DOCKET	
09-AFC-9	
DATE	FEB 23 2010
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February 23, 2010

Eric Solorio
Project Manager
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

RE: Ridgecrest Solar Power Project (RSPP), Docket No. 09-AFC-9, Responses to CEC Data Requests for Soils and Water (175, 176, 177, 180, 181, 185, 191, 192)

Dear Mr. Solorio:

As requested, attached please find Ridgecrest Solar I, LLC's responses to CEC Data Requests S&W 175, 176, 177, 180, 181, 185, 191 and 192. A new Drainage Report and the Conditional Letter of Map Revision (CLOMR) application are provided as attachments.

If you have any questions on these data responses to the Staff's Data Requests, please feel free to contact me at 510-809-4662 (office) or 949-433-4049 (cell).

Sincerely,

Billy Owens
Director, Project Development

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Ridgecrest Solar Power Project

09-AFC-9

Responses to CEC Data Requests

Soils & Water (175, 176, 177, 180, 181, 185, 191, 192)

Submitted to:
California Energy Commission
February 23, 2010

Prepared by:
AECOM Environment

Submitted by:
Ridgecrest Solar I, LLC

Ridgecrest Solar Power Project
09-AFC-9
Responses to CEC Data Requests

Soils & Water
(175, 176, 177, 180, 181, 185, 191, 192)

Submitted by:
Ridgecrest Solar I, LLC

Submitted to:
California Energy Commission

Prepared by:
AECOM Environment

February 23, 2010

DR-S&W-175

Information Required:

Please include in the peak discharge table values taken from the effective Flood Insurance Study (FIS) for the area as well values calculated using the appropriate USGS Regional Regression Equation for the subject area. In addition, please consult the local BLM office to obtain relevant information from previous studies related to El Paso Wash and include this data in the drainage report.

Response:

The flow rates from the FIS as well as the other calculated flow rates and the City of Ridgecrest Master Drainage Plan are provided with the new Project Drainage Report in Attachment DR-S&W-175.

DR-S&W-176

Information Required:

Please provide a map showing the extents of soil types within each watershed as well as information correlating the specific soil types with the designated hydrologic soil groups.

Response:

This information is provided with the new Project Drainage Report in Attachment DR-S&W-175.

DR-S&W-177

Information Required:

Please provide a detailed analysis of the depth and extent of the existing and developed floodplain using an industry accepted methodology such as HEC-RAS. This analysis should utilize recent detailed topography and should accurately model the transitions from natural floodplain to constructed channel and back to natural floodplain. This analysis should follow FEMA guidelines for mapping riverine type drainages and for providing an acceptable tie-to the existing mapped floodplain.

Response:

This information is provided with the new Project Drainage Report in Attachment DR-S&W-175.

DR-S&W-180

Information Required:

Provide a detailed explanation of the data and assumptions used to complete the above referenced analysis as well as all associated data including digital input and output files for all hydraulic models.

Response:

This information will be provided with the new Project Drainage Report in Attachment DR-S&W-175.

DR-S&W-181

Information Required:

Please provide a CLOMR application, completed to FEMA standards, so the extent of modifications to the existing FEMA mapped floodplains can be reviewed.

Response:

The CLOMR application with supporting materials is provided in Attachment DR-S&W-181.

DR-S&W-185

Information Required:

Please provide documentation and analysis for establishing project specific non-erosive channel velocities based onsite soils, incoming sediment load, and the calculated 10-year flow.

Response:

A new Project Drainage Report is provided in Attachment DR-S&W-175. This report verifies that the velocities in the engineered channels for the calculated 10 year flow are non-erosive. The drainage channels have been provided with drop structures (protected with soil cement) and relatively flat channel slopes to create a non-erosive channel profile.

DR-S&W-191

Information Required:

Please provide detailed information on the estimated discharges at each of the onsite drainage outfall locations, as well as detailed design plans to demonstrate how these points of outfall would be protected from erosion.

Response:

A new Project Drainage Report is provided in Attachment DR-S&W-175. The detailed information at the outfall locations are documented in the drainage report in pages 1-3 of Appendix 2. At these locations, standard connection details (Kern County or APWA) will be provided such as headwalls, storm drain pipes, protected down-drains, and/or soil cement channel aprons. The Conceptual Engineering Plans, provided on February 10, 2010, provides references to these details.

DR-S&W-192

Information Required:

The Drainage Report and associated hydrologic modeling must specifically address the issue of potential increases to downstream peak discharges. The hydrologic modeling must accurately represent the existing and proposed condition with respect to differences in runoff potential, floodplain routing and potential peak flood attenuation. In reference to the routing reach geometry used in the existing conditions model, Section 2.5 in the Drainage Report states "These bottom widths are conservative in that the actual channels will be wider and shallower that would lead to a slower velocity." This approach may lead to an overestimated existing peak discharge by not appropriately accounting for existing floodplain attenuation. It may also under estimate the difference between existing and developed peak discharges once the engineered channels are constructed and provide little flood peak attenuation. The analysis must demonstrate the proposed design would not increase downstream peak discharges.

Response:

A new Project Drainage Report is provided in Attachment DR-S&W-175. This report provides the analysis, mapping, and discussions related to the flows adjacent to and from the Project site, the peak discharges, the floodplain depths, and the flows downstream of the site.

Binder Tab 1

DR-S&W-175
Drainage Report

Attachment DR-S&W-175

Drainage Report for Pre-Development Hydrology and Post-Development Hydrology and Hydraulics

AECOM

DRAINAGE REPORT

for

Pre-Development Hydrology

and

Post-Development Hydrology and Hydraulics

February 22, 2010

This report has been prepared for:

Solar Millennium
1625 Shattuck Ave., Suite 270
Berkeley, CA 94709-1611

This report was prepared by:

AECOM Inc.
999 Town & Country Road
Orange, CA 92686

Project Manager: Bill Hagmaier, P.E.

Senior Drainage Engineer: Gary Sjelin, P.E.

Drainage Engineer: Tricia Maruki, P.E.

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EXECUTIVE SUMMARY

This report provides results of analysis of offsite and onsite, pre- and post-development drainage conditions at the proposed Ridgecrest Solar Power Project site (RSPP). This report utilizes USGS topographic maps, topographic site data (LIDAR), and a site grading plan to establish the pre- and post-development drainage patterns and design flow rates for the site. The U.S. Army Corps of Engineers (USACE) Hydrological Modeling System (HMS) and Hydrologic Engineering Centers River Analysis System (HEC-RAS) programs are used in this report to analyze the onsite drainage and major drainage washes.

The project site lies on the southern edge of the Indian Wells Valley and north of the El Paso Mountains. The general stormwater flow pattern is from the higher elevations in the mountains located approximately 6 miles south to the lower elevations in Indian Wells Valley to the north. The stormwater from the project site flows northeast to China Lake which is a depression in the Indian Wells Valley with no identifiable outlet.

The major watercourse in the project area is El Paso Wash which drains approximately 20 square miles from the El Paso Mountains and exits the mountains to the south of the site. Flows in El Paso Wash are not diverted by the project footprint. However, flows in two un-named watersheds are conveyed around the proposed solar fields as part of this project. These modifications are discussed in detail within this report.

The site hydrology was analyzed using a 100 year storm and the channels which convey this water adjacent to or through this site are sized for this 100 year storm event. The 10-year and 25-year storm events were also analyzed inasmuch as these level storm events have a higher probability of occurrence over the life of this facility. The site will be substantially occupied by long rows of concave mirrors, but these mirrors will be elevated above the ground and thus the ground below the mirrors remains as a pervious surface. The only portions of the site that will be impervious are the administration building, the main warehouse, portions of the power block area, the access road between these areas, and the parking lots associated with these areas.

The amount of impervious area being created as a result of this project is less than 1% difference from the existing condition. The soil on this site is very dense, highly compacted silt with little to no permeability. Compaction of the soil as part of the grading operation is not anticipated to affect the porosity, void ratio, or permeability, inasmuch as the soil is denser and more compact in its current condition than it will be in its finished condition. Percolation tests on this site also indicated very low permeability. For these reasons both the pre- and post-development calculations have used an on-site curve number of 95 (CN = 95).

The proposed drainage modifications to this site seek to replicate the existing flow patterns as nearly as possible. There are three primary washes that receive flow from the pre-developed site and these washes were analyzed for both the pre and post development condition. The

post-development condition of the site deals with the drainage in each wash in a different method depending on its location relevant to the proposed site.

- The Westerly Wash (located in the southwest corner of the south solar field) remains nearly unchanged in the pre versus post-development condition. The storm water in this wash requires only a slight diversion from its current flow path as a result of the site, and the flow rate is maintained in the post development condition. This diversion is accomplished by installation of cut-off dike at the south end of the south field, re-directing the water slightly to the west, which keeps the storm water from draining into the solar field. This method of drainage diversion was preferred by the BLM rather than collecting the water into a man-made channel and then discharging into the existing wash at a downstream location.
- The El Paso Wash (the existing large wash in the center of the site) remains relatively undisturbed. The mainstream bed is neither modified nor channelized in the post-development condition. The side-slopes (banks) are also left undisturbed by the proposed project. The only disturbance to this existing wash from the proposed site is at the locations where drainage from the solar site is directed into this channel. There are eight locations along the course of the El Paso Wash where drainage is discharged into the wash. The location and number of connections to the El Paso Wash were designed to spread the flow back into the channel in small increments, reflecting the existing drainage patterns into the wash. The flows at these connection points are shown on pages 1-3 of Appendix 2A.
- The North-easterly channel was designed to intercept the small localized flows east and southeast of the north solar field prior to their entry to the site and convey them in a natural re-aligned channel to approximately the same location where their combined flow currently exits the site under existing conditions. This new channel is designed using native material with 3:1 side slopes. The proposed channel was designed to maintain flow velocity below five feet per second in order to prevent soil erosion in the bottom and side slope of the channel. To accomplish this, a series of grade drop structures have been added to this channel.

Onsite flows inside the proposed solar fields are initially directed to small shallow swales located between solar collector loops which run parallel to the loops. The spacing of the swales was designed to prevent runoff from concentrating and creating erosion concerns on the side slope of the swales. These swales function as a sediment trap and minor infiltration areas before discharging to collector channels that flow perpendicular to the solar collector loops. These collector channels then flow to a storm drain system or a secondary collector channel within the solar field prior to connection to a diversion channel adjacent to the field. Onsite flows are ultimately directed to the El Paso Wash or to a tributary wash, just as the existing stormwater from this site is directed to these existing washes. The post-development onsite and offsite flow rates and velocities are approximately equivalent to pre-development conditions.

The LIDAR survey shows substantial vertical drop across the site from south to north. Because of this, elevation change, a series of soil cement drop structures have been incorporated into

the Northeast Channel to maintain a non-erosive flow regime. Because the solar arrays are essentially flat, the site must be stepped between arrays in order to follow the elevation change. The drop structures in the East Channel are designed to generally correspond to the total terracing drop across the arrays of the solar fields. Additionally, drop structures have been added to the eight small discharge channels prior to connecting the on-site flows to El Paso Wash to avoid scour.

In order to analyze whether the proposed improvements have a significant impact on the downstream watercourses, the pre- and post-development flow rates were compared. Table 1 shows the pre- and post-development peak flow rates.

In general, there is good correlation between the pre- and post-development peak flow rates showing that the site does not have significant impacts downstream. All the flows listed in Table 1 were calculated by using the US Army Corps of Engineers HMS hydrology program. A single method for both pre-development and post-development flow was used in order to be able to compare the results. In fact, the flow in the main portion of El Paso Wash is 221 cfs less in the post-development condition than in the pre-development condition. A portion of this flow difference (171 cfs) is attributable to a minor diversion of water from El Paso Wash into the West Wash. The West Wash connects to the main El Paso Wash approximately 1,500 feet northwest of the proposed site so the flow comparison of the pre-development versus post-development at this point would show that there is a 49 cfs reduction (0.5%) of flow in the post-development condition to El Paso Wash downstream of the project site.

TABLE 1
PRE- AND POST-DEVELOPMENT PEAK FLOW RATES

Watercourse*	Pre-Development 10 Year	Post-Development 10 year
West Wash	724.9	788.0
El Paso Wash	2,447.1	2,383.9
North-East Ch.	939.7	787.5
Watercourse*	**Pre-Development 25 Year**	**Post-Development 25 Year**
West Wash	1,139.4	1,239.2
El Paso Wash	4,005.7	3,890.1
North-East Ch.	1,227.4	1,056.7
Watercourse*	**Pre-Development 100 Year**	**Post-Development 100 Year**
West Wash	1977.8	2148.8
El Paso Wash	7270.3	7048.6
North-East Ch.	1745.3	1566.5

Tables 2, 3, and 4 below provide a summary of average wash (channel) flow parameters for the 10, 25, and 100 year storm events.

TABLE 2
10-Yr CHANNEL DESIGN & HYDRAULICS SUMMARY
(See Appendix I for Channel Locations)

Watercourse	Existing Flow Rate at the Outlet of the Site (cfs)	Proposed Flow Rate at Outlet of the Site * (cfs)	Average Channel Depth (ft)	Average Flow Depth (ft)	Average Channel Velocity (ft/s)	Average Top Width (ft)	Channel Length (ft)
El Paso Wash (1)	2,447.1	2,383.9	N/A	2.42	5.45	394.3	21,477
Ridgecrest Wash/N-E Channel (2)	939.7	787.5	10	3.61	2.78	60.90	11,562
West Wash (3)	724.9	788.0	N/A	N/A	N/A	N/A	N/A

TABLE 3
25-Yr CHANNEL DESIGN & HYDRAULICS SUMMARY
(See Appendix I for Channel Locations)

Watercourse	Existing Flow Rate at the Outlet of the Site (cfs)	Proposed Flow Rate at Outlet of the Site * (cfs)	Average Channel Depth (ft)	Average Flow Depth (ft)	Average Channel Velocity (ft/s)	Average Top Width (ft)	Channel Length (ft)
El Paso Wash (1)	4,005.7	3,890.1	N/A	2.88	6.22	463.91	21,477
Ridgecrest Wash/N-E Channel (2)	1,227.4	1,056.7	10	4.04	3.22	63.84	11,562
West Wash (3)	1,139.4	1,239.2	N/A	N/A	N/A	N/A	N/A

TABLE 4
100-Yr CHANNEL DESIGN & HYDRAULICS SUMMARY
(See Appendix I for Channel Locations)

Watercourse	Existing Flow Rate at the Outlet of the Site (cfs)	Proposed Flow Rate at Outlet of the Site * (cfs)	Average Channel Depth (ft)	Average Flow Depth (ft)	Average Channel Velocity (ft/s)	Average Top Width (ft)	Channel Length (ft)
El Paso Wash (1)	7,270.3	7,048.6	N/A	3.53	7.46	539.99	21,477
Ridgecrest Wash/N-E Channel (2)	1,745.3	1,566.5	10	4.69	3.87	68.41	11,562
West Wash (3)	1,977.8	2,148.8	N/A	N/A	N/A	N/A	N/A

* The changes in peak flow rates in the three channels are attributed to the difference in time of concentrations between the existing condition and the proposed condition and slight shifting in contributing drainage areas from the existing to the proposed condition. The proposed flow rates leaving the site are generally lower than the existing flow rates, due to the fact that the times of concentrations for the proposed on-site drainage areas are longer than the existing times of concentrations for the existing overland flow.

(1) El Paso Wash is an existing wash that remains unchanged in post-development conditions. The hydraulic characteristics represent the post-development discharge in the existing wash.
(2) The North-East Channel is a new channel that outlets into the existing North Ridgecrest Wash which is where the pre-development flows are also directed. The hydraulic characteristics in this table represent the North-East Channel, and the discharge relates to flow in the Ridgecrest Wash at the property boundary.
(3) No hydraulic HEC-RAS model was created for the West Wash. The discharge was calculated to provide a comparison between pre- and post-development conditions at the connection point into the West Wash. Upstream from this connection point, water tends to sheet flow and not be contained in a defined wash. Based on BLM requests, these flow areas have been designed as "flow across the natural terrain" with a barrier dike at the solar fields acting as one side of the flow area and the other side being uncontained by any man-made structures.

See Figure 1, Figure 2, and Appendix 5 for site layout, existing flow paths, and proposed drainage channels. Pre and post development hydrology maps, drainage basin parameters, hydrology calculations, and hydraulic calculations to support the data presented in the previous tables can be found in the various appendices at the end of this report.

1. PROJECT DESCRIPTION

1.1 Introduction

Solar Millennium LLC proposes to locate RSPP, a solar power plant near Ridgecrest, in Kern County, California, on land administered by the Bureau of Land Management (BLM). The proposed power plant consists of one 250 MW parabolic trough solar thermal power plant which has a "solar field" comprised of rows of parabolic mirrors focusing solar energy on collector tubes. These collector tubes carry heated oil to a boiler which sends live steam to a Rankine – Cycle reheat steam turbine. The boiler turbine, and other associated equipment are located at the power block in the center of each solar field. The solar field and power generation equipment would be put into operation each morning after sunrise and insolation build-up, and shut down in the evening when insolation drops. Electricity would be produced by each plant's solar receiver boiler and the steam turbine generator.

This report was completed to analyze pre- and post-development surface water drainage characteristics at the proposed Ridgecrest site. LIDAR one-foot contour-interval topography collected over the site was utilized as a portion of the model input parameters to develop pre- and post-development hydrology and hydraulic analysis. Significant offsite storm flows tributary to the site from the south, as well as storm flows generated by rain falling directly on the site, are identified in this report.

With the development of the site, it will be necessary to direct offsite storm flows around or through the proposed site using channels, barrier dikes, or the existing El Paso Wash. These diversion channels or barrier dikes intercept the flows prior to their entry to the site, re-direct them around or through the site, and convey them to the same locations where the drainage washes exit the site under existing conditions. The Northeast Channel carrying off-site flow is being sized to contain the peak flow of the 100-year, 24-hour storm event. The El Paso Wash is not being channelized, but it has sufficient capacity to convey the 100 year storm. The 100 year event was chosen to insure that even in extreme events both on and offsite flows would be channelized and conveyed around or through the site. The new Northeast Channel and the El Paso Wash will prevent contact between the solar arrays and any large flood flows, avoiding potential damage to the site. Refer to the map on the following page for the site layout and Appendix 5 for the project site plans.

1.2 Site Description

The proposed project site consists of approximately 3995 acres with a total disturbed area of approximately 1,994 acres and is located 6 miles southwest of Ridgecrest, California and immediately west of U.S. Route 395. Access to the site is from the South Brown Road exit on U.S. Route 395. The 250 MW facility will occupy approximately 1448 acres. The rest of the acreage will be occupied by ancillary facilities, consisting of an administration building, a

parking area, a maintenance building, switchyard, bioremediation areas, wastewater treatment facilities, onsite access and maintenance roadways, perimeter fencing, utilities and a central 230 kV transmission line. Figure 1 and 2 show the general site layout, while Appendix 5 has detailed project site plans.

2. PRE-DEVELOPMENT CONDITION

2.1 Pre-Development Flow Patterns

2.1.1 Offsite Flow Patterns

Offsite hydrology drains a combined set of distinct watersheds totaling approximately 37 square miles, which generally drains from local topographic highs located south of the project site northward to relatively more gradual-sloped areas at the southern and northern solar fields. See the existing condition hydrology map in Appendix A for the location and extent of the drainage areas. Natural vegetation within the watersheds can be described as sporadic scrub brush typical of the local high desert conditions.

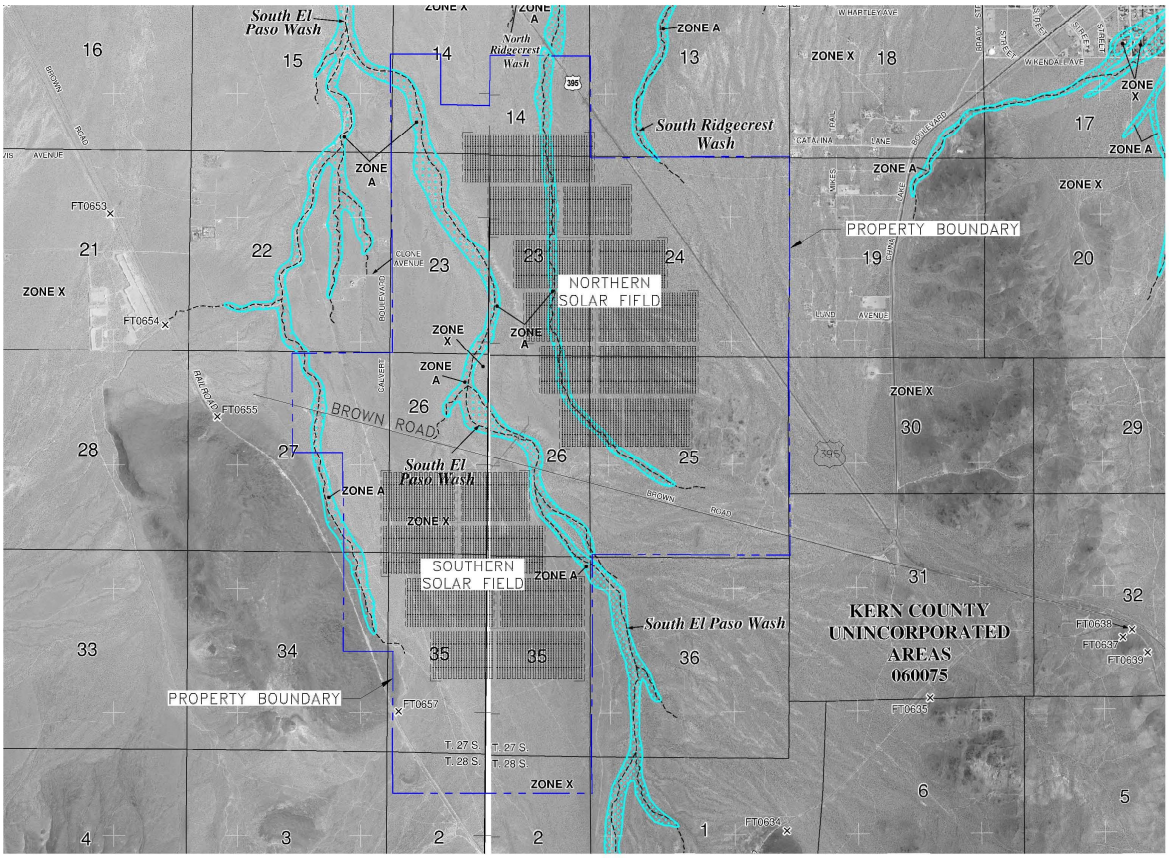


Figure 1: Site Layout

There are three watercourses that run through the Project site. These watercourses are described below.

- El Paso Wash, which drains 22 square miles upstream of the Project site (Area E2), runs approximately through the center of the Project site. This wash drains water from the south hills and crosses Brown Road inside the property boundary. Currently, El Paso Wash flows over Brown Road at two low points in the road and continues sloping in a northwest direction adjacent to the project site.
- An unnamed water course drains 4 square miles (Area E1) southwest of the project site. This watercourse crosses the southwest section of the Project area continuing in the northwest direction toward Brown Road. A small water course drains 0.8 square miles toward the center of the southern field area (Area E1b). Collected water on this drainage area flows westward along the road moving water away from the project site.
- The eastern drainage area (Area E3) extends south of the project site and includes drainage areas east and west of the U.S. Highway 395 (Three Flags Highway) covering 10 square miles. Drainage water crosses U.S. Highway 395 at several points in both east-west and west-east directions, hydraulically connecting all the catchments in this drainage area. This drainage area was studied as part of the City of Ridgecrest Master Drainage Plan and it was noted that the water in this drainage basin was substantially impacted by the construction of Highway 395 when it was built in the 1930's. The resultant effect of these changes is that the drainage water in this drainage basin generally collects and is retained at each of the many culvert crossings of the highway prior to reaching the intersection with Brown Road. At Brown Road, the drainage that has reached this point on the east side of US Highway 395, partially flows westward toward the project site through a 24 inch culvert below U.S. Route 395. The balance of the drainage water on the east side of the intersection continues north along Highway 395. The drainage water passing through the 24 inch culvert generally flows westerly toward the project site and eventually changes direction inside the project site to a more northward direction.

An elevated abandoned railroad grade is located south and west of the project site (See Figure 2). The railroad grade interrupts several natural drainage paths concentrating flows to several water courses that cross the railroad grade through pipes, concrete culverts and timber bridges. Existing flow patterns in the project site drainage area are illustrated in Appendix A. The pre-development flow rates at the downstream end of the washes being analyzed are shown in Table 5 below.

TABLE 5
PRE-DEVELOPMENT FLOW RATES

Watercourse*	10-Year Peak Flow Rate (cfs)	25-Year Peak Flow Rate (cfs)	100-Year Peak Flow Rate (cfs)
West Wash	724.9	1139.4	1977.8
El Paso Wash	2447.1	4005.7	7270.3
North-East Ch.	939.7	1227.4	1745.3

2.1.2 Onsite Flow Patterns

Aerial photography and vegetation patterns indicate that the overall drainage pattern inside the project area concentrates flows in several well defined washes through the area. Storm flows generated by the existing site itself generally sheet to washes in the northeast and northwest directions. See Figure 2 for the flow paths and flow spread across the site. Please refer to Appendix 1A for the pre-development hydrology map showing the pre-development onsite watercourses. The final pre-development flow rates at the downstream end of the site for the washes being analyzed by this report are shown in Table 5.

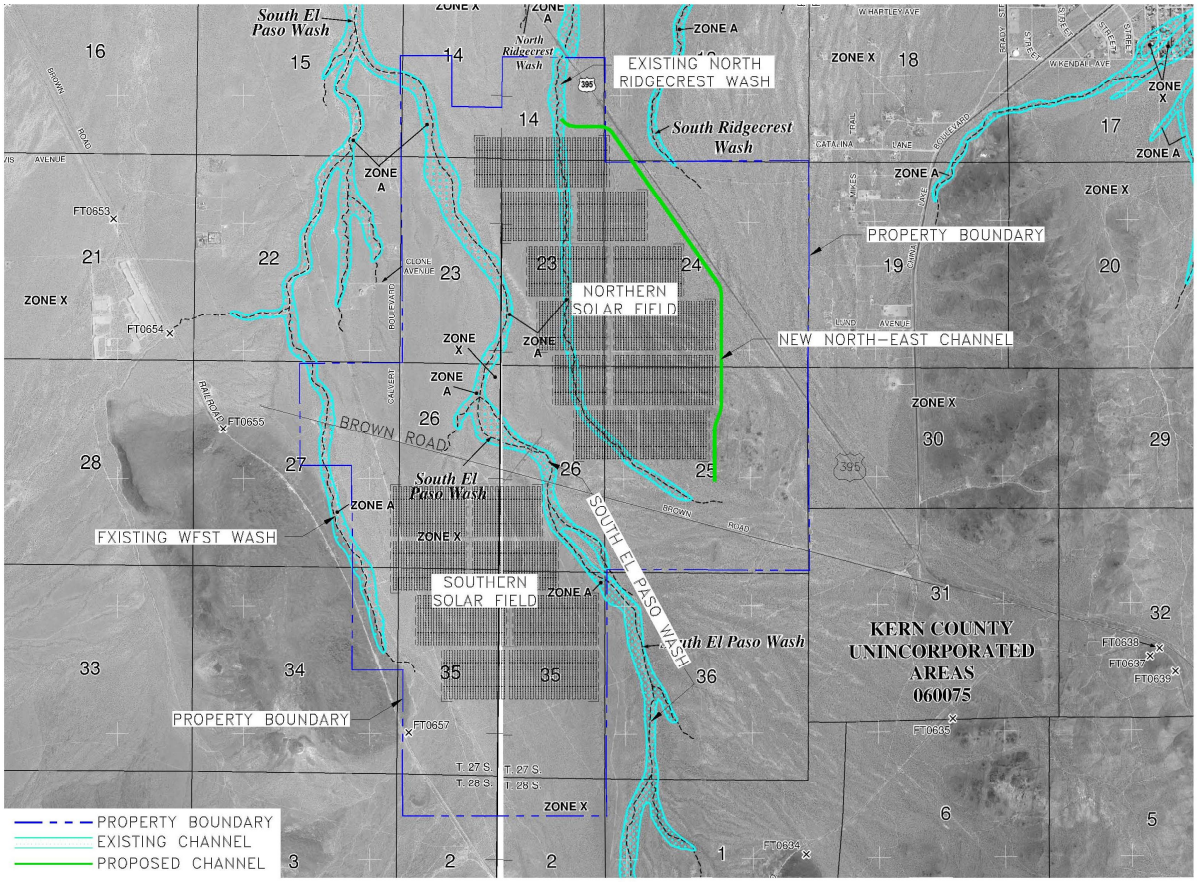


Figure 2: Existing Flow Paths and Proposed Channels

2.2 Pre-Development Hydrology

2.2.1 Precipitation Data

Statistical representation of precipitation data for this study has been obtained from the Kern County Hydrology Manual (KCHM). Sources of precipitation data referred in the KCHM include the National Oceanic and Atmospheric Administration (NOAA) - National Weather Service, U.S. Army Corps of Engineer, U.S. Geological Survey, and other private and governmental cooperative weather observers. Precipitation data include the 100, 10 and 25 year events to illustrate a range of hydrologic conditions, with 10 and 25 year events being the more probable storm events on the site.

Isohyetal maps of point precipitation values for different return periods are provided by Kern County. Digital versions of the isohyetal maps were obtained through the Kern County GIS Online Mapping System for the 100-yr-24-h and 10-yr-24-h. The 100-yr-24-hour point precipitation in the project drainage area ranges from 3.5 inches in the upper part of the catchment to 2.8 inches the lower part of the catchment while the 10-yr-24-hour point precipitation ranges between 2.0 inches and 1.8 inches. The area-averaged precipitation over the studied drainage area for 100-yr-24-h was computed as 3.22 inches and for the 10-y-24-h event was 1.99 inches. KCHM propose an adjustment of the point precipitation values for area of catchments. The areal adjustment for 24-hour events and catchment areas smaller than 20 square mile ranges from 98% to 100% of the average point precipitation (Kern County Hydrology Manual – Figure E-4). A factor of 99% was used in the representative precipitation calculation.

A representative 25-yr-24-h point precipitation was computed for additional illustration of more frequent events. The KCHM methodology was used to estimate the point precipitation value based on the 100 year and 10 year isohyets. The 25-yr-24-h precipitation was estimated as 2.43 inches using the KCHM Figure D-3 (Appendix B) with the area weighted 100-yr-24-h and 10-yr-24-h point precipitation.

Appendix B shows the spatially interpolated precipitation for the project site drainage area for the 100-yr 24-h and the 10-yr-24-h precipitation events, the KCHM areal adjustment guideline, as well as the KCHM rainfall-return period relationship (Figure D-3).

The U.S. Soil Conservation Service (now NRCS), U.S. Department of Agriculture (USDA) in June 1986 Technical Release 55: Urban Hydrology for Small Watersheds recommends a SCS Type II storm pattern for extreme eastern California. Four storm patterns Type I, IA, II and III were developed by NRCS based on geographic regions of the United States and based on the synthetic 24-hour rainfall distributions from available National Weather Service (NWS) duration-frequency data or local storm data. Type IA is the least intense and Type II is the most intense short duration rainfall. This document can be found at:
http://directives.sc.egov.usda.gov

2.2.2 Flood Wave Routing

The Soil Conservation Service (SCS) equation (as outlined in the KCHM – Section E) was used for the lag time calculations. The equation is as follows:

$$Lag(hours) = 24n\left(\frac{L * L_{ca}}{S^{0.5}}\right)^{0.38}$$

Where: L = length of the longest watercourse (miles)

L_{ca} = length of the longest watercourse to a point opposite the centroid of the area (miles)

S = overall slope of drainage area between the headwaters and the collection point (feet per mile)

n = average Manning's "n" for the basin watercourses (estimated from field observations).

0.38 is the regional regression coefficient for Southern California

Catchment overall slope and lengths of the longest watercourse and watercourse to the point close to the centroid were calculated based on USGS digital elevation map. Manning's *n* basin factors were estimated based on visual inspection of collection streams and watershed channels in the drainage area, using guidelines in Kern County Hydrology Manual Figure E-2 (Appendix C).

2.2.3 Loss

SCS loss methodologies were used for the basin loss calculations. This method requires entry of the soil Curve Number (CN). The Curve Numbers for the catchments were selected using guidelines published in the Kern Count Hydrology Manual Section C, including loss rates for desert hydrology. Curve Numbers per soil group (Figure C-2 of the KCHM) can be found in Appendix D. The Natural Resources Conservation Service (NRCS) land use map and the STATGO soils database was used in the selection of the catchments CN values. Soils data available for this study area did not have enough detail for hydrologic group determination; therefore, engineering judgment was used to select a representative combination of hydrologic soil types for the different soil type zones of the study area. The catchment CN computation uses a representative hydrologic soil type, assumed as a prorated combination of potential hydrologic group in each soil type based on typical basin characteristics for the upper and lower parts of the drainage area. Areal averaged CN values were computed for catchments with more that one representative soil type and land use combination.

The initial abstraction (I_a) for an area is a function of land use, treatment, and condition; interception; depression storage; and antecedent soil moisture. An estimate for I_a is given by the SCS as:

$$I_a = 0.2 * S$$

Where: S = basin storage computed as: $\frac{1000}{CN} - 10$

The selection of a curve number for the existing conditions on the project site has been done after using reference information from United States Department of Agriculture Urban Hydrology for Small Watersheds TR-55 and analyzing the soil report provided by Kleinfelder Associates Inc. The soil borings for the project site are provided as part of Appendix 5. As noted by the soils report and evidenced by the soil boring logs, the soil on this site is very dense, highly compacted silt with no real permeability. Compaction of the soil as part of the grading operation is not anticipated to affect the porosity, void ratio, or permeability, inasmuch as the soil is more dense and compact in its current condition than it will be in its finished condition. (Current field densities of the on-site soils indicate the existing soils at a 100% compaction level and during construction the disturbed soils will likely only be compacted to 80% to 95% depending on location and any structural requirements.) In addition, the percolation tests for this site show a very low permeability. The existing site therefore exhibits nearly impervious surface conditions, and the soil type is not changing as a result of earthwork operations. For these reasons, both the pre- and post-development soil loss conditions are considered identical. For the purpose of these calculations an on-site curve number of 95 (CN = 95) has been used.

2.2.4 Catchment Data

Drainage areas were delineated using a 33-ft digital elevation map (DEM) interpolated from the USGS 7.5 minute quad sheet (shown in Appendix E). Catchment delineation was performed following the natural confluences and modeling guidelines Kern County Hydrology manual - Section K, having a minimum lag of 20 minutes, a maximum lag of 2.5 hours and limiting the areas such that the largest area is not more than four times the smallest. The four to one size relationship between the smaller and larger areas is maintained for the most part with exception of cases where consolidating drainage area would result in losing points of interest or would end up in atypical shape catchments. As discussed in section 2.3, CN values were computed using a prorated combination of expected hydrologic soil types in the STATGO soil group and a land use map, assuming *Chaparral* (KCHM Figure C-2) as dominant cover type in the studied drainage area. Sub-basins and prorated hydrologic soil types are shown on the existing hydrology map in Appendix A. Table 1 shows the drainage basin sizes and other hydrologic parameters.

TABLE 6 PRE-DEVELOPMENT HYDROLOGY CATCHMENT DATA							
Sub Basin	Area (mi^2)	Length (mi)	L_{ca} (mi)	Cover	CN	Lag Time (mins)	Initial Abstraction I_a
E1a	4.20	5.03	2.82	Chaparral	80.77	53.12	0.48
E1b	0.15	0.86	0.41	Chaparral	95	13.14	0.11
E2a	0.82	3.34	1.76	Chaparral	90.27	38.38	0.22
E2b	0.45	2.28	0.84	Chaparral	92.03	24.51	0.17
E2c	20.58	7.47	3.42	Chaparral	77.50	71.52	0.58
E2d	0.29	1.48	0.50	Chaparral	94.79	16.02	0.11
E2e	0.06	0.37	0.22	Chaparral	95	7.14	0.11
E2f	0.05	0.44	0.27	Chaparral	95	8.52	0.11
E2g	0.19	2.05	0.88	Chaparral	93.54	22.93	0.14
E2h	0.67	2.16	0.97	Chaparral	95	25.38	0.11
E3a	9.21	6.36	3.05	Chaparral	80.97	62.91	0.47
E3b	0.72	3.44	1.72	Chaparral	92.81	36.77	0.16
E3c	0.65	2.04	1.11	Chaparral	94.74	24.04	0.11
E3d	0.36	2.55	1.51	Chaparral	89.76	29.72	0.23
E3e	0.14	0.85	0.36	Chaparral	95	12.50	0.11
E3f	0.06	0.38	0.17	Chaparral	93.46	6.64	0.14

2.2.5 Reach Parameters

Reach lengths were taken from the USGS National Hydrologic Dataset NHD plus (stream flow lines shown in Appendix A). The Muskingum Cunge method was selected for reach routing. Manning's "n" values for reach routing were established based on field observation using Kern County guidelines (Appendix C). Photographs of representative sections of typical reaches have been included in Appendix F.

The USGS topography used for this study was not sufficiently detailed to show the dimensions of the actual channels in the watershed and field measurements showed a significant range of variation depending on where in the reach they were taken. For these reasons, idealized typical trapezoidal sections were estimated for the steeper and flatter portions of the watershed. A typical section of 20 feet wide with 4:1 side slopes was used for lower reaches and a typical 5 feet wide section with 4:1 side slopes was used for upper reaches. Table 2 presents the reach parameters used in the routing for the respective alignment for existing condition.

TABLE 7 CONCEPTUAL PRE-DEVELOPMENT HYDROLOGY WATER COURSE DATA						
Hydrologic Element	Length (ft)	Slope	n	Shape	Bottom Width (ft)	Side Slope (xH:1V)
R1 (W)	13,827.2	0.010	0.03	Trapezoidal	5	4
R2 (W)	9,253.6	0.011	0.03	Trapezoidal	5	4
R3 (W)	2,963.7	0.010	0.03	Trapezoidal	20	4
R4 (W)	1,940.6	0.016	0.03	Trapezoidal	20	4
R5 (W)	2,326.8	0.014	0.03	Trapezoidal	20	4
R6 (W)	3,205.6	0.012	0.03	Trapezoidal	20	4
R7 (W)	7,842.0	0.009	0.03	Trapezoidal	20	4
R8 (W)	3,676.9	0.006	0.03	Trapezoidal	20	4
R1 (N-E)	18,153.9	0.015	0.03	Trapezoidal	20	4
R2 (N-E)	1,587.7	0.011	0.03	Trapezoidal	20	4
R3 (N-E)	2,256.2	0.012	0.03	Trapezoidal	5	4

These bottom widths are conservative in that the actual channels will be wider and shallower which would lead to a slower velocity.

2.2.6 HMS Program and Runs

Hydrology calculations were performed using USACOE's Hydrological Modeling System (HMS 3.3.0). Documentation and program downloads for HMS 3.3.0 can be found online at: http://www.hec.usace.army.mil/software/hec-hms/documentation.html.

Guidelines provided in the Kern County Hydrology Manual for hydrologic analysis studies using computer models were used in this study, including effective rainfall, catchment delineation and unit hydrograph development. A user defined S graph was implemented in HMS for the unit hydrograph analysis. The selected S graph corresponds to the curve developed for the foothills in the Kern County (Appendix G).

The watershed input parameters for the program can be found in Appendix G.

2.2.7 Pre-Development Hydrology – Results

As discussed in Section 2.1, the USACOE HMS 3.3.0 was loaded with the watershed parameter and reach data and run for the project. Tables 3 through 5 give the resulting offsite and onsite peak flow rates for 10-yr, 25-yr and 100-yr storm depths for the existing

condition. The flow rates and key point locations can be found on the existing condition hydrology map in Appendix A.

The generated flow rates were compared to Caltrans regional regression equations (region 10) in Chapter 810 of the Caltrans Highway Design Manual (HDM). For peak discharges larger than 2000-cfs Caltrans peak discharge showed better correlation than smaller flows, resulting in Caltrans flows within ±20% of the calculated volumes in this study. Figure 819.2D from the HDM can be found in Appendix H.

TABLE 8
PRE-DEVELOPMENT 10-YR ONSITE & OFFISTE FLOW RATES

POST-DEVELOPMENT DESIGN FLOW RATES	Node	Sub Area Flow Rate (cfs)	Time of Peak*	Total Node Flow Rate (cfs)
E1a	11	724.9	12:42	724.9
E1b	13	147.0	12:03	147.0
E2a	21	359.5	12:27	359.5
E2b	23	279.6	12:15	279.6
E2c	25	2,138.1	12:57	2,138.1
E2d	27	257.5	12:06	2,157.7
E2e	28	67.8	12:00	2,401.5
E2f	28	53.7	12:00	2,401.5
E2g	28	135.1	12:12	2,401.5
E2h	30	485.1	12:15	2,447.1
E3a (u/s culvert)	41	1,468.6	12:48	1,468.6
E3a (d/s culvert)	41	15.6	12:48	15.6
E3b	42	378.1	12:24	378.1
E3c	45	478.8	12:12	636.2
E3d	45	174.5	12:18	636.2
E3e	47	143.3	12:03	143.3
E3f	49	64.7	12:00	939.7

**Time of Peak is based on the initial calculation run start time which is 00:00hrs*

TABLE 9 PRE-DEVELOPMENT 25-YR ONSITE & OFFISTE FLOW RATES				
POST-DEVELOPMENT DESIGN FLOW RATES	Node	Sub Area Flow Rate (cfs)	Time of Peak*	Total Node Flow Rate (cfs)
E1a	11	1,139.4	12:39	1,139.4
E1b	13	187.2	12:03	187.2
E2a	21	485.3	12:27	485.3
E2b	23	368.1	12:15	368.1
E2c	25	3,604.6	12:57	3,604.6
E2d	27	328.6	12:06	3,625.4
E2e	28	86.0	12:00	3,948.2
E2f	28	68.3	12:00	3,948.2
E2g	28	175.1	12:12	3,948.2
E2h	30	617.7	12:15	4,005.7
E3a (u/s culvert)	41	2,298.1	12:48	2,298.1
E3a (d/s culvert)	41	18.6	12:48	18.6
E3b	42	495.2	12:24	495.2
E3c	45	612.2	12:12	826.5
E3d	45	237.5	12:18	826.5
E3e	47	182.4	12:03	182.4
E3f	49	83.4	12:00	1,227.4

**Time of Peak is based on the initial calculation run start time which is 00:00hrs*

TABLE 10 PRE-DEVELOPMENT 100-YR ONSITE & OFFISTE FLOW RATES				
POST-DEVELOPMENT DESIGN FLOW RATES	Node	Sub Area Flow Rate (cfs)	Time of Peak*	Total Node Flow Rate (cfs)
E1a	11	1,977.8	12:39	1,977.8
E1b	13	259.0	12:03	259.0
E2a	21	716.1	12:24	716.1
E2b	23	528.2	12:15	528.2
E2c	25	6,681.5	12:54	6,681.5
E2d	27	455.6	12:06	6,721.6
E2e	28	118.5	12:00	7,214.6
E2f	28	94.2	12:00	7,214.6
E2g	28	246.8	12:12	7,214.6
E2h	30	854.0	12:15	7,270.3
E3a (u/s culvert)	41	3,960.5	12:48	3,960.5
E3a (d/s culvert)	41	22.8	12:48	22.8
E3b	42	706.4	12:24	706.7
E3c	45	850.4	12:12	1,169.9
E3d	45	353.6	12:18	1,169.9
E3e	47	252.1	12:03	252.1
E3f	49	116.9	12:00	1,745.3

**Time of Peak is based on the initial calculation run start time which is 00:00hrs*

The generated flow rates were compared to Caltrans regional regression equations in Chapter 810 of the Caltrans Highway Design Manual (HDM) and showed good correlation. Figure 819.2D from the HDM can be found in Appendix 1H.

3. POST DEVELOPMENT HYDROLOGY

3.1 Post Development Flow Patterns

3.1.1 Offsite Flow Patterns

The proposed solar field improvements will not change the existing upstream offsite drainage patterns. The existing downstream drainage patterns and flow rates will be slightly changed due to minor changes in contributing drainage areas and times of concentration. The earth disturbing activities will minimize impact to the existing channels to the extent possible.

3.1.2 Onsite Flow Patterns

The proposed drainage modifications to this site seek to replicate the existing flow patterns as nearly as possible. There are three primary washes that receive flow from the pre-developed site and these washes were analyzed for both the pre and post development condition. The post-development condition of the site deals with the drainage in each wash in a different method depending on its location relevant to the proposed site.

- The Westerly Wash (located in the southwest corner of the south solar field) remains nearly unchanged in the pre versus post-development condition. The storm water in this wash requires only a slight diversion from its current flow path as a result of the site, and the flow rate is maintained in the post development condition. This diversion is accomplished by installation of cut-off dike at the south end of the south field, re-directing the water slightly to the west, which keeps the storm water from draining into the solar field. This method of drainage diversion was preferred by the BLM rather than collecting the water into a man-made channel and then discharging into the existing wash at a downstream location.
- The El Paso Wash (the existing large wash in the center of the site) remains relatively undisturbed. The mainstream bed is neither modified nor channelized in the post-development condition. The side-slopes (banks) are also left undisturbed by the proposed project. The only disturbance to this existing wash from the proposed site is at the locations where drainage from the solar site is directed into this channel. There are eight locations along the course of the El Paso Wash where drainage is discharged into the wash. The location and number of connections to the El Paso Wash were designed to spread the flow back into the channel in small increments, reflecting the existing drainage patterns into the wash. The flows at these connection points are shown on pages 1-3 of Appendix 2A.
- The North-easterly channel was designed to intercept the small localized flows east and southeast of the north solar field prior to their entry to the site and convey them in a natural re-aligned channel to approximately the same location where their combined flow currently exits the site under existing conditions. This new channel is designed using native material with 3:1 side slopes. The proposed channel was designed to maintain flow velocity below five feet per second in order to prevent soil erosion in the

bottom and side slope of the channel. To accomplish this, a series of grade drop structures have been added to this channel.

Onsite flows inside the proposed solar fields are initially directed to small shallow swales located between solar collector loops which run parallel to the loops. The spacing of the swales was designed to prevent runoff from concentrating and creating erosion concerns on the side slope of the swales. These swales function as a sediment trap and minor infiltration areas before discharging to collector channels that flow perpendicular to the solar collector loops. These collector channels then flow to a storm drain system or a secondary collector channel within the solar field prior to connection to a diversion channel adjacent to the field. Onsite flows are ultimately directed to the El Paso Wash or to a tributary wash, just as the existing stormwater from this site is directed to these existing washes. The post-development onsite and offsite flow rates and velocities are approximately equivalent to pre-development conditions.

The LIDAR survey shows substantial vertical drop across the site from south to north. Because of this, elevation change, a series of soil cement drop structures have been incorporated into the Northeast Channel to maintain a non-erosive flow regime. Because the solar arrays are essentially flat, the site must be stepped between arrays in order to follow the elevation change. The drop structures in the East Channel are designed to generally correspond to the total terracing drop across the arrays of the solar fields. Additionally, drop structures have been added to the eight small discharge channels prior to connecting the on-site flows to El Paso Wash to avoid scour.

3.2 Post Development Hydrology

3.2.1 Precipitation Data

For detailed discussion of precipitation data refer to Section 2.2.1.

3.2.2 Flood Wave Routing

For detailed discussion of precipitation data refer to Section 2.2.2.

3.2.3 Loss

As stated in Section 2.2.3, SCS loss methodologies were used for the basin loss calculations. This method requires entry of the soil Curve Number (CN). The Ridgecrest site area is listed as NOTCOM (not complete) on the NCRS Web Soil Survey site so there is no soil mapping available for the site. For this reason a soil CN of 95 was chosen for the onsite areas from TR-55, Table 2-2d of TR-55 for *Desert Shrub,* coupled with information from the on-site soils investigation performed by Kleinfelder. The project site materials are substantially silts with minor amounts of sand. See the report entitled *Preliminary Geotechnical Investigation Report Solar Millennium*

Concentrating Solar Power Project, Ridgecrest, Kern County, California by Kleinfelder, August 26, 2009 and Appendix 5 for more details on the site materials. Due to its relatively uniform dense silty composition, re-grading of this material will not negatively affect its permeability characteristics because the small void spacing between the silt particles will remain the same for both pre- and post-compaction. In fact, the density in the post-development condition will actually be less than the pre-development condition, leading to a slight betterment in permeability. This condition is the result of the very high density (100%) of the existing in-place soil. The site earthwork grading has been designed to balance in order to prevent offsite materials from being brought onto the site thereby changing the hydraulic conductivity of the in-situ material. For these reasons, very little change in the total volume of water delivered down-gradient is anticipated.

Where required, a biodegradable dust control palliative will be used so that it will not have an impact on the infiltration capacity of the soil. The initial abstraction (I_a) was developed using the method described in Section 2.2.3. A discussion relating the existing CN number to the proposed number is shown in Section 2.2.3 of this report. Table 2-2d can be found in Appendix 1C.

3.2.4 Catchment Data

The proposed improvements do not change the conditions upstream of the project site. For detailed discussion of offsite catchment data refer to Section 2.4. Table 6 shows the revised drainage basin sizes and other hydrologic parameters as they would exist in the proposed condition. The catchments for proposed hydrology, node locations and spatially varied CN can be found on the proposed condition hydrology map in Appendix 2.

3.2.5 Reach Parameters

For detailed discussion of reach parameters refer to Section 2.5. Table 7 presents the conceptual reach parameters used in the routing for the respective alignment for proposed condition.

TABLE 11
ONSITE CHANNEL GEOMETRICS

Hydrologic Element	Length (ft)	Slope	n	Shape	Bottom Width (ft)	Side Slope (xH:1V)
Swales	1300	.0015	0.03	Triangular	N/A	Varies
Primary Collector Channels	Varies	0.0015 To 0.0188	0.03	Trapezoidal	8	2, 4
Secondary Collector Channels	Varies	0.0010	0.03	Trapezoidal	10	2, 2 or 4

3.2.6 HMS Program and Runs

For detailed discussion refer to section 2.2.6. The watershed input parameters for the program can be found in Appendix 2B.

3.2.7 Post Development Hydrology – Results

As discussed previously, HMS 3.3.0 was loaded with the watershed parameter and reach data and run for the project. Table 15 below gives the resulting peak flow rates for 10-year, 25-year and 100-year storm depths for the critical outlet points for the site. The flow rates and node locations can be found on the post-development onsite hydrology map in Appendix 2A.

TABLE 12
POST-DEVELOPMENT DESIGN FLOW RATES AT OUTLETS

Hydrologic Element	10-Year	25-Year	100-year
West Wash	788.0	1,239.2	2,148.8
El Paso Wash	2,383.9	3,890.1	7,048.6
North-East Channel	787.5	1,056.7	1,566.5

The flow rates generated are peak flow rates that represent storm flows generated by large infrequent rainfall events. Because they are generated by short intense thunderstorms these peak flows rates will only last one or two hours. The flows are generated by the on and off-site drainage areas and are routed through the site in swales or collector channel which convey the flows to the main diversion channels.

In order to analyze whether the proposed improvements have a significant impact on the downstream watercourses, the pre- and post-development flow rates were compared. Table 16 below shows the pre- and post-development peak flow rates.

TABLE 13 PRE- AND POST-DEVELOPMENT PEAK FLOW RATES		
Watercourse	Pre-Development 100 Year	Post-Development 100 year
West Wash	1,977.8	2,148.8
El Paso Wash	7,270.3	7,048.6
North-East Ch.	1,745.3	1,566.5
Watercourse	Pre-Development 25 Year	Post-Development 25 Year
West Wash	1,139.4	1,239.2
El Paso Wash	4,005.7	3,890.1
North-East Ch.	1,227.4	1,056.7
Watercourse	Pre-Development 10 Year	Post-Development 10 Year
West Wash	724.9	788.0
El Paso Wash	2,447.1	2,383.9
North-East Ch.	939.7	787.5

As stated in Section 1.4, the offsite upstream flow rates do not change in the proposed condition. However the resultant downstream off-site flow rates change slightly.

As discussed in the executive summary, the changes in peak flow rates in the three washes analyzed by this report are attributed to the difference in time of concentrations between the existing condition and the proposed condition and slight shifting in contributing drainage areas from the existing to the proposed condition. In the existing condition the flows are sheeting across the desert more directly and more rapidly (due to slope) resulting in a shorter time of concentration. In the proposed condition the onsite flows are routed to very flat swales (s=0.15%), then to collector channels, then to secondary channels; the total length which is longer than the existing flow-paths and results in a longer time of concentrations for the proposed condition compared to the existing condition. This change in time of concentration results in changes in peak flows. Depending on the shape and characteristics of the drainage area, the peak flows can increase or decrease according with the timing of the proposed off-site and on-site peaks. For a detailed proposed hydrology map refer to Appendix 2.

In general, there is good correlation between the pre- and post-development peak flow rates showing that the site does not have significant impacts downstream. Although the proposed swales and collectors have flatter slopes that the existing ground, the difference in on-site times of concentration appears to have little influence on the peak flow rate. This is due to the predominance of the flows being generated by offsite watersheds which remain unchanged.

All the flows listed above were calculated by using the US Army Corps of Engineers HMS hydrology program discussed herein. A single method for both was used in order to be able to compare the results.

3.2.8 Power Block Drainage

A variety of areas in the power block will be paved or will be considered impervious. However, this area is less than 1% of the total site area, so the hydrologic impacts are minor. The power block represents the highest use area of the site and can be expected to generate such pollutants as oil and grease, hydrocarbons and trash. Because of the need for storm water filtration, treatment is being proposed to capture and treat all flows off the block. This will consist of a mechanical filter, Stormceptor or other device, which will capture the major pollutants. The filter will outlet to an onsite drainage channel. The flows are not detained onsite because the flows from the power blocks do not have a detrimental effect on the flows leaving the site. Cleanliness of the power block is important from a "good housekeeping" perspective and for safe operation of the power generation equipment. Because of these requirements, the power block site will have a spill containment and clean-up plan which will further reduce the likelihood of pollutants exiting the power block area.

4. CHANNEL HYDRAULICS

4.1 Methodology

Hydraulic calculations were performed using the USACE's Hydrologic Engineering Centers River Analysis System (HEC-RAS 4.0). Documentation and program downloads for HEC-RAS 4.0 can be found online at: http://www.hec.usace.army.mil/software/hec-ras/index.html.

4.2 Channel Geometrics

To maximize the amount of useful land that can be utilized to generate solar energy as well as provide adequate protection to the solar array foundations, diversion channels have been proposed in some locations to route the offsite tributary storm flows along the eastern portion of the project site. Runoff from the site also has to be efficiently transferred offsite and a system of swales, collector channels, and secondary channels have been developed to also maximize the space available on site for generation of solar energy.

The following considerations were used to develop the proposed cross sections for the channels.

- Bottom Width (b) – The channel bottom widths were set to promote relatively shallow flows. This was done to minimize erosive forces and to shorten the daylight length required at the downstream end of the channel.
- Side Slope (Z) – The side slopes of the diversion channel banks were set at 3:1 to insure slope stability, reduce toe erosion, and to allow for ready maintenance access to all points on the channel.
- Manning's Roughness Coefficient – Due to the silty nature of the existing soils and the sparse vegetation, a Manning's "n" of 0.030 was selected.
- Slope – The slope was set by the horizontal alignment through the site, the slope of the ground under the arrays, the size of the steps between the array pads, and the existing ground lines at the upstream and downstream ends of the channel.

Table 17 below gives the geometric parameters for the primary washes and collector channels that will convey off-site water around or through the site.

TABLE 14 MAIN CHANNEL GEOMETRICS						
Channel	100-Year Design Flow Rate (cfs)	Slope	n	Shape	Bottom Width (ft)	Side Slope (xH:1V)
North-East Channel	1,541.4	0.020 To 0.081	0.03	Trapezoidal	45	3
Secondary Collector Channels	-	0.001	0.03	Trapezoidal	10	2, 2 or 4
Primary Collector Channels	-	0.0015 To 0.0188	0.03	Trapezoidal	8	2, 4

4.3 Drop Structure Hydraulic Analysis

Because of the fall across the site, drop structures are proposed to maintain non-erosive velocities through the diversion channel. The drop structures allow the channel bed between the structures to have minimal slope. To determine the anticipated velocities in the proposed diversion channel design, a mixed flow regime was used in HEC-RAS. The mixed flow command combines the development of both subcritical and super critical flows in the output file. A profile and a mixed flow HEC-RAS output file of the diversion channels are shown in its entirety in Appendix 4. Tables 18 - 20 below summarize the velocity ranges within the Northeast Channel between successive drop structures.

TABLE 15 10-YEAR VELOCITY RANGES IN CHANNEL	
North-East Channel	1.02 to 5.89 ft/sec

TABLE 16 25-YEAR VELOCITY RANGES IN CHANNEL	
North-East Channel	1.26 to 6.63 ft/sec

TABLE 17 100-YEAR VELOCITY RANGES IN CHANNEL	
North-East Channel	1.63 to 8.41 ft/sec

In addition to the channel bed analysis, a mixed flow regime within HEC-RAS was used to model the proposed drop structures. The geometry of the proposed drop structures will produce a Froude number from which the appropriate type of energy dissipation structure can be selected.

Design guidance for drop structures and stilling basins is provided from the Federal Highway Administration, Hydraulic Design Series, HEC 14 – Hydraulic Design of Energy Dissipaters for Culverts and Channels[1]. The concept for each drop structure is to have a longitudinal slope of three feet horizontal to one foot vertical to allow for desert tortoise longitudinal access within the channel. Based on that drop geometry, the drop structures produce a Froude number that varies approximately between 4.0 and 13.0 at the toe of the drop, depending on the channel and the flow. From HEC 14, it is recommended that either a U.S. Bureau of Reclamation (USBR) Type IV basin or Saint Anthony Falls basin be utilized for Froude numbers in this range. The specific type of basin will be determined in final design phase. A HEC-RAS generated water surface profile, along with the critical water surface and energy grade lines for the diversion channel are shown in Appendix 4. Hydraulic calculations for the drops and a profile are shown in the HEC-RAS output file, also located in Appendix 4.

From the HEC-RAS profile, it is apparent that the basin quickly dissipates super critical flow into subcritical flow within the stilling basin. The initial HEC-RAS analysis shows that the super critical flows occur at the drop structures only. Moreover, the conceptual design of the drop structures has shown those flows to be contained entirely within the stilling basin. In addition to having a three horizontal to one vertical drop, each structure will have a stilling basin and end sill to "break head" under high flow conditions. A conceptual plan and typical section of the drop structure and stilling basin are shown in Appendix 5.

4.4 Brown Road Crossing

El Paso Wash currently drains across Brown Road as an "Arizona" type roadway drainage crossing. There is a second small tributary to El Paso Wash approximately 2,000 feet west of the primary channel that also drains across Brown Road as an "Arizona" type crossing. These Arizona crossings are intended to remain undisturbed as part of this project.

4.5 Pipe Bridge at El Paso Wash

The proposed project has been designed as a 'split solar field'. This 'split solar field' results in the need to cross the El Paso Wash with pipes carrying the heat transfer fluid between the south solar field and the power block. There are two 60 inch pipes (36 inch carrier pipe and 12 inch insulation jacket) that will cross the El Paso Wash on an elevated pipe bridge located immediately south of the power block as shown on the site plan and the concept bridge plan in Appendix 5. This pipe bridge is intended to be a steel girder structure supported on 5 foot

[1] http://www.fhwa.dot.gov/engineering/hydraulics/pubs/06086/

diameter concrete piers. The structural arrangement of the piers is shown on the concept bridge plan. The pier location and support configuration is a function of the need for expansion loops associated with the heat transfer pipes. The bridge was designed to minimize the number of piers located within El Paso Wash while at the same time accommodating the structural design criteria for the pipeline.

The hydraulic analysis of El Paso Wash in the post development condition incorporated this pipe bridge and the associated pier arrangement. The analysis also incorporated provisions for debris loading in accordance with the Kern County design criteria. The elevation of the bridge is primarily driven by the need to provide a straight line connection between the existing grades on the south and north sides of the El Paso Wash. The water surface elevation of the 100 year flow in the El Paso Wash at the location of the bridge crossing is 2680.9 (upstream edge) and the elevation of the low steel of the bridge is estimated to be 2683.74 at the south end of the bridge and 2693.71 at the north end of the bridge. The water depth for the 100 year flow at this location varies across the width of the channel, but is generally 3.5 to 4.6 feet deep.

The pipe bridge as conceptually designed is not anticipated to have any noticeable downstream effects, and there is a minimum of 2.84 feet of freeboard between the 100 year flow and the bridge. The water velocities in the area of the piers are anticipated to be 4.7 to 9.1 fps. These velocities may have some local scour affect. Provisions will be made as part of the final design to mitigate these velocities by using soil cement in the area of the piers.

4.6 Channel Hydraulic Analysis

The channel hydraulic characteristics used for analyzing each of the proposed drainage channels/washes is noted below. Tables 13 though 15 give a summary of representative channel hydraulic characteristics for 100-yr, 10-yr and 25-yr storm events based on the selected geometry and physical characteristics of each channel/wash reach.

TABLE 18
10-Yr CHANNEL DESIGN & HYDRAULICS SUMMARY
(See Appendix I for Channel Locations)

Watercourse	Existing Flow Rate at the Outlet of the Site (cfs)	Proposed Flow Rate at Outlet of the Site (cfs)	Average Channel Depth (ft)	Average Flow Depth (ft)	Average Channel Velocity (ft/s)	Average Top Width (ft)	Channel Length (ft)
El Paso Wash	2,447.1	2,383.9	N/A	2.42	5.45	394.3	2,1477
Ridgecrest Wash/N-E Channel	939.7	787.5	10	3.41	3.08	68.81	1,2962
West Wash*	724.9	788.0	N/A	N/A	N/A	N/A	N/A

TABLE 19 25-Yr CHANNEL DESIGN & HYDRAULICS SUMMARY							
(See Appendix I for Channel Locations)							
Watercourse	Existing Flow Rate at the Outlet of the Site (cfs)	Proposed Flow Rate at Outlet of the Site (cfs)	Average Channel Depth (ft)	Average Flow Depth (ft)	Average Channel Velocity (ft/s)	Average Top Width (ft)	Channel Length (ft)
El Paso Wash	4,005.7	3,890.1	N/A	2.88	6.22	463.91	2,1477
Ridgecrest Wash/N-E Channel	1,227.4	1,056.7	10	3.82	3.52	72.59	1,2962
West Wash*	1,139.4	1,239.2	N/A	N/A	N/A	N/A	N/A

TABLE 20 100-Yr CHANNEL DESIGN & HYDRAULICS SUMMARY							
(See Appendix I for Channel Locations)							
Watercourse	Existing Flow Rate at the Outlet of the Site (cfs)	Proposed Flow Rate at Outlet of the Site (cfs)	Average Channel Depth (ft)	Average Flow Depth (ft)	Average Channel Velocity (ft/s)	Average Top Width (ft)	Channel Length (ft)
El Paso Wash	7,270.3	7,048.6	N/A	3.53	7.46	539.99	2,1477
Ridgecrest Wash/N-E Channel	1,745.3	1,566.5	10	4.45	4.18	78.50	1,2962
West Wash*	1,977.8	2,148.8	N/A	N/A	N/A	N/A	N/A

*The West Wash will be diverted as overland flow per compliance with BLM guidance and as such there are no channel dimensions or characteristics available

A detailed hydraulic analysis of the on-site swales, solar field collector channels, and minor channels in the solar sub-fields was not performed at this time since this report was not developed to that level of detail. The hydraulics for these channels will be developed during later design efforts.

The channels will be designed with 3:1 side slopes to help mitigate the erosion of the banks rather than designing them with a 2:1 side slope. Channels will be constructed with native material, and erosion control for the 100-year event is proposed for the channels stress areas, as defined in Kern County, California, Division Four, Standards for Drainage. A stress area is defined as a location where the erosion potential is greater than a straight, uniform channel reach, and includes junctions, transitions and curves. The extent of the channel bank

protections will be at least a distance equal to ten (10) times the design water depth[1] and will be extended into the channel bottom to provide for potential bottom scour. Stress areas with erosion potential in the proposed channel/washes include: (1) major changes of direction in proposed channel, (2) junctions where solar field collector channels drain to the natural channels, and bridge piers located in natural washes. No scour protection is proposed for the channel bottom in the straight sections of the channel. This is to allow the low flows to meander across the bottom replicating as nearly as possible the flow regimes under current conditions.

Further guidance for protection of transitions in size or shape will be provided by EM 1110-2-1601[2] and the Hydraulic Design Criteria (HDC) 712-1. HDC 712-1 provides guidance for the selection of protective measures using the Isbash Theory[3]. The Isbash theory (commonly used in Kern County Hydrology) and Caltrans Chapter 870[4] will be used for energy dissipation and in areas of transition.

The outfall (downstream) end of the East Channel as well as the outfall for the seven minor secondary collection channels will be established such that flow is returned to the down stream offsite condition as close as possible to that which existed prior to the project. At the improved channel to natural channel connections the flow velocity in the proposed secondary channel will be reduced by widening the cross section and using soil cement slope protection and channel aprons at the point of discharge to the existing channel to minimize erosion.

4.7 Downstream Effects at El Paso Wash

The Master Drainage Plan for the City of Ridgecrest, published May 1989 was reviewed in conjunction with this report. The Master Drainage Plan study area did not go outside the City limits or south of Hwy 395 in the area of the solar project site. It did acknowledge the flows from this area that contribute water to the overall drainage basins of El Paso Wash and Ridgecrest Wash. However, the evaluation in the project area was limited to establishing drainage boundaries and flow volumes from this area and did not address any control measures or drainage improvements that were required. The focus of the Master Plan was to establish a series of drainage improvements and priorities inside the city limits that could be instituted by the City for management of drainage flows. Drainage control measures outside the city limits were not addressed, and as such the project site was not referenced in any way for control measures.

[1] Kern County, Division Four Standards for Drainage, *https://www.co.**kern**.ca.us/ESS/DEV_STDS/**DIVISION**_FOUR.pdf*

[2] Engineering and Design - Hydraulic Design of Flood Control Channels. Publication Number: EM 1110-2-1601. Proponent: CECW-EH-D, June 1994.

[3] Hydraulic Design Criteria 712-1, Stone Stability, September 1970

[4] CalTrans Highway Design Manual, Chapter 870, Channel and Shore protection - Erosion Control, September 1, 2006

The hydraulic effect of the proposed solar project on El Paso Wash is considered nominal. The hydraulic analysis performed by this report has calculated that the peak flow in the El Paso Wash will be lower in the post-development condition than in the pre-development condition. This determination is driven by multiple aspects of the project as noted below.

- The streambed and side slopes of El Paso Wash remain undisturbed by the project and the flows from off-site continue to pass through the site undisturbed and unchanged.
- The El Paso Wash will not be re-channelized or re-directed.
- The pre and post development soil conditions on site remain basically the same. The pre-development soil is nearly impervious and the post development grading does not change this condition because the soil type for the site is very consistent across the site. In addition, the pre-development soil is at its maximum density throughout the site (100% compaction level) and the post-development condition will actually result in less density (80% to 95% compaction level) depending on site location and structural requirements. The run-off from the pre-development versus post-development will actually be slightly less.
- The post-development soil cover is approximately 99.4% consistent with the pre-development soil cover.
- The on-site flows within the solar field will have a longer flow path associated with their flow compared to the existing condition. The run-off from the pre-development versus post-development will actually be slightly less.
- The on-site flows within the solar field will have a longer time of concentration associated with their flow compared to the existing condition. The run-off from the pre-development versus post-development will actually be slightly less.

The pre-development and post-development flows for the 10, 25, and 100 year storm event in El Paso Wash are noted above in Tables 18 to 20.

In general, there is good correlation between the pre- and post-development peak flow rates showing that the site does not have significant impacts downstream. All the flows listed in Tables 18 to 20 were calculated by using the US Army Corps of Engineers HMS hydrology program. A single method for both pre-development and post development was used in order to be able to compare the results. In fact, the flow in the main portion of El Paso Wash is 221 cfs less in the post-development condition than in the pre-development condition. A portion of this flow difference (171 cfs) is attributable to a minor diversion of water from El Paso Wash into the West Wash. The West Wash connects to the main El Paso Wash approximately 1,500 feet northwest of the proposed site so the flow comparison of the pre-development versus post-development at this point would show that there is a 49 cfs reduction (0.5%) of flow in the post-development condition to El Paso Wash downstream of the project site.

5. SEDIMENT TRANSPORT

5.1 Sediment Production

The proposed project site is located within the broad geological basin of El Paso Wash and its associated tributary drainages. The natural geomorphic processes of the drainage basin were interrupted by the construction of the U.S. Highway 395 east and south of the project site and the Southern Pacific Railroad spur track located west and south of the project site. Flows from the upstream canyons were directed to a number of bridge crossings and culvert crossings associated with the highway and the railroad. The result of these modifications has created a number of changes to the flow regimes and associated sediment transport in the basin.

There are three primary drainage washes that flow adjacent to or through the site. Two of these washes, El Paso Wash and an un-named wash to the west/southwest of the site, have been almost completely avoided and there are only minimal impacts at drainage connection points to these washes. As such, the sediment transport in these washes also remains unaffected by this project. The other drainage wash that passes through the site will be re-routed around the east side of the site, but due to upstream conditions (the construction of Highway 395 in the 1930's) the flow in this wash is limited to the flow equivalent of a 24 inch culvert and thus the sediment transport in this wash is minimal in its pre-development and post-development condition.

A brief summary of these primary drainage washes is noted below:

The un-named wash that passes through the southwest corner of the project site is a very shallow ephemeral wash migrating in a northwesterly direction. The proposed project will slightly divert this channel by construction of a low barrier dike. This dike will allow the water to maintain its overland flow type condition without being channelized. This minor diversion is relatively short (approximately 2000 feet), and as proposed, the sediment transport characteristics of this shallow ephemeral wash will remain relatively undisturbed.

El Paso Wash passes through the site, but it will not be re-channelized, the channel bottom will remain undisturbed except at the areas noted below, the side slopes and banks will not be disturbed, and the flow in the channel will remain undisturbed. The very small areas of disturbance consist of the pipe bridge pier locations and eight minor drainage channel connections conveying drainage water from the solar fields. At these locations, the channel bottom will be protected by use of soil cement to mitigate scour potential. Inasmuch as this wide, heavily incised drainage wash will not be disturbed by channel modifications or flow modifications, the post-development sediment transport conditions in the channel remain similar to the pre-development conditions.

The un-named wash east of the site that passes beneath U.S. Highway 395 by way of a 24 inch culvert conveys a very low volume of flow toward the site and the pre-development velocities across the site are very low. The water from this un-named wash is proposed to be re-routed to a new channel on the east side of the project. This existing low volume, sheet flow condition has limited ability to convey sediment, and field review of the site confirms that the only sediments mobilized onsite are confined to shallow 1-2 inch scour rills. Because of the small flow in this wash and due to the lack of evidence of sediment volumes moving through and downstream of the culvert crossing Highway 395, sediment transport through the site is not a factor in the re-routed channel design. In the event of a major storm, greater than a 100 year flow, some sediment may get transported into the East Channel. In this case, the sediment is anticipated to be deposited in the stilling basins of the drop structures and will not migrate off-site. Any sediment that is deposited in these areas will be removed in accordance with the channel maintenance program discussed in Section 6 of this report.

5.2Scour

Drop structures have been implemented into the East Channel design to dissipate erosive energy in the stilling basins. These structures allow for a flat channel gradient, which reduces the 10-year velocity to an average of 3.08 fps and average depth of 3.4 feet.

Chow's *Open Channel Hydraulics* (1959) gives a range of permissible velocities for fine or course gravel between 5.0 and 6.0 feet per second so in general, velocities in the above range are considered non-erosive and channel scour is not anticipated. However, there may be minor pockets were local eddies create localized scour under high flow conditions. These pockets will be filled during the recession leg of the hydrograph by the few minor sediments moving through the system. The main channel side slopes have been set at 3:1 to allow for minor erosion of the toe of slope without adversely affecting the side slope stability. Any erosion of the slope or cutting of the toe will be corrected with monthly maintenance as discussed in Section 6 of this report.

A low flow thalweg will be allowed to develop in the channel as part of the design to provide some sense of the natural channel. This low flow thalweg may meander to a point of contact with the channel side slopes and cause minor erosion. If this occurs, the low flow channel will be redirected back into the center of the channel as part of the maintenance program identified in Section 6 of this report.

Due to the site grading, there are certain locations on the site where the potential for scour is more likely and will be protected with soil cement:

- Bends – The major channel bends will be protected by soil cement on the banks to prevent lateral migration of the channel.
- Minor Channel Outlets – Where the minor onsite channels junction with the main channel, soil cement and/or headwalls will be implemented to insure that the minor channel flows do not erode the main channel banks. Where applicable, the minor

channels will be provided with a drop structure into the main channel to reduce the potential for scour.

- Solar Field Barrier Dikes – The south side of the project site has been elevated 2'-3' above the existing grade to protect the project from any off-site flooding or drainage. The embankment slopes along this south side will be protected with soil cement where side slope velocities exceed 5 ft/sec in a 10 year storm. The flows in the existing ephemeral washes that are intersected by the south side edge of the site can be redirected laterally along the embankment to the westerly channel.

6. CHANNEL MAINTENANCE

6.1Purpose and Objectives

The purpose of this project is to provide for the maintenance of the engineered channels through and adjacent to the site. The objectives are to meet the channel's original design geometry to provide flood protection, support mitigation, protect wildlife habitat, and provide a wildlife movement corridor.

6.2Guidelines for Maintenance

6.2.1 Acceptable Conditions

The engineered channels shall be kept relatively free of impediments to flowing water, the original design geometry of the channel cross section shall be maintained, erosion/scour damage to side slopes and channel bottoms shall be kept at a minimum, and vegetation/weeds shall be managed.

6.2.2 Repairs

In stream repairs shall be promptly made to repair eroding banks and drop structures, erosion at storm drain outfalls, fences, including Desert Tortoise fences, incising toes of slopes and scoured channel beds. Trash and loose debris shall be collected, at minimum, on a monthly basis. Access roads adjacent to the channels shall also be maintained as necessary to allow continuous monitoring of the channels. At a minimum, repairs and/or management actions need to be implemented when the problem 1) causes or could cause significant damage to the project, adjacent property, or structural elements of the channels, 2) is a public safety concern, or 3) negatively affects adjacent plant communities or poses a hazard to wildlife.

6.2.3 Monitoring Standards

- Schedule

  All channels shall be monitored for compliance with the below listed standards on a monthly basis by an experienced site maintenance individual acceptable to the Compliance Project Manager. The channels shall also be inspected by this individual after any significant rainfall event such that the channels are maintained in an acceptable condition as noted above.

- Sediment

  The channels shall be provided with monitoring poles to gage the amount of sediment deposited within the main channel. The poles shall be set at quarter mile intervals along the length of all constructed channels. At each quarter mile location, the poles shall be set at the center of the channel.

- Vegetation/Weeds
  It is anticipated that vegetation or weed control would not be of concern until such time as the vegetation exceeds 8" to 10" in height. Noxious weeds shall be removed when as they appear. Massed groups of vegetation in the channels shall be thinned to prevent blockage of the stormwater flows.

- Debris
  The engineered channels shall be inspected monthly, and all trash and loose debris shall be collected and disposed of in a proper manner. Special attention must be paid at fence crossings of the channels.

- Erosion/scour
  Erosion and scour may be a continuing problem in the desert environment. Prompt action shall be taken when signs of erosion and scour first appear before they become major repairs. In addition to the monthly inspections of the channels, inspections shall be made after any significant rainfall event.

6.3 Reporting

A Status Report for maintenance activities of significance in any 30 calendar day period is to be submitted to the Compliance Project Manager at least 15 calendar days prior to undertaking the maintenance. Activities of significance are defined as: 1) sediment removal exceeding 500 cubic yards, 2) weed or vegetation eradication covering more than five gross acres, 3) debris removal exceeding 100 cubic yards, and 4) erosion/scour remediation exceeding 500 cubic yards of new material. An initial report will be prepared indicating the extent of the planned maintenance activity, location on the site, projected starting and completion dates, and the disposal method/location for any material being removed from the channels. A final report, which summarizes the final extent of the maintenance undertaken, will be submitted to the Compliance Project Manager within 15 calendar days of completion of the maintenance activity.

An Annual Report of Maintenance Activities is to be submitted to the Compliance Project Manager by January 31st of each year. The Annual Report shall discuss the maintenance activities undertaken on each of the three channels. The report shall include for each channel: 1) an evaluation of the condition of the channel for each monitoring standard, 2) a summary of Status Reports, and 3) an estimate of planned maintenance activities for the next year including activities of significance. In addition, ground and or aerial photos should be included to illustrate the state of the channels.

APPENDIX 1

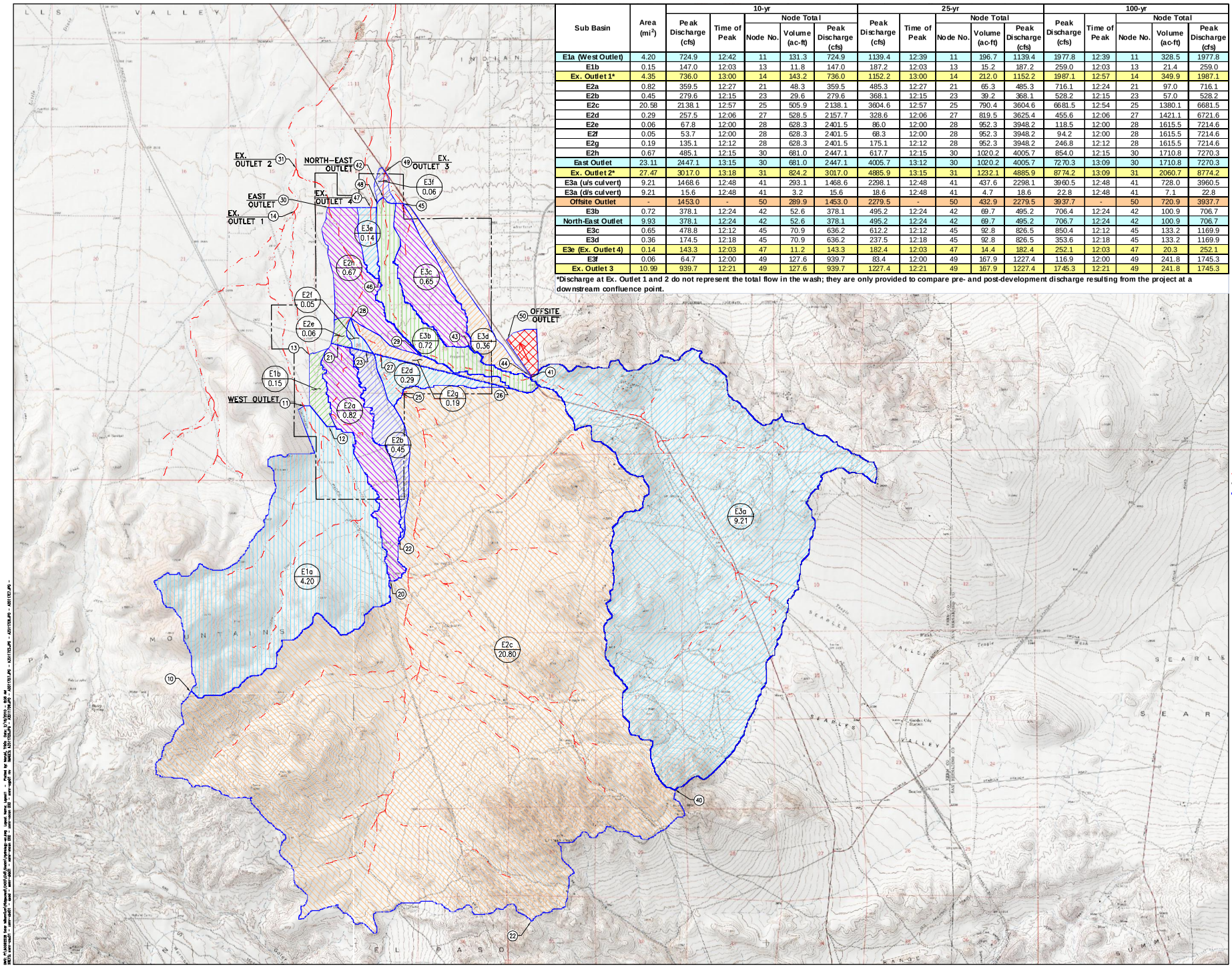
Existing Hydrology

APPENDIX 1A

Pre-Development Hydrology Map

Sub Basin	Area (mi^2)	10-yr					25-yr					100-yr				
		Peak Discharge (cfs)	Time of Peak	Node Total			Peak Discharge (cfs)	Time of Peak	Node Total			Peak Discharge (cfs)	Time of Peak	Node Total		
				Node No.	Volume (ac-ft)	Peak Discharge (cfs)			Node No.	Volume (ac-ft)	Peak Discharge (cfs)			Node No.	Volume (ac-ft)	Peak Discharge (cfs)
E1a (West Outlet)	4.20	724.9	12:42	11	131.3	724.9	1139.4	12:39	11	196.7	1139.4	1977.8	12:39	11	328.5	1977.8
E1b	0.15	147.0	12:03	13	11.8	147.0	187.2	12:03	13	15.2	187.2	259.0	12:03	13	21.4	259.0
Ex. Outlet 1*	4.35	736.0	13:00	14	143.2	736.0	1152.2	13:00	14	212.0	1152.2	1987.1	12:57	14	349.9	1987.1
E2a	0.82	359.5	12:27	21	48.3	359.5	485.3	12:27	21	65.3	485.3	716.1	12:24	21	97.0	716.1
E2b	0.45	279.6	12:15	23	29.6	279.6	368.1	12:15	23	39.2	368.1	528.2	12:15	23	57.0	528.2
E2c	20.58	2138.1	12:57	25	505.9	2138.1	3604.6	12:57	25	790.4	3604.6	6681.5	12:54	25	1380.1	6681.5
E2d	0.29	257.5	12:06	27	528.5	2157.7	328.6	12:06	27	819.5	3625.4	455.6	12:06	27	1421.1	6721.6
E2e	0.06	67.8	12:00	28	628.3	2401.5	86.0	12:00	28	952.3	3948.2	118.5	12:00	28	1615.5	7214.6
E2f	0.05	53.7	12:00	28	628.3	2401.5	68.3	12:00	28	952.3	3948.2	94.2	12:00	28	1615.5	7214.6
E2g	0.19	135.1	12:12	28	628.3	2401.5	175.1	12:12	28	952.3	3948.2	246.8	12:12	28	1615.5	7214.6
E2h	0.67	485.1	12:15	30	681.0	2447.1	617.7	12:15	30	1020.2	4005.7	854.0	12:15	30	1710.8	7270.3
East Outlet	23.11	2447.1	13:15	30	681.0	2447.1	4005.7	13:12	30	1020.2	4005.7	7270.3	13:09	30	1710.8	7270.3
Ex. Outlet 2*	27.47	3017.0	13:18	31	824.2	3017.0	4885.9	13:15	31	1232.1	4885.9	8774.2	13:09	31	2060.7	8774.2
E3a (u/s culvert)	9.21	1468.6	12:48	41	293.1	1468.6	2298.1	12:48	41	437.6	2298.1	3960.5	12:48	41	728.0	3960.5
E3a (d/s culvert)	9.21	15.6	12:48	41	3.2	15.6	18.6	12:48	41	4.7	18.6	22.8	12:48	41	7.1	22.8
Offsite Outlet	-	1453.0	-	50	289.9	1453.0	2279.5	-	50	432.9	2279.5	3937.7	-	50	720.9	3937.7
E3b	0.72	378.1	12:24	42	52.6	378.1	495.2	12:24	42	69.7	495.2	706.4	12:24	42	100.9	706.7
North-East Outlet	9.93	378.1	12:24	42	52.6	378.1	495.2	12:24	42	69.7	495.2	706.7	12:24	42	100.9	706.7
E3c	0.65	478.8	12:12	45	70.9	636.2	612.2	12:12	45	92.8	826.5	850.4	12:12	45	133.2	1169.9
E3d	0.36	174.5	12:18	45	70.9	636.2	237.5	12:18	45	92.8	826.5	353.6	12:18	45	133.2	1169.9
E3e (Ex. Outlet 4)	0.14	143.3	12:03	47	11.2	143.3	182.4	12:03	47	14.4	182.4	252.1	12:03	47	20.3	252.1
E3f	0.06	64.7	12:00	49	127.6	939.7	83.4	12:00	49	167.9	1227.4	116.9	12:00	49	241.8	1745.3
Ex. Outlet 3	10.99	939.7	12:21	49	127.6	939.7	1227.4	12:21	49	167.9	1227.4	1745.3	12:21	49	241.8	1745.3

*Discharge at Ex. Outlet 1 and 2 do not represent the total flow in the wash; they are only provided to compare pre- and post-development discharge resulting from the project at a downstream confluence point.



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Designed: T.MARU
Checked:
Drawn: T.MARU
Record Drawing by/date:
Revisions:

#	DATE	DESCRIPTION

Prepared for:

Solar Millennium LLC

LEGEND

E1 / 15.35 — DRAINAGE AREA NAME / AREA (SQ. MILES)

01 — NODE NUMBER

FLOWLINE

SITE BOUNDARY

DRAINAGE AREA BOUNDARY

GRAPHIC SCALE:

1"=2000' — 0 1000 2000 4000 6000

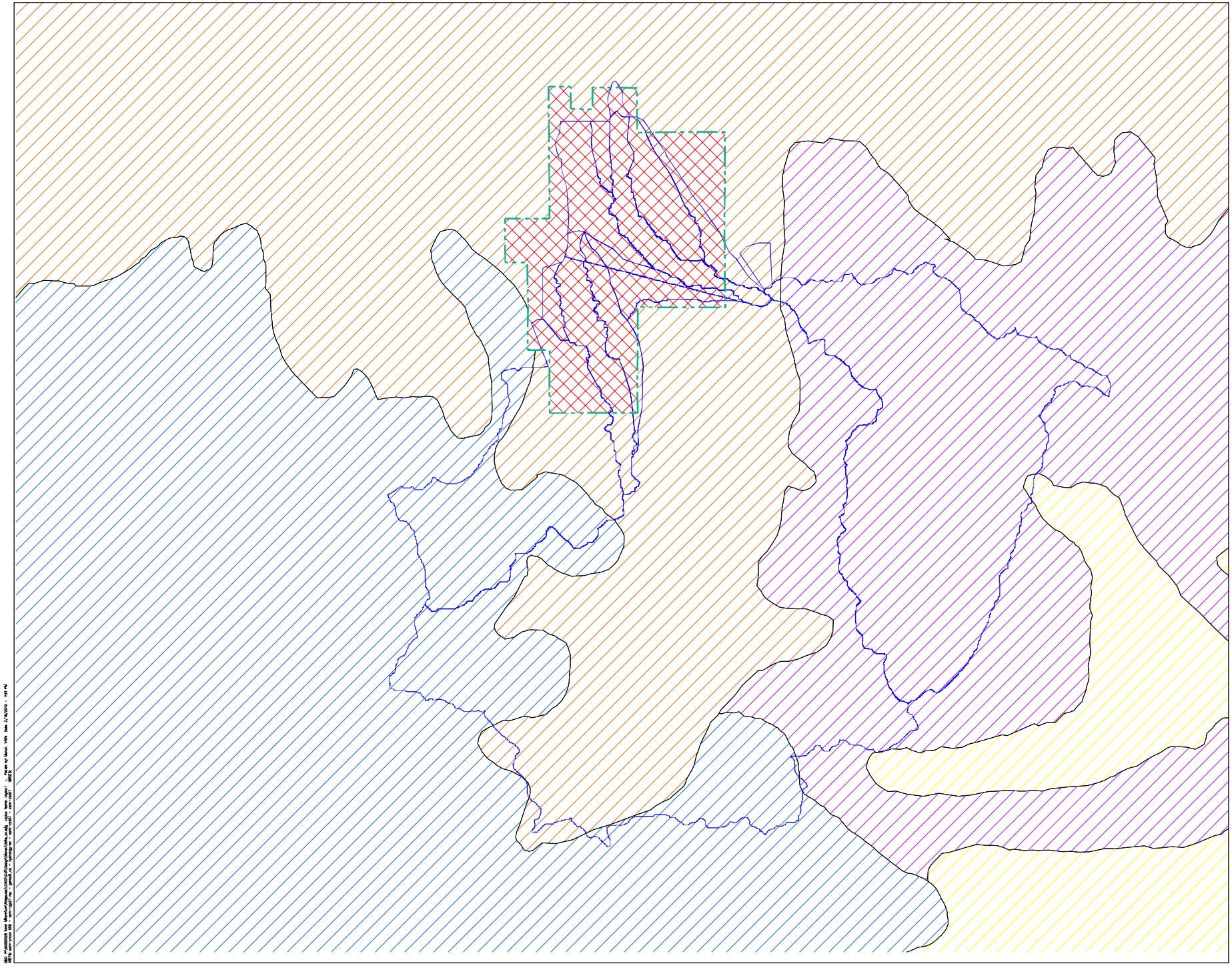
Ridgecrest Solar Power Project

Kern County, California

Pre-Development Hydrology Map

Date: 02/10/10

Sheet: 1 OF 1



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Solar Millennium LLC

LEGEND

CHAPPARAL, BROADLEAF, POOR COVER
PRORATED SOIL GROUP
%B, %C, %D

- 70, 15, 15 CN=75
- 25, 25, 50 CN=81
- 34, 0, 66 CN=81
- 50, 25, 25 CN=77
- CEMENTED SILTY SAND CN=95 (BASED ON ON-SITE PRELIMINARY GEOTECHNICAL INVESTIGATION REPORT, KLEINFELDER, AUG 2009)

SITE BOUNDARY

DRAINAGE AREA BOUNDARY

GRAPHIC SCALE:

1"=2000' 0 1000 2000 4000 6000

Ridgecrest Solar Power Project

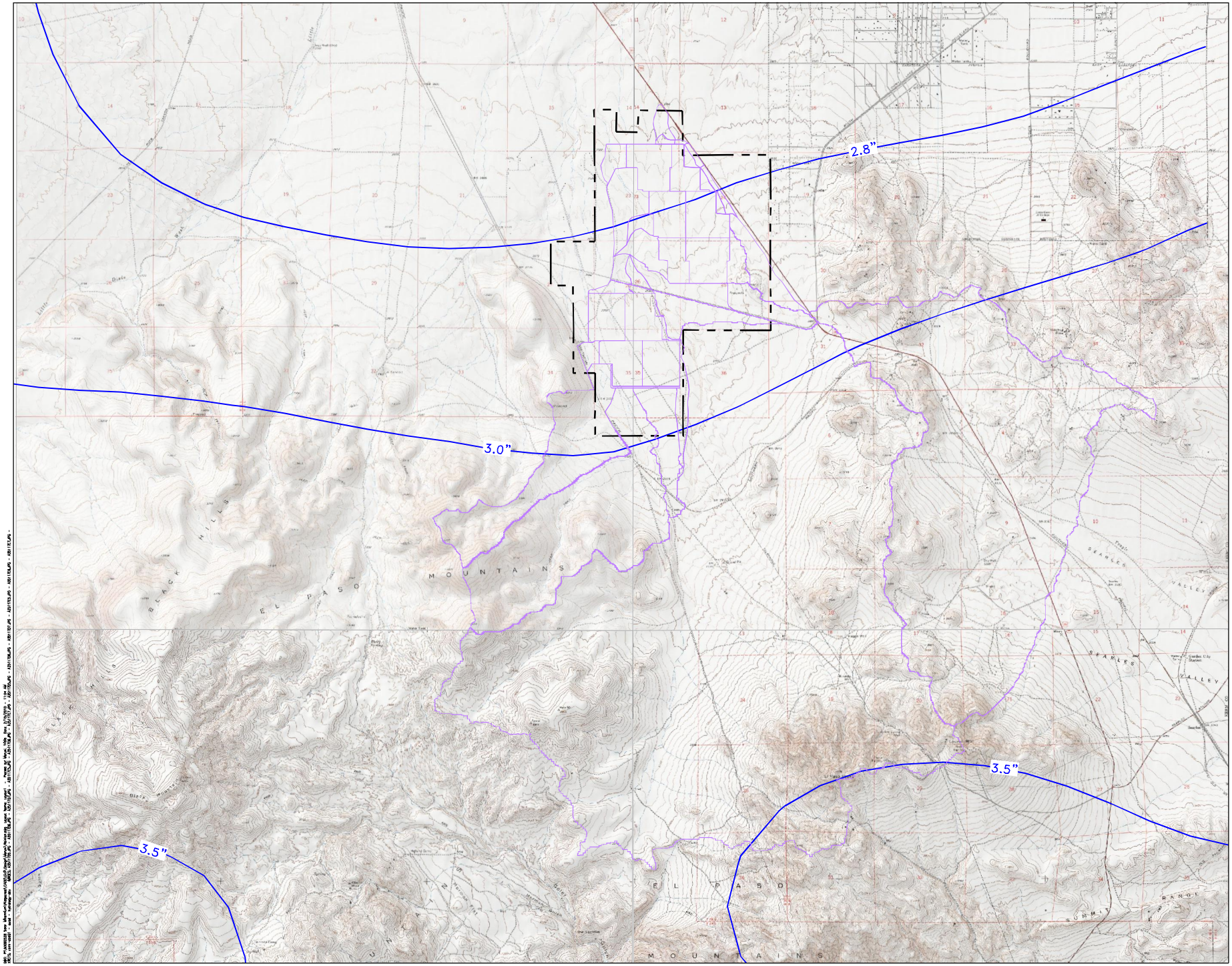
Kern County, California

Soils Map Pre-Development

Date: 02/10/10
Sheet: 1 OF 1

APPENDIX 1B

Precipitation Data



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LEGEND

- SITE BOUNDARY
- 100 Yr-24 Hr ISOHYET
- DRAINAGE AREA BOUNDARY

GRAPHIC SCALE:

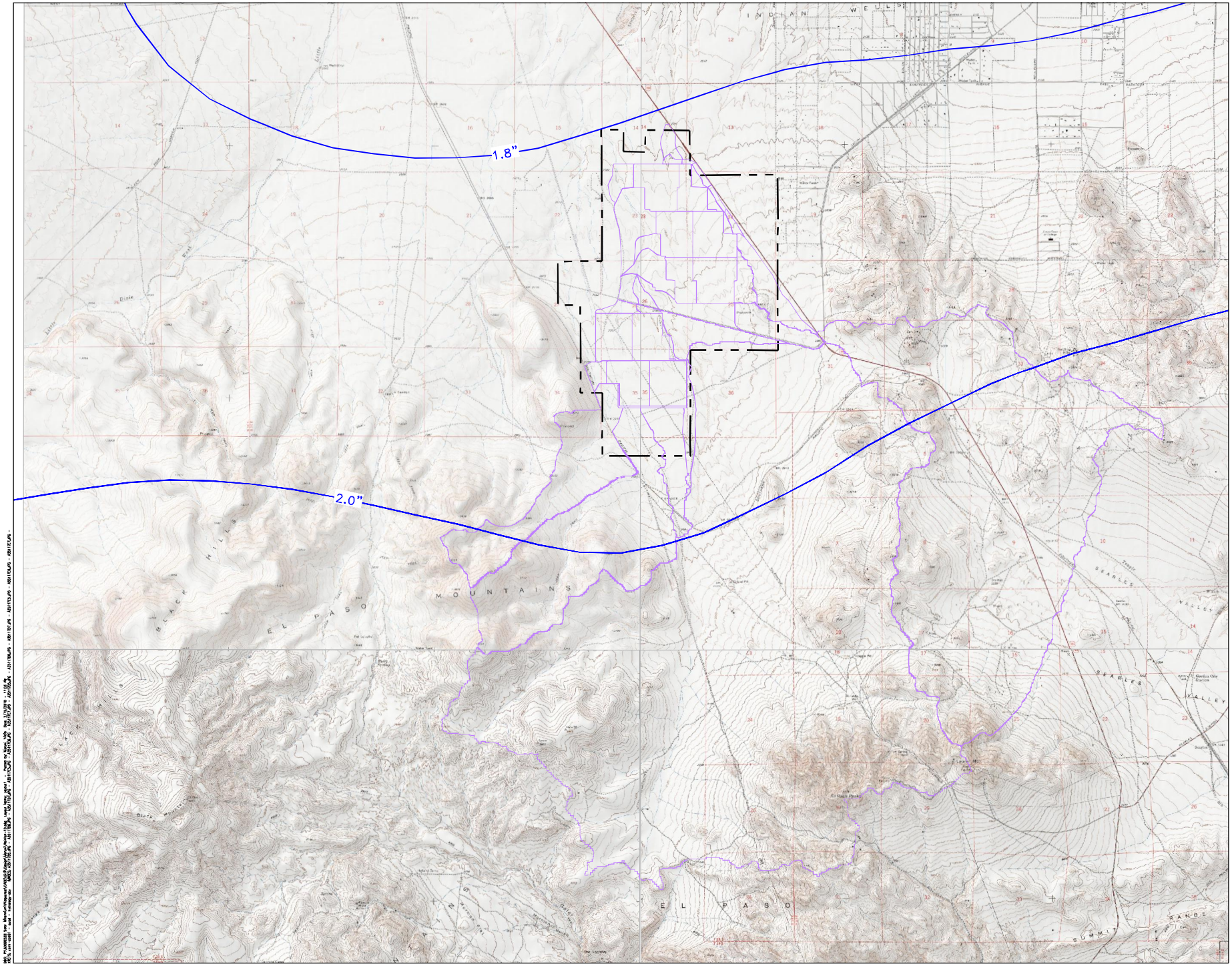
1"=2000' 0 1000 2000 4000 6000

Ridgecrest Solar Power Project

Kern County, California

100 Yr 24 Hr Rainfall Map

Date: 02/10/10
Sheet: 1 OF 2



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Revisions:

#	DATE	DESCRIPTION

Prepared for:

Solar Millennium LLC

LEGEND

- SITE BOUNDARY
- 10 Yr-24 Hr ISOHYET
- DRAINAGE AREA BOUNDARY

GRAPHIC SCALE:

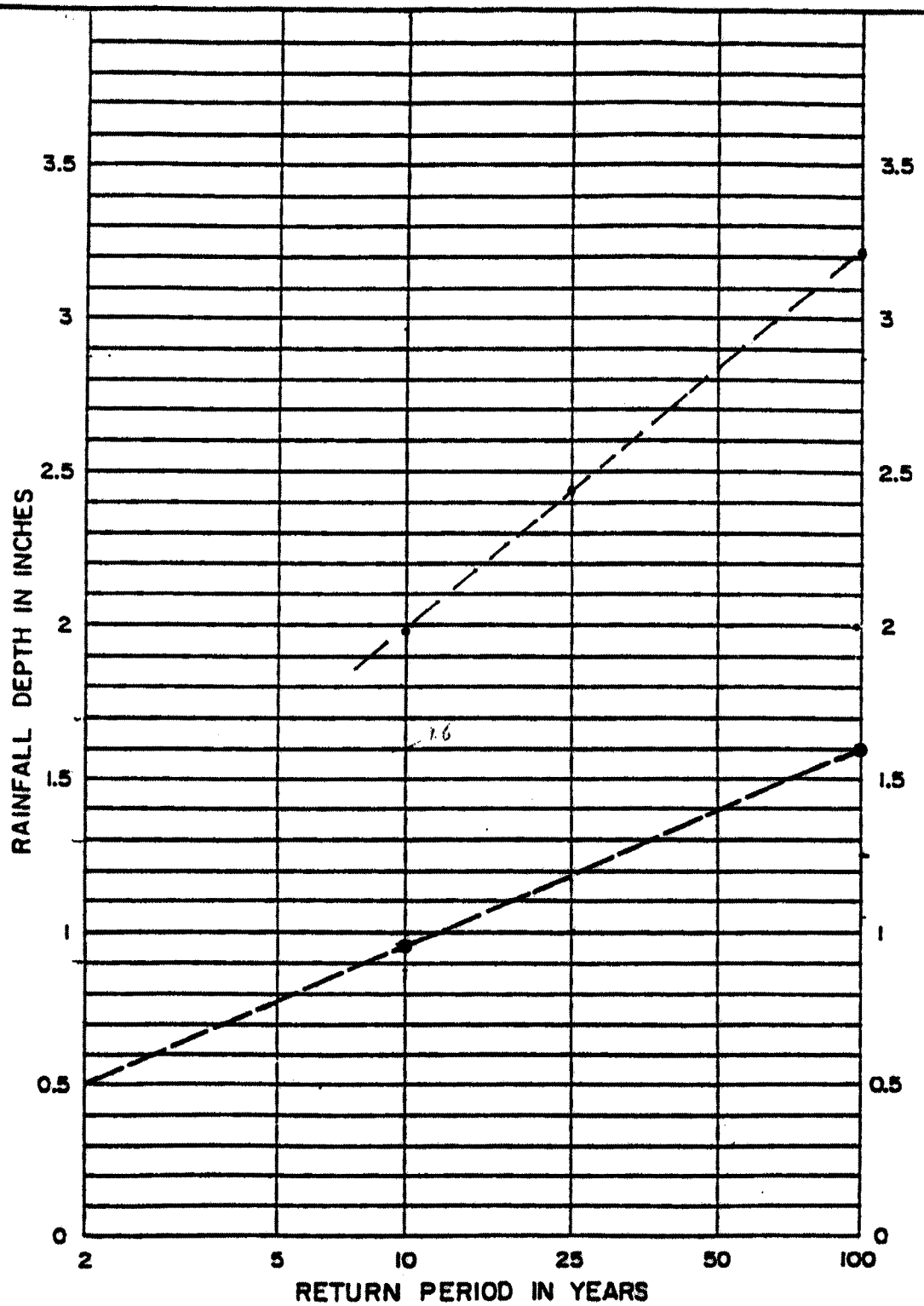
1"=2000' 0 1000 2000 4000 6000

Ridgecrest Solar Power Project

Kern County, California

10 Yr 24 Hr Rainfall Map

Date: 02/10/10
Sheet: 2 OF 2



NOTE:

1. FOR INTERMEDIATE RETURN PERIODS PLOT 10-YEAR AND 100-YEAR ONE HOUR VALUES FROM MAPS, THEN CONNECT POINTS AND READ VALUE FOR DESIRED RETURN PERIOD. FOR EXAMPLE GIVEN 10-YEAR ONE HOUR = 0.95" AND 100-YEAR ONE HOUR = 1.60", 25-YEAR ONE HOUR = 1.18".

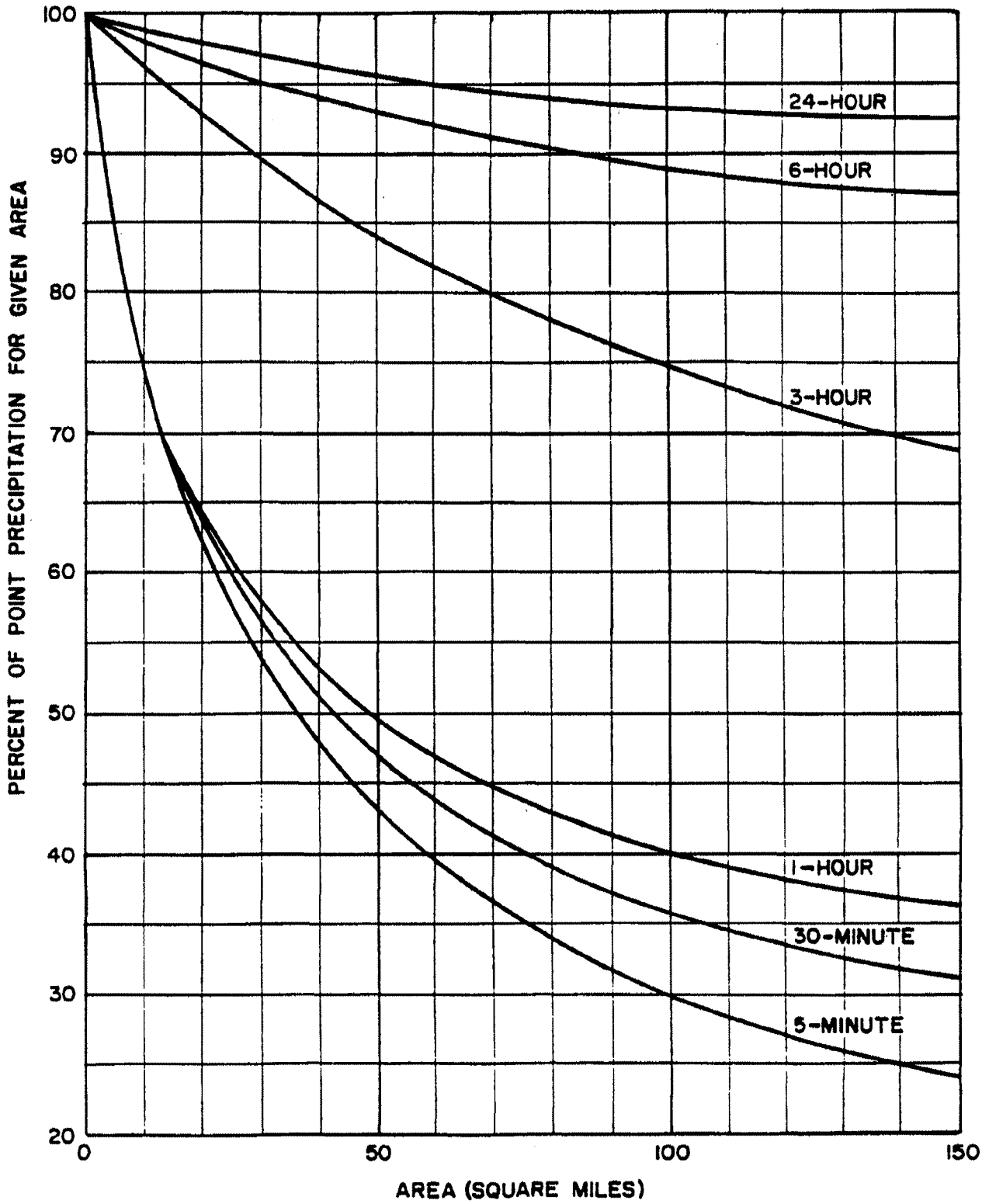
REFERENCE: NOAA ATLAS 2, VOLUME XI - CAL., 1973

KERN COUNTY

HYDROLOGY MANUAL

RAINFALL DEPTH VERSUS RETURN PERIOD FOR PARTIAL DURATION SERIES

FIGURE D-3



KERN COUNTY

HYDROLOGY MANUAL

DESIGN STORM
DEPTH AREA
CURVES

Figure E-4

APPENDIX 1C

Runoff Index Numbers

Residential Landscaping (Lawn, Shrubs, etc.) - The pervious portions of commercial establishments, single and multiple family dwellings, trailer parks and schools where the predominant land cover is lawn, shrubbery and trees.

Row Crops - Lettuce, tomatoes, beets, tulips or any field crop planted in rows far enough apart that most of the soil surface is exposed to rainfall impact throughout the growing season. At plowing, planting and harvest times it is equivalent to fallow.

Small Grain - Wheat, oats, barley, flax, etc. planted in rows close enough that the soil surface is not exposed except during planting and shortly thereafter.

Legumes - Alfalfa, sweetclover, timothy, etc. and combinations are either planted in close rows or broadcast.

Fallow - Fallow land is land plowed but not yet seeded or tilled.

Woodland - grass - Areas with an open cover of broadleaf or coniferous trees usually live oak and pines, with the intervening ground space occupied by annual grasses or weeds. The trees may occur singly or in small clumps. Canopy density, the amount of ground surface shaded at high noon, is from 20 to 50 percent.

Woodland - Areas on which coniferous or broadleaf trees predominate. The canopy density is at least 50 percent. Open areas may have a cover of annual or perennial grasses or of brush. Herbaceous plant cover under the trees is usually sparse because of leaf or needle litter accumulation.

Chaparral - Land on which the principal vegetation consists of evergreen shrubs with broad, hard, stiff leaves such as manzonita, ceanothus and scrub oak. The brush cover is usually dense or moderately dense. Diffusely branched evergreen shrubs with fine needle-like leaves, such as chamise and redchank, with dense high growth are also included in this soil cover.

Annual Grass - Land on which the principal vegetation consists of annual grasses and weeds such as annual bromes, wild barley, soft chess, ryegrass and filaree.

Irrigated Pasture - Irrigated land planted to perennial grasses and legumes for production of forage and which is cultivated only to establish or renew the stand of plants. Dry land pasture is considered as annual grass.

Meadow - Land areas with seasonally high water table, locally called cienegas. Principal vegetation consists of sod-forming grasses interspersed with other plants.

Orchard (Deciduous) - Land planted to such deciduous trees as apples, apricots, pears, walnuts, and almonds.

Orchard (Evergreen) - Land planted to evergreen trees which include citrus and avocados and coniferous plantings.

Turf - Golf courses, parks and similar lands where the predominant cover is irrigated mowed close-grown turf grass. Parks in which trees are dense may be classified as woodland.

(CN table)

Curve[1] Numbers of Hydrologic Soil-Cover Complexes For Pervious Areas-AMC II

Cover Type (3)	Quality of Cover (2)	Soil Group A	B	C	D
NATURAL COVERS -					
Barren (Rockland, eroded and graded land)		77	86	91	94
Chaparral, Broadleaf (Manzonita, ceanothus and scrub oak)	Poor	53	70	80	85
	Fair	40	63	75	81
	Good	31	57	71	78
Chaparral, Narrowleaf (Chamise and Redskank)	Poor	71	82	88	91
	Fair	55	72	81	86
Grass, Annual or Perennial	Poor	68	79	86	89
	Fair	49	69	79	84
	Good	39	61	74	80
Meadows or Cienagas (Areas with seasonally high water table, principal vegatation is sod forming grass)	Poor	63	77	85	88
	Fair	51	70	80	84
	Good	30	58	71	78
Open Brush (Soft wood shrubs-buckwheat,sage,etc.)	Poor	62	76	84	88
	Fair	46	66	77	83
	Good	41	63	75	81
Woodland (4) (Coniferous or broadleaf trees predominate. Canopy density is at least 50 percent)	Poor	45	66	77	83
	Fair	36	60	73	79
	Good	30	55	70	77
Woodland, Grass (Coniferous or broadleaf trees with canopy density from 20 to 50 percent)	Poor	57	73	82	86
	Fair	43	65	76	82
	Good	32	58	72	79
URBAN COVERS -					
Residential or Commercial Landscaping (Lawns, shrubs, etc.)	Good	39	61	74	80
Turf (Irrigated and mowed grass)	Poor	68	79	86	89
	Fair	49	69	79	84
	Good	39	61	74	80

KERN COUNTY
Hydrology Manual

CURVE NUMBERS FOR PERVIOUS AREAS

FIGURE C-2 (1 of 2)

Curve[1] Numbers of Hydrologic Soil-Cover Complexes For Pervious Areas-AMC II

Cover Type (3)	Quality of Cover (2)	Soil Group A	B	C	D
AGRICULTURAL COVERS -					
Fallow (Bare Soil)		77	86	91	94
Close Seeded (alfalfa, sweetclover, timothy, etc.)	Poor	66	77	85	89
	Good	58	72	81	85
Orchards, Evergreen (Citrus, avacodos, etc.)	Poor	57	73	82	86
	Fair	43	65	76	82
	Good	32	58	72	79
Pasture (Grassland or range, continuos forage for grazing)	Poor	68	79	86	89
	Fair	49	69	79	84
	Good	39	61	74	80
Row Crops (Straight row, non-contoured)	Poor	72	81	88	91
	Good	67	78	85	89
Small Grain (Straight row, non-contoured)	Poor	65	76	84	88
	Good	63	75	83	87

Notes:

1. Average runoff condition, Ia = 0.2(S)

2. Poor: Heavily grazed, regularly burned areas, or areas of high burn potential. Less than 50 percent of the ground surface is protected by plant cover or brush and tree canopy.

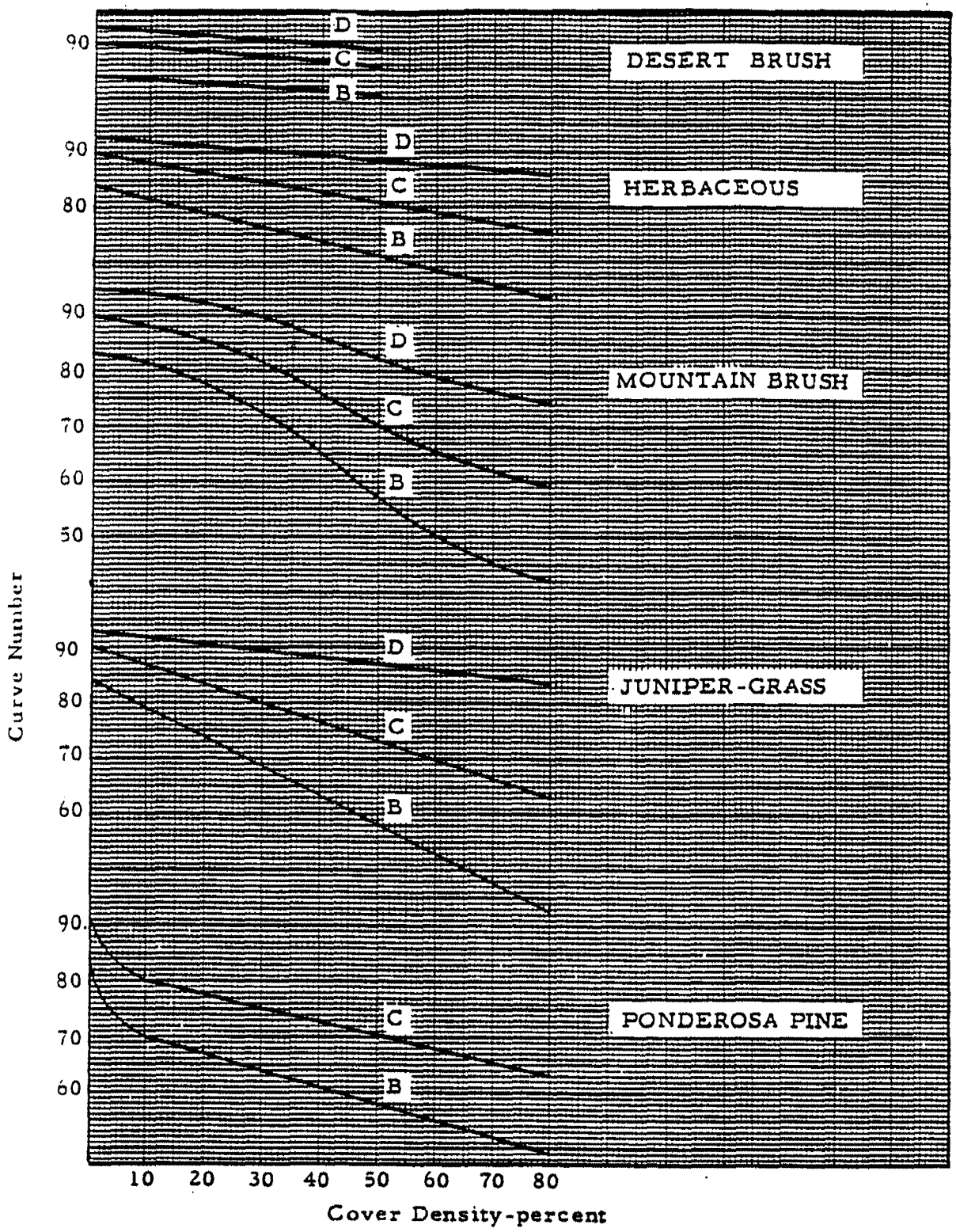
   Fair: Moderate cover with 50 percent to 75 percent of the ground surface protected. In wooded areas the woods are grazed but not burned, and some forest litter covers the soil.

   Good: Heavy or dense cover with more than 75 percent of the ground surface protected. In wooded areas the woods are protected from grazing, litter and brush adequately cover soil.

