010  1268.0    1011  1269.0    1022
GR1270.0    1030  1271.0    1050
X1 0.317       8     985    1030      60      60      60
GR1270.7     975  1270.0     985  1268.0     988  1267.0     990  1266.0    1000
GR1268.0    1020  1270.0    1030  1272.0    1050
NC                0.015
X1 0.347      10     965    1037     160     160     160
GR1274.8     950  1274.0     965  1268.0     985  1267.5     986  1267.5    1000
GR1267.5    1014  1268.0    1016  1270.0    1020  1274.0    1037  1276.0    1050
X1 0.376      12     975    1045     155     150     150
GR1278.4     860  1278.7     935  1278.0     960  1277.0     975  1272.0     980
GR1267.5     986 1267.75    1000 1267.75    1014  1270.0    1016  1274.0    1020
GR1276.0    1040  1276.0    1045
X1 0.401       9     975    1030     140     135     135
GR1282.0     960  1280.0     974  1279.0     975  1268.0     986  1268.0    1000
GR1268.0    1014  1270.0    1016  1280.0    1030  1283.0    1050
X1 0.426      10     976    1030     130     125     130
GR1286.0     897  1285.0     930  1284.0     942  1282.0     950  1280.0     976
GR1268.0     986  1268.0    1000  1268.0    1014  1280.0    1030  1284.0    1050
EJ
```

ER

THIS RUN EXECUTED 21AUG97 8:54:51

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*************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
*************************************



SPLIT FLOW BEING PERFORMED


SF          WEIR FLOW STA .190 TO .199, SPLIT FLOW STA .190 TO .205


JC          WATER SURFACE IS TO DETERMINE SPLIT FLOW
JP

TW          WEIR FLOW FROM LEFT BANK
WS     2    .190    .195      -1    2.63
WC     0 1253.88      18 1253.88

            WEIR FLOW FROM LEFT BANK
WS     2    .195    .199      -1    2.63
WC     0 1253.89      18 1253.90

TN          SPLIT FLOW FROM RIGHT BANK
NS     4    .190    .195      -1    0.02    .002
NG     0  1254.4       7 1254.33       8 1253.88      35 1254.24

TN          SPLIT FLOW FROM RIGHT BANK
NS     2    .195    .199      -1    0.02   .0025
NG     0 1254.24      20  1254.4

TN          SPLIT FLOW FROM RIGHT BANK
NS     4    .199    .205      -1    0.02     .03
NG     0  1254.4      32  1254.4      32  1254.9      45  1256.1
```

```
T1          MYRTLE AVENUE WASH
T2          STATIONS ARE LEFT TO RIGHT LOOKING DOWNSTREAM
T3          100 YEAR PROFILE RUN
T4          FILE: MA19REVM.HC2 REVISED MODEL

J1  ICHECK   INQ     NINV    IDIR    STRT    METRIC  HVINS   Q       WSEL    FQ

     -1       2       0       0      -1       0       0       0    1238.5     0

J2  NPROF    IPLOT   PRFVS   XSECV   XSECH   FN      ALLDC   IBW     CHNIM   ITRACE

     1       0       0       0       0       0      -1       0       0       0


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    38      43      1       53      54      4       8       26      27      28
    31      32      33

NC    .022    .015    .016    .10     .30
QT       1    1300
            ENTRANCE INTO ACDC
X1    .001      10     200     425       0       0       0
GR  1238.8     200  1237.91     210 1237.86     220 1237.92     230 1238.81     240
    1238.8     375  1241.97     425 1242.37     440 1242.72     455 1243.09     480

X1    .011       8     200     250      60      60      60
GR  1250.0     170  1244.4     170 1242.33     180  1242.5     200 1243.15     250
GR  1243.8     255  1244.0     260  1250.0     260

X1    .024       9     200     240      60      85      68
GR  1250.0     170  1245.1     170  1242.6     192  1243.4     200  1242.9     200
GR  1243.8     240  1244.2     240 1244.17     245  1250.0     245

X1    .037       8     200     240      68      68      68
GR  1252.0     170  1246.7     170  1242.7     190 1244.06     200 1243.56     200
GR  1244.3     240  1244.3     245  1250.0     245

X1    .048       9     200     235      70      45      58
GR  1255.0     160  1247.1     160 1244.3     192 1244.66     200 1244.38     200
GR  1245.6     235  1246.1     235 1246.18     240  1250.0     240

X1    .073      10     200     243     153     100     130
GR  1250.0     193  1245.6     193 1245.3     198 1246.47     200 1245.46     200
GR  1245.2     208 1245.97     243 1246.3     243 1246.35     258  1250.0     258
            CHANGES MADE TO SURVEY DATA DUE TO CONSTRUCTION OF WALL 2' BEHIND
              CURB IN APARTMENT PARKING AREA
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NC      .03
X1     .090        9      200      253       93       95       93
GR   1255.0      198   1247.1      198  1247.12      200  1246.13      200     1246      208
GR   1246.6      253   1246.8      253  1246.84      258   1250.0      258

X1     .111       10      200      252      107      107      107
GR   1255.0      198   1247.8      198  1247.84      200  1246.83      200  1246.76      208
GR   1246.1      210  1247.26      252   1247.5      257  1247.55      257   1251.0      257

X1     .127       11     1000     1060       75      120       85
GR   1256.0      965   1250.0      965     1249      980  1248.19     1000  1247.18     1000
GR     1248     1060   1248.4     1060   1248.4     1065   1248.5     1070   1248.0   1085.5
GR   1252.0   1085.5
            CHANGE MADE TO SURVEY DATA BASED ON CONSTRUCTION OF WALL
              RESULTING IN A 20' CHANNEL BOTTOM

NC              .03     .025
X1   0.136        7      990     1025       35       65       50
GR   1257.0      990  1249.01      990   1249.2     1000     1249     1005   1249.1     1010
GR   1250.5     1025   1254.0     1030

X1   0.151        5      990     1015       80       80       80
GR   1258.0      990   1249.8      990   1249.8     1000   1249.8     1010   1253.0     1015

     0.168        8      990     1030      100       80       90
GR   1258.0      990  1250.88      990  1250.8     1000   1250.8     1010   1254.3     1030
GR   1254.2     1050   1254.3     1090   1254.2     1150

NH       3     .016      200     .013      225     .016      300
X1    .190        6      193      255      130      125      115
GR   1253.8      130  1253.91      193  1253.15      200  1253.09      225     1254      255
GR   1254.4      300

NH       3     .016      200     .013      225     .016      310
            INTERSECTION OF 17th STREET & MYRTLE AVENUE
            SPLIT FLOW ANALYSIS PERFORMED TO DETERMINE FLOW THAT ENTERS
              DREAMY DRAW EAST WASH
X1    .195        8      185      250       20       25       25
GR   1253.9      130  1253.42      185  1253.29      200  1253.26      225  1253.77      250
GR   1254.2      285   1254.2      295   1254.4      310

NH       3     .016      200     .013      225     .016      320
X1    .199        8      190      240       20       20       20
GR   1253.9      125  1253.49      190  1253.43      200  1253.43      225  1253.63      240
GR   1254.1      280   1254.6      295   1254.4      320

NH       5     .025      200     .016      220     .022      285     .016      320     .025
NH     340
X1    .205       12      190      260       40       24       35
GR   1258.0      180   1256.0      190  1255.4      200  1254.23      220  1254.75      245
GR     1255      260   1254.9      280  1254.99      285  1254.74      295  1254.14      320
GR   1254.1      320   1256.2      340
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NH      5     .025      200     .016      225     .022      268     .016      305     .03
NH    340
X1   .213       11      198      260       40       40       40
GR  1258.0      197   1256.0      198  1254.77      200  1254.83      225   1255.3      260
GR  1255.2      268  1255.11      285  1254.52      305  1255.04      305  1256.96      315
GR  1257.2      340

NH      5     .035      195     .016      233     .022      267     .016      295     .035
NH    325
X1   .225       11      195      233       70       55       65
GR  1260.0      100   1258.0      195   1255.6      200  1255.75      233   1255.7      245
GR  1255.4      267  1255.44      275  1254.95      295  1255.41      295   1257.8      303
GR  1258.2      325

NC   .025      .04     .016
          MYRTLE AVENUE CROSSING
X1   .236        9      183      247       45       70       55
GR  1260.0      100   1258.0      170   1256.9      183  1255.84      200  1255.68      220
GR  1255.7      240  1256.29      240   1259.2      247   1260.2      273

NH      3     .035      958     .016      995      .04     1100
X1   .249       10      947     1015       70       75       70
GR  1262.2      900     1262      910     1261      930   1260.4      947   1257.6      958
    1257.3      980  1257.26      995   1256.7     1000   1259.5     1015   1262.0     1100

NH      4     .035      955     .016      985      .04     1010      .06     1050
X1   .259       12      990     1010       35       70       55
GR  1262.7      900   1262.1      940   1261.9      946  1260.33      955  1259.83      955
GR  1260.0      985   1260.0      990   1257.4     1000   1261.5     1010   1261.7     1030
GR  1264.0     1040   1266.0     1050

NH      4     .035      950     .016      980      .04     1015      .06     1045
X1   .273       12      970     1030       75       75       75
GR  1264.8      900   1264.0      950   1264.0      970   1262.0      980   1260.0      989
GR  1260.0     1000   1262.0     1008   1263.0     1015   1264.0     1030   1265.0     1035
GR  1266.0     1040   1268.0     1045

NC    .06      .06      .04
X1  0.306       12      975     1011      170      170      170
GR  1268.0      870   1269.0      960   1268.0      975   1266.0      980   1264.0      985
GR  1262.0     1000   1264.0     1004   1266.0     1010   1268.0     1011   1269.0     1022
GR  1270.0     1030   1271.0     1050

X1  0.317        8      985     1030       60       60       60
GR  1270.7      975   1270.0      985   1268.0      988   1267.0      990   1266.0     1000
GR  1268.0     1020   1270.0     1030   1272.0     1050

NC                    0.015
X1  0.347       10      965     1037      160      160      160
    1274.8      950   1274.0      965   1268.0      985   1267.5      986   1267.5     1000
GR  1267.5     1014   1268.0     1016   1270.0     1020   1274.0     1037   1276.0     1050
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X1	0.376	12	975	1045	155	150	150			
GR	1278.4	860	1278.7	935	1278.0	960	1277.0	975	1272.0	980
GR	1267.5	986	1267.75	1000	1267.75	1014	1270.0	1016	1274.0	1020
GR	1276.0	1040	1276.0	1045						
X1	0.401	9	975	1030	140	135	135			
GR	1282.0	960	1280.0	974	1279.0	975	1268.0	986	1268.0	1000
GR	1268.0	1014	1270.0	1016	1280.0	1030	1283.0	1050		
X1	0.426	10	976	1030	130	125	130			
GR	1286.0	897	1285.0	930	1284.0	942	1282.0	950	1280.0	976
GR	1268.0	986	1268.0	1000	1268.0	1014	1280.0	1030	1284.0	1050

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV= 0.100 CEHV= 0.300
*SECNO 0.001
3280 CROSS SECTION 0.00 EXTENDED 0.60 FEET

3720 CRITICAL DEPTH ASSUMED

0.001	1.54	1239.40	1239.40	1238.50	1239.78	0.38	0.00	0.00	1238.80
665.0	0.0	665.0	0.0	0.0	134.1	0.0	0.0	0.0	1241.97
0.00	0.00	4.96	0.00	0.000	0.016	0.000	0.000	1237.86	200.00
0.004386	0.	0.	0.	0	16	0	0.00	184.45	384.45

*SECNO 0.011
[illegible]5 MINIMUM SPECIFIC ENERGY
[illegible]0 CRITICAL DEPTH ASSUMED

0.011	1.74	1244.07	1244.07	0.00	1244.70	0.63	0.25	0.07	1242.50
665.0	226.1	424.0	14.9	40.5	62.5	3.9	0.2	0.2	1243.15
0.00	5.58	6.79	3.85	0.022	0.016	0.015	0.000	1242.33	171.57
0.003969	60.	60.	60.	0	8	0	0.00	88.43	260.00

*SECNO 0.024
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

0.024	2.26	1244.86	1244.86	0.00	1245.59	0.73	0.26	0.03	1243.40
665.0	196.7	453.5	14.7	37.4	60.4	3.4	0.3	0.3	1244.20
0.01	5.26	7.50	4.36	0.022	0.016	0.015	0.000	1242.60	172.10
0.003879	60.	68.	85.	0	11	0	0.00	72.90	245.00

*SECNO 0.037
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

0.037	2.61	1245.31	1245.31	0.00	1246.07	0.76	0.28	0.01	1244.06
665.0	221.1	414.5	29.3	36.4	55.3	5.1	0.5	0.4	1244.30
0.01	6.08	7.49	5.79	0.022	0.016	0.015	0.000	1242.70	176.93
0.004296	68.	68.	68.	0	11	0	0.00	68.07	245.00

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 0.048
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

0.048	2.24	1246.54	1246.54	0.00	1247.28	0.74	0.25	0.00	1244.66
665.0	242.9	415.7	6.4	45.1	54.2	2.0	0.6	0.5	1246.10
0.01	5.39	7.67	3.21	0.022	0.016	0.015	0.000	1244.30	166.43
0.003932	70.	58.	45.	0	15	0	0.00	73.57	240.00

*SECNO 0.073
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

0.073	2.04	1247.24	1247.24	0.00	1248.00	0.76	0.48	0.01	1246.47
665.0	53.6	541.1	70.2	11.7	73.2	13.7	0.9	0.7	1246.30
0.02	4.60	7.39	5.12	0.022	0.016	0.015	0.000	1245.20	193.00
0.003251	153.	130.	100.	0	11	0	0.00	65.00	258.00

*SECNO 0.090
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

0.090	1.91	1247.91	1247.91	0.00	1248.71	0.80	0.30	0.01	1247.12
665.0	3.1	633.3	28.6	1.6	87.0	5.4	1.1	0.9	1246.80
0.02	1.94	7.28	5.26	0.030	0.016	0.015	0.000	1246.00	198.00
0.003268	93.	93.	95.	0	11	0	0.00	60.00	258.00

*SECNO 0.111
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

0.111	2.26	1248.36	1248.36	0.00	1249.17	0.81	0.35	0.00	1247.84
665.0	1.7	636.2	27.1	1.1	87.2	4.9	1.4	1.0	1247.26
0.02	1.58	7.30	5.50	0.030	0.016	0.015	0.000	1246.10	198.00
0.003188	107.	107.	107.	0	11	0	0.00	59.00	257.00

*SECNO 0.127
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

0.127	1.89	1249.07	1249.07	0.00	1249.65	0.58	0.27	0.02	1248.19
665.0	15.4	567.0	82.5	9.6	88.9	19.2	1.6	1.2	1248.40
0.03	1.61	6.38	4.30	0.030	0.016	0.015	0.000	1247.18	978.93
0.002883	75.	85.	120.	0	15	0	0.00	106.57	1085.50

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 0.136

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

0.136	2.63	1251.63	1251.63	0.00	1252.74	1.11	0.22	0.16	1257.00
665.0	0.0	662.6	2.4	0.0	78.4	0.9	1.7	1.3	1250.50
0.03	0.00	8.45	2.59	0.000	0.025	0.030	0.000	1249.00	990.00
0.007610	35.	50.	65.	0	11	0	0.00	36.62	1026.62

*SECNO 0.151
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

0.151	3.12	1252.92	1252.92	0.00	1254.32	1.40	0.62	0.09	1258.00
665.0	0.0	665.0	0.0	0.0	69.9	0.0	1.8	1.3	1253.00
0.03	0.00	9.51	0.00	0.000	0.025	0.000	0.000	1249.80	990.00
.007881	80.	80.	80.	0	8	0	0.00	24.87	1014.87

*SECNO 0.168

3265 DIVIDED FLOW

3280 CROSS SECTION 0.17 EXTENDED 0.01 FEET

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.41

0.168	3.41	1254.21	1253.62	0.00	1254.88	0.67	0.49	0.07	1258.00
665.0	0.0	665.0	0.0	0.0	100.9	0.0	2.0	1.4	1254.30
0.04	0.00	6.59	0.03	0.000	0.025	0.030	0.000	1250.80	990.00
0.003956	100.	90.	80.	3	11	0	0.00	47.07	1150.00

1490 NH CARD USED
*SECNO 0.190
3280 CROSS SECTION 0.19 EXTENDED 1.11 FEET

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.09

0.190	1.82	1254.91	1254.62	0.00	1255.12	0.21	0.20	0.05	1253.91
665.0	191.3	402.7	71.0	66.6	95.5	32.1	2.4	1.7	1254.00
0.04	2.87	4.22	2.22	0.016	0.014	0.016	0.000	1253.09	130.00
0.000908	130.	115.	125.	3	18	0	0.00	170.00	300.00

1490 NH CARD USED
*SECNO 0.195
3280 CROSS SECTION 0.19 EXTENDED 1.03 FEET

0.195	1.66	1254.92	1254.60	0.00	1255.15	0.23	0.02	0.00	1253.42
796.0	235.7	431.0	129.4	69.6	100.1	49.6	2.5	1.8	1253.77
0.05	3.39	4.31	2.61	0.016	0.015	0.016	0.000	1253.26	130.00
0.000995	20.	25.	25.	2	19	0	0.00	180.00	310.00

1490 NH CARD USED
*SECNO 0.199
3280 CROSS SECTION 0.20 EXTENDED 0.99 FEET

0.199	1.47	1254.90	1254.71	0.00	1255.20	0.30	0.02	0.02	1253.49
876.0	316.3	368.5	191.2	78.0	71.4	59.3	2.6	1.9	1253.63
0.05	4.05	5.16	3.23	0.016	0.014	0.016	0.000	1253.43	125.00
0.001525	20.	20.	20.	2	15	0	0.00	195.00	320.00

1490 NH CARD USED
*SECNO 0.205
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

0.205	2.05	1256.15	1256.15	0.00	1256.83	0.67	0.09	0.11	1256.00
1300.0	0.0	581.5	718.5	0.1	92.0	105.8	2.8	2.0	1255.00
0.05	0.04	6.32	6.79	0.025	0.019	0.018	0.000	1254.10	189.24
0.004586	40.	35.	24.	0	17	0	0.00	150.31	339.55

1490 NH CARD USED
*SECNO 0.213
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
0.213	2.11	1256.63	1256.63	0.00	1257.43	0.80	0.18	0.04	1256.00
1300.0	0.0	703.5	596.5	0.1	102.9	78.9	2.9	2.1	1255.30
0.05	0.04	6.84	7.56	0.025	0.020	0.017	0.000	1254.52	197.69
0.004264	40.	40.	40.	0	8	0	0.00	115.59	313.27

1490 NH CARD USED
*SECNO 0.225
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

0.225	2.34	1257.29	1257.29	0.00	1258.14	0.85	0.24	0.02	1258.00
1300.0	0.0	428.6	871.4	0.0	56.1	119.6	3.2	2.3	1255.75
0.05	0.00	7.64	7.29	0.000	0.016	0.019	0.000	1254.95	196.49
0.003863	70.	65.	55.	0	8	0	0.00	104.79	301.28

*SECNO 0.236
7185 MINIMUM SPECIFIC ENERGY
[illegible]0 CRITICAL DEPTH ASSUMED

0.236	2.78	1258.46	1258.46	0.00	1259.51	1.05	0.19	0.06	1256.90
1300.0	43.5	1256.5	0.0	16.7	150.4	0.0	3.4	2.4	1259.20
0.05	2.60	8.36	0.00	0.025	0.016	0.000	0.000	1255.68	154.02
0.002551	45.	55.	70.	0	11	0	0.00	91.20	245.21

1490 NH CARD USED
*SECNO 0.249
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

0.249	3.33	1260.03	1260.03	0.00	1261.12	1.09	0.29	0.01	1260.40
1300.0	0.0	1293.5	6.5	0.0	153.7	4.8	3.7	2.5	1259.50
0.06	0.00	8.41	1.36	0.000	0.027	0.040	0.000	1256.70	948.46
0.007874	70.	70.	75.	0	11	0	0.00	84.53	1032.99

1490 NH CARD USED
*SECNO 0.259
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

0.259	5.16	1262.56	1262.56	0.00	1263.38	0.82	0.24	0.03	1260.00
1300.0	931.8	339.4	28.8	115.8	69.7	20.9	3.9	2.7	1261.50
0.06	8.05	4.87	1.38	0.018	0.040	0.060	0.000	1257.40	909.18
0.003494	35.	55.	70.	0	14	0	0.00	124.57	1033.75

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

1490 NH CARD USED
*SECNO 0.273
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

0.273	4.63	1264.63	1264.63	0.00	1265.45	0.82	0.38	0.00	1264.00
1300.0	96.5	1202.5	1.0	24.8	160.6	1.0	4.2	2.9	1264.00
0.06	3.89	7.49	1.00	0.020	0.034	0.060	0.000	1260.00	910.85
0.007812	75.	75.	75.	0	12	0	0.00	122.28	1033.13

*SECNO 0.306

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

0.306	5.62	1267.62	1267.62	0.00	1269.43	1.80	1.92	0.29	1268.00
1300.0	0.0	1300.0	0.0	0.0	120.6	0.0	4.8	3.2	1268.00
0.07	0.00	10.78	0.00	0.000	0.040	0.000	0.000	1262.00	975.94
0.017727	170.	170.	170.	0	11	0	0.00	34.87	1010.81

*SECNO 0.317
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

0.317	4.48	1270.48	1270.48	0.00	1271.92	1.44	1.02	0.04	1270.00
1300.0	2.0	1296.6	1.4	1.6	134.5	1.1	5.0	3.3	1270.00
0.07	1.21	9.64	1.21	0.060	0.040	0.060	0.000	1266.00	978.18
0.016200	60.	60.	60.	0	15	0	0.00	56.59	1034.77

*SECNO 0.347

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.18

0.347	4.03	1271.53	1271.09	0.00	1272.55	1.03	0.59	0.04	1274.00
1300.0	0.0	1300.0	0.0	0.0	159.9	0.0	5.6	3.5	1274.00
0.07	0.00	8.13	0.00	0.000	0.015	0.000	0.000	1267.50	973.24
0.001606	160.	160.	160.	3	15	0	0.00	53.25	1026.49

*SECNO 0.376

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

0.376	4.01	1271.51	1271.51	0.00	1273.21	1.71	0.29	0.20	1277.00
1300.0	0.0	1300.0	0.0	0.0	124.1	0.0	6.0	3.6	1276.00
0.08	0.00	10.48	0.00	0.000	0.015	0.000	0.000	1267.50	980.66
0.002459	155.	150.	150.	0	5	0	0.00	36.85	1017.51

*SECNO 0.401
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

0.401	3.87	1271.87	1271.87	0.00	1273.58	1.70	0.33	0.00	1279.00
1300.0	0.0	1300.0	0.0	0.0	124.1	0.0	6.4	3.7	1280.00
0.08	0.00	10.48	0.00	0.000	0.015	0.000	0.000	1268.00	982.13
0.002433	140.	135.	135.	0	8	0	0.00	36.49	1018.62

*SECNO 0.426

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.47

0.426	4.84	1272.84	1271.84	0.00	1273.85	1.01	0.21	0.07	1280.00
1300.0	0.0	1300.0	0.0	0.0	161.0	0.0	6.8	3.8	1280.00
0.09	0.00	8.08	0.00	0.000	0.015	0.000	0.000	1268.00	981.97
0.001121	130.	130.	125.	5	5	0	0.00	38.49	1020.46

TW WEIR FLOW FROM LEFT BANK

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
50.31	50.07	0.49	50.31	50.07	0.49	12	1254.912	1254.924	0.190	0.195

TW WEIR FLOW FROM LEFT BANK

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
48.51	48.43	0.15	98.82	98.50	0.32	12	1254.924	1254.896	0.195	0.199

TN SPLIT FLOW FROM RIGHT BANK

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
27.9	2.89	1.03	0.80	35.0	35.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
80.74	80.44	0.37	179.56	178.94	0.35	12	1254.912	1254.924	0.190	0.195

TN SPLIT FLOW FROM RIGHT BANK

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
11.8	2.61	0.68	0.59	20.0	20.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
31.47	30.87	1.93	211.02	209.80	0.58	12	1254.924	1254.896	0.195	0.199

TN SPLIT FLOW FROM RIGHT BANK

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOF WIDTH	TOP WIDTH
36.3	11.60	1.39	0.81	45.0	45.0

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
424.01	420.86	0.74	635.03	630.67	0.69	12	1254.896	1256.152	0.199	0.205

PROFILE FOR STREAM 100 YEAR PROFILE RUN

PLOTTED POINTS (BY PRIORITY) E-ENERGY,W-WATER SURFACE,I-INVERT,C-CRITICAL W.S.,L-LEFT BANK,R-RIGHT BANK,M-LOWER END STA

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ELEVATION  1238.    1243.    1248.    1253.    1258.    1263.    1268.    1273.    1278.    1283.
   SECNO   CUMDIS

   0.00      0.  I LWE   R .        .        .        .        .        .        .        .        .
            10.  .I L EM  R.        .        .        .        .        .        .        .        .
            20.  .  IL WE R.        .        .        .        .        .        .        .        .
            30.  .   I L WE.  M     .        .        .        .        .        .        .        .
            40.  .     IL WE      M .        .        .        .        .        .        .        .
            50.  .      IL RWE       .M      .        .        .        .        .        .        .
   0.01     60.  .        I.RW E     .  M     .        .        .        .        .        .        .
            70.  .        ILR WE     .  M     .        .        .        .        .        .        .
            80.  .        ILR WE     .  M     .        .        .        .        .        .        .
            90.  .        IL RWE     .  M     .        .        .        .        .        .        .
           100.  .        IL RW E    .  M     .        .        .        .        .        .        .
           110.  .        I.LR WE    .  M     .        .        .        .        .        .        .
           120.  .        I.LR WE    .  M     .        .        .        .        .        .        .
   0.02    130.  .        I.L RWE    .  M     .        .        .        .        .        .        .
           140.  .         IL RW E   .  M     .        .        .        .        .        .        .
           150.  .         IL RW E   .  M     .        .        .        .        .        .        .
           160.  .         I LRW E   .  M     .        .        .        .        .        .        .
           170.  .         I LR WE   .  M     .        .        .        .        .        .        .
           180.  .         I LR WE   .  M     .        .        .        .        .        .        .
           190.  .         I LR WE   .  M     .        .        .        .        .        .        .
   0.04    200.  .         I LR WE   .  M     .        .        .        .        .        .        .
           210.  .         I  LRW E  .  M     .        .        .        .        .        .        .
           220.  .         .I LR WE  .  M     .        .        .        .        .        .        .
           230.  .         .I L RW E .  M     .        .        .        .        .        .        .
           240.  .         . IL R WE .  M     .        .        .        .        .        .        .
           250.  .         . IL  RW E.  M     .        .        .        .        .        .        .
   0.05    260.  .         .  IL RW E.  M     .        .        .        .        .        .        .
           270.  .         .  IL  W E.  M     .        .        .        .        .        .        .
           280.  .         .  IL  RWE.  M     .        .        .        .        .        .        .
           290.  .         .  IL  RWE.  M     .        .        .        .        .        .        .
           300.  .         .  I L RWE.  M     .        .        .        .        .        .        .
           310.  .         .   IL RWE.  M     .        .        .        .        .        .        .
           320.  .         .   IL RW E  M     .        .        .        .        .        .        .
           330.  .         .   I LRW E  M     .        .        .        .        .        .        .
           340.  .         .   I LRW E  M     .        .        .        .        .        .        .
           350.  .         .   I LRW E  M     .        .        .        .        .        .        .
           360.  .         .   I LRW E  M     .        .        .        .        .        .        .
           370.  .         .   I  L WE  M     .        .        .        .        .        .        .
           380.  .         .    I L WE  M     .        .        .        .        .        .        .
   0.07    390.  .         .    I L WE  M     .        .        .        .        .        .        .
           400.  .         .    I L WE  M     .        .        .        .        .        .        .
           410.  .         .    I L W.E M     .        .        .        .        .        .        .
           420.  .         .    I RLW.E M     .        .        .        .        .        .        .
           430.  .         .    I RLW.E M     .        .        .        .        .        .        .
           440.  .         .     IRLW.E M     .        .        .        .        .        .        .
           450.  .         .     I L WE M     .        .        .        .        .        .        .
           460.  .         .     I L WE M     .        .        .        .        .        .        .
           470.  .         .     I L W E M    .        .        .        .        .        .        .
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      1080.  .         .         .         . I R WE  .         .         .         .         .         .         .
0.20  1090.  .         .         .         . I R LWE .         .         .         .         .         .         .
      1100.  .         .         .         .  IR LWE .         .         .         .         .         .         .
      1110.  .         .         .         .  I RLWME.         .         .         .         .         .         .
      1120.  .         .         .         .  I RLWME.         .         .         .         .         .         .
0.21  1130.  .         .         .         .  I RL WE.         .         .         .         .         .         .
      1140.  .         .         .         .  I R LWE.         .         .         .         .         .         .
      1150.  .         .         .         .   IR  WME         .         .         .         .         .         .
      1160.  .         .         .         .   IR  W E         .         .         .         .         .         .
      1170.  .         .         .         .   IR  WLE         .         .         .         .         .         .
      1180.  .         .         .         .   I R  WE         .         .         .         .         .         .
0.22  1190.  .         .         .         .   I R  WLE         .         .         .         .         .         .
      1200.  .         .         .         .   I  R WLE         .         .         .         .         .         .
      1210.  .         .         .         .    I  RLW E       .         .         .         .         .         .
      1220.  .         .         .         .    I   LW EM      .         .         .         .         .         .
      1230.  .         .         .         .    I   L.W E      .         .         .         .         .         .
      1240.  .         .         .         .     I L .WREM     .         .         .         .         .         .
0.24  1250.  .         .         .         .     I L .W EM     .         .         .         .         .         .
      1260.  .         .         .         .     I  L. WREM    .         .         .         .         .         .
      1270.  .         .         .         .     I   L WREM    .         .         .         .         .         .
      1280.  .         .         .         .      I  .L W EM   .         .         .         .         .         .
      1290.  .         .         .         .      I  . LW E M  .         .         .         .         .         .
      1300.  .         .         .         .      I  .  W  EM  .         .         .         .         .         .
      1310.  .         .         .         .      I  .  RW E M .         .         .         .         .         .
0.25  1320.  .         .         .         .       I .  RWL EM .         .         .         .         .         .
      1330.  .         .         .         .       I .   RW E M.         .         .         .         .         .
      1340.  .         .         .         .       I .    LW EM.         .         .         .         .         .
      1350.  .         .         .         .       I .    L W E.         .         .         .         .         .
      1360.  .         .         .         .        I.   L R WME         .         .         .         .         .
0.26  1370.  .         .         .         .        I.   L  R WME        .         .         .         .         .
      1380.  .         .         .         .         I    L  R W E       .         .         .         .         .
      1390.  .         .         .         .         I     L  R.WE       .         .         .         .         .
      1400.  .         .         .         .         .I     L R.W E      .         .         .         .         .
      1410.  .         .         .         .         . I      LR WE      .         .         .         .         .
      1420.  .         .         .         .         .  I      LRW E     .         .         .         .         .
      1430.  .         .         .         .         .  I      .L WE     .         .         .         .         .
      1440.  .         .         .         .         .   I     . LWME    .         .         .         .         .
0.27  1450.  .         .         .         .         .   I     . L WE    .         .         .         .         .
      1460.  .         .         .         .         .    I    .  LW E   .         .         .         .         .
      1470.  .         .         .         .         .    I    .  LWME   .         .         .         .         .
      1480.  .         .         .         .         .    I    .   LW E  .         .         .         .         .
      1490.  .         .         .         .         .    I    .   LW E  .         .         .         .         .
      1500.  .         .         .         .         .    I    .    WM E .         .         .         .         .
      1510.  .         .         .         .         .     I   .    LW E .         .         .         .         .
      1520.  .         .         .         .         .     I   .     WME .         .         .         .         .
      1530.  .         .         .         .         .     I   .     WM E.         .         .         .         .
      1540.  .         .         .         .         .     I   .      W E.         .         .         .         .
      1550.  .         .         .         .         .      I  .      WM E         .         .         .         .
      1560.  .         .         .         .         .      I  .      WM E         .         .         .         .
      1570.  .         .         .         .         .      I  .       W .E        .         .         .         .
      1580.  .         .         .         .         .      I  .       WM.E        .         .         .         .
      1590.  .         .         .         .         .       I .       WL. E       .         .         .         .
      1600.  .         .         .         .         .       I .        WM E       .         .         .         .
      1610.  .         .         .         .         .       I .        WL  E      .         .         .         .
0.31  1620.  .         .         .         .         .       I .         W  E      .         .         .         .
      1630.  .         .         .         .         .         I         WL  E     .         .         .         .
      1640.  .         .         .         .         .         .I        .WL  E    .         .         .         .
      1650.  .         .         .         .         .         . I       . WM  E   .         .         .         .
      1660.  .         .         .         .         .         .   I     .  WM E   .         .         .         .
      1670.  .         .         .         .         .         .    I    .   WM E  .         .         .         .
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0.09  480.  .        .    I RLW E M     .        .        .        .        .        .        .        .
      490.  .        .    I RLW E M     .        .        .        .        .        .        .        .
      500.  .        .    I RLW E  M    .        .        .        .        .        .        .        .
      510.  .        .    I RLW E  M    .        .        .        .        .        .        .        .
      520.  .        .    I RLW E  M    .        .        .        .        .        .        .        .
      530.  .        .    I RL.WE  M    .        .        .        .        .        .        .        .
      540.  .        .    I RL.WE  M    .        .        .        .        .        .        .        .
      550.  .        .    I RL.WE   M   .        .        .        .        .        .        .        .
      560.  .        .    I  RLWE   M   .        .        .        .        .        .        .        .
      570.  .        .    I  RLWE   M   .        .        .        .        .        .        .        .
      580.  .        .    I  RLW E  M   .        .        .        .        .        .        .        .
0.11  590.  .        .    I  RLW E  M   .        .        .        .        .        .        .        .
      600.  .        .     I RLW E   M  .        .        .        .        .        .        .        .
      610.  .        .     I RLW E   M  .        .        .        .        .        .        .        .
      620.  .        .     I  L WE   M  .        .        .        .        .        .        .        .
      630.  .        .     I  L WE   M  .        .        .        .        .        .        .        .
      640.  .        .      I L WE   M  .        .        .        .        .        .        .        .
      650.  .        .      I L WE    M .        .        .        .        .        .        .        .
      660.  .        .      I .LWE    M .        .        .        .        .        .        .        .
0.13  670.  .        .       I.LW E   M .        .        .        .        .        .        .        .
      680.  .        .       I. RWLE   M.        .        .        .        .        .        .        .
      690.  .        .        I  RW E L M        .        .        .        .        .        .        .
      700.  .        .        .I  RW E  .L       .        .        .        .        .        .        .
      710.  .        .        . I R  W E.M   L   .        .        .        .        .        .        .
0.14  720.  .        .        . I  R  W E M    L .        .        .        .        .        .        .
      730.  .        .        . I   R W E M     L.        .        .        .        .        .        .
      740.  .        .        .  I   RW .EM     L.        .        .        .        .        .        .
      750.  .        .        .  I   R W.EM     L.        .        .        .        .        .        .
      760.  .        .        .  I    RW.E      L.        .        .        .        .        .        .
      770.  .        .        .  I    RW.ME      L        .        .        .        .        .        .
      780.  .        .        .  I     W.ME      L        .        .        .        .        .        .
      790.  .        .        .   I     WM E     L        .        .        .        .        .        .
0.15  800.  .        .        .   I     W  E     L        .        .        .        .        .        .
      810.  .        .        .   I     WR E     L        .        .        .        .        .        .
      820.  .        .        .   I     CW E     L        .        .        .        .        .        .
      830.  .        .        .    I    .W E     L        .        .        .        .        .        .
      840.  .        .        .    I    .W E     L        .        .        .        .        .        .
      850.  .        .        .    I    .CW E    L        .        .        .        .        .        .
      860.  .        .        .    I    .CW E    L        .        .        .        .        .        .
      870.  .        .        .    I    .CW E    L        .        .        .        .        .        .
      880.  .        .        .     I   .CWRE    L        .        .        .        .        .        .
0.17  890.  .        .        .     I   . CWE    L        .        .        .        .        .        .
      900.  .        .        .     I   . CWE    L        .        .        .        .        .        .
      910.  .        .        .      I  . CWE   L.        .        .        .        .        .        .
      920.  .        .        .      I  . CWE  L .        .        .        .        .        .        .
      930.  .        .        .      I  . CWE  L  .       .        .        .        .        .        .
      940.  .        .        .       I . CWE  L  .       .        .        .        .        .        .
      950.  .        .        .       I . MWE L   .       .        .        .        .        .        .
      960.  .        .        .        I. MCEL    .       .        .        .        .        .        .
      970.  .        .        .        I. RCEL    .       .        .        .        .        .        .
      980.  .        .        .        I. RCE     .       .        .        .        .        .        .
      990.  .        .        .         I RCE     .       .        .        .        .        .        .
     1000.  .        .        .         I LCE     .       .        .        .        .        .        .
0.19 1010.  .        .        .         I L WE    .       .        .        .        .        .        .
     1020.  .        .        .         .IL WE    .       .        .        .        .        .        .
0.19 1030.  .        .        .         .IRCWE    .       .        .        .        .        .        .
     1040.  .        .        .         .IR WE    .       .        .        .        .        .        .
0.20 1050.  .        .        .         .IR WE    .       .        .        .        .        .        .
     1060.  .        .        .         . IL WE   .       .        .        .        .        .        .
     1070.  .        .        .         . IRLCWE  .       .        .        .        .        .        .
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0.32 1680.  .         .         .         .         .         .    I   .  LWM E .        .        .        .
     1690.  .         .         .         .         .         .    I   .   WM E .        .        .        .
     1700.  .         .         .         .         .         .     I  .   CWME .        .        .        .
     1710.  .         .         .         .         .         .     I  .   CWME .        .        .        .
     1720.  .         .         .         .         .         .     I  .    W E .        .        .        .
     1730.  .         .         .         .         .         .     I  .    WLME.        .        .        .
     1740.  .         .         .         .         .         .     I  .    WL E.        .        .        .
     1750.  .         .         .         .         .         .      I .    W LE.        .        .        .
     1760.  .         .         .         .         .         .      I .    W LEM        .        .        .
     1770.  .         .         .         .         .         .      I .    W  EM        .        .        .
     1780.  .         .         .         .         .         .      I .    CW E.M       .        .        .
     1790.  .         .         .         .         .         .      I .    CW ELM       .        .        .
     1800.  .         .         .         .         .         .       I.    CW EL M      .        .        .
     1810.  .         .         .         .         .         .       I.    CW E.LM      .        .        .
     1820.  .         .         .         .         .         .       I.    CW E.L M     .        .        .
     1830.  .         .         .         .         .         .       I.    CW E. LM     .        .        .
0.35 1840.  .         .         .         .         .         .       I.    CW E. L M    .        .        .
     1850.  .         .         .         .         .         .       I.     W E.  LM    .        .        .
     1860.  .         .         .         .         .         .       I.     W  E  LM    .        .        .
     1870.  .         .         .         .         .         .       I.     W  E  LM    .        .        .
     1880.  .         .         .         .         .         .       I.     W  E  RLM   .        .        .
     1890.  .         .         .         .         .         .       I.     W  E   LM   .        .        .
     1900.  .         .         .         .         .         .       I.     W  E   RL   .        .        .
     1910.  .         .         .         .         .         .       I.     W  E   RL   .        .        .
     1920.  .         .         .         .         .         .       I.     W  E   RL   .        .        .
     1930.  .         .         .         .         .         .       I.     W  E    RL  .        .        .
     1940.  .         .         .         .         .         .       I.     W  E    RL  .        .        .
     1950.  .         .         .         .         .         .       I.     W  E    RML .        .        .
     1960.  .         .         .         .         .         .       I.     W  E    RML .        .        .
     1970.  .         .         .         .         .         .       I.     W  .E    RL .        .        .
     1980.  .         .         .         .         .         .       I.     W  .E    R L.        .        .
0.38 1990.  .         .         .         .         .         .       I.     W  .E    R L.        .        .
     2000.  .         .         .         .         .         .       I.     W  .E     R L.       .        .
     2010.  .         .         .         .         .         .       I.     W  .E     RML.       .        .
     2020.  .         .         .         .         .         .        I     W  .E      RL.       .        .
     2030.  .         .         .         .         .         .        I      W .E       LM       .        .
     2040.  .         .         .         .         .         .        I      W .E       RLM      .        .
     2050.  .         .         .         .         .         .        I      W .E        L M     .        .
     2060.  .         .         .         .         .         .        I      W .E        L  M    .        .
     2070.  .         .         .         .         .         .        I      W .E        .L M    .        .
     2080.  .         .         .         .         .         .        I      W .E        .LR M   .        .
     2090.  .         .         .         .         .         .        I      W .E        .LR  M  .        .
     2100.  .         .         .         .         .         .        I      W .E        . LR  M .        .
     2110.  .         .         .         .         .         .        I      W .E        . LR   M.        .
0.40 2120.  .         .         .         .         .         .        I      W .E        . L R   M.       .
     2130.  .         .         .         .         .         .        I      W .E        . L R    M.      .
     2140.  .         .         .         .         .         .        I      W . E       .  LR    M.      .
     2150.  .         .         .         .         .         .        I      W . E       .  LR    M.      .
     2160.  .         .         .         .         .         .        I      CW. E       .  LR     M      .
     2170.  .         .         .         .         .         .        I      CW. E       .  LR     M      .
     2180.  .         .         .         .         .         .        I      CW. E       .  LR     M      .
     2190.  .         .         .         .         .         .        I      CW. E       .  LR     M      .
     2200.  .         .         .         .         .         .        I      CW. E       .   L     .M     .
     2210.  .         .         .         .         .         .        I      CW. E       .   L     .M     .
     2220.  .         .         .         .         .         .        I      C W E       .   L     .M     .
     2230.  .         .         .         .         .         .        I      C W E       .   L     . M    .
     2240.  .         .         .         .         .         .        I      C W E       .   L     . M    .
0.43 2250.  .         .         .         .         .         .        I      C W E       .   L     . M    .
```

