BULLARD WASH
CHANNEL IMPROVEMENTS
INTERSTATE – 10 TO LOWER BUCKEYE ROAD
City of Goodyear, Maricopa County, Arizona

CONDITIONAL LETTER OF
MAP REVISION SUBMITTAL
TECHNICAL DATA NOTEBOOK

Contract FCD 2001 C023

PCN No. 470-13-31

May 2004
WP #011489

Prepared for: **Flood Control District of Maricopa Country**
2801 West Durango
Phoenix, AZ 85009
Phone: (602) 506-1501

and

City of Goodyear
119 North Litchfield Road
Goodyear, AZ 85338
Phone: (623) 932-3910

Prepared by: **Wood, Patel & Associates, Inc.**
2051 West Northern Avenue
Suite 100
Phoenix, AZ 85021
Phone: (602) 335-8500
Fax: (602) 335-8580

Registered Professional Engineer (Civil) CERTIFICATE NO. 32854 SHIMIN ZOU Date Signed 5-6-04 ARIZONA U.S.A.

Engineer

Registered Professional Engineer (Civil) CERTIFICATE NO. 10512 ASHOK C. PATEL Date Signed 5/6/04 ARIZONA, U.S.A.

Peer Reviewer

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Peer Reviewer

Federal Emergency Management Agency

Washington, D.C. 20472

JAN 10 2005

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

IN REPLY REFER TO:
Case No.: 04-09-1179R

The Honorable James M. Cavanaugh
Mayor, City of Goodyear
190 North Litchfield Road
Goodyear, AZ 85338

Community: City of Goodyear, AZ
Community No.: 040046

104

Dear Mayor Cavanaugh:

This responds to a request that the Department of Homeland Security's Federal Emergency Management Agency (FEMA) comment on the effects that a proposed project would have on 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 May 28, 2004, Mr. Michael Duncan, P.E., CFM, Project Manager, Flood Control District of Maricopa County, requested that FEMA evaluate the effects that a proposed project along Bullard Wash from approximately 2,300 feet downstream of Lower Buckeye Parkway to just upstream of Interstate Highway 10 (I-10) would have on the flood hazard information shown on the effective FIRM and FIS report. The project will include construction along Bullard Wash of a bridge at Yuma Road, a bridge at Van Buren Street, and a concrete-lined channel from approximately 2,300 feet downstream of Lower Buckeye Road to just upstream of I-10.

All data required to complete our review of this request for a Conditional Letter of Map Revision (CLOMR) were submitted with letters from Mr. Ashok Patel, P.E., Wood, Patel & Associates, Inc., and Mr. Duncan.

We reviewed the submitted data and the data used to prepare the effective FIRM for your community and determined that the proposed project meets the minimum floodplain management criteria of the NFIP. We believe that, if the proposed project is constructed as shown on the submitted work map entitled "Bullard Wash Channel Improvements I-10 to Lower Buckeye Road," prepared by Wood, Patel & Associates, Inc., dated March 2004, and the data listed below are received, a revision to the FIRM would be warranted.

As a result of the proposed project, the elevations of the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood) for Bullard Wash will decrease compared to the effective Base Flood Elevations (BFEs). The maximum decrease in BFE, 8.6 feet, will occur approximately 1,000 feet downstream of Lower Buckeye Parkway. The widths of the Special Flood Hazard Area (SFHA), the area that would be inundated by the base flood, and the regulatory floodway will increase in some areas and decrease in other areas compared to the effective SFHA and floodway widths. The maximum increase in SFHA and floodway widths, approximately 200 feet, will occur approximately 1,800 feet downstream of Lower Buckeye Parkway. The maximum decrease in SFHA and floodway widths, approximately 1,100 feet, will occur approximately 300 feet downstream of I-10. The entire base flood and regulatory floodway along Bullard Wash will be contained in the concrete-lined channel from approximately 2,300 feet downstream of Lower Buckeye Parkway to just upstream of I-10.

Upon completion of the project, your community may submit the data listed below and request that we make a final determination on revising the effective FIRM and FIS report.

- Detailed application and certification forms which were used in processing this request, must be used for requesting final revisions to the maps. Therefore, when the map revision request for the area covered by this letter is submitted, Form 1, entitled "Overview & Concurrence Form," must be included. (A copy of this form is enclosed.)

- The detailed application and certification forms listed below may be required if as-built conditions differ from the preliminary plans. If required, please submit new forms (copies of which are enclosed) or annotated copies of the previously submitted forms showing the revised information.

  Form 2, entitled "Riverine Hydrology & Hydraulics Form"

  Form 3, entitled "Riverine Structures Form"

  Hydraulic analyses, for as-built conditions, of the base flood and the regulatory floodway, together with a topographic work map showing the revised floodplain and floodway boundaries, must be submitted with Form 2.

- Effective September 1, 2002, FEMA revised the fee schedule for reviewing and processing requests for conditional and final modifications to published flood information and maps. In accordance with this schedule, the current fee for this map revision request is $3,800 and must be received before we can begin processing the request. Please note, however, that the fee schedule is subject to change, and requesters are required to submit the fee in effect at the time of the submittal. Payment of this fee shall be made in the form of a check or money order, made payable in U.S. funds to the National Flood Insurance Program, or by credit card. The payment must be forwarded to the following address:

  Federal Emergency Management Agency
  Fee-Charge System Administrator
  P.O. Box 22787
  Alexandria, VA 22304

- As-built plans, certified by a registered professional engineer, of all proposed project elements

- Community acknowledgment of the map revision request

- A copy of the public notice distributed by your community stating its intent to revise the regulatory floodway, or a statement by your community that it has notified all affected property owners and affected adjacent jurisdictions

After receiving appropriate documentation to show that the project has been completed, FEMA will initiate a revision to the FIRM and FIS report. Because the BFEs would change as a result of the project, a 90-day

appeal period would be initiated, during which community officials and interested persons may appeal the revised BFEs based on scientific or technical data.

The basis of this CLOMR is, in whole or in part, a channel-modification/bridge project. NFIP regulations, as cited in Paragraph 60.3(b)(7), require that communities assure 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 and bridges rests with your community.

This CLOMR 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.

If you have any questions regarding floodplain management regulations for your community or the NFIP in general, please contact the Consultation Coordination Officer (CCO) for your community. Information on the CCO for your community may be obtained by calling the Director, Federal Insurance and Mitigation Division of FEMA in Oakland, California, at (510) 627-7103. If you have any questions regarding this CLOMR, please call our Map Assistance Center, toll free, at 1-877-FEMA-MAP (1-877-336-2627).

Sincerely,

Max H. Yuan, P.E., Project Engineer
Hazard Identification Section
Mitigation Division
Emergency Preparedness
and Response Directorate

For: Doug Bellomo, P.E., CFM, Chief
Hazard Identification Section
Mitigation Division
Emergency Preparedness
and Response Directorate

Enclosures

cc: Mr. David Ramirez, P.E.
City Engineer
City of Goodyear

Mr. Tim Phillips, P.E.
Acting Chief Engineer and
General Manager
Flood Control District of Maricopa County

Mr. Michael Duncan, P.E., CFM
Project Manager
Flood Control District of Maricopa County

Mr. Ted Collins
Principal
Floodplain Administration
Flood Control District of Maricopa County

Mr. Brian Cosson
NFIP Coordinator
Arizona Department of Water Resources

Mr. James Taillon, P.E.
Project Manager
Wood, Patel & Associates, Inc.

Goodyear ARIZONA

December 15, 2004

John Buford
Michael Baker Jr., Inc.
3601 Eisenhower Avenue
Alexandria, Virginia 22304-6425

Re: Case No. 04-09-1179R, Bullard Wash Phase 2 Channelization Project

Dear Mr. Buford,

The City of Goodyear, Flood Control District of Maricopa County, and the consultant design team held a meeting on May 28, 2002 to inform all affected property owners of all aspects of the project scope. Information provided to the property owners included but was not limited to the fact that the channel and floodway alignment was changing from its historic alignment.

If you have any questions or require additional information, I can be reached at 623-882-7954.

Sincerely,
CITY OF GOODYEAR

David J Ramirez

David Ramirez
City Engineer

C: Michael Duncan, Flood Control District of Maricopa County
Scott Vogel, Flood Control District of Maricopa County

Community Development Department - Engineering
190 North Litchfield Road P.O. Box 5100 Goodyear, Arizona 85338
623-932-3005 Fax 623-932-7748 1-800-872-1749 TDD 623-932-6500
www.goodyearaz.gov

Goodyear ARIZONA

May 27, 2004

FLOOD CONTROL DISTRICT
RECEIVED
MAY 28 '04
C-&GM FINANCE
FD LANDS
ADM O & M
P & PM
ENG FILE
CONTRACTS
MWD

Hazards Study Branch
Federal Emergency Management Agency
500 C Street SW
Washington, D.C. 20472

SUBJECT: Bullard Wash Channel Improvements
Interstate-10 to Lower Buckeye Road
CLOMR Study

To Whom It May Concern:

I have reviewed the Conditional Letter of Map Revision (CLOMR) study for revising the floodplain and regulatory floodway of Bullard Wash. This Channel Improvement Project is within the City of Goodyear. As the person responsible for Floodplain Administration for the City of Goodyear, I will adopt and enforce the related, modified floodplain and regulatory floodway of Bullard Wash.

Sincerely,
CITY OF GOODYEAR

David J Ramirez

David Ramirez
City Engineer

Community Development Department - Engineering
190 North Litchfield Road P.O. Box 5100 Goodyear, Arizona 85338
623-932-3005 Fax 623-932-7748 1-800-872-1749 TDD 623-932-6500
www.ci.goodyear.az.us

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EXHIBITS

Exhibit A	Existing Regulatory Floodplain Maps
Exhibit B	Proposed Construction Plans (under separate cover)
Exhibit C	Study Work Maps
Exhibit D	Annotated FIRM Panels

ac
Y:\WP\Reports\Hydrology\011489-TDN.doc

1.0 INTRODUCTION

1.1 Background

Bullard Wash is approximately eight miles long, and originates just south of Luke Air Force Base near Bethany Home Road. The wash continues south between Estrella Parkway (formerly Reems Road) and Bullard Avenue.

The flooding potential of the area has been previously studied in the *White Tanks/Agua Fria Area Drainage Master Study (ADMS)* prepared by the WLB Group and submitted to the Flood Control District of Maricopa County (FCDMC) in October, 1992. FCDMC constructed the channelized downstream reach of Bullard Wash Channel in 1999 from Gila River to Lower Buckeye Road. A LOMR package was also prepared for this reach and has been approved by the Federal Emergency Management Agency (FEMA).

FCDMC is in the process of completing the design plans for the next phase of Bullard Wash Channel. This project includes the construction of a flood control channel along the Bullard Wash alignment between I-10 and the Phase I channel near Lower Buckeye Road. The primary purpose of this project is flood control; however, aesthetic and multi-use features are important project components. The channel will be constructed as a greenbelt facility with irrigated landscaping, turf, trails, and other multi-use features. Dry roadway crossings with bridges will be constructed at Van Buren Street and Yuma Road with adequate clearance for the pedestrian and equestrian trails. Figure 1 shows the location and vicinity of this project. The study area also includes jurisdictions of the Roosevelt Irrigation District (RID). There are also numerous major utilities within the study area.

The project area lies entirely within the incorporated limits of the City of Goodyear between Estrella Parkway on the west, Bullard Avenue on the east, Lower Buckeye Road on the south, and Interstate-10 on the north. The Bullard Wash Floodplain downstream of Lower Buckeye Road is contained due to the previously approved channelization project.

1.2 Purpose of Study

As mentioned above, this project includes the construction of a flood control channel along the Bullard Wash alignment between I-10 and the previously approvaled channel near Lower Buckeye Road. The channel will be constructed to contain the Effective Flood Insurance Study (FIS) flows. It will function as a greenbelt facility with irrigated landscaping, turf, trails, and other multi-use features. Dry roadway crossings will be constructed at Van Buren Street and Yuma Road with adequate clearance for the pedestrian and equestrian trails. Channelization of the wash will revise horizontal and vertical alignment and cross section geometry, reduce horizontal slopes as well as velocities at some reaches, improve the uniformity of the wash conveyance, therefore, increase the stability of the wash. According to FEMA floodplain management policy, these proposed modifications to the wash corridors require a Conditional Letter of Map Revision (CLOMR).

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Panels 04013C2060F and 04013C2070G dated July 19, 2001, designate Bullard Wash in the study reach as a Special Flood Hazard Area, Zone AE (see Exhibit A).

Zone "AE" is defined as: A special flood hazard area that corresponds to the 100-year floodplains and the base flood elevations for this zone are determined in the FIS by detailed methods.

This report will document the engineering analysis and MT-2 forms necessary to meet the FEMA requirements for a CLOMR. Once the CLOMR is issued, the channel design will be finalized, the channel will be built, and a set of as-built plans will be prepared for the Letter of Map Revision (LOMR) submittal.

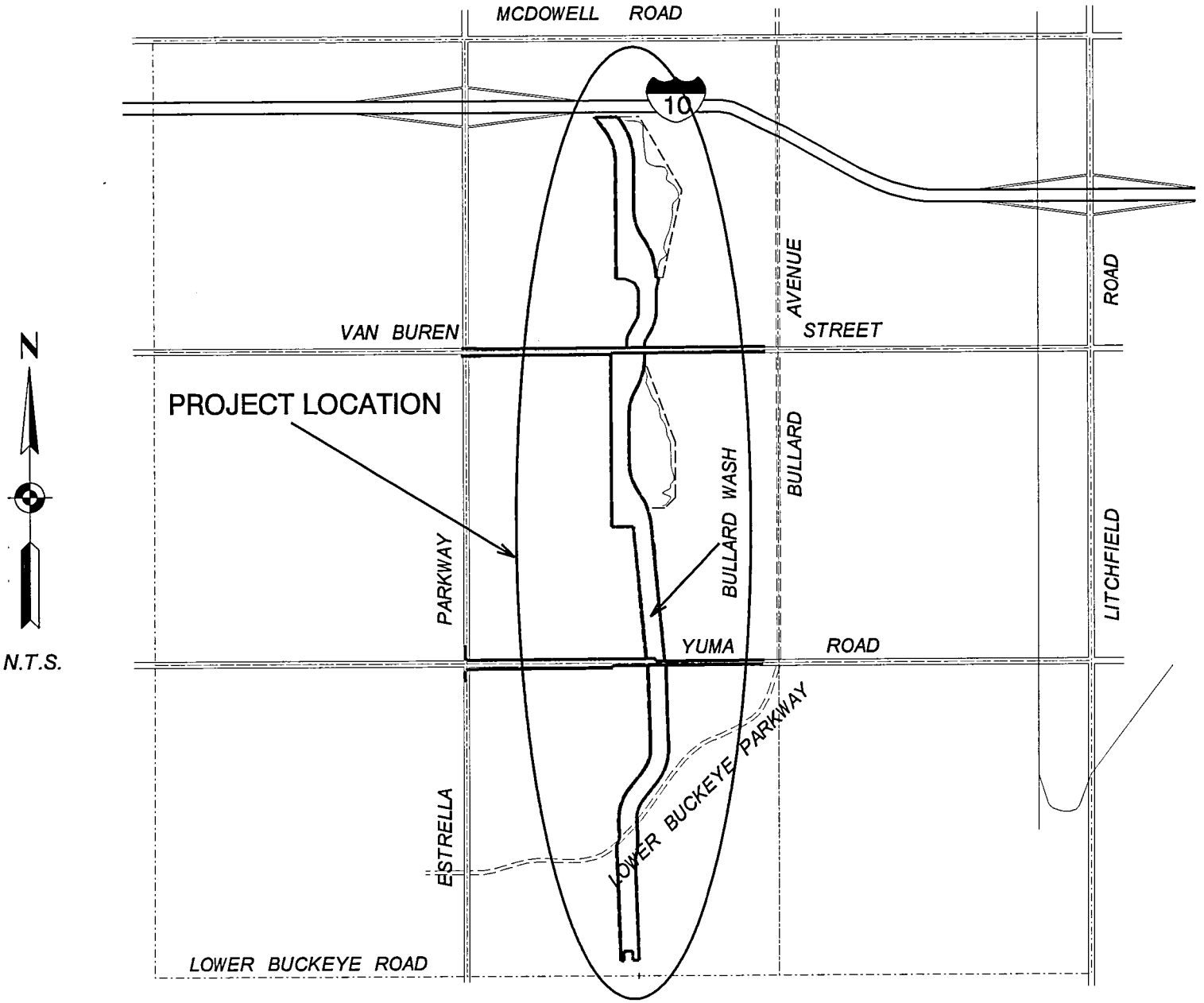


FIGURE 1

PROJECT LOCATION
AND VICINITY MAP

1.3 Authority for Study

The Flood Control District of Maricopa County (FCDMC) has contracted (FCD 2001 C023) with Wood, Patel & Associates, Inc. (Wood/Patel) to complete final design plans and construction documents for the channelization of Bullard Wash between I-10 and Lower Buckeye Road including the preparation of this CLOMR package. Wood/Patel's Project Manager for this project is Ashok C. Patel, P.E., R.L.S. The FCDMC is located at 2801 West Durango Street, Phoenix, AZ, 85009 (602) 506-1501. The Project Manager for the FCDMC is Scott Vogel, P.E.

1.4 Methods of Analysis

The following methods of analysis are used for this project:

Hydrology - In 2001, the Federal Emergency Management Agency (FEMA) published a revised Flood Insurance Study for Maricopa County, Arizona, and Incorporated Areas that included Bullard Wash. The 2001 FIS documents adopted all work previously performed in the Bullard Wash Improvements, immediately south of the study areas. We are utilizing this FEMA accepted hydrology; therefore, no new hydrologic data is required for this CLOMR.

(Q_{100}=3200 cfs)

Hydraulics - The proposed channel is modeled utilizing the COE HEC-RAS Version 3.1.1, May 2003, hydraulic modeling software.

The HEC-2 model used as the base model for this study was prepared by The WLB Group, Inc., October 1992, as part of the White Tanks/Agua Fria Area Drainage Master Study for the Flood Control District of Maricopa County. The base model was studied using sub-critical flow regime and was adopted by FEMA for the purpose of the regulatory FIRM. Note that in order to match the Effective FIS models and tie into the FIS floodplain and floodway at the upstream and downstream limits of the reaches, the cross sections at the upstream and downstream limits were modeled using the same flow regime and peak flows as the FIS models.

2.0 ADWR/FEMA FORMS

2.1 Study Documentation Abstract for FEMA Submittals

Study Documentation Abstract for FEMA Submittals		Initial Study		Restudy		CLOMR	X	LOMR		Other	
2.1.1	Date Study Accepted										
2.1.2	Study Contractor Contract(s) Address Phone Internal Reference Number	Wood, Patel & Associates, Inc. Ashok C. Patel, P.E., R.L.S. 2051 Northern Avenue, Suite 100 Phoenix, AZ 85021 (602) 335-8500 Fax (602) 335-8580 WP# 011489									
2.1.3	FEMA Technical Review Contractor Contact(s) Address Phone Internal Reference Number	Michael Baker, Jr., Inc. Pernille Buch-Pederson 3600 Eisenhower Ave., Suite 600 (703) 317-6224									
2.1.4	FEMA Regional Reviewer Phone	Michael Baker, Jr., Inc. (703) 960-8800									
2.1.5	State Technical Reviewer Phone	Arizona Department of Water Resources (602) 417-2445									
2.1.6	Local Technical Reviewer Phone	Flood Control District of Maricopa County (602) 506-1501									
2.1.7	Reach Description	Bullard Wash Channelization Improvements, Interstate 10 to Lower Buckeye Road									
2.1.8	USGS Quad Sheet(s) with original photo date & latest photo revision date	7.5 Minute Perryville, AZ Quad Map, 1957, photo revised 1982									
2.1.9	Unique Conditions and Problems	None									
2.1.10	Coordination of Peak	100-year discharge = 3,200 cfs per FEMA									

	Discharges (Agency, Date, Comments)	

2.2 FEMA Forms

The basis of this CLOMR is better scientific data, including better quality mapping and hydraulic analysis, and physical changes of the watercourse; therefore, the appropriate FEMA forms utilized from the current FEMA MT-2 packet (expires September 30, 2005) are as follows:

Form 1-Overview & Concurrence Form provides the basic information regarding the revision request and requires the signatures of the requester, community official, and engineer. This form is required for all revision requests.

Form 2-Riverine Hydrology & Hydraulics Form provides the basic information on the scope and methodology of hydrologic and/or hydraulic analyses that are prepared in support of the revision request. This form should be used for revision requests that involve new or revised hydrologic and/or hydraulic analyses of rivers, streams, ponds, or small lakes.

Form 3-Riverine Structures Form provides the basic information regarding hydraulic structures constructed in the stream channel or floodplain. This form should be used for revision requests that involve new or proposed channelization, bridges/culverts, dams, and/or levees/floodwalls.

2.2.1 Form 1 – Overview and Concurrence Form

The attached "Overview & Concurrence Form" is provided per FEMA requirements for submittals. The basis for this revision request is physical change, specifically, channelization and bridges/culverts construction.

It should be noted that the preparation of this CLOMR utilizes better scientific data than the regulatory FIS including one (1) foot contours, more accurate spot elevations, detailed aerial photographic mapping and a better understanding of the current site conditions.

2.2.2 Form 2 – Riverine Hydrology and Hydraulics Form

The attached "Riverine Hydrology & Hydraulics Form" is provided per FEMA requirements for submittals. Responses to questions in the following sections require further explanation:

Hydrology:

The basis for the project hydrology is the *Loop 303 Corridor/White Tanks Area Drainage Master Plan Update*: *Draft Existing Condition Hydrology* HEC-1 model. Accordingly, the project corridor will be designed for the 100-year flood peak of 3,200 cfs. This value is predetermined per the contract scope of work.

Models Submitted:

Duplicate Effective Models

The HEC-2 models used for this regulatory FIS were prepared by The WLB Group, Inc., October 1992, as part of the White Tanks/Agua Fria Area Drainage Master Study (ADMS). The models were subsequently approved by FEMA through their LOMR process. Later, the Flood Control District of Maricopa County (FCDMC) contracted (FCD #95-39) with Sverdrup Civil, Inc. (Sverdrup) to complete final design plans and construction documents for the channelization of Bullard Wash between the Gila River and Lower Buckeye Road in 1998. Wood, Patel & Associates, Inc., as a sub-consultant, assisted Sverdrup on hydraulics (HEC-RAS models), sediment transport, and scour analysis for the proposed design. A LOMR package was also prepared for this reach and has been approved by the Federal Emergency Management Agency (FEMA). That project is called *Bullard Wash Channel Improvements*. These models were run to create and verify HEC-2 (upstream) and HEC-RAS (downstream) Duplicate Effective Models and the modeling results were shown in Table 1a and Table 1b. The output files for these two models are included in Appendices B and C. Note that the cross section stations in the *Effective FIS Models* are different from those used in the *Post-Project Condition Model*. Their relationships at the tie-in locations are shown as follows. The relationships for all cross section stations are listed in Appendix G.

Cross Section Stations Relationships between Effective FIS Models and Post-Project Model		
Post-Project Model	**Effective FIS (D/S)**	**Effective FIS (U/S)**
11883	11883	
11932	11932	
:	:	
:	:	:
27173		5.460
		5.563

Corrected Effective Models

The *Duplicate Effective HEC-2 Model* was converted to HEC-RAS and run to create a *HEC-RAS Corrected Effective Model* for the upstream reach and the *Duplicate Effective HEC-RAS Model (old version)* was converted to HEC-RAS (new version) and run to create the *HEC-RAS Corrected Effective Model* for the downstream reach. As shown in Tables 2a and 2b, the results of the *HEC-RAS Corrected Effective Models* are comparable to the *Duplicate Effective Models*. The output files for these two models are included in Appendices D and E.

Revised or Post-Project Condition Models

The *Post-Project Conditions Models* were obtained by replacing the geometric data for the segments of the existing study wash geometry with the proposed incised earthen compound channel section cross section geometry data. Since flows are contained along the entire project reaches with the proposed improvements modeled, the floodway and floodplain limits were identical in these areas. Note that in order to match the Effective FIS models and tie into the FIS floodplain and floodway at the upstream and downstream limits of the reaches, the cross sections at the upstream and downstream limits were modeled using the same flow regime and peak flows as the FIS models. Since the cross sections stations in the *Post-Project Condition Models* are different from those used in the effective FIS, their relationships are documented in Appendix G.

The HEC-RAS output profile tables for the *Post-Project Conditions Models* are shown in Table 3. The water surface profiles are shown as Figure 2, and cross sections are shown in Appendix F.

FEDERAL EMERGENCY MANAGEMENT AGENCY

OVERVIEW & CONCURRENCE FORM

O.M.B No. 3067-0148
Expires September 30, 2005

PAPERWORK BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 1 hour per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing, reviewing, and submitting the form. You are not required to respond to this collection of information unless a valid OMB control number appears in the upper right corner of this 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, SW, Washington DC 20472, Paperwork Reduction Project (3067-0148). Submission of the form is required to obtain or retain benefits under the National Flood Insurance Program. **Please do not send your completed survey to the above address.**

A. REQUESTED RESPONSE FROM FEMA

This request is for a (check one):

☒ CLOMR: A letter from FEMA commenting on whether a proposed project, if built as proposed, would justify a map revision, or proposed hydrology changes (See 44 CFR Ch. 1, Parts 60, 65 & 72).

☐ LOMR: A letter from FEMA officially revising the current NFIP map to show the changes to floodplains, regulatory floodway or flood elevations. (See Parts 60 & 65 of the NFIP Regulations.)

B. OVERVIEW

1. The NFIP map panel(s) affected for all impacted communities is (are):

Community No.	Community Name	State	Map No.	Panel No.	Effective Date
Ex: 480301	City of Katy	TX	480301	0005D	02/08/83
480287	Harris County	TX	48201C	0220G	09/28/90
040046	City of Goodyear, Maricopa County	AZ	04013C	2060F	07/19/01
)40046	City of Goodyear, Maricopa County	AZ	04013C	2070G	07/19/01

2. Flooding Source: Bullard Wash

3. Project Name/Identifier: Bullard Wash Channel Improvements, Phase II

4. FEMA zone designations affected: AE (choices: A, AH, AO, A1-A30, A99, AE, AR, V, V1-V30, VE, B, C, D, X)

5. Basis for Request and Type of Revision:

   a. The basis for this revision request is (check all that apply)

   ☒ Physical Change ☒ Improved Methodology/Data

   ☒ Regulatory Floodway Revision ☐ Other (Attach Description)

   Note: A photograph and narrative description of the area of concern is not required, but is very helpful during review.

   b. The area of revision encompasses the following types of flooding and structures (check all that apply)

   Types of Flooding: ☒ Riverine ☐ Coastal ☐ Shallow Flooding (e.g., Zones AO and AH)

   ☐ Alluvial fan ☐ Lakes ☐ Other (Attach Description)

   Structures: ☒ Channelization ☐ Levee/Floodwall ☒ Bridge/Culvert

   ☐ Dam ☐ Fill ☐ Other, Attach Description

C. REVIEW FEE

Has the review fee for the appropriate request category been included? ☐ Yes Fee amount: $____

☒ No, Attach Explanation

Please see the FEMA Web site at http://www.fema.gov/mit/tsd/frm_fees.htm for Fee Amounts and Exemptions.

D. SIGNATURE

All documents submitted in support of this request are 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: Michael Duncan, P.E., CFM, Project Mgr.	Company: Flood Control District, Maricopa County	
Mailing Address: 2801 West Durango Street Phoenix, AZ, 85009	Daytime Telephone No.: (602) 506-4732	Fax No.: (602) 506-4601
	E-Mail Address: mwd@mail.maricopa.gov	
Signature of Requester (required): Michael Duncan		Date: 5-20-04

As the community official responsible for floodplain management, I hereby acknowledge that we have received and reviewed this Letter of Map Revision (LOMR) or conditional LOMR request. Based upon the community's review, we find the completed or proposed project meets or is designed to meet all of the community floodplain management requirements, including the requirement that no fill be placed in the regulatory floodway, and that all necessary Federal, State, and local permits have been, or in the case of a conditional LOMR, will be obtained. In addition, we have determined that the land and any existing or proposed structures to be removed from the SFHA are or will be reasonably safe from flooding as defined in 44CFR 65.2(c), and that we have available upon request by FEMA, all analyses and documentation used to make this determination.

Community Official's Name and Title: David Ramirez, P.E., City Engineer		Telephone No.: (623) 882-7954
Community Name: City of Goodyear	Community Official's Signature (required): David J Ramirez	Date: 5-27-04

CERTIFICATION BY REGISTERED PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR

This certification is to be signed and sealed by a licensed land surveyor, registered professional engineer, or architect authorized by law to certify elevation information. All documents submitted in support of this request are 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.

Certifier's Name: Ashok Patel, P.E., R.L.S.	License No.: 10512	Expiration Date: 12/04
Company Name: Wood, Patel & Associates, Inc.	Telephone No.: 602-335-8500	Fax No.: 602-335-8580
Signature: Ashok C. Patel		Date: 5/17/04

Ensure the forms that are appropriate to your revision request are included in your submittal.

Form Name and (Number)	Required if ...
☒ Riverine Hydrology and Hydraulics Form (Form 2)	New or revised discharges or water-surface elevations
☒ Riverine Structures Form (Form 3)	Channel is modified, addition/revision of bridge/culverts, addition/revision of levee/floodwall, addition/revision of dam
☐ Coastal Analysis Form (Form 4)	New or revised coastal elevations
☐ Coastal Structures Form (Form 5)	Addition/revision of coastal structure
☐ Alluvial Fan Flooding Form (Form 6)	Flood control measures on alluvial fans

Registered Professional Engineer (Civil)
CERTIFICATE NO.
10512
ASHOK C.
PATEL
Date Signed.....
Seal (Optional)

ARIZONA
Goodyear

May 27, 2004

FLOOD CONTROL DISTRICT
RECEIVED
MAY 28 '04
CH&SM | FINANCE
ECD | LANDS
ADM. | O & M
PEC | P & PM
ENG | FILE
CONTRACTS
ROUTING: MWD

Hazards Study Branch
Federal Emergency Management Agency
500 C Street SW
Washington, D.C. 20472

SUBJECT: Bullard Wash Channel Improvements
Interstate-10 to Lower Buckeye Road
CLOMR Study

To Whom It May Concern:

I have reviewed the Conditional Letter of Map Revision (CLOMR) study for revising the floodplain and regulatory floodway of Bullard Wash. This Channel Improvement Project is within the City of Goodyear. As the person responsible for Floodplain Administration for the City of Goodyear, I will adopt and enforce the related, modified floodplain and regulatory floodway of Bullard Wash.

Sincerely,
CITY OF GOODYEAR

David J Ramirez

David Ramirez
City Engineer

Proud past. Vibrant future!

Community Development Department - Engineering
190 North Litchfield Road P.O. Box 5100 Goodyear, Arizona 85338
623-932-3005 Fax 623-932-7748 1-800-872-1749 TDD 623-932-6500
www.ci.goodyear.az.us

FEDERAL EMERGENCY MANAGEMENT AGENCY

RIVERINE HYDROLOGY & HYDRAULICS FORM

O.M.B No. 3067-0148
Expires September 30, 2005

PAPERWORK REDUCTION ACT

Public reporting burden for this form is estimated to average 3 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing, reviewing, and submitting the form. You are not required to respond to this collection of information unless a valid OMB control number appears in the upper right corner of this 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, SW, Washington DC 20472, Paperwork Reduction Project (3067-0148). Submission of the form is required to obtain or retain benefits under the National Flood Insurance Program. **Please do not send your completed survey to the above address.**

Flooding Source: Bullard Wash
Note: Fill out one form for each flooding source studied

A. HYDROLOGY

1. Reason for New Hydrologic Analysis (check all that apply)

☒ Not revised (skip to section 2) ☐ No existing analysis ☐ Improved data
☐ Alternative methodology ☐ Proposed Conditions (CLOMR) ☐ Changed physical condition of watershed

2. Comparison of Representative 1%-Annual-Chance Discharges

Location	Drainage Area (Sq. Mi.)	FIS (cfs)	Revised (cfs)

3. Methodology for New Hydrologic Analysis (check all that apply)

☐ Statistical Analysis of Gage Records ☐ Precipitation/Runoff Model [TR-20, HEC-1, HEC-HMS etc.]
☐ Regional Regression Equations ☐ Other (please attach description)

Please enclose all relevant models in digital format, maps, computations (including computation of parameters) and documentation to support the new analysis. The document, "Numerical Models Accepted by FEMA for NFIP Usage" lists the models accepted by FEMA. This document can be found at: http://www.fema.gov/mit/tsd/en_modl.htm.

4. Review/Approval of Analysis

If your community requires a regional, state, or federal agency to review the hydrologic analysis, please attach evidence of approval/review.

5. Impacts of Sediment Transport on Hydrology

Was sediment transport considered? ☐ Yes ☒ No If yes, then fill out Section F (Sediment Transport) of Form 3. If No, then attach your explanation for why sediment transport was not considered.

B. HYDRAULICS

1. Reach to be Revised

	Description	Cross Section	Water-Surface Elevations (ft.) Effective	Proposed/Revised
Downstream Limit	Lower Buckeye Road	12195	941.51	941.51
Upstream Limit	U/S of I-10 Freeway	27173 (5.460)	991.90	991.95

2. Hydraulic Method Used

Hydraulic Analysis HEC-2 & HEC-RAS [HEC-2 , HEC-RAS, Other (Attach description)]

B. HYDRAULICS (CONTINUED)

3. Pre-Submittal Review of Hydraulic Models

FEMA has developed two review programs, CHECK-2 and CHECK-RAS, to aid in the review of HEC-2 and HEC-RAS hydraulic models, respectively. These review programs verify that the hydraulic estimates and assumptions in the model data are in accordance with NFIP requirements, and that the data are comparable with the assumptions and limitations of HEC-2/HEC-RAS. CHECK-2 and CHECK-RAS identify areas of potential error or concern. These tools do not replace engineering judgment. CHECK-2 and CHECK-RAS can be downloaded from http://www.fema.gov/mit/tsd/frm_soft.htm. We recommend that you review your HEC-2 and HEC-RAS models with CHECK-2 and CHECK-RAS. If you disagree with a message, please attach an explanation of why the message is not valid in this case. Review of your submittal and resolution of valid modeling discrepancies will result in reduced review time.

HEC-2/HEC-RAS models reviewed with CHECK-2/CHECK-RAS? ☒ Yes ☐ No

4. Models Submitted

Duplicate Effective Model*	Natural File Name: HEC2.*, BW-FINAL.*	Floodway File Name:
Corrected Effective Model*	Natural File Name: HEC2FILE.*, PHASEI.*	Floodway File Name:
Existing or Pre-Project Conditions Model	Natural File Name:	Floodway File Name:
Revised or Post-Project Conditions Model	Natural File Name: Proposed.*	Floodway File Name:
Other - (attach description)	Natural File Name:	Floodway File Name:

*Not required for revisions to approximate 1%-annual-chance floodplains (Zone A) – for details, refer to the corresponding section of the instructions.

The document "Numerical Models Accepted by FEMA for NFIP Usage" lists the models accepted by FEMA. This document can be found at: http://www.fema.gov/mit/tsd/en_modl.htm.

C. MAPPING REQUIREMENTS

A **certified topographic map** must be submitted showing the following information (where applicable): the boundaries of the effective, existing, and proposed conditions 1%-annual-chance floodplain (for approximate Zone A revisions) or the boundaries of the 1%- and 0.2%-annual-chance floodplains and regulatory floodway (for detailed Zone AE, AO, and AH revisions); location and alignment of all cross sections with stationing control indicated; stream, road, and other alignments (e.g., dams, levees, etc.); current community easements and boundaries; boundaries of the requester's property; certification of a registered professional engineer registered in the subject State; location and description of reference marks; and the referenced vertical datum (NGVD, NAVD, etc.).

Note that the boundaries of the existing or proposed conditions floodplains and regulatory floodway to be shown on the revised FIRM and/or FBFM must tie-in with the effective floodplain and regulatory floodway boundaries. Please attach **a copy of the effective FIRM and/or FBFM,** annotated to show the boundaries of the revised 1%- and 0.2%-annual-chance floodplains and regulatory floodway that tie-in with the boundaries of the effective 1%- and 0.2%-annual-chance floodplain and regulatory floodway at the upstream and downstream limits of the area of revision.

D. COMMON REGULATORY REQUIREMENTS

1. For CLOMR requests, do Base Flood Elevations (BFEs) increase? ☒ Yes ☐ No

For CLOMR requests, if either of the following is true, please submit evidence of compliance with Section 65.12 of the NFIP regulations:
- The proposed project encroaches upon a regulatory floodway and would result in increases above 0.00 foot.
- The proposed project encroaches upon a SFHA with BFEs established and would result in increases above 1.00 foot.

2. Does the request involve the placement or proposed placement of fill? ☐ Yes ☒ No

If Yes, the community must be able to certify that the area to be removed from the special flood hazard area, to include any structures or proposed structures, meets all of the standards of the local floodplain ordinances, and is reasonably safe from flooding in accordance with the NFIP regulations set forth at 44 CFR 60.3(a)(3), 65.5(a)(4), and 65.6(a)(14). Please see the MT-2 instructions for more information.

3. For LOMR requests, is the regulatory floodway being revised? ☐ Yes ☐ No

If Yes, attach evidence of regulatory floodway revision notification. As per Paragraph 65.7(b)(1) of the NFIP Regulations, notification is required for requests involving revisions to the regulatory floodway. (Not required for revisions to approximate 1%-annual-chance floodplains [studied Zone A designation] unless a regulatory floodway is being added. Elements and examples of regulatory floodway revision notification can be found in the MT-2 Form 2 Instructions.)

4. For LOMR requests, does this request require property owner notification and acceptance of BFE increases? ☐ Yes ☐ No

If Yes, please attach proof of property owner notification and acceptance (if available). Elements of and examples of property owner notification can be found in the MT-2 Form 2 Instructions.

Cross Section Stations Relationships between Effective FIS Models and Post-Project Model		
Post-Project Model	**Effective FIS (D/S)**	**Effective FIS (U/S)**
11100	11100	
11200	11200	
11300	11300	
11425	11425	
11550	11550	
11735	11735	
11883	11883	
11932	11932	
11943	11943	
12195	12195	
12197		
12209		
12220.5		
12315		
12508.7		
12708.5		
12908.8		
13095.9		
13294.6		
13494.6		
13694.6		
13894.6		
14096.5		
14298.9		
14359.34		
14499.34		
14543		
14544		
14663.1		
14817.3		
14998		
15199.3		
15401.8		
15590.8		
15779.9		
15969		
16165.7		
16366.6		
16562.9		
16762.7		
16961.4		

Cross Section Stations Relationships between Effective FIS Models and Post-Project Model		
Post-Project Model	**Effective FIS (D/S)**	**Effective FIS (U/S)**
17076.5		
17188		
17285		
17310		
17371.91		
17434		
17459		
17545		
17644		
17826.9		
18029.7		
18226.7		
18424.2		
18623.3		
18821.3		
19017.6		
19205.1		
19400		
19602.6		
19790.8		
19974.5		
20164.2		
20341.9		
20524.1		
20718		
20918.4		
21118.3		
21318.7		
21517.7		
21718.5		
21911		
22102		
22300.9		
22496.6		
22611		
22705		
22728.93		
22774.93		
22820.93		
22845.6		
22946.3		

Cross Section Stations Relationships between Effective FIS Models and Post-Project Model		
Post-Project Model	**Effective FIS (D/S)**	**Effective FIS (U/S)**
23054.4		
23203.98		
23390.8		
23566.1		
23762.2		
23962.1		
24152.7		
24300.2		
24462.45		
24611		
24802.1		
24978.4		
25182.2		
25379.3		
25558.8		
25701.5		
25901.7		
26101.6		
26300.4		
26495.2		
26677.6		
26806.44		
26821		
26822		
26862		
26871		
26883.44		
26936		
27011		
27034		
27057		
27127		
27150		
27173		5.460
		5.563
		5.727
		5.840
		5.960
		6.086
		6.217

Table 1a Duplicate Effective FIS HEC-2 (Upstream) Modeling Results

SECNO	Q	CWSEL	SSTA	STCHL	STCHR	ENDST	DIFWSX	TOPWID	DEPTH	ELMIN	10*KS	VCH
.000	850.00	912.32	9326.62	9980.00	10120.00	10571.93	.00	1245.30	1.82	910.50	25.25	1.53
.000	850.00	912.32	9325.60	9980.00	10120.00	10572.40	.00	1246.80	1.82	910.50	25.00	1.53
.047	850.00	912.55	9133.37	9960.00	10100.00	10820.00	.23	1686.63	2.55	910.00	4.10	1.10
.047	850.00	912.55	9133.16	9960.00	10100.00	10820.00	.23	1686.84	2.55	910.00	4.09	1.10
.121	850.00	912.73	9452.89	9980.00	10100.00	10820.00	.19	1367.11	2.73	910.00	5.90	1.22
.121	850.00	912.73	9452.48	9980.00	10100.00	10820.00	.19	1367.52	2.73	910.00	5.88	1.22
.201	850.00	913.03	9724.61	9970.00	10100.00	10820.00	.29	1095.39	3.03	910.00	8.87	1.61
.201	850.00	913.03	9724.55	9970.00	10100.00	10820.00	.29	1095.45	3.03	910.00	8.86	1.61
.292	850.00	913.39	9860.27	9960.00	10070.00	10800.00	.37	939.73	2.89	910.50	6.45	1.44
.292	850.00	913.39	9860.27	9960.00	10070.00	10800.00	.37	939.73	2.89	910.50	6.45	1.44
.384	850.00	913.69	9688.08	9970.00	10095.00	11370.00	.30	1604.23	2.69	911.00	5.41	1.22
.384	850.00	913.69	9688.05	9970.00	10095.00	11370.00	.30	1604.28	2.69	911.00	5.41	1.22
.488	850.00	914.01	9875.31	9970.00	10090.00	11365.00	.32	1469.90	2.01	912.00	6.48	1.07
.488	850.00	914.01	9875.31	9970.00	10090.00	11365.00	.32	1469.90	2.01	912.00	6.48	1.07
.531	850.00	914.18	9897.62	9965.00	10090.00	11350.00	.16	1385.91	1.38	912.80	7.57	.67
.531	850.00	914.18	9897.62	9965.00	10090.00	11350.00	.16	1385.91	1.38	912.80	7.57	.67
.616	4895.00	916.05	9669.96	9960.00	10090.00	10830.00	1.88	844.48	2.25	913.80	69.55	3.43
.616	4895.00	916.05	9669.96	9960.00	10090.00	10830.00	1.88	844.48	2.25	913.80	69.55	3.43
.668	4895.00	918.26	9620.00	9950.00	10035.00	10285.47	2.21	665.47	2.76	915.50	121.23	7.21
.668	4895.00	918.26	9620.00	9950.00	10035.00	10285.47	2.21	665.47	2.76	915.50	121.23	7.21
.776	4895.00	920.95	9975.00	9975.00	10025.00	10485.12	2.69	510.12	4.55	916.40	21.16	4.33
.776	4895.00	920.95	9975.00	9975.00	10025.00	10485.12	2.69	510.12	4.55	916.40	21.16	4.33
.868	4895.00	922.17	9970.00	9970.00	10020.00	10485.69	1.22	515.69	4.17	918.00	32.96	5.49
.868	4895.00	922.17	9970.00	9970.00	10020.00	10485.69	1.22	515.69	4.17	918.00	32.96	5.49
.964	4895.00	924.12	9970.00	9970.00	10045.00	10411.24	1.95	441.24	4.92	919.20	54.74	7.59
.964	4895.00	924.12	9970.00	9970.00	10045.00	10411.24	1.95	441.24	4.92	919.20	54.74	7.59
1.081	2596.00	926.28	9955.00	9955.00	10090.00	10406.38	2.15	451.38	3.28	923.00	11.87	2.77
1.081	2596.00	926.28	9955.00	9955.00	10090.00	10406.38	2.15	451.38	3.28	923.00	11.87	2.77
1.153	2596.00	926.68	9959.96	9945.00	10060.00	10422.36	.40	453.30	3.68	923.00	9.73	2.63
1.153	2596.00	926.68	9959.96	9945.00	10060.00	10422.36	.40	453.30	3.68	923.00	9.73	2.63
1.236	2596.00	927.45	9974.25	9960.00	10060.00	10325.72	.77	242.61	3.45	924.00	80.02	8.78
1.236	2596.00	927.45	9974.25	9960.00	10060.00	10325.72	.77	242.61	3.45	924.00	80.02	8.78
1.317	2596.00	929.70	9970.74	9960.00	10050.00	10314.63	2.25	300.91	5.70	924.00	22.09	5.56
1.317	2596.00	929.70	9970.74	9960.00	10050.00	10314.63	2.25	300.91	5.70	924.00	22.09	5.56
1.378	2596.00	930.38	9965.18	9960.00	10035.00	10366.88	.68	370.84	6.38	924.00	16.66	5.07
1.378	2596.00	930.38	9965.18	9960.00	10035.00	10366.88	.68	370.84	6.38	924.00	16.66	5.07
1.435	2596.00	931.17	9966.34	9965.00	10070.00	10128.96	.79	162.61	4.87	926.30	84.79	8.94
1.435	2596.00	931.17	9966.34	9965.00	10070.00	10128.96	.79	162.61	4.87	926.30	84.79	8.94
1.474	2600.00	933.62	9045.76	9985.00	10015.00	10080.00	2.45	1034.24	5.62	928.00	45.12	8.11
1.474	2600.00	933.62	9045.76	9985.00	10015.00	10080.00	2.45	1034.24	5.62	928.00	45.12	8.11
1.517	2600.00	934.88	9266.45	9905.00	10080.00	10080.00	1.26	813.55	2.68	932.20	11.46	2.51
1.517	2600.00	934.88	9266.45	9905.00	10080.00	10080.00	1.26	813.55	2.68	932.20	11.46	2.51
1.566	2600.00	936.21	9914.72	9955.00	10045.00	10065.00	1.33	150.28	3.71	932.50	77.73	9.00
1.566	2600.00	936.21	9914.72	9955.00	10045.00	10065.00	1.33	150.28	3.71	932.50	77.73	9.00
1.634	2600.00	938.27	9832.50	9970.00	10025.00	10065.00	2.06	232.50	5.27	933.00	18.24	5.99
1.634	2600.00	938.27	9832.50	9970.00	10025.00	10065.00	2.06	232.50	5.27	933.00	18.24	5.99
1.680	2600.00	938.77	9761.32	9970.00	10025.00	10100.00	.49	338.68	5.37	933.40	11.76	5.01
1.680	2600.00	938.77	9761.32	9970.00	10025.00	10100.00	.49	338.68	5.37	933.40	11.76	5.01
1.745	2600.00	939.17	9787.12	9960.00	10040.00	10210.00	.40	422.88	5.37	933.80	4.82	3.24
1.745	2600.00	939.17	9787.12	9960.00	10040.00	10210.00	.40	422.88	5.37	933.80	4.82	3.24
1.823	2600.00	939.41	9432.35	9970.00	10050.00	10255.00	.25	822.65	4.51	934.90	5.20	2.83
1.823	2600.00	939.41	9432.35	9970.00	10050.00	10255.00	.25	822.65	4.51	934.90	5.20	2.83

	SECNO	Q	CWSEL	SSTA	STCHL	STCHR	ENDST	DIFWSX	TOPWID	DEPTH	ELMIN	10*KS	VCH
	1.893	4899.00	939.71	9093.62	9960.00	10040.00	10199.81	.30	1080.16	3.61	936.10	19.47	4.71
	1.893	4899.00	939.71	9093.62	9960.00	10040.00	10199.81	.30	1080.16	3.61	936.10	19.47	4.71
*	1.941	4899.00	939.90	8961.19	9975.00	10025.00	10024.29	.19	700.71	3.60	936.30	45.37	4.09
*	1.941	4899.00	939.90	8961.19	9975.00	10025.00	10024.29	.19	700.71	3.60	936.30	45.37	4.09
	1.988	4899.00	940.10	8915.50	9950.00	10030.00	10015.41	.20	696.81	3.80	936.30	39.61	3.06
	1.988	4899.00	940.10	8915.50	9950.00	10030.00	10015.41	.20	696.81	3.80	936.30	39.61	3.06
	2.058	4899.00	941.27	8850.00	9970.00	10035.00	10024.75	1.17	772.16	4.67	936.60	26.08	3.66
	2.058	4899.00	941.27	8850.00	9970.00	10035.00	10024.75	1.17	772.16	4.67	936.60	26.08	3.66
	2.185	4899.00	942.66	9310.00	9965.00	10045.00	10034.94	1.39	472.18	5.46	937.20	46.56	5.68
	2.185	4899.00	942.66	9310.00	9965.00	10045.00	10034.94	1.39	472.18	5.46	937.20	46.56	5.68
*	2.297	4899.00	943.50	9438.68	9975.00	10040.00	10645.29	.84	1206.62	5.70	937.80	3.01	1.94
*	2.297	4899.00	943.68	9600.00	9975.00	10040.00	10060.00	1.02	460.00	5.88	937.80	4.94	2.57
	2.371	4899.00	943.66	9277.62	9975.00	10030.00	10779.55	.16	1501.93	4.26	939.40	5.70	2.55
*	2.371	4899.00	943.94	9650.00	9975.00	10030.00	10070.00	.26	420.00	4.54	939.40	22.02	5.30
*	2.435	4899.00	943.91	9260.15	9985.00	10085.00	10742.73	.25	1482.58	4.01	939.90	14.67	4.06
	2.435	4899.00	944.65	9835.00	9985.00	10085.00	10210.00	.71	375.00	4.75	939.90	33.58	7.08
*	2.536	4906.00	945.80	9771.15	9965.00	10060.00	10750.68	1.89	979.53	2.30	943.50	117.17	9.03
	2.536	4906.00	946.79	9850.00	9965.00	10060.00	10250.00	2.14	400.00	3.29	943.50	47.72	7.38
*	2.680	4906.00	949.13	9565.75	9925.00	10050.00	10774.45	3.33	1136.32	3.93	945.20	19.27	5.00
	2.680	4906.00	949.54	9800.00	9925.00	10050.00	10205.00	2.75	371.24	4.34	945.20	29.35	6.64
*	2.771	4906.00	950.61	9624.70	9985.00	10020.00	10702.82	1.47	1066.90	3.31	947.30	57.05	6.98
*	2.771	4906.00	951.54	9880.00	9985.00	10020.00	10225.00	2.00	345.00	4.24	947.30	61.58	8.90
*	2.883	4906.00	952.83	9596.60	9985.00	10015.00	10473.87	2.22	877.27	4.33	948.50	26.43	5.85
*	2.883	4906.00	953.79	9830.00	9985.00	10015.00	10180.00	2.25	350.00	5.29	948.50	22.10	6.29
	2.977	4915.00	954.27	9642.89	9980.00	10050.00	10514.22	1.44	871.33	4.37	949.90	40.41	7.34
	2.977	4915.00	954.94	9820.00	9980.00	10050.00	10055.00	1.15	235.00	5.04	949.90	38.04	7.98
	3.070	4915.00	956.13	9527.59	9945.00	10025.00	10651.57	1.86	1123.98	3.83	952.30	26.14	5.07
	3.070	4915.00	956.94	9790.00	9945.00	10025.00	10180.00	2.01	390.00	4.64	952.30	31.14	6.53
	3.167	4432.00	957.36	9569.20	9970.00	10020.00	10657.98	1.22	1088.78	3.46	953.90	21.91	4.83
	3.167	4432.00	958.31	9730.00	9970.00	10020.00	10190.00	1.36	460.00	4.41	953.90	18.44	5.32
*	3.291	4432.00	959.72	9986.41	9970.00	10020.00	10880.48	2.36	880.55	2.52	957.20	71.33	4.98
*	3.291	4432.00	960.55	9987.00	9970.00	10020.00	10330.00	2.24	343.00	3.35	957.20	98.94	7.26
*	3.376	4432.00	961.76	9673.73	9985.00	10015.00	10888.70	2.04	1205.55	3.46	958.30	30.77	3.69
*	3.376	4432.00	962.69	9840.00	9985.00	10015.00	10365.00	2.14	525.00	4.39	958.30	23.55	4.34
	3.491	4432.00	963.20	9597.03	9980.00	10020.00	10656.95	1.44	1059.92	3.70	959.50	19.01	4.01
	3.491	4432.00	964.04	9870.00	9980.00	10020.00	10260.00	1.36	390.00	4.54	959.50	22.79	5.31
*	3.602	4438.00	964.68	9699.47	9880.00	10100.00	10505.63	1.48	806.16	2.78	961.90	40.75	4.63
	3.602	4438.00	965.47	9840.00	9880.00	10100.00	10170.00	1.43	330.00	3.57	961.90	28.78	4.62
	3.702	4438.00	966.76	9239.20	9955.00	10055.00	10479.91	2.08	1003.67	3.36	963.40	36.86	4.77
	3.702	4438.00	967.29	9550.00	9955.00	10055.00	10140.00	1.82	361.21	3.89	963.40	44.41	5.83
	3.841	4438.00	969.26	9185.54	9955.00	10070.00	10407.99	2.50	999.61	4.16	965.10	30.04	3.75
	3.841	4438.00	970.24	9550.00	9955.00	10070.00	10070.00	2.94	344.03	5.14	965.10	34.65	4.93
	3.978	4438.00	971.29	9234.97	9930.00	10095.00	10438.75	2.03	1203.78	4.39	966.90	26.70	4.01
	3.978	4438.00	972.18	9500.00	9930.00	10095.00	10095.00	1.94	595.00	5.28	966.90	19.39	4.00
	4.101	4438.00	973.16	9372.68	9960.00	10080.00	10493.94	1.87	1121.26	4.46	968.70	30.68	4.14
*	4.101	4438.00	973.85	9780.00	9960.00	10080.00	10125.00	1.67	345.00	5.15	968.70	41.62	5.55
	4.237	4438.00	975.08	9456.52	9935.00	10075.00	10365.77	1.92	909.25	3.78	971.30	24.01	4.12
	4.237	4438.00	976.09	9780.00	9935.00	10075.00	10075.00	2.24	295.00	4.79	971.30	23.26	4.73
	4.356	4438.00	976.54	9499.28	9950.00	10070.00	10393.84	1.46	894.56	3.94	972.60	21.88	4.02
	4.356	4438.00	977.58	9840.00	9950.00	10070.00	10110.00	1.49	270.00	4.98	972.60	24.54	5.06
	4.496	4438.00	978.22	9633.19	9975.00	10130.00	10433.50	1.68	800.31	3.82	974.40	24.44	4.24
	4.496	4438.00	979.22	9850.00	9975.00	10130.00	10160.00	1.64	310.00	4.82	974.40	18.73	4.38

	SECNO	Q	CWSEL	SSTA	STCHL	STCHR	ENDST	DIFWSX	TOPWID	DEPTH	ELMIN	10*KS	VCH
	4.625	4446.00	980.50	9600.36	9835.00	10160.00	10378.51	2.27	778.15	2.40	978.10	52.55	4.69
*	4.625	4446.00	981.04	9850.00	9835.00	10160.00	10150.00	1.82	300.00	2.94	978.10	49.70	5.20
*	4.701	4446.00	981.33	9598.20	9685.00	10405.00	10475.10	.84	876.90	3.33	978.00	6.99	2.04
*	4.701	4446.00	982.06	9800.00	9685.00	10405.00	10200.00	1.02	400.00	4.06	978.00	8.61	2.74
*	4.858	4446.00	982.47	9685.11	9705.00	10290.00	10352.00	1.13	666.89	2.47	980.00	58.27	4.20
*	4.858	4446.00	983.25	9850.00	9705.00	10290.00	10150.00	1.19	300.00	3.25	980.00	45.35	5.06
*	5.009	4446.00	985.58	9604.63	9935.00	10100.00	10407.96	3.11	803.32	3.68	981.90	25.67	3.99
	5.009	4446.00	986.26	9820.00	9935.00	10100.00	10105.00	3.01	285.00	4.36	981.90	29.93	4.93
	5.153	4446.00	987.81	9495.23	9945.00	10090.00	10385.54	2.24	890.30	3.51	984.30	34.24	4.45
	5.153	4446.00	988.71	9800.00	9945.00	10090.00	10090.00	2.45	290.00	4.41	984.30	34.50	5.25
*	5.282	4446.00	989.36	9212.57	9945.00	10055.00	10474.40	1.55	1261.83	3.86	985.50	14.32	3.24
*	5.282	4446.00	990.33	9700.00	9945.00	10055.00	10100.00	1.62	400.00	4.83	985.50	13.53	3.71
*	5.430	4446.00	991.08	9912.54	9899.90	10100.10	10087.46	1.72	174.93	3.08	988.00	96.31	8.56
*	5.430	4446.00	991.77	9913.00	9899.90	10100.10	10087.00	1.44	174.00	3.77	988.00	48.64	6.96
*	5.460	5319.00	991.91	9910.79	9899.90	10100.10	10089.21	.83	178.41	3.91	988.00	61.87	7.99
	5.460	5319.00	991.91	9913.00	9899.90	10100.10	10087.00	.14	174.00	3.91	988.00	61.71	8.03
*	5.563	5319.00	993.68	9147.47	9850.00	10100.00	10877.00	1.76	1729.53	5.18	988.50	3.76	2.05
*	5.563	5319.00	994.06	9850.00	9850.00	10100.00	10200.00	2.16	350.00	5.56	988.50	9.54	3.40
*	5.727	4662.00	994.29	9219.67	9935.00	10135.00	10642.91	.61	1276.17	3.29	991.00	46.32	4.53
*	5.727	4662.00	995.30	9897.83	9935.00	10135.00	10250.00	1.24	352.17	4.30	991.00	31.29	4.55
	5.840	4662.00	996.51	9321.12	9970.00	10170.00	10743.70	2.22	1360.99	3.11	993.40	28.93	3.64
	5.840	4662.00	997.23	9930.81	9970.00	10170.00	10300.00	1.93	369.19	3.83	993.40	33.67	4.54
	5.960	4662.00	998.50	9630.08	9960.00	10150.00	11003.71	1.99	1373.63	2.60	995.90	34.54	3.41
	5.960	4662.00	999.38	9960.00	9960.00	10150.00	10400.00	2.15	440.00	3.48	995.90	32.39	4.05
	6.086	4662.00	1001.07	9413.59	9900.00	10100.00	10865.07	2.57	1451.48	2.77	998.30	42.90	3.80
	6.086	4662.00	1001.80	9800.00	9900.00	10100.00	10300.00	2.42	500.00	3.50	998.30	41.05	4.45
*	6.217	4662.00	1002.98	9373.64	9900.00	10100.00	10901.73	1.91	1528.09	2.88	1000.10	17.79	2.75
*	6.217	4662.00	1003.65	9670.00	9900.00	10100.00	10300.00	1.85	630.00	3.55	1000.10	16.61	3.07
	6.320	4662.00	1003.99	9555.93	9900.00	10100.00	11026.60	1.01	1470.67	3.09	1000.90	19.43	2.93
	6.320	4662.00	1004.59	9650.00	9900.00	10100.00	10300.00	.94	650.00	3.69	1000.90	17.90	3.20
	6.414	4662.00	1005.26	9137.79	9900.00	10100.00	10950.51	1.27	1812.72	2.66	1002.60	34.58	3.42
*	6.414	4662.00	1005.82	9700.00	9900.00	10100.00	10300.00	1.23	600.00	3.22	1002.60	37.89	4.13
	6.509	4662.00	1006.65	8840.75	9900.00	10100.00	11388.81	1.39	2548.06	2.55	1004.10	20.11	2.41
	6.509	4662.00	1007.61	9690.00	9900.00	10100.00	10200.00	1.79	510.00	3.51	1004.10	32.06	3.92
*	6.627	4662.00	1009.15	9641.15	9900.00	10100.00	11097.96	2.51	1456.82	2.35	1006.80	159.82	6.36
	6.627	4662.00	1010.14	9700.00	9900.00	10100.00	10100.00	2.52	400.00	3.34	1006.80	55.84	4.94
*	6.674	4662.00	1012.43	9802.91	9955.00	10120.00	11189.61	3.27	1210.24	3.93	1008.50	75.87	6.89
*	6.674	4662.00	1012.24	9850.00	9955.00	10120.00	10187.14	2.11	337.14	3.74	1008.50	136.21	8.86
*	6.864	4662.00	1013.86	7178.88	9930.00	10080.00	12291.78	1.44	5112.90	2.86	1011.00	3.68	1.34
*	6.864	4662.00	1014.60	8100.00	9930.00	10080.00	10690.00	2.35	2590.00	3.60	1011.00	4.06	1.66
*	6.877	4703.00	1013.90	7164.51	9915.00	10050.00	11285.45	.03	4120.93	2.90	1011.00	9.49	2.05
	6.877	4703.00	1014.63	8000.00	9915.00	10050.00	10550.00	.03	2550.00	3.63	1011.00	5.08	1.79
*	7.045	4703.00	1014.08	7680.00	9920.00	10055.00	12303.07	.18	4521.98	2.98	1011.10	2.26	1.02
*	7.045	4703.00	1014.78	8810.00	9920.00	10055.00	11090.00	.15	2215.97	3.68	1011.10	2.50	1.31
*	7.124	4088.00	1014.23	8104.96	9980.00	10018.00	11841.30	.15	3690.22	2.63	1011.60	8.37	1.70
*	7.124	4088.00	1014.94	9575.00	9980.00	10018.00	11025.00	.16	1449.00	3.34	1011.60	8.91	2.08
*	7.267	4088.00	1015.37	9324.25	9980.00	10019.00	11462.99	1.15	1974.82	2.47	1012.90	38.31	2.65
*	7.267	4088.00	1016.16	9650.00	9980.00	10019.00	10680.00	1.22	1007.77	3.26	1012.90	43.00	3.77
	7.407	4088.00	1017.56	9740.81	9980.00	10025.00	11439.12	2.19	1586.42	2.86	1014.70	23.30	1.66
	7.407	4088.00	1018.46	9741.00	9980.00	10025.00	10710.00	2.29	943.73	3.76	1014.70	22.81	2.26
	7.552	4088.00	1020.13	9240.52	9980.00	10020.00	11510.43	2.57	2269.91	2.03	1018.10	53.32	4.46
	7.552	4088.00	1020.91	9750.00	9980.00	10020.00	10450.00	2.45	700.00	2.81	1018.10	51.19	5.60

	SECNO	Q	CWSEL	SSTA	STCHL	STCHR	ENDST	DIFWSX	TOPWID	DEPTH	ELMIN	10*KS	VCH
	7.670	4088.00	1022.08	9159.30	9980.00	10015.00	11420.21	1.95	2260.91	3.88	1018.20	20.22	4.17
*	7.670	4088.00	1022.99	9850.00	9980.00	10015.00	10390.00	2.08	540.00	4.79	1018.20	23.14	5.25
	7.799	4088.00	1023.27	9388.63	9970.00	10015.00	11050.96	1.19	1662.33	4.07	1019.20	15.49	3.94
	7.799	4088.00	1024.20	9850.00	9970.00	10015.00	10400.00	1.21	550.00	5.00	1019.20	13.30	4.25
	7.924	4088.00	1024.65	9532.10	9970.00	10010.00	11190.40	1.38	1658.30	3.55	1021.10	30.42	4.68
	7.924	4088.00	1025.38	9900.00	9970.00	10010.00	10500.00	1.18	600.00	4.28	1021.10	26.30	5.07
*	7.977	4121.00	1027.00	9258.59	9990.00	10010.00	11530.89	2.35	2272.30	5.60	1021.40	6.86	9.44
*	7.977	4121.00	1027.58	9920.00	9990.00	10010.00	10670.00	2.20	750.00	6.18	1021.40	8.16	11.00
	7.983	4121.00	1027.14	9142.52	9990.00	10010.00	11560.00	.14	2417.48	5.54	1021.60	5.08	8.07
	7.983	4121.00	1027.75	9920.00	9990.00	10010.00	10670.00	.16	750.00	6.15	1021.60	6.74	9.96
*	8.069	4121.00	1027.69	9234.93	9960.00	10070.00	11018.08	.55	1783.15	3.69	1024.00	10.99	3.34
	8.069	4121.00	1028.62	9870.00	9960.00	10070.00	10325.00	.87	455.00	4.62	1024.00	10.24	3.74
*	8.169	4121.00	1028.59	9353.09	9980.00	10020.00	10644.56	.90	1291.47	3.99	1024.60	36.33	5.96
*	8.169	4121.00	1029.41	9880.00	9980.00	10020.00	10175.00	.79	295.00	4.81	1024.60	41.77	7.35
	8.292	4121.00	1030.83	9439.26	9980.00	10020.00	10800.32	2.24	1361.06	4.63	1026.20	32.92	6.05
	8.292	4121.00	1031.84	9925.00	9980.00	10020.00	10230.00	2.43	305.00	5.64	1026.20	33.22	7.09
	8.364	4121.00	1032.17	9247.86	9975.00	10025.00	10540.75	1.34	1292.89	4.77	1027.40	38.75	6.44
	8.364	4121.00	1033.09	9870.00	9975.00	10025.00	10230.00	1.25	360.00	5.69	1027.40	27.78	6.30
	8.468	4121.00	1034.43	9130.01	9980.00	10025.00	11078.64	2.26	1948.63	4.83	1029.60	60.48	7.71
	8.468	4121.00	1034.86	9860.00	9980.00	10025.00	10770.00	1.77	910.00	5.26	1029.60	52.86	7.77
	8.544	4183.00	1036.18	9713.16	9975.00	10100.00	12442.07	1.75	2728.90	1.78	1034.40	41.59	3.62
	8.544	4183.00	1036.82	9750.00	9975.00	10100.00	10995.00	1.96	1245.00	2.42	1034.40	65.50	5.73
	8.636	4183.00	1038.06	9741.96	9960.00	10010.00	12625.23	1.88	2680.10	1.96	1036.10	68.24	4.32
	8.636	4183.00	1038.96	9960.00	9960.00	10010.00	11200.00	2.13	1063.68	2.86	1036.10	43.58	4.71
	8.726	4183.00	1040.34	9429.78	9950.00	10010.00	12664.72	2.28	3044.47	2.94	1037.40	35.24	4.01
	8.726	4183.00	1041.09	9950.00	9950.00	10010.00	11000.00	2.14	891.98	3.69	1037.40	48.73	5.69
*	8.848	4183.00	1043.50	9104.11	9970.00	10020.00	11404.85	3.16	2124.59	2.90	1040.60	117.36	6.13
	8.848	4183.00	1044.44	9770.00	9970.00	10020.00	10600.00	3.35	818.31	3.84	1040.60	77.23	6.25
*	8.965	4183.00	1046.21	9137.38	9970.00	10033.00	10976.28	2.71	1838.90	3.51	1042.70	21.54	3.73
*	8.965	4183.00	1047.04	9740.00	9970.00	10033.00	10190.00	2.59	450.00	4.34	1042.70	25.33	4.86
	9.034	4183.00	1047.14	9330.00	9970.00	10038.00	10574.59	.93	1244.60	3.74	1043.40	34.98	5.17
	9.034	4183.00	1048.04	9775.00	9970.00	10038.00	10038.00	1.00	263.00	4.64	1043.40	39.02	6.37
*	9.095	4243.00	1048.93	9127.05	9978.00	10022.00	10194.30	1.80	1067.25	6.63	1042.30	5.23	9.23
*	9.095	4243.00	1048.98	9470.00	9978.00	10022.00	10070.00	.95	600.00	6.68	1042.30	5.43	9.45
	9.100	4243.00	1049.15	9091.80	9978.00	10022.00	10282.93	.22	1191.13	6.65	1042.50	4.23	8.32
	9.100	4243.00	1048.95	9470.00	9978.00	10022.00	10070.00	-.03	600.00	6.45	1042.50	5.93	9.66
*	9.189	4243.00	1050.18	9253.43	9940.00	10160.00	10276.17	1.03	1022.74	2.28	1047.90	29.27	4.13
*	9.189	4243.00	1050.35	9645.00	9940.00	10160.00	10160.00	1.40	515.00	2.45	1047.90	45.36	5.43
*	9.292	3693.00	1052.71	9240.83	9900.00	10120.00	10159.40	2.54	918.56	1.61	1051.10	108.83	5.38
*	9.292	3693.00	1053.29	9690.00	9900.00	10120.00	10120.00	2.94	430.00	2.19	1051.10	71.38	5.77
*	9.396	3693.00	1055.81	9076.44	9880.00	10070.00	10470.53	3.09	1394.08	2.01	1053.80	29.86	3.32
*	9.396	3693.00	1056.20	9500.00	9880.00	10070.00	10070.00	2.91	570.00	2.40	1053.80	34.08	4.19
	9.493	3693.00	1057.73	9042.96	9930.00	10140.00	10250.78	1.92	1207.81	1.63	1056.10	54.32	4.26
	9.493	3693.00	1058.10	9425.00	9930.00	10140.00	10140.00	1.90	715.00	2.00	1056.10	43.02	4.49
	9.544	3693.00	1058.81	8841.61	9920.00	10065.00	10422.28	1.08	1580.67	1.81	1057.00	38.24	3.18
	9.544	3693.00	1059.10	9200.00	9920.00	10065.00	10065.00	1.00	865.00	2.10	1057.00	40.91	3.84
	9.641	3113.00	1059.65	9026.78	9985.00	10015.00	10056.28	.84	1029.50	2.65	1057.00	27.55	4.33
	9.641	3113.00	1059.89	9400.00	9985.00	10015.00	10056.00	.79	656.00	2.89	1057.00	24.79	4.41
*	9.741	3113.00	1060.21	9110.67	9900.00	10115.00	10456.00	.56	1345.33	3.01	1057.20	5.27	2.22
	9.741	3113.00	1060.46	9530.00	9900.00	10115.00	10455.00	.57	925.00	3.26	1057.20	5.42	2.39
	9.807	3113.00	1060.39	9112.53	9900.00	10140.00	10423.27	.17	1310.74	3.08	1057.30	4.88	2.18
	9.807	3113.00	1060.63	9500.00	9900.00	10140.00	10423.00	.17	923.00	3.33	1057.30	4.17	2.13

	SECNO	Q	CWSEL	SSTA	STCHL	STCHR	ENDST	DIFWSX	TOPWID	DEPTH	ELMIN	10*KS	VCH
	9.898	762.00	1060.62	9603.86	9960.00	10055.00	10474.03	.23	870.17	3.12	1057.50	1.70	1.26
*	9.898	762.00	1060.83	9603.00	9960.00	10055.00	10474.00	.19	871.00	3.33	1057.50	1.14	1.08
*	9.994	762.00	1060.65	9956.92	9950.00	10050.00	10039.62	.03	82.71	2.95	1057.70	23.67	4.29
*	9.994	762.00	1060.81	9956.12	9950.00	10050.00	10040.82	-.01	84.70	3.11	1057.70	18.98	3.97
	10.108	762.00	1062.01	9969.93	9960.00	10045.00	10035.07	1.37	65.14	3.91	1058.10	23.22	4.68
	10.108	762.00	1062.01	9969.99	9960.00	10045.00	10035.01	1.19	65.01	3.91	1058.10	23.34	4.69
*	10.197	762.00	1062.93	9954.18	9950.00	10045.00	10038.74	.92	84.56	4.53	1058.40	11.48	3.42
*	10.197	762.00	1062.93	9954.20	9950.00	10045.00	10038.70	.92	84.50	4.53	1058.40	11.52	3.42
	10.269	800.00	1063.28	9953.58	9960.00	10025.00	10032.41	.35	78.83	4.68	1058.60	7.57	3.40
	10.269	800.00	1063.28	9953.60	9960.00	10025.00	10032.39	.35	78.79	4.68	1058.60	7.59	3.40
	10.328	800.00	1063.50	9964.38	9970.00	10020.00	10021.87	.21	57.49	4.70	1058.80	10.94	4.21
	10.328	800.00	1063.49	9964.39	9970.00	10020.00	10021.87	.21	57.48	4.69	1058.80	10.96	4.21
	10.419	800.00	1063.99	9972.51	9975.00	10020.00	10022.49	.50	49.99	4.89	1059.10	10.12	4.29
	10.419	800.00	1063.99	9972.51	9975.00	10020.00	10022.49	.50	49.98	4.89	1059.10	10.13	4.29
*	10.493	800.00	1064.36	9885.00	9895.00	10030.00	10045.00	.36	160.00	5.06	1059.30	.78	1.28
*	10.493	800.00	1064.35	9885.00	9895.00	10030.00	10045.00	.36	160.00	5.05	1059.30	.78	1.28
*	10.587	800.00	1064.39	9846.88	9935.00	10040.00	10060.00	.04	213.13	4.79	1059.60	1.67	1.76
*	10.587	800.00	1064.39	9847.01	9935.00	10040.00	10060.00	.04	212.99	4.79	1059.60	1.67	1.77
	10.639	800.00	1064.45	9858.05	9925.00	10035.00	10055.97	.05	197.92	4.65	1059.80	1.76	1.68
	10.639	800.00	1064.45	9858.10	9925.00	10035.00	10055.95	.05	197.85	4.65	1059.80	1.76	1.68
	10.709	1380.00	1064.52	9863.33	9910.00	10040.00	10055.74	.08	192.41	4.52	1060.00	6.18	2.85
	10.709	1380.00	1064.52	9863.36	9910.00	10040.00	10055.73	.08	192.38	4.52	1060.00	6.19	2.85
*	10.804	1380.00	1064.98	9880.16	9900.00	10040.00	10047.44	.46	167.28	2.98	1062.00	38.85	4.89
*	10.804	1380.00	1064.98	9880.17	9900.00	10040.00	10047.44	.46	167.26	2.98	1062.00	38.88	4.89
	10.889	1380.00	1066.80	9878.29	9900.00	10040.00	10045.92	1.81	167.63	2.80	1064.00	42.64	5.03
	10.889	1380.00	1066.80	9878.28	9900.00	10040.00	10045.92	1.81	167.64	2.80	1064.00	42.62	5.03
	10.946	1380.00	1068.22	9923.80	9930.00	10080.00	10081.69	1.42	157.89	2.52	1065.70	56.19	5.34
	10.946	1380.00	1068.22	9923.81	9930.00	10080.00	10081.69	1.42	157.88	2.52	1065.70	56.21	5.34
	10.995	1380.00	1069.84	9900.11	9895.00	10045.00	10044.21	1.62	144.10	2.64	1067.20	76.73	5.95
	10.995	1380.00	1069.84	9900.10	9895.00	10045.00	10044.21	1.62	144.11	2.64	1067.20	76.68	5.95
*	11.067	1380.00	1071.15	9735.50	9920.00	10045.00	10053.60	1.30	318.09	3.55	1067.60	10.13	3.08
*	11.067	1380.00	1071.29	9920.00	9920.00	10045.00	10053.00	1.45	133.00	3.69	1067.60	14.88	3.82
	11.147	1380.00	1071.52	9532.25	9920.00	10045.00	10056.39	.37	524.14	3.72	1067.80	6.55	2.69
	11.147	1380.00	1071.83	9920.00	9920.00	10045.00	10056.00	.54	136.00	4.03	1067.80	8.52	3.22
	11.228	1380.00	1071.82	9375.08	9920.00	10050.00	10065.89	.30	690.82	3.92	1067.90	6.78	2.60
	11.228	1380.00	1072.20	9920.00	9920.00	10050.00	10065.00	.38	145.00	4.30	1067.90	8.90	3.21
	11.306	1380.00	1072.13	9805.26	9965.00	10090.00	10156.26	.31	351.01	3.33	1068.80	11.55	3.29
	11.306	1380.00	1072.58	9940.00	9965.00	10090.00	10090.00	.38	150.00	3.78	1068.80	9.27	3.22
	11.416	1380.00	1072.86	9769.27	9930.00	10070.00	10195.72	.73	426.45	2.66	1070.20	13.58	3.14
	11.416	1380.00	1073.23	9930.00	9930.00	10070.00	10070.00	.65	140.00	3.03	1070.20	16.48	3.75
	11.510	1380.00	1073.48	9548.38	9900.00	10100.00	10213.13	.62	664.76	1.98	1071.50	9.45	2.24
	11.510	1380.00	1074.02	9900.00	9900.00	10100.00	10100.00	.79	200.00	2.52	1071.50	12.10	2.98
*	11.580	1380.00	1074.48	9961.38	9965.00	10100.00	10115.69	1.01	154.31	2.48	1072.00	113.62	6.86
*	11.580	1380.00	1074.62	9962.00	9965.00	10100.00	10115.00	.60	153.00	2.62	1072.00	83.46	6.25
*	11.676	1377.00	1076.16	9921.86	9955.00	10100.00	10105.92	1.67	184.05	4.06	1072.10	8.00	2.98
*	11.676	1377.00	1076.11	9923.78	9955.00	10100.00	10105.70	1.49	181.92	4.01	1072.10	8.34	3.02
	11.775	1377.00	1076.55	9914.56	9955.00	10075.00	10131.97	.40	217.41	4.35	1072.20	7.38	3.08
	11.775	1377.00	1076.53	9915.59	9955.00	10075.00	10131.62	.41	216.02	4.33	1072.20	7.61	3.11
	11.867	1377.00	1076.92	9875.30	9960.00	10055.00	10103.84	.36	228.54	4.61	1072.30	8.13	3.42
	11.867	1377.00	1076.90	9876.28	9960.00	10055.00	10103.61	.37	227.33	4.60	1072.30	8.26	3.44
	11.970	1377.00	1077.31	9926.72	9930.00	10060.00	10106.38	.40	179.66	4.91	1072.40	4.75	2.64
	11.970	1377.00	1077.30	9926.75	9930.00	10060.00	10106.23	.40	179.48	4.90	1072.40	4.80	2.65

	SECNO	Q	CWSEL	SSTA	STCHL	STCHR	ENDST	DIFWSX	TOPWID	DEPTH	ELMIN	10*KS	VCH
	12.064	1377.00	1077.53	9812.10	9935.00	10070.00	10101.46	.22	289.37	5.03	1072.50	2.81	2.19
	12.064	1377.00	1077.52	9812.78	9935.00	10070.00	10101.39	.22	288.61	5.02	1072.50	2.84	2.19
	12.150	1377.00	1077.65	9825.00	9940.00	10080.00	10104.37	.13	279.37	5.15	1072.50	2.29	2.02
	12.150	1377.00	1077.65	9825.00	9940.00	10080.00	10104.31	.13	279.31	5.15	1072.50	2.31	2.02
	12.244	1377.00	1077.77	9850.00	9910.00	10075.00	10112.77	.12	262.77	5.17	1072.60	2.20	1.90
	12.244	1377.00	1077.76	9850.00	9910.00	10075.00	10112.69	.12	262.69	5.16	1072.60	2.21	1.90
	12.345	1377.00	1077.88	9890.00	9920.00	10095.00	10143.63	.11	253.63	5.28	1072.60	1.66	1.71
	12.345	1377.00	1077.88	9890.00	9920.00	10095.00	10143.55	.11	253.55	5.28	1072.60	1.67	1.72
	12.439	1377.00	1077.97	9900.00	9955.00	10120.00	10184.52	.08	284.52	5.27	1072.70	1.43	1.64
	12.439	1377.00	1077.96	9900.00	9955.00	10120.00	10184.41	.08	284.41	5.26	1072.70	1.44	1.65
	12.534	1377.00	1078.04	9865.00	9910.00	10075.00	10150.33	.07	285.33	5.34	1072.70	1.31	1.59
	12.534	1377.00	1078.03	9865.00	9910.00	10075.00	10150.28	.07	285.28	5.33	1072.70	1.32	1.59
*	12.633	1000.00	1080.12	9600.00	9900.00	10100.00	10414.10	2.08	814.10	.72	1079.40	173.06	4.06
*	12.633	1000.00	1080.12	9600.00	9900.00	10100.00	10414.24	2.09	814.24	.72	1079.40	172.06	4.05
*	12.700	1000.00	1080.73	9920.00	9920.00	10110.00	11017.64	.61	1097.64	2.03	1078.70	3.07	.90
*	12.700	1000.00	1080.73	9920.00	9920.00	10110.00	11017.64	.61	1097.64	2.03	1078.70	3.07	.90
*	12.758	1000.00	1080.96	9940.00	9955.00	10070.00	10611.51	.23	671.51	2.06	1078.90	18.13	2.27
*	12.758	1000.00	1080.96	9940.00	9955.00	10070.00	10611.49	.23	671.49	2.06	1078.90	18.14	2.27
	12.867	1000.00	1081.80	9940.00	9960.00	10055.00	10600.78	.84	660.78	2.40	1079.40	11.68	2.09
	12.867	1000.00	1081.80	9940.00	9960.00	10055.00	10600.81	.84	660.81	2.40	1079.40	11.68	2.09
	13.044	1000.00	1082.79	9900.00	9910.00	10075.00	10752.66	.98	852.66	2.09	1080.70	10.97	1.74
	13.044	1000.00	1082.79	9900.00	9910.00	10075.00	10752.66	.98	852.66	2.09	1080.70	10.97	1.74
*	13.161	1000.00	1083.92	9961.78	9960.00	10085.00	10754.54	1.13	792.77	1.62	1082.30	43.31	2.92
*	13.161	1000.00	1083.92	9961.78	9960.00	10085.00	10754.54	1.13	792.77	1.62	1082.30	43.31	2.92
*	13.248	1440.00	1085.86	9905.16	9950.00	10050.00	10935.01	1.94	999.96	1.56	1084.30	41.44	2.75
	13.248	1440.00	1086.48	9950.00	9950.00	10050.00	10210.00	2.57	255.17	2.18	1084.30	74.77	4.56
*	13.349	1440.00	1087.04	9926.77	9955.00	10070.00	10935.74	1.18	994.24	2.54	1084.50	13.21	1.95
*	13.349	1440.00	1088.05	9955.00	9955.00	10070.00	10210.00	1.56	255.00	3.55	1084.50	13.25	2.62
	13.427	1440.00	1087.74	9971.31	9960.00	10040.00	10854.74	.71	849.48	1.94	1085.80	23.54	1.76
	13.427	1440.00	1088.75	9960.00	9960.00	10040.00	10270.00	.70	310.00	2.95	1085.80	21.67	2.36
*	13.556	1440.00	1090.52	9724.12	9900.00	10100.00	11105.66	2.78	836.44	1.12	1089.40	197.80	3.04
*	13.556	1440.00	1090.94	9800.00	9900.00	10100.00	10250.00	2.19	450.00	1.54	1089.40	90.02	2.57
*	13.667	1440.00	1093.31	9432.44	9870.00	10100.00	11830.23	2.79	1627.94	2.11	1091.20	21.69	1.33
*	13.667	1440.00	1093.61	9775.94	9870.00	10100.00	10270.00	2.66	494.06	2.41	1091.20	27.88	1.70
*	13.782	1440.00	1095.79	9116.73	9870.00	10085.00	12266.11	2.48	2581.42	.99	1094.80	109.83	.61
*	13.782	1440.00	1096.80	9700.00	9870.00	10085.00	10563.87	3.19	863.87	2.00	1094.80	127.65	2.57
*	13.902	1440.00	1098.48	9146.37	9900.00	10100.00	11628.63	2.69	2002.70	1.48	1097.00	23.81	1.12
*	13.902	1440.00	1099.41	9800.00	9900.00	10100.00	10300.00	2.61	500.00	2.41	1097.00	20.08	1.54
*	14.023	1440.00	1100.59	9640.22	9900.00	10100.00	10924.78	2.12	1284.57	1.29	1099.30	53.49	1.74
*	14.023	1440.00	1101.61	9900.00	9900.00	10100.00	10100.00	2.20	200.00	2.31	1099.30	84.21	3.26

FLOODWAY DATA, BULLARD WASH - FROM BUCK
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WATER SURFACE ELEVATION WITHOUT FLOODWAY	DIFFERENCE
.000	1247.	817.	1.0	912.3	912.3	.0
.047	1687.	1527.	.6	912.5	912.5	.0
.121	1368.	1290.	.7	912.7	912.7	.0
.201	1095.	981.	.9	913.0	913.0	.0
.292	940.	1121.	.8	913.4	913.4	.0
.384	1682.	1465.	.6	913.7	913.7	.0
.488	1490.	1435.	.6	914.0	914.0	.0
.531	1452.	1375.	.6	914.2	914.2	.0
.616	1160.	1660.	2.9	916.1	916.1	.0
.668	665.	934.	5.2	918.3	918.3	.0
.776	510.	1400.	3.5	921.0	921.0	.0
.868	516.	1235.	4.0	922.2	922.2	.0
.964	441.	1001.	4.9	924.1	924.1	.0
1.081	451.	1098.	2.4	926.3	926.3	.0
1.153	462.	1168.	2.2	926.7	926.7	.0
1.236	351.	415.	6.3	927.4	927.4	.0
1.317	344.	679.	3.8	929.7	929.7	.0
1.378	402.	801.	3.2	930.4	930.4	.0
1.435	163.	310.	8.4	931.2	931.2	.0
1.474	1034.	952.	2.7	933.6	933.6	.0
1.517	814.	1403.	1.9	934.9	934.9	.0
1.566	150.	328.	7.9	936.2	936.2	.0
1.634	233.	638.	4.1	938.3	938.3	.0
1.680	339.	847.	3.1	938.8	938.8	.0
1.745	423.	1269.	2.0	939.2	939.2	.0
1.823	823.	1730.	1.5	939.4	939.4	.0
1.893	1106.	1933.	2.5	939.7	939.7	.0
1.941	1063.	1344.	3.6	939.9	939.9	.0
1.988	1100.	1395.	3.5	940.1	940.1	.0
2.058	1175.	1625.	3.0	941.3	941.3	.0
2.185	725.	986.	5.0	942.7	942.7	.0
2.297	460.	2215.	2.2	943.7	943.5	.2
2.371	420.	1352.	3.6	944.0	943.7	.3
2.435	375.	1117.	4.4	944.6	943.9	.7
2.536	400.	1105.	4.4	946.8	945.8	1.0
2.680	405.	1123.	4.4	949.5	949.1	.4
2.771	345.	1080.	4.5	951.5	950.6	.9
2.883	350.	1425.	3.4	953.8	952.8	1.0
2.977	235.	858.	5.7	955.0	954.3	.7
3.070	390.	1277.	3.8	956.9	956.1	.8
3.167	460.	1518.	2.9	958.3	957.4	.9
3.291	343.	974.	4.6	960.5	959.7	.8
3.376	525.	1702.	2.6	962.7	961.8	.9
3.491	390.	1471.	3.0	964.0	963.2	.8
3.602	330.	1132.	3.9	965.5	964.7	.8
3.702	590.	1144.	3.9	967.3	966.8	.5
3.841	520.	1169.	3.8	970.3	969.3	1.0
3.978	595.	1699.	2.6	972.2	971.3	.9
4.101	345.	1136.	3.9	973.9	973.2	.7
4.237	295.	1224.	3.6	976.1	975.1	1.0
4.356	270.	1178.	3.8	977.5	976.5	1.0
4.496	310.	1314.	3.4	979.2	978.2	1.0
4.625	300.	855.	5.2	981.0	980.5	.5
4.701	400.	1624.	2.7	982.0	981.3	.7
4.858	300.	878.	5.1	983.3	982.5	.8
5.009	285.	1106.	4.0	986.3	985.6	.7
5.153	290.	1084.	4.1	988.7	987.8	.9
5.282	400.	1762.	2.5	990.4	989.4	1.0
5.430	174.	639.	7.0	991.8	991.1	.7
5.460	174.	662.	8.0	991.9	991.9	.0
5.563	350.	1792.	3.0	994.1	993.7	.4
5.727	352.	1232.	3.8	995.3	994.3	1.0
5.840	369.	1242.	3.8	997.2	996.5	.7
5.960	440.	1434.	3.3	999.4	998.5	.9
6.086	500.	1380.	3.4	1001.8	1001.1	.7
6.217	630.	2057.	2.3	1003.7	1003.0	.7
6.320	650.	2021.	2.3	1004.6	1004.0	.6
6.414	600.	1544.	3.0	1005.9	1005.3	.6
6.509	510.	1531.	3.0	1007.6	1006.6	1.0
6.627	400.	1148.	4.1	1010.2	1009.2	1.0
6.674	337.	626.	7.4	1012.2	1012.4	-.2

STATION	WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
6.864	2590.	5680.	.8	1014.6	1013.9	.7
6.877	2550.	5414.	.9	1014.6	1013.9	.7
7.045	2280.	6437.	.7	1014.8	1014.1	.7
7.124	1450.	3422.	1.2	1014.9	1014.2	.7
7.267	1030.	1770.	2.3	1016.2	1015.4	.8
7.407	969.	2102.	1.9	1018.5	1017.6	.9
7.552	700.	1507.	2.7	1020.9	1020.1	.8
7.670	540.	1692.	2.4	1023.0	1022.1	.9
7.799	550.	1997.	2.0	1024.2	1023.3	.9
7.924	600.	1704.	2.4	1025.4	1024.7	.7
7.977	750.	1435.	2.9	1027.6	1027.0	.6
7.983	750.	1554.	2.7	1027.7	1027.1	.6
8.069	455.	1849.	2.2	1028.6	1027.7	.9
8.169	295.	1076.	3.8	1029.4	1028.6	.8
8.292	305.	1155.	3.6	1031.8	1030.8	1.0
8.364	360.	1281.	3.2	1033.1	1032.2	.9
8.468	910.	1430.	2.9	1034.8	1034.4	.4
8.544	1245.	1583.	2.6	1036.8	1036.2	.6
8.636	1240.	1867.	2.2	1039.0	1038.1	.9
8.726	1050.	1635.	2.6	1041.1	1040.3	.8
8.848	830.	1333.	3.1	1044.4	1043.5	.9
8.965	450.	1519.	2.8	1047.0	1046.2	.8
9.034	263.	1030.	4.1	1048.0	1047.1	.9
9.095	600.	1180.	3.6	1049.0	1048.9	.1
9.100	600.	1158.	3.7	1049.0	1049.2	-.2
9.189	515.	991.	4.3	1050.4	1050.2	.2
9.292	430.	747.	4.9	1053.3	1052.7	.6
9.396	570.	1088.	3.4	1056.2	1055.8	.4
9.493	715.	1097.	3.4	1058.1	1057.7	.4
9.544	865.	1244.	3.0	1059.1	1058.8	.3
9.641	656.	1199.	2.6	1059.9	1059.7	.2
9.741	925.	1872.	1.7	1060.4	1060.2	.2
9.807	923.	2070.	1.5	1060.6	1060.4	.2
9.898	871.	1308.	.6	1060.8	1060.6	.2
9.994	85.	192.	4.0	1060.8	1060.6	.2
10.108	65.	163.	4.7	1062.0	1062.0	.0
10.197	85.	223.	3.4	1062.9	1062.9	.0
10.269	79.	242.	3.3	1063.3	1063.3	.0
10.328	57.	194.	4.1	1063.5	1063.5	.0
10.419	50.	190.	4.2	1064.0	1064.0	.0
10.493	160.	652.	1.2	1064.4	1064.4	.0
10.587	213.	507.	1.6	1064.4	1064.4	.0
10.639	198.	536.	1.5	1064.4	1064.4	.0
10.709	192.	533.	2.6	1064.5	1064.5	.0
10.804	167.	292.	4.7	1065.0	1065.0	.0
10.889	168.	283.	4.9	1066.8	1066.8	.0
10.946	158.	259.	5.3	1068.2	1068.2	.0
10.995	144.	232.	6.0	1069.8	1069.8	.0
11.067	133.	365.	3.8	1071.2	1071.1	.1
11.147	136.	437.	3.2	1071.8	1071.5	.3
11.228	145.	443.	3.1	1072.2	1071.8	.4
11.306	150.	457.	3.0	1072.6	1072.1	.5
11.416	140.	368.	3.8	1073.3	1072.9	.4
11.510	200.	464.	3.0	1074.0	1073.5	.5
11.580	153.	226.	6.1	1074.6	1074.5	.1
11.676	182.	479.	2.9	1076.2	1076.2	.0
11.775	216.	525.	2.6	1076.6	1076.6	.0
11.867	227.	504.	2.7	1076.9	1076.9	.0
11.970	179.	578.	2.4	1077.3	1077.3	.0
12.064	289.	755.	1.8	1077.5	1077.5	.0
12.150	279.	820.	1.7	1077.7	1077.7	.0
12.244	263.	825.	1.7	1077.8	1077.8	.0
12.345	254.	899.	1.5	1077.9	1077.9	.0
12.439	284.	988.	1.4	1078.0	1078.0	.0
12.534	285.	1044.	1.3	1078.0	1078.0	.0
12.633	814.	315.	3.2	1080.1	1080.1	.0
12.700	1098.	1727.	.6	1080.7	1080.7	.0
12.758	671.	752.	1.3	1081.0	1081.0	.0
12.867	661.	845.	1.2	1081.8	1081.8	.0
13.044	853.	941.	1.1	1082.8	1082.8	.0
13.161	793.	638.	1.6	1083.9	1083.9	.0
13.248	260.	423.	3.4	1086.5	1085.9	.6
13.349	255.	711.	2.0	1088.0	1087.0	1.0
13.427	310.	720.	2.0	1088.7	1087.7	1.0
13.556	450.	594.	2.4	1090.9	1090.5	.4
13.667	494.	874.	1.6	1093.6	1093.3	.3
13.782	864.	663.	2.2	1096.8	1095.8	1.0
13.902	500.	973.	1.5	1099.4	1098.5	.9
14.023	200.	442.	3.3	1101.6	1100.6	1.0

Table 1b Duplicate Effective FIS HEC-RAS (Downstream) Modeling Results

HEC-RAS Plan: Final(9/98) River: Bullard Wash Reach: Outfall Channel

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Outfall Channel	2500	3200.00	900.69	906.58	904.30	907.20	0.002001	6.33	505.71	91.78	0.48
Outfall Channel	2500	3200.00	900.69	906.58	904.30	907.20	0.002001	6.33	505.71	91.78	0.48
Outfall Channel	2660	3200.00	901.02	906.90	904.63	907.52	0.002012	6.34	504.81	91.76	0.48
Outfall Channel	2660	3200.00	901.02	906.90	904.63	907.52	0.002012	6.34	504.81	91.76	0.48
Outfall Channel	2860.56	3200.00	901.42	907.30	905.03	907.93	0.002008	6.33	505.14	91.76	0.48
Outfall Channel	2860.56	3200.00	901.42	907.30	905.03	907.93	0.002008	6.33	505.14	91.76	0.48
Outfall Channel	2877.74	3200.00	901.45	906.45	906.38	908.87	0.003534	12.49	256.13	51.29	0.99
Outfall Channel	2877.74	3200.00	901.45	906.45	906.39	908.87	0.003534	12.49	256.13	51.29	0.99
Outfall Channel	2901.4	Culvert									
Outfall Channel	2901.49	3200.00	901.50	909.45	906.44	910.41	0.000565	7.85	407.69	51.34	0.49
Outfall Channel	2901.49	3200.00	901.50	909.45	906.44	910.41	0.000565	7.85	407.69	51.34	0.49
Outfall Channel	2911	3200.00	901.97	909.93	906.59	910.52	0.002140	6.19	517.19	76.95	0.42
Outfall Channel	2911	3200.00	901.97	909.93	906.58	910.52	0.002140	6.19	517.18	76.95	0.42
Outfall Channel	2995.26	3200.00	906.15	909.69	910.46	912.71	0.027315	13.95	229.31	70.12	1.36
Outfall Channel	2995.26	3200.00	906.15	909.68	910.45	912.71	0.027368	13.96	229.17	70.11	1.36
Outfall Channel	3002.33	3200.00	906.48	910.82	910.82	913.01	0.004132	11.87	269.55	62.12	1.00
Outfall Channel	3002.33	3200.00	906.48	910.82	910.82	913.01	0.004133	11.87	269.53	62.12	1.00
Outfall Channel	3049.67	3200.00	906.56	911.59	910.90	913.22	0.002630	10.26	311.95	62.14	0.81
Outfall Channel	3049.67	3200.00	906.56	911.59	910.90	913.22	0.002630	10.26	311.96	62.14	0.81
Outfall Channel	3064.67	3200.00	906.58	911.65	910.92	913.25	0.002564	10.17	314.59	62.14	0.80
Outfall Channel	3064.67	3200.00	906.58	911.65	910.92	913.25	0.002563	10.17	314.59	62.14	0.80
Outfall Channel	3088.94	3200.00	906.62	912.81	910.65	913.55	0.000767	6.88	464.86	82.29	0.51
Outfall Channel	3088.94	3200.00	906.62	912.81	910.65	913.55	0.000767	6.88	464.87	82.29	0.51
Outfall Channel	3141	3200.00	906.70	912.84	910.74	913.59	0.000800	6.98	458.73	82.15	0.52
Outfall Channel	3141	3200.00	906.70	912.84	910.74	913.59	0.000800	6.98	458.74	82.15	0.52
Outfall Channel	3266	3200.00	906.90	912.92	910.94	913.71	0.000857	7.13	448.90	81.90	0.54
Outfall Channel	3266	3200.00	906.90	912.92	910.94	913.71	0.000857	7.13	448.90	81.90	0.54
Outfall Channel	3330	3200.00	907.00	913.25	910.70	913.78	0.000544	5.84	547.68	98.51	0.44
Outfall Channel	3330	3200.00	907.00	913.25	910.70	913.78	0.000544	5.84	547.68	98.51	0.44
Outfall Channel	3372	3200.00	907.06	913.35	910.61	913.82	0.001435	5.49	582.76	105.31	0.41
Outfall Channel	3372	3200.00	907.06	913.35	910.61	913.82	0.001435	5.49	582.77	105.31	0.41
Outfall Channel	3562.61*	3200.00	907.34	913.62	910.89	914.09	0.001440	5.50	582.08	105.28	0.41
Outfall Channel	3562.61*	3200.00	907.34	913.62	910.89	914.09	0.001440	5.50	582.08	105.28	0.41
Outfall Channel	3753.23*	3200.00	907.62	913.90	911.17	914.37	0.001444	5.50	581.51	105.26	0.41
Outfall Channel	3753.23*	3200.00	907.62	913.90	911.17	914.37	0.001444	5.50	581.51	105.26	0.41
Outfall Channel	3943.84*	3200.00	907.89	914.17	911.45	914.64	0.001441	5.50	581.89	105.23	0.41
Outfall Channel	3943.84*	3200.00	907.89	914.17	911.45	914.64	0.001441	5.50	581.89	105.23	0.41
Outfall Channel	4134.46*	3200.00	908.17	914.45	911.72	914.92	0.001445	5.50	581.33	105.21	0.41
Outfall Channel	4134.46*	3200.00	908.17	914.45	911.72	914.92	0.001445	5.50	581.33	105.21	0.41
Outfall Channel	4325.07*	3200.00	908.45	914.72	912.00	915.19	0.001449	5.51	580.85	105.19	0.41
Outfall Channel	4325.07*	3200.00	908.45	914.72	912.00	915.19	0.001449	5.51	580.85	105.19	0.41
Outfall Channel	4515.69*	3200.00	908.73	915.00	912.28	915.47	0.001452	5.51	580.45	105.18	0.41
Outfall Channel	4515.69*	3200.00	908.73	915.00	912.28	915.47	0.001452	5.51	580.45	105.18	0.41
Outfall Channel	4706.30*	3200.00	909.00	915.28	912.56	915.75	0.001447	5.51	580.99	105.15	0.41
Outfall Channel	4706.30*	3200.00	909.00	915.28	912.56	915.75	0.001447	5.51	580.99	105.15	0.41
Outfall Channel	4896.92*	3200.00	909.28	915.55	912.83	916.02	0.001450	5.51	580.55	105.14	0.41
Outfall Channel	4896.92*	3200.00	909.28	915.55	912.83	916.02	0.001450	5.51	580.55	105.14	0.41
Outfall Channel	5087.53*	3200.00	909.56	915.83	913.11	916.30	0.001453	5.52	580.18	105.12	0.41

HEC-RAS Plan: Final(9/98) River: Bullard Wash Reach: Outfall Channel (Continued)

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Outfall Channel	5087.53*	3200.00	909.56	915.83	913.11	916.30	0.001453	5.52	580.18	105.12	0.41
Outfall Channel	5278.15*	3200.00	909.84	916.11	913.39	916.58	0.001456	5.52	579.87	105.11	0.41
Outfall Channel	5278.15*	3200.00	909.84	916.11	913.39	916.58	0.001456	5.52	579.87	105.11	0.41
Outfall Channel	5468.76*	3200.00	910.11	916.38	913.67	916.85	0.001450	5.51	580.48	105.09	0.41
Outfall Channel	5468.76*	3200.00	910.11	916.38	913.67	916.85	0.001450	5.51	580.48	105.09	0.41
Outfall Channel	5659.38*	3200.00	910.39	916.66	913.95	917.13	0.001453	5.52	580.11	105.08	0.41
Outfall Channel	5659.38*	3200.00	910.39	916.66	913.95	917.13	0.001453	5.52	580.11	105.08	0.41
Outfall Channel	5850	3200.00	910.67	916.94	914.23	917.41	0.001456	5.52	579.79	105.06	0.41
Outfall Channel	5850	3200.00	910.67	916.94	914.23	917.41	0.001456	5.52	579.79	105.06	0.41
Outfall Channel	5900	3200.00	910.74	917.01	914.30	917.48	0.001453	5.52	580.08	105.07	0.41
Outfall Channel	5900	3200.00	910.74	917.01	914.30	917.48	0.001453	5.52	580.08	105.07	0.41
Outfall Channel	6020	3200.00	910.92	917.18	914.48	917.66	0.001458	5.52	579.49	105.05	0.41
Outfall Channel	6020	3200.00	910.92	917.18	914.48	917.66	0.001458	5.52	579.49	105.05	0.41
Outfall Channel	6220	3200.00	911.21	917.47	914.77	917.95	0.001457	5.52	579.65	105.06	0.41
Outfall Channel	6220	3200.00	911.21	917.47	914.77	917.95	0.001457	5.52	579.65	105.06	0.41
Outfall Channel	6322	3200.00	911.36	917.62	914.92	918.10	0.001464	5.53	578.67	105.02	0.42
Outfall Channel	6322	3200.00	911.36	917.62	914.92	918.10	0.001464	5.53	578.67	105.02	0.42
Outfall Channel	6400	3200.00	911.45	917.74	915.00	918.21	0.001434	5.49	582.59	105.17	0.41
Outfall Channel	6400	3200.00	911.45	917.74	915.00	918.21	0.001434	5.49	582.59	105.17	0.41
Outfall Channel	6510.*	3200.00	911.58	917.90	915.14	918.37	0.001409	5.46	585.99	105.30	0.41
Outfall Channel	6510.*	3200.00	911.58	917.90	915.14	918.37	0.001409	5.46	585.99	105.30	0.41
Outfall Channel	6620	3200.00	911.70	918.07	915.26	918.52	0.001378	5.42	590.28	105.46	0.40
Outfall Channel	6620	3200.00	911.70	918.07	915.26	918.52	0.001378	5.42	590.28	105.46	0.40
Outfall Channel	6776.75*	3200.00	911.88	918.29	915.44	918.74	0.001348	5.38	594.59	105.63	0.40
Outfall Channel	6776.75*	3200.00	911.88	918.29	915.44	918.74	0.001348	5.38	594.59	105.63	0.40
Outfall Channel	6933.5*	3200.00	912.05	918.50	915.61	918.95	0.001314	5.34	599.54	105.81	0.40
Outfall Channel	6933.5*	3200.00	912.05	918.50	915.61	918.95	0.001314	5.34	599.54	105.81	0.40
Outfall Channel	7090.25*	3200.00	912.23	918.71	915.79	919.15	0.001295	5.31	602.52	105.93	0.39
Outfall Channel	7090.25*	3200.00	912.23	918.71	915.79	919.15	0.001295	5.31	602.52	105.93	0.39
Outfall Channel	7247	3200.00	912.40	918.92	915.96	919.35	0.001269	5.28	606.45	106.07	0.39
Outfall Channel	7247	3200.00	912.40	918.92	915.96	919.35	0.001269	5.28	606.45	106.07	0.39
Outfall Channel	7280	3200.00	912.34	918.90	916.10	919.42	0.000506	5.79	552.83	92.80	0.42
Outfall Channel	7280	3200.00	912.34	918.90	916.12	919.42	0.000506	5.79	552.83	92.80	0.42
Outfall Channel	7300	3200.00	912.36	918.91	916.13	919.43	0.000508	5.79	552.23	92.87	0.42
Outfall Channel	7300	3200.00	912.36	918.91	916.12	919.43	0.000508	5.79	552.23	92.87	0.42
Outfall Channel	7357	Bridge									
Outfall Channel	7417	3200.00	912.49	919.26	916.26	919.75	0.000452	5.59	572.76	93.23	0.40
Outfall Channel	7417	3200.00	912.49	919.26	916.26	919.75	0.000452	5.59	572.75	93.23	0.40
Outfall Channel	7440	3200.00	912.51	919.27	916.27	919.76	0.000454	5.60	571.91	93.22	0.40
Outfall Channel	7440	3200.00	912.51	919.27	916.27	919.76	0.000454	5.60	571.91	93.22	0.40
Outfall Channel	7500	3200.00	912.58	919.30	916.35	919.79	0.000465	5.64	567.47	93.13	0.40
Outfall Channel	7500	3200.00	912.58	919.30	916.35	919.79	0.000466	5.64	567.46	93.13	0.40
Outfall Channel	7523	3200.00	911.82	919.34	916.19	919.80	0.000427	5.49	583.30	93.14	0.39
Outfall Channel	7523	3200.00	911.82	919.34	916.19	919.80	0.000427	5.49	583.29	93.14	0.39
Outfall Channel	7533	Bridge									
Outfall Channel	7543	3200.00	911.84	919.43	916.22	919.89	0.000410	5.42	590.61	93.30	0.38
Outfall Channel	7543	3200.00	911.84	919.43	916.22	919.89	0.000410	5.42	590.61	93.30	0.38

HEC-RAS Plan: Final(9/98) River: Bullard Wash Reach: Outfall Channel (Continued)

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Outfall Channel	7558	3200.00	912.65	919.42	916.43	919.91	0.000453	5.59	572.39	93.23	0.40
Outfall Channel	7558	3200.00	912.65	919.42	916.43	919.91	0.000453	5.59	572.38	93.23	0.40
Outfall Channel	7605	3200.00	912.70	919.44	916.44	919.93	0.000454	5.59	572.13	93.11	0.40
Outfall Channel	7605	3200.00	912.70	919.44	916.44	919.93	0.000454	5.59	572.13	93.11	0.40
Outfall Channel	7700	3200.00	912.81	919.47	916.58	919.98	0.000477	5.69	565.67	106.75	0.41
Outfall Channel	7700	3200.00	912.81	919.47	916.59	919.98	0.000477	5.69	565.67	106.75	0.41
Outfall Channel	7744	3200.00	914.81	917.48	918.40	920.70	0.039657	14.39	222.35	86.61	1.58
Outfall Channel	7744	3200.00	914.81	917.48	918.41	920.70	0.039662	14.39	222.34	86.61	1.58
Outfall Channel	7771.64	3200.00	916.00	918.71	919.58	921.77	0.037273	14.05	227.82	88.13	1.54
Outfall Channel	7771.64	3200.00	916.00	918.71	919.58	921.77	0.037278	14.05	227.81	88.13	1.54
Outfall Channel	7925.82*	3200.00	922.67	925.06	926.25	929.04	0.056647	16.01	199.91	87.18	1.86
Outfall Channel	7925.82*	3200.00	922.67	925.06	926.25	929.04	0.056627	16.01	199.93	87.18	1.86
Outfall Channel	8080	3200.00	929.34	932.41	932.92	934.77	0.024601	12.33	259.54	89.20	1.27
Outfall Channel	8080	3200.00	929.34	932.41	932.92	934.77	0.024603	12.33	259.54	89.20	1.27
Outfall Channel	8100	3200.00	930.20	933.73	933.73	935.35	0.014641	10.20	313.66	97.66	1.00
Outfall Channel	8100	3200.00	930.20	933.73	933.73	935.35	0.014641	10.20	313.66	97.66	1.00
Outfall Channel	8210	3200.00	929.33	935.30	933.80	936.03	0.002797	6.88	464.86	104.83	0.58
Outfall Channel	8210	3200.00	929.33	935.30	933.80	936.03	0.002797	6.88	464.86	104.83	0.58
Outfall Channel	8348.*	3200.00	929.50	935.74	933.95	936.39	0.002329	6.48	493.77	106.20	0.53
Outfall Channel	8348.*	3200.00	929.50	935.74	933.95	936.39	0.002329	6.48	493.77	106.20	0.53
Outfall Channel	8486.*	3200.00	929.66	936.10	934.12	936.70	0.002049	6.21	515.06	107.19	0.50
Outfall Channel	8486.*	3200.00	929.66	936.10	934.12	936.70	0.002049	6.21	515.06	107.19	0.50
Outfall Channel	8624.*	3200.00	929.83	936.41	934.29	936.97	0.001882	6.04	529.81	107.88	0.48
Outfall Channel	8624.*	3200.00	929.83	936.41	934.29	936.97	0.001882	6.04	529.81	107.88	0.48
Outfall Channel	8762.*	3200.00	929.99	936.69	934.45	937.23	0.001750	5.90	542.77	108.48	0.46
Outfall Channel	8762.*	3200.00	929.99	936.69	934.45	937.23	0.001750	5.90	542.77	108.48	0.46
Outfall Channel	8900	3200.00	930.16	936.94	934.62	937.46	0.001663	5.80	552.02	108.90	0.45
Outfall Channel	8900	3200.00	930.16	936.94	934.62	937.46	0.001663	5.80	552.02	108.90	0.45
Outfall Channel	9000	3200.00	930.29	937.09	934.77	937.64	0.001710	5.96	537.12	103.19	0.46
Outfall Channel	9000	3200.00	930.29	937.09	934.77	937.64	0.001710	5.96	537.12	103.19	0.46
Outfall Channel	9080	3200.00	930.38	937.24	934.86	937.78	0.001653	5.89	543.08	103.42	0.45
Outfall Channel	9080	3200.00	930.38	937.24	934.86	937.78	0.001653	5.89	543.08	103.42	0.45
Outfall Channel	9200	3200.00	930.55	937.44	935.03	937.97	0.001621	5.85	546.60	103.56	0.45
Outfall Channel	9200	3200.00	930.55	937.44	935.03	937.97	0.001621	5.85	546.60	103.56	0.45
Outfall Channel	9372	3200.00	930.74	937.77	935.21	938.24	0.001441	5.53	578.90	110.13	0.42
Outfall Channel	9372	3200.00	930.74	937.77	935.21	938.24	0.001441	5.53	578.90	110.13	0.42
Outfall Channel	9529.*	3200.00	930.93	938.00	935.38	938.47	0.001407	5.48	583.51	110.34	0.42
Outfall Channel	9529.*	3200.00	930.93	938.00	935.38	938.47	0.001407	5.48	583.51	110.34	0.42
Outfall Channel	9686.*	3200.00	931.12	938.22	935.58	938.68	0.001379	5.45	587.44	110.52	0.42
Outfall Channel	9686.*	3200.00	931.12	938.22	935.58	938.68	0.001379	5.45	587.44	110.52	0.42
Outfall Channel	9843.*	3200.00	931.31	938.44	935.77	938.90	0.001356	5.42	590.81	110.67	0.41
Outfall Channel	9843.*	3200.00	931.31	938.44	935.77	938.90	0.001356	5.42	590.81	110.67	0.41
Outfall Channel	10000	3200.00	931.50	938.66	935.96	939.11	0.001337	5.39	593.57	110.80	0.41
Outfall Channel	10000	3200.00	931.50	938.66	935.96	939.11	0.001337	5.39	593.57	110.80	0.41
Outfall Channel	10100	3200.00	931.62	938.77	936.10	939.26	0.001396	5.57	574.10	104.62	0.42
Outfall Channel	10100	3200.00	931.62	938.77	936.10	939.26	0.001396	5.57	574.10	104.62	0.42
Outfall Channel	10200	3200.00	931.74	938.92	936.22	939.39	0.001379	5.55	576.38	104.71	0.42
Outfall Channel	10200	3200.00	931.74	938.92	936.22	939.39	0.001379	5.55	576.38	104.71	0.42

HEC-RAS Plan: Final(9/98) River: Bullard Wash Reach: Outfall Channel (Continued)

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Outfall Channel	10300	3200.00	931.86	939.09	936.33	939.53	0.001283	5.32	601.72	111.16	0.40
Outfall Channel	10300	3200.00	931.86	939.09	936.33	939.53	0.001283	5.32	601.72	111.16	0.40
Outfall Channel	10430.*	3200.00	932.02	939.26	936.49	939.70	0.001278	5.31	602.47	111.20	0.40
Outfall Channel	10430.*	3200.00	932.02	939.26	936.49	939.70	0.001278	5.31	602.47	111.20	0.40
Outfall Channel	10560.*	3200.00	932.17	939.43	936.62	939.86	0.001266	5.29	604.44	111.29	0.40
Outfall Channel	10560.*	3200.00	932.17	939.43	936.62	939.86	0.001266	5.29	604.44	111.29	0.40
Outfall Channel	10690.*	3200.00	932.33	939.59	936.79	940.03	0.001263	5.29	604.95	111.31	0.40
Outfall Channel	10690.*	3200.00	932.33	939.59	936.79	940.03	0.001263	5.29	604.95	111.31	0.40
Outfall Channel	10820	3200.00	932.49	939.76	936.95	940.19	0.001260	5.29	605.42	111.33	0.40
Outfall Channel	10820	3200.00	932.49	939.76	936.95	940.19	0.001260	5.29	605.42	111.33	0.40
Outfall Channel	11000	3200.00	932.71	939.98	937.17	940.42	0.001255	5.28	606.17	111.36	0.40
Outfall Channel	11000	3200.00	932.71	939.98	937.17	940.42	0.001255	5.28	606.17	111.36	0.40
Outfall Channel	11100	3200.00	932.83	940.09	937.31	940.55	0.001318	5.47	585.11	105.04	0.41
Outfall Channel	11100	3200.00	932.83	940.09	937.31	940.55	0.001318	5.47	585.11	105.04	0.41
Outfall Channel	11200	3200.00	932.95	940.22	937.43	940.68	0.001309	5.46	586.48	105.09	0.41
Outfall Channel	11200	3200.00	932.95	940.22	937.43	940.68	0.001309	5.46	586.48	105.09	0.41
Outfall Channel	11300	3200.00	933.07	940.39	937.54	940.81	0.001223	5.23	611.40	111.60	0.39
Outfall Channel	11300	3200.00	933.07	940.39	937.54	940.81	0.001223	5.23	611.40	111.60	0.39
Outfall Channel	11425.*	3200.00	933.22	940.54	937.69	940.97	0.001221	5.23	611.73	111.61	0.39
Outfall Channel	11425.*	3200.00	933.22	940.54	937.69	940.97	0.001221	5.23	611.73	111.61	0.39
Outfall Channel	11550	3200.00	933.37	940.70	937.82	941.12	0.001220	5.23	612.02	111.63	0.39
Outfall Channel	11550	3200.00	933.37	940.70	937.82	941.12	0.001220	5.23	612.02	111.63	0.39
Outfall Channel	11735	3200.00	933.60	940.90	938.08	941.36	0.001286	5.43	589.83	105.22	0.40
Outfall Channel	11735	3200.00	933.60	940.90	938.08	941.36	0.001286	5.43	589.83	105.22	0.40
Outfall Channel	11883	3200.00	933.77	941.10	938.25	941.55	0.001271	5.40	592.17	105.31	0.40
Outfall Channel	11883	3200.00	933.77	941.10	938.25	941.55	0.001271	5.40	592.17	105.31	0.40
Outfall Channel	11932	3200.00	933.84	941.16	938.32	941.61	0.001276	5.41	591.35	105.28	0.40
Outfall Channel	11932	3200.00	933.84	941.16	938.32	941.61	0.001276	5.41	591.35	105.28	0.40
Outfall Channel	11943	3200.00	933.85	941.13	938.44	941.67	0.001481	5.89	543.54	92.44	0.43
Outfall Channel	11943	3200.00	933.85	941.13	938.42	941.67	0.001481	5.89	543.54	92.44	0.43
Outfall Channel	12195	3200.00	934.75	936.92	938.76	944.47	0.096977	22.04	145.19	83.52	2.95
Outfall Channel	12195	3200.00	934.75	936.92	938.75	944.47	0.097053	22.05	145.16	83.52	2.95
Outfall Channel	12198	3200.00	939.65	945.82	945.82	946.51	0.004752	7.95	639.60	375.21	0.94
Outfall Channel	12198	3200.00	939.65	945.82	945.82	946.51	0.004752	7.95	639.60	375.21	0.94
Outfall Channel	12200	3200.00	939.68	946.90	946.05	947.22	0.000625	5.41	1105.85	493.50	0.54
Outfall Channel	12200	3200.00	939.68	947.50	946.46	948.19	0.000895	6.66	480.67	130.00	0.61
Outfall Channel	12345	3200.00	940.96	946.92	946.61	947.43	0.001100	6.87	1038.35	626.70	0.61
Outfall Channel	12345	3200.00	940.96	947.87	946.65	948.37	0.000764	6.34	783.45	225.00	0.50
Outfall Channel	12445	3200.00	941.85	947.51	946.86	947.68	0.002032	4.15	1222.28	768.39	0.44
Outfall Channel	12445	3200.00	941.85	948.30	947.03	948.55	0.001695	4.43	885.24	300.00	0.41
Outfall Channel	12640	3200.00	942.50	947.85	946.69	947.98	0.001103	3.69	1321.56	839.61	0.34
Outfall Channel	12640	3200.00	942.50	948.67	946.67	948.76	0.000510	2.86	1377.62	415.00	0.24
Outfall Channel	13120	4906.00	943.70	948.89	948.87	949.66	0.009993	7.21	784.66	594.41	0.91
Outfall Channel	13120	4906.00	943.70	949.04	948.85	949.79	0.008510	6.99	725.39	365.00	0.85
Outfall Channel	13700	4906.00	948.50	952.80	951.68	952.97	0.003333	6.13	1818.94	873.00	0.58
Outfall Channel	13700	4906.00	948.50	953.80	951.76	954.04	0.002250	5.96	1430.22	350.00	0.50

Table 2a Corrected FIS Model Results (HEC-RAS Output Table for Upstream)

HEC-RAS Plan: Imported Pla River: RIVER-1 Reach: Reach-1

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	0	PF 1	850.00	910.50	912.36	911.55	912.38	0.002504	1.58	866.51	1270.75	0.31
Reach-1	0	PF 2	850.00	910.50	912.32	911.55	912.34	0.002904	1.65	817.50	1246.81	0.34
Reach-1	0.047	PF 1	850.00	910.00	912.59		912.60	0.000441	1.17	1606.16	1695.50	0.15
Reach-1	0.047	PF 2	850.00	910.00	912.58		912.59	0.000465	1.19	1576.49	1692.24	0.16
Reach-1	0.121	PF 1	850.00	910.00	912.79		912.80	0.000579	1.24	1374.50	1396.87	0.17
Reach-1	0.121	PF 2	850.00	910.00	912.78		912.79	0.000594	1.26	1361.64	1392.46	0.17
Reach-1	0.201	PF 1	850.00	910.00	913.08		913.10	0.000847	1.60	1033.95	1119.21	0.21
Reach-1	0.201	PF 2	850.00	910.00	913.07		913.09	0.000856	1.61	1029.72	1117.35	0.21
Reach-1	0.292	PF 1	850.00	910.50	913.42		913.43	0.000604	1.41	1148.82	942.52	0.18
Reach-1	0.292	PF 2	850.00	910.50	913.42		913.43	0.000606	1.41	1147.67	942.41	0.18
Reach-1	0.384	PF 1	850.00	911.00	913.70		913.71	0.000537	1.22	1489.86	1611.15	0.17
Reach-1	0.384	PF 2	850.00	911.00	913.70		913.71	0.000539	1.22	1488.88	1610.89	0.17
Reach-1	0.488	PF 1	850.00	912.00	914.02		914.03	0.000628	1.06	1451.11	1474.23	0.17
Reach-1	0.488	PF 2	850.00	912.00	914.02		914.03	0.000629	1.06	1450.84	1474.16	0.17
Reach-1	0.531	PF 1	850.00	912.80	914.18		914.19	0.000770	0.69	1386.50	1389.48	0.16
Reach-1	0.531	PF 2	850.00	912.80	914.18		914.19	0.000770	0.69	1386.33	1389.43	0.16
Reach-1	0.616	PF 1	4895.00	913.80	916.06		916.20	0.006906	3.43	1672.26	847.65	0.56
Reach-1	0.616	PF 2	4895.00	913.80	916.06		916.20	0.006904	3.43	1672.42	847.69	0.56
Reach-1	0.668	PF 1	4895.00	916.40	918.31	918.09	918.76	0.012589	7.47	961.29	670.00	1.05
Reach-1	0.668	PF 2	4895.00	916.40	918.31	918.09	918.76	0.012589	7.47	961.29	670.00	1.05
Reach-1	0.776	PF 1	4895.00	917.30	921.11		921.29	0.002242	4.62	1478.11	512.12	0.49
Reach-1	0.776	PF 2	4895.00	917.30	921.11		921.29	0.002242	4.62	1478.11	512.12	0.49
Reach-1	0.868	PF 1	4895.00	918.30	922.35		922.59	0.003164	5.60	1327.67	516.40	0.58
Reach-1	0.868	PF 2	4895.00	918.30	922.35		922.59	0.003164	5.60	1327.67	516.40	0.58
Reach-1	0.964	PF 1	4895.00	919.20	924.19		924.65	0.005133	7.45	1029.47	441.89	0.74
Reach-1	0.964	PF 2	4895.00	919.20	924.19		924.65	0.005133	7.45	1029.47	441.89	0.74
Reach-1	1.081	PF 1	2596.00	924.00	926.29		926.38	0.001228	2.83	1104.64	451.45	0.34
Reach-1	1.081	PF 2	2596.00	924.00	926.29		926.38	0.001228	2.83	1104.64	451.45	0.34
Reach-1	1.153	PF 1	2596.00	924.00	926.71		926.79	0.001031	2.73	1182.10	454.44	0.32
Reach-1	1.153	PF 2	2596.00	924.00	926.71		926.79	0.001031	2.73	1182.10	454.44	0.32
Reach-1	1.236	PF 1	2596.00	924.00	927.47	927.47	928.40	0.008052	8.85	420.99	244.77	0.92
Reach-1	1.236	PF 2	2596.00	924.00	927.47	927.47	928.40	0.008052	8.85	420.99	244.77	0.92
Reach-1	1.317	PF 1	2596.00	924.00	929.74	928.84	930.08	0.002184	5.55	688.87	302.90	0.50
Reach-1	1.317	PF 2	2596.00	924.00	929.74	928.84	930.08	0.002184	5.55	688.87	302.90	0.50
Reach-1	1.378	PF 1	2596.00	924.00	930.42		930.68	0.001714	5.15	812.49	373.22	0.45
Reach-1	1.378	PF 2	2596.00	924.00	930.42		930.68	0.001714	5.15	812.49	373.22	0.45
Reach-1	1.435	PF 1	2596.00	926.30	931.22	931.22	932.39	0.008008	8.77	317.63	163.51	0.92
Reach-1	1.435	PF 2	2596.00	926.30	931.22	931.22	932.39	0.008008	8.77	317.63	163.51	0.92
Reach-1	1.474	PF 1	2600.00	928.00	933.62	933.62	934.04	0.004478	8.08	955.25	1036.15	0.72
Reach-1	1.474	PF 2	2600.00	928.00	933.62	933.62	934.04	0.004478	8.08	955.25	1036.15	0.72
Reach-1	1.517	PF 1	2600.00	932.20	934.90		934.96	0.001199	2.57	1409.47	813.99	0.33
Reach-1	1.517	PF 2	2600.00	932.20	934.90		934.96	0.001199	2.57	1409.47	813.99	0.33
Reach-1	1.566	PF 1	2600.00	932.50	936.19	936.19	937.41	0.008066	9.13	325.61	149.81	0.94
Reach-1	1.566	PF 2	2600.00	932.50	936.19	936.19	937.41	0.008066	9.13	325.61	149.81	0.94
Reach-1	1.634	PF 1	2600.00	933.00	938.33		938.75	0.001964	6.27	651.20	237.11	0.50
Reach-1	1.634	PF 2	2600.00	933.00	938.33		938.75	0.001964	6.27	651.20	237.11	0.50
Reach-1	1.68	PF 1	2600.00	933.40	938.87		939.13	0.001238	5.21	878.37	343.35	0.40
Reach-1	1.68	PF 2	2600.00	933.40	938.87		939.13	0.001238	5.21	878.37	343.35	0.40
Reach-1	1.745	PF 1	2600.00	933.80	939.29		939.39	0.000475	3.27	1322.83	426.97	0.25
Reach-1	1.745	PF 2	2600.00	933.80	939.29		939.39	0.000475	3.27	1322.83	426.97	0.25
Reach-1	1.823	PF 1	2600.00	934.90	939.53		939.59	0.000462	2.72	1828.92	824.16	0.24

HEC-RAS Plan: Imported Pla River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1.823	PF 2	2600.00	934.90	939.53		939.59	0.000462	2.72	1828.92	824.16	0.24
Reach-1	1.893	PF 1	4899.00	936.10	939.80		939.94	0.001859	4.68	2029.72	1094.02	0.46
Reach-1	1.893	PF 2	4899.00	936.10	939.80		939.94	0.001859	4.68	2029.72	1094.02	0.46
Reach-1	1.941	PF 1	4899.00	937.90	939.99		940.18	0.004249	4.05	1404.32	704.56	0.60
Reach-1	1.941	PF 2	4899.00	937.90	939.99		940.18	0.004249	4.05	1404.32	704.56	0.60
Reach-1	1.988	PF 1	4899.00	938.20	940.18		940.36	0.003933	3.15	1446.28	708.13	0.55
Reach-1	1.988	PF 2	4899.00	938.20	940.18		940.36	0.003933	3.15	1446.28	708.13	0.55
Reach-1	2.058	PF 1	4899.00	938.40	941.34		941.48	0.002633	3.75	1684.71	773.52	0.49
Reach-1	2.058	PF 2	4899.00	938.40	941.34		941.48	0.002633	3.75	1684.71	773.52	0.49
Reach-1	2.185	PF 1	4899.00	939.00	942.91		943.25	0.005547	6.46	1106.85	508.65	0.74
Reach-1	2.185	PF 2	4899.00	939.00	942.91		943.25	0.005547	6.46	1106.85	508.65	0.74
Reach-1	2.297	PF 1	4899.00	939.40	943.70		943.73	0.000289	1.97	3868.78	1233.59	0.18
Reach-1	2.297	PF 2	4899.00	939.40	943.86		943.94	0.000453	2.55	2298.74	460.00	0.23
Reach-1	2.371	PF 1	4899.00	939.70	943.85		943.89	0.000516	2.52	3692.45	1551.55	0.24
Reach-1	2.371	PF 2	4899.00	939.70	944.10		944.32	0.002034	5.24	1417.60	420.00	0.49
Reach-1	2.435	PF 1	4899.00	939.90	944.07		944.17	0.001276	3.91	2788.19	1536.46	0.38
Reach-1	2.435	PF 2	4899.00	939.90	944.75		945.22	0.003046	6.85	1152.70	375.00	0.61
Reach-1	2.536	PF 1	4906.00	943.50	945.89	945.89	946.54	0.012230	9.46	1255.06	1026.94	1.11
Reach-1	2.536	PF 2	4906.00	943.50	946.77		947.28	0.004957	7.50	1100.09	400.00	0.74
Reach-1	2.68	PF 1	4906.00	945.20	949.26		949.46	0.001888	5.06	2243.93	1179.57	0.47
Reach-1	2.68	PF 2	4906.00	945.20	949.57		950.06	0.002917	6.65	1132.00	373.62	0.59
Reach-1	2.771	PF 1	4906.00	947.40	950.74		950.95	0.006043	7.41	1752.65	1115.07	0.80
Reach-1	2.771	PF 2	4906.00	947.40	951.56		952.02	0.006105	8.90	1087.96	345.00	0.84
Reach-1	2.883	PF 1	4906.00	948.50	952.99		953.14	0.002570	5.94	1985.00	902.92	0.55
Reach-1	2.883	PF 2	4906.00	948.50	953.80		954.05	0.002205	6.29	1429.56	350.00	0.52
Reach-1	2.977	PF 1	4915.00	949.90	954.37		954.77	0.003853	7.32	1510.78	893.03	0.67
Reach-1	2.977	PF 2	4915.00	949.90	954.94		955.58	0.003787	7.98	861.26	235.00	0.68
Reach-1	3.07	PF 1	4915.00	952.30	956.19		956.35	0.002659	5.18	2131.54	1131.05	0.54
Reach-1	3.07	PF 2	4915.00	952.30	956.94		957.29	0.003109	6.52	1277.87	390.00	0.60
Reach-1	3.167	PF 1	4432.00	953.90	957.42		957.54	0.002172	4.88	2100.81	1101.87	0.49
Reach-1	3.167	PF 2	4432.00	953.90	958.30		958.49	0.001845	5.32	1518.27	460.00	0.47
Reach-1	3.291	PF 1	4432.00	957.20	959.77		959.90	0.007162	5.06	1613.62	886.94	0.77
Reach-1	3.291	PF 2	4432.00	957.20	960.55	959.42	960.90	0.010148	7.35	973.65	343.00	0.95
Reach-1	3.376	PF 1	4432.00	958.30	961.86		961.93	0.003206	3.89	2213.43	1249.67	0.53
Reach-1	3.376	PF 2	4432.00	958.30	962.71		962.82	0.002332	4.34	1713.20	525.00	0.48
Reach-1	3.491	PF 1	4432.00	959.50	963.31		963.39	0.001876	4.10	2341.57	1076.86	0.44
Reach-1	3.491	PF 2	4432.00	959.50	964.05		964.23	0.002274	5.32	1474.81	390.00	0.51
Reach-1	3.602	PF 1	4438.00	961.90	964.75		964.98	0.003939	4.63	1517.80	818.98	0.49
Reach-1	3.602	PF 2	4438.00	961.90	965.48		965.76	0.002864	4.61	1133.84	330.00	0.43
Reach-1	3.702	PF 1	4438.00	963.40	966.84		967.01	0.003808	4.94	1861.28	1024.35	0.49
Reach-1	3.702	PF 2	4438.00	963.40	967.30		967.63	0.004527	5.90	1148.74	361.41	0.55
Reach-1	3.841	PF 1	4438.00	966.30	969.37		969.47	0.002974	3.84	2052.32	1021.86	0.42
Reach-1	3.841	PF 2	4438.00	966.30	970.33		970.59	0.003594	5.11	1204.16	407.13	0.48
Reach-1	3.978	PF 1	4438.00	967.90	971.37		971.51	0.002641	4.06	2134.86	1218.82	0.41
Reach-1	3.978	PF 2	4438.00	967.90	972.26		972.42	0.001846	3.95	1747.69	595.00	0.35
Reach-1	4.101	PF 1	4438.00	969.80	973.25		973.38	0.003132	4.25	2087.74	1138.45	0.44
Reach-1	4.101	PF 2	4438.00	969.80	973.87		974.19	0.004104	5.54	1143.47	345.00	0.52
Reach-1	4.237	PF 1	4438.00	971.30	975.17		975.31	0.002357	4.15	1993.36	921.30	0.39
Reach-1	4.237	PF 2	4438.00	971.30	976.09		976.35	0.002320	4.72	1225.35	295.00	0.40
Reach-1	4.356	PF 1	4438.00	972.60	976.62		976.75	0.002216	4.11	2058.45	903.21	0.38
Reach-1	4.356	PF 2	4438.00	972.60	977.57		977.86	0.002466	5.06	1176.23	270.00	0.42

HEC-RAS Plan: Imported Pla River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	4.496	PF 1	4438.00	974.40	978.31		978.49	0.002449	4.31	1812.55	809.93	0.40
Reach-1	4.496	PF 2	4438.00	974.40	979.22		979.45	0.001875	4.39	1313.65	310.00	0.36
Reach-1	4.625	PF 1	4446.00	978.10	980.55		980.82	0.005003	4.64	1304.83	786.64	0.53
Reach-1	4.625	PF 2	4446.00	978.10	981.04		981.46	0.004985	5.21	854.16	300.00	0.54
Reach-1	4.701	PF 1	4446.00	978.00	981.36		981.42	0.000678	2.02	2284.52	880.02	0.21
Reach-1	4.701	PF 2	4446.00	978.00	982.06		982.18	0.000860	2.74	1624.59	400.00	0.24
Reach-1	4.858	PF 1	4446.00	980.00	982.47		982.74	0.005838	4.20	1073.77	666.72	0.55
Reach-1	4.858	PF 2	4446.00	980.00	983.25		983.65	0.004514	5.05	879.71	300.00	0.52
Reach-1	5.009	PF 1	4446.00	982.00	985.65		985.80	0.002688	4.15	1814.88	814.53	0.41
Reach-1	5.009	PF 2	4446.00	982.00	986.26		986.56	0.003011	4.94	1104.90	285.00	0.45
Reach-1	5.153	PF 1	4446.00	984.30	987.91		988.08	0.003325	4.48	1779.95	910.89	0.45
Reach-1	5.153	PF 2	4446.00	984.30	988.71		989.03	0.003451	5.25	1083.74	290.00	0.47
Reach-1	5.282	PF 1	4446.00	985.50	989.49		989.56	0.001511	3.41	2736.33	1306.77	0.32
Reach-1	5.282	PF 2	4446.00	985.50	990.33		990.45	0.001362	3.72	1761.00	400.00	0.31
Reach-1	5.43	PF 1	4446.00	988.00	991.24	990.82	992.27	0.008132	8.12	547.30	175.60	0.81
Reach-1	5.43	PF 2	4446.00	988.00	991.77	990.81	992.52	0.004841	6.95	639.51	174.00	0.64
Reach-1	5.445		Bridge									
Reach-1	5.46	PF 1	5319.00	988.00	993.14	991.18	993.70	0.002472	5.99	888.21	183.56	0.48
Reach-1	5.46	PF 2	5319.00	988.00	993.25	991.17	993.80	0.002295	5.93	896.76	174.00	0.46
Reach-1	5.563	PF 1	5319.00	988.50	994.17		994.20	0.000291	1.92	5528.35	2052.22	0.15
Reach-1	5.563	PF 2	5319.00	988.50	994.44		994.58	0.000755	3.16	1924.78	350.00	0.24
Reach-1	5.727	PF 1	4662.00	991.00	994.64		994.77	0.002851	3.83	2241.28	1398.90	0.38
Reach-1	5.727	PF 2	4662.00	991.00	995.45		995.69	0.002764	4.38	1281.88	352.41	0.39
Reach-1	5.84	PF 1	4662.00	993.40	996.48		996.61	0.003435	3.94	2117.04	1350.61	0.41
Reach-1	5.84	PF 2	4662.00	993.40	997.23		997.49	0.003367	4.55	1243.71	369.23	0.42
Reach-1	5.96	PF 1	4662.00	995.90	998.61		998.71	0.003270	3.42	2304.32	1419.12	0.39
Reach-1	5.96	PF 2	4662.00	995.90	999.37		999.56	0.003247	4.06	1433.51	440.00	0.40
Reach-1	6.086	PF 1	4662.00	998.30	1001.12		1001.24	0.004343	3.87	2133.55	1469.05	0.44
Reach-1	6.086	PF 2	4662.00	998.30	1001.80		1002.02	0.004118	4.45	1379.15	500.00	0.45
Reach-1	6.217	PF 1	4662.00	1000.10	1003.08		1003.14	0.001839	2.87	2894.72	1564.36	0.30
Reach-1	6.217	PF 2	4662.00	1000.10	1003.65		1003.75	0.001661	3.07	2058.51	630.00	0.29
Reach-1	6.32	PF 1	4662.00	1000.90	1004.09		1004.16	0.001907	2.98	2785.03	1490.77	0.30
Reach-1	6.32	PF 2	4662.00	1000.90	1004.60		1004.70	0.001791	3.20	2022.31	650.00	0.30
Reach-1	6.414	PF 1	4662.00	1002.60	1005.33		1005.42	0.003353	3.43	2506.83	1826.47	0.39
Reach-1	6.414	PF 2	4662.00	1002.60	1005.82		1006.00	0.003774	4.12	1546.22	600.00	0.43
Reach-1	6.509	PF 1	4662.00	1004.40	1006.71		1006.75	0.002015	2.45	3268.61	2554.36	0.30
Reach-1	6.509	PF 2	4662.00	1004.40	1007.61		1007.78	0.003225	3.93	1528.56	510.00	0.40
Reach-1	6.627	PF 1	4662.00	1006.80	1009.19	1009.12	1009.58	0.015080	6.25	1248.98	1460.12	0.80
Reach-1	6.627	PF 2	4662.00	1006.80	1010.14		1010.43	0.005587	4.94	1148.00	400.00	0.51
Reach-1	6.674	PF 1	4662.00	1008.50	1012.43	1012.43	1013.02	0.007806	6.99	1227.82	1211.19	0.70
Reach-1	6.674	PF 2	4662.00	1008.50	1012.30	1012.30	1013.40	0.012970	8.75	645.03	337.64	0.89
Reach-1	6.864	PF 1	4662.00	1011.00	1013.90		1013.91	0.000366	1.35	7820.05	5129.38	0.15
Reach-1	6.864	PF 2	4662.00	1011.00	1014.61		1014.63	0.000400	1.66	5733.87	2590.00	0.16
Reach-1	6.877	PF 1	4703.00	1011.00	1013.93		1013.95	0.000933	2.05	5531.09	4134.73	0.23
Reach-1	6.877	PF 2	4703.00	1011.00	1014.64		1014.66	0.000505	1.79	5451.83	2550.00	0.18
Reach-1	7.045	PF 1	4703.00	1011.10	1014.11		1014.12	0.000229	1.04	8965.03	4533.35	0.13
Reach-1	7.045	PF 2	4703.00	1011.10	1014.79		1014.80	0.000248	1.31	6467.12	2216.69	0.14
Reach-1	7.124	PF 1	4088.00	1011.60	1014.27		1014.28	0.000862	1.73	5009.17	3714.90	0.24
Reach-1	7.124	PF 2	4088.00	1011.60	1014.96		1014.98	0.000915	2.12	3447.26	1449.28	0.25
Reach-1	7.267	PF 1	4088.00	1013.60	1015.44		1015.49	0.003824	2.71	2424.90	2043.47	0.46

HEC-RAS Plan: Imported Pla River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	7.267	PF 2	4088.00	1013.60	1016.21		1016.30	0.004305	3.84	1816.42	1010.84	0.53
Reach-1	7.407	PF 1	4088.00	1016.10	1017.64		1017.68	0.002353	1.72	2644.34	1647.39	0.35
Reach-1	7.407	PF 2	4088.00	1016.10	1018.51		1018.57	0.002294	2.31	2153.01	946.34	0.37
Reach-1	7.552	PF 1	4088.00	1018.10	1020.17	1019.53	1020.24	0.005124	4.45	2445.99	2300.92	0.59
Reach-1	7.552	PF 2	4088.00	1018.10	1020.93		1021.08	0.004934	5.54	1524.51	700.00	0.61
Reach-1	7.67	PF 1	4088.00	1018.20	1022.13		1022.18	0.002102	4.29	3126.94	2276.88	0.42
Reach-1	7.67	PF 2	4088.00	1018.20	1022.99		1023.13	0.002327	5.26	1690.10	540.00	0.46
Reach-1	7.799	PF 1	4088.00	1019.20	1023.38		1023.44	0.001644	4.13	2959.79	1708.07	0.38
Reach-1	7.799	PF 2	4088.00	1019.20	1024.21		1024.31	0.001337	4.26	1998.05	550.00	0.35
Reach-1	7.924	PF 1	4088.00	1021.10	1024.78		1024.85	0.002864	4.67	2540.20	1706.95	0.48
Reach-1	7.924	PF 2	4088.00	1021.10	1025.39		1025.52	0.002650	5.09	1704.56	600.00	0.48
Reach-1	7.977	PF 1	4121.00	1021.40	1027.07	1027.07	1027.44	0.000660	9.33	2423.37	2341.04	0.69
Reach-1	7.977	PF 2	4121.00	1021.40	1027.62	1027.62	1028.26	0.000788	10.85	1462.32	750.00	0.77
Reach-1	7.98		Culvert									
Reach-1	7.983	PF 1	4121.00	1021.60	1027.25	1027.06	1027.46	0.000453	7.72	2862.85	2502.32	0.57
Reach-1	7.983	PF 2	4121.00	1021.60	1027.73	1027.60	1028.26	0.000702	10.14	1539.72	750.00	0.72
Reach-1	8.069	PF 1	4121.00	1024.00	1027.74		1027.83	0.001255	3.60	3044.73	1814.69	0.33
Reach-1	8.069	PF 2	4121.00	1024.00	1028.64		1028.76	0.001009	3.73	1857.84	455.00	0.31
Reach-1	8.169	PF 1	4121.00	1024.60	1028.74		1028.90	0.003697	6.18	2076.39	1380.15	0.57
Reach-1	8.169	PF 2	4121.00	1024.60	1029.42		1029.78	0.004173	7.35	1078.17	295.00	0.62
Reach-1	8.292	PF 1	4121.00	1026.20	1030.98		1031.16	0.003257	6.18	2184.05	1450.81	0.54
Reach-1	8.292	PF 2	4121.00	1026.20	1031.85		1032.20	0.003318	7.09	1156.70	305.00	0.56
Reach-1	8.364	PF 1	4121.00	1027.40	1032.31		1032.56	0.003911	6.64	1975.01	1430.84	0.59
Reach-1	8.364	PF 2	4121.00	1027.40	1033.10		1033.39	0.002788	6.32	1284.89	360.00	0.51
Reach-1	8.468	PF 1	4121.00	1029.60	1034.57		1034.90	0.005866	7.79	1981.00	2079.64	0.71
Reach-1	8.468	PF 2	4121.00	1029.60	1034.87		1035.26	0.005319	7.81	1438.05	910.00	0.68
Reach-1	8.544	PF 1	4183.00	1034.50	1036.29		1036.36	0.004257	3.82	2738.94	2835.15	0.53
Reach-1	8.544	PF 2	4183.00	1034.50	1036.85		1037.08	0.006533	5.77	1620.12	1245.00	0.69
Reach-1	8.636	PF 1	4183.00	1036.10	1038.13		1038.19	0.006139	4.23	2519.34	2730.43	0.62
Reach-1	8.636	PF 2	4183.00	1036.10	1038.99		1039.09	0.004328	4.73	1896.81	1064.54	0.55
Reach-1	8.726	PF 1	4183.00	1037.40	1040.35		1040.41	0.003659	4.11	3033.96	3052.97	0.51
Reach-1	8.726	PF 2	4183.00	1037.40	1041.10		1041.28	0.004848	5.69	1642.80	892.33	0.60
Reach-1	8.848	PF 1	4183.00	1040.60	1043.58		1043.72	0.011435	6.20	1754.61	2224.48	0.86
Reach-1	8.848	PF 2	4183.00	1040.60	1044.46		1044.69	0.007781	6.29	1342.70	818.57	0.74
Reach-1	8.965	PF 1	4183.00	1042.70	1046.32		1046.38	0.002254	3.93	2839.08	1935.31	0.42
Reach-1	8.965	PF 2	4183.00	1042.70	1047.05		1047.21	0.002512	4.85	1523.48	450.00	0.46
Reach-1	9.034	PF 1	4183.00	1043.40	1047.27		1047.42	0.003495	5.31	2016.73	1304.08	0.53
Reach-1	9.034	PF 2	4183.00	1043.40	1048.04		1048.39	0.003901	6.37	1030.83	263.00	0.57
Reach-1	9.095	PF 1	4243.00	1042.30	1049.12	1049.12	1049.87	0.000458	8.79	1586.01	1169.01	0.59
Reach-1	9.095	PF 2	4243.00	1042.30	1048.99	1048.99	1049.94	0.000550	9.52	1186.24	600.00	0.65
Reach-1	9.0975		Culvert									
Reach-1	9.1	PF 1	4243.00	1042.50	1049.11	1049.11	1049.88	0.000491	8.92	1569.77	1165.79	0.61
Reach-1	9.1	PF 2	4243.00	1042.50	1049.12	1049.02	1049.95	0.000518	9.17	1250.96	600.00	0.63
Reach-1	9.189	PF 1	4243.00	1047.90	1050.36		1050.49	0.002199	3.81	1678.20	1067.75	0.46
Reach-1	9.189	PF 2	4243.00	1047.90	1050.29		1050.66	0.005056	5.62	958.87	515.00	0.70
Reach-1	9.292	PF 1	3693.00	1051.40	1052.60	1052.52	1052.97	0.017099	6.23	804.64	897.99	1.13
Reach-1	9.292	PF 2	3693.00	1051.40	1053.33		1053.72	0.006518	5.62	767.27	430.00	0.77
Reach-1	9.396	PF 1	3693.00	1054.20	1055.92		1056.00	0.002581	3.25	1721.91	1433.52	0.47
Reach-1	9.396	PF 2	3693.00	1054.20	1056.18		1056.38	0.003564	4.24	1074.77	570.00	0.57
Reach-1	9.493	PF 1	3693.00	1056.10	1057.72	1057.35	1057.89	0.005829	4.40	1254.67	1205.54	0.69

HEC-RAS Plan: Imported Pla River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	9.493	PF 2	3693.00	1056.10	1058.12		1058.32	0.004221	4.47	1107.81	715.00	0.61
Reach-1	9.544	PF 1	3693.00	1057.50	1058.85		1058.93	0.003818	3.26	1662.34	1590.97	0.55
Reach-1	9.544	PF 2	3693.00	1057.50	1059.11		1059.25	0.004149	3.90	1259.90	865.00	0.59
Reach-1	9.641	PF 1	3113.00	1057.00	1059.71		1059.80	0.002703	4.37	1419.47	1044.66	0.52
Reach-1	9.641	PF 2	3113.00	1057.00	1059.92		1060.03	0.002464	4.42	1211.31	656.00	0.50
Reach-1	9.741	PF 1	3113.00	1057.20	1060.27		1060.31	0.000531	2.26	2269.96	1352.34	0.24
Reach-1	9.741	PF 2	3113.00	1057.20	1060.48		1060.54	0.000546	2.40	1891.43	925.00	0.24
Reach-1	9.807	PF 1	3113.00	1057.30	1060.44		1060.49	0.000506	2.25	2287.31	1323.67	0.23
Reach-1	9.807	PF 2	3113.00	1057.30	1060.66		1060.70	0.000425	2.17	2093.09	923.00	0.22
Reach-1	9.898	PF 1	762.00	1057.50	1060.68		1060.70	0.000167	1.27	1185.23	887.82	0.14
Reach-1	9.898	PF 2	762.00	1057.50	1060.86		1060.87	0.000116	1.10	1335.29	871.00	0.12
Reach-1	9.994	PF 1	762.00	1057.70	1060.72		1060.99	0.002148	4.15	183.79	83.57	0.49
Reach-1	9.994	PF 2	762.00	1057.70	1060.85		1061.09	0.001812	3.91	194.89	85.13	0.46
Reach-1	10.108	PF 1	762.00	1058.10	1062.01		1062.35	0.002320	4.67	163.00	65.17	0.52
Reach-1	10.108	PF 2	762.00	1058.10	1062.00		1062.34	0.002328	4.68	162.75	65.08	0.52
Reach-1	10.197	PF 1	762.00	1058.40	1062.93		1063.11	0.001154	3.42	222.58	84.48	0.37
Reach-1	10.197	PF 2	762.00	1058.40	1062.92		1063.11	0.001157	3.43	222.38	84.44	0.37
Reach-1	10.269	PF 1	800.00	1058.60	1063.28		1063.46	0.000760	3.40	242.05	78.79	0.32
Reach-1	10.269	PF 2	800.00	1058.60	1063.28		1063.46	0.000761	3.41	241.94	78.77	0.32
Reach-1	10.328	PF 1	800.00	1058.80	1063.49		1063.77	0.001097	4.21	194.29	57.47	0.38
Reach-1	10.328	PF 2	800.00	1058.80	1063.49		1063.77	0.001098	4.22	194.23	57.47	0.38
Reach-1	10.419	PF 1	800.00	1059.10	1063.99		1064.28	0.001013	4.29	190.41	49.98	0.37
Reach-1	10.419	PF 2	800.00	1059.10	1063.99		1064.28	0.001014	4.29	190.37	49.98	0.37
Reach-1	10.493	PF 1	800.00	1059.30	1064.35		1064.38	0.000078	1.28	652.22	160.00	0.11
Reach-1	10.493	PF 2	800.00	1059.30	1064.35		1064.38	0.000078	1.28	652.14	160.00	0.11
Reach-1	10.587	PF 1	800.00	1059.60	1064.39		1064.44	0.000170	1.78	507.27	212.85	0.15
Reach-1	10.587	PF 2	800.00	1059.60	1064.39		1064.44	0.000170	1.78	507.17	212.77	0.15
Reach-1	10.639	PF 1	800.00	1059.80	1064.45		1064.49	0.000178	1.69	537.73	198.52	0.15
Reach-1	10.639	PF 2	800.00	1059.80	1064.45		1064.49	0.000178	1.69	537.63	198.48	0.15
Reach-1	10.709	PF 1	1380.00	1060.00	1064.53		1064.65	0.000620	2.86	534.61	192.59	0.27
Reach-1	10.709	PF 2	1380.00	1060.00	1064.52		1064.65	0.000620	2.86	534.54	192.58	0.27
Reach-1	10.804	PF 1	1380.00	1062.00	1064.99		1065.35	0.003928	4.90	291.34	167.10	0.61
Reach-1	10.804	PF 2	1380.00	1062.00	1064.99		1065.35	0.003929	4.90	291.32	167.10	0.61
Reach-1	10.889	PF 1	1380.00	1064.00	1066.80		1067.19	0.004192	5.00	284.34	167.98	0.63
Reach-1	10.889	PF 2	1380.00	1064.00	1066.80		1067.19	0.004192	5.00	284.34	167.98	0.63
Reach-1	10.946	PF 1	1380.00	1065.70	1068.22		1068.66	0.005720	5.36	258.00	157.57	0.72
Reach-1	10.946	PF 2	1380.00	1065.70	1068.22		1068.66	0.005720	5.36	258.00	157.57	0.72
Reach-1	10.995	PF 1	1380.00	1067.20	1069.85		1070.40	0.007576	5.92	232.94	144.38	0.82
Reach-1	10.995	PF 2	1380.00	1067.20	1069.85		1070.40	0.007576	5.92	232.94	144.38	0.82
Reach-1	11.067	PF 1	1380.00	1067.60	1071.16		1071.29	0.001044	3.13	587.09	319.26	0.33
Reach-1	11.067	PF 2	1380.00	1067.60	1071.29		1071.52	0.001498	3.83	364.57	133.00	0.40
Reach-1	11.147	PF 1	1380.00	1067.80	1071.54		1071.64	0.000662	2.72	778.20	529.72	0.27
Reach-1	11.147	PF 2	1380.00	1067.80	1071.83		1071.99	0.000851	3.22	436.98	136.00	0.31
Reach-1	11.228	PF 1	1380.00	1067.90	1071.84		1071.92	0.000647	2.56	901.06	699.30	0.27
Reach-1	11.228	PF 2	1380.00	1067.90	1072.20		1072.36	0.000889	3.21	443.24	145.00	0.31
Reach-1	11.306	PF 1	1380.00	1068.80	1072.14		1072.29	0.001171	3.32	562.46	355.36	0.35
Reach-1	11.306	PF 2	1380.00	1068.80	1072.58		1072.73	0.000926	3.22	457.21	150.00	0.32
Reach-1	11.416	PF 1	1380.00	1070.20	1072.89		1073.01	0.001359	3.17	614.03	430.31	0.37
Reach-1	11.416	PF 2	1380.00	1070.20	1073.23		1073.45	0.001644	3.75	368.22	140.00	0.41
Reach-1	11.51	PF 1	1380.00	1071.50	1073.51		1073.56	0.000936	2.25	883.10	668.53	0.29
Reach-1	11.51	PF 2	1380.00	1071.50	1074.02		1074.16	0.001207	2.97	464.03	200.00	0.34

HEC-RAS Plan: Imported Pla River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	11.58	PF 1	1380.00	1072.00	1074.49	1074.49	1075.21	0.011294	6.85	205.23	154.41	0.99
Reach-1	11.58	PF 2	1380.00	1072.00	1074.62	1074.49	1075.22	0.008375	6.25	225.98	153.00	0.87
Reach-1	11.676	PF 1	1377.00	1072.10	1076.16		1076.29	0.000803	2.99	486.08	184.26	0.30
Reach-1	11.676	PF 2	1377.00	1072.10	1076.12		1076.26	0.000840	3.03	478.53	181.84	0.30
Reach-1	11.775	PF 1	1377.00	1072.20	1076.56		1076.70	0.000750	3.10	531.91	217.49	0.29
Reach-1	11.775	PF 2	1377.00	1072.20	1076.53		1076.68	0.000771	3.13	526.33	216.22	0.30
Reach-1	11.867	PF 1	1377.00	1072.30	1076.93		1077.10	0.000842	3.48	508.37	228.78	0.32
Reach-1	11.867	PF 2	1377.00	1072.30	1076.91		1077.08	0.000857	3.50	504.53	227.44	0.32
Reach-1	11.97	PF 1	1377.00	1072.40	1077.33		1077.44	0.000470	2.64	584.54	179.99	0.24
Reach-1	11.97	PF 2	1377.00	1072.40	1077.32		1077.43	0.000474	2.65	582.56	179.82	0.24
Reach-1	12.064	PF 1	1377.00	1072.50	1077.55		1077.62	0.000282	2.20	763.32	290.98	0.19
Reach-1	12.064	PF 2	1377.00	1072.50	1077.54		1077.61	0.000285	2.21	760.66	290.26	0.19
Reach-1	12.15	PF 1	1377.00	1072.50	1077.68		1077.73	0.000229	2.02	828.50	279.51	0.17
Reach-1	12.15	PF 2	1377.00	1072.50	1077.67		1077.73	0.000231	2.03	826.22	279.45	0.17
Reach-1	12.244	PF 1	1377.00	1072.60	1077.79		1077.85	0.000217	1.89	830.91	262.93	0.16
Reach-1	12.244	PF 2	1377.00	1072.60	1077.79		1077.84	0.000218	1.90	829.02	262.86	0.16
Reach-1	12.345	PF 1	1377.00	1072.60	1077.90		1077.95	0.000165	1.71	904.34	253.79	0.14
Reach-1	12.345	PF 2	1377.00	1072.60	1077.90		1077.94	0.000166	1.71	902.70	253.71	0.14
Reach-1	12.439	PF 1	1377.00	1072.70	1077.99		1078.02	0.000144	1.65	993.37	284.73	0.14
Reach-1	12.439	PF 2	1377.00	1072.70	1077.98		1078.02	0.000145	1.66	991.63	284.62	0.14
Reach-1	12.534	PF 1	1377.00	1072.70	1078.06		1078.09	0.000132	1.60	1049.80	285.44	0.13
Reach-1	12.534	PF 2	1377.00	1072.70	1078.05		1078.09	0.000133	1.60	1048.16	285.40	0.13
Reach-1	12.633	PF 1	1000.00	1079.40	1080.12	1080.12	1080.30	0.017648	4.10	314.24	814.00	0.92
Reach-1	12.633	PF 2	1000.00	1079.40	1080.12	1080.12	1080.30	0.017648	4.10	314.24	814.00	0.92
Reach-1	12.7	PF 1	1000.00	1078.70	1080.74		1080.74	0.000311	0.91	1731.40	1097.68	0.13
Reach-1	12.7	PF 2	1000.00	1078.70	1080.74		1080.74	0.000311	0.91	1731.40	1097.68	0.13
Reach-1	12.758	PF 1	1000.00	1078.90	1080.97		1081.02	0.001952	2.37	757.44	673.16	0.32
Reach-1	12.758	PF 2	1000.00	1078.90	1080.97		1081.02	0.001952	2.37	757.44	673.16	0.32
Reach-1	12.867	PF 1	1000.00	1079.40	1081.86		1081.89	0.001203	2.15	874.65	669.94	0.26
Reach-1	12.867	PF 2	1000.00	1079.40	1081.86		1081.89	0.001203	2.15	874.65	669.94	0.26
Reach-1	13.044	PF 1	1000.00	1080.70	1082.85		1082.87	0.001070	1.76	994.72	873.39	0.24
Reach-1	13.044	PF 2	1000.00	1080.70	1082.85		1082.87	0.001070	1.76	994.72	873.39	0.24
Reach-1	13.161	PF 1	1000.00	1082.30	1083.94		1084.01	0.004104	2.86	651.65	801.50	0.44
Reach-1	13.161	PF 2	1000.00	1082.30	1083.94		1084.01	0.004104	2.86	651.65	801.50	0.44
Reach-1	13.248	PF 1	1440.00	1084.30	1085.87		1085.92	0.004305	2.83	953.87	1007.82	0.45
Reach-1	13.248	PF 2	1440.00	1084.30	1086.49		1086.72	0.007816	4.66	423.31	255.24	0.63
Reach-1	13.349	PF 1	1440.00	1084.50	1087.10		1087.13	0.001383	2.04	1319.65	1017.10	0.27
Reach-1	13.349	PF 2	1440.00	1084.50	1088.07		1088.14	0.001321	2.62	715.46	255.00	0.28
Reach-1	13.427	PF 1	1440.00	1085.80	1087.82		1087.84	0.002266	1.78	1147.35	872.86	0.31
Reach-1	13.427	PF 2	1440.00	1085.80	1088.78		1088.84	0.002236	2.42	728.12	310.00	0.33
Reach-1	13.556	PF 1	1440.00	1089.40	1090.54	1090.29	1090.65	0.020184	3.10	579.72	843.31	0.54
Reach-1	13.556	PF 2	1440.00	1089.40	1090.97		1091.06	0.008389	2.51	606.57	450.00	0.37
Reach-1	13.667	PF 1	1440.00	1091.50	1093.33		1093.35	0.002154	1.34	1456.71	1686.75	0.19
Reach-1	13.667	PF 2	1440.00	1091.50	1093.60		1093.64	0.002850	1.71	870.81	493.93	0.22
Reach-1	13.782	PF 1	1440.00	1095.50	1095.80	1095.53	1095.83	0.010993	0.64	1093.29	2630.71	0.29
Reach-1	13.782	PF 2	1440.00	1095.50	1096.81	1096.49	1096.89	0.012362	2.55	671.12	864.44	0.42
Reach-1	13.902	PF 1	1440.00	1097.30	1098.50		1098.51	0.002389	1.14	1577.99	2018.72	0.19
Reach-1	13.902	PF 2	1440.00	1097.30	1099.40		1099.44	0.002024	1.54	971.49	500.00	0.19
Reach-1	14.023	PF 1	1440.00	1099.30	1100.61	1100.12	1100.64	0.005324	1.76	1042.62	1285.37	0.28
Reach-1	14.023	PF 2	1440.00	1099.30	1101.61		1101.78	0.008370	3.25	442.70	200.00	0.39

Table 2b Corrected FIS Model Results (HEC-RAS Output Table for Downstream)

HEC-RAS Plan: Phase1 River: Bullard Wash Reach: Outfall Channel

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Outfall Channel	2500	PF#1	3200.00	900.69	906.58	904.30	907.20	0.002001	6.33	505.71	91.78	0.48
Outfall Channel	2500	PF#2	3200.00	900.69	906.58	904.30	907.20	0.002001	6.33	505.71	91.78	0.48
Outfall Channel	2660	PF#1	3200.00	901.02	906.90	904.63	907.52	0.002012	6.34	504.81	91.76	0.48
Outfall Channel	2660	PF#2	3200.00	901.02	906.90	904.63	907.52	0.002013	6.34	504.75	91.76	0.48
Outfall Channel	2860.56	PF#1	3200.00	901.42	907.30	905.03	907.93	0.002008	6.33	505.18	91.76	0.48
Outfall Channel	2860.56	PF#2	3200.00	901.42	907.30	905.03	907.92	0.002008	6.34	505.13	91.76	0.48
Outfall Channel	2877.74	PF#1	3200.00	901.45	906.45	906.39	908.87	0.003533	12.49	256.16	51.29	0.99
Outfall Channel	2877.74	PF#2	3200.00	901.45	906.45	906.39	908.87	0.003535	12.49	256.12	51.29	0.99
Outfall Channel	2901.4		Culvert									
Outfall Channel	2901.49	PF#1	3200.00	901.50	909.45	906.43	910.41	0.000565	7.85	407.69	51.34	0.49
Outfall Channel	2901.49	PF#2	3200.00	901.50	909.45	906.43	910.41	0.000565	7.85	407.69	51.34	0.49
Outfall Channel	2911	PF#1	3200.00	901.97	909.93	906.59	910.52	0.002140	6.19	517.18	76.95	0.42
Outfall Channel	2911	PF#2	3200.00	901.97	909.93	906.59	910.52	0.002140	6.19	517.18	76.95	0.42
Outfall Channel	2995.26	PF#1	3200.00	906.15	910.46	910.46	912.42	0.014008	11.25	284.43	72.42	1.00
Outfall Channel	2995.26	PF#2	3200.00	906.15	910.46	910.46	912.42	0.014008	11.25	284.43	72.42	1.00
Outfall Channel	3002.33	PF#1	3200.00	906.48	910.82	910.82	913.01	0.004133	11.87	269.54	62.12	1.00
Outfall Channel	3002.33	PF#2	3200.00	906.48	910.82	910.82	913.01	0.004133	11.87	269.54	62.12	1.00
Outfall Channel	3049.67	PF#1	3200.00	906.56	911.58	910.90	913.22	0.002633	10.26	311.85	62.14	0.81
Outfall Channel	3049.67	PF#2	3200.00	906.56	911.58	910.90	913.22	0.002633	10.26	311.85	62.14	0.81
Outfall Channel	3064.67	PF#1	3200.00	906.58	911.65	910.92	913.26	0.002562	10.17	314.63	62.14	0.80
Outfall Channel	3064.67	PF#2	3200.00	906.58	911.65	910.92	913.26	0.002562	10.17	314.63	62.14	0.80
Outfall Channel	3088.94	PF#1	3200.00	906.62	912.81	910.65	913.55	0.000767	6.88	464.88	82.29	0.51
Outfall Channel	3088.94	PF#2	3200.00	906.62	912.81	910.65	913.55	0.000767	6.88	464.88	82.29	0.51
Outfall Channel	3141	PF#1	3200.00	906.70	912.84	910.74	913.59	0.000800	6.98	458.75	82.15	0.52
Outfall Channel	3141	PF#2	3200.00	906.70	912.84	910.74	913.59	0.000800	6.98	458.75	82.15	0.52
Outfall Channel	3266	PF#1	3200.00	906.90	912.92	910.93	913.71	0.000857	7.13	448.92	81.90	0.54
Outfall Channel	3266	PF#2	3200.00	906.90	912.92	910.93	913.71	0.000857	7.13	448.92	81.90	0.54
Outfall Channel	3330	PF#1	3200.00	907.00	913.25	910.70	913.78	0.000544	5.84	547.69	98.51	0.44
Outfall Channel	3330	PF#2	3200.00	907.00	913.25	910.70	913.78	0.000544	5.84	547.69	98.51	0.44
Outfall Channel	3372	PF#1	3200.00	907.06	913.35	910.61	913.82	0.001435	5.49	582.78	105.31	0.41
Outfall Channel	3372	PF#2	3200.00	907.06	913.35	910.61	913.82	0.001435	5.49	582.78	105.31	0.41
Outfall Channel	3562.61*	PF#1	3200.00	907.34	913.62	910.89	914.09	0.001440	5.50	582.09	105.29	0.41
Outfall Channel	3562.61*	PF#2	3200.00	907.34	913.62	910.89	914.09	0.001440	5.50	582.09	105.29	0.41
Outfall Channel	3753.23*	PF#1	3200.00	907.62	913.90	911.17	914.37	0.001444	5.50	581.51	105.26	0.41
Outfall Channel	3753.23*	PF#2	3200.00	907.62	913.90	911.17	914.37	0.001444	5.50	581.51	105.26	0.41
Outfall Channel	3943.84*	PF#1	3200.00	907.89	914.17	911.44	914.64	0.001440	5.50	581.94	105.23	0.41
Outfall Channel	3943.84*	PF#2	3200.00	907.89	914.17	911.44	914.64	0.001440	5.50	581.94	105.23	0.41
Outfall Channel	4134.46*	PF#1	3200.00	908.17	914.45	911.72	914.92	0.001445	5.50	581.38	105.21	0.41
Outfall Channel	4134.46*	PF#2	3200.00	908.17	914.45	911.72	914.92	0.001445	5.50	581.38	105.21	0.41
Outfall Channel	4325.07*	PF#1	3200.00	908.45	914.72	912.00	915.19	0.001448	5.51	580.89	105.19	0.41
Outfall Channel	4325.07*	PF#2	3200.00	908.45	914.72	912.00	915.19	0.001448	5.51	580.89	105.19	0.41
Outfall Channel	4515.69*	PF#1	3200.00	908.73	915.00	912.28	915.47	0.001451	5.51	580.49	105.18	0.41
Outfall Channel	4515.69*	PF#2	3200.00	908.73	915.00	912.28	915.47	0.001451	5.51	580.49	105.18	0.41
Outfall Channel	4706.30*	PF#1	3200.00	909.00	915.28	912.55	915.75	0.001446	5.51	581.08	105.16	0.41
Outfall Channel	4706.30*	PF#2	3200.00	909.00	915.28	912.55	915.75	0.001446	5.51	581.08	105.16	0.41
Outfall Channel	4896.92*	PF#1	3200.00	909.28	915.55	912.83	916.02	0.001450	5.51	580.62	105.14	0.41
Outfall Channel	4896.92*	PF#2	3200.00	909.28	915.55	912.83	916.02	0.001450	5.51	580.62	105.14	0.41
Outfall Channel	5087.53*	PF#1	3200.00	909.56	915.83	913.11	916.30	0.001453	5.51	580.24	105.13	0.41
Outfall Channel	5087.53*	PF#2	3200.00	909.56	915.83	913.11	916.30	0.001453	5.51	580.24	105.13	0.41
Outfall Channel	5278.15*	PF#1	3200.00	909.84	916.11	913.39	916.58	0.001455	5.52	579.92	105.11	0.41
Outfall Channel	5278.15*	PF#2	3200.00	909.84	916.11	913.39	916.58	0.001455	5.52	579.92	105.11	0.41
Outfall Channel	5468.76*	PF#1	3200.00	910.11	916.38	913.66	916.86	0.001449	5.51	580.60	105.09	0.41
Outfall Channel	5468.76*	PF#2	3200.00	910.11	916.38	913.66	916.86	0.001449	5.51	580.60	105.09	0.41
Outfall Channel	5659.38*	PF#1	3200.00	910.39	916.66	913.94	917.13	0.001452	5.52	580.21	105.08	0.41

HEC-RAS Plan: Phase1 River: Bullard Wash Reach: Outfall Channel (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Outfall Channel	5659.38*	PF#2	3200.00	910.39	916.66	913.94	917.13	0.001452	5.52	580.21	105.08	0.41
Outfall Channel	5850	PF#1	3200.00	910.67	916.94	914.22	917.41	0.001455	5.52	579.88	105.07	0.41
Outfall Channel	5850	PF#2	3200.00	910.67	916.94	914.22	917.41	0.001455	5.52	579.88	105.07	0.41
Outfall Channel	5900	PF#1	3200.00	910.74	917.01	914.29	917.48	0.001452	5.52	580.22	105.08	0.41
Outfall Channel	5900	PF#2	3200.00	910.74	917.01	914.29	917.48	0.001452	5.52	580.22	105.08	0.41
Outfall Channel	6020	PF#1	3200.00	910.92	917.18	914.47	917.66	0.001457	5.52	579.61	105.06	0.41
Outfall Channel	6020	PF#2	3200.00	910.92	917.18	914.47	917.66	0.001457	5.52	579.61	105.06	0.41
Outfall Channel	6220	PF#1	3200.00	911.21	917.48	914.76	917.95	0.001456	5.52	579.77	105.06	0.41
Outfall Channel	6220	PF#2	3200.00	911.21	917.48	914.76	917.95	0.001456	5.52	579.77	105.06	0.41
Outfall Channel	6322	PF#1	3200.00	911.36	917.62	914.92	918.10	0.001463	5.53	578.78	105.02	0.42
Outfall Channel	6322	PF#2	3200.00	911.36	917.62	914.92	918.10	0.001463	5.53	578.78	105.02	0.42
Outfall Channel	6400	PF#1	3200.00	911.45	917.74	915.02	918.21	0.001434	5.49	582.60	105.17	0.41
Outfall Channel	6400	PF#2	3200.00	911.45	917.74	915.02	918.21	0.001434	5.49	582.60	105.17	0.41
Outfall Channel	6510.*	PF#1	3200.00	911.58	917.90	915.14	918.37	0.001409	5.46	585.95	105.30	0.41
Outfall Channel	6510.*	PF#2	3200.00	911.58	917.90	915.14	918.37	0.001409	5.46	585.95	105.30	0.41
Outfall Channel	6620	PF#1	3200.00	911.70	918.06	915.25	918.52	0.001379	5.42	590.18	105.46	0.40
Outfall Channel	6620	PF#2	3200.00	911.70	918.06	915.25	918.52	0.001379	5.42	590.18	105.46	0.40
Outfall Channel	6776.75*	PF#1	3200.00	911.88	918.29	915.43	918.74	0.001349	5.38	594.48	105.62	0.40
Outfall Channel	6776.75*	PF#2	3200.00	911.88	918.29	915.43	918.74	0.001349	5.38	594.48	105.62	0.40
Outfall Channel	6933.5*	PF#1	3200.00	912.05	918.50	915.60	918.94	0.001315	5.34	599.40	105.81	0.40
Outfall Channel	6933.5*	PF#2	3200.00	912.05	918.50	915.60	918.94	0.001315	5.34	599.40	105.81	0.40
Outfall Channel	7090.25*	PF#1	3200.00	912.23	918.71	915.78	919.15	0.001295	5.31	602.52	105.93	0.39
Outfall Channel	7090.25*	PF#2	3200.00	912.23	918.71	915.78	919.15	0.001295	5.31	602.52	105.93	0.39
Outfall Channel	7247	PF#1	3200.00	912.40	918.92	915.95	919.35	0.001269	5.28	606.42	106.07	0.39
Outfall Channel	7247	PF#2	3200.00	912.40	918.92	915.95	919.35	0.001269	5.28	606.42	106.07	0.39
Outfall Channel	7280	PF#1	3200.00	912.34	918.90	916.10	919.42	0.000506	5.79	552.81	92.80	0.42
Outfall Channel	7280	PF#2	3200.00	912.34	918.90	916.10	919.42	0.000506	5.79	552.81	92.80	0.42
Outfall Channel	7300	PF#1	3200.00	912.36	918.91	916.12	919.43	0.000508	5.79	552.22	92.87	0.42
Outfall Channel	7300	PF#2	3200.00	912.36	918.91	916.12	919.43	0.000508	5.79	552.22	92.87	0.42
Outfall Channel	7357		Bridge									
Outfall Channel	7417	PF#1	3200.00	912.49	919.26	916.25	919.74	0.000454	5.59	572.02	93.21	0.40
Outfall Channel	7417	PF#2	3200.00	912.49	919.26	916.25	919.74	0.000454	5.59	572.02	93.21	0.40
Outfall Channel	7440	PF#1	3200.00	912.51	919.27	916.28	919.75	0.000456	5.60	571.19	93.21	0.40
Outfall Channel	7440	PF#2	3200.00	912.51	919.27	916.28	919.75	0.000456	5.60	571.19	93.21	0.40
Outfall Channel	7500	PF#1	3200.00	912.58	919.29	916.34	919.78	0.000467	5.65	566.75	93.11	0.40
Outfall Channel	7500	PF#2	3200.00	912.58	919.29	916.34	919.78	0.000467	5.65	566.75	93.11	0.40
Outfall Channel	7523	PF#1	3200.00	911.82	919.33	916.19	919.80	0.000428	5.49	582.64	93.13	0.39
Outfall Channel	7523	PF#2	3200.00	911.82	919.33	916.19	919.80	0.000428	5.49	582.64	93.13	0.39
Outfall Channel	7533		Bridge									
Outfall Channel	7543	PF#1	3200.00	911.84	919.43	916.21	919.89	0.000411	5.42	590.10	93.29	0.38
Outfall Channel	7543	PF#2	3200.00	911.84	919.43	916.21	919.89	0.000411	5.42	590.10	93.29	0.38
Outfall Channel	7558	PF#1	3200.00	912.65	919.41	916.42	919.90	0.000454	5.60	571.88	93.22	0.40
Outfall Channel	7558	PF#2	3200.00	912.65	919.41	916.42	919.90	0.000454	5.60	571.88	93.22	0.40
Outfall Channel	7605	PF#1	3200.00	912.70	919.44	916.44	919.92	0.000455	5.60	571.63	93.10	0.40
Outfall Channel	7605	PF#2	3200.00	912.70	919.44	916.44	919.92	0.000455	5.60	571.63	93.10	0.40
Outfall Channel	7700	PF#1	3200.00	912.81	919.47	916.58	919.97	0.000479	5.70	565.11	106.74	0.41
Outfall Channel	7700	PF#2	3200.00	912.81	919.47	916.58	919.97	0.000479	5.70	565.11	106.74	0.41
Outfall Channel	7744	PF#1	3200.00	914.81	919.00	918.40	920.25	0.008760	8.96	357.31	90.38	0.79
Outfall Channel	7744	PF#2	3200.00	914.81	919.00	918.40	920.25	0.008760	8.96	357.31	90.38	0.79
Outfall Channel	7771.64	PF#1	3200.00	916.00	919.60	919.60	921.28	0.014427	10.42	307.14	90.79	1.00
Outfall Channel	7771.64	PF#2	3200.00	916.00	919.60	919.60	921.28	0.014427	10.42	307.14	90.79	1.00
Outfall Channel	7925.82*	PF#1	3200.00	922.67	926.25	926.25	927.95	0.014604	10.46	305.96	90.75	1.00
Outfall Channel	7925.82*	PF#2	3200.00	922.67	926.25	926.25	927.95	0.014604	10.46	305.96	90.75	1.00

HEC-RAS Plan: Phase1 River: Bullard Wash Reach: Outfall Channel (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Outfall Channel	8080	PF#1	3200.00	929.34	932.92	932.92	934.62	0.014649	10.47	305.67	90.74	1.01
Outfall Channel	8080	PF#2	3200.00	929.34	932.92	932.92	934.62	0.014649	10.47	305.67	90.74	1.01
Outfall Channel	8100	PF#1	3200.00	930.20	933.73	933.73	935.35	0.014634	10.20	313.70	97.66	1.00
Outfall Channel	8100	PF#2	3200.00	930.20	933.73	933.73	935.35	0.014634	10.20	313.70	97.66	1.00
Outfall Channel	8210	PF#1	3200.00	929.33	935.30	933.80	936.03	0.002797	6.88	464.86	104.83	0.58
Outfall Channel	8210	PF#2	3200.00	929.33	935.30	933.80	936.03	0.002797	6.88	464.86	104.83	0.58
Outfall Channel	8348.*	PF#1	3200.00	929.50	935.74	933.97	936.39	0.002329	6.48	493.76	106.20	0.53
Outfall Channel	8348.*	PF#2	3200.00	929.50	935.74	933.97	936.39	0.002329	6.48	493.76	106.20	0.53
Outfall Channel	8486.*	PF#1	3200.00	929.66	936.10	934.13	936.70	0.002052	6.22	514.87	107.19	0.50
Outfall Channel	8486.*	PF#2	3200.00	929.66	936.10	934.13	936.70	0.002052	6.22	514.87	107.19	0.50
Outfall Channel	8624.*	PF#1	3200.00	929.83	936.40	934.30	936.97	0.001885	6.04	529.54	107.87	0.48
Outfall Channel	8624.*	PF#2	3200.00	929.83	936.40	934.30	936.97	0.001885	6.04	529.54	107.87	0.48
Outfall Channel	8762.*	PF#1	3200.00	929.99	936.68	934.46	937.22	0.001753	5.90	542.39	108.46	0.46
Outfall Channel	8762.*	PF#2	3200.00	929.99	936.68	934.46	937.22	0.001753	5.90	542.39	108.46	0.46
Outfall Channel	8900	PF#1	3200.00	930.16	936.94	934.63	937.46	0.001666	5.80	551.62	108.89	0.45
Outfall Channel	8900	PF#2	3200.00	930.16	936.94	934.63	937.46	0.001666	5.80	551.62	108.89	0.45
Outfall Channel	9000	PF#1	3200.00	930.29	937.09	934.77	937.64	0.001711	5.96	536.92	103.19	0.46
Outfall Channel	9000	PF#2	3200.00	930.29	937.09	934.77	937.64	0.001711	5.96	536.92	103.19	0.46
Outfall Channel	9080	PF#1	3200.00	930.38	937.23	934.86	937.77	0.001656	5.90	542.79	103.41	0.45
Outfall Channel	9080	PF#2	3200.00	930.38	937.23	934.86	937.77	0.001656	5.90	542.79	103.41	0.45
Outfall Channel	9200	PF#1	3200.00	930.55	937.44	935.03	937.97	0.001623	5.86	546.31	103.55	0.45
Outfall Channel	9200	PF#2	3200.00	930.55	937.44	935.03	937.97	0.001623	5.86	546.31	103.55	0.45
Outfall Channel	9372	PF#1	3200.00	930.74	937.76	935.22	938.24	0.001443	5.53	578.65	110.12	0.43
Outfall Channel	9372	PF#2	3200.00	930.74	937.76	935.22	938.24	0.001443	5.53	578.65	110.12	0.43
Outfall Channel	9529.*	PF#1	3200.00	930.93	938.00	935.41	938.46	0.001408	5.49	583.40	110.34	0.42
Outfall Channel	9529.*	PF#2	3200.00	930.93	938.00	935.41	938.46	0.001408	5.49	583.40	110.34	0.42
Outfall Channel	9686.*	PF#1	3200.00	931.12	938.22	935.60	938.68	0.001380	5.45	587.32	110.51	0.42
Outfall Channel	9686.*	PF#2	3200.00	931.12	938.22	935.60	938.68	0.001380	5.45	587.32	110.51	0.42
Outfall Channel	9843.*	PF#1	3200.00	931.31	938.44	935.78	938.90	0.001357	5.42	590.67	110.67	0.41
Outfall Channel	9843.*	PF#2	3200.00	931.31	938.44	935.78	938.90	0.001357	5.42	590.67	110.67	0.41
Outfall Channel	10000	PF#1	3200.00	931.50	938.66	935.97	939.11	0.001337	5.39	593.57	110.80	0.41
Outfall Channel	10000	PF#2	3200.00	931.50	938.66	935.97	939.11	0.001337	5.39	593.57	110.80	0.41
Outfall Channel	10100	PF#1	3200.00	931.62	938.77	936.10	939.26	0.001396	5.57	574.11	104.62	0.42
Outfall Channel	10100	PF#2	3200.00	931.62	938.77	936.10	939.26	0.001396	5.57	574.11	104.62	0.42
Outfall Channel	10200	PF#1	3200.00	931.74	938.92	936.22	939.40	0.001379	5.55	576.43	104.71	0.42
Outfall Channel	10200	PF#2	3200.00	931.74	938.92	936.22	939.40	0.001379	5.55	576.43	104.71	0.42
Outfall Channel	10300	PF#1	3200.00	931.86	939.09	936.34	939.53	0.001283	5.32	601.77	111.17	0.40
Outfall Channel	10300	PF#2	3200.00	931.86	939.09	936.34	939.53	0.001283	5.32	601.77	111.17	0.40
Outfall Channel	10430.*	PF#1	3200.00	932.02	939.26	936.50	939.70	0.001277	5.31	602.71	111.21	0.40
Outfall Channel	10430.*	PF#2	3200.00	932.02	939.26	936.50	939.70	0.001277	5.31	602.71	111.21	0.40
Outfall Channel	10560.*	PF#1	3200.00	932.17	939.43	936.65	939.86	0.001264	5.29	604.73	111.30	0.40
Outfall Channel	10560.*	PF#2	3200.00	932.17	939.43	936.65	939.86	0.001264	5.29	604.73	111.30	0.40
Outfall Channel	10690.*	PF#1	3200.00	932.33	939.59	936.80	940.03	0.001261	5.29	605.29	111.32	0.40
Outfall Channel	10690.*	PF#2	3200.00	932.33	939.59	936.80	940.03	0.001261	5.29	605.29	111.32	0.40
Outfall Channel	10820	PF#1	3200.00	932.49	939.76	936.96	940.19	0.001258	5.28	605.78	111.35	0.40
Outfall Channel	10820	PF#2	3200.00	932.49	939.76	936.96	940.19	0.001258	5.28	605.78	111.35	0.40
Outfall Channel	11000	PF#1	3200.00	932.71	939.99	937.18	940.42	0.001253	5.28	606.57	111.38	0.40
Outfall Channel	11000	PF#2	3200.00	932.71	939.99	937.18	940.42	0.001253	5.28	606.57	111.38	0.40
Outfall Channel	11100	PF#1	3200.00	932.83	940.09	937.31	940.56	0.001315	5.47	585.48	105.05	0.41
Outfall Channel	11100	PF#2	3200.00	932.83	940.09	937.31	940.56	0.001315	5.47	585.48	105.05	0.41
Outfall Channel	11200	PF#1	3200.00	932.95	940.23	937.43	940.69	0.001306	5.45	586.82	105.10	0.41
Outfall Channel	11200	PF#2	3200.00	932.95	940.23	937.43	940.69	0.001306	5.45	586.82	105.10	0.41
Outfall Channel	11300	PF#1	3200.00	933.07	940.39	937.55	940.82	0.001221	5.23	611.73	111.61	0.39
Outfall Channel	11300	PF#2	3200.00	933.07	940.39	937.55	940.82	0.001221	5.23	611.73	111.61	0.39

HEC-RAS Plan: Phase1 River: Bullard Wash Reach: Outfall Channel (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Outfall Channel	11425.*	PF#1	3200.00	933.22	940.55	937.70	940.97	0.001219	5.23	612.14	111.63	0.39
Outfall Channel	11425.*	PF#2	3200.00	933.22	940.55	937.70	940.97	0.001219	5.23	612.14	111.63	0.39
Outfall Channel	11550	PF#1	3200.00	933.37	940.70	937.85	941.12	0.001217	5.22	612.45	111.64	0.39
Outfall Channel	11550	PF#2	3200.00	933.37	940.70	937.85	941.12	0.001217	5.22	612.45	111.64	0.39
Outfall Channel	11735	PF#1	3200.00	933.60	940.91	938.08	941.36	0.001284	5.42	590.18	105.23	0.40
Outfall Channel	11735	PF#2	3200.00	933.60	940.91	938.08	941.36	0.001284	5.42	590.18	105.23	0.40
Outfall Channel	11883	PF#1	3200.00	933.77	941.10	938.25	941.55	0.001269	5.40	592.48	105.32	0.40
Outfall Channel	11883	PF#2	3200.00	933.77	941.10	938.25	941.55	0.001269	5.40	592.48	105.32	0.40
Outfall Channel	11932	PF#1	3200.00	933.84	941.16	938.32	941.62	0.001274	5.41	591.66	105.29	0.40
Outfall Channel	11932	PF#2	3200.00	933.84	941.16	938.32	941.62	0.001274	5.41	591.66	105.29	0.40
Outfall Channel	11943	PF#1	3200.00	933.85	941.14	938.44	941.67	0.001479	5.88	543.81	92.44	0.43
Outfall Channel	11943	PF#2	3200.00	933.85	941.14	938.44	941.67	0.001479	5.88	543.81	92.44	0.43
Outfall Channel	12195	PF#1	3200.00	934.75	941.51	938.76	942.04	0.001389	5.83	549.31	92.71	0.42
Outfall Channel	12195	PF#2	3200.00	934.75	941.51	938.76	942.04	0.001389	5.83	549.31	92.71	0.42
Outfall Channel	12198	PF#1	3200.00	939.65	945.82	945.82	946.51	0.004763	7.96	638.98	375.08	0.94
Outfall Channel	12198	PF#2	3200.00	939.65	945.82	945.82	946.51	0.004763	7.96	638.98	375.08	0.94
Outfall Channel	12200	PF#1	3200.00	939.68	946.90	946.09	947.22	0.000625	5.41	1105.85	493.50	0.54
Outfall Channel	12200	PF#2	3200.00	939.68	947.50	946.47	948.19	0.000895	6.66	480.67	130.00	0.61
Outfall Channel	12345	PF#1	3200.00	940.96	946.92	946.63	947.43	0.001100	6.87	1038.35	626.70	0.61
Outfall Channel	12345	PF#2	3200.00	940.96	947.87	946.65	948.37	0.000764	6.34	783.45	225.00	0.50
Outfall Channel	12445	PF#1	3200.00	941.85	947.51	946.90	947.68	0.002032	4.15	1222.28	768.39	0.44
Outfall Channel	12445	PF#2	3200.00	941.85	948.30	947.03	948.55	0.001695	4.43	885.22	300.00	0.41
Outfall Channel	12640	PF#1	3200.00	942.50	947.85	946.70	947.98	0.001103	3.69	1321.56	839.61	0.34
Outfall Channel	12640	PF#2	3200.00	942.50	948.67	946.67	948.76	0.000510	2.86	1377.62	415.00	0.24
Outfall Channel	13120	PF#1	4906.00	943.70	948.89	948.87	949.66	0.009988	7.21	784.80	594.46	0.91
Outfall Channel	13120	PF#2	4906.00	943.70	949.04	948.85	949.79	0.008510	6.99	725.39	365.00	0.85
Outfall Channel	13700	PF#1	4906.00	948.50	952.80	951.68	952.97	0.003333	6.13	1818.94	873.00	0.58
Outfall Channel	13700	PF#2	4906.00	948.50	953.80	951.76	954.04	0.002250	5.96	1430.22	350.00	0.50

Table 3 HEC-RAS Output Summary Table for Post-Project Coditions Model

HEC-RAS Plan: Proposed River: Bullard Wash Reach: Main Channel

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main Channel	11100	100-Year	3200.00	932.83	940.09	937.32	940.55	0.001321	5.47	584.67	105.02	0.41
Main Channel	11100	Floodway	3200.00	932.83	940.09	937.32	940.55	0.001321	5.47	584.67	105.02	0.41
Main Channel	11200	100-Year	3200.00	932.95	940.22		940.68	0.001311	5.46	586.07	105.07	0.41
Main Channel	11200	Floodway	3200.00	932.95	940.22		940.68	0.001311	5.46	586.17	105.08	0.41
Main Channel	11300	100-Year	3200.00	933.07	940.39		940.81	0.001226	5.24	611.01	111.58	0.39
Main Channel	11300	Floodway	3200.00	933.07	940.39		940.81	0.001225	5.24	611.10	111.58	0.39
Main Channel	11425	100-Year	3200.00	933.22	940.54		940.97	0.001223	5.23	611.50	111.60	0.39
Main Channel	11425	Floodway	3200.00	933.22	940.54		940.97	0.001222	5.23	611.58	111.61	0.39
Main Channel	11550	100-Year	3200.00	933.37	940.69		941.12	0.001221	5.23	611.86	111.62	0.39
Main Channel	11550	Floodway	3200.00	933.37	940.69		941.12	0.001220	5.23	611.93	111.62	0.39
Main Channel	11735	100-Year	3200.00	933.60	940.90		941.36	0.001287	5.43	589.70	105.21	0.40
Main Channel	11735	Floodway	3200.00	933.60	940.90		941.36	0.001287	5.43	589.76	105.21	0.40
Main Channel	11883	100-Year	3200.00	933.77	941.10		941.55	0.001272	5.40	592.06	105.30	0.40
Main Channel	11883	Floodway	3200.00	933.77	941.10		941.55	0.001271	5.40	592.11	105.30	0.40
Main Channel	11932	100-Year	3200.00	933.84	941.16		941.61	0.001277	5.41	591.25	105.27	0.40
Main Channel	11932	Floodway	3200.00	933.84	941.16		941.61	0.001277	5.41	591.30	105.27	0.40
Main Channel	11943	100-Year	3200.00	933.85	941.13		941.67	0.001482	5.89	543.45	92.44	0.43
Main Channel	11943	Floodway	3200.00	933.85	941.13		941.67	0.001481	5.89	543.50	92.44	0.43
Main Channel	12195	100-Year	3200.00	934.75	941.51		942.04	0.001391	5.83	549.03	92.70	0.42
Main Channel	12195	Floodway	3200.00	934.75	941.51		942.04	0.001391	5.83	549.07	92.71	0.42
Main Channel	12197	100-Year	3200.00	937.25	942.06	942.06	943.75	0.008288	14.00	319.65	91.22	1.12
Main Channel	12197	Floodway	3200.00	937.25	942.06	942.06	943.75	0.008288	14.00	319.65	91.22	1.12
Main Channel	12209	100-Year	3200.00	937.28	943.18		943.89	0.002670	9.11	485.49	113.03	0.66
Main Channel	12209	Floodway	3200.00	937.28	943.18		943.89	0.002670	9.11	485.49	113.03	0.66
Main Channel	12220.5	100-Year	3200.00	937.32	943.45		943.94	0.001777	7.62	582.75	132.47	0.54
Main Channel	12220.5	Floodway	3200.00	937.32	943.45		943.94	0.001777	7.62	582.75	132.47	0.54
Main Channel	12315	100-Year	3200.00	937.59	943.77		944.10	0.001190	6.27	717.81	167.50	0.44
Main Channel	12315	Floodway	3200.00	937.59	943.77		944.10	0.001190	6.27	717.81	167.50	0.44
Main Channel	12508.7	100-Year	3200.00	938.15	943.99		944.38	0.001545	6.72	660.00	165.00	0.49
Main Channel	12508.7	Floodway	3200.00	938.15	943.99		944.38	0.001545	6.72	660.00	165.00	0.49
Main Channel	12708.5	100-Year	3200.00	938.73	944.30		944.72	0.001789	7.17	638.60	172.53	0.54
Main Channel	12708.5	Floodway	3200.00	938.73	944.30		944.72	0.001789	7.17	638.60	172.53	0.54
Main Channel	12908.8	100-Year	3200.00	939.32	944.67		945.10	0.001969	7.28	626.92	170.60	0.55
Main Channel	12908.8	Floodway	3200.00	939.32	944.67		945.10	0.001969	7.28	626.92	170.60	0.55
Main Channel	13095.9	100-Year	3200.00	939.86	945.00		945.56	0.002593	8.31	554.29	156.24	0.65
Main Channel	13095.9	Floodway	3200.00	939.86	945.00		945.56	0.002593	8.31	554.29	156.24	0.65
Main Channel	13294.6	100-Year	3200.00	940.44	945.53		946.10	0.002792	8.44	544.80	157.27	0.66
Main Channel	13294.6	Floodway	3200.00	940.44	945.53		946.10	0.002792	8.44	544.80	157.27	0.66
Main Channel	13494.6	100-Year	3200.00	941.02	946.14		946.63	0.002384	7.86	587.41	167.00	0.61
Main Channel	13494.6	Floodway	3200.00	941.02	946.14		946.63	0.002384	7.86	587.41	167.00	0.61
Main Channel	13694.6	100-Year	3200.00	941.60	946.60		947.16	0.002782	8.45	550.70	161.40	0.67
Main Channel	13694.6	Floodway	3200.00	941.60	946.60		947.16	0.002782	8.45	550.70	161.40	0.67
Main Channel	13894.6	100-Year	3200.00	942.18	947.15		947.77	0.003159	8.83	521.03	153.48	0.70
Main Channel	13894.6	Floodway	3200.00	942.18	947.15		947.77	0.003159	8.83	521.03	153.48	0.70
Main Channel	14096.5	100-Year	3200.00	942.76	947.78		948.39	0.002950	8.69	531.06	154.16	0.68
Main Channel	14096.5	Floodway	3200.00	942.76	947.78		948.39	0.002950	8.69	531.06	154.16	0.68
Main Channel	14298.9	100-Year	3200.00	943.35	948.40		948.99	0.002915	8.58	535.18	154.70	0.67
Main Channel	14298.9	Floodway	3200.00	943.35	948.40		948.99	0.002915	8.58	535.18	154.70	0.67
Main Channel	14359.34	100-Year	3200.00	943.53	948.67		949.16	0.002389	7.85	583.67	157.11	0.61
Main Channel	14359.34	Floodway	3200.00	943.53	948.67		949.16	0.002389	7.85	583.67	157.11	0.61
Main Channel	14499.34	100-Year	3200.00	943.93	948.98		949.52	0.002584	8.07	554.84	154.58	0.63

HEC-RAS Plan: Proposed River: Bullard Wash Reach: Main Channel (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main Channel	14499.34	Floodway	3200.00	943.93	948.98		949.52	0.002584	8.07	554.84	154.58	0.63
Main Channel	14543	100-Year	3200.00	944.06	949.05		949.66	0.003082	8.76	525.20	153.79	0.69
Main Channel	14543	Floodway	3200.00	944.06	949.05		949.66	0.003082	8.76	525.20	153.79	0.69
Main Channel	14544	100-Year	3200.00	945.06	949.04	949.04	950.28	0.008864	12.76	374.39	144.77	1.13
Main Channel	14544	Floodway	3200.00	945.06	949.04	949.04	950.28	0.008864	12.76	374.39	144.77	1.13
Main Channel	14663.1	100-Year	3200.00	945.40	950.38		950.88	0.002544	7.94	578.52	169.87	0.63
Main Channel	14663.1	Floodway	3200.00	945.40	950.38		950.88	0.002544	7.94	578.52	169.87	0.63
Main Channel	14817.3	100-Year	3200.00	945.85	950.76		951.39	0.003266	8.90	515.22	152.93	0.71
Main Channel	14817.3	Floodway	3200.00	945.85	950.76		951.39	0.003266	8.90	515.22	152.93	0.71
Main Channel	14998	100-Year	3200.00	946.37	951.42		952.01	0.002954	8.64	532.39	154.28	0.68
Main Channel	14998	Floodway	3200.00	946.37	951.42		952.01	0.002954	8.64	532.39	154.28	0.68
Main Channel	15199.3	100-Year	3200.00	946.96	952.03		952.61	0.002830	8.47	540.10	154.71	0.66
Main Channel	15199.3	Floodway	3200.00	946.96	952.03		952.61	0.002830	8.47	540.10	154.71	0.66
Main Channel	15401.8	100-Year	3200.00	947.54	952.60		953.20	0.002893	8.62	535.37	154.70	0.68
Main Channel	15401.8	Floodway	3200.00	947.54	952.60		953.20	0.002893	8.62	535.37	154.70	0.68
Main Channel	15590.8	100-Year	3200.00	948.09	953.15		953.73	0.002865	8.56	536.71	154.35	0.67
Main Channel	15590.8	Floodway	3200.00	948.09	953.15		953.73	0.002865	8.56	536.71	154.35	0.67
Main Channel	15779.9	100-Year	3200.00	948.64	953.70		954.28	0.002878	8.54	537.67	155.07	0.67
Main Channel	15779.9	Floodway	3200.00	948.64	953.70		954.28	0.002878	8.54	537.67	155.07	0.67
Main Channel	15969.0	100-Year	3200.00	949.19	954.26		954.85	0.002869	8.54	537.36	154.49	0.67
Main Channel	15969.0	Floodway	3200.00	949.19	954.26		954.85	0.002869	8.54	537.36	154.49	0.67
Main Channel	16165.7	100-Year	3200.00	949.76	954.85		955.43	0.002841	8.50	539.19	154.57	0.66
Main Channel	16165.7	Floodway	3200.00	949.76	954.85		955.43	0.002841	8.50	539.19	154.57	0.66
Main Channel	16366.6	100-Year	3200.00	950.45	955.42		956.04	0.003148	8.84	520.96	153.36	0.70
Main Channel	16366.6	Floodway	3200.00	950.45	955.42		956.04	0.003148	8.84	520.96	153.36	0.70
Main Channel	16562.9	100-Year	3200.00	950.91	956.10		956.58	0.002344	7.85	590.94	172.56	0.61
Main Channel	16562.9	Floodway	3200.00	950.91	956.10		956.58	0.002344	7.85	590.94	172.56	0.61
Main Channel	16762.7	100-Year	3200.00	951.49	956.55		957.14	0.002889	8.57	535.78	154.26	0.67
Main Channel	16762.7	Floodway	3200.00	951.49	956.55		957.14	0.002889	8.57	535.78	154.26	0.67
Main Channel	16961.4	100-Year	3200.00	952.06	957.18		957.65	0.002208	7.53	596.49	163.99	0.59
Main Channel	16961.4	Floodway	3200.00	952.06	957.18		957.65	0.002208	7.53	596.49	163.99	0.59
Main Channel	17076.5	100-Year	3200.00	952.39	957.37		957.99	0.003120	8.79	523.12	153.61	0.69
Main Channel	17076.5	Floodway	3200.00	952.39	957.37		957.99	0.003120	8.79	523.12	153.61	0.69
Main Channel	17188	100-Year	3200.00	952.72	957.73		958.33	0.003037	8.71	527.96	154.28	0.69
Main Channel	17188	Floodway	3200.00	952.72	957.73		958.33	0.003037	8.71	527.96	154.28	0.69
Main Channel	17285	100-Year	3200.00	953.00	957.92		958.71	0.003662	9.45	460.05	127.03	0.75
Main Channel	17285	Floodway	3200.00	953.00	957.92		958.71	0.003662	9.45	460.05	127.03	0.75
Main Channel	17310	100-Year	3200.00	953.07	957.42	957.42	959.23	0.004053	10.85	299.56	83.68	1.00
Main Channel	17310	Floodway	3200.00	953.07	957.42	957.42	959.23	0.004053	10.85	299.56	83.68	1.00
Main Channel	17371.91		Bridge									
Main Channel	17434	100-Year	3200.00	953.43	959.12	957.78	960.09	0.001436	7.95	410.30	84.18	0.62
Main Channel	17434	Floodway	3200.00	953.43	959.12	957.78	960.09	0.001436	7.95	410.30	84.18	0.62
Main Channel	17459	100-Year	3200.00	953.51	959.83		960.19	0.001465	7.05	691.00	143.45	0.49
Main Channel	17459	Floodway	3200.00	953.51	959.83		960.19	0.001465	7.05	691.00	143.45	0.49
Main Channel	17545	100-Year	3200.00	953.76	959.99		960.32	0.001524	7.14	736.41	174.56	0.50
Main Channel	17545	Floodway	3200.00	953.76	959.99		960.32	0.001524	7.14	736.41	174.56	0.50
Main Channel	17644	100-Year	3200.00	954.04	960.14		960.51	0.001927	7.91	716.42	197.95	0.56
Main Channel	17644	Floodway	3200.00	954.04	960.14		960.51	0.001927	7.91	716.42	197.95	0.56
Main Channel	17826.9	100-Year	3200.00	954.60	960.49		960.89	0.002207	8.28	688.30	198.03	0.60
Main Channel	17826.9	Floodway	3200.00	954.60	960.49		960.89	0.002207	8.28	688.30	198.03	0.60

HEC-RAS Plan: Proposed River: Bullard Wash Reach: Main Channel (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main Channel	18029.7	100-Year	3200.00	955.20	960.92		961.46	0.003059	9.58	605.29	186.13	0.71
Main Channel	18029.7	Floodway	3200.00	955.20	960.92		961.46	0.003059	9.58	605.29	186.13	0.71
Main Channel	18226.7	100-Year	3200.00	955.78	961.52		962.08	0.003228	9.87	603.96	193.39	0.73
Main Channel	18226.7	Floodway	3200.00	955.78	961.52		962.08	0.003228	9.87	603.96	193.39	0.73
Main Channel	18424.2	100-Year	3200.00	956.36	962.14		962.71	0.003078	9.70	591.69	177.03	0.71
Main Channel	18424.2	Floodway	3200.00	956.36	962.14		962.71	0.003078	9.70	591.69	177.03	0.71
Main Channel	18623.3	100-Year	3200.00	956.95	962.84		963.23	0.002170	8.20	692.10	198.57	0.60
Main Channel	18623.3	Floodway	3200.00	956.95	962.84		963.23	0.002170	8.20	692.10	198.57	0.60
Main Channel	18821.3	100-Year	3200.00	957.54	963.27		963.66	0.002180	8.13	694.75	201.34	0.60
Main Channel	18821.3	Floodway	3200.00	957.54	963.27		963.66	0.002180	8.13	694.75	201.34	0.60
Main Channel	19017.6	100-Year	3200.00	958.24	963.69		964.25	0.003418	9.78	591.27	187.74	0.74
Main Channel	19017.6	Floodway	3200.00	958.24	963.69		964.25	0.003418	9.78	591.27	187.74	0.74
Main Channel	19205.1	100-Year	3200.00	958.67	964.30		964.90	0.003687	10.36	580.35	193.62	0.77
Main Channel	19205.1	Floodway	3200.00	958.67	964.30		964.90	0.003687	10.36	580.35	193.62	0.77
Main Channel	19400.0	100-Year	3200.00	959.25	965.04		965.57	0.003120	9.76	625.19	206.40	0.72
Main Channel	19400.0	Floodway	3200.00	959.25	965.04		965.57	0.003120	9.76	625.19	206.40	0.72
Main Channel	19602.6	100-Year	3200.00	959.85	965.71		966.15	0.002407	8.70	676.97	206.78	0.63
Main Channel	19602.6	Floodway	3200.00	959.85	965.71		966.15	0.002407	8.70	676.97	206.78	0.63
Main Channel	19790.8	100-Year	3200.00	960.40	966.19		966.57	0.002127	8.07	707.64	206.63	0.59
Main Channel	19790.8	Floodway	3200.00	960.40	966.19		966.57	0.002127	8.07	707.64	206.63	0.59
Main Channel	19974.5	100-Year	3200.00	961.07	966.61		966.98	0.002473	8.41	729.36	250.58	0.63
Main Channel	19974.5	Floodway	3200.00	961.07	966.61		966.98	0.002473	8.41	729.36	250.58	0.63
Main Channel	20164.2	100-Year	3200.00	961.51	967.09		967.43	0.002296	8.16	786.36	290.18	0.61
Main Channel	20164.2	Floodway	3200.00	961.51	967.09		967.43	0.002296	8.16	786.36	290.18	0.61
Main Channel	20341.9	100-Year	3200.00	962.03	967.47		967.90	0.002709	8.68	671.25	217.52	0.66
Main Channel	20341.9	Floodway	3200.00	962.03	967.47		967.90	0.002709	8.68	671.25	217.52	0.66
Main Channel	20524.1	100-Year	3200.00	962.57	967.89		968.64	0.004774	11.42	526.68	186.19	0.87
Main Channel	20524.1	Floodway	3200.00	962.57	967.89		968.64	0.004774	11.42	526.68	186.19	0.87
Main Channel	20718.0	100-Year	3200.00	963.14	968.81		969.49	0.003980	10.83	548.31	178.38	0.80
Main Channel	20718.0	Floodway	3200.00	963.14	968.81		969.49	0.003980	10.83	548.31	178.38	0.80
Main Channel	20918.4	100-Year	3200.00	963.74	969.65		970.18	0.002919	9.53	607.93	181.03	0.69
Main Channel	20918.4	Floodway	3200.00	963.74	969.65		970.18	0.002919	9.53	607.93	181.03	0.69
Main Channel	21118.3	100-Year	3200.00	964.33	970.27		970.72	0.002392	8.66	658.32	189.63	0.63
Main Channel	21118.3	Floodway	3200.00	964.33	970.27		970.72	0.002392	8.66	658.32	189.63	0.63
Main Channel	21318.7	100-Year	3200.00	964.92	970.79		971.16	0.001976	7.89	716.51	202.43	0.57
Main Channel	21318.7	Floodway	3200.00	964.92	970.79		971.16	0.001976	7.89	716.51	202.43	0.57
Main Channel	21517.7	100-Year	3200.00	965.51	971.19		971.66	0.002768	9.03	646.15	200.90	0.67
Main Channel	21517.7	Floodway	3200.00	965.51	971.19		971.66	0.002768	9.03	646.15	200.90	0.67
Main Channel	21718.5	100-Year	3200.00	966.10	971.71		972.37	0.003906	10.67	551.74	178.32	0.79
Main Channel	21718.5	Floodway	3200.00	966.10	971.71		972.37	0.003906	10.67	551.74	178.32	0.79
Main Channel	21911.0	100-Year	3200.00	966.67	972.54		973.03	0.002871	9.45	649.15	216.28	0.69
Main Channel	21911.0	Floodway	3200.00	966.67	972.54		973.03	0.002871	9.45	649.15	216.28	0.69
Main Channel	22102.0	100-Year	3200.00	967.24	973.13		973.54	0.002365	8.57	691.94	213.20	0.62
Main Channel	22102.0	Floodway	3200.00	967.24	973.13		973.54	0.002365	8.57	691.94	213.20	0.62
Main Channel	22300.9	100-Year	3200.00	967.82	973.61		974.01	0.002338	8.41	692.74	210.17	0.62
Main Channel	22300.9	Floodway	3200.00	967.82	973.61		974.01	0.002338	8.41	692.74	210.17	0.62
Main Channel	22496.6	100-Year	3200.00	968.40	974.05		974.49	0.002470	8.51	650.06	185.79	0.63
Main Channel	22496.6	Floodway	3200.00	968.40	974.05		974.49	0.002470	8.51	650.06	185.79	0.63
Main Channel	22611.0	100-Year	3200.00	968.72	974.28		974.83	0.002950	9.20	589.85	169.49	0.69
Main Channel	22611.0	Floodway	3200.00	968.72	974.28		974.83	0.002950	9.20	589.85	169.49	0.69
Main Channel	22705.0	100-Year	3200.00	969.00	974.55		975.09	0.002660	8.66	565.04	135.61	0.65

HEC-RAS Plan: Proposed River: Bullard Wash Reach: Main Channel (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main Channel	22705.0	Floodway	3200.00	969.00	974.55		975.09	0.002660	8.66	565.04	135.61	0.65
Main Channel	22728.93	100-Year	3200.00	969.07	973.95		975.46	0.004191	9.92	326.59	79.09	0.85
Main Channel	22728.93	Floodway	3200.00	969.07	973.95		975.46	0.004191	9.92	326.59	79.09	0.85
Main Channel	22774.93		Bridge									
Main Channel	22820.93	100-Year	3200.00	969.39	975.30	973.84	976.27	0.002013	7.95	408.50	79.87	0.61
Main Channel	22820.93	Floodway	3200.00	969.39	975.30	973.84	976.27	0.002013	7.95	408.50	79.87	0.61
Main Channel	22845.6	100-Year	3200.00	969.46	976.03		976.37	0.001309	6.85	713.36	142.74	0.47
Main Channel	22845.6	Floodway	3200.00	969.46	976.03		976.37	0.001309	6.85	713.36	142.74	0.47
Main Channel	22946.3	100-Year	3200.00	969.78	976.18		976.52	0.001522	7.26	740.82	178.74	0.51
Main Channel	22946.3	Floodway	3200.00	969.78	976.18		976.52	0.001522	7.26	740.82	178.74	0.51
Main Channel	23054.4	100-Year	3200.00	970.12	976.36		976.69	0.001615	7.35	757.19	196.90	0.52
Main Channel	23054.4	Floodway	3200.00	970.12	976.36		976.69	0.001615	7.35	757.19	196.90	0.52
Main Channel	23203.98	100-Year	3200.00	970.58	976.57		977.00	0.002181	8.38	678.07	191.26	0.60
Main Channel	23203.98	Floodway	3200.00	970.58	976.57		977.00	0.002181	8.38	678.07	191.26	0.60
Main Channel	23390.8	100-Year	3200.00	971.15	976.98		977.44	0.002532	8.85	649.94	191.91	0.65
Main Channel	23390.8	Floodway	3200.00	971.15	976.98		977.44	0.002532	8.85	649.94	191.91	0.65
Main Channel	23566.1	100-Year	3200.00	971.70	977.43		977.94	0.002938	9.36	614.18	185.60	0.69
Main Channel	23566.1	Floodway	3200.00	971.70	977.43		977.94	0.002938	9.36	614.18	185.60	0.69
Main Channel	23762.2	100-Year	3200.00	972.31	978.02		978.49	0.002628	8.84	638.16	187.46	0.65
Main Channel	23762.2	Floodway	3200.00	972.31	978.02		978.49	0.002628	8.84	638.16	187.46	0.65
Main Channel	23962.1	100-Year	3200.00	972.94	978.59		978.97	0.002126	7.92	692.79	194.33	0.59
Main Channel	23962.1	Floodway	3200.00	972.94	978.59		978.97	0.002126	7.92	692.79	194.33	0.59
Main Channel	24152.7	100-Year	3200.00	973.53	978.95		979.50	0.003094	9.50	618.01	203.84	0.72
Main Channel	24152.7	Floodway	3200.00	973.53	978.95		979.50	0.003094	9.50	618.01	203.84	0.72
Main Channel	24300.2	100-Year	3200.00	973.99	979.38		980.05	0.004049	10.62	548.93	181.19	0.81
Main Channel	24300.2	Floodway	3200.00	973.99	979.38		980.05	0.004049	10.62	548.93	181.19	0.81
Main Channel	24462.45	100-Year	3200.00	974.50	980.17		980.61	0.002653	8.83	658.73	204.12	0.65
Main Channel	24462.45	Floodway	3200.00	974.50	980.17		980.61	0.002653	8.83	658.73	204.12	0.65
Main Channel	24611.0	100-Year	3200.00	974.81	980.56		981.00	0.002441	8.63	677.12	208.58	0.63
Main Channel	24611.0	Floodway	3200.00	974.81	980.56		981.00	0.002441	8.63	677.12	208.58	0.63
Main Channel	24802.1	100-Year	3200.00	975.20	981.08		981.43	0.002071	8.02	734.86	223.45	0.58
Main Channel	24802.1	Floodway	3200.00	975.20	981.08		981.43	0.002071	8.02	734.86	223.45	0.58
Main Channel	24978.4	100-Year	3200.00	975.57	981.44		981.94	0.002826	9.33	622.66	187.01	0.68
Main Channel	24978.4	Floodway	3200.00	975.57	981.44		981.94	0.002826	9.33	622.66	187.01	0.68
Main Channel	25182.2	100-Year	3200.00	975.99	982.03		982.50	0.002511	8.98	656.31	199.45	0.64
Main Channel	25182.2	Floodway	3200.00	975.99	982.03		982.50	0.002511	8.98	656.31	199.45	0.64
Main Channel	25379.3	100-Year	3200.00	976.40	982.56		982.93	0.001817	7.77	715.53	187.91	0.55
Main Channel	25379.3	Floodway	3200.00	976.40	982.56		982.93	0.001817	7.77	715.53	187.91	0.55
Main Channel	25558.8	100-Year	3200.00	976.77	982.94		983.26	0.001777	7.65	773.59	224.95	0.54
Main Channel	25558.8	Floodway	3200.00	976.77	982.94		983.26	0.001777	7.65	773.59	224.95	0.54
Main Channel	25701.5	100-Year	3200.00	977.06	983.18		983.53	0.001939	7.96	735.39	212.37	0.57
Main Channel	25701.5	Floodway	3200.00	977.06	983.18		983.53	0.001939	7.96	735.39	212.37	0.57
Main Channel	25901.7	100-Year	3200.00	977.48	983.54		983.90	0.001744	7.65	726.97	193.01	0.55
Main Channel	25901.7	Floodway	3200.00	977.48	983.54		983.90	0.001744	7.65	726.97	193.01	0.55
Main Channel	26101.6	100-Year	3200.00	977.89	983.90		984.29	0.002085	8.18	690.72	191.78	0.59
Main Channel	26101.6	Floodway	3200.00	977.89	983.90		984.29	0.002085	8.18	690.72	191.78	0.59
Main Channel	26300.4	100-Year	3200.00	978.30	984.30		984.73	0.002267	8.50	662.75	184.02	0.61
Main Channel	26300.4	Floodway	3200.00	978.30	984.30		984.73	0.002267	8.50	662.75	184.02	0.61
Main Channel	26495.2	100-Year	3200.00	978.50	984.75		985.17	0.002190	8.35	671.37	184.97	0.59
Main Channel	26495.2	Floodway	3200.00	978.50	984.75		985.17	0.002190	8.35	671.37	184.97	0.59

HEC-RAS Plan: Proposed River: Bullard Wash Reach: Main Channel (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main Channel	26677.6	100-Year	3200.00	978.50	985.15		985.56	0.001995	7.93	680.48	176.93	0.54
Main Channel	26677.6	Floodway	3200.00	978.50	985.15		985.56	0.001995	7.93	680.48	176.93	0.54
Main Channel	26806.44	100-Year	3200.00	978.50	985.39		985.78	0.001568	7.07	662.68	140.81	0.47
Main Channel	26806.44	Floodway	3200.00	978.50	985.39		985.78	0.001568	7.07	662.68	140.81	0.47
Main Channel	26821	100-Year	3200.00	978.50	985.33		985.84	0.001903	7.74	575.28	110.67	0.52
Main Channel	26821	Floodway	3200.00	978.50	985.33		985.84	0.001903	7.74	575.28	110.67	0.52
Main Channel	26822	100-Year	3200.00	978.50	985.59		985.87	0.000840	4.54	759.56	114.19	0.30
Main Channel	26822	Floodway	3200.00	978.50	985.59		985.87	0.000840	4.54	759.56	114.19	0.30
Main Channel	26862	100-Year	3200.00	978.50	985.63		985.90	0.000826	4.52	763.78	114.26	0.30
Main Channel	26862	Floodway	3200.00	978.50	985.63		985.90	0.000826	4.52	763.78	114.26	0.30
Main Channel	26871	100-Year	3200.00	981.00	989.97	989.97	991.54	0.004580	12.69	396.86	110.92	0.84
Main Channel	26871	Floodway	3200.00	981.00	989.97	989.97	991.54	0.004580	12.69	396.86	110.92	0.84
Main Channel	26883.44	100-Year	3200.00	981.03	989.93		991.65	0.004978	13.17	378.90	105.85	0.88
Main Channel	26883.44	Floodway	3200.00	981.03	989.93		991.65	0.004978	13.17	378.90	105.85	0.88
Main Channel	26936	100-Year	3200.00	981.30	991.55		991.91	0.001262	5.62	709.24	156.28	0.40
Main Channel	26936	Floodway	3200.00	981.30	991.55		991.91	0.001262	5.62	709.24	156.28	0.40
Main Channel	27011	100-Year	3200.00	983.40	991.70		992.03	0.001285	5.99	741.64	164.96	0.41
Main Channel	27011	Floodway	3200.00	983.40	991.70		992.03	0.001285	5.99	741.64	164.96	0.41
Main Channel	27034		Bridge									
Main Channel	27057	100-Year	5319.00	983.90	991.79	990.35	992.54	0.002916	9.11	803.58	171.26	0.62
Main Channel	27057	Floodway	5319.00	983.90	991.79	990.35	992.54	0.002916	9.11	803.58	171.26	0.62
Main Channel	27127	100-Year	5319.00	984.30	991.94		992.80	0.003606	9.82	752.49	170.90	0.68
Main Channel	27127	Floodway	5319.00	984.30	991.94		992.80	0.003606	9.82	752.49	170.90	0.68
Main Channel	27150		Bridge									
Main Channel	27173	100-Year	5319.00	984.50	992.03	990.85	992.87	0.003528	9.72	755.42	169.59	0.68
Main Channel	27173	Floodway	5319.00	984.50	992.03	990.85	992.87	0.003528	9.72	755.42	169.59	0.68

The computed 100-year floodwater surface elevation from the *Corrected Effective Model* at the downstream cross section of the study reach is 941.2 ft (Station 11932), and at the upstream cross section it is 991.9 ft (RM 5.460 in the effective FIS). The computed 100-year floodwater surface elevation from the *Post-Project Conditions Model* at the matching downstream cross section is also 941.2 ft, and at the upstream cross section it is 992.0 ft (cross section 27173). Water surface elevations at both upstream and downstream tie-in locations are matching those from effective FIS models very well.