3. See Figure C-1 for definition of cover types.

KERN COUNTY
Hydrology Manual

CURVE NUMBERS FOR PERVIOUS AREAS



KERN COUNTY

HYDROLOGY MANUAL

HYDROLOGIC SOIL COVER COMPLEXES AND ASSOCIATED CURVE NUMBERS

FIGURE C-7

APPENDIX 1D

Basin Roughness Description

$\bar{n}$ = 0.015

1. Drainage area has fairly uniform, gentle slopes
2. Most watercourses either improved or along paved streets
3. Groundcover consists of some grasses - large % of area impervious
4. Main water course improved channel or conduit

$\bar{n}$ = 0.020

1. Drainage area has some graded and non-uniform, gentle slopes
2. Over half of the area watercourses are improved or paved streets
3. Groundcover consists of equal amount of grasses and impervious area
4. Main watercourse is partly improved channel or conduit and partly greenbelt (see n = 0.025)

$\bar{n}$ = 0.025

1. Drainage area is generally rolling with gentle side slopes
2. Some drainage improvements in the area - streets and canals
3. Groundcover consists mostly of scattered brush and grass and small % impervious
4. Main watercourse is straight channels which are turfed or with stony beds and weeds on earth bank (greenbelt type)

$\bar{n}$ = 0.030

1. Drainage area is generally rolling with rounded ridges and moderate side slopes
2. No drainage improvements exist in the area
3. Groundcover includes scattered brush and grasses
4. Watercourses meander in fairly straight, unimproved channels with some boulders and lodged debris

$\bar{n}$ = 0.040

1. Drainage area is composed of steep upper canyons with moderate slopes in lower canyons
2. No drainage improvements exist in the area
3. Groundcover is mixed brush and trees with grasses in lower canyons
4. Watercourses have moderate bends and are moderately impeded by boulders and debris with meandering courses

$\bar{n}$ = 0.050

1. Drainage area is quite rugged with sharp ridges and steep canyons
2. No drainage improvements exist in the area
3. Groundcover, excluding small areas of rock outcrops, includes many trees and considerable underbrush
4. Watercourses meander around sharp bends, over large boulders and considerable debris obstruction

$\bar{n}$ = 0.200

1. Drainage area has comparatively uniform slopes
2. No drainage improvements exist in the area
3. Groundcover consists of cultivated crops or substantial growths of grass and fairly dense small shrubs, cacti, or similar vegetation
4. Surface characteristics are such that channelization does not occur

KERN COUNTY

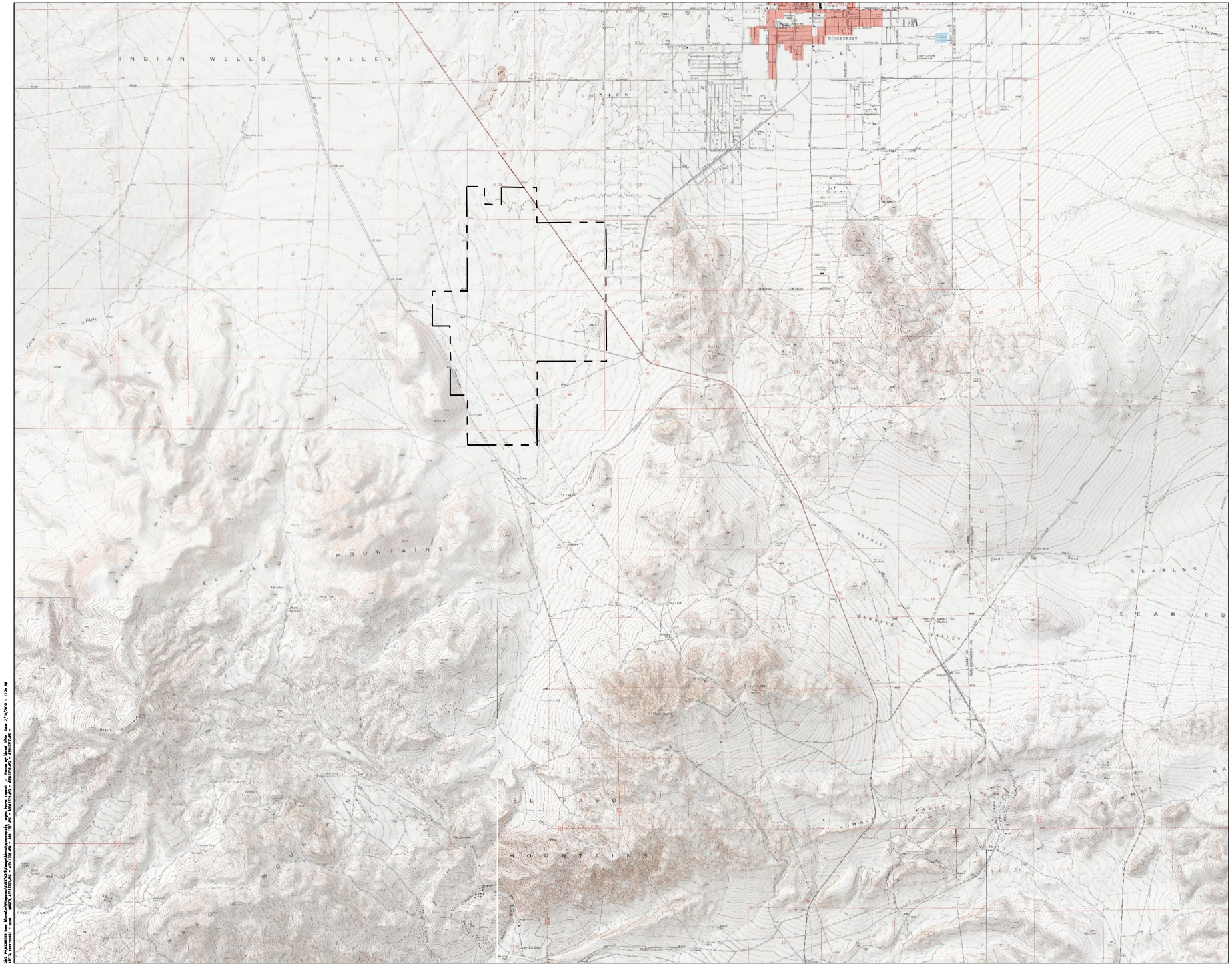
HYDROLOGY MANUAL

BASIN FACTOR DESCRIPTIONS

Figure E-2

APPENDIX 1E

USGS Quad Sheet



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Revisions:

#	DATE	DESCRIPTION

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Solar Millennium LLC

LEGEND

SITE BOUNDARY

Ridgecrest Solar Power Project

Kern County, California

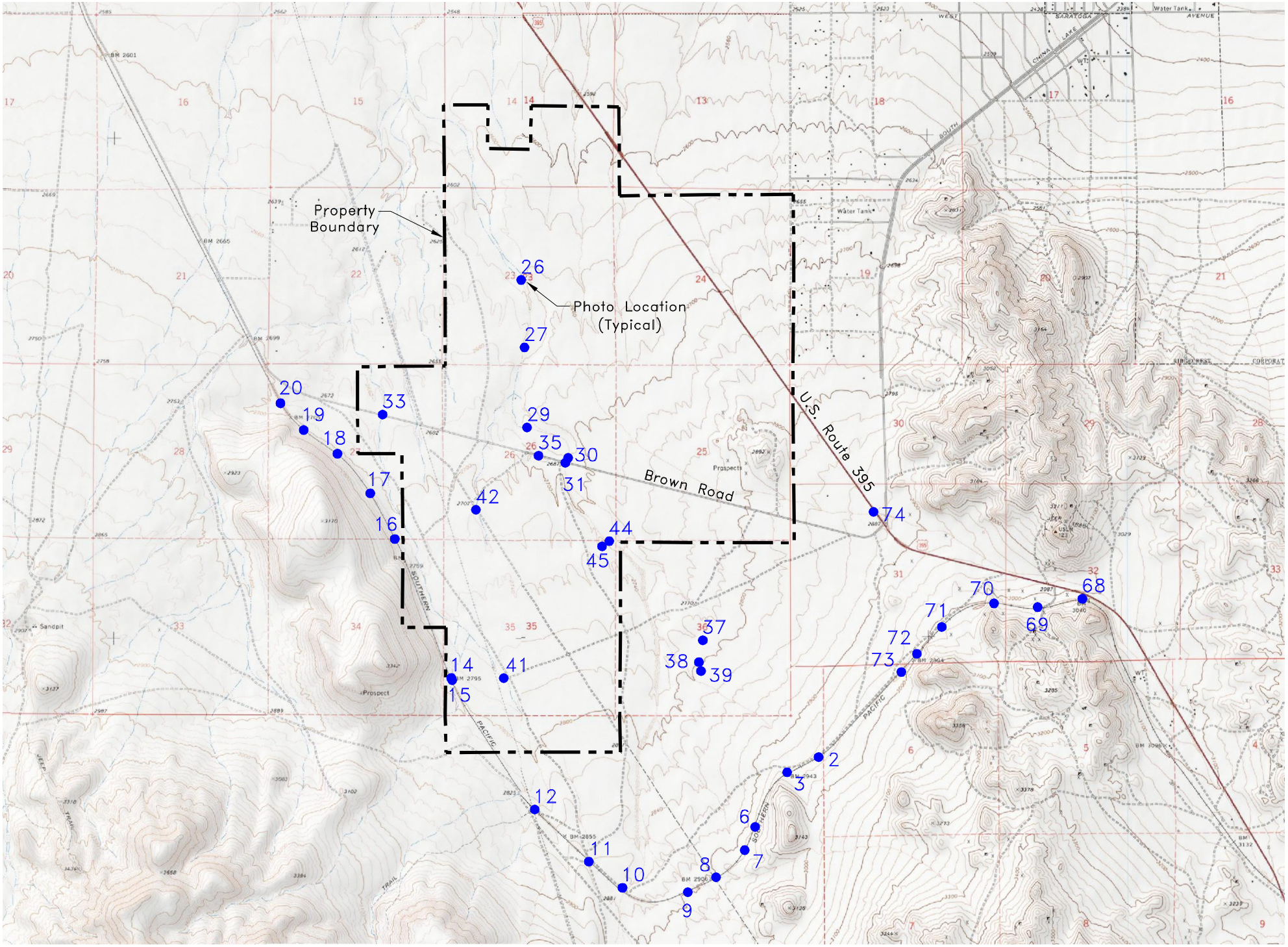
USGS Topo Rainfall Map

Date: 02/10/10

Sheet: 1 OF 1

APPENDIX 1F

Proposed Site Representative Watercourse Photographs


Property Boundary
Photo Location (Typical)
Brown Road
U.S. Route 395
26
27
20
19
18
33
29
35
30
31
17
42
16
44
45
74
70
68
71
69
72
73
37
38
39
14
15
41
2
3
12
6
7
11
10
8
9

Point 2 looking southeast – 12’6”W x 3’H timber bridge (outlet)

Point 2 looking northwest – 12’6”W x 3’H timber bridge (outlet)

Point 3 looking southeast - 12’6”W x 3’8”H timber bridge (outlet)

Point 3 looking northwest - 12’6”W x 3’8”H timber bridge (outlet)

Point 6 looking southeast – 4’W x 5’H concrete culvert (outlet)

Point 6 looking northwest – 4’W x 5’H concrete culvert (outlet)

Point 7 looking northwest – 6’W x 5’6”H timber bridge (inlet)

Point 7 looking northwest – 6’W x 5’6”H timber bridge (outlet)

Point 8 looking southeast – 12’6”W x 2’6”H timber bridge (outlet)

Point 8 looking northwest – 12’6”W x 2’6”H timber bridge (outlet)

Point 9 looking southeast – 12’6”W x 3’H timber bridge (outlet)

Point 9 looking northwest – 12’6”W x 3’H timber bridge (outlet)

Point 10 looking north – 170’W x 8’6”H timber bridge (downslope)

Point 10 looking south – 170’W x 8’6”H timber bridge (upslope)

Point 10 looking north – 170’W x 8’6”H timber bridge (left downslope)

Point 10 looking north – 170’Wx8’6”H timber bridge (right downslope)

Point 10 looking south – 170’W x 8’6”H timber bridge (upslope)

Point 10 looking north – 170’W x 8’6”H timber bridge (downslope)

Point 11 looking southwest – 6’W x 3’H timber bridge (outlet)

Point 11 looking northeast – 6’W x 3’H timber bridge (outlet)

Point 12 looking northeast – three 60” diameter CSPs (inlet)

Point 12 looking southwest – three 60” diameter CSPs (inlet)

Point 12 looking southwest – 3 @ 60” diameter CSPs (outlet)

Point 12 looking northeast – 3 @ 60” diameter CSPs (outlet)

Point 14 looking southwest – 2 @ 11’6”W x 9’H timber bridge (outlet)

Point 14 looking northeast – 2 @ 11’6”W x 9’H timber bridge (outlet)

Point 15 looking northeast – 18” CIP (inlet)

Point 15 looking northeast – 18” CIP (outlet)

Point 16 looking northeast – 18” CIP (inlet)

Point 16 looking northeast – 18” CIP (outlet)

Point 17 looking northeast – 18” CIP (inlet)

Point 17 looking south – 18” CIP (upslope)

Point 18 looking northeast – 18” CIP (inlet)

Point 18 looking northeast – 18” CIP (outlet)

Point 19 looking northeast – 18” CIP (inlet)

Point 19 looking northeast – 18” CIP (outlet)

Point 20 looking northeast – concrete culvert (inlet)

Point 20 looking northeast – concrete culvert (outlet)

Point 26 looking southeast – wash

Point 26 looking northwest – wash

Point 27 looking southwest – wash

Point 27 looking northeast – wash

Point 29 looking southeast – wash

Point 29 looking northwest – wash

Point 30 looking south – wash immediately north of Brown Road

Point 30 looking north – wash immediately north of Brown Road

Point 31 looking south – wash immediately south of Brown Road

Point 31 looking north – wash immediately south of Brown Road

Point 31 looking north – wash crossing Brown Road

Point 31 looking east – wash crossing Brown Road

Point 33 looking south – wash crossing Brown Road

Point 33 looking north – wash crossing Brown Road

Point 33 looking north – wash crossing Brown Road

Point 33 looking east – wash crossing Brown Road

Point 35 looking north – drainage chute along Brown Road

Point 35 looking west – drainage chute location along Brown Road

Point 37 looking east – small wash along private property line

Point 37 looking west – small wash along private property line

Point 38 looking east – small wash along private property line

Point 38 looking west – small wash along private property line

Point 39 looking east – small wash along private property line

Point 39 looking west – small wash along private property line

Point 41 looking northwest – wash

Point 41 looking southeast – wash

Point 42 looking northwest – small wash crossing trail

Point 42 looking southeast – small wash crossing trail

Point 44 looking southeast – wash

Point 44 looking northwest – wash

Point 45 looking southeast – wash

Point 45 looking northwest – wash

Point 68 looking south – 4’W x 5’H concrete culvert (outlet)

Point 68 looking north – 4’W x 5’H concrete culvert (outlet)

Point 69 looking south – 12’W x 5’6”H timber bridge (outlet)

Point 69 looking north – 12’W x 5’6”H timber bridge (outlet)

Point 70 looking south – 5’8”W x 7’H timber bridge (outlet)

Point 70 looking north – 5’8”W x 7’H timber bridge (outlet)

Point 71 looking southeast – 6’W x 7’H concrete culvert (outlet)

Point 72 looking southeast – 6’W x 2’6”H timber bridge (outlet)

Point 73 looking southeast – 4’W x 5’H concrete culvert (outlet)

Point 73 looking northwest – 4’W x 5’H concrete culvert (outlet)

Point 74 looking west – 24” CMP crossing U.S. 395 (inlet)

Point 74 looking west – 24” CMP crossing U.S. 395 (outlet)

APPENDIX 1G

Pre-Development HMS Catchment Input Data

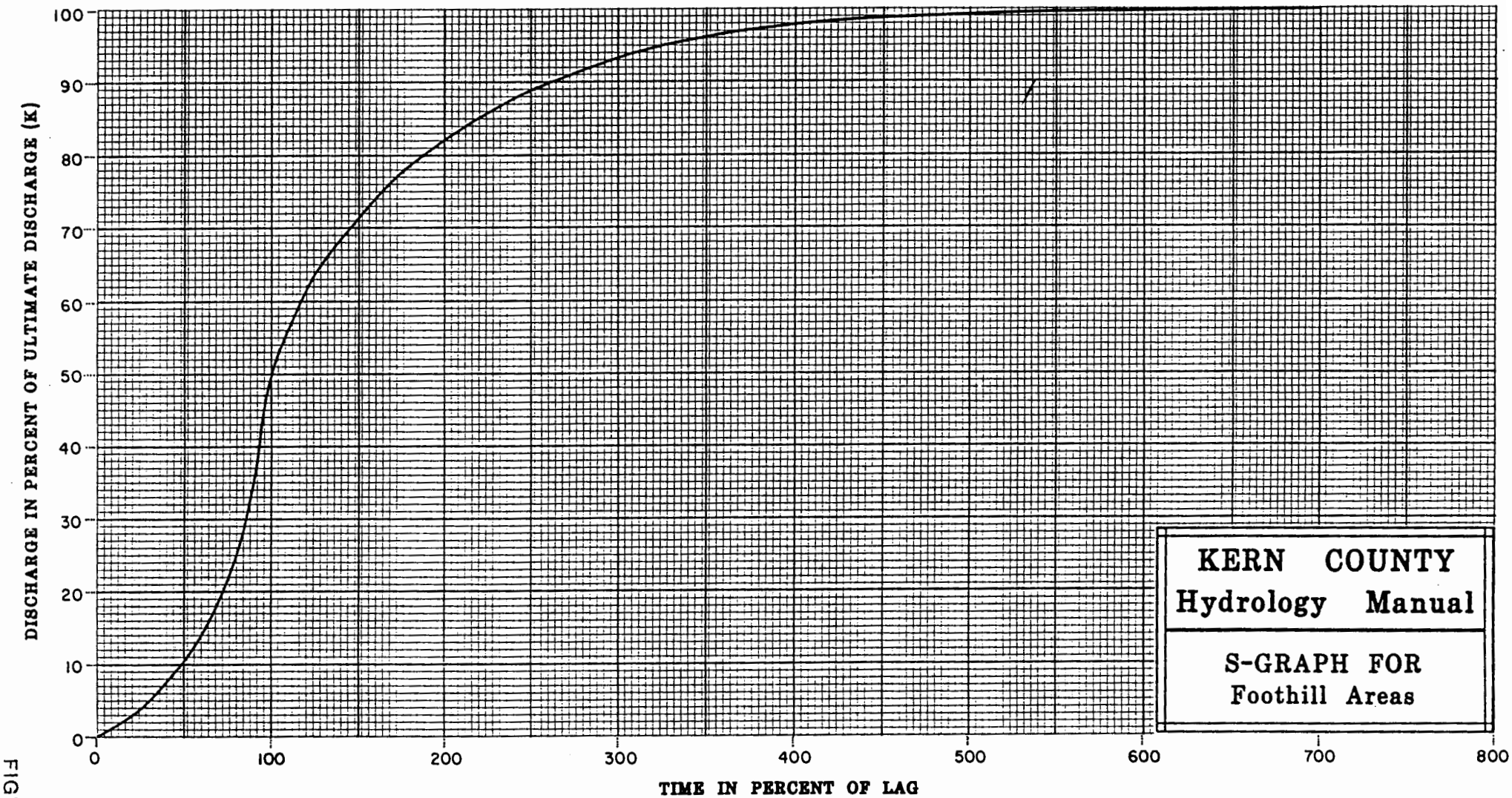

DISCHARGE IN PERCENT OF ULTIMATE DISCHARGE (K)
100
90
80
70
60
50
40
30
20
10
0
0
100
200
300
400
500
600
700
800
TIME IN PERCENT OF LAG
KERN COUNTY
Hydrology Manual
S-GRAPH FOR
Foothill Areas

FIGURE E-3b

HMS Input Parameters for Pre-Development Hydrology Calculations

Pre-Development Hydrology - Western Drainage Area

Sub-Basin	Area (mi^2)	Length (mi)	L_{CA} (mi)	Elev. Difference (D)	Slope (ft/mi)	n	Composite CN	S=(1000/CN)-10	T_{lag} (hours) = $24n(LL_{CA}/S^{05})^{0.38}$	T_{lag} (mins) = $24n(LL_{CA}/S^{05})^{0.38}$	IA
E1a	4.201	5.03	2.82	1546.00	307.42	0.04	80.77	2.38	0.89	53.12	0.48
E1b	0.151	0.86	0.41	55.00	64.33	0.03	95.00	0.53	0.22	13.14	0.11

Pre-Development - Eastern Drainage Area

Sub-Basin	Area (mi^2)	Length (mi)	L_{CA} (mi)	Elev. Difference (D)	Slope (ft/mi)	n	Composite CN	S=(1000/CN)-10	T_{lag} (hours) = $24n(LL_{CA}/S^{05})^{0.38}$	T_{lag} (mins) = $24n(LL_{CA}/S^{05})^{0.38}$	IA
E2a	0.824	3.34	1.76	215.00	64.37	0.03	90.27	1.08	0.64	38.38	0.22
E2b	0.450	2.28	0.84	165.00	72.37	0.03	92.03	0.87	0.41	24.51	0.17
E2c	20.581	7.47	3.42	1560.00	208.84	0.04	77.50	2.90	1.19	71.52	0.58
E2d	0.291	1.48	0.50	150.00	101.35	0.03	94.79	0.55	0.27	16.02	0.11
E2e	0.056	0.37	0.22	32.00	86.49	0.03	95.00	0.53	0.12	7.14	0.11
E2f	0.046	0.44	0.27	32.00	72.73	0.03	95.00	0.53	0.14	8.52	0.11
E2g	0.192	2.05	0.88	187.00	91.22	0.03	93.54	0.69	0.38	22.93	0.14
E2h	0.674	2.16	0.97	155.00	71.79	0.03	95.00	0.53	0.42	25.38	0.11

HMS Input Parameters for Pre-Development Hydrology Calculations

Pre-Development - North-Eastern Drainage Area

Sub-Basin	Area (mi^2)	Length (mi)	L_{CA} (mi)	Elev. Difference (D)	Slope (ft/mi)	n	Composite CN	S=(1000/CN)-10	T_{lag} (hours) = $24n(LL_{CA}/S^{05})^{0.38}$	T_{lag} (mins) = $24n(LL_{CA}/S^{05})^{0.38}$	IA
E3a	9.206	6.36	3.05	1505.00	236.64	0.04	80.97	2.35	1.05	62.91	0.47
E3b	0.720	3.44	1.72	279.00	81.15	0.03	92.81	0.78	0.61	36.77	0.16
E3c	0.652	2.04	1.11	230.00	112.52	0.03	94.74	0.56	0.40	24.04	0.11
E3d	0.359	2.55	1.51	270.00	105.76	0.03	89.76	1.14	0.50	29.72	0.23
E3e	0.143	0.85	0.36	54.00	63.60	0.03	95.00	0.53	0.21	12.50	0.11
E3f	0.057	0.38	0.172	30.00	79.16	0.03	93.46	0.70	0.11	6.67	0.14

APPENDIX 1H

HMS Output for the Pre-Development Hydrology Calculations

HMS Output for Pre-Development Hydrology Calculations

10 Year Flow Rates

Pre-Development Hydrology - Western & Eastern Drainage Areas

Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
E1a	4.201	724.90	01Jan2009, 12:42	131.30
E1b	0.151	147.00	01Jan2009, 12:03	11.80
E2a	0.824	359.5	01Jan2009, 12:27	48.3
E2b	0.450	279.6	01Jan2009, 12:15	29.6
E2c	20.581	2138.1	01Jan2009, 12:57	505.9
E2d	0.291	257.5	01Jan2009, 12:06	22.6
E2e	0.056	67.8	01Jan2009, 12:00	4.4
E2f	0.046	53.70	01Jan2009, 12:00	3.60
E2g	0.192	135.10	01Jan2009, 12:12	13.80
E2h	0.674	485.10	01Jan2009, 12:15	52.80
East_Outlet	23.114	2447.10	01Jan2009, 13:15	681.00
Ex_Outlet1	4.352	736.00	01Jan2009, 13:00	143.20
Ex_Outlet2	27.466	3017.00	01Jan2009, 13:18	824.20
J1	20.872	2157.70	01Jan2009, 13:00	528.50
J2	22.440	2396.50	01Jan2009, 13:03	628.30
R1	4.201	704.60	01Jan2009, 13:03	131.30
R2	0.151	142.80	01Jan2009, 12:24	11.80
R3	20.581	2123.7	01Jan2009, 13:00	506
R4	0.824	356.5	01Jan2009, 12:30	48.3
R5	0.450	277.9	01Jan2009, 12:18	29.6
R6	20.872	2136.2	01Jan2009, 13:03	528.6
R7	22.440	2357.6	01Jan2009, 13:15	628.2
R8	23.114	2431	01Jan2009, 13:18	681
R9	4.352	734	01Jan2009, 13:06	143.2
West_Outlet	4.201	724.9	01Jan2009, 12:42	131.3

HMS Output for Pre-Development Hydrology Calculations

25 Year Flow Rates

Pre-Development Hydrology - Western & Eastern Drainage Areas

Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
E1a	4.201	1139.40	01Jan2009, 12:39	196.70
E1b	0.151	187.20	01Jan2009, 12:03	15.20
E2a	0.824	485.3	01Jan2009, 12:27	65.3
E2b	0.450	368.1	01Jan2009, 12:15	39.2
E2c	20.581	3604.6	01Jan2009, 12:57	790.4
E2d	0.291	328.6	01Jan2009, 12:06	29.1
E2e	0.056	86	01Jan2009, 12:00	5.6
E2f	0.046	68.30	01Jan2009, 12:00	4.60
E2g	0.192	175.10	01Jan2009, 12:12	18.00
E2h	0.674	617.70	01Jan2009, 12:15	68.00
East_Outlet	23.114	4005.70	01Jan2009, 13:12	1020.20
Ex_Outlet1	4.352	1152.20	01Jan2009, 13:00	212.00
Ex_Outlet2	27.466	4885.90	01Jan2009, 13:15	1232.10
J1	20.872	3625.40	01Jan2009, 13:00	819.50
J2	22.440	3945.00	01Jan2009, 13:03	952.30
R1	4.201	1111.30	01Jan2009, 13:00	196.70
R2	0.151	179.30	01Jan2009, 12:24	15.20
R3	20.581	3582.6	01Jan2009, 13:00	790.4
R4	0.824	481.9	01Jan2009, 12:30	65.3
R5	0.450	365.7	01Jan2009, 12:18	39.2
R6	20.872	3604.4	01Jan2009, 13:03	819.5
R7	22.440	3884.7	01Jan2009, 13:12	952.2
R8	23.114	3980.6	01Jan2009, 13:15	1020.1
R9	4.352	1144.3	01Jan2009, 13:03	212
West_Outlet	4.201	1139.4	01Jan2009, 12:39	196.7

HMS Output for Pre-Development Hydrology Calculations

100 Year Flow Rates

Pre-Development Hydrology - Western & Eastern Drainage Areas

Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
E1a	4.201	1977.80	01Jan2009, 12:39	328.50
E1b	0.151	259.00	01Jan2009, 12:03	21.40
E2a	0.824	716.1	01Jan2009, 12:27	97
E2b	0.450	528.2	01Jan2009, 12:15	57
E2c	20.581	6681.5	01Jan2009, 12:54	1380.1
E2d	0.291	455.6	01Jan2009, 12:06	41
E2e	0.056	118.5	01Jan2009, 12:00	7.9
E2f	0.046	94.20	01Jan2009, 12:00	6.50
E2g	0.192	246.80	01Jan2009, 12:12	25.80
E2h	0.674	854.00	01Jan2009, 12:15	95.60
East_Outlet	23.114	7270.30	01Jan2009, 13:09	1710.80
Ex_Outlet1	4.352	1987.10	01Jan2009, 12:57	349.90
Ex_Outlet2	27.466	8774.20	01Jan2009, 13:09	2060.70
J1	20.872	6721.60	01Jan2009, 12:57	1421.10
J2	22.440	7199.90	01Jan2009, 13:00	1615.30
R1	4.201	1928.30	01Jan2009, 12:57	328.50
R2	0.151	251.00	01Jan2009, 12:21	21.40
R3	20.581	6658.3	01Jan2009, 12:57	1380.1
R4	0.824	710.7	01Jan2009, 12:27	97
R5	0.450	524.1	01Jan2009, 12:18	57
R6	20.872	6684.8	01Jan2009, 13:00	1421
R7	22.440	7091.4	01Jan2009, 13:09	1615.2
R8	23.114	7219.4	01Jan2009, 13:12	1710.8
R9	4.352	1973.1	01Jan2009, 13:00	349.9
West_Outlet	4.201	1977.8	01Jan2009, 12:39	328.5

HMS Output for Pre-Development Hydrology Calculations

10 Year Flow Rates

Pre-Development Hydrology - North-Eastern Drainage Area

Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
Culvert	9.206	15.60	01Jan2009, 12:48	3.20
E3a	9.206	1468.60	01Jan2009, 12:48	293.10
E3b	0.720	378.10	01Jan2009, 12:24	49.40
E3c	0.652	478.80	01Jan2009, 12:12	50.50
E3d	0.359	174.50	01Jan2009, 12:18	20.40
E3e	0.143	143.30	01Jan2009, 12:03	11.20
E3f	0.057	64.7	01Jan2009, 12:00	4.1
Ex_Outlet3	10.994	939.7	01Jan2009, 12:21	127.6
Ex_Outlet 4	0.143	143.3	01Jan2009, 12:03	11.2
J2	1.011	636.2	01Jan2009, 12:15	70.9
NE_Outlet	9.926	378.1	01Jan2009, 12:24	52.6
R1	9.206	16.8	01Jan2009, 14:00	3.2
R2	9.926	374.7	01Jan2009, 12:27	52.6
R3	1.011	630	01Jan2009, 12:18	70.9

HMS Output for Pre-Development Hydrology Calculations

25 Year Flow Rates

Pre-Development Hydrology - North-Eastern Drainage Area

Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
Culvert	9.206	18.60	01Jan2009, 12:48	4.70
E3a	9.206	2298.10	01Jan2009, 12:48	437.60
E3b	0.720	495.20	01Jan2009, 12:24	65.00
E3c	0.652	612.20	01Jan2009, 12:12	65.10
E3d	0.359	237.50	01Jan2009, 12:18	27.70
E3e	0.143	182.40	01Jan2009, 12:03	14.40
E3f	0.057	83.4	01Jan2009, 12:00	5.3
Ex_Outlet3	10.994	1227.4	01Jan2009, 12:21	167.9
Ex_Outlet 4	0.143	182.4	01Jan2009, 12:03	14.4
J2	1.011	826.5	01Jan2009, 12:15	92.8
NE_Outlet	9.926	495.2	01Jan2009, 12:24	69.7
R1	9.206	18.5	01Jan2009, 13:57	4.7
R2	9.926	490.8	01Jan2009, 12:27	69.7
R3	1.011	816.3	01Jan2009, 12:18	92.8

HMS Output for Pre-Development Hydrology Calculations

100 Year Flow Rates

Pre-Development Hydrology - North-Eastern Drainage Area

Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
Culvert	9.206	22.80	01Jan2009, 12:48	7.10
E3a	9.206	3960.50	01Jan2009, 12:48	728.00
E3b	0.720	706.40	01Jan2009, 12:24	93.80
E3c	0.652	850.40	01Jan2009, 12:12	91.80
E3d	0.359	353.60	01Jan2009, 12:18	41.40
E3e	0.143	252.10	01Jan2009, 12:03	20.30
E3f	0.057	116.9	01Jan2009, 12:00	7.6
Ex_Outlet3	10.994	1745.3	01Jan2009, 12:21	241.8
Ex_Outlet 4	0.143	252.1	01Jan2009, 12:03	20.3
J2	1.011	1169.9	01Jan2009, 12:15	133.2
NE_Outlet	9.926	706.7	01Jan2009, 12:24	100.9
R1	9.206	22.8	01Jan2009, 13:51	7.2
R2	9.926	701.6	01Jan2009, 12:27	100.9
R3	1.011	1157.7	01Jan2009, 12:18	133.2

Ridgecrest Solar Plant
Pre-Development Hydrology Results

Sub Basin	Area (mi^2)	10-yr					25-yr					100-yr				
		Peak Discharge (cfs)	Time of Peak	Node Total			Peak Discharge (cfs)	Time of Peak	Node Total			Peak Discharge (cfs)	Time of Peak	Node Total		
				Node No.	Volume (ac-ft)	Peak Discharge (cfs)			Node No.	Volume (ac-ft)	Peak Discharge (cfs)			Node No.	Volume (ac-ft)	Peak Discharge (cfs)
E1a (West Outlet)	4.20	724.9	12:42	11	131.3	724.9	1139.4	12:39	11	196.7	1139.4	1977.8	12:39	11	328.5	1977.8
E1b	0.15	147.0	12:03	13	11.8	147.0	187.2	12:03	13	15.2	187.2	259.0	12:03	13	21.4	259.0
Ex. Outlet 1*	4.35	736.0	13:00	14	143.2	736.0	1152.2	13:00	14	212.0	1152.2	1987.1	12:57	14	349.9	1987.1
E2a	0.82	359.5	12:27	21	48.3	359.5	485.3	12:27	21	65.3	485.3	716.1	12:24	21	97.0	716.1
E2b	0.45	279.6	12:15	23	29.6	279.6	368.1	12:15	23	39.2	368.1	528.2	12:15	23	57.0	528.2
E2c	20.58	2138.1	12:57	25	505.9	2138.1	3604.6	12:57	25	790.4	3604.6	6681.5	12:54	25	1380.1	6681.5
E2d	0.29	257.5	12:06	27	528.5	2157.7	328.6	12:06	27	819.5	3625.4	455.6	12:06	27	1421.1	6721.6
E2e	0.06	67.8	12:00	28	628.3	2401.5	86.0	12:00	28	952.3	3948.2	118.5	12:00	28	1615.5	7214.6
E2f	0.05	53.7	12:00	28	628.3	2401.5	68.3	12:00	28	952.3	3948.2	94.2	12:00	28	1615.5	7214.6
E2g	0.19	135.1	12:12	28	628.3	2401.5	175.1	12:12	28	952.3	3948.2	246.8	12:12	28	1615.5	7214.6
E2h	0.67	485.1	12:15	30	681.0	2447.1	617.7	12:15	30	1020.2	4005.7	854.0	12:15	30	1710.8	7270.3
East Outlet	23.11	2447.1	13:15	30	681.0	2447.1	4005.7	13:12	30	1020.2	4005.7	7270.3	13:09	30	1710.8	7270.3
Ex. Outlet 2*	27.47	3017.0	13:18	31	824.2	3017.0	4885.9	13:15	31	1232.1	4885.9	8774.2	13:09	31	2060.7	8774.2

***Discharge at Ex. Outlet 1 and 2 do not represent the total flow in the wash; they are only provided to compare pre- and post-development discharge resulting from the project at a downstream confluence point.**

Ridgecrest Solar Plant
Pre-Development Hydrology Results

Sub Basin	Area (mi^2)	10-yr					25-yr					100-yr				
		Peak Discharge (cfs)	Time of Peak	Node Total			Peak Discharge (cfs)	Time of Peak	Node Total			Peak Discharge (cfs)	Time of Peak	Node Total		
				Node No.	Volume (ac-ft)	Peak Discharge (cfs)			Node No.	Volume (ac-ft)	Peak Discharge (cfs)			Node No.	Volume (ac-ft)	Peak Discharge (cfs)
E3a (u/s culvert)	9.21	1468.6	12:48	41	293.1	1468.6	2298.1	12:48	41	437.6	2298.1	3960.5	12:48	41	728.0	3960.5
E3a (d/s culvert)	9.21	15.6	12:48	41	3.2	15.6	18.6	12:48	41	4.7	18.6	22.8	12:48	41	7.1	22.8
Offsite Outlet	-	1453.0	-	50	289.9	1453.0	2279.5	-	50	432.9	2279.5	3937.7	-	50	720.9	3937.7
E3b	0.72	378.1	12:24	42	52.6	378.1	495.2	12:24	42	69.7	495.2	706.4	12:24	42	100.9	706.7
North-East Outlet	9.93	378.1	12:24	42	52.6	378.1	495.2	12:24	42	69.7	495.2	706.7	12:24	42	100.9	706.7
E3c	0.65	478.8	12:12	45	70.9	636.2	612.2	12:12	45	92.8	826.5	850.4	12:12	45	133.2	1169.9
E3d	0.36	174.5	12:18	45	70.9	636.2	237.5	12:18	45	92.8	826.5	353.6	12:18	45	133.2	1169.9
E3e (Ex. Outlet 4)	0.14	143.3	12:03	47	11.2	143.3	182.4	12:03	47	14.4	182.4	252.1	12:03	47	20.3	252.1
E3f	0.06	64.7	12:00	49	127.6	939.7	83.4	12:00	49	167.9	1227.4	116.9	12:00	49	241.8	1745.3
Ex. Outlet 3	10.99	939.7	12:21	49	127.6	939.7	1227.4	12:21	49	167.9	1227.4	1745.3	12:21	49	241.8	1745.3

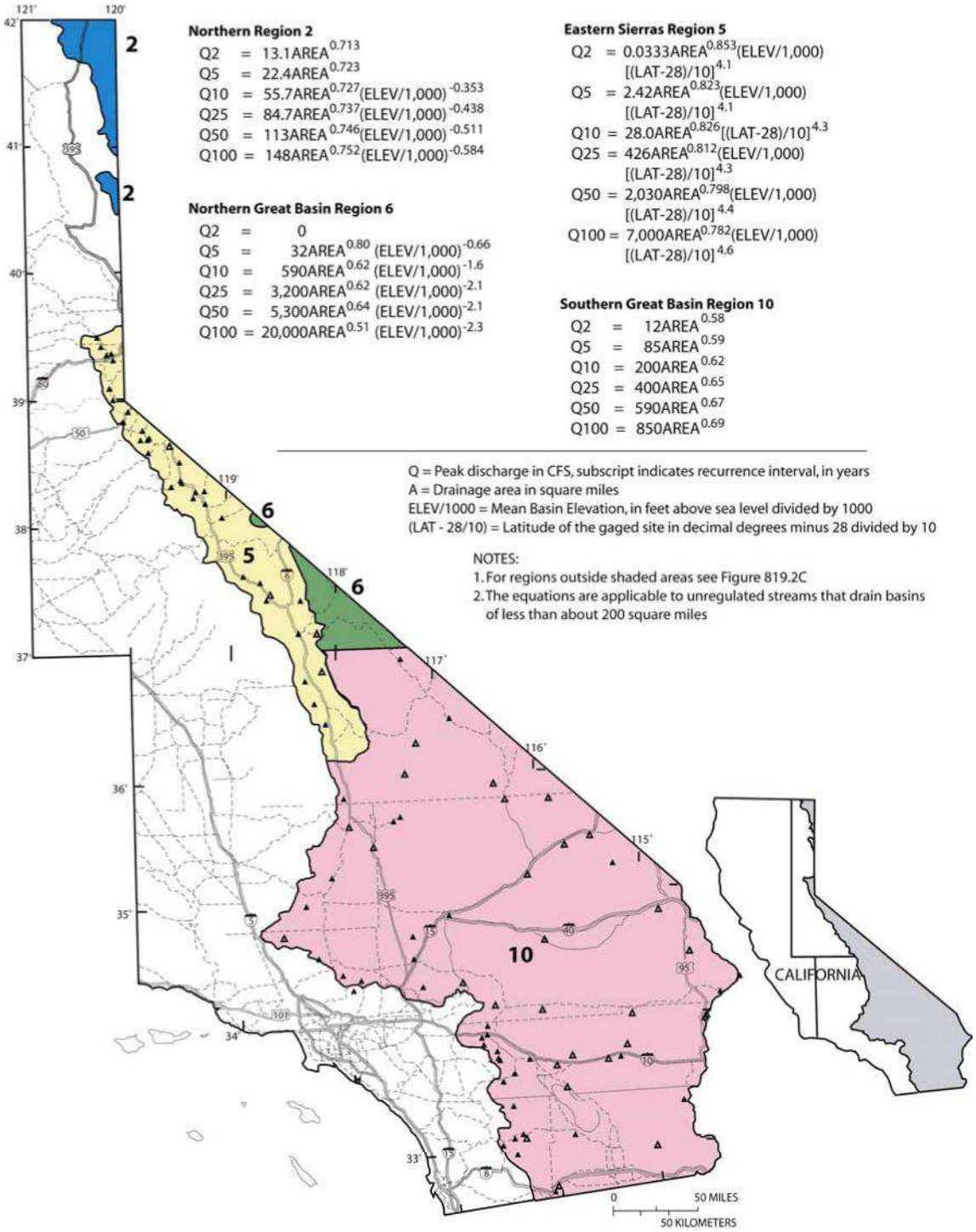
APPENDIX 1I

Caltrans Regional Flood Frequency Equations

Figure 819.2D

Regional Flood Frequency Equations for California Regions within USGS Southwestern United States Study*

*USGS Open File Report 93-419 (1994)

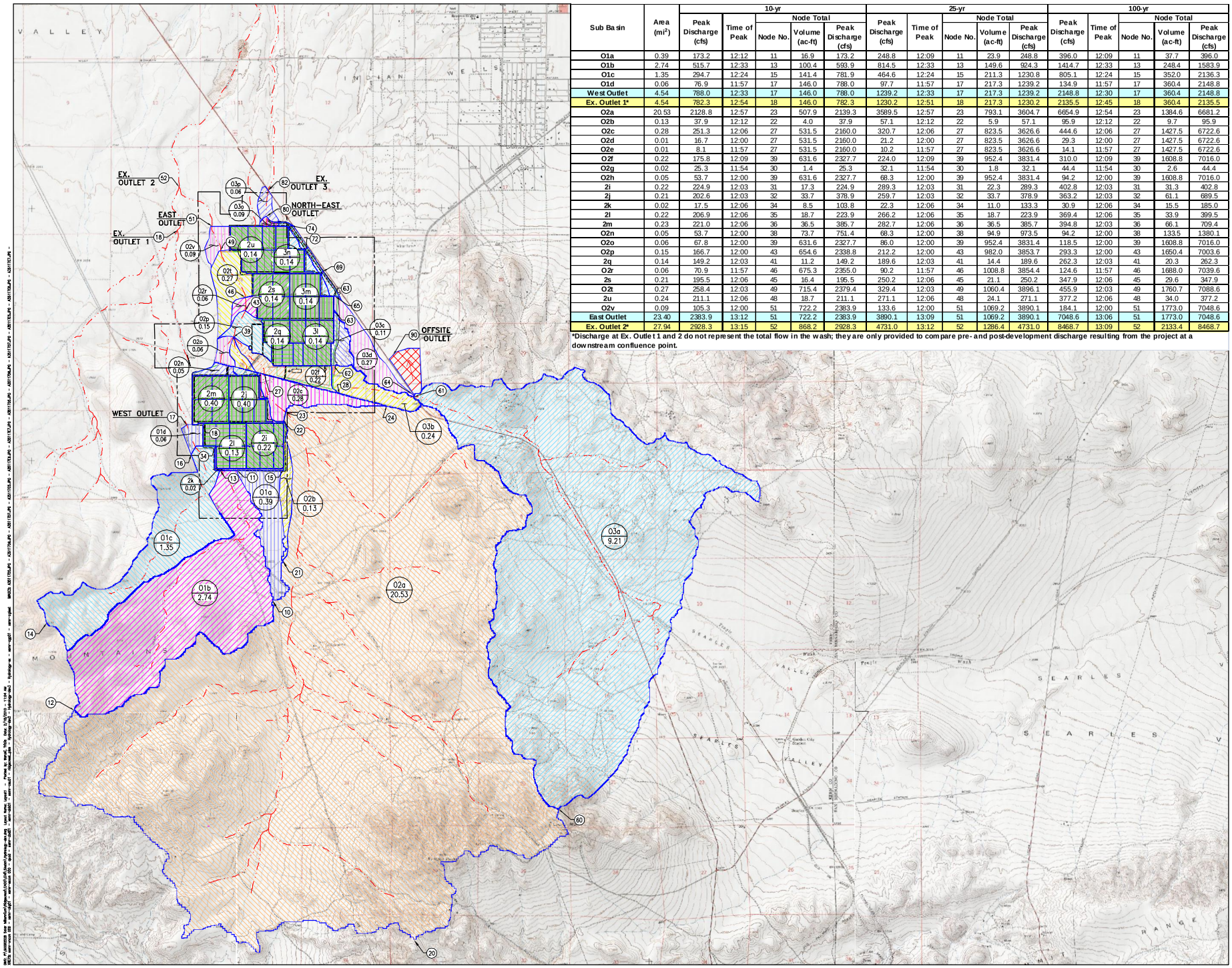


APPENDIX 2

Proposed Hydrology

APPENDIX 2A

Post-Development Hydrology Maps



Sub Basin	Area (mi^2)	10-yr					25-yr					100-yr				
		Peak Discharge (cfs)	Time of Peak	Node Total			Peak Discharge (cfs)	Time of Peak	Node Total			Peak Discharge (cfs)	Time of Peak	Node Total		
				Node No.	Volume (ac-ft)	Peak Discharge (cfs)			Node No.	Volume (ac-ft)	Peak Discharge (cfs)			Node No.	Volume (ac-ft)	Peak Discharge (cfs)
O1a	0.39	173.2	12:12	11	16.9	173.2	248.8	12:09	11	23.9	248.8	396.0	12:09	11	37.7	396.0
O1b	2.74	515.7	12:33	13	100.4	593.9	814.5	12:33	13	149.6	924.3	1414.7	12:33	13	248.4	1583.9
O1c	1.35	294.7	12:24	15	141.4	781.9	464.6	12:24	15	211.3	1230.8	805.1	12:24	15	352.0	2136.3
O1d	0.06	76.9	11:57	17	146.0	788.0	97.7	11:57	17	217.3	1239.2	134.9	11:57	17	360.4	2148.8
West Outlet	4.54	788.0	12:33	17	146.0	788.0	1239.2	12:33	17	217.3	1239.2	2148.8	12:30	17	360.4	2148.8
Ex. Outlet 1*	4.54	782.3	12:54	18	146.0	782.3	1230.2	12:51	18	217.3	1230.2	2135.5	12:45	18	360.4	2135.5
O2a	20.53	2128.8	12:57	23	507.9	2139.3	3589.5	12:57	23	793.1	3604.7	6654.9	12:54	23	1384.6	6681.2
O2b	0.13	37.9	12:12	22	4.0	37.9	57.1	12:12	22	5.9	57.1	95.9	12:12	22	9.7	95.9
O2c	0.28	251.3	12:06	27	531.5	2160.0	320.7	12:06	27	823.5	3626.6	444.6	12:06	27	1427.5	6722.6
O2d	0.01	16.7	12:00	27	531.5	2160.0	21.2	12:00	27	823.5	3626.6	29.3	12:00	27	1427.5	6722.6
O2e	0.01	8.1	11:57	27	531.5	2160.0	10.2	11:57	27	823.5	3626.6	14.1	11:57	27	1427.5	6722.6
O2f	0.22	175.8	12:09	39	631.6	2327.7	224.0	12:09	39	952.4	3831.4	310.0	12:09	39	1608.8	7016.0
O2g	0.02	25.3	11:54	30	1.4	25.3	32.1	11:54	30	1.8	32.1	44.4	11:54	30	2.6	44.4
O2h	0.05	53.7	12:00	39	631.6	2327.7	68.3	12:00	39	952.4	3831.4	94.2	12:00	39	1608.8	7016.0
2i	0.22	224.9	12:03	31	17.3	224.9	289.3	12:03	31	22.3	289.3	402.8	12:03	31	31.3	402.8
2j	0.21	202.6	12:03	32	33.7	378.9	259.7	12:03	32	33.7	378.9	363.2	12:03	32	61.1	689.5
2k	0.02	17.5	12:06	34	8.5	103.8	22.3	12:06	34	11.0	133.3	30.9	12:06	34	15.5	185.0
2l	0.22	206.9	12:06	35	18.7	223.9	266.2	12:06	35	18.7	223.9	369.4	12:06	35	33.9	399.5
2m	0.23	221.0	12:06	36	36.5	385.7	282.7	12:06	36	36.5	385.7	394.8	12:03	36	66.1	709.4
O2n	0.05	53.7	12:00	38	73.7	751.4	68.3	12:00	38	94.9	973.5	94.2	12:00	38	133.5	1380.1
O2o	0.06	67.8	12:00	39	631.6	2327.7	86.0	12:00	39	952.4	3831.4	118.5	12:00	39	1608.8	7016.0
O2p	0.15	166.7	12:00	43	654.6	2338.8	212.2	12:00	43	982.0	3853.7	293.3	12:00	43	1650.4	7003.6
2q	0.14	149.2	12:03	41	11.2	149.2	189.6	12:03	41	14.4	189.6	262.3	12:03	41	20.3	262.3
O2r	0.06	70.9	11:57	46	675.3	2355.0	90.2	11:57	46	1008.8	3854.4	124.6	11:57	46	1688.0	7039.6
2s	0.21	195.5	12:06	45	16.4	195.5	250.2	12:06	45	21.1	250.2	347.9	12:06	45	29.6	347.9
O2t	0.27	258.4	12:03	49	715.4	2379.4	329.4	12:03	49	1060.4	3896.1	455.9	12:03	49	1760.7	7088.6
2u	0.24	211.1	12:06	48	18.7	211.1	271.1	12:06	48	24.1	271.1	377.2	12:06	48	34.0	377.2
O2v	0.09	105.3	12:00	51	722.2	2383.9	133.6	12:00	51	1069.2	3890.1	184.1	12:00	51	1773.0	7048.6
East Outlet	23.40	2383.9	13:12	51	722.2	2383.9	3890.1	13:09	51	1069.2	3890.1	7048.6	13:06	51	1773.0	7048.6
Ex. Outlet 2*	27.94	2928.3	13:15	52	868.2	2928.3	4731.0	13:12	52	1286.4	4731.0	8468.7	13:09	52	2133.4	8468.7

*Discharge at Ex. Outlet 1 and 2 do not represent the total flow in the wash; they are only provided to compare pre- and post-development discharge resulting from the project at a downstream confluence point.

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Designed: T.MARU
Checked:
Drawn: T.MARU
Record Drawing by/date:
Revisions:

#	DATE	DESCRIPTION

Prepared for:

Solar Millennium LLC

LEGEND

02a — DRAINAGE AREA NAME
15.35 — AREA (SQ. MILES)
01 — NODE NUMBER
FLOWLINE
SITE BOUNDARY
DRAINAGE AREA BOUNDARY
SOLAR FIELD LOCATION

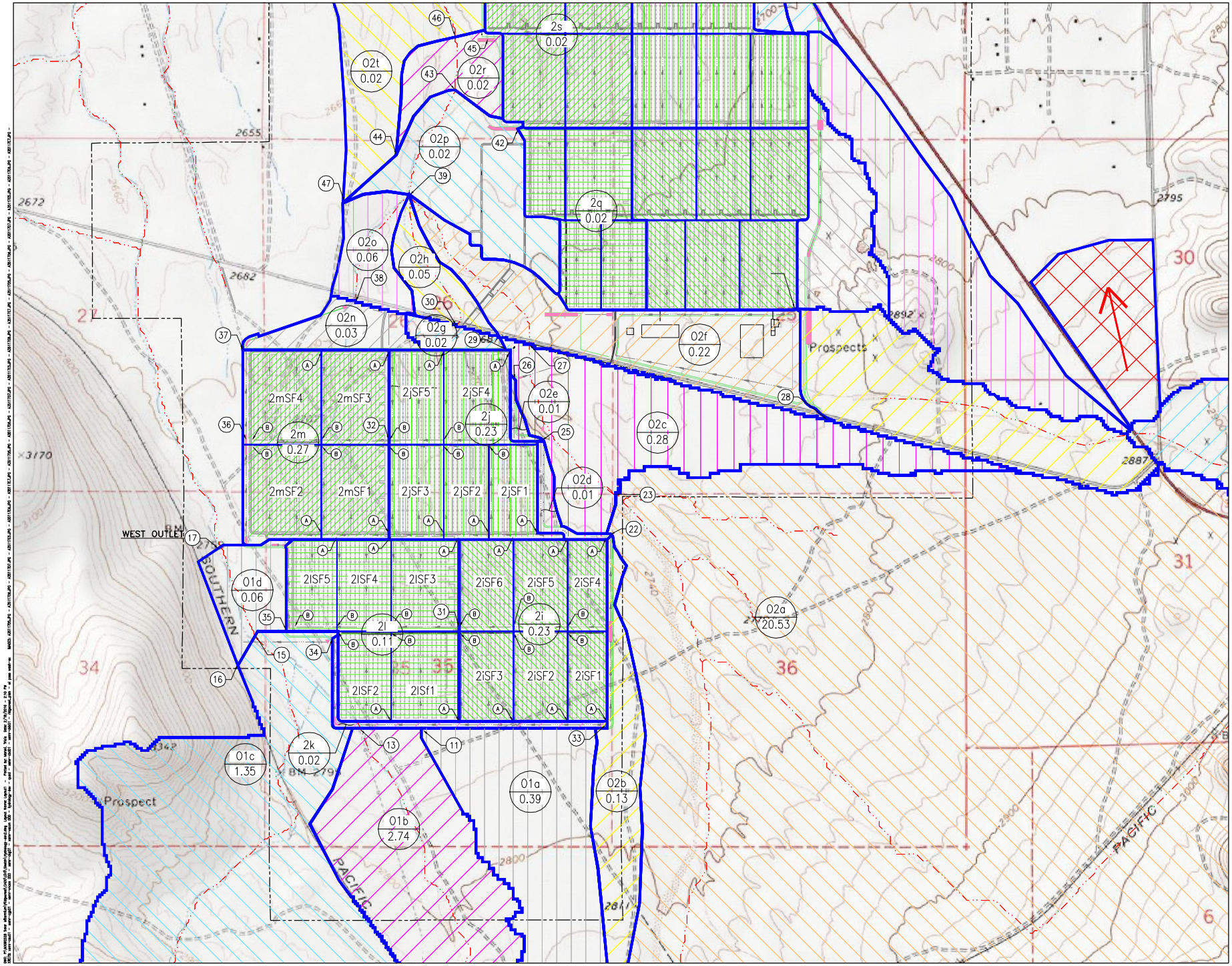
GRAPHIC SCALE:
1"=2000' 0 1000 2000 4000 6000

Ridgecrest Solar Power Project

Kern County, California

Post-Development Hydrology Map

Date: 02/10/10
Sheet: 1 OF 3



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Record Drawing by/date

Revisions:
#	DATE	DESCRIPTION

Prepared for:

Solar Millennium LLC

LEGEND

02a — DRAINAGE AREA NAME
15.35 — AREA (SQ. MILES)

01 — NODE NUMBER

FLOWLINE

SITE BOUNDARY

DRAINAGE AREA BOUNDARY

SOLAR FIELD LOCATION

GRAPHIC SCALE:

1"=500' 0 250 500 1000 1500

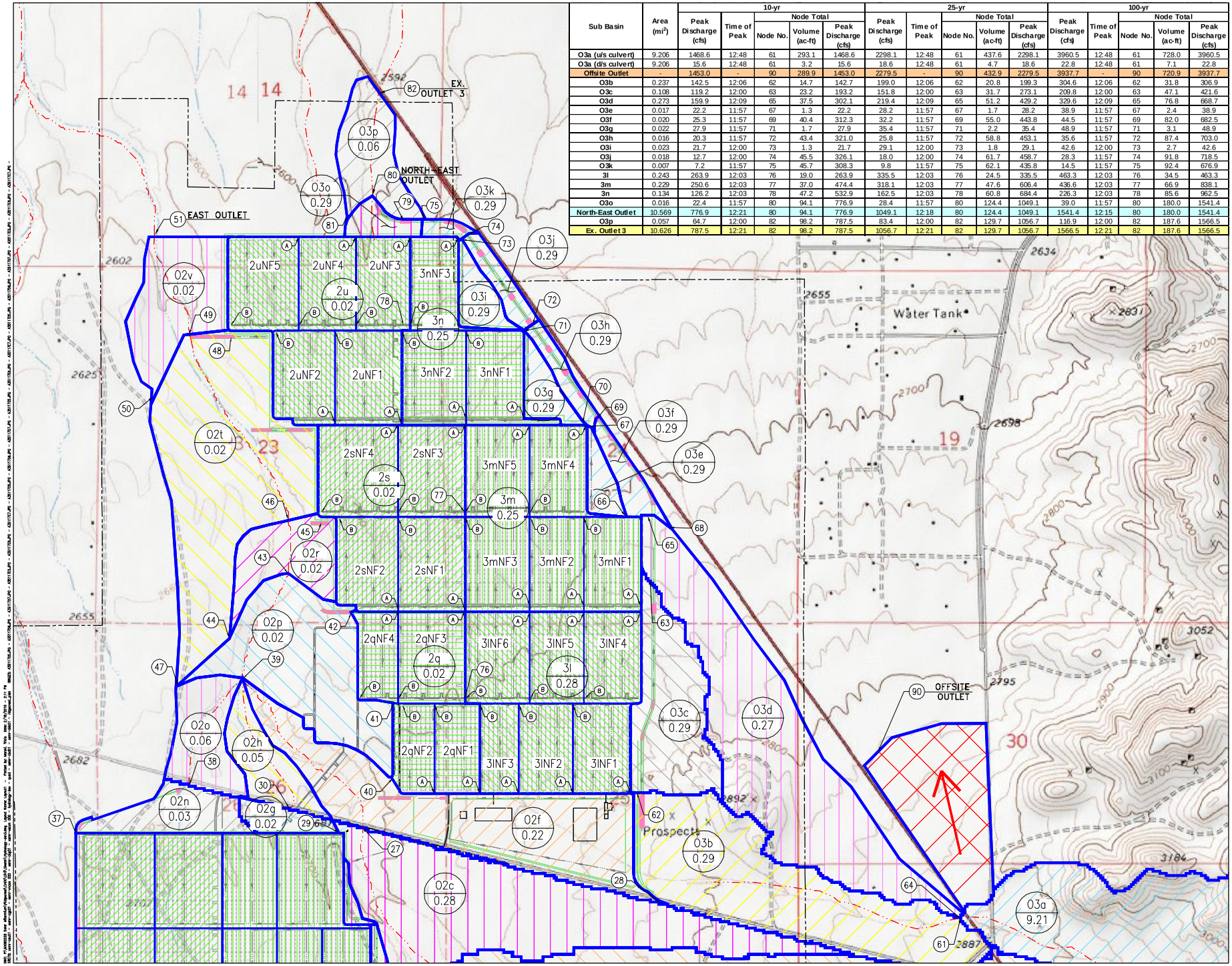
Ridgecrest Sol Power Project

Kern County, California

Post-Development Onsi Hydrology Map (South)

Date: 02/10/10

Sheet: 2 OF 3



Sub Basin	Area (mi^2)	10-yr					25-yr					100-yr				
		Peak Discharge (cfs)	Time of Peak	Node Total			Peak Discharge (cfs)	Time of Peak	Node Total			Peak Discharge (cfs)	Time of Peak	Node Total		
				Node No.	Volume (ac-ft)	Peak Discharge (cfs)			Node No.	Volume (ac-ft)	Peak Discharge (cfs)			Node No.	Volume (ac-ft)	Peak Discharge (cfs)
O3a (u/s culvert)	9.206	1468.6	12:48	61	293.1	1468.6	2298.1	12:48	61	437.6	2298.1	3960.5	12:48	61	728.0	3960.5
O3a (d/s culvert)	9.206	15.6	12:48	61	3.2	15.6	18.6	12:48	61	4.7	18.6	22.8	12:48	61	7.1	22.8
Offsite Outlet	-	1453.0	-	90	289.9	1453.0	2279.5	-	90	432.9	2279.5	3937.7	-	90	720.9	3937.7
O3b	0.237	142.5	12:06	62	14.7	142.7	199.0	12:06	62	20.8	199.3	304.6	12:06	62	31.8	306.9
O3c	0.108	119.2	12:00	63	23.2	193.2	151.8	12:00	63	31.7	273.1	209.8	12:00	63	47.1	421.6
O3d	0.273	159.9	12:09	65	37.5	302.1	219.4	12:09	65	51.2	429.2	329.6	12:09	65	76.8	668.7
O3e	0.017	22.2	11:57	67	1.3	22.2	28.2	11:57	67	1.7	28.2	38.9	11:57	67	2.4	38.9
O3f	0.020	25.3	11:57	69	40.4	312.3	32.2	11:57	69	55.0	443.8	44.5	11:57	69	82.0	682.5
O3g	0.022	27.9	11:57	71	1.7	27.9	35.4	11:57	71	2.2	35.4	48.9	11:57	71	3.1	48.9
O3h	0.016	20.3	11:57	72	43.4	321.0	25.8	11:57	72	58.8	453.1	35.6	11:57	72	87.4	703.0
O3i	0.023	21.7	12:00	73	1.3	21.7	29.1	12:00	73	1.8	29.1	42.6	12:00	73	2.7	42.6
O3j	0.018	12.7	12:00	74	45.5	326.1	18.0	12:00	74	61.7	458.7	28.3	11:57	74	91.8	718.5
O3k	0.007	7.2	11:57	75	45.7	308.3	9.8	11:57	75	62.1	435.8	14.5	11:57	75	92.4	676.9
3l	0.243	263.9	12:03	76	19.0	263.9	335.5	12:03	76	24.5	335.5	463.3	12:03	76	34.5	463.3
3m	0.229	250.6	12:03	77	37.0	474.4	318.1	12:03	77	47.6	606.4	436.6	12:03	77	66.9	838.1
3n	0.134	126.2	12:03	78	47.2	532.9	162.5	12:03	78	60.8	684.4	226.3	12:03	78	85.6	962.5
O3o	0.016	22.4	11:57	80	94.1	776.9	28.4	11:57	80	124.4	1049.1	39.0	11:57	80	180.0	1541.4
North-East Outlet	10.569	776.9	12:21	80	94.1	776.9	1049.1	12:18	80	124.4	1049.1	1541.4	12:15	80	180.0	1541.4
O3p	0.057	64.7	12:00	82	98.2	787.5	83.4	12:00	82	129.7	1056.7	116.9	12:00	82	187.6	1566.5
Ex. Outlet 3	10.626	787.5	12:21	82	98.2	787.5	1056.7	12:21	82	129.7	1056.7	1566.5	12:21	82	187.6	1566.5

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Drawn: T.MARU
Record Drawing by/date

Revisions
#	DATE	DESCRIPTION

Prepared for:

Solar Millennium LLC

LEGEND

- O2a / 15.35 — DRAINAGE AREA NAME / AREA (SQ. MILES)
- 01 — NODE NUMBER
- FLOWLINE
- SITE BOUNDARY
- DRAINAGE AREA BOUNDARY
- SOLAR FIELD LOCATION

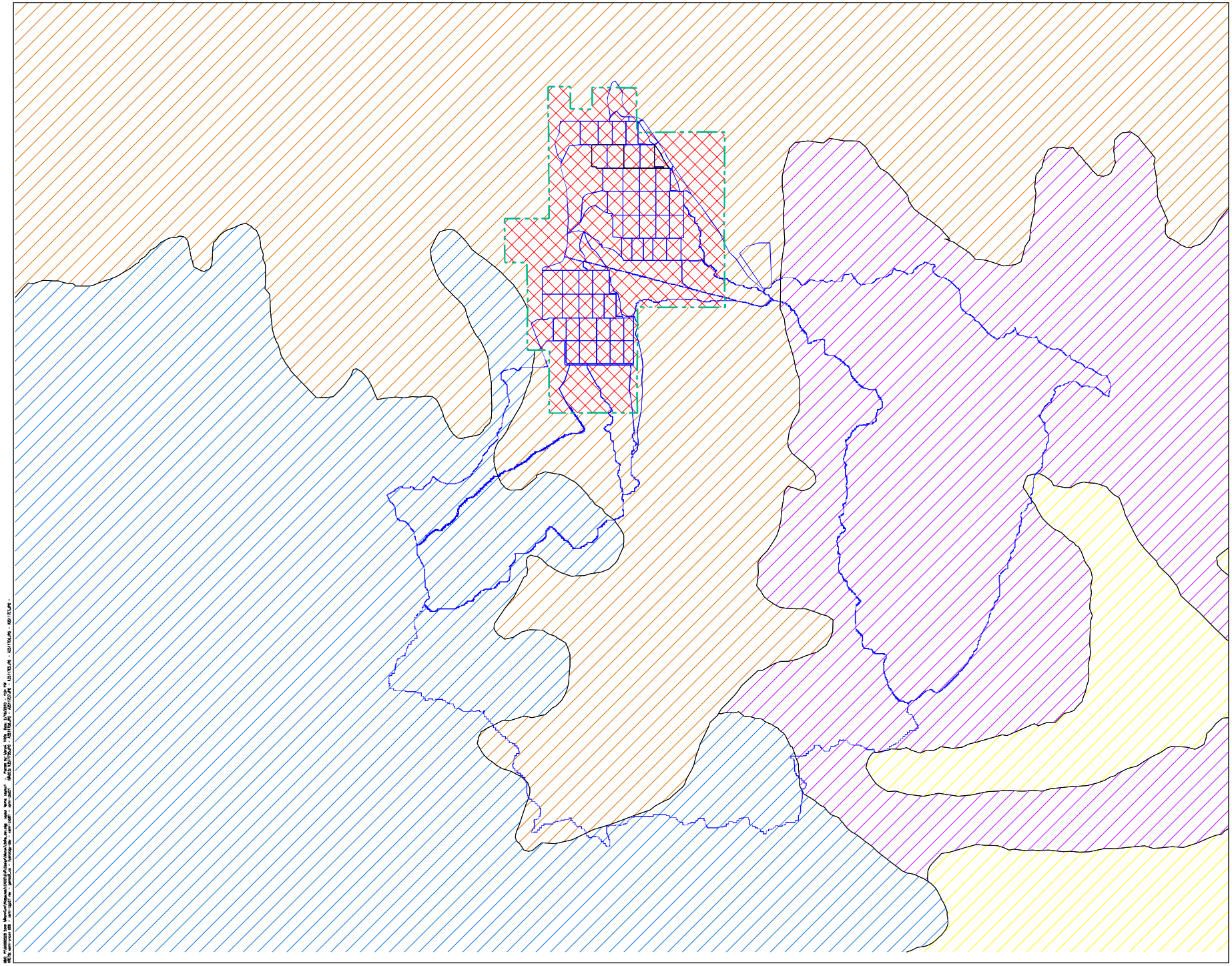
GRAPHIC SCALE: 1"=500' (0, 250, 500, 1000, 1500)

Ridgecrest Sol Power Project

Kern County, California

Post-Development Onsi Hydrology Map (North

Date: 02/10/10
Sheet: 3 OF 3



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Revisions:

#	DATE	DESCRIPTION

Prepared for:

Solar Millennium LLC

LEGEND

CHAPPARAL, BROADLEAF, POOR COVER
PRORATED SOIL GROUP
%B, %C, %D

	70, 15, 15	CN=75
	25, 25, 50	CN=81
	34, 0, 66	CN=81
	50, 25, 25	CN=77
	CEMENTED SILTY SAND (BASED ON ON-SITE PRELIMINARY GEOTECHNICAL INVESTIGATION REPORT, KLEINFELDER, AUG 2009)	CN=95

SITE BOUNDARY

DRAINAGE AREA BOUNDARY

GRAPHIC SCALE:

1"=2000'

0 1000 2000 4000 6000

Ridgecrest Solar Power Project

Kern County, California

Soils Map Post-Development

Date: 02/10/10
Sheet: 1 OF 1

APPENDIX 2B

Post-Development HMS Catchment Input Data

HMS Input Parameters for Post-Development Hydrology Calculations

Post-Development Hydrology - Western Drainage Area

Sub-Basin	Area (mi^2)	Length (mi)	L_{CA} (mi)	Elev. Difference (D)	Slope (ft/mi)	n	CN	S=(1000/CN)-10	T_{lag} (hours) = $24n(LL_{CA}/S^{05})^{0.38}$	T_{lag} (mins) = $24n(LL_{CA}/S^{05})^{0.38}$	IA
O1a	0.392	1.62	0.73	131.00	80.76	0.03	85.29	1.72	0.33	20.03	0.34
O1b	2.737	4.28	2.29	1503.50	351.29	0.04	80.43	2.43	0.75	45.01	0.49
O1c	1.354	3.23	1.62	1402.00	434.32	0.04	80.24	2.46	0.57	34.03	0.49
O1d	0.059	0.36	0.14	62.00	173.67	0.03	95.00	0.53	0.09	5.24	0.11

Post-Development Hydrology - Eastern Drainage Area

Sub-Basin	Area (mi^2)	Length (mi)	L_{CA} (mi)	Elev. Difference (D)	Slope (ft/mi)	n	CN	S=(1000/CN)-10	T_{lag} (hours) = $24n(LL_{CA}/S^{05})^{0.38}$	T_{lag} (mins) = $24n(LL_{CA}/S^{05})^{0.38}$	IA
O2a	20.528	7.47	3.37	1560.00	208.89	0.04	77.46	2.91	1.19	71.12	0.58
O2b	0.130	1.60	0.79	101.00	63.05	0.03	84.69	1.81	0.36	21.47	0.36
O2c	0.284	1.48	0.50	150.00	101.35	0.03	94.79	0.55	0.27	16.03	0.11
O2d	0.014	0.45	0.18	26.00	58.30	0.03	95.00	0.53	0.13	7.59	0.11
O2e	0.006	0.23	0.12	22.00	94.02	0.03	95.00	0.53	0.08	4.64	0.11
O2f	0.216	1.45	0.84	126.00	87.20	0.03	95.00	0.53	0.33	19.91	0.11
O2g	0.018	0.16	0.06	23.00	140.24	0.03	95.00	0.53	0.05	2.90	0.11
O2h	0.046	0.44	0.27	32.00	72.73	0.03	95.00	0.53	0.14	8.52	0.11
2iSF1	0.029	0.36	0.18	4.79	13.49	0.03	95.00	0.53	0.16	9.32	0.11
2iSF2	0.040	0.40	0.21	5.92	14.84	0.03	95.00	0.53	0.17	10.07	0.11
2iSF3	0.040	0.40	0.21	5.88	14.74	0.03	95.00	0.53	0.17	10.08	0.11
2iSF4	0.030	0.36	0.18	4.79	13.34	0.03	95.00	0.53	0.15	9.27	0.11
2iSF5	0.041	0.40	0.20	6.38	15.95	0.03	95.00	0.53	0.16	9.81	0.11
2iSF6	0.041	0.40	0.20	6.70	16.75	0.03	95.00	0.53	0.16	9.72	0.11
2jSF1	0.038	0.38	0.19	4.44	11.59	0.03	95.00	0.53	0.17	10.10	0.11
2jSF2	0.035	0.37	0.22	4.34	11.64	0.03	95.00	0.53	0.17	10.41	0.11
2jSF3	0.042	0.40	0.22	4.87	12.17	0.03	95.00	0.53	0.18	10.61	0.11
2jSF4	0.053	0.43	0.26	4.74	10.95	0.03	95.00	0.53	0.20	11.89	0.11
2jSF5	0.042	0.40	0.21	4.70	11.66	0.03	95.00	0.53	0.18	10.56	0.11
2k	0.020	1.03	0.56	46.50	45.32	0.03	95.00	0.53	0.28	16.91	0.11
2lSF1	0.050	0.44	0.29	6.00	13.67	0.03	95.00	0.53	0.20	11.95	0.11
2lSF2	0.039	0.40	0.21	4.93	12.48	0.03	95.00	0.53	0.17	10.29	0.11
2lSF3	0.051	0.44	0.20	6.62	15.08	0.03	95.00	0.53	0.17	10.27	0.11
2lSF4	0.041	0.40	0.20	6.08	15.21	0.03	95.00	0.53	0.17	9.90	0.11
2lSF5	0.038	0.37	0.17	5.52	14.92	0.03	95.00	0.53	0.15	9.10	0.11
2mSF1	0.052	0.44	0.22	5.39	12.33	0.03	95.00	0.53	0.18	10.93	0.11
2mSF2	0.062	0.44	0.26	5.40	12.30	0.03	95.00	0.53	0.20	11.74	0.11
2mSF3	0.052	0.44	0.21	5.68	12.94	0.03	95.00	0.53	0.18	10.68	0.11
2mSF4	0.061	0.44	0.25	6.18	14.01	0.03	95.00	0.53	0.19	11.25	0.11
O2n	0.046	0.35	0.14	6.00	17.00	0.03	95.00	0.53	0.14	8.13	0.11
O2o	0.056	0.37	0.22	32.00	86.49	0.03	95.00	0.53	0.12	7.14	0.11
O2p	0.151	0.68	0.30	69.00	101.47	0.03	95.00	0.53	0.16	9.82	0.11
2qNF1	0.033	0.37	0.21	5.86	15.67	0.03	95.00	0.53	0.16	9.72	0.11
2qNF2	0.030	0.34	0.14	3.58	10.69	0.03	95.00	0.53	0.14	8.66	0.11
2qNF3	0.050	0.44	0.20	5.17	11.86	0.03	95.00	0.53	0.18	10.73	0.11
2qNF4	0.030	0.33	0.17	2.50	7.58	0.03	95.00	0.53	0.16	9.77	0.11
O2r	0.056	0.39	0.15	36.00	93.51	0.03	95.00	0.53	0.10	6.22	0.11
2sNF1	0.052	0.44	0.22	4.66	10.71	0.03	95.00	0.53	0.19	11.21	0.11
2sNF2	0.047	0.41	0.23	3.40	8.25	0.03	95.00	0.53	0.20	11.74	0.11
2sNF3	0.050	0.44	0.20	4.78	10.96	0.03	95.00	0.53	0.18	10.89	0.11
2sNF4	0.060	0.47	0.27	4.18	8.99	0.03	95.00	0.53	0.21	12.88	0.11
O2t	0.273	1.03	0.41	78.00	75.58	0.03	95.00	0.53	0.23	13.67	0.11

Sub-Basin	Area (mi^2)	Length (mi)	L_{CA} (mi)	Elev. Difference (D)	Slope (ft/mi)	n	CN	S=(1000/CN)-10	T_{lag} (hours) = $24n(LL_{CA}/S^{05})^{0.38}$	T_{lag} (mins) = $24n(LL_{CA}/S^{05})^{0.38}$	IA
2uNF1	0.052	0.44	0.22	4.36	10.02	0.03	95.00	0.53	0.19	11.35	0.11
2uNF2	0.047	0.41	0.23	4.16	10.10	0.03	95.00	0.53	0.19	11.30	0.11
2uNF3	0.042	0.40	0.21	2.96	7.38	0.03	95.00	0.53	0.19	11.43	0.11
2uNF4	0.044	0.41	0.21	3.02	7.40	0.03	95.00	0.53	0.19	11.50	0.11
2uNF5	0.055	0.44	0.24	3.21	7.31	0.03	95.00	0.53	0.21	12.65	0.11
O2v	0.087	0.49	0.18	43.50	89.32	0.03	95.00	0.53	0.12	7.33	0.11

HMS Reach Parameters for Post-Development Hydrology Calculations

Post-Development Hydrology - Western & Eastern Drainage Area

Hydrologic Element	Length (ft)	Slope	n	Shape	Bottom Width (ft)	Side Slope (xH:1v)
R1	1004.25	0.004	0.03	Trapezoidal	5	4:1
R2	2290.07	0.013	0.03	Trapezoidal	5	4:1
R3	1550.90	0.011	0.03	Trapezoidal	5	4:1
R4	13827.15	0.010	0.03	Trapezoidal	5	4:1
R5	3140.09	0.008	0.03	Trapezoidal	20	4:1
R6	585.54	0.032	0.03	Trapezoidal	5	4:1
R7	2963.71	0.010	0.03	Trapezoidal	20	4:1
R8	1504.34	0.022	0.03	Trapezoidal	5	4:1
R9	642.74	0.025	0.03	Trapezoidal	5	4:1
R10	3205.61	0.012	0.03	Trapezoidal	20	4:1
R11	2326.76	0.014	0.03	Trapezoidal	20	4:1
R12	818.90	0.004	0.03	Trapezoidal	8	3:1
R13	825.90	0.004	0.03	Trapezoidal	8	3:1
R14	90.00	0.221	0.03	Trapezoidal	10	2:1
R15	818.90	0.004	0.03	Trapezoidal	8	3:1
R16	825.90	0.004	0.03	Trapezoidal	8	3:1
R17	3780.87	0.005	0.03	Trapezoidal	10	4:1
R18	682.41	0.003	0.03	Trapezoidal	8	3:1
R19	825.66	0.003	0.03	Trapezoidal	8	3:1
R20	90.00	0.199	0.03	Trapezoidal	10	2:1
R21	825.66	0.002	0.03	Trapezoidal	8	3:1
R22	2476.06	0.007	0.03	Trapezoidal	10	2:1
R23	800.66	0.004	0.03	Trapezoidal	8	3:1
R24	185.00	0.011	0.03	Trapezoidal	10	2:1
R25	851.04	0.025	0.03	Trapezoidal	10	2:1
R26	664.17	0.003	0.03	Trapezoidal	8	3:1
R27	1302.19	0.002	0.03	Trapezoidal	10	2:1
R28	3343.61	0.005	0.03	Trapezoidal	10	2:1
R29	1046.81	0.003	0.03	Trapezoidal	8	3:1
R30	184.00	0.098	0.03	Trapezoidal	10	2:1
R31	1140.62	0.003	0.03	Trapezoidal	8	3:1
R32	3250.83	0.004	0.03	Trapezoidal	10	2:1
R33	1940.57	0.016	0.03	Trapezoidal	20	2:1

Hydrologic Element	Length (ft)	Slope	n	Shape	Bottom Width (ft)	Side Slope (xH:1v)
R34	1884.67	0.008	0.03	Trapezoidal	20	2:1
R35	477.69	0.004	0.03	Trapezoidal	8	3:1
R36	673.05	0.030	0.03	Trapezoidal	10	2:1
R37	477.74	0.002	0.03	Trapezoidal	8	3:1
R38	2642.70	0.018	0.03	Trapezoidal	10	2:1
R39	828.14	0.010	0.03	Trapezoidal	20	2:1
R40	887.14	0.002	0.03	Trapezoidal	8	3:1
R41	290.24	0.072	0.03	Trapezoidal	10	2:1
R42	1160.11	0.002	0.03	Trapezoidal	8	3:1
R43	167.00	0.006	0.03	Trapezoidal	10	2:1
R44	535.27	0.032	0.03	Trapezoidal	20	2:1
R45	3425.15	0.009	0.03	Trapezoidal	20	2:1
R46	887.14	0.002	0.03	Trapezoidal	8	3:1
R47	700.40	0.026	0.03	Trapezoidal	10	2:1
R48	859.19	0.001	0.03	Trapezoidal	8	3:1
R49	1023.62	0.001	0.03	Trapezoidal	8	3:1
R50	159.32	0.006	0.03	Trapezoidal	10	2:1
R51	625.91	0.026	0.03	Trapezoidal	10	2:1
R52	1658.21	0.009	0.03	Trapezoidal	20	4:1
R53	3676.88	0.006	0.03	Trapezoidal	20	4:1

HMS Input Parameters for Post-Development Hydrology Calculations

Post-Development Hydrology - North-Eastern Drainage Area

Sub-Basin	Area (mi^2)	Length (mi)	L_{CA} (mi)	Elev. Difference (D)	Slope (ft/mi)	n	CN	S=(1000/CN)-10	T_{lag} (hours) = $24n(LL_{CA}/S^{05})^{0.38}$	T_{lag} (mins) = $24n(LL_{CA}/S^{05})^{0.38}$	IA
O3a	9.206	6.36	3.05	1505.00	236.64	0.04	80.97	2.35	1.05	62.91	0.47
O3b	0.237	1.07	0.54	143.00	133.40	0.03	87.19	1.47	0.23	13.83	0.29
O3c	0.108	0.72	0.40	141.13	197.11	0.03	95.00	0.53	0.16	9.82	0.11
O3d	0.273	1.52	0.74	176.46	116.02	0.03	88.82	1.26	0.31	18.32	0.25
O3e	0.017	0.28	0.16	33.00	116.61	0.03	95.00	0.53	0.09	5.42	0.11
O3f	0.020	0.38	0.19	55.00	145.50	0.03	95.00	0.53	0.10	6.14	0.11
O3g	0.022	0.33	0.18	39.00	116.77	0.03	95.00	0.53	0.10	5.94	0.11
O3h	0.016	0.36	0.17	51.00	140.50	0.03	95.00	0.53	0.10	5.81	0.11
O3i	0.023	0.34	0.17	28.00	83.58	0.03	90.04	1.11	0.11	6.31	0.22
O3j	0.018	0.32	0.17	34.00	105.59	0.03	85.22	1.73	0.10	5.87	0.35
O3k	0.007	0.17	0.07	11.60	69.88	0.03	89.29	1.20	0.06	3.51	0.24
3lNF1	0.042	0.41	0.23	14.23	35.05	0.03	95.00	0.53	0.15	8.99	0.11
3lNF2	0.040	0.40	0.23	12.83	32.07	0.03	95.00	0.53	0.15	9.03	0.11
3lNF3	0.029	0.36	0.18	11.75	33.01	0.03	95.00	0.53	0.13	7.87	0.11
3lNF4	0.043	0.41	0.23	15.57	37.98	0.03	95.00	0.53	0.15	8.80	0.11
3lNF5	0.041	0.40	0.23	11.65	29.12	0.03	95.00	0.53	0.15	9.16	0.11
3lNF6	0.048	0.43	0.26	13.28	30.96	0.03	95.00	0.53	0.16	9.74	0.11
3mNF1	0.045	0.41	0.24	15.51	37.83	0.03	95.00	0.53	0.15	8.99	0.11
3mNF2	0.042	0.40	0.24	13.99	35.06	0.03	95.00	0.53	0.15	9.03	0.11
3mNF3	0.050	0.43	0.27	14.00	32.71	0.03	95.00	0.53	0.16	9.81	0.11
3mNF4	0.044	0.41	0.23	18.22	44.77	0.03	95.00	0.53	0.14	8.53	0.11
3mNF5	0.048	0.43	0.26	10.78	25.13	0.03	95.00	0.53	0.17	10.13	0.11
3nNF1	0.046	0.41	0.22	4.21	10.32	0.03	95.00	0.53	0.18	11.09	0.11
3nNF2	0.050	0.43	0.25	3.35	7.83	0.03	95.00	0.53	0.21	12.40	0.11
3nNF3	0.038	0.38	0.20	3.32	8.71	0.03	94.05	0.63	0.18	10.81	0.13
O3o	0.016	0.19	0.07	18.00	95.74	0.03	95.00	0.53	0.06	3.44	0.11
O3p	0.057	0.38	0.172	30.00	79.16	0.03	93.46	0.70	0.11	6.67	0.14

HMS Reach Parameters for Post-Development Hydrology Calculations

Post-Development Hydrology - North-Eastern Drainage Area

Hydrologic Element	Length (ft)	Slope	n	Shape	Bottom Width (ft)	Side Slope (xH:1v)
R1	5660.37	0.025	0.03	Trapezoidal	20	4:1
R2	3159.84	0.010	0.03	Trapezoidal	45	3:1
R3	1055.82	0.000	0.03	Trapezoidal	45	3:1
R4	1678.57	0.016	0.03	Trapezoidal	45	3:1
R5	155.74	0.045	0.03	Trapezoidal	10	2:1
R6	1780.00	0.022	0.03	Trapezoidal	45	3:1
R7	142.13	0.183	0.03	Trapezoidal	10	2:1
R8	1668.12	0.014	0.03	Trapezoidal	45	3:1
R9	105.60	0.066	0.03	Trapezoidal	10	2:1
R10	756.45	0.001	0.03	Trapezoidal	45	3:1
R11	288.14	0.001	0.03	Trapezoidal	45	3:1
R12	818.90	0.014	0.03	Trapezoidal	8	3:1
R13	586.22	0.017	0.03	Trapezoidal	8	3:1
R14	309.57	0.064	0.03	Trapezoidal	10	2:1
R15	818.90	0.012	0.03	Trapezoidal	8	3:1
R16	972.14	0.012	0.03	Trapezoidal	8	3:1
R17	2749.69	0.006	0.03	Trapezoidal	10	2:1
R18	818.90	0.015	0.03	Trapezoidal	8	3:1
R19	972.14	0.012	0.03	Trapezoidal	8	3:1
R20	65.00	0.300	0.03	Trapezoidal	10	2:1
R21	972.14	0.009	0.03	Trapezoidal	8	3:1
R22	3705.07	0.004	0.03	Trapezoidal	10	2:1
R23	972.14	0.001	0.03	Trapezoidal	8	3:1
R24	82.68	0.215	0.03	Trapezoidal	10	2:1
R25	1562.34	0.012	0.03	Trapezoidal	10	2:1
R26	1500.00	0.003	0.03	Trapezoidal	45	3:1
R27	1587.68	0.011	0.03	Trapezoidal	20	4:1

APPENDIX 2C

HMS Output for the Post-Development Hydrology Calculations

HMS Output for Post-Development Hydrology Calculations

10 Year Flow Rates

Post-Development Hydrology - Western & Eastern Drainage Areas

Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
2iSF1	0.029	32.00	01Jan2009, 12:00	2.30
2iSF2	0.040	42.60	01Jan2009, 12:03	3.10
2iSF3	0.040	42.60	01Jan2009, 12:03	3.10
2iSF4	0.030	34.10	01Jan2009, 12:00	2.40
2iSF5	0.041	45.30	01Jan2009, 12:00	3.20
2iSF6	0.041	45.30	01Jan2009, 12:00	3.20
2jSF1	0.038	40.50	01Jan2009, 12:03	3.00
2jSF2	0.035	37.30	01Jan2009, 12:03	2.70
2jSF3	0.042	44.30	01Jan2009, 12:03	3.30
2jSF4	0.053	54.80	01Jan2009, 12:03	4.20
2jSF5	0.042	44.30	01Jan2009, 12:03	3.30
2k	0.020	17.50	01Jan2009, 12:06	1.60
2lSF1	0.050	51.70	01Jan2009, 12:03	3.90
2lSF2	0.039	41.50	01Jan2009, 12:03	3.10
2lSF3	0.051	54.30	01Jan2009, 12:03	4.00
2lSF4	0.041	43.70	01Jan2009, 12:03	3.20
2lSF5	0.038	43.20	01Jan2009, 12:00	3.00
2mSF1	0.052	54.80	01Jan2009, 12:03	4.10
2mSF2	0.062	64.10	01Jan2009, 12:03	4.90
2mSF3	0.052	54.80	01Jan2009, 12:03	4.10
2mSF4	0.061	63.70	01Jan2009, 12:03	4.80
2qNF1	0.033	36.40	01Jan2009, 12:00	2.60
2qNF2	0.030	35.00	01Jan2009, 12:00	2.40
2qNF3	0.050	52.70	01Jan2009, 12:03	3.90
2qNF4	0.030	33.10	01Jan2009, 12:00	2.40
2sNF1	0.052	54.30	01Jan2009, 12:03	4.10
2sNF2	0.047	48.60	01Jan2009, 12:03	3.70
2sNF3	0.050	52.20	01Jan2009, 12:03	3.90
2sNF4	0.060	60.10	01Jan2009, 12:03	4.70
2uNF1	0.052	54.30	01Jan2009, 12:03	4.10
2uNF2	0.047	49.10	01Jan2009, 12:03	3.70
2uNF3	0.042	43.80	01Jan2009, 12:03	3.30
2uNF4	0.044	45.90	01Jan2009, 12:03	3.40
2uNF5	0.055	55.10	01Jan2009, 12:03	4.30
East_Outlet	23.400	2383.90	01Jan2009, 13:12	722.20
Ex_Outlet1	4.542	782.30	01Jan2009, 12:54	146.00
Ex_Outlet2	27.942	2928.30	01Jan2009, 13:15	868.20
J0	20.962	2160.00	01Jan2009, 13:00	531.50
J1	3.129	593.90	01Jan2009, 12:33	100.40
J10	0.071	76.50	01Jan2009, 12:03	5.60
J11	0.221	224.90	01Jan2009, 12:03	17.30
J12	0.073	75.80	01Jan2009, 12:03	5.70
J13	0.336	298.60	01Jan2009, 12:12	26.30
J14	0.431	378.90	01Jan2009, 12:09	33.70
J15	0.353	293.20	01Jan2009, 12:12	27.60
J16	0.466	385.70	01Jan2009, 12:09	36.50

Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
J17	0.943	751.40	01Jan2009, 12:15	73.70
J18	22.241	2327.70	01Jan2009, 13:03	631.60
J19	22.535	2338.80	01Jan2009, 13:06	654.60
J2	4.483	781.90	01Jan2009, 12:33	141.40
J20	0.063	68.30	01Jan2009, 12:03	4.90
J21	0.143	149.20	01Jan2009, 12:03	11.20
J22	0.099	93.70	01Jan2009, 12:06	7.70
J23	0.110	102.50	01Jan2009, 12:06	8.60
J24	0.209	195.50	01Jan2009, 12:06	16.40
J25	22.800	2355.00	01Jan2009, 13:06	675.30
J26	0.099	94.30	01Jan2009, 12:06	7.80
J27	0.086	79.70	01Jan2009, 12:03	6.70
J28	0.141	118.10	01Jan2009, 12:06	11.00
J29	0.240	211.10	01Jan2009, 12:06	18.70
J3	0.089	86.30	01Jan2009, 12:03	7.00
J30	23.313	2379.40	01Jan2009, 13:09	715.40
J4	0.109	103.80	01Jan2009, 12:06	8.50
J5	0.092	95.60	01Jan2009, 12:03	7.20
J6	0.239	223.90	01Jan2009, 12:06	18.70
J7	20.658	2139.30	01Jan2009, 12:57	507.90
J8	0.069	73.10	01Jan2009, 12:03	5.40
J9	0.109	109.60	01Jan2009, 12:03	8.50
O1a	0.392	173.20	01Jan2009, 12:12	16.90
O1b	2.737	515.70	01Jan2009, 12:33	83.50
O1c	1.354	294.70	01Jan2009, 12:24	41.00
O1d	0.059	76.90	01Jan2009, 11:57	4.60
O2a	20.528	2128.80	01Jan2009, 12:57	503.90
O2b	0.130	37.90	01Jan2009, 12:12	4.00
O2c	0.284	251.30	01Jan2009, 12:06	22.00
O2d	0.014	16.70	01Jan2009, 12:00	1.10
O2e	0.006	8.10	01Jan2009, 11:57	0.50
O2f	0.216	175.80	01Jan2009, 12:09	16.90
O2g	0.018	25.30	01Jan2009, 11:54	1.40
O2h	0.046	53.70	01Jan2009, 12:00	3.60
O2n	0.046	53.70	01Jan2009, 12:00	3.60
O2o	0.056	67.80	01Jan2009, 12:00	4.40
O2p	0.151	166.70	01Jan2009, 12:00	11.80
O2r	0.056	70.90	01Jan2009, 11:57	4.40
O2t	0.273	258.40	01Jan2009, 12:03	21.40
O2v	0.087	105.30	01Jan2009, 12:00	6.80
R1	0.392	169.10	01Jan2009, 12:15	16.90
R10	20.962	2144.20	01Jan2009, 13:03	531.50
R11	0.018	24.90	01Jan2009, 12:03	1.40
R12	0.029	30.60	01Jan2009, 12:06	2.30
R13	0.069	71.10	01Jan2009, 12:06	5.40
R14	0.109	109.30	01Jan2009, 12:03	8.50
R15	0.030	32.60	01Jan2009, 12:03	2.30
R16	0.071	73.80	01Jan2009, 12:06	5.60
R17	0.221	215.00	01Jan2009, 12:12	17.30
R18	0.038	38.90	01Jan2009, 12:06	3.00
R19	0.073	72.60	01Jan2009, 12:06	5.70
R2	3.129	586.00	01Jan2009, 12:36	100.40
R20	0.336	298.60	01Jan2009, 12:12	26.30

Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
R22	0.431	369.10	01Jan2009, 12:15	33.70
R23	0.050	50.30	01Jan2009, 12:06	3.90
R24	0.089	86.30	01Jan2009, 12:06	7.00
R25	0.109	102.60	01Jan2009, 12:09	8.50
R26	0.051	52.60	01Jan2009, 12:06	4.00
R27	0.092	91.20	01Jan2009, 12:06	7.20
R28	0.239	213.80	01Jan2009, 12:15	18.70
R29	0.052	51.90	01Jan2009, 12:06	4.10
R3	4.483	780.70	01Jan2009, 12:33	141.40
R30	0.353	293.00	01Jan2009, 12:12	27.60
R31	0.052	51.70	01Jan2009, 12:06	4.10
R32	0.466	366.80	01Jan2009, 12:18	36.40
R33	0.943	744.40	01Jan2009, 12:18	73.70
R34	22.241	2313.00	01Jan2009, 13:06	631.50
R35	0.033	35.90	01Jan2009, 12:03	2.60
R36	0.063	68.10	01Jan2009, 12:03	4.90
R37	0.050	49.00	01Jan2009, 12:03	3.90
R38	0.143	145.60	01Jan2009, 12:06	11.20
R39	22.535	2329.50	01Jan2009, 13:06	654.60
R4	4.542	782.30	01Jan2009, 12:54	146.00
R40	0.052	48.70	01Jan2009, 12:06	4.10
R41	0.099	93.60	01Jan2009, 12:06	7.80
R42	0.050	46.90	01Jan2009, 12:09	3.90
R43	0.110	101.80	01Jan2009, 12:06	8.60
R44	0.209	193.70	01Jan2009, 12:06	16.40
R45	22.800	2329.90	01Jan2009, 13:09	675.30
R46	0.052	49.70	01Jan2009, 12:06	4.10
R47	0.099	94.10	01Jan2009, 12:06	7.80
R48	0.042	37.40	01Jan2009, 12:06	3.30
R49	0.086	69.70	01Jan2009, 12:09	6.70
R5	4.542	778.6	01Jan2009, 12:57	146
R50	0.141	117	01Jan2009, 12:06	11
R51	0.24	209.6	01Jan2009, 12:06	18.7
R52	23.313	2377.7	01Jan2009, 13:12	715.4
R53	23.400	2357.1	01Jan2009, 13:18	722.2
R6	0.130	37.40	01Jan2009, 12:12	4.00
R7	20.658	2125.00	01Jan2009, 13:00	507.90
R8	0.014	16.20	01Jan2009, 12:03	1.10
R9	0.006	7.90	01Jan2009, 12:00	0.50
West_Outlet	4.542	788.00	01Jan2009, 12:33	146.00

HMS Output for Post-Development Hydrology Calculations

25 Year Flow Rates

Post-Development Hydrology - Western & Eastern Drainage Areas

Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
2iSF1	0.029	40.80	01Jan2009, 12:00	2.90
2iSF2	0.040	54.30	01Jan2009, 12:00	4.00
2iSF3	0.040	54.30	01Jan2009, 12:00	4.00
2iSF4	0.030	43.40	01Jan2009, 12:00	3.00
2iSF5	0.041	57.60	01Jan2009, 12:00	4.10
2iSF6	0.041	57.60	01Jan2009, 12:00	4.10
2jSF1	0.038	51.60	01Jan2009, 12:00	3.80
2jSF2	0.035	47.50	01Jan2009, 12:00	3.50
2jSF3	0.042	56.30	01Jan2009, 12:03	4.20
2jSF4	0.053	69.70	01Jan2009, 12:03	5.30
2jSF5	0.042	56.30	01Jan2009, 12:03	4.20
2k	0.020	22.30	01Jan2009, 12:06	2.00
2lSF1	0.050	65.80	01Jan2009, 12:03	5.00
2lSF2	0.039	52.90	01Jan2009, 12:00	3.90
2lSF3	0.051	69.20	01Jan2009, 12:00	5.10
2lSF4	0.041	55.60	01Jan2009, 12:00	4.10
2lSF5	0.038	55.00	01Jan2009, 12:00	3.80
2mSF1	0.052	69.70	01Jan2009, 12:03	5.20
2mSF2	0.062	81.50	01Jan2009, 12:03	6.30
2mSF3	0.052	69.70	01Jan2009, 12:03	5.20
2mSF4	0.061	80.90	01Jan2009, 12:03	6.20
2qNF1	0.033	46.40	01Jan2009, 12:00	3.30
2qNF2	0.030	44.50	01Jan2009, 12:00	3.00
2qNF3	0.050	67.00	01Jan2009, 12:03	5.00
2qNF4	0.030	42.20	01Jan2009, 12:00	3.00
2sNF1	0.052	69.00	01Jan2009, 12:03	5.20
2sNF2	0.047	61.80	01Jan2009, 12:03	4.70
2sNF3	0.050	66.40	01Jan2009, 12:03	5.00
2sNF4	0.060	76.50	01Jan2009, 12:03	6.10
2uNF1	0.052	69.00	01Jan2009, 12:03	5.20
2uNF2	0.047	62.40	01Jan2009, 12:03	4.70
2uNF3	0.042	55.70	01Jan2009, 12:03	4.20
2uNF4	0.044	58.40	01Jan2009, 12:03	4.40
2uNF5	0.055	70.20	01Jan2009, 12:03	5.50
East_Outlet	23.400	3890.10	01Jan2009, 13:09	1069.20
Ex_Outlet1	4.542	1230.20	01Jan2009, 12:51	217.30
Ex_Outlet2	27.942	4731.00	01Jan2009, 13:12	1286.40
J0	20.962	3626.60	01Jan2009, 13:00	823.50
J1	3.129	924.30	01Jan2009, 12:33	149.60
J10	0.071	97.30	01Jan2009, 12:03	7.20
J11	0.221	289.30	01Jan2009, 12:03	22.30
J12	0.073	96.60	01Jan2009, 12:03	7.40
J13	0.336	388.80	01Jan2009, 12:09	33.90
J14	0.431	490.60	01Jan2009, 12:09	43.40

Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
J16	0.466	503.50	01Jan2009, 12:09	47.00
J17	0.943	973.50	01Jan2009, 12:15	94.90
J18	22.241	3831.40	01Jan2009, 13:03	952.40
J19	22.535	3853.70	01Jan2009, 13:03	982.00
J2	4.483	1230.80	01Jan2009, 12:33	211.30
J20	0.063	86.90	01Jan2009, 12:00	6.40
J21	0.143	189.60	01Jan2009, 12:03	14.40
J22	0.099	119.60	01Jan2009, 12:06	10.00
J23	0.110	131.40	01Jan2009, 12:06	11.10
J24	0.209	250.20	01Jan2009, 12:06	21.10
J25	22.800	3854.40	01Jan2009, 13:03	1008.80
J26	0.099	120.20	01Jan2009, 12:03	10.00
J27	0.086	102.50	01Jan2009, 12:03	8.70
J28	0.141	152.70	01Jan2009, 12:06	14.20
J29	0.240	271.10	01Jan2009, 12:06	24.10
J3	0.089	111.10	01Jan2009, 12:03	9.00
J30	23.313	3896.10	01Jan2009, 13:09	1060.40
J4	0.109	133.30	01Jan2009, 12:06	11.00
J5	0.092	122.00	01Jan2009, 12:03	9.30
J6	0.239	287.90	01Jan2009, 12:06	24.10
J7	20.658	3604.70	01Jan2009, 12:57	793.10
J8	0.069	93.30	01Jan2009, 12:03	7.00
J9	0.109	141.00	01Jan2009, 12:03	11.00
O1a	0.392	248.80	01Jan2009, 12:09	23.90
O1b	2.737	814.50	01Jan2009, 12:33	125.60
O1c	1.354	464.60	01Jan2009, 12:24	61.70
O1d	0.059	97.70	01Jan2009, 11:57	6.00
O2a	20.528	3589.50	01Jan2009, 12:57	787.20
O2b	0.130	57.10	01Jan2009, 12:12	5.90
O2c	0.284	320.70	01Jan2009, 12:06	28.40
O2d	0.014	21.20	01Jan2009, 12:00	1.40
O2e	0.006	10.20	01Jan2009, 11:57	0.60
O2f	0.216	224.00	01Jan2009, 12:09	21.80
O2g	0.018	32.10	01Jan2009, 11:54	1.80
O2h	0.046	68.30	01Jan2009, 12:00	4.60
O2n	0.046	68.30	01Jan2009, 12:00	4.60
O2o	0.056	86.00	01Jan2009, 12:00	5.60
O2p	0.151	212.20	01Jan2009, 12:00	15.20
O2r	0.056	90.20	01Jan2009, 11:57	5.60
O2t	0.273	329.40	01Jan2009, 12:03	27.50
O2v	0.087	133.60	01Jan2009, 12:00	8.80
R1	0.392	245.40	01Jan2009, 12:12	23.90
R10	20.962	3608.90	01Jan2009, 13:03	823.60
R11	0.018	32.10	01Jan2009, 12:03	1.80
R12	0.029	39.20	01Jan2009, 12:03	2.90
R13	0.069	90.70	01Jan2009, 12:06	7.00
R14	0.109	140.80	01Jan2009, 12:03	11.00
R15	0.030	41.60	01Jan2009, 12:03	3.00
R16	0.071	94.40	01Jan2009, 12:06	7.20
R17	0.221	276.20	01Jan2009, 12:12	22.30
R18	0.038	49.30	01Jan2009, 12:03	3.80
R19	0.073	92.70	01Jan2009, 12:06	7.40
R2	3.129	917.30	01Jan2009, 12:36	149.60

Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
R21	0.053	65.40	01Jan2009, 12:06	5.30
R22	0.431	480.70	01Jan2009, 12:12	43.40
R23	0.050	64.40	01Jan2009, 12:06	5.00
R24	0.089	111.00	01Jan2009, 12:06	9.00
R25	0.109	130.50	01Jan2009, 12:09	11.00
R26	0.051	66.60	01Jan2009, 12:03	5.10
R27	0.092	117.10	01Jan2009, 12:06	9.30
R28	0.239	277.10	01Jan2009, 12:12	24.10
R29	0.052	66.10	01Jan2009, 12:06	5.20
R3	4.483	1230.00	01Jan2009, 12:33	211.30
R30	0.353	380.50	01Jan2009, 12:09	35.60
R31	0.052	65.80	01Jan2009, 12:06	5.20
R32	0.466	479.80	01Jan2009, 12:15	46.90
R33	0.943	963.00	01Jan2009, 12:15	94.90
R34	22.241	3819.90	01Jan2009, 13:03	952.40
R35	0.033	44.90	01Jan2009, 12:03	3.30
R36	0.063	86.30	01Jan2009, 12:03	6.40
R37	0.050	62.60	01Jan2009, 12:03	5.00
R38	0.143	186.20	01Jan2009, 12:06	14.40
R39	22.535	3821.00	01Jan2009, 13:03	982.10
R4	4.542	1230.20	01Jan2009, 12:51	217.30
R40	0.052	62.40	01Jan2009, 12:06	5.20
R41	0.099	119.50	01Jan2009, 12:06	10.00
R42	0.050	59.30	01Jan2009, 12:09	5.00
R43	0.110	130.70	01Jan2009, 12:06	11.10
R44	0.209	248.60	01Jan2009, 12:06	21.10
R45	22.800	3834.50	01Jan2009, 13:09	1008.70
R46	0.052	62.60	01Jan2009, 12:06	5.20
R47	0.099	119.50	01Jan2009, 12:06	10.00
R48	0.042	48.10	01Jan2009, 12:06	4.20
R49	0.086	89.90	01Jan2009, 12:09	8.60
R5	4.542	1227.5	01Jan2009, 12:54	217.3
R50	0.141	151.6	01Jan2009, 12:06	14.2
R51	0.24	269.7	01Jan2009, 12:06	24.1
R52	23.313	3882	01Jan2009, 13:09	1060.4
R53	23.400	3855.3	01Jan2009, 13:15	1069.1
R6	0.130	56.60	01Jan2009, 12:12	5.90
R7	20.658	3582.80	01Jan2009, 13:00	793.10
R8	0.014	20.30	01Jan2009, 12:03	1.40
R9	0.006	10.00	01Jan2009, 12:00	0.60
West_Outlet	4.542	1239.20	01Jan2009, 12:33	217.30

HMS Output for Post-Development Hydrology Calculations

100 Year Flow Rates

Post-Development Hydrology - Western & Eastern Drainage Areas

Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
2iSF1	0.029	56.30	01Jan2009, 12:00	4.10
2iSF2	0.040	75.10	01Jan2009, 12:00	5.70
2iSF3	0.040	75.10	01Jan2009, 12:00	5.70
2iSF4	0.030	59.90	01Jan2009, 12:00	4.30
2iSF5	0.041	79.60	01Jan2009, 12:00	5.80
2iSF6	0.041	79.60	01Jan2009, 12:00	5.80
2jSF1	0.038	71.30	01Jan2009, 12:00	5.40
2jSF2	0.035	65.70	01Jan2009, 12:00	5.00
2jSF3	0.042	77.60	01Jan2009, 12:03	6.00
2jSF4	0.053	96.30	01Jan2009, 12:03	7.50
2jSF5	0.042	77.60	01Jan2009, 12:03	6.00
2k	0.020	30.90	01Jan2009, 12:06	2.80
2lSF1	0.050	90.80	01Jan2009, 12:03	7.10
2lSF2	0.039	73.20	01Jan2009, 12:00	5.50
2lSF3	0.051	95.70	01Jan2009, 12:00	7.20
2lSF4	0.041	77.00	01Jan2009, 12:00	5.80
2lSF5	0.038	75.90	01Jan2009, 12:00	5.40
2mSF1	0.052	96.10	01Jan2009, 12:03	7.40
2mSF2	0.062	112.60	01Jan2009, 12:03	8.80
2mSF3	0.052	96.10	01Jan2009, 12:03	7.40
2mSF4	0.061	111.70	01Jan2009, 12:03	8.70
2qNF1	0.033	64.10	01Jan2009, 12:00	4.70
2qNF2	0.030	61.40	01Jan2009, 12:00	4.30
2qNF3	0.050	92.40	01Jan2009, 12:03	7.10
2qNF4	0.030	58.30	01Jan2009, 12:00	4.30
2sNF1	0.052	95.20	01Jan2009, 12:03	7.40
2sNF2	0.047	85.40	01Jan2009, 12:03	6.70
2sNF3	0.050	91.60	01Jan2009, 12:03	7.10
2sNF4	0.060	105.80	01Jan2009, 12:03	8.50
2uNF1	0.052	95.20	01Jan2009, 12:03	7.40
2uNF2	0.047	86.10	01Jan2009, 12:03	6.70
2uNF3	0.042	76.90	01Jan2009, 12:03	6.00
2uNF4	0.044	80.60	01Jan2009, 12:03	6.20
2uNF5	0.055	97.00	01Jan2009, 12:03	7.80
East_Outlet	23.400	7048.60	01Jan2009, 13:06	1773.00
Ex_Outlet1	4.542	2135.50	01Jan2009, 12:45	360.40
Ex_Outlet2	27.942	8468.70	01Jan2009, 13:09	2133.40
J0	20.962	6722.60	01Jan2009, 12:57	1427.50
J1	3.129	1583.90	01Jan2009, 12:33	248.40
J10	0.071	134.70	01Jan2009, 12:03	10.10
J11	0.221	402.80	01Jan2009, 12:03	31.30
J12	0.073	134.10	01Jan2009, 12:03	10.40
J13	0.336	549.70	01Jan2009, 12:09	47.60
J14	0.431	689.50	01Jan2009, 12:09	61.10

Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
J16	0.466	709.40	01Jan2009, 12:09	66.10
J17	0.943	1380.10	01Jan2009, 12:12	133.50
J18	22.241	7016.00	01Jan2009, 13:00	1608.80
J19	22.535	7003.60	01Jan2009, 13:03	1650.40
J2	4.483	2136.30	01Jan2009, 12:30	352.00
J20	0.063	120.60	01Jan2009, 12:00	8.90
J21	0.143	262.30	01Jan2009, 12:03	20.30
J22	0.099	166.80	01Jan2009, 12:03	14.00
J23	0.110	183.20	01Jan2009, 12:06	15.60
J24	0.209	347.90	01Jan2009, 12:06	29.60
J25	22.800	7039.60	01Jan2009, 13:03	1688.00
J26	0.099	168.30	01Jan2009, 12:03	14.00
J27	0.086	142.70	01Jan2009, 12:03	12.20
J28	0.141	212.20	01Jan2009, 12:06	19.90
J29	0.240	377.20	01Jan2009, 12:06	34.00
J3	0.089	155.20	01Jan2009, 12:03	12.60
J30	23.313	7088.60	01Jan2009, 13:06	1760.70
J4	0.109	185.00	01Jan2009, 12:06	15.50
J5	0.092	169.20	01Jan2009, 12:03	13.00
J6	0.239	399.50	01Jan2009, 12:06	33.90
J7	20.658	6681.20	01Jan2009, 12:54	1384.60
J8	0.069	129.10	01Jan2009, 12:03	9.80
J9	0.109	196.60	01Jan2009, 12:03	15.50
O1a	0.392	396.00	01Jan2009, 12:09	37.70
O1b	2.737	1414.70	01Jan2009, 12:33	210.70
O1c	1.354	805.10	01Jan2009, 12:24	103.60
O1d	0.059	134.90	01Jan2009, 11:57	8.40
O2a	20.528	6654.90	01Jan2009, 12:54	1374.90
O2b	0.130	95.90	01Jan2009, 12:12	9.70
O2c	0.284	444.60	01Jan2009, 12:06	40.00
O2d	0.014	29.30	01Jan2009, 12:00	2.00
O2e	0.006	14.10	01Jan2009, 11:57	0.90
O2f	0.216	310.00	01Jan2009, 12:09	30.60
O2g	0.018	44.40	01Jan2009, 11:54	2.60
O2h	0.046	94.20	01Jan2009, 12:00	6.50
O2n	0.046	94.20	01Jan2009, 12:00	6.50
O2o	0.056	118.50	01Jan2009, 12:00	7.90
O2p	0.151	293.30	01Jan2009, 12:00	21.40
O2r	0.056	124.60	01Jan2009, 11:57	7.90
O2t	0.273	455.90	01Jan2009, 12:03	38.70
O2v	0.087	184.10	01Jan2009, 12:00	12.30
R1	0.392	387.80	01Jan2009, 12:12	37.70
R10	20.962	6700.30	01Jan2009, 13:00	1427.60
R11	0.018	44.00	01Jan2009, 12:03	2.60
R12	0.029	54.50	01Jan2009, 12:03	4.10
R13	0.069	124.60	01Jan2009, 12:06	9.80
R14	0.109	196.30	01Jan2009, 12:03	15.50
R15	0.030	58.00	01Jan2009, 12:03	4.30
R16	0.071	129.70	01Jan2009, 12:03	10.10
R17	0.221	380.70	01Jan2009, 12:12	31.30
R18	0.038	68.90	01Jan2009, 12:03	5.40
R19	0.073	128.50	01Jan2009, 12:06	10.30
R2	3.129	1562.50	01Jan2009, 12:36	248.40

Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
R21	0.053	90.60	01Jan2009, 12:06	7.50
R22	0.431	680.00	01Jan2009, 12:12	61.00
R23	0.050	89.10	01Jan2009, 12:06	7.10
R24	0.089	154.20	01Jan2009, 12:06	12.60
R25	0.109	180.50	01Jan2009, 12:06	15.50
R26	0.051	92.80	01Jan2009, 12:03	7.20
R27	0.092	161.20	01Jan2009, 12:06	13.00
R28	0.239	385.80	01Jan2009, 12:12	33.90
R29	0.052	91.80	01Jan2009, 12:06	7.40
R3	4.483	2134.80	01Jan2009, 12:30	352.00
R30	0.353	541.60	01Jan2009, 12:09	50.00
R31	0.052	91.20	01Jan2009, 12:06	7.40
R32	0.466	678.40	01Jan2009, 12:15	66.00
R33	0.943	1372.90	01Jan2009, 12:15	133.50
R34	22.241	6958.20	01Jan2009, 13:03	1608.70
R35	0.033	62.20	01Jan2009, 12:03	4.70
R36	0.063	119.20	01Jan2009, 12:03	8.90
R37	0.050	87.00	01Jan2009, 12:03	7.10
R38	0.143	258.60	01Jan2009, 12:06	20.30
R39	22.535	6994.80	01Jan2009, 13:03	1650.50
R4	4.542	2135.50	01Jan2009, 12:45	360.40
R40	0.052	86.40	01Jan2009, 12:06	7.40
R41	0.099	165.20	01Jan2009, 12:06	14.00
R42	0.050	83.10	01Jan2009, 12:06	7.10
R43	0.110	182.60	01Jan2009, 12:06	15.60
R44	0.209	346.60	01Jan2009, 12:06	29.60
R45	22.800	7001.30	01Jan2009, 13:06	1688.00
R46	0.052	87.30	01Jan2009, 12:06	7.40
R47	0.099	166.00	01Jan2009, 12:06	14.00
R48	0.042	66.60	01Jan2009, 12:06	5.90
R49	0.086	123.40	01Jan2009, 12:09	12.10
R5	4.542	2129.30	01Jan2009, 12:51	360.40
R50	0.141	211.2	01Jan2009, 12:06	19.9
R51	0.240	376	01Jan2009, 12:06	34
R52	23.313	7037.2	01Jan2009, 13:06	1760.7
R53	23.4	6986.7	01Jan2009, 13:12	1773
R6	0.130	95.3	01Jan2009, 12:12	9.7
R7	20.658	6657.80	01Jan2009, 12:57	1384.60
R8	0.014	28.30	01Jan2009, 12:00	2.00
R9	0.006	13.70	01Jan2009, 12:00	0.90
West_Outlet	4.542	2148.80	01Jan2009, 12:30	360.40

HMS Output for Post-Development Hydrology Calculations

10 Year Flow Rates

Post-Development Hydrology - North-Eastern Drainage Area

Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
3lNF1	0.042	47.80	01Jan2009, 12:00	3.30
3lNF2	0.040	45.50	01Jan2009, 12:00	3.10
3lNF3	0.029	34.60	01Jan2009, 12:00	2.30
3lNF4	0.043	48.90	01Jan2009, 12:00	3.40
3lNF5	0.041	46.60	01Jan2009, 12:00	3.20
3lNF6	0.048	53.00	01Jan2009, 12:00	3.80
3mNF1	0.045	51.20	01Jan2009, 12:00	3.50
3mNF2	0.042	47.80	01Jan2009, 12:00	3.30
3mNF3	0.050	55.20	01Jan2009, 12:00	3.90
3mNF4	0.044	51.40	01Jan2009, 12:00	3.40
3mNF5	0.048	51.10	01Jan2009, 12:03	3.80
3nNF1	0.046	48.50	01Jan2009, 12:03	3.60
3nNF2	0.050	50.10	01Jan2009, 12:03	3.90
3nNF3	0.038	38.30	01Jan2009, 12:03	2.80
Culvert	9.206	15.60	01Jan2009, 12:48	3.20
Ex_Outlet3	10.626	787.50	01Jan2009, 12:21	98.20
J1	9.443	142.70	01Jan2009, 12:06	14.70
J10	9.947	308.30	01Jan2009, 12:21	45.70
J11	0.082	89.90	01Jan2009, 12:00	6.40
J12	0.111	121.00	01Jan2009, 12:03	8.70
J13	0.084	92.00	01Jan2009, 12:00	6.60
J14	0.243	263.90	01Jan2009, 12:03	19.00
J15	0.087	95.50	01Jan2009, 12:00	6.80
J16	0.380	384.10	01Jan2009, 12:06	29.80
J17	0.472	474.40	01Jan2009, 12:06	37.00
J18	0.568	513.10	01Jan2009, 12:12	44.40
J19	0.606	532.90	01Jan2009, 12:12	47.20
J2	9.551	193.20	01Jan2009, 12:12	23.20
J20	10.553	793.00	01Jan2009, 12:15	92.90
J3	9.824	302.10	01Jan2009, 12:09	37.50
J4	0.017	22.20	01Jan2009, 11:57	1.30
J5	9.861	312.30	01Jan2009, 12:12	40.40
J6	0.022	27.90	01Jan2009, 11:57	1.70
J7	9.899	321.00	01Jan2009, 12:15	43.40
J8	0.023	21.70	01Jan2009, 12:00	1.30
J9	9.940	326.10	01Jan2009, 12:18	45.50
NE_Outlet	10.569	776.90	01Jan2009, 12:21	94.10
O3a	9.206	1468.60	01Jan2009, 12:48	293.10
O3b	0.237	142.50	01Jan2009, 12:06	11.50
O3c	0.108	119.20	01Jan2009, 12:00	8.50
O3d	0.273	159.90	01Jan2009, 12:09	14.70
O3e	0.017	22.20	01Jan2009, 11:57	1.30
O3f	0.020	25.30	01Jan2009, 11:57	1.60
O3g	0.022	27.90	01Jan2009, 11:57	1.70
O3h	0.016	20.30	01Jan2009, 11:57	1.30
O3i	0.023	21.70	01Jan2009, 12:00	1.30

Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
O3k	0.007	7.20	01Jan2009, 11:57	0.40
O3o	0.016	22.40	01Jan2009, 11:57	1.30
O3p	0.057	64.70	01Jan2009, 12:00	4.10
R1	9.206	15.60	01Jan2009, 13:09	3.20
R10	9.940	307.30	01Jan2009, 12:21	45.40
R11	9.947	298.80	01Jan2009, 12:21	45.70
R12	0.042	46.80	01Jan2009, 12:03	3.30
R13	0.082	89.70	01Jan2009, 12:03	6.40
R14	0.111	120.80	01Jan2009, 12:03	8.70
R15	0.043	47.90	01Jan2009, 12:03	3.40
R16	0.084	91.60	01Jan2009, 12:03	6.60
R17	0.243	254.00	01Jan2009, 12:09	19.00
R18	0.045	50.10	01Jan2009, 12:03	3.50
R19	0.087	95.50	01Jan2009, 12:03	6.80
R2	9.443	139.10	01Jan2009, 12:12	14.80
R20	0.380	383.80	01Jan2009, 12:06	29.80
R21	0.044	50.50	01Jan2009, 12:03	3.40
R22	0.472	443.60	01Jan2009, 12:12	36.90
R23	0.046	42.40	01Jan2009, 12:06	3.60
R24	0.568	512.70	01Jan2009, 12:12	44.40
R25	0.606	525.50	01Jan2009, 12:15	47.20
R26	10.553	774.30	01Jan2009, 12:21	92.80
R27	10.569	775.60	01Jan2009, 12:21	94.10
R3	9.551	149.70	01Jan2009, 12:12	22.80
R4	9.824	299.70	01Jan2009, 12:12	37.50
R5	0.017	21.80	01Jan2009, 11:57	1.30
R6	9.861	309.70	01Jan2009, 12:15	40.40
R7	0.022	27.60	01Jan2009, 11:57	1.70
R8	9.899	318.10	01Jan2009, 12:18	43.40
R9	0.023	21.60	01Jan2009, 12:00	1.30

HMS Output for Post-Development Hydrology Calculations

25 Year Flow Rates

Post-Development Hydrology - North-Eastern Drainage Area

Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
3lNF1	0.042	60.80	01Jan2009, 12:00	4.20
3lNF2	0.040	57.90	01Jan2009, 12:00	4.00
3lNF3	0.029	44.00	01Jan2009, 12:00	2.90
3lNF4	0.043	62.20	01Jan2009, 12:00	4.30
3lNF5	0.041	59.30	01Jan2009, 12:00	4.10
3lNF6	0.048	67.40	01Jan2009, 12:00	4.80
3mNF1	0.045	65.10	01Jan2009, 12:00	4.50
3mNF2	0.042	60.80	01Jan2009, 12:00	4.20
3mNF3	0.050	70.30	01Jan2009, 12:00	5.00
3mNF4	0.044	65.30	01Jan2009, 12:00	4.40
3mNF5	0.048	65.10	01Jan2009, 12:00	4.80
3nNF1	0.046	61.60	01Jan2009, 12:03	4.60
3nNF2	0.050	63.80	01Jan2009, 12:03	5.00
3nNF3	0.038	49.10	01Jan2009, 12:03	3.70
Culvert	9.206	18.60	01Jan2009, 12:48	4.70
Ex_Outlet3	10.626	1056.70	01Jan2009, 12:21	129.70
J1	9.443	199.30	01Jan2009, 12:06	20.80
J10	9.947	435.80	01Jan2009, 12:18	62.10
J11	0.082	114.30	01Jan2009, 12:00	8.30
J12	0.111	153.20	01Jan2009, 12:03	11.20
J13	0.084	117.40	01Jan2009, 12:00	8.50
J14	0.243	335.50	01Jan2009, 12:03	24.50
J15	0.087	121.90	01Jan2009, 12:00	8.80
J16	0.380	492.00	01Jan2009, 12:06	38.30
J17	0.472	606.40	01Jan2009, 12:06	47.60
J18	0.568	658.80	01Jan2009, 12:12	57.20
J19	0.606	684.40	01Jan2009, 12:12	60.80
J2	9.551	273.10	01Jan2009, 12:09	31.70
J20	10.553	1067.10	01Jan2009, 12:15	122.80
J3	9.824	429.20	01Jan2009, 12:09	51.20
J4	0.017	28.20	01Jan2009, 11:57	1.70
J5	9.861	443.80	01Jan2009, 12:12	55.00
J6	0.022	35.40	01Jan2009, 11:57	2.20
J7	9.899	453.10	01Jan2009, 12:15	58.80
J8	0.023	29.10	01Jan2009, 12:00	1.80
J9	9.940	458.70	01Jan2009, 12:18	61.70
NE_Outlet	10.569	1049.10	01Jan2009, 12:18	124.40
O3a	9.206	2298.10	01Jan2009, 12:48	437.60
O3b	0.237	199.00	01Jan2009, 12:06	16.00
O3c	0.108	151.80	01Jan2009, 12:00	10.90
O3d	0.273	219.40	01Jan2009, 12:09	20.10
O3e	0.017	28.20	01Jan2009, 11:57	1.70
O3f	0.020	32.20	01Jan2009, 11:57	2.00
O3g	0.022	35.40	01Jan2009, 11:57	2.20
O3h	0.016	25.80	01Jan2009, 11:57	1.60
O3i	0.023	29.10	01Jan2009, 12:00	1.80

Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
O3k	0.007	9.80	01Jan2009, 11:57	0.50
O3o	0.016	28.40	01Jan2009, 11:57	1.60
O3p	0.057	83.40	01Jan2009, 12:00	5.30
R1	9.206	18.50	01Jan2009, 13:06	4.70
R10	9.940	434.40	01Jan2009, 12:18	61.50
R11	9.947	420.80	01Jan2009, 12:21	62.00
R12	0.042	59.00	01Jan2009, 12:03	4.20
R13	0.082	113.60	01Jan2009, 12:03	8.30
R14	0.111	153.10	01Jan2009, 12:03	11.20
R15	0.043	60.80	01Jan2009, 12:03	4.30
R16	0.084	117.20	01Jan2009, 12:03	8.50
R17	0.243	321.80	01Jan2009, 12:06	24.50
R18	0.045	63.00	01Jan2009, 12:03	4.50
R19	0.087	121.40	01Jan2009, 12:03	8.80
R2	9.443	197.70	01Jan2009, 12:12	20.80
R20	0.380	491.80	01Jan2009, 12:06	38.30
R21	0.044	63.90	01Jan2009, 12:03	4.40
R22	0.472	571.50	01Jan2009, 12:12	47.50
R23	0.046	54.40	01Jan2009, 12:06	4.60
R24	0.568	658.60	01Jan2009, 12:12	57.20
R25	0.606	675.80	01Jan2009, 12:12	60.80
R26	10.553	1045.40	01Jan2009, 12:18	122.80
R27	10.569	1041.60	01Jan2009, 12:21	124.40
R3	9.551	213.10	01Jan2009, 12:12	31.10
R4	9.824	428.00	01Jan2009, 12:12	51.30
R5	0.017	27.80	01Jan2009, 11:57	1.70
R6	9.861	438.90	01Jan2009, 12:15	55.00
R7	0.022	35.20	01Jan2009, 11:57	2.20
R8	9.899	448.10	01Jan2009, 12:18	58.80
R9	0.023	29.00	01Jan2009, 12:00	1.80

HMS Output for Post-Development Hydrology Calculations

100 Year Flow Rates

Post-Development Hydrology - North-Eastern Drainage Area

Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
3lNF1	0.042	83.90	01Jan2009, 12:00	6.00
3lNF2	0.040	79.90	01Jan2009, 12:00	5.70
3lNF3	0.029	60.60	01Jan2009, 12:00	4.10
3lNF4	0.043	85.90	01Jan2009, 12:00	6.10
3lNF5	0.041	81.90	01Jan2009, 12:00	5.80
3lNF6	0.048	93.20	01Jan2009, 12:00	6.80
3mNF1	0.045	89.90	01Jan2009, 12:00	6.40
3mNF2	0.042	83.90	01Jan2009, 12:00	6.00
3mNF3	0.050	97.10	01Jan2009, 12:00	7.10
3mNF4	0.044	90.10	01Jan2009, 12:00	6.20
3mNF5	0.048	90.10	01Jan2009, 12:00	6.80
3nNF1	0.046	85.00	01Jan2009, 12:03	6.50
3nNF2	0.050	88.20	01Jan2009, 12:03	7.10
3nNF3	0.038	68.50	01Jan2009, 12:03	5.20
Culvert	9.206	22.80	01Jan2009, 12:48	7.10
Ex_Outlet3	10.626	1566.50	01Jan2009, 12:18	187.60
J1	9.443	306.90	01Jan2009, 12:06	31.80
J10	9.947	676.90	01Jan2009, 12:18	92.40
J11	0.082	159.30	01Jan2009, 12:00	11.60
J12	0.111	212.90	01Jan2009, 12:00	15.80
J13	0.084	162.40	01Jan2009, 12:00	11.90
J14	0.243	463.30	01Jan2009, 12:03	34.50
J15	0.087	168.50	01Jan2009, 12:00	12.30
J16	0.380	682.10	01Jan2009, 12:06	53.90
J17	0.472	838.10	01Jan2009, 12:06	66.90
J18	0.568	915.50	01Jan2009, 12:09	80.40
J19	0.606	962.50	01Jan2009, 12:09	85.60
J2	9.551	421.60	01Jan2009, 12:09	47.10
J20	10.553	1572.50	01Jan2009, 12:12	177.90
J3	9.824	668.70	01Jan2009, 12:09	76.80
J4	0.017	38.90	01Jan2009, 11:57	2.40
J5	9.861	682.50	01Jan2009, 12:12	82.00
J6	0.022	48.90	01Jan2009, 11:57	3.10
J7	9.899	703.00	01Jan2009, 12:12	87.40
J8	0.023	42.60	01Jan2009, 12:00	2.70
J9	9.940	718.50	01Jan2009, 12:15	91.80
NE_Outlet	10.569	1541.40	01Jan2009, 12:15	180.00
O3a	9.206	3960.50	01Jan2009, 12:48	728.00
O3b	0.237	304.60	01Jan2009, 12:06	24.70
O3c	0.108	209.80	01Jan2009, 12:00	15.30
O3d	0.273	329.60	01Jan2009, 12:09	30.40
O3e	0.017	38.90	01Jan2009, 11:57	2.40
O3f	0.020	44.50	01Jan2009, 11:57	2.80
O3g	0.022	48.90	01Jan2009, 11:57	3.10
O3h	0.016	35.60	01Jan2009, 11:57	2.30
O3i	0.023	42.60	01Jan2009, 12:00	2.70

Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
O3k	0.007	14.50	01Jan2009, 11:57	0.80
O3o	0.016	39.00	01Jan2009, 11:57	2.30
O3p	0.057	116.90	01Jan2009, 12:00	7.60
R1	9.206	22.80	01Jan2009, 13:06	7.20
R10	9.940	674.90	01Jan2009, 12:18	91.60
R11	9.947	659.30	01Jan2009, 12:18	92.20
R12	0.042	81.70	01Jan2009, 12:03	6.00
R13	0.082	157.40	01Jan2009, 12:03	11.60
R14	0.111	211.80	01Jan2009, 12:03	15.80
R15	0.043	83.40	01Jan2009, 12:03	6.10
R16	0.084	161.70	01Jan2009, 12:03	11.90
R17	0.243	447.40	01Jan2009, 12:06	34.50
R18	0.045	87.50	01Jan2009, 12:03	6.40
R19	0.087	166.10	01Jan2009, 12:03	12.30
R2	9.443	302.40	01Jan2009, 12:12	31.80
R20	0.380	682.00	01Jan2009, 12:06	53.90
R21	0.044	87.60	01Jan2009, 12:03	6.20
R22	0.472	795.90	01Jan2009, 12:12	66.80
R23	0.046	74.70	01Jan2009, 12:06	6.50
R24	0.568	914.60	01Jan2009, 12:09	80.40
R25	0.606	957.20	01Jan2009, 12:12	85.60
R26	10.553	1535.80	01Jan2009, 12:18	177.70
R27	10.569	1541.00	01Jan2009, 12:18	180.00
R3	9.551	339.10	01Jan2009, 12:09	46.40
R4	9.824	660.90	01Jan2009, 12:12	76.80
R5	0.017	38.40	01Jan2009, 11:57	2.40
R6	9.861	680.00	01Jan2009, 12:12	82.00
R7	0.022	48.60	01Jan2009, 11:57	3.10
R8	9.899	699.90	01Jan2009, 12:15	87.40
R9	0.023	42.50	01Jan2009, 12:00	2.70

Ridgecrest Solar Plant
Post-Development Hydrology Results

Sub Basin	Area (mi^2)	10-yr					25-yr					100-yr				
		Peak Discharge (cfs)	Time of Peak	Node Total			Peak Discharge (cfs)	Time of Peak	Node Total			Peak Discharge (cfs)	Time of Peak	Node Total		
				Node No.	Volume (ac-ft)	Peak Discharge (cfs)			Node No.	Volume (ac-ft)	Peak Discharge (cfs)			Node No.	Volume (ac-ft)	Peak Discharge (cfs)
O1a	0.39	173.2	12:12	11	16.9	173.2	248.8	12:09	11	23.9	248.8	396.0	12:09	11	37.7	396.0
O1b	2.74	515.7	12:33	13	100.4	593.9	814.5	12:33	13	149.6	924.3	1414.7	12:33	13	248.4	1583.9
O1c	1.35	294.7	12:24	15	141.4	781.9	464.6	12:24	15	211.3	1230.8	805.1	12:24	15	352.0	2136.3
O1d	0.06	76.9	11:57	17	146.0	788.0	97.7	11:57	17	217.3	1239.2	134.9	11:57	17	360.4	2148.8
West Outlet	4.54	788.0	12:33	17	146.0	788.0	1239.2	12:33	17	217.3	1239.2	2148.8	12:30	17	360.4	2148.8
Ex. Outlet 1*	4.54	782.3	12:54	18	146.0	782.3	1230.2	12:51	18	217.3	1230.2	2135.5	12:45	18	360.4	2135.5
O2a	20.53	2128.8	12:57	23	507.9	2139.3	3589.5	12:57	23	793.1	3604.7	6654.9	12:54	23	1384.6	6681.2
O2b	0.13	37.9	12:12	22	4.0	37.9	57.1	12:12	22	5.9	57.1	95.9	12:12	22	9.7	95.9
O2c	0.28	251.3	12:06	27	531.5	2160.0	320.7	12:06	27	823.5	3626.6	444.6	12:06	27	1427.5	6722.6
O2d	0.01	16.7	12:00	27	531.5	2160.0	21.2	12:00	27	823.5	3626.6	29.3	12:00	27	1427.5	6722.6
O2e	0.01	8.1	11:57	27	531.5	2160.0	10.2	11:57	27	823.5	3626.6	14.1	11:57	27	1427.5	6722.6
O2f	0.22	175.8	12:09	39	631.6	2327.7	224.0	12:09	39	952.4	3831.4	310.0	12:09	39	1608.8	7016.0
O2g	0.02	25.3	11:54	30	1.4	25.3	32.1	11:54	30	1.8	32.1	44.4	11:54	30	2.6	44.4
O2h	0.05	53.7	12:00	39	631.6	2327.7	68.3	12:00	39	952.4	3831.4	94.2	12:00	39	1608.8	7016.0
2i	0.22	224.9	12:03	31	17.3	224.9	289.3	12:03	31	22.3	289.3	402.8	12:03	31	31.3	402.8
2j	0.21	202.6	12:03	32	33.7	378.9	259.7	12:03	32	33.7	378.9	363.2	12:03	32	61.1	689.5
2k	0.02	17.5	12:06	34	8.5	103.8	22.3	12:06	34	11.0	133.3	30.9	12:06	34	15.5	185.0
2l	0.22	206.9	12:06	35	18.7	223.9	266.2	12:06	35	18.7	223.9	369.4	12:06	35	33.9	399.5
2m	0.23	221.0	12:06	36	36.5	385.7	282.7	12:06	36	36.5	385.7	394.8	12:03	36	66.1	709.4
O2n	0.05	53.7	12:00	38	73.7	751.4	68.3	12:00	38	94.9	973.5	94.2	12:00	38	133.5	1380.1
O2o	0.06	67.8	12:00	39	631.6	2327.7	86.0	12:00	39	952.4	3831.4	118.5	12:00	39	1608.8	7016.0
O2p	0.15	166.7	12:00	43	654.6	2338.8	212.2	12:00	43	982.0	3853.7	293.3	12:00	43	1650.4	7003.6
2q	0.14	149.2	12:03	41	11.2	149.2	189.6	12:03	41	14.4	189.6	262.3	12:03	41	20.3	262.3
O2r	0.06	70.9	11:57	46	675.3	2355.0	90.2	11:57	46	1008.8	3854.4	124.6	11:57	46	1688.0	7039.6
2s	0.21	195.5	12:06	45	16.4	195.5	250.2	12:06	45	21.1	250.2	347.9	12:06	45	29.6	347.9
O2t	0.27	258.4	12:03	49	715.4	2379.4	329.4	12:03	49	1060.4	3896.1	455.9	12:03	49	1760.7	7088.6
2u	0.24	211.1	12:06	48	18.7	211.1	271.1	12:06	48	24.1	271.1	377.2	12:06	48	34.0	377.2
O2v	0.09	105.3	12:00	51	722.2	2383.9	133.6	12:00	51	1069.2	3890.1	184.1	12:00	51	1773.0	7048.6
East Outlet	23.40	2383.9	13:12	51	722.2	2383.9	3890.1	13:09	51	1069.2	3890.1	7048.6	13:06	51	1773.0	7048.6
Ex. Outlet 2*	27.94	2928.3	13:15	52	868.2	2928.3	4731.0	13:12	52	1286.4	4731.0	8468.7	13:09	52	2133.4	8468.7

***Discharge at Ex. Outlet 1 and 2 do not represent the total flow in the wash; they are only provided to compare pre- and post-development discharge resulting from the project at a downstream confluence point.**

Ridgecrest Solar Plant
Post-Development Hydrology Results

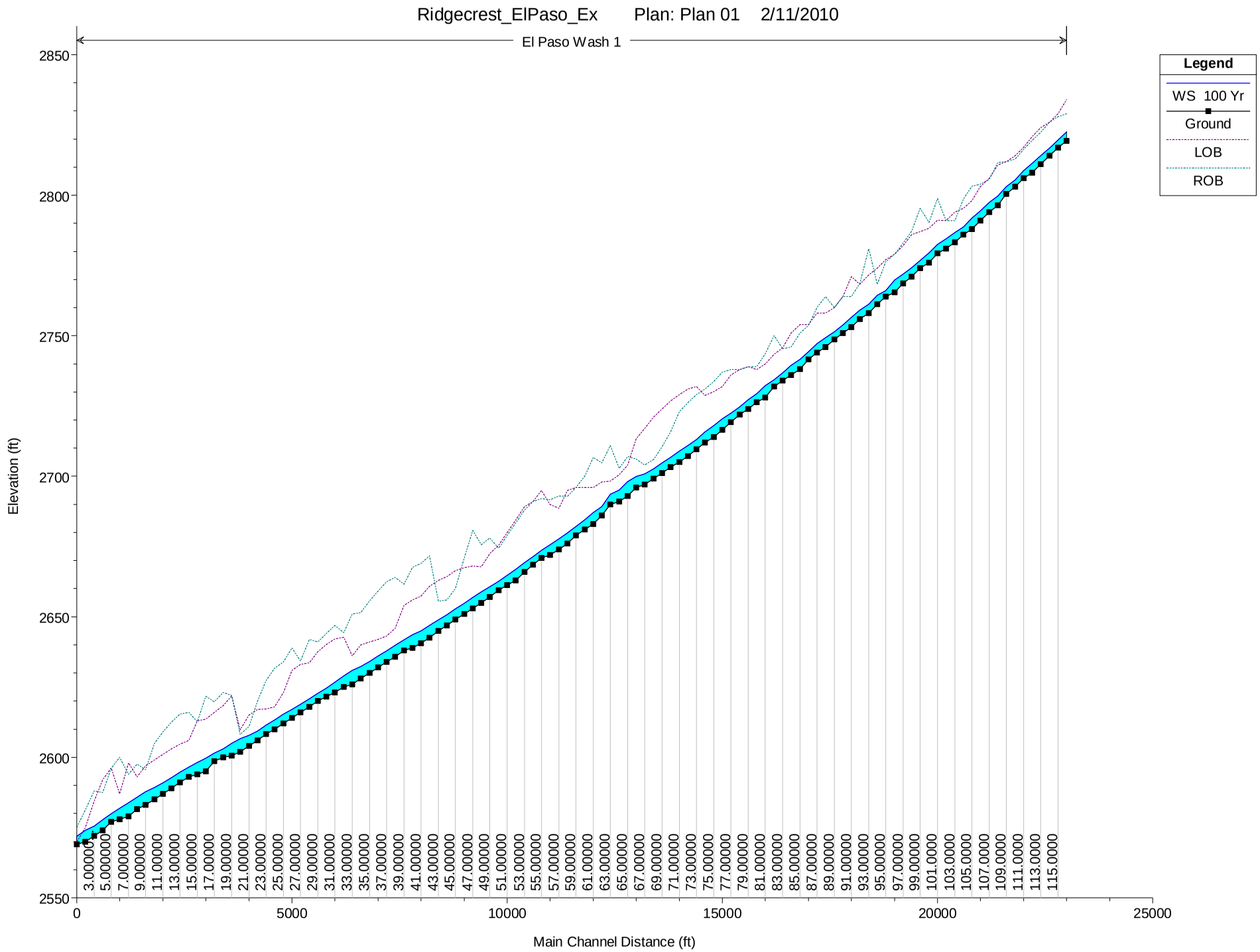
Sub Basin	Area (mi^2)	10-yr					25-yr					100-yr				
		Peak Discharge (cfs)	Time of Peak	Node Total			Peak Discharge (cfs)	Time of Peak	Node Total			Peak Discharge (cfs)	Time of Peak	Node Total		
				Node No.	Volume (ac-ft)	Peak Discharge (cfs)			Node No.	Volume (ac-ft)	Peak Discharge (cfs)			Node No.	Volume (ac-ft)	Peak Discharge (cfs)
O3a (u/s culvert)	9.21	1468.6	12:48	61	293.1	1468.6	2298.1	12:48	61	437.6	2298.1	3960.5	12:48	61	728.0	3960.5
O3a (d/s culvert)	9.21	15.6	12:48	61	3.2	15.6	18.6	12:48	61	4.7	18.6	22.8	12:48	61	7.1	22.8
Offsite Outlet	-	1453.0	-	90	289.9	1453.0	2279.5	-	90	432.9	2279.5	3937.7	-	90	720.9	3937.7
O3b	0.24	142.5	12:06	62	14.7	142.7	199.0	12:06	62	20.8	199.3	304.6	12:06	62	31.8	306.9
O3c	0.11	119.2	12:00	63	23.2	193.2	151.8	12:00	63	31.7	273.1	209.8	12:00	63	47.1	421.6
O3d	0.27	159.9	12:09	65	37.5	302.1	219.4	12:09	65	51.2	429.2	329.6	12:09	65	76.8	668.7
O3e	0.02	22.2	11:57	67	1.3	22.2	28.2	11:57	67	1.7	28.2	38.9	11:57	67	2.4	38.9
O3f	0.02	25.3	11:57	69	40.4	312.3	32.2	11:57	69	55.0	443.8	44.5	11:57	69	82.0	682.5
O3g	0.02	27.9	11:57	71	1.7	27.9	35.4	11:57	71	2.2	35.4	48.9	11:57	71	3.1	48.9
O3h	0.02	20.3	11:57	72	43.4	321.0	25.8	11:57	72	58.8	453.1	35.6	11:57	72	87.4	703.0
O3i	0.02	21.7	12:00	73	1.3	21.7	29.1	12:00	73	1.8	29.1	42.6	12:00	73	2.7	42.6
O3j	0.02	12.7	12:00	74	45.5	326.1	18.0	12:00	74	61.7	458.7	28.3	11:57	74	91.8	718.5
O3k	0.01	7.2	11:57	75	45.7	308.3	9.8	11:57	75	62.1	435.8	14.5	11:57	75	92.4	676.9
3l	0.24	263.9	12:03	76	19.0	263.9	335.5	12:03	76	24.5	335.5	463.3	12:03	76	34.5	463.3
3m	0.23	250.6	12:03	77	37.0	474.4	318.1	12:03	77	47.6	606.4	436.6	12:03	77	66.9	838.1
3n	0.13	126.2	12:03	78	47.2	532.9	162.5	12:03	78	60.8	684.4	226.3	12:03	78	85.6	962.5
O3o	0.02	22.4	11:57	80	94.1	776.9	28.4	11:57	80	124.4	1049.1	39.0	11:57	80	180.0	1541.4
North-East Outlet	10.57	776.9	12:21	80	94.1	776.9	1049.1	12:18	80	124.4	1049.1	1541.4	12:15	80	180.0	1541.4
O3p	0.06	64.7	12:00	82	98.2	787.5	83.4	12:00	82	129.7	1056.7	116.9	12:00	82	187.6	1566.5
Ex. Outlet 3	10.63	787.5	12:21	82	98.2	787.5	1056.7	12:21	82	129.7	1056.7	1566.5	12:21	82	187.6	1566.5