THIS RUN EXECUTED 21AUG97 8:54:52

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

100 YEAR PROFILE RUN

SUMMARY PRINTOUT

	SECNO	Q	CWSEL	SSTA	ENDST	TOPWID	DEPTH	VCH	STENCL	STENCR	ELENCL	ELENCR	K*CHSL
*	0.001	664.97	1239.40	200.00	384.45	184.45	1.54	4.96	0.00	0.00	0.00	0.00	0.00
*	0.011	664.97	1244.07	171.57	260.00	88.43	1.74	6.79	0.00	0.00	0.00	0.00	74.50
	0.024	664.97	1244.86	172.10	245.00	72.90	2.26	7.50	0.00	0.00	0.00	0.00	3.97
*	0.037	664.97	1245.31	176.93	245.00	68.07	2.61	7.49	0.00	0.00	0.00	0.00	1.47
*	0.048	664.97	1246.54	166.43	240.00	73.57	2.24	7.67	0.00	0.00	0.00	0.00	27.59
*	0.073	664.97	1247.24	193.00	258.00	65.00	2.04	7.39	0.00	0.00	0.00	0.00	6.92
*	0.090	664.97	1247.91	198.00	258.00	60.00	1.91	7.28	0.00	0.00	0.00	0.00	8.60
*	0.111	664.97	1248.36	198.00	257.00	59.00	2.26	7.30	0.00	0.00	0.00	0.00	0.93
*	0.127	664.97	1249.07	978.93	1085.50	106.57	1.89	6.38	0.00	0.00	0.00	0.00	12.71
*	0.136	664.97	1251.63	990.00	1026.62	36.62	2.63	8.45	0.00	0.00	0.00	0.00	36.40
*	0.151	664.97	1252.92	990.00	1014.87	24.87	3.12	9.51	0.00	0.00	0.00	0.00	10.00
*	0.168	664.97	1254.21	990.00	1150.00	47.07	3.41	6.59	0.00	0.00	0.00	0.00	11.11
*	0.190	664.97	1254.91	130.00	300.00	170.00	1.82	4.22	0.00	0.00	0.00	0.00	19.91
	0.195	796.02	1254.92	130.00	310.00	180.00	1.66	4.31	0.00	0.00	0.00	0.00	6.80
	0.199	875.99	1254.90	125.00	320.00	195.00	1.47	5.16	0.00	0.00	0.00	0.00	8.50
	0.205	1300.00	1256.15	189.24	339.55	150.31	2.05	6.32	0.00	0.00	0.00	0.00	19.14
*	0.213	1300.00	1256.63	197.69	313.27	115.59	2.11	6.84	0.00	0.00	0.00	0.00	10.50

	SECNO	Q	CWSEL	SSTA	ENDST	TOPWID	DEPTH	VCH	STENCL	STENCR	ELENCL	ELENCR	K*CHSL
*	0.225	1300.00	1257.29	196.49	301.28	104.79	2.34	7.64	0.00	0.00	0.00	0.00	6.61
*	0.236	1300.00	1258.46	154.02	245.21	91.20	2.78	8.36	0.00	0.00	0.00	0.00	13.27
*	0.249	1300.00	1260.03	948.46	1032.99	84.53	3.33	8.41	0.00	0.00	0.00	0.00	14.57
*	0.259	1300.00	1262.56	909.18	1033.75	124.57	5.16	4.87	0.00	0.00	0.00	0.00	12.73
*	0.273	1300.00	1264.63	910.85	1033.13	122.28	4.63	7.49	0.00	0.00	0.00	0.00	34.67
*	0.306	1300.00	1267.62	975.94	1010.81	34.87	5.62	10.78	0.00	0.00	0.00	0.00	11.76
*	0.317	1300.00	1270.48	978.18	1034.77	56.59	4.48	9.64	0.00	0.00	0.00	0.00	66.67
*	0.347	1300.00	1271.53	973.24	1026.49	53.25	4.03	8.13	0.00	0.00	0.00	0.00	9.38
*	0.376	1300.00	1271.51	980.66	1017.51	36.85	4.01	10.48	0.00	0.00	0.00	0.00	0.00
*	0.401	1300.00	1271.87	982.13	1018.62	36.49	3.87	10.48	0.00	0.00	0.00	0.00	3.70
*	0.426	1300.00	1272.84	981.97	1020.46	38.49	4.84	8.08	0.00	0.00	0.00	0.00	0.00