2.2.3 Riverine Structure Form

The attached "Riverine Structure Form" is provided per FEMA requirements for submittals.

It should be noted that, due to funding constraints, the construction of the project has been divided into the following five separate plan sets:

- Bullard Wash Channelization plans PHASE I – Yuma Road to Lower Buckeye Road
- Bullard Wash Channelization plans PHASE II – Van Buren Street to Yuma Road
- Bullard Wash Channelization plans PHASE III – I-10 to Van Buren Street
- Yuma Road Bridge
- Van Buren Street Bridge

Preliminary Construction Plans for each of these plan sets are included in Exhibit B.

The constraint for the *Post-Project Conditions Models* is to match or be similar to the pre-development wash condition at the upstream and downstream limits of the project reaches. The finalized channelization concept is a compound channel section with varied bottom width and side slopes.

The proposed bridge for Yuma Road (between Sta. 17310 and Sta.17434) consists of 54'-5" wide twin structures (east bound and west bound) with 3-12 ft travel lanes, a 4 ft outside shoulder, a 6 ft bike lane, a 6 ft sidewalk, and a 1'-0" combination pedestrian/vehicle barrier. The preliminary bridge design plans are shown in Exhibit B.

The proposed bridge for Van Buren Street (between Sta. 22728.93 and Sta. 22820.93) consists of 42'-5" wide twin structures (east bound and west bound) with 2-12 ft travel lanes, a 4 ft outside shoulder, a 6 ft bike lane, a 6 ft sidewalk, and a 1'-0" combination pedestrian/vehicle barrier. The preliminary bridge design plans are shown in Exhibit B.

The channel has been designed with a stable bed based on allowable velocity approach, the flow is streamlined and is designed to stay in the channel, flow is coming from upstream of I-10 within the channel, the bridges are not skewed and concrete channel lining with cutoff walls upstream and downstream will be provided under the bridges. As far as scour is concerned, lining under the bridge and upstream and downstream cutoff walls have been provided to meet long-term degradation requirements, the bridge abutments will be constructed on spread footings. Bridge abutment and pier scour, in this situation, is not an issue.

FEDERAL EMERGENCY MANAGEMENT AGENCY

RIVERINE STRUCTURES FORM

O.M.B. No. 3067-0148
Expires September 30, 2005

PAPERWORK REDUCTION ACT

Public reporting burden for this form is estimated to average 7 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing, reviewing, and submitting the form. You are not required to respond to this collection of information unless a valid OMB control number appears in the upper right corner of this 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, SW, Washington DC 20472, Paperwork Reduction Project (3067-0148). Submission of the form is required to obtain or retain benefits under the National Flood Insurance Program. **Please do not send your completed survey to the above address.**

Flooding Source: Bullard Wash
Note: Fill out one form for each flooding source studied

A. GENERAL

Complete the appropriate section(s) for each Structure listed below:

Channelization.....complete Section B
Bridge/Culvert.....complete Section C
Dam .....complete Section D
Levee/Floodwall .....complete Section E
Sediment Transport.....complete Section F (if required)

Description Of Structure

1. **Name of Structure: Bullard Wash Channel**

   Type (check one): ☒ Channelization ☐ Bridge/Culvert ☐ Levee/Floodwall ☐ Dam

   Location of Structure: Entire project reach

   Downstream Limit/Cross Section: 12197

   Upstream Limit/Cross Section: 26871

2. **Name of Structure: Yuma Bridge**

   Type (check one): ☐ Channelization ☒ Bridge/Culvert ☐ Levee/Floodwall ☐ Dam

   Location of Structure: Yuma Road

   Downstream Limit/Cross Section: 17310

   Upstream Limit/Cross Section: 17434

3. **Name of Structure: Van Buren Bridge**

   Type (check one) ☐ Channelization ☒ Bridge/Culvert ☐ Levee/Floodwall ☐ Dam

   Location of Structure: Van Buren Street

   Downstream Limit/Cross Section: 22728.93

   Upstream Limit/Cross Section: 22820.93

NOTE: For more structures, attach additional pages as needed.

B. CHANNELIZATION

Flooding Source: Bullard Wash

Name of Structure: Bullard Wash Channel

1. Accessory Structures

The channelization includes (check one):

- ☐ Levees [Attach Section E (Levee/Floodwall)]
- ☐ Superelevated sections
- ☐ Debris basin/detention basin
- ☐ Other (Describe):
- ☒ Drop structures
- ☒ Transitions in cross sectional geometry
- ☒ Energy dissipator

2. Drawing Checklist

Attach the plans of the channelization certified by a registered professional engineer, as described in the instructions.

3. Hydraulic Considerations

The channel was designed to carry 3,200 (cfs) and/or the 100-year flood.

The design elevation in the channel is based on (check one):

☒ Subcritical flow ☐ Critical flow ☐ Supercritical flow ☐ Energy grade line

If there is the potential for a hydraulic jump at the following locations, check all that apply and attach an explanation of how the hydraulic jump is controlled without affecting the stability of the channel.

☐ Inlet to channel ☐ Outlet of channel ☒ At Drop Structures ☒ At Transitions
☐ Other locations (specify):

4. Sediment Transport Considerations

Was sediment transport considered? ☐ Yes ☒ No If Yes, then fill out Section F (Sediment Transport).
If No, then attach your explanation for why sediment transport was not considered.

C. BRIDGE/CULVERT

Flooding Source: Bullard Wash

Name of Structure: Yuma Road Bridge & Van Buren Street Bridge

1. This revision reflects (check one):

- ☒ New bridge/culvert not modeled in the FIS
- ☐ Modified bridge/culvert previously modeled in the FIS
- ☐ New analysis of bridge/culvert previously modeled in the FIS

2. Hydraulic model used to analyze the structure (e.g., HEC-2 with special bridge routine, WSPRO, HY8): HEC-RAS
If different than hydraulic analysis for the flooding source, justify why the hydraulic analysis used for the flooding source could not analyze the structures. Attach justification.

3. Attach plans of the structures certified by a registered professional engineer. The plan detail and information should include the following (check the information that has been provided):

- ☒ Dimensions (height, width, span, radius, length)
- ☒ Shape (culverts only)
- ☒ Material
- ☒ Beveling or Rounding
- ☒ Wing Wall Angle
- ☒ Skew Angle
- ☒ Distances Between Cross Sections
- ☒ Erosion Protection
- ☒ Low Chord Elevations – Upstream and Downstream
- ☒ Top of Road Elevations – Upstream and Downstream
- ☒ Structure Invert Elevations – Upstream and Downstream
- ☒ Stream Invert Elevations – Upstream and Downstream
- ☒ Cross-Section Locations

4. Sediment Transport Considerations

Was sediment transport considered? ☐ Yes ☒ No If yes, then fill out Section F (Sediment Transport).
If No, then attach your explanation for why sediment transport was not considered.

D. DAM

Flooding Source:

Name of Structure:

1. This request is for (check one): ☐ Existing dam ☐ New dam ☐ Modification of existing dam
2. The dam was designed by (check one): ☐ Federal agency ☐ State agency ☐ Local government agency

   ☐ Private organization Name of the agency or organization:
3. Does the project involve revised hydrology? ☐ Yes ☐ No

   If Yes, complete the Riverine Hydrology & Hydraulics Form (Form 2).
4. Does the submittal include debris/sediment yield analysis? ☐ Yes ☐ No

   If yes, then fill out Section F (Sediment Transport).
   If No, then attach your explanation for why debris/sediment analysis was not considered.
5. Does the Base Flood Elevation behind the dam or downstream of the dam change?

   ☐ Yes ☐ No If Yes, complete the Riverine Hydrology & Hydraulics Form (Form 2) and complete the table below.

   Stillwater Elevation Behind the Dam

FREQUENCY (% annual chance)	FIS	REVISED
10-year (10%)		
50-year (2%)		
100-year (1%)		
500-year (0.2%)		
Normal Pool Elevation		

6. Please attach a copy of the formal Operation and Maintenance Plan

E. LEVEE/FLOODWALL

1. System Elements

a. This Levee/Floodwall analysis is based on (check one):

☐ upgrading of an existing levee/floodwall system
☐ a newly constructed levee/floodwall system
☐ reanalysis of an existing levee/floodwall system

b. Levee elements and locations are (check one):

☐ earthen embankment, dike, berm, etc.	Station	to
☐ structural floodwall	Station	to
☐ Other (describe):	Station	to

c. Structural Type (check one):

☐ monolithic cast-in place reinforced concrete
☐ reinforced concrete masonry block
☐ sheet piling
☐ Other (describe):

d. Has this levee/floodwall system been certified by a Federal agency to provide protection from the base flood?

☐ Yes ☐ No

If Yes, by which agency?

e. Attach certified drawings containing the following information (indicate drawing sheet numbers):

1. Plan of the levee embankment and floodwall structures. Sheet Numbers:
2. A profile of the levee/floodwall system showing the Base Flood Elevation (BFE), levee and/or wall crest and foundation, and closure locations for the total levee system. Sheet Numbers:
3. A profile of the BFE, closure opening outlet and inlet invert elevations, type and size of opening, and kind of closure. Sheet Numbers:
4. A layout detail for the embankment protection measures. Sheet Numbers:
5. Location, layout, and size and shape of the levee embankment features, foundation treatment, floodwall structure, closure structures, and pump stations. Sheet Numbers:

2. Freeboard

a. The minimum freeboard provided above the BFE is:

Riverine

3.0 feet or more at the downstream end and throughout	☐ Yes	☐ No
3.5 feet or more at the upstream end	☐ Yes	☐ No
4.0 feet within 100 feet upstream of all structures and/or constrictions	☐ Yes	☐ No

Coastal

1.0 foot above the height of the one percent wave associated with the 1%-annual-chance stillwater surge elevation or maximum wave runup (whichever is greater).	☐ Yes	☐ No
2.0 feet above the 1%-annual-chance stillwater surge elevation	☐ Yes	☐ No

E. LEVEE/FLOODWALL (CONTINUED)

2. Freeboard (continued)

Please note, occasionally exceptions are made to the minimum freeboard requirement. If an exception is requested, attach documentation addressing Paragraph 65.10(b)(1)(ii) of the NFIP Regulations.

If No is answered to any of the above, please attach an explanation.

b. Is there an indication from historical records that ice-jamming can affect the BFE? ☐ Yes ☐ No

If Yes, provide ice-jam analysis profile and evidence that the minimum freeboard discussed above still exists.

3. Closures

a. Openings through the levee system (check one): ☐ exists ☐ does not exist

If opening exists, list all closures:

Channel Station	Left or Right Bank	Opening Type	Highest Elevation for Opening Invert	Type of Closure Device

(Extend table on an added sheet as needed and reference)

Note: Geotechnical and geologic data

In addition to the required detailed analysis reports, data obtained during field and laboratory investigations and used in the design analysis for the following system features should be submitted in a tabulated summary form. (Reference U.S. Army Corps of Engineers [USACE] EM-1110-2-1906 Form 2086.)

4. Embankment Protection

a. The maximum levee slope landside is:

b. The maximum levee slope floodside is:

c. The range of velocities along the levee during the base flood is: (min.) to (max.)

d. Embankment material is protected by (describe what kind):

e. Riprap Design Parameters (check one): ☐ Velocity ☐ Tractive stress
Attach references

Reach		Sideslope	Flow Depth	Velocity	Curve or Straight	Stone Riprap			Depth of Toedown
						D_{100}	D_{50}	Thickness	
Sta	to								
Sta	to								
Sta	to								
Sta	to								
Sta	to								
Sta	to								

(Extend table on an added sheet as needed and reference each entry)

4. Embankment Protection (continued)

f. Is a bedding/filter analysis and design attached? ☐ Yes ☐ No

g. Describe the analysis used for other kinds of protection used (include copies of the design analysis):

Attach engineering analysis to support construction plans.

5. Embankment And Foundation Stability

a. Identify locations and describe the basis for selection of critical location for analysis:

☐ Overall height: Sta. ; height ft.

☐ Limiting foundation soil strength:

Sta. , depth to

strength ϕ = degrees, c = psf

slope: SS = (h) to (v)

(Repeat as needed on an added sheet for additional locations)

b. Specify the embankment stability analysis methodology used (e.g., circular arc, sliding block, infinite slope, etc.):

c. Summary of stability analysis results:

Case	Loading Conditions	Critical Safety Factor	Criteria (Min.)
I	End of construction		1.3
II	Sudden drawdown		1.0
III	Critical flood stage		1.4
IV	Steady seepage at flood stage		1.4
VI	Earthquake (Case I)		1.0

(Reference: USACE EM-1110-2-1913 Table 6-1)

d. Was a seepage analysis for the embankment performed? ☐ Yes ☐ No

If Yes, describe methodology used:

e. Was a seepage analysis for the foundation performed? ☐ Yes ☐ No

f. Were uplift pressures at the embankment landside toe checked? ☐ Yes ☐ No

g. Were seepage exit gradients checked for piping potential? ☐ Yes ☐ No

h. The duration of the base flood hydrograph against the embankment is hours.

Attach engineering analysis to support construction plans.

E. LEVEE/FLOODWALL (CONTINUED)

6. Floodwall And Foundation Stability

a. Describe analysis submittal based on Code (check one):

☐ UBC (1988) *or* ☐ *Other (specify):*

b. Stability analysis submitted provides for:

☐ Overturning ☐ Sliding If not, explain:

c. Loading included in the analyses were:

☐ Lateral earth @ P_A = psf; P_p = psf

☐ Surcharge-Slope @ , ☐ surface psf

☐ Wind @ P_w = psf

☐ Seepage (Uplift); ☐ Earthquake @ P_{eq} = %g

☐ 1%-annual-chance significant wave height: ft.

☐ 1%-annual-chance significant wave period: sec.

d. Summary of Stability Analysis Results: Factors of Safety.

Itemize for each range in site layout dimension and loading condition limitation for each respective reach.

Loading Condition	Criteria (Min)		Sta	To	Sta	To
	Overturn	Sliding	Overturn	Sliding	Overturn	Sliding
Dead & Wind	1.5	1.5				
Dead & Soil	1.5	1.5				
Dead, Soil, Flood, & Impact	1.5	1.5				
Dead, Soil, & Seismic	1.3	1.3				

(Ref: FEMA 114 Sept 1986; USACE EM 1110-2-2502)

(Note: Extend table on an added sheet as needed and reference)

e. Foundation bearing strength for each soil type:

Bearing Pressure	Sustained Load (psf)	Short Term Load (psf)
Computed design maximum		
Maximum allowable		

f. Foundation scour protection ☐ is, ☐ is not provided. If provided, attach explanation and supporting documentation:

Attach engineering analysis to support construction plans.

7. Settlement

a. Has anticipated potential settlement been determined and incorporated into the specified construction elevations to maintain the established freeboard margin? ☐ Yes ☐ No

b. The computed range of settlement is ft. to ft.

c. Settlement of the levee crest is determined to be primarily from :

☐ Foundation consolidation
☐ Embankment compression
☐ Other (Describe):

d. Differential settlement of floodwalls ☐ has ☐ has not been accommodated in the structural design and construction.

Attach engineering analysis to support construction plans.

8. Interior Drainage

a. Specify size of each interior watershed:

Draining to pressure conduit: acres
Draining to ponding area: acres

b. Relationships Established

Ponding elevation vs. storage	☐ Yes	☐ No
Ponding elevation vs. gravity flow	☐ Yes	☐ No
Differential head vs. gravity flow	☐ Yes	☐ No

c. The river flow duration curve is enclosed: ☐ Yes ☐ No

d. Specify the discharge capacity of the head pressure conduit: cfs

e. Which flooding conditions were analyzed?

• Gravity flow (Interior Watershed)	☐ Yes	☐ No
• Common storm (River Watershed)	☐ Yes	☐ No
• Historical ponding probability	☐ Yes	☐ No
• Coastal wave overtopping	☐ Yes	☐ No

If No for any of the above, attach explanation.

f. Interior drainage has been analyzed based on joint probability of interior and exterior flooding and the capacities of pumping and outlet facilities to provide the established level of flood protection. ☐ Yes ☐ No

If No, attach explanation.

g. *The rate of seepage through the levee system for the base flood is* cfs

h. The length of levee system used to drive this seepage rate in item g: ft.

8. Interior Drainage (continued)

i. Will pumping plants be used for interior drainage? ☐ Yes ☐ No

If Yes, include the number of pumping plants:
For each pumping plant, list:

	Plant #1	Plant #2
The number of pumps		
The ponding storage capacity		
The maximum pumping rate		
The maximum pumping head		
The pumping starting elevation		
The pumping stopping elevation		
Is the discharge facility protected?		
Is there a flood warning plan?		
How much time is available between warning and flooding?		

Will the operation be automatic? ☐ Yes ☐ No

If the pumps are electric, are there backup power sources? ☐ Yes ☐ No

(Reference: USACE EM-1110-2-3101, 3102, 3103, 3104, and 3105)

Include a copy of supporting documentation of data and analysis. Provide a map showing the flooded area and maximum ponding elevations for all interior watersheds that result in flooding.

9. Other Design Criteria

a. The following items have been addressed as stated:

Liquefaction ☐ is ☐ is not a problem
Hydrocompaction ☐ is ☐ is not a problem
Heave differential movement due to soils of high shrink/swell ☐ is ☐ is not a problem

b. For each of these problems, state the basic facts and corrective action taken:

Attach supporting documentation

c. If the levee/floodwall is new or enlarged, will the structure adversely impact flood levels and/or flow velocities floodside of the structure?
☐ Yes ☐ No

Attach supporting documentation

d. Sediment Transport Considerations:

Was sediment transport considered? ☐ Yes ☐ No If Yes, then fill out Section F (Sediment Transport).
If No, then attach your explanation for why sediment transport was not considered.

E. LEVEE/FLOODWALL (CONTINUED)

10. Operational Plan And Criteria

    a. Are the planned/installed works in full compliance with Part 65.10 of the NFIP Regulations? ☐ Yes ☐ No

    b. Does the operation plan incorporate all the provisions for closure devices as required in Paragraph 65.10(c)(1) of the NFIP regulations? ☐ Yes ☐ No

    c. Does the operation plan incorporate all the provisions for interior drainage as required in Paragraph 65.10(c)(2) of the NFIP regulations? ☐ Yes ☐ No

    If the answer is No to any of the above, please attach supporting documentation.

11. Maintenance Plan

    a. Are the planned/installed works in full compliance with Part 65.10 of the NFIP Regulations? ☐ Yes ☐ No
    If No, please attach supporting documentation.

12. Operations and Maintenance Plan

    Please attach a copy of the formal Operations and Maintenance Plan for the levee/floodwall.

F. SEDIMENT TRANSPORT

Flooding Source:

Name of Structure:

If there is any indication from historical records that sediment transport (including scour and deposition) can affect the Base Flood Elevation (BFE); and/or based on the stream morphology, vegetative cover, development of the watershed and bank conditions, there is a potential for debris and sediment transport (including scour and deposition) to affect the BFEs, then provide the following information along with the supporting documentation:

Sediment load associated with the base flood discharge: Volume acre-feet

Debris load associated with the base flood discharge: Volume acre-feet

Sediment transport rate (percent concentration by volume)

Method used to estimate sediment transport:

Most sediment transport formulas are intended for a range of hydraulic conditions and sediment sizes; attach a detailed explanation for using the selected method.

Method used to estimate scour and/or deposition:

Method used to revise hydraulic or hydrologic analysis (model) to account for sediment transport:
Please note that bulked flows are used to evaluate the performance of a structure during the base flood; however, FEMA does not map BFEs based on bulked flows.

If a sediment analysis has not been performed, an explanation as to why sediment transport (including scour and deposition) will not affect the BFEs or structures must be provided.

3.0 SURVEY AND MAPPING INFORMATION

3.1 Field Survey Information

A field survey was conducted to supplement information on the aerial topographic mapping. This included shots on existing walls and sewer manholes, rims, and inverts. Detailed cross-sections were also taken along Van Buren Street and Yuma Road to assist with the structure and roadway designs. The elevation reference marks are shown on the work maps (Exhibit C).

3.2 Mapping

Detailed mapping exceeding FEMA 37 standards for Flood Insurance Study (FIS) mapping requirements was developed for this study area by Kenney Aerial Mapping Inc. The flight date was May 8, 2002. The 1-foot contour maps at a scale of 1 inch = 100 feet were produced as work maps and are shown on Exhibit C.

4.0 HYDROLOGY AND HYDRAULICS

4.1 Hydrology

The basis for the project hydrology is the *Loop 303 Corridor/White Tanks Area Drainage Master Plan Update: Draft Existing Condition Hydrology* HEC-1 model. Accordingly, the project corridor will be designed for the 100-year flood peak of 3,200 cfs. This value is predetermined per the contract scope of work. Note that in order to match the Effective FIS models and tie into the FIS floodplain and floodway at the upstream and downstream limits of the reaches, the cross sections at the upstream and downstream limits were modeled using the same flow regime and peak flows as the FIS models.

4.2 Hydraulic Models

The HEC-2 models used for this regulatory FIS were prepared by The WLB Group, Inc., October 1992, as part of the White Tanks/Agua Fria Area Drainage Master Study (ADMS). The models were subsequently approved by FEMA through their LOMR process. This model is the effective FIS model for the upstream reach. The HEC-RAS model for *Bullard Wash Channel Improvements* is the effective FIS model for the downstream. These models were run to create duplicate effective models. The *Post-Project Conditions Models* were obtained by replacing the geometric data for the segments of the existing study wash geometry with the proposed incised earthen compound channel section cross section geometry data.

4.3 Parameter Estimation

4.3.1 Roughness Coefficients

A significant amount of effort was expended to arrive at a consensus for the channel's Manning's n-values. The following is a summary of the values used in the Hydraulic Analyses:

COMPONENT	LOCATION	MATERIAL	MANNING'S 'n'
Drop Structure	South of I-10	Gabions	0.035
Channel (greenbelt)	I-10 toVan Buren St. Van Buren to Yuma Rd.	Turf, trees	0.036
Channel Lining	Van Buren Street and Yuma Road Bridges	Roughened concrete	0.02
Channel (modified greenbelt)	Yuma Road to Phase I Channel	Turf, trees	0.033 (channel) 0.027 (overbank)
Drop Structure	Phase I connection	Gabions	0.03
Tailwater Swale	Entire Alignment	Concrete (heavy broom finish)	0.025

4.3.2 Expansion and Contraction Coefficients

The values for expansion and contraction coefficients used in this study are 0.30 and 0.10, respectively.

4.4 Cross Section Description

The finalized channelization concept for the study reach of the Bullard Wash, as shown on Exhibit C, is a compound channel section with varied bottom width and side slopes. The distance between cross sections is about 200 feet for the proposed Bullard Wash channelized reach. The three most northern sections (upstream) are taken from the WLB study. Cross sections below the drop structure (downstream) are taken from the previous study.

The channel between I-10 and Yuma road will be turf-lined for the entire flow area of the 100-year flood. Above the flood high water mark, the channel will be either turf-lined or desert landscaped. The channel south of Yuma Road will have a 4.5-foot deep turf-lined

channel that carries the majority of the 100-year flow with desert landscaping above this depth.

The minimum hydraulic sections developed in the design have been adjusted to incorporate a low-flow channel in the section north of Yuma Road and to reflect the use of a 4.5-foot deep turf-lined channel south of Yuma Road. The geometry of the low-flow channel, tailwater swale, and main channel for both treatments are identified in the design report and are shown on the plans.

The minimum hydraulic sections for each treatment will be adjusted to include aesthetic features, such as slope warping, top and toe of channel meandering, terracing, benching, and mounds. These features will give the channel a more natural appearance and will result in a more pleasing facility. A minimum 300 feet of right-of-way is needed for the hydraulic and aesthetic features needed for the channel. This width allows for slope warping, benching, terraces, and mounds. This width also considers the City's initial vision of the open space corridor.

Cross section plots are provided in Appendix F. The selected locations of the channel banks and assigned Manning's n-values are shown on the plots. The cross sections were selected based on the following criteria.

- Representative of the local channel reach.
- Oriented perpendicular to the direction of flow with the perspective of looking downstream.
- Do not include ineffective flow areas.
- Large enough to contain the 100-year peak discharge.

4.5 Modeling Considerations

4.5.1 Hydraulic Jump and Drop Analysis

An undular hydraulic jump is formed at the downstream of Yuma Road Bridge. A drop structure is required to tie the proposed channel invert into the existing wash invert at the end of project just south of the I-10 crossing. This structure will be an interim facility since Bullard Wash will ultimately be channelized to the north at

which time this structure will be removed. The drop geometry is shown on the plans and details.

4.5.2 Bridges and Culverts

Two proposed bridge structures will be built within this study reach: Yuma Road Bridge and Van Buren Street Bridge. Each crossing is modeled utilizing HEC-RAS. Transitions will be located at both bridge crossings and at the tie-in to the existing channel at the beginning of the project. A layout of the tie-in transition is shown on the plans. Transitions have been incorporated in the hydraulic model to ensure smooth hydraulic operation. Erosion protection including loose riprap upstream of the I-10 drop and concrete channel lining with cut-off walls at each bridge and at the transition to the downstream channel has been provided as needed to resist local erosive forces created at transition areas.

4.5.3 Levees and Dikes

There is no levee or dike within the project limit.

4.5.4 Islands and Flow Splits

There are no flow splits or islands within this study reach.

4.5.5 Ineffective Flow Areas

In general, there are no ineffective flow areas of concern for this study reach. However, there are a few maintenance ramp locations. Cross sections are placed at the upstream and downstream limits of the maintenance ramps, thus they are treated as ineffective flow areas where possible.

4.5.6 Supercritical Flow

The mixed flow option available in HEC-RAS is utilized to analyze the flow regime of Bullard Wash. Supercritical reaches within this study area are limited to the downstream sloping drop structure and downstream of Yuma Road Bridge.

4.5.7 Boundary Conditions

According to FEMA publication 37 Standard, normal depth (sloping area) method was used in the proposed HEC-RAS model for the boundary conditions of both upstream and downstream limits of the study reach.

4.6 Floodway Modeling

Because the 100-year flow is contained in the modified channel reach, the top widths of both floodway and floodplain are the same in the project area and the floodway and floodplain are delineated as coincidental.

4.7 Problems Encountered During the Study

No problems were encountered during the hydraulic modeling process.

4.8 Calibration

No calibration of hydraulic parameters was performed for this study reach.

4.9 Final Results

The COE HEC-RAS microcomputer software was used to simulate the riverine characteristics of the proposed Bullard Wash channel. The 100-year design discharge for this reach is 3,200 cfs. Adequate freeboard is maintained throughout the channel based on FCDMC requirements of $0.25(Y+v^2/2g)$ or 1' minimum for subcritical flow regime. The final HEC-RAS output for the proposed conditions is shown in Appendix F.

5.0 EROSION AND SEDIMENT TRANSPORT

The allowable velocity for the compound channel section will depend on the individual treatment components. The maximum allowable velocity for different channel linings is shown below:

Lining	Maximum Allowable Velocity
Turf	6.0 ft/s
Desert Landscaping	3.5 ft/s
Concrete	15.0 ft/s

The design velocities in the channel have been analyzed at different sections to ensure that the maximum allowable velocities are not violated for the different linings along the channel section.

It should be noted that the velocity of storm water that is above turf, immediately adjacent to the concrete-lined tailwater swale, could be greater than 6.0 ft/s, which ensures that no aggradation will occur in the project reach.

Erosion protection including loose riprap upstream of the I-10 drop and concrete channel lining with cut-off walls at each bridge and at the transition to the downstream channel has been provided as needed to resist local erosive forces created at transition areas.

6.0 DRAFT FIS REPORT DATA

6.1 Summary of Discharges

Table 4 provides a summary of discharges in FEMA format for the study area from Flood Insurance Study, Maricopa County Arizona and Unincorporated Areas, Volume 1 of 16, revised July 19, 2001. Note that the 100-year design peak flow for the project reach is modified.

TABLE 4
Summary of Discharges in FEMA Format

Flooding Source and Location	Drainage Area (Square Miles)	Peak Discharges (cfs)			
		10-year	50-year	100-year	500-year
Bullard Wash					
At Lower Buckeye Road	91.66	--1	--1	3,200	--1
At Yuma Road	89.93	--1	--1	3,200	--1
Downstream of I-10	88.27	--1	--1	3,200	--1
Upstream of I-10	88.27	--1	--1	5,319	--1

--1 Not Computed

6.2 Floodway Data

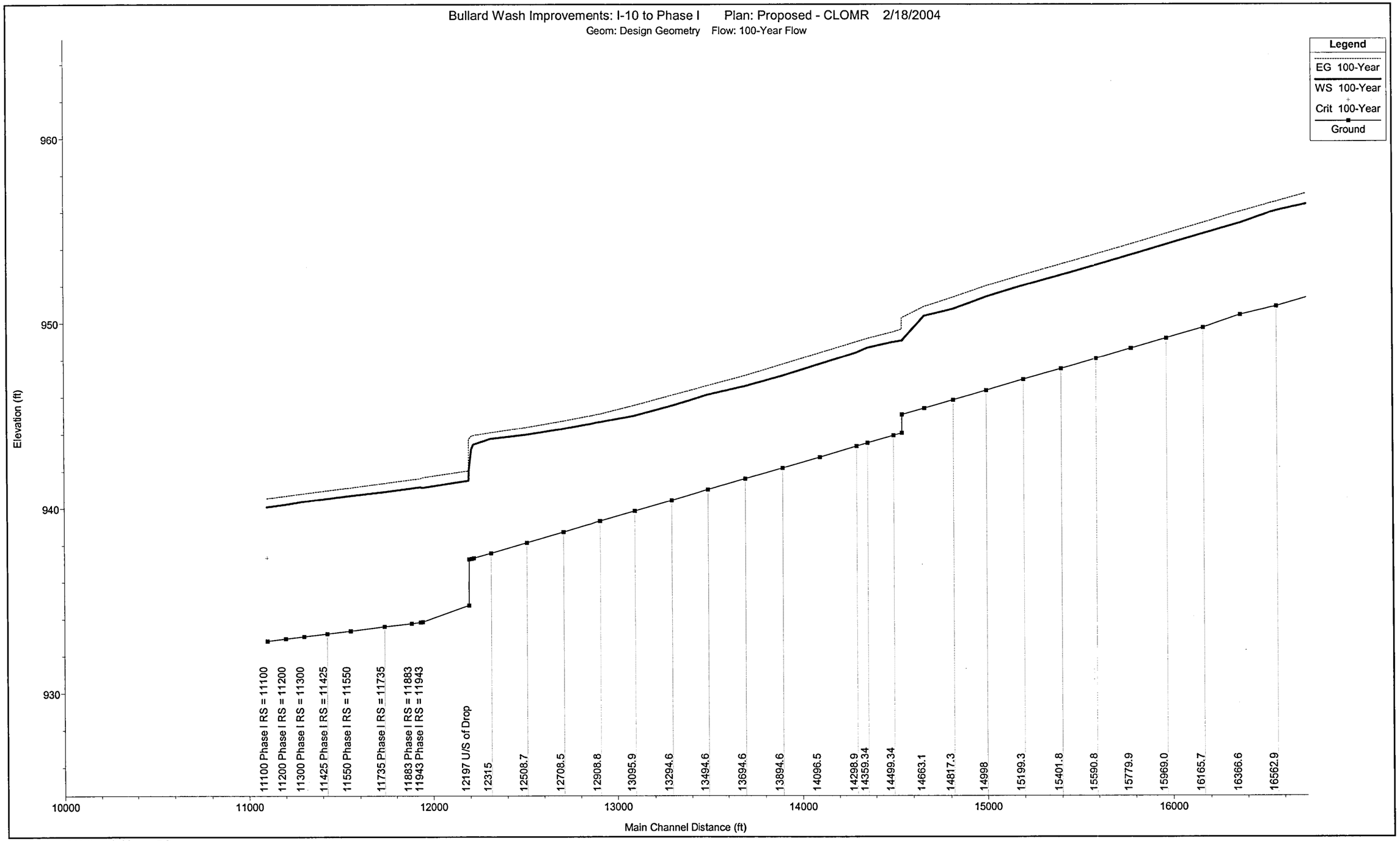
Because the 100-year flow is contained in the modified channel reach, the top widths of both floodway and floodplain are the same in the project area and the floodway and floodplain were delineated as coincidental. No floodway data is listed.

6.3 Annotated Flood Insurance Rate Map

The 100-year effective FIS flows are contained within the proposed study reach as documented in this report. Exhibit D contains the revisions to the effective FIRM panels 04013C2060 F and 04013C2070 G. Refer to Exhibit C for Post-Project Conditions Model Work Maps.

6.4 Flood Profiles

Figure 2 contains the proposed Bullard Wash Channel flood profiles for the 100-year storm.

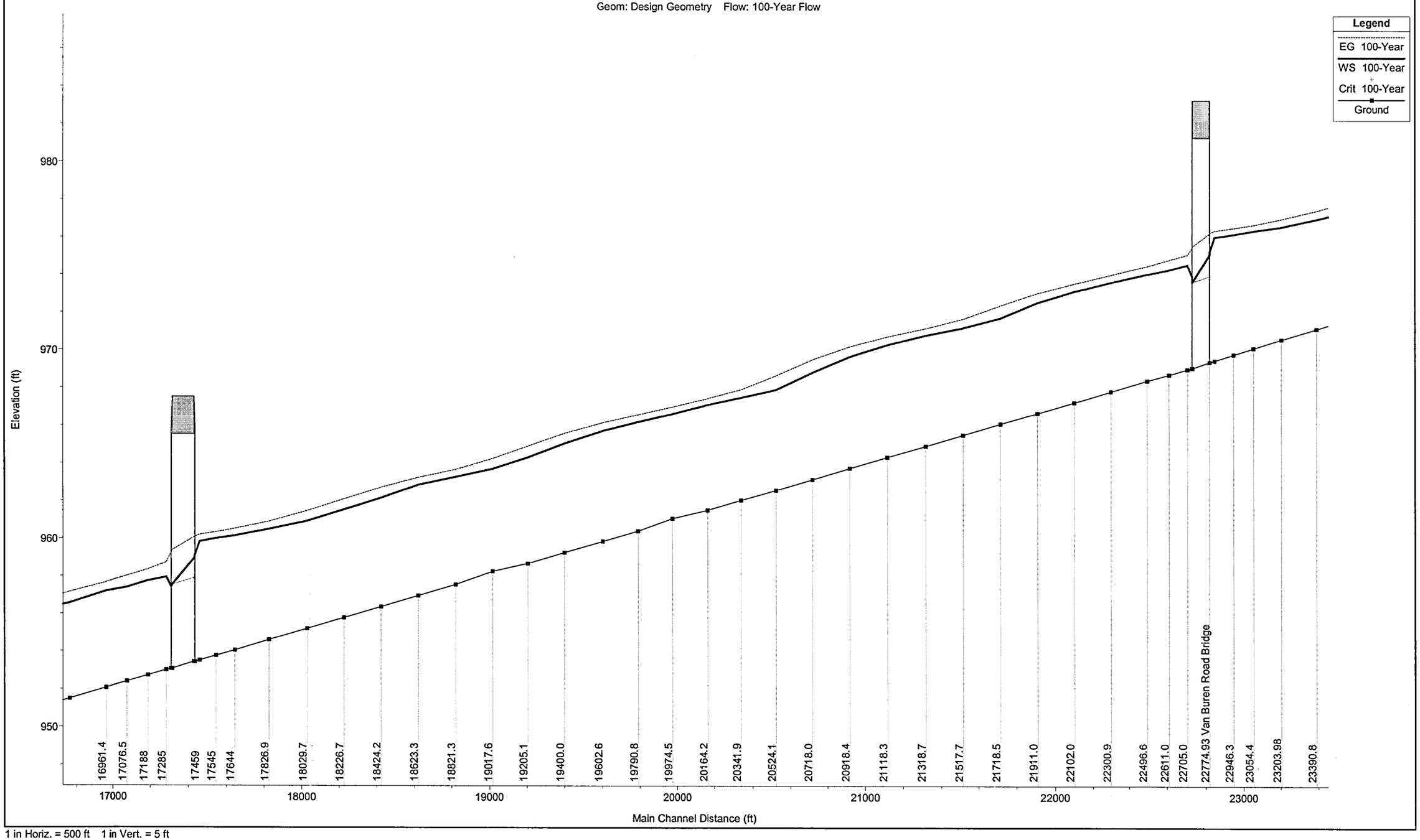


1 in Horiz. = 500 ft 1 in Vert. = 5 ft

Figure 2 Draft FEMA Flood Profiles

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 2/18/2004

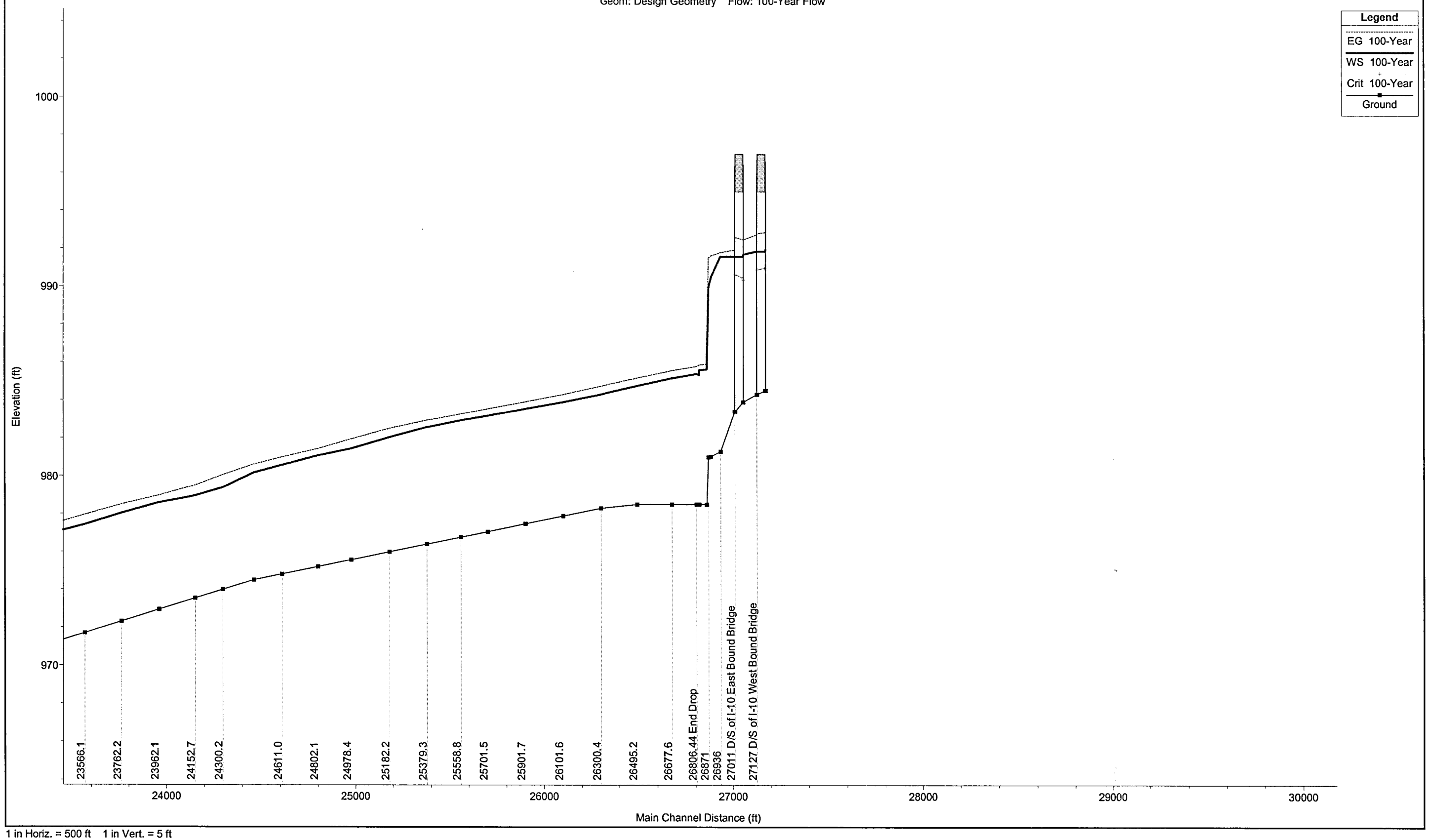
Geom: Design Geometry Flow: 100-Year Flow



1 in Horiz. = 500 ft 1 in Vert. = 5 ft

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 2/18/2004

Geom: Design Geometry Flow: 100-Year Flow



1 in Horiz. = 500 ft 1 in Vert. = 5 ft

7.0 REFERENCES

1. Flood Control District of Maricopa County, *White Tanks/Auga Fria Area Drainage Master Study*, The WLB Group, Inc., October 1992.

2. Flood Control District of Maricopa County, *Aerial Topography for White Tanks/Agua Fria Area Drainage Master Study*, The WLB Group, Inc., flown by Cooper Aerial of Phoenix, Inc., Flight Date: December 22, 1989, Contour Intervals: 2 feet.

3. Flood Control District of Maricopa County, *Plans for the Construction of: Bullard Wash Channel Improvements Project (FCD 98-15), Final Submittal*, Svderup Corp., September, 1998.

4. Flood Control District of Maricopa County, *Design Data Report, Bullard Wash Channel Improvements Final Design,* Sverdrup Corp., September 1998.

5. Wood, Patel & Associates, Inc., *Bullard Wash Channel Improvements, Technical Data Notebook*, November 1998.

6. Wood, Patel & Associates, Inc., *Bullard Wash Channel Improvements, Interstate 10 to Lower Buckeye Road, 90% Submittal Design Report.* February 2004.

7. Flood Control District of Maricopa County, *Drainage Design Manual for Maricopa County, Arizona; Volume I - Hydrology*, revised January 1995.

8. Flood Control District of Maricopa County, *Drainage Design Manual for Maricopa County, Arizona; Volume II - Hydraulics*, January 1996.

9. HEC-RAS River Analysis System, Version 3.1, US Army Corps of Engineers, Hydrologic Engineering Center, Davis California, May 2003.

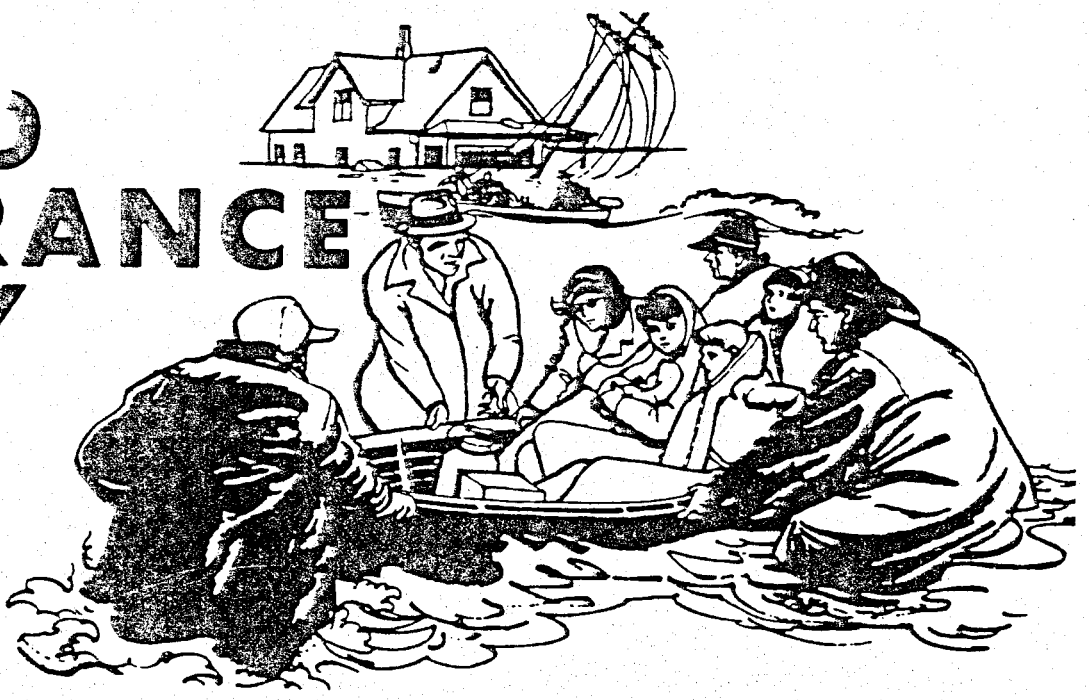
10. Chow, Ven Te, Ph D., *Open Channel Hydraulics*, McGraw-Hill, 1959.

APPENDIX A

General Documentation and Correspondence

F0026

FLOOD INSURANCE STUDY



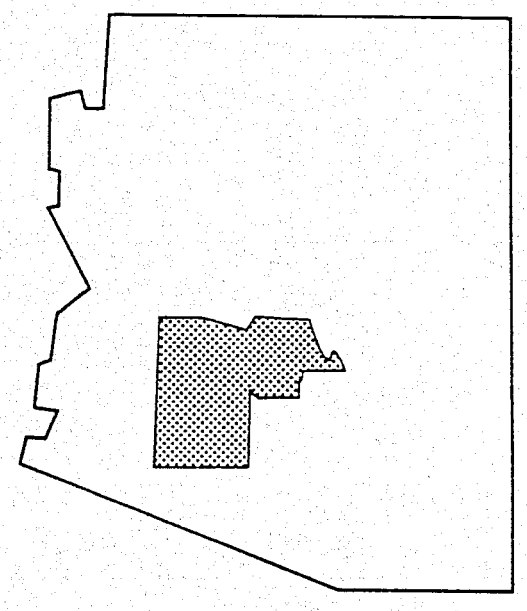
MARICOPA COUNTY, ARIZONA

AND INCORPORATED AREAS

VOLUME 1 OF 16

04013CV001

COMMUNITY NAME	COMMUNITY NUMBER
AVONDALE, CITY OF	040038
BUCKEYE, TOWN OF	040039
CAREFREE, TOWN OF	040126
CAVE CREEK, TOWN OF	040129
CHANDLER, CITY OF	040040
EL MIRAGE, CITY OF	040041
FOUNTAIN HILLS, TOWN OF	040135
GILA BEND, TOWN OF	040043
GILBERT, TOWN OF	040044
GLENDALE, CITY OF	040045
GOODYEAR, CITY OF	040046
GUADALUPE, TOWN OF	040111
LITCHFIELD PARK, CITY OF	040128
MARICOPA COUNTY UNINCORPORATED AREAS	040037
MESA, CITY OF	040048
PARADISE VALLEY, TOWN OF	040049
PEORIA, CITY OF	040050
PHOENIX, CITY OF	040051
QUEEN CREEK, TOWN OF	040132
SCOTTS DALE, CITY OF	045012
SURPRISE, CITY OF	045053
TEMPE, CITY OF	040054
TOLLESON, CITY OF	040055
WICKENBURG, TOWN OF	040056
YOUNGTOWN, TOWN OF	040057



REVISED: JULY 19, 2001

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
White Granite Wash					
At the retention basin on Caterpillar Proving Grounds	3.46	--[1]	--[1]	1,933	--[1]
At 0.8 miles upstream of the confluence with North Fork White Granite Wash	0.39[2]	--[1]	--[1]	344	--[1]
North Fork White Granite Wash					
At 0.1 miles upstream of the confluence with White Granite Wash	1.60	--[1]	--[1]	1,353	--[1]
191st Avenue Wash					
200 feet north of Interstate 10	--[1]	--[1]	--[1]	617[3]	--[1]
At Indian School Road	--[1]	--[1]	--[1]	147[3]	--[1]
At Camelback Road	--[1]	--[1]	--[1]	564[3]	--[1]
Perryville Road Wash					
At Camelback Road	13.17	--[1]	--[1]	470	--[1]
At the intersection of Camelback Road and Perryville Road	13.04	--[1]	--[1]	1,190	--[1]
At Glendale Avenue	11.58	--[1]	--[1]	1,450	--[1]
Bullard Wash					
At Lower Buckeye Road	91.66	--[1]	--[1]	4,906 *	--[1]
At Yuma Road	89.93	--[1]	--[1]	4,438 *	--[1]
Downstream of Interstate 10	88.27	--[1]	--[1]	4,446 *	--[1]
Upstream of Interstate 10	88.27	--[1]	--[1]	5,319	--[1]
At Indian School Road	84.50	--[1]	--[1]	4,121	--[1]
Downstream of Bethany Home Road Extended (limit of detailed study)	39.13	--[1]	--[1]	1,762	--[1]

[1]Not Computed
[2]Interpolated Discharge from White Tanks/Agua Fria ADMS HEC-1 Run
[3]Peak Discharges Have Been Derived by Performing a HEC-2 Split Flow Analysis Along 191st Avenue Wash

* DISCHARGES HAVE NOT BEEN UPDATED ON THIS TABLE BASED ON THE APPROVED PHASE I HYDROLOGY

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
					(FEET NGVD)			
Bullard Wash								
A[2]								
B	5,200	415	1,378	2.3	947.9	947.9	948.7	0.8
C	7,213	287	812	3.9	955.6	955.6	956.4	0.8
D	9,433	323	1,090	2.5	962.6	962.6	963.6	1.0
E	11,283	481	857	3.2	968.7	968.7	969.7	1.0
F	13,373	206	754	3.6	974.5	974.5	975.5	1.0
G	15,423	260	637	4.3	980.1	980.1	980.6	0.5
H	17,492	230	813	3.4	985.2	985.2	986.1	0.9
I	19,717	175	525	5.2	990.4	990.4	991.1	0.7
J	21,882	287	995	3.4	996.3	996.3	997.1	0.8
K	23,182	306	888	3.8	1,000.8	1,000.8	1,001.8	1.0
L	24,417	379	1,241	2.7	1,003.6	1,003.6	1,004.6	1.0
M	26,906	148	768	5.3	1,014.2	1,014.2	1,014.2	0.0
N	27,478	161	719	5.7	1,015.0	1,015.0	1,015.0	0.0
O	28,358	173	680	6.0	1,015.8	1,015.8	1,015.8	0.0
P	28,837	161	771	5.3	1,017.2	1,017.2	1,017.2	0.0
Q	29,857	234	910	4.5	1,018.7	1,018.7	1,018.7	0.0
R	30,862	267	1,031	4.0	1,019.8	1,019.8	1,019.8	0.0
S	31,682	169	858	4.8	1,022.1	1,022.1	1,022.1	0.0
T	31,944	464	621	6.6	1,023.7	1,023.7	1,023.7	0.0
U	39,520	515	991	4.3	1,050.2	1,050.2	1,050.4	0.2
V	41,400	815	1,170	3.2	1,058.8	1,058.8	1,059.1	0.3
W	43,260	310	665	1.1	1,060.6	1,060.6	1,061.0	0.4
X	44,840	85	224	3.4	1,062.9	1,062.9	1,062.9	0.0

[1]Feet Above Southern Pacific Railroad [2]Cross Section Not Used

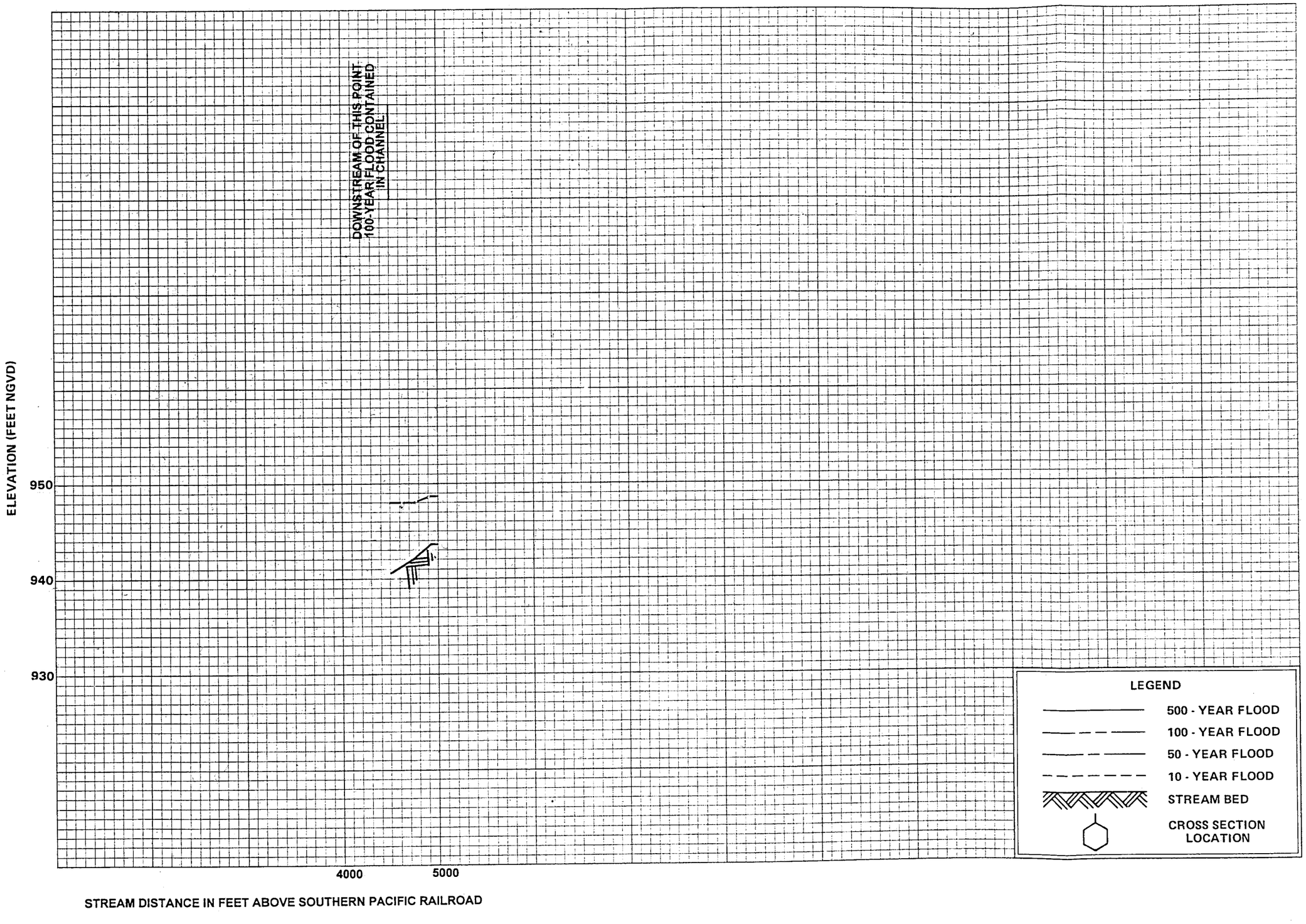
TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

FLOODWAY DATA

BULLARD WASH



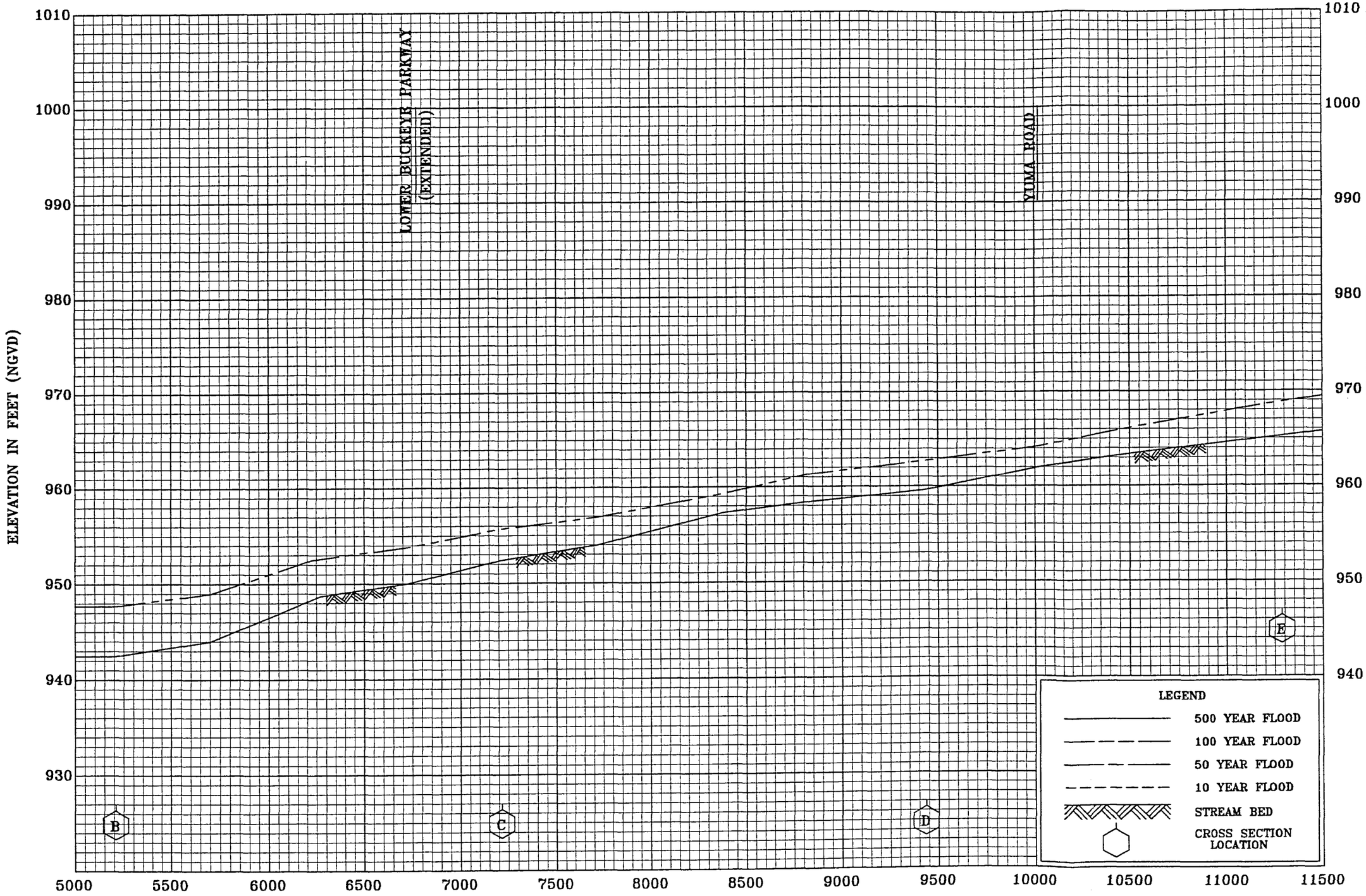
FLOOD PROFILES

BULLARD WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

626P



FLOOD PROFILES

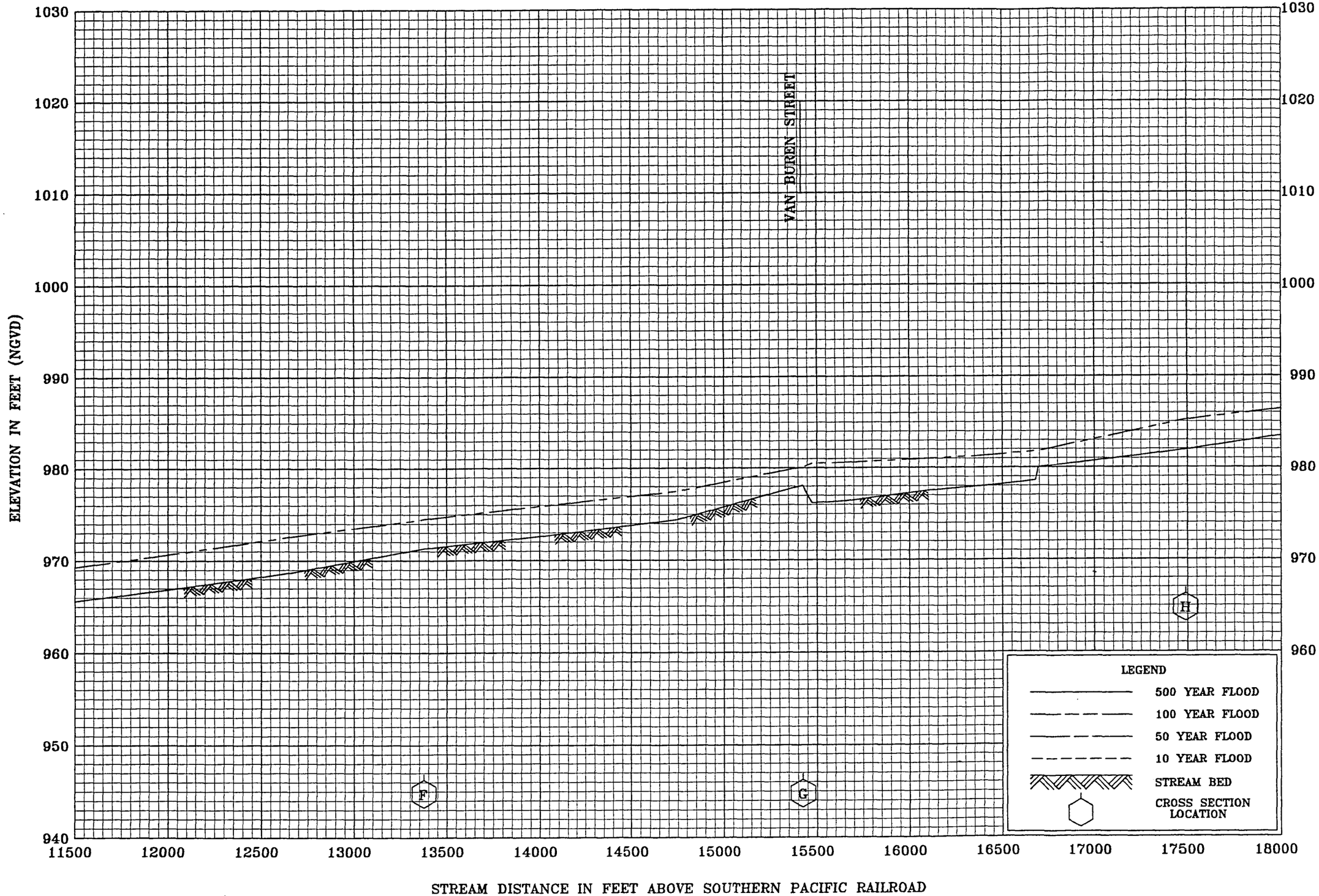
BULLARD WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ

AND INCORPORATED AREAS

627P



FLOOD PROFILES

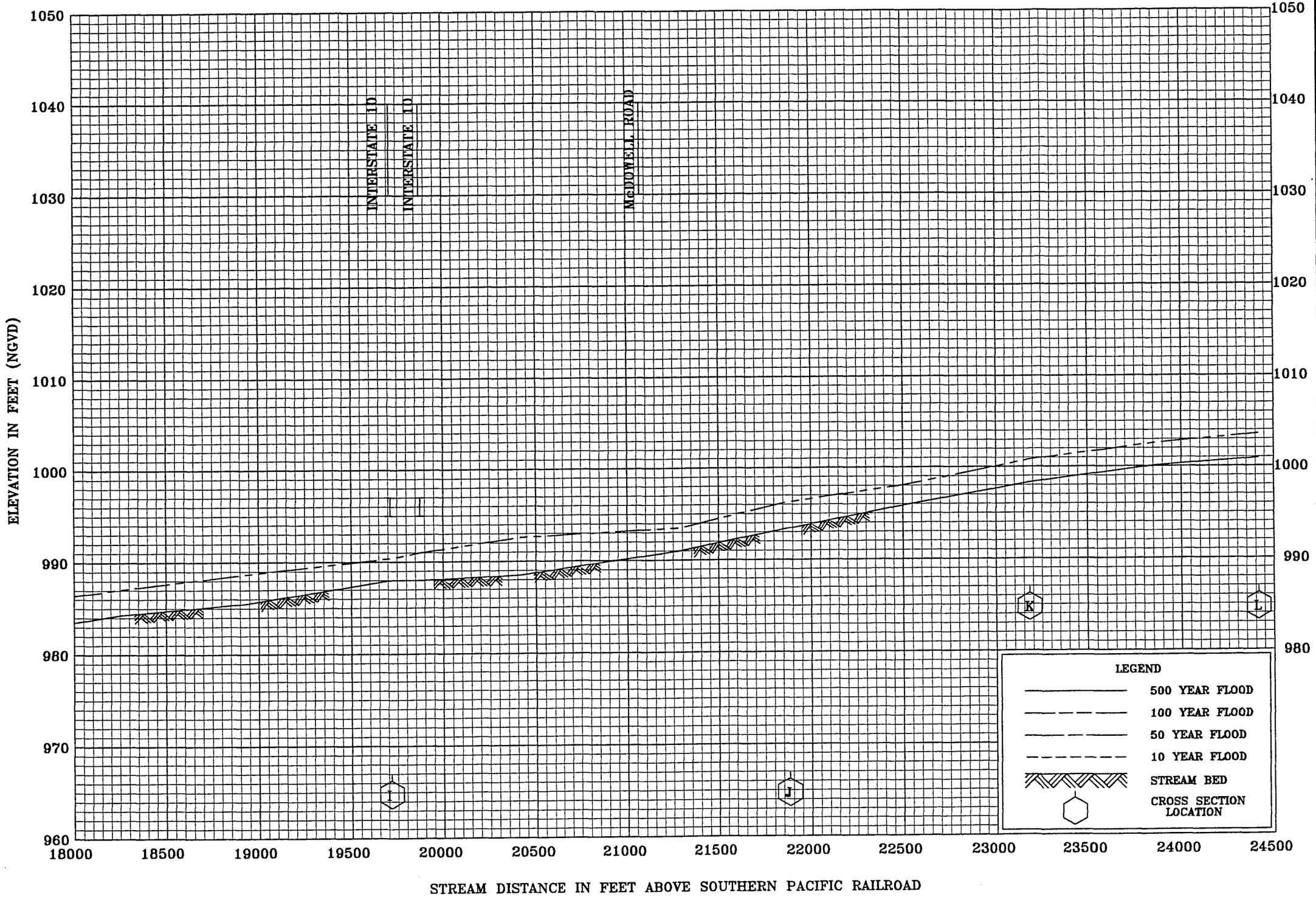
BULLARD WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ

AND INCORPORATED AREAS

628P



FLOOD PROFILES

BULLARD WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ

AND INCORPORATED AREAS

629P(a)

APPENDIX B

HEC-2 Output Files for Duplicate Effective FIS Model (Upstream)

```
*********************************************
   HEC-2 WATER SURFACE PROFILES            *
                                           *
 *  Version   4.6.2;  May 1991             *
 *                                         *
 *  RUN DATE    03SEP96    TIME   09:19:12 *
 *********************************************
```

```
****************************************
*  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

THIS RUN EXECUTED 03SEP96 09:19:12

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

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

```
T1      WHITE TANKS / AGUA FRIA AREA DRAINAGE MASTER STUDY
T2      100 - YEAR STORM EVENT   FLOODPLAIN/FLOODWAY RUN  FILE: 10.H2I
T3      BULLARD WASH - FROM BUCKEYE CANAL NORTH TO DYSART DRAIN
T4
T5      DISCHARGES IN FEILD 4 OF THE QT CARD ARE THE ACTUAL FLOWS AS DERIVED
T6      FROM THE 24-HOUR STORM HEC1 MODEL, AS DESCRIBED BY THE COMMENT CARDS.
T7      (THEY ARE NOT PARTS OF ANY CALCULATION). THOSE IN FEILD 2 & 3 ARE THE
T8      CAPACITIES WHICH CAUSE NO MORE THAN 1 FT. WSEL EXTENSION, AND ARE USED
T9      TO DELENIATE THE FLOODPLAIN AND FLOODWAY.

        NOTES ABOUT FLOODWAY:

        FLOODWAY DOWNSTREAM OF SOUTHERN PACIFIC RAIL ROAD (SEC. 1.474) HAS NOT
        BEEN DELENIATED DUE TO UNDEFINED FLOW PATH, AND DUE TO INABILITY OF THE
        CHANNEL DOWNSTREAM OF SEC. 0.668 TO HANDLE THE EXISTING FLOW DUE TO
        LIMITED GRADE AT THE RIGHT OVERBANK.

        FLOODWAY LIMITS, (SEC.  1.474 TO 2.185), HAVE BEEN SET IDENTICAL TO THE
        FLOODPLAIN LIMITS DUE TO THE INABILITY OF THE CHANNEL TO HANDLE THE
        EXISTING FLOW.

        FLOODWAY LIMITS, (SEC. 9.898 TO 10.955), HAVE BEEN SET IDENTICAL TO THE
        FLOODPLAIN LIMITS DUE TO THE CONFINEMENT OF FLOW IN A DEFINED CHANNEL.
        A WEIR FLOW ALSO OCCUR OVER THE RIGHT BANK AT SEC. 10.493 THROUGH 10.639

        FLOODWAY LIMITS, (SEC. 11.580 TO 13.161), HAVE BEEN SET IDENTICAL TO THE
        FLOODPLAIN LIMITS DUE TO THE INABILITY OF THE CHANNEL TO HANDLE THE
        EXISTING FLOW OR DUE TO THE CONFINEMENT OF FLOW IN A DEFINED CHANNEL.
```

	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
J1	0	2	0	0	.0025	0	0	0	912	0

	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
J2	1	0	0	0	0	0	0	0	0	0

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

38	43	1	53	21	22	54	51	4	8
42	5	26	0	110	0	200			

```
..C      .07       .07       .04       .1        .3
QT         3       850       850      3110

                 CROSS-SECTION AT BUKEYE CANAL

                 Q = Q AT CP364       (= 3110 CFS).
                 Q  HAS BEEN REDUCED DUE TO LIMITED GRADE AT THE RIGHT OVERBANK.
                 DIVERTED FLOW WILL CONTINUE AS SHEET FLOW TO THE WEST.

                 FLOODWAY DOWNSTREAM OF SOUTHERN PACIFIC RAIL ROAD (SEC. 1.474)
                 HAS NOT BEEN DELENIATED DUE TO UNDEFINED FLOW PATH AND DUE TO
                 THE INABILITY OF THE CHANNEL DOWNSTREAM OF SEC. 0.668 TO HANDLE
                 THE EXISTING FLOW DUE TO LIMITED GRADE AT THE RIGHT OVERBANK.

X1     0.000      12      9980     10120         0         0         0
GR       914    8620       912      9460     910.5      9950       912      9980     910.5     10000
GR       912   10030     912.3     10050       912     10080     910.5     10100       912     10120
GR       912   10510       914     10900

                 ANY WSEL EXTENSION AT SEC. 0.047 TO 0.616 IS DUE TO LIMITED
                 GRADE AT THE RIGHT OVERBANK.

X1     0.047      14      9960     10100       265       240       250
GR       914    8440     913.8      8900       912      9235     911.8      9550     910.6      9875
GR       912    9950     912.3      9960       912      9975       910     10000     911.3     10035
GR       910   10070     910.3     10100       912     10370     912.5     10820

X1     0.121      14      9980     10100       390       390       390
GR       914    8845       912      9800     911.6      9920       912      9970     912.7      9980
GR       912    9985       910     10000       912     10030     912.1     10040       912     10055
GR       910   10080     910.4     10100       912     10545     912.5     10820

X1     0.201      12      9970     10100       420       420       420
GR       914    9245     912.6      9935       913      9970       912      9985       910     10000
GR       912   10025     912.1     10040       912     10055       910     10075     910.5     10100
GR       912   10240     912.5     10820

 1     0.292      12      9960     10070       480       480       480
GR       914    9525     913.5      9850     912.8      9915     913.3      9960       912      9980
GR     910.5   10000     911.9     10025     910.5     10050     912.1     10070     911.8     10150
GR       912   10220     912.5     10800

                 A DIVIDED FLOW MIGHT OCCUR DUE TO SPLIT FLOW POTENTIAL AT
                 UPSTREAM CROSS-SECTION  0.668

X1     0.384      17      9970     10095       490       490       490
GR       916    9060       914      9620     913.2      9795       914      9965     914.3      9970
GR       914    9975       912      9985       911     10000       912     10015     912.4     10025
GR       912   10040     911.5     10050       912     10065     912.7     10095     912.3     10210
GR     912.7   10700     913.2     11370
1
   03SEP96      09:19:12                                                                          PAGE    3

                 A DIVIDED FLOW MIGHT OCCUR DUE TO SPLIT FLOW POTENTIAL AT
                 UPSTREAM CROSS-SECTION  0.668

X1     0.488      13      9970     10090       545       545       545
GR       916    9235     914.8      9580       914      9880     913.8      9925       914      9960
GR     915.2    9970       914      9980       912     10000     913.3     10035     912.3     10070
GR     913.5   10090     912.7     10500     913.2     11365

                 A DIVIDED FLOW MIGHT OCCUR DUE TO SPLIT FLOW POTENTIAL AT
                 UPSTREAM CROSS-SECTION  0.668

X1     0.531      12      9965     10090       230       230       230
GR       916    9360     914.1      9920     915.4      9965       914      9990     913.5     10000
GR       914   10015     914.1     10030     912.8     10065     914.2     10090       914     10105
GR     912.8   10470     913.2     11350

QT         3    4895      4895      4895

                 Q = Q AT CP364A      (= 4895 CFS).
```

```
                A DIVIDED FLOW MIGHT OCCUR DUE TO SPLIT FLOW POTENTIAL AT
                UPSTREAM CROSS-SECTION  0.668

X1    0.616       13      9960     10090       405       480       450
GR    917.3     9665    916.04      9670     917.1      9830     916.5      9960       916      9990
GR      915    10000     915.4     10030     913.8     10070     915.2     10090       914     10100
GR    913.8    10350       914     10790       916     10830

NC     .045     .045       .03        .1        .3

                ANY WSEL EXTENSION AT SEC. 0.668 TO 1.378 IS DUE TO LIMITED
                GRADE AT THE LEFT OVERBANK.

X1    0.668       10      9950     10035       200       290       270
GR    917.3     9620     916.8      9750     917.3      9950     916.4     10000     916.8     10035
GR      916    10080     915.5     10115       916     10160       918     10250     918.3     10290

X1    0.776       13      9975     10025       535       570       570
GR    920.6     9975       920      9985       918      9990     917.3     10000     917.9     10025
GR    916.4    10185       918     10315       920     10325     920.8     10350     919.3     10400
GR      920    10435     919.8     10470       924     10525

X1    0.868       11      9970     10020       495       485       490
GR    921.7     9970       920      9980     918.3     10000     919.8     10020       918     10220
GR      920    10295       922     10315     922.1     10335     919.9     10380       922     10485
GR    924.5    10495
1
   03SEP96      09:19:12                                                                          PAGE    4


X1    0.964       15      9970     10045       505       505       505
GR    923.2     9970       922      9980       920      9985     919.2     10000       920     10015
GR      922    10020     922.5     10045       922     10060     921.5     10140       922     10235
GR    922.8    10265       922     10320     921.7     10345       922     10390       925     10420

QT        3     2596      2596      4895
                Q = Q AT CP364A      (= 4895 CFS).
                Q  HAS BEEN REDUCED BY THE SAME DIVERSION AT THE REACH UPSTREAM
                OF SEC. 1.474 WHICH WILL RETURN AT SEC. 0.964

X1    1.081       13      9955     10090       595       610       620
GR    925.7     9955       924      9965       924     10000       924     10055       925     10090
GR      923    10140       923     10250       924     10260       926     10270       924     10295
GR    923.4    10355       924     10395       930     10425


                A DIVIDED FLOW MIGHT OCCUR DUE TO THE EFFECTIVENESS OF THE RIGHT
                OVERBANK IN CARRIYING THE FLOW

X1    1.153       16      9945     10060       410       355       380
GR    928.4     9945       928      9955       924      9970       924     10000       924     10025
GR    925.8    10060       924     10100       923     10140       923     10240       924     10265
GR      926    10285       927     10300       924     10340     923.7     10380       924     10410
GR    930.5    10440

                A DIVIDED FLOW MIGHT OCCUR DUE TO THE EFFECTIVENESS OF THE RIGHT
                OVERBANK IN CARRIYING THE FLOW

X1    1.236       15      9960     10060       435       435       435
GR    930.2     9960       930      9970       924      9980       924     10000       924     10025
GR      926    10040       928     10050     928.3     10060       928     10070     924.5     10130
GR      926    10160       928     10210     928.4     10250     925.9     10310     932.3     10375

                A DIVIDED FLOW MIGHT OCCUR DUE TO THE EFFECTIVENESS OF THE RIGHT
                OVERBANK IN CARRIYING THE FLOW

X1    1.317       15      9960     10050       430       430       430
GR    930.4     9960       930      9970       924      9985       924     10000       924     10010
GR      928    10035     928.5     10050       928     10060       927     10140       928     10210
GR      930    10240     930.4     10260     928.9     10300       930     10320       933     10365

                A DIVIDED FLOW MIGHT OCCUR DUE TO THE EFFECTIVENESS OF THE RIGHT
                OVERBANK IN CARRIYING THE FLOW

X1    1.378       15      9960     10035       345       295       320
GR    930.8     9960       930      9970       924      9985       924     10000       924     10010
```

```
GR      928      10020      928.8      10035        928      10050      927.5      10120        928      10180
 R      930      10250      930.9      10280      929.4      10320        930      10365      934.1      10385
```


CROSS-SECTION AT STATE ROUTE 85

```
X1    1.435         12       9965      10070        330        180        300
GR      934       9300        932       9780      931.4       9965      926.3       9995      926.3      10000
GR    926.3      10005        928      10030        931      10070      930.5      10120        932      10140
GR      934      10175      934.5      10185

QT        3       2600       2600       4899
ET
```

Q = Q AT CP336 (= 4899 CFS).
Q HAS BEEN REDUCED DUE TO LIMITED GRADE AT THE RIGHT OVERBANK
DIVERTED "Q" WILL BE RETURNED AT SEC. 0.964

ANY WSEL EXTENSION AT SEC. 1.474 TO 1.823 IS DUE TO LIMITED
GRADE AT THE RIGHT OVERBANK.

FLOODWAY LIMITS, (SEC. 1.474 TO 2.185), HAVE BEEN SET IDENTICAL
TO THE FLOODPLAIN LIMITS DUE TO THE INABILITY OF THE CHANNEL TO
HANDLE THE EXISTING FLOW.

```
X1    1.474          7       9985      10015        210        210        210
GR      934       8825        932       9985        930       9990        928      10000        930      10010
GR      932      10015        933      10080

NC     .045       .045        .03         .3         .5
ET
X1    1.517          8       9905      10080        500        160        225
GR      936       9200        934       9320      932.7       9600      932.8       9800      933.2       9905
GR    932.2      10000        934      10055      934.7      10080

ET
 1    1.566          7       9955      10045        320        210        260
GR      938       9870        936       9920        934       9955      932.5      10000        934      10045
GR      936      10060      936.1      10065

NC     .045       .045        .03         .1         .3
ET
X1    1.634          8       9970      10025        360        360        360
GR      940       9690        938       9855        936       9910        934       9970        933      10000
GR      934      10025        936      10050      937.3      10065

ET
X1    1.680          9       9970      10025        200        285        240
GR      940       9700        938       9800        936       9930        934       9970      933.4      10000
GR      934      10025        936      10055        938      10080      938.2      10100
```

1


```
ET
X1    1.745         12       9960      10040        280        400        345
GR    940.3       9660        940       9760        938       9825        936       9900      934.5       9960
GR      934       9975      933.8      10000        934      10025      934.5      10040        936      10090
GR      938      10195      938.2      10210

ET
X1    1.823         12       9970      10050        370        425        410
GR    940.3       9385        940       9425        938       9450      937.5       9500        938       9600
GR    938.2       9740        938       9785        936       9970      934.9      10000        936      10050
GR      938      10230      938.6      10255

QT        3       4899       4899       4899
ET
```

Q = Q AT CP336 (=4899 CFS).

A DIVIDED FLOW MIGHT OCCUR DUE TO SPLIT FLOW POTENTIAL AT
UPSTREAM CROSS-SECTION 2.371

```
 1    1.893         17       9960      10040        280        370        370
GR    940.3       9055        940       9090        938       9115      937.5       9170        938       9235
```

```
GR    938.3      9390       938      9545      936.3      9650       938      9715       940      9770
 R      938      9895       937      9960      936.1     10000       937     10040       938     10110
GR      940     10215       941     10370

ET

                 A DIVIDED FLOW MIGHT OCCUR DUE TO SPLIT FLOW POTENTIAL AT
                 UPSTREAM CROSS-SECTION  2.371

X1    1.941        20      9975     10025        40       290       255
GR    940.3      8925       940      8960       938      8985     937.5      9040       938      9100
GR    938.4      9255       938      9430     936.3      9510       938      9580       944      9685
GR    944.6      9820       944      9890       942      9960       940      9975       938      9990
GR    937.9     10000       938     10010       940     10025       942     10040       943     10055

NC     .045       .07       .03        .1        .3
ET

                 A DIVIDED FLOW MIGHT OCCUR DUE TO SPLIT FLOW POTENTIAL AT
                 UPSTREAM CROSS-SECTION  2.371

X1    1.988        20      9950     10030        35       280       245
GR    940.3      8890       940      8930       938      8955     937.5      9000       938      9065
GR    938.4      9220       938      9420     936.3      9485       938      9540       940      9575
GR      942      9595       944      9630     944.8      9750     944.7      9810       944      9950
GR      940      9980     938.2     10000       940     10015       944     10030     944.9     10125
1
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ET

                 ANY WSEL EXTENSION AT SEC. 2.058 TO 2.185 IS DUE TO LIMITED
                 GRADE AT THE LEFT OVERBANK.

                 A DIVIDED FLOW MIGHT OCCUR DUE TO SPLIT FLOW POTENTIAL AT
                 UPSTREAM CROSS-SECTION  2.371

X1    2.058        18      9970     10035       350       370       370
 R      941      8850       940      8950       939      9020     939.5      9190       938      9500
GR    936.6      9520       938      9540       940      9565       942      9585       944      9650
GR      944      9755     945.6      9835       944      9970       940      9985     938.4     10000
GR      940     10020       944     10035       946     10085

ET

                 A DIVIDED FLOW MIGHT OCCUR DUE TO SPLIT FLOW POTENTIAL AT
                 UPSTREAM CROSS-SECTION  2.371

X1    2.185        21      9965     10045       430       670       670
GR    942.5      9310       942      9360       940      9445       938      9545     937.2      9565
GR      938      9580       940      9595       942      9630       943      9765     944.1      9860
GR    944.5      9925       944      9965       942      9975       940      9985       939     10000
GR      940     10015       942     10030       944     10045       945     10185       946     10680
GR    946.2     10690

ET                            9.1                                                      9600     10060
X1    2.297        22      9975     10040       610       450       595
GR    946.3      9310       946      9335       944      9425       942      9480       940      9530
GR    937.9      9570     938.3      9605     937.8      9655     938.1      9700     937.9      9775
GR      938      9840       940      9930     941.3      9975       940      9990     939.4     10000
GR      940     10015     940.2     10040     940.8     10040       942     10480       944     10700
GR      946     11415       947     11430

ET                            9.1                                                      9650     10070
X1    2.371        25      9975     10030       400       500       390
GR    949.7      8815       948      8940       946      9060       944      9145     944.5      9185
GR      944      9270       942      9315       940      9435     939.8      9520       940      9585
GR    940.6      9655       940      9710     939.4      9775       940      9815       942      9890
GR    942.3      9930       942      9975       940      9995     939.7     10000       940     10005
GR    940.7     10030       942     10385       944     10860       946     11400     949.7     11450

ET                            9.1                                                      9835     10210
X1    2.435        20      9985     10085       335       335       335
GR      950      8650       948      8790       946      8890     945.2      9000       946      9090
GR      944      9250       942      9485     941.1      9720       942      9835     942.4      9950
GR      942      9985       940      9995     939.9     10000       940     10005     941.7     10085
GR      942     10360       944     10760       946     11320       948     11395     949.8     11420

   03SEP96      09:19:12                                                                          PAGE    8
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QT        3       4906       4906       4906
ET                           9.1                                                                    9850       10250

                 CROSS-SECTION 30 FEET SOUTH OF LOWER BUKEYE RD. EXTENDED

                 Q = Q AT CP335        (= 4906 CFS).

X1     2.536        15       9965      10060        535        535        535
GR       951      9185        950       9300        948       9555        946       9710      945.5       9865
GR       944      9920      943.5       9935      943.8       9965      943.5      10000      943.7      10060
GR       944     10155      944.8      10500        946      10800        948      11280      950.2      11340

ET                           9.1                                                                    9800       10205

                 A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

X1     2.680        17       9925      10050        735        725        760
GR       954      9265        952       9400        950       9505        948       9645      947.2       9735
GR       948      9790      949.9       9805      948.8       9900        948       9905      947.3       9925
GR       946      9940      945.2      10000      945.6      10050        946      10165        948      10565
GR       950     10935        952      11160

ET                           9.1                                                                    9880       10225

                 A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

X1     2.771        16       9985      10020        480        480        480
GR       954      9440        952       9545        950       9660      948.1       9810        950       9880
GR     951.4      9890        950       9900      949.4       9985      947.4      10000      948.2      10020
GR     947.3     10075        948      10210        950      10505      950.9      10795        952      11105
GR     953.5     11255

ET                           9.1                                                                    9830       10180
X1     2.883        15       9985      10015        580        580        590
GR       958      9190        956       9360        954       9535        952       9640        950       9840
GR     949.6      9920      950.2       9985      948.5      10000      950.1      10015      949.2      10035
GR       950     10165        952      10385        954      10600        956      11230      956.5      11270

QT        3       4915       4915       4915
ET                           9.1                                                                    9820       10055

                 Q = Q AT CP334        (= 4915 CFS).

X1     2.977        15       9980      10050        500        500        500
GR       960      9170        958       9345        956       9530        954       9660        952       9830
GR       951      9960      951.5       9980        950       9990      949.9      10000        950      10010
GR     952.1     10050        954      10480        956      10740        958      11200      958.5      11305
1
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ET                           9.1                                                                    9790       10180
X1     3.070        13       9945      10025        485        495        490
GR     958.5      9510      953.8       9545      954.5       9600      954.5       9945        954       9960
GR     952.5      9975      954.2       9985      952.3      10000      953.2      10025      952.7      10060
GR       954     10290        956      10635        958      10875

QT        3       4432       4432       4432
ET                           9.1                                                                    9730       10190

                 Q = Q AT 1I334        (= 4432 CFS).

X1     3.167        18       9970      10020        475        515        510
GR     960.7      9530        956       9585        955       9625      955.4       9730      954.9       9865
GR     955.8      9935      955.1       9970        954       9990      953.9      10000        954      10005
GR     954.9     10020      954.5      10080      955.1      10120      954.8      10220        956      10425
GR       958     10770        960      10990        962      11230

ET                           9.1                                                                    9987       10330

                 A DIVIDED FLOW MIGHT OCCUR DUE TO SPLIT FLOW POTENTIAL AT
                 UPSTREAM CROSS-SECTION  3.602

X1     3.291        23       9970      10020        660        650        655
GR       964      9530        962       9670      961.3       9690      961.8       9725      960.4       9770
GR     961.8      9785      960.1       9940      960.5       9970        960       9985        958       9995
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GR    957.2     10000       958     10005       960     10015     960.1     10020       960     10025

GR      958     10040     957.2     10110     957.8     10360     957.6     10460       958     10700
GR      960     10910       962     10970       964     11600

ET                          9.1                                                         9840     10365

                A DIVIDED FLOW MIGHT OCCUR DUE TO SPLIT FLOW POTENTIAL AT
                UPSTREAM CROSS-SECTION  3.602

X1    3.376        17      9985     10015       460       440       450
GR    967.9      9300       966      9370       964      9520       962      9630     960.5      9900
GR    961.9      9985       960      9995     958.3     10000       960     10005       961     10015
GR      960     10030     958.4     10055     958.6     10170     958.8     10365       960     10590
GR      962     10930       964     11490

ET                          9.1                                                         9870     10260

                A DIVIDED FLOW MIGHT OCCUR DUE TO SPLIT FLOW POTENTIAL AT
                UPSTREAM CROSS-SECTION  3.602

X1    3.491        17      9980     10020       605       605       605
GR      968      9255       966      9435       964      9555       962      9660     960.5      9930
GR    961.9      9980       960      9995     959.5     10000       960     10005     961.9     10020
GR      960     10040     959.6     10130       960     10240       962     10540       964     10735
GR      966     11000       968     11780
1
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QT        3      4438      4438      4438
NC      .07       .07       .04        .1        .3
ET                          9.1                                                         9840     10170

                CROSS-SECTION AT YUMA RD.

                Q = Q AT CP316        (= 4438 CFS).

X1    3.602        13      9880     10100       590       590       590
R       970      9225       968      9450       966      9600       964      9750       962      9880
GR    961.9     10000       962     10100     963.2     10330       964     10445       966     10625
GR      968     10770     968.9     10945       970     11005

ET                          9.1                                                         9550     10140

                A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

X1    3.702        20      9955     10055       535       490       525
GR      972      8720       970      8925       968      9115       966      9315       964      9550
GR    963.5      9620       964      9665     970.5      9750     970.5      9900       970      9920
GR      968      9935       964      9945     963.5      9950     963.9      9955     963.4     10000
GR      964     10055       966     10370       968     10660       970     10980       972     11360

ET                          9.1                                                         9550     10070

                A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

X1    3.841        23      9955     10070       735       735       735
GR      976      8355       974      8700       972      8995       970      9130       968      9280
GR      966      9550     965.5      9650       966      9685     970.5      9700     970.2      9900
GR      970      9915       968      9925       966      9930     965.1      9935       966      9940
GR    967.1      9955     966.3     10000     967.3     10070       968     10260       970     10495
GR      972     10710       974     11090       976     11350

ET                          9.1                                                         9500     10095

                A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

X1    3.978        23      9930     10095       725       725       725
GR      978      8360       976      8690       974      8990       972      9180       970      9335
GR    968.8      9570       970      9705     970.5      9740     970.5      9885       970      9900
GR      968      9910     966.9      9915       968      9920       969      9930       968      9990
GR    967.9     10000       968     10015     968.4     10095       970     10300       972     10515
GR      974     10655       976     10850       978     11110

ET                          9.1                                                         9780     10125
X1    4.101        23      9960     10080       650       650       650
R       980      8400       976      8715       974      8955       974      9255       972      9540
R       971      9715     971.4      9780     970.2      9890     971.3      9920       970      9935
GR    968.7      9945       970      9950       971      9960       970      9985     969.8     10000
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GR      970     10015     970.9     10080     970.7     10160       972     10400       974     10560
R       976     10620       978     10915       980     11180
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ET                          9.1                                                   9780     10075
X1    4.237        19      9935     10075       715       715       715
GR      980      8695       978      9160     976.5      9270     977.4      9305       976      9390
GR      974      9535       972      9850     971.8      9870       972      9885     972.4      9910
GR    972.2      9920     972.6      9935       972      9940     971.3     10000       972     10075
GR      974     10290       976     10430       978     10600       980     10870

ET                          9.1                                                   9840     10110
X1    4.356        16      9950     10070       630       630       630
GR    980.5      9300       980      9320       978      9430       976      9525       974      9725
GR    973.1      9895     973.5      9915     973.3      9935     973.5      9950     972.6     10000
GR    973.4     10070       974     10155       976     10360       978     10485       980     10615
GR      982     10870

ET                          9.1                                                   9850     10160
X1    4.496        14      9975     10130       740       740       740
GR      984      9180       982      9365       980      9540       978      9645       976      9845
GR    974.8      9945     975.2      9975     974.4     10000       975     10130       976     10275
GR      978     10420       980     10540       982     10620       984     10840

QT        3      4446      4446      4446
ET                          9.1                                                   9850     10150

                CROSS-SECTION AT VANBUREN ST.

                Q = Q AT CP298        (= 4446 CFS).

X1    4.625        12      9835     10160       680       680       680
GR      986      9220       984      9310       982      9450       980      9650     978.3      9835
GR    978.1     10000     978.3     10160       980     10345       982     10480       984     10650
GR    985.1     10810       986     10950

ET                          9.1                                                   9800     10200
X1    4.701        11      9685     10405       400       400       400
GR      986      9130       984      9355       982      9555       980      9685       978      9795
GR      978     10000       978     10270       980     10405       982     10510       984     10610
GR      986     10840

ET                          9.1                                                   9850     10150
X1    4.858        12      9705     10290       860       820       830
GR      988      9200       986      9420       984      9620       982      9705       980     10000
GR    980.3     10060       980     10090     980.5     10260       982     10290       984     10555
GR      986     10820       988     11220

ET                          9.1                                                   9820     10105
X1    5.009        14      9935     10100       800       840       795
GR      990      9190       988      9410       986      9575       984      9715       982      9820
GR    981.9      9860       982      9900     983.7      9935       982     10000     982.5     10100
GR      984     10270       986     10445       988     10700       990     10880
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ET                          9.1                                                   9800     10090
X1    5.153        12      9945     10090       775       730       765
GR      992      9110       990      9280       988      9480       986      9645     984.5      9800
GR    985.6      9945     984.3     10000     985.4     10090       986     10145       988     10410
GR      990     10480       992     10885

ET                          9.1                                                   9700     10100
X1    5.282        13      9945     10055       690       665       680
GR      992      8865       990      9105       988      9440       986      9710     985.6      9850
GR      986      9915       987      9945       986      9960     985.5     10000       986     10055
GR      988     10230       990     10590       992     10870

NC     .07       .07      .035        .3        .5
ET                          9.1                                                   9913     10087

                A 7-SPAN BRIDGE AT I-10 , (SEE I-10 PLANS)

X1    5.430        11    9899.9   10100.1       680       820       780
3        10                                                          996       996
GR     1000      9050       997    9899.9     994.2      9900     994.2      9906       988      9919
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GR      988      10000       988      10081      994.2      10094      994.2      10100       997     10100.1
 R     1000      10450

QT        3       5319      5319       5319
SB     1.05        1.6       2.6          0        162          6       1203          2       988         988
ET                            9.1                                                            9913       10087

                Q = Q AT CP287       (= 5319 CFS).

X1    5.460         11    9899.9    10100.1        160        160        160
X2        0          0         1        995        997
X3       10                                                                  997       997
BT        4       9050      1000                9899.9        997                  10100.1       997
BT    10450       1000
GR     1000       9050       997     9899.9      994.2       9900      994.2       9906       988      9919
GR      988      10000       988      10081      994.2      10094      994.2      10100       997    10100.1
GR     1000      10450

NC      .07        .07       .04         .3         .5
ET                            9.1                                                             9850      10200
X1    5.563         13      9850      10100        540        535        540
GR      996       8140     994.2       8850        994       9085        992       9470       990      9790
GR    990.9       9815     989.5       9850      988.5      10000      988.9      10100       990     10370
GR      992      10655       994      10920        996      11105

QT        3       4662      4662       4662
NC      .07        .07      .045         .1         .3
ET                            9.1                                                             9870      10250
1
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                CROSS-SECTION AT 280 FEET(ALONG FLOW PATH) NORTH OF MC DOWELL RD

                Q = Q AT CP286       (= 4662 CFS).

                A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

X1    5.727         21      9935      10135        870        835        870
 R      999       8415       998       8710        996       9045        994       9250     992.4      9690
GR      994       9730     996.1       9780      993.5       9800      993.5       9830    1000.4      9870
GR     1000       9890       994       9900        992       9935        991      10000     991.8     10135
GR      992      10190       994      10550      994.6      10565        994      10600       996     10890
GR      998      11170

ET                            9.1                                                             9920      10300

                A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

X1    5.840         22      9970      10170        590        580        595
GR   1001.6       8460      1000       8815        998       9090        996       9400     994.5      9760
GR      996       9805     998.1       9840      993.5       9865      993.5       9895     998.6      9920
GR      998       9925       996       9940        994       9970      993.4      10000     993.7     10170
GR      994      10300       996      10605      996.3      10620      995.8      10650       996     10675
GR      998      10945      1000      11190

ET                            9.1                                                             9960      10400
X1    5.960         16      9960      10150        640        610        635
GR     1002       8825      1000       9240        998       9760        997       9910     997.3      9960
GR      996       9990     995.9      10000        996      10010      996.2      10150       996     10230
GR    996.2      10520     997.3      10680        997      10715        998      10935      1000     11210
GR     1002      11560

ET                            9.1                                                             9800      10300
X1    6.086         12      9900      10100        655        685        665
GR     1004       8350      1002       9210       1000       9650      999.6       9810     999.2      9900
GR    998.3      10000     999.2      10100        999      10420      999.7      10495      1000     10720
GR     1002      10990      1004      11285

ET                            9.1                                                             9670      10300
X1    6.217         15      9900      10100        620        745        690
GR     1006       8300      1004       9175       1002       9565     1001.2       9630    1001.7      9665
GR   1000.6       9695    1000.3       9900     1000.1      10000     1000.3      10100    1000.7     10445
GR   1001.5      10535    1001.4      10600       1002      10730       1004      11080      1006     11110

ET                            9.1                                                             9650      10300
X1    6.320         13      9900      10100        580        525        545
 R     1008       8860      1006       9230       1004       9555     1002.5       9660      1002      9670
 R   1001.3       9900    1000.9      10000     1001.4      10100       1002      10480    1003.1     10800
GR     1004      11030      1006      11060       1007      11220
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ET                          9.1                                                          9700      10300
X1    6.414        16      9900     10100       595       425       495
GR     1010      8440      1008      8890    1006.7      9020      1006      9045      1004       9295
GR   1002.9      9900    1002.6     10000    1003.6     10100      1004     10430    1004.7      10455
GR     1005     10770    1004.5     10900      1006     11000      1008     11310      1010      11665
GR   1013.1     11685

ET                          9.1                                                          9690      10200
X1    6.509        15      9900     10100       530       500       505
GR     1010      8470      1008      8750      1006      8885    1004.2      9370    1004.1       9650
GR   1004.3      9740    1004.8      9900    1004.4     10000    1004.7     10100      1006      10345
GR   1006.3     10360    1006.1     10400    1006.5     11380      1008     11465    1013.1      11510

ET                          9.1                                                          9700      10100
X1    6.627        13      9900     10100       650       580       620
GR     1013      9560      1012      9580      1010      9620      1008      9670      1007       9750
GR   1007.5      9900    1006.8     10000      1008     10100    1008.6     10120      1009      10500
GR   1008.5     11050      1010     11160    1011.6     11200

NC      .07       .07       .04        .3        .5
ET                          9.1                                                          9850      10200

                A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING THE RID CANAL.

X1    6.674        16      9955     10120       200       350       250
GR   1014.5      9160      1014      9410      1012      9910      1010      9955    1008.5      10000
GR   1009.3     10010    1009.1     10060      1010     10120      1012     10185    1013.7      10200
GR   1012.9     10360      1012     10370    1011.5     10530      1012     11135      1014      11390
GR   1014.7     11410

ET                          9.1                                                          8100      10690

X1    6.864        18      9930     10080       500       500      1000
GR   1015.2      7110      1014      7140    1012.2      7660    1012.9      8060    1012.7       8485
GR   1013.2      9620      1012      9805    1011.5      9930      1011     10000    1011.6      10080
 R     1011     10265    1012.1     10695    1012.3     10970      1012     11000    1011.5      11250
GR     1012     11970      1014     12315    1014.5     12340

QT        3      4703      4703      4703
NC      .07       .07       .04        .1        .3
ET                          9.1                                                          8000      10550

                CROSS-SECTION AT THOMAS RD. EXTENDED

                Q = Q AT CP268        (= 4703 CFS).

X1    6.877        16      9915     10050        70        70        70
GR   1015.2      7110      1014      7160    1012.4      7230    1012.8      7755    1012.2       8220
GR   1012.8      8680    1013.3      9440    1012.1      9715    1012.5      9870      1012       9915
GR     1011     10000      1012     10050      1012     10650      1014     11320    1014.6      11560
GR   1014.8     11845
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NC      .07       .07      .035        .1        .3
ET                          9.1                                                          8810      11090

                ANY WSEL EXTENSION IS DUE TO LIMITED GRADE AT THE LEFT OVERBANK

                A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

X1    7.045        21      9920     10055       350       350       885
GR   1013.5      7680      1012      8360    1011.4      8750    1011.7      9040    1011.4       9745
GR   1011.9      9920    1011.1     10000      1012     10005      1014     10055      1016      10140
GR     1014     10160      1012     10170      1012     10270      1014     10325      1012      10350
GR     1012     10480    1012.5     10490      1012     10495      1012     11725      1014      12285
GR     1016     12770

QT        3      4088      4088      4088
ET                          9.1                                                          9575      11025

                Q = Q AT 1I268        (= 4088 CFS).

                A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK
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```
 1    7.124        25       9980      10018        420        420        420
JR   1016.1      7680       1016       7715       1014       8155     1012.7       9770     1013.3       9980
GR     1012      9992     1011.6      10000       1012      10004       1014      10009     1014.5      10018
GR     1014     10070       1012      10095       1015      10115       1014      10125     1012.3      10175
GR   1012.3     10245     1013.8      10260     1013.8      10340       1012      10350       1012      10480
GR   1012.5     10490       1012      10495       1012      11405       1014      11785       1016      12280

ET                           9.1                                                                9650      10680

                A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

X1    7.267        22       9980      10019        755        755        755
GR   1018.2      7760       1018       7800       1016       8915     1014.7       9770     1015.7       9980
GR     1014      9993     1013.6      10000       1014      10005       1016      10019     1016.1      10030
GR     1016     10040       1015      10050       1016      10060     1016.5      10075     1015.4      10115
GR   1013.8     10185     1014.8      10280       1014      10345     1012.9      10675       1014      11215
GR     1016     11575       1018      12020

ET                           9.1                                                                9741      10710

                A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

X1    7.407        19       9980      10025        740        740        740
GR   1020.7      7825       1020       9290       1018       9520     1017.2       9925     1017.9       9980
GR   1016.1     10000       1018      10015     1018.5      10025       1018      10035     1015.5      10047
GR   1015.5     10097       1018      10104     1019.9      10115       1018      10135       1016      10245
GR   1014.7     10690       1016      11185       1018      11510       1020      11900
1
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ET                           9.1                                                                9750      10450
X1    7.552        10       9980      10020        765        765        765
GR     1023      8285       1022       8515       1020       9290     1018.6       9945     1018.5       9980
GR   1018.1     10000     1018.9      10020     1018.5      10730       1020      11475       1022      12030

ET                           9.1                                                                9850      10390
X1    7.670        11       9980      10015        625        625        625
 R     1025      8280       1024       8470       1022       9190       1020       9695     1019.2       9980
JR   1018.2     10000     1019.9      10015       1020      10140       1022      11420       1024      11425
GR     1026     12055

ET                           9.1                                                                9850      10400
X1    7.799        13       9970      10015        680        680        680
GR     1026      8270     1026.8       8530       1024       9250       1022       9635       1020       9970
GR   1019.9      9980     1019.2      10000       1020      10015     1020.8      10190       1022      10715
GR     1024     11240       1026      11610       1028      12250

ET                           9.1                                                                9900      10500
X1    7.924        14       9970      10010        660        660        660
GR   1029.2      8255       1028       8655       1026       9310       1024       9640     1022.2       9970
GR     1022      9990     1021.1      10000       1022      10010     1022.8      10285     1023.2      10630
GR     1024     11040       1026      11500       1028      11770       1029      12100

NC      .03       .03       .013         .3         .5
QT        3      4121       4121       4121
ET                           9.1                                                                9920      10670

                AT INDIAN SCHOOL RD.  2 - 8FT x 4FT  BC

                Q = Q AT CP253       (= 4121 CFS).

X1    7.977        17       9990      10010        280        280        280
X3       10                                                                 1025.3     1025.3
GR     1028      8845     1027.2       9095     1026.8       9420     1026.1       9765     1026.1       9985
GR   1021.4      9990     1021.4      10000     1021.4      10010     1026.1      10015     1026.1      10045
GR     1026     10285     1025.4      10410     1025.7      10670     1025.3      10945       1026      11180
GR   1026.7     11470       1028      11735

SC    2.013        .5        2.7          0          4          8         30        8.1     1021.6     1021.4
ET                           9.1                                                                9920      10670
X1    7.983        17       9990      10010         30         30         30
X2                            2                  1025.3
X3       10                                                                 1025.3     1025.3
BT      -12      8845       1028                  9095     1027.2                  9420     1026.8
BT               9765     1026.1                 10045     1026.1                 10285       1026
BT              10410     1025.4                 10670     1025.7                 10945     1025.3
BT              11180       1026                 11470     1026.7                 11735       1028
GR     1028      8845     1027.2       9095     1026.8       9420     1026.1       9765     1026.1       9985
```

```
GR   1021.6      9990     1021.6     10000     1021.6     10010     1026.1     10015     1026.1     10045
 R     1026     10285     1025.4     10410     1025.7     10670     1025.3     10945       1026     11180
GR   1026.7     11470       1028     11735
1
   03SEP96      09:19:12                                                                                PAGE   17


NC      .07       .07       .035        .3         .5
ET                          9.1                                                                   9870     10325
X1    8.069        13       9960     10070        455        455        455
GR     1030      8935       1028      9150       1026       9700     1024.2      9960       1024      9980
GR     1024     10000       1024     10045     1024.2      10070       1026     10460       1028     11120
GR   1028.7     11300     1028.4     11480       1030      11665

NC      .07       .07       .035        .1         .3
ET                          9.1                                                                   9880     10175
X1    8.169        12       9980     10020        525        525        525
GR     1030      8895     1029.1      8980     1029.4       9045       1028      9575       1026      9940
GR   1025.6      9980     1024.6     10000     1025.3      10020       1026     10130       1028     10520
GR     1030     10945       1031     11335

ET                          9.1                                                                   9925     10230
X1    8.292        11       9980     10020        650        650        650
GR   1032.5      8800       1032      9140       1030       9650       1028      9960     1027.3      9980
GR   1026.2     10000     1027.9     10020       1028      10050       1030     10540       1032     11170
GR     1033     11360

ET                          9.1                                                                   9870     10230
X1    8.364        17       9975     10025        370        410        380
GR     1033      8680       1032      9360       1030       9900     1028.6      9940     1029.2      9975
GR     1028      9990     1027.4     10000       1028      10010     1029.9     10025     1029.3     10070
GR     1030     10140       1032     10500     1033.7      10920     1033.5     11350       1034     11525
GR     1036     11635       1037     12070

ET                          9.1                                                                   9860     10770
X1    8.468        17       9980     10025        460        460        550
GR   1034.5      9080       1034      9440     1033.2       9660       1032      9945     1030.8      9965
GR   1031.6      9980       1030      9990     1029.6      10000       1030     10010       1032     10015
GR   1033.5     10025     1032.6     10055       1034      10195     1033.6     10580       1034     10830
 R     1036     11985       1038     12655

QT        3      4183       4183      4183
ET                          9.1                                                                   9750     10995

                Q = (Q AT CP241 "AFTER STORAGE ROUTING" +Q AT CP253)/2
                  = (4245 + 4121)/2 = 4183 CFS.

X1    8.544        20       9975     10100        530        130        400
GR     1040      8715       1038      9200       1037       9470       1036      9770     1035.7      9880
GR     1035      9975     1034.5     10000     1034.8      10100       1036     10215     1036.1     10445
GR     1036     10640     1034.5     10990     1034.4      11300     1034.9     11625     1035.1     11955
GR     1036     12300     1036.3     12525       1037      12875       1038     13095     1038.6     13335

ET                          9.1                                                                   9960     11200

1
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                A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

X1    8.636        22       9960     10010        340        340        490
GR     1040      9170       1038      9760     1037.1       9960     1036.1     10000       1038     10010
GR   1039.5     10040     1039.6     10040       1040      10060       1042     10100     1042.1     10105
GR     1042     10110       1041     10120       1041      10175       1040     10195       1038     10215
GR   1037.4     10300     1037.9     10475     1036.5      10970       1037     11410     1036.8     11950
GR     1038     12600       1040     13425

ET                          9.1                                                                   9950     11000

                A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

X1    8.726        23       9950     10010        475        475        475
GR     1042      9230       1040      9470     1039.4       9680     1038.5      9835     1038.8      9950
GR     1038      9990     1037.4     10000       1038      10003       1040     10010       1041     10045
GR     1042     10075     1043.8     10120     1041.5      10125     1041.5     10180       1043     10190
GR     1040     10215     1039.2     10295     1039.5      10445     1038.8     11060     1039.7     11530
GR   1039.3     12425       1040     12565       1042      13160

ET                          9.1                                                                   9770     10600
```

A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

```
X1    8.848       18     9970    10020      540      540      645
GR     1044     8970     1042     9520   1041.8     9560   1042.1     9675     1042     9760
GR   1040.7     9860     1042     9915   1042.3     9970     1042     9995   1040.6    10000
GR     1042    10006     1044    10009     1045    10020     1044    10030   1043.1    10315
GR   1042.9    10810   1043.6    11490   1043.9    12010

ET                        9.1                                                   9740    10190
X1    8.965       12     9970    10033      615      615      615
GR     1048     8770     1046     9180     1044     9665   1042.9     9935   1043.5     9970
GR   1042.7    10000     1044    10010   1044.7    10033   1044.1    10070   1044.4    10275
GR     1046    10810   1046.3    11050

ET                        9.1                                                   9775    10038
X1    9.034       12     9970    10038      365      365      365
GR     1050     8700     1048     9175     1046     9535     1044     9865   1043.9     9970
GR   1043.4    10000     1044    10008   1045.7    10038   1045.4    10075     1046    10250
GR     1048    10820   1048.2    10960

NC      .03      .03     .013       .3       .5
QT        3     4243     4243     4243        .
ET                        9.1                                                   9470    10070
```

AT CAMELBACK RD. 4 - 52 INCH CP

Q = Q AT CP241 (= 4243 CFS).

1


```
X1    9.095       13     9978    10022      320      320      320
X3       10                                                   1046.3    1046.3
GR     1050     8960   1048.4     9210     1048     9480   1046.3     9715     1048     9910
GR   1048.5     9975   1042.3     9978   1042.3    10000   1042.3    10022   1048.5    10025
GR   1049.2    10300   1049.5    10665     1050    11165

SC    4.013       .5      2.7        0      4.5        0       30      1.1   1042.5   1042.3
T                         9.1                                                   9470    10070
X1    9.100       13     9978    10022       30       30       30
X2                          2                1046.3
X3       10                                                   1046.3    1046.3
BT      -10     8960     1050                9210   1048.4                 9480     1048
BT              9715   1046.3                9910     1046                 9978   1048.5
BT             10022   1048.5               10300   1049.2                10665   1049.5
BT             11165     1050
GR     1050     8960   1048.4     9210     1048     9480   1046.3     9715     1048     9910
GR   1048.5     9975   1042.5     9978   1042.5    10000   1042.5    10022   1048.5    10025
GR   1049.2    10300   1049.5    10665     1050    11165

NC     .045     .045      .03       .3       .5
ET                        9.1                                                   9645    10160
X1    9.189       20     9940    10160      470      460      470
GR     1054     8770   1052.2     8930   1052.5     9010     1052     9080     1050     9270
GR   1048.6     9445   1048.3     9535   1048.1     9600   1048.6     9645   1048.3     9770
GR   1048.6     9815   1048.8     9940     1048     9990   1047.9    10000     1048    10007
GR   1048.4    10035   1047.9    10105   1048.9    10160     1050    10250   1052.1    10565

NC     .045     .045      .03       .1       .3
QT        3     3693     3693     3693
ET                        9.1                                                   9690    10120
```

Q = Q AT 2I241 (= 3693 CFS).

```
X1    9.292       13     9900    10120      540      530      540
GR     1056     8880     1054     9090     1052     9325   1051.5     9600   1051.7     9690
GR   1051.1     9750   1051.8     9900   1051.4    10000     1052    10120     1054    10230
GR   1054.5    10270   1054.2    10340     1056    10415

ET                        9.1                                                   9500    10070
X1    9.396       20     9880    10070      570      515      550
GR     1060     8650     1058     8860     1056     9045     1055     9210   1054.1     9410
GR   1054.3     9500     1054     9565   1053.8     9590     1054     9620   1054.4     9720
GR   1054.2     9800   1054.7     9880   1054.2    10000   1054.7    10070   1054.5    10130
GR   1055.5    10290   1055.3    10365     1056    10510     1058    10745   1058.4    10755

ET                        9.1                                                   9425    10140
1     9.493       15     9930    10140      490      515      515
GR     1064     8320     1062     8485     1060     8645     1058     9000   1056.2     9285
```

```
GR   1056.5      9425     1056.1      9545       1057       9750     1056.7      9805     1057.1      9930
 ?   1056.1     10000     1056.7     10140       1058      10280       1060     10670     1060.3     10690
```



```
ET                            9.1                                                          9200     10065
X1    9.544        16       9920     10065        200        280        270
GR     1064      8240       1062      8440       1060       8600       1058       9005      1057      9200
GR   1057.5      9325       1057      9420       1058       9685     1058.3       9850      1058      9920
GR   1057.5     10000       1058     10065     1058.2      10115     1057.8      10315      1058     10390
GR     1060     10470

QT        3      3113       3113      3693
NC     .045      .045        .03        .3         .5
ET                            9.1                                                          9400     10056
```

Q = Q AT 2I241 (= 3693 CFS).
Q HAS BEEN REDUCED BY THE SAME DIVERSION AT THE REACH UPSTREAM
OF SEC. 10.269 WHICH WILL RETURN AT SEC. 9.544

```
X1    9.641        15       9985     10015        180        750        510
GR     1064      8580       1062      8770       1060       8950       1058       9390    1057.5      9420
GR     1058      9610     1058.3      9655     1057.7       9740       1058       9815      1059      9940
GR     1058      9985       1057     10000       1058      10015       1060      10065      1061     10375

ET                            9.1                                                          9530     10455
X1    9.741        13       9900     10115        480        300        530
GR     1064      9045       1062      9075       1060       9115     1058.3       9345    1058.8      9530
GR   1058.5      9600       1058      9620     1057.5       9900     1057.2      10000      1058     10115
GR     1060     10265       1060     10430     1060.5      10490

NC     .045      .045        .03        .1         .3
ET                            9.1                                                          9500     10423
X1    9.807        13       9900     10140        335        345        345
GR     1064      8875       1062      9060       1060       9125       1059       9325    1059.6      9500
GR   1059.6      9555     1058.6      9590       1058       9645     1057.6       9900    1057.3     10000
GR     1058     10140       1060     10350     1061.1      10560

 :     .045      .045       .028        .1         .3
QT        3       762        762      1342
ET                            9.1                                                          9603     10474
```

Q = ROUTED FLOW FROM SUB. 222 TO SUB. 241 (= 1342 CFS).
Q HAS BEEN REDUCED BY THE SAME DIVERSION AT THE REACH UPSTREAM
OF SEC. 10.269 WHICH WILL RETURN AT SEC. 9.544

FLOODWAY LIMITS, (SEC. 9.898 TO 10.995), HAVE BEEN SET IDENTICAL
TO THE FLOODPLAIN LIMITS DUE TO THE CONFINEMENT OF FLOW IN A
DFINED CHANNEL. A WEIR FLOW ALSO OCCUR OVER THE RIGHT BANK AT
SEC. 10.493 THROUGH 10.639

```
X1    9.898        11       9960     10055        650        320        480
GR   1060.7      9600       1060      9635     1058.5       9790     1059.8       9960      1058      9975
GR   1057.5     10000       1058     10035     1059.8      10055     1058.5      10145      1060     10325
GR   1061.4     10660
1
```



```
ET
X1    9.994         7       9950     10050        600        490        510
GR   1062.1      9950       1060      9960       1058       9980     1057.7      10000      1058     10025
GR     1060     10035     1062.1     10050

ET
X1   10.108         7       9960     10045        600        600        600
GR   1062.9      9960       1062      9970       1060       9975     1058.1      10000      1060     10025
GR     1062     10035     1062.9     10045

ET
X1   10.197         7       9950     10045        470        470        470
GR   1063.6      9950       1062      9960       1060       9975     1058.4      10000      1060     10020
GR     1062     10030     1063.6     10045

QT        3       800        800      1380
ET
```

Q = Q AT CP222 (= 1380 CFS).

```
                Q   HAS BEEN REDUCED DUE TO WEIR FLOW OVER THE RIGHT OVERBANK.
                DIVERTED "Q" WILL BE RETURNED AT SEC.  9.544

X1   10.269        8      9960     10025       410       350       380
GR    1065     9940      1064      9950      1062      9960      1060      9970    1058.6     10000
GR    1060    10020      1062     10025    1064.6     10040

ET
X1   10.328       10      9970     10020       335       290       310
GR   1067.8     9940      1066      9955      1062      9970      1060      9975    1058.8     10000
GR    1060    10015      1062     10020      1066     10025      1068     10030    1068.5     10040

ET
X1   10.419       10      9975     10020       475       485       480
GR   1068.5     9940      1068      9955      1066      9970      1062      9975      1060      9980
GR   1059.1    10000      1060     10015      1062     10020      1066     10025    1067.2     10035

ET

                ANY WSEL EXTENSION AT SEC. 10.493 TO 10.639 IS DUE TO LIMITED
                GRADE AT THE RIGHT OVERBANK.

X1   10.493        8      9895     10030       400       400       400
GR   1063.6     9885      1062      9895      1060      9910    1059.5      9940    1059.3     10000
GR    1060    10020      1062     10030    1063.6     10045

ET
X1   10.587        8      9935     10040       490       490       490
GR   1064.5     9830      1064      9910      1062      9935      1060      9960    1059.6     10000
GR    1060    10025      1062     10040    1064.2     10060
1
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NC     .045      .045       .03        .1        .3
ET
X1   10.639        9      9925     10035       350       260       275
GR    1066     9780      1064      9880      1062      9925      1060      9960    1059.8     10000
GR    1060    10025      1062     10035      1064     10045    1065.4     10080

QT       3     1380      1380      1380
ET

                Q = Q AT CP222        (= 1380 CFS).

X1   10.709        8      9910     10040       420       340       370
GR    1067     9810      1066      9830      1064      9875      1062      9910      1060     10000
GR    1062    10040      1066     10065    1066.5     10090

ET
X1   10.804        9      9900     10040       480       500       500
GR    1069     9790      1068      9815      1066      9860      1064      9900      1062     10000
GR    1064    10040      1066     10055      1068     10075    1068.2     10085

ET
X1   10.889       10      9900     10040       450       450       450
GR   1070.2     9770      1070      9795      1068      9845      1066      9900    1064.5      9930
GR    1065     9955      1064     10000      1066     10040      1068     10055    1069.5     10075

ET
X1   10.946        9      9930     10080       270       330       300
GR   1071.7     9815      1070      9875      1068      9930      1066      9970    1065.7     10000
GR    1066    10035      1068     10080      1070     10095    1071.3     10130

ET
X1   10.995        9      9895     10045       220       290       260
GR    1073     9830      1072      9860      1070      9895      1068      9960    1067.2     10000
GR    1068    10035      1070     10045      1072     10070      1073     10090

ET                          9.1                                                     9920     10053
X1   11.067       11      9920     10045       380       380       380
GR   1073.2     9570      1072      9680      1070      9810      1069      9870    1069.5      9920
GR    1068     9970    1067.6     10000      1068     10020      1070     10045      1072     10060
GR   1074.1    10095

ET                          9.1                                                     9920     10056
X1   11.147       12      9920     10045       420       420       420
GR   1074.5     9235      1074      9265      1072      9430      1070      9855    1069.2      9920
GR    1068     9975    1067.8     10000      1068     10020      1070     10045      1072     10060
GR    1074    10095    1074.4     10100
```

```
T                          9.1                                                                  9920      10065
X1   11.228          8      9920      10050       430       430       430
GR   1075.8       8990      1074       9170      1072      9320      1070       9920    1067.9      10000
GR     1070      10050      1074      10085    1075.3     10125
```



```
ET                         9.1                                                                  9940      10090
X1   11.306          9      9965      10090       400       400       410
GR     1076       9140      1074       9290      1072      9840      1070       9965    1068.8      10000
GR     1070      10090      1072      10155      1074     10175    1075.4      10215

ET                         9.1                                                                  9930      10070
X1   11.416          9      9930      10070       400       680       580
GR     1076       9415      1074       9655      1072      9855      1071       9930    1070.2      10000
GR     1071      10070      1072      10170      1074     10230    1074.7      10240

ET                         9.1                                                                  9900      10100
X1   11.510         14      9900      10100       340       640       500
GR     1076       9420      1074       9490      1072      9715    1071.5       9735      1072       9755
GR   1072.5       9835      1072       9900    1071.5     10000    1071.8      10100      1072      10165
GR     1074      10230    1074.6      10250      1076     10380      1080      10470

ET                         9.1                                                                  9962      10115
```

FLOODWAY LIMITS, (SEC. 11.580 TO 13.161),HAVE BEEN SET IDENTICAL
TO THE FLOODPLAIN LIMITS DUE TO THE INABILITY OF THE CHANNEL TO
HANDLE THE EXISTING FLOW OR DUE TO THE CONFINEMENT OF FLOW IN A
DEFINED CHANNEL.

```
X1   11.580          8      9965      10100       315       460       365
GR   1076.2       9885      1076       9950      1074      9965      1072      10000      1074      10100
GR     1076      10165      1078      10170      1079     10230

QT       3        1377      1377       1377
ET
```

Q = Q AT CP221A (= 1377 CFS).

```
X1   11.676          7      9955      10100       480       550       510
GR   1077.8       9835      1076       9930      1074      9955    1072.1      10000      1074      10100
GR     1076      10105    1080.2      10130

NC     .045        .07       .03         .1        .3
ET
X1   11.775          8      9955      10075       520       560       520
GR   1077.5       9880      1076       9935      1074      9955    1072.2      10000      1074      10075
GR     1076      10125      1078      10150    1078.9     10185

ET
X1   11.867          8      9960      10055       490       490       490
GR   1077.7       9825      1076       9935      1074      9960    1072.3      10000      1074      10055
GR     1076      10090      1078      10120    1079.4     10190

ET
X1   11.970          9      9930      10060       540       540       540
GR   1078.6       9885      1078       9925      1076      9930      1074       9950    1072.4      10000
GR     1074      10060      1076      10090      1078     10115    1079.9      10180
```



```
ET
X1   12.064          9      9935      10070       500       500       500
GR   1077.7       9800      1076       9920      1074      9935    1072.5      10000      1074      10070
GR     1076      10090      1078      10105      1080     10125    1080.8      10165

ET
```

ANY WSEL EXTENSION AT SEC. 12.150 TO 12.534 IS DUE TO LIMITED
GRADE AT THE LEFT OVERBANK.

```
X1   12.150          7      9940      10080       450       450       450
GR   1077.2       9825      1076       9915      1074      9940    1072.5      10000      1074      10080
GR     1080      10120      1081      10170

ET
```

```
X1   12.244        7      9910     10075       500       500       500
 R   1077.3     9850      1076      9910      1074      9940    1072.6     10000      1074     10075
GR     1080    10135    1080.4     10175

ET
X1   12.345        7      9920     10095       530       530       530
GR   1077.3     9890      1076      9920      1074      9940    1072.6     10000      1074     10095
GR     1078    10145    1079.5     10190

ET
X1   12.439        8      9955     10120       500       500       500
GR   1077.4     9900      1076      9935      1074      9955    1072.7     10000      1074     10120
GR     1076    10150      1078     10185    1079.3     10205

ET
X1   12.534        8      9910     10075       500       500       500
GR   1077.5     9865      1076      9890      1074      9910    1072.7     10000      1074     10075
GR     1076    10125      1078     10150    1079.3     10160

QT       3     1000      1000      1350
NC    .035     .035      .035        .1        .3
ET
```

Q = Q AT CP212 (= 1350 CFS).
Q HAS BEEN REDUCED DUE TO LIMITED GRADE AT THE LEFT OVERBANK.
DIVERTED FLOW WILL BE RETURNED AT SEC. 12.534

CROSS-SECTION 12.633 TO 13.161 WERE NOT EXTENDED OVER THE MUCH
LOWER LEFT OVERBANK SO NOT TO UNDERESTIMATE FLOODPLAIN LIMITS.

ANY WSEL EXTENSION AT SEC. 12.633 TO 13.161 IS DUE TO LIMITED
GRADE AT THE LEFT OVERBANK.

```
X1   12.633        6      9900     10100       790       180       520
GR     1080     9600    1079.6      9900    1079.4     10000    1079.6     10100      1080     10390
GR   1080.5    10490
```



```
NC    .045      .07       .04        .1        .3
ET
X1   12.700        6      9920     10110       100       600       350
GR     1080     9920    1078.7     10000    1079.1     10110    1078.9     10680      1080     11010
GR   1082.4    11035

ET
X1   12.758        6      9955     10070       250       470       310
GR   1080.3     9940      1080      9955    1078.9     10000    1079.3     10070      1080     10410
GR     1082    10830

ET
```

CROSS-SEC. 60 FT.(ALONG FLOW PATH)SOUTH OF GLENDALE AV. EXTENDED

```
X1   12.867        7      9960     10055       580       580       580
GR   1080.9     9940      1080      9960    1079.4     10000      1080     10055      1080     10150
GR   1080.8    10390      1082     10640

ET
X1   13.044        6      9910     10075       950       800       930
GR   1082.2     9900      1082      9910    1080.7     10000    1080.9     10075      1082     10490
GR     1084    11160

ET
X1   13.161        5      9960     10085       650       580       620
GR     1084     9960    1082.3     10000    1082.5     10085      1084     10790    1084.5     11100

QT       3     1440      1440      1440
ET                         9.1                                                          9950     10210
```

Q = (Q AT 1I212 + DIVERTED FLOW FROM SUB.193 TO SUB. 212)/2
= (1344 + 1536)/2 = 1440 CFS.

A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

```
X1   13.248       13      9950     10050       450       450       460
 R     1086     9900      1085      9935    1085.4      9950    1084.3      9975    1084.3     10000
GR   1084.3    10020      1086     10040    1086.6     10050      1086     10065    1084.6     10095
```

```
GR   1084.6      10510       1086      10985        1088       11600

ET                            9.1                                                                  9955       10210

                A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

X1   13.349         13       9955      10070         535         535         535
GR   1088.3       9910     1086.8       9930      1087.3        9955      1084.5        9975     1084.5       10000
GR   1084.5      10030       1086      10040        1087       10070        1086       10090     1084.7       10130
GR     1086      10610       1088      11235        1090       11980
1
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ET                            9.1                                                                  9960       10270

                A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

X1   13.427         11       9960      10040         410         410         410
GR   1090.3       9910     1087.9       9945      1088.5        9960      1085.8       10000     1088.5       10040
GR     1088      10060       1086      10080      1085.8       10185        1086       10425       1088       10920
GR     1090      11615

NC      .07        .07        .07         .1          .3
ET                            9.1                                                                  9800       10250

                A DIVIDED FLOW MIGHT OCCUR DUE TO SHEET FLOW TYPE IN THIS REGION

X1   13.556         10       9900      10100         750         460         680
GR   1092.2       9660       1092       9680        1090        9740      1089.6        9900     1089.4       10000
GR   1089.6      10100       1090      10365      1091.8       10970      1090.4       11100       1092       11170

ET                            9.1                                                                  9765       10270

                A DIVIDED FLOW MIGHT OCCUR DUE TO SHEET FLOW TYPE IN THIS REGION

X1   13.667         17       9870      10100         670         480         585
GR   1094.7       9320       1094       9370      1093.8        9385      1094.2        9410       1093        9440
GR   1093.5       9460     1093.1       9570        1094        9730      1094.2        9765     1091.2        9820
GR   1092.2       9870     1091.5      10000      1091.7       10100        1092       10270     1093.7       11610
GR   1093.3      11830     1094.1      11910

ET                            9.1                                                                  9700       10570

                A DIVIDED FLOW MIGHT OCCUR DUE TO SHEET FLOW TYPE IN THIS REGION

X1   13.782         17       9870      10085         700         580         610
GR   1098.3       8990       1098       9000        1097        9020      1097.5        9040       1096        9080
GR   1095.3       9200     1095.8       9870      1095.5       10000        1096       10085     1096.5       10270
GR   1096.1      10520     1096.9      10570      1094.8       10610        1095       10650     1095.4       11890
GR     1096      12475     1096.5      12530

ET                            9.1                                                                  9800       10300

                A DIVIDED FLOW MIGHT OCCUR DUE TO SHEET FLOW TYPE IN THIS REGION

X1   13.902         16       9900      10100         650         580         630
GR     1100       9070       1098       9170      1097.4        9700      1097.5        9900     1097.3       10000
GR   1097.3      10100     1097.8      10290        1098       10550      1098.7       10970     1098.5       11150
GR     1099      11300       1097      11350      1097.5       11390        1097       11420       1098       11605
GR   1099.1      11660
1
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ET                            9.1                                                                  9900       10100

                A DIVIDED FLOW MIGHT OCCUR DUE TO SHEET FLOW TYPE IN THIS REGION

X1   14.023         13       9900      10100         640         600         640
GR   1102.3       9570       1102       9605        1100        9655      1099.5        9900     1099.3       10000
GR   1099.5      10100       1100      10410      1100.4       10545        1100       10660     1099.5       10780
GR     1100      10910       1102      10960      1102.2       11000
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 1

CCHV=     .100 CEHV=     .300
*SECNO  .000

                CROSS-SECTION AT BUKEYE CANAL

                Q = Q AT CP364        (= 3110 CFS).
                Q  HAS BEEN REDUCED DUE TO LIMITED GRADE AT THE RIGHT OVERBANK.
                DIVERTED FLOW WILL CONTINUE AS SHEET FLOW TO THE WEST.

                FLOODWAY DOWNSTREAM OF SOUTHERN PACIFIC RAIL ROAD (SEC. 1.474)
                HAS NOT BEEN DELENIATED DUE TO UNDEFINED FLOW PATH AND DUE TO
                THE INABILITY OF THE CHANNEL DOWNSTREAM OF SEC. 0.668 TO HANDLE
                THE EXISTING FLOW DUE TO LIMITED GRADE AT THE RIGHT OVERBANK.

     .000      1.82    912.32      .00    912.00    912.34      .02      .00      .00    912.00
    850.0     625.2     160.3     64.6     576.3     104.5    133.7       .0       .0    912.00
      .00      1.08      1.53      .48      .070      .040     .070     .000   910.50   9326.62
  .002525        0.        0.       0.         0         0        6      .00  1245.30  10571.93

*SECNO  .047
3280 CROSS SECTION       .05 EXTENDED       .05 FEET

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.48

                ANY WSEL EXTENSION AT SEC. 0.047 TO 0.616 IS DUE TO LIMITED
                GRADE AT THE RIGHT OVERBANK.

     .047      2.55    912.55      .00       .00    912.55      .01      .21      .00    912.30
    850.0     347.1     275.1    227.8     766.2     249.2    510.2       6.9      8.5    910.30
      .11       .45      1.10      .45      .070      .040     .070     .000   910.00   9133.37
  .000410      265.      250.     240.         3         0        0      .00  1686.63  10820.00

*SECNO  .121
3280 CROSS SECTION       .12 EXTENDED       .23 FEET

     .121      2.73    912.73      .00       .00    912.74      .01      .19      .00    912.70
    850.0     111.4     232.9    505.7     287.5     190.2    810.6      19.5     22.2    910.40
      .25       .39      1.22      .62      .070      .040     .070     .000   910.00   9452.89
  .000590      390.      390.     390.         2         0        0      .00  1367.11  10820.00


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

*SECNO  .201
3280 CROSS SECTION       .20 EXTENDED       .53 FEET

     .201      3.03    913.03      .00       .00    913.05      .02      .30      .00    913.00
    850.0      12.0     366.8    471.2      52.8     228.2    699.3      30.4     34.1    910.50
      .36       .23      1.61      .67      .070      .040     .070     .000   910.00   9724.61
  .000887      420.      420.     420.         2         0        0      .00  1095.39  10820.00

*SECNO  .292
3280 CROSS SECTION       .29 EXTENDED       .89 FEET

     .292      2.89    913.39      .00       .00    913.41      .02      .36      .00    913.30
    850.0       7.9     301.6    540.6      31.4     208.8    880.3      42.0     45.3    912.10
      .51       .25      1.44      .61      .070      .040     .070     .000   910.50   9860.27
  .000645      480.      480.     480.         1         0        0      .00   939.73  10800.00
```

*SECNO .384

3265 DIVIDED FLOW

3280 CROSS SECTION .38 EXTENDED .49 FEET

A DIVIDED FLOW MIGHT OCCUR DUE TO SPLIT FLOW POTENTIAL AT
UPSTREAM CROSS-SECTION 0.668

.384	2.69	913.69	.00	.00	913.70	.01	.29	.00	914.30
850.0	9.9	241.9	598.1	51.5	198.6	1214.2	56.5	59.6	912.70
.70	.19	1.22	.49	.070	.040	.070	.000	911.00	9688.08
.000541	490.	490.	490.	2	0	0	.00	1604.23	11370.00

*SECNO .488

3265 DIVIDED FLOW

3280 CROSS SECTION .49 EXTENDED .81 FEET

A DIVIDED FLOW MIGHT OCCUR DUE TO SPLIT FLOW POTENTIAL AT
UPSTREAM CROSS-SECTION 0.668

1

.488	2.01	914.01	.00	.00	914.02	.01	.32	.00	915.20
850.0	1.1	141.8	707.0	9.0	132.6	1293.2	74.7	78.8	913.50
.94	.13	1.07	.55	.070	.040	.070	.000	912.00	9875.31
.000648	545.	545.	545.	0	0	0	.00	1469.90	11365.00

*SECNO .531

3265 DIVIDED FLOW

3280 CROSS SECTION .53 EXTENDED .98 FEET

A DIVIDED FLOW MIGHT OCCUR DUE TO SPLIT FLOW POTENTIAL AT
UPSTREAM CROSS-SECTION 0.668

.531	1.38	914.18	.00	.00	914.18	.01	.16	.00	915.40
850.0	.1	37.2	812.8	.9	55.1	1319.2	82.1	86.4	914.20
1.05	.06	.67	.62	.070	.040	.070	.000	912.80	9897.62
.000757	230.	230.	230.	2	0	0	.00	1385.91	11350.00

*SECNO .616

3265 DIVIDED FLOW

3280 CROSS SECTION .62 EXTENDED .05 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.90

Q = Q AT CP364A (= 4895 CFS).

A DIVIDED FLOW MIGHT OCCUR DUE TO SPLIT FLOW POTENTIAL AT
UPSTREAM CROSS-SECTION 0.668

.616	2.25	916.05	.00	.00	916.19	.14	1.97	.04	916.50
4895.0	.0	411.6	4483.4	.0	120.0	1539.8	98.7	98.6	915.20
1.09	.02	3.43	2.91	.070	.040	.070	.000	913.80	9669.96
.006955	405.	450.	480.	6	0	0	.00	844.48	10830.00

CCHV= .100 CEHV= .300
*SECNO .668
3280 CROSS SECTION .67 EXTENDED .97 FEET

ANY WSEL EXTENSION AT SEC. 0.668 TO 1.378 IS DUE TO LIMITED
GRADE AT THE LEFT OVERBANK.

.668	2.76	918.26	918.09	.00	918.74	.48	2.45	.10	917.30
4895.0	1659.0	930.4	2305.7	401.3	129.1	403.9	106.9	103.2	916.80
1.10	4.13	7.21	5.71	.045	.030	.045	.000	915.50	9620.00
.012123	200.	270.	290.	11	11	0	.00	665.47	10285.47

*SECNO .776
3280 CROSS SECTION .78 EXTENDED .35 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.39

.776	4.55	920.95	.00	.00	921.14	.19	2.37	.03	920.60
4895.0	.0	577.2	4317.8	.0	133.2	1266.6	122.0	110.8	917.90
1.15	.00	4.33	3.41	.000	.030	.045	.000	916.40	9975.00
.002116	535.	570.	570.	4	0	0	.00	510.12	10485.12

*SECNO .868
3280 CROSS SECTION .87 EXTENDED .47 FEET

.868	4.17	922.17	.00	.00	922.43	.26	1.27	.02	921.70
4895.0	.0	747.2	4147.8	.0	136.1	1099.3	136.7	116.5	919.80
1.18	.00	5.49	3.77	.000	.030	.045	.000	918.00	9970.00
.003296	495.	490.	485.	4	0	0	.00	515.69	10485.69

*SECNO .964
3280 CROSS SECTION .96 EXTENDED .92 FEET

.964	4.92	924.12	.00	.00	924.61	.49	2.11	.07	923.20
4895.0	.0	1739.3	3155.7	.0	229.1	771.9	149.7	122.0	922.50
1.21	.00	7.59	4.09	.000	.030	.045	.000	919.20	9970.00
.005474	505.	505.	505.	2	0	0	.00	441.24	10411.24

*SECNO 1.081
3280 CROSS SECTION 1.08 EXTENDED .58 FEET

Q = Q AT CP364A (= 4895 CFS).
Q HAS BEEN REDUCED BY THE SAME DIVERSION AT THE REACH UPSTREAM
OF SEC. 1.474 WHICH WILL RETURN AT SEC. 0.964

1.081	3.28	926.28	.00	.00	926.37	.09	1.72	.04	925.70
2596.0	.0	779.9	1816.1	.0	281.2	817.0	164.4	128.3	925.00
1.28	.00	2.77	2.22	.000	.030	.045	.000	923.00	9955.00
.001187	595.	620.	610.	2	0	0	.00	451.38	10406.38

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 1.153

3265 DIVIDED FLOW

A DIVIDED FLOW MIGHT OCCUR DUE TO THE EFFECTIVENESS OF THE RIGHT
OVERBANK IN CARRIYING THE FLOW

1.153	3.68	926.68	.00	.00	926.76	.08	.39	.00	928.40
2596.0	.0	586.6	2009.4	.0	223.0	945.0	173.8	132.1	925.80
1.32	.00	2.63	2.13	.000	.030	.045	.000	923.00	9959.96
.000973	410.	380.	355.	3	0	0	.00	453.30	10422.36

*SECNO 1.236

265 DIVIDED FLOW

301 HV CHANGED MORE THAN HVINS

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

A DIVIDED FLOW MIGHT OCCUR DUE TO THE EFFECTIVENESS OF THE RIGHT
OVERBANK IN CARRIYING THE FLOW

1.236	3.45	927.45	927.45	.00	928.35	.90	.93	.25	930.20
2596.0	.0	1818.0	778.0	.0	207.0	207.6	181.7	135.5	928.30
1.34	.00	8.78	3.75	.000	.030	.045	.000	924.00	9974.25
.008002	435.	435.	435.	20	12	0	.00	242.61	10325.72

*SECNO 1.317

3265 DIVIDED FLOW

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

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.90

A DIVIDED FLOW MIGHT OCCUR DUE TO THE EFFECTIVENESS OF THE RIGHT
OVERBANK IN CARRIYING THE FLOW

1.317	5.70	929.70	.00	.00	930.04	.34	1.63	.06	930.40
2596.0	.0	1655.1	940.9	.0	297.7	381.5	187.1	138.2	928.50
1.37	.00	5.56	2.47	.000	.030	.045	.000	924.00	9970.74
.002209	430.	430.	430.	3	0	0	.00	300.91	10314.63

*SECNO 1.378

3265 DIVIDED FLOW

A DIVIDED FLOW MIGHT OCCUR DUE TO THE EFFECTIVENESS OF THE RIGHT
OVERBANK IN CARRIYING THE FLOW

1.378	6.38	930.38	.00	.00	930.64	.26	.59	.01	930.80
2596.0	.0	1444.6	1151.4	.0	285.0	516.1	192.3	140.5	928.80
1.39	.00	5.07	2.23	.000	.030	.045	.000	924.00	9965.18
.001666	345.	320.	295.	3	0	0	.00	370.84	10366.88

*SECNO 1.435

3301 HV CHANGED MORE THAN HVINS

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

CROSS-SECTION AT STATE ROUTE 85

1.435	4.87	931.17	931.17	.00	932.39	1.22	.87	.29	931.40
2596.0	.0	2555.5	40.5	.0	285.9	24.1	195.4	141.9	931.00
1.40	.00	8.94	1.68	.000	.030	.045	.000	926.30	9966.34
.008479	330.	300.	180.	20	15	0	.00	162.61	10128.96

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV

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   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 1.474
3280 CROSS SECTION      1.47 EXTENDED       .62 FEET


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

                Q = Q AT CP336        (= 4899 CFS).
                Q  HAS BEEN REDUCED DUE TO LIMITED GRADE AT THE RIGHT OVERBANK
                DIVERTED "Q" WILL BE RETURNED AT SEC.  0.964

                ANY WSEL EXTENSION AT SEC. 1.474 TO 1.823 IS DUE TO LIMITED
                GRADE AT THE RIGHT OVERBANK.

                FLOODWAY LIMITS, (SEC.  1.474 TO 2.185), HAVE BEEN SET IDENTICAL
                TO THE FLOODPLAIN LIMITS DUE TO THE INABILITY OF THE CHANNEL TO
                HANDLE THE EXISTING FLOW.

    1.474      5.62    933.62    933.62       .00    934.04       .42      1.27       .08    932.00
   2600.0    1465.5     961.6     172.9     760.5     118.6      72.8     198.4     144.8    932.00
     1.41      1.93      8.11      2.38      .045      .030      .045      .000    928.00   9045.76
  .004512      210.      210.      210.         4        12         0       .00   1034.24  10080.00


CCHV=     .300 CEHV=     .500
*SECNO 1.517
3280 CROSS SECTION      1.52 EXTENDED       .19 FEET


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.98

    1.517      2.68    934.88       .00       .00    934.94       .06       .80       .11    933.20
   2600.0    1796.4     803.6        .0    1083.0     320.4        .0     210.2     154.5    934.70
     1.47      1.66      2.51       .00      .045      .030      .000      .000    932.20   9266.45
  .001146      500.      225.      160.         1         0         0       .00    813.55  10080.00


*SECNO 1.566
3280 CROSS SECTION      1.57 EXTENDED       .11 FEET

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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


3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
    1.566      3.71    936.21    936.21       .00    937.38      1.17       .67       .56    934.00
   2600.0     140.4    2399.1      60.4      42.9     266.5      19.0     216.2     157.8    934.00
     1.48      3.27      9.00      3.19      .045      .030      .045      .000    932.50   9914.72
  .007773      320.      260.      210.        20        11         0       .00    150.28  10065.00


CCHV=     .100 CEHV=     .300
*SECNO 1.634
3280 CROSS SECTION      1.63 EXTENDED       .97 FEET


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.06

    1.634      5.27    938.27       .00       .00    938.66       .38      1.19       .08    934.00
   2600.0     727.3    1573.5     299.2     269.4     262.5     106.2     220.2     159.4    934.00
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     1.50      2.70      5.99      2.82      .045      .030      .045      .000    933.00   9832.50
  .001824      360.      360.      360.         3         0         0       .00    232.50  10065.00

*SECNO 1.680
3280 CROSS SECTION      1.68 EXTENDED       .57 FEET

    1.680      5.37    938.77       .00       .00    939.01       .24       .34       .01    934.00
   2600.0     805.5    1399.3     395.2     396.5     279.1     171.0     224.1     160.8    934.00
     1.52      2.03      5.01      2.31      .045      .030      .045      .000    933.40   9761.32
  .001176      200.      240.      285.         2         0         0       .00    338.68  10100.00

*SECNO 1.745
3280 CROSS SECTION      1.75 EXTENDED       .97 FEET

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.56

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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

    1.745      5.37    939.17       .00       .00    939.27       .10       .24       .01    934.50
   2600.0     631.1    1329.0     639.9     419.4     410.7     439.1     232.3     163.7    934.50
     1.56      1.50      3.24      1.46      .045      .030      .045      .000    933.80   9787.12
  .000482      280.      345.      400.         2         0         0       .00    422.88  10210.00

*SECNO 1.823
3280 CROSS SECTION      1.82 EXTENDED       .81 FEET

    1.823      4.51    939.41       .00       .00    939.47       .06       .20       .00    936.00
   2600.0    1094.0     896.1     609.9     950.7     317.0     461.9     245.9     169.3    936.00
     1.62      1.15      2.83      1.32      .045      .030      .045      .000    934.90   9432.35
  .000520      370.      410.      425.         2         0         0       .00    822.65  10255.00

*SECNO 1.893

3265 DIVIDED FLOW

                Q = Q AT CP336        (=4899 CFS).

                A DIVIDED FLOW MIGHT OCCUR DUE TO SPLIT FLOW POTENTIAL AT
                UPSTREAM CROSS-SECTION  2.371

    1.893      3.61    939.71       .00       .00    939.85       .14       .36       .02    937.00
   4899.0    3225.2    1190.3     483.5    1448.1     252.9     231.6     259.0     176.0    937.00
     1.65      2.23      4.71      2.09      .045      .030      .045      .000    936.10   9093.62
  .001947      280.      370.      370.         2         0         0       .00   1080.16  10199.81

*SECNO 1.941

3265 DIVIDED FLOW

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .66

                A DIVIDED FLOW MIGHT OCCUR DUE TO SPLIT FLOW POTENTIAL AT
                UPSTREAM CROSS-SECTION  2.371

    1.941      3.60    939.90       .00       .00    940.11       .21       .24       .02    940.00
   4899.0    4627.7     271.3        .0    1277.9      66.3        .0     261.9     177.6    940.00
     1.66      3.62      4.09       .00      .045      .030      .000      .000    936.30   8961.19
  .004537       40.      255.      290.         2         0         0       .00    700.71  10024.29

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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=     .100 CEHV=     .300
*SECNO 1.988

3265 DIVIDED FLOW


               A DIVIDED FLOW MIGHT OCCUR DUE TO SPLIT FLOW POTENTIAL AT
               UPSTREAM CROSS-SECTION  2.371

     1.988      3.80     940.10       .00       .00     940.30       .19       .18       .00     944.00
    4899.0    4790.9      108.1        .0     1359.5      35.4        .0     263.3     178.3     944.00
      1.66      3.52       3.06       .00       .045      .030      .000      .000    936.30    8915.50
   .003961       35.       245.      280.         2         0         0       .00    696.81   10015.41


*SECNO 2.058

3265 DIVIDED FLOW

3280 CROSS SECTION      2.06 EXTENDED       .27 FEET


               ANY WSEL EXTENSION AT SEC. 2.058 TO 2.185 IS DUE TO LIMITED
               GRADE AT THE LEFT OVERBANK.

               A DIVIDED FLOW MIGHT OCCUR DUE TO SPLIT FLOW POTENTIAL AT
               UPSTREAM CROSS-SECTION  2.371

     2.058      4.67     941.27       .00       .00     941.42       .14      1.12       .00     944.00
    4899.0    4612.2      286.8        .0     1546.4      78.3        .0     275.4     184.3     944.00
      1.69      2.98       3.66       .00       .045      .030      .000      .000    936.60    8850.00
   .002608      350.       370.      370.         2         0         0       .00    772.16   10024.75


 3ECNO 2.185

3265 DIVIDED FLOW

3280 CROSS SECTION      2.18 EXTENDED       .16 FEET


               A DIVIDED FLOW MIGHT OCCUR DUE TO SPLIT FLOW POTENTIAL AT
               UPSTREAM CROSS-SECTION  2.371
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     2.185      5.46     942.66       .00       .00     943.05       .39      1.56       .07     944.00
    4899.0    4109.4      789.6        .0      846.6     139.0        .0     288.9     190.7     944.00
      1.72      4.85       5.68       .00       .045      .030      .000      .000    937.20    9310.00
   .004656      430.       670.      670.         2         0         0       .00    472.18   10034.94


*SECNO 2.297

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.93

     2.297      5.70     943.50       .00       .00     943.54       .04       .46       .03     941.30
    4899.0    3868.5      433.0     597.5    2357.1     222.9    1049.4     319.2     201.3     940.80
      1.83      1.64       1.94       .57       .045      .030      .070      .000    937.80    9438.68
   .000301      610.       595.      450.         3         0         0       .00   1206.62   10645.29


*SECNO 2.371
     2.371      4.26     943.66       .00       .00     943.71       .04       .17       .00     942.00
    4899.0    3581.6      443.4     874.0    2078.7     174.1    1148.2     354.0     215.3     940.70
      1.90      1.72       2.55       .76       .045      .030      .070      .000    939.40    9277.62
   .000570      400.       390.      500.         2         0         0       .00   1501.93   10779.55


*SECNO 2.435

 302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .62
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2.435	4.01	943.91	.00	.00	944.02	.10	.29	.02	942.00
4899.0	2586.9	1274.9	1037.2	1299.5	313.9	933.7	376.9	226.8	941.70
1.94	1.99	4.06	1.11	.045	.030	.070	.000	939.90	9260.15
.001467	335.	335.	335.	2	0	0	.00	1482.58	10742.73

*SECNO 2.536
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

CROSS-SECTION 30 FEET SOUTH OF LOWER BUKEYE RD. EXTENDED

Q = Q AT CP335 (= 4906 CFS).

2.536	2.30	945.80	945.80	.00	946.40	.60	1.71	.15	943.80
4906.0	791.1	1873.1	2241.8	167.5	207.5	795.1	399.7	241.9	943.70
1.97	4.72	9.03	2.82	.045	.030	.070	.000	943.50	9771.15
.011717	535.	535.	535.	20	11	0	.00	979.53	10750.68

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 2.680

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.47

A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

2.680	3.93	949.13	.00	.00	949.33	.20	2.89	.04	947.30
4906.0	539.6	2177.7	2188.7	310.1	435.8	1354.6	427.2	259.7	945.60
2.03	1.74	5.00	1.62	.045	.030	.070	.000	945.20	9565.75
.001927	735.	760.	725.	5	0	0	.00	1136.32	10774.45

*SECNO 2.771

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .58

A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

2.771	3.31	950.61	.00	.00	950.81	.20	1.48	.00	949.40
4906.0	1353.9	624.2	2927.8	435.3	89.5	1094.5	447.7	271.8	948.20
2.07	3.11	6.98	2.68	.045	.030	.070	.000	947.30	9624.70
.005705	480.	480.	480.	3	0	0	.00	1066.90	10702.82

*SECNO 2.883

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.47

2.883	4.33	952.83	.00	.00	952.99	.16	2.18	.00	950.20
4906.0	2464.6	614.4	1827.0	815.6	105.0	921.6	470.8	284.7	950.10
2.12	3.02	5.85	1.98	.045	.030	.070	.000	948.50	9596.60
.002643	580.	590.	580.	1	0	0	.00	877.27	10473.87

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 2.977

Q = Q AT CP334 (= 4915 CFS).

2.977	4.37	954.27	.00	.00	954.68	.41	1.62	.08	951.50
4915.0	2276.9	1835.6	802.5	636.5	249.9	526.2	489.5	294.8	952.10
2.15	3.58	7.34	1.53	.045	.030	.070	.000	949.90	9642.89
.004041	500.	500.	500.	2	0	0	.00	871.33	10514.22

*SECNO 3.070

3.070	3.83	956.13	.00	.00	956.28	.15	1.57	.03	954.50
4915.0	1655.7	1153.4	2105.9	694.8	227.5	1146.6	509.1	306.0	953.20
2.20	2.38	5.07	1.84	.045	.030	.070	.000	952.30	9527.59
.002614	485.	490.	495.	2	0	0	.00	1123.98	10651.57

*SECNO 3.167

Q = Q AT 1I334 (= 4432 CFS).

3.167	3.46	957.36	.00	.00	957.48	.12	1.19	.00	955.10
4432.0	2044.8	727.1	1660.1	814.1	150.5	1058.3	532.5	318.7	954.90
2.26	2.51	4.83	1.57	.045	.030	.070	.000	953.90	9569.20
.002191	475.	510.	515.	2	0	0	.00	1088.78	10657.98

*SECNO 3.291

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .55

A DIVIDED FLOW MIGHT OCCUR DUE TO SPLIT FLOW POTENTIAL AT
UPSTREAM CROSS-SECTION 3.602

3.291	2.52	959.72	.00	.00	959.85	.13	2.37	.00	960.50
4432.0	.0	179.2	4252.8	.0	36.0	1531.6	559.4	333.5	960.10
2.32	.00	4.98	2.78	.000	.030	.070	.000	957.20	9986.41
.007133	660.	655.	650.	3	0	0	.00	880.55	10880.48

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 3.376

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.52

A DIVIDED FLOW MIGHT OCCUR DUE TO SPLIT FLOW POTENTIAL AT
UPSTREAM CROSS-SECTION 3.602

3.376	3.46	961.76	.00	.00	961.83	.08	1.98	.01	961.90
4432.0	255.6	172.7	4003.7	190.2	46.8	1846.2	577.9	344.1	961.00
2.38	1.34	3.69	2.17	.045	.030	.070	.000	958.30	9673.73
.003077	460.	450.	440.	2	0	0	.00	1205.55	10888.70

*SECNO 3.491

A DIVIDED FLOW MIGHT OCCUR DUE TO SPLIT FLOW POTENTIAL AT
UPSTREAM CROSS-SECTION 3.602

3.491	3.70	963.20	.00	.00	963.27	.08	1.44	.00	961.90
4432.0	1449.7	409.1	2573.2	664.1	102.0	1454.9	607.8	359.8	961.90
2.46	2.18	4.01	1.77	.045	.030	.070	.000	959.50	9597.03

.001901	605.	605.	605.	4	0	0	.00	1059.92	10656.95

CCHV= .100 CEHV= .300
*SECNO 3.602

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .68

CROSS-SECTION AT YUMA RD.

Q = Q AT CP316 (= 4438 CFS).

3.602	2.78	964.68	.00	.00	964.90	.23	1.58	.05	962.00
4438.0	426.8	2771.4	1239.8	234.6	599.2	620.9	632.7	372.4	962.00
2.50	1.82	4.63	2.00	.070	.040	.070	.000	961.90	9699.47
.004075	590.	590.	590.	1	0	0	.00	806.16	10505.63

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 3.702

3265 DIVIDED FLOW

A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

3.702	3.36	966.76	.00	.00	966.92	.16	2.01	.01	963.90
4438.0	1899.4	1470.9	1067.7	877.3	308.0	595.4	651.8	383.1	964.00
2.55	2.16	4.77	1.79	.070	.040	.070	.000	963.40	9239.20
.003686	535.	525.	490.	3	0	0	.00	1003.67	10479.91

*SECNO 3.841

3265 DIVIDED FLOW

A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

3.841	4.16	969.26	.00	.00	969.36	.11	2.44	.01	967.10
4438.0	2792.6	1077.2	568.3	1254.0	287.3	399.0	683.2	400.0	967.30
2.63	2.23	3.75	1.42	.070	.040	.070	.000	965.10	9185.54
.003004	735.	735.	735.	3	0	0	.00	999.61	10407.99

*SECNO 3.978

A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

3.978	4.39	971.29	.00	.00	971.42	.13	2.05	.01	969.00
4438.0	1597.8	1998.1	842.1	1020.0	498.2	518.1	716.3	418.3	968.40
2.71	1.57	4.01	1.63	.070	.040	.070	.000	966.90	9234.97
.002670	725.	725.	725.	3	0	0	.00	1203.78	10438.75

*SECNO 4.101

4.101	4.46	973.16	.00	.00	973.28	.12	1.86	.00	971.00
4438.0	1810.9	1415.6	1211.6	975.4	342.2	682.9	746.5	435.7	970.90
2.78	1.86	4.14	1.77	.070	.040	.070	.000	968.70	9372.68
.003068	650.	650.	650.	1	0	0	.00	1121.26	10493.94

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

```
 3ECNO 4.237
    4.237      3.78    975.08       .00       .00    975.22       .14      1.93       .01    972.60
   4438.0    1682.5    1967.7     787.8     950.0     477.3     488.7     778.6     452.3    972.00
     2.85      1.77      4.12      1.61      .070      .040      .070      .000    971.30   9456.52
  .002401      715.      715.      715.         2         0         0       .00    909.25  10365.77


*SECNO 4.356
    4.356      3.94    976.54       .00       .00    976.67       .13      1.44       .00    973.50
   4438.0    1835.2    1699.1     903.7     998.6     422.5     566.7     806.8     465.4    973.40
     2.92      1.84      4.02      1.59      .070      .040      .070      .000    972.60   9499.28
  .002188      630.      630.      630.         2         0         0       .00    894.56  10393.84


*SECNO 4.496
    4.496      3.82    978.22       .00       .00    978.39       .17      1.71       .01    975.20
   4438.0    1108.8    2306.4    1022.8     625.6     543.9     574.3     838.5     479.8    975.00
     2.98      1.77      4.24      1.78      .070      .040      .070      .000    974.40   9633.19
  .002444      740.      740.      740.         1         0         0       .00    800.31  10433.50


*SECNO 4.625

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .68


                CROSS-SECTION AT VANBUREN ST.

                Q = Q AT CP298       (= 4446 CFS).

    4.625      2.40    980.50       .00       .00    980.78       .28      2.35       .03    978.30
   4446.0     474.9    3498.7     472.4     261.4     746.3     257.4     862.0     492.1    978.30
     3.03      1.82      4.69      1.84      .070      .040      .070      .000    978.10   9600.36
  .005255      680.      680.      680.         3         0         0       .00    778.15  10378.51


*SECNO 4.701

`302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.74

    4.701      3.33    981.33       .00       .00    981.40       .06       .60       .02    980.00
   4446.0      24.8    4401.1      20.1      58.0    2156.4      46.8     878.2     499.7    980.00
     3.09       .43      2.04       .43      .070      .040      .070      .000    978.00   9598.20
  .000699      400.      400.      400.         3         0         0       .00    876.90  10475.10


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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 4.858

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .35

    4.858      2.47    982.47       .00       .00    982.74       .27      1.28       .06    982.00
   4446.0       2.9    4434.2       8.9       4.7    1055.3      14.5     910.0     514.4    982.00
     3.14       .62      4.20       .62      .070      .040      .070      .000    980.00   9685.11
  .005827      860.      830.      820.         3         0         0       .00    666.89  10352.00


*SECNO 5.009

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.51

    5.009      3.68    985.58       .00       .00    985.72       .15      2.97       .01    983.70
   4446.0    1563.4    2035.9     846.7     743.1     509.9     504.3     936.1     528.1    982.50
     3.22      2.10      3.99      1.68      .070      .040      .070      .000    981.90   9604.63
  .002567      800.      795.      840.         4         0         0       .00    803.32  10407.96


*SECNO 5.153
    5.153      3.51    987.81       .00       .00    987.98       .17      2.25       .01    985.60
   4446.0    2065.3    1888.3     492.4     934.6     424.5     334.7     966.3     542.8    985.40
     3.29      2.21      4.45      1.47      .070      .040      .070      .000    984.30   9495.23
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 .003424      775.      765.      730.         2         0         0       .00    890.30  10385.54

*SECNO 5.282

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.55

     5.282      3.86    989.36       .00       .00    989.43       .07      1.44       .01    987.00
    4446.0    2505.5    1250.5     690.0    1606.1     385.6     578.5     999.7     559.6    986.00
      3.38      1.56      3.24      1.19      .070      .040      .070      .000    985.50   9212.57
   .001432      690.      680.      665.         2         0         0       .00   1261.83  10474.40

CCHV=     .300 CEHV=     .500
*SECNO 5.430

3301 HV CHANGED MORE THAN HVINS

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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


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .39

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       996.00 ELREA=       996.00

                A 7-SPAN BRIDGE AT I-10 , (SEE I-10 PLANS)

     5.430      3.08    991.08       .00       .00    992.22      1.14      2.25       .53    997.00
    4446.0        .0    4446.0        .0        .0     519.3        .0    1025.8     571.8    997.00
      3.41       .00      8.56       .00      .000      .035      .000      .000    988.00   9912.54
   .009631      680.      780.      820.         2         0         0       .00    174.93  10087.46


SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS     990.75 , NOT     991.08 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     1.05      1.60      2.60       .00    162.00      6.00   1203.00      2.00    988.00    988.00

*SECNO 5.460

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.49

CLASS B LOW FLOW

3420 BRIDGE W.S.=     991.26 BRIDGE VELOCITY=      10.04     CALCULATED CHANNEL AREA=       530.

 EGPRS      EGLWC       H3       QWEIR      QLOW      BAREA   TRAPEZOID      ELLC      ELTRD     WEIRLN
                                                               AREA
       .00    992.90      .00         0.     5319.     1203.     1190.     995.00    997.00         0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       997.00 ELREA=       997.00

                Q = Q AT CP287       (= 5319 CFS).

     5.460      3.91    991.91       .00       .00    992.90       .99       .68       .00    997.00
    5319.0        .0    5319.0        .0        .0     666.1        .0    1028.0     572.5    997.00
      3.41       .00      7.99       .00      .000      .035      .000      .000    988.00   9910.79
   .006187      160.      160.      160.         0         0         0       .00    178.41  10089.21

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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= .300 CEHV= .500
*SECNO 5.563

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 4.06

5.563	5.18	993.68	.00	.00	993.71	.04	.52	.29	989.50
5319.0	964.8	2454.7	1899.5	1328.6	1198.9	2089.4	1060.6	584.2	988.90
3.52	.73	2.05	.91	.070	.040	.070	.000	988.50	9147.47
.000376	540.	540.	535.	4	0	0	.00	1729.53	10877.00

CCHV= .100 CEHV= .300
*SECNO 5.727

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .25

CROSS-SECTION AT 280 FEET(ALONG FLOW PATH) NORTH OF MC DOWELL RD

Q = Q AT CP286 (= 4662 CFS).

A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

5.727	3.29	994.29	.00	.00	994.49	.20	.73	.05	992.00
4662.0	920.7	2595.2	1146.1	605.1	572.7	608.3	1123.5	613.7	991.80
3.59	1.52	4.53	1.88	.070	.045	.070	.000	991.00	9219.67
.004632	870.	870.	835.	2	0	0	.00	1276.17	10642.91

SECNO 5.840

3265 DIVIDED FLOW

A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

5.840	3.11	996.51	.00	.00	996.63	.12	2.13	.01	994.00
4662.0	1041.3	2138.9	1481.7	715.4	587.3	857.7	1150.1	631.5	993.70
3.66	1.46	3.64	1.73	.070	.045	.070	.000	993.40	9321.12
.002893	590.	595.	580.	4	0	0	.00	1360.99	10743.70

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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 5.960

5.960	2.60	998.50	.00	.00	998.60	.10	1.97	.00	997.30
4662.0	305.9	1508.5	2847.6	249.9	442.4	1452.2	1180.9	651.1	996.20
3.73	1.22	3.41	1.96	.070	.045	.070	.000	995.90	9630.08
.003454	640.	635.	610.	3	0	0	.00	1373.63	11003.71

*SECNO 6.086

6.086	2.77	1001.07	.00	.00	1001.19	.12	2.59	.01	999.20
4662.0	745.6	1764.7	2151.7	481.7	464.9	1114.7	1213.5	672.9	999.20
3.80	1.55	3.80	1.93	.070	.045	.070	.000	998.30	9413.59
.004290	655.	665.	685.	4	0	0	.00	1451.48	10865.07

*SECNO 6.217

302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.55

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     6.217      2.88   1002.98       .00       .00   1003.04       .06      1.84       .01   1000.30
    4662.0    1152.4    1532.4    1977.2     811.1     556.3    1375.7    1252.0     696.7   1000.30
      3.91      1.42      2.75      1.44      .070      .045      .070      .000   1000.10   9373.64
   .001779      620.      690.      745.         3         0         0       .00   1528.09  10901.73


*SECNO 6.320
     6.320      3.09   1003.99       .00       .00   1004.06       .07      1.01       .00   1001.30
    4662.0     968.6    1679.5    2014.0     632.2     572.3    1429.2    1285.6     715.4   1001.40
      3.98      1.53      2.93      1.41      .070      .045      .070      .000   1000.90   9555.93
   .001943      580.      545.      525.         3         0         0       .00   1470.67  11026.60


*SECNO 6.414
     6.414      2.66   1005.26       .00       .00   1005.35       .09      1.28       .01   1002.90
    4662.0    2116.7    1593.6     951.7    1192.5     466.5     717.3    1314.5     733.9   1003.60
      4.04      1.77      3.42      1.33      .070      .045      .070      .000   1002.60   9137.79
   .003458      595.      495.      425.         2         0         0       .00   1812.72  10950.51


*SECNO 6.509
     6.509      2.55   1006.65       .00       .00   1006.69       .05      1.34       .00   1004.80
    4662.0    3112.6    1004.2     545.1    2028.4     416.1     694.8    1347.3     759.6   1004.70
      4.13      1.53      2.41       .78      .070      .045      .070      .000   1004.10   8840.75
   .002011      530.      505.      500.         1         0         0       .00   2548.06  11388.81


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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 6.627

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .35

     6.627      2.35   1009.15   1009.11       .00   1009.57       .41      2.76       .11   1007.50
    4662.0    1705.1    2389.0     567.9     434.6     375.8     389.5    1378.5     787.5   1008.00
      4.17      3.92      6.36      1.46      .070      .045      .070      .000   1006.80   9641.15
   .015982      650.      620.      580.         6        15         0       .00   1456.82  11097.96


CCHV=     .300 CEHV=     .500
*SECNO 6.674

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

                A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING THE RID CANAL.

     6.674      3.93   1012.43   1012.43       .00   1013.00       .57      2.73       .08   1010.00
    4662.0     165.8    3528.8     967.4      87.2     512.4     625.3    1386.3     797.1   1010.00
      4.18      1.90      6.89      1.55      .070      .040      .070      .000   1008.50   9802.91
   .007587      200.      250.      350.         4        11         0       .00   1210.24  11189.61


*SECNO 6.864

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  4.54

     6.864      2.86   1013.86       .00       .00   1013.87       .01       .71       .17   1011.50
    4662.0    1282.1     521.8    2858.1    2917.1     388.3    4331.8    1442.4     835.2   1011.60
      4.48       .44      1.34       .66      .070      .040      .070      .000   1011.00   7178.88
   .000368      500.     1000.      500.         6         0         0       .00   5112.90  12291.78


CCHV=     .100 CEHV=     .300
*SECNO 6.877

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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

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .63

CROSS-SECTION AT THOMAS RD. EXTENDED

Q = Q AT CP268 (= 4703 CFS).

6.877	2.90	1013.90	.00	.00	1013.91	.02	.04	.00	1012.00
4703.0	2519.3	663.0	1520.6	3316.3	323.6	1740.8	1452.8	842.6	1012.00
4.50	.76	2.05	.87	.070	.040	.070	.000	1011.00	7164.51
.000949	70.	70.	70.	2	0	0	.00	4120.93	11285.45

CCHV= .100 CEHV= .300
*SECNO 7.045

3265 DIVIDED FLOW

3280 CROSS SECTION 7.05 EXTENDED .57 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.05

ANY WSEL EXTENSION IS DUE TO LIMITED GRADE AT THE LEFT OVERBANK

A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

7.045	2.98	1014.08	.00	.00	1014.08	.00	.16	.00	1011.90
4703.0	2605.1	277.5	1820.4	4762.9	272.3	3755.4	1513.4	879.0	1014.00
4.70	.55	1.02	.48	.070	.035	.070	.000	1011.10	7680.00
.000226	350.	885.	350.	2	0	0	.00	4521.98	12303.07

*SECNO 7.124

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .45

Q = Q AT 1I268 (= 4088 CFS).

A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

7.124	2.63	1014.23	.00	.00	1014.24	.01	.16	.00	1013.30
4088.0	980.2	92.9	3014.9	1680.6	54.7	3123.2	1579.2	918.6	1014.50
4.83	.58	1.70	.97	.070	.035	.070	.000	1011.60	8104.96
.000837	420.	420.	420.	2	0	0	.00	3690.22	11841.30

*SECNO 7.267

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .47

A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

7.267	2.47	1015.37	.00	.00	1015.43	.05	1.17	.01	1015.70
4088.0	127.3	87.1	3873.7	199.3	32.8	2069.8	1641.3	967.7	1016.00
4.94	.64	2.65	1.87	.070	.035	.070	.000	1012.90	9324.25
.003831	755.	755.	755.	2	0	0	.00	1974.82	11462.99

*SECNO 7.407

265 DIVIDED FLOW

A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

7.407	2.86	1017.56	.00	.00	1017.61	.04	2.18	.00	1017.90
4088.0	12.7	33.8	4041.5	38.7	20.4	2466.3	1682.3	997.9	1018.50
5.07	.33	1.66	1.64	.070	.035	.070	.000	1014.70	9740.81
.002330	740.	740.	740.	4	0	0	.00	1586.42	11439.12

*SECNO 7.552

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .66

7.552	2.03	1020.13	.00	.00	1020.20	.06	2.58	.01	1018.50
4088.0	857.6	308.4	2922.0	600.5	69.1	1669.8	1725.0	1031.8	1018.90
5.18	1.43	4.46	1.75	.070	.035	.070	.000	1018.10	9240.52
.005332	765.	765.	765.	3	0	0	.00	2269.91	11510.43

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 7.670

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.62

7.670	3.88	1022.08	.00	.00	1022.13	.05	1.94	.00	1019.20
4088.0	1793.3	471.8	1822.9	1257.7	113.2	1656.1	1763.5	1064.3	1019.90
5.29	1.43	4.17	1.10	.070	.035	.070	.000	1018.20	9159.30
.002022	625.	625.	625.	3	0	0	.00	2260.91	11420.21

*SECNO 7.799

7.799	4.07	1023.27	.00	.00	1023.33	.06	1.20	.00	1020.00
4088.0	1203.3	642.8	2241.9	921.4	163.1	1705.9	1808.9	1094.9	1020.00
5.40	1.31	3.94	1.31	.070	.035	.070	.000	1019.20	9388.63
.001549	680.	680.	680.	3	0	0	.00	1662.33	11050.96

*SECNO 7.924

7.924	3.55	1024.65	.00	.00	1024.73	.08	1.39	.01	1022.20
4088.0	825.2	529.4	2733.5	548.1	113.2	1671.7	1847.7	1120.1	1022.00
5.49	1.51	4.68	1.64	.070	.035	.070	.000	1021.10	9532.10
.003042	660.	660.	660.	2	0	0	.00	1658.30	11190.40

CCHV= .300 CEHV= .500
*SECNO 7.977
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

AT INDIAN SCHOOL RD. 2 - 8FT x 4FT BC

Q = Q AT CP253 (= 4121 CFS).

7.977	5.60	1027.00	1027.00	.00	1027.38	.38	.35	.15	1021.40
4121.0	445.2	1056.7	2619.1	419.3	112.0	1736.1	1862.5	1132.7	1021.40
5.51	1.06	9.44	1.51	.030	.013	.030	.000	1021.40	9258.59
.000686	280.	280.	280.	20	12	0	.00	2272.30	11530.89

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

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	2	.013	.50	2.70	.00	4.00	8.00	30.00	8	1	1021.60	1021.40

CHART 8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE 1 - WINGWALLS FLARED 30 TO 75 DEGREES

5130, EGIC= 1184.45..MAY BE TOO LARGE IF INLET CONTROLS.
5135, EGOC= 1130.06 ..MAY BE TOO LARGE IF OUTLET CONTROLS.
*SECNO 7.983

SPECIAL CULVERT INLET CONTROL + WEIR FLOW, EG = 1027.02
5150, EG OF 1027.02 LESS THAN XEG OF 1027.38
SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
1184.45	1130.06	.00	3604.	489.	8.070	64.0	1025.30	2296.

7.983	5.54	1027.14	.00	.00	1027.38	.24	.00	.00	1021.60
4121.0	520.8	894.4	2705.7	531.5	110.8	1954.9	1864.2	1134.3	1021.60
5.52	.98	8.07	1.38	.030	.013	.030	.000	1021.60	9142.52
.000508	30.	30.	30.	3	0	0	.00	2417.48	11560.00

CCHV= .300 CEHV= .500
*SECNO 8.069

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .68

8.069	3.69	1027.69	.00	.00	1027.76	.07	.33	.05	1024.20
4121.0	1142.1	1340.0	1638.9	1067.0	401.5	1482.5	1893.1	1156.2	1024.20
5.59	1.07	3.34	1.11	.070	.035	.070	.000	1024.00	9234.93
.001099	455.	455.	455.	2	0	0	.00	1783.15	11018.08

CCHV= .100 CEHV= .300
*SECNO 8.169

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .55

8.169	3.99	1028.59	.00	.00	1028.74	.16	.96	.03	1025.60
4121.0	1326.7	849.6	1944.7	755.4	142.4	978.1	1922.2	1174.8	1025.30
5.64	1.76	5.96	1.99	.070	.035	.070	.000	1024.60	9353.09
.003633	525.	525.	525.	3	0	0	.00	1291.47	10644.56

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 8.292

8.292	4.63	1030.83	.00	.00	1030.99	.17	2.25	.00	1027.30
4121.0	1256.4	950.6	1914.0	716.8	157.1	1088.8	1950.9	1194.6	1027.90
5.71	1.75	6.05	1.76	.070	.035	.070	.000	1026.20	9439.26
.003292	650.	650.	650.	4	0	0	.00	1361.06	10800.32

*SECNO 8.364

8.364	4.77	1032.17	.00	.00	1032.40	.23	1.38	.02	1029.20
4121.0	1560.3	1230.3	1330.4	867.2	191.0	714.2	1967.6	1206.4	1029.90
5.74	1.80	6.44	1.86	.070	.035	.070	.000	1027.40	9247.86
.003875	370.	380.	410.	0	0	0	.00	1292.89	10540.75

*SECNO 8.468

8.468	4.83	1034.43	.00	.00	1034.76	.33	2.33	.03	1031.60
4121.0	1979.0	1255.9	886.1	880.2	162.9	653.6	1986.3	1223.6	1033.50
5.78	2.25	7.71	1.36	.070	.035	.070	.000	1029.60	9130.01
.006048	460.	550.	460.	3	0	0	.00	1948.63	11078.64

SECNO 8.544

Q = (Q AT CP241 "AFTER STORAGE ROUTING" +Q AT CP253)/2
= (4245 + 4121)/2 = 4183 CFS.

8.544	1.78	1036.18	.00	.00	1036.25	.06	1.47	.03	1035.00
4183.0	123.6	687.3	3372.1	122.5	189.9	2145.0	1998.2	1236.3	1034.80
5.82	1.01	3.62	1.57	.070	.035	.070	.000	1034.40	9713.16
.004159	530.	400.	130.	1	0	0	.00	2728.90	12442.07

*SECNO 8.636

3265 DIVIDED FLOW

A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

8.636	1.96	1038.06	.00	.00	1038.12	.06	1.88	.00	1037.10
4183.0	114.7	296.0	3772.3	102.8	68.6	2163.4	2017.3	1257.7	1038.00
5.87	1.12	4.32	1.74	.070	.035	.070	.000	1036.10	9741.96
.006824	340.	490.	340.	3	0	0	.00	2680.10	12625.23

1

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 8.726

3265 DIVIDED FLOW

A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

8.726	2.94	1040.34	.00	.00	1040.39	.05	2.27	.00	1038.80
4183.0	808.9	484.9	2889.1	548.6	121.0	2308.1	2046.3	1288.9	1040.00
5.95	1.47	4.01	1.25	.070	.035	.070	.000	1037.40	9429.78
.003524	475.	475.	475.	4	0	0	.00	3044.47	12664.72

*SECNO 8.848

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .55

A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

8.848	2.90	1043.50	.00	.00	1043.66	.16	3.24	.03	1042.30
4183.0	3229.4	368.4	585.3	1093.0	60.1	462.6	2075.0	1321.0	1045.00
6.00	2.95	6.13	1.27	.070	.035	.070	.000	1040.60	9104.11
.011736	540.	645.	540.	2	0	0	.00	2124.59	11404.85

*SECNO 8.965

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.33

8.965	3.51	1046.21	.00	.00	1046.27	.06	2.60	.01	1043.50
4183.0	2314.4	614.2	1254.4	1440.2	164.5	1024.8	2104.9	1349.0	1044.70
6.10	1.61	3.73	1.22	.070	.035	.070	.000	1042.70	9137.38
.002154	615.	615.	615.	4	0	0	.00	1838.90	10976.28

*SECNO 9.034

9.034	3.74	1047.14	.00	.00	1047.28	.15	.99	.03	1043.90
4183.0	2482.6	1037.5	662.9	1157.4	200.8	495.4	2123.7	1361.9	1045.70
6.14	2.14	5.17	1.34	.070	.035	.070	.000	1043.40	9330.00
.003498	365.	365.	365.	3	0	0	.00	1244.60	10574.59

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= .300 CEHV= .500
*SECNO 9.095

3301 HV CHANGED MORE THAN HVINS

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

AT CAMELBACK RD. 4 - 52 INCH CP

Q = Q AT CP241 (= 4243 CFS).

9.095	6.63	1048.93	1048.93	.00	1049.78	.85	.35	.35	1042.30
4243.0	1520.7	2691.5	30.8	1040.0	291.8	47.1	2135.6	1370.4	1042.30
6.15	1.46	9.23	.66	.030	.013	.030	.000	1042.30	9127.05
.000523	320.	320.	320.	20	11	0	.00	1067.25	10194.30

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	4	.013	.50	2.70	.00	4.50	.00	30.00	1	1	1042.50	1042.30

CHART 1 - CONCRETE PIPE CULVERT; NO BEVELED RING ENTRANCE
SCALE 1 - SQUARE EDGE ENTRANCE WITH HEADWALL

5130, EGIC= 1222.54..MAY BE TOO LARGE IF INLET CONTROLS.
5135, EGOC= 1161.27 ..MAY BE TOO LARGE IF OUTLET CONTROLS.
*SECNO 9.100

SPECIAL CULVERT INLET CONTROL + WEIR FLOW, EG = 1049.01
5150, EG OF 1049.01 LESS THAN XEG OF 1049.78
SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
1222.54	1161.27	.00	3678.	597.	8.321	63.6	1046.30	1108.

9.100	6.65	1049.15	.00	.00	1049.78	.63	.00	.00	1042.50
4243.0	1749.4	2437.0	56.6	1235.6	292.9	95.6	2136.6	1371.2	1042.50
6.15	1.42	8.32	.59	.030	.013	.030	.000	1042.50	9091.80
.000423	30.	30.	30.	4	0	0	.00	1191.13	10282.93

CCHV= .300 CEHV= .500
*SECNO 9.189
1

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 = .38

9.189	2.28	1050.18	1049.51	.00	1050.34	.16	.42	.14	1048.80
4243.0	2408.6	1739.6	94.7	997.6	421.1	67.5	2153.4	1383.1	1048.90
6.19	2.41	4.13	1.40	.045	.030	.045	.000	1047.90	9253.43
.002927	470.	470.	460.	15	14	0	.00	1022.74	10276.17

CCHV= .100 CEHV= .300
*SECNO 9.292

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .45

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                Q = Q AT 2I241        (= 3693 CFS).

     9.292      1.61   1052.71       .00       .00   1053.00       .29      2.62       .04   1051.80
    3693.0    2412.3    1256.2      24.5     665.3     233.6      14.1    2168.3    1395.1   1052.00
      6.23      3.63      5.38      1.74      .045      .030      .045      .000   1051.10   9240.83
   .010883      540.      540.      530.         3         0         0       .00    918.56  10159.40


*SECNO 9.396

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.91

     9.396      2.01   1055.81       .00       .00   1055.91       .10      2.89       .02   1054.70
    3693.0    2433.3     858.0     401.7    1054.1     258.3     259.7    2184.2    1409.9   1054.70
      6.29      2.31      3.32      1.55      .045      .030      .045      .000   1053.80   9076.44
   .002986      570.      550.      515.         5         0         0       .00   1394.08  10470.53


*SECNO 9.493
     9.493      1.63   1057.73       .00       .00   1057.89       .16      1.96       .02   1057.10
    3693.0    2474.1    1129.9      89.0     943.0     265.0      57.0    2200.4    1424.8   1056.70
      6.34      2.62      4.26      1.56      .045      .030      .045      .000   1056.10   9042.96
   .005432      490.      515.      515.         3         0         0       .00   1207.81  10250.78


*SECNO 9.544
     9.544      1.81   1058.81       .00       .00   1058.90       .09      1.00       .01   1058.00
    3693.0    2718.5     487.0     487.5    1164.0     153.2     277.8    2207.6    1431.9   1058.00
      6.36      2.34      3.18      1.76      .045      .030      .045      .000   1057.00   8841.61
   .003824      200.      270.      280.         2         0         0       .00   1580.67  10422.28


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   03SEP96      09:19:12                                                                          PAGE   57

    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=      .300 CEHV=      .500
*SECNO 9.641

                Q = Q AT 2I241        (= 3693 CFS).
                Q HAS BEEN REDUCED BY THE SAME DIVERSION AT THE REACH UPSTREAM
                OF SEC. 10.269  WHICH WILL RETURN AT SEC.  9.544

     9.641      2.65   1059.65       .00       .00   1059.75       .09       .85       .00   1058.00
    3113.0    2781.9     279.1      51.9    1256.7      64.5      34.1    2216.6    1440.6   1058.00
      6.39      2.21      4.33      1.52      .045      .030      .045      .000   1057.00   9026.78
   .002755      180.      510.      750.         4         0         0       .00   1029.50  10056.28


*SECNO 9.741

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.29

     9.741      3.01   1060.21       .00       .00   1060.26       .04       .50       .02   1057.50
    3113.0    1638.3    1306.7     168.0    1393.8     587.6     221.1    2236.0    1453.0   1058.00
      6.48      1.18      2.22       .76      .045      .030      .045      .000   1057.20   9110.67
   .000527      480.      530.      300.         3         0         0       .00   1345.33  10456.00


CCHV=      .100 CEHV=      .300
*SECNO 9.807
     9.807      3.08   1060.39       .00       .00   1060.43       .04       .17       .00   1057.60
    3113.0    1371.5    1475.0     266.5    1230.3     676.1     304.7    2253.2    1463.3   1058.00
      6.54      1.11      2.18       .87      .045      .030      .045      .000   1057.30   9112.53
   .000488      335.      345.      345.         2         0         0       .00   1310.74  10423.27


CCHV=      .100 CEHV=      .300
*SECNO 9.898

`302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .41
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Q = ROUTED FLOW FROM SUB. 222 TO SUB. 241 (= 1342 CFS).
Q HAS BEEN REDUCED BY THE SAME DIVERSION AT THE REACH UPSTREAM
OF SEC. 10.269 WHICH WILL RETURN AT SEC. 9.544

FLOODWAY LIMITS, (SEC. 9.898 TO 10.995), HAVE BEEN SET IDENTICAL
TO THE FLOODPLAIN LIMITS DUE TO THE CONFINEMENT OF FLOW IN A

DFINED CHANNEL. A WEIR FLOW ALSO OCCUR OVER THE RIGHT BANK AT
SEC. 10.493 THROUGH 10.639

9.898	3.12	1060.62	.00	.00	1060.63	.01	.20	.00	1059.80
762.0	254.9	292.4	214.7	472.9	232.7	426.1	2273.6	1476.3	1059.80
6.71	.54	1.26	.50	.045	.028	.045	.000	1057.50	9603.86
.000170	650.	480.	320.	1	0	0	.00	870.17	10474.03

*SECNO 9.994

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .27

9.994	2.95	1060.65	.00	.00	1060.93	.29	.22	.08	1062.10
762.0	.0	762.0	.0	.0	177.8	.0	2281.7	1482.1	1062.10
6.75	.00	4.29	.00	.000	.028	.000	.000	1057.70	9956.92
.002367	600.	510.	490.	2	0	0	.00	82.71	10039.62

*SECNO 10.108

10.108	3.91	1062.01	.00	.00	1062.35	.34	1.41	.02	1062.90
762.0	.0	762.0	.0	.0	162.9	.0	2284.0	1483.2	1062.90
6.78	.00	4.68	.00	.000	.028	.000	.000	1058.10	9969.93
.002322	600.	600.	600.	2	0	0	.00	65.14	10035.07

*SECNO 10.197

`302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.42

10.197	4.53	1062.93	.00	.00	1063.11	.18	.74	.02	1063.60
762.0	.0	762.0	.0	.0	223.0	.0	2286.1	1484.0	1063.60
6.82	.00	3.42	.00	.000	.028	.000	.000	1058.40	9954.18
.001148	470.	470.	470.	2	0	0	.00	84.56	10038.74

*SECNO 10.269

Q = Q AT CP222 (= 1380 CFS).
Q HAS BEEN REDUCED DUE TO WEIR FLOW OVER THE RIGHT OVERBANK.
DIVERTED "Q" WILL BE RETURNED AT SEC. 9.544

10.269	4.68	1063.28	.00	.00	1063.46	.18	.35	.00	1062.00
800.0	2.7	794.1	3.2	4.1	233.4	4.8	2288.1	1484.7	1062.00
6.85	.67	3.40	.67	.045	.028	.045	.000	1058.60	9953.58
.000757	410.	380.	350.	2	0	0	.00	78.83	10032.41

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 10.328

10.328	4.70	1063.50	.00	.00	1063.77	.27	.28	.03	1062.00
800.0	3.7	795.2	1.1	4.2	188.9	1.4	2289.7	1485.2	1062.00
6.87	.88	4.21	.76	.045	.028	.045	.000	1058.80	9964.38
.001094	335.	310.	290.	2	0	0	.00	57.49	10021.87

*SECNO 10.419

10.419	4.89	1063.99	.00	.00	1064.28	.28	.50	.00	1062.00
800.0	2.2	795.6	2.2	2.5	185.5	2.5	2291.8	1485.8	1062.00
6.91	.89	4.29	.89	.045	.028	.045	.000	1059.10	9972.51

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  .001012      475.      480.      485.         2         0         0       .00     49.99  10022.49

*SECNO 10.493
3280 CROSS SECTION     10.49 EXTENDED       .76 FEET

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.61

               ANY WSEL EXTENSION AT SEC. 10.493 TO 10.639 IS DUE TO LIMITED
               GRADE AT THE RIGHT OVERBANK.

   10.493      5.06   1064.36       .00       .00   1064.38       .03       .08       .03   1062.00
    800.0       5.7     785.5       8.8      15.6     613.5      23.3    2295.7    1486.7   1062.00
     6.99       .37      1.28       .38      .045      .028      .045      .000   1059.30   9885.00
  .000078      400.      400.      400.         2         0         0       .00    160.00  10045.00

*SECNO 10.587
3280 CROSS SECTION     10.59 EXTENDED       .19 FEET

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .68

   10.587      4.79   1064.39       .00       .00   1064.44       .05       .05       .01   1062.00
    800.0      20.3     766.7      13.0      47.3     434.4      25.9    2302.2    1488.8   1062.00
     7.07       .43      1.76       .50      .045      .028      .045      .000   1059.60   9846.88
  .000167      490.      490.      490.         2         0         0       .00    213.13  10060.00
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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

CCHV=     .100 CEHV=     .300
*SECNO 10.639
   10.639      4.65   1064.45       .00       .00   1064.49       .04       .05       .00   1062.00
    800.0      36.9     754.8       8.3      69.6     449.8      16.8    2305.6    1490.2   1062.00
     7.12       .53      1.68       .50      .045      .030      .045      .000   1059.80   9858.05
  .000176      350.      275.      260.         1         0         0       .00    197.92  10055.97

*SECNO 10.709

               Q = Q AT CP222       (= 1380 CFS).

   10.709      4.52   1064.52       .00       .00   1064.64       .12       .13       .02   1062.00
   1380.0      58.6    1302.6      18.8      56.2     457.4      19.8    2310.2    1492.0   1062.00
     7.16      1.04      2.85       .95      .045      .030      .045      .000   1060.00   9863.33
  .000618      420.      370.      340.         1         0         0       .00    192.41  10055.74

*SECNO 10.804

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .40

   10.804      2.98   1064.98       .00       .00   1065.35       .37       .63       .07   1064.00
   1380.0      12.7    1362.6       4.7       9.8     278.9       3.7    2314.9    1494.0   1064.00
     7.19      1.29      4.89      1.28      .045      .030      .045      .000   1062.00   9880.16
  .003885      480.      500.      500.         2         0         0       .00    167.28  10047.44

*SECNO 10.889
   10.889      2.80   1066.80       .00       .00   1067.19       .39      1.83       .01   1066.00
   1380.0       9.9    1367.4       2.7       8.6     271.8       2.3    2317.9    1495.7   1066.00
     7.21      1.16      5.03      1.15      .045      .030      .045      .000   1064.00   9878.29
  .004264      450.      450.      450.         3         0         0       .00    167.63  10045.92

*SECNO 10.946
   10.946      2.52   1068.22       .00       .00   1068.66       .44      1.46       .02   1068.00
   1380.0        .4    1379.5        .1        .7     258.6        .2    2319.8    1496.8   1068.00
     7.23       .58      5.34       .57      .045      .030      .045      .000   1065.70   9923.80
  .005619      270.      300.      330.         1         0         0       .00    157.89  10081.69
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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 10.995
    10.995      2.64    1069.84        .00        .00    1070.39        .55       1.70        .03    1070.00
    1380.0        .0     1380.0         .0         .0      231.9         .0     2321.2     1497.7    1070.00
      7.24       .00       5.95        .00       .000       .030       .000       .000    1067.20    9900.11
   .007673      220.       260.       290.          2          0          0        .00     144.10   10044.21

*SECNO 11.067

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.75

    11.067      3.55    1071.15        .00        .00    1071.26        .12        .83        .04    1069.50
    1380.0     328.4     1048.1        3.6      236.3      340.8        4.9     2324.8     1499.8    1070.00
      7.28      1.39       3.08        .72       .045       .030       .045       .000    1067.60    9735.50
   .001013      380.       380.       380.          4          0          0        .00     318.09   10053.60

*SECNO 11.147
    11.147      3.72    1071.52        .00        .00    1071.61        .09        .34        .00    1069.20
    1380.0     335.2     1038.8        6.0      369.8      386.4        8.7     2331.3     1503.8    1070.00
      7.33       .91       2.69        .70       .045       .030       .045       .000    1067.80    9532.25
   .000655      420.       420.       420.          3          0          0        .00     524.14   10056.39

*SECNO 11.228
    11.228      3.92    1071.82        .00        .00    1071.89        .08        .29        .00    1070.00
    1380.0     399.0      969.4       11.6      494.9      372.6       14.4     2339.4     1509.8    1070.00
      7.39       .81       2.60        .80       .045       .030       .045       .000    1067.90    9375.08
   .000678      430.       430.       430.          2          0          0        .00     690.82   10065.89

*SECNO 11.306
    11.306      3.33    1072.13        .00        .00    1072.27        .14        .35        .02    1070.00
    1380.0     171.5     1119.6       88.9      143.0      340.8       73.3     2346.1     1514.6    1070.00
      7.43      1.20       3.29       1.21       .045       .030       .045       .000    1068.80    9805.26
   .001155      400.       410.       400.          2          0          0        .00     351.01   10156.26

*SECNO 11.416
    11.416      2.66    1072.86        .00        .00    1072.98        .12        .71        .00    1071.00
    1380.0     177.3      992.6      210.1      138.5      316.0      146.8     2353.5     1519.4    1071.00
      7.49      1.28       3.14       1.43       .045       .030       .045       .000    1070.20    9769.27
   .001358      400.       580.       680.          2          0          0        .00     426.45   10195.72
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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 11.510
    11.510      1.98    1073.48        .00        .00    1073.53        .05        .55        .01    1072.00
    1380.0     411.9      796.9      171.2      371.1      356.2      138.4     2361.4     1525.1    1071.80
      7.56      1.11       2.24       1.24       .045       .030       .045       .000    1071.50    9548.38
   .000945      340.       500.       640.          0          0          0        .00     664.76   10213.13

*SECNO 11.580

3301 HV CHANGED MORE THAN HVINS


 585 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
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3720 CRITICAL DEPTH ASSUMED

FLOODWAY LIMITS, (SEC. 11.580 TO 13.161),HAVE BEEN SET IDENTICAL
TO THE FLOODPLAIN LIMITS DUE TO THE INABILITY OF THE CHANNEL TO
HANDLE THE EXISTING FLOW OR DUE TO THE CONFINEMENT OF FLOW IN A
DEFINED CHANNEL.

11.580	2.48	1074.48	1074.48	.00	1075.21	.73	.83	.20	1074.00
1380.0	1.2	1373.7	5.2	.9	200.2	3.8	2365.8	1528.4	1074.00
7.58	1.36	6.86	1.36	.045	.030	.045	.000	1072.00	9961.38
.011362	315.	365.	460.	20	11	0	.00	154.31	10115.69

*SECNO 11.676

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.76

Q = Q AT CP221A (= 1377 CFS).

11.676	4.06	1076.16	.00	.00	1076.29	.13	1.02	.06	1074.00
1377.0	29.7	1341.7	5.6	29.5	450.1	5.8	2369.9	1530.4	1074.00
7.63	1.01	2.98	.97	.045	.030	.045	.000	1072.10	9921.86
.000800	480.	510.	550.	5	0	0	.00	184.05	10105.92

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

CHV= .100 CEHV= .300
SECNO 11.775

11.775	4.35	1076.55	.00	.00	1076.69	.14	.40	.00	1074.00
1377.0	39.6	1276.6	60.8	36.8	414.9	79.8	2376.0	1532.8	1074.00
7.68	1.08	3.08	.76	.045	.030	.070	.000	1072.20	9914.56
.000738	520.	520.	560.	3	0	0	.00	217.41	10131.97

*SECNO 11.867

11.867	4.61	1076.92	.00	.00	1077.08	.16	.38	.01	1074.00
1377.0	85.3	1226.4	65.2	75.6	358.4	73.7	2381.8	1535.3	1074.00
7.72	1.13	3.42	.89	.045	.030	.070	.000	1072.30	9875.30
.000813	490.	490.	490.	1	0	0	.00	228.54	10103.84

*SECNO 11.970

11.970	4.91	1077.31	.00	.00	1077.41	.10	.33	.01	1076.00
1377.0	1.1	1316.2	59.7	2.1	498.4	80.0	2388.6	1537.9	1074.00
7.78	.52	2.64	.75	.045	.030	.070	.000	1072.40	9926.72
.000475	540.	540.	540.	2	0	0	.00	179.66	10106.38

*SECNO 12.064

12.064	5.03	1077.53	.00	.00	1077.60	.07	.18	.00	1074.00
1377.0	76.9	1264.2	35.9	120.4	577.6	59.3	2396.2	1540.6	1074.00
7.85	.64	2.19	.60	.045	.030	.070	.000	1072.50	9812.10
.000281	500.	500.	500.	2	0	0	.00	289.37	10101.46

*SECNO 12.150
3280 CROSS SECTION 12.15 EXTENDED .45 FEET

ANY WSEL EXTENSION AT SEC. 12.150 TO 12.534 IS DUE TO LIMITED
GRADE AT THE LEFT OVERBANK.

12.150	5.15	1077.65	.00	.00	1077.71	.06	.11	.00	1074.00
1377.0	112.6	1243.2	21.2	161.3	616.7	44.5	2404.4	1543.5	1074.00
7.91	.70	2.02	.48	.045	.030	.070	.000	1072.50	9825.00
.000229	450.	450.	450.	2	0	0	.00	279.37	10104.37

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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 12.244
3280 CROSS SECTION     12.24 EXTENDED       .48 FEET

    12.244      5.17   1077.77       .00       .00   1077.83       .05       .11       .00   1076.00
    1377.0      35.7    1307.2      34.2      67.6     687.7      71.3    2413.9    1546.6   1074.00
      7.99       .53      1.90       .48      .045      .030      .070      .000   1072.60   9850.00
   .000220      500.      500.      500.         1         0         0       .00    262.77  10112.77


*SECNO 12.345
3280 CROSS SECTION     12.35 EXTENDED       .59 FEET

    12.345      5.28   1077.88       .00       .00   1077.93       .04       .10       .00   1076.00
    1377.0      18.1    1318.7      40.3      37.2     769.4      94.6    2424.4    1549.8   1074.00
      8.08       .49      1.71       .43      .045      .030      .070      .000   1072.60   9890.00
   .000166      530.      530.      530.         0         0         0       .00    253.63  10143.63


*SECNO 12.439
3280 CROSS SECTION     12.44 EXTENDED       .57 FEET

    12.439      5.27   1077.97       .00       .00   1078.00       .04       .08       .00   1074.00
    1377.0      68.8    1253.0      55.3     104.0     762.8     123.2    2435.2    1552.8   1074.00
      8.17       .66      1.64       .45      .045      .030      .070      .000   1072.70   9900.00
   .000143      500.      500.      500.         1         0         0       .00    284.52  10184.52


*SECNO 12.534
3280 CROSS SECTION     12.53 EXTENDED       .54 FEET

    12.534      5.34   1078.04       .00       .00   1078.07       .04       .07       .00   1074.00
    1377.0      62.4    1230.5      84.1      93.2     774.4     178.2    2446.9    1556.1   1074.00
      8.26       .67      1.59       .47      .045      .030      .070      .000   1072.70   9865.00
   .000131      500.      500.      500.         0         0         0       .00    285.33  10150.33


CCHV=     .100 CEHV=     .300
*SECNO 12.633
3280 CROSS SECTION     12.63 EXTENDED       .12 FEET

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
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                Q = Q AT CP212        (= 1350 CFS).
                Q   HAS BEEN REDUCED DUE TO LIMITED GRADE AT THE LEFT OVERBANK.
                DIVERTED FLOW WILL BE RETURNED AT SEC.  12.534

                CROSS-SECTION 12.633 TO 13.161 WERE NOT EXTENDED OVER THE MUCH
                LOWER LEFT OVERBANK SO NOT TO UNDERESTIMATE FLOODPLAIN LIMITS.

                ANY WSEL EXTENSION AT SEC. 12.633 TO 13.161 IS DUE TO LIMITED
                GRADE AT THE LEFT OVERBANK.

    12.633       .72   1080.12   1080.12       .00   1080.30       .18       .18       .04   1079.60
    1000.0     251.4     504.2     244.4      96.1     124.1      94.4    2454.6    1562.2   1079.60
      8.30      2.61      4.06      2.59      .035      .035      .035      .000   1079.40   9600.00
   .017306      790.      520.      180.        20        17         0       .00    814.10  10414.10


CCHV=     .100 CEHV=     .300
*SECNO 12.700
3280 CROSS SECTION     12.70 EXTENDED       .73 FEET

 302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  7.51
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12.700	2.03	1080.73	.00	.00	1080.74	.01	.42	.02	1080.00
1000.0	.0	282.6	717.4	.0	312.4	1414.8	2466.8	1572.6	1079.10
8.50	.00	.90	.51	.000	.040	.070	.000	1078.70	9920.00
.000307	100.	350.	600.	5	0	0	.00	1097.64	11017.64

*SECNO 12.758
3280 CROSS SECTION 12.76 EXTENDED .66 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .41

12.758	2.06	1080.96	.00	.00	1081.00	.04	.25	.01	1080.00
1000.0	14.4	450.3	535.3	12.1	198.1	541.9	2479.2	1581.5	1079.30
8.57	1.19	2.27	.99	.045	.040	.070	.000	1078.90	9940.00
.001813	250.	310.	470.	3	0	0	.00	671.51	10611.51

*SECNO 12.867
3280 CROSS SECTION 12.87 EXTENDED .91 FEET

CROSS-SEC. 60 FT.(ALONG FLOW PATH)SOUTH OF GLENDALE AV. EXTENDED

12.867	2.40	1081.80	.00	.00	1081.84	.04	.83	.00	1080.00
1000.0	36.6	419.3	544.1	27.2	200.6	617.6	2489.9	1590.4	1080.00
8.69	1.35	2.09	.88	.045	.040	.070	.000	1079.40	9940.00
.001168	580.	580.	580.	1	0	0	.00	660.78	10600.78

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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 13.044
3280 CROSS SECTION 13.04 EXTENDED .58 FEET

13.044	2.09	1082.79	.00	.00	1082.81	.03	.98	.00	1082.00
1000.0	5.6	483.9	510.5	6.8	277.9	656.6	2507.0	1604.7	1080.90
8.88	.82	1.74	.78	.045	.040	.070	.000	1080.70	9900.00
.001097	950.	930.	800.	2	0	0	.00	852.66	10752.66

*SECNO 13.161

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .50

13.161	1.62	1083.92	.00	.00	1083.99	.07	1.16	.01	1084.00
1000.0	.0	468.6	531.4	.0	160.6	476.9	2517.8	1615.8	1082.50
8.96	.00	2.92	1.11	.000	.040	.070	.000	1082.30	9961.78
.004331	650.	620.	580.	1	0	0	.00	792.77	10754.54

*SECNO 13.248

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.47

Q = (Q AT 1I212 + DIVERTED FLOW FROM SUB.193 TO SUB. 212)/2
= (1344 + 1536)/2 = 1440 CFS.

A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

13.248	1.56	1085.86	.00	.00	1085.91	.05	1.91	.00	1085.40
1440.0	31.0	300.4	1108.7	22.5	109.1	802.9	2525.9	1625.1	1086.60
9.04	1.38	2.75	1.38	.045	.040	.070	.000	1084.30	9905.16
.004144	450.	460.	450.	4	0	0	.00	999.96	10935.01

SECNO 13.349

3265 DIVIDED FLOW

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 = 1.77

A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

13.349	2.54	1087.04	.00	.00	1087.06	.03	1.15	.00	1087.30
1440.0	.5	384.7	1054.8	1.9	197.1	1060.7	2539.4	1637.3	1087.00
9.16	.29	1.95	.99	.045	.040	.070	.000	1084.50	9926.77
.001321	535.	535.	535.	3	0	0	.00	994.24	10935.74

*SECNO 13.427

3265 DIVIDED FLOW

A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

13.427	1.94	1087.74	.00	.00	1087.77	.03	.71	.00	1088.50
1440.0	.0	97.8	1342.2	.0	55.5	1021.7	2550.4	1646.0	1088.50
9.24	.00	1.76	1.31	.000	.040	.070	.000	1085.80	9971.31
.002354	410.	410.	410.	2	0	0	.00	849.48	10854.74

CCHV= .100 CEHV= .300
*SECNO 13.556

265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .34

A DIVIDED FLOW MIGHT OCCUR DUE TO SHEET FLOW TYPE IN THIS REGION

13.556	1.12	1090.52	.00	.00	1090.63	.11	2.83	.02	1089.60
1440.0	287.4	626.6	526.0	120.9	205.9	241.5	2560.1	1656.1	1089.60
9.30	2.38	3.04	2.18	.070	.070	.070	.000	1089.40	9724.12
.019780	750.	680.	460.	2	0	0	.00	836.44	11105.66

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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 13.667

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.02

A DIVIDED FLOW MIGHT OCCUR DUE TO SHEET FLOW TYPE IN THIS REGION

13.667	2.11	1093.31	.00	.00	1093.33	.02	2.69	.01	1092.20
1440.0	152.7	477.7	809.6	132.9	359.1	915.4	2572.3	1671.1	1091.70
9.45	1.15	1.33	.88	.070	.070	.070	.000	1091.20	9432.44
.002169	670.	585.	480.	5	0	0	.00	1627.94	11830.23

*SECNO 13.782

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .44

A DIVIDED FLOW MIGHT OCCUR DUE TO SHEET FLOW TYPE IN THIS REGION

13.782	.99	1095.79	.00	.00	1095.82	.03	2.49	.00	1095.80
1440.0	154.4	15.0	1270.6	178.3	24.6	843.6	2589.2	1700.5	1096.00
9.56	.87	.61	1.51	.070	.070	.070	.000	1094.80	9116.73
.010983	700.	610.	580.	5	0	0	.00	2581.42	12266.11

*SECNO 13.902

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.15

A DIVIDED FLOW MIGHT OCCUR DUE TO SHEET FLOW TYPE IN THIS REGION

13.902	1.48	1098.48	.00	.00	1098.49	.01	2.67	.00	1097.50
1440.0	574.4	251.2	614.4	619.6	224.5	689.4	2607.1	1732.4	1097.30
9.74	.93	1.12	.89	.070	.070	.070	.000	1097.00	9146.37
.002381	650.	630.	580.	4	0	0	.00	2002.70	11628.63

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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 14.023

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .67

A DIVIDED FLOW MIGHT OCCUR DUE TO SHEET FLOW TYPE IN THIS REGION

14.023	1.29	1100.59	.00	.00	1100.62	.03	2.13	.01	1099.50
1440.0	288.2	415.7	736.1	210.5	238.3	573.3	2625.3	1755.7	1099.50
9.86	1.37	1.74	1.28	.070	.070	.070	.000	1099.30	9640.22
.005349	640.	640.	600.	5	0	0	.00	1284.57	10924.78

T1
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		3							912.32	

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	14		-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

CCHV= .100 CEHV= .300
*SECNO .000

CROSS-SECTION AT BUKEYE CANAL

Q = Q AT CP364 (= 3110 CFS).
Q HAS BEEN REDUCED DUE TO LIMITED GRADE AT THE RIGHT OVERBANK.
DIVERTED FLOW WILL CONTINUE AS SHEET FLOW TO THE WEST.

FLOODWAY DOWNSTREAM OF SOUTHERN PACIFIC RAIL ROAD (SEC. 1.474)
HAS NOT BEEN DELENIATED DUE TO UNDEFINED FLOW PATH AND DUE TO
THE INABILITY OF THE CHANNEL DOWNSTREAM OF SEC. 0.668 TO HANDLE
THE EXISTING FLOW DUE TO LIMITED GRADE AT THE RIGHT OVERBANK.

.000	1.82	912.32	.00	912.32	912.34	.02	.00	.00	912.00
850.0	624.6	160.3	65.1	577.9	104.8	134.8	.0	.0	912.00
.00	1.08	1.53	.48	.070	.040	.070	.000	910.50	9325.60
.002500	0.	0.	0.	0	0	0	.00	1246.80	10572.40

*SECNO .047
3280 CROSS SECTION .05 EXTENDED .05 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.47

ANY WSEL EXTENSION AT SEC. 0.047 TO 0.616 IS DUE TO LIMITED
GRADE AT THE RIGHT OVERBANK.

.047	2.55	912.55	.00	.00	912.55	.01	.21	.00	912.30
850.0	347.1	275.0	227.9	767.1	249.4	511.0	6.9	8.5	910.30
.11	.45	1.10	.45	.070	.040	.070	.000	910.00	9133.16
.000409	265.	250.	240.	3	0	0	.00	1686.84	10820.00

*SECNO .121
3280 CROSS SECTION .12 EXTENDED .23 FEET

.121	2.73	912.73	.00	.00	912.74	.01	.19	.00	912.70
850.0	111.5	232.8	505.7	288.0	190.3	811.2	19.5	22.2	910.40
.25	.39	1.22	.62	.070	.040	.070	.000	910.00	9452.48
.000588	390.	390.	390.	2	0	0	.00	1367.52	10820.00

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 .201
3280 CROSS SECTION .20 EXTENDED .53 FEET

.201	3.03	913.03	.00	.00	913.05	.02	.30	.00	913.00
850.0	12.0	366.8	471.2	52.9	228.3	699.4	30.4	34.1	910.50
.36	.23	1.61	.67	.070	.040	.070	.000	910.00	9724.55
.000886	420.	420.	420.	2	0	0	.00	1095.45	10820.00

*SECNO .292
3280 CROSS SECTION .29 EXTENDED .89 FEET

.292	2.89	913.39	.00	.00	913.41	.02	.36	.00	913.30
850.0	7.9	301.6	540.6	31.4	208.8	880.3	42.0	45.3	912.10
.51	.25	1.44	.61	.070	.040	.070	.000	910.50	9860.27
.000645	480.	480.	480.	1	0	0	.00	939.73	10800.00

*SECNO .384

3265 DIVIDED FLOW

3280 CROSS SECTION .38 EXTENDED .49 FEET

A DIVIDED FLOW MIGHT OCCUR DUE TO SPLIT FLOW POTENTIAL AT
UPSTREAM CROSS-SECTION 0.668

.384	2.69	913.69	.00	.00	913.70	.01	.29	.00	914.30
850.0	9.9	241.9	598.1	51.5	198.7	1214.3	56.6	59.6	912.70
.70	.19	1.22	.49	.070	.040	.070	.000	911.00	9688.05
.000541	490.	490.	490.	2	0	0	.00	1604.28	11370.00

*SECNO .488

3265 DIVIDED FLOW

3280 CROSS SECTION .49 EXTENDED .81 FEET

A DIVIDED FLOW MIGHT OCCUR DUE TO SPLIT FLOW POTENTIAL AT
UPSTREAM CROSS-SECTION 0.668

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.488	2.01	914.01	.00	.00	914.02	.01	.32	.00	915.20
850.0	1.1	141.8	707.0	9.0	132.6	1293.2	74.7	78.8	913.50
.94	.13	1.07	.55	.070	.040	.070	.000	912.00	9875.31
.000648	545.	545.	545.	0	0	0	.00	1469.90	11365.00

*SECNO .531

3265 DIVIDED FLOW

3280 CROSS SECTION .53 EXTENDED .98 FEET

A DIVIDED FLOW MIGHT OCCUR DUE TO SPLIT FLOW POTENTIAL AT
UPSTREAM CROSS-SECTION 0.668

.531	1.38	914.18	.00	.00	914.18	.01	.16	.00	915.40
850.0	.1	37.2	812.8	.9	55.1	1319.2	82.1	86.4	914.20
1.05	.06	.67	.62	.070	.040	.070	.000	912.80	9897.62
.000757	230.	230.	230.	2	0	0	.00	1385.91	11350.00

*SECNO .616

3265 DIVIDED FLOW

3280 CROSS SECTION .62 EXTENDED .05 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.90

Q = Q AT CP364A (= 4895 CFS).

A DIVIDED FLOW MIGHT OCCUR DUE TO SPLIT FLOW POTENTIAL AT
UPSTREAM CROSS-SECTION 0.668

.616	2.25	916.05	.00	.00	916.19	.14	1.97	.04	916.50
4895.0	.0	411.6	4483.4	.0	120.0	1539.8	98.8	98.6	915.20
1.09	.02	3.43	2.91	.070	.040	.070	.000	913.80	9669.96
.006955	405.	450.	480.	6	0	0	.00	844.48	10830.00

CCHV= .100 CEHV= .300
*SECNO .668
3280 CROSS SECTION .67 EXTENDED .97 FEET

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ANY WSEL EXTENSION AT SEC. 0.668 TO 1.378 IS DUE TO LIMITED
GRADE AT THE LEFT OVERBANK.