APPENDIX 3

Pre-Development Hydraulics

APPENDIX 3A

South El Paso Wash


Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
El Paso Wash 1
Legend
WS 100 Yr
Ground
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Elevation (ft)
Main Channel Distance (ft)
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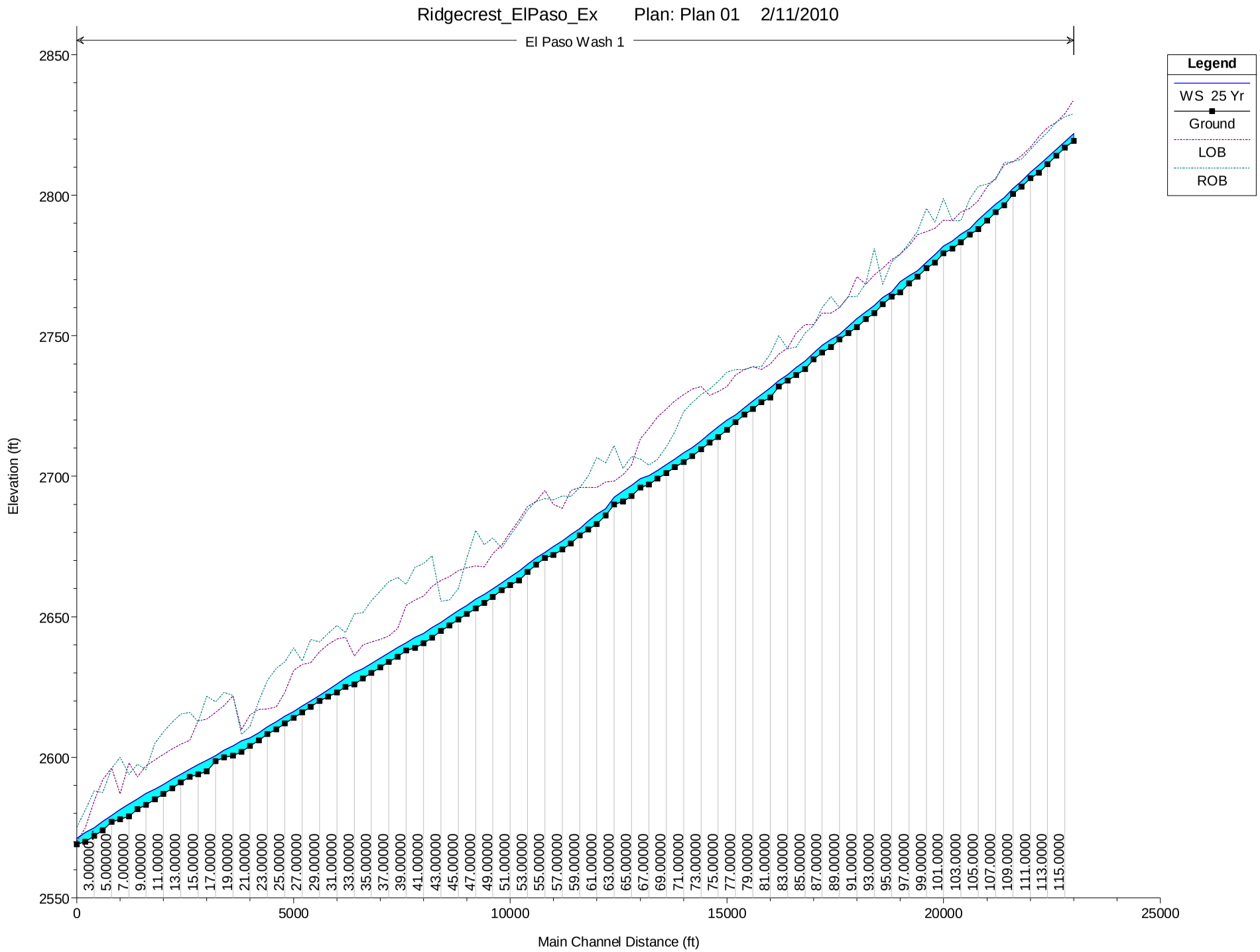
Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
El Paso Wash 1
Legend
WS 25 Yr
Ground
LOB
ROB
Elevation (ft)
Main Channel Distance (ft)
2550
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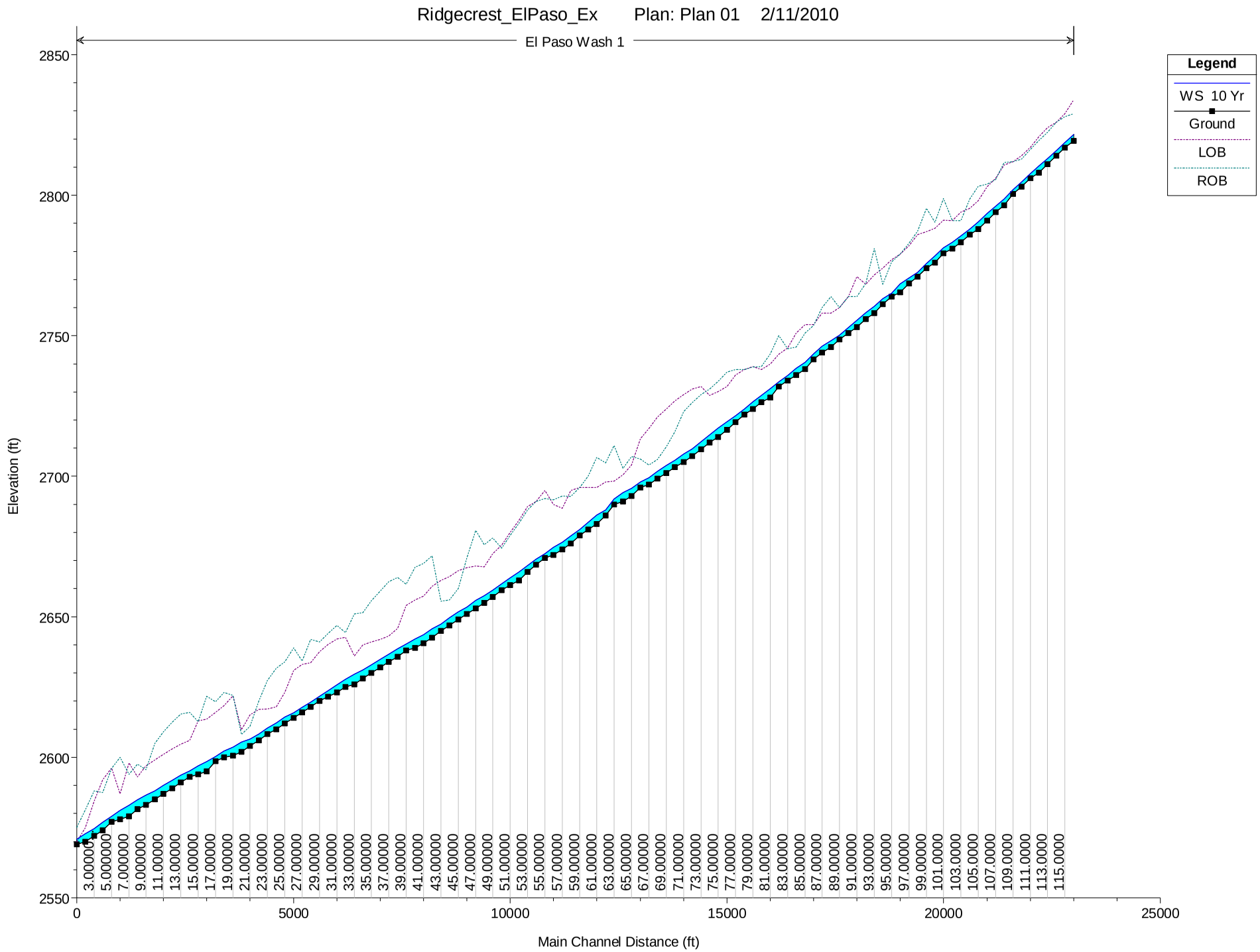
Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
El Paso Wash 1
Legend
WS 10 Yr
Ground
LOB
ROB
Elevation (ft)
Main Channel Distance (ft)
2550
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2650
2700
2750
2800
2850
0
5000
10000
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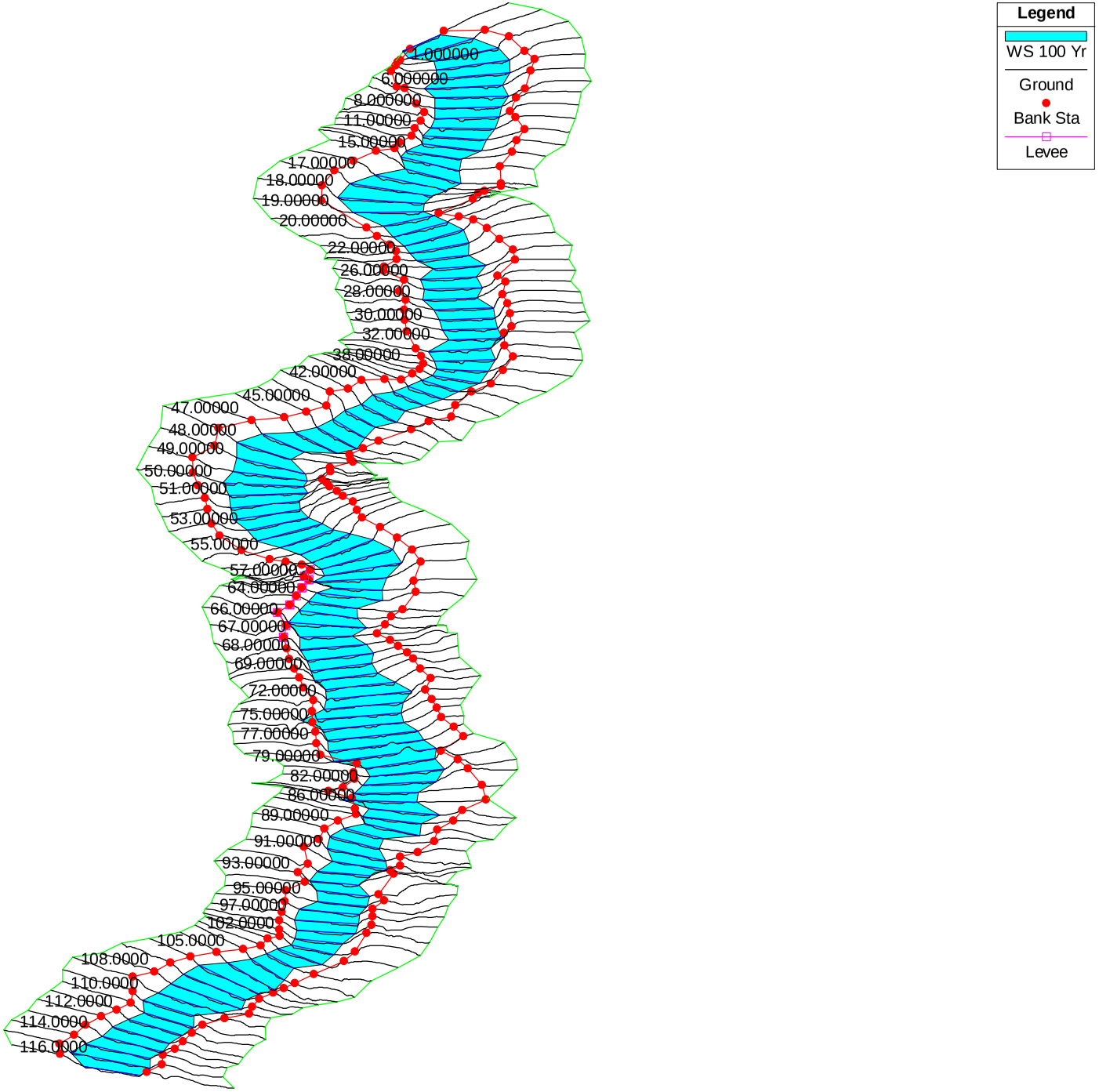
Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010



RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
South El Paso Wash - Pre-development Conditions
100-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Ex. El Paso Wash	1	116	100 Yr	6681.5	2819.35	2822.51	3.16	2822.68	2823.58	0.015007	8.3	805.42	503.38	1.16
Ex. El Paso Wash	1	115	100 Yr	6681.5	2816.92	2819.61	2.69	2819.76	2820.53	0.015102	7.71	867.02	608.24	1.14
Ex. El Paso Wash	1	114	100 Yr	6681.5	2814	2816.84	2.84	2816.89	2817.69	0.013167	7.4	902.35	606.5	1.07
Ex. El Paso Wash	1	113	100 Yr	6681.5	2811	2814	3	2814.12	2814.94	0.014368	7.76	861.03	575.92	1.12
Ex. El Paso Wash	1	112	100 Yr	6681.5	2808	2811.31	3.31	2811.36	2812.21	0.012954	7.62	876.73	557.58	1.07
Ex. El Paso Wash	1	111	100 Yr	6681.5	2806	2808.76	2.76	2808.82	2809.68	0.012448	7.69	869.16	529.36	1.06
Ex. El Paso Wash	1	110	100 Yr	6681.5	2803	2805.5	2.5	2805.75	2806.71	0.017676	8.84	755.63	485.49	1.25
Ex. El Paso Wash	1	109	100 Yr	6681.5	2800.49	2803.11	2.62	2803.11	2804.01	0.011163	7.59	879.86	503.15	1.01
Ex. El Paso Wash	1	108	100 Yr	6681.5	2796.35	2799.75	3.4	2800.1	2801.01	0.020611	9	742.22	520.71	1.33
Ex. El Paso Wash	1	107	100 Yr	6681.5	2794	2797.39	3.39	2797.39	2798.07	0.011943	6.64	1006.24	740.14	1
Ex. El Paso Wash	1	106	100 Yr	6681.5	2791	2794.51	3.51	2794.62	2795.36	0.015413	7.38	905.83	689.04	1.13
Ex. El Paso Wash	1	105	100 Yr	6681.5	2788	2791.86	3.86	2791.88	2792.62	0.012037	6.99	955.83	654.86	1.02
Ex. El Paso Wash	1	104	100 Yr	6681.5	2786	2788.74	2.74	2788.95	2789.81	0.016206	8.3	805.22	532.87	1.19
Ex. El Paso Wash	1	103	100 Yr	6681.5	2783.21	2786.78	3.57	2786.78	2787.74	0.010802	7.84	852.37	453.23	1.01
Ex. El Paso Wash	1	102	100 Yr	6681.5	2781	2784.43	3.43	2784.45	2785.6	0.010401	8.68	769.7	341.24	1.02
Ex. El Paso Wash	1	101	100 Yr	6681.5	2779.34	2782.48	3.14	2782.52	2783.45	0.011571	7.9	845.61	468.02	1.04
Ex. El Paso Wash	1	100	100 Yr	6681.5	2776	2779.54	3.54	2779.76	2780.82	0.014797	9.08	736.13	397.76	1.18
Ex. El Paso Wash	1	99	100 Yr	6681.5	2774	2776.85	2.85	2776.98	2777.99	0.013113	8.59	777.72	417.07	1.11
Ex. El Paso Wash	1	98	100 Yr	6681.5	2771	2774.18	3.18	2774.31	2775.23	0.01428	8.21	814.15	498.47	1.13
Ex. El Paso Wash	1	97	100 Yr	6681.5	2768.55	2771.95	3.4	2771.79	2772.67	0.008639	6.8	982.58	546.84	0.89
Ex. El Paso Wash	1	96	100 Yr	6681.5	2765.45	2769.82	4.37	2769.82	2770.7	0.011216	7.52	888.69	517.68	1.01
Ex. El Paso Wash	1	95	100 Yr	6681.5	2764	2766.1	2.1	2766.52	2767.6	0.020828	9.81	681.18	423.62	1.36
Ex. El Paso Wash	1	94	100 Yr	6681.5	2761.17	2764.44	3.27	2764.44	2765.39	0.010968	7.82	854.61	461.7	1.01
Ex. El Paso Wash	1	93	100 Yr	6681.5	2758	2761.27	3.27	2761.54	2762.61	0.017541	9.31	717.79	424.36	1.26
Ex. El Paso Wash	1	92	100 Yr	6681.5	2756	2759.16	3.16	2759.16	2760.1	0.010689	7.8	856.08	454.38	1
Ex. El Paso Wash	1	91	100 Yr	6681.5	2753	2756.54	3.54	2756.7	2757.62	0.01448	8.35	800.16	482.3	1.14
Ex. El Paso Wash	1	90	100 Yr	6681.5	2751	2753.84	2.84	2753.94	2754.79	0.013506	7.8	856.37	542.44	1.09
Ex. El Paso Wash	1	89	100 Yr	6681.5	2748.73	2751.43	2.7	2751.28	2752.24	0.008448	7.21	926.09	463.96	0.9
Ex. El Paso Wash	1	88	100 Yr	6681.5	2746	2749.26	3.26	2749.26	2750.34	0.010422	8.36	799.52	375.96	1.01
Ex. El Paso Wash	1	87	100 Yr	6681.5	2744	2747.21	3.21	2747.22	2748.12	0.011339	7.63	876.12	503.64	1.02
Ex. El Paso Wash	1	86	100 Yr	6681.5	2741.62	2744.29	2.67	2744.5	2745.4	0.01627	8.45	791.01	511.46	1.2
Ex. El Paso Wash	1	85	100 Yr	6681.5	2738.1	2741.6	3.5	2741.66	2742.44	0.012814	7.35	908.8	605.08	1.06
Ex. El Paso Wash	1	84	100 Yr	6681.5	2736	2739.46	3.46	2739.46	2740.23	0.011561	7.03	950.89	627.16	1.01
Ex. El Paso Wash	1	83	100 Yr	6681.5	2734	2736.73	2.73	2736.84	2737.69	0.013814	7.85	851.46	543.89	1.11
Ex. El Paso Wash	1	82	100 Yr	6681.5	2732	2734.36	2.36	2734.42	2735.19	0.012993	7.29	916.47	624.36	1.06
Ex. El Paso Wash	1	81	100 Yr	6681.5	2728	2732.16	4.16	2732.16	2732.93	0.011967	7.04	949.3	640.97	1.02
Ex. El Paso Wash	1	80	100 Yr	6681.5	2726.32	2729.43	3.11	2729.53	2730.32	0.014238	7.55	884.59	611.98	1.11
Ex. El Paso Wash	1	79	100 Yr	6681.5	2724	2727.27	3.27	2727.28	2727.97	0.012322	6.71	995.13	737.08	1.02

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
South El Paso Wash - Pre-development Conditions
100-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Ex. El Paso Wash	1	78	100 Yr	6681.5	2722	2724.76	2.76	2724.79	2725.46	0.013029	6.75	989.92	758.42	1.04
Ex. El Paso Wash	1	77	100 Yr	6721.6	2719.31	2722.46	3.15	2722.11	2722.88	0.005554	5.17	1299.55	783.08	0.71
Ex. El Paso Wash	1	76	100 Yr	6721.6	2716.53	2720.51	3.98	2720.51	2721.24	0.012575	6.89	975.45	704.99	1.03
Ex. El Paso Wash	1	75	100 Yr	6721.6	2714	2718.06	4.06	2717.99	2718.69	0.010113	6.4	1050.52	731.42	0.93
Ex. El Paso Wash	1	74	100 Yr	6721.6	2712	2715.79	3.79	2715.79	2716.52	0.011714	6.86	980.35	677.04	1
Ex. El Paso Wash	1	73	100 Yr	6721.6	2709.54	2713.09	3.55	2713.17	2713.9	0.014547	7.22	931.58	700.65	1.1
Ex. El Paso Wash	1	72	100 Yr	6721.6	2707.17	2710.95	3.78	2710.95	2711.76	0.010981	7.25	927.16	560.64	0.99
Ex. El Paso Wash	1	71	100 Yr	6721.6	2705	2708.91	3.91	2708.8	2709.67	0.009309	6.96	965.61	548.3	0.92
Ex. El Paso Wash	1	70	100 Yr	6721.6	2703.32	2706.72	3.4	2706.72	2707.6	0.011419	7.51	895.28	529.6	1.02
Ex. El Paso Wash	1	69	100 Yr	6721.6	2701.12	2704.68	3.56	2704.53	2705.35	0.008213	6.56	1025.08	580.28	0.87
Ex. El Paso Wash	1	68	100 Yr	6721.6	2699.17	2702.64	3.47	2702.64	2703.45	0.010977	7.21	932.74	569.7	0.99
Ex. El Paso Wash	1	67	100 Yr	6721.6	2697.04	2700.81	3.77	2700.58	2701.61	0.007644	7.17	936.98	439.2	0.87
Ex. El Paso Wash	1	66	100 Yr	6721.6	2696	2699.96	3.96	2699.38	2700.37	0.004298	5.12	1312.23	661.86	0.64
Ex. El Paso Wash	1	65	100 Yr	6721.6	2693	2698.14	5.14	2698.14	2699.02	0.011039	7.53	892.93	512.05	1
Ex. El Paso Wash	1	64	100 Yr	6721.6	2691	2695.04	4.04	2695.35	2696.32	0.016264	9.08	740.67	429.62	1.22
Ex. El Paso Wash	1	63	100 Yr	7214.6	2690	2693.59	3.59	2693.59	2694.54	0.010462	7.82	922.73	481.02	0.99
Ex. El Paso Wash	1	62	100 Yr	7214.6	2686	2689.25	3.25	2689.84	2691.17	0.029079	11.13	648.31	428.49	1.59
Ex. El Paso Wash	1	61	100 Yr	7214.6	2683	2687.08	4.08	2687.08	2687.88	0.010908	7.15	1008.92	620.25	0.99
Ex. El Paso Wash	1	60	100 Yr	7214.6	2681	2684.53	3.53	2684.62	2685.38	0.014281	7.42	972.03	691.81	1.1
Ex. El Paso Wash	1	59	100 Yr	7214.6	2679	2682.04	3.04	2682.1	2682.86	0.013195	7.24	996.05	693	1.06
Ex. El Paso Wash	1	58	100 Yr	7214.6	2676	2679.84	3.84	2679.77	2680.66	0.010068	7.25	995.22	564.3	0.96
Ex. El Paso Wash	1	57	100 Yr	7214.6	2674	2677.69	3.69	2677.68	2678.56	0.010862	7.49	963.43	550.76	1
Ex. El Paso Wash	1	56	100 Yr	7214.6	2672.03	2675.68	3.65	2675.61	2676.5	0.009621	7.28	991.31	540.12	0.95
Ex. El Paso Wash	1	55	100 Yr	7214.6	2670.93	2673.58	2.65	2673.58	2674.39	0.011562	7.23	998.54	631.73	1.01
Ex. El Paso Wash	1	54	100 Yr	7214.6	2668.49	2671.45	2.96	2671.36	2672.24	0.009461	7.12	1013.57	564.09	0.94
Ex. El Paso Wash	1	53	100 Yr	7214.6	2666	2669.35	3.35	2669.35	2670.18	0.011134	7.34	983.58	591.13	1
Ex. El Paso Wash	1	52	100 Yr	7214.6	2663	2666.83	3.83	2666.92	2667.79	0.012809	7.87	917.26	551.16	1.07
Ex. El Paso Wash	1	51	100 Yr	7214.6	2661.32	2664.7	3.38	2664.7	2665.48	0.011501	7.06	1022.5	667.43	1
Ex. El Paso Wash	1	50	100 Yr	7214.6	2659.53	2662.67	3.14	2662.4	2663.26	0.006887	6.18	1166.73	631.71	0.8
Ex. El Paso Wash	1	49	100 Yr	7214.6	2657	2660.64	3.64	2660.64	2661.51	0.011125	7.45	968.54	568.51	1.01
Ex. El Paso Wash	1	48	100 Yr	7214.6	2655	2658.88	3.88	2658.52	2659.45	0.006602	6.07	1189.1	642.09	0.79
Ex. El Paso Wash	1	47	100 Yr	7270.3	2653	2656.96	3.96	2656.92	2657.8	0.010114	7.38	985.07	546.01	0.97
Ex. El Paso Wash	1	46	100 Yr	7270.3	2651	2654.72	3.72	2654.72	2655.71	0.010754	7.96	913.61	473.56	1.01
Ex. El Paso Wash	1	45	100 Yr	7270.3	2649	2652.79	3.79	2652.67	2653.62	0.008993	7.31	995.05	512.53	0.92
Ex. El Paso Wash	1	44	100 Yr	7270.3	2647	2650.71	3.71	2650.71	2651.65	0.010704	7.79	932.95	497.23	1
Ex. El Paso Wash	1	43	100 Yr	7270.3	2645	2648.85	3.85	2648.43	2649.61	0.005897	6.98	1041.37	417.75	0.78
Ex. El Paso Wash	1	42	100 Yr	7270.3	2642.49	2646.94	4.45	2646.94	2648.05	0.010115	8.46	858.9	386.92	1
Ex. El Paso Wash	1	41	100 Yr	7270.3	2640.63	2644.97	4.34	2644.84	2645.9	0.008663	7.75	937.69	429.29	0.92

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
South El Paso Wash - Pre-development Conditions
100-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Ex. El Paso Wash	1	40	100 Yr	7270.3	2639	2643.67	4.67	0	2644.46	0.005733	7.13	1019.74	388.49	0.78
Ex. El Paso Wash	1	39	100 Yr	7270.3	2638	2641.73	3.73	2641.73	2642.93	0.010069	8.79	827.43	351.28	1.01
Ex. El Paso Wash	1	38	100 Yr	7270.3	2635.72	2639.87	4.15	2639.73	2640.9	0.008397	8.18	889.08	366.89	0.93
Ex. El Paso Wash	1	37	100 Yr	7270.3	2634	2637.88	3.88	2637.88	2639.05	0.010164	8.67	838.25	365.73	1.01
Ex. El Paso Wash	1	36	100 Yr	7270.3	2632	2635.99	3.99	2635.85	2636.92	0.008363	7.71	943.05	424.43	0.91
Ex. El Paso Wash	1	35	100 Yr	7270.3	2630	2634.02	4.02	2634.02	2635.05	0.010431	8.11	896.75	441.45	1
Ex. El Paso Wash	1	34	100 Yr	7270.3	2628	2632.26	4.26	2632.05	2633.02	0.007856	6.98	1041.85	519.27	0.87
Ex. El Paso Wash	1	33	100 Yr	7270.3	2626	2630.88	4.88	0	2631.56	0.00657	6.57	1106.24	527.6	0.8
Ex. El Paso Wash	1	32	100 Yr	7270.3	2625	2628.9	3.9	2628.9	2629.89	0.010478	7.98	910.63	460.42	1
Ex. El Paso Wash	1	31	100 Yr	7270.3	2623	2626.69	3.69	2626.73	2627.71	0.011244	8.12	895.65	465.85	1.03
Ex. El Paso Wash	1	30	100 Yr	7270.3	2621.57	2624.66	3.09	2624.66	2625.65	0.010672	7.97	911.8	468.49	1.01
Ex. El Paso Wash	1	29	100 Yr	7270.3	2620	2622.71	2.71	2622.57	2623.52	0.008547	7.22	1006.71	508.17	0.9
Ex. El Paso Wash	1	28	100 Yr	7270.3	2618	2620.75	2.75	2620.68	2621.7	0.0096	7.8	932.53	457.84	0.96
Ex. El Paso Wash	1	27	100 Yr	7270.3	2616	2618.85	2.85	2618.79	2619.75	0.009733	7.59	957.63	494.36	0.96
Ex. El Paso Wash	1	26	100 Yr	7270.3	2614	2617.06	3.06	2616.91	2617.91	0.00857	7.41	980.56	476.75	0.91
Ex. El Paso Wash	1	25	100 Yr	7270.3	2612	2615.37	3.37	2615.2	2616.24	0.008177	7.5	969.82	447.66	0.9
Ex. El Paso Wash	1	24	100 Yr	7270.3	2610	2613.32	3.32	2613.32	2614.35	0.010823	8.17	889.82	445.53	1.02
Ex. El Paso Wash	1	23	100 Yr	7270.3	2608.22	2611.38	3.16	2611.24	2612.17	0.008699	7.12	1021.2	533.69	0.91
Ex. El Paso Wash	1	22	100 Yr	7270.3	2606	2609.35	3.35	2609.35	2610.21	0.011024	7.43	977.99	571.99	1
Ex. El Paso Wash	1	21	100 Yr	7270.3	2604	2607.79	3.79	2607.37	2608.41	0.005816	6.32	1150.48	531.12	0.76
Ex. El Paso Wash	1	20	100 Yr	7270.3	2602	2606.66	4.66	0	2607.3	0.005239	6.43	1130.48	470.2	0.73
Ex. El Paso Wash	1	19	100 Yr	7270.3	2600.56	2604.96	4.4	2604.96	2605.81	0.011104	7.38	984.56	584.72	1
Ex. El Paso Wash	1	18	100 Yr	7270.3	2600	2603.05	3.05	2602.76	2603.56	0.006456	5.72	1270.89	737.18	0.77
Ex. El Paso Wash	1	17	100 Yr	7270.3	2598.55	2601.45	2.9	2601.26	2602.08	0.008441	6.34	1146.42	696.35	0.87
Ex. El Paso Wash	1	16	100 Yr	7270.3	2595	2599.73	4.73	2599.5	2600.45	0.007816	6.77	1073.4	556.96	0.86
Ex. El Paso Wash	1	15	100 Yr	7270.3	2594	2598.15	4.15	0	2598.88	0.007803	6.88	1056.69	535.11	0.86
Ex. El Paso Wash	1	14	100 Yr	7270.3	2593	2596.51	3.51	2596.36	2597.26	0.008365	6.95	1045.72	549.01	0.89
Ex. El Paso Wash	1	13	100 Yr	7270.3	2591	2594.63	3.63	2594.54	2595.5	0.009123	7.49	970.45	485.98	0.93
Ex. El Paso Wash	1	12	100 Yr	7270.3	2589	2592.78	3.78	2592.71	2593.64	0.009577	7.44	977.59	513.8	0.95
Ex. El Paso Wash	1	11	100 Yr	7270.3	2587	2590.91	3.91	2590.83	2591.73	0.009449	7.24	1003.63	543	0.94
Ex. El Paso Wash	1	10	100 Yr	7270.3	2585	2589.25	4.25	0	2589.98	0.007917	6.86	1060.18	545.65	0.87
Ex. El Paso Wash	1	9	100 Yr	7270.3	2583	2587.72	4.72	0	2588.43	0.007558	6.75	1076.91	547.99	0.85
Ex. El Paso Wash	1	8	100 Yr	7270.3	2581.49	2585.79	4.3	2585.77	2586.64	0.010567	7.39	984.23	562.96	0.98
Ex. El Paso Wash	1	7	100 Yr	7270.3	2579	2583.85	4.85	2583.74	2584.58	0.009687	6.89	1054.81	626.96	0.94
Ex. El Paso Wash	1	6	100 Yr	7270.3	2578	2581.86	3.86	2581.81	2582.59	0.010272	6.85	1061.49	665.47	0.96
Ex. El Paso Wash	1	5	100 Yr	7270.3	2577	2579.82	2.82	2579.76	2580.56	0.010035	6.93	1049.7	636.3	0.95
Ex. El Paso Wash	1	4	100 Yr	7270.3	2574	2577.77	3.77	2577.73	2578.53	0.010374	6.97	1043.5	642.6	0.96
Ex. El Paso Wash	1	3	100 Yr	7270.3	2572	2575.49	3.49	2575.49	2576.34	0.011418	7.4	983.04	594.43	1.01

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT

South El Paso Wash - Pre-development Conditions

100-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Ex. El Paso Wash	1	2	100 Yr	7270.3	2570	2573.97	3.97	2573.48	2574.45	0.004962	5.57	1305.02	646.35	0.69
Ex. El Paso Wash	1	1	100 Yr	7270.3	2569	2571.92	2.92	2571.92	2573.01	0.010241	8.66	893.76	413.06	1.01

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
South El Paso Wash - Pre-development Conditions
25-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Ex. El Paso Wash	1	116	25 Yr	3604.6	2819.35	2821.96	2.61	2822.06	2822.67	0.015005	6.75	533.69	454.01	1.1
Ex. El Paso Wash	1	115	25 Yr	3604.6	2816.92	2819.11	2.19	2819.14	2819.71	0.014298	6.2	581.67	543.2	1.06
Ex. El Paso Wash	1	114	25 Yr	3604.6	2814	2816.3	2.3	2816.33	2816.89	0.013897	6.16	585.2	539.9	1.04
Ex. El Paso Wash	1	113	25 Yr	3604.6	2811	2813.45	2.45	2813.48	2814.09	0.013925	6.45	558.86	481.87	1.06
Ex. El Paso Wash	1	112	25 Yr	3604.6	2808	2810.79	2.79	2810.79	2811.37	0.013181	6.09	591.62	533.27	1.02
Ex. El Paso Wash	1	111	25 Yr	3604.6	2806	2808.19	2.19	2808.2	2808.8	0.012497	6.25	576.74	480.6	1.01
Ex. El Paso Wash	1	110	25 Yr	3604.6	2803	2804.97	1.97	2805.11	2805.76	0.018591	7.15	504.14	462.66	1.21
Ex. El Paso Wash	1	109	25 Yr	3604.6	2800.49	2802.43	1.94	2802.43	2803.09	0.012329	6.48	556.69	435.64	1.01
Ex. El Paso Wash	1	108	25 Yr	3604.6	2796.35	2799.14	2.79	2799.37	2800.07	0.018489	7.75	465.23	376.68	1.23
Ex. El Paso Wash	1	107	25 Yr	3604.6	2794	2796.81	2.81	2796.81	2797.36	0.012634	5.96	604.85	545.71	1
Ex. El Paso Wash	1	106	25 Yr	3604.6	2791	2794.1	3.1	2794.13	2794.62	0.014839	5.75	627.01	673.74	1.05
Ex. El Paso Wash	1	105	25 Yr	3604.6	2788	2791.32	3.32	2791.32	2791.85	0.013029	5.85	615.85	584.46	1
Ex. El Paso Wash	1	104	25 Yr	3604.6	2786	2788.17	2.17	2788.3	2788.93	0.016339	6.99	515.44	443.57	1.14
Ex. El Paso Wash	1	103	25 Yr	3604.6	2783.21	2786.12	2.91	2786.12	2786.77	0.011917	6.43	560.29	431.34	0.99
Ex. El Paso Wash	1	102	25 Yr	3604.6	2781	2783.74	2.74	2783.51	2784.41	0.007667	6.55	550.7	296.65	0.85
Ex. El Paso Wash	1	101	25 Yr	3604.6	2779.34	2781.86	2.52	2781.86	2782.5	0.012184	6.41	562.45	443.04	1
Ex. El Paso Wash	1	100	25 Yr	3604.6	2776	2778.89	2.89	2779.01	2779.74	0.015134	7.39	487.97	365.24	1.13
Ex. El Paso Wash	1	99	25 Yr	3604.6	2774	2776.23	2.23	2776.25	2776.95	0.012519	6.79	530.62	390.9	1.03
Ex. El Paso Wash	1	98	25 Yr	3604.6	2771	2773.16	2.16	2773.35	2774.18	0.015027	8.12	443.83	286.77	1.15
Ex. El Paso Wash	1	97	25 Yr	3604.6	2768.55	2771.4	2.85	2771.23	2771.83	0.007952	5.24	687.79	531.66	0.81
Ex. El Paso Wash	1	96	25 Yr	3604.6	2765.45	2769.21	3.76	2769.21	2769.81	0.01288	6.21	580.82	500.51	1.02
Ex. El Paso Wash	1	95	25 Yr	3604.6	2764	2765.57	1.57	2765.78	2766.52	0.021131	7.84	459.82	404.64	1.3
Ex. El Paso Wash	1	94	25 Yr	3604.6	2761.17	2763.69	2.52	2763.7	2764.4	0.012159	6.78	531.83	384.6	1.02
Ex. El Paso Wash	1	93	25 Yr	3604.6	2758	2760.73	2.73	2760.87	2761.56	0.017312	7.3	493.84	416.42	1.18
Ex. El Paso Wash	1	92	25 Yr	3604.6	2756	2758.51	2.51	2758.51	2759.14	0.012184	6.39	563.81	445.38	1
Ex. El Paso Wash	1	91	25 Yr	3604.6	2753	2756.03	3.03	2756.03	2756.67	0.012688	6.43	560.71	453.13	1.02
Ex. El Paso Wash	1	90	25 Yr	3604.6	2751	2753.3	2.3	2753.36	2753.93	0.015161	6.38	565.09	528.08	1.09
Ex. El Paso Wash	1	89	25 Yr	3604.6	2748.73	2750.54	1.81	2750.63	2751.29	0.015907	6.94	519.76	444.22	1.13
Ex. El Paso Wash	1	88	25 Yr	3604.6	2746	2748.62	2.62	2748.46	2749.24	0.008454	6.31	570.86	349.39	0.87
Ex. El Paso Wash	1	87	25 Yr	3604.6	2744	2746.61	2.61	2746.61	2747.21	0.012443	6.25	576.38	478.43	1
Ex. El Paso Wash	1	86	25 Yr	3604.6	2741.62	2743.8	2.18	2743.87	2744.48	0.015071	6.62	544.57	479.26	1.09
Ex. El Paso Wash	1	85	25 Yr	3604.6	2738.1	2740.96	2.86	2740.86	2741.64	0.009556	6.63	543.41	338.73	0.92
Ex. El Paso Wash	1	84	25 Yr	3604.6	2736	2738.79	2.79	2738.79	2739.42	0.012869	6.36	566.49	469.83	1.02
Ex. El Paso Wash	1	83	25 Yr	3604.6	2734	2736.22	2.22	2736.24	2736.82	0.013148	6.2	581.36	509.52	1.02
Ex. El Paso Wash	1	82	25 Yr	3604.6	2732	2733.98	1.98	2733.86	2734.41	0.009743	5.31	679.22	600.37	0.88
Ex. El Paso Wash	1	81	25 Yr	3604.6	2728	2731.52	3.52	2731.52	2732.13	0.013405	6.23	578.53	510.63	1.03
Ex. El Paso Wash	1	80	25 Yr	3604.6	2726.32	2729.05	2.73	2728.98	2729.52	0.011145	5.51	653.72	603.47	0.93
Ex. El Paso Wash	1	79	25 Yr	3604.6	2724	2726.78	2.78	2726.74	2727.25	0.011664	5.5	655.77	629.33	0.95

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
South El Paso Wash - Pre-development Conditions
25-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Ex. El Paso Wash	1	78	25 Yr	3604.6	2722	2724.32	2.32	2724.32	2724.77	0.013176	5.41	665.92	716.4	0.99
Ex. El Paso Wash	1	77	25 Yr	3625.4	2719.31	2721.89	2.58	2721.57	2722.17	0.005704	4.21	860.28	719.13	0.68
Ex. El Paso Wash	1	76	25 Yr	3625.4	2716.53	2719.94	3.41	2719.94	2720.49	0.013114	5.93	610.93	570.08	1.01
Ex. El Paso Wash	1	75	25 Yr	3625.4	2714	2717.54	3.54	2717.41	2717.96	0.009574	5.17	700.85	634.72	0.87
Ex. El Paso Wash	1	74	25 Yr	3625.4	2712	2715.16	3.16	2715.16	2715.74	0.012844	6.1	594.03	523.37	1.01
Ex. El Paso Wash	1	73	25 Yr	3625.4	2709.54	2712.66	3.12	2712.61	2713.13	0.011227	5.51	657.9	610.5	0.94
Ex. El Paso Wash	1	72	25 Yr	3625.4	2707.17	2710.25	3.08	2710.23	2710.86	0.01133	6.27	577.77	444.14	0.97
Ex. El Paso Wash	1	71	25 Yr	3625.4	2705	2708.35	3.35	2708.2	2708.82	0.00888	5.48	662.15	520.33	0.86
Ex. El Paso Wash	1	70	25 Yr	3625.4	2703.32	2706.15	2.83	2706.15	2706.72	0.012409	6.08	596.01	514.58	1
Ex. El Paso Wash	1	69	25 Yr	3625.4	2701.12	2704.15	3.03	2703.93	2704.54	0.007605	5.05	717.82	567.44	0.79
Ex. El Paso Wash	1	68	25 Yr	3625.4	2699.17	2702.05	2.88	2702.05	2702.61	0.012431	5.98	606.53	538.42	0.99
Ex. El Paso Wash	1	67	25 Yr	3625.4	2697.04	2700.18	3.14	2699.83	2700.63	0.006012	5.38	673.55	405.76	0.74
Ex. El Paso Wash	1	66	25 Yr	3625.4	2696	2699.13	3.13	2698.32	2699.45	0.005471	4.52	802.64	585.99	0.68
Ex. El Paso Wash	1	65	25 Yr	3625.4	2693	2696.72	3.72	2696.72	2697.94	0.009638	8.83	410.4	166.89	0.99
Ex. El Paso Wash	1	64	25 Yr	3625.4	2691	2694.76	3.76	2694.5	2695.28	0.007663	5.81	623.66	401.28	0.82
Ex. El Paso Wash	1	63	25 Yr	3948.2	2690	2692.54	2.54	2692.54	2693.45	0.010577	7.62	517.99	282.88	0.99
Ex. El Paso Wash	1	62	25 Yr	3948.2	2686	2688.5	2.5	2689.12	2690.15	0.027574	10.29	383.84	274.3	1.53
Ex. El Paso Wash	1	61	25 Yr	3948.2	2683	2686.52	3.52	2686.5	2687.06	0.01182	5.9	668.75	582.04	0.97
Ex. El Paso Wash	1	60	25 Yr	3948.2	2681	2684.08	3.08	2684.08	2684.61	0.012646	5.82	677.95	633.71	0.99
Ex. El Paso Wash	1	59	25 Yr	3948.2	2679	2681.39	2.39	2681.4	2682.01	0.013374	6.3	627.19	543.98	1.03
Ex. El Paso Wash	1	58	25 Yr	3948.2	2676	2679.21	3.21	2679.07	2679.75	0.008848	5.88	671.6	473.29	0.87
Ex. El Paso Wash	1	57	25 Yr	3948.2	2674	2677.03	3.03	2676.92	2677.67	0.012177	6.45	611.66	476.01	1
Ex. El Paso Wash	1	56	25 Yr	3948.2	2672.03	2675.06	3.03	2674.9	2675.59	0.008752	5.85	674.47	474.56	0.87
Ex. El Paso Wash	1	55	25 Yr	3948.2	2670.93	2672.88	1.95	2672.88	2673.54	0.011997	6.51	606.53	461.31	1
Ex. El Paso Wash	1	54	25 Yr	3948.2	2668.49	2670.91	2.42	2670.76	2671.38	0.008724	5.54	712.96	544.14	0.85
Ex. El Paso Wash	1	53	25 Yr	3948.2	2666	2668.68	2.68	2668.68	2669.33	0.012002	6.5	607.5	463.13	1
Ex. El Paso Wash	1	52	25 Yr	3948.2	2663	2666.33	3.33	2666.2	2666.88	0.009225	5.96	662.42	471.74	0.89
Ex. El Paso Wash	1	51	25 Yr	3948.2	2661.32	2664.19	2.87	2664.19	2664.71	0.012943	5.8	681.24	652.68	1
Ex. El Paso Wash	1	50	25 Yr	3948.2	2659.53	2662.05	2.52	2661.83	2662.44	0.00714	5.01	787.79	600.7	0.77
Ex. El Paso Wash	1	49	25 Yr	3948.2	2657	2659.92	2.92	2659.92	2660.59	0.011984	6.59	599.25	447.07	1
Ex. El Paso Wash	1	48	25 Yr	3948.2	2655	2657.91	2.91	2657.53	2658.43	0.005859	5.79	681.58	360.67	0.74
Ex. El Paso Wash	1	47	25 Yr	4005.7	2653	2656.36	3.36	2656.26	2656.92	0.010014	5.97	671.5	508.41	0.91
Ex. El Paso Wash	1	46	25 Yr	4005.7	2651	2654.02	3.02	2654.01	2654.72	0.011899	6.72	596.41	430.13	1.01
Ex. El Paso Wash	1	45	25 Yr	4005.7	2649	2652.23	3.23	2652.04	2652.72	0.008052	5.65	709.57	495.4	0.83
Ex. El Paso Wash	1	44	25 Yr	4005.7	2647	2650.03	3.03	2650.03	2650.71	0.012584	6.61	605.87	466.54	1.02
Ex. El Paso Wash	1	43	25 Yr	4005.7	2645	2648	3	2647.65	2648.51	0.006106	5.73	699.11	387.34	0.75
Ex. El Paso Wash	1	42	25 Yr	4005.7	2642.49	2646.17	3.68	2646.12	2646.92	0.010328	6.98	573.56	350.26	0.96
Ex. El Paso Wash	1	41	25 Yr	4005.7	2640.63	2644.11	3.48	2644.06	2644.82	0.010501	6.78	591.02	382.46	0.96

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
South El Paso Wash - Pre-development Conditions
25-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Ex. El Paso Wash	1	40	25 Yr	4005.7	2639	2642.73	3.73	0	2643.28	0.005625	5.94	674.65	333.39	0.74
Ex. El Paso Wash	1	39	25 Yr	4005.7	2638	2640.81	2.81	2640.81	2641.71	0.011075	7.58	528.48	300.82	1.01
Ex. El Paso Wash	1	38	25 Yr	4005.7	2635.72	2639.1	3.38	2638.89	2639.76	0.007869	6.48	617.75	343.94	0.85
Ex. El Paso Wash	1	37	25 Yr	4005.7	2634	2637.06	3.06	2637.06	2637.88	0.011227	7.27	551.21	337.93	1
Ex. El Paso Wash	1	36	25 Yr	4005.7	2632	2635.31	3.31	2635.07	2635.88	0.007515	6.03	663.86	398.23	0.82
Ex. El Paso Wash	1	35	25 Yr	4005.7	2630	2633.28	3.28	2633.28	2634.01	0.011649	6.85	584.45	402.1	1
Ex. El Paso Wash	1	34	25 Yr	4005.7	2628	2631.53	3.53	2631.29	2632.04	0.007017	5.7	702.47	435.43	0.79
Ex. El Paso Wash	1	33	25 Yr	4005.7	2626	2630.2	4.2	0	2630.64	0.006773	5.31	754.01	506.25	0.77
Ex. El Paso Wash	1	32	25 Yr	4005.7	2625	2628.17	3.17	2628.17	2628.88	0.011611	6.75	593.57	417.08	1
Ex. El Paso Wash	1	31	25 Yr	4005.7	2623	2626.13	3.13	2626.04	2626.74	0.00965	6.23	643.15	443.83	0.91
Ex. El Paso Wash	1	30	25 Yr	4005.7	2621.57	2624.01	2.44	2623.97	2624.67	0.011078	6.5	616.19	442.33	0.97
Ex. El Paso Wash	1	29	25 Yr	4005.7	2620	2622.03	2.03	2621.92	2622.59	0.009598	6.01	665.99	482.54	0.9
Ex. El Paso Wash	1	28	25 Yr	4005.7	2618	2620.1	2.1	2619.98	2620.7	0.009234	6.23	643.39	429.95	0.9
Ex. El Paso Wash	1	27	25 Yr	4005.7	2616	2618.21	2.21	2618.11	2618.8	0.00977	6.17	648.75	457.95	0.91
Ex. El Paso Wash	1	26	25 Yr	4005.7	2614	2616.33	2.33	2616.2	2616.92	0.009029	6.16	650.32	434.28	0.89
Ex. El Paso Wash	1	25	25 Yr	4005.7	2612	2614.67	2.67	0	2615.23	0.007868	5.99	668.73	419.91	0.84
Ex. El Paso Wash	1	24	25 Yr	4005.7	2610	2612.59	2.59	2612.59	2613.32	0.011596	6.86	584.12	400.55	1
Ex. El Paso Wash	1	23	25 Yr	4005.7	2608.22	2610.81	2.59	2610.59	2611.29	0.007711	5.54	722.79	502.46	0.81
Ex. El Paso Wash	1	22	25 Yr	4005.7	2606	2608.73	2.73	2608.73	2609.35	0.012287	6.32	634.3	513.99	1
Ex. El Paso Wash	1	21	25 Yr	4005.7	2604	2606.92	2.92	2606.62	2607.41	0.006462	5.59	716.92	430.8	0.76
Ex. El Paso Wash	1	20	25 Yr	4005.7	2602	2605.87	3.87	0	2606.28	0.004748	5.15	777.28	418.65	0.67
Ex. El Paso Wash	1	19	25 Yr	4005.7	2600.56	2604.11	3.55	2604.11	2604.83	0.011796	6.78	590.51	416.72	1
Ex. El Paso Wash	1	18	25 Yr	4005.7	2600	2602.56	2.56	2602.21	2602.86	0.005476	4.38	913.68	698.22	0.68
Ex. El Paso Wash	1	17	25 Yr	4005.7	2598.55	2600.62	2.07	2600.62	2601.22	0.0128	6.25	640.55	542.99	1.01
Ex. El Paso Wash	1	16	25 Yr	4005.7	2595	2598.9	3.9	2598.56	2599.45	0.006391	5.97	671.17	361.85	0.77
Ex. El Paso Wash	1	15	25 Yr	4005.7	2594	2597.41	3.41	2597.28	2597.95	0.008875	5.87	682.94	483.9	0.87
Ex. El Paso Wash	1	14	25 Yr	4005.7	2593	2595.68	2.68	2595.46	2596.28	0.007776	6.25	641.01	373.77	0.84
Ex. El Paso Wash	1	13	25 Yr	4005.7	2591	2594.01	3.01	2593.9	2594.56	0.009408	5.99	668.21	478.57	0.89
Ex. El Paso Wash	1	12	25 Yr	4005.7	2589	2592.21	3.21	2592.08	2592.73	0.008834	5.8	690.24	495.45	0.87
Ex. El Paso Wash	1	11	25 Yr	4005.7	2587	2590.3	3.3	2590.23	2590.84	0.010108	5.91	677.33	522.64	0.92
Ex. El Paso Wash	1	10	25 Yr	4005.7	2585	2588.6	3.6	0	2589.08	0.007629	5.56	720.68	494.31	0.81
Ex. El Paso Wash	1	9	25 Yr	4005.7	2583	2587.1	4.1	0	2587.55	0.007532	5.38	744.8	531.67	0.8
Ex. El Paso Wash	1	8	25 Yr	4005.7	2581.49	2585.23	3.74	2585.16	2585.78	0.010402	5.9	678.45	536.69	0.93
Ex. El Paso Wash	1	7	25 Yr	4005.7	2579	2583.3	4.3	2583.17	2583.77	0.009456	5.55	721.32	582.16	0.88
Ex. El Paso Wash	1	6	25 Yr	4005.7	2578	2581.35	3.35	2581.27	2581.82	0.010111	5.48	730.83	632.51	0.9
Ex. El Paso Wash	1	5	25 Yr	4005.7	2577	2579.27	2.27	2579.19	2579.77	0.010367	5.63	711.45	602.94	0.91
Ex. El Paso Wash	1	4	25 Yr	4005.7	2574	2577.24	3.24	2577.15	2577.73	0.009938	5.59	716.5	594.4	0.9
Ex. El Paso Wash	1	3	25 Yr	4005.7	2572	2574.9	2.9	2574.9	2575.5	0.012402	6.21	645.45	540.28	1

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
South El Paso Wash - Pre-development Conditions
25-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Ex. El Paso Wash	1	2	25 Yr	4005.7	2570	2573.2	3.2	2572.85	2573.56	0.005829	4.8	833.74	581.76	0.71
Ex. El Paso Wash	1	1	25 Yr	4005.7	2569	2571.21	2.21	2571.21	2571.95	0.011186	7.11	600.2	408.83	1

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
South El Paso Wash - Pre-development Conditions
10-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Ex. El Paso Wash	1	116	10 Yr	2138.1	2819.35	2821.61	2.26	2821.64	2822.1	0.015008	5.62	380.5	426.66	1.05
Ex. El Paso Wash	1	115	10 Yr	2138.1	2816.92	2818.7	1.78	2818.75	2819.2	0.017373	5.65	378.41	469.76	1.11
Ex. El Paso Wash	1	114	10 Yr	2138.1	2814	2815.89	1.89	2815.89	2816.37	0.013779	5.54	385.77	414.34	1.01
Ex. El Paso Wash	1	113	10 Yr	2138.1	2811	2813.06	2.06	2813.07	2813.54	0.014449	5.57	383.75	423.7	1.03
Ex. El Paso Wash	1	112	10 Yr	2138.1	2808	2810.43	2.43	2810.38	2810.85	0.011944	5.2	410.85	435.71	0.94
Ex. El Paso Wash	1	111	10 Yr	2138.1	2806	2807.78	1.78	2807.78	2808.25	0.014088	5.49	389.31	430.92	1.02
Ex. El Paso Wash	1	110	10 Yr	2138.1	2803	2804.69	1.69	2804.73	2805.19	0.016781	5.68	376.51	452.09	1.1
Ex. El Paso Wash	1	109	10 Yr	2138.1	2800.49	2801.99	1.5	2801.99	2802.49	0.012879	5.66	377.9	374.1	0.99
Ex. El Paso Wash	1	108	10 Yr	2138.1	2796.35	2798.63	2.28	2798.78	2799.4	0.018518	7.03	304.22	285.39	1.2
Ex. El Paso Wash	1	107	10 Yr	2138.1	2794	2796.05	2.05	2795.88	2796.76	0.011232	6.76	316.43	216.4	0.98
Ex. El Paso Wash	1	106	10 Yr	2138.1	2791	2793.5	2.5	2793.54	2794.07	0.01482	6.05	353.51	351.54	1.06
Ex. El Paso Wash	1	105	10 Yr	2138.1	2788	2790.54	2.54	2790.58	2791.27	0.013156	6.86	311.87	235.17	1.05
Ex. El Paso Wash	1	104	10 Yr	2138.1	2786	2787.93	1.93	2787.8	2788.34	0.009459	5.11	418.07	381.8	0.86
Ex. El Paso Wash	1	103	10 Yr	2138.1	2783.21	2785.58	2.37	2785.58	2786.13	0.012804	5.91	361.53	333.25	1
Ex. El Paso Wash	1	102	10 Yr	2138.1	2781	2783.26	2.26	2782.95	2783.68	0.006398	5.19	411.97	274.46	0.75
Ex. El Paso Wash	1	101	10 Yr	2138.1	2779.34	2781.34	2	2781.34	2781.89	0.013028	5.97	358.3	330.32	1.01
Ex. El Paso Wash	1	100	10 Yr	2138.1	2776	2778.5	2.5	2778.55	2779.08	0.015257	6.13	349.01	348.02	1.08
Ex. El Paso Wash	1	99	10 Yr	2138.1	2774	2775.71	1.71	2775.76	2776.32	0.015057	6.28	340.42	323.99	1.08
Ex. El Paso Wash	1	98	10 Yr	2138.1	2771	2772.57	1.57	2772.66	2773.37	0.014292	7.16	298.82	224.88	1.09
Ex. El Paso Wash	1	97	10 Yr	2138.1	2768.55	2770.55	2	2770.34	2771.07	0.00752	5.78	370.02	236.8	0.81
Ex. El Paso Wash	1	96	10 Yr	2138.1	2765.45	2768.48	3.03	2768.48	2769.17	0.012099	6.69	319.68	234.91	1.01
Ex. El Paso Wash	1	95	10 Yr	2138.1	2764	2765.21	1.21	2765.37	2765.91	0.023326	6.69	319.47	383.83	1.29
Ex. El Paso Wash	1	94	10 Yr	2138.1	2761.17	2763.25	2.08	2763.26	2763.78	0.01368	5.82	367.09	364.05	1.02
Ex. El Paso Wash	1	93	10 Yr	2138.1	2758	2760.44	2.44	2760.48	2760.95	0.015238	5.72	373.49	412.09	1.06
Ex. El Paso Wash	1	92	10 Yr	2138.1	2756	2758.17	2.17	2758.11	2758.58	0.011659	5.14	415.84	440.72	0.93
Ex. El Paso Wash	1	91	10 Yr	2138.1	2753	2755.53	2.53	2755.53	2756.07	0.013545	5.88	363.55	352.66	1.02
Ex. El Paso Wash	1	90	10 Yr	2138.1	2751	2752.97	1.97	2752.97	2753.42	0.012671	5.4	395.95	415.21	0.97
Ex. El Paso Wash	1	89	10 Yr	2138.1	2748.73	2750.24	1.51	2750.25	2750.71	0.01452	5.53	386.53	433.11	1.03
Ex. El Paso Wash	1	88	10 Yr	2138.1	2746	2748.2	2.2	2747.98	2748.59	0.007325	5	427.56	333.49	0.78
Ex. El Paso Wash	1	87	10 Yr	2138.1	2744	2746.25	2.25	2746.24	2746.67	0.013021	5.22	409.77	461.84	0.98
Ex. El Paso Wash	1	86	10 Yr	2138.1	2741.62	2743.49	1.87	2743.49	2743.94	0.014463	5.35	399.52	468.98	1.02
Ex. El Paso Wash	1	85	10 Yr	2138.1	2738.1	2740.49	2.39	2740.36	2740.96	0.009091	5.48	390.44	312.58	0.86
Ex. El Paso Wash	1	84	10 Yr	2138.1	2736	2738.42	2.42	2738.39	2738.86	0.012089	5.31	402.4	417.35	0.95
Ex. El Paso Wash	1	83	10 Yr	2138.1	2734	2735.83	1.83	2735.83	2736.28	0.013771	5.41	395.19	439.91	1.01
Ex. El Paso Wash	1	82	10 Yr	2138.1	2732	2733.62	1.62	2733.49	2733.93	0.009295	4.48	477.02	524.4	0.83
Ex. El Paso Wash	1	81	10 Yr	2138.1	2728	2731.18	3.18	2731.18	2731.61	0.014627	5.25	407.39	496.57	1.02
Ex. El Paso Wash	1	80	10 Yr	2138.1	2726.32	2728.71	2.39	2728.63	2729.04	0.010438	4.63	461.66	527.09	0.87
Ex. El Paso Wash	1	79	10 Yr	2138.1	2724	2726.46	2.46	2726.41	2726.79	0.01207	4.62	462.35	589.94	0.92

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
South El Paso Wash - Pre-development Conditions
10-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Ex. El Paso Wash	1	78	10 Yr	2138.1	2722	2723.98	1.98	2723.98	2724.36	0.012282	4.9	436.72	518.11	0.94
Ex. El Paso Wash	1	77	10 Yr	2157.7	2719.31	2721.49	2.18	2721.26	2721.7	0.006061	3.66	588.83	635.31	0.67
Ex. El Paso Wash	1	76	10 Yr	2157.7	2716.53	2719.42	2.89	2719.42	2719.94	0.013152	5.78	373.2	362.77	1
Ex. El Paso Wash	1	75	10 Yr	2157.7	2714	2717.2	3.2	2717.06	2717.5	0.009647	4.37	493.96	579.8	0.83
Ex. El Paso Wash	1	74	10 Yr	2157.7	2712	2714.66	2.66	2714.66	2715.17	0.014021	5.74	376.1	388.22	1.03
Ex. El Paso Wash	1	73	10 Yr	2157.7	2709.54	2712.25	2.71	2712.16	2712.63	0.010991	4.96	435.32	466	0.9
Ex. El Paso Wash	1	72	10 Yr	2157.7	2707.17	2709.74	2.57	2709.74	2710.26	0.012757	5.77	373.9	356.2	0.99
Ex. El Paso Wash	1	71	10 Yr	2157.7	2705	2707.86	2.86	2707.57	2708.24	0.007579	4.95	435.95	353.78	0.79
Ex. El Paso Wash	1	70	10 Yr	2157.7	2703.32	2705.73	2.41	2705.73	2706.2	0.014327	5.46	395.09	446.59	1.02
Ex. El Paso Wash	1	69	10 Yr	2157.7	2701.12	2703.79	2.67	2703.53	2704.06	0.007185	4.18	516.41	519.91	0.74
Ex. El Paso Wash	1	68	10 Yr	2157.7	2699.17	2701.7	2.53	2701.7	2702.11	0.013901	5.11	422.32	515.9	1
Ex. El Paso Wash	1	67	10 Yr	2157.7	2697.04	2699.5	2.46	2699.34	2699.92	0.008329	5.16	417.86	342.06	0.82
Ex. El Paso Wash	1	66	10 Yr	2157.7	2696	2697.97	1.97	2697.69	2698.43	0.006607	5.46	395.42	250.45	0.77
Ex. El Paso Wash	1	65	10 Yr	2157.7	2693	2695.73	2.73	2695.73	2696.75	0.01016	8.11	266.06	127.99	0.99
Ex. El Paso Wash	1	64	10 Yr	2157.7	2691	2694.19	3.19	2694.02	2694.6	0.008106	5.17	417.5	334.25	0.81
Ex. El Paso Wash	1	63	10 Yr	2401.5	2690	2691.98	1.98	2691.98	2692.65	0.011398	6.6	363.87	260.87	0.98
Ex. El Paso Wash	1	62	10 Yr	2401.5	2686	2688.07	2.07	2688.4	2689.26	0.026723	8.75	274.31	243.87	1.45
Ex. El Paso Wash	1	61	10 Yr	2401.5	2683	2686.17	3.17	2686.14	2686.57	0.012745	5.08	472.4	544.43	0.96
Ex. El Paso Wash	1	60	10 Yr	2401.5	2681	2683.61	2.61	2683.58	2684.08	0.012036	5.48	438.42	432.8	0.96
Ex. El Paso Wash	1	59	10 Yr	2401.5	2679	2681.06	2.06	2681.06	2681.5	0.01369	5.32	451.63	513.5	1
Ex. El Paso Wash	1	58	10 Yr	2401.5	2676	2678.72	2.72	2678.64	2679.16	0.010234	5.29	453.61	417.15	0.89
Ex. El Paso Wash	1	57	10 Yr	2401.5	2674	2676.49	2.49	2676.43	2677.01	0.011109	5.77	416	357.24	0.94
Ex. El Paso Wash	1	56	10 Yr	2401.5	2672.03	2674.64	2.61	2674.5	2675.02	0.008655	4.95	484.8	434.54	0.83
Ex. El Paso Wash	1	55	10 Yr	2401.5	2670.93	2672.5	1.57	2672.47	2672.97	0.012197	5.51	435.8	430.87	0.97
Ex. El Paso Wash	1	54	10 Yr	2401.5	2668.49	2670.56	2.07	2670.39	2670.88	0.008696	4.58	524.47	531.12	0.81
Ex. El Paso Wash	1	53	10 Yr	2401.5	2666	2668.21	2.21	2668.21	2668.75	0.013104	5.9	407.11	383.39	1.01
Ex. El Paso Wash	1	52	10 Yr	2401.5	2663	2665.95	2.95	2665.72	2666.32	0.007898	4.88	492.24	421.33	0.8
Ex. El Paso Wash	1	51	10 Yr	2401.5	2661.32	2663.82	2.5	2663.82	2664.24	0.014093	5.24	458.08	543.73	1.01
Ex. El Paso Wash	1	50	10 Yr	2401.5	2659.53	2661.68	2.15	2661.49	2661.96	0.007385	4.22	569.61	577.42	0.75
Ex. El Paso Wash	1	49	10 Yr	2401.5	2657	2659.52	2.52	2659.52	2660.01	0.013042	5.65	425.15	425.76	1
Ex. El Paso Wash	1	48	10 Yr	2401.5	2655	2657.52	2.52	2657.06	2657.82	0.004409	4.41	544.12	349.8	0.62
Ex. El Paso Wash	1	47	10 Yr	2447.1	2653	2655.86	2.86	2655.86	2656.37	0.013351	5.74	426	423.5	1.01
Ex. El Paso Wash	1	46	10 Yr	2447.1	2651	2653.39	2.39	2653.26	2654	0.009293	6.29	389.11	257.27	0.9
Ex. El Paso Wash	1	45	10 Yr	2447.1	2649	2651.81	2.81	2651.64	2652.17	0.00829	4.8	509.93	464.25	0.81
Ex. El Paso Wash	1	44	10 Yr	2447.1	2647	2649.61	2.61	2649.61	2650.12	0.012696	5.75	425.67	406.94	0.99
Ex. El Paso Wash	1	43	10 Yr	2447.1	2645	2647.42	2.42	2646.91	2647.82	0.006741	5.04	485.82	351.79	0.76
Ex. El Paso Wash	1	42	10 Yr	2447.1	2642.49	2645.73	3.24	2645.61	2646.24	0.009161	5.72	427.62	321.79	0.87
Ex. El Paso Wash	1	41	10 Yr	2447.1	2640.63	2643.63	3	2643.6	2644.17	0.011761	5.92	413.37	356.75	0.97

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
South El Paso Wash - Pre-development Conditions
10-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Ex. El Paso Wash	1	40	10 Yr	2447.1	2639	2642.12	3.12	0	2642.53	0.005835	5.09	480.7	307.54	0.72
Ex. El Paso Wash	1	39	10 Yr	2447.1	2638	2640.31	2.31	2640.25	2640.94	0.010909	6.41	381.58	275.97	0.96
Ex. El Paso Wash	1	38	10 Yr	2447.1	2635.72	2638.6	2.88	0	2639.06	0.0078	5.44	450.11	324.33	0.81
Ex. El Paso Wash	1	37	10 Yr	2447.1	2634	2636.61	2.61	2636.57	2637.19	0.011425	6.1	401.29	324.32	0.97
Ex. El Paso Wash	1	36	10 Yr	2447.1	2632	2634.81	2.81	0	2635.23	0.008083	5.19	471.48	374.46	0.82
Ex. El Paso Wash	1	35	10 Yr	2447.1	2630	2632.82	2.82	2632.74	2633.37	0.010667	5.94	411.85	328.54	0.94
Ex. El Paso Wash	1	34	10 Yr	2447.1	2628	2631.03	3.03	0	2631.42	0.008519	5.03	486.76	421.56	0.82
Ex. El Paso Wash	1	33	10 Yr	2447.1	2626	2629.57	3.57	0	2629.95	0.006429	4.95	494.4	354.82	0.74
Ex. El Paso Wash	1	32	10 Yr	2447.1	2625	2627.79	2.79	2627.74	2628.27	0.011214	5.59	437.6	397.14	0.94
Ex. El Paso Wash	1	31	10 Yr	2447.1	2623	2625.72	2.72	2625.63	2626.15	0.009909	5.26	465.1	421.65	0.88
Ex. El Paso Wash	1	30	10 Yr	2447.1	2621.57	2623.64	2.07	2623.56	2624.09	0.010665	5.36	456.17	424.56	0.91
Ex. El Paso Wash	1	29	10 Yr	2447.1	2620	2621.64	1.64	2621.53	2622.04	0.00971	5.04	485.15	461.71	0.87
Ex. El Paso Wash	1	28	10 Yr	2447.1	2618	2619.67	1.67	2619.56	2620.1	0.009622	5.29	462.96	407.88	0.87
Ex. El Paso Wash	1	27	10 Yr	2447.1	2616	2617.78	1.78	2617.65	2618.21	0.009366	5.28	463.21	400.28	0.87
Ex. El Paso Wash	1	26	10 Yr	2447.1	2614	2615.89	1.89	2615.77	2616.32	0.009521	5.27	464.7	408.49	0.87
Ex. El Paso Wash	1	25	10 Yr	2447.1	2612	2614.26	2.26	0	2614.63	0.007446	4.92	497.29	402.38	0.78
Ex. El Paso Wash	1	24	10 Yr	2447.1	2610	2612.14	2.14	2612.13	2612.7	0.012772	5.96	410.54	373.51	1
Ex. El Paso Wash	1	23	10 Yr	2447.1	2608.22	2610.4	2.18	0	2610.74	0.007289	4.64	527.39	458.78	0.76
Ex. El Paso Wash	1	22	10 Yr	2447.1	2606	2608.32	2.32	2608.32	2608.81	0.01326	5.62	435.37	444.85	1
Ex. El Paso Wash	1	21	10 Yr	2447.1	2604	2606.41	2.41	2606.21	2606.78	0.007544	4.88	501.03	413.77	0.78
Ex. El Paso Wash	1	20	10 Yr	2447.1	2602	2605.34	3.34	0	2605.63	0.004369	4.3	568.51	376.87	0.62
Ex. El Paso Wash	1	19	10 Yr	2447.1	2600.56	2603.66	3.1	2603.66	2604.21	0.012904	5.97	409.62	374.11	1.01
Ex. El Paso Wash	1	18	10 Yr	2447.1	2600	2602.17	2.17	2601.84	2602.39	0.00542	3.73	656.74	635.57	0.65
Ex. El Paso Wash	1	17	10 Yr	2447.1	2598.55	2600.26	1.71	2600.26	2600.71	0.014152	5.41	452.25	513.62	1.02
Ex. El Paso Wash	1	16	10 Yr	2447.1	2595	2598.45	3.45	2598.04	2598.8	0.005188	4.76	514.42	333.41	0.67
Ex. El Paso Wash	1	15	10 Yr	2447.1	2594	2596.9	2.9	2596.78	2597.37	0.010404	5.48	446.87	395.32	0.91
Ex. El Paso Wash	1	14	10 Yr	2447.1	2593	2595.2	2.2	0	2595.62	0.007313	5.23	467.91	340.42	0.79
Ex. El Paso Wash	1	13	10 Yr	2447.1	2591	2593.68	2.68	2593.54	2594.03	0.008328	4.76	514	474.82	0.81
Ex. El Paso Wash	1	12	10 Yr	2447.1	2589	2591.78	2.78	2591.7	2592.18	0.01038	5.08	481.34	475.66	0.89
Ex. El Paso Wash	1	11	10 Yr	2447.1	2587	2590.03	3.03	0	2590.35	0.007999	4.56	537	514.04	0.79
Ex. El Paso Wash	1	10	10 Yr	2447.1	2585	2588.07	3.07	2587.98	2588.49	0.010834	5.22	468.97	460.05	0.91
Ex. El Paso Wash	1	9	10 Yr	2447.1	2583	2586.47	3.47	0	2586.85	0.006359	4.93	496.24	355.21	0.74
Ex. El Paso Wash	1	8	10 Yr	2447.1	2581.49	2584.89	3.4	2584.78	2585.27	0.010193	4.92	497.84	510.63	0.88
Ex. El Paso Wash	1	7	10 Yr	2447.1	2579	2582.92	3.92	2582.79	2583.28	0.009651	4.77	512.77	527.47	0.85
Ex. El Paso Wash	1	6	10 Yr	2447.1	2578	2581.07	3.07	2580.94	2581.37	0.009215	4.43	552.4	613.7	0.82
Ex. El Paso Wash	1	5	10 Yr	2447.1	2577	2578.92	1.92	2578.88	2579.29	0.0117	4.87	502.99	581.1	0.92
Ex. El Paso Wash	1	4	10 Yr	2447.1	2574	2576.87	2.87	2576.74	2577.23	0.009043	4.8	510.19	496.2	0.83
Ex. El Paso Wash	1	3	10 Yr	2447.1	2572	2574.55	2.55	2574.55	2575	0.014003	5.34	458.38	526.87	1.01

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT

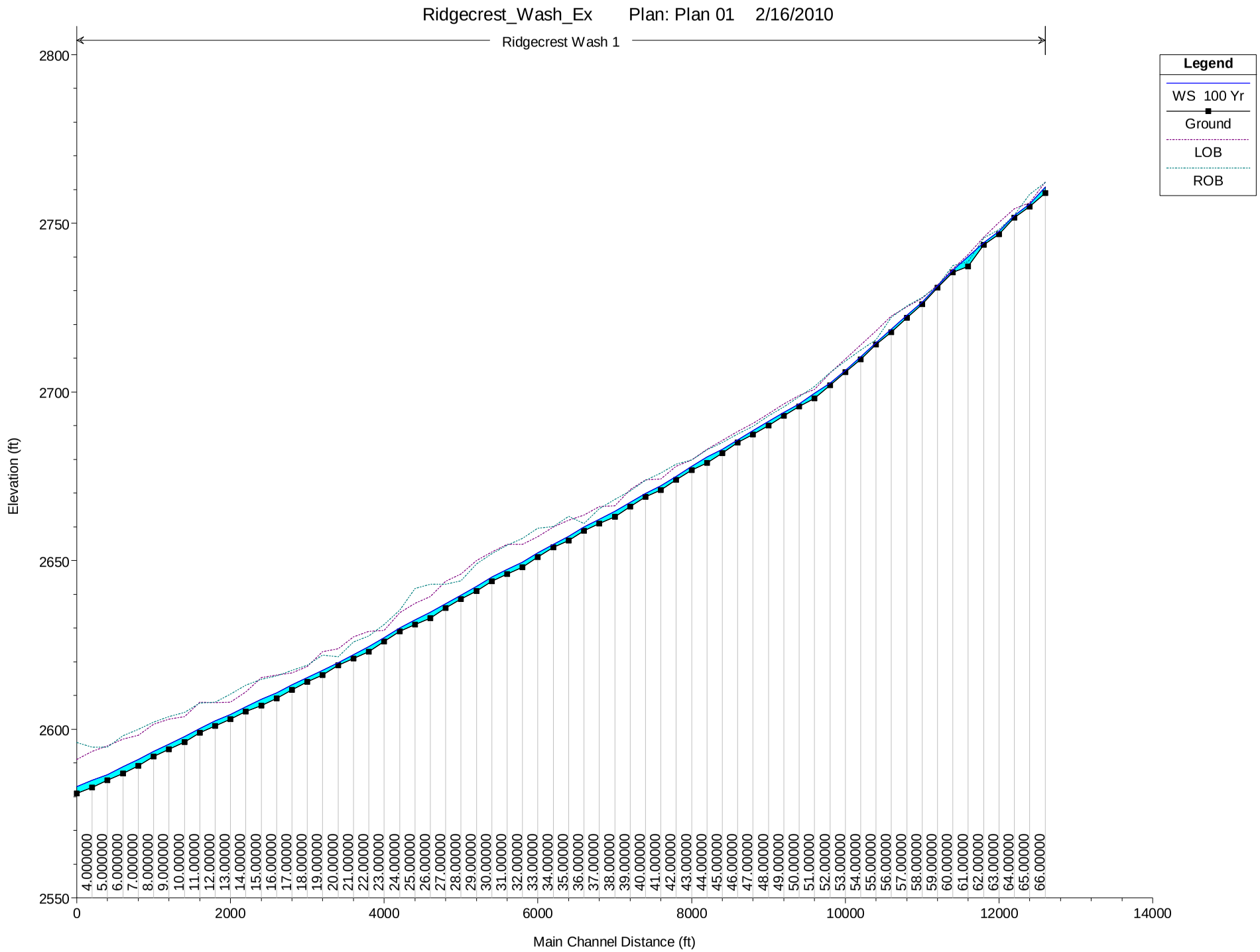
South El Paso Wash - Pre-development Conditions

10-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Ex. El Paso Wash	1	2	10 Yr	2447.1	2570	2572.76	2.76	2572.5	2573.03	0.006162	4.16	588.28	531.28	0.7
Ex. El Paso Wash	1	1	10 Yr	2447.1	2569	2570.79	1.79	2570.79	2571.33	0.012013	6.05	430.14	406.34	0.98

APPENDIX 3B

North Ridgecrest Wash


Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
Ridgecrest Wash 1
Legend
WS 100 Yr
Ground
LOB
ROB
Elevation (ft)
Main Channel Distance (ft)
2550
2600
2650
2700
2750
2800
0
2000
4000
6000
8000
10000
12000
14000
4.000000
5.000000
6.000000
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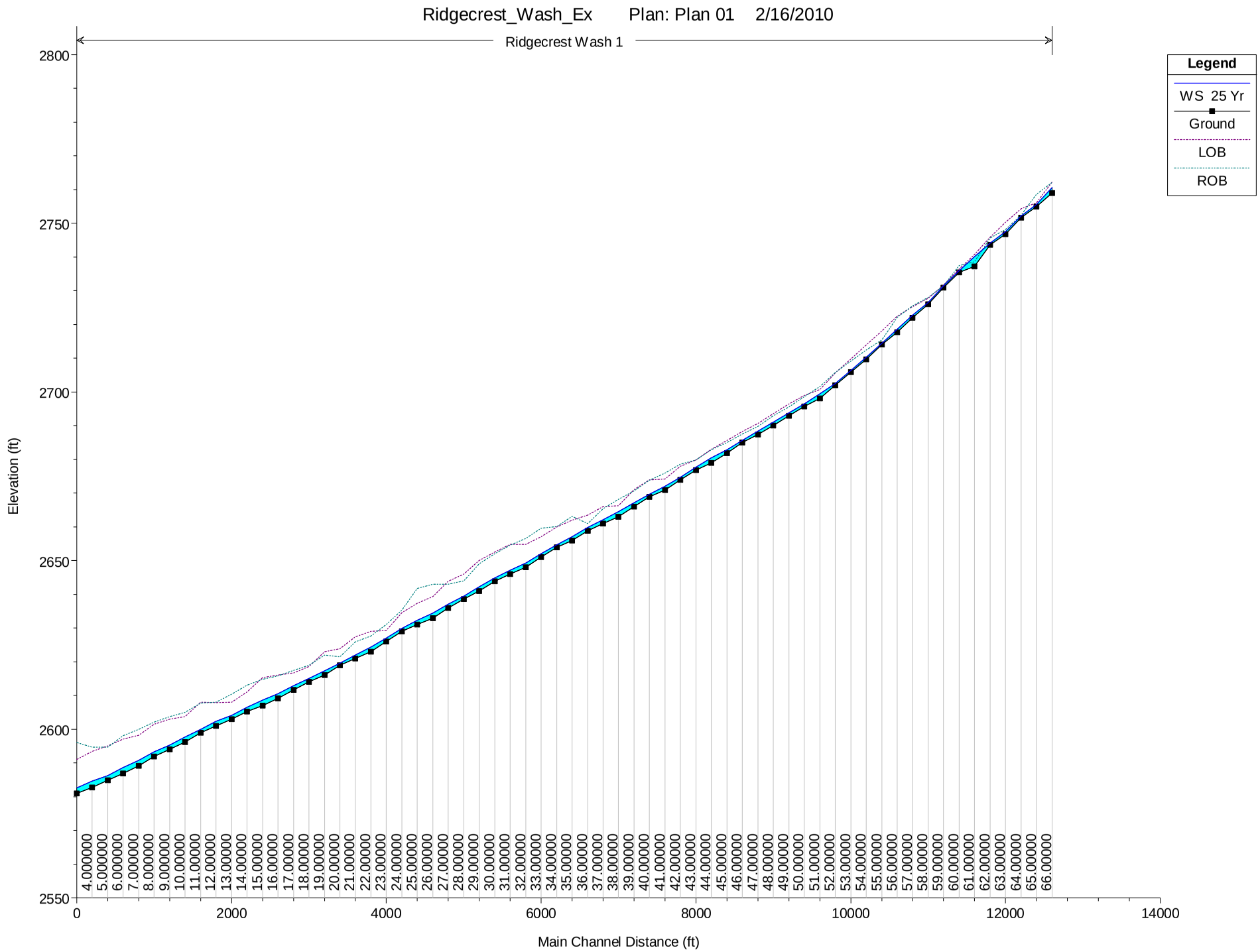
Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
Ridgecrest Wash 1
Legend
WS 25 Yr
Ground
LOB
ROB
Elevation (ft)
Main Channel Distance (ft)
2550
2600
2650
2700
2750
2800
0
2000
4000
6000
8000
10000
12000
14000
4.000000
5.000000
6.000000
7.000000
8.000000
9.000000
10.00000
11.00000
12.00000
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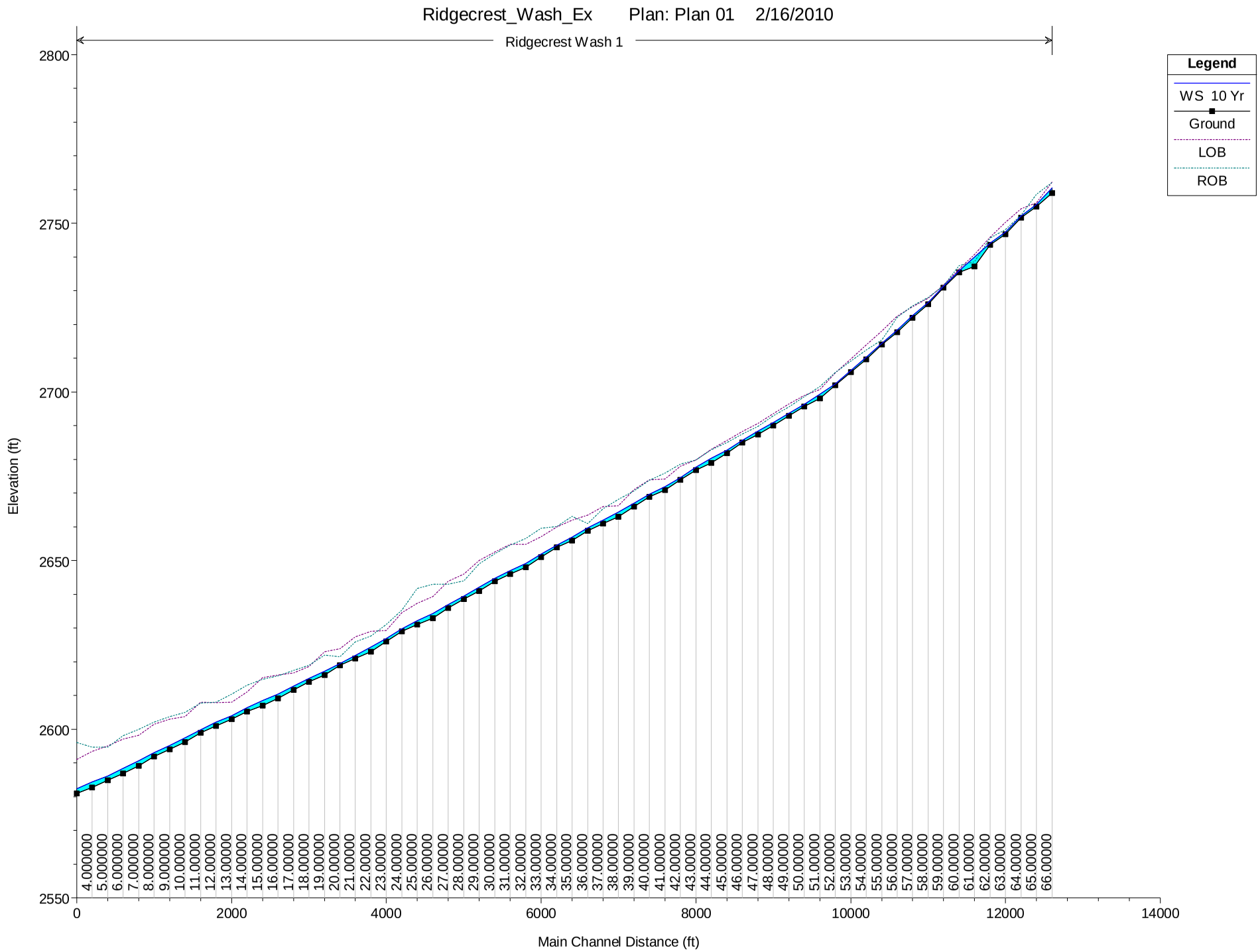
Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
Ridgecrest Wash 1
Legend
WS 10 Yr
Ground
LOB
ROB
Elevation (ft)
Main Channel Distance (ft)
2550
2600
2650
2700
2750
2800
0
2000
4000
6000
8000
10000
12000
14000
4.000000
5.000000
6.000000
7.000000
8.000000
9.000000
10.00000
11.00000
12.00000
13.00000
14.00000
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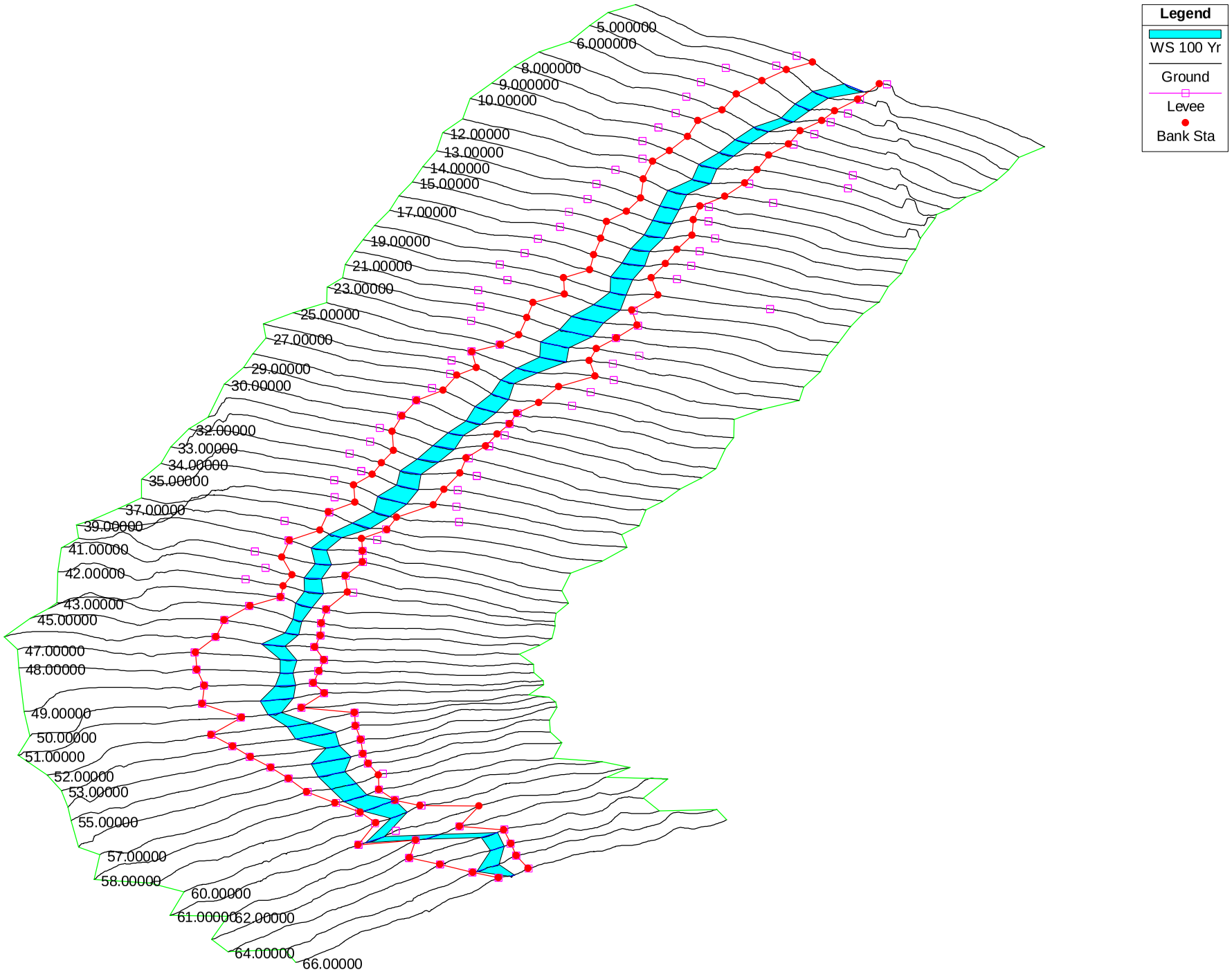


RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
North Ridgecrest Wash - Pre-development Conditions
100-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Ex. Ridgecrest Wash	1	66	100 Yr	194	2758.98	2760.78	1.8	2760.78	2761.09	0.016082	4.42	43.88	74.12	1.01
Ex. Ridgecrest Wash	1	65	100 Yr	194	2755	2755.69	0.69	2755.69	2755.92	0.016744	3.84	50.56	109.09	0.99
Ex. Ridgecrest Wash	1	64	100 Yr	194	2751.65	2752.28	0.63	2752.28	2752.46	0.017706	3.47	55.84	145.9	0.99
Ex. Ridgecrest Wash	1	63	100 Yr	194	2746.74	2747.61	0.87	2747.59	2747.81	0.014871	3.66	53.07	112.7	0.94
Ex. Ridgecrest Wash	1	62	100 Yr	194	2743.67	2744.25	0.58	2744.25	2744.43	0.019344	3.39	57.29	166.24	1.02
Ex. Ridgecrest Wash	1	61	100 Yr	194	2737.24	2740.15	2.91	2740.18	2740.37	0.0213	3.81	50.97	133.37	1.09
Ex. Ridgecrest Wash	1	60	100 Yr	194	2735.47	2736.09	0.62	2736.09	2736.26	0.020439	3.38	57.34	173.56	1.04
Ex. Ridgecrest Wash	1	59	100 Yr	194	2730.92	2731.49	0.57	2731.49	2731.63	0.019026	3	64.62	222.2	0.98
Ex. Ridgecrest Wash	1	58	100 Yr	194	2725.99	2726.63	0.64	2726.63	2726.82	0.01899	3.48	55.7	152.82	1.02
Ex. Ridgecrest Wash	1	57	100 Yr	194	2722.05	2722.77	0.72	2722.78	2722.91	0.019969	3.01	64.49	228.86	1
Ex. Ridgecrest Wash	1	56	100 Yr	194	2717.72	2718.61	0.89	2718.61	2718.79	0.017989	3.32	58.43	165.36	0.98
Ex. Ridgecrest Wash	1	55	100 Yr	194	2714.07	2714.55	0.48	2714.55	2714.69	0.020414	2.95	65.84	245.07	1
Ex. Ridgecrest Wash	1	54	100 Yr	194	2709.71	2710.37	0.66	2710.38	2710.57	0.020671	3.63	53.4	146.57	1.06
Ex. Ridgecrest Wash	1	53	100 Yr	194	2705.87	2706.45	0.58	2706.45	2706.58	0.020458	2.97	65.43	241.65	1
Ex. Ridgecrest Wash	1	52	100 Yr	194	2701.95	2702.57	0.62	2702.51	2702.71	0.011833	2.94	65.99	163.69	0.82
Ex. Ridgecrest Wash	1	51	100 Yr	194	2698.11	2699.55	1.44	2699.55	2699.86	0.017331	4.43	43.84	78.33	1.04
Ex. Ridgecrest Wash	1	50	100 Yr	194	2695.66	2696.5	0.84	2696.46	2696.62	0.012357	2.75	70.45	199.14	0.82
Ex. Ridgecrest Wash	1	49	100 Yr	365	2692.88	2693.97	1.09	2693.89	2694.24	0.011548	4.2	86.85	123.76	0.88
Ex. Ridgecrest Wash	1	48	100 Yr	365	2689.99	2691.29	1.3	2691.29	2691.58	0.015394	4.34	84.1	141.66	0.99
Ex. Ridgecrest Wash	1	47	100 Yr	365	2687.34	2688.59	1.25	2688.53	2688.81	0.011883	3.78	96.49	164.53	0.87
Ex. Ridgecrest Wash	1	46	100 Yr	365	2684.97	2685.79	0.82	2685.79	2686.05	0.016187	4.15	87.87	164.14	1
Ex. Ridgecrest Wash	1	45	100 Yr	365	2681.89	2683.05	1.16	2682.91	2683.28	0.008964	3.85	94.69	127.02	0.79
Ex. Ridgecrest Wash	1	44	100 Yr	365	2678.96	2680.68	1.72	2680.67	2681.08	0.013531	5.11	71.47	85.56	0.98
Ex. Ridgecrest Wash	1	43	100 Yr	365	2676.8	2677.92	1.12	2677.92	2678.28	0.014329	4.78	76.36	105.46	0.99
Ex. Ridgecrest Wash	1	42	100 Yr	365	2673.95	2674.88	0.93	2674.88	2675.21	0.014205	4.65	78.46	112.11	0.98
Ex. Ridgecrest Wash	1	41	100 Yr	365	2670.97	2672.2	1.23	2672.07	2672.46	0.008933	4.09	89.33	109.52	0.8
Ex. Ridgecrest Wash	1	40	100 Yr	365	2668.93	2669.85	0.92	2669.85	2670.16	0.015448	4.42	82.55	135.6	1
Ex. Ridgecrest Wash	1	39	100 Yr	365	2666	2667.23	1.23	2667.15	2667.49	0.01072	4.03	90.47	129.62	0.85
Ex. Ridgecrest Wash	1	38	100 Yr	365	2663	2664.66	1.66	2664.66	2665.01	0.014285	4.76	76.7	106.29	0.99
Ex. Ridgecrest Wash	1	37	100 Yr	365	2660.98	2662.26	1.28	2662.12	2662.47	0.008383	3.71	98.35	132.82	0.76
Ex. Ridgecrest Wash	1	36	100 Yr	365	2658.86	2659.96	1.1	2659.96	2660.3	0.014561	4.68	77.91	112.23	0.99
Ex. Ridgecrest Wash	1	35	100 Yr	365	2655.96	2657.17	1.21	2657.12	2657.36	0.012011	3.56	102.58	193.26	0.86
Ex. Ridgecrest Wash	1	34	100 Yr	365	2653.93	2654.82	0.89	2654.73	2655.06	0.01097	3.95	92.47	139.3	0.85
Ex. Ridgecrest Wash	1	33	100 Yr	536	2650.97	2652.26	1.29	2652.24	2652.65	0.012867	5	107.12	127.4	0.96
Ex. Ridgecrest Wash	1	32	100 Yr	536	2648.03	2649.48	1.45	2649.48	2649.9	0.014602	5.2	103	127.01	1.02
Ex. Ridgecrest Wash	1	31	100 Yr	536	2645.99	2647.39	1.4	2647.23	2647.66	0.008314	4.22	126.89	140.23	0.78
Ex. Ridgecrest Wash	1	30	100 Yr	536	2643.86	2645.1	1.24	2645.1	2645.5	0.014543	5.07	105.72	135.16	1.01
Ex. Ridgecrest Wash	1	29	100 Yr	536	2641	2642.39	1.39	2642.36	2642.73	0.01291	4.71	113.74	148.41	0.95
Ex. Ridgecrest Wash	1	28	100 Yr	536	2638.63	2639.65	1.02	2639.65	2639.99	0.014577	4.68	114.63	165.78	0.99
Ex. Ridgecrest Wash	1	27	100 Yr	536	2635.98	2637.2	1.22	2637.13	2637.49	0.010744	4.32	124.04	160.59	0.87

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
North Ridgecrest Wash - Pre-development Conditions
100-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Ex. Ridgecrest Wash	1	26	100 Yr	536	2632.95	2634.64	1.69	2634.64	2635.06	0.013781	5.2	103	121.59	1
Ex. Ridgecrest Wash	1	25	100 Yr	536	2631	2632.39	1.39	2632.28	2632.63	0.009033	3.92	136.64	179.59	0.79
Ex. Ridgecrest Wash	1	24	100 Yr	536	2629	2629.98	0.98	2629.98	2630.31	0.015447	4.61	116.32	179.54	1.01
Ex. Ridgecrest Wash	1	23	100 Yr	536	2626	2627.13	1.13	2627.04	2627.35	0.010265	3.8	141.03	213.95	0.82
Ex. Ridgecrest Wash	1	22	100 Yr	536	2623	2624.53	1.53	2624.53	2624.82	0.015784	4.33	123.8	213.2	1
Ex. Ridgecrest Wash	1	21	100 Yr	536	2620.98	2622.09	1.11	2621.98	2622.29	0.00965	3.6	148.96	234.2	0.8
Ex. Ridgecrest Wash	1	20	100 Yr	536	2618.91	2619.76	0.85	2619.73	2620.04	0.01325	4.25	126.13	195.98	0.93
Ex. Ridgecrest Wash	1	19	100 Yr	536	2616	2617.47	1.47	2617.38	2617.72	0.010192	3.98	134.7	189.7	0.83
Ex. Ridgecrest Wash	1	18	100 Yr	536	2613.99	2615.27	1.28	2615.21	2615.54	0.011561	4.16	128.71	186.11	0.88
Ex. Ridgecrest Wash	1	17	100 Yr	706.7	2611.67	2613.13	1.46	2613.01	2613.44	0.00977	4.48	157.72	180.09	0.84
Ex. Ridgecrest Wash	1	16	100 Yr	706.7	2609.18	2610.73	1.55	2610.73	2611.16	0.013468	5.24	134.89	154.98	0.99
Ex. Ridgecrest Wash	1	15	100 Yr	706.7	2607	2608.84	1.84	2608.65	2609.12	0.007393	4.24	166.76	167.94	0.75
Ex. Ridgecrest Wash	1	14	100 Yr	706.7	2605.27	2606.68	1.41	2606.68	2607.14	0.013629	5.45	129.76	141.91	1
Ex. Ridgecrest Wash	1	13	100 Yr	706.7	2602.98	2604.34	1.36	2604.2	2604.67	0.008827	4.67	151.28	150.33	0.82
Ex. Ridgecrest Wash	1	12	100 Yr	706.7	2600.97	2602.49	1.52	2602.38	2602.84	0.009538	4.74	149	153.43	0.85
Ex. Ridgecrest Wash	1	11	100 Yr	706.7	2598.95	2600.15	1.2	2600.15	2600.6	0.013253	5.34	132.35	146	0.99
Ex. Ridgecrest Wash	1	10	100 Yr	717.9	2596.15	2597.84	1.69	2597.74	2598.21	0.010058	4.88	147.19	151.21	0.87
Ex. Ridgecrest Wash	1	9	100 Yr	717.9	2593.98	2595.61	1.63	2595.56	2596.06	0.011483	5.42	132.51	128.44	0.94
Ex. Ridgecrest Wash	1	8	100 Yr	717.9	2591.87	2593.44	1.57	2593.35	2593.87	0.010411	5.22	137.4	130.66	0.9
Ex. Ridgecrest Wash	1	7	100 Yr	717.9	2589.07	2591.06	1.99	2591.06	2591.55	0.012877	5.63	127.59	127.3	0.99
Ex. Ridgecrest Wash	1	6	100 Yr	717.9	2586.9	2588.84	1.94	2588.73	2589.27	0.009861	5.31	135.29	120.64	0.88
Ex. Ridgecrest Wash	1	5	100 Yr	717.9	2584.84	2586.47	1.63	2586.47	2586.96	0.013704	5.6	128.15	134.84	1.01
Ex. Ridgecrest Wash	1	4	100 Yr	717.9	2582.77	2584.89	2.12	2584.22	2585.03	0.002394	2.96	242.59	179.67	0.45
Ex. Ridgecrest Wash	1	3	100 Yr	1745.3	2580.95	2583	2.05	2583	2583.71	0.011389	6.77	257.84	177.85	0.99

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
North Ridgecrest Wash - Pre-development Conditions
25-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Ex. Ridgecrest Wash	1	66	25 Yr	138	2758.98	2760.65	1.67	2760.65	2760.9	0.016257	4.02	34.35	67.53	0.99
Ex. Ridgecrest Wash	1	65	25 Yr	138	2755	2755.6	0.6	2755.58	2755.78	0.015166	3.35	41.21	101.28	0.92
Ex. Ridgecrest Wash	1	64	25 Yr	138	2751.65	2752.19	0.54	2752.19	2752.35	0.019644	3.21	43	136.81	1.01
Ex. Ridgecrest Wash	1	63	25 Yr	138	2746.74	2747.51	0.77	2747.48	2747.67	0.014745	3.28	42.11	104.68	0.91
Ex. Ridgecrest Wash	1	62	25 Yr	138	2743.67	2744.19	0.52	2744.19	2744.32	0.019132	2.97	46.45	162.67	0.98
Ex. Ridgecrest Wash	1	61	25 Yr	138	2737.24	2740.07	2.83	2740.09	2740.25	0.021709	3.4	40.56	127.37	1.06
Ex. Ridgecrest Wash	1	60	25 Yr	138	2735.47	2736	0.53	2736.02	2736.16	0.022881	3.25	42.46	148.6	1.07
Ex. Ridgecrest Wash	1	59	25 Yr	138	2730.92	2731.4	0.48	2731.4	2731.53	0.020886	2.95	46.85	177.46	1.01
Ex. Ridgecrest Wash	1	58	25 Yr	138	2725.99	2726.57	0.58	2726.55	2726.71	0.017309	3.01	45.88	146.26	0.95
Ex. Ridgecrest Wash	1	57	25 Yr	138	2722.05	2722.71	0.66	2722.71	2722.82	0.021811	2.74	50.4	220.08	1.01
Ex. Ridgecrest Wash	1	56	25 Yr	138	2717.72	2718.54	0.82	2718.51	2718.68	0.018311	2.99	46.11	154.53	0.97
Ex. Ridgecrest Wash	1	55	25 Yr	138	2714.07	2714.49	0.42	2714.49	2714.6	0.022583	2.7	51.13	234.16	1.02
Ex. Ridgecrest Wash	1	54	25 Yr	138	2709.71	2710.3	0.59	2710.29	2710.45	0.017825	3.11	44.33	137.22	0.97
Ex. Ridgecrest Wash	1	53	25 Yr	138	2705.87	2706.39	0.52	2706.39	2706.5	0.02183	2.69	51.36	230.82	1
Ex. Ridgecrest Wash	1	52	25 Yr	138	2701.95	2702.49	0.54	2702.45	2702.6	0.012908	2.66	51.87	159.5	0.82
Ex. Ridgecrest Wash	1	51	25 Yr	138	2698.11	2699.41	1.3	2699.41	2699.67	0.016519	4.09	33.75	65.49	1
Ex. Ridgecrest Wash	1	50	25 Yr	138	2695.66	2696.42	0.76	2696.39	2696.52	0.014438	2.58	53.4	186.61	0.85
Ex. Ridgecrest Wash	1	49	25 Yr	258	2692.88	2693.8	0.92	2693.74	2694.03	0.011504	3.81	67.67	111.28	0.86
Ex. Ridgecrest Wash	1	48	25 Yr	258	2689.99	2691.09	1.1	2691.09	2691.37	0.015416	4.29	60.12	103.1	0.99
Ex. Ridgecrest Wash	1	47	25 Yr	258	2687.34	2688.44	1.1	2688.37	2688.63	0.011514	3.5	73.82	138.4	0.84
Ex. Ridgecrest Wash	1	46	25 Yr	258	2684.97	2685.66	0.69	2685.66	2685.88	0.016651	3.77	68.49	151.35	0.99
Ex. Ridgecrest Wash	1	45	25 Yr	258	2681.89	2682.84	0.95	2682.74	2683.05	0.009869	3.67	70.36	109.33	0.81
Ex. Ridgecrest Wash	1	44	25 Yr	258	2678.96	2680.48	1.52	2680.44	2680.81	0.012714	4.62	55.79	73.95	0.94
Ex. Ridgecrest Wash	1	43	25 Yr	258	2676.8	2677.75	0.95	2677.75	2678.05	0.014859	4.36	59.13	96.22	0.98
Ex. Ridgecrest Wash	1	42	25 Yr	258	2673.95	2674.69	0.74	2674.69	2674.99	0.015782	4.39	58.71	98.88	1.01
Ex. Ridgecrest Wash	1	41	25 Yr	258	2670.97	2672.03	1.06	2671.89	2672.24	0.00827	3.61	71.4	99.33	0.75
Ex. Ridgecrest Wash	1	40	25 Yr	258	2668.93	2669.7	0.77	2669.7	2669.96	0.016604	4.11	62.8	121.6	1.01
Ex. Ridgecrest Wash	1	39	25 Yr	258	2666	2667.09	1.09	2666.99	2667.29	0.010106	3.57	72.3	119.16	0.81
Ex. Ridgecrest Wash	1	38	25 Yr	258	2663	2664.48	1.48	2664.48	2664.79	0.015807	4.45	57.99	95.91	1.01
Ex. Ridgecrest Wash	1	37	25 Yr	258	2660.98	2662.09	1.11	2661.95	2662.26	0.008138	3.35	77.05	118.75	0.73
Ex. Ridgecrest Wash	1	36	25 Yr	258	2658.86	2659.79	0.93	2659.79	2660.08	0.015178	4.29	60.17	102.13	0.98
Ex. Ridgecrest Wash	1	35	25 Yr	258	2655.96	2657.07	1.11	2657.01	2657.21	0.011308	3.08	83.77	187.29	0.81
Ex. Ridgecrest Wash	1	34	25 Yr	258	2653.93	2654.66	0.73	2654.61	2654.87	0.012207	3.66	70.52	129	0.87
Ex. Ridgecrest Wash	1	33	25 Yr	378	2650.97	2652.08	1.11	2652.04	2652.38	0.012537	4.45	84.98	118.29	0.92
Ex. Ridgecrest Wash	1	32	25 Yr	378	2648.03	2649.3	1.27	2649.3	2649.64	0.015058	4.71	80.27	117.67	1
Ex. Ridgecrest Wash	1	31	25 Yr	378	2645.99	2647.19	1.2	2647.04	2647.41	0.008046	3.75	100.71	129.65	0.75
Ex. Ridgecrest Wash	1	30	25 Yr	378	2643.86	2644.91	1.05	2644.91	2645.25	0.01512	4.69	80.61	119.31	1.01
Ex. Ridgecrest Wash	1	29	25 Yr	378	2641	2642.24	1.24	2642.19	2642.5	0.012182	4.13	91.62	139.71	0.9
Ex. Ridgecrest Wash	1	28	25 Yr	378	2638.63	2639.5	0.87	2639.49	2639.77	0.015306	4.23	89.39	155.89	0.98
Ex. Ridgecrest Wash	1	27	25 Yr	378	2635.98	2637.04	1.06	2636.95	2637.27	0.010393	3.85	98.17	147.4	0.83

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
North Ridgecrest Wash - Pre-development Conditions
25-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Ex. Ridgecrest Wash	1	26	25 Yr	378	2632.95	2634.42	1.47	2634.42	2634.79	0.014913	4.86	77.72	107.75	1.01
Ex. Ridgecrest Wash	1	25	25 Yr	378	2631	2632.23	1.23	2632.1	2632.42	0.009	3.51	107.78	167.11	0.77
Ex. Ridgecrest Wash	1	24	25 Yr	378	2629	2629.84	0.84	2629.84	2630.1	0.015367	4.07	92.89	172.12	0.98
Ex. Ridgecrest Wash	1	23	25 Yr	378	2626	2626.99	0.99	2626.91	2627.17	0.009941	3.35	112.86	202.05	0.79
Ex. Ridgecrest Wash	1	22	25 Yr	378	2623	2624.41	1.41	2624.41	2624.64	0.016437	3.84	98.51	209.62	0.99
Ex. Ridgecrest Wash	1	21	25 Yr	378	2620.98	2621.97	0.99	2621.87	2622.12	0.008953	3.12	120.98	222.24	0.75
Ex. Ridgecrest Wash	1	20	25 Yr	378	2618.91	2619.6	0.69	2619.59	2619.84	0.014744	3.92	96.38	183.01	0.95
Ex. Ridgecrest Wash	1	19	25 Yr	378	2616	2617.33	1.33	2617.23	2617.52	0.00922	3.44	109.85	178.43	0.77
Ex. Ridgecrest Wash	1	18	25 Yr	378	2613.99	2615.11	1.12	2615.07	2615.34	0.012951	3.81	99.3	178.89	0.9
Ex. Ridgecrest Wash	1	17	25 Yr	495.2	2611.67	2612.94	1.27	2612.83	2613.18	0.009466	3.97	124.88	167.29	0.81
Ex. Ridgecrest Wash	1	16	25 Yr	495.2	2609.18	2610.51	1.33	2610.51	2610.87	0.014352	4.85	102.13	138.25	0.99
Ex. Ridgecrest Wash	1	15	25 Yr	495.2	2607	2608.62	1.62	2608.43	2608.84	0.007262	3.78	131.09	154.79	0.72
Ex. Ridgecrest Wash	1	14	25 Yr	495.2	2605.27	2606.46	1.19	2606.46	2606.84	0.014408	4.99	99.31	129.26	1
Ex. Ridgecrest Wash	1	13	25 Yr	495.2	2602.98	2604.11	1.13	2603.98	2604.38	0.009131	4.21	117.71	140.41	0.81
Ex. Ridgecrest Wash	1	12	25 Yr	495.2	2600.97	2602.28	1.31	2602.16	2602.55	0.009224	4.2	117.8	141.76	0.81
Ex. Ridgecrest Wash	1	11	25 Yr	495.2	2598.95	2599.93	0.98	2599.93	2600.3	0.013968	4.87	101.58	133.64	0.99
Ex. Ridgecrest Wash	1	10	25 Yr	502.7	2596.15	2597.62	1.47	2597.52	2597.92	0.009899	4.36	115.21	138.23	0.84
Ex. Ridgecrest Wash	1	9	25 Yr	502.7	2593.98	2595.36	1.38	2595.31	2595.73	0.011972	4.94	101.82	117.06	0.93
Ex. Ridgecrest Wash	1	8	25 Yr	502.7	2591.87	2593.22	1.35	2593.13	2593.55	0.009908	4.59	109.45	121.69	0.85
Ex. Ridgecrest Wash	1	7	25 Yr	502.7	2589.07	2590.81	1.74	2590.81	2591.22	0.013723	5.19	96.95	114.67	0.99
Ex. Ridgecrest Wash	1	6	25 Yr	502.7	2586.9	2588.6	1.7	2588.47	2588.94	0.009103	4.67	107.68	109.62	0.83
Ex. Ridgecrest Wash	1	5	25 Yr	502.7	2584.84	2586.24	1.4	2586.24	2586.65	0.014615	5.09	98.69	125.71	1.01
Ex. Ridgecrest Wash	1	4	25 Yr	502.7	2582.77	2584.54	1.77	2584	2584.66	0.00269	2.76	182.23	163.69	0.46
Ex. Ridgecrest Wash	1	3	25 Yr	1227.4	2580.95	2582.63	1.68	2582.63	2583.24	0.012041	6.28	195.45	157.3	0.99

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
North Ridgecrest Wash - Pre-development Conditions
10-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Ex. Ridgecrest Wash	1	66	10 Yr	107	2758.98	2760.55	1.57	2760.55	2760.78	0.016801	3.86	27.75	59.46	0.99
Ex. Ridgecrest Wash	1	65	10 Yr	107	2755	2755.53	0.53	2755.5	2755.69	0.015658	3.13	34.15	94.95	0.92
Ex. Ridgecrest Wash	1	64	10 Yr	107	2751.65	2752.14	0.49	2752.14	2752.27	0.018616	2.89	37.02	132.37	0.96
Ex. Ridgecrest Wash	1	63	10 Yr	107	2746.74	2747.45	0.71	2747.41	2747.58	0.013603	2.96	36.15	98.58	0.86
Ex. Ridgecrest Wash	1	62	10 Yr	107	2743.67	2744.14	0.47	2744.13	2744.26	0.020768	2.77	38.65	160.03	0.99
Ex. Ridgecrest Wash	1	61	10 Yr	107	2737.24	2740.02	2.78	2739.99	2740.17	0.020069	3.13	34.22	115.04	1.01
Ex. Ridgecrest Wash	1	60	10 Yr	107	2735.47	2735.96	0.49	2735.96	2736.09	0.020658	2.91	36.8	140.95	1
Ex. Ridgecrest Wash	1	59	10 Yr	107	2730.92	2731.35	0.43	2731.35	2731.47	0.02175	2.8	38.28	161.68	1.01
Ex. Ridgecrest Wash	1	58	10 Yr	107	2725.99	2726.51	0.52	2726.5	2726.63	0.018419	2.81	38.09	141	0.95
Ex. Ridgecrest Wash	1	57	10 Yr	107	2722.05	2722.68	0.63	2722.68	2722.77	0.020211	2.44	43.82	214.6	0.95
Ex. Ridgecrest Wash	1	56	10 Yr	107	2717.72	2718.39	0.67	2718.43	2718.59	0.021483	3.59	29.79	85.6	1.07
Ex. Ridgecrest Wash	1	55	10 Yr	107	2714.07	2714.46	0.39	2714.46	2714.55	0.022547	2.47	43.27	225.65	1
Ex. Ridgecrest Wash	1	54	10 Yr	107	2709.71	2710.25	0.54	2710.23	2710.38	0.017778	2.88	37.2	129.41	0.95
Ex. Ridgecrest Wash	1	53	10 Yr	107	2705.87	2706.35	0.48	2706.35	2706.45	0.021631	2.45	43.74	224.74	0.98
Ex. Ridgecrest Wash	1	52	10 Yr	107	2701.95	2702.42	0.47	2702.4	2702.52	0.015298	2.55	41.99	156.5	0.87
Ex. Ridgecrest Wash	1	51	10 Yr	107	2698.11	2699.33	1.22	2699.3	2699.55	0.014457	3.72	28.76	58.15	0.93
Ex. Ridgecrest Wash	1	50	10 Yr	107	2695.66	2696.36	0.7	2696.33	2696.46	0.016221	2.45	43.61	179.73	0.88
Ex. Ridgecrest Wash	1	49	10 Yr	198	2692.88	2693.69	0.81	2693.63	2693.89	0.011421	3.54	55.96	102.37	0.84
Ex. Ridgecrest Wash	1	48	10 Yr	198	2689.99	2690.96	0.97	2690.96	2691.22	0.015548	4.09	48.39	89.69	0.98
Ex. Ridgecrest Wash	1	47	10 Yr	198	2687.34	2688.35	1.01	2688.27	2688.51	0.010922	3.21	61.71	126.42	0.81
Ex. Ridgecrest Wash	1	46	10 Yr	198	2684.97	2685.58	0.61	2685.58	2685.77	0.017646	3.5	56.5	145.35	0.99
Ex. Ridgecrest Wash	1	45	10 Yr	198	2681.89	2682.72	0.83	2682.61	2682.9	0.010109	3.45	57.44	99.73	0.8
Ex. Ridgecrest Wash	1	44	10 Yr	198	2678.96	2680.32	1.36	2680.28	2680.62	0.012907	4.41	44.85	64.47	0.93
Ex. Ridgecrest Wash	1	43	10 Yr	198	2676.8	2677.65	0.85	2677.64	2677.9	0.01424	3.96	49.95	90.91	0.94
Ex. Ridgecrest Wash	1	42	10 Yr	198	2673.95	2674.59	0.64	2674.59	2674.84	0.016487	4.08	48.52	94.36	1
Ex. Ridgecrest Wash	1	41	10 Yr	198	2670.97	2671.91	0.94	2671.75	2672.08	0.008055	3.32	59.62	92.3	0.73
Ex. Ridgecrest Wash	1	40	10 Yr	198	2668.93	2669.61	0.68	2669.61	2669.83	0.016755	3.82	51.8	112.51	0.99
Ex. Ridgecrest Wash	1	39	10 Yr	198	2666	2666.99	0.99	2666.89	2667.15	0.009762	3.25	60.87	112.3	0.78
Ex. Ridgecrest Wash	1	38	10 Yr	198	2663	2664.36	1.36	2664.36	2664.63	0.016772	4.21	47.04	88.35	1.02
Ex. Ridgecrest Wash	1	37	10 Yr	198	2660.98	2661.99	1.01	2661.84	2662.13	0.007489	3	66.07	113	0.69
Ex. Ridgecrest Wash	1	36	10 Yr	198	2658.86	2659.65	0.79	2659.65	2659.93	0.017575	4.22	46.88	90.85	1.04
Ex. Ridgecrest Wash	1	35	10 Yr	198	2655.96	2657	1.04	2656.91	2657.12	0.010815	2.76	71.82	183.4	0.78
Ex. Ridgecrest Wash	1	34	10 Yr	198	2653.93	2654.56	0.63	2654.51	2654.74	0.013149	3.44	57.63	122.47	0.88
Ex. Ridgecrest Wash	1	33	10 Yr	289	2650.97	2651.96	0.99	2651.91	2652.21	0.012199	4.05	71.42	112.23	0.89
Ex. Ridgecrest Wash	1	32	10 Yr	289	2648.03	2649.18	1.15	2649.18	2649.47	0.015517	4.36	66.28	111.54	1
Ex. Ridgecrest Wash	1	31	10 Yr	289	2645.99	2647.06	1.07	2646.91	2647.24	0.008	3.44	84.04	122.83	0.73
Ex. Ridgecrest Wash	1	30	10 Yr	289	2643.86	2644.78	0.92	2644.78	2645.08	0.015216	4.36	66.33	110.12	0.99
Ex. Ridgecrest Wash	1	29	10 Yr	289	2641	2642.13	1.13	2642.07	2642.35	0.011965	3.75	77.04	133.67	0.87
Ex. Ridgecrest Wash	1	28	10 Yr	289	2638.63	2639.4	0.77	2639.39	2639.63	0.015519	3.88	74.57	149.79	0.97
Ex. Ridgecrest Wash	1	27	10 Yr	289	2635.98	2636.92	0.94	2636.83	2637.11	0.010396	3.55	81.47	138.35	0.81

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
North Ridgecrest Wash - Pre-development Conditions
10-Year Hydraulics

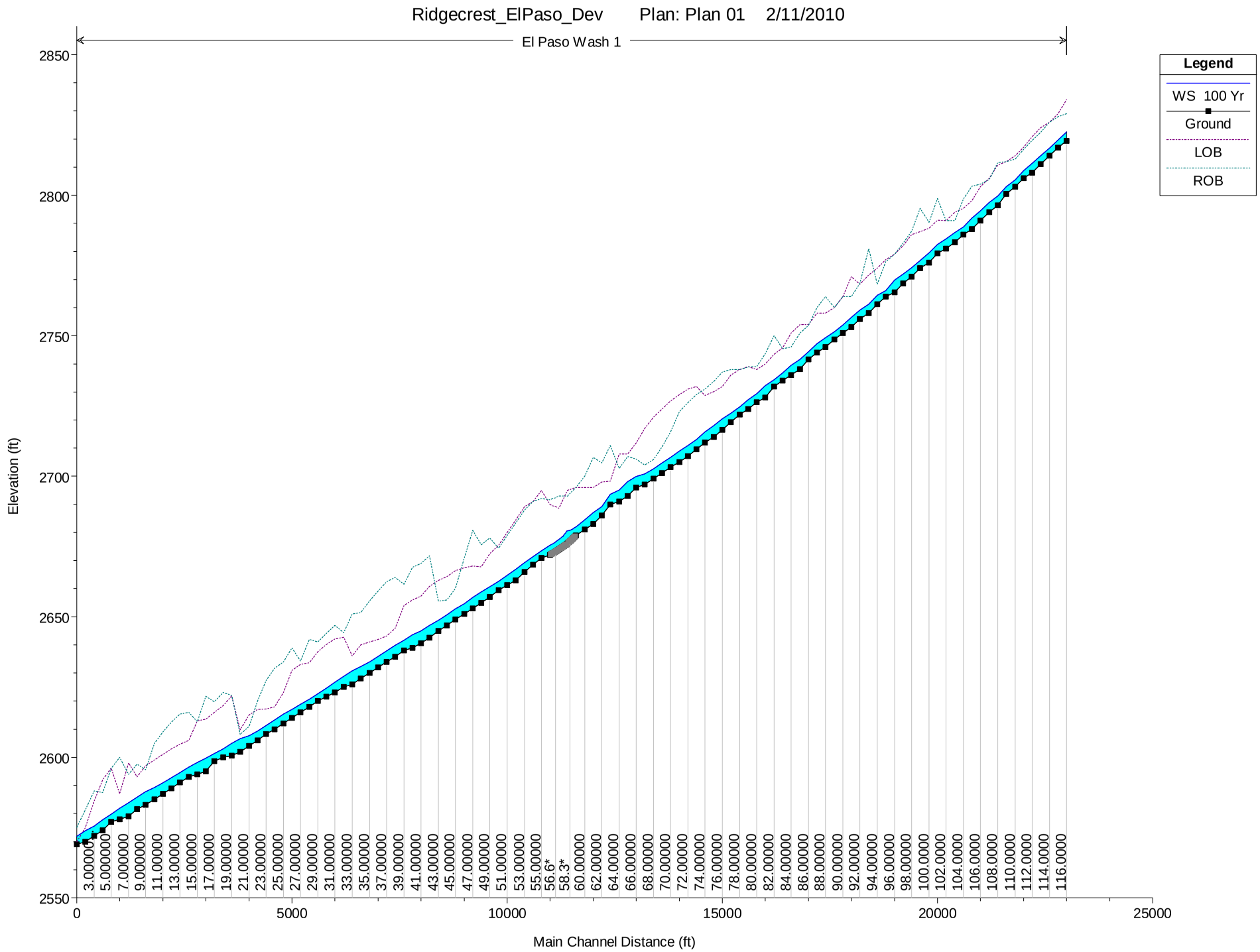
River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Ex. Ridgecrest Wash	1	26	10 Yr	289	2632.95	2634.28	1.33	2634.28	2634.6	0.015291	4.56	63.38	98.63	1
Ex. Ridgecrest Wash	1	25	10 Yr	289	2631	2632.13	1.13	2632	2632.28	0.008182	3.13	92.38	158.32	0.72
Ex. Ridgecrest Wash	1	24	10 Yr	289	2629	2629.74	0.74	2629.74	2629.97	0.017327	3.83	75.41	167.28	1.01
Ex. Ridgecrest Wash	1	23	10 Yr	289	2626	2626.91	0.91	2626.81	2627.05	0.009322	2.99	96.58	195.07	0.75
Ex. Ridgecrest Wash	1	22	10 Yr	289	2623	2624.33	1.33	2624.33	2624.53	0.018002	3.56	81.22	207.16	1
Ex. Ridgecrest Wash	1	21	10 Yr	289	2620.98	2621.88	0.9	2621.77	2622	0.008841	2.84	101.73	213.51	0.73
Ex. Ridgecrest Wash	1	20	10 Yr	289	2618.91	2619.51	0.6	2619.49	2619.71	0.015175	3.62	79.93	175.23	0.94
Ex. Ridgecrest Wash	1	19	10 Yr	289	2616	2617.23	1.23	2617.13	2617.39	0.009094	3.14	92.07	169.92	0.75
Ex. Ridgecrest Wash	1	18	10 Yr	289	2613.99	2615.02	1.03	2614.98	2615.21	0.013106	3.46	83.45	174.82	0.88
Ex. Ridgecrest Wash	1	17	10 Yr	378.1	2611.67	2612.8	1.13	2612.7	2613.01	0.009601	3.67	102.92	156.26	0.8
Ex. Ridgecrest Wash	1	16	10 Yr	378.1	2609.18	2610.37	1.19	2610.35	2610.69	0.014338	4.51	83.74	126.05	0.98
Ex. Ridgecrest Wash	1	15	10 Yr	378.1	2607	2608.47	1.47	2608.29	2608.66	0.007334	3.5	107.97	143.88	0.71
Ex. Ridgecrest Wash	1	14	10 Yr	378.1	2605.27	2606.32	1.05	2606.32	2606.65	0.014487	4.59	82.34	121.76	0.98
Ex. Ridgecrest Wash	1	13	10 Yr	378.1	2602.98	2603.96	0.98	2603.83	2604.19	0.009244	3.87	97.66	133.17	0.8
Ex. Ridgecrest Wash	1	12	10 Yr	378.1	2600.97	2602.14	1.17	2602.02	2602.37	0.009022	3.83	98.67	134.19	0.79
Ex. Ridgecrest Wash	1	11	10 Yr	378.1	2598.95	2599.79	0.84	2599.79	2600.11	0.014449	4.54	83.37	125.37	0.98
Ex. Ridgecrest Wash	1	10	10 Yr	384.1	2596.15	2597.48	1.33	2597.39	2597.73	0.009892	4.02	95.56	129.61	0.82
Ex. Ridgecrest Wash	1	9	10 Yr	384.1	2593.98	2595.19	1.21	2595.15	2595.52	0.012248	4.62	83.13	107.39	0.93
Ex. Ridgecrest Wash	1	8	10 Yr	384.1	2591.87	2593.07	1.2	2592.97	2593.34	0.009575	4.17	92.05	115.17	0.82
Ex. Ridgecrest Wash	1	7	10 Yr	384.1	2589.07	2590.65	1.58	2590.65	2591.01	0.014443	4.85	79.18	107.55	1
Ex. Ridgecrest Wash	1	6	10 Yr	384.1	2586.9	2588.42	1.52	2588.28	2588.71	0.009077	4.32	88.9	101.43	0.81
Ex. Ridgecrest Wash	1	5	10 Yr	384.1	2584.84	2586.12	1.28	2586.12	2586.45	0.014325	4.62	83.09	120.59	0.98
Ex. Ridgecrest Wash	1	4	10 Yr	384.1	2582.77	2584.31	1.54	2583.86	2584.42	0.002922	2.63	146.22	150.37	0.47
Ex. Ridgecrest Wash	1	3	10 Yr	939.7	2580.95	2582.4	1.45	2582.4	2582.93	0.012368	5.86	160.39	146.14	0.99