SUMMARY OF ERRORS AND SPECIAL NOTES

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CAUTION SECNO=      0.001  PROFILE=  1  CRITICAL DEPTH ASSUMED

CAUTION SECNO=      0.011  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      0.011  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      0.024  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      0.024  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      0.037  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      0.037  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      0.048  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      0.048  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      0.073  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      0.073  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      0.090  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      0.090  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      0.111  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      0.111  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      0.127  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      0.127  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      0.136  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      0.136  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      0.151  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      0.151  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=      0.168  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      0.190  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=      0.205  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      0.205  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      0.213  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      0.213  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      0.225  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      0.225  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      0.236  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      0.236  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      0.249  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      0.249  PROFILE=  1  MINIMUM SPECIFIC ENERGY
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CAUTION SECNO=      0.259  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      0.259  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      0.273  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      0.273  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      0.306  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      0.306  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      0.317  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      0.317  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=      0.347  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=      0.376  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      0.376  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      0.401  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      0.401  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=      0.426  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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HEC2 S/N: 1363000967 HMVersion: 6.52 Data File: MA19MENC.HC2

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*********************************************
* HEC-2 WATER SURFACE PROFILES              *
*                                           *
* Version   4.6.2;  May 1991                *
*                                           *
* RUN DATE     7MAY97    TIME    7:59:10    *
*********************************************
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****************************************
* U.S. ARMY CORPS OF ENGINEERS         *
* HYDROLOGIC ENGINEERING CENTER        *
* 609 SECOND STREET, SUITE D           *
* DAVIS, CALIFORNIA 95616-4687         *
*          (916) 756-1104              *
****************************************
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X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX             XXXXXXX
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:::::::::::::::::::::::::::::::::::::::::::::
:::::::::::::::::::::::::::::::::::::::::::::
:::                                       :::
:::   FULL MICRO-COMPUTER IMPLEMENTATION   :::
:::                                       :::
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:::::::::::::::::::::::::::::::::::::::::::::
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H A E S T A D   M E T H O D S
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37 Brookside Road * Waterbury, Connecticut 06708 * (203) 755-1666

```
T1          MYRTLE AVENUE WASH ENCROACHMENT MODEL W/ RESULTS OF SPLIT FLOW MODEL
T2          STATIONS ARE LEFT TO RIGHT LOOKING DOWNSTREAM
T3          100 YEAR PROFILE RUN
T4          FILE: MA19MENC.HC2 REVISED MODEL
J     -1      2       0       0      -1       0       0       0  1238.5       0
[illegible]  1      0       0       0       0       0      -1       0       0       0
J3    38     43       1      53      54       4       8      26      27      28
J3    31     32      33     200
NC  .022   .015    .016     .10     .30
QT     2    665     665
*           ENTRANCE INTO ACDC
ET                  4.1     200     386
X1  .001     10     200     425       0       0       0
GR1238.8    200 1237.91     210 1237.86     220 1237.92     230 1238.81     240
GR1238.8    375 1241.97     425 1242.37     440 1242.72     455 1243.09     480
ET                  4.1     200     250
X1  .011      8     200     250      60      60      60
GR1250.0    170  1244.4     170 1242.33     180  1242.5     200 1243.15     250
GR1243.8    255  1244.0     260  1250.0     260
ET                  4.1     200     240
X1  .024      9     200     240      60      85      68
GR1250.0    170  1245.1     170  1242.6     192  1243.4     200  1242.9     200
GR1243.8    240  1244.2     240 1244.17     245  1250.0     245
ET                  4.1     200     240
X1  .037      8     200     240      68      68      68
GR1252.0    170  1246.7     170  1242.7     190 1244.06     200 1243.56     200
GR1244.3    240  1244.3     245  1250.0     245
ET                  4.1     190     235
X1  .048      9     200     235      70      45      58
GR[illegible]55.0    160  1247.1     160  1244.3     192 1244.66     200 1244.38     200
[illegible]5.6    235  1246.1     235 1246.18     240  1250.0     240
ET                  4.1     200     243
X1  .073     10     200     243     153     100     130
GR1250.0    193  1245.6     193  1245.3     198 1246.47     200 1245.46     200
GR1245.2    208 1245.97     243  1246.3     243 1246.35     258  1250.0     258
NC   .03
ET                  4.1     200     253
X1  .090      9     200     253      93      95      93
GR1255.0    198  1247.1     198 1247.12     200 1246.13     200    1246     208
GR1246.6    253  1246.8     253 1246.84     258  1250.0     258
ET                  4.1     200     252
X1  .111     10     200     252     107     107     107
GR1255.0    198  1247.8     198 1247.84     200 1246.83     200 1246.76     208
GR1246.1    210 1247.26     252  1247.5     257 1247.55     257  1251.0     257
ET                  4.1    1000    1060
X1  .127     11    1000    1060      75     120      85
GR1256.0    965  1250.0     965    1249     980 1248.19    1000 1247.18    1000
GR  1248   1060  1248.4    1060  1248.4    1065  1248.5    1070  1248.0  1085.5
GR1252.0  1085.5
NC          .03    .025
ET                  4.1     990    1020
X1 0.136      7     990    1025      35      65      50
GR1257.0    990 1249.01     990  1249.2    1000    1249    1005  1249.1    1010
GR1250.5   1025  1254.0    1030
ET                  4.1     990    1010
X[illegible]151      5     990    1015      80      80      80
G[illegible]8.0    990  1249.8     990  1249.8    1000  1249.8    1010  1253.0    1015
ET                  4.1     990    1020
X1 0.168      8     990    1030     100      80      90
GR1258.0    990 1250.88     990  1250.8    1000  1250.8    1010  1254.3    1030
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GR1254.2    1050  1254.3    1090  1254.2    1150
NH     3    .016     200    .013     225    .016     300
ET                  4.1     196     233
X1  .190       6     193     255     130     125     115
G[illegible]53.8    130 1253.91     193 1253.15     200 1253.09     225    1254     255
[illegible]4.4    300
NH     3    .016     200    .013     225    .016     310
*           INTERSECTION OF 17th STREET & MYRTLE AVENUE
*              FLOW REMAINING AFTER SPLIT FLOW ANALYSIS THAT WAS PERFORMED
*              AS PART OF DREAMY DRAW EAST WASH MODEL (MA19MARV.HC2)
QT     2    796     796
ET                  4.1     185     230
X1  .195       8     185     250      20      25      25
GR1253.9    130 1253.42     185 1253.29     200 1253.26     225 1253.77     250
GR1254.2    285  1254.2     295  1254.4     310
QT     2    876     876
NH     3    .016     200    .013     225    .016     320
ET                  4.1     185     234
X1  .199       8     190     240      20      20      20
GR1253.9    125 1253.49     190 1253.43     200 1253.43     225 1253.63     240
GR1254.1    280  1254.6     295  1254.4     320
QT     2   1300    1300
ET                  4.1     210     280
NH     5    .025     200    .016     220    .022     285    .016     320    .025
NH   340
X1  .205      12     190     260      40      24      35
GR1258.0    180  1256.0     190  1255.4     200 1254.23     220 1254.75     245
GR  1255    260  1254.9     280 1254.99     285 1254.74     295 1254.14     320
GR1254.1    320  1256.2     340
E[illegible]                4.1     200     270
[illegible]     5    .025     200    .016     225    .022     268    .016     305     .03
NH   340
X1  .213      11     198     260      40      40      40
GR1258.0    197  1256.0     198 1254.77     200 1254.83     225  1255.3     260
GR1255.2    268 1255.11     285 1254.52     305 1255.04     305 1256.96     315
GR1257.2    340
ET                  4.1     200     260
NH     5    .035     195    .016     233    .022     267    .016     295    .035
NH   325
X1  .225      11     195     233      70      55      65
GR1260.0    100  1258.0     195  1255.6     200 1255.75     233  1255.7     245
GR1255.4    267 1255.44     275 1254.95     295 1255.41     295  1257.8     303
GR1258.2    325
ET                  4.1     201     251
NC  .025     .04    .016
*           MYRTLE AVENUE CROSSING
X1  .236       9     183     247      45      70      55
GR1260.0    100  1258.0     170  1256.9     183 1255.84     200 1255.68     220
GR1255.7    240 1256.29     240  1259.2     247  1260.2     273
ET                  4.1     960    1010
NH     3    .035     958    .016     995     .04    1100
X1  .249      10     947    1015      70      75      70
GR1262.2    900    1262     910    1261     930  1260.4     947  1257.6     958
GR1257.3    980 1257.26     995  1256.7    1000  1259.5    1015  1262.0    1100
ET                  4.1     965    1010
N[illegible]     4    .035     955    .016     985     .04    1010     .06    1050
X[illegible]259      12     990    1010      35      70      55
GR1262.7    900  1262.1     940  1261.9     946 1260.33     955 1259.83     955
GR1260.0    985  1260.0     990  1257.4    1000  1261.5    1010  1261.7    1030
GR1264.0   1040  1266.0    1050
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ET                  4.1     981    1008
NH     4    .035     950    .016     980     .04    1015     .06    1045
X1  .273      12     970    1030      75      75      75
GR1264.8     900  1264.0     950  1264.0     970  1262.0     980  1260.0     989
GR1260.0    1000  1262.0    1008  1263.0    1015  1264.0    1030  1265.0    1035
GR1266.0    1040  1268.0    1045
ET                  4.1     978    1008
NC   .06     .06     .04
X1 0.306      12     975    1011     170     170     170
GR1268.0     870  1269.0     960  1268.0     975  1266.0     980  1264.0     985
GR1262.0    1000  1264.0    1004  1266.0    1010  1268.0    1011  1269.0    1022
GR1270.0    1030  1271.0    1050
ET                  4.1     989    1021
X1 0.317       8     985    1030      60      60      60
GR1270.7     975  1270.0     985  1268.0     988  1267.0     990  1266.0    1000
GR1268.0    1020  1270.0    1030  1272.0    1050
ET                  4.1     980    1015
NC                0.015
X1 0.347      10     965    1037     160     160     160
GR1274.8     950  1274.0     965  1268.0     985  1267.5     986  1267.5    1000
GR1267.5    1014  1268.0    1016  1270.0    1020  1274.0    1037  1276.0    1050
ET                  4.1     983    1013
X1 0.376      12     975    1045     155     150     150
GR1278.4     860  1278.7     935  1278.0     960  1277.0     975  1272.0     980
GR1267.7     986 1267.75    1000 1267.75    1014  1270.0    1016  1274.0    1020
GR1276.0    1040  1278.0    1045
ET                  4.1     985    1015
X1 0.401       9     975    1030     140     135     135
GR1282.0     960  1280.0     974  1279.0     975  1268.0     986  1268.0    1000
GR1268.0    1014  1270.0    1016  1280.0    1030  1283.0    1050
ET                  4.1     965    1025
X1 0.426      10     976    1030     130     125     130
GR1286.0     897  1285.0     930  1284.0     942  1282.0     950  1280.0     976
GR1268.0     986  1268.0    1000  1268.0    1014  1280.0    1030  1284.0    1050
EJ
T1      MYRTLE AVENUE WASH 100 YEAR PROFILE WITH 1P ENCROACHMENT
T3      100 YR PROFILE W/1' ENCR
J1            3                                                  1239.5
J2     2


ER
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THIS RUN EXECUTED 7MAY97 7:59:10

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************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
************************************


T1          MYRTLE AVENUE WASH ENCROACHMENT MODEL W/ RESULTS OF SPLIT FLOW MODEL
T2          STATIONS ARE LEFT TO RIGHT LOOKING DOWNSTREAM
T3          100 YEAR PROFILE RUN
T4          FILE: MA19MENC.HC2 REVISED MODEL

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      -1        2         0         0        -1         0         0         0    1238.5         0

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      1         0         0         0         0         0        -1         0         0         0


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    38        43         1        53        54         4         8        26        27        28
    31        32        33       200

NC     .022      .015      .016       .10       .30
QT        2       665       665
           ENTRANCE INTO ACDC
ET                          4.1       200       386
X1     .001        10       200       425         0         0         0
GR   1238.8       200   1237.91       210   1237.86       220   1237.92       230   1238.81       240
GR   1238.8       375   1241.97       425   1242.37       440   1242.72       455   1243.09       480

ET                          4.1       200       250
X1     .011         8       200       250        60        60        60
GR   1250.0       170    1244.4       170   1242.33       180    1242.5       200   1243.15       250
GR   1243.8       255    1244.0       260    1250.0       260

ET                          4.1       200       240
X1     .024         9       200       240        60        85        68
GR   1250.0       170    1245.1       170    1242.6       192    1243.4       200    1242.9       200
GR   1243.8       240    1244.2       240   1244.17       245    1250.0       245

ET                          4.1       200       240
X1     .037         8       200       240        68        68        68
GR   1252.0       170    1246.7       170    1242.7       190   1244.06       200   1243.56       200
GR   1244.3       240    1244.3       245    1250.0       245
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			4.1	190	235					
X1	.048	9	200	235	70	45	58			
GR	1255.0	160	1247.1	160	1244.3	192	1244.66	200	1244.38	200
GR	1245.6	235	1246.1	235	1246.18	240	1250.0	240		
ET			4.1	200	243					
X1	.073	10	200	243	153	100	130			
GR	1250.0	193	1245.6	193	1245.3	198	1246.47	200	1245.46	200
GR	1245.2	208	1245.97	243	1246.3	243	1246.35	258	1250.0	258
NC	.03									
ET			4.1	200	253					
X1	.090	9	200	253	93	95	93			
GR	1255.0	198	1247.1	198	1247.12	200	1246.13	200	1246	208
GR	1246.6	253	1246.8	253	1246.84	258	1250.0	258		
ET			4.1	200	252					
X1	.111	10	200	252	107	107	107			
GR	1255.0	198	1247.8	198	1247.84	200	1246.83	200	1246.76	208
GR	1246.1	210	1247.26	252	1247.5	257	1247.55	257	1251.0	257
ET			4.1	1000	1060					
X1	.127	11	1000	1060	75	120	85			
GR	1256.0	965	1250.0	965	1249	980	1248.19	1000	1247.18	1000
GR	1248	1060	1248.4	1060	1248.4	1065	1248.5	1070	1248.0	1085.5
GR	1252.0	1085.5								
NC		.03	.025							
ET			4.1	990	1020					
X1	0.136	7	990	1025	35	65	50			
GR	1257.0	990	1249.01	990	1249.2	1000	1249	1005	1249.1	1010
GR	1250.5	1025	1254.0	1030						
ET			4.1	990	1010					
X1	0.151	5	990	1015	80	80	80			
GR	1258.0	990	1249.8	990	1249.8	1000	1249.8	1010	1253.0	1015
ET			4.1	990	1020					
X1	0.168	8	990	1030	100	80	90			
GR	1258.0	990	1250.88	990	1250.8	1000	1250.8	1010	1254.3	1030
GR	1254.2	1050	1254.3	1090	1254.2	1150				
NH	3	.016	200	.013	225	.016	300			
ET			4.1	196	233					
X1	.190	6	193	255	130	125	115			
GR	1253.8	130	1253.91	193	1253.15	200	1253.09	225	1254	255
GR	1254.4	300								

```
NH      3      .016      200      .013      225      .016      310
          INTERSECTION OF 17th STREET & MYRTLE AVENUE
              FLOW REMAINING AFTER SPLIT FLOW ANALYSIS THAT WAS PERFORMED
              AS PART OF DREAMY DRAW EAST WASH MODEL (MA19MARV.HC2)
QT      2      796      796
ET                      4.1      185      230
X1   .195        8      185      250       20       25       25
GR  1253.9      130  1253.42      185  1253.29      200  1253.26      225  1253.77      250
GR  1254.2      285   1254.2      295   1254.4      310

QT      2      876      876
NH      3      .016      200      .013      225      .016      320
ET                      4.1      185      234
X1   .199        8      190      240       20       20       20
GR  1253.9      125  1253.49      190  1253.43      200  1253.43      225  1253.63      240
GR  1254.1      280   1254.6      295   1254.4      320

QT      2     1300     1300
ET                      4.1      210      280
NH      5      .025      200      .016      220      .022      285      .016      320      .025
NH    340
X1   .205       12      190      260       40       24       35
GR  1258.0      180   1256.0      190   1255.4      200  1254.23      220  1254.75      245
GR    1255      260   1254.9      280  1254.99      285  1254.74      295  1254.14      320
GR  1254.1      320   1256.2      340

ET                      4.1      200      270
NH      5      .025      200      .016      225      .022      268      .016      305      .03
NH    340
X1   .213       11      198      260       40       40       40
GR  1258.0      197   1256.0      198  1254.77      200  1254.83      225   1255.3      260
GR  1255.2      268  1255.11      285  1254.52      305  1255.04      305  1256.96      315
GR  1257.2      340

ET                      4.1      200      260
NH      5      .035      195      .016      233      .022      267      .016      295      .035
NH    325
X1   .225       11      195      233       70       55       65
GR  1260.0      100   1258.0      195  1255.6      200  1255.75      233   1255.7      245
GR  1255.4      267  1255.44      275  1254.95      295  1255.41      295  1257.8      303
GR  1258.2      325

ET                      4.1      201      251
NC   .025      .04      .016
          MYRTLE AVENUE CROSSING
X1   .236        9      183      247       45       70       55
GR  1260.0      100   1258.0      170  1256.9      183  1255.84      200  1255.68      220
GR  1255.7      240  1256.29      240  1259.2      247   1260.2      273
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			4.1	960	1010					
NH	3	.035	958	.016	995	.04	1100			
X1	.249	10	947	1015	70	75	70			
GR	1262.2	900	1262	910	1261	930	1260.4	947	1257.6	958
GR	1257.3	980	1257.26	995	1256.7	1000	1259.5	1015	1262.0	1100
ET			4.1	965	1010					
NH	4	.035	955	.016	985	.04	1010	.06	1050	
X1	.259	12	990	1010	35	70	55			
GR	1262.7	900	1262.1	940	1261.9	946	1260.33	955	1259.83	955
GR	1260.0	985	1260.0	990	1257.4	1000	1261.5	1010	1261.7	1030
GR	1264.0	1040	1266.0	1050						
ET			4.1	981	1008					
NH	4	.035	950	.016	980	.04	1015	.06	1045	
X1	.273	12	970	1030	75	75	75			
GR	1264.8	900	1264.0	950	1264.0	970	1262.0	980	1260.0	989
GR	1260.0	1000	1262.0	1008	1263.0	1015	1264.0	1030	1265.0	1035
GR	1266.0	1040	1268.0	1045						
ET			4.1	978	1008					
NC	.06	.06	.04							
X1	0.306	12	975	1011	170	170	170			
GR	1268.0	870	1269.0	960	1268.0	975	1266.0	980	1264.0	985
GR	1262.0	1000	1264.0	1004	1266.0	1010	1268.0	1011	1269.0	1022
GR	1270.0	1030	1271.0	1050						
ET			4.1	989	1021					
X1	0.317	8	985	1030	60	60	60			
GR	1270.7	975	1270.0	985	1268.0	988	1267.0	990	1266.0	1000
GR	1268.0	1020	1270.0	1030	1272.0	1050				
ET			4.1	980	1015					
NC			0.015							
X1	0.347	10	965	1037	160	160	160			
GR	1274.8	950	1274.0	965	1268.0	985	1267.5	986	1267.5	1000
GR	1267.5	1014	1268.0	1016	1270.0	1020	1274.0	1037	1276.0	1050
ET			4.1	983	1013					
X1	0.376	12	975	1045	155	150	150			
GR	1278.4	860	1278.7	935	1278.0	960	1277.0	975	1272.0	980
GR	1267.7	986	1267.75	1000	1267.75	1014	1270.0	1016	1274.0	1020
GR	1276.0	1040	1278.0	1045						
ET			4.1	985	1015					
X1	0.401	9	975	1030	140	135	135			
GR	1282.0	960	1280.0	974	1279.0	975	1268.0	986	1268.0	1000
GR	1268.0	1014	1270.0	1016	1280.0	1030	1283.0	1050		

			4.1	965	1025					
X1	0.426	10	976	1030	130	125	130			
GR	1286.0	897	1285.0	930	1284.0	942	1282.0	950	1280.0	976
GR	1268.0	986	1268.0	1000	1268.0	1014	1280.0	1030	1284.0	1050

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV= 0.100 CEHV= 0.300
*SECNO 0.001
3280 CROSS SECTION 0.00 EXTENDED 0.60 FEET

3720 CRITICAL DEPTH ASSUMED

0.001	1.54	1239.40	1239.40	1238.50	1239.78	0.38	0.00	0.00	1238.80
665.0	0.0	665.0	0.0	0.0	133.9	0.0	0.0	0.0	1241.97
0.00	0.00	4.97	0.00	0.000	0.016	0.000	0.000	1237.86	200.00
0.004403	0.	0.	0.	0	16	0	0.00	184.44	384.44

*SECNO 0.011
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

0.011	1.74	1244.07	1244.07	0.00	1244.70	0.63	0.25	0.07	1242.50
665.0	226.1	424.0	14.9	40.5	62.5	3.9	0.2	0.2	1243.15
0.00	5.58	6.79	3.85	0.022	0.016	0.015	0.000	1242.33	171.57
0.003966	60.	60.	60.	0	8	0	0.00	88.43	260.00

*SECNO 0.024
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

0.024	2.26	1244.86	1244.86	0.00	1245.59	0.73	0.26	0.03	1243.40
665.0	196.7	453.5	14.7	37.4	60.4	3.4	0.3	0.3	1244.20
0.01	5.26	7.50	4.36	0.022	0.016	0.015	0.000	1242.60	172.10
0.003879	60.	68.	85.	0	11	0	0.00	72.90	245.00

*SECNO 0.037
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

0.037	2.61	1245.31	1245.31	0.00	1246.07	0.76	0.28	0.01	1244.06
665.0	221.2	414.5	29.3	36.4	55.3	5.1	0.5	0.4	1244.30
0.01	6.08	7.50	5.80	0.022	0.016	0.015	0.000	1242.70	176.94
0.004312	68.	68.	68.	0	11	0	0.00	68.06	245.00

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 0.048
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