.668	2.76	918.26	918.09	.00	918.74	.48	2.45	.10	917.30

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   4895.0    1659.0     930.4    2305.7     401.3     129.1     403.9     106.9     103.2    916.80
     1.10      4.13      7.21      5.71      .045      .030      .045      .000    915.50   9620.00
  .012123      200.      270.      290.        11        11         0       .00    665.47  10285.47


*SECNO  .776
3280 CROSS SECTION       .78 EXTENDED       .35 FEET


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.39

      .776      4.55    920.95       .00       .00    921.14       .19      2.37       .03    920.60
    4895.0        .0     577.2    4317.8        .0     133.2    1266.6     122.0     110.8    917.90
      1.15       .00      4.33      3.41      .000      .030      .045      .000    916.40   9975.00
  .002116      535.      570.      570.         4         0         0       .00    510.12  10485.12


*SECNO  .868
3280 CROSS SECTION       .87 EXTENDED       .47 FEET

      .868      4.17    922.17       .00       .00    922.43       .26      1.27       .02    921.70
    4895.0        .0     747.2    4147.8        .0     136.1    1099.3     136.7     116.5    919.80
      1.18       .00      5.49      3.77      .000      .030      .045      .000    918.00   9970.00
  .003296      495.      490.      485.         4         0         0       .00    515.69  10485.69


*SECNO  .964
3280 CROSS SECTION       .96 EXTENDED       .92 FEET

      .964      4.92    924.12       .00       .00    924.61       .49      2.11       .07    923.20
    4895.0        .0    1739.3    3155.7        .0     229.1     771.9     149.7     122.0    922.50
      1.21       .00      7.59      4.09      .000      .030      .045      .000    919.20   9970.00
  .005474      505.      505.      505.         2         0         0       .00    441.24  10411.24


*SECNO 1.081
3280 CROSS SECTION      1.08 EXTENDED       .58 FEET

                Q = Q AT CP364A      (= 4895 CFS).
                Q  HAS BEEN REDUCED BY THE SAME DIVERSION AT THE REACH UPSTREAM
                OF SEC. 1.474 WHICH WILL RETURN AT SEC. 0.964

     1.081      3.28    926.28       .00       .00    926.37       .09      1.72       .04    925.70
    2596.0        .0     779.9    1816.1        .0     281.2     817.0     164.5     128.3    925.00
      1.28       .00      2.77      2.22      .000      .030      .045      .000    923.00   9955.00
  .001187      595.      620.      610.         2         0         0       .00    451.38  10406.38


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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 1.153

3265 DIVIDED FLOW


                A DIVIDED FLOW MIGHT OCCUR DUE TO THE EFFECTIVENESS OF THE RIGHT
                OVERBANK IN CARRIYING THE FLOW

     1.153      3.68    926.68       .00       .00    926.76       .08       .39       .00    928.40
    2596.0        .0     586.6    2009.4        .0     223.0     945.0     173.8     132.1    925.80
      1.32       .00      2.63      2.13      .000      .030      .045      .000    923.00   9959.96
  .000973      410.      380.      355.         3         0         0       .00    453.30  10422.36


*SECNO 1.236

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

 685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
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3720 CRITICAL DEPTH ASSUMED

A DIVIDED FLOW MIGHT OCCUR DUE TO THE EFFECTIVENESS OF THE RIGHT
OVERBANK IN CARRIYING THE FLOW

1.236	3.45	927.45	927.45	.00	928.35	.90	.93	.25	930.20
2596.0	.0	1818.0	778.0	.0	207.0	207.6	181.7	135.5	928.30
1.34	.00	8.78	3.75	.000	.030	.045	.000	924.00	9974.25
.008002	435.	435.	435.	20	12	0	.00	242.61	10325.72

*SECNO 1.317

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

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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

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.90

A DIVIDED FLOW MIGHT OCCUR DUE TO THE EFFECTIVENESS OF THE RIGHT
OVERBANK IN CARRIYING THE FLOW

1.317	5.70	929.70	.00	.00	930.04	.34	1.63	.06	930.40
2596.0	.0	1655.1	940.9	.0	297.7	381.5	187.1	138.2	928.50
1.37	.00	5.56	2.47	.000	.030	.045	.000	924.00	9970.74
.002209	430.	430.	430.	3	0	0	.00	300.91	10314.63

*SECNO 1.378

3265 DIVIDED FLOW

A DIVIDED FLOW MIGHT OCCUR DUE TO THE EFFECTIVENESS OF THE RIGHT
OVERBANK IN CARRIYING THE FLOW

1.378	6.38	930.38	.00	.00	930.64	.26	.59	.01	930.80
2596.0	.0	1444.6	1151.4	.0	285.0	516.1	192.3	140.5	928.80
1.39	.00	5.07	2.23	.000	.030	.045	.000	924.00	9965.18
.001666	345.	320.	295.	3	0	0	.00	370.84	10366.88

*SECNO 1.435

3301 HV CHANGED MORE THAN HVINS

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

CROSS-SECTION AT STATE ROUTE 85

1.435	4.87	931.17	931.17	.00	932.39	1.22	.87	.29	931.40
2596.0	.0	2555.5	40.5	.0	285.9	24.1	195.4	141.9	931.00
1.40	.00	8.94	1.68	.000	.030	.045	.000	926.30	9966.34
.008479	330.	300.	180.	20	15	0	.00	162.61	10128.96

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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 1.474
3280 CROSS SECTION      1.47 EXTENDED       .62 FEET


3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

                Q = Q AT CP336        (= 4899 CFS).
                Q  HAS BEEN REDUCED DUE TO LIMITED GRADE AT THE RIGHT OVERBANK
                DIVERTED "Q" WILL BE RETURNED AT SEC.  0.964

                ANY WSEL EXTENSION AT SEC. 1.474 TO 1.823 IS DUE TO LIMITED
                GRADE AT THE RIGHT OVERBANK.

                FLOODWAY LIMITS, (SEC.  1.474 TO 2.185), HAVE BEEN SET IDENTICAL
                TO THE FLOODPLAIN LIMITS DUE TO THE INABILITY OF THE CHANNEL TO
                HANDLE THE EXISTING FLOW.

     1.474      5.62    933.62    933.62       .00    934.04       .42      1.27       .08    932.00
    2600.0    1465.5     961.6     172.9     760.5     118.6      72.8     198.4     144.8    932.00
      1.41      1.93      8.11      2.38      .045      .030      .045      .000    928.00   9045.76
   .004512      210.      210.      210.         4        12         0       .00   1034.24  10080.00


CCHV=      .300 CEHV=      .500
*SECNO 1.517
3280 CROSS SECTION      1.52 EXTENDED       .19 FEET


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.98

     1.517      2.68    934.88       .00       .00    934.94       .06       .80       .11    933.20
    2600.0    1796.4     803.6        .0    1083.0     320.4        .0     210.3     154.5    934.70
      1.47      1.66      2.51       .00      .045      .030      .000      .000    932.20   9266.45
   .001146      500.      225.      160.         1         0         0       .00    813.55  10080.00


*SECNO 1.566
3280 CROSS SECTION      1.57 EXTENDED       .11 FEET
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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



3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
     1.566      3.71    936.21    936.21       .00    937.38      1.17       .67       .56    934.00
    2600.0     140.4    2399.1      60.4      42.9     266.5      19.0     216.2     157.8    934.00
      1.48      3.27      9.00      3.19      .045      .030      .045      .000    932.50   9914.72
   .007773      320.      260.      210.        20        11         0       .00    150.28  10065.00


CCHV=      .100 CEHV=      .300
*SECNO 1.634
3280 CROSS SECTION      1.63 EXTENDED       .97 FEET


3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.06

     1.634      5.27    938.27       .00       .00    938.66       .38      1.19       .08    934.00
    2600.0     727.3    1573.5     299.2     269.4     262.5     106.2     220.2     159.4    934.00
      1.50      2.70      5.99      2.82      .045      .030      .045      .000    933.00   9832.50
   .001824      360.      360.      360.         3         0         0       .00    232.50  10065.00
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*SECNO 1.680
280 CROSS SECTION      1.68 EXTENDED       .57 FEET

     1.680      5.37    938.77       .00       .00    939.01       .24       .34       .01    934.00
    2600.0     805.5    1399.3     395.2     396.5     279.1     171.0     224.1     160.9    934.00
      1.52      2.03      5.01      2.31      .045      .030      .045      .000    933.40   9761.32
   .001176      200.      240.      285.         2         0         0       .00    338.68  10100.00


*SECNO 1.745
3280 CROSS SECTION      1.75 EXTENDED       .97 FEET


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.56

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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


     1.745      5.37    939.17       .00       .00    939.27       .10       .24       .01    934.50
    2600.0     631.1    1329.0     639.9     419.4     410.7     439.1     232.3     163.7    934.50
      1.56      1.50      3.24      1.46      .045      .030      .045      .000    933.80   9787.12
   .000482      280.      345.      400.         2         0         0       .00    422.88  10210.00


*SECNO 1.823
3280 CROSS SECTION      1.82 EXTENDED       .81 FEET

     1.823      4.51    939.41       .00       .00    939.47       .06       .20       .00    936.00
    2600.0    1094.0     896.1     609.9     950.7     317.0     461.9     245.9     169.3    936.00
      1.62      1.15      2.83      1.32      .045      .030      .045      .000    934.90   9432.35
   .000520      370.      410.      425.         2         0         0       .00    822.65  10255.00


*SECNO 1.893

3265 DIVIDED FLOW


                Q = Q AT CP336        (=4899 CFS).

                A DIVIDED FLOW MIGHT OCCUR DUE TO SPLIT FLOW POTENTIAL AT
                UPSTREAM CROSS-SECTION  2.371

     1.893      3.61    939.71       .00       .00    939.85       .14       .36       .02    937.00
    4899.0    3225.2    1190.3     483.5    1448.1     252.9     231.6     259.0     176.0    937.00
      1.65      2.23      4.71      2.09      .045      .030      .045      .000    936.10   9093.62
   .001947      280.      370.      370.         2         0         0       .00   1080.16  10199.81


*SECNO 1.941

3265 DIVIDED FLOW


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .66


                A DIVIDED FLOW MIGHT OCCUR DUE TO SPLIT FLOW POTENTIAL AT
                UPSTREAM CROSS-SECTION  2.371

     1.941      3.60    939.90       .00       .00    940.11       .21       .24       .02    940.00
    4899.0    4627.7     271.3        .0    1277.9      66.3        .0     262.0     177.6    940.00
      1.66      3.62      4.09       .00      .045      .030      .000      .000    936.30   8961.19
   .004537       40.      255.      290.         2         0         0       .00    700.71  10024.29


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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
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   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

CCHV=     .100 CEHV=     .300
*SECNO 1.988

3265 DIVIDED FLOW


                A DIVIDED FLOW MIGHT OCCUR DUE TO SPLIT FLOW POTENTIAL AT
                UPSTREAM CROSS-SECTION  2.371

     1.988      3.80    940.10       .00       .00    940.30       .19       .18       .00    944.00
    4899.0    4790.9     108.1        .0    1359.5      35.4        .0     263.3     178.4    944.00
      1.66      3.52      3.06       .00      .045      .030      .000      .000    936.30   8915.50

   .003961       35.      245.      280.         2         0         0       .00    696.81  10015.41


*SECNO 2.058

3265 DIVIDED FLOW

3280 CROSS SECTION      2.06 EXTENDED       .27 FEET


                ANY WSEL EXTENSION AT SEC. 2.058 TO 2.185 IS DUE TO LIMITED
                GRADE AT THE LEFT OVERBANK.

                A DIVIDED FLOW MIGHT OCCUR DUE TO SPLIT FLOW POTENTIAL AT
                UPSTREAM CROSS-SECTION  2.371

     2.058      4.67    941.27       .00       .00    941.42       .14      1.12       .00    944.00
    4899.0    4612.2     286.8        .0    1546.4      78.3        .0     275.5     184.3    944.00
      1.69      2.98      3.66       .00      .045      .030      .000      .000    936.60   8850.00
   .002608      350.      370.      370.         2         0         0       .00    772.16  10024.75


*SECNO 2.185

 265 DIVIDED FLOW

3280 CROSS SECTION      2.18 EXTENDED       .16 FEET


                A DIVIDED FLOW MIGHT OCCUR DUE TO SPLIT FLOW POTENTIAL AT
                UPSTREAM CROSS-SECTION  2.371
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     2.185      5.46    942.66       .00       .00    943.05       .39      1.56       .07    944.00
    4899.0    4109.4     789.6        .0     846.6     139.0        .0     289.0     190.7    944.00
      1.72      4.85      5.68       .00      .045      .030      .000      .000    937.20   9310.00
   .004656      430.      670.      670.         2         0         0       .00    472.18  10034.94


*SECNO 2.297

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.07


3470 ENCROACHMENT STATIONS=     9600.0   10060.0  TYPE=      1  TARGET=      460.000
     2.297      5.88    943.68       .00    943.50    943.76       .08       .68       .03    941.30
    4899.0    4245.8     603.5      49.6    1923.3     234.6      57.1     311.2     197.2    940.80
      1.80      2.21      2.57       .87      .045      .030      .070      .000    937.80   9600.00
   .000494      610.      595.      450.         3         0         0       .00    460.00  10060.00


*SECNO 2.371

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .47


3470 ENCROACHMENT STATIONS=     9650.0   10070.0  TYPE=      1  TARGET=      420.000
     2.371      4.54    943.94       .00    943.66    944.17       .23       .37       .05    942.00

    4899.0    3635.7    1004.0     259.2    1035.7     189.6     126.8     327.7     201.3    940.70
      1.82      3.51      5.30      2.05      .045      .030      .070      .000    939.40   9650.00
   .002202      400.      390.      500.         2         0         0       .00    420.00  10070.00
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*SECNO 2.435

3470 ENCROACHMENT STATIONS= 9835.0 10210.0 TYPE= 1 TARGET= 375.000

2.435	4.75	944.65	.00	943.91	945.15	.50	.90	.08	942.00
4899.0	1267.1	2745.5	886.5	368.2	387.9	360.8	337.2	204.3	941.70
1.84	3.44	7.08	2.46	.045	.030	.070	.000	939.90	9835.00
.003358	335.	335.	335.	2	0	0	.00	375.00	10210.00

*SECNO 2.536

3470 ENCROACHMENT STATIONS= 9850.0 10250.0 TYPE= 1 TARGET= 400.000

CROSS-SECTION 30 FEET SOUTH OF LOWER BUKEYE RD. EXTENDED

Q = Q AT CP335 (= 4906 CFS).

2.536	3.29	946.79	.00	945.80	947.28	.49	2.13	.00	943.80
4906.0	1136.9	2222.9	1546.1	270.7	301.1	533.5	350.9	209.1	943.70
1.87	4.20	7.38	2.90	.045	.030	.070	.000	943.50	9850.00
.004772	535.	535.	535.	2	0	0	.00	400.00	10250.00

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 2.680

3265 DIVIDED FLOW

470 ENCROACHMENT STATIONS= 9800.0 10205.0 TYPE= 1 TARGET= 405.000

A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

2.680	4.34	949.54	.00	949.13	950.03	.49	2.75	.00	947.30
4906.0	136.6	3234.4	1534.9	67.6	487.0	568.0	369.8	215.6	945.60
1.91	2.02	6.64	2.70	.045	.030	.070	.000	945.20	9800.00
.002935	735.	760.	725.	2	0	0	.00	371.24	10205.00

*SECNO 2.771

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .69

3470 ENCROACHMENT STATIONS= 9880.0 10225.0 TYPE= 1 TARGET= 345.000

A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

2.771	4.24	951.54	.00	950.61	952.00	.46	1.97	.00	949.40
4906.0	643.4	1084.1	3178.5	172.9	121.8	785.3	381.9	219.6	948.20
1.94	3.72	8.90	4.05	.045	.030	.070	.000	947.30	9880.00
.006158	480.	480.	480.	2	0	0	.00	345.00	10225.00

*SECNO 2.883

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.67

3470 ENCROACHMENT STATIONS= 9830.0 10180.0 TYPE= 1 TARGET= 350.000

2.883	5.29	953.79	.00	952.83	954.04	.25	2.01	.02	950.20
4906.0	2326.6	841.0	1738.4	608.7	133.8	682.6	398.6	224.2	950.10
1.98	3.82	6.29	2.55	.045	.030	.070	.000	948.50	9830.00
.002210	580.	590.	580.	2	0	0	.00	350.00	10180.00

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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 2.977

3470 ENCROACHMENT STATIONS=     9820.0   10055.0  TYPE=      1  TARGET=      235.000

               Q = Q AT CP334       (= 4915 CFS).

    2.977       5.04     954.94       .00     954.27     955.58       .65       1.42       .12     951.50
   4915.0     2520.5     2367.2      27.3      547.9      296.5      14.1      411.7     227.6     952.10
     2.00       4.60       7.98      1.94       .045       .030      .070       .000    949.90    9820.00
  .003804       500.       500.      500.          2          0         0        .00    235.00   10055.00

*SECNO 3.070

3470 ENCROACHMENT STATIONS=     9790.0   10180.0  TYPE=      1  TARGET=      390.000
    3.070       4.64     956.94       .00     956.13     957.29       .35       1.68       .03     954.50
   4915.0     1248.9     1903.3    1762.8      378.0      291.6     607.5      423.7     231.1     953.20
     2.03       3.30       6.53      2.90       .045       .030      .070       .000    952.30    9790.00
  .003114       485.       490.      495.          2          0         0        .00    390.00   10180.00

*SECNO 3.167

3470 ENCROACHMENT STATIONS=     9730.0   10190.0  TYPE=      1  TARGET=      460.000

               Q = Q AT 1I334       (= 4432 CFS).

    3.167       4.41     958.31       .00     957.36     958.50       .19       1.19       .02     955.10
   4432.0     2166.6     1054.2    1211.2      732.0      198.1     587.7      439.7     235.9     954.90
     2.07       2.96       5.32      2.06       .045       .030      .070       .000    953.90    9730.00
  .001844       475.       510.      515.          2          0         0        .00    460.00   10190.00

*SECNO 3.291

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .43

3470 ENCROACHMENT STATIONS=     9987.0   10330.0  TYPE=      1  TARGET=      343.000

               A DIVIDED FLOW MIGHT OCCUR DUE TO SPLIT FLOW POTENTIAL AT
               UPSTREAM CROSS-SECTION  3.602
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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

    3.291       3.35     960.55       .00     959.72     960.89       .35       2.35       .05  100000.00
   4432.0         .0      447.1    3984.9         .0       61.6     912.0      458.4     241.9     960.10
     2.11        .00       7.26      4.37       .000       .030      .070       .000    957.20    9987.00
  .009894       660.       655.      650.          2          0         0        .00    343.00   10330.00

*SECNO 3.376

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.05

3470 ENCROACHMENT STATIONS=     9840.0   10365.0  TYPE=      1  TARGET=      525.000

               A DIVIDED FLOW MIGHT OCCUR DUE TO SPLIT FLOW POTENTIAL AT
               UPSTREAM CROSS-SECTION  3.602

    3.376       4.39     962.69       .00     961.76     962.80       .11       1.88       .02     961.90
   4432.0      568.4      323.7    3540.0      247.7       74.6    1379.2      472.0     246.4     961.00
     2.16       2.29       4.34      2.57       .045       .030      .070       .000    958.30    9840.00
  .002355       460.       450.      440.          1          0         0        .00    525.00   10365.00
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*SECNO 3.491

3470 ENCROACHMENT STATIONS= 9870.0 10260.0 TYPE= 1 TARGET= 390.000

A DIVIDED FLOW MIGHT OCCUR DUE TO SPLIT FLOW POTENTIAL AT
UPSTREAM CROSS-SECTION 3.602

3.491	4.54	964.04	.00	963.20	964.22	.18	1.40	.02	961.90
4432.0	1144.0	721.3	2566.6	344.8	135.7	990.1	494.0	252.7	961.90
2.21	3.32	5.31	2.59	.045	.030	.070	.000	959.50	9870.00
.002279	605.	605.	605.	4	0	0	.00	390.00	10260.00

CCHV= .100 CEHV= .300
*SECNO 3.602

3470 ENCROACHMENT STATIONS= 9840.0 10170.0 TYPE= 1 TARGET= 330.000

CROSS-SECTION AT YUMA RD.

Q = Q AT CP316 (= 4438 CFS).

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3.602	3.57	965.47	.00	964.68	965.76	.28	1.51	.03	962.00
4438.0	296.9	3577.2	563.8	126.6	775.1	230.3	511.6	257.6	962.00
2.25	2.34	4.62	2.45	.070	.040	.070	.000	961.90	9840.00
.002878	590.	590.	590.	2	0	0	.00	330.00	10170.00

*SECNO 3.702

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 9550.0 10140.0 TYPE= 1 TARGET= 590.000

A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

3.702	3.89	967.29	.00	966.76	967.61	.32	1.84	.01	963.90
4438.0	1593.1	2103.1	741.8	526.6	361.0	256.5	525.2	261.7	964.00
2.28	3.03	5.83	2.89	.070	.040	.070	.000	963.40	9550.00
.004441	535.	525.	490.	2	0	0	.00	361.21	10140.00

*SECNO 3.841

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 9550.0 10070.0 TYPE= 1 TARGET= 520.000

A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

3.841	5.14	970.24	.00	969.26	970.49	.26	2.87	.01	967.10
4438.0	2465.2	1972.8	.0	769.0	399.8	.0	544.7	267.7	100000.00
2.34	3.21	4.93	.00	.070	.040	.000	.000	965.10	9550.00
.003465	735.	735.	735.	2	0	0	.00	344.03	10070.00

*SECNO 3.978

3470 ENCROACHMENT STATIONS= 9500.0 10095.0 TYPE= 1 TARGET= 595.000

A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

3.978	5.28	972.18	.00	971.29	972.34	.16	1.84	.01	969.00
4438.0	1862.3	2575.7	.0	1054.3	644.5	.0	568.6	275.5	100000.00
2.40	1.77	4.00	.00	.070	.040	.000	.000	966.90	9500.00
.001939	725.	725.	725.	3	0	0	.00	595.00	10095.00

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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

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  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*SECNO 4.101

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .68


3470 ENCROACHMENT STATIONS=     9780.0   10125.0  TYPE=      1  TARGET=      345.000
     4.101      5.15    973.85       .00    973.16    974.17       .32      1.78       .05    971.00
    4438.0    1717.6    2351.0     369.5     577.6     423.3     135.3     589.7     282.5    970.90
      2.44      2.97      5.55      2.73      .070      .040      .070      .000    968.70   9780.00
   .004162      650.      650.      650.         2         0         0       .00    345.00  10125.00


*SECNO 4.237

3470 ENCROACHMENT STATIONS=     9780.0   10075.0  TYPE=      1  TARGET=      295.000
     4.237      4.79    976.09       .00    975.08    976.35       .26      2.18       .01    972.60
    4438.0    1521.3    2916.7        .0     606.6     617.2        .0     609.1     287.7 100000.00
      2.49      2.51      4.73       .00      .070      .040      .000      .000    971.30   9780.00
   .002326      715.      715.      715.         1         0         0       .00    295.00  10075.00


*SECNO 4.356

3470 ENCROACHMENT STATIONS=     9840.0   10110.0  TYPE=      1  TARGET=      270.000
     4.356      4.98    977.58       .00    976.54    977.86       .29      1.51       .01    973.50
    4438.0    1269.3    2764.4     404.3     469.9     546.6     161.4     626.5     291.8    973.40
      2.54      2.70      5.06      2.51      .070      .040      .070      .000    972.60   9840.00
   .002454      630.      630.      630.         3         0         0       .00    270.00  10110.00


*SECNO 4.496

3470 ENCROACHMENT STATIONS=     9850.0   10160.0  TYPE=      1  TARGET=      310.000
     4.496      4.82    979.22       .00    978.22    979.45       .23      1.58       .01    975.20
    4438.0    1110.2    3059.8     267.9     492.3     698.0     123.5     647.6     296.8    975.00
      2.59      2.26      4.38      2.17      .070      .040      .070      .000    974.40   9850.00
   .001873      740.      740.      740.         2         0         0       .00    310.00  10160.00


*SECNO 4.625

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .61

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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=     9850.0   10150.0  TYPE=      1  TARGET=      300.000

                CROSS-SECTION AT VANBUREN ST.

                Q = Q AT CP298        (= 4446 CFS).

     4.625      2.94    981.04       .00    980.50    981.46       .42      1.96       .06 100000.00
    4446.0        .0    4446.0        .0        .0     854.9        .0     664.6     301.5 100000.00
      2.63       .00      5.20       .00      .000      .040      .000      .000    978.10   9850.00
   .004970      680.      680.      680.         2         0         0       .00    300.00  10150.00


*SECNO 4.701

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.40


3470 ENCROACHMENT STATIONS=     9800.0   10200.0  TYPE=      1  TARGET=      400.000
     4.701      4.06    982.06       .00    981.33    982.18       .12       .69       .03 100000.00
    4446.0        .0    4446.0        .0        .0    1623.8        .0     676.0     304.7 100000.00
      2.67       .00      2.74       .00      .000      .040      .000      .000    978.00   9800.00
   .000861      400.      400.      400.         2         0         0       .00    400.00  10200.00
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*SECNO 4.858

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .44


3470 ENCROACHMENT STATIONS=     9850.0   10150.0  TYPE=      1  TARGET=      300.000
     4.858      3.25    983.25       .00    982.47    983.65       .40      1.39       .08 100000.00
    4446.0        .0    4446.0        .0        .0     878.4        .0     699.8     311.4 100000.00
      2.71       .00      5.06       .00      .000      .040      .000      .000    980.00   9850.00
   .004535      860.      830.      820.         2         0         0       .00    300.00  10150.00


*SECNO 5.009

3470 ENCROACHMENT STATIONS=     9820.0   10105.0  TYPE=      1  TARGET=      285.000
     5.009      4.36    986.26       .00    985.58    986.56       .30      2.90       .01    983.70
    4446.0    1340.6    3069.3      36.1     464.3     622.9      18.7     717.9     316.7    982.50
      2.76      2.89      4.93      1.93      .070      .040      .070      .000    981.90   9820.00
   .002993      800.      795.      840.         3         0         0       .00    285.00  10105.00


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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 5.153

3470 ENCROACHMENT STATIONS=     9800.0   10090.0  TYPE=      1  TARGET=      290.000
     5.153      4.41    988.71       .00    987.81    989.04       .33      2.47       .01    985.60
    4446.0    1539.1    2906.9        .0     530.1     553.6        .0     737.3     321.8 100000.00
      2.81      2.90      5.25       .00      .070      .040      .000      .000    984.30   9800.00
   .003450      775.      765.      730.         2         0         0       .00    290.00  10090.00


SECNO 5.282

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.60


3470 ENCROACHMENT STATIONS=     9700.0   10100.0  TYPE=      1  TARGET=      400.000
     5.282      4.83    990.33       .00    989.36    990.45       .13      1.40       .02    987.00
    4446.0    2273.5    1827.1     345.5    1086.0     492.3     183.2     759.6     327.2    986.00
      2.88      2.09      3.71      1.89      .070      .040      .070      .000    985.50   9700.00
   .001353      690.      680.      665.         3         0         0       .00    400.00  10100.00


CCHV=      .300 CEHV=      .500
*SECNO 5.430

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .53


3470 ENCROACHMENT STATIONS=     9913.0   10087.0  TYPE=      1  TARGET=      174.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       996.00 ELREA=       996.00


                A 7-SPAN BRIDGE AT I-10 , (SEE I-10 PLANS)

     5.430      3.77    991.77       .00    991.08    992.52       .75      1.75       .31 100000.00
    4446.0        .0    4446.0        .0        .0     638.6        .0     780.0     332.1 100000.00
      2.91       .00      6.96       .00      .000      .035      .000      .000    988.00   9913.00
   .004864      680.      780.      820.         2         0         0       .00    174.00  10087.00


1
   03SEP96      09:19:12                                                                                                PAGE   89

    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

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.05	1.60	2.60	.00	162.00	6.00	1203.00	2.00	988.00	988.00

*SECNO 5.460
CLASS A LOW FLOW

3420 BRIDGE W.S.= 991.45 BRIDGE VELOCITY= 9.46 CALCULATED CHANNEL AREA= 562.

EGPRS	EGLWC	H3	QWEIR	QLOW	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
.00	992.91	.14	0.	5319.	1203.	1190.	995.00	997.00	0.

3470 ENCROACHMENT STATIONS= 9913.0 10087.0 TYPE= 1 TARGET= 174.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 997.00 ELREA= 997.00

Q = Q AT CP287 (= 5319 CFS).

5.460	3.91	991.91	.00	991.91	992.91	1.00	.39	.00	100000.00
5319.0	.0	5319.0	.0	.0	662.5	.0	782.3	332.8	100000.00
2.92	.00	8.03	.00	.000	.035	.000	.000	988.00	9913.00
.006171	160.	160.	160.	0	0	0	.00	174.00	10087.00

CCHV= .300 CEHV= .500
*SECNO 5.563

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.54

3470 ENCROACHMENT STATIONS= 9850.0 10200.0 TYPE= 1 TARGET= 350.000

5.563	5.56	994.06	.00	993.68	994.22	.16	1.06	.25	989.50
5319.0	.0	4401.7	917.3	.0	1296.0	496.0	797.5	336.0	988.90
2.97	.00	3.40	1.85	.000	.040	.070	.000	988.50	9850.00
.000954	540.	540.	535.	3	0	0	.00	350.00	10200.00

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

CCHV= .100 CEHV= .300
*SECNO 5.727

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .48

3470 ENCROACHMENT STATIONS= 9870.0 10250.0 TYPE= 1 TARGET= 380.000

CROSS-SECTION AT 280 FEET(ALONG FLOW PATH) NORTH OF MC DOWELL RD

Q = Q AT CP286 (= 4662 CFS).

A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

5.727	4.30	995.30	.00	994.29	995.57	.27	1.32	.03	992.00
4662.0	168.0	3526.9	967.1	82.1	774.3	375.5	827.4	342.9	991.80
3.02	2.05	4.55	2.58	.070	.045	.070	.000	991.00	9897.83
.003129	870.	870.	835.	3	0	0	.00	352.17	10250.00

SECNO 5.840

```
3470 ENCROACHMENT STATIONS=     9920.0   10300.0  TYPE=      1  TARGET=      380.000

                A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

     5.840      3.83    997.23       .00    996.51    997.49       .26      1.92       .00    994.00
    4662.0     145.0    3320.4    1196.6      72.4     730.6     438.8     844.1     347.8    993.70
      3.07      2.00      4.54      2.73      .070      .045      .070      .000    993.40   9930.81
   .003367      590.      595.      580.         2         0         0       .00    369.19  10300.00


*SECNO 5.960

3470 ENCROACHMENT STATIONS=     9960.0   10400.0  TYPE=      1  TARGET=      440.000
     5.960      3.48    999.38       .00    998.50    999.57       .19      2.07       .01    997.30
    4662.0        .0    2468.2    2193.8        .0     608.7     825.7     863.3     353.6    996.20
      3.12       .00      4.05      2.66      .000      .045      .070      .000    995.90   9960.00
   .003239      640.      635.      610.         1         0         0       .00    440.00  10400.00


*SECNO 6.086
1
   03SEP96      09:19:12                                                                                PAGE   91

    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=     9800.0   10300.0  TYPE=      1  TARGET=      500.000
     6.086      3.50   1001.80       .00   1001.07   1002.02       .22      2.44       .01    999.20
    4662.0     570.4    2713.4    1378.3     237.8     609.9     532.4     885.0     360.9    999.20
      3.17      2.40      4.45      2.59      .070      .045      .070      .000    998.30   9800.00
   .004105      655.      665.      685.         2         0         0       .00    500.00  10300.00


*SECNO 6.217

 302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.57


3470 ENCROACHMENT STATIONS=     9670.0   10300.0  TYPE=      1  TARGET=      630.000
     6.217      3.55   1003.65       .00   1002.98   1003.74       .10      1.71       .01   1000.30
    4662.0    1332.0    2119.3    1210.7     720.6     689.8     646.6     912.2     369.8   1000.30
      3.25      1.85      3.07      1.87      .070      .045      .070      .000   1000.10   9670.00
   .001661      620.      690.      745.         3         0         0       .00    630.00  10300.00


*SECNO 6.320

3470 ENCROACHMENT STATIONS=     9650.0   10300.0  TYPE=      1  TARGET=      650.000
     6.320      3.69   1004.59       .00   1003.99   1004.70       .10       .95       .00   1001.30
    4662.0    1310.9    2219.5    1131.6     720.3     693.4     606.8     938.0     377.9   1001.40
      3.31      1.82      3.20      1.86      .070      .045      .070      .000   1000.90   9650.00
   .001790      580.      545.      525.         3         0         0       .00    650.00  10300.00


*SECNO 6.414

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .69


3470 ENCROACHMENT STATIONS=     9700.0   10300.0  TYPE=      1  TARGET=      600.000
     6.414      3.22   1005.82       .00   1005.26   1006.00       .18      1.28       .02   1002.90
    4662.0    1385.7    2385.6     890.7     546.9     578.3     419.0     958.9     385.2   1003.60
      3.35      2.53      4.13      2.13      .070      .045      .070      .000   1002.60   9700.00
   .003789      595.      495.      425.         2         0         0       .00    600.00  10300.00


*SECNO 6.509
1
   03SEP96      09:19:12                                                                                PAGE   92

    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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3470 ENCROACHMENT STATIONS=     9690.0   10200.0  TYPE=      1  TARGET=      510.000
     6.509      3.51   1007.61       .00   1006.65   1007.78       .17      1.78       .00   1004.80
    4662.0    1678.3    2383.9     599.8     658.6     607.7     264.8     977.1     391.7   1004.70
      3.40      2.55      3.92      2.27      .070      .045      .070      .000   1004.10   9690.00
   .003206      530.      505.      500.         2         0         0       .00    510.00  10200.00


*SECNO 6.627

3470 ENCROACHMENT STATIONS=     9700.0   10100.0  TYPE=      1  TARGET=      400.000
     6.627      3.34   1010.14       .00   1009.15   1010.43       .29      2.61       .04   1007.50
    4662.0    1829.5    2832.5        .0     574.9     573.0        .0     996.4     398.3 100000.00
      3.44      3.18      4.94       .00      .070      .045      .000      .000   1006.80   9700.00
   .005584      650.      620.      580.         2         0         0       .00    400.00  10100.00


CCHV=      .300 CEHV=      .500
*SECNO 6.674

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     9850.0   10200.0  TYPE=      1  TARGET=      350.000

                A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING THE RID CANAL.

     6.674      3.74   1012.24   1012.24   1012.43   1013.37      1.12      2.01       .42   1010.00
    4662.0     164.5    4266.2     231.3      63.3     481.8      81.0    1001.2     400.3   1010.00
      3.45      2.60      8.86      2.86      .070      .040      .070      .000   1008.50   9850.00
   .013621      200.      250.      350.         3         8         0       .00    337.14  10187.14


*SECNO 6.864
3280 CROSS SECTION      6.86 EXTENDED       .09 FEET


3301 HV CHANGED MORE THAN HVINS
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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


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  5.79

3470 ENCROACHMENT STATIONS=     8100.0   10690.0  TYPE=      1  TARGET=     2590.000
     6.864      3.60   1014.60       .00   1013.86   1014.61       .02       .91       .33   1011.50
    4662.0    2099.3     827.0    1735.7    3279.0     497.1    1904.0    1043.1     418.9   1011.60
      3.68       .64      1.66       .91      .070      .040      .070      .000   1011.00   8100.00
   .000406      500.     1000.      500.         5         0         0       .00   2590.00  10690.00


CCHV=      .100 CEHV=      .300
*SECNO 6.877

3470 ENCROACHMENT STATIONS=     8000.0   10550.0  TYPE=      1  TARGET=     2550.000

                CROSS-SECTION AT THOMAS RD. EXTENDED

                Q = Q AT CP268        (= 4703 CFS).

     6.877      3.63   1014.63       .00   1013.90   1014.64       .02       .03       .00   1012.00
    4703.0    2754.1     756.1    1192.8    3678.3     422.2    1313.8    1052.0     423.1   1012.00
      3.70       .75      1.79       .91      .070      .040      .070      .000   1011.00   8000.00
   .000508       70.       70.       70.         2         0         0       .00   2550.00  10550.00


CHV=      .100 CEHV=      .300
*SECNO 7.045
```

265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.42

3470 ENCROACHMENT STATIONS= 8810.0 11090.0 TYPE= 1 TARGET= 2280.000

ANY WSEL EXTENSION IS DUE TO LIMITED GRADE AT THE LEFT OVERBANK

A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

7.045	3.68	1014.78	.00	1014.08	1014.79	.01	.15	.00	1011.90
4703.0	2596.6	481.2	1625.2	3561.1	367.6	2508.1	1104.4	443.9	1014.00
3.85	.73	1.31	.65	.070	.035	.070	.000	1011.10	8810.00
.000250	350.	885.	350.	2	0	0	.00	2215.97	11090.00

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 7.124

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .46

3470 ENCROACHMENT STATIONS= 9575.0 11025.0 TYPE= 1 TARGET= 1450.000

Q = Q AT 1I268 (= 4088 CFS).

A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

7.124	3.34	1014.94	.00	1014.23	1014.97	.02	.17	.00	1013.30
4088.0	844.9	168.8	3074.3	828.8	81.1	2512.5	1152.0	461.5	1014.50
3.95	1.02	2.08	1.22	.070	.035	.070	.000	1011.60	9575.00
.000891	420.	420.	420.	0	0	0	.00	1449.00	11025.00

*SECNO 7.267

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .46

3470 ENCROACHMENT STATIONS= 9650.0 10680.0 TYPE= 1 TARGET= 1030.000

A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

7.267	3.26	1016.16	.00	1015.37	1016.26	.09	1.27	.02	1015.70
4088.0	557.1	232.7	3298.3	367.5	61.8	1340.5	1197.0	482.8	1016.00
4.04	1.52	3.77	2.46	.070	.035	.070	.000	1012.90	9650.00
.004300	755.	755.	755.	3	0	0	.00	1007.77	10680.00

*SECNO 7.407

3265 DIVIDED FLOW

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

170 ENCROACHMENT STATIONS= 9741.0 10710.0 TYPE= 1 TARGET= 969.000

A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

7.407	3.76	1018.46	.00	1017.56	1018.52	.06	2.26	.00	1017.90
4088.0	257.2	118.5	3712.3	247.7	52.3	1801.5	1229.8	499.4	1018.50
4.14	1.04	2.26	2.06	.070	.035	.070	.000	1014.70	9741.00
.002281	740.	740.	740.	3	0	0	.00	943.73	10710.00

*SECNO 7.552

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .67

3470 ENCROACHMENT STATIONS= 9750.0 10450.0 TYPE= 1 TARGET= 700.000

7.552	2.81	1020.91	.00	1020.13	1021.06	.15	2.51	.03	1018.50
4088.0	1234.3	562.0	2291.7	491.8	100.3	915.1	1261.5	513.8	1018.90
4.21	2.51	5.60	2.50	.070	.035	.070	.000	1018.10	9750.00
.005119	765.	765.	765.	2	0	0	.00	700.00	10450.00

*SECNO 7.670

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.49

3470 ENCROACHMENT STATIONS= 9850.0 10390.0 TYPE= 1 TARGET= 540.000

7.670	4.79	1022.99	.00	1022.08	1023.13	.14	2.07	.00	1019.20
4088.0	1107.0	761.2	2219.8	468.9	144.9	1078.5	1284.5	522.7	1019.90
4.27	2.36	5.25	2.06	.070	.035	.070	.000	1018.20	9850.00
.002314	625.	625.	625.	2	0	0	.00	540.00	10390.00

*SECNO 7.799

3470 ENCROACHMENT STATIONS= 9850.0 10400.0 TYPE= 1 TARGET= 550.000

7.799	5.00	1024.20	.00	1023.27	1024.30	.10	1.17	.00	1020.00
4088.0	861.2	870.2	2356.6	461.7	204.8	1330.8	1313.3	531.3	1020.00
4.36	1.87	4.25	1.77	.070	.035	.070	.000	1019.20	9850.00
.001330	680.	680.	680.	3	0	0	.00	550.00	10400.00

1

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 7.924

3470 ENCROACHMENT STATIONS= 9900.0 10500.0 TYPE= 1 TARGET= 600.000

7.924	4.28	1025.38	.00	1024.65	1025.51	.13	1.20	.01	1022.20
4088.0	462.8	723.3	2901.9	209.9	142.6	1351.9	1341.3	540.0	1022.00
4.42	2.21	5.07	2.15	.070	.035	.070	.000	1021.10	9900.00
.002630	660.	660.	660.	1	0	0	.00	600.00	10500.00

CCHV= .300 CEHV= .500
*SECNO 7.977

3301 HV CHANGED MORE THAN HVINS

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

3470 ENCROACHMENT STATIONS= 9920.0 10670.0 TYPE= 1 TARGET= 750.000

AT INDIAN SCHOOL RD. 2 - 8FT x 4FT BC

Q = Q AT CP253 (= 4121 CFS).

7.977	6.18	1027.58	1027.58	1027.00	1028.25	.67	.38	.27	1021.40
4121.0	228.7	1360.6	2531.7	115.6	123.7	1195.9	1351.4	544.3	1021.40
4.44	1.98	11.00	2.12	.030	.013	.030	.000	1021.40	9920.00

```
 .000816      280.      280.      280.        20        13         0       .00    750.00  10670.00


SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
     2         .013      .50      2.70       .00      4.00      8.00      30.00      8         1       1021.60   1021.40

CHART  8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE  1 - WINGWALLS FLARED 30 TO 75 DEGREES

5130, EGIC= 1184.45..MAY BE TOO LARGE IF INLET CONTROLS.
5135, EGOC= 1130.64 ..MAY BE TOO LARGE IF OUTLET CONTROLS.
*SECNO 7.983

SPECIAL CULVERT INLET CONTROL + WEIR FLOW, EG =   1027.59
5150, EG OF  1027.59 LESS THAN XEG OF  1028.25
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


SPECIAL CULVERT

     EGIC      EGOC        H4     QWEIR     QCULV       VCH     ACULV     ELTRD    WEIRLN
   1184.45   1130.64       .00     3585.      542.     9.964      64.0   1025.30     2679.


3470 ENCROACHMENT STATIONS=     9920.0   10670.0  TYPE=      1  TARGET=      750.000
     7.983      6.15   1027.75       .00   1027.14   1028.25       .50       .00       .00   1021.60
    4121.0     240.2    1225.4    2655.4     126.7     123.0    1304.6    1352.4     544.8   1021.60
      4.44      1.90      9.96      2.04      .030      .013      .030      .000   1021.60   9920.00
  .000674       30.       30.       30.         4         0         0       .00    750.00  10670.00


CCHV=     .300 CEHV=     .500
*SECNO 8.069

3470 ENCROACHMENT STATIONS=     9870.0   10325.0  TYPE=      1  TARGET=      455.000
     8.069      4.62   1028.62       .00   1027.69   1028.74       .12       .37       .11   1024.20
    4121.0     626.2    1885.2    1609.6     369.5     503.4     976.4    1370.2     551.1   1024.20
      4.49      1.69      3.74      1.65      .070      .035      .070      .000   1024.00   9870.00
   .001024      455.      455.      455.         2         0         0       .00    455.00  10325.00


CCHV=     .100 CEHV=     .300
*SECNO 8.169

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .50


3470 ENCROACHMENT STATIONS=     9880.0   10175.0  TYPE=      1  TARGET=      295.000
     8.169      4.81   1029.41       .00   1028.59   1029.77       .37       .96       .07   1025.60
    4121.0    1031.9    1287.9    1801.2     339.0     175.3     561.6    1387.8     555.6   1025.30
      4.52      3.04      7.35      3.21      .070      .035      .070      .000   1024.60   9880.00
   .004177      525.      525.      525.         2         0         0       .00    295.00  10175.00


*SECNO 8.292

3470 ENCROACHMENT STATIONS=     9925.0   10230.0  TYPE=      1  TARGET=      305.000
     8.292      5.64   1031.84       .00   1030.83   1032.19       .35      2.41       .00   1027.30
    4121.0     626.9    1402.4    2091.7     214.5     197.8     742.8    1404.5     560.1   1027.90
      4.56      2.92      7.09      2.82      .070      .035      .070      .000   1026.20   9925.00
   .003322      650.      650.      650.         2         0         0       .00    305.00  10230.00


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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
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   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*SECNO 8.364

3470 ENCROACHMENT STATIONS=     9870.0   10230.0  TYPE=      1  TARGET=      360.000
     8.364      5.69   1033.09       .00   1032.17   1033.38       .29      1.19       .01   1029.20
    4121.0    1040.5    1496.8    1583.7     389.6     237.4     654.1    1415.5     563.1   1029.90
      4.59      2.67      6.30      2.42      .070      .035      .070      .000   1027.40   9870.00
   .002778      370.      380.      410.         2         0         0       .00    360.00  10230.00

*SECNO 8.468

3470 ENCROACHMENT STATIONS=     9860.0   10770.0  TYPE=      1  TARGET=      910.000
     8.468      5.26   1034.86       .00   1034.43   1035.25       .38      1.84       .03   1031.60
    4121.0    1113.7    1418.1    1589.2     352.5     182.4     894.7    1430.3     569.9   1033.50
      4.62      3.16      7.77      1.78      .070      .035      .070      .000   1029.60   9860.00
   .005286      460.      550.      460.         2         0         0       .00    910.00  10770.00

*SECNO 8.544

3470 ENCROACHMENT STATIONS=     9750.0   10995.0  TYPE=      1  TARGET=     1245.000

                Q = (Q AT CP241 "AFTER STORAGE ROUTING" +Q AT CP253)/2
                  = (4245 + 4121)/2 = 4183 CFS.

     8.544      2.42   1036.82       .00   1036.18   1037.05       .23      1.79       .02   1035.00
    4183.0     512.8    1539.1    2131.1     262.2     268.8    1052.3    1439.0     575.3   1034.80
      4.65      1.96      5.73      2.03      .070      .035      .070      .000   1034.40   9750.00
   .006550      530.      400.      130.         3         0         0       .00   1245.00  10995.00

*SECNO 8.636

3265 DIVIDED FLOW

 170 ENCROACHMENT STATIONS=     9960.0   11200.0  TYPE=      1  TARGET=     1240.000

                A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

     8.636      2.86   1038.96       .00   1038.06   1039.06       .10      1.99       .01   1037.10
    4183.0        .0     533.5    3649.5        .0     113.3    1753.2    1453.1     584.6   1038.00
      4.69       .00      4.71      2.08      .000      .035      .070      .000   1036.10   9960.00
   .004358      340.      490.      340.         3         0         0       .00   1063.68  11200.00
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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 8.726

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=     9950.0   11000.0  TYPE=      1  TARGET=     1050.000

                A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

     8.726      3.69   1041.09       .00   1040.34   1041.27       .17      2.19       .02   1038.80
    4183.0        .0     947.8    3235.2        .0     166.6    1468.0    1472.2     595.2   1040.00
      4.74       .00      5.69      2.20      .000      .035      .070      .000   1037.40   9950.00
   .004873      475.      475.      475.         3         0         0       .00    891.98  11000.00

*SECNO 8.848

3265 DIVIDED FLOW

 280 CROSS SECTION      8.85 EXTENDED       .54 FEET
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 170 ENCROACHMENT STATIONS=     9770.0   10600.0  TYPE=      1  TARGET=      830.000

                A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

     8.848      3.84   1044.44       .00   1043.50   1044.67       .23      3.39       .02   1042.30
    4183.0    2203.4     608.6    1370.9     580.5      97.3     654.9    1490.9     606.0   1045.00
      4.78      3.80      6.25      2.09      .070      .035      .070      .000   1040.60   9770.00
   .007723      540.      645.      540.         4         0         0       .00    818.31  10600.00


*SECNO 8.965
3280 CROSS SECTION      8.97 EXTENDED       .74 FEET


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.75


3470 ENCROACHMENT STATIONS=     9740.0   10190.0  TYPE=      1  TARGET=      450.000
     8.965      4.34   1047.04       .00   1046.21   1047.20       .16      2.52       .01   1043.50
    4183.0    2207.0    1054.3     921.7     863.4     216.7     439.4    1511.0     614.9   1044.70
      4.84      2.56      4.86      2.10      .070      .035      .070      .000   1042.70   9740.00
   .002533      615.      615.      615.         3         0         0       .00    450.00  10190.00


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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 9.034

3470 ENCROACHMENT STATIONS=     9775.0   10038.0  TYPE=      1  TARGET=      263.000
     9.034      4.64   1048.04       .00   1047.14   1048.39       .35      1.13       .06   1043.90
    4183.0    2515.0    1668.0        .0     768.0     261.9        .0    1521.7     617.9 100000.00
      4.86      3.27      6.37       .00      .070      .035      .000      .000   1043.40   9775.00
   .003902      365.      365.      365.         3         0         0       .00    263.00  10038.00


CCHV=     .300 CEHV=     .500
*SECNO 9.095

3301 HV CHANGED MORE THAN HVINS

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

3470 ENCROACHMENT STATIONS=     9470.0   10070.0  TYPE=      1  TARGET=      600.000

                AT CAMELBACK RD.  4 - 52 INCH  CP

                Q = Q AT CP241       (= 4243 CFS).

     9.095      6.68   1048.98   1048.98   1048.93   1049.91       .92       .37       .29   1042.30
    4243.0    1434.3    2779.6      29.1     856.2     294.0      29.9    1529.8     621.1   1042.30
      4.87      1.68      9.45       .97      .030      .013      .030      .000   1042.30   9470.00
   .000543      320.      320.      320.        20        13         0       .00    600.00  10070.00


SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
     4         .013      .50      2.70       .00      4.50       .00      30.00      1         1       1042.50   1042.30

CHART  1 - CONCRETE PIPE CULVERT; NO BEVELED RING ENTRANCE
SCALE  1 - SQUARE EDGE ENTRANCE WITH HEADWALL

5130, EGIC= 1222.54..MAY BE TOO LARGE IF INLET CONTROLS.
5135, EGOC= 1161.32 ..MAY BE TOO LARGE IF OUTLET CONTROLS.
*SECNO 9.100

`PECIAL CULVERT INLET CONTROL + WEIR FLOW, EG =   1049.05
 150, EG OF  1049.05 LESS THAN XEG OF  1049.91
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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

SPECIAL CULVERT

    EGIC      EGOC        H4     QWEIR     QCULV       VCH     ACULV     ELTRD    WEIRLN
  1222.54   1161.32       .00     3652.      601.     9.656      63.6   1046.30     1131.


3470 ENCROACHMENT STATIONS=     9470.0   10070.0  TYPE=      1  TARGET=      600.000
    9.100      6.45   1048.95       .00   1049.15   1049.91       .95       .00       .00   1042.50
   4243.0    1468.6    2745.6      28.7     845.4     284.3      28.6    1530.7     621.5   1042.50
     4.87      1.74      9.66      1.00      .030      .013      .030      .000   1042.50   9470.00
  .000593       30.       30.       30.         5         0         0       .00    600.00  10070.00

CCHV=     .300 CEHV=     .500
*SECNO 9.189

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .36


3470 ENCROACHMENT STATIONS=     9645.0   10160.0  TYPE=      1  TARGET=      515.000
    9.189      2.45   1050.35   1049.80   1050.18   1050.69       .34       .60       .18   1048.80
   4243.0    1740.4    2502.6        .0     530.2     460.5        .0    1542.2     627.5 100000.00
     4.90      3.28      5.43       .00      .045      .030      .000      .000   1047.90   9645.00
  .004536      470.      470.      460.         8        17         0       .00    515.00  10160.00

CCHV=     .100 CEHV=     .300
SECNO 9.292

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .69


3470 ENCROACHMENT STATIONS=     9690.0   10120.0  TYPE=      1  TARGET=      430.000

               Q = Q AT 2I241       (= 3693 CFS).

    9.292      2.19   1053.29   1052.88   1052.71   1053.70       .41      2.99       .02   1051.80
   3693.0    1623.2    2069.8        .0     388.2     358.5        .0    1553.0     633.4 100000.00
     4.93      4.18      5.77       .00      .045      .030      .000      .000   1051.10   9690.00
  .007138      540.      540.      530.        14        19         0       .00    430.00  10120.00


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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 9.396

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.45


3470 ENCROACHMENT STATIONS=     9500.0   10070.0  TYPE=      1  TARGET=      570.000
    9.396      2.40   1056.20       .00   1055.81   1056.39       .19      2.67       .02   1054.70
   3693.0    2296.3    1396.7        .0     754.0     333.6        .0    1564.9     639.8 100000.00
     4.98      3.05      4.19       .00      .045      .030      .000      .000   1053.80   9500.00
  .003408      570.      550.      515.         3         0         0       .00    570.00  10070.00


*SECNO 9.493

 470 ENCROACHMENT STATIONS=     9425.0   10140.0  TYPE=      1  TARGET=      715.000
    9.493      2.00   1058.10       .00   1057.73   1058.31       .20      1.91       .00   1057.10
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    3693.0    2151.6    1541.4        .0     753.4     343.4        .0    1577.3     647.1 100000.00
      5.02      2.86      4.49       .00      .045      .030      .000      .000   1056.10   9425.00
   .004302      490.      515.      515.         3         0         0       .00    715.00  10140.00


*SECNO 9.544

3470 ENCROACHMENT STATIONS=     9200.0   10065.0  TYPE=      1  TARGET=      865.000
     9.544      2.10   1059.10       .00   1058.81   1059.24       .14       .93       .01   1058.00
    3693.0    2945.7     747.3        .0    1049.2     194.7        .0    1583.1     651.1 100000.00
      5.04      2.81      3.84       .00      .045      .030      .000      .000   1057.00   9200.00
   .004091      200.      270.      280.         1         0         0       .00    865.00  10065.00


CCHV=     .300 CEHV=     .500
*SECNO 9.641

3470 ENCROACHMENT STATIONS=     9400.0   10056.0  TYPE=      1  TARGET=      656.000

                Q = Q AT 2I241       (= 3693 CFS).
                Q HAS BEEN REDUCED BY THE SAME DIVERSION AT THE REACH UPSTREAM
                OF SEC. 10.269  WHICH WILL RETURN AT SEC.  9.544

     9.641      2.89   1059.89       .00   1059.65   1060.01       .12       .76       .01   1058.00
    3113.0    2720.2     317.0      75.8    1082.9      71.9      44.1    1589.5     655.1   1058.00
      5.06      2.51      4.41      1.72      .045      .030      .045      .000   1057.00   9400.00
   .002479      180.      510.      750.         3         0         0       .00    656.00  10056.00


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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 9.741

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.14


3470 ENCROACHMENT STATIONS=     9530.0   10455.0  TYPE=      1  TARGET=      925.000
     9.741      3.26   1060.46       .00   1060.21   1060.52       .06       .49       .02   1057.50
    3113.0    1332.9    1525.7     254.4     929.3     639.7     303.4    1606.1     663.2   1058.00
      5.13      1.43      2.39       .84      .045      .030      .045      .000   1057.20   9530.00
   .000542      480.      530.      300.         3         0         0       .00    925.00  10455.00


CCHV=     .100 CEHV=     .300
*SECNO 9.807

3470 ENCROACHMENT STATIONS=     9500.0   10423.0  TYPE=      1  TARGET=      923.000
     9.807      3.33   1060.63       .00   1060.39   1060.68       .05       .16       .00   1057.60
    3113.0    1212.1    1568.7     332.2     960.1     735.2     374.4    1621.5     670.4   1058.00
      5.19      1.26      2.13       .89      .045      .030      .045      .000   1057.30   9500.00
   .000417      335.      345.      345.         2         0         0       .00    923.00  10423.00


CCHV=     .100 CEHV=     .300
*SECNO 9.898

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .47


3470 ENCROACHMENT STATIONS=     9603.0   10474.0  TYPE=      1  TARGET=      871.000

                Q = ROUTED FLOW FROM SUB. 222 TO SUB. 241     (= 1342 CFS).
                Q HAS BEEN REDUCED BY THE SAME DIVERSION AT THE REACH UPSTREAM
                OF SEC. 10.269  WHICH WILL RETURN AT SEC.  9.544

                FLOODWAY LIMITS, (SEC. 9.898 TO 10.995), HAVE BEEN SET IDENTICAL
                TO THE FLOODPLAIN LIMITS DUE TO THE CONFINEMENT OF FLOW IN A
                DFINED CHANNEL. A WEIR FLOW ALSO OCCUR OVER THE RIGHT BANK AT
                SEC. 10.493 THROUGH  10.639

     9.898      3.33   1060.83       .00   1060.62   1060.83       .01       .15       .00   1059.80
     762.0     261.6     272.9     227.5     545.2     251.9     511.0    1641.4     680.5   1059.80
      5.40       .48      1.08       .45      .045      .028      .045      .000   1057.50   9603.00
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   .000114      650.      480.      320.         2         0         0       .00    871.00  10474.00


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   03SEP96      09:19:12                                                                                                PAGE  104

    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 9.994

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .24

     9.994      3.11   1060.81       .00   1060.65   1061.06       .25       .15       .07   1062.10
     762.0        .0     762.0        .0        .0     191.8        .0    1650.6     686.4   1062.10
      5.43       .00      3.97       .00      .000      .028      .000      .000   1057.70   9956.12
   .001898      600.      510.      490.         2         0         0       .00     84.70  10040.82


 *SECNO 10.108
    10.108      3.91   1062.01       .00   1062.01   1062.35       .34      1.26       .03   1062.90
     762.0        .0     762.0        .0        .0     162.5        .0    1653.1     687.4   1062.90
      5.47       .00      4.69       .00      .000      .028      .000      .000   1058.10   9969.99
   .002334      600.      600.      600.         2         0         0       .00     65.01  10035.01


 *SECNO 10.197

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.42

    10.197      4.53   1062.93       .00   1062.93   1063.11       .18       .75       .02   1063.60
     762.0        .0     762.0        .0        .0     222.7        .0    1655.2     688.2   1063.60
      5.51       .00      3.42       .00      .000      .028      .000      .000   1058.40   9954.20
   .001152      470.      470.      470.         2         0         0       .00     84.50  10038.70


 SECNO 10.269

                Q = Q AT CP222        (= 1380 CFS).
                Q   HAS BEEN REDUCED DUE TO WEIR FLOW OVER THE RIGHT OVERBANK.
                DIVERTED "Q" WILL BE RETURNED AT SEC.  9.544

    10.269      4.68   1063.28       .00   1063.28   1063.46       .18       .35       .00   1062.00
     800.0       2.7     794.1       3.2       4.1     233.3       4.7    1657.2     688.9   1062.00
      5.54       .67      3.40       .67      .045      .028      .045      .000   1058.60   9953.60
   .000759      410.      380.      350.         2         0         0       .00     78.79  10032.39


 *SECNO 10.328
    10.328      4.69   1063.49       .00   1063.50   1063.77       .27       .28       .03   1062.00
     800.0       3.7     795.2       1.1       4.2     188.8       1.4    1658.7     689.4   1062.00
      5.56       .88      4.21       .76      .045      .028      .045      .000   1058.80   9964.39
   .001096      335.      310.      290.         2         0         0       .00     57.48  10021.87


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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 10.419
    10.419      4.89   1063.99       .00   1063.99   1064.28       .28       .51       .00   1062.00
     800.0       2.2     795.6       2.2       2.5     185.5       2.5    1660.9     690.0   1062.00
      5.59       .89      4.29       .89      .045      .028      .045      .000   1059.10   9972.51
   .001013      475.      480.      485.         2         0         0       .00     49.98  10022.49


 *SECNO 10.493
 3280 CROSS SECTION     10.49 EXTENDED       .75 FEET


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.61
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ANY WSEL EXTENSION AT SEC. 10.493 TO 10.639 IS DUE TO LIMITED
GRADE AT THE RIGHT OVERBANK.

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    10.493      5.05   1064.35       .00   1064.36   1064.38       .03       .08       .03   1062.00
     800.0       5.7     785.5       8.8      15.5     613.4      23.3    1664.7     691.0   1062.00
      5.68       .37      1.28       .38      .045      .028      .045      .000   1059.30   9885.00
   .000078      400.      400.      400.         2         0         0       .00    160.00  10045.00
```

*SECNO 10.587
3280 CROSS SECTION 10.59 EXTENDED .19 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .68

```
    10.587      4.79   1064.39       .00   1064.39   1064.44       .05       .05       .01   1062.00
     800.0      20.3     766.7      13.0      47.2     434.3      25.9    1671.3     693.1   1062.00
      5.76       .43      1.77       .50      .045      .028      .045      .000   1059.60   9847.01
   .000167      490.      490.      490.         2         0         0       .00    212.99  10060.00
```

CCHV= .100 CEHV= .300
*SECNO 10.639

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    10.639      4.65   1064.45       .00   1064.45   1064.49       .04       .05       .00   1062.00
     800.0      36.9     754.8       8.3      69.5     449.7      16.8    1674.6     694.5   1062.00
      5.81       .53      1.68       .50      .045      .030      .045      .000   1059.80   9858.10
   .000176      350.      275.      260.         1         0         0       .00    197.85  10055.95
```



```
    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 10.709

Q = Q AT CP222 (= 1380 CFS).

```
    10.709      4.52   1064.52       .00   1064.52   1064.64       .12       .13       .02   1062.00
    1380.0      58.5    1302.6      18.8      56.1     457.3      19.8    1679.2     696.2   1062.00
      5.84      1.04      2.85       .95      .045      .030      .045      .000   1060.00   9863.36
   .000619      420.      370.      340.         1         0         0       .00    192.38  10055.73
```

*SECNO 10.804

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .40

```
    10.804      2.98   1064.98       .00   1064.98   1065.35       .37       .63       .07   1064.00
    1380.0      12.7    1362.6       4.7       9.8     278.8       3.7    1684.0     698.2   1064.00
      5.87      1.29      4.89      1.28      .045      .030      .045      .000   1062.00   9880.17
   .003888      480.      500.      500.         2         0         0       .00    167.26  10047.44
```

*SECNO 10.889

```
    10.889      2.80   1066.80       .00   1066.80   1067.19       .39      1.83       .01   1066.00
    1380.0       9.9    1367.4       2.7       8.6     271.8       2.3    1686.9     700.0   1066.00
      5.90      1.16      5.03      1.15      .045      .030      .045      .000   1064.00   9878.28
   .004262      450.      450.      450.         3         0         0       .00    167.64  10045.92
```

*SECNO 10.946

```
    10.946      2.52   1068.22       .00   1068.22   1068.66       .44      1.46       .02   1068.00
    1380.0        .4    1379.5        .1        .7     258.5        .2    1688.8     701.1   1068.00
      5.91       .58      5.34       .57      .045      .030      .045      .000   1065.70   9923.81
   .005621      270.      300.      330.         1         0         0       .00    157.88  10081.69
```

*SECNO 10.995

```
    10.995      2.64   1069.84       .00   1069.84   1070.39       .55      1.70       .03   1070.00
    1380.0        .0    1380.0        .0        .0     231.9        .0    1690.3     702.0   1070.00
      5.92       .00      5.95       .00      .000      .030      .000      .000   1067.20   9900.10
   .007668      220.      260.      290.         2         0         0       .00    144.11  10044.21
```

SECNO 11.067

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 = 2.27

3470 ENCROACHMENT STATIONS= 9920.0 10053.0 TYPE= 1 TARGET= 133.000

11.067	3.69	1071.29	.00	1071.15	1071.52	.23	1.09	.03	1069.50
1380.0	.0	1373.7	6.3	.0	359.2	6.1	1692.9	703.2	1070.00
5.95	.00	3.82	1.04	.000	.030	.045	.000	1067.60	9920.00
.001488	380.	380.	380.	3	0	0	.00	133.00	10053.00

*SECNO 11.147

3470 ENCROACHMENT STATIONS= 9920.0 10056.0 TYPE= 1 TARGET= 136.000

11.147	4.03	1071.83	.00	1071.52	1071.99	.16	.46	.01	1069.20
1380.0	.0	1368.0	12.0	.0	424.8	12.0	1696.7	704.5	1070.00
5.99	.00	3.22	1.00	.000	.030	.045	.000	1067.80	9920.00
.000852	420.	420.	420.	3	0	0	.00	136.00	10056.00

*SECNO 11.228

3470 ENCROACHMENT STATIONS= 9920.0 10065.0 TYPE= 1 TARGET= 145.000

11.228	4.30	1072.20	.00	1071.82	1072.36	.16	.37	.00	1070.00
1380.0	.0	1356.4	23.6	.0	422.9	20.2	1701.1	705.9	1070.00
6.03	.00	3.21	1.17	.000	.030	.045	.000	1067.90	9920.00
.000890	430.	430.	430.	2	0	0	.00	145.00	10065.00

*SECNO 11.306

3470 ENCROACHMENT STATIONS= 9940.0 10090.0 TYPE= 1 TARGET= 150.000

11.306	3.78	1072.58	.00	1072.13	1072.73	.15	.37	.00	1070.00
1380.0	100.9	1279.1	.0	59.5	397.6	.0	1705.3	707.3	100000.00
6.06	1.70	3.22	.00	.045	.030	.000	.000	1068.80	9940.00
.000927	400.	410.	400.	2	0	0	.00	150.00	10090.00

*SECNO 11.416

3470 ENCROACHMENT STATIONS= 9930.0 10070.0 TYPE= 1 TARGET= 140.000

11.416	3.03	1073.23	.00	1072.86	1073.45	.22	.69	.02	1071.00
1380.0	.0	1380.0	.0	.0	367.9	.0	1710.7	709.1	100000.00
6.11	.00	3.75	.00	.000	.030	.000	.000	1070.20	9930.00
.001648	400.	580.	680.	2	0	0	.00	140.00	10070.00

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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 11.510

3470 ENCROACHMENT STATIONS= 9900.0 10100.0 TYPE= 1 TARGET= 200.000

11.510	2.52	1074.02	.00	1073.48	1074.16	.14	.70	.01	1072.00
1380.0	.0	1380.0	.0	.0	463.7	.0	1715.4	711.1	100000.00
6.15	.00	2.98	.00	.000	.030	.000	.000	1071.50	9900.00
.001210	340.	500.	640.	2	0	0	.00	200.00	10100.00

*SECNO 11.580

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .38

3470 ENCROACHMENT STATIONS= 9962.0 10115.0 TYPE= 1 TARGET= 153.000

FLOODWAY LIMITS, (SEC. 11.580 TO 13.161),HAVE BEEN SET IDENTICAL
TO THE FLOODPLAIN LIMITS DUE TO THE INABILITY OF THE CHANNEL TO
HANDLE THE EXISTING FLOW OR DUE TO THE CONFINEMENT OF FLOW IN A
DEFINED CHANNEL.

11.580	2.62	1074.62	.00	1074.48	1075.22	.60	.93	.14	1074.00
1380.0	2.0	1368.5	9.4	1.3	219.1	5.9	1718.3	712.6	1074.00
6.17	1.61	6.25	1.60	.045	.030	.045	.000	1072.00	9962.00
.008346	315.	365.	460.	2	0	0	.00	153.00	10115.00

*SECNO 11.676

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.16

Q = Q AT CP221A (= 1377 CFS).

11.676	4.01	1076.11	.00	1076.16	1076.25	.14	.98	.05	1074.00
1377.0	28.7	1342.8	5.5	28.3	444.8	5.6	1722.5	714.5	1074.00
6.22	1.01	3.02	.97	.045	.030	.045	.000	1072.10	9923.78
.000834	480.	510.	550.	3	0	0	.00	181.92	10105.70

CCHV= .100 CEHV= .300
*SECNO 11.775

11.775	4.33	1076.53	.00	1076.55	1076.67	.14	.41	.00	1074.00
1377.0	38.8	1278.4	59.8	35.7	411.5	78.2	1728.5	716.9	1074.00
6.27	1.09	3.11	.76	.045	.030	.070	.000	1072.20	9915.59
.000761	520.	520.	560.	3	0	0	.00	216.02	10131.62

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 11.867

11.867	4.60	1076.90	.00	1076.92	1077.06	.17	.39	.01	1074.00
1377.0	84.4	1227.8	64.8	74.3	357.0	72.9	1734.3	719.4	1074.00
6.31	1.14	3.44	.89	.045	.030	.070	.000	1072.30	9876.28
.000826	490.	490.	490.	1	0	0	.00	227.33	10103.61

*SECNO 11.970

11.970	4.90	1077.30	.00	1077.31	1077.40	.10	.33	.01	1076.00
1377.0	1.1	1316.5	59.4	2.1	496.8	79.5	1741.0	722.0	1074.00
6.37	.52	2.65	.75	.045	.030	.070	.000	1072.40	9926.75
.000480	540.	540.	540.	2	0	0	.00	179.48	10106.23

*SECNO 12.064

12.064	5.02	1077.52	.00	1077.53	1077.59	.07	.18	.00	1074.00
1377.0	76.4	1264.8	35.8	119.2	576.3	59.0	1748.6	724.6	1074.00
6.43	.64	2.19	.61	.045	.030	.070	.000	1072.50	9812.78
.000284	500.	500.	500.	2	0	0	.00	288.61	10101.39

*SECNO 12.150
3280 CROSS SECTION 12.15 EXTENDED .45 FEET

ANY WSEL EXTENSION AT SEC. 12.150 TO 12.534 IS DUE TO LIMITED
GRADE AT THE LEFT OVERBANK.

12.150	5.15	1077.65	.00	1077.65	1077.70	.06	.11	.00	1074.00
1377.0	112.0	1243.8	21.2	160.3	615.5	44.3	1756.8	727.6	1074.00
6.50	.70	2.02	.48	.045	.030	.070	.000	1072.50	9825.00
.000231	450.	450.	450.	2	0	0	.00	279.31	10104.31

*SECNO 12.244

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3280 CROSS SECTION     12.24 EXTENDED       .47 FEET

    12.244      5.16   1077.76       .00   1077.77   1077.82       .05       .11       .00   1076.00
    1377.0      35.4    1307.5      34.1      67.2     686.5      71.0    1766.2     730.7   1074.00
      6.58       .53      1.90       .48      .045      .030      .070      .000   1072.60   9850.00
   .000221      500.      500.      500.         1         0         0       .00    262.69  10112.69


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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 12.345
3280 CROSS SECTION     12.35 EXTENDED       .58 FEET

    12.345      5.28   1077.88       .00   1077.88   1077.92       .04       .10       .00   1076.00
    1377.0      17.9    1318.9      40.2      37.0     768.2      94.3    1776.7     733.8   1074.00
      6.66       .48      1.72       .43      .045      .030      .070      .000   1072.60   9890.00
   .000167      530.      530.      530.         0         0         0       .00    253.55  10143.55


*SECNO 12.439
3280 CROSS SECTION     12.44 EXTENDED       .57 FEET

    12.439      5.26   1077.96       .00   1077.97   1078.00       .04       .08       .00   1074.00
    1377.0      68.6    1253.3      55.2     103.6     761.7     122.8    1787.5     736.9   1074.00
      6.75       .66      1.65       .45      .045      .030      .070      .000   1072.70   9900.00
   .000144      500.      500.      500.         1         0         0       .00    284.41  10184.41


*SECNO 12.534
3280 CROSS SECTION     12.53 EXTENDED       .54 FEET

    12.534      5.33   1078.03       .00   1078.04   1078.07       .04       .07       .00   1074.00
    1377.0      62.3    1230.7      84.0      92.9     773.4     177.8    1799.2     740.2   1074.00
      6.85       .67      1.59       .47      .045      .030      .070      .000   1072.70   9865.00
   .000132      500.      500.      500.         0         0         0       .00    285.28  10150.28


CCHV=      .100 CEHV=      .300
*SECNO 12.633
3280 CROSS SECTION     12.63 EXTENDED       .12 FEET

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

                Q = Q AT CP212        (= 1350 CFS).
                Q   HAS BEEN REDUCED DUE TO LIMITED GRADE AT THE LEFT OVERBANK.
                DIVERTED FLOW WILL BE RETURNED AT SEC.  12.534

                CROSS-SECTION 12.633 TO 13.161 WERE NOT EXTENDED OVER THE MUCH
                LOWER LEFT OVERBANK SO NOT TO UNDERESTIMATE FLOODPLAIN LIMITS.

                ANY WSEL EXTENSION AT SEC. 12.633 TO 13.161 IS DUE TO LIMITED
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                GRADE AT THE LEFT OVERBANK.

    12.633       .72   1080.12   1080.12   1080.12   1080.30       .18       .18       .04   1079.60
    1000.     251.7     503.8     244.6      96.4     124.2      94.6    1806.8     746.3   1079.60
      6.89      2.61      4.05      2.58      .035      .035      .035      .000   1079.40   9600.00
   .017206      790.      520.      180.        20        17         0       .00    814.24  10414.24


CCHV=      .100 CEHV=      .300
*SECNO 12.700
3280 CROSS SECTION     12.70 EXTENDED       .73 FEET


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  7.48

    12.700      2.03   1080.73       .00   1080.73   1080.74       .01       .42       .02   1080.00
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    1000.0        .0     282.7     717.3        .0     312.4    1414.5    1819.1     756.6   1079.10
      7.09       .00       .90       .51      .000      .040      .070      .000   1078.70   9920.00
   .000307      100.      350.      600.         5         0         0       .00   1097.64  11017.64


*SECNO 12.758
3280 CROSS SECTION     12.76 EXTENDED       .66 FEET


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .41

    12.758      2.06   1080.96       .00   1080.96   1081.00       .04       .25       .01   1080.00
    1000.0      14.4     450.3     535.3      12.1     198.1     541.9    1831.5     765.6   1079.30
      7.16      1.19      2.27       .99      .045      .040      .070      .000   1078.90   9940.00
   .001814      250.      310.      470.         3         0         0       .00    671.49  10611.49


*SECNO 12.867
3280 CROSS SECTION     12.87 EXTENDED       .91 FEET


                CROSS-SEC. 60 FT.(ALONG FLOW PATH)SOUTH OF GLENDALE AV. EXTENDED

    12.867      2.40   1081.80       .00   1081.80   1081.84       .04       .83       .00   1080.00
    1000.0      36.6     419.3     544.1      27.2     200.6     617.6    1842.1     774.4   1080.00
      7.27      1.35      2.09       .88      .045      .040      .070      .000   1079.40   9940.00
   .001168      580.      580.      580.         1         0         0       .00    660.81  10600.81


*SECNO 13.044
3280 CROSS SECTION     13.04 EXTENDED       .58 FEET

    13.044      2.09   1082.79       .00   1082.79   1082.81       .03       .98       .00   1082.00
    1000.0       5.6     483.9     510.5       6.8     277.9     656.6    1859.3     788.8   1080.90
      7.47       .82      1.74       .78      .045      .040      .070      .000   1080.70   9900.00
   .001097      950.      930.      800.         2         0         0       .00    852.66  10752.66


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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 13.161

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .50

    13.161      1.62   1083.92       .00   1083.92   1083.99       .07      1.16       .01   1084.00
    1000.0        .0     468.6     531.4        .0     160.6     476.9    1870.0     799.9   1082.50
      7.55       .00      2.92      1.11      .000      .040      .070      .000   1082.30   9961.78
   .004331      650.      620.      580.         1         0         0       .00    792.77  10754.54


*SECNO 13.248

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=     9950.0   10210.0  TYPE=      1  TARGET=      260.000

                Q = (Q AT 1I212 + DIVERTED FLOW FROM SUB.193 TO SUB. 212)/2
                  = (1344 + 1536)/2 = 1440 CFS.

                A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

    13.248      2.18   1086.48       .00   1085.86   1086.71       .22      2.67       .05   1085.40
    1440.0        .0     764.7     675.3        .0     167.8     255.1    1875.6     805.3   1086.60
      7.59       .00      4.56      2.65      .000      .040      .070      .000   1084.30   9950.00
   .007477      450.      460.      450.         5         0         0       .00    255.17  10210.00


*SECNO 13.349

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.38
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3470 ENCROACHMENT STATIONS=     9955.0   10210.0  TYPE=      1  TARGET=      255.000

                A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

    13.349      3.55   1088.05       .00   1087.04   1088.13       .08      1.40       .01   1087.30
    1440.0        .0     818.6     621.4        .0     312.7     398.3    1882.5     808.4   1087.00
      7.65       .00      2.62      1.56      .000      .040      .070      .000   1084.50   9955.00
   .001325      535.      535.      535.         4         0         0       .00    255.00  10210.00


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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 13.427

3470 ENCROACHMENT STATIONS=     9960.0   10270.0  TYPE=      1  TARGET=      310.000

                A DIVIDED FLOW MIGHT OCCUR DUE TO CROSSING AN IRRIGATION TANK

    13.427      2.95   1088.75       .00   1087.74   1088.81       .06       .68       .00   1088.50
    1440.0        .0     301.4    1138.6        .0     127.9     591.7    1889.3     811.1   1088.50
      7.71       .00      2.36      1.92      .000      .040      .070      .000   1085.80   9960.00
   .002167      410.      410.      410.         3         0         0       .00    310.00  10270.00

CCHV=      .100 CEHV=      .300
*SECNO 13.556

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .49


3470 ENCROACHMENT STATIONS=     9800.0   10250.0  TYPE=      1  TARGET=      450.000

                A DIVIDED FLOW MIGHT OCCUR DUE TO SHEET FLOW TYPE IN THIS REGION

    13.556      1.54   1090.94   1090.31   1090.52   1091.03       .09      2.21       .01   1089.60
    1440.0     276.9     740.2     423.0     121.6     288.1     184.1    1897.6     816.2   1089.60
      7.78      2.28      2.57      2.30      .070      .070      .070      .000   1089.40   9800.00
   .009002      750.      680.      460.        11        17         0       .00    450.00  10250.00

*SECNO 13.667

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.80

3470 ENCROACHMENT STATIONS=     9765.0   10270.0  TYPE=      1  TARGET=      505.000

                A DIVIDED FLOW MIGHT OCCUR DUE TO SHEET FLOW TYPE IN THIS REGION

    13.667      2.41   1093.61       .00   1093.31   1093.65       .04      2.61       .00   1092.20
    1440.0     230.8     726.5     482.7     148.1     428.2     298.0    1907.2     822.3   1091.70
      7.87      1.56      1.70      1.62      .070      .070      .070      .000   1091.20   9775.94
   .002788      670.      585.      480.         4         0         0       .00    494.06  10270.00


1
   03SEP96      09:19:12                                                                                PAGE  114

    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 13.782
3280 CROSS SECTION     13.78 EXTENDED       .30 FEET

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .47
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3470 ENCROACHMENT STATIONS= 9700.0 10570.0 TYPE= 1 TARGET= 870.000

A DIVIDED FLOW MIGHT OCCUR DUE TO SHEET FLOW TYPE IN THIS REGION

13.782	2.00	1096.80	.00	1095.79	1096.88	.08	3.22	.01	1095.80
1440.0	451.0	615.8	373.2	181.1	239.2	243.0	1918.1	831.9	1096.00
7.95	2.49	2.57	1.54	.070	.070	.070	.000	1094.80	9700.00
.012765	700.	610.	580.	3	0	0	.00	863.87	10563.87

*SECNO 13.902
3280 CROSS SECTION 13.90 EXTENDED .31 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.52

3470 ENCROACHMENT STATIONS= 9800.0 10300.0 TYPE= 1 TARGET= 500.000

A DIVIDED FLOW MIGHT OCCUR DUE TO SHEET FLOW TYPE IN THIS REGION

13.902	2.41	1099.41	.00	1098.48	1099.44	.03	2.55	.00	1097.50
1440.0	281.4	632.8	525.8	193.2	411.3	368.8	1929.7	841.4	1097.30
8.06	1.46	1.54	1.43	.070	.070	.070	.000	1097.00	9800.00
.002008	650.	630.	580.	3	0	0	.00	500.00	10300.00

*SECNO 14.023

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .49

3470 ENCROACHMENT STATIONS= 9900.0 10100.0 TYPE= 1 TARGET= 200.000

A DIVIDED FLOW MIGHT OCCUR DUE TO SHEET FLOW TYPE IN THIS REGION

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
14.023	2.31	1101.61	.00	1100.59	1101.77	.16	2.29	.04	1099.50
1440.0	.0	1440.0	.0	.0	441.9	.0	1939.9	846.4	100000.00
8.12	.00	3.26	.00	.000	.070	.000	.000	1099.30	9900.00
.008421	640.	640.	600.	4	0	0	.00	200.00	10100.00

THIS RUN EXECUTED 03SEP96 09:19:24

****
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

BULLARD WASH - FROM BUCK

SUMMARY PRINTOUT

	SECNO	Q	CWSEL	SSTA	STCHL	STCHR	ENDST	DIFWSX	TOPWID	DEPTH	ELMIN	10*KS	VCH
	.000	850.00	912.32	9326.62	9980.00	10120.00	10571.93	.00	1245.30	1.82	910.50	25.25	1.53
	.000	850.00	912.32	9325.60	9980.00	10120.00	10572.40	.00	1246.80	1.82	910.50	25.00	1.53
	.047	850.00	912.55	9133.37	9960.00	10100.00	10820.00	.23	1686.63	2.55	910.00	4.10	1.10
*	.047	850.00	912.55	9133.16	9960.00	10100.00	10820.00	.23	1686.84	2.55	910.00	4.09	1.10

	.121	850.00	912.73	9452.89	9980.00	10100.00	10820.00	.19	1367.11	2.73	910.00	5.90	1.22
	.121	850.00	912.73	9452.48	9980.00	10100.00	10820.00	.19	1367.52	2.73	910.00	5.88	1.22
	.201	850.00	913.03	9724.61	9970.00	10100.00	10820.00	.29	1095.39	3.03	910.00	8.87	1.61
	.201	850.00	913.03	9724.55	9970.00	10100.00	10820.00	.29	1095.45	3.03	910.00	8.86	1.61
	.292	850.00	913.39	9860.27	9960.00	10070.00	10800.00	.37	939.73	2.89	910.50	6.45	1.44
	.292	850.00	913.39	9860.27	9960.00	10070.00	10800.00	.37	939.73	2.89	910.50	6.45	1.44
	.384	850.00	913.69	9688.08	9970.00	10095.00	11370.00	.30	1604.23	2.69	911.00	5.41	1.22
	.384	850.00	913.69	9688.05	9970.00	10095.00	11370.00	.30	1604.28	2.69	911.00	5.41	1.22
	.488	850.00	914.01	9875.31	9970.00	10090.00	11365.00	.32	1469.90	2.01	912.00	6.48	1.07
	.488	850.00	914.01	9875.31	9970.00	10090.00	11365.00	.32	1469.90	2.01	912.00	6.48	1.07
	.531	850.00	914.18	9897.62	9965.00	10090.00	11350.00	.16	1385.91	1.38	912.80	7.57	.67
	.531	850.00	914.18	9897.62	9965.00	10090.00	11350.00	.16	1385.91	1.38	912.80	7.57	.67
*	.616	4895.00	916.05	9669.96	9960.00	10090.00	10830.00	1.88	844.48	2.25	913.80	69.55	3.43
*	.616	4895.00	916.05	9669.96	9960.00	10090.00	10830.00	1.88	844.48	2.25	913.80	69.55	3.43
	.668	4895.00	918.26	9620.00	9950.00	10035.00	10285.47	2.21	665.47	2.76	915.50	121.23	7.21
	.668	4895.00	918.26	9620.00	9950.00	10035.00	10285.47	2.21	665.47	2.76	915.50	121.23	7.21
*	.776	4895.00	920.95	9975.00	9975.00	10025.00	10485.12	2.69	510.12	4.55	916.40	21.16	4.33
*	.776	4895.00	920.95	9975.00	9975.00	10025.00	10485.12	2.69	510.12	4.55	916.40	21.16	4.33

	SECNO	Q	CWSEL	SSTA	STCHL	STCHR	ENDST	DIFWSX	TOPWID	DEPTH	ELMIN	10*KS	VCH
	.868	4895.00	922.17	9970.00	9970.00	10020.00	10485.69	1.22	515.69	4.17	918.00	32.96	5.49
	.868	4895.00	922.17	9970.00	9970.00	10020.00	10485.69	1.22	515.69	4.17	918.00	32.96	5.49
	.964	4895.00	924.12	9970.00	9970.00	10045.00	10411.24	1.95	441.24	4.92	919.20	54.74	7.59
	.964	4895.00	924.12	9970.00	9970.00	10045.00	10411.24	1.95	441.24	4.92	919.20	54.74	7.59
	1.081	2596.00	926.28	9955.00	9955.00	10090.00	10406.38	2.15	451.38	3.28	923.00	11.87	2.77
	1.081	2596.00	926.28	9955.00	9955.00	10090.00	10406.38	2.15	451.38	3.28	923.00	11.87	2.77
	1.153	2596.00	926.68	9959.96	9945.00	10060.00	10422.36	.40	453.30	3.68	923.00	9.73	2.63
	1.153	2596.00	926.68	9959.96	9945.00	10060.00	10422.36	.40	453.30	3.68	923.00	9.73	2.63
*	1.236	2596.00	927.45	9974.25	9960.00	10060.00	10325.72	.77	242.61	3.45	924.00	80.02	8.78
*	1.236	2596.00	927.45	9974.25	9960.00	10060.00	10325.72	.77	242.61	3.45	924.00	80.02	8.78
*	1.317	2596.00	929.70	9970.74	9960.00	10050.00	10314.63	2.25	300.91	5.70	924.00	22.09	5.56
*	1.317	2596.00	929.70	9970.74	9960.00	10050.00	10314.63	2.25	300.91	5.70	924.00	22.09	5.56
	1.378	2596.00	930.38	9965.18	9960.00	10035.00	10366.88	.68	370.84	6.38	924.00	16.66	5.07
	1.378	2596.00	930.38	9965.18	9960.00	10035.00	10366.88	.68	370.84	6.38	924.00	16.66	5.07
*	1.435	2596.00	931.17	9966.34	9965.00	10070.00	10128.96	.79	162.61	4.87	926.30	84.79	8.94
*	1.435	2596.00	931.17	9966.34	9965.00	10070.00	10128.96	.79	162.61	4.87	926.30	84.79	8.94
*	1.474	2600.00	933.62	9045.76	9985.00	10015.00	10080.00	2.45	1034.24	5.62	928.00	45.12	8.11
*	1.474	2600.00	933.62	9045.76	9985.00	10015.00	10080.00	2.45	1034.24	5.62	928.00	45.12	8.11
*	1.517	2600.00	934.88	9266.45	9905.00	10080.00	10080.00	1.26	813.55	2.68	932.20	11.46	2.51
*	1.517	2600.00	934.88	9266.45	9905.00	10080.00	10080.00	1.26	813.55	2.68	932.20	11.46	2.51
*	1.566	2600.00	936.21	9914.72	9955.00	10045.00	10065.00	1.33	150.28	3.71	932.50	77.73	9.00
*	1.566	2600.00	936.21	9914.72	9955.00	10045.00	10065.00	1.33	150.28	3.71	932.50	77.73	9.00
*	1.634	2600.00	938.27	9832.50	9970.00	10025.00	10065.00	2.06	232.50	5.27	933.00	18.24	5.99
*	1.634	2600.00	938.27	9832.50	9970.00	10025.00	10065.00	2.06	232.50	5.27	933.00	18.24	5.99
	1.680	2600.00	938.77	9761.32	9970.00	10025.00	10100.00	.49	338.68	5.37	933.40	11.76	5.01
	1.680	2600.00	938.77	9761.32	9970.00	10025.00	10100.00	.49	338.68	5.37	933.40	11.76	5.01
*	1.745	2600.00	939.17	9787.12	9960.00	10040.00	10210.00	.40	422.88	5.37	933.80	4.82	3.24
*	1.745	2600.00	939.17	9787.12	9960.00	10040.00	10210.00	.40	422.88	5.37	933.80	4.82	3.24
	1.823	2600.00	939.41	9432.35	9970.00	10050.00	10255.00	.25	822.65	4.51	934.90	5.20	2.83
	1.823	2600.00	939.41	9432.35	9970.00	10050.00	10255.00	.25	822.65	4.51	934.90	5.20	2.83
	1.893	4899.00	939.71	9093.62	9960.00	10040.00	10199.81	.30	1080.16	3.61	936.10	19.47	4.71
	1.893	4899.00	939.71	9093.62	9960.00	10040.00	10199.81	.30	1080.16	3.61	936.10	19.47	4.71

	1.941	4899.00	939.90	8961.19	9975.00	10025.00	10024.29	.19	700.71	3.60	936.30	45.37	4.09
	1.941	4899.00	939.90	8961.19	9975.00	10025.00	10024.29	.19	700.71	3.60	936.30	45.37	4.09

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	SECNO	Q	CWSEL	SSTA	STCHL	STCHR	ENDST	DIFWSX	TOPWID	DEPTH	ELMIN	10*KS	VCH
	1.988	4899.00	940.10	8915.50	9950.00	10030.00	10015.41	.20	696.81	3.80	936.30	39.61	3.06
	1.988	4899.00	940.10	8915.50	9950.00	10030.00	10015.41	.20	696.81	3.80	936.30	39.61	3.06
	2.058	4899.00	941.27	8850.00	9970.00	10035.00	10024.75	1.17	772.16	4.67	936.60	26.08	3.66
	2.058	4899.00	941.27	8850.00	9970.00	10035.00	10024.75	1.17	772.16	4.67	936.60	26.08	3.66
	2.185	4899.00	942.66	9310.00	9965.00	10045.00	10034.94	1.39	472.18	5.46	937.20	46.56	5.68
	2.185	4899.00	942.66	9310.00	9965.00	10045.00	10034.94	1.39	472.18	5.46	937.20	46.56	5.68
*	2.297	4899.00	943.50	9438.68	9975.00	10040.00	10645.29	.84	1206.62	5.70	937.80	3.01	1.94
*	2.297	4899.00	943.68	9600.00	9975.00	10040.00	10060.00	1.02	460.00	5.88	937.80	4.94	2.57
	2.371	4899.00	943.66	9277.62	9975.00	10030.00	10779.55	.16	1501.93	4.26	939.40	5.70	2.55
*	2.371	4899.00	943.94	9650.00	9975.00	10030.00	10070.00	.26	420.00	4.54	939.40	22.02	5.30
*	2.435	4899.00	943.91	9260.15	9985.00	10085.00	10742.73	.25	1482.58	4.01	939.90	14.67	4.06
	2.435	4899.00	944.65	9835.00	9985.00	10085.00	10210.00	.71	375.00	4.75	939.90	33.58	7.08
*	2.536	4906.00	945.80	9771.15	9965.00	10060.00	10750.68	1.89	979.53	2.30	943.50	117.17	9.03
	2.536	4906.00	946.79	9850.00	9965.00	10060.00	10250.00	2.14	400.00	3.29	943.50	47.72	7.38
*	2.680	4906.00	949.13	9565.75	9925.00	10050.00	10774.45	3.33	1136.32	3.93	945.20	19.27	5.00
	2.680	4906.00	949.54	9800.00	9925.00	10050.00	10205.00	2.75	371.24	4.34	945.20	29.35	6.64
*	2.771	4906.00	950.61	9624.70	9985.00	10020.00	10702.82	1.47	1066.90	3.31	947.30	57.05	6.98
*	2.771	4906.00	951.54	9880.00	9985.00	10020.00	10225.00	2.00	345.00	4.24	947.30	61.58	8.90
*	2.883	4906.00	952.83	9596.60	9985.00	10015.00	10473.87	2.22	877.27	4.33	948.50	26.43	5.85
*	2.883	4906.00	953.79	9830.00	9985.00	10015.00	10180.00	2.25	350.00	5.29	948.50	22.10	6.29
	2.977	4915.00	954.27	9642.89	9980.00	10050.00	10514.22	1.44	871.33	4.37	949.90	40.41	7.34
	2.977	4915.00	954.94	9820.00	9980.00	10050.00	10055.00	1.15	235.00	5.04	949.90	38.04	7.98
	3.070	4915.00	956.13	9527.59	9945.00	10025.00	10651.57	1.86	1123.98	3.83	952.30	26.14	5.07
	3.070	4915.00	956.94	9790.00	9945.00	10025.00	10180.00	2.01	390.00	4.64	952.30	31.14	6.53
	3.167	4432.00	957.36	9569.20	9970.00	10020.00	10657.98	1.22	1088.78	3.46	953.90	21.91	4.83
	3.167	4432.00	958.31	9730.00	9970.00	10020.00	10190.00	1.36	460.00	4.41	953.90	18.44	5.32
*	3.291	4432.00	959.72	9986.41	9970.00	10020.00	10880.48	2.36	880.55	2.52	957.20	71.33	4.98
*	3.291	4432.00	960.55	9987.00	9970.00	10020.00	10330.00	2.24	343.00	3.35	957.20	98.94	7.26
*	3.376	4432.00	961.76	9673.73	9985.00	10015.00	10888.70	2.04	1205.55	3.46	958.30	30.77	3.69
*	3.376	4432.00	962.69	9840.00	9985.00	10015.00	10365.00	2.14	525.00	4.39	958.30	23.55	4.34
	3.491	4432.00	963.20	9597.03	9980.00	10020.00	10656.95	1.44	1059.92	3.70	959.50	19.01	4.01
	3.491	4432.00	964.04	9870.00	9980.00	10020.00	10260.00	1.36	390.00	4.54	959.50	22.79	5.31
*	3.602	4438.00	964.68	9699.47	9880.00	10100.00	10505.63	1.48	806.16	2.78	961.90	40.75	4.63
	3.602	4438.00	965.47	9840.00	9880.00	10100.00	10170.00	1.43	330.00	3.57	961.90	28.78	4.62

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	SECNO	Q	CWSEL	SSTA	STCHL	STCHR	ENDST	DIFWSX	TOPWID	DEPTH	ELMIN	10*KS	VCH
	3.702	4438.00	966.76	9239.20	9955.00	10055.00	10479.91	2.08	1003.67	3.36	963.40	36.86	4.77
	3.702	4438.00	967.29	9550.00	9955.00	10055.00	10140.00	1.82	361.21	3.89	963.40	44.41	5.83
	3.841	4438.00	969.26	9185.54	9955.00	10070.00	10407.99	2.50	999.61	4.16	965.10	30.04	3.75
	3.841	4438.00	970.24	9550.00	9955.00	10070.00	10070.00	2.94	344.03	5.14	965.10	34.65	4.93
	3.978	4438.00	971.29	9234.97	9930.00	10095.00	10438.75	2.03	1203.78	4.39	966.90	26.70	4.01
	3.978	4438.00	972.18	9500.00	9930.00	10095.00	10095.00	1.94	595.00	5.28	966.90	19.39	4.00
	4.101	4438.00	973.16	9372.68	9960.00	10080.00	10493.94	1.87	1121.26	4.46	968.70	30.68	4.14
*	4.101	4438.00	973.85	9780.00	9960.00	10080.00	10125.00	1.67	345.00	5.15	968.70	41.62	5.55
	4.237	4438.00	975.08	9456.52	9935.00	10075.00	10365.77	1.92	909.25	3.78	971.30	24.01	4.12
	4.237	4438.00	976.09	9780.00	9935.00	10075.00	10075.00	2.24	295.00	4.79	971.30	23.26	4.73

	4.356	4438.00	976.54	9499.28	9950.00	10070.00	10393.84	1.46	894.56	3.94	972.60	21.88	4.02
	4.356	4438.00	977.58	9840.00	9950.00	10070.00	10110.00	1.49	270.00	4.98	972.60	24.54	5.06
	4.496	4438.00	978.22	9633.19	9975.00	10130.00	10433.50	1.68	800.31	3.82	974.40	24.44	4.24
	4.496	4438.00	979.22	9850.00	9975.00	10130.00	10160.00	1.64	310.00	4.82	974.40	18.73	4.38
*	4.625	4446.00	980.50	9600.36	9835.00	10160.00	10378.51	2.27	778.15	2.40	978.10	52.55	4.69
*	4.625	4446.00	981.04	9850.00	9835.00	10160.00	10150.00	1.82	300.00	2.94	978.10	49.70	5.20
*	4.701	4446.00	981.33	9598.20	9685.00	10405.00	10475.10	.84	876.90	3.33	978.00	6.99	2.04
*	4.701	4446.00	982.06	9800.00	9685.00	10405.00	10200.00	1.02	400.00	4.06	978.00	8.61	2.74
*	4.858	4446.00	982.47	9685.11	9705.00	10290.00	10352.00	1.13	666.89	2.47	980.00	58.27	4.20
*	4.858	4446.00	983.25	9850.00	9705.00	10290.00	10150.00	1.19	300.00	3.25	980.00	45.35	5.06
*	5.009	4446.00	985.58	9604.63	9935.00	10100.00	10407.96	3.11	803.32	3.68	981.90	25.67	3.99
	5.009	4446.00	986.26	9820.00	9935.00	10100.00	10105.00	3.01	285.00	4.36	981.90	29.93	4.93
	5.153	4446.00	987.81	9495.23	9945.00	10090.00	10385.54	2.24	890.30	3.51	984.30	34.24	4.45
	5.153	4446.00	988.71	9800.00	9945.00	10090.00	10090.00	2.45	290.00	4.41	984.30	34.50	5.25
*	5.282	4446.00	989.36	9212.57	9945.00	10055.00	10474.40	1.55	1261.83	3.86	985.50	14.32	3.24
*	5.282	4446.00	990.33	9700.00	9945.00	10055.00	10100.00	1.62	400.00	4.83	985.50	13.53	3.71
*	5.430	4446.00	991.08	9912.54	9899.90	10100.10	10087.46	1.72	174.93	3.08	988.00	96.31	8.56
*	5.430	4446.00	991.77	9913.00	9899.90	10100.10	10087.00	1.44	174.00	3.77	988.00	48.64	6.96
*	5.460	5319.00	991.91	9910.79	9899.90	10100.10	10089.21	.83	178.41	3.91	988.00	61.87	7.99
	5.460	5319.00	991.91	9913.00	9899.90	10100.10	10087.00	.14	174.00	3.91	988.00	61.71	8.03
*	5.563	5319.00	993.68	9147.47	9850.00	10100.00	10877.00	1.76	1729.53	5.18	988.50	3.76	2.05
*	5.563	5319.00	994.06	9850.00	9850.00	10100.00	10200.00	2.16	350.00	5.56	988.50	9.54	3.40
*	5.727	4662.00	994.29	9219.67	9935.00	10135.00	10642.91	.61	1276.17	3.29	991.00	46.32	4.53
*	5.727	4662.00	995.30	9897.83	9935.00	10135.00	10250.00	1.24	352.17	4.30	991.00	31.29	4.55

	SECNO	Q	CWSEL	SSTA	STCHL	STCHR	ENDST	DIFWSX	TOPWID	DEPTH	ELMIN	10*KS	VCH
	5.840	4662.00	996.51	9321.12	9970.00	10170.00	10743.70	2.22	1360.99	3.11	993.40	28.93	3.64
	5.840	4662.00	997.23	9930.81	9970.00	10170.00	10300.00	1.93	369.19	3.83	993.40	33.67	4.54
	5.960	4662.00	998.50	9630.08	9960.00	10150.00	11003.71	1.99	1373.63	2.60	995.90	34.54	3.41
	5.960	4662.00	999.38	9960.00	9960.00	10150.00	10400.00	2.15	440.00	3.48	995.90	32.39	4.05
	6.086	4662.00	1001.07	9413.59	9900.00	10100.00	10865.07	2.57	1451.48	2.77	998.30	42.90	3.80
	6.086	4662.00	1001.80	9800.00	9900.00	10100.00	10300.00	2.42	500.00	3.50	998.30	41.05	4.45
*	6.217	4662.00	1002.98	9373.64	9900.00	10100.00	10901.73	1.91	1528.09	2.88	1000.10	17.79	2.75
*	6.217	4662.00	1003.65	9670.00	9900.00	10100.00	10300.00	1.85	630.00	3.55	1000.10	16.61	3.07
	6.320	4662.00	1003.99	9555.93	9900.00	10100.00	11026.60	1.01	1470.67	3.09	1000.90	19.43	2.93
	6.320	4662.00	1004.59	9650.00	9900.00	10100.00	10300.00	.94	650.00	3.69	1000.90	17.90	3.20
	6.414	4662.00	1005.26	9137.79	9900.00	10100.00	10950.51	1.27	1812.72	2.66	1002.60	34.58	3.42
*	6.414	4662.00	1005.82	9700.00	9900.00	10100.00	10300.00	1.23	600.00	3.22	1002.60	37.89	4.13
	6.509	4662.00	1006.65	8840.75	9900.00	10100.00	11388.81	1.39	2548.06	2.55	1004.10	20.11	2.41
	6.509	4662.00	1007.61	9690.00	9900.00	10100.00	10200.00	1.79	510.00	3.51	1004.10	32.06	3.92
*	6.627	4662.00	1009.15	9641.15	9900.00	10100.00	11097.96	2.51	1456.82	2.35	1006.80	159.82	6.36
	6.627	4662.00	1010.14	9700.00	9900.00	10100.00	10100.00	2.52	400.00	3.34	1006.80	55.84	4.94
*	6.674	4662.00	1012.43	9802.91	9955.00	10120.00	11189.61	3.27	1210.24	3.93	1008.50	75.87	6.89
*	6.674	4662.00	1012.24	9850.00	9955.00	10120.00	10187.14	2.11	337.14	3.74	1008.50	136.21	8.86
*	6.864	4662.00	1013.86	7178.88	9930.00	10080.00	12291.78	1.44	5112.90	2.86	1011.00	3.68	1.34
*	6.864	4662.00	1014.60	8100.00	9930.00	10080.00	10690.00	2.35	2590.00	3.60	1011.00	4.06	1.66
*	6.877	4703.00	1013.90	7164.51	9915.00	10050.00	11285.45	.03	4120.93	2.90	1011.00	9.49	2.05
	6.877	4703.00	1014.63	8000.00	9915.00	10050.00	10550.00	.03	2550.00	3.63	1011.00	5.08	1.79
*	7.045	4703.00	1014.08	7680.00	9920.00	10055.00	12303.07	.18	4521.98	2.98	1011.10	2.26	1.02
	7.045	4703.00	1014.78	8810.00	9920.00	10055.00	11090.00	.15	2215.97	3.68	1011.10	2.50	1.31
*	7.124	4088.00	1014.23	8104.96	9980.00	10018.00	11841.30	.15	3690.22	2.63	1011.60	8.37	1.70

*	7.124	4088.00	1014.94	9575.00	9980.00	10018.00	11025.00	.16	1449.00	3.34	1011.60	8.91	2.08
	7.267	4088.00	1015.37	9324.25	9980.00	10019.00	11462.99	1.15	1974.82	2.47	1012.90	38.31	2.65
*	7.267	4088.00	1016.16	9650.00	9980.00	10019.00	10680.00	1.22	1007.77	3.26	1012.90	43.00	3.77
	7.407	4088.00	1017.56	9740.81	9980.00	10025.00	11439.12	2.19	1586.42	2.86	1014.70	23.30	1.66
	7.407	4088.00	1018.46	9741.00	9980.00	10025.00	10710.00	2.29	943.73	3.76	1014.70	22.81	2.26
*	7.552	4088.00	1020.13	9240.52	9980.00	10020.00	11510.43	2.57	2269.91	2.03	1018.10	53.32	4.46
*	7.552	4088.00	1020.91	9750.00	9980.00	10020.00	10450.00	2.45	700.00	2.81	1018.10	51.19	5.60
*	7.670	4088.00	1022.08	9159.30	9980.00	10015.00	11420.21	1.95	2260.91	3.88	1018.20	20.22	4.17
*	7.670	4088.00	1022.99	9850.00	9980.00	10015.00	10390.00	2.08	540.00	4.79	1018.20	23.14	5.25

	SECNO	Q	CWSEL	SSTA	STCHL	STCHR	ENDST	DIFWSX	TOPWID	DEPTH	ELMIN	10*KS	VCH
	7.799	4088.00	1023.27	9388.63	9970.00	10015.00	11050.96	1.19	1662.33	4.07	1019.20	15.49	3.94
	7.799	4088.00	1024.20	9850.00	9970.00	10015.00	10400.00	1.21	550.00	5.00	1019.20	13.30	4.25
	7.924	4088.00	1024.65	9532.10	9970.00	10010.00	11190.40	1.38	1658.30	3.55	1021.10	30.42	4.68
	7.924	4088.00	1025.38	9900.00	9970.00	10010.00	10500.00	1.18	600.00	4.28	1021.10	26.30	5.07
*	7.977	4121.00	1027.00	9258.59	9990.00	10010.00	11530.89	2.35	2272.30	5.60	1021.40	6.86	9.44
*	7.977	4121.00	1027.58	9920.00	9990.00	10010.00	10670.00	2.20	750.00	6.18	1021.40	8.16	11.00
	7.983	4121.00	1027.14	9142.52	9990.00	10010.00	11560.00	.14	2417.48	5.54	1021.60	5.08	8.07
	7.983	4121.00	1027.75	9920.00	9990.00	10010.00	10670.00	.16	750.00	6.15	1021.60	6.74	9.96
*	8.069	4121.00	1027.69	9234.93	9960.00	10070.00	11018.08	.55	1783.15	3.69	1024.00	10.99	3.34
	8.069	4121.00	1028.62	9870.00	9960.00	10070.00	10325.00	.87	455.00	4.62	1024.00	10.24	3.74
*	8.169	4121.00	1028.59	9353.09	9980.00	10020.00	10644.56	.90	1291.47	3.99	1024.60	36.33	5.96
*	8.169	4121.00	1029.41	9880.00	9980.00	10020.00	10175.00	.79	295.00	4.81	1024.60	41.77	7.35
	8.292	4121.00	1030.83	9439.26	9980.00	10020.00	10800.32	2.24	1361.06	4.63	1026.20	32.92	6.05
	8.292	4121.00	1031.84	9925.00	9980.00	10020.00	10230.00	2.43	305.00	5.64	1026.20	33.22	7.09
	8.364	4121.00	1032.17	9247.86	9975.00	10025.00	10540.75	1.34	1292.89	4.77	1027.40	38.75	6.44
	8.364	4121.00	1033.09	9870.00	9975.00	10025.00	10230.00	1.25	360.00	5.69	1027.40	27.78	6.30
	8.468	4121.00	1034.43	9130.01	9980.00	10025.00	11078.64	2.26	1948.63	4.83	1029.60	60.48	7.71
	8.468	4121.00	1034.86	9860.00	9980.00	10025.00	10770.00	1.77	910.00	5.26	1029.60	52.86	7.77
	8.544	4183.00	1036.18	9713.16	9975.00	10100.00	12442.07	1.75	2728.90	1.78	1034.40	41.59	3.62
	8.544	4183.00	1036.82	9750.00	9975.00	10100.00	10995.00	1.96	1245.00	2.42	1034.40	65.50	5.73
	8.636	4183.00	1038.06	9741.96	9960.00	10010.00	12625.23	1.88	2680.10	1.96	1036.10	68.24	4.32
	8.636	4183.00	1038.96	9960.00	9960.00	10010.00	11200.00	2.13	1063.68	2.86	1036.10	43.58	4.71
	8.726	4183.00	1040.34	9429.78	9950.00	10010.00	12664.72	2.28	3044.47	2.94	1037.40	35.24	4.01
	8.726	4183.00	1041.09	9950.00	9950.00	10010.00	11000.00	2.14	891.98	3.69	1037.40	48.73	5.69
*	8.848	4183.00	1043.50	9104.11	9970.00	10020.00	11404.85	3.16	2124.59	2.90	1040.60	117.36	6.13
	8.848	4183.00	1044.44	9770.00	9970.00	10020.00	10600.00	3.35	818.31	3.84	1040.60	77.23	6.25
*	8.965	4183.00	1046.21	9137.38	9970.00	10033.00	10976.28	2.71	1838.90	3.51	1042.70	21.54	3.73
*	8.965	4183.00	1047.04	9740.00	9970.00	10033.00	10190.00	2.59	450.00	4.34	1042.70	25.33	4.86
	9.034	4183.00	1047.14	9330.00	9970.00	10038.00	10574.59	.93	1244.60	3.74	1043.40	34.98	5.17
	9.034	4183.00	1048.04	9775.00	9970.00	10038.00	10038.00	1.00	263.00	4.64	1043.40	39.02	6.37
*	9.095	4243.00	1048.93	9127.05	9978.00	10022.00	10194.30	1.80	1067.25	6.63	1042.30	5.23	9.23
*	9.095	4243.00	1048.98	9470.00	9978.00	10022.00	10070.00	.95	600.00	6.68	1042.30	5.43	9.45
	9.100	4243.00	1049.15	9091.80	9978.00	10022.00	10282.93	.22	1191.13	6.65	1042.50	4.23	8.32
	9.100	4243.00	1048.95	9470.00	9978.00	10022.00	10070.00	-.03	600.00	6.45	1042.50	5.93	9.66

	SECNO	Q	CWSEL	SSTA	STCHL	STCHR	ENDST	DIFWSX	TOPWID	DEPTH	ELMIN	10*KS	VCH
	9.189	4243.00	1050.18	9253.43	9940.00	10160.00	10276.17	1.03	1022.74	2.28	1047.90	29.27	4.13
	9.189	4243.00	1050.35	9645.00	9940.00	10160.00	10160.00	1.40	515.00	2.45	1047.90	45.36	5.43

*	9.292	3693.00	1052.71	9240.83	9900.00	10120.00	10159.40	2.54	918.56	1.61	1051.10	108.83	5.38
	9.292	3693.00	1053.29	9690.00	9900.00	10120.00	10120.00	2.94	430.00	2.19	1051.10	71.38	5.77
*	9.396	3693.00	1055.81	9076.44	9880.00	10070.00	10470.53	3.09	1394.08	2.01	1053.80	29.86	3.32
*	9.396	3693.00	1056.20	9500.00	9880.00	10070.00	10070.00	2.91	570.00	2.40	1053.80	34.08	4.19
	9.493	3693.00	1057.73	9042.96	9930.00	10140.00	10250.78	1.92	1207.81	1.63	1056.10	54.32	4.26
	9.493	3693.00	1058.10	9425.00	9930.00	10140.00	10140.00	1.90	715.00	2.00	1056.10	43.02	4.49
	9.544	3693.00	1058.81	8841.61	9920.00	10065.00	10422.28	1.08	1580.67	1.81	1057.00	38.24	3.18
	9.544	3693.00	1059.10	9200.00	9920.00	10065.00	10065.00	1.00	865.00	2.10	1057.00	40.91	3.84
	9.641	3113.00	1059.65	9026.78	9985.00	10015.00	10056.28	.84	1029.50	2.65	1057.00	27.55	4.33
	9.641	3113.00	1059.89	9400.00	9985.00	10015.00	10056.00	.79	656.00	2.89	1057.00	24.79	4.41
*	9.741	3113.00	1060.21	9110.67	9900.00	10115.00	10456.00	.56	1345.33	3.01	1057.20	5.27	2.22
*	9.741	3113.00	1060.46	9530.00	9900.00	10115.00	10455.00	.57	925.00	3.26	1057.20	5.42	2.39
	9.807	3113.00	1060.39	9112.53	9900.00	10140.00	10423.27	.17	1310.74	3.08	1057.30	4.88	2.18
	9.807	3113.00	1060.63	9500.00	9900.00	10140.00	10423.00	.17	923.00	3.33	1057.30	4.17	2.13
*	9.898	762.00	1060.62	9603.86	9960.00	10055.00	10474.03	.23	870.17	3.12	1057.50	1.70	1.26
*	9.898	762.00	1060.83	9603.00	9960.00	10055.00	10474.00	.19	871.00	3.33	1057.50	1.14	1.08
*	9.994	762.00	1060.65	9956.92	9950.00	10050.00	10039.62	.03	82.71	2.95	1057.70	23.67	4.29
*	9.994	762.00	1060.81	9956.12	9950.00	10050.00	10040.82	-.01	84.70	3.11	1057.70	18.98	3.97
	10.108	762.00	1062.01	9969.93	9960.00	10045.00	10035.07	1.37	65.14	3.91	1058.10	23.22	4.68
	10.108	762.00	1062.01	9969.99	9960.00	10045.00	10035.01	1.19	65.01	3.91	1058.10	23.34	4.69
*	10.197	762.00	1062.93	9954.18	9950.00	10045.00	10038.74	.92	84.56	4.53	1058.40	11.48	3.42
*	10.197	762.00	1062.93	9954.20	9950.00	10045.00	10038.70	.92	84.50	4.53	1058.40	11.52	3.42
	10.269	800.00	1063.28	9953.58	9960.00	10025.00	10032.41	.35	78.83	4.68	1058.60	7.57	3.40
	10.269	800.00	1063.28	9953.60	9960.00	10025.00	10032.39	.35	78.79	4.68	1058.60	7.59	3.40
	10.328	800.00	1063.50	9964.38	9970.00	10020.00	10021.87	.21	57.49	4.70	1058.80	10.94	4.21
	10.328	800.00	1063.49	9964.39	9970.00	10020.00	10021.87	.21	57.48	4.69	1058.80	10.96	4.21
	10.419	800.00	1063.99	9972.51	9975.00	10020.00	10022.49	.50	49.99	4.89	1059.10	10.12	4.29
	10.419	800.00	1063.99	9972.51	9975.00	10020.00	10022.49	.50	49.98	4.89	1059.10	10.13	4.29
*	10.493	800.00	1064.36	9885.00	9895.00	10030.00	10045.00	.36	160.00	5.06	1059.30	.78	1.28
*	10.493	800.00	1064.35	9885.00	9895.00	10030.00	10045.00	.36	160.00	5.05	1059.30	.78	1.28
*	10.587	800.00	1064.39	9846.88	9935.00	10040.00	10060.00	.04	213.13	4.79	1059.60	1.67	1.76
*	10.587	800.00	1064.39	9847.01	9935.00	10040.00	10060.00	.04	212.99	4.79	1059.60	1.67	1.77

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	SECNO	Q	CWSEL	SSTA	STCHL	STCHR	ENDST	DIFWSX	TOPWID	DEPTH	ELMIN	10*KS	VCH
	10.639	800.00	1064.45	9858.05	9925.00	10035.00	10055.97	.05	197.92	4.65	1059.80	1.76	1.68
	10.639	800.00	1064.45	9858.10	9925.00	10035.00	10055.95	.05	197.85	4.65	1059.80	1.76	1.68
	10.709	1380.00	1064.52	9863.33	9910.00	10040.00	10055.74	.08	192.41	4.52	1060.00	6.18	2.85
	10.709	1380.00	1064.52	9863.36	9910.00	10040.00	10055.73	.08	192.38	4.52	1060.00	6.19	2.85
*	10.804	1380.00	1064.98	9880.16	9900.00	10040.00	10047.44	.46	167.28	2.98	1062.00	38.85	4.89
*	10.804	1380.00	1064.98	9880.17	9900.00	10040.00	10047.44	.46	167.26	2.98	1062.00	38.88	4.89
	10.889	1380.00	1066.80	9878.29	9900.00	10040.00	10045.92	1.81	167.63	2.80	1064.00	42.64	5.03
	10.889	1380.00	1066.80	9878.28	9900.00	10040.00	10045.92	1.81	167.64	2.80	1064.00	42.62	5.03
	10.946	1380.00	1068.22	9923.80	9930.00	10080.00	10081.69	1.42	157.89	2.52	1065.70	56.19	5.34
	10.946	1380.00	1068.22	9923.81	9930.00	10080.00	10081.69	1.42	157.88	2.52	1065.70	56.21	5.34
	10.995	1380.00	1069.84	9900.11	9895.00	10045.00	10044.21	1.62	144.10	2.64	1067.20	76.73	5.95
	10.995	1380.00	1069.84	9900.10	9895.00	10045.00	10044.21	1.62	144.11	2.64	1067.20	76.68	5.95
*	11.067	1380.00	1071.15	9735.50	9920.00	10045.00	10053.60	1.30	318.09	3.55	1067.60	10.13	3.08
*	11.067	1380.00	1071.29	9920.00	9920.00	10045.00	10053.00	1.45	133.00	3.69	1067.60	14.88	3.82
	11.147	1380.00	1071.52	9532.25	9920.00	10045.00	10056.39	.37	524.14	3.72	1067.80	6.55	2.69
	11.147	1380.00	1071.83	9920.00	9920.00	10045.00	10056.00	.54	136.00	4.03	1067.80	8.52	3.22
	11.228	1380.00	1071.82	9375.08	9920.00	10050.00	10065.89	.30	690.82	3.92	1067.90	6.78	2.60
	11.228	1380.00	1072.20	9920.00	9920.00	10050.00	10065.00	.38	145.00	4.30	1067.90	8.90	3.21

	11.306	1380.00	1072.13	9805.26	9965.00	10090.00	10156.26	.31	351.01	3.33	1068.80	11.55	3.29
	11.306	1380.00	1072.58	9940.00	9965.00	10090.00	10090.00	.38	150.00	3.78	1068.80	9.27	3.22
	11.416	1380.00	1072.86	9769.27	9930.00	10070.00	10195.72	.73	426.45	2.66	1070.20	13.58	3.14
	11.416	1380.00	1073.23	9930.00	9930.00	10070.00	10070.00	.65	140.00	3.03	1070.20	16.48	3.75
	11.510	1380.00	1073.48	9548.38	9900.00	10100.00	10213.13	.62	664.76	1.98	1071.50	9.45	2.24
	11.510	1380.00	1074.02	9900.00	9900.00	10100.00	10100.00	.79	200.00	2.52	1071.50	12.10	2.98
*	11.580	1380.00	1074.48	9961.38	9965.00	10100.00	10115.69	1.01	154.31	2.48	1072.00	113.62	6.86
*	11.580	1380.00	1074.62	9962.00	9965.00	10100.00	10115.00	.60	153.00	2.62	1072.00	83.46	6.25
*	11.676	1377.00	1076.16	9921.86	9955.00	10100.00	10105.92	1.67	184.05	4.06	1072.10	8.00	2.98
*	11.676	1377.00	1076.11	9923.78	9955.00	10100.00	10105.70	1.49	181.92	4.01	1072.10	8.34	3.02
	11.775	1377.00	1076.55	9914.56	9955.00	10075.00	10131.97	.40	217.41	4.35	1072.20	7.38	3.08
	11.775	1377.00	1076.53	9915.59	9955.00	10075.00	10131.62	.41	216.02	4.33	1072.20	7.61	3.11
	11.867	1377.00	1076.92	9875.30	9960.00	10055.00	10103.84	.36	228.54	4.61	1072.30	8.13	3.42
	11.867	1377.00	1076.90	9876.28	9960.00	10055.00	10103.61	.37	227.33	4.60	1072.30	8.26	3.44
	11.970	1377.00	1077.31	9926.72	9930.00	10060.00	10106.38	.40	179.66	4.91	1072.40	4.75	2.64
	11.970	1377.00	1077.30	9926.75	9930.00	10060.00	10106.23	.40	179.48	4.90	1072.40	4.80	2.65

	SECNO	Q	CWSEL	SSTA	STCHL	STCHR	ENDST	DIFWSX	TOPWID	DEPTH	ELMIN	10*KS	VCH
	12.064	1377.00	1077.53	9812.10	9935.00	10070.00	10101.46	.22	289.37	5.03	1072.50	2.81	2.19
	12.064	1377.00	1077.52	9812.78	9935.00	10070.00	10101.39	.22	288.61	5.02	1072.50	2.84	2.19
	12.150	1377.00	1077.65	9825.00	9940.00	10080.00	10104.37	.13	279.37	5.15	1072.50	2.29	2.02
	12.150	1377.00	1077.65	9825.00	9940.00	10080.00	10104.31	.13	279.31	5.15	1072.50	2.31	2.02
	12.244	1377.00	1077.77	9850.00	9910.00	10075.00	10112.77	.12	262.77	5.17	1072.60	2.20	1.90
	12.244	1377.00	1077.76	9850.00	9910.00	10075.00	10112.69	.12	262.69	5.16	1072.60	2.21	1.90
	12.345	1377.00	1077.88	9890.00	9920.00	10095.00	10143.63	.11	253.63	5.28	1072.60	1.66	1.71
	12.345	1377.00	1077.88	9890.00	9920.00	10095.00	10143.55	.11	253.55	5.28	1072.60	1.67	1.72
	12.439	1377.00	1077.97	9900.00	9955.00	10120.00	10184.52	.08	284.52	5.27	1072.70	1.43	1.64
	12.439	1377.00	1077.96	9900.00	9955.00	10120.00	10184.41	.08	284.41	5.26	1072.70	1.44	1.65
	12.534	1377.00	1078.04	9865.00	9910.00	10075.00	10150.33	.07	285.33	5.34	1072.70	1.31	1.59
	12.534	1377.00	1078.03	9865.00	9910.00	10075.00	10150.28	.07	285.28	5.33	1072.70	1.32	1.59
*	12.633	1000.00	1080.12	9600.00	9900.00	10100.00	10414.10	2.08	814.10	.72	1079.40	173.06	4.06
*	12.633	1000.00	1080.12	9600.00	9900.00	10100.00	10414.24	2.09	814.24	.72	1079.40	172.06	4.05
*	12.700	1000.00	1080.73	9920.00	9920.00	10110.00	11017.64	.61	1097.64	2.03	1078.70	3.07	.90
*	12.700	1000.00	1080.73	9920.00	9920.00	10110.00	11017.64	.61	1097.64	2.03	1078.70	3.07	.90
*	12.758	1000.00	1080.96	9940.00	9955.00	10070.00	10611.51	.23	671.51	2.06	1078.90	18.13	2.27
*	12.758	1000.00	1080.96	9940.00	9955.00	10070.00	10611.49	.23	671.49	2.06	1078.90	18.14	2.27
	12.867	1000.00	1081.80	9940.00	9960.00	10055.00	10600.78	.84	660.78	2.40	1079.40	11.68	2.09
	12.867	1000.00	1081.80	9940.00	9960.00	10055.00	10600.81	.84	660.81	2.40	1079.40	11.68	2.09
	13.044	1000.00	1082.79	9900.00	9910.00	10075.00	10752.66	.98	852.66	2.09	1080.70	10.97	1.74
	13.044	1000.00	1082.79	9900.00	9910.00	10075.00	10752.66	.98	852.66	2.09	1080.70	10.97	1.74
*	13.161	1000.00	1083.92	9961.78	9960.00	10085.00	10754.54	1.13	792.77	1.62	1082.30	43.31	2.92
*	13.161	1000.00	1083.92	9961.78	9960.00	10085.00	10754.54	1.13	792.77	1.62	1082.30	43.31	2.92
*	13.248	1440.00	1085.86	9905.16	9950.00	10050.00	10935.01	1.94	999.96	1.56	1084.30	41.44	2.75
	13.248	1440.00	1086.48	9950.00	9950.00	10050.00	10210.00	2.57	255.17	2.18	1084.30	74.77	4.56
*	13.349	1440.00	1087.04	9926.77	9955.00	10070.00	10935.74	1.18	994.24	2.54	1084.50	13.21	1.95
*	13.349	1440.00	1088.05	9955.00	9955.00	10070.00	10210.00	1.56	255.00	3.55	1084.50	13.25	2.62
	13.427	1440.00	1087.74	9971.31	9960.00	10040.00	10854.74	.71	849.48	1.94	1085.80	23.54	1.76
	13.427	1440.00	1088.75	9960.00	9960.00	10040.00	10270.00	.70	310.00	2.95	1085.80	21.67	2.36
*	13.556	1440.00	1090.52	9724.12	9900.00	10100.00	11105.66	2.78	836.44	1.12	1089.40	197.80	3.04
*	13.556	1440.00	1090.94	9800.00	9900.00	10100.00	10250.00	2.19	450.00	1.54	1089.40	90.02	2.57
	13.667	1440.00	1093.31	9432.44	9870.00	10100.00	11830.23	2.79	1627.94	2.11	1091.20	21.69	1.33
*	13.667	1440.00	1093.61	9775.94	9870.00	10100.00	10270.00	2.66	494.06	2.41	1091.20	27.88	1.70

	SECNO	Q	CWSEL	SSTA	STCHL	STCHR	ENDST	DIFWSX	TOPWID	DEPTH	ELMIN	10*KS	VCH
*	13.782	1440.00	1095.79	9116.73	9870.00	10085.00	12266.11	2.48	2581.42	.99	1094.80	109.83	.61
*	13.782	1440.00	1096.80	9700.00	9870.00	10085.00	10563.87	3.19	863.87	2.00	1094.80	127.65	2.57
*	13.902	1440.00	1098.48	9146.37	9900.00	10100.00	11628.63	2.69	2002.70	1.48	1097.00	23.81	1.12
*	13.902	1440.00	1099.41	9800.00	9900.00	10100.00	10300.00	2.61	500.00	2.41	1097.00	20.08	1.54
*	14.023	1440.00	1100.59	9640.22	9900.00	10100.00	10924.78	2.12	1284.57	1.29	1099.30	53.49	1.74
*	14.023	1440.00	1101.61	9900.00	9900.00	10100.00	10100.00	2.20	200.00	2.31	1099.30	84.21	3.26

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BULLARD WASH - FROM BUCK

SUMMARY PRINTOUT TABLE 110

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	.000	912.32	.32	912.34	1245.30	625.17	160.26	64.57	.00	.00	9980.00	10120.00	.00
	.000	912.32	.00	912.34	1246.80	624.56	160.34	65.10	.00	.00	9980.00	10120.00	.00
*	.047	912.55	.00	912.55	1686.63	347.06	275.13	227.81	.00	.00	9960.00	10100.00	.00
*	.047	912.55	.00	912.55	1686.84	347.12	275.00	227.88	.00	.00	9960.00	10100.00	.00
	.121	912.73	.00	912.74	1367.11	111.36	232.90	505.73	.00	.00	9980.00	10100.00	.00
	.121	912.73	.00	912.74	1367.52	111.46	232.84	505.70	.00	.00	9980.00	10100.00	.00
	.201	913.03	.00	913.05	1095.39	12.00	366.79	471.21	.00	.00	9970.00	10100.00	.00
	.201	913.03	.00	913.05	1095.45	12.01	366.77	471.22	.00	.00	9970.00	10100.00	.00
	.292	913.39	.00	913.41	939.73	7.85	301.57	540.57	.00	.00	9960.00	10070.00	.00
	.292	913.39	.00	913.41	939.73	7.85	301.57	540.57	.00	.00	9960.00	10070.00	.00
	.384	913.69	.00	913.70	1604.23	9.94	241.92	598.14	.00	.00	9970.00	10095.00	.00
	.384	913.69	.00	913.70	1604.28	9.95	241.90	598.15	.00	.00	9970.00	10095.00	.00
	.488	914.01	.00	914.02	1469.90	1.13	141.84	707.02	.00	.00	9970.00	10090.00	.00
	.488	914.01	.00	914.02	1469.90	1.13	141.84	707.02	.00	.00	9970.00	10090.00	.00
	.531	914.18	.00	914.18	1385.91	.06	37.19	812.75	.00	.00	9965.00	10090.00	.00
	.531	914.18	.00	914.18	1385.91	.06	37.19	812.75	.00	.00	9965.00	10090.00	.00
*	.616	916.05	.00	916.19	844.48	.00	411.57	4483.43	.00	.00	9960.00	10090.00	.00
*	.616	916.05	.00	916.19	844.48	.00	411.57	4483.43	.00	.00	9960.00	10090.00	.00
	.668	918.26	.00	918.74	665.47	1658.98	930.36	2305.66	.00	.00	9950.00	10035.00	.00
	.668	918.26	.00	918.74	665.47	1658.98	930.36	2305.66	.00	.00	9950.00	10035.00	.00
*	.776	920.95	.00	921.14	510.12	.00	577.24	4317.76	.00	.00	9975.00	10025.00	.00
*	.776	920.95	.00	921.14	510.12	.00	577.24	4317.76	.00	.00	9975.00	10025.00	.00
	.868	922.17	.00	922.43	515.69	.00	747.24	4147.75	.00	.00	9970.00	10020.00	.00
	.868	922.17	.00	922.43	515.69	.00	747.24	4147.75	.00	.00	9970.00	10020.00	.00
	.964	924.12	.00	924.61	441.24	.00	1739.32	3155.68	.00	.00	9970.00	10045.00	.00
	.964	924.12	.00	924.61	441.24	.00	1739.32	3155.68	.00	.00	9970.00	10045.00	.00
	1.081	926.28	.00	926.37	451.38	.00	779.91	1816.08	.00	.00	9955.00	10090.00	.00
	1.081	926.28	.00	926.37	451.38	.00	779.91	1816.08	.00	.00	9955.00	10090.00	.00
	1.153	926.68	.00	926.76	453.30	.00	586.65	2009.35	.00	.00	9945.00	10060.00	.00
	1.153	926.68	.00	926.76	453.30	.00	586.65	2009.35	.00	.00	9945.00	10060.00	.00
*	1.236	927.45	.00	928.35	242.61	.00	1818.01	777.99	.00	.00	9960.00	10060.00	.00
*	1.236	927.45	.00	928.35	242.61	.00	1818.01	777.99	.00	.00	9960.00	10060.00	.00

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SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR

*	1.317	929.70	.00	930.04	300.91	.00	1655.12	940.88	.00	.00	9960.00	10050.00	.00
	1.317	929.70	.00	930.04	300.91	.00	1655.12	940.88	.00	.00	9960.00	10050.00	.00
	1.378	930.38	.00	930.64	370.84	.00	1444.64	1151.36	.00	.00	9960.00	10035.00	.00
	1.378	930.38	.00	930.64	370.84	.00	1444.64	1151.36	.00	.00	9960.00	10035.00	.00
*	1.435	931.17	.00	932.39	162.61	.00	2555.55	40.45	.00	.00	9965.00	10070.00	.00
*	1.435	931.17	.00	932.39	162.61	.00	2555.55	40.45	.00	.00	9965.00	10070.00	.00
*	1.474	933.62	.00	934.04	1034.24	1465.46	961.65	172.89	.00	.00	9985.00	10015.00	.00
*	1.474	933.62	.00	934.04	1034.24	1465.46	961.65	172.89	.00	.00	9985.00	10015.00	.00
*	1.517	934.88	.00	934.94	813.55	1796.39	803.61	.00	.00	.00	9905.00	10080.00	.00
*	1.517	934.88	.00	934.94	813.55	1796.39	803.61	.00	.00	.00	9905.00	10080.00	.00
*	1.566	936.21	.00	937.38	150.28	140.43	2399.14	60.43	.00	.00	9955.00	10045.00	.00
*	1.566	936.21	.00	937.38	150.28	140.43	2399.14	60.43	.00	.00	9955.00	10045.00	.00
*	1.634	938.27	.00	938.66	232.50	727.29	1573.53	299.18	.00	.00	9970.00	10025.00	.00
*	1.634	938.27	.00	938.66	232.50	727.29	1573.53	299.18	.00	.00	9970.00	10025.00	.00
	1.680	938.77	.00	939.01	338.68	805.50	1399.31	395.19	.00	.00	9970.00	10025.00	.00
	1.680	938.77	.00	939.01	338.68	805.50	1399.31	395.19	.00	.00	9970.00	10025.00	.00
*	1.745	939.17	.00	939.27	422.88	631.15	1328.97	639.89	.00	.00	9960.00	10040.00	.00
*	1.745	939.17	.00	939.27	422.88	631.15	1328.97	639.89	.00	.00	9960.00	10040.00	.00
	1.823	939.41	.00	939.47	822.65	1094.01	896.10	609.89	.00	.00	9970.00	10050.00	.00
	1.823	939.41	.00	939.47	822.65	1094.01	896.10	609.89	.00	.00	9970.00	10050.00	.00
	1.893	939.71	.00	939.85	1080.16	3225.21	1190.25	483.54	.00	.00	9960.00	10040.00	.00
	1.893	939.71	.00	939.85	1080.16	3225.21	1190.25	483.54	.00	.00	9960.00	10040.00	.00
*	1.941	939.90	.00	940.11	700.71	4627.73	271.27	.00	.00	.00	9975.00	10025.00	.00
*	1.941	939.90	.00	940.11	700.71	4627.73	271.27	.00	.00	.00	9975.00	10025.00	.00
	1.988	940.10	.00	940.30	696.81	4790.88	108.12	.00	.00	.00	9950.00	10030.00	.00
	1.988	940.10	.00	940.30	696.81	4790.88	108.12	.00	.00	.00	9950.00	10030.00	.00
	2.058	941.27	.00	941.42	772.16	4612.20	286.80	.00	.00	.00	9970.00	10035.00	.00
	2.058	941.27	.00	941.42	772.16	4612.20	286.80	.00	.00	.00	9970.00	10035.00	.00
	2.185	942.66	.00	943.05	472.18	4109.41	789.59	.00	.00	.00	9965.00	10045.00	.00
	2.185	942.66	.00	943.05	472.18	4109.41	789.59	.00	.00	.00	9965.00	10045.00	.00
*	2.297	943.50	.00	943.54	1206.62	3868.54	432.96	597.50	.00	.00	9975.00	10040.00	.00
*	2.297	943.68	.18	943.76	460.00	4245.82	603.53	49.65	460.00	9600.00	9975.00	10040.00	10060.00
	2.371	943.66	.00	943.71	1501.93	3581.64	443.40	873.96	.00	.00	9975.00	10030.00	.00
*	2.371	943.94	.27	944.17	420.00	3635.72	1004.02	259.25	420.00	9650.00	9975.00	10030.00	10070.00

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	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
*	2.435	943.91	.00	944.02	1482.58	2586.88	1274.89	1037.23	.00	.00	9985.00	10085.00	.00
	2.435	944.65	.74	945.15	375.00	1267.08	2745.46	886.45	375.00	9835.00	9985.00	10085.00	10210.00
*	2.536	945.80	.00	946.40	979.53	791.13	1873.09	2241.78	.00	.00	9965.00	10060.00	.00
	2.536	946.79	.99	947.28	400.00	1136.94	2222.92	1546.14	400.00	9850.00	9965.00	10060.00	10250.00
*	2.680	949.13	.00	949.33	1136.32	539.63	2177.67	2188.70	.00	.00	9925.00	10050.00	.00
	2.680	949.54	.41	950.03	371.24	136.64	3234.44	1534.92	405.00	9800.00	9925.00	10050.00	10205.00
*	2.771	950.61	.00	950.81	1066.90	1353.94	624.25	2927.81	.00	.00	9985.00	10020.00	.00
*	2.771	951.54	.93	952.00	345.00	643.41	1084.06	3178.52	345.00	9880.00	9985.00	10020.00	10225.00
*	2.883	952.83	.00	952.99	877.27	2464.59	614.42	1826.99	.00	.00	9985.00	10015.00	.00
*	2.883	953.79	.96	954.04	350.00	2326.60	841.03	1738.37	350.00	9830.00	9985.00	10015.00	10180.00
	2.977	954.27	.00	954.68	871.33	2276.91	1835.62	802.47	.00	.00	9980.00	10050.00	.00
	2.977	954.94	.66	955.58	235.00	2520.51	2367.17	27.33	235.00	9820.00	9980.00	10050.00	10055.00
	3.070	956.13	.00	956.28	1123.98	1655.72	1153.43	2105.86	.00	.00	9945.00	10025.00	.00
	3.070	956.94	.81	957.29	390.00	1248.93	1903.28	1762.80	390.00	9790.00	9945.00	10025.00	10180.00
	3.167	957.36	.00	957.48	1088.78	2044.80	727.08	1660.11	.00	.00	9970.00	10020.00	.00
	3.167	958.31	.95	958.50	460.00	2166.56	1054.25	1211.20	460.00	9730.00	9970.00	10020.00	10190.00

*	3.291	959.72	.00	959.85	880.55	.00	179.21	4252.79	.00	.00	9970.00	10020.00	.00
	3.291	960.55	.83	960.89	343.00	.00	447.15	3984.85	343.00	9987.00	9970.00	10020.00	10330.00
*	3.376	961.76	.00	961.83	1205.55	255.61	172.66	4003.73	.00	.00	9985.00	10015.00	.00
*	3.376	962.69	.93	962.80	525.00	568.36	323.66	3539.97	525.00	9840.00	9985.00	10015.00	10365.00
	3.491	963.20	.00	963.27	1059.92	1449.73	409.07	2573.20	.00	.00	9980.00	10020.00	.00
	3.491	964.04	.84	964.22	390.00	1144.04	721.33	2566.63	390.00	9870.00	9980.00	10020.00	10260.00
*	3.602	964.68	.00	964.90	806.16	426.76	2771.40	1239.84	.00	.00	9880.00	10100.00	.00
	3.602	965.47	.80	965.76	330.00	296.93	3577.23	563.84	330.00	9840.00	9880.00	10100.00	10170.00
	3.702	966.76	.00	966.92	1003.67	1899.36	1470.92	1067.71	.00	.00	9955.00	10055.00	.00
	3.702	967.29	.53	967.61	361.21	1593.12	2103.06	741.82	590.00	9550.00	9955.00	10055.00	10140.00
	3.841	969.26	.00	969.36	999.61	2792.58	1077.16	568.27	.00	.00	9955.00	10070.00	.00
	3.841	970.24	.98	970.49	344.03	2465.23	1972.77	.00	520.00	9550.00	9955.00	10070.00	10070.00
	3.978	971.29	.00	971.42	1203.78	1597.78	1998.11	842.10	.00	.00	9930.00	10095.00	.00
	3.978	972.18	.89	972.34	595.00	1862.25	2575.75	.00	595.00	9500.00	9930.00	10095.00	10095.00
	4.101	973.16	.00	973.28	1121.26	1810.88	1415.57	1211.55	.00	.00	9960.00	10080.00	.00
*	4.101	973.85	.69	974.17	345.00	1717.56	2350.95	369.48	345.00	9780.00	9960.00	10080.00	10125.00
	4.237	975.08	.00	975.22	909.25	1682.54	1967.69	787.77	.00	.00	9935.00	10075.00	.00
	4.237	976.09	1.01	976.35	295.00	1521.32	2916.68	.00	295.00	9780.00	9935.00	10075.00	10075.00

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	4.356	976.54	.00	976.67	894.56	1835.16	1699.12	903.73	.00	.00	9950.00	10070.00	.00
	4.356	977.58	1.03	977.86	270.00	1269.27	2764.38	404.34	270.00	9840.00	9950.00	10070.00	10110.00
	4.496	978.22	.00	978.39	800.31	1108.78	2306.44	1022.79	.00	.00	9975.00	10130.00	.00
	4.496	979.22	1.00	979.45	310.00	1110.24	3059.84	267.92	310.00	9850.00	9975.00	10130.00	10160.00
*	4.625	980.50	.00	980.78	778.15	474.87	3498.68	472.44	.00	.00	9835.00	10160.00	.00
	4.625	981.04	.55	981.46	300.00	.00	4446.00	.00	300.00	9850.00	9835.00	10160.00	10150.00
*	4.701	981.33	.00	981.40	876.90	24.84	4401.09	20.07	.00	.00	9685.00	10405.00	.00
*	4.701	982.06	.73	982.18	400.00	.00	4446.00	.00	400.00	9800.00	9685.00	10405.00	10200.00
*	4.858	982.47	.00	982.74	666.89	2.86	4434.21	8.93	.00	.00	9705.00	10290.00	.00
*	4.858	983.25	.79	983.65	300.00	.00	4446.00	.00	300.00	9850.00	9705.00	10290.00	10150.00
*	5.009	985.58	.00	985.72	803.32	1563.38	2035.90	846.71	.00	.00	9935.00	10100.00	.00
	5.009	986.26	.69	986.56	285.00	1340.61	3069.28	36.11	285.00	9820.00	9935.00	10100.00	10105.00
	5.153	987.81	.00	987.98	890.30	2065.34	1888.25	492.41	.00	.00	9945.00	10090.00	.00
	5.153	988.71	.90	989.04	290.00	1539.14	2906.86	.00	290.00	9800.00	9945.00	10090.00	10090.00
*	5.282	989.36	.00	989.43	1261.83	2505.49	1250.50	690.01	.00	.00	9945.00	10055.00	.00
*	5.282	990.33	.96	990.45	400.00	2273.45	1827.06	345.48	400.00	9700.00	9945.00	10055.00	10100.00
*	5.430	991.08	.00	992.22	174.93	.00	4446.00	.00	.00	.00	9899.90	10100.10	.00
*	5.430	991.77	.69	992.52	174.00	.00	4446.00	.00	174.00	9913.00	9899.90	10100.10	10087.00
*	5.460	991.91	.00	992.90	178.41	.00	5319.00	.00	.00	.00	9899.90	10100.10	.00
	5.460	991.91	-.01	992.91	174.00	.00	5319.00	.00	174.00	9913.00	9899.90	10100.10	10087.00
*	5.563	993.68	.00	993.71	1729.53	964.81	2454.72	1899.46	.00	.00	9850.00	10100.00	.00
*	5.563	994.06	.39	994.22	350.00	.00	4401.73	917.27	350.00	9850.00	9850.00	10100.00	10200.00
*	5.727	994.29	.00	994.49	1276.17	920.74	2595.20	1146.06	.00	.00	9935.00	10135.00	.00
*	5.727	995.30	1.01	995.57	352.17	168.04	3526.88	967.08	380.00	9870.00	9935.00	10135.00	10250.00
	5.840	996.51	.00	996.63	1360.99	1041.34	2138.93	1481.73	.00	.00	9970.00	10170.00	.00
	5.840	997.23	.72	997.49	369.19	144.95	3320.45	1196.60	380.00	9920.00	9970.00	10170.00	10300.00
	5.960	998.50	.00	998.60	1373.63	305.94	1508.46	2847.60	.00	.00	9960.00	10150.00	.00
	5.960	999.38	.88	999.57	440.00	.00	2468.21	2193.79	440.00	9960.00	9960.00	10150.00	10400.00
	6.086	1001.07	.00	1001.19	1451.48	745.62	1764.68	2151.70	.00	.00	9900.00	10100.00	.00
	6.086	1001.80	.72	1002.02	500.00	570.36	2713.37	1378.28	500.00	9800.00	9900.00	10100.00	10300.00
	6.217	1002.98	.00	1003.04	1528.09	1152.40	1532.37	1977.23	.00	.00	9900.00	10100.00	.00
	6.217	1003.65	.67	1003.74	630.00	1331.95	2119.34	1210.70	630.00	9670.00	9900.00	10100.00	10300.00

	6.320	1003.99	.00	1004.06	1470.67	968.56	1679.46	2013.98	.00	.00	9900.00	10100.00	.00
	6.320	1004.59	.61	1004.70	650.00	1310.87	2219.52	1131.61	650.00	9650.00	9900.00	10100.00	10300.00

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	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	6.414	1005.26	.00	1005.35	1812.72	2116.68	1593.60	951.72	.00	.00	9900.00	10100.00	.00
*	6.414	1005.82	.56	1006.00	600.00	1385.71	2385.61	890.68	600.00	9700.00	9900.00	10100.00	10300.00
	6.509	1006.65	.00	1006.69	2548.06	3112.62	1004.24	545.14	.00	.00	9900.00	10100.00	.00
	6.509	1007.61	.97	1007.78	510.00	1678.30	2383.87	599.83	510.00	9690.00	9900.00	10100.00	10200.00
*	6.627	1009.15	.00	1009.57	1456.82	1705.12	2388.99	567.89	.00	.00	9900.00	10100.00	.00
	6.627	1010.14	.98	1010.43	400.00	1829.54	2832.46	.00	400.00	9700.00	9900.00	10100.00	10100.00
*	6.674	1012.43	.00	1013.00	1210.24	165.82	3528.79	967.39	.00	.00	9955.00	10120.00	.00
*	6.674	1012.24	-.19	1013.37	337.14	164.49	4266.16	231.35	350.00	9850.00	9955.00	10120.00	10200.00
*	6.864	1013.86	.00	1013.87	5112.90	1282.06	521.83	2858.11	.00	.00	9930.00	10080.00	.00
*	6.864	1014.60	.73	1014.61	2590.00	2099.30	827.04	1735.66	2590.00	8100.00	9930.00	10080.00	10690.00
*	6.877	1013.90	.00	1013.91	4120.93	2519.34	663.04	1520.62	.00	.00	9915.00	10050.00	.00
	6.877	1014.63	.73	1014.64	2550.00	2754.09	756.07	1192.84	2550.00	8000.00	9915.00	10050.00	10550.00
*	7.045	1014.08	.00	1014.08	4521.98	2605.06	277.51	1820.43	.00	.00	9920.00	10055.00	.00
*	7.045	1014.78	.71	1014.79	2215.97	2596.60	481.19	1625.21	2280.00	8810.00	9920.00	10055.00	11090.00
*	7.124	1014.23	.00	1014.24	3690.22	980.20	92.92	3014.88	.00	.00	9980.00	10018.00	.00
*	7.124	1014.94	.72	1014.97	1449.00	844.92	168.80	3074.28	1450.00	9575.00	9980.00	10018.00	11025.00
*	7.267	1015.37	.00	1015.43	1974.82	127.26	87.06	3873.68	.00	.00	9980.00	10019.00	.00
*	7.267	1016.16	.79	1016.26	1007.77	557.08	232.66	3298.26	1030.00	9650.00	9980.00	10019.00	10680.00
	7.407	1017.56	.00	1017.61	1586.42	12.73	33.77	4041.50	.00	.00	9980.00	10025.00	.00
	7.407	1018.46	.89	1018.52	943.73	257.23	118.49	3712.27	969.00	9741.00	9980.00	10025.00	10710.00
*	7.552	1020.13	.00	1020.20	2269.91	857.63	308.39	2921.98	.00	.00	9980.00	10020.00	.00
	7.552	1020.91	.77	1021.06	700.00	1234.30	562.01	2291.68	700.00	9750.00	9980.00	10020.00	10450.00
*	7.670	1022.08	.00	1022.13	2260.91	1793.26	471.83	1822.92	.00	.00	9980.00	10015.00	.00
*	7.670	1022.99	.91	1023.13	540.00	1107.01	761.20	2219.78	540.00	9850.00	9980.00	10015.00	10390.00
	7.799	1023.27	.00	1023.33	1662.33	1203.29	642.78	2241.92	.00	.00	9970.00	10015.00	.00
	7.799	1024.20	.93	1024.30	550.00	861.15	870.24	2356.60	550.00	9850.00	9970.00	10015.00	10400.00
	7.924	1024.65	.00	1024.73	1658.30	825.16	529.36	2733.48	.00	.00	9970.00	10010.00	.00
	7.924	1025.38	.73	1025.51	600.00	462.78	723.31	2901.91	600.00	9900.00	9970.00	10010.00	10500.00
*	7.977	1027.00	.00	1027.38	2272.30	445.20	1056.74	2619.06	.00	.00	9990.00	10010.00	.00
*	7.977	1027.58	.58	1028.25	750.00	228.66	1360.60	2531.73	750.00	9920.00	9990.00	10010.00	10670.00
	7.983	1027.14	.00	1027.38	2417.48	520.85	894.42	2705.73	.00	.00	9990.00	10010.00	.00
	7.983	1027.75	.61	1028.25	750.00	240.24	1225.36	2655.39	750.00	9920.00	9990.00	10010.00	10670.00
*	8.069	1027.69	.00	1027.76	1783.15	1142.08	1340.04	1638.88	.00	.00	9960.00	10070.00	.00
	8.069	1028.62	.93	1028.74	455.00	626.15	1885.21	1609.64	455.00	9870.00	9960.00	10070.00	10325.00

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	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
*	8.169	1028.59	.00	1028.74	1291.47	1326.69	849.64	1944.67	.00	.00	9980.00	10020.00	.00
*	8.169	1029.41	.82	1029.77	295.00	1031.91	1287.90	1801.19	295.00	9880.00	9980.00	10020.00	10175.00
	8.292	1030.83	.00	1030.99	1361.06	1256.38	950.63	1913.99	.00	.00	9980.00	10020.00	.00
	8.292	1031.84	1.01	1032.19	305.00	626.94	1402.39	2091.67	305.00	9925.00	9980.00	10020.00	10230.00
	8.364	1032.17	.00	1032.40	1292.89	1560.34	1230.25	1330.40	.00	.00	9975.00	10025.00	.00
	8.364	1033.09	.93	1033.38	360.00	1040.51	1496.83	1583.66	360.00	9870.00	9975.00	10025.00	10230.00
	8.468	1034.43	.00	1034.76	1948.63	1978.97	1255.92	886.12	.00	.00	9980.00	10025.00	.00
	8.468	1034.86	.43	1035.25	910.00	1113.74	1418.09	1589.16	910.00	9860.00	9980.00	10025.00	10770.00
	8.544	1036.18	.00	1036.25	2728.90	123.57	687.33	3372.10	.00	.00	9975.00	10100.00	.00
	8.544	1036.82	.64	1037.05	1245.00	512.80	1539.11	2131.09	1245.00	9750.00	9975.00	10100.00	10995.00

	8.636	1038.06	.00	1038.12	2680.10	114.70	296.02	3772.28	.00	.00	9960.00	10010.00	.00
	8.636	1038.96	.90	1039.06	1063.68	.00	533.49	3649.51	1240.00	9960.00	9960.00	10010.00	11200.00
	8.726	1040.34	.00	1040.39	3044.47	808.91	484.94	2889.15	.00	.00	9950.00	10010.00	.00
	8.726	1041.09	.75	1041.27	891.98	.00	947.82	3235.18	1050.00	9950.00	9950.00	10010.00	11000.00
*	8.848	1043.50	.00	1043.66	2124.59	3229.36	368.38	585.26	.00	.00	9970.00	10020.00	.00
	8.848	1044.44	.94	1044.67	818.31	2203.43	608.62	1370.94	830.00	9770.00	9970.00	10020.00	10600.00
*	8.965	1046.21	.00	1046.27	1838.90	2314.35	614.23	1254.41	.00	.00	9970.00	10033.00	.00
*	8.965	1047.04	.83	1047.20	450.00	2207.04	1054.28	921.68	450.00	9740.00	9970.00	10033.00	10190.00
	9.034	1047.14	.00	1047.28	1244.60	2482.65	1037.47	662.88	.00	.00	9970.00	10038.00	.00
	9.034	1048.04	.90	1048.39	263.00	2515.04	1667.96	.00	263.00	9775.00	9970.00	10038.00	10038.00
*	9.095	1048.93	.00	1049.78	1067.25	1520.66	2691.51	30.83	.00	.00	9978.00	10022.00	.00
*	9.095	1048.98	.05	1049.91	600.00	1434.30	2779.57	29.13	600.00	9470.00	9978.00	10022.00	10070.00
	9.100	1049.15	.00	1049.78	1191.13	1749.44	2437.00	56.56	.00	.00	9978.00	10022.00	.00
	9.100	1048.95	-.20	1049.91	600.00	1468.62	2745.65	28.73	600.00	9470.00	9978.00	10022.00	10070.00
*	9.189	1050.18	.00	1050.34	1022.74	2408.62	1739.63	94.74	.00	.00	9940.00	10160.00	.00
*	9.189	1050.35	.17	1050.69	515.00	1740.44	2502.56	.00	515.00	9645.00	9940.00	10160.00	10160.00
*	9.292	1052.71	.00	1053.00	918.56	2412.29	1256.20	24.51	.00	.00	9900.00	10120.00	.00
*	9.292	1053.29	.58	1053.70	430.00	1623.15	2069.85	.00	430.00	9690.00	9900.00	10120.00	10120.00
*	9.396	1055.81	.00	1055.91	1394.08	2433.33	858.01	401.66	.00	.00	9880.00	10070.00	.00
*	9.396	1056.20	.39	1056.39	570.00	2296.26	1396.74	.00	570.00	9500.00	9880.00	10070.00	10070.00
	9.493	1057.73	.00	1057.89	1207.81	2474.10	1129.88	89.02	.00	.00	9930.00	10140.00	.00
	9.493	1058.10	.37	1058.31	715.00	2151.64	1541.36	.00	715.00	9425.00	9930.00	10140.00	10140.00
	9.544	1058.81	.00	1058.90	1580.67	2718.49	487.01	487.50	.00	.00	9920.00	10065.00	.00
	9.544	1059.10	.29	1059.24	865.00	2945.71	747.29	.00	865.00	9200.00	9920.00	10065.00	10065.00

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	9.641	1059.65	.00	1059.75	1029.50	2781.91	279.15	51.94	.00	.00	9985.00	10015.00	.00
	9.641	1059.89	.24	1060.01	656.00	2720.17	317.00	75.82	656.00	9400.00	9985.00	10015.00	10056.00
*	9.741	1060.21	.00	1060.26	1345.33	1638.32	1306.68	168.00	.00	.00	9900.00	10115.00	.00
*	9.741	1060.46	.24	1060.52	925.00	1332.87	1525.73	254.41	925.00	9530.00	9900.00	10115.00	10455.00
	9.807	1060.39	.00	1060.43	1310.74	1371.51	1474.98	266.51	.00	.00	9900.00	10140.00	.00
	9.807	1060.63	.25	1060.68	923.00	1212.08	1568.72	332.19	923.00	9500.00	9900.00	10140.00	10423.00
*	9.898	1060.62	.00	1060.63	870.17	254.89	292.43	214.69	.00	.00	9960.00	10055.00	.00
*	9.898	1060.83	.21	1060.83	871.00	261.62	272.89	227.49	871.00	9603.00	9960.00	10055.00	10474.00
*	9.994	1060.65	.00	1060.93	82.71	.00	762.00	.00	.00	.00	9950.00	10050.00	.00
*	9.994	1060.81	.17	1061.06	84.70	.00	762.00	.00	.00	.00	9950.00	10050.00	.00
	10.108	1062.01	.00	1062.35	65.14	.00	762.00	.00	.00	.00	9960.00	10045.00	.00
	10.108	1062.01	-.01	1062.35	65.01	.00	762.00	.00	.00	.00	9960.00	10045.00	.00
*	10.197	1062.93	.00	1063.11	84.56	.00	762.00	.00	.00	.00	9950.00	10045.00	.00
*	10.197	1062.93	.00	1063.11	84.50	.00	762.00	.00	.00	.00	9950.00	10045.00	.00
	10.269	1063.28	.00	1063.46	78.83	2.75	794.07	3.18	.00	.00	9960.00	10025.00	.00
	10.269	1063.28	.00	1063.46	78.79	2.74	794.10	3.17	.00	.00	9960.00	10025.00	.00
	10.328	1063.50	.00	1063.77	57.49	3.70	795.23	1.07	.00	.00	9970.00	10020.00	.00
	10.328	1063.49	.00	1063.77	57.48	3.69	795.24	1.07	.00	.00	9970.00	10020.00	.00
	10.419	1063.99	.00	1064.28	49.99	2.21	795.58	2.21	.00	.00	9975.00	10020.00	.00
	10.419	1063.99	.00	1064.28	49.98	2.21	795.58	2.21	.00	.00	9975.00	10020.00	.00
*	10.493	1064.36	.00	1064.38	160.00	5.74	785.47	8.79	.00	.00	9895.00	10030.00	.00
*	10.493	1064.35	.00	1064.38	160.00	5.74	785.48	8.78	.00	.00	9895.00	10030.00	.00
*	10.587	1064.39	.00	1064.44	213.13	20.33	766.69	12.99	.00	.00	9935.00	10040.00	.00
*	10.587	1064.39	.00	1064.44	212.99	20.31	766.72	12.98	.00	.00	9935.00	10040.00	.00
	10.639	1064.45	.00	1064.49	197.92	36.91	754.78	8.32	.00	.00	9925.00	10035.00	.00
	10.639	1064.45	.00	1064.49	197.85	36.88	754.81	8.31	.00	.00	9925.00	10035.00	.00

	10.709	1064.52	.00	1064.64	192.41	58.59	1302.59	18.82	.00	.00	9910.00	10040.00	.00
	10.709	1064.52	.00	1064.64	192.38	58.55	1302.64	18.81	.00	.00	9910.00	10040.00	.00
*	10.804	1064.98	.00	1065.35	167.28	12.68	1362.59	4.73	.00	.00	9900.00	10040.00	.00
*	10.804	1064.98	.00	1065.35	167.26	12.67	1362.61	4.73	.00	.00	9900.00	10040.00	.00
	10.889	1066.80	.00	1067.19	167.63	9.94	1367.36	2.70	.00	.00	9900.00	10040.00	.00
	10.889	1066.80	.00	1067.19	167.64	9.95	1367.35	2.70	.00	.00	9900.00	10040.00	.00
	10.946	1068.22	.00	1068.66	157.89	.40	1379.49	.11	.00	.00	9930.00	10080.00	.00
	10.946	1068.22	.00	1068.66	157.88	.40	1379.49	.11	.00	.00	9930.00	10080.00	.00

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	10.995	1069.84	.00	1070.39	144.10	.00	1380.00	.00	.00	.00	9895.00	10045.00	.00
	10.995	1069.84	.00	1070.39	144.11	.00	1380.00	.00	.00	.00	9895.00	10045.00	.00
*	11.067	1071.15	.00	1071.26	318.09	328.39	1048.06	3.55	.00	.00	9920.00	10045.00	.00
*	11.067	1071.29	.14	1071.52	133.00	.00	1373.70	6.30	133.00	9920.00	9920.00	10045.00	10053.00
	11.147	1071.52	.00	1071.61	524.14	335.18	1038.77	6.05	.00	.00	9920.00	10045.00	.00
	11.147	1071.83	.31	1071.99	136.00	.00	1368.04	11.96	136.00	9920.00	9920.00	10045.00	10056.00
	11.228	1071.82	.00	1071.89	690.82	399.04	969.38	11.59	.00	.00	9920.00	10050.00	.00
	11.228	1072.20	.39	1072.36	145.00	.00	1356.37	23.63	145.00	9920.00	9920.00	10050.00	10065.00
	11.306	1072.13	.00	1072.27	351.01	171.45	1119.62	88.93	.00	.00	9965.00	10090.00	.00
	11.306	1072.58	.45	1072.73	150.00	100.90	1279.10	.00	150.00	9940.00	9965.00	10090.00	10090.00
	11.416	1072.86	.00	1072.98	426.45	177.27	992.63	210.10	.00	.00	9930.00	10070.00	.00
	11.416	1073.23	.37	1073.45	140.00	.00	1380.00	.00	140.00	9930.00	9930.00	10070.00	10070.00
	11.510	1073.48	.00	1073.53	664.76	411.94	796.89	171.17	.00	.00	9900.00	10100.00	.00
	11.510	1074.02	.54	1074.16	200.00	.00	1380.00	.00	200.00	9900.00	9900.00	10100.00	10100.00
	11.580	1074.48	.00	1075.21	154.31	1.18	1373.65	5.16	.00	.00	9965.00	10100.00	.00
	11.580	1074.62	.14	1075.22	153.00	2.04	1368.52	9.43	153.00	9962.00	9965.00	10100.00	10115.00
*	11.676	1076.16	.00	1076.29	184.05	29.70	1341.66	5.65	.00	.00	9955.00	10100.00	.00
*	11.676	1076.11	-.04	1076.25	181.92	28.69	1342.85	5.46	.00	.00	9955.00	10100.00	.00
	11.775	1076.55	.00	1076.69	217.41	39.61	1276.58	60.81	.00	.00	9955.00	10075.00	.00
	11.775	1076.53	-.03	1076.67	216.02	38.79	1278.38	59.83	.00	.00	9955.00	10075.00	.00
	11.867	1076.92	.00	1077.08	228.54	85.32	1226.45	65.23	.00	.00	9960.00	10055.00	.00
	11.867	1076.90	-.02	1077.06	227.33	84.40	1227.79	64.81	.00	.00	9960.00	10055.00	.00
	11.970	1077.31	.00	1077.41	179.66	1.11	1316.22	59.67	.00	.00	9930.00	10060.00	.00
	11.970	1077.30	-.01	1077.40	179.48	1.09	1316.48	59.43	.00	.00	9930.00	10060.00	.00
	12.064	1077.53	.00	1077.60	289.37	76.92	1264.19	35.89	.00	.00	9935.00	10070.00	.00
	12.064	1077.52	-.01	1077.59	288.61	76.36	1264.85	35.79	.00	.00	9935.00	10070.00	.00
	12.150	1077.65	.00	1077.71	279.37	112.56	1243.20	21.24	.00	.00	9940.00	10080.00	.00
	12.150	1077.65	-.01	1077.70	279.31	111.99	1243.82	21.19	.00	.00	9940.00	10080.00	.00
	12.244	1077.77	.00	1077.83	262.77	35.65	1307.17	34.18	.00	.00	9910.00	10075.00	.00
	12.244	1077.76	-.01	1077.82	262.69	35.37	1307.53	34.11	.00	.00	9910.00	10075.00	.00
	12.345	1077.88	.00	1077.93	253.63	18.06	1318.65	40.29	.00	.00	9920.00	10095.00	.00
	12.345	1077.88	-.01	1077.92	253.55	17.94	1318.85	40.21	.00	.00	9920.00	10095.00	.00
	12.439	1077.97	.00	1078.00	284.52	68.77	1252.97	55.26	.00	.00	9955.00	10120.00	.00
	12.439	1077.96	-.01	1078.00	284.41	68.59	1253.25	55.16	.00	.00	9955.00	10120.00	.00

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	12.534	1078.04	.00	1078.07	285.33	62.42	1230.48	84.10	.00	.00	9910.00	10075.00	.00
	12.534	1078.03	-.01	1078.07	285.28	62.30	1230.73	83.97	.00	.00	9910.00	10075.00	.00
	12.633	1080.12	.00	1080.30	814.10	251.42	504.22	244.35	.00	.00	9900.00	10100.00	.00
	12.633	1080.12	.00	1080.30	814.24	251.65	503.75	244.59	.00	.00	9900.00	10100.00	.00

	12.700	1080.73	.00	1080.74	1097.64	.00	282.65	717.35	.00	.00	9920.00	10110.00	.00
	12.700	1080.73	.00	1080.74	1097.64	.00	282.65	717.35	.00	.00	9920.00	10110.00	.00
*	12.758	1080.96	.00	1081.00	671.51	14.41	450.28	535.31	.00	.00	9955.00	10070.00	.00
*	12.758	1080.96	.00	1081.00	671.49	14.41	450.29	535.30	.00	.00	9955.00	10070.00	.00
	12.867	1081.80	.00	1081.84	660.78	36.64	419.27	544.09	.00	.00	9960.00	10055.00	.00
	12.867	1081.80	.00	1081.84	660.81	36.64	419.26	544.10	.00	.00	9960.00	10055.00	.00
	13.044	1082.79	.00	1082.81	852.66	5.59	483.93	510.48	.00	.00	9910.00	10075.00	.00
	13.044	1082.79	.00	1082.81	852.66	5.59	483.93	510.48	.00	.00	9910.00	10075.00	.00
*	13.161	1083.92	.00	1083.99	792.77	.00	468.59	531.41	.00	.00	9960.00	10085.00	.00
*	13.161	1083.92	.00	1083.99	792.77	.00	468.59	531.41	.00	.00	9960.00	10085.00	.00
*	13.248	1085.86	.00	1085.91	999.96	30.97	300.36	1108.67	.00	.00	9950.00	10050.00	.00
	13.248	1086.48	.63	1086.71	255.17	.00	764.74	675.26	260.00	9950.00	9950.00	10050.00	10210.00
*	13.349	1087.04	.00	1087.06	994.24	.55	384.65	1054.80	.00	.00	9955.00	10070.00	.00
*	13.349	1088.05	1.01	1088.13	255.00	.00	818.58	621.42	255.00	9955.00	9955.00	10070.00	10210.00
	13.427	1087.74	.00	1087.77	849.48	.00	97.82	1342.18	.00	.00	9960.00	10040.00	.00
	13.427	1088.75	1.00	1088.81	310.00	.00	301.40	1138.60	310.00	9960.00	9960.00	10040.00	10270.00
*	13.556	1090.52	.00	1090.63	836.44	287.44	626.56	526.00	.00	.00	9900.00	10100.00	.00
*	13.556	1090.94	.42	1091.03	450.00	276.85	740.17	422.98	450.00	9800.00	9900.00	10100.00	10250.00
*	13.667	1093.31	.00	1093.33	1627.94	152.66	477.72	809.63	.00	.00	9870.00	10100.00	.00
*	13.667	1093.61	.30	1093.65	494.06	230.80	726.48	482.71	505.00	9765.00	9870.00	10100.00	10270.00
*	13.782	1095.79	.00	1095.82	2581.42	154.39	14.98	1270.63	.00	.00	9870.00	10085.00	.00
*	13.782	1096.80	1.02	1096.88	863.87	451.04	615.78	373.18	870.00	9700.00	9870.00	10085.00	10570.00
*	13.902	1098.48	.00	1098.49	2002.70	574.41	251.21	614.38	.00	.00	9900.00	10100.00	.00
*	13.902	1099.41	.93	1099.44	500.00	281.36	632.81	525.83	500.00	9800.00	9900.00	10100.00	10300.00
*	14.023	1100.59	.00	1100.62	1284.57	288.20	415.69	736.11	.00	.00	9900.00	10100.00	.00
*	14.023	1101.61	1.02	1101.77	200.00	.00	1440.00	.00	200.00	9900.00	9900.00	10100.00	10100.00

SUMMARY OF ERRORS AND SPECIAL NOTES

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WARNING SECNO=      .047  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      .047  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      .616  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      .616  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      .776  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      .776  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     1.236  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     1.236  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     1.236  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=     1.236  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     1.236  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     1.236  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=     1.317  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     1.317  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     1.435  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     1.435  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     1.435  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=     1.435  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     1.435  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     1.435  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=     1.474  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     1.474  PROFILE=  1  MINIMUM SPECIFIC ENERGY
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CAUTION SECNO=     1.474  PROFILE=  2  MINIMUM SPECIFIC ENERGY

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WARNING SECNO=     1.517  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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CAUTION SECNO=      1.566  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=      1.566  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      1.566  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      1.566  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

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CAUTION SECNO=      2.536  PROFILE=  1  CRITICAL DEPTH ASSUMED
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CAUTION SECNO=      2.536  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=      2.680  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

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WARNING SECNO=      3.376  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

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WARNING SECNO=      5.430  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=      5.460  PROFILE=  1  HYDRAULIC JUMP D.S.
WARNING SECNO=      5.460  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      5.563  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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   03SEP96      09:19:12                                                                PAGE  137

WARNING SECNO=      5.563  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

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WARNING SECNO=      6.217  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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CAUTION SECNO=      6.674  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      6.674  PROFILE=  1  MINIMUM SPECIFIC ENERGY
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WARNING SECNO=      7.552  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      7.552  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      7.670  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      7.670  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=      7.977  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      7.977  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      7.977  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=      7.977  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      7.977  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      7.977  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=      8.069  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      8.169  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      8.169  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      8.848  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      8.965  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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WARNING SECNO=      8.965  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=      9.095  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      9.095  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      9.095  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=      9.095  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      9.095  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      9.095  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=      9.189  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      9.189  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      9.292  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      9.292  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      9.396  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      9.396  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      9.741  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      9.741  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      9.898  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      9.898  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      9.994  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=      9.994  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     10.197  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     10.197  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     10.493  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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WARNING SECNO=     10.493  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     10.587  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     10.587  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     10.804  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     10.804  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     11.067  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     11.067  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     11.580  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     11.580  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     11.580  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
WARNING SECNO=     11.580  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     11.676  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     11.676  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     12.633  PROFILE=  1  CRITICAL DEPTH ASSUMED
1
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CAUTION SECNO=     12.633  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     12.633  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=     12.633  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     12.633  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     12.633  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=     12.700  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     12.700  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     12.758  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     12.758  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     13.161  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     13.161  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     13.248  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     13.349  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     13.349  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     13.556  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     13.556  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     13.667  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     13.667  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     13.782  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     13.782  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     13.902  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     13.902  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     14.023  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=     14.023  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

1
   03SEP96      09:19:12                                                                    PAGE  140


FLOODWAY DATA,   BULLARD WASH - FROM BUCK
PROFILE NO.  2
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STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WATER SURFACE ELEVATION WITHOUT FLOODWAY	DIFFERENCE
.000	1247.	817.	1.0	912.3	912.3	.0
.047	1687.	1527.	.6	912.5	912.5	.0
.121	1368.	1290.	.7	912.7	912.7	.0
.201	1095.	981.	.9	913.0	913.0	.0
.292	940.	1121.	.8	913.4	913.4	.0
.384	1682.	1465.	.6	913.7	913.7	.0
.488	1490.	1435.	.6	914.0	914.0	.0

.531	1452.	1375.	.6	914.2	914.2	.0
.616	1160.	1660.	2.9	916.1	916.1	.0
.668	665.	934.	5.2	918.3	918.3	.0
.776	510.	1400.	3.5	921.0	921.0	.0
.868	516.	1235.	4.0	922.2	922.2	.0
.964	441.	1001.	4.9	924.1	924.1	.0
1.081	451.	1098.	2.4	926.3	926.3	.0
1.153	462.	1168.	2.2	926.7	926.7	.0
1.236	351.	415.	6.3	927.4	927.4	.0
1.317	344.	679.	3.8	929.7	929.7	.0
1.378	402.	801.	3.2	930.4	930.4	.0
1.435	163.	310.	8.4	931.2	931.2	.0
1.474	1034.	952.	2.7	933.6	933.6	.0
1.517	814.	1403.	1.9	934.9	934.9	.0
1.566	150.	328.	7.9	936.2	936.2	.0
1.634	233.	638.	4.1	938.3	938.3	.0
1.680	339.	847.	3.1	938.8	938.8	.0
1.745	423.	1269.	2.0	939.2	939.2	.0
1.823	823.	1730.	1.5	939.4	939.4	.0
1.893	1106.	1933.	2.5	939.7	939.7	.0
1.941	1063.	1344.	3.6	939.9	939.9	.0
1.988	1100.	1395.	3.5	940.1	940.1	.0
2.058	1175.	1625.	3.0	941.3	941.3	.0
2.185	725.	986.	5.0	942.7	942.7	.0
2.297	460.	2215.	2.2	943.7	943.5	.2
2.371	420.	1352.	3.6	944.0	943.7	.3
2.435	375.	1117.	4.4	944.6	943.9	.7
2.536	400.	1105.	4.4	946.8	945.8	1.0
2.680	405.	1123.	4.4	949.5	949.1	.4
2.771	345.	1080.	4.5	951.5	950.6	.9
2.883	350.	1425.	3.4	953.8	952.8	1.0
2.977	235.	858.	5.7	955.0	954.3	.7
3.070	390.	1277.	3.8	956.9	956.1	.8
3.167	460.	1518.	2.9	958.3	957.4	.9
3.291	343.	974.	4.6	960.5	959.7	.8

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FLOODWAY DATA, BULLARD WASH - FROM BUCK
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
3.376	525.	1702.	2.6	962.7	961.8	.9
3.491	390.	1471.	3.0	964.0	963.2	.8
3.602	330.	1132.	3.9	965.5	964.7	.8
3.702	590.	1144.	3.9	967.3	966.8	.5
3.841	520.	1169.	3.8	970.3	969.3	1.0
3.978	595.	1699.	2.6	972.2	971.3	.9
4.101	345.	1136.	3.9	973.9	973.2	.7
4.237	295.	1224.	3.6	976.1	975.1	1.0
4.356	270.	1178.	3.8	977.5	976.5	1.0
4.496	310.	1314.	3.4	979.2	978.2	1.0
4.625	300.	855.	5.2	981.0	980.5	.5
4.701	400.	1624.	2.7	982.0	981.3	.7
4.858	300.	878.	5.1	983.3	982.5	.8
5.009	285.	1106.	4.0	986.3	985.6	.7
5.153	290.	1084.	4.1	988.7	987.8	.9
5.282	400.	1762.	2.5	990.4	989.4	1.0
5.430	174.	639.	7.0	991.8	991.1	.7
5.460	174.	662.	8.0	991.9	991.9	.0
5.563	350.	1792.	3.0	994.1	993.7	.4
5.727	352.	1232.	3.8	995.3	994.3	1.0
5.840	369.	1242.	3.8	997.2	996.5	.7
5.960	440.	1434.	3.3	999.4	998.5	.9
6.086	500.	1380.	3.4	1001.8	1001.1	.7
6.217	630.	2057.	2.3	1003.7	1003.0	.7
6.320	650.	2021.	2.3	1004.6	1004.0	.6
6.414	600.	1544.	3.0	1005.9	1005.3	.6
6.509	510.	1531.	3.0	1007.6	1006.6	1.0
6.627	400.	1148.	4.1	1010.2	1009.2	1.0
6.674	337.	626.	7.4	1012.2	1012.4	-.2
6.864	2590.	5680.	.8	1014.6	1013.9	.7
6.877	2550.	5414.	.9	1014.6	1013.9	.7

7.045	2280.	6437.	.7	1014.8	1014.1	.7
7.124	1450.	3422.	1.2	1014.9	1014.2	.7
7.267	1030.	1770.	2.3	1016.2	1015.4	.8
7.407	969.	2102.	1.9	1018.5	1017.6	.9
7.552	700.	1507.	2.7	1020.9	1020.1	.8
7.670	540.	1692.	2.4	1023.0	1022.1	.9
7.799	550.	1997.	2.0	1024.2	1023.3	.9
7.924	600.	1704.	2.4	1025.4	1024.7	.7
7.977	750.	1435.	2.9	1027.6	1027.0	.6
7.983	750.	1554.	2.7	1027.7	1027.1	.6
8.069	455.	1849.	2.2	1028.6	1027.7	.9

1

FLOODWAY DATA, BULLARD WASH - FROM BUCK
PROFILE NO. 2

STATION	------- FLOODWAY ------- WIDTH	SECTION AREA	MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
8.169	295.	1076.	3.8	1029.4	1028.6	.8
8.292	305.	1155.	3.6	1031.8	1030.8	1.0
8.364	360.	1281.	3.2	1033.1	1032.2	.9
8.468	910.	1430.	2.9	1034.8	1034.4	.4
8.544	1245.	1583.	2.6	1036.8	1036.2	.6
8.636	1240.	1867.	2.2	1039.0	1038.1	.9
8.726	1050.	1635.	2.6	1041.1	1040.3	.8
8.848	830.	1333.	3.1	1044.4	1043.5	.9
8.965	450.	1519.	2.8	1047.0	1046.2	.8
9.034	263.	1030.	4.1	1048.0	1047.1	.9
9.095	600.	1180.	3.6	1049.0	1048.9	.1
9.100	600.	1158.	3.7	1049.0	1049.2	-.2
9.189	515.	991.	4.3	1050.4	1050.2	.2
9.292	430.	747.	4.9	1053.3	1052.7	.6
9.396	570.	1088.	3.4	1056.2	1055.8	.4
9.493	715.	1097.	3.4	1058.1	1057.7	.4
9.544	865.	1244.	3.0	1059.1	1058.8	.3
9.641	656.	1199.	2.6	1059.9	1059.7	.2
9.741	925.	1872.	1.7	1060.4	1060.2	.2
9.807	923.	2070.	1.5	1060.6	1060.4	.2
9.898	871.	1308.	.6	1060.8	1060.6	.2
9.994	85.	192.	4.0	1060.8	1060.6	.2
10.108	65.	163.	4.7	1062.0	1062.0	.0
10.197	85.	223.	3.4	1062.9	1062.9	.0
10.269	79.	242.	3.3	1063.3	1063.3	.0
10.328	57.	194.	4.1	1063.5	1063.5	.0
10.419	50.	190.	4.2	1064.0	1064.0	.0
10.493	160.	652.	1.2	1064.4	1064.4	.0
10.587	213.	507.	1.6	1064.4	1064.4	.0
10.639	198.	536.	1.5	1064.4	1064.4	.0
10.709	192.	533.	2.6	1064.5	1064.5	.0
10.804	167.	292.	4.7	1065.0	1065.0	.0
10.889	168.	283.	4.9	1066.8	1066.8	.0
10.946	158.	259.	5.3	1068.2	1068.2	.0
10.995	144.	232.	6.0	1069.8	1069.8	.0
11.067	133.	365.	3.8	1071.2	1071.1	.1
11.147	136.	437.	3.2	1071.8	1071.5	.3
11.228	145.	443.	3.1	1072.2	1071.8	.4
11.306	150.	457.	3.0	1072.6	1072.1	.5
11.416	140.	368.	3.8	1073.3	1072.9	.4
11.510	200.	464.	3.0	1074.0	1073.5	.5
11.580	153.	226.	6.1	1074.6	1074.5	.1

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FLOODWAY DATA, BULLARD WASH - FROM BUCK
PROFILE NO. 2

STATION	------- FLOODWAY ------- WIDTH	SECTION AREA	MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE

11.676	182.	479.	2.9	1076.2	1076.2	.0
11.775	216.	525.	2.6	1076.6	1076.6	.0
11.867	227.	504.	2.7	1076.9	1076.9	.0
11.970	179.	578.	2.4	1077.3	1077.3	.0
12.064	289.	755.	1.8	1077.5	1077.5	.0
12.150	279.	820.	1.7	1077.7	1077.7	.0
12.244	263.	825.	1.7	1077.8	1077.8	.0
12.345	254.	899.	1.5	1077.9	1077.9	.0
12.439	284.	988.	1.4	1078.0	1078.0	.0
12.534	285.	1044.	1.3	1078.0	1078.0	.0
12.633	814.	315.	3.2	1080.1	1080.1	.0
12.700	1098.	1727.	.6	1080.7	1080.7	.0
12.758	671.	752.	1.3	1081.0	1081.0	.0
12.867	661.	845.	1.2	1081.8	1081.8	.0
13.044	853.	941.	1.1	1082.8	1082.8	.0
13.161	793.	638.	1.6	1083.9	1083.9	.0
13.248	260.	423.	3.4	1086.5	1085.9	.6
13.349	255.	711.	2.0	1088.0	1087.0	1.0
13.427	310.	720.	2.0	1088.7	1087.7	1.0
13.556	450.	594.	2.4	1090.9	1090.5	.4
13.667	494.	874.	1.6	1093.6	1093.3	.3
13.782	864.	663.	2.2	1096.8	1095.8	1.0
13.902	500.	973.	1.5	1099.4	1098.5	.9
14.023	200.	442.	3.3	1101.6	1100.6	1.0

APPENDIX C

HEC-RAS Output Files for Duplicate Effective FIS Model (Downstream)

HEC-RAS Plan: Final(9/98) River: Bullard Wash Reach: Outfall Channel

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Outfall Channel	2500	3200.00	900.69	906.58	904.30	907.20	0.002001	6.33	505.71	91.78	0.48
Outfall Channel	2500	3200.00	900.69	906.58	904.30	907.20	0.002001	6.33	505.71	91.78	0.48
Outfall Channel	2660	3200.00	901.02	906.90	904.63	907.52	0.002012	6.34	504.81	91.76	0.48
Outfall Channel	2660	3200.00	901.02	906.90	904.63	907.52	0.002012	6.34	504.81	91.76	0.48
Outfall Channel	2860.56	3200.00	901.42	907.30	905.03	907.93	0.002008	6.33	505.14	91.76	0.48
Outfall Channel	2860.56	3200.00	901.42	907.30	905.03	907.93	0.002008	6.33	505.14	91.76	0.48
Outfall Channel	2877.74	3200.00	901.45	906.45	906.38	908.87	0.003534	12.49	256.13	51.29	0.99
Outfall Channel	2877.74	3200.00	901.45	906.45	906.39	908.87	0.003534	12.49	256.13	51.29	0.99
Outfall Channel	2901.4	Culvert									
Outfall Channel	2901.49	3200.00	901.50	909.45	906.44	910.41	0.000565	7.85	407.69	51.34	0.49
Outfall Channel	2901.49	3200.00	901.50	909.45	906.44	910.41	0.000565	7.85	407.69	51.34	0.49
Outfall Channel	2911	3200.00	901.97	909.93	906.59	910.52	0.002140	6.19	517.19	76.95	0.42
Outfall Channel	2911	3200.00	901.97	909.93	906.58	910.52	0.002140	6.19	517.18	76.95	0.42
Outfall Channel	2995.26	3200.00	906.15	909.69	910.46	912.71	0.027315	13.95	229.31	70.12	1.36
Outfall Channel	2995.26	3200.00	906.15	909.68	910.45	912.71	0.027368	13.96	229.17	70.11	1.36
Outfall Channel	3002.33	3200.00	906.48	910.82	910.82	913.01	0.004132	11.87	269.55	62.12	1.00
Outfall Channel	3002.33	3200.00	906.48	910.82	910.82	913.01	0.004133	11.87	269.53	62.12	1.00
Outfall Channel	3049.67	3200.00	906.56	911.59	910.90	913.22	0.002630	10.26	311.95	62.14	0.81
Outfall Channel	3049.67	3200.00	906.56	911.59	910.90	913.22	0.002630	10.26	311.96	62.14	0.81
Outfall Channel	3064.67	3200.00	906.58	911.65	910.92	913.25	0.002564	10.17	314.59	62.14	0.80
Outfall Channel	3064.67	3200.00	906.58	911.65	910.92	913.25	0.002563	10.17	314.59	62.14	0.80
Outfall Channel	3088.94	3200.00	906.62	912.81	910.65	913.55	0.000767	6.88	464.86	82.29	0.51
Outfall Channel	3088.94	3200.00	906.62	912.81	910.65	913.55	0.000767	6.88	464.87	82.29	0.51
Outfall Channel	3141	3200.00	906.70	912.84	910.74	913.59	0.000800	6.98	458.73	82.15	0.52
Outfall Channel	3141	3200.00	906.70	912.84	910.74	913.59	0.000800	6.98	458.74	82.15	0.52
Outfall Channel	3266	3200.00	906.90	912.92	910.94	913.71	0.000857	7.13	448.90	81.90	0.54
Outfall Channel	3266	3200.00	906.90	912.92	910.94	913.71	0.000857	7.13	448.90	81.90	0.54
Outfall Channel	3330	3200.00	907.00	913.25	910.70	913.78	0.000544	5.84	547.68	98.51	0.44
Outfall Channel	3330	3200.00	907.00	913.25	910.70	913.78	0.000544	5.84	547.68	98.51	0.44
Outfall Channel	3372	3200.00	907.06	913.35	910.61	913.82	0.001435	5.49	582.76	105.31	0.41
Outfall Channel	3372	3200.00	907.06	913.35	910.61	913.82	0.001435	5.49	582.77	105.31	0.41
Outfall Channel	3562.61*	3200.00	907.34	913.62	910.89	914.09	0.001440	5.50	582.08	105.28	0.41
Outfall Channel	3562.61*	3200.00	907.34	913.62	910.89	914.09	0.001440	5.50	582.08	105.28	0.41
Outfall Channel	3753.23*	3200.00	907.62	913.90	911.17	914.37	0.001444	5.50	581.51	105.26	0.41
Outfall Channel	3753.23*	3200.00	907.62	913.90	911.17	914.37	0.001444	5.50	581.51	105.26	0.41
Outfall Channel	3943.84*	3200.00	907.89	914.17	911.45	914.64	0.001441	5.50	581.89	105.23	0.41
Outfall Channel	3943.84*	3200.00	907.89	914.17	911.45	914.64	0.001441	5.50	581.89	105.23	0.41
Outfall Channel	4134.46*	3200.00	908.17	914.45	911.72	914.92	0.001445	5.50	581.33	105.21	0.41
Outfall Channel	4134.46*	3200.00	908.17	914.45	911.72	914.92	0.001445	5.50	581.33	105.21	0.41
Outfall Channel	4325.07*	3200.00	908.45	914.72	912.00	915.19	0.001449	5.51	580.85	105.19	0.41
Outfall Channel	4325.07*	3200.00	908.45	914.72	912.00	915.19	0.001449	5.51	580.85	105.19	0.41
Outfall Channel	4515.69*	3200.00	908.73	915.00	912.28	915.47	0.001452	5.51	580.45	105.18	0.41
Outfall Channel	4515.69*	3200.00	908.73	915.00	912.28	915.47	0.001452	5.51	580.45	105.18	0.41
Outfall Channel	4706.30*	3200.00	909.00	915.28	912.56	915.75	0.001447	5.51	580.99	105.15	0.41
Outfall Channel	4706.30*	3200.00	909.00	915.28	912.56	915.75	0.001447	5.51	580.99	105.15	0.41
Outfall Channel	4896.92*	3200.00	909.28	915.55	912.83	916.02	0.001450	5.51	580.55	105.14	0.41
Outfall Channel	4896.92*	3200.00	909.28	915.55	912.83	916.02	0.001450	5.51	580.55	105.14	0.41
Outfall Channel	5087.53*	3200.00	909.56	915.83	913.11	916.30	0.001453	5.52	580.18	105.12	0.41

HEC-RAS Plan: Final(9/98) River: Bullard Wash Reach: Outfall Channel (Continued)

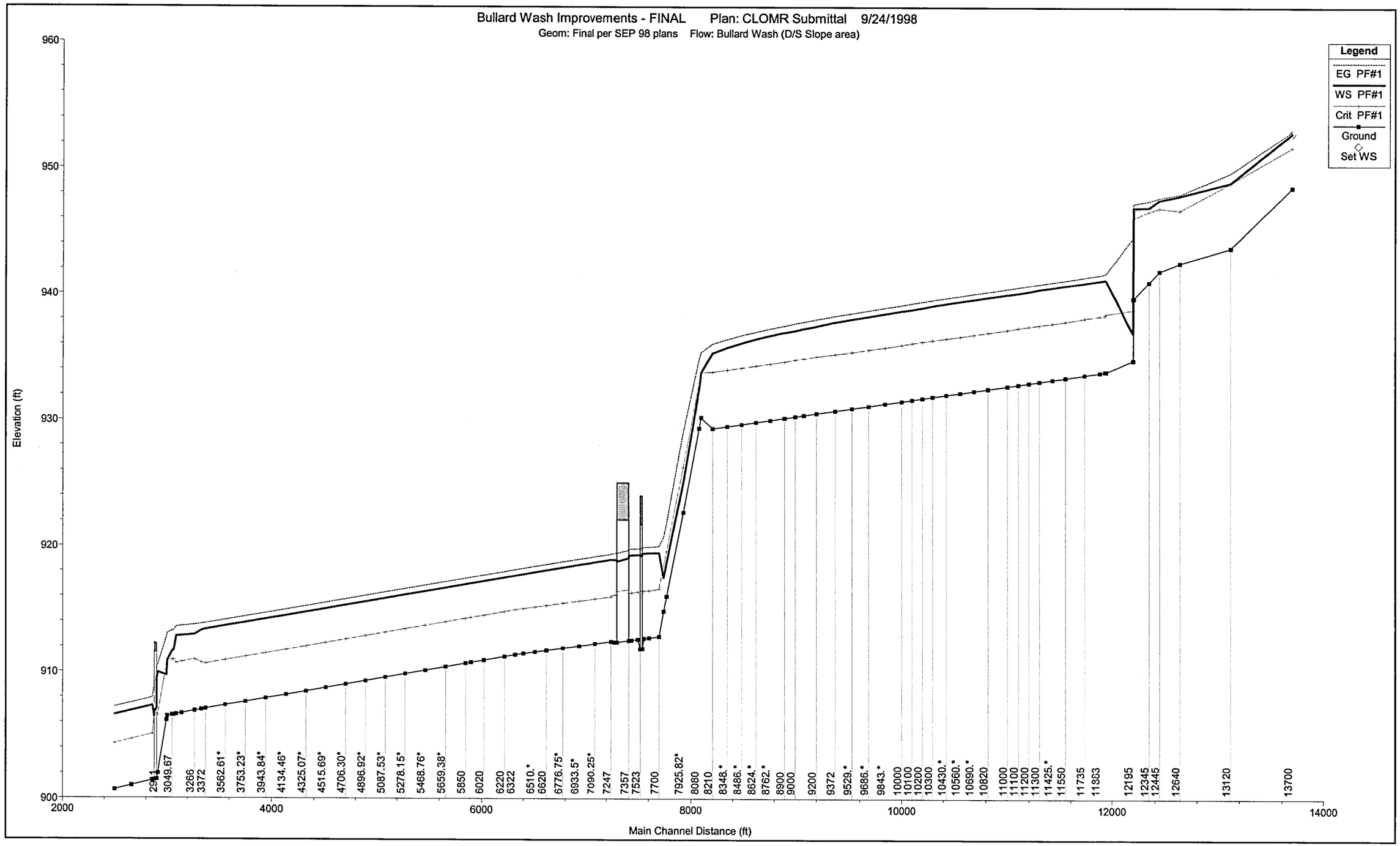
Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Outfall Channel	5087.53*	3200.00	909.56	915.83	913.11	916.30	0.001453	5.52	580.18	105.12	0.41
Outfall Channel	5278.15*	3200.00	909.84	916.11	913.39	916.58	0.001456	5.52	579.87	105.11	0.41
Outfall Channel	5278.15*	3200.00	909.84	916.11	913.39	916.58	0.001456	5.52	579.87	105.11	0.41
Outfall Channel	5468.76*	3200.00	910.11	916.38	913.67	916.85	0.001450	5.51	580.48	105.09	0.41
Outfall Channel	5468.76*	3200.00	910.11	916.38	913.67	916.85	0.001450	5.51	580.48	105.09	0.41
Outfall Channel	5659.38*	3200.00	910.39	916.66	913.95	917.13	0.001453	5.52	580.11	105.08	0.41
Outfall Channel	5659.38*	3200.00	910.39	916.66	913.95	917.13	0.001453	5.52	580.11	105.08	0.41
Outfall Channel	5850	3200.00	910.67	916.94	914.23	917.41	0.001456	5.52	579.79	105.06	0.41
Outfall Channel	5850	3200.00	910.67	916.94	914.23	917.41	0.001456	5.52	579.79	105.06	0.41
Outfall Channel	5900	3200.00	910.74	917.01	914.30	917.48	0.001453	5.52	580.08	105.07	0.41
Outfall Channel	5900	3200.00	910.74	917.01	914.30	917.48	0.001453	5.52	580.08	105.07	0.41
Outfall Channel	6020	3200.00	910.92	917.18	914.48	917.66	0.001458	5.52	579.49	105.05	0.41
Outfall Channel	6020	3200.00	910.92	917.18	914.48	917.66	0.001458	5.52	579.49	105.05	0.41
Outfall Channel	6220	3200.00	911.21	917.47	914.77	917.95	0.001457	5.52	579.65	105.06	0.41
Outfall Channel	6220	3200.00	911.21	917.47	914.77	917.95	0.001457	5.52	579.65	105.06	0.41
Outfall Channel	6322	3200.00	911.36	917.62	914.92	918.10	0.001464	5.53	578.67	105.02	0.42
Outfall Channel	6322	3200.00	911.36	917.62	914.92	918.10	0.001464	5.53	578.67	105.02	0.42
Outfall Channel	6400	3200.00	911.45	917.74	915.00	918.21	0.001434	5.49	582.59	105.17	0.41
Outfall Channel	6400	3200.00	911.45	917.74	915.00	918.21	0.001434	5.49	582.59	105.17	0.41
Outfall Channel	6510.*	3200.00	911.58	917.90	915.14	918.37	0.001409	5.46	585.99	105.30	0.41
Outfall Channel	6510.*	3200.00	911.58	917.90	915.14	918.37	0.001409	5.46	585.99	105.30	0.41
Outfall Channel	6620	3200.00	911.70	918.07	915.26	918.52	0.001378	5.42	590.28	105.46	0.40
Outfall Channel	6620	3200.00	911.70	918.07	915.26	918.52	0.001378	5.42	590.28	105.46	0.40
Outfall Channel	6776.75*	3200.00	911.88	918.29	915.44	918.74	0.001348	5.38	594.59	105.63	0.40
Outfall Channel	6776.75*	3200.00	911.88	918.29	915.44	918.74	0.001348	5.38	594.59	105.63	0.40
Outfall Channel	6933.5*	3200.00	912.05	918.50	915.61	918.95	0.001314	5.34	599.54	105.81	0.40
Outfall Channel	6933.5*	3200.00	912.05	918.50	915.61	918.95	0.001314	5.34	599.54	105.81	0.40
Outfall Channel	7090.25*	3200.00	912.23	918.71	915.79	919.15	0.001295	5.31	602.52	105.93	0.39
Outfall Channel	7090.25*	3200.00	912.23	918.71	915.79	919.15	0.001295	5.31	602.52	105.93	0.39
Outfall Channel	7247	3200.00	912.40	918.92	915.96	919.35	0.001269	5.28	606.45	106.07	0.39
Outfall Channel	7247	3200.00	912.40	918.92	915.96	919.35	0.001269	5.28	606.45	106.07	0.39
Outfall Channel	7280	3200.00	912.34	918.90	916.10	919.42	0.000506	5.79	552.83	92.80	0.42
Outfall Channel	7280	3200.00	912.34	918.90	916.12	919.42	0.000506	5.79	552.83	92.80	0.42
Outfall Channel	7300	3200.00	912.36	918.91	916.13	919.43	0.000508	5.79	552.23	92.87	0.42
Outfall Channel	7300	3200.00	912.36	918.91	916.12	919.43	0.000508	5.79	552.23	92.87	0.42
Outfall Channel	7357	Bridge									
Outfall Channel	7417	3200.00	912.49	919.26	916.26	919.75	0.000452	5.59	572.76	93.23	0.40
Outfall Channel	7417	3200.00	912.49	919.26	916.26	919.75	0.000452	5.59	572.75	93.23	0.40
Outfall Channel	7440	3200.00	912.51	919.27	916.27	919.76	0.000454	5.60	571.91	93.22	0.40
Outfall Channel	7440	3200.00	912.51	919.27	916.27	919.76	0.000454	5.60	571.91	93.22	0.40
Outfall Channel	7500	3200.00	912.58	919.30	916.35	919.79	0.000465	5.64	567.47	93.13	0.40
Outfall Channel	7500	3200.00	912.58	919.30	916.35	919.79	0.000466	5.64	567.46	93.13	0.40
Outfall Channel	7523	3200.00	911.82	919.34	916.19	919.80	0.000427	5.49	583.30	93.14	0.39
Outfall Channel	7523	3200.00	911.82	919.34	916.19	919.80	0.000427	5.49	583.29	93.14	0.39
Outfall Channel	7533	Bridge									
Outfall Channel	7543	3200.00	911.84	919.43	916.22	919.89	0.000410	5.42	590.61	93.30	0.38
Outfall Channel	7543	3200.00	911.84	919.43	916.22	919.89	0.000410	5.42	590.61	93.30	0.38

HEC-RAS Plan: Final(9/98) River: Bullard Wash Reach: Outfall Channel (Continued)

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Outfall Channel	7558	3200.00	912.65	919.42	916.43	919.91	0.000453	5.59	572.39	93.23	0.40
Outfall Channel	7558	3200.00	912.65	919.42	916.43	919.91	0.000453	5.59	572.38	93.23	0.40
Outfall Channel	7605	3200.00	912.70	919.44	916.44	919.93	0.000454	5.59	572.13	93.11	0.40
Outfall Channel	7605	3200.00	912.70	919.44	916.44	919.93	0.000454	5.59	572.13	93.11	0.40
Outfall Channel	7700	3200.00	912.81	919.47	916.58	919.98	0.000477	5.69	565.67	106.75	0.41
Outfall Channel	7700	3200.00	912.81	919.47	916.59	919.98	0.000477	5.69	565.67	106.75	0.41
Outfall Channel	7744	3200.00	914.81	917.48	918.40	920.70	0.039657	14.39	222.35	86.61	1.58
Outfall Channel	7744	3200.00	914.81	917.48	918.41	920.70	0.039662	14.39	222.34	86.61	1.58
Outfall Channel	7771.64	3200.00	916.00	918.71	919.58	921.77	0.037273	14.05	227.82	88.13	1.54
Outfall Channel	7771.64	3200.00	916.00	918.71	919.58	921.77	0.037278	14.05	227.81	88.13	1.54
Outfall Channel	7925.82*	3200.00	922.67	925.06	926.25	929.04	0.056647	16.01	199.91	87.18	1.86
Outfall Channel	7925.82*	3200.00	922.67	925.06	926.25	929.04	0.056627	16.01	199.93	87.18	1.86
Outfall Channel	8080	3200.00	929.34	932.41	932.92	934.77	0.024601	12.33	259.54	89.20	1.27
Outfall Channel	8080	3200.00	929.34	932.41	932.92	934.77	0.024603	12.33	259.54	89.20	1.27
Outfall Channel	8100	3200.00	930.20	933.73	933.73	935.35	0.014641	10.20	313.66	97.66	1.00
Outfall Channel	8100	3200.00	930.20	933.73	933.73	935.35	0.014641	10.20	313.66	97.66	1.00
Outfall Channel	8210	3200.00	929.33	935.30	933.80	936.03	0.002797	6.88	464.86	104.83	0.58
Outfall Channel	8210	3200.00	929.33	935.30	933.80	936.03	0.002797	6.88	464.86	104.83	0.58
Outfall Channel	8348.*	3200.00	929.50	935.74	933.95	936.39	0.002329	6.48	493.77	106.20	0.53
Outfall Channel	8348.*	3200.00	929.50	935.74	933.95	936.39	0.002329	6.48	493.77	106.20	0.53
Outfall Channel	8486.*	3200.00	929.66	936.10	934.12	936.70	0.002049	6.21	515.06	107.19	0.50
Outfall Channel	8486.*	3200.00	929.66	936.10	934.12	936.70	0.002049	6.21	515.06	107.19	0.50
Outfall Channel	8624.*	3200.00	929.83	936.41	934.29	936.97	0.001882	6.04	529.81	107.88	0.48
Outfall Channel	8624.*	3200.00	929.83	936.41	934.29	936.97	0.001882	6.04	529.81	107.88	0.48
Outfall Channel	8762.*	3200.00	929.99	936.69	934.45	937.23	0.001750	5.90	542.77	108.48	0.46
Outfall Channel	8762.*	3200.00	929.99	936.69	934.45	937.23	0.001750	5.90	542.77	108.48	0.46
Outfall Channel	8900	3200.00	930.16	936.94	934.62	937.46	0.001663	5.80	552.02	108.90	0.45
Outfall Channel	8900	3200.00	930.16	936.94	934.62	937.46	0.001663	5.80	552.02	108.90	0.45
Outfall Channel	9000	3200.00	930.29	937.09	934.77	937.64	0.001710	5.96	537.12	103.19	0.46
Outfall Channel	9000	3200.00	930.29	937.09	934.77	937.64	0.001710	5.96	537.12	103.19	0.46
Outfall Channel	9080	3200.00	930.38	937.24	934.86	937.78	0.001653	5.89	543.08	103.42	0.45
Outfall Channel	9080	3200.00	930.38	937.24	934.86	937.78	0.001653	5.89	543.08	103.42	0.45
Outfall Channel	9200	3200.00	930.55	937.44	935.03	937.97	0.001621	5.85	546.60	103.56	0.45
Outfall Channel	9200	3200.00	930.55	937.44	935.03	937.97	0.001621	5.85	546.60	103.56	0.45
Outfall Channel	9372	3200.00	930.74	937.77	935.21	938.24	0.001441	5.53	578.90	110.13	0.42
Outfall Channel	9372	3200.00	930.74	937.77	935.21	938.24	0.001441	5.53	578.90	110.13	0.42
Outfall Channel	9529.*	3200.00	930.93	938.00	935.38	938.47	0.001407	5.48	583.51	110.34	0.42
Outfall Channel	9529.*	3200.00	930.93	938.00	935.38	938.47	0.001407	5.48	583.51	110.34	0.42
Outfall Channel	9686.*	3200.00	931.12	938.22	935.58	938.68	0.001379	5.45	587.44	110.52	0.42
Outfall Channel	9686.*	3200.00	931.12	938.22	935.58	938.68	0.001379	5.45	587.44	110.52	0.42
Outfall Channel	9843.*	3200.00	931.31	938.44	935.77	938.90	0.001356	5.42	590.81	110.67	0.41
Outfall Channel	9843.*	3200.00	931.31	938.44	935.77	938.90	0.001356	5.42	590.81	110.67	0.41
Outfall Channel	10000	3200.00	931.50	938.66	935.96	939.11	0.001337	5.39	593.57	110.80	0.41
Outfall Channel	10000	3200.00	931.50	938.66	935.96	939.11	0.001337	5.39	593.57	110.80	0.41
Outfall Channel	10100	3200.00	931.62	938.77	936.10	939.26	0.001396	5.57	574.10	104.62	0.42
Outfall Channel	10100	3200.00	931.62	938.77	936.10	939.26	0.001396	5.57	574.10	104.62	0.42
Outfall Channel	10200	3200.00	931.74	938.92	936.22	939.39	0.001379	5.55	576.38	104.71	0.42
Outfall Channel	10200	3200.00	931.74	938.92	936.22	939.39	0.001379	5.55	576.38	104.71	0.42

HEC-RAS Plan: Final(9/98) River: Bullard Wash Reach: Outfall Channel (Continued)

Reach	River Sta	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
		(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Outfall Channel	10300	3200.00	931.86	939.09	936.33	939.53	0.001283	5.32	601.72	111.16	0.40
Outfall Channel	10300	3200.00	931.86	939.09	936.33	939.53	0.001283	5.32	601.72	111.16	0.40
Outfall Channel	10430.*	3200.00	932.02	939.26	936.49	939.70	0.001278	5.31	602.47	111.20	0.40
Outfall Channel	10430.*	3200.00	932.02	939.26	936.49	939.70	0.001278	5.31	602.47	111.20	0.40
Outfall Channel	10560.*	3200.00	932.17	939.43	936.62	939.86	0.001266	5.29	604.44	111.29	0.40
Outfall Channel	10560.*	3200.00	932.17	939.43	936.62	939.86	0.001266	5.29	604.44	111.29	0.40
Outfall Channel	10690.*	3200.00	932.33	939.59	936.79	940.03	0.001263	5.29	604.95	111.31	0.40
Outfall Channel	10690.*	3200.00	932.33	939.59	936.79	940.03	0.001263	5.29	604.95	111.31	0.40
Outfall Channel	10820	3200.00	932.49	939.76	936.95	940.19	0.001260	5.29	605.42	111.33	0.40
Outfall Channel	10820	3200.00	932.49	939.76	936.95	940.19	0.001260	5.29	605.42	111.33	0.40
Outfall Channel	11000	3200.00	932.71	939.98	937.17	940.42	0.001255	5.28	606.17	111.36	0.40
Outfall Channel	11000	3200.00	932.71	939.98	937.17	940.42	0.001255	5.28	606.17	111.36	0.40
Outfall Channel	11100	3200.00	932.83	940.09	937.31	940.55	0.001318	5.47	585.11	105.04	0.41
Outfall Channel	11100	3200.00	932.83	940.09	937.31	940.55	0.001318	5.47	585.11	105.04	0.41
Outfall Channel	11200	3200.00	932.95	940.22	937.43	940.68	0.001309	5.46	586.48	105.09	0.41
Outfall Channel	11200	3200.00	932.95	940.22	937.43	940.68	0.001309	5.46	586.48	105.09	0.41
Outfall Channel	11300	3200.00	933.07	940.39	937.54	940.81	0.001223	5.23	611.40	111.60	0.39
Outfall Channel	11300	3200.00	933.07	940.39	937.54	940.81	0.001223	5.23	611.40	111.60	0.39
Outfall Channel	11425.*	3200.00	933.22	940.54	937.69	940.97	0.001221	5.23	611.73	111.61	0.39
Outfall Channel	11425.*	3200.00	933.22	940.54	937.69	940.97	0.001221	5.23	611.73	111.61	0.39
Outfall Channel	11550	3200.00	933.37	940.70	937.82	941.12	0.001220	5.23	612.02	111.63	0.39
Outfall Channel	11550	3200.00	933.37	940.70	937.82	941.12	0.001220	5.23	612.02	111.63	0.39
Outfall Channel	11735	3200.00	933.60	940.90	938.08	941.36	0.001286	5.43	589.83	105.22	0.40
Outfall Channel	11735	3200.00	933.60	940.90	938.08	941.36	0.001286	5.43	589.83	105.22	0.40
Outfall Channel	11883	3200.00	933.77	941.10	938.25	941.55	0.001271	5.40	592.17	105.31	0.40
Outfall Channel	11883	3200.00	933.77	941.10	938.25	941.55	0.001271	5.40	592.17	105.31	0.40
Outfall Channel	11932	3200.00	933.84	941.16	938.32	941.61	0.001276	5.41	591.35	105.28	0.40
Outfall Channel	11932	3200.00	933.84	941.16	938.32	941.61	0.001276	5.41	591.35	105.28	0.40
Outfall Channel	11943	3200.00	933.85	941.13	938.44	941.67	0.001481	5.89	543.54	92.44	0.43
Outfall Channel	11943	3200.00	933.85	941.13	938.42	941.67	0.001481	5.89	543.54	92.44	0.43
Outfall Channel	12195	3200.00	934.75	936.92	938.76	944.47	0.096977	22.04	145.19	83.52	2.95
Outfall Channel	12195	3200.00	934.75	936.92	938.75	944.47	0.097053	22.05	145.16	83.52	2.95
Outfall Channel	12198	3200.00	939.65	945.82	945.82	946.51	0.004752	7.95	639.60	375.21	0.94
Outfall Channel	12198	3200.00	939.65	945.82	945.82	946.51	0.004752	7.95	639.60	375.21	0.94
Outfall Channel	12200	3200.00	939.68	946.90	946.05	947.22	0.000625	5.41	1105.85	493.50	0.54
Outfall Channel	12200	3200.00	939.68	947.50	946.46	948.19	0.000895	6.66	480.67	130.00	0.61
Outfall Channel	12345	3200.00	940.96	946.92	946.61	947.43	0.001100	6.87	1038.35	626.70	0.61
Outfall Channel	12345	3200.00	940.96	947.87	946.65	948.37	0.000764	6.34	783.45	225.00	0.50
Outfall Channel	12445	3200.00	941.85	947.51	946.86	947.68	0.002032	4.15	1222.28	768.39	0.44
Outfall Channel	12445	3200.00	941.85	948.30	947.03	948.55	0.001695	4.43	885.24	300.00	0.41
Outfall Channel	12640	3200.00	942.50	947.85	946.69	947.98	0.001103	3.69	1321.56	839.61	0.34
Outfall Channel	12640	3200.00	942.50	948.67	946.67	948.76	0.000510	2.86	1377.62	415.00	0.24
Outfall Channel	13120	4906.00	943.70	948.89	948.87	949.66	0.009993	7.21	784.66	594.41	0.91
Outfall Channel	13120	4906.00	943.70	949.04	948.85	949.79	0.008510	6.99	725.39	365.00	0.85
Outfall Channel	13700	4906.00	948.50	952.80	951.68	952.97	0.003333	6.13	1818.94	873.00	0.58
Outfall Channel	13700	4906.00	948.50	953.80	951.76	954.04	0.002250	5.96	1430.22	350.00	0.50


Bullard Wash Improvements - FINAL Plan: CLOMR Submittal 9/24/1998
Geom: Final per SEP 98 plans Flow: Bullard Wash (D/S Slope area)
Legend
EG PF#1
WS PF#1
Crit PF#1
Ground
Set WS
Elevation (ft)
960
950
940
930
920
910
900
2000
4000
6000
8000
10000
12000
14000
Main Channel Distance (ft)
2941
3049.67
3266
3372
3562.61*
3753.23*
3943.84*
4134.46*
4325.07*
4515.69*
4706.30*
4896.92*
5087.53*
5278.15*
5468.76*
5659.38*
5850
6020
6220
6322
6510.*
6620
6776.75*
6933.5*
7090.25*
7247
7357
7523
7700
7925.82*
8080
8210
8348.*
8486.*
8624.*
8762.*
8900
9000
9200
9372
9529.*
9686.*
9843.*
10000
10100
10200
10300
10430.*
10560.*
10690.*
10820
11000
11100
11200
11300
11425.*
11550
11735
11883
12195
12345
12445
12640
13120
13700

APPENDIX D

HEC-RAS Output Files for Corrected Effective FIS Model (Upstream)

HEC-RAS Plan: Imported Pla River: RIVER-1 Reach: Reach-1

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	0	PF 1	850.00	910.50	912.36	911.55	912.38	0.002504	1.58	866.51	1270.75	0.31
Reach-1	0	PF 2	850.00	910.50	912.32	911.55	912.34	0.002904	1.65	817.50	1246.81	0.34
Reach-1	0.047	PF 1	850.00	910.00	912.59		912.60	0.000441	1.17	1606.16	1695.50	0.15
Reach-1	0.047	PF 2	850.00	910.00	912.58		912.59	0.000465	1.19	1576.49	1692.24	0.16
Reach-1	0.121	PF 1	850.00	910.00	912.79		912.80	0.000579	1.24	1374.50	1396.87	0.17
Reach-1	0.121	PF 2	850.00	910.00	912.78		912.79	0.000594	1.26	1361.64	1392.46	0.17
Reach-1	0.201	PF 1	850.00	910.00	913.08		913.10	0.000847	1.60	1033.95	1119.21	0.21
Reach-1	0.201	PF 2	850.00	910.00	913.07		913.09	0.000856	1.61	1029.72	1117.35	0.21
Reach-1	0.292	PF 1	850.00	910.50	913.42		913.43	0.000604	1.41	1148.82	942.52	0.18
Reach-1	0.292	PF 2	850.00	910.50	913.42		913.43	0.000606	1.41	1147.67	942.41	0.18
Reach-1	0.384	PF 1	850.00	911.00	913.70		913.71	0.000537	1.22	1489.86	1611.15	0.17
Reach-1	0.384	PF 2	850.00	911.00	913.70		913.71	0.000539	1.22	1488.88	1610.89	0.17
Reach-1	0.488	PF 1	850.00	912.00	914.02		914.03	0.000628	1.06	1451.11	1474.23	0.17
Reach-1	0.488	PF 2	850.00	912.00	914.02		914.03	0.000629	1.06	1450.84	1474.16	0.17
Reach-1	0.531	PF 1	850.00	912.80	914.18		914.19	0.000770	0.69	1386.50	1389.48	0.16
Reach-1	0.531	PF 2	850.00	912.80	914.18		914.19	0.000770	0.69	1386.33	1389.43	0.16
Reach-1	0.616	PF 1	4895.00	913.80	916.06		916.20	0.006906	3.43	1672.26	847.65	0.56
Reach-1	0.616	PF 2	4895.00	913.80	916.06		916.20	0.006904	3.43	1672.42	847.69	0.56
Reach-1	0.668	PF 1	4895.00	916.40	918.31	918.09	918.76	0.012589	7.47	961.29	670.00	1.05
Reach-1	0.668	PF 2	4895.00	916.40	918.31	918.09	918.76	0.012589	7.47	961.29	670.00	1.05
Reach-1	0.776	PF 1	4895.00	917.30	921.11		921.29	0.002242	4.62	1478.11	512.12	0.49
Reach-1	0.776	PF 2	4895.00	917.30	921.11		921.29	0.002242	4.62	1478.11	512.12	0.49
Reach-1	0.868	PF 1	4895.00	918.30	922.35		922.59	0.003164	5.60	1327.67	516.40	0.58
Reach-1	0.868	PF 2	4895.00	918.30	922.35		922.59	0.003164	5.60	1327.67	516.40	0.58
Reach-1	0.964	PF 1	4895.00	919.20	924.19		924.65	0.005133	7.45	1029.47	441.89	0.74
Reach-1	0.964	PF 2	4895.00	919.20	924.19		924.65	0.005133	7.45	1029.47	441.89	0.74
Reach-1	1.081	PF 1	2596.00	924.00	926.29		926.38	0.001228	2.83	1104.64	451.45	0.34
Reach-1	1.081	PF 2	2596.00	924.00	926.29		926.38	0.001228	2.83	1104.64	451.45	0.34
Reach-1	1.153	PF 1	2596.00	924.00	926.71		926.79	0.001031	2.73	1182.10	454.44	0.32
Reach-1	1.153	PF 2	2596.00	924.00	926.71		926.79	0.001031	2.73	1182.10	454.44	0.32
Reach-1	1.236	PF 1	2596.00	924.00	927.47	927.47	928.40	0.008052	8.85	420.99	244.77	0.92
Reach-1	1.236	PF 2	2596.00	924.00	927.47	927.47	928.40	0.008052	8.85	420.99	244.77	0.92
Reach-1	1.317	PF 1	2596.00	924.00	929.74	928.84	930.08	0.002184	5.55	688.87	302.90	0.50
Reach-1	1.317	PF 2	2596.00	924.00	929.74	928.84	930.08	0.002184	5.55	688.87	302.90	0.50
Reach-1	1.378	PF 1	2596.00	924.00	930.42		930.68	0.001714	5.15	812.49	373.22	0.45
Reach-1	1.378	PF 2	2596.00	924.00	930.42		930.68	0.001714	5.15	812.49	373.22	0.45
Reach-1	1.435	PF 1	2596.00	926.30	931.22	931.22	932.39	0.008008	8.77	317.63	163.51	0.92
Reach-1	1.435	PF 2	2596.00	926.30	931.22	931.22	932.39	0.008008	8.77	317.63	163.51	0.92
Reach-1	1.474	PF 1	2600.00	928.00	933.62	933.62	934.04	0.004478	8.08	955.25	1036.15	0.72
Reach-1	1.474	PF 2	2600.00	928.00	933.62	933.62	934.04	0.004478	8.08	955.25	1036.15	0.72
Reach-1	1.517	PF 1	2600.00	932.20	934.90		934.96	0.001199	2.57	1409.47	813.99	0.33
Reach-1	1.517	PF 2	2600.00	932.20	934.90		934.96	0.001199	2.57	1409.47	813.99	0.33
Reach-1	1.566	PF 1	2600.00	932.50	936.19	936.19	937.41	0.008066	9.13	325.61	149.81	0.94
Reach-1	1.566	PF 2	2600.00	932.50	936.19	936.19	937.41	0.008066	9.13	325.61	149.81	0.94
Reach-1	1.634	PF 1	2600.00	933.00	938.33		938.75	0.001964	6.27	651.20	237.11	0.50
Reach-1	1.634	PF 2	2600.00	933.00	938.33		938.75	0.001964	6.27	651.20	237.11	0.50
Reach-1	1.68	PF 1	2600.00	933.40	938.87		939.13	0.001238	5.21	878.37	343.35	0.40
Reach-1	1.68	PF 2	2600.00	933.40	938.87		939.13	0.001238	5.21	878.37	343.35	0.40
Reach-1	1.745	PF 1	2600.00	933.80	939.29		939.39	0.000475	3.27	1322.83	426.97	0.25
Reach-1	1.745	PF 2	2600.00	933.80	939.29		939.39	0.000475	3.27	1322.83	426.97	0.25
Reach-1	1.823	PF 1	2600.00	934.90	939.53		939.59	0.000462	2.72	1828.92	824.16	0.24