APPENDIX 4

Post-Development Hydraulics

APPENDIX 4A

South El Paso Wash


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
El Paso Wash 1
Legend
WS 100 Yr
Ground
LOB
ROB
Elevation (ft)
Main Channel Distance (ft)
2550
2600
2650
2700
2750
2800
2850
0
5000
10000
15000
20000
25000
3.00000
5.000000
7.000000
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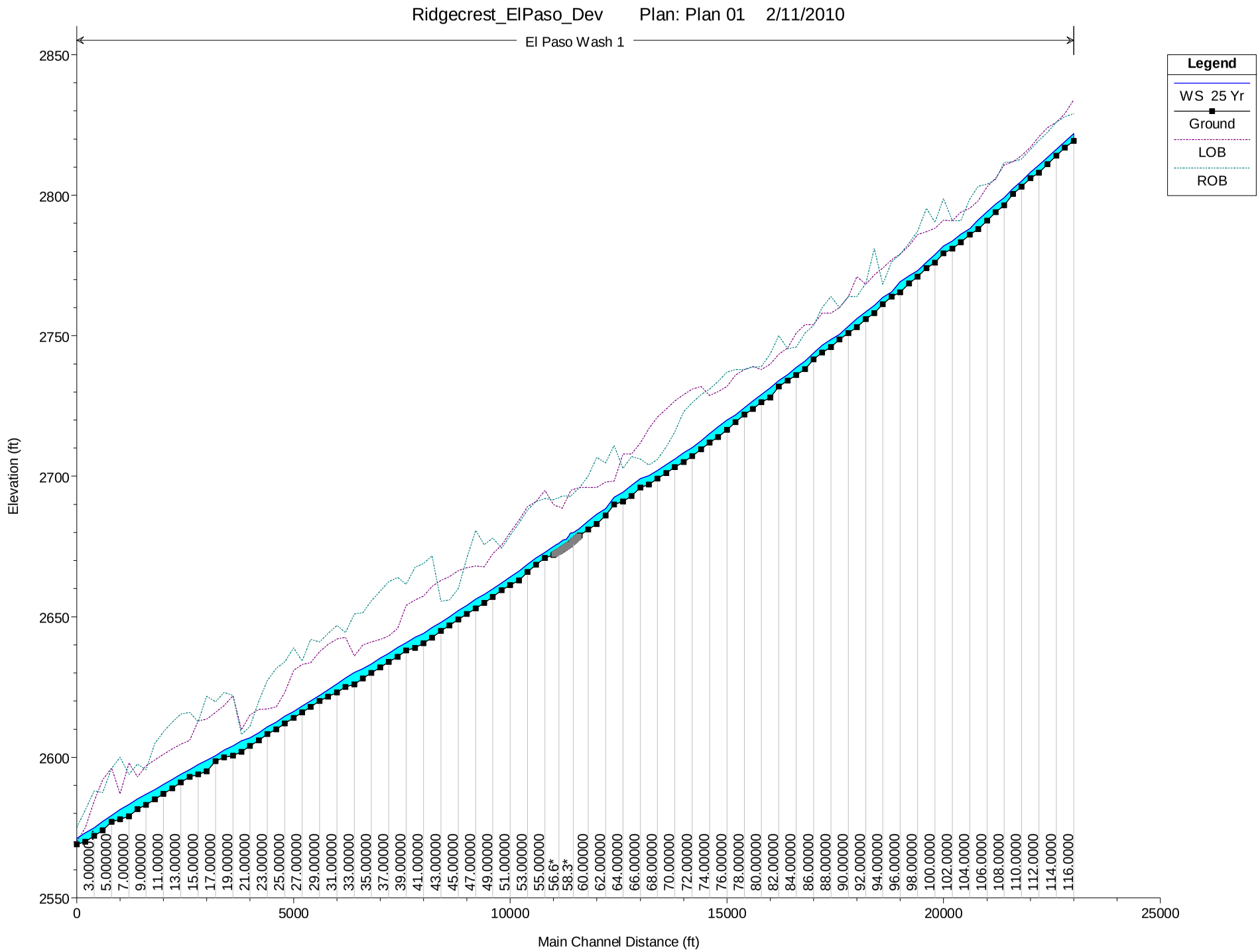
Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
El Paso Wash 1
Legend
WS 25 Yr
Ground
LOB
ROB
Elevation (ft)
Main Channel Distance (ft)
2850
2800
2750
2700
2650
2600
2550
0
5000
10000
15000
20000
25000
3.00000
5.000000
7.000000
9.000000
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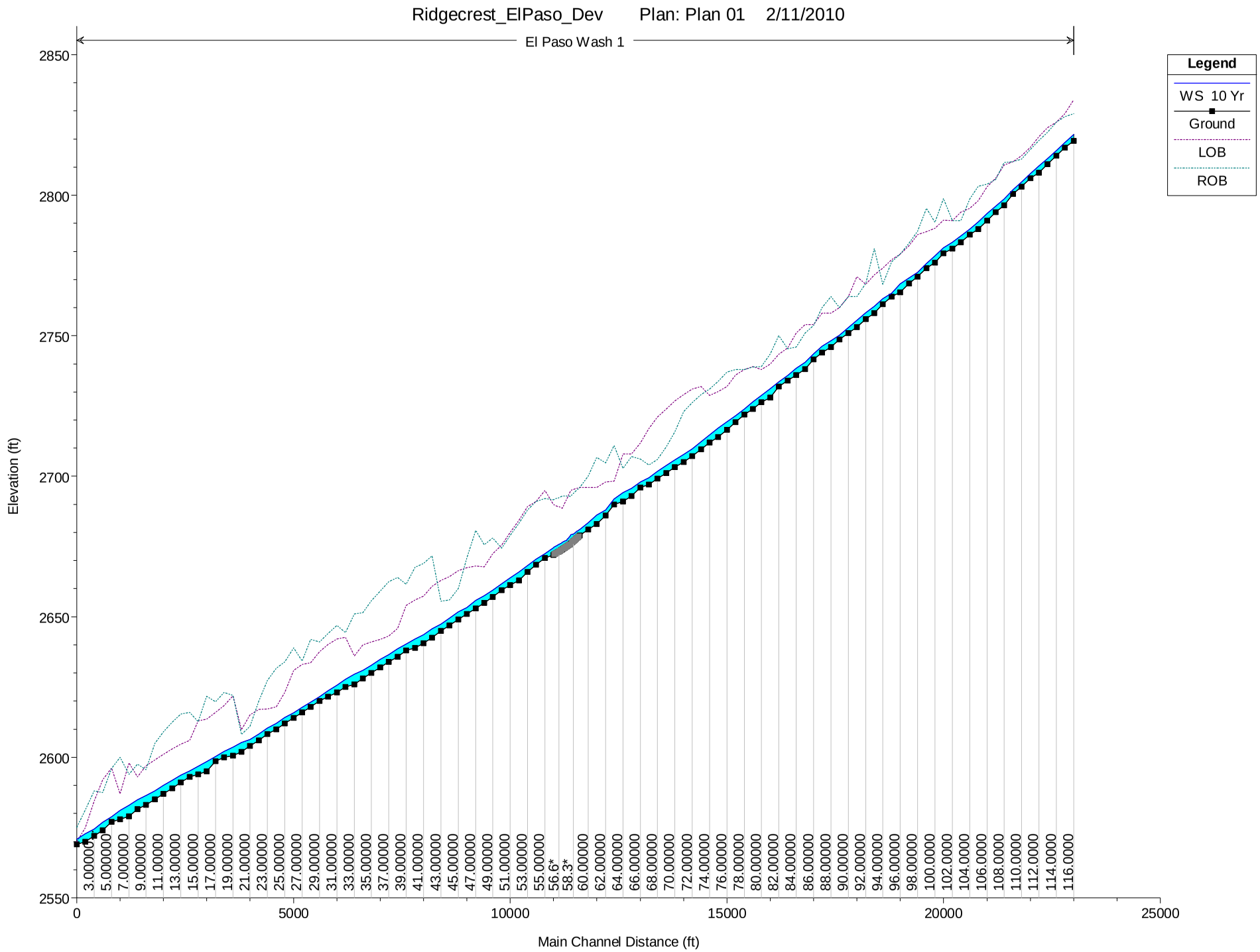
Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
El Paso Wash 1
Legend
WS 10 Yr
Ground
LOB
ROB
Elevation (ft)
Main Channel Distance (ft)
2550
2600
2650
2700
2750
2800
2850
0
5000
10000
15000
20000
25000
3.00000
5.000000
7.000000
9.000000
11.00000
13.00000
15.00000
17.00000
19.00000
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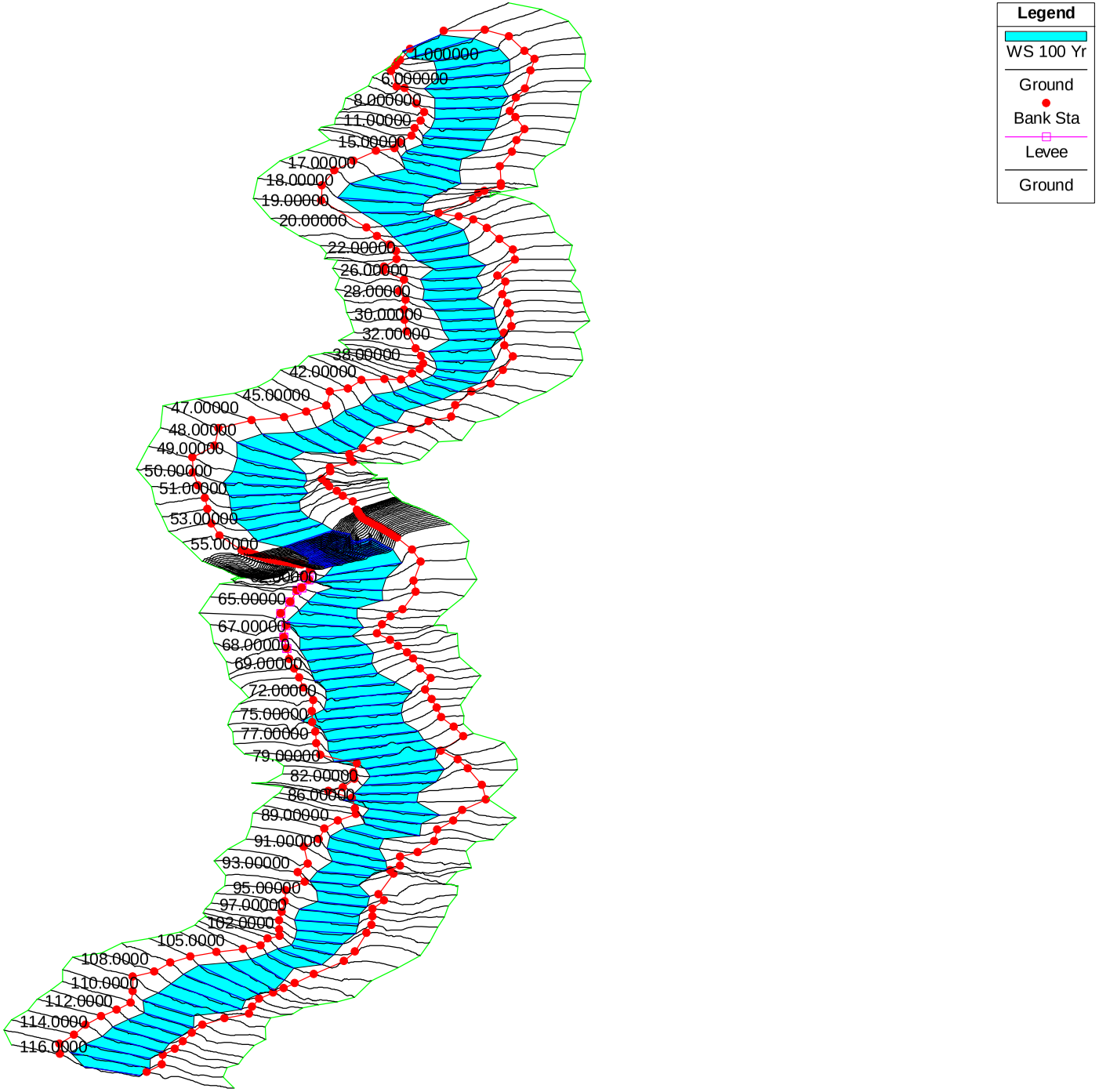
Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010



RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
South El Paso Wash - Post-development Conditions
100-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Dev. El Paso Wash	1	116	100 Yr	6681.2	2819.35	2822.51	3.16	2822.68	2823.58	0.015005	8.3	805.42	503.38	1.16
Dev. El Paso Wash	1	115	100 Yr	6681.2	2816.92	2819.61	2.69	2819.76	2820.53	0.015108	7.71	866.87	608.21	1.14
Dev. El Paso Wash	1	114	100 Yr	6681.2	2814	2816.84	2.84	2816.89	2817.69	0.013166	7.4	902.35	606.5	1.07
Dev. El Paso Wash	1	113	100 Yr	6681.2	2811	2814	3	2814.12	2814.94	0.014366	7.76	861.03	575.92	1.12
Dev. El Paso Wash	1	112	100 Yr	6681.2	2808	2811.31	3.31	2811.36	2812.21	0.012953	7.62	876.73	557.58	1.07
Dev. El Paso Wash	1	111	100 Yr	6681.2	2806	2808.76	2.76	2808.82	2809.68	0.012447	7.69	869.16	529.36	1.06
Dev. El Paso Wash	1	110	100 Yr	6681.2	2803	2805.5	2.5	2805.75	2806.71	0.017657	8.84	755.87	485.51	1.25
Dev. El Paso Wash	1	109	100 Yr	6681.2	2800.49	2803.11	2.62	2803.11	2804.01	0.011122	7.58	880.85	503.22	1.01
Dev. El Paso Wash	1	108	100 Yr	6681.2	2796.35	2799.75	3.4	2800.1	2801.01	0.020677	9.01	741.33	520.44	1.33
Dev. El Paso Wash	1	107	100 Yr	6681.2	2794	2797.38	3.38	2797.39	2798.07	0.011956	6.64	1005.88	740.13	1
Dev. El Paso Wash	1	106	100 Yr	6681.2	2791	2794.51	3.51	2794.62	2795.36	0.015384	7.37	906.34	689.07	1.13
Dev. El Paso Wash	1	105	100 Yr	6681.2	2788	2791.86	3.86	2791.88	2792.62	0.012061	6.99	955.19	654.77	1.02
Dev. El Paso Wash	1	104	100 Yr	6681.2	2786	2788.74	2.74	2788.95	2789.81	0.01622	8.3	804.96	532.83	1.19
Dev. El Paso Wash	1	103	100 Yr	6681.2	2783.21	2786.78	3.57	2786.78	2787.74	0.010801	7.84	852.37	453.23	1.01
Dev. El Paso Wash	1	102	100 Yr	6681.2	2781	2784.43	3.43	2784.46	2785.6	0.010403	8.68	769.62	341.22	1.02
Dev. El Paso Wash	1	101	100 Yr	6681.2	2779.34	2782.48	3.14	2782.52	2783.45	0.0116	7.91	844.92	467.97	1.04
Dev. El Paso Wash	1	100	100 Yr	6681.2	2776	2779.54	3.54	2779.76	2780.82	0.014766	9.07	736.62	397.82	1.17
Dev. El Paso Wash	1	99	100 Yr	6681.2	2774	2776.85	2.85	2776.99	2777.99	0.013147	8.6	777.01	416.96	1.11
Dev. El Paso Wash	1	98	100 Yr	6681.2	2771	2774.18	3.18	2774.31	2775.23	0.014238	8.2	814.88	498.5	1.13
Dev. El Paso Wash	1	97	100 Yr	6681.2	2768.55	2771.95	3.4	2771.8	2772.67	0.008646	6.8	982.31	546.83	0.89
Dev. El Paso Wash	1	96	100 Yr	6681.2	2765.45	2769.82	4.37	2769.82	2770.7	0.01121	7.52	888.82	517.68	1.01
Dev. El Paso Wash	1	95	100 Yr	6681.2	2764	2766.1	2.1	2766.52	2767.6	0.020876	9.82	680.66	423.57	1.36
Dev. El Paso Wash	1	94	100 Yr	6681.2	2761.17	2764.44	3.27	2764.44	2765.39	0.01092	7.81	855.74	461.75	1.01
Dev. El Paso Wash	1	93	100 Yr	6681.2	2758	2761.26	3.26	2761.53	2762.61	0.017605	9.32	716.96	424.33	1.26
Dev. El Paso Wash	1	92	100 Yr	6681.2	2756	2759.16	3.16	2759.16	2760.1	0.01067	7.8	856.53	454.39	1
Dev. El Paso Wash	1	91	100 Yr	6681.2	2753	2756.54	3.54	2756.7	2757.62	0.014505	8.35	799.69	482.25	1.14
Dev. El Paso Wash	1	90	100 Yr	6681.2	2751	2753.84	2.84	2753.93	2754.79	0.013498	7.8	856.51	542.44	1.09
Dev. El Paso Wash	1	89	100 Yr	6681.2	2748.73	2751.43	2.7	2751.28	2752.24	0.008487	7.22	924.74	463.92	0.9
Dev. El Paso Wash	1	88	100 Yr	6681.2	2746	2749.26	3.26	2749.26	2750.34	0.010372	8.34	800.8	376.12	1.01
Dev. El Paso Wash	1	87	100 Yr	6681.2	2744	2747.21	3.21	2747.24	2748.12	0.011338	7.63	876.12	503.64	1.02
Dev. El Paso Wash	1	86	100 Yr	6681.2	2741.62	2744.29	2.67	2744.49	2745.4	0.016269	8.45	791.01	511.46	1.2
Dev. El Paso Wash	1	85	100 Yr	6681.2	2738.1	2741.6	3.5	2741.66	2742.44	0.012812	7.35	908.8	605.08	1.06
Dev. El Paso Wash	1	84	100 Yr	6681.2	2736	2739.46	3.46	2739.46	2740.23	0.011536	7.02	951.51	627.21	1
Dev. El Paso Wash	1	83	100 Yr	6681.2	2734	2736.73	2.73	2736.84	2737.69	0.01384	7.85	850.92	543.84	1.11
Dev. El Paso Wash	1	82	100 Yr	6681.2	2732	2734.31	2.31	2734.41	2735.19	0.014377	7.52	888.3	623.07	1.11
Dev. El Paso Wash	1	81	100 Yr	6681.2	2728	2732.16	4.16	2732.16	2732.93	0.011936	7.03	950.08	641.06	1.02
Dev. El Paso Wash	1	80	100 Yr	6681.2	2726.32	2729.43	3.11	2729.53	2730.32	0.014276	7.56	883.84	611.95	1.11
Dev. El Paso Wash	1	79	100 Yr	6681.2	2724	2727.27	3.27	2727.28	2727.97	0.01232	6.71	995.13	737.08	1.02
Dev. El Paso Wash	1	78	100 Yr	6681.2	2722	2724.76	2.76	2724.79	2725.46	0.013028	6.75	989.92	758.42	1.04
Dev. El Paso Wash	1	77	100 Yr	6722.6	2719.31	2722.45	3.14	2722.11	2722.87	0.005658	5.2	1292.29	782.82	0.71

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
South El Paso Wash - Post-development Conditions
100-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Dev. El Paso Wash	1	76	100 Yr	6722.6	2716.53	2720.52	3.99	2720.52	2721.24	0.012198	6.83	984.75	705.48	1.02
Dev. El Paso Wash	1	75	100 Yr	6722.6	2714	2718.06	4.06	2717.99	2718.69	0.010104	6.4	1050.87	731.43	0.93
Dev. El Paso Wash	1	74	100 Yr	6722.6	2712	2715.79	3.79	2715.79	2716.52	0.011711	6.86	980.51	677.04	1
Dev. El Paso Wash	1	73	100 Yr	6722.6	2709.54	2713.09	3.55	2713.17	2713.9	0.014534	7.21	931.92	700.66	1.1
Dev. El Paso Wash	1	72	100 Yr	6722.6	2707.17	2710.95	3.78	2710.95	2711.76	0.010957	7.24	927.98	560.82	0.99
Dev. El Paso Wash	1	71	100 Yr	6722.6	2705	2708.91	3.91	2708.8	2709.67	0.009358	6.97	964.13	548.26	0.93
Dev. El Paso Wash	1	70	100 Yr	6722.6	2703.32	2706.72	3.4	2706.72	2707.6	0.011354	7.49	896.97	529.68	1.01
Dev. El Paso Wash	1	69	100 Yr	6722.6	2701.12	2704.69	3.57	2704.53	2705.35	0.008096	6.53	1029.76	580.47	0.86
Dev. El Paso Wash	1	68	100 Yr	6722.6	2699.17	2702.63	3.46	2702.63	2703.45	0.011182	7.25	927.18	568.96	1
Dev. El Paso Wash	1	67	100 Yr	6722.6	2697.04	2700.81	3.77	2700.61	2701.61	0.007641	7.17	937.2	439.23	0.87
Dev. El Paso Wash	1	66	100 Yr	6722.6	2696	2699.96	3.96	2699.36	2700.37	0.004304	5.12	1311.74	661.83	0.64
Dev. El Paso Wash	1	65	100 Yr	6722.6	2693	2698.14	5.14	2698.14	2699.02	0.011012	7.52	893.68	512.07	1
Dev. El Paso Wash	1	64	100 Yr	6722.6	2691	2695.04	4.04	2695.34	2696.32	0.016301	9.08	740.14	429.5	1.22
Dev. El Paso Wash	1	63	100 Yr	7016	2690	2693.53	3.53	2693.53	2694.48	0.010327	7.83	896.15	461.71	0.99
Dev. El Paso Wash	1	62	100 Yr	7016	2686	2689.21	3.21	2689.79	2691.12	0.029664	11.09	632.75	426.82	1.6
Dev. El Paso Wash	1	61	100 Yr	7016	2683	2687.05	4.05	2687.05	2687.83	0.010922	7.08	990.77	618.65	0.99
Dev. El Paso Wash	1	60	100 Yr	7016	2681	2684.5	3.5	2684.59	2685.34	0.014275	7.36	953.33	686.99	1.1
Dev. El Paso Wash	1	59	100 Yr	7016	2679	2681.98	2.98	2682.06	2682.82	0.011301	7.36	953.59	576.87	1.01
Dev. El Paso Wash	1	58.9*	100 Yr	7016	2678.7	2681.88	3.18	2681.81	2682.6	0.010423	6.83	1026.82	653.33	0.96
Dev. El Paso Wash	1	58.8*	100 Yr	7016	2678.4	2681.64	3.24	2681.58	2682.38	0.010503	6.93	1012.88	635.05	0.97
Dev. El Paso Wash	1	58.7*	100 Yr	7016	2678.1	2681.41	3.31	2681.36	2682.16	0.010569	6.95	1009.11	632.13	0.97
Dev. El Paso Wash	1	58.6*	100 Yr	7016	2677.8	2681.19	3.39	2681.14	2681.94	0.010497	6.95	1009.94	630.17	0.97
Dev. El Paso Wash	1	58.5*	100 Yr	7016	2677.5	2681	3.5	2680.93	2681.73	0.010049	6.82	1028.07	637.62	0.95
Dev. El Paso Wash	1	58.4*	100 Yr	7016	2677.2	2680.87	3.67	0	2681.52	0.008651	6.49	1080.86	645.79	0.88
Dev. El Paso Wash	1	58.3*	100 Yr	7016	2676.9	2680.78	3.88	0	2681.34	0.006828	6.01	1167.93	656.28	0.79
Dev. El Paso Wash	1	58.2*	100 Yr	7016	2676.6	2680.68	4.08	0	2681.2	0.00602	5.77	1216.1	650.44	0.74
Dev. El Paso Wash	1	58.1*	100 Yr	7016	2676.3	2680.64	4.34	0	2681.07	0.004592	5.28	1328.63	660.73	0.66
Dev. El Paso Wash	1	58	100 Yr	7016	2676	2680.63	4.63	0	2680.97	0.003158	4.69	1495.88	678.13	0.56
Dev. El Paso Wash	1	57.9*	100 Yr	7016	2675.8	2680.43	4.63	0	2680.88	0.004909	5.41	1296.1	654.33	0.68
Dev. El Paso Wash	1	57.8*	100 Yr	7016	2675.6	2679.89	4.29	2679.88	2680.7	0.011392	7.24	968.67	594.05	1
Dev. El Paso Wash	1	57.7*	100 Yr	7016	2675.4	2679.54	4.14	2679.53	2680.46	0.011333	7.69	912.61	509.79	1.01
Dev. El Paso Wash	1	57.6*	100 Yr	7016	2675.2	2679.31	4.11	2679.31	2680.24	0.011231	7.74	906.62	489.13	1
Dev. El Paso Wash	1	57.5*	100 Yr	7016	2675	2678.64	3.64	2678.93	2679.93	0.016881	9.12	769.23	452.34	1.23
Dev. El Paso Wash	1	57.4*	100 Yr	7016	2674.8	2678.58	3.78	2678.63	2679.57	0.011919	8	877.29	484.32	1.05
Dev. El Paso Wash	1	57.3*	100 Yr	7016	2674.6	2678.2	3.6	2678.34	2679.3	0.014309	8.43	832.12	488.74	1.14
Dev. El Paso Wash	1	57.2*	100 Yr	7016	2674.4	2678.04	3.64	2678.14	2679.04	0.012708	8.04	873.09	500.79	1.07
Dev. El Paso Wash	1	57.1*	100 Yr	7016	2674.2	2677.74	3.54	2677.86	2678.78	0.013819	8.18	857.97	513.41	1.11
Dev. El Paso Wash	1	57	100 Yr	7016	2674	2677.58	3.58	2677.66	2678.52	0.012504	7.78	901.3	539.42	1.06
Dev. El Paso Wash	1	56.9*	100 Yr	7016	2673.8	2677.34	3.54	2677.43	2678.3	0.012766	7.84	894.58	538.67	1.07
Dev. El Paso Wash	1	56.8*	100 Yr	7016	2673.61	2677.11	3.5	2677.21	2678.08	0.012956	7.92	886.01	531.76	1.08

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
South El Paso Wash - Post-development Conditions
100-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Dev. El Paso Wash	1	56.7*	100 Yr	7016	2673.41	2676.89	3.48	2677	2677.87	0.012974	7.97	880.84	524.59	1.08
Dev. El Paso Wash	1	56.6*	100 Yr	7016	2673.21	2676.64	3.43	2676.77	2677.67	0.013597	8.14	861.41	513.88	1.11
Dev. El Paso Wash	1	56.5*	100 Yr	7016	2673.02	2676.39	3.37	2676.55	2677.47	0.014403	8.35	840.57	504.69	1.14
Dev. El Paso Wash	1	56.4*	100 Yr	7016	2672.82	2676.24	3.42	2676.35	2677.25	0.01286	8.09	867.31	501.33	1.08
Dev. El Paso Wash	1	56.3*	100 Yr	7016	2672.62	2675.98	3.36	2676.14	2677.06	0.013957	8.34	841.41	494.16	1.13
Dev. El Paso Wash	1	56.2*	100 Yr	7016	2672.42	2675.81	3.39	2675.94	2676.86	0.013427	8.24	850.96	493.75	1.11
Dev. El Paso Wash	1	56.1*	100 Yr	7016	2672.23	2675.62	3.39	2675.74	2676.67	0.013328	8.21	855	496.86	1.1
Dev. El Paso Wash	1	56	100 Yr	7016	2672.03	2675.43	3.4	2675.55	2676.46	0.013689	8.16	859.68	513.91	1.11
Dev. El Paso Wash	1	55	100 Yr	7016	2670.93	2673.55	2.62	2673.55	2674.35	0.011578	7.17	979	627.63	1.01
Dev. El Paso Wash	1	54	100 Yr	7016	2668.49	2671.42	2.93	2671.32	2672.19	0.009394	7.03	998.15	563.09	0.93
Dev. El Paso Wash	1	53	100 Yr	7016	2666	2669.32	3.32	2669.32	2670.14	0.011201	7.27	964.97	590.34	1
Dev. El Paso Wash	1	52	100 Yr	7016	2663	2666.79	3.79	2666.88	2667.74	0.012754	7.8	899.84	546.07	1.07
Dev. El Paso Wash	1	51	100 Yr	7016	2661.32	2664.67	3.35	2664.67	2665.43	0.011561	6.99	1003.45	666.58	1
Dev. El Paso Wash	1	50	100 Yr	7016	2659.53	2662.63	3.1	2662.37	2663.22	0.006987	6.15	1140.86	629.63	0.81
Dev. El Paso Wash	1	49	100 Yr	7016	2657	2660.61	3.61	2660.61	2661.46	0.011097	7.39	949.48	563.04	1
Dev. El Paso Wash	1	48	100 Yr	7016	2655	2658.83	3.83	2658.48	2659.4	0.006706	6.04	1160.97	638.08	0.79
Dev. El Paso Wash	1	47	100 Yr	7016	2653	2656.92	3.92	2656.87	2657.74	0.010125	7.29	962.07	543.35	0.97
Dev. El Paso Wash	1	46	100 Yr	7016	2651	2654.67	3.67	2654.67	2655.64	0.010801	7.88	890.91	470.63	1.01
Dev. El Paso Wash	1	45	100 Yr	7016	2649	2652.75	3.75	2652.65	2653.56	0.008942	7.2	974.8	511.38	0.92
Dev. El Paso Wash	1	44	100 Yr	7016	2647	2650.66	3.66	2650.66	2651.58	0.010792	7.71	909.57	495.29	1
Dev. El Paso Wash	1	43	100 Yr	7016	2645	2648.79	3.79	2648.38	2649.53	0.005887	6.89	1018.07	415.9	0.78
Dev. El Paso Wash	1	42	100 Yr	7016	2642.49	2646.88	4.39	2646.88	2647.97	0.010189	8.39	836.5	384.15	1
Dev. El Paso Wash	1	41	100 Yr	7016	2640.63	2644.91	4.28	2644.79	2645.83	0.008736	7.69	912.34	425.53	0.93
Dev. El Paso Wash	1	40	100 Yr	7016	2639	2643.61	4.61	0	2644.38	0.005729	7.05	995.82	386.02	0.77
Dev. El Paso Wash	1	39	100 Yr	7039.6	2638	2641.69	3.69	2641.69	2642.86	0.010017	8.68	811	349.3	1
Dev. El Paso Wash	1	38	100 Yr	7039.6	2635.72	2639.82	4.1	2639.68	2640.83	0.008351	8.07	872.18	365.5	0.92
Dev. El Paso Wash	1	37	100 Yr	7039.6	2634	2637.83	3.83	2637.83	2638.97	0.010224	8.6	818.75	363.54	1.01
Dev. El Paso Wash	1	36	100 Yr	7039.6	2632	2635.95	3.95	2635.78	2636.85	0.008282	7.6	926.4	422.94	0.9
Dev. El Paso Wash	1	35	100 Yr	7039.6	2630	2633.98	3.98	2633.98	2634.98	0.010499	8.04	876.11	439.27	1
Dev. El Paso Wash	1	34	100 Yr	7039.6	2628	2632.22	4.22	2632	2632.96	0.007841	6.91	1019.49	515.47	0.87
Dev. El Paso Wash	1	33	100 Yr	7039.6	2626	2630.84	4.84	0	2631.5	0.006579	6.5	1083.47	526.24	0.8
Dev. El Paso Wash	1	32	100 Yr	7039.6	2625	2628.85	3.85	2628.85	2629.82	0.010531	7.92	889.34	457.22	1
Dev. El Paso Wash	1	31	100 Yr	7039.6	2623	2626.65	3.65	2626.68	2627.65	0.011183	8.01	878.85	464.42	1.03
Dev. El Paso Wash	1	30	100 Yr	7039.6	2621.57	2624.63	3.06	2624.63	2625.58	0.010576	7.86	895.7	467.12	1
Dev. El Paso Wash	1	29	100 Yr	7039.6	2620	2622.67	2.67	2622.52	2623.46	0.008604	7.15	984.29	506.66	0.9
Dev. El Paso Wash	1	28	100 Yr	7039.6	2618	2620.71	2.71	2620.64	2621.63	0.00956	7.7	914.45	456.14	0.96
Dev. El Paso Wash	1	27	100 Yr	7039.6	2616	2618.81	2.81	2618.75	2619.69	0.009761	7.51	936.91	492.3	0.96
Dev. El Paso Wash	1	26	100 Yr	7039.6	2614	2617.02	3.02	2616.86	2617.85	0.008554	7.32	961.72	476.02	0.91
Dev. El Paso Wash	1	25	100 Yr	7039.6	2612	2615.32	3.32	2615.16	2616.17	0.008229	7.43	947.8	445.75	0.9
Dev. El Paso Wash	1	24	100 Yr	7039.6	2610	2613.28	3.28	2613.28	2614.29	0.010757	8.07	872.25	442.84	1.01

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
South El Paso Wash - Post-development Conditions
100-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Dev. El Paso Wash	1	23	100 Yr	7039.6	2608.22	2611.35	3.13	2611.21	2612.11	0.008626	7.02	1003.12	532.28	0.9
Dev. El Paso Wash	1	22	100 Yr	7039.6	2606	2609.32	3.32	2609.32	2610.16	0.011105	7.36	955.96	570.22	1
Dev. El Paso Wash	1	21	100 Yr	7039.6	2604	2607.74	3.74	2607.33	2608.35	0.005817	6.25	1126.42	528.79	0.75
Dev. El Paso Wash	1	20	100 Yr	7039.6	2602	2606.58	4.58	0	2607.22	0.005385	6.43	1094.97	465.17	0.74
Dev. El Paso Wash	1	19	100 Yr	7048.6	2600.56	2604.89	4.33	2604.89	2605.75	0.01027	7.47	943.71	519.57	0.98
Dev. El Paso Wash	1	18	100 Yr	7048.6	2600	2603.02	3.02	2602.71	2603.51	0.006418	5.64	1249.12	736.33	0.76
Dev. El Paso Wash	1	17	100 Yr	7048.6	2598.55	2601.4	2.85	2601.22	2602.03	0.008487	6.34	1111.85	678.44	0.87
Dev. El Paso Wash	1	16	100 Yr	7048.6	2595	2599.69	4.69	2599.44	2600.39	0.00783	6.73	1047.73	549.89	0.86
Dev. El Paso Wash	1	15	100 Yr	7048.6	2594	2598.11	4.11	2597.91	2598.83	0.007789	6.8	1036.6	533.58	0.86
Dev. El Paso Wash	1	14	100 Yr	7048.6	2593	2596.47	3.47	2596.32	2597.21	0.008406	6.88	1024.42	548.31	0.89
Dev. El Paso Wash	1	13	100 Yr	7048.6	2591	2594.59	3.59	2594.5	2595.45	0.009124	7.4	952.19	485.54	0.93
Dev. El Paso Wash	1	12	100 Yr	7048.6	2589	2592.74	3.74	2592.67	2593.58	0.009564	7.35	959.17	512.72	0.95
Dev. El Paso Wash	1	11	100 Yr	7048.6	2587	2590.88	3.88	2590.79	2591.67	0.009453	7.16	984.16	541.81	0.94
Dev. El Paso Wash	1	10	100 Yr	7048.6	2585	2589.21	4.21	2589.02	2589.93	0.007937	6.79	1038.76	544.17	0.87
Dev. El Paso Wash	1	9	100 Yr	7048.6	2583	2587.68	4.68	0	2588.37	0.007557	6.67	1056.32	546.99	0.85
Dev. El Paso Wash	1	8	100 Yr	7048.6	2581.49	2585.76	4.27	2585.73	2586.58	0.010556	7.3	965.15	561.14	0.98
Dev. El Paso Wash	1	7	100 Yr	7048.6	2579	2583.81	4.81	2583.71	2584.53	0.009666	6.81	1034.94	625.25	0.93
Dev. El Paso Wash	1	6	100 Yr	7048.6	2578	2581.83	3.83	2581.78	2582.54	0.010294	6.78	1040.07	663.59	0.95
Dev. El Paso Wash	1	5	100 Yr	7048.6	2577	2579.79	2.79	2579.73	2580.52	0.010064	6.86	1028.14	634.22	0.95
Dev. El Paso Wash	1	4	100 Yr	7048.6	2574	2577.74	3.74	2577.69	2578.48	0.010344	6.89	1023.62	640.17	0.96
Dev. El Paso Wash	1	3	100 Yr	7048.6	2572	2575.46	3.46	2575.46	2576.29	0.011475	7.33	962.18	592.41	1.01
Dev. El Paso Wash	1	2	100 Yr	7048.6	2570	2573.92	3.92	2573.45	2574.39	0.005031	5.54	1272.77	642.62	0.69
Dev. El Paso Wash	1	1	100 Yr	7048.6	2569	2571.88	2.88	2571.88	2572.94	0.010266	8.57	876.12	412.81	1.01

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
South El Paso Wash - Post-development Conditions
25-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Dev. El Paso Wash	1	116	25 Yr	3604.7	2819.35	2821.96	2.61	2822.06	2822.67	0.014996	6.75	533.8	454.03	1.1
Dev. El Paso Wash	1	115	25 Yr	3604.7	2816.92	2819.11	2.19	2819.14	2819.71	0.014309	6.2	581.54	543.17	1.06
Dev. El Paso Wash	1	114	25 Yr	3604.7	2814	2816.3	2.3	2816.33	2816.89	0.013889	6.16	585.34	539.94	1.04
Dev. El Paso Wash	1	113	25 Yr	3604.7	2811	2813.44	2.44	2813.48	2814.09	0.014015	6.47	557.57	481.38	1.06
Dev. El Paso Wash	1	112	25 Yr	3604.7	2808	2810.79	2.79	2810.79	2811.37	0.013109	6.08	592.66	533.41	1.02
Dev. El Paso Wash	1	111	25 Yr	3604.7	2806	2808.16	2.16	2808.18	2808.8	0.013341	6.39	563.88	477.08	1.04
Dev. El Paso Wash	1	110	25 Yr	3604.7	2803	2804.99	1.99	2805.11	2805.75	0.017399	7	514.65	463.52	1.17
Dev. El Paso Wash	1	109	25 Yr	3604.7	2800.49	2802.43	1.94	2802.43	2803.09	0.01235	6.48	556.37	435.55	1.01
Dev. El Paso Wash	1	108	25 Yr	3604.7	2796.35	2799.14	2.79	2799.37	2800.07	0.018464	7.74	465.5	376.86	1.23
Dev. El Paso Wash	1	107	25 Yr	3604.7	2794	2796.81	2.81	2796.81	2797.36	0.012641	5.96	604.72	545.62	1
Dev. El Paso Wash	1	106	25 Yr	3604.7	2791	2794.1	3.1	2794.13	2794.62	0.014827	5.75	627.18	673.75	1.05
Dev. El Paso Wash	1	105	25 Yr	3604.7	2788	2791.32	3.32	2791.32	2791.85	0.013013	5.85	616.13	584.56	1
Dev. El Paso Wash	1	104	25 Yr	3604.7	2786	2788.17	2.17	2788.3	2788.93	0.016356	7	515.22	443.42	1.14
Dev. El Paso Wash	1	103	25 Yr	3604.7	2783.21	2786.12	2.91	2786.12	2786.77	0.011889	6.43	560.71	431.37	0.99
Dev. El Paso Wash	1	102	25 Yr	3604.7	2781	2783.74	2.74	2783.52	2784.41	0.007667	6.55	550.7	296.65	0.85
Dev. El Paso Wash	1	101	25 Yr	3604.7	2779.34	2781.86	2.52	2781.86	2782.5	0.012185	6.41	562.45	443.04	1
Dev. El Paso Wash	1	100	25 Yr	3604.7	2776	2778.89	2.89	2779.01	2779.74	0.015065	7.38	488.68	365.3	1.12
Dev. El Paso Wash	1	99	25 Yr	3604.7	2774	2776.23	2.23	2776.25	2776.95	0.012664	6.82	528.71	390.74	1.03
Dev. El Paso Wash	1	98	25 Yr	3604.7	2771	2773.17	2.17	2773.35	2774.18	0.01488	8.09	445.52	287.37	1.15
Dev. El Paso Wash	1	97	25 Yr	3604.7	2768.55	2771.4	2.85	2771.24	2771.83	0.007937	5.24	688.18	531.68	0.81
Dev. El Paso Wash	1	96	25 Yr	3604.7	2765.45	2769.21	3.76	2769.21	2769.81	0.012889	6.21	580.7	500.5	1.02
Dev. El Paso Wash	1	95	25 Yr	3604.7	2764	2765.57	1.57	2765.78	2766.52	0.021118	7.84	459.92	404.65	1.3
Dev. El Paso Wash	1	94	25 Yr	3604.7	2761.17	2763.69	2.52	2763.71	2764.4	0.012173	6.78	531.64	384.58	1.02
Dev. El Paso Wash	1	93	25 Yr	3604.7	2758	2760.73	2.73	2760.87	2761.56	0.017348	7.3	493.54	416.41	1.18
Dev. El Paso Wash	1	92	25 Yr	3604.7	2756	2758.51	2.51	2758.51	2759.14	0.011979	6.36	566.74	445.47	0.99
Dev. El Paso Wash	1	91	25 Yr	3604.7	2753	2756.02	3.02	2756.02	2756.67	0.012776	6.44	559.49	453.01	1.02
Dev. El Paso Wash	1	90	25 Yr	3604.7	2751	2753.3	2.3	2753.36	2753.93	0.015195	6.38	564.71	528.06	1.09
Dev. El Paso Wash	1	89	25 Yr	3604.7	2748.73	2750.54	1.81	2750.63	2751.28	0.015673	6.9	522.15	444.36	1.12
Dev. El Paso Wash	1	88	25 Yr	3604.7	2746	2748.62	2.62	2748.45	2749.24	0.008455	6.31	570.86	349.39	0.87
Dev. El Paso Wash	1	87	25 Yr	3604.7	2744	2746.61	2.61	2746.61	2747.21	0.012443	6.25	576.38	478.43	1
Dev. El Paso Wash	1	86	25 Yr	3604.7	2741.62	2743.8	2.18	2743.87	2744.48	0.015071	6.62	544.57	479.26	1.09
Dev. El Paso Wash	1	85	25 Yr	3604.7	2738.1	2740.96	2.86	2740.86	2741.64	0.009565	6.64	543.24	338.71	0.92
Dev. El Paso Wash	1	84	25 Yr	3604.7	2736	2738.79	2.79	2738.79	2739.42	0.012862	6.36	566.6	469.86	1.02
Dev. El Paso Wash	1	83	25 Yr	3604.7	2734	2736.22	2.22	2736.24	2736.82	0.013167	6.2	581.11	509.49	1.02
Dev. El Paso Wash	1	82	25 Yr	3604.7	2732	2733.97	1.97	2733.86	2734.41	0.009797	5.32	677.9	599.94	0.88
Dev. El Paso Wash	1	81	25 Yr	3604.7	2728	2731.52	3.52	2731.52	2732.13	0.013331	6.22	579.53	510.71	1.03
Dev. El Paso Wash	1	80	25 Yr	3604.7	2726.32	2729.05	2.73	2728.98	2729.52	0.011138	5.51	653.87	603.48	0.93
Dev. El Paso Wash	1	79	25 Yr	3604.7	2724	2726.78	2.78	2726.74	2727.25	0.011673	5.5	655.62	629.27	0.95
Dev. El Paso Wash	1	78	25 Yr	3604.7	2722	2724.32	2.32	2724.32	2724.77	0.013156	5.41	666.27	716.47	0.99
Dev. El Paso Wash	1	77	25 Yr	3626.6	2719.31	2721.88	2.57	2721.57	2722.16	0.005834	4.25	853.97	717.65	0.69

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
South El Paso Wash - Post-development Conditions
25-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Dev. El Paso Wash	1	76	25 Yr	3626.6	2716.53	2719.96	3.43	2719.96	2720.49	0.012632	5.85	619.44	573.54	0.99
Dev. El Paso Wash	1	75	25 Yr	3626.6	2714	2717.54	3.54	2717.41	2717.96	0.009548	5.17	701.63	634.86	0.87
Dev. El Paso Wash	1	74	25 Yr	3626.6	2712	2715.16	3.16	2715.16	2715.74	0.012885	6.11	593.52	523.24	1.01
Dev. El Paso Wash	1	73	25 Yr	3626.6	2709.54	2712.66	3.12	2712.61	2713.13	0.011235	5.51	657.9	610.5	0.94
Dev. El Paso Wash	1	72	25 Yr	3626.6	2707.17	2710.25	3.08	2710.23	2710.86	0.011318	6.27	578.1	444.2	0.97
Dev. El Paso Wash	1	71	25 Yr	3626.6	2705	2708.35	3.35	2708.2	2708.82	0.008886	5.48	662.15	520.33	0.86
Dev. El Paso Wash	1	70	25 Yr	3626.6	2703.32	2706.15	2.83	2706.15	2706.72	0.0124	6.08	596.26	514.59	1
Dev. El Paso Wash	1	69	25 Yr	3626.6	2701.12	2704.14	3.02	2703.96	2704.54	0.00769	5.07	715.46	567.26	0.8
Dev. El Paso Wash	1	68	25 Yr	3626.6	2699.17	2702.06	2.89	2702.06	2702.61	0.012284	5.96	608.9	538.59	0.99
Dev. El Paso Wash	1	67	25 Yr	3626.6	2697.04	2700.18	3.14	2699.83	2700.63	0.006019	5.39	673.45	405.74	0.74
Dev. El Paso Wash	1	66	25 Yr	3626.6	2696	2699.13	3.13	2698.34	2699.45	0.005447	4.51	804.07	586.37	0.68
Dev. El Paso Wash	1	65	25 Yr	3626.6	2693	2696.72	3.72	2696.72	2697.94	0.009697	8.86	409.34	166.5	1
Dev. El Paso Wash	1	64	25 Yr	3626.6	2691	2694.29	3.29	2694.5	2695.29	0.018084	8.02	452.32	342.09	1.23
Dev. El Paso Wash	1	63	25 Yr	3831.4	2690	2692.5	2.5	2692.5	2693.39	0.010597	7.56	506.72	280.47	0.99
Dev. El Paso Wash	1	62	25 Yr	3831.4	2686	2688.46	2.46	2689.09	2690.11	0.02714	10.29	372.37	262.84	1.52
Dev. El Paso Wash	1	61	25 Yr	3831.4	2683	2686.5	3.5	2686.47	2687.02	0.011668	5.82	658.81	580.81	0.96
Dev. El Paso Wash	1	60	25 Yr	3831.4	2681	2684.06	3.06	2684.06	2684.58	0.012727	5.78	663.3	630.67	0.99
Dev. El Paso Wash	1	59	25 Yr	3831.4	2679	2681.46	2.46	2681.39	2681.98	0.010577	5.78	662.63	547.52	0.93
Dev. El Paso Wash	1	58.9*	25 Yr	3831.4	2678.7	2681.24	2.54	2681.17	2681.76	0.010745	5.81	659.14	546.82	0.93
Dev. El Paso Wash	1	58.8*	25 Yr	3831.4	2678.4	2681.03	2.63	2680.94	2681.55	0.010436	5.77	664.58	546.11	0.92
Dev. El Paso Wash	1	58.7*	25 Yr	3831.4	2678.1	2680.79	2.69	2680.74	2681.33	0.010868	5.85	654.75	542.4	0.94
Dev. El Paso Wash	1	58.6*	25 Yr	3831.4	2677.8	2680.59	2.79	2680.5	2681.11	0.010526	5.81	659.96	540.13	0.93
Dev. El Paso Wash	1	58.5*	25 Yr	3831.4	2677.5	2680.33	2.83	2680.28	2680.88	0.011064	5.96	642.35	524.03	0.95
Dev. El Paso Wash	1	58.4*	25 Yr	3831.4	2677.2	2680.11	2.91	2680.02	2680.66	0.010679	5.97	642.26	510.07	0.94
Dev. El Paso Wash	1	58.3*	25 Yr	3831.4	2676.9	2679.98	3.08	0	2680.45	0.008121	5.54	692.01	500.51	0.83
Dev. El Paso Wash	1	58.2*	25 Yr	3831.4	2676.6	2679.86	3.26	0	2680.29	0.006758	5.25	729.8	491.22	0.76
Dev. El Paso Wash	1	58.1*	25 Yr	3831.4	2676.3	2679.81	3.51	0	2680.15	0.004869	4.67	820.69	513.6	0.65
Dev. El Paso Wash	1	58	25 Yr	3831.4	2676	2679.8	3.8	0	2680.05	0.003046	3.98	961.69	542.55	0.53
Dev. El Paso Wash	1	57.9*	25 Yr	3831.4	2675.8	2679.55	3.75	2679.21	2679.95	0.006292	5.09	753.23	503.93	0.73
Dev. El Paso Wash	1	57.8*	25 Yr	3831.4	2675.6	2678.95	3.35	2678.95	2679.74	0.011597	7.13	537.35	341.46	1
Dev. El Paso Wash	1	57.7*	25 Yr	3831.4	2675.4	2678.51	3.11	2678.64	2679.47	0.014193	7.88	486.28	308.7	1.11
Dev. El Paso Wash	1	57.6*	25 Yr	3831.4	2675.2	2678.24	3.04	2678.36	2679.22	0.013894	7.93	483.01	294.09	1.09
Dev. El Paso Wash	1	57.5*	25 Yr	3831.4	2675	2677.65	2.65	2677.91	2678.88	0.018043	8.92	429.54	275.91	1.26
Dev. El Paso Wash	1	57.4*	25 Yr	3831.4	2674.8	2677.6	2.8	2677.65	2678.54	0.012487	7.77	492.98	294.82	1.06
Dev. El Paso Wash	1	57.3*	25 Yr	3831.4	2674.6	2677.5	2.9	2677.44	2678.28	0.009974	7.05	543.46	318.93	0.95
Dev. El Paso Wash	1	57.2*	25 Yr	3831.4	2674.4	2677.36	2.96	2677.24	2678.07	0.009013	6.75	568.02	328.28	0.9
Dev. El Paso Wash	1	57.1*	25 Yr	3831.4	2674.2	2677.25	3.05	2677.03	2677.85	0.009201	6.23	614.89	408.82	0.9
Dev. El Paso Wash	1	57	25 Yr	3831.4	2674	2677.07	3.07	2676.99	2677.64	0.010544	6.06	631.79	484.66	0.94
Dev. El Paso Wash	1	56.9*	25 Yr	3831.4	2673.8	2676.85	3.05	2676.79	2677.41	0.011237	6.02	636.73	518.47	0.96
Dev. El Paso Wash	1	56.8*	25 Yr	3831.4	2673.61	2676.62	3.01	2676.58	2677.19	0.011358	6.08	630.11	509.23	0.96

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
South El Paso Wash - Post-development Conditions
25-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Dev. El Paso Wash	1	56.7*	25 Yr	3831.4	2673.41	2676.39	2.98	2676.35	2676.97	0.01121	6.11	626.91	497.84	0.96
Dev. El Paso Wash	1	56.6*	25 Yr	3831.4	2673.21	2676.17	2.96	2676.13	2676.75	0.010926	6.12	626.31	487.21	0.95
Dev. El Paso Wash	1	56.5*	25 Yr	3831.4	2673.02	2675.96	2.94	2675.91	2676.54	0.010611	6.1	627.82	479.48	0.94
Dev. El Paso Wash	1	56.4*	25 Yr	3831.4	2672.82	2675.76	2.94	2675.68	2676.33	0.010108	6.05	633.46	472.79	0.92
Dev. El Paso Wash	1	56.3*	25 Yr	3831.4	2672.62	2675.57	2.95	2675.47	2676.12	0.009731	6	638.93	469.49	0.91
Dev. El Paso Wash	1	56.2*	25 Yr	3831.4	2672.42	2675.38	2.96	2675.26	2675.93	0.009377	5.93	645.97	469.32	0.89
Dev. El Paso Wash	1	56.1*	25 Yr	3831.4	2672.23	2675.21	2.98	2675.07	2675.74	0.00892	5.85	655.42	468.73	0.87
Dev. El Paso Wash	1	56	25 Yr	3831.4	2672.03	2675.04	3.01	2674.88	2675.55	0.008443	5.73	668.91	473.33	0.85
Dev. El Paso Wash	1	55	25 Yr	3831.4	2670.93	2672.83	1.9	2672.83	2673.5	0.012577	6.54	585.76	458.26	1.02
Dev. El Paso Wash	1	54	25 Yr	3831.4	2668.49	2670.88	2.39	2670.74	2671.35	0.008701	5.47	700.35	543.28	0.85
Dev. El Paso Wash	1	53	25 Yr	3831.4	2666	2668.64	2.64	2668.64	2669.29	0.012111	6.49	590.74	454.81	1
Dev. El Paso Wash	1	52	25 Yr	3831.4	2663	2666.3	3.3	2666.18	2666.84	0.009148	5.89	650.81	469.19	0.88
Dev. El Paso Wash	1	51	25 Yr	3831.4	2661.32	2664.17	2.85	2664.17	2664.68	0.012976	5.73	668.33	652.13	1
Dev. El Paso Wash	1	50	25 Yr	3831.4	2659.53	2662.03	2.5	2661.81	2662.41	0.007152	4.96	772.71	599.47	0.77
Dev. El Paso Wash	1	49	25 Yr	3831.4	2657	2659.89	2.89	2659.89	2660.55	0.012069	6.53	586.5	445.54	1
Dev. El Paso Wash	1	48	25 Yr	3831.4	2655	2657.89	2.89	2657.5	2658.39	0.005675	5.67	675.51	360.2	0.73
Dev. El Paso Wash	1	47	25 Yr	3831.4	2653	2656.3	3.3	2656.24	2656.86	0.010786	6.01	637.26	504.14	0.94
Dev. El Paso Wash	1	46	25 Yr	3831.4	2651	2653.97	2.97	2653.95	2654.66	0.01107	6.64	577.19	401.32	0.98
Dev. El Paso Wash	1	45	25 Yr	3831.4	2649	2652.16	3.16	2652	2652.66	0.008624	5.67	675.66	493.31	0.85
Dev. El Paso Wash	1	44	25 Yr	3831.4	2647	2649.99	2.99	2649.99	2650.65	0.011715	6.52	588.02	438.62	0.99
Dev. El Paso Wash	1	43	25 Yr	3831.4	2645	2647.94	2.94	2647.6	2648.44	0.006185	5.67	675.4	383.55	0.75
Dev. El Paso Wash	1	42	25 Yr	3831.4	2642.49	2646.13	3.64	2646.06	2646.85	0.010165	6.84	559.75	348.11	0.95
Dev. El Paso Wash	1	41	25 Yr	3831.4	2640.63	2644.06	3.43	2644	2644.76	0.010662	6.71	571.21	379.76	0.96
Dev. El Paso Wash	1	40	25 Yr	3831.4	2639	2642.67	3.67	0	2643.2	0.005609	5.85	655.43	330.88	0.73
Dev. El Paso Wash	1	39	25 Yr	3854.4	2638	2640.77	2.77	2640.77	2641.64	0.01098	7.46	516.4	298.87	1
Dev. El Paso Wash	1	38	25 Yr	3854.4	2635.72	2639.06	3.34	2638.85	2639.69	0.007824	6.38	603.84	342.72	0.85
Dev. El Paso Wash	1	37	25 Yr	3854.4	2634	2637.02	3.02	2637.02	2637.82	0.011352	7.19	536.06	336.7	1
Dev. El Paso Wash	1	36	25 Yr	3854.4	2632	2635.27	3.27	2635.03	2635.82	0.007455	5.96	647.01	393.28	0.82
Dev. El Paso Wash	1	35	25 Yr	3854.4	2630	2633.24	3.24	2633.24	2633.96	0.011753	6.78	568.3	399.85	1
Dev. El Paso Wash	1	34	25 Yr	3854.4	2628	2631.5	3.5	2631.25	2631.99	0.006957	5.61	687.6	434.49	0.79
Dev. El Paso Wash	1	33	25 Yr	3854.4	2626	2630.16	4.16	0	2630.59	0.00684	5.25	733.88	505	0.77
Dev. El Paso Wash	1	32	25 Yr	3854.4	2625	2628.14	3.14	2628.13	2628.82	0.01156	6.65	579.85	415.41	0.99
Dev. El Paso Wash	1	31	25 Yr	3854.4	2623	2626.1	3.1	2626	2626.68	0.009685	6.15	627.02	442.5	0.91
Dev. El Paso Wash	1	30	25 Yr	3854.4	2621.57	2623.98	2.41	2623.93	2624.62	0.011026	6.4	602.18	440.86	0.97
Dev. El Paso Wash	1	29	25 Yr	3854.4	2620	2621.99	1.99	2621.89	2622.54	0.009648	5.94	648.93	480.99	0.9
Dev. El Paso Wash	1	28	25 Yr	3854.4	2618	2620.06	2.06	2619.94	2620.65	0.00922	6.14	628.09	428.43	0.89
Dev. El Paso Wash	1	27	25 Yr	3854.4	2616	2618.17	2.17	2618.07	2618.75	0.009774	6.09	632.58	455.66	0.91
Dev. El Paso Wash	1	26	25 Yr	3854.4	2614	2616.3	2.3	2616.16	2616.87	0.009056	6.08	633.71	432.24	0.89
Dev. El Paso Wash	1	25	25 Yr	3854.4	2612	2614.64	2.64	0	2615.18	0.007844	5.9	653.08	418.34	0.83
Dev. El Paso Wash	1	24	25 Yr	3854.4	2610	2612.55	2.55	2612.55	2613.27	0.01167	6.78	568.32	398.17	1

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
South El Paso Wash - Post-development Conditions
25-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Dev. El Paso Wash	1	23	25 Yr	3854.4	2608.22	2610.77	2.55	2610.56	2611.24	0.007693	5.47	704.82	498.97	0.81
Dev. El Paso Wash	1	22	25 Yr	3854.4	2606	2608.69	2.69	2608.69	2609.3	0.012367	6.26	616.2	508.99	1
Dev. El Paso Wash	1	21	25 Yr	3854.4	2604	2606.88	2.88	2606.58	2607.35	0.006536	5.53	697.18	429.27	0.76
Dev. El Paso Wash	1	20	25 Yr	3854.4	2602	2605.83	3.83	0	2606.23	0.004671	5.06	761.59	416.33	0.66
Dev. El Paso Wash	1	19	25 Yr	3890.1	2600.56	2604.09	3.53	2604.09	2604.79	0.011779	6.71	579.45	414.88	1
Dev. El Paso Wash	1	18	25 Yr	3890.1	2600	2602.53	2.53	2602.17	2602.82	0.005488	4.36	893.17	690.42	0.67
Dev. El Paso Wash	1	17	25 Yr	3890.1	2598.55	2600.59	2.04	2600.59	2601.19	0.012799	6.19	628.38	540.78	1.01
Dev. El Paso Wash	1	16	25 Yr	3890.1	2595	2598.86	3.86	2598.53	2599.4	0.006378	5.91	658.22	359.58	0.77
Dev. El Paso Wash	1	15	25 Yr	3890.1	2594	2597.39	3.39	2597.25	2597.91	0.008835	5.8	671.03	482.23	0.87
Dev. El Paso Wash	1	14	25 Yr	3890.1	2593	2595.64	2.64	0	2596.23	0.007894	6.22	625.9	372.14	0.84
Dev. El Paso Wash	1	13	25 Yr	3890.1	2591	2594	3	2593.88	2594.53	0.009001	5.85	665.28	478.5	0.87
Dev. El Paso Wash	1	12	25 Yr	3890.1	2589	2592.15	3.15	2592.06	2592.69	0.009459	5.87	663.1	492.94	0.89
Dev. El Paso Wash	1	11	25 Yr	3890.1	2587	2590.31	3.31	2590.2	2590.81	0.009193	5.68	684.99	523.11	0.87
Dev. El Paso Wash	1	10	25 Yr	3890.1	2585	2588.51	3.51	2588.36	2589.02	0.00878	5.76	675.69	488.52	0.86
Dev. El Paso Wash	1	9	25 Yr	3890.1	2583	2586.89	3.89	2586.63	2587.45	0.00706	6	648.22	373.84	0.8
Dev. El Paso Wash	1	8	25 Yr	3890.1	2581.49	2585.21	3.72	2585.14	2585.74	0.010389	5.84	666.4	535.74	0.92
Dev. El Paso Wash	1	7	25 Yr	3890.1	2579	2583.27	4.27	2583.15	2583.74	0.009472	5.5	707.28	579.87	0.88
Dev. El Paso Wash	1	6	25 Yr	3890.1	2578	2581.34	3.34	2581.24	2581.79	0.010018	5.41	719.57	631.33	0.89
Dev. El Paso Wash	1	5	25 Yr	3890.1	2577	2579.25	2.25	2579.17	2579.73	0.010454	5.58	696.6	601.43	0.91
Dev. El Paso Wash	1	4	25 Yr	3890.1	2574	2577.22	3.22	2577.13	2577.7	0.009825	5.51	705.77	593.02	0.89
Dev. El Paso Wash	1	3	25 Yr	3890.1	2572	2574.88	2.88	2574.88	2575.47	0.012576	6.16	631.08	539.26	1
Dev. El Paso Wash	1	2	25 Yr	3890.1	2570	2573.17	3.17	2572.85	2573.52	0.00586	4.76	816.72	579.65	0.71
Dev. El Paso Wash	1	1	25 Yr	3890.1	2569	2571.18	2.18	2571.18	2571.91	0.011221	7.04	588.72	408.66	0.99

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
South El Paso Wash - Post-development Conditions
10-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Dev. El Paso Wash	1	116	10 Yr	2139.3	2819.35	2821.61	2.26	2821.64	2822.11	0.015012	5.62	380.6	426.68	1.05
Dev. El Paso Wash	1	115	10 Yr	2139.3	2816.92	2818.7	1.78	2818.75	2819.2	0.017327	5.65	378.87	469.85	1.11
Dev. El Paso Wash	1	114	10 Yr	2139.3	2814	2815.89	1.89	2815.89	2816.37	0.013873	5.56	384.96	413.94	1.02
Dev. El Paso Wash	1	113	10 Yr	2139.3	2811	2813.06	2.06	2813.07	2813.54	0.014371	5.56	384.68	424.2	1.03
Dev. El Paso Wash	1	112	10 Yr	2139.3	2808	2810.42	2.42	2810.38	2810.85	0.012081	5.23	409.36	435.11	0.95
Dev. El Paso Wash	1	111	10 Yr	2139.3	2806	2807.78	1.78	2807.78	2808.25	0.013939	5.47	390.79	431.17	1.01
Dev. El Paso Wash	1	110	10 Yr	2139.3	2803	2804.69	1.69	2804.73	2805.19	0.016563	5.66	378.16	452.23	1.09
Dev. El Paso Wash	1	109	10 Yr	2139.3	2800.49	2801.99	1.5	2801.99	2802.49	0.012873	5.66	378.09	374.11	0.99
Dev. El Paso Wash	1	108	10 Yr	2139.3	2796.35	2798.63	2.28	2798.78	2799.4	0.01859	7.04	303.94	285.32	1.2
Dev. El Paso Wash	1	107	10 Yr	2139.3	2794	2796.06	2.06	2795.88	2796.76	0.01124	6.72	318.13	219.25	0.98
Dev. El Paso Wash	1	106	10 Yr	2139.3	2791	2793.49	2.49	2793.54	2794.07	0.015087	6.09	351.53	351.04	1.07
Dev. El Paso Wash	1	105	10 Yr	2139.3	2788	2790.55	2.55	2790.58	2791.27	0.012972	6.82	313.65	235.85	1.04
Dev. El Paso Wash	1	104	10 Yr	2139.3	2786	2787.93	1.93	2787.8	2788.34	0.009463	5.12	418.16	381.83	0.86
Dev. El Paso Wash	1	103	10 Yr	2139.3	2783.21	2785.58	2.37	2785.58	2786.13	0.012836	5.92	361.37	333.21	1
Dev. El Paso Wash	1	102	10 Yr	2139.3	2781	2783.26	2.26	2782.95	2783.68	0.006383	5.19	412.44	274.54	0.75
Dev. El Paso Wash	1	101	10 Yr	2139.3	2779.34	2781.34	2	2781.34	2781.9	0.01309	5.98	357.81	330.09	1.01
Dev. El Paso Wash	1	100	10 Yr	2139.3	2776	2778.5	2.5	2778.56	2779.08	0.015293	6.13	348.84	347.91	1.08
Dev. El Paso Wash	1	99	10 Yr	2139.3	2774	2775.72	1.72	2775.77	2776.32	0.014783	6.24	342.8	324.88	1.07
Dev. El Paso Wash	1	98	10 Yr	2139.3	2771	2772.57	1.57	2772.66	2773.37	0.014475	7.19	297.67	224.65	1.1
Dev. El Paso Wash	1	97	10 Yr	2139.3	2768.55	2770.56	2.01	2770.34	2771.07	0.007506	5.78	370.37	236.82	0.81
Dev. El Paso Wash	1	96	10 Yr	2139.3	2765.45	2768.48	3.03	2768.48	2769.17	0.012099	6.69	319.91	235.12	1.01
Dev. El Paso Wash	1	95	10 Yr	2139.3	2764	2765.21	1.21	2765.37	2765.91	0.023331	6.69	319.57	383.85	1.29
Dev. El Paso Wash	1	94	10 Yr	2139.3	2761.17	2763.25	2.08	2763.26	2763.78	0.013664	5.82	367.35	364.08	1.02
Dev. El Paso Wash	1	93	10 Yr	2139.3	2758	2760.44	2.44	2760.48	2760.95	0.015242	5.73	373.59	412.1	1.06
Dev. El Paso Wash	1	92	10 Yr	2139.3	2756	2758.17	2.17	2758.13	2758.58	0.011682	5.15	415.73	440.71	0.93
Dev. El Paso Wash	1	91	10 Yr	2139.3	2753	2755.53	2.53	2755.53	2756.07	0.013509	5.88	364.07	352.92	1.02
Dev. El Paso Wash	1	90	10 Yr	2139.3	2751	2752.97	1.97	2752.97	2753.42	0.012714	5.41	395.64	415.12	0.98
Dev. El Paso Wash	1	89	10 Yr	2139.3	2748.73	2750.23	1.5	2750.25	2750.71	0.014562	5.54	386.32	433.08	1.03
Dev. El Paso Wash	1	88	10 Yr	2139.3	2746	2748.2	2.2	2747.98	2748.59	0.007346	5.01	427.32	333.46	0.78
Dev. El Paso Wash	1	87	10 Yr	2139.3	2744	2746.25	2.25	2746.24	2746.68	0.012966	5.21	410.45	461.9	0.97
Dev. El Paso Wash	1	86	10 Yr	2139.3	2741.62	2743.49	1.87	2743.49	2743.94	0.014547	5.36	398.95	468.95	1.02
Dev. El Paso Wash	1	85	10 Yr	2139.3	2738.1	2740.49	2.39	2740.36	2740.96	0.009075	5.47	390.82	312.64	0.86
Dev. El Paso Wash	1	84	10 Yr	2139.3	2736	2738.42	2.42	2738.39	2738.86	0.012103	5.32	402.4	417.35	0.95
Dev. El Paso Wash	1	83	10 Yr	2139.3	2734	2735.83	1.83	2735.83	2736.28	0.013762	5.41	395.4	439.94	1.01
Dev. El Paso Wash	1	82	10 Yr	2139.3	2732	2733.62	1.62	2733.49	2733.93	0.009298	4.48	477.15	524.47	0.83
Dev. El Paso Wash	1	81	10 Yr	2139.3	2728	2731.18	3.18	2731.18	2731.61	0.014615	5.25	407.63	496.59	1.02
Dev. El Paso Wash	1	80	10 Yr	2139.3	2726.32	2728.71	2.39	2728.62	2729.04	0.010415	4.63	462.18	527.22	0.87
Dev. El Paso Wash	1	79	10 Yr	2139.3	2724	2726.46	2.46	2726.41	2726.79	0.012084	4.63	462.35	589.94	0.92
Dev. El Paso Wash	1	78	10 Yr	2139.3	2722	2723.98	1.98	2723.98	2724.36	0.012267	4.89	437.1	518.32	0.94
Dev. El Paso Wash	1	77	10 Yr	2160	2719.31	2721.49	2.18	2721.26	2721.7	0.006064	3.67	589.14	635.37	0.67

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
South El Paso Wash - Post-development Conditions
10-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Dev. El Paso Wash	1	76	10 Yr	2160	2716.53	2719.43	2.9	2719.43	2719.94	0.013136	5.78	373.73	363.14	1
Dev. El Paso Wash	1	75	10 Yr	2160	2714	2717.19	3.19	2717.07	2717.5	0.009948	4.42	488.46	576	0.85
Dev. El Paso Wash	1	74	10 Yr	2160	2712	2714.67	2.67	2714.67	2715.17	0.013615	5.68	379.99	389.03	1.01
Dev. El Paso Wash	1	73	10 Yr	2160	2709.54	2712.25	2.71	2712.15	2712.63	0.010968	4.95	436	466.37	0.9
Dev. El Paso Wash	1	72	10 Yr	2160	2707.17	2709.74	2.57	2709.74	2710.26	0.012775	5.78	373.99	356.22	0.99
Dev. El Paso Wash	1	71	10 Yr	2160	2705	2707.83	2.83	2707.57	2708.23	0.00799	5.06	426.86	348.66	0.81
Dev. El Paso Wash	1	70	10 Yr	2160	2703.32	2705.76	2.44	2705.76	2706.2	0.013272	5.32	406.04	450.82	0.99
Dev. El Paso Wash	1	69	10 Yr	2160	2701.12	2703.81	2.69	2703.55	2704.07	0.007055	4.07	530.36	547.31	0.73
Dev. El Paso Wash	1	68	10 Yr	2160	2699.17	2701.69	2.52	2701.69	2702.11	0.014421	5.17	417.79	515.38	1.01
Dev. El Paso Wash	1	67	10 Yr	2160	2697.04	2699.5	2.46	2699.33	2699.92	0.008481	5.2	415.53	341.38	0.83
Dev. El Paso Wash	1	66	10 Yr	2160	2696	2697.99	1.99	2697.69	2698.44	0.006446	5.41	399.03	251.11	0.76
Dev. El Paso Wash	1	65	10 Yr	2160	2693	2695.71	2.71	2695.71	2696.76	0.010463	8.19	263.66	127.7	1
Dev. El Paso Wash	1	64	10 Yr	2160	2691	2694.18	3.18	2694.01	2694.6	0.008295	5.21	414.73	333.93	0.82
Dev. El Paso Wash	1	63	10 Yr	2327.7	2690	2691.94	1.94	2691.94	2692.61	0.011703	6.58	353.52	259.43	0.99
Dev. El Paso Wash	1	62	10 Yr	2327.7	2686	2688.06	2.06	2688.38	2689.2	0.026073	8.59	270.98	243.33	1.43
Dev. El Paso Wash	1	61	10 Yr	2327.7	2683	2686.17	3.17	2686.09	2686.55	0.011781	4.9	475.46	546.63	0.93
Dev. El Paso Wash	1	60	10 Yr	2327.7	2681	2683.54	2.54	2683.54	2684.04	0.013224	5.72	406.93	403.96	1
Dev. El Paso Wash	1	59	10 Yr	2327.7	2679	2681.12	2.12	2681.04	2681.48	0.010858	4.85	480.36	527.64	0.89
Dev. El Paso Wash	1	58.9*	10 Yr	2327.7	2678.7	2680.89	2.19	2680.8	2681.27	0.010786	4.9	474.76	509.86	0.9
Dev. El Paso Wash	1	58.8*	10 Yr	2327.7	2678.4	2680.64	2.24	2680.56	2681.04	0.011261	5.07	458.95	483.88	0.92
Dev. El Paso Wash	1	58.7*	10 Yr	2327.7	2678.1	2680.41	2.31	2680.33	2680.81	0.010913	5.08	458.44	471.34	0.91
Dev. El Paso Wash	1	58.6*	10 Yr	2327.7	2677.8	2680.14	2.34	2680.09	2680.58	0.011582	5.29	439.87	444.42	0.94
Dev. El Paso Wash	1	58.5*	10 Yr	2327.7	2677.5	2679.89	2.39	2679.85	2680.34	0.011692	5.41	430.16	423.29	0.95
Dev. El Paso Wash	1	58.4*	10 Yr	2327.7	2677.2	2679.63	2.43	2679.6	2680.1	0.011915	5.46	426.35	419.84	0.95
Dev. El Paso Wash	1	58.3*	10 Yr	2327.7	2676.9	2679.46	2.56	2679.35	2679.87	0.009582	5.1	456.15	422.09	0.87
Dev. El Paso Wash	1	58.2*	10 Yr	2327.7	2676.6	2679.32	2.72	0	2679.68	0.007731	4.8	484.67	413.45	0.78
Dev. El Paso Wash	1	58.1*	10 Yr	2327.7	2676.3	2679.25	2.95	0	2679.53	0.005428	4.19	554.94	443.44	0.66
Dev. El Paso Wash	1	58	10 Yr	2327.7	2676	2679.24	3.24	0	2679.42	0.003031	3.46	673.48	469.19	0.51
Dev. El Paso Wash	1	57.9*	10 Yr	2327.7	2675.8	2678.67	2.87	2678.67	2679.27	0.013093	6.2	375.71	324.88	1.02
Dev. El Paso Wash	1	57.8*	10 Yr	2327.7	2675.6	2678.29	2.69	2678.3	2679	0.012519	6.77	343.76	249.82	1.02
Dev. El Paso Wash	1	57.7*	10 Yr	2327.7	2675.4	2677.85	2.45	2677.97	2678.71	0.016292	7.42	313.76	241.69	1.15
Dev. El Paso Wash	1	57.6*	10 Yr	2327.7	2675.2	2677.67	2.47	2677.72	2678.43	0.014138	7	332.45	248.08	1.07
Dev. El Paso Wash	1	57.5*	10 Yr	2327.7	2675	2677.2	2.2	2677.37	2678.09	0.019599	7.58	307.21	268.54	1.25
Dev. El Paso Wash	1	57.4*	10 Yr	2327.7	2674.8	2677.08	2.28	2677.16	2677.8	0.014829	6.82	341.5	283.67	1.09
Dev. El Paso Wash	1	57.3*	10 Yr	2327.7	2674.6	2677.05	2.45	2676.95	2677.57	0.009718	5.82	400.04	307.07	0.9
Dev. El Paso Wash	1	57.2*	10 Yr	2327.7	2674.4	2676.87	2.47	2676.76	2677.37	0.009441	5.69	409.1	316.93	0.88
Dev. El Paso Wash	1	57.1*	10 Yr	2327.7	2674.2	2676.71	2.51	0	2677.17	0.009008	5.45	426.89	341.24	0.86
Dev. El Paso Wash	1	57	10 Yr	2327.7	2674	2676.49	2.49	2676.42	2676.98	0.010515	5.61	415.04	357.18	0.92
Dev. El Paso Wash	1	56.9*	10 Yr	2327.7	2673.8	2676.29	2.49	0	2676.78	0.009772	5.59	416.76	341.63	0.89
Dev. El Paso Wash	1	56.8*	10 Yr	2327.7	2673.61	2676.1	2.49	2675.98	2676.58	0.009392	5.61	415.01	328.16	0.88

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
South El Paso Wash - Post-development Conditions
10-Year Hydraulics

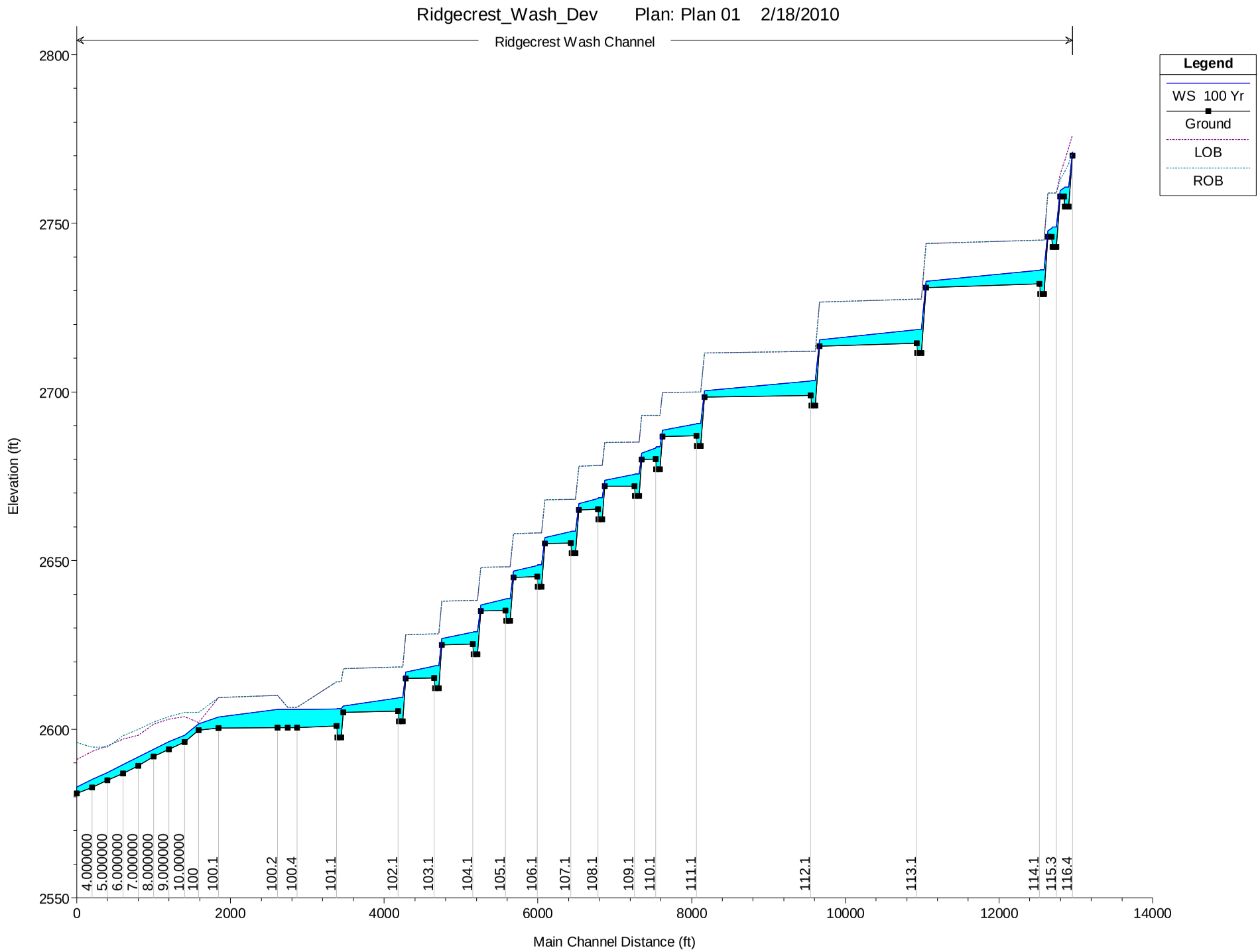
River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Dev. El Paso Wash	1	56.7*	10 Yr	2327.7	2673.41	2675.91	2.5	2675.79	2676.38	0.010114	5.53	420.57	358.68	0.9
Dev. El Paso Wash	1	56.6*	10 Yr	2327.7	2673.21	2675.73	2.52	0	2676.18	0.009079	5.37	433.14	356.06	0.86
Dev. El Paso Wash	1	56.5*	10 Yr	2327.7	2673.02	2675.56	2.54	2675.36	2675.99	0.009845	5.25	443.6	401.68	0.88
Dev. El Paso Wash	1	56.4*	10 Yr	2327.7	2672.82	2675.37	2.55	2675.23	2675.78	0.010002	5.15	452.38	426.93	0.88
Dev. El Paso Wash	1	56.3*	10 Yr	2327.7	2672.62	2675.17	2.55	2675.06	2675.57	0.010234	5.08	458.36	448.84	0.89
Dev. El Paso Wash	1	56.2*	10 Yr	2327.7	2672.42	2674.97	2.55	2674.88	2675.37	0.009817	5.04	461.51	442.57	0.87
Dev. El Paso Wash	1	56.1*	10 Yr	2327.7	2672.23	2674.79	2.56	0	2675.17	0.009362	5	465.81	437.12	0.85
Dev. El Paso Wash	1	56	10 Yr	2327.7	2672.03	2674.61	2.58	2674.48	2674.99	0.008758	4.92	473.27	432.58	0.83
Dev. El Paso Wash	1	55	10 Yr	2327.7	2670.93	2672.48	1.55	2672.44	2672.94	0.012025	5.44	428.26	427.66	0.96
Dev. El Paso Wash	1	54	10 Yr	2327.7	2668.49	2670.54	2.05	2670.38	2670.86	0.008716	4.53	514.11	530.39	0.81
Dev. El Paso Wash	1	53	10 Yr	2327.7	2666	2668.18	2.18	2668.18	2668.72	0.01315	5.87	396.43	376.93	1.01
Dev. El Paso Wash	1	52	10 Yr	2327.7	2663	2665.93	2.93	2665.67	2666.29	0.007733	4.8	485.06	418.93	0.79
Dev. El Paso Wash	1	51	10 Yr	2327.7	2661.32	2663.79	2.47	2663.79	2664.22	0.014426	5.23	444.87	538.93	1.01
Dev. El Paso Wash	1	50	10 Yr	2327.7	2659.53	2661.66	2.13	2661.47	2661.93	0.0074	4.17	558.35	576.48	0.75
Dev. El Paso Wash	1	49	10 Yr	2327.7	2657	2659.5	2.5	2659.5	2659.98	0.013105	5.59	416.22	424.64	1
Dev. El Paso Wash	1	48	10 Yr	2327.7	2655	2657.48	2.48	2657.04	2657.78	0.004459	4.38	531.58	348.79	0.63
Dev. El Paso Wash	1	47	10 Yr	2327.7	2653	2655.81	2.81	2655.81	2656.32	0.013471	5.75	404.65	404.13	1.01
Dev. El Paso Wash	1	46	10 Yr	2327.7	2651	2653.34	2.34	2653.2	2653.93	0.009222	6.19	376.27	253.52	0.89
Dev. El Paso Wash	1	45	10 Yr	2327.7	2649	2651.78	2.78	2651.61	2652.12	0.008133	4.69	496.81	462.2	0.8
Dev. El Paso Wash	1	44	10 Yr	2327.7	2647	2649.56	2.56	2649.56	2650.07	0.013069	5.7	408.06	403.36	1
Dev. El Paso Wash	1	43	10 Yr	2327.7	2645	2647.35	2.35	2646.87	2647.74	0.006886	5.06	459.73	335.67	0.76
Dev. El Paso Wash	1	42	10 Yr	2327.7	2642.49	2645.7	3.21	2645.54	2646.18	0.008819	5.56	418.69	319.79	0.86
Dev. El Paso Wash	1	41	10 Yr	2327.7	2640.63	2643.58	2.95	2643.57	2644.12	0.012225	5.88	395.57	354.63	0.98
Dev. El Paso Wash	1	40	10 Yr	2327.7	2639	2642.09	3.09	0	2642.47	0.005658	4.96	469.77	305.85	0.7
Dev. El Paso Wash	1	39	10 Yr	2355	2638	2640.26	2.26	2640.22	2640.89	0.01111	6.37	369.7	273.82	0.97
Dev. El Paso Wash	1	38	10 Yr	2355	2635.72	2638.58	2.86	0	2639.02	0.007584	5.32	442.99	323.24	0.8
Dev. El Paso Wash	1	37	10 Yr	2355	2634	2636.57	2.57	2636.54	2637.14	0.011713	6.06	388.72	323.26	0.97
Dev. El Paso Wash	1	36	10 Yr	2355	2632	2634.79	2.79	0	2635.19	0.007824	5.06	464.99	373.9	0.8
Dev. El Paso Wash	1	35	10 Yr	2355	2630	2632.77	2.77	2632.72	2633.32	0.011203	5.98	394.1	323.39	0.95
Dev. El Paso Wash	1	34	10 Yr	2355	2628	2630.95	2.95	0	2631.37	0.008249	5.16	456.29	370.79	0.82
Dev. El Paso Wash	1	33	10 Yr	2355	2626	2629.54	3.54	0	2629.91	0.006412	4.88	482.64	353.22	0.74
Dev. El Paso Wash	1	32	10 Yr	2355	2625	2627.76	2.76	2627.72	2628.23	0.011191	5.51	427.34	395.82	0.93
Dev. El Paso Wash	1	31	10 Yr	2355	2623	2625.7	2.7	2625.61	2626.11	0.009924	5.19	453.59	420	0.88
Dev. El Paso Wash	1	30	10 Yr	2355	2621.57	2623.62	2.05	2623.53	2624.05	0.010624	5.28	445.82	423.4	0.91
Dev. El Paso Wash	1	29	10 Yr	2355	2620	2621.62	1.62	2621.51	2622	0.009722	4.98	473.33	460.27	0.86
Dev. El Paso Wash	1	28	10 Yr	2355	2618	2619.64	1.64	2619.53	2620.06	0.009638	5.22	451.53	406.37	0.87
Dev. El Paso Wash	1	27	10 Yr	2355	2616	2617.75	1.75	2617.62	2618.17	0.009363	5.22	451.43	397.45	0.86
Dev. El Paso Wash	1	26	10 Yr	2355	2614	2615.87	1.87	2615.75	2616.29	0.009535	5.2	452.86	406.13	0.87
Dev. El Paso Wash	1	25	10 Yr	2355	2612	2614.23	2.23	0	2614.59	0.007429	4.85	485.71	401.17	0.78
Dev. El Paso Wash	1	24	10 Yr	2355	2610	2612.12	2.12	2612.1	2612.65	0.012832	5.89	399.89	371.79	1

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
South El Paso Wash - Post-development Conditions
10-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Dev. El Paso Wash	1	23	10 Yr	2355	2608.22	2610.38	2.16	0	2610.7	0.007239	4.57	515	455.59	0.76
Dev. El Paso Wash	1	22	10 Yr	2355	2606	2608.29	2.29	2608.29	2608.77	0.013373	5.58	422.41	439.7	1
Dev. El Paso Wash	1	21	10 Yr	2355	2604	2606.37	2.37	2606.18	2606.74	0.007688	4.84	486.3	412.58	0.79
Dev. El Paso Wash	1	20	10 Yr	2355	2602	2605.31	3.31	0	2605.59	0.004277	4.22	557.96	374.9	0.61
Dev. El Paso Wash	1	19	10 Yr	2383.9	2600.56	2603.64	3.08	2603.64	2604.18	0.012963	5.93	401.79	372.03	1.01
Dev. El Paso Wash	1	18	10 Yr	2383.9	2600	2602.15	2.15	2601.83	2602.36	0.005415	3.69	645.9	633.67	0.64
Dev. El Paso Wash	1	17	10 Yr	2383.9	2598.55	2600.24	1.69	2600.24	2600.69	0.014237	5.37	443.99	512.4	1.02
Dev. El Paso Wash	1	16	10 Yr	2383.9	2595	2598.42	3.42	2598	2598.77	0.005136	4.7	507.11	332.02	0.67
Dev. El Paso Wash	1	15	10 Yr	2383.9	2594	2596.86	2.86	2596.75	2597.34	0.010529	5.51	432.26	381.77	0.91
Dev. El Paso Wash	1	14	10 Yr	2383.9	2593	2595.17	2.17	0	2595.59	0.007241	5.19	458.93	334.8	0.78
Dev. El Paso Wash	1	13	10 Yr	2383.9	2591	2593.66	2.66	2593.52	2594.01	0.008431	4.73	504.04	474.58	0.81
Dev. El Paso Wash	1	12	10 Yr	2383.9	2589	2591.77	2.77	2591.68	2592.16	0.01024	5.01	475.54	475.07	0.88
Dev. El Paso Wash	1	11	10 Yr	2383.9	2587	2590.01	3.01	0	2590.33	0.007978	4.51	528.84	513.54	0.78
Dev. El Paso Wash	1	10	10 Yr	2383.9	2585	2588.05	3.05	2587.95	2588.47	0.010941	5.18	459.78	458.73	0.91
Dev. El Paso Wash	1	9	10 Yr	2383.9	2583	2586.45	3.45	0	2586.82	0.006331	4.88	488.54	354.11	0.73
Dev. El Paso Wash	1	8	10 Yr	2383.9	2581.49	2584.88	3.39	2584.76	2585.24	0.010132	4.86	490.49	509.38	0.87
Dev. El Paso Wash	1	7	10 Yr	2383.9	2579	2582.91	3.91	2582.76	2583.25	0.009727	4.74	502.87	525.58	0.85
Dev. El Paso Wash	1	6	10 Yr	2383.9	2578	2581.06	3.06	2580.91	2581.35	0.00908	4.37	545.96	613.01	0.82
Dev. El Paso Wash	1	5	10 Yr	2383.9	2577	2578.9	1.9	2578.87	2579.27	0.011934	4.85	491.79	579.84	0.93
Dev. El Paso Wash	1	4	10 Yr	2383.9	2574	2576.86	2.86	2576.71	2577.21	0.008931	4.73	503.54	494.77	0.83
Dev. El Paso Wash	1	3	10 Yr	2383.9	2572	2574.53	2.53	2574.53	2574.97	0.014213	5.31	449	526.19	1.01
Dev. El Paso Wash	1	2	10 Yr	2383.9	2570	2572.74	2.74	2572.49	2573.01	0.006151	4.12	578.44	529	0.69
Dev. El Paso Wash	1	1	10 Yr	2383.9	2569	2570.77	1.77	2570.77	2571.3	0.012069	6	422.4	406.23	0.98

APPENDIX 4B

North-East Channel & North Ridgecrest Wash


Ridgecrest_Wash_Dev Plan: Plan 01 2/18/2010
Ridgecrest Wash Channel
Legend
WS 100 Yr
Ground
LOB
ROB
Elevation (ft)
Main Channel Distance (ft)
2800
2750
2700
2650
2600
2550
0
2000
4000
6000
8000
10000
12000
14000
4.000000
5.000000
6.000000
7.000000
8.000000
9.000000
10.00000
100
100.1
100.2
100.4
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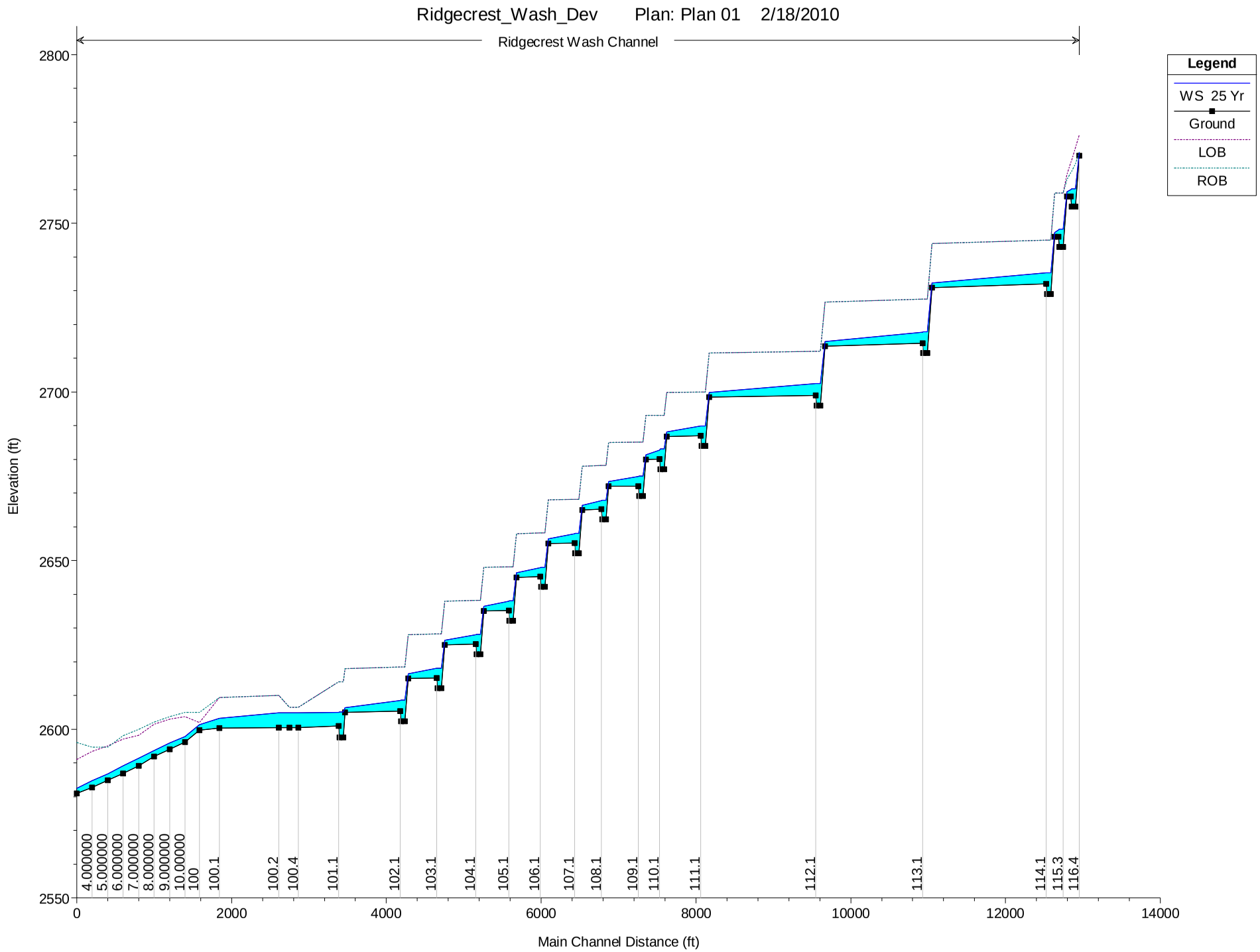
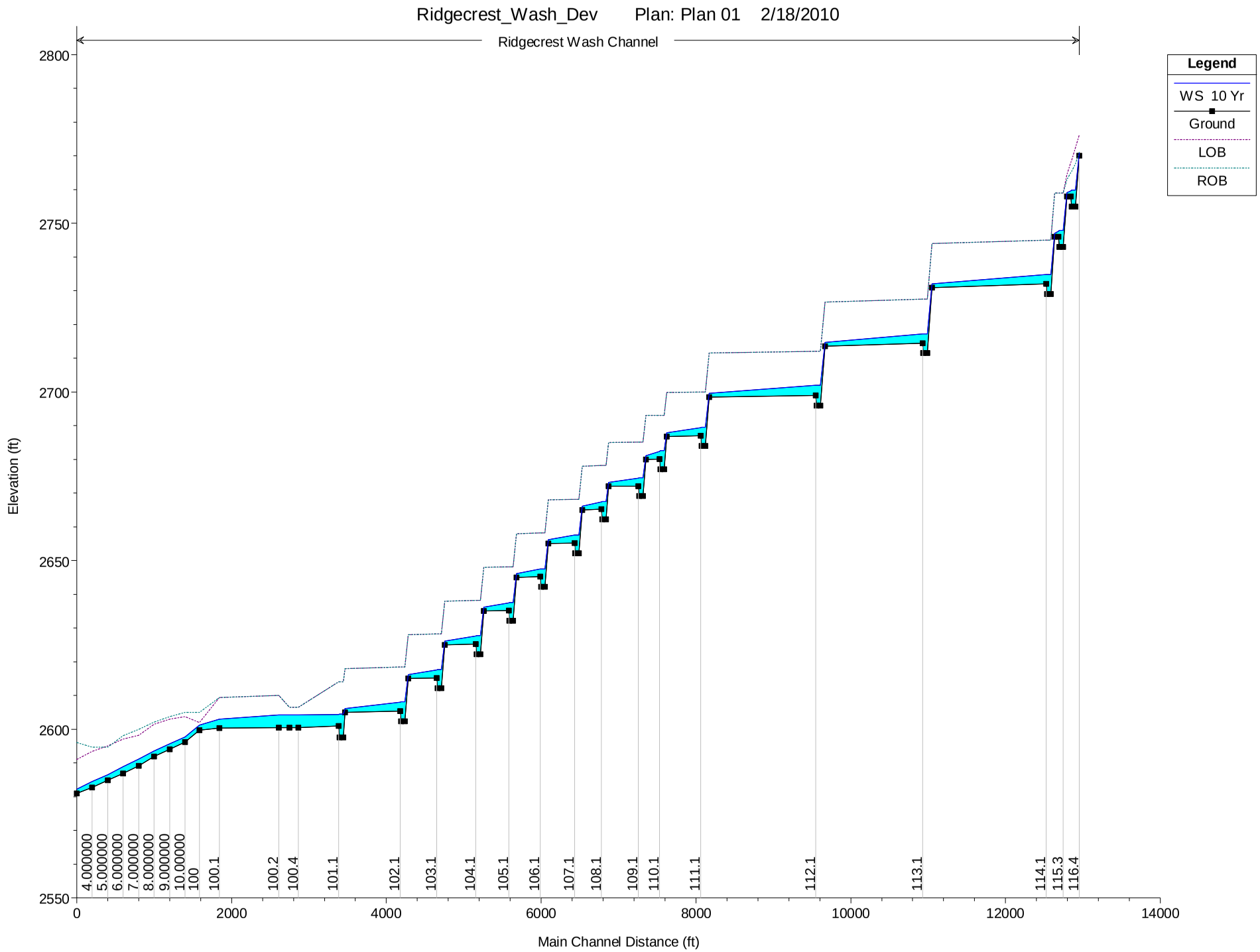
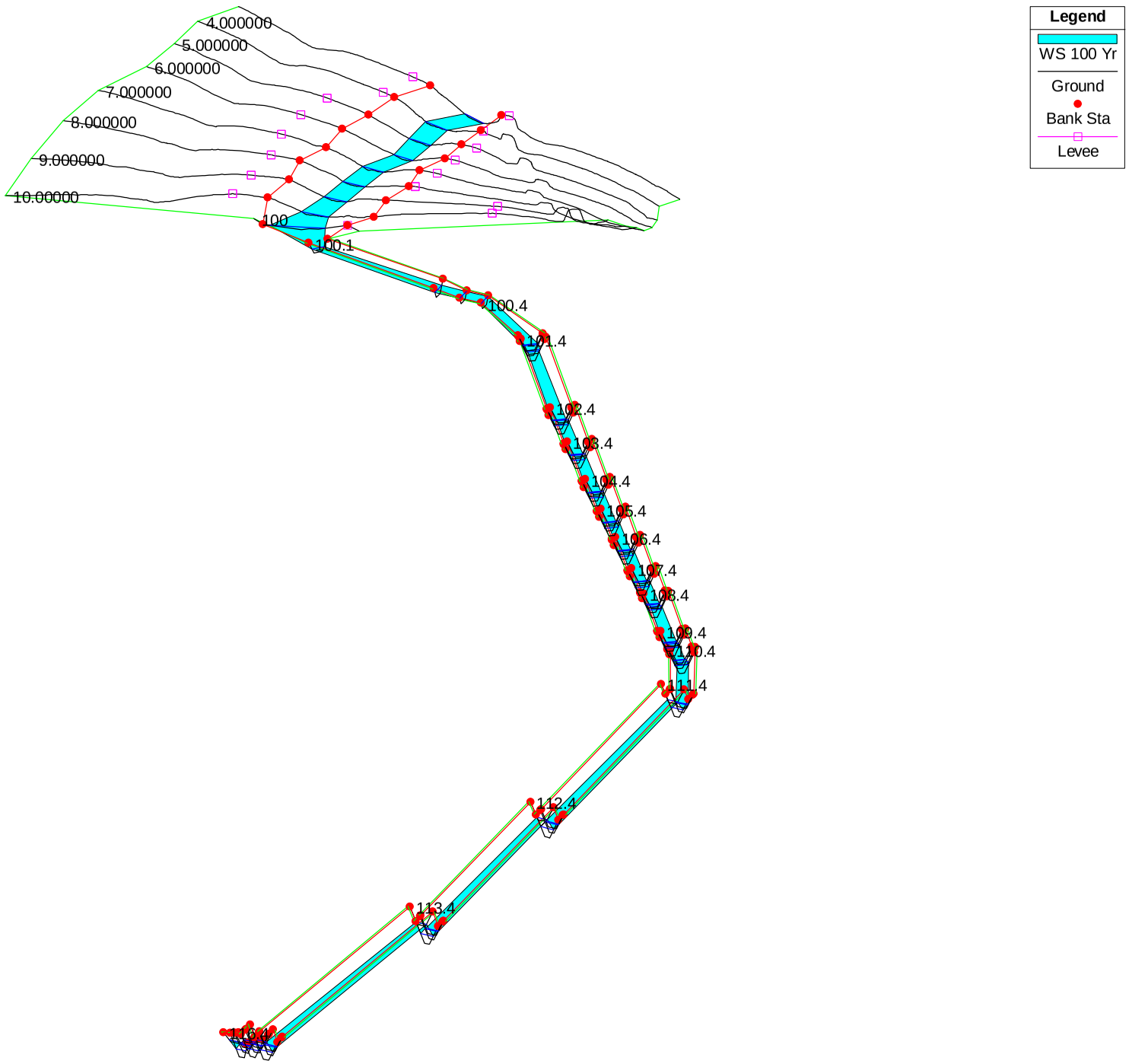
113.1
114.1
115.3
116.4


Ridgecrest_Wash_Dev Plan: Plan 01 2/18/2010
Ridgecrest Wash Channel
Legend
WS 25 Yr
Ground
LOB
ROB
Elevation (ft)
Main Channel Distance (ft)
2800
2750
2700
2650
2600
2550
0
2000
4000
6000
8000
10000
12000
14000
4.000000
5.000000
6.000000
7.000000
8.000000
9.000000
10.00000
100
100.1
100.2
100.4
101.1
102.1
103.1
104.1
105.1
106.1
107.1
108.1
109.1
110.1
111.1
112.1
113.1
114.1
115.3
116.4


Ridgecrest_Wash_Dev Plan: Plan 01 2/18/2010
Ridgecrest Wash Channel
Legend
WS 10 Yr
Ground
LOB
ROB
Elevation (ft)
Main Channel Distance (ft)
2800
2750
2700
2650
2600
2550
0
2000
4000
6000
8000
10000
12000
14000
4.000000
5.000000
6.000000
7.000000
8.000000
9.000000
10.00000
100
100.1
100.2
100.4
101.1
102.1
103.1
104.1
105.1
106.1
107.1
108.1
109.1
110.1
111.1
112.1
113.1
114.1
115.3
116.4

Ridgecrest_Wash_Dev Plan: Plan 01 2/12/2010



RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
North Ridgecrest Wash - Post-development Conditions
10-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Dev. Ridgecrest Wash	Channel	116.4	10 Yr	302.1	2770	2770.82	0.82	2770.94	2771.34	0.024996	5.78	52.22	82.17	1.28
Dev. Ridgecrest Wash	Channel	116.3	10 Yr	302.1	2755	2759.86	4.86	2756.5	2759.9	0.000202	1.66	181.93	47.94	0.15
Dev. Ridgecrest Wash	Channel	116.2	10 Yr	302.1	2755	2759.85	4.85	0	2759.89	0.000177	1.52	198.73	54.93	0.14
Dev. Ridgecrest Wash	Channel	116.1	10 Yr	302.1	2758	2759.66	1.66	2759.09	2759.87	0.003169	3.64	82.97	55.01	0.52
Dev. Ridgecrest Wash	Channel	115.4	10 Yr	302.1	2757.99	2759.06	1.07	2759.06	2759.55	0.013453	5.61	53.85	55.57	1
Dev. Ridgecrest Wash	Channel	115.3	10 Yr	302.1	2742.99	2747.88	4.89	2744.47	2747.91	0.000168	1.48	203.69	56.33	0.14
Dev. Ridgecrest Wash	Channel	115.2	10 Yr	302.1	2742.99	2747.87	4.88	0	2747.91	0.000169	1.49	203.21	56.28	0.14
Dev. Ridgecrest Wash	Channel	115.1	10 Yr	302.1	2745.99	2747.69	1.7	2747.08	2747.88	0.002927	3.55	85.06	55.19	0.5
Dev. Ridgecrest Wash	Channel	114.4	10 Yr	302.1	2745.98	2747.07	1.09	2747.07	2747.58	0.01317	5.74	52.64	51.54	1
Dev. Ridgecrest Wash	Channel	114.3	10 Yr	302.1	2729.05	2734.85	5.8	2730.53	2734.87	0.000087	1.17	257.42	61.79	0.1
Dev. Ridgecrest Wash	Channel	114.2	10 Yr	302.1	2729.05	2734.84	5.79	0	2734.87	0.000087	1.17	257.15	61.76	0.1
Dev. Ridgecrest Wash	Channel	114.1	10 Yr	302.1	2732.05	2734.79	2.74	2733.14	2734.86	0.000561	2.07	145.99	61.46	0.24
Dev. Ridgecrest Wash	Channel	113.4	10 Yr	302.1	2730.95	2732.04	1.09	2732.04	2732.55	0.01317	5.74	52.64	51.54	1
Dev. Ridgecrest Wash	Channel	113.3	10 Yr	302.1	2711.5	2717.26	5.76	2712.98	2717.29	0.000089	1.18	255.32	61.59	0.1
Dev. Ridgecrest Wash	Channel	113.2	10 Yr	302.1	2711.5	2717.26	5.76	0	2717.28	0.000089	1.18	255.04	61.56	0.1
Dev. Ridgecrest Wash	Channel	113.1	10 Yr	302.1	2714.5	2717.21	2.71	2715.59	2717.28	0.000588	2.1	143.77	61.24	0.24
Dev. Ridgecrest Wash	Channel	112.4	10 Yr	302.1	2713.6	2714.69	1.09	2714.69	2715.2	0.01317	5.74	52.64	51.54	1
Dev. Ridgecrest Wash	Channel	112.3	10 Yr	302.1	2696	2701.97	5.97	2697.48	2701.99	0.000078	1.13	268.23	62.83	0.1
Dev. Ridgecrest Wash	Channel	112.2	10 Yr	302.1	2696	2701.97	5.97	0	2701.99	0.000078	1.13	267.99	62.81	0.1
Dev. Ridgecrest Wash	Channel	112.1	10 Yr	302.1	2699	2701.93	2.93	2700.09	2701.98	0.000449	1.92	157.29	62.55	0.21
Dev. Ridgecrest Wash	Channel	111.4	10 Yr	312.3	2698.5	2699.61	1.11	2699.61	2700.14	0.013136	5.8	53.8	51.68	1
Dev. Ridgecrest Wash	Channel	111.3	10 Yr	312.3	2684	2689.5	5.5	2685.51	2689.52	0.000115	1.31	238.97	59.97	0.12
Dev. Ridgecrest Wash	Channel	111.2	10 Yr	312.3	2684	2689.49	5.49	0	2689.52	0.000115	1.31	238.62	59.94	0.12
Dev. Ridgecrest Wash	Channel	111.1	10 Yr	312.3	2687	2689.41	2.41	2688.11	2689.51	0.000938	2.48	125.94	59.47	0.3
Dev. Ridgecrest Wash	Channel	110.4	10 Yr	312.3	2686.8	2687.91	1.11	2687.91	2688.44	0.013136	5.8	53.8	51.68	1
Dev. Ridgecrest Wash	Channel	110.3	10 Yr	312.3	2677.1	2682.61	5.51	2678.61	2682.63	0.000114	1.3	239.68	60.04	0.11
Dev. Ridgecrest Wash	Channel	110.2	10 Yr	312.3	2677.1	2682.6	5.5	0	2682.63	0.000114	1.3	239.32	60.01	0.12
Dev. Ridgecrest Wash	Channel	110.1	10 Yr	312.3	2680.1	2682.37	2.27	2681.59	2682.6	0.0028	3.89	80.25	43.75	0.51
Dev. Ridgecrest Wash	Channel	109.4	10 Yr	312.3	2680	2681.11	1.11	2681.11	2681.64	0.013136	5.8	53.8	51.68	1
Dev. Ridgecrest Wash	Channel	109.3	10 Yr	312.3	2669.1	2674.58	5.48	2670.61	2674.61	0.000116	1.31	238.04	59.88	0.12
Dev. Ridgecrest Wash	Channel	109.2	10 Yr	312.3	2669.1	2674.57	5.47	0	2674.6	0.000116	1.31	237.68	59.84	0.12
Dev. Ridgecrest Wash	Channel	109.1	10 Yr	312.3	2672.1	2674.49	2.39	0	2674.59	0.000961	2.5	124.94	59.37	0.3
Dev. Ridgecrest Wash	Channel	108.4	10 Yr	312.3	2672	2673.11	1.11	2673.11	2673.64	0.013136	5.8	53.8	51.68	1
Dev. Ridgecrest Wash	Channel	108.3	10 Yr	312.3	2662.2	2667.48	5.28	2663.71	2667.51	0.000134	1.38	226.2	58.68	0.12
Dev. Ridgecrest Wash	Channel	108.2	10 Yr	312.3	2662.2	2667.47	5.27	0	2667.5	0.000134	1.38	225.8	58.64	0.12
Dev. Ridgecrest Wash	Channel	108.1	10 Yr	312.3	2665.2	2667.37	2.17	2666.31	2667.49	0.00135	2.79	111.74	58.02	0.35
Dev. Ridgecrest Wash	Channel	107.4	10 Yr	321	2665	2666.13	1.13	2666.13	2666.67	0.013162	5.87	54.71	51.78	1.01
Dev. Ridgecrest Wash	Channel	107.3	10 Yr	321	2652.2	2657.62	5.42	2653.74	2657.64	0.000128	1.37	234.17	59.49	0.12
Dev. Ridgecrest Wash	Channel	107.2	10 Yr	321	2652.2	2657.61	5.41	0	2657.64	0.000129	1.37	233.78	59.45	0.12
Dev. Ridgecrest Wash	Channel	107.1	10 Yr	321	2655.2	2657.52	2.32	2656.33	2657.63	0.001138	2.67	120.34	58.9	0.33
Dev. Ridgecrest Wash	Channel	106.4	10 Yr	321	2655	2656.13	1.13	2656.13	2656.67	0.013162	5.87	54.71	51.78	1.01

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
North Ridgecrest Wash - Post-development Conditions
10-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Dev. Ridgecrest Wash	Channel	106.3	10 Yr	321	2642.2	2647.58	5.38	2643.74	2647.61	0.000132	1.38	231.88	59.26	0.12
Dev. Ridgecrest Wash	Channel	106.2	10 Yr	321	2642.2	2647.57	5.37	0	2647.6	0.000132	1.39	231.48	59.22	0.12
Dev. Ridgecrest Wash	Channel	106.1	10 Yr	321	2645.2	2647.47	2.27	2646.33	2647.59	0.001215	2.73	117.77	58.64	0.34
Dev. Ridgecrest Wash	Channel	105.4	10 Yr	321	2645	2646.13	1.13	2646.13	2646.67	0.013162	5.87	54.71	51.78	1.01
Dev. Ridgecrest Wash	Channel	105.3	10 Yr	321	2632.2	2637.6	5.4	2633.74	2637.63	0.00013	1.38	233.04	59.38	0.12
Dev. Ridgecrest Wash	Channel	105.2	10 Yr	321	2632.2	2637.59	5.39	0	2637.62	0.00013	1.38	232.65	59.34	0.12
Dev. Ridgecrest Wash	Channel	105.1	10 Yr	321	2635.2	2637.5	2.3	2636.33	2637.61	0.001175	2.7	119.07	58.77	0.33
Dev. Ridgecrest Wash	Channel	104.4	10 Yr	321	2635	2636.13	1.13	2636.13	2636.67	0.013162	5.87	54.71	51.78	1.01
Dev. Ridgecrest Wash	Channel	104.3	10 Yr	321	2622.2	2627.7	5.5	2623.74	2627.73	0.00012	1.34	239.41	60.02	0.12
Dev. Ridgecrest Wash	Channel	104.2	10 Yr	321	2622.2	2627.7	5.5	0	2627.73	0.000121	1.34	239.05	59.98	0.12
Dev. Ridgecrest Wash	Channel	104.1	10 Yr	321	2625.2	2627.61	2.41	2626.33	2627.72	0.000986	2.54	126.13	59.49	0.31
Dev. Ridgecrest Wash	Channel	103.4	10 Yr	326.1	2625	2626.14	1.14	2626.14	2626.68	0.013051	5.89	55.41	51.86	1
Dev. Ridgecrest Wash	Channel	103.3	10 Yr	326.1	2612.2	2617.67	5.47	2613.75	2617.7	0.000127	1.37	237.48	59.82	0.12
Dev. Ridgecrest Wash	Channel	103.2	10 Yr	326.1	2612.2	2617.66	5.46	0	2617.69	0.000128	1.38	237.09	59.78	0.12
Dev. Ridgecrest Wash	Channel	103.1	10 Yr	326.1	2615.2	2617.58	2.38	2616.34	2617.68	0.001077	2.63	123.8	59.25	0.32
Dev. Ridgecrest Wash	Channel	102.4	10 Yr	326.1	2615	2616.14	1.14	2616.14	2616.68	0.013051	5.89	55.41	51.86	1
Dev. Ridgecrest Wash	Channel	102.3	10 Yr	326.1	2602.4	2608.1	5.7	2603.95	2608.13	0.000108	1.3	251.65	61.23	0.11
Dev. Ridgecrest Wash	Channel	102.2	10 Yr	326.1	2602.4	2608.1	5.7	0	2608.13	0.000109	1.3	251.31	61.19	0.11
Dev. Ridgecrest Wash	Channel	102.1	10 Yr	326.1	2605.4	2608.03	2.63	2606.54	2608.12	0.000755	2.34	139.21	60.79	0.27
Dev. Ridgecrest Wash	Channel	101.4	10 Yr	326.1	2604.99	2606.13	1.14	2606.13	2606.67	0.013051	5.89	55.41	51.86	1
Dev. Ridgecrest Wash	Channel	101.3	10 Yr	326.1	2597.6	2604.42	6.82	2599.16	2604.44	0.000055	1.02	320.25	66.92	0.08
Dev. Ridgecrest Wash	Channel	101.2	10 Yr	326.1	2597.6	2604.42	6.82	0	2604.43	0.000055	1.02	320.07	66.9	0.08
Dev. Ridgecrest Wash	Channel	101.1	10 Yr	326.1	2601	2604.38	3.38	0	2604.43	0.000315	1.75	186.46	65.29	0.18
Dev. Ridgecrest Wash	Channel	100.4	10 Yr	308.3	2600.5	2604.27	3.77	0	2604.3	0.000192	1.45	211.96	67.59	0.14
Dev. Ridgecrest Wash	Channel	100.3	10 Yr	308.3	2600.48	2604.24	3.76	0	2604.28	0.000193	1.46	211.78	67.57	0.14
Dev. Ridgecrest Wash	Channel	100.2	10 Yr	308.3	2600.45	2604.22	3.77	0	2604.25	0.000192	1.45	212.04	67.6	0.14
Dev. Ridgecrest Wash	Channel	100.1	10 Yr	776.9	2600.31	2602.94	2.63	0	2603.42	0.004318	5.59	138.86	60.76	0.65
Dev. Ridgecrest Wash	Channel	100	10 Yr	776.9	2599.7	2601.15	1.45	2601.15	2601.51	0.014521	4.81	161.47	223.08	1
Dev. Ridgecrest Wash	Channel	10	10 Yr	787.5	2596.15	2597.67	1.52	2597.82	2598.32	0.020795	6.47	121.65	140.94	1.23
Dev. Ridgecrest Wash	Channel	9	10 Yr	787.5	2593.98	2595.68	1.7	2595.64	2596.16	0.011307	5.54	142.2	131.82	0.94
Dev. Ridgecrest Wash	Channel	8	10 Yr	787.5	2591.87	2593.5	1.63	2593.44	2593.96	0.010629	5.42	145.42	133.09	0.91
Dev. Ridgecrest Wash	Channel	7	10 Yr	787.5	2589.07	2591.13	2.06	2591.13	2591.65	0.012656	5.75	136.94	130.51	0.99
Dev. Ridgecrest Wash	Channel	6	10 Yr	787.5	2586.9	2588.9	2	2588.8	2589.37	0.010239	5.52	142.7	123.44	0.9
Dev. Ridgecrest Wash	Channel	5	10 Yr	787.5	2584.84	2586.54	1.7	2586.54	2587.05	0.01324	5.71	137.99	137.62	1
Dev. Ridgecrest Wash	Channel	4	10 Yr	787.5	2582.77	2584.45	1.68	2584.27	2584.8	0.008295	4.69	167.96	158.43	0.8
Dev. Ridgecrest Wash	Channel	3	10 Yr	787.5	2580.95	2582.26	1.31	2582.26	2582.74	0.012883	5.62	140.21	140.35	0.99

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
North Ridgecrest Wash - Post-development Conditions
25-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Dev. Ridgecrest Wash	Channel	116.4	25 Yr	429.2	2770	2770.99	0.99	2771.15	2771.63	0.025022	6.43	66.79	89.84	1.31
Dev. Ridgecrest Wash	Channel	116.3	25 Yr	429.2	2755	2760.22	5.22	2756.88	2760.29	0.000068	2.15	199.62	49.5	0.19
Dev. Ridgecrest Wash	Channel	116.2	25 Yr	429.2	2755	2760.22	5.22	0	2760.28	0.000059	1.95	219.62	57.08	0.18
Dev. Ridgecrest Wash	Channel	116.1	25 Yr	429.2	2758	2759.98	1.98	2759.37	2760.26	0.003508	4.26	100.78	56.93	0.56
Dev. Ridgecrest Wash	Channel	115.4	25 Yr	429.2	2757.99	2759.33	1.34	2759.33	2759.93	0.0125	6.2	69.27	58.25	1
Dev. Ridgecrest Wash	Channel	115.3	25 Yr	429.2	2742.99	2748.27	5.28	2744.83	2748.32	0.000055	1.9	225.95	58.66	0.17
Dev. Ridgecrest Wash	Channel	115.2	25 Yr	429.2	2742.99	2748.26	5.27	0	2748.32	0.000055	1.9	225.78	58.64	0.17
Dev. Ridgecrest Wash	Channel	115.1	25 Yr	429.2	2745.99	2748.04	2.05	2747.36	2748.3	0.003124	4.1	104.58	57.27	0.54
Dev. Ridgecrest Wash	Channel	114.4	25 Yr	429.2	2745.98	2747.35	1.37	2747.35	2747.98	0.012431	6.41	67	53.19	1.01
Dev. Ridgecrest Wash	Channel	114.3	25 Yr	429.2	2729.05	2735.39	6.34	2730.89	2735.42	0.000027	1.47	291.79	65.04	0.12
Dev. Ridgecrest Wash	Channel	114.2	25 Yr	429.2	2729.05	2735.39	6.34	0	2735.42	0.000027	1.47	291.69	65.03	0.12
Dev. Ridgecrest Wash	Channel	114.1	25 Yr	429.2	2732.05	2735.33	3.28	2733.42	2735.42	0.000608	2.39	179.72	64.67	0.25
Dev. Ridgecrest Wash	Channel	113.4	25 Yr	429.2	2730.95	2732.32	1.37	2732.32	2732.95	0.012431	6.41	67	53.19	1.01
Dev. Ridgecrest Wash	Channel	113.3	25 Yr	429.2	2711.5	2717.79	6.29	2713.34	2717.82	0.000028	1.49	288.48	64.74	0.12
Dev. Ridgecrest Wash	Channel	113.2	25 Yr	429.2	2711.5	2717.79	6.29	0	2717.82	0.000028	1.49	288.38	64.73	0.12
Dev. Ridgecrest Wash	Channel	113.1	25 Yr	429.2	2714.5	2717.72	3.22	2715.87	2717.82	0.000645	2.44	176.24	64.34	0.26
Dev. Ridgecrest Wash	Channel	112.4	25 Yr	429.2	2713.6	2714.97	1.37	2714.97	2715.6	0.012431	6.41	67	53.19	1.01
Dev. Ridgecrest Wash	Channel	112.3	25 Yr	429.2	2696	2702.53	6.53	2697.84	2702.56	0.000024	1.41	303.9	66.15	0.12
Dev. Ridgecrest Wash	Channel	112.2	25 Yr	429.2	2696	2702.52	6.52	0	2702.56	0.000024	1.41	303.81	66.14	0.12
Dev. Ridgecrest Wash	Channel	112.1	25 Yr	429.2	2699	2702.47	3.47	2700.37	2702.55	0.000496	2.23	192.42	65.83	0.23
Dev. Ridgecrest Wash	Channel	111.4	25 Yr	443.8	2698.5	2699.9	1.4	2699.9	2700.55	0.01233	6.47	68.63	53.37	1.01
Dev. Ridgecrest Wash	Channel	111.3	25 Yr	443.8	2684	2689.96	5.96	2685.88	2690.01	0.000037	1.66	267.68	62.78	0.14
Dev. Ridgecrest Wash	Channel	111.2	25 Yr	443.8	2684	2689.96	5.96	0	2690	0.000037	1.66	267.56	62.77	0.14
Dev. Ridgecrest Wash	Channel	111.1	25 Yr	443.8	2687	2689.86	2.86	2688.4	2689.99	0.001042	2.89	153.5	62.19	0.32
Dev. Ridgecrest Wash	Channel	110.4	25 Yr	443.8	2686.8	2688.2	1.4	2688.2	2688.85	0.01233	6.47	68.63	53.37	1.01
Dev. Ridgecrest Wash	Channel	110.3	25 Yr	443.8	2677.1	2683.07	5.97	2678.98	2683.11	0.000037	1.66	268.05	62.81	0.14
Dev. Ridgecrest Wash	Channel	110.2	25 Yr	443.8	2677.1	2683.07	5.97	0	2683.11	0.000037	1.66	267.93	62.8	0.14
Dev. Ridgecrest Wash	Channel	110.1	25 Yr	443.8	2680.1	2682.76	2.66	2681.95	2683.08	0.003162	4.52	98.09	46.67	0.55
Dev. Ridgecrest Wash	Channel	109.4	25 Yr	443.8	2680	2681.4	1.4	2681.4	2682.05	0.01233	6.47	68.63	53.37	1.01
Dev. Ridgecrest Wash	Channel	109.3	25 Yr	443.8	2669.1	2675.04	5.94	2670.98	2675.09	0.000037	1.67	266.44	62.66	0.14
Dev. Ridgecrest Wash	Channel	109.2	25 Yr	443.8	2669.1	2675.04	5.94	0	2675.09	0.000037	1.67	266.32	62.65	0.14
Dev. Ridgecrest Wash	Channel	109.1	25 Yr	443.8	2672.1	2674.94	2.84	2673.5	2675.08	0.00107	2.92	152.15	62.06	0.33
Dev. Ridgecrest Wash	Channel	108.4	25 Yr	443.8	2672	2673.4	1.4	2673.4	2674.05	0.01233	6.47	68.63	53.37	1.01
Dev. Ridgecrest Wash	Channel	108.3	25 Yr	443.8	2662.2	2667.91	5.71	2664.08	2667.96	0.000043	1.76	252.11	61.27	0.15
Dev. Ridgecrest Wash	Channel	108.2	25 Yr	443.8	2662.2	2667.91	5.71	0	2667.96	0.000043	1.76	251.98	61.26	0.15
Dev. Ridgecrest Wash	Channel	108.1	25 Yr	443.8	2665.2	2667.78	2.58	2666.6	2667.95	0.001498	3.26	136.07	60.48	0.38
Dev. Ridgecrest Wash	Channel	107.4	25 Yr	453.1	2665	2666.42	1.42	2666.42	2667.07	0.012244	6.5	69.7	53.49	1
Dev. Ridgecrest Wash	Channel	107.3	25 Yr	453.1	2652.2	2658.06	5.86	2654.11	2658.11	0.000041	1.73	261.44	62.18	0.15
Dev. Ridgecrest Wash	Channel	107.2	25 Yr	453.1	2652.2	2658.06	5.86	0	2658.11	0.000041	1.73	261.31	62.17	0.15
Dev. Ridgecrest Wash	Channel	107.1	25 Yr	453.1	2655.2	2657.95	2.75	2656.62	2658.1	0.001255	3.1	146.27	61.48	0.35
Dev. Ridgecrest Wash	Channel	106.4	25 Yr	453.1	2655	2656.42	1.42	2656.42	2657.07	0.012244	6.5	69.7	53.49	1

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
North Ridgecrest Wash - Post-development Conditions
25-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Dev. Ridgecrest Wash	Channel	106.3	25 Yr	453.1	2642.2	2648.02	5.82	2644.11	2648.07	0.000042	1.75	258.85	61.93	0.15
Dev. Ridgecrest Wash	Channel	106.2	25 Yr	453.1	2642.2	2648.02	5.82	0	2648.07	0.000042	1.75	258.72	61.92	0.15
Dev. Ridgecrest Wash	Channel	106.1	25 Yr	453.1	2645.2	2647.9	2.7	2646.62	2648.06	0.001334	3.16	143.37	61.2	0.36
Dev. Ridgecrest Wash	Channel	105.4	25 Yr	453.1	2645	2646.42	1.42	2646.42	2647.07	0.012244	6.5	69.7	53.49	1
Dev. Ridgecrest Wash	Channel	105.3	25 Yr	453.1	2632.2	2638.05	5.85	2634.11	2638.09	0.000041	1.74	260.29	62.07	0.15
Dev. Ridgecrest Wash	Channel	105.2	25 Yr	453.1	2632.2	2638.04	5.84	0	2638.09	0.000041	1.74	260.15	62.06	0.15
Dev. Ridgecrest Wash	Channel	105.1	25 Yr	453.1	2635.2	2637.93	2.73	2636.62	2638.08	0.001289	3.13	144.98	61.36	0.36
Dev. Ridgecrest Wash	Channel	104.4	25 Yr	453.1	2635	2636.42	1.42	2636.42	2637.07	0.012244	6.5	69.7	53.49	1
Dev. Ridgecrest Wash	Channel	104.3	25 Yr	453.1	2622.2	2628.16	5.96	2624.11	2628.21	0.000038	1.69	267.54	62.77	0.14
Dev. Ridgecrest Wash	Channel	104.2	25 Yr	453.1	2622.2	2628.16	5.96	0	2628.2	0.000038	1.69	267.42	62.75	0.14
Dev. Ridgecrest Wash	Channel	104.1	25 Yr	453.1	2625.2	2628.06	2.86	2626.62	2628.19	0.001095	2.96	153.08	62.14	0.33
Dev. Ridgecrest Wash	Channel	103.4	25 Yr	458.7	2625	2626.43	1.43	2626.43	2627.09	0.012252	6.53	70.23	53.55	1.01
Dev. Ridgecrest Wash	Channel	103.3	25 Yr	458.7	2612.2	2618.12	5.92	2614.12	2618.17	0.00004	1.73	265.16	62.54	0.15
Dev. Ridgecrest Wash	Channel	103.2	25 Yr	458.7	2612.2	2618.12	5.92	0	2618.17	0.00004	1.73	265.02	62.52	0.15
Dev. Ridgecrest Wash	Channel	103.1	25 Yr	458.7	2615.2	2618.01	2.81	2616.63	2618.16	0.001187	3.05	150.23	61.87	0.35
Dev. Ridgecrest Wash	Channel	102.4	25 Yr	458.7	2615	2616.43	1.43	2616.43	2617.09	0.012252	6.53	70.23	53.55	1.01
Dev. Ridgecrest Wash	Channel	102.3	25 Yr	458.7	2602.4	2608.6	6.2	2604.32	2608.64	0.000034	1.62	282.67	64.2	0.14
Dev. Ridgecrest Wash	Channel	102.2	25 Yr	458.7	2602.4	2608.6	6.2	0	2608.64	0.000034	1.62	282.56	64.19	0.14
Dev. Ridgecrest Wash	Channel	102.1	25 Yr	458.7	2605.4	2608.52	3.12	2606.83	2608.63	0.000829	2.71	169.38	63.7	0.29
Dev. Ridgecrest Wash	Channel	101.4	25 Yr	458.7	2604.99	2606.42	1.43	2606.42	2607.08	0.012252	6.53	70.23	53.55	1.01
Dev. Ridgecrest Wash	Channel	101.3	25 Yr	458.7	2597.6	2605.07	7.47	2599.53	2605.09	0.000016	1.26	364.92	70.72	0.1
Dev. Ridgecrest Wash	Channel	101.2	25 Yr	458.7	2597.6	2605.07	7.47	0	2605.09	0.000016	1.26	364.87	70.72	0.1
Dev. Ridgecrest Wash	Channel	101.1	25 Yr	458.7	2601	2605.03	4.03	0	2605.09	0.000336	2	229.84	69.16	0.19
Dev. Ridgecrest Wash	Channel	100.4	25 Yr	435.8	2600.5	2604.9	4.4	0	2604.94	0.000221	1.7	255.93	71.39	0.16
Dev. Ridgecrest Wash	Channel	100.3	25 Yr	435.8	2600.48	2604.87	4.39	0	2604.92	0.000222	1.71	255.5	71.35	0.16
Dev. Ridgecrest Wash	Channel	100.2	25 Yr	435.8	2600.45	2604.84	4.39	0	2604.89	0.000222	1.71	255.5	71.35	0.16
Dev. Ridgecrest Wash	Channel	100.1	25 Yr	1049.1	2600.31	2603.25	2.94	0	2603.93	0.005312	6.63	158.26	62.64	0.73
Dev. Ridgecrest Wash	Channel	100	25 Yr	1049.1	2599.7	2601.32	1.62	2601.32	2601.74	0.014149	5.2	201.56	242.71	1.01
Dev. Ridgecrest Wash	Channel	10	25 Yr	1056.7	2596.15	2597.87	1.72	2598.01	2598.63	0.020282	7	150.97	152.67	1.24
Dev. Ridgecrest Wash	Channel	9	25 Yr	1056.7	2593.98	2595.95	1.97	2595.89	2596.49	0.010604	5.9	179.17	144.02	0.93
Dev. Ridgecrest Wash	Channel	8	25 Yr	1056.7	2591.87	2593.71	1.84	2593.67	2594.28	0.011385	6.07	174.14	141.47	0.96
Dev. Ridgecrest Wash	Channel	7	25 Yr	1056.7	2589.07	2591.4	2.33	2591.38	2591.98	0.011767	6.11	172.85	142.3	0.98
Dev. Ridgecrest Wash	Channel	6	25 Yr	1056.7	2586.9	2589.14	2.24	2589.08	2589.71	0.010897	6.1	173.31	135.24	0.95
Dev. Ridgecrest Wash	Channel	5	25 Yr	1056.7	2584.84	2586.78	1.94	2586.78	2587.37	0.012582	6.15	171.94	147.66	1
Dev. Ridgecrest Wash	Channel	4	25 Yr	1056.7	2582.77	2584.68	1.91	2584.52	2585.09	0.00841	5.14	205.5	170.52	0.83
Dev. Ridgecrest Wash	Channel	3	25 Yr	1056.7	2580.95	2582.49	1.54	2582.49	2583.06	0.012284	6.06	174.43	150.41	0.99

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
North Ridgecrest Wash - Post-development Conditions
100-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Dev. Ridgecrest Wash	Channel	116.4	100 Yr	668.7	2770	2771.22	1.22	2771.45	2772.11	0.025008	7.59	89.69	101.63	1.37
Dev. Ridgecrest Wash	Channel	116.3	100 Yr	668.7	2755	2760.79	5.79	2757.49	2760.93	0.000113	2.92	228.74	51.98	0.25
Dev. Ridgecrest Wash	Channel	116.2	100 Yr	668.7	2755	2760.8	5.8	0	2760.91	0.000095	2.64	253.73	60.43	0.23
Dev. Ridgecrest Wash	Channel	116.1	100 Yr	668.7	2758	2760.46	2.46	2759.81	2760.88	0.004005	5.18	129.04	59.85	0.62
Dev. Ridgecrest Wash	Channel	115.4	100 Yr	668.7	2757.99	2759.76	1.77	2759.76	2760.53	0.011515	7.01	95.33	62.51	1
Dev. Ridgecrest Wash	Channel	115.3	100 Yr	668.7	2742.99	2748.89	5.9	2745.41	2748.99	0.000087	2.54	263.45	62.37	0.22
Dev. Ridgecrest Wash	Channel	115.2	100 Yr	668.7	2742.99	2748.88	5.89	0	2748.98	0.000087	2.54	263.16	62.35	0.22
Dev. Ridgecrest Wash	Channel	115.1	100 Yr	668.7	2745.99	2748.58	2.59	2747.8	2748.95	0.003358	4.89	136.65	60.54	0.57
Dev. Ridgecrest Wash	Channel	114.4	100 Yr	668.7	2745.98	2747.79	1.81	2747.79	2748.62	0.011435	7.31	91.51	55.89	1.01
Dev. Ridgecrest Wash	Channel	114.3	100 Yr	668.7	2729.05	2736.21	7.16	2731.47	2736.27	0.000041	1.93	347.08	69.96	0.15
Dev. Ridgecrest Wash	Channel	114.2	100 Yr	668.7	2729.05	2736.21	7.16	0	2736.27	0.000041	1.93	346.92	69.94	0.15
Dev. Ridgecrest Wash	Channel	114.1	100 Yr	668.7	2732.05	2736.13	4.08	2733.86	2736.26	0.000681	2.86	233.51	69.48	0.28
Dev. Ridgecrest Wash	Channel	113.4	100 Yr	668.7	2730.95	2732.76	1.81	2732.76	2733.59	0.011435	7.31	91.51	55.89	1.01
Dev. Ridgecrest Wash	Channel	113.3	100 Yr	668.7	2711.5	2718.59	7.09	2713.92	2718.65	0.000042	1.95	342.53	69.57	0.16
Dev. Ridgecrest Wash	Channel	113.2	100 Yr	668.7	2711.5	2718.59	7.09	0	2718.65	0.000042	1.95	342.38	69.55	0.16
Dev. Ridgecrest Wash	Channel	113.1	100 Yr	668.7	2714.5	2718.51	4.01	2716.31	2718.64	0.000724	2.92	228.69	69.06	0.28
Dev. Ridgecrest Wash	Channel	112.4	100 Yr	668.7	2713.6	2715.41	1.81	2715.41	2716.24	0.011435	7.31	91.51	55.89	1.01
Dev. Ridgecrest Wash	Channel	112.3	100 Yr	668.7	2696	2703.35	7.35	2698.42	2703.4	0.000037	1.86	360.28	71.08	0.15
Dev. Ridgecrest Wash	Channel	112.2	100 Yr	668.7	2696	2703.35	7.35	0	2703.4	0.000037	1.86	360.14	71.07	0.15
Dev. Ridgecrest Wash	Channel	112.1	100 Yr	668.7	2699	2703.28	4.28	2700.81	2703.39	0.000575	2.7	247.4	70.67	0.25
Dev. Ridgecrest Wash	Channel	111.4	100 Yr	682.5	2698.5	2700.34	1.84	2700.34	2701.18	0.011379	7.35	92.88	56.03	1.01
Dev. Ridgecrest Wash	Channel	111.3	100 Yr	682.5	2684	2690.67	6.67	2686.45	2690.74	0.000056	2.18	313.5	67.02	0.18
Dev. Ridgecrest Wash	Channel	111.2	100 Yr	682.5	2684	2690.67	6.67	0	2690.74	0.000056	2.18	313.31	67	0.18
Dev. Ridgecrest Wash	Channel	111.1	100 Yr	682.5	2687	2690.54	3.54	2688.84	2690.73	0.001172	3.47	196.93	66.24	0.35
Dev. Ridgecrest Wash	Channel	110.4	100 Yr	682.5	2686.8	2688.64	1.84	2688.64	2689.48	0.011379	7.35	92.88	56.03	1.01
Dev. Ridgecrest Wash	Channel	110.3	100 Yr	682.5	2677.1	2683.76	6.66	2679.55	2683.83	0.000057	2.18	312.57	66.93	0.18
Dev. Ridgecrest Wash	Channel	110.2	100 Yr	682.5	2677.1	2683.75	6.65	0	2683.83	0.000057	2.18	312.37	66.91	0.18
Dev. Ridgecrest Wash	Channel	110.1	100 Yr	682.5	2680.1	2683.33	3.23	2682.5	2683.79	0.003682	5.43	125.63	50.84	0.61
Dev. Ridgecrest Wash	Channel	109.4	100 Yr	682.5	2680	2681.84	1.84	2681.84	2682.68	0.011379	7.35	92.88	56.03	1.01
Dev. Ridgecrest Wash	Channel	109.3	100 Yr	682.5	2669.1	2675.74	6.64	2671.55	2675.82	0.000057	2.19	311.62	66.85	0.18
Dev. Ridgecrest Wash	Channel	109.2	100 Yr	682.5	2669.1	2675.74	6.64	0	2675.81	0.000057	2.19	311.43	66.83	0.18
Dev. Ridgecrest Wash	Channel	109.1	100 Yr	682.5	2672.1	2675.61	3.51	2673.94	2675.8	0.001209	3.5	194.86	66.06	0.36
Dev. Ridgecrest Wash	Channel	108.4	100 Yr	682.5	2672	2673.84	1.84	2673.84	2674.68	0.011379	7.35	92.88	56.03	1.01
Dev. Ridgecrest Wash	Channel	108.3	100 Yr	682.5	2662.2	2668.59	6.39	2664.65	2668.68	0.000066	2.31	295.13	65.35	0.19
Dev. Ridgecrest Wash	Channel	108.2	100 Yr	682.5	2662.2	2668.59	6.39	0	2668.67	0.000066	2.31	294.91	65.33	0.19
Dev. Ridgecrest Wash	Channel	108.1	100 Yr	682.5	2665.2	2668.42	3.22	2667.04	2668.66	0.001634	3.88	176.08	64.33	0.41
Dev. Ridgecrest Wash	Channel	107.4	100 Yr	703	2665	2666.88	1.88	2666.88	2667.73	0.011299	7.41	94.89	56.25	1.01
Dev. Ridgecrest Wash	Channel	107.3	100 Yr	703	2652.2	2658.77	6.57	2654.69	2658.85	0.000063	2.29	306.81	66.41	0.19
Dev. Ridgecrest Wash	Channel	107.2	100 Yr	703	2652.2	2658.77	6.57	0	2658.85	0.000063	2.29	306.58	66.39	0.19
Dev. Ridgecrest Wash	Channel	107.1	100 Yr	703	2655.2	2658.62	3.42	2657.07	2658.83	0.001409	3.72	188.78	65.5	0.39
Dev. Ridgecrest Wash	Channel	106.4	100 Yr	703	2655	2656.88	1.88	2656.88	2657.73	0.011299	7.41	94.89	56.25	1.01

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
North Ridgecrest Wash - Post-development Conditions
100-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Dev. Ridgecrest Wash	Channel	106.3	100 Yr	703	2642.2	2648.72	6.52	2644.69	2648.8	0.000065	2.32	303.43	66.11	0.19
Dev. Ridgecrest Wash	Channel	106.2	100 Yr	703	2642.2	2648.71	6.51	0	2648.8	0.000065	2.32	303.2	66.09	0.19
Dev. Ridgecrest Wash	Channel	106.1	100 Yr	703	2645.2	2648.56	3.36	2647.07	2648.78	0.001499	3.8	184.92	65.15	0.4
Dev. Ridgecrest Wash	Channel	105.4	100 Yr	703	2645	2646.88	1.88	2646.88	2647.73	0.011299	7.41	94.89	56.25	1.01
Dev. Ridgecrest Wash	Channel	105.3	100 Yr	703	2632.2	2638.74	6.54	2634.69	2638.83	0.000064	2.3	305.14	66.26	0.19
Dev. Ridgecrest Wash	Channel	105.2	100 Yr	703	2632.2	2638.74	6.54	0	2638.82	0.000064	2.31	304.91	66.24	0.19
Dev. Ridgecrest Wash	Channel	105.1	100 Yr	703	2635.2	2638.59	3.39	2637.07	2638.81	0.001452	3.76	186.88	65.33	0.39
Dev. Ridgecrest Wash	Channel	104.4	100 Yr	703	2635	2636.88	1.88	2636.88	2637.73	0.011299	7.41	94.89	56.25	1.01
Dev. Ridgecrest Wash	Channel	104.3	100 Yr	703	2622.2	2628.9	6.7	2624.69	2628.97	0.000059	2.23	315.29	67.17	0.18
Dev. Ridgecrest Wash	Channel	104.2	100 Yr	703	2622.2	2628.89	6.69	0	2628.97	0.000059	2.23	315.07	67.16	0.18
Dev. Ridgecrest Wash	Channel	104.1	100 Yr	703	2625.2	2628.76	3.56	2627.07	2628.96	0.001218	3.54	198.32	66.37	0.36
Dev. Ridgecrest Wash	Channel	103.4	100 Yr	718.5	2625	2626.9	1.9	2626.9	2627.76	0.011227	7.45	96.45	56.41	1
Dev. Ridgecrest Wash	Channel	103.3	100 Yr	718.5	2612.2	2618.86	6.66	2614.73	2618.94	0.000063	2.3	312.64	66.94	0.19
Dev. Ridgecrest Wash	Channel	103.2	100 Yr	718.5	2612.2	2618.85	6.65	0	2618.94	0.000063	2.3	312.41	66.92	0.19
Dev. Ridgecrest Wash	Channel	103.1	100 Yr	718.5	2615.2	2618.71	3.51	2617.1	2618.92	0.00134	3.69	194.86	66.06	0.38
Dev. Ridgecrest Wash	Channel	102.4	100 Yr	718.5	2615	2616.9	1.9	2616.9	2617.76	0.011227	7.45	96.45	56.41	1
Dev. Ridgecrest Wash	Channel	102.3	100 Yr	718.5	2602.4	2609.38	6.98	2604.93	2609.46	0.000052	2.15	334.87	68.9	0.17
Dev. Ridgecrest Wash	Channel	102.2	100 Yr	718.5	2602.4	2609.38	6.98	0	2609.45	0.000052	2.15	334.69	68.89	0.17
Dev. Ridgecrest Wash	Channel	102.1	100 Yr	718.5	2605.4	2609.28	3.88	2607.3	2609.44	0.000944	3.27	219.44	68.25	0.32
Dev. Ridgecrest Wash	Channel	101.4	100 Yr	718.5	2604.99	2606.89	1.9	2606.89	2607.75	0.011212	7.45	96.49	56.42	1
Dev. Ridgecrest Wash	Channel	101.3	100 Yr	718.5	2597.6	2606.09	8.49	2600.13	2606.13	0.000024	1.63	440.08	76.69	0.12
Dev. Ridgecrest Wash	Channel	101.2	100 Yr	718.5	2597.6	2606.09	8.49	0	2606.13	0.000024	1.63	439.99	76.68	0.12
Dev. Ridgecrest Wash	Channel	101.1	100 Yr	718.5	2601	2606.04	5.04	0	2606.12	0.000369	2.37	302.71	75.22	0.21
Dev. Ridgecrest Wash	Channel	100.4	100 Yr	676.9	2600.5	2605.89	5.39	0	2605.96	0.000256	2.05	329.94	77.36	0.18
Dev. Ridgecrest Wash	Channel	100.3	100 Yr	676.9	2600.48	2605.86	5.38	0	2605.93	0.000257	2.06	329.13	77.3	0.18
Dev. Ridgecrest Wash	Channel	100.2	100 Yr	676.9	2600.45	2605.83	5.38	0	2605.89	0.000258	2.06	328.74	77.26	0.18
Dev. Ridgecrest Wash	Channel	100.1	100 Yr	1541.4	2600.31	2603.64	3.33	2603.38	2604.74	0.00739	8.41	183.34	65	0.88
Dev. Ridgecrest Wash	Channel	100	100 Yr	1541.4	2599.7	2601.61	1.91	2601.61	2602.09	0.012785	5.6	275.2	275.13	0.99
Dev. Ridgecrest Wash	Channel	10	100 Yr	1566.5	2596.15	2598.17	2.02	2598.39	2599.13	0.020353	7.87	199.11	169.4	1.28
Dev. Ridgecrest Wash	Channel	9	100 Yr	1566.5	2593.98	2596.33	2.35	2596.28	2597.01	0.01055	6.62	236.46	159.03	0.96
Dev. Ridgecrest Wash	Channel	8	100 Yr	1566.5	2591.87	2594.08	2.21	2594.08	2594.81	0.011512	6.85	228.64	156.11	1
Dev. Ridgecrest Wash	Channel	7	100 Yr	1566.5	2589.07	2591.74	2.67	2591.76	2592.5	0.012353	6.98	224.41	157.03	1.03
Dev. Ridgecrest Wash	Channel	6	100 Yr	1566.5	2586.9	2589.52	2.62	2589.52	2590.24	0.011607	6.83	229.37	158.32	1
Dev. Ridgecrest Wash	Channel	5	100 Yr	1566.5	2584.84	2587.15	2.31	2587.18	2587.87	0.012111	6.8	230.43	165.31	1.01
Dev. Ridgecrest Wash	Channel	4	100 Yr	1566.5	2582.77	2585.05	2.28	2584.87	2585.57	0.008432	5.77	271.56	189.98	0.85
Dev. Ridgecrest Wash	Channel	3	100 Yr	1566.5	2580.95	2582.86	1.91	2582.86	2583.56	0.011933	6.7	233.85	169.67	1.01

APPENDIX 5

Additional Data

APPENDIX 5A

Soil Borings

Date Drilled:	7/16/09	Water Depth:	Not Encountered
Drilled By:	California Pacific Drilling	Date Measured:	7/16/2009
Drilling Method:	6" HSA, Autohammer	Elevation:	2648 feet (approx.)
Logged By:	J. Montes	Datum:	MSL

Elevation (feet) / Depth	Sample Type	Sample Number	Blows per Foot	Graphic Log	SOIL DESCRIPTION AND CLASSIFICATION	Dry Density (pcf)	Moisture Content (%)	Additional Tests
2645			50/5"		**SILTY SAND (SM)** - brown, dry to slightly moist, very dense, fine to coarse grained with gravel up to 2" in diameter, trace of clay	115	2.6	MAX, GS, RV
5			50/5"					
2640								
10			50/5"					
2635								
15			50/5"					
2630								
20			50/6"					

Notes:
1.) **Bottom of boring at 21.5 feet.**
2.) **No free groundwater encountered.**
3.) **Boring backfilled with soil cuttings 7/16/09.**

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RIDGECREST - SOLAR MILLENNIUM
RIDGECREST, CALIFORNIA

PLATE A-1

PROJECT NO. 104961

LOG OF BORING B - 1

Note: The boundaries between soil types shown on the logs are approximate as the transition between different soil layers may be gradual.