0.048	2.24	1246.54	1246.54	0.00	1247.28	0.74	0.25	0.00	1244.66
665.0	242.9	415.7	6.4	45.1	54.2	2.0	0.6	0.5	1246.10
0.01	5.39	7.67	3.21	0.022	0.016	0.015	0.000	1244.30	166.43
0.003930	70.	58.	45.	0	15	0	0.00	73.57	240.00

*SECNO 0.073
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

0.073	2.04	1247.24	1247.24	0.00	1248.00	0.76	0.48	0.01	1246.47
665.0	53.6	541.2	70.2	11.7	73.1	13.7	0.9	0.7	1246.30
0.02	4.60	7.40	5.12	0.022	0.016	0.015	0.000	1245.20	193.00
0.003257	153.	130.	100.	0	11	0	0.00	65.00	258.00

*SECNO 0.090
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

0.090	1.91	1247.91	1247.91	0.00	1248.71	0.80	0.30	0.01	1247.12
665.0	3.1	633.3	28.6	1.6	87.0	5.4	1.1	0.9	1246.80
0.02	1.94	7.28	5.26	0.030	0.016	0.015	0.000	1246.00	198.00
0.003264	93.	93.	95.	0	11	0	0.00	60.00	258.00

*SECNO 0.111
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

0.111	2.26	1248.36	1248.36	0.00	1249.18	0.81	0.35	0.00	1247.84
665.0	1.7	636.2	27.0	1.1	87.1	4.9	1.4	1.0	1247.26
0.02	1.58	7.30	5.50	0.030	0.016	0.015	0.000	1246.10	198.00
0.003196	107.	107.	107.	0	11	0	0.00	59.00	257.00

*SECNO 0.127
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

0.127	1.89	1249.07	1249.07	0.00	1249.65	0.58	0.27	0.02	1248.19
665.0	15.4	567.1	82.5	9.6	88.9	19.2	1.6	1.2	1248.40
0.03	1.61	6.38	4.30	0.030	0.016	0.015	0.000	1247.18	978.93
0.002883	75.	85.	120.	0	15	0	0.00	106.57	1085.50

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 0.136

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

0.136	2.63	1251.63	1251.63	0.00	1252.74	1.11	0.22	0.16	1257.00
665.0	0.0	662.6	2.4	0.0	78.4	0.9	1.7	1.3	1250.50
0.03	0.00	8.45	2.59	0.000	0.025	0.030	0.000	1249.00	990.00
0.007622	35.	50.	65.	0	11	0	0.00	36.62	1026.62

*SECNO 0.151
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

0.151	3.12	1252.92	1252.92	0.00	1254.32	1.40	0.62	0.09	1258.00
665.0	0.0	665.0	0.0	0.0	69.9	0.0	1.8	1.3	1253.00
0.03	0.00	9.51	0.00	0.000	0.025	0.000	0.000	1249.80	990.00
0.007882	80.	80.	80.	0	8	0	0.00	24.87	1014.87

*SECNO 0.168

3265 DIVIDED FLOW

3280 CROSS SECTION 0.17 EXTENDED 0.00 FEET

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.41

0.168	3.41	1254.21	1253.62	0.00	1254.88	0.68	0.49	0.07	1258.00
665.0	0.0	665.0	0.0	0.0	100.8	0.0	2.0	1.4	1254.30
0.04	0.00	6.60	0.03	0.000	0.025	0.030	0.000	1250.80	990.00
0.003965	100.	90.	80.	3	11	0	0.00	44.57	1150.00

1490 NH CARD USED
*SECNO 0.190
3280 CROSS SECTION 0.19 EXTENDED 1.11 FEET

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.09

0.190	1.82	1254.91	1254.62	0.00	1255.12	0.21	0.20	0.05	1253.91
665.0	191.3	402.7	71.1	66.6	95.5	32.1	2.4	1.7	1254.00
0.04	2.87	4.21	2.22	0.016	0.014	0.016	0.000	1253.09	130.00
0.000908	130.	115.	125.	2	18	0	0.00	170.00	300.00

1490 NH CARD USED
*SECNO 0.195
3280 CROSS SECTION 0.19 EXTENDED 1.02 FEET

0.195	1.66	1254.92	1254.60	0.00	1255.15	0.23	0.02	0.00	1253.42
796.0	235.6	431.1	129.2	69.5	100.0	49.5	2.5	1.8	1253.77
0.05	3.39	4.31	2.61	0.016	0.015	0.016	0.000	1253.26	130.00
0.000999	20.	25.	25.	2	19	0	0.00	180.00	310.00

1490 NH CARD USED
*SECNO 0.199
3280 CROSS SECTION 0.20 EXTENDED 1.00 FEET

0.199	1.47	1254.90	1254.71	0.00	1255.20	0.30	0.02	0.02	1253.49
876.0	316.2	368.0	191.8	78.3	71.7	59.6	2.6	1.9	1253.63
0.05	4.04	5.13	3.22	0.016	0.014	0.016	0.000	1253.43	125.00
0.001505	20.	20.	20.	2	15	0	0.00	195.00	320.00

1490 NH CARD USED
*SECNO 0.205
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

0.205	2.05	1256.15	1256.15	0.00	1256.83	0.67	0.09	0.11	1256.00
1300.0	0.0	581.5	718.5	0.1	92.0	105.8	2.8	2.0	1255.00
0.05	0.04	6.32	6.79	0.025	0.019	0.018	0.000	1254.10	189.24
0.004586	40.	35.	24.	0	17	0	0.00	150.31	339.55

1490 NH CARD USED
*SECNO 0.213
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
0.213	2.11	1256.63	1256.63	0.00	1257.43	0.80	0.18	0.04	1256.00
1300.0	0.0	703.5	596.5	0.1	102.9	78.9	2.9	2.1	1255.30
0.05	0.04	6.84	7.56	0.025	0.020	0.017	0.000	1254.52	197.69
0.004264	40.	40.	40.	0	8	0	0.00	115.59	313.27

1490 NH CARD USED
*SECNO 0.225
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

0.225	2.34	1257.29	1257.29	0.00	1258.14	0.85	0.24	0.02	1258.00
1300.0	0.0	428.6	871.4	0.0	56.1	119.6	3.2	2.3	1255.75
0.05	0.00	7.64	7.29	0.000	0.016	0.019	0.000	1254.95	196.49
0.003863	70.	65.	55.	0	8	0	0.00	104.79	301.28

*SECNO 0.236
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

0.236	2.78	1258.46	1258.46	0.00	1259.51	1.05	0.19	0.06	1256.90
1300.0	43.5	1256.5	0.0	16.7	150.4	0.0	3.4	2.4	1259.20
0.05	2.60	8.36	0.00	0.025	0.016	0.000	0.000	1255.68	154.02
0.002551	45.	55.	70.	0	11	0	0.00	91.20	245.21

1490 NH CARD USED
*SECNO 0.249
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

0.249	3.33	1260.03	1260.03	0.00	1261.12	1.09	0.29	0.01	1260.40
1300.0	0.0	1293.5	6.5	0.0	153.7	4.8	3.7	2.5	1259.50
0.06	0.00	8.41	1.36	0.000	0.027	0.040	0.000	1256.70	948.46
0.007874	70.	70.	75.	0	11	0	0.00	84.53	1032.99

1490 NH CARD USED
*SECNO 0.259
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

0.259	5.16	1262.56	1262.56	0.00	1263.38	0.82	0.24	0.03	1260.00
1300.0	931.8	339.4	28.8	115.8	69.7	20.9	3.9	2.7	1261.50
0.06	8.05	4.87	1.38	0.018	0.040	0.060	0.000	1257.40	909.18
0.003494	35.	55.	70.	0	14	0	0.00	124.57	1033.75

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

1490 NH CARD USED
*SECNO 0.273
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

0.273	4.63	1264.63	1264.63	0.00	1265.45	0.82	0.38	0.00	1264.00
1300.0	96.5	1202.5	1.0	24.8	160.6	1.0	4.2	2.9	1264.00
0.06	3.89	7.49	1.00	0.020	0.034	0.060	0.000	1260.00	910.85
0.007812	75.	75.	75.	0	12	0	0.00	122.28	1033.13

*SECNO 0.306

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

0.306	5.62	1267.62	1267.62	0.00	1269.43	1.80	1.92	0.29	1268.00
1300.0	0.0	1300.0	0.0	0.0	120.6	0.0	4.8	3.2	1268.00
0.07	0.00	10.78	0.00	0.000	0.040	0.000	0.000	1262.00	975.94
0.017727	170.	170.	170.	0	11	0	0.00	34.87	1010.81

*SECNO 0.317
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

0.317	4.48	1270.48	1270.48	0.00	1271.92	1.44	1.02	0.04	1270.00
1300.0	2.0	1296.6	1.4	1.6	134.5	1.1	5.0	3.2	1270.00
0.07	1.21	9.64	1.21	0.060	0.040	0.060	0.000	1266.00	978.18
0.016200	60.	60.	60.	0	15	0	0.00	56.59	1034.77

*SECNO 0.347

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.19

0.347	4.03	1271.53	1271.09	0.00	1272.55	1.02	0.59	0.04	1274.00
1300.0	0.0	1300.0	0.0	0.0	160.6	0.0	5.6	3.4	1274.00
0.07	0.00	8.09	0.00	0.000	0.015	0.000	0.000	1267.50	973.20
0.001587	160.	160.	160.	3	15	0	0.00	53.35	1026.55

*SECNO 0.376

*SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

0.376	3.88	1271.58	1271.58	0.00	1273.27	1.69	0.29	0.20	1277.00
1300.0	0.0	1300.0	0.0	0.0	124.7	0.0	6.0	3.6	1278.00
0.08	0.00	10.43	0.00	0.000	0.015	0.000	0.000	1267.70	980.59
0.002426	155.	150.	150.	0	8	0	0.00	36.99	1017.58

*SECNO 0.401

0.401	4.02	1272.02	1271.86	0.00	1273.59	1.57	0.31	0.01	1279.00
1300.0	0.0	1300.0	0.0	0.0	129.4	0.0	6.4	3.7	1280.00
0.08	0.00	10.04	0.00	0.000	0.015	0.000	0.000	1268.00	981.98
0.002146	140.	135.	135.	3	5	0	0.00	36.84	1018.82

*SECNO 0.426

3301 HV CHANGED MORE THAN HVINS

0.426	4.80	1272.80	1271.85	0.00	1273.84	1.04	0.20	0.05	1280.00
1300.0	0.0	1300.0	0.0	0.0	159.2	0.0	6.9	3.8	1280.00
0.09	0.00	8.17	0.00	0.000	0.015	0.000	0.000	1268.00	982.00
0.001159	130.	130.	125.	3	8	0	0.00	38.39	1020.39

PROFILE FOR STREAM 100 YEAR PROFILE RUN

PLOTTED POINTS (BY PRIORITY) E-ENERGY,W-WATER SURFACE,I-INVERT,C-CRITICAL W.S.,L-LEFT BANK,R-RIGHT BANK,M-LOWER END STA

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ELEVATION  1238.    1243.    1248.    1253.    1258.    1263.    1268.    1273.    1278.    1283.
   SECNO   CUMDIS

   0.00      0.  I LWE   R .        .        .        .        .        .        .        .        .
            10.  .I L EM  R.        .        .        .        .        .        .        .        .
            20.  .  IL WE R.        .        .        .        .        .        .        .        .
            30.  .   I L WE.  M     .        .        .        .        .        .        .        .
            40.  .    IL WE      M  .        .        .        .        .        .        .        .
            50.  .     IL RWE      .M        .        .        .        .        .        .        .
   0.01     60.  .       I.RW E    .  M      .        .        .        .        .        .        .
            70.  .       ILR WE    .  M      .        .        .        .        .        .        .
            80.  .       ILR WE    .  M      .        .        .        .        .        .        .
            90.  .       IL RWE    .  M      .        .        .        .        .        .        .
           100.  .       IL RW E   .  M      .        .        .        .        .        .        .
           110.  .       I.LR WE   .  M      .        .        .        .        .        .        .
           120.  .       I.LR WE   .  M      .        .        .        .        .        .        .
   0.02    130.  .       I.L RWE   .  M      .        .        .        .        .        .        .
           140.  .        IL RW E  .  M      .        .        .        .        .        .        .
           150.  .        IL RW E  .  M      .        .        .        .        .        .        .
           160.  .        I LRW E  .  M      .        .        .        .        .        .        .
           170.  .        I LR WE  .  M      .        .        .        .        .        .        .
           180.  .        I LR WE  .  M      .        .        .        .        .        .        .
           190.  .        I LR WE  .  M      .        .        .        .        .        .        .
   0.04    200.  .        I LR WE  .  M      .        .        .        .        .        .        .
           210.  .        I  LRW E .  M      .        .        .        .        .        .        .
           220.  .        .I LR WE .  M      .        .        .        .        .        .        .
           230.  .        .I L RW E .  M     .        .        .        .        .        .        .
           240.  .        . IL R WE .  M     .        .        .        .        .        .        .
           250.  .        . IL  RW E.  M     .        .        .        .        .        .        .
   0.05    260.  .        .  IL RW E.  M     .        .        .        .        .        .        .
           270.  .        .  IL  W E.  M     .        .        .        .        .        .        .
           280.  .        .  IL  RWE.  M     .        .        .        .        .        .        .
           290.  .        .  IL  RWE.  M     .        .        .        .        .        .        .
           300.  .        .  I L RWE.  M     .        .        .        .        .        .        .
           310.  .        .   IL RWE.  M     .        .        .        .        .        .        .
           320.  .        .   IL RW E  M     .        .        .        .        .        .        .
           330.  .        .   I LRW E  M     .        .        .        .        .        .        .
           340.  .        .   I LRW E  M     .        .        .        .        .        .        .
           350.  .        .   I LRW E  M     .        .        .        .        .        .        .
           360.  .        .   I LRW E  M     .        .        .        .        .        .        .
           370.  .        .   I  L WE  M     .        .        .        .        .        .        .
           380.  .        .    I L WE  M     .        .        .        .        .        .        .
   0.07    390.  .        .    I L WE  M     .        .        .        .        .        .        .
           400.  .        .    I L WE  M     .        .        .        .        .        .        .
           410.  .        .    I L W.E M     .        .        .        .        .        .        .
           420.  .        .    I RLW.E M     .        .        .        .        .        .        .
           430.  .        .    I RLW.E M     .        .        .        .        .        .        .
           440.  .        .     IRLW.E M     .        .        .        .        .        .        .
           450.  .        .     I L WE M     .        .        .        .        .        .        .
           460.  .        .     I L WE M     .        .        .        .        .        .        .
           470.  .        .     I L W E M    .        .        .        .        .        .        .
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0.09  480.  .     .     I RLW E M     .     .     .     .     .     .     .     .
      490.  .     .     I RLW E M     .     .     .     .     .     .     .     .
      500.  .     .     I RLW E  M    .     .     .     .     .     .     .     .
      510.  .     .     I RLW E  M    .     .     .     .     .     .     .     .
      520.  .     .     I RLW E  M    .     .     .     .     .     .     .     .
      530.  .     .     I RL.WE  M    .     .     .     .     .     .     .     .
      540.  .     .     I RL.WE  M    .     .     .     .     .     .     .     .
      550.  .     .     I RL.WE   M   .     .     .     .     .     .     .     .
      560.  .     .     I  RLWE   M   .     .     .     .     .     .     .     .
      570.  .     .     I  RLWE   M   .     .     .     .     .     .     .     .
      580.  .     .     I  RLW E  M   .     .     .     .     .     .     .     .
0.11  590.  .     .     I  RLW E  M   .     .     .     .     .     .     .     .
      600.  .     .      I RLW E   M  .     .     .     .     .     .     .     .
      610.  .     .      I RLW E   M  .     .     .     .     .     .     .     .
      620.  .     .      I  L WE   M  .     .     .     .     .     .     .     .
      630.  .     .      I  L WE   M  .     .     .     .     .     .     .     .
      640.  .     .       I L WE   M  .     .     .     .     .     .     .     .
      650.  .     .       I L WE    M .     .     .     .     .     .     .     .
      660.  .     .       I .LWE    M .     .     .     .     .     .     .     .
0.13  670.  .     .        I.LW E   M .     .     .     .     .     .     .     .
      680.  .     .        I. RWLE   M.     .     .     .     .     .     .     .
      690.  .     .         I  RW E L M     .     .     .     .     .     .     .
      700.  .     .         .I  RW E  .L    .     .     .     .     .     .     .
      710.  .     .         . I R  W E.M   L     .     .     .     .     .     .
0.14  720.  .     .         . I  R  W E M    L .     .     .     .     .     .     .
      730.  .     .         . I   R W E M     L.     .     .     .     .     .     .
      740.  .     .         .  I   RW .EM     L.     .     .     .     .     .     .
      750.  .     .         .  I   R W.EM     L.     .     .     .     .     .     .
      760.  .     .         .  I    RW.E      L.     .     .     .     .     .     .
      770.  .     .         .  I    RW.ME      L     .     .     .     .     .     .
      780.  .     .         .  I     W.ME      L     .     .     .     .     .     .
      790.  .     .         .   I     WM E     L     .     .     .     .     .     .
0.15  800.  .     .         .   I     W  E     L     .     .     .     .     .     .
      810.  .     .         .   I     WR E     L     .     .     .     .     .     .
      820.  .     .         .   I     CW E     L     .     .     .     .     .     .
      830.  .     .         .    I    .W E     L     .     .     .     .     .     .
      840.  .     .         .    I    .W E     L     .     .     .     .     .     .
      850.  .     .         .    I    .CW E    L     .     .     .     .     .     .
      860.  .     .         .    I    .CW E    L     .     .     .     .     .     .
      870.  .     .         .    I    .CW E    L     .     .     .     .     .     .
      880.  .     .         .     I   .CWRE    L     .     .     .     .     .     .
0.17  890.  .     .         .     I   . CWE    L     .     .     .     .     .     .
      900.  .     .         .     I   . CWE    L     .     .     .     .     .     .
      910.  .     .         .      I  . CWE   L.     .     .     .     .     .     .
      920.  .     .         .      I  . CWE  L .     .     .     .     .     .     .
      930.  .     .         .      I  . CWE  L  .    .     .     .     .     .     .
      940.  .     .         .       I . CWE  L  .    .     .     .     .     .     .
      950.  .     .         .       I . MWE L   .    .     .     .     .     .     .
      960.  .     .         .        I. MCEL    .    .     .     .     .     .     .
      970.  .     .         .        I. RCEL    .    .     .     .     .     .     .
      980.  .     .         .        I. RCE     .    .     .     .     .     .     .
      990.  .     .         .         I RCE     .    .     .     .     .     .     .
     1000.  .     .         .         I LCE     .    .     .     .     .     .     .
0.19 1010.  .     .         .         I L WE    .    .     .     .     .     .     .
     1020.  .     .         .         .IL WE    .    .     .     .     .     .     .
0.19 1030.  .     .         .         .IRCWE    .    .     .     .     .     .     .
     1040.  .     .         .         .IR WE    .    .     .     .     .     .     .
0.20 1050.  .     .         .         .IR WE    .    .     .     .     .     .     .
     1060.  .     .         .         . IL WE   .    .     .     .     .     .     .
     1070.  .     .         .         . IRLCWE  .    .     .     .     .     .     .
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      1080.  .         .         .         . I R WE  .         .         .         .         .         .         .
0.20  1090.  .         .         .         . I R LWE .         .         .         .         .         .         .
      1100.  .         .         .         . IR LWE .         .         .         .         .         .         .
      1110.  .         .         .         . I RLWME.         .         .         .         .         .         .
      1120.  .         .         .         . I RLWME.         .         .         .         .         .         .
0.21  1130.  .         .         .         . I RL WE.         .         .         .         .         .         .
      1140.  .         .         .         . I R LWE.         .         .         .         .         .         .
      1150.  .         .         .         .  IR  WME         .         .         .         .         .         .
      1160.  .         .         .         .  IR  W E         .         .         .         .         .         .
      1170.  .         .         .         .  IR  WLE         .         .         .         .         .         .
      1180.  .         .         .         .  I R  WE         .         .         .         .         .         .
0.22  1190.  .         .         .         .  I R  WLE        .         .         .         .         .         .
      1200.  .         .         .         .  I  R WLE        .         .         .         .         .         .
      1210.  .         .         .         .   I  RLW E       .         .         .         .         .         .
      1220.  .         .         .         .   I   LW EM      .         .         .         .         .         .
      1230.  .         .         .         .   I   L.W E      .         .         .         .         .         .
      1240.  .         .         .         .    I L .WREM     .         .         .         .         .         .
0.24  1250.  .         .         .         .    I L .W EM     .         .         .         .         .         .
      1260.  .         .         .         .    I  L. WREM    .         .         .         .         .         .
      1270.  .         .         .         .    I   L WREM    .         .         .         .         .         .
      1280.  .         .         .         .     I  .L W EM   .         .         .         .         .         .
      1290.  .         .         .         .     I  . LW E M  .         .         .         .         .         .
      1300.  .         .         .         .     I  .  W  EM  .         .         .         .         .         .
      1310.  .         .         .         .     I  .  RW E M .         .         .         .         .         .
0.25  1320.  .         .         .         .      I .  RWL EM .         .         .         .         .         .
      1330.  .         .         .         .      I .   RW E M.         .         .         .         .         .
      1340.  .         .         .         .      I .    LW EM.         .         .         .         .         .
      1350.  .         .         .         .      I .    L W E.         .         .         .         .         .
      1360.  .         .         .         .       I.   L R WME        .         .         .         .         .
0.26  1370.  .         .         .         .       I.   L  R WME       .         .         .         .         .
      1380.  .         .         .         .        I    L  R W E      .         .         .         .         .
      1390.  .         .         .         .        I     L  R.WE      .         .         .         .         .
      1400.  .         .         .         .       .I     L R.W E      .         .         .         .         .
      1410.  .         .         .         .        . I      LR WE     .         .         .         .         .
      1420.  .         .         .         .        .  I      LRW E    .         .         .         .         .
      1430.  .         .         .         .        .  I      .L WE    .         .         .         .         .
      1440.  .         .         .         .        .   I     . LWME   .         .         .         .         .
0.27  1450.  .         .         .         .        .   I     . L WE   .         .         .         .         .
      1460.  .         .         .         .        .    I    .  LW E  .         .         .         .         .
      1470.  .         .         .         .        .    I    .  LWME  .         .         .         .         .
      1480.  .         .         .         .        .    I    .   LW E .         .         .         .         .
      1490.  .         .         .         .        .    I    .   LW E .         .         .         .         .
      1500.  .         .         .         .        .    I    .    WM E .         .         .         .         .
      1510.  .         .         .         .        .     I   .    LW E .         .         .         .         .
      1520.  .         .         .         .        .     I   .     WME .         .         .         .         .
      1530.  .         .         .         .        .     I   .     WM E.         .         .         .         .
      1540.  .         .         .         .        .     I   .      W E.         .         .         .         .
      1550.  .         .         .         .        .      I  .      WM E         .         .         .         .
      1560.  .         .         .         .        .      I  .      WM E         .         .         .         .
      1570.  .         .         .         .        .      I  .       W .E        .         .         .         .
      1580.  .         .         .         .        .      I  .       WM.E        .         .         .         .
      1590.  .         .         .         .        .       I .       WL. E       .         .         .         .
      1600.  .         .         .         .        .       I .        WM E       .         .         .         .
      1610.  .         .         .         .        .       I .        WL  E      .         .         .         .
0.31  1620.  .         .         .         .        .       I .         W  E      .         .         .         .
      1630.  .         .         .         .        .         I         WL  E     .         .         .         .
      1640.  .         .         .         .        .         .I        .WL  E    .         .         .         .
      1650.  .         .         .         .        .         . I       . WM  E   .         .         .         .
      1660.  .         .         .         .        .         .  I      .  WM E   .         .         .         .
      1670.  .         .         .         .        .         .   I     .   WM E  .         .         .         .
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0.32 1680.  .         .         .         .         .         .    I    .  LWM E .         .         .         .
     1690.  .         .         .         .         .         .    I    .   WM E .         .         .         .
     1700.  .         .         .         .         .         .     I   .   CWME .         .         .         .
     1710.  .         .         .         .         .         .     I   .   CWME .         .         .         .
     1720.  .         .         .         .         .         .     I   .    W E .         .         .         .
     1730.  .         .         .         .         .         .     I   .    WLME.         .         .         .
     1740.  .         .         .         .         .         .     I   .    WL E.         .         .         .
     1750.  .         .         .         .         .         .      I  .    W LE.         .         .         .
     1760.  .         .         .         .         .         .      I  .    W LEM         .         .         .
     1770.  .         .         .         .         .         .      I  .    W  EM         .         .         .
     1780.  .         .         .         .         .         .      I  .    CW E.M        .         .         .
     1790.  .         .         .         .         .         .      I  .    CW ELM        .         .         .
     1800.  .         .         .         .         .         .       I.    CW EL M       .         .         .
     1810.  .         .         .         .         .         .       I.    CW E.LM       .         .         .
     1820.  .         .         .         .         .         .       I.    CW E.L M      .         .         .
     1830.  .         .         .         .         .         .       I.    CW E. LM      .         .         .
0.35 1840.  .         .         .         .         .         .       I.    CW E. L M     .         .         .
     1850.  .         .         .         .         .         .       I.     W E.  LM     .         .         .
     1860.  .         .         .         .         .         .       I.     W  E  L M    .         .         .
     1870.  .         .         .         .         .         .       I.     W  E  LRM    .         .         .
     1880.  .         .         .         .         .         .       I.     W  E   L M   .         .         .
     1890.  .         .         .         .         .         .       I.     W  E   LRM   .         .         .
     1900.  .         .         .         .         .         .       I.     W  E    LM   .         .         .
     1910.  .         .         .         .         .         .       I.     W  E    LRM  .         .         .
     1920.  .         .         .         .         .         .       I.     W  E    L R  .         .         .
     1930.  .         .         .         .         .         .        I     W  E     LRM .         .         .
     1940.  .         .         .         .         .         .        I     W  E     L R .         .         .
     1950.  .         .         .         .         .         .        I     W  E      LRM.         .         .
     1960.  .         .         .         .         .         .        I     W  .E     L R.         .         .
     1970.  .         .         .         .         .         .        I     W  .E     L R.         .         .
     1980.  .         .         .         .         .         .        I     W  .E      L R         .         .
0.38 1990.  .         .         .         .         .         .        I     W  .E      L R         .         .
     2000.  .         .         .         .         .         .        I     CW .E       L.R        .         .
     2010.  .         .         .         .         .         .        I      W .E       L.R        .         .
     2020.  .         .         .         .         .         .        I      W .E       L.RM       .         .
     2030.  .         .         .         .         .         .        I      W .E       L.R M      .         .
     2040.  .         .         .         .         .         .        I      W .E        L RM      .         .
     2050.  .         .         .         .         .         .        I      W .E        L R M     .         .
     2060.  .         .         .         .         .         .        I      W .E        L R M     .         .
     2070.  .         .         .         .         .         .        I      W .E        .L R M    .         .
     2080.  .         .         .         .         .         .        I      W .E        .L R  M   .         .
     2090.  .         .         .         .         .         .        I      W .E        .L R  M   .         .
     2100.  .         .         .         .         .         .        I      W .E        . L R  M  .         .
     2110.  .         .         .         .         .         .        I      W .E        . L R  M  .         .
0.40 2120.  .         .         .         .         .         .        I      W .E        . L R   M .         .
     2130.  .         .         .         .         .         .        I      W .E        . L R    M.         .
     2140.  .         .         .         .         .         .        I      CW. E       .  LR    M.         .
     2150.  .         .         .         .         .         .        I      CW. E       .  LR    M.         .
     2160.  .         .         .         .         .         .        I      CW. E       .  LR     M         .
     2170.  .         .         .         .         .         .        I      CW. E       .  LR     M         .
     2180.  .         .         .         .         .         .        I      CW. E       .  LR     M         .
     2190.  .         .         .         .         .         .        I      CW. E       .  LR     M         .
     2200.  .         .         .         .         .         .        I      CW. E       .   L     .M        .
     2210.  .         .         .         .         .         .        I      CW. E       .   L     .M        .
     2220.  .         .         .         .         .         .        I      C W E       .   L     .M        .
     2230.  .         .         .         .         .         .        I      C W E       .   L     . M       .
     2240.  .         .         .         .         .         .        I      C W E       .   L     . M       .
0.43 2250.  .         .         .         .         .         .        I      C W E       .   L     . M       .
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T1 MYRTLE AVENUE WASH 100 YEAR PROFILE WITH 1P ENCROACHMENT
100 YR PROFILE W/1' ENCR