HEC-RAS Plan: Imported Pla River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	1.823	PF 2	2600.00	934.90	939.53		939.59	0.000462	2.72	1828.92	824.16	0.24
Reach-1	1.893	PF 1	4899.00	936.10	939.80		939.94	0.001859	4.68	2029.72	1094.02	0.46
Reach-1	1.893	PF 2	4899.00	936.10	939.80		939.94	0.001859	4.68	2029.72	1094.02	0.46
Reach-1	1.941	PF 1	4899.00	937.90	939.99		940.18	0.004249	4.05	1404.32	704.56	0.60
Reach-1	1.941	PF 2	4899.00	937.90	939.99		940.18	0.004249	4.05	1404.32	704.56	0.60
Reach-1	1.988	PF 1	4899.00	938.20	940.18		940.36	0.003933	3.15	1446.28	708.13	0.55
Reach-1	1.988	PF 2	4899.00	938.20	940.18		940.36	0.003933	3.15	1446.28	708.13	0.55
Reach-1	2.058	PF 1	4899.00	938.40	941.34		941.48	0.002633	3.75	1684.71	773.52	0.49
Reach-1	2.058	PF 2	4899.00	938.40	941.34		941.48	0.002633	3.75	1684.71	773.52	0.49
Reach-1	2.185	PF 1	4899.00	939.00	942.91		943.25	0.005547	6.46	1106.85	508.65	0.74
Reach-1	2.185	PF 2	4899.00	939.00	942.91		943.25	0.005547	6.46	1106.85	508.65	0.74
Reach-1	2.297	PF 1	4899.00	939.40	943.70		943.73	0.000289	1.97	3868.78	1233.59	0.18
Reach-1	2.297	PF 2	4899.00	939.40	943.86		943.94	0.000453	2.55	2298.74	460.00	0.23
Reach-1	2.371	PF 1	4899.00	939.70	943.85		943.89	0.000516	2.52	3692.45	1551.55	0.24
Reach-1	2.371	PF 2	4899.00	939.70	944.10		944.32	0.002034	5.24	1417.60	420.00	0.49
Reach-1	2.435	PF 1	4899.00	939.90	944.07		944.17	0.001276	3.91	2788.19	1536.46	0.38
Reach-1	2.435	PF 2	4899.00	939.90	944.75		945.22	0.003046	6.85	1152.70	375.00	0.61
Reach-1	2.536	PF 1	4906.00	943.50	945.89	945.89	946.54	0.012230	9.46	1255.06	1026.94	1.11
Reach-1	2.536	PF 2	4906.00	943.50	946.77		947.28	0.004957	7.50	1100.09	400.00	0.74
Reach-1	2.68	PF 1	4906.00	945.20	949.26		949.46	0.001888	5.06	2243.93	1179.57	0.47
Reach-1	2.68	PF 2	4906.00	945.20	949.57		950.06	0.002917	6.65	1132.00	373.62	0.59
Reach-1	2.771	PF 1	4906.00	947.40	950.74		950.95	0.006043	7.41	1752.65	1115.07	0.80
Reach-1	2.771	PF 2	4906.00	947.40	951.56		952.02	0.006105	8.90	1087.96	345.00	0.84
Reach-1	2.883	PF 1	4906.00	948.50	952.99		953.14	0.002570	5.94	1985.00	902.92	0.55
Reach-1	2.883	PF 2	4906.00	948.50	953.80		954.05	0.002205	6.29	1429.56	350.00	0.52
Reach-1	2.977	PF 1	4915.00	949.90	954.37		954.77	0.003853	7.32	1510.78	893.03	0.67
Reach-1	2.977	PF 2	4915.00	949.90	954.94		955.58	0.003787	7.98	861.26	235.00	0.68
Reach-1	3.07	PF 1	4915.00	952.30	956.19		956.35	0.002659	5.18	2131.54	1131.05	0.54
Reach-1	3.07	PF 2	4915.00	952.30	956.94		957.29	0.003109	6.52	1277.87	390.00	0.60
Reach-1	3.167	PF 1	4432.00	953.90	957.42		957.54	0.002172	4.88	2100.81	1101.87	0.49
Reach-1	3.167	PF 2	4432.00	953.90	958.30		958.49	0.001845	5.32	1518.27	460.00	0.47
Reach-1	3.291	PF 1	4432.00	957.20	959.77		959.90	0.007162	5.06	1613.62	886.94	0.77
Reach-1	3.291	PF 2	4432.00	957.20	960.55	959.42	960.90	0.010148	7.35	973.65	343.00	0.95
Reach-1	3.376	PF 1	4432.00	958.30	961.86		961.93	0.003206	3.89	2213.43	1249.67	0.53
Reach-1	3.376	PF 2	4432.00	958.30	962.71		962.82	0.002332	4.34	1713.20	525.00	0.48
Reach-1	3.491	PF 1	4432.00	959.50	963.31		963.39	0.001876	4.10	2341.57	1076.86	0.44
Reach-1	3.491	PF 2	4432.00	959.50	964.05		964.23	0.002274	5.32	1474.81	390.00	0.51
Reach-1	3.602	PF 1	4438.00	961.90	964.75		964.98	0.003939	4.63	1517.80	818.98	0.49
Reach-1	3.602	PF 2	4438.00	961.90	965.48		965.76	0.002864	4.61	1133.84	330.00	0.43
Reach-1	3.702	PF 1	4438.00	963.40	966.84		967.01	0.003808	4.94	1861.28	1024.35	0.49
Reach-1	3.702	PF 2	4438.00	963.40	967.30		967.63	0.004527	5.90	1148.74	361.41	0.55
Reach-1	3.841	PF 1	4438.00	966.30	969.37		969.47	0.002974	3.84	2052.32	1021.86	0.42
Reach-1	3.841	PF 2	4438.00	966.30	970.33		970.59	0.003594	5.11	1204.16	407.13	0.48
Reach-1	3.978	PF 1	4438.00	967.90	971.37		971.51	0.002641	4.06	2134.86	1218.82	0.41
Reach-1	3.978	PF 2	4438.00	967.90	972.26		972.42	0.001846	3.95	1747.69	595.00	0.35
Reach-1	4.101	PF 1	4438.00	969.80	973.25		973.38	0.003132	4.25	2087.74	1138.45	0.44
Reach-1	4.101	PF 2	4438.00	969.80	973.87		974.19	0.004104	5.54	1143.47	345.00	0.52
Reach-1	4.237	PF 1	4438.00	971.30	975.17		975.31	0.002357	4.15	1993.36	921.30	0.39
Reach-1	4.237	PF 2	4438.00	971.30	976.09		976.35	0.002320	4.72	1225.35	295.00	0.40
Reach-1	4.356	PF 1	4438.00	972.60	976.62		976.75	0.002216	4.11	2058.45	903.21	0.38
Reach-1	4.356	PF 2	4438.00	972.60	977.57		977.86	0.002466	5.06	1176.23	270.00	0.42

HEC-RAS Plan: Imported Pla River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	4.496	PF 1	4438.00	974.40	978.31		978.49	0.002449	4.31	1812.55	809.93	0.40
Reach-1	4.496	PF 2	4438.00	974.40	979.22		979.45	0.001875	4.39	1313.65	310.00	0.36
Reach-1	4.625	PF 1	4446.00	978.10	980.55		980.82	0.005003	4.64	1304.83	786.64	0.53
Reach-1	4.625	PF 2	4446.00	978.10	981.04		981.46	0.004985	5.21	854.16	300.00	0.54
Reach-1	4.701	PF 1	4446.00	978.00	981.36		981.42	0.000678	2.02	2284.52	880.02	0.21
Reach-1	4.701	PF 2	4446.00	978.00	982.06		982.18	0.000860	2.74	1624.59	400.00	0.24
Reach-1	4.858	PF 1	4446.00	980.00	982.47		982.74	0.005838	4.20	1073.77	666.72	0.55
Reach-1	4.858	PF 2	4446.00	980.00	983.25		983.65	0.004514	5.05	879.71	300.00	0.52
Reach-1	5.009	PF 1	4446.00	982.00	985.65		985.80	0.002688	4.15	1814.88	814.53	0.41
Reach-1	5.009	PF 2	4446.00	982.00	986.26		986.56	0.003011	4.94	1104.90	285.00	0.45
Reach-1	5.153	PF 1	4446.00	984.30	987.91		988.08	0.003325	4.48	1779.95	910.89	0.45
Reach-1	5.153	PF 2	4446.00	984.30	988.71		989.03	0.003451	5.25	1083.74	290.00	0.47
Reach-1	5.282	PF 1	4446.00	985.50	989.49		989.56	0.001511	3.41	2736.33	1306.77	0.32
Reach-1	5.282	PF 2	4446.00	985.50	990.33		990.45	0.001362	3.72	1761.00	400.00	0.31
Reach-1	5.43	PF 1	4446.00	988.00	991.24	990.82	992.27	0.008132	8.12	547.30	175.60	0.81
Reach-1	5.43	PF 2	4446.00	988.00	991.77	990.81	992.52	0.004841	6.95	639.51	174.00	0.64
Reach-1	5.445		Bridge									
Reach-1	5.46	PF 1	5319.00	988.00	993.14	991.18	993.70	0.002472	5.99	888.21	183.56	0.48
Reach-1	5.46	PF 2	5319.00	988.00	993.25	991.17	993.80	0.002295	5.93	896.76	174.00	0.46
Reach-1	5.563	PF 1	5319.00	988.50	994.17		994.20	0.000291	1.92	5528.35	2052.22	0.15
Reach-1	5.563	PF 2	5319.00	988.50	994.44		994.58	0.000755	3.16	1924.78	350.00	0.24
Reach-1	5.727	PF 1	4662.00	991.00	994.64		994.77	0.002851	3.83	2241.28	1398.90	0.38
Reach-1	5.727	PF 2	4662.00	991.00	995.45		995.69	0.002764	4.38	1281.88	352.41	0.39
Reach-1	5.84	PF 1	4662.00	993.40	996.48		996.61	0.003435	3.94	2117.04	1350.61	0.41
Reach-1	5.84	PF 2	4662.00	993.40	997.23		997.49	0.003367	4.55	1243.71	369.23	0.42
Reach-1	5.96	PF 1	4662.00	995.90	998.61		998.71	0.003270	3.42	2304.32	1419.12	0.39
Reach-1	5.96	PF 2	4662.00	995.90	999.37		999.56	0.003247	4.06	1433.51	440.00	0.40
Reach-1	6.086	PF 1	4662.00	998.30	1001.12		1001.24	0.004343	3.87	2133.55	1469.05	0.44
Reach-1	6.086	PF 2	4662.00	998.30	1001.80		1002.02	0.004118	4.45	1379.15	500.00	0.45
Reach-1	6.217	PF 1	4662.00	1000.10	1003.08		1003.14	0.001839	2.87	2894.72	1564.36	0.30
Reach-1	6.217	PF 2	4662.00	1000.10	1003.65		1003.75	0.001661	3.07	2058.51	630.00	0.29
Reach-1	6.32	PF 1	4662.00	1000.90	1004.09		1004.16	0.001907	2.98	2785.03	1490.77	0.30
Reach-1	6.32	PF 2	4662.00	1000.90	1004.60		1004.70	0.001791	3.20	2022.31	650.00	0.30
Reach-1	6.414	PF 1	4662.00	1002.60	1005.33		1005.42	0.003353	3.43	2506.83	1826.47	0.39
Reach-1	6.414	PF 2	4662.00	1002.60	1005.82		1006.00	0.003774	4.12	1546.22	600.00	0.43
Reach-1	6.509	PF 1	4662.00	1004.40	1006.71		1006.75	0.002015	2.45	3268.61	2554.36	0.30
Reach-1	6.509	PF 2	4662.00	1004.40	1007.61		1007.78	0.003225	3.93	1528.56	510.00	0.40
Reach-1	6.627	PF 1	4662.00	1006.80	1009.19	1009.12	1009.58	0.015080	6.25	1248.98	1460.12	0.80
Reach-1	6.627	PF 2	4662.00	1006.80	1010.14		1010.43	0.005587	4.94	1148.00	400.00	0.51
Reach-1	6.674	PF 1	4662.00	1008.50	1012.43	1012.43	1013.02	0.007806	6.99	1227.82	1211.19	0.70
Reach-1	6.674	PF 2	4662.00	1008.50	1012.30	1012.30	1013.40	0.012970	8.75	645.03	337.64	0.89
Reach-1	6.864	PF 1	4662.00	1011.00	1013.90		1013.91	0.000366	1.35	7820.05	5129.38	0.15
Reach-1	6.864	PF 2	4662.00	1011.00	1014.61		1014.63	0.000400	1.66	5733.87	2590.00	0.16
Reach-1	6.877	PF 1	4703.00	1011.00	1013.93		1013.95	0.000933	2.05	5531.09	4134.73	0.23
Reach-1	6.877	PF 2	4703.00	1011.00	1014.64		1014.66	0.000505	1.79	5451.83	2550.00	0.18
Reach-1	7.045	PF 1	4703.00	1011.10	1014.11		1014.12	0.000229	1.04	8965.03	4533.35	0.13
Reach-1	7.045	PF 2	4703.00	1011.10	1014.79		1014.80	0.000248	1.31	6467.12	2216.69	0.14
Reach-1	7.124	PF 1	4088.00	1011.60	1014.27		1014.28	0.000862	1.73	5009.17	3714.90	0.24
Reach-1	7.124	PF 2	4088.00	1011.60	1014.96		1014.98	0.000915	2.12	3447.26	1449.28	0.25
Reach-1	7.267	PF 1	4088.00	1013.60	1015.44		1015.49	0.003824	2.71	2424.90	2043.47	0.46

HEC-RAS Plan: Imported Pla River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	7.267	PF 2	4088.00	1013.60	1016.21		1016.30	0.004305	3.84	1816.42	1010.84	0.53
Reach-1	7.407	PF 1	4088.00	1016.10	1017.64		1017.68	0.002353	1.72	2644.34	1647.39	0.35
Reach-1	7.407	PF 2	4088.00	1016.10	1018.51		1018.57	0.002294	2.31	2153.01	946.34	0.37
Reach-1	7.552	PF 1	4088.00	1018.10	1020.17	1019.53	1020.24	0.005124	4.45	2445.99	2300.92	0.59
Reach-1	7.552	PF 2	4088.00	1018.10	1020.93		1021.08	0.004934	5.54	1524.51	700.00	0.61
Reach-1	7.67	PF 1	4088.00	1018.20	1022.13		1022.18	0.002102	4.29	3126.94	2276.88	0.42
Reach-1	7.67	PF 2	4088.00	1018.20	1022.99		1023.13	0.002327	5.26	1690.10	540.00	0.46
Reach-1	7.799	PF 1	4088.00	1019.20	1023.38		1023.44	0.001644	4.13	2959.79	1708.07	0.38
Reach-1	7.799	PF 2	4088.00	1019.20	1024.21		1024.31	0.001337	4.26	1998.05	550.00	0.35
Reach-1	7.924	PF 1	4088.00	1021.10	1024.78		1024.85	0.002864	4.67	2540.20	1706.95	0.48
Reach-1	7.924	PF 2	4088.00	1021.10	1025.39		1025.52	0.002650	5.09	1704.56	600.00	0.48
Reach-1	7.977	PF 1	4121.00	1021.40	1027.07	1027.07	1027.44	0.000660	9.33	2423.37	2341.04	0.69
Reach-1	7.977	PF 2	4121.00	1021.40	1027.62	1027.62	1028.26	0.000788	10.85	1462.32	750.00	0.77
Reach-1	7.98		Culvert									
Reach-1	7.983	PF 1	4121.00	1021.60	1027.25	1027.06	1027.46	0.000453	7.72	2862.85	2502.32	0.57
Reach-1	7.983	PF 2	4121.00	1021.60	1027.73	1027.60	1028.26	0.000702	10.14	1539.72	750.00	0.72
Reach-1	8.069	PF 1	4121.00	1024.00	1027.74		1027.83	0.001255	3.60	3044.73	1814.69	0.33
Reach-1	8.069	PF 2	4121.00	1024.00	1028.64		1028.76	0.001009	3.73	1857.84	455.00	0.31
Reach-1	8.169	PF 1	4121.00	1024.60	1028.74		1028.90	0.003697	6.18	2076.39	1380.15	0.57
Reach-1	8.169	PF 2	4121.00	1024.60	1029.42		1029.78	0.004173	7.35	1078.17	295.00	0.62
Reach-1	8.292	PF 1	4121.00	1026.20	1030.98		1031.16	0.003257	6.18	2184.05	1450.81	0.54
Reach-1	8.292	PF 2	4121.00	1026.20	1031.85		1032.20	0.003318	7.09	1156.70	305.00	0.56
Reach-1	8.364	PF 1	4121.00	1027.40	1032.31		1032.56	0.003911	6.64	1975.01	1430.84	0.59
Reach-1	8.364	PF 2	4121.00	1027.40	1033.10		1033.39	0.002788	6.32	1284.89	360.00	0.51
Reach-1	8.468	PF 1	4121.00	1029.60	1034.57		1034.90	0.005866	7.79	1981.00	2079.64	0.71
Reach-1	8.468	PF 2	4121.00	1029.60	1034.87		1035.26	0.005319	7.81	1438.05	910.00	0.68
Reach-1	8.544	PF 1	4183.00	1034.50	1036.29		1036.36	0.004257	3.82	2738.94	2835.15	0.53
Reach-1	8.544	PF 2	4183.00	1034.50	1036.85		1037.08	0.006533	5.77	1620.12	1245.00	0.69
Reach-1	8.636	PF 1	4183.00	1036.10	1038.13		1038.19	0.006139	4.23	2519.34	2730.43	0.62
Reach-1	8.636	PF 2	4183.00	1036.10	1038.99		1039.09	0.004328	4.73	1896.81	1064.54	0.55
Reach-1	8.726	PF 1	4183.00	1037.40	1040.35		1040.41	0.003659	4.11	3033.96	3052.97	0.51
Reach-1	8.726	PF 2	4183.00	1037.40	1041.10		1041.28	0.004848	5.69	1642.80	892.33	0.60
Reach-1	8.848	PF 1	4183.00	1040.60	1043.58		1043.72	0.011435	6.20	1754.61	2224.48	0.86
Reach-1	8.848	PF 2	4183.00	1040.60	1044.46		1044.69	0.007781	6.29	1342.70	818.57	0.74
Reach-1	8.965	PF 1	4183.00	1042.70	1046.32		1046.38	0.002254	3.93	2839.08	1935.31	0.42
Reach-1	8.965	PF 2	4183.00	1042.70	1047.05		1047.21	0.002512	4.85	1523.48	450.00	0.46
Reach-1	9.034	PF 1	4183.00	1043.40	1047.27		1047.42	0.003495	5.31	2016.73	1304.08	0.53
Reach-1	9.034	PF 2	4183.00	1043.40	1048.04		1048.39	0.003901	6.37	1030.83	263.00	0.57
Reach-1	9.095	PF 1	4243.00	1042.30	1049.12	1049.12	1049.87	0.000458	8.79	1586.01	1169.01	0.59
Reach-1	9.095	PF 2	4243.00	1042.30	1048.99	1048.99	1049.94	0.000550	9.52	1186.24	600.00	0.65
Reach-1	9.0975		Culvert									
Reach-1	9.1	PF 1	4243.00	1042.50	1049.11	1049.11	1049.88	0.000491	8.92	1569.77	1165.79	0.61
Reach-1	9.1	PF 2	4243.00	1042.50	1049.12	1049.02	1049.95	0.000518	9.17	1250.96	600.00	0.63
Reach-1	9.189	PF 1	4243.00	1047.90	1050.36		1050.49	0.002199	3.81	1678.20	1067.75	0.46
Reach-1	9.189	PF 2	4243.00	1047.90	1050.29		1050.66	0.005056	5.62	958.87	515.00	0.70
Reach-1	9.292	PF 1	3693.00	1051.40	1052.60	1052.52	1052.97	0.017099	6.23	804.64	897.99	1.13
Reach-1	9.292	PF 2	3693.00	1051.40	1053.33		1053.72	0.006518	5.62	767.27	430.00	0.77
Reach-1	9.396	PF 1	3693.00	1054.20	1055.92		1056.00	0.002581	3.25	1721.91	1433.52	0.47
Reach-1	9.396	PF 2	3693.00	1054.20	1056.18		1056.38	0.003564	4.24	1074.77	570.00	0.57
Reach-1	9.493	PF 1	3693.00	1056.10	1057.72	1057.35	1057.89	0.005829	4.40	1254.67	1205.54	0.69

HEC-RAS Plan: Imported Pla River: RIVER-1 Reach: Reach-1 (Continued)

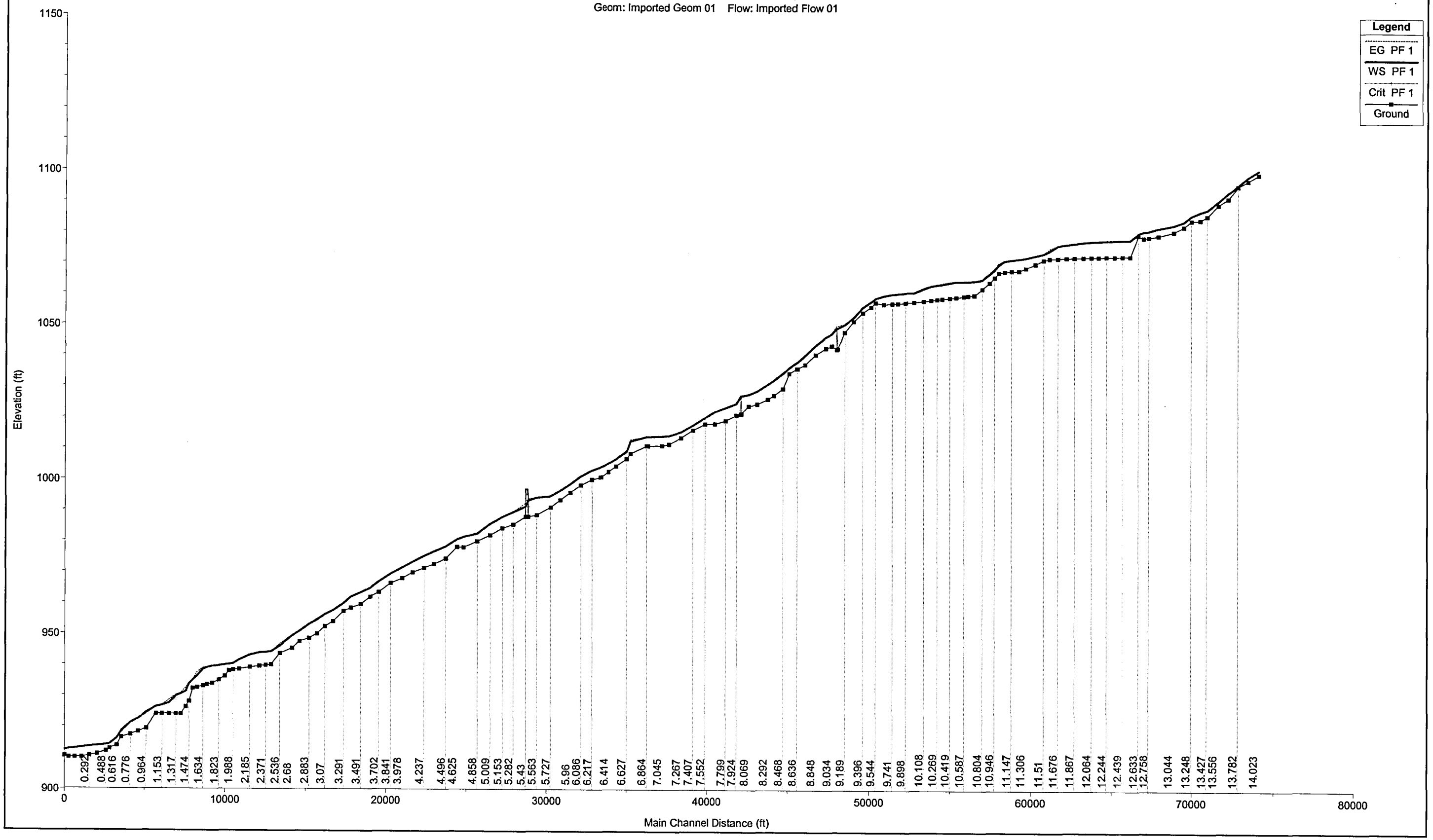
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	9.493	PF 2	3693.00	1056.10	1058.12		1058.32	0.004221	4.47	1107.81	715.00	0.61
Reach-1	9.544	PF 1	3693.00	1057.50	1058.85		1058.93	0.003818	3.26	1662.34	1590.97	0.55
Reach-1	9.544	PF 2	3693.00	1057.50	1059.11		1059.25	0.004149	3.90	1259.90	865.00	0.59
Reach-1	9.641	PF 1	3113.00	1057.00	1059.71		1059.80	0.002703	4.37	1419.47	1044.66	0.52
Reach-1	9.641	PF 2	3113.00	1057.00	1059.92		1060.03	0.002464	4.42	1211.31	656.00	0.50
Reach-1	9.741	PF 1	3113.00	1057.20	1060.27		1060.31	0.000531	2.26	2269.96	1352.34	0.24
Reach-1	9.741	PF 2	3113.00	1057.20	1060.48		1060.54	0.000546	2.40	1891.43	925.00	0.24
Reach-1	9.807	PF 1	3113.00	1057.30	1060.44		1060.49	0.000506	2.25	2287.31	1323.67	0.23
Reach-1	9.807	PF 2	3113.00	1057.30	1060.66		1060.70	0.000425	2.17	2093.09	923.00	0.22
Reach-1	9.898	PF 1	762.00	1057.50	1060.68		1060.70	0.000167	1.27	1185.23	887.82	0.14
Reach-1	9.898	PF 2	762.00	1057.50	1060.86		1060.87	0.000116	1.10	1335.29	871.00	0.12
Reach-1	9.994	PF 1	762.00	1057.70	1060.72		1060.99	0.002148	4.15	183.79	83.57	0.49
Reach-1	9.994	PF 2	762.00	1057.70	1060.85		1061.09	0.001812	3.91	194.89	85.13	0.46
Reach-1	10.108	PF 1	762.00	1058.10	1062.01		1062.35	0.002320	4.67	163.00	65.17	0.52
Reach-1	10.108	PF 2	762.00	1058.10	1062.00		1062.34	0.002328	4.68	162.75	65.08	0.52
Reach-1	10.197	PF 1	762.00	1058.40	1062.93		1063.11	0.001154	3.42	222.58	84.48	0.37
Reach-1	10.197	PF 2	762.00	1058.40	1062.92		1063.11	0.001157	3.43	222.38	84.44	0.37
Reach-1	10.269	PF 1	800.00	1058.60	1063.28		1063.46	0.000760	3.40	242.05	78.79	0.32
Reach-1	10.269	PF 2	800.00	1058.60	1063.28		1063.46	0.000761	3.41	241.94	78.77	0.32
Reach-1	10.328	PF 1	800.00	1058.80	1063.49		1063.77	0.001097	4.21	194.29	57.47	0.38
Reach-1	10.328	PF 2	800.00	1058.80	1063.49		1063.77	0.001098	4.22	194.23	57.47	0.38
Reach-1	10.419	PF 1	800.00	1059.10	1063.99		1064.28	0.001013	4.29	190.41	49.98	0.37
Reach-1	10.419	PF 2	800.00	1059.10	1063.99		1064.28	0.001014	4.29	190.37	49.98	0.37
Reach-1	10.493	PF 1	800.00	1059.30	1064.35		1064.38	0.000078	1.28	652.22	160.00	0.11
Reach-1	10.493	PF 2	800.00	1059.30	1064.35		1064.38	0.000078	1.28	652.14	160.00	0.11
Reach-1	10.587	PF 1	800.00	1059.60	1064.39		1064.44	0.000170	1.78	507.27	212.85	0.15
Reach-1	10.587	PF 2	800.00	1059.60	1064.39		1064.44	0.000170	1.78	507.17	212.77	0.15
Reach-1	10.639	PF 1	800.00	1059.80	1064.45		1064.49	0.000178	1.69	537.73	198.52	0.15
Reach-1	10.639	PF 2	800.00	1059.80	1064.45		1064.49	0.000178	1.69	537.63	198.48	0.15
Reach-1	10.709	PF 1	1380.00	1060.00	1064.53		1064.65	0.000620	2.86	534.61	192.59	0.27
Reach-1	10.709	PF 2	1380.00	1060.00	1064.52		1064.65	0.000620	2.86	534.54	192.58	0.27
Reach-1	10.804	PF 1	1380.00	1062.00	1064.99		1065.35	0.003928	4.90	291.34	167.10	0.61
Reach-1	10.804	PF 2	1380.00	1062.00	1064.99		1065.35	0.003929	4.90	291.32	167.10	0.61
Reach-1	10.889	PF 1	1380.00	1064.00	1066.80		1067.19	0.004192	5.00	284.34	167.98	0.63
Reach-1	10.889	PF 2	1380.00	1064.00	1066.80		1067.19	0.004192	5.00	284.34	167.98	0.63
Reach-1	10.946	PF 1	1380.00	1065.70	1068.22		1068.66	0.005720	5.36	258.00	157.57	0.72
Reach-1	10.946	PF 2	1380.00	1065.70	1068.22		1068.66	0.005720	5.36	258.00	157.57	0.72
Reach-1	10.995	PF 1	1380.00	1067.20	1069.85		1070.40	0.007576	5.92	232.94	144.38	0.82
Reach-1	10.995	PF 2	1380.00	1067.20	1069.85		1070.40	0.007576	5.92	232.94	144.38	0.82
Reach-1	11.067	PF 1	1380.00	1067.60	1071.16		1071.29	0.001044	3.13	587.09	319.26	0.33
Reach-1	11.067	PF 2	1380.00	1067.60	1071.29		1071.52	0.001498	3.83	364.57	133.00	0.40
Reach-1	11.147	PF 1	1380.00	1067.80	1071.54		1071.64	0.000662	2.72	778.20	529.72	0.27
Reach-1	11.147	PF 2	1380.00	1067.80	1071.83		1071.99	0.000851	3.22	436.98	136.00	0.31
Reach-1	11.228	PF 1	1380.00	1067.90	1071.84		1071.92	0.000647	2.56	901.06	699.30	0.27
Reach-1	11.228	PF 2	1380.00	1067.90	1072.20		1072.36	0.000889	3.21	443.24	145.00	0.31
Reach-1	11.306	PF 1	1380.00	1068.80	1072.14		1072.29	0.001171	3.32	562.46	355.36	0.35
Reach-1	11.306	PF 2	1380.00	1068.80	1072.58		1072.73	0.000926	3.22	457.21	150.00	0.32
Reach-1	11.416	PF 1	1380.00	1070.20	1072.89		1073.01	0.001359	3.17	614.03	430.31	0.37
Reach-1	11.416	PF 2	1380.00	1070.20	1073.23		1073.45	0.001644	3.75	368.22	140.00	0.41
Reach-1	11.51	PF 1	1380.00	1071.50	1073.51		1073.56	0.000936	2.25	883.10	668.53	0.29
Reach-1	11.51	PF 2	1380.00	1071.50	1074.02		1074.16	0.001207	2.97	464.03	200.00	0.34

HEC-RAS Plan: Imported Pla River: RIVER-1 Reach: Reach-1 (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	11.58	PF 1	1380.00	1072.00	1074.49	1074.49	1075.21	0.011294	6.85	205.23	154.41	0.99
Reach-1	11.58	PF 2	1380.00	1072.00	1074.62	1074.49	1075.22	0.008375	6.25	225.98	153.00	0.87
Reach-1	11.676	PF 1	1377.00	1072.10	1076.16		1076.29	0.000803	2.99	486.08	184.26	0.30
Reach-1	11.676	PF 2	1377.00	1072.10	1076.12		1076.26	0.000840	3.03	478.53	181.84	0.30
Reach-1	11.775	PF 1	1377.00	1072.20	1076.56		1076.70	0.000750	3.10	531.91	217.49	0.29
Reach-1	11.775	PF 2	1377.00	1072.20	1076.53		1076.68	0.000771	3.13	526.33	216.22	0.30
Reach-1	11.867	PF 1	1377.00	1072.30	1076.93		1077.10	0.000842	3.48	508.37	228.78	0.32
Reach-1	11.867	PF 2	1377.00	1072.30	1076.91		1077.08	0.000857	3.50	504.53	227.44	0.32
Reach-1	11.97	PF 1	1377.00	1072.40	1077.33		1077.44	0.000470	2.64	584.54	179.99	0.24
Reach-1	11.97	PF 2	1377.00	1072.40	1077.32		1077.43	0.000474	2.65	582.56	179.82	0.24
Reach-1	12.064	PF 1	1377.00	1072.50	1077.55		1077.62	0.000282	2.20	763.32	290.98	0.19
Reach-1	12.064	PF 2	1377.00	1072.50	1077.54		1077.61	0.000285	2.21	760.66	290.26	0.19
Reach-1	12.15	PF 1	1377.00	1072.50	1077.68		1077.73	0.000229	2.02	828.50	279.51	0.17
Reach-1	12.15	PF 2	1377.00	1072.50	1077.67		1077.73	0.000231	2.03	826.22	279.45	0.17
Reach-1	12.244	PF 1	1377.00	1072.60	1077.79		1077.85	0.000217	1.89	830.91	262.93	0.16
Reach-1	12.244	PF 2	1377.00	1072.60	1077.79		1077.84	0.000218	1.90	829.02	262.86	0.16
Reach-1	12.345	PF 1	1377.00	1072.60	1077.90		1077.95	0.000165	1.71	904.34	253.79	0.14
Reach-1	12.345	PF 2	1377.00	1072.60	1077.90		1077.94	0.000166	1.71	902.70	253.71	0.14
Reach-1	12.439	PF 1	1377.00	1072.70	1077.99		1078.02	0.000144	1.65	993.37	284.73	0.14
Reach-1	12.439	PF 2	1377.00	1072.70	1077.98		1078.02	0.000145	1.66	991.63	284.62	0.14
Reach-1	12.534	PF 1	1377.00	1072.70	1078.06		1078.09	0.000132	1.60	1049.80	285.44	0.13
Reach-1	12.534	PF 2	1377.00	1072.70	1078.05		1078.09	0.000133	1.60	1048.16	285.40	0.13
Reach-1	12.633	PF 1	1000.00	1079.40	1080.12	1080.12	1080.30	0.017648	4.10	314.24	814.00	0.92
Reach-1	12.633	PF 2	1000.00	1079.40	1080.12	1080.12	1080.30	0.017648	4.10	314.24	814.00	0.92
Reach-1	12.7	PF 1	1000.00	1078.70	1080.74		1080.74	0.000311	0.91	1731.40	1097.68	0.13
Reach-1	12.7	PF 2	1000.00	1078.70	1080.74		1080.74	0.000311	0.91	1731.40	1097.68	0.13
Reach-1	12.758	PF 1	1000.00	1078.90	1080.97		1081.02	0.001952	2.37	757.44	673.16	0.32
Reach-1	12.758	PF 2	1000.00	1078.90	1080.97		1081.02	0.001952	2.37	757.44	673.16	0.32
Reach-1	12.867	PF 1	1000.00	1079.40	1081.86		1081.89	0.001203	2.15	874.65	669.94	0.26
Reach-1	12.867	PF 2	1000.00	1079.40	1081.86		1081.89	0.001203	2.15	874.65	669.94	0.26
Reach-1	13.044	PF 1	1000.00	1080.70	1082.85		1082.87	0.001070	1.76	994.72	873.39	0.24
Reach-1	13.044	PF 2	1000.00	1080.70	1082.85		1082.87	0.001070	1.76	994.72	873.39	0.24
Reach-1	13.161	PF 1	1000.00	1082.30	1083.94		1084.01	0.004104	2.86	651.65	801.50	0.44
Reach-1	13.161	PF 2	1000.00	1082.30	1083.94		1084.01	0.004104	2.86	651.65	801.50	0.44
Reach-1	13.248	PF 1	1440.00	1084.30	1085.87		1085.92	0.004305	2.83	953.87	1007.82	0.45
Reach-1	13.248	PF 2	1440.00	1084.30	1086.49		1086.72	0.007816	4.66	423.31	255.24	0.63
Reach-1	13.349	PF 1	1440.00	1084.50	1087.10		1087.13	0.001383	2.04	1319.65	1017.10	0.27
Reach-1	13.349	PF 2	1440.00	1084.50	1088.07		1088.14	0.001321	2.62	715.46	255.00	0.28
Reach-1	13.427	PF 1	1440.00	1085.80	1087.82		1087.84	0.002266	1.78	1147.35	872.86	0.31
Reach-1	13.427	PF 2	1440.00	1085.80	1088.78		1088.84	0.002236	2.42	728.12	310.00	0.33
Reach-1	13.556	PF 1	1440.00	1089.40	1090.54	1090.29	1090.65	0.020184	3.10	579.72	843.31	0.54
Reach-1	13.556	PF 2	1440.00	1089.40	1090.97		1091.06	0.008389	2.51	606.57	450.00	0.37
Reach-1	13.667	PF 1	1440.00	1091.50	1093.33		1093.35	0.002154	1.34	1456.71	1686.75	0.19
Reach-1	13.667	PF 2	1440.00	1091.50	1093.60		1093.64	0.002850	1.71	870.81	493.93	0.22
Reach-1	13.782	PF 1	1440.00	1095.50	1095.80	1095.53	1095.83	0.010993	0.64	1093.29	2630.71	0.29
Reach-1	13.782	PF 2	1440.00	1095.50	1096.81	1096.49	1096.89	0.012362	2.55	671.12	864.44	0.42
Reach-1	13.902	PF 1	1440.00	1097.30	1098.50		1098.51	0.002389	1.14	1577.99	2018.72	0.19
Reach-1	13.902	PF 2	1440.00	1097.30	1099.40		1099.44	0.002024	1.54	971.49	500.00	0.19
Reach-1	14.023	PF 1	1440.00	1099.30	1100.61	1100.12	1100.64	0.005324	1.76	1042.62	1285.37	0.28
Reach-1	14.023	PF 2	1440.00	1099.30	1101.61		1101.78	0.008370	3.25	442.70	200.00	0.39

Corrected Effective FIS Model (Upstream) Plan: Imported Plan 01 1/29/2004

Geom: Imported Geom 01 Flow: Imported Flow 01



APPENDIX E

HEC-RAS Output Files for Corrected Effective FIS Model (Downstream)

HEC-RAS Plan: Phase1 River: Bullard Wash Reach: Outfall Channel

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Outfall Channel	2500	PF#1	3200.00	900.69	906.58	904.30	907.20	0.002001	6.33	505.71	91.78	0.48
Outfall Channel	2500	PF#2	3200.00	900.69	906.58	904.30	907.20	0.002001	6.33	505.71	91.78	0.48
Outfall Channel	2660	PF#1	3200.00	901.02	906.90	904.63	907.52	0.002012	6.34	504.81	91.76	0.48
Outfall Channel	2660	PF#2	3200.00	901.02	906.90	904.63	907.52	0.002013	6.34	504.75	91.76	0.48
Outfall Channel	2860.56	PF#1	3200.00	901.42	907.30	905.03	907.93	0.002008	6.33	505.18	91.76	0.48
Outfall Channel	2860.56	PF#2	3200.00	901.42	907.30	905.03	907.92	0.002008	6.34	505.13	91.76	0.48
Outfall Channel	2877.74	PF#1	3200.00	901.45	906.45	906.39	908.87	0.003533	12.49	256.16	51.29	0.99
Outfall Channel	2877.74	PF#2	3200.00	901.45	906.45	906.39	908.87	0.003535	12.49	256.12	51.29	0.99
Outfall Channel	2901.4		Culvert									
Outfall Channel	2901.49	PF#1	3200.00	901.50	909.45	906.43	910.41	0.000565	7.85	407.69	51.34	0.49
Outfall Channel	2901.49	PF#2	3200.00	901.50	909.45	906.43	910.41	0.000565	7.85	407.69	51.34	0.49
Outfall Channel	2911	PF#1	3200.00	901.97	909.93	906.59	910.52	0.002140	6.19	517.18	76.95	0.42
Outfall Channel	2911	PF#2	3200.00	901.97	909.93	906.59	910.52	0.002140	6.19	517.18	76.95	0.42
Outfall Channel	2995.26	PF#1	3200.00	906.15	910.46	910.46	912.42	0.014008	11.25	284.43	72.42	1.00
Outfall Channel	2995.26	PF#2	3200.00	906.15	910.46	910.46	912.42	0.014008	11.25	284.43	72.42	1.00
Outfall Channel	3002.33	PF#1	3200.00	906.48	910.82	910.82	913.01	0.004133	11.87	269.54	62.12	1.00
Outfall Channel	3002.33	PF#2	3200.00	906.48	910.82	910.82	913.01	0.004133	11.87	269.54	62.12	1.00
Outfall Channel	3049.67	PF#1	3200.00	906.56	911.58	910.90	913.22	0.002633	10.26	311.85	62.14	0.81
Outfall Channel	3049.67	PF#2	3200.00	906.56	911.58	910.90	913.22	0.002633	10.26	311.85	62.14	0.81
Outfall Channel	3064.67	PF#1	3200.00	906.58	911.65	910.92	913.26	0.002562	10.17	314.63	62.14	0.80
Outfall Channel	3064.67	PF#2	3200.00	906.58	911.65	910.92	913.26	0.002562	10.17	314.63	62.14	0.80
Outfall Channel	3088.94	PF#1	3200.00	906.62	912.81	910.65	913.55	0.000767	6.88	464.88	82.29	0.51
Outfall Channel	3088.94	PF#2	3200.00	906.62	912.81	910.65	913.55	0.000767	6.88	464.88	82.29	0.51
Outfall Channel	3141	PF#1	3200.00	906.70	912.84	910.74	913.59	0.000800	6.98	458.75	82.15	0.52
Outfall Channel	3141	PF#2	3200.00	906.70	912.84	910.74	913.59	0.000800	6.98	458.75	82.15	0.52
Outfall Channel	3266	PF#1	3200.00	906.90	912.92	910.93	913.71	0.000857	7.13	448.92	81.90	0.54
Outfall Channel	3266	PF#2	3200.00	906.90	912.92	910.93	913.71	0.000857	7.13	448.92	81.90	0.54
Outfall Channel	3330	PF#1	3200.00	907.00	913.25	910.70	913.78	0.000544	5.84	547.69	98.51	0.44
Outfall Channel	3330	PF#2	3200.00	907.00	913.25	910.70	913.78	0.000544	5.84	547.69	98.51	0.44
Outfall Channel	3372	PF#1	3200.00	907.06	913.35	910.61	913.82	0.001435	5.49	582.78	105.31	0.41
Outfall Channel	3372	PF#2	3200.00	907.06	913.35	910.61	913.82	0.001435	5.49	582.78	105.31	0.41
Outfall Channel	3562.61*	PF#1	3200.00	907.34	913.62	910.89	914.09	0.001440	5.50	582.09	105.29	0.41
Outfall Channel	3562.61*	PF#2	3200.00	907.34	913.62	910.89	914.09	0.001440	5.50	582.09	105.29	0.41
Outfall Channel	3753.23*	PF#1	3200.00	907.62	913.90	911.17	914.37	0.001444	5.50	581.51	105.26	0.41
Outfall Channel	3753.23*	PF#2	3200.00	907.62	913.90	911.17	914.37	0.001444	5.50	581.51	105.26	0.41
Outfall Channel	3943.84*	PF#1	3200.00	907.89	914.17	911.44	914.64	0.001440	5.50	581.94	105.23	0.41
Outfall Channel	3943.84*	PF#2	3200.00	907.89	914.17	911.44	914.64	0.001440	5.50	581.94	105.23	0.41
Outfall Channel	4134.46*	PF#1	3200.00	908.17	914.45	911.72	914.92	0.001445	5.50	581.38	105.21	0.41
Outfall Channel	4134.46*	PF#2	3200.00	908.17	914.45	911.72	914.92	0.001445	5.50	581.38	105.21	0.41
Outfall Channel	4325.07*	PF#1	3200.00	908.45	914.72	912.00	915.19	0.001448	5.51	580.89	105.19	0.41
Outfall Channel	4325.07*	PF#2	3200.00	908.45	914.72	912.00	915.19	0.001448	5.51	580.89	105.19	0.41
Outfall Channel	4515.69*	PF#1	3200.00	908.73	915.00	912.28	915.47	0.001451	5.51	580.49	105.18	0.41
Outfall Channel	4515.69*	PF#2	3200.00	908.73	915.00	912.28	915.47	0.001451	5.51	580.49	105.18	0.41
Outfall Channel	4706.30*	PF#1	3200.00	909.00	915.28	912.55	915.75	0.001446	5.51	581.08	105.16	0.41
Outfall Channel	4706.30*	PF#2	3200.00	909.00	915.28	912.55	915.75	0.001446	5.51	581.08	105.16	0.41
Outfall Channel	4896.92*	PF#1	3200.00	909.28	915.55	912.83	916.02	0.001450	5.51	580.62	105.14	0.41
Outfall Channel	4896.92*	PF#2	3200.00	909.28	915.55	912.83	916.02	0.001450	5.51	580.62	105.14	0.41
Outfall Channel	5087.53*	PF#1	3200.00	909.56	915.83	913.11	916.30	0.001453	5.51	580.24	105.13	0.41
Outfall Channel	5087.53*	PF#2	3200.00	909.56	915.83	913.11	916.30	0.001453	5.51	580.24	105.13	0.41
Outfall Channel	5278.15*	PF#1	3200.00	909.84	916.11	913.39	916.58	0.001455	5.52	579.92	105.11	0.41
Outfall Channel	5278.15*	PF#2	3200.00	909.84	916.11	913.39	916.58	0.001455	5.52	579.92	105.11	0.41
Outfall Channel	5468.76*	PF#1	3200.00	910.11	916.38	913.66	916.86	0.001449	5.51	580.60	105.09	0.41
Outfall Channel	5468.76*	PF#2	3200.00	910.11	916.38	913.66	916.86	0.001449	5.51	580.60	105.09	0.41
Outfall Channel	5659.38*	PF#1	3200.00	910.39	916.66	913.94	917.13	0.001452	5.52	580.21	105.08	0.41

HEC-RAS Plan: Phasel River: Bullard Wash Reach: Outfall Channel (Continued)

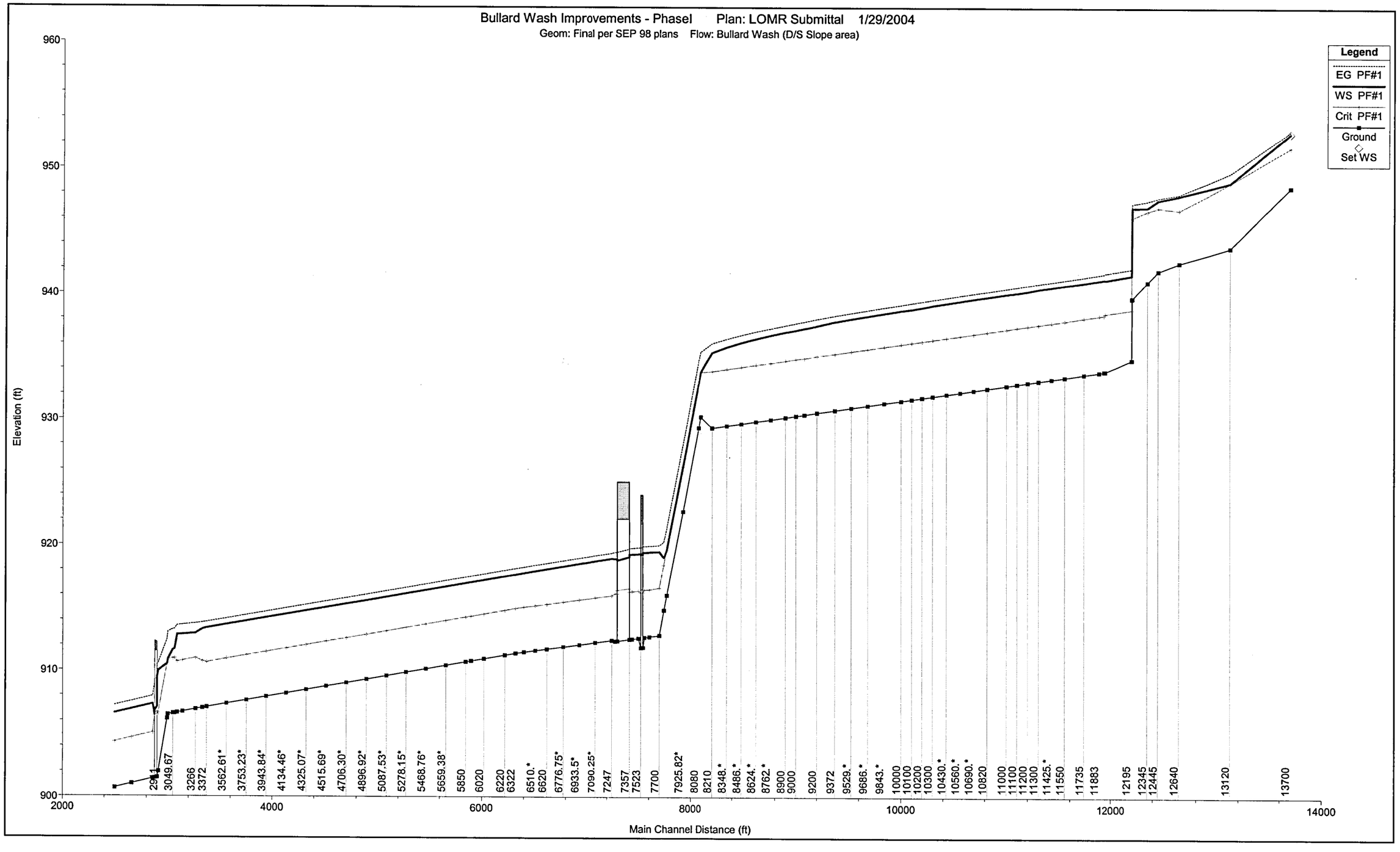
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Outfall Channel	5659.38*	PF#2	3200.00	910.39	916.66	913.94	917.13	0.001452	5.52	580.21	105.08	0.41
Outfall Channel	5850	PF#1	3200.00	910.67	916.94	914.22	917.41	0.001455	5.52	579.88	105.07	0.41
Outfall Channel	5850	PF#2	3200.00	910.67	916.94	914.22	917.41	0.001455	5.52	579.88	105.07	0.41
Outfall Channel	5900	PF#1	3200.00	910.74	917.01	914.29	917.48	0.001452	5.52	580.22	105.08	0.41
Outfall Channel	5900	PF#2	3200.00	910.74	917.01	914.29	917.48	0.001452	5.52	580.22	105.08	0.41
Outfall Channel	6020	PF#1	3200.00	910.92	917.18	914.47	917.66	0.001457	5.52	579.61	105.06	0.41
Outfall Channel	6020	PF#2	3200.00	910.92	917.18	914.47	917.66	0.001457	5.52	579.61	105.06	0.41
Outfall Channel	6220	PF#1	3200.00	911.21	917.48	914.76	917.95	0.001456	5.52	579.77	105.06	0.41
Outfall Channel	6220	PF#2	3200.00	911.21	917.48	914.76	917.95	0.001456	5.52	579.77	105.06	0.41
Outfall Channel	6322	PF#1	3200.00	911.36	917.62	914.92	918.10	0.001463	5.53	578.78	105.02	0.42
Outfall Channel	6322	PF#2	3200.00	911.36	917.62	914.92	918.10	0.001463	5.53	578.78	105.02	0.42
Outfall Channel	6400	PF#1	3200.00	911.45	917.74	915.02	918.21	0.001434	5.49	582.60	105.17	0.41
Outfall Channel	6400	PF#2	3200.00	911.45	917.74	915.02	918.21	0.001434	5.49	582.60	105.17	0.41
Outfall Channel	6510.*	PF#1	3200.00	911.58	917.90	915.14	918.37	0.001409	5.46	585.95	105.30	0.41
Outfall Channel	6510.*	PF#2	3200.00	911.58	917.90	915.14	918.37	0.001409	5.46	585.95	105.30	0.41
Outfall Channel	6620	PF#1	3200.00	911.70	918.06	915.25	918.52	0.001379	5.42	590.18	105.46	0.40
Outfall Channel	6620	PF#2	3200.00	911.70	918.06	915.25	918.52	0.001379	5.42	590.18	105.46	0.40
Outfall Channel	6776.75*	PF#1	3200.00	911.88	918.29	915.43	918.74	0.001349	5.38	594.48	105.62	0.40
Outfall Channel	6776.75*	PF#2	3200.00	911.88	918.29	915.43	918.74	0.001349	5.38	594.48	105.62	0.40
Outfall Channel	6933.5*	PF#1	3200.00	912.05	918.50	915.60	918.94	0.001315	5.34	599.40	105.81	0.40
Outfall Channel	6933.5*	PF#2	3200.00	912.05	918.50	915.60	918.94	0.001315	5.34	599.40	105.81	0.40
Outfall Channel	7090.25*	PF#1	3200.00	912.23	918.71	915.78	919.15	0.001295	5.31	602.52	105.93	0.39
Outfall Channel	7090.25*	PF#2	3200.00	912.23	918.71	915.78	919.15	0.001295	5.31	602.52	105.93	0.39
Outfall Channel	7247	PF#1	3200.00	912.40	918.92	915.95	919.35	0.001269	5.28	606.42	106.07	0.39
Outfall Channel	7247	PF#2	3200.00	912.40	918.92	915.95	919.35	0.001269	5.28	606.42	106.07	0.39
Outfall Channel	7280	PF#1	3200.00	912.34	918.90	916.10	919.42	0.000506	5.79	552.81	92.80	0.42
Outfall Channel	7280	PF#2	3200.00	912.34	918.90	916.10	919.42	0.000506	5.79	552.81	92.80	0.42
Outfall Channel	7300	PF#1	3200.00	912.36	918.91	916.12	919.43	0.000508	5.79	552.22	92.87	0.42
Outfall Channel	7300	PF#2	3200.00	912.36	918.91	916.12	919.43	0.000508	5.79	552.22	92.87	0.42
Outfall Channel	7357		Bridge									
Outfall Channel	7417	PF#1	3200.00	912.49	919.26	916.25	919.74	0.000454	5.59	572.02	93.21	0.40
Outfall Channel	7417	PF#2	3200.00	912.49	919.26	916.25	919.74	0.000454	5.59	572.02	93.21	0.40
Outfall Channel	7440	PF#1	3200.00	912.51	919.27	916.28	919.75	0.000456	5.60	571.19	93.21	0.40
Outfall Channel	7440	PF#2	3200.00	912.51	919.27	916.28	919.75	0.000456	5.60	571.19	93.21	0.40
Outfall Channel	7500	PF#1	3200.00	912.58	919.29	916.34	919.78	0.000467	5.65	566.75	93.11	0.40
Outfall Channel	7500	PF#2	3200.00	912.58	919.29	916.34	919.78	0.000467	5.65	566.75	93.11	0.40
Outfall Channel	7523	PF#1	3200.00	911.82	919.33	916.19	919.80	0.000428	5.49	582.64	93.13	0.39
Outfall Channel	7523	PF#2	3200.00	911.82	919.33	916.19	919.80	0.000428	5.49	582.64	93.13	0.39
Outfall Channel	7533		Bridge									
Outfall Channel	7543	PF#1	3200.00	911.84	919.43	916.21	919.89	0.000411	5.42	590.10	93.29	0.38
Outfall Channel	7543	PF#2	3200.00	911.84	919.43	916.21	919.89	0.000411	5.42	590.10	93.29	0.38
Outfall Channel	7558	PF#1	3200.00	912.65	919.41	916.42	919.90	0.000454	5.60	571.88	93.22	0.40
Outfall Channel	7558	PF#2	3200.00	912.65	919.41	916.42	919.90	0.000454	5.60	571.88	93.22	0.40
Outfall Channel	7605	PF#1	3200.00	912.70	919.44	916.44	919.92	0.000455	5.60	571.63	93.10	0.40
Outfall Channel	7605	PF#2	3200.00	912.70	919.44	916.44	919.92	0.000455	5.60	571.63	93.10	0.40
Outfall Channel	7700	PF#1	3200.00	912.81	919.47	916.58	919.97	0.000479	5.70	565.11	106.74	0.41
Outfall Channel	7700	PF#2	3200.00	912.81	919.47	916.58	919.97	0.000479	5.70	565.11	106.74	0.41
Outfall Channel	7744	PF#1	3200.00	914.81	919.00	918.40	920.25	0.008760	8.96	357.31	90.38	0.79
Outfall Channel	7744	PF#2	3200.00	914.81	919.00	918.40	920.25	0.008760	8.96	357.31	90.38	0.79
Outfall Channel	7771.64	PF#1	3200.00	916.00	919.60	919.60	921.28	0.014427	10.42	307.14	90.79	1.00
Outfall Channel	7771.64	PF#2	3200.00	916.00	919.60	919.60	921.28	0.014427	10.42	307.14	90.79	1.00
Outfall Channel	7925.82*	PF#1	3200.00	922.67	926.25	926.25	927.95	0.014604	10.46	305.96	90.75	1.00
Outfall Channel	7925.82*	PF#2	3200.00	922.67	926.25	926.25	927.95	0.014604	10.46	305.96	90.75	1.00

HEC-RAS Plan: Phase1 River: Bullard Wash Reach: Outfall Channel (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Outfall Channel	8080	PF#1	3200.00	929.34	932.92	932.92	934.62	0.014649	10.47	305.67	90.74	1.01
Outfall Channel	8080	PF#2	3200.00	929.34	932.92	932.92	934.62	0.014649	10.47	305.67	90.74	1.01
Outfall Channel	8100	PF#1	3200.00	930.20	933.73	933.73	935.35	0.014634	10.20	313.70	97.66	1.00
Outfall Channel	8100	PF#2	3200.00	930.20	933.73	933.73	935.35	0.014634	10.20	313.70	97.66	1.00
Outfall Channel	8210	PF#1	3200.00	929.33	935.30	933.80	936.03	0.002797	6.88	464.86	104.83	0.58
Outfall Channel	8210	PF#2	3200.00	929.33	935.30	933.80	936.03	0.002797	6.88	464.86	104.83	0.58
Outfall Channel	8348.*	PF#1	3200.00	929.50	935.74	933.97	936.39	0.002329	6.48	493.76	106.20	0.53
Outfall Channel	8348.*	PF#2	3200.00	929.50	935.74	933.97	936.39	0.002329	6.48	493.76	106.20	0.53
Outfall Channel	8486.*	PF#1	3200.00	929.66	936.10	934.13	936.70	0.002052	6.22	514.87	107.19	0.50
Outfall Channel	8486.*	PF#2	3200.00	929.66	936.10	934.13	936.70	0.002052	6.22	514.87	107.19	0.50
Outfall Channel	8624.*	PF#1	3200.00	929.83	936.40	934.30	936.97	0.001885	6.04	529.54	107.87	0.48
Outfall Channel	8624.*	PF#2	3200.00	929.83	936.40	934.30	936.97	0.001885	6.04	529.54	107.87	0.48
Outfall Channel	8762.*	PF#1	3200.00	929.99	936.68	934.46	937.22	0.001753	5.90	542.39	108.46	0.46
Outfall Channel	8762.*	PF#2	3200.00	929.99	936.68	934.46	937.22	0.001753	5.90	542.39	108.46	0.46
Outfall Channel	8900	PF#1	3200.00	930.16	936.94	934.63	937.46	0.001666	5.80	551.62	108.89	0.45
Outfall Channel	8900	PF#2	3200.00	930.16	936.94	934.63	937.46	0.001666	5.80	551.62	108.89	0.45
Outfall Channel	9000	PF#1	3200.00	930.29	937.09	934.77	937.64	0.001711	5.96	536.92	103.19	0.46
Outfall Channel	9000	PF#2	3200.00	930.29	937.09	934.77	937.64	0.001711	5.96	536.92	103.19	0.46
Outfall Channel	9080	PF#1	3200.00	930.38	937.23	934.86	937.77	0.001656	5.90	542.79	103.41	0.45
Outfall Channel	9080	PF#2	3200.00	930.38	937.23	934.86	937.77	0.001656	5.90	542.79	103.41	0.45
Outfall Channel	9200	PF#1	3200.00	930.55	937.44	935.03	937.97	0.001623	5.86	546.31	103.55	0.45
Outfall Channel	9200	PF#2	3200.00	930.55	937.44	935.03	937.97	0.001623	5.86	546.31	103.55	0.45
Outfall Channel	9372	PF#1	3200.00	930.74	937.76	935.22	938.24	0.001443	5.53	578.65	110.12	0.43
Outfall Channel	9372	PF#2	3200.00	930.74	937.76	935.22	938.24	0.001443	5.53	578.65	110.12	0.43
Outfall Channel	9529.*	PF#1	3200.00	930.93	938.00	935.41	938.46	0.001408	5.49	583.40	110.34	0.42
Outfall Channel	9529.*	PF#2	3200.00	930.93	938.00	935.41	938.46	0.001408	5.49	583.40	110.34	0.42
Outfall Channel	9686.*	PF#1	3200.00	931.12	938.22	935.60	938.68	0.001380	5.45	587.32	110.51	0.42
Outfall Channel	9686.*	PF#2	3200.00	931.12	938.22	935.60	938.68	0.001380	5.45	587.32	110.51	0.42
Outfall Channel	9843.*	PF#1	3200.00	931.31	938.44	935.78	938.90	0.001357	5.42	590.67	110.67	0.41
Outfall Channel	9843.*	PF#2	3200.00	931.31	938.44	935.78	938.90	0.001357	5.42	590.67	110.67	0.41
Outfall Channel	10000	PF#1	3200.00	931.50	938.66	935.97	939.11	0.001337	5.39	593.57	110.80	0.41
Outfall Channel	10000	PF#2	3200.00	931.50	938.66	935.97	939.11	0.001337	5.39	593.57	110.80	0.41
Outfall Channel	10100	PF#1	3200.00	931.62	938.77	936.10	939.26	0.001396	5.57	574.11	104.62	0.42
Outfall Channel	10100	PF#2	3200.00	931.62	938.77	936.10	939.26	0.001396	5.57	574.11	104.62	0.42
Outfall Channel	10200	PF#1	3200.00	931.74	938.92	936.22	939.40	0.001379	5.55	576.43	104.71	0.42
Outfall Channel	10200	PF#2	3200.00	931.74	938.92	936.22	939.40	0.001379	5.55	576.43	104.71	0.42
Outfall Channel	10300	PF#1	3200.00	931.86	939.09	936.34	939.53	0.001283	5.32	601.77	111.17	0.40
Outfall Channel	10300	PF#2	3200.00	931.86	939.09	936.34	939.53	0.001283	5.32	601.77	111.17	0.40
Outfall Channel	10430.*	PF#1	3200.00	932.02	939.26	936.50	939.70	0.001277	5.31	602.71	111.21	0.40
Outfall Channel	10430.*	PF#2	3200.00	932.02	939.26	936.50	939.70	0.001277	5.31	602.71	111.21	0.40
Outfall Channel	10560.*	PF#1	3200.00	932.17	939.43	936.65	939.86	0.001264	5.29	604.73	111.30	0.40
Outfall Channel	10560.*	PF#2	3200.00	932.17	939.43	936.65	939.86	0.001264	5.29	604.73	111.30	0.40
Outfall Channel	10690.*	PF#1	3200.00	932.33	939.59	936.80	940.03	0.001261	5.29	605.29	111.32	0.40
Outfall Channel	10690.*	PF#2	3200.00	932.33	939.59	936.80	940.03	0.001261	5.29	605.29	111.32	0.40
Outfall Channel	10820	PF#1	3200.00	932.49	939.76	936.96	940.19	0.001258	5.28	605.78	111.35	0.40
Outfall Channel	10820	PF#2	3200.00	932.49	939.76	936.96	940.19	0.001258	5.28	605.78	111.35	0.40
Outfall Channel	11000	PF#1	3200.00	932.71	939.99	937.18	940.42	0.001253	5.28	606.57	111.38	0.40
Outfall Channel	11000	PF#2	3200.00	932.71	939.99	937.18	940.42	0.001253	5.28	606.57	111.38	0.40
Outfall Channel	11100	PF#1	3200.00	932.83	940.09	937.31	940.56	0.001315	5.47	585.48	105.05	0.41
Outfall Channel	11100	PF#2	3200.00	932.83	940.09	937.31	940.56	0.001315	5.47	585.48	105.05	0.41
Outfall Channel	11200	PF#1	3200.00	932.95	940.23	937.43	940.69	0.001306	5.45	586.82	105.10	0.41
Outfall Channel	11200	PF#2	3200.00	932.95	940.23	937.43	940.69	0.001306	5.45	586.82	105.10	0.41
Outfall Channel	11300	PF#1	3200.00	933.07	940.39	937.55	940.82	0.001221	5.23	611.73	111.61	0.39
Outfall Channel	11300	PF#2	3200.00	933.07	940.39	937.55	940.82	0.001221	5.23	611.73	111.61	0.39

HEC-RAS Plan: Phase1 River: Bullard Wash Reach: Outfall Channel (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Outfall Channel	11425.*	PF#1	3200.00	933.22	940.55	937.70	940.97	0.001219	5.23	612.14	111.63	0.39
Outfall Channel	11425.*	PF#2	3200.00	933.22	940.55	937.70	940.97	0.001219	5.23	612.14	111.63	0.39
Outfall Channel	11550	PF#1	3200.00	933.37	940.70	937.85	941.12	0.001217	5.22	612.45	111.64	0.39
Outfall Channel	11550	PF#2	3200.00	933.37	940.70	937.85	941.12	0.001217	5.22	612.45	111.64	0.39
Outfall Channel	11735	PF#1	3200.00	933.60	940.91	938.08	941.36	0.001284	5.42	590.18	105.23	0.40
Outfall Channel	11735	PF#2	3200.00	933.60	940.91	938.08	941.36	0.001284	5.42	590.18	105.23	0.40
Outfall Channel	11883	PF#1	3200.00	933.77	941.10	938.25	941.55	0.001269	5.40	592.48	105.32	0.40
Outfall Channel	11883	PF#2	3200.00	933.77	941.10	938.25	941.55	0.001269	5.40	592.48	105.32	0.40
Outfall Channel	11932	PF#1	3200.00	933.84	941.16	938.32	941.62	0.001274	5.41	591.66	105.29	0.40
Outfall Channel	11932	PF#2	3200.00	933.84	941.16	938.32	941.62	0.001274	5.41	591.66	105.29	0.40
Outfall Channel	11943	PF#1	3200.00	933.85	941.14	938.44	941.67	0.001479	5.88	543.81	92.44	0.43
Outfall Channel	11943	PF#2	3200.00	933.85	941.14	938.44	941.67	0.001479	5.88	543.81	92.44	0.43
Outfall Channel	12195	PF#1	3200.00	934.75	941.51	938.76	942.04	0.001389	5.83	549.31	92.71	0.42
Outfall Channel	12195	PF#2	3200.00	934.75	941.51	938.76	942.04	0.001389	5.83	549.31	92.71	0.42
Outfall Channel	12198	PF#1	3200.00	939.65	945.82	945.82	946.51	0.004763	7.96	638.98	375.08	0.94
Outfall Channel	12198	PF#2	3200.00	939.65	945.82	945.82	946.51	0.004763	7.96	638.98	375.08	0.94
Outfall Channel	12200	PF#1	3200.00	939.68	946.90	946.09	947.22	0.000625	5.41	1105.85	493.50	0.54
Outfall Channel	12200	PF#2	3200.00	939.68	947.50	946.47	948.19	0.000895	6.66	480.67	130.00	0.61
Outfall Channel	12345	PF#1	3200.00	940.96	946.92	946.63	947.43	0.001100	6.87	1038.35	626.70	0.61
Outfall Channel	12345	PF#2	3200.00	940.96	947.87	946.65	948.37	0.000764	6.34	783.45	225.00	0.50
Outfall Channel	12445	PF#1	3200.00	941.85	947.51	946.90	947.68	0.002032	4.15	1222.28	768.39	0.44
Outfall Channel	12445	PF#2	3200.00	941.85	948.30	947.03	948.55	0.001695	4.43	885.22	300.00	0.41
Outfall Channel	12640	PF#1	3200.00	942.50	947.85	946.70	947.98	0.001103	3.69	1321.56	839.61	0.34
Outfall Channel	12640	PF#2	3200.00	942.50	948.67	946.67	948.76	0.000510	2.86	1377.62	415.00	0.24
Outfall Channel	13120	PF#1	4906.00	943.70	948.89	948.87	949.66	0.009988	7.21	784.80	594.46	0.91
Outfall Channel	13120	PF#2	4906.00	943.70	949.04	948.85	949.79	0.008510	6.99	725.39	365.00	0.85
Outfall Channel	13700	PF#1	4906.00	948.50	952.80	951.68	952.97	0.003333	6.13	1818.94	873.00	0.58
Outfall Channel	13700	PF#2	4906.00	948.50	953.80	951.76	954.04	0.002250	5.96	1430.22	350.00	0.50


Bullard Wash Improvements - Phasel Plan: LOMR Submittal 1/29/2004
Geom: Final per SEP 98 plans Flow: Bullard Wash (D/S Slope area)
Legend
EG PF#1
WS PF#1
Crit PF#1
Ground
Set WS
Elevation (ft)
960
950
940
930
920
910
900
2000
4000
6000
8000
10000
12000
14000
Main Channel Distance (ft)
2941
3049.67
3266
3372
3562.61*
3753.23*
3943.84*
4134.46*
4325.07*
4515.69*
4706.30*
4896.92*
5087.53*
5278.15*
5468.76*
5659.38*
5850
6020
6220
6322
6510.*
6620
6776.75*
6933.5*
7090.25*
7247
7357
7523
7700
7925.82*
8080
8210
8348.*
8486.*
8624.*
8762.*
8900
9000
9200
9372
9529.*
9686.*
9843.*
10000
10100
10200
10300
10430.*
10560.*
10690.*
10820
11000
11100
11200
11300
11425.*
11550
11735
11883
12195
12345
12445
12640
13120
13700

APPENDIX F

HEC-RAS Output Files for Post-Project Conditions Model

HEC-RAS Plan: Proposed River: Bullard Wash Reach: Main Channel

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main Channel	11100	100-Year	3200.00	932.83	940.09	937.32	940.55	0.001321	5.47	584.67	105.02	0.41
Main Channel	11100	Floodway	3200.00	932.83	940.09	937.32	940.55	0.001321	5.47	584.67	105.02	0.41
Main Channel	11200	100-Year	3200.00	932.95	940.22		940.68	0.001311	5.46	586.07	105.07	0.41
Main Channel	11200	Floodway	3200.00	932.95	940.22		940.68	0.001311	5.46	586.17	105.08	0.41
Main Channel	11300	100-Year	3200.00	933.07	940.39		940.81	0.001226	5.24	611.01	111.58	0.39
Main Channel	11300	Floodway	3200.00	933.07	940.39		940.81	0.001225	5.24	611.10	111.58	0.39
Main Channel	11425	100-Year	3200.00	933.22	940.54		940.97	0.001223	5.23	611.50	111.60	0.39
Main Channel	11425	Floodway	3200.00	933.22	940.54		940.97	0.001222	5.23	611.58	111.61	0.39
Main Channel	11550	100-Year	3200.00	933.37	940.69		941.12	0.001221	5.23	611.86	111.62	0.39
Main Channel	11550	Floodway	3200.00	933.37	940.69		941.12	0.001220	5.23	611.93	111.62	0.39
Main Channel	11735	100-Year	3200.00	933.60	940.90		941.36	0.001287	5.43	589.70	105.21	0.40
Main Channel	11735	Floodway	3200.00	933.60	940.90		941.36	0.001287	5.43	589.76	105.21	0.40
Main Channel	11883	100-Year	3200.00	933.77	941.10		941.55	0.001272	5.40	592.06	105.30	0.40
Main Channel	11883	Floodway	3200.00	933.77	941.10		941.55	0.001271	5.40	592.11	105.30	0.40
Main Channel	11932	100-Year	3200.00	933.84	941.16		941.61	0.001277	5.41	591.25	105.27	0.40
Main Channel	11932	Floodway	3200.00	933.84	941.16		941.61	0.001277	5.41	591.30	105.27	0.40
Main Channel	11943	100-Year	3200.00	933.85	941.13		941.67	0.001482	5.89	543.45	92.44	0.43
Main Channel	11943	Floodway	3200.00	933.85	941.13		941.67	0.001481	5.89	543.50	92.44	0.43
Main Channel	12195	100-Year	3200.00	934.75	941.51		942.04	0.001391	5.83	549.03	92.70	0.42
Main Channel	12195	Floodway	3200.00	934.75	941.51		942.04	0.001391	5.83	549.07	92.71	0.42
Main Channel	12197	100-Year	3200.00	937.25	942.06	942.06	943.75	0.008288	14.00	319.65	91.22	1.12
Main Channel	12197	Floodway	3200.00	937.25	942.06	942.06	943.75	0.008288	14.00	319.65	91.22	1.12
Main Channel	12209	100-Year	3200.00	937.28	943.18		943.89	0.002670	9.11	485.49	113.03	0.66
Main Channel	12209	Floodway	3200.00	937.28	943.18		943.89	0.002670	9.11	485.49	113.03	0.66
Main Channel	12220.5	100-Year	3200.00	937.32	943.45		943.94	0.001777	7.62	582.75	132.47	0.54
Main Channel	12220.5	Floodway	3200.00	937.32	943.45		943.94	0.001777	7.62	582.75	132.47	0.54
Main Channel	12315	100-Year	3200.00	937.59	943.77		944.10	0.001190	6.27	717.81	167.50	0.44
Main Channel	12315	Floodway	3200.00	937.59	943.77		944.10	0.001190	6.27	717.81	167.50	0.44
Main Channel	12508.7	100-Year	3200.00	938.15	943.99		944.38	0.001545	6.72	660.00	165.00	0.49
Main Channel	12508.7	Floodway	3200.00	938.15	943.99		944.38	0.001545	6.72	660.00	165.00	0.49
Main Channel	12708.5	100-Year	3200.00	938.73	944.30		944.72	0.001789	7.17	638.60	172.53	0.54
Main Channel	12708.5	Floodway	3200.00	938.73	944.30		944.72	0.001789	7.17	638.60	172.53	0.54
Main Channel	12908.8	100-Year	3200.00	939.32	944.67		945.10	0.001969	7.28	626.92	170.60	0.55
Main Channel	12908.8	Floodway	3200.00	939.32	944.67		945.10	0.001969	7.28	626.92	170.60	0.55
Main Channel	13095.9	100-Year	3200.00	939.86	945.00		945.56	0.002593	8.31	554.29	156.24	0.65
Main Channel	13095.9	Floodway	3200.00	939.86	945.00		945.56	0.002593	8.31	554.29	156.24	0.65
Main Channel	13294.6	100-Year	3200.00	940.44	945.53		946.10	0.002792	8.44	544.80	157.27	0.66
Main Channel	13294.6	Floodway	3200.00	940.44	945.53		946.10	0.002792	8.44	544.80	157.27	0.66
Main Channel	13494.6	100-Year	3200.00	941.02	946.14		946.63	0.002384	7.86	587.41	167.00	0.61
Main Channel	13494.6	Floodway	3200.00	941.02	946.14		946.63	0.002384	7.86	587.41	167.00	0.61
Main Channel	13694.6	100-Year	3200.00	941.60	946.60		947.16	0.002782	8.45	550.70	161.40	0.67
Main Channel	13694.6	Floodway	3200.00	941.60	946.60		947.16	0.002782	8.45	550.70	161.40	0.67
Main Channel	13894.6	100-Year	3200.00	942.18	947.15		947.77	0.003159	8.83	521.03	153.48	0.70
Main Channel	13894.6	Floodway	3200.00	942.18	947.15		947.77	0.003159	8.83	521.03	153.48	0.70
Main Channel	14096.5	100-Year	3200.00	942.76	947.78		948.39	0.002950	8.69	531.06	154.16	0.68
Main Channel	14096.5	Floodway	3200.00	942.76	947.78		948.39	0.002950	8.69	531.06	154.16	0.68
Main Channel	14298.9	100-Year	3200.00	943.35	948.40		948.99	0.002915	8.58	535.18	154.70	0.67
Main Channel	14298.9	Floodway	3200.00	943.35	948.40		948.99	0.002915	8.58	535.18	154.70	0.67
Main Channel	14359.34	100-Year	3200.00	943.53	948.67		949.16	0.002389	7.85	583.67	157.11	0.61
Main Channel	14359.34	Floodway	3200.00	943.53	948.67		949.16	0.002389	7.85	583.67	157.11	0.61
Main Channel	14499.34	100-Year	3200.00	943.93	948.98		949.52	0.002584	8.07	554.84	154.58	0.63

HEC-RAS Plan: Proposed River: Bullard Wash Reach: Main Channel (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main Channel	14499.34	Floodway	3200.00	943.93	948.98		949.52	0.002584	8.07	554.84	154.58	0.63
Main Channel	14543	100-Year	3200.00	944.06	949.05		949.66	0.003082	8.76	525.20	153.79	0.69
Main Channel	14543	Floodway	3200.00	944.06	949.05		949.66	0.003082	8.76	525.20	153.79	0.69
Main Channel	14544	100-Year	3200.00	945.06	949.04	949.04	950.28	0.008864	12.76	374.39	144.77	1.13
Main Channel	14544	Floodway	3200.00	945.06	949.04	949.04	950.28	0.008864	12.76	374.39	144.77	1.13
Main Channel	14663.1	100-Year	3200.00	945.40	950.38		950.88	0.002544	7.94	578.52	169.87	0.63
Main Channel	14663.1	Floodway	3200.00	945.40	950.38		950.88	0.002544	7.94	578.52	169.87	0.63
Main Channel	14817.3	100-Year	3200.00	945.85	950.76		951.39	0.003266	8.90	515.22	152.93	0.71
Main Channel	14817.3	Floodway	3200.00	945.85	950.76		951.39	0.003266	8.90	515.22	152.93	0.71
Main Channel	14998	100-Year	3200.00	946.37	951.42		952.01	0.002954	8.64	532.39	154.28	0.68
Main Channel	14998	Floodway	3200.00	946.37	951.42		952.01	0.002954	8.64	532.39	154.28	0.68
Main Channel	15199.3	100-Year	3200.00	946.96	952.03		952.61	0.002830	8.47	540.10	154.71	0.66
Main Channel	15199.3	Floodway	3200.00	946.96	952.03		952.61	0.002830	8.47	540.10	154.71	0.66
Main Channel	15401.8	100-Year	3200.00	947.54	952.60		953.20	0.002893	8.62	535.37	154.70	0.68
Main Channel	15401.8	Floodway	3200.00	947.54	952.60		953.20	0.002893	8.62	535.37	154.70	0.68
Main Channel	15590.8	100-Year	3200.00	948.09	953.15		953.73	0.002865	8.56	536.71	154.35	0.67
Main Channel	15590.8	Floodway	3200.00	948.09	953.15		953.73	0.002865	8.56	536.71	154.35	0.67
Main Channel	15779.9	100-Year	3200.00	948.64	953.70		954.28	0.002878	8.54	537.67	155.07	0.67
Main Channel	15779.9	Floodway	3200.00	948.64	953.70		954.28	0.002878	8.54	537.67	155.07	0.67
Main Channel	15969.0	100-Year	3200.00	949.19	954.26		954.85	0.002869	8.54	537.36	154.49	0.67
Main Channel	15969.0	Floodway	3200.00	949.19	954.26		954.85	0.002869	8.54	537.36	154.49	0.67
Main Channel	16165.7	100-Year	3200.00	949.76	954.85		955.43	0.002841	8.50	539.19	154.57	0.66
Main Channel	16165.7	Floodway	3200.00	949.76	954.85		955.43	0.002841	8.50	539.19	154.57	0.66
Main Channel	16366.6	100-Year	3200.00	950.45	955.42		956.04	0.003148	8.84	520.96	153.36	0.70
Main Channel	16366.6	Floodway	3200.00	950.45	955.42		956.04	0.003148	8.84	520.96	153.36	0.70
Main Channel	16562.9	100-Year	3200.00	950.91	956.10		956.58	0.002344	7.85	590.94	172.56	0.61
Main Channel	16562.9	Floodway	3200.00	950.91	956.10		956.58	0.002344	7.85	590.94	172.56	0.61
Main Channel	16762.7	100-Year	3200.00	951.49	956.55		957.14	0.002889	8.57	535.78	154.26	0.67
Main Channel	16762.7	Floodway	3200.00	951.49	956.55		957.14	0.002889	8.57	535.78	154.26	0.67
Main Channel	16961.4	100-Year	3200.00	952.06	957.18		957.65	0.002208	7.53	596.49	163.99	0.59
Main Channel	16961.4	Floodway	3200.00	952.06	957.18		957.65	0.002208	7.53	596.49	163.99	0.59
Main Channel	17076.5	100-Year	3200.00	952.39	957.37		957.99	0.003120	8.79	523.12	153.61	0.69
Main Channel	17076.5	Floodway	3200.00	952.39	957.37		957.99	0.003120	8.79	523.12	153.61	0.69
Main Channel	17188	100-Year	3200.00	952.72	957.73		958.33	0.003037	8.71	527.96	154.28	0.69
Main Channel	17188	Floodway	3200.00	952.72	957.73		958.33	0.003037	8.71	527.96	154.28	0.69
Main Channel	17285	100-Year	3200.00	953.00	957.92		958.71	0.003662	9.45	460.05	127.03	0.75
Main Channel	17285	Floodway	3200.00	953.00	957.92		958.71	0.003662	9.45	460.05	127.03	0.75
Main Channel	17310	100-Year	3200.00	953.07	957.42	957.42	959.23	0.004053	10.85	299.56	83.68	1.00
Main Channel	17310	Floodway	3200.00	953.07	957.42	957.42	959.23	0.004053	10.85	299.56	83.68	1.00
Main Channel	17371.91		Bridge									
Main Channel	17434	100-Year	3200.00	953.43	959.12	957.78	960.09	0.001436	7.95	410.30	84.18	0.62
Main Channel	17434	Floodway	3200.00	953.43	959.12	957.78	960.09	0.001436	7.95	410.30	84.18	0.62
Main Channel	17459	100-Year	3200.00	953.51	959.83		960.19	0.001465	7.05	691.00	143.45	0.49
Main Channel	17459	Floodway	3200.00	953.51	959.83		960.19	0.001465	7.05	691.00	143.45	0.49
Main Channel	17545	100-Year	3200.00	953.76	959.99		960.32	0.001524	7.14	736.41	174.56	0.50
Main Channel	17545	Floodway	3200.00	953.76	959.99		960.32	0.001524	7.14	736.41	174.56	0.50
Main Channel	17644	100-Year	3200.00	954.04	960.14		960.51	0.001927	7.91	716.42	197.95	0.56
Main Channel	17644	Floodway	3200.00	954.04	960.14		960.51	0.001927	7.91	716.42	197.95	0.56
Main Channel	17826.9	100-Year	3200.00	954.60	960.49		960.89	0.002207	8.28	688.30	198.03	0.60
Main Channel	17826.9	Floodway	3200.00	954.60	960.49		960.89	0.002207	8.28	688.30	198.03	0.60

HEC-RAS Plan: Proposed River: Bullard Wash Reach: Main Channel (Continued)

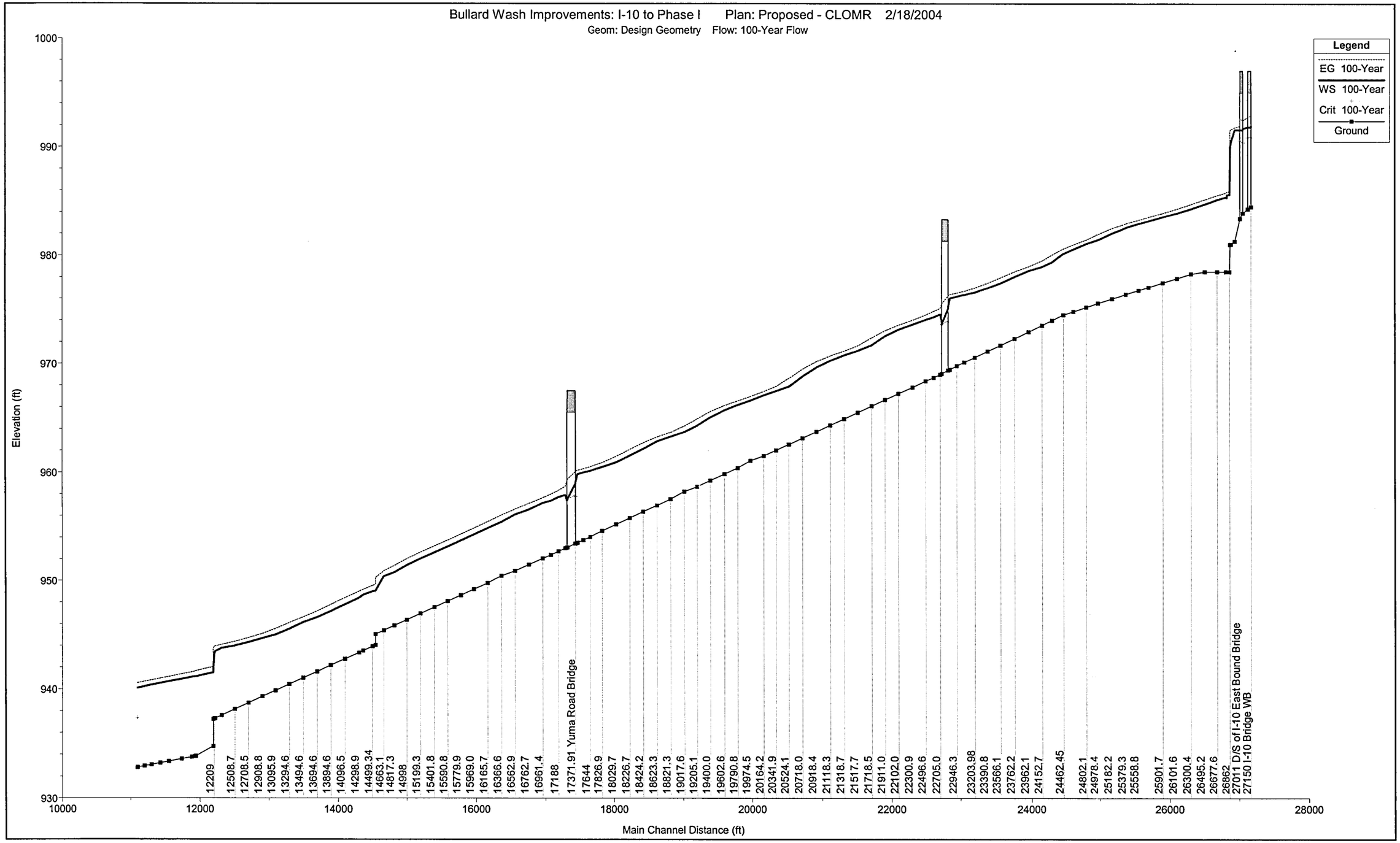
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main Channel	18029.7	100-Year	3200.00	955.20	960.92		961.46	0.003059	9.58	605.29	186.13	0.71
Main Channel	18029.7	Floodway	3200.00	955.20	960.92		961.46	0.003059	9.58	605.29	186.13	0.71
Main Channel	18226.7	100-Year	3200.00	955.78	961.52		962.08	0.003228	9.87	603.96	193.39	0.73
Main Channel	18226.7	Floodway	3200.00	955.78	961.52		962.08	0.003228	9.87	603.96	193.39	0.73
Main Channel	18424.2	100-Year	3200.00	956.36	962.14		962.71	0.003078	9.70	591.69	177.03	0.71
Main Channel	18424.2	Floodway	3200.00	956.36	962.14		962.71	0.003078	9.70	591.69	177.03	0.71
Main Channel	18623.3	100-Year	3200.00	956.95	962.84		963.23	0.002170	8.20	692.10	198.57	0.60
Main Channel	18623.3	Floodway	3200.00	956.95	962.84		963.23	0.002170	8.20	692.10	198.57	0.60
Main Channel	18821.3	100-Year	3200.00	957.54	963.27		963.66	0.002180	8.13	694.75	201.34	0.60
Main Channel	18821.3	Floodway	3200.00	957.54	963.27		963.66	0.002180	8.13	694.75	201.34	0.60
Main Channel	19017.6	100-Year	3200.00	958.24	963.69		964.25	0.003418	9.78	591.27	187.74	0.74
Main Channel	19017.6	Floodway	3200.00	958.24	963.69		964.25	0.003418	9.78	591.27	187.74	0.74
Main Channel	19205.1	100-Year	3200.00	958.67	964.30		964.90	0.003687	10.36	580.35	193.62	0.77
Main Channel	19205.1	Floodway	3200.00	958.67	964.30		964.90	0.003687	10.36	580.35	193.62	0.77
Main Channel	19400.0	100-Year	3200.00	959.25	965.04		965.57	0.003120	9.76	625.19	206.40	0.72
Main Channel	19400.0	Floodway	3200.00	959.25	965.04		965.57	0.003120	9.76	625.19	206.40	0.72
Main Channel	19602.6	100-Year	3200.00	959.85	965.71		966.15	0.002407	8.70	676.97	206.78	0.63
Main Channel	19602.6	Floodway	3200.00	959.85	965.71		966.15	0.002407	8.70	676.97	206.78	0.63
Main Channel	19790.8	100-Year	3200.00	960.40	966.19		966.57	0.002127	8.07	707.64	206.63	0.59
Main Channel	19790.8	Floodway	3200.00	960.40	966.19		966.57	0.002127	8.07	707.64	206.63	0.59
Main Channel	19974.5	100-Year	3200.00	961.07	966.61		966.98	0.002473	8.41	729.36	250.58	0.63
Main Channel	19974.5	Floodway	3200.00	961.07	966.61		966.98	0.002473	8.41	729.36	250.58	0.63
Main Channel	20164.2	100-Year	3200.00	961.51	967.09		967.43	0.002296	8.16	786.36	290.18	0.61
Main Channel	20164.2	Floodway	3200.00	961.51	967.09		967.43	0.002296	8.16	786.36	290.18	0.61
Main Channel	20341.9	100-Year	3200.00	962.03	967.47		967.90	0.002709	8.68	671.25	217.52	0.66
Main Channel	20341.9	Floodway	3200.00	962.03	967.47		967.90	0.002709	8.68	671.25	217.52	0.66
Main Channel	20524.1	100-Year	3200.00	962.57	967.89		968.64	0.004774	11.42	526.68	186.19	0.87
Main Channel	20524.1	Floodway	3200.00	962.57	967.89		968.64	0.004774	11.42	526.68	186.19	0.87
Main Channel	20718.0	100-Year	3200.00	963.14	968.81		969.49	0.003980	10.83	548.31	178.38	0.80
Main Channel	20718.0	Floodway	3200.00	963.14	968.81		969.49	0.003980	10.83	548.31	178.38	0.80
Main Channel	20918.4	100-Year	3200.00	963.74	969.65		970.18	0.002919	9.53	607.93	181.03	0.69
Main Channel	20918.4	Floodway	3200.00	963.74	969.65		970.18	0.002919	9.53	607.93	181.03	0.69
Main Channel	21118.3	100-Year	3200.00	964.33	970.27		970.72	0.002392	8.66	658.32	189.63	0.63
Main Channel	21118.3	Floodway	3200.00	964.33	970.27		970.72	0.002392	8.66	658.32	189.63	0.63
Main Channel	21318.7	100-Year	3200.00	964.92	970.79		971.16	0.001976	7.89	716.51	202.43	0.57
Main Channel	21318.7	Floodway	3200.00	964.92	970.79		971.16	0.001976	7.89	716.51	202.43	0.57
Main Channel	21517.7	100-Year	3200.00	965.51	971.19		971.66	0.002768	9.03	646.15	200.90	0.67
Main Channel	21517.7	Floodway	3200.00	965.51	971.19		971.66	0.002768	9.03	646.15	200.90	0.67
Main Channel	21718.5	100-Year	3200.00	966.10	971.71		972.37	0.003906	10.67	551.74	178.32	0.79
Main Channel	21718.5	Floodway	3200.00	966.10	971.71		972.37	0.003906	10.67	551.74	178.32	0.79
Main Channel	21911.0	100-Year	3200.00	966.67	972.54		973.03	0.002871	9.45	649.15	216.28	0.69
Main Channel	21911.0	Floodway	3200.00	966.67	972.54		973.03	0.002871	9.45	649.15	216.28	0.69
Main Channel	22102.0	100-Year	3200.00	967.24	973.13		973.54	0.002365	8.57	691.94	213.20	0.62
Main Channel	22102.0	Floodway	3200.00	967.24	973.13		973.54	0.002365	8.57	691.94	213.20	0.62
Main Channel	22300.9	100-Year	3200.00	967.82	973.61		974.01	0.002338	8.41	692.74	210.17	0.62
Main Channel	22300.9	Floodway	3200.00	967.82	973.61		974.01	0.002338	8.41	692.74	210.17	0.62
Main Channel	22496.6	100-Year	3200.00	968.40	974.05		974.49	0.002470	8.51	650.06	185.79	0.63
Main Channel	22496.6	Floodway	3200.00	968.40	974.05		974.49	0.002470	8.51	650.06	185.79	0.63
Main Channel	22611.0	100-Year	3200.00	968.72	974.28		974.83	0.002950	9.20	589.85	169.49	0.69
Main Channel	22611.0	Floodway	3200.00	968.72	974.28		974.83	0.002950	9.20	589.85	169.49	0.69
Main Channel	22705.0	100-Year	3200.00	969.00	974.55		975.09	0.002660	8.66	565.04	135.61	0.65

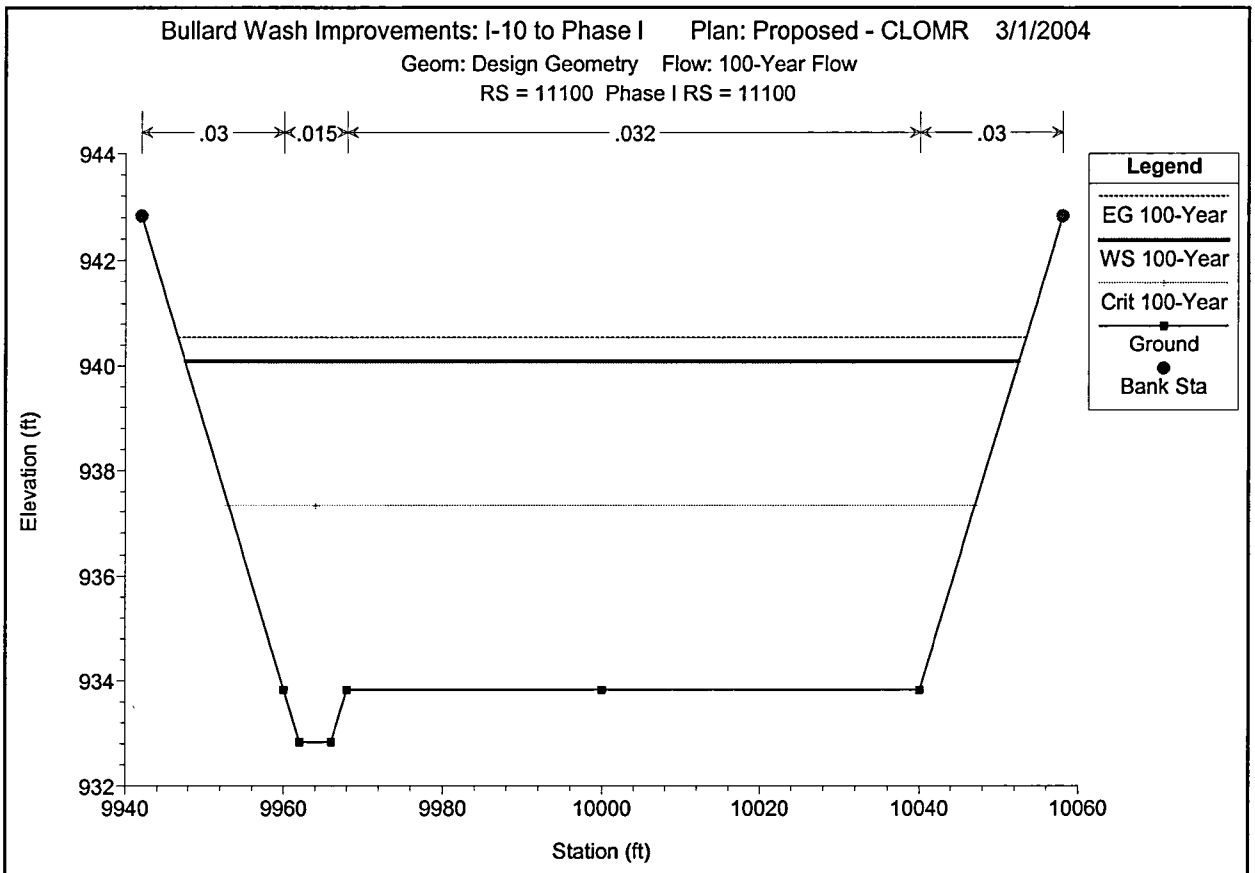
HEC-RAS Plan: Proposed River: Bullard Wash Reach: Main Channel (Continued)

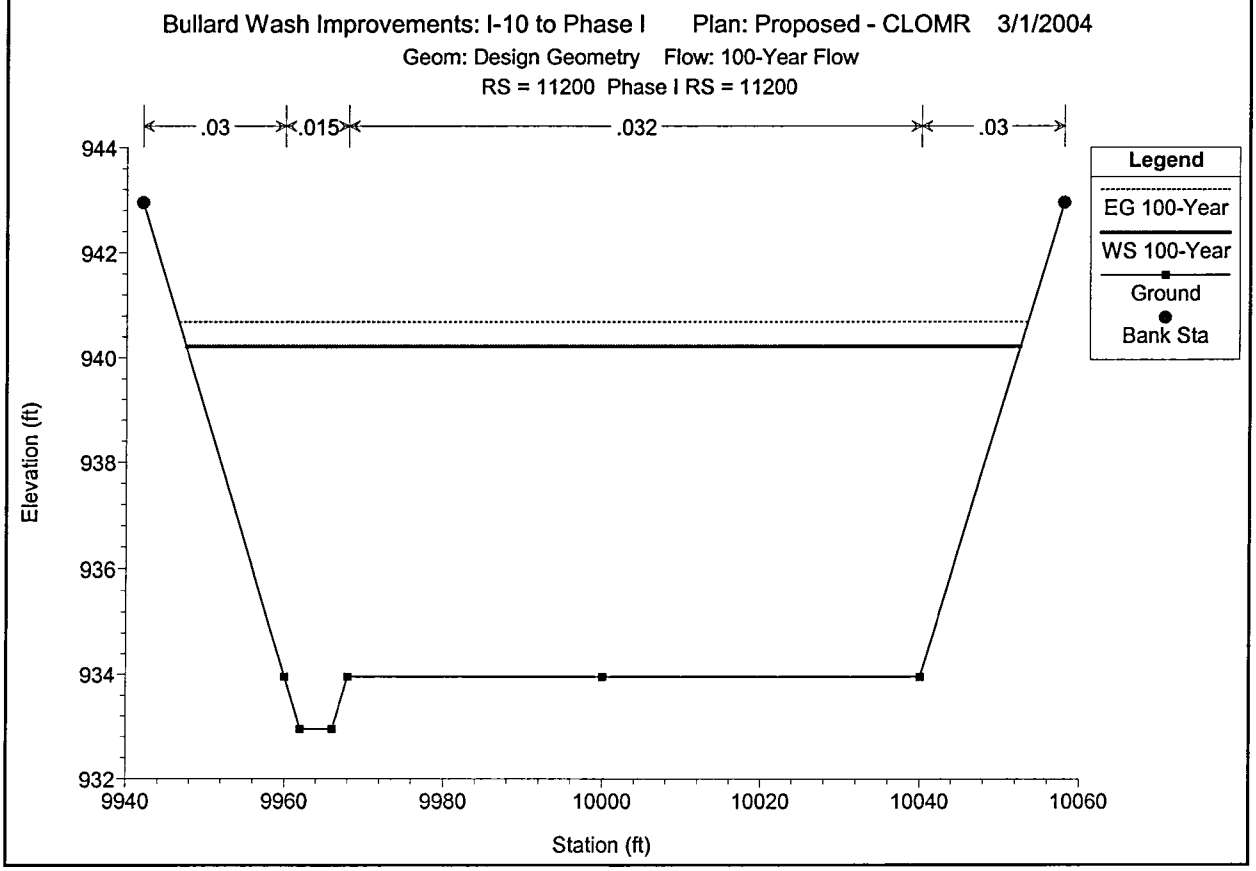
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main Channel	22705.0	Floodway	3200.00	969.00	974.55		975.09	0.002660	8.66	565.04	135.61	0.65
Main Channel	22728.93	100-Year	3200.00	969.07	973.95		975.46	0.004191	9.92	326.59	79.09	0.85
Main Channel	22728.93	Floodway	3200.00	969.07	973.95		975.46	0.004191	9.92	326.59	79.09	0.85
Main Channel	22774.93		Bridge									
Main Channel	22820.93	100-Year	3200.00	969.39	975.30	973.84	976.27	0.002013	7.95	408.50	79.87	0.61
Main Channel	22820.93	Floodway	3200.00	969.39	975.30	973.84	976.27	0.002013	7.95	408.50	79.87	0.61
Main Channel	22845.6	100-Year	3200.00	969.46	976.03		976.37	0.001309	6.85	713.36	142.74	0.47
Main Channel	22845.6	Floodway	3200.00	969.46	976.03		976.37	0.001309	6.85	713.36	142.74	0.47
Main Channel	22946.3	100-Year	3200.00	969.78	976.18		976.52	0.001522	7.26	740.82	178.74	0.51
Main Channel	22946.3	Floodway	3200.00	969.78	976.18		976.52	0.001522	7.26	740.82	178.74	0.51
Main Channel	23054.4	100-Year	3200.00	970.12	976.36		976.69	0.001615	7.35	757.19	196.90	0.52
Main Channel	23054.4	Floodway	3200.00	970.12	976.36		976.69	0.001615	7.35	757.19	196.90	0.52
Main Channel	23203.98	100-Year	3200.00	970.58	976.57		977.00	0.002181	8.38	678.07	191.26	0.60
Main Channel	23203.98	Floodway	3200.00	970.58	976.57		977.00	0.002181	8.38	678.07	191.26	0.60
Main Channel	23390.8	100-Year	3200.00	971.15	976.98		977.44	0.002532	8.85	649.94	191.91	0.65
Main Channel	23390.8	Floodway	3200.00	971.15	976.98		977.44	0.002532	8.85	649.94	191.91	0.65
Main Channel	23566.1	100-Year	3200.00	971.70	977.43		977.94	0.002938	9.36	614.18	185.60	0.69
Main Channel	23566.1	Floodway	3200.00	971.70	977.43		977.94	0.002938	9.36	614.18	185.60	0.69
Main Channel	23762.2	100-Year	3200.00	972.31	978.02		978.49	0.002628	8.84	638.16	187.46	0.65
Main Channel	23762.2	Floodway	3200.00	972.31	978.02		978.49	0.002628	8.84	638.16	187.46	0.65
Main Channel	23962.1	100-Year	3200.00	972.94	978.59		978.97	0.002126	7.92	692.79	194.33	0.59
Main Channel	23962.1	Floodway	3200.00	972.94	978.59		978.97	0.002126	7.92	692.79	194.33	0.59
Main Channel	24152.7	100-Year	3200.00	973.53	978.95		979.50	0.003094	9.50	618.01	203.84	0.72
Main Channel	24152.7	Floodway	3200.00	973.53	978.95		979.50	0.003094	9.50	618.01	203.84	0.72
Main Channel	24300.2	100-Year	3200.00	973.99	979.38		980.05	0.004049	10.62	548.93	181.19	0.81
Main Channel	24300.2	Floodway	3200.00	973.99	979.38		980.05	0.004049	10.62	548.93	181.19	0.81
Main Channel	24462.45	100-Year	3200.00	974.50	980.17		980.61	0.002653	8.83	658.73	204.12	0.65
Main Channel	24462.45	Floodway	3200.00	974.50	980.17		980.61	0.002653	8.83	658.73	204.12	0.65
Main Channel	24611.0	100-Year	3200.00	974.81	980.56		981.00	0.002441	8.63	677.12	208.58	0.63
Main Channel	24611.0	Floodway	3200.00	974.81	980.56		981.00	0.002441	8.63	677.12	208.58	0.63
Main Channel	24802.1	100-Year	3200.00	975.20	981.08		981.43	0.002071	8.02	734.86	223.45	0.58
Main Channel	24802.1	Floodway	3200.00	975.20	981.08		981.43	0.002071	8.02	734.86	223.45	0.58
Main Channel	24978.4	100-Year	3200.00	975.57	981.44		981.94	0.002826	9.33	622.66	187.01	0.68
Main Channel	24978.4	Floodway	3200.00	975.57	981.44		981.94	0.002826	9.33	622.66	187.01	0.68
Main Channel	25182.2	100-Year	3200.00	975.99	982.03		982.50	0.002511	8.98	656.31	199.45	0.64
Main Channel	25182.2	Floodway	3200.00	975.99	982.03		982.50	0.002511	8.98	656.31	199.45	0.64
Main Channel	25379.3	100-Year	3200.00	976.40	982.56		982.93	0.001817	7.77	715.53	187.91	0.55
Main Channel	25379.3	Floodway	3200.00	976.40	982.56		982.93	0.001817	7.77	715.53	187.91	0.55
Main Channel	25558.8	100-Year	3200.00	976.77	982.94		983.26	0.001777	7.65	773.59	224.95	0.54
Main Channel	25558.8	Floodway	3200.00	976.77	982.94		983.26	0.001777	7.65	773.59	224.95	0.54
Main Channel	25701.5	100-Year	3200.00	977.06	983.18		983.53	0.001939	7.96	735.39	212.37	0.57
Main Channel	25701.5	Floodway	3200.00	977.06	983.18		983.53	0.001939	7.96	735.39	212.37	0.57
Main Channel	25901.7	100-Year	3200.00	977.48	983.54		983.90	0.001744	7.65	726.97	193.01	0.55
Main Channel	25901.7	Floodway	3200.00	977.48	983.54		983.90	0.001744	7.65	726.97	193.01	0.55
Main Channel	26101.6	100-Year	3200.00	977.89	983.90		984.29	0.002085	8.18	690.72	191.78	0.59
Main Channel	26101.6	Floodway	3200.00	977.89	983.90		984.29	0.002085	8.18	690.72	191.78	0.59
Main Channel	26300.4	100-Year	3200.00	978.30	984.30		984.73	0.002267	8.50	662.75	184.02	0.61
Main Channel	26300.4	Floodway	3200.00	978.30	984.30		984.73	0.002267	8.50	662.75	184.02	0.61
Main Channel	26495.2	100-Year	3200.00	978.50	984.75		985.17	0.002190	8.35	671.37	184.97	0.59
Main Channel	26495.2	Floodway	3200.00	978.50	984.75		985.17	0.002190	8.35	671.37	184.97	0.59

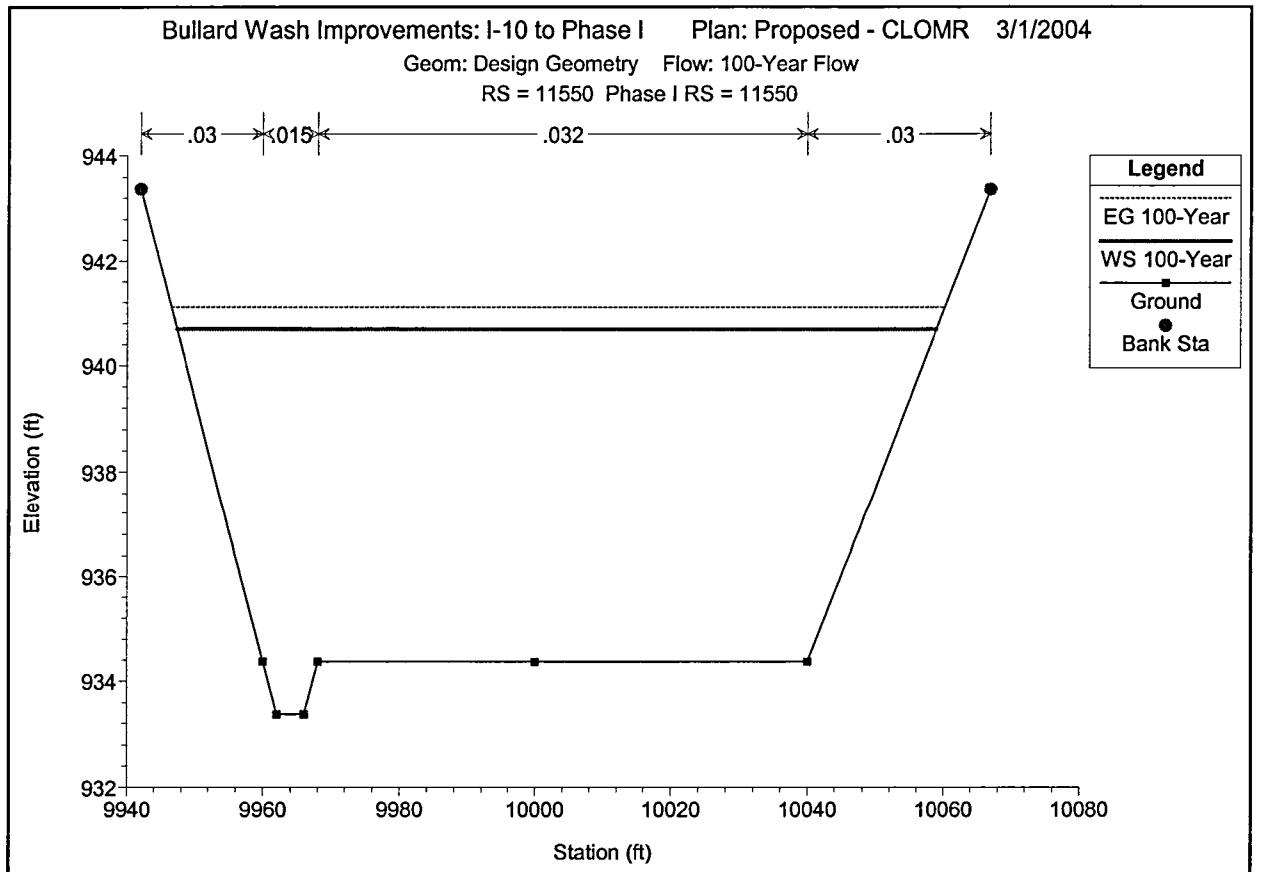
HEC-RAS Plan: Proposed River: Bullard Wash Reach: Main Channel (Continued)

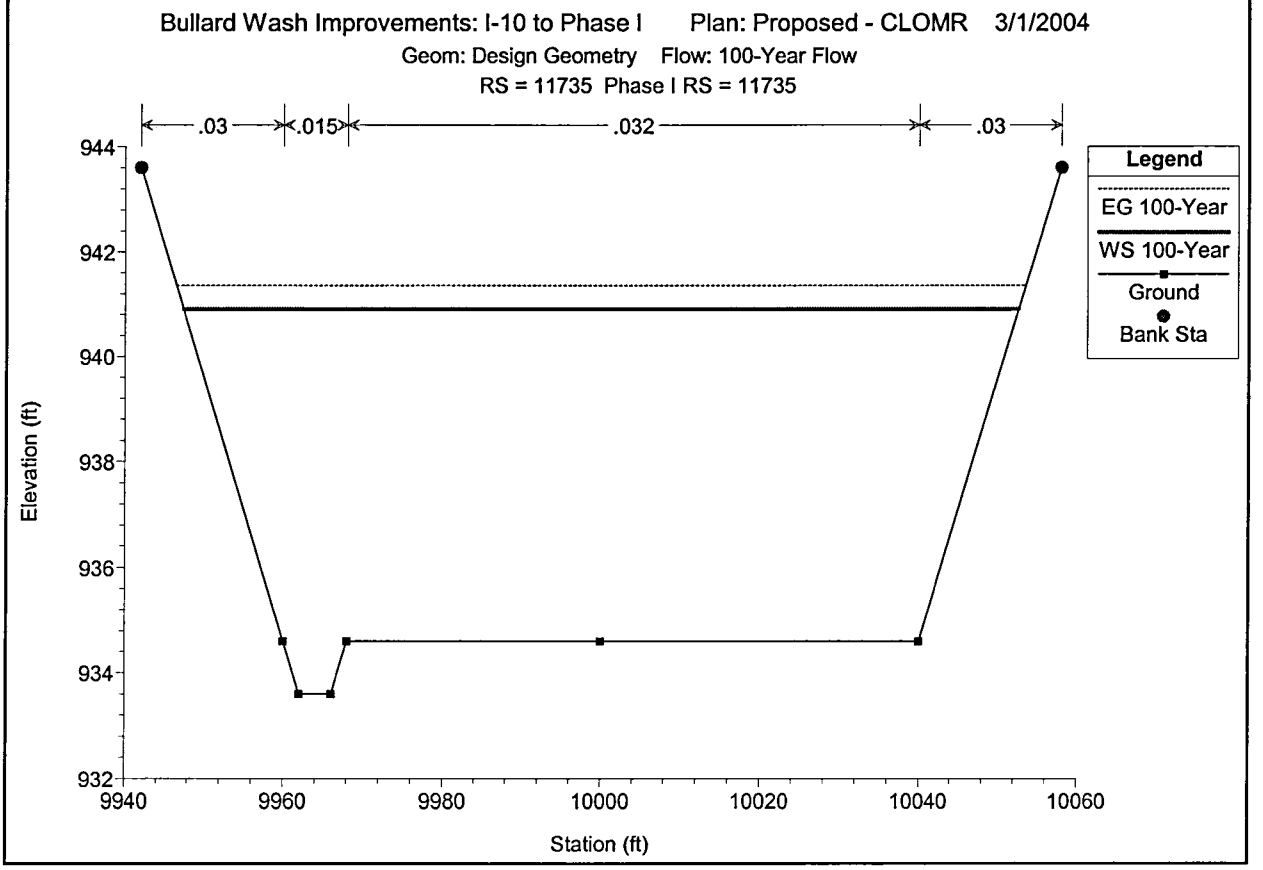
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main Channel	26677.6	100-Year	3200.00	978.50	985.15		985.56	0.001995	7.93	680.48	176.93	0.54
Main Channel	26677.6	Floodway	3200.00	978.50	985.15		985.56	0.001995	7.93	680.48	176.93	0.54
Main Channel	26806.44	100-Year	3200.00	978.50	985.39		985.78	0.001568	7.07	662.68	140.81	0.47
Main Channel	26806.44	Floodway	3200.00	978.50	985.39		985.78	0.001568	7.07	662.68	140.81	0.47
Main Channel	26821	100-Year	3200.00	978.50	985.33		985.84	0.001903	7.74	575.28	110.67	0.52
Main Channel	26821	Floodway	3200.00	978.50	985.33		985.84	0.001903	7.74	575.28	110.67	0.52
Main Channel	26822	100-Year	3200.00	978.50	985.59		985.87	0.000840	4.54	759.56	114.19	0.30
Main Channel	26822	Floodway	3200.00	978.50	985.59		985.87	0.000840	4.54	759.56	114.19	0.30
Main Channel	26862	100-Year	3200.00	978.50	985.63		985.90	0.000826	4.52	763.78	114.26	0.30
Main Channel	26862	Floodway	3200.00	978.50	985.63		985.90	0.000826	4.52	763.78	114.26	0.30
Main Channel	26871	100-Year	3200.00	981.00	989.97	989.97	991.54	0.004580	12.69	396.86	110.92	0.84
Main Channel	26871	Floodway	3200.00	981.00	989.97	989.97	991.54	0.004580	12.69	396.86	110.92	0.84
Main Channel	26883.44	100-Year	3200.00	981.03	990.47		991.62	0.003175	11.06	452.01	111.83	0.71
Main Channel	26883.44	Floodway	3200.00	981.03	990.47		991.62	0.003175	11.06	452.01	111.83	0.71
Main Channel	26936	100-Year	3200.00	981.30	991.59		991.80	0.000760	4.38	927.11	202.54	0.31
Main Channel	26936	Floodway	3200.00	981.30	991.59		991.80	0.000760	4.38	927.11	202.54	0.31
Main Channel	27011	100-Year	3200.00	983.40	991.59		991.93	0.001390	6.16	722.99	164.37	0.42
Main Channel	27011	Floodway	3200.00	983.40	991.59		991.93	0.001390	6.16	722.99	164.37	0.42
Main Channel	27034		Bridge									
Main Channel	27057	100-Year	5319.00	983.90	991.69	990.35	992.47	0.003122	9.33	786.10	170.82	0.64
Main Channel	27057	Floodway	5319.00	983.90	991.69	990.35	992.47	0.003122	9.33	786.10	170.82	0.64
Main Channel	27127	100-Year	5319.00	984.30	991.86		992.75	0.003841	10.04	737.41	170.52	0.70
Main Channel	27127	Floodway	5319.00	984.30	991.86		992.75	0.003841	10.04	737.41	170.52	0.70
Main Channel	27150		Bridge									
Main Channel	27173	100-Year	5319.00	984.50	991.95	990.85	992.83	0.003733	9.92	741.86	169.23	0.69
Main Channel	27173	Floodway	5319.00	984.50	991.95	990.85	992.83	0.003733	9.92	741.86	169.23	0.69

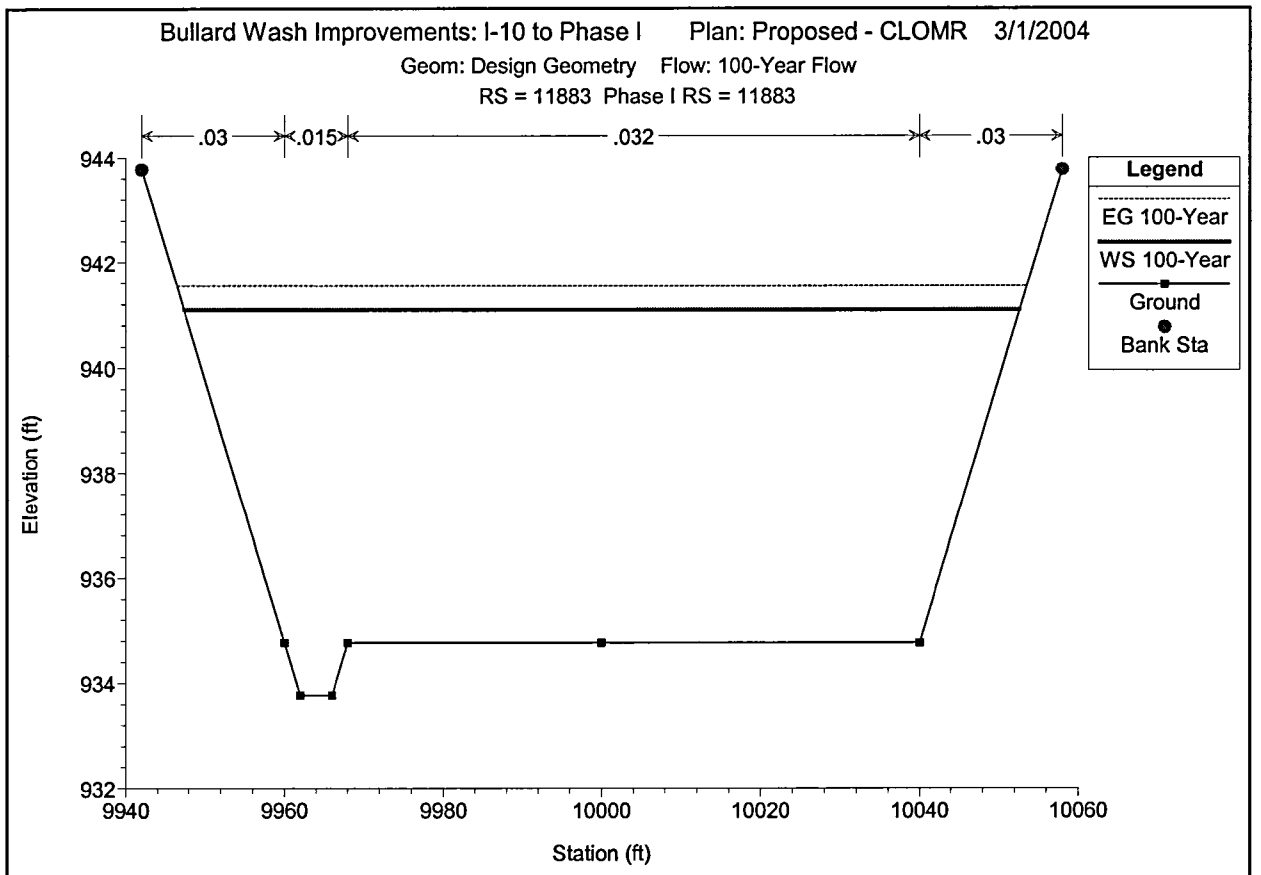

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 2/18/2004
Geom: Design Geometry Flow: 100-Year Flow
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Elevation (ft)
1000
990
980
970
960
950
940
930
10000
12000
14000
16000
18000
20000
22000
24000
26000
28000
Main Channel Distance (ft)
12209
12508.7
12708.5
12908.8
13095.9
13294.6
13494.6
13694.6
13894.6
14096.5
14298.9
14499.34
14663.1
14817.3
14998
15199.3
15401.8
15590.8
15779.9
15969.0
16165.7
16366.6
16562.9
16762.7
16961.4
17188
17371.91 Yuma Road Bridge
17644
17826.9
18029.7
18226.7
18424.2
18623.3
18821.3
19017.6
19205.1
19400.0
19602.6
19790.8
19974.5
20164.2
20341.9
20524.1
20718.0
20918.4
21118.3
21318.7
21517.7
21718.5
21911.0
22102.0
22300.9
22496.6
22705.0
22946.3
23203.98
23390.8
23566.1
23762.2
23962.1
24152.7
24462.45
24802.1
24978.4
25182.2
25379.3
25558.8
25901.7
26101.6
26300.4
26495.2
26677.6
26862
27011 D/S of I-10 East Bound Bridge
27150 I-10 Bridge WB

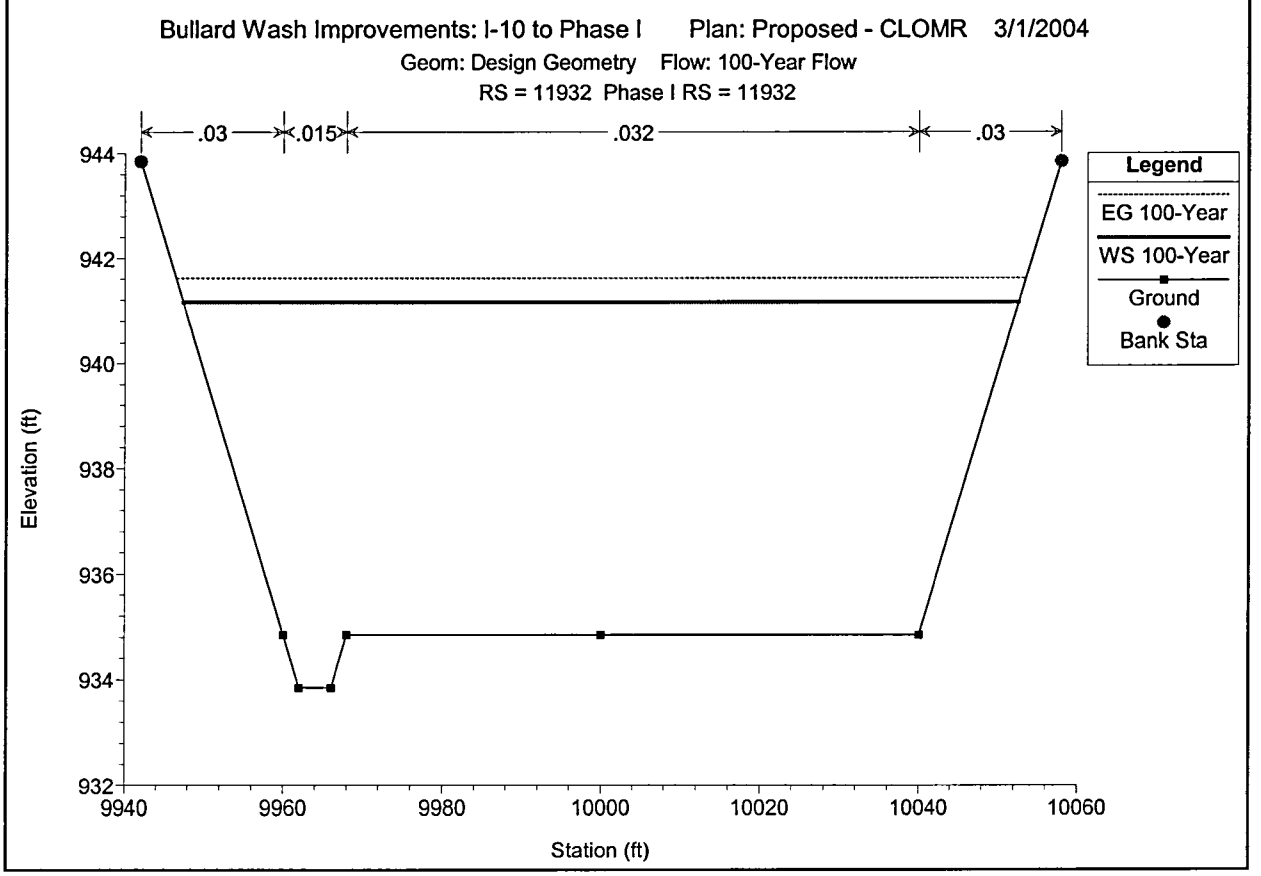

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 11100 Phase I RS = 11100
.03
.015
.032
.03
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Bank Sta
Elevation (ft)
944
942
940
938
936
934
932
9940
9960
9980
10000
10020
10040
10060
Station (ft)

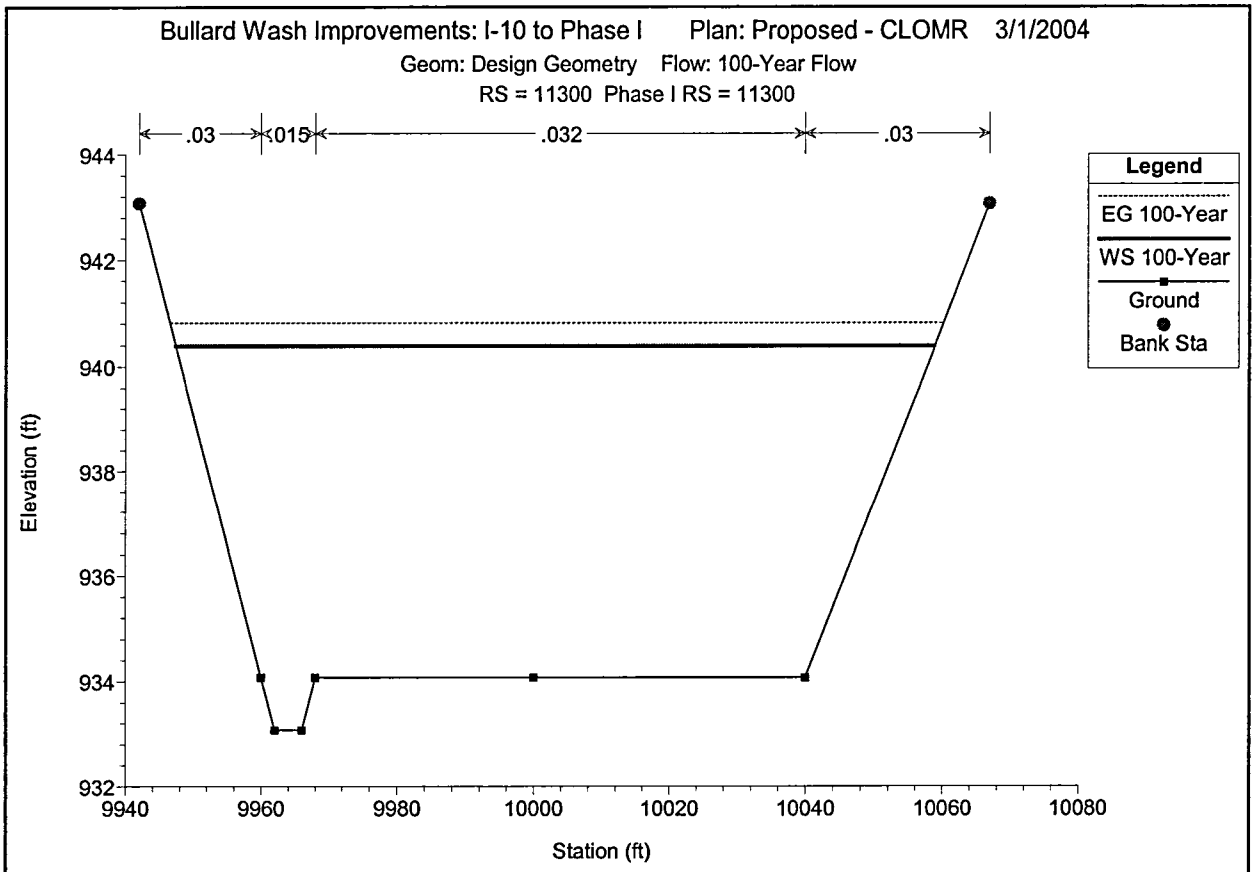

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 11200 Phase I RS = 11200
.03
.015
.032
.03
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
944
942
940
938
936
934
932
9940
9960
9980
10000
10020
10040
10060
Station (ft)

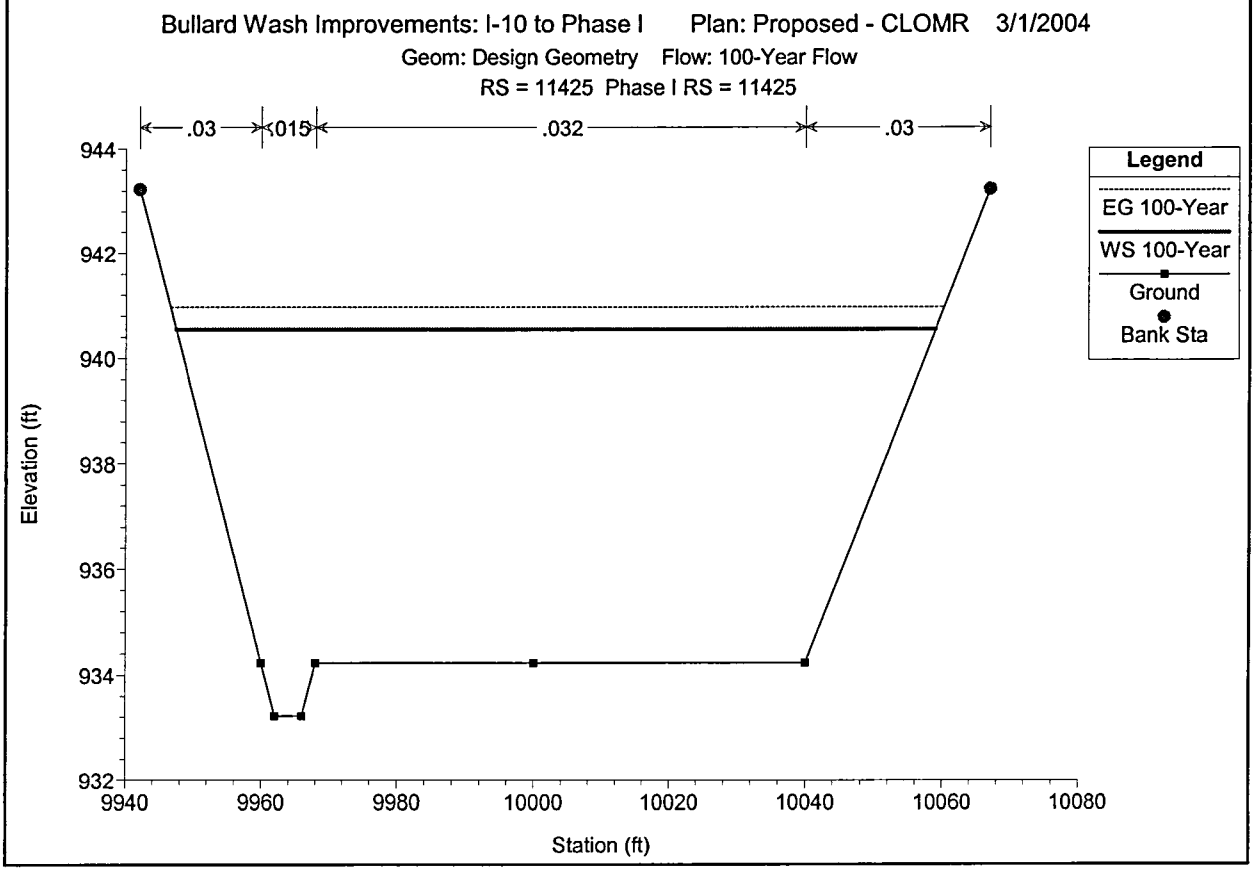

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 11550 Phase I RS = 11550
.03
.015
.032
.03
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
944
942
940
938
936
934
932
9940
9960
9980
10000
10020
10040
10060
10080
Station (ft)

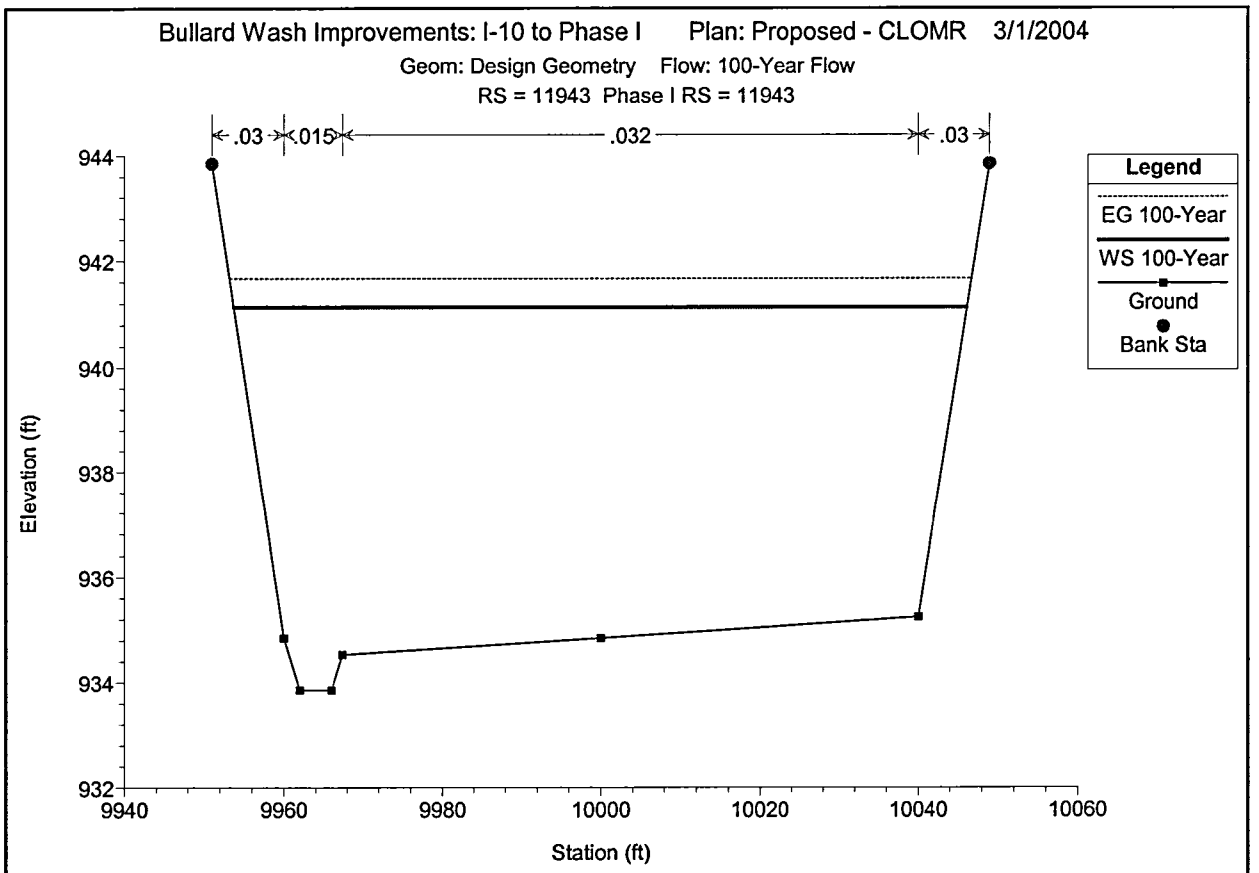

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 11735 Phase I RS = 11735
.03
.015
.032
.03
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
944
942
940
938
936
934
932
9940
9960
9980
10000
10020
10040
10060
Station (ft)

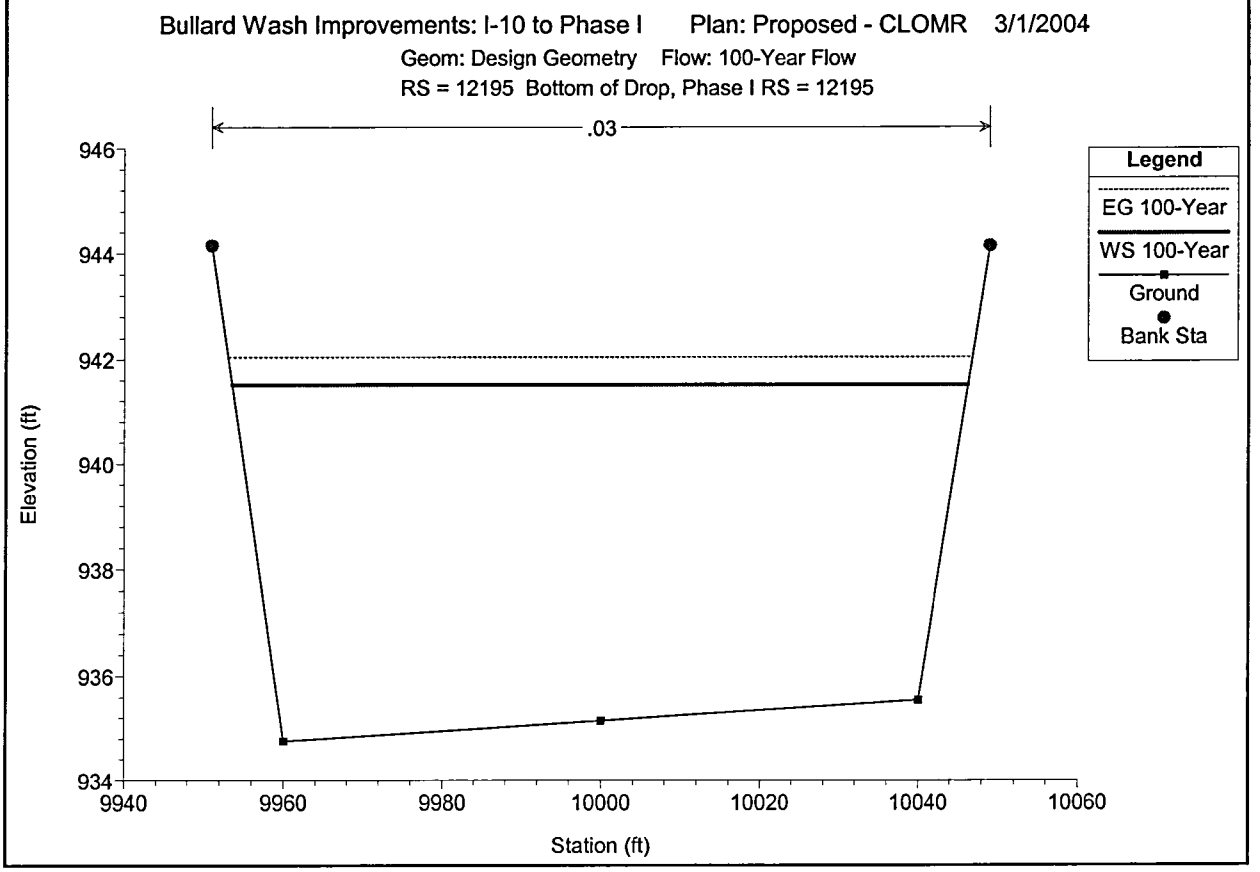

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 11883 Phase I RS = 11883
.03
.015
.032
.03
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
944
942
940
938
936
934
932
9940
9960
9980
10000
10020
10040
10060
Station (ft)

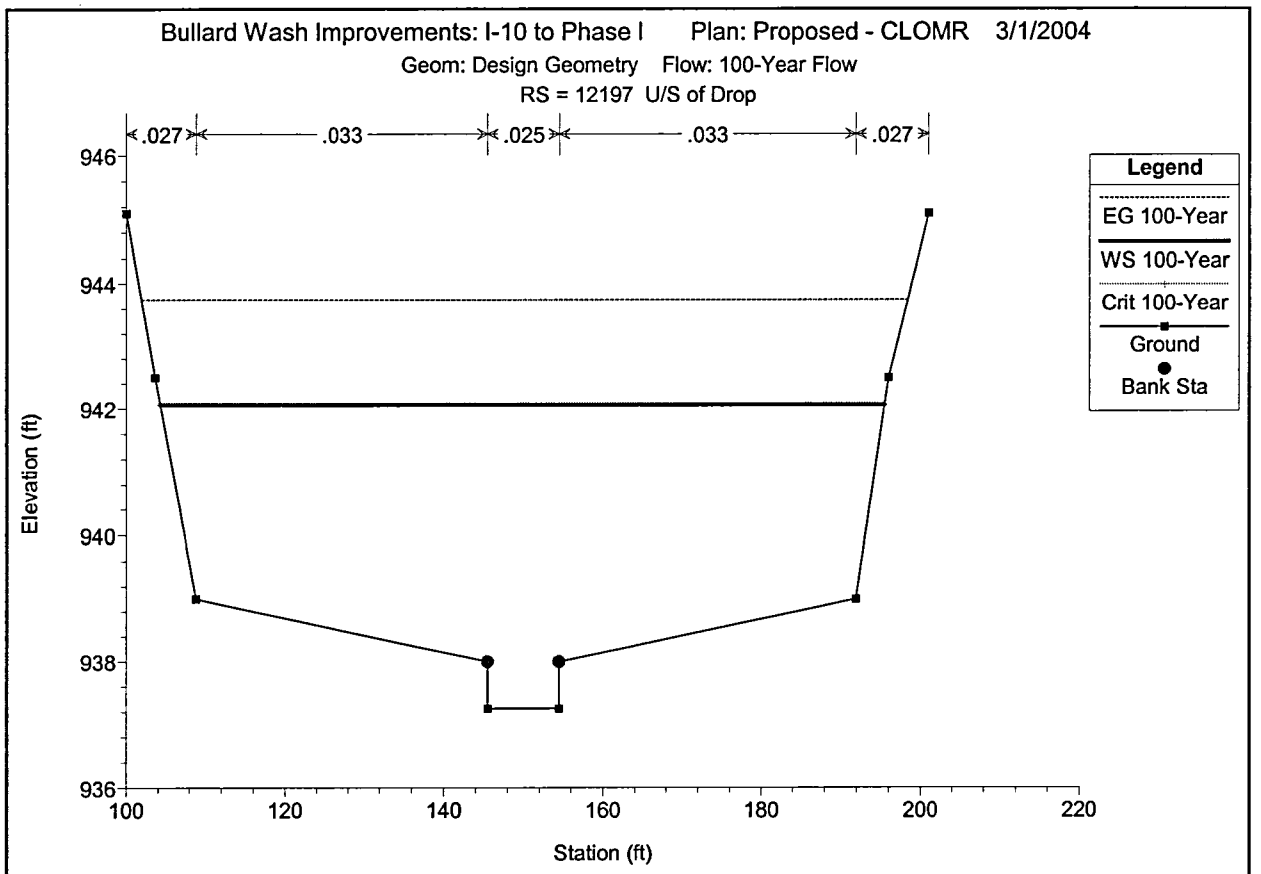

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 11932 Phase I RS = 11932
.03
.015
.032
.03
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
944
942
940
938
936
934
932
9940
9960
9980
10000
10020
10040
10060
Station (ft)

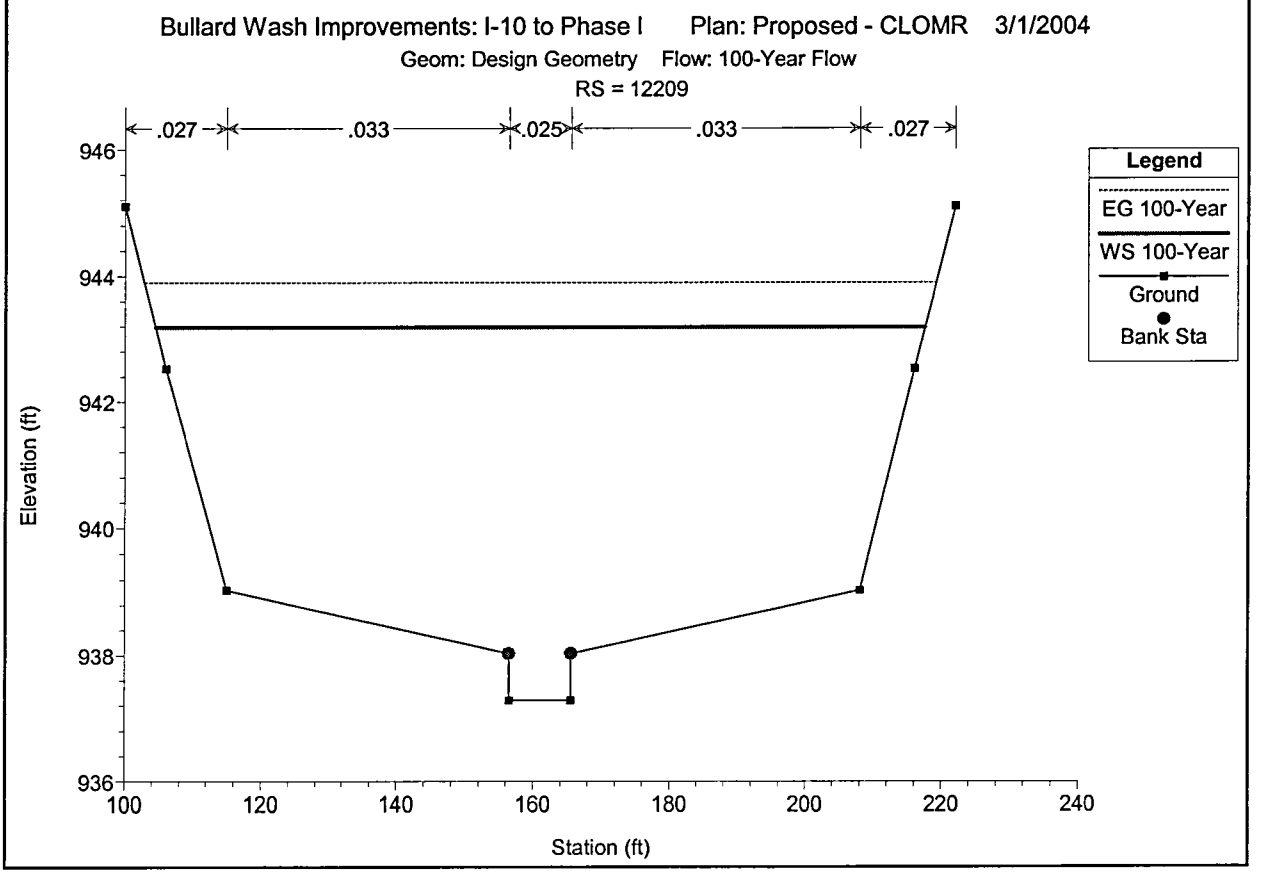

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 11300 Phase I RS = 11300
.03
.015
.032
.03
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
944
942
940
938
936
934
932
9940
9960
9980
10000
10020
10040
10060
10080

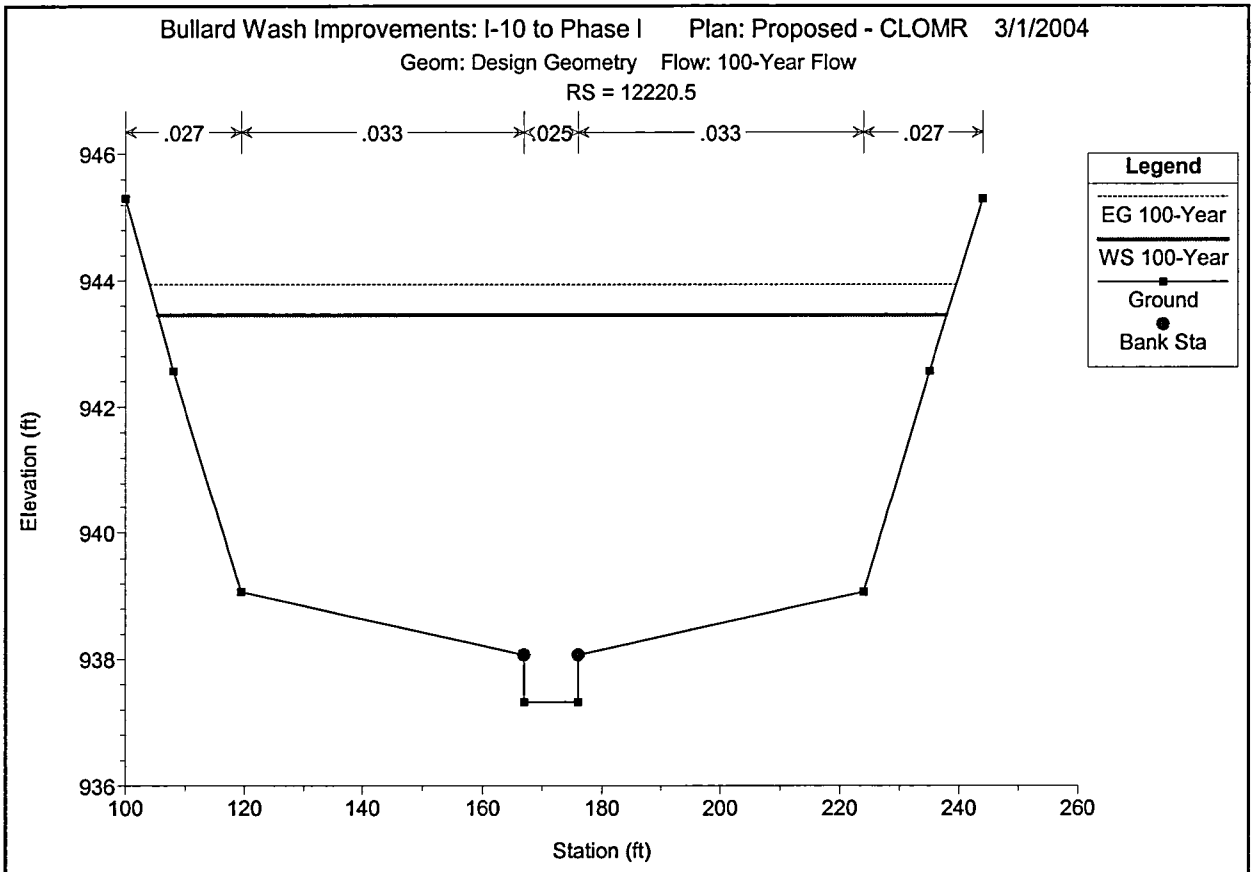

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 11425 Phase I RS = 11425
.03
.015
.032
.03
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
944
942
940
938
936
934
932
9940
9960
9980
10000
10020
10040
10060
10080

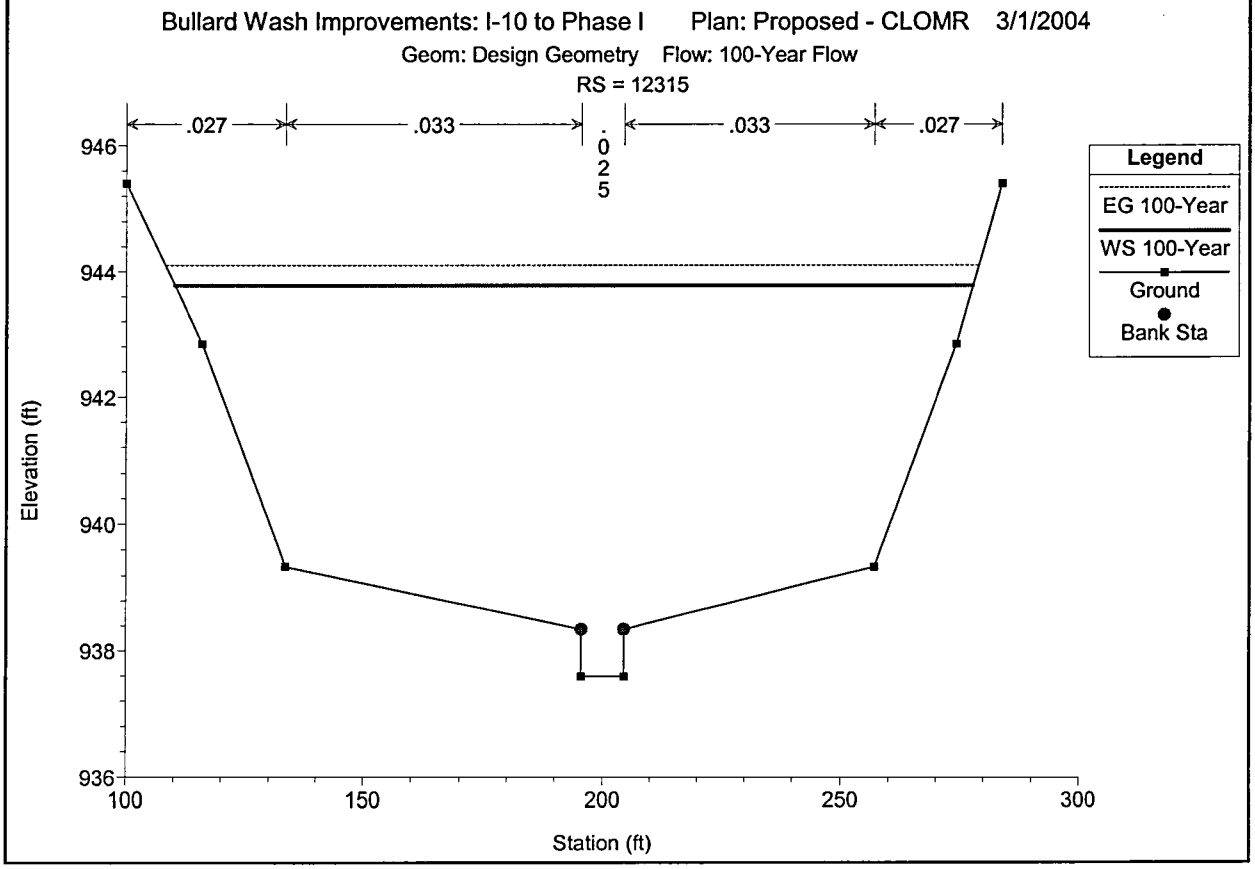

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 11943 Phase I RS = 11943
.03
.015
.032
.03
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
944
942
940
938
936
934
932
9940
9960
9980
10000
10020
10040
10060
Station (ft)

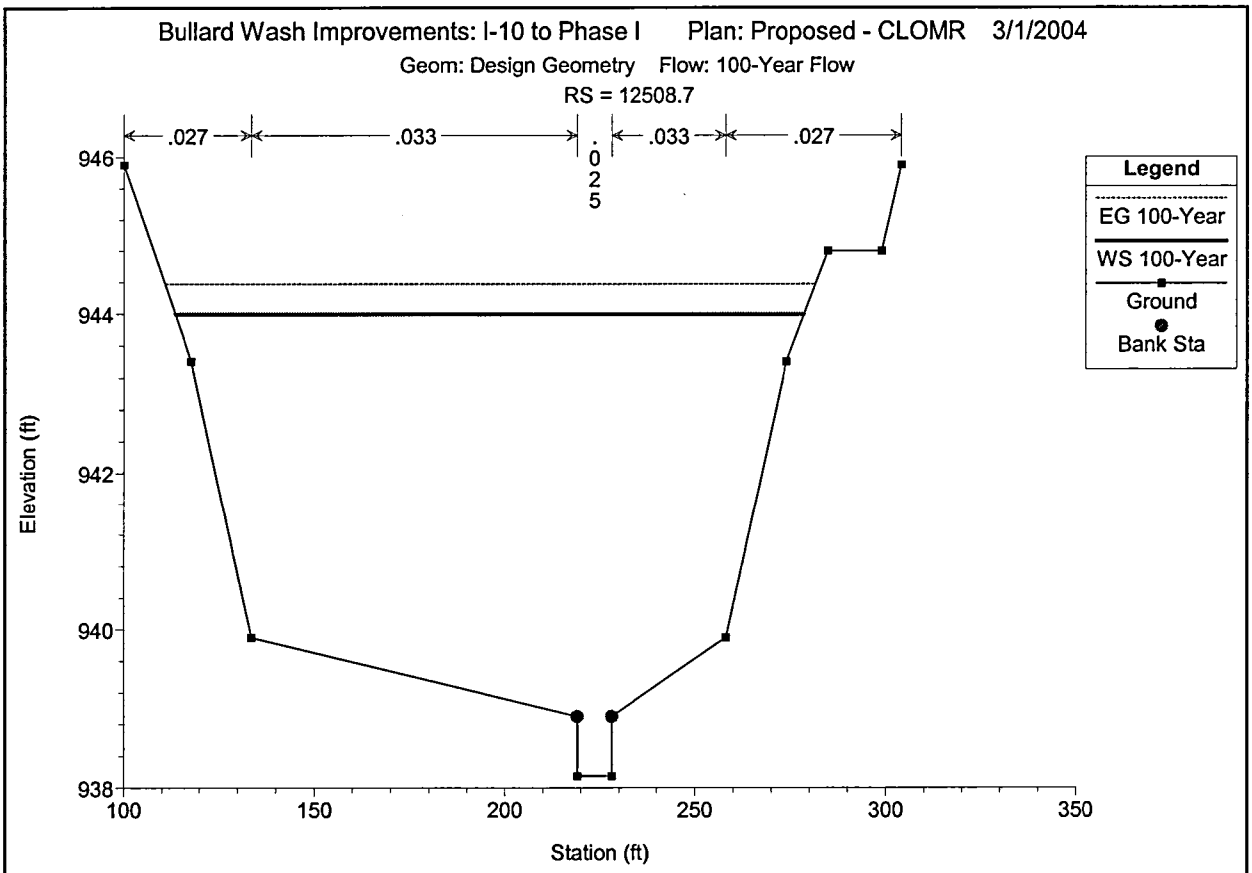

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 12195 Bottom of Drop, Phase I RS = 12195
.03
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
946
944
942
940
938
936
934
9940
9960
9980
10000
10020
10040
10060
Station (ft)

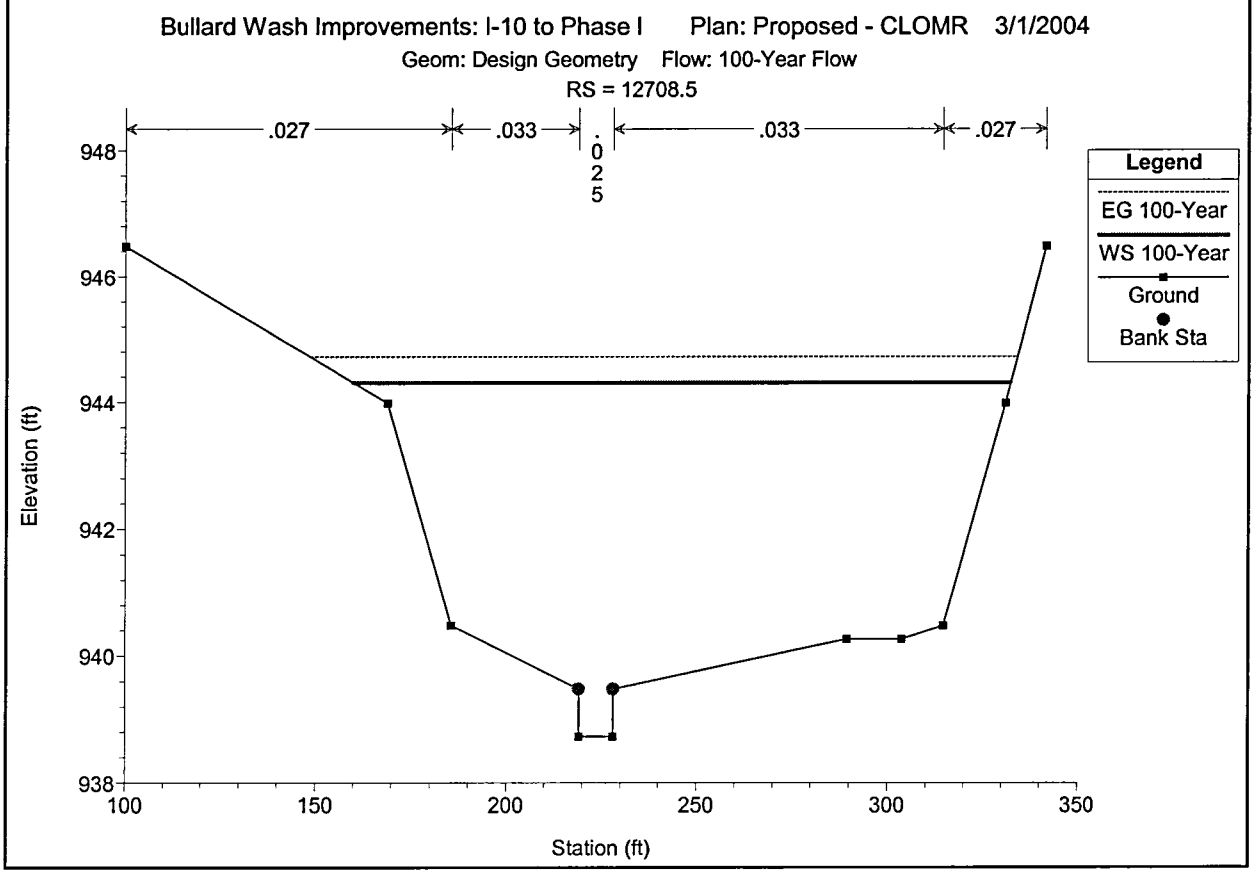

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 12197 U/S of Drop
.027
.033
.025
.033
.027
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Bank Sta
Elevation (ft)
946
944
942
940
938
936
100
120
140
160
180
200
220
Station (ft)


Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 12209
.027
.033
.025
.033
.027
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
946
944
942
940
938
936
100
120
140
160
180
200
220
240
Station (ft)


Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 12220.5
.027
.033
.025
.033
.027
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)


Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 12315
.027
.033
.025
.033
.027
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)

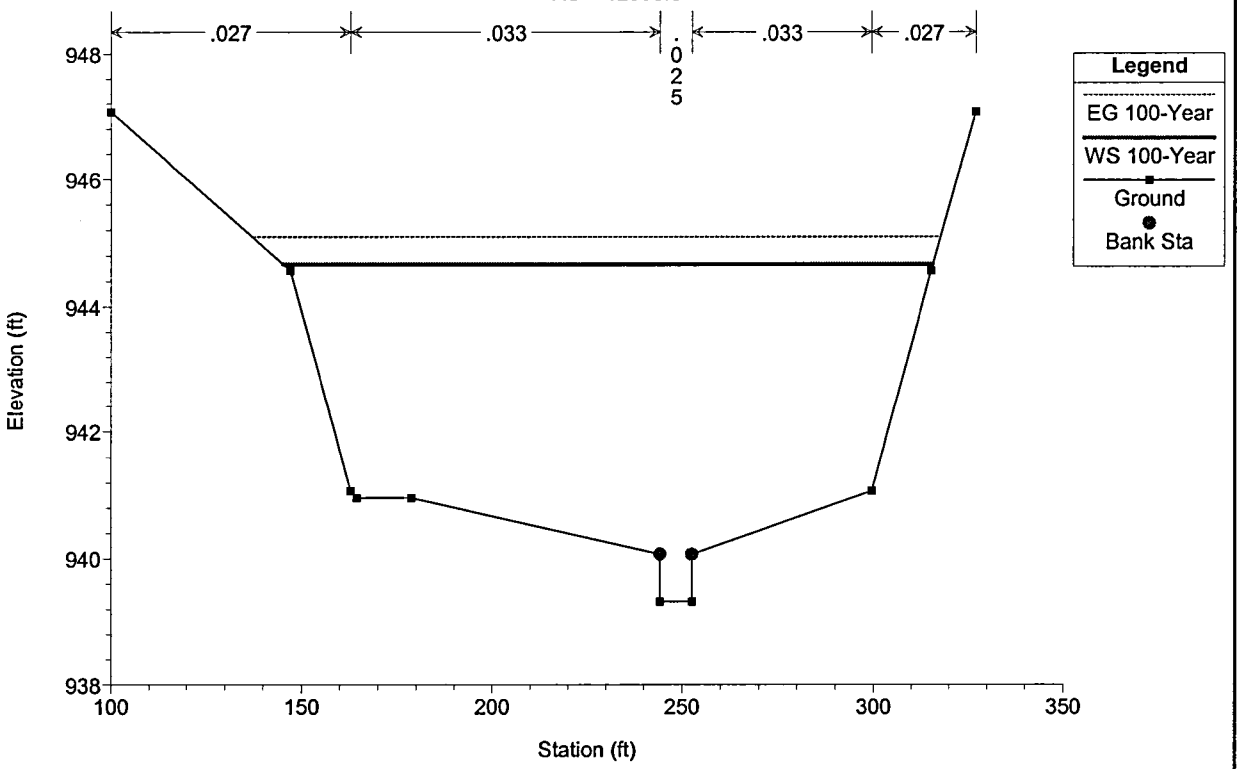

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 12508.7
.027
.033
.025
.033
.027
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
946
944
942
940
938
100
150
200
250
300
350
Station (ft)


Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 12708.5
.027
.033
.025
.033
.027
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
948
946
944
942
940
938
100
150
200
250
300
350
Station (ft)

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004

Geom: Design Geometry Flow: 100-Year Flow

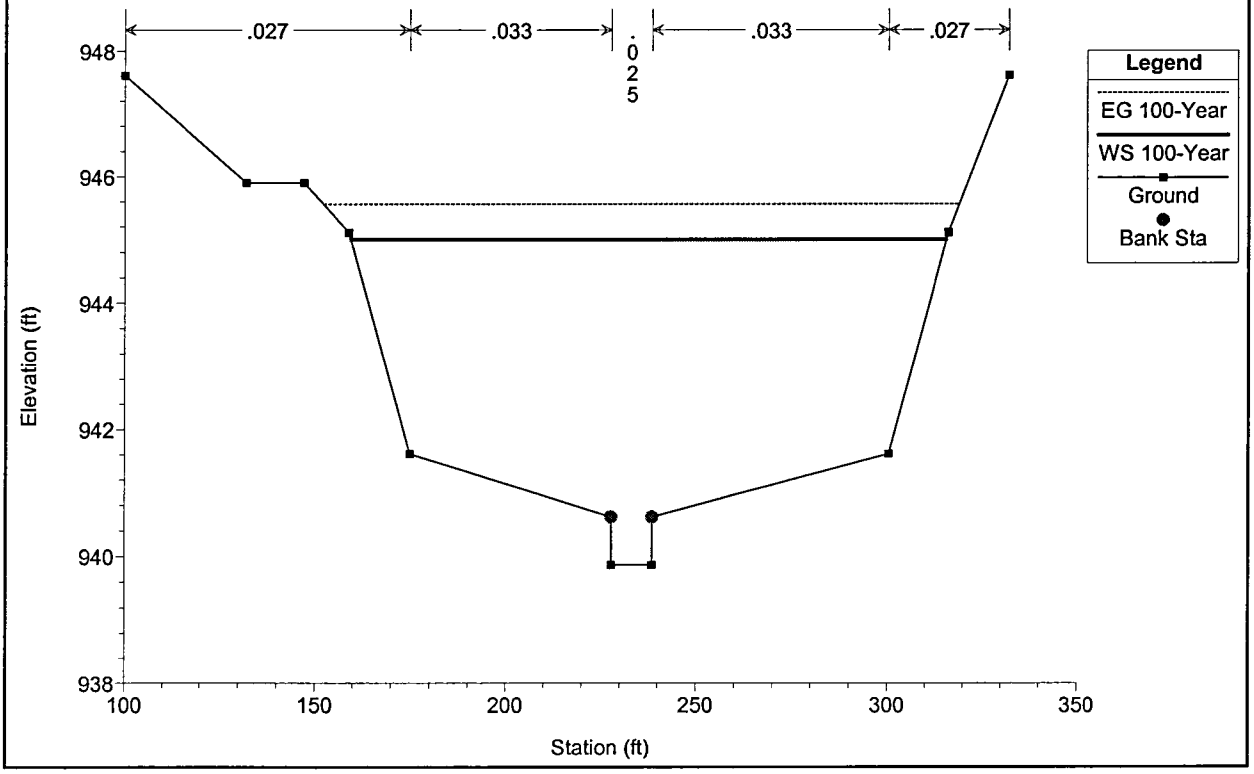
RS = 12908.8

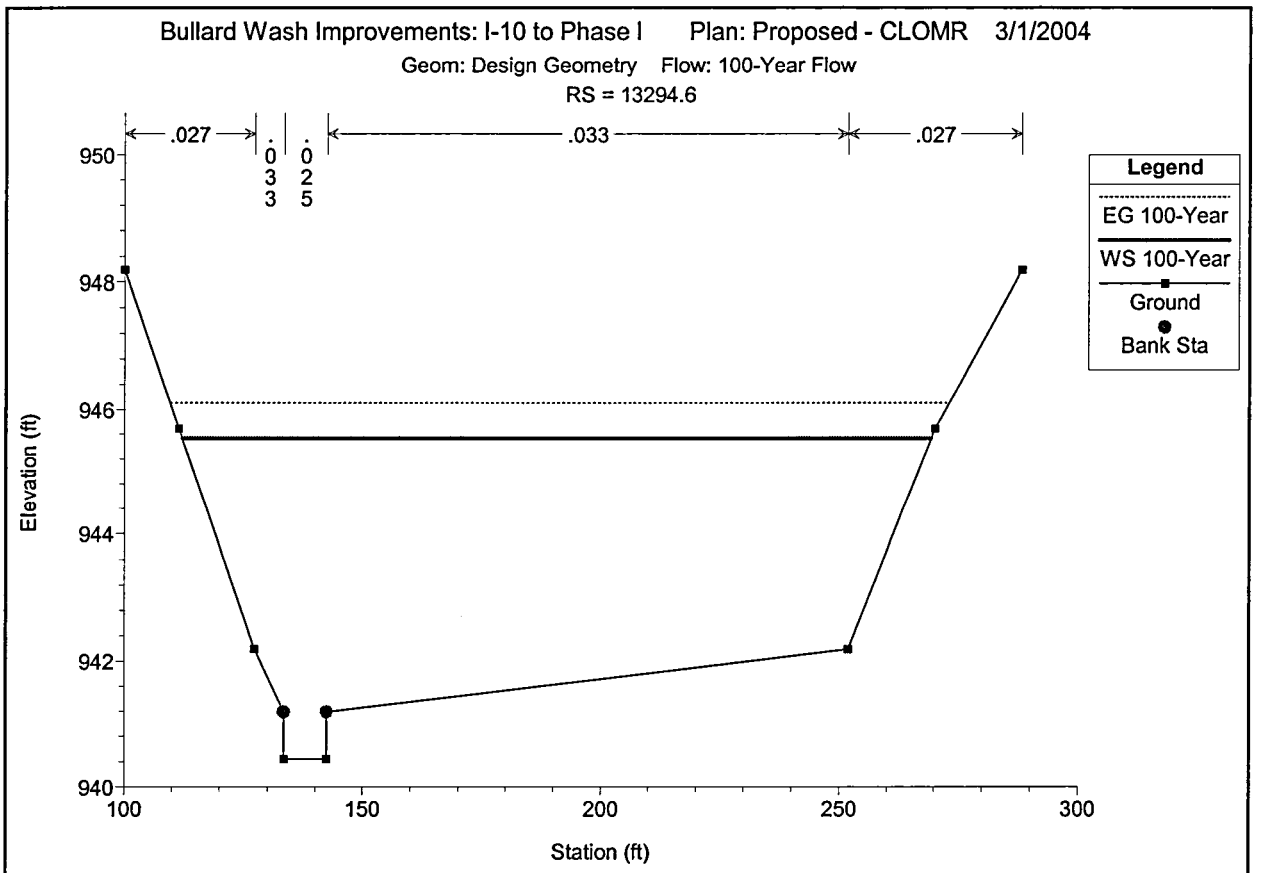


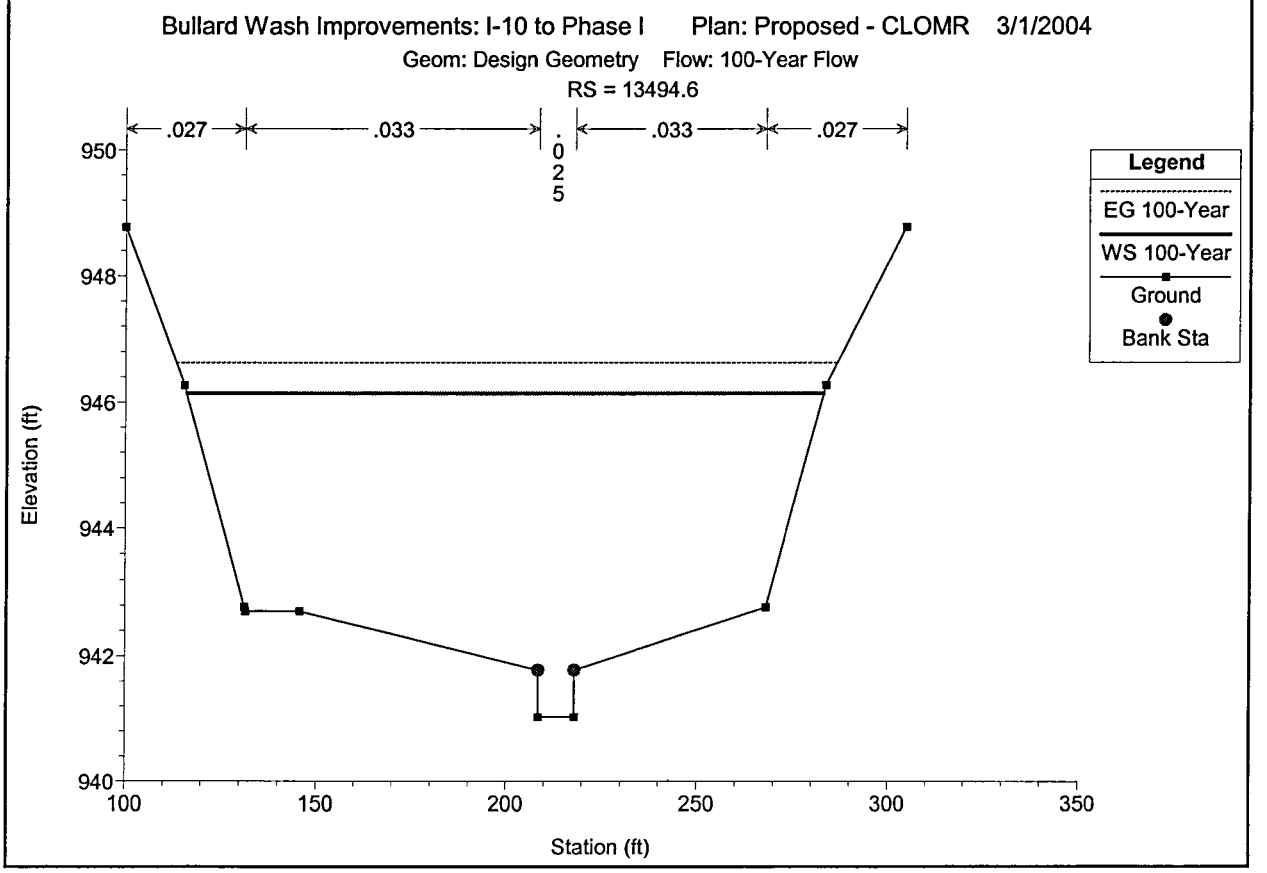
Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004

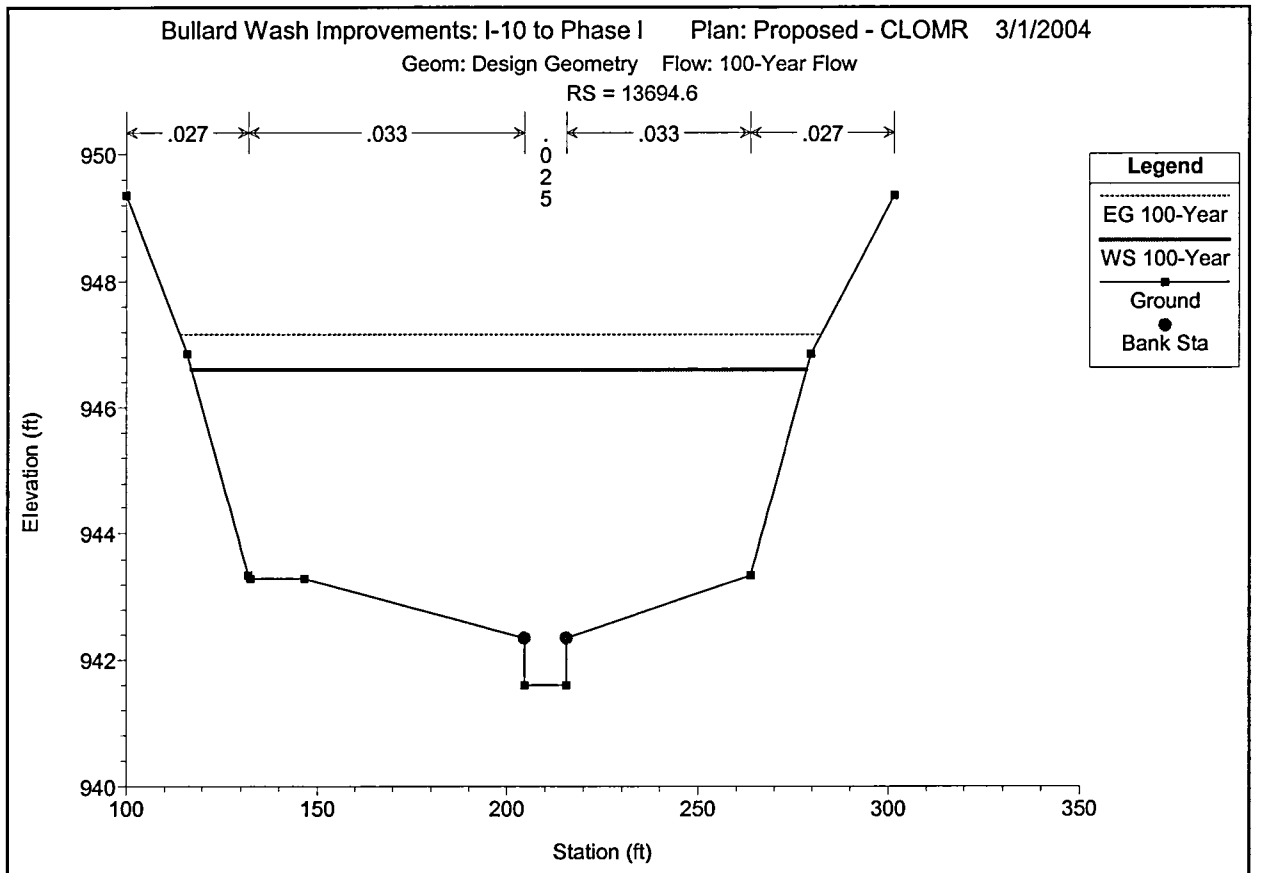
Geom: Design Geometry Flow: 100-Year Flow

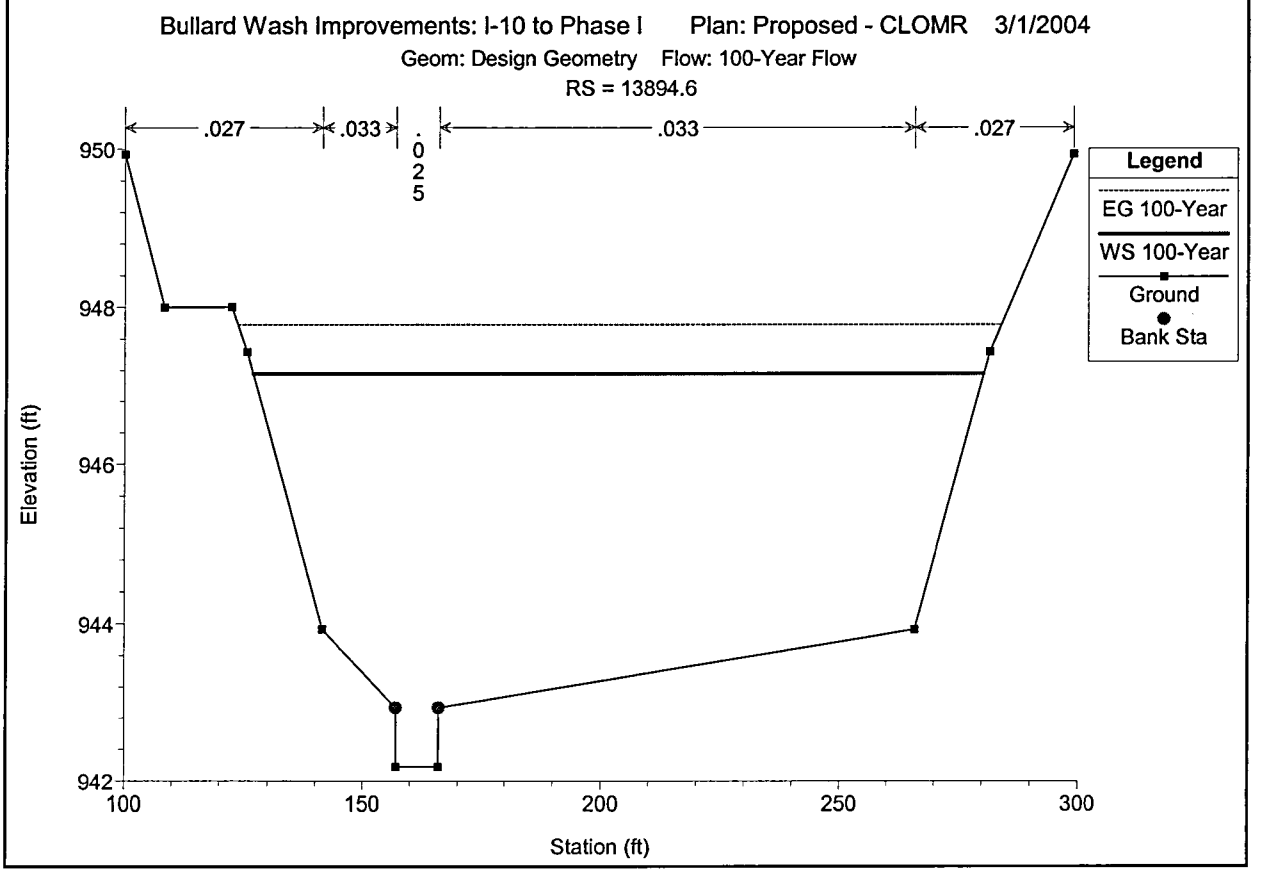
RS = 13095.9

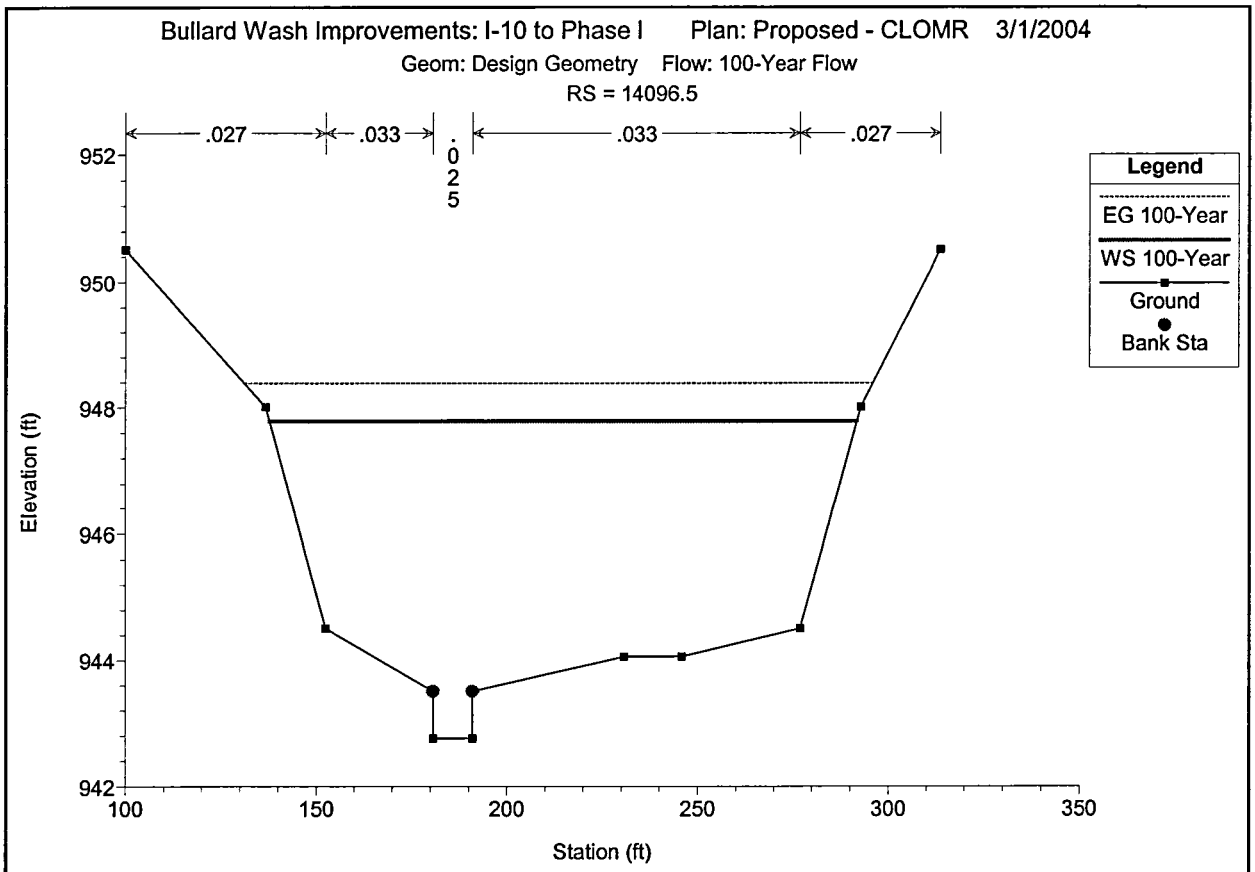


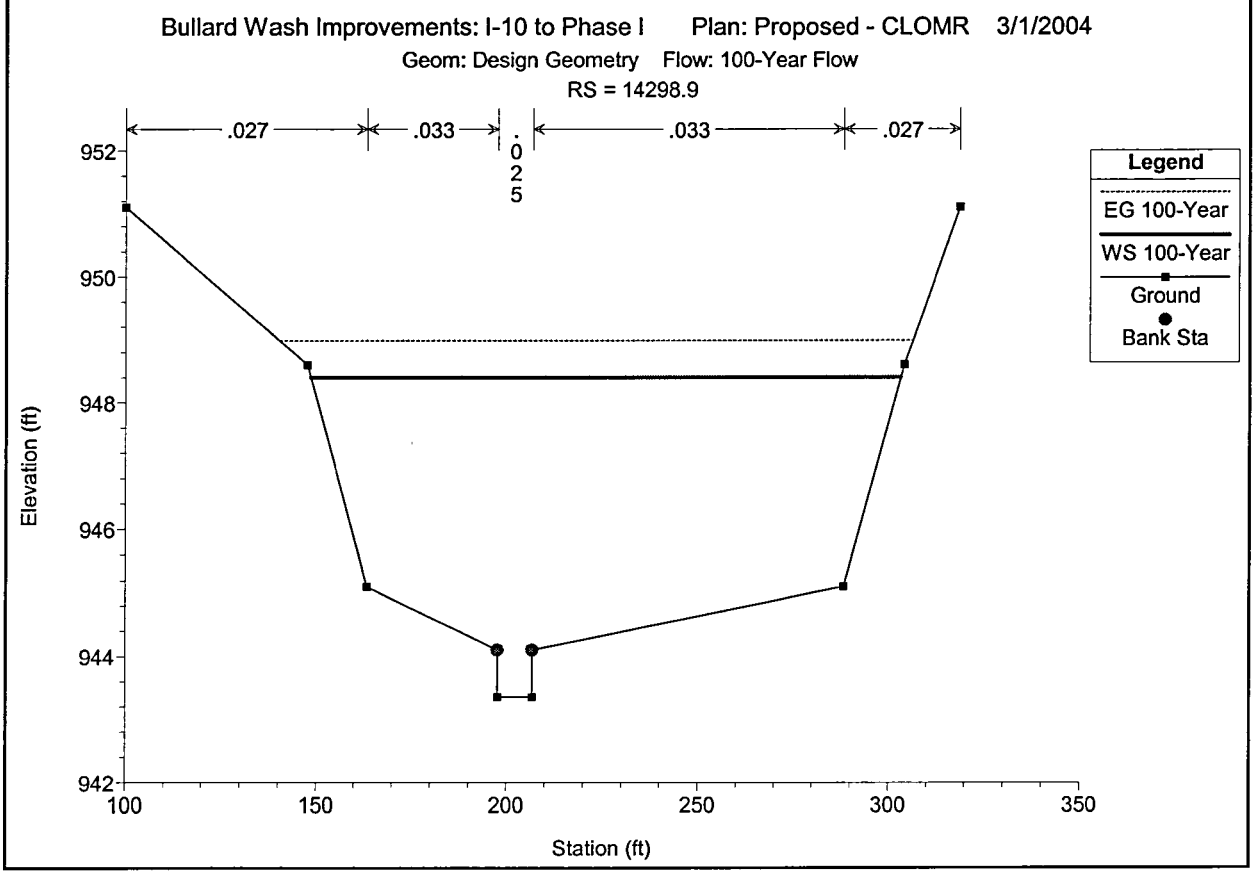

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 13294.6
.027
.033
.027
.033
.025
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
950
948
946
944
942
940
100
150
200
250
300


Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 13494.6
.027
.033
.025
.033
.027
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
950
948
946
944
942
940
100
150
200
250
300
350


Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 13694.6
.027
.033
.025
.033
.027
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
950
948
946
944
942
940
100
150
200
250
300
350


Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 13894.6
.027
.033
.025
.033
.027
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
950
948
946
944
942
100
150
200
250
300

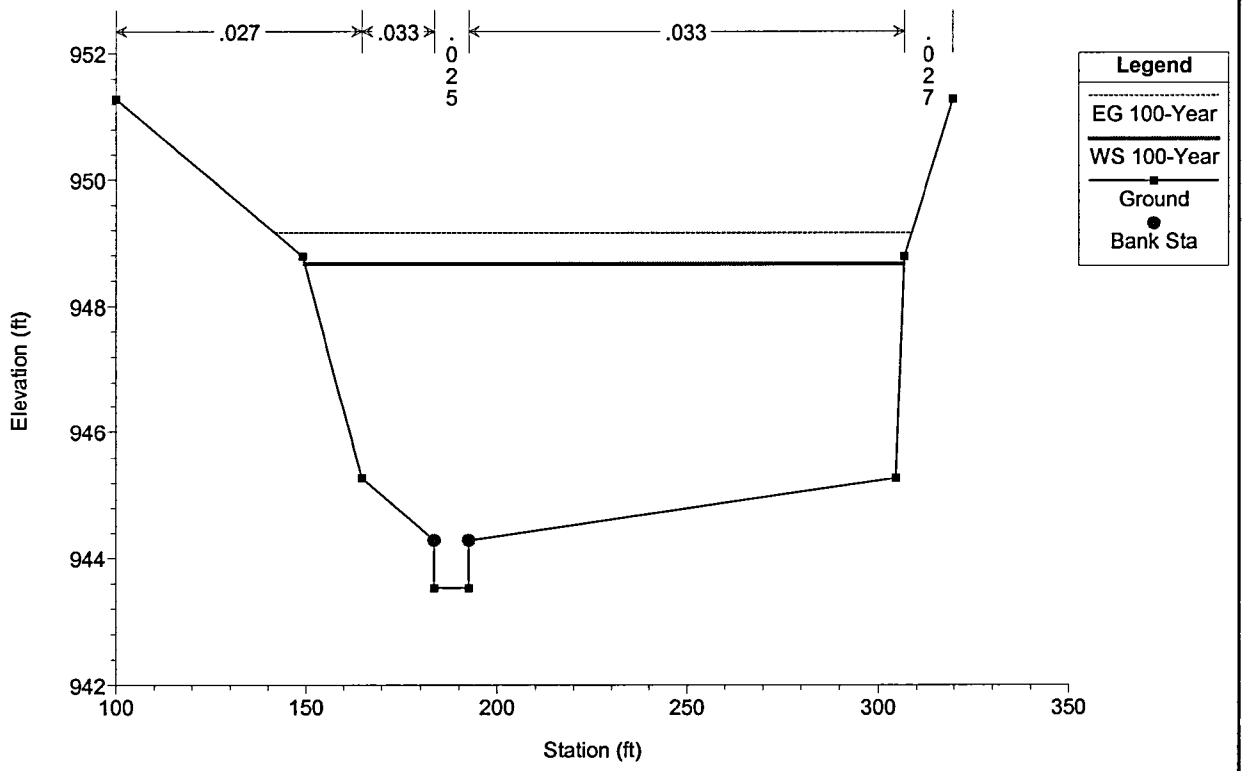

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 14096.5
.027
.033
.025
.033
.027
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
952
950
948
946
944
942
100
150
200
250
300
350
Station (ft)


Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 14298.9
.027
.033
.025
.033
.027
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
952
950
948
946
944
942
100
150
200
250
300
350
Station (ft)

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004

Geom: Design Geometry Flow: 100-Year Flow

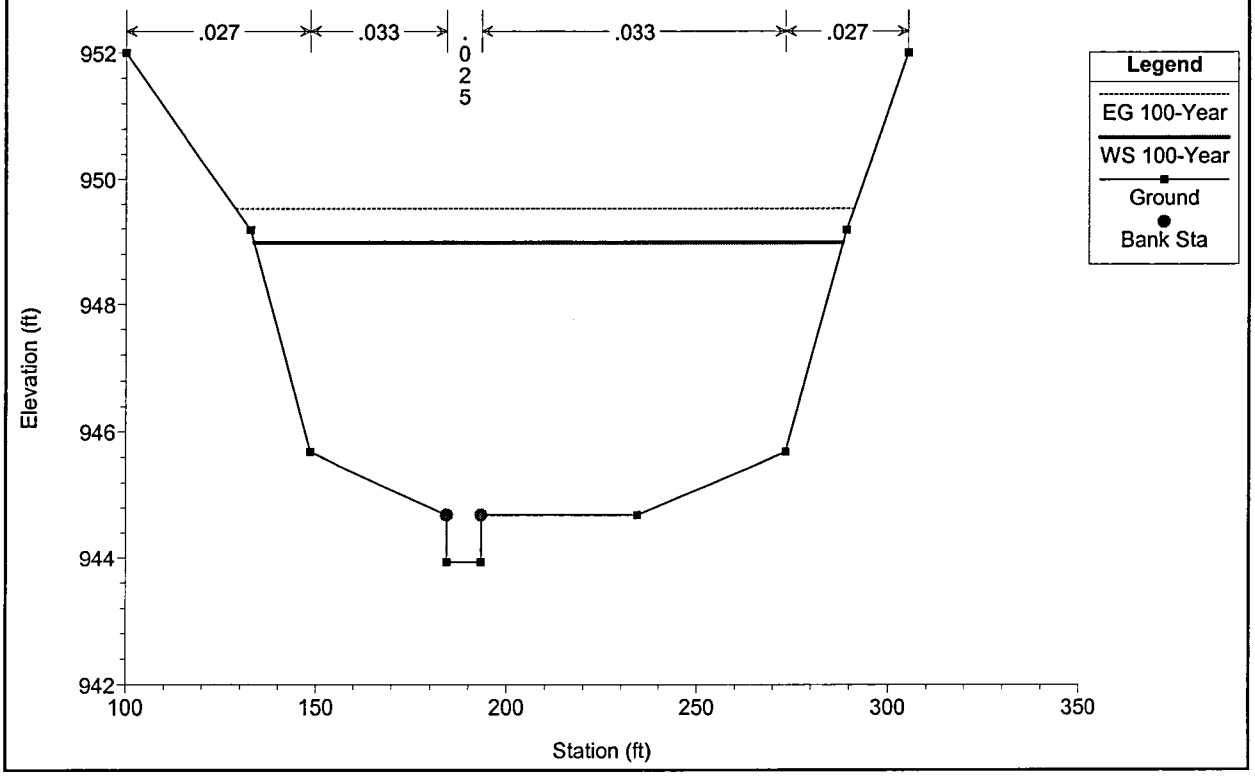
RS = 14359.34

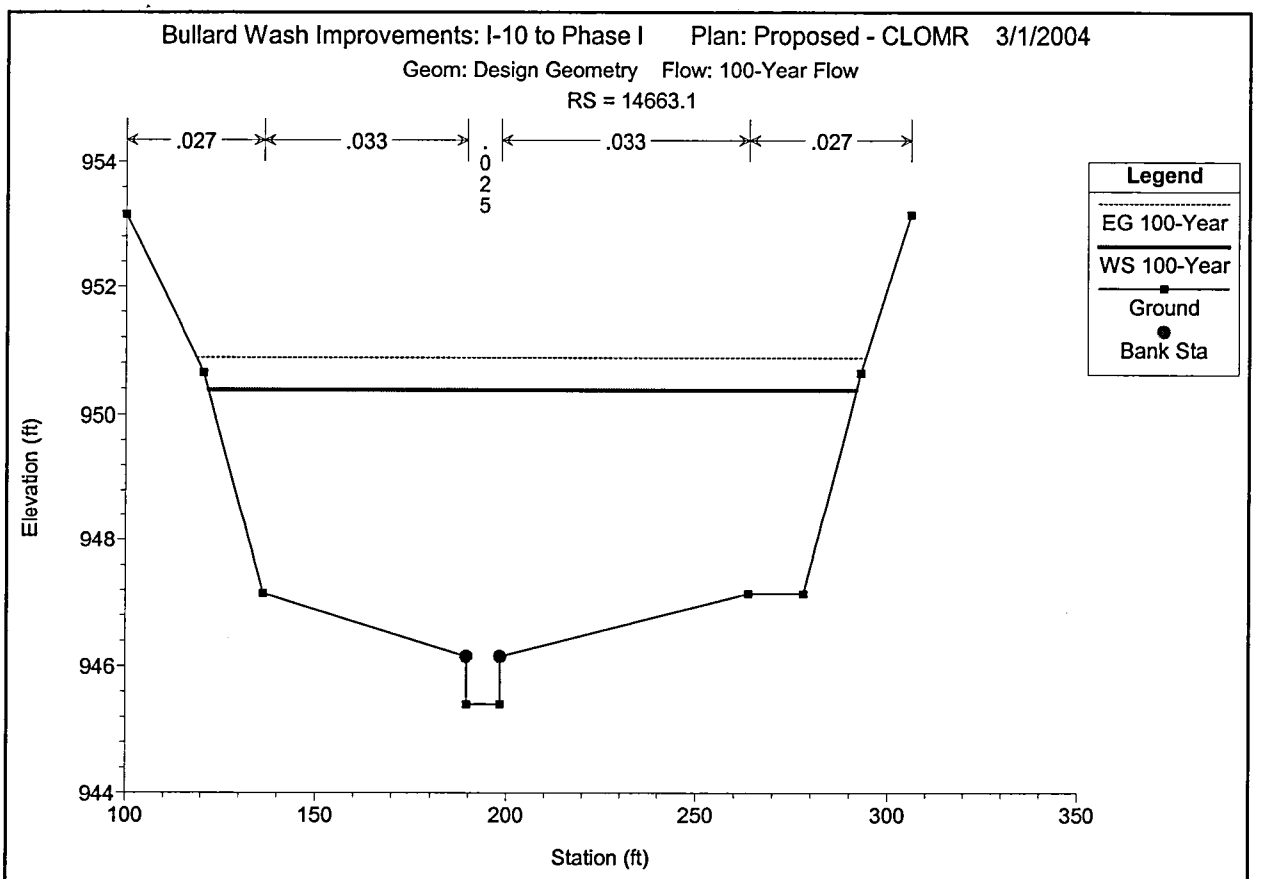


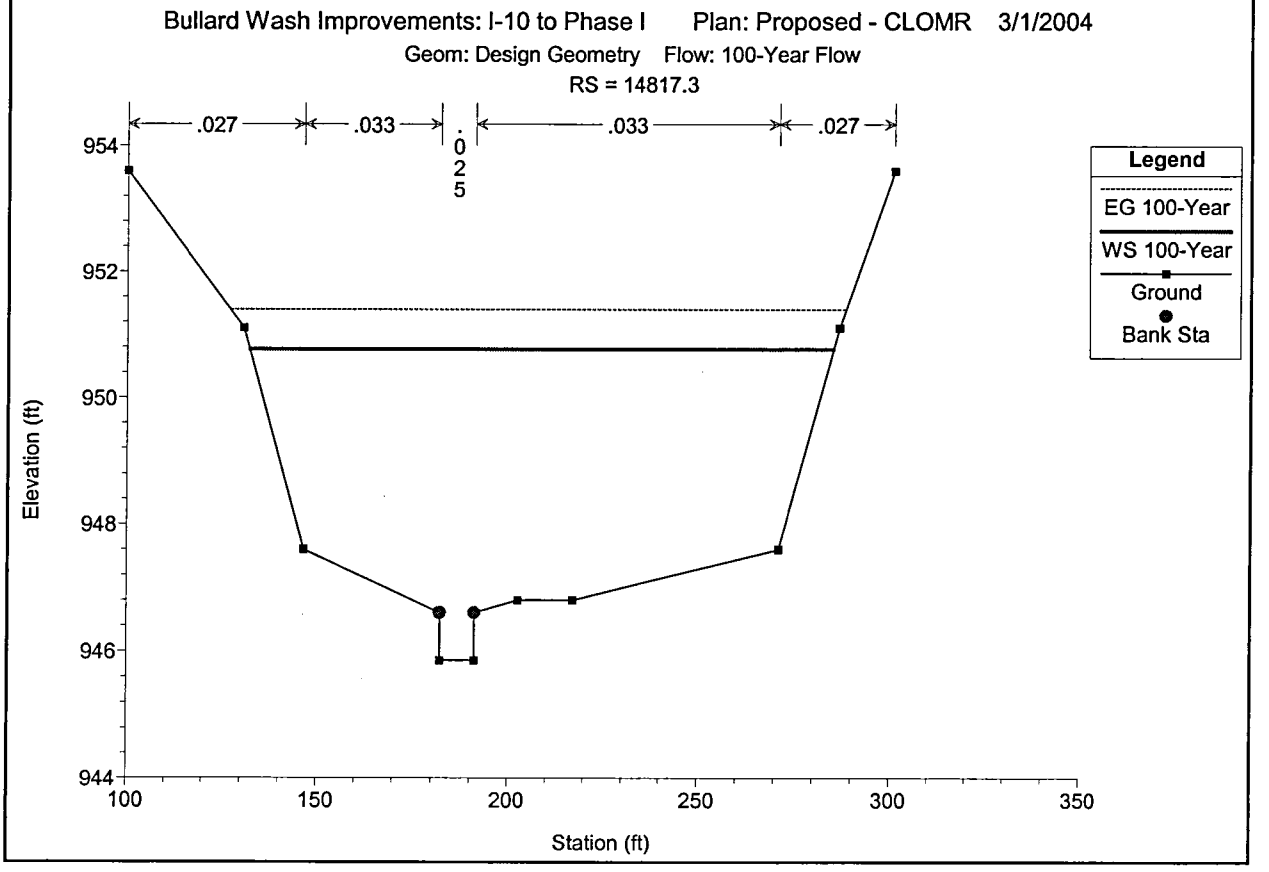
Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004

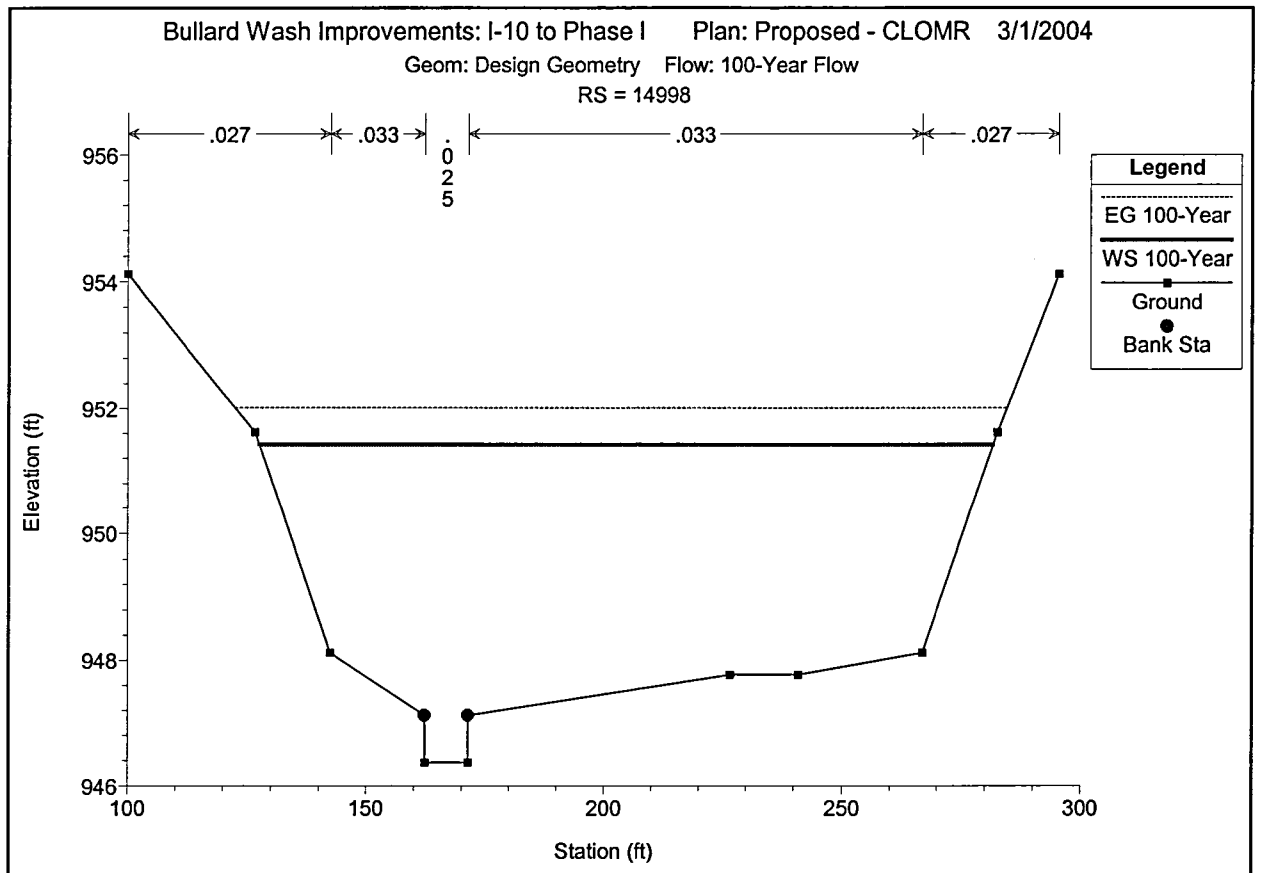
Geom: Design Geometry Flow: 100-Year Flow

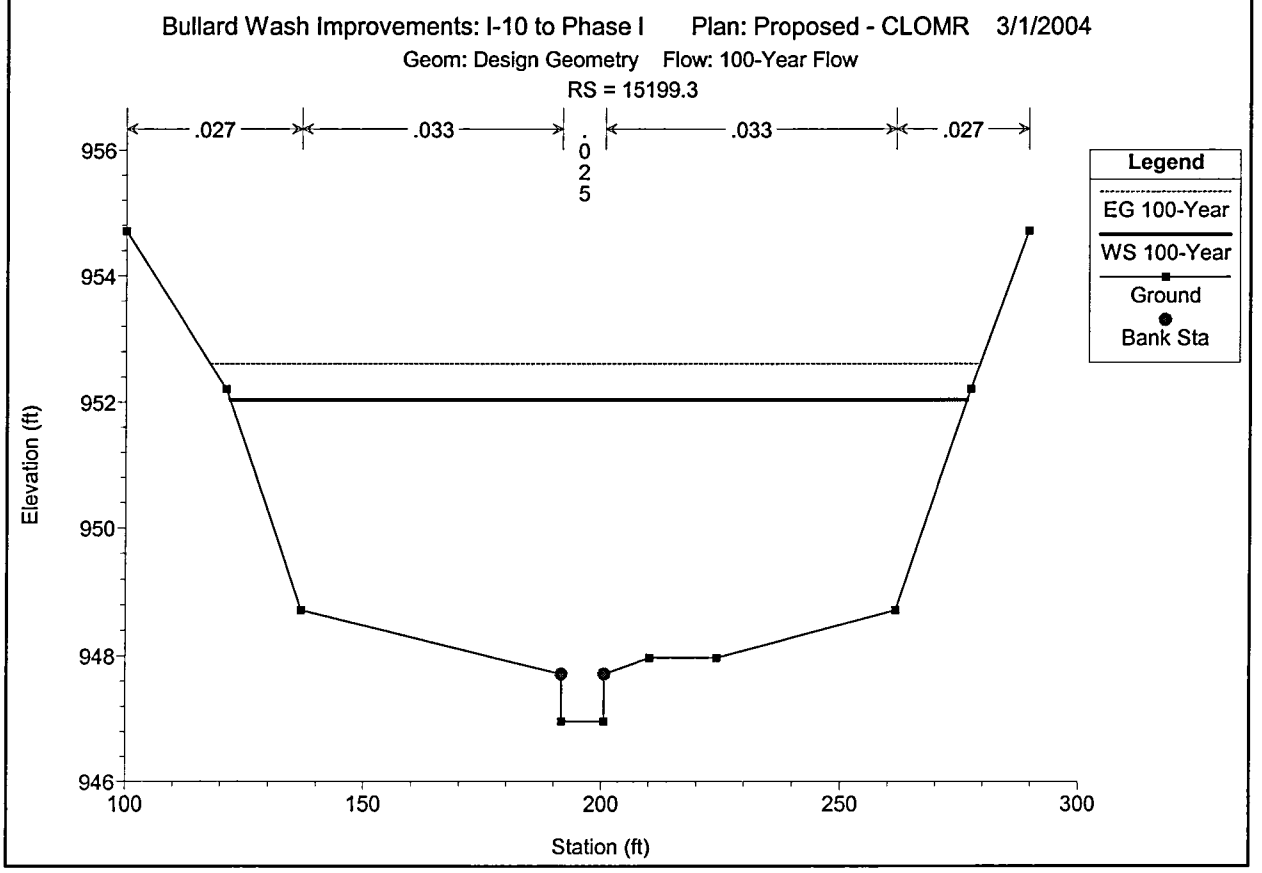
RS = 14499.34

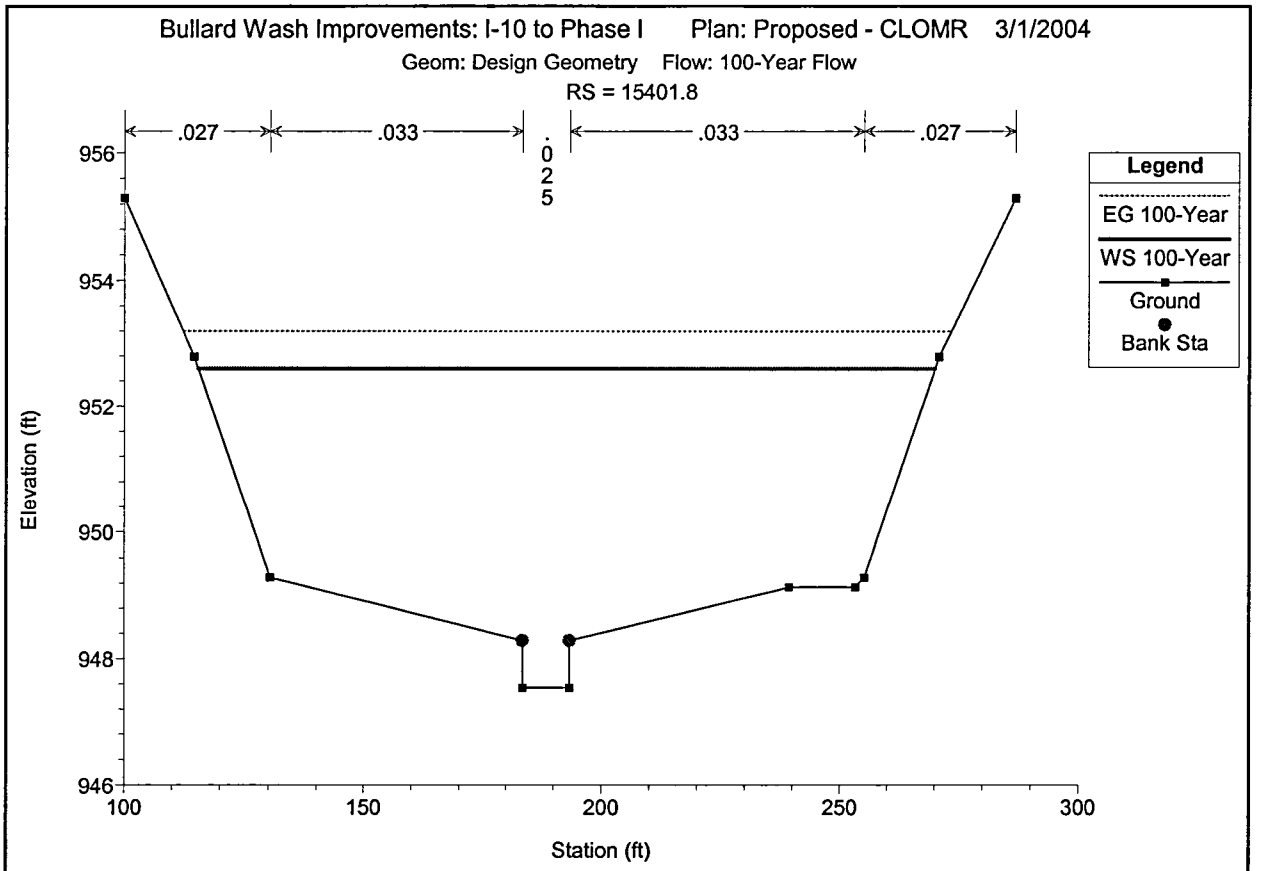


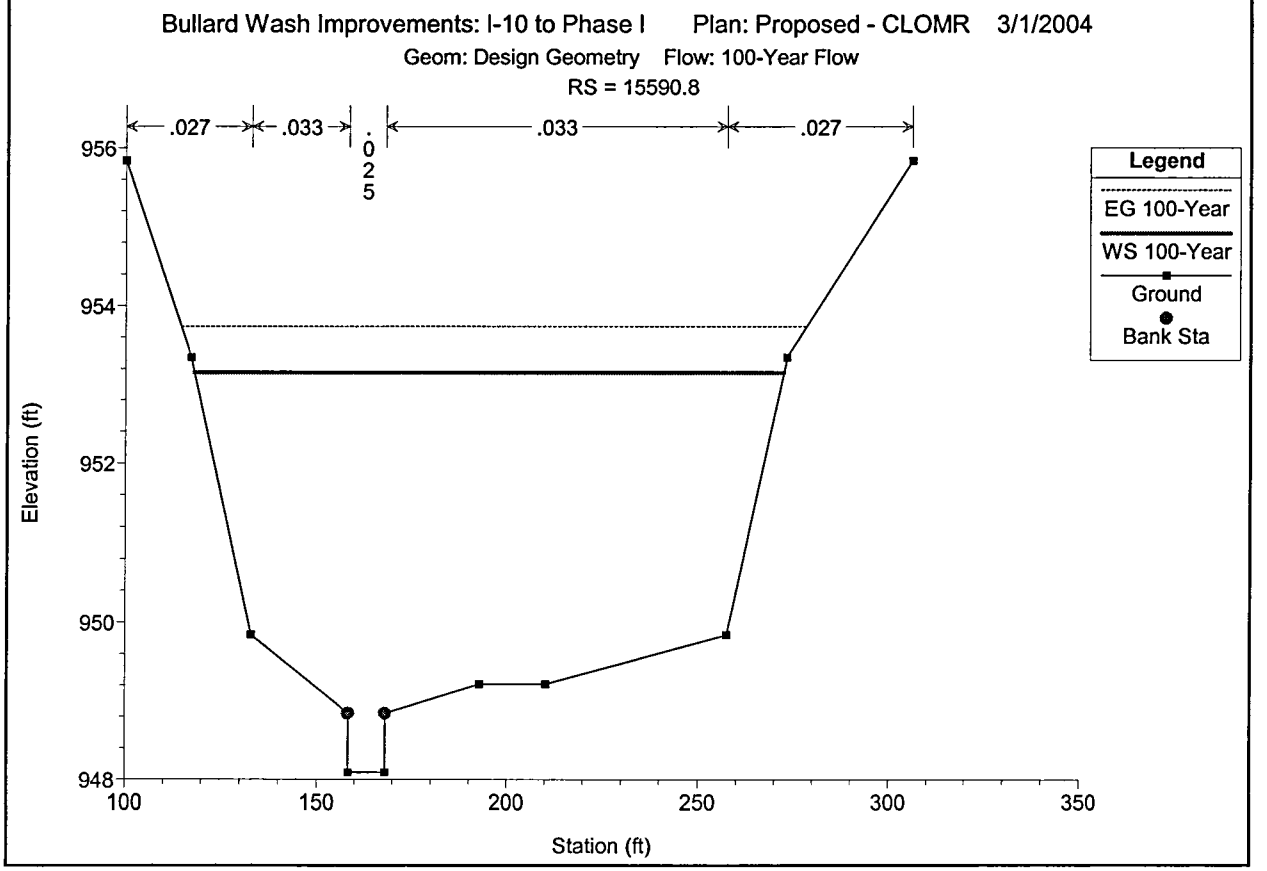

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 14663.1
.027
.033
.025
.033
.027
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
954
952
950
948
946
944
100
150
200
250
300
350
Station (ft)