GEOTECH.DB LA AREA FORMAT 104961.GPJ KA RDLND.GDT 8/14/09

Date Drilled:	7/16/09	Water Depth:	Not Encountered
Drilled By:	California Pacific Drilling	Date Measured:	7/16/2009
Drilling Method:	6" HSA, Autohammer	Elevation:	2684 feet (approx.)
Logged By:	J. Montes	Datum:	MSL

Elevation (feet) Depth	Sample Type	Sample Number	Blows per Foot	Graphic Log	SOIL DESCRIPTION AND CLASSIFICATION	Dry Density (pcf)	Moisture Content (%)	Additional Tests
					SILTY SAND (SM) - brown, dry to slightly moist, very dense, fine to coarse grained with gravel up to 2" in diameter, trace of clay			
			50/6"			107	1.4	GS
2680								
5			65					
2675								
10			50/4"		... very dense, with coarse gravel			
2670								
15			71					
2665								
20			44		... dense, with gravel			

Notes:
1.) **Bottom of boring at 21.5 feet.**
2.) **No free groundwater encountered.**
3.) **Boring backfilled with soil cuttings 7/16/09.**

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RIDGECREST - SOLAR MILLENNIUM
RIDGECREST, CALIFORNIA

PLATE
A-2

PROJECT NO. 104961

LOG OF BORING B - 2

Drafted By: Reviewed By:

Note: The boundaries between soil types shown on the logs are approximate as the transition between different soil layers may be gradual.

GEOTECH DB LA AREA FORMAT 104961.GPJ KA RDLND.GDT 8/25/09

Date Drilled:	7/16/09	Water Depth:	Not Encountered
Drilled By:	California Pacific Drilling	Date Measured:	7/16/2009
Drilling Method:	6" HSA, Autohammer	Elevation:	2684 feet (approx.)
Logged By:	J. Montes	Datum:	MSL

Elevation (feet) / Depth	Sample Type	Sample Number	Blows per Foot	Graphic Log	SOIL DESCRIPTION AND CLASSIFICATION	Dry Density (pcf)	Moisture Content (%)	Additional Tests
			90		**SILTY SAND (SM)** - reddish brown, dry to slightly moist, very dense, fine to coarse grained with gravel up to 3" in diameter, with cementation, trace of clay	104	2.1	MAX, GS
2680 / 5			67					
2675 / 10			50/5"					
2670 / 15			50/5"					
2665 / 20			50/5"					

Notes:
1.) **Bottom of boring at 21.5 feet.**
2.) **No free groundwater encountered.**
3.) **Boring backfilled with soil cuttings 7/16/09.**

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RIDGECREST - SOLAR MILLENNIUM
RIDGECREST, CALIFORNIA

PLATE A-3

PROJECT NO. 104961

LOG OF BORING B - 3

Note: The boundaries between soil types shown on the logs are approximate as the transition between different soil layers may be gradual.

GEOTECH DB LA AREA FORMAT 104961.GPJ KA RDLND.GDT 8/14/09

Date Drilled:	7/14/09	Water Depth:	Not Encountered
Drilled By:	California Pacific Drilling	Date Measured:	7/14/2009
Drilling Method:	6" HSA, Autohammer	Elevation:	2700 feet (approx.)
Logged By:	R. Shiplee	Datum:	MSL

Elevation (feet)	Depth	Sample Type	Sample Number	Blows per Foot	Graphic Log	SOIL DESCRIPTION AND CLASSIFICATION	Dry Density (pcf)	Moisture Content (%)	Additional Tests
2700						SILTY SAND (SM) - reddish brown, dry to slightly moist, very dense, fine to coarse grained with gravel up to 3" in diameter, with strong cementation, trace of clay			
				50/3"			101	2.2	
2695	5			50/6"					
2690	10			64					
						... trace clay			
2685	15			66					
						... increasing gravel			
2680	20			50/6"					
						Auger refusal due to gravel at 22 feet.			

Notes:
1.) Bottom of boring at 22 feet due to auger refusal.
2.) No free groundwater encountered.
3.) Boring backfilled with soil cuttings 7/14/09.

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RIDGECREST - SOLAR MILLENNIUM
RIDGECREST, CALIFORNIA

PLATE A-4

PROJECT NO. 104961

LOG OF BORING B - 4

Note: The boundaries between soil types shown on the logs are approximate as the transition between different soil layers may be gradual.

GEOTECH DB LA AREA FORMAT 104961.GPJ KA RDLND.GDT 8/25/09

Date Drilled:	7/14/09	Water Depth:	Not Encountered
Drilled By:	California Pacific Drilling	Date Measured:	7/14/2009
Drilling Method:	6" HSA, Autohammer	Elevation:	2700 feet (approx.)
Logged By:	J. Montes	Datum:	MSL

Elevation (feet)	Depth	Sample Type	Sample Number	Blows per Foot	Graphic Log	SOIL DESCRIPTION AND CLASSIFICATION	Dry Density (pcf)	Moisture Content (%)	Additional Tests
2700						**SILTY SAND (SM)** - reddish brown, dry to slightly moist, very dense, fine to coarse grained with gravel up to 3" in diameter, with strong cementation, trace of clay			
				75					
2695	5			80					
2690	10			50/6"		... increase in gravel			
2685	15			50/6"					
2680	20			50/5"		decrease in silt			

GEOTECH DB LA AREA FORMAT 104961.GPJ KA RDLND.GDT 8/25/09

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PROJECT NO. 104961

RIDGECREST - SOLAR MILLENNIUM
RIDGECREST, CALIFORNIA

LOG OF BORING B - 5

PLATE A-5a

Note: The boundaries between soil types shown on the logs are approximate as the transition between different soil layers may be gradual.

Elevation (feet) Depth	Sample Type	Sample Number	Blows per Foot	Graphic Log	SOIL DESCRIPTION AND CLASSIFICATION *(Continued From Previous Page)*	Dry Density (pcf)	Moisture Content (%)	Additional Tests
2675			50/5"		**SILTY SAND (SM)** - reddish brown, dry to slightly moist, very dense, fine to coarse grained with gravel up to 3" in diameter, with strong cementation, trace of clay *(continued)*			
2670 30			50/5"					
2665 35			50/5"					
2660 40			60		Auger refusal due to gravel at 43.5 feet.			

Notes:
1.) **Bottom of boring at 43.5 feet due to auger refusal.**
2.) **No free groundwater encountered.**
3.) **Boring backfilled with soil cuttings 7/14/09.**

GEOTECH DB LA AREA FORMAT 104961.GPJ KA RDLND.GDT 8/25/09

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PROJECT NO. 104961

RIDGECREST - SOLAR MILLENNIUM
RIDGECREST, CALIFORNIA

LOG OF BORING B - 5

PLATE

A-5b

Note: The boundaries between soil types shown on the logs are approximate as the transition between different soil layers may be gradual.

Date Drilled:	7/14/09	Water Depth:	Not Encountered
Drilled By:	California Pacific Drilling	Date Measured:	7/14/2009
Drilling Method:	6" HSA, Autohammer	Elevation:	2704 feet (approx.)
Logged By:	R. Shiplee	Datum:	MSL

Elevation (feet) / Depth	Sample Type	Sample Number	Blows per Foot	Graphic Log	SOIL DESCRIPTION AND CLASSIFICATION	Dry Density (pcf)	Moisture Content (%)	Additional Tests
					SILTY SAND (SM) - light red brown, dry to slightly moist, very dense, fine to coarse grained with gravel up to 2" in diameter, with strong cementation, trace of clay			
			79			102	1.6	CN
2700								
5			76					
2695								
10			54					
2690								
15			50/6"		... gravel and cobbles up to 4"			
					Auger refusal due to gravel and cobbles at 17 feet.			

Notes:
1.) **Bottom of boring at 17 feet due to auger refusal.**
2.) **No free groundwater encountered.**
3.) **Boring backfilled with soil cuttings 7/14/09.**

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RIDGECREST - SOLAR MILLENNIUM
RIDGECREST, CALIFORNIA

PLATE A-6

PROJECT NO. 104961

LOG OF BORING B - 6

GEOTECH DB LA AREA FORMAT 104961.GPJ KA RDLND.GDT 8/25/09

Note: The boundaries between soil types shown on the logs are approximate as the transition between different soil layers may be gradual.

Date Drilled:	7/14/09	Water Depth:	Not Encountered
Drilled By:	California Pacific Drilling	Date Measured:	7/14/2009
Drilling Method:	6" HSA, Autohammer	Elevation:	2717 feet (approx.)
Logged By:	R. Shiplee	Datum:	MSL

Elevation (feet) Depth	Sample Type	Sample Number	Blows per Foot	Graphic Log	SOIL DESCRIPTION AND CLASSIFICATION	Dry Density (pcf)	Moisture Content (%)	Additional Tests
2715			76		**SILTY SAND (SM)** - reddish brown, dry to slightly moist, very dense, fine to coarse grained with gravel up to 2" in diameter, with strong cementation, trace of clay	99	3.8	
5 / 2710			33		... dense			
10 / 2705			50/5"		... very dense, decrease in sand, gravel larger than 3"			
15 / 2700			50/3"					
20 / 2695			39		... gray, dense			

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PROJECT NO. 104961

RIDGECREST - SOLAR MILLENNIUM
RIDGECREST, CALIFORNIA

LOG OF BORING B - 7

PLATE A-7a

GEOTECH.DB LA AREA FORMAT 104961.GPJ KA RDLND.GDT 8/14/09

Note: The boundaries between soil types shown on the logs are approximate as the transition between different soil layers may be gradual.

Elevation (feet) Depth	Sample Type	Sample Number	Blows per Foot	Graphic Log	SOIL DESCRIPTION AND CLASSIFICATION *(Continued From Previous Page)*	Dry Density (pcf)	Moisture Content (%)	Additional Tests
			50/5"					
2690								

Notes:
1.) **Bottom of boring at 26.5 feet.**
2.) **No free groundwater encountered.**
3.) **Boring backfilled with soil cuttings 7/14/09.**

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PROJECT NO. 104961

RIDGECREST - SOLAR MILLENNIUM
RIDGECREST, CALIFORNIA

LOG OF BORING B - 7

PLATE

A-7b

GEOTECH DB LA AREA FORMAT 104961.GPJ KA RDLND.GDT 8/12/09

Note: The boundaries between soil types shown on the logs are approximate as the transition between different soil layers may be gradual.

Date Drilled:	7/15/09	Water Depth:	Not Encountered
Drilled By:	California Pacific Drilling	Date Measured:	7/15/2009
Drilling Method:	6" HSA, Autohammer	Elevation:	2730 feet (approx.)
Logged By:	R. Shiplee	Datum:	MSL

Elevation (feet)	Depth	Sample Type	Sample Number	Blows per Foot	Graphic Log	SOIL DESCRIPTION AND CLASSIFICATION	Dry Density (pcf)	Moisture Content (%)	Additional Tests
						SILTY SAND (SM) - red brown, dry to slightly moist, medium dense, fine to coarse grained with gravel up to 2" in diameter, with weak cementation, trace of clay			
				25			96	2.2	
2725	5			30					
2720	10			50/4"		... very dense, gravel and cobbles up to 4" in diameter			
2715	15			50/6"					
2710	20			42		... dense			
2705									

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PROJECT NO. 104961

RIDGECREST - SOLAR MILLENNIUM
RIDGECREST, CALIFORNIA

LOG OF BORING B - 8

PLATE A-8a

GEOTECH DB LA AREA FORMAT 104961.GPJ KA RDLND.GDT 8/26/09

Note: The boundaries between soil types shown on the logs are approximate as the transition between different soil layers may be gradual.

Elevation (feet) Depth	Sample Type	Sample Number	Blows per Foot	Graphic Log	SOIL DESCRIPTION AND CLASSIFICATION *(Continued From Previous Page)*	Dry Density (pcf)	Moisture Content (%)	Additional Tests
			50/5"		... very dense			
2700					**Notes:** **1.) Bottom of boring at 26.5 feet.** **2.) No free groundwater encountered.** **3.) Boring backfilled with soil cuttings 7/15/09.**			

GEOTECH DB LA AREA FORMAT 104961.GPJ KA RDLND.GDT 8/12/09

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PROJECT NO. 104961

RIDGECREST - SOLAR MILLENNIUM
RIDGECREST, CALIFORNIA

LOG OF BORING B - 8

PLATE

A-8b

Note: The boundaries between soil types shown on the logs are approximate as the transition between different soil layers may be gradual.

Date Drilled:	7/15/09	Water Depth:	Not Encountered
Drilled By:	California Pacific Drilling	Date Measured:	7/15/2009
Drilling Method:	6" HSA, Autohammer	Elevation:	2753 feet (approx.)
Logged By:	R. Shiplee	Datum:	MSL

Elevation (feet) Depth	Sample Type	Sample Number	Blows per Foot	Graphic Log	SOIL DESCRIPTION AND CLASSIFICATION	Dry Density (pcf)	Moisture Content (%)	Additional Tests
					SILTY SAND (SM) - light reddish brown, dry to slightly moist, very dense, fine to coarse grained with gravel up to 3" in diameter, with strong cementation, trace of clay			
2750			50/6"			101	2.0	DS
5			50/4"					
2745								
10			50/4"		... increase in rock			
2740								
15			50/1"		... trace of clay, gravel up to 4"			
2735								

Notes:
1.) **Bottom of boring at 19 feet due to auger refusal.**
2.) **No free groundwater encountered.**
3.) **Boring backfilled with soil cuttings 7/15/09.**

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RIDGECREST - SOLAR MILLENNIUM
RIDGECREST, CALIFORNIA

PLATE
A-9

PROJECT NO. 104961

LOG OF BORING B - 9

Note: The boundaries between soil types shown on the logs are approximate as the transition between different soil layers may be gradual.

GEOTECH DB LA AREA FORMAT 104961.GPJ KA RDLND.GDT 8/14/09

Date Drilled:	7/15/09	Water Depth:	Not Encountered
Drilled By:	California Pacific Drilling	Date Measured:	7/15/2009
Drilling Method:	6" HSA, Autohammer	Elevation:	2769 feet (approx.)
Logged By:	R. Shiplee	Datum:	MSL

Elevation (feet) / Depth	Sample Type	Sample Number	Graphic Log	SOIL DESCRIPTION AND CLASSIFICATION	Dry Density (pcf)	Moisture Content (%)	Additional Tests
		50/5"		**SILTY SAND (SM)** - reddish brown, dry to slightly moist, very dense, fine to coarse grained with gravel up to 2" in diameter, with strong cementation, trace of clay			
2765 / 5		50/6"					
2760 / 10		50/4"		... gravel and cobbles up to 4" in diameter			
2755 / 15		62		... light gray			
2750 / 20		50/6"		... light reddish brown			
2745							

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RIDGECREST - SOLAR MILLENNIUM
RIDGECREST, CALIFORNIA

PLATE A-10a

PROJECT NO. 104961

LOG OF BORING B-10

Drafted By: Reviewed By:

Note: The boundaries between soil types shown on the logs are approximate as the transition between different soil layers may be gradual.

GEOTECH DB LA AREA FORMAT 104961.GPJ KA RDLND.GDT 8/26/09

Elevation (feet) Depth	Sample Type	Sample Number	Graphic Log	SOIL DESCRIPTION AND CLASSIFICATION *(Continued From Previous Page)*	Dry Density (pcf)	Moisture Content (%)	Additional Tests
		50/5"					
2740				**Notes:** **1.) Bottom of boring at 26.5 feet.** **2.) No free groundwater encountered.** **3.) Boring backfilled with soil cuttings 7/15/09.**			

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PROJECT NO. 104961

RIDGECREST - SOLAR MILLENNIUM
RIDGECREST, CALIFORNIA

LOG OF BORING B-10

PLATE
A-10b

GEOTECH DB LA AREA FORMAT 104961.GPJ KA RDLND.GDT 8/26/09

Note: The boundaries between soil types shown on the logs are approximate as the transition between different soil layers may be gradual.

Date Drilled:	7/16/09	Water Depth:	Not Encountered
Drilled By:	California Pacific Drilling	Date Measured:	7/16/2009
Drilling Method:	6" HSA, Autohammer	Elevation:	2759 feet (approx.)
Logged By:	J. Montes	Datum:	MSL

Elevation (feet) / Depth	Sample Type	Sample Number	Blows per Foot	Graphic Log	SOIL DESCRIPTION AND CLASSIFICATION	Dry Density (pcf)	Moisture Content (%)	Additional Tests
			50/5"		**SILTY SAND (SM)** - red brown, dry to slightly moist, very dense, fine to coarse grained with gravel up to 2" in diameter, with strong cementation, trace of clay			
2755 / 5			50/5"					
2750 / 10			50/5"					
2745 / 15			50/3"		... increase in silt content			
2740 / 20			63		... light brown			

Notes:
1.) **Bottom of boring at 21.5 feet.**
2.) **No free groundwater encountered.**
3.) **Boring backfilled with soil cuttings 7/16/09.**

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RIDGECREST - SOLAR MILLENNIUM
RIDGECREST, CALIFORNIA

PLATE
A-11

PROJECT NO. 104961

LOG OF BORING B-11

Note: The boundaries between soil types shown on the logs are approximate as the transition between different soil layers may be gradual.

GEOTECH DB LA AREA FORMAT 104961.GPJ KA RDLND.GDT 8/14/09

Date Drilled:	7/15/09	Water Depth:	Not Encountered
Drilled By:	California Pacific Drilling	Date Measured:	7/15/2009
Drilling Method:	6" HSA, Autohammer	Elevation:	2687 feet (approx.)
Logged By:	J. Montes	Datum:	MSL

Elevation (feet) Depth	Sample Type	Sample Number	Blows per Foot	Graphic Log	SOIL DESCRIPTION AND CLASSIFICATION	Dry Density (pcf)	Moisture Content (%)	Additional Tests
2685			72		**SILTY SAND (SM)** - brown, dry to slightly moist, very dense, fine to coarse grained with gravel up to 3" in diameter, with strong cementation, trace of clay			
5			66					
2680								
10			50/5"					
2675								
					GRAVELLY SAND- light brown, slightly moist, very dense, gravel up to 3" diameter, some cobbles			
15			50/5"					
					SILTY SAND (SM) - brown, dry to slightly moist, very dense, fine to coarse grained with gravel up to 3" in diameter, with strong cementation, trace of clay			
2670								
20			50/4"		**SANDY GRAVEL**- slightly moist, very dense, gravel up to 3 inches in diameter			

Notes:
1.) **Bottom of boring at 21.5 feet.**
2.) **No free groundwater encountered.**
3.) **Boring backfilled with soil cuttings 7/15/09.**

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RIDGECREST - SOLAR MILLENNIUM
RIDGECREST, CALIFORNIA

PLATE
A-12

PROJECT NO. 104961

LOG OF BORING B-12

Drafted By: Reviewed By:

Note: The boundaries between soil types shown on the logs are approximate as the transition between different soil layers may be gradual.

GEOTECH DB LA AREA FORMAT 104961.GPJ KA RDLND.GDT 8/26/09

Date Excavated:	7/17/09	Equipment:	Backhoe
Excavated By:	Staib Backhoe		
Bucket Size:	24"	Elevation:	2644 feet (approx.)
Logged By:	R. Shiplee	Datum:	MSL

Elevation (feet) Depth	Sample Type	Sample Number	Graphic Log	SOIL DESCRIPTION AND CLASSIFICATION	Dry Density (pcf)	Moisture Content (%)	Additional Tests
2640 / 5				**SILTY SAND (SM)** - light brown, dry to slightly moist, medium dense, fine to coarse grained, trace of clay ... reddish brown, rock up to 10" in diameter, slight cementation			

Notes:
1.) **Bottom of test pit at 7 feet.**
2.) **No free groundwater encountered.**
3.) **Boring backfilled with soil cuttings 7/17/09.**

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PROJECT NO. 104961

RIDGECREST - SOLAR MILLENNIUM
RIDGECREST, CALIFORNIA

LOG OF TEST PIT TP - 1

PLATE A-13

GEOTECH DB LA AREA FORMAT 104961.GPJ KA RDLND.GDT 8/14/09

Note: The boundaries between soil types shown on the logs are approximate as the transition between different soil layers may be gradual.

Date Excavated:	7/17/09	Equipment:	Backhoe
Excavated By:	Staib Backhoe		
Bucket Size:	24"	Elevation:	2654 feet (approx.)
Logged By:	R. Shiplee	Datum:	MSL

Elevation (feet) Depth	Sample Type	Sample Number	Graphic Log	SOIL DESCRIPTION AND CLASSIFICATION	Dry Density (pcf)	Moisture Content (%)	Additional Tests
				SILTY SAND (SM) - light brown, dry to slightly moist, medium dense to dense, fine to coarse grained, trace of clay			HA
2650 5				... medium dense, rock up to 12" in diameter			

Notes:
1.) **Bottom of test pit at 7 feet.**
2.) **No free groundwater encountered.**
3.) **Boring backfilled with soil cuttings 7/17/09.**

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PROJECT NO. 104961

RIDGECREST - SOLAR MILLENNIUM
RIDGECREST, CALIFORNIA

LOG OF TEST PIT TP - 2

PLATE A-14

GEOTECH DB LA AREA FORMAT 104961.GPJ KA RDLND.GDT 8/14/09

Note: The boundaries between soil types shown on the logs are approximate as the transition between different soil layers may be gradual.

Date Excavated:	7/17/09	Equipment:	Backhoe
Excavated By:	Staib Backhoe		
Bucket Size:	24"	Elevation:	2674 feet (approx.)
Logged By:	R. Shiplee	Datum:	MSL

Elevation (feet) Depth	Sample Type	Sample Number	Graphic Log	SOIL DESCRIPTION AND CLASSIFICATION	Dry Density (pcf)	Moisture Content (%)	Additional Tests
				SILTY SAND (SM) - light brown, dry to slightly moist, medium dense, fine to coarse grained, trace of clay			HA
				... denses, rock up to 8" in diameter			
2670							
5				... medium dense			

Notes:
1.) **Bottom of test pit at 7 feet.**
2.) **No free groundwater encountered.**
3.) **Boring backfilled with soil cuttings 7/17/09.**

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PROJECT NO. 104961

RIDGECREST - SOLAR MILLENNIUM
RIDGECREST, CALIFORNIA

LOG OF TEST PIT TP - 3

PLATE A-15

GEOTECH DB LA AREA FORMAT 104961.GPJ KA RDLND.GDT 8/14/09

Note: The boundaries between soil types shown on the logs are approximate as the transition between different soil layers may be gradual.

Date Excavated:	7/17/09	Equipment:	Backhoe
Excavated By:	Staib Backhoe		
Bucket Size:	24"	Elevation:	2707 feet (approx.)
Logged By:	R. Shiplee	Datum:	MSL

Elevation (feet) Depth	Sample Type	Sample Number	Graphic Log	SOIL DESCRIPTION AND CLASSIFICATION	Dry Density (pcf)	Moisture Content (%)	Additional Tests
2705				**SILTY SAND (SM)** - light brown, dry to slightly moist, medium dense, fine to coarse grained, trace of clay			HA
				... light reddish brown, very dense, rock up to 3" in diameter, slight cementation			
5							

Notes:
1.) **Bottom of test pit at 5.5 feet.**
2.) **No free groundwater encountered.**
3.) **Boring backfilled with soil cuttings 7/17/09.**

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PROJECT NO. 104961

RIDGECREST - SOLAR MILLENNIUM
RIDGECREST, CALIFORNIA

LOG OF TEST PIT TP - 4

PLATE A-16

GEOTECH DB LA AREA FORMAT 104961.GPJ KA RDLND.GDT 8/14/09

Note: The boundaries between soil types shown on the logs are approximate as the transition between different soil layers may be gradual.

Date Excavated:	7/16/09	Equipment:	Backhoe
Excavated By:	Staib Backhoe		
Bucket Size:	24"	Elevation:	2710 feet (approx.)
Logged By:	R. Shiplee	Datum:	MSL

Elevation (feet) Depth	Sample Type	Sample Number	Graphic Log	SOIL DESCRIPTION AND CLASSIFICATION	Dry Density (pcf)	Moisture Content (%)	Additional Tests
				SILTY SAND (SM) - light brown, dry to slightly moist, medium dense, fine to coarse grained, trace of clay			
				... light brown			
2705 5				... rock up to 4" in diameter, slight cementation			
				POORLY GRADED SAND (SP) - light brown, moist, medium dense, fine to coarse grained, some cementation			

Notes:
1.) **Bottom of test pit at 7 feet.**
2.) **No free groundwater encountered.**
3.) **Boring backfilled with soil cuttings 7/16/09.**

GEOTECH DB LA AREA FORMAT 104961.GPJ KA RDLND.GDT 8/14/09

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PROJECT NO. 104961

RIDGECREST - SOLAR MILLENNIUM
RIDGECREST, CALIFORNIA

LOG OF TEST PIT TP - 5

PLATE
A-17

Note: The boundaries between soil types shown on the logs are approximate as the transition between different soil layers may be gradual.

Date Excavated:	7/16/09	Equipment:	Backhoe
Excavated By:	Staib Backhoe		
Bucket Size:	24"	Elevation:	2710 feet (approx.)
Logged By:	R. Shiplee	Datum:	MSL

Elevation (feet) Depth	Sample Type	Sample Number	Graphic Log	SOIL DESCRIPTION AND CLASSIFICATION	Dry Density (pcf)	Moisture Content (%)	Additional Tests
2705 5				**SILTY SAND (SM)** - reddish brown, dry to slightly moist, very dense, fine to coarse grained with gravel up to 2" in diameter, trace of clay ... increase in rock up to 7" in diameter, with strong cementation			

Notes:
1.) **Bottom of test pit at 7.5 feet.**
2.) **No free groundwater encountered.**
3.) **Boring backfilled with soil cuttings 7/16/09.**

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PROJECT NO. 104961

RIDGECREST - SOLAR MILLENNIUM
RIDGECREST, CALIFORNIA

LOG OF TEST PIT TP - 6

PLATE
A-18

GEOTECH DB LA AREA FORMAT 104961.GPJ KA RDLND.GDT 8/14/09

Note: The boundaries between soil types shown on the logs are approximate as the transition between different soil layers may be gradual.

Date Excavated:	7/16/09	Equipment:	Backhoe
Excavated By:	Staib Backhoe		
Bucket Size:	24"	Elevation:	2736 feet (approx.)
Logged By:	R. Shiplee	Datum:	MSL

Elevation (feet) Depth	Sample Type	Sample Number	Graphic Log	SOIL DESCRIPTION AND CLASSIFICATION	Dry Density (pcf)	Moisture Content (%)	Additional Tests
2735 5				**CLAYEY SAND WITH SILT (SC)** - reddish brown, dry to slightly moist, very dense, fine to coarse grained with gravel up to 1" in diameter ... increase in rock up to 8" in diameter, with strong cementation			HA

Notes:
1.) **Bottom of test pit at 6 feet.**
2.) **No free groundwater encountered.**
3.) **Boring backfilled with soil cuttings 7/16/09.**

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RIDGECREST - SOLAR MILLENNIUM
RIDGECREST, CALIFORNIA

PLATE A-19

PROJECT NO. 104961

LOG OF TEST PIT TP - 7

Drafted By: Reviewed By:

Note: The boundaries between soil types shown on the logs are approximate as the transition between different soil layers may be gradual.

GEOTECH DB LA AREA FORMAT 104961.GPJ KA RDLND.GDT 8/14/09

Date Excavated:	7/16/09	Equipment:	Backhoe
Excavated By:	Staib Backhoe		
Bucket Size:	24"	Elevation:	2749 feet (approx.)
Logged By:	R. Shiplee	Datum:	MSL

Elevation (feet) Depth	Sample Type	Sample Number	Graphic Log	SOIL DESCRIPTION AND CLASSIFICATION	Dry Density (pcf)	Moisture Content (%)	Additional Tests
2745 / 5				**CLAYEY SAND WITH SILT (SC)** - light reddish brown, dry to slightly moist, very dense, fine to coarse grained with gravel up to 2" in diameter ... increase in rock up to 10" in diameter, with strong cementation			HA

Notes:
1.) **Bottom of test pit at 9 feet.**
2.) **No free groundwater encountered.**
3.) **Boring backfilled with soil cuttings 7/16/09.**

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RIDGECREST - SOLAR MILLENNIUM
RIDGECREST, CALIFORNIA

PLATE A-20

PROJECT NO. 104961

LOG OF TEST PIT TP - 8

Drafted By: Reviewed By:

Note: The boundaries between soil types shown on the logs are approximate as the transition between different soil layers may be gradual.

GEOTECH DB LA AREA FORMAT 104961.GPJ KA RDLND.GDT 8/14/09

Date Excavated:	7/16/09	Equipment:	Backhoe
Excavated By:	Staib Backhoe		
Bucket Size:	24"	Elevation:	2736 feet (approx.)
Logged By:	R. Shiplee	Datum:	MSL

Elevation (feet) Depth	Sample Type	Sample Number	Graphic Log	SOIL DESCRIPTION AND CLASSIFICATION	Dry Density (pcf)	Moisture Content (%)	Additional Tests
2735				**CLAYEY SAND WITH SILT(SC)** - reddish brown, dry to slightly moist, very dense, fine to coarse grained ... rock up to 10" in diameter, with strong cementation			HA
5							
2730							

Notes:
1.) **Bottom of test pit at 7 feet.**
2.) **No free groundwater encountered.**
3.) **Boring backfilled with soil cuttings 7/16/09.**

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PROJECT NO. 104961

RIDGECREST - SOLAR MILLENNIUM
RIDGECREST, CALIFORNIA

LOG OF TEST PIT TP - 9

PLATE

A-21

GEOTECH DB LA AREA FORMAT 104961.GPJ KA RDLND.GDT 8/14/09

Note: The boundaries between soil types shown on the logs are approximate as the transition between different soil layers may be gradual.

Date Excavated:	7/16/09	Equipment:	Backhoe
Excavated By:	Staib Backhoe		
Bucket Size:	24"	Elevation:	2772 feet (approx.)
Logged By:	R. Shiplee	Datum:	MSL

Elevation (feet) Depth	Sample Type	Sample Number	Graphic Log	SOIL DESCRIPTION AND CLASSIFICATION	Dry Density (pcf)	Moisture Content (%)	Additional Tests
2770 / 5				**SILTY SAND (SM)** - reddish brown, dry to slightly moist, very dense, fine to coarse grained with gravel up to 3" in diameter, with strong cementation			

Notes:
1.) **Bottom of test pit at 5 feet.**
2.) **No free groundwater encountered.**
3.) **Boring backfilled with soil cuttings 7/16/09.**

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PROJECT NO. 104961

RIDGECREST - SOLAR MILLENNIUM
RIDGECREST, CALIFORNIA

LOG OF TEST PIT TP-10

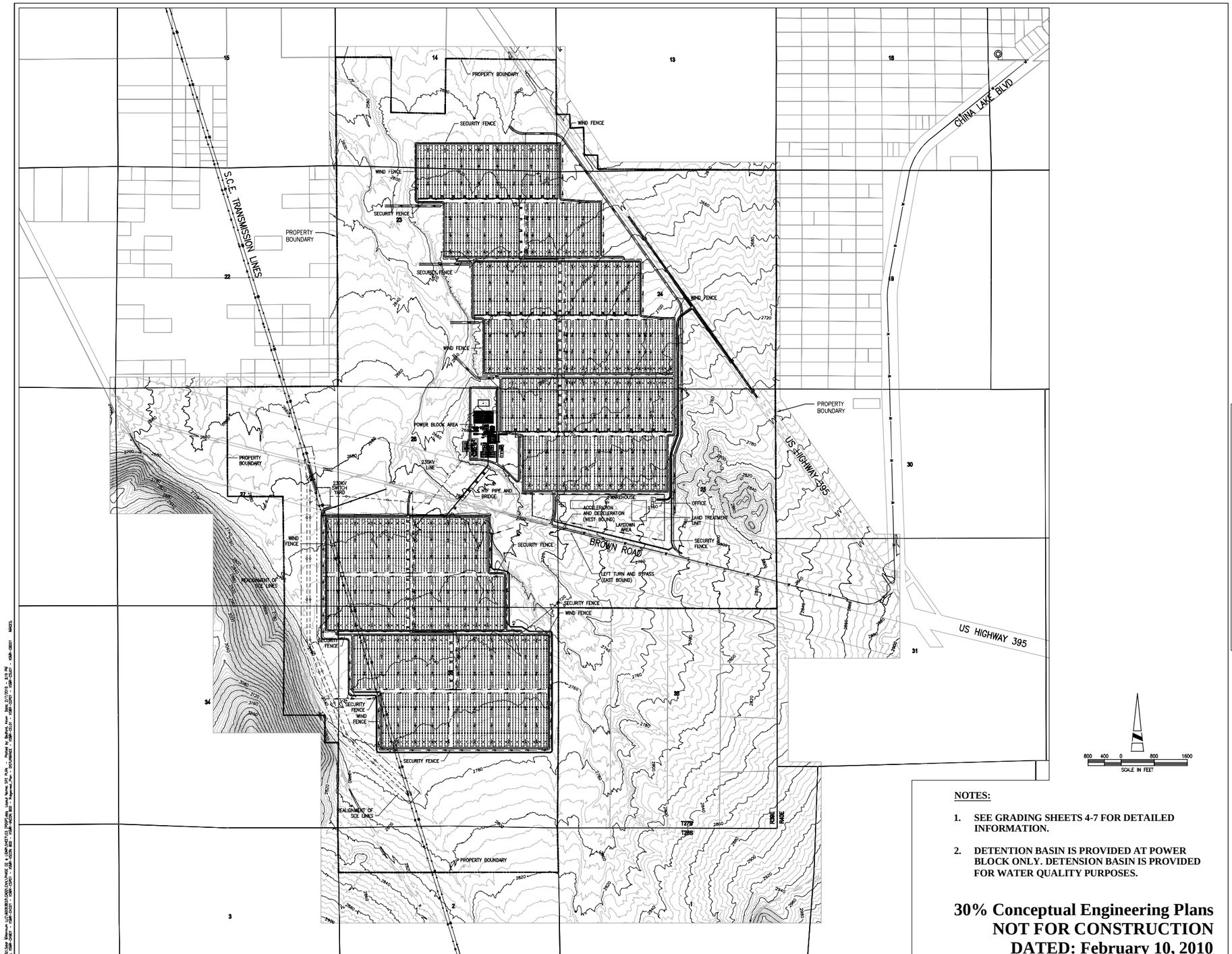
PLATE A-22

GEOTECH DB LA AREA FORMAT 104961.GPJ KA RDLND.GDT 8/14/09

Note: The boundaries between soil types shown on the logs are approximate as the transition between different soil layers may be gradual.

APPENDIX 5B

Project Site Plans



NOTES:

1. SEE GRADING SHEETS 4-7 FOR DETAILED INFORMATION.
2. DETENTION BASIN IS PROVIDED AT POWER BLOCK ONLY. DETENSION BASIN IS PROVIDED FOR WATER QUALITY PURPOSES.

30% Conceptual Engineering Plans
NOT FOR CONSTRUCTION
DATED: February 10, 2010

AECOM

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REGISTERED PROFESSIONAL ENGINEER
No. C31465
EXP. 12-31-10
CIVIL
STATE OF CALIFORNIA

Designed:	W. BLACK
Checked:	W. BLACK
Drawn:	K. S. BEDFORD
Record Drawing by/date:	

Revisions:

#	DATE	DESCRIPTION

Prepared for:

Solar Millennium LLC

LEGEND:

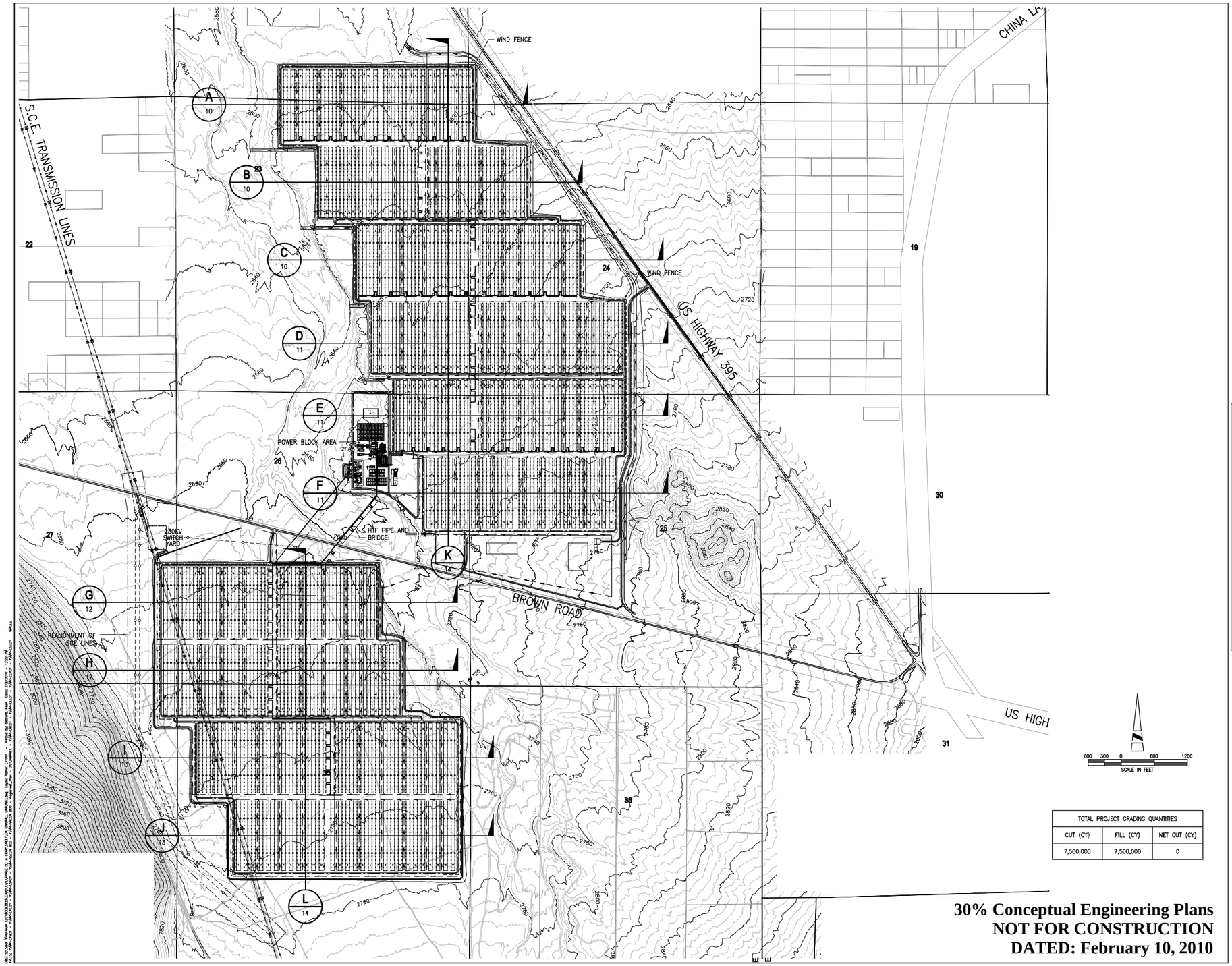
- SOLAR FIELD PARABOLIC TROUGH
- BALANCE OF PLANT FACILITIES
- PROPOSED ACCESS ROAD (PAVED)
- PROPOSED ACCESS ROAD (GRAVEL)
- RAILROAD
- PROPOSED GAS
- PROPOSED WATER
- PROPOSED TELEPHONE
- PROPOSED ELECTRIC
- EXISTING ELECTRIC
- PROPOSED SECURITY FENCE
- PROPOSED WIND FENCE
- EXISTING CONTOURS (10 FOOT INTERVALS)
- PROPOSED DRAINAGE CHANNEL/FLOW DIRECTION
- EXISTING INTERMITTENT DRAINAGE CHANNEL
- SITE BOUNDARY
- HEADER PIPING
- ACCELERATION LANE

Ridgecrest Solar Power Project

Kern County, California

Preliminary Site Plan

Date: 02/10/10
Sheet: 03 of 34



TOTAL PROJECT GRADING QUANTITIES		
CUT (CY)	FILL (CY)	NET CUT (CY)
7,500,000	7,500,000	0

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DATED: February 10, 2010

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Drawn: K. S. BEDFORD
Record Drawing by/date:

Revisions:

#	DATE	DESCRIPTION

Prepared for:

Solar Millennium LLC

LEGEND:

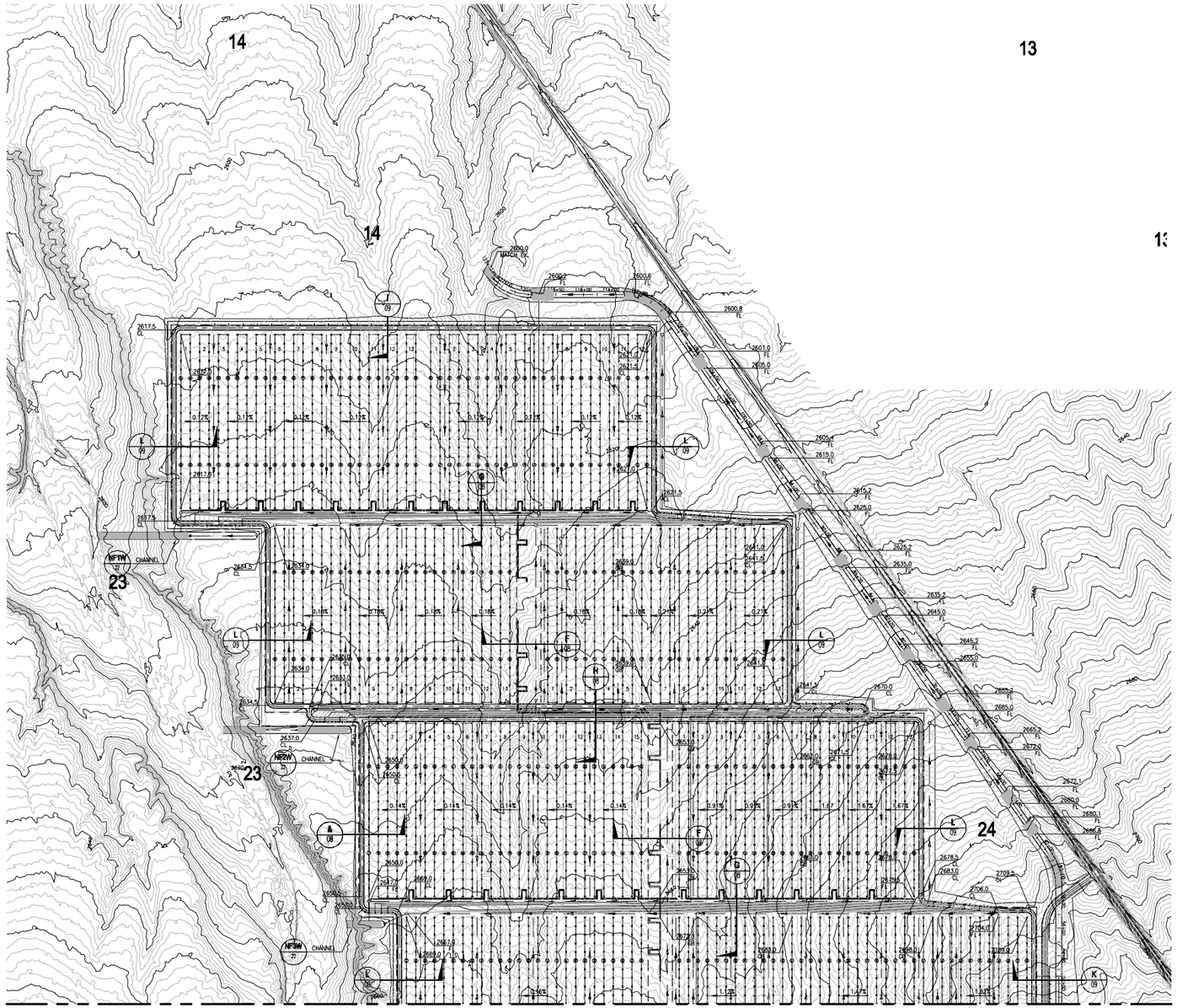
- SOLAR FIELD PARABOLIC TROUGH
- BALANCE OF PLANT FACILITIES
- PROPOSED ACCESS ROAD (PAVED)
- PROPOSED ACCESS ROAD (GRAVEL)
- RAILROAD
- PROPOSED GAS
- PROPOSED WATER
- PROPOSED TELEPHONE
- PROPOSED ELECTRIC
- EXISTING ELECTRIC
- PROPOSED SECURITY FENCE
- PROPOSED WIND FENCE
- EXISTING CONTOURS (10 FOOT INTERVALS)
- PROPOSED DRAINAGE CHANNEL/FLOW DIRECTION
- EXISTING INTERMITTENT DRAINAGE CHANNEL
- SITE BOUNDARY
- HEADER PIPING
- ACCELERATION LANE

Ridgecrest Solar Power Project

Kern County, California

Preliminary Overall Grading Plan

Date: 02/10/10
Sheet: 04 of 34



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- ACCELERATION LANE
- DECELERATION LANE
- DISTURBANCE LIMITS
- SOIL CEMENT

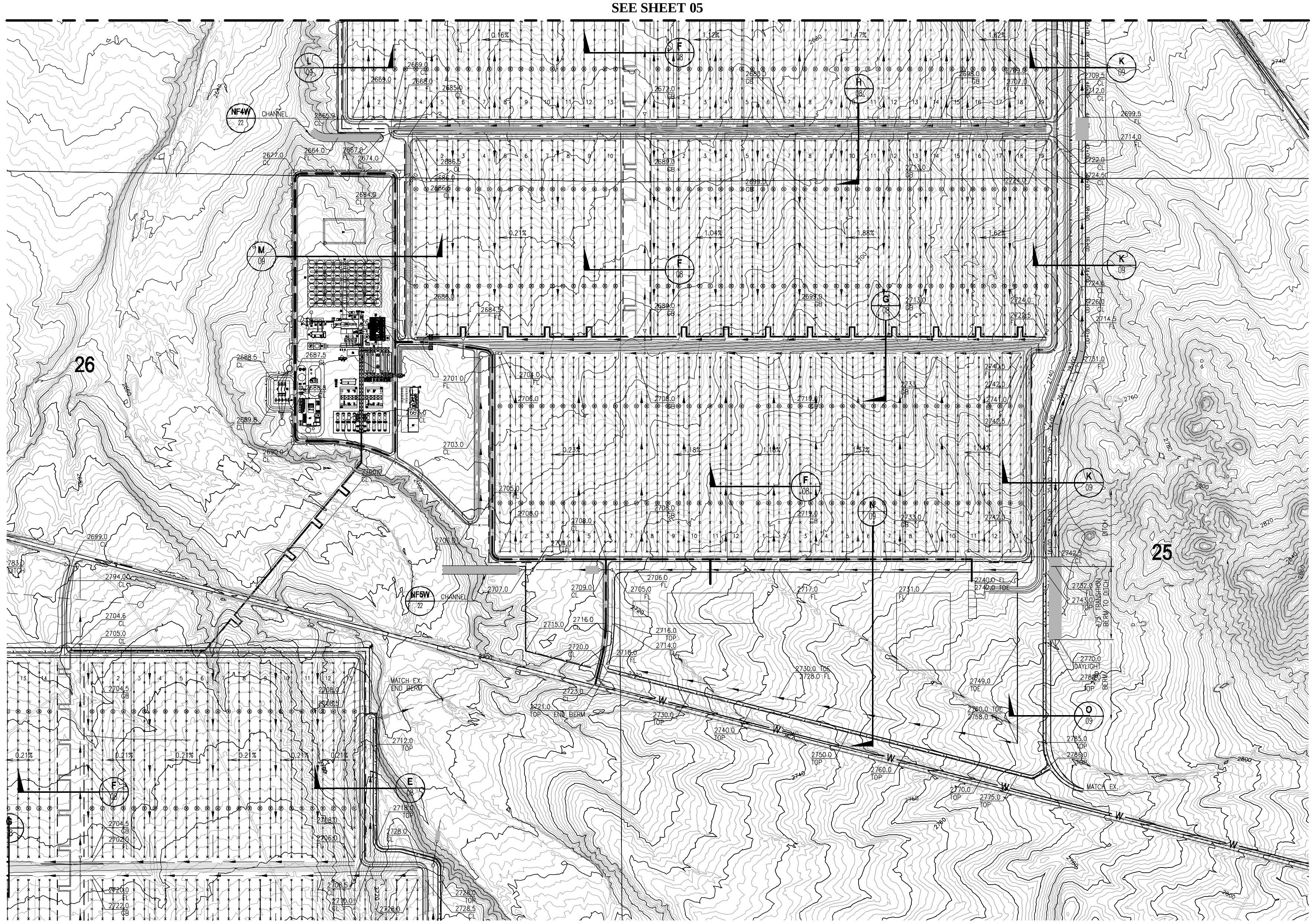
Ridgecrest Solar Power Project

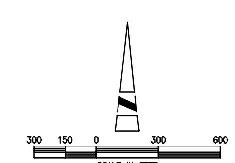
Kern County, California

Preliminary Grading Plan 01

Date: 02/10/10
Sheet: 05 of 34

MATCHLINE
SEE SHEET 05





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Solar Millennium LLC

LEGEND:

SOLAR FIELD PARABOLIC TROUGH
BALANCE OF PLANT FACILITIES
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HEADER PIPING
ACCELERATION LANE
DECELERATION LANE
DISTURBANCE LIMITS
SOIL CEMENT

Ridgecrest Solar Power Project

Kern County, California

Preliminary Grading Plan 02

Date: 02/10/10
Sheet: 06 of 34

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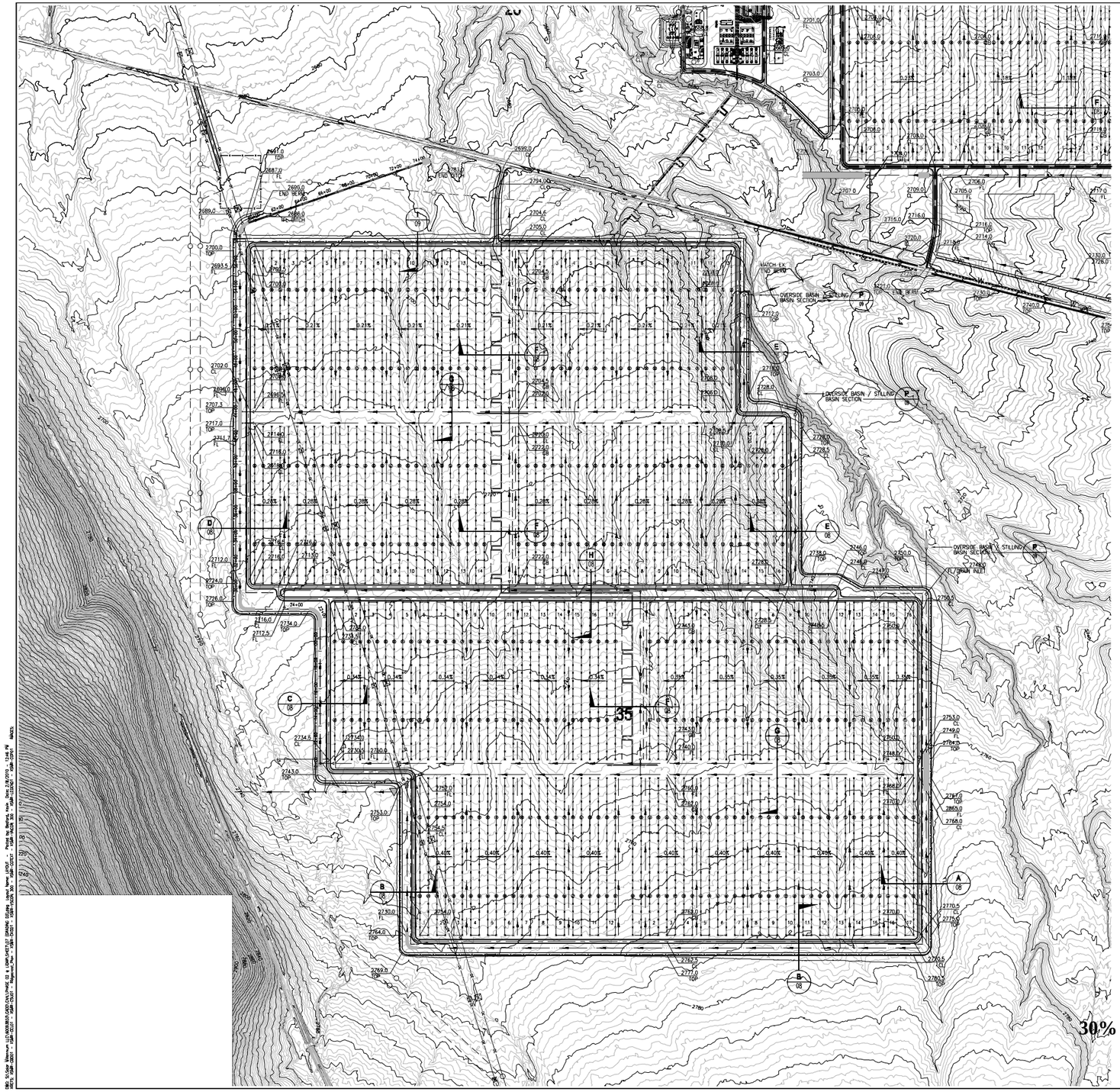

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- DISTURBANCE LIMITS
- SOIL CEMENT

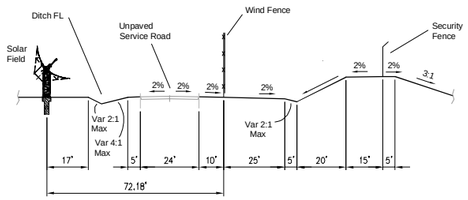
Ridgecrest Solar Power Project

Kern County, California

Preliminary Grading Plan 03

Date: **02/10/10**

Sheet: **07 of 34**



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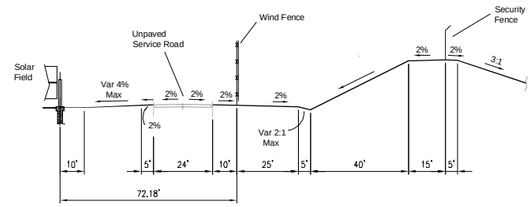

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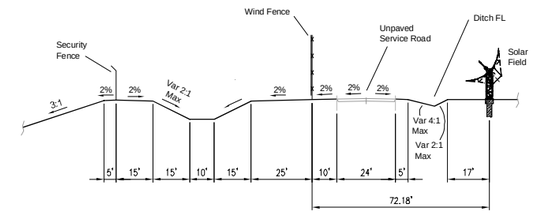

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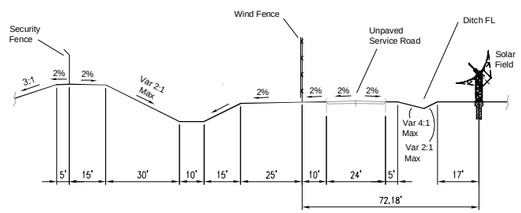

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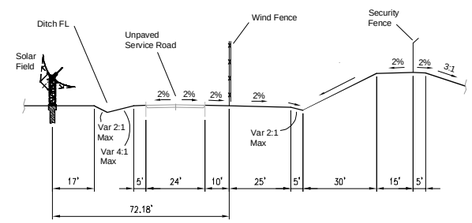

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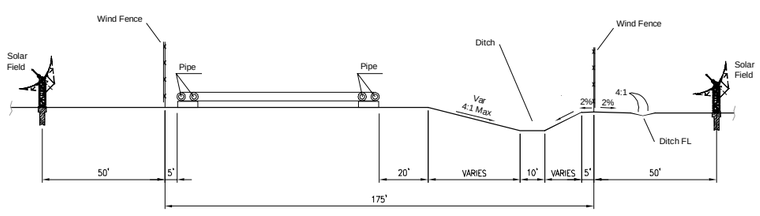

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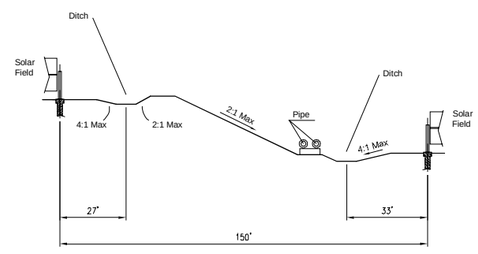

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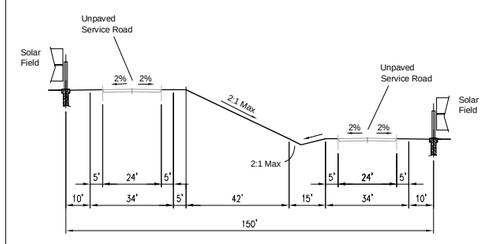

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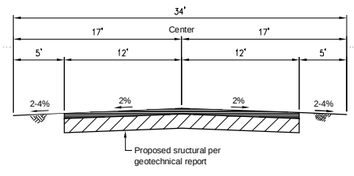

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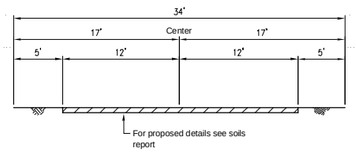

TYPICAL GRADED ROAD SECTION
SCALE: 1"=5'

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Revisions:

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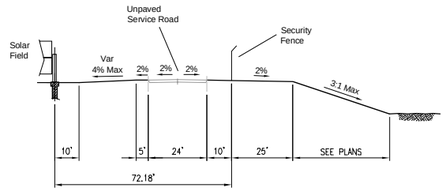
Ridgecrest Solar Power Project

Kern County, California

Typical Details - Sections

Date: 02/10/10
Sheet: 08 of 34



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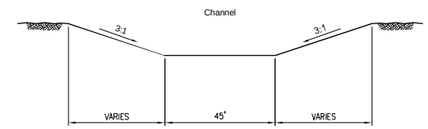

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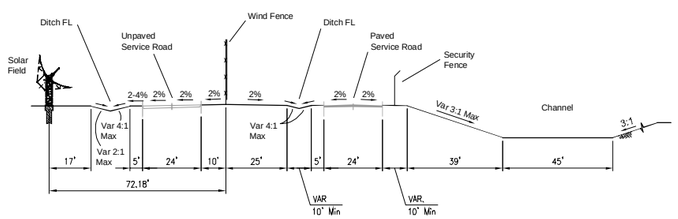

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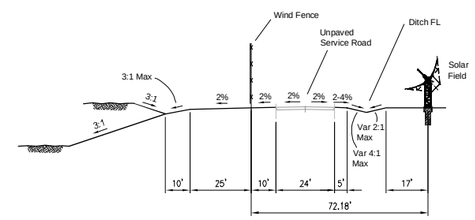

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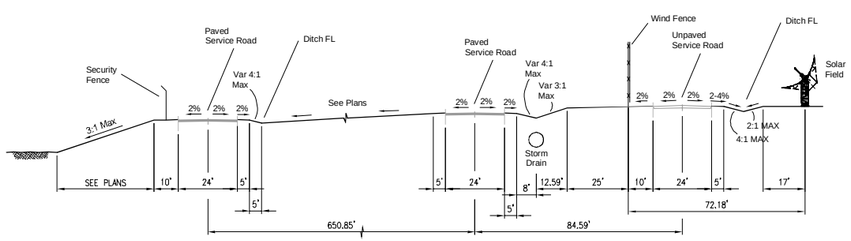

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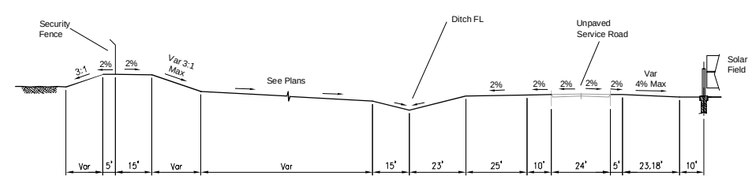

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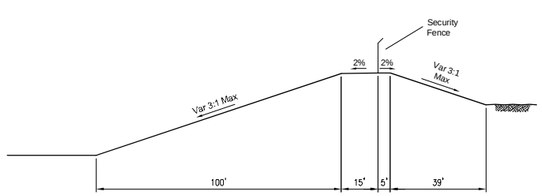

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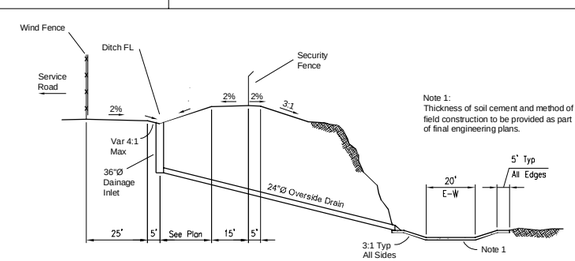

OVERSIDE DRAIN STILLING BASIN SECTION P
SCALE: 1"=20'

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Drawn: K. S. BEDFORD
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Solar Millennium LLC

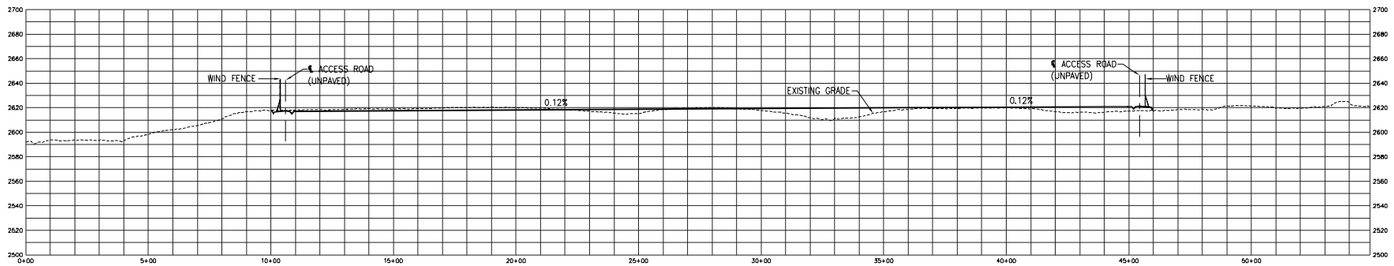
Ridgecrest Solar Power Project

Kern County, California

Typical Details - Sections

Date: 02/10/10
Sheet: 09 of 34

Title: Solar Millennium LLC-RIDGECREST-CADD\CIVIL\PHASE 02 & 03\DWG\SECTLIB\ SECSS SECTIONS.dwg Layout Name: Sect - Plotted by: Bedford, Kevin Date: 2/17/2010 - 3:20 PM



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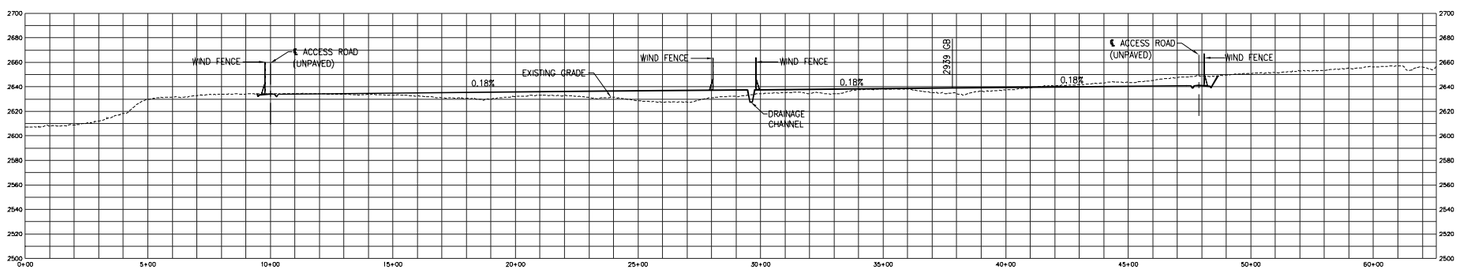

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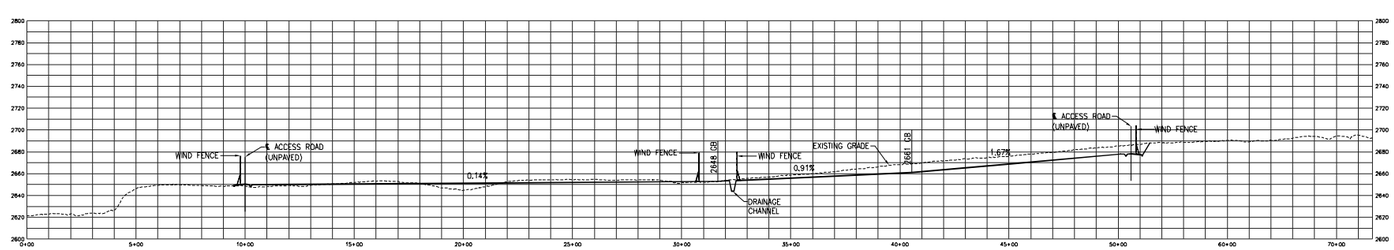

SECTION C-C

SCALE: HORIZ. 1" = 200'
VERT. 1" = 40'

VERT. 1" = 40'

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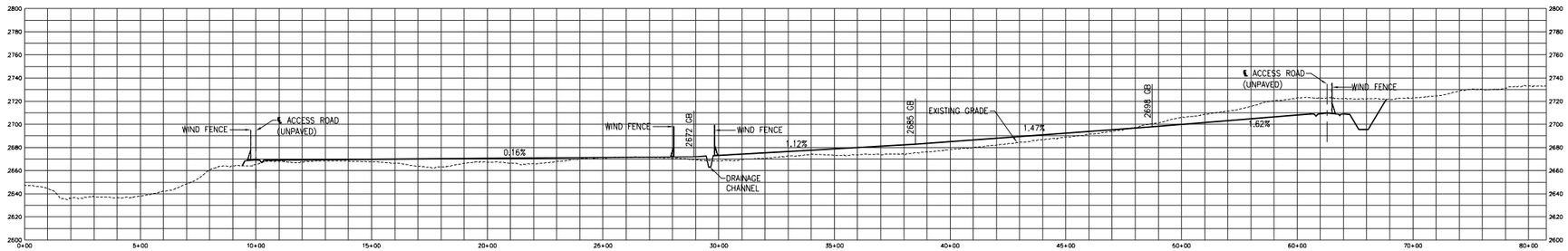
Ridgecrest Solar Power Project

Kern County, California

Cross Sections North Field

Date: 02/10/10
Sheet: 10 of 34



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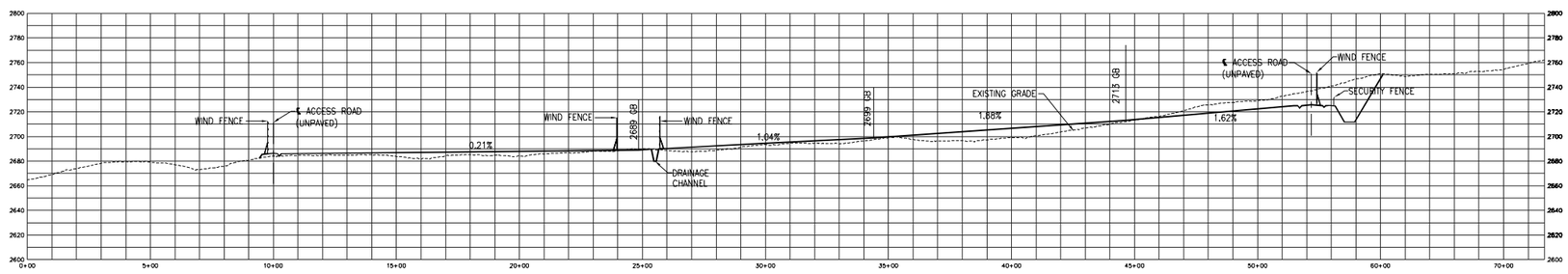

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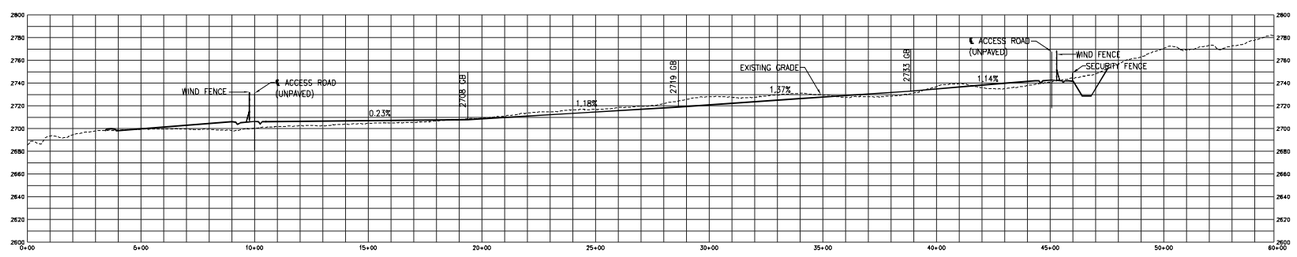

SECTION F-F

SCALE: HORIZ. 1" = 200'
VERT. 1" = 40'

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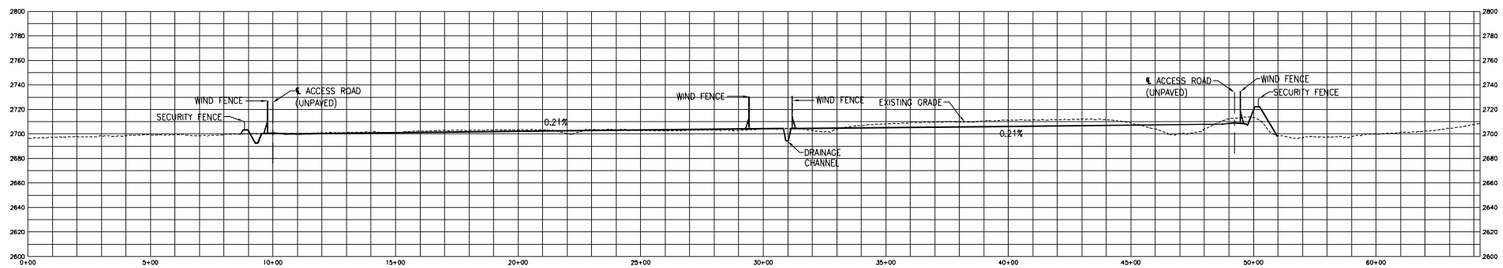
Ridgecrest Solar Power Project

Kern County, California

Cross Sections North Field

Date: 02/10/10
Sheet: 11 of 34



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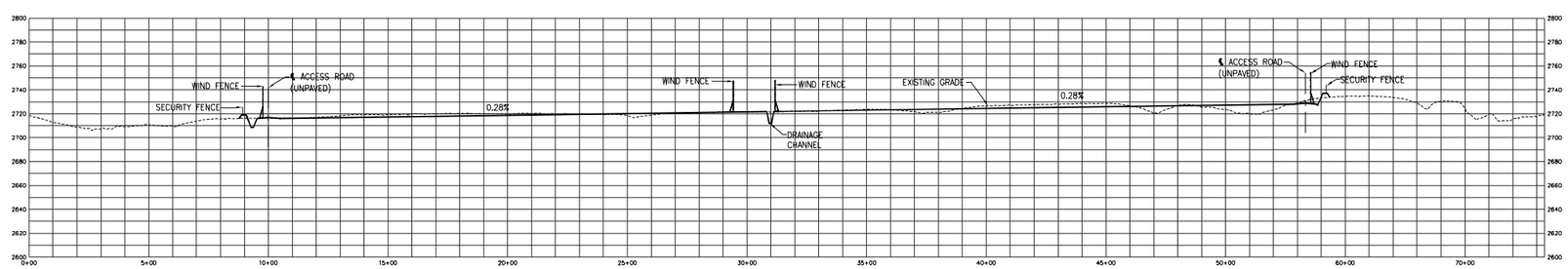

SECTION H-H

SCALE: HORIZ. 1" = 200'
VERT. 1" = 40'

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No. C31465
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CIVIL
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Checked: W. BLACK
Drawn: K. S. BEDFORD
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Cross Sections South Field

Date: 02/10/10
Sheet: 12 of 34

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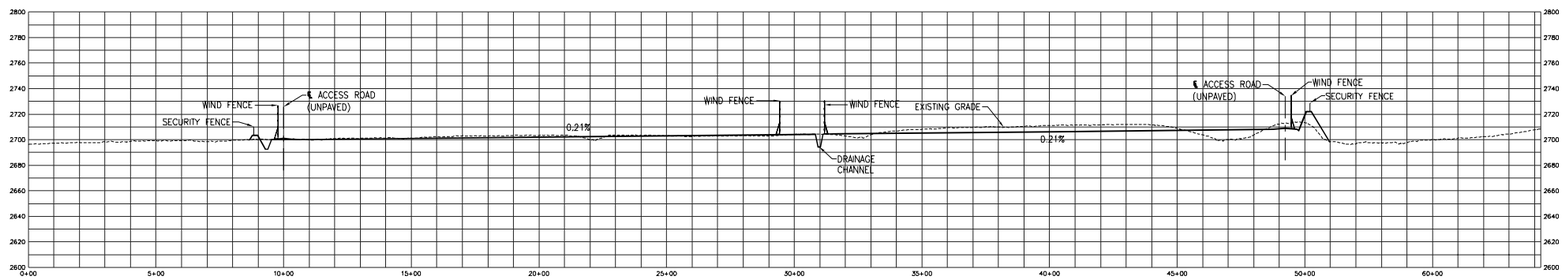

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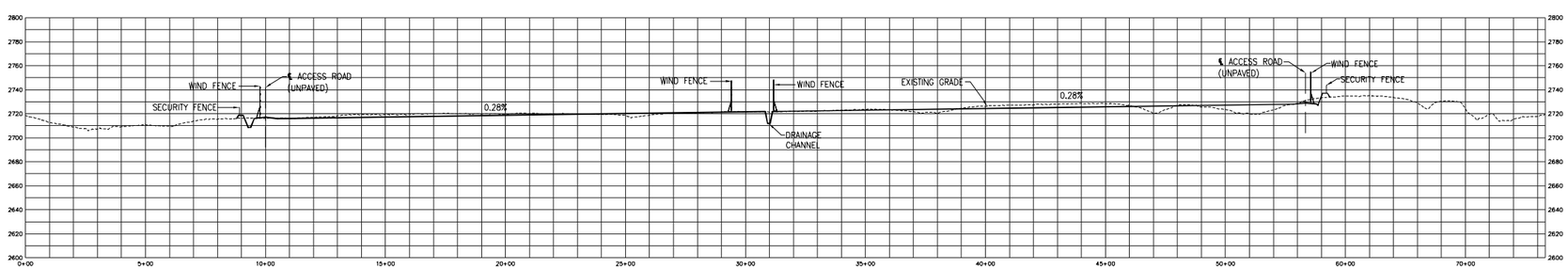

SECTION J-J

SCALE: HORIZ. 1" = 200'
VERT. 1" = 40'

VERT. 1" = 40'

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EXP. 12-31-10
CIVIL
STATE OF CALIFORNIA

Designed:	W. BLACK
Checked:	W. BLACK
Drawn:	K. S. BEDFORD
Record Drawing by/date:	

Revisions:

#	DATE	DESCRIPTION

Prepared for:

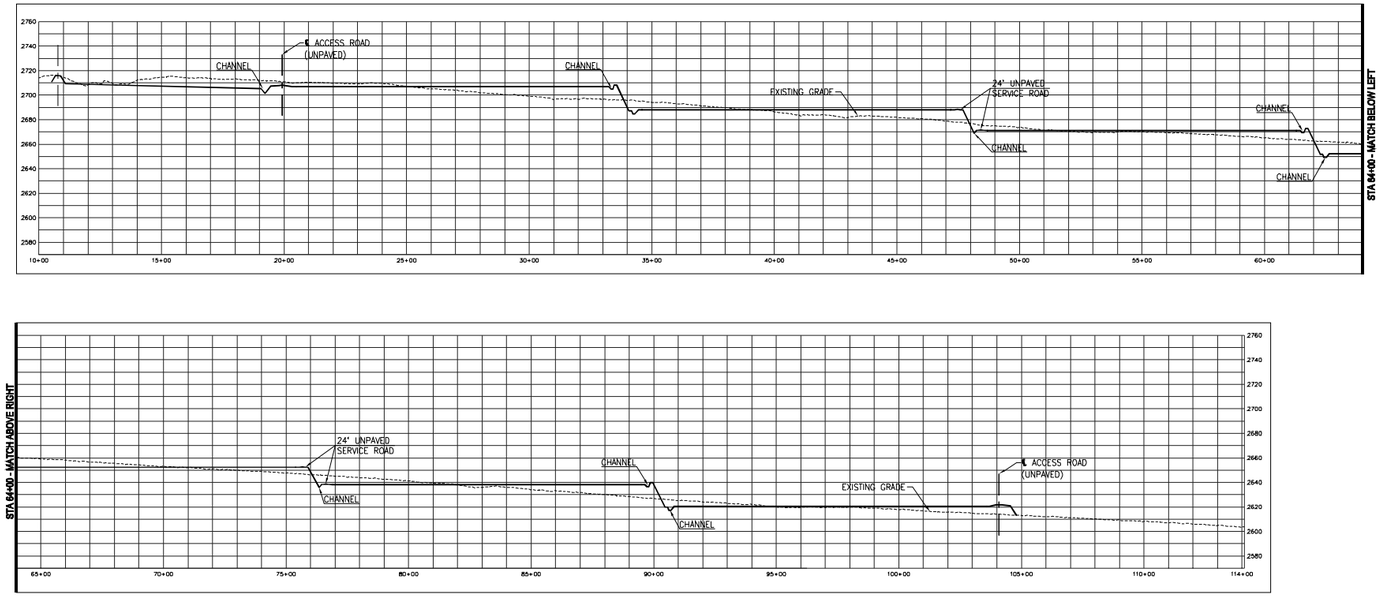
Solar Millennium LLC

Ridgecrest Solar Power Project

Kern County, California

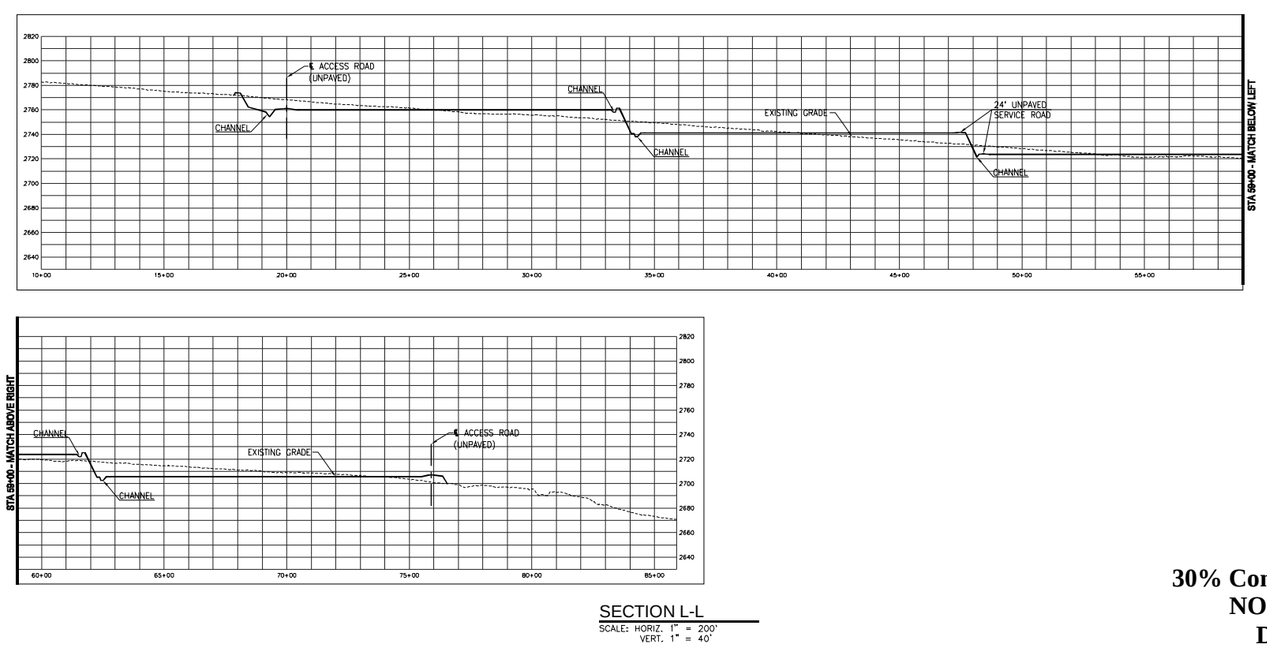
Cross Sections South Field

Date: 02/10/10
Sheet: 13 of 34



SECTION K-K

SCALE: HORIZ. 1" = 200'
VERT. 1" = 40'



SECTION L-L

SCALE: HORIZ. 1" = 200'
VERT. 1" = 40'

30% Conceptual Engineering Plans
NOT FOR CONSTRUCTION
DATED: February 10, 2010

AECOM

AECOM
5001 E. Commercenter Dr.
Bakersfield, Ca 93309
Phone 661.325.7253

www.aecom.com

REGISTERED PROFESSIONAL ENGINEER
No. C31465
EXP. 12-31-10
CIVIL
STATE OF CALIFORNIA

Designed: W. BLACK
Checked: W. BLACK
Drawn: K. S. BEDFORD
Record Drawing by/date:

Revisions:

#	DATE	DESCRIPTION

Prepared for:

Solar Millennium LLC

Ridgecrest Solar Power Project

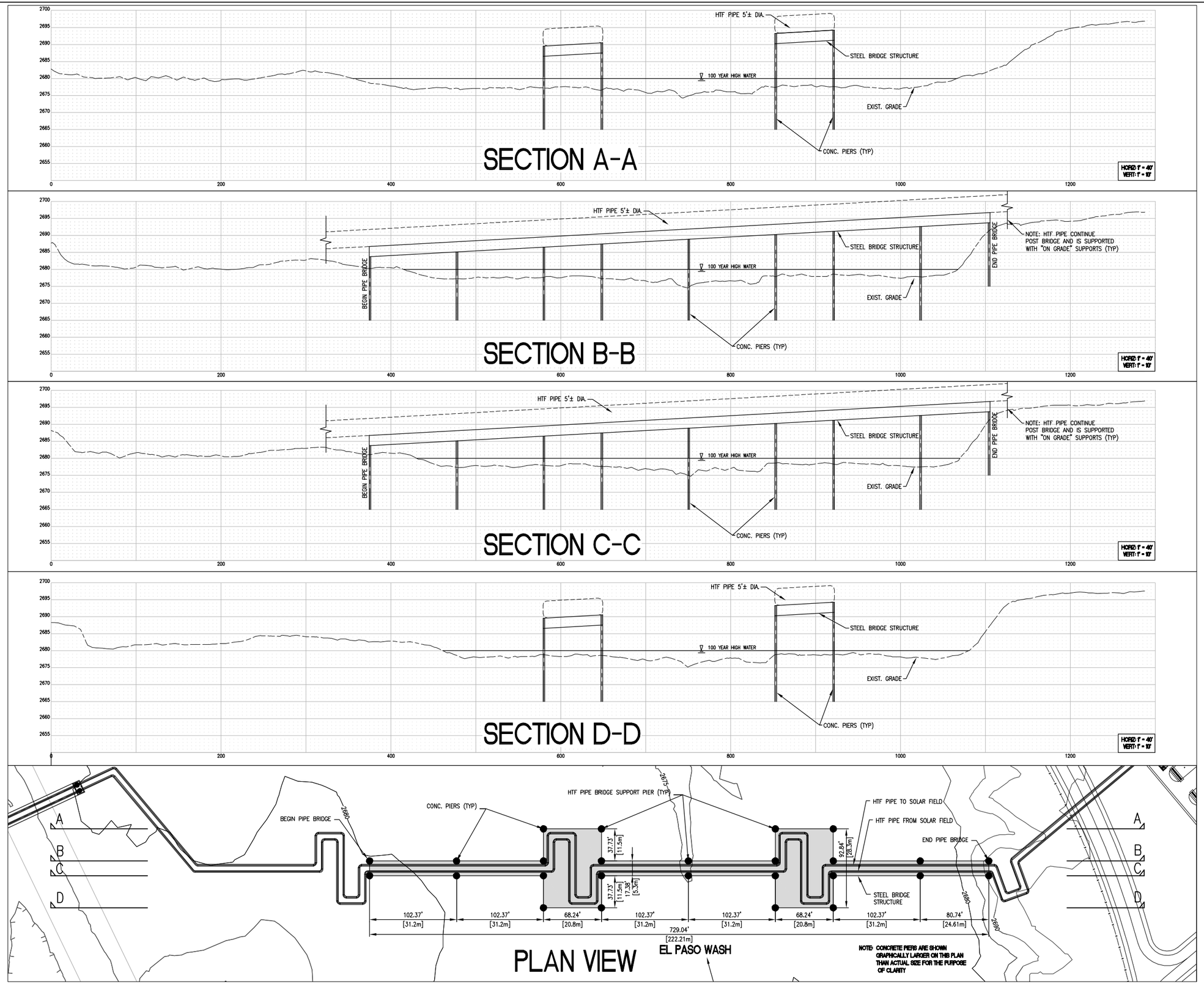
Kern County, California

Cross Sections North and South Field

Date: 02/10/10
Sheet: 14 of 34

APPENDIX 5C

Pipe Bridge at El Paso Wash



AECOM

AECOM
5001 E. Commercenter Dr.
Bakersfield, Ca 93309
Phone 661.325.7253

www.aecom.com

Designed: X
Checked: X
Drawn: X
Record Drawing by/date:

Revisions:

#	DATE	DESCRIPTION

Prepared for:

Solar Millennium LLC

Ridgecrest Solar Power Project

Kern County, California

HTF PIPE BRIDGE AT EL PASO WASH

Date: 02/10/10
Sheet: 33

Binder Tab 2

DR-S&W-181
CLOMR Application

Attachment DR-S&W-181

CLOMR Application

Application for a Conditional Letter of Map Revision From FEMA

For a Portion of South El Paso Wash
And North Ridgecrest Wash

In Kern County, California

For the Project:

February 22, 2010

AECOM

Application for a Conditional Letter of Map Revision
Ridgecrest Solar Power Project

FEMA Flooding Source: South El Paso Wash & North Ridgecrest Wash

Table of Contents

- Project Overview and Letter
  - South El Paso Wash
    - Overview and Concurrence Form
    - Riverine Hydrology & Hydraulics Form
    - Riverine Structures Form
    - Watershed Hydrology (Existing Condition)
      - HMS Data and Calculations
    - Project Maps and Calculations (Existing Condition)
      - Overview of Existing Conditions
      - FIRM Map
      - HEC RAS Data and Calculations
      - Existing Cross Sections
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    - Project Maps and Calculations (Proposed Condition)
      - Overview of Proposed Conditions
      - FIRM Map
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  - North Ridgecrest Wash
    - Overview and Concurrence Form
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      - Overview of Proposed Conditions
      - FIRM Map
      - HEC RAS Data and Calculations
      - Proposed Cross Sections

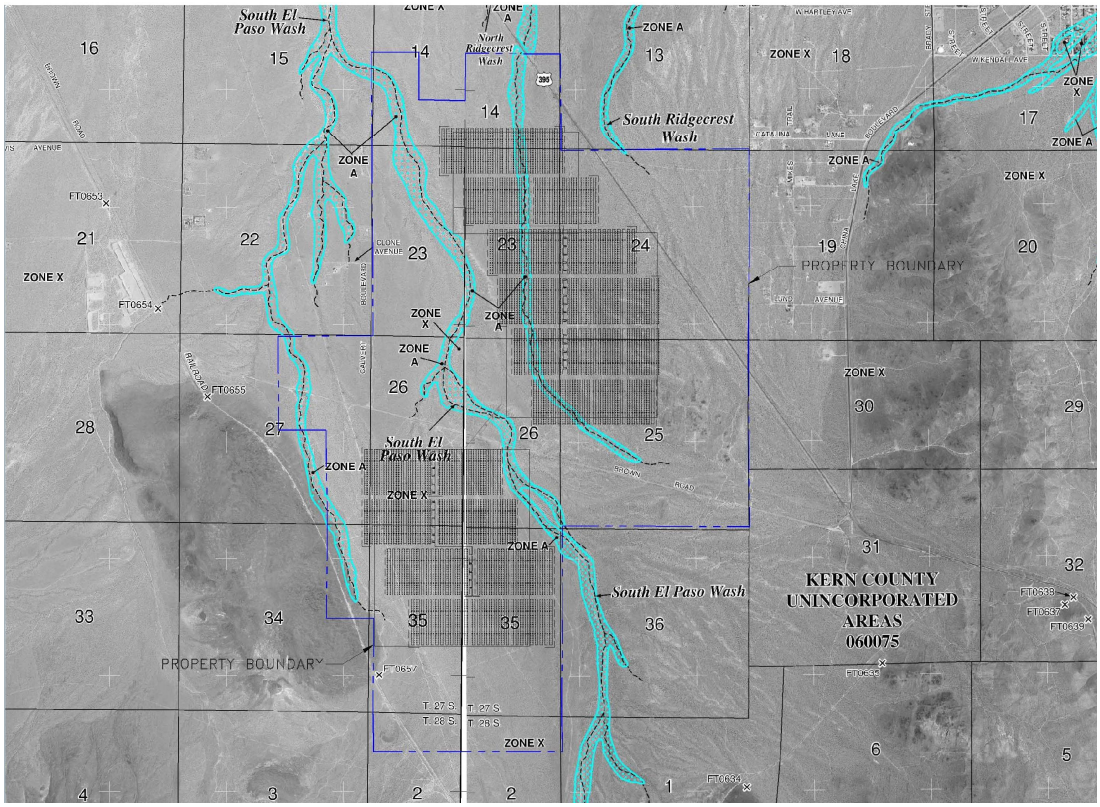
RIDGECREST SOLAR POWER PLANT

Solar Millennium proposes to locate a solar power plant near Ridgecrest, in Kern County, California, on land administered by the Bureau of Land Management (BLM). The total proposed developed area is 3920 acres with a total disturbed area of 1760 acres.

The project site lies on the southern edge of the Indian Wells Valley and north of the El Paso Mountains. The general stormwater flow pattern is from the higher elevations in the mountains located approximately 6 miles south to the lower elevations in Indian Wells Valley to the north. The stormwater from the project site flows northeast to China Lake which is a depression in the Indian Wells Valley with no identifiable outlet.

The major watercourse in the project area is South El Paso Wash which drains approximately 20 square miles from the El Paso Mountains and exits the mountains to the south of the site. The project will not encroach on the South El Paso Wash flood plain, except for the addition of a bridge near Brown Road. North Ridgecrest wash is partially located within the proposed North Solar Field and will be diverted around the solar field to the east.

The site will be substantially occupied by long rows of solar collectors, but these collectors are elevated above the ground and thus the ground below the mirrors remains as a pervious surface of graded native soil. The project will include some new impervious areas for a main warehouse, a powerblock area, paved access roads, and the parking lots associated with these areas.



NOTES TO USERS

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Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures.** Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 11. The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum.** For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, MD 20910-3282

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242,** or visit its website at http://www.ngs.noaa.gov/.

Base map information shown on this FIRM was derived from USDA - Farm Service Agency - Aerial Photography Field Office dated 2005 and from U.S. Geological Survey Digital Orthophoto Quadrangles produced at a scale of 1:12,000 from photography dated 1992 or later.

This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables *in the Flood Insurance Study report (which contains authoritative hydraulic data)* may reflect stream channel distances that differ from what is shown on this map.

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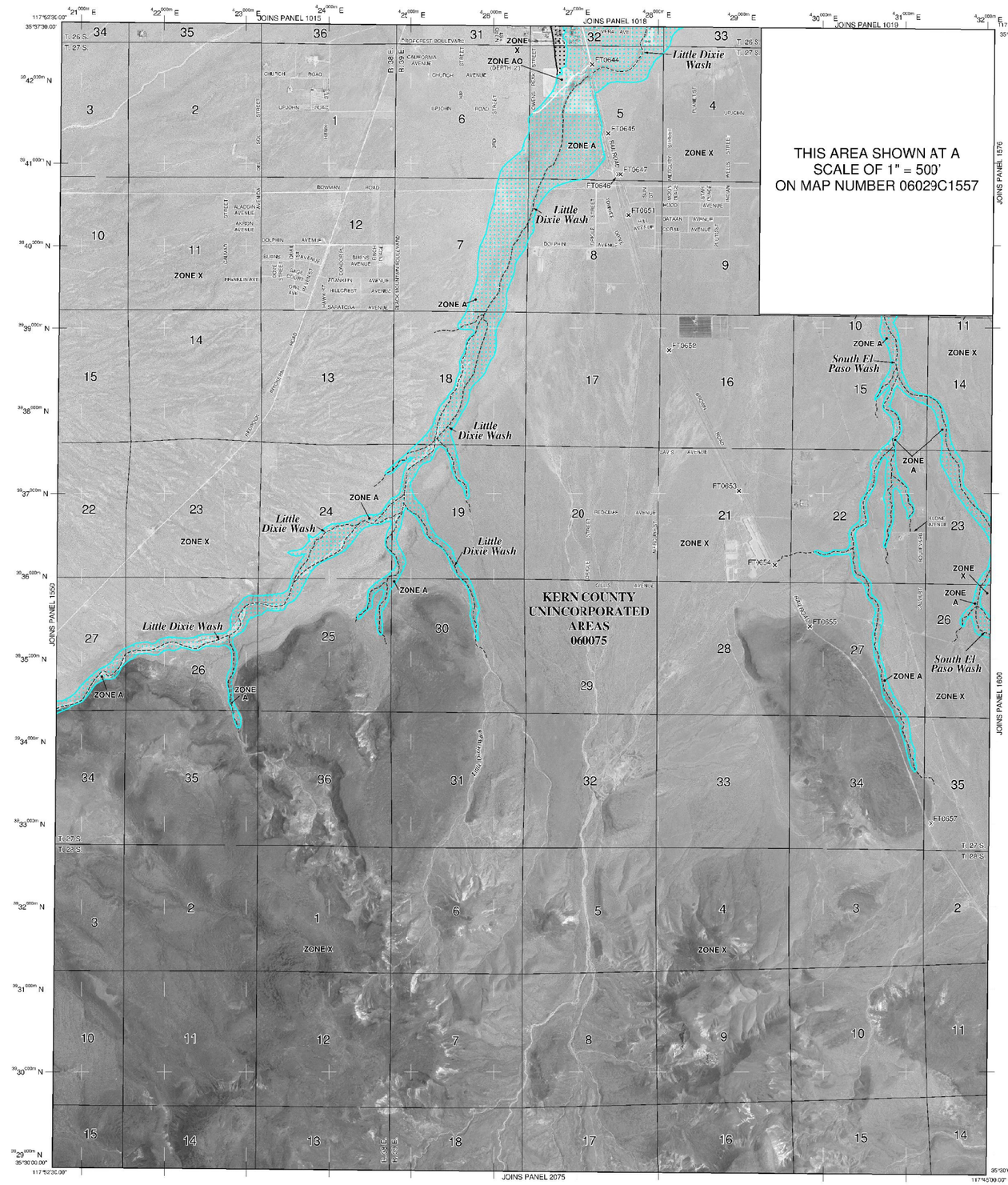
Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, *a Flood Insurance Study report,* and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at http://www.msc.fema.gov/.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/.



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance 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 AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

	1% annual chance floodplain boundary
	0.2% annual chance floodplain boundary
	Floodway boundary
	Zone D boundary
	CBRS and OPA boundary
	Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
513	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

A — A	Cross section line
23 - - - - - 23	Transect line
97°07'30", 32°22'30"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
4275000mN	1000-meter Universal Transverse Mercator grid ticks, zone 11
6000000 M	5000-foot grid ticks: California State Plane coordinate system, V zone (FIPSZONE 0405), Lambert Conformal Conic
DX5510 ×	Bench mark (see explanation in Notes to Users section of this FIRM panel)
• M1.5	River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 26, 2008
EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

N

MAP SCALE 1" = 2000'

1000 0 2000 4000 FEET

600 0 600 1200 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 1575E

FIRM
FLOOD INSURANCE RATE MAP
KERN COUNTY, CALIFORNIA
AND INCORPORATED AREAS

PANEL 1575 OF 4125
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
KERN COUNTY	060075	1575	E

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
06029C1575E

EFFECTIVE DATE
SEPTEMBER 26, 2008

Federal Emergency Management Agency

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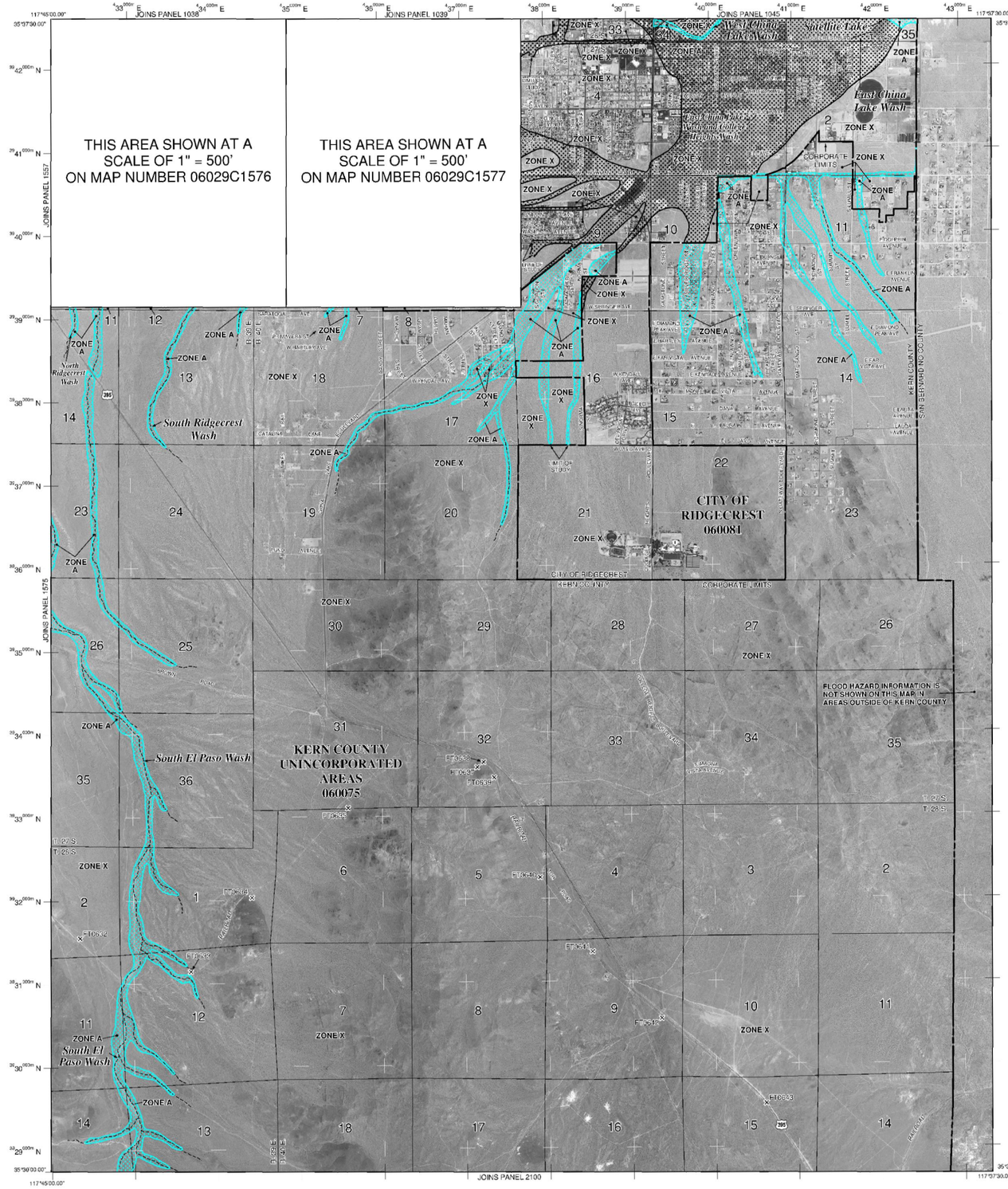

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September 26, 2008
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600 0 600 1200 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 1600E

FIRM
FLOOD INSURANCE RATE MAP
KERN COUNTY, CALIFORNIA
AND INCORPORATED AREAS

PANEL 1600 OF 4125
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
KERN COUNTY	060075	1600	E
RIDGECREST, CITY OF	060081	1600	E

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MAP NUMBER
06029C1600E

EFFECTIVE DATE
SEPTEMBER 26, 2008

Federal Emergency Management Agency

U.S. DEPARTMENT OF HOMELAND SECURITY - FEDERAL EMERGENCY MANAGEMENT AGENCY

OVERVIEW & CONCURRENCE FORM

O.M.B No. 1660-0016
Expires: 12/31/2010

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, U.S. Department of Homeland Security, Federal Emergency Management Agency, 500 C Street, SW, Washington DC 20472, Paperwork Reduction Project (1660-0016). 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 DHS-FEMA

This request is for a (check one):

☑ CLOMR: A letter from DHS-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 DHS-FEMA officially revising the current NFIP map to show the changes to floodplains, regulatory floodway or flood elevations. (See 44 CFR Ch. 1, Parts 60, 65 & 72)

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
060075	Kern County	CA	06029C	1600E	09/26/08
				1575E	09/26/08

2. a. Flooding Source: South El Paso Wash

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

   ☐ Alluvial fan ☐ Lakes ☐ Other (Attach Description)

3. Project Name/Identifier: Ridgecrest Solar Power Plant

4. FEMA zone designations affected: A (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 ☐ Base Map Changes

   ☐ Coastal Analysis ☑ Hydraulic Analysis ☑ Hydrologic Analysis ☐ Corrections

   ☐ Weir-Dam Changes ☐ Levee Certification ☐ Alluvial Fan Analysis ☐ Natural Changes

   ☑ New Topographic Data ☐ 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 structures (check all that apply)

   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: $4400

☐ No, Attach Explanation

Please see the DHS-FEMA Web site at http://www.fema.gov/plan/prevent/fhm/frm_fees.shtm **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: William Hagmaier	Company: AECOM, agent for Solar Millennium, LLC	
Mailing Address: 999 Town & Country Road Orange, CA 92868	Daytime Telephone No.:714.567.2618	Fax No.:714.267.2441
	E-Mail Address: bill.hagmaier@aecom.com	
Signature of Requester (required):	Date:	

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: Charles Lackey, Dir. Engineering & Surveying	Community Name: Kern County, CA	
Mailing Address: 2700 "M" Street, Suite 570 Bakersfield, CA 93301-2370	Daytime Telephone No.:661.862.5100	Fax No.:661.862.5101
	E-Mail Address: ess@co.kern.ca.us	
Community Official's Signature (required):	Date:	

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 data, hydrologic and hydraulic analysis, and any other supporting information as per NFIP regulations paragraph 65.2(b) and as described in the MT-2 Forms Instructions. 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: William Hagmaier	License No.: 44325	Expiration Date: 06/2011
Company Name: AECOM	Telephone No.:714.567.2618	Fax No.: 714.267.2441
Signature:		Date:

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

Seal (Optional)

Print Form

U.S. DEPARTMENT OF HOMELAND SECURITY - FEDERAL EMERGENCY MANAGEMENT AGENCY

RIVERINE HYDROLOGY & HYDRAULICS FORM

O.M.B No. 1660-0016
Expires: 12/31/2010

PAPERWORK REDUCTION ACT

Public reporting burden for this form is estimated to average 3.25 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, U.S. Department of Homeland Security, Federal Emergency Management Agency, 500 C Street, SW, Washington DC 20472, Paperwork Reduction Project (1660-0016). 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: South El Paso Wash, Kern County, California
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 B) ☑ 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.)	Effective/FIS (cfs)	Revised (cfs)
Cross Section 116-78	20.53 (20.58 existing)	N/A (6,681.5 existing)	6,681.2
Cross Section 77-64	20.94 (20.87 existing)	N/A (6,721.6 existing)	6,722.6
Cross Section 63-48	22.24 (22.44 existing)	N/A (7,214.6 existing)	7,016.0
Cross Section 47-1	23.40 (23.11 existing)	N/A (7,270.3 existing)	7,048.6

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

☐ Statistical Analysis of Gage Records ☑ Precipitation/Runoff Model
☐ 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.

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.

Sediment transport was not considered due to the insignificant change in the flow characteristics due to the project. The existing channel is stabilized and sediment transport capacity will not change in post-project conditions.

B. HYDRAULICS

1. Reach to be Revised

South El Paso Wash

	Description	Cross Section	Water-Surface Elevations (ft.) Effective	Proposed/Revised
Downstream Limit	Downstream of proposed project	9	N/A (2587.72 existing)	2587.68
Upstream Limit	Upstream of proposed project	116	N/A (2822.51 existing)	2822.51

2. Hydraulic Method/Model Used

HEC-RAS 4.0

B. HYDRAULICS (CONTINUED)

3. Pre-Submittal Review of Hydraulic Models

DHS-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 may help 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/plan/prevent/fhm/frm_soft.shtm. We recommend that you review your HEC-2 and HEC-RAS models with CHECK-2 and CHECK-RAS. Review of your submittal and resolution of valid modeling discrepancies may result in reduced review time.

4.

Models Submitted	Natural Run		Floodway Run		Datum
Duplicate Effective Model*	File Name:	Plan Name:	File Name:	Plan Name:	
Corrected Effective Model*	File Name:	Plan Name:	File Name:	Plan Name:	
Existing or Pre-Project Conditions Model	File Name: A	Plan Name: 01	File Name:	Plan Name:	NAVD88
Revised or Post-Project Conditions Model	File Name: B	Plan Name: 01	File Name:	Plan Name:	NAVD88
Other - (attach description)	File Name:	Plan Name:	File Name:	Plan Name:	

* For details, refer to the corresponding section of the instructions.

☑ Digital Models Submitted? (Required)

A = Ridgecrest_ElPaso_Ex
B = Ridgecrest_ElPaso_Dev

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.).

☑ Digital Mapping (GIS/CADD) Data Submitted

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.

☑ Annotated FIRM and/or FBFM (Required)

D. COMMON REGULATORY REQUIREMENTS*

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

   a. 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 or without BFEs established and would result in increases above 1.00 foot.

   b. 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.

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/CLOMR requests, does this request have the potential to impact an endangered species? ☒ Yes ☐ No

   If Yes, please submit documentation to the community to show that you have complied with Sections 9 and 10 of the Endangered Species Act (ESA). Section 9 of the ESA prohibits anyone from "taking" or harming an endangered species. If an action might harm an endangered species, a permit is required from U.S. Fish and Wildlife Service or National Marine Fisheries Service under Section 10 of the ESA.
   See attached supplemental information

   For actions authorized, funded, or being carried out by Federal or State agencies, please submit documentation from the agency showing its compliance with Section 7(a)(2) of the ESA.
   See attached supplemental information

* Not inclusive of all applicable regulatory requirements. For details, see 44 CFR parts 60 and 65.

Application for a Conditional Letter of Map Revision
Ridgecrest Power Plant

FEMA Flooding Source: South El Paso Wash & North Ridgecrest Wash

Supplemental Information for Section D.4

This CLOMR/LOMR may have the potential to impact a federally threatened species, desert tortoise, protected under the federal Endangered Species Act. The project is being reviewed for approval by the California Energy Commission and Bureau of Land Management under a joint CEQA/NEPA decision. The AFC process under the California Energy Commission will also include the Biological Opinion under Section 7 Consultation and the California Department of Fish & Game approvals for Endangered Species under state law. All documents have been filed on ESA and can be found at the Energy Commission web site:
http://www.energy.ca.gov/sitingcases/solar_millennium_ridgecrest/index.html.

The project applicant is prepared to fully comply with all state and federal regulations protecting endangered species including Section 9 and 7 of the Endangered Species Act. Authorization for take of desert tortoise will be secured from the U.S. Fish and Wildlife Service under Section 7, rather than Section 10, because Section 7 consultation is required with the Bureau of Land Management. An incidental take permit is expected to be issued by the U.S Fish and Wildlife Service during the fall of 2010. The permit will include measures agreed upon by the project applicant to minimize and fully mitigate impacts to desert tortoise.

U.S. DEPARTMENT OF HOMELAND SECURITY - FEDERAL EMERGENCY MANAGEMENT AGENCY

RIVERINE STRUCTURES FORM

O.M.B No. 1660-0016
Expires: 12/31/2010

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, U.S. Department of Homeland Security, Federal Emergency Management Agency, 500 C Street, SW, Washington DC 20472, Paperwork Reduction Project (1660-0016). 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: South El Paso 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/Basin ..... complete Section D
Levee/Floodwall ..... complete Section E
Sediment Transport..... complete Section F (if required)

Description Of Structure

1. Name of Structure: HTF Bridge

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

Location of Structure: Downstream from Brown Road

Downstream Limit/Cross Section: 56

Upstream Limit/Cross Section: 59

2. Name of Structure:

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

Location of Structure:

Downstream Limit/Cross Section:

Upstream Limit/Cross Section:

3. Name of Structure:

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

Location of Structure:

Downstream Limit/Cross Section:

Upstream Limit/Cross Section:

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

B. CHANNELIZATION

Flooding Source:

Name of Structure:

1. Accessory Structures

The channelization includes (check one):

- ☐ Levees [Attach Section E (Levee/Floodwall)]
- ☐ Superelevated sections
- ☐ Debris basin/detention basin [Attach Section D (Dam/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 (cfs) and/or the -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: South El Paso Wash

Name of Structure: HTF Bridge

1. This revision reflects (check one):

- ☑ Bridge/culvert not modeled in the FIS
- ☐ Modified bridge/culvert previously modeled in the FIS
- ☐ Revised 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 4.0
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. Sediment transport was not considered due to the insignificant change in the flow characteristics due to the project.

D. DAM/BASIN

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. The Dam was permitted as (check one):

   a. ☐ Federal Dam ☐ State Dam

      Provide the permit or identification number (ID) for the dam and the appropriate permitting agency or organization

      Permit or ID number Permitting Agency or Organization

   b. ☐ Local Government Dam ☐ Private Dam

      Provided related drawings, specification and supporting design information.

4. Does the project involve revised hydrology? ☐ Yes ☐ No

   If Yes, complete the Riverine Hydrology & Hydraulics Form (Form 2).

   Was the dam/basin designed using critical duration storm?

   ☐ Yes, provide supporting documentation with your completed Form 2.

   ☐ No, provide a written explanation and justification for not using the critical duration storm.

5. 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.

6. 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		

7. 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.

E. LEVEE/FLOODWALL (CONTINUED)

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)

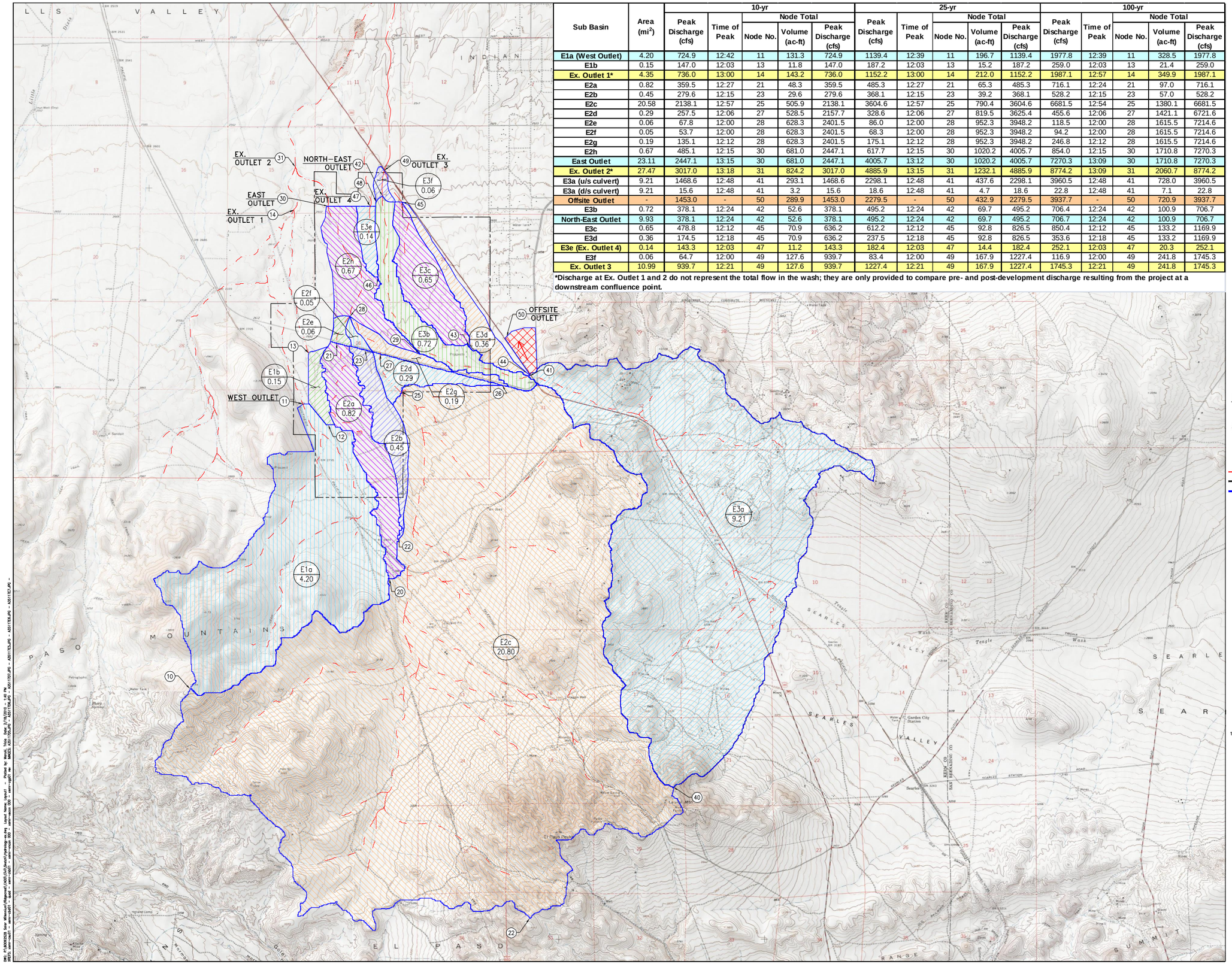
Method used to estimate sediment transport:

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.