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		3							1239.5	

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2									

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*PROF 2

CCHV= 0.100 CEHV= 0.300
*SECNO 0.001

3470 ENCROACHMENT STATIONS= 200.0 386.0 TYPE= 1 TARGET= 186.000

0.001	1.64	1239.50	0.00	1239.40	1239.79	0.29	0.00	0.00	1288.80
665.0	0.0	665.0	0.0	0.0	152.7	0.0	0.0	0.0	100000.00
0.00	0.00	4.35	0.00	0.000	0.016	0.000	0.000	1237.86	200.00
0.002889	0.	0.	0.	0	0	0	0.00	186.00	386.00

*SECNO 0.011

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 200.0 250.0 TYPE= 1 TARGET= 50.000

0.011	2.26	1244.59	1244.59	1244.07	1245.47	0.89	0.19	0.18	1242.50
665.0	0.0	665.0	0.0	0.0	88.0	0.0	0.2	0.2	100000.00
0.00	0.00	7.56	0.00	0.000	0.016	0.000	0.000	1242.33	200.00
0.003411	60.	60.	60.	20	11	0	0.00	50.00	250.00

*SECNO 0.024
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 200.0 240.0 TYPE= 1 TARGET= 40.000

0.024	2.78	1245.38	1245.38	1244.86	1246.42	1.04	0.23	0.05	1243.40
665.0	0.0	665.0	0.0	0.0	81.4	0.0	0.3	0.2	100000.00
0.00	0.00	8.17	0.00	0.000	0.016	0.000	0.000	1242.60	200.00
0.003421	60.	68.	85.	20	11	0	0.00	40.00	240.00

*SECNO 0.037
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY

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 *SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      200.0     240.0  TYPE=      1  TARGET=      40.000
     0.037      3.26   1245.96   1245.96   1245.31   1247.00      1.04      0.23      0.00   1244.06
     665.0       0.0     665.0       0.0       0.0      81.1       0.0       0.4       0.3 100000.00
      0.01      0.00      8.20      0.00     0.000     0.016     0.000     0.000   1242.70    200.00
  0.003457       68.       68.       68.        20        11         0      0.00     40.00    240.00


*SECNO 0.048
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      190.0     235.0  TYPE=      1  TARGET=      45.000
     0.048      2.46   1246.76   1246.76   1246.54   1247.73      0.97      0.22      0.01   1244.66
     665.0     154.3     510.7       0.0      23.0      62.0       0.0       0.5       0.4 100000.00
      0.01      6.71      8.23      0.00     0.022     0.016     0.000     0.000   1244.30    190.00
  0.003872       70.       58.       45.        20        15         0      0.00     45.00    235.00


*SECNO 0.073
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      200.0     243.0  TYPE=      1  TARGET=      43.000
     0.073      2.28   1247.48   1247.48   1247.24   1248.46      0.99      0.48      0.00   1246.47
     665.0       0.0     665.0       0.0       0.0      83.4       0.0       0.8       0.5 100000.00
      0.01      0.00      7.97      0.00     0.000     0.016     0.000     0.000   1245.20    200.00
  0.003381      153.      130.      100.        20        11         0      0.00     43.00    243.00


*SECNO 0.090
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      200.0     253.0  TYPE=      1  TARGET=      53.000
     0.090      1.95   1247.95   1247.95   1247.91   1248.81      0.86      0.32      0.01   1247.12
     665.0       0.0     665.0       0.0       0.0      89.5       0.0       1.0       0.6 100000.00
      0.02      0.00      7.43      0.00     0.000     0.016     0.000     0.000   1246.00    200.00
  0.003436       93.       93.       95.         2        15         0      0.00     53.00    253.00
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

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*SECNO 0.111
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      200.0     252.0  TYPE=      1  TARGET=      52.000
     0.111      2.30   1248.40   1248.40   1248.36   1249.27      0.87      0.37      0.00   1247.84
     665.0       0.0     665.0       0.0       0.0      88.8       0.0       1.2       0.7 100000.00
      0.02      0.00      7.49      0.00     0.000     0.016     0.000     0.000   1246.10    200.00
  0.003419      107.      107.      107.         2        11         0      0.00     52.00    252.00


*SECNO 0.127
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     1000.0    1060.0  TYPE=      1  TARGET=      60.000
     0.127      1.96   1249.14   1249.14   1249.07   1249.93      0.79      0.29      0.01   1248.19
     665.0       0.0     665.0       0.0       0.0      93.2       0.0       1.4       0.8 100000.00
      0.02      0.00      7.14      0.00     0.000     0.016     0.000     0.000   1247.18   1000.00
    003516       75.       85.      120.        20        15         0      0.00     60.00   1060.00


*SECNO 0.136
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      990.0    1020.0  TYPE=      1  TARGET=      30.000
     0.136      2.72   1251.72   1251.72   1251.63   1252.97      1.25      0.26      0.14   1307.00
     665.0       0.0     665.0       0.0       0.0      74.3       0.0       1.5       0.9 100000.00
      0.03      0.00      8.96      0.00     0.000     0.025     0.000     0.000   1249.00    990.00
  0.008155       35.       50.       65.        20        11         0      0.00     30.00   1020.00


*SECNO 0.151
3280 CROSS SECTION      0.15 EXTENDED      0.04 FEET

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      990.0    1010.0  TYPE=      1  TARGET=      20.000
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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

   0.151      3.24   1253.04   1253.04   1252.92   1254.68      1.64      0.69      0.12   1308.00
   665.0       0.0     665.0       0.0       0.0      64.8       0.0       1.6       0.9 100000.00
    0.03      0.00     10.26      0.00     0.000     0.025     0.000     0.000   1249.80    990.00
0.009045       80.       80.       80.        20        11         0      0.00     20.00   1010.00


*SECNO 0.168
3280 CROSS SECTION      0.17 EXTENDED      0.35 FEET


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.78


3470 ENCROACHMENT STATIONS=      990.0    1020.0  TYPE=      1  TARGET=      30.000
   0.168      3.75   1254.55      0.00   1254.21   1255.20      0.64      0.42      0.10   1308.00
   665.0       0.0     665.0       0.0       0.0     103.3       0.0       1.8       1.0 100000.00
    0.03      0.00      6.44      0.00     0.000     0.025     0.000     0.000   1250.80    990.00
 02856       100.       90.       80.         3         0         0      0.00     30.00   1020.00


1490 NH CARD USED
*SECNO 0.190
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
3280 CROSS SECTION      0.19 EXTENDED      0.92 FEET

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      196.0     233.0  TYPE=      1  TARGET=      37.000
   0.190      2.23   1255.32   1255.32   1254.91   1256.40      1.09      0.35      0.13 100000.00
   665.0       0.0     665.0       0.0       0.0      79.5       0.0       2.0       1.1 100000.00
    0.04      0.00      8.36      0.00     0.000     0.016     0.000     0.000   1253.09    196.00
0.003295       130.      115.      125.        20        14         0      0.00     37.00    233.00


1490 NH CARD USED
*SECNO 0.195
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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
3280 CROSS SECTION      0.19 EXTENDED      1.04 FEET

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      185.0     230.0  TYPE=      1  TARGET=      45.000
     0.195      2.18   1255.44   1255.44   1254.92   1256.51      1.07      0.08      0.00   1253.42
     796.0       0.0     796.0       0.0       0.0      95.9       0.0       2.1       1.1 100000.00
      0.04      0.00      8.30      0.00     0.000     0.016     0.000     0.000   1253.26    185.00
  0.003166       20.       25.       25.         2         8         0      0.00     45.00    230.00


1490 NH CARD USED
*SECNO 0.199
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
3280 CROSS SECTION      0.20 EXTENDED      1.20 FEET

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      185.0     234.0  TYPE=      1  TARGET=      49.000
     0.199      2.17   1255.60   1255.60   1254.90   1256.69      1.09      0.06      0.01   1253.49
     876.0      71.0     805.0       0.0      10.5      94.6       0.0       2.1       1.1 100000.00
      0.04      6.78      8.51      0.00     0.016     0.016     0.000     0.000   1253.43    185.00
  0.003166       20.       20.       20.        20         5         0      0.00     49.00    234.00


1490 NH CARD USED
*SECNO 0.205
1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
3280 CROSS SECTION      0.20 EXTENDED      0.76 FEET

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      210.0     280.0  TYPE=      1  TARGET=      70.000
     0.205      2.86   1256.96   1256.96   1256.15   1258.10      1.14      0.11      0.01 100000.00
    1300.0       0.0    1062.9     237.1       0.0     117.5      40.2       2.2       1.2   1255.00
      0.04      0.00      9.05      5.89     0.000     0.016     0.022     0.000   1254.10    210.00
  0.003414       40.       35.       24.        20        11         0      0.00     70.00    280.00
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

1490 NH CARD USED
*SECNO 0.213
3280 CROSS SECTION 0.21 EXTENDED 0.01 FEET

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 200.0 270.0 TYPE= 1 TARGET= 70.000

0.213	2.69	1257.21	1257.21	1256.63	1258.33	1.12	0.14	0.00	100000.00
1300.0	0.0	1178.6	121.4	0.0	135.4	19.7	2.4	1.2	1255.30
0.04	0.00	8.71	6.16	0.000	0.017	0.021	0.000	1254.52	200.00
0.003558	40.	40.	40.	20	11	0	0.00	70.00	270.00

1490 NH CARD USED
*SECNO 0.225
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 200.0 260.0 TYPE= 1 TARGET= 60.000

0.225	3.20	1258.15	1258.15	1257.29	1259.42	1.27	0.23	0.04	100000.00
1300.0	0.0	814.2	485.8	0.0	81.7	67.4	2.6	1.3	1255.75
0.04	0.00	9.96	7.21	0.000	0.016	0.022	0.000	1254.95	200.00
0.003794	70.	65.	55.	20	11	0	0.00	60.00	260.00

*SECNO 0.236
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 201.0 251.0 TYPE= 1 TARGET= 50.000

0.236	3.25	1258.93	1258.93	1258.46	1260.40	1.47	0.19	0.06	100000.00
1300.0	0.0	1300.0	0.0	0.0	133.4	0.0	2.8	1.4	1259.20
0.04	0.00	9.74	0.00	0.000	0.016	0.000	0.000	1255.68	201.00
0.002937	45.	55.	70.	20	5	0	0.00	45.35	246.35

1490 NH CARD USED
*SECNO 0.249

*SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

1530 MANNINGS N VALUES FOR CHANNEL COMPOSITED
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 960.0 1010.0 TYPE= 1 TARGET= 50.000

0.249	3.43	1260.13	1260.13	1260.03	1261.52	1.40	0.35	0.01	100000.00
1300.0	0.0	1300.0	0.0	0.0	137.1	0.0	3.0	1.5	100000.00
0.05	0.00	9.48	0.00	0.000	0.029	0.000	0.000	1256.70	960.00
0.010225	70.	70.	75.	20	8	0	0.00	50.00	1010.00

1490 NH CARD USED
*SECNO 0.259
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 965.0 1010.0 TYPE= 1 TARGET= 45.000

0.259	5.28	1262.68	1262.68	1262.56	1264.36	1.68	0.40	0.08	1260.00
1300.0	822.5	477.5	0.0	68.2	72.2	0.0	3.1	1.5	100000.00
0.05	12.05	6.61	0.00	0.018	0.040	0.000	0.000	1257.40	965.00
0.006629	35.	55.	70.	20	14	0	0.00	45.00	1010.00

1490 NH CARD USED
*SECNO 0.273
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 981.0 1008.0 TYPE= 1 TARGET= 27.000

0.273	4.70	1264.70	1264.70	1264.63	1266.80	2.10	0.79	0.13	100000.00
1300.0	0.0	1300.0	0.0	0.0	111.8	0.0	3.4	1.6	100000.00
0.05	0.00	11.62	0.00	0.000	0.040	0.000	0.000	1260.00	981.00
0.019285	75.	75.	75.	20	11	0	0.00	27.00	1008.00

*SECNO 0.306

3470 ENCROACHMENT STATIONS= 978.0 1008.0 TYPE= 1 TARGET= 30.000

0.306	5.98	1267.98	0.00	1267.62	1269.63	1.65	2.79	0.04	100000.00
1300.0	0.0	1300.0	0.0	0.0	125.9	0.0	3.8	1.7	100000.00
0.05	0.00	10.32	0.00	0.000	0.040	0.000	0.000	1262.00	978.00
0.014105	170.	170.	170.	0	0	0	0.00	30.00	1008.00

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 0.317
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 989.0 1021.0 TYPE= 1 TARGET= 32.000

0.317	4.58	1270.58	1270.58	1270.48	1272.46	1.88	0.98	0.07	100000.00
1300.0	0.0	1300.0	0.0	0.0	118.2	0.0	4.0	1.7	100000.00
0.05	0.00	10.99	0.00	0.000	0.040	0.000	0.000	1266.00	989.00
0.019109	60.	60.	60.	20	15	0	0.00	32.00	1021.00

*SECNO 0.347

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.60

3470 ENCROACHMENT STATIONS= 980.0 1015.0 TYPE= 1 TARGET= 35.000

0.347	4.40	1271.90	0.00	1271.53	1273.10	1.21	0.58	0.07	100000.00
1300.0	0.0	1300.0	0.0	0.0	147.6	0.0	4.5	1.9	100000.00
0.06	0.00	8.81	0.00	0.000	0.015	0.000	0.000	1267.50	980.00
0.001477	160.	160.	160.	3	0	0	0.00	35.00	1015.00

*SECNO 0.376

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 983.0 1013.0 TYPE= 1 TARGET= 30.000

0.376	4.00	1271.70	1271.70	1271.58	1273.66	1.95	0.30	0.22	100000.00
1300.0	0.0	1300.0	0.0	0.0	115.9	0.0	4.9	2.0	100000.00
0.06	0.00	11.22	0.00	0.000	0.015	0.000	0.000	1267.70	983.00
0.002748	155.	150.	150.	4	11	0	0.00	30.00	1013.00

*SECNO 0.401

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 985.0 1015.0 TYPE= 1 TARGET= 30.000

0.401	4.59	1272.59	0.00	1272.02	1274.00	1.41	0.29	0.05	100000.00
1300.0	0.0	1300.0	0.0	0.0	136.7	0.0	5.3	2.1	100000.00
0.07	0.00	9.51	0.00	0.000	0.015	0.000	0.000	1268.00	985.00
0.001673	140.	135.	135.	4	0	0	0.00	30.00	1015.00

*SECNO 0.426

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.48

3470 ENCROACHMENT STATIONS= 965.0 1025.0 TYPE= 1 TARGET= 60.000

0.426	5.42	1273.42	0.00	1272.80	1274.20	0.78	0.14	0.06	1280.00
1300.0	0.0	1300.0	0.0	0.0	183.7	0.0	5.8	2.2	100000.00
0.07	0.00	7.08	0.00	0.000	0.015	0.000	0.000	1268.00	981.48
0.000762	130.	130.	125.	3	0	0	0.00	39.75	1021.23

PROFILE FOR STREAM 100 YR PROFILE W/1' ENCR

PLOTTED POINTS (BY PRIORITY) E-ENERGY,W-WATER SURFACE,I-INVERT,C-CRITICAL W.S.,L-LEFT BANK,R-RIGHT BANK,M-LOWER END STA

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ELEVATION  1238.    1243.    1248.    1253.    1258.    1263.    1268.    1273.    1278.    1283.
   SECNO   CUMDIS