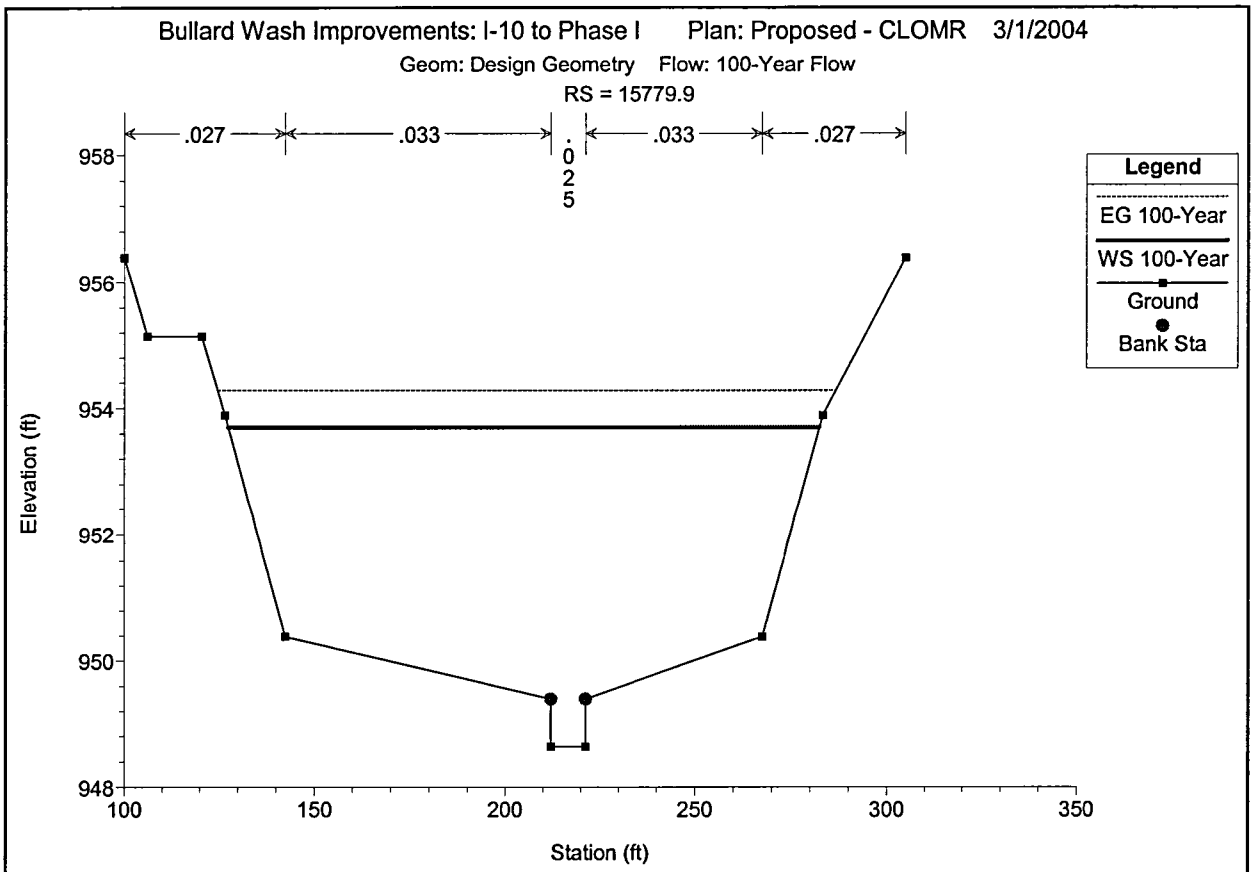

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 14817.3
.027
.033
.025
.033
.027
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
954
952
950
948
946
944
100
150
200
250
300
350
Station (ft)

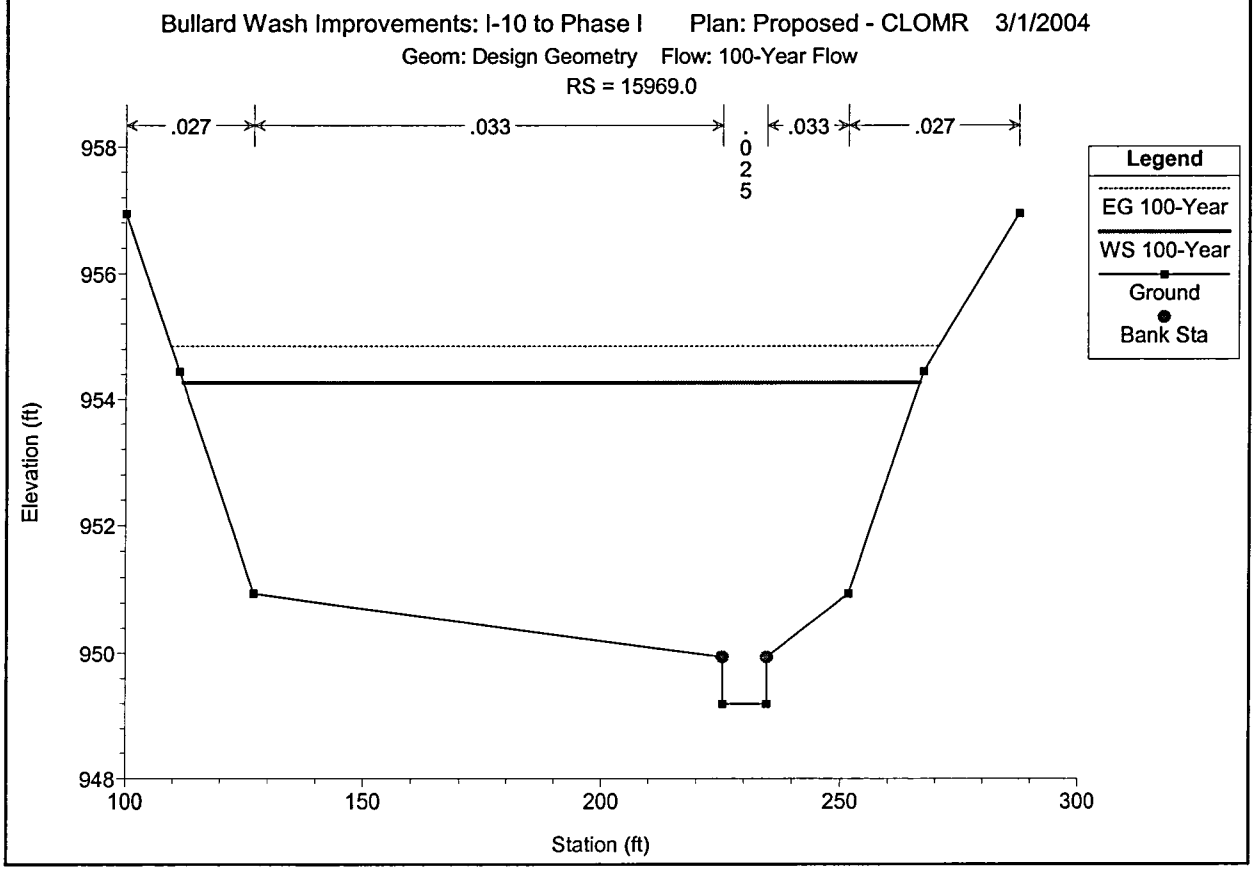

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 14998
.027
.033
.025
.033
.027
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
956
954
952
950
948
946
100
150
200
250
300
Station (ft)

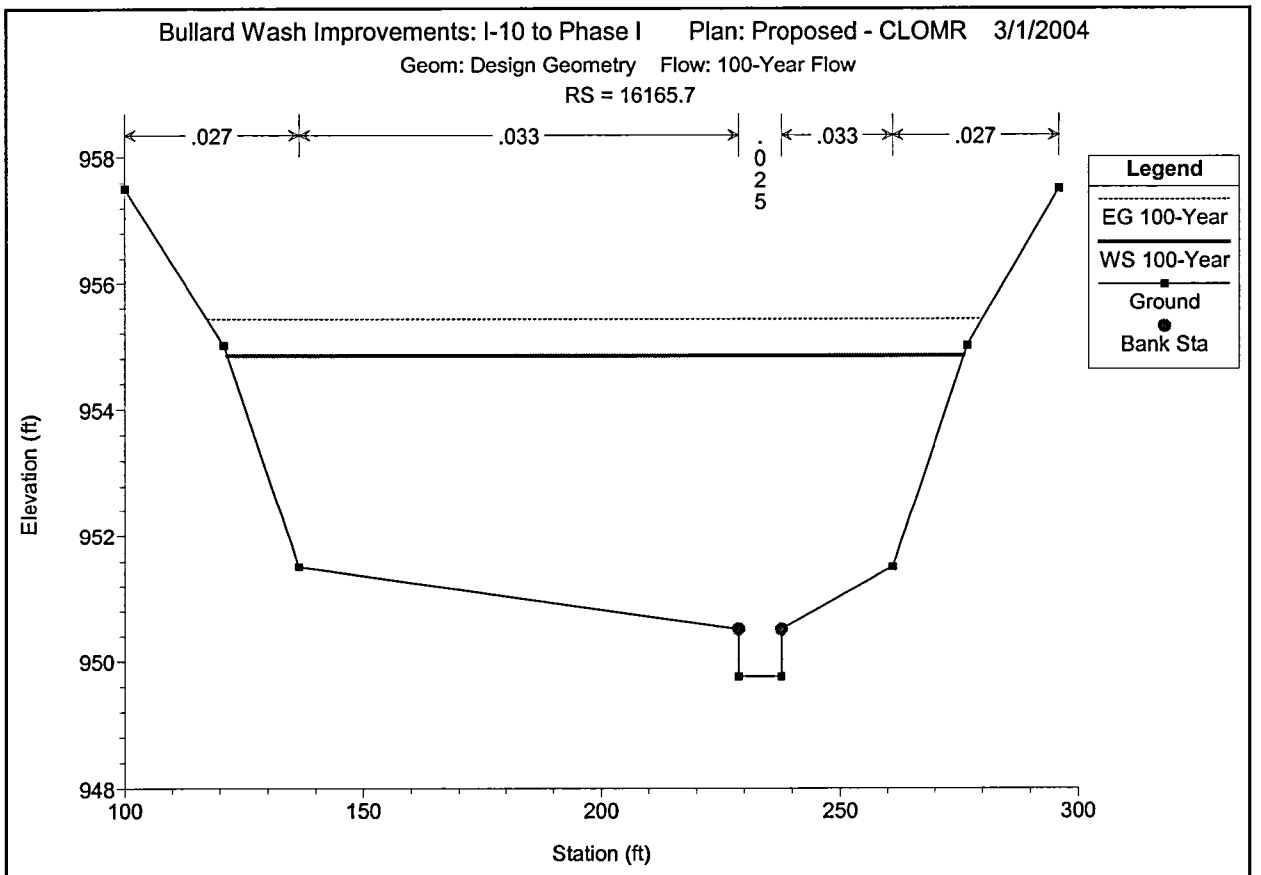

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 15199.3
.027
.033
.025
.033
.027
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
956
954
952
950
948
946
100
150
200
250
300
Station (ft)

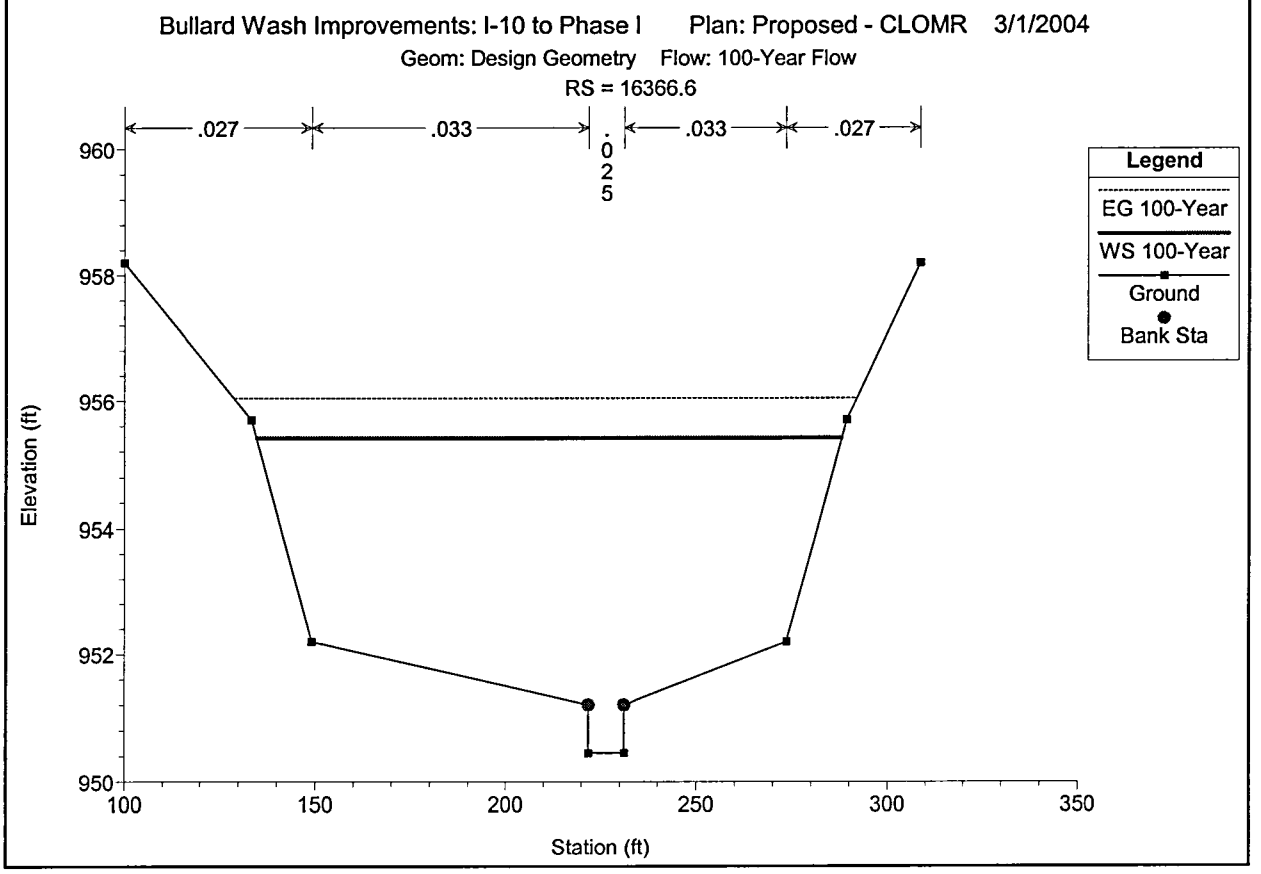

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 15401.8
.027
.033
.025
.033
.027
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
956
954
952
950
948
946
100
150
200
250
300
Station (ft)


Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 15590.8
.027
.033
.025
.033
.027
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
956
954
952
950
948
100
150
200
250
300
350
Station (ft)


Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 15779.9
.027
.033
.025
.033
.027
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
958
956
954
952
950
948
100
150
200
250
300
350
Station (ft)


Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 15969.0
.027
.033
.025
.033
.027
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
958
956
954
952
950
948
100
150
200
250
300
Station (ft)

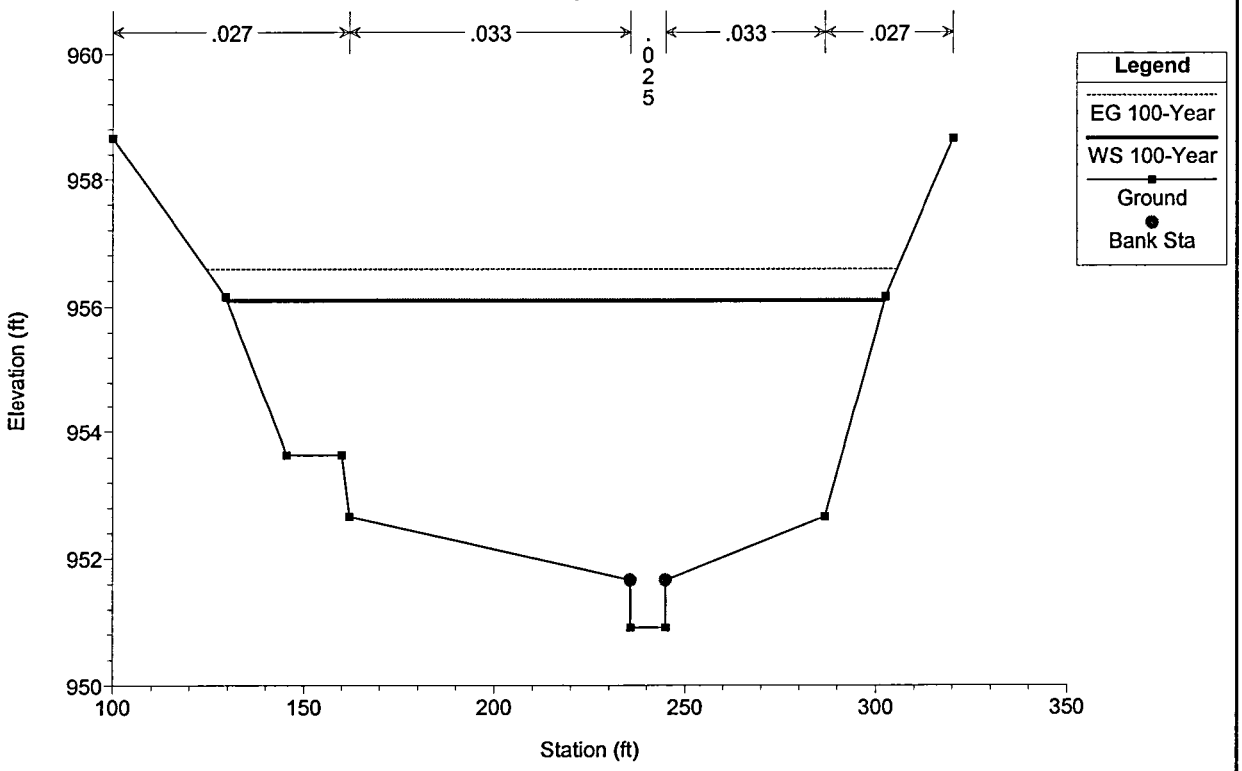

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 16165.7
.027
.033
.025
.033
.027
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
958
956
954
952
950
948
100
150
200
250
300
Station (ft)


Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 16366.6
.027
.033
.025
.033
.027
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
960
958
956
954
952
950
100
150
200
250
300
350
Station (ft)

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004

Geom: Design Geometry Flow: 100-Year Flow

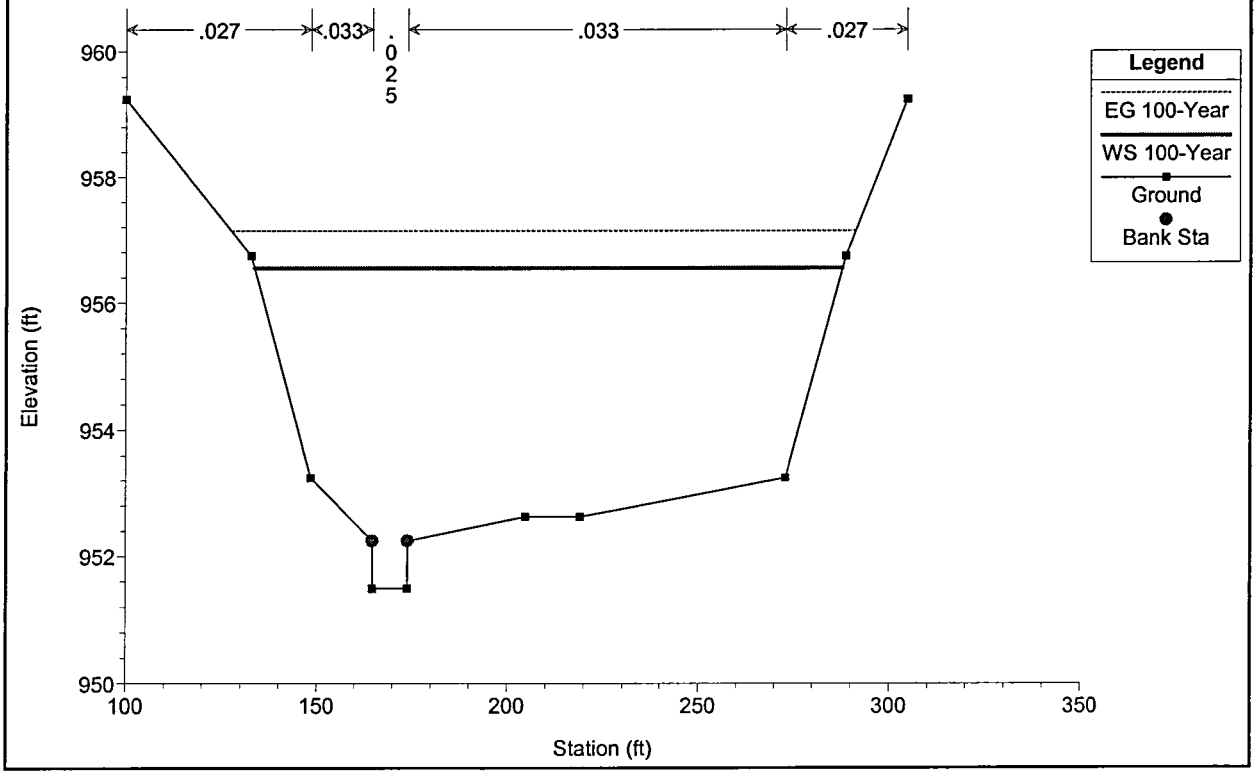
RS = 16562.9



Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004

Geom: Design Geometry Flow: 100-Year Flow

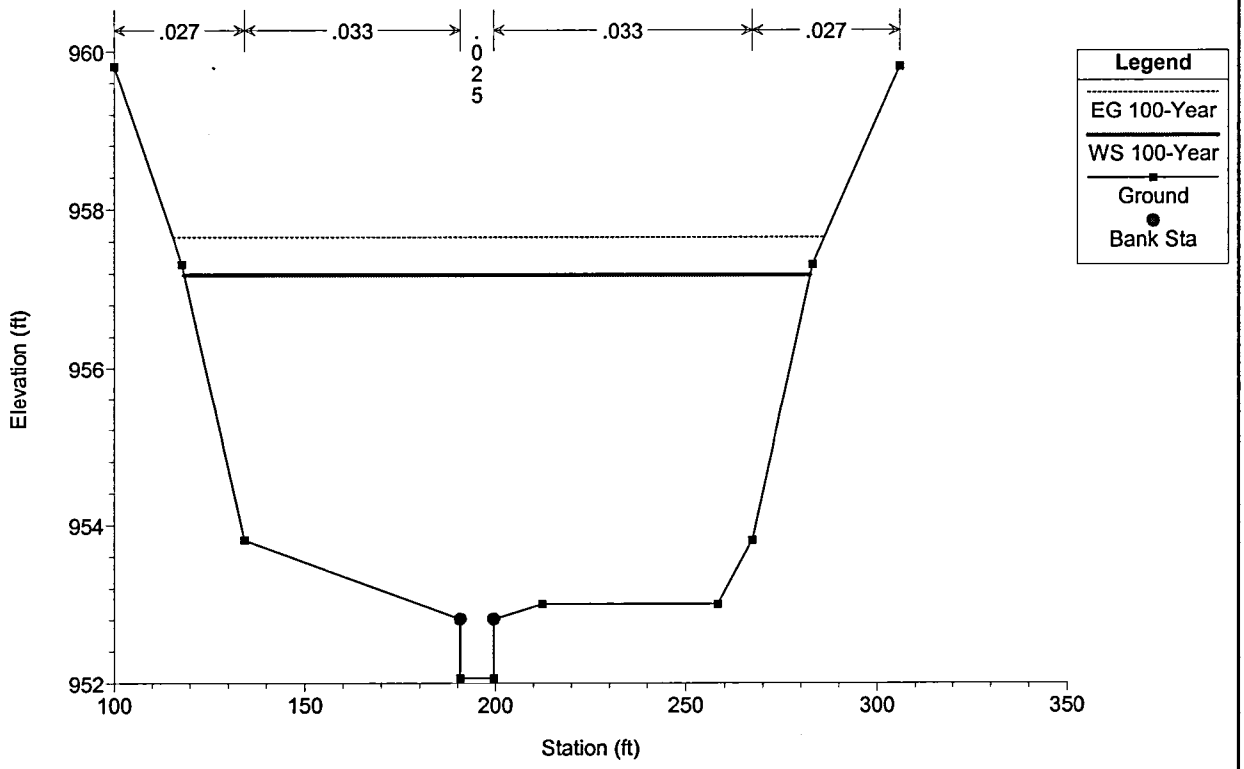
RS = 16762.7



Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004

Geom: Design Geometry Flow: 100-Year Flow

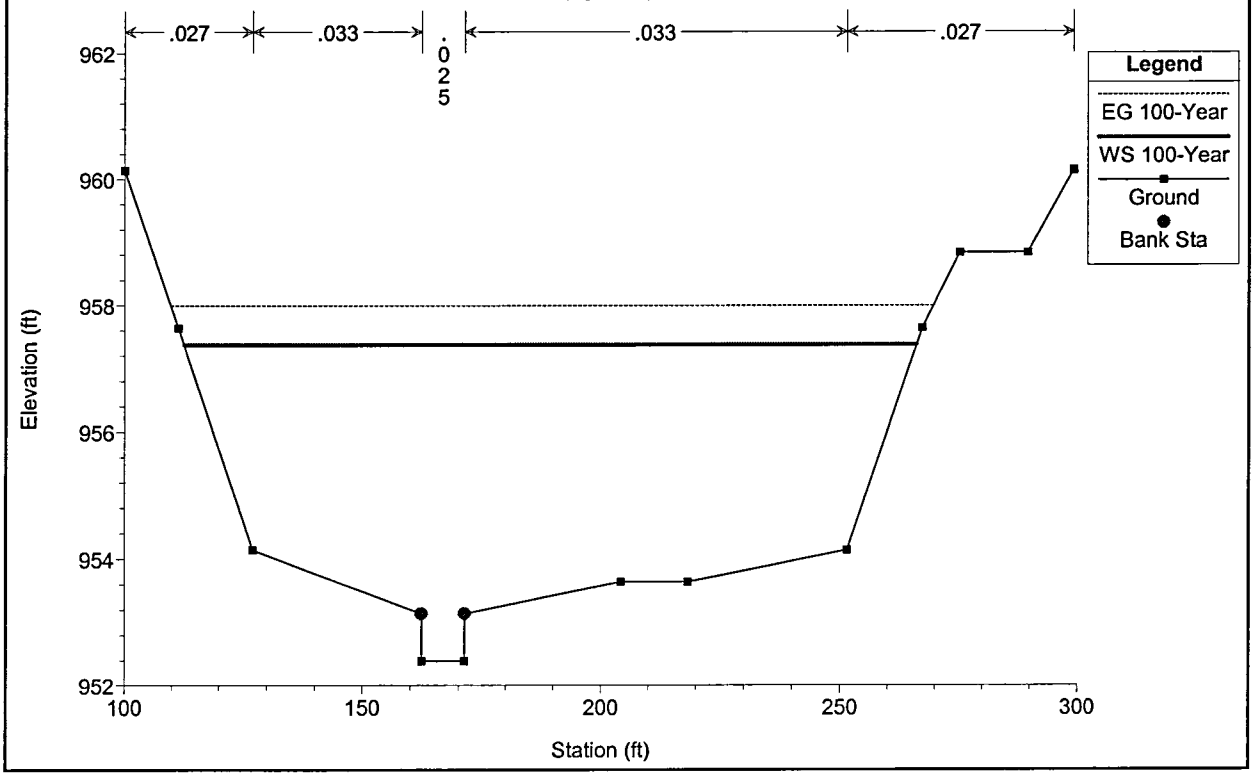
RS = 16961.4



Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004

Geom: Design Geometry Flow: 100-Year Flow

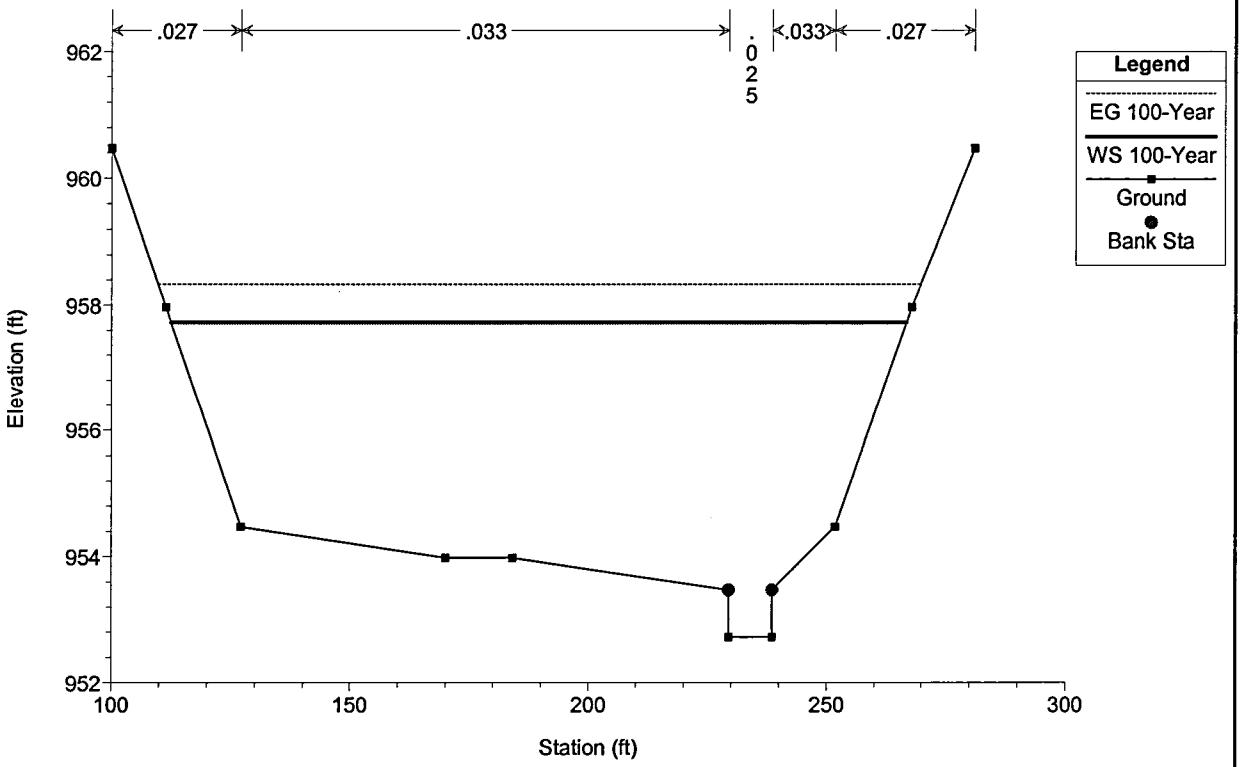
RS = 17076.5



Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004

Geom: Design Geometry Flow: 100-Year Flow

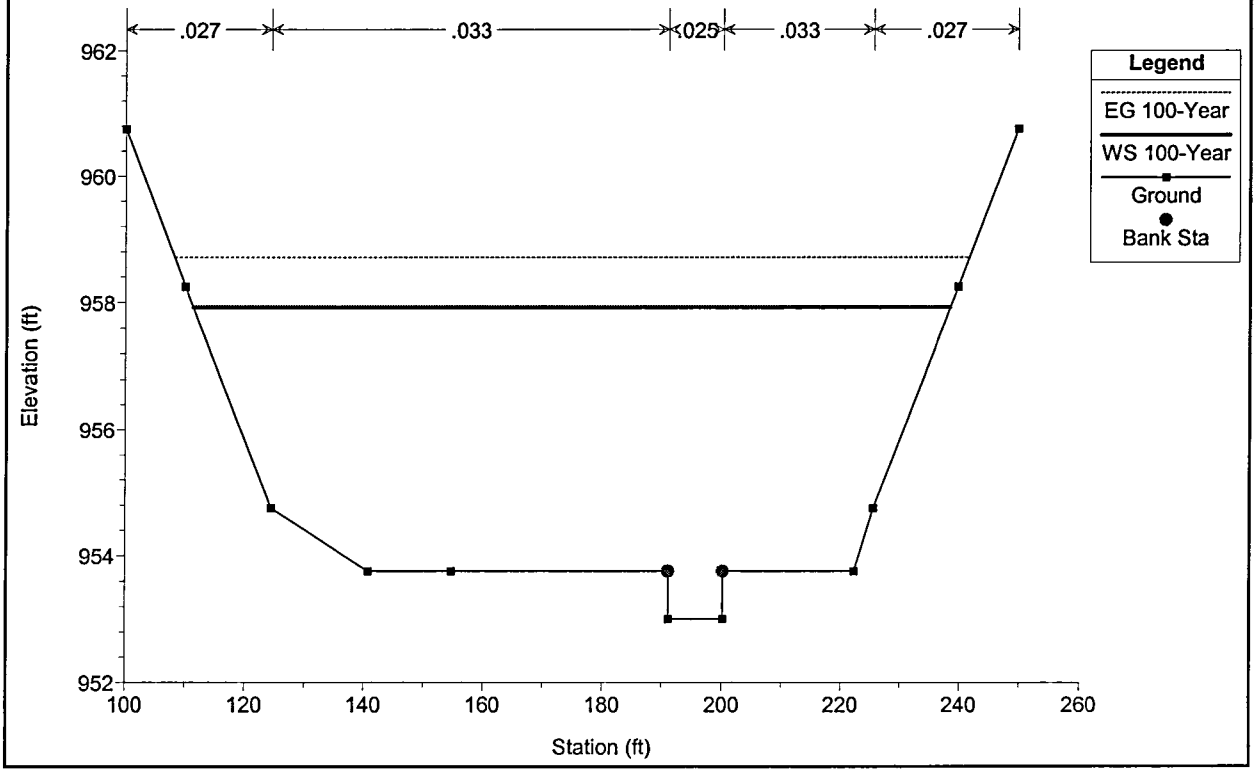
RS = 17188



Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004

Geom: Design Geometry Flow: 100-Year Flow

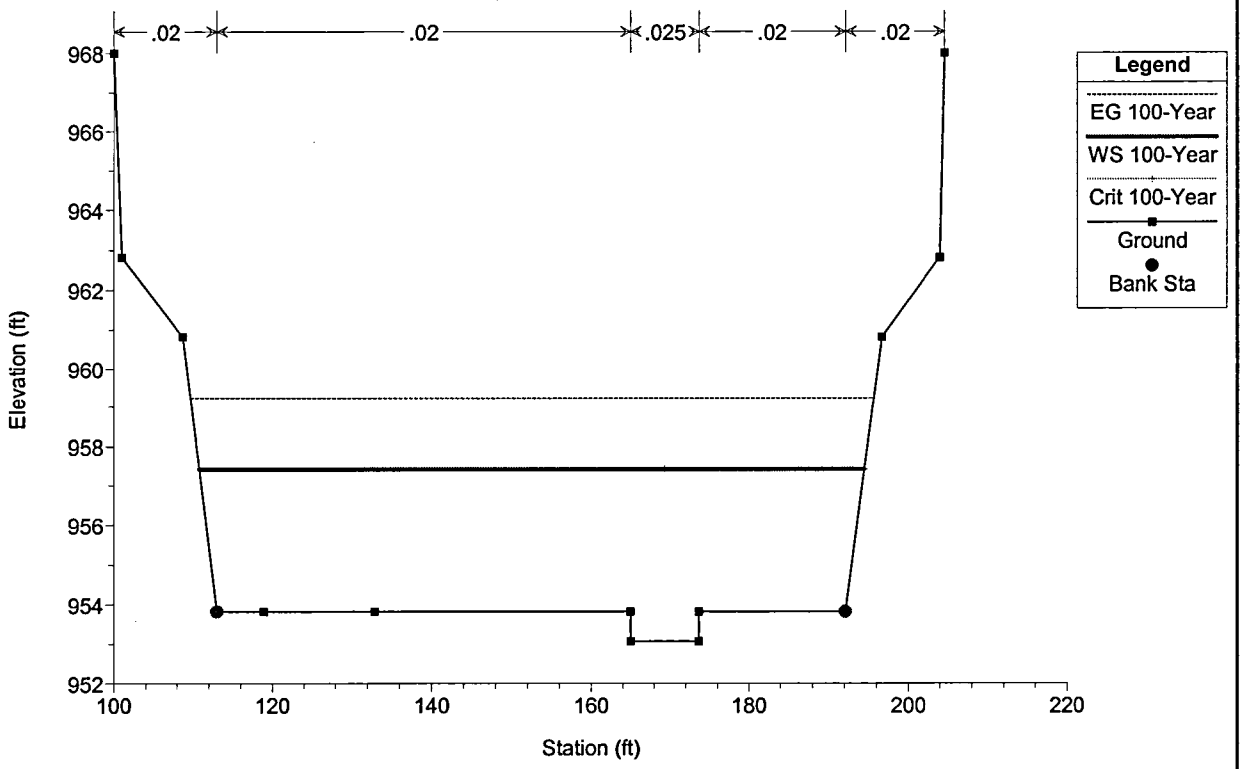
RS = 17285



Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004

Geom: Design Geometry Flow: 100-Year Flow

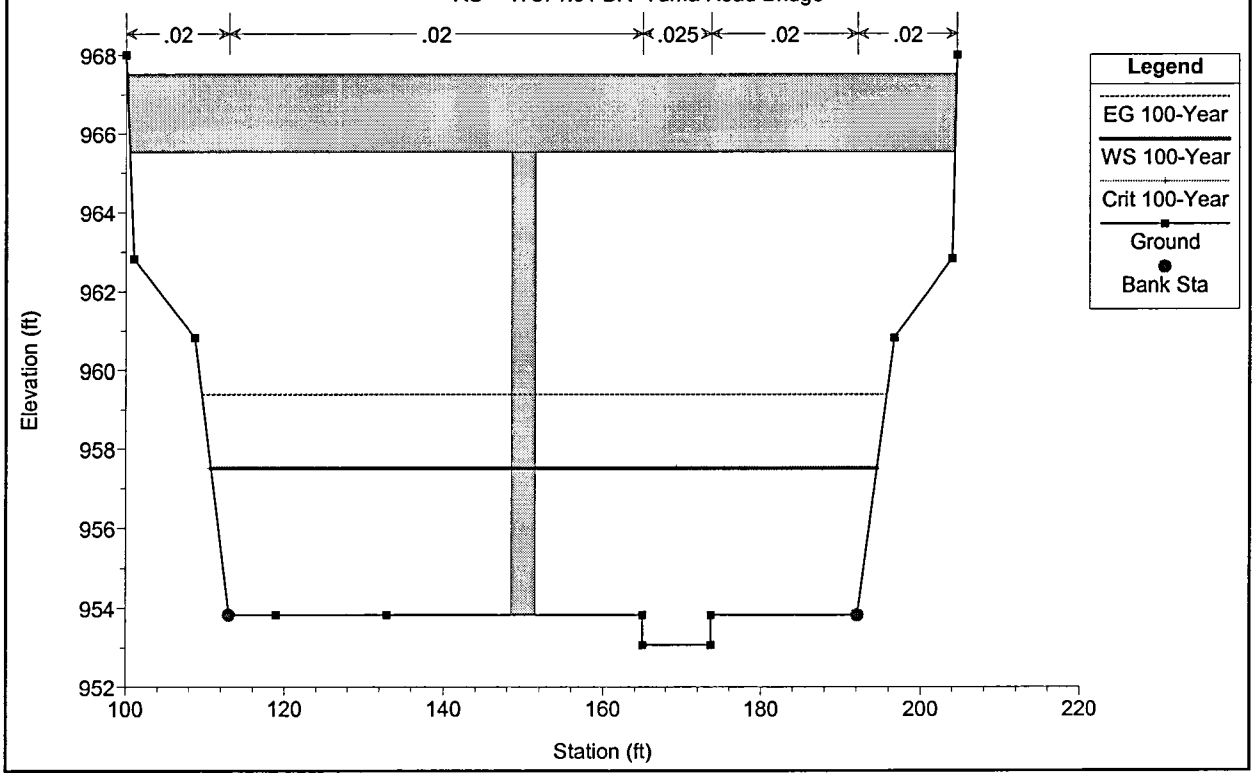
RS = 17310 D/S of Yuma Road

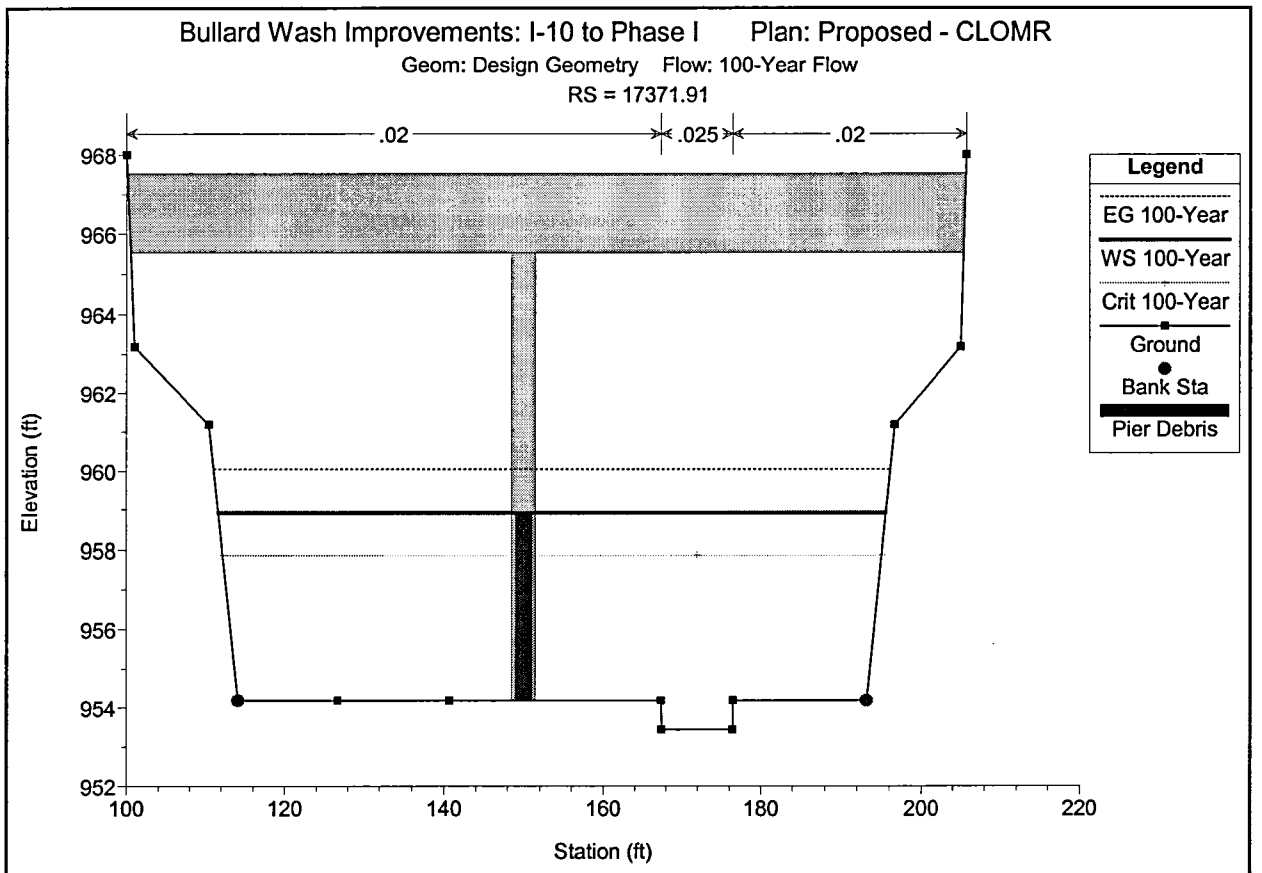


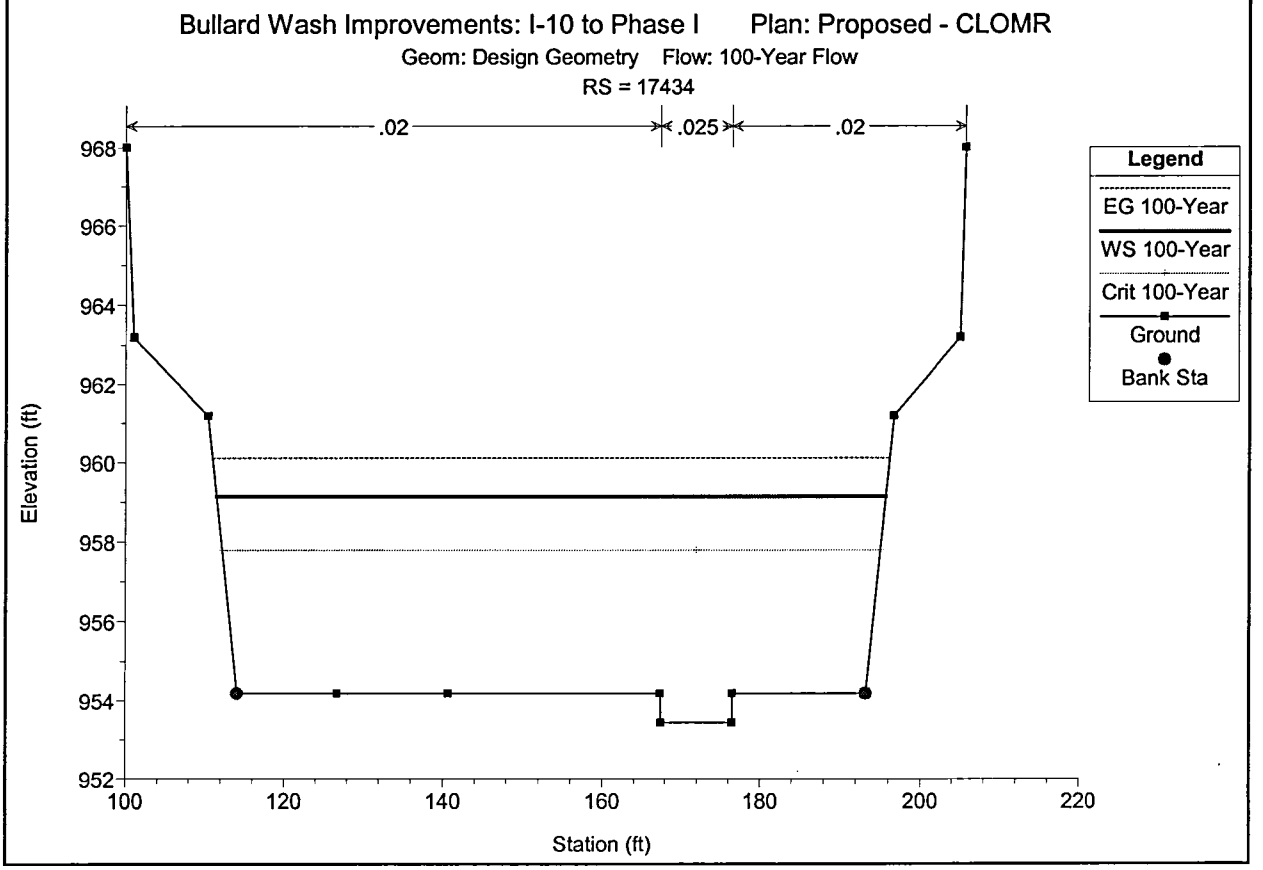
Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004

Geom: Design Geometry Flow: 100-Year Flow

RS = 17371.91 BR Yuma Road Bridge



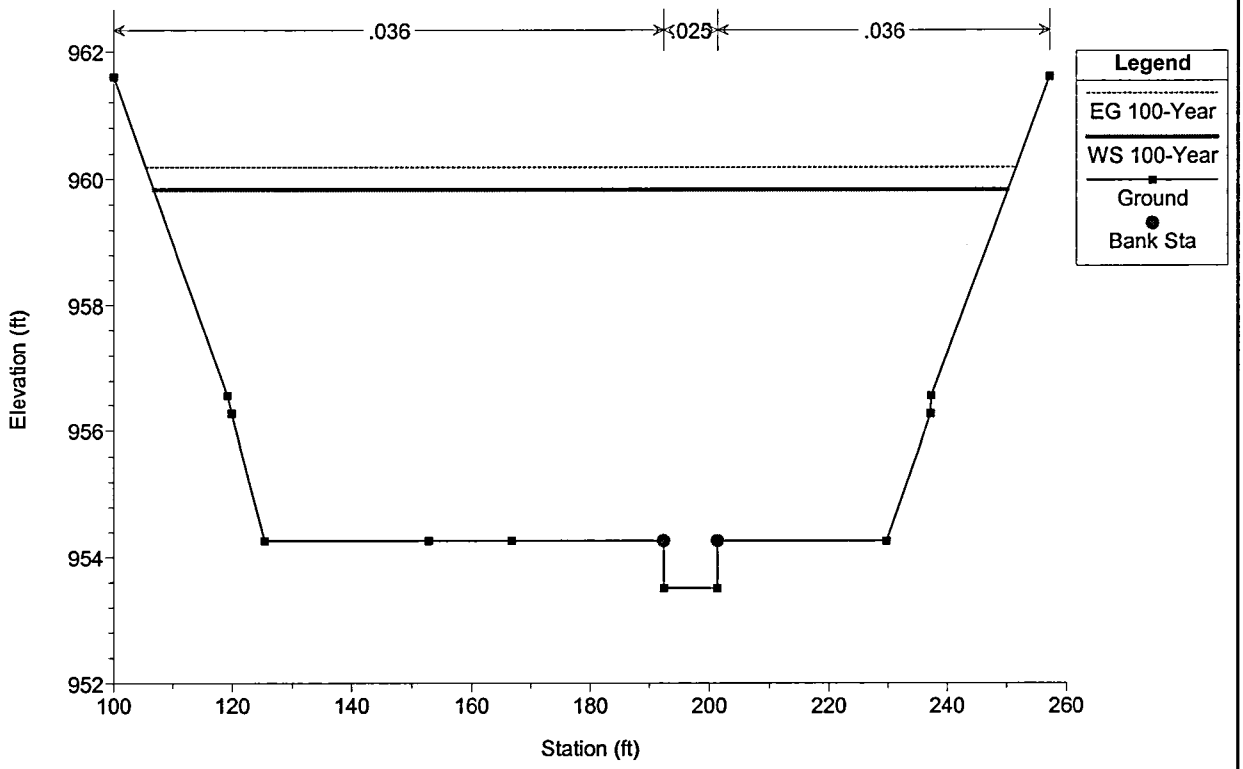

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR
Geom: Design Geometry Flow: 100-Year Flow
RS = 17371.91
.02
.025
.02
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Bank Sta
Pier Debris
Elevation (ft)
Station (ft)


Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR
Geom: Design Geometry Flow: 100-Year Flow
RS = 17434
.02
.025
.02
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004

Geom: Design Geometry Flow: 100-Year Flow

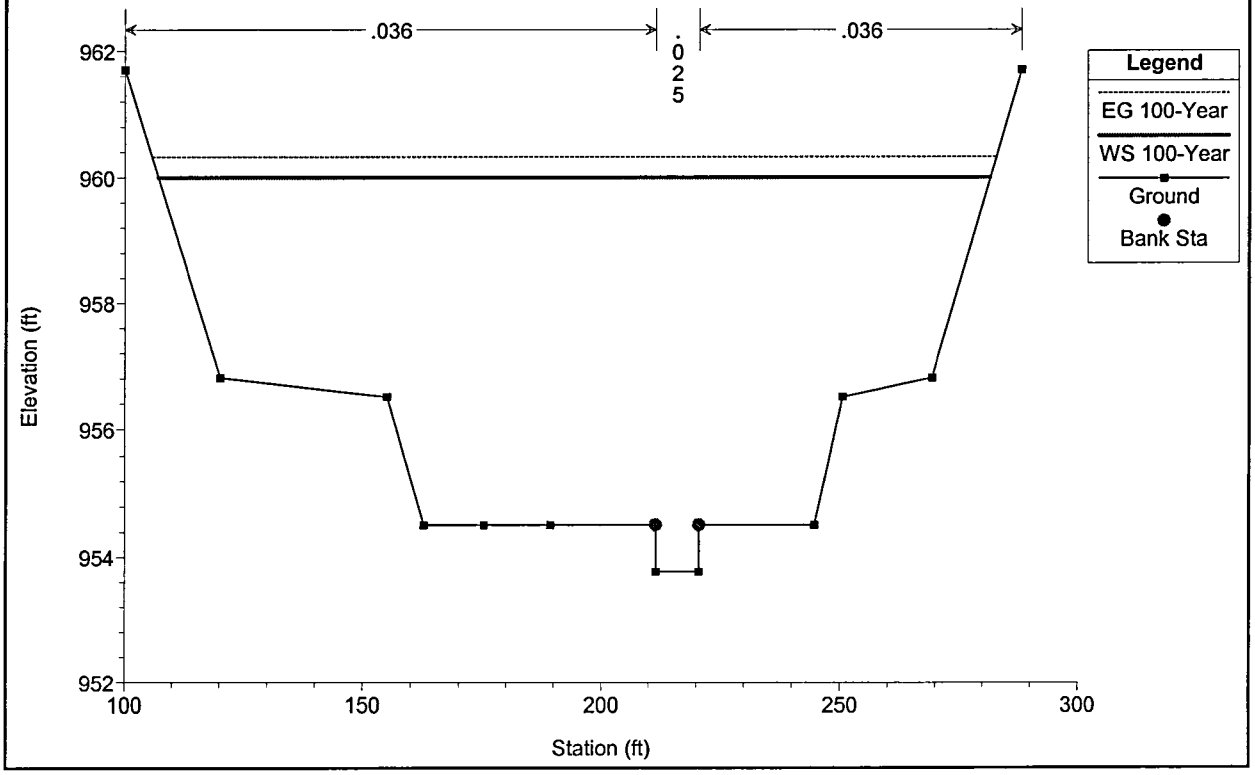
RS = 17459

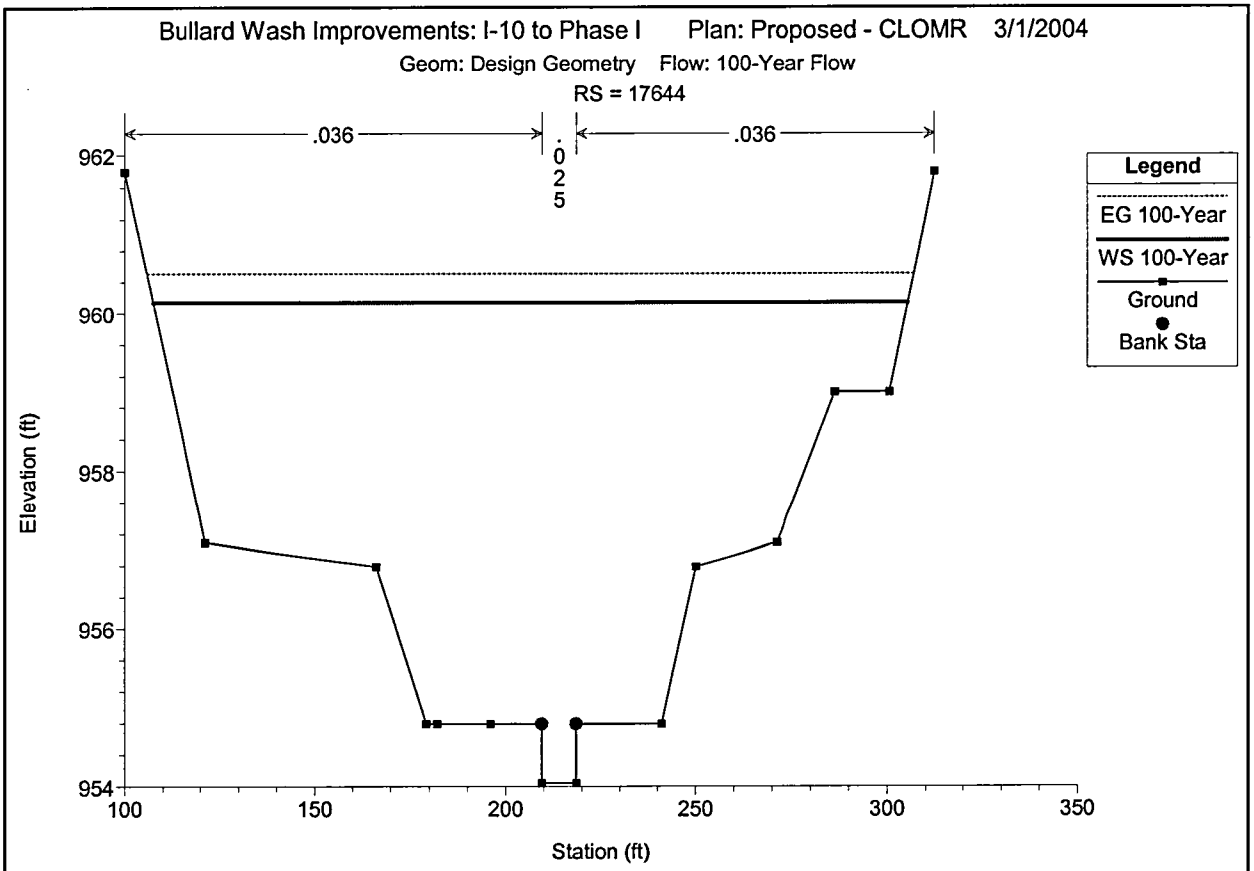


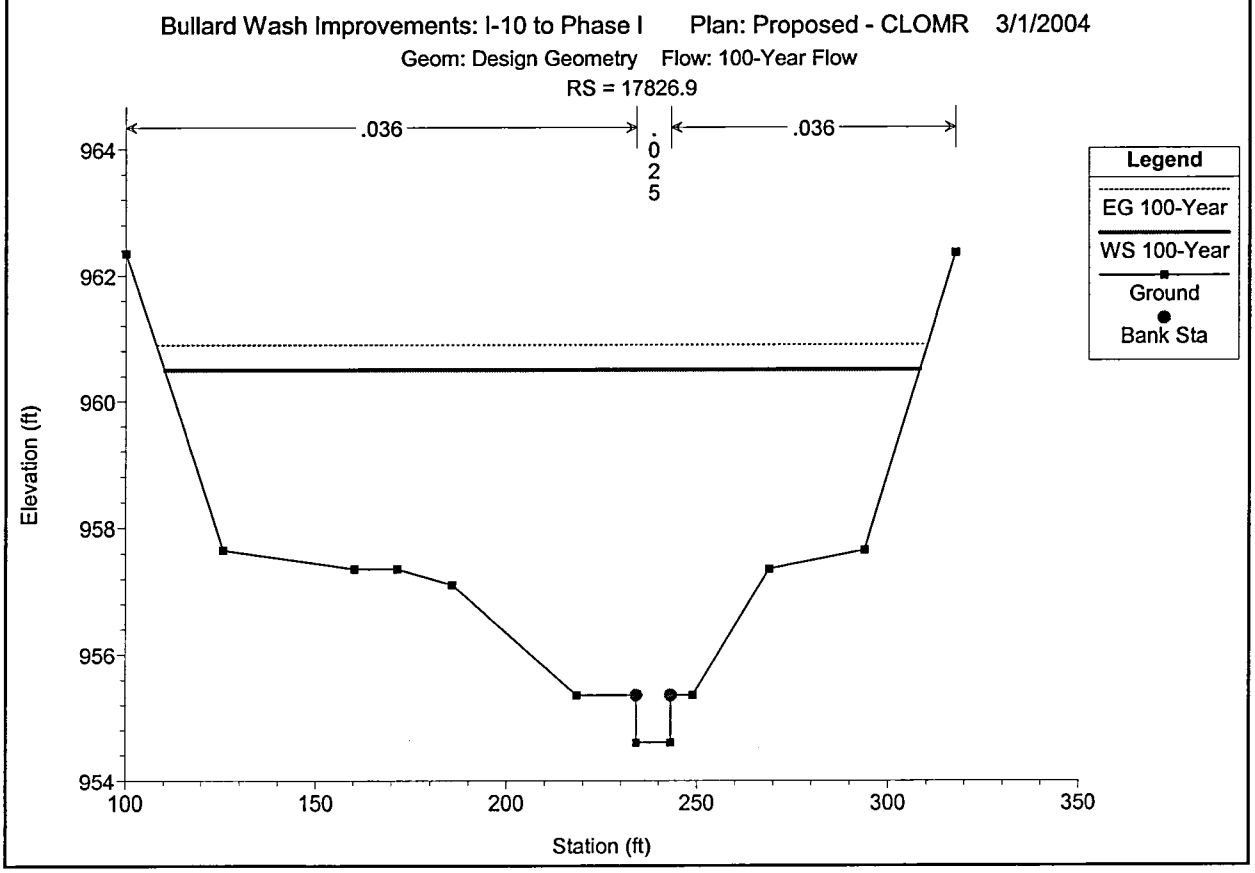
Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004

Geom: Design Geometry Flow: 100-Year Flow

RS = 17545



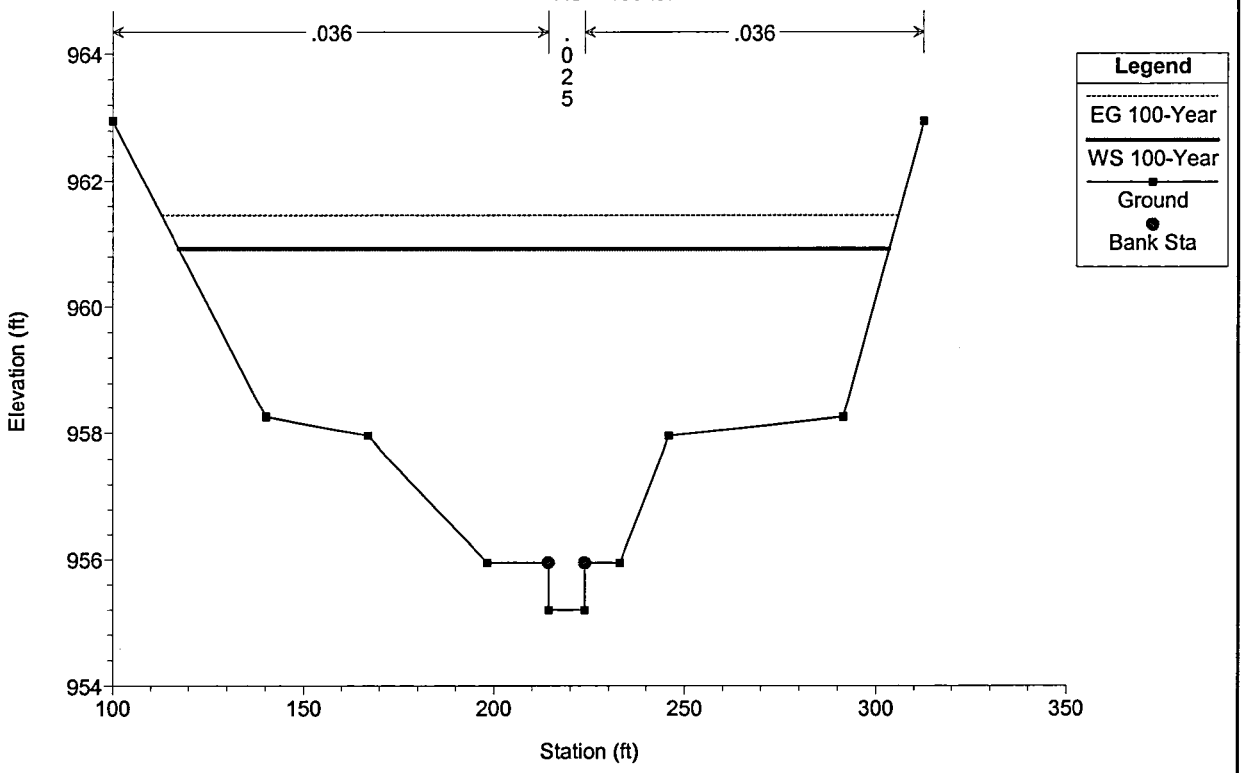

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 17644
.036
.025
.036
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
962
960
958
956
954
100
150
200
250
300
350
Station (ft)


Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 17826.9
.036
.025
.036
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
964
962
960
958
956
954
100
150
200
250
300
350
Station (ft)

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004

Geom: Design Geometry Flow: 100-Year Flow

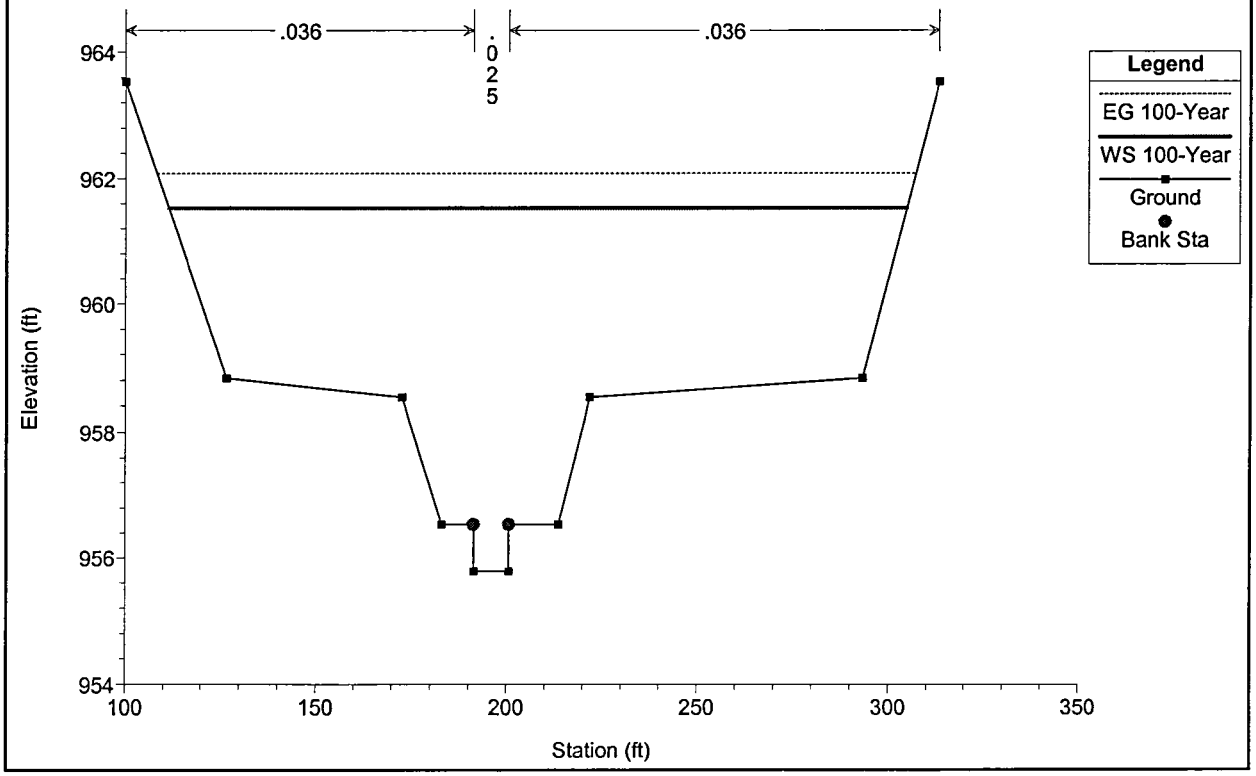
RS = 18029.7

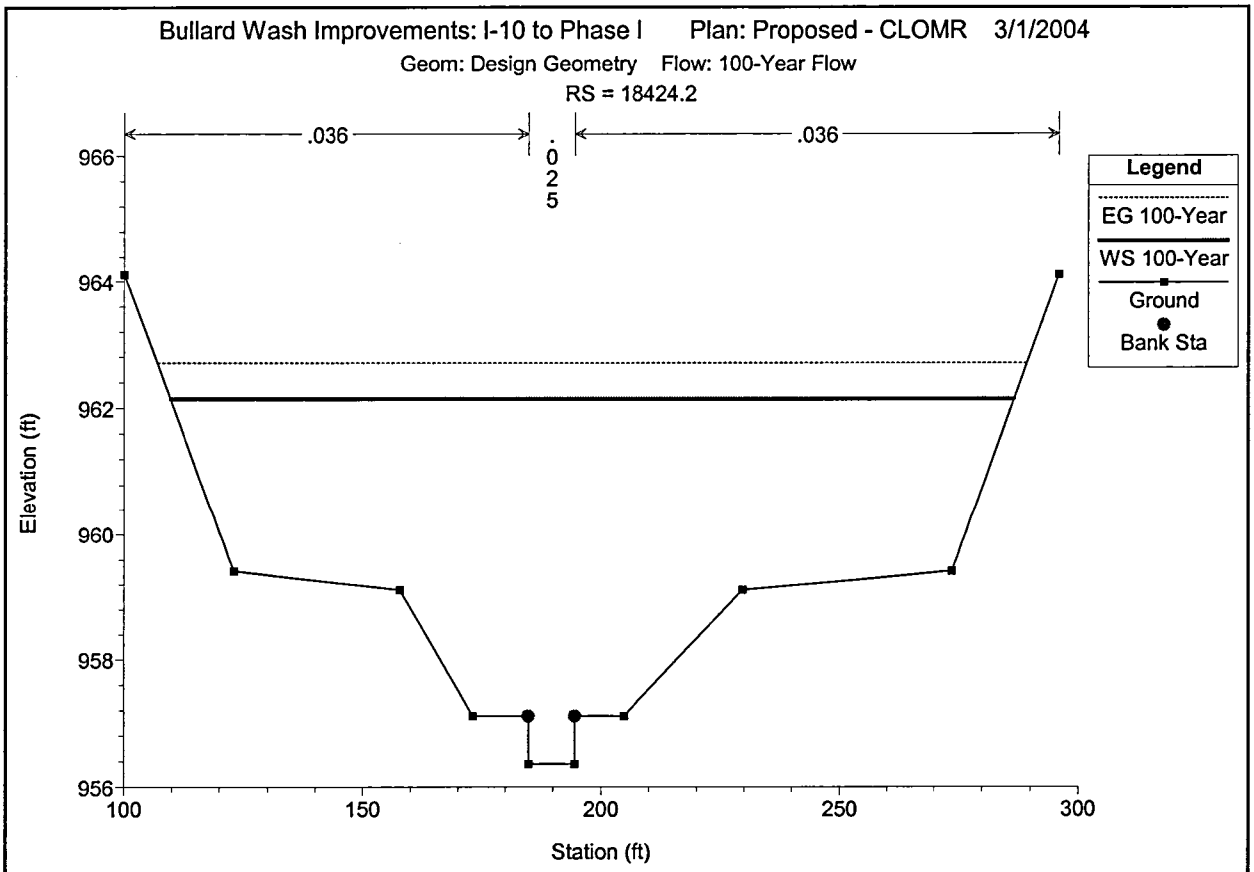


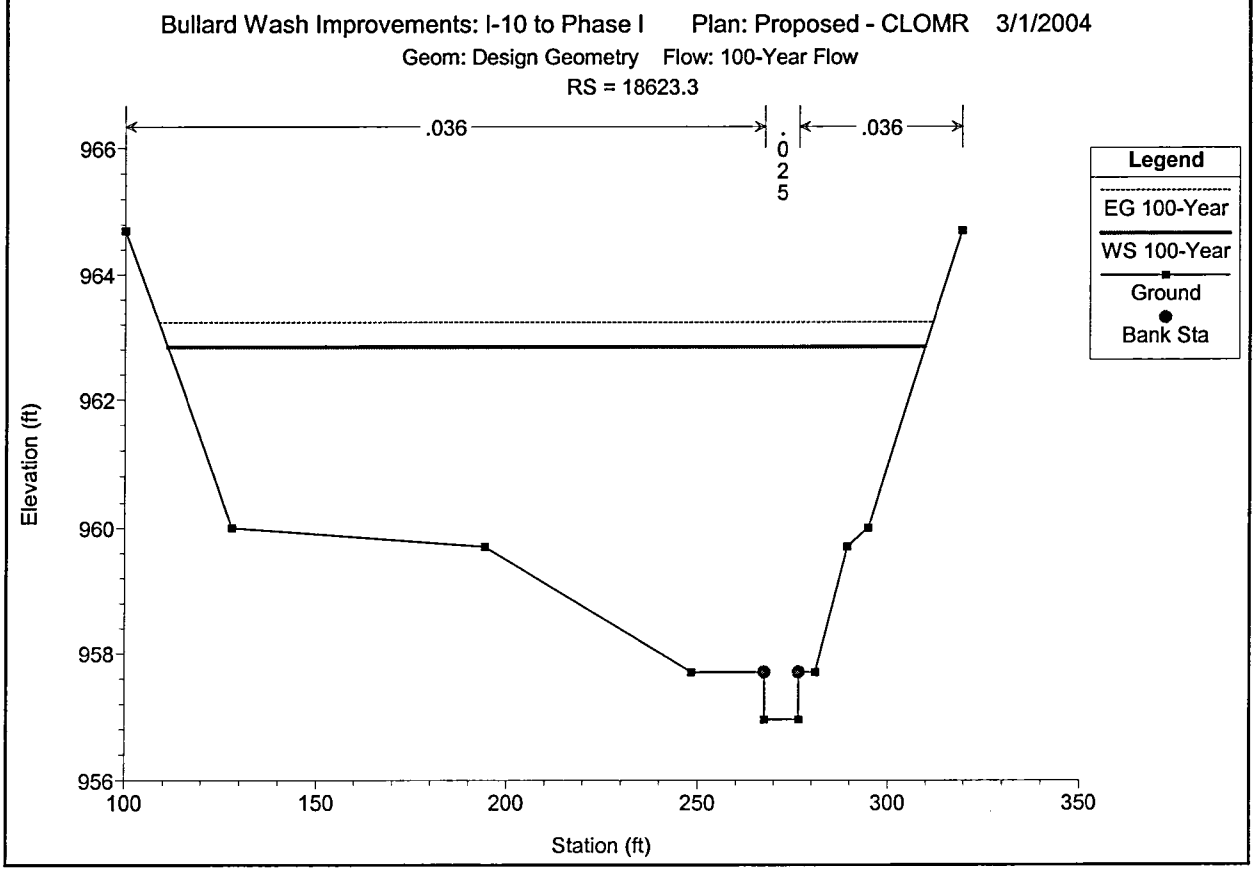
Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004

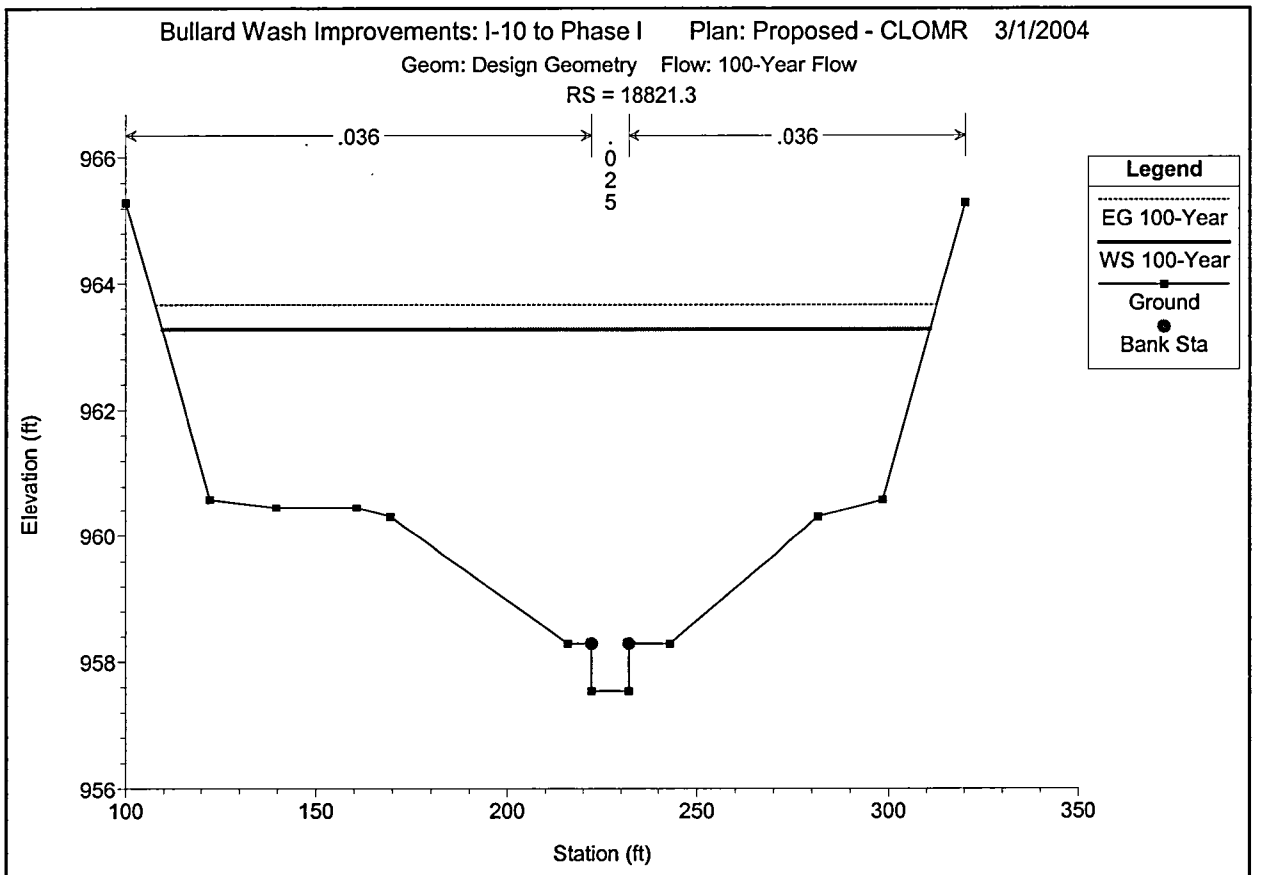
Geom: Design Geometry Flow: 100-Year Flow

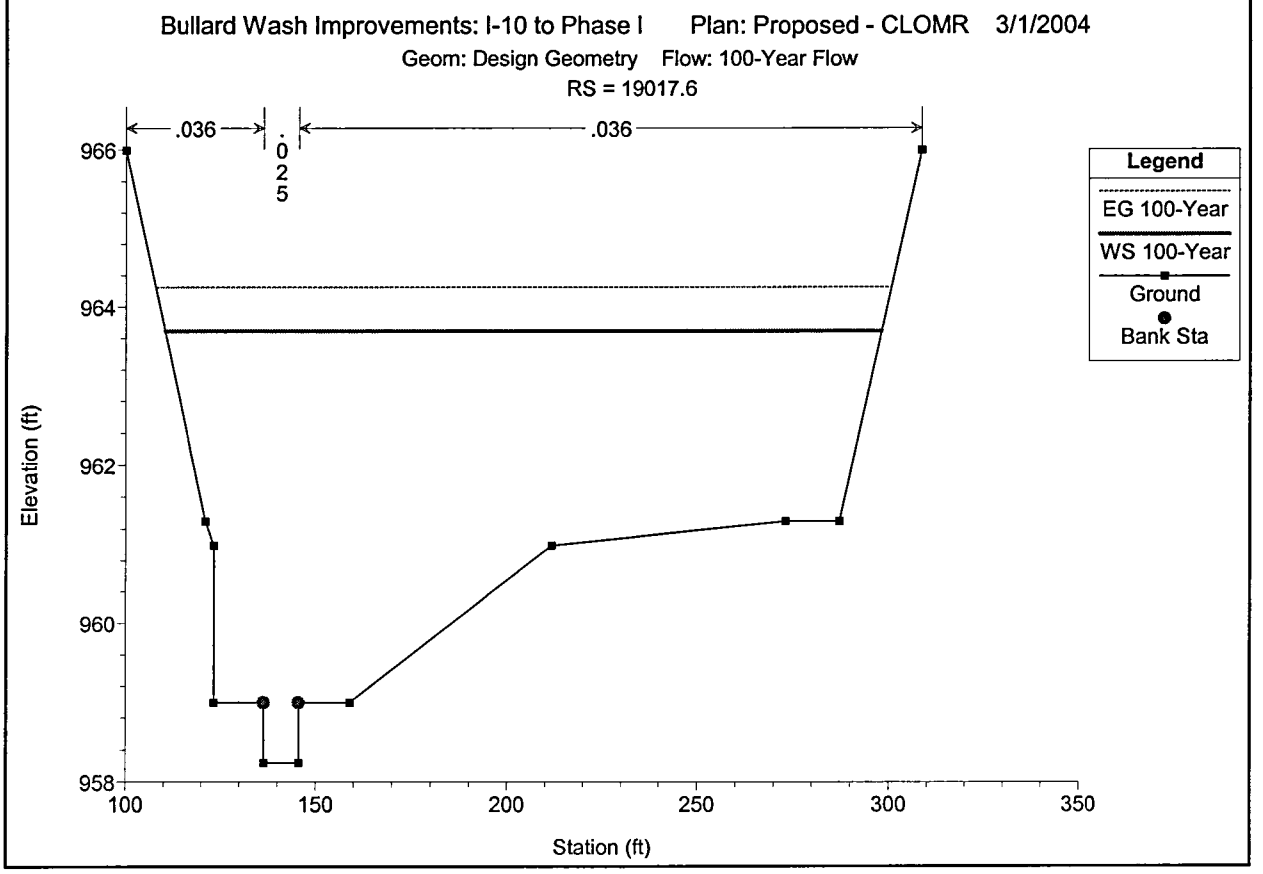
RS = 18226.7

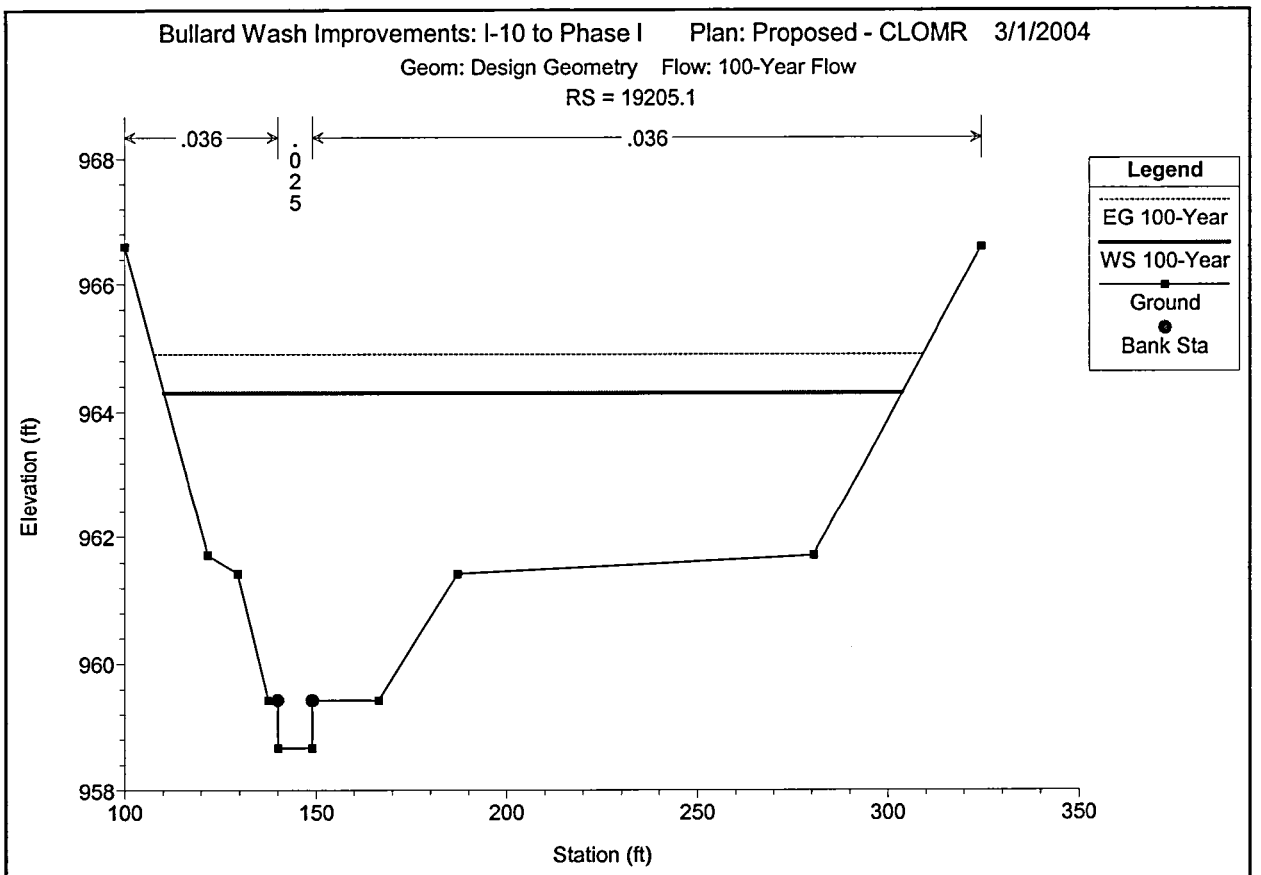


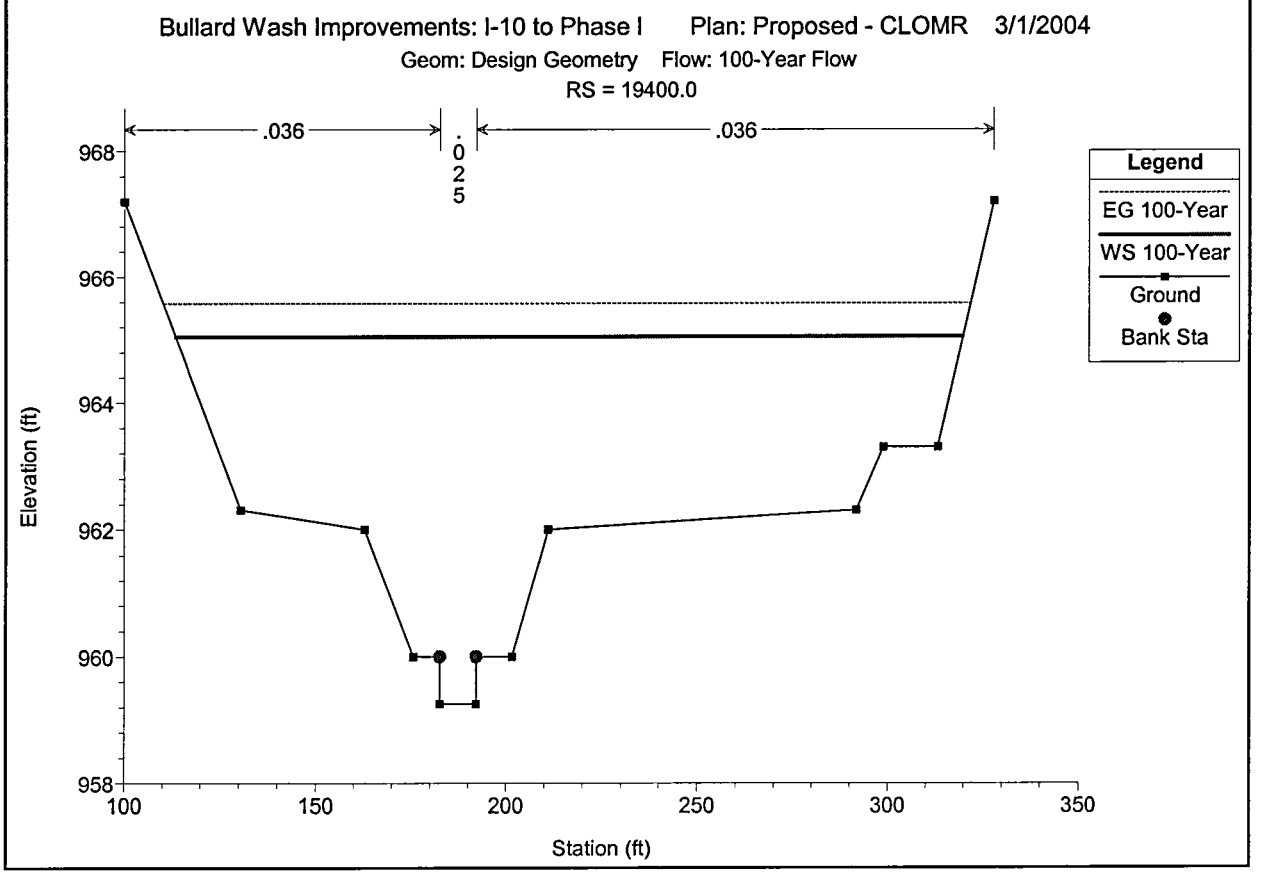

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 18424.2
.036
.025
.036
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
966
964
962
960
958
956
100
150
200
250
300

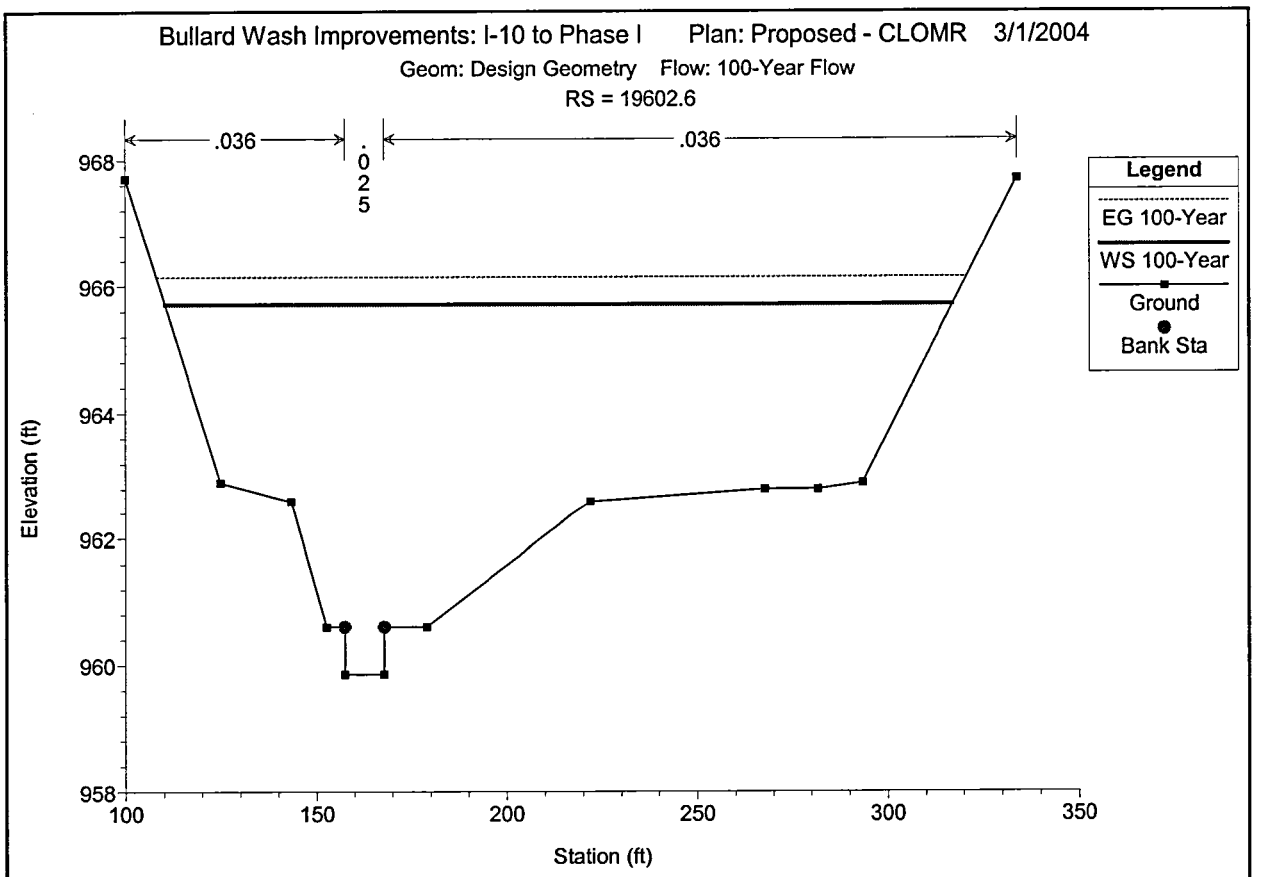

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 18623.3
.036
.025
.036
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
966
964
962
960
958
956
100
150
200
250
300
350

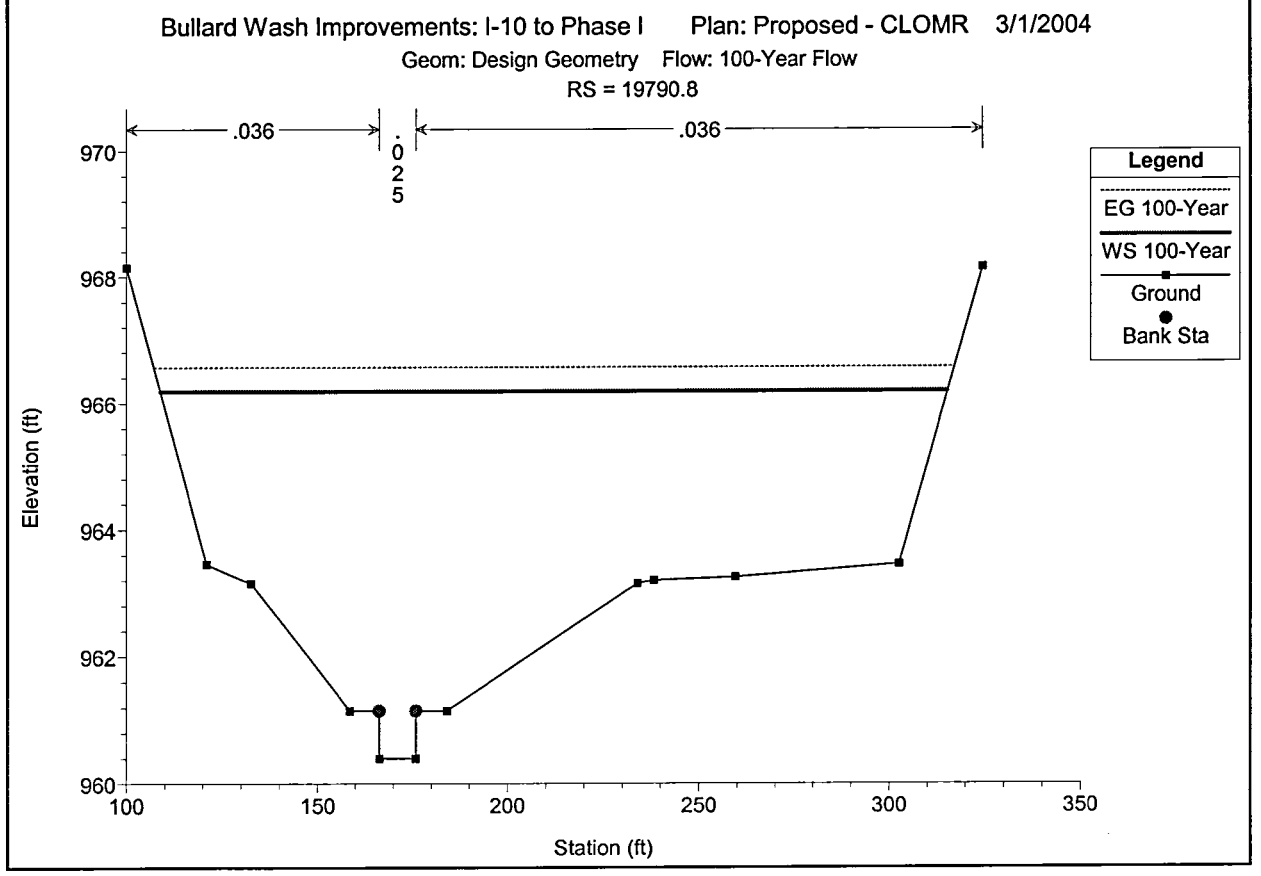

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 18821.3
.036
.025
.036
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
966
964
962
960
958
956
100
150
200
250
300
350

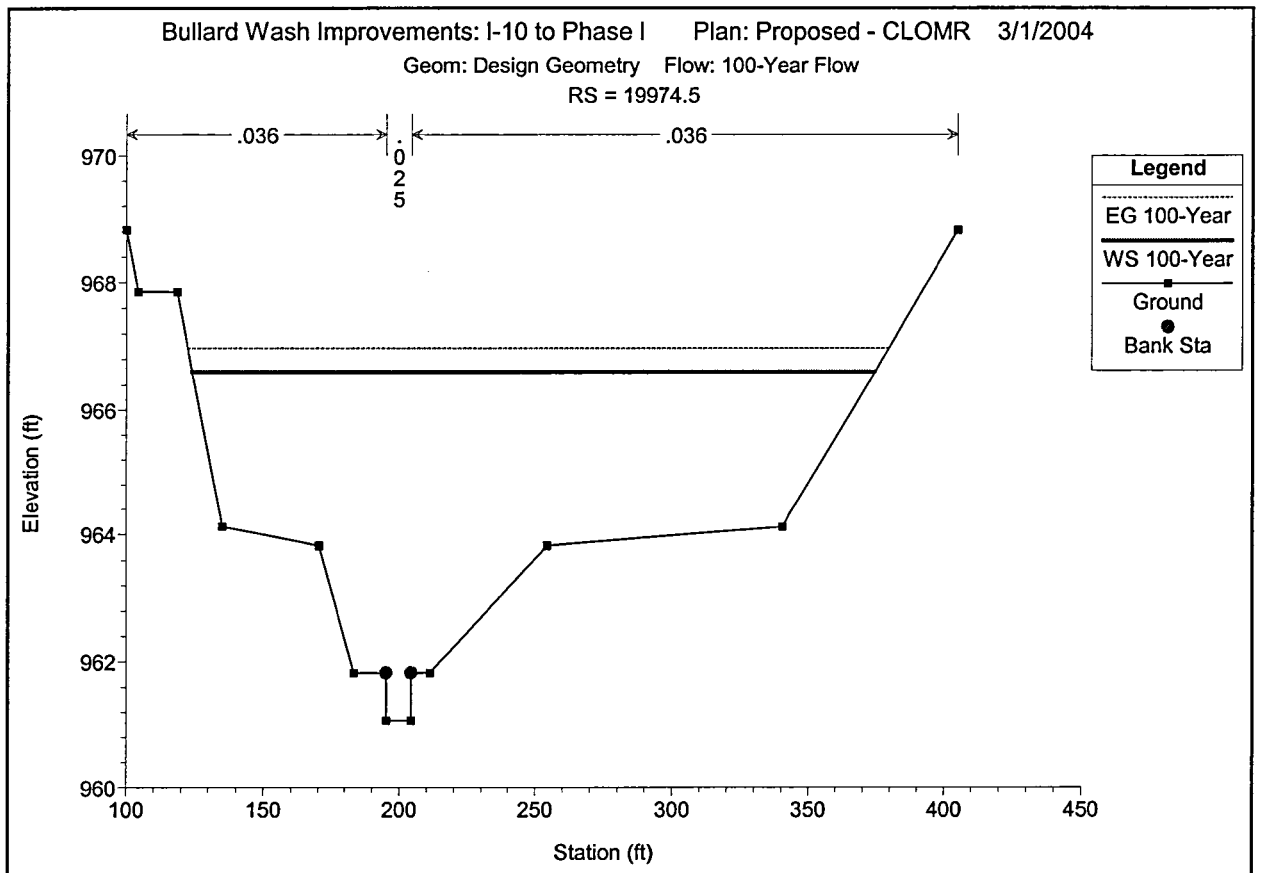

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 19017.6
.036
.025
.036
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
966
964
962
960
958
100
150
200
250
300
350

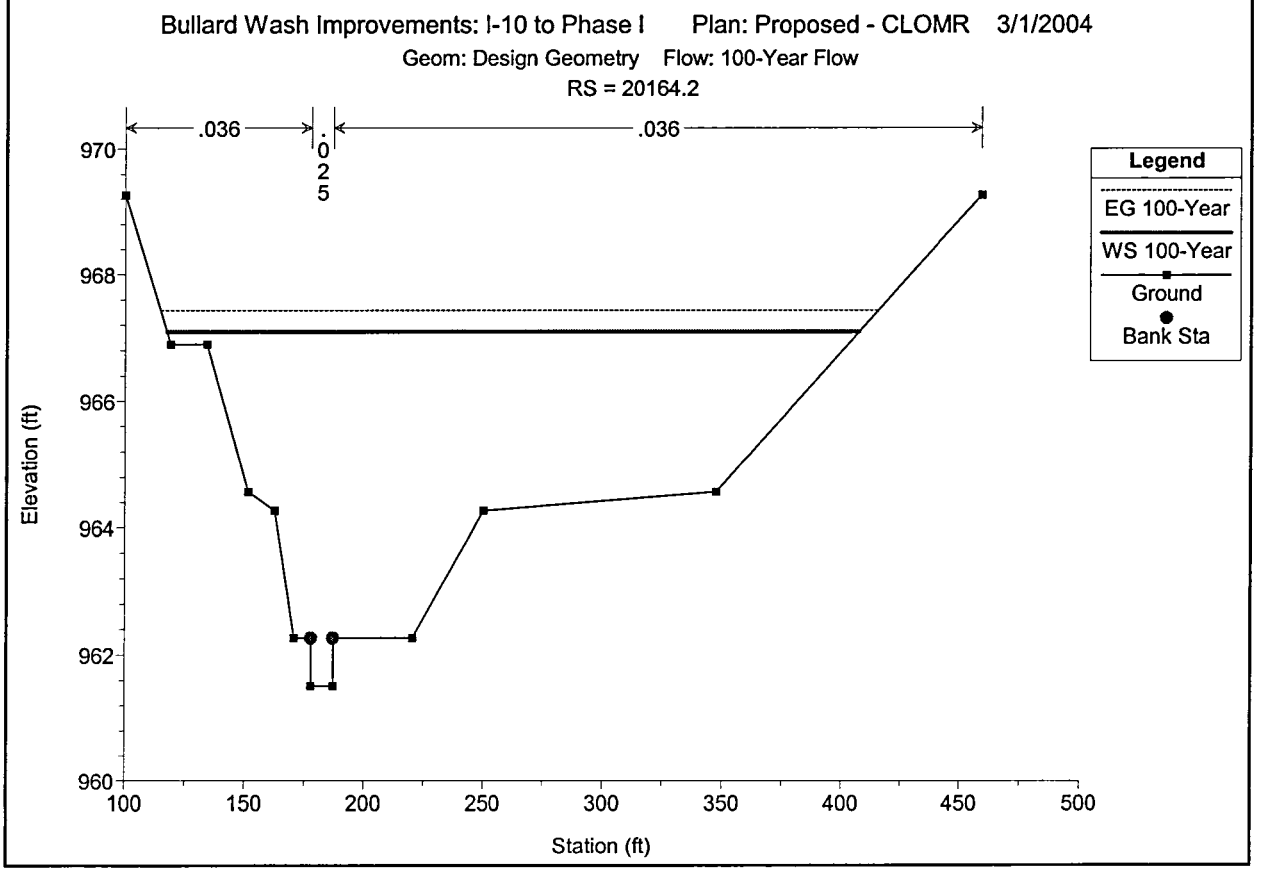

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 19205.1
.036
.025
.036
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
968
966
964
962
960
958
100
150
200
250
300
350


Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 19400.0
.036
.025
.036
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
968
966
964
962
960
958
100
150
200
250
300
350


Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 19602.6
.036
.025
.036
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
968
966
964
962
960
958
100
150
200
250
300
350
Station (ft)


Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 19790.8
.036
.025
.036
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
970
968
966
964
962
960
100
150
200
250
300
350
Station (ft)

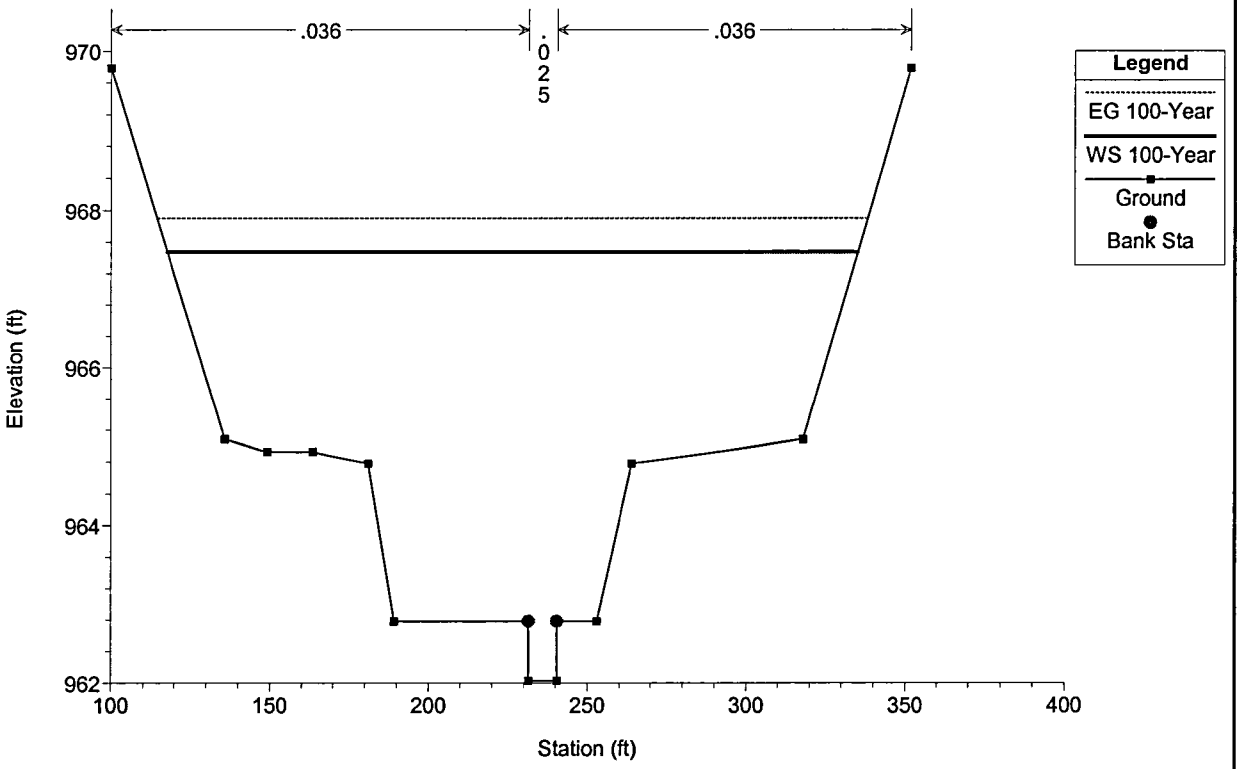

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 19974.5
.036
.025
.036
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
970
968
966
964
962
960
100
150
200
250
300
350
400
450


Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 20164.2
.036
.025
.036
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
970
968
966
964
962
960
100
150
200
250
300
350
400
450
500

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004

Geom: Design Geometry Flow: 100-Year Flow

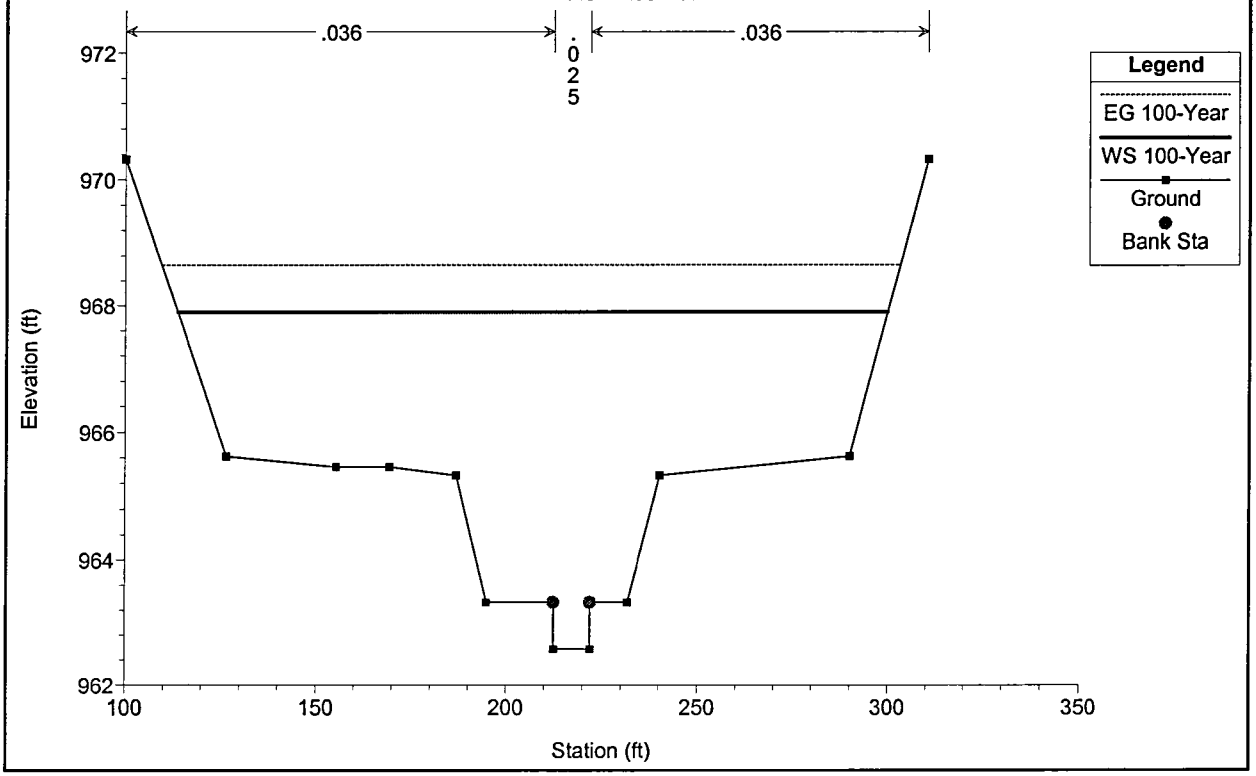
RS = 20341.9

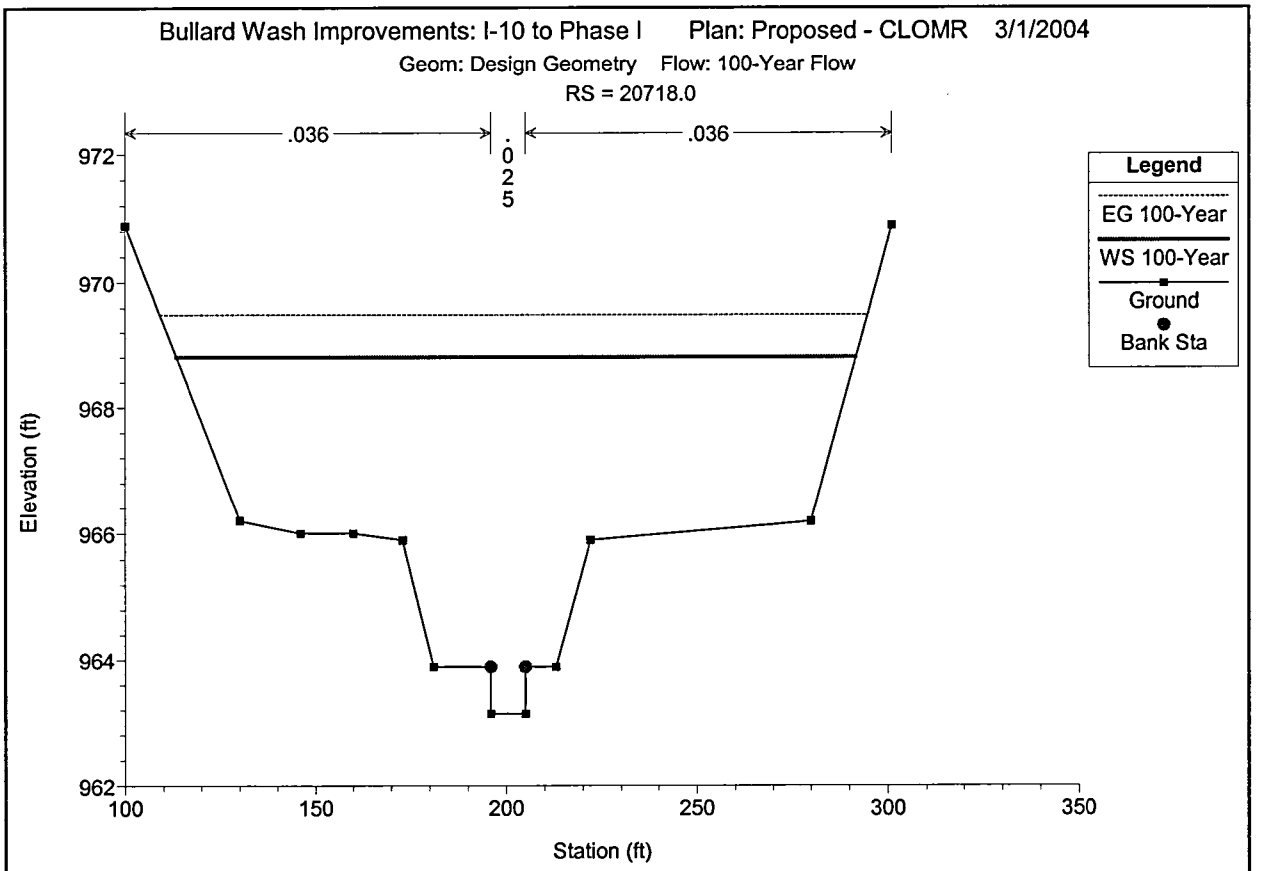


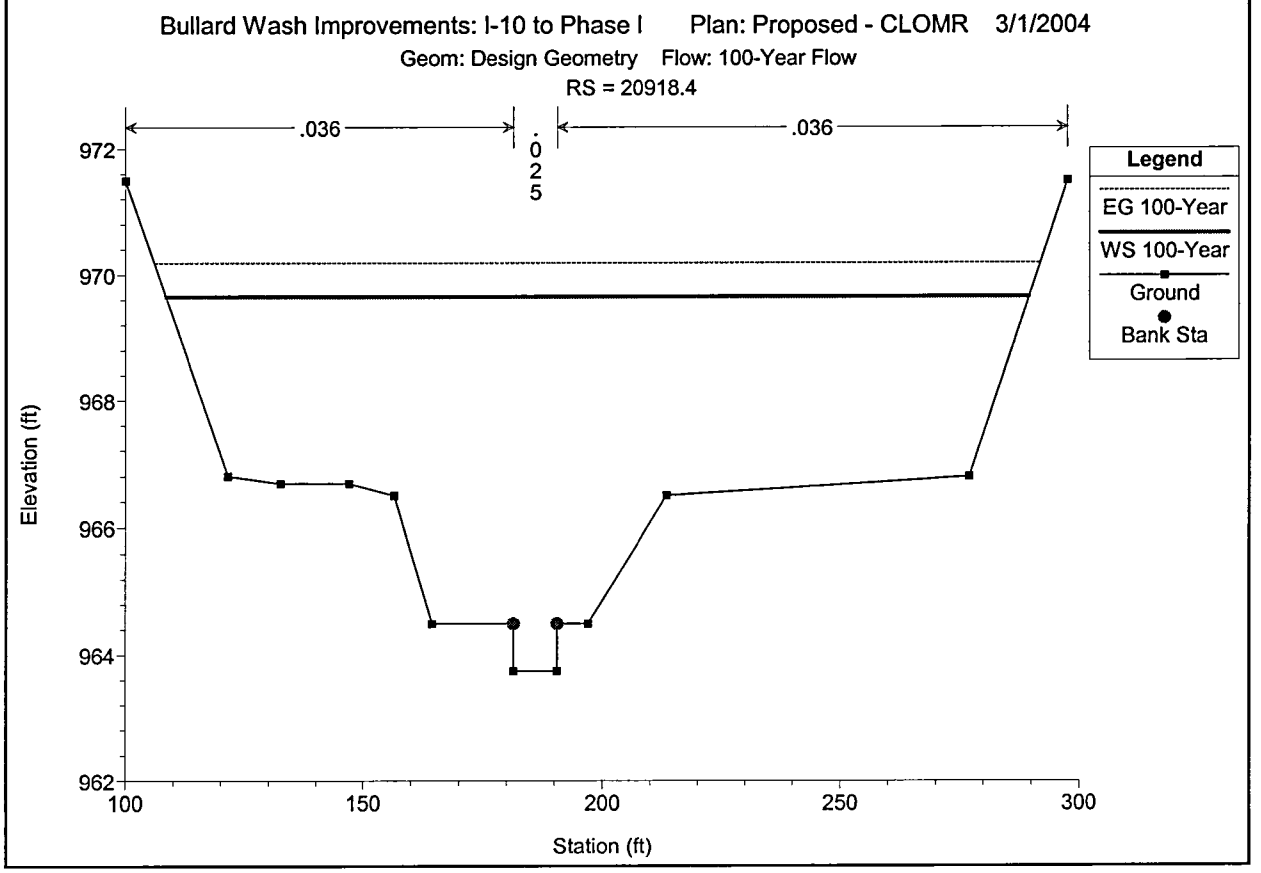
Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004

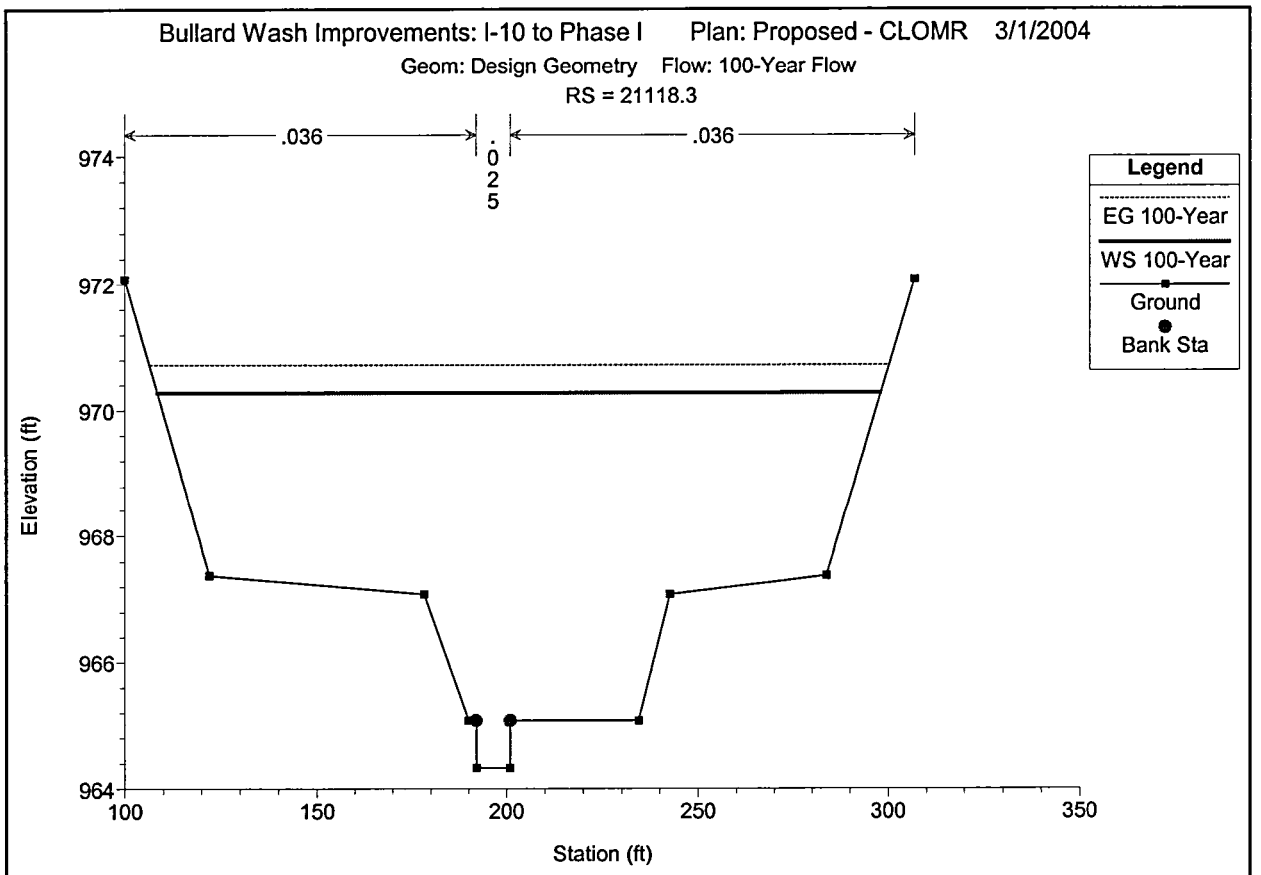
Geom: Design Geometry Flow: 100-Year Flow

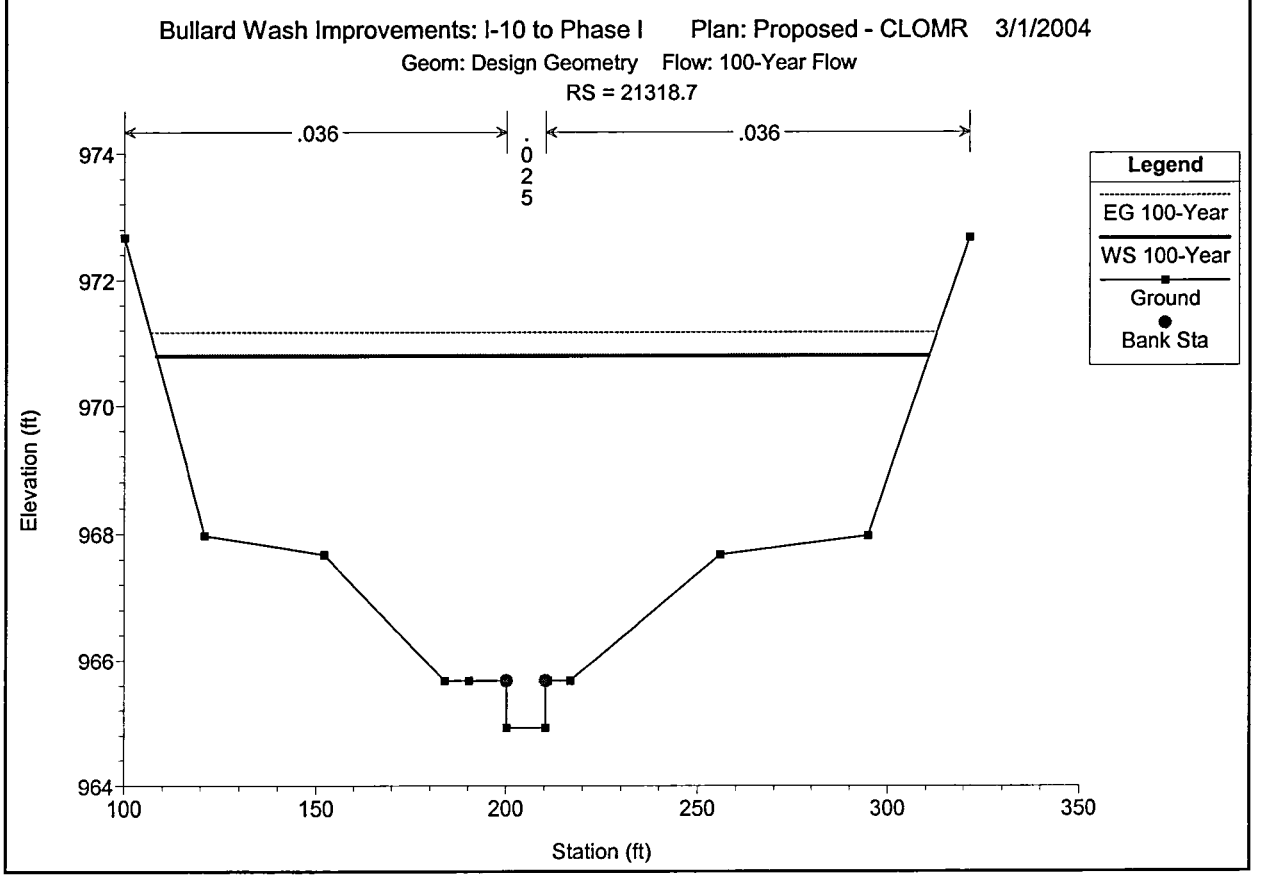
RS = 20524.1

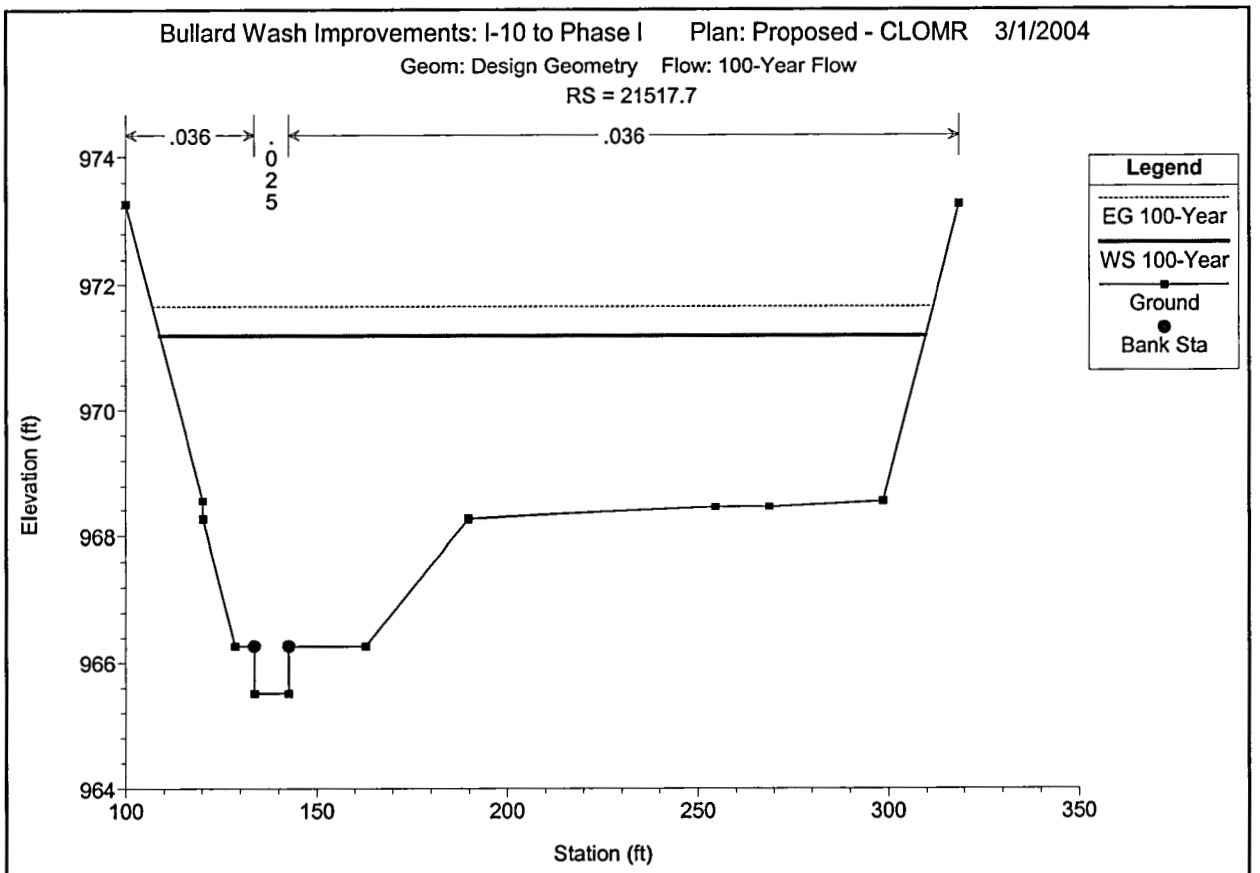


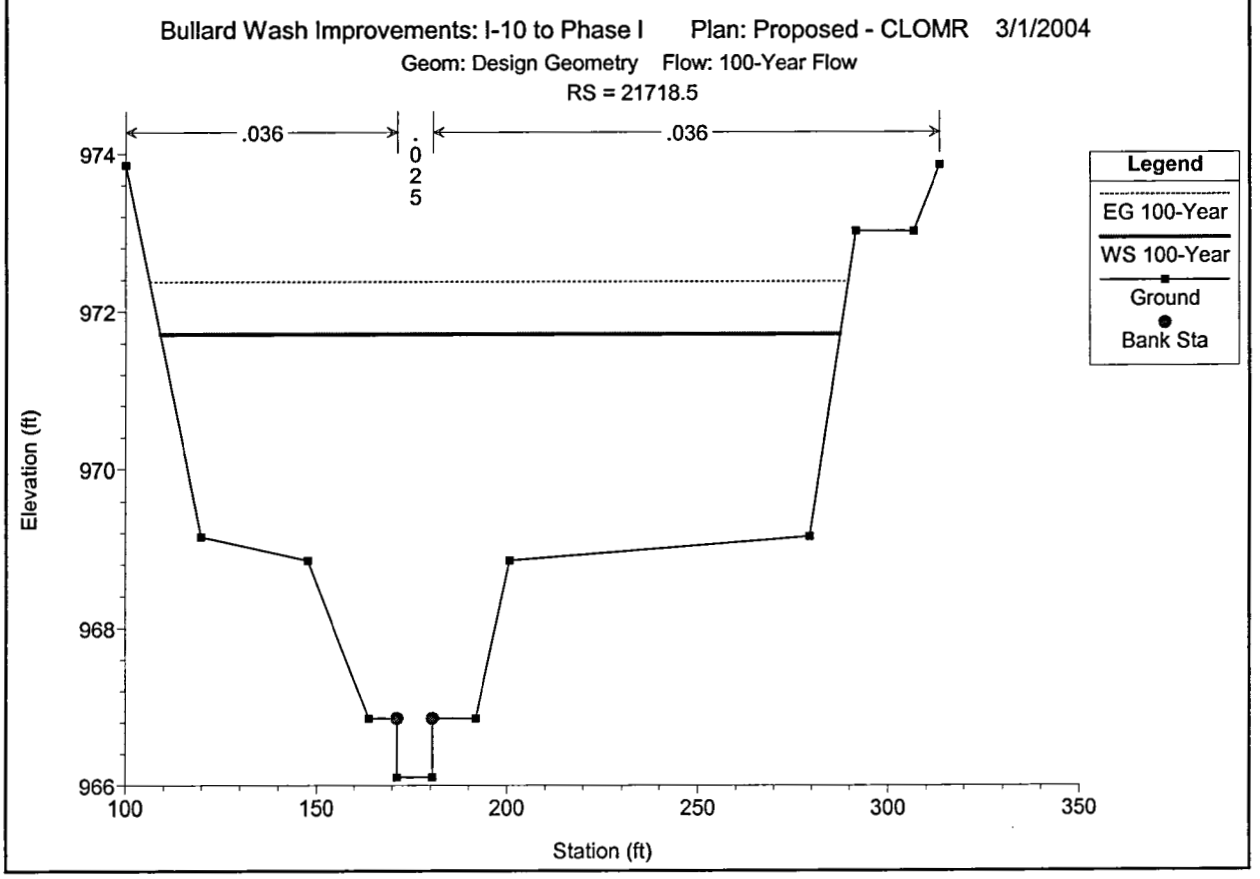

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 20718.0
.036
.025
.036
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
972
970
968
966
964
962
100
150
200
250
300
350

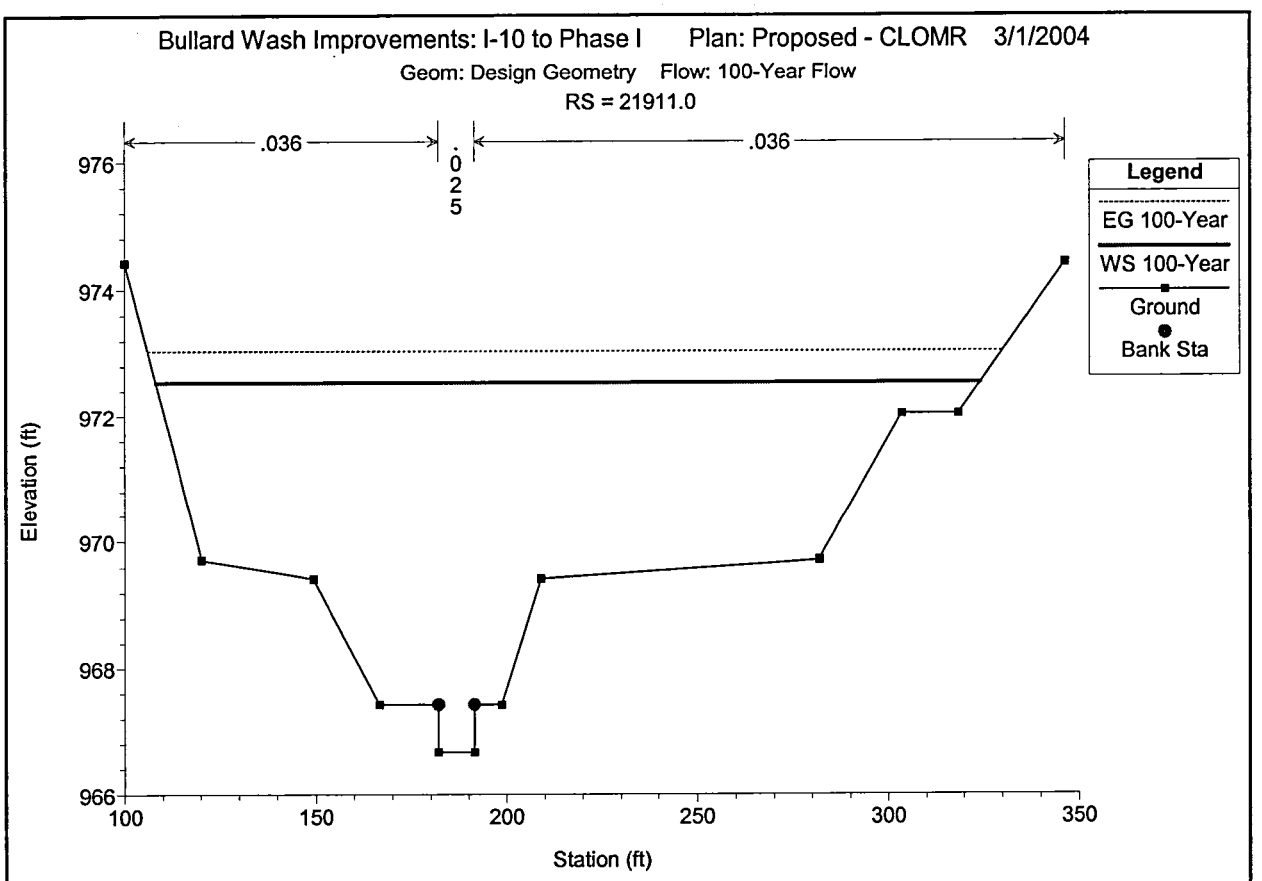

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 20918.4
.036
.025
.036
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
972
970
968
966
964
962
100
150
200
250
300

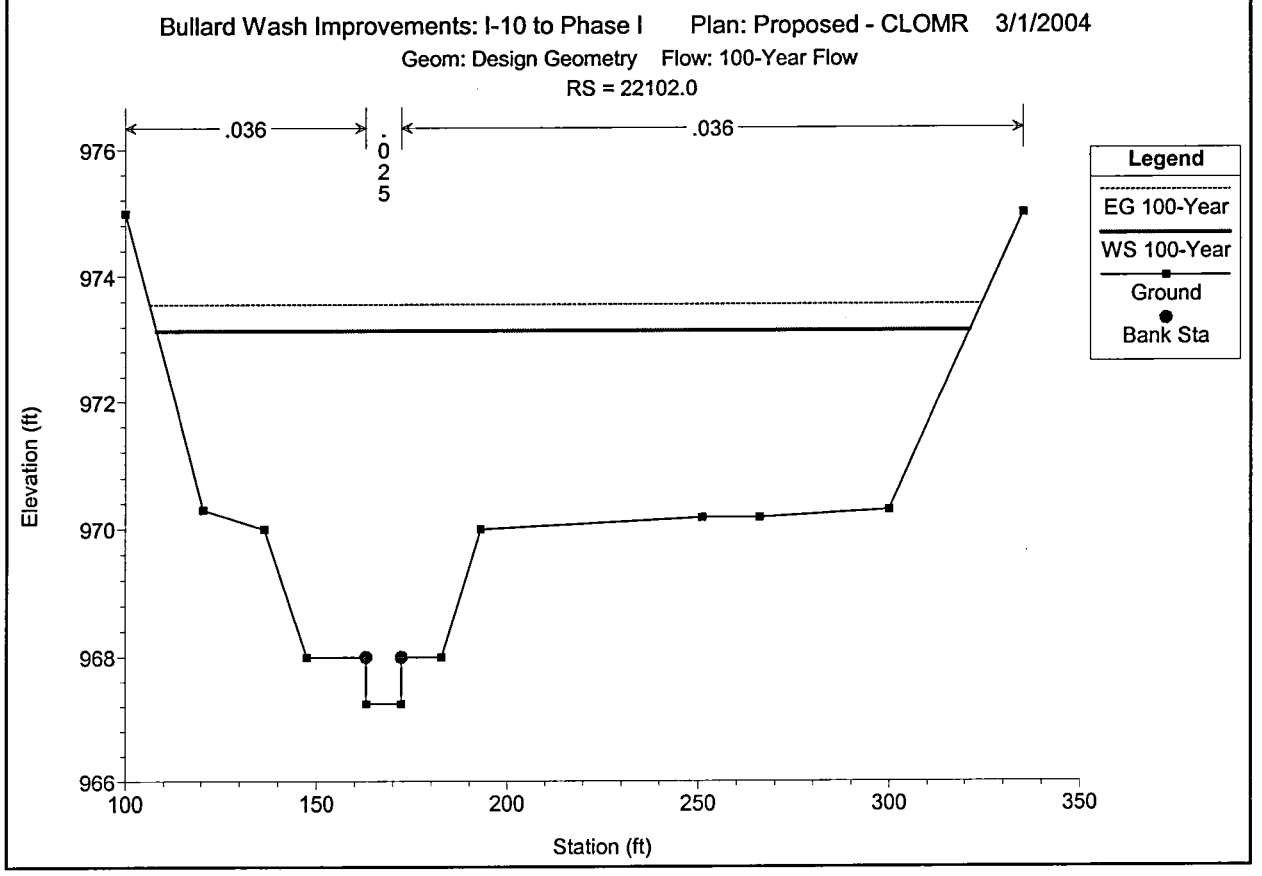

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 21118.3
.036
.025
.036
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
964
966
968
970
972
974
100
150
200
250
300
350

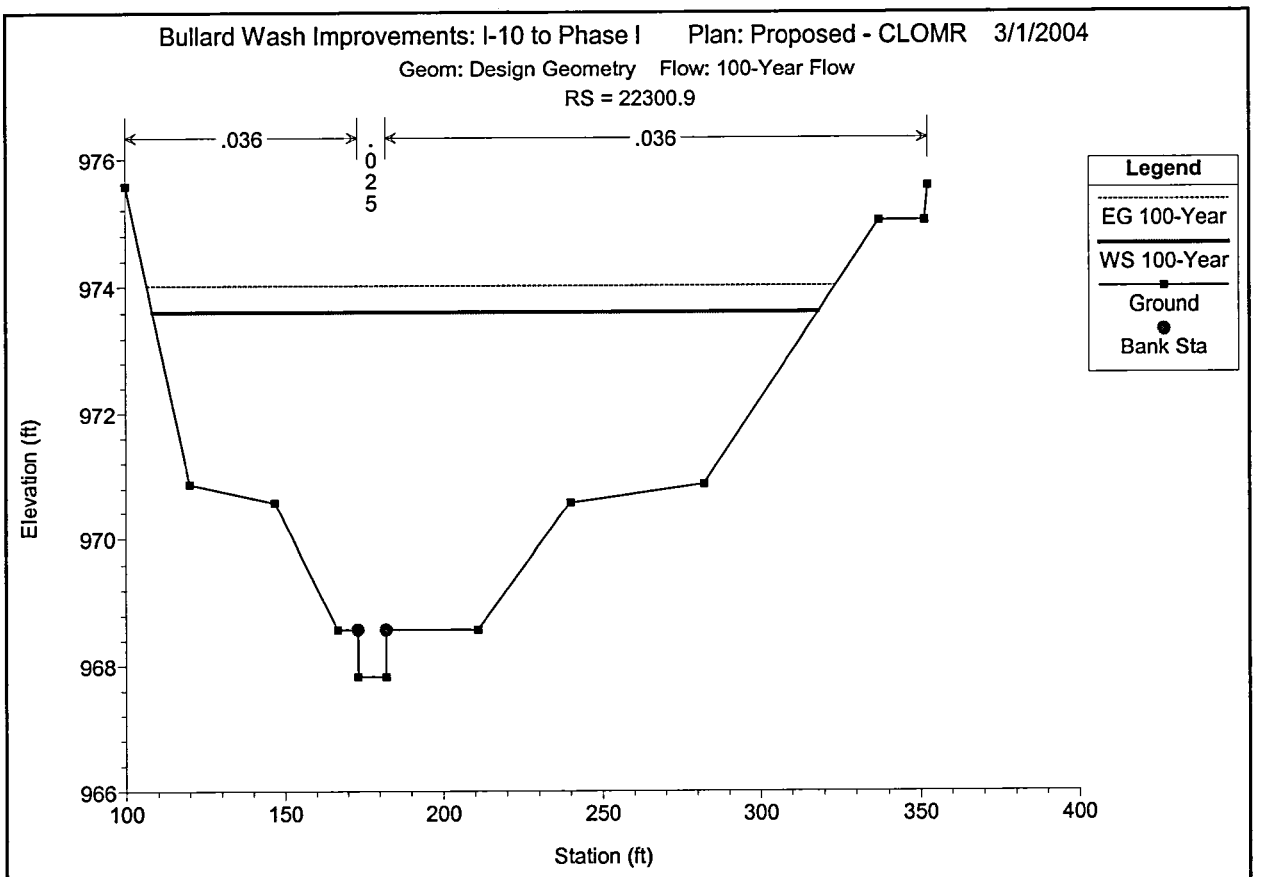

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 21318.7
.036
.025
.036
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
964
966
968
970
972
974
100
150
200
250
300
350

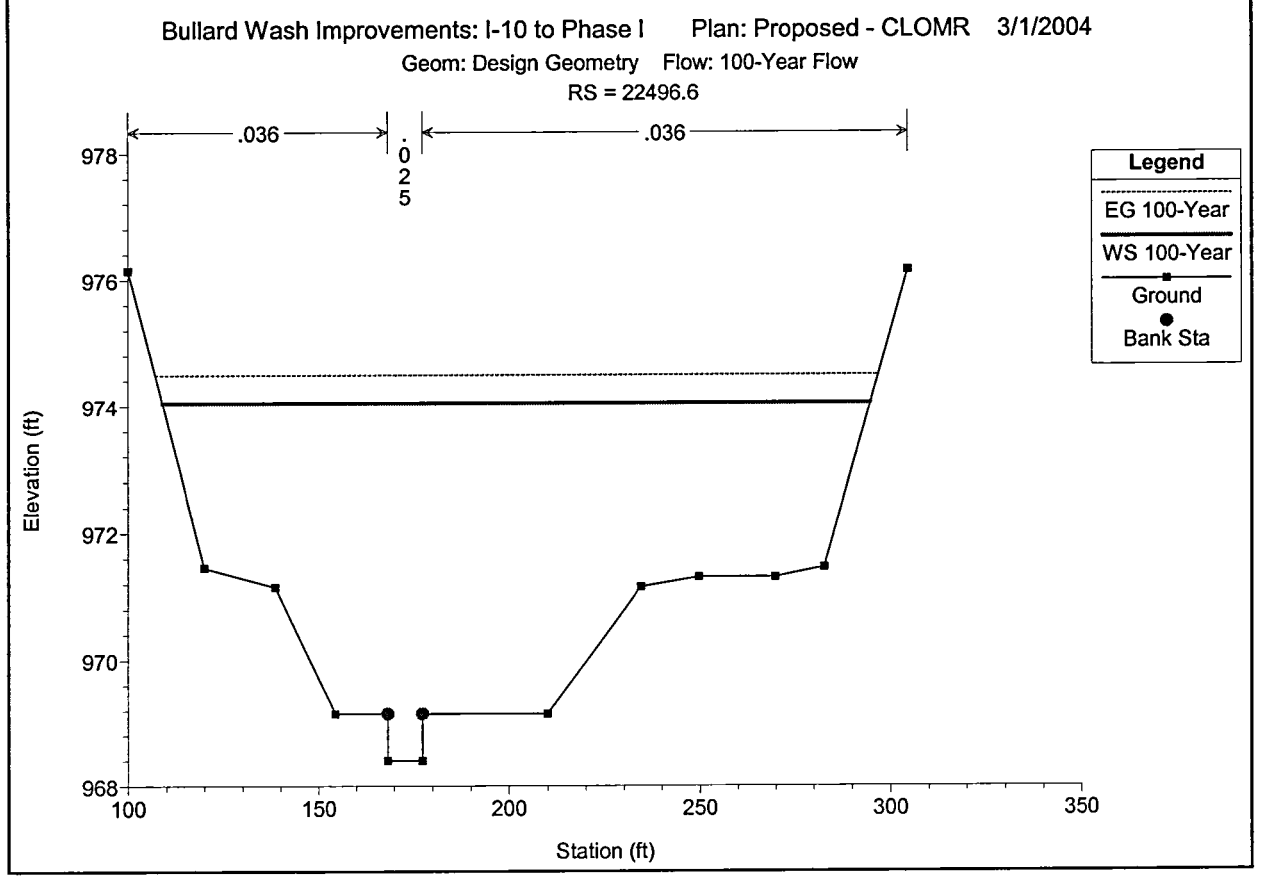

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 21517.7
.036
.025
.036
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
964
966
968
970
972
974
100
150
200
250
300
350


Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 21718.5
.036
.025
.036
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
966
968
970
972
974
100
150
200
250
300
350


Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 21911.0
.036
.025
.036
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
976
974
972
970
968
966
100
150
200
250
300
350


Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 22102.0
.036
.025
.036
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
976
974
972
970
968
966
100
150
200
250
300
350

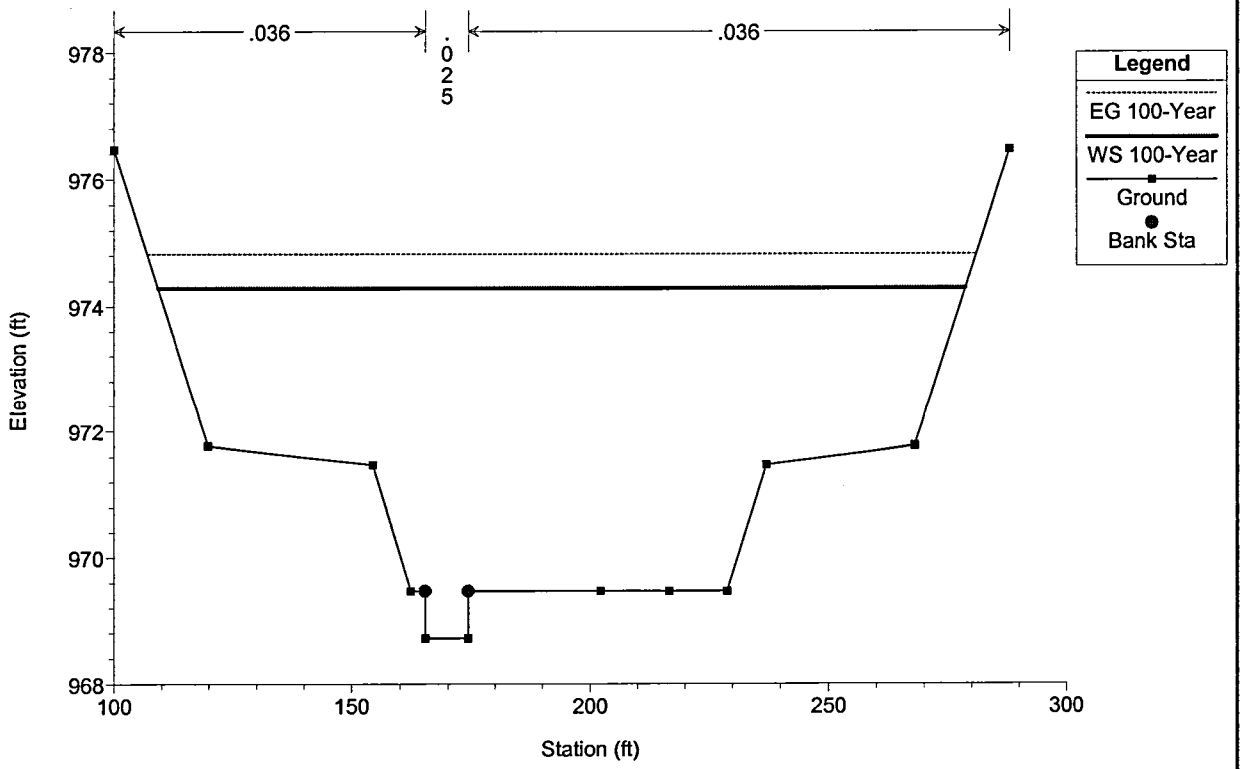

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 22300.9
.036
.025
.036
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
976
974
972
970
968
966
100
150
200
250
300
350
400


Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 22496.6
.036
.025
.036
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
978
976
974
972
970
968
100
150
200
250
300
350

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004

Geom: Design Geometry Flow: 100-Year Flow

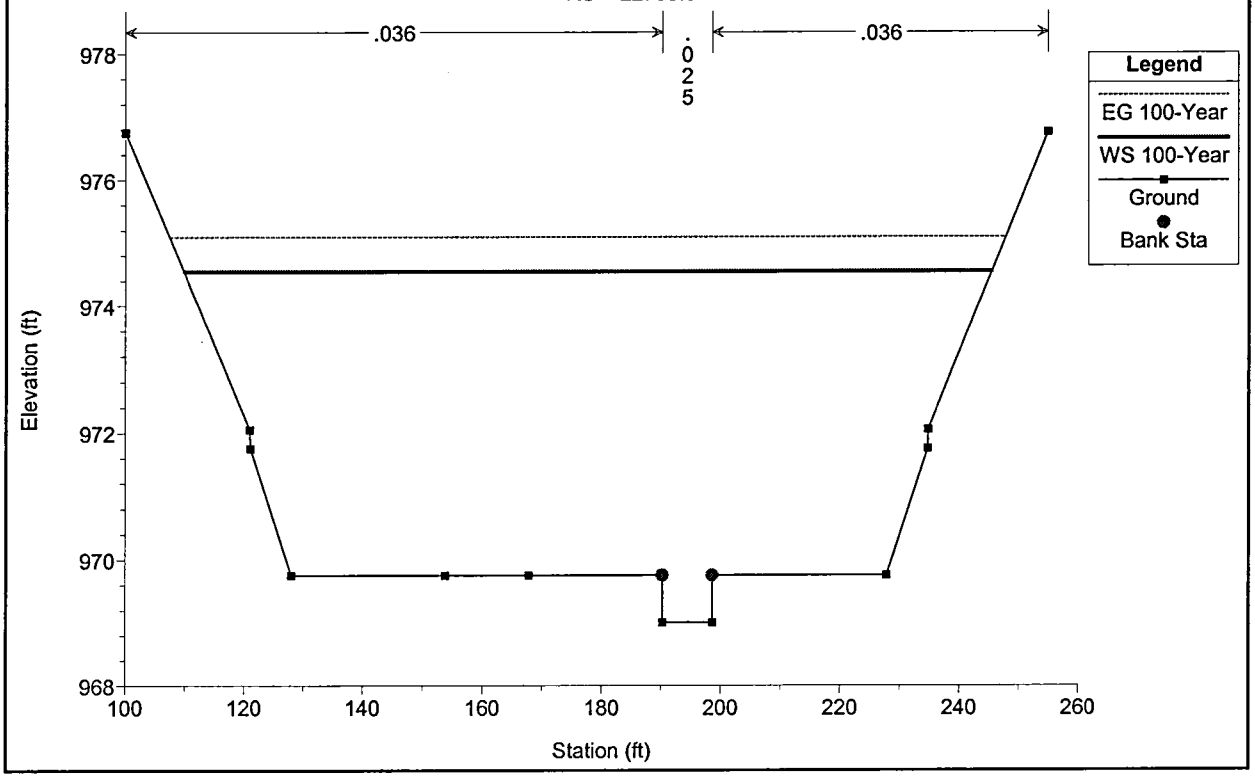
RS = 22611.0



Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004

Geom: Design Geometry Flow: 100-Year Flow

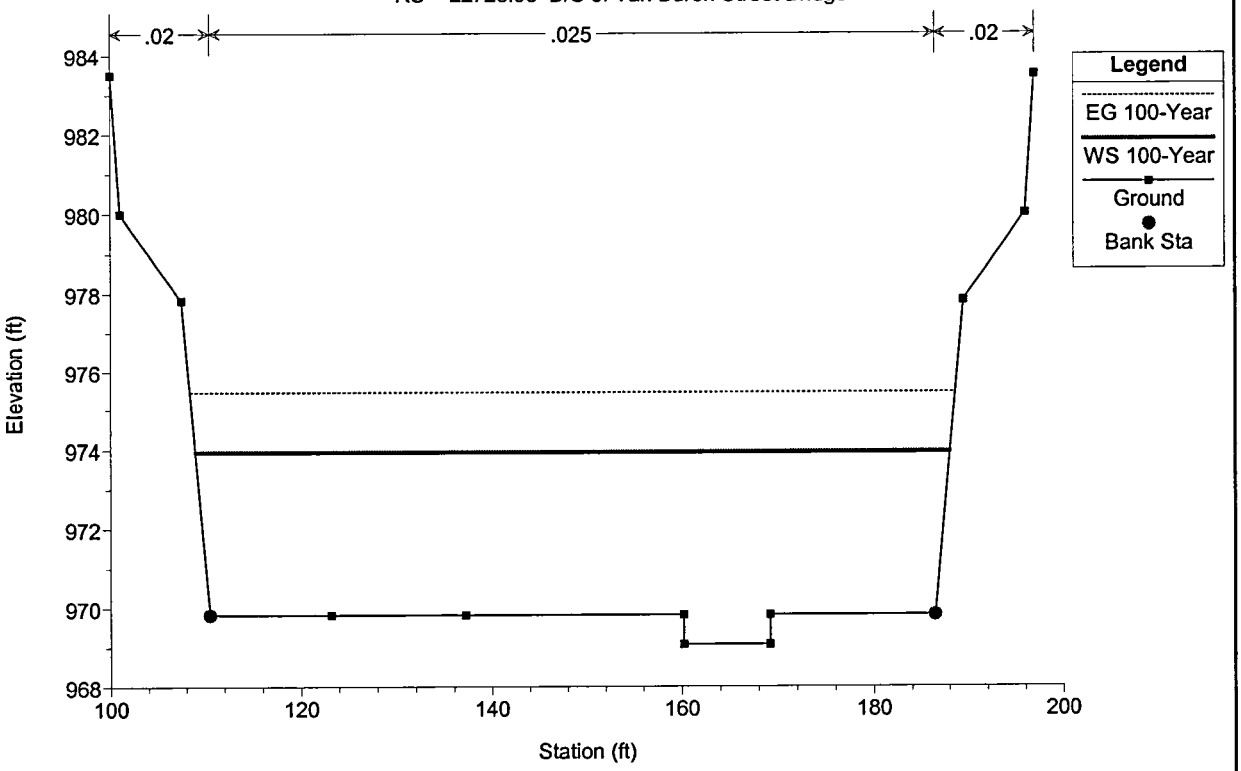
RS = 22705.0



Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004

Geom: Design Geometry Flow: 100-Year Flow

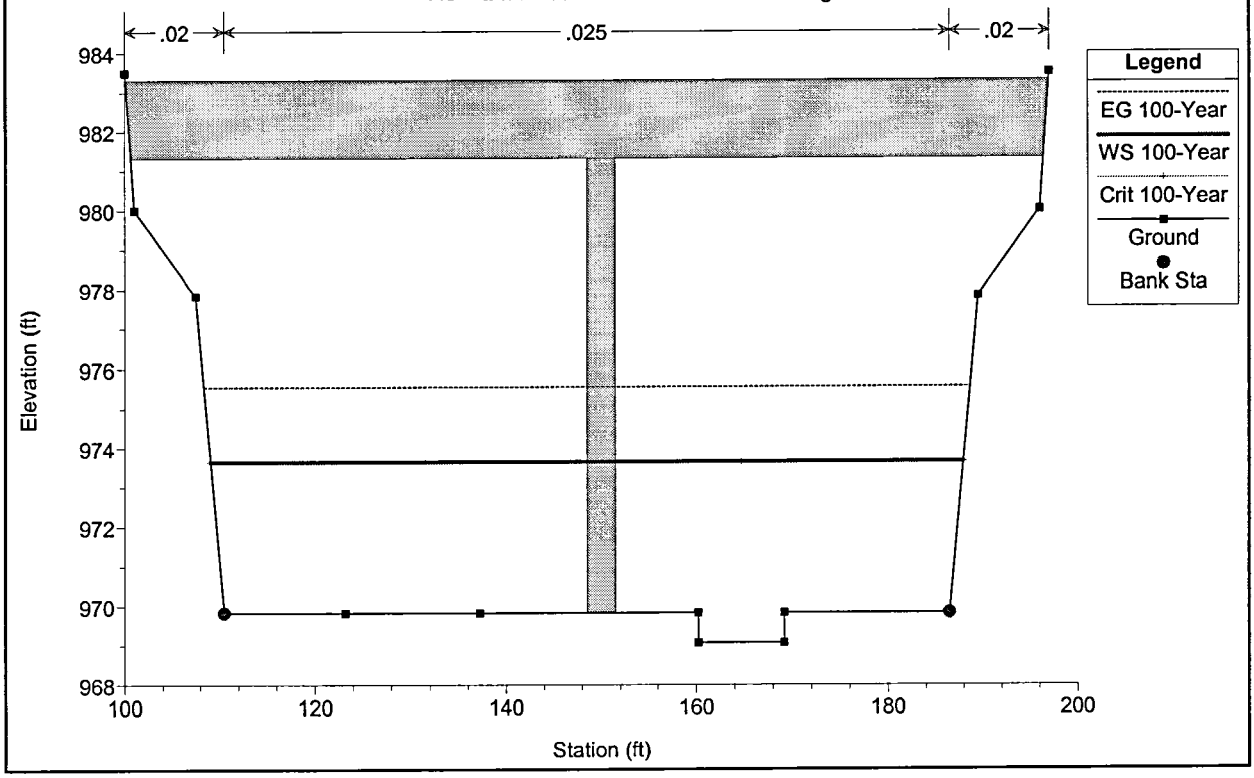
RS = 22728.93 D/S of Van Buren Street Bridge

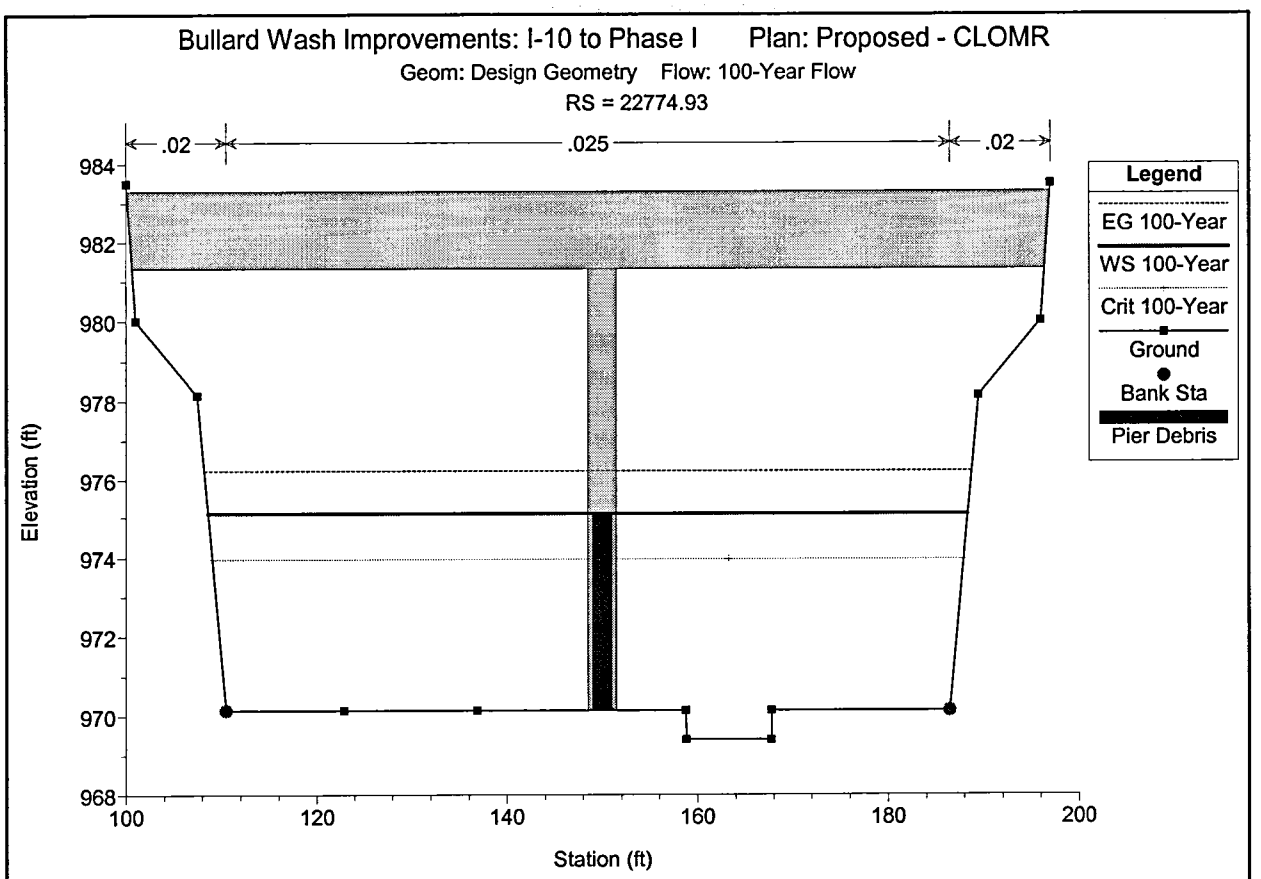


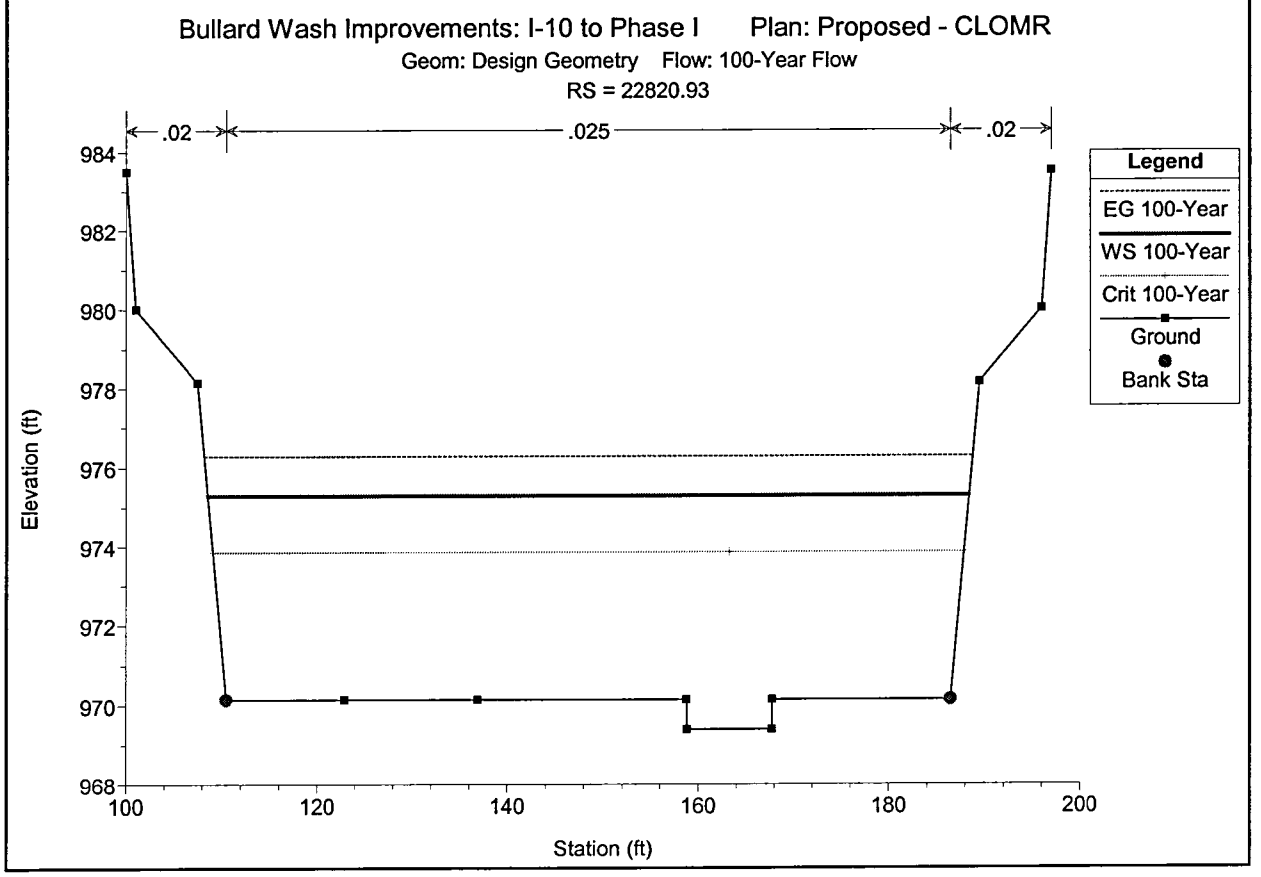
Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004

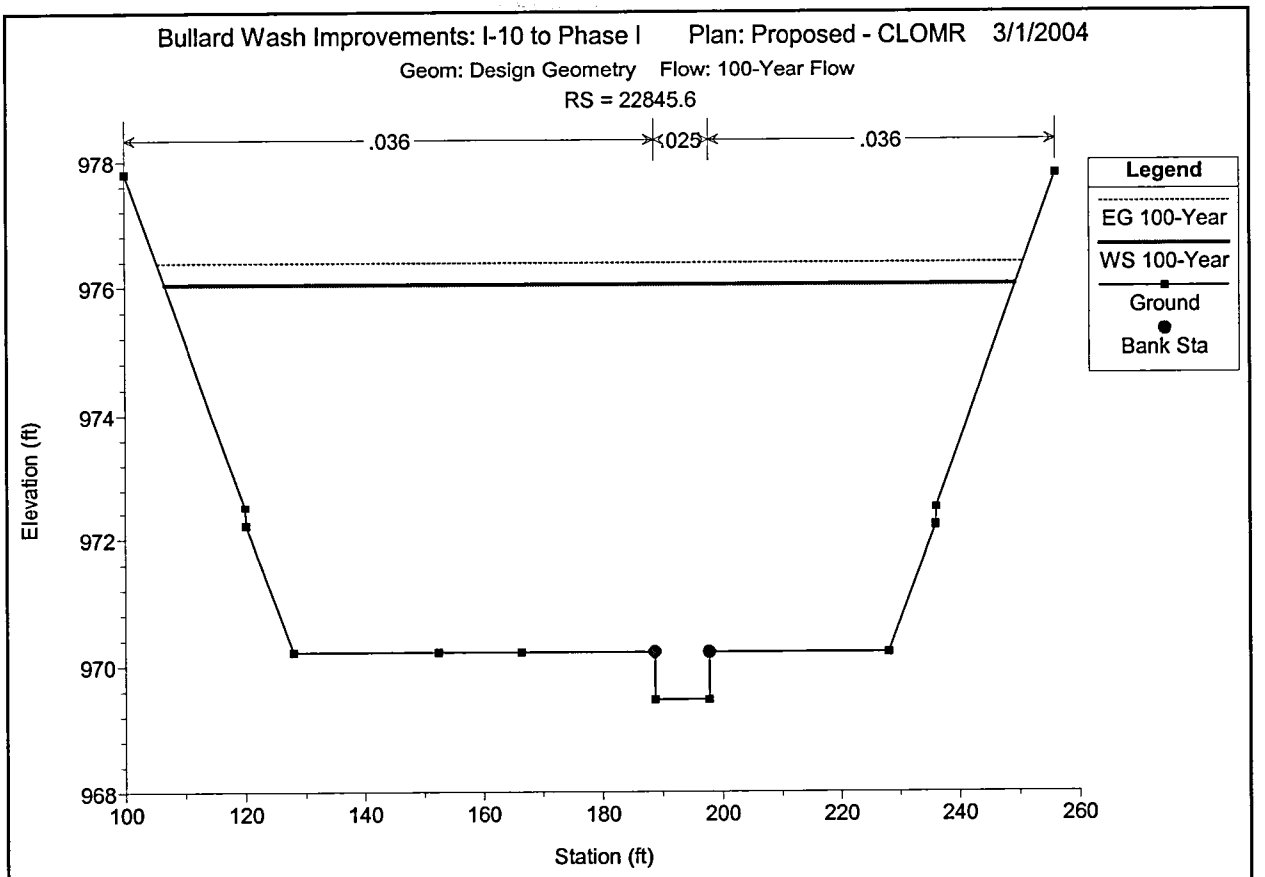
Geom: Design Geometry Flow: 100-Year Flow

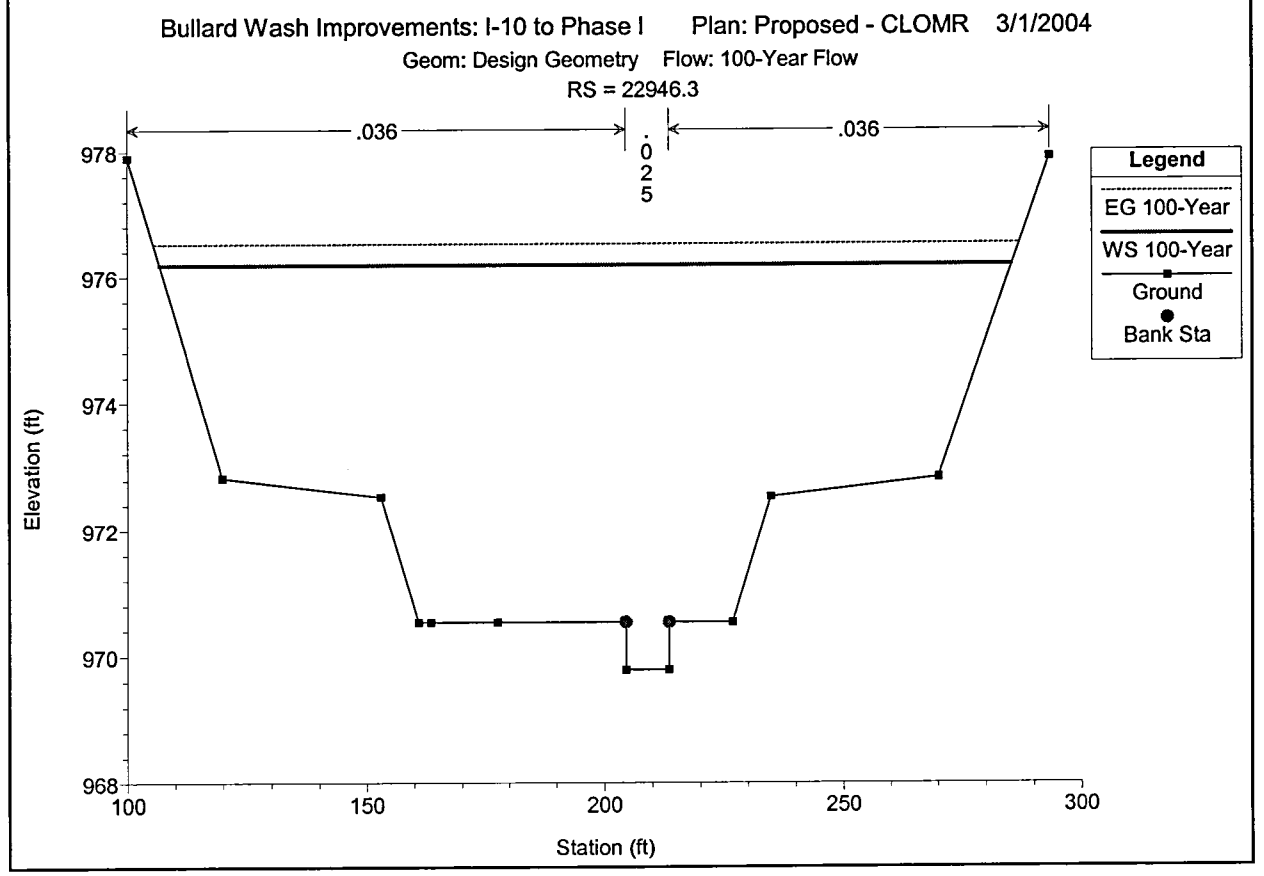
RS = 22774.93 BR Van Buren Road Bridge

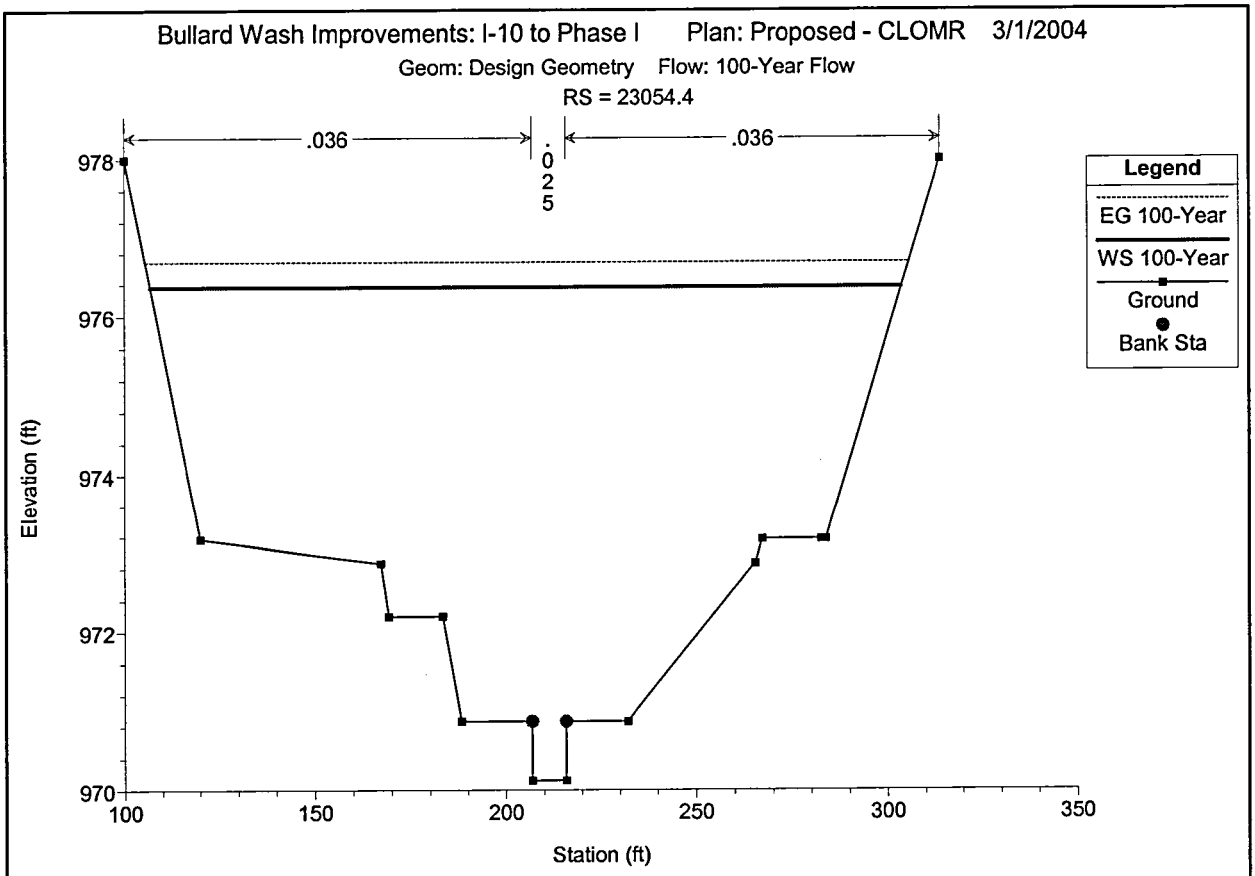


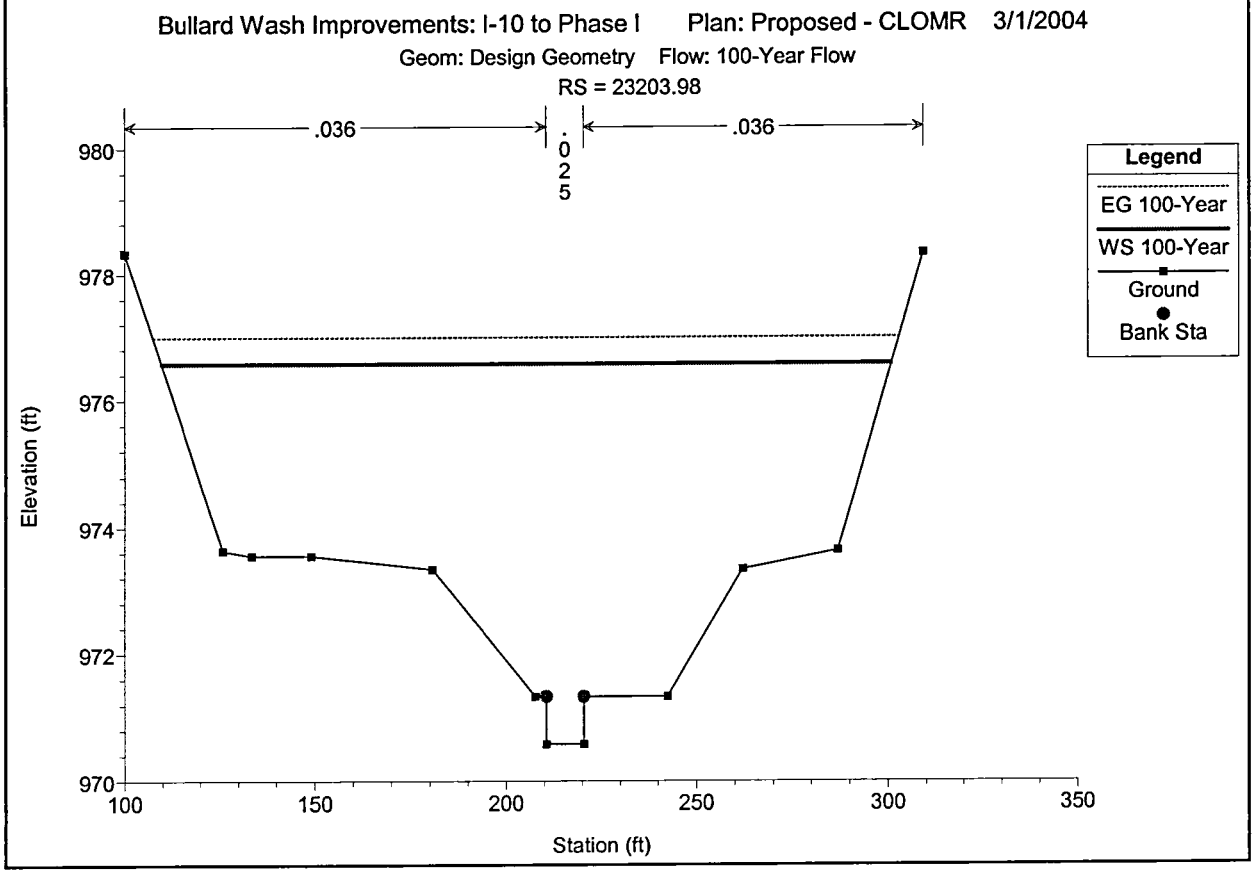

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR
Geom: Design Geometry Flow: 100-Year Flow
RS = 22774.93
.02
.025
.02
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Bank Sta
Pier Debris
Elevation (ft)
984
982
980
978
976
974
972
970
968
100
120
140
160
180
200
Station (ft)

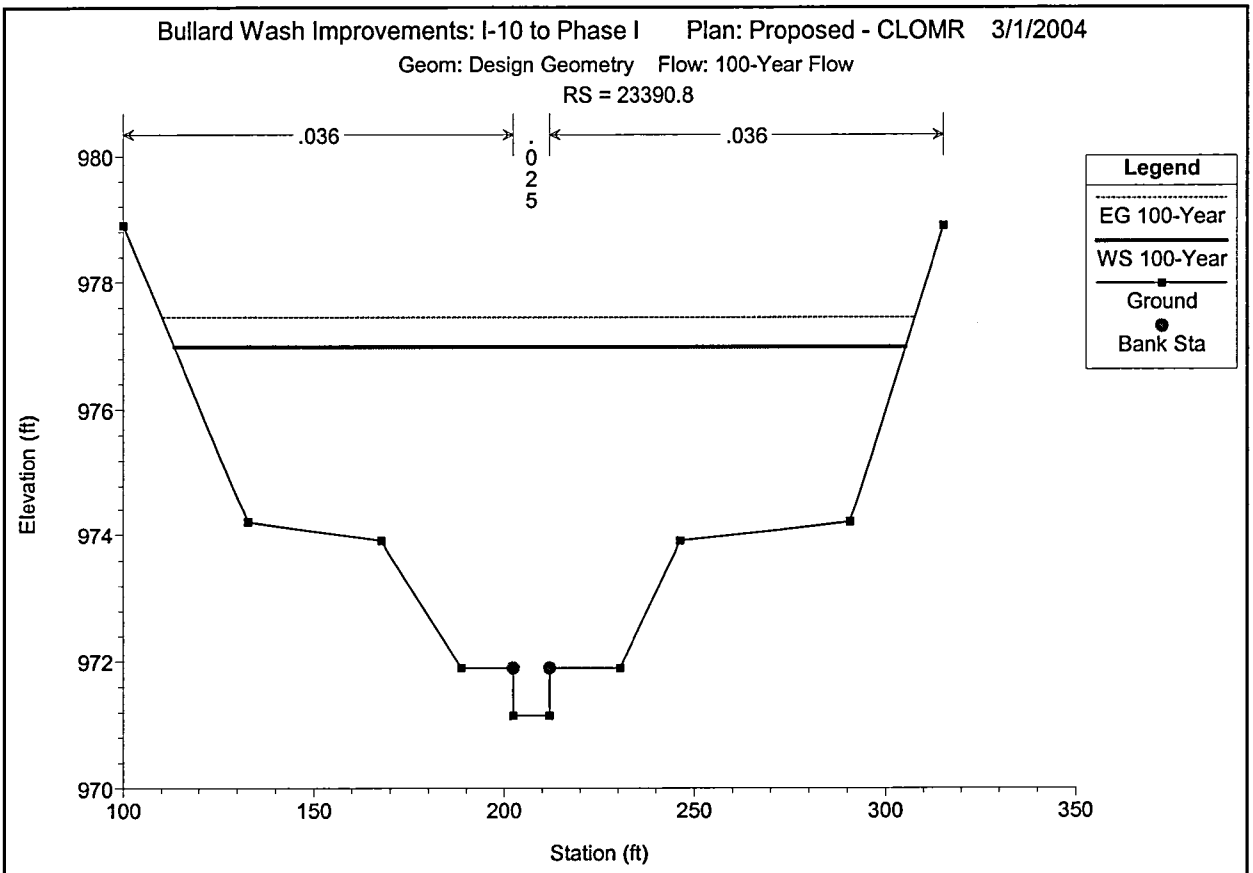

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR
Geom: Design Geometry Flow: 100-Year Flow
RS = 22820.93
.02
.025
.02
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Bank Sta
Elevation (ft)
984
982
980
978
976
974
972
970
968
100
120
140
160
180
200
Station (ft)

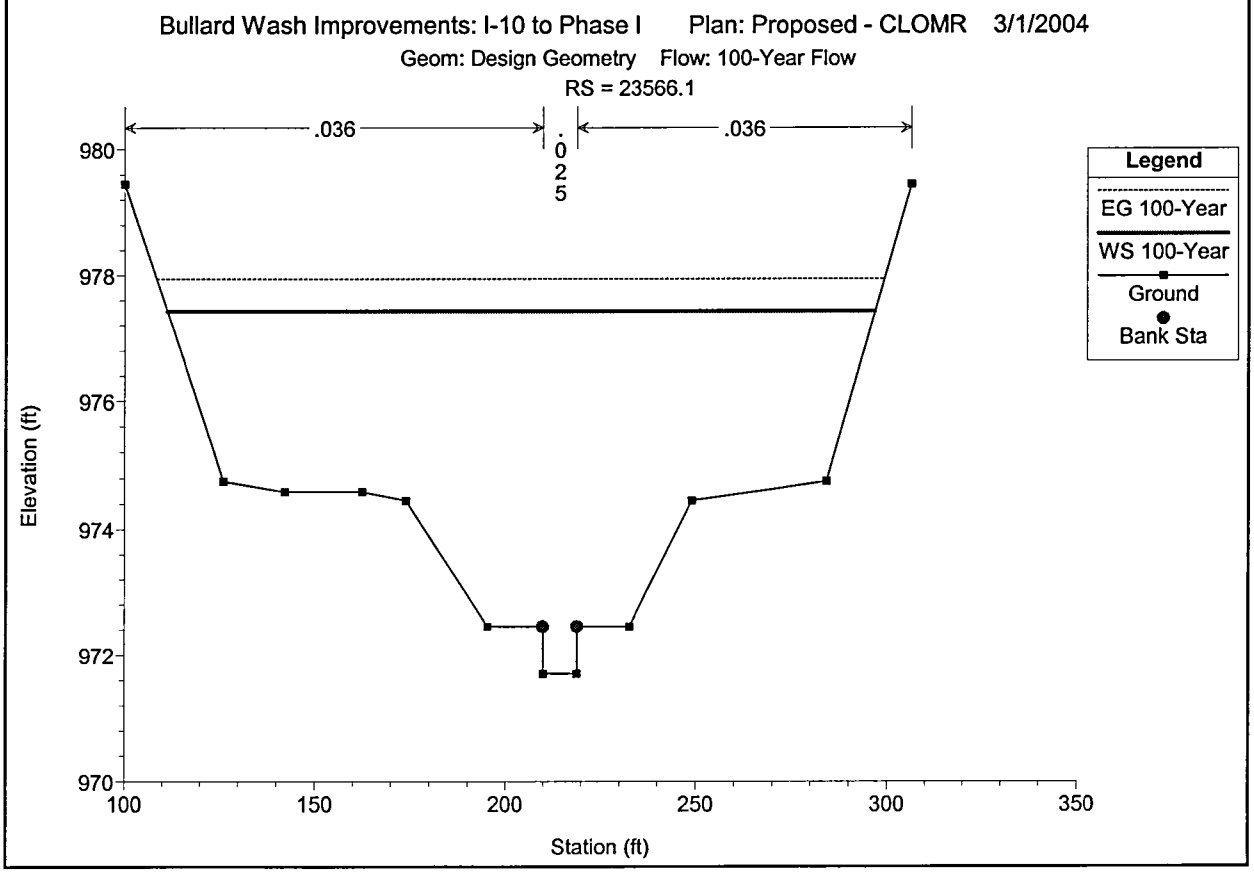

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 22845.6
.036
.025
.036
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
978
976
974
972
970
968
100
120
140
160
180
200
220
240
260
Station (ft)


Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 22946.3
.036
.025
.036
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
978
976
974
972
970
968
100
150
200
250
300
Station (ft)


Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 23054.4
.036
.025
.036
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
970
972
974
976
978
100
150
200
250
300
350


Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 23203.98
.036
.025
.036
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
970
972
974
976
978
980
100
150
200
250
300
350

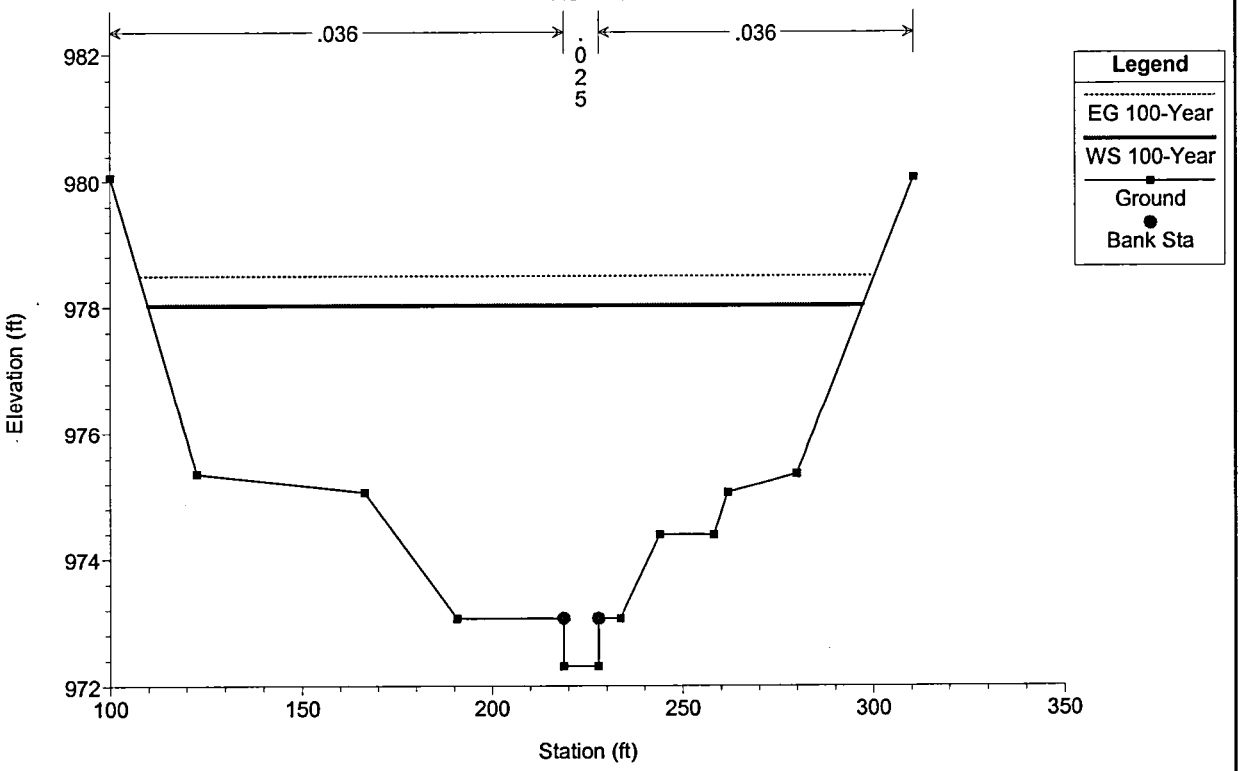

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 23390.8
.036
.025
.036
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
980
978
976
974
972
970
100
150
200
250
300
350


Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 23566.1
.036
.025
.036
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
980
978
976
974
972
970
100
150
200
250
300
350

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004

Geom: Design Geometry Flow: 100-Year Flow

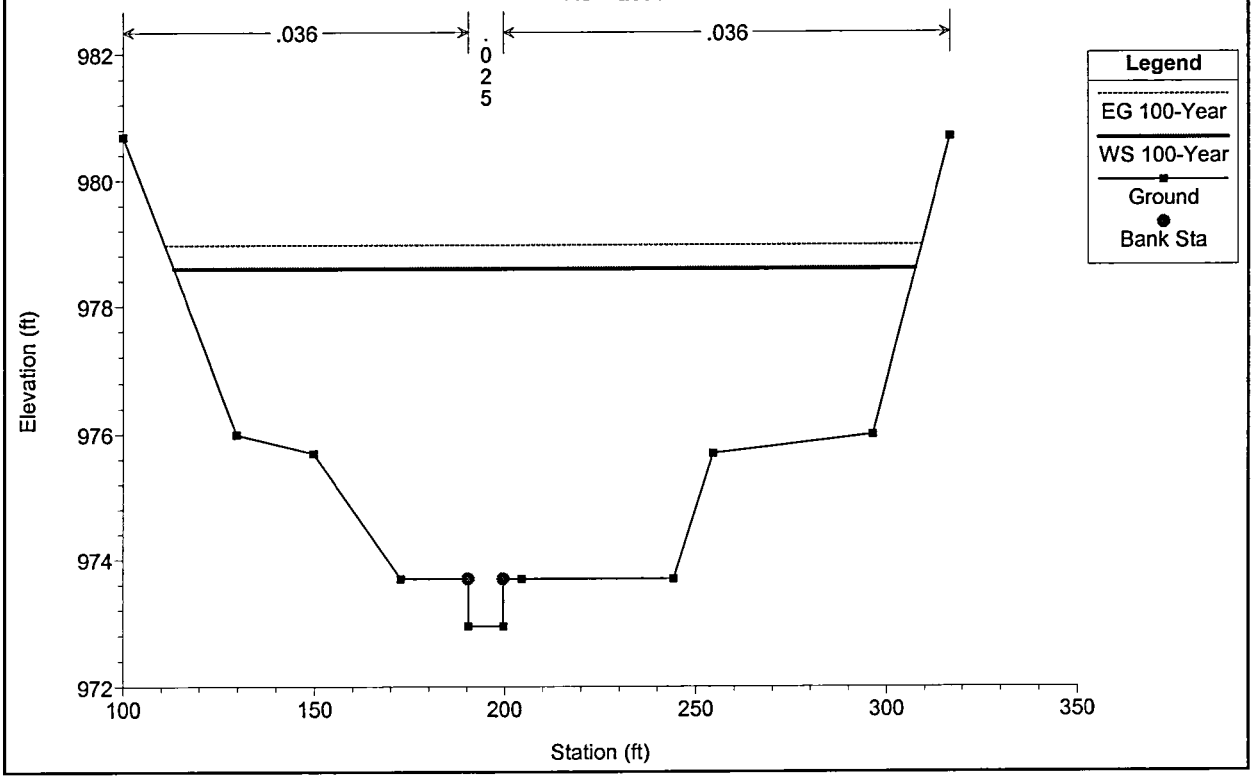
RS = 23762.2

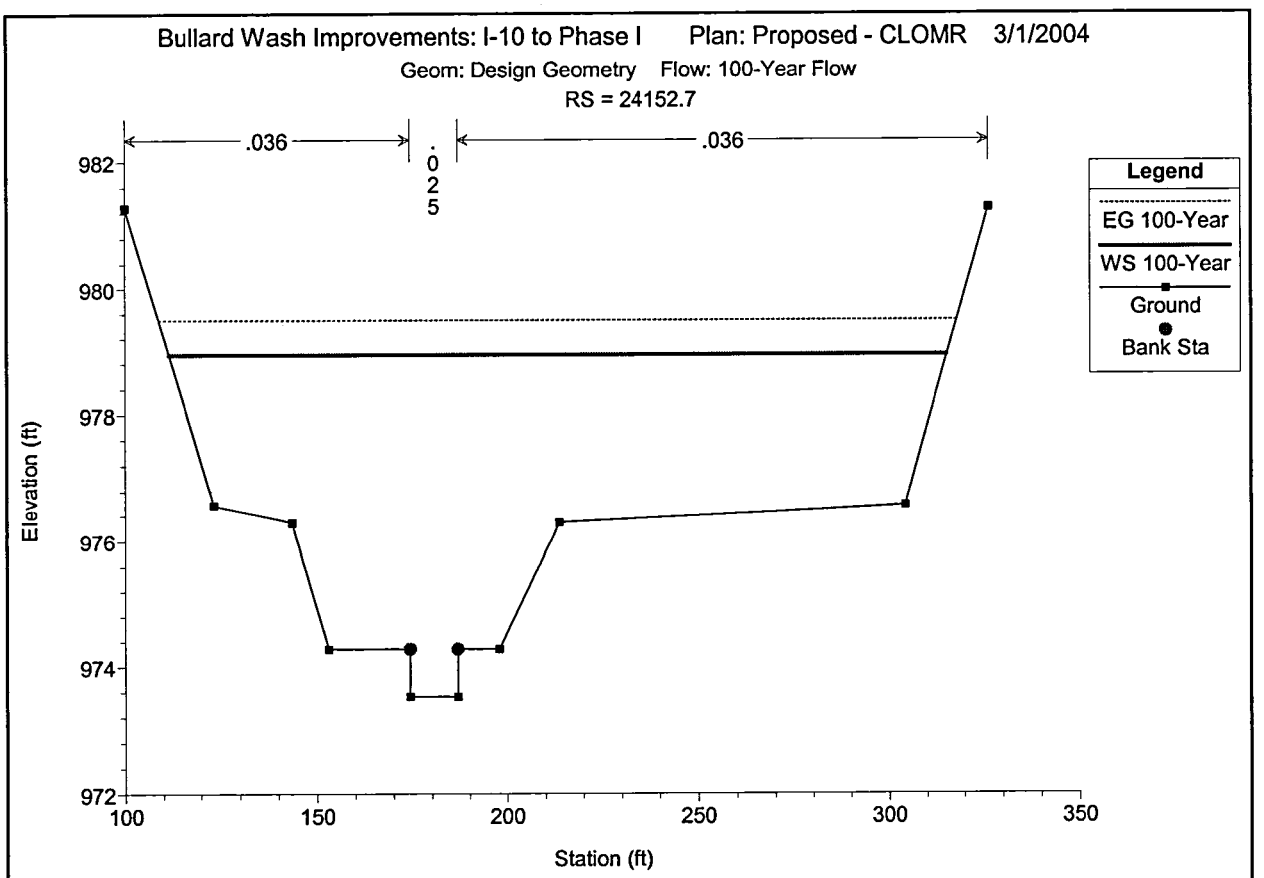


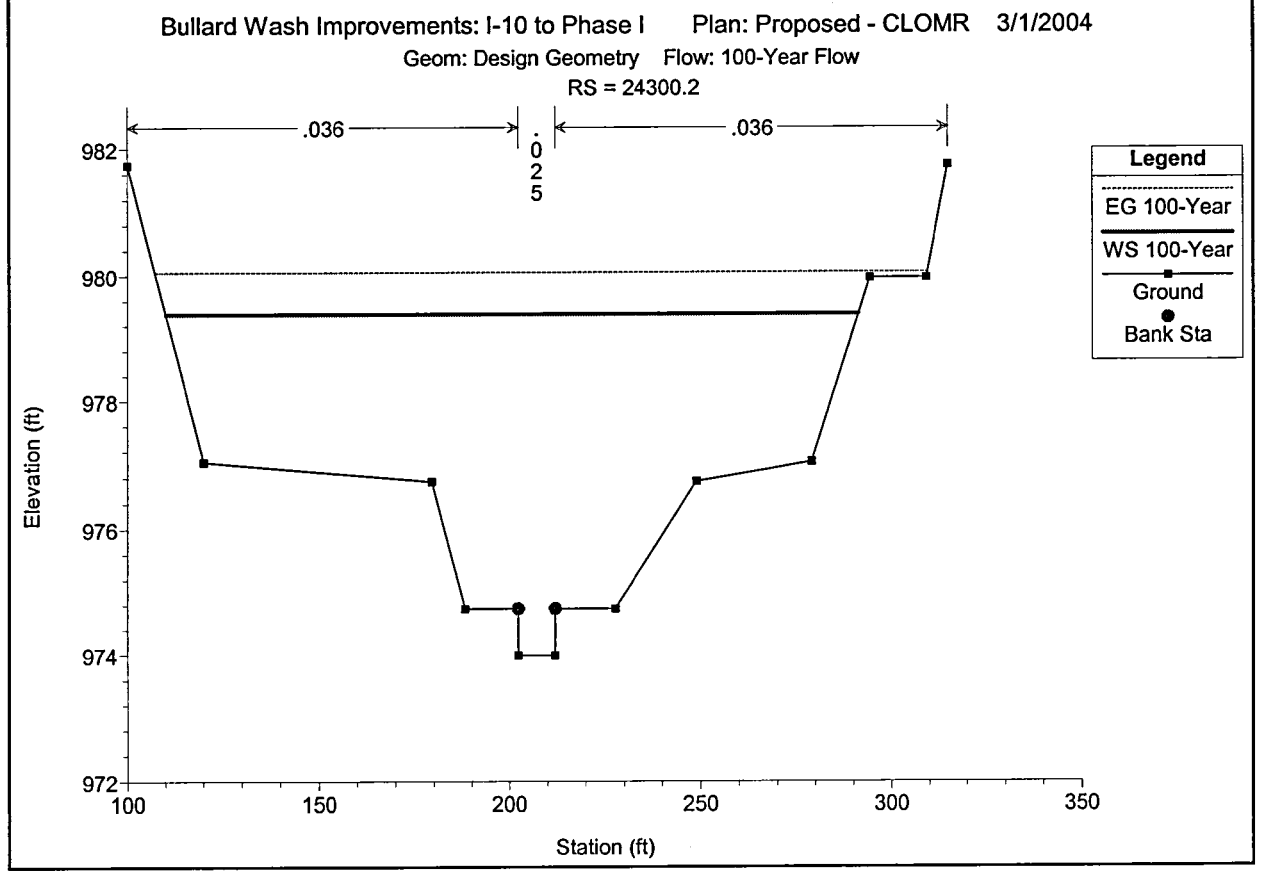
Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004

Geom: Design Geometry Flow: 100-Year Flow

RS = 23962.1



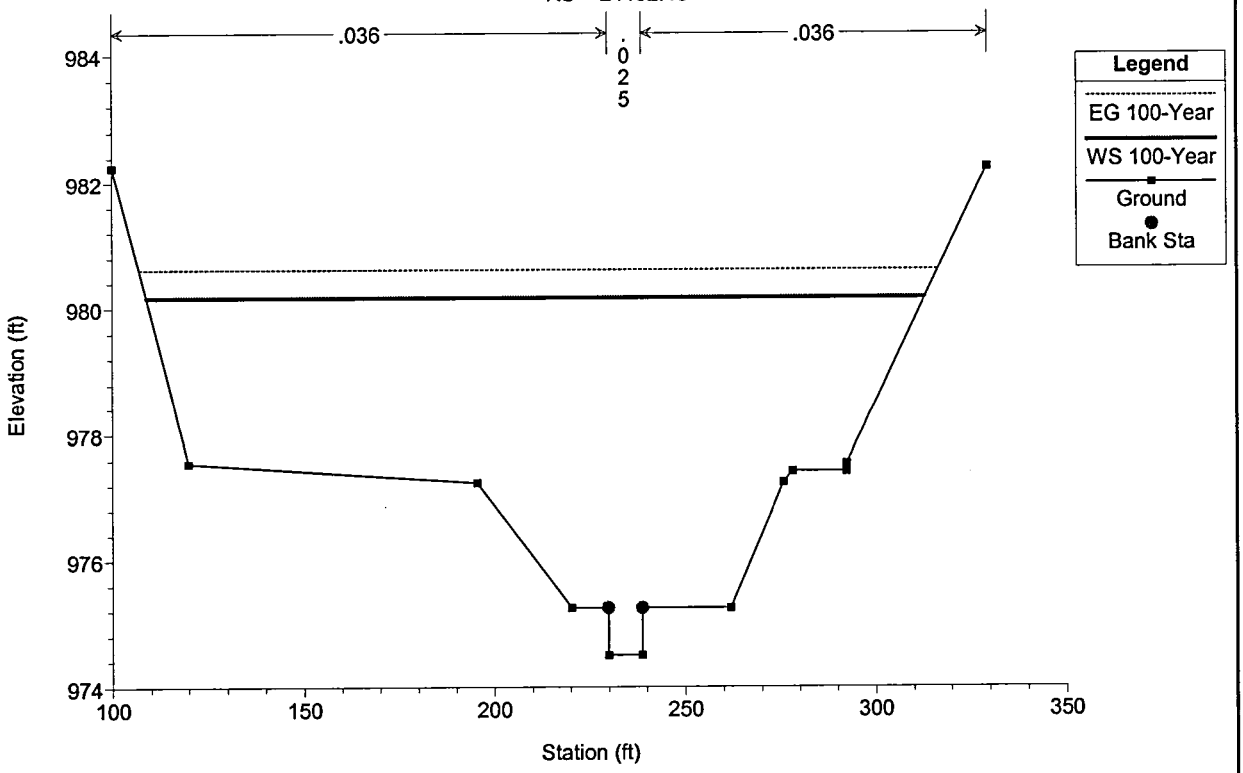

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 24152.7
.036
.025
.036
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
982
980
978
976
974
972
100
150
200
250
300
350
Station (ft)


Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 24300.2
.036
.025
.036
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
982
980
978
976
974
972
100
150
200
250
300
350
Station (ft)