Sub Basin	Area (mi^2)	10-yr Peak Discharge (cfs)	10-yr Time of Peak	10-yr Node Total Node No.	10-yr Node Total Volume (ac-ft)	10-yr Node Total Peak Discharge (cfs)	25-yr Peak Discharge (cfs)	25-yr Time of Peak	25-yr Node Total Node No.	25-yr Node Total Volume (ac-ft)	25-yr Node Total Peak Discharge (cfs)	100-yr Peak Discharge (cfs)	100-yr Time of Peak	100-yr Node Total Node No.	100-yr Node Total Volume (ac-ft)	100-yr Node Total Peak Discharge (cfs)
E1a (West Outlet)	4.20	724.9	12:42	11	131.3	724.9	1139.4	12:39	11	196.7	1139.4	1977.8	12:39	11	328.5	1977.8
E1b	0.15	147.0	12:03	13	11.8	147.0	187.2	12:03	13	15.2	187.2	259.0	12:03	13	21.4	259.0
Ex. Outlet 1*	4.35	736.0	13:00	14	143.2	736.0	1152.2	13:00	14	212.0	1152.2	1987.1	12:57	14	349.9	1987.1
E2a	0.82	359.5	12:27	21	48.3	359.5	485.3	12:27	21	65.3	485.3	716.1	12:24	21	97.0	716.1
E2b	0.45	279.6	12:15	23	29.6	279.6	368.1	12:15	23	39.2	368.1	528.2	12:15	23	57.0	528.2
E2c	20.58	2138.1	12:57	25	505.9	2138.1	3604.6	12:57	25	790.4	3604.6	6681.5	12:54	25	1380.1	6681.5
E2d	0.29	257.5	12:06	27	528.5	2157.7	328.6	12:06	27	819.5	3625.4	455.6	12:06	27	1421.1	6721.6
E2e	0.06	67.8	12:00	28	628.3	2401.5	86.0	12:00	28	952.3	3948.2	118.5	12:00	28	1615.5	7214.6
E2f	0.05	53.7	12:00	28	628.3	2401.5	68.3	12:00	28	952.3	3948.2	94.2	12:00	28	1615.5	7214.6
E2g	0.19	135.1	12:12	28	628.3	2401.5	175.1	12:12	28	952.3	3948.2	246.8	12:12	28	1615.5	7214.6
E2h	0.67	485.1	12:15	30	681.0	2447.1	617.7	12:15	30	1020.2	4005.7	854.0	12:15	30	1710.8	7270.3
East Outlet	23.11	2447.1	13:15	30	681.0	2447.1	4005.7	13:12	30	1020.2	4005.7	7270.3	13:09	30	1710.8	7270.3
Ex. Outlet 2*	27.47	3017.0	13:18	31	824.2	3017.0	4885.9	13:15	31	1232.1	4885.9	8774.2	13:09	31	2060.7	8774.2
E3a (u/s culvert)	9.21	1468.6	12:48	41	293.1	1468.6	2298.1	12:48	41	437.6	2298.1	3960.5	12:48	41	728.0	3960.5
E3a (d/s culvert)	9.21	15.6	12:48	41	3.2	15.6	18.6	12:48	41	4.7	18.6	22.8	12:48	41	7.1	22.8
Offsite Outlet	-	1453.0	-	50	289.9	1453.0	2279.5	-	50	432.9	2279.5	3937.7	-	50	720.9	3937.7
E3b	0.72	378.1	12:24	42	52.6	378.1	495.2	12:24	42	69.7	495.2	706.4	12:24	42	100.9	706.7
North-East Outlet	9.93	378.1	12:24	42	52.6	378.1	495.2	12:24	42	69.7	495.2	706.7	12:24	42	100.9	706.7
E3c	0.65	478.8	12:12	45	70.9	636.2	612.2	12:12	45	92.8	826.5	850.4	12:12	45	133.2	1169.9
E3d	0.36	174.5	12:18	45	70.9	636.2	237.5	12:18	45	92.8	826.5	353.6	12:18	45	133.2	1169.9
E3e (Ex. Outlet 4)	0.14	143.3	12:03	47	11.2	143.3	182.4	12:03	47	14.4	182.4	252.1	12:03	47	20.3	252.1
E3f	0.06	64.7	12:00	49	127.6	939.7	83.4	12:00	49	167.9	1227.4	116.9	12:00	49	241.8	1745.3
Ex. Outlet 3	10.99	939.7	12:21	49	127.6	939.7	1227.4	12:21	49	167.9	1227.4	1745.3	12:21	49	241.8	1745.3

*Discharge at Ex. Outlet 1 and 2 do not represent the total flow in the wash; they are only provided to compare pre- and post-development discharge resulting from the project at a downstream confluence point.

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Drawn: T.MARUK
Record Drawing by/date:

Revisions:

#	DATE	DESCRIPTION

Prepared for:

Solar Millennium LLC

LEGEND

- E1 / 15.35 — DRAINAGE AREA NAME / AREA (SQ. MILES)
- 01 — NODE NUMBER
- FLOWLINE
- SITE BOUNDARY
- DRAINAGE AREA BOUNDARY

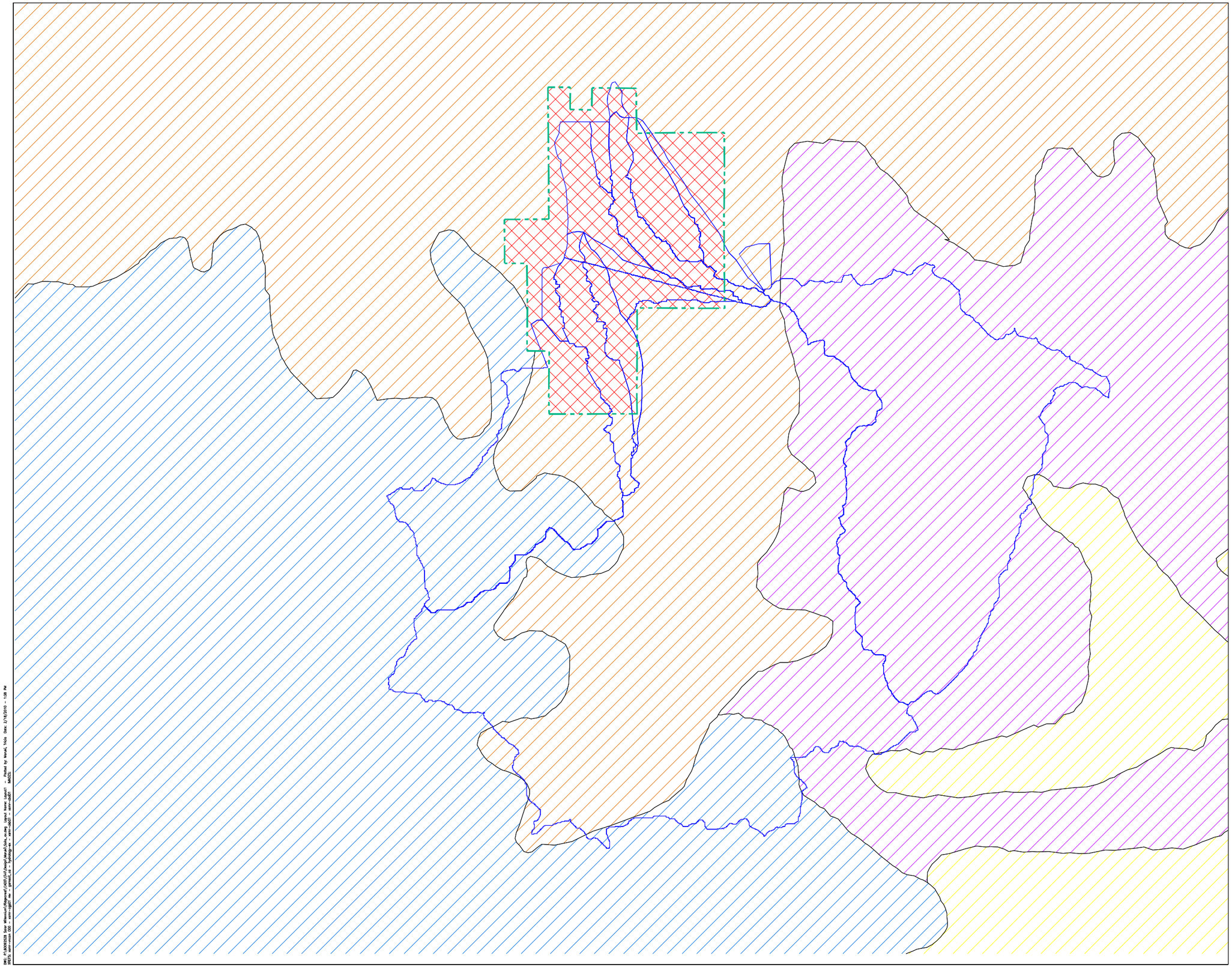
GRAPHIC SCALE:
1"=2000' 0 1000 2000 4000 6000

Ridgecrest Sola Power Project

Kern County, California

Pre-Development Hydrology Map

Date: 02/10/10
Sheet: 1 OF 1



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Revisions:

#	DATE	DESCRIPTION

Prepared for:

Solar Millennium LLC

LEGEND

CHAPPARAL, BROADLEAF, POOR COVER
PRORATED SOIL GROUP
%B, %C, %D

- 70, 15, 15 CN=75
- 25, 25, 50 CN=81
- 34, 0, 66 CN=81
- 50, 25, 25 CN=77
- CEMENTED SILTY SAND CN=95 (BASED ON ON-SITE PRELIMINARY GEOTECHNICAL INVESTIGATION REPORT, KLEINFELDER, AUG 2009)
- SITE BOUNDARY
- DRAINAGE AREA BOUNDARY

GRAPHIC SCALE:

1"=2000' 0 1000 2000 4000 6000

Ridgecrest Sola Power Project

Kern County, California

Soils Map
Pre-Development

Date: 02/10/10

Sheet: 1 OF 1

DWG: P:\60092528 Solar Millennium\Ridgecrest\CADD\Civil\Design\Maruk\Soils_ex.dwg Layout Name: Layout1 - Plotted by Maruk, Tricia Date: 2/18/2010 - 1:38 PM
PREFIX: aecom-mode 000 - aecom-cgb01 rw - gmsdl.cd - typology-rw - aecom-cdd01 - aecom-cdd01 MAGES:

Residential Landscaping (Lawn, Shrubs, etc.) - The pervious portions of commercial establishments, single and multiple family dwellings, trailer parks and schools where the predominant land cover is lawn, shrubbery and trees.

Row Crops - Lettuce, tomatoes, beets, tulips or any field crop planted in rows far enough apart that most of the soil surface is exposed to rainfall impact throughout the growing season. At plowing, planting and harvest times it is equivalent to fallow.

Small Grain - Wheat, oats, barley, flax, etc. planted in rows close enough that the soil surface is not exposed except during planting and shortly thereafter.

Legumes - Alfalfa, sweetclover, timothy, etc. and combinations are either planted in close rows or broadcast.

Fallow - Fallow land is land plowed but not yet seeded or tilled.

Woodland - grass - Areas with an open cover of broadleaf or coniferous trees usually live oak and pines, with the intervening ground space occupied by annual grasses or weeds. The trees may occur singly or in small clumps. Canopy density, the amount of ground surface shaded at high noon, is from 20 to 50 percent.

Woodland - Areas on which coniferous or broadleaf trees predominate. The canopy density is at least 50 percent. Open areas may have a cover of annual or perennial grasses or of brush. Herbaceous plant cover under the trees is usually sparse because of leaf or needle litter accumulation.

Chaparral - Land on which the principal vegetation consists of evergreen shrubs with broad, hard, stiff leaves such as manzonita, ceanothus and scrub oak. The brush cover is usually dense or moderately dense. Diffusely branched evergreen shrubs with fine needle-like leaves, such as chamise and redchank, with dense high growth are also included in this soil cover.

Annual Grass - Land on which the principal vegetation consists of annual grasses and weeds such as annual bromes, wild barley, soft chess, ryegrass and filaree.

Irrigated Pasture - Irrigated land planted to perennial grasses and legumes for production of forage and which is cultivated only to establish or renew the stand of plants. Dry land pasture is considered as annual grass.

Meadow - Land areas with seasonally high water table, locally called cienegas. Principal vegetation consists of sod-forming grasses interspersed with other plants.

Orchard (Deciduous) - Land planted to such deciduous trees as apples, apricots, pears, walnuts, and almonds.

Orchard (Evergreen) - Land planted to evergreen trees which include citrus and avocados and coniferous plantings.

Turf - Golf courses, parks and similar lands where the predominant cover is irrigated mowed close-grown turf grass. Parks in which trees are dense may be classified as woodland.

(CN table)

Curve[1] Numbers of Hydrologic Soil-Cover Complexes For Pervious Areas-AMC II

Cover Type (3)	Quality of Cover (2)	Soil Group A	B	C	D
NATURAL COVERS -					
Barren (Rockland, eroded and graded land)		77	86	91	94
Chaparral, Broadleaf (Manzonita, ceanothus and scrub oak)	Poor	53	70	80	85
	Fair	40	63	75	81
	Good	31	57	71	78
Chaparral, Narrowleaf (Chamise and Redskank)	Poor	71	82	88	91
	Fair	55	72	81	86
Grass, Annual or Perennial	Poor	68	79	86	89
	Fair	49	69	79	84
	Good	39	61	74	80
Meadows or Cienagas (Areas with seasonally high water table, principal vegatation is sod forming grass)	Poor	63	77	85	88
	Fair	51	70	80	84
	Good	30	58	71	78
Open Brush (Soft wood shrubs-buckwheat,sage,etc.)	Poor	62	76	84	88
	Fair	46	66	77	83
	Good	41	63	75	81
Woodland (4) (Coniferous or broadleaf trees predominate. Canopy density is at least 50 percent)	Poor	45	66	77	83
	Fair	36	60	73	79
	Good	30	55	70	77
Woodland, Grass (Coniferous or broadleaf trees with canopy density from 20 to 50 percent)	Poor	57	73	82	86
	Fair	43	65	76	82
	Good	32	58	72	79
URBAN COVERS -					
Residential or Commercial Landscaping (Lawns, shrubs, etc.)	Good	39	61	74	80
Turf (Irrigated and mowed grass)	Poor	68	79	86	89
	Fair	49	69	79	84
	Good	39	61	74	80

KERN COUNTY
Hydrology Manual

CURVE NUMBERS FOR PERVIOUS AREAS

FIGURE C-2 (1 of 2)

Curve[1] Numbers of Hydrologic Soil-Cover Complexes For Pervious Areas-AMC II

Cover Type (3)	Quality of Cover (2)	Soil Group A	B	C	D
AGRICULTURAL COVERS -					
Fallow (Bare Soil)		77	86	91	94
Close Seeded (alfalfa, sweetclover, timothy, etc.)	Poor	66	77	85	89
	Good	58	72	81	85
Orchards, Evergreen (Citrus, avacodos, etc.)	Poor	57	73	82	86
	Fair	43	65	76	82
	Good	32	58	72	79
Pasture (Grassland or range, continuos forage for grazing)	Poor	68	79	86	89
	Fair	49	69	79	84
	Good	39	61	74	80
Row Crops (Straight row, non-contoured)	Poor	72	81	88	91
	Good	67	78	85	89
Small Grain (Straight row, non-contoured)	Poor	65	76	84	88
	Good	63	75	83	87

Notes:

1. Average runoff condition, Ia = 0.2(S)

2. Poor: Heavily grazed, regularly burned areas, or areas of high burn potential. Less than 50 percent of the ground surface is protected by plant cover or brush and tree canopy.

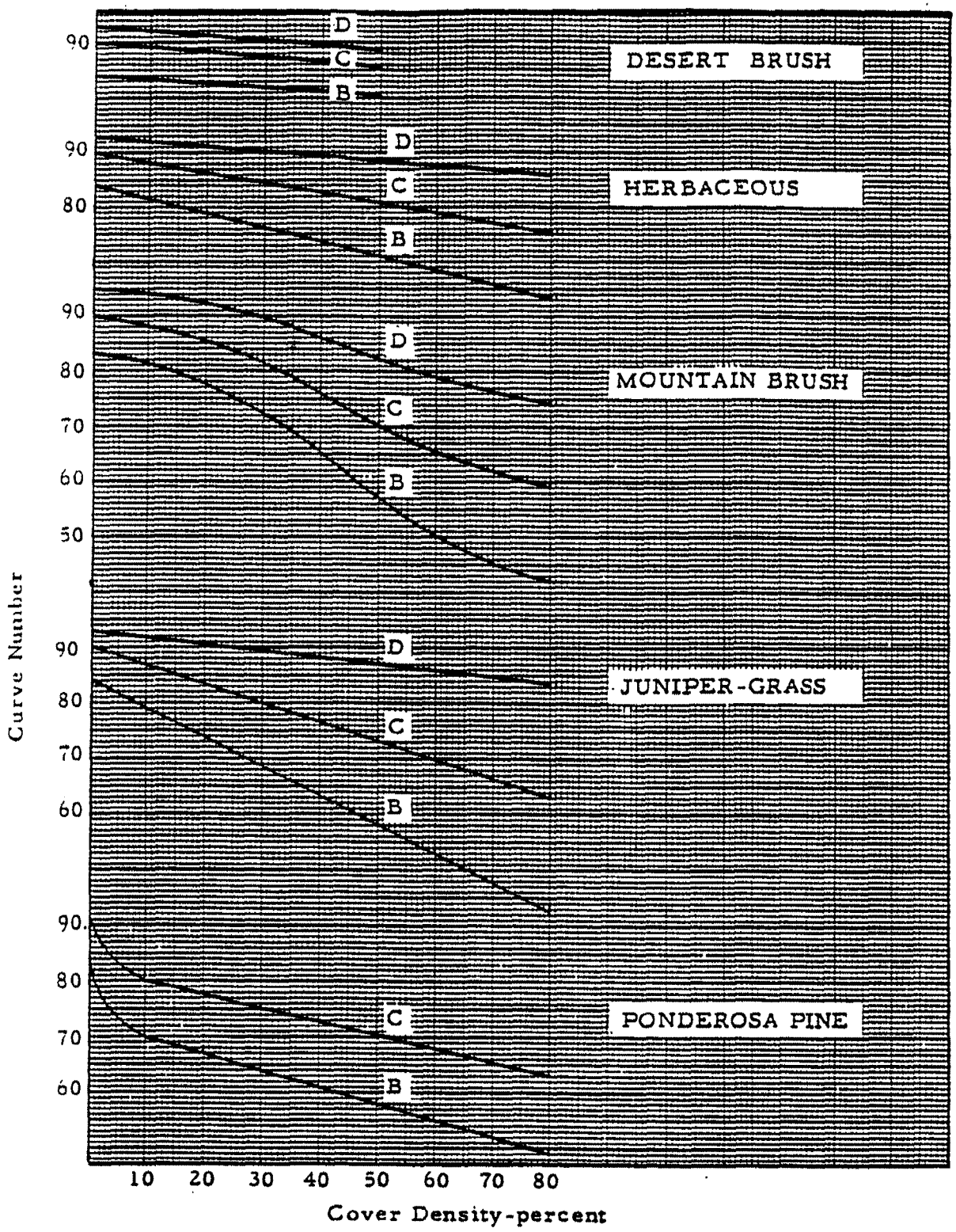
   Fair: Moderate cover with 50 percent to 75 percent of the ground surface protected. In wooded areas the woods are grazed but not burned, and some forest litter covers the soil.

   Good: Heavy or dense cover with more than 75 percent of the ground surface protected. In wooded areas the woods are protected from grazing, litter and brush adequately cover soil.

3. See Figure C-1 for definition of cover types.

KERN COUNTY
Hydrology Manual

CURVE NUMBERS FOR PERVIOUS AREAS

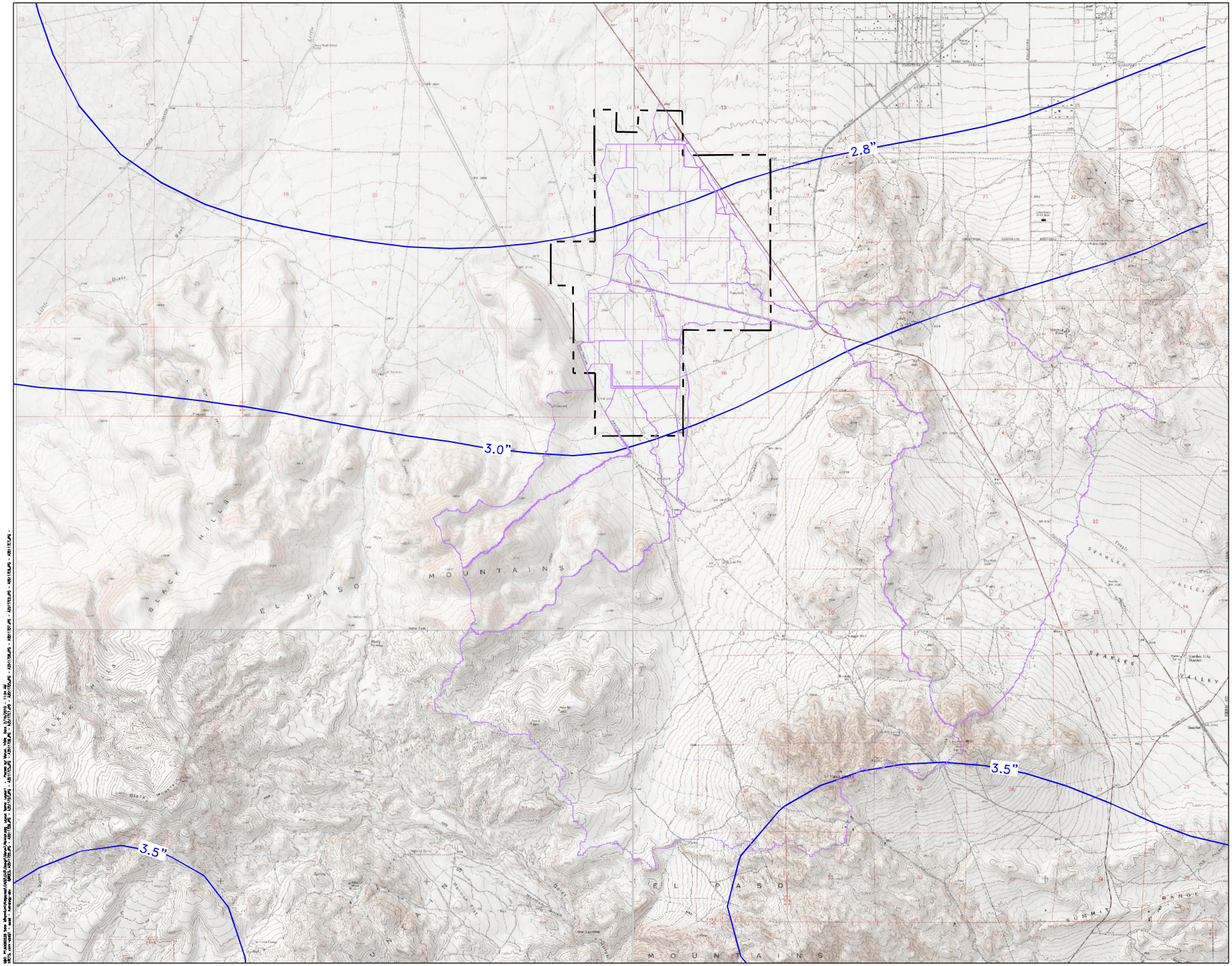


KERN COUNTY

HYDROLOGY MANUAL

HYDROLOGIC SOIL COVER COMPLEXES AND ASSOCIATED CURVE NUMBERS

FIGURE C-7



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Revisions

#	DATE	DESCRIPTION

Prepared for:

Solar Millennium LLC

LEGEND

- SITE BOUNDARY
- 100 Yr-24 Hr ISOHYET
- DRAINAGE AREA BOUNDARY

GRAPHIC SCALE:

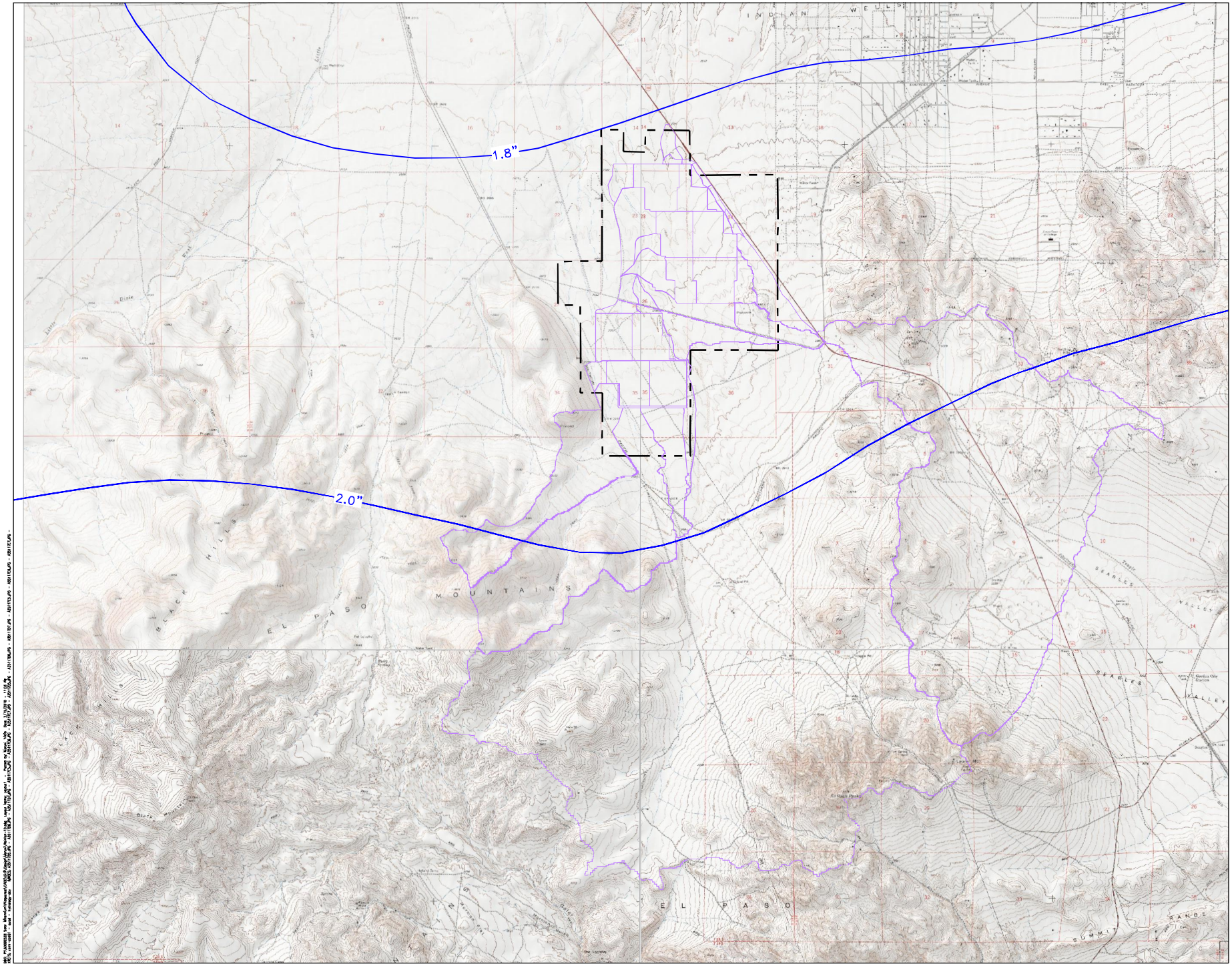
1"=2000' 0 1000 2000 4000 6000

Ridgecrest Solar Power Project

Kern County, California

100 Yr 24 Hr Rainfall Map

Date: 02/10/10
Sheet: 1 OF 2



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LEGEND

- SITE BOUNDARY
- 10 Yr-24 Hr ISOHYET
- DRAINAGE AREA BOUNDARY

GRAPHIC SCALE:

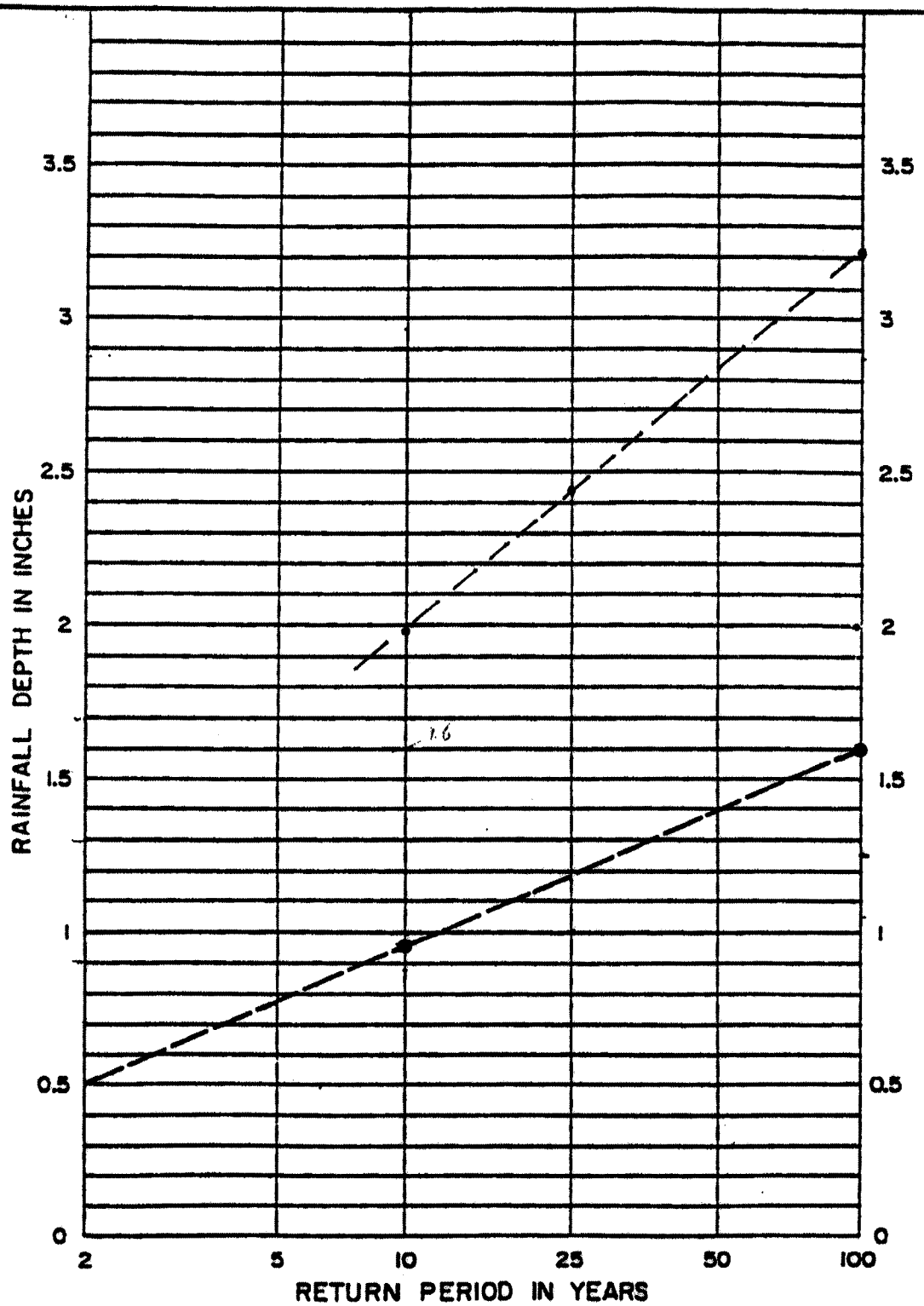
1"=2000' 0 1000 2000 4000 6000

Ridgecrest Solar Power Project

Kern County, California

10 Yr 24 Hr Rainfall Map

Date: 02/10/10
Sheet: 2 OF 2



NOTE:

1. FOR INTERMEDIATE RETURN PERIODS PLOT 10-YEAR AND 100-YEAR ONE HOUR VALUES FROM MAPS, THEN CONNECT POINTS AND READ VALUE FOR DESIRED RETURN PERIOD. FOR EXAMPLE GIVEN 10-YEAR ONE HOUR = 0.95" AND 100-YEAR ONE HOUR = 1.60", 25-YEAR ONE HOUR = 1.18".

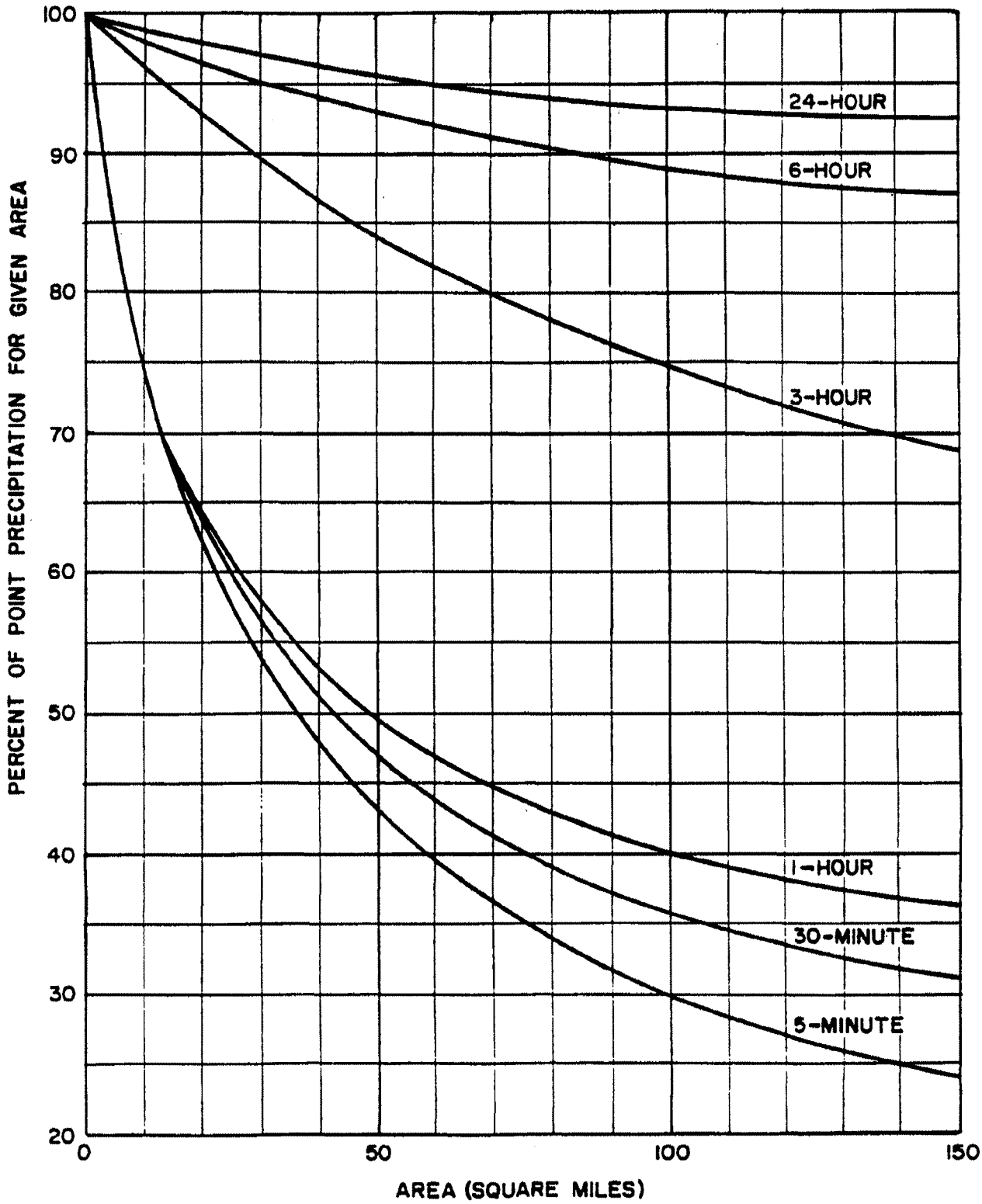
REFERENCE: NOAA ATLAS 2, VOLUME XI - CAL., 1973

KERN COUNTY

HYDROLOGY MANUAL

RAINFALL DEPTH VERSUS RETURN PERIOD FOR PARTIAL DURATION SERIES

FIGURE D-3



KERN COUNTY

HYDROLOGY MANUAL

DESIGN STORM
DEPTH AREA
CURVES

Figure E-4

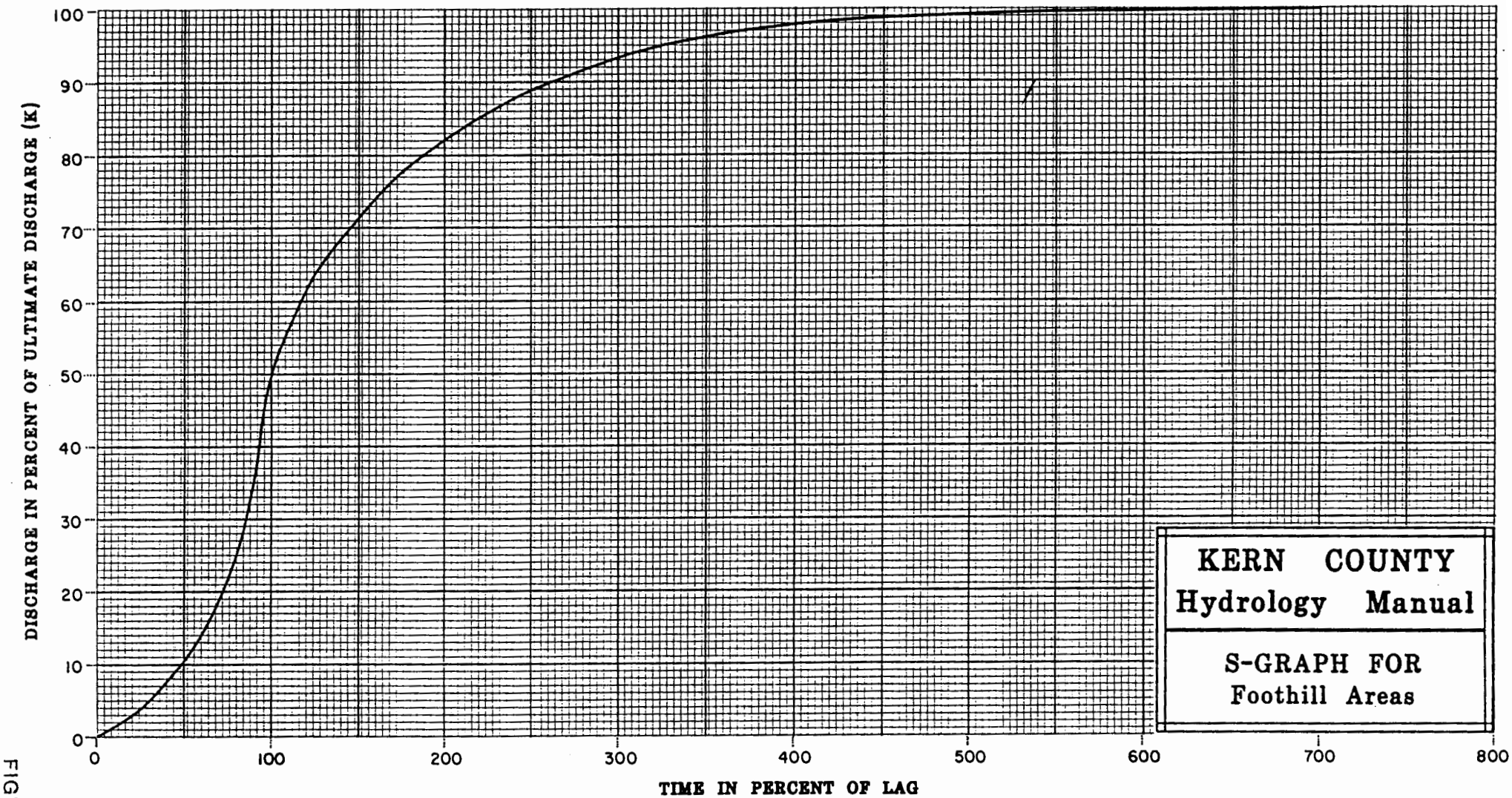

DISCHARGE IN PERCENT OF ULTIMATE DISCHARGE (K)
100
90
80
70
60
50
40
30
20
10
0
0
100
200
300
400
500
600
700
800
TIME IN PERCENT OF LAG
KERN COUNTY
Hydrology Manual
S-GRAPH FOR
Foothill Areas

FIGURE E-3b

HMS Input Parameters for Pre-Development Hydrology Calculations

Pre-Development Hydrology - Western Drainage Area

Sub-Basin	Area (mi^2)	Length (mi)	L_{CA} (mi)	Elev. Difference (D)	Slope (ft/mi)	n	Composite CN	S=(1000/CN)-10	T_{lag} (hours) = $24n(LL_{CA}/S^{05})^{0.38}$	T_{lag} (mins) = $24n(LL_{CA}/S^{05})^{0.38}$	IA
E1a	4.201	5.03	2.82	1546.00	307.42	0.04	80.77	2.38	0.89	53.12	0.48
E1b	0.151	0.86	0.41	55.00	64.33	0.03	95.00	0.53	0.22	13.14	0.11

Pre-Development - Eastern Drainage Area

Sub-Basin	Area (mi^2)	Length (mi)	L_{CA} (mi)	Elev. Difference (D)	Slope (ft/mi)	n	Composite CN	S=(1000/CN)-10	T_{lag} (hours) = $24n(LL_{CA}/S^{05})^{0.38}$	T_{lag} (mins) = $24n(LL_{CA}/S^{05})^{0.38}$	IA
E2a	0.824	3.34	1.76	215.00	64.37	0.03	90.27	1.08	0.64	38.38	0.22
E2b	0.450	2.28	0.84	165.00	72.37	0.03	92.03	0.87	0.41	24.51	0.17
E2c	20.581	7.47	3.42	1560.00	208.84	0.04	77.50	2.90	1.19	71.52	0.58
E2d	0.291	1.48	0.50	150.00	101.35	0.03	94.79	0.55	0.27	16.02	0.11
E2e	0.056	0.37	0.22	32.00	86.49	0.03	95.00	0.53	0.12	7.14	0.11
E2f	0.046	0.44	0.27	32.00	72.73	0.03	95.00	0.53	0.14	8.52	0.11
E2g	0.192	2.05	0.88	187.00	91.22	0.03	93.54	0.69	0.38	22.93	0.14
E2h	0.674	2.16	0.97	155.00	71.79	0.03	95.00	0.53	0.42	25.38	0.11

HMS Output for Pre-Development Hydrology Calculations

10 Year Flow Rates

Pre-Development Hydrology - Western & Eastern Drainage Areas

Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
E1a	4.201	724.90	01Jan2009, 12:42	131.30
E1b	0.151	147.00	01Jan2009, 12:03	11.80
E2a	0.824	359.5	01Jan2009, 12:27	48.3
E2b	0.450	279.6	01Jan2009, 12:15	29.6
E2c	20.581	2138.1	01Jan2009, 12:57	505.9
E2d	0.291	257.5	01Jan2009, 12:06	22.6
E2e	0.056	67.8	01Jan2009, 12:00	4.4
E2f	0.046	53.70	01Jan2009, 12:00	3.60
E2g	0.192	135.10	01Jan2009, 12:12	13.80
E2h	0.674	485.10	01Jan2009, 12:15	52.80
East_Outlet	23.114	2447.10	01Jan2009, 13:15	681.00
Ex_Outlet1	4.352	736.00	01Jan2009, 13:00	143.20
Ex_Outlet2	27.466	3017.00	01Jan2009, 13:18	824.20
J1	20.872	2157.70	01Jan2009, 13:00	528.50
J2	22.440	2396.50	01Jan2009, 13:03	628.30
R1	4.201	704.60	01Jan2009, 13:03	131.30
R2	0.151	142.80	01Jan2009, 12:24	11.80
R3	20.581	2123.7	01Jan2009, 13:00	506
R4	0.824	356.5	01Jan2009, 12:30	48.3
R5	0.450	277.9	01Jan2009, 12:18	29.6
R6	20.872	2136.2	01Jan2009, 13:03	528.6
R7	22.440	2357.6	01Jan2009, 13:15	628.2
R8	23.114	2431	01Jan2009, 13:18	681
R9	4.352	734	01Jan2009, 13:06	143.2
West_Outlet	4.201	724.9	01Jan2009, 12:42	131.3

HMS Output for Pre-Development Hydrology Calculations

25 Year Flow Rates

Pre-Development Hydrology - Western & Eastern Drainage Areas

Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
E1a	4.201	1139.40	01Jan2009, 12:39	196.70
E1b	0.151	187.20	01Jan2009, 12:03	15.20
E2a	0.824	485.3	01Jan2009, 12:27	65.3
E2b	0.450	368.1	01Jan2009, 12:15	39.2
E2c	20.581	3604.6	01Jan2009, 12:57	790.4
E2d	0.291	328.6	01Jan2009, 12:06	29.1
E2e	0.056	86	01Jan2009, 12:00	5.6
E2f	0.046	68.30	01Jan2009, 12:00	4.60
E2g	0.192	175.10	01Jan2009, 12:12	18.00
E2h	0.674	617.70	01Jan2009, 12:15	68.00
East_Outlet	23.114	4005.70	01Jan2009, 13:12	1020.20
Ex_Outlet1	4.352	1152.20	01Jan2009, 13:00	212.00
Ex_Outlet2	27.466	4885.90	01Jan2009, 13:15	1232.10
J1	20.872	3625.40	01Jan2009, 13:00	819.50
J2	22.440	3945.00	01Jan2009, 13:03	952.30
R1	4.201	1111.30	01Jan2009, 13:00	196.70
R2	0.151	179.30	01Jan2009, 12:24	15.20
R3	20.581	3582.6	01Jan2009, 13:00	790.4
R4	0.824	481.9	01Jan2009, 12:30	65.3
R5	0.450	365.7	01Jan2009, 12:18	39.2
R6	20.872	3604.4	01Jan2009, 13:03	819.5
R7	22.440	3884.7	01Jan2009, 13:12	952.2
R8	23.114	3980.6	01Jan2009, 13:15	1020.1
R9	4.352	1144.3	01Jan2009, 13:03	212
West_Outlet	4.201	1139.4	01Jan2009, 12:39	196.7

HMS Output for Pre-Development Hydrology Calculations

100 Year Flow Rates

Pre-Development Hydrology - Western & Eastern Drainage Areas

Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
E1a	4.201	1977.80	01Jan2009, 12:39	328.50
E1b	0.151	259.00	01Jan2009, 12:03	21.40
E2a	0.824	716.1	01Jan2009, 12:27	97
E2b	0.450	528.2	01Jan2009, 12:15	57
E2c	20.581	6681.5	01Jan2009, 12:54	1380.1
E2d	0.291	455.6	01Jan2009, 12:06	41
E2e	0.056	118.5	01Jan2009, 12:00	7.9
E2f	0.046	94.20	01Jan2009, 12:00	6.50
E2g	0.192	246.80	01Jan2009, 12:12	25.80
E2h	0.674	854.00	01Jan2009, 12:15	95.60
East_Outlet	23.114	7270.30	01Jan2009, 13:09	1710.80
Ex_Outlet1	4.352	1987.10	01Jan2009, 12:57	349.90
Ex_Outlet2	27.466	8774.20	01Jan2009, 13:09	2060.70
J1	20.872	6721.60	01Jan2009, 12:57	1421.10
J2	22.440	7199.90	01Jan2009, 13:00	1615.30
R1	4.201	1928.30	01Jan2009, 12:57	328.50
R2	0.151	251.00	01Jan2009, 12:21	21.40
R3	20.581	6658.3	01Jan2009, 12:57	1380.1
R4	0.824	710.7	01Jan2009, 12:27	97
R5	0.450	524.1	01Jan2009, 12:18	57
R6	20.872	6684.8	01Jan2009, 13:00	1421
R7	22.440	7091.4	01Jan2009, 13:09	1615.2
R8	23.114	7219.4	01Jan2009, 13:12	1710.8
R9	4.352	1973.1	01Jan2009, 13:00	349.9
West_Outlet	4.201	1977.8	01Jan2009, 12:39	328.5

Ridgecrest Solar Plant
Pre-Development Hydrology Results

Sub Basin	Area (mi^2)	10-yr					25-yr					100-yr				
		Peak Discharge (cfs)	Time of Peak	Node Total			Peak Discharge (cfs)	Time of Peak	Node Total			Peak Discharge (cfs)	Time of Peak	Node Total		
				Node No.	Volume (ac-ft)	Peak Discharge (cfs)			Node No.	Volume (ac-ft)	Peak Discharge (cfs)			Node No.	Volume (ac-ft)	Peak Discharge (cfs)
E1a (West Outlet)	4.20	724.9	12:42	11	131.3	724.9	1139.4	12:39	11	196.7	1139.4	1977.8	12:39	11	328.5	1977.8
E1b	0.15	147.0	12:03	13	11.8	147.0	187.2	12:03	13	15.2	187.2	259.0	12:03	13	21.4	259.0
Ex. Outlet 1*	4.35	736.0	13:00	14	143.2	736.0	1152.2	13:00	14	212.0	1152.2	1987.1	12:57	14	349.9	1987.1
E2a	0.82	359.5	12:27	21	48.3	359.5	485.3	12:27	21	65.3	485.3	716.1	12:24	21	97.0	716.1
E2b	0.45	279.6	12:15	23	29.6	279.6	368.1	12:15	23	39.2	368.1	528.2	12:15	23	57.0	528.2
E2c	20.58	2138.1	12:57	25	505.9	2138.1	3604.6	12:57	25	790.4	3604.6	6681.5	12:54	25	1380.1	6681.5
E2d	0.29	257.5	12:06	27	528.5	2157.7	328.6	12:06	27	819.5	3625.4	455.6	12:06	27	1421.1	6721.6
E2e	0.06	67.8	12:00	28	628.3	2401.5	86.0	12:00	28	952.3	3948.2	118.5	12:00	28	1615.5	7214.6
E2f	0.05	53.7	12:00	28	628.3	2401.5	68.3	12:00	28	952.3	3948.2	94.2	12:00	28	1615.5	7214.6
E2g	0.19	135.1	12:12	28	628.3	2401.5	175.1	12:12	28	952.3	3948.2	246.8	12:12	28	1615.5	7214.6
E2h	0.67	485.1	12:15	30	681.0	2447.1	617.7	12:15	30	1020.2	4005.7	854.0	12:15	30	1710.8	7270.3
East Outlet	23.11	2447.1	13:15	30	681.0	2447.1	4005.7	13:12	30	1020.2	4005.7	7270.3	13:09	30	1710.8	7270.3
Ex. Outlet 2*	27.47	3017.0	13:18	31	824.2	3017.0	4885.9	13:15	31	1232.1	4885.9	8774.2	13:09	31	2060.7	8774.2

***Discharge at Ex. Outlet 1 and 2 do not represent the total flow in the wash; they are only provided to compare pre- and post-development discharge resulting from the project at a downstream confluence point.**

SOUTH EL PASO WASH – EXISTING CONDITIONS

The existing conditions of South El Paso Wash have not been studied in detail. The Flood Insurance Study for Kern County, California, dated September 26, 2008, indicates that South El Paso Wash was studied by approximate analysis. The approximate floodplain for the 1% chance event is shown on FIRM Panels 1575E and 1600E. The study also states that the peak 1% chance discharge for South El Paso Wash at the Ridgecrest corporate limits is 3,000 cfs for a drainage area of 12.7 square miles.

The City of Ridgecrest prepared a Master Drainage Plan in May 1989. An analysis of the El Paso Wash Drainage Basin was performed using HEC-1. The results show that for a drainage area of 35.68 square miles, the 100 year peak flow would be 13,000 cfs. The study encompassed a larger tributary area and a longer portion of the wash downstream of the area affected by the project, thus resulting in a larger flow rate downstream.

For this development, a detailed hydrologic study was prepared using one-foot contour topography and methodology based on the Kern County Hydrology Manual. The existing hydrology included a tributary area of 23.11 square miles with a resulting 1% chance discharge of 7,270.3 downstream of the site. A hydraulic analysis of 23,100 feet of the wash was performed with HEC-RAS using a mixed-flow regime. The results show a downstream water surface level of 2587.72 ft at the limits of the proposed floodplain revision (HEC-RAS, Section 9). The resulting 1% floodplain was overlayed onto the existing FIRM Panels.

NOTES TO USERS

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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 and/or Summary of Stillwater Elevations 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. These BFEs 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 report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). 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 jurisdiction. 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.

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 National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures.** Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 11. The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

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NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, MD 20910-3282

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242,** or visit its website at http://www.ngs.noaa.gov/.

Base map information shown on this FIRM was derived from USDA - Farm Service Agency - Aerial Photography Field Office dated 2005 and from U.S. Geological Survey Digital Orthophoto Quadrangles produced at a scale of 1:12,000 from photography dated 1992 or later.

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Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

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Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, *a Flood Insurance Study report,* and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at http://www.msc.fema.gov/.

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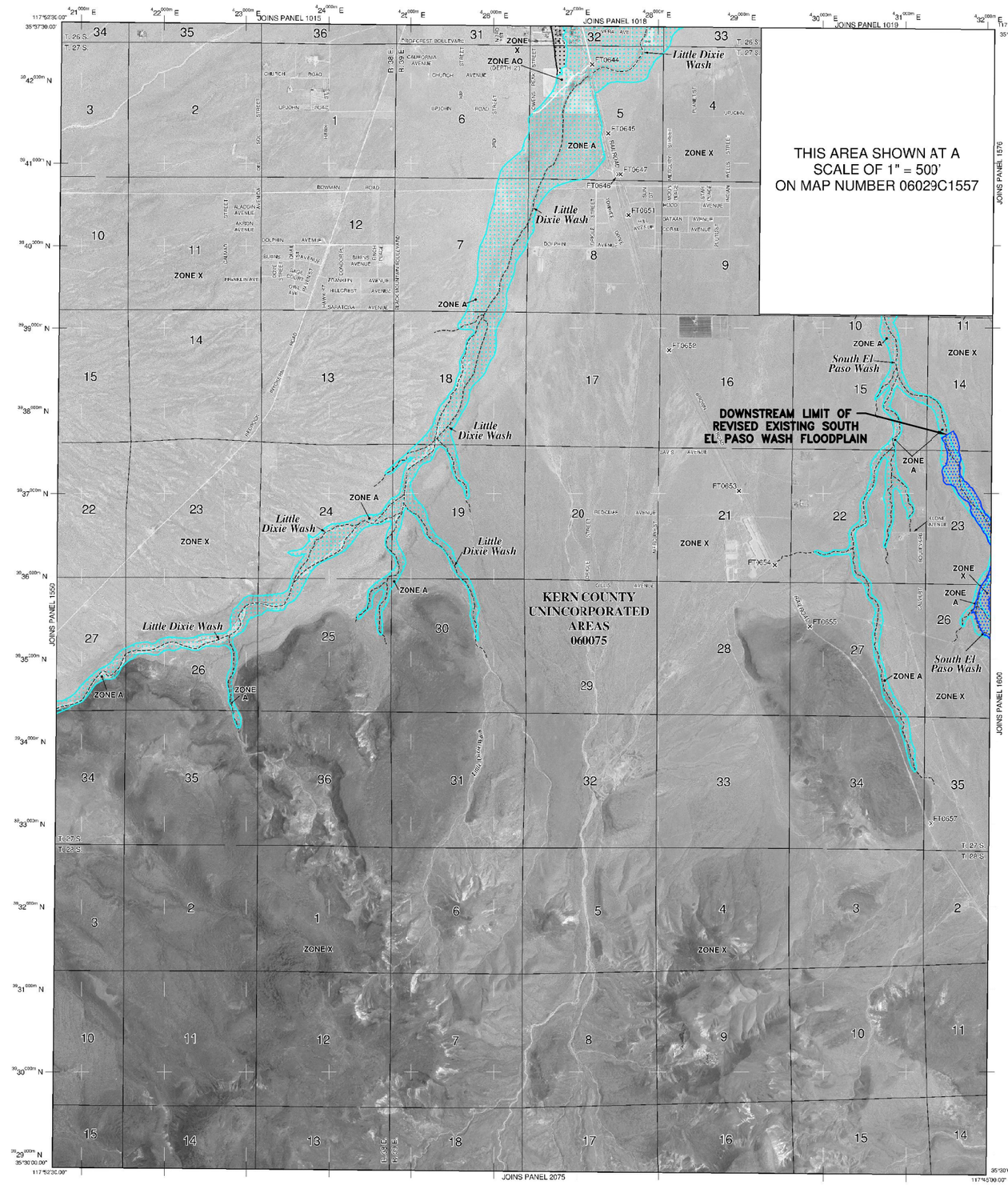

LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance 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 AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

	1% annual chance floodplain boundary
	0.2% annual chance floodplain boundary
	Floodway boundary
	Zone D boundary
	CBRS and OPA boundary
	Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
513	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

A — A	Cross section line
23 - - - - - 23	Transect line
97°07'30", 32°22'30"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
4275000mN	1000-meter Universal Transverse Mercator grid ticks, zone 11
6000000 M	5000-foot grid ticks: California State Plane coordinate system, V zone (FIPSZONE 0405), Lambert Conformal Conic
DX5510 ×	Bench mark (see explanation in Notes to Users section of this FIRM panel)
• M1.5	River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 26, 2008
EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

N

MAP SCALE 1" = 2000'

1000 0 2000 4000 FEET

600 0 600 1200 METERS

NFIP NATIONAL FLOOD INSURANCE PROGRAM

PANEL 1575E

FIRM
FLOOD INSURANCE RATE MAP
KERN COUNTY, CALIFORNIA
AND INCORPORATED AREAS

PANEL 1575 OF 4125
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
KERN COUNTY	060075	1575	E

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
06029C1575E

EFFECTIVE DATE
SEPTEMBER 26, 2008

Federal Emergency Management Agency

NOTES TO USERS

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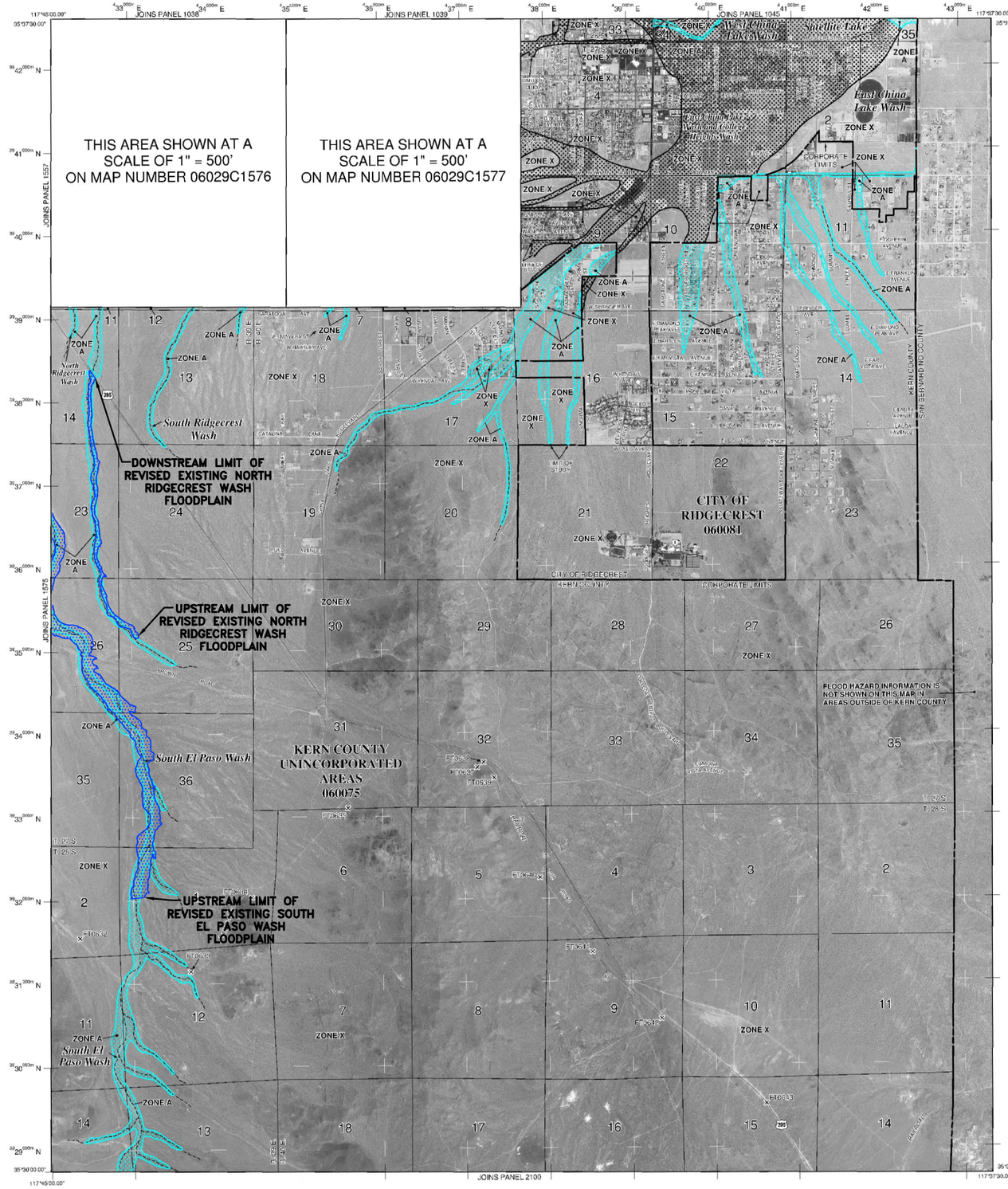

LEGEND

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FLOODWAY AREAS IN ZONE AE

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OTHER FLOOD AREAS

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OTHER AREAS

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1% annual chance floodplain boundary
0.2% annual chance floodplain boundary
Floodway boundary
Zone D boundary
CBRS and OPA boundary
Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.

513	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

(A)———(A)	Cross section line
(23)- - - - - -(23)	Transect line
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6000000 M	5000-foot grid ticks: California State Plane coordinate system, V zone (FIPSZONE 0405), Lambert Conformal Conic
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• M1.5	River Mile

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FLOOD INSURANCE RATE MAP
September 26, 2008
EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

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MAP SCALE 1" = 2000'
1000 0 2000 4000 FEET
600 0 600 1200 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 1600E

FIRM
FLOOD INSURANCE RATE MAP
KERN COUNTY, CALIFORNIA
AND INCORPORATED AREAS

PANEL 1600 OF 4125
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

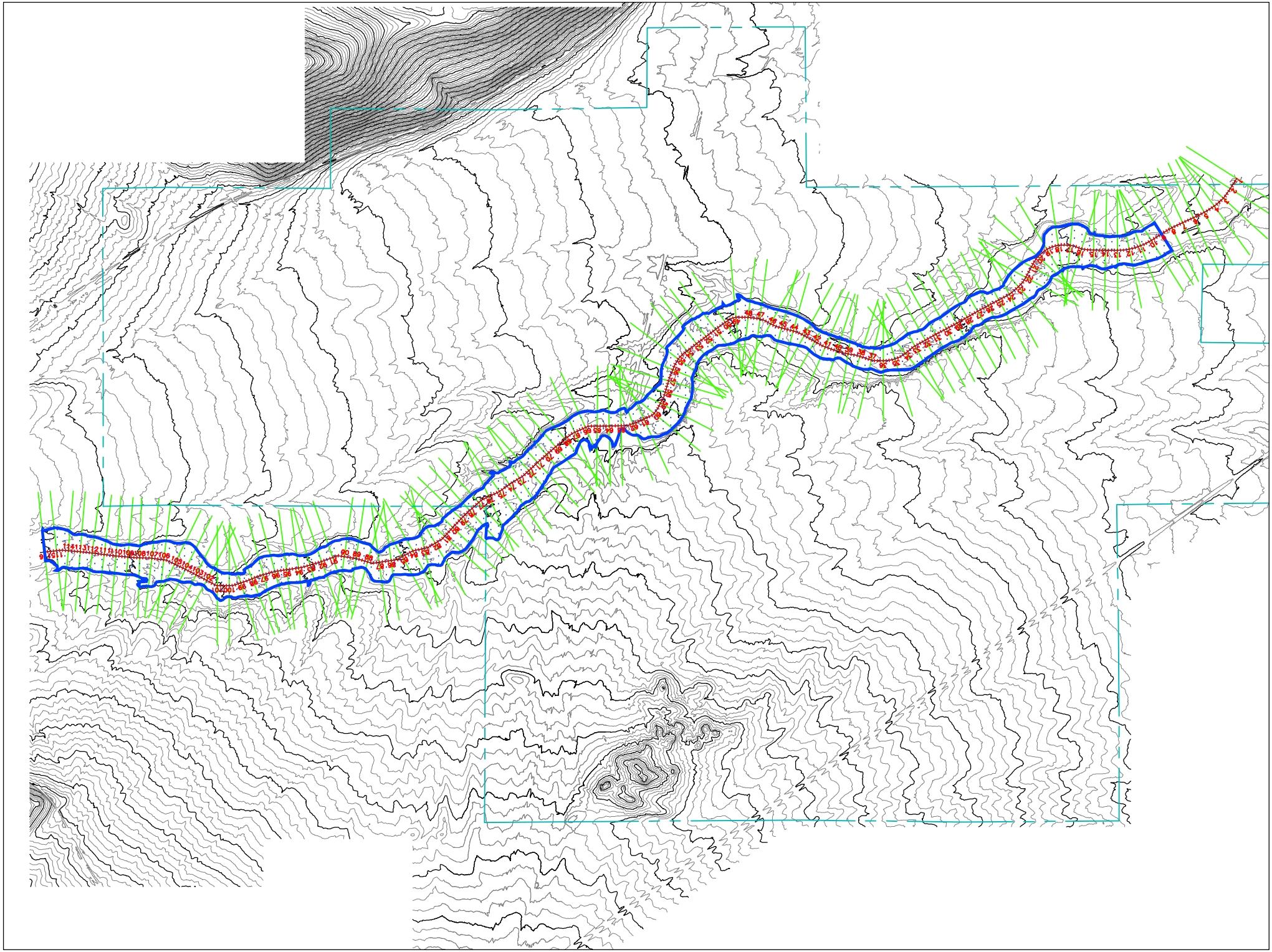
COMMUNITY	NUMBER	PANEL	SUFFIX
KERN COUNTY	060075	1600	E
RIDGECREST, CITY OF	060081	1600	E

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

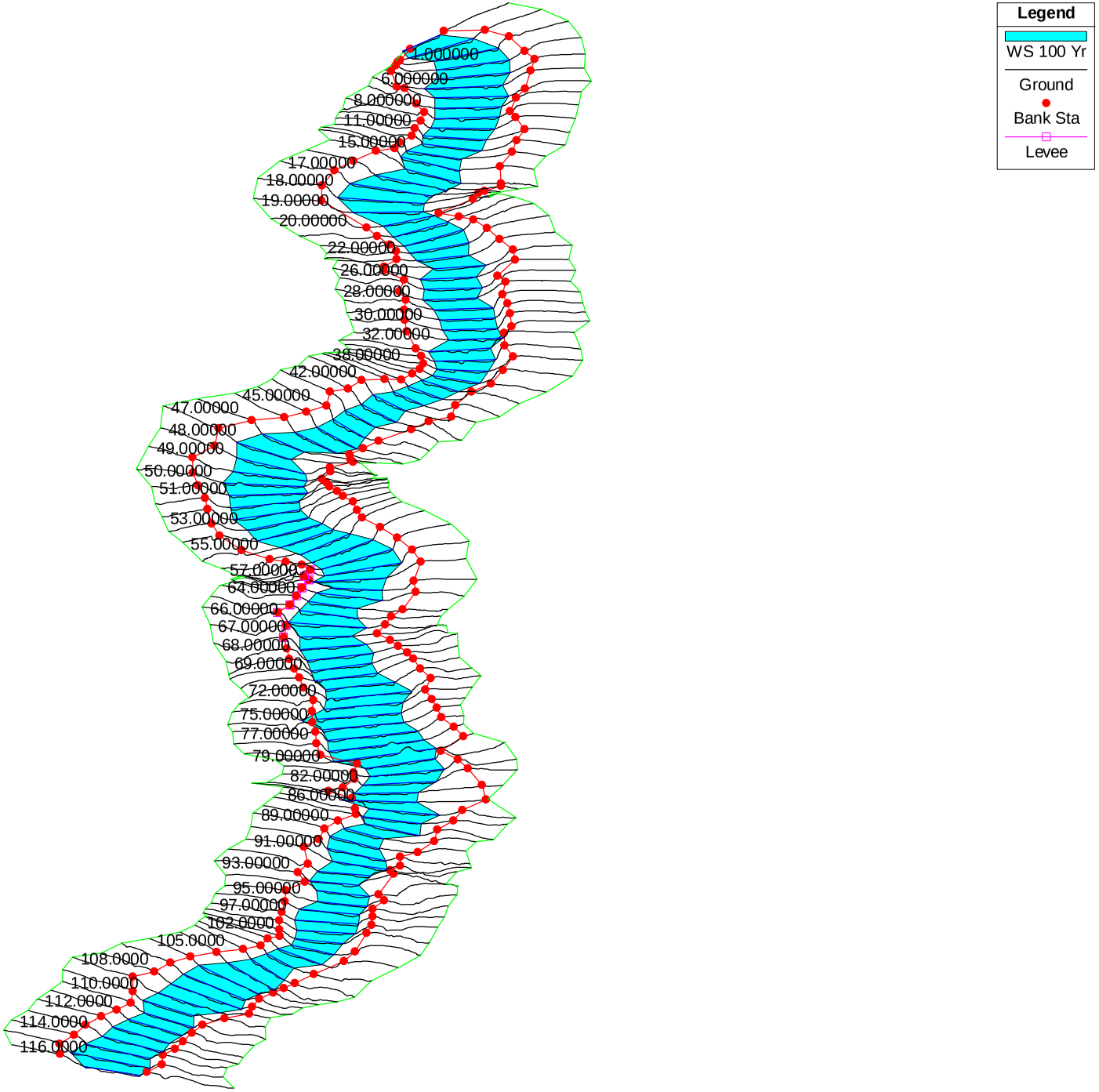
MAP NUMBER
06029C1600E

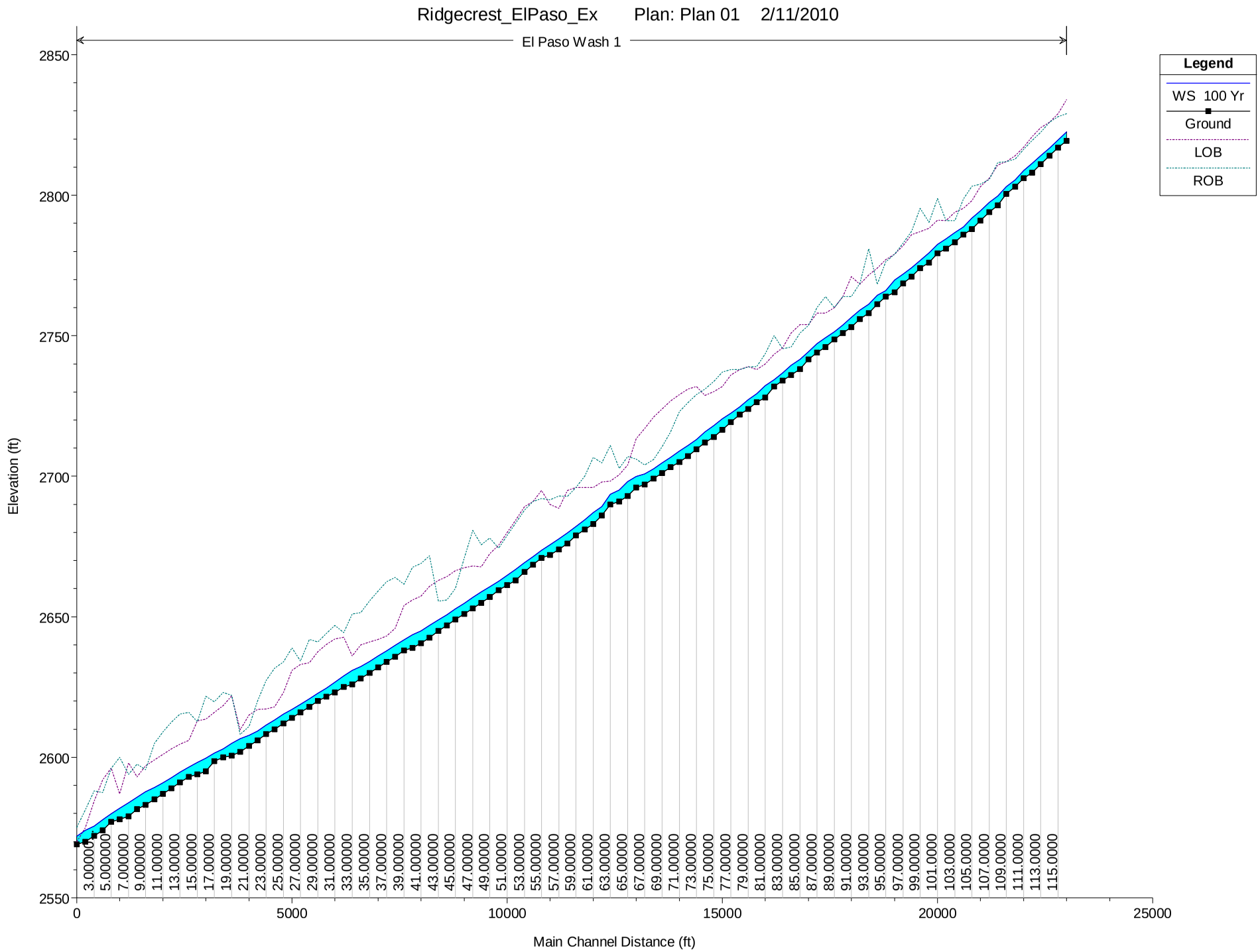
EFFECTIVE DATE
SEPTEMBER 26, 2008

Federal Emergency Management Agency



Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010




Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
El Paso Wash 1
Legend
WS 100 Yr
Ground
LOB
ROB
Elevation (ft)
Main Channel Distance (ft)
2550
2600
2650
2700
2750
2800
2850
0
5000
10000
15000
20000
25000
3.00000
5.000000
7.000000
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115.0000

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
South El Paso Wash - Pre-development Conditions
10-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Ex. El Paso Wash	1	116	10 Yr	2138.1	2819.35	2821.61	2.26	2821.64	2822.1	0.015008	5.62	380.5	426.66	1.05
Ex. El Paso Wash	1	115	10 Yr	2138.1	2816.92	2818.7	1.78	2818.75	2819.2	0.017373	5.65	378.41	469.76	1.11
Ex. El Paso Wash	1	114	10 Yr	2138.1	2814	2815.89	1.89	2815.89	2816.37	0.013779	5.54	385.77	414.34	1.01
Ex. El Paso Wash	1	113	10 Yr	2138.1	2811	2813.06	2.06	2813.07	2813.54	0.014449	5.57	383.75	423.7	1.03
Ex. El Paso Wash	1	112	10 Yr	2138.1	2808	2810.43	2.43	2810.38	2810.85	0.011944	5.2	410.85	435.71	0.94
Ex. El Paso Wash	1	111	10 Yr	2138.1	2806	2807.78	1.78	2807.78	2808.25	0.014088	5.49	389.31	430.92	1.02
Ex. El Paso Wash	1	110	10 Yr	2138.1	2803	2804.69	1.69	2804.73	2805.19	0.016781	5.68	376.51	452.09	1.1
Ex. El Paso Wash	1	109	10 Yr	2138.1	2800.49	2801.99	1.5	2801.99	2802.49	0.012879	5.66	377.9	374.1	0.99
Ex. El Paso Wash	1	108	10 Yr	2138.1	2796.35	2798.63	2.28	2798.78	2799.4	0.018518	7.03	304.22	285.39	1.2
Ex. El Paso Wash	1	107	10 Yr	2138.1	2794	2796.05	2.05	2795.88	2796.76	0.011232	6.76	316.43	216.4	0.98
Ex. El Paso Wash	1	106	10 Yr	2138.1	2791	2793.5	2.5	2793.54	2794.07	0.01482	6.05	353.51	351.54	1.06
Ex. El Paso Wash	1	105	10 Yr	2138.1	2788	2790.54	2.54	2790.58	2791.27	0.013156	6.86	311.87	235.17	1.05
Ex. El Paso Wash	1	104	10 Yr	2138.1	2786	2787.93	1.93	2787.8	2788.34	0.009459	5.11	418.07	381.8	0.86
Ex. El Paso Wash	1	103	10 Yr	2138.1	2783.21	2785.58	2.37	2785.58	2786.13	0.012804	5.91	361.53	333.25	1
Ex. El Paso Wash	1	102	10 Yr	2138.1	2781	2783.26	2.26	2782.95	2783.68	0.006398	5.19	411.97	274.46	0.75
Ex. El Paso Wash	1	101	10 Yr	2138.1	2779.34	2781.34	2	2781.34	2781.89	0.013028	5.97	358.3	330.32	1.01
Ex. El Paso Wash	1	100	10 Yr	2138.1	2776	2778.5	2.5	2778.55	2779.08	0.015257	6.13	349.01	348.02	1.08
Ex. El Paso Wash	1	99	10 Yr	2138.1	2774	2775.71	1.71	2775.76	2776.32	0.015057	6.28	340.42	323.99	1.08
Ex. El Paso Wash	1	98	10 Yr	2138.1	2771	2772.57	1.57	2772.66	2773.37	0.014292	7.16	298.82	224.88	1.09
Ex. El Paso Wash	1	97	10 Yr	2138.1	2768.55	2770.55	2	2770.34	2771.07	0.00752	5.78	370.02	236.8	0.81
Ex. El Paso Wash	1	96	10 Yr	2138.1	2765.45	2768.48	3.03	2768.48	2769.17	0.012099	6.69	319.68	234.91	1.01
Ex. El Paso Wash	1	95	10 Yr	2138.1	2764	2765.21	1.21	2765.37	2765.91	0.023326	6.69	319.47	383.83	1.29
Ex. El Paso Wash	1	94	10 Yr	2138.1	2761.17	2763.25	2.08	2763.26	2763.78	0.01368	5.82	367.09	364.05	1.02
Ex. El Paso Wash	1	93	10 Yr	2138.1	2758	2760.44	2.44	2760.48	2760.95	0.015238	5.72	373.49	412.09	1.06
Ex. El Paso Wash	1	92	10 Yr	2138.1	2756	2758.17	2.17	2758.11	2758.58	0.011659	5.14	415.84	440.72	0.93
Ex. El Paso Wash	1	91	10 Yr	2138.1	2753	2755.53	2.53	2755.53	2756.07	0.013545	5.88	363.55	352.66	1.02
Ex. El Paso Wash	1	90	10 Yr	2138.1	2751	2752.97	1.97	2752.97	2753.42	0.012671	5.4	395.95	415.21	0.97
Ex. El Paso Wash	1	89	10 Yr	2138.1	2748.73	2750.24	1.51	2750.25	2750.71	0.01452	5.53	386.53	433.11	1.03
Ex. El Paso Wash	1	88	10 Yr	2138.1	2746	2748.2	2.2	2747.98	2748.59	0.007325	5	427.56	333.49	0.78
Ex. El Paso Wash	1	87	10 Yr	2138.1	2744	2746.25	2.25	2746.24	2746.67	0.013021	5.22	409.77	461.84	0.98
Ex. El Paso Wash	1	86	10 Yr	2138.1	2741.62	2743.49	1.87	2743.49	2743.94	0.014463	5.35	399.52	468.98	1.02
Ex. El Paso Wash	1	85	10 Yr	2138.1	2738.1	2740.49	2.39	2740.36	2740.96	0.009091	5.48	390.44	312.58	0.86
Ex. El Paso Wash	1	84	10 Yr	2138.1	2736	2738.42	2.42	2738.39	2738.86	0.012089	5.31	402.4	417.35	0.95
Ex. El Paso Wash	1	83	10 Yr	2138.1	2734	2735.83	1.83	2735.83	2736.28	0.013771	5.41	395.19	439.91	1.01
Ex. El Paso Wash	1	82	10 Yr	2138.1	2732	2733.62	1.62	2733.49	2733.93	0.009295	4.48	477.02	524.4	0.83
Ex. El Paso Wash	1	81	10 Yr	2138.1	2728	2731.18	3.18	2731.18	2731.61	0.014627	5.25	407.39	496.57	1.02
Ex. El Paso Wash	1	80	10 Yr	2138.1	2726.32	2728.71	2.39	2728.63	2729.04	0.010438	4.63	461.66	527.09	0.87
Ex. El Paso Wash	1	79	10 Yr	2138.1	2724	2726.46	2.46	2726.41	2726.79	0.01207	4.62	462.35	589.94	0.92

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
South El Paso Wash - Pre-development Conditions
10-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Ex. El Paso Wash	1	78	10 Yr	2138.1	2722	2723.98	1.98	2723.98	2724.36	0.012282	4.9	436.72	518.11	0.94
Ex. El Paso Wash	1	77	10 Yr	2157.7	2719.31	2721.49	2.18	2721.26	2721.7	0.006061	3.66	588.83	635.31	0.67
Ex. El Paso Wash	1	76	10 Yr	2157.7	2716.53	2719.42	2.89	2719.42	2719.94	0.013152	5.78	373.2	362.77	1
Ex. El Paso Wash	1	75	10 Yr	2157.7	2714	2717.2	3.2	2717.06	2717.5	0.009647	4.37	493.96	579.8	0.83
Ex. El Paso Wash	1	74	10 Yr	2157.7	2712	2714.66	2.66	2714.66	2715.17	0.014021	5.74	376.1	388.22	1.03
Ex. El Paso Wash	1	73	10 Yr	2157.7	2709.54	2712.25	2.71	2712.16	2712.63	0.010991	4.96	435.32	466	0.9
Ex. El Paso Wash	1	72	10 Yr	2157.7	2707.17	2709.74	2.57	2709.74	2710.26	0.012757	5.77	373.9	356.2	0.99
Ex. El Paso Wash	1	71	10 Yr	2157.7	2705	2707.86	2.86	2707.57	2708.24	0.007579	4.95	435.95	353.78	0.79
Ex. El Paso Wash	1	70	10 Yr	2157.7	2703.32	2705.73	2.41	2705.73	2706.2	0.014327	5.46	395.09	446.59	1.02
Ex. El Paso Wash	1	69	10 Yr	2157.7	2701.12	2703.79	2.67	2703.53	2704.06	0.007185	4.18	516.41	519.91	0.74
Ex. El Paso Wash	1	68	10 Yr	2157.7	2699.17	2701.7	2.53	2701.7	2702.11	0.013901	5.11	422.32	515.9	1
Ex. El Paso Wash	1	67	10 Yr	2157.7	2697.04	2699.5	2.46	2699.34	2699.92	0.008329	5.16	417.86	342.06	0.82
Ex. El Paso Wash	1	66	10 Yr	2157.7	2696	2697.97	1.97	2697.69	2698.43	0.006607	5.46	395.42	250.45	0.77
Ex. El Paso Wash	1	65	10 Yr	2157.7	2693	2695.73	2.73	2695.73	2696.75	0.01016	8.11	266.06	127.99	0.99
Ex. El Paso Wash	1	64	10 Yr	2157.7	2691	2694.19	3.19	2694.02	2694.6	0.008106	5.17	417.5	334.25	0.81
Ex. El Paso Wash	1	63	10 Yr	2401.5	2690	2691.98	1.98	2691.98	2692.65	0.011398	6.6	363.87	260.87	0.98
Ex. El Paso Wash	1	62	10 Yr	2401.5	2686	2688.07	2.07	2688.4	2689.26	0.026723	8.75	274.31	243.87	1.45
Ex. El Paso Wash	1	61	10 Yr	2401.5	2683	2686.17	3.17	2686.14	2686.57	0.012745	5.08	472.4	544.43	0.96
Ex. El Paso Wash	1	60	10 Yr	2401.5	2681	2683.61	2.61	2683.58	2684.08	0.012036	5.48	438.42	432.8	0.96
Ex. El Paso Wash	1	59	10 Yr	2401.5	2679	2681.06	2.06	2681.06	2681.5	0.01369	5.32	451.63	513.5	1
Ex. El Paso Wash	1	58	10 Yr	2401.5	2676	2678.72	2.72	2678.64	2679.16	0.010234	5.29	453.61	417.15	0.89
Ex. El Paso Wash	1	57	10 Yr	2401.5	2674	2676.49	2.49	2676.43	2677.01	0.011109	5.77	416	357.24	0.94
Ex. El Paso Wash	1	56	10 Yr	2401.5	2672.03	2674.64	2.61	2674.5	2675.02	0.008655	4.95	484.8	434.54	0.83
Ex. El Paso Wash	1	55	10 Yr	2401.5	2670.93	2672.5	1.57	2672.47	2672.97	0.012197	5.51	435.8	430.87	0.97
Ex. El Paso Wash	1	54	10 Yr	2401.5	2668.49	2670.56	2.07	2670.39	2670.88	0.008696	4.58	524.47	531.12	0.81
Ex. El Paso Wash	1	53	10 Yr	2401.5	2666	2668.21	2.21	2668.21	2668.75	0.013104	5.9	407.11	383.39	1.01
Ex. El Paso Wash	1	52	10 Yr	2401.5	2663	2665.95	2.95	2665.72	2666.32	0.007898	4.88	492.24	421.33	0.8
Ex. El Paso Wash	1	51	10 Yr	2401.5	2661.32	2663.82	2.5	2663.82	2664.24	0.014093	5.24	458.08	543.73	1.01
Ex. El Paso Wash	1	50	10 Yr	2401.5	2659.53	2661.68	2.15	2661.49	2661.96	0.007385	4.22	569.61	577.42	0.75
Ex. El Paso Wash	1	49	10 Yr	2401.5	2657	2659.52	2.52	2659.52	2660.01	0.013042	5.65	425.15	425.76	1
Ex. El Paso Wash	1	48	10 Yr	2401.5	2655	2657.52	2.52	2657.06	2657.82	0.004409	4.41	544.12	349.8	0.62
Ex. El Paso Wash	1	47	10 Yr	2447.1	2653	2655.86	2.86	2655.86	2656.37	0.013351	5.74	426	423.5	1.01
Ex. El Paso Wash	1	46	10 Yr	2447.1	2651	2653.39	2.39	2653.26	2654	0.009293	6.29	389.11	257.27	0.9
Ex. El Paso Wash	1	45	10 Yr	2447.1	2649	2651.81	2.81	2651.64	2652.17	0.00829	4.8	509.93	464.25	0.81
Ex. El Paso Wash	1	44	10 Yr	2447.1	2647	2649.61	2.61	2649.61	2650.12	0.012696	5.75	425.67	406.94	0.99
Ex. El Paso Wash	1	43	10 Yr	2447.1	2645	2647.42	2.42	2646.91	2647.82	0.006741	5.04	485.82	351.79	0.76
Ex. El Paso Wash	1	42	10 Yr	2447.1	2642.49	2645.73	3.24	2645.61	2646.24	0.009161	5.72	427.62	321.79	0.87
Ex. El Paso Wash	1	41	10 Yr	2447.1	2640.63	2643.63	3	2643.6	2644.17	0.011761	5.92	413.37	356.75	0.97

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
South El Paso Wash - Pre-development Conditions
10-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Ex. El Paso Wash	1	40	10 Yr	2447.1	2639	2642.12	3.12	0	2642.53	0.005835	5.09	480.7	307.54	0.72
Ex. El Paso Wash	1	39	10 Yr	2447.1	2638	2640.31	2.31	2640.25	2640.94	0.010909	6.41	381.58	275.97	0.96
Ex. El Paso Wash	1	38	10 Yr	2447.1	2635.72	2638.6	2.88	0	2639.06	0.0078	5.44	450.11	324.33	0.81
Ex. El Paso Wash	1	37	10 Yr	2447.1	2634	2636.61	2.61	2636.57	2637.19	0.011425	6.1	401.29	324.32	0.97
Ex. El Paso Wash	1	36	10 Yr	2447.1	2632	2634.81	2.81	0	2635.23	0.008083	5.19	471.48	374.46	0.82
Ex. El Paso Wash	1	35	10 Yr	2447.1	2630	2632.82	2.82	2632.74	2633.37	0.010667	5.94	411.85	328.54	0.94
Ex. El Paso Wash	1	34	10 Yr	2447.1	2628	2631.03	3.03	0	2631.42	0.008519	5.03	486.76	421.56	0.82
Ex. El Paso Wash	1	33	10 Yr	2447.1	2626	2629.57	3.57	0	2629.95	0.006429	4.95	494.4	354.82	0.74
Ex. El Paso Wash	1	32	10 Yr	2447.1	2625	2627.79	2.79	2627.74	2628.27	0.011214	5.59	437.6	397.14	0.94
Ex. El Paso Wash	1	31	10 Yr	2447.1	2623	2625.72	2.72	2625.63	2626.15	0.009909	5.26	465.1	421.65	0.88
Ex. El Paso Wash	1	30	10 Yr	2447.1	2621.57	2623.64	2.07	2623.56	2624.09	0.010665	5.36	456.17	424.56	0.91
Ex. El Paso Wash	1	29	10 Yr	2447.1	2620	2621.64	1.64	2621.53	2622.04	0.00971	5.04	485.15	461.71	0.87
Ex. El Paso Wash	1	28	10 Yr	2447.1	2618	2619.67	1.67	2619.56	2620.1	0.009622	5.29	462.96	407.88	0.87
Ex. El Paso Wash	1	27	10 Yr	2447.1	2616	2617.78	1.78	2617.65	2618.21	0.009366	5.28	463.21	400.28	0.87
Ex. El Paso Wash	1	26	10 Yr	2447.1	2614	2615.89	1.89	2615.77	2616.32	0.009521	5.27	464.7	408.49	0.87
Ex. El Paso Wash	1	25	10 Yr	2447.1	2612	2614.26	2.26	0	2614.63	0.007446	4.92	497.29	402.38	0.78
Ex. El Paso Wash	1	24	10 Yr	2447.1	2610	2612.14	2.14	2612.13	2612.7	0.012772	5.96	410.54	373.51	1
Ex. El Paso Wash	1	23	10 Yr	2447.1	2608.22	2610.4	2.18	0	2610.74	0.007289	4.64	527.39	458.78	0.76
Ex. El Paso Wash	1	22	10 Yr	2447.1	2606	2608.32	2.32	2608.32	2608.81	0.01326	5.62	435.37	444.85	1
Ex. El Paso Wash	1	21	10 Yr	2447.1	2604	2606.41	2.41	2606.21	2606.78	0.007544	4.88	501.03	413.77	0.78
Ex. El Paso Wash	1	20	10 Yr	2447.1	2602	2605.34	3.34	0	2605.63	0.004369	4.3	568.51	376.87	0.62
Ex. El Paso Wash	1	19	10 Yr	2447.1	2600.56	2603.66	3.1	2603.66	2604.21	0.012904	5.97	409.62	374.11	1.01
Ex. El Paso Wash	1	18	10 Yr	2447.1	2600	2602.17	2.17	2601.84	2602.39	0.00542	3.73	656.74	635.57	0.65
Ex. El Paso Wash	1	17	10 Yr	2447.1	2598.55	2600.26	1.71	2600.26	2600.71	0.014152	5.41	452.25	513.62	1.02
Ex. El Paso Wash	1	16	10 Yr	2447.1	2595	2598.45	3.45	2598.04	2598.8	0.005188	4.76	514.42	333.41	0.67
Ex. El Paso Wash	1	15	10 Yr	2447.1	2594	2596.9	2.9	2596.78	2597.37	0.010404	5.48	446.87	395.32	0.91
Ex. El Paso Wash	1	14	10 Yr	2447.1	2593	2595.2	2.2	0	2595.62	0.007313	5.23	467.91	340.42	0.79
Ex. El Paso Wash	1	13	10 Yr	2447.1	2591	2593.68	2.68	2593.54	2594.03	0.008328	4.76	514	474.82	0.81
Ex. El Paso Wash	1	12	10 Yr	2447.1	2589	2591.78	2.78	2591.7	2592.18	0.01038	5.08	481.34	475.66	0.89
Ex. El Paso Wash	1	11	10 Yr	2447.1	2587	2590.03	3.03	0	2590.35	0.007999	4.56	537	514.04	0.79
Ex. El Paso Wash	1	10	10 Yr	2447.1	2585	2588.07	3.07	2587.98	2588.49	0.010834	5.22	468.97	460.05	0.91
Ex. El Paso Wash	1	9	10 Yr	2447.1	2583	2586.47	3.47	0	2586.85	0.006359	4.93	496.24	355.21	0.74
Ex. El Paso Wash	1	8	10 Yr	2447.1	2581.49	2584.89	3.4	2584.78	2585.27	0.010193	4.92	497.84	510.63	0.88
Ex. El Paso Wash	1	7	10 Yr	2447.1	2579	2582.92	3.92	2582.79	2583.28	0.009651	4.77	512.77	527.47	0.85
Ex. El Paso Wash	1	6	10 Yr	2447.1	2578	2581.07	3.07	2580.94	2581.37	0.009215	4.43	552.4	613.7	0.82
Ex. El Paso Wash	1	5	10 Yr	2447.1	2577	2578.92	1.92	2578.88	2579.29	0.0117	4.87	502.99	581.1	0.92
Ex. El Paso Wash	1	4	10 Yr	2447.1	2574	2576.87	2.87	2576.74	2577.23	0.009043	4.8	510.19	496.2	0.83
Ex. El Paso Wash	1	3	10 Yr	2447.1	2572	2574.55	2.55	2574.55	2575	0.014003	5.34	458.38	526.87	1.01

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT

South El Paso Wash - Pre-development Conditions

10-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Ex. El Paso Wash	1	2	10 Yr	2447.1	2570	2572.76	2.76	2572.5	2573.03	0.006162	4.16	588.28	531.28	0.7
Ex. El Paso Wash	1	1	10 Yr	2447.1	2569	2570.79	1.79	2570.79	2571.33	0.012013	6.05	430.14	406.34	0.98

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
South El Paso Wash - Pre-development Conditions
25-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Ex. El Paso Wash	1	116	25 Yr	3604.6	2819.35	2821.96	2.61	2822.06	2822.67	0.015005	6.75	533.69	454.01	1.1
Ex. El Paso Wash	1	115	25 Yr	3604.6	2816.92	2819.11	2.19	2819.14	2819.71	0.014298	6.2	581.67	543.2	1.06
Ex. El Paso Wash	1	114	25 Yr	3604.6	2814	2816.3	2.3	2816.33	2816.89	0.013897	6.16	585.2	539.9	1.04
Ex. El Paso Wash	1	113	25 Yr	3604.6	2811	2813.45	2.45	2813.48	2814.09	0.013925	6.45	558.86	481.87	1.06
Ex. El Paso Wash	1	112	25 Yr	3604.6	2808	2810.79	2.79	2810.79	2811.37	0.013181	6.09	591.62	533.27	1.02
Ex. El Paso Wash	1	111	25 Yr	3604.6	2806	2808.19	2.19	2808.2	2808.8	0.012497	6.25	576.74	480.6	1.01
Ex. El Paso Wash	1	110	25 Yr	3604.6	2803	2804.97	1.97	2805.11	2805.76	0.018591	7.15	504.14	462.66	1.21
Ex. El Paso Wash	1	109	25 Yr	3604.6	2800.49	2802.43	1.94	2802.43	2803.09	0.012329	6.48	556.69	435.64	1.01
Ex. El Paso Wash	1	108	25 Yr	3604.6	2796.35	2799.14	2.79	2799.37	2800.07	0.018489	7.75	465.23	376.68	1.23
Ex. El Paso Wash	1	107	25 Yr	3604.6	2794	2796.81	2.81	2796.81	2797.36	0.012634	5.96	604.85	545.71	1
Ex. El Paso Wash	1	106	25 Yr	3604.6	2791	2794.1	3.1	2794.13	2794.62	0.014839	5.75	627.01	673.74	1.05
Ex. El Paso Wash	1	105	25 Yr	3604.6	2788	2791.32	3.32	2791.32	2791.85	0.013029	5.85	615.85	584.46	1
Ex. El Paso Wash	1	104	25 Yr	3604.6	2786	2788.17	2.17	2788.3	2788.93	0.016339	6.99	515.44	443.57	1.14
Ex. El Paso Wash	1	103	25 Yr	3604.6	2783.21	2786.12	2.91	2786.12	2786.77	0.011917	6.43	560.29	431.34	0.99
Ex. El Paso Wash	1	102	25 Yr	3604.6	2781	2783.74	2.74	2783.51	2784.41	0.007667	6.55	550.7	296.65	0.85
Ex. El Paso Wash	1	101	25 Yr	3604.6	2779.34	2781.86	2.52	2781.86	2782.5	0.012184	6.41	562.45	443.04	1
Ex. El Paso Wash	1	100	25 Yr	3604.6	2776	2778.89	2.89	2779.01	2779.74	0.015134	7.39	487.97	365.24	1.13
Ex. El Paso Wash	1	99	25 Yr	3604.6	2774	2776.23	2.23	2776.25	2776.95	0.012519	6.79	530.62	390.9	1.03
Ex. El Paso Wash	1	98	25 Yr	3604.6	2771	2773.16	2.16	2773.35	2774.18	0.015027	8.12	443.83	286.77	1.15
Ex. El Paso Wash	1	97	25 Yr	3604.6	2768.55	2771.4	2.85	2771.23	2771.83	0.007952	5.24	687.79	531.66	0.81
Ex. El Paso Wash	1	96	25 Yr	3604.6	2765.45	2769.21	3.76	2769.21	2769.81	0.01288	6.21	580.82	500.51	1.02
Ex. El Paso Wash	1	95	25 Yr	3604.6	2764	2765.57	1.57	2765.78	2766.52	0.021131	7.84	459.82	404.64	1.3
Ex. El Paso Wash	1	94	25 Yr	3604.6	2761.17	2763.69	2.52	2763.7	2764.4	0.012159	6.78	531.83	384.6	1.02
Ex. El Paso Wash	1	93	25 Yr	3604.6	2758	2760.73	2.73	2760.87	2761.56	0.017312	7.3	493.84	416.42	1.18
Ex. El Paso Wash	1	92	25 Yr	3604.6	2756	2758.51	2.51	2758.51	2759.14	0.012184	6.39	563.81	445.38	1
Ex. El Paso Wash	1	91	25 Yr	3604.6	2753	2756.03	3.03	2756.03	2756.67	0.012688	6.43	560.71	453.13	1.02
Ex. El Paso Wash	1	90	25 Yr	3604.6	2751	2753.3	2.3	2753.36	2753.93	0.015161	6.38	565.09	528.08	1.09
Ex. El Paso Wash	1	89	25 Yr	3604.6	2748.73	2750.54	1.81	2750.63	2751.29	0.015907	6.94	519.76	444.22	1.13
Ex. El Paso Wash	1	88	25 Yr	3604.6	2746	2748.62	2.62	2748.46	2749.24	0.008454	6.31	570.86	349.39	0.87
Ex. El Paso Wash	1	87	25 Yr	3604.6	2744	2746.61	2.61	2746.61	2747.21	0.012443	6.25	576.38	478.43	1
Ex. El Paso Wash	1	86	25 Yr	3604.6	2741.62	2743.8	2.18	2743.87	2744.48	0.015071	6.62	544.57	479.26	1.09
Ex. El Paso Wash	1	85	25 Yr	3604.6	2738.1	2740.96	2.86	2740.86	2741.64	0.009556	6.63	543.41	338.73	0.92
Ex. El Paso Wash	1	84	25 Yr	3604.6	2736	2738.79	2.79	2738.79	2739.42	0.012869	6.36	566.49	469.83	1.02
Ex. El Paso Wash	1	83	25 Yr	3604.6	2734	2736.22	2.22	2736.24	2736.82	0.013148	6.2	581.36	509.52	1.02
Ex. El Paso Wash	1	82	25 Yr	3604.6	2732	2733.98	1.98	2733.86	2734.41	0.009743	5.31	679.22	600.37	0.88
Ex. El Paso Wash	1	81	25 Yr	3604.6	2728	2731.52	3.52	2731.52	2732.13	0.013405	6.23	578.53	510.63	1.03
Ex. El Paso Wash	1	80	25 Yr	3604.6	2726.32	2729.05	2.73	2728.98	2729.52	0.011145	5.51	653.72	603.47	0.93
Ex. El Paso Wash	1	79	25 Yr	3604.6	2724	2726.78	2.78	2726.74	2727.25	0.011664	5.5	655.77	629.33	0.95

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
South El Paso Wash - Pre-development Conditions
25-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Ex. El Paso Wash	1	78	25 Yr	3604.6	2722	2724.32	2.32	2724.32	2724.77	0.013176	5.41	665.92	716.4	0.99
Ex. El Paso Wash	1	77	25 Yr	3625.4	2719.31	2721.89	2.58	2721.57	2722.17	0.005704	4.21	860.28	719.13	0.68
Ex. El Paso Wash	1	76	25 Yr	3625.4	2716.53	2719.94	3.41	2719.94	2720.49	0.013114	5.93	610.93	570.08	1.01
Ex. El Paso Wash	1	75	25 Yr	3625.4	2714	2717.54	3.54	2717.41	2717.96	0.009574	5.17	700.85	634.72	0.87
Ex. El Paso Wash	1	74	25 Yr	3625.4	2712	2715.16	3.16	2715.16	2715.74	0.012844	6.1	594.03	523.37	1.01
Ex. El Paso Wash	1	73	25 Yr	3625.4	2709.54	2712.66	3.12	2712.61	2713.13	0.011227	5.51	657.9	610.5	0.94
Ex. El Paso Wash	1	72	25 Yr	3625.4	2707.17	2710.25	3.08	2710.23	2710.86	0.01133	6.27	577.77	444.14	0.97
Ex. El Paso Wash	1	71	25 Yr	3625.4	2705	2708.35	3.35	2708.2	2708.82	0.00888	5.48	662.15	520.33	0.86
Ex. El Paso Wash	1	70	25 Yr	3625.4	2703.32	2706.15	2.83	2706.15	2706.72	0.012409	6.08	596.01	514.58	1
Ex. El Paso Wash	1	69	25 Yr	3625.4	2701.12	2704.15	3.03	2703.93	2704.54	0.007605	5.05	717.82	567.44	0.79
Ex. El Paso Wash	1	68	25 Yr	3625.4	2699.17	2702.05	2.88	2702.05	2702.61	0.012431	5.98	606.53	538.42	0.99
Ex. El Paso Wash	1	67	25 Yr	3625.4	2697.04	2700.18	3.14	2699.83	2700.63	0.006012	5.38	673.55	405.76	0.74
Ex. El Paso Wash	1	66	25 Yr	3625.4	2696	2699.13	3.13	2698.32	2699.45	0.005471	4.52	802.64	585.99	0.68
Ex. El Paso Wash	1	65	25 Yr	3625.4	2693	2696.72	3.72	2696.72	2697.94	0.009638	8.83	410.4	166.89	0.99
Ex. El Paso Wash	1	64	25 Yr	3625.4	2691	2694.76	3.76	2694.5	2695.28	0.007663	5.81	623.66	401.28	0.82
Ex. El Paso Wash	1	63	25 Yr	3948.2	2690	2692.54	2.54	2692.54	2693.45	0.010577	7.62	517.99	282.88	0.99
Ex. El Paso Wash	1	62	25 Yr	3948.2	2686	2688.5	2.5	2689.12	2690.15	0.027574	10.29	383.84	274.3	1.53
Ex. El Paso Wash	1	61	25 Yr	3948.2	2683	2686.52	3.52	2686.5	2687.06	0.01182	5.9	668.75	582.04	0.97
Ex. El Paso Wash	1	60	25 Yr	3948.2	2681	2684.08	3.08	2684.08	2684.61	0.012646	5.82	677.95	633.71	0.99
Ex. El Paso Wash	1	59	25 Yr	3948.2	2679	2681.39	2.39	2681.4	2682.01	0.013374	6.3	627.19	543.98	1.03
Ex. El Paso Wash	1	58	25 Yr	3948.2	2676	2679.21	3.21	2679.07	2679.75	0.008848	5.88	671.6	473.29	0.87
Ex. El Paso Wash	1	57	25 Yr	3948.2	2674	2677.03	3.03	2676.92	2677.67	0.012177	6.45	611.66	476.01	1
Ex. El Paso Wash	1	56	25 Yr	3948.2	2672.03	2675.06	3.03	2674.9	2675.59	0.008752	5.85	674.47	474.56	0.87
Ex. El Paso Wash	1	55	25 Yr	3948.2	2670.93	2672.88	1.95	2672.88	2673.54	0.011997	6.51	606.53	461.31	1
Ex. El Paso Wash	1	54	25 Yr	3948.2	2668.49	2670.91	2.42	2670.76	2671.38	0.008724	5.54	712.96	544.14	0.85
Ex. El Paso Wash	1	53	25 Yr	3948.2	2666	2668.68	2.68	2668.68	2669.33	0.012002	6.5	607.5	463.13	1
Ex. El Paso Wash	1	52	25 Yr	3948.2	2663	2666.33	3.33	2666.2	2666.88	0.009225	5.96	662.42	471.74	0.89
Ex. El Paso Wash	1	51	25 Yr	3948.2	2661.32	2664.19	2.87	2664.19	2664.71	0.012943	5.8	681.24	652.68	1
Ex. El Paso Wash	1	50	25 Yr	3948.2	2659.53	2662.05	2.52	2661.83	2662.44	0.00714	5.01	787.79	600.7	0.77
Ex. El Paso Wash	1	49	25 Yr	3948.2	2657	2659.92	2.92	2659.92	2660.59	0.011984	6.59	599.25	447.07	1
Ex. El Paso Wash	1	48	25 Yr	3948.2	2655	2657.91	2.91	2657.53	2658.43	0.005859	5.79	681.58	360.67	0.74
Ex. El Paso Wash	1	47	25 Yr	4005.7	2653	2656.36	3.36	2656.26	2656.92	0.010014	5.97	671.5	508.41	0.91
Ex. El Paso Wash	1	46	25 Yr	4005.7	2651	2654.02	3.02	2654.01	2654.72	0.011899	6.72	596.41	430.13	1.01
Ex. El Paso Wash	1	45	25 Yr	4005.7	2649	2652.23	3.23	2652.04	2652.72	0.008052	5.65	709.57	495.4	0.83
Ex. El Paso Wash	1	44	25 Yr	4005.7	2647	2650.03	3.03	2650.03	2650.71	0.012584	6.61	605.87	466.54	1.02
Ex. El Paso Wash	1	43	25 Yr	4005.7	2645	2648	3	2647.65	2648.51	0.006106	5.73	699.11	387.34	0.75
Ex. El Paso Wash	1	42	25 Yr	4005.7	2642.49	2646.17	3.68	2646.12	2646.92	0.010328	6.98	573.56	350.26	0.96
Ex. El Paso Wash	1	41	25 Yr	4005.7	2640.63	2644.11	3.48	2644.06	2644.82	0.010501	6.78	591.02	382.46	0.96

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
South El Paso Wash - Pre-development Conditions
25-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Ex. El Paso Wash	1	40	25 Yr	4005.7	2639	2642.73	3.73	0	2643.28	0.005625	5.94	674.65	333.39	0.74
Ex. El Paso Wash	1	39	25 Yr	4005.7	2638	2640.81	2.81	2640.81	2641.71	0.011075	7.58	528.48	300.82	1.01
Ex. El Paso Wash	1	38	25 Yr	4005.7	2635.72	2639.1	3.38	2638.89	2639.76	0.007869	6.48	617.75	343.94	0.85
Ex. El Paso Wash	1	37	25 Yr	4005.7	2634	2637.06	3.06	2637.06	2637.88	0.011227	7.27	551.21	337.93	1
Ex. El Paso Wash	1	36	25 Yr	4005.7	2632	2635.31	3.31	2635.07	2635.88	0.007515	6.03	663.86	398.23	0.82
Ex. El Paso Wash	1	35	25 Yr	4005.7	2630	2633.28	3.28	2633.28	2634.01	0.011649	6.85	584.45	402.1	1
Ex. El Paso Wash	1	34	25 Yr	4005.7	2628	2631.53	3.53	2631.29	2632.04	0.007017	5.7	702.47	435.43	0.79
Ex. El Paso Wash	1	33	25 Yr	4005.7	2626	2630.2	4.2	0	2630.64	0.006773	5.31	754.01	506.25	0.77
Ex. El Paso Wash	1	32	25 Yr	4005.7	2625	2628.17	3.17	2628.17	2628.88	0.011611	6.75	593.57	417.08	1
Ex. El Paso Wash	1	31	25 Yr	4005.7	2623	2626.13	3.13	2626.04	2626.74	0.00965	6.23	643.15	443.83	0.91
Ex. El Paso Wash	1	30	25 Yr	4005.7	2621.57	2624.01	2.44	2623.97	2624.67	0.011078	6.5	616.19	442.33	0.97
Ex. El Paso Wash	1	29	25 Yr	4005.7	2620	2622.03	2.03	2621.92	2622.59	0.009598	6.01	665.99	482.54	0.9
Ex. El Paso Wash	1	28	25 Yr	4005.7	2618	2620.1	2.1	2619.98	2620.7	0.009234	6.23	643.39	429.95	0.9
Ex. El Paso Wash	1	27	25 Yr	4005.7	2616	2618.21	2.21	2618.11	2618.8	0.00977	6.17	648.75	457.95	0.91
Ex. El Paso Wash	1	26	25 Yr	4005.7	2614	2616.33	2.33	2616.2	2616.92	0.009029	6.16	650.32	434.28	0.89
Ex. El Paso Wash	1	25	25 Yr	4005.7	2612	2614.67	2.67	0	2615.23	0.007868	5.99	668.73	419.91	0.84
Ex. El Paso Wash	1	24	25 Yr	4005.7	2610	2612.59	2.59	2612.59	2613.32	0.011596	6.86	584.12	400.55	1
Ex. El Paso Wash	1	23	25 Yr	4005.7	2608.22	2610.81	2.59	2610.59	2611.29	0.007711	5.54	722.79	502.46	0.81
Ex. El Paso Wash	1	22	25 Yr	4005.7	2606	2608.73	2.73	2608.73	2609.35	0.012287	6.32	634.3	513.99	1
Ex. El Paso Wash	1	21	25 Yr	4005.7	2604	2606.92	2.92	2606.62	2607.41	0.006462	5.59	716.92	430.8	0.76
Ex. El Paso Wash	1	20	25 Yr	4005.7	2602	2605.87	3.87	0	2606.28	0.004748	5.15	777.28	418.65	0.67
Ex. El Paso Wash	1	19	25 Yr	4005.7	2600.56	2604.11	3.55	2604.11	2604.83	0.011796	6.78	590.51	416.72	1
Ex. El Paso Wash	1	18	25 Yr	4005.7	2600	2602.56	2.56	2602.21	2602.86	0.005476	4.38	913.68	698.22	0.68
Ex. El Paso Wash	1	17	25 Yr	4005.7	2598.55	2600.62	2.07	2600.62	2601.22	0.0128	6.25	640.55	542.99	1.01
Ex. El Paso Wash	1	16	25 Yr	4005.7	2595	2598.9	3.9	2598.56	2599.45	0.006391	5.97	671.17	361.85	0.77
Ex. El Paso Wash	1	15	25 Yr	4005.7	2594	2597.41	3.41	2597.28	2597.95	0.008875	5.87	682.94	483.9	0.87
Ex. El Paso Wash	1	14	25 Yr	4005.7	2593	2595.68	2.68	2595.46	2596.28	0.007776	6.25	641.01	373.77	0.84
Ex. El Paso Wash	1	13	25 Yr	4005.7	2591	2594.01	3.01	2593.9	2594.56	0.009408	5.99	668.21	478.57	0.89
Ex. El Paso Wash	1	12	25 Yr	4005.7	2589	2592.21	3.21	2592.08	2592.73	0.008834	5.8	690.24	495.45	0.87
Ex. El Paso Wash	1	11	25 Yr	4005.7	2587	2590.3	3.3	2590.23	2590.84	0.010108	5.91	677.33	522.64	0.92
Ex. El Paso Wash	1	10	25 Yr	4005.7	2585	2588.6	3.6	0	2589.08	0.007629	5.56	720.68	494.31	0.81
Ex. El Paso Wash	1	9	25 Yr	4005.7	2583	2587.1	4.1	0	2587.55	0.007532	5.38	744.8	531.67	0.8
Ex. El Paso Wash	1	8	25 Yr	4005.7	2581.49	2585.23	3.74	2585.16	2585.78	0.010402	5.9	678.45	536.69	0.93
Ex. El Paso Wash	1	7	25 Yr	4005.7	2579	2583.3	4.3	2583.17	2583.77	0.009456	5.55	721.32	582.16	0.88
Ex. El Paso Wash	1	6	25 Yr	4005.7	2578	2581.35	3.35	2581.27	2581.82	0.010111	5.48	730.83	632.51	0.9
Ex. El Paso Wash	1	5	25 Yr	4005.7	2577	2579.27	2.27	2579.19	2579.77	0.010367	5.63	711.45	602.94	0.91
Ex. El Paso Wash	1	4	25 Yr	4005.7	2574	2577.24	3.24	2577.15	2577.73	0.009938	5.59	716.5	594.4	0.9
Ex. El Paso Wash	1	3	25 Yr	4005.7	2572	2574.9	2.9	2574.9	2575.5	0.012402	6.21	645.45	540.28	1

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
South El Paso Wash - Pre-development Conditions
25-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Ex. El Paso Wash	1	2	25 Yr	4005.7	2570	2573.2	3.2	2572.85	2573.56	0.005829	4.8	833.74	581.76	0.71
Ex. El Paso Wash	1	1	25 Yr	4005.7	2569	2571.21	2.21	2571.21	2571.95	0.011186	7.11	600.2	408.83	1

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
South El Paso Wash - Pre-development Conditions
100-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Ex. El Paso Wash	1	116	100 Yr	6681.5	2819.35	2822.51	3.16	2822.68	2823.58	0.015007	8.3	805.42	503.38	1.16
Ex. El Paso Wash	1	115	100 Yr	6681.5	2816.92	2819.61	2.69	2819.76	2820.53	0.015102	7.71	867.02	608.24	1.14
Ex. El Paso Wash	1	114	100 Yr	6681.5	2814	2816.84	2.84	2816.89	2817.69	0.013167	7.4	902.35	606.5	1.07
Ex. El Paso Wash	1	113	100 Yr	6681.5	2811	2814	3	2814.12	2814.94	0.014368	7.76	861.03	575.92	1.12
Ex. El Paso Wash	1	112	100 Yr	6681.5	2808	2811.31	3.31	2811.36	2812.21	0.012954	7.62	876.73	557.58	1.07
Ex. El Paso Wash	1	111	100 Yr	6681.5	2806	2808.76	2.76	2808.82	2809.68	0.012448	7.69	869.16	529.36	1.06
Ex. El Paso Wash	1	110	100 Yr	6681.5	2803	2805.5	2.5	2805.75	2806.71	0.017676	8.84	755.63	485.49	1.25
Ex. El Paso Wash	1	109	100 Yr	6681.5	2800.49	2803.11	2.62	2803.11	2804.01	0.011163	7.59	879.86	503.15	1.01
Ex. El Paso Wash	1	108	100 Yr	6681.5	2796.35	2799.75	3.4	2800.1	2801.01	0.020611	9	742.22	520.71	1.33
Ex. El Paso Wash	1	107	100 Yr	6681.5	2794	2797.39	3.39	2797.39	2798.07	0.011943	6.64	1006.24	740.14	1
Ex. El Paso Wash	1	106	100 Yr	6681.5	2791	2794.51	3.51	2794.62	2795.36	0.015413	7.38	905.83	689.04	1.13
Ex. El Paso Wash	1	105	100 Yr	6681.5	2788	2791.86	3.86	2791.88	2792.62	0.012037	6.99	955.83	654.86	1.02
Ex. El Paso Wash	1	104	100 Yr	6681.5	2786	2788.74	2.74	2788.95	2789.81	0.016206	8.3	805.22	532.87	1.19
Ex. El Paso Wash	1	103	100 Yr	6681.5	2783.21	2786.78	3.57	2786.78	2787.74	0.010802	7.84	852.37	453.23	1.01
Ex. El Paso Wash	1	102	100 Yr	6681.5	2781	2784.43	3.43	2784.45	2785.6	0.010401	8.68	769.7	341.24	1.02
Ex. El Paso Wash	1	101	100 Yr	6681.5	2779.34	2782.48	3.14	2782.52	2783.45	0.011571	7.9	845.61	468.02	1.04
Ex. El Paso Wash	1	100	100 Yr	6681.5	2776	2779.54	3.54	2779.76	2780.82	0.014797	9.08	736.13	397.76	1.18
Ex. El Paso Wash	1	99	100 Yr	6681.5	2774	2776.85	2.85	2776.98	2777.99	0.013113	8.59	777.72	417.07	1.11
Ex. El Paso Wash	1	98	100 Yr	6681.5	2771	2774.18	3.18	2774.31	2775.23	0.01428	8.21	814.15	498.47	1.13
Ex. El Paso Wash	1	97	100 Yr	6681.5	2768.55	2771.95	3.4	2771.79	2772.67	0.008639	6.8	982.58	546.84	0.89
Ex. El Paso Wash	1	96	100 Yr	6681.5	2765.45	2769.82	4.37	2769.82	2770.7	0.011216	7.52	888.69	517.68	1.01
Ex. El Paso Wash	1	95	100 Yr	6681.5	2764	2766.1	2.1	2766.52	2767.6	0.020828	9.81	681.18	423.62	1.36
Ex. El Paso Wash	1	94	100 Yr	6681.5	2761.17	2764.44	3.27	2764.44	2765.39	0.010968	7.82	854.61	461.7	1.01
Ex. El Paso Wash	1	93	100 Yr	6681.5	2758	2761.27	3.27	2761.54	2762.61	0.017541	9.31	717.79	424.36	1.26
Ex. El Paso Wash	1	92	100 Yr	6681.5	2756	2759.16	3.16	2759.16	2760.1	0.010689	7.8	856.08	454.38	1
Ex. El Paso Wash	1	91	100 Yr	6681.5	2753	2756.54	3.54	2756.7	2757.62	0.01448	8.35	800.16	482.3	1.14
Ex. El Paso Wash	1	90	100 Yr	6681.5	2751	2753.84	2.84	2753.94	2754.79	0.013506	7.8	856.37	542.44	1.09
Ex. El Paso Wash	1	89	100 Yr	6681.5	2748.73	2751.43	2.7	2751.28	2752.24	0.008448	7.21	926.09	463.96	0.9
Ex. El Paso Wash	1	88	100 Yr	6681.5	2746	2749.26	3.26	2749.26	2750.34	0.010422	8.36	799.52	375.96	1.01
Ex. El Paso Wash	1	87	100 Yr	6681.5	2744	2747.21	3.21	2747.22	2748.12	0.011339	7.63	876.12	503.64	1.02
Ex. El Paso Wash	1	86	100 Yr	6681.5	2741.62	2744.29	2.67	2744.5	2745.4	0.01627	8.45	791.01	511.46	1.2
Ex. El Paso Wash	1	85	100 Yr	6681.5	2738.1	2741.6	3.5	2741.66	2742.44	0.012814	7.35	908.8	605.08	1.06
Ex. El Paso Wash	1	84	100 Yr	6681.5	2736	2739.46	3.46	2739.46	2740.23	0.011561	7.03	950.89	627.16	1.01
Ex. El Paso Wash	1	83	100 Yr	6681.5	2734	2736.73	2.73	2736.84	2737.69	0.013814	7.85	851.46	543.89	1.11
Ex. El Paso Wash	1	82	100 Yr	6681.5	2732	2734.36	2.36	2734.42	2735.19	0.012993	7.29	916.47	624.36	1.06
Ex. El Paso Wash	1	81	100 Yr	6681.5	2728	2732.16	4.16	2732.16	2732.93	0.011967	7.04	949.3	640.97	1.02
Ex. El Paso Wash	1	80	100 Yr	6681.5	2726.32	2729.43	3.11	2729.53	2730.32	0.014238	7.55	884.59	611.98	1.11
Ex. El Paso Wash	1	79	100 Yr	6681.5	2724	2727.27	3.27	2727.28	2727.97	0.012322	6.71	995.13	737.08	1.02

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
South El Paso Wash - Pre-development Conditions
100-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Ex. El Paso Wash	1	78	100 Yr	6681.5	2722	2724.76	2.76	2724.79	2725.46	0.013029	6.75	989.92	758.42	1.04
Ex. El Paso Wash	1	77	100 Yr	6721.6	2719.31	2722.46	3.15	2722.11	2722.88	0.005554	5.17	1299.55	783.08	0.71
Ex. El Paso Wash	1	76	100 Yr	6721.6	2716.53	2720.51	3.98	2720.51	2721.24	0.012575	6.89	975.45	704.99	1.03
Ex. El Paso Wash	1	75	100 Yr	6721.6	2714	2718.06	4.06	2717.99	2718.69	0.010113	6.4	1050.52	731.42	0.93
Ex. El Paso Wash	1	74	100 Yr	6721.6	2712	2715.79	3.79	2715.79	2716.52	0.011714	6.86	980.35	677.04	1
Ex. El Paso Wash	1	73	100 Yr	6721.6	2709.54	2713.09	3.55	2713.17	2713.9	0.014547	7.22	931.58	700.65	1.1
Ex. El Paso Wash	1	72	100 Yr	6721.6	2707.17	2710.95	3.78	2710.95	2711.76	0.010981	7.25	927.16	560.64	0.99
Ex. El Paso Wash	1	71	100 Yr	6721.6	2705	2708.91	3.91	2708.8	2709.67	0.009309	6.96	965.61	548.3	0.92
Ex. El Paso Wash	1	70	100 Yr	6721.6	2703.32	2706.72	3.4	2706.72	2707.6	0.011419	7.51	895.28	529.6	1.02
Ex. El Paso Wash	1	69	100 Yr	6721.6	2701.12	2704.68	3.56	2704.53	2705.35	0.008213	6.56	1025.08	580.28	0.87
Ex. El Paso Wash	1	68	100 Yr	6721.6	2699.17	2702.64	3.47	2702.64	2703.45	0.010977	7.21	932.74	569.7	0.99
Ex. El Paso Wash	1	67	100 Yr	6721.6	2697.04	2700.81	3.77	2700.58	2701.61	0.007644	7.17	936.98	439.2	0.87
Ex. El Paso Wash	1	66	100 Yr	6721.6	2696	2699.96	3.96	2699.38	2700.37	0.004298	5.12	1312.23	661.86	0.64
Ex. El Paso Wash	1	65	100 Yr	6721.6	2693	2698.14	5.14	2698.14	2699.02	0.011039	7.53	892.93	512.05	1
Ex. El Paso Wash	1	64	100 Yr	6721.6	2691	2695.04	4.04	2695.35	2696.32	0.016264	9.08	740.67	429.62	1.22
Ex. El Paso Wash	1	63	100 Yr	7214.6	2690	2693.59	3.59	2693.59	2694.54	0.010462	7.82	922.73	481.02	0.99
Ex. El Paso Wash	1	62	100 Yr	7214.6	2686	2689.25	3.25	2689.84	2691.17	0.029079	11.13	648.31	428.49	1.59
Ex. El Paso Wash	1	61	100 Yr	7214.6	2683	2687.08	4.08	2687.08	2687.88	0.010908	7.15	1008.92	620.25	0.99
Ex. El Paso Wash	1	60	100 Yr	7214.6	2681	2684.53	3.53	2684.62	2685.38	0.014281	7.42	972.03	691.81	1.1
Ex. El Paso Wash	1	59	100 Yr	7214.6	2679	2682.04	3.04	2682.1	2682.86	0.013195	7.24	996.05	693	1.06
Ex. El Paso Wash	1	58	100 Yr	7214.6	2676	2679.84	3.84	2679.77	2680.66	0.010068	7.25	995.22	564.3	0.96
Ex. El Paso Wash	1	57	100 Yr	7214.6	2674	2677.69	3.69	2677.68	2678.56	0.010862	7.49	963.43	550.76	1
Ex. El Paso Wash	1	56	100 Yr	7214.6	2672.03	2675.68	3.65	2675.61	2676.5	0.009621	7.28	991.31	540.12	0.95
Ex. El Paso Wash	1	55	100 Yr	7214.6	2670.93	2673.58	2.65	2673.58	2674.39	0.011562	7.23	998.54	631.73	1.01
Ex. El Paso Wash	1	54	100 Yr	7214.6	2668.49	2671.45	2.96	2671.36	2672.24	0.009461	7.12	1013.57	564.09	0.94
Ex. El Paso Wash	1	53	100 Yr	7214.6	2666	2669.35	3.35	2669.35	2670.18	0.011134	7.34	983.58	591.13	1
Ex. El Paso Wash	1	52	100 Yr	7214.6	2663	2666.83	3.83	2666.92	2667.79	0.012809	7.87	917.26	551.16	1.07
Ex. El Paso Wash	1	51	100 Yr	7214.6	2661.32	2664.7	3.38	2664.7	2665.48	0.011501	7.06	1022.5	667.43	1
Ex. El Paso Wash	1	50	100 Yr	7214.6	2659.53	2662.67	3.14	2662.4	2663.26	0.006887	6.18	1166.73	631.71	0.8
Ex. El Paso Wash	1	49	100 Yr	7214.6	2657	2660.64	3.64	2660.64	2661.51	0.011125	7.45	968.54	568.51	1.01
Ex. El Paso Wash	1	48	100 Yr	7214.6	2655	2658.88	3.88	2658.52	2659.45	0.006602	6.07	1189.1	642.09	0.79
Ex. El Paso Wash	1	47	100 Yr	7270.3	2653	2656.96	3.96	2656.92	2657.8	0.010114	7.38	985.07	546.01	0.97
Ex. El Paso Wash	1	46	100 Yr	7270.3	2651	2654.72	3.72	2654.72	2655.71	0.010754	7.96	913.61	473.56	1.01
Ex. El Paso Wash	1	45	100 Yr	7270.3	2649	2652.79	3.79	2652.67	2653.62	0.008993	7.31	995.05	512.53	0.92
Ex. El Paso Wash	1	44	100 Yr	7270.3	2647	2650.71	3.71	2650.71	2651.65	0.010704	7.79	932.95	497.23	1
Ex. El Paso Wash	1	43	100 Yr	7270.3	2645	2648.85	3.85	2648.43	2649.61	0.005897	6.98	1041.37	417.75	0.78
Ex. El Paso Wash	1	42	100 Yr	7270.3	2642.49	2646.94	4.45	2646.94	2648.05	0.010115	8.46	858.9	386.92	1
Ex. El Paso Wash	1	41	100 Yr	7270.3	2640.63	2644.97	4.34	2644.84	2645.9	0.008663	7.75	937.69	429.29	0.92

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
South El Paso Wash - Pre-development Conditions
100-Year Hydraulics