   0.00      0.  I WE    M        .        .        .        .        .        .        .        .        L
            10.  CI  WE  . M      .        .        .        .        .        .        .     L  .        R
            20.  C I   WE .   M   .        .        .        .        .       .L        .        .        R
            30.  C  I  W E     M  .        .        .        .     L  .        .        .        .        R
            40.  C    I  WE       M        .        L        .        .        .        .        .        R
            50.  C     I  . WE     . M  L  .        .        .        .        .        .        .        R
   0.01     60.  .       I.  W E   .  M     .        .        .        .        .        .        .        R
            70.  .       IL  WE    .  M     .        .        .        .        .        .        .        R
            80.  .       IL  W E   .  M     .        .        .        .        .        .        .        R
            90.  .       IL  W E   .  M     .        .        .        .        .        .        .        R
           100.  .       IL  W E   .  M     .        .        .        .        .        .        .        R
           110.  .       I.L  W E  .  M     .        .        .        .        .        .        .        R
           120.  .       I.L  W E  .  M     .        .        .        .        .        .        .        R
   0.02    130.  .       I.L  W E  .  M     .        .        .        .        .        .        .        R
           140.  .        IL  W E  .  M     .        .        .        .        .        .        .        R
           150.  .        IL  W E  .  M     .        .        .        .        .        .        .        R
           160.  .        I L  W E .  M     .        .        .        .        .        .        .        R
           170.  .        I L  W E .  M     .        .        .        .        .        .        .        R
           180.  .        I L  W E .  M     .        .        .        .        .        .        .        R
           190.  .        I L  W E .  M     .        .        .        .        .        .        .        R
   0.04    200.  .        I L  W E .  M     .        .        .        .        .        .        .        R
           210.  .        I  L W  E.  M     .        .        .        .        .        .        .        R
           220.  .        .I L  W E.  M     .        .        .        .        .        .        .        R
           230.  .        .I L  W E.  M     .        .        .        .        .        .        .        R
           240.  .        . IL  W E.  M     .        .        .        .        .        .        .        R
           250.  .        . IL   W E  M     .        .        .        .        .        .        .        R
   0.05    260.  .        .  IL  W E  M     .        .        .        .        .        .        .        R
           270.  .        .  IL  W E  M     .        .        .        .        .        .        .        R
           280.  .        .  IL  W E  M     .        .        .        .        .        .        .        R
           290.  .        .  IL  W E  M     .        .        .        .        .        .        .        R
           300.  .        .  I L W E  M     .        .        .        .        .        .        .        R
           310.  .        .   IL W E  M     .        .        .        .        .        .        .        R
           320.  .        .   IL W E  M     .        .        .        .        .        .        .        R
           330.  .        .   I L W.E M     .        .        .        .        .        .        .        R
           340.  .        .   I L W.E M     .        .        .        .        .        .        .        R
           350.  .        .   I L W.E M     .        .        .        .        .        .        .        R
           360.  .        .   I L W.E M     .        .        .        .        .        .        .        R
           370.  .        .   I  L W.E M     .        .        .        .        .        .        .        R
           380.  .        .    I L W.E M     .        .        .        .        .        .        .        R
   0.07    390.  .        .    I L W.E M     .        .        .        .        .        .        .        R
           400.  .        .    I L W.E M     .        .        .        .        .        .        .        R
           410.  .        .    I L W.E M     .        .        .        .        .        .        .        R
           420.  .        .    I  L WE M     .        .        .        .        .        .        .        R
           430.  .        .    I  L W E M     .        .        .        .        .        .        .        R
           440.  .        .     I L W E M     .        .        .        .        .        .        .        R
           450.  .        .     I L W E M     .        .        .        .        .        .        .        R
           460.  .        .     I L W E M     .        .        .        .        .        .        .        R
           470.  .        .     I L W E M     .        .        .        .        .        .        .        R
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0.09  480.  .        .    I  LW E M    .        .        .        .        .        .        .        R
      490.  .        .    I  LW E M    .        .        .        .        .        .        .        R
      500.  .        .    I  LW E  M   .        .        .        .        .        .        .        R
      510.  .        .    I  LW E  M   .        .        .        .        .        .        .        R
      520.  .        .    I  L.WE  M   .        .        .        .        .        .        .        R
      530.  .        .    I  L.WE  M   .        .        .        .        .        .        .        R
      540.  .        .    I  L.WE  M   .        .        .        .        .        .        .        R
      550.  .        .    I  L.W E  M  .        .        .        .        .        .        .        R
      560.  .        .    I   LW E  M  .        .        .        .        .        .        .        R
      570.  .        .    I   LW E  M  .        .        .        .        .        .        .        R
      580.  .        .    I   LW E  M  .        .        .        .        .        .        .        R
0.11  590.  .        .    I   LW E  M  .        .        .        .        .        .        .        R
      600.  .        .     I  LW E   M .        .        .        .        .        .        .        R
      610.  .        .     I  LW E   M .        .        .        .        .        .        .        R
      620.  .        .     I  L WE   M .        .        .        .        .        .        .        R
      630.  .        .     I  L WE   M .        .        .        .        .        .        .        R
      640.  .        .      I L W E  M .        .        .        .        .        .        .        R
      650.  .        .      I L W E   M.        .        .        .        .        .        .        R
      660.  .        .      I .LW E   M.        .        .        .        .        .        .        R
0.13  670.  .        .       I.L WE   M.        .        .        .        .        .        .        R
      680.  .        .       I.   WE   M.        .  L     .        .        .        .        .        R
      690.  .        .        I    W E  M        .        .        .     L  .        .        .        R
      700.  .        .        .I    W E .M       .        .        .        .        .        .L       R
      710.  .        .        . I    W E.M       .        .        .        .        .        .        L
0.14  720.  .        .        . I     W E M      .        .        .        .        .        .        L
      730.  .        .        . I     W .EM      .        .        .        .        .        .        L
      740.  .        .        .  I    W .EM      .        .        .        .        .        .        L
      750.  .        .        .  I     W. E      .        .        .        .        .        .        L
      760.  .        .        .  I     W.ME      .        .        .        .        .        .        L
      770.  .        .        .  I     W.ME      .        .        .        .        .        .        L
      780.  .        .        .  I      WM E     .        .        .        .        .        .        L
      790.  .        .        .   I     WM E     .        .        .        .        .        .        L
0.15  800.  .        .        .   I     W   E    .        .        .        .        .        .        L
      810.  C        .        .   I     .W  E    .        .        .        .        .        .        L
      820.  C        .        .   I     .W  E    .        .        .        .        .        .        L
      830.  C        .        .    I    .W  E    .        .        .        .        .        .        L
      840.  C        .        .    I    .MW E    .        .        .        .        .        .        L
      850.  C        .        .    I    . W E    .        .        .        .        .        .        L
      860.  C        .        .    I    . W E    .        .        .        .        .        .        L
      870.  C        .        .    I    . MWE    .        .        .        .        .        .        L
      880.  C        .        .     I   . MW E   .        .        .        .        .        .        L
0.17  890.  C        .        .     I   .  W E   .        .        .        .        .        .        L
      900.  C        .        .     I   .  MWE   .        .        .        .        .        .        L
      910.  C        .        .      I  .  MWE   .        .        .        .        .        .        L
      920.  C        .        .      I  .  MWE   .        .        .        .        .        .        L
      930.  C        .        .      I  .  MW E  .        .        .        .        .        .        L
      940.  C        .        .       I .  MW E  .        .        .        .        .        .        L
      950.  C        .        .       I .  MW E  .        .        .        .        .        .        L
      960.  C        .        .        I.  MW E  .        .        .        .        .        .        L
      970.  C        .        .        I.  MW E  .        .        .        .        .        .        L
      980.  C        .        .        I.  M W E .        .        .        .        .        .        L
      990.  C        .        .         I  M W E .        .        .        .        .        .        L
     1000.  C        .        .         I  M W E .        .        .        .        .        .        L
0.19 1010.  .        .        .         I  M W E .        .        .        .        .        .        L
     1020.  .        .        .         .I M W E .        .        .        .        .        .        L
0.19 1030.  .        .        .         .I M W E .        .        .        .        .        .        R
     1040.  .        .        .         .I M W E .        .        .        .        .        .        R
0.20 1050.  .        .        .         .I M W  E.        .        .        .        .        .        R
     1060.  .        .        .         . I M W E.        .        .        .        .        .        L
     1070.  .        .        .         . I  M W E.       .        .        .        .        .        L
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      1080.  .         .         .         .I   M W E        .         .         .         .         .         L
0.20  1090.  .         .         .         .I R  MW E        .         .         .         .         .         L
      1100.  .         .         .         . IR  MW .E       .         .         .         .         .         L
      1110.  .         .         .         . I R  W .E       .         .         .         .         .         L
      1120.  .         .         .         . I R  MW.E       .         .         .         .         .         L
0.21  1130.  .         .         .         . I R   W.E       .         .         .         .         .         L
      1140.  .         .         .         . I R   W.E       .         .         .         .         .         L
      1150.  .         .         .         .  IR   W. E      .         .         .         .         .         L
      1160.  .         .         .         .  IR    W E      .         .         .         .         .         L
      1170.  .         .         .         .  IR    W E      .         .         .         .         .         L
      1180.  .         .         .         .  I R   W  E     .         .         .         .         .         L
0.22  1190.  .         .         .         .  I R   .W E     .         .         .         .         .         L
      1200.  .         .         .         .  I  R  .W E     .         .         .         .         .         L
      1210.  .         .         .         .   I  R .WM E    .         .         .         .         .         L
      1220.  .         .         .         .   I    RW ME    .         .         .         .         .         L
      1230.  .         .         .         .   I    .RW ME   .         .         .         .         .         L
      1240.  .         .         .         .    I   . W ME   .         .         .         .         .         L
0.24  1250.  .         .         .         .    I   . WR E   .         .         .         .         .         L
      1260.  .         .         .         .    I   . W  E   .         .         .         .         .         L
      1270.  .         .         .         .    I   .  W  E  .         .         .         .         .         L
      1280.  .         .         .         .     I  .  W  E  .         .         .         .         .         L
      1290.  .         .         .         .     I  .   W EM .         .         .         .         .         L
      1300.  .         .         .         .     I  .   W  E .         .         .         .         .         L
      1310.  .         .         .         .     I  .   W  EM .        .         .         .         .         L
0.25  1320.  .         .         .         .      I .    W EM .        .         .         .         .         L
      1330.  .         .         .         .      I .    W  E M        .         .         .         .         L
      1340.  .         .         .         .      I .     W  E.M       .         .         .         .         L
      1350.  .         .         .         .      I .      W  E  M     .         .         .         .         L
      1360.  .         .         .         .       I.       W .E  M    .         .         .         .         L
0.26  1370.  .         .         .         .       I.   L     W  E  M  .         .         .         .         R
      1380.  .         .         .         .        I         W   E  M .         .         .         .         L
      1390.  .         .         .         .        I         .W  E  M .         .         .         .         L
      1400.  .         .         .         .        .I        .W   E  M .        .         .         .         L
      1410.  .         .         .         .        . I       . W   E M .        .         .         .         L
      1420.  .         .         .         .        .  I      . W   E  M.        .         .         .         L
      1430.  .         .         .         .        .  I      .  W   E M.        .         .         .         L
      1440.  .         .         .         .        .   I     .  W   E M         .         .         .         L
0.27  1450.  .         .         .         .        .   I     .   W   E M        .         .         .         L
      1460.  C         .         .         .        .    I    .   W   E .M       .         .         .         L
      1470.  C         .         .         .        .    I    .   W    E.M       .         .         .         L
      1480.  C         .         .         .        .    I    .    W   E.M       .         .         .         L
      1490.  C         .         .         .        .    I    .    W   E. M      .         .         .         L
      1500.  C         .         .         .        .    I    .     W   E M      .         .         .         L
      1510.  C         .         .         .        .     I   .     W   E M      .         .         .         L
      1520.  C         .         .         .        .     I   .     W   E  M     .         .         .         L
      1530.  C         .         .         .        .     I   .      W  .E M     .         .         .         L
      1540.  C         .         .         .        .     I   .      W  .E M     .         .         .         L
      1550.  C         .         .         .        .      I  .       W .E  M    .         .         .         L
      1560.  C         .         .         .        .      I  .       W . E M    .         .         .         L
      1570.  C         .         .         .        .      I  .       W . E  M   .         .         .         L
      1580.  C         .         .         .        .      I  .        W. E  M   .         .         .         L
      1590.  C         .         .         .        .       I .        W.  E M   .         .         .         L
      1600.  C         .         .         .        .       I .        W.  E  M  .         .         .         L
      1610.  C         .         .         .        .       I .         W  E  M  .         .         .         L
0.31  1620.  C         .         .         .        .       I .         W   E M  .         .         .         L
      1630.  C         .         .         .        .         I         .W  E  M .         .         .         L
      1640.  C         .         .         .        .         .I        . W  E M .         .         .         L
      1650.  C         .         .         .        .         . I       .  W  EM .         .         .         L
      1660.  C         .         .         .        .         .  I      .   W  EM .        .         .         L
      1670.  C         .         .         .        .         .   I     .    W  E .        .         .         L
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0.32 1680. .         .         .         .         .         .  I   .  W ME.        .         .         L
     1690. C         .         .         .         .         .  I   .   W E.        .         .         L
     1700. C         .         .         .         .         .   I  .   W E.        .         .         L
     1710. C         .         .         .         .         .   I  .   W EM        .         .         L
     1720. C         .         .         .         .         .   I  .   W  E        .         .         L
     1730. C         .         .         .         .         .   I  .   W  EM       .         .         L
     1740. C         .         .         .         .         .   I  .   W  EM       .         .         L
     1750. C         .         .         .         .         .    I .    W E M      .         .         L
     1760. C         .         .         .         .         .    I .    W E M      .         .         L
     1770. C         .         .         .         .         .    I .    W E  M     .         .         L
     1780. C         .         .         .         .         .    I .    W E  M     .         .         L
     1790. C         .         .         .         .         .    I .    W E   M    .         .         L
     1800. C         .         .         .         .         .     I.    W E   M    .         .         L
     1810. C         .         .         .         .         .     I.     W E   M   .         .         L
     1820. C         .         .         .         .         .     I.     W E   M   .         .         L
     1830. C         .         .         .         .         .     I.     W E    M  .         .         L
0.35 1840. C         .         .         .         .         .     I.     W E    M  .         .         L
     1850. C         .         .         .         .         .     I.     W .E    M .         .         L
     1860. C         .         .         .         .         .     I.     W .E    M .         .         L
     1870. C         .         .         .         .         .     I.     W .E    M .         .         L
     1880. C         .         .         .         .         .     I.     W .E    M .         .         L
     1890. C         .         .         .         .         .     I.     W .E     M.         .         L
     1900. C         .         .         .         .         .     I.     W .E     M.         .         L
     1910. C         .         .         .         .         .     I.     W .E     M.         .         L
     1920. C         .         .         .         .         .     I.     W .E     M.         .         L
     1930. C         .         .         .         .         .      I     W .E      M.        .         L
     1940. C         .         .         .         .         .      I     W .E      M.        .         L
     1950. C         .         .         .         .         .      I     W .E      M.        .         L
     1960. C         .         .         .         .         .      I     W .E      M.        .         L
     1970. C         .         .         .         .         .      I     W .E       M        .         L
     1980. C         .         .         .         .         .      I     W . E      M        .         L
0.38 1990. .         .         .         .         .         .      I     W . E      M        .         L
     2000. C         .         .         .         .         .      I     W . E      .M       .         L
     2010. C         .         .         .         .         .      I     W . E      . M      .         L
     2020. C         .         .         .         .         .      I     W . E      .  M     .         L
     2030. C         .         .         .         .         .      I     W . E      .  M     .         L
     2040. C         .         .         .         .         .      I     W . E      .   M    .         L
     2050. C         .         .         .         .         .      I     W . E      .    M   .         L
     2060. C         .         .         .         .         .      I      W. E      .    M   .         L
     2070. C         .         .         .         .         .      I      W. E      .     M  .         L
     2080. C         .         .         .         .         .      I      W. E      .      M .         L
     2090. C         .         .         .         .         .      I      W. E      .       M.         L
     2100. C         .         .         .         .         .      I      W. E      .       M.         L
     2110. C         .         .         .         .         .      I      W. E      .        M.        L
0.40 2120. C         .         .         .         .         .      I      W. E      .         M        L
     2130. C         .         .         .         .         .      I       W E      .         M        L
     2140. C         .         .         .         .         .      I       W E      .         .M       L
     2150. C         .         .         .         .         .      I       W E      .         .M       L
     2160. C         .         .         .         .         .      I       W E      .         .M       L
     2170. C         .         .         .         .         .      I       W E      .         .M       L
     2180. C         .         .         .         .         .      I       W E      .         .M       L
     2190. C         .         .         .         .         .      I       W E      .         .M       L
     2200. C         .         .         .         .         .      I       W  E     .         . M      L
     2210. C         .         .         .         .         .      I       .W E     .         . M      L
     2220. C         .         .         .         .         .      I       .W E     .         . M      L
     2230. C         .         .         .         .         .      I       .W E     .         . M      L
     2240. C         .         .         .         .         .      I       .W E     .         . M      L
0.43 2250. C         .         .         .         .         .      I       .W E     .  L      . M      R
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THIS RUN EXECUTED 7MAY97 7:59:13

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HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

100 YEAR PROFILE RUN

SUMMARY PRINTOUT

	SECNO	Q	CWSEL	SSTA	ENDST	TOPWID	DEPTH	VCH	STENCL	STENCR	ELENCL	ELENCR	K*CHSL
*	0.001	665.00	1239.40	200.00	384.44	184.44	1.54	4.97	0.00	0.00	0.00	0.00	0.00
	0.001	665.00	1239.50	200.00	386.00	186.00	1.64	4.35	200.00	386.00	100000.00	100000.00	0.00
*	0.011	665.00	1244.07	171.57	260.00	88.43	1.74	6.79	0.00	0.00	0.00	0.00	74.50
*	0.011	665.00	1244.59	200.00	250.00	50.00	2.26	7.56	200.00	250.00	100000.00	100000.00	74.50
	0.024	665.00	1244.86	172.10	245.00	72.90	2.26	7.50	0.00	0.00	0.00	0.00	3.97
*	0.024	665.00	1245.38	200.00	240.00	40.00	2.78	8.17	200.00	240.00	100000.00	100000.00	3.97
*	0.037	665.00	1245.31	176.94	245.00	68.06	2.61	7.50	0.00	0.00	0.00	0.00	1.47
*	0.037	665.00	1245.96	200.00	240.00	40.00	3.26	8.20	200.00	240.00	100000.00	100000.00	1.47
*	0.048	665.00	1246.54	166.43	240.00	73.57	2.24	7.67	0.00	0.00	0.00	0.00	27.59
*	0.048	665.00	1246.76	190.00	235.00	45.00	2.46	8.23	190.00	235.00	100000.00	100000.00	27.59
*	0.073	665.00	1247.24	193.00	258.00	65.00	2.04	7.40	0.00	0.00	0.00	0.00	6.92
*	0.073	665.00	1247.48	200.00	243.00	43.00	2.28	7.97	200.00	243.00	100000.00	100000.00	6.92
*	0.090	665.00	1247.91	198.00	258.00	60.00	1.91	7.28	0.00	0.00	0.00	0.00	8.60
*	0.090	665.00	1247.95	200.00	253.00	53.00	1.95	7.43	200.00	253.00	100000.00	100000.00	8.60
*	0.111	665.00	1248.36	198.00	257.00	59.00	2.26	7.30	0.00	0.00	0.00	0.00	0.93
*	0.111	665.00	1248.40	200.00	252.00	52.00	2.30	7.49	200.00	252.00	100000.00	100000.00	0.93
*	0.127	665.00	1249.07	978.93	1085.50	106.57	1.89	6.38	0.00	0.00	0.00	0.00	12.71
*	0.127	665.00	1249.14	1000.00	1060.00	60.00	1.96	7.14	1000.00	1060.00	100000.00	100000.00	12.71
*	0.136	665.00	1251.63	990.00	1026.62	36.62	2.63	8.45	0.00	0.00	0.00	0.00	36.40
*	0.136	665.00	1251.72	990.00	1020.00	30.00	2.72	8.96	990.00	1020.00	100000.00	100000.00	36.40
*	0.151	665.00	1252.92	990.00	1014.87	24.87	3.12	9.51	0.00	0.00	0.00	0.00	10.00
*	0.151	665.00	1253.04	990.00	1010.00	20.00	3.24	10.26	990.00	1010.00	100000.00	100000.00	10.00

	SECNO	Q	CWSEL	SSTA	ENDST	TOPWID	DEPTH	VCH	STENCL	STENCR	ELENCL	ELENCR	K*CHSL
*	0.168	665.00	1254.21	990.00	1150.00	44.57	3.41	6.60	0.00	0.00	0.00	0.00	11.11
*	0.168	665.00	1254.55	990.00	1020.00	30.00	3.75	6.44	990.00	1020.00	100000.00	100000.00	11.11
*	0.190	665.00	1254.91	130.00	300.00	170.00	1.82	4.21	0.00	0.00	0.00	0.00	19.91
*	0.190	665.00	1255.32	196.00	233.00	37.00	2.23	8.36	196.00	233.00	100000.00	100000.00	19.91
	0.195	796.00	1254.92	130.00	310.00	180.00	1.66	4.31	0.00	0.00	0.00	0.00	6.80
*	0.195	796.00	1255.44	185.00	230.00	45.00	2.18	8.30	185.00	230.00	100000.00	100000.00	6.80
	0.199	876.00	1254.90	125.00	320.00	195.00	1.47	5.13	0.00	0.00	0.00	0.00	8.50
*	0.199	876.00	1255.60	185.00	234.00	49.00	2.17	8.51	185.00	234.00	100000.00	100000.00	8.50
*	0.205	1300.00	1256.15	189.24	339.55	150.31	2.05	6.32	0.00	0.00	0.00	0.00	19.14
*	0.205	1300.00	1256.96	210.00	280.00	70.00	2.86	9.05	210.00	280.00	100000.00	100000.00	19.14
*	0.213	1300.00	1256.63	197.69	313.27	115.59	2.11	6.84	0.00	0.00	0.00	0.00	10.50
*	0.213	1300.00	1257.21	200.00	270.00	70.00	2.69	8.71	200.00	270.00	100000.00	100000.00	10.50
*	0.225	1300.00	1257.29	196.49	301.28	104.79	2.34	7.64	0.00	0.00	0.00	0.00	6.61
*	0.225	1300.00	1258.15	200.00	260.00	60.00	3.20	9.96	200.00	260.00	100000.00	100000.00	6.61
*	0.236	1300.00	1258.46	154.02	245.21	91.20	2.78	8.36	0.00	0.00	0.00	0.00	13.27
*	0.236	1300.00	1258.93	201.00	246.35	45.35	3.25	9.74	201.00	251.00	100000.00	100000.00	13.27
*	0.249	1300.00	1260.03	948.46	1032.99	84.53	3.33	8.41	0.00	0.00	0.00	0.00	14.57
*	0.249	1300.00	1260.13	960.00	1010.00	50.00	3.43	9.48	960.00	1010.00	100000.00	100000.00	14.57
*	0.259	1300.00	1262.56	909.18	1033.75	124.57	5.16	4.87	0.00	0.00	0.00	0.00	12.73
*	0.259	1300.00	1262.68	965.00	1010.00	45.00	5.28	6.61	965.00	1010.00	100000.00	100000.00	12.73
*	0.273	1300.00	1264.63	910.85	1033.13	122.28	4.63	7.49	0.00	0.00	0.00	0.00	34.67
*	0.273	1300.00	1264.70	981.00	1008.00	27.00	4.70	11.62	981.00	1008.00	100000.00	100000.00	34.67
*	0.306	1300.00	1267.62	975.94	1010.81	34.87	5.62	10.78	0.00	0.00	0.00	0.00	11.76
	0.306	1300.00	1267.98	978.00	1008.00	30.00	5.98	10.32	978.00	1008.00	100000.00	100000.00	11.76
*	0.317	1300.00	1270.48	978.18	1034.77	56.59	4.48	9.64	0.00	0.00	0.00	0.00	66.67
*	0.317	1300.00	1270.58	989.00	1021.00	32.00	4.58	10.99	989.00	1021.00	100000.00	100000.00	66.67
*	0.347	1300.00	1271.53	973.20	1026.55	53.35	4.03	8.09	0.00	0.00	0.00	0.00	9.38
*	0.347	1300.00	1271.90	980.00	1015.00	35.00	4.40	8.81	980.00	1015.00	100000.00	100000.00	9.38
*	0.376	1300.00	1271.58	980.59	1017.58	36.99	3.88	10.43	0.00	0.00	0.00	0.00	1.33
*	0.376	1300.00	1271.70	983.00	1013.00	30.00	4.00	11.22	983.00	1013.00	100000.00	100000.00	1.33
	0.401	1300.00	1272.02	981.98	1018.82	36.84	4.02	10.04	0.00	0.00	0.00	0.00	2.22
	0.401	1300.00	1272.59	985.00	1015.00	30.00	4.59	9.51	985.00	1015.00	100000.00	100000.00	2.22
	0.426	1300.00	1272.80	982.00	1020.39	38.39	4.80	8.17	0.00	0.00	0.00	0.00	0.00
*	0.426	1300.00	1273.42	981.48	1021.23	39.75	5.42	7.08	965.00	1025.00	100000.00	100000.00	0.00