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004

Geom: Design Geometry Flow: 100-Year Flow

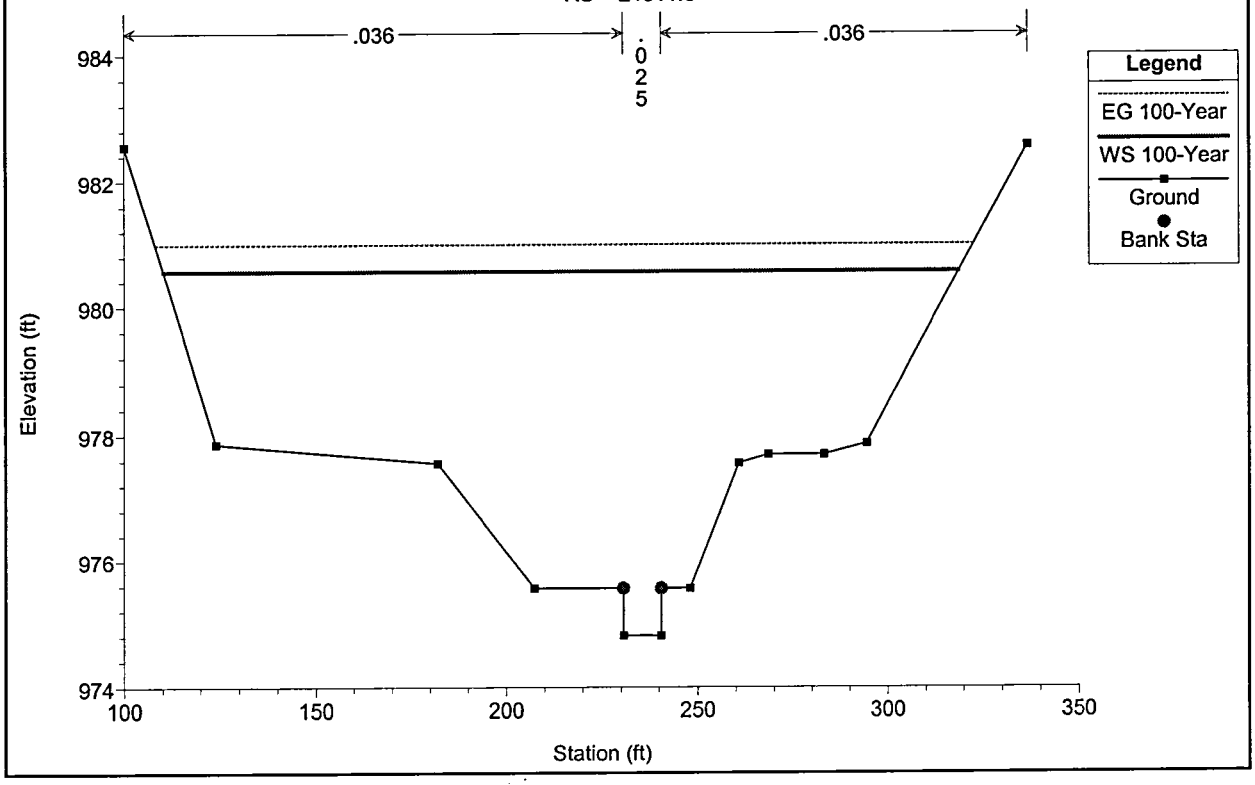
RS = 24462.45



Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004

Geom: Design Geometry Flow: 100-Year Flow

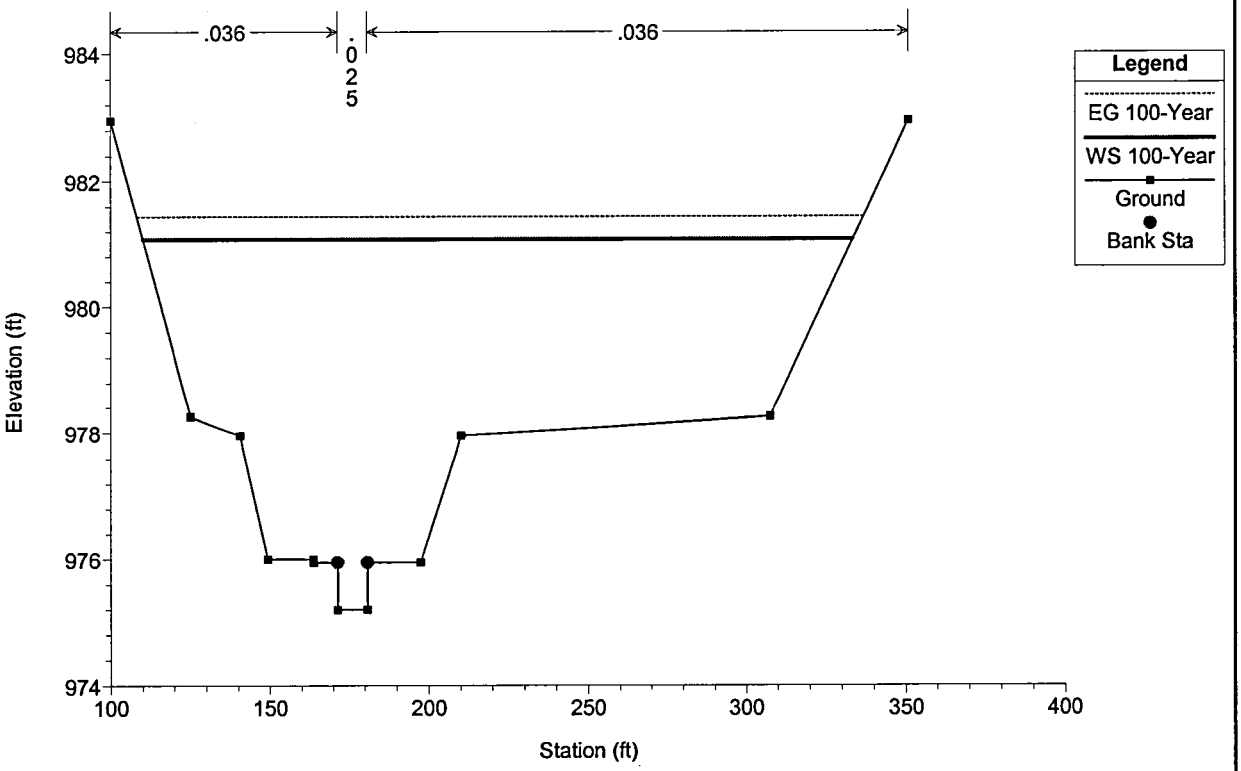
RS = 24611.0



Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004

Geom: Design Geometry Flow: 100-Year Flow

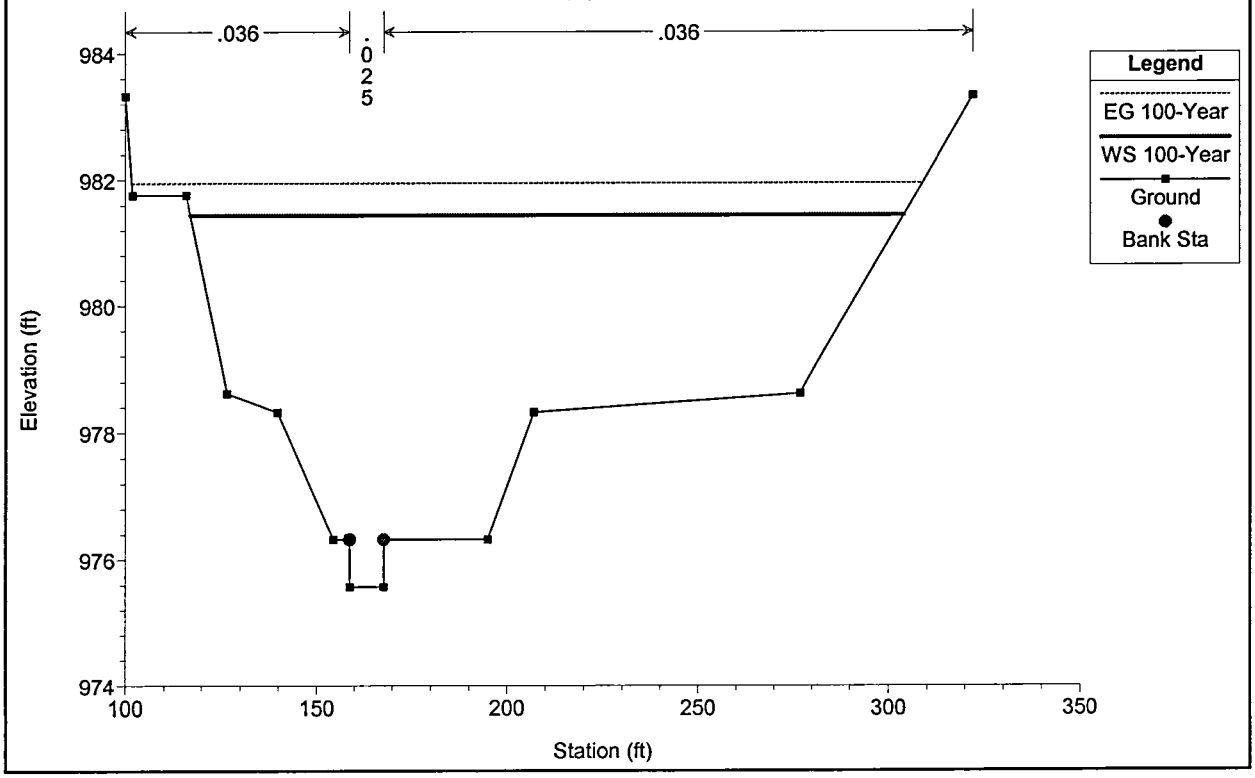
RS = 24802.1

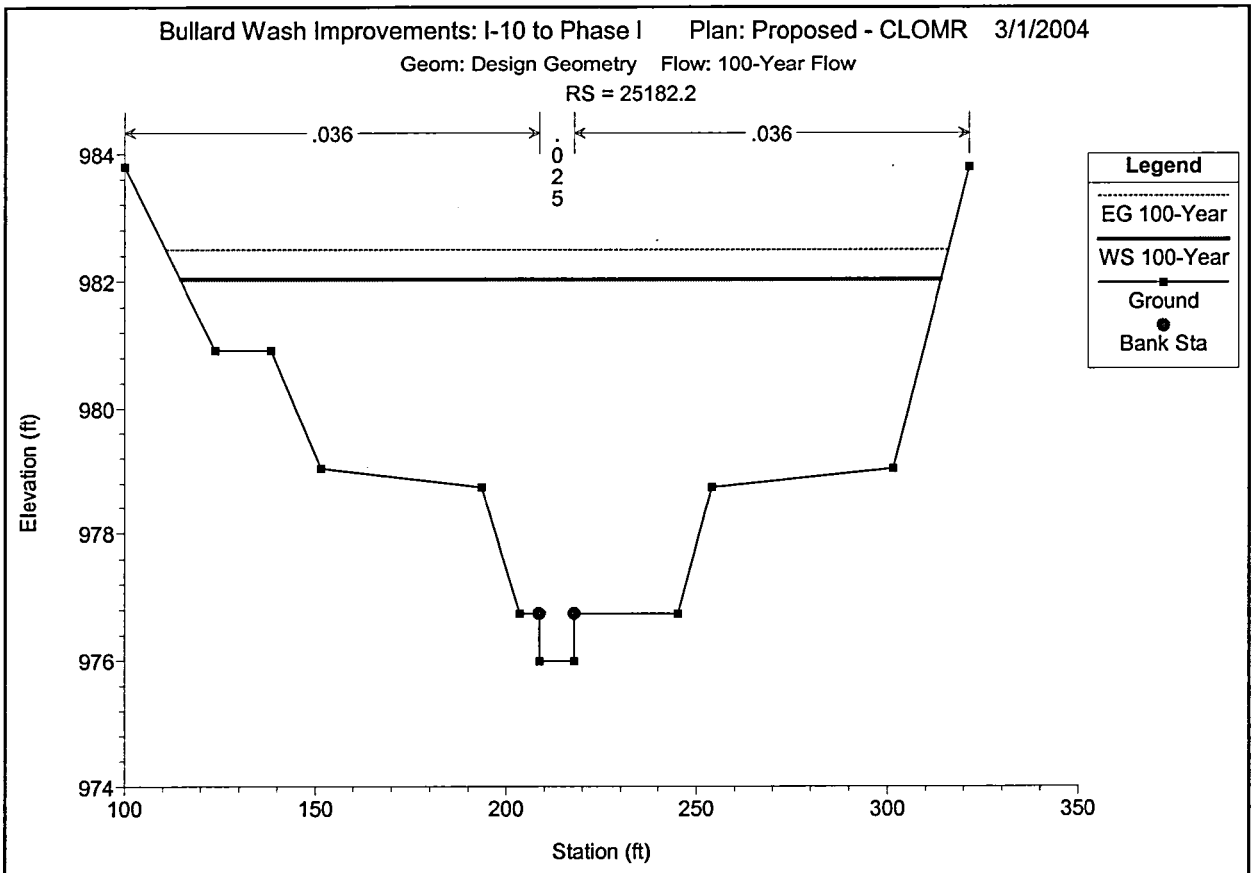


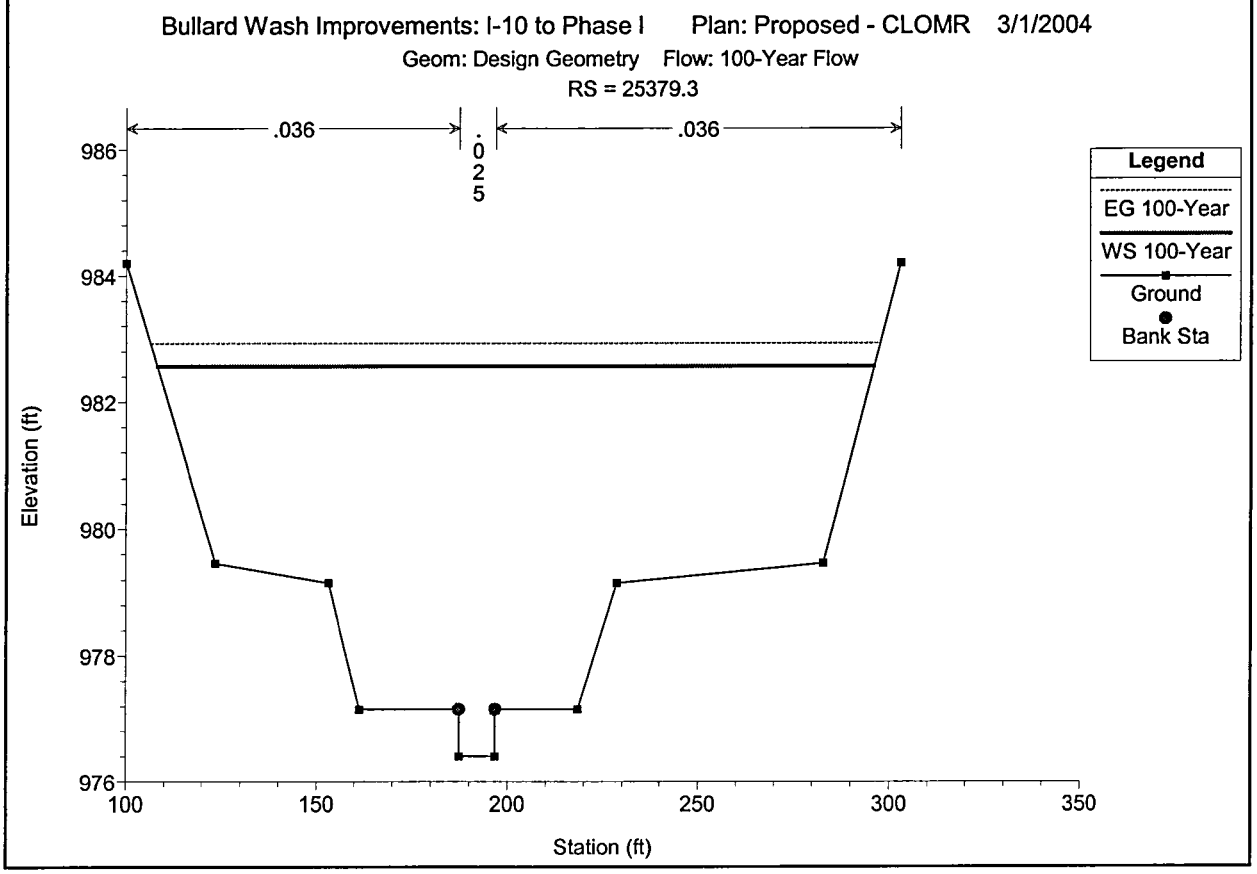
Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004

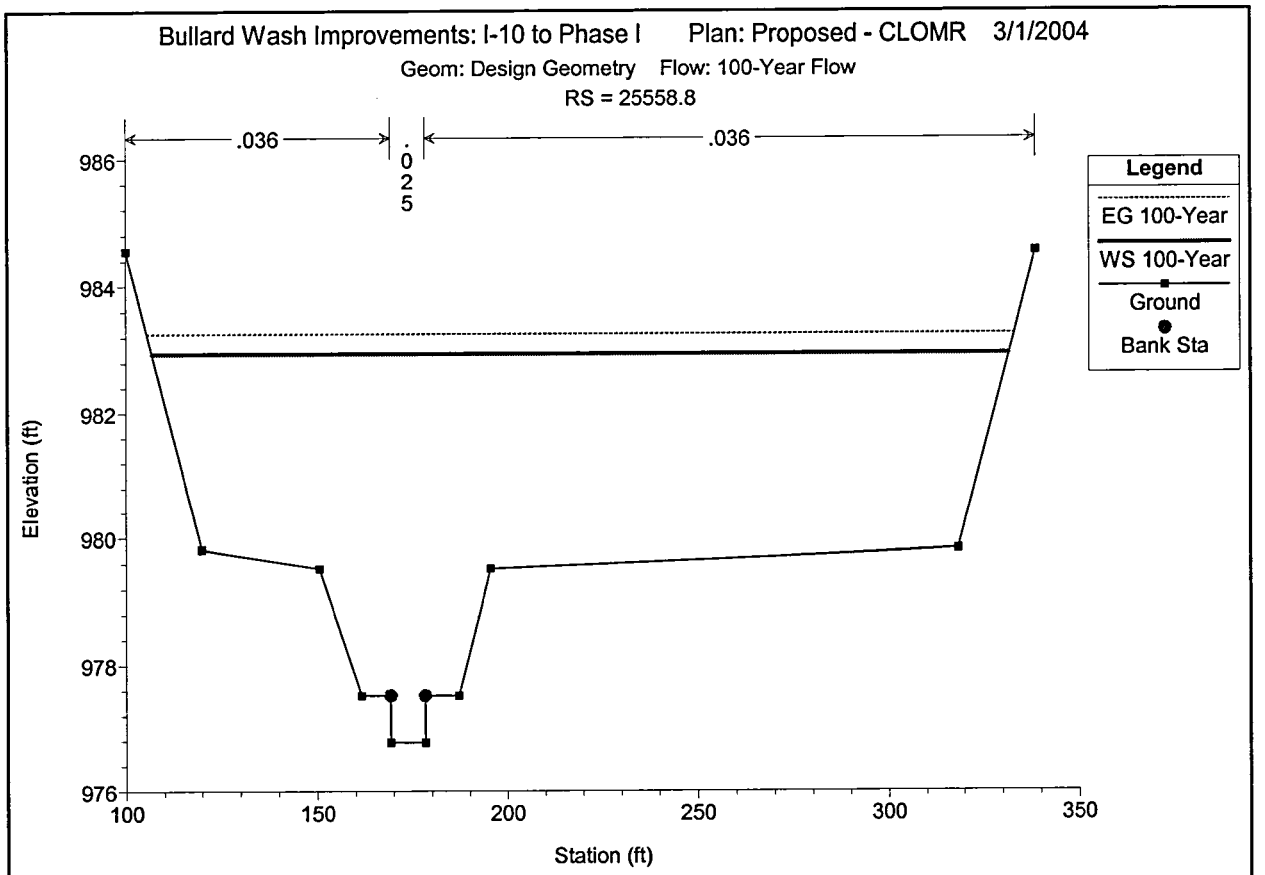
Geom: Design Geometry Flow: 100-Year Flow

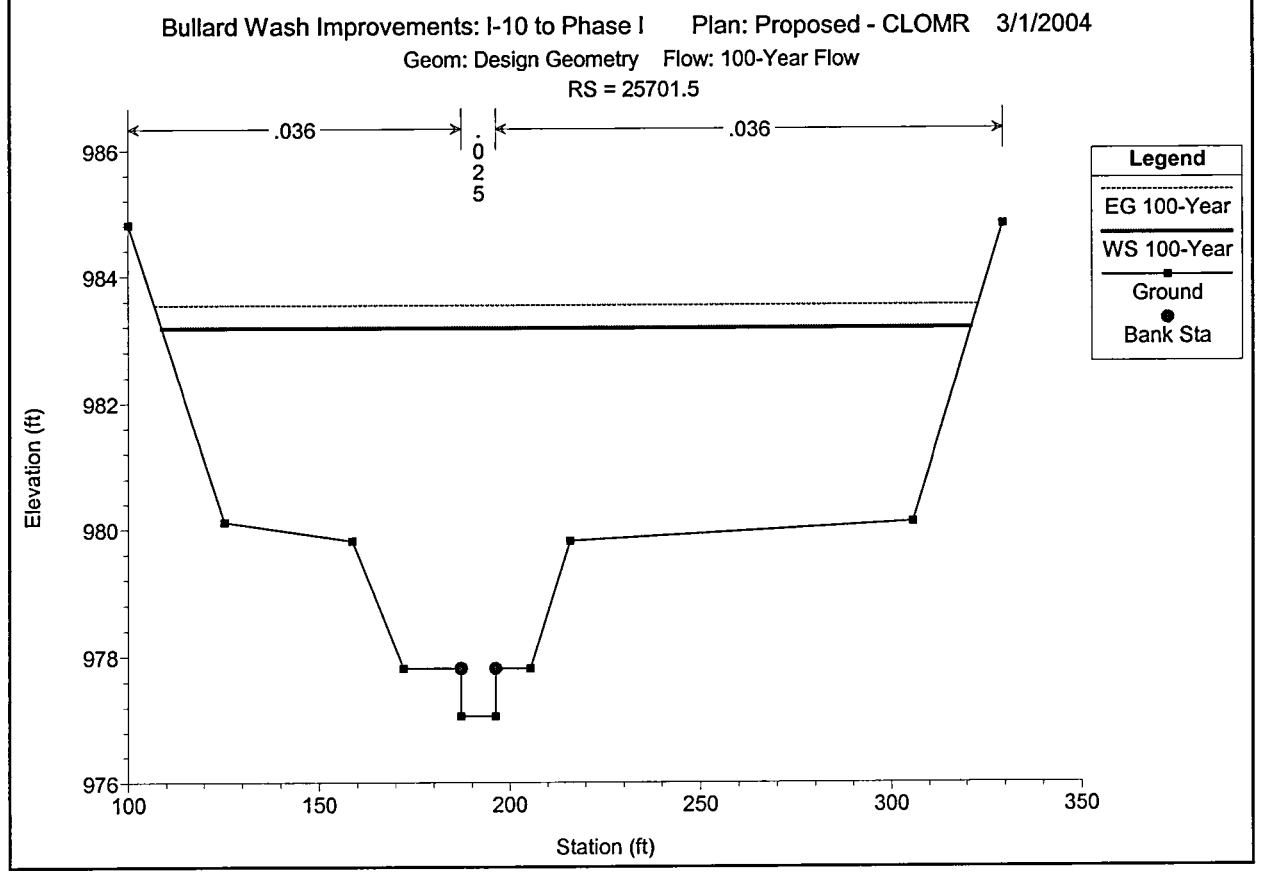
RS = 24978.4

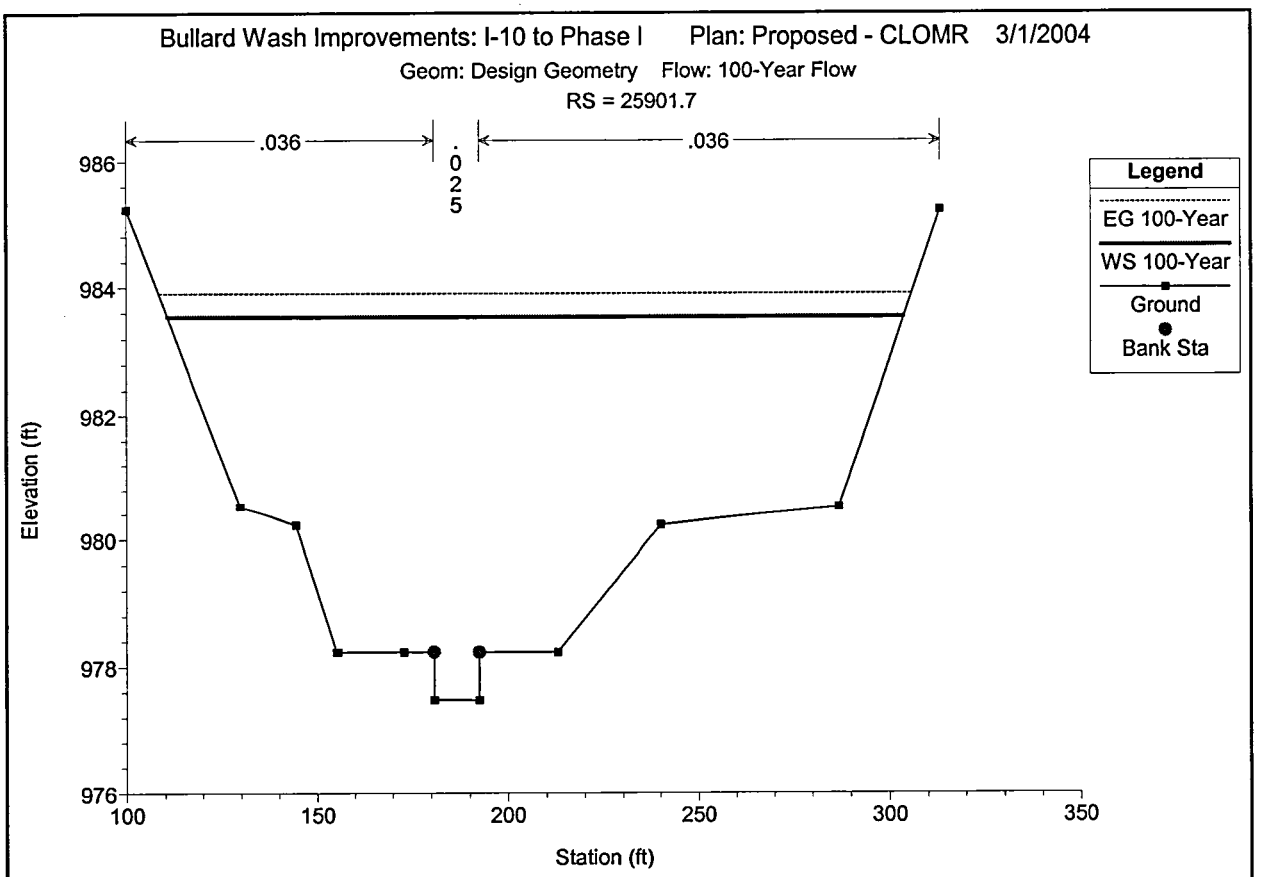


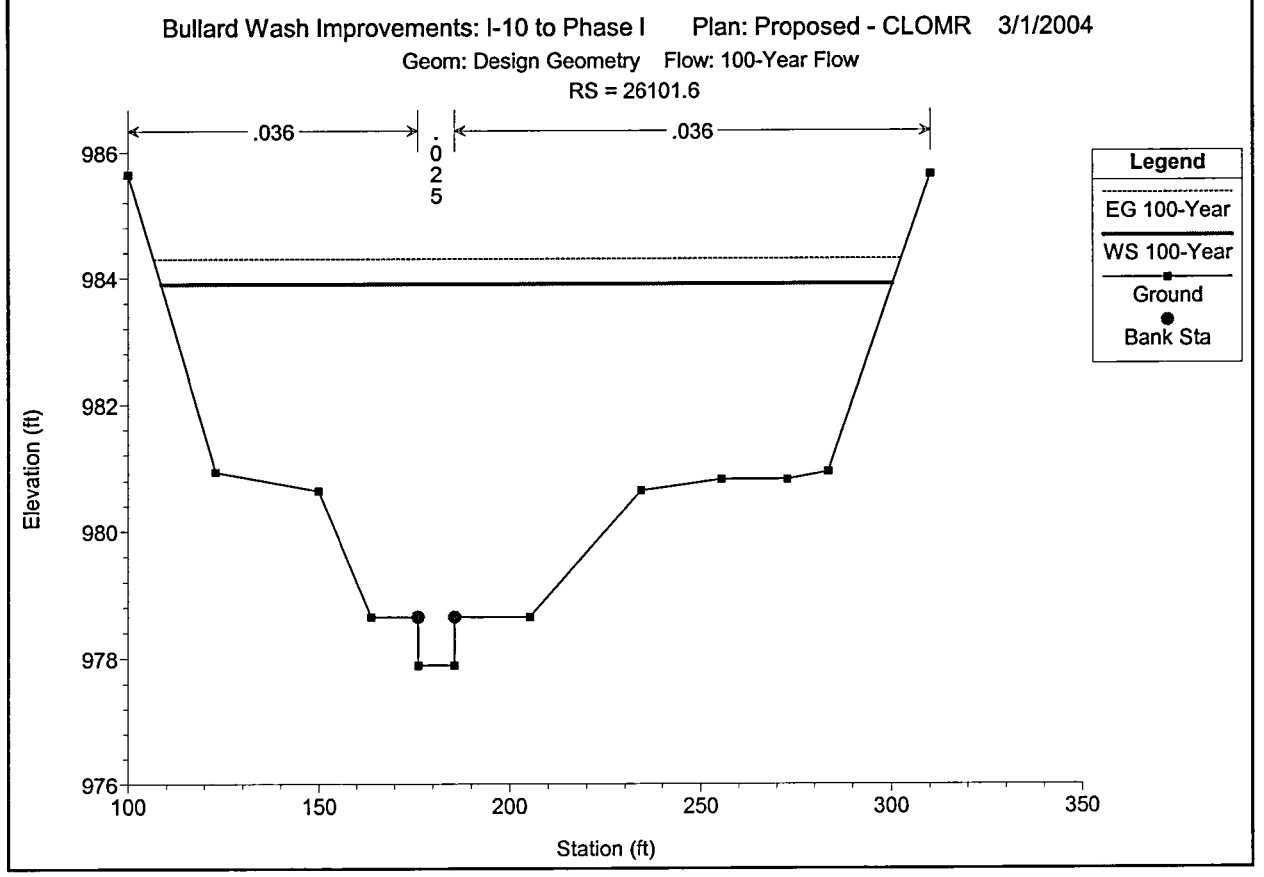

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 25182.2
.036
.025
.036
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
984
982
980
978
976
974
100
150
200
250
300
350
Station (ft)


Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 25379.3
.036
.025
.036
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
986
984
982
980
978
976
100
150
200
250
300
350
Station (ft)


Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 25558.8
.036
.025
.036
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
986
984
982
980
978
976
100
150
200
250
300
350


Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 25701.5
.036
.025
.036
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
986
984
982
980
978
976
100
150
200
250
300
350

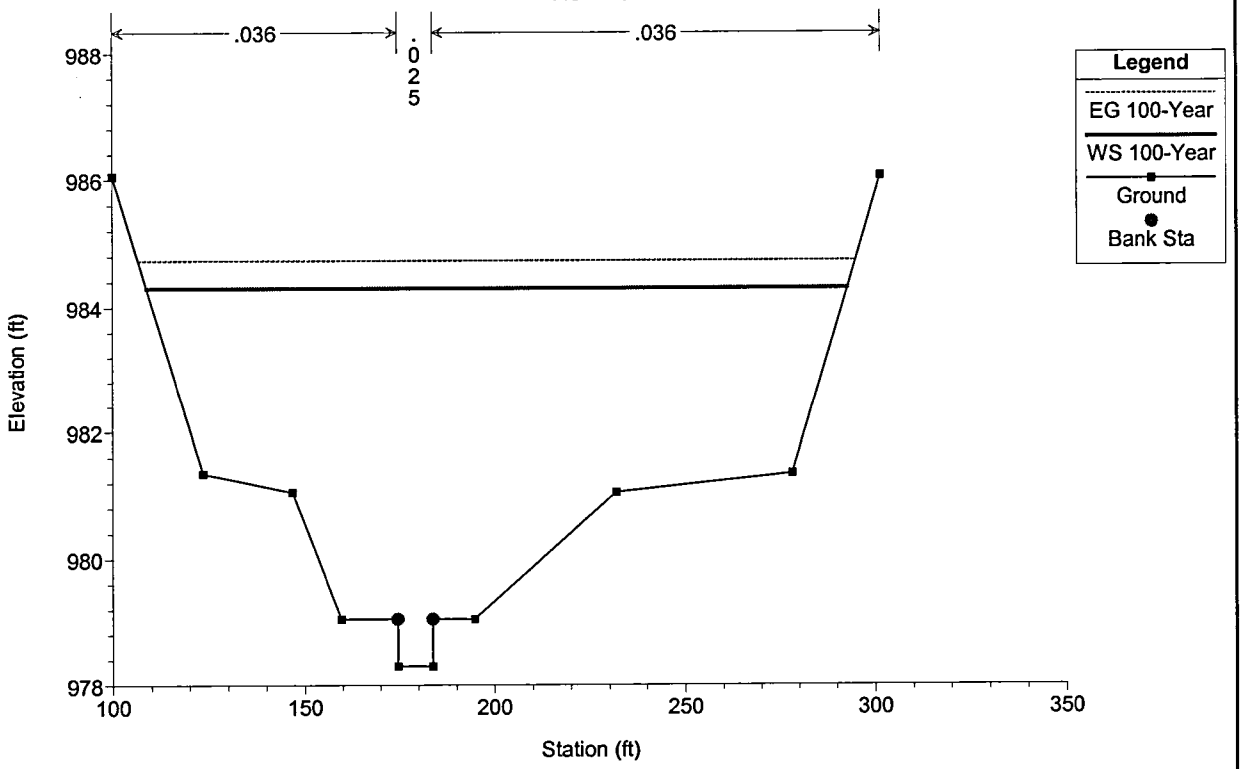

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 25901.7
.036
.025
.036
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
986
984
982
980
978
976
100
150
200
250
300
350
Station (ft)


Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 26101.6
.036
.025
.036
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
986
984
982
980
978
976
100
150
200
250
300
350
Station (ft)

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004

Geom: Design Geometry Flow: 100-Year Flow

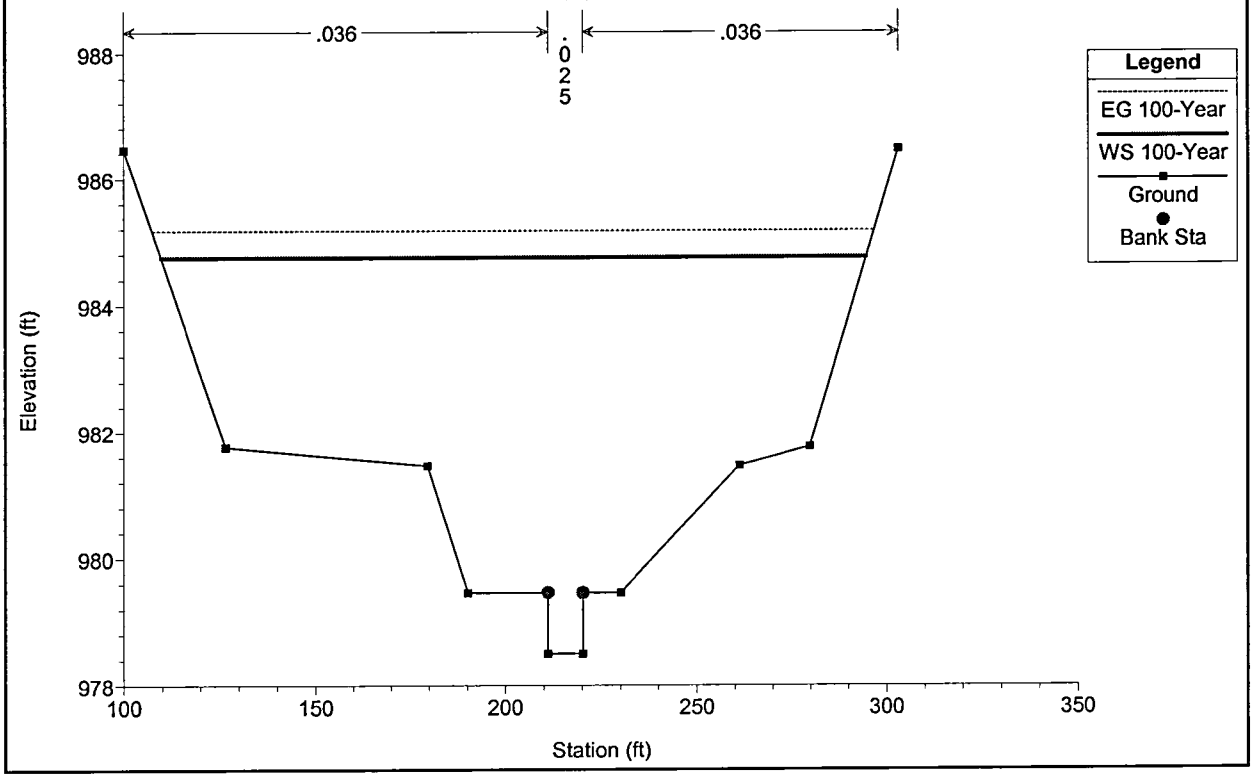
RS = 26300.4



Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004

Geom: Design Geometry Flow: 100-Year Flow

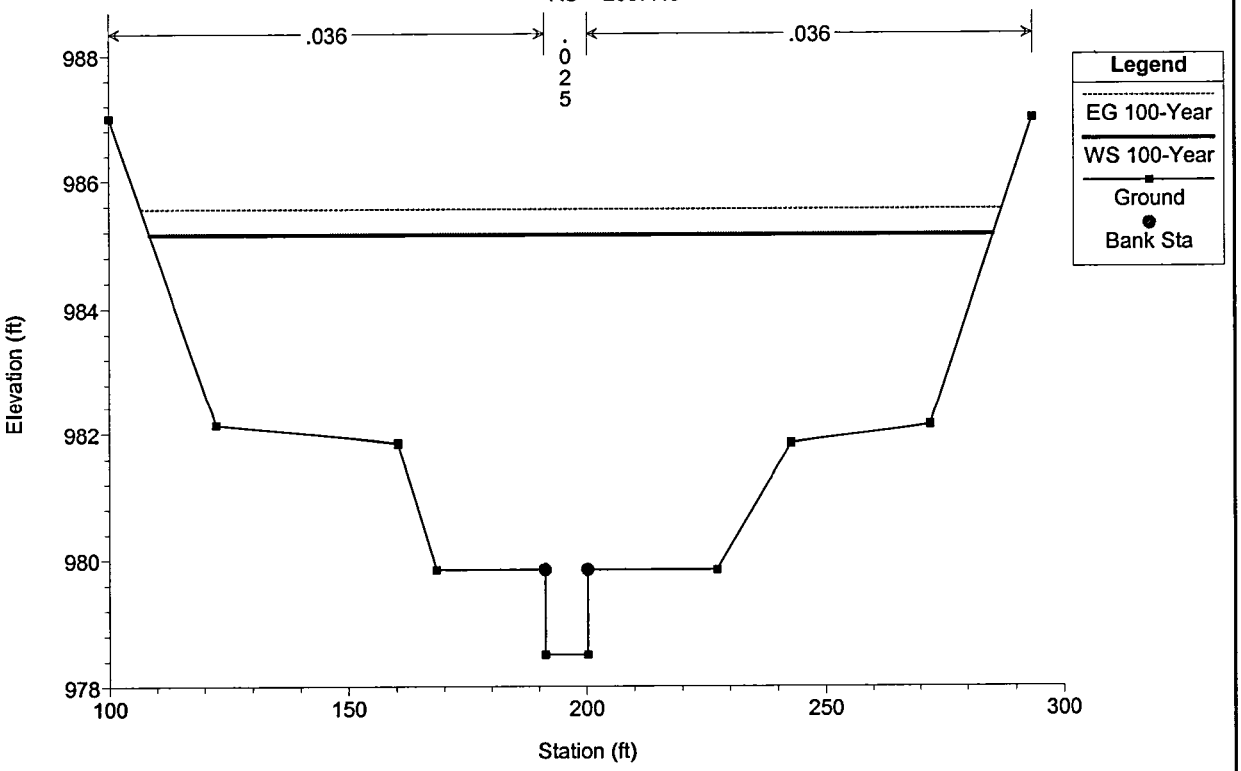
RS = 26495.2



Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004

Geom: Design Geometry Flow: 100-Year Flow

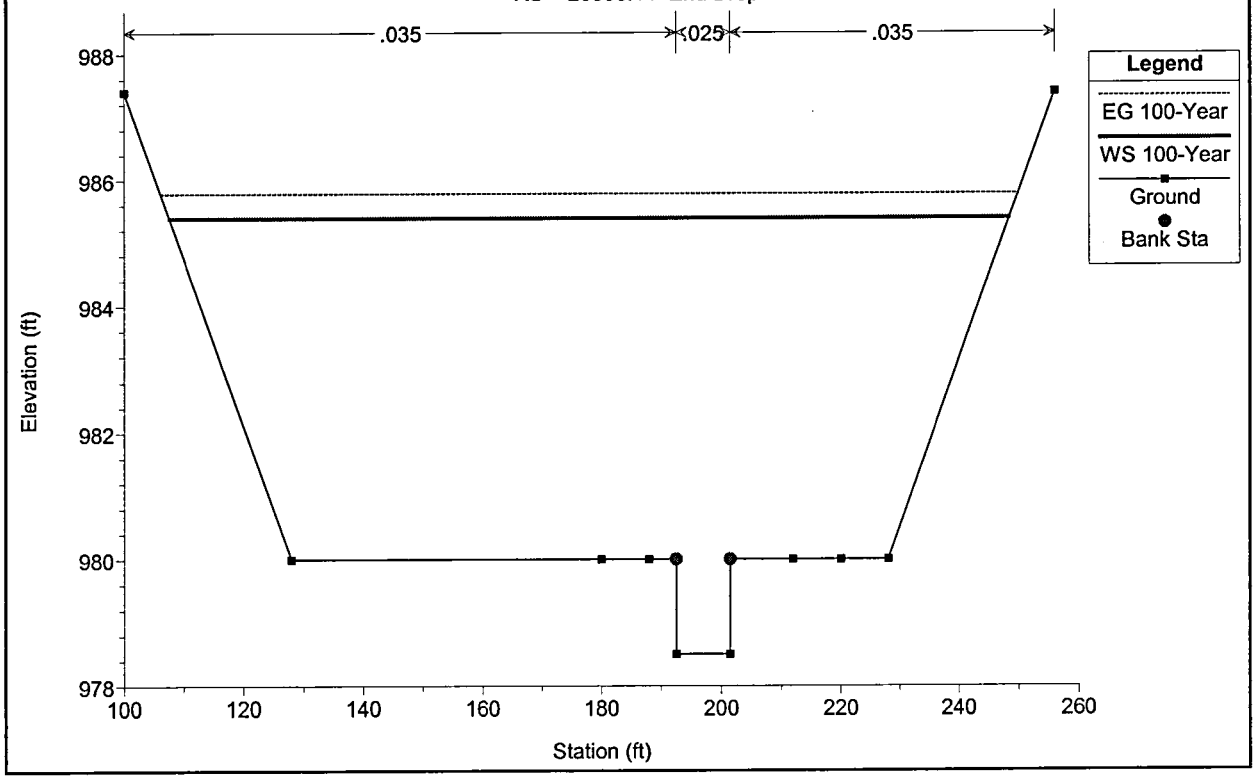
RS = 26677.6

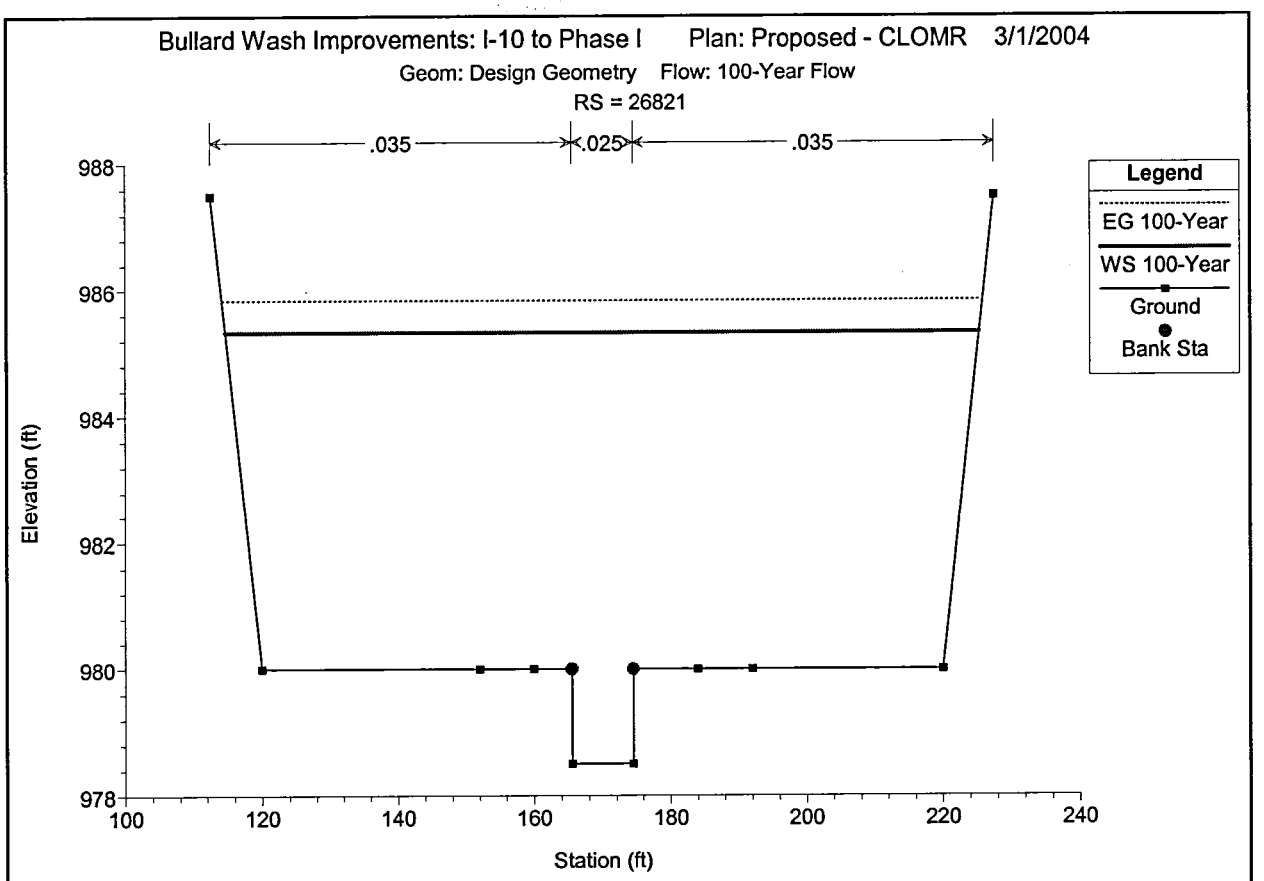


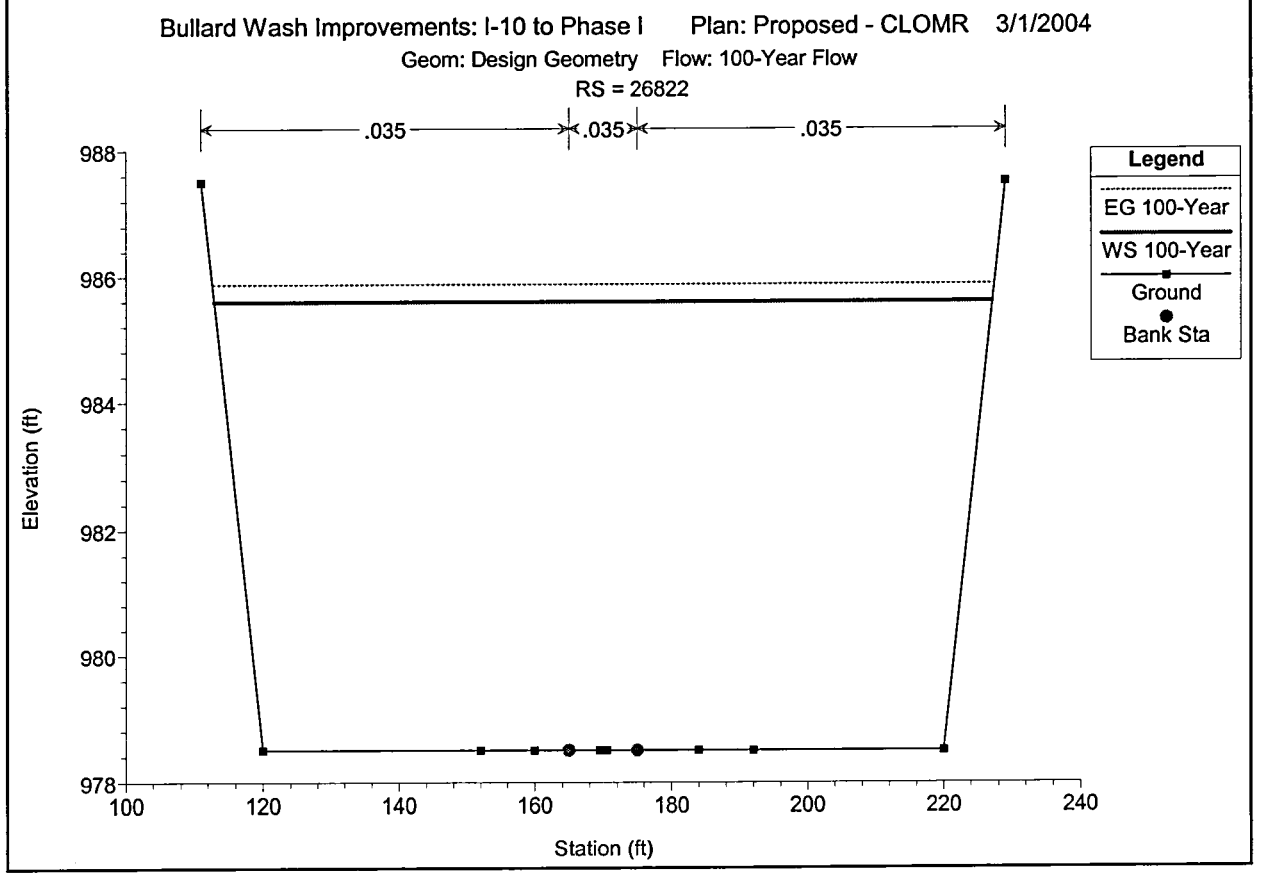
Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004

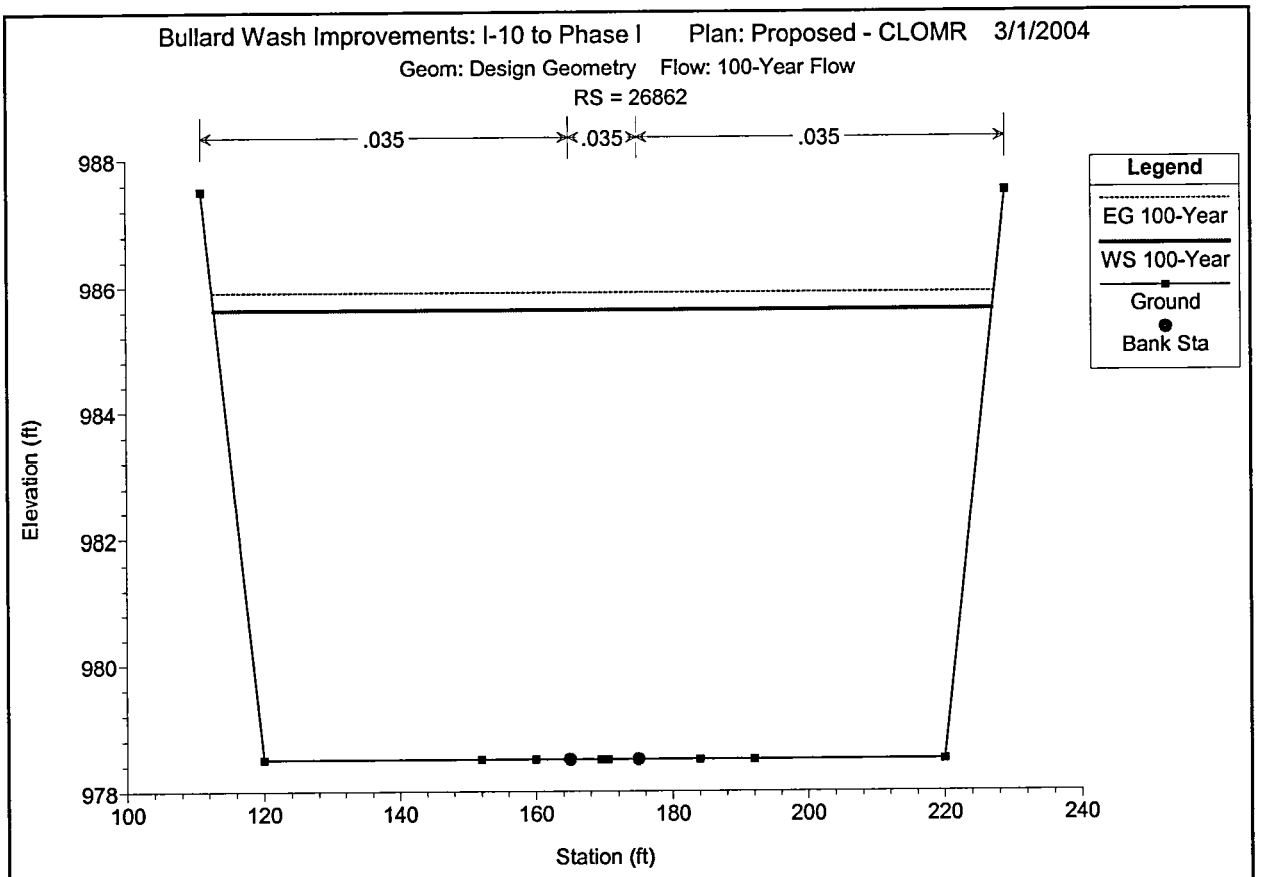
Geom: Design Geometry Flow: 100-Year Flow

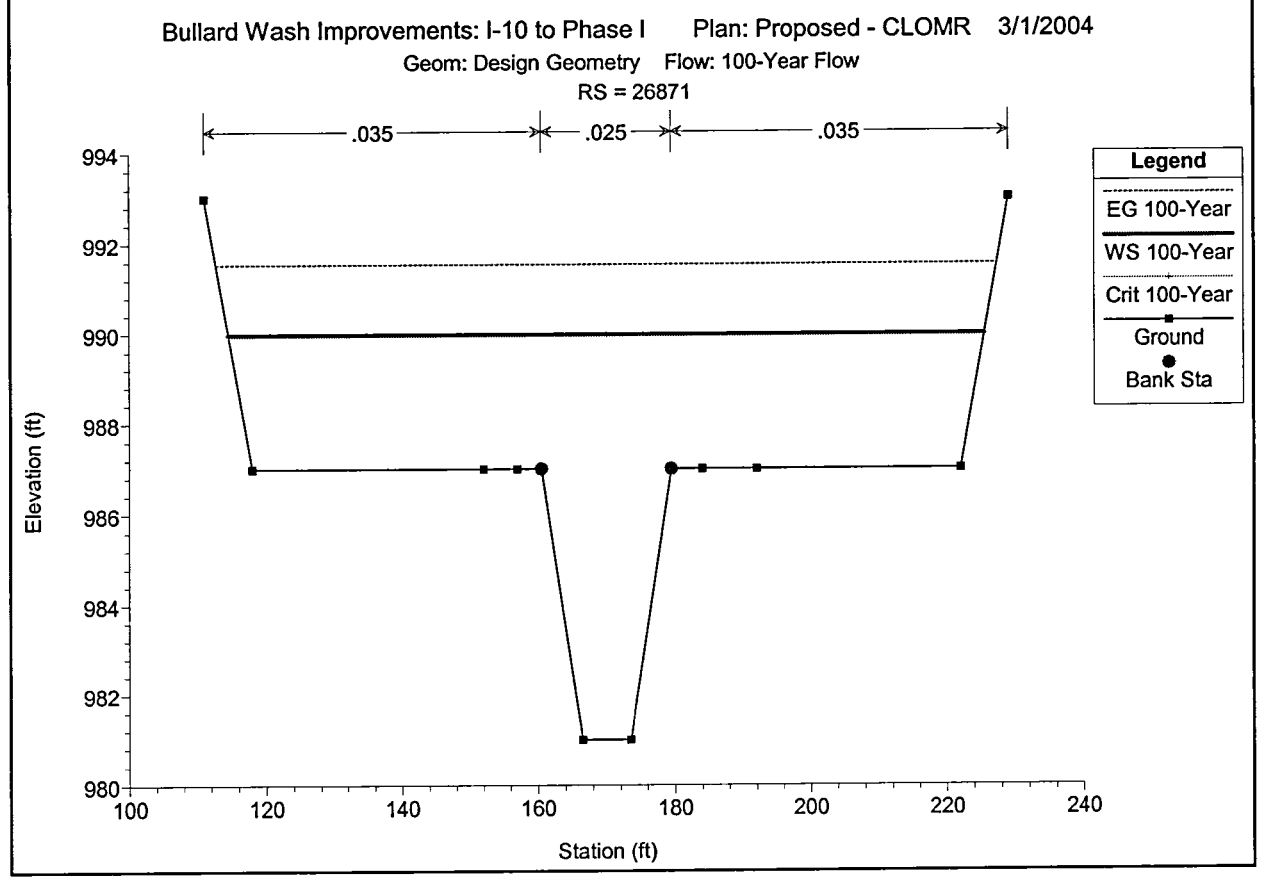
RS = 26806.44 End Drop

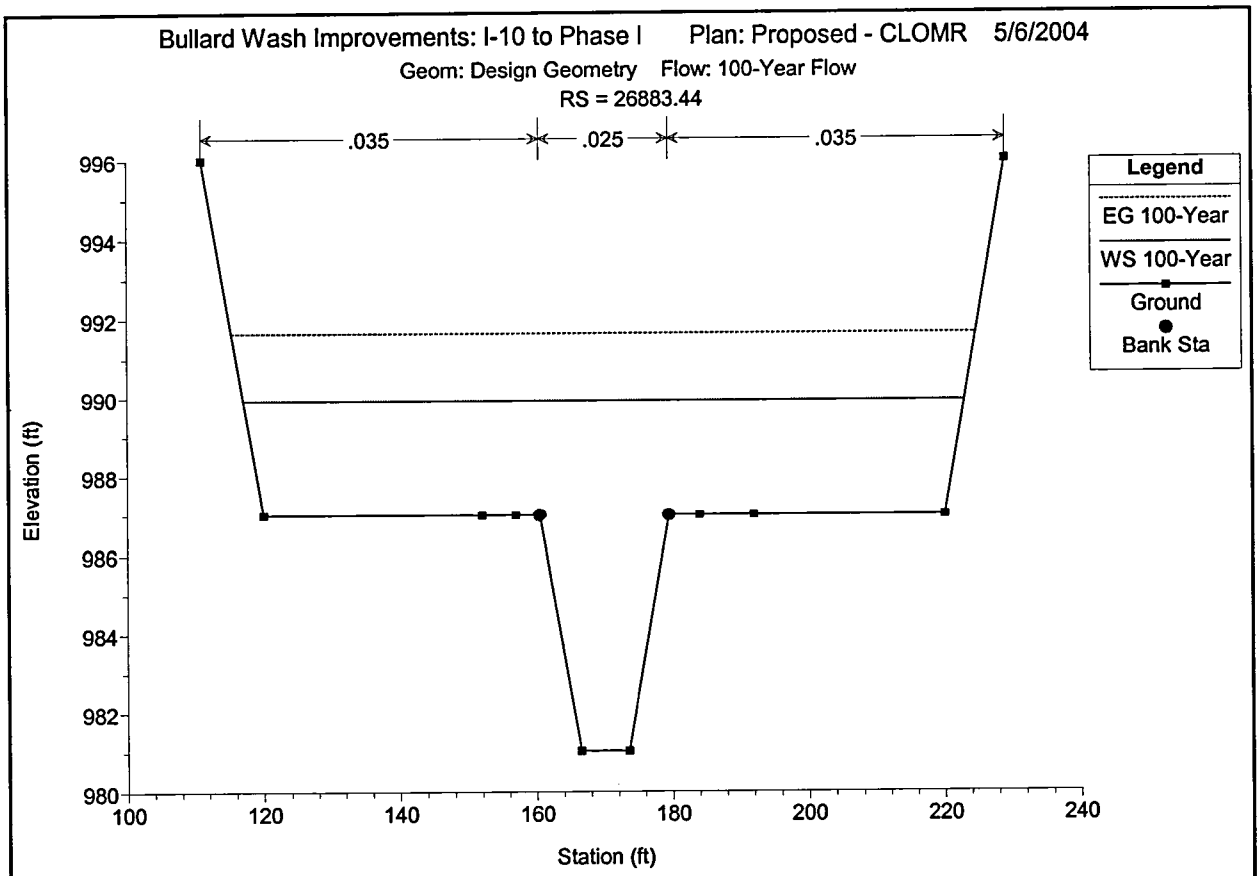


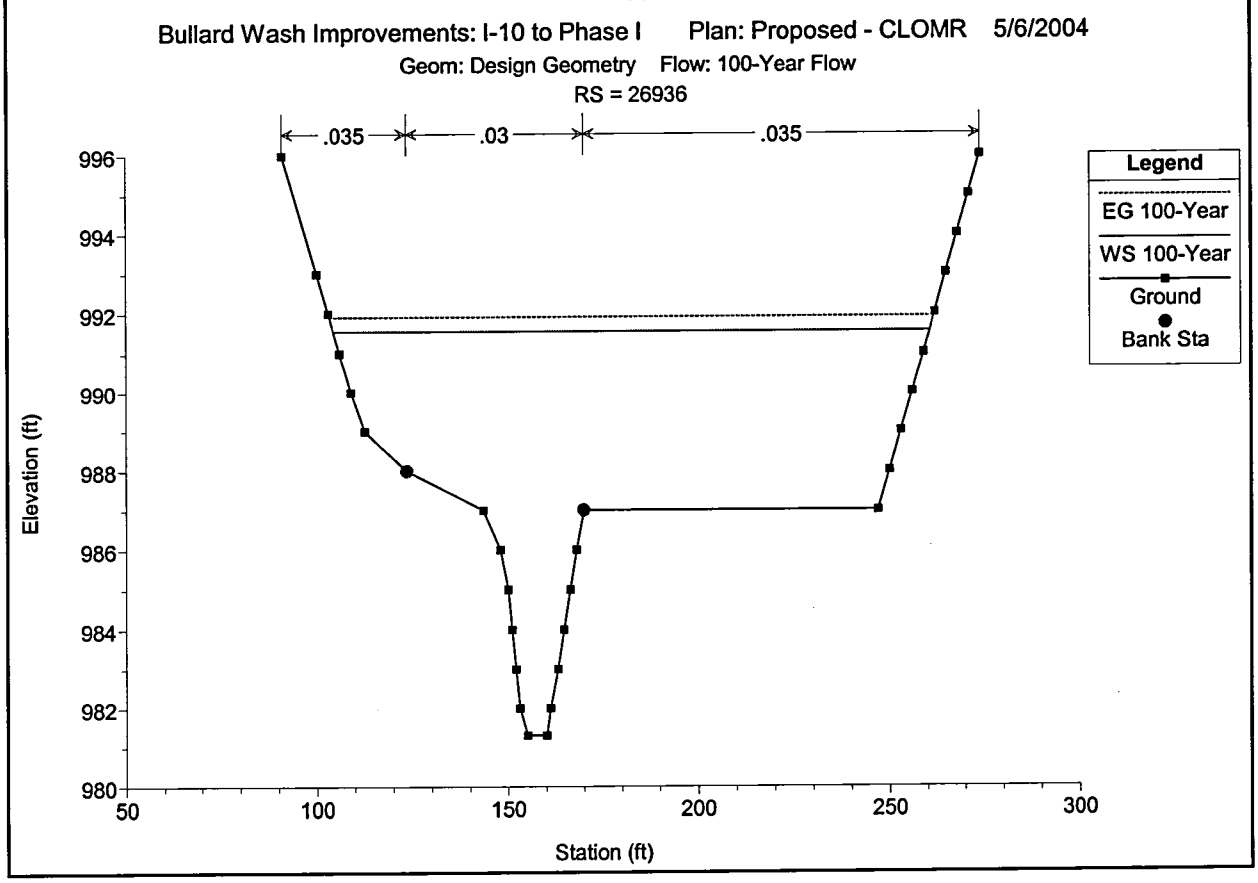

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 26821
.035
.025
.035
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
988
986
984
982
980
978
100
120
140
160
180
200
220
240
Station (ft)

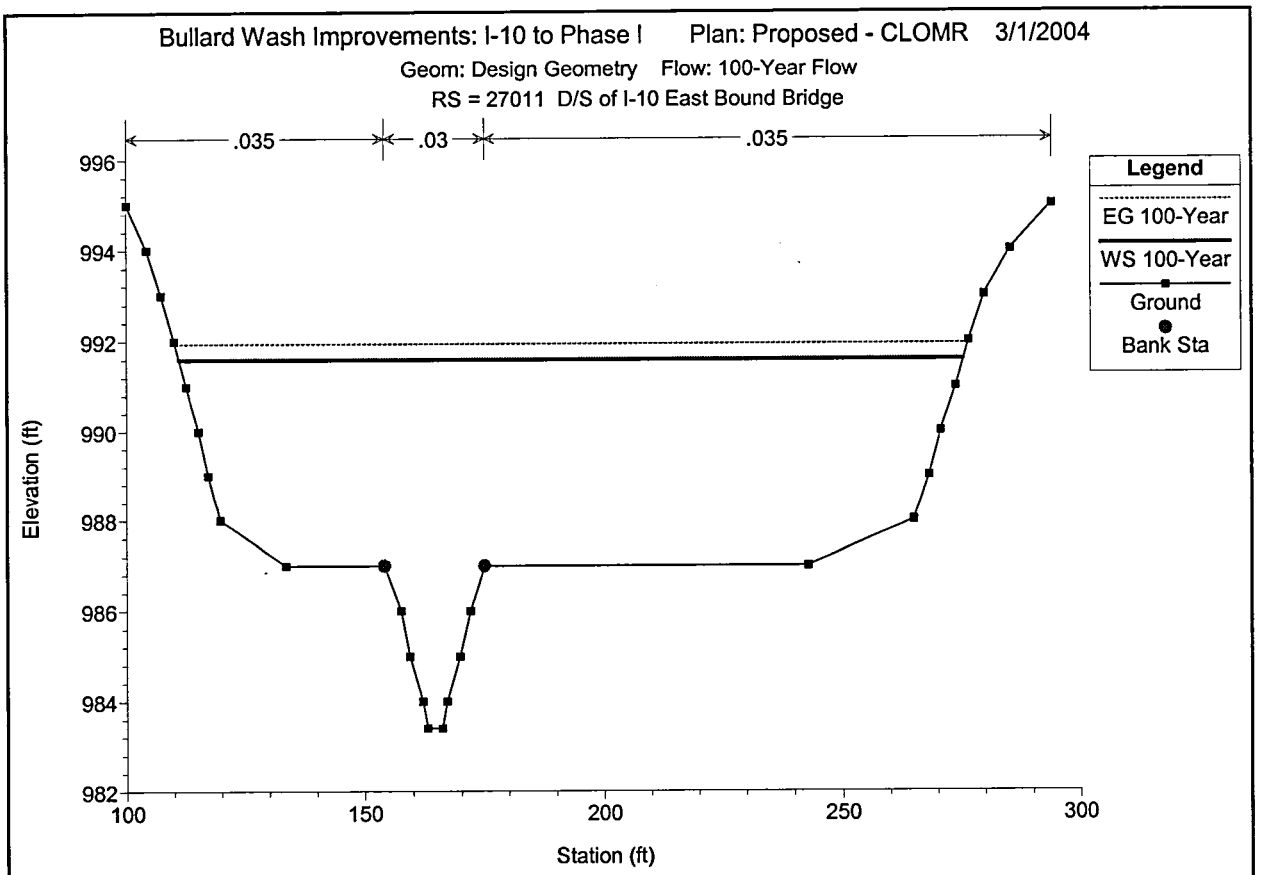

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 26822
.035
.035
.035
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
988
986
984
982
980
978
100
120
140
160
180
200
220
240
Station (ft)

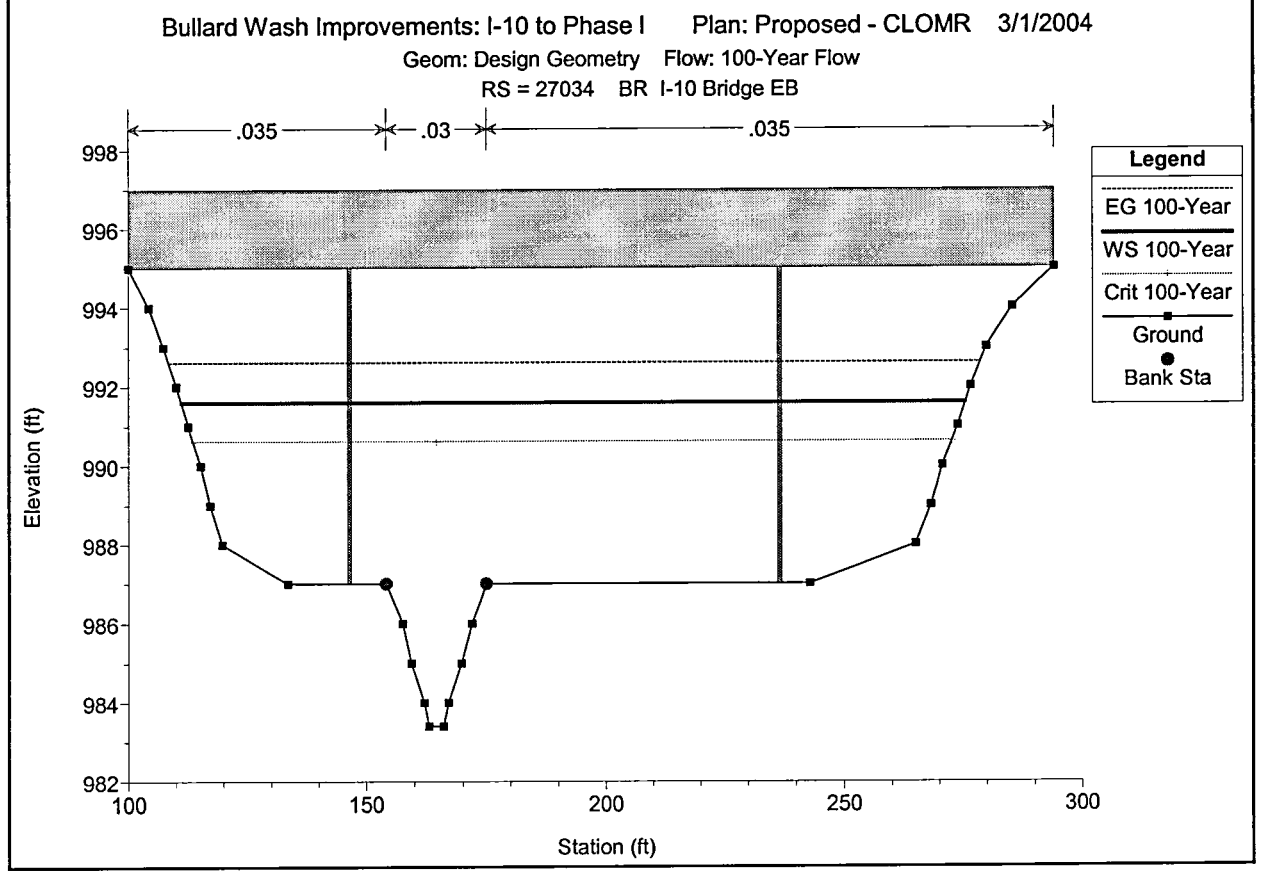

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 26862
.035
.035
.035
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
988
986
984
982
980
978
100
120
140
160
180
200
220
240
Station (ft)

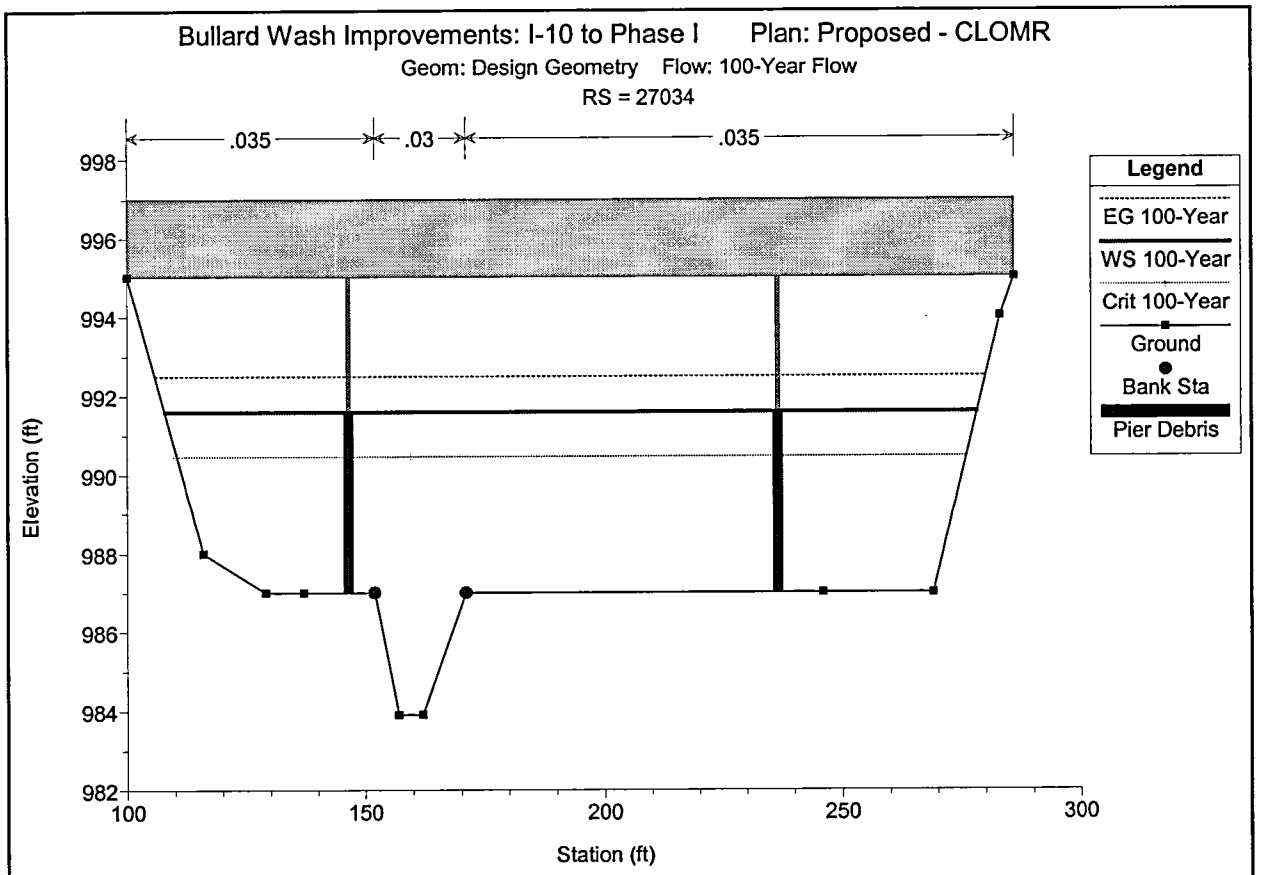

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 26871
.035
.025
.035
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Bank Sta
Elevation (ft)
994
992
990
988
986
984
982
980
100
120
140
160
180
200
220
240
Station (ft)

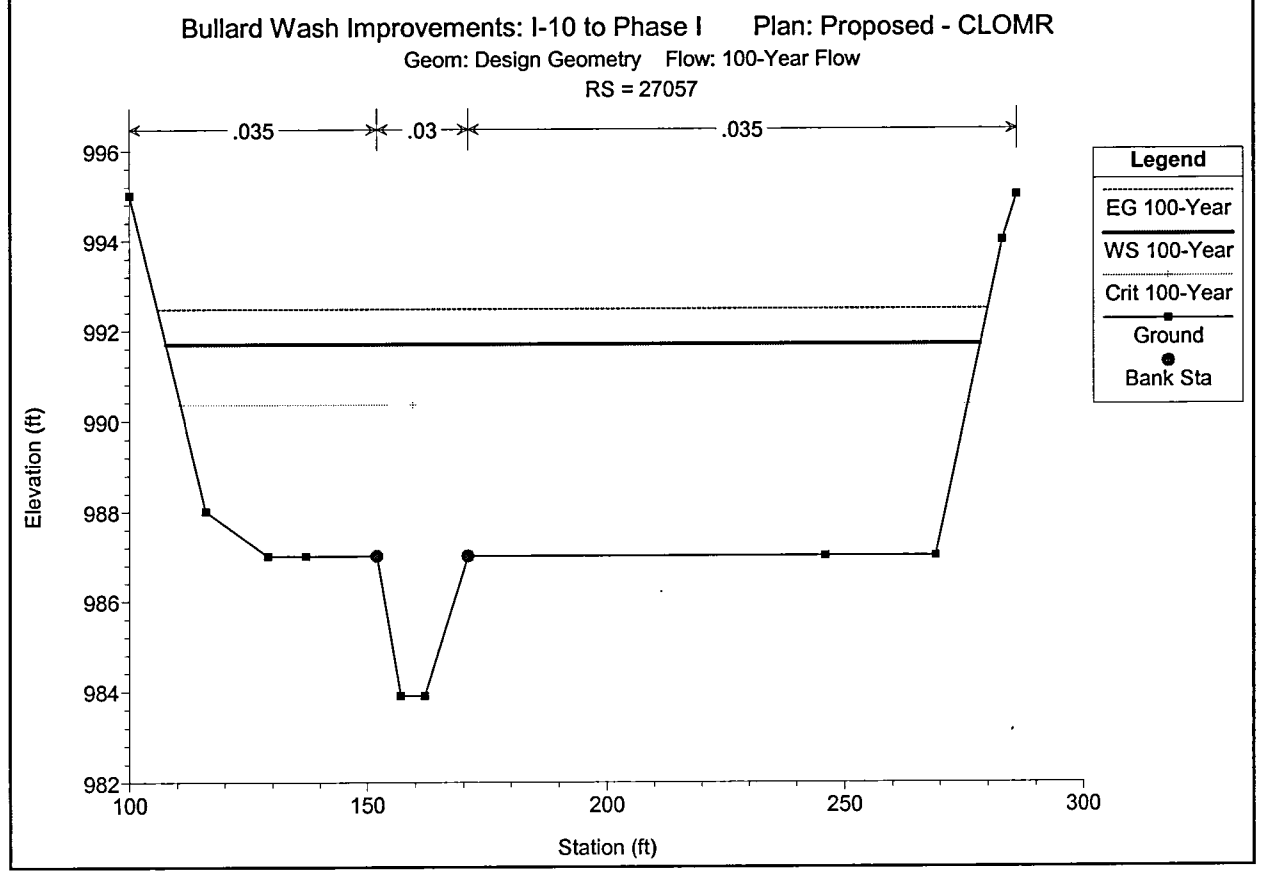

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 5/6/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 26883.44
.035
.025
.035
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)


Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 5/6/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 26936
.035
.03
.035
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)


Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 27011 D/S of I-10 East Bound Bridge
.035
.03
.035
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
996
994
992
990
988
986
984
982
100
150
200
250
300


Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004
Geom: Design Geometry Flow: 100-Year Flow
RS = 27034 BR I-10 Bridge EB
.035
.03
.035
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
998
996
994
992
990
988
986
984
982
100
150
200
250
300

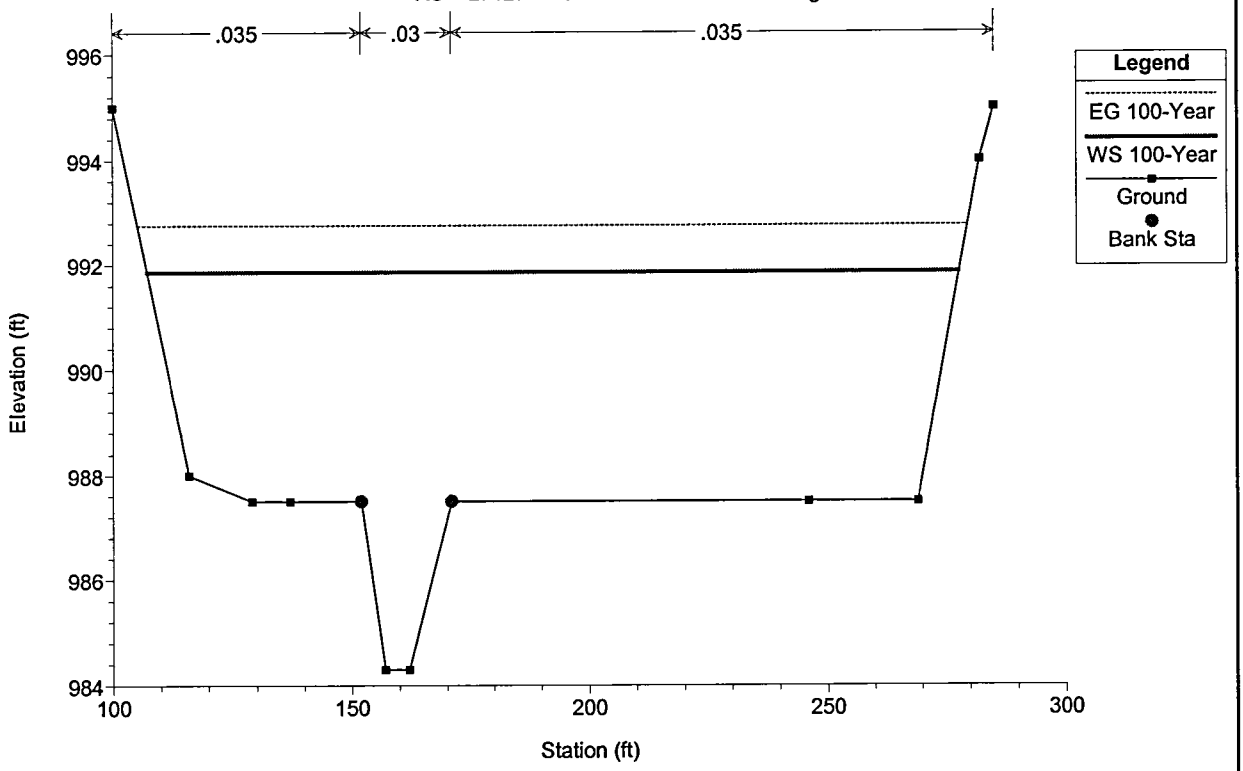

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR
Geom: Design Geometry Flow: 100-Year Flow
RS = 27034
.035
.03
.035
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Bank Sta
Pier Debris
Elevation (ft)
Station (ft)


Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR
Geom: Design Geometry Flow: 100-Year Flow
RS = 27057
.035
.03
.035
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)

Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004

Geom: Design Geometry Flow: 100-Year Flow

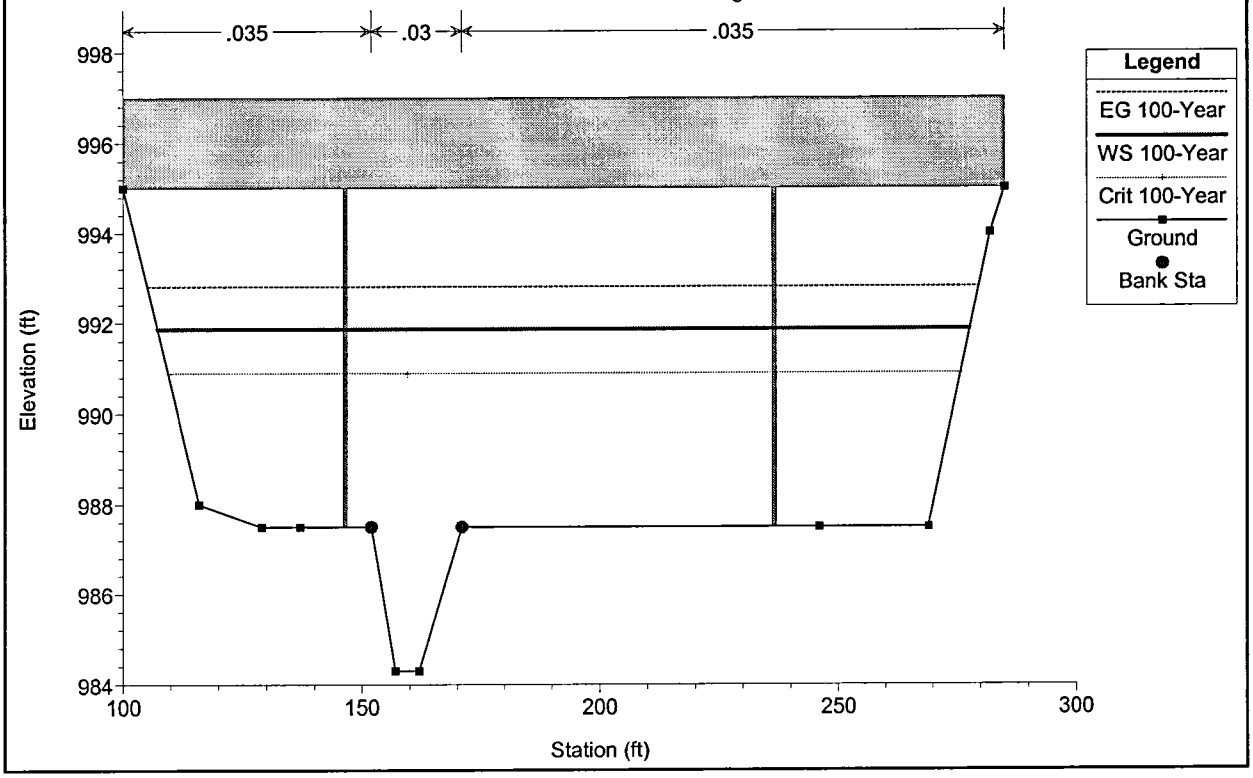
RS = 27127 D/S of I-10 West Bound Bridge

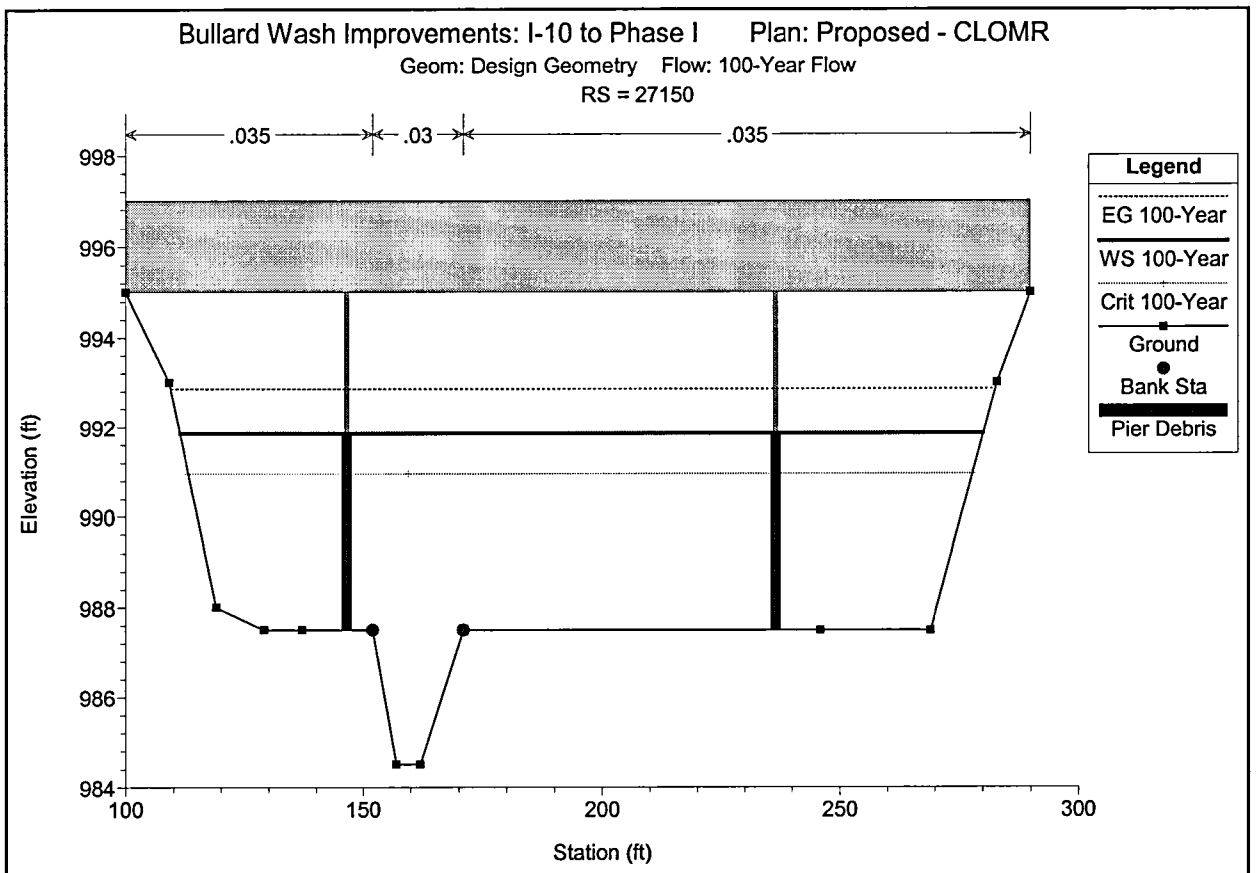


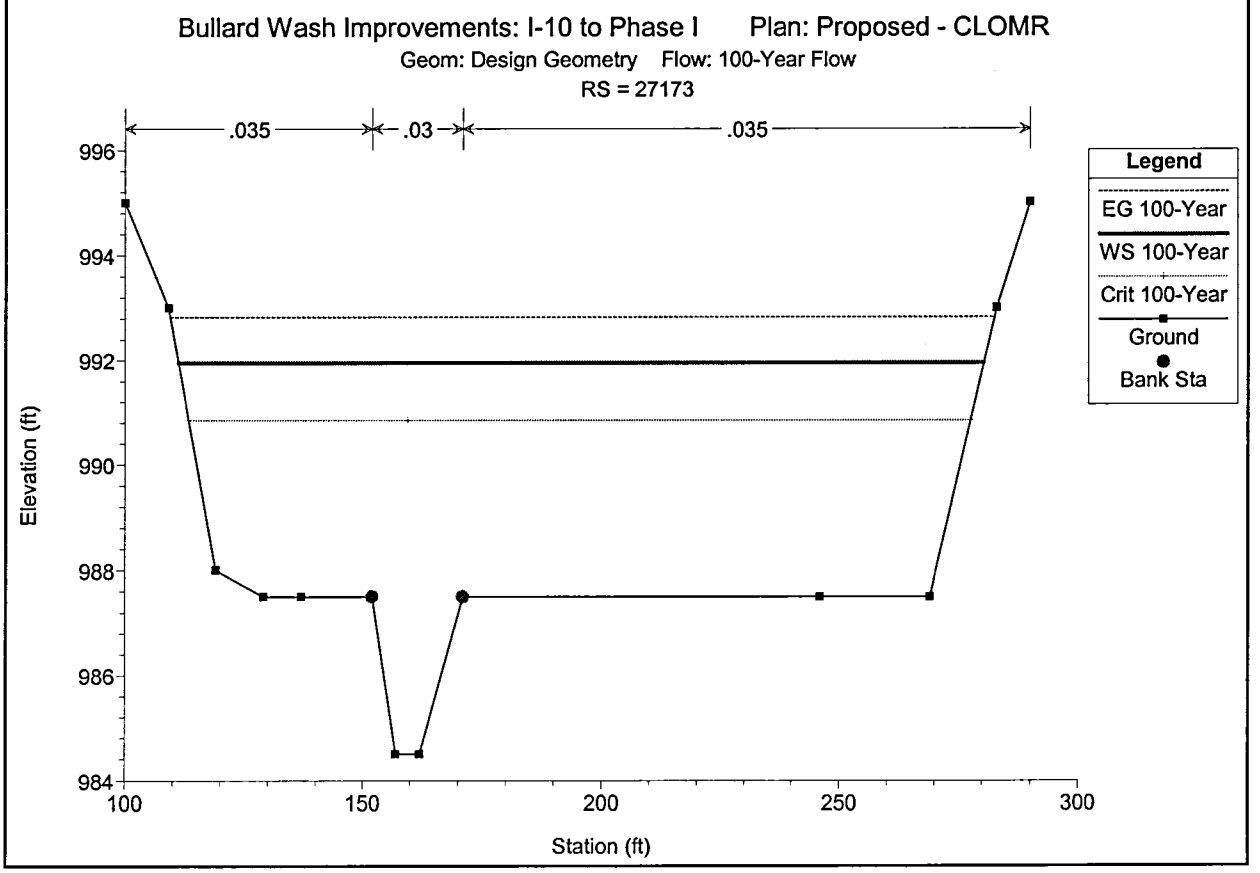
Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR 3/1/2004

Geom: Design Geometry Flow: 100-Year Flow

RS = 27150 BR I-10 Bridge WB




Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR
Geom: Design Geometry Flow: 100-Year Flow
RS = 27150
.035
.03
.035
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Bank Sta
Pier Debris
Elevation (ft)
Station (ft)


Bullard Wash Improvements: I-10 to Phase I Plan: Proposed - CLOMR
Geom: Design Geometry Flow: 100-Year Flow
RS = 27173
.035
.03
.035
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)

APPENDIX G

Cross Section Stations Relationships Between Effective FIS Models and Post-Project Model

Cross Section Stations Relationships between Effective FIS Models and Post-Project Model		
Post-Project Model	**Effective FIS (D/S)**	**Effective FIS (U/S)**
11100	11100	
11200	11200	
11300	11300	
11425	11425	
11550	11550	
11735	11735	
11883	11883	
11932	11932	
11943	11943	
12195	12195	
12197		
12209		
12220.5		
12315		
12508.7		
12708.5		
12908.8		
13095.9		
13294.6		
13494.6		
13694.6		
13894.6		
14096.5		
14298.9		
14359.34		
14499.34		
14543		
14544		
14663.1		
14817.3		
14998		
15199.3		
15401.8		
15590.8		
15779.9		
15969		
16165.7		
16366.6		
16562.9		
16762.7		
16961.4		

Cross Section Stations Relationships between Effective FIS Models and Post-Project Model		
Post-Project Model	**Effective FIS (D/S)**	**Effective FIS (U/S)**
17076.5		
17188		
17285		
17310		
17371.91		
17434		
17459		
17545		
17644		
17826.9		
18029.7		
18226.7		
18424.2		
18623.3		
18821.3		
19017.6		
19205.1		
19400		
19602.6		
19790.8		
19974.5		
20164.2		
20341.9		
20524.1		
20718		
20918.4		
21118.3		
21318.7		
21517.7		
21718.5		
21911		
22102		
22300.9		
22496.6		
22611		
22705		
22728.93		
22774.93		
22820.93		
22845.6		
22946.3		

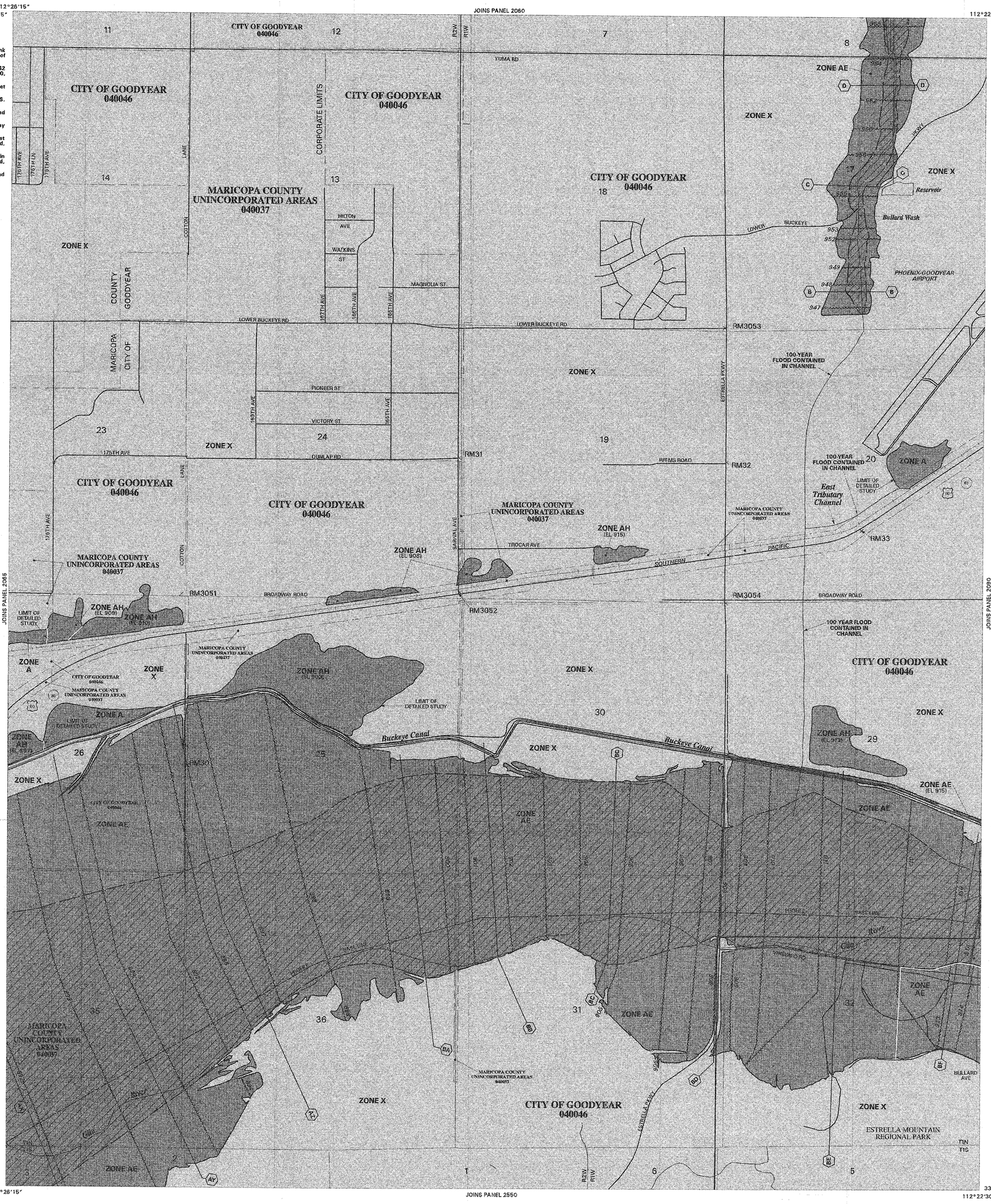
Cross Section Stations Relationships between Effective FIS Models and Post-Project Model		
Post-Project Model	**Effective FIS (D/S)**	**Effective FIS (U/S)**
23054.4		
23203.98		
23390.8		
23566.1		
23762.2		
23962.1		
24152.7		
24300.2		
24462.45		
24611		
24802.1		
24978.4		
25182.2		
25379.3		
25558.8		
25701.5		
25901.7		
26101.6		
26300.4		
26495.2		
26677.6		
26806.44		
26821		
26822		
26862		
26871		
26883.44		
26936		
27011		
27034		
27057		
27127		
27150		
27173		5.460
		5.563
		5.727
		5.840
		5.960
		6.086
		6.217

EXHIBIT A

Existing Regulatory Floodplain Maps

ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION (FEET NGVD)	DESCRIPTION OF LOCATION
RM30	895.65	ANPP lead plug No. 662 at northwest corner of chainlink fence on east side of Cotton Lane, 1130 feet south of Buckeye Canal.
RM31	935.81	U.S. Geological Survey brass cap in concrete cylinder 42 feet west of Sarival Avenue, 0.5 mile north of Route 80, marked GIN RM 2.
RM32	934.97	Rim of handhole at centerline of Reems Road, 1800 feet north of U.S. Route 80.
RM33	916.54	AHD brass cap in south headwall of box culvert under U.S. Route 80, 3000 feet west of Bullard Avenue.
RM909	927.45	Brass cap in parapet at northeast corner of Bullard Road bridge over Gila River.
RM3051	912.90	1-inch open pipe in pothole, Cotton Lane and Broadway Road, southeast corner section 23, T1N, R1W.
RM3052	910.17	Chiseled X on concrete base power pole at northeast corner, intersection of Sarival Avenue and Broadway Road, near southeast corner section 24, T1N, R2W.
RM3053	952.11	Maricopa County Highway Department brass cap in handhole, Estrella Parkway and Lower Buckeye Road, southeast corner section 18, T1N, R1W.
RM3054	913.18	Brass cap in handhole, Estrella Parkway (Reems Road) and Broadway Road, southeast corner section 19, T1N, R1W.



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 flood 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 floodplain.
- **ZONE D** Areas in which flood hazards are undetermined.

UNDEVELOPED COASTAL BARRIERS

Identified 1983 | Identified 1990 | Otherwise Protected Areas

Coastal barrier areas are normally located within or adjacent to Special Flood Hazard Areas.

- Floodplain 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. See Map Index for Elevation Datum.
- (D)—(D) Cross Section Line
- (EL 987) — Base Flood Elevation in Feet Where Uniform Within Zone. See Map Index for Elevation Datum.
- RM 7 — Elevation Reference Mark
- M2 — River Mile
- 97°07'30", 32°22'30" — Horizontal Coordinates Based on North American Datum of 1927 (NAD 27) Projection.

NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas. The community map repository should be consulted for more detailed data on BFEs, and for any information on floodway delineations, prior to use of this map for property purchase or construction purposes.

Areas of Special Flood Hazard (100-year flood) include Zones A, AE, A1-A30, AH, AO, A99, V, VE and V1-V30.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Refer to Floodway Data Table where floodway width is shown at 1/20 inch.

Coastal base flood elevations apply only landward of 0.0 NGVD, and include the effects of wave action; these elevations may also differ significantly from those developed by the National Weather Service for hurricane evacuation planning.

Corporate limits shown are current as of the date of this map. The user should contact appropriate community officials to determine if corporate limits have changed subsequent to the issuance of this map.

This map may incorporate approximate boundaries of Coastal Barrier Resource System Units and/or Otherwise Protected Areas established under the Coastal Barrier Improvement Act of 1990 (PL 101-591).

For community map revision history prior to countywide mapping, see Section 6.0 of the Flood Insurance Study Report.

For adjoining map panels and base map source see separately printed Map Index.

MAP REPOSITORY

Refer to Repository Listing on Index Map

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP:

APRIL 15, 1988

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL:

SEPTEMBER 4, 1991, SEPTEMBER 30, 1995

Map revised July 19, 2001 to update corporate limits, to change base flood elevations, to add base flood elevations, to add Special Flood Hazard Areas, to change Special Flood Hazard Areas, to change zone designations, to update map format, to add roads and road names, and to incorporate previously issued Letters of Map Revision.

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

APPROXIMATE SCALE IN FEET

1000 0 1000

LEGEND

To obtain more detailed information in areas where Base Flood Elevations (BFEs) and/or floodways have been determined, users are encouraged to consult the Flood Profiles and Floodway Data tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations and therefore may not exactly reflect the flood elevation data presented in the FIS. For construction and/or floodplain management purposes, users are encouraged to use the flood elevation data presented in this FIS in conjunction with the data shown on the FIRM.

Elevation Reference Marks (ERM) elevations listed on this map were obtained and/or developed to establish vertical control for determination of flood elevations and floodplain boundaries portrayed on this map. Users should be aware that these ERM elevations may have changed since the publication of this map. To obtain up-to-date-elevation information on National Geodetic Survey (NGS) ERMs shown on this map, please contact the Information Services Branch of the NGS at (301) 713-3242, or visit their website at www.ngs.noaa.gov. Map users should seek verification of non-NGS ERM monument elevations when using these elevations for construction or floodplain management purposes.

Coastal BFE's shown on this map apply only landward of 0.0' National Geodetic Vertical Datum (NGVD). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this community. Elevations shown in the Summary of Stillwater Elevations table should be used for construction, and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

V:\2001\Projects\011449 Bullard\OLD\FIRD\Drawing\OrigFIRM\Panel2070.dwg

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 2070 OF 4350
(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
GOODYEAR, CITY OF	040046	2070	G
MARICOPA COUNTY, UNINCORPORATED AREAS	040037	2070	G

EXHIBIT A

EXISTING REGULATORY FLOODPLAIN MAP

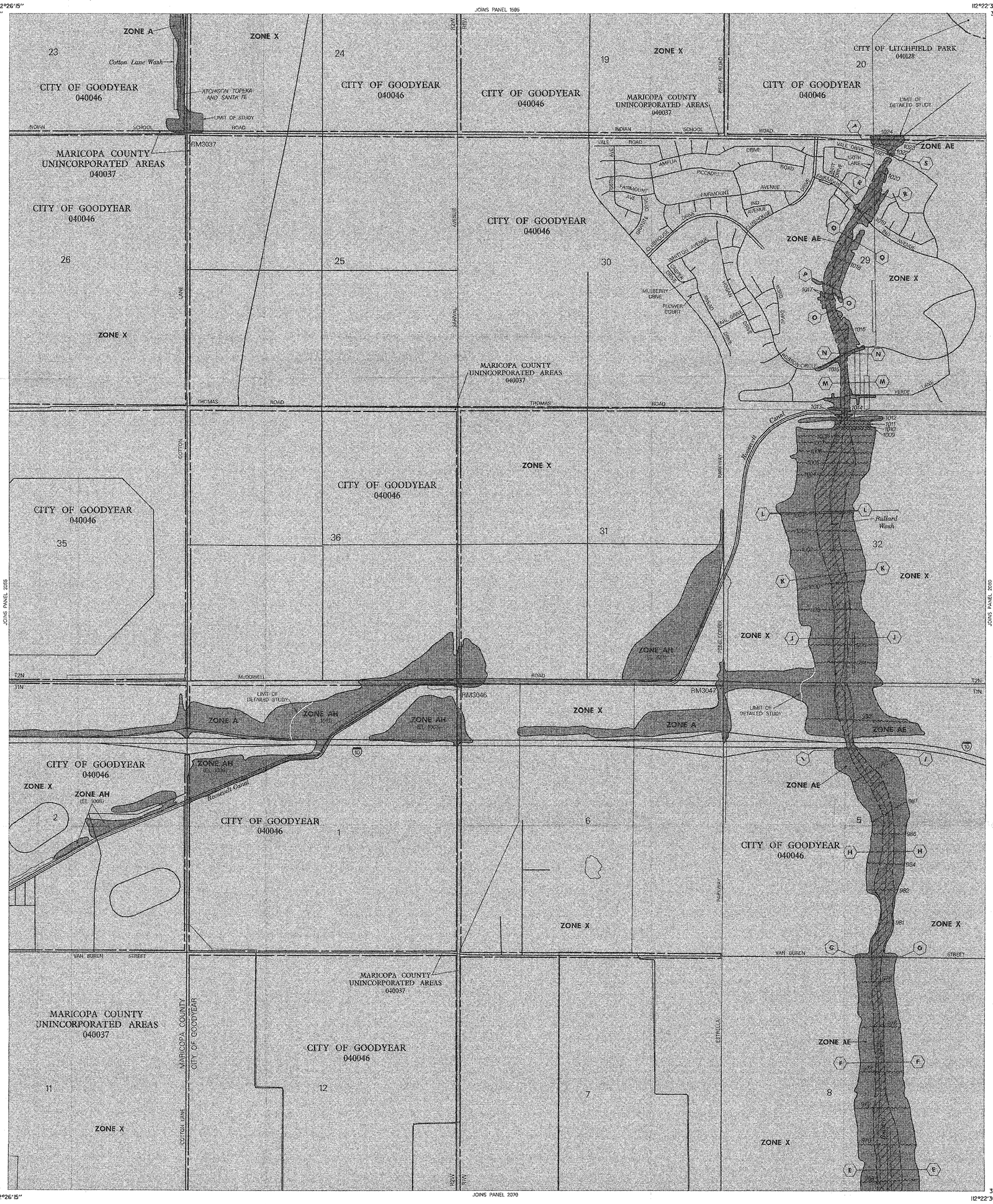
MAP NUMBER 04013C2070 G

MAP REVISED: JULY 19, 2001

Federal Emergency Management Agency

ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION (FEET NGVD)	DESCRIPTION OF LOCATION
RM3037	1064.65	Iron rod in pothole, Cotton Lane and Indian School Road, southeast corner section 23, T2N, R2W.
RM3046	1012.43	Chiseled X on top of concrete headwall at southeast corner of intersection of Sarival Avenue and McDowell Road, near southeast corner section 36, T2N, R1W.
RM3047	1002.53	Brass cap in handhole, q45 feet south of intersection of Reems and McDowell Roads, southeast corner section 31, T2N, R1W.



LEGEND

To obtain more detailed information in areas where Base Flood Elevations (BFE's) and/or floodways have been determined, users are encouraged to consult the Flood Profiles and Floodway Data tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFE's shown on the FIRM represent rounded whole-foot elevations and therefore may not exactly reflect the flood elevation data presented in the FIS. BFE's shown on the FIRM are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

ERM elevations listed on this map were obtained and/or developed to establish vertical control for determination of flood elevations and floodplain boundaries portrayed on this map. Users should be aware that these ERM elevations may have changed since the publication of this map. To obtain up-to-date elevation information on National Geodetic Survey (NGS) ERM's shown on this map, please contact the Information Services Branch of the NGS at (301) 713-3242, or visit their website at www.ngs.noaa.gov. Map users should seek verification of non-NGS ERM monument elevations when using these elevations for construction or floodplain management purposes.

Coastal BFE's shown on this map may apply only landward of 0.0' NGVD. Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this community. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

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 flood 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 floodplain.

ZONE D Areas in which flood hazards are undetermined.

UNDEVELOPED COASTAL BARRIERS

Identified 1983 | Identified 1990 | Otherwise Protected Areas

Coastal barrier areas are normally located within or adjacent to Special Flood Hazard Areas.

Floodplain 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. See Map Index for Elevation Datum

D — D — Cross Section Line

(EL 987) — Base Flood Elevation in Feet Where Uniform Within Zone. See Map Index for Elevation Datum.

RM7 × — Elevation Reference Mark

● M2 — River Mile

97°07'30", 32°22'30" — Horizontal Coordinates Based on North American Datum of 1927 (NAD 27) Projection.

NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas. The community map repository should be consulted for more detailed data on BFE's, and for any information on floodway delineations, prior to use of this map for property purchase or construction purposes.

Areas of Special Flood Hazard (100-year flood) include Zones A, AE, A1-A30, AH, AO, A99, V, VE and V1-V30.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Refer to Floodway Data Table where floodway width is shown at 1/20 inch.

Corporate limits shown are current as of the date of this map. The user should contact appropriate community officials to determine if corporate limits have changed subsequent to the issuance of this map.

This map may incorporate approximate boundaries of Coastal Barrier Resource System Units and/or Otherwise Protected Areas established under the Coastal Barrier Improvement Act of 1990 (PL 101-591).

For community map revision history prior to countywide mapping, see Section 6.0 of the Flood Insurance Study Report.

For adjoining map panels and base map source see separately printed Map Index.

MAP REPOSITORY
Refer to Repository Listing on Map Index

EFFECTIVE DATE OF
COUNTYWIDE FLOOD INSURANCE RATE MAP:
APRIL 15, 1988

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL:
SEPTEMBER 30, 1995

Map revised July 19, 2001 to update corporate limits, to change base flood elevations, to add base flood elevations, to add Special Flood Hazard Areas, to change Special Flood Hazard Areas, to change zone designations, to update map format, to add roads and road names, and to incorporate previously issued Letters of Map Revision.

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

APPROXIMATE SCALE IN FEET
1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 2060 OF 4350
(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS: COMMUNITY	NUMBER	PANEL	SUFFIX
GOODYEAR, CITY OF	040046	2060	F
LITCHFIELD PARK, CITY OF	040128	2060	F
MARICOPA COUNTY, UNINCORPORATED AREAS	040037	2060	F

EXHIBIT A

EXISTING REGULATORY FLOODPLAIN MAP

MAP NUMBER
04013C2060 F

MAP REVISED:
JULY 19, 2001

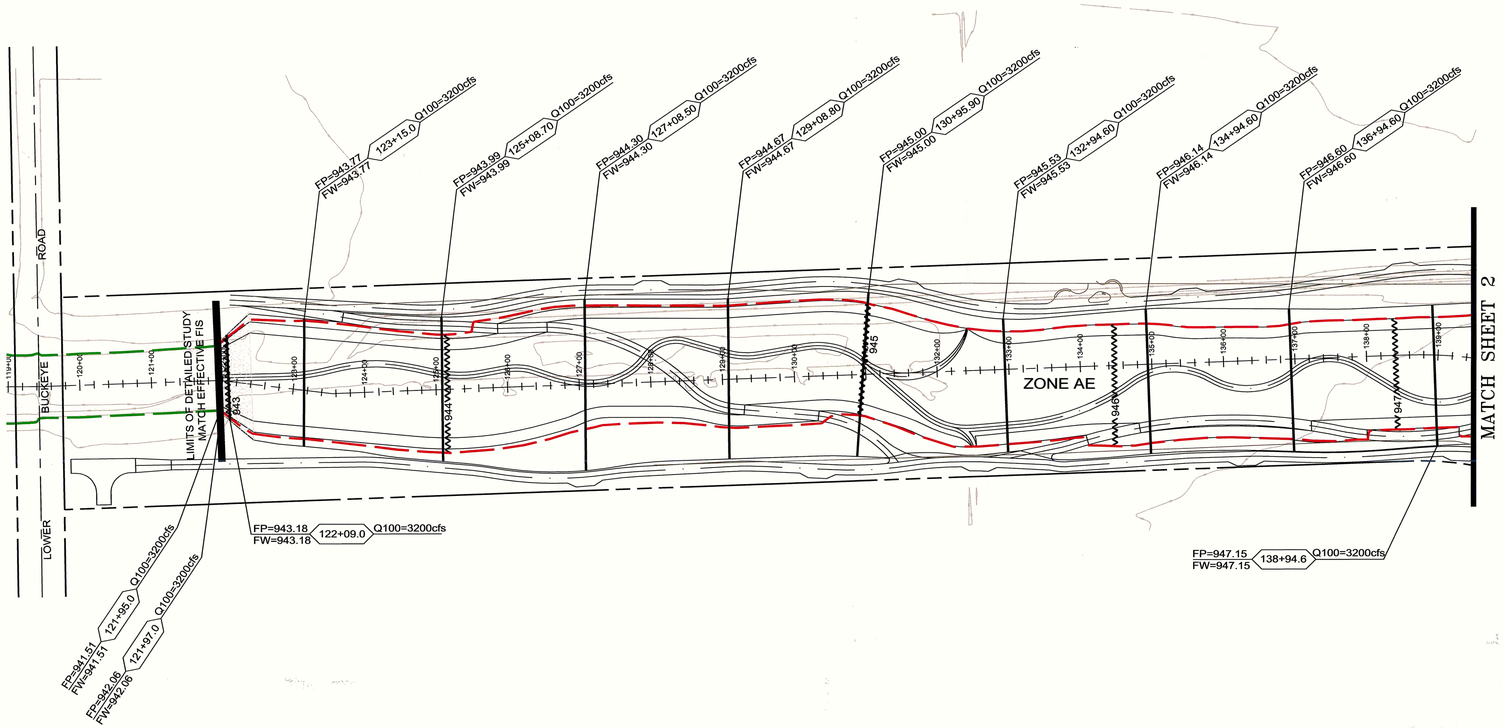
Federal Emergency Management Agency

EXHIBIT B

Proposed Construction Plans (under separate cover)

EXHIBIT C

Study Work Maps



1 inch = 100 ft.

REFERENCE MARK RM:

RM 3048 +-INCH IRON PIN IN HANDHOLE,
BULLARD AVENUE AND VAN BUREN STREET,
SOUTHEAST CORNER SECTION 5, T1N, R1W
ELEV. = 987.78
FIRM MAP# 04013C2080 H
(NOT SHOWN, OUTSIDE OF MAP LIMITS)

RM 3047 BRASS CAP IN HANDHOLE,
@ 45 FEET SOUTH OF INTERSECTION OF
REEMS AND McDOWELL ROADS,
SOUTHEAST CORNER SECTION 31, T2N, R1W
ELEV. = 1002.53
FIRM MAP# 04013C2060 F
(NOT SHOWN, OUTSIDE OF MAP LIMITS)

NOTE: VERTICAL DATUM NAVD 1988
AERIAL SURVEY FLIGHT DATE: 5-8-02

LEGEND:

138+94.6	CROSS SECTION NUMBER
FP=947.15	FLOODPLAIN WATER SURFACE ELEVATION = 947.15
FW=947.15	FLOODWAY WATER SURFACE ELEVATION = 947.15
Q100=3200cfs	100-YEAR PEAK DISCHARGE = 3200 CUBIC FEET PER SEC.
947	BASE FLOOD ELEVATION
	CHANNEL CENTERLINE
	POST PROJECT CONDITION FLOODWAY BOUNDARY
	POST PROJECT CONDITION FLOODPLAIN BOUNDARY
	EFFECTIVE FLOODWAY BOUNDARY
	EFFECTIVE FLOODPLAIN BOUNDARY
	PROPOSED CHANNEL ROW
ZONE AE	FLOOD INSURANCE RATE ZONE

NO.	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
I-10 TO LOWER BUCKEYE ROAD
CONTRACT NO. FCD 2001 C023, WOOD/PATEL NO. 011489

Registered Professional Engineer (Civil)
CERTIFICATE NO. 32854
SHIMIN ZOU
Date Signed 03-31-04
ARIZONA, U.S.A.

	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	J. LOCKETT	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

EXHIBIT C
STUDY WORK MAPS

SHEET 1 OF 7

1 inch = 100 ft.

REFERENCE MARK RM:

RM 3048 +-INCH IRON PIN IN HANDHOLE,
BULLARD AVENUE AND VAN BUREN STREET,
SOUTHEAST CORNER SECTION 5, T1N, R1W
ELEV. = 987.78
FIRM MAP# 04013C2080 H
(NOT SHOWN, OUTSIDE OF MAP LIMITS)

RM 3047 BRASS CAP IN HANDHOLE,
@ 45 FEET SOUTH OF INTERSECTION OF
REEMS AND McDOWELL ROADS,
SOUTHEAST CORNER SECTION 31, T2N, R1W
ELEV. = 1002.53
FIRM MAP# 04013C2060 F
(NOT SHOWN, OUTSIDE OF MAP LIMITS)

NOTE: VERTICAL DATUM NAVD 1988
AERIAL SURVEY FLIGHT DATE: 5-8-02

LEGEND:

138+94.6	CROSS SECTION NUMBER
FP=947.15	FLOODPLAIN WATER SURFACE ELEVATION = 947.15
FW=947.15	FLOODWAY WATER SURFACE ELEVATION = 947.15
Q100=3200cfs	100-YEAR PEAK DISCHARGE = 3200 CUBIC FEET PER SEC.
947	BASE FLOOD ELEVATION
	CHANNEL CENTERLINE
	POST PROJECT CONDITION FLOODWAY BOUNDARY
	POST PROJECT CONDITION FLOODPLAIN BOUNDARY
	EFFECTIVE FLOODWAY BOUNDARY
	EFFECTIVE FLOODPLAIN BOUNDARY
	PROPOSED CHANNEL ROW
ZONE AE	FLOOD INSURANCE RATE ZONE

NO.	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
I-10 TO LOWER BUCKEYE ROAD
CONTRACT NO. FCD 2001 C023, WOOD/PATEL NO. 011489

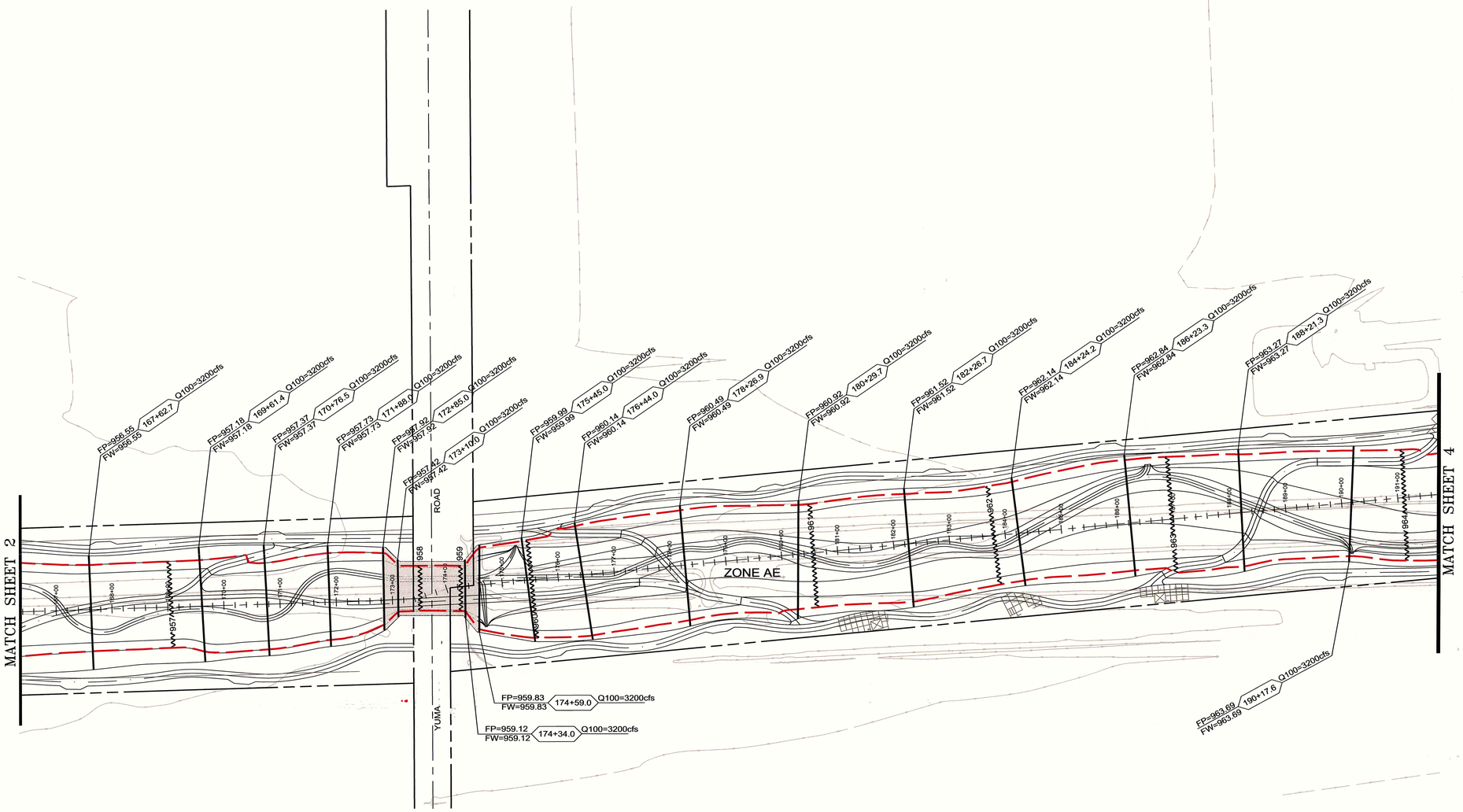
Registered Professional Engineer (Civil) CERTIFICATE NO. 32854 SHIMIN ZOU Date Signed 7-2-04 ARIZONA, U.S.A.

	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	J. LOCKETT	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

EXHIBIT C
STUDY WORK MAPS

SHEET 2 OF 7



1 inch = 100 ft.

REFERENCE MARK RM:

RM 3048 +-INCH IRON PIN IN HANDHOLE,
BULLARD AVENUE AND VAN BUREN STREET,
SOUTHEAST CORNER SECTION 5, T1N, R1W
ELEV. = 987.78
FIRM MAP# 04013C2080 H
(NOT SHOWN, OUTSIDE OF MAP LIMITS)

RM 3047 BRASS CAP IN HANDHOLE,
@ 45 FEET SOUTH OF INTERSECTION OF
REEMS AND McDOWELL ROADS,
SOUTHEAST CORNER SECTION 31, T2N, R1W
ELEV. = 1002.53
FIRM MAP# 04013C2060 F
(NOT SHOWN, OUTSIDE OF MAP LIMITS)

NOTE: VERTICAL DATUM NAVD 1988
AERIAL SURVEY FLIGHT DATE: 5-8-02

LEGEND:

138+94.6	CROSS SECTION NUMBER
FP=947.15	FLOODPLAIN WATER SURFACE ELEVATION = 947.15
FW=947.15	FLOODWAY WATER SURFACE ELEVATION = 947.15
Q100=3200cfs	100-YEAR PEAK DISCHARGE = 3200 CUBIC FEET PER SEC.
947	BASE FLOOD ELEVATION
	CHANNEL CENTERLINE
	POST PROJECT CONDITION FLOODWAY BOUNDARY
	POST PROJECT CONDITION FLOODPLAIN BOUNDARY
	EFFECTIVE FLOODWAY BOUNDARY
	EFFECTIVE FLOODPLAIN BOUNDARY
	PROPOSED CHANNEL ROW
ZONE AE	FLOOD INSURANCE RATE ZONE

NO.	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
I-10 TO LOWER BUCKEYE ROAD
CONTRACT NO. FCD 2001 C023, WOOD/PATEL NO. 011489

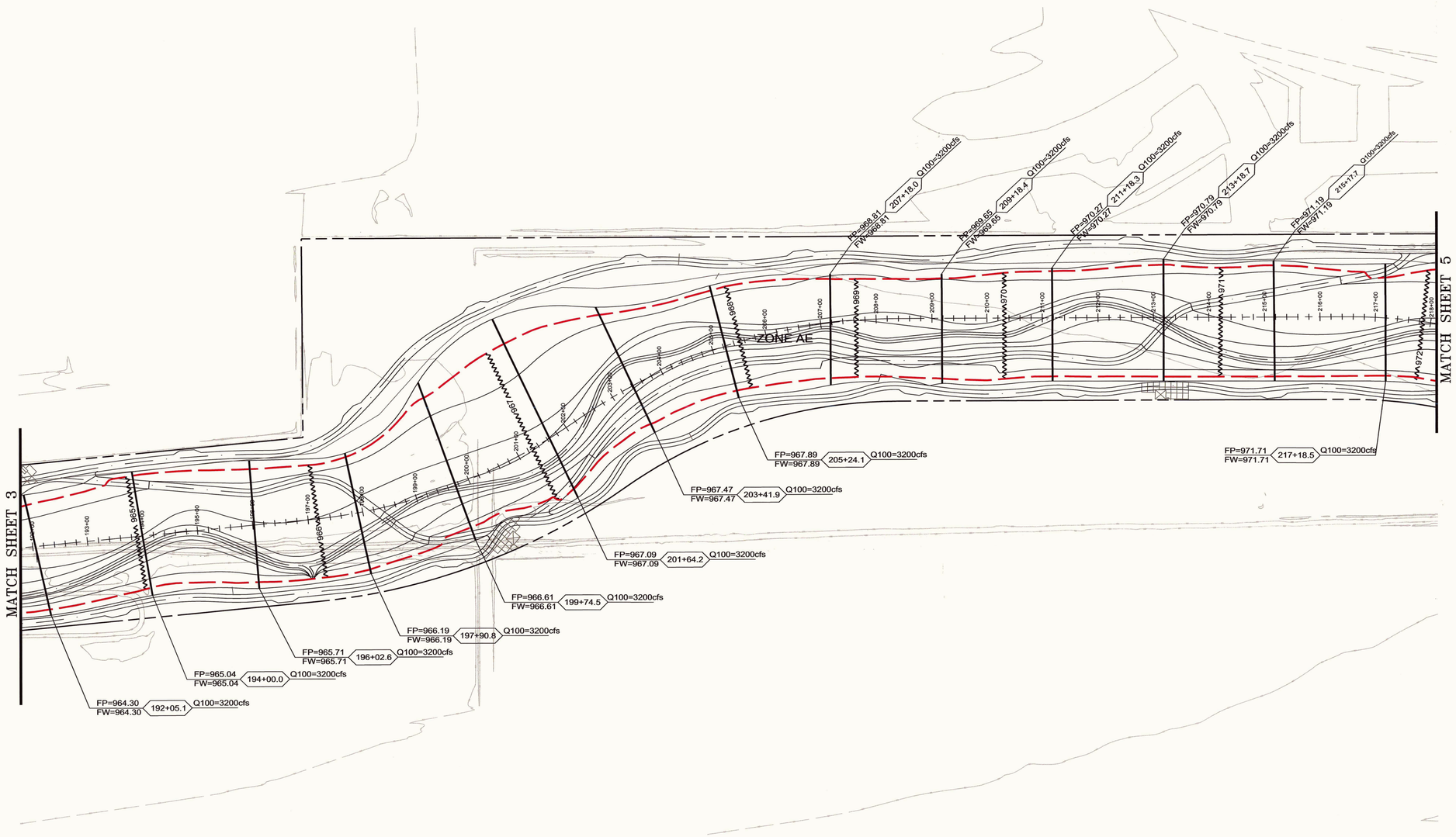
Registered Professional Engineer (Civil)
CERTIFICATE NO. 32854
SHIMIN ZOU
Date Signed 5-7-04
ARIZONA, U.S.A.

	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	J. LOCKETT	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

EXHIBIT C
STUDY WORK MAPS

SHEET 3 OF 7



1 inch = 100 ft.

REFERENCE MARK RM:

RM 3048 +-INCH IRON PIN IN HANDHOLE,
BULLARD AVENUE AND VAN BUREN STREET,
SOUTHEAST CORNER SECTION 5, T1N, R1W
ELEV. = 987.78
FIRM MAP# 04013C2080 H
(NOT SHOWN, OUTSIDE OF MAP LIMITS)

RM 3047 BRASS CAP IN HANDHOLE,
@ 45 FEET SOUTH OF INTERSECTION OF
REEMS AND McDOWELL ROADS,
SOUTHEAST CORNER SECTION 31, T2N, R1W
ELEV. = 1002.53
FIRM MAP# 04013C2060 F
(NOT SHOWN, OUTSIDE OF MAP LIMITS)

NOTE: VERTICAL DATUM NAVD 1988
AERIAL SURVEY FLIGHT DATE: 5-8-02

LEGEND:

138+94.6	CROSS SECTION NUMBER
FP=947.15	FLOODPLAIN WATER SURFACE ELEVATION = 947.15
FW=947.15	FLOODWAY WATER SURFACE ELEVATION = 947.15
Q100=3200cfs	100-YEAR PEAK DISCHARGE = 3200 CUBIC FEET PER SEC.
947	BASE FLOOD ELEVATION
	CHANNEL CENTERLINE
	POST PROJECT CONDITION FLOODWAY BOUNDARY
	POST PROJECT CONDITION FLOODPLAIN BOUNDARY
	EFFECTIVE FLOODWAY BOUNDARY
	EFFECTIVE FLOODPLAIN BOUNDARY
	PROPOSED CHANNEL ROW
ZONE AE	FLOOD INSURANCE RATE ZONE

NO.	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
I-10 TO LOWER BUCKEYE ROAD
CONTRACT NO. FCD 2001 C023, WOOD/PATEL NO. 011489

Registered Professional Engineer (Civil) CERTIFICATE NO. 32854 SHIMIN ZOU Date Signed 5-26-04 ARIZONA, U.S.A.

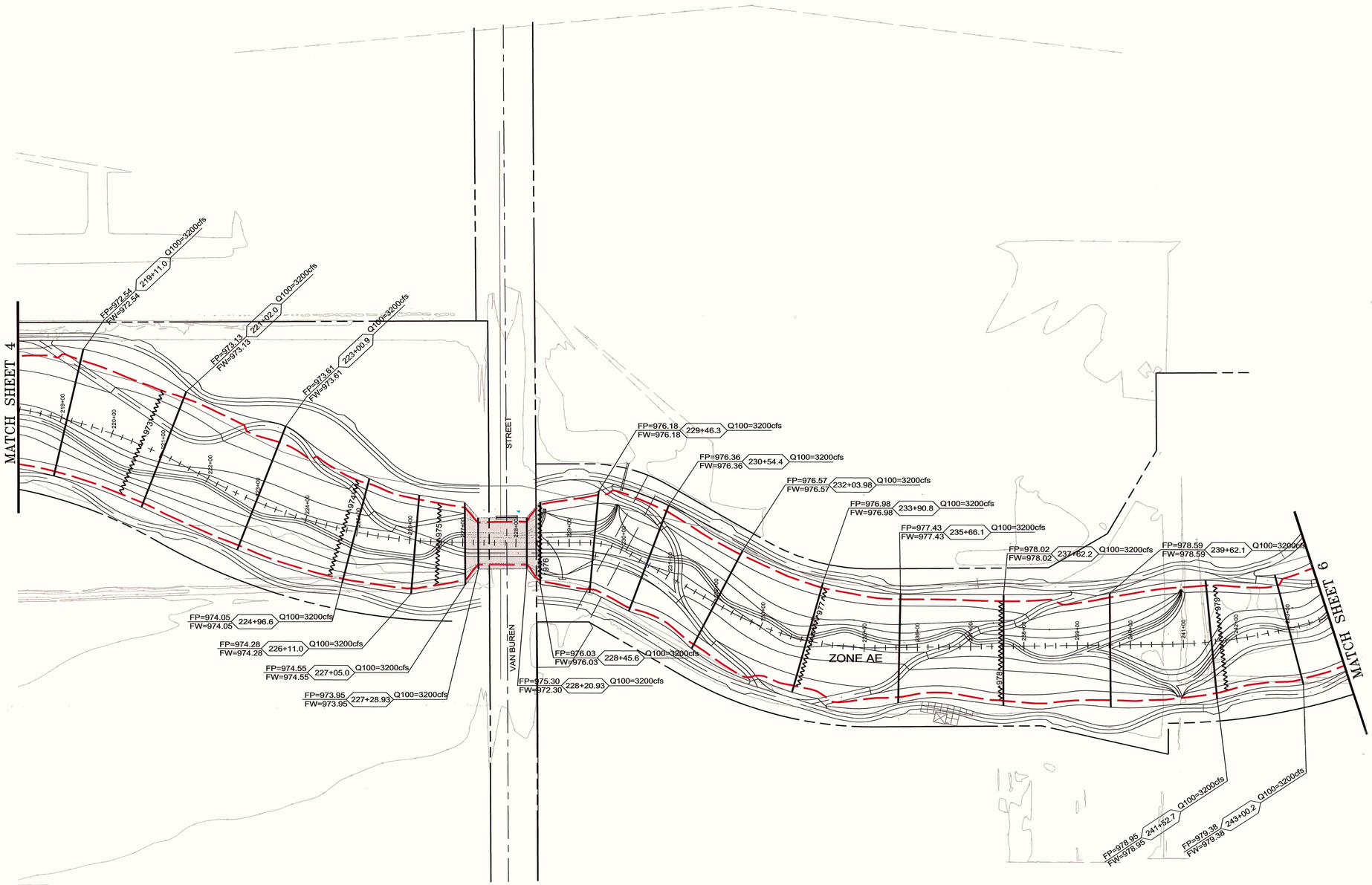
	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	J. LOCKETT	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

EXHIBIT C
STUDY WORK MAPS

SHEET 4 OF 7

W:\2001Projects\011489 Bullard\CLOMR\Drawings\Map4of7.dwg



1 inch = 100 ft.

REFERENCE MARK RM:

RM 3048 +-INCH IRON PIN IN HANDHOLE,
BULLARD AVENUE AND VAN BUREN STREET,
SOUTHEAST CORNER SECTION 5, T1N, R1W
ELEV. = 987.78
FIRM MAP# 04013C2080 H
(NOT SHOWN, OUTSIDE OF MAP LIMITS)

RM 3047 BRASS CAP IN HANDHOLE,
@ 45 FEET SOUTH OF INTERSECTION OF
REEMS AND McDOWELL ROADS,
SOUTHEAST CORNER SECTION 31, T2N, R1W
ELEV. = 1002.53
FIRM MAP# 04013C2060 F
(NOT SHOWN, OUTSIDE OF MAP LIMITS)

NOTE: VERTICAL DATUM NAVD 1988
AERIAL SURVEY FLIGHT DATE: 5-8-02

LEGEND:

138+94.6	CROSS SECTION NUMBER
FP=947.15	FLOODPLAIN WATER SURFACE ELEVATION = 947.15
FW=947.15	FLOODWAY WATER SURFACE ELEVATION = 947.15
Q100=3200cfs	100-YEAR PEAK DISCHARGE = 3200 CUBIC FEET PER SEC.
947	BASE FLOOD ELEVATION
	CHANNEL CENTERLINE
	POST PROJECT CONDITION FLOODWAY BOUNDARY
	POST PROJECT CONDITION FLOODPLAIN BOUNDARY
	EFFECTIVE FLOODWAY BOUNDARY
	EFFECTIVE FLOODPLAIN BOUNDARY
	PROPOSED CHANNEL ROW
ZONE AE	FLOOD INSURANCE RATE ZONE

NO.	REVISION	BY	DATE
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FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
I-10 TO LOWER BUCKEYE ROAD
CONTRACT NO. FCD 2001 C023, WOOD/PATEL NO. 011489

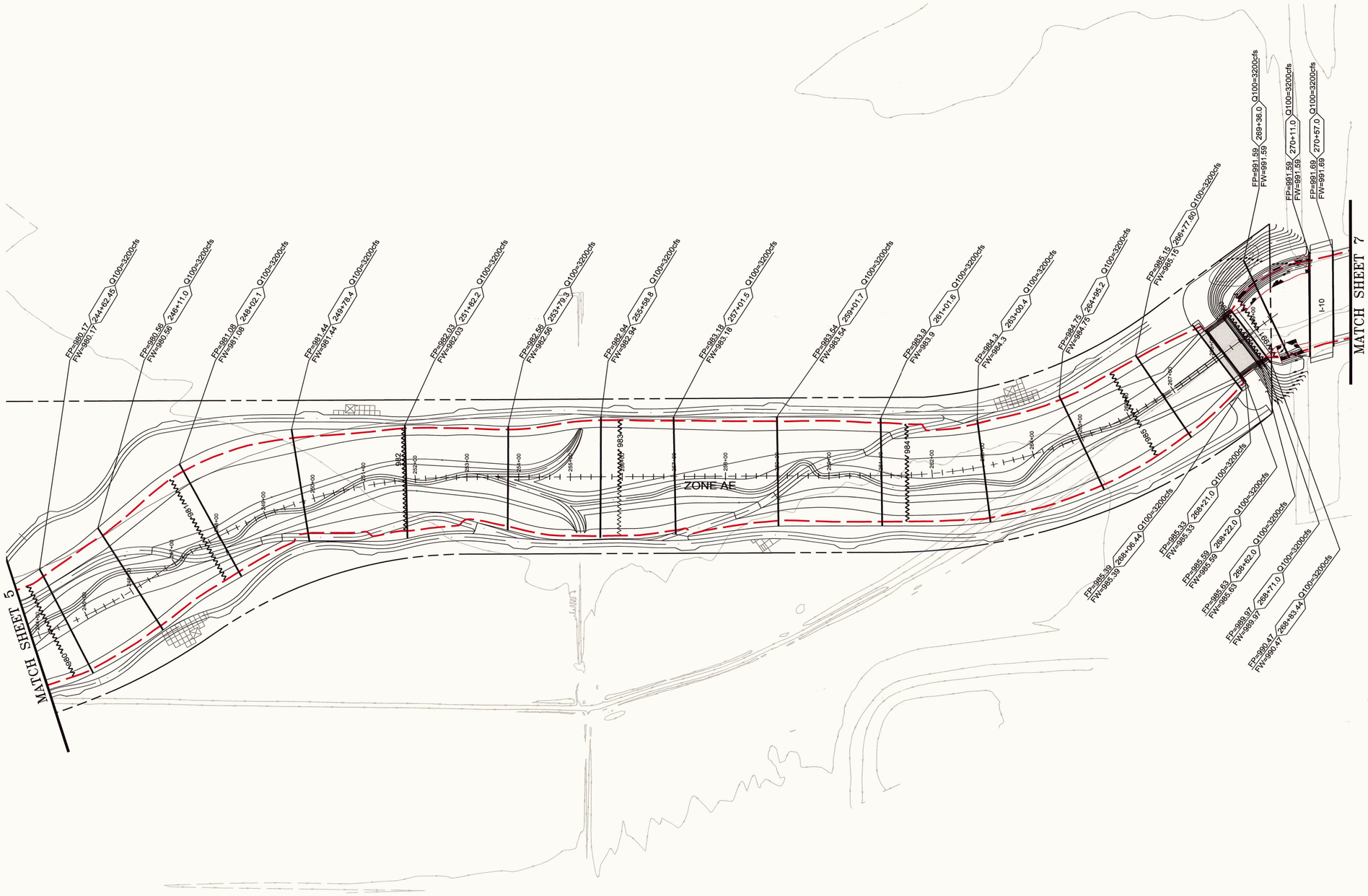
Registered Professional Engineer (Civil)
CERTIFICATE NO. 32854
SHIMIN ZOU
Date Signed 7-1-04
ARIZONA, U.S.A.

	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	J. LOCKETT	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

EXHIBIT C
STUDY WORK MAPS

SHEET 5 OF 7


MATCH SHEET 5
MATCH SHEET 7
ZONE AE
I-10
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FP=980.56 FW=980.56 246+11.0 Q100=3200cfs
FP=981.08 FW=981.08 248+02.1 Q100=3200cfs
FP=981.44 FW=981.44 249+76.4 Q100=3200cfs
FP=982.03 FW=982.03 251+82.2 Q100=3200cfs
FP=982.56 FW=982.56 253+79.3 Q100=3200cfs
FP=982.94 FW=982.94 255+58.8 Q100=3200cfs
FP=983.18 FW=983.18 257+01.5 Q100=3200cfs
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FP=991.59 FW=991.59 270+11.0 Q100=3200cfs
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FP=989.37 FW=989.37 268+71.0 Q100=3200cfs
FP=990.47 FW=990.47 268+83.44 Q100=3200cfs
FP=995.39 FW=995.39 268+06.44 Q100=3200cfs
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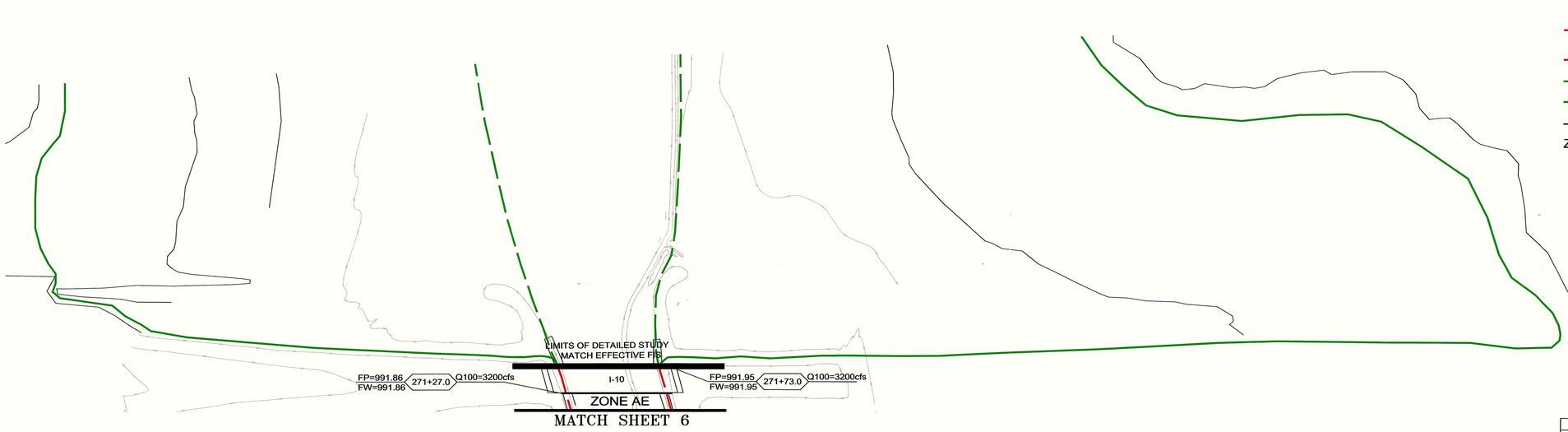

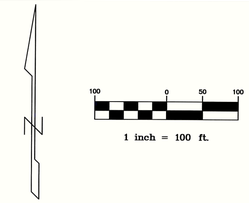

REFERENCE MARK RM:

RM 3048 +-INCH IRON PIN IN HANDHOLE,
BULLARD AVENUE AND VAN BUREN STREET,
SOUTHEAST CORNER SECTION 5, T1N, R1W
ELEV. = 987.78
FIRM MAP# 04013C2080 H
(NOT SHOWN, OUTSIDE OF MAP LIMITS)

RM 3047 BRASS CAP IN HANDHOLE,
@ 45 FEET SOUTH OF INTERSECTION OF
REEMS AND McDOWELL ROADS,
SOUTHEAST CORNER SECTION 31, T2N, R1W
ELEV. = 1002.53
FIRM MAP# 04013C2060 F
(NOT SHOWN, OUTSIDE OF MAP LIMITS)

NOTE: VERTICAL DATUM NAVD 1988
AERIAL SURVEY FLIGHT DATE: 5-8-02

LEGEND:

138+94.6	CROSS SECTION NUMBER
FP=947.15	FLOODPLAIN WATER SURFACE ELEVATION = 947.15
FW=947.15	FLOODWAY WATER SURFACE ELEVATION = 947.15
Q100=3200cfs	100-YEAR PEAK DISCHARGE = 3200 CUBIC FEET PER SEC.
947	BASE FLOOD ELEVATION
	CHANNEL CENTERLINE
	POST PROJECT CONDITION FLOODWAY BOUNDARY
	POST PROJECT CONDITION FLOODPLAIN BOUNDARY
	EFFECTIVE FLOODWAY BOUNDARY
	EFFECTIVE FLOODPLAIN BOUNDARY
	PROPOSED CHANNEL ROW
ZONE AE	FLOOD INSURANCE RATE ZONE

NO.	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
I-10 TO LOWER BUCKEYE ROAD
CONTRACT NO. FCD 2001 C023, WOOD/PATEL NO. 011489

Registered Professional Engineer (Civil)
CERTIFICATE NO. 32854
SHIMIN ZOU
Date Signed 5-27-04
ARIZONA, U.S.A.

	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	J. LOCKETT	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

EXHIBIT C
STUDY WORK MAPS

SHEET 7 OF 7

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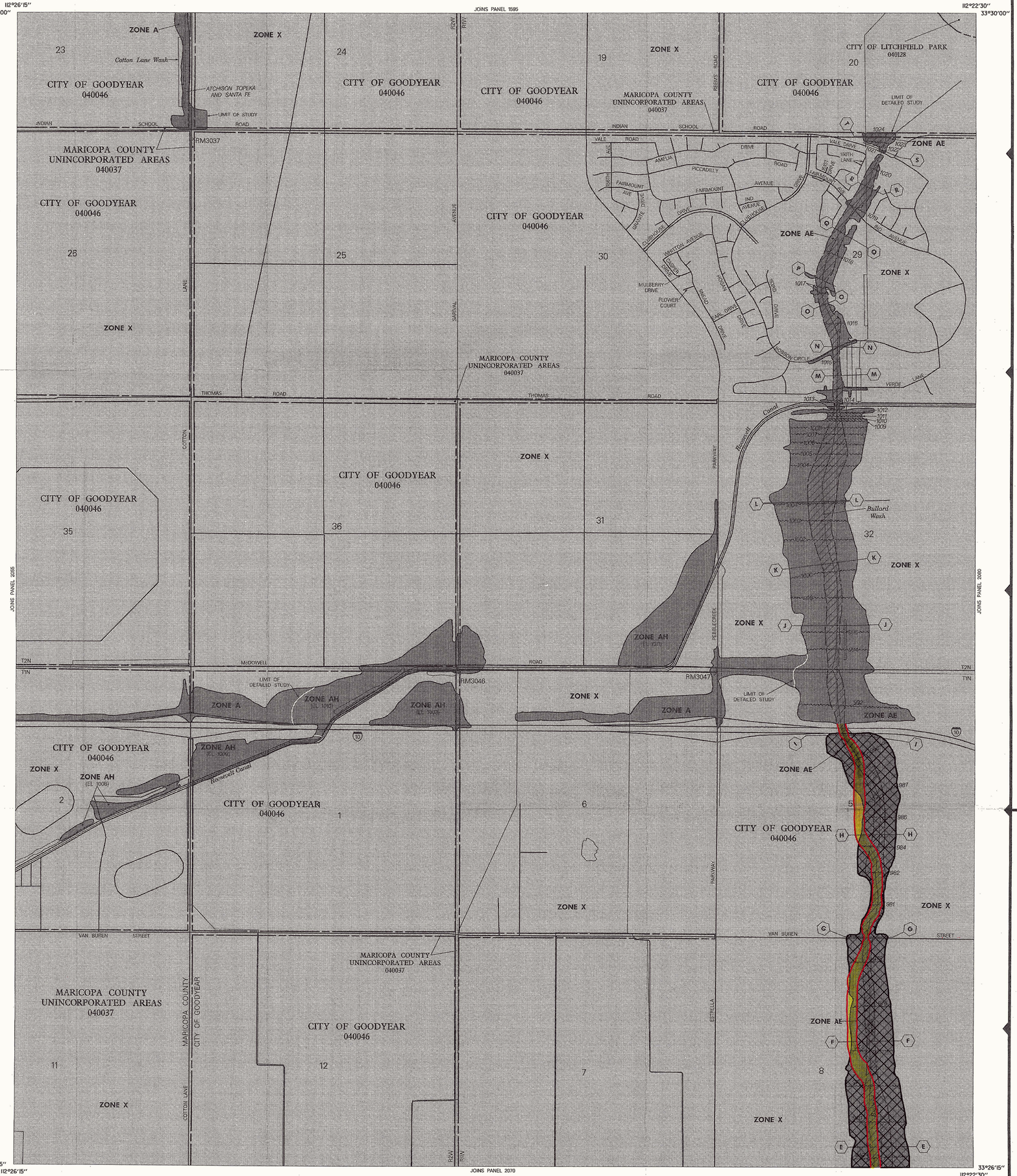
EXHIBIT D

Annotated FIRM Panels

ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION (FEET NGVD)	DESCRIPTION OF LOCATION
RM3037	1064.65	Iron rod in pothole, Cotton Lane and Indian School Road, southeast corner section 23, T2N, R2W.
RM3046	1012.43	Chiseled X on top of concrete headwall at southeast corner of intersection of Sarival Avenue and McDowell Road, near southeast corner section 36, T2N, R1W.
RM3047	1002.53	Brass cap in handhole, 945 feet south of intersection of Reems and McDowell Roads, southeast corner section 31, T2N, R1W.



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 flood 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 floodplain.
- **ZONE D** Areas in which flood hazards are undetermined.

UNDEVELOPED COASTAL BARRIERS

Identified 1983 | Identified 1990 | Otherwise Protected Areas

Coastal barrier areas are normally located within or adjacent to Special Flood Hazard Areas.

- Floodplain 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. See Map Index for Elevation Datum.
- D — D — Cross Section Line
- (EL 987) — Base Flood Elevation in Feet Where Uniform Within Zone. See Map Index for Elevation Datum.
- RM7 × — Elevation Reference Mark
- ● M2 — River Mile
- 97°07'30", 32°22'30" — Horizontal Coordinates Based on North American Datum of 1927 (NAD 27) Projection.

NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas. The community map repository should be consulted for more detailed data on BFE's, and for any information on floodway delineations, prior to use of this map for property purchase or construction purposes.

Areas of Special Flood Hazard (100-year flood) include Zones A, AE, A1-A30, AH, AO, A99, V, VE and V1-V30.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Refer to Floodway Data Table where floodway width is shown at 1/20 inch.

Corporate limits shown are current as of the date of this map. The user should contact appropriate community officials to determine if corporate limits have changed subsequent to the issuance of this map.

This map may incorporate approximate boundaries of Coastal Barrier Resource System Units and /or Otherwise Protected Areas established under the Coastal Barrier Improvement Act of 1990 (PL 101-591).

For community map revision history prior to countywide mapping, see Section 6.0 of the Flood Insurance Study Report.

For adjoining map panels and base map source see separately printed Map Index.

MAP REPOSITORY
Refer to Repository Listing on Map Index

EFFECTIVE DATE OF
COUNTYWIDE FLOOD INSURANCE RATE MAP:
APRIL 16, 1988

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL:
SEPTEMBER 30, 1995

Map revised July 19, 2001 to update corporate limits, to change base flood elevations, to add base flood elevations, to add Special Flood Hazard Areas, to change Special Flood Hazard Areas, to change zone designations, to update map format, to add roads and road names, and to incorporate previously issued Letters of Map Revision.

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

APPROXIMATE SCALE IN FEET
1000 0 1000

LEGEND

To obtain more detailed information in areas where Base Flood Elevations (BFE's) and /or floodways have been determined, users are encouraged to consult the Flood Profiles and Floodway Data tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFE's shown on the FIRM represent rounded whole-foot elevations and therefore may not exactly reflect the flood elevation data presented in the FIS. BFE's shown on the FIRM are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS should be utilized in conjunction with the FIRM for purposes of construction and /or floodplain management.

ERM elevations listed on this map were obtained and/or developed to establish vertical control for determination of flood elevations and floodplain boundaries portrayed on this map. Users should be aware that these ERM elevations may have changed since the publication of this map. To obtain up-to-date elevation information on National Geodetic Survey (NGS) ERM's shown on this map, please contact the Information Services Branch of the NGS at (301) 713-3242, or visit their website at www.ngs.noaa.gov. Map users should seek verification of non-NGS ERM monument elevations when using these elevations for construction or floodplain management purposes.

Coastal BFE's shown on this map may apply only landward of 0.0' NGVD. Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this community. Elevations shown in the Summary of Stillwater Elevations table should be used for construction, and /or floodplain management purposes when they are higher than the elevations shown on this FIRM.

NEW FLOODPLAIN ZONE AE

AREA REMOVED FROM ZONE AE

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 2060 OF 4350
(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS: COMMUNITY	NUMBER	PANEL	SUFFIX
GOODYEAR, CITY OF	040046	2060	F
LITCHFIELD PARK, CITY OF	040123	2060	F
MARICOPA COUNTY, UNINCORPORATED AREAS	040037	2060	F

EXHIBIT D
ANNOTATED
FIRM PANEL

MAP NUMBER
04013C2060 F

MAP REVISED:
JULY 19, 2001

Federal Emergency Management Agency

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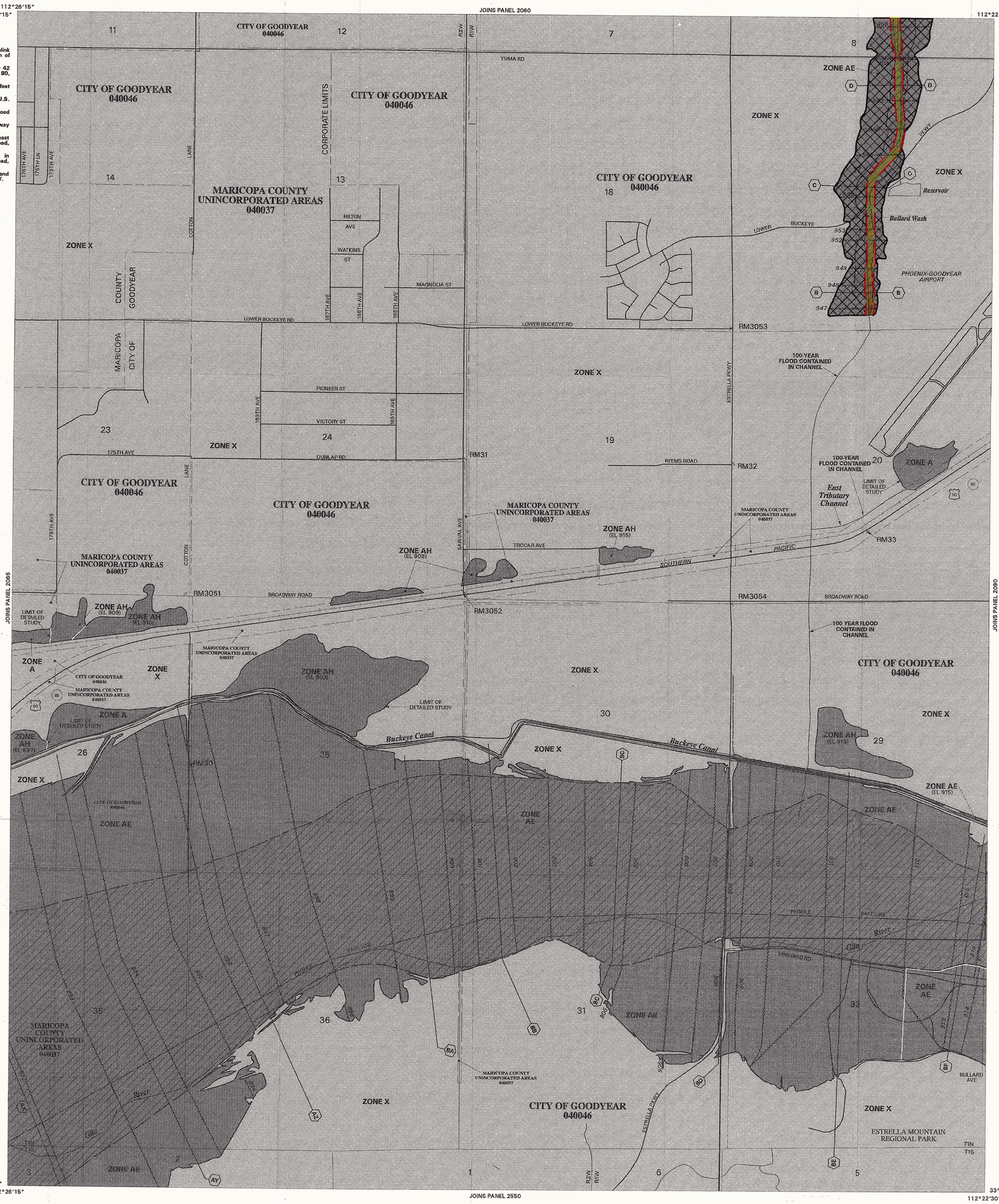
ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION (FEET NGVD)	DESCRIPTION OF LOCATION
RM30	895.65	ANPP lead plug No. 862 at northwest corner of chainlink fence on east side of Cotton Lane, 1130 feet south of Buckeye Canal.
RM31	935.81	U.S. Geological Survey brass cap in concrete cylinder 42 feet west of Sarival Avenue, 0.5 mile north of Route 80, marked GIN RM2.
RM32	934.97	Rim of handhole at centerline of Reems Road, 1800 feet north of U.S. Route 80.
RM33	916.54	AHD brass cap in south headwall of box culvert under U.S. Route 80, 3000 feet west of Bullard Avenue.
RM909	927.45	Brass cap in parapet at northeast corner of Bullard Road bridge over Gila River.
RM3051	912.90	1-inch open pipe in pothole, Cotton Lane and Broadway Road, southeast corner section 23, T1N, R1W.
RM3052	910.17	Chiseled X on concrete base power pole at northeast corner, intersection of Sarival Avenue and Broadway Road, near southeast corner section 24, T1N, R2W.
RM3053	962.11	Maricopa County Highway Department brass cap in handhole, Estrella Parkway and Lower Buckeye Road, southeast corner section 18, T1N, R1W.
RM3054	913.18	Brass cap in handhole, Estrella Parkway (Reems Road) and Broadway Road, southeast corner section 19, T1N, R1W.



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 flood 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 that 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 floodplain.
- **ZONE D** Areas in which flood hazards are undetermined.

UNDEVELOPED COASTAL BARRIERS

Identified 1983 | Identified 1990 | Otherwise Protected Areas

Coastal barrier areas are normally located within or adjacent to Special Flood Hazard Areas.

- Floodplain 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. See Map Index for Elevation Datum.
- D — D Cross Section Line
- (EL 987) Base Flood Elevation in Feet Where Uniform Within Zone. See Map Index for Elevation Datum.
- RM 7 Elevation Reference Mark
- M2 River Mile
- 97°07'30", 32°22'30" Horizontal Coordinates Based on North American Datum of 1927 (NAD 27) Projection.

NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas. The community map repository should be consulted for more detailed data on BFEs, and for any information on floodway delineations, prior to use of this map for property purchase or construction purposes.

Areas of Special Flood Hazard (100-year flood) include Zones A, AE, A1-A30, AH, AO, A99, V, VE and V1-V30.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Refer to Floodway Data Table where floodway width is shown at 1/20 inch.

Coastal base flood elevations apply only landward of 0.0 NGVD, and include the effects of wave action; these elevations may also differ significantly from those developed by the National Weather Service for hurricane evacuation planning.

Corporate limits shown are current as of the date of this map. The user should contact appropriate community officials to determine if corporate limits have changed subsequent to the issuance of this map.

This map may incorporate approximate boundaries of Coastal Barrier Resource System Units and/or Otherwise Protected Areas established under the Coastal Barrier Improvement Act of 1990 (PL 101-591).

For community map revision history prior to countywide mapping, see Section 6.0 of the Flood Insurance Study Report.

For adjoining map panels and base map source see separately printed Map Index.

MAP REPOSITORY

Refer to Repository Listing on Index Map

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP:

APRIL 15, 1988

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL:

SEPTEMBER 4, 1991, SEPTEMBER 30, 1996

Map revised July 19, 2001 to update corporate limits, to change base flood elevations, to add base flood elevations, to add Special Flood Hazard Areas, to change Special Flood Hazard Areas, to change zone designations, to update map format, to add roads and road names, and to incorporate previously issued Letters of Map Revision.

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

APPROXIMATE SCALE IN FEET

1000 0 1000

LEGEND

To obtain more detailed information in areas where Base Flood Elevations (BFEs) and/or floodways have been determined, users are encouraged to consult the Flood Profiles and Floodway Data tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations and therefore may not exactly reflect the flood elevation data presented in the FIS. For construction and/or floodplain management purposes, users are encouraged to use the flood elevation data presented in this FIS in conjunction with the data shown on the FIRM.

Elevation Reference Marks (ERM) elevations listed on this map were obtained and/or developed to establish vertical control for determination of flood elevations and floodplain boundaries portrayed on this map. Users should be aware that these ERM elevations may have changed since the publication of this map. To obtain up-to-date-elevation information on National Geodetic Survey (NGS) ERMs shown on this map, please contact the Information Services Branch of the NGS at (301) 713-3242, or visit their website at www.ngs.noaa.gov. Map users should seek verification of non-NGS ERM monument elevations when using these elevations for construction or floodplain management purposes.

Coastal BFE's shown on this map apply only landward of 0.0' National Geodetic Vertical Datum (NGVD). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this community. Elevations shown in the Summary of Stillwater Elevations table should be used for construction, and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

W:\2001\Projects\011449 Ballard\CLOMR\Drawing\AnnotFIRMPanel2070.dwg

NEW FLOODPLAIN ZONE AE

AREA REMOVED FROM ZONE AE

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 2070 OF 4350
(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
GOODYEAR, CITY OF	040046	2070	G
MARICOPA COUNTY, UNINCORPORATED AREAS	040037	2070	G

EXHIBIT D
ANNOTATED
FIRM PANEL

MAP NUMBER
04013C2070 G

MAP REVISED:
JULY 19, 2001

Federal Emergency Management Agency

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

IN COOPERATION WITH THE CITY OF GOODYEAR

PLANS FOR THE CONSTRUCTION OF

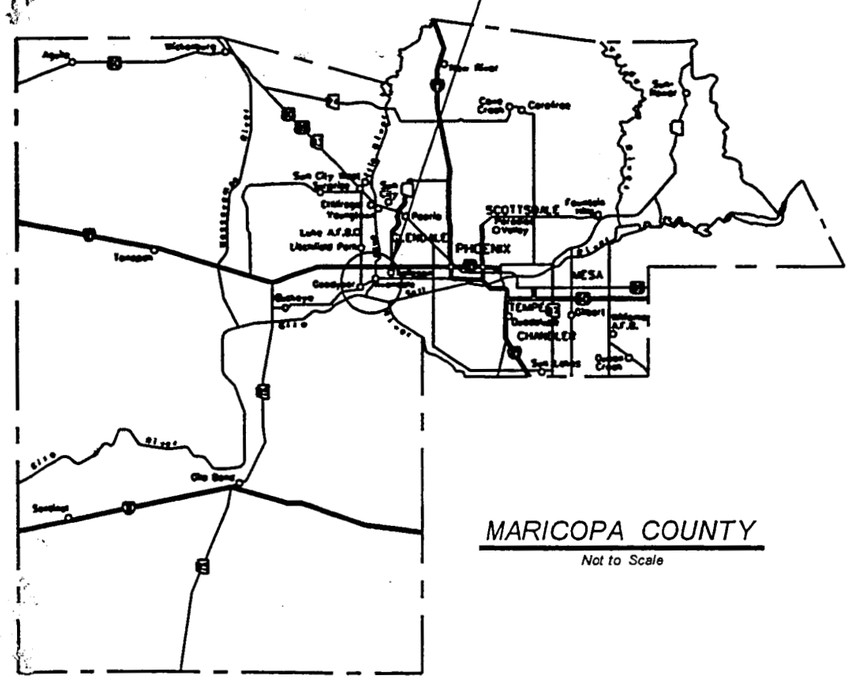
BULLARD WASH CHANNEL IMPROVEMENTS

PHASE I - YUMA ROAD TO LOWER BUCKEYE ROAD

PCN. 470 13 31

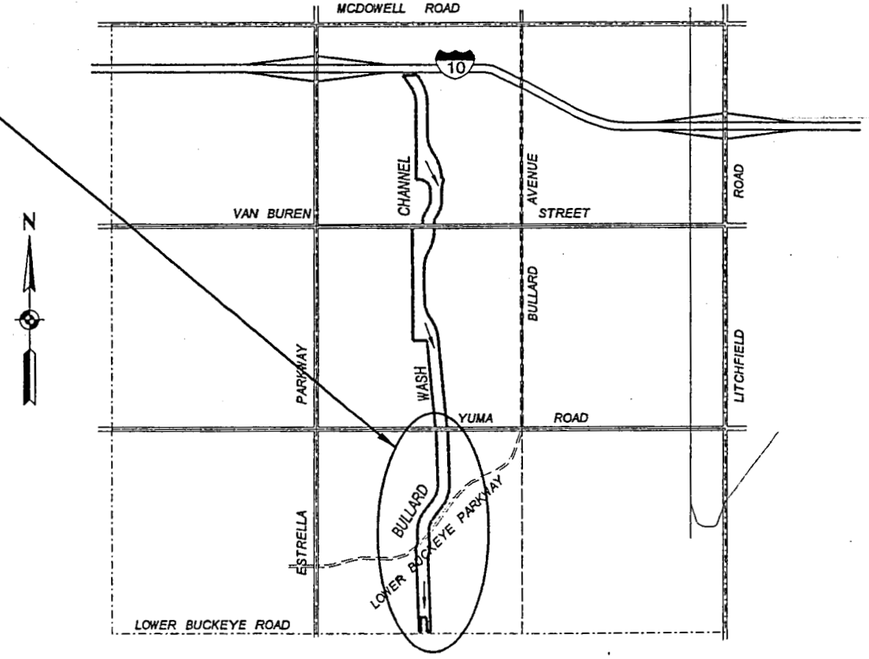
FCD CONTRACT NO. XXX CXXX

PROJECT LOCATION



MARICOPA COUNTY

Not to Scale



VICINITY MAP

Not to Scale

EXHIBIT B

CITY OF GOODYEAR — DATE

MARICOPA COUNTY
DEPARTMENT OF
ENVIRONMENTAL SERVICES — DATE

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

ISSUED FOR PUBLIC BIDDING BY:

MICHAEL S. ELLEGOOD, P.E.
CHIEF ENGINEER AND
GENERAL MANAGER

BOARD OF DIRECTORS OF
THE FLOOD CONTROL DISTRICT

DON STAPLEY - CHAIRMAN

DISTRICT 1	FULTON BROCK
DISTRICT 2	DON STAPLEY
DISTRICT 3	ANDY KUNASEK
DISTRICT 4	MAX W. WILSON
DISTRICT 5	MARY ROSE WILCOX

PRELIMINARY
90% SUBMITTAL
NOT FOR
CONSTRUCTION

TWO WORKING DAYS BEFORE YOU DIG, CALL 263-1100 BLUE STAKE

LEGEND

- BENCHMARK
- EXIST. SURVEY MONUMENT(BRASS CAP FLUSH)
- EXIST. SURVEY MONUMENT(BRASS CAP IN HAND HOLE)
- EXIST. COMBINED CURB & GUTTER - MAG DET. 220 TYPE "A"
- EXIST. CONCRETE SIDEWALK - COP STD. DET. P-1230
- EXISTING DITCH
- IRR — EXISTING IRRIGATION LINE (NOTE - PRIVATE, SALT RIVER OR R.I.D.)
- EXISTING IRRIGATION STRUCTURE
- EXISTING IRRIGATION STANDPIPE
- 12" W — EXISTING WATER LINE / SIZE
- EXISTING WATER METER & BOX
- EXISTING FIRE HYDRANT
- NEW OR RELOCATED FIRE HYDRANT BY CONTRACTOR
- EXISTING WATER VALVE OPERATING NUT ELEVATION
- 24" S — EXISTING SEWER LINE / SIZE
- EXISTING MANHOLE
- NEW MANHOLE
- CATCH BASIN, GUTTER INLET (LENGTH TO SCALE)
- CATCH BASIN, CURB INLET (LENGTH TO SCALE)
- CATCH BASIN, CURB & GUTTER INLET (LENGTH TO SCALE)
- 78" SD — EXISTING STORM DRAIN / SIZE
- NEW PIPE FOR STORM DRAIN OR IRRIGATION LINE
- CATV — EXISTING UNDERGROUND CABLE TELEVISION
- E — EXISTING UNDERGROUND ELECTRIC
- 4D — EXISTING UNDERGROUND TELEPHONE DUCTS (SPECIFY NUMBER)
- 2" G — EXISTING GAS LINE / SIZE
- UGT — EXISTING UNDERGROUND TELEPHONE CABLE
- EXISTING STREET SIGN
- EXISTING TRAFFIC SIGN
- EXISTING UTILITY POLE
- EXISTING WIRE FENCE
- EXISTING WOOD FENCE
- EXISTING CHAIN LINK FENCE
- MAIL BOX
- DOWN ANCHOR
- STREET LIGHT
- EASEMENT LINE
- EXISTING OR NEW R/W LINE
- PAVEMENT CENTER LINE AND OR MOUNUMENT LINE (℄ AND / OR ⅊)
- 2 — BORING HOLE / NUMBER (SEE SPECIAL PROVISIONS)
- TELEPHONE RISER
- WM — WATER SERVICE BOX
- MST — MID SPAN TAP (OH UTILITIES)
- WV — WATER VAULT
- T — TRAFFIC SIGNAL BOX
- TREE
- STOP — STOP SIGN
- MAILBOX
- GATE W/POSTS
- SM — SAWCUT & MATCH

STRUCTURAL NOTES

1. ALL CONSTRUCTION SHALL CONFORM TO MAG STANDARD DETAILS AND SPECIFICATIONS, DATED 1998, INCLUDING ALL REVISIONS THRU 2002.
2. DESIGN IS IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, DIVISION 1, 17TH EDITION, 2002.
3. REINFORCING STEEL SHALL CONFORM TO ASTM SPECIFICATION A615, GRADE 60
4. STRESSES - fs = 24,000 PSI - GRADE 60 REINFORCING STEEL
5. ALL REINFORCING STEEL PLACEMENT DIMENSIONS SHALL BE TO CENTER OF BARS UNLESS OTHERWISE NOTED.
6. ALL REINFORCING STEEL SHALL HAVE 2" CLEAR COVER UNLESS OTHERWISE NOTED.
7. STRUCTURAL STEEL SHALL CONFORM TO ASTM SPECIFICATION A36.
8. ALL WELDING SHALL CONFORM TO THE REQUIREMENTS OF THE AMERICAN WELDING SOCIETY, STRUCTURAL WELDING CODE, REVISED 1996.
9. DIMENSIONS SHALL NOT BE SCALED FROM DRAWINGS.
10. CHAMFER ALL EXPOSED CORNERS 3/4 " UNLESS OTHERWISE NOTED.
11. CONCRETE COMPRESSIVE STRENGTH SHALL BE 3000 PSI MAG, CLASS A, UNLESS NOTED OTHERWISE.

UTILITY NOTIFICATION

PHONE NO.	COMPANY	CONTACT
(602) 371-7989	APS	BOBBY GARZA
(602) 630-1393	QWEST	MATTHEW PHILLIPS
(602) 484-5342	SOUTHWEST GAS	SUE NEWSOM
(602) 447-0363	COX COMMUNICATIONS	KARL MCKAY
(623) 882-7954	CITY OF GOODYEAR	DAVID RAMIREZ

INDEX OF SHEETS

DRAWING NO.	TITLE	SHEET NO.
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G2	GENERAL NOTES AND SHEET INDEX	2
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GENERAL NOTES

1. ALL CONSTRUCTION TO BE PERFORMED ACCORDING TO APPLICABLE MAG STANDARD DETAILS AND MAG SPECIFICATIONS, DATED 1998 (INCLUDING ALL REVISIONS THROUGH 2002) AND THE CITY OF GOODYEAR ADDITIONS AND DELETIONS THROUGH 2002.
2. FACILITIES WHICH ARE NOT SPECIFICALLY LOCATED WITH ACTUAL HORIZONTAL AND VERTICAL CONTROLS ARE APPROXIMATE AND TO THE BEST AVAILABLE INFORMATION.
3. EXISTING UTILITIES AND OTHER FACILITIES HAVE BEEN PLACED ON THE PLANS FROM FIELD SURVEYS, EXISTING MAPS AND OTHER CURRENT PLANS WITHIN THE AREA OF THIS PROJECT. THE CONTRACTOR WILL DETERMINE THE EXACT LOCATION AND/OR ELEVATION OF EXISTING UTILITIES WHICH PERTAIN TO AND AFFECT THE CONSTRUCTION OF THIS PROJECT.
4. TWO (2) WORKING DAYS PRIOR TO EXCAVATING, THE CONTRACTOR SHALL CALL FOR BLUE STAKES AT THE BLUE STAKE CENTER (PHONE: 602-263-1100).
5. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS PRIOR TO CONSTRUCTION.
6. THE FLOOD CONTROL DISTRICT OR CITY OF GOODYEAR IS NOT RESPONSIBLE FOR LIABILITY ACCRUED DUE TO DELAYS AND/OR DAMAGE TO UTILITIES IN CONJUNCTION WITH THIS CONSTRUCTION.
7. ANY WORK PERFORMED WITHOUT THE APPROVAL OF THE FLOOD CONTROL DISTRICT AND/OR THE ENGINEER AND ALL WORK AND MATERIALS NOT IN CONFORMANCE WITH THE SPECIFICATIONS IS SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTOR'S EXPENSE.
8. THE ENGINEER WILL DETERMINE THE NUMBER AND LOCATION OF THE REQUIRED COMPACTION TESTS FOR STRUCTURE BACKFILL.
9. TRAFFIC CONTROL SHALL BE MAINTAINED IN ACCORDANCE WITH THE CITY OF PHOENIX TRAFFIC BARRACADE MANUAL, 1998. FILL IN ANY GAPS WITH M.A.G. SPECIFICATION 401, PART VI OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, MILLENIUM EDITION WITH INCORPORATED REVISION NO. 1 CHANGES DATES DECEMBER 28, 2001.
10. CONTRACTOR SHALL REPLACE PAVEMENT TO THE EXISTING GRADES SHOWN ON THE PLANS.
11. EXACT POINT OF MATCHING TERMINATION AND OVERLAY WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
12. NO JOB WILL BE CONSIDERED COMPLETED UNTIL CURBS, PAVEMENT AND SIDEWALKS HAVE BEEN SWEPT CLEAN OF ALL DIRT AND DEBRIS.
13. PRIOR TO FINAL APPROVAL AND ACCEPTANCE OF THE WORK, THE CONTRACTOR WILL BE REQUIRED TO CLEAN ADJACENT (OFF-PROJECT) ROADWAYS USED DURING THE COURSE OF CONSTRUCTION.

ABBREVIATIONS

CSTR	CONSTRUCTION
DESC	DESCRIPTION
S	SLOPE
FT/FT	FEET/FOOT
OHE	OVERHEAD ELECTRIC
INV	INVERT ELEVATION
FND	FOUND
PL	PROPERTY LINE
TCE	TEMPORARY CONSTRUCTION EASEMENT
TW	TOP OF WALL
TN	TOP OF NUT
CL	CENTER LINE
ML	MONUMENT LINE
ROW	RIGHT OF WAY
DE	DRAINAGE EASEMENT

PROJECT BENCHMARKS

REBAR IN HANDHOLE
BULLARD AVENUE AND
VAN BUREN STREET
EL = 987.77
N=45882.226
E=60292.901

SECTION LETTER OR DETAIL NUMBER

SHEET NUMBER TO LOCATE

NO.	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

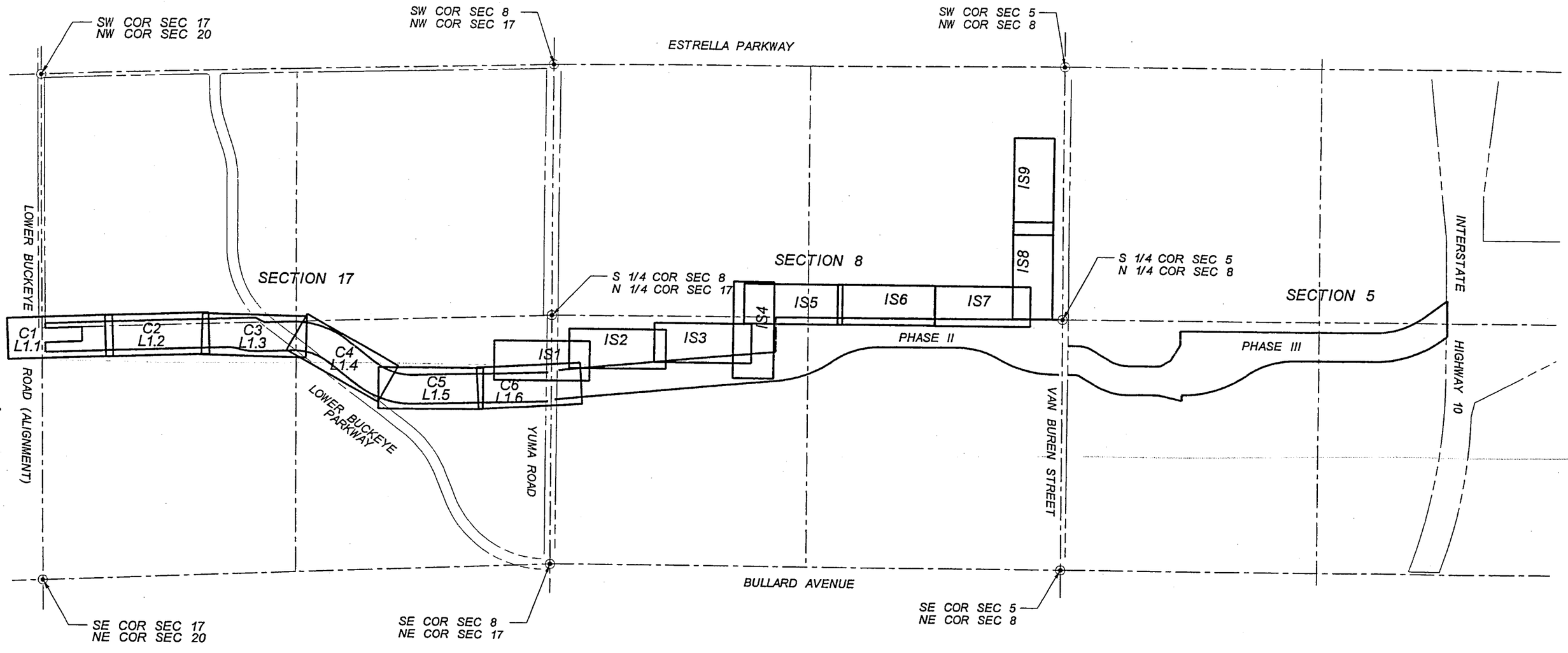
BULLARD WASH CHANNEL IMPROVEMENTS
PHASE I - YUMA ROAD TO LOWER BUCKEYE ROAD
CONTRACT NO. XXX CXXX

PRELIMINARY
90% SUBMITTAL
NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D. HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. G2 | GENERAL NOTES & INDEX OF SHEETS | SHEET 2 OF 73



N

250 0 250 500
Scale in Feet

NO.	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
PHASE I - YUMA ROAD TO LOWER BUCKEYE ROAD
CONTRACT NO. XXX CXXX

PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION

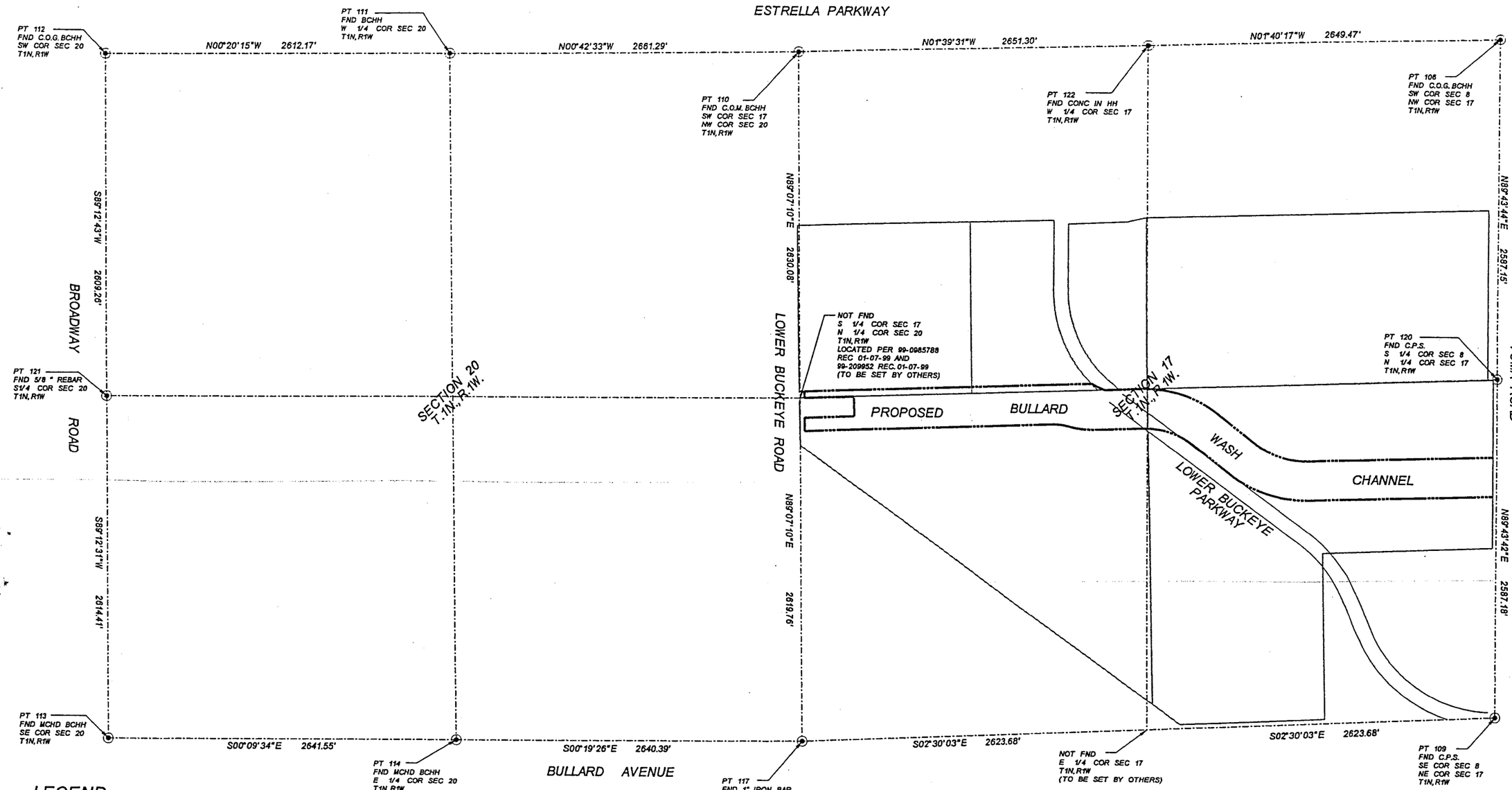
	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D. HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

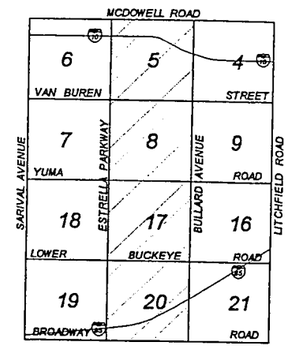
WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. G3

KEY MAP

SHEET 3 OF 73





VICINITY MAP
N.T.S.

LEGEND

⊙	FOUND SURVEY MONUMENT AS NOTED
FND	FOUND
SEC.	SECTION
COR.	CORNER
MCHD	MARICOPA COUNTY HIGHWAY DEPARTMENT
BCHH	BRASS CAP IN HANDHOLE
I.P.	IRON PIPE
R.R.	RAILROAD
CONC	CONCRETE
C.P.S.	COTTON PICKER SPINDLE
HH	HANDHOLE
C.O.G.	CITY OF GOODYEAR
C.O.M.	CITY OF MESA
ELEV.	ELEVATION
I - FEET	INTERNATIONAL FEET

CERTIFICATION

THIS RESULTS OF SURVEY WAS PREPARED UNDER MY DIRECTION BASED ON FIELD WORK PERFORMED DURING AUGUST 2002, AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

RESULTS OF SURVEY

PROPOSED BULLARD WASH (SECTION SURVEY)
THROUGH SECTIONS 5, 8, 17 AND 20 OF TOWNSHIP 1 NORTH,
RANGE 1 WEST, GILA AND SALT RIVER MERIDIAN TOWNSHIP,
CITY OF GOODYEAR, MARICOPA COUNTY, ARIZONA

NOTES

1. THE **BASIS OF BEARING** IS THE WEST LINE OF THE NORTHWEST QUARTER OF SECTION 8, TOWNSHIP 1 NORTH, RANGE 1 WEST OF THE GILA AND SALT RIVER MERIDIAN, ACCORDING TO THE FINAL PLAT OF "CENTERRA" AS RECORDED IN BOOK 533, PAGE 37, MARICOPA COUNTY RECORDS, USING A BEARING OF SOUTH 00 DEGREES 23 MINUTES 15 SECONDS EAST.

2. ANY DISTANCES, BEARINGS, AND DESCRIPTIONS, ETC., WHICH MAY VARY FROM THE PROVISIONS OF THE RECORD INFORMATION NOTED ABOVE REFLECT ACTUAL MEASURED DATA, OR THE BEST INTERPRETATION OF THE UNDERSIGNED.

3. THIS SURVEY WAS PERFORMED UTILIZING GLOBAL POSITIONING SYSTEM EQUIPMENT. THE MONUMENTS LOCATED ARE WITHIN THE POSITIONAL TOLERANCES AS OUTLINED IN THE ARIZONA BOUNDARY SURVEY MINIMUM STANDARDS.

4. ALL BEARINGS AND DISTANCES SHOWN HERE REPRESENT ACTUAL MEASURED GROUND DISTANCES BASED ON THE BASIS OF BEARING INDICATED IN NOTE 1 ABOVE AND ARE NOT TO BE CONSTRUED AS STATE PLANE DATA.

NO.	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

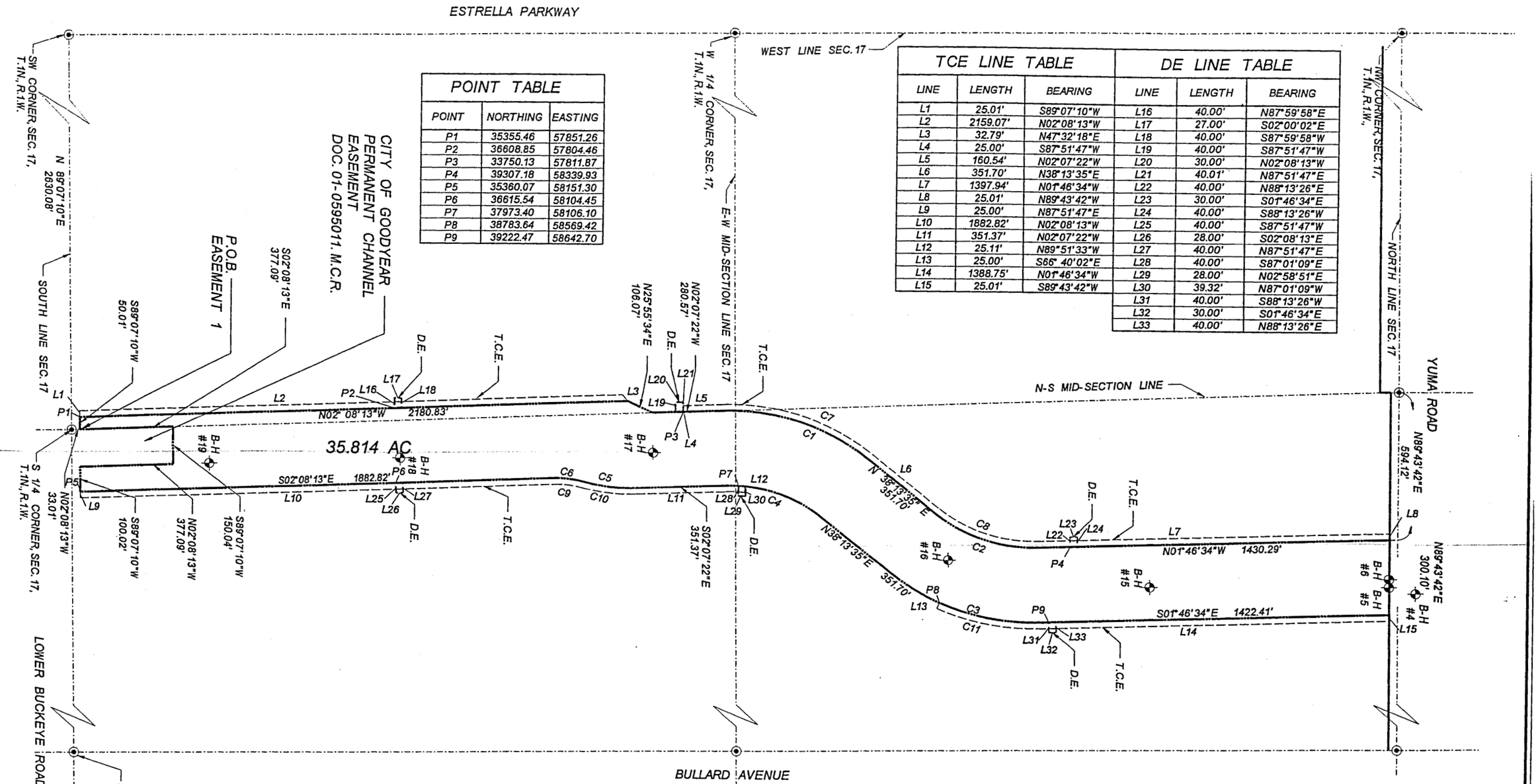
BULLARD WASH CHANNEL IMPROVEMENTS
PHASE I - YUMA ROAD TO LOWER BUCKEYE ROAD
CONTRACT NO. XXX CXXX

PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D. HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. G4 | HORIZONTAL & VERTICAL CONTROL | SHEET 4 OF 73



POINT TABLE

POINT	NORTHING	EASTING
P1	35355.46	57851.26
P2	36608.85	57804.46
P3	33750.13	57811.87
P4	39307.18	58339.93
P5	35360.07	58151.30
P6	36615.54	58104.45
P7	37973.40	58106.10
P8	38783.64	58569.42
P9	39222.47	58642.70

TCE LINE TABLE

LINE	LENGTH	BEARING
L1	25.01'	S89°07'10"W
L2	2159.07'	N02°08'13"W
L3	32.79'	N47°32'18"E
L4	25.00'	S87°51'47"W
L5	160.54'	N02°07'22"W
L6	351.70'	N38°13'35"E
L7	1397.94'	N01°46'34"W
L8	25.01'	N89°43'42"W
L9	25.00'	N87°51'47"E
L10	1882.82'	N02°08'13"W
L11	351.37'	N02°07'22"W
L12	25.11'	N89°51'33"W
L13	25.00'	S66°40'02"E
L14	1388.75'	N01°46'34"W
L15	25.01'	S89°43'42"W

DE LINE TABLE

LINE	LENGTH	BEARING
L16	40.00'	N87°59'58"E
L17	27.00'	S02°00'02"E
L18	40.00'	S87°59'58"W
L19	40.00'	S87°51'47"W
L20	30.00'	N02°08'13"W
L21	40.01'	N87°51'47"E
L22	40.00'	N88°13'26"E
L23	30.00'	S01°46'34"E
L24	40.00'	S88°13'26"W
L25	40.00'	S87°51'47"W
L26	28.00'	S02°08'13"E
L27	40.00'	N87°51'47"E
L28	40.00'	S87°01'09"E
L29	28.00'	N02°58'51"E
L30	39.32'	N87°01'09"W
L31	40.00'	S88°13'26"W
L32	30.00'	S01°46'34"E
L33	40.00'	N88°13'26"E

ROW CURVE TABLE

CURVE	DELTA	RADIUS	ARC
C1	40°20'57"	881.00'	620.42'
C2	40°00'09"	619.00'	432.17'
C3	40°00'09"	919.00'	641.62'
C4	40°20'57"	581.00'	409.15'
C5	17°18'24"	700.00'	211.44
C6	17°19'15"	400.00'	120.92'

TCE CURVE TABLE

CURVE	DELTA	RADIUS	ARC
C7	40°20'57"	906.00'	638.03'
C8	40°00'09"	594.00'	414.72'
C9	17°19'15"	375.00'	113.36'
C10	17°18'24"	725.00'	218.99'
C11	25°06'32"	944.00'	413.69'

LEGEND

- BORING HOLE LOCATION
- FOUND SURVEY MONUMENT AS NOTED

FND	FOUND
SEC.	SECTION
COR.	CORNER
MCHD	MARICOPA COUNTY HIGHWAY DEPARTMENT
BCHH	BRASS CAP IN HANDHOLE
I.P.	IRON PIPE
R.R.	RAILROAD
CONC	CONCRETE
C.P.S.	COTTON PICKER SPINDLE
HH	HANDHOLE
C.O.G.	CITY OF GOODYEAR
C.O.M.	CITY OF MESA
ELEV.	ELEVATION
I - FEET	INTERNATIONAL FEET
D.E.	DRAINAGE EASEMENT
T.C.E.	TEMPORARY CONSTRUCTION EASEMENT

N 100 0 100 200 Scale in Feet

NO.	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

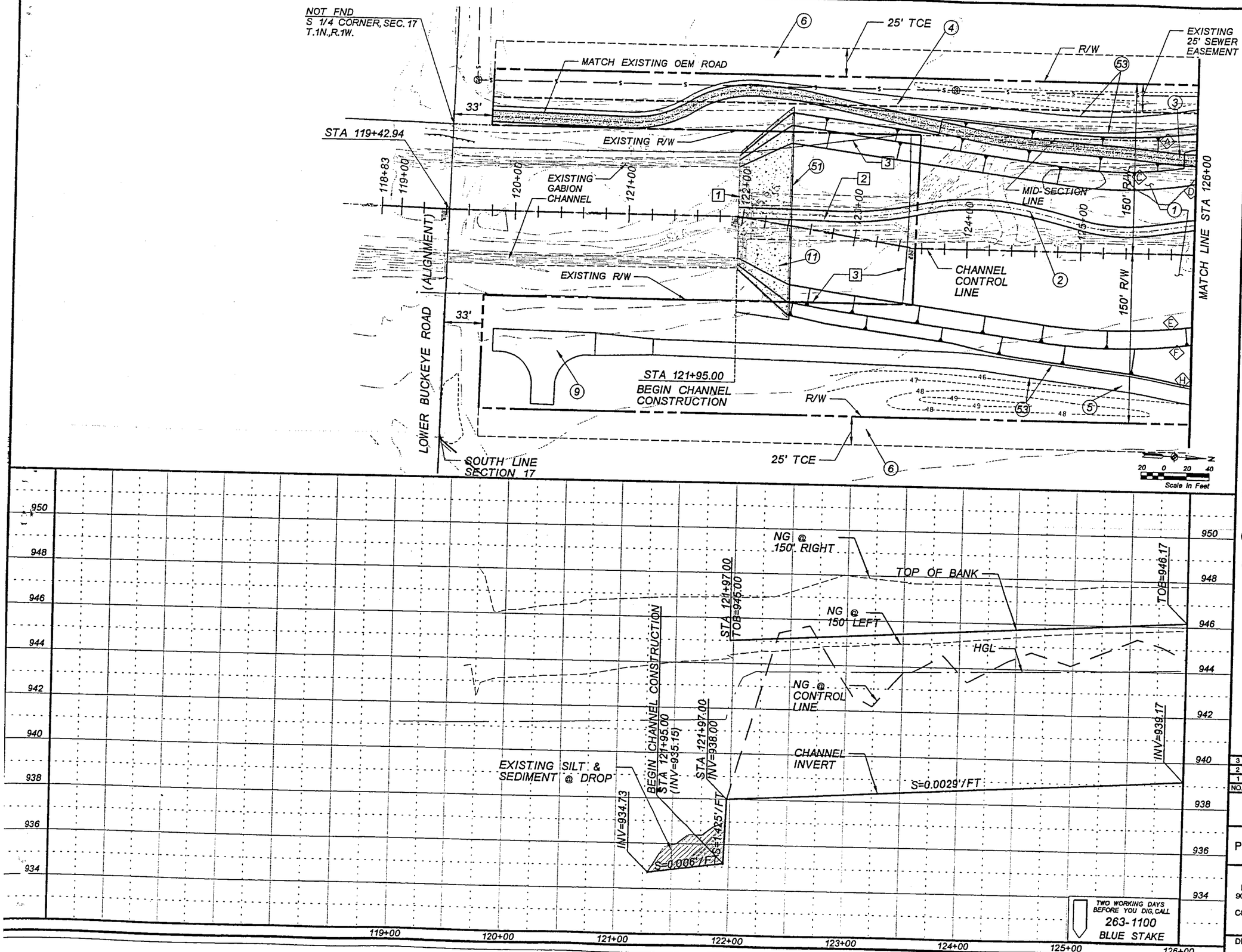
BULLARD WASH CHANNEL IMPROVEMENTS
PHASE I - YUMA ROAD TO LOWER BUCKEYE ROAD
CONTRACT NO. XXX CXXX

PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D. HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. G5 | ROW AND TCE CONTROL | SHEET 5 OF 73



REMOVE

1. REMOVE EXISTING GABION DROP STRUCTURE AND SEDIMENT AT DROP.
2. REMOVE CONCRETE INLET CHANNEL (138 LF).
3. REMOVE 3 WIRE FENCE (FROM STA 121+95 NORTH).

CONSTRUCT

1. CONSTRUCT EARTHEN CHANNEL PER TYPICAL SECTION, DRAWING #G22.
2. CONSTRUCT CONCRETE TAILWATER SWALE PER DETAIL ON DRAWING #D7. (91 C.Y.)
3. CONSTRUCT CONCRETE MULTI-USE PATH PER DETAIL ON DRAWING #D6. (6400 S.F.)
4. CONSTRUCT WEST MAINTENANCE ROAD PER DETAIL ON DRAWING #D5. (5520 S.F.)
5. CONSTRUCT EAST MAINTENANCE ROAD PER DETAIL ON DRAWING #D5. (8680 S.F.)
6. CONSTRUCT FARM ROAD PER TYPICAL SECTION, DRAWING #G22.
9. CONSTRUCT HAMMERHEAD (COG G-3242) TRANSITION 14' MAINTENANCE ROAD TO 20' WIDTH HAMMERHEAD WITHIN 50'. (1 EA)
11. CONSTRUCT CONCRETE TRANSITION SECTION AT EXISTING CHANNEL PER DETAILS ON DRAWING #D1. (1 EA)
51. INSTALL NEW 3 WIRE FENCE AROUND TRANSITION STRUCTURE. (298 LF)
53. CONSTRUCT CONCRETE RIBBON CURB PER DETAIL ON DRAWING #D5.

NO.	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
PHASE I - YUMA ROAD TO LOWER BUCKEYE ROAD
FCD CONTRACT NO. XXX CXXX

PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION

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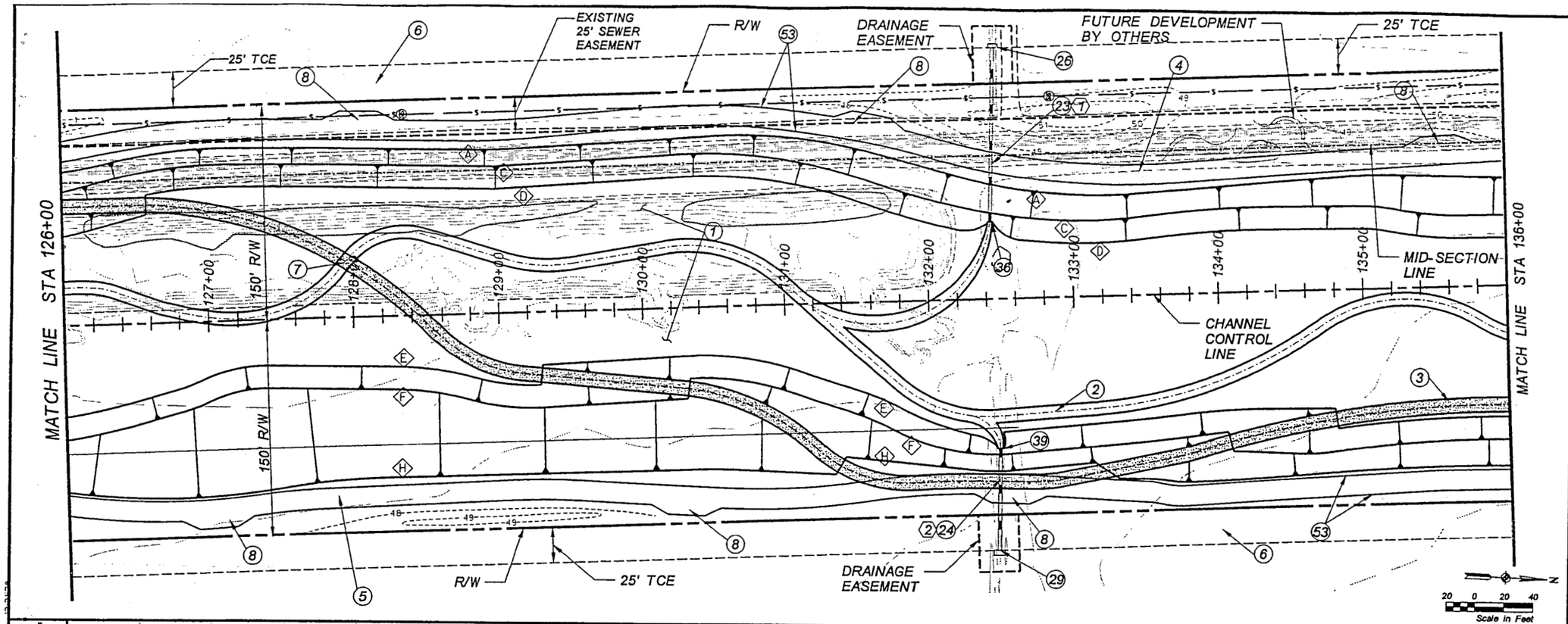
CHECKED	A. PATEL	03/04

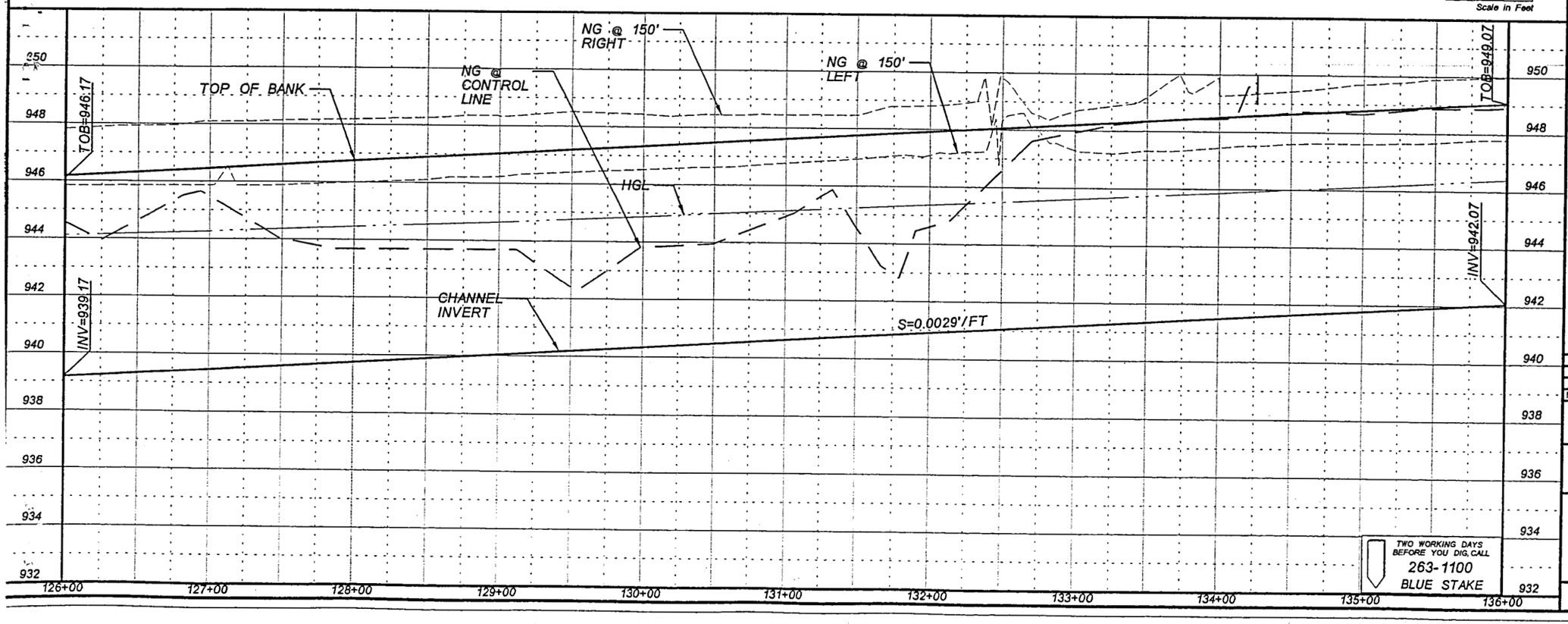
WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. C1

P.O.B. TO STA 126+00

SHEET 21 OF 73





REMOVE

CONSTRUCT

1. CONSTRUCT EARTHEN CHANNEL PER TYPICAL SECTION, DRAWING #G22.
2. CONSTRUCT CONCRETE TAILWATER SWALE PER DETAIL ON DRAWING #D7. (289 C.Y.)
3. CONSTRUCT CONCRETE MULTI-USE PATH PER DETAIL ON DRAWING #D6. (10,700 S.F.)
4. CONSTRUCT WEST MAINTENANCE ROAD PER DETAIL ON DRAWING #D5. (14,140 S.F.)
5. CONSTRUCT EAST MAINTENANCE ROAD PER DETAIL ON DRAWING #D5. (12,880 S.F.)
6. CONSTRUCT FARM ROAD PER TYPICAL SECTION, DRAWING #G22.
7. CONSTRUCT MULTI-USE TRAIL/TAILWATER SWALE CROSSING PER DETAIL D10. (1 EACH)
8. CONSTRUCT MAINTENANCE ROAD PULLOUT PER DETAIL DRAWING #D8. (1 EACH)
23. INSTALL 24" TAILWATER PIPE. (121 L.F.)
24. INSTALL 30" TAILWATER PIPE. (70.5 L.F.)
26. CONSTRUCT 24" DROP INLET HEADWALL PER MAG STD DET 501-5 (SINGLE). (1 EACH)
29. CONSTRUCT 30" DROP INLET HEADWALL PER MAG STD DET 501-5 (SINGLE). (1 EACH)
36. CONSTRUCT 24" OUTLET HEADWALL PER MAG STD DET 501-4 (SINGLE). (1 EACH)
39. CONSTRUCT 30" OUTLET HEADWALL PER MAG STD DET 501-4 (SINGLE). (1 EACH)
53. CONSTRUCT CONCRETE RIBBON CURB PER DETAIL ON DRAWING #D5. (4040 L.F.)

(1) FOR SIDE DRAIN PROFILE SEE DRAWING #SD1

(2) FOR SIDE DRAIN PROFILE SEE DRAWING #SD1

NO.	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
PHASE I - YUMA ROAD TO LOWER BUCKEYE ROAD
FCD CONTRACT NO. XXX CXXX

PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION

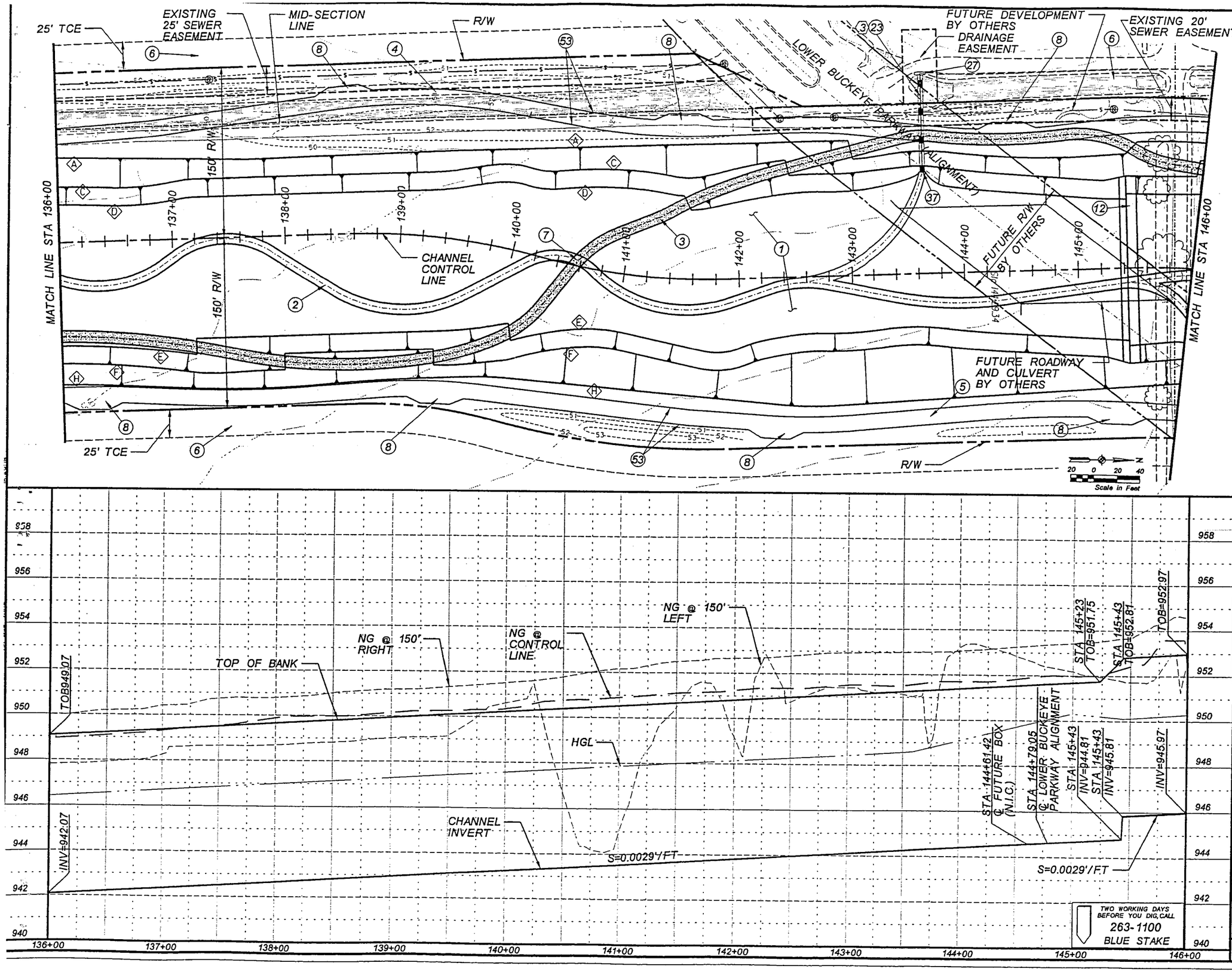
	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D.HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. C2

STA 126+00 TO 136+00

SHEET 22 OF 73



☐ REMOVE

☐ CONSTRUCT

(1) CONSTRUCT EARTHEN CHANNEL PER TYPICAL SECTION, DRAWING #G22.

(2) CONSTRUCT CONCRETE TAILWATER SWALE PER DETAIL ON DRAWING #D7. (281 C.Y.)

(3) CONSTRUCT CONCRETE MULTI-USE PATH PER DETAIL ON DRAWING #D6. (10,700 S.F.)

(4) CONSTRUCT WEST MAINTENANCE ROAD PER DETAIL ON DRAWING #D5. (12,580 S.F.)

(5) CONSTRUCT EAST MAINTENANCE ROAD PER DETAIL ON DRAWING #D5. (13,860 S.F.)

(6) CONSTRUCT FARM ROAD PER TYPICAL SECTION, DRAWING #G22.

(7) CONSTRUCT MULTI-USE TRAIL/TAILWATER SWALE CROSSING PER DETAIL D10. (1 EACH)

(8) CONSTRUCT MAINTENANCE ROAD PULLOUT PER DETAIL DRAWING #D8. (7 EACH)

(12) CONSTRUCT GRADE CONTROL STRUCTURE AT LOWER BUCKEYE PARKWAY PER DETAILS DRAWING #D2.

(23) INSTALL 24" TAILWATER PIPE. (172 L.F.)

(27) CONSTRUCT 24" DROP INLET HEADWALL PER MAG STD DET 501-5 (DOUBLE). (1 EACH)

(37) CONSTRUCT 24" OUTLET HEADWALL PER MAG STD DET 501-4 (DOUBLE). (1 EACH)

(53) CONSTRUCT CONCRETE RIBBON CURB PER DETAIL ON DRAWING #D5. (4020 L.F.)