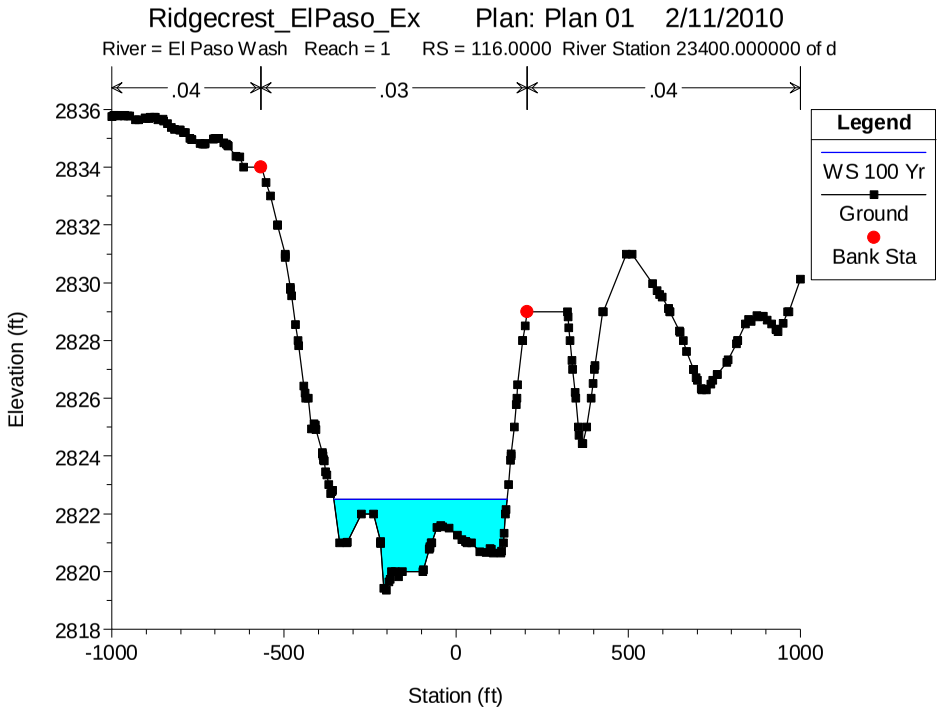
River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Ex. El Paso Wash	1	40	100 Yr	7270.3	2639	2643.67	4.67	0	2644.46	0.005733	7.13	1019.74	388.49	0.78
Ex. El Paso Wash	1	39	100 Yr	7270.3	2638	2641.73	3.73	2641.73	2642.93	0.010069	8.79	827.43	351.28	1.01
Ex. El Paso Wash	1	38	100 Yr	7270.3	2635.72	2639.87	4.15	2639.73	2640.9	0.008397	8.18	889.08	366.89	0.93
Ex. El Paso Wash	1	37	100 Yr	7270.3	2634	2637.88	3.88	2637.88	2639.05	0.010164	8.67	838.25	365.73	1.01
Ex. El Paso Wash	1	36	100 Yr	7270.3	2632	2635.99	3.99	2635.85	2636.92	0.008363	7.71	943.05	424.43	0.91
Ex. El Paso Wash	1	35	100 Yr	7270.3	2630	2634.02	4.02	2634.02	2635.05	0.010431	8.11	896.75	441.45	1
Ex. El Paso Wash	1	34	100 Yr	7270.3	2628	2632.26	4.26	2632.05	2633.02	0.007856	6.98	1041.85	519.27	0.87
Ex. El Paso Wash	1	33	100 Yr	7270.3	2626	2630.88	4.88	0	2631.56	0.00657	6.57	1106.24	527.6	0.8
Ex. El Paso Wash	1	32	100 Yr	7270.3	2625	2628.9	3.9	2628.9	2629.89	0.010478	7.98	910.63	460.42	1
Ex. El Paso Wash	1	31	100 Yr	7270.3	2623	2626.69	3.69	2626.73	2627.71	0.011244	8.12	895.65	465.85	1.03
Ex. El Paso Wash	1	30	100 Yr	7270.3	2621.57	2624.66	3.09	2624.66	2625.65	0.010672	7.97	911.8	468.49	1.01
Ex. El Paso Wash	1	29	100 Yr	7270.3	2620	2622.71	2.71	2622.57	2623.52	0.008547	7.22	1006.71	508.17	0.9
Ex. El Paso Wash	1	28	100 Yr	7270.3	2618	2620.75	2.75	2620.68	2621.7	0.0096	7.8	932.53	457.84	0.96
Ex. El Paso Wash	1	27	100 Yr	7270.3	2616	2618.85	2.85	2618.79	2619.75	0.009733	7.59	957.63	494.36	0.96
Ex. El Paso Wash	1	26	100 Yr	7270.3	2614	2617.06	3.06	2616.91	2617.91	0.00857	7.41	980.56	476.75	0.91
Ex. El Paso Wash	1	25	100 Yr	7270.3	2612	2615.37	3.37	2615.2	2616.24	0.008177	7.5	969.82	447.66	0.9
Ex. El Paso Wash	1	24	100 Yr	7270.3	2610	2613.32	3.32	2613.32	2614.35	0.010823	8.17	889.82	445.53	1.02
Ex. El Paso Wash	1	23	100 Yr	7270.3	2608.22	2611.38	3.16	2611.24	2612.17	0.008699	7.12	1021.2	533.69	0.91
Ex. El Paso Wash	1	22	100 Yr	7270.3	2606	2609.35	3.35	2609.35	2610.21	0.011024	7.43	977.99	571.99	1
Ex. El Paso Wash	1	21	100 Yr	7270.3	2604	2607.79	3.79	2607.37	2608.41	0.005816	6.32	1150.48	531.12	0.76
Ex. El Paso Wash	1	20	100 Yr	7270.3	2602	2606.66	4.66	0	2607.3	0.005239	6.43	1130.48	470.2	0.73
Ex. El Paso Wash	1	19	100 Yr	7270.3	2600.56	2604.96	4.4	2604.96	2605.81	0.011104	7.38	984.56	584.72	1
Ex. El Paso Wash	1	18	100 Yr	7270.3	2600	2603.05	3.05	2602.76	2603.56	0.006456	5.72	1270.89	737.18	0.77
Ex. El Paso Wash	1	17	100 Yr	7270.3	2598.55	2601.45	2.9	2601.26	2602.08	0.008441	6.34	1146.42	696.35	0.87
Ex. El Paso Wash	1	16	100 Yr	7270.3	2595	2599.73	4.73	2599.5	2600.45	0.007816	6.77	1073.4	556.96	0.86
Ex. El Paso Wash	1	15	100 Yr	7270.3	2594	2598.15	4.15	0	2598.88	0.007803	6.88	1056.69	535.11	0.86
Ex. El Paso Wash	1	14	100 Yr	7270.3	2593	2596.51	3.51	2596.36	2597.26	0.008365	6.95	1045.72	549.01	0.89
Ex. El Paso Wash	1	13	100 Yr	7270.3	2591	2594.63	3.63	2594.54	2595.5	0.009123	7.49	970.45	485.98	0.93
Ex. El Paso Wash	1	12	100 Yr	7270.3	2589	2592.78	3.78	2592.71	2593.64	0.009577	7.44	977.59	513.8	0.95
Ex. El Paso Wash	1	11	100 Yr	7270.3	2587	2590.91	3.91	2590.83	2591.73	0.009449	7.24	1003.63	543	0.94
Ex. El Paso Wash	1	10	100 Yr	7270.3	2585	2589.25	4.25	0	2589.98	0.007917	6.86	1060.18	545.65	0.87
Ex. El Paso Wash	1	9	100 Yr	7270.3	2583	2587.72	4.72	0	2588.43	0.007558	6.75	1076.91	547.99	0.85
Ex. El Paso Wash	1	8	100 Yr	7270.3	2581.49	2585.79	4.3	2585.77	2586.64	0.010567	7.39	984.23	562.96	0.98
Ex. El Paso Wash	1	7	100 Yr	7270.3	2579	2583.85	4.85	2583.74	2584.58	0.009687	6.89	1054.81	626.96	0.94
Ex. El Paso Wash	1	6	100 Yr	7270.3	2578	2581.86	3.86	2581.81	2582.59	0.010272	6.85	1061.49	665.47	0.96
Ex. El Paso Wash	1	5	100 Yr	7270.3	2577	2579.82	2.82	2579.76	2580.56	0.010035	6.93	1049.7	636.3	0.95
Ex. El Paso Wash	1	4	100 Yr	7270.3	2574	2577.77	3.77	2577.73	2578.53	0.010374	6.97	1043.5	642.6	0.96
Ex. El Paso Wash	1	3	100 Yr	7270.3	2572	2575.49	3.49	2575.49	2576.34	0.011418	7.4	983.04	594.43	1.01

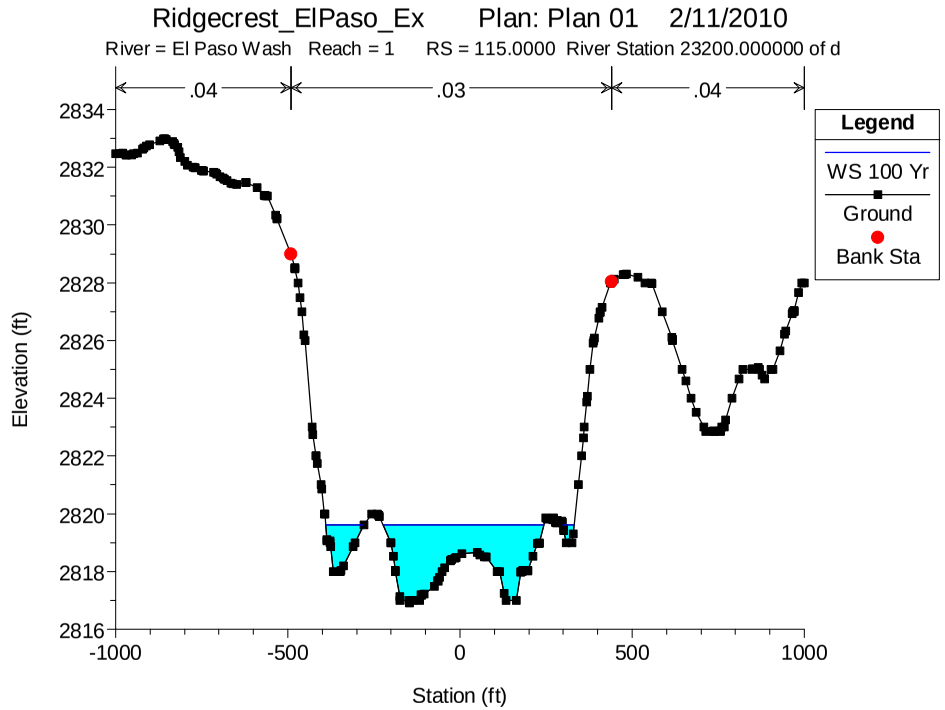
RIDGECREST SOLAR PLANT HEC-RAS OUTPUT

South El Paso Wash - Pre-development Conditions

100-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Ex. El Paso Wash	1	2	100 Yr	7270.3	2570	2573.97	3.97	2573.48	2574.45	0.004962	5.57	1305.02	646.35	0.69
Ex. El Paso Wash	1	1	100 Yr	7270.3	2569	2571.92	2.92	2571.92	2573.01	0.010241	8.66	893.76	413.06	1.01


Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 116.0000 River Station 23400.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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Legend
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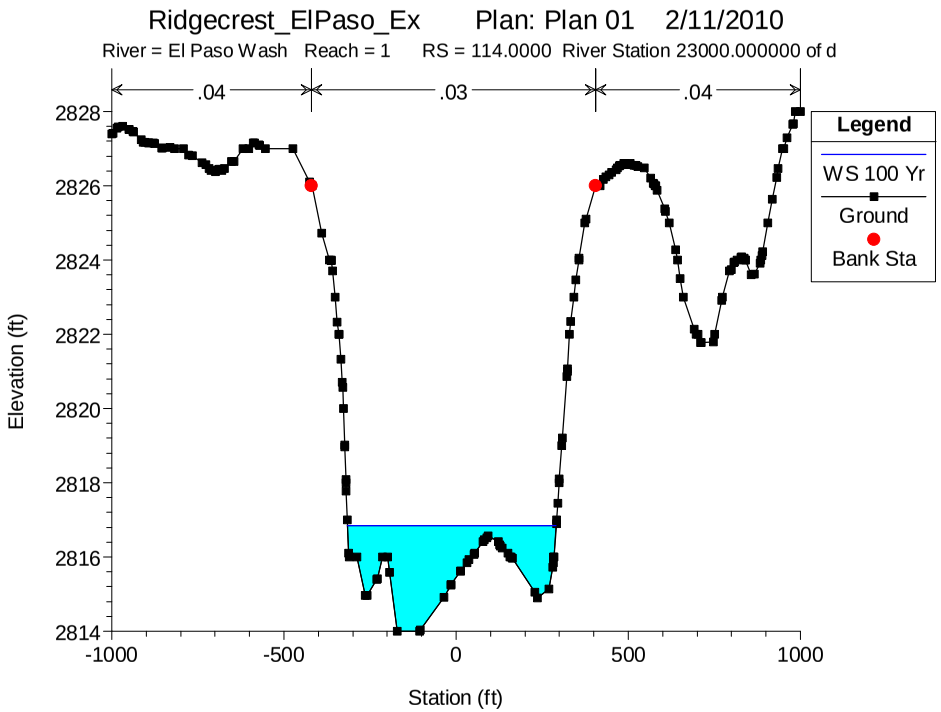
Ground
Bank Sta
Elevation (ft)
Station (ft)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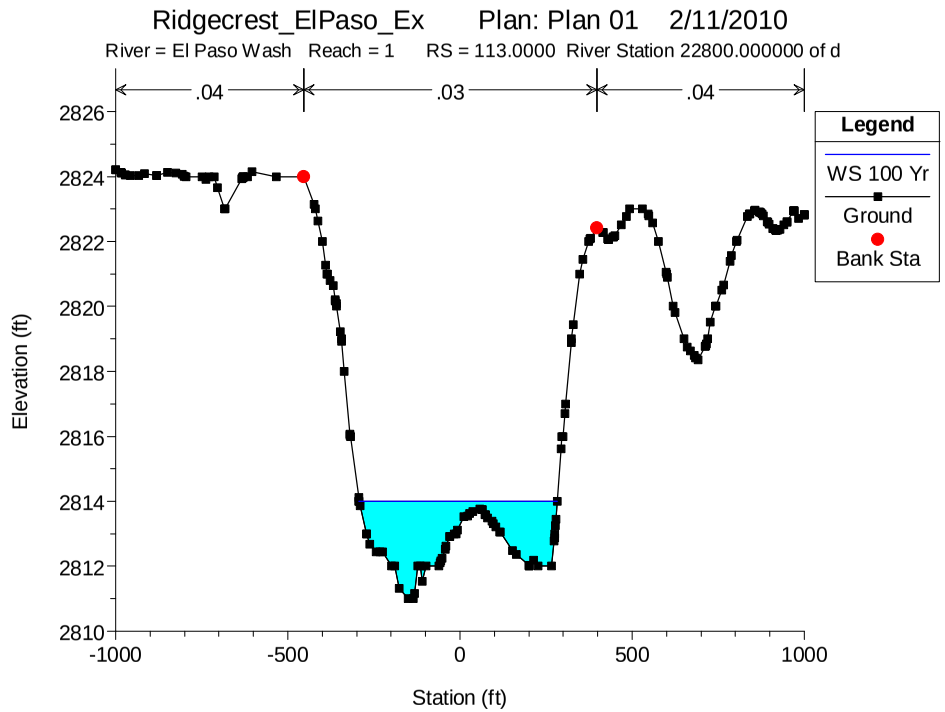
Ground
Bank Sta
Elevation (ft)
Station (ft)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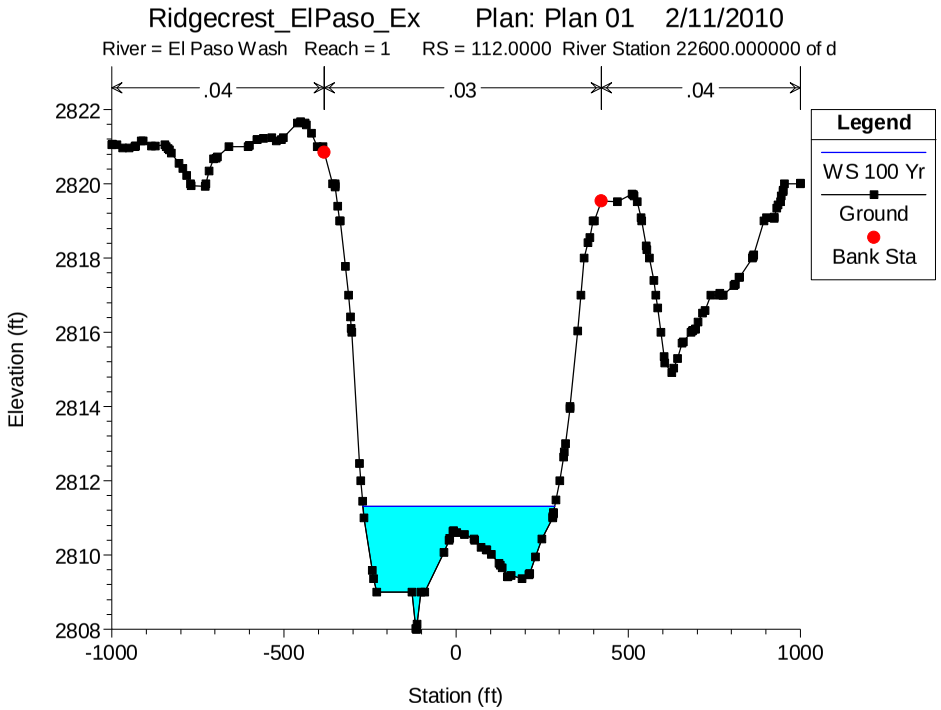
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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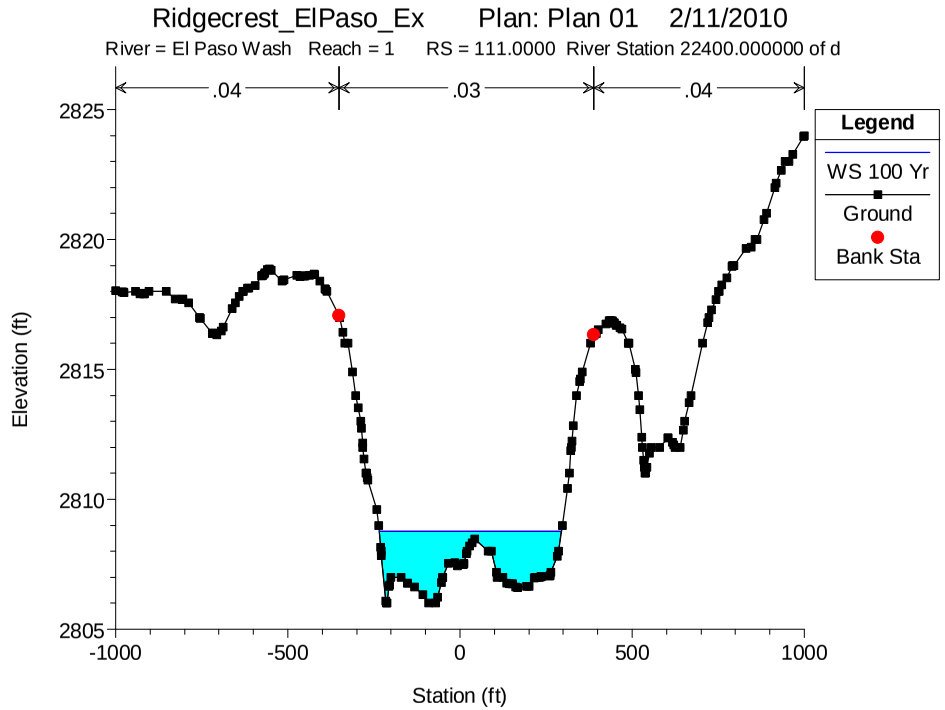
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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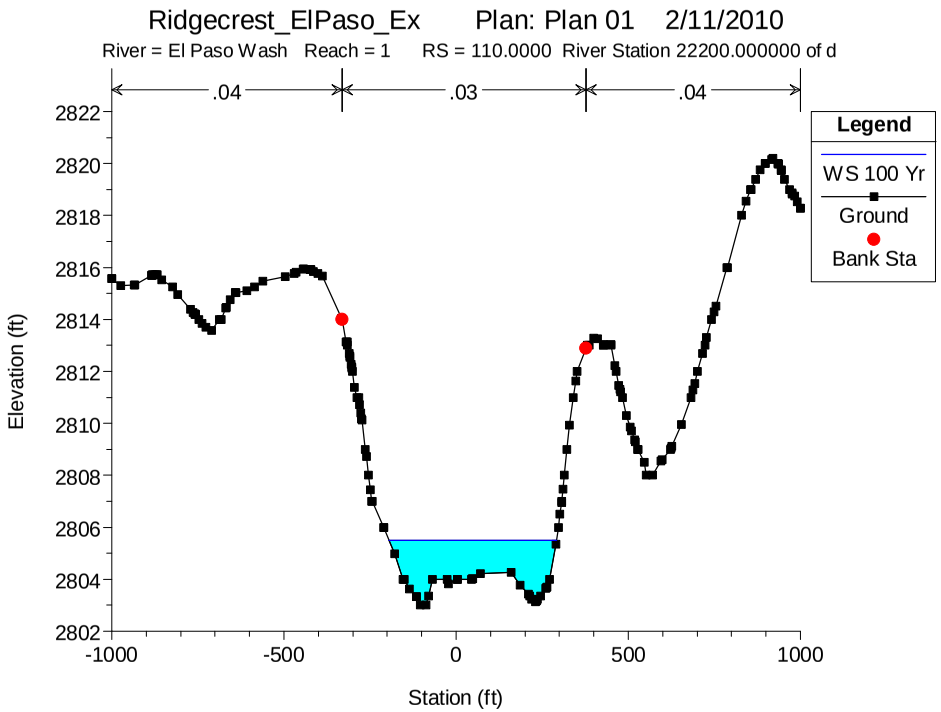
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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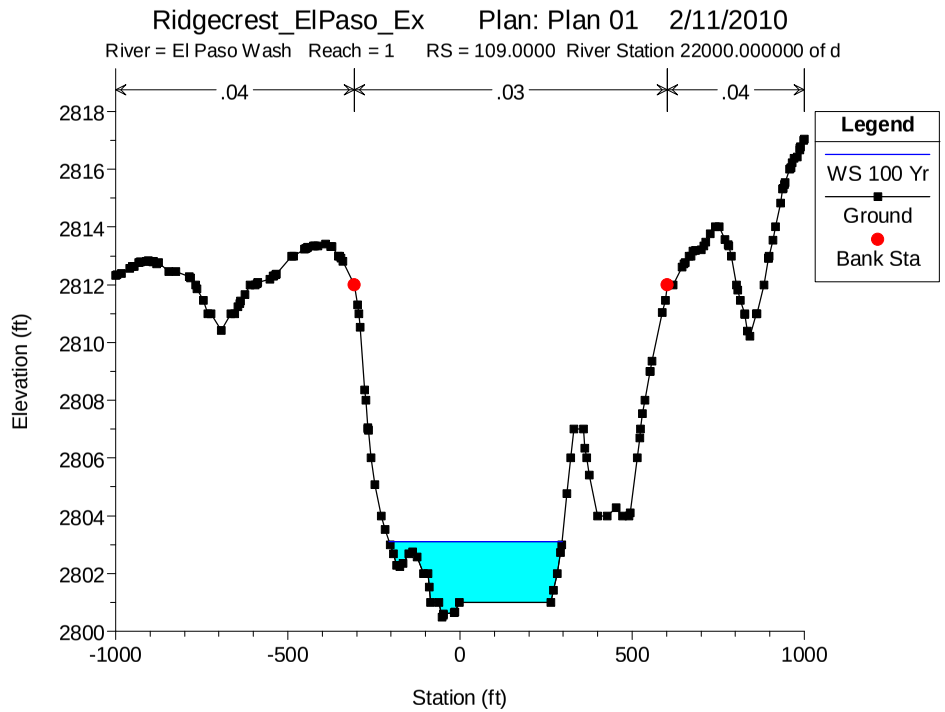
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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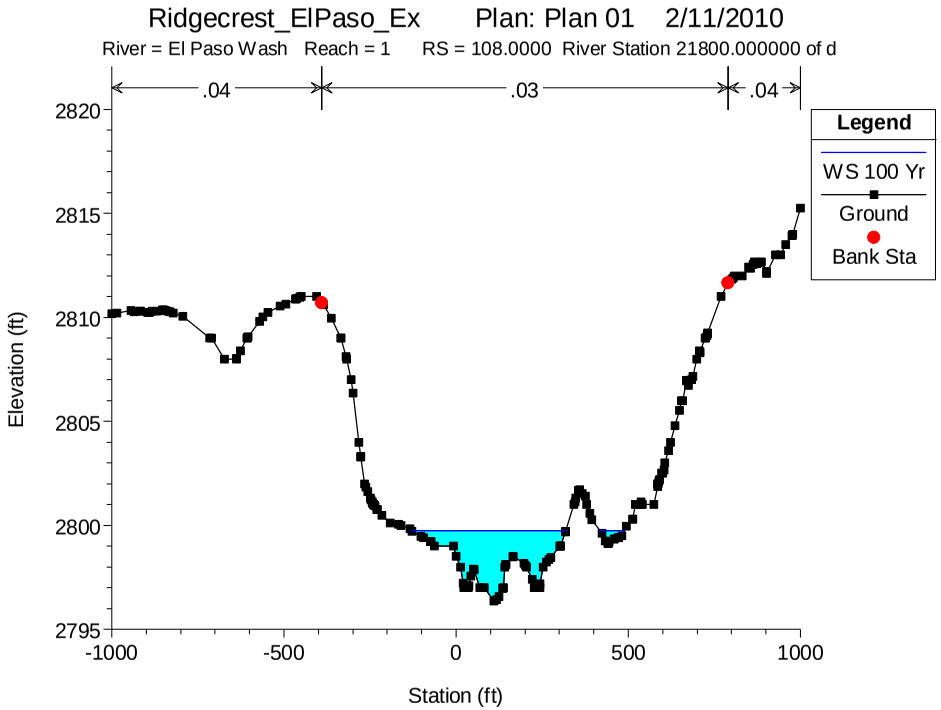
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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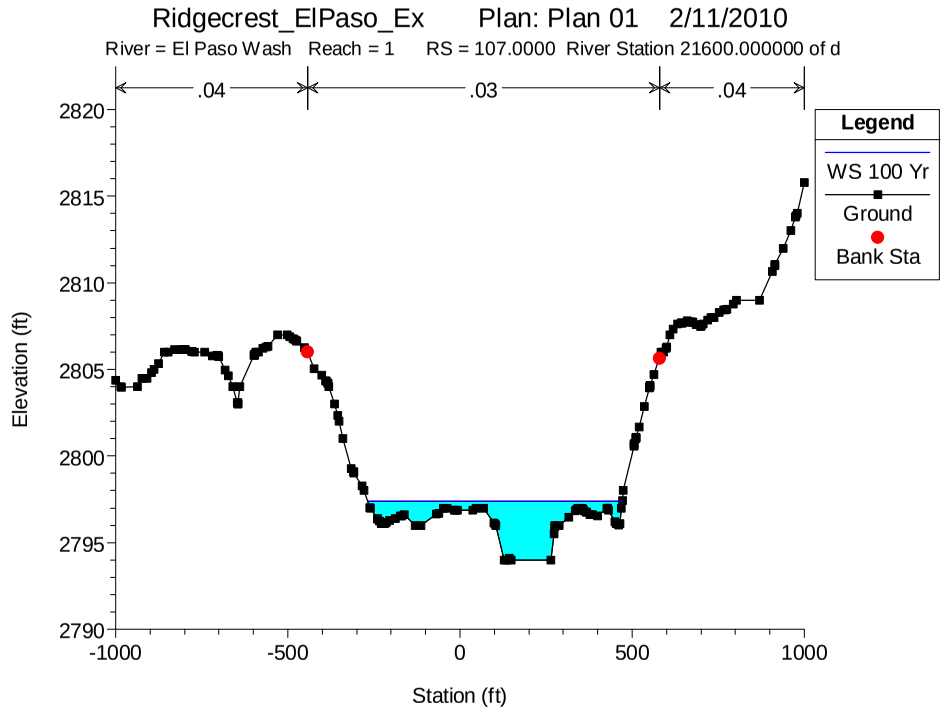
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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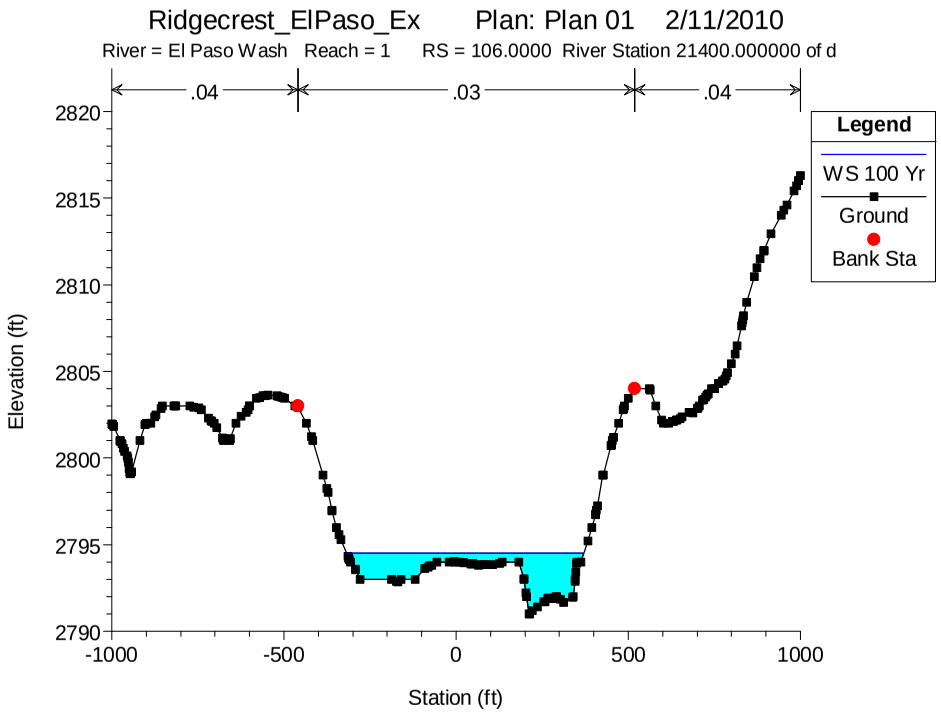
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
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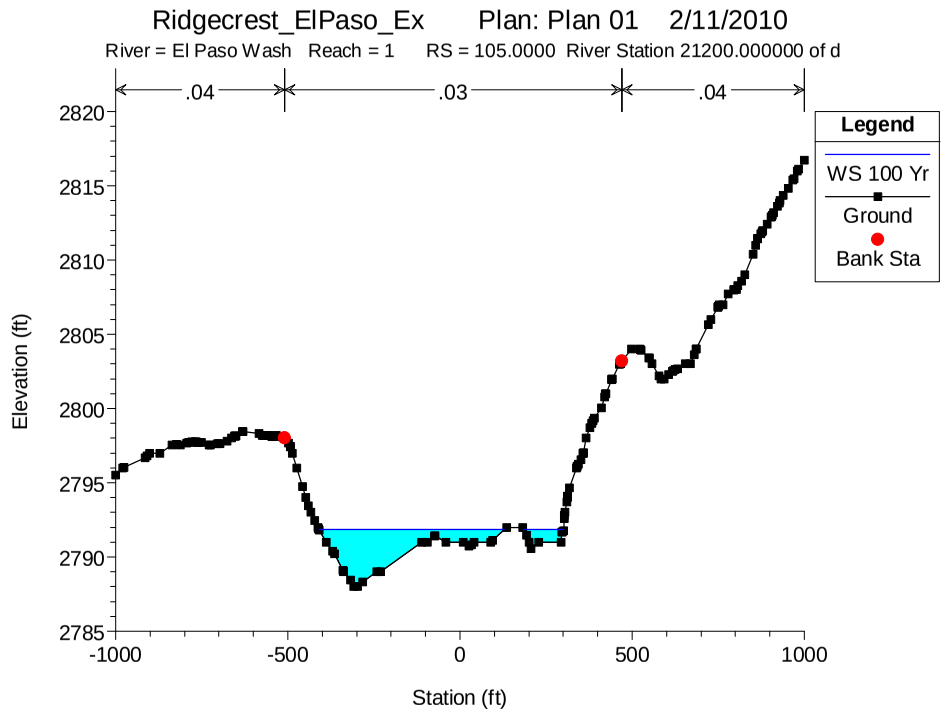
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 105.0000 River Station 21200.000000 of d
.04
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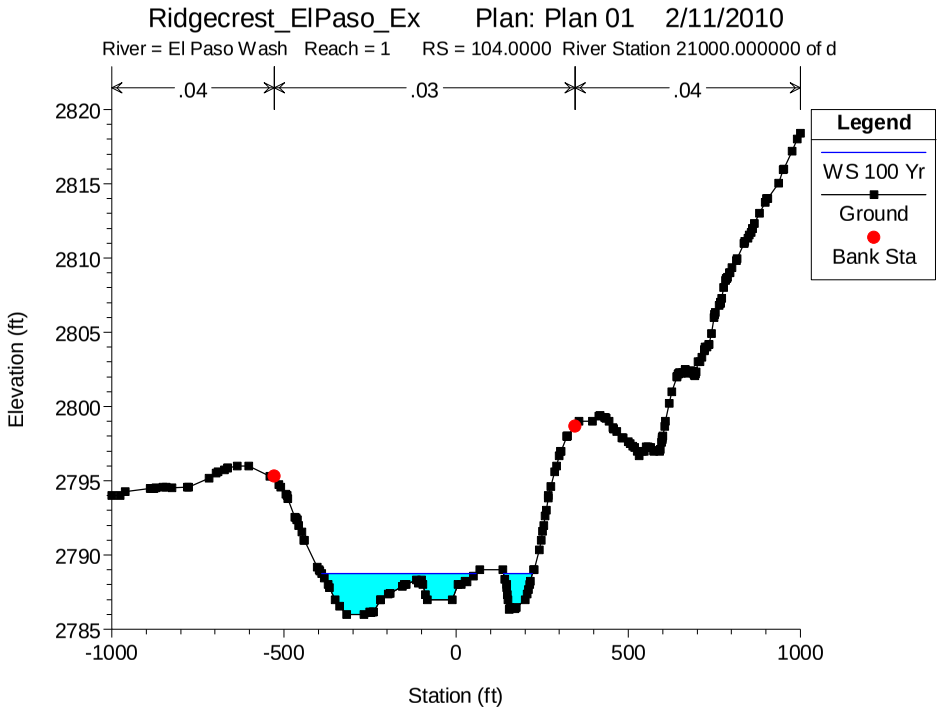
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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River = El Paso Wash Reach = 1 RS = 104.0000 River Station 21000.000000 of d
.04
.03
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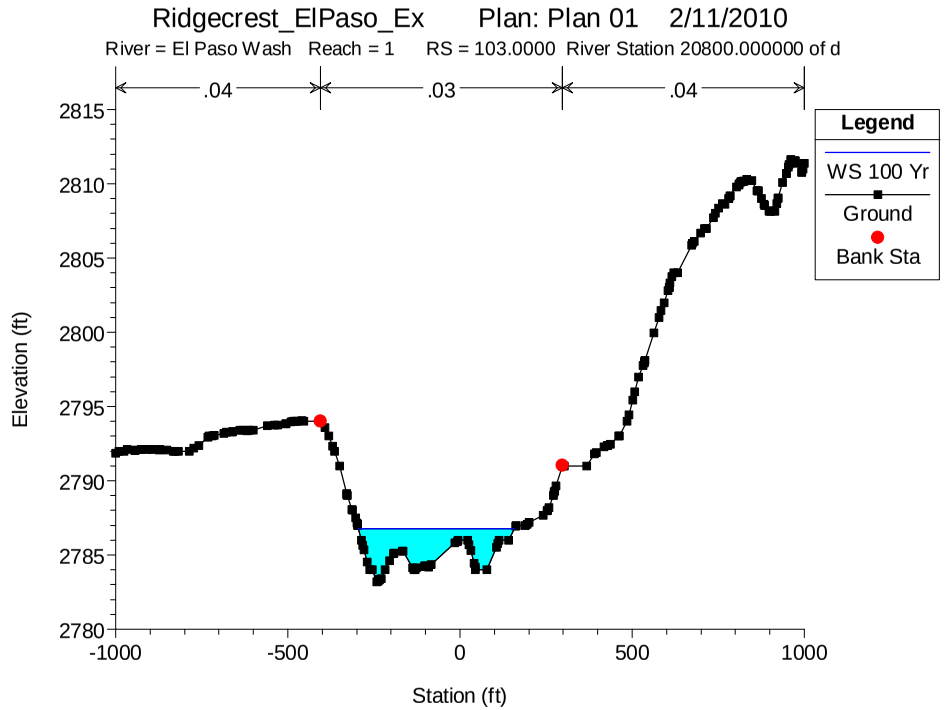
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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.04
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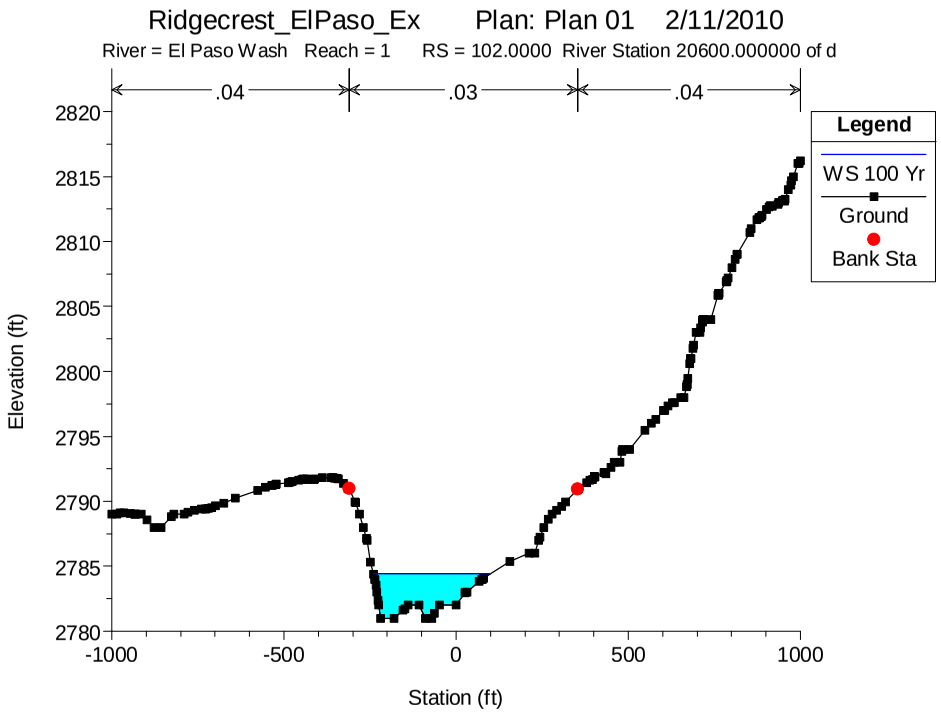
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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River = El Paso Wash Reach = 1 RS = 102.0000 River Station 20600.000000 of d
.04
.03
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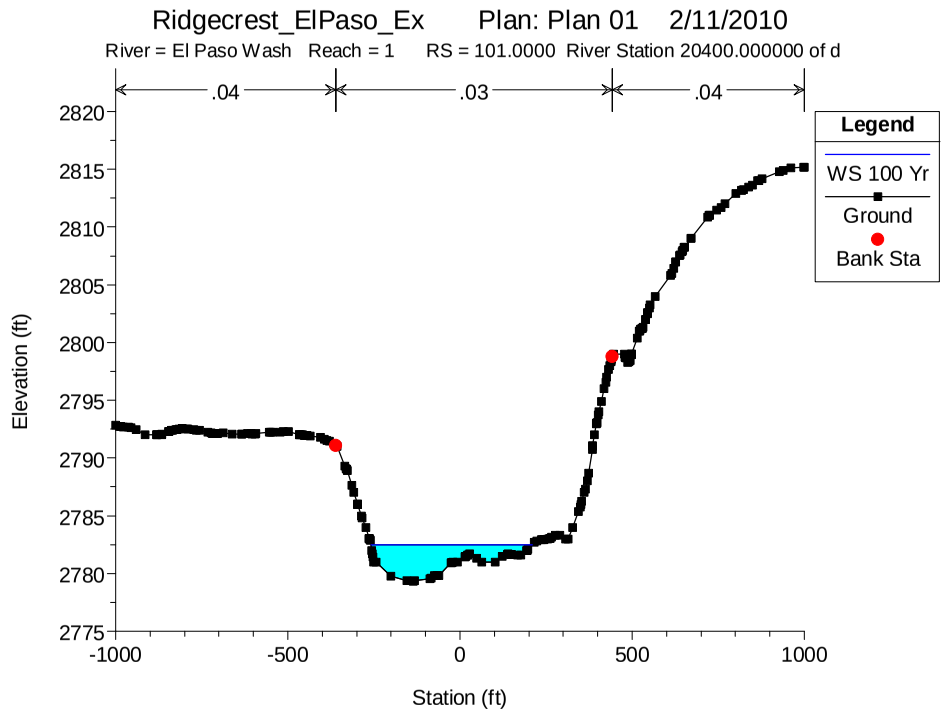
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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River = El Paso Wash Reach = 1 RS = 101.0000 River Station 20400.000000 of d
.04
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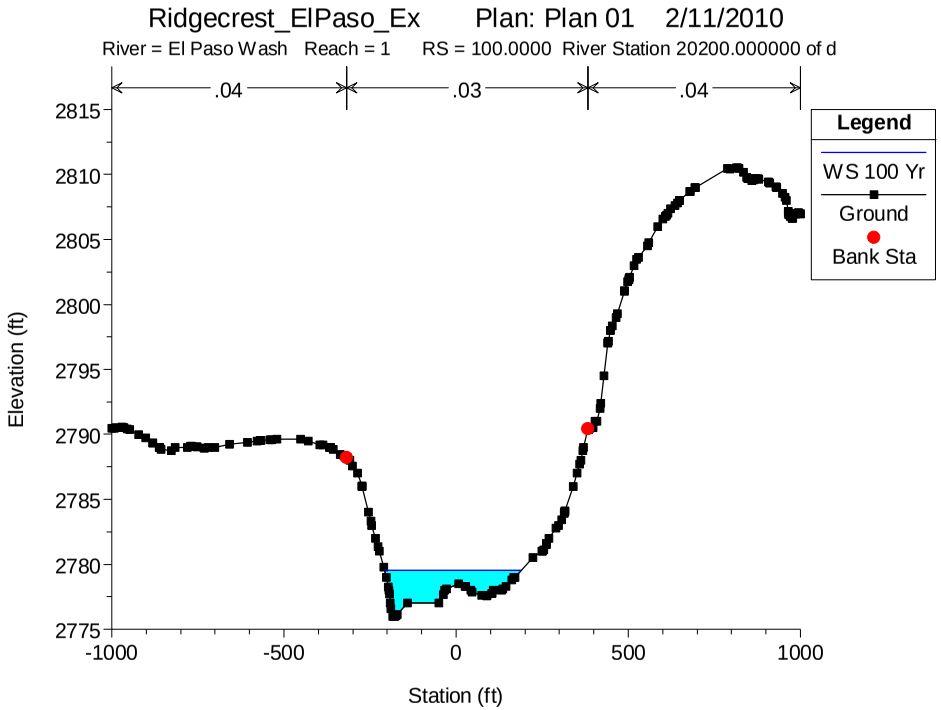
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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.04
.03
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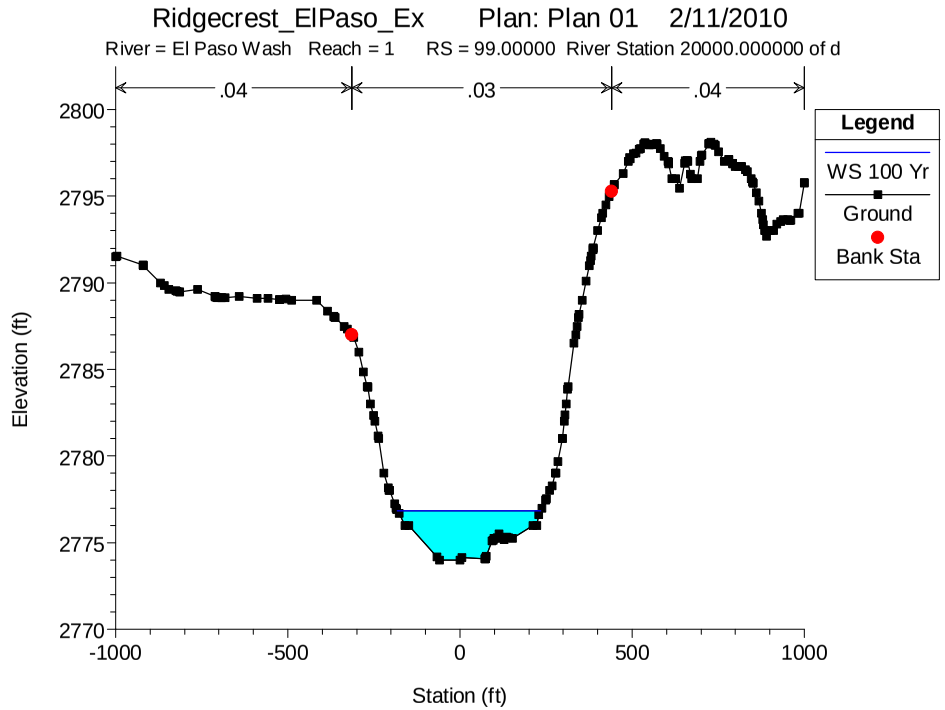
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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.04
.03
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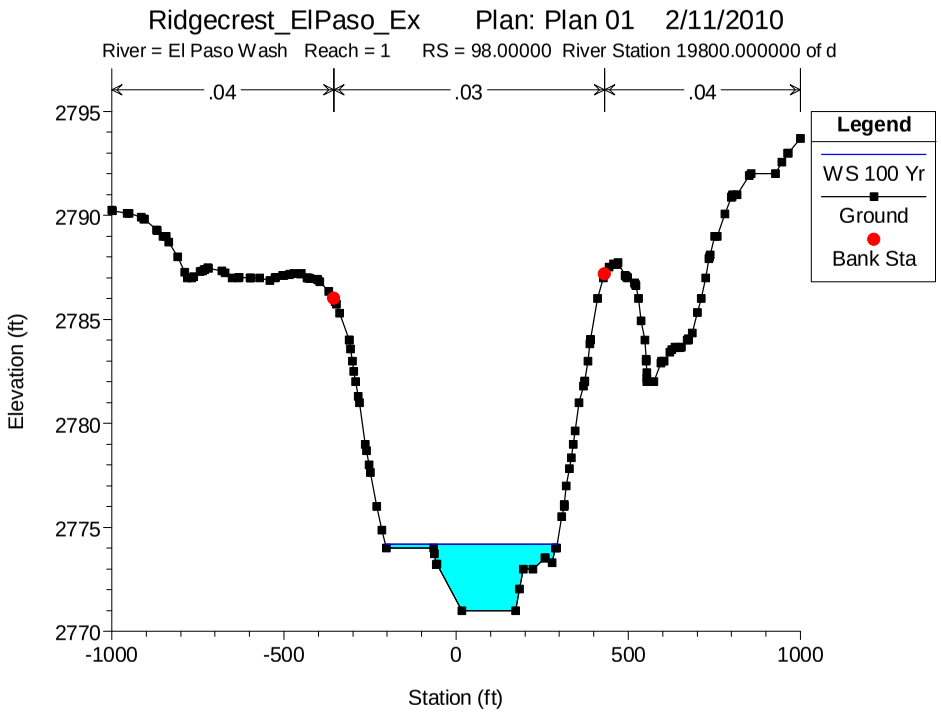
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
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.04
.03
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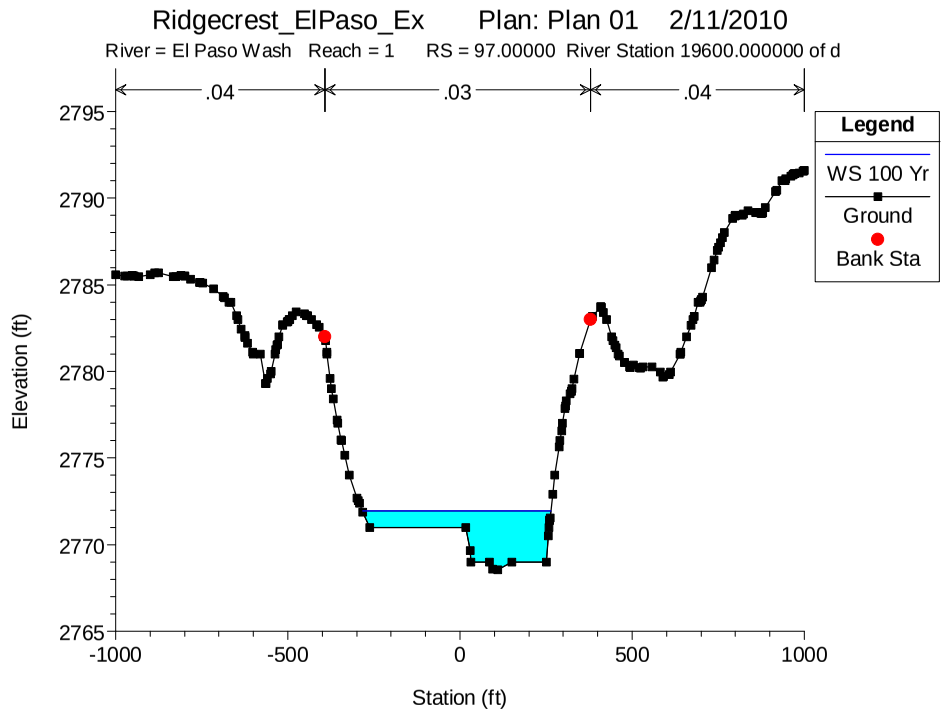
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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.04
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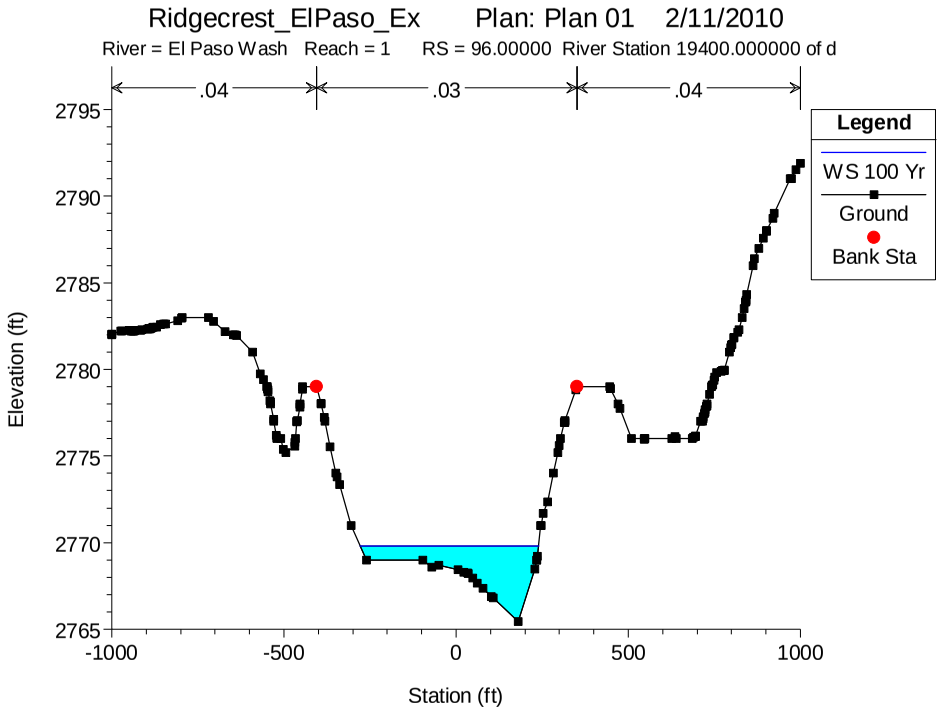
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 96.00000 River Station 19400.000000 of d
.04
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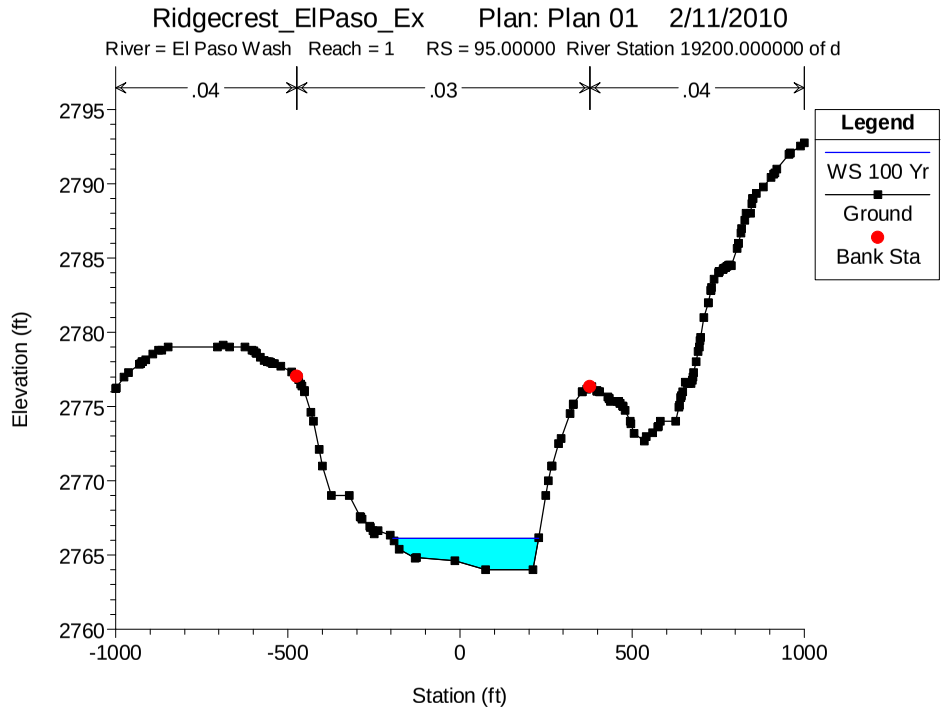
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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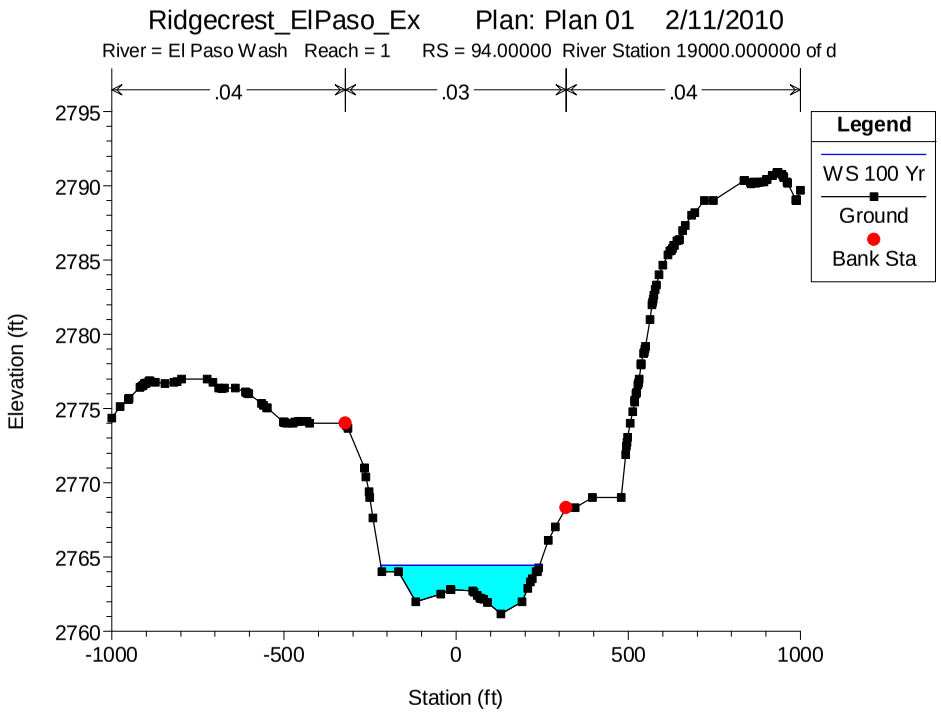
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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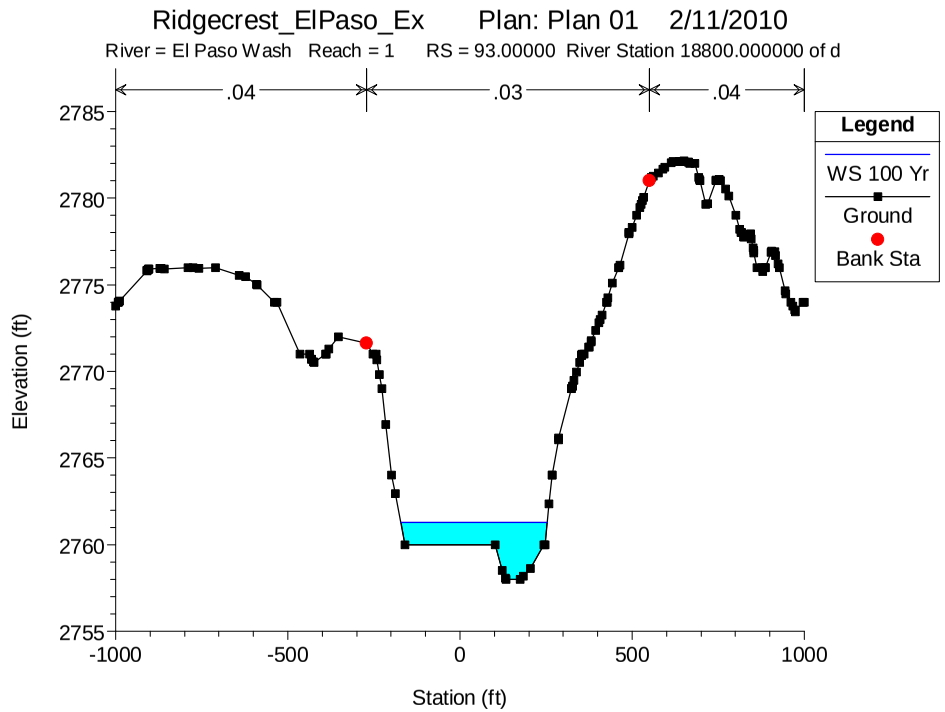
River = El Paso Wash Reach = 1 RS = 94.00000 River Station 19000.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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River = El Paso Wash Reach = 1 RS = 93.00000 River Station 18800.000000 of d
.04
.03
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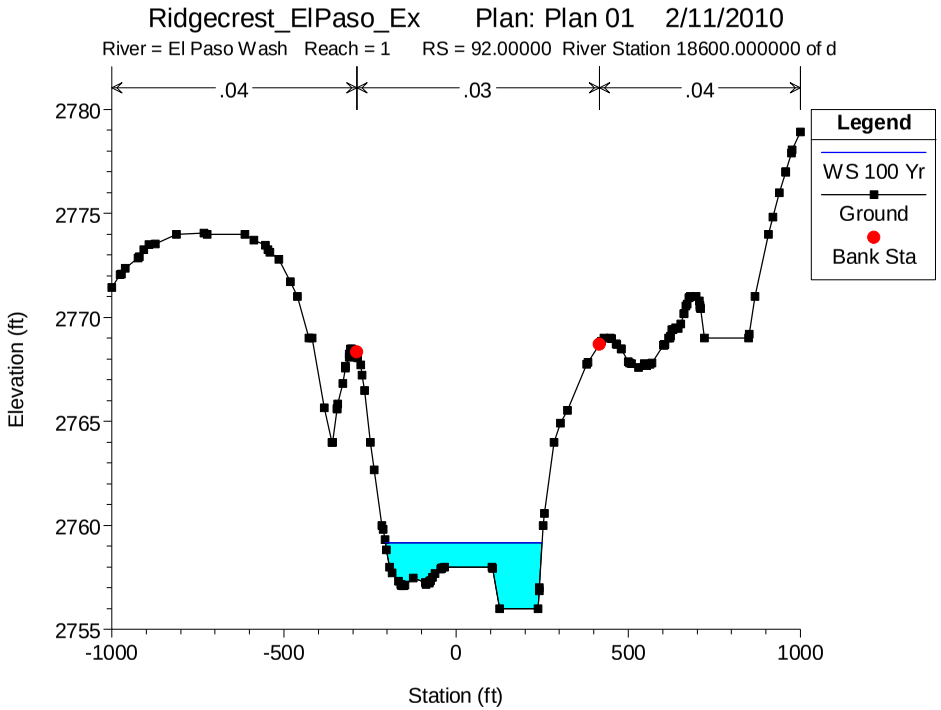
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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.04
.03
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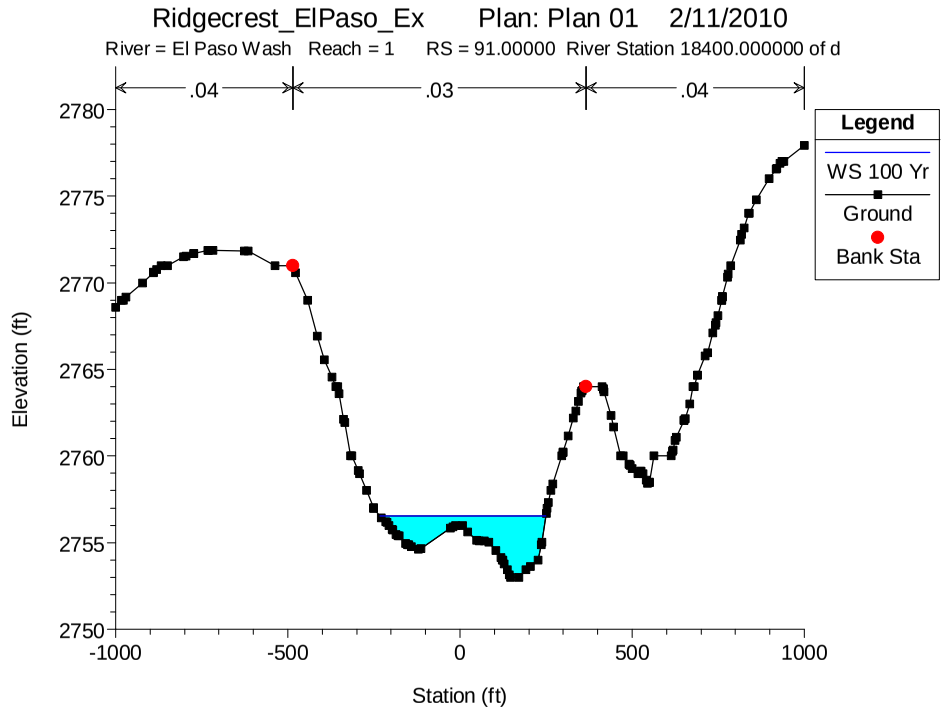
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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.04
.03
.04
Legend
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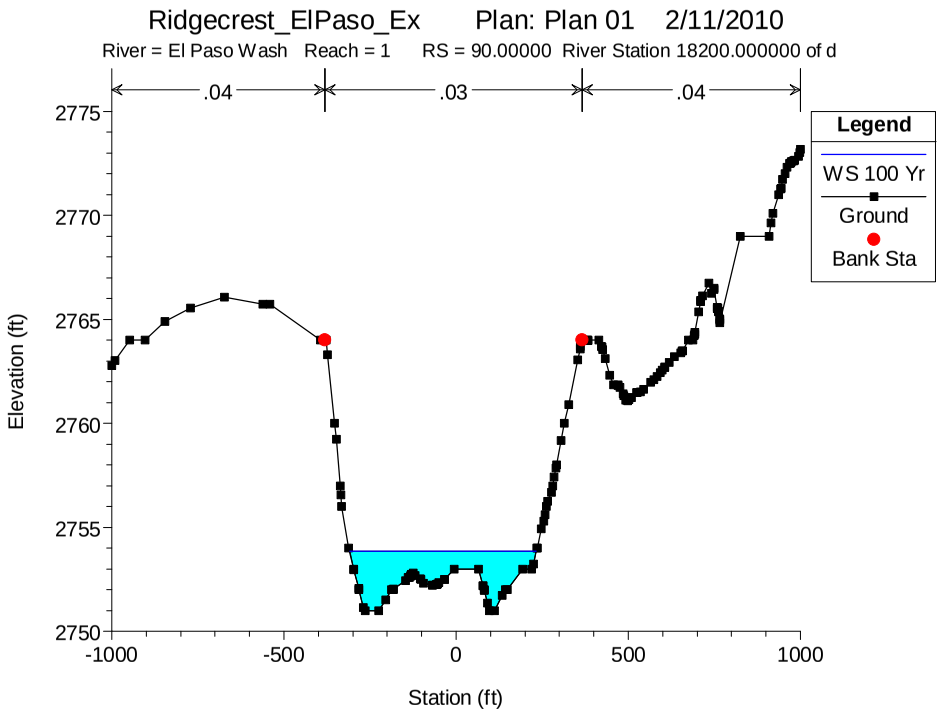
Ground
Bank Sta
Elevation (ft)
Station (ft)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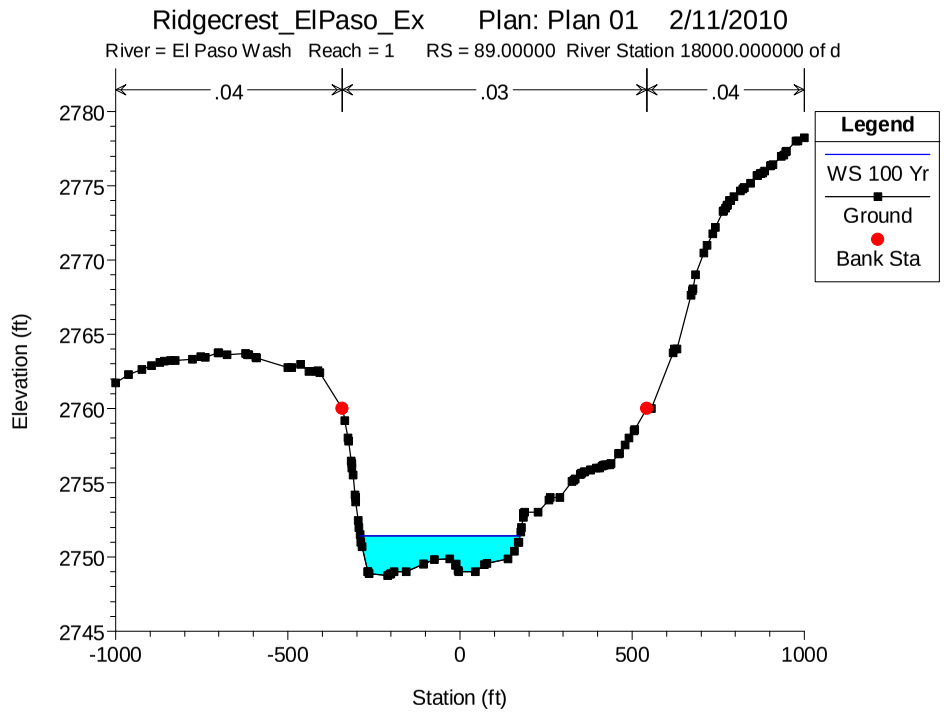
River = El Paso Wash Reach = 1 RS = 90.00000 River Station 18200.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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.04
.03
.04
Legend
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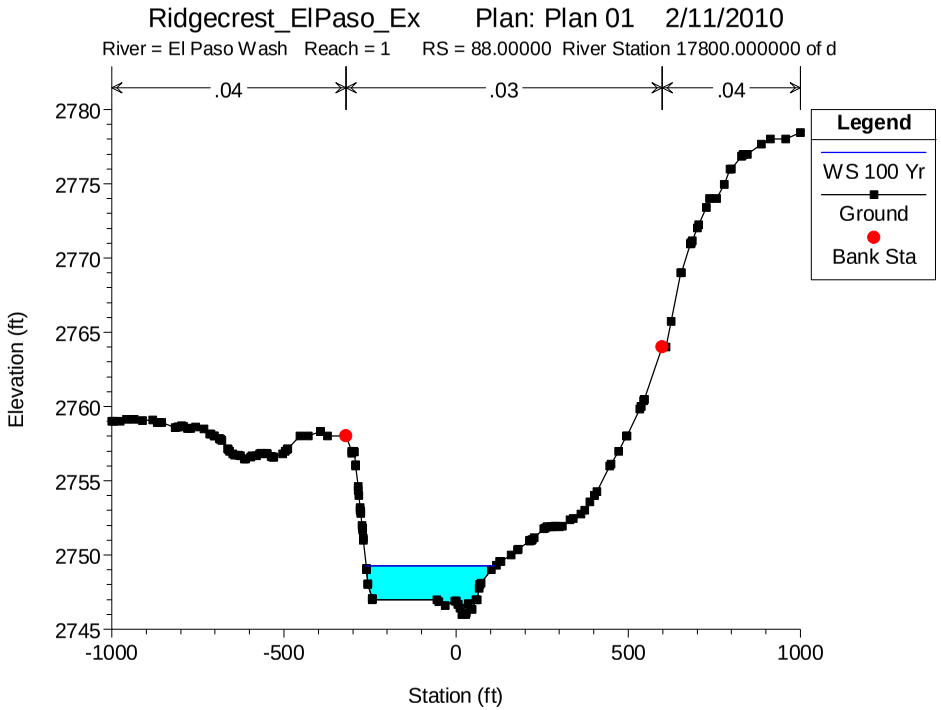
Ground
Bank Sta
Elevation (ft)
Station (ft)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River = El Paso Wash Reach = 1 RS = 88.00000 River Station 17800.000000 of d
.04
.03
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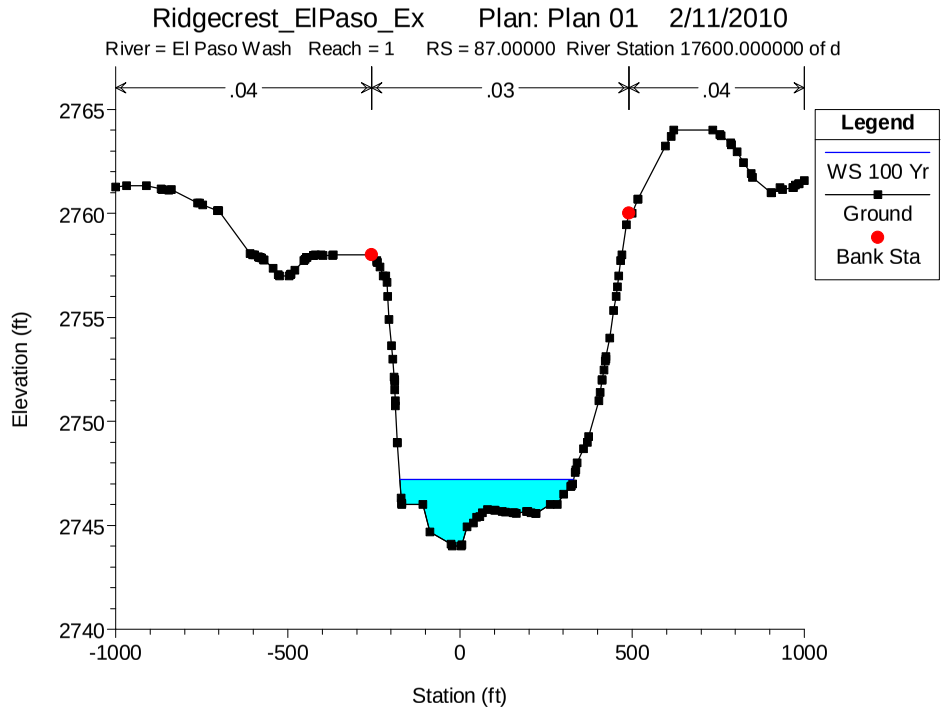
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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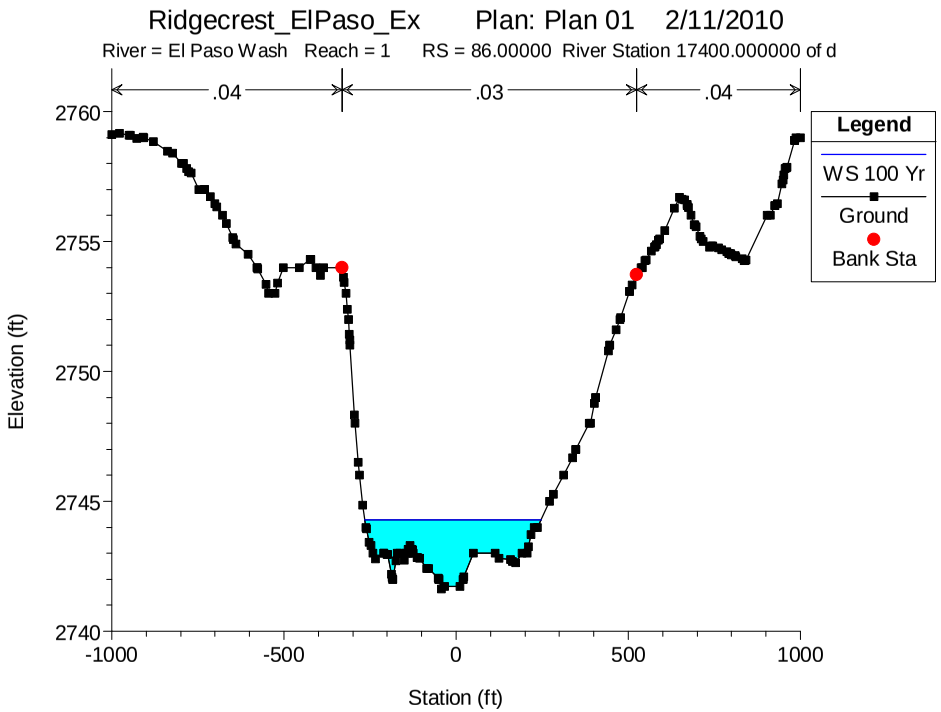
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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.04
.03
.04
Legend
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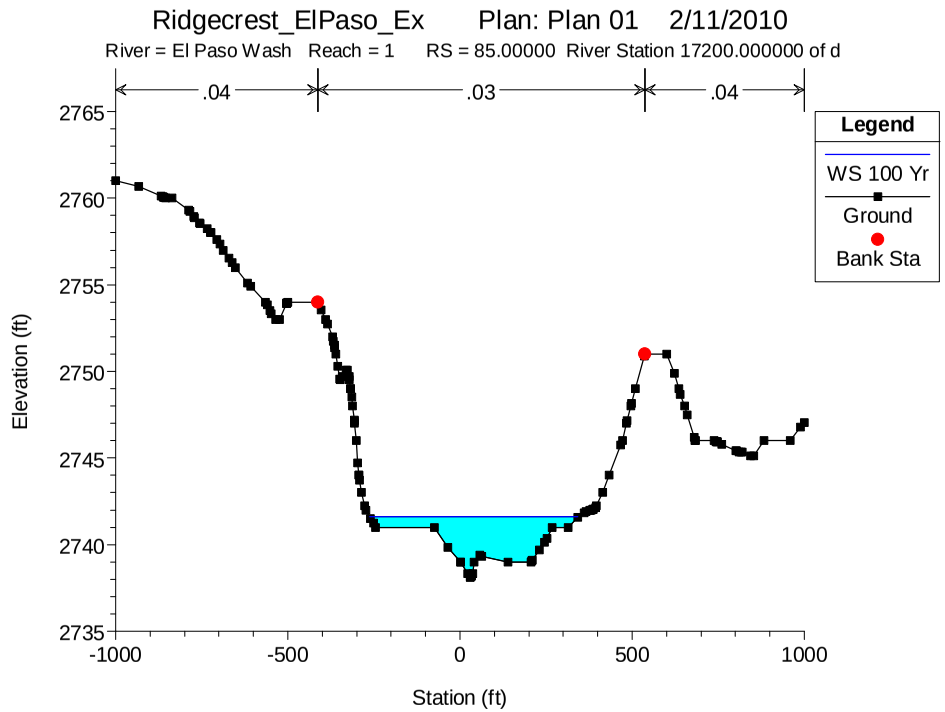
Ground
Bank Sta
Elevation (ft)
Station (ft)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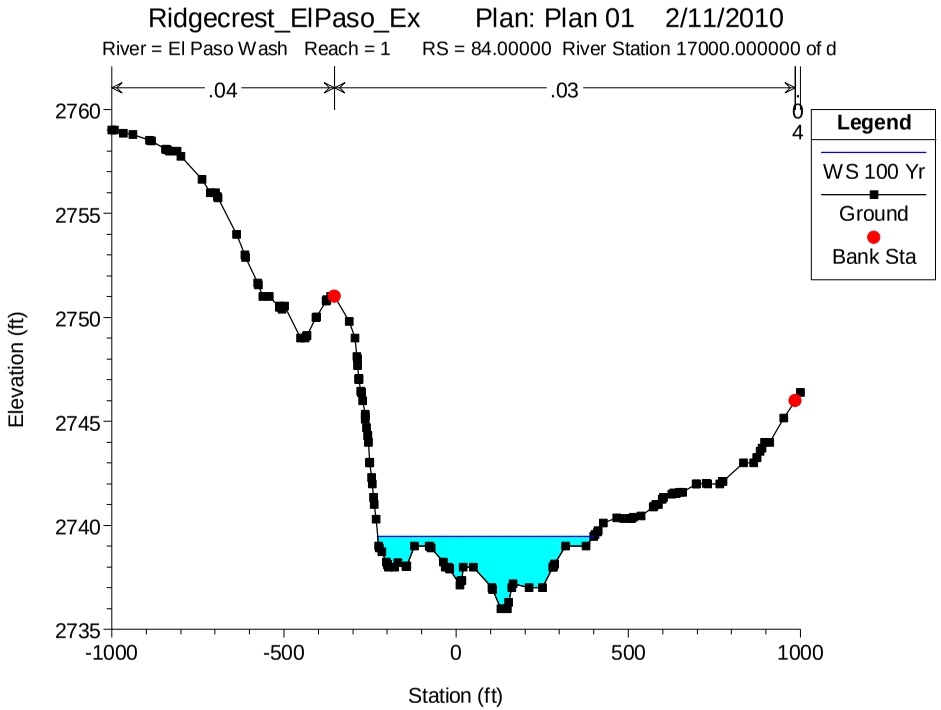
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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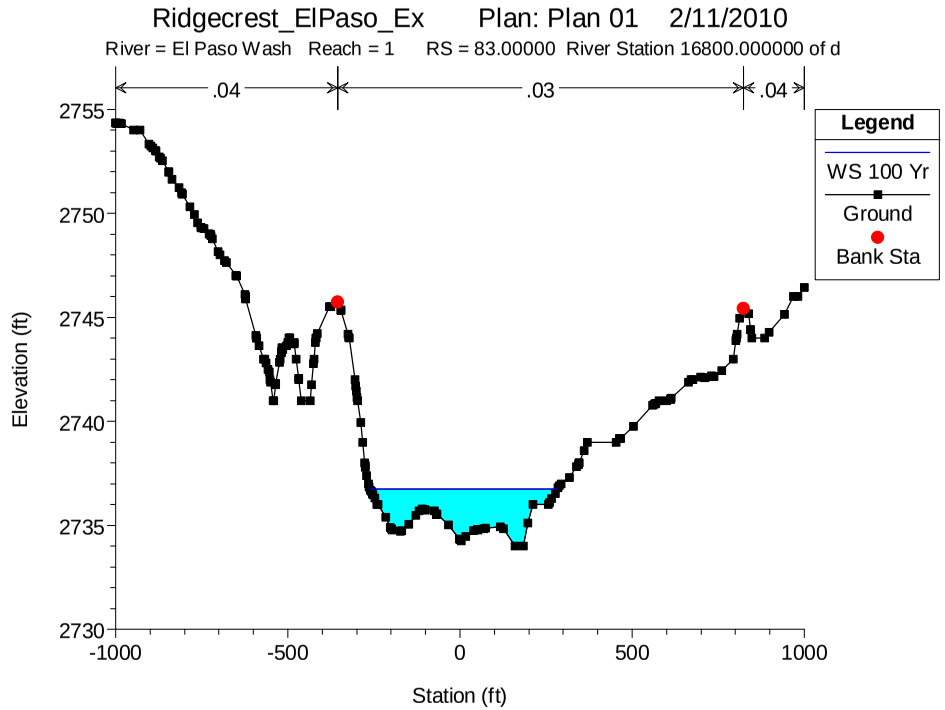
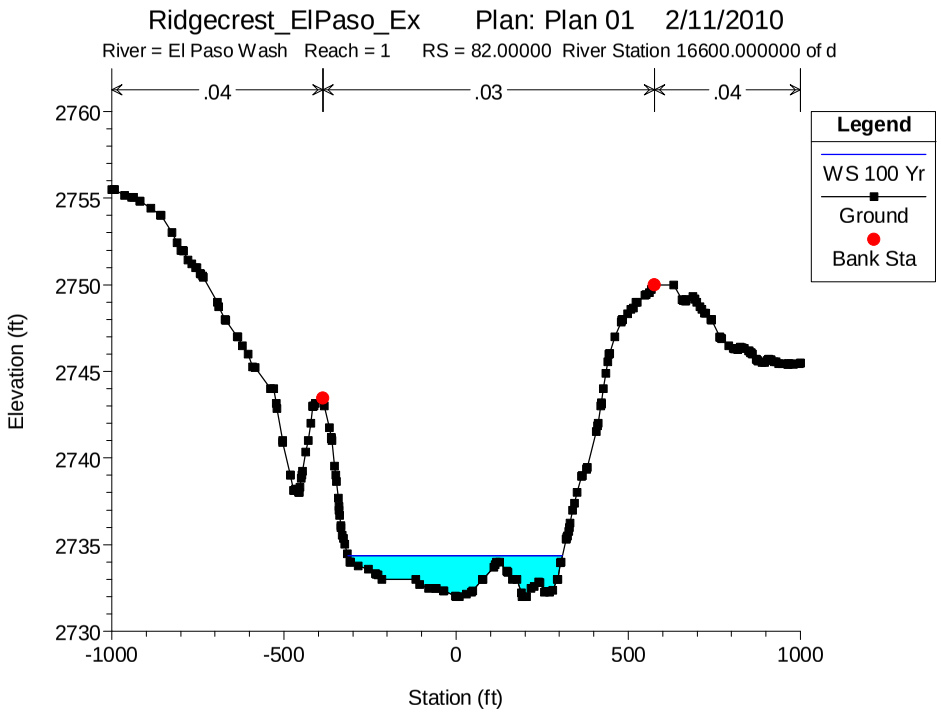
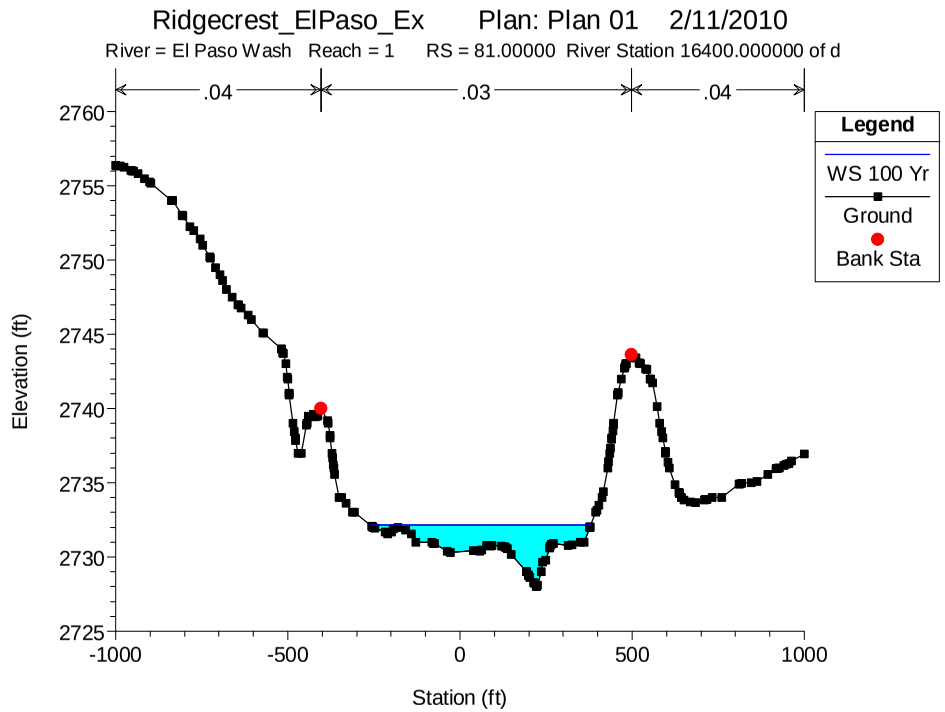
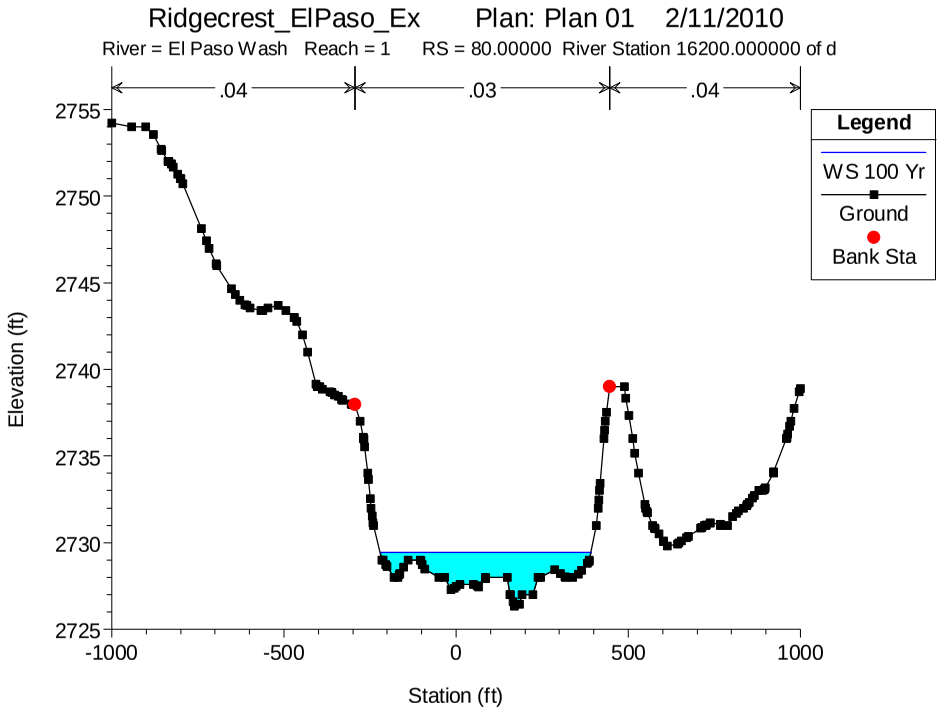
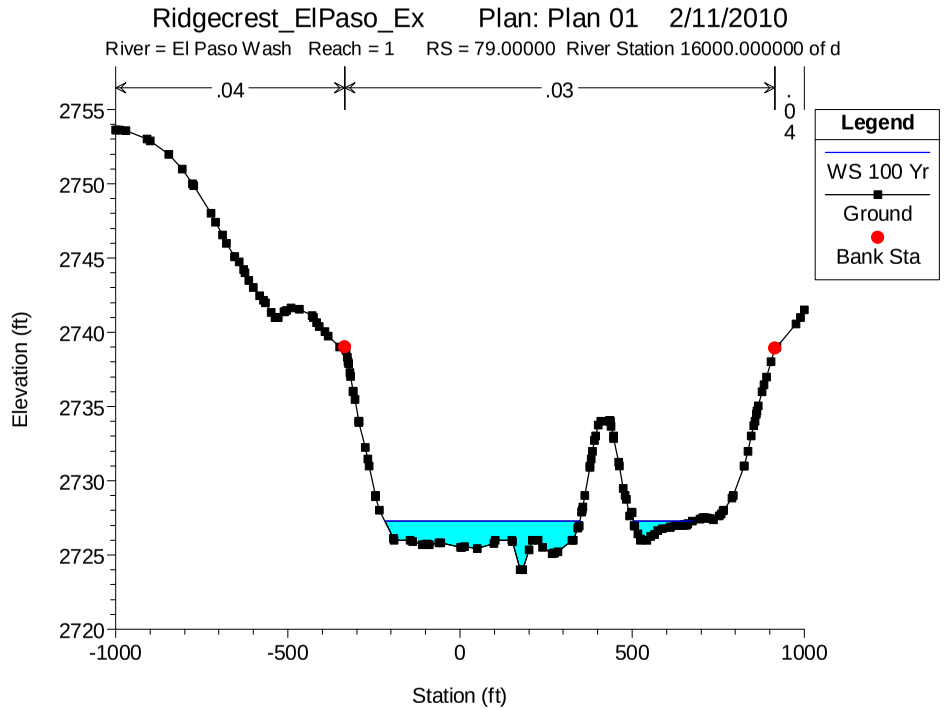
River = El Paso Wash Reach = 1 RS = 84.00000 River Station 17000.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

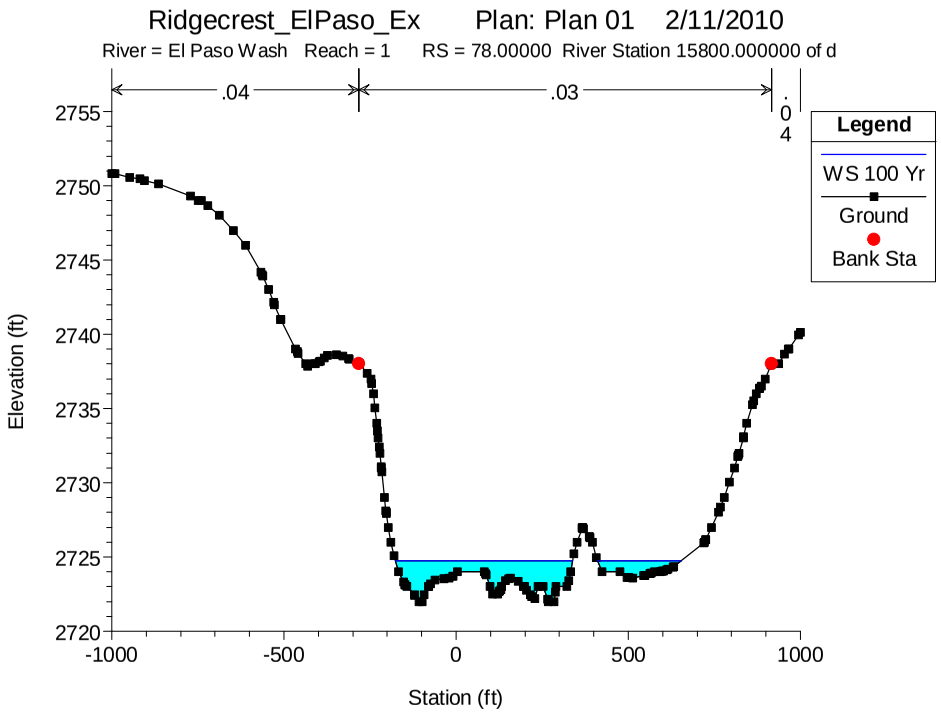

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 83.00000 River Station 16800.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

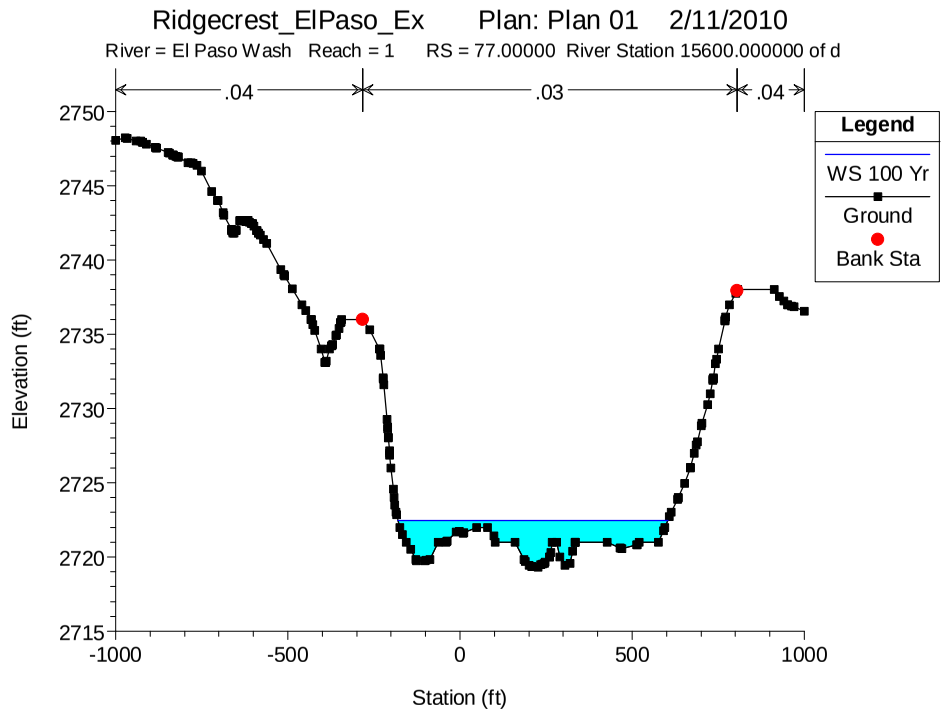

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 82.00000 River Station 16600.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

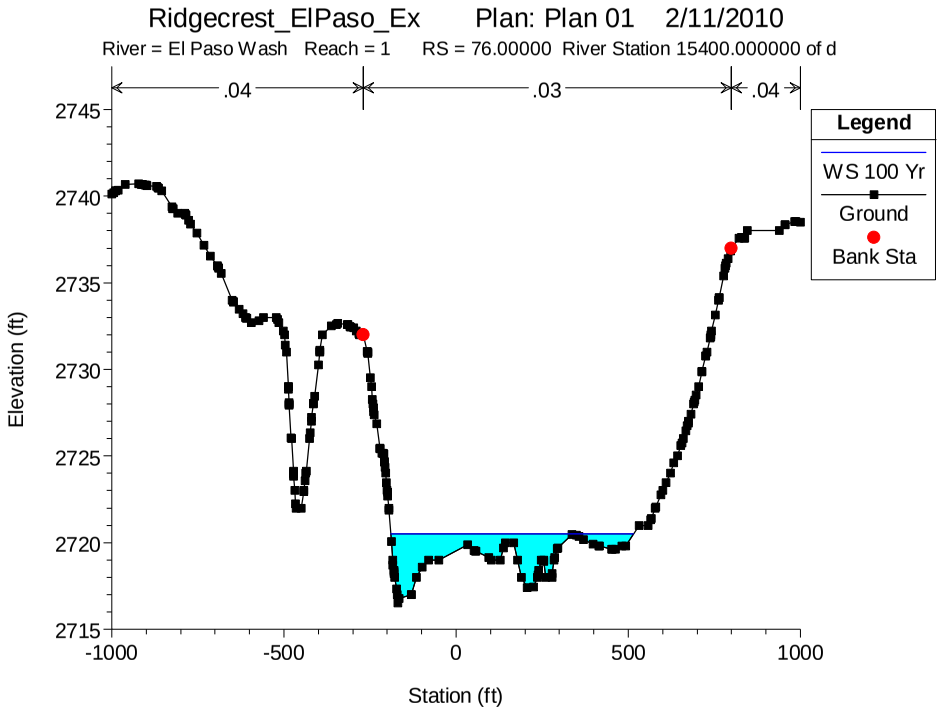

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 81.00000 River Station 16400.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

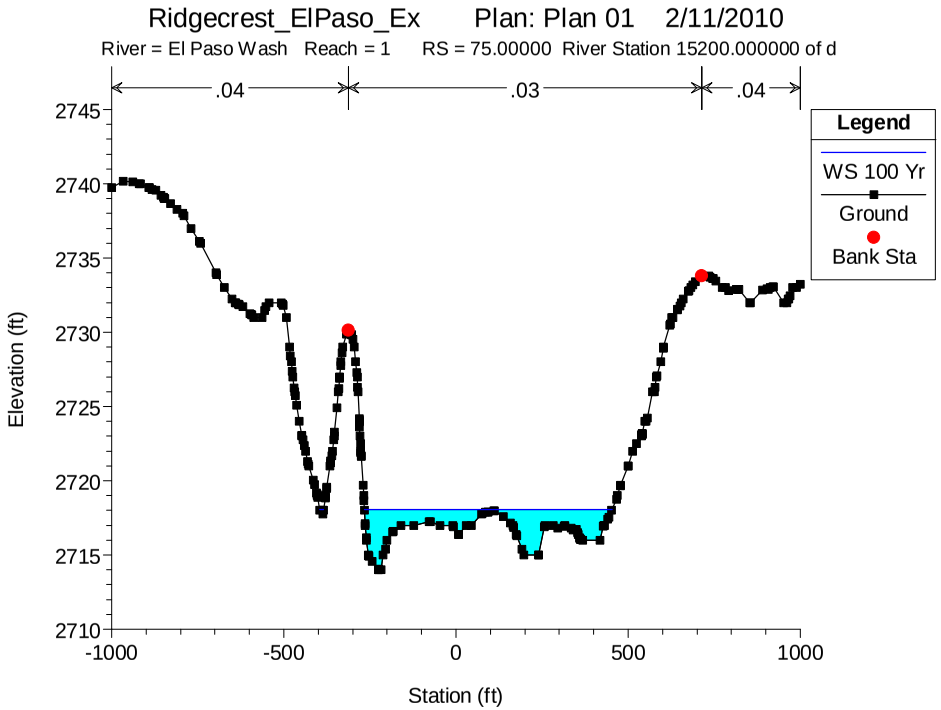

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 80.00000 River Station 16200.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

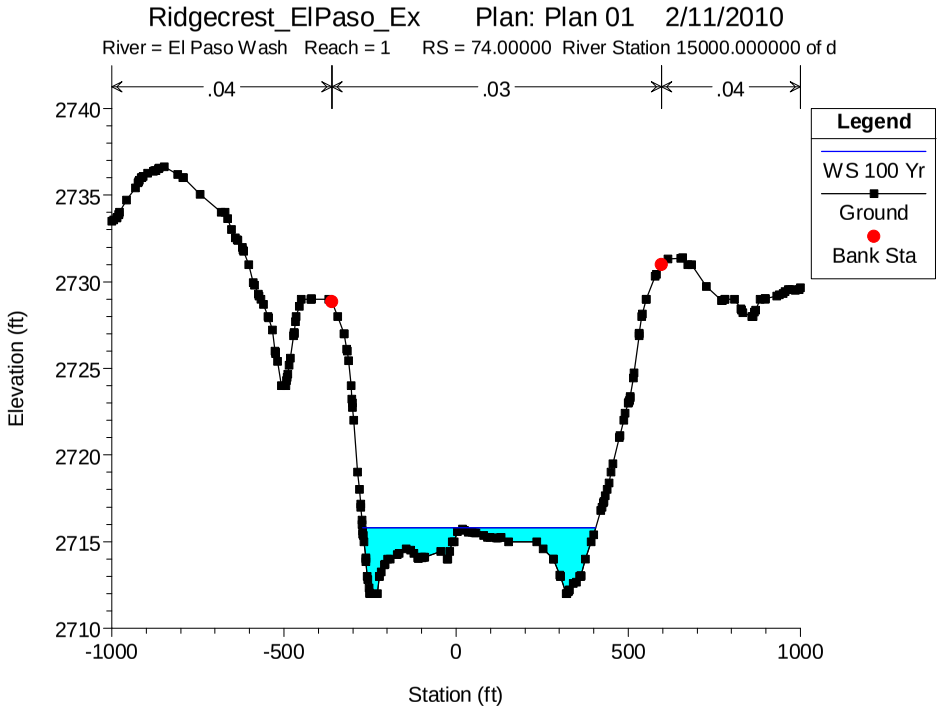

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 79.00000 River Station 16000.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

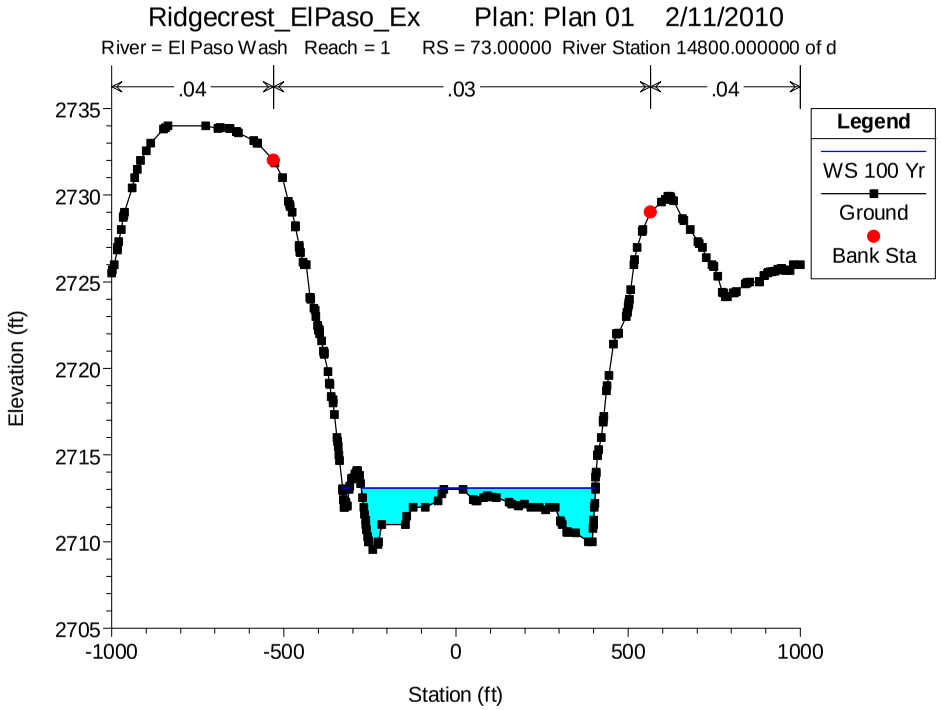

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 78.00000 River Station 15800.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

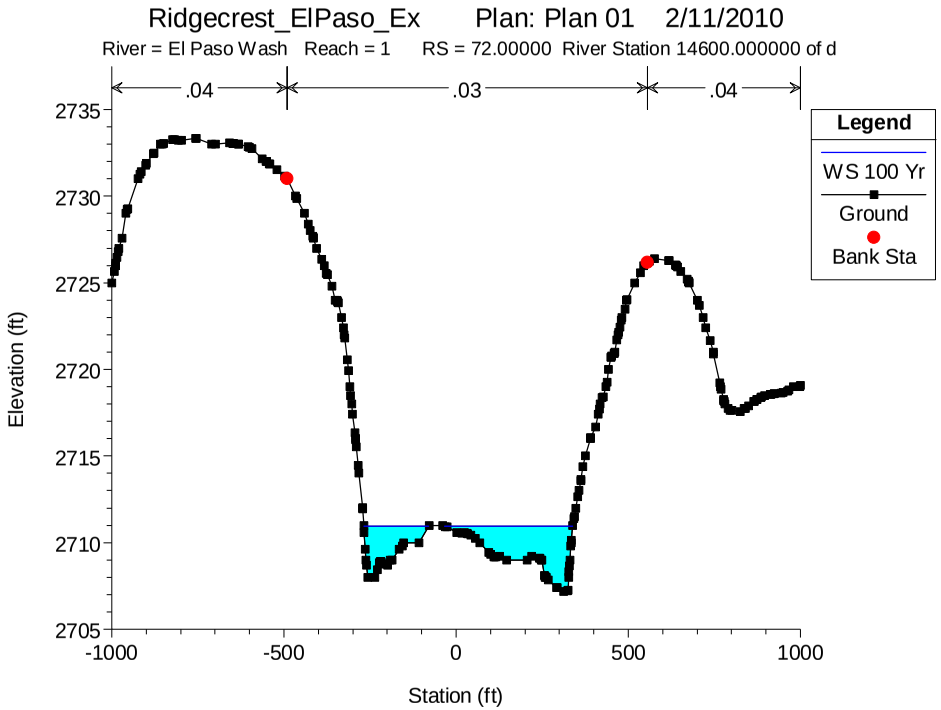

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 77.00000 River Station 15600.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

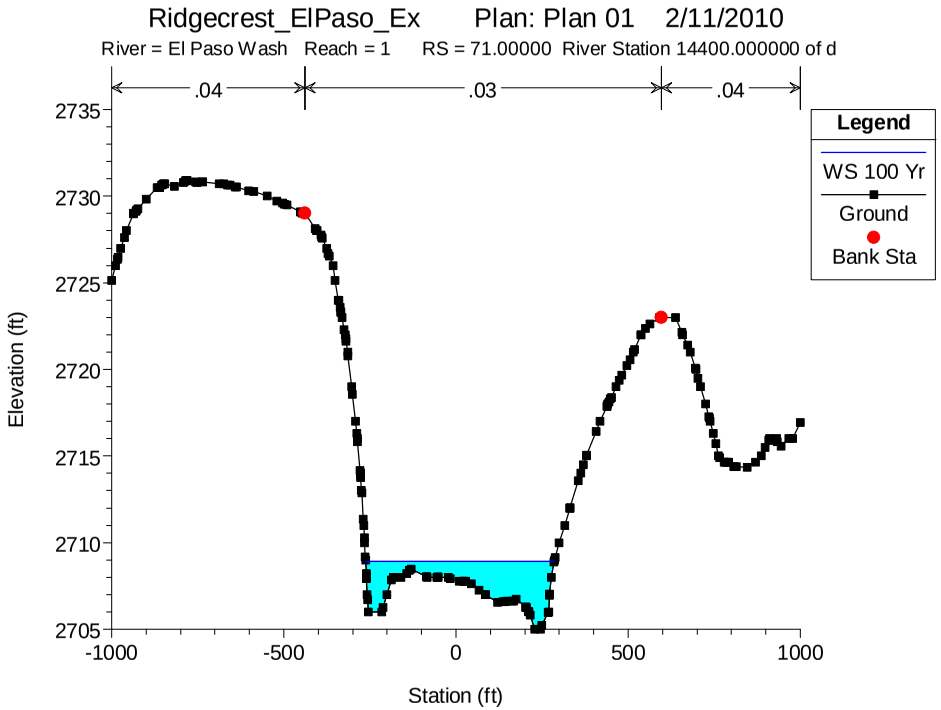

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 76.00000 River Station 15400.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

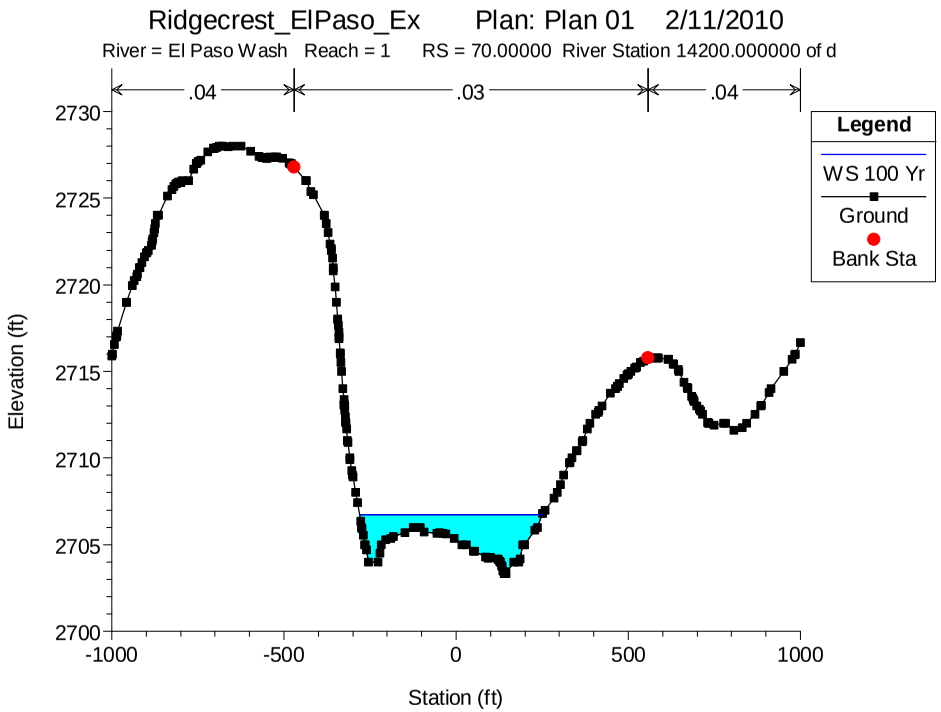

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 75.00000 River Station 15200.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

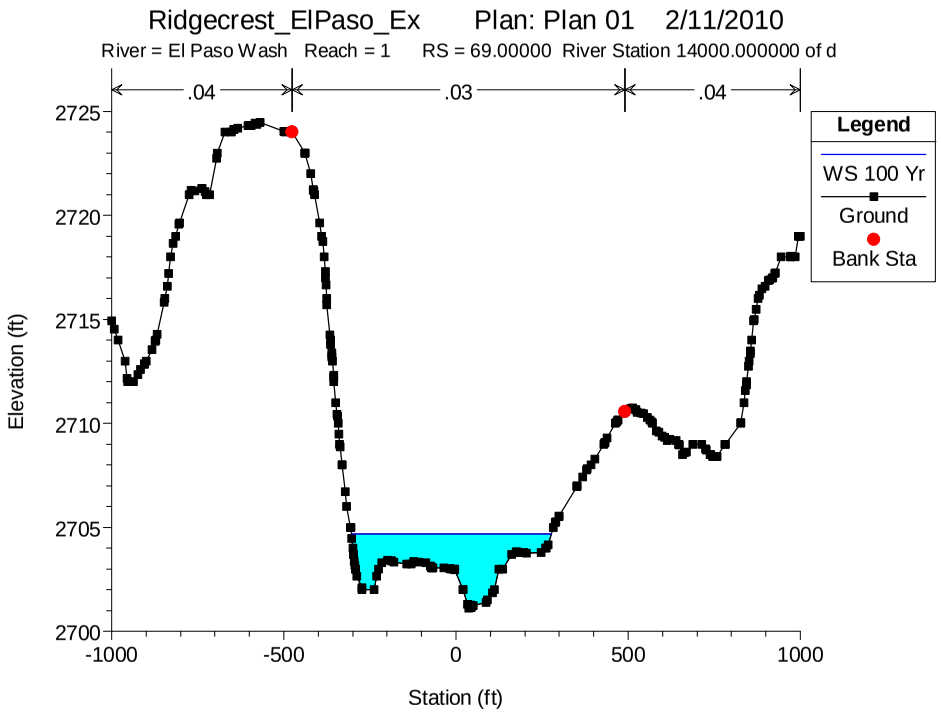

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 74.00000 River Station 15000.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

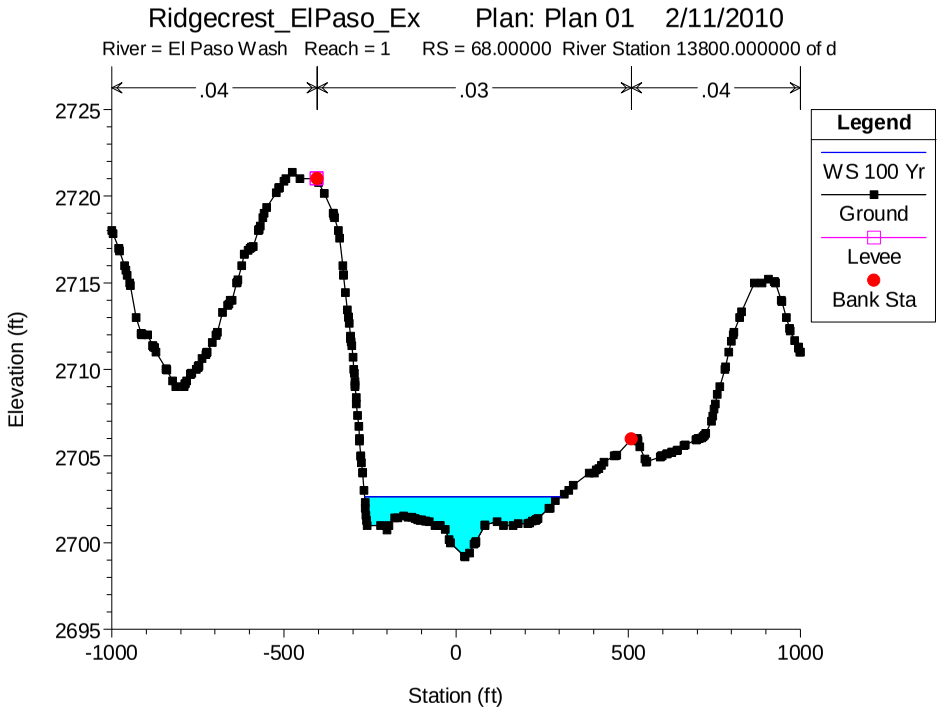

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 73.00000 River Station 14800.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 72.00000 River Station 14600.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 71.00000 River Station 14400.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 70.00000 River Station 14200.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 69.00000 River Station 14000.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 68.00000 River Station 13800.000000 of d
.04
.03
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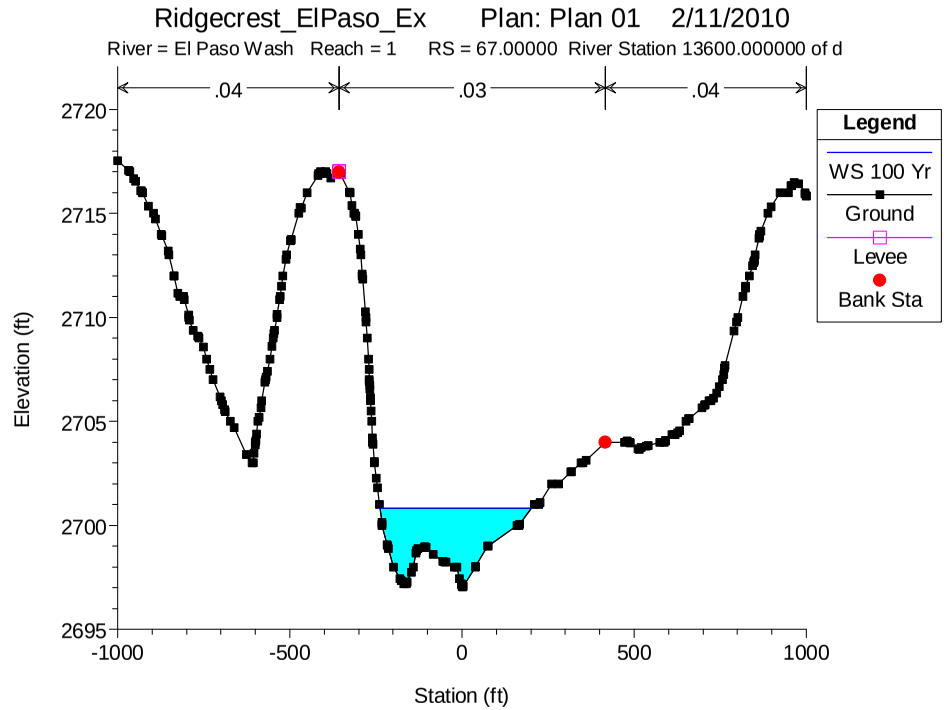
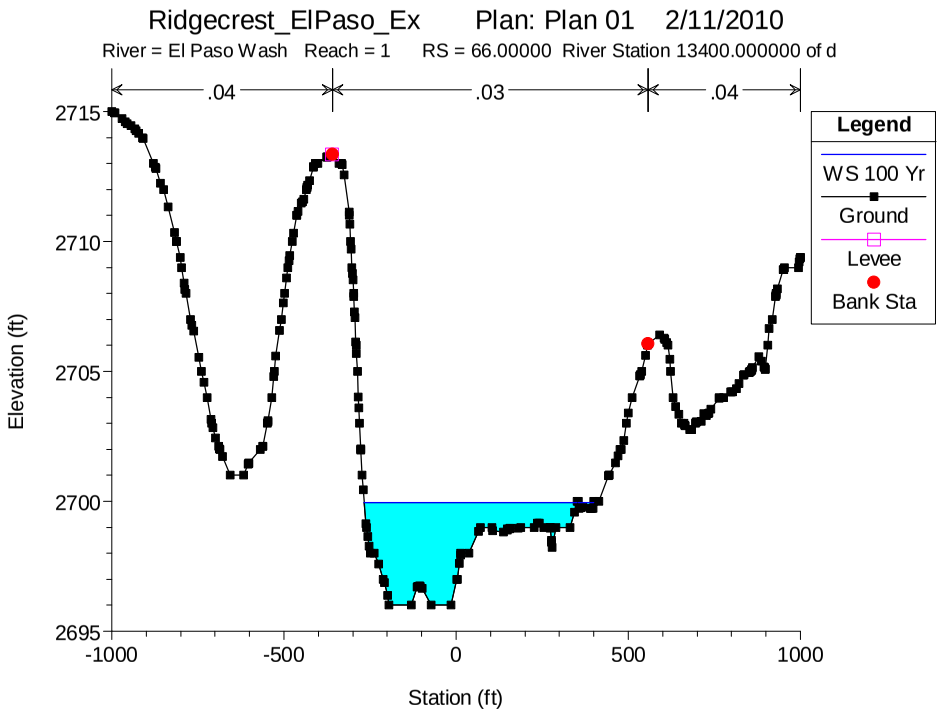
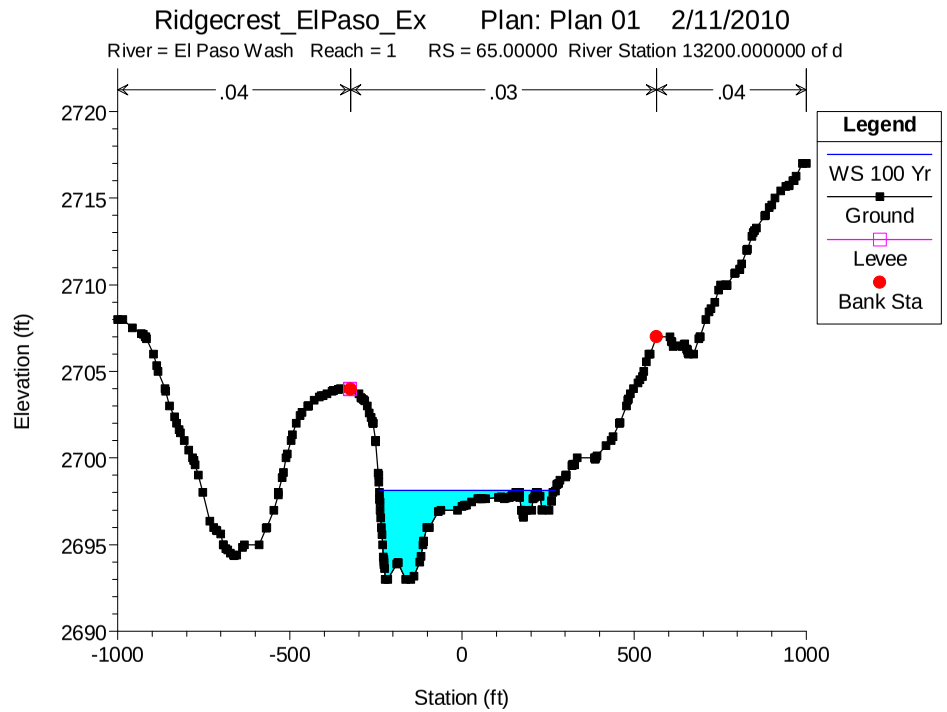
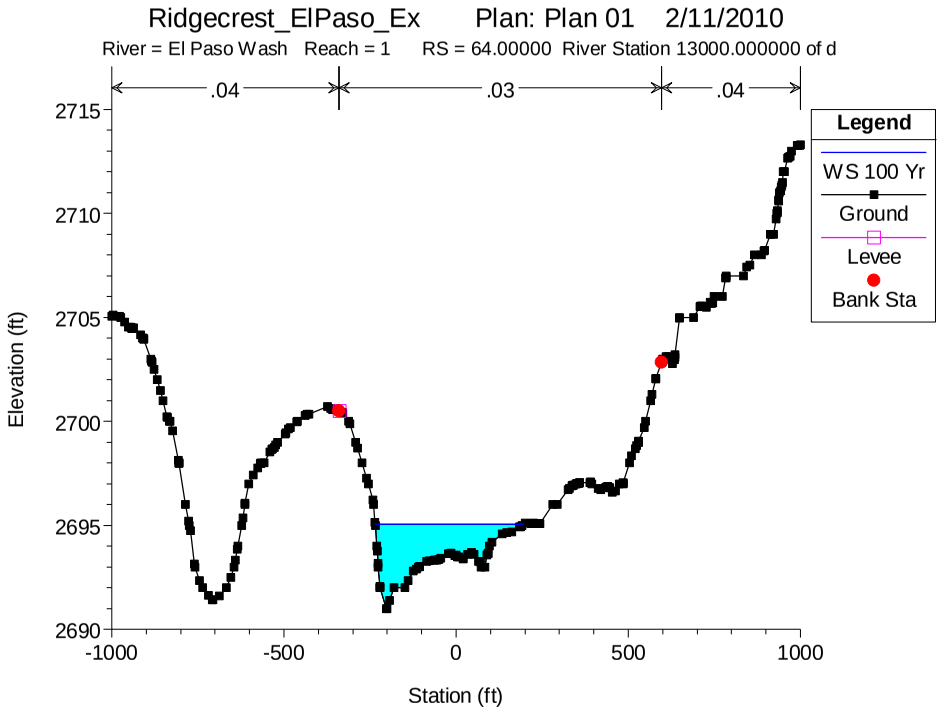
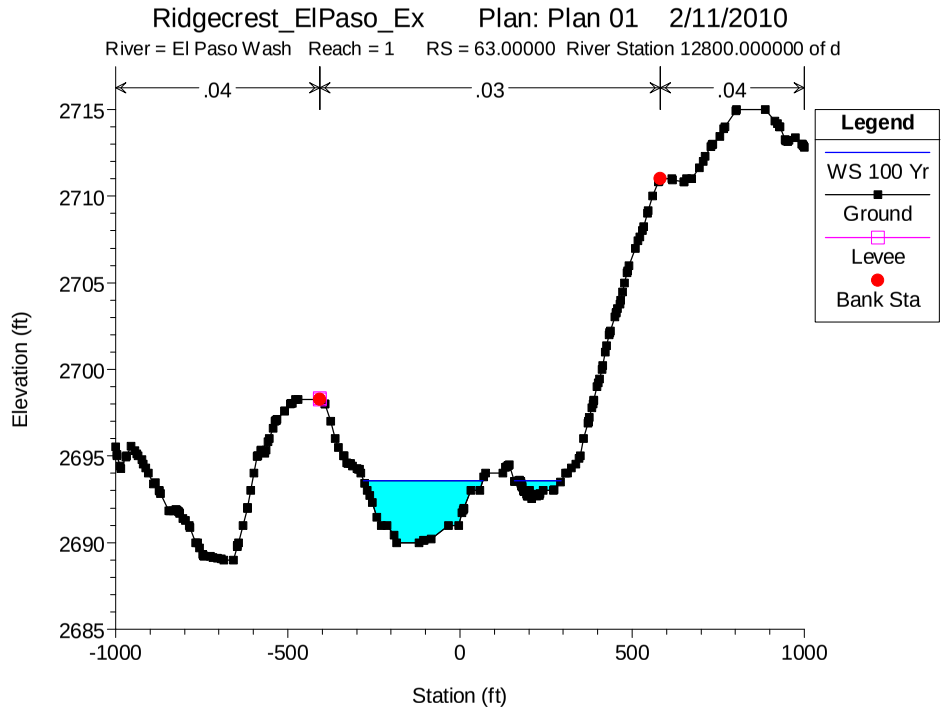
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

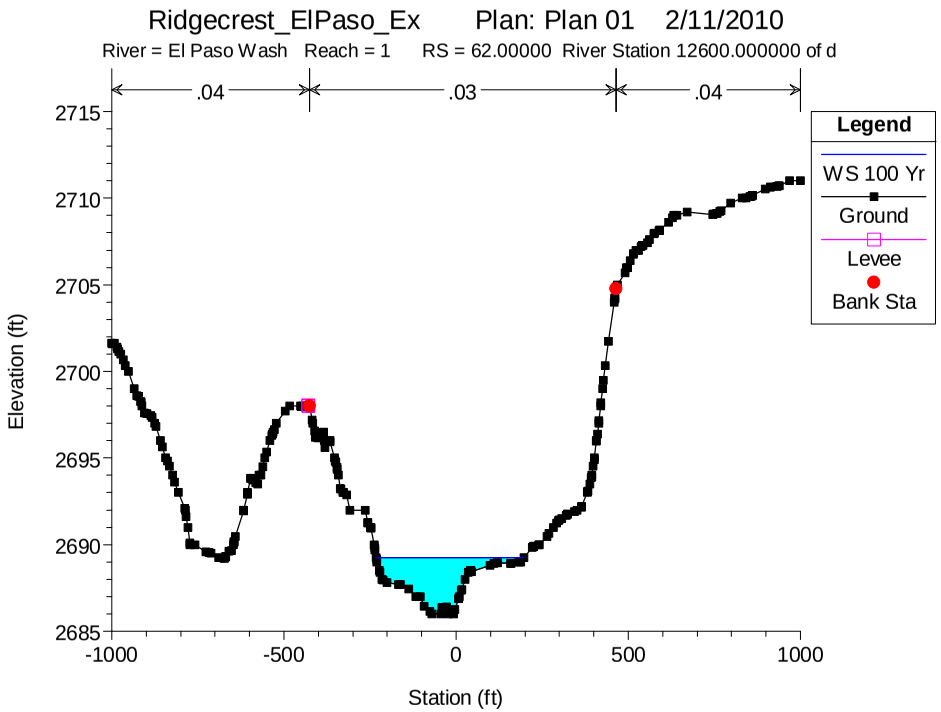

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 67.00000 River Station 13600.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

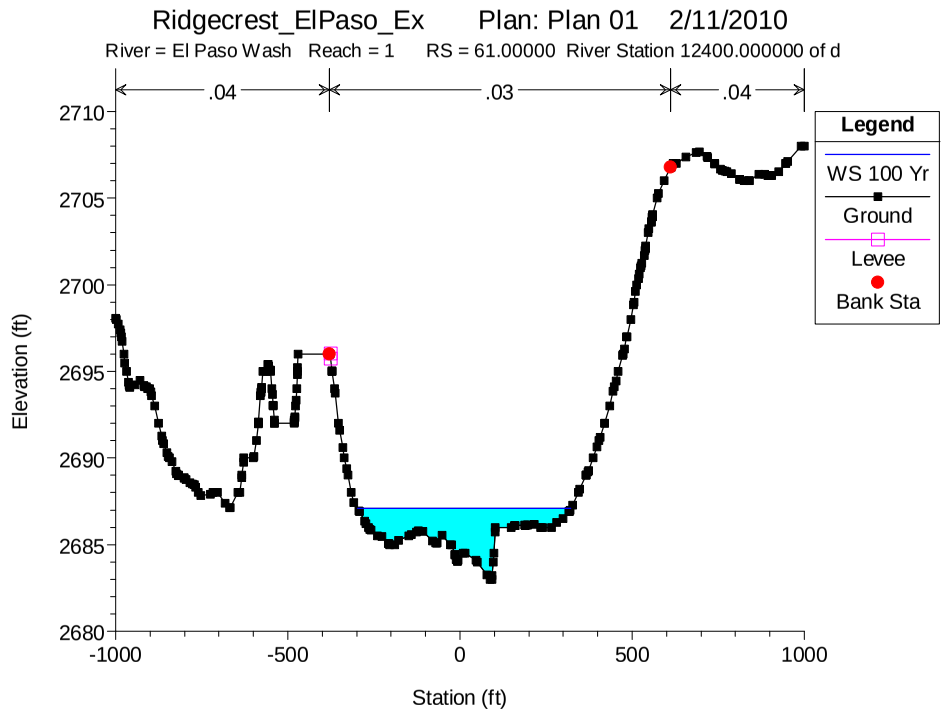

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 66.00000 River Station 13400.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

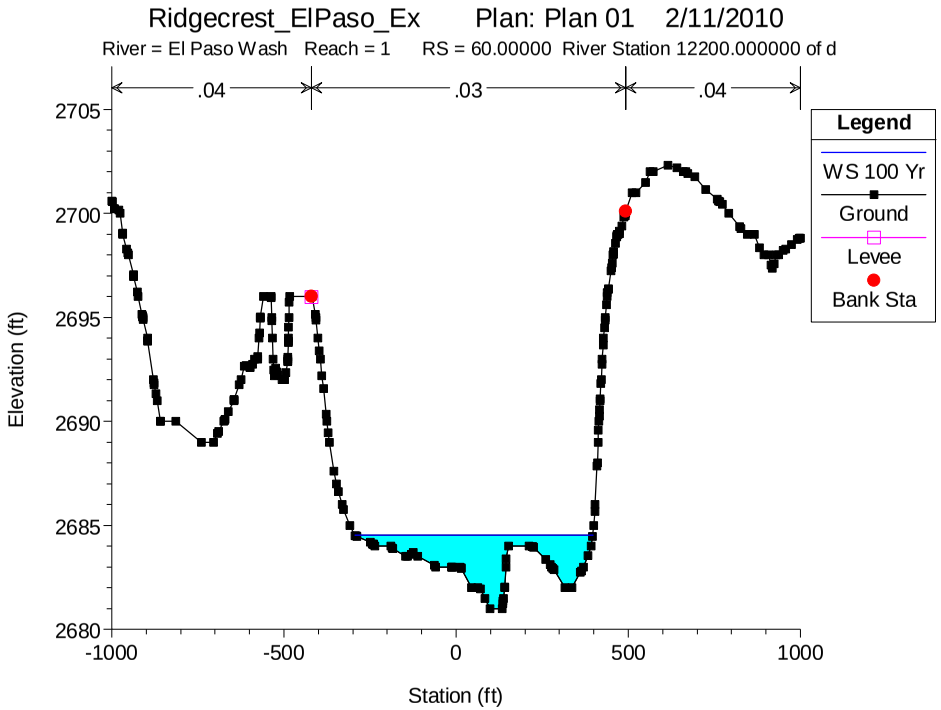

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 65.00000 River Station 13200.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