SUMMARY OF ERRORS AND SPECIAL NOTES

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CAUTION SECNO=      0.001  PROFILE=  1  CRITICAL DEPTH ASSUMED

CAUTION SECNO=      0.011  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      0.011  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      0.011  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      0.011  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      0.011  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=      0.024  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      0.024  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      0.024  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      0.024  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      0.024  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

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CAUTION SECNO=      0.037  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      0.037  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      0.037  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      0.037  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=      0.048  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      0.048  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      0.048  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      0.048  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      0.048  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

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CAUTION SECNO=      0.073  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      0.073  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      0.073  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      0.073  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=      0.090  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      0.090  PROFILE=  1  MINIMUM SPECIFIC ENERGY
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CAUTION SECNO=      0.090  PROFILE=  2  MINIMUM SPECIFIC ENERGY

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CAUTION SECNO=      0.111  PROFILE=  1  MINIMUM SPECIFIC ENERGY
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CAUTION SECNO=      0.127  PROFILE=  1  CRITICAL DEPTH ASSUMED
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CAUTION SECNO=      0.127  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      0.127  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      0.127  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

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CAUTION SECNO=      0.136  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      0.136  PROFILE=  2  CRITICAL DEPTH ASSUMED
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CAUTION SECNO=      0.136  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      0.136  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=      0.151  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      0.151  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      0.151  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      0.151  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      0.151  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=      0.168  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      0.168  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      0.190  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=      0.190  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      0.190  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      0.190  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

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CAUTION SECNO=      0.195  PROFILE=  2  MINIMUM SPECIFIC ENERGY

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CAUTION SECNO=      0.199  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      0.199  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

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CAUTION SECNO=      0.205  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      0.205  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      0.205  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      0.205  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

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CAUTION SECNO=      0.213  PROFILE=  1  MINIMUM SPECIFIC ENERGY
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CAUTION SECNO=      0.213  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      0.213  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

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CAUTION SECNO=      0.225  PROFILE=  1  MINIMUM SPECIFIC ENERGY
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CAUTION SECNO=      0.225  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      0.225  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

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CAUTION SECNO=      0.236  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      0.236  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      0.236  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      0.236  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

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CAUTION SECNO=      0.249  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      0.249  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      0.249  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      0.249  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL
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CAUTION SECNO=      0.259  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      0.259  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      0.259  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      0.259  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      0.259  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=      0.273  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      0.273  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      0.273  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      0.273  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      0.273  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=      0.306  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      0.306  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      0.317  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      0.317  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      0.317  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      0.317  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      0.317  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=      0.347  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      0.347  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=      0.376  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      0.376  PROFILE=  1  MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      0.376  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      0.376  PROFILE=  2  MINIMUM SPECIFIC ENERGY

WARNING SECNO=      0.426  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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FLOODWAY DATA, 100 YEAR PROFILE RUN
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
0.001	186.	153.	4.4	1239.5	1239.4	0.1
0.011	50.	88.	7.6	1244.6	1244.1	0.5
0.024	40.	81.	8.2	1245.4	1244.9	0.5
0.037	40.	81.	8.2	1245.9	1245.3	0.6
0.048	45.	85.	7.8	1246.7	1246.5	0.2
0.073	43.	83.	8.0	1247.4	1247.2	0.2
0.090	53.	90.	7.4	1247.9	1247.9	0.0
0.111	52.	89.	7.5	1248.4	1248.4	0.0
0.127	60.	93.	7.1	1249.2	1249.1	0.1
0.136	30.	74.	9.0	1251.7	1251.6	0.1
0.151	20.	65.	10.3	1253.0	1252.9	0.1
0.168	30.	103.	6.4	1254.5	1254.2	0.3
0.190	37.	80.	8.4	1255.3	1254.9	0.4
0.195	45.	96.	8.3	1255.4	1254.9	0.5
0.199	49.	105.	8.3	1255.6	1254.9	0.7
0.205	70.	158.	8.2	1257.0	1256.2	0.8
0.213	70.	155.	8.4	1257.2	1256.6	0.6
0.225	60.	149.	8.7	1258.2	1257.3	0.9
0.236	45.	133.	9.7	1259.0	1258.5	0.5
0.249	50.	137.	9.5	1260.1	1260.0	0.1
0.259	45.	140.	9.3	1262.7	1262.6	0.1
0.273	27.	112.	11.6	1264.7	1264.6	0.1
0.306	30.	126.	10.3	1268.0	1267.6	0.4
0.317	32.	118.	11.0	1270.6	1270.5	0.1
0.347	35.	148.	8.8	1271.9	1271.5	0.4
0.376	30.	116.	11.2	1271.7	1271.6	0.1
0.401	30.	137.	9.5	1272.6	1272.0	0.6
0.426	40.	184.	7.1	1273.4	1272.8	0.6

APPENDIX A

DAVID EVANS AND ASSOCIATES, INC.

TELECOPY TRANSMITTAL

2929 East Camelback Road
Suite 240
Phoenix, Arizona 85016
Tel: 602.956.9850
Fax: 602.956.9853

TO:	Mike Konaboy	FAX NO:	609-734-7950
		PHONE NO:	
FIRM:	Baker Engineering	# OF PAGES:	3
FROM:	Teri Mintz	PROJ. #:	MARI0019
DATE:	July 2, 1997	REGARDING:	Your call
COPIES:	Hasan Mushtaq	FAX NO:	506-4601

ORIGINAL TO FOLLOW: ☐ REGULAR MAIL ☐ OVERNIGHT MAIL ☐ COURIER ☒ N/A

COMMENTS:

After going through my files, I didn't find a working drawing for the original study. Therefore, the method I would have used to determine the location of the cross sections for the original study would have been from starting where the original study ended and use the channel lengths from the original HEC-2 to determine the location for the remaining cross sections. I obviously made a mistake because it appears that the upper limit of the study was not cross section .77, instead it must have been .73 based on the BFE's. Therefore, I will have to redo the upstream end and tie-in of the revised model.

As far as the other issue of the pedestrian bridges, I went out to the site today and took measurements of the bridges. Attached you will find those measurements (I hope you can read them in this fax. If not, I'll resend them darker.) I've included the approximate flow depths at the bridges. For example, the most upstream bridge at approximately cross section .221 shows a clearance of 9 feet. The water surface elevation in that area is about 6 to 7 feet; therefore, the bridge has no effect. The most downstream bridge between cross section .108 and .141 has just over 7 feet of clearance and the water surface elevation is approximately 5 feet, again the bridge has no effect. If this isn't enough to address this issue, please let me know.

Are you doing a complete review or just a cursory review? If this is part of the complete review, I should probably wait until you finish the complete review to address these issues further because the tie-in issue at cross section .65 will take some time to complete. I don't want to make your job more difficult but I will be on vacation starting tomorrow until next Tuesday (7/9). Let me know if there is anything else I can do today.

Teri

DAVID EVANS AND ASSOCIATES, INC.

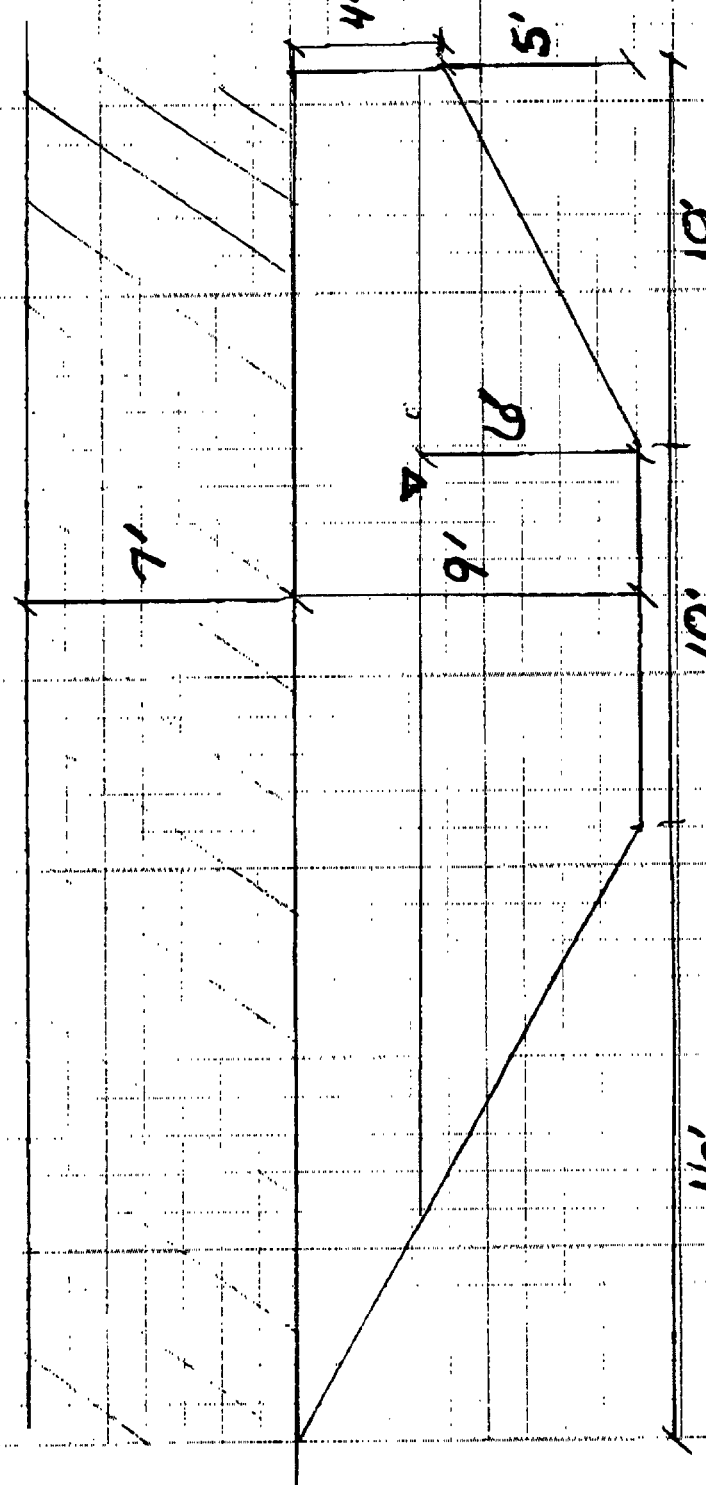
Project Footbridge ~@ xsec .221

Job No. _____ Sht. _____ of _____

Calc. TSM Chk. _____ B'chk. _____

Date 7/2/97 Date _____ Date _____

Upstream bridge
~xsec .221



Looking Downstream

H 1" = 5'
V 1" = 5'

DAVID EVANS AND ASSOCIATES, INC.

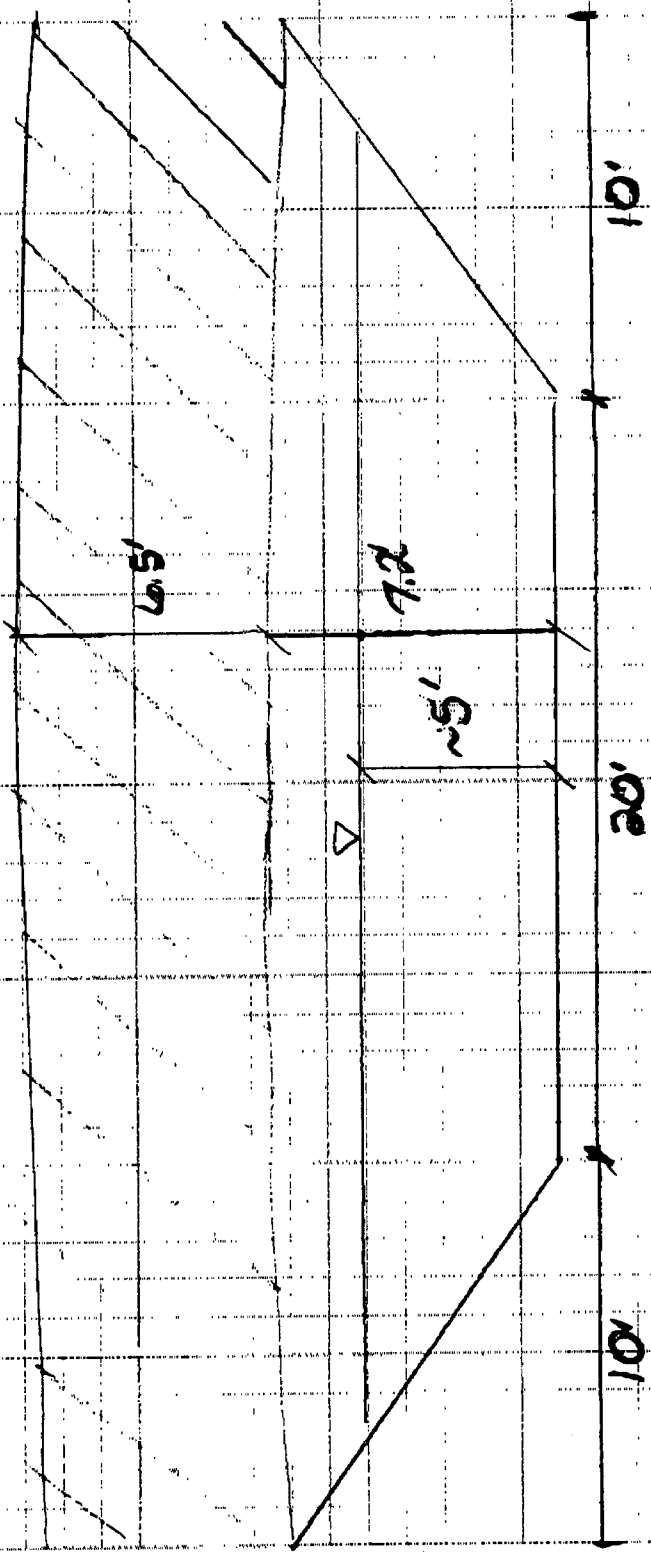
Project Footbridge bet xsec .108+.141

Job No. _____ Sht. _____ of _____

Calc. _____ Chk. _____ B'chk. _____

Date _____ Date _____ Date _____

Downstream bridge
between cross sections
.108 + .141



Looking Downstream

H 1" = 5'
V 1" = 5'

DAVID EVANS AND ASSOCIATES, INC.

2929 East Camelback Road
Suite 240
Phoenix, Arizona 85016
Tel: 602.956.9850
Fax: 602.956.9853

TELECOPY TRANSMITTAL

TO:	Mike Konaboy	FAX NO:	609-734-7950
		PHONE NO:	
FIRM:	Baker Engineering	# OF PAGES:	~~8~~ 7
FROM:	Teri Mintz	PROJ. #:	MARI0019
DATE:	June 30, 1997	REGARDING:	Myrtle Avenue Wash
COPIES:	Hasan Mushtaq	FAX NO:	506-4601

ORIGINAL TO FOLLOW: ☐ REGULAR MAIL ☐ OVERNIGHT MAIL ☐ COURIER ☒ N/A

COMMENTS:

Enclosed is the analysis within 17th Street for the 99 cfs that splits from the main wash and continues south. Two more cross sections were analyzed in addition to the three submitted with the original submittal. The cross sectional information was derived from the 100 scale topography. The additional floodplain should be designated as Zone X. If you need anything else, please call.

Teri Mintz

17TH ST DITCH FLOW NORTHERN, ZONE X
Worksheet for Irregular Channel

Project Description	
Project File	s:\drn\mari0019\fm2\mari0019.fm2
Worksheet	17TH ST DITCH FLOW NORTHERN, ZONE X
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Water Elevation

Input Data		
Channel Slope	0.017000	ft/ft

Elevation range: 1,248.00 ft to 1,252.00 ft.

Station (ft)	Elevation (ft)	Start Station	End Station	Roughness
0.00	1,252.00	0.00	100.00	0.018
25.00	1,251.00			
45.00	1,250.00			
50.00	1,250.50			
60.00	1,250.00			
70.00	1,248.00			
80.00	1,250.00			
100.00	1,251.00			

Discharge	99.00	cfs

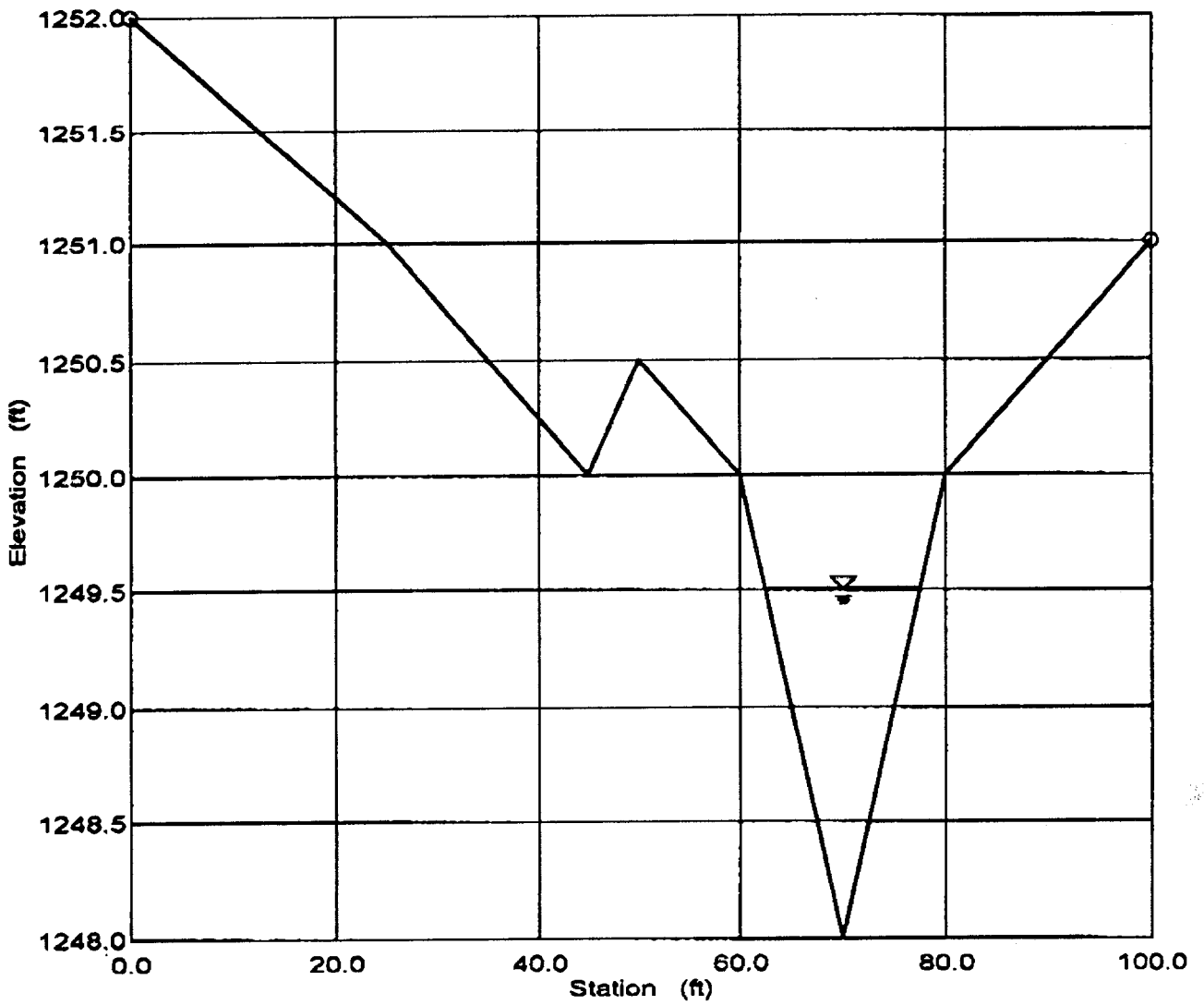
Results		
Wtd. Mannings Coefficient	0.018	
Water Surface Elevation	1,249.50	ft
Flow Area	11.28	ft²
Wetted Perimeter	15.32	ft
Top Width	15.02	ft
Height	1.50	ft
Critical Depth	1,249.89	ft
Critical Slope	0.004935	ft/ft
Velocity	8.78	ft/s
Velocity Head	1.20	ft
Specific Energy	1,250.70	ft
Froude Number	1.79	

Flow is supercritical.