(3) FOR SIDE DRAIN PROFILE SEE DRAWING #SD1

NO.	REVISION	BY	DATE
3			
2			
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
PHASE I - YUMA ROAD TO LOWER BUCKEYE ROAD
FCD CONTRACT NO. XXX CXXX

PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION

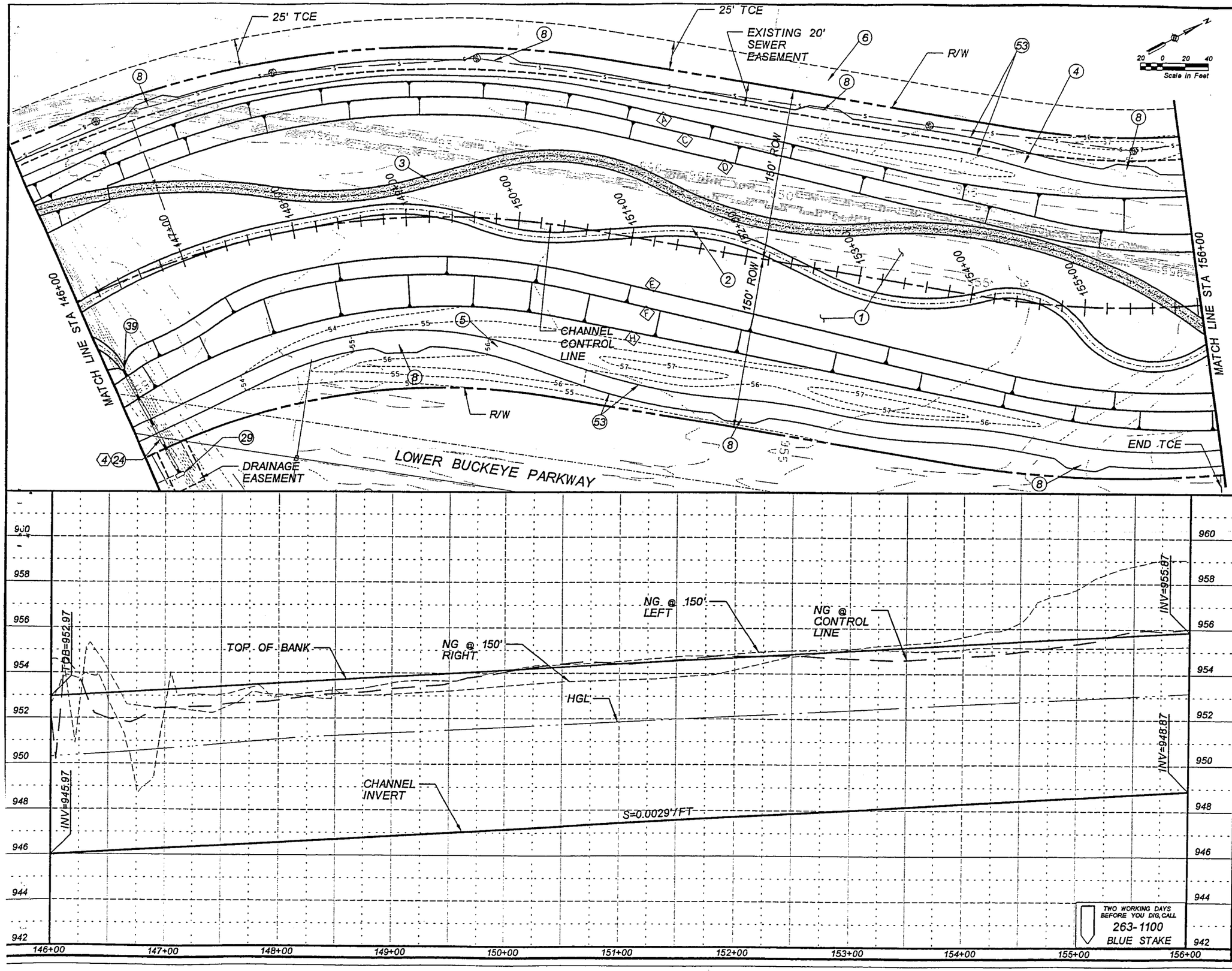
	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D.HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. C3

PLAN AND PROFILE STA 136+00 TO 146+00

SHEET 23 OF 73



REMOVE

CONSTRUCT

1. CONSTRUCT EARTHEN CHANNEL PER TYPICAL SECTION, DRAWING #G22.
2. CONSTRUCT CONCRETE TAILWATER SWALE PER DETAIL ON DRAWING #D7. (241 C.Y.)
3. CONSTRUCT CONCRETE MULTI-USE PATH PER DETAIL ON DRAWING #D6. (10,700 S.F.)
4. CONSTRUCT WEST MAINTENANCE ROAD PER DETAIL ON DRAWING #D5. (14,616 S.F.)
5. CONSTRUCT EAST MAINTENANCE ROAD PER DETAIL ON DRAWING #D5. (13,860 S.F.)
6. CONSTRUCT FARM ROAD PER TYPICAL SECTION, DRAWING #G22.
8. CONSTRUCT MAINTENANCE ROAD PULLOUT PER DETAIL DRAWING #D8. (7 EACH)
24. INSTALL 30" TAILWATER PIPE. (104 L.F.)
29. CONSTRUCT 30" DROP INLET HEADWALL PER MAG STD DET 501-5 (SINGLE). (1 EACH)
39. CONSTRUCT 30" OUTLET HEADWALL PER MAG STD DET 501-4 (SINGLE). (1 EACH)
53. CONSTRUCT CONCRETE RIBBON CURB PER DETAIL ON DRAWING #D5. (4068 L.F.)

4. FOR SIDE DRAIN PROFILE SEE DRAWING #SD2

NO.	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
PHASE I - YUMA ROAD TO LOWER BUCKEYE ROAD
FCD CONTRACT NO. XXX CXXX

PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION

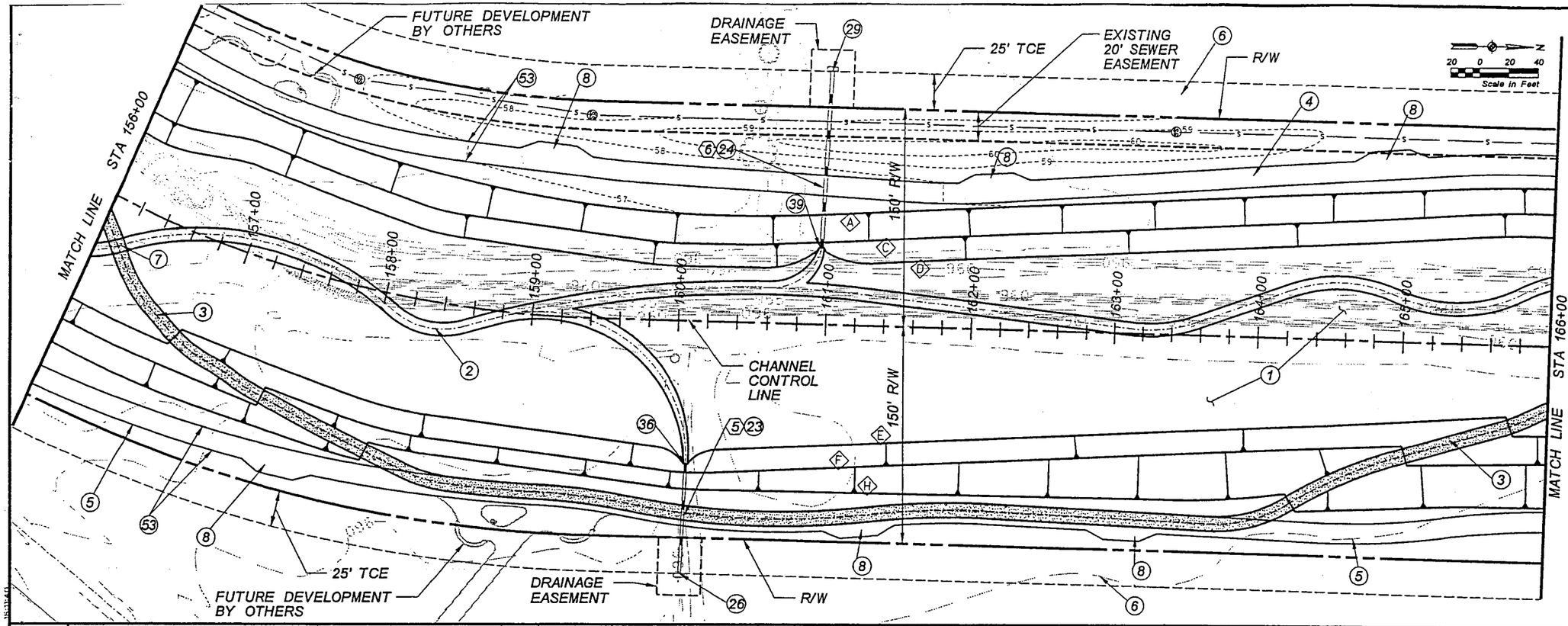
	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D.HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

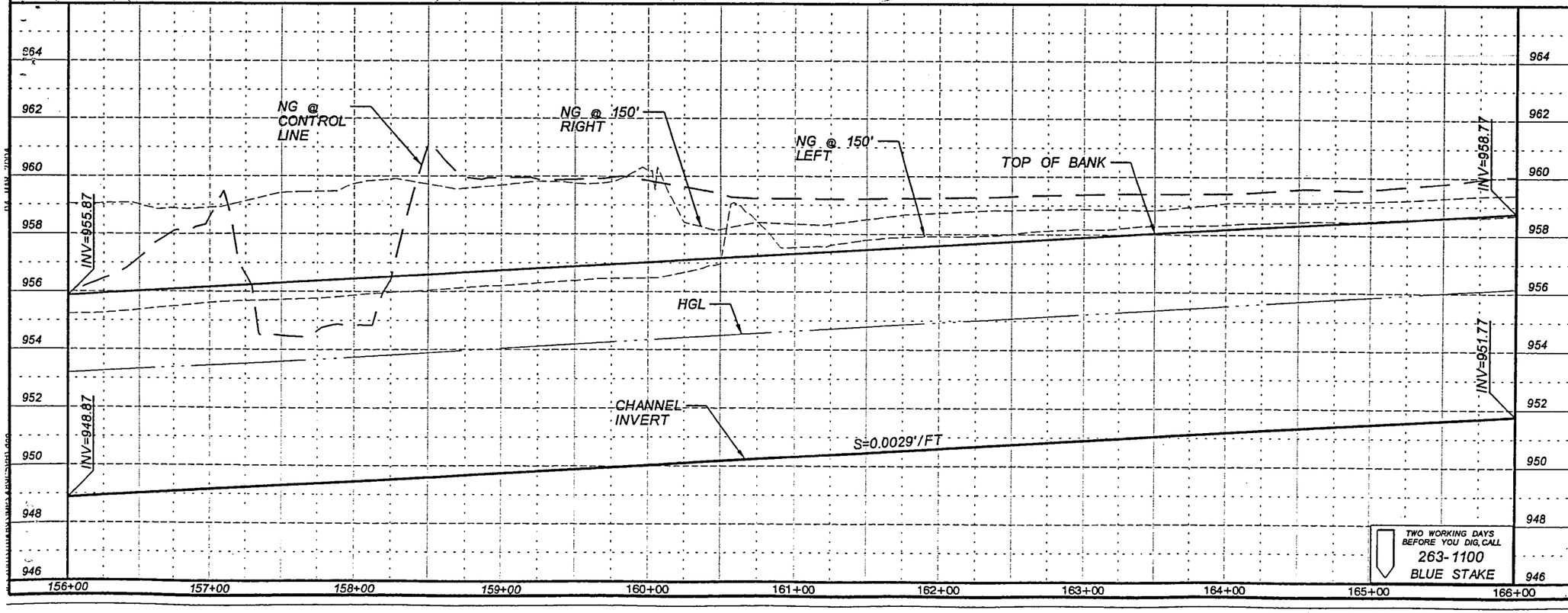
WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. C4

STA 146+00 TO 156+00

SHEET 24 OF 73





REMOVE

CONSTRUCT

1. CONSTRUCT EARTHEN CHANNEL PER TYPICAL SECTION, DRAWING #G22.
2. CONSTRUCT CONCRETE TAILWATER SWALE PER DETAIL ON DRAWING #D7. (282 C.Y.)
3. CONSTRUCT CONCRETE MULTI-USE PATH PER DETAIL ON DRAWING #D6. (10,900 S.F.)
4. CONSTRUCT WEST MAINTENANCE ROAD PER DETAIL ON DRAWING #D5.(13,580 S.F.)
5. CONSTRUCT EAST MAINTENANCE ROAD PER DETAIL ON DRAWING #D5. (8840 S.F.)
6. CONSTRUCT FARM ROAD PER TYPICAL SECTION, DRAWING #G22.
7. CONSTRUCT MULTI-USE TRAIL/TAILWATER SWALE CROSSING PER DETAIL D10. (1 EACH)
8. CONSTRUCT MAINTENANCE ROAD PULLOUT PER DETAIL DRAWING #D8. (1 EACH)
23. INSTALL 24" TAILWATER PIPE. (76 L.F.)
24. INSTALL 30" TAILWATER PIPE. (122.5 L.F.)
26. CONSTRUCT 24" DROP INLET HEADWALL PER MAG STD DET 501-5 (SINGLE). (1 EACH)
29. CONSTRUCT 30" DROP INLET HEADWALL PER MAG STD DET 501-5 (SINGLE). (1 EACH)
36. CONSTRUCT 24" OUTLET HEADWALL PER MAG STD DET 501-4 (SINGLE). (1 EACH)
39. CONSTRUCT 30" OUTLET HEADWALL PER MAG STD DET 501-4 (SINGLE). (1 EACH)
53. CONSTRUCT CONCRETE RIBBON CURB PER DETAIL ON DRAWING #D5. (4060 L.F.)

(5) FOR SIDE DRAIN PROFILE SEE DRAWING #SD2

(6) FOR SIDE DRAIN PROFILE SEE DRAWING #SD2

NO.	REVISION	BY	DATE
3			
2			
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
PHASE I - YUMA ROAD TO LOWER BUCKEYE ROAD
FCD CONTRACT NO. XXX CXXX

PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION

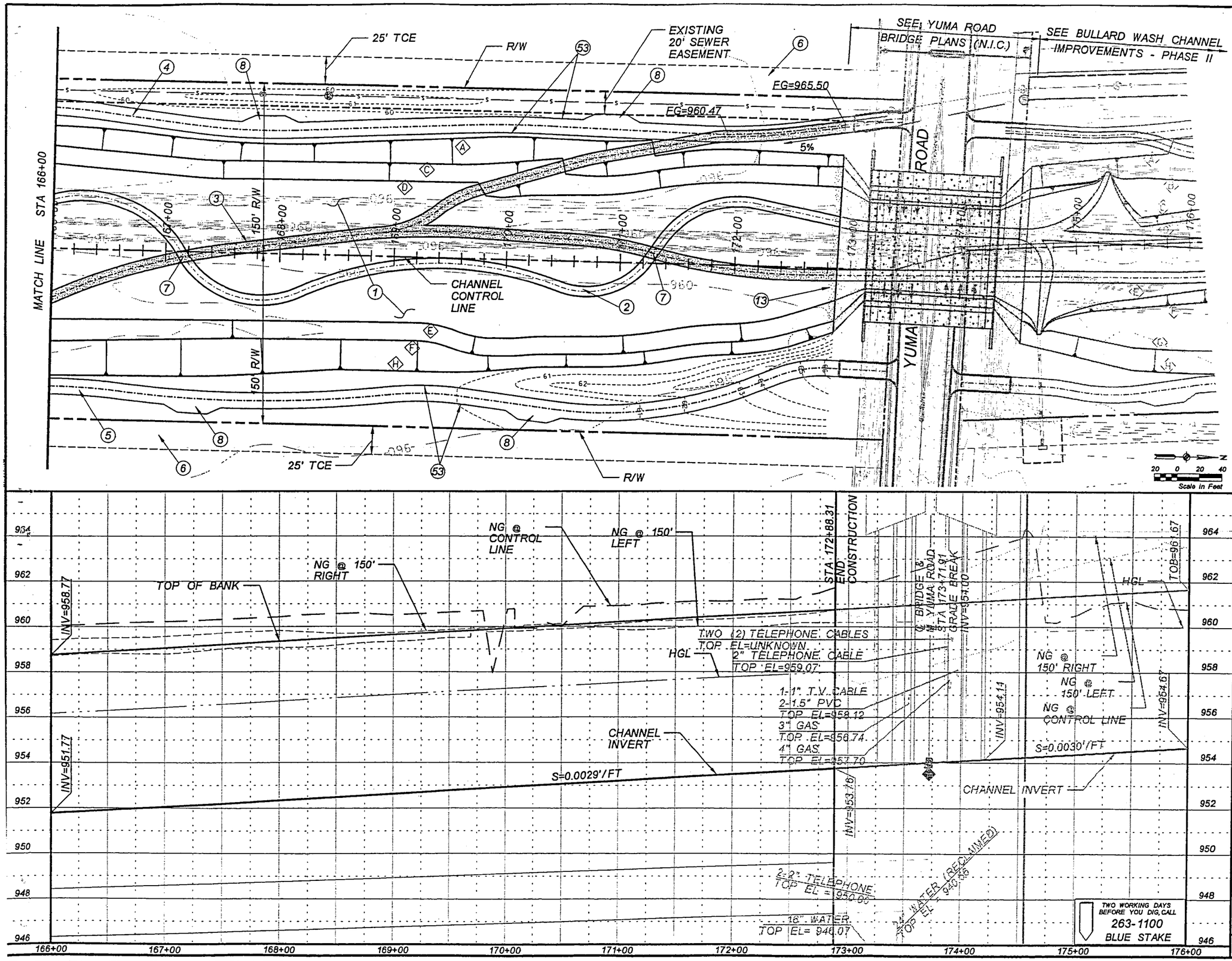
	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D.HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. C5

PLAN AND PROFILE
STA 156+00 TO 166+00

SHEET 25 OF 73



REMOVE

CONSTRUCT

1. CONSTRUCT EARTHEN CHANNEL PER TYPICAL SECTION, DRAWING #G13.
2. CONSTRUCT CONCRETE TAILWATER SWALE PER DETAIL ON DRAWING #D10. (171 C.Y.)
3. CONSTRUCT CONCRETE MULTI-USE PATH PER DETAIL ON DRAWING #D9. (11,100 S.F.)
4. CONSTRUCT WEST MAINTENANCE ROAD PER DETAIL ON DRAWING #D8. (9800 S.F.)
5. CONSTRUCT EAST MAINTENANCE ROAD PER DETAIL ON DRAWING #D8. (8500 S.F.)
6. CONSTRUCT FARM ROAD PER TYPICAL SECTION, DRAWING #G13.
7. CONSTRUCT MULTI-USE TRAIL/TAILWATER SWALE CROSSING PER DETAIL D10. (2 EACH)
8. CONSTRUCT MAINTENANCE ROAD PULLOUT PER DETAIL DRAWING #D8. (4 EACH)
13. CONSTRUCT CHANNEL TRANSITION AT BRIDGE PER DETAILS D3 AND D4. SEE SHEETS S1 FOR PROPOSED BRIDGE (N.I.C.)
17. SEE DRAWING #R2-R6 FOR YUMA ROAD PAVING PLANS. SEE DRAWING #S2 FOR PROPOSED YUMA ROAD BRIDGE (BY OTHERS).
53. CONSTRUCT CONCRETE RIBBON CURB PER DETAIL ON DRAWING #D8. (2800 L.F.)

NO.	REVISION	BY	DATE
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
PHASE I - YUMA ROAD TO LOWER BUCKEYE ROAD
FCD CONTRACT NO. XXX CXXX

PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION

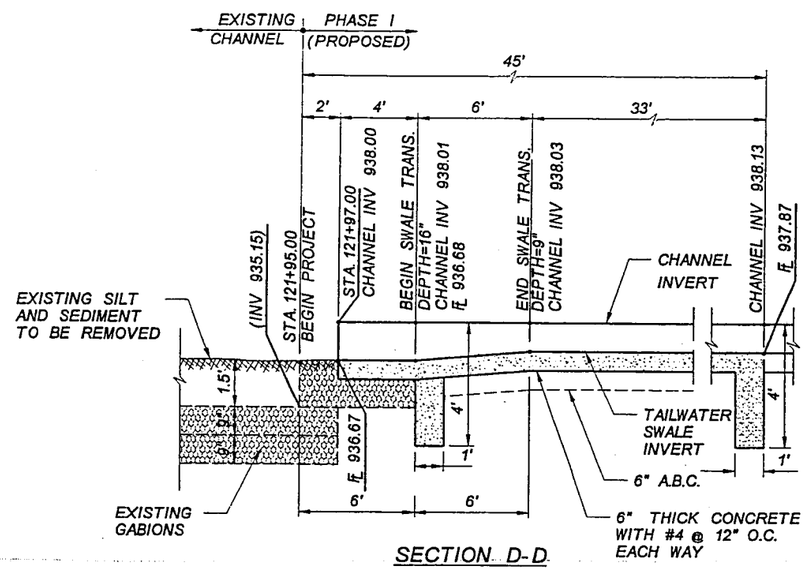
	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D.HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

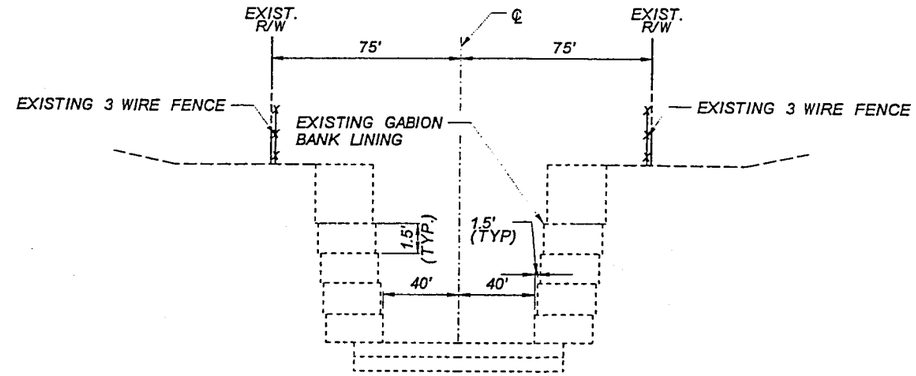
DRAWING NO. C6

PLAN AND PROFILE
STA 166+00 TO 176+00

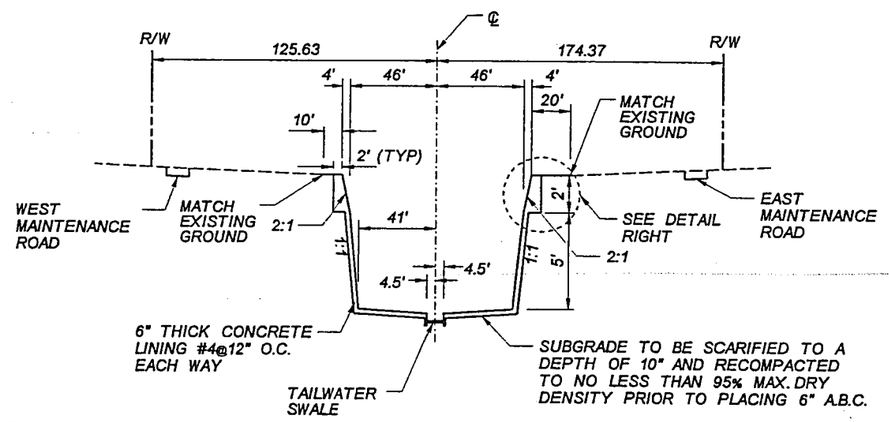
SHEET 26 OF 73



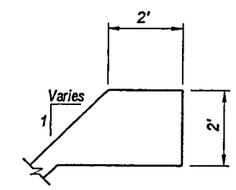
SECTION D-D



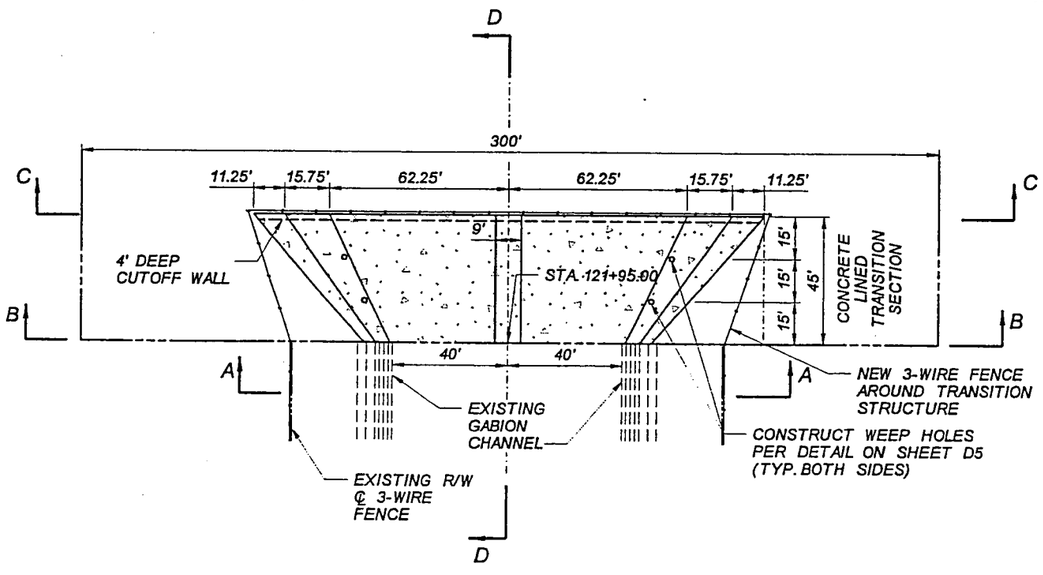
SECTION A-A
N.T.S.



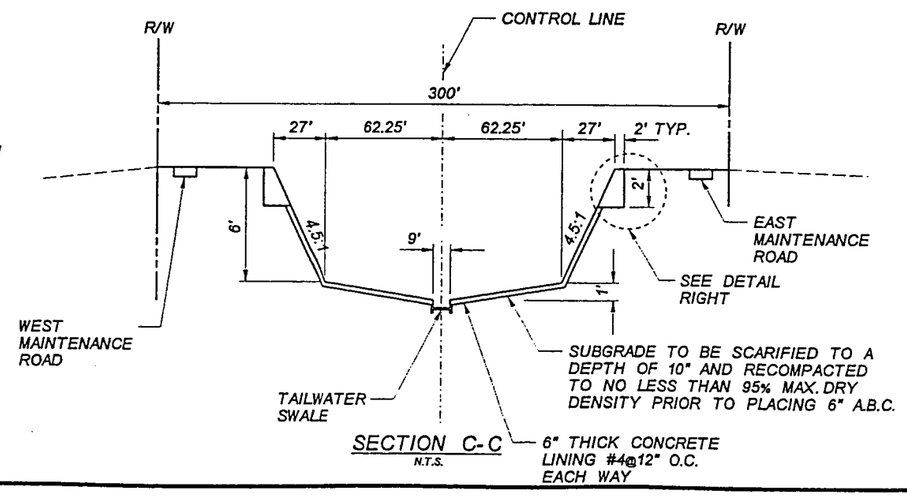
SECTION B-B
N.T.S.



TOP OF LINING DETAIL



TRANSITION @ PHASE I TIE-IN
PLAN
N.T.S.



SECTION C-C
N.T.S.

NO.	REVISION	BY	DATE
3			
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
PHASE I - YUMA ROAD TO LOWER BUCKEYE ROAD
FCD CONTRACT NO. XXX CXXX

PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION

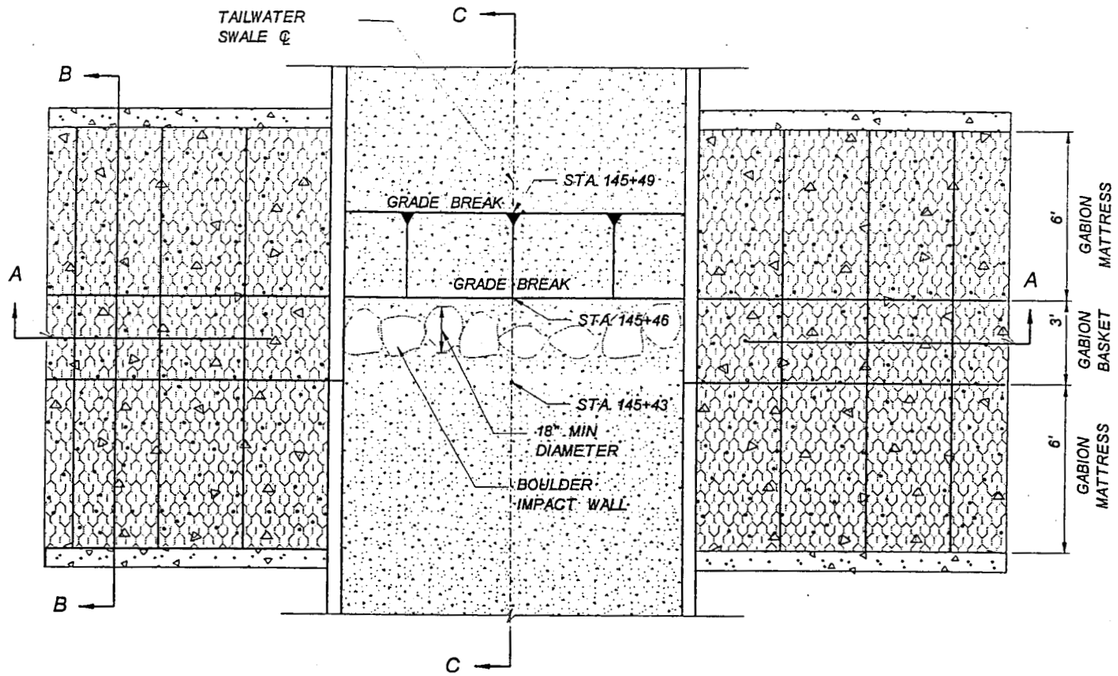
	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D. HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

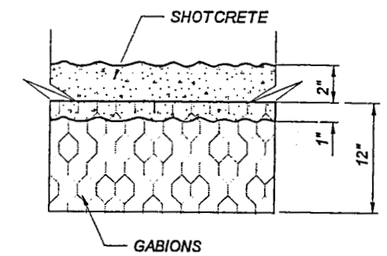
DRAWING NO. D1

TRANSITION DETAILS AT EXISTING CHANNEL

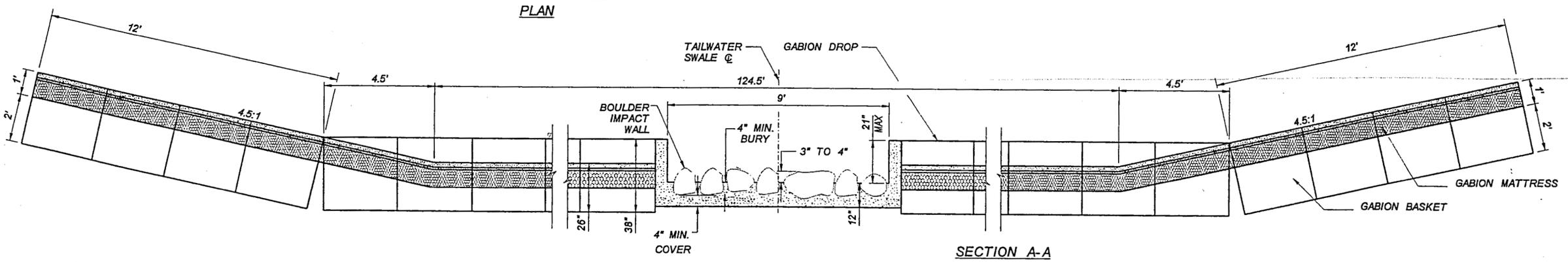
SHEET 27 OF 73



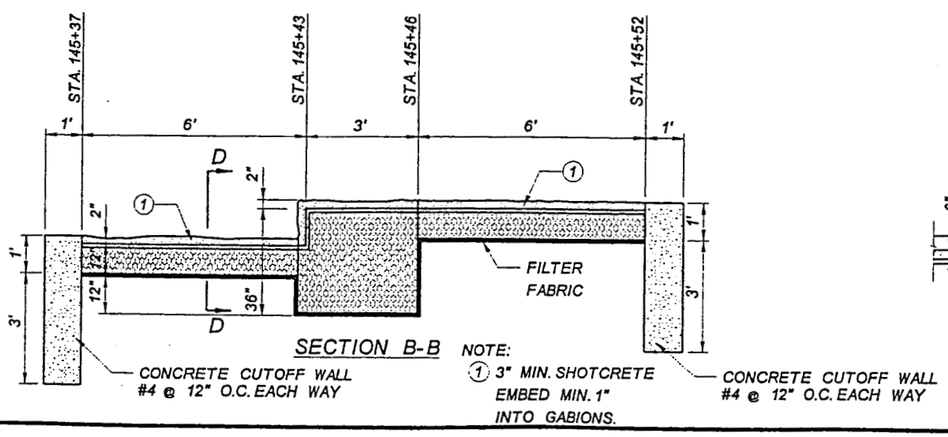
GRADE CONTROL STRUCTURE AT
LOWER BUCKEYE PARKWAY
PLAN



SECTION D-D

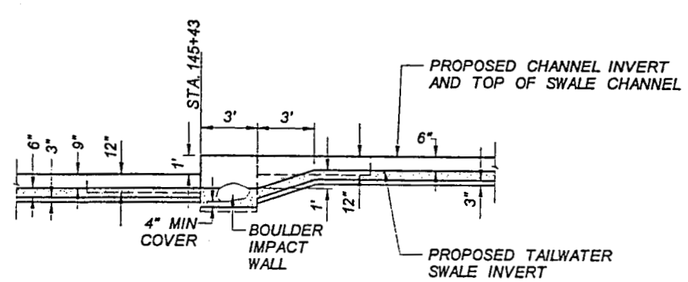


SECTION A-A



SECTION B-B

NOTE:
1 3" MIN. SHOTCRETE EMBED MIN. 1" INTO GABIONS.



SECTION C-C

NO.	REVISION	BY	DATE
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
PHASE I - YUMA ROAD TO LOWER BUCKEYE ROAD
FCD CONTRACT NO. XXX CXXX

PRELIMINARY
90% SUBMITTAL
NOT FOR
CONSTRUCTION

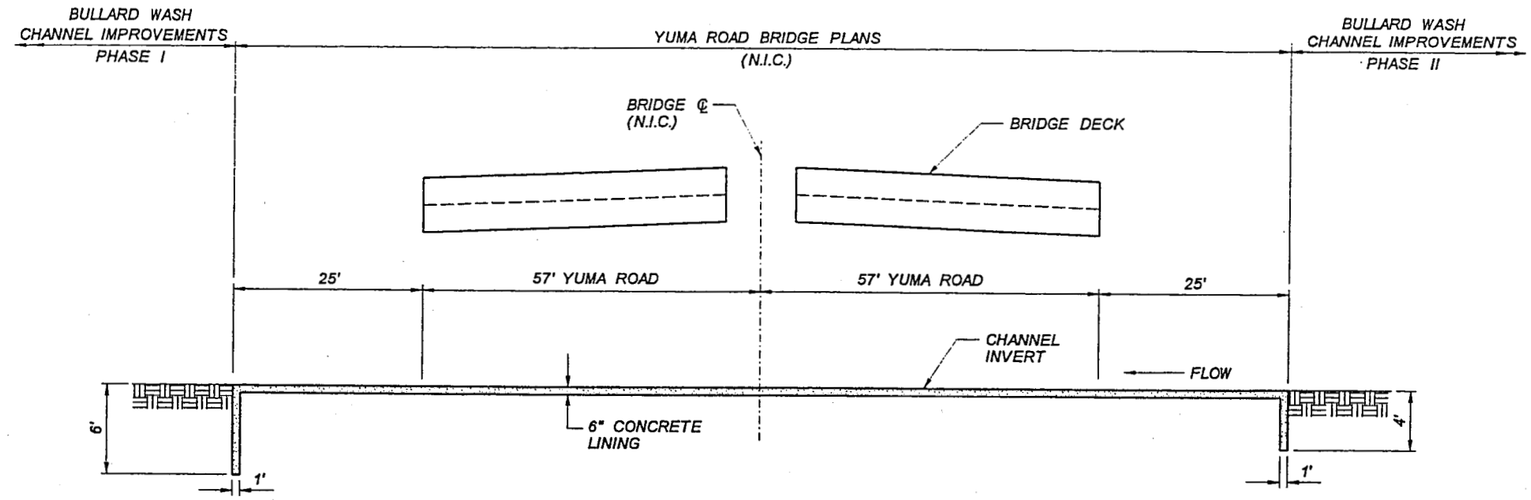
	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D. HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

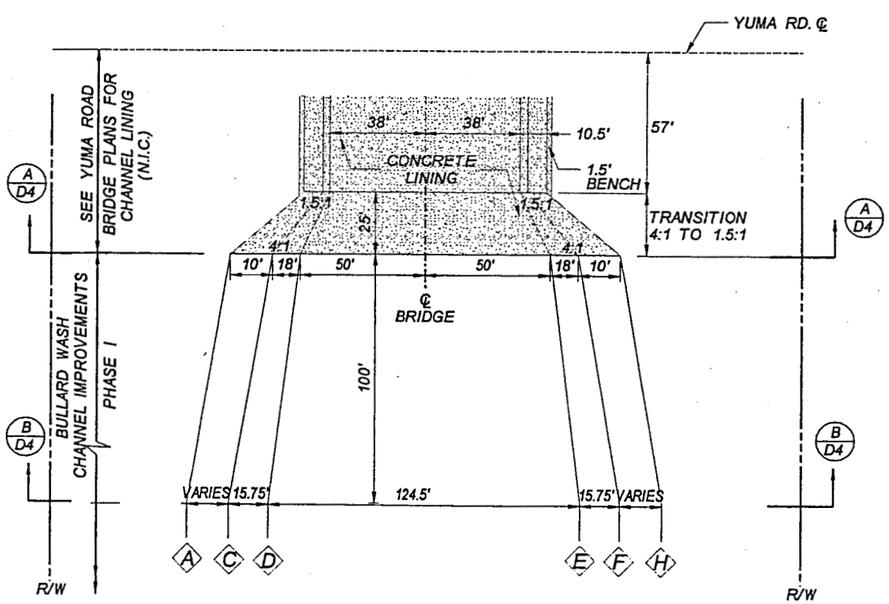
DRAWING NO. D2

GRADE CONTROL STRUCTURE
AT LOWER BUCKEYE PARKWAY

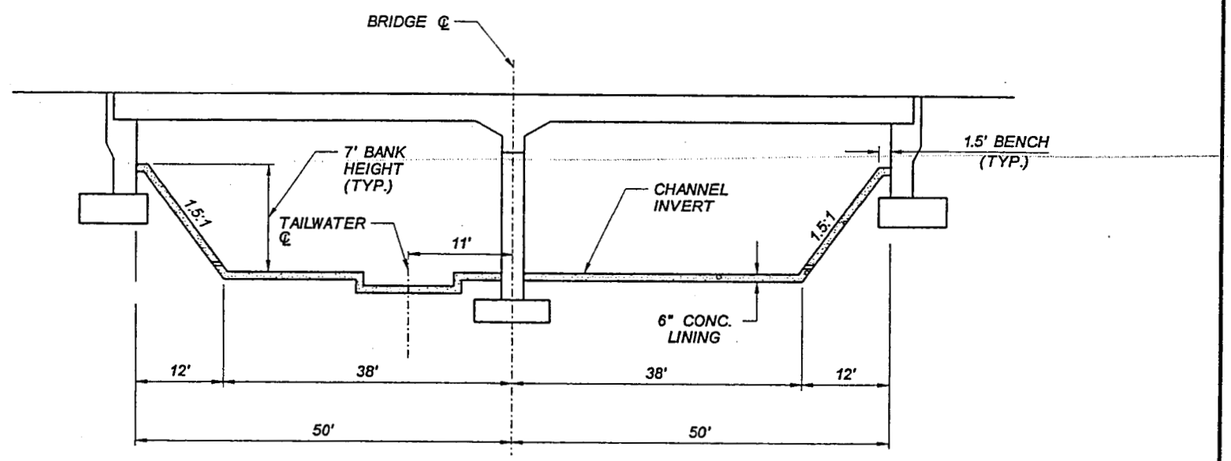
SHEET 28 OF 73



BRIDGE CHANNEL LINING PROFILE
(N.I.C.)



CHANNEL TRANSITION SECTION
SOUTH OF YUMA RD. BRIDGE



CHANNEL SECTION THROUGH BRIDGE
YUMA RD.
(N.I.C.)

CHANNEL GEOMETRY ALIGNMENT LEGEND

- (A) WEST TOP OF MAIN CHANNEL
- (B) WEST BOTTOM OF MAIN CHANNEL
- (C) WEST TOP OF LOW FLOW CHANNEL
- (D) WEST BOTTOM OF LOW FLOW CHANNEL
- (E) EAST BOTTOM OF LOW FLOW CHANNEL
- (F) EAST TOP OF LOW FLOW CHANNEL
- (G) EAST BOTTOM OF MAIN CHANNEL
- (H) EAST TOP OF MAIN CHANNEL

NO.	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
PHASE I - YUMA ROAD TO LOWER BUCKEYE ROAD
FCD CONTRACT NO. XXX CXXX

PRELIMINARY
90% SUBMITTAL
NOT FOR
CONSTRUCTION

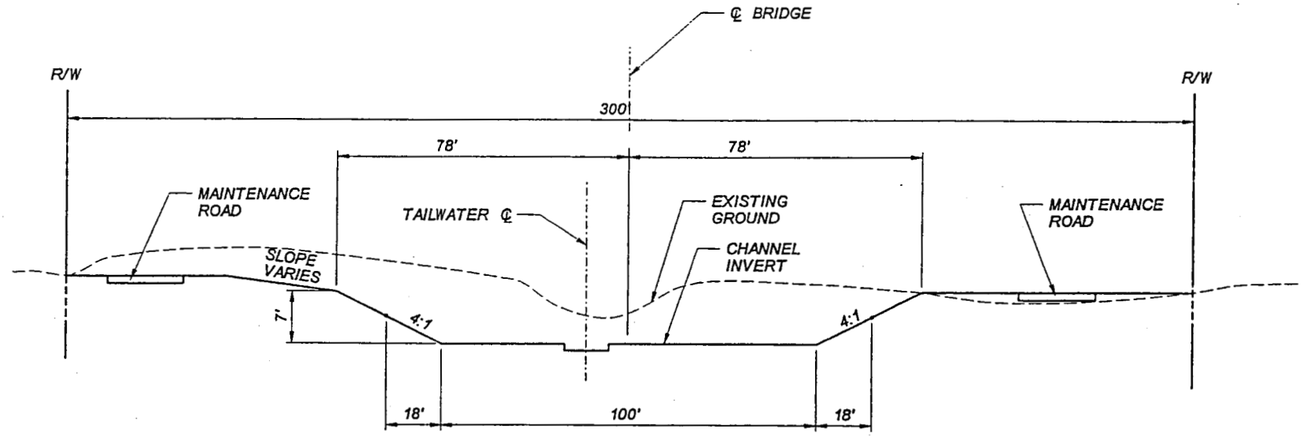
	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D. HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

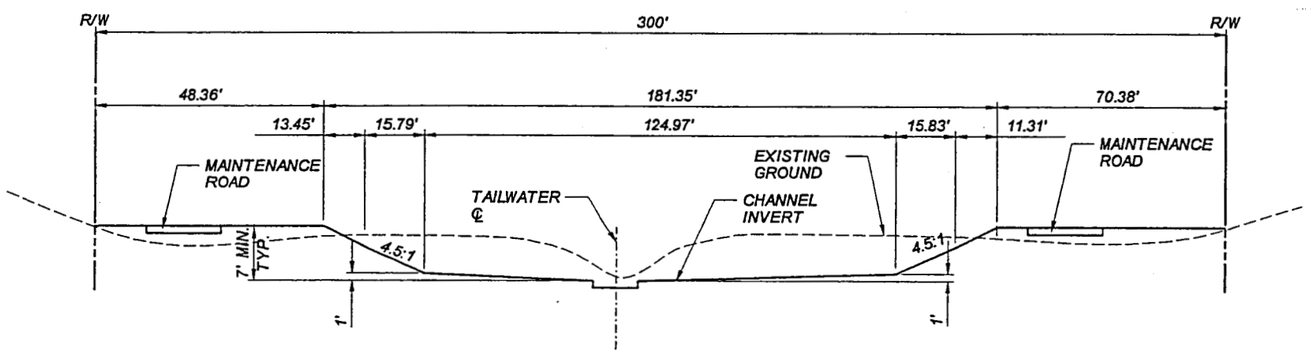
DRAWING NO. D3

CHANNEL TRANSITIONS
AT BRIDGES

SHEET 29 OF 73



TRANSITION SECTION A-A



TRANSITION SECTION B-B

CHANNEL GEOMETRY ALIGNMENT LEGEND

- (A) WEST TOP OF MAIN CHANNEL
- (B) WEST BOTTOM OF MAIN CHANNEL
- (C) WEST TOP OF LOW FLOW CHANNEL
- (D) WEST BOTTOM OF LOW FLOW CHANNEL
- (E) EAST BOTTOM OF LOW FLOW CHANNEL
- (F) EAST TOP OF LOW FLOW CHANNEL
- (G) EAST BOTTOM OF MAIN CHANNEL
- (H) EAST TOP OF MAIN CHANNEL

NO.	REVISION	BY	DATE
3			
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1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
PHASE I - YUMA ROAD TO LOWER BUCKEYE ROAD
FCD CONTRACT NO. XXX CXXX

PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D. HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. D4

CHANNEL TRANSITION AT BRIDGE SECTION

SHEET 30 OF 73

04 MAR 2004

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

IN COOPERATION WITH THE CITY OF GOODYEAR

PLANS FOR THE CONSTRUCTION OF

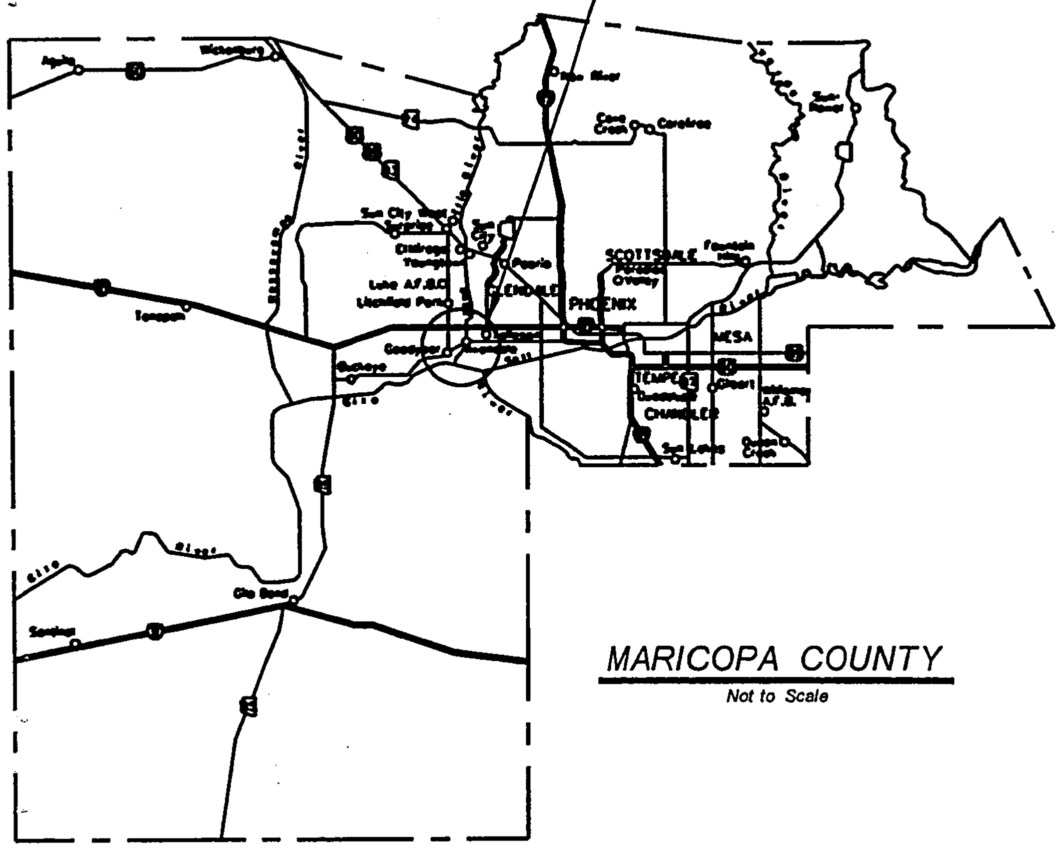
BULLARD WASH CHANNEL IMPROVEMENTS

PHASE II - VAN BUREN STREET TO YUMA ROAD

PCN. 470 13 31

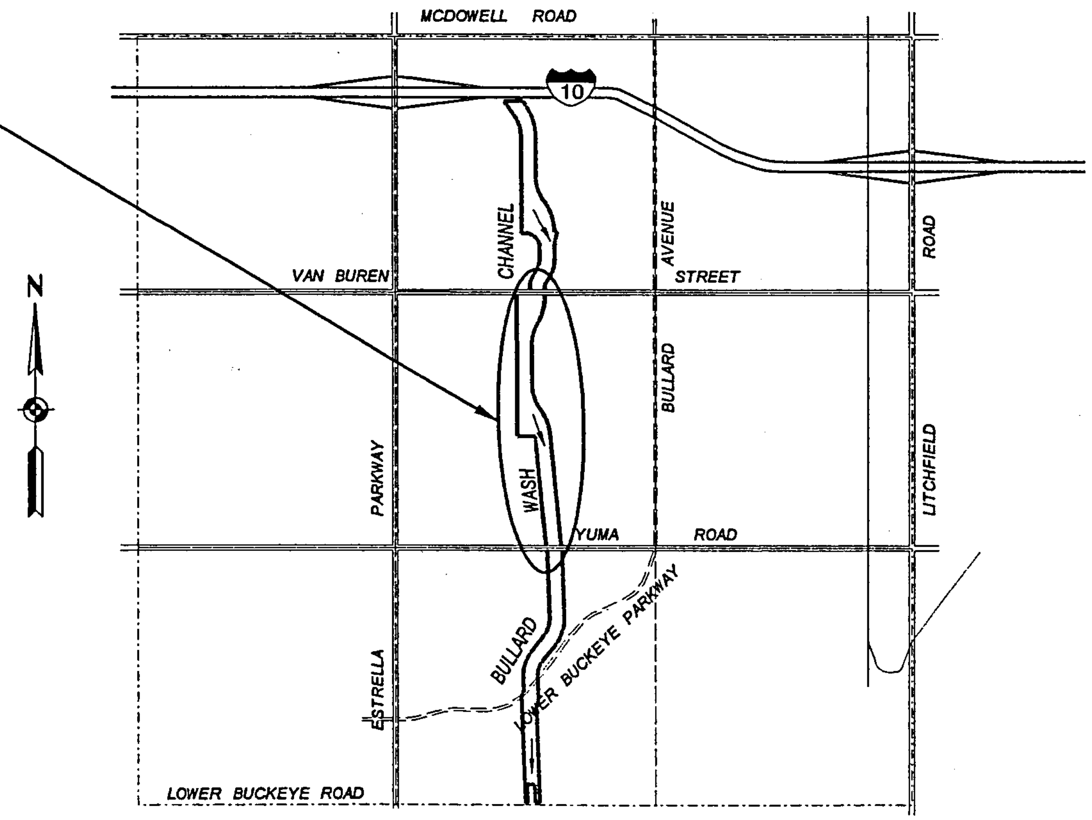
FCD CONTRACT NO. XXX CXXX

PROJECT LOCATION



MARICOPA COUNTY

Not to Scale



VICINITY MAP

Not to Scale

TWO WORKING DAYS BEFORE YOU DIG, CALL 263-1100 BLUE STAKE

PRELIMINARY
90% SUBMITTAL
NOT FOR
CONSTRUCTION

CITY OF GOODYEAR — DATE

MARICOPA COUNTY DEPARTMENT OF ENVIRONMENTAL SERVICES — DATE

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

ISSUED FOR PUBLIC BIDDING BY:

MICHAEL S. ELLEGOOD, P.E.
CHIEF ENGINEER AND
GENERAL MANAGER

BOARD OF DIRECTORS OF THE FLOOD CONTROL DISTRICT

DON STAPLEY - CHAIRMAN

DISTRICT 1	FULTON BROCK
DISTRICT 2	DON STAPLEY
DISTRICT 3	ANDY KUNASEK
DISTRICT 4	MAX W. WILSON
DISTRICT 5	MARY ROSE WILCOX

LEGEND

- BENCHMARK
- EXIST. SURVEY MONUMENT(BRASS CAP FLUSH)
- EXIST. SURVEY MONUMENT(BRASS CAP IN HAND HOLE)
- EXIST. COMBINED CURB & GUTTER - MAG DET. 220 TYPE "A"
- EXIST. CONCRETE SIDEWALK - COP STD. DET. P-1230
- EXISTING DITCH
- IRR — EXISTING IRRIGATION LINE (NOTE - PRIVATE, SALT RIVER OR R.I.D.)
- EXISTING IRRIGATION STRUCTURE
- EXISTING IRRIGATION STANDPIPE
- 12" W — EXISTING WATER LINE / SIZE
- EXISTING WATER METER & BOX
- EXISTING FIRE HYDRANT
- NEW OR RELOCATED FIRE HYDRANT BY CONTRACTOR
- EXISTING WATER VALVE OPERATING NUT ELEVATION
- 24" S — EXISTING SEWER LINE / SIZE
- EXISTING MANHOLE
- NEW MANHOLE
- CATCH BASIN,GUTTER INLET (LENGTH TO SCALE)
- CATCH BASIN,CURB INLET (LENGTH TO SCALE)
- CATCH BASIN,CURB & GUTTER INLET (LENGTH TO SCALE)
- 78" SD — EXISTING STORM DRAIN / SIZE
- NEW PIPE FOR STORM DRAIN OR IRRIGATION LINE
- CATV — EXISTING UNDERGROUND CABLE TELEVISION
- E — EXISTING UNDERGROUND ELECTRIC
- 4D — EXISTING UNDERGROUND TELEPHONE DUCTS (SPECIFY NUMBER)
- 2" G — EXISTING GAS LINE / SIZE
- UGT — EXISTING UNDERGROUND TELEPHONE CABLE
- EXISTING STREET SIGN
- EXISTING TRAFFIC SIGN
- EXISTING UTILITY POLE
- EXISTING WIRE FENCE
- EXISTING WOOD FENCE
- EXISTING CHAIN LINK FENCE
- MAIL BOX
- DOWN ANCHOR
- STREET LIGHT
- EASEMENT LINE
- EXISTING OR NEW R/W LINE
- PAVEMENT CENTER LINE AND OR MOUNUMENT LINE (℄ AND / OR ⌖)
- 2 — BORING HOLE / NUMBER (SEE SPECIAL PROVISIONS)
- TELEPHONE RISER
- WSB — WATER SERVICE BOX
- MST — MID SPAN TAP (OH UTILITIES)
- WV — WATER VAULT
- TRAFFIC SIGNAL BOX
- TREE
- STOP — STOP SIGN
- P — MAILBOX
- GATE W/POSTS
- SM — SAWCUT & MATCH

STRUCTURAL NOTES

1. ALL CONSTRUCTION SHALL CONFORM TO MAG STANDARD DETAILS AND SPECIFICATIONS, DATED 1998, INCLUDING ALL REVISIONS THRU 2002.
2. DESIGN IS IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, DIVISION 1, 17TH EDITION, 2002.
3. REINFORCING STEEL SHALL CONFORM TO ASTM SPECIFICATION A615, GRADE 60
4. STRESSES - fs = 24,000 PSI - GRADE 60 REINFORCING STEEL
5. ALL REINFORCING STEEL PLACEMENT DIMENSIONS SHALL BE TO CENTER OF BARS UNLESS OTHERWISE NOTED.
6. ALL REINFORCING STEEL SHALL HAVE 2" CLEAR COVER UNLESS OTHERWISE NOTED.
7. STRUCTURAL STEEL SHALL CONFORM TO ASTM SPECIFICATION A36.
8. ALL WELDING SHALL CONFORM TO THE REQUIREMENTS OF THE AMERICAN WELDING SOCIETY, STRUCTURAL WELDING CODE, REVISED 1996.
9. DIMENSIONS SHALL NOT BE SCALED FROM DRAWINGS.
10. CHAMFER ALL EXPOSED CORNERS 3/4 " UNLESS OTHERWISE NOTED.
11. CONCRETE COMPRESSIVE STRENGTH SHALL BE 3000 PSI MAG, CLASS A, UNLESS NOTED OTHERWISE.

UTILITY NOTIFICATION

PHONE NO.	COMPANY	CONTACT
(602) 371-7989	APS	BOBBY GARZA
(602) 630-1393	QWEST	MATTHEW PHILLIPS
(602) 484-5342	SOUTHWEST GAS	SUE NEWSOM
(602) 447-0363	COX COMMUNICATIONS	KARL MCKAY
(623) 882-7954	CITY OF GOODYEAR	DAVID RAMIREZ

INDEX OF SHEETS

DRAWING NO.	TITLE	SHEET NO.
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G2	GENERAL NOTES AND SHEET INDEX	2
G3	KEY MAP	3
G4	HORIZONTAL AND VERTICAL CONTROL	4
G5	ROW AND TCE CONTROL	5
G6-G9	CHANNEL CONTROL LINE AND TOP OF MAIN CHANNEL CONTROL	6-9
G10-G13	BOTTOM OF MAIN CHANNEL CONTROL	10-13
G14-G17	TOP AND BOTTOM OF LOW FLOW CHANNEL CONTROL	14-17
G18-G21	CL TAILWATER SWALE CONTROL	18-21
G22	TYPICAL CHANNEL SECTIONS	22
Q1	QUANTITY SUMMARY SHEETS	23
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GENERAL NOTES

1. ALL CONSTRUCTION TO BE PERFORMED ACCORDING TO APPLICABLE MAG STANDARD DETAILS AND MAG SPECIFICATIONS, DATED 1998 (INCLUDING ALL REVISIONS THROUGH 2002) AND THE CITY OF GOODYEAR ADDITIONS AND DELETIONS THROUGH 2002.
2. FACILITIES WHICH ARE NOT SPECIFICALLY LOCATED WITH ACTUAL HORIZONTAL AND VERTICAL CONTROLS ARE APPROXIMATE AND TO THE BEST AVAILABLE INFORMATION.
3. EXISTING UTILITIES AND OTHER FACILITIES HAVE BEEN PLACED ON THE PLANS FROM FIELD SURVEYS, EXISTING MAPS AND OTHER CURRENT PLANS WITHIN THE AREA OF THIS PROJECT. THE CONTRACTOR WILL DETERMINE THE EXACT LOCATION AND/OR ELEVATION OF EXISTING UTILITIES WHICH PERTAIN TO AND AFFECT THE CONSTRUCTION OF THIS PROJECT.
4. TWO (2) WORKING DAYS PRIOR TO EXCAVATING, THE CONTRACTOR SHALL CALL FOR BLUE STAKES AT THE BLUE STAKE CENTER (PHONE: 602-263-1100).
5. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS PRIOR TO CONSTRUCTION.
6. THE FLOOD CONTROL DISTRICT OR CITY OF GOODYEAR IS NOT RESPONSIBLE FOR LIABILITY ACCRUED DUE TO DELAYS AND/OR DAMAGE TO UTILITIES IN CONJUNCTION WITH THIS CONSTRUCTION.
7. ANY WORK PERFORMED WITHOUT THE APPROVAL OF THE FLOOD CONTROL DISTRICT AND/OR THE ENGINEER AND ALL WORK AND MATERIALS NOT IN CONFORMANCE WITH THE SPECIFICATIONS IS SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTOR'S EXPENSE.
8. THE ENGINEER WILL DETERMINE THE NUMBER AND LOCATION OF THE REQUIRED COMPACTION TESTS FOR STRUCTURE BACKFILL.
9. TRAFFIC CONTROL SHALL BE MAINTAINED IN ACCORDANCE WITH THE CITY OF PHOENIX TRAFFIC BARRACADE MANUAL, 1998. FILL IN ANY GAPS WITH M.A.G. SPECIFICATION 401, PART VI OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, MILLENIUM EDITION WITH INCORPORATED REVISION NO. 1 CHANGES DATES DECEMBER 28, 2001.
10. CONTRACTOR SHALL REPLACE PAVEMENT TO THE EXISTING GRADES SHOWN ON THE PLANS.
11. EXACT POINT OF MATCHING TERMINATION AND OVERLAY WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
12. NO JOB WILL BE CONSIDERED COMPLETED UNTIL CURBS, PAVEMENT AND SIDEWALKS HAVE BEEN SWEPT CLEAN OF ALL DIRT AND DEBRIS.
13. PRIOR TO FINAL APPROVAL AND ACCEPTANCE OF THE WORK, THE CONTRACTOR WILL BE REQUIRED TO CLEAN ADJACENT (OFF-PROJECT) ROADWAYS USED DURING THE COURSE OF CONSTRUCTION.

ABBREVIATIONS

CSTR	CONSTRUCTION
DESC	DESCRIPTION
S	SLOPE
FT/FT	FEET/FOOT
OHE	OVERHEAD ELECTRIC
INV	INVERT ELEVATION
FND	FOUND
PL	PROPERTY LINE
TCE	TEMPORARY CONSTRUCTION EASEMENT
TW	TOP OF WALL
TN	TOP OF NUT
℄	CENTER LINE
ML	MONUMENT LINE
ROW	RIGHT OF WAY
DE	DRAINAGE EASEMENT

PROJECT BENCHMARKS

REBAR IN HANDHOLE
BULLARD AVENUE AND
VAN BUREN STREET
EL = 987.77
N=45882.226
E=60292.901

SECTION LETTER OR DETAIL NUMBER

DRAWING NUMBER TO LOCATE

NO.	REVISION	BY	DATE
3			
2			
1			

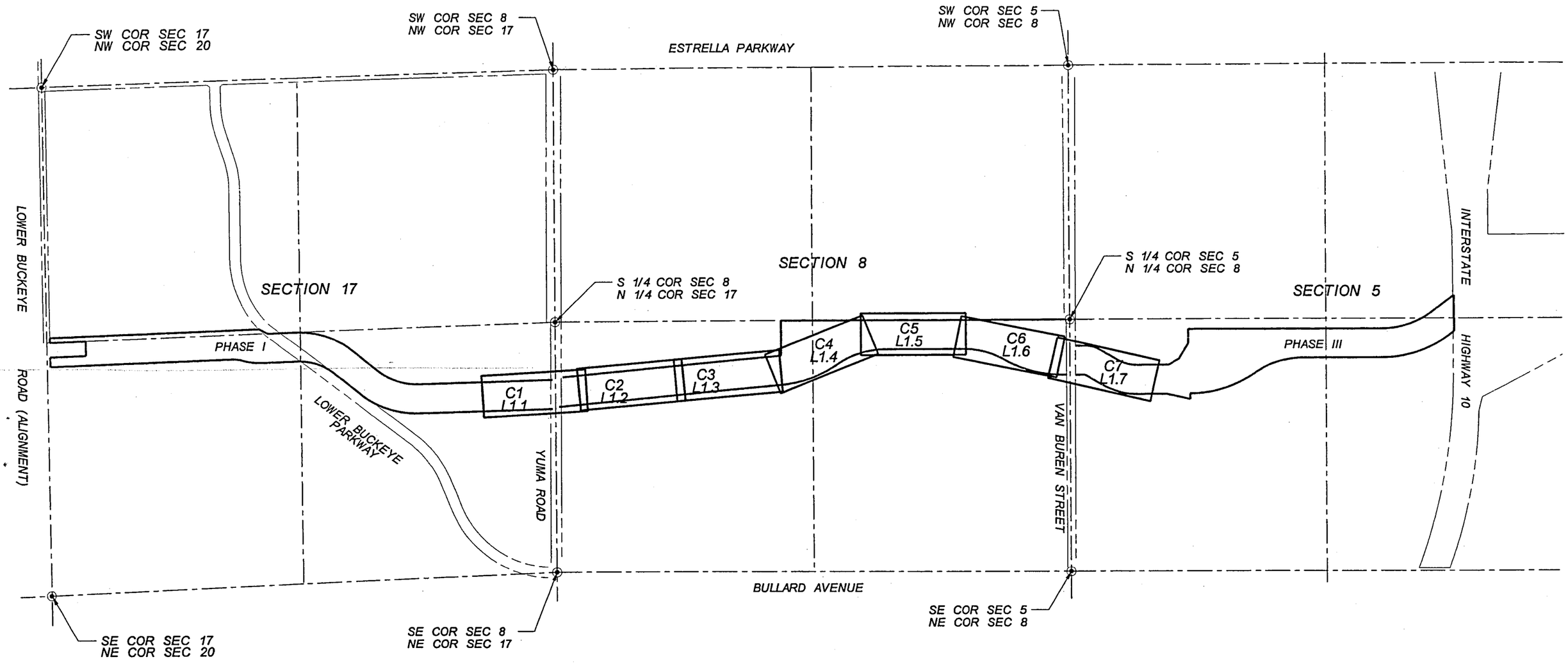
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
PHASE II - VAN BUREN STREET TO YUMA ROAD
CONTRACT NO. XXX CXXX

PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION		BY	DATE
	DESIGNED	J. TAILLON	03/04
	DRAWN	D. HADGES/P. LOPEZ	03/04
	CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO.		SHEET OF
G2	GENERAL NOTES & INDEX OF SHEETS	2 69



N

250 0 250 500

Scale in Feet

NO.	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
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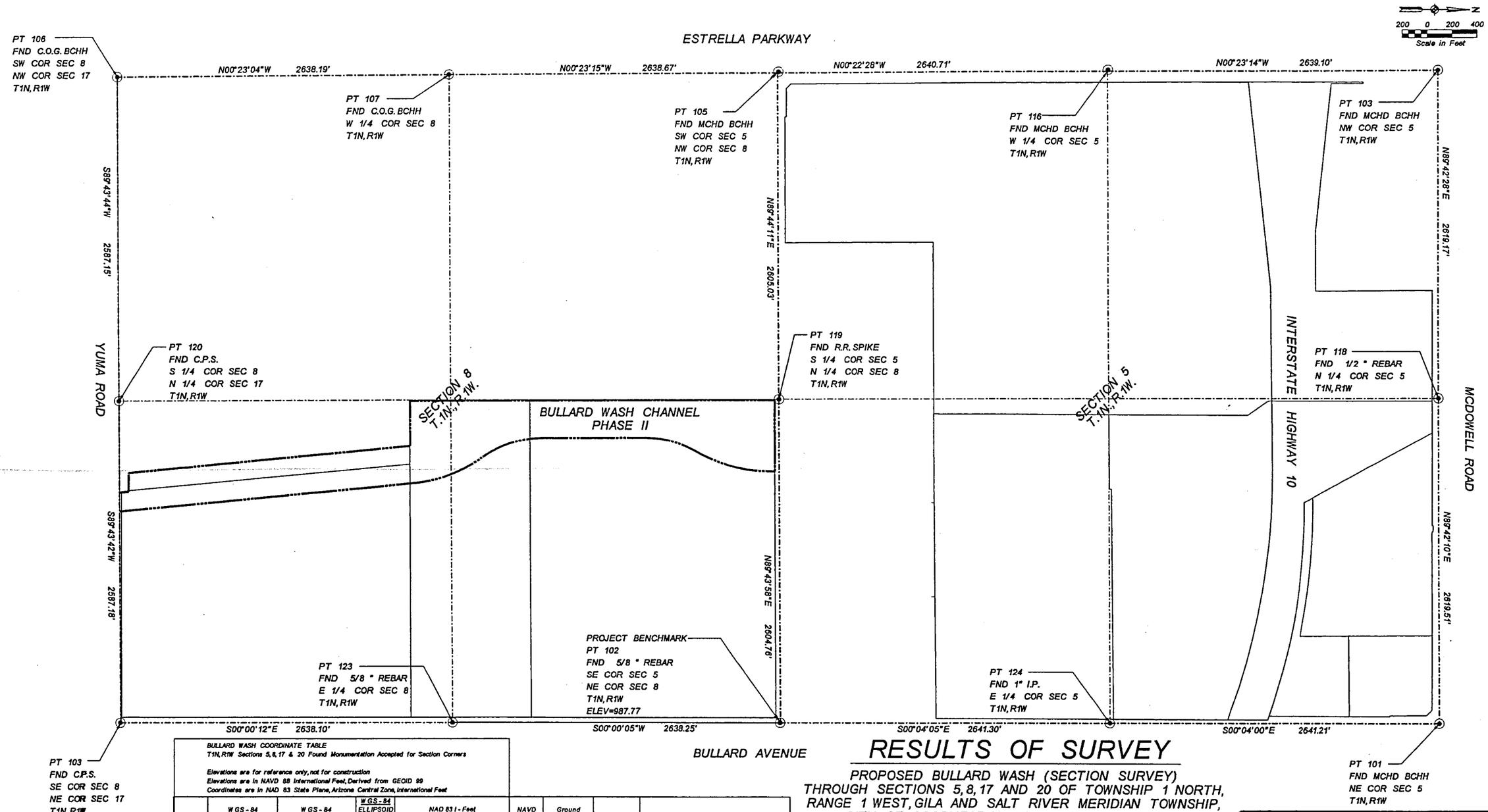
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. G3

KEY MAP

SHEET 3 OF 69



RESULTS OF SURVEY

PROPOSED BULLARD WASH (SECTION SURVEY) THROUGH SECTIONS 5, 8, 17 AND 20 OF TOWNSHIP 1 NORTH, RANGE 1 WEST, GILA AND SALT RIVER MERIDIAN TOWNSHIP, CITY OF GOODYEAR, MARICOPA COUNTY, ARIZONA

BULLARD WASH COORDINATE TABLE
T1N, R1W Sections 5, 8, 17 & 20 Found Monumentation Accepted for Section Corners

Elevations are for reference only, not for construction
Elevations are in NAVD 88 International Feet, Derived from GEOID 99
Coordinates are in NAD 83 State Plane, Arizona Central Zone, International Feet

Point	WGS - 84 Latitude	WGS - 84 Longitude	WGS - 84 ELLIPSOID Height I - Feet	NAD 83 I - Feet Northing	NAD 83 I - Feet Easting	NAVD Elev	Ground to Grid	Convergence	Description
101	33°27'52.02987"N	112°22'31.02159"W	897.262	896825.043	560140.437	996.72	0.999922397	-0° 15'10"	Fnd MCHD 3" Brass Cap in Handhole
102	33°26'59.77096"N	112°22'31.57497"W	888.335	891543.400	560070.242	987.77	0.999922420	-0° 15'10"	Fnd 5/8" Rebar - No Tag
103	33°27'52.27981"N	112°23'32.85688"W	903.068	896873.858	554902.381	1002.52	0.999924106	-0° 15'45"	Fnd MCHD 3" Brass Cap in Handhole
105	33°27'00.04589"N	112°23'33.05874"W	890.010	891594.608	554861.107	989.45	0.999924120	-0° 15'44"	Fnd MCHD 3" Brass Cap in Handhole
106	33°28'07.84110"N	112°23'33.25482"W	874.659	888318.313	554820.342	974.08	0.999924134	-0° 15'44"	Fnd City of Goodyear 3" Brass Cap in Handhole
107	33°28'33.94114"N	112°23'33.15596"W	882.371	888958.221	554840.792	981.80	0.999924127	-0° 15'44"	Fnd MCHD 3" Brass Cap in Handhole
109	33°28'07.57347"N	112°23'32.19965"W	878.068	888268.006	559994.026	977.47	0.999922444	-0° 15'10"	Fnd Cotton Picker Spindle - No Tag
110	33°25'18.40892"N	112°23'32.05582"W	854.592	881018.507	554897.712	953.99	0.999924108	-0° 15'43"	Fnd MCHD 3" Brass Cap in Handhole
111	33°24'48.08015"N	112°23'31.97761"W	836.484	878357.423	554892.177	935.87	0.999924110	-0° 15'43"	Fnd MCHD 3" Brass Cap in Handhole
112	33°24'23.23750"N	112°23'32.10082"W	817.298	875745.550	554869.796	916.67	0.999924118	-0° 15'43"	Fnd MCHD 3" Brass Cap in Handhole
113	33°24'23.43459"N	112°22'30.48352"W	822.606	875742.030	560093.062	921.92	0.999922413	-0° 15'09"	Fnd MCHD 3" Brass Cap in Handhole
114	33°24'48.56751"N	112°22'30.25692"W	843.303	878383.199	560123.906	942.64	0.999922403	-0° 15'09"	Fnd MCHD 3" Brass Cap in Handhole
116	33°27'26.17080"N	112°23'32.95436"W	897.920	894235.034	554882.040	997.37	0.999924113	-0° 15'44"	Fnd MCHD 3" Brass Cap in Handhole
117	33°25'15.69935"N	112°22'30.11993"W	848.198	881023.286	560147.150	947.55	0.999922395	-0° 15'09"	Fnd 1" Square Iron Bar - No Tag
118	33°27'52.15479"N	112°23'01.94122"W	892.493	896849.338	557521.240	991.95	0.999923244	-0° 15'27"	Fnd 1/2" Rebar - No Tag
119	33°28'59.90885"N	112°23'02.31526"W	880.801	891568.920	557465.810	980.24	0.999923262	-0° 15'27"	Fnd RR Spike - No Tag
120	33°28'07.70819"N	112°23'02.72740"W	867.838	888293.146	557407.170	967.25	0.999923281	-0° 15'27"	Fnd Cotton Picker Spindle - No Tag
121	33°24'23.33626"N	112°23'01.32257"W	820.098	875743.716	557478.853	919.44	0.999923258	-0° 15'26"	Fnd 5/8" Rebar - No Tag
122	33°25'41.63417"N	112°23'32.65203"W	864.287	883669.333	554859.305	963.70	0.999924121	-0° 15'44"	Fnd Brass Stem Only in Handhole
123	33°28'33.67150"N	112°22'31.88860"W	880.911	888905.630	560032.026	980.33	0.999922432	-0° 15'10"	Fnd 5/8" Rebar - No Tag
124	33°27'25.90087"N	112°22'31.29866"W	894.672	894184.287	560105.308	994.12	0.999922409	-0° 15'10"	Fnd 1" Iron Pipe - No Tag

LEGEND

⊙	FOUND SURVEY MONUMENT AS NOTED
FND	FOUND
SEC.	SECTION
COR.	CORNER
MCHD	MARICOPA COUNTY HIGHWAY DEPARTMENT
BCHH	BRASS CAP IN HANDHOLE
I.P.	IRON PIPE
R.R.	RAILROAD
CONC	CONCRETE
C.P.S.	COTTON PICKER SPINDLE
HH	HANDHOLE
C.O.G.	CITY OF GOODYEAR
C.O.M.	CITY OF MESA
ELEV.	ELEVATION
I - FEET	INTERNATIONAL FEET

NOTES

1. THE BASIS OF BEARING IS THE WEST LINE OF THE NORTHWEST QUARTER OF SECTION 8, TOWNSHIP 1 NORTH, RANGE 1 WEST OF THE GILA AND SALT RIVER MERIDIAN, ACCORDING TO THE FINAL PLAT OF "CENTERRA" AS RECORDED IN BOOK 533, PAGE 37, MARICOPA COUNTY RECORDS, USING A BEARING OF SOUTH 00 DEGREES 23 MINUTES 15 SECONDS EAST.

2. ANY DISTANCES, BEARINGS, AND DESCRIPTIONS, ETC., WHICH MAY VARY FROM THE PROVISIONS OF THE RECORD INFORMATION NOTED ABOVE REFLECT ACTUAL MEASURED DATA, OR THE BEST INTERPRETATION OF THE UNDERSIGNED.

3. THIS SURVEY WAS PERFORMED UTILIZING GLOBAL POSITIONING SYSTEM EQUIPMENT. THE MONUMENTS LOCATED ARE WITHIN THE POSITIONAL TOLERANCES AS OUTLINED IN THE ARIZONA BOUNDARY SURVEY MINIMUM STANDARDS.

4. ALL BEARINGS AND DISTANCES SHOWN HERE REPRESENT ACTUAL MEASURED GROUND DISTANCES BASED ON THE BASIS OF BEARING INDICATED IN NOTE 1 ABOVE AND ARE NOT TO BE CONSTRUED AS STATE PLANE DATA.

NO.	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

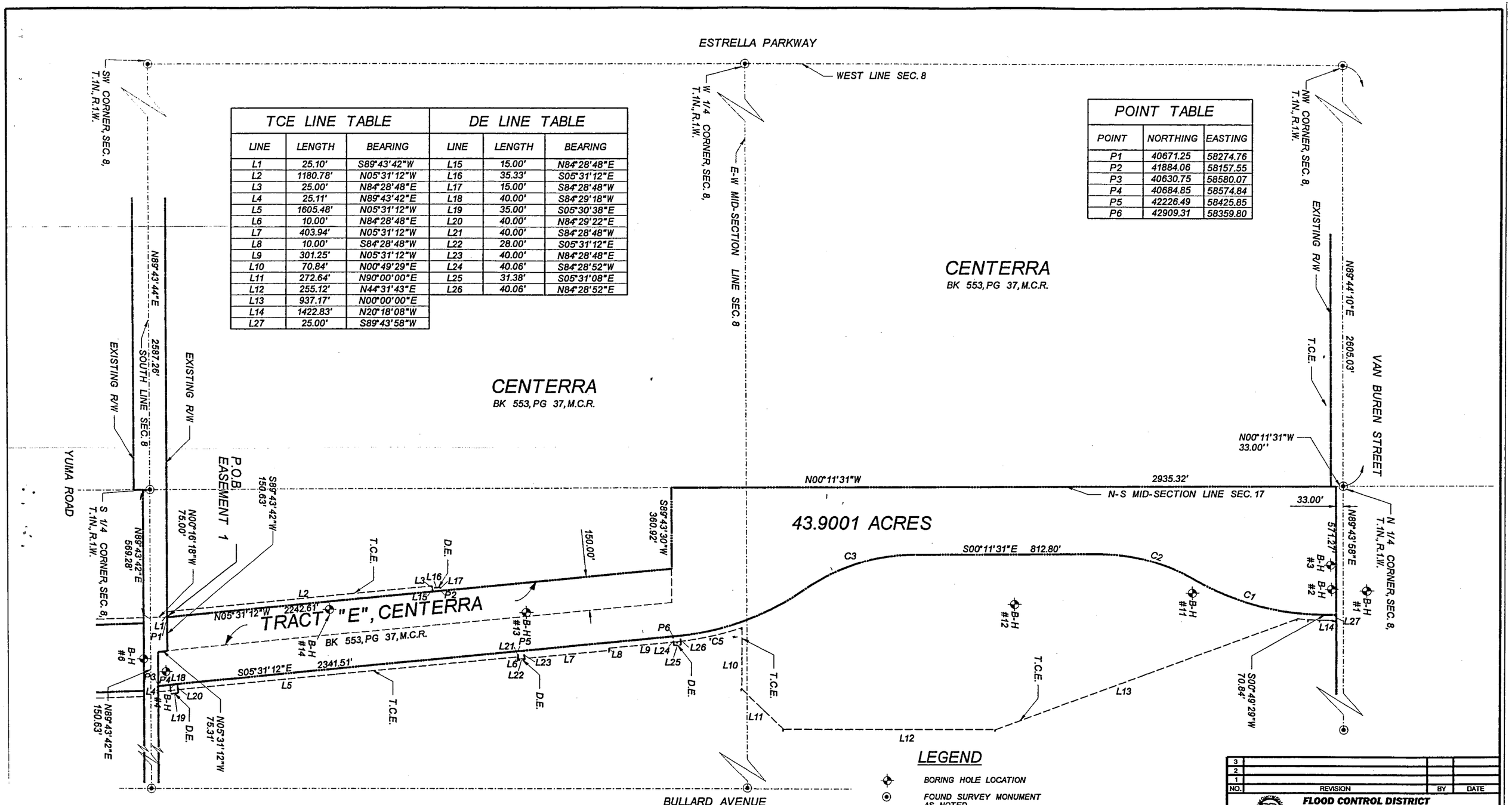
BULLARD WASH CHANNEL IMPROVEMENTS
PHASE II - VAN BUREN STREET TO YUMA ROAD
CONTRACT NO. XXX CXXX

PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D. HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. G4 | HORIZONTAL & VERTICAL CONTROL | SHEET 4 OF 69



TCE LINE TABLE			DE LINE TABLE		
LINE	LENGTH	BEARING	LINE	LENGTH	BEARING
L1	25.10'	S89°43'42"W	L15	15.00'	N84°28'48"E
L2	1180.78'	N05°31'12"W	L16	35.33'	S05°31'12"E
L3	25.00'	N84°28'48"E	L17	15.00'	S84°28'48"W
L4	25.11'	N89°43'42"E	L18	40.00'	S84°29'18"W
L5	1605.48'	N05°31'12"W	L19	35.00'	S05°30'38"E
L6	10.00'	N84°28'48"E	L20	40.00'	N84°29'22"E
L7	403.94'	N05°31'12"W	L21	40.00'	S84°28'48"W
L8	10.00'	S84°28'48"W	L22	28.00'	S05°31'12"E
L9	301.25'	N05°31'12"W	L23	40.00'	N84°28'48"E
L10	70.84'	N00°49'29"E	L24	40.06'	S84°28'52"W
L11	272.64'	N90°00'00"E	L25	31.38'	S05°31'08"E
L12	255.12'	N44°31'43"E	L26	40.06'	N84°28'52"E
L13	937.17'	N00°00'00"E			
L14	1422.83'	N20°18'08"W			
L27	25.00'	S89°43'58"W			

POINT TABLE		
POINT	NORTHING	EASTING
P1	40671.25	58274.76
P2	41884.06	58157.55
P3	40630.75	58580.07
P4	40684.85	58574.84
P5	42226.49	58425.85
P6	42909.31	58359.80

ROW CURVE TABLE			
CURVE	DELTA	RADIUS	ARC
C1	29°07'33"	1148.65'	583.91'
C2	30°08'32"	849.52'	446.92'
C3	35°09'46"	850.00'	521.65'
C4	29°50'04"	1150.00'	598.82'

TCE CURVE TABLE			
CURVE	DELTA	RADIUS	ARC
C5	14°09'09"	1175.00'	290.23'

LEGEND

	BORING HOLE LOCATION
	FOUND SURVEY MONUMENT AS NOTED
FND	FOUND
SEC.	SECTION
COR.	CORNER
MCHD	MARICOPA COUNTY HIGHWAY DEPARTMENT
BCHH	BRASS CAP IN HANDHOLE
I.P.	IRON PIPE
R.R.	RAILROAD
CONC	CONCRETE
C.P.S.	COTTON PICKER SPINDLE
HH	HANDHOLE
C.O.G.	CITY OF GOODYEAR
C.O.M.	CITY OF MESA
ELEV.	ELEVATION
I - FEET	INTERNATIONAL FEET
D.E.	DRAINAGE EASEMENT
T.C.E.	TEMPORARY CONSTRUCTION EASEMENT

N

100 0 100 200

Scale in Feet

NO.	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
PHASE II - VAN BUREN STREET TO YUMA ROAD
CONTRACT NO. XXX CXXX

PRELIMINARY
90% SUBMITTAL
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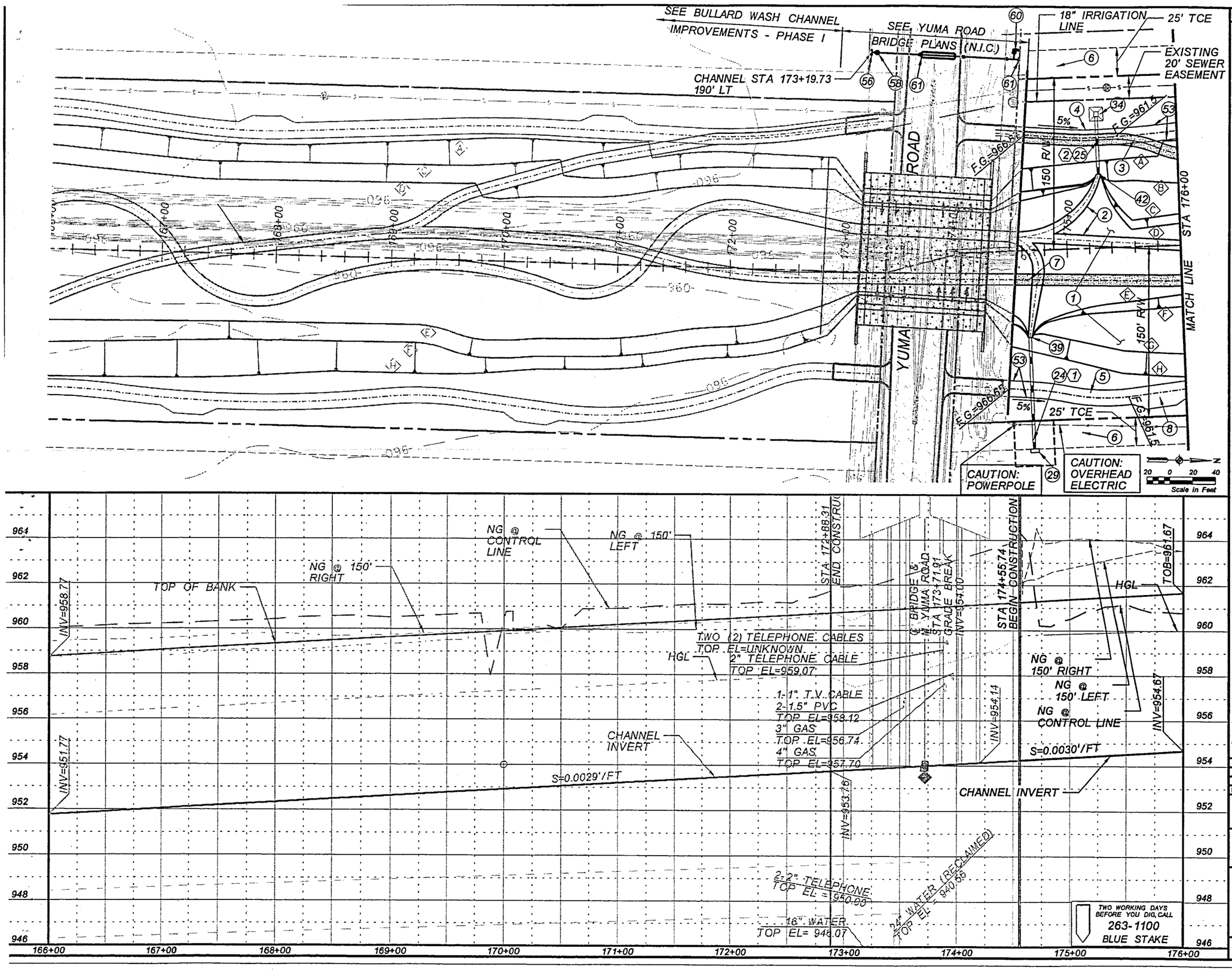
	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D. HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. G5

ROW AND TCE CONTROL

SHEET 5 OF 69



CONSTRUCT

1. CONSTRUCT EARTHEN CHANNEL PER TYPICAL SECTION ON DRAWING #G22.
2. CONSTRUCT CONCRETE TAILWATER SWALE PER DETAIL ON DRAWING #D5. (76 C.Y.)
3. CONSTRUCT CONCRETE MULTI-USE PATH PER DETAIL ON DRAWING #D4. (2860 S.F.)
4. CONSTRUCT WEST MAINTENANCE ROAD PER DETAIL ON DRAWING #D3. (8565 S.F.)
5. CONSTRUCT EAST MAINTENANCE ROAD PER DETAIL ON DRAWING #D3. (2184 S.F.)
6. CONSTRUCT FARM ROAD PER TYPICAL SECTION ON DRAWING #G22.
7. CONSTRUCT MULTI-USE TRAIL/TAILWATER SWALE CROSSING PER DETAIL D5. (1 EACH)
8. CONSTRUCT MAINTENANCE ROAD PULLOUT PER DETAIL DRAWING #D3. (1 EACH)

24. INSTALL 30" TAILWATER PIPE. (98.5 L.F.)
25. INSTALL 36" TAILWATER PIPE. (52.5 L.F.)
29. CONSTRUCT 30" DROP INLET HEADWALL PER MAG STD DET 501-5 (SINGLE). (1 EACH)
34. CONSTRUCT MEDIAN CATCH BASIN PER ADOT STD DET C-15.80 (TRIPLE)(1 EACH)
39. CONSTRUCT 30" OUTLET HEADWALL PER MAG STD DET 501-4 (SINGLE). (1 EACH)
42. CONSTRUCT 36" OUTLET HEADWALL PER MAG STD DET 501-4 (SINGLE). (1 EACH)
53. CONSTRUCT CONCRETE RIBBON CURB PER DETAIL ON DRAWING #D8. (580 L.F.)
56. INSTALL 16" X 6" TAPPING SLEEVE PER MAG STD DET 340. INSTALL VALVE & CONES PER COG STD DET G-3320-1 TYPE C. (1 EACH)
58. INSTALL 6" D.I.P. CLASS 50 WATERLINE TO R.O.W. (131 L.F.)
59. INSTALL 6" X 2" TAPPED CAP WITH 2" I.P. CORP. STOP AT R.O.W. (1 EACH)
60. INSTALL 1" WATER SERVICE CONNNECTION PER COG STD DET G-3310 & G-03312. (1 EACH)
61. SAWCUT, REMOVE, & REPLACE A.C. PVMT. IN KIND PER MAG STD DET 200 TYPE A. (7 S.Y.)

1. FOR SIDE DRAIN PROFILE SEE DRAWING #SD1.
2. FOR SIDE DRAIN PROFILE SEE DRAWING #SD1.

NO.	REVISION	BY	DATE
3			
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

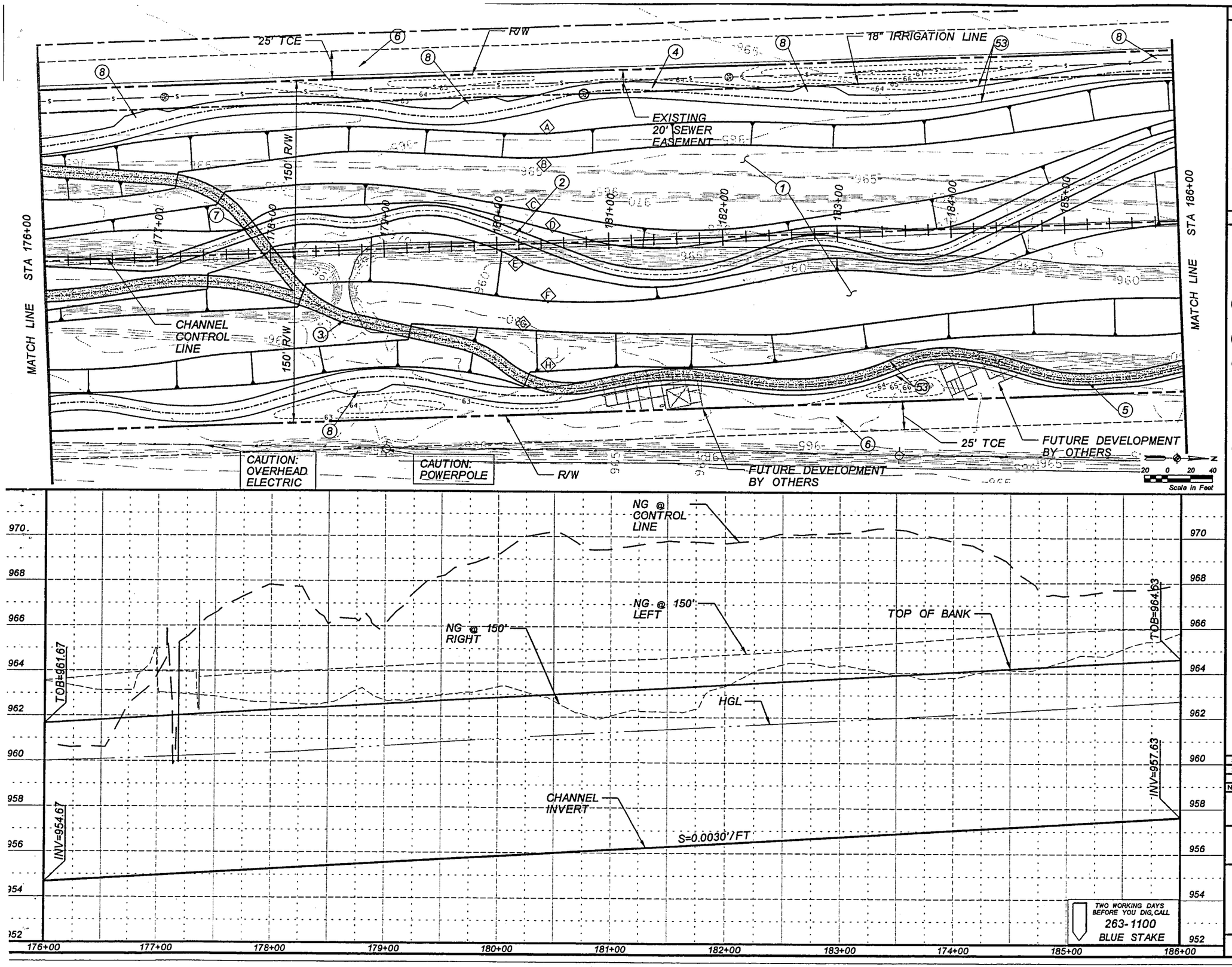
BULLARD WASH CHANNEL IMPROVEMENTS
PHASE II - VAN BUREN STREET TO YUMA ROAD
FCD CONTRACT NO. XXX CXXX

PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D.HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. C1 | PLAN AND PROFILE STA 174+55.74 TO 176+00 | SHEET 25 OF 69



REMOVE

CONSTRUCT

1. CONSTRUCT EARTHEN CHANNEL PER TYPICAL SECTION ON DRAWING #G22.
2. CONSTRUCT CONCRETE TAILWATER SWALE PER DETAIL ON DRAWING #D5. (233 C.Y.)
3. CONSTRUCT CONCRETE MULTI-USE PATH PER DETAIL ON DRAWING #D4. (13,460 S.F.)
4. CONSTRUCT WEST MAINTENANCE ROAD PER DETAIL ON DRAWING #D3. (14,140 S.F.)
5. CONSTRUCT EAST MAINTENANCE ROAD PER DETAIL ON DRAWING #D3. (8540 S.F.)
6. CONSTRUCT FARM ROAD PER TYPICAL SECTION ON DRAWING #G22.
7. CONSTRUCT MULTI-USE TRAIL/TAILWATER SWALE CROSSING PER DETAIL D5. (1 EACH)
8. CONSTRUCT MAINTENANCE ROAD PULLOUT PER DETAIL DRAWING #D3. (5 EACH)
53. CONSTRUCT CONCRETE RIBBON CURB PER DETAIL ON DRAWING #D8. (4040 L.F.)

NO.	REVISION	BY	DATE
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
PHASE II - VAN BUREN STREET TO YUMA ROAD
FCD CONTRACT NO. XXX CXXX

PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION

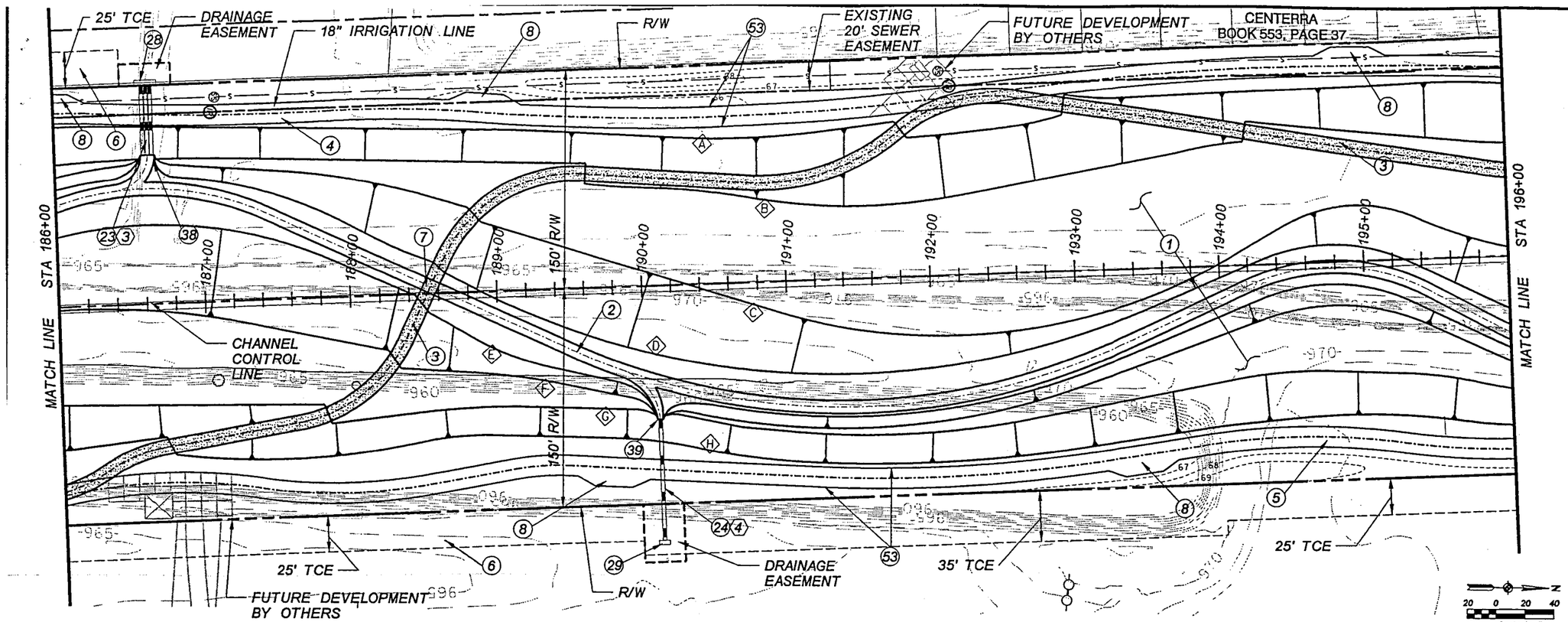
	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D.HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

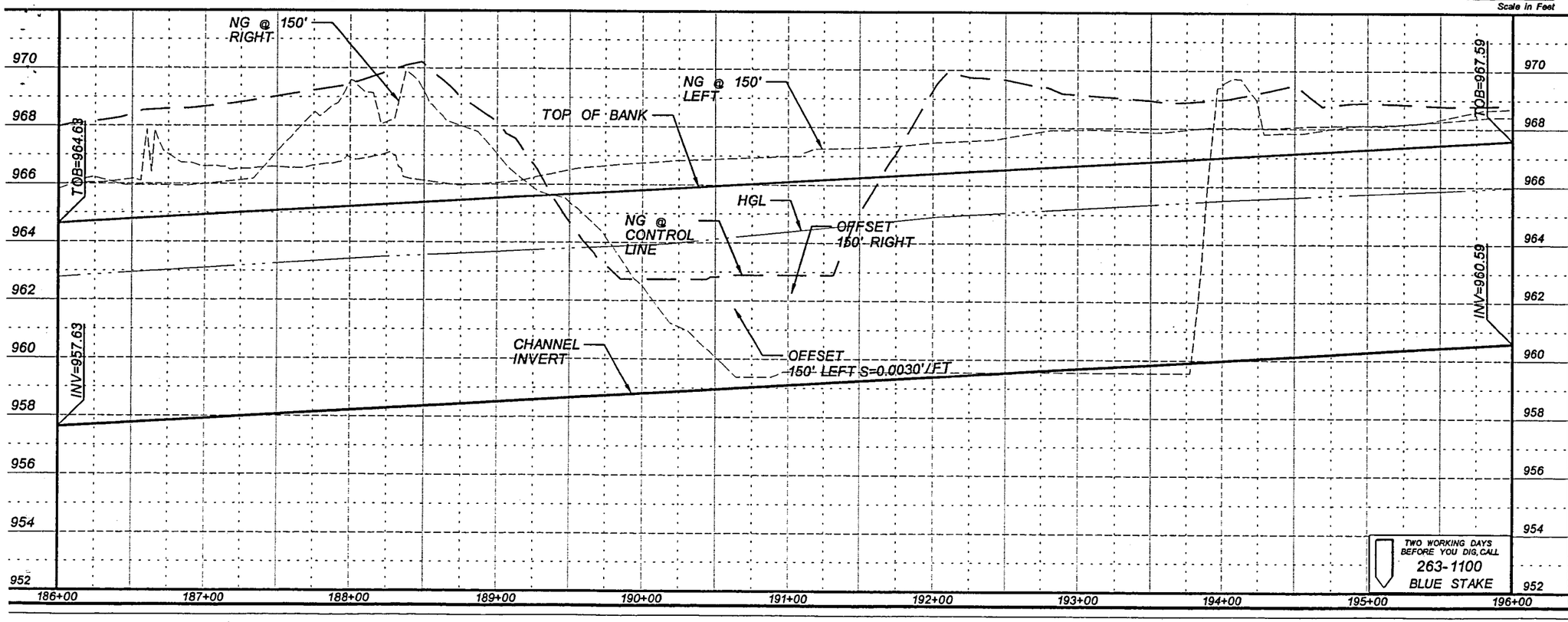
WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. C2

PLAN AND PROFILE
STA 176+00 TO 186+00

SHEET 26 OF 69





☐ REMOVE

○ CONSTRUCT ○

1. CONSTRUCT EARTHEN CHANNEL PER TYPICAL SECTION ON DRAWING #G22.
2. CONSTRUCT CONCRETE TAILWATER SWALE PER DETAIL ON DRAWING #D5. (252 C.Y.)
3. CONSTRUCT CONCRETE MULTI-USE PATH PER DETAIL ON DRAWING #D4. (11,100 S.F.)
4. CONSTRUCT WEST MAINTENANCE ROAD PER DETAIL ON DRAWING #D3.(13,440 S.F.)
5. CONSTRUCT EAST MAINTENANCE ROAD PER DETAIL ON DRAWING #D3.(13,760 S.F.)
6. CONSTRUCT FARM ROAD PER TYPICAL SECTION ON DRAWING #G22.
7. CONSTRUCT MULTI-USE TRAIL/TAILWATER SWALE CROSSING PER DETAIL D5. (1 EACH)
8. CONSTRUCT MAINTENANCE ROAD PULLOUT PER DETAIL DRAWING #D3. (4 EACH)
23. INSTALL 24" TAILWATER PIPE. (144 L.F.)
24. INSTALL 30" TAILWATER PIPE. (83 L.F.)
28. CONSTRUCT 24" DROP INLET HEADWALL PER MAG STD DET 501-5 MODIFIED (TRIPLE).(1 EACH)
29. CONSTRUCT 30" DROP INLET HEADWALL PER MAG STD DET 501-5 (SINGLE). (1 EACH)
38. CONSTRUCT 24" OUTLET HEADWALL PER MAG STD DET 501-4 MODIFIED (TRIPLE). (1 EACH)
39. CONSTRUCT 30" OUTLET HEADWALL PER MAG STD DET 501-4 (SINGLE). (1 EACH)
53. CONSTRUCT CONCRETE RIBBON CURB PER DETAIL ON DRAWING #D8.(4020 L.F.)

3. FOR SIDE DRAIN PROFILE SEE DRAWING #SD1.
4. FOR SIDE DRAIN PROFILE SEE DRAWING #SD2.

NO.	REVISION	BY	DATE
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

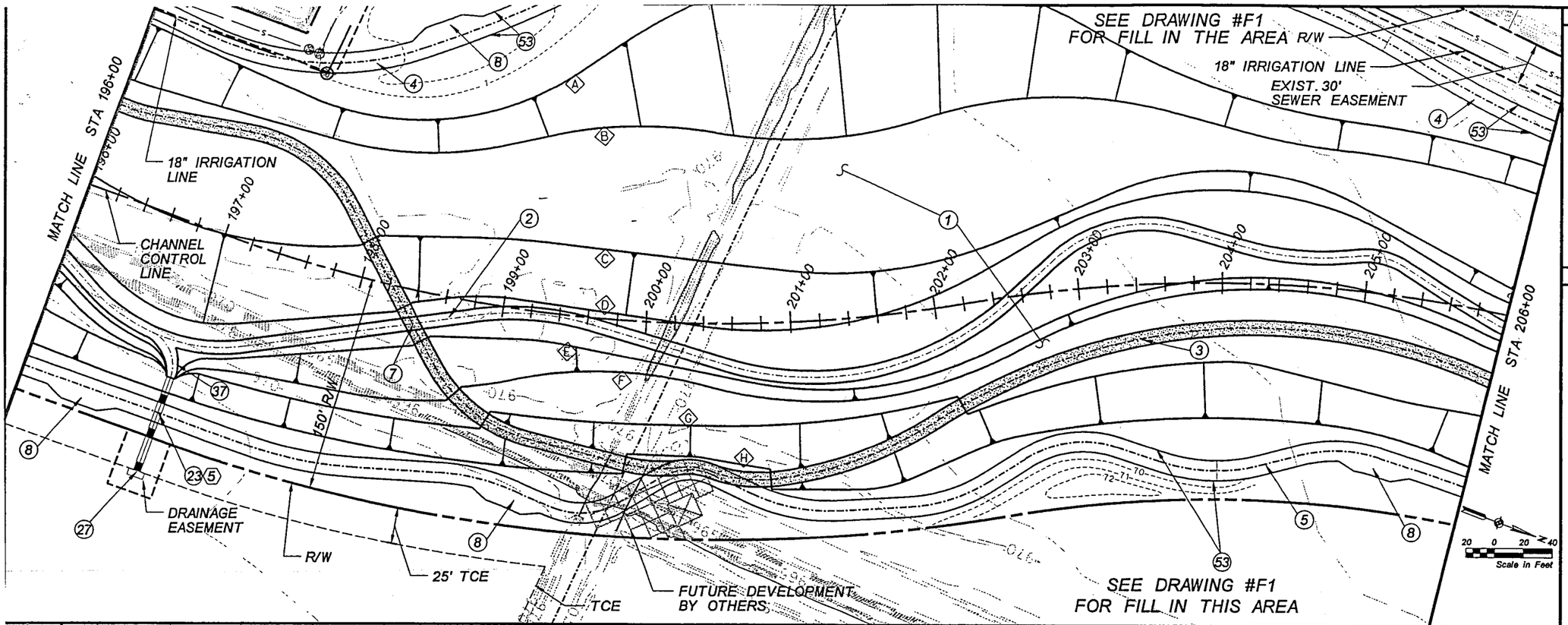
BULLARD WASH CHANNEL IMPROVEMENTS
PHASE II - VAN BUREN STREET TO YUMA ROAD
FCD CONTRACT NO. XXX CXXX

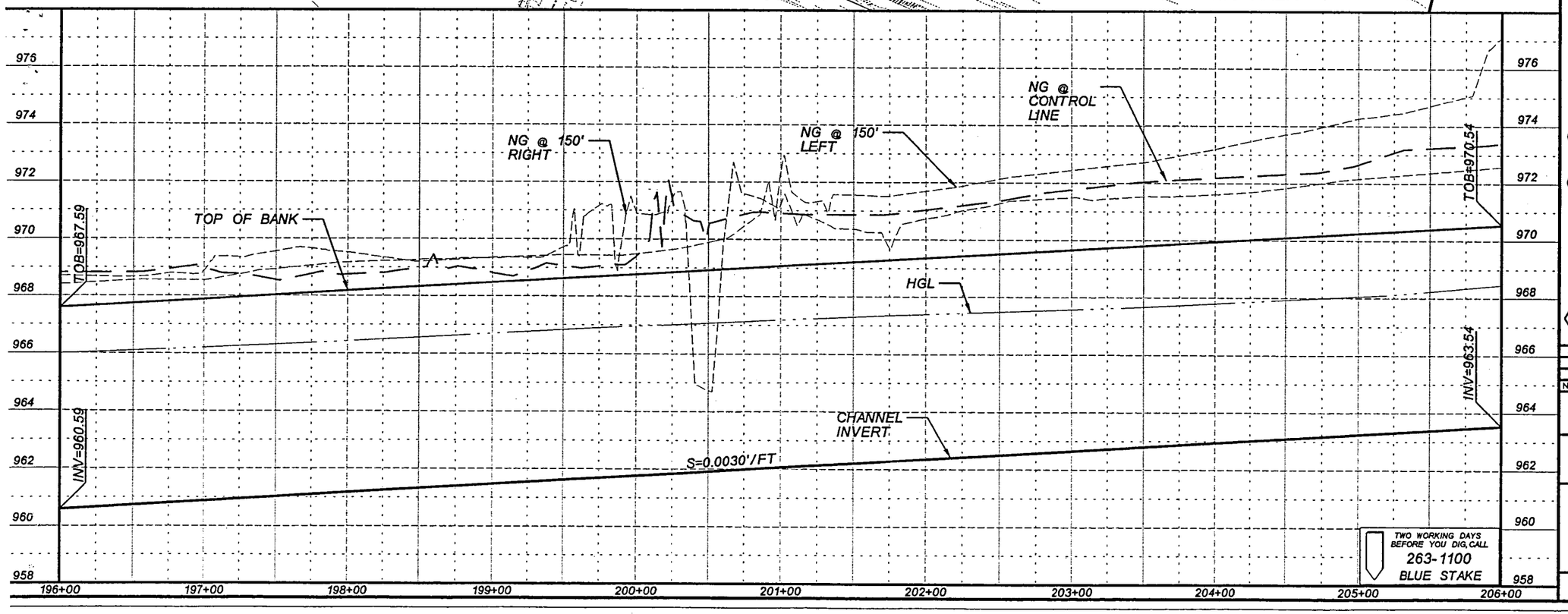
PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D.HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. C3 | STA 186+00 TO 196+00 | SHEET 27 OF 69





☐ REMOVE

○ CONSTRUCT ○

1. CONSTRUCT EARTHEN CHANNEL PER TYPICAL SECTION ON DRAWING #G22.
2. CONSTRUCT CONCRETE TAILWATER SWALE PER DETAIL ON DRAWING #D5. (248 C.Y.)
3. CONSTRUCT CONCRETE MULTI-USE PATH PER DETAIL ON DRAWING #D4. (10,900 S.F.)
4. CONSTRUCT WEST MAINTENANCE ROAD PER DETAIL ON DRAWING #D3. (14,210 S.F.)
5. CONSTRUCT EAST MAINTENANCE ROAD PER DETAIL ON DRAWING #D3. (14,084 S.F.)
6. CONSTRUCT FARM ROAD PER TYPICAL SECTION ON DRAWING #G22.
7. CONSTRUCT MULTI-USE TRAIL/TAILWATER SWALE CROSSING PER DETAIL D5. (1 EACH)
8. CONSTRUCT MAINTENANCE ROAD PULLOUT PER DETAIL DRAWING #D3. (6 EACH)
23. INSTALL 24" TAILWATER PIPE. (138 L.F.)
27. CONSTRUCT 24" DROP INLET HEADWALL PER MAG STD DET 501-5 (DOUBLE). (1 EACH)
37. CONSTRUCT 24" OUTLET HEADWALL PER MAG STD DET 501-4 (DOUBLE). (1 EACH)
53. CONSTRUCT CONCRETE RIBBON CURB PER DETAIL ON DRAWING #D8. (4142 L.F.)

(5) FOR SIDE DRAIN PROFILE SEE DRAWING #SD2.

NO.	REVISION	BY	DATE
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
PHASE II - VAN BUREN STREET TO YUMA ROAD
FCD CONTRACT NO. XXX CXXX

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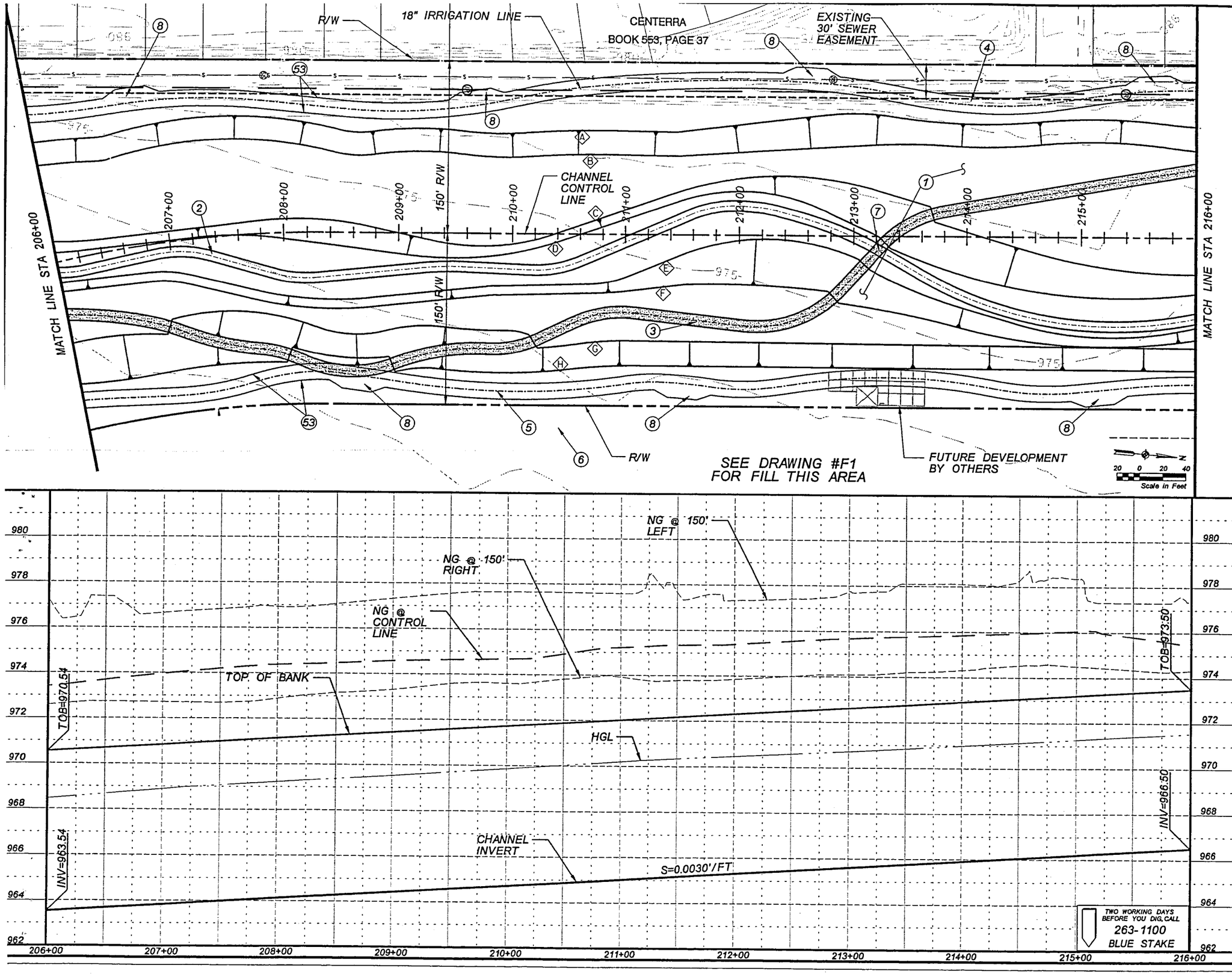
DRAWN	D.HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. C4

STA 196+00 TO 206+00

SHEET 28 OF 69



☐ REMOVE

○ CONSTRUCT

1. CONSTRUCT EARTHEN CHANNEL PER TYPICAL SECTION ON DRAWING #G22.
2. CONSTRUCT CONCRETE TAILWATER SWALE PER DETAIL ON DRAWING #D5. (230 C.Y.)
3. CONSTRUCT CONCRETE MULTI-USE PATH PER DETAIL ON DRAWING #D4. (10,400 S.F.)
4. CONSTRUCT WEST MAINTENANCE ROAD PER DETAIL ON DRAWING #D3.(14,476 S.F.)
5. CONSTRUCT EAST MAINTENANCE ROAD PER DETAIL ON DRAWING #D3.(13,806 S.F.)
6. CONSTRUCT FARM ROAD PER TYPICAL SECTION ON DRAWING #G22.
7. CONSTRUCT MULTI-USE TRAIL/TAILWATER SWALE CROSSING PER DETAIL D5. (1 EACH)
8. CONSTRUCT MAINTENANCE ROAD PULLOUT PER DETAIL DRAWING #D3. (7 EACH)
53. CONSTRUCT CONCRETE RIBBON CURB PER DETAIL ON DRAWING #D8. (4032 L.F.)

NO.	REVISION	BY	DATE
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
PHASE II - VAN BUREN STREET TO YUMA ROAD
FCD CONTRACT NO. XXX CXXX

PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION

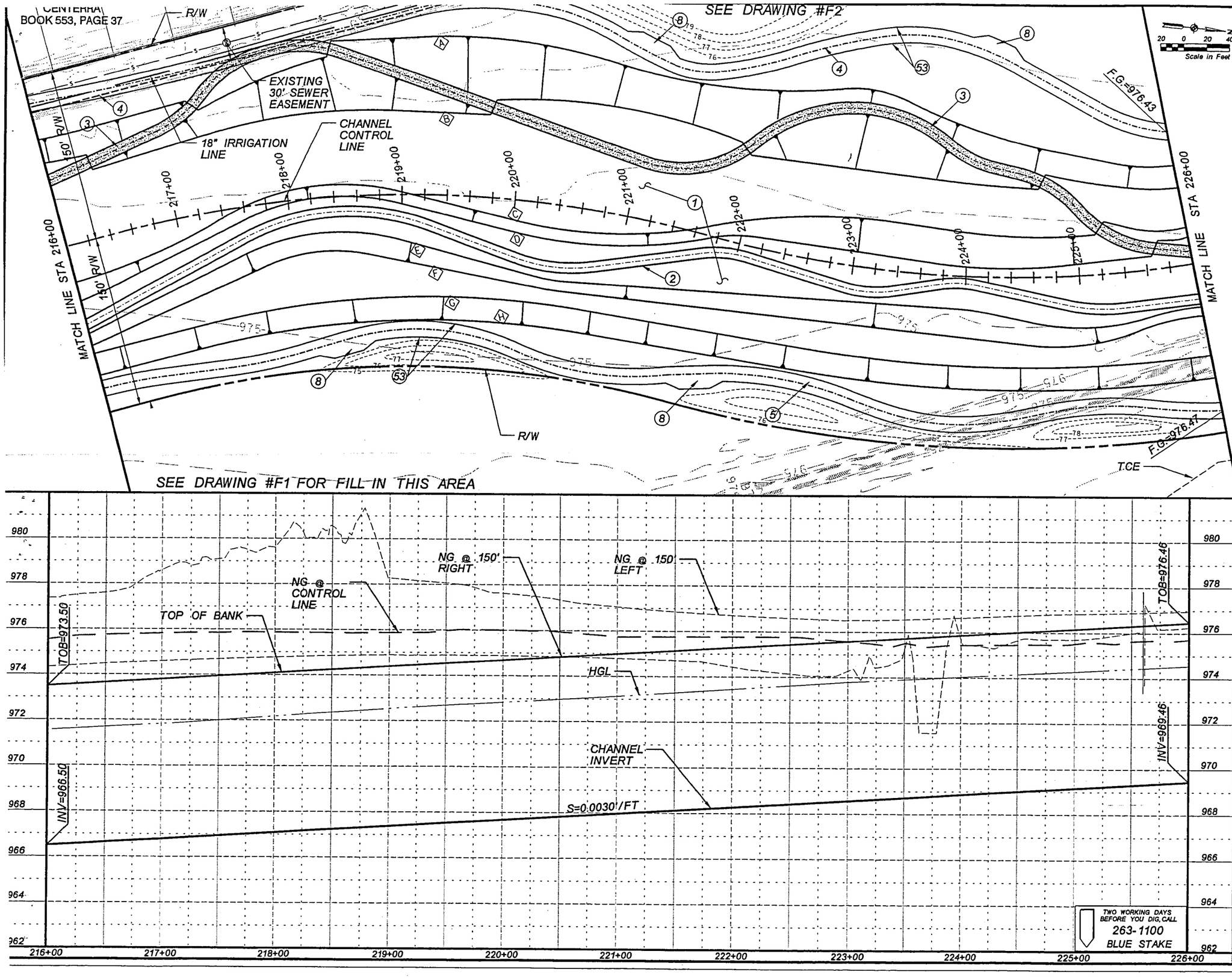
	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D.HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. C5

STA 206+00 TO 216+00

SHEET 29 OF 69



REMOVE

CONSTRUCT

1. CONSTRUCT EARTHEN CHANNEL PER TYPICAL SECTION ON DRAWING #G22.
2. CONSTRUCT CONCRETE TAILWATER SWALE PER DETAIL ON DRAWING #D5. (227 C.Y.)
3. CONSTRUCT CONCRETE MULTI-USE PATH PER DETAIL ON DRAWING #D4. (11,100 S.F.)
4. CONSTRUCT WEST MAINTENANCE ROAD PER DETAIL ON DRAWING #D3. (13,810 S.F.)
5. CONSTRUCT EAST MAINTENANCE ROAD PER DETAIL ON DRAWING #D3. (14,000 S.F.)
6. CONSTRUCT FARM ROAD PER TYPICAL SECTION ON DRAWING #G22.
8. CONSTRUCT MAINTENANCE ROAD PULLOUT PER DETAIL DRAWING #D3. (4 EACH)
53. CONSTRUCT CONCRETE RIBBON CURB PER DETAIL ON DRAWING #D8. (4080 L.F.)

NO.	REVISION	BY	DATE
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
PHASE II - VAN BUREN STREET TO YUMA ROAD
FCD CONTRACT NO. XXX CXXX

PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION

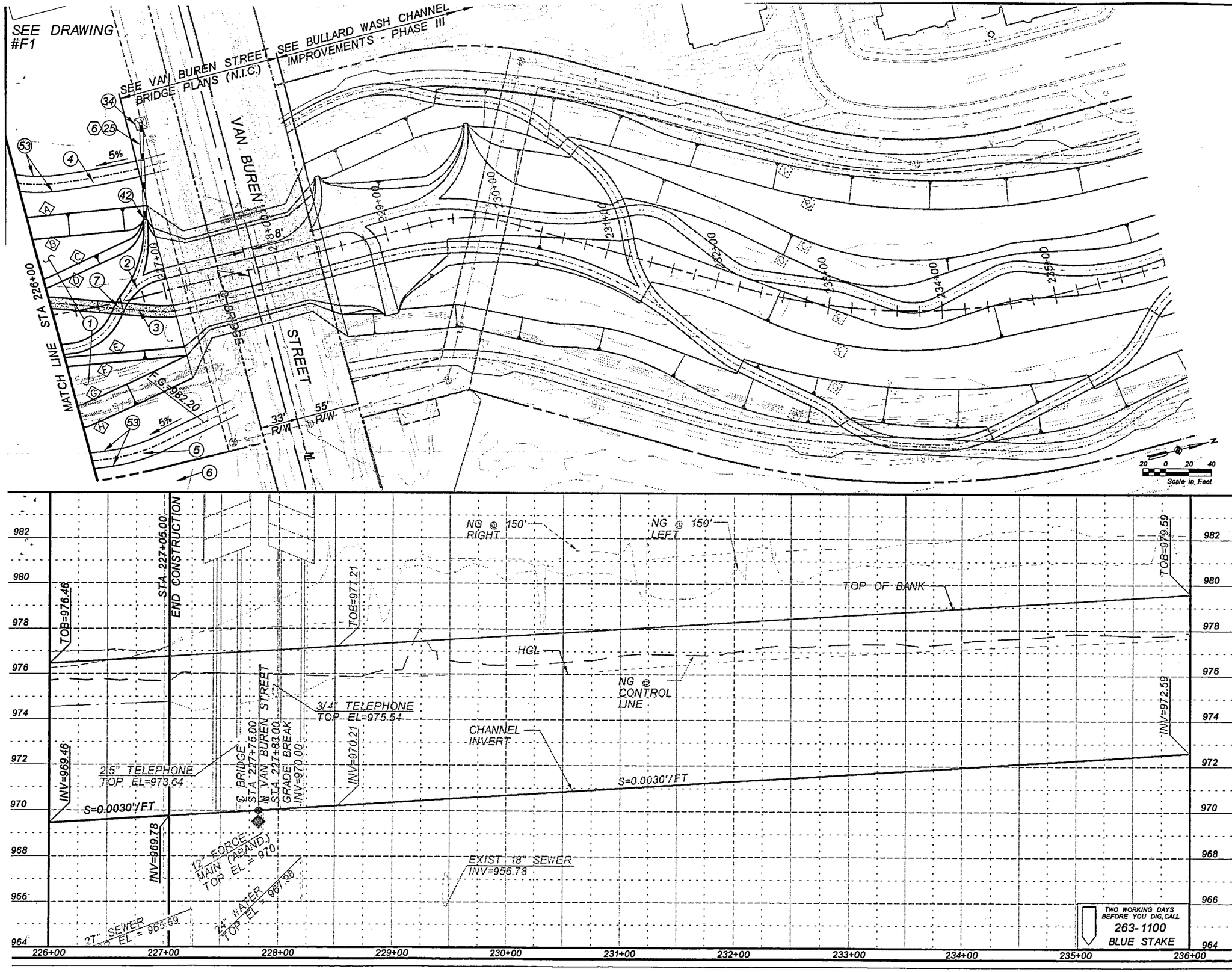
	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D.HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. C6

STA 216+00 TO 226+00

SHEET 30 OF 69



☐ REMOVE

○ CONSTRUCT ○

1. CONSTRUCT EARTHEN CHANNEL PER TYPICAL SECTION ON DRAWING #G22.
2. CONSTRUCT CONCRETE TAILWATER SWALE PER DETAIL ON DRAWING #D5. (27 C.Y.)
3. CONSTRUCT CONCRETE MULTI-USE PATH PER DETAIL ON DRAWING #D4. (1100 S.F.)
4. CONSTRUCT WEST MAINTENANCE ROAD PER DETAIL ON DRAWING #D3. (1428 S.F.)
5. CONSTRUCT EAST MAINTENANCE ROAD PER DETAIL ON DRAWING #D3. (1484 S.F.)
7. CONSTRUCT MULTI-USE TRAIL/TAILWATER SWALE CROSSING PER DETAIL D5. (1 EACH)
13. CONSTRUCT CHANNEL TRANSITION AT BRIDGES PER DETAILS D1 AND D2.
25. INSTALL 36" TAILWATER PIPE. (90 L.F.)
34. CONSTRUCT MEDIAN CATCH BASIN PER ADOT STD DET C-15.80 (DOUBLE).(1 EA)
42. CONSTRUCT 36" OUTLET HEADWALL PER MAG STD DET 501-4 (SINGLE). (1 EACH)
53. CONSTRUCT CONCRETE RIBBON CURB PER DETAIL ON DRAWING #D8. (416 LF)

6. FOR SIDE DRAIN PROFILE SEE DRAWING #SD2

NO.	REVISION	BY	DATE
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
PHASE II - VAN BUREN STREET TO YUMA ROAD
FCD CONTRACT NO. XXX CXXX

PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION

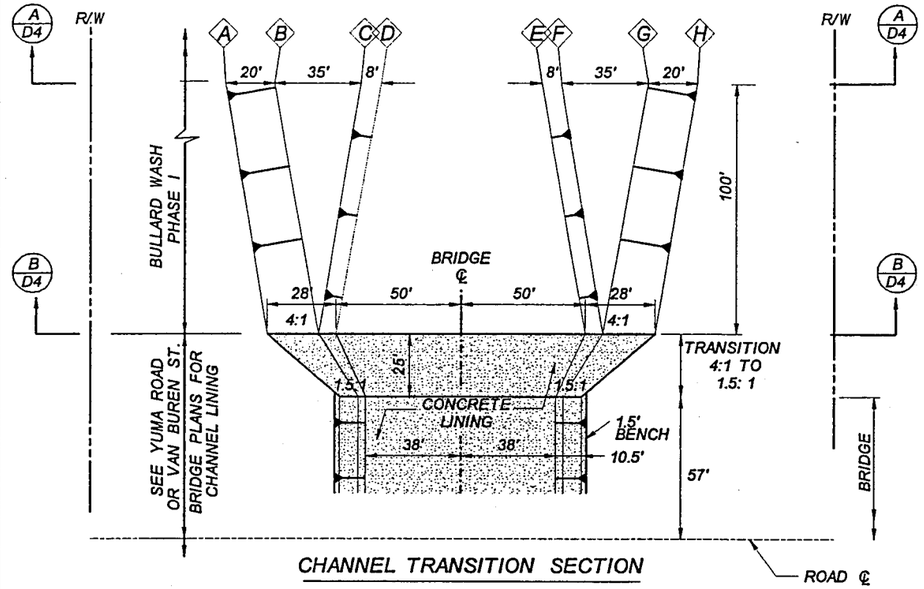
	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D.HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. C7

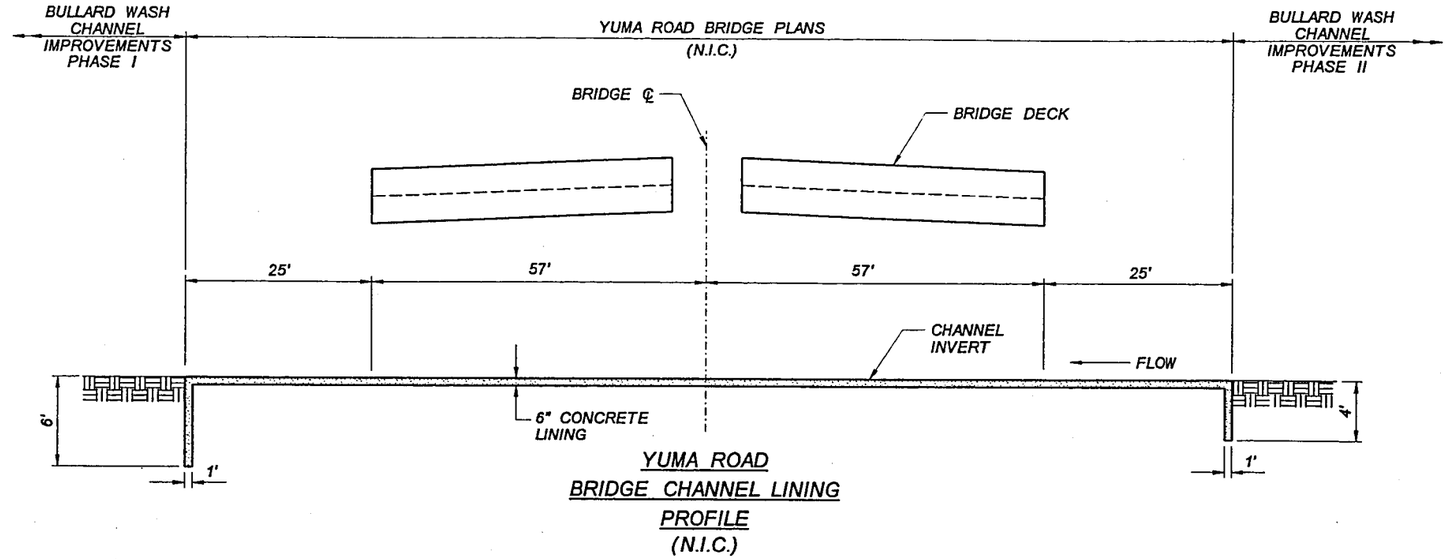
STA 226+00 TO 236+00

SHEET 31 OF 69



CHANNEL TRANSITION SECTION

NORTH OF YUMA RD. BRIDGE

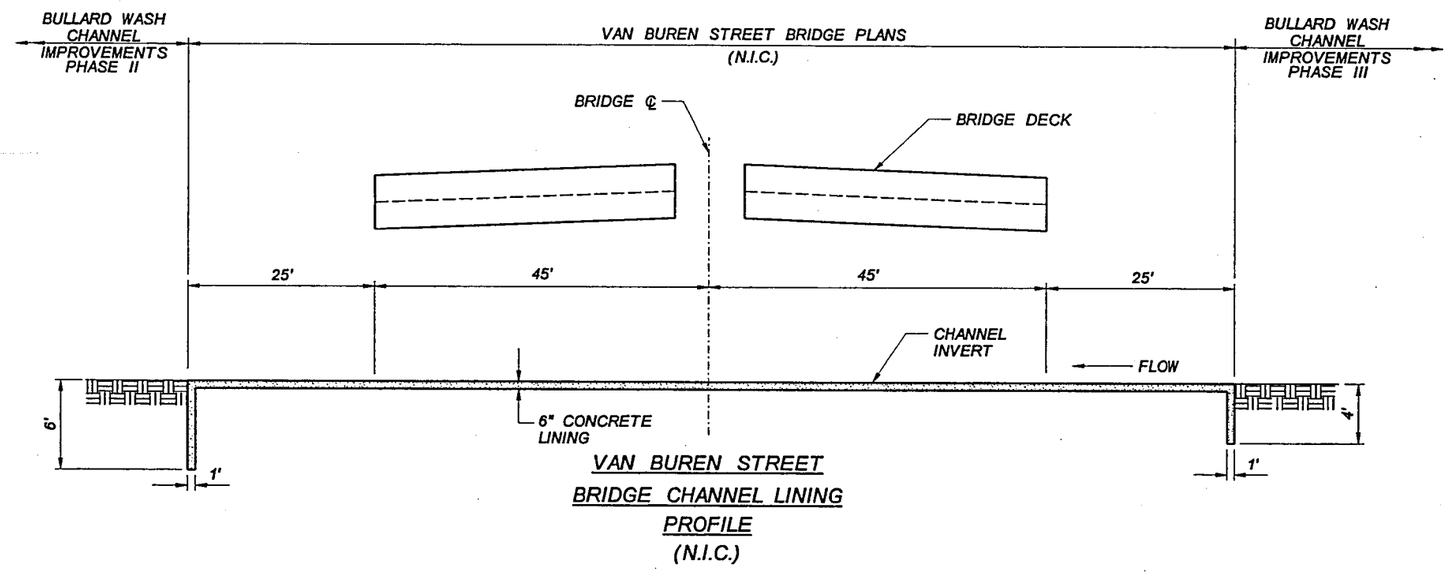


YUMA ROAD

BRIDGE CHANNEL LINING

PROFILE

(N.I.C.)

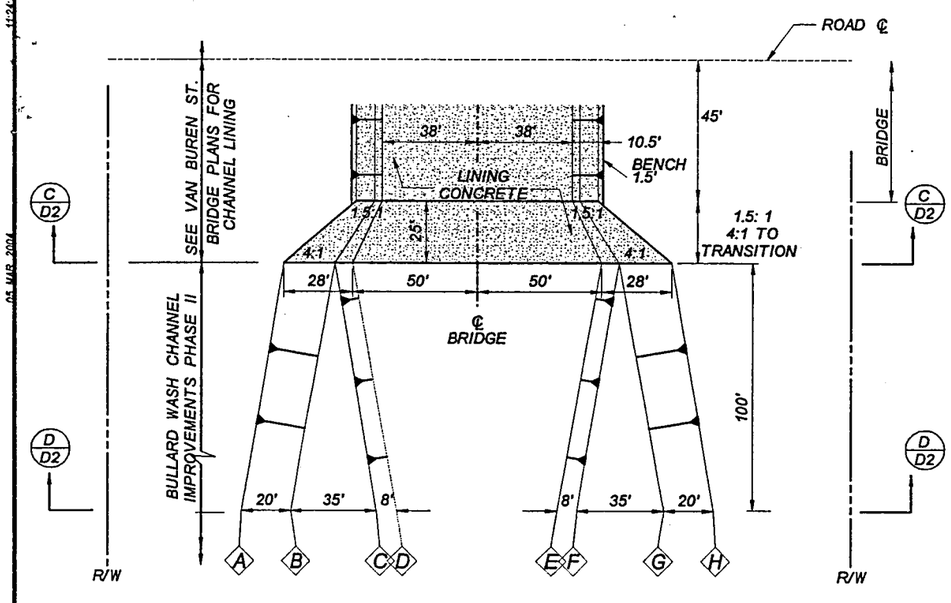


VAN BUREN STREET

BRIDGE CHANNEL LINING

PROFILE

(N.I.C.)



CHANNEL TRANSITION SECTION

SOUTH OF VAN BUREN ST. BRIDGE

CHANNEL GEOMETRY ALIGNMENT LEGEND

- A WEST TOP OF MAIN CHANNEL
- B WEST BOTTOM OF MAIN CHANNEL
- C WEST TOP OF LOW FLOW CHANNEL
- D WEST BOTTOM OF LOW FLOW CHANNEL
- E EAST BOTTOM OF LOW FLOW CHANNEL
- F EAST TOP OF LOW FLOW CHANNEL
- G EAST BOTTOM OF MAIN CHANNEL
- H EAST TOP OF MAIN CHANNEL

NO.	REVISION	BY	DATE
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
PHASE II - VAN BUREN STREET TO YUMA ROAD
FCD CONTRACT NO. XXX CXXX

PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION

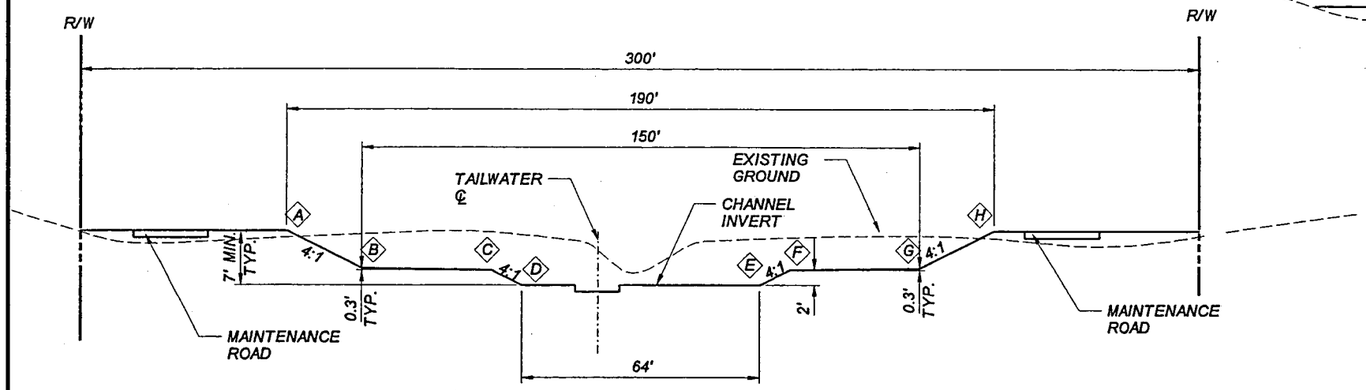
	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D. HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. D1

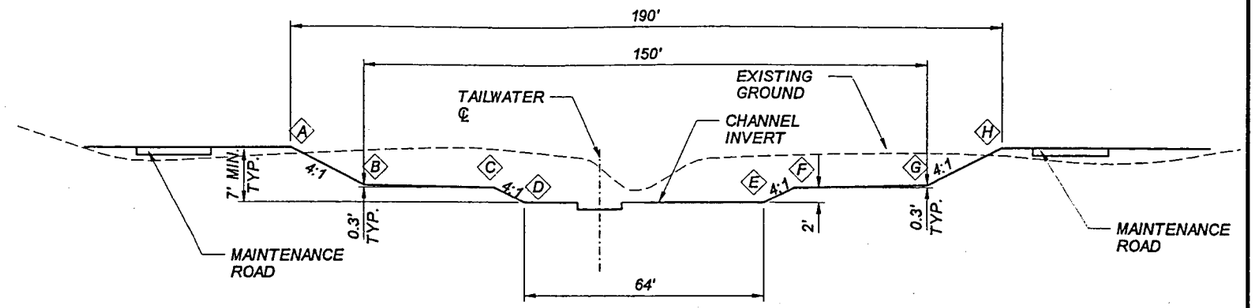
CHANNEL TRANSITIONS AT BRIDGES

SHEET 32 OF 69



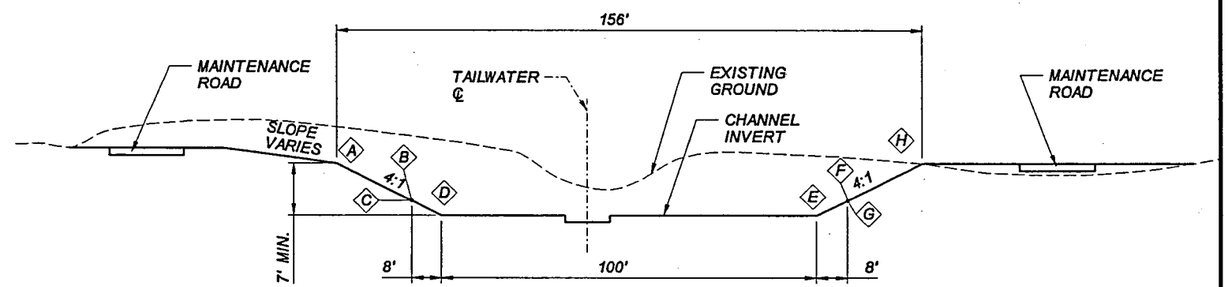
TRANSITION SECTION A-A

(YUMA ROAD)



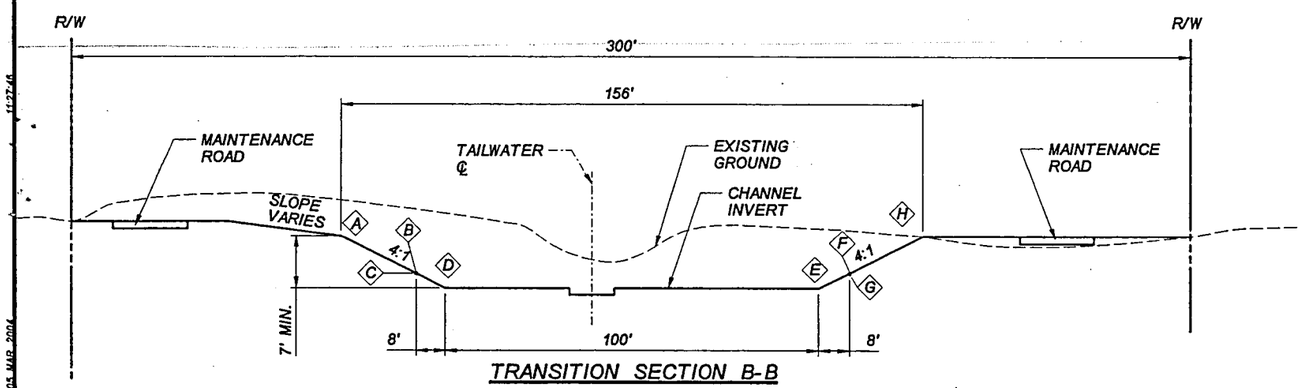
TRANSITION SECTION C-C

(VAN BUREN STREET)



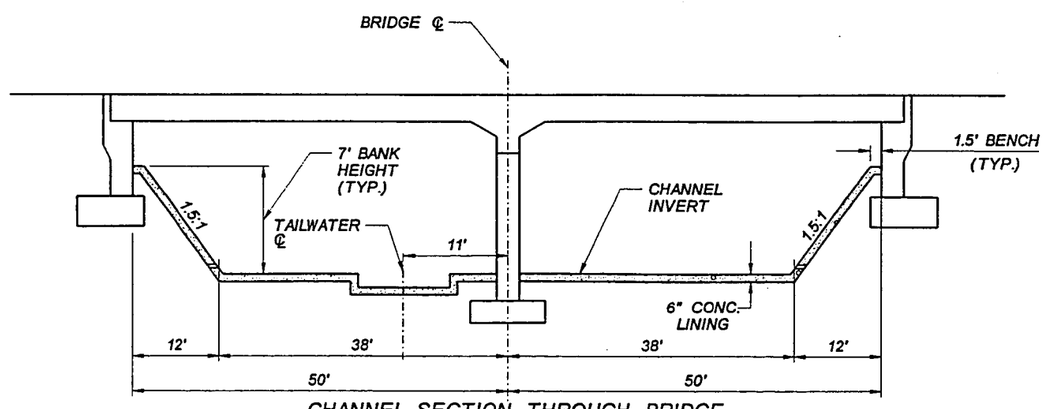
TRANSITION SECTION D-D

(VAN BUREN STREET)



TRANSITION SECTION B-B

(YUMA ROAD)



CHANNEL SECTION THROUGH BRIDGE

YUMA ROAD & VAN BUREN STREET

(N.I.C.)

CHANNEL GEOMETRY ALIGNMENT LEGEND

- A WEST TOP OF MAIN CHANNEL
- B WEST BOTTOM OF MAIN CHANNEL
- C WEST TOP OF LOW FLOW CHANNEL
- D WEST BOTTOM OF LOW FLOW CHANNEL
- E EAST BOTTOM OF LOW FLOW CHANNEL
- F EAST TOP OF LOW FLOW CHANNEL
- G EAST BOTTOM OF MAIN CHANNEL
- H EAST TOP OF MAIN CHANNEL

NO.	REVISION	BY	DATE
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
PHASE II - VAN BUREN STREET TO YUMA ROAD
FCD CONTRACT NO. XXX CXXX

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DRAWN	D. HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. D2

BRIDGE TRANSITIONS AT BRIDGE SECTIONS

SHEET 33 OF 69

CENTERRA
BOOK 553, PAGE 37

SEE DETAIL BELOW

T.C.E.

LIMITS OF FILL

VAN BUREN STREET

Scale in Feet

CONSTRUCTION NOTES

(4) CONSTRUCT WEST MAINTENANCE ROAD PER DETAIL ON DRAWING D3. (QUANTITIES INCLDED ON SHEET C4)

(8) CONSTRUCT MAINTENANCE ROAD PULLOUT PER DETAIL DRAWING #D8. (QUANTITIES INCLUDED ON SHEET C4)

(15) PLACE COMPACTED FILL AS SHOWN ON PLANS. SEE SPECIAL PROVISIONS FOR COMPACTION REQUIREMENTS.

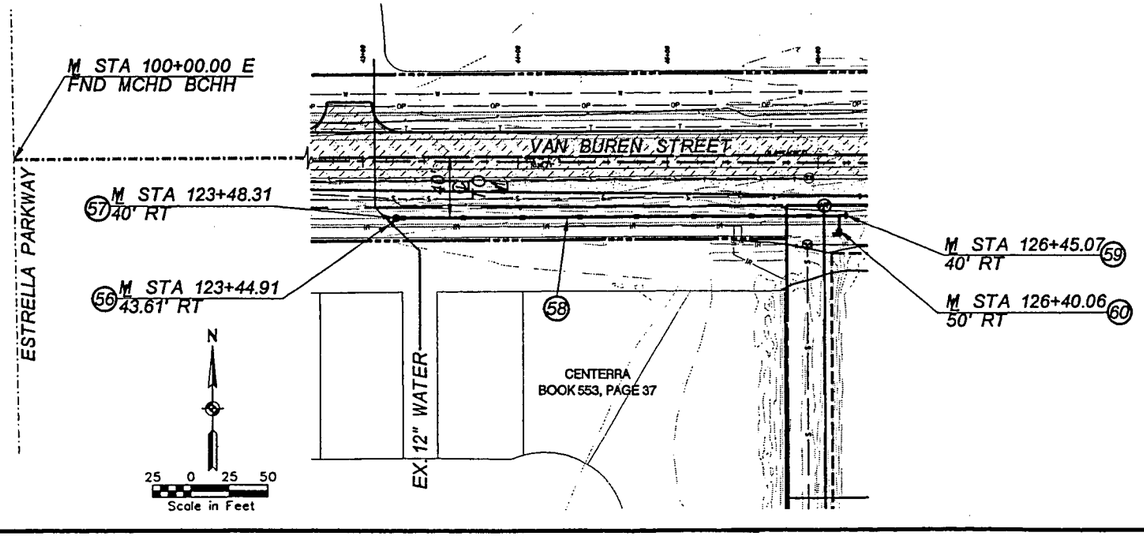
(56) INSTALL 12" X 6" TAPPING SLEEVE & VALVE PER MAG STD DET 340. INSTALL VALVE BOX AND COVER PER COG STD DET G-3320-1, TYPE C. (1 EACH)

(57) INSTALL 6" 45° BEND AND JOINT RESTRAINT PER MAG STD DET 380. (1 EACH)

(58) INSTALL 6" DIP CLASS 50 WATERLINE (296.69 L.F.)

(59) INSTALL 6" X 2" TAPPED CAP WITH 2" I.P. CORP. STOP. (1 EACH)

(60) INSTALL 1" WATER SERVICE CONNECTION PER COG STD DET G-3310 & G-3312. (1 EACH)



NO.	REVISION	BY	DATE
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
PHASE II - VAN BUREN STREET TO YUMA ROAD
CONTRACT NO. XXX CXXX

PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D. HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. F1 | FILL SITE | SHEET 37 OF 69

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

IN COOPERATION WITH THE CITY OF GOODYEAR

PLANS FOR THE CONSTRUCTION OF

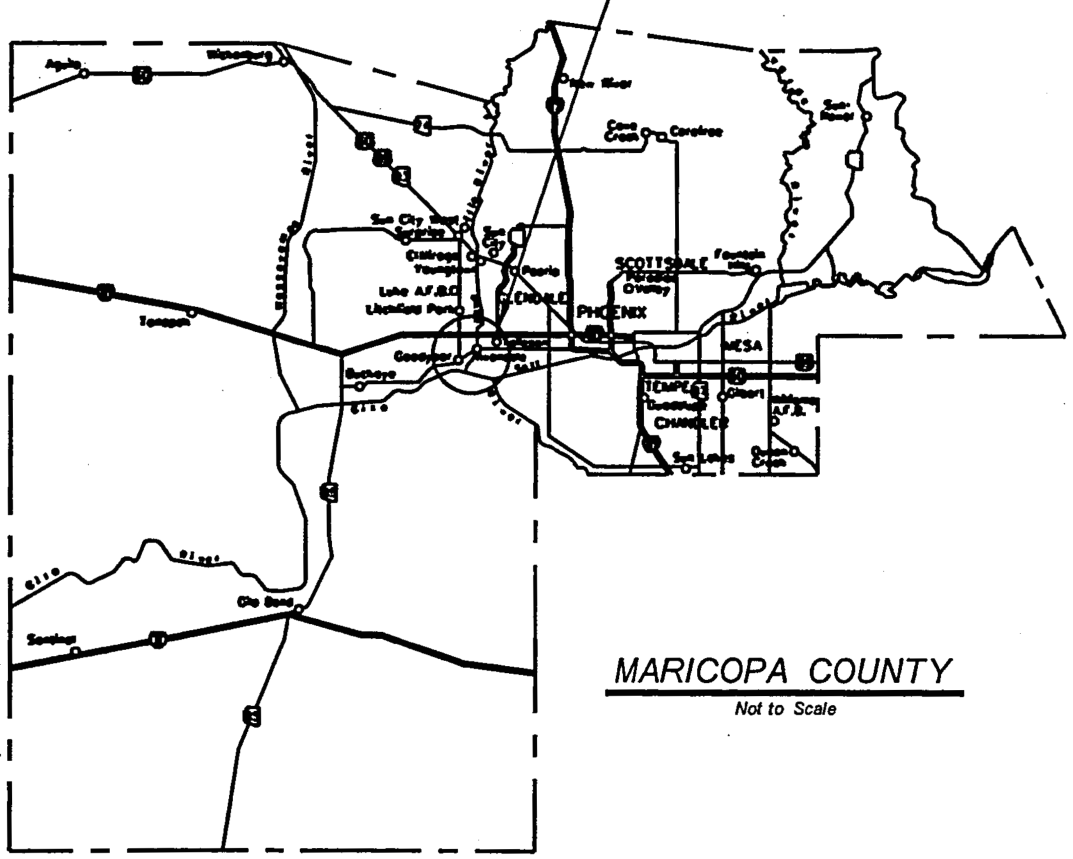
BULLARD WASH CHANNEL IMPROVEMENTS

PHASE III - INTERSTATE 10 TO VAN BUREN STREET

PCN. 470 13 31

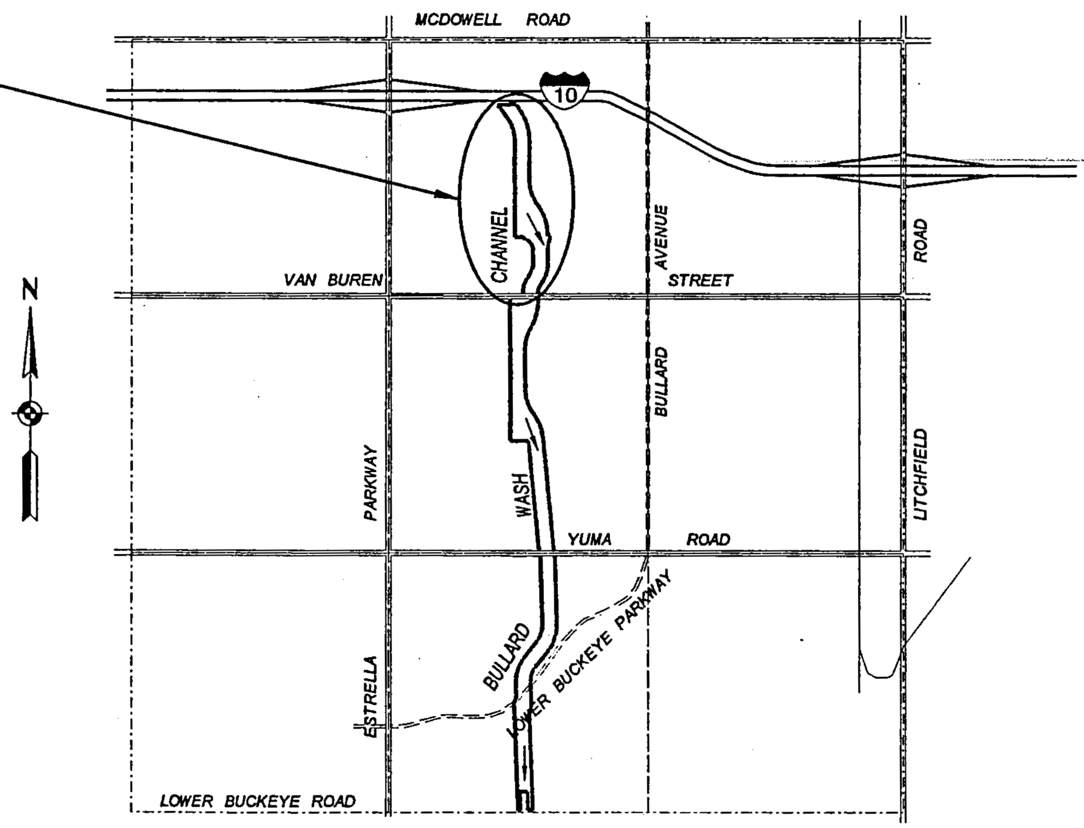
FCD CONTRACT NO. XXX CXXX

PROJECT LOCATION



MARICOPA COUNTY

Not to Scale



VICINITY MAP

Not to Scale

CITY OF GOODYEAR | DATE

MARICOPA COUNTY DEPARTMENT OF ENVIRONMENTAL SERVICES | DATE

TWO WORKING DAYS BEFORE YOU DIG, CALL 263-1100 BLUE STAKE

PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

ISSUED FOR PUBLIC BIDDING BY:

MICHAEL S. ELLEGOOD, P.E.
CHIEF ENGINEER AND
GENERAL MANAGER

BOARD OF DIRECTORS OF THE FLOOD CONTROL DISTRICT

DON STAPLEY - CHAIRMAN

DISTRICT 1	FULTON BROCK
DISTRICT 2	DON STAPLEY
DISTRICT 3	ANDY KUNASEK
DISTRICT 4	MAX W. WILSON
DISTRICT 5	MARY ROSE WILCOX

LEGEND

- BENCHMARK
- EXIST. SURVEY MONUMENT(BRASS CAP FLUSH)
- EXIST. SURVEY MONUMENT(BRASS CAP IN HAND HOLE)
- EXIST. COMBINED CURB & GUTTER - MAG DET. 220 TYPE "A"
- EXIST. CONCRETE SIDEWALK - COP STD. DET. P-1230
- EXISTING DITCH
- IRR — EXISTING IRRIGATION LINE (NOTE - PRIVATE, SALT RIVER OR R.I.D.)
- EXISTING IRRIGATION STRUCTURE
- EXISTING IRRIGATION STANDPIPE
- 12" W — EXISTING WATER LINE / SIZE
- EXISTING WATER METER & BOX
- EXISTING FIRE HYDRANT
- NEW OR RELOCATED FIRE HYDRANT BY CONTRACTOR
- EXISTING WATER VALVE OPERATING NUT ELEVATION
- 24" S — EXISTING SEWER LINE / SIZE
- EXISTING MANHOLE
- NEW MANHOLE
- CATCH BASIN, GUTTER INLET (LENGTH TO SCALE)
- CATCH BASIN, CURB INLET (LENGTH TO SCALE)
- CATCH BASIN, CURB & GUTTER INLET (LENGTH TO SCALE)
- 78" SD — EXISTING STORM DRAIN / SIZE
- NEW PIPE FOR STORM DRAIN OR IRRIGATION LINE
- CATV — EXISTING UNDERGROUND CABLE TELEVISION
- E — EXISTING UNDERGROUND ELECTRIC
- 4D — EXISTING UNDERGROUND TELEPHONE DUCTS (SPECIFY NUMBER)
- 2" G — EXISTING GAS LINE / SIZE
- UGT — EXISTING UNDERGROUND TELEPHONE CABLE
- EXISTING STREET SIGN
- EXISTING TRAFFIC SIGN
- EXISTING UTILITY POLE
- EXISTING WIRE FENCE
- EXISTING WOOD FENCE
- EXISTING CHAIN LINK FENCE
- MAIL BOX
- DOWN ANCHOR
- STREET LIGHT
- EASEMENT LINE
- EXISTING OR NEW R/W LINE
- PAVEMENT CENTER LINE AND OR MOUNUMENT LINE (℄ AND / OR ⅊)
- 2 — BORING HOLE / NUMBER (SEE SPECIAL PROVISIONS)
- TELEPHONE RISER
- WM — WATER SERVICE BOX
- MST — MID SPAN TAP (OH UTILITIES)
- WV — WATER VAULT
- TRAFFIC SIGNAL BOX
- TREE
- STOP — STOP SIGN
- MAILBOX
- GATE W/POSTS
- SM — SAWCUT & MATCH

STRUCTURAL NOTES

1. ALL CONSTRUCTION SHALL CONFORM TO MAG STANDARD DETAILS AND SPECIFICATIONS, DATED 1998, INCLUDING ALL REVISIONS THRU 2002.
2. DESIGN IS IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, DIVISION 1, 17TH EDITION, 2002.
3. REINFORCING STEEL SHALL CONFORM TO ASTM SPECIFICATION A615, GRADE 60
4. STRESSES - fs = 24,000 PSI - GRADE 60 REINFORCING STEEL.
5. ALL REINFORCING STEEL PLACEMENT DIMENSIONS SHALL BE TO CENTER OF BARS UNLESS OTHERWISE NOTED.
6. ALL REINFORCING STEEL SHALL HAVE 2" CLEAR COVER UNLESS OTHERWISE NOTED.
7. STRUCTURAL STEEL SHALL CONFORM TO ASTM SPECIFICATION A36.
8. ALL WELDING SHALL CONFORM TO THE REQUIREMENTS OF THE AMERICAN WELDING SOCIETY, STRUCTURAL WELDING CODE, REVISED 1996.
9. DIMENSIONS SHALL NOT BE SCALED FROM DRAWINGS.
10. CHAMFER ALL EXPOSED CORNERS 3/4 " UNLESS OTHERWISE NOTED.
11. CONCRETE COMPRESSIVE STRENGTH SHALL BE 3000 PSI MAG, CLASS A, UNLESS NOTED OTHERWISE.

UTILITY NOTIFICATION

PHONE NO.	COMPANY	CONTACT
(602) 371-7989	APS	BOBBY GARZA
(602) 630-1393	QWEST	MATTHEW PHILLIPS
(602) 484-5342	SOUTHWEST GAS	SUE NEWSOM
(602) 447-0363	COX COMMUNICATIONS	KARL MCKAY
(623) 882-7954	CITY OF GOODYEAR	DAVID RAMIREZ

INDEX OF SHEETS

DRAWING NO.	TITLE	SHEET NO.
G1	COVER SHEET AND VICINITY MAP	1
G2	GENERAL NOTES AND SHEET INDEX	2
G3	KEY MAP	3
G4	HORIZONTAL AND VERTICAL CONTROL	4
G5	ROW AND TCE CONTROL	5
G6-G9	CHANNEL CONTROL LINE AND TOP OF MAIN CHANNEL CONTROL	6-9
G10-G13	BOTTOM OF MAIN CHANNEL CONTROL	10-13
G14-G17	TOP AND BOTTOM OF LOW FLOW CHANNEL CONTROL	14-17
G18-G21	CL TAILWATER SWALE CONTROL	18-21
G22	TYPICAL CHANNEL SECTIONS	22
Q1	QUANTITY SUMMARY SHEETS	23
PS1	PIPE SUMMARY	24
C1-C5	PLAN AND PROFILE SHEETS	25-29
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D4	MULTI-USE PATH DETAILS	33
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XS1-XS4	CROSS SECTIONS	61-64

ABBREVIATIONS

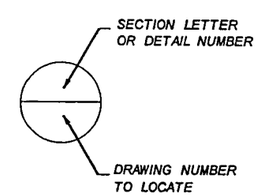
CSTR	CONSTRUCTION
DESC	DESCRIPTION
S	SLOPE
FT/FT	FEET/FOOT
OHE	OVERHEAD ELECTRIC
INV	INVERT ELEVATION
FND	FOUND
PL	PROPERTY LINE
TCE	TEMPORARY CONSTRUCTION EASEMENT
TW	TOP OF WALL
TN	TOP OF NUT
℄	CENTER LINE
ML	MONUMENT LINE
ROW	RIGHT OF WAY
DE	DRAINAGE EASEMENT

GENERAL NOTES

1. ALL CONSTRUCTION TO BE PERFORMED ACCORDING TO APPLICABLE MAG STANDARD DETAILS AND MAG SPECIFICATIONS, DATED 1998 (INCLUDING ALL REVISIONS THROUGH 2002) AND THE CITY OF GOODYEAR ADDITIONS AND DELETIONS THROUGH 2002.
2. FACILITIES WHICH ARE NOT SPECIFICALLY LOCATED WITH ACTUAL HORIZONTAL AND VERTICAL CONTROLS ARE APPROXIMATE AND TO THE BEST AVAILABLE INFORMATION.
3. EXISTING UTILITIES AND OTHER FACILITIES HAVE BEEN PLACED ON THE PLANS FROM FIELD SURVEYS, EXISTING MAPS AND OTHER CURRENT PLANS WITHIN THE AREA OF THIS PROJECT. THE CONTRACTOR WILL DETERMINE THE EXACT LOCATION AND/OR ELEVATION OF EXISTING UTILITIES WHICH PERTAIN TO AND AFFECT THE CONSTRUCTION OF THIS PROJECT.
4. TWO (2) WORKING DAYS PRIOR TO EXCAVATING, THE CONTRACTOR SHALL CALL FOR BLUE STAKES AT THE BLUE STAKE CENTER (PHONE: 602-263-1100).
5. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS PRIOR TO CONSTRUCTION.
6. THE FLOOD CONTROL DISTRICT OR CITY OF GOODYEAR IS NOT RESPONSIBLE FOR LIABILITY ACCRUED DUE TO DELAYS AND/OR DAMAGE TO UTILITIES IN CONJUNCTION WITH THIS CONSTRUCTION.
7. ANY WORK PERFORMED WITHOUT THE APPROVAL OF THE FLOOD CONTROL DISTRICT AND/OR THE ENGINEER AND ALL WORK AND MATERIALS NOT IN CONFORMANCE WITH THE SPECIFICATIONS IS SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTOR'S EXPENSE.
8. THE ENGINEER WILL DETERMINE THE NUMBER AND LOCATION OF THE REQUIRED COMPACTION TESTS FOR STRUCTURE BACKFILL.
9. TRAFFIC CONTROL SHALL BE MAINTAINED IN ACCORDANCE WITH THE CITY OF PHOENIX TRAFFIC BARRACADE MANUAL, 1998. FILL IN ANY GAPS WITH M.A.G. SPECIFICATION 401, PART VI OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, MILLENIUM EDITION WITH INCORPORATED REVISION NO. 1 CHANGES DATES DECEMBER 28, 2001.
10. CONTRACTOR SHALL REPLACE PAVEMENT TO THE EXISTING GRADES SHOWN ON THE PLANS.
11. EXACT POINT OF MATCHING TERMINATION AND OVERLAY WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
12. NO JOB WILL BE CONSIDERED COMPLETED UNTIL CURBS, PAVEMENT AND SIDEWALKS HAVE BEEN SWEPT CLEAN OF ALL DIRT AND DEBRIS.
13. PRIOR TO FINAL APPROVAL AND ACCEPTANCE OF THE WORK, THE CONTRACTOR WILL BE REQUIRED TO CLEAN ADJACENT (OFF-PROJECT) ROADWAYS USED DURING THE COURSE OF CONSTRUCTION.

PROJECT BENCHMARKS

REBAR IN HANDHOLE
BULLARD AVENUE AND
VAN BUREN STREET
EL = 987.77
N=45882.226
E=60292.901



NO.	REVISION	BY	DATE
3			
2			
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

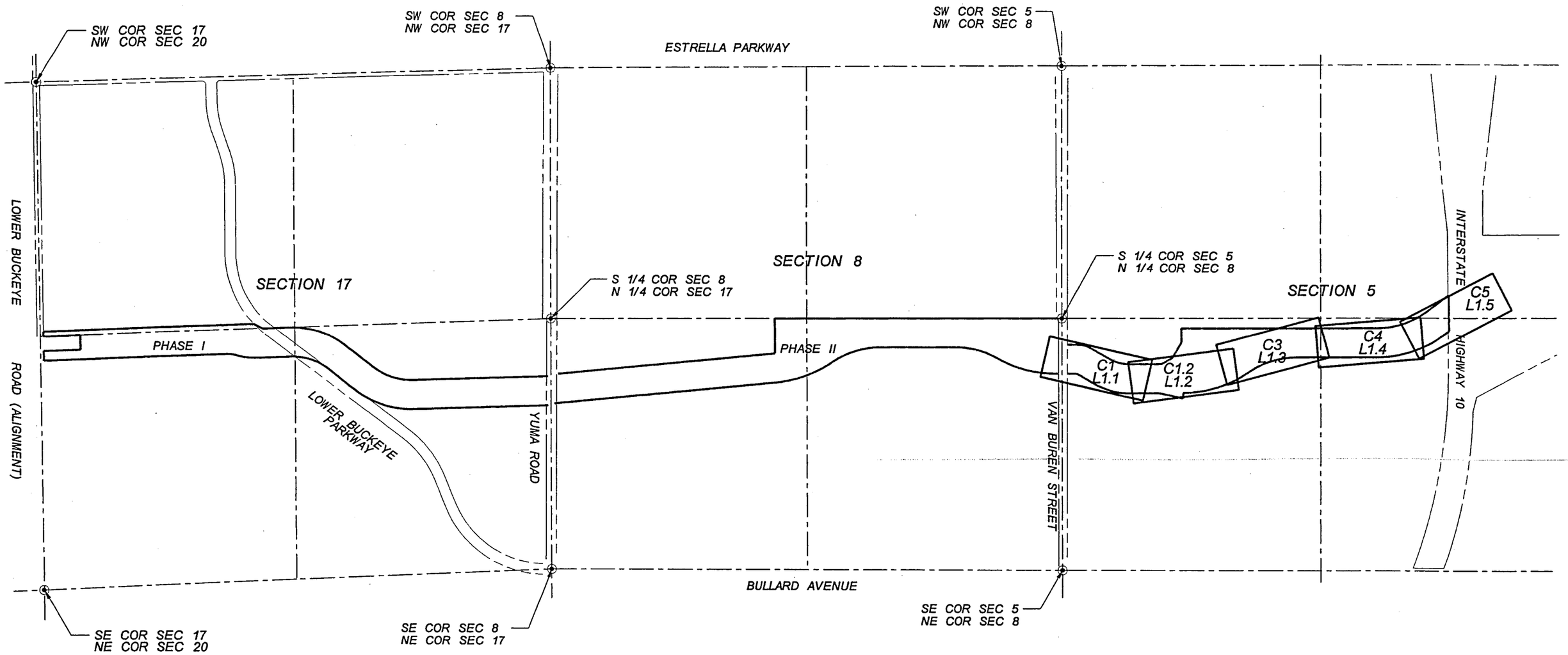
BULLARD WASH CHANNEL IMPROVEMENTS
PHASE III - INTERSTATE 10 TO VAN BUREN STREE
CONTRACT NO. XXX CXXX

PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D. HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. G2 | GENERAL NOTES & INDEX OF SHEETS | SHEET 2 6



N

250 0 250 500

Scale in Feet

NO.	REVISION	BY	DATE
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2			
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
PHASE III - INTERSTATE 10 TO VAN BUREN STREET
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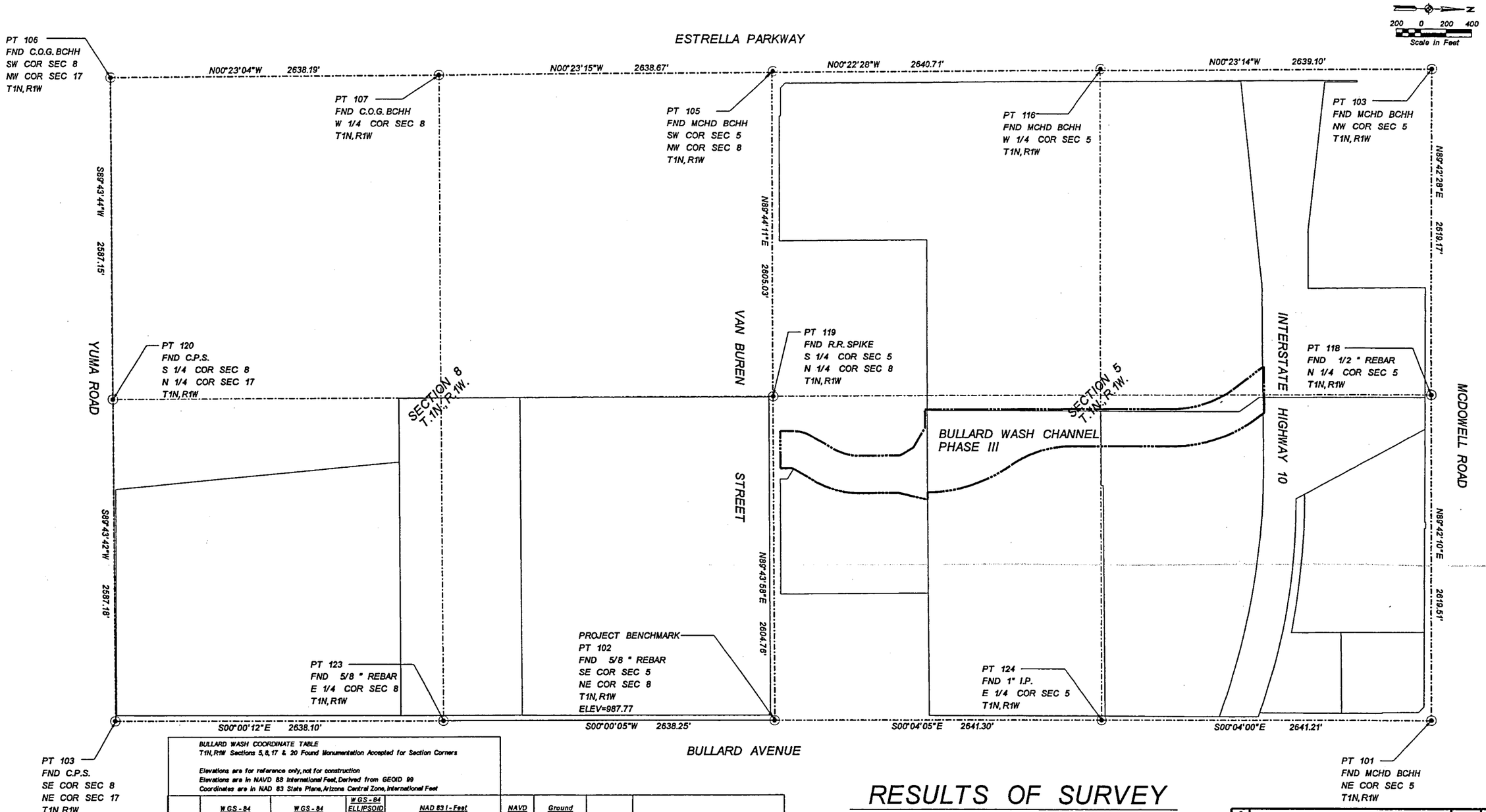
WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. G3

KEY MAP

SHEET 3 OF 64



BULLARD WASH COORDINATE TABLE
T1N, R1W Sections 5, 8, 17 & 20 Found Monumentation Accepted for Section Corners

Elevations are for reference only, not for construction
Elevations are in NAVD 88 International Feet, Derived from GEOID 99
Coordinates are in NAD 83 State Plane, Arizona Central Zone, International Feet

Point	WGS-84 Latitude	WGS-84 Longitude	WGS-84 ELLIPSOID Height I-Feet	NAD 83 I-Feet Northing	NAD 83 I-Feet Easting	NAVD Elev	Ground to Grid	Convergence	Description
101	33°27'52.02987"N	112°22'31.02159"W	897.262	896825.043	560140.437	996.72	0.999922397	-0°15'10"	Fnd MCHD 3" Brass Cap in Handhole
102	33°26'59.77096"N	112°22'31.57497"W	888.335	891543.400	560070.242	987.77	0.999922420	-0°15'10"	Fnd 5/8" Rebar - No Tag
103	33°27'52.27981"N	112°23'32.85688"W	903.068	896873.858	554902.381	1002.52	0.999924106	-0°15'45"	Fnd MCHD 3" Brass Cap in Handhole
105	33°27'00.04589"N	112°23'33.05874"W	890.010	891594.608	554861.107	989.45	0.999924120	-0°15'44"	Fnd MCHD 3" Brass Cap in Handhole
106	33°26'07.84110"N	112°23'33.25482"W	874.659	888318.313	554820.342	974.08	0.999924134	-0°15'44"	Fnd City of Goodyear 3" Brass Cap in Handhole
107	33°26'33.94114"N	112°23'33.15596"W	882.371	888956.221	554840.792	981.80	0.999924127	-0°15'44"	Fnd MCHD 3" Brass Cap in Handhole
109	33°26'07.57347"N	112°22'32.19965"W	878.068	888268.006	559994.026	977.47	0.999922444	-0°15'10"	Fnd Cotton Picker Spindle - No Tag
110	33°25'15.40992"N	112°23'32.05582"W	854.592	881018.507	554897.712	953.99	0.999924108	-0°15'43"	Fnd MCHD 3" Brass Cap in Handhole
111	33°24'49.08015"N	112°23'31.97761"W	836.484	878357.423	554892.177	935.87	0.999924110	-0°15'43"	Fnd MCHD 3" Brass Cap in Handhole
112	33°24'23.23750"N	112°23'32.10082"W	817.298	875745.550	554869.796	916.67	0.999924118	-0°15'43"	Fnd MCHD 3" Brass Cap in Handhole
113	33°24'23.43459"N	112°22'30.48352"W	822.606	875742.030	560093.062	921.92	0.999922413	-0°15'09"	Fnd MCHD 3" Brass Cap in Handhole
114	33°24'49.56751"N	112°22'30.25692"W	843.303	878383.199	560123.906	942.64	0.999922403	-0°15'09"	Fnd MCHD 3" Brass Cap in Handhole
116	33°27'26.17080"N	112°23'32.95436"W	897.920	894235.034	554882.040	997.37	0.999924113	-0°15'44"	Fnd MCHD 3" Brass Cap in Handhole
117	33°25'15.68935"N	112°22'30.11993"W	848.198	881023.286	560147.150	947.55	0.999922395	-0°15'09"	Fnd 1" Square Iron Bar - No Tag
118	33°27'52.15479"N	112°23'01.94122"W	892.493	896849.338	557521.240	991.95	0.999923244	-0°15'27"	Fnd 1/2" Rebar - No Tag
119	33°26'59.90865"N	112°23'02.31526"W	880.801	891588.920	557465.810	980.24	0.999923262	-0°15'27"	Fnd RR Spike - No Tag
120	33°26'07.70819"N	112°23'02.72740"W	867.838	888293.146	557407.170	967.25	0.999923281	-0°15'27"	Fnd Cotton Picker Spindle - No Tag
121	33°24'23.33626"N	112°23'01.32257"W	820.098	875743.716	557478.853	919.44	0.999923258	-0°15'26"	Fnd 5/8" Rebar - No Tag
122	33°25'41.63417"N	112°23'32.65203"W	864.287	883669.333	554859.305	963.70	0.999924121	-0°15'44"	Fnd Brass Stem Only in Handhole
123	33°26'33.67150"N	112°22'31.88860"W	880.911	888905.630	560032.028	980.33	0.999922432	-0°15'10"	Fnd 5/8" Rebar - No Tag
124	33°27'25.90087"N	112°22'31.29866"W	894.672	894184.267	560105.308	994.12	0.999922409	-0°15'10"	Fnd 1" Iron Pipe - No Tag

LEGEND

⊙	FOUND SURVEY MONUMENT AS NOTED
FND	FOUND
SEC.	SECTION
COR.	CORNER
MCHD	MARICOPA COUNTY HIGHWAY DEPARTMENT
BCHH	BRASS CAP IN HANDHOLE
I.P.	IRON PIPE
R.R.	RAILROAD
CONC	CONCRETE
C.P.S.	COTTON PICKER SPINDLE
HH	HANDHOLE
C.O.G.	CITY OF GOODYEAR
C.O.M.	CITY OF MESA
ELEV.	ELEVATION
I - FEET	INTERNATIONAL FEET

RESULTS OF SURVEY

PROPOSED BULLARD WASH (SECTION SURVEY)
THROUGH SECTIONS 5, 8, 17 AND 20 OF TOWNSHIP 1 NORTH,
RANGE 1 WEST, GILA AND SALT RIVER MERIDIAN TOWNSHIP,
CITY OF GOODYEAR, MARICOPA COUNTY, ARIZONA

NO.	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
PHASE III - INTERSTATE 10 TO VAN BUREN STREET
CONTRACT NO. XXX CXXX

PRELIMINARY
90% SUBMITTAL
NOT FOR CONSTRUCTION

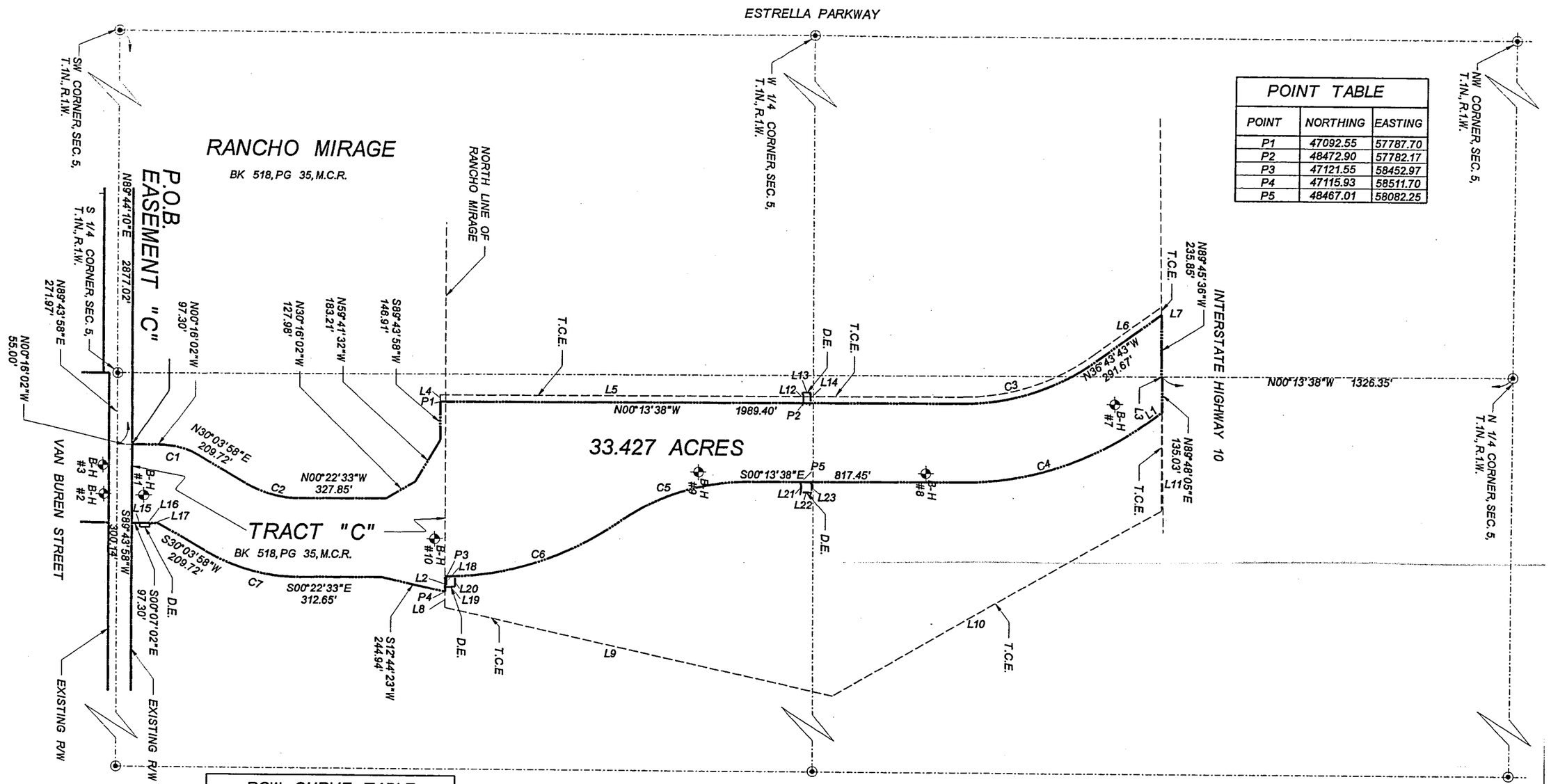
	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D. HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. G4

HORIZONTAL & VERTICAL CONTROL

SHEET 4 OF 64



POINT TABLE

POINT	NORTHING	EASTING
P1	47092.55	57787.70
P2	48472.90	57782.17
P3	47121.55	58452.97
P4	47115.93	58511.70
P5	48467.01	58082.25

LEGEND

- BORING HOLE LOCATION
- FOUND SURVEY MONUMENT AS NOTED

FND	FOUND
SEC.	SECTION
COR.	CORNER
MCHD	MARICOPA COUNTY HIGHWAY DEPARTMENT
BCHH	BRASS CAP IN HANDHOLE
I.P.	IRON PIPE
R.R.	RAILROAD
CONC	CONCRETE
C.P.S.	COTTON PICKER SPINDLE
HH	HANDHOLE
C.O.G.	CITY OF GOODYEAR
C.O.M.	CITY OF MESA
ELEV.	ELEVATION
I - FEET	INTERNATIONAL FEET
D.E.	DRAINAGE EASEMENT
T.C.E.	TEMPORARY CONSTRUCTION EASEMENT

ROW CURVE TABLE

CURVE	DELTA	RADIUS	ARC
C1	30°20'00"	300.00'	158.82'
C2	30°26'31"	405.00'	215.18'
C3	36°30'04"	850.00'	541.51'
C4	36°30'04"	1150.00'	732.63'
C5	35°10'48"	850.00'	521.91'
C6	35°08'24"	1150.00'	705.30'
C7	30°26'31"	705.00'	374.58'

ROW LINE TABLE

LINE	LENGTH	BEARING
L1	73.58'	S36°43'43"E
L2	58.78'	N89°43'58"E
L3	3.16'	N00°13'38"W

TCE LINE TABLE

LINE	LENGTH	BEARING
L4	25.00'	S89°43'58"W
L5	1989.42'	N00°13'38"W
L6	310.16'	N36°43'43"W
L7	31.10'	N89°45'37"E
L8	60.06'	N89°43'58"E
L9	1512.30'	S12°24'54"W
L10	1423.77'	S30°02'27"E
L11	375.87'	N89°48'05"E

DE LINE TABLE

LINE	LENGTH	BEARING
L12	39.94'	N89°46'22"E
L13	27.50'	S00°13'38"E
L14	40.00'	S89°46'23"W
L15	15.00'	S89°52'58"W
L16	35.00'	S00°07'02"E
L17	15.00'	N89°52'58"E
L18	40.02'	S89°43'58"W
L19	32.01'	S01°19'18"E
L20	40.02'	N89°43'58"E
L21	40.00'	S89°46'22"W
L22	40.00'	S00°13'38"E
L23	40.00'	N89°46'22"E

TCE CURVE TABLE

CURVE	DELTA	RADIUS	ARC
C8	35°08'24"	1175.00'	720.64'
C9	35°10'48"	825.00'	506.56'
C10	36°30'04"	1175.00'	748.55'

N
100 0 100 200
Scale in Feet

NO.	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
PHASE III - INTERSTATE 10 TO VAN BUREN STREET
CONTRACT NO. XXX CXXX

PRELIMINARY
90% SUBMITTAL
NOT FOR CONSTRUCTION

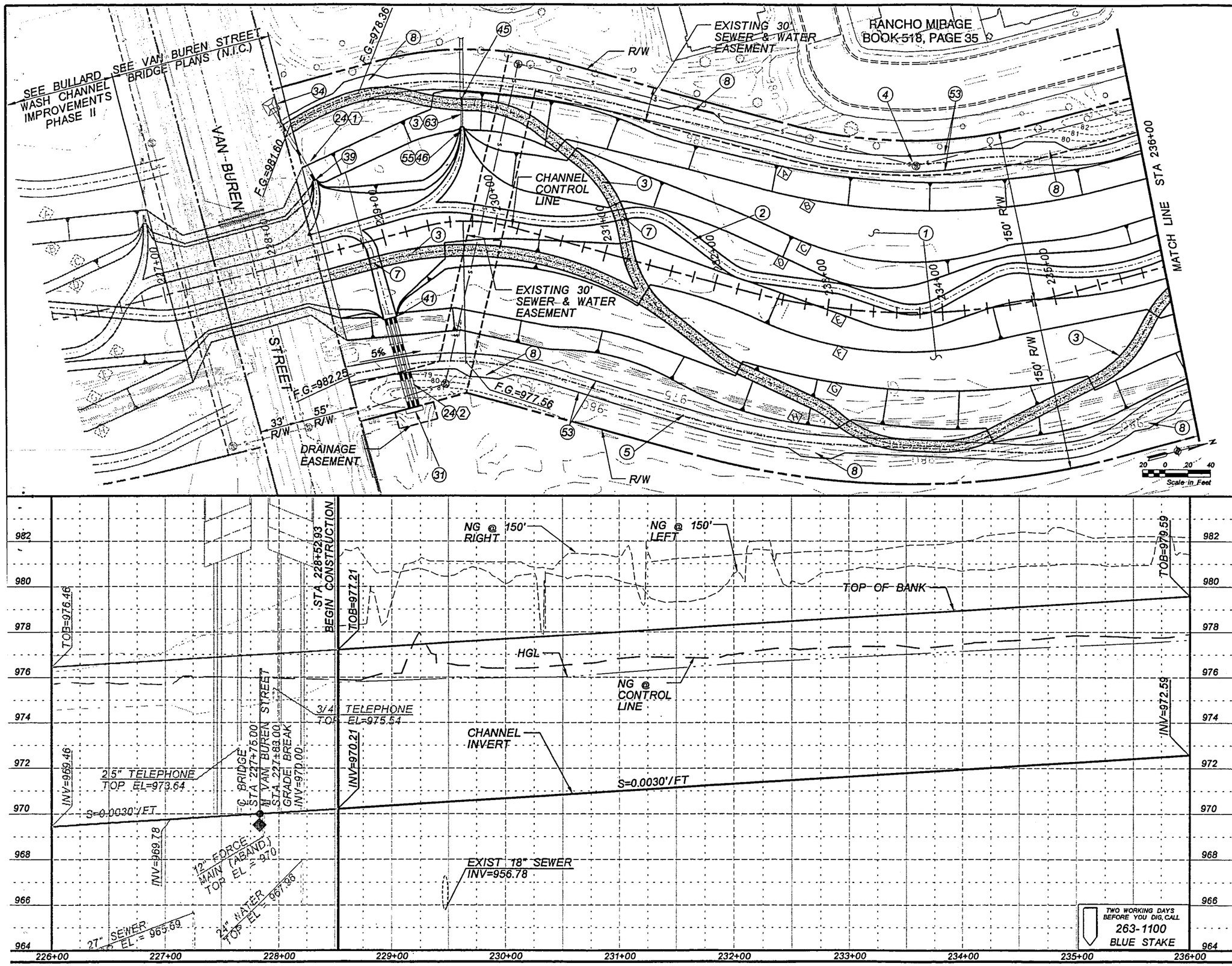
	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D. HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. G5

CONTROL LINE, ROW & TCE CONTROL

SHEET 5 OF 64



REMOVE

CONSTRUCT

1. CONSTRUCT EARTHEN CHANNEL PER TYPICAL SECTION, DRAWING #G13.
2. CONSTRUCT CONCRETE TAILWATER SWALE PER DETAIL ON DRAWING #D10. (221 C.Y.)
3. CONSTRUCT CONCRETE MULTI-USE PATH PER DETAIL ON DRAWING #D9. (12,760 S.F.)
4. CONSTRUCT WEST MAINTENANCE ROAD PER DETAIL ON DRAWING #D3. (9724 S.F.)
5. CONSTRUCT EAST MAINTENANCE ROAD PER DETAIL ON DRAWING #D3. (9936 S.F.)
7. CONSTRUCT MULTI-USE TRAIL/TAILWATER SWALE CROSSING PER DETAIL D10. (2 EACH)
8. CONSTRUCT MAINTENANCE ROAD PULL-OUT PER DETAIL DRAWING #D3. (6 EACH)
24. INSTALL 30" TAILWATER PIPE. (320 L.F.)
31. CONSTRUCT 30" DROP INLET HEADWALL PER MAG STD DET 501-5 MODIFIED (TRIPLE). (1 EACH)
34. CONSTRUCT MEDIAN CATCH BASIN PER ADOT STD DET C-15.80 (DOUBLE).
39. CONSTRUCT 30" OUTLET HEADWALL (1 EACH) PER MAG STD DET 501-4 (SINGLE). (1 EACH)
41. CONSTRUCT 30" OUTLET HEADWALL PER MAG STD DET 501-4 MODIFIED (TRIPLE). (1 EACH)
45. REMOVE EXISTING HEADWALL AND SALVAGE AUTOMATIC DRAINAGE GATE AND TIE INTO EXISTING 18" RGRCP PIPE.
46. CONSTRUCT 18" OUTLET HEADWALL PER MAG STD DET 501-4 (SINGLE). (1 EACH)
53. CONSTRUCT CONCRETE RIBBON CURB PER DETAIL ON DRAWING #D3. (3060 L.F.)
55. INSTALL SALVAGED AUTOMATIC DRAINAGE GATE, NEENAH R-5050-SF18 OR EQUAL.
63. INSTALL 18" TAILWATER PIPE. (32 L.F.)

(1) FOR SIDE DRAIN PROFILE SEE DRAWING #SD1.
(2) FOR SIDE DRAIN PROFILE SEE DRAWING #SD1.
(3) FOR SIDE DRAIN PROFILE SEE DRAWING #SD1.

NO.	REVISION	BY	DATE
3			
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
PHASE III - INTERSTATE 10 TO VAN BUREN STREET
FCD CONTRACT NO. XXX CXXX

PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION

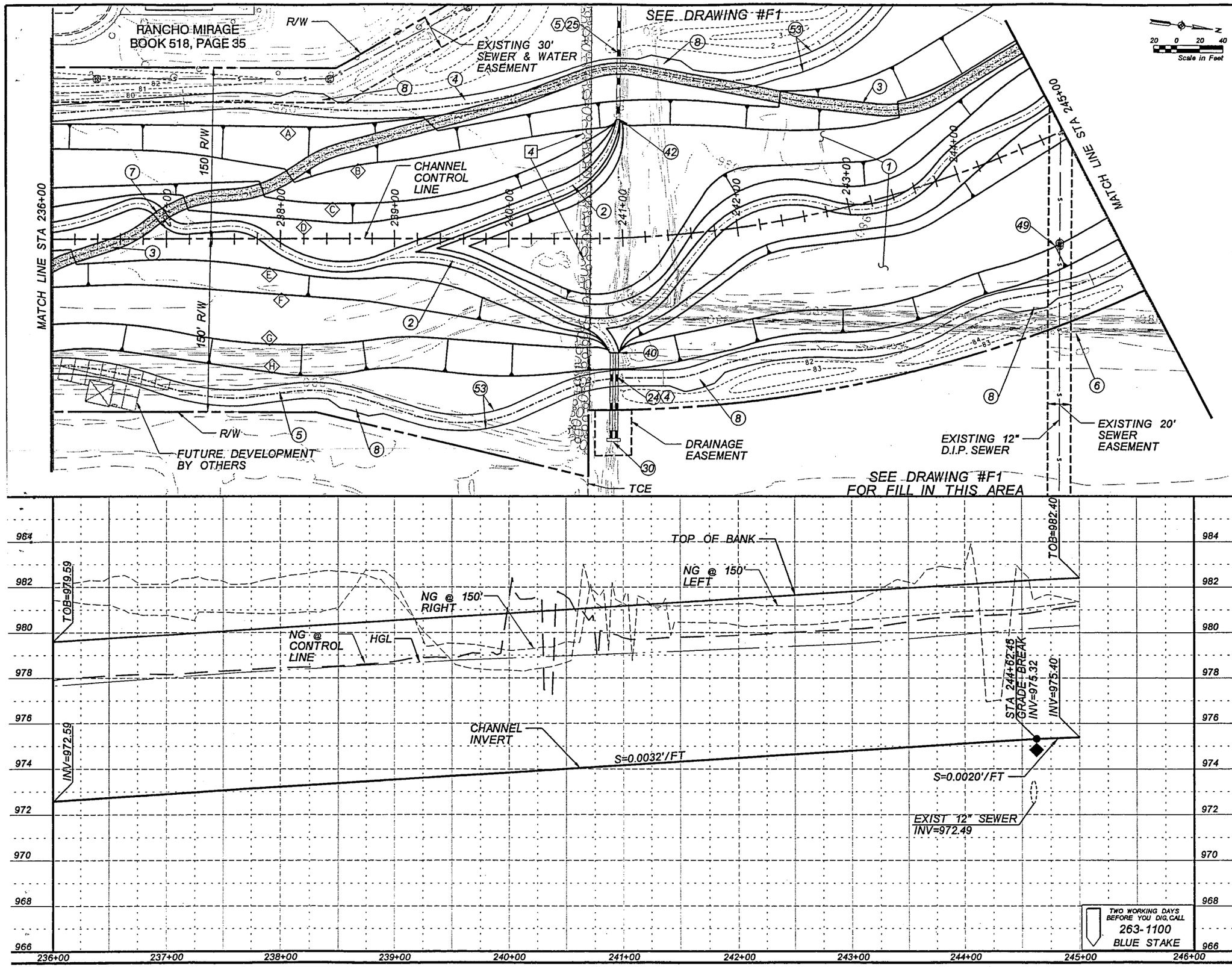
	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D.HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. C1

STA 226+52.93 TO 236+00

SHEET 25 OF 64



REMOVE

4 REMOVE EXISTING RIPRAP EROSION PROTECTION. (495 C.Y.)

CONSTRUCT

1. CONSTRUCT EARTHEN CHANNEL PER TYPICAL SECTION, DRAWING #G13.
2. CONSTRUCT CONCRETE TAILWATER SWALE PER DETAIL ON DRAWING #D10. (284 C.Y.)
3. CONSTRUCT CONCRETE MULTI-USE PATH PER DETAIL ON DRAWING #D9. (9040 S.F.)
4. CONSTRUCT WEST MAINTENANCE ROAD PER DETAIL ON DRAWING #D3. (9940 S.F.)
5. CONSTRUCT EAST MAINTENANCE ROAD PER DETAIL ON DRAWING #D3. (13,720 S.F.)
6. CONSTRUCT FARM ROAD PER TYPICAL SECTION, DRAWING #G13.
7. CONSTRUCT MULTI-USE TRAIL/TAILWATER SWALE CROSSING PER DETAIL D10. (1 EACH)
8. CONSTRUCT MAINTENANCE ROAD PULL-OUT PER DETAIL DRAWING #D3. (5 EACH)
24. INSTALL 30" TAILWATER PIPE. (150 L.F.)
25. INSTALL 36" TAILWATER PIPE. (436 L.F.)
30. CONSTRUCT 30" DROP INLET HEADWALL PER MAG STD DET 501-5 (DOUBLE). (1 EACH)
40. CONSTRUCT 30" OUTLET HEADWALL PER MAG STD DET 501-4 (DOUBLE). (1 EACH)
42. CONSTRUCT 36" OUTLET HEADWALL PER MAG STD DET 501-4 (SINGLE). (1 EACH)
49. REMOVE EXISTING MANHOLE FRAME AND COVER AND REPLACE WITH WATERTIGHT MANHOLE FRAME AND COVER PER MAG STD DET 423. SET MANHOLE COVER TO FINISH GRADE. (1 EACH)
53. CONSTRUCT CONCRETE RIBBON CURB PER DETAIL ON DRAWING #D3. (3660 L.F.)

4 FOR SIDE DRAIN PROFILE SEE DRAWING #SD2.

5 FOR SIDE DRAIN PROFILE SEE DRAWING #SD2.

NO.	REVISION	BY	DATE
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
PHASE III - INTERSTATE 10 TO VAN BUREN STREET
FCD CONTRACT NO. XXX CXXX

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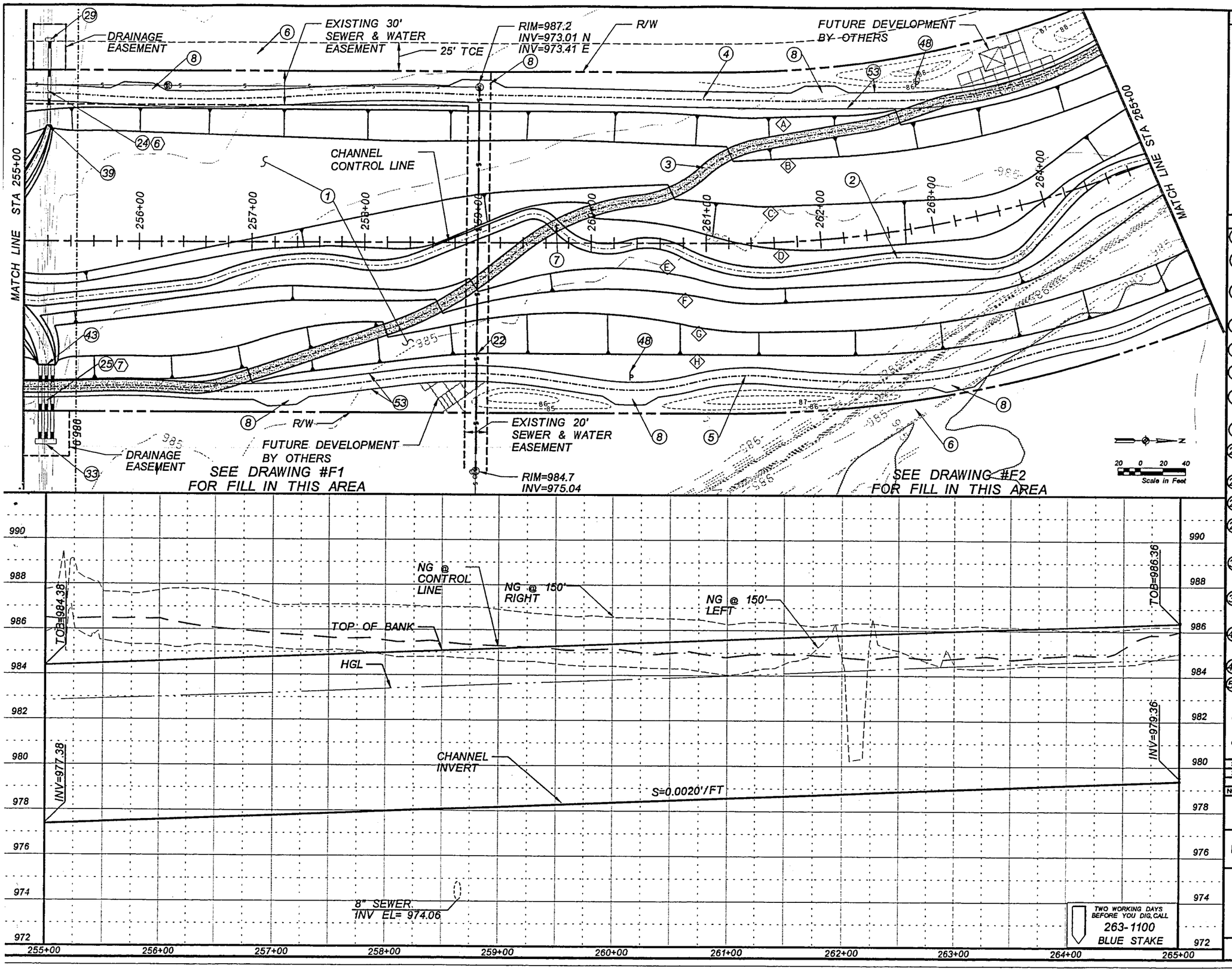
	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D.HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. C2 | STA 236+00 TO 245+00 | SHEET 26 OF 64



REMOVE

CONSTRUCT

1. CONSTRUCT EARTHEN CHANNEL PER TYPICAL SECTION, DRAWING #G13.
2. CONSTRUCT CONCRETE TAILWATER SWALE PER DETAIL ON DRAWING #D10. (256 C.Y.)
3. CONSTRUCT CONCRETE MULTI-USE PATH PER DETAIL ON DRAWING #D9. (10,040 S.F.)
4. CONSTRUCT WEST MAINTENANCE ROAD PER DETAIL ON DRAWING #D3. (11,816 S.F.)
5. CONSTRUCT EAST MAINTENANCE ROAD PER DETAIL ON DRAWING #D3. (13,100 S.F.)
6. CONSTRUCT FARM ROAD PER TYPICAL SECTION, DRAWING #G13.
7. CONSTRUCT MULTI-USE TRAIL/TAILWATER SWALE CROSSING PER DETAIL D10. (1 EACH)
8. CONSTRUCT MAINTENANCE ROAD PULL-OUT PER DETAIL DRAWING #D3. (6 EACH)
22. REMOVE 340 L.F. 8" SANITARY SEWER AND REPLACE WITH 8" DIP PER SPECIAL PROVISIONS.
24. INSTALL 30" TAILWATER PIPE. (73.5 L.F.)
25. INSTALL 36" TAILWATER PIPE. (197 L.F.)
29. CONSTRUCT 30" DROP INLET HEADWALL PER MAG STD DET 501-5 (SINGLE). (1 EACH)
33. CONSTRUCT 36" DROP INLET HEADWALL PER MAG STD DET 501-5 MODIFIED (TRIPLE). (1 EACH)
39. CONSTRUCT 30" OUTLET HEADWALL PER MAG STD DET 501-4 (SINGLE). (1 EACH)
43. CONSTRUCT 36" OUTLET HEADWALL PER MAG STD DET 501-4 MODIFIED (TRIPLE). (1 EACH)
48. INSTALL "NO PUBLIC ACCESS SIGN".
53. CONSTRUCT CONCRETE RIBBON CURB PER DETAIL ON DRAWING #D8. (4008 L.F.)

6. FOR SIDE DRAIN PROFILE SEE DRAWING #SD2.
7. FOR SIDE DRAIN PROFILE SEE DRAWING #SD2.

NO.	REVISION	BY	DATE
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
PHASE III - INTERSTATE 10 TO VAN BUREN STREET
FCD CONTRACT NO. XXX CXXX

PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION

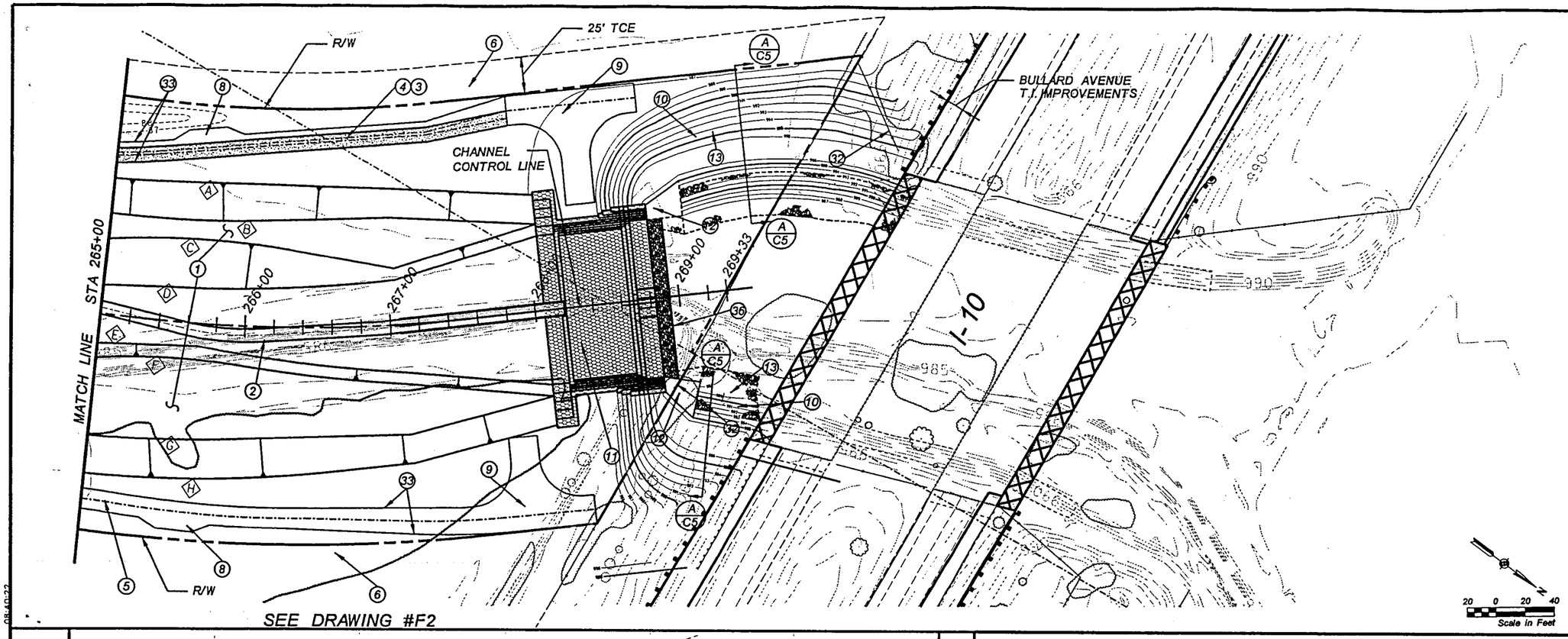
	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D.HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

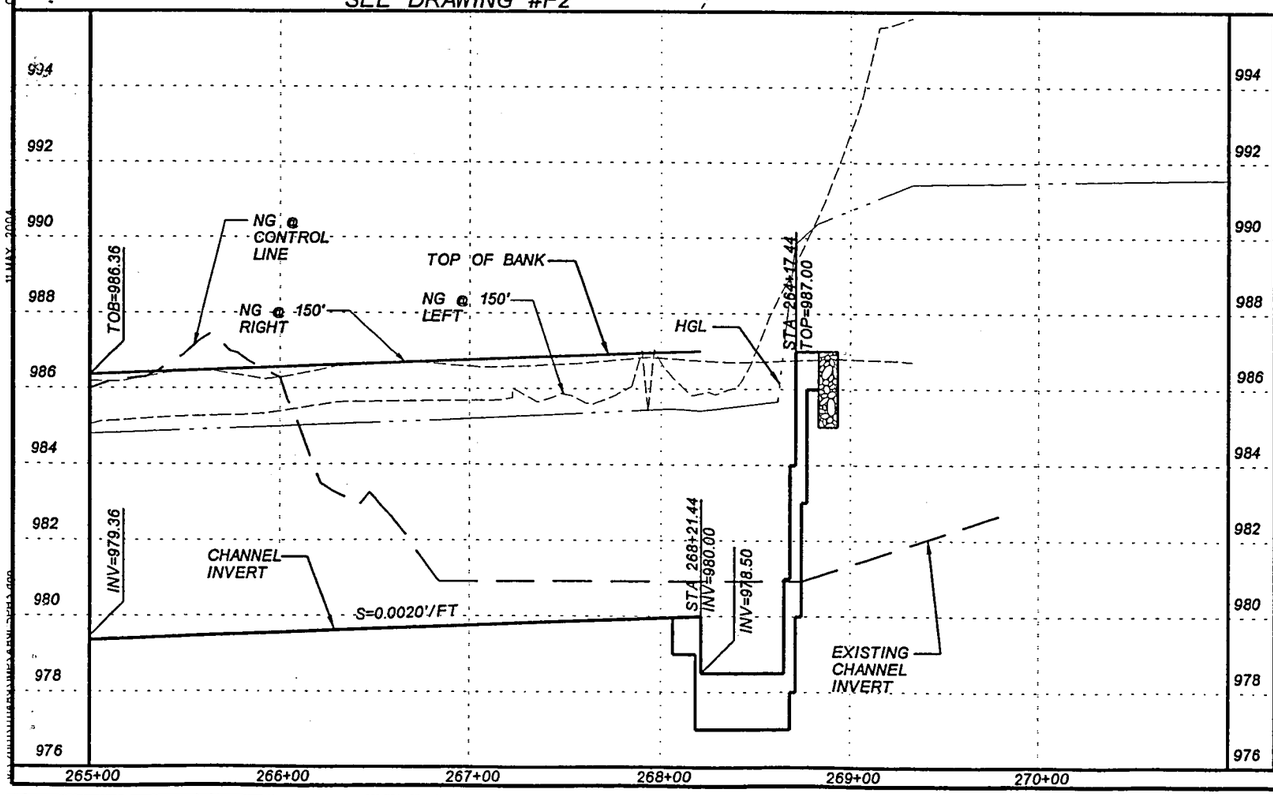
WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

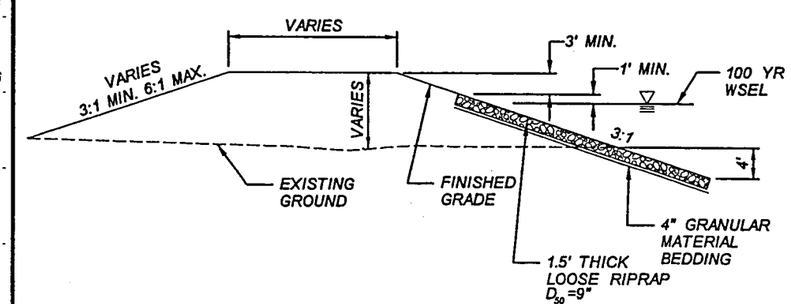
DRAWING NO. C4

STA 255+00 TO 265+00

SHEET 28 OF 64







SECTION A-A

☐ REMOVE

○ CONSTRUCT ○

1. CONSTRUCT EARTHEN CHANNEL PER TYPICAL SECTION, DRAWING #G22.
2. CONSTRUCT CONCRETE TAILWATER SWALE PER DETAIL ON DRAWING #D5. (71 CY)
3. CONSTRUCT CONCRETE MULTI-USE PATH PER DETAIL ON DRAWING #D4. (2700 SF)
4. CONSTRUCT WEST MAINTENANCE ROAD PER DETAIL ON DRAWING #D3. (4117 SF)
5. CONSTRUCT EAST MAINTENANCE ROAD PER DETAIL ON DRAWING #D3. (6817 SF)
6. CONSTRUCT FARM ROAD PER TYPICAL SECTION, DRAWING #G13.
8. CONSTRUCT MAINTENANCE ROAD PULL-OUT PER DETAIL DRAWING #D3. (2 EACH)
9. CONSTRUCT HAMMERHEAD (COG G-3242) TRANSITION 14' MAINTENANCE ROAD TO 20' WIDTH HAMMERHEAD WITHIN 50'. (2 EACH)
10. PLACE COMPACTED FILL AS SHOWN ON PLANS. SEE SPECIAL PROVISIONS FOR COMPACTION REQUIREMENTS.
11. CONSTRUCT TEMPORARY GABION DROP STRUCTURE (1217 CY) WITH CONCRETE NOTCH (14 CY) PER DETAILS #D6-D8.
12. CONSTRUCT 6" THICK SHOTCRETE TRANSITION SECTION. (129 CY)
13. INSTALL LOOSE RIPRAP BANK PROTECTION PER SECTION A-A THIS SHEET. (340 CY)
32. REMOVE EXISTING FENCE AS NECESSARY TO FACILITATE CONSTRUCTION. REPLACE AT CONCLUSION OF CONSTRUCTION ACTIVITIES. (N.P.I.)
33. CONSTRUCT CONCRETE RIBBON CURB PER DETAIL ON DRAWING #D3. (1080 LF)
36. INSTALL LOOSE RIPRAP (D_{50}=9"), 2' THICK. (90 CY)

NO.	REVISION	BY	DATE
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
INTERSTATE-10 TO VAN BUREN STREET
FCD CONTRACT NO. 2004 C008

PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D.HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

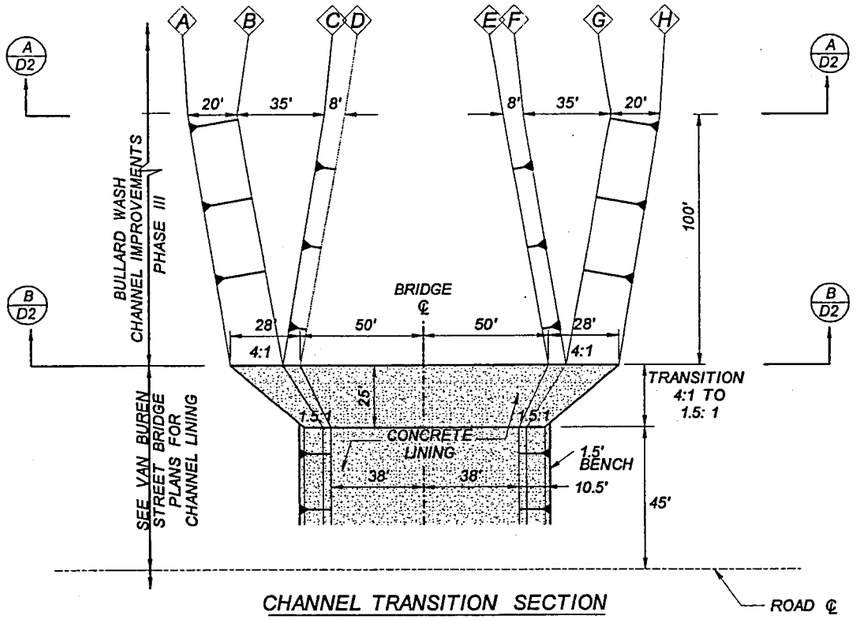
WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. C5

STA 265+00 TO P.O.E.