CROSS SECTION NORTH, ZONE X
Cross Section for Irregular Channel

Project Description	
Project File	s:\drn\mari0019\fm2\mari0019.fm2
Worksheet	17TH ST DITCH FLOW NORTHERN, ZONE X
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Water Elevation

Section Data		
Wtd. Mannings Coefficient	0.018	
Channel Slope	0.017000	ft/ft
Water Surface Elevation	1,249.50	ft
Discharge	99.00	cfs



17TH ST, SOUTHERN DITCH FLOW, ZONE X

Worksheet for Irregular Channel

Project Description	
Project File	s:\drn\mari0019\fm2\mari0019.fm2
Worksheet	17TH ST., DITCH FLOW, ZONE X
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Water Elevation

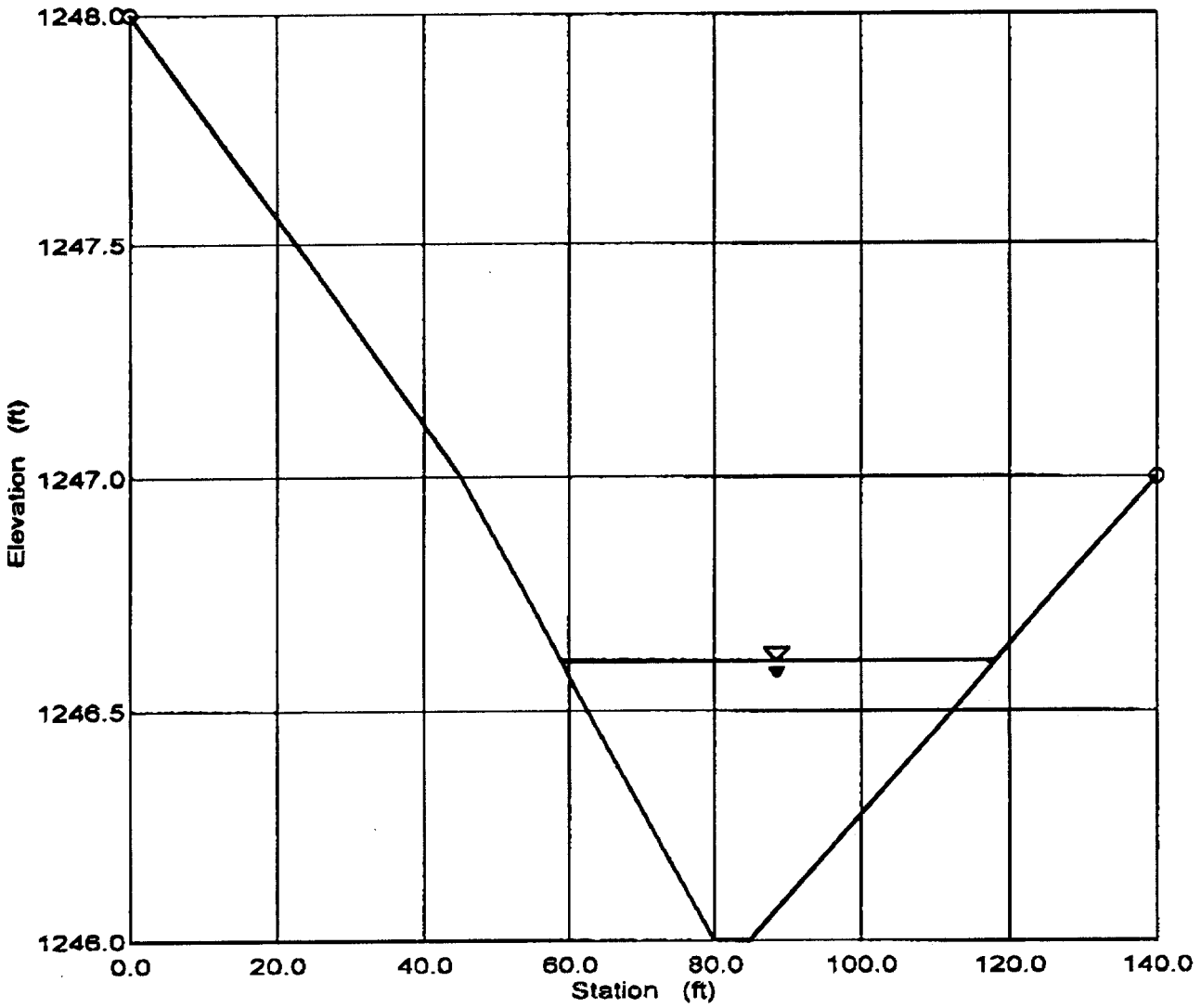
Input Data					
Channel Slope	0.017000 ft/ft				
Elevation range: 1,246.00 ft to 1,248.00 ft.					
Station (ft)	Elevation (ft)		Start Station	End Station	Roughness
0.00	1,248.00		0.00	140.00	0.018
45.00	1,247.00				
80.00	1,246.00				
85.00	1,246.00				
140.00	1,247.00				
Discharge	99.00	cfs			

Results		
Wtd. Mannings Coefficient	0.018	
Water Surface Elevation	1,246.60	ft
Flow Area	19.38	ft^2
Wetted Perimeter	59.29	ft
Top Width	59.28	ft
Height	0.60	ft
Critical Depth	1,246.73	ft
Critical Slope	0.006451	ft/ft
Velocity	5.11	ft/s
Velocity Head	0.41	ft
Specific Energy	1,247.01	ft
Froude Number	1.57	
Flow is supercritical.		

CROSS SECTION SOUTH, ZONE X
Cross Section for Irregular Channel

Project Description	
Project File	s:\drn\mari0019\fm2\mari0019.fm2
Worksheet	17TH ST., DITCH FLOW, ZONE X
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Water Elevation

Section Data		
Wtd. Mannings Coefficient	0.018	
Channel Slope	0.017000	ft/ft
Water Surface Elevation	1,246.60	ft
Discharge	99.00	cfs



ROADWAY SEC ALONG 17TH ST, S/O MYRTLE AV
Worksheet for Irregular Channel

Project Description	
Project File	s:\drn\mari0019\fm2\mari0019.fm2
Worksheet	17TH ST, SOUTH OF MYRTLE AVE, NORTHERN
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Water Elevation

Input Data		
Channel Slope	0.004000	ft/ft

Elevation range: 1,253.41 ft to 1,254.96 ft.

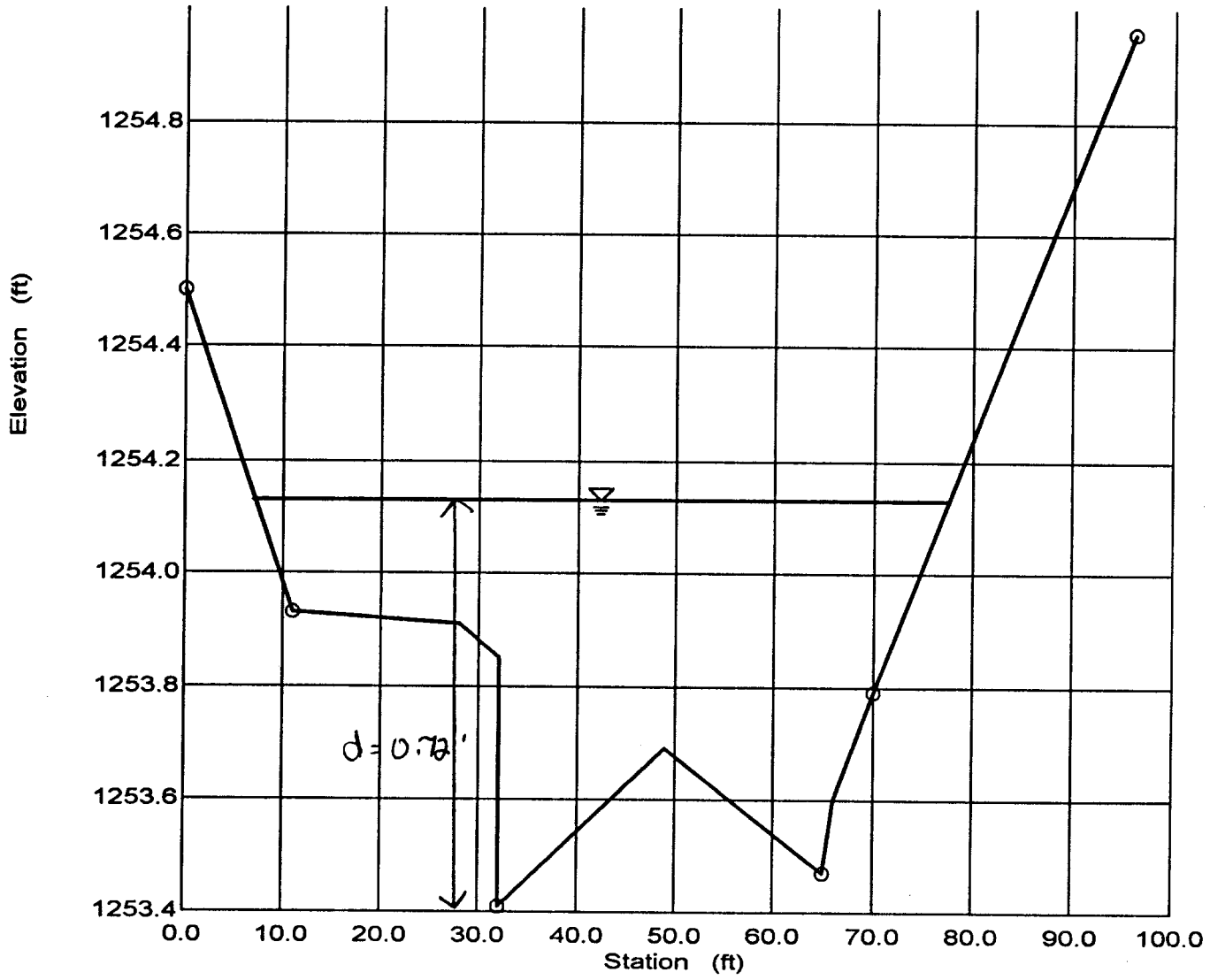
Station (ft)	Elevation (ft)	Start Station	End Station	Roughness
0.00	1,254.50	0.00	11.00	0.020
11.00	1,253.93	11.00	32.00	0.013
28.00	1,253.91	32.00	65.00	0.016
32.00	1,253.85	65.00	70.00	0.013
32.00	1,253.41	70.00	96.00	0.020
49.00	1,253.69			
65.00	1,253.47			
66.00	1,253.60			
70.00	1,253.79			
96.00	1,254.96			
Discharge	99.00	cfs		

Results		
Wtd. Mannings Coefficient	0.014	
Water Surface Elevation	1,254.13	ft
Flow Area	27.21	ft^2
Wetted Perimeter	70.87	ft
Top Width	70.40	ft
Height	0.72	ft
Critical Depth	1,254.14	ft
Critical Slope	0.003751	ft/ft
Velocity	3.64	ft/s
Velocity Head	0.21	ft
Specific Energy	1,254.34	ft
Froude Number	1.03	
Flow is supercritical.		

ROADWAY SECTION
Cross Section for Irregular Channel

Project Description	
Project File	s:\drn\mari0019\fm2\mari0019.fm2
Worksheet	17TH ST, SOUTH OF MYRTLE AVE, NORTHERN
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Water Elevation

Section Data		
Wtd. Mannings Coefficient	0.014	
Channel Slope	0.004000	ft/ft
Water Surface Elevation	1,254.13	ft
Discharge	99.00	cfs



ROADWAY SEC ALONG 17TH ST, S/O MYRTLE AV
Worksheet for Irregular Channel

Project Description	
Project File	s:\drn\mari0019\fm2\mari0019.fm2
Worksheet	17TH ST, SOUTH OF MYRTLE AVE, CENTRAL
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Water Elevation

Input Data		
Channel Slope	0.004000	ft/ft

Elevation range: 1,252.22 ft to 1,256.27 ft.

Station (ft)	Elevation (ft)	Start Station	End Station	Roughness
0.00	1,255.00	0.00	27.00	0.020
0.00	1,253.72	27.00	32.00	0.013
9.00	1,252.22	32.00	65.00	0.016
27.00	1,253.72	65.00	70.00	0.013
32.00	1,253.67	70.00	84.00	0.020
32.00	1,253.19			
49.00	1,253.55			
65.00	1,253.25			
66.00	1,253.60			
70.00	1,253.64			
84.00	1,256.27			

Discharge	99.00	cfs

Results		
Wtd. Mannings Coefficient	0.016	
Water Surface Elevation	1,253.68	ft
Flow Area	29.46	ft^2
Wetted Perimeter	66.26	ft
Top Width	65.53	ft
Height	1.46	ft
Critical Depth	1,253.64	ft
Critical Slope	0.005113	ft/ft
Velocity	3.36	ft/s
Velocity Head	0.18	ft
Specific Energy	1,253.86	ft
Froude Number	0.88	

Flow is subcritical.

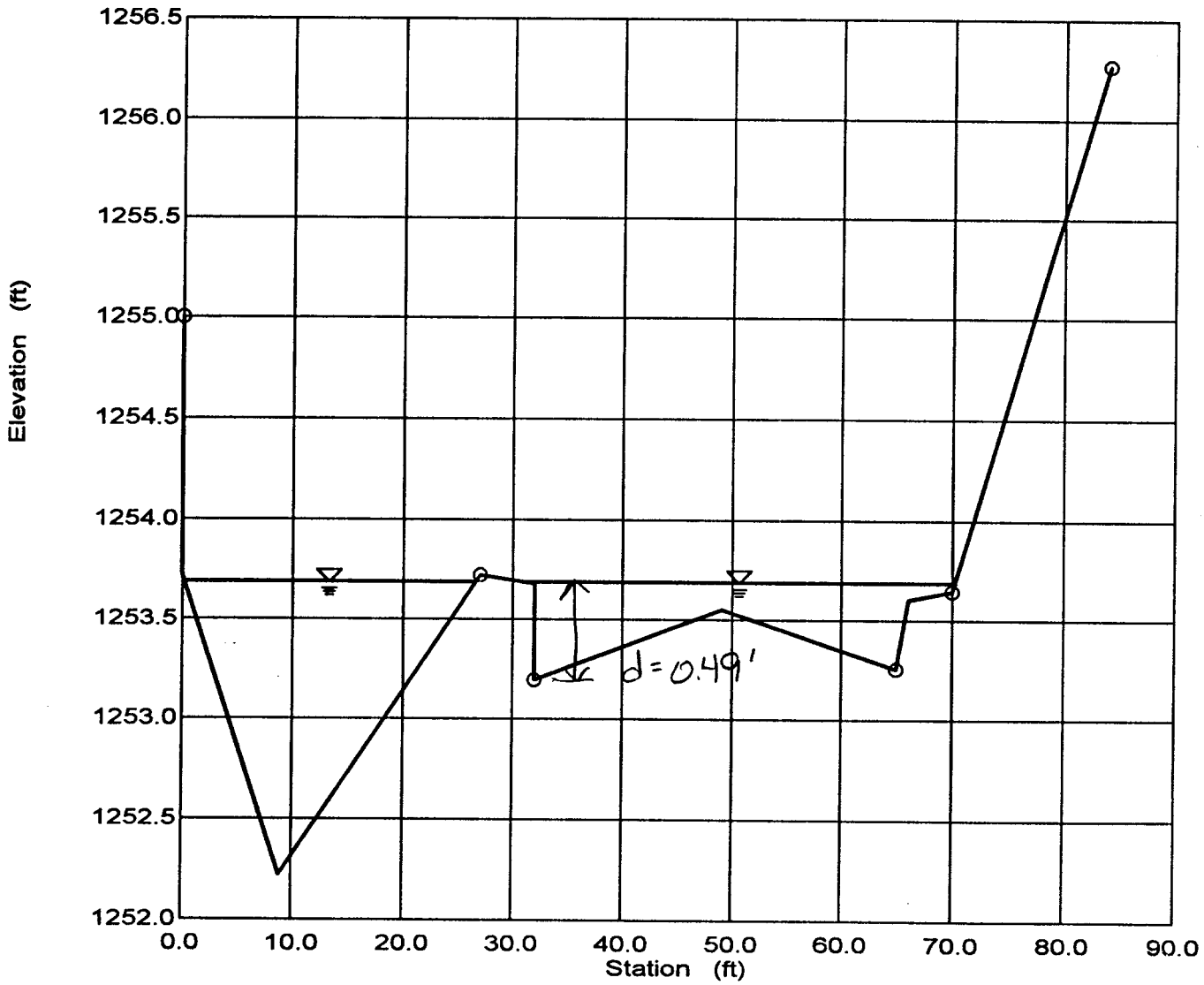
Flow is divided.

ROADWAY SECTION

Cross Section for Irregular Channel

Project Description	
Project File	s:\dm\mari0019\fm2\mari0019.fm2
Worksheet	17TH ST, SOUTH OF MYRTLE AVE, CENTRAL
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Water Elevation

Section Data		
Wtd. Mannings Coefficient	0.016	
Channel Slope	0.004000	ft/ft
Water Surface Elevation	1,253.68	ft
Discharge	99.00	cfs



ROADWAY SEC ALONG 17TH ST, S/O MYRTLE AV
Worksheet for Irregular Channel

Project Description	
Project File	s:\drn\mari0019\fm2\mari0019.fm2
Worksheet	17TH ST, SOUTH OF MYRTLE AVE, SOUTHERN
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Water Elevation

Input Data		
Channel Slope	0.004000	ft/ft

Elevation range: 1,251.96 ft to 1,256.64 ft.

Station (ft)	Elevation (ft)	Start Station	End Station	Roughness
0.00	1,253.65	0.00	26.00	0.020
9.00	1,251.96	26.00	31.00	0.013
26.00	1,253.55	31.00	65.00	0.016
31.00	1,253.53	65.00	70.00	0.013
31.00	1,253.01	70.00	91.00	0.020
49.00	1,253.46			
65.00	1,253.01			
66.00	1,253.40			
70.00	1,253.42			
91.00	1,256.64			
Discharge	99.00	cfs		

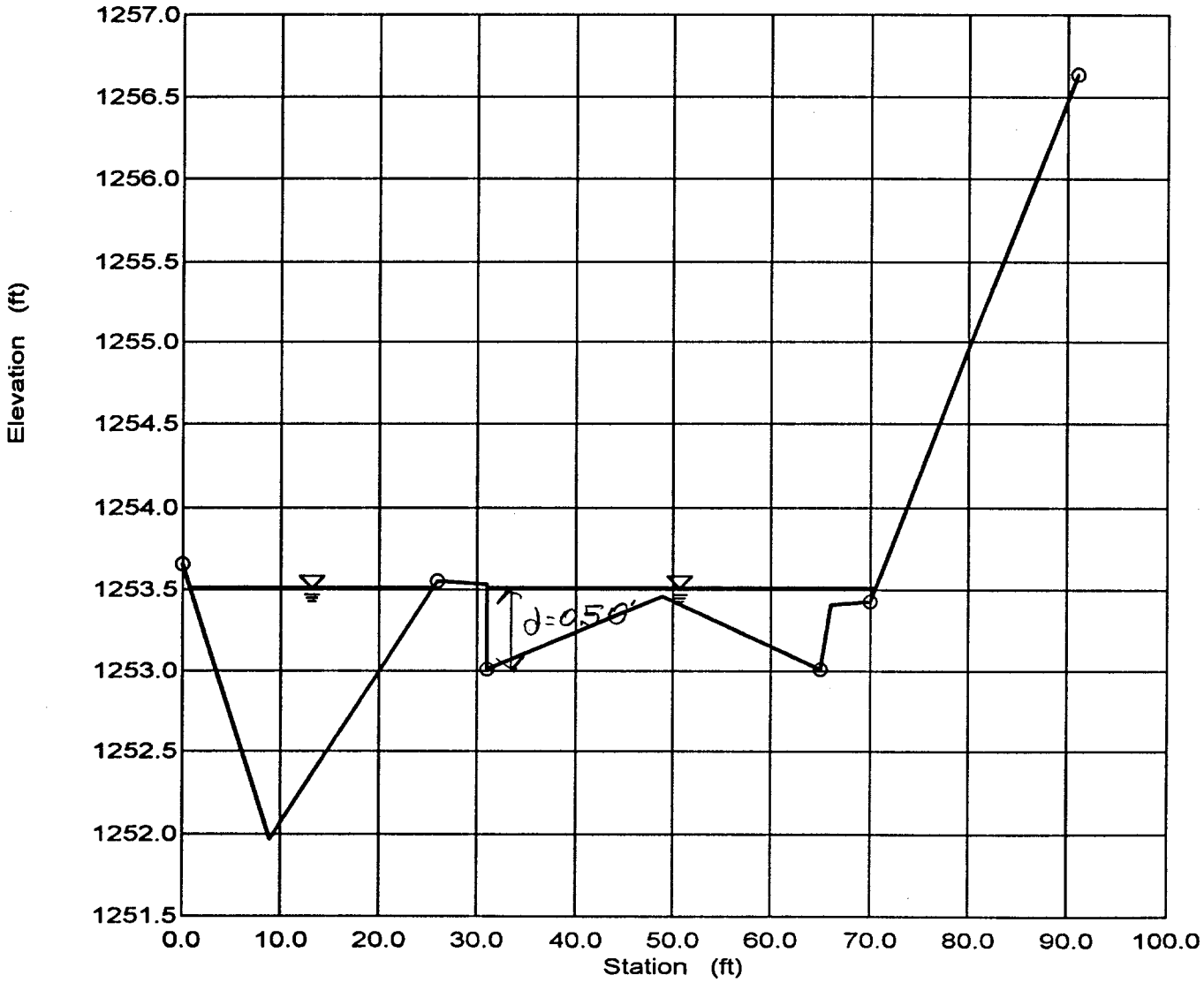
Results		
Wtd. Mannings Coefficient	0.016	
Water Surface Elevation	1,253.51	ft
Flow Area	29.03	ft^2
Wetted Perimeter	65.12	ft
Top Width	64.31	ft
Height	1.55	ft
Critical Depth	1,253.47	ft
Critical Slope	0.004880	ft/ft
Velocity	3.41	ft/s
Velocity Head	0.18	ft
Specific Energy	1,253.69	ft
Froude Number	0.89	
Flow is subcritical.		
Flow is divided.		

ROADWAY SECTION

Cross Section for Irregular Channel

Project Description	
Project File	s:\drn\mari0019\fm2\mari0019.fm2
Worksheet	17TH ST, SOUTH OF MYRTLE AVE, SOUTHERN
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Water Elevation

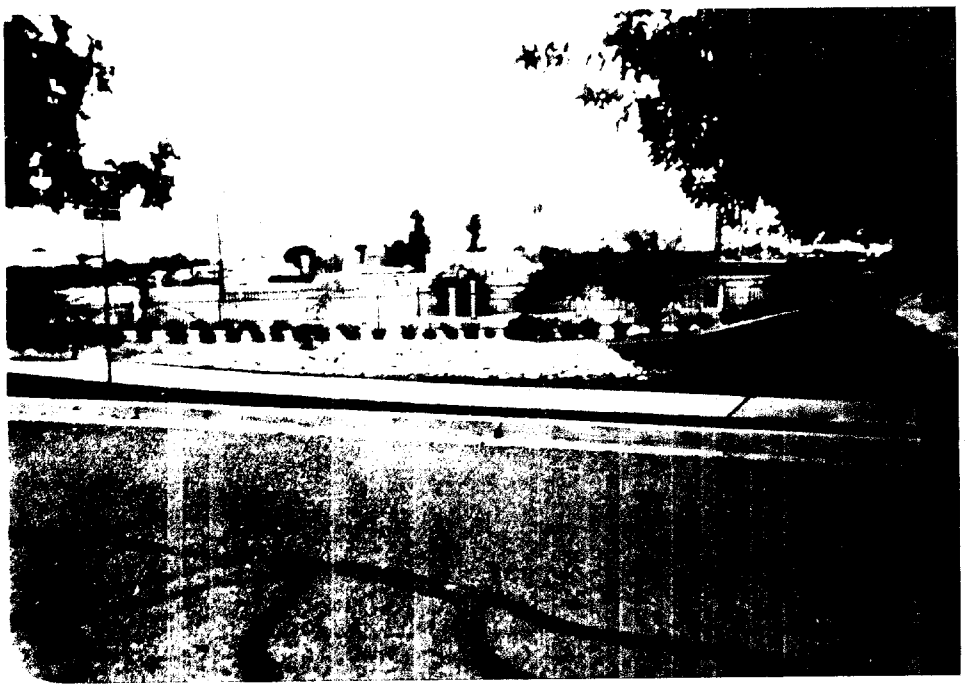
Section Data		
Wtd. Mannings Coefficient	0.016	
Channel Slope	0.004000	ft/ft
Water Surface Elevation	1,253.51	ft
Discharge	99.00	cfs



17TH STREET, SOUTH OF MYRTLE AVENUE
LOOKING SOUTH AT DITCH IN RIGHT-OF-WAY

17TH STREET, SOUTH OF MYRTLE AVENUE
LOOKING NORTH AT DITCH IN RIGHT-OF-WAY

17TH STREET, JUST NORTH OF GLENDALE AVENUE
LOOKING SOUTH AT BASIN LEADING INTO ACDC



17TH STREET, JUST NORTH OF GLENDALE AVENUE
LOOKING WEST AT BASIN LEADING INTO ACDC