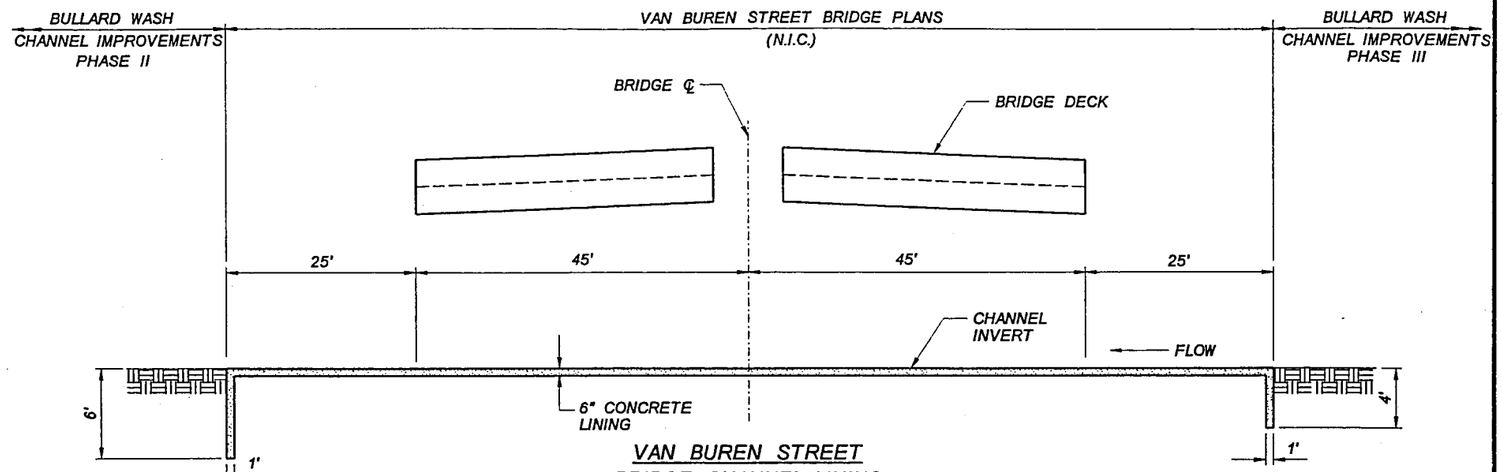
SHEET 29 OF 64

08-10-22
11-JUL-2004



CHANNEL TRANSITION SECTION

NORTH OF VAN BUREN ST. BRIDGE

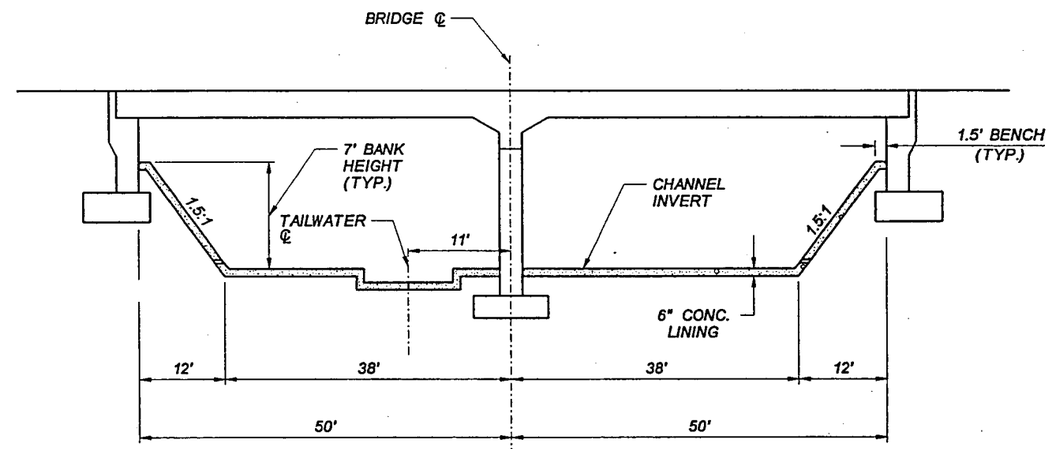


VAN BUREN STREET

BRIDGE CHANNEL LINING

PROFILE

(N.I.C.)



CHANNEL SECTION THROUGH BRIDGE

VAN BUREN STREET

(N.I.C.)

CHANNEL GEOMETRY ALIGNMENT LEGEND

- A WEST TOP OF MAIN CHANNEL
- B WEST BOTTOM OF MAIN CHANNEL
- C WEST TOP OF LOW FLOW CHANNEL
- D WEST BOTTOM OF LOW FLOW CHANNEL
- E EAST BOTTOM OF LOW FLOW CHANNEL
- F EAST TOP OF LOW FLOW CHANNEL
- G EAST BOTTOM OF MAIN CHANNEL
- H EAST TOP OF MAIN CHANNEL

NO.	REVISION	BY	DATE
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
PHASE III - INTERSTATE 10 TO VAN BUREN STREET
FCD CONTRACT NO. XXX CXXX

PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION		BY	DATE
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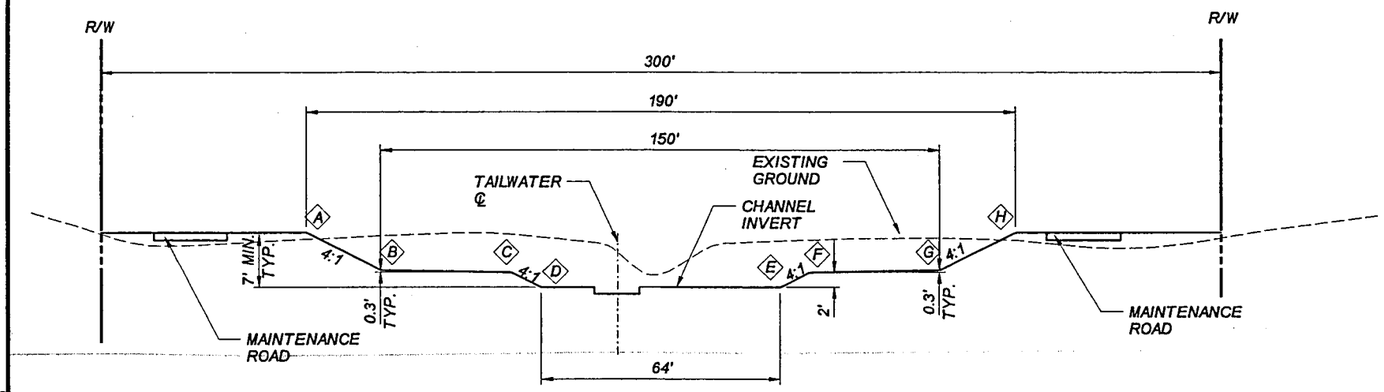
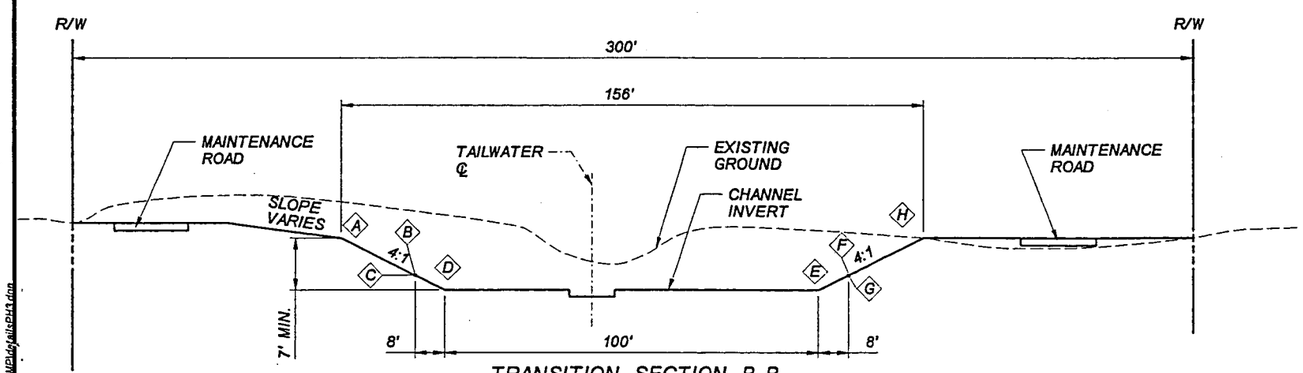
	DRAWN	D. HADGES/P. LOPEZ	03/04
	CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO.	CHANNEL TRANSITIONS AT BRIDGE	SHEET OF
D1		30 64



TRANSITION SECTION A-A



TRANSITION SECTION B-B

CHANNEL GEOMETRY ALIGNMENT LEGEND

- (A) WEST TOP OF MAIN CHANNEL
- (B) WEST BOTTOM OF MAIN CHANNEL
- (C) WEST TOP OF LOW FLOW CHANNEL
- (D) WEST BOTTOM OF LOW FLOW CHANNEL
- (E) EAST BOTTOM OF LOW FLOW CHANNEL
- (F) EAST TOP OF LOW FLOW CHANNEL
- (G) EAST BOTTOM OF MAIN CHANNEL
- (H) EAST TOP OF MAIN CHANNEL

NO.	REVISION	BY	DATE
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
PHASE III - INTERSTATE 10 TO VAN BUREN STREET
FCD CONTRACT NO. XXX CXXX

PRELIMINARY
90% SUBMITTAL
NOT FOR
CONSTRUCTION

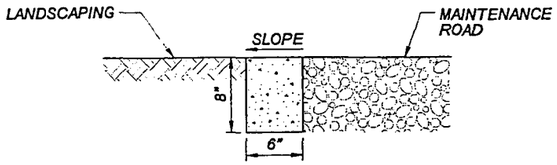
	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D. HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. D2

BRIDGE TRANSITIONS AT BRIDGE SECTIONS

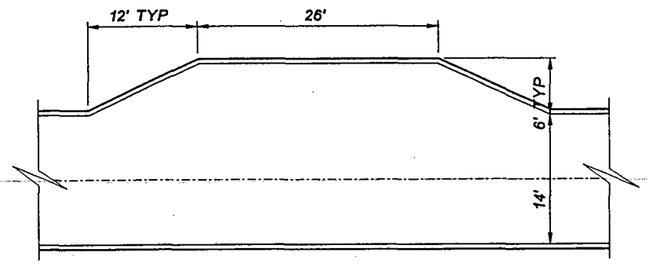
SHEET 31 OF 64



TYPICAL RIBBON CURB DETAIL

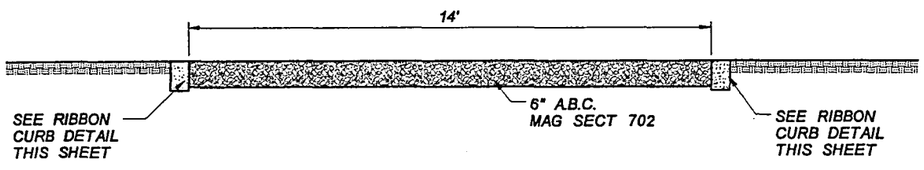
NOTES:

1. CONSTRUCT CURB AND INSTALL 1/2" MASTIC EXPANSION JOINTS, A.S.T.M. D-1751. MAG. SECT. 340.
2. BROOM FINISH ALL SURFACES.
3. RIBBON CURB TO SLOPE TOWARDS LANDSCAPING.
4. CONTRACTION JOINT SPACING 10' MAXIMUM.
5. CONCRETE SHALL BE CLASS "B" PER MAG. SECT. 725 AND INSTALLED PER MAG. SECT. 505.

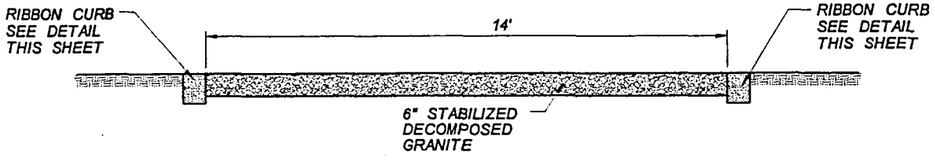


MAINTENANCE ROAD PULL-OUT DETAIL

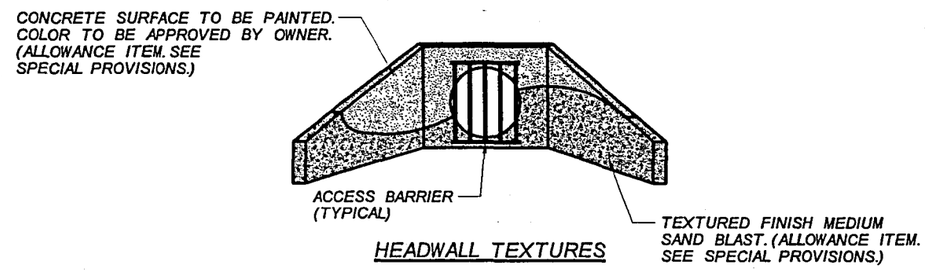
NOTE:
PULL-OUTS REQUIRED APPROXIMATELY EVERY 300' ON MAINTENANCE ROADS



WEST MAINTENANCE ROAD TYP. CROSS SECTION



EAST MAINTENANCE ROAD TYP. CROSS SECTION



HEADWALL TEXTURES

NO.	REVISION	BY	DATE
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
PHASE III - INTERSTATE 10 TO VAN BUREN STREET
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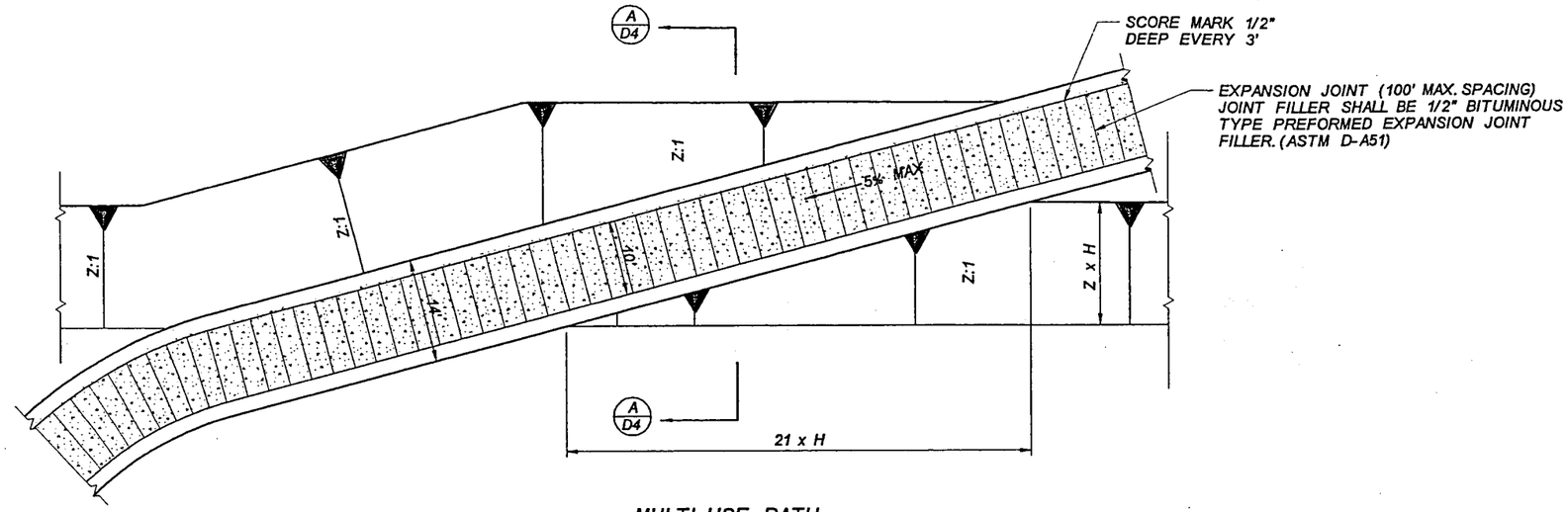
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

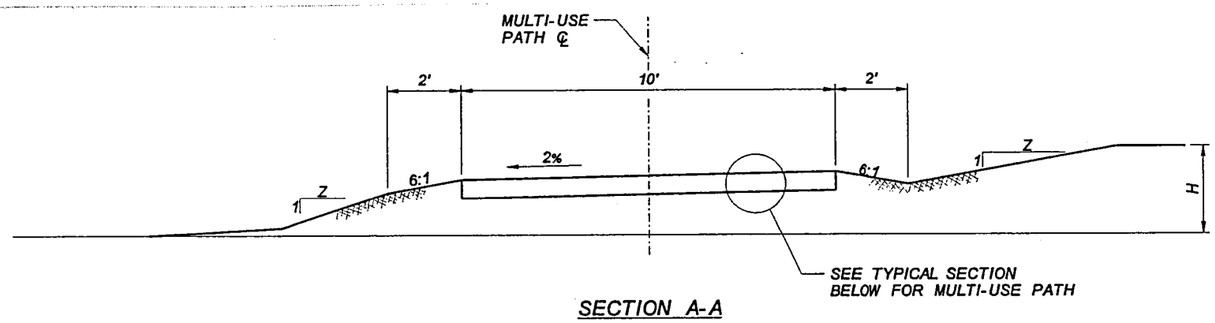
DRAWING NO. D3

MAINTENANCE ROAD DETAILS

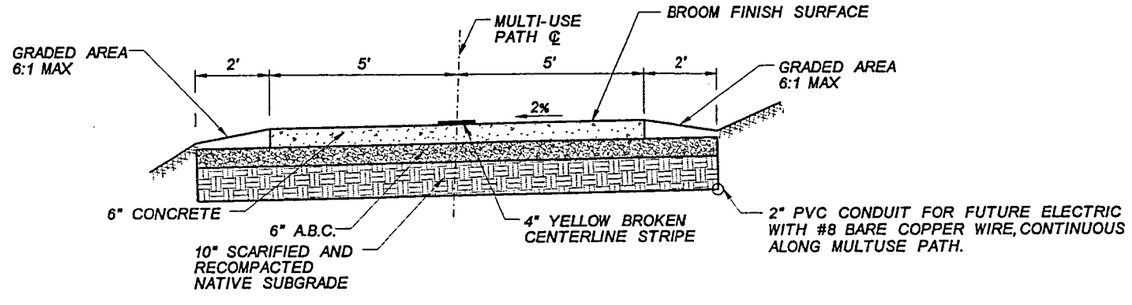
SHEET 32 OF 64



MULTI-USE PATH
SLOPE DESCENT DETAIL



SECTION A-A



MULTI-USE PATH
TYPICAL CROSS SECTION

NO.	REVISION	BY	DATE
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
PHASE III - INTERSTATE 10 TO VAN BUREN STREET
FCD CONTRACT NO. XXX CXXX

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DRAWN	D. HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. D4

MULTI-USE PATH DETAILS

SHEET 33 OF 64

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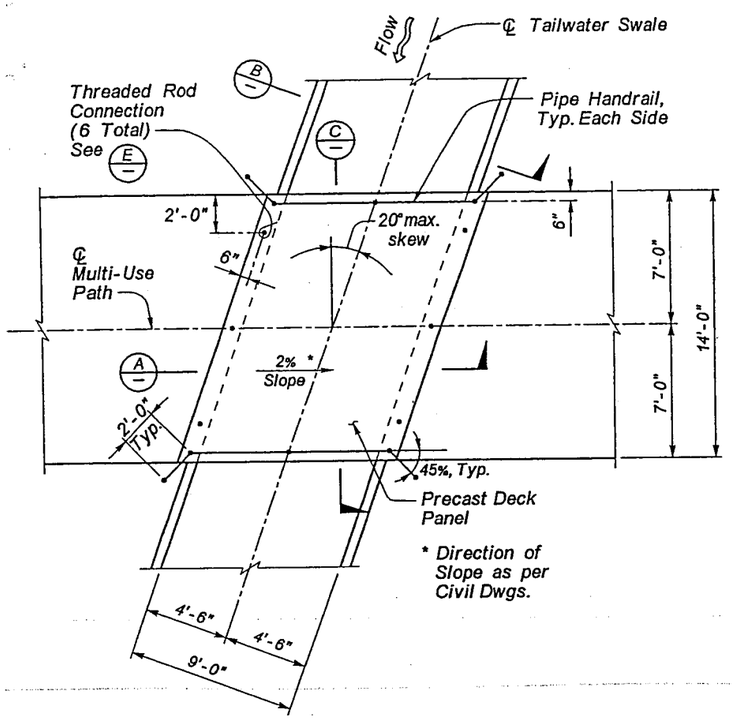
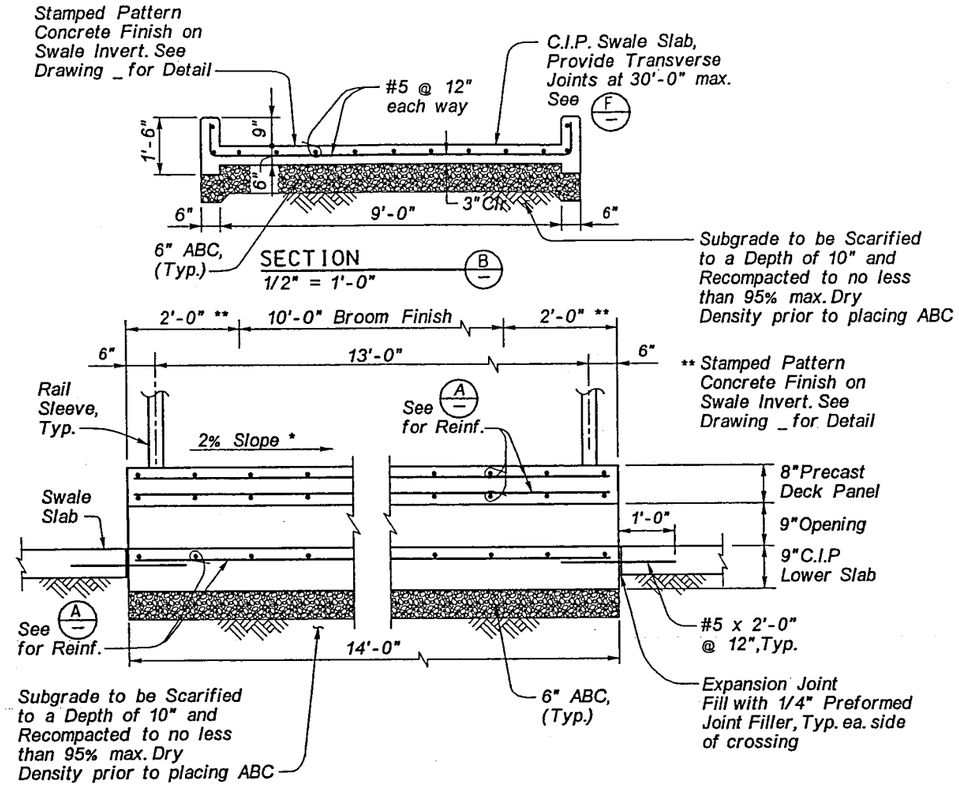


PLAN - MULTI-USE PATH CROSSING
1/4" = 1'-0"



SECTION B
1/2" = 1'-0"

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

GENERAL NOTES:

Construction Specification - Maricopa Association of Governments (MAG) Uniform Standard Specifications for Public Works Construction, 1998 including revisions through 2002.

Live Loading shall be 85 psf or H10, whichever governs.

All concrete shall be class "A" concrete (F'c=3000 psi) as specified in the Special Provisions.

All exposed concrete edges shall have a 3/4" chamfer.

Reinforcing steel shall conform to ASTM Specification A615. All reinforcing shall be furnished as Grade 60. (FS=24.000 psi)

All transverse reinforcing bars shall be placed parallel to the skew and spaced along ℄ path.

Anchor bolts shall conform to ASTM A36, galvanized.

All bends and hooks shall meet the requirements of AASHTO article 8.23. All bend dimensions for reinforcing steel shall be out-to-out of bars. All placement dimensions for reinforcing steel shall be to center of bars unless noted otherwise.

All reinforcing steel shall have 2 inch clear cover unless noted otherwise.

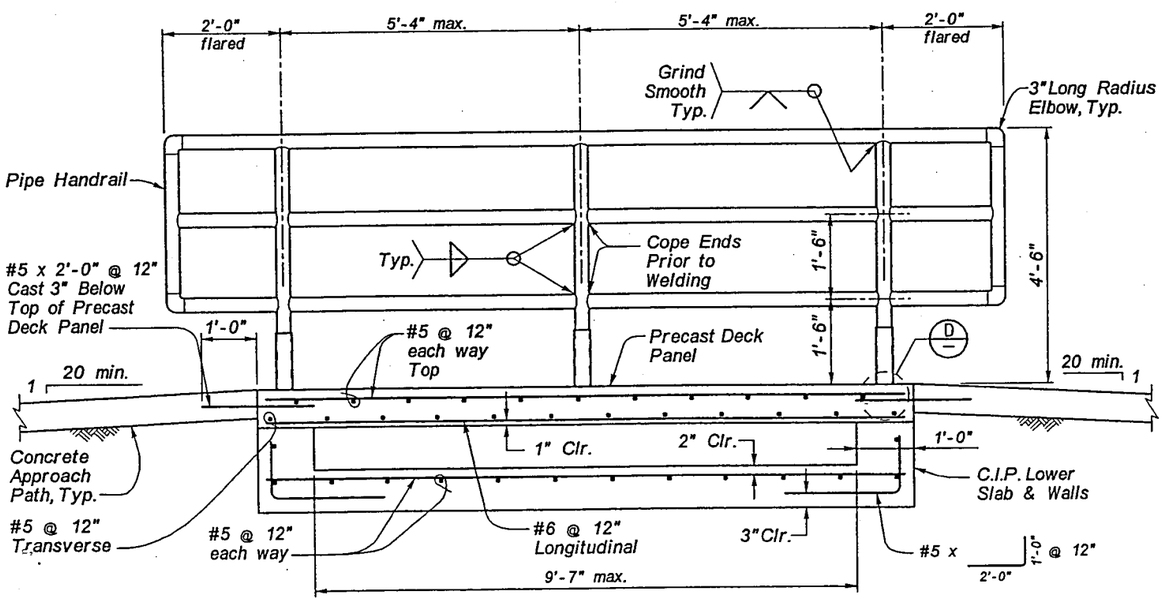
Pipe Handrail shall be ASTM A53, Type S.

Dimensions shall not be scaled from drawings.

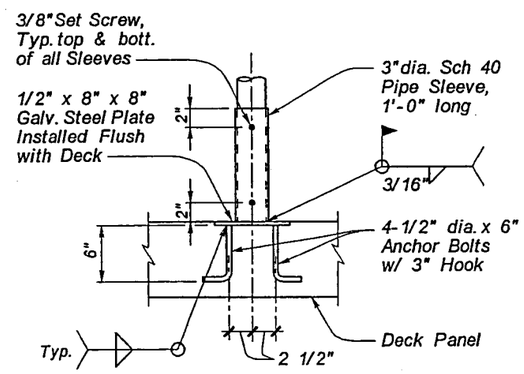
The contractor shall be responsible for field verification of existing utilities and locations.

THREADED RODS:

Contractor shall install six galvanized or stainless steel NC threaded rods per precast panel. Threaded rods shall be capable of supporting a working tensile load of 5000 lbs. each.



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

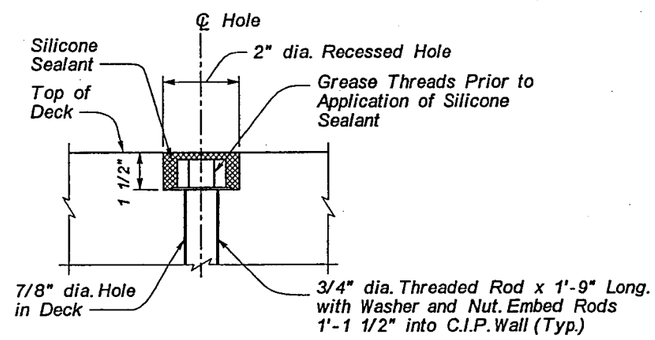


RAILPOST CONNECTION DETAIL D
NO SCALE

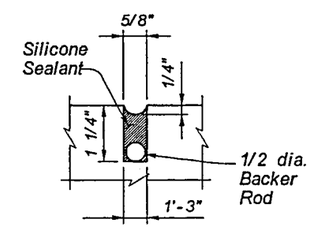
Notes:

1. Posts and Rails to be 2 1/2" dia. Schedule 40 Steel Pipe.

2. All Sleeves, Posts and Rails to be Painted per Project Special Provisions.



THREADED ROD DETAIL E
NO SCALE



JOINT DETAIL F
NO SCALE

NO.	REVISION	BY	DATE
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

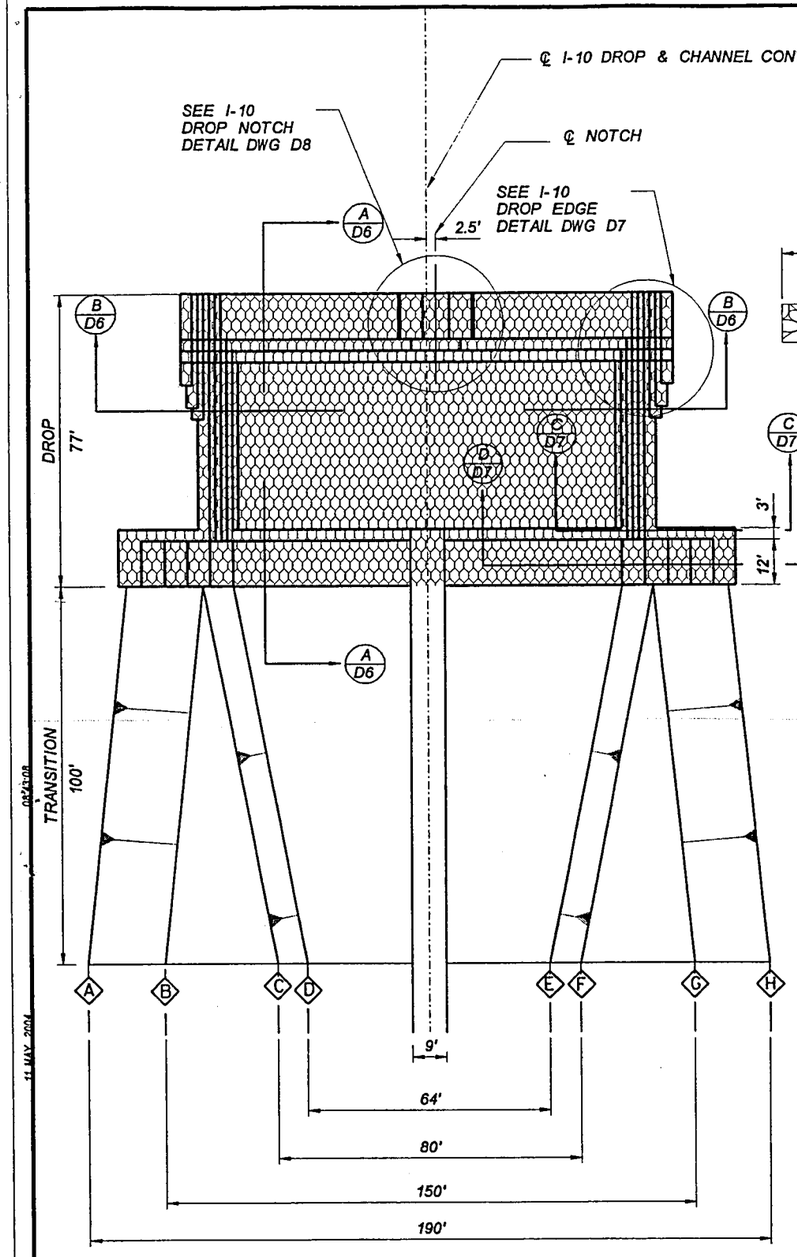
BULLARD WASH CHANNEL IMPROVEMENTS
PHASE III - INTERSTATE 10 TO VAN BUREN STREET
CONTRACT NO. XXX CXXX

PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION

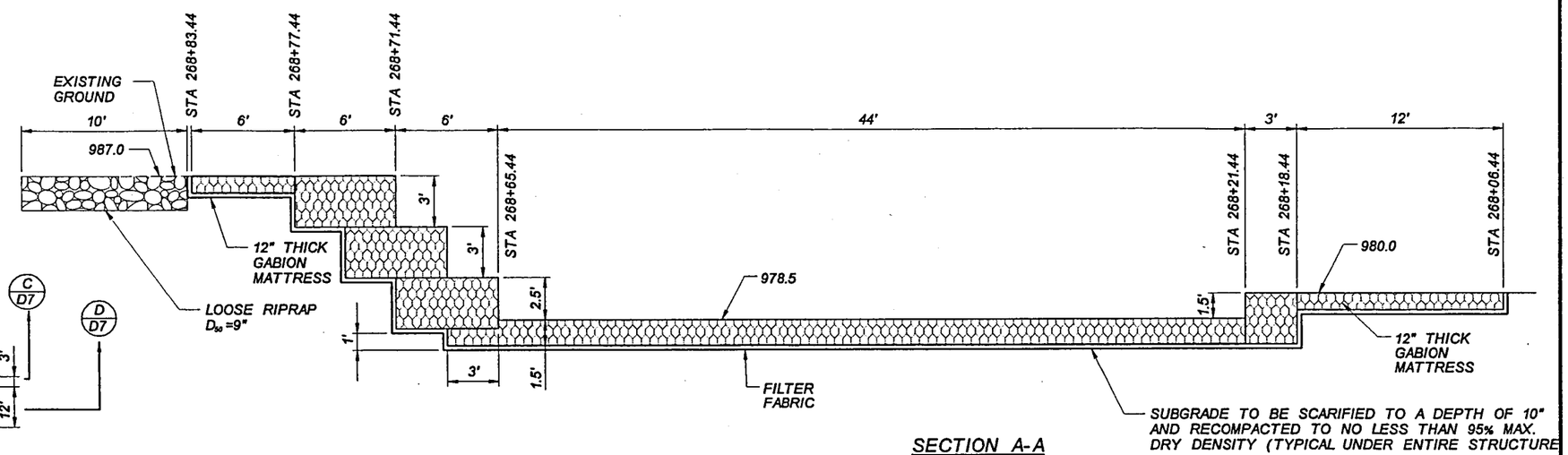
	BY	DATE
DESIGNED	S. THORNE	3/2004
DRAWN	J. SMITLEY	3/2004
CHECKED	K. SKINNER	3/2004

Structural Grace, Inc. 1430 E. Ft. Lowell Rd. Tucson, Arizona 85719 (520) 320-0126 S-200

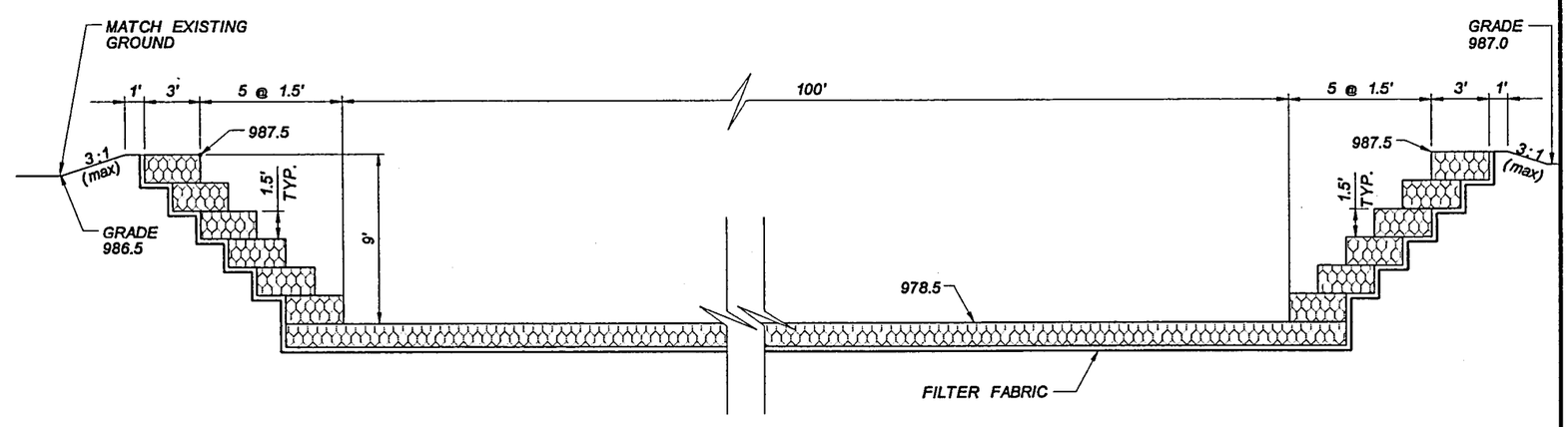
DETAIL 5 | DRAWING NO. D5 | PATH/SWALE CROSS BRIDGE DETAILS | SHEET 34 OF 64



I-10 DROP STRUCTURE DETAIL



SECTION A-A



SECTION B-B

CHANNEL GEOMETRY ALIGNMENT LEGEND

- A WEST TOP OF MAIN CHANNEL
- B WEST BOTTOM OF MAIN CHANNEL
- C WEST TOP OF LOW FLOW CHANNEL
- D WEST BOTTOM OF LOW FLOW CHANNEL
- E EAST BOTTOM OF LOW FLOW CHANNEL
- F EAST TOP OF LOW FLOW CHANNEL
- G EAST BOTTOM OF MAIN CHANNEL
- H EAST TOP OF MAIN CHANNEL

NO.	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
INTERSTATE-10 TO VAN BUREN STREET
FCD CONTRACT NO. 2004 C008

PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D. HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. D8

I-10 DROP STRUCTURE DETAILS

SHEET 35 OF 64

11 MAY 2004

08/13/08

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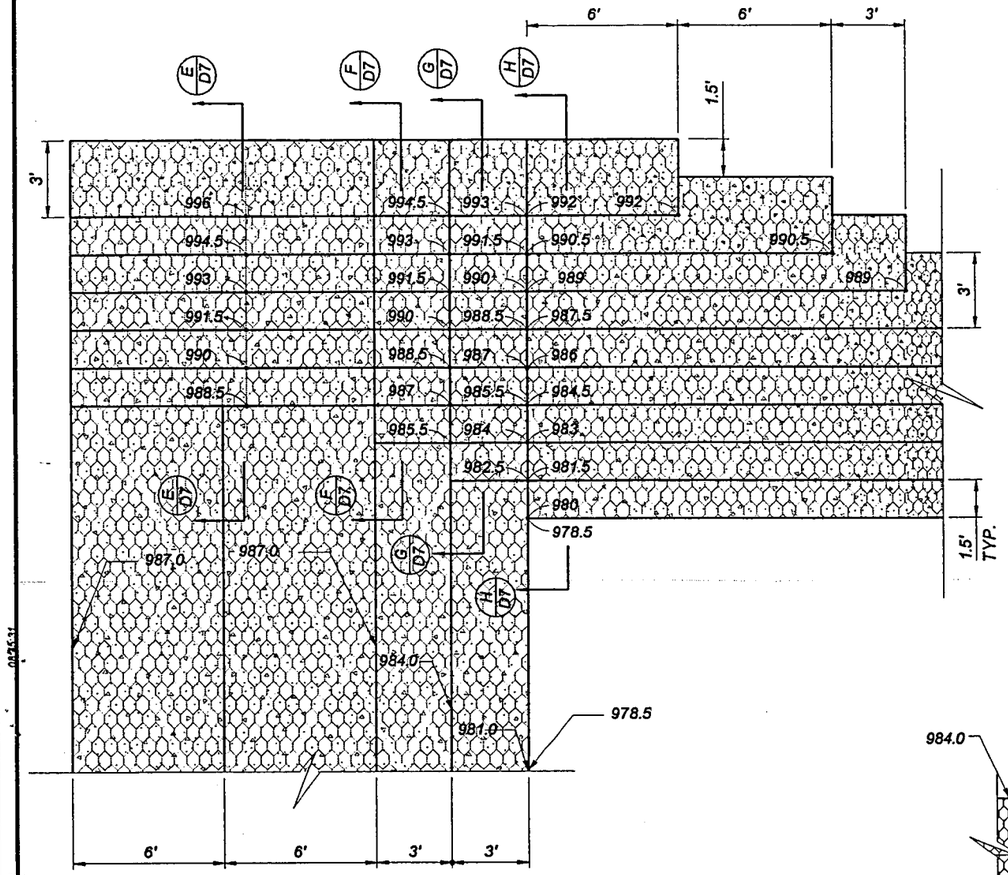
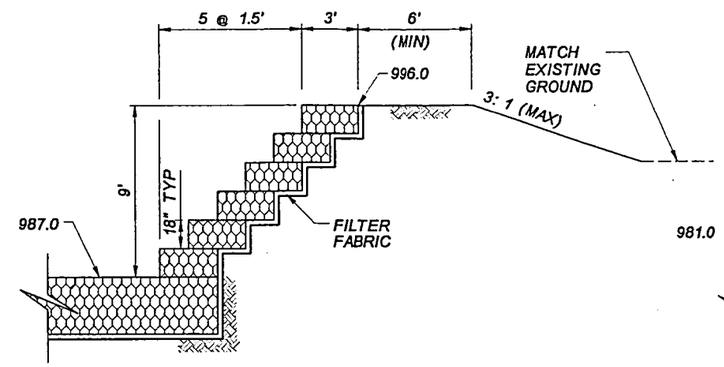


DROP STRUCTURE EDGE DETAIL (TYP)



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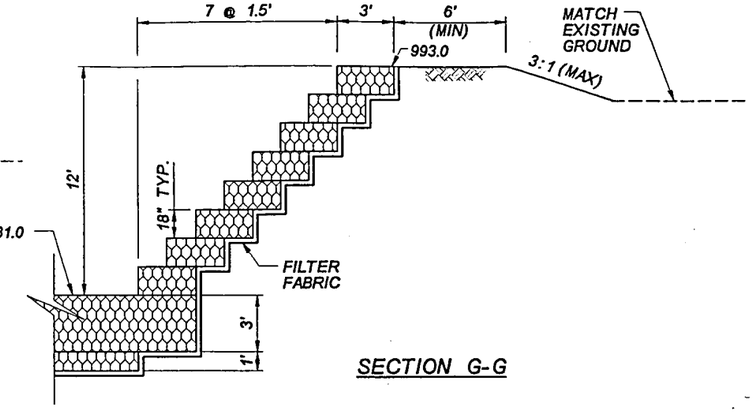

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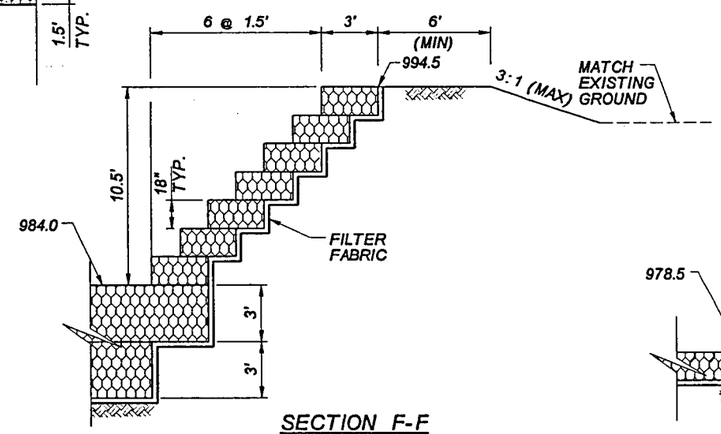

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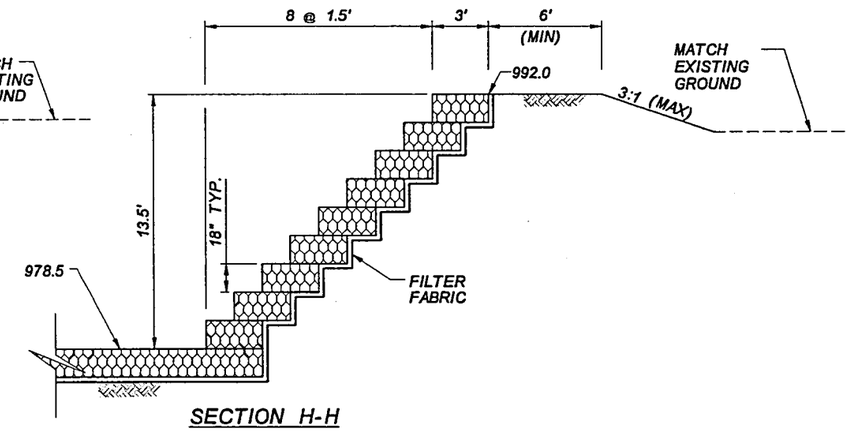
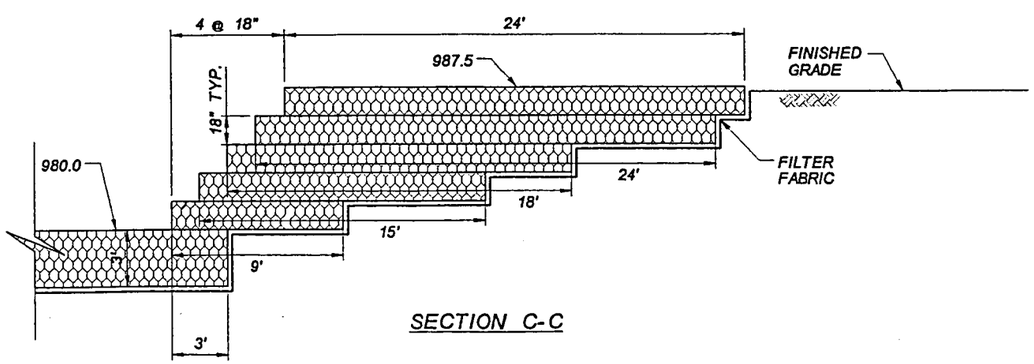
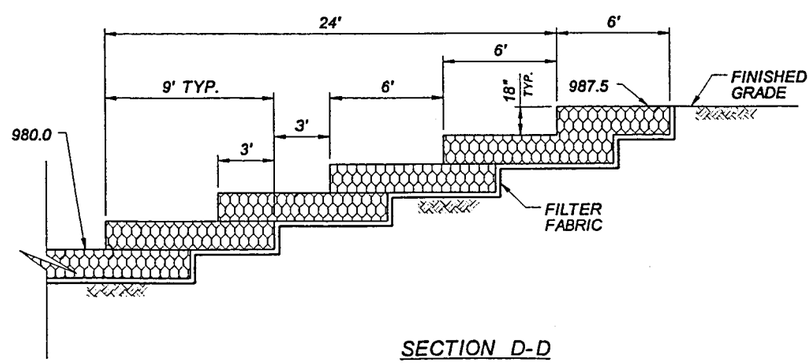


SECTION H-H



SECTION C-C



SECTION D-D

NO.	REVISION	BY	DATE
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
INTERSTATE-10 TO VAN BUREN STREET
FCD CONTRACT NO. 2004 C008

PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION

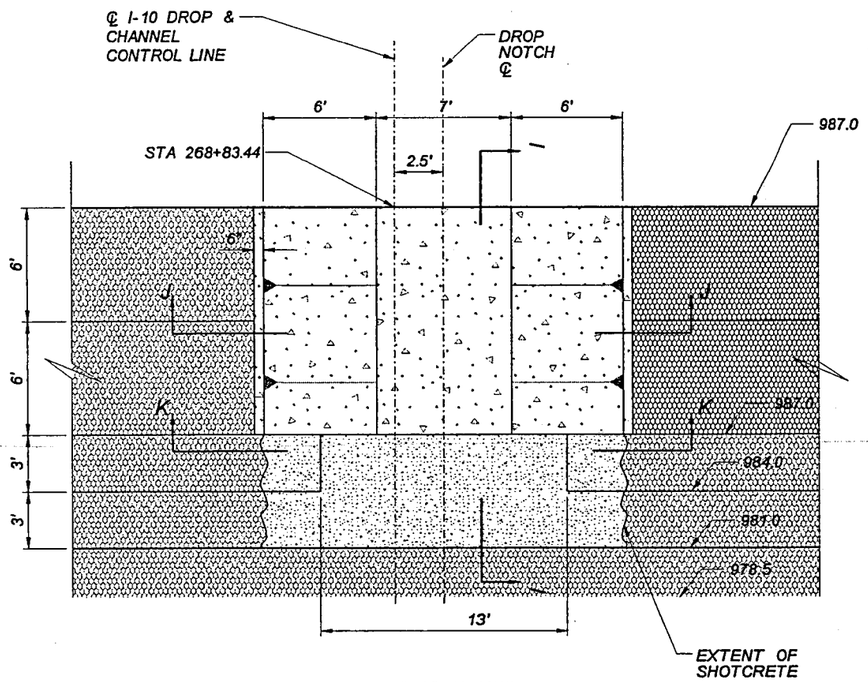
	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D. HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

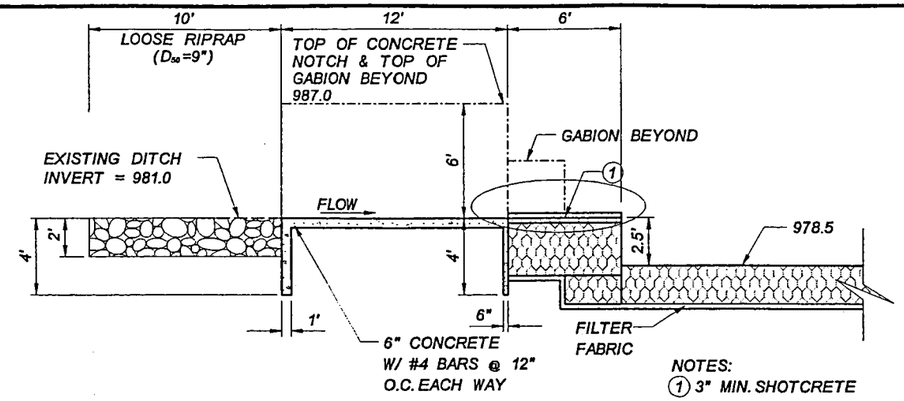
DRAWING NO. D7

I-10 DROP STRUCTURE DETAILS

SHEET 36 OF 64

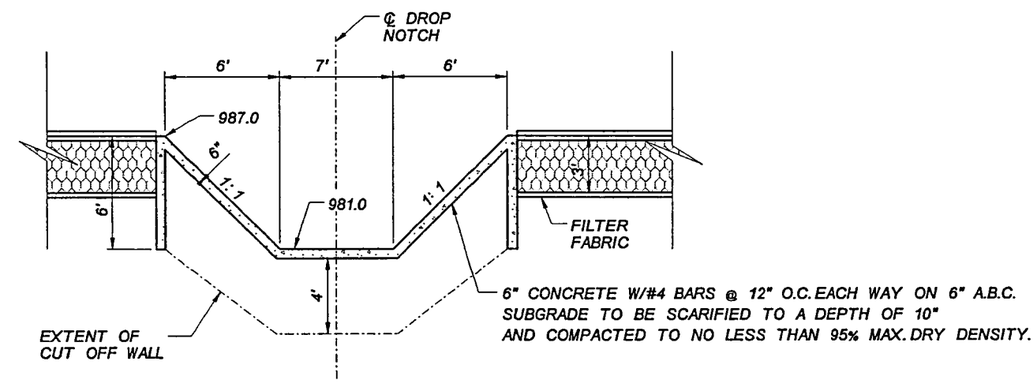


I-10 DROP NOTCH DETAIL PLAN

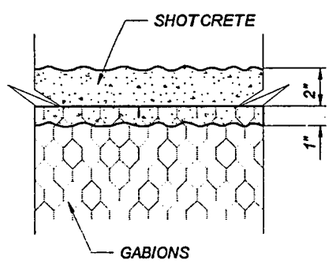


SECTION I-I

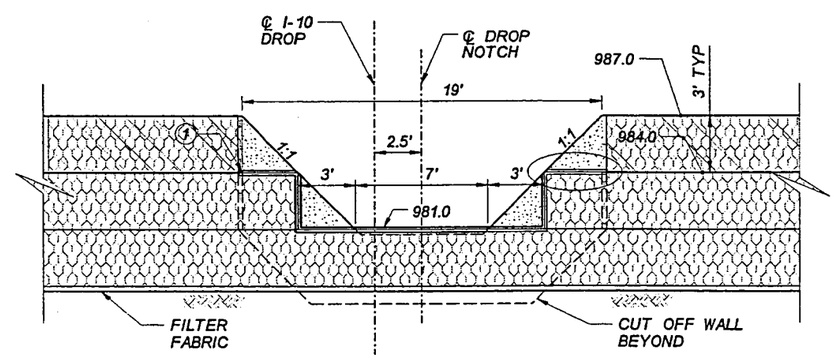
NOTES:
1. 3" MIN. SHOTCRETE EMBEDDED MIN. 1" INTO GABIONS. SEE SHOTCRETE DETAIL THIS SHEET.



SECTION J-J



SHOTCRETE DETAIL



SECTION K-K

NOTES:
1. 3" MIN. SHOTCRETE EMBEDDED MIN. 1" INTO GABIONS.

NO.	REVISION	BY	DATE
3			
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
PHASE III - INTERSTATE 10 TO VAN BUREN STREET
FCD CONTRACT NO. XXX CXXX

PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D. HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. D8

I-10 DROP STRUCTURE DETAILS

SHEET 37 OF 64

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RANCHO MIRAGE
BOOK 518, PAGE 35

32
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982
983
984
985
986
T.C.E.
LIMITS OF FILL
T.C.E.
T.C.E.
MATCH LINE SHEET #F2

CONSTRUCTION NOTES

(4) CONSTRUCT WEST MAINTENANCE ROAD PER DETAIL ON DRAWING #D3. (QUANTITIES INCLUDED ON DRAWING C3.)

(8) CONSTRUCT MAINTENANCE ROAD PULL-OUT PER DETAIL DRAWING #D3. (QUANTITIES INCLUDED ON DRAWING C3.)

(15) PLACE COMPACTED FILL AS SHOWN ON PLANS. SEE SPECIAL PROVISIONS FOR COMPACTION REQUIREMENTS.

(32) CONSTRUCT 36" DROP INLET HEADWALL PER MAG STD DET 501-5 MODIFIED (SINGLE).(1 EACH)

(53) CONSTRUCT CONCRETE RIBBON CURB PER DETAIL ON DRAWING #D3. (QUANTITIES INCLUDED ON DRAWING C3.)

N

50 0 50 100
Scale in Feet

NO.	REVISION	BY	DATE
3			
2			
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
PHASE III - INTERSTATE 10 TO VAN BUREN STREET
CONTRACT NO. XXX CXXX

PRELIMINARY
90% SUBMITTAL
NOT FOR CONSTRUCTION

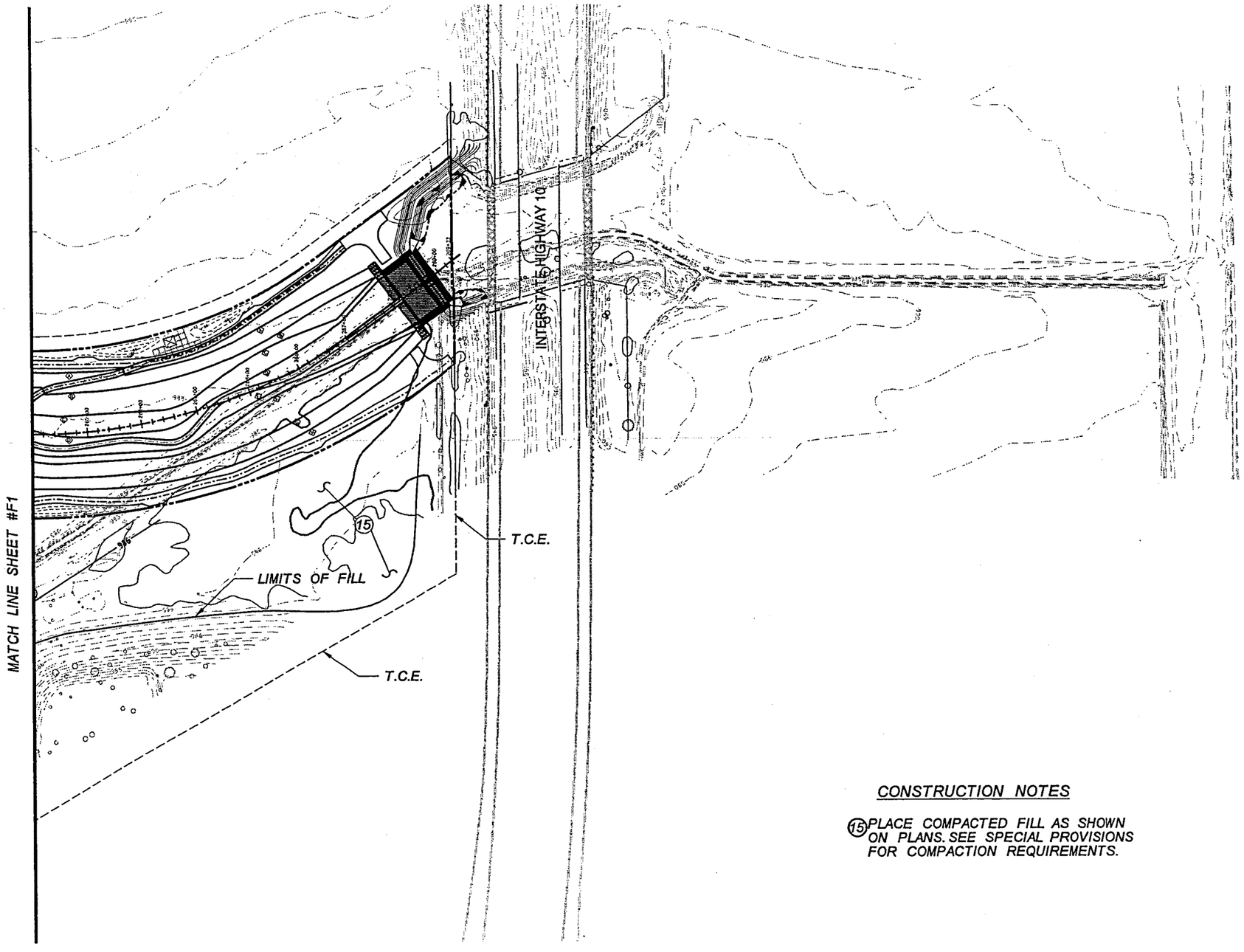
	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D. HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. F1

FILL SITE

SHEET 38 OF 64



CONSTRUCTION NOTES

(15) PLACE COMPACTED FILL AS SHOWN ON PLANS. SEE SPECIAL PROVISIONS FOR COMPACTION REQUIREMENTS.

N

50 0 50 100
Scale in Feet

NO.	REVISION	BY	DATE
3			
2			
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
PHASE III - INTERSTATE 10 TO VAN BUREN STREET
CONTRACT NO. XXX CXXX

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WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. F2

FILL SITE

SHEET 39 OF 64

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

IN COOPERATION WITH THE CITY OF GOODYEAR

PLANS FOR THE CONSTRUCTION OF

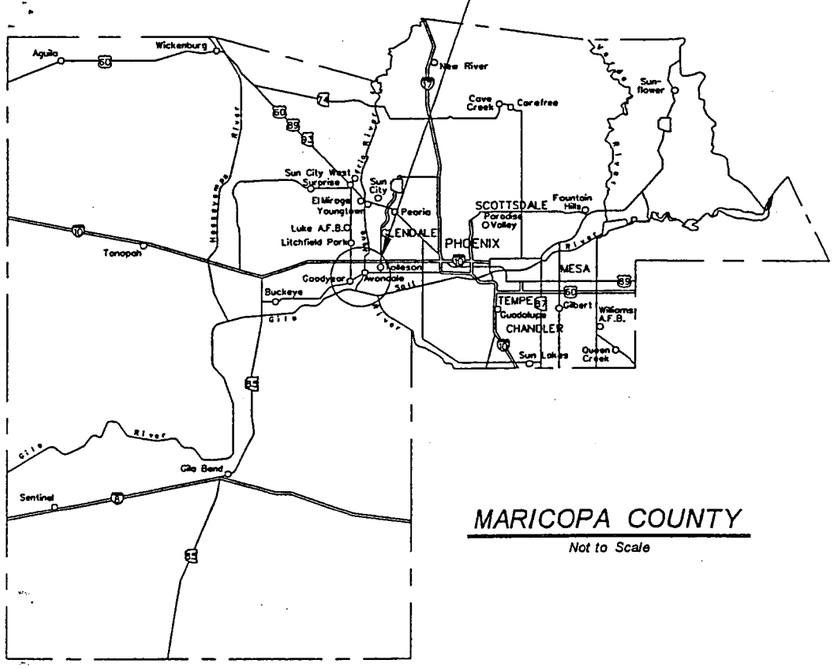
BULLARD WASH CHANNEL IMPROVEMENTS

YUMA ROAD BRIDGE

PCN. 470 13 31

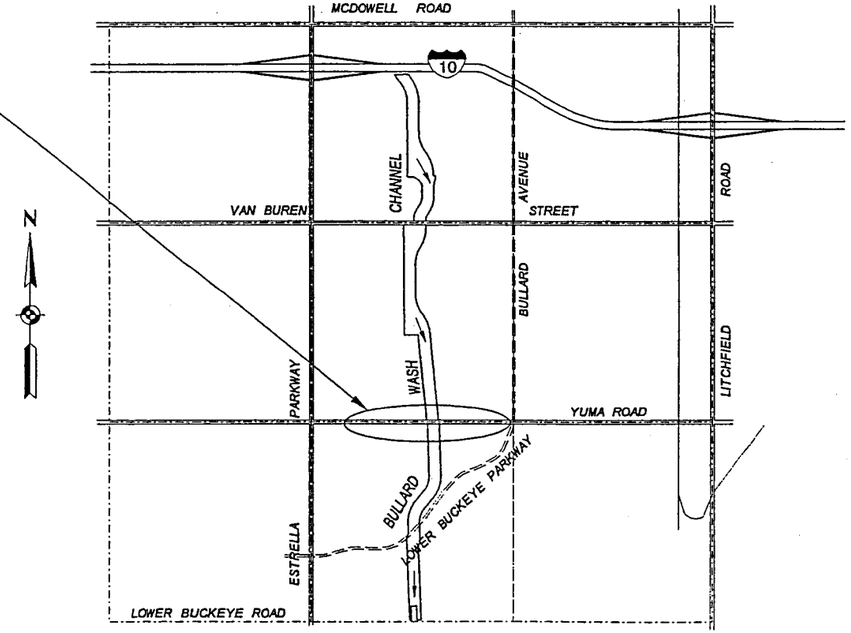
FCD CONTRACT NO. XXX CXXX

PROJECT LOCATION



MARICOPA COUNTY

Not to Scale



VICINITY MAP

Not to Scale

CITY OF GOODYEAR _____ DATE _____

MARICOPA COUNTY
DEPARTMENT OF
ENVIRONMENTAL SERVICES _____ DATE _____

PRELIMINARY
90% SUBMITTAL
NOT FOR
CONSTRUCTION

TWO WORKING DAYS BEFORE YOU DIG, CALL 263-1100 BLUE STAKE

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

ISSUED FOR PUBLIC BIDDING BY:

MICHAEL S. ELLEGOOD, P.E.
CHIEF ENGINEER AND
GENERAL MANAGER

BOARD OF DIRECTORS OF
THE FLOOD CONTROL DISTRICT

DON STAPLEY - CHAIRMAN

DISTRICT 1	FULTON BROCK
DISTRICT 2	DON STAPLEY
DISTRICT 3	ANDY KUNASEK
DISTRICT 4	MAX W. WILSON
DISTRICT 5	MARY ROSE WILCOX

2001\01148\UMP\480G1YRP.dgn Mar 06, 2004 16:18:43

LEGEND

- BENCHMARK
- EXIST. SURVEY MONUMENT(BRASS CAP FLUSH)
- EXIST. SURVEY MONUMENT(BRASS CAP IN HAND HOLE)
- EXIST. COMBINED CURB & GUTTER - MAG DET. 220 TYPE "A"
- EXIST. CONCRETE SIDEWALK - COP STD. DET. P-1230
- EXISTING DITCH
- IRR — EXISTING IRRIGATION LINE (NOTE - PRIVATE, SALT RIVER OR R.I.D.)
- EXISTING IRRIGATION STRUCTURE
- EXISTING IRRIGATION STANDPIPE
- 12" W — EXISTING WATER LINE / SIZE
- EXISTING WATER METER & BOX
- EXISTING FIRE HYDRANT
- NEW OR RELOCATED FIRE HYDRANT BY CONTRACTOR
- EXISTING WATER VALVE OPERATING NUT ELEVATION
- 24" S — EXISTING SEWER LINE / SIZE
- EXISTING MANHOLE
- NEW MANHOLE
- CATCH BASIN, GUTTER INLET (LENGTH TO SCALE)
- CATCH BASIN, CURB INLET (LENGTH TO SCALE)
- CATCH BASIN, CURB & GUTTER INLET (LENGTH TO SCALE)
- 78" SD — EXISTING STORM DRAIN / SIZE
- NEW PIPE FOR STORM DRAIN OR IRRIGATION LINE
- CATV — EXISTING UNDERGROUND CABLE TELEVISION
- E — EXISTING UNDERGROUND ELECTRIC
- 4D — EXISTING UNDERGROUND TELEPHONE DUCTS (SPECIFY NUMBER)
- 2" G — EXISTING GAS LINE / SIZE
- UGT — EXISTING UNDERGROUND TELEPHONE CABLE
- EXISTING STREET SIGN
- EXISTING TRAFFIC SIGN
- EXISTING UTILITY POLE
- EXISTING WIRE FENCE
- EXISTING WOOD FENCE
- EXISTING CHAIN LINK FENCE
- MAIL BOX
- DOWN ANCHOR
- STREET LIGHT
- EASEMENT LINE
- EXISTING OR NEW R/W LINE
- PAVEMENT CENTER LINE AND OR MOUNUMENT LINE (℄ AND / OR ML)
- 2 — BORING HOLE / NUMBER (SEE SPECIAL PROVISIONS)
- TELEPHONE RISER
- WM — WATER SERVICE BOX
- MST — MID SPAN TAP (OH UTILITIES)
- WV — WATER VAULT
- T — TRAFFIC SIGNAL BOX
- TREE
- STOP — STOP SIGN
- MAILBOX
- GATE W/POSTS
- SM — SAWCUT & MATCH

STRUCTURAL NOTES

1. ALL CONSTRUCTION SHALL CONFORM TO MAG STANDARD DETAILS AND SPECIFICATIONS, DATED 1998, INCLUDING ALL REVISIONS THRU 2002.
2. DESIGN IS IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, DIVISION 1, 17TH EDITION, 2002.
3. REINFORCING STEEL SHALL CONFORM TO ASTM SPECIFICATION A615, GRADE 60
4. STRESSES - fs = 24,000 PSI - GRADE 60 REINFORCING STEEL
5. ALL REINFORCING STEEL PLACEMENT DIMENSIONS SHALL BE TO CENTER OF BARS UNLESS OTHERWISE NOTED.
6. ALL REINFORCING STEEL SHALL HAVE 2" CLEAR COVER UNLESS OTHERWISE NOTED.
7. STRUCTURAL STEEL SHALL CONFORM TO ASTM SPECIFICATION A36.
8. ALL WELDING SHALL CONFORM TO THE REQUIREMENTS OF THE AMERICAN WELDING SOCIETY, STRUCTURAL WELDING CODE, REVISED 1996.
9. DIMENSIONS SHALL NOT BE SCALED FROM DRAWINGS.
10. CHAMFER ALL EXPOSED CORNERS 3/4 " UNLESS OTHERWISE NOTED.
11. CONCRETE COMPRESSIVE STRENGTH SHALL BE 3000 PSI MAG, CLASS A, UNLESS NOTED OTHERWISE.

UTILITY NOTIFICATION

PHONE NO.	COMPANY	CONTACT
(602) 371-7989	APS	BOBBY GARZA
(602) 630-1393	QWEST	MATTHEW PHILLIPS
(602) 484-5342	SOUTHWEST GAS	SUE NEWSOM
(602) 447-0363	COX COMMUNICATIONS	KARL MCKAY
(623) 882-7954	CITY OF GOODYEAR	DAVID RAMIREZ

INDEX OF SHEETS

DRAWING NO.	TITLE	SHEET NO.
G1	COVER SHEET AND VICINITY MAP	1
G2	GENERAL NOTES AND SHEET INDEX	2
G3	KEY MAP	3
G4	HORIZONTAL AND VERTICAL CONTROL	4
G5	ROW AND TCE CONTROL	5
Q1	QUANTITY SUMMARY SHEET	6
PS1	PIPE SUMMARY SHEET	7
R1	TYPICAL ROADWAY SECTIONS	8
R2-R6	PLAN AND PROFILE SHEETS	9-13
D1-D2	CHANNEL LINING DETAIL	14-15
ST1-ST3	STRIPING AND SIGNAGE	16-18
S1	VAN BUREN STREET BRIDGE	19
E1-E2	SAFETY LIGHTING AT YUMA ROAD	20-21
SB1-SB2	SOIL BORING LOGS	22-23

GENERAL NOTES

1. ALL CONSTRUCTION TO BE PERFORMED ACCORDING TO APPLICABLE MAG STANDARD DETAILS AND MAG SPECIFICATIONS, DATED 1998 (INCLUDING ALL REVISIONS THROUGH 2002) AND THE CITY OF GOODYEAR ADDITIONS AND DELETIONS THROUGH 2002.
2. FACILITIES WHICH ARE NOT SPECIFICALLY LOCATED WITH ACTUAL HORIZONTAL AND VERTICAL CONTROLS ARE APPROXIMATE AND TO THE BEST AVAILABLE INFORMATION.
3. EXISTING UTILITIES AND OTHER FACILITIES HAVE BEEN PLACED ON THE PLANS FROM FIELD SURVEYS, EXISTING MAPS AND OTHER CURRENT PLANS WITHIN THE AREA OF THIS PROJECT. THE CONTRACTOR WILL DETERMINE THE EXACT LOCATION AND/OR ELEVATION OF EXISTING UTILITIES WHICH PERTAIN TO AND AFFECT THE CONSTRUCTION OF THIS PROJECT.
4. TWO (2) WORKING DAYS PRIOR TO EXCAVATING, THE CONTRACTOR SHALL CALL FOR BLUE STAKES AT THE BLUE STAKE CENTER (PHONE: 602-263-1100).
5. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS PRIOR TO CONSTRUCTION.
6. THE FLOOD CONTROL DISTRICT OR CITY OF GOODYEAR IS NOT RESPONSIBLE FOR LIABILITY ACCRUED DUE TO DELAYS AND/OR DAMAGE TO UTILITIES IN CONJUNCTION WITH THIS CONSTRUCTION.
7. ANY WORK PERFORMED WITHOUT THE APPROVAL OF THE FLOOD CONTROL DISTRICT AND/OR THE ENGINEER AND ALL WORK AND MATERIALS NOT IN CONFORMANCE WITH THE SPECIFICATIONS IS SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTOR'S EXPENSE.
8. THE ENGINEER WILL DETERMINE THE NUMBER AND LOCATION OF THE REQUIRED COMPACTION TESTS FOR STRUCTURE BACKFILL.
9. TRAFFIC CONTROL SHALL BE MAINTAINED IN ACCORDANCE WITH THE CITY OF PHOENIX TRAFFIC BARRACADE MANUAL, 1998. FILL IN ANY GAPS WITH M.A.G. SPECIFICATION 401, PART VI OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, MILLENIUM EDITION WITH INCORPORATED REVISION NO. 1 CHANGES DATES DECEMBER 28, 2001.
10. CONTRACTOR SHALL REPLACE PAVEMENT TO THE EXISTING GRADES SHOWN ON THE PLANS.
11. EXACT POINT OF MATCHING TERMINATION AND OVERLAY WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
12. NO JOB WILL BE CONSIDERED COMPLETED UNTIL CURBS, PAVEMENT AND SIDEWALKS HAVE BEEN SWEPT CLEAN OF ALL DIRT AND DEBRIS.
13. PRIOR TO FINAL APPROVAL AND ACCEPTANCE OF THE WORK, THE CONTRACTOR WILL BE REQUIRED TO CLEAN ADJACENT (OFF-PROJECT) ROADWAYS USED DURING THE COURSE OF CONSTRUCTION.

ABBREVIATIONS

CSTR	CONSTRUCTION
DESC	DESCRIPTION
S	SLOPE
FT/FT	FEET/FOOT
OHE	OVERHEAD ELECTRIC
INV	INVERT ELEVATION
FND	FOUND
PL	PROPERTY LINE
TCE	TEMPORARY CONSTRUCTION EASEMENT
TW	TOP OF WALL
TN	TOP OF NUT
℄	CENTER LINE
ML	MONUMENT LINE
ROW	RIGHT OF WAY
DE	DRAINAGE EASEMENT

PROJECT BENCHMARKS

REBAR IN HANDHOLE
BULLARD AVENUE AND
VAN BUREN STREET
EL = 987.77
N=45882.226
E=60292.901

SECTION LETTER OR DETAIL NUMBER

SHEET NUMBER TO LOCATE

NO.	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

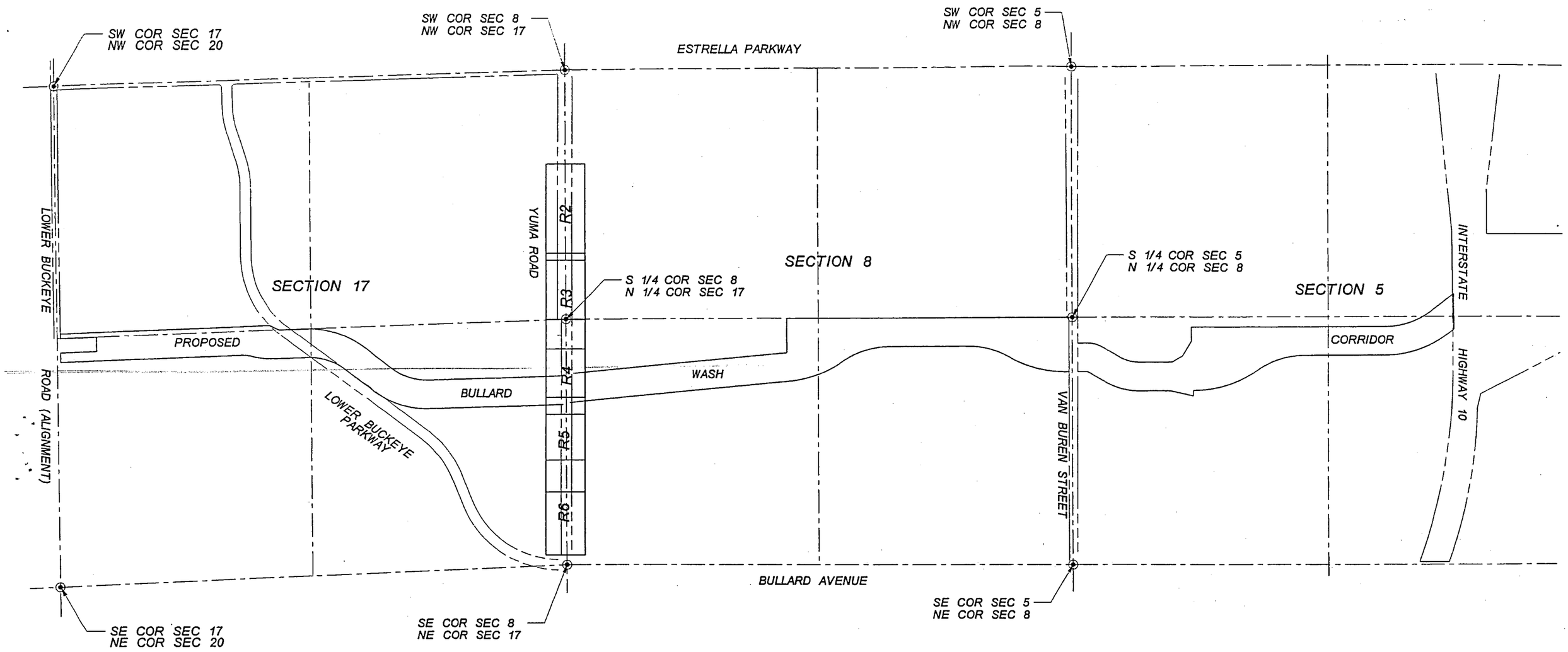
BULLARD WASH CHANNEL IMPROVEMENTS
YUMA ROAD BRIDGE
CONTRACT NO. XXX CXXX

PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D. HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. G2 | GENERAL NOTES & INDEX OF SHEETS | SHEET 2 OF 22



NO.	REVISION	BY	DATE
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2			
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
YUMA ROAD BRIDGE
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WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. G3

KEY MAP

SHEET 3 OF 22

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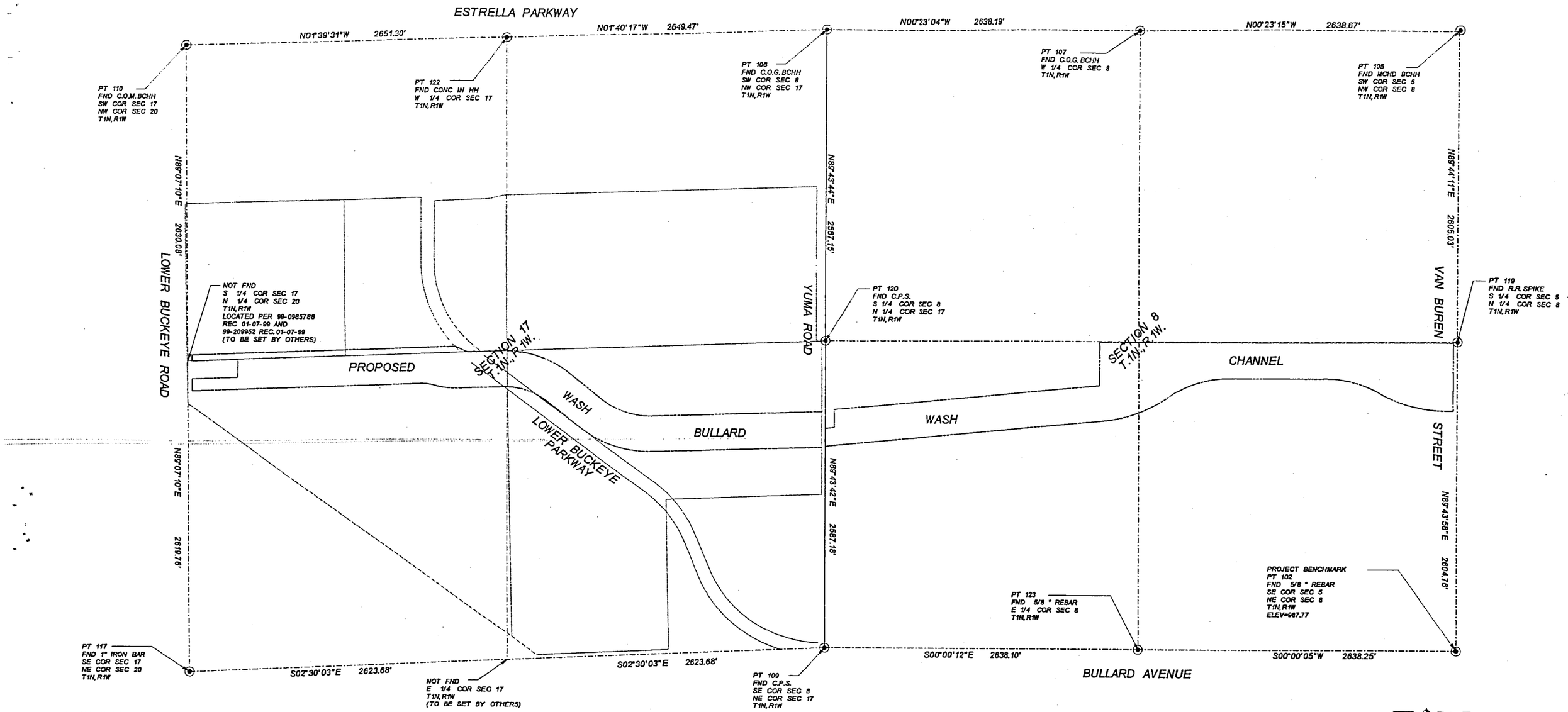


LEGEND

⊙	FOUND SURVEY MONUMENT AS NOTED
FND	FOUND
SEC.	SECTION
COR.	CORNER
MCHD	MARICOPA COUNTY HIGHWAY DEPARTMENT
BCHH	BRASS CAP IN HANDHOLE
I.P.	IRON PIPE
R.R.	RAILROAD
CONC	CONCRETE
C.P.S.	COTTON PICKER SPINDLE
HH	HANDHOLE
C.O.G.	CITY OF GOODYEAR
C.O.M.	CITY OF MESA
ELEV.	ELEVATION
I - FEET	INTERNATIONAL FEET

CERTIFICATION

THIS RESULTS OF SURVEY WAS PREPARED UNDER MY DIRECTION BASED ON FIELD WORK PERFORMED DURING AUGUST 2002, AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

RESULTS OF SURVEY

PROPOSED BULLARD WASH (SECTION SURVEY)
THROUGH SECTIONS 5, 8, 17 AND 20 OF TOWNSHIP 1 NORTH,
RANGE 1 WEST, GILA AND SALT RIVER MERIDIAN TOWNSHIP,
CITY OF GOODYEAR, MARICOPA COUNTY, ARIZONA

NOTES

1. THE **BASIS OF BEARING** IS THE WEST LINE OF THE NORTHWEST QUARTER OF SECTION 8, TOWNSHIP 1 NORTH, RANGE 1 WEST OF THE GILA AND SALT RIVER MERIDIAN, ACCORDING TO THE FINAL PLAT OF "CENTERRA" AS RECORDED IN BOOK 533, PAGE 37, MARICOPA COUNTY RECORDS, USING A BEARING OF SOUTH 00 DEGREES 23 MINUTES 15 SECONDS EAST.

2. ANY DISTANCES, BEARINGS, AND DESCRIPTIONS, ETC., WHICH MAY VARY FROM THE PROVISIONS OF THE RECORD INFORMATION NOTED ABOVE REFLECT ACTUAL MEASURED DATA, OR THE BEST INTERPRETATION OF THE UNDERSIGNED.

3. THIS SURVEY WAS PERFORMED UTILIZING GLOBAL POSITIONING SYSTEM EQUIPMENT. THE MONUMENTS LOCATED ARE WITHIN THE POSITIONAL TOLERANCES AS OUTLINED IN THE ARIZONA BOUNDARY SURVEY MINIMUM STANDARDS.

4. ALL BEARINGS AND DISTANCES SHOWN HERE REPRESENT ACTUAL MEASURED GROUND DISTANCES BASED ON THE BASIS OF BEARING INDICATED IN NOTE 1 ABOVE AND ARE NOT TO BE CONSTRUED AS STATE PLANE DATA.

NO.	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
YUMA ROAD BRIDGE
CONTRACT NO. XXX CXXX

PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION

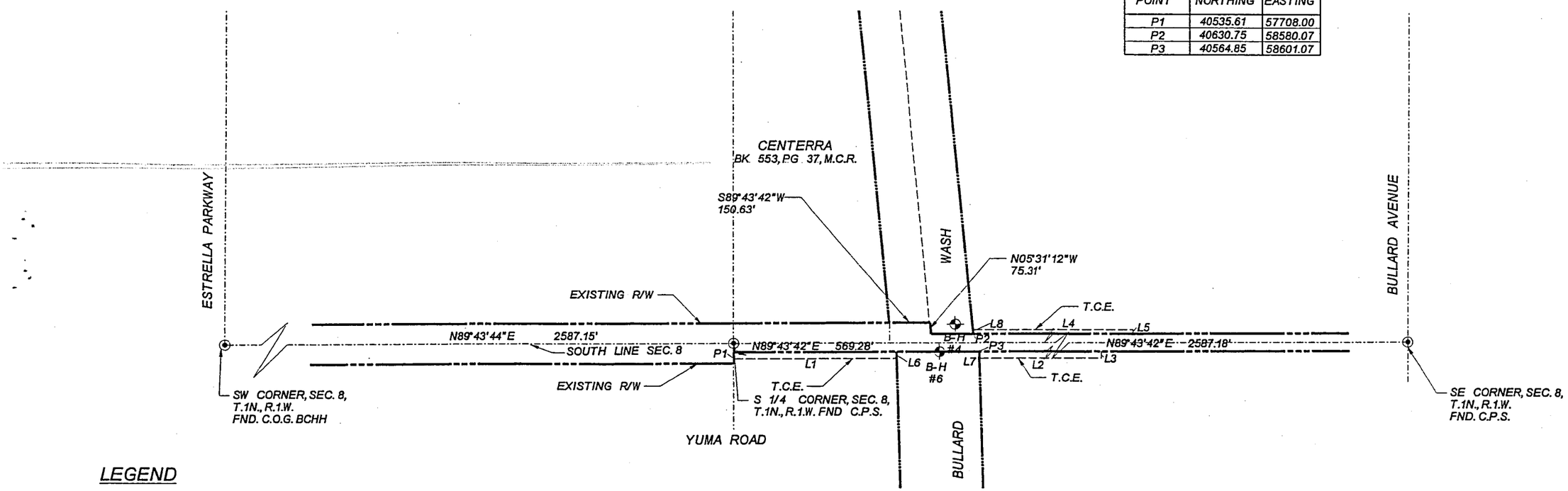
	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D. HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. G4 | HORIZONTAL & VERTICAL CONTROL | SHEET 4 OF 22

TCE LINE TABLE		
LINE	LENGTH	BEARING
L1	593.75'	N89°43'42"E
L2	449.50'	N89°43'42"E
L3	25.00'	N00°16'18"W
L4	591.95'	N89°43'42"E
L5	15.00'	S00°16'18"E
L6	25.01'	N01°46'34"W
L7	25.01'	S01°46'34"E
L8	15.06'	N05°31'12"W

POINT TABLE		
POINT	NORTHING	EASTING
P1	40535.61	57708.00
P2	40630.75	58580.07
P3	40564.85	58601.07



LEGEND

⌖	BORING HOLE LOCATION
⊙	FOUND SURVEY MONUMENT AS NOTED
FND	FOUND
SEC.	SECTION
COR.	CORNER
MCHD	MARICOPA COUNTY HIGHWAY DEPARTMENT
BCHH	BRASS CAP IN HANDHOLE
I.P.	IRON PIPE
R.R.	RAILROAD
CONC	CONCRETE
C.P.S.	COTTON PICKER SPINDLE
HH	HANDHOLE
C.O.G.	CITY OF GOODYEAR
C.O.M.	CITY OF MESA
ELEV.	ELEVATION
I - FEET	INTERNATIONAL FEET
D.E.	DRAINAGE EASEMENT
T.C.E.	TEMPORARY CONSTRUCTION EASEMENT

N

100 0 100 200
Scale in Feet

NO.	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
YUMA ROAD BRIDGE
CONTRACT NO. XXX CXXX

PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION

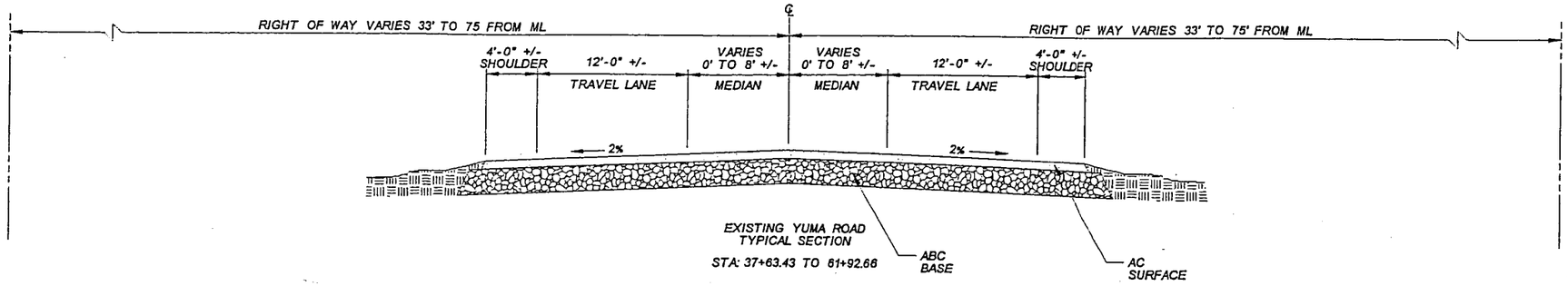
	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D. HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

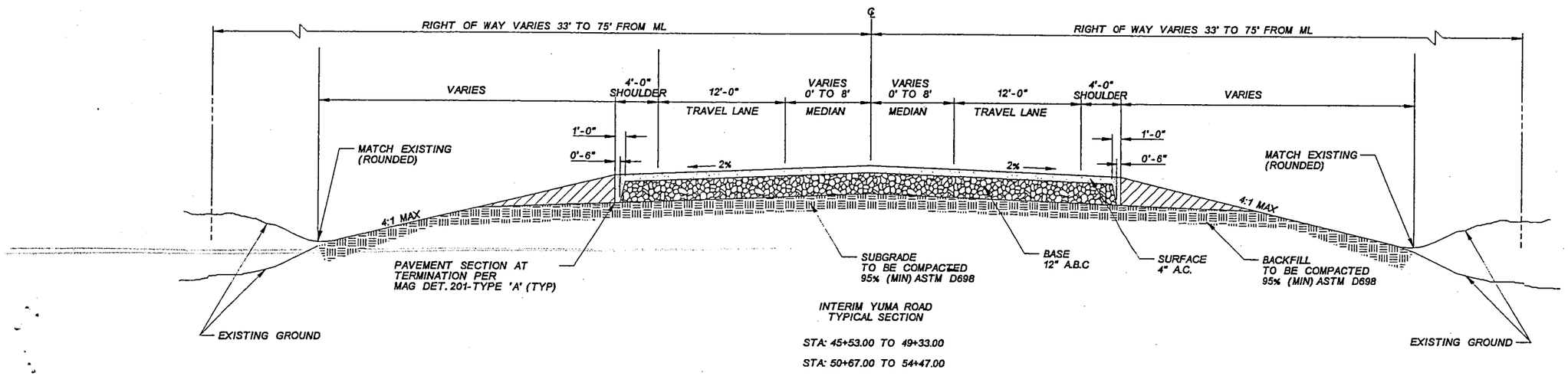
WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

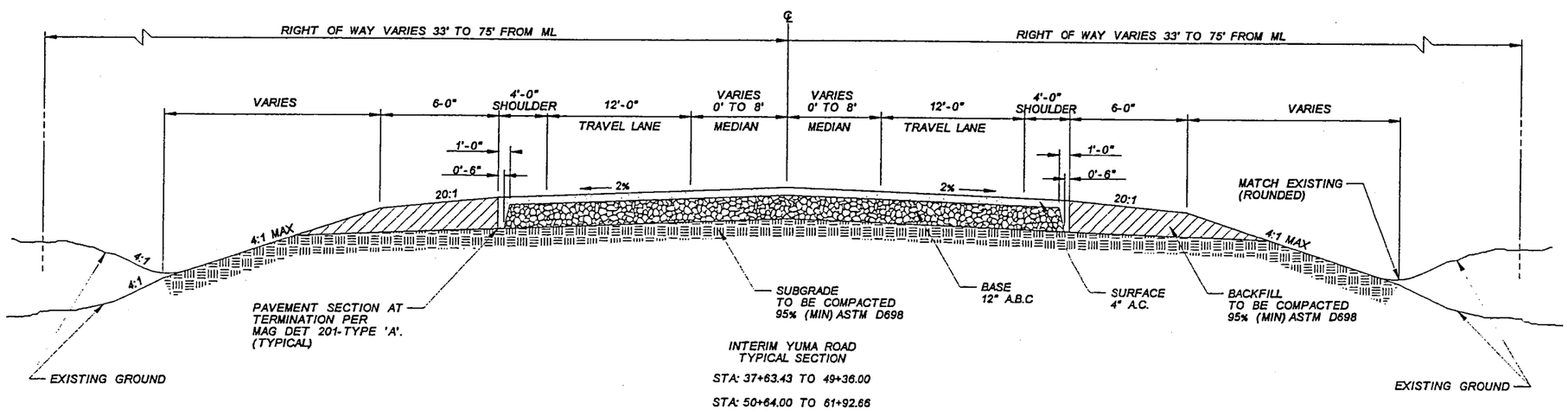
DRAWING NO. G5

ROW AND TCE CONTROL

SHEET 5 OF 22







TWO WORKING DAYS BEFORE YOU DIG, CALL
263-1100
BLUE STAKE

NO.	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
YUMA ROAD BRIDGE
CONTRACT NO. XXX CXXX

PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION

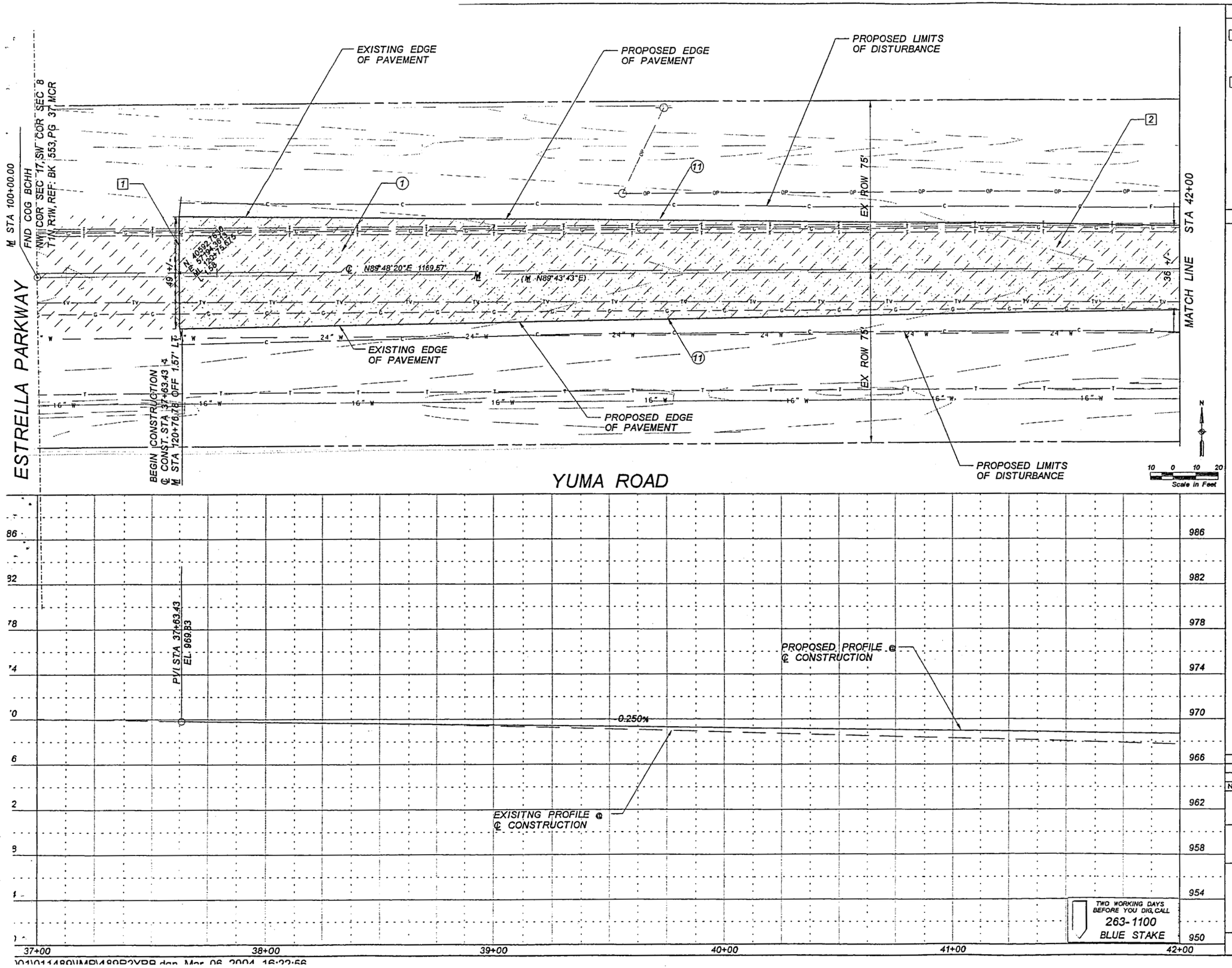
	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D. HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. R1

TYPICAL ROADWAY SECTIONS

SHEET 7 OF 22



☐ REMOVE ☐

1. TRANSVERSELY SAWCUT, REMOVE AND DISPOSE OF EXISTING PAVEMENT MINIMUM 2' WIDE. (N.P.I.)
2. REMOVE AND DISPOSE OF EXISTING A.C. PAVEMENT. (2117 S.Y.)

◯ CONSTRUCT ◯

1. CONSTRUCT A.C. PAVEMENT ROADWAY PER TYPICAL SECTION DRAWING #R1. (477 TONS)
11. CONSTRUCT PAVEMENT SECTION AT TERMINATION PER MAG DET 201-TYPE 'A'. (808 L.F.)

NO.	REVISION	BY	DATE
3			
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
YUMA ROAD BRIDGE
FCD CONTRACT NO. XXX CXXX

PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D.HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
3051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. R2

PAVING PLAN
YUMA STA 37+00 TO 42+00

SHEET 8 OF 22

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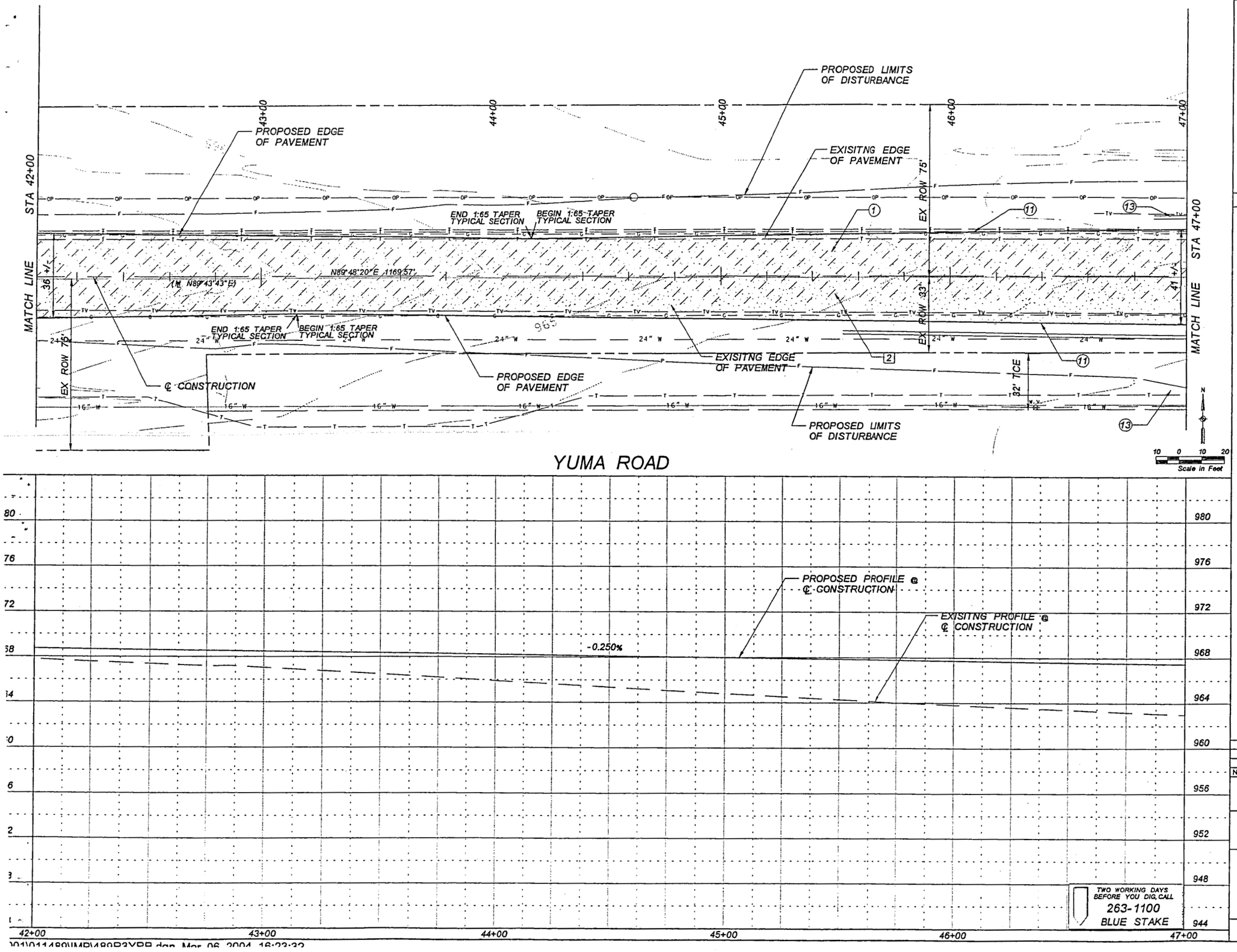

☐ REMOVE ☐

2 REMOVE AND DISPOSE OF EXISTING A.C. PAVEMENT. (1715 S.Y.)

◯ CONSTRUCT ◯

1 CONSTRUCT A.C. PAVEMENT ROADWAY PER TYPICAL SECTION DRAWING #R1. (463 TONS)

11 CONSTRUCT PAVEMENT SECTION AT TERMINATION PER MAG DET 201-TYPE 'A'. (1000 L.F.)

13 INSTALL TEMPORARY CONCRETE BARRICADE FOR TRAFFIC CONTROL TO BE REMOVED ONCE FULL STREET IMPROVEMENTS ARE COMPLETED IN THE FUTURE BY OTHERS. (159 L.F.)

NO.	REVISION	BY	DATE
3			
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
YUMA ROAD BRIDGE
FCD CONTRACT NO. XXX CXXX

PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D.HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. R3 | PAVING PLAN YUMA STA 42+00 TO 47+00 | SHEET 9 OF 22

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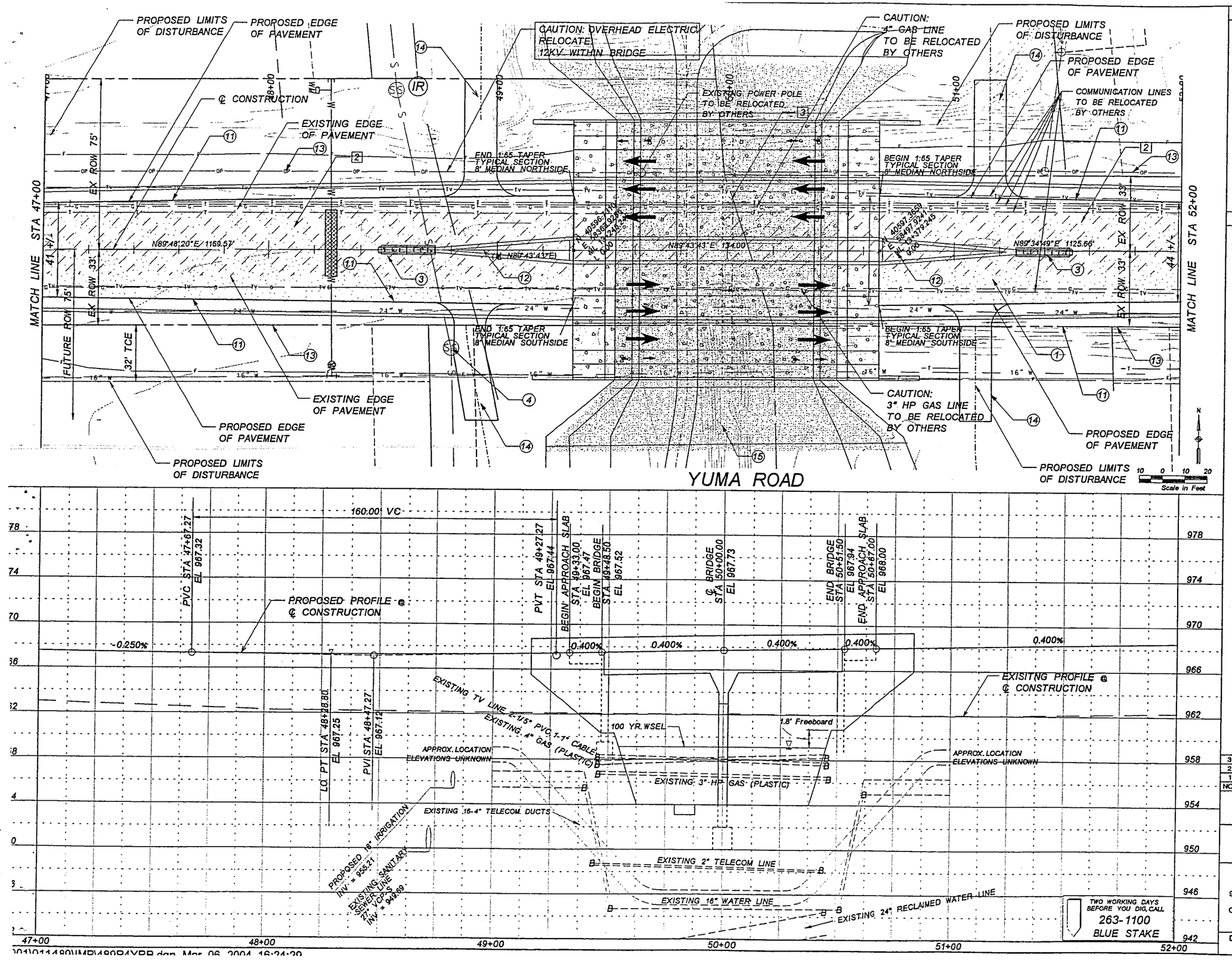

REMOVE

2 REMOVE AND DISPOSE OF EXISTING A.C. PAVEMENT.

3 REMOVE EXISTING CULVERT (1 EACH)

CONSTRUCT

1. CONSTRUCT A.C. PAVEMENT ROADWAY PER TYPICAL SECTION DRAWING #R1. (419 TONS)
3. CONSTRUCT IMPACT ATTENUATION DEVICE QUADGUARD QS2407 (OR APPROVED EQUAL) (2 EACH)
4. ADJUST SEWER MANHOLE TO NEW GRADE PER M.A.G. STD. DET. 422 (1 EACH)
11. CONSTRUCT PAVEMENT SECTION AT TERMINATION PER MAG DET 201-TYPE 'A'. (732 L.F.)
12. CONSTRUCT CONCRETE BARRIER ATTENUATOR BACKING, FILL AND CAP WITH CONCRETE. (7 C.Y.)
13. INSTALL TEMPORARY CONCRETE BARRICADE FOR TRAFFIC CONTROL, TO BE REMOVED ONCE FULL STREET IMPROVEMENTS ARE COMPLETED IN THE FUTURE BY OTHERS. (1000 L.F.)
14. CONSTRUCT TEMPORARY A.B.C. PAVEMENT ENTRANCES. (4 EACH)
15. CONSTRUCT CONCRETE CHANNEL LINING WITH CUT-OFF WALLS PER DRAWINGS D1 AND D2. (373 C.Y.)

NO.	REVISION	BY	DATE
3			
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

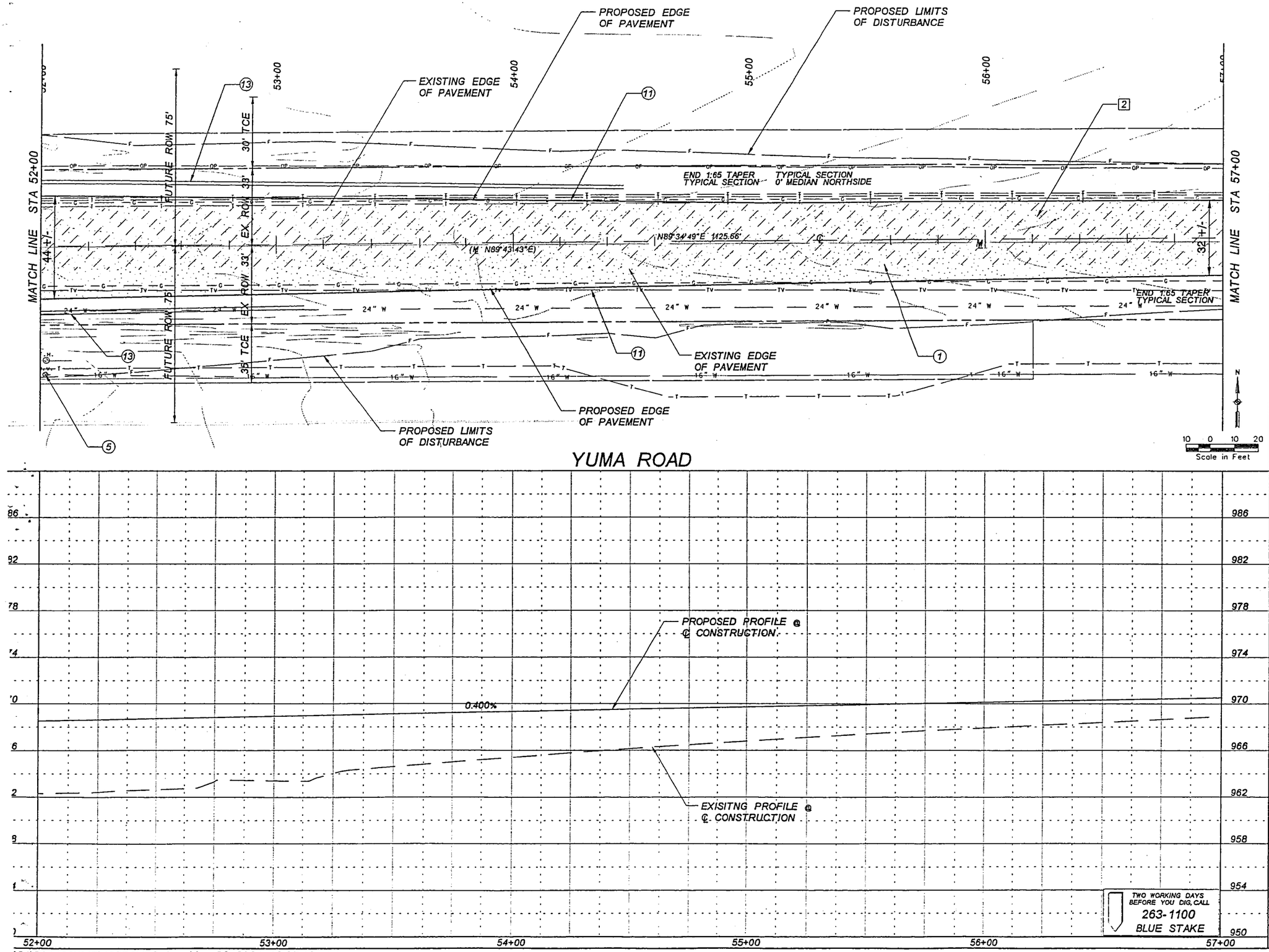
BULLARD WASH CHANNEL IMPROVEMENTS
YUMA ROAD BRIDGE
FCD CONTRACT NO. XXX CXXX

PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D.HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. R4 | PAVING PLAN YUMA STA 47+00 TO 52+00 | SHEET 10 OF 22



REMOVE

2 REMOVE AND DISPOSE OF EXISTING A.C. PAVEMENT. (1584 S.Y.)

CONSTRUCT

1 CONSTRUCT A.C. PAVEMENT ROADWAY PER TYPICAL SECTION DRAWING #R1. (467 TONS)

5 ADJUST VALVE BOX TO NEW GRADE PER C.O.G. STD. DET. G-3320-1 TYPE C (1 EACH)

11 CONSTRUCT PAVEMENT SECTION AT TERMINATION PER MAG DET 201-TYPE 'A'. (1000 L.F.)

13 INSTALL TEMPORARY CONCRETE BARRICADE FOR TRAFFIC CONTROL TO BE REMOVED ONCE FULL STREET IMPROVEMENTS ARE COMPLETED IN THE FUTURE BY OTHERS. (359 L.F.)

NO.	REVISION	BY	DATE
3			
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
YUMA ROAD BRIDGE
FCD CONTRACT NO. XXX CXXX

PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D.HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO.	PAVING PLAN	SHEET	OF
R5	YUMA STA 52+00 TO 57+00	11	22

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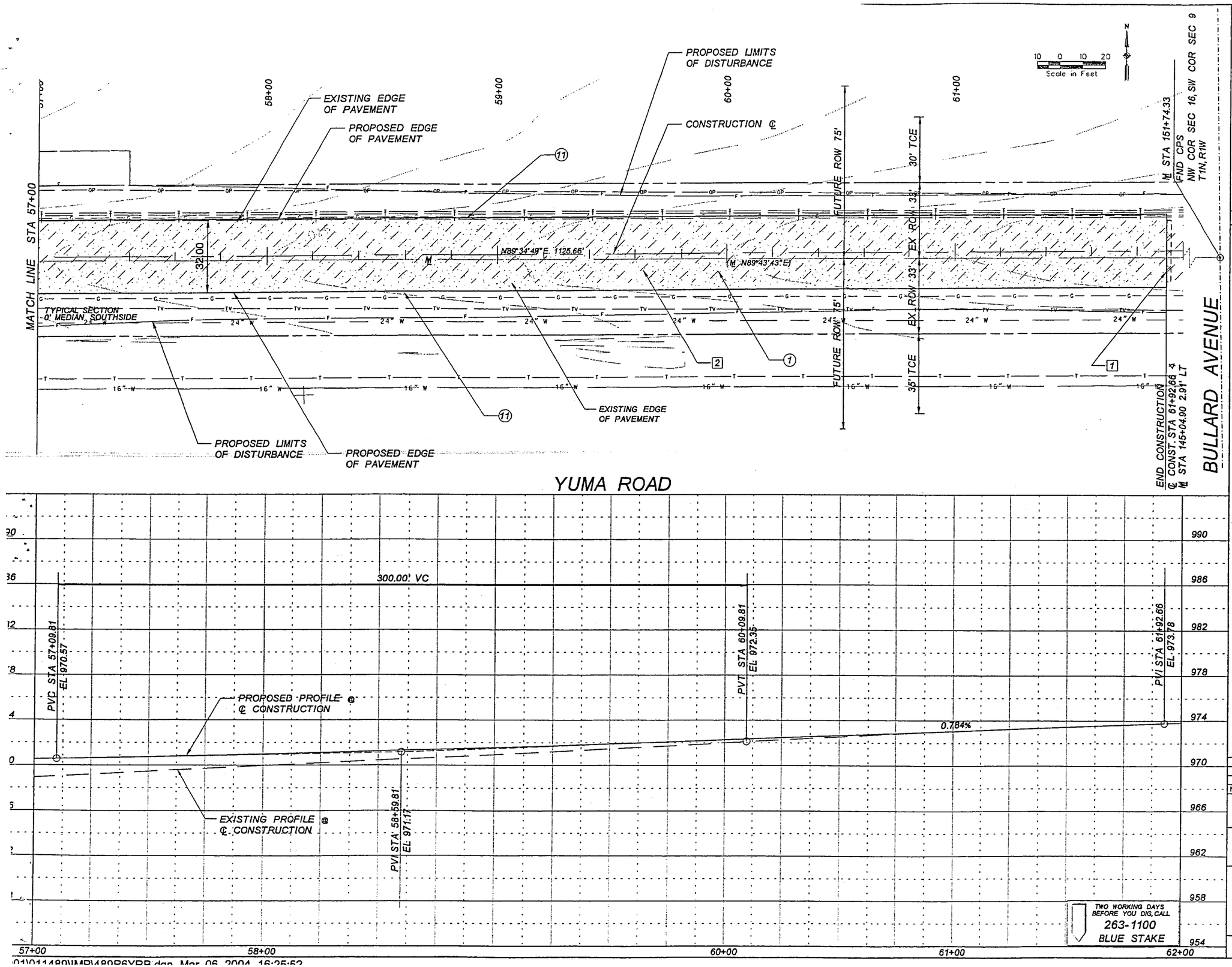

REMOVE

1. TRANSVERSELY SAWCUT, REMOVE AND DISPOSE OF EXISTING PAVEMENT MINIMUM 2' WIDE. (N.P.I.)
2. REMOVE AND DISPOSE OF EXISTING A.C. PAVEMENT. (1529 S.Y.)

CONSTRUCT

1. CONSTRUCT A.C. PAVEMENT ROADWAY PER TYPICAL SECTION DRAWING #R1. (399 TONS)
11. CONSTRUCT PAVEMENT SECTION AT TERMINATION PER MAG DET 201-TYPE 'A'. (986 L.F.)

NO.	REVISION	BY	DATE
3			
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
YUMA ROAD BRIDGE
FCD CONTRACT NO. XXX CXXX

PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D.HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. R6

PAVING PLAN
YUMA STA 57+00 TO 62+00

SHEET 12 OF 22

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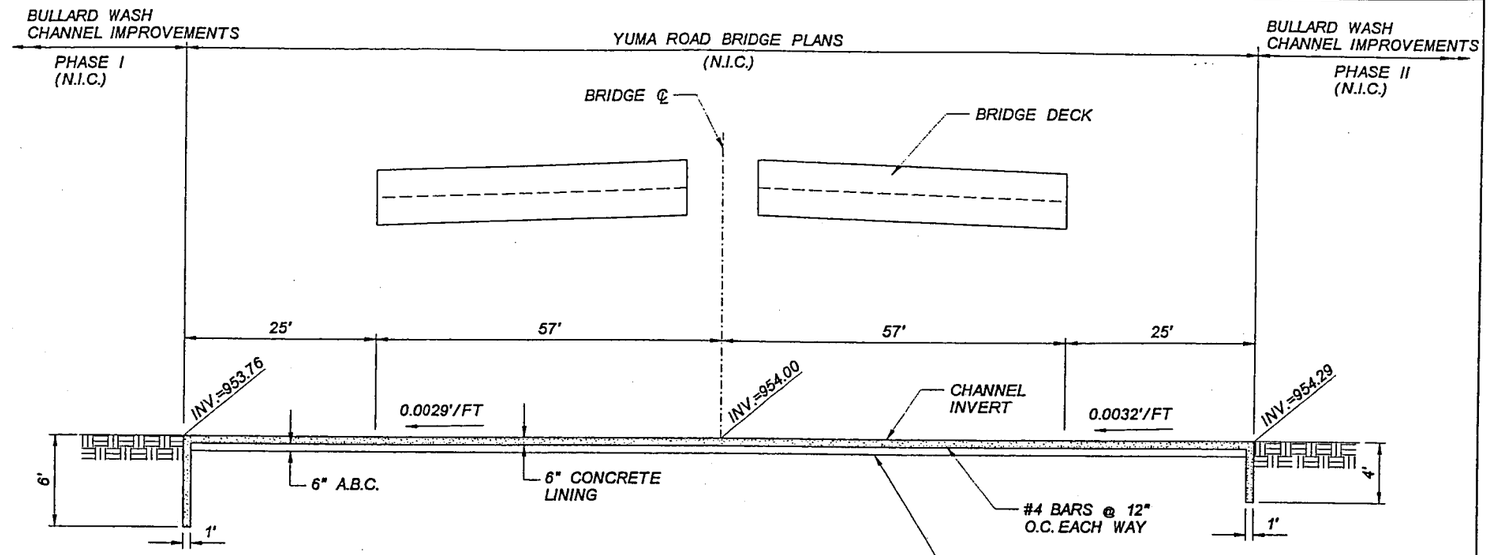
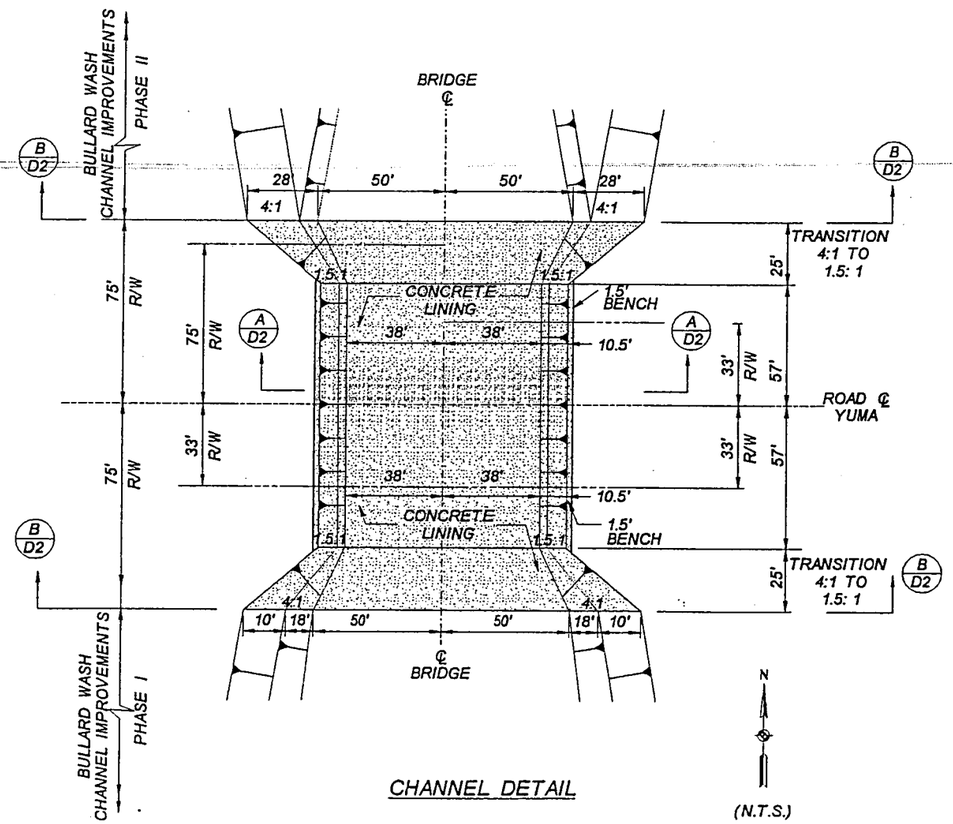
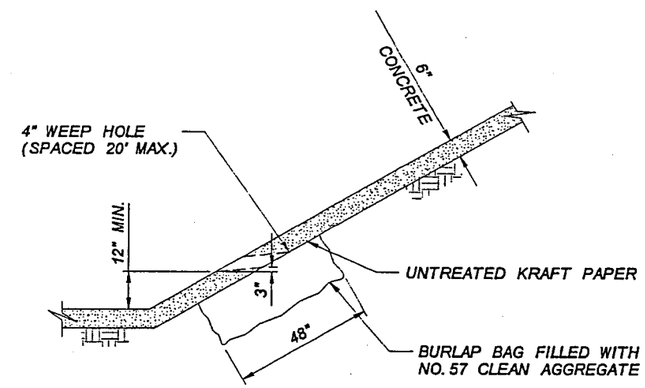


BRIDGE CHANNEL LINING
PROFILE



CHANNEL DETAIL



WEEP HOLE DETAIL

NO.	REVISION	BY	DATE
3			
2			
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
YUMA ROAD BRIDGE
FCD CONTRACT NO. XXX CXXX

PRELIMINARY
90% SUBMITTAL
NOT FOR
CONSTRUCTION

	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D. HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. D1 | CHANNEL LINING AT YUMA ROAD BRIDGE | SHEET 13 OF 22

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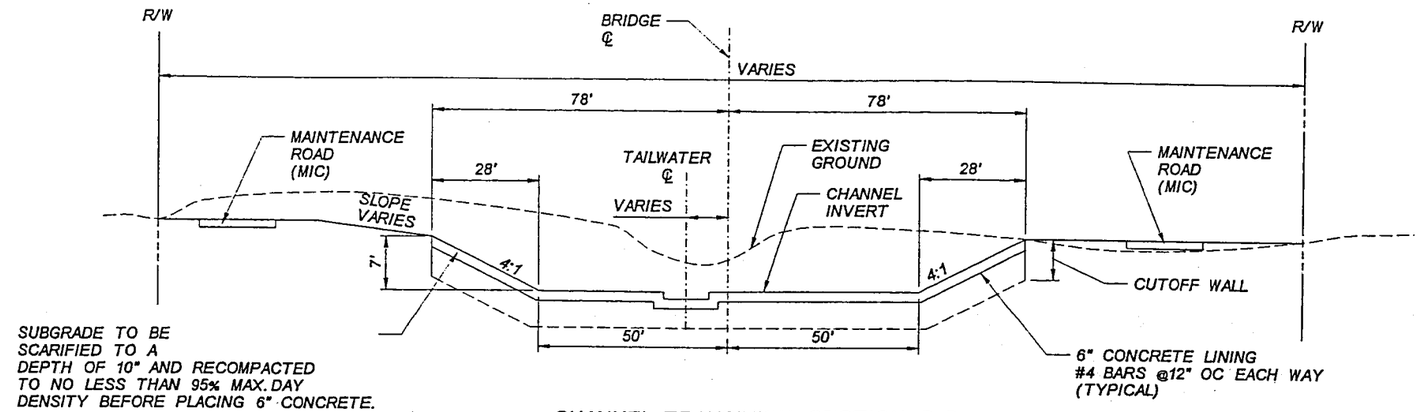
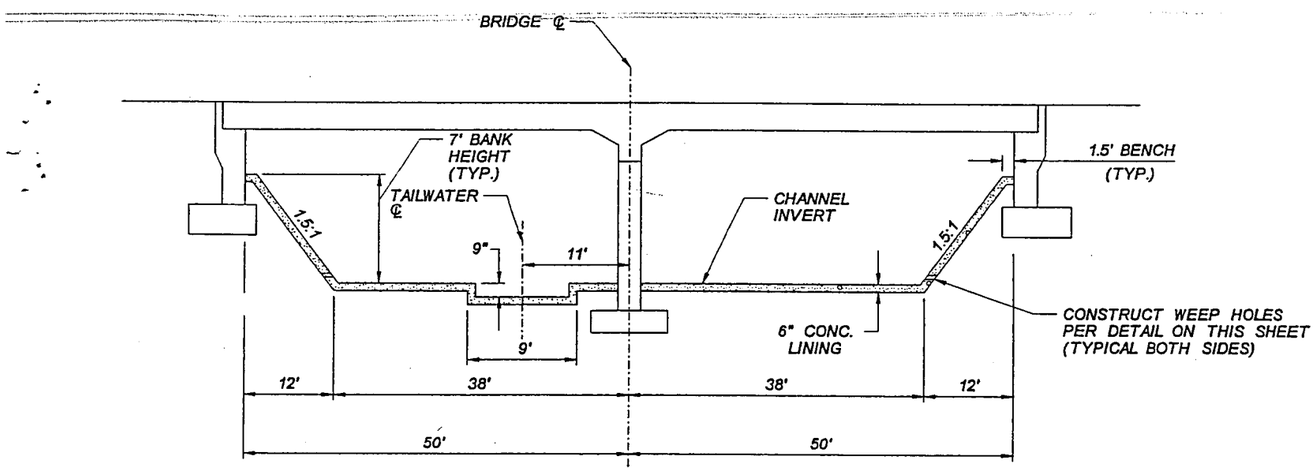


CHANNEL TRANSITION SECTION B-B



CHANNEL LINING SECTION A-A

NO.	REVISION	BY	DATE
3			
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
YUMA ROAD BRIDGE
FCD CONTRACT NO. XXX CXXX

PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D. HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. D2

CHANNEL LINING DETAILS

SHEET 14 OF 22

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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

IN COOPERATION WITH THE CITY OF GOODYEAR

PLANS FOR THE CONSTRUCTION OF

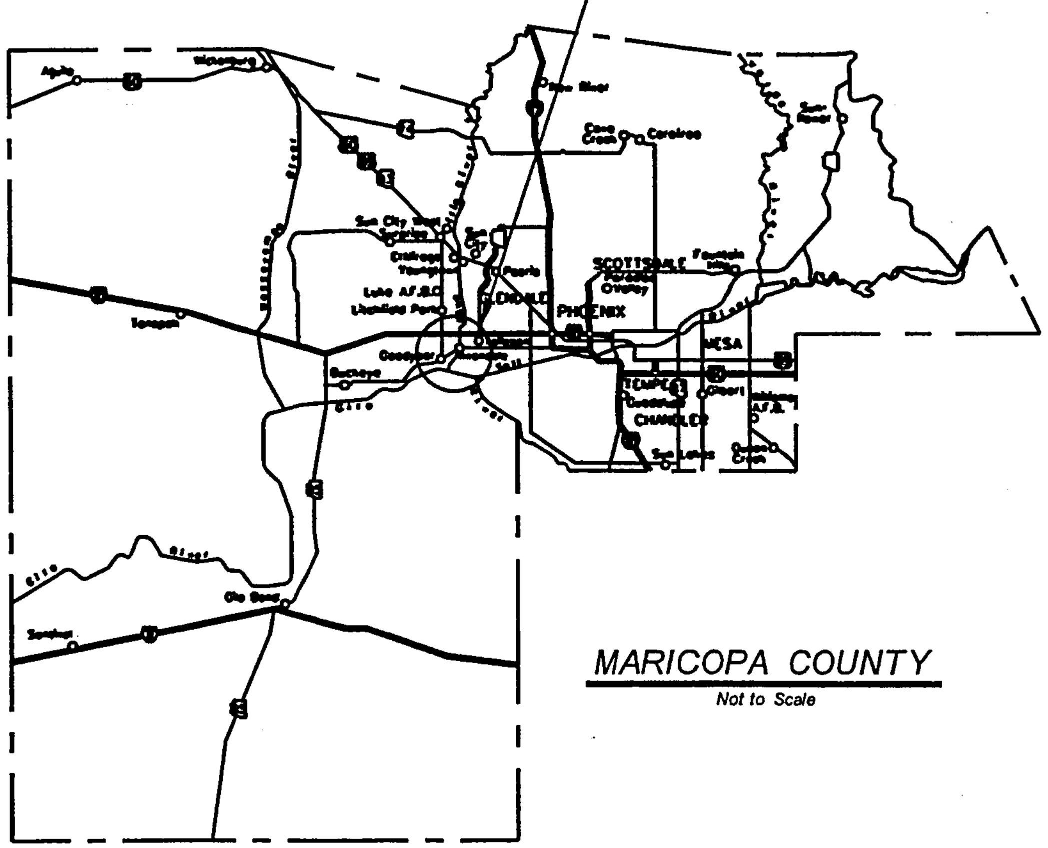
BULLARD WASH CHANNEL IMPROVEMENTS

VAN BUREN STREET BRIDGE

PCN. 470 13 31

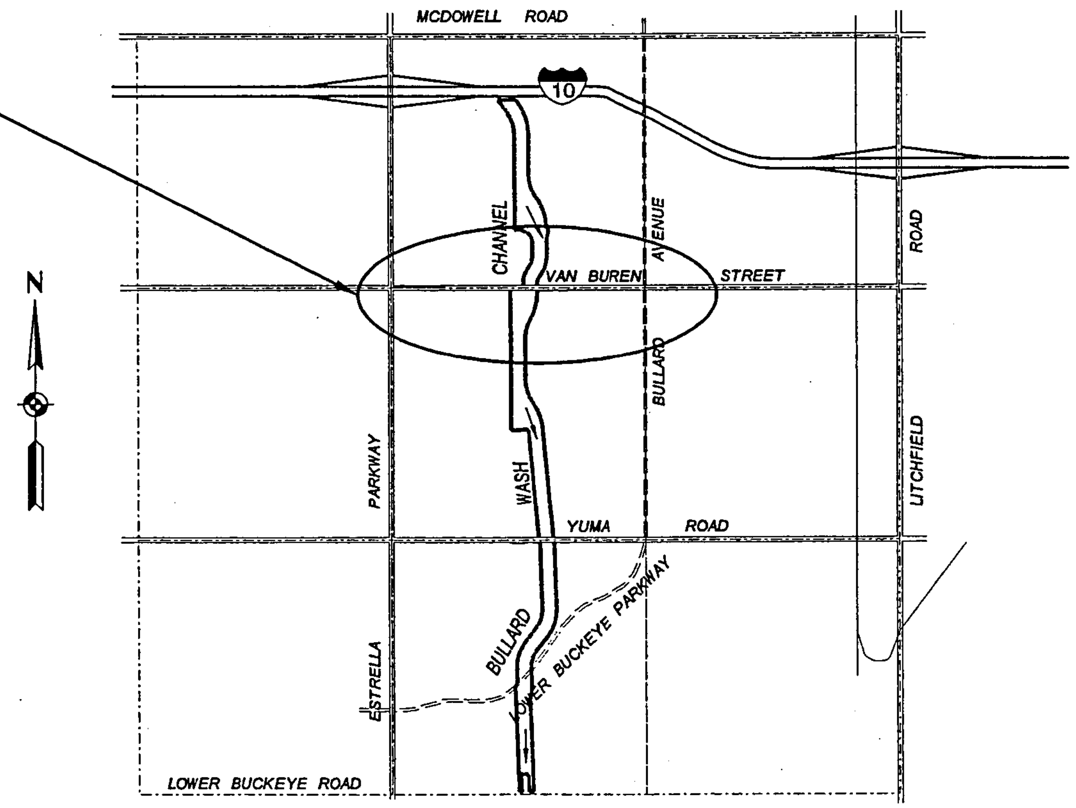
FCD CONTRACT NO. XXX CXXX

PROJECT LOCATION



MARICOPA COUNTY

Not to Scale



VICINITY MAP

Not to Scale

CITY OF GOODYEAR — DATE

MARICOPA COUNTY DEPARTMENT OF ENVIRONMENTAL SERVICES — DATE

TWO WORKING DAYS BEFORE YOU DIG, CALL 263-1100 BLUE STAKE

PRELIMINARY
90% SUBMITTAL
NOT FOR
CONSTRUCTION

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

ISSUED FOR PUBLIC BIDDING BY:

MICHAEL S. ELLEGOOD, P.E.
CHIEF ENGINEER AND
GENERAL MANAGER

BOARD OF DIRECTORS OF THE FLOOD CONTROL DISTRICT

DON STAPLEY - CHAIRMAN

DISTRICT 1	FULTON BROCK
DISTRICT 2	DON STAPLEY
DISTRICT 3	ANDY KUNASEK
DISTRICT 4	MAX W. WILSON
DISTRICT 5	MARY ROSE WILCOX

LEGEND

- BENCHMARK
- EXIST. SURVEY MONUMENT(BRASS CAP FLUSH)
- EXIST. SURVEY MONUMENT(BRASS CAP IN HAND HOLE)
- EXIST. COMBINED CURB & GUTTER - MAG DET. 220 TYPE "A"
- EXIST. CONCRETE SIDEWALK - COP STD. DET. P-1230
- EXISTING DITCH
- IRR — EXISTING IRRIGATION LINE (NOTE - PRIVATE, SALT RIVER OR R.I.D.)
- EXISTING IRRIGATION STRUCTURE
- EXISTING IRRIGATION STANDPIPE
- 12" W — EXISTING WATER LINE / SIZE
- EXISTING WATER METER & BOX
- EXISTING FIRE HYDRANT
- NEW OR RELOCATED FIRE HYDRANT BY CONTRACTOR
- EXISTING WATER VALVE OPERATING NUT ELEVATION
- 24" S — EXISTING SEWER LINE / SIZE
- EXISTING MANHOLE
- NEW MANHOLE
- CATCH BASIN, GUTTER INLET (LENGTH TO SCALE)
- CATCH BASIN, CURB INLET (LENGTH TO SCALE)
- CATCH BASIN, CURB & GUTTER INLET (LENGTH TO SCALE)
- 78" SD — EXISTING STORM DRAIN / SIZE
- NEW PIPE FOR STORM DRAIN OR IRRIGATION LINE
- CATV — EXISTING UNDERGROUND CABLE TELEVISION
- E — EXISTING UNDERGROUND ELECTRIC
- TD — EXISTING UNDERGROUND TELEPHONE DUCTS (SPECIFY NUMBER)
- 2" G — EXISTING GAS LINE / SIZE
- UGT — EXISTING UNDERGROUND TELEPHONE CABLE
- EXISTING STREET SIGN
- EXISTING TRAFFIC SIGN
- EXISTING UTILITY POLE
- EXISTING WIRE FENCE
- EXISTING WOOD FENCE
- EXISTING CHAIN LINK FENCE
- MAIL BOX
- DOWN ANCHOR
- STREET LIGHT
- EASEMENT LINE
- EXISTING OR NEW R/W LINE
- PAVEMENT CENTER LINE AND OR MOUNUMENT LINE (℄ AND / OR ML)
- 2 — BORING HOLE / NUMBER (SEE SPECIAL PROVISIONS)
- TELEPHONE RISER
- WM — WATER SERVICE BOX
- MST — MID SPAN TAP (OH UTILITIES)
- WV — WATER VAULT
- TRAFFIC SIGNAL BOX
- TREE
- STOP — STOP SIGN
- P — MAILBOX
- GATE W/POSTS
- SM — SAWCUT & MATCH

STRUCTURAL NOTES

1. ALL CONSTRUCTION SHALL CONFORM TO MAG STANDARD DETAILS AND SPECIFICATIONS, DATED 1998, INCLUDING ALL REVISIONS THRU 2002.
2. DESIGN IS IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, DIVISION 1, 17TH EDITION, 2002.
3. REINFORCING STEEL SHALL CONFORM TO ASTM SPECIFICATION A615, GRADE 60
4. STRESSES - fs = 24,000 PSI - GRADE 60 REINFORCING STEEL.
5. ALL REINFORCING STEEL PLACEMENT DIMENSIONS SHALL BE TO CENTER OF BARS UNLESS OTHERWISE NOTED.
6. ALL REINFORCING STEEL SHALL HAVE 2" CLEAR COVER UNLESS OTHERWISE NOTED.
7. STRUCTURAL STEEL SHALL CONFORM TO ASTM SPECIFICATION A36.
8. ALL WELDING SHALL CONFORM TO THE REQUIREMENTS OF THE AMERICAN WELDING SOCIETY, STRUCTURAL WELDING CODE, REVISED 1996.
9. DIMENSIONS SHALL NOT BE SCALED FROM DRAWINGS.
10. CHAMFER ALL EXPOSED CORNERS 3/4 " UNLESS OTHERWISE NOTED.
11. CONCRETE COMPRESSIVE STRENGTH SHALL BE 3000 PSI MAG, CLASS A, UNLESS NOTED OTHERWISE.

UTILITY NOTIFICATION

PHONE NO.	COMPANY	CONTACT
(602) 371-7989	APS	BOBBY GARZA
(602) 630-1393	QWEST	MATTHEW PHILLIPS
(602) 484-5342	SOUTHWEST GAS	SUE NEWSOM
(602) 447-0363	COX COMMUNICATIONS	KARL MCKAY
(623) 882-7954	CITY OF GOODYEAR	DAVID RAMIREZ

INDEX OF SHEETS

DRAWING NO.	TITLE	SHEET NO.
G1	COVER SHEET AND VICINITY MAP	1
G2	GENERAL NOTES AND SHEET INDEX	2
G3	KEY MAP	3
G4	HORIZONTAL AND VERTICAL CONTROL	4
G5	ROW AND TCE CONTROL	5
Q1	QUANTITY SUMMARY SHEET	6
R1	TYPICAL ROADWAY SECTIONS	7
R2-R6	PLAN AND PROFILE SHEETS	8-12
D1	CHANNEL LINING AT BRIDGE	13
D2	CHANNEL LINING DETAILS	14
U1	UTILITY RELOCATION	15
ST1-ST3	STRIPING AND SIGNAGE	16-18
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E1-E2	SAFETY LIGHTING AT VAN BUREN STREET	20-21
SB1-SB2	SOIL BORING LOGS	22-23

GENERAL NOTES

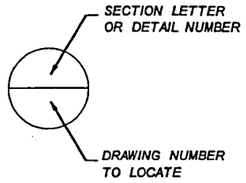
1. ALL CONSTRUCTION TO BE PERFORMED ACCORDING TO APPLICABLE MAG STANDARD DETAILS AND MAG SPECIFICATIONS, DATED 1998 (INCLUDING ALL REVISIONS THROUGH 2002) AND THE CITY OF GOODYEAR ADDITIONS AND DELETIONS THROUGH 2002.
2. FACILITIES WHICH ARE NOT SPECIFICALLY LOCATED WITH ACTUAL HORIZONTAL AND VERTICAL CONTROLS ARE APPROXIMATE AND TO THE BEST AVAILABLE INFORMATION.
3. EXISTING UTILITIES AND OTHER FACILITIES HAVE BEEN PLACED ON THE PLANS FROM FIELD SURVEYS, EXISTING MAPS AND OTHER CURRENT PLANS WITHIN THE AREA OF THIS PROJECT. THE CONTRACTOR WILL DETERMINE THE EXACT LOCATION AND/OR ELEVATION OF EXISTING UTILITIES WHICH PERTAIN TO AND AFFECT THE CONSTRUCTION OF THIS PROJECT.
4. TWO (2) WORKING DAYS PRIOR TO EXCAVATING, THE CONTRACTOR SHALL CALL FOR BLUE STAKES AT THE BLUE STAKE CENTER (PHONE: 602-263-1100).
5. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS PRIOR TO CONSTRUCTION.
6. THE FLOOD CONTROL DISTRICT OR CITY OF GOODYEAR IS NOT RESPONSIBLE FOR LIABILITY ACCRUED DUE TO DELAYS AND/OR DAMAGE TO UTILITIES IN CONJUNCTION WITH THIS CONSTRUCTION.
7. ANY WORK PERFORMED WITHOUT THE APPROVAL OF THE FLOOD CONTROL DISTRICT AND/OR THE ENGINEER AND ALL WORK AND MATERIALS NOT IN CONFORMANCE WITH THE SPECIFICATIONS IS SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTOR'S EXPENSE.
8. THE ENGINEER WILL DETERMINE THE NUMBER AND LOCATION OF THE REQUIRED COMPACTION TESTS FOR STRUCTURE BACKFILL.
9. TRAFFIC CONTROL SHALL BE MAINTAINED IN ACCORDANCE WITH THE CITY OF PHOENIX TRAFFIC BARRACADE MANUAL, 1998. FILL IN ANY GAPS WITH M.A.G. SPECIFICATION 401, PART VI OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, MILLENIUM EDITION WITH INCORPORATED REVISION NO. 1 CHANGES DATES DECEMBER 28, 2001.
10. CONTRACTOR SHALL REPLACE PAVEMENT TO THE EXISTING GRADES SHOWN ON THE PLANS.
11. EXACT POINT OF MATCHING TERMINATION AND OVERLAY WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
12. NO JOB WILL BE CONSIDERED COMPLETED UNTIL CURBS, PAVEMENT AND SIDEWALKS HAVE BEEN SWEPT CLEAN OF ALL DIRT AND DEBRIS.
13. PRIOR TO FINAL APPROVAL AND ACCEPTANCE OF THE WORK, THE CONTRACTOR WILL BE REQUIRED TO CLEAN ADJACENT (OFF-PROJECT) ROADWAYS USED DURING THE COURSE OF CONSTRUCTION.

ABBREVIATIONS

CSTR	CONSTRUCTION
DESC	DESCRIPTION
S	SLOPE
FT/FT	FEET/FOOT
OHE	OVERHEAD ELECTRIC
INV	INVERT ELEVATION
FND	FOUND
PL	PROPERTY LINE
TCE	TEMPORARY CONSTRUCTION EASEMENT
TW	TOP OF WALL
TN	TOP OF NUT
℄	CENTER LINE
ML	MONUMENT LINE
ROW	RIGHT OF WAY
DE	DRAINAGE EASEMENT

PROJECT BENCHMARKS

REBAR IN HANDHOLE
BULLARD AVENUE AND
VAN BUREN STREET
EL = 987.77
N=45882.226
E=60292.901



NO.	REVISION	BY	DATE
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

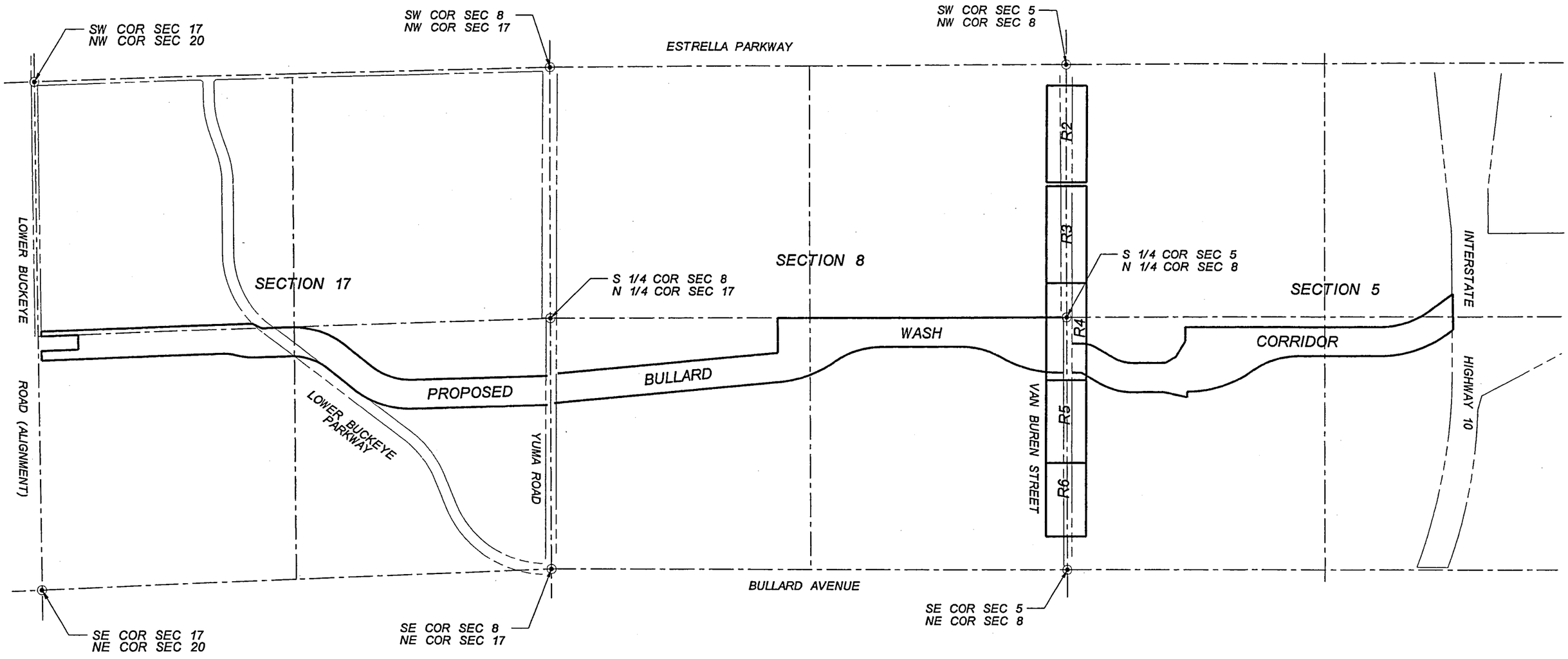
BULLARD WASH CHANNEL IMPROVEMENTS
VAN BUREN STREET BRIDGE
CONTRACT NO. XXX CXXX

PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D. HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. G2 — GENERAL NOTES & INDEX OF SHEETS — SHEET 2 OF 23



250 0 250 500
Scale In Feet

NO.	REVISION	BY	DATE
3			
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
VAN BUREN STREET BRIDGE
CONTRACT NO. XXX CXXX

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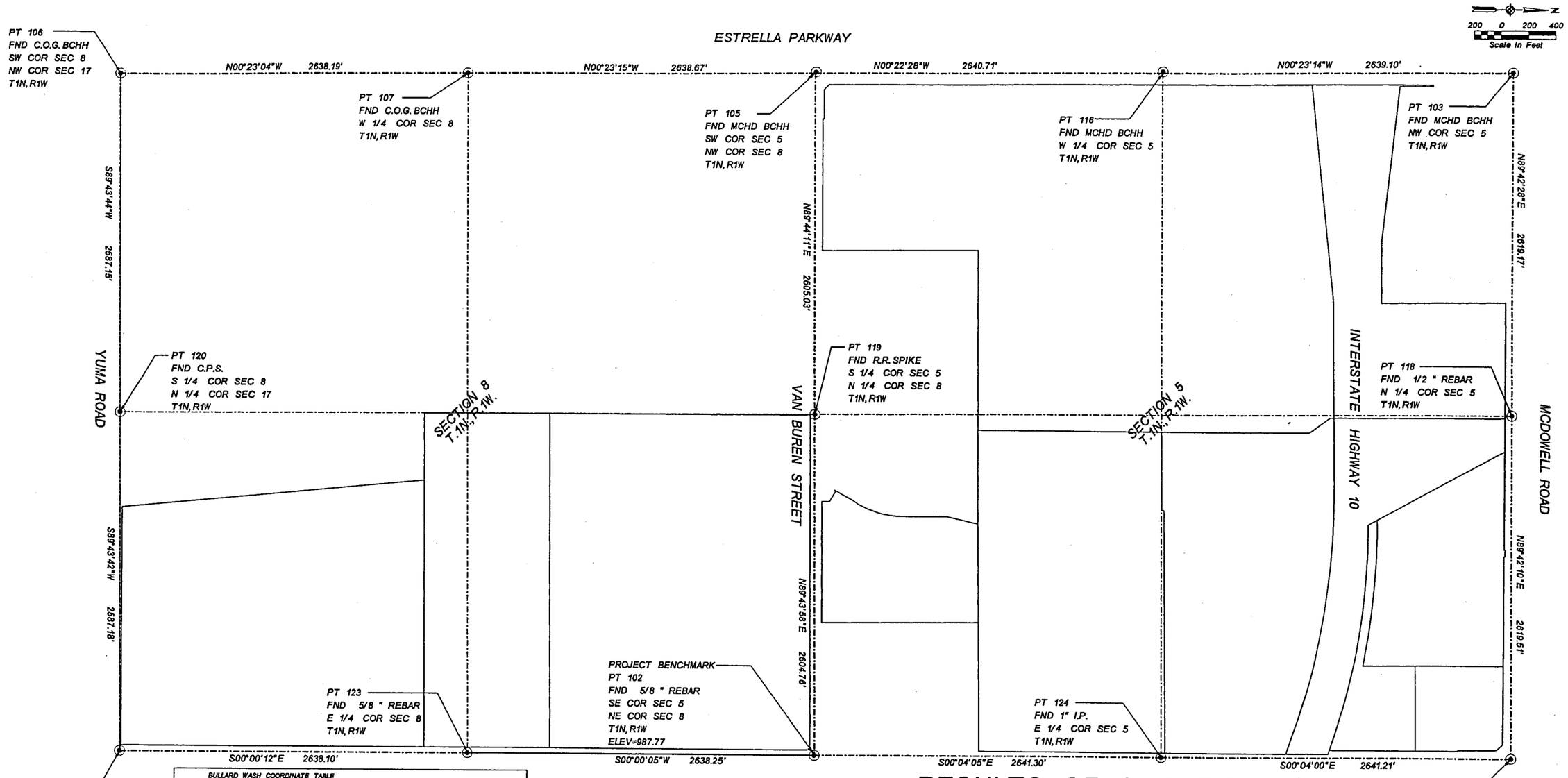
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. G3

KEY MAP

SHEET 3 OF 23



BULLARD WASH COORDINATE TABLE
T1N, R1W Sections 5, 8, 17 & 20 Found Monumentation Accepted for Section Corners

Elevations are for reference only, not for construction
Elevations are in NAVD 88 International Feet, Derived from GEOID 99
Coordinates are in NAD 83 State Plane, Arizona Central Zone, International Feet

Point	WGS - 84 Latitude	WGS - 84 Longitude	WGS - 84 ELLIPSOID Height I - Feet	NAD 83 I - Feet Northing	NAD 83 I - Feet Easting	NAVD Elev	Ground to Grid	Convergence	Description
101	33° 27'52.02987"N	112° 22'31.02159"W	897.262	896825.043	560140.437	996.72	0.999922397	-0° 15'10"	Fnd MCHD 3" Brass Cap in Handhole
102	33° 26'59.77096"N	112° 22'31.57497"W	888.335	891543.400	560070.242	987.77	0.999922420	-0° 15'10"	Fnd 5/8" Rebar - No Tag
103	33° 27'52.27981"N	112° 23'32.85888"W	903.068	896873.858	554[illegible]2.381	1002.52	0.999924106	-0° 15'45"	Fnd MCHD 3" Brass Cap in Handhole
105	33° 27'00.04589"N	112° 23'33.05874"W	890.010	891594.608	554861.107	989.45	0.999924120	-0° 15'44"	Fnd MCHD 3" Brass Cap in Handhole
106	33° 26'07.84110"N	112° 23'33.25482"W	874.659	888318.313	554820.342	974.08	0.999924134	-0° 15'44"	Fnd City of Goodyear 3" Brass Cap in Handhole
107	33° 26'33.94114"N	112° 23'33.15598"W	882.371	888956.221	554840.792	981.80	0.999924127	-0° 15'44"	Fnd MCHD 3" Brass Cap in Handhole
109	33° 26'07.57347"N	112° 22'32.19965"W	878.068	888268.006	559994.026	977.47	0.999922444	-0° 15'10"	Fnd Cotton Picker Spindle - No Tag
110	33° 25'15.40892"N	112° 23'32.05582"W	854.592	881018.507	554897.712	953.99	0.999924108	-0° 15'43"	Fnd MCHD 3" Brass Cap in Handhole
111	33° 24'49.08015"N	112° 23'31.97761"W	836.484	878357.423	554892.177	935.87	0.999924110	-0° 15'43"	Fnd MCHD 3" Brass Cap in Handhole
112	33° 24'23.23750"N	112° 23'32.10082"W	817.298	875745.550	554869.796	916.67	0.999924118	-0° 15'43"	Fnd MCHD 3" Brass Cap in Handhole
113	33° 24'23.43459"N	112° 22'30.48352"W	822.606	875742.030	560093.062	921.92	0.999922413	-0° 15'09"	Fnd MCHD 3" Brass Cap in Handhole
114	33° 24'49.56751"N	112° 22'30.25892"W	843.303	878383.199	560123.906	942.64	0.999922403	-0° 15'09"	Fnd MCHD 3" Brass Cap in Handhole
116	33° 27'26.17080"N	112° 23'32.95436"W	897.920	894235.034	554882.040	997.37	0.999924113	-0° 15'44"	Fnd MCHD 3" Brass Cap in Handhole
117	33° 25'15.68935"N	112° 22'30.11993"W	848.198	881023.286	560147.150	947.55	0.999922395	-0° 15'09"	Fnd 1" Square Iron Bar - No Tag
118	33° 27'52.15479"N	112° 23'01.94122"W	892.493	896849.338	557521.240	991.95	0.999923244	-0° 15'27"	Fnd 1/2" Rebar - No Tag
119	33° 26'59.80865"N	112° 23'02.31526"W	880.801	891548.920	557465.610	980.24	0.999923262	-0° 15'27"	Fnd RR Spike - No Tag
120	33° 26'07.70819"N	112° 23'02.72740"W	867.838	888293.146	557407.170	967.25	0.999923281	-0° 15'27"	Fnd Cotton Picker Spindle - No Tag
121	33° 24'23.33626"N	112° 23'01.32257"W	820.098	875743.716	557478.853	919.44	0.999923258	-0° 15'26"	Fnd 5/8" Rebar - No Tag
122	33° 25'41.63417"N	112° 23'32.85203"W	864.287	883669.333	554859.305	963.70	0.999924121	-0° 15'44"	Fnd Brass Stem Only in Handhole
123	33° 26'33.67150"N	112° 22'31.88860"W	880.911	888905.830	560032.026	980.33	0.999922432	-0° 15'10"	Fnd 5/8" Rebar - No Tag
124	33° 27'25.90087"N	112° 22'31.29866"W	894.672	894184.267	560105.308	994.12	0.999922409	-0° 15'10"	Fnd 1" Iron Pipe - No Tag

RESULTS OF SURVEY

PROPOSED BULLARD WASH (SECTION SURVEY)
THROUGH SECTIONS 5, 8, 17 AND 20 OF TOWNSHIP 1 NORTH,
RANGE 1 WEST, GILA AND SALT RIVER MERIDIAN TOWNSHIP,
CITY OF GOODYEAR, MARICOPA COUNTY, ARIZONA

LEGEND

⊙	FOUND SURVEY MONUMENT AS NOTED
FND	FOUND
SEC.	SECTION
COR.	CORNER
MCHD	MARICOPA COUNTY HIGHWAY DEPARTMENT
BCHH	BRASS CAP IN HANDHOLE
I.P.	IRON PIPE
R.R.	RAILROAD
CONC	CONCRETE
C.P.S.	COTTON PICKER SPINDLE
HH	HANDHOLE
C.O.G.	CITY OF GOODYEAR
C.O.M.	CITY OF MESA
ELEV.	ELEVATION
I - FEET	INTERNATIONAL FEET

NOTES

1. THE BASIS OF BEARING IS THE WEST LINE OF THE NORTHWEST QUARTER OF SECTION 8, TOWNSHIP 1 NORTH, RANGE 1 WEST OF THE GILA AND SALT RIVER MERIDIAN, ACCORDING TO THE FINAL PLAT OF "CENTERRA" AS RECORDED IN BOOK 533, PAGE 37, MARICOPA COUNTY RECORDS, USING A BEARING OF SOUTH 00 DEGREES 23 MINUTES 15 SECONDS EAST.

2. ANY DISTANCES, BEARINGS, AND DESCRIPTIONS, ETC., WHICH MAY VARY FROM THE PROVISIONS OF THE RECORD INFORMATION NOTED ABOVE REFLECT ACTUAL MEASURED DATA, OR THE BEST INTERPRETATION OF THE UNDERSIGNED.

3. THIS SURVEY WAS PERFORMED UTILIZING GLOBAL POSITIONING SYSTEM EQUIPMENT. THE MONUMENTS LOCATED ARE WITHIN THE POSITIONAL TOLERANCES AS OUTLINED IN THE ARIZONA BOUNDARY SURVEY MINIMUM STANDARDS.

4. ALL BEARINGS AND DISTANCES SHOWN HERE REPRESENT ACTUAL MEASURED GROUND DISTANCES BASED ON THE BASIS OF BEARING INDICATED IN NOTE 1 ABOVE AND ARE NOT TO BE CONSTRUED AS STATE PLANE DATA.

NO.	REVISION	BY	DATE
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
VAN BUREN STREET BRIDGE
CONTRACT NO. XXX CXXX

PRELIMINARY
90% SUBMITTAL
NOT FOR CONSTRUCTION

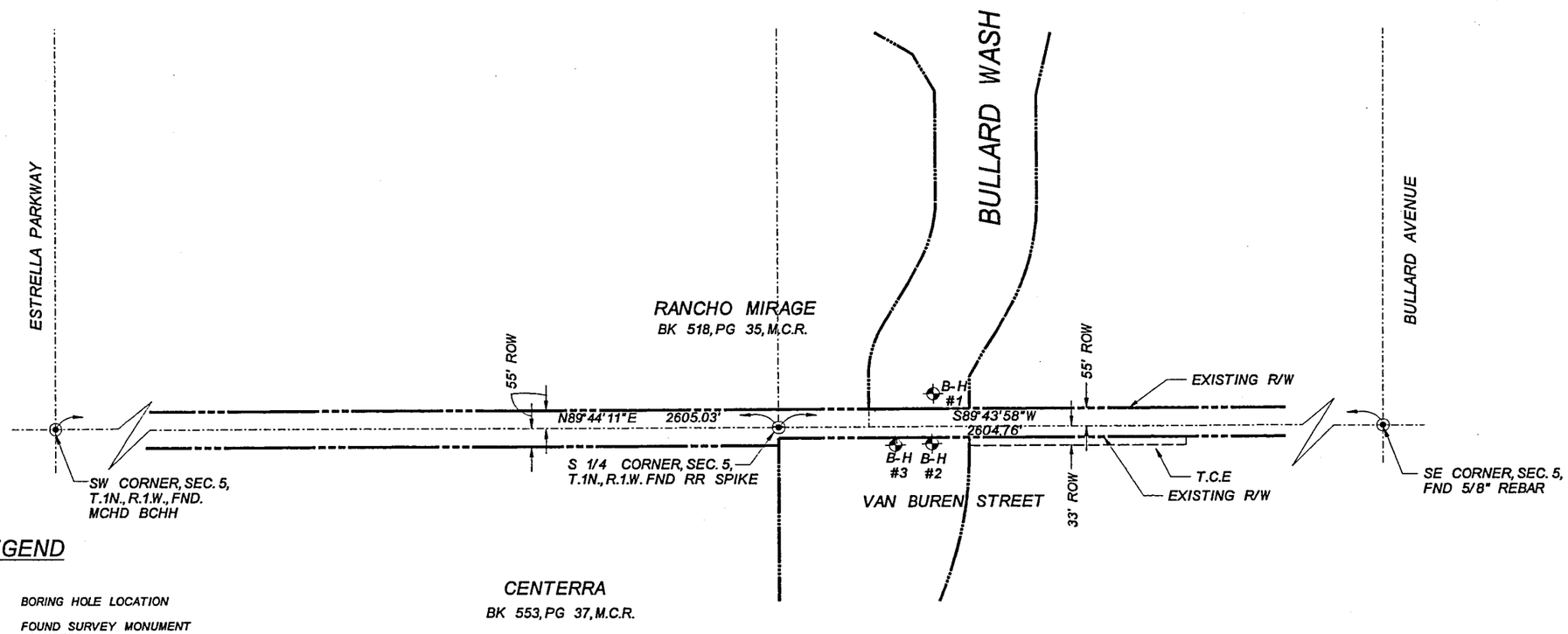
	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D. HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. G4

HORIZONTAL & VERTICAL CONTROL

SHEET OF 4 23



LEGEND

⊕	BORING HOLE LOCATION
⊙	FOUND SURVEY MONUMENT AS NOTED
FND	FOUND
SEC.	SECTION
COR.	CORNER
MCHD	MARICOPA COUNTY HIGHWAY DEPARTMENT
BCHH	BRASS CAP IN HANDHOLE
I.P.	IRON PIPE
R.R.	RAILROAD
CONC	CONCRETE
C.P.S.	COTTON PICKER SPINDLE
HH	HANDHOLE
C.O.G.	CITY OF GOODYEAR
C.O.M.	CITY OF MESA
ELEV.	ELEVATION
I - FEET	INTERNATIONAL FEET
D.E.	DRAINAGE EASEMENT
T.C.E.	TEMPORARY CONSTRUCTION EASEMENT

N

100 0 100 200
Scale in Feet

NO.	REVISION	BY	DATE
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
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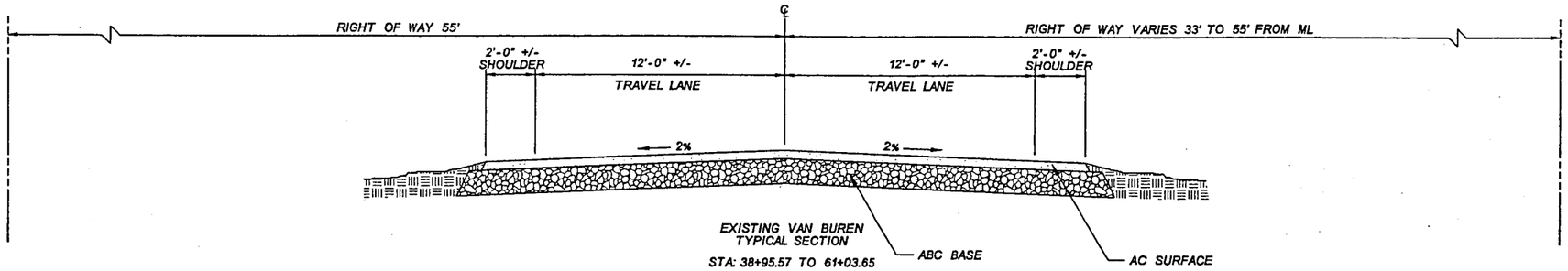
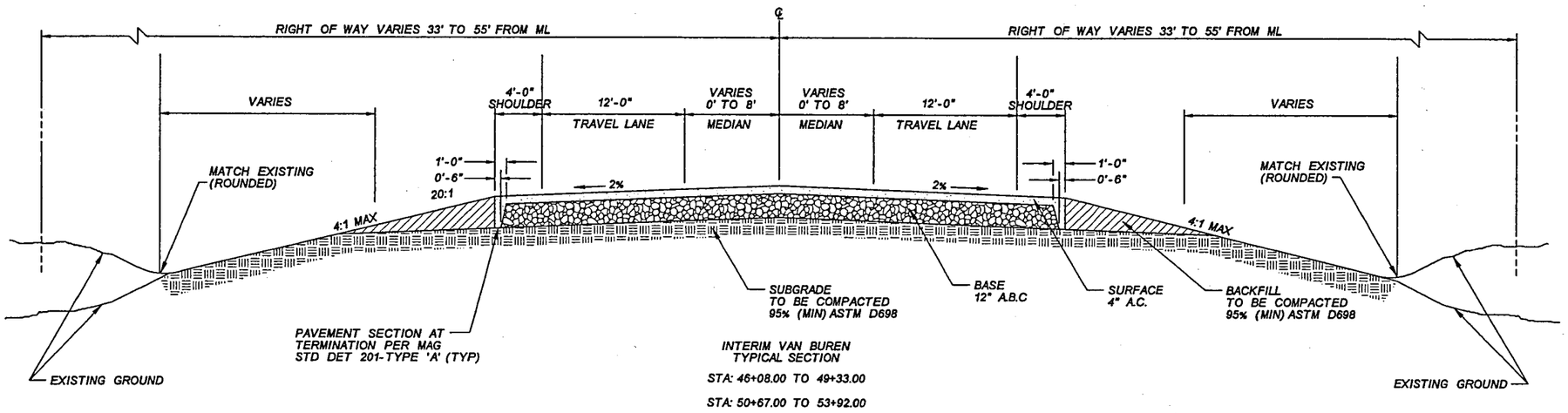
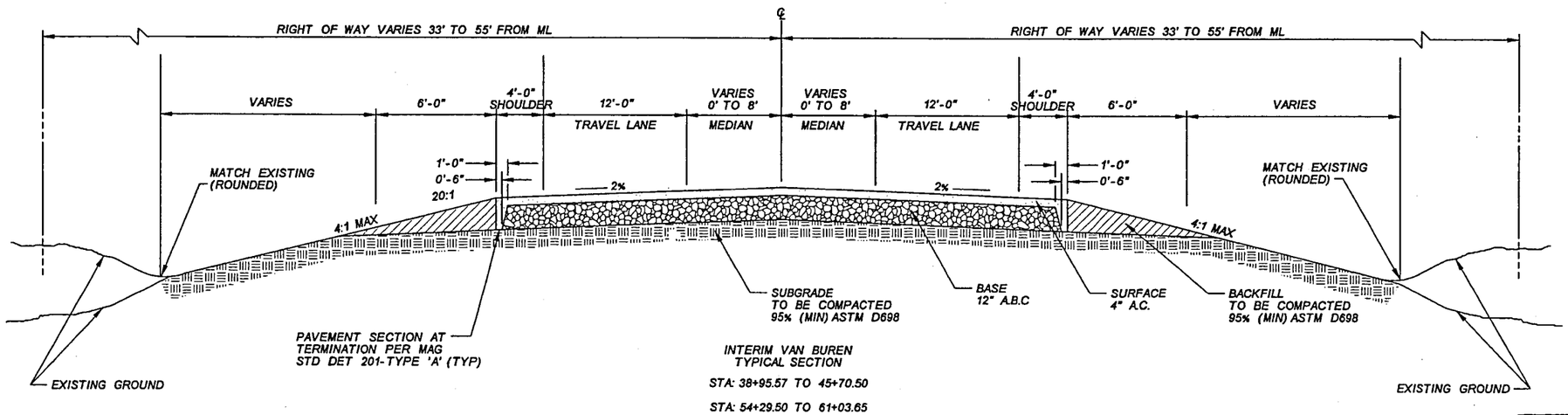
DRAWING NO. G5

ROW AND TCE CONTROL

SHEET 5 OF 23







TWO WORKING DAYS BEFORE YOU DIG, CALL
263-1100
BLUE STAKE

NO.	REVISION	BY	DATE
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
VAN BUREN STREET BRIDGE
CONTRACT NO. XXX CXXX

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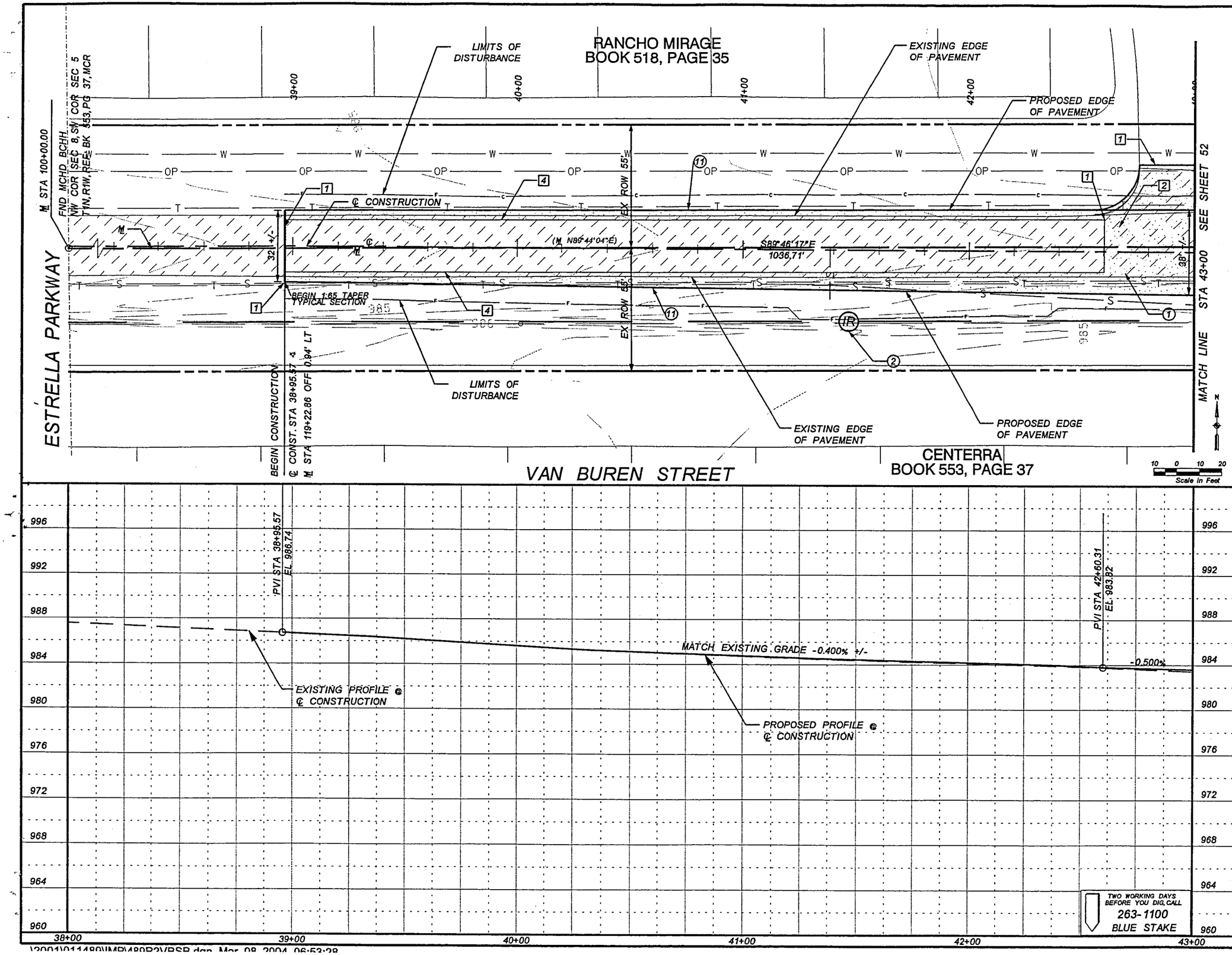
WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. R1

TYPICAL ROADWAY SECTIONS

SHEET 7 OF 23



REMOVE

1. TRANSVERSELY SAWCUT, REMOVE AND DISPOSE OF EXISTING PAVEMENT (N.P.I.)
2. REMOVE AND DISPOSE OF EXISTING A.C. PAVEMENT. (385 S.Y.)
4. LONGITUDINALLY SAWCUT, REMOVE AND DISPOSE OF EXISTING PAVEMENT MINIMUM 2' WIDE (N.P.I.)

CONSTRUCT

1. CONSTRUCT A.C. PAVEMENT ROADWAY PER TYPICAL SECTION DRAWING #R1. (155 TONS)
2. ADJUST MH TO NEW GRADE PER MAG DET 422. (1 EACH)
11. CONSTRUCT PAVEMENT SECTION AT TERMINATION PER MAG DET 201-TYPE 'A'. (808 L.F.)

NO.	REVISION	BY	DATE
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
VAN BUREN STREET BRIDGE
FCD CONTRACT NO. XXX CXXX

PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D.HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. R2

PAVING PLAN
VAN BUREN STA 38+00 TO 43+00

SHEET 8 OF 23

\20011011480\IMP\480P2\PSP.dgn Mar 08, 2004 06:53:28

RANCHO MIRAGE
BOOK 518, PAGE 35

CENTERRA
BOOK 553, PAGE 37

VAN BUREN STREET

MATCH LINE STA 43+00 SEE SHEET 51

MATCH LINE STA 48+00 SEE SHEET 53

44+00 45+00 46+00 47+00

PROPOSED EDGE OF PAVEMENT

LIMITS OF DISTURBANCE

EXISTING EDGE OF PAVEMENT

EX ROW 55'

℄ CONSTRUCTION

(M N89°44'04"E)

S89°46'17"E 1036.71'

38' +/-

48' +/-

EX ROW 33'

FUTURE R/W 55'

F_L=977.8

S=0.002'/FT

(FL=978.4)

(INV=979.4)

EXISTING 24" PIPE

PROPOSED EDGE OF PAVEMENT

EXISTING EDGE OF PAVEMENT

FOR PROPOSED 6" WATERLINE SEE BULLARD WASH CHANNEL IMPROVEMENTS PHASE II

LIMITS OF DISTURBANCE

FOR POROPOSED 18" IRRIGATION, SEE BULLARD WASH CHANNEL IMPROVEMENTS PHASE I.

Scale in Feet 10 0 10 20

N

400.00' VC

PVC STA 44+22.34 EL 983.01

0.500%

PROPOSED PROFILE @ ℄ CONSTRUCTION

EXISTING PROFILE @ ℄ CONSTRUCTION

PVI STA 46+22.34 EL 982.01

LO PT STA 46+44.56 EL 982.45

992 988 984 982 978 974 970 966 962 958

43+00 44+00 45+00 46+00 47+00 48+00

TWO WORKING DAYS BEFORE YOU DIG, CALL 263-1100 BLUE STAKE

REMOVE

2 REMOVE AND DISPOSE OF EXISTING A.C. PAVEMENT. (1608 S.Y.)

3 REMOVE AND DISPOSE OF CONCRETE LINED CHANNEL

CONSTRUCT

1 CONSTRUCT A.C. PAVEMENT ROADWAY PER TYPICAL SECTION DRAWING #R1. (538 TONS)

4 ADJUST MANHOLE TO NEW GRADE PER M.A.G. STD. DET. 422. (3 EACH)

11 CONSTRUCT PAVEMENT SECTION AT TERMINATION PER MAG DET 201-TYPE 'A'. (1000 L.F.)

13 INSTALL TEMPORARY CONCRETE BARRICADE FOR TRAFFIC CONTROL, TO BE REMOVED ONCE FULL STREET IMPROVEMENTS ARE COMPLETED IN THE FUTURE BY OTHERS. (215 L.F.)

16 INSTALL LOOSE RIPRAP (D_{50}=9") 2' THICK. (6 C.Y.)

17 CONSTRUCT GRADER DITCH. (N.P.I.)

NO.	REVISION	BY	DATE
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
VAN BUREN STREET BRIDGE
FCD CONTRACT NO. XXX CXXX

PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION

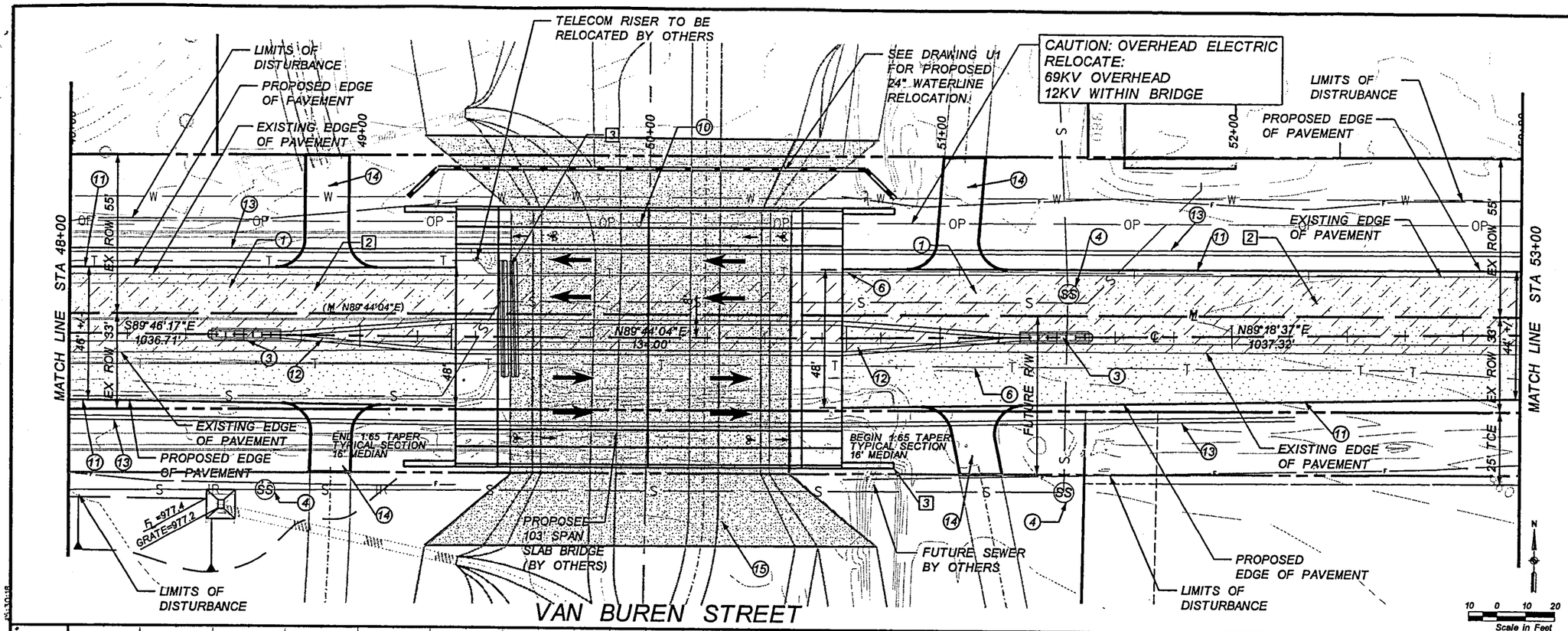
	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D.HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

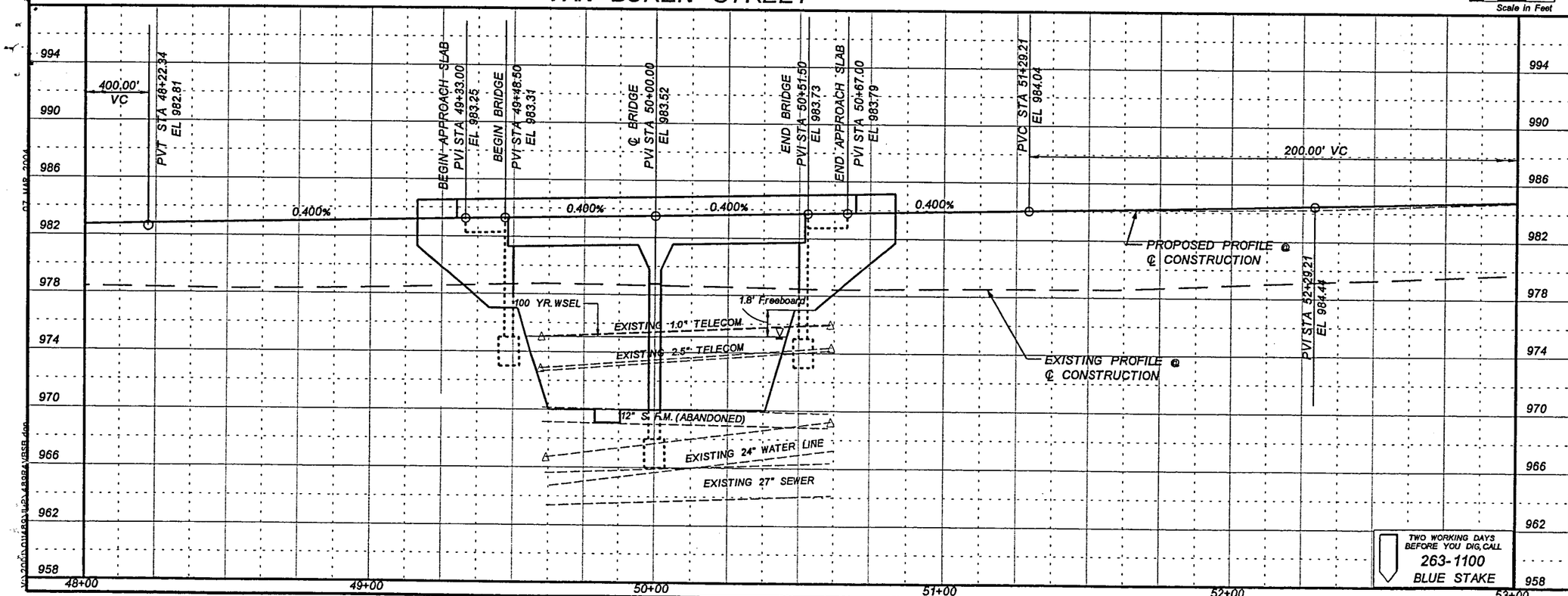
WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. R3

PAVING PLAN
VAN BUREN STA 43+00 TO 48+00

SHEET 9 OF 23





REMOVE

2. REMOVE AND DISPOSE OF EXISTING A.C. PAVEMENT. (1476 S.Y.)
3. REMOVE EXISTING CULVERT AND HEADWALLS.

CONSTRUCT

1. CONSTRUCT A.C. PAVEMENT ROADWAY PER TYPICAL SECTION DRAWING #R1.(431 TONS)
3. CONSTRUCT IMPACT ATTENUATION DEVICE QUADGUARD QS2407 (OR APPROVED EQUAL; (2 EACH)
4. ADJUST MANHOLE TO NEW GRADE PER M.A.G. STD. DET. 422. (3 EACH)
6. COMMUNICATION LINE TO BE REMOVED AND RELOCATED BY OTHERS (N.P.I.)
10. EXISTING POWER POLE TO BE RELOCATED BY OTHERS. (N.P.I.)
11. CONSTRUCT PAVEMENT SECTION AT TERMINATION PER MAG DET 201-TYPE 'A'. (732 L.F.)
12. CONSTRUCT CONCRETE BARRIER ATTENUATOR BACKING, FILL AND CAP WITH CONCRETE. (7 C.Y.)
13. INSTALL TEMPORARY CONCRETE BARRICADE FOR TRAFFIC CONTROL, TO BE REMOVED ONCE FULL STREET IMPROVEMENTS ARE COMPLETED IN THE FUTURE BY OTHERS. (922 L.F.)
14. CONSTRUCT TEMPORARY A.B.C. PAVEMENT ENTRANCES. (4 EACH)
15. CONSTRUCT CONCRETE CHANNEL LINING WITH CUT-OFF WALLS PER DRAWINGS D1 AND D2. (328 C.Y.)

NO.	REVISION	BY	DATE
3			
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
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PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION

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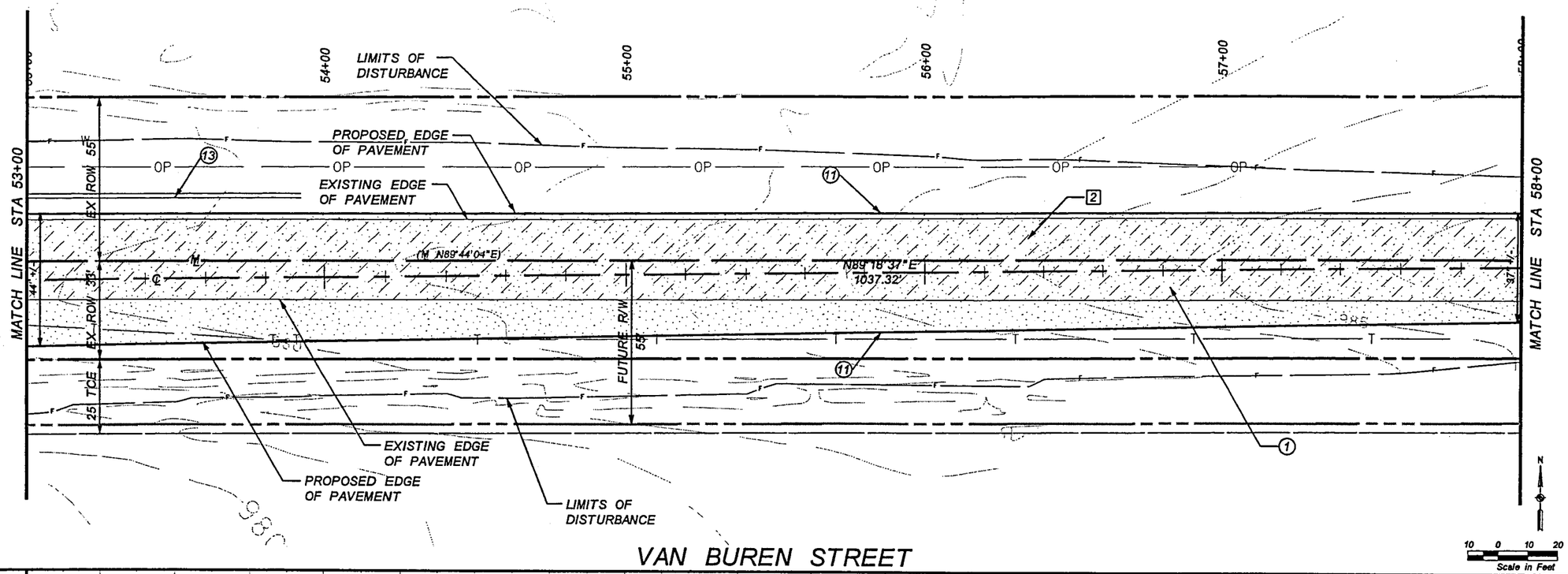
CHECKED	A. PATEL	03/04

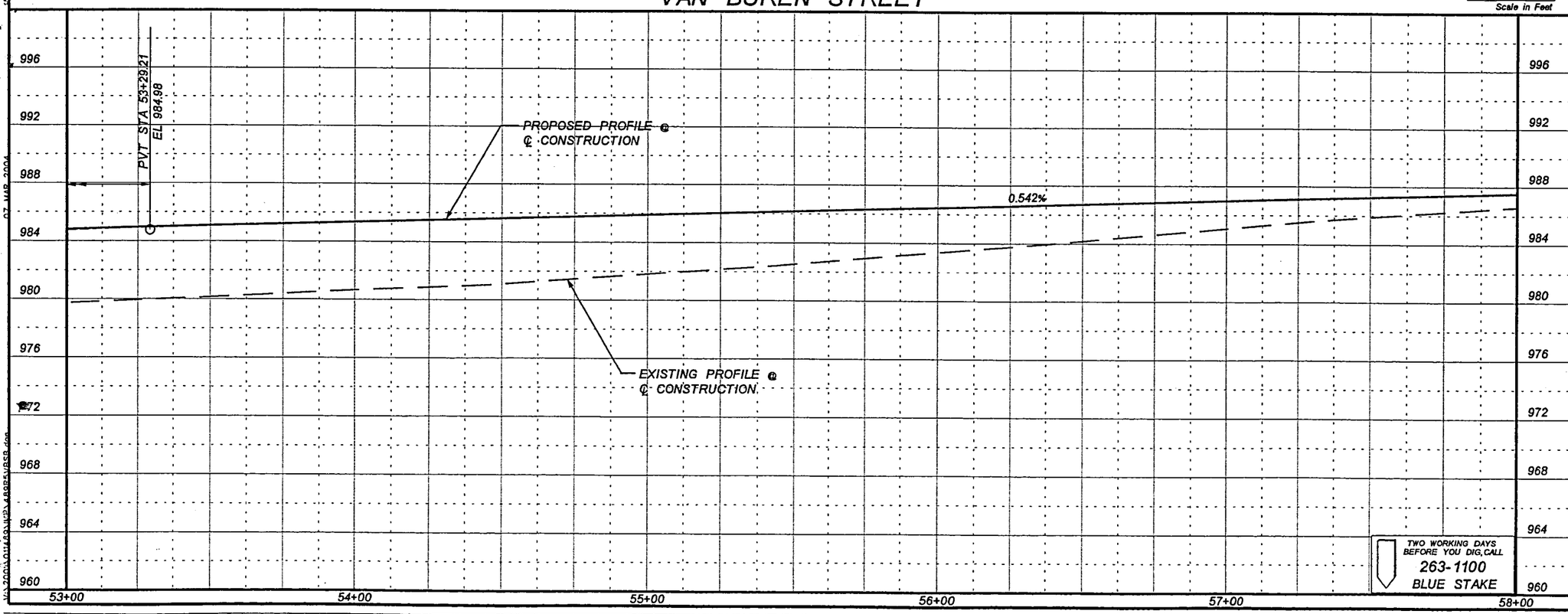
WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. R4

PAVING PLAN
VAN BUREN STA 48+00 TO 53+00

SHEET 10 OF 23





REMOVE

2 REMOVE AND DISPOSE OF EXISTING A.C. PAVEMENT. (1578 S.Y.)

CONSTRUCT

1 CONSTRUCT A.C. PAVEMENT ROADWAY PER TYPICAL SECTION DRAWING #R1. (513 TONS)

11 CONSTRUCT PAVEMENT SECTION AT TERMINATION PER MAG DET 201-TYPE 'A'. (1000 L.F.)

13 INSTALL TEMPORARY CONCRETE BARRICADE FOR TRAFFIC CONTROL, TO BE REMOVED ONCE FULL STREET IMPROVEMENTS ARE COMPLETED IN THE FUTURE BY OTHERS. (93 L.F.)

NO.	REVISION	BY	DATE
3			
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
VAN BUREN STREET BRIDGE
FCD CONTRACT NO. XXX CXXX

PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION

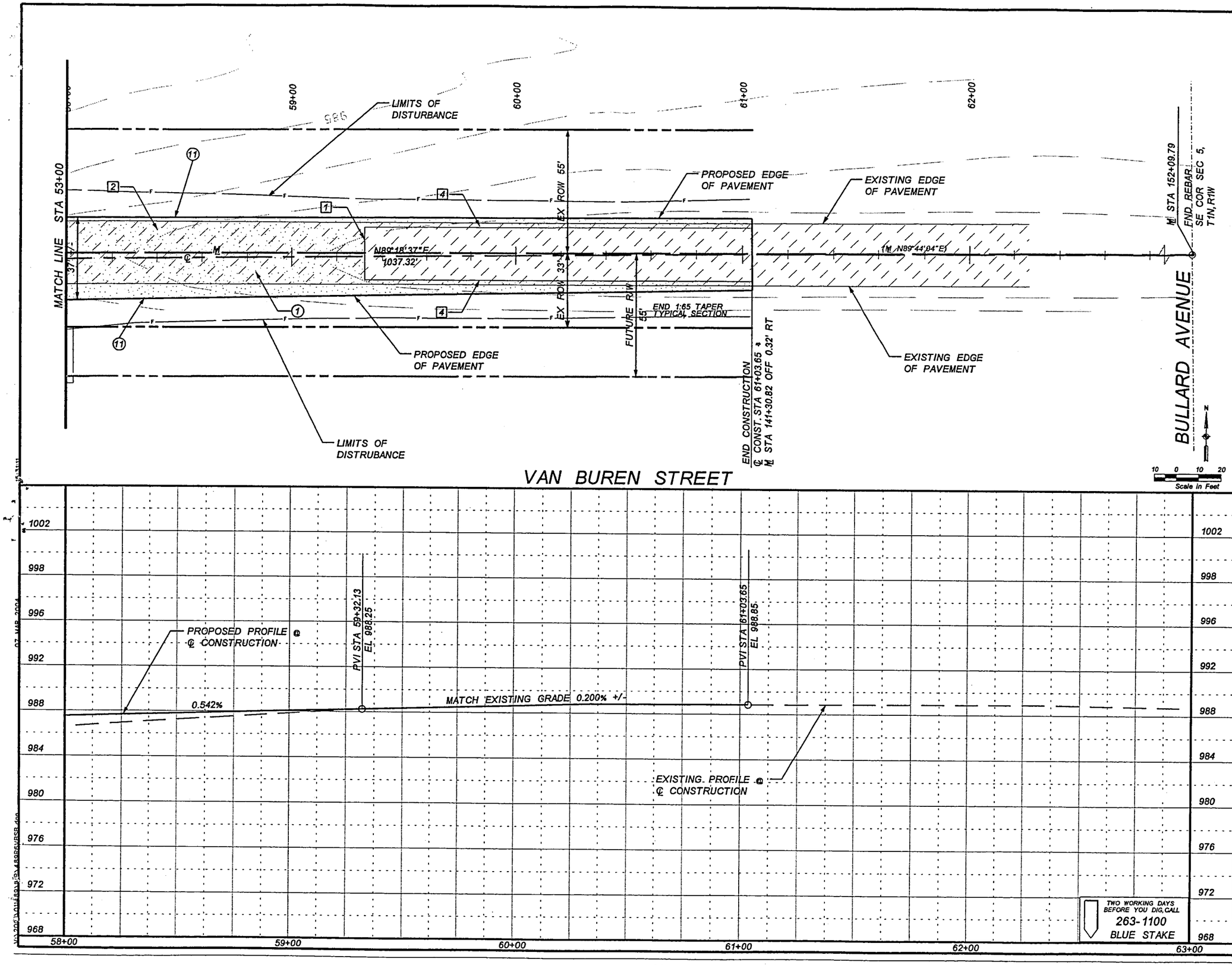
	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D.HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. R5

PAVING PLAN
VAN BUREN STA 53+00 TO 58+00

SHEET OF 11 23



REMOVE

1. TRANSVERSELY SAWCUT, REMOVE AND DISPOSE OF EXISTING PAVEMENT (N.P.I.)
2. REMOVE AND DISPOSE OF EXISTING A.C. PAVEMENT. (86 C.Y.)
4. LONGITUDINALLY SAWCUT, REMOVE AND DISPOSE OF EXISTING PAVEMENT MINIMUM 2' WIDE (N.P.I.)

CONSTRUCT

1. CONSTRUCT A.C. PAVEMENT ROADWAY PER TYPICAL SECTION DRAWING #R1. (162 TONS)
11. CONSTRUCT PAVEMENT SECTION AT TERMINATION PER MAG DET 201-TYPE 'A'. (608 L.F.)

NO.	REVISION	BY	DATE
3			
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
VAN BUREN STREET BRIDGE
FCD CONTRACT NO. XXX CXXX

PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION

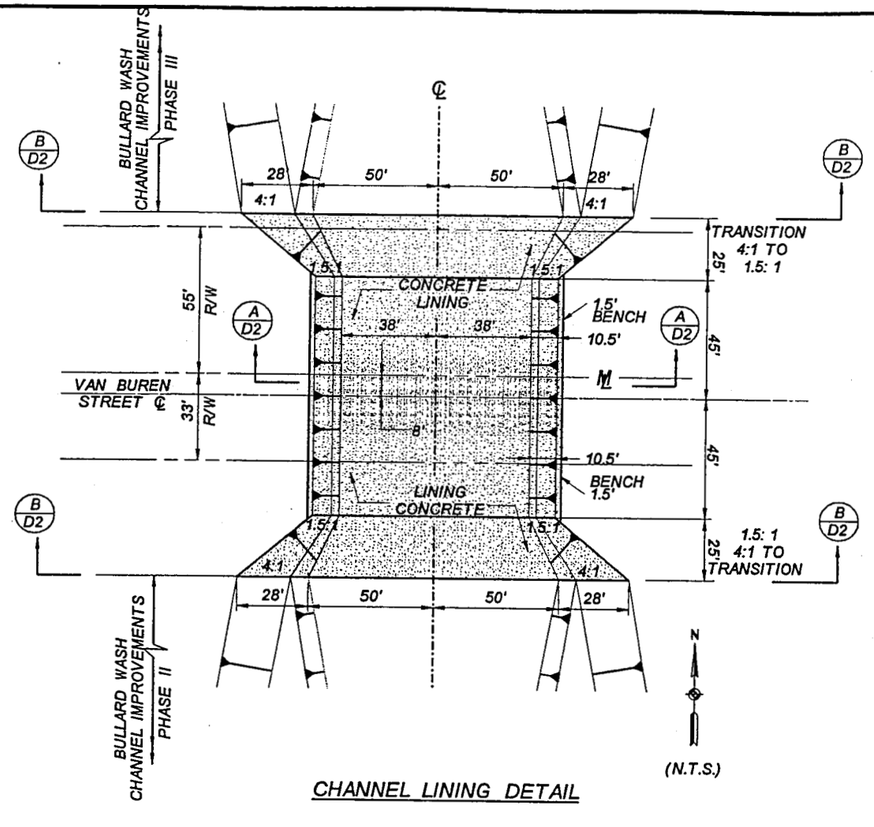
	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D.HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

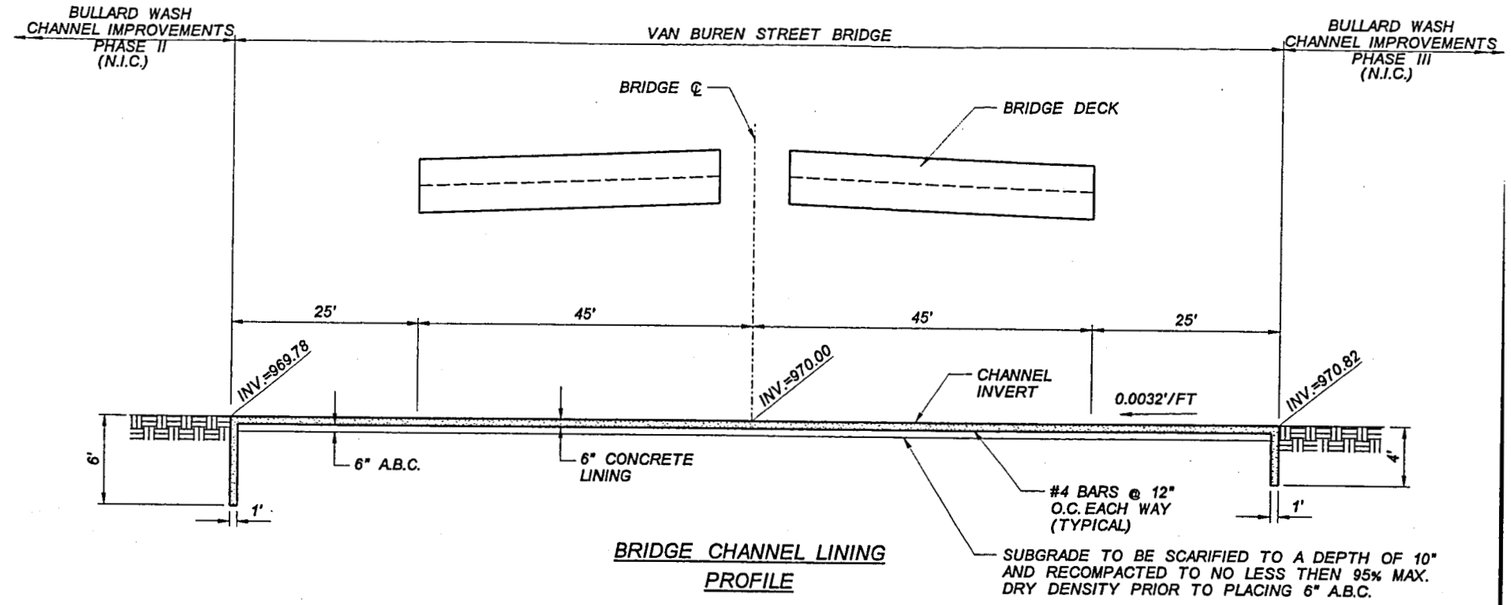
DRAWING NO. R6

PAVING PLAN
VAN BUREN STA 58+00 TO 63+00

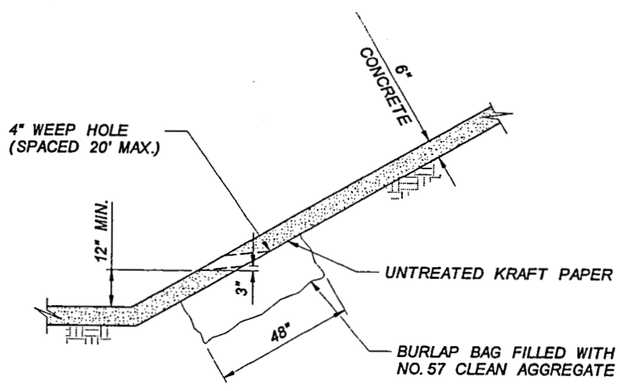
SHEET 12 OF 23



CHANNEL LINING DETAIL



BRIDGE CHANNEL LINING PROFILE



WEEP HOLE DETAIL

NO.	REVISION	BY	DATE
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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
VAN BUREN STREET BRIDGE
FCD CONTRACT NO. XXX CXXX

PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D. HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

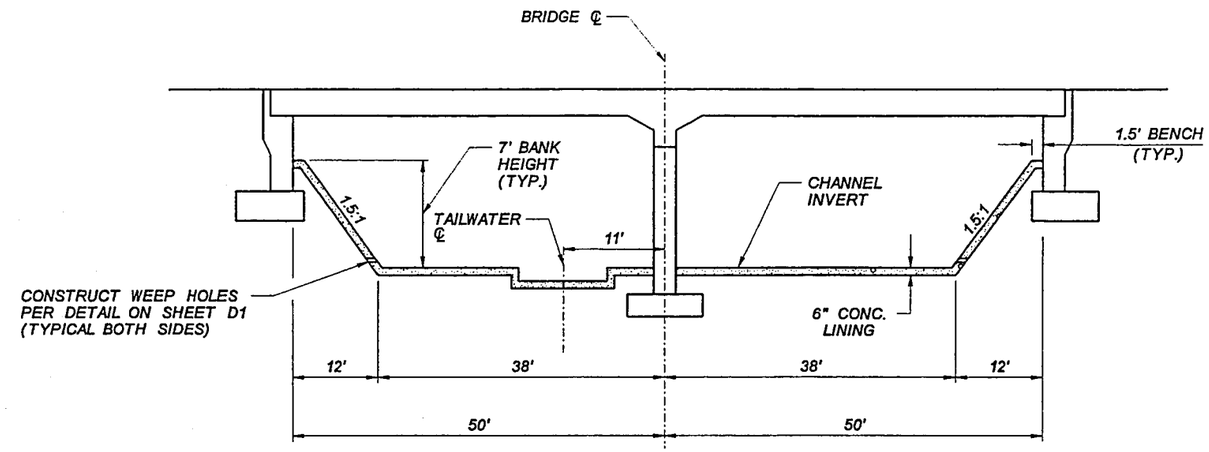
DRAWING NO. D1

CHANNEL LINING AT VAN BUREN STREET BRIDGE

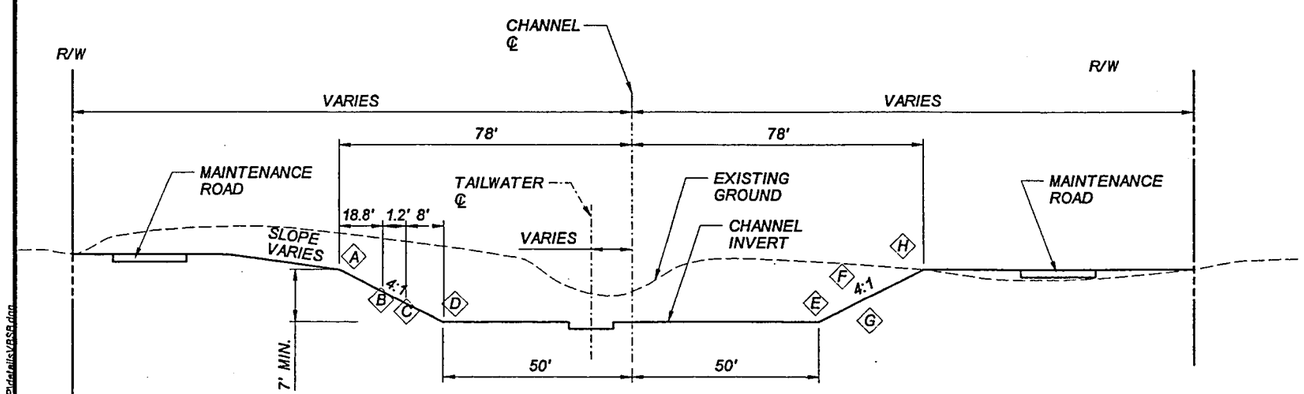
SHEET 13 OF 23

07 MAR 2004

V:\2000\0114\BRIDGE\DETAILS\VBSR.dgn



CHANNEL LINING SECTION A-A



TRANSITION SECTION B-B

CHANNEL GEOMETRY ALIGNMENT LEGEND

- A WEST TOP OF MAIN CHANNEL
- B WEST BOTTOM OF MAIN CHANNEL
- C WEST TOP OF LOW FLOW CHANNEL
- D WEST BOTTOM OF LOW FLOW CHANNEL
- E EAST BOTTOM OF LOW FLOW CHANNEL
- F EAST TOP OF LOW FLOW CHANNEL
- G EAST BOTTOM OF MAIN CHANNEL
- H EAST TOP OF MAIN CHANNEL

NO.	REVISION	BY	DATE
3			
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1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
VAN BUREN STREET BRIDGE
FCD CONTRACT NO. XXX CXXX

PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	J. TAILLON	03/04
DRAWN	D. HADGES/P. LOPEZ	03/04
CHECKED	A. PATEL	03/04

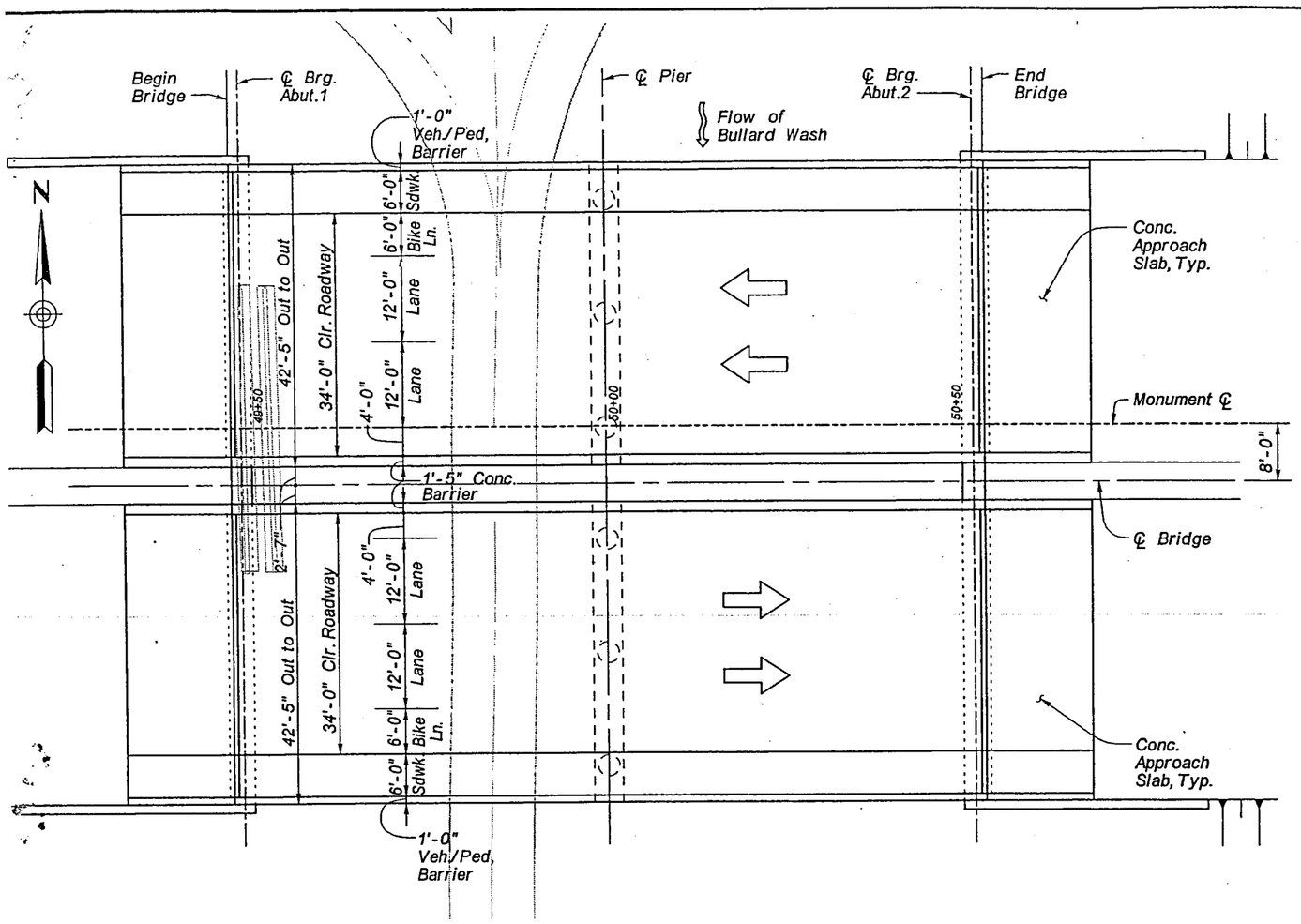
WOOD, PATEL & ASSOCIATES, INC.
2051 W. NORTHERN AVE., SUITE 100
PHOENIX, ARIZONA (602) 335-8500

DRAWING NO. D2

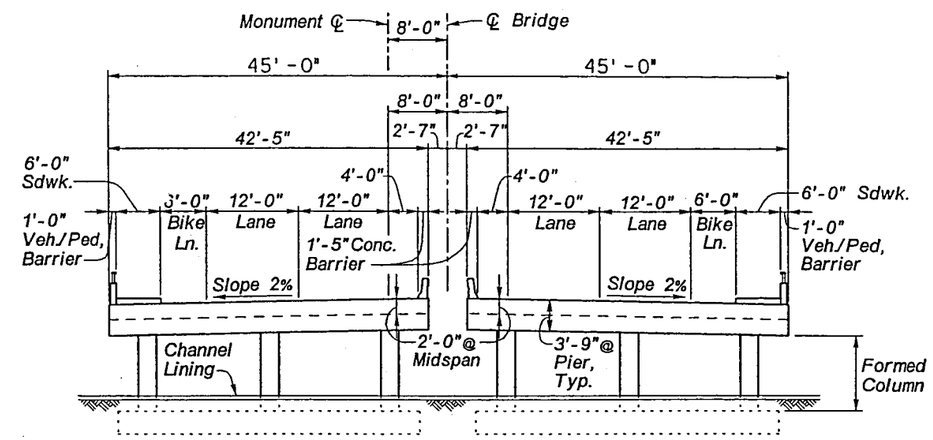
CHANNEL LINING DETAILS

SHEET 14 OF 23

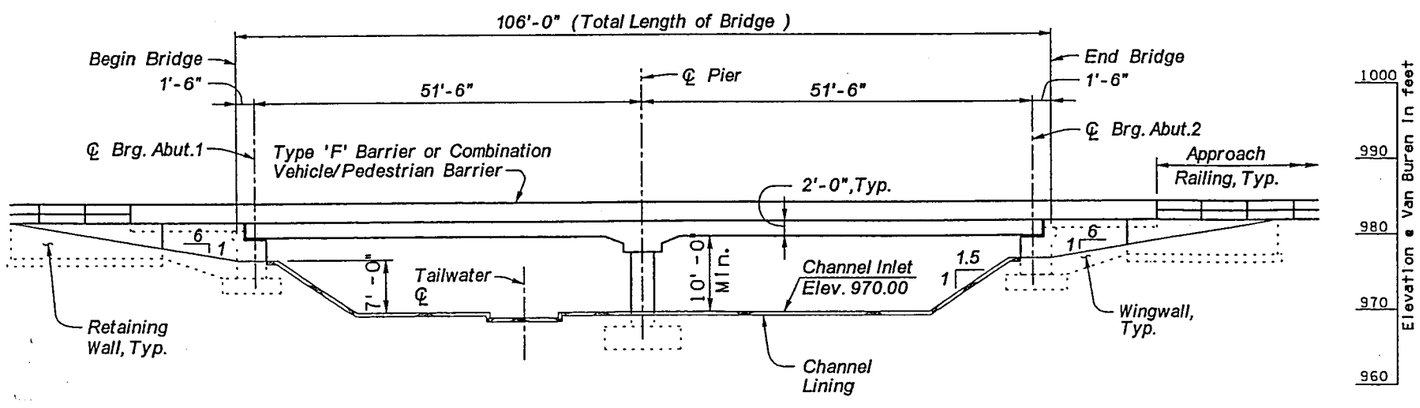
07-MAR-2004 15:32:17



PLAN - AT VAN BUREN ST.
1"=10'-0"



SECTION AT VAN BUREN ST.
1"=10'-0"



ELEVATION - AT VAN BUREN ST.
1"=10'-0"

NO.	REVISION	BY	DATE
3			
2			
1			

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
ENGINEERING DIVISION

BULLARD WASH CHANNEL IMPROVEMENTS
VAN BUREN STREET BRIDGE
CONTRACT NO. XXX CXXX

PRELIMINARY 90% SUBMITTAL NOT FOR CONSTRUCTION

	BY	DATE
DESIGNED	K. WAKEFIELD	3/2004
DRAWN	D. YRIGOYEN	3/2004
CHECKED	C. PERCHINELLI	3/2004

Structural Grace, Inc. 1430 E. Ft. Lowell Rd. Tucson, Arizona 85719 (520) 320-0156 S-200

DRAWING NO. S1

VAN BUREN ST. BRIDGE PLAN, ELEVATION & SECTION

SHEET 19 OF 23