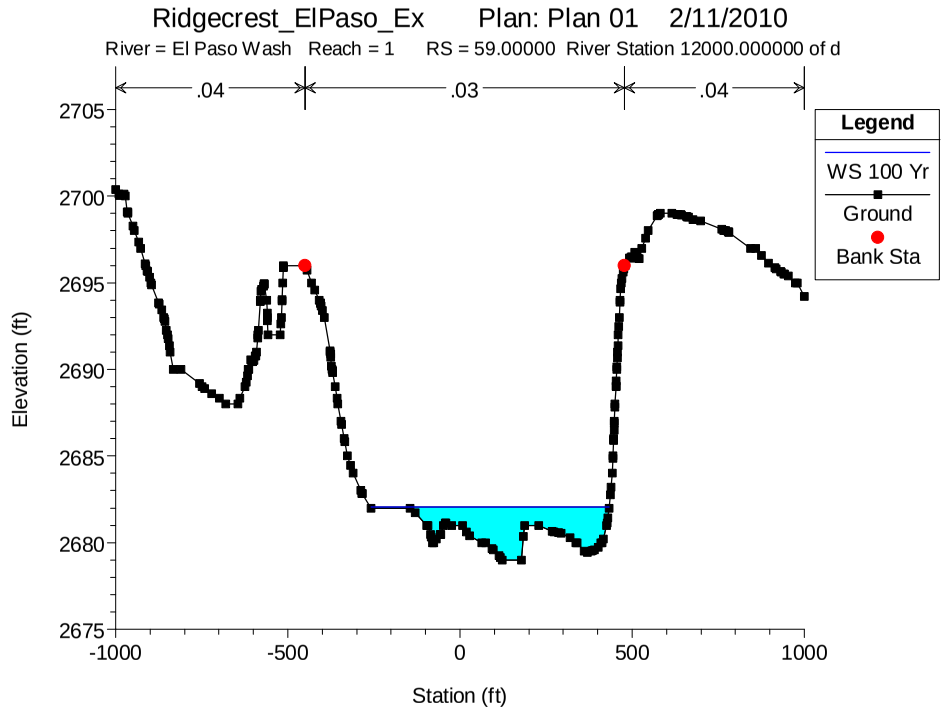

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 64.00000 River Station 13000.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

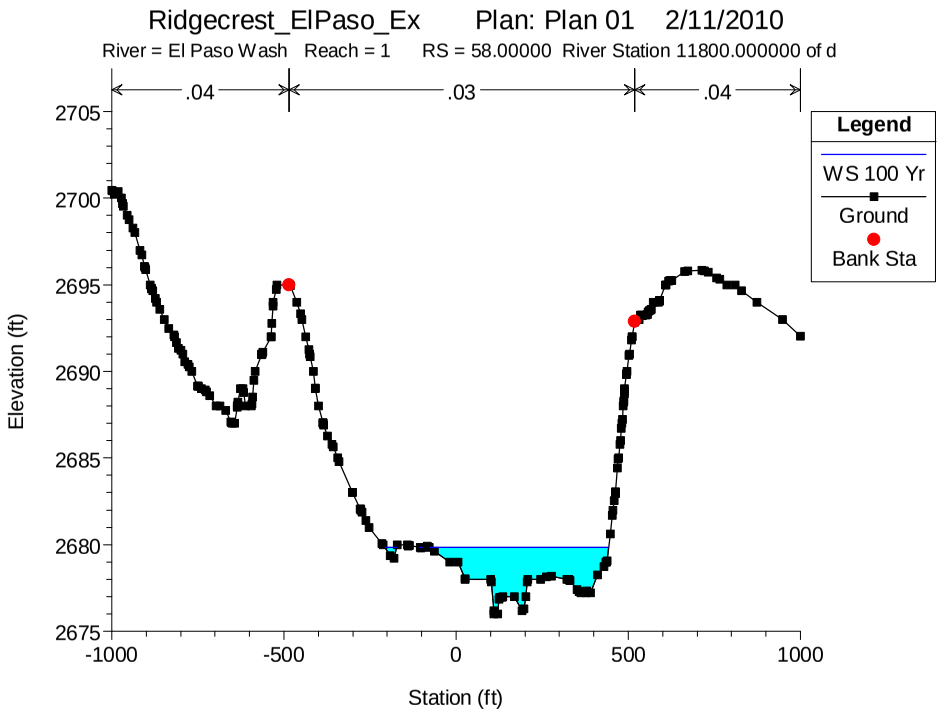

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 63.00000 River Station 12800.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

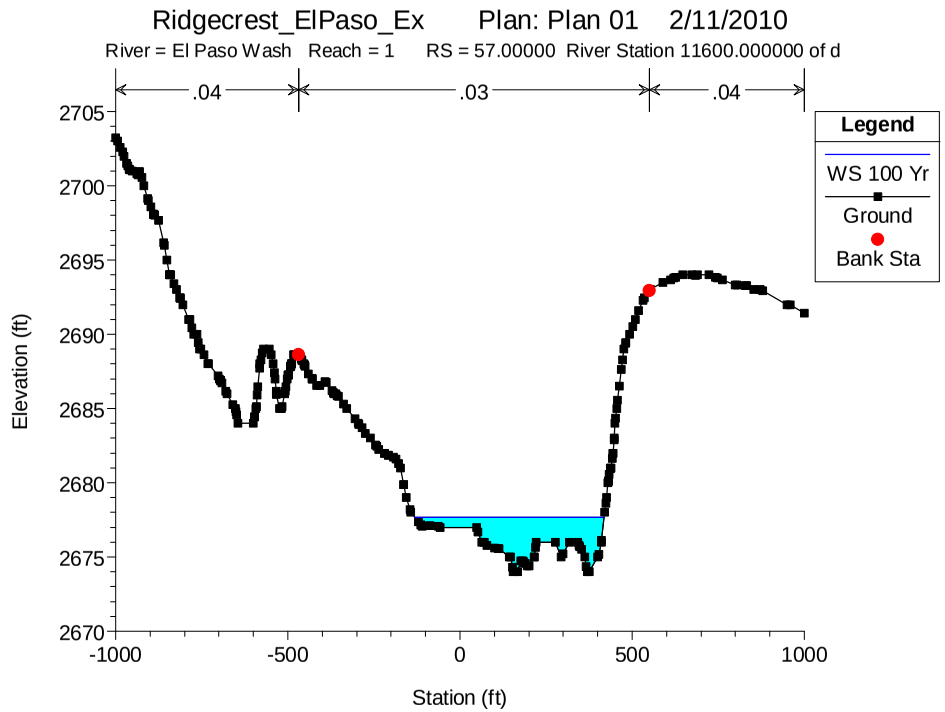

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 62.00000 River Station 12600.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

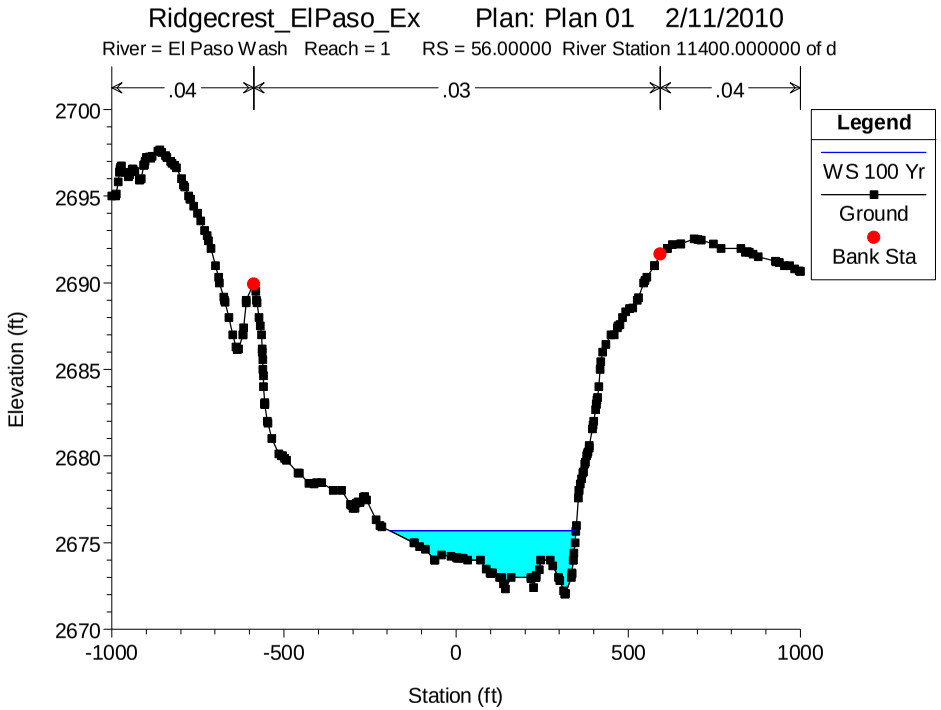

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 61.00000 River Station 12400.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

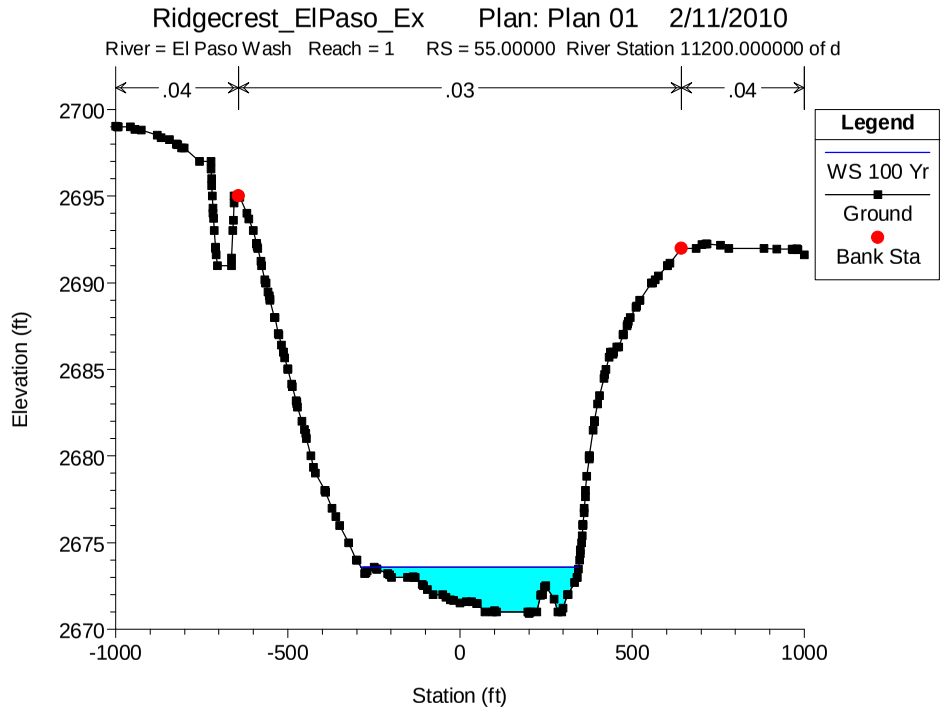

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 60.00000 River Station 12200.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

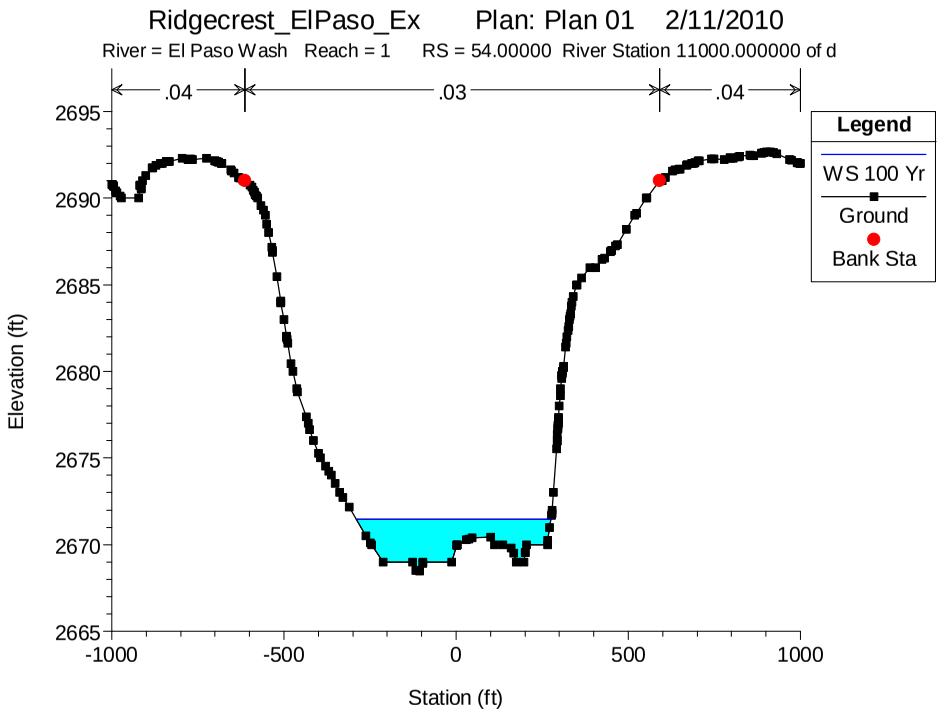

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 59.00000 River Station 12000.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

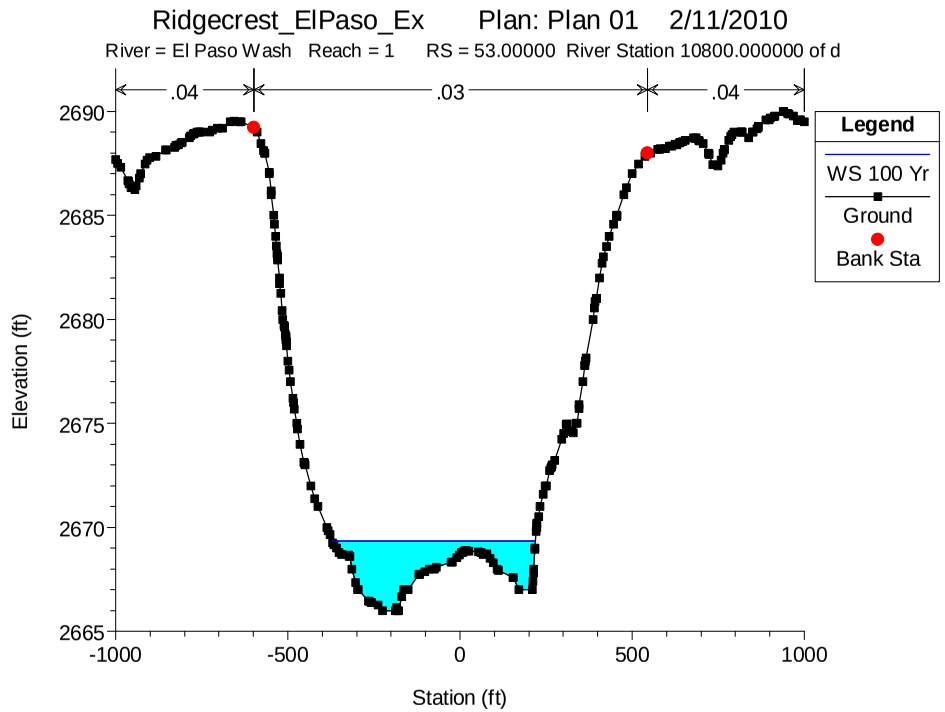

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 58.00000 River Station 11800.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

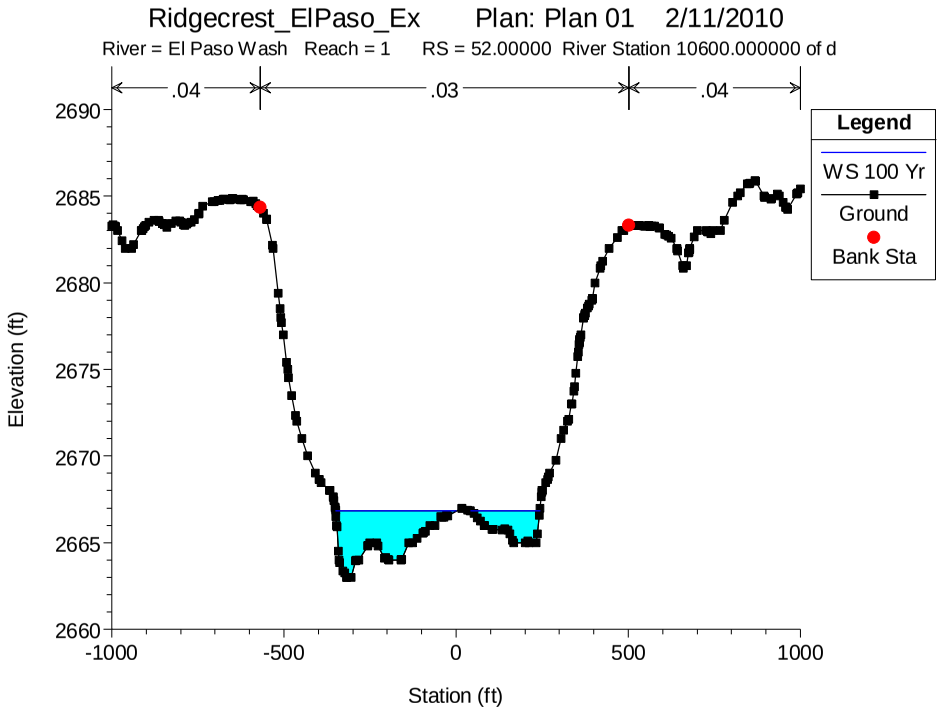

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 57.00000 River Station 11600.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

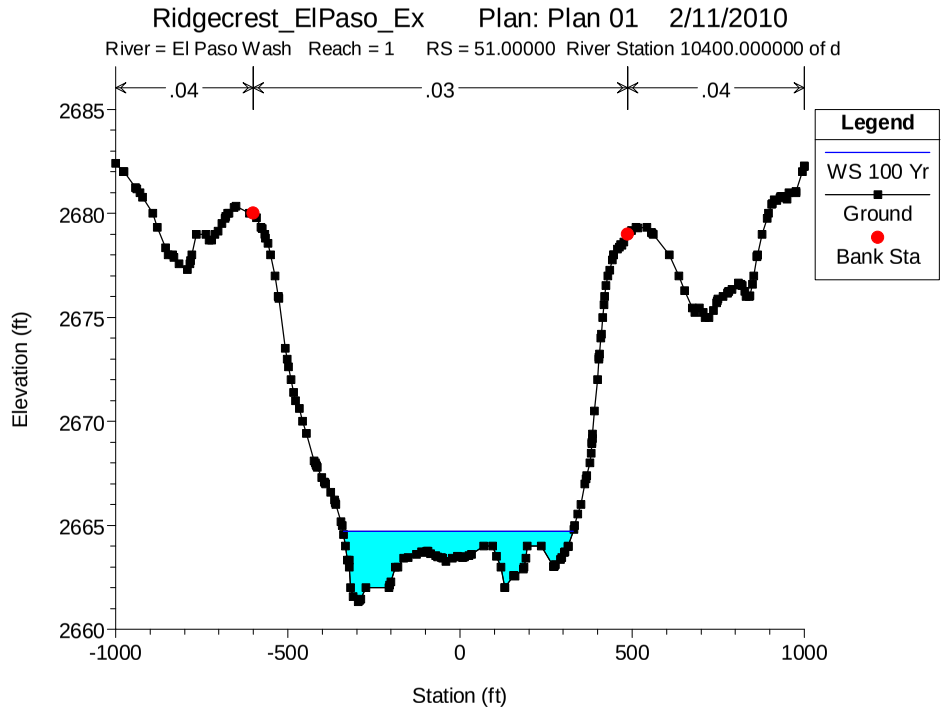

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 56.00000 River Station 11400.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

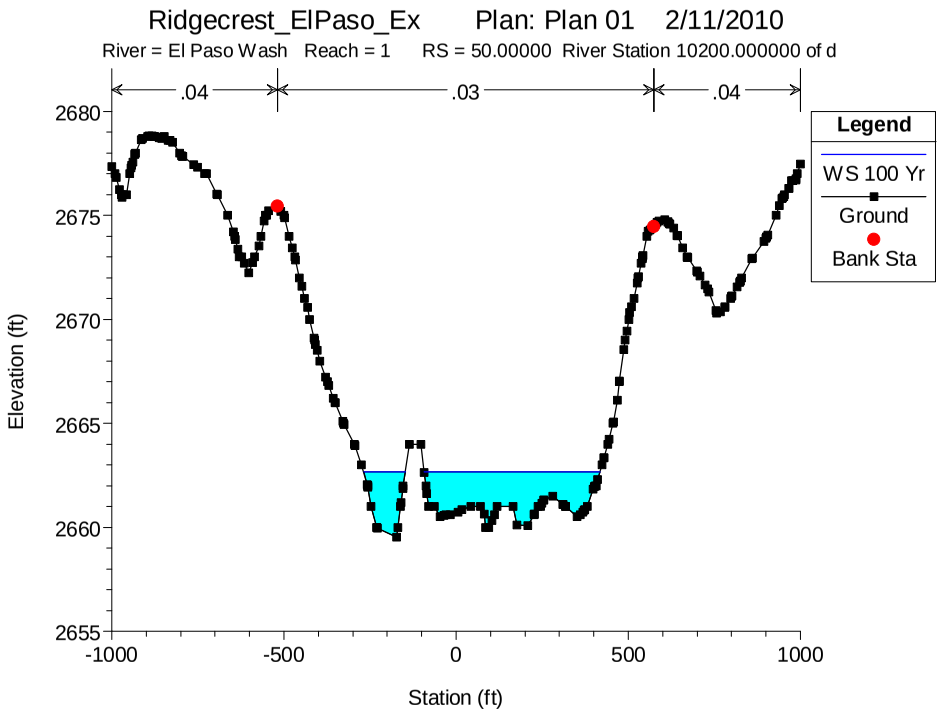

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 55.00000 River Station 11200.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

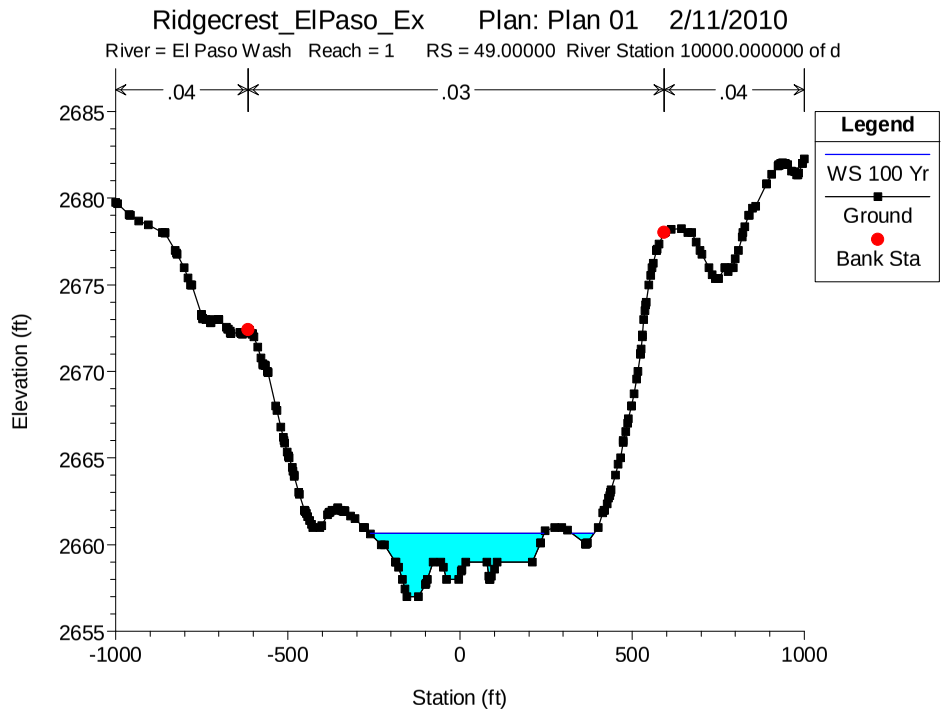

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 54.00000 River Station 11000.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

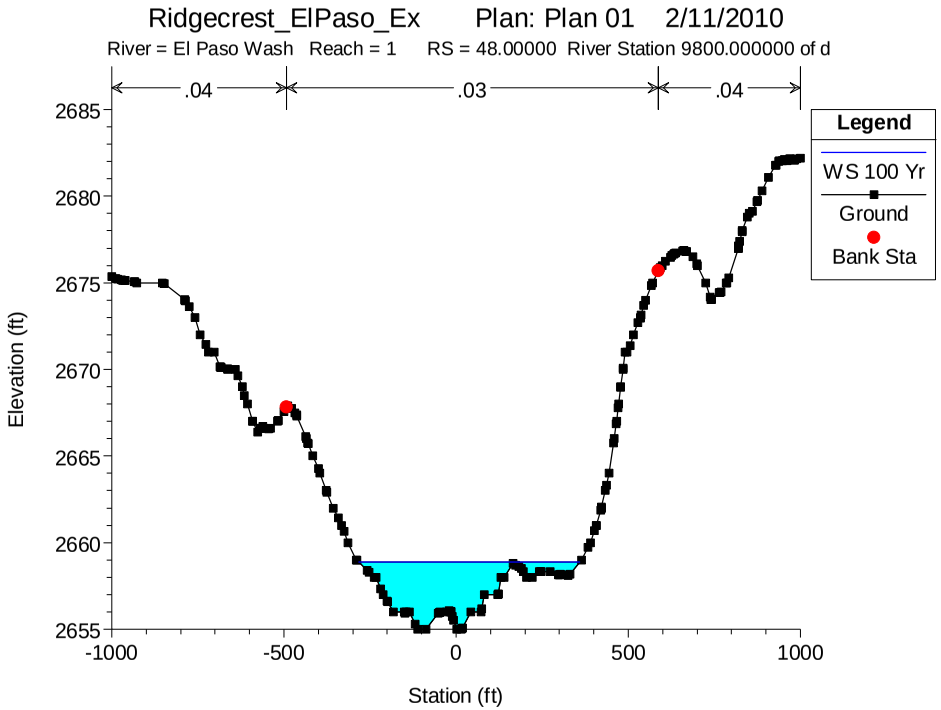

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 53.00000 River Station 10800.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

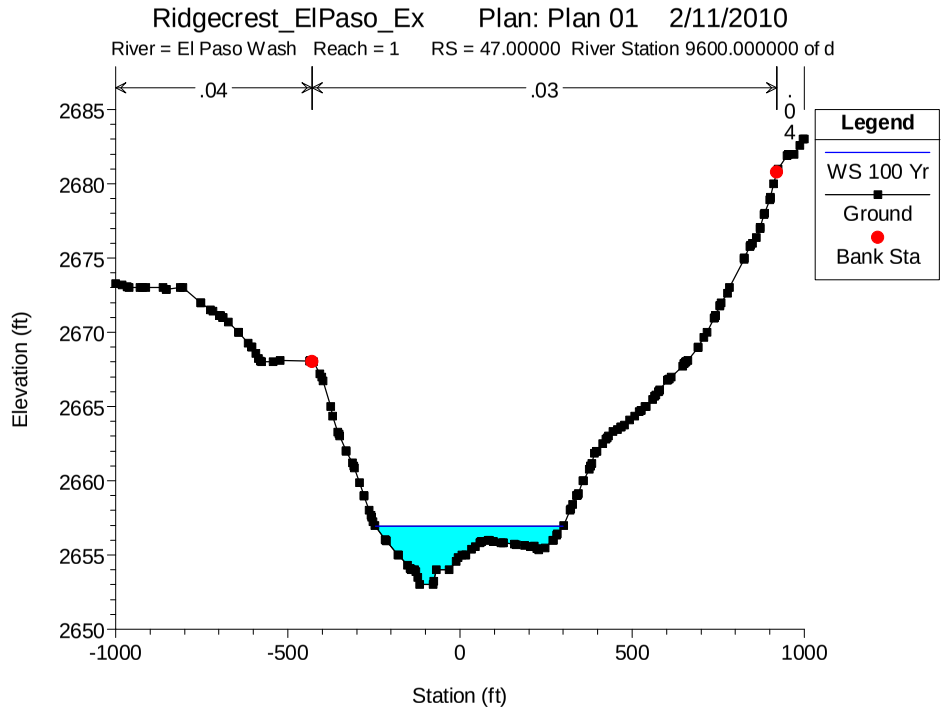

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 52.00000 River Station 10600.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

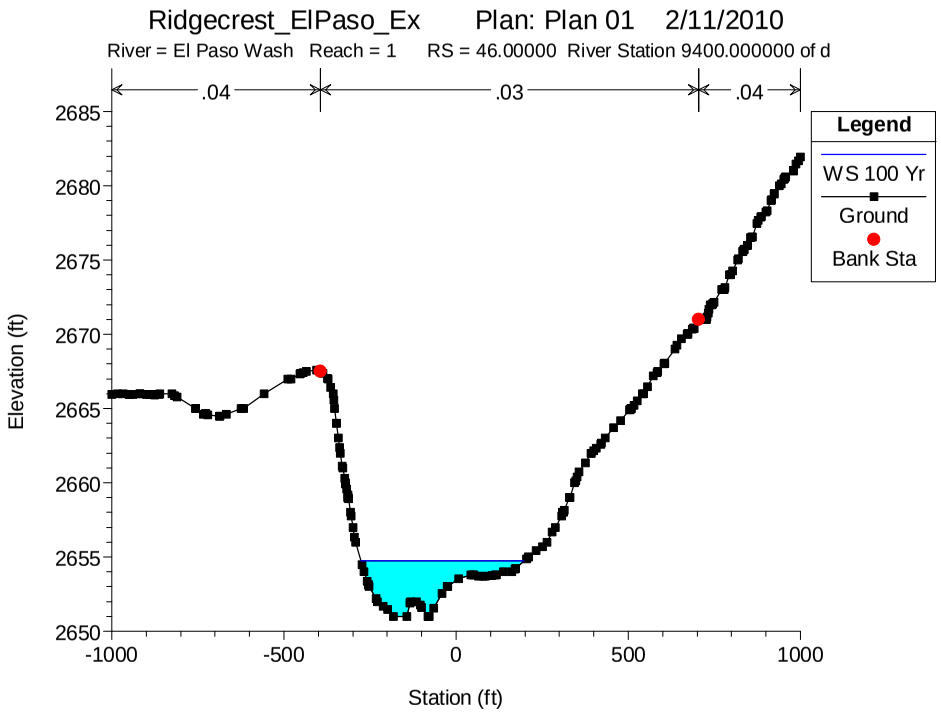

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 51.00000 River Station 10400.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

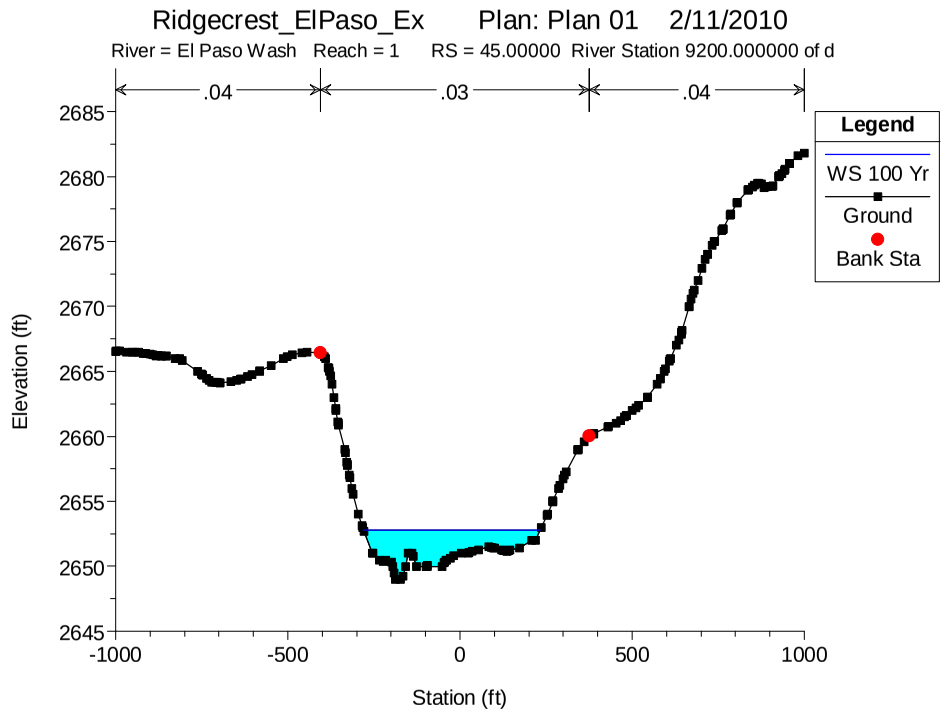

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 50.00000 River Station 10200.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

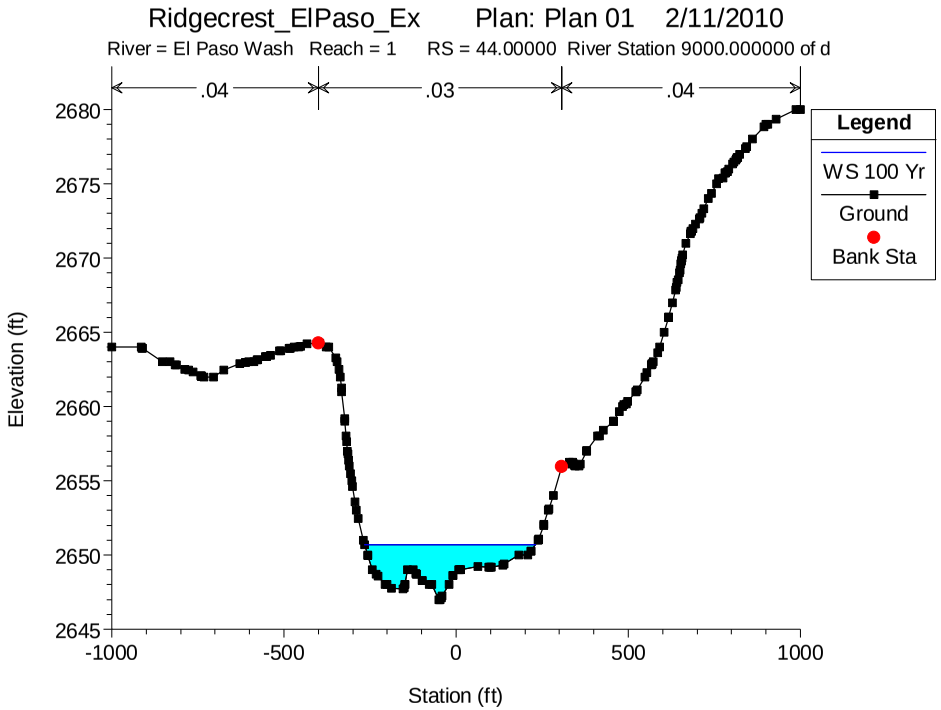

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 49.00000 River Station 10000.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

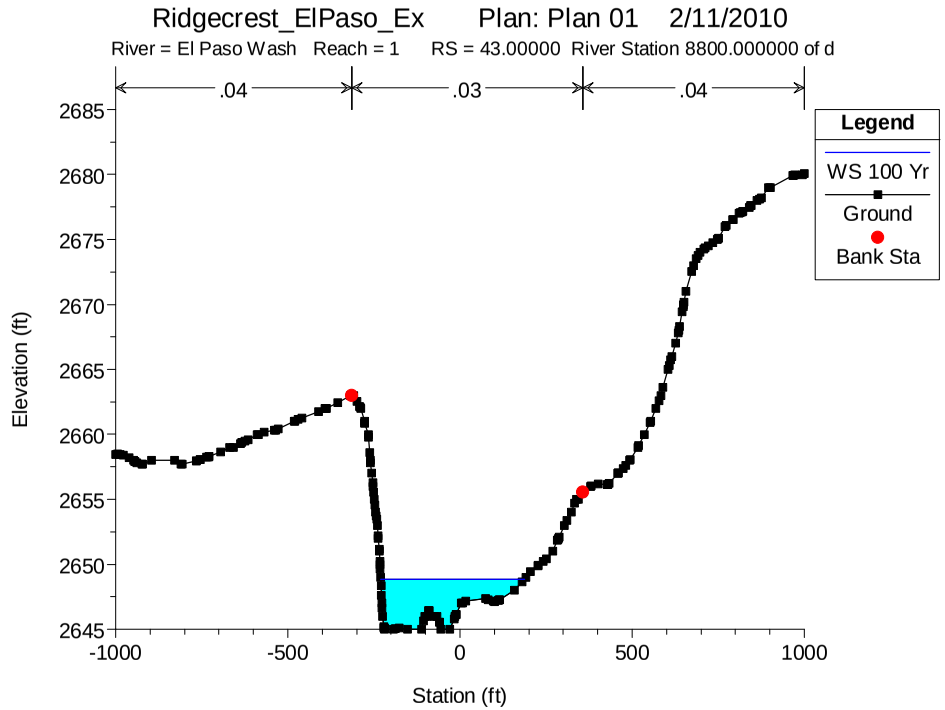

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 48.00000 River Station 9800.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

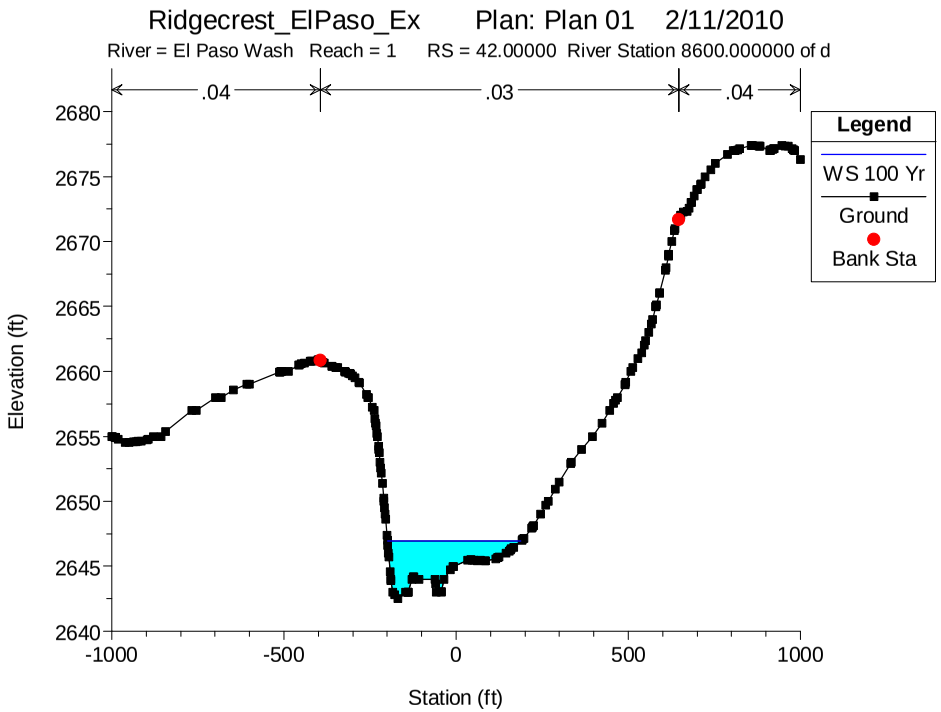

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 47.00000 River Station 9600.000000 of d
.04
.03
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

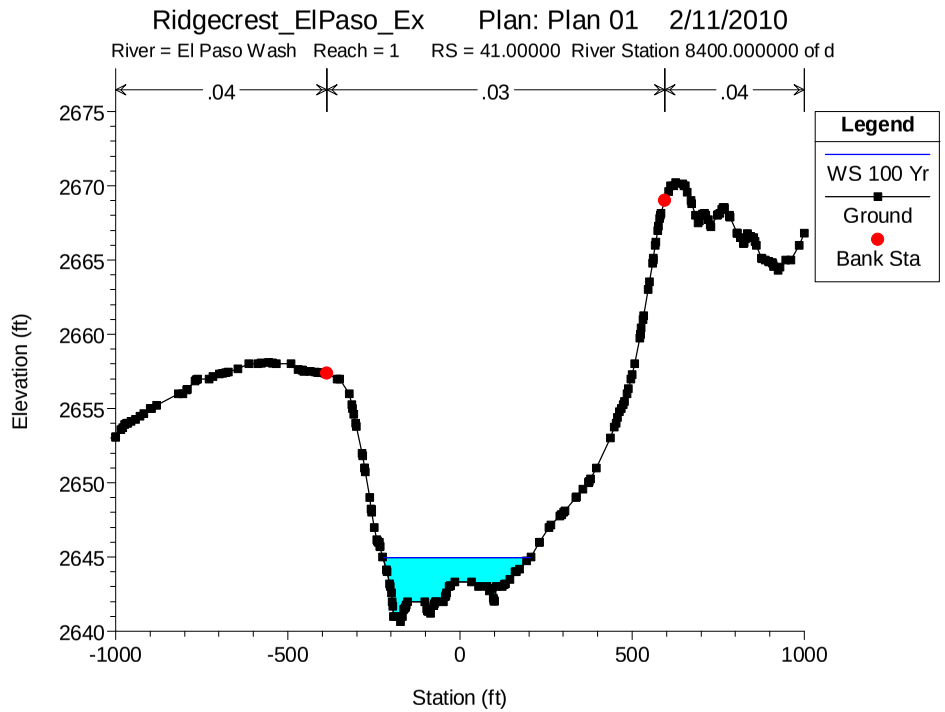

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 46.00000 River Station 9400.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

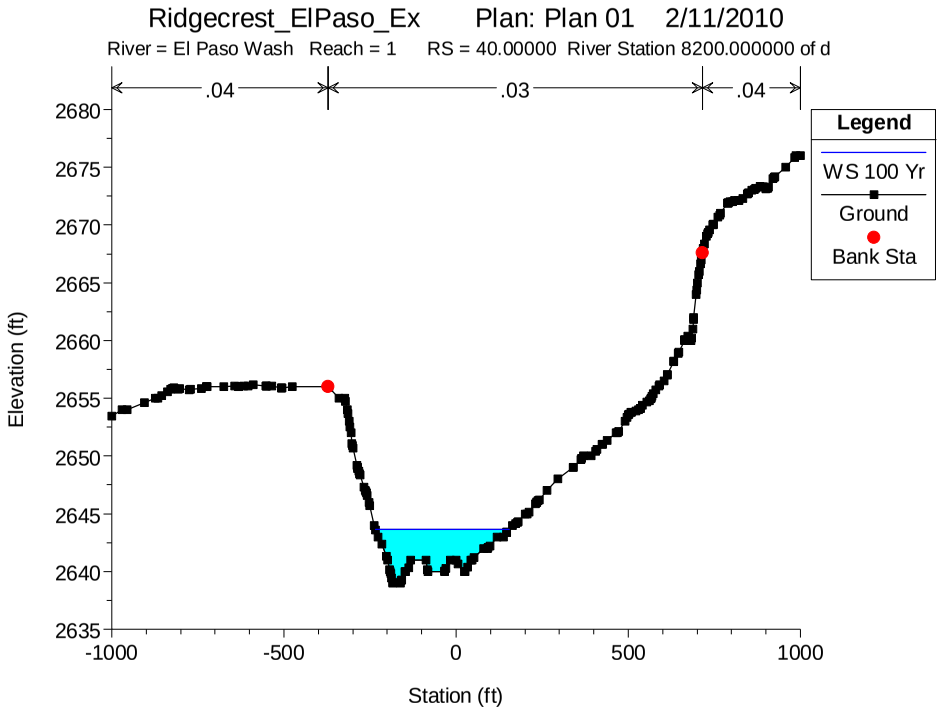

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 45.00000 River Station 9200.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

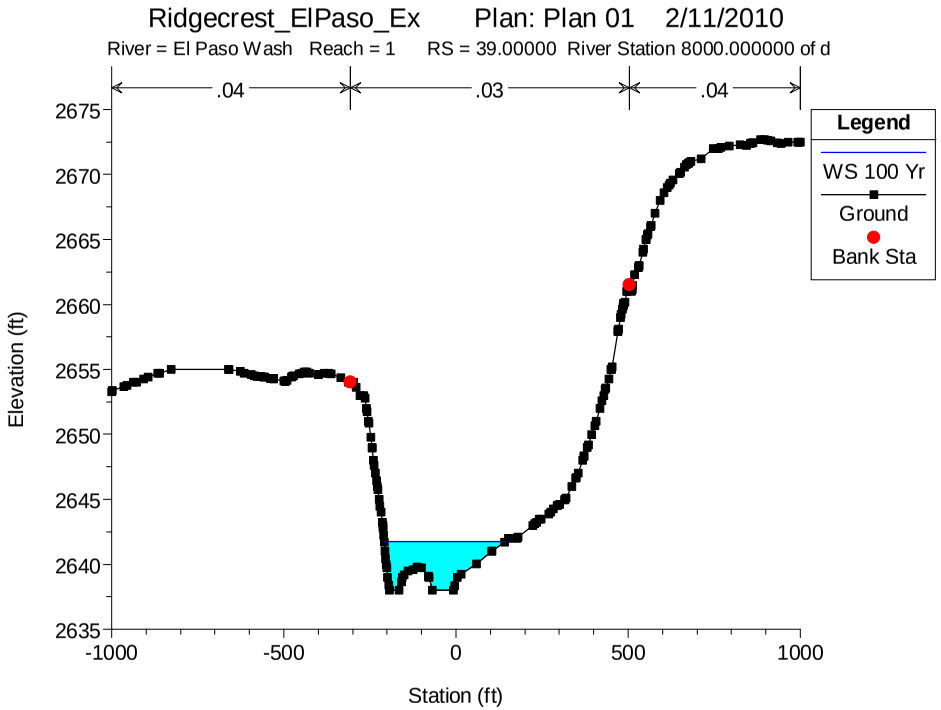

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 44.00000 River Station 9000.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

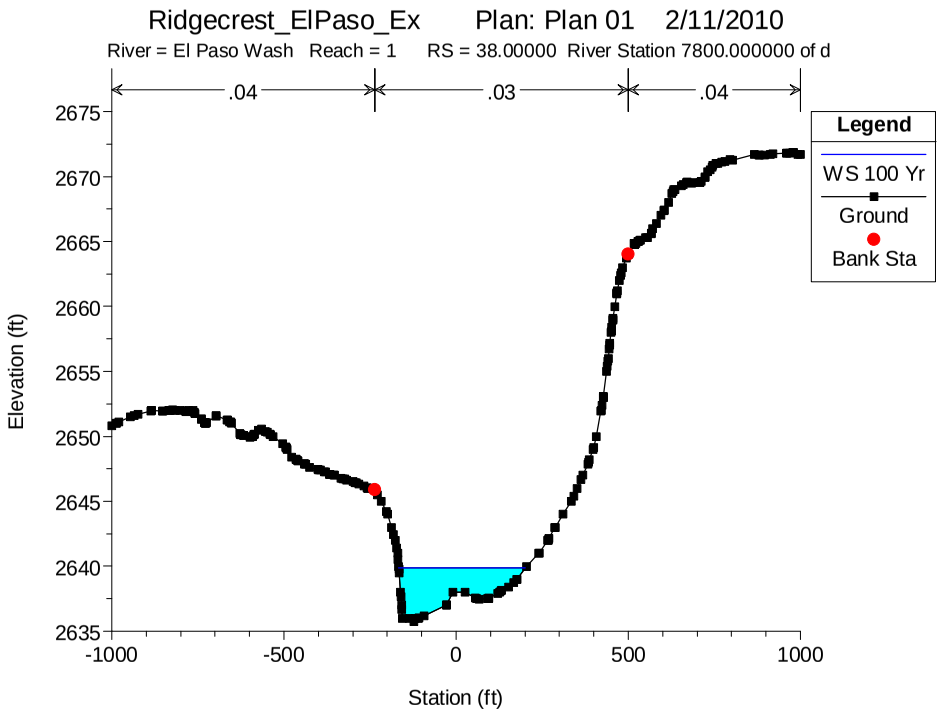

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 43.00000 River Station 8800.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

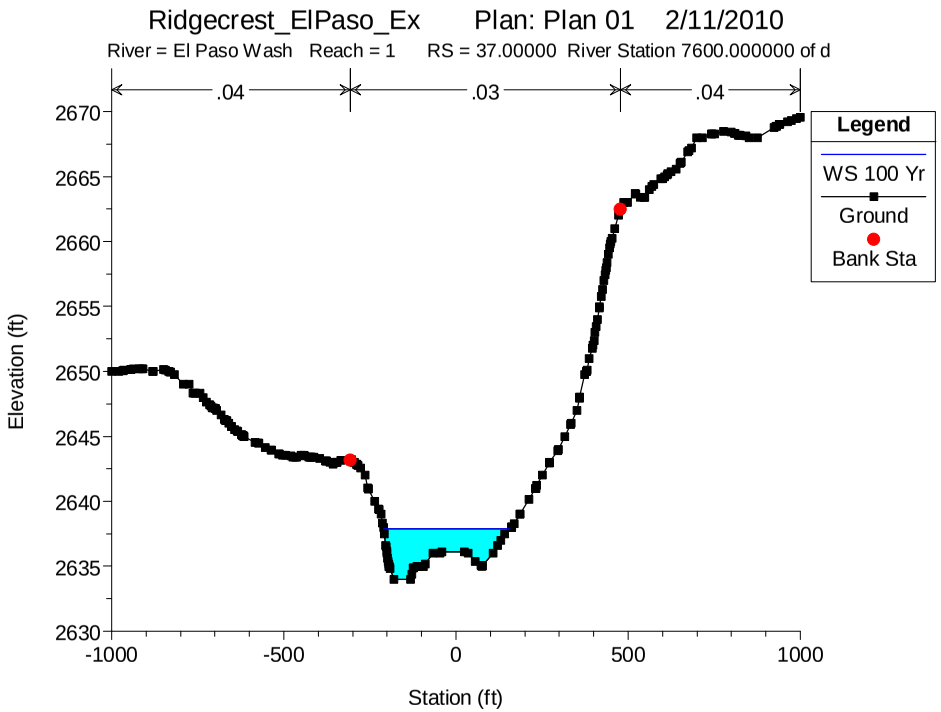

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 42.00000 River Station 8600.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

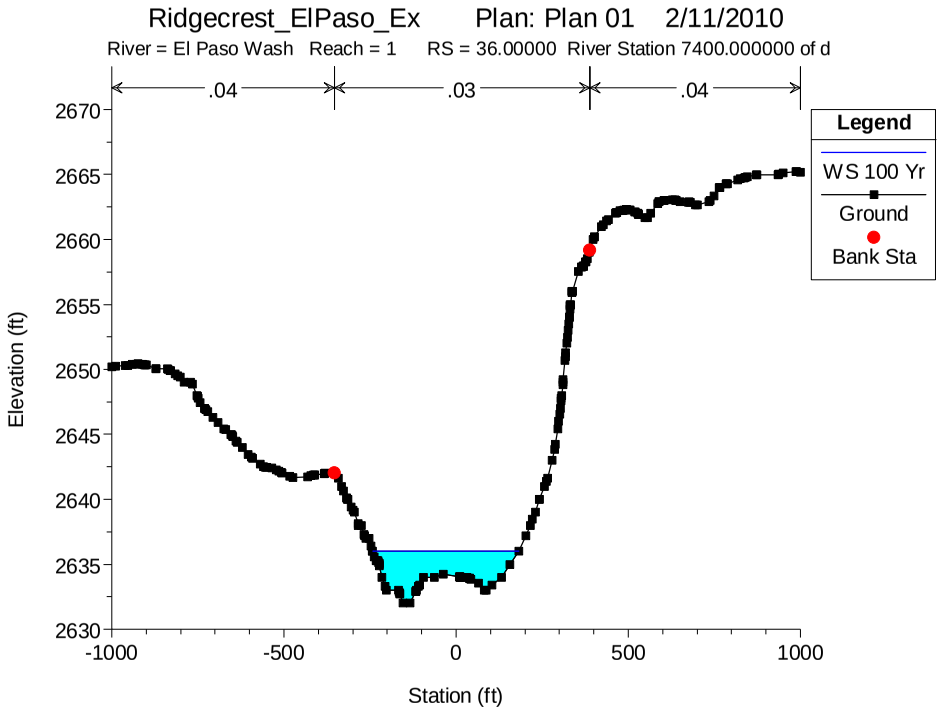

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 41.00000 River Station 8400.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

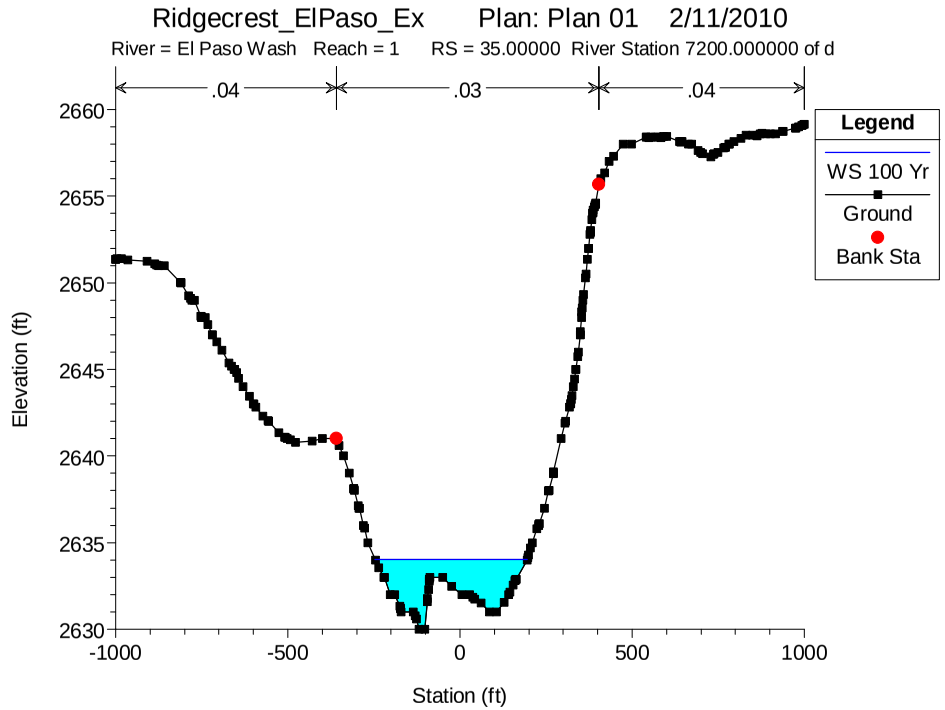

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 40.00000 River Station 8200.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

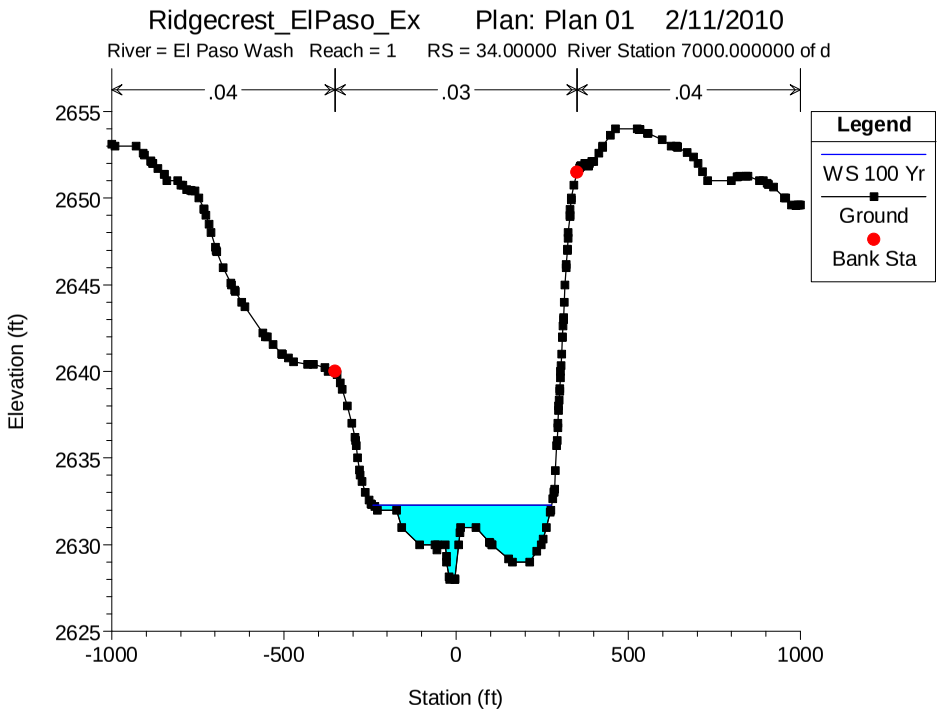

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 39.00000 River Station 8000.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

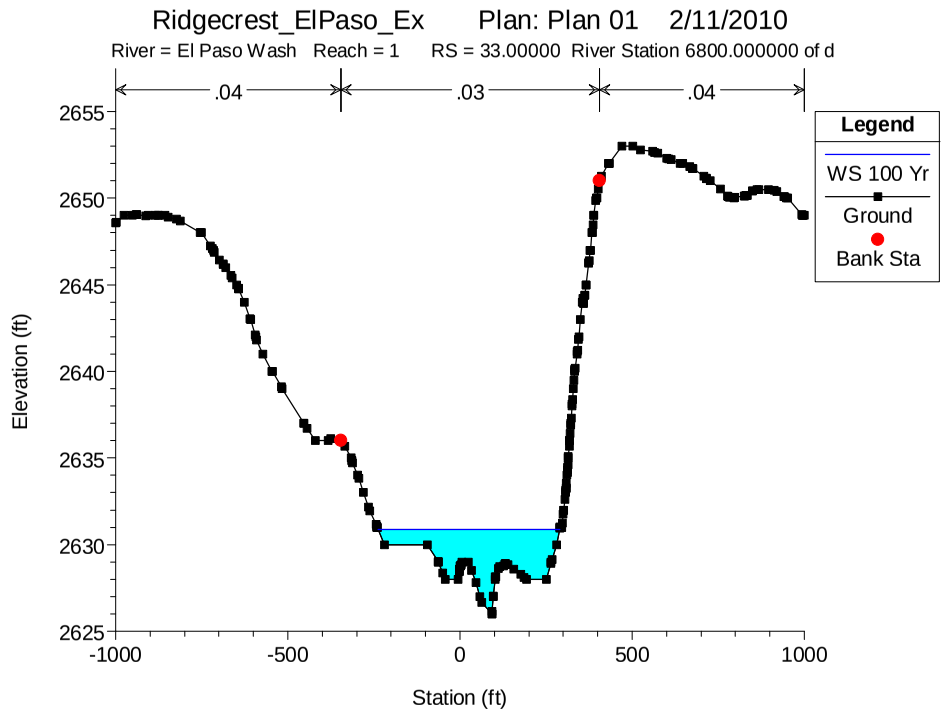

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 38.00000 River Station 7800.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

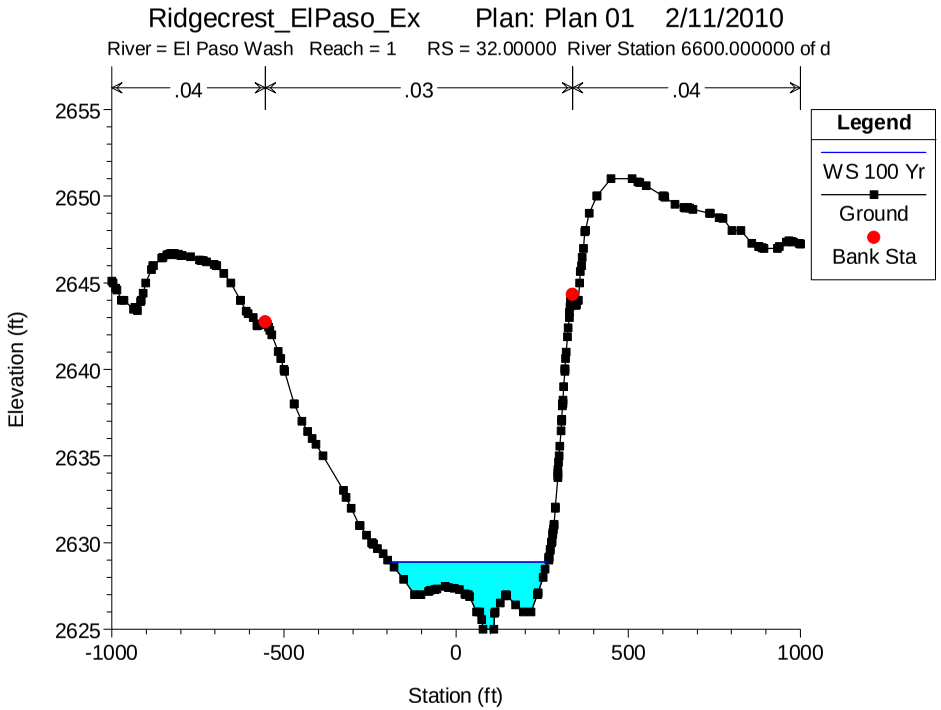

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 37.00000 River Station 7600.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

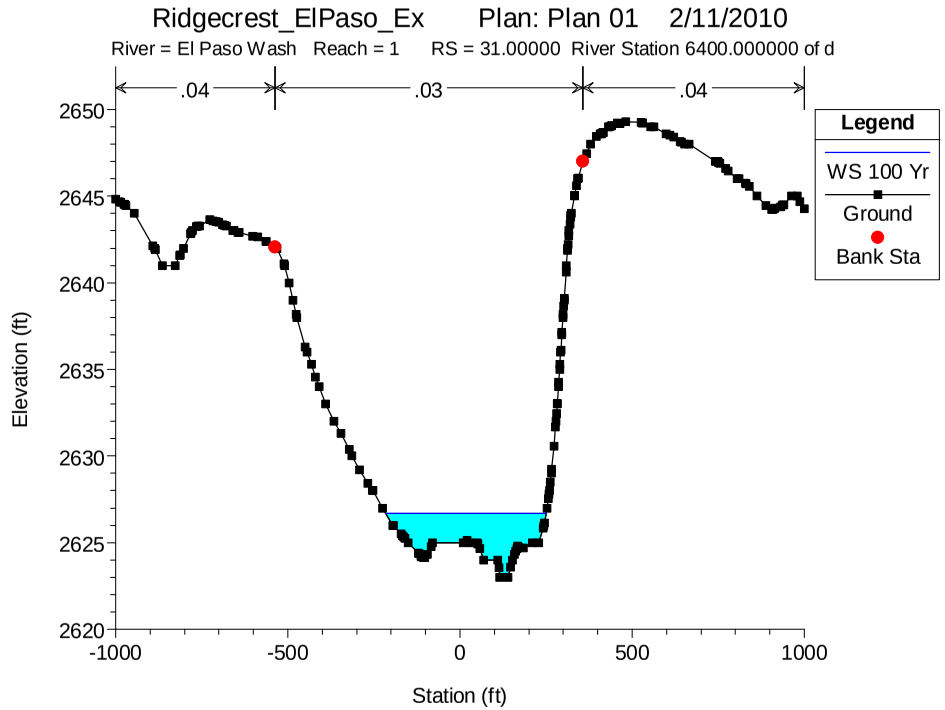

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 36.00000 River Station 7400.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 35.00000 River Station 7200.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 34.00000 River Station 7000.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 33.00000 River Station 6800.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 32.00000 River Station 6600.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 31.00000 River Station 6400.000000 of d
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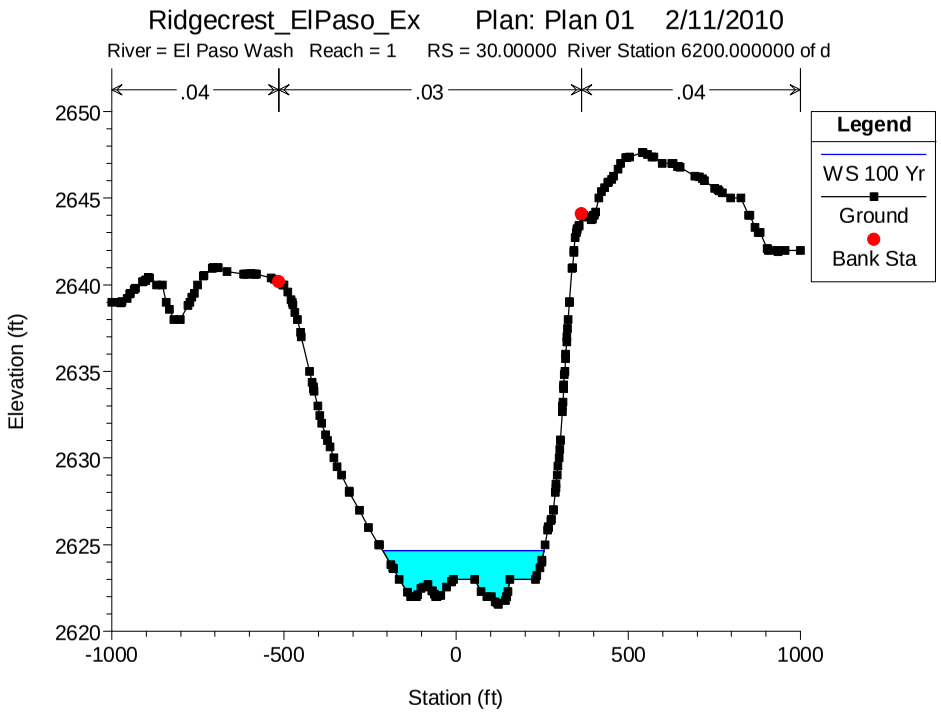
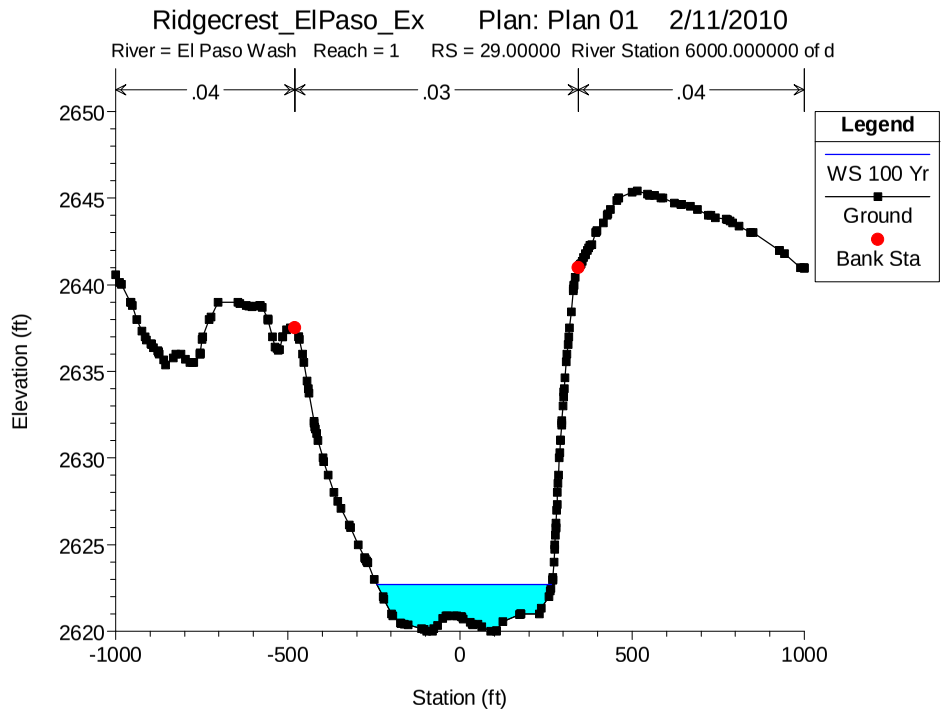
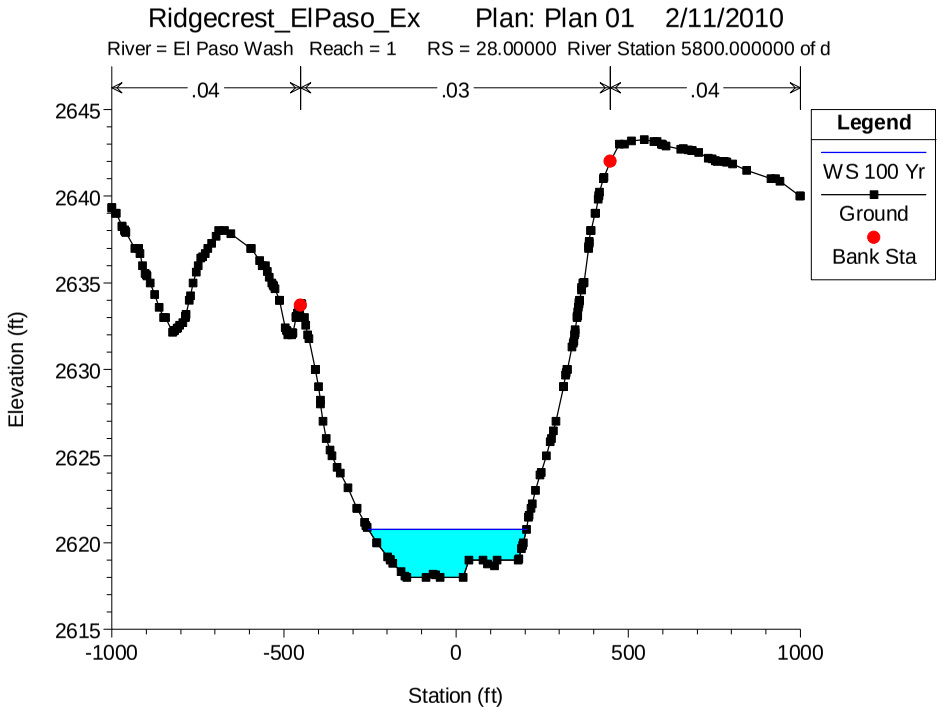
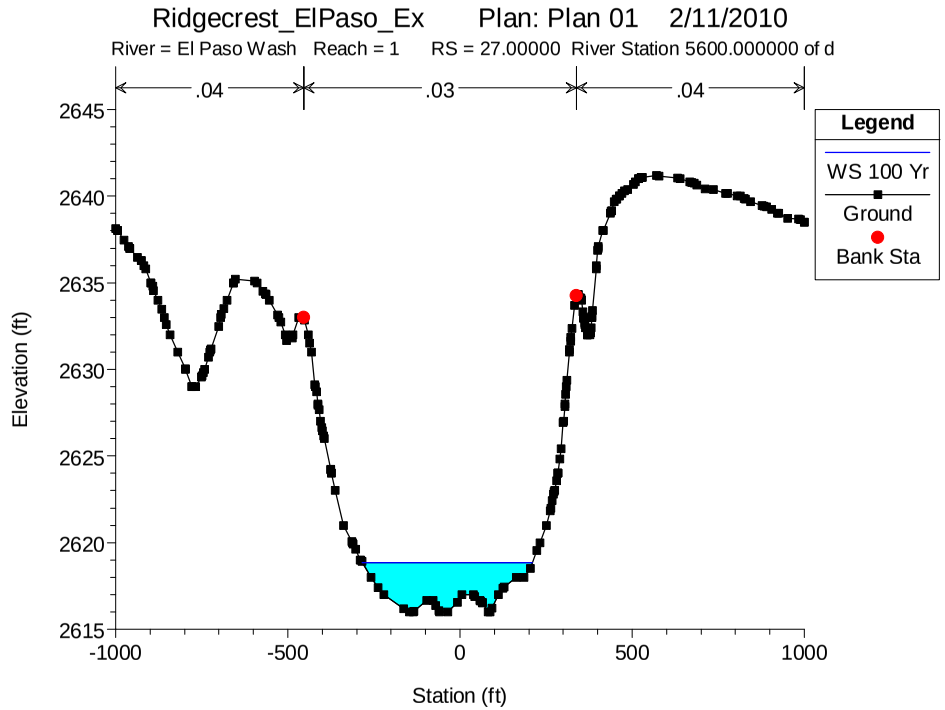
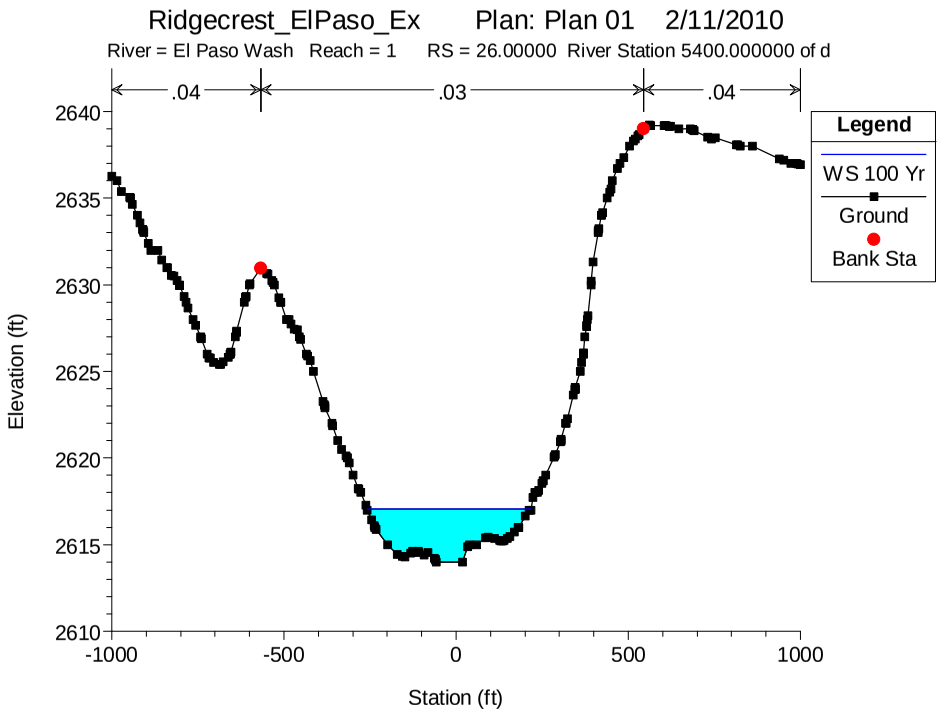
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

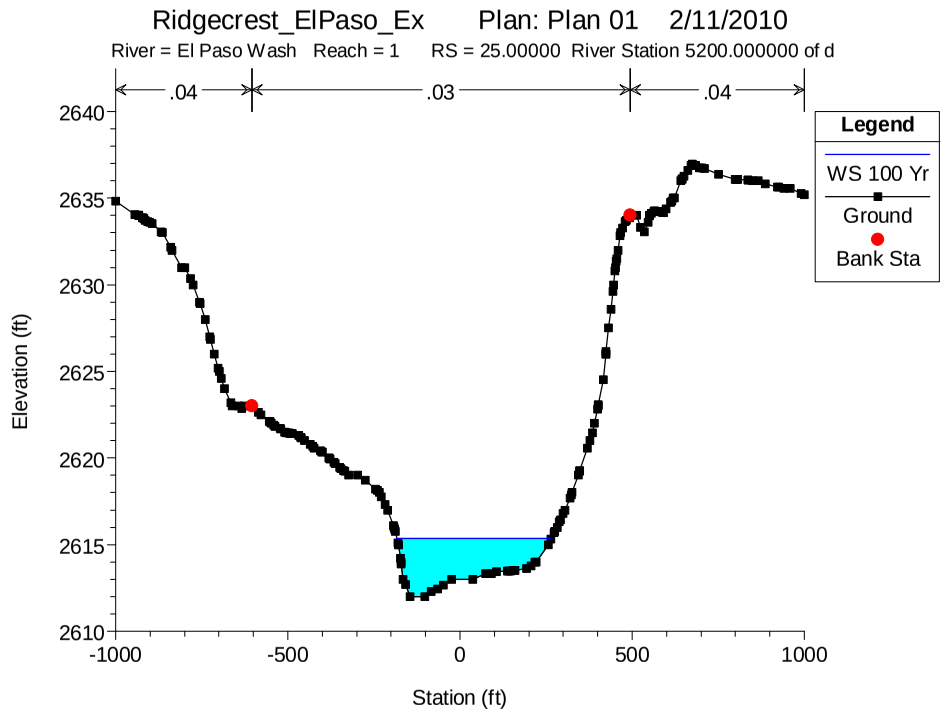

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 30.00000 River Station 6200.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

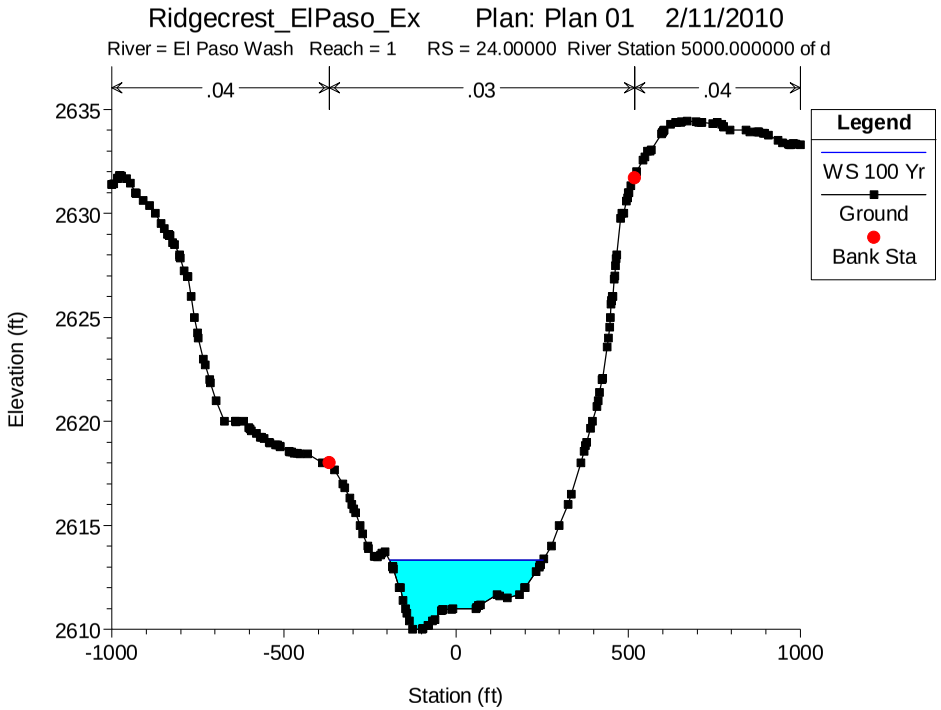

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 29.00000 River Station 6000.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

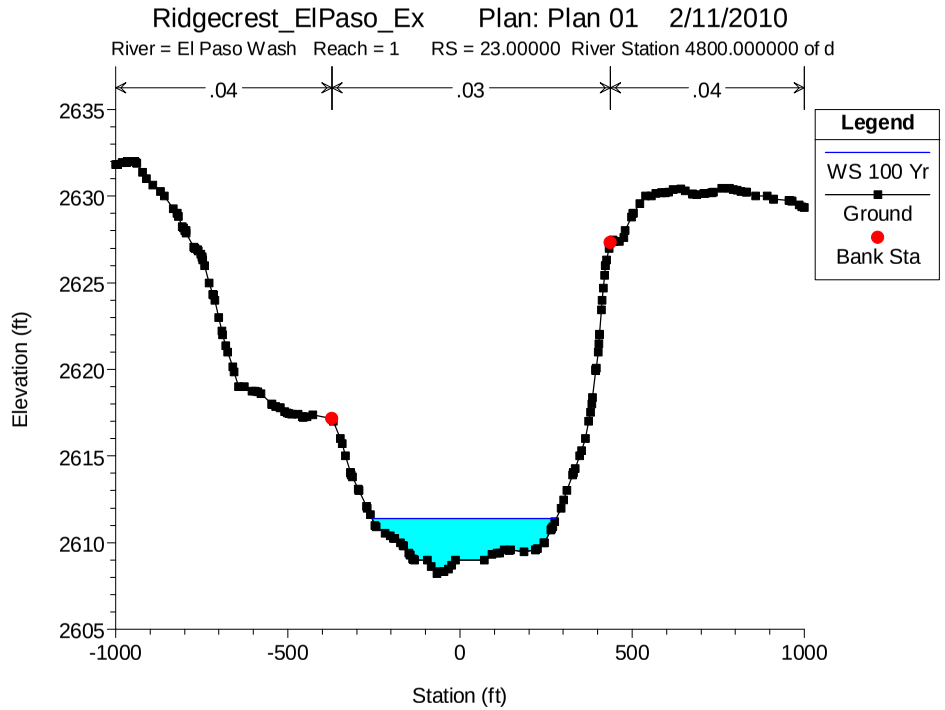

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 28.00000 River Station 5800.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

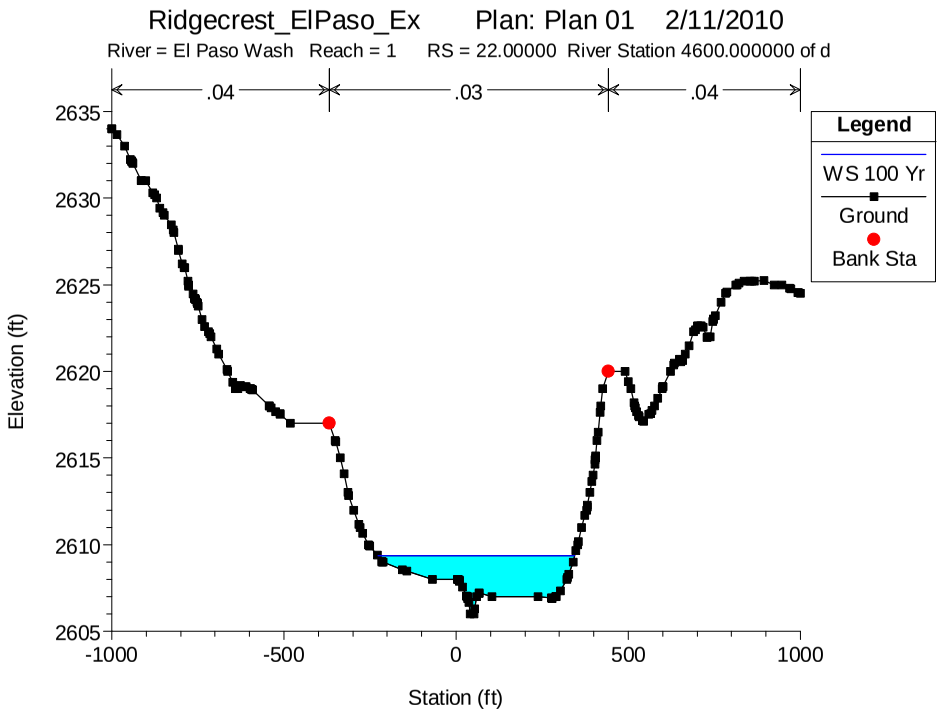

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 27.00000 River Station 5600.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

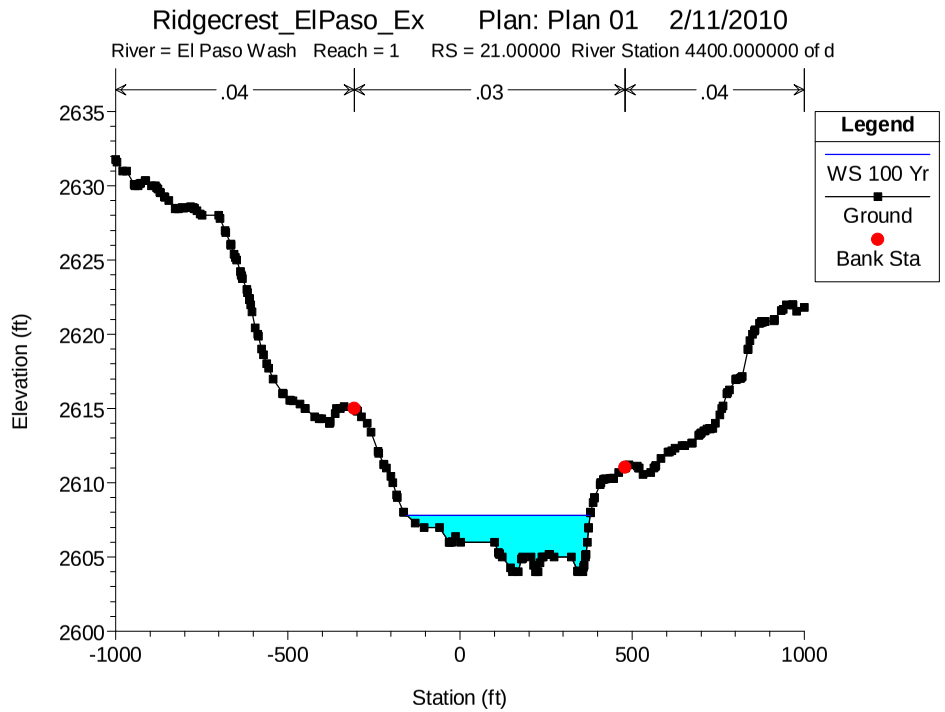

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 26.00000 River Station 5400.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 25.00000 River Station 5200.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 24.00000 River Station 5000.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 23.00000 River Station 4800.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 22.00000 River Station 4600.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 21.00000 River Station 4400.000000 of d
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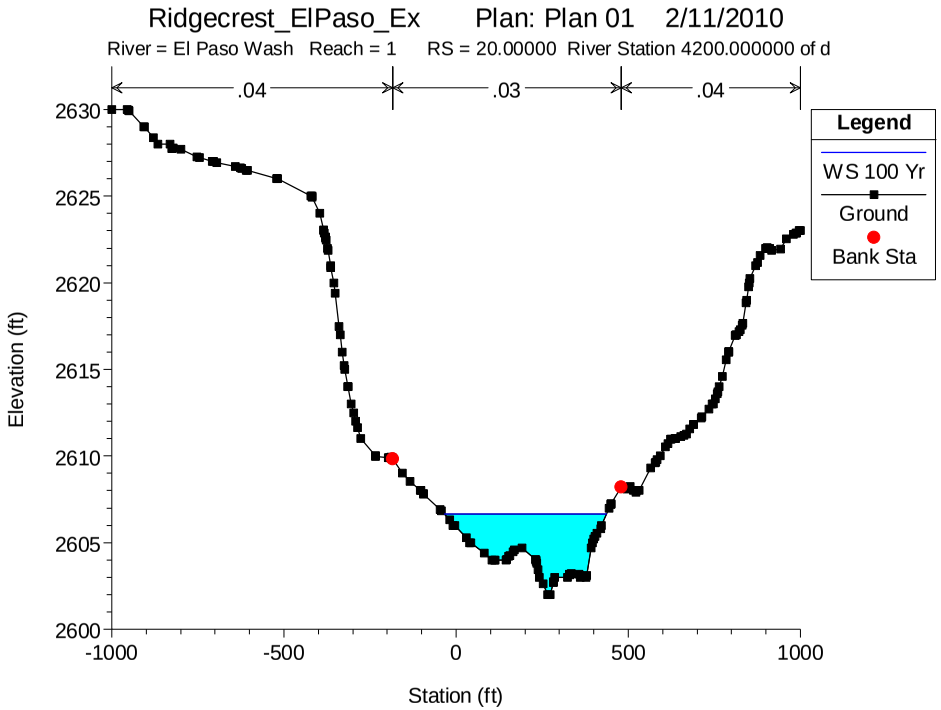
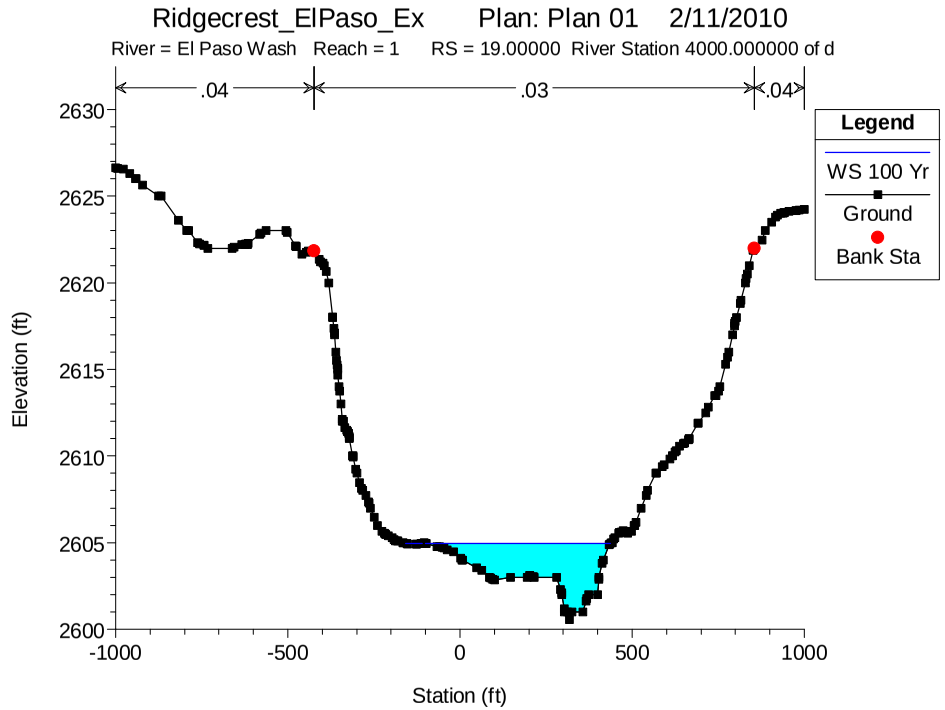
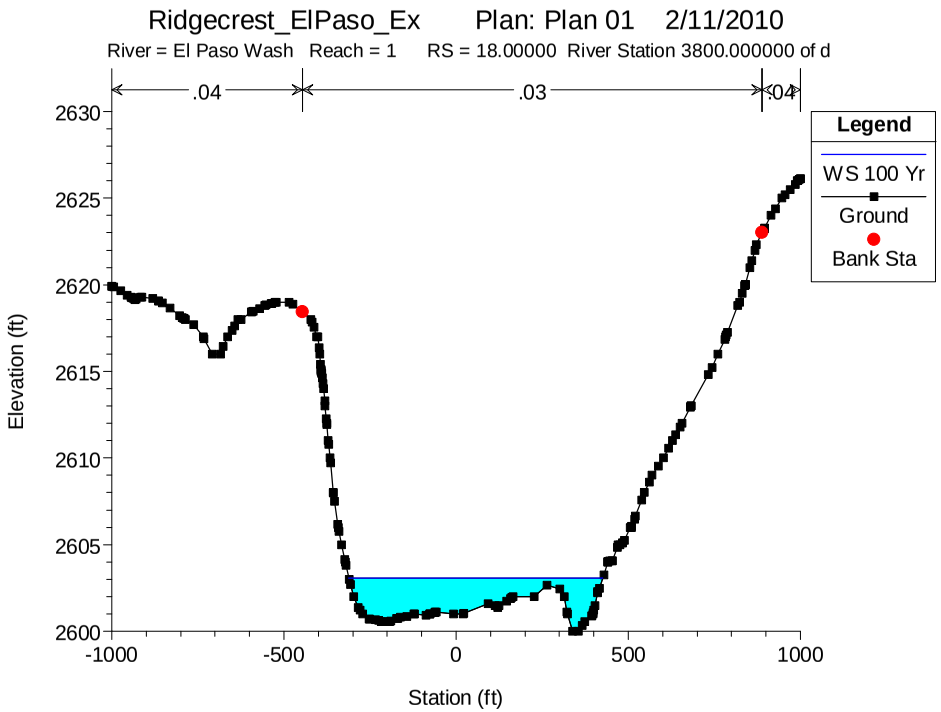
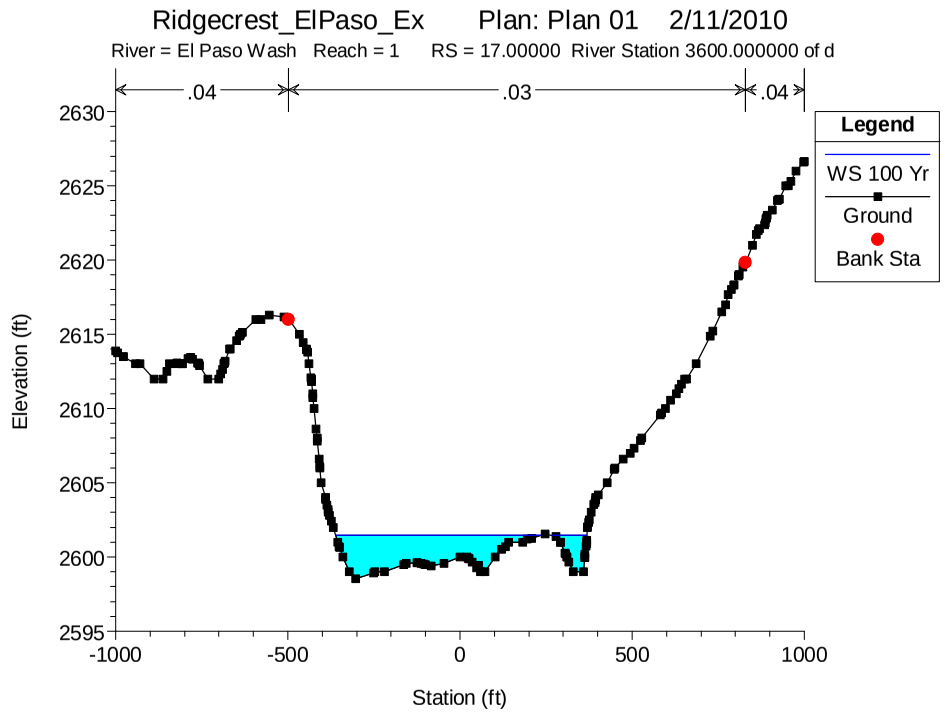
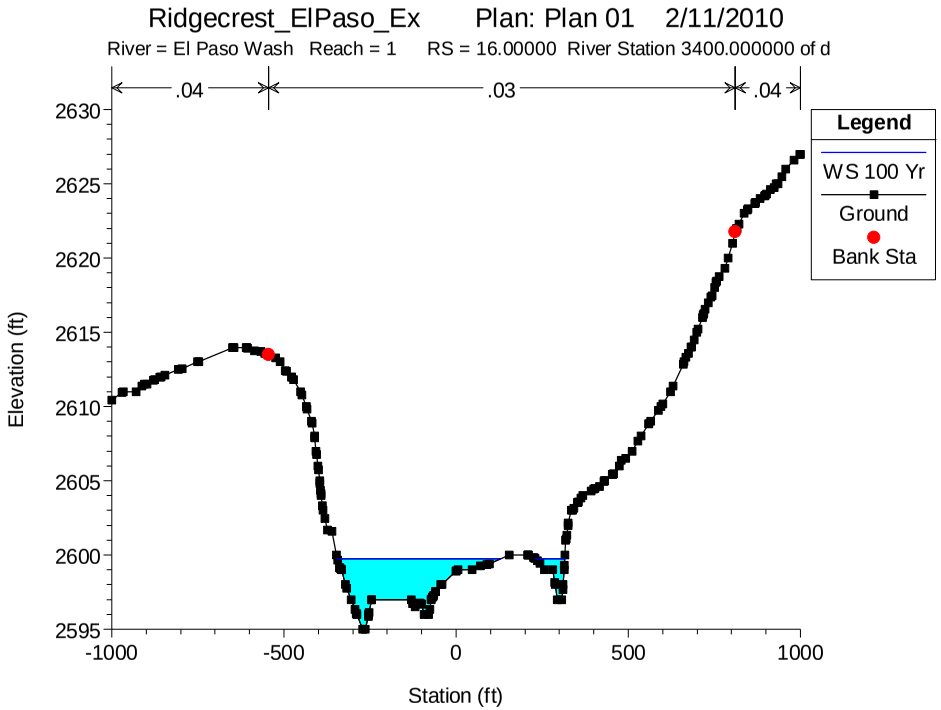
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

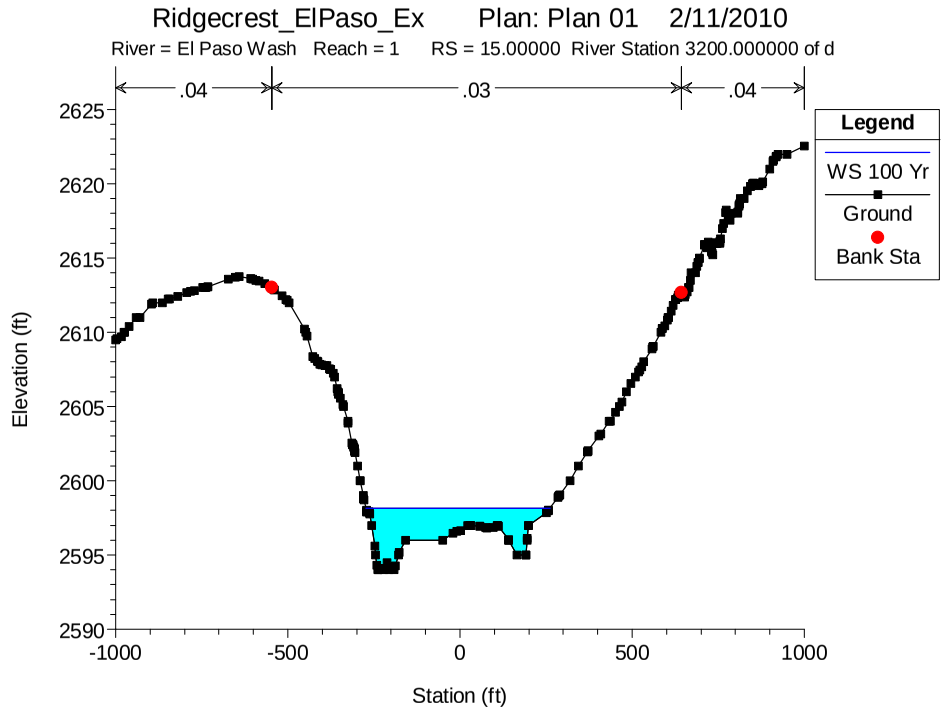

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 20.00000 River Station 4200.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

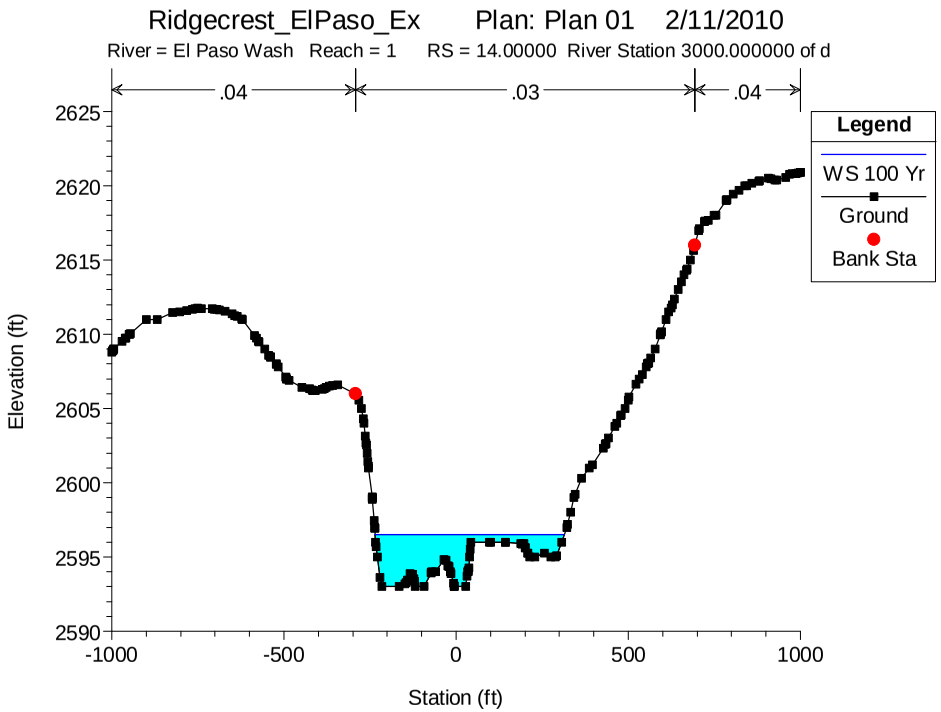

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 19.00000 River Station 4000.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

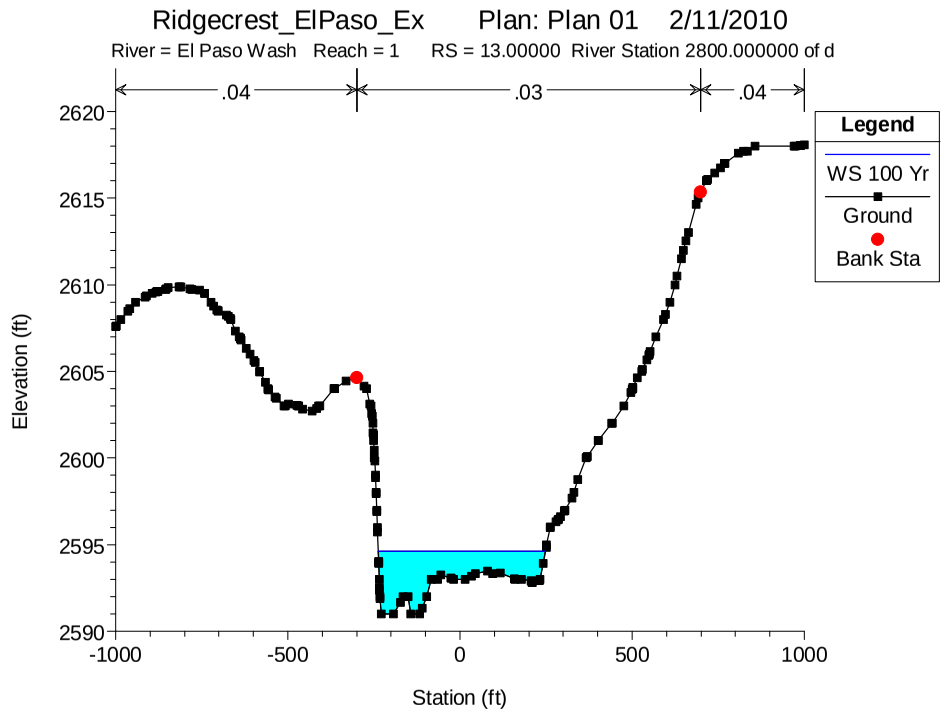

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 18.00000 River Station 3800.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

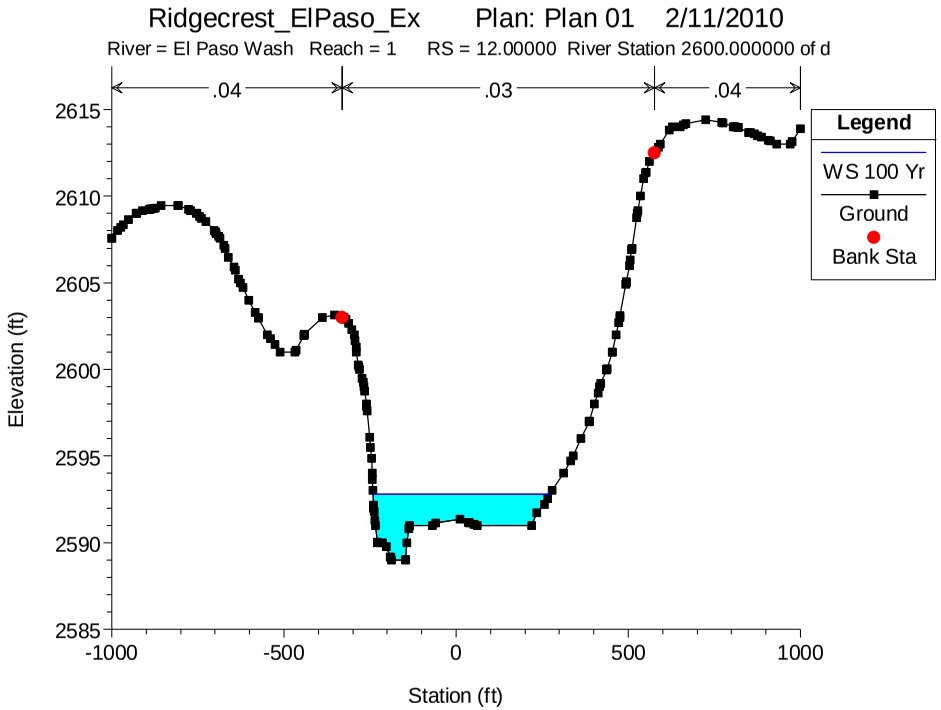

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 17.00000 River Station 3600.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

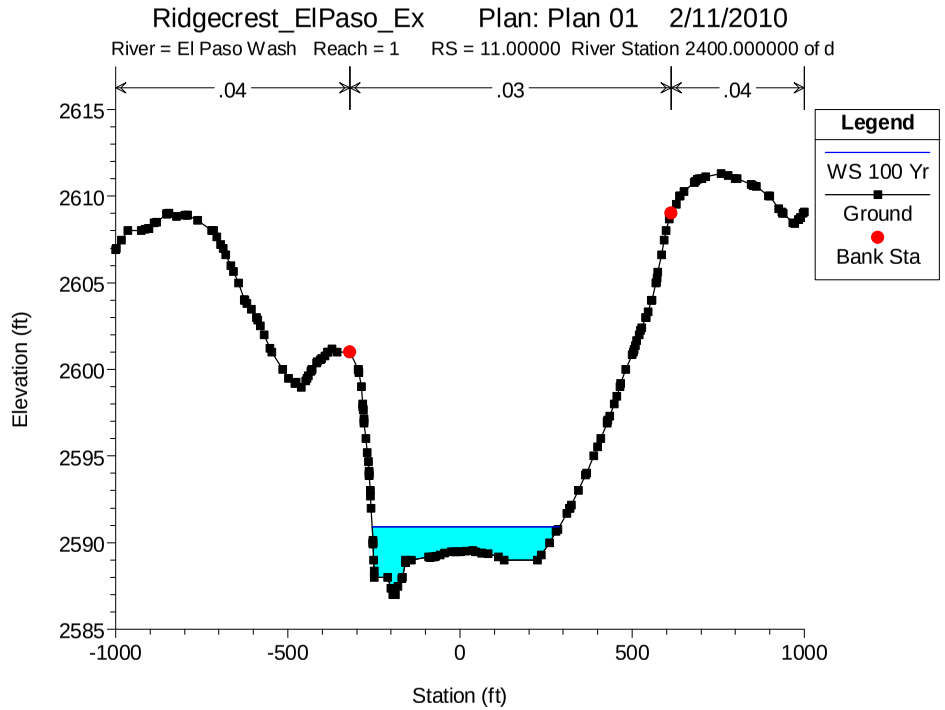

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 16.00000 River Station 3400.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

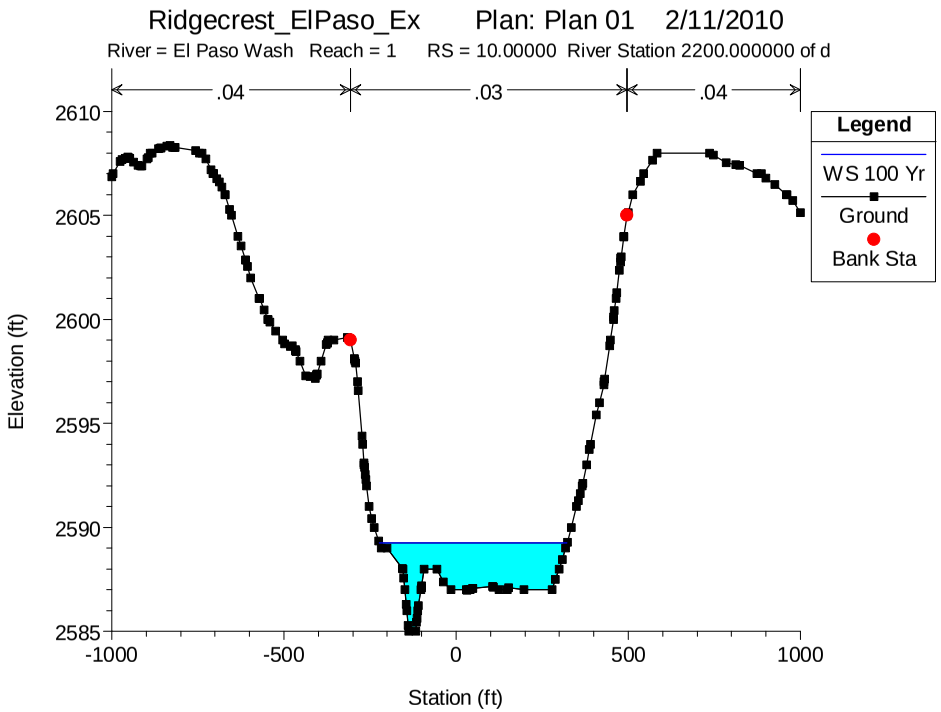

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 15.00000 River Station 3200.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

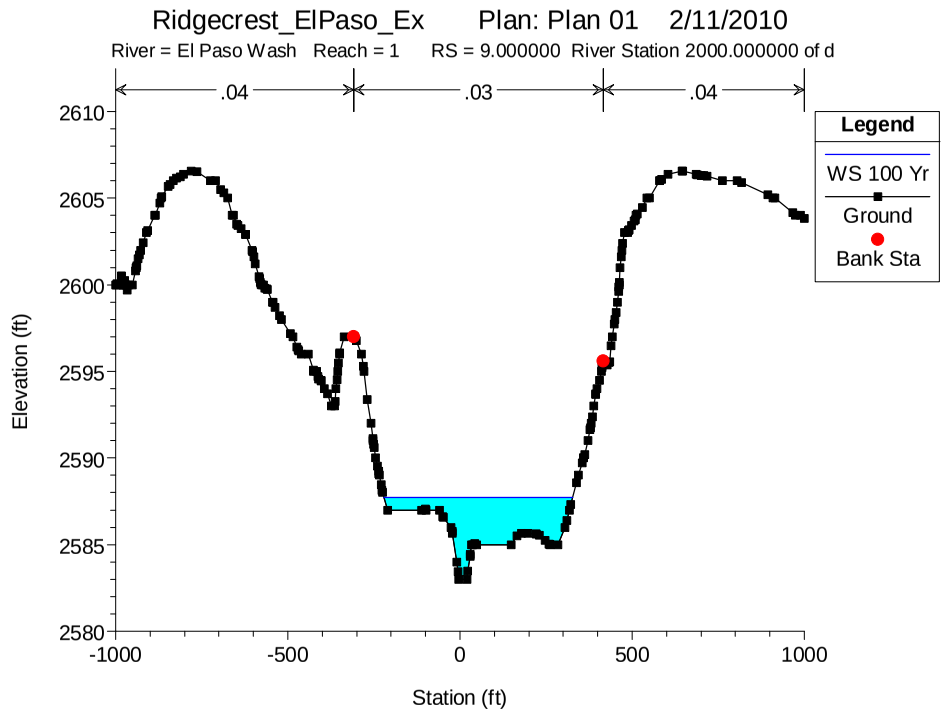

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 14.00000 River Station 3000.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

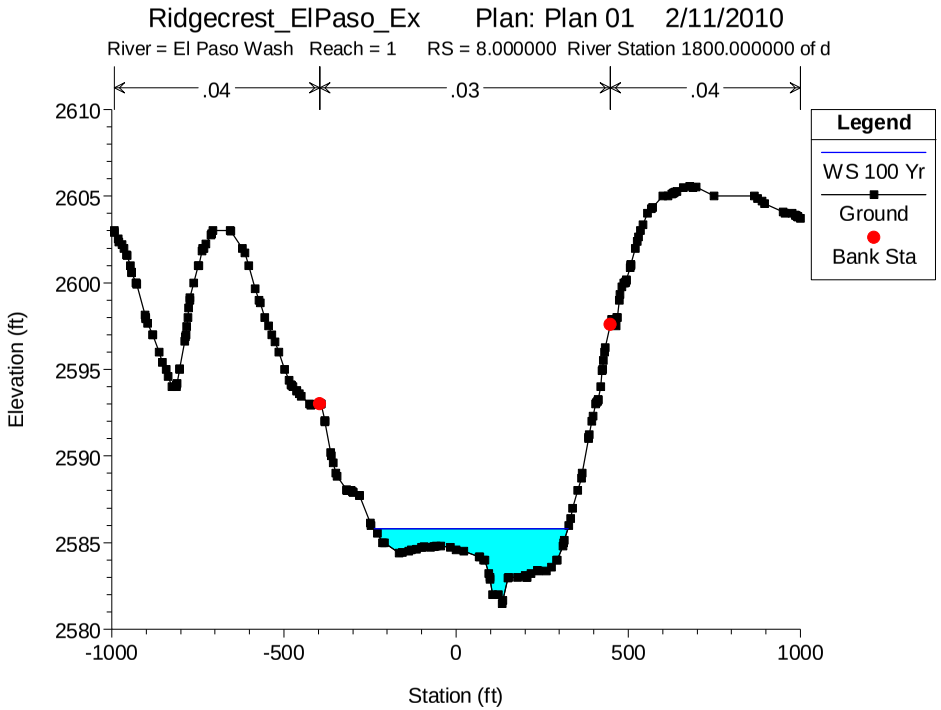

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 13.00000 River Station 2800.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

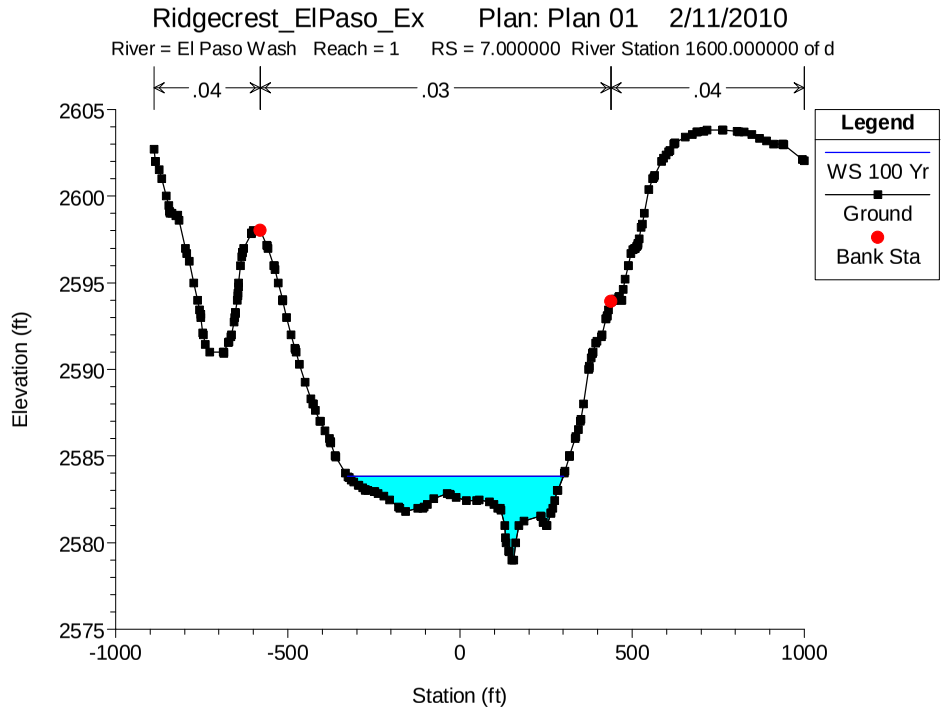

Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 12.00000 River Station 2600.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 11.00000 River Station 2400.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 10.00000 River Station 2200.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 9.000000 River Station 2000.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Ex Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 8.000000 River Station 1800.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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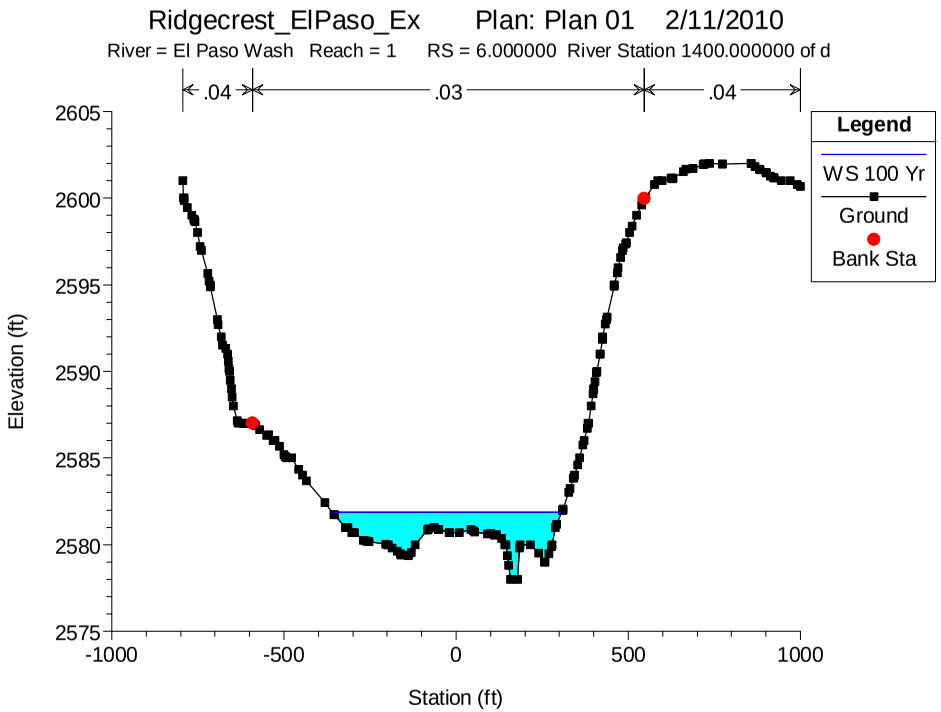
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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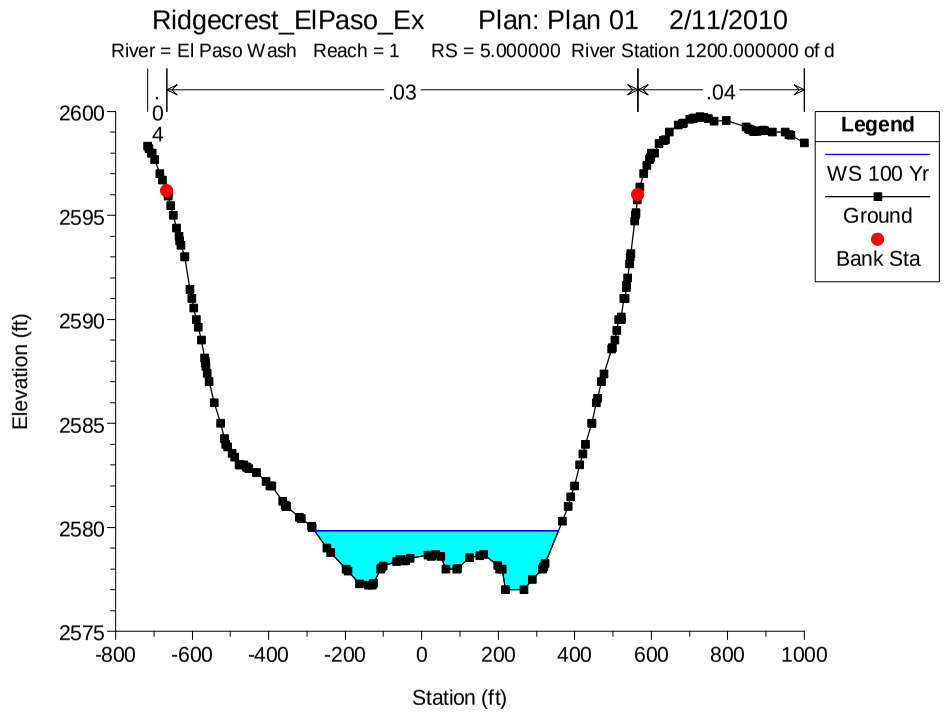
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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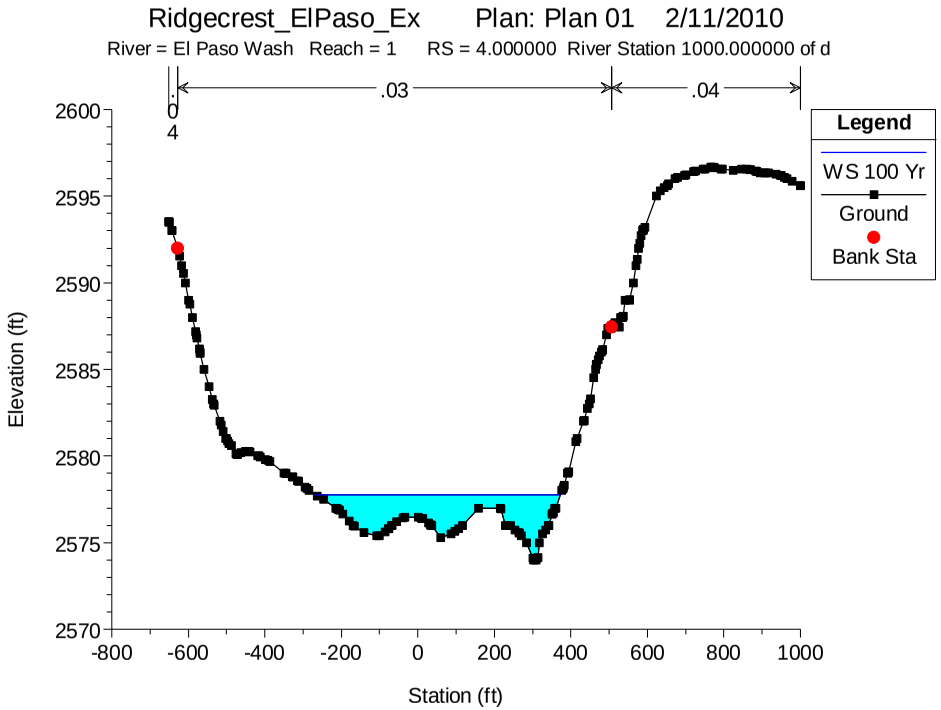
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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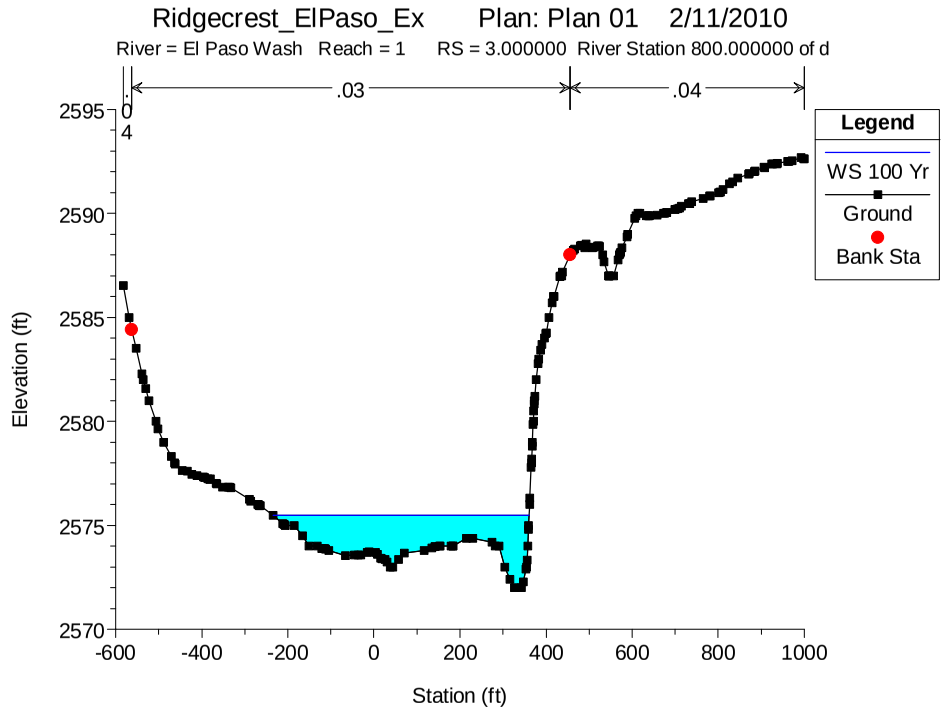
Ground
Bank Sta
Elevation (ft)
Station (ft)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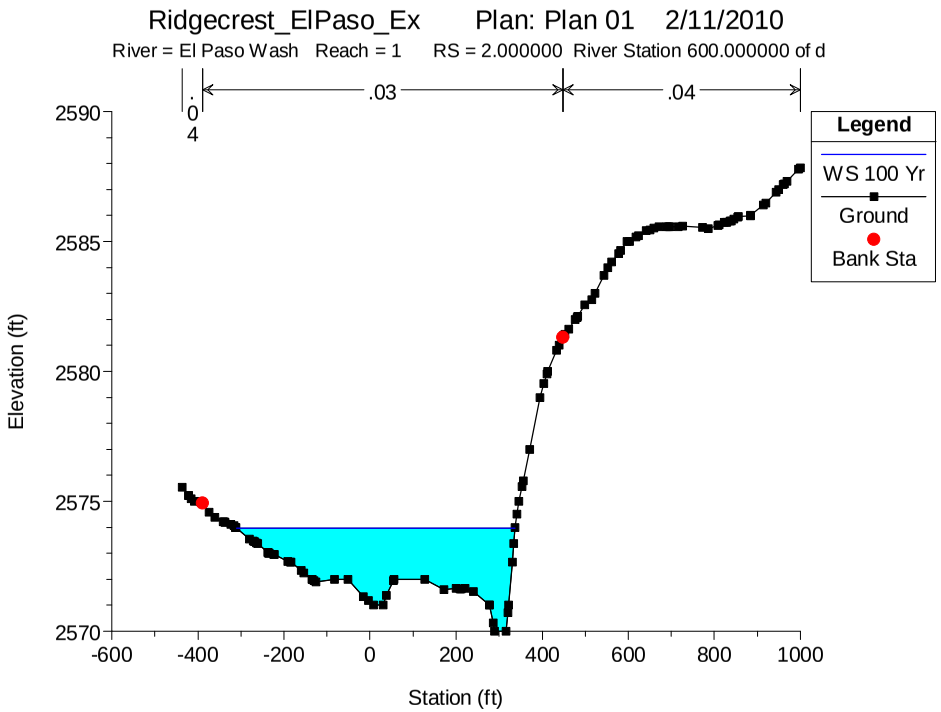
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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.04
.03
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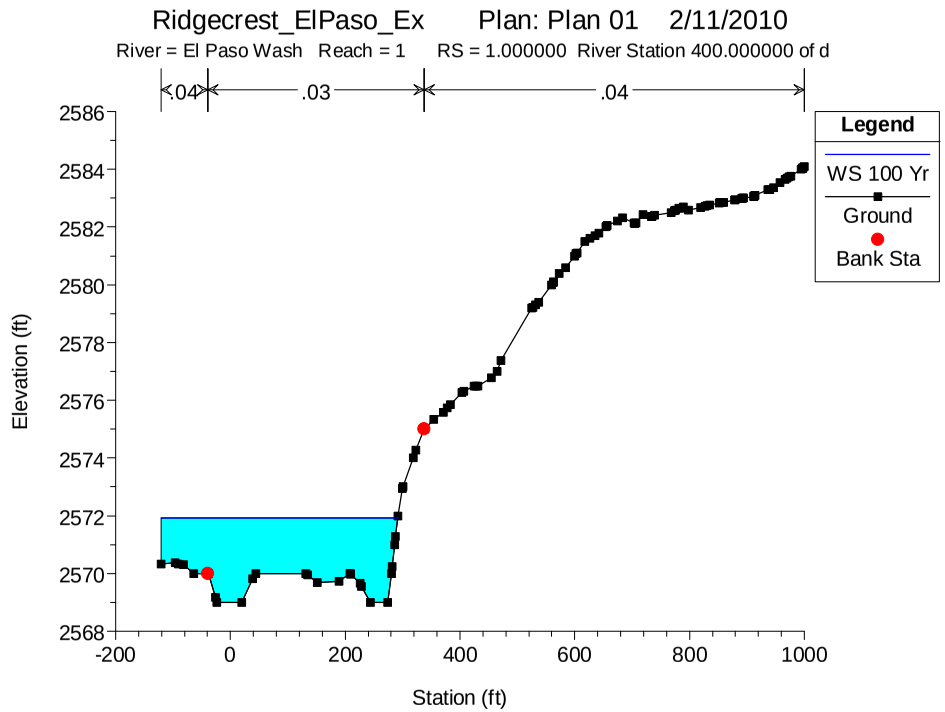
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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.04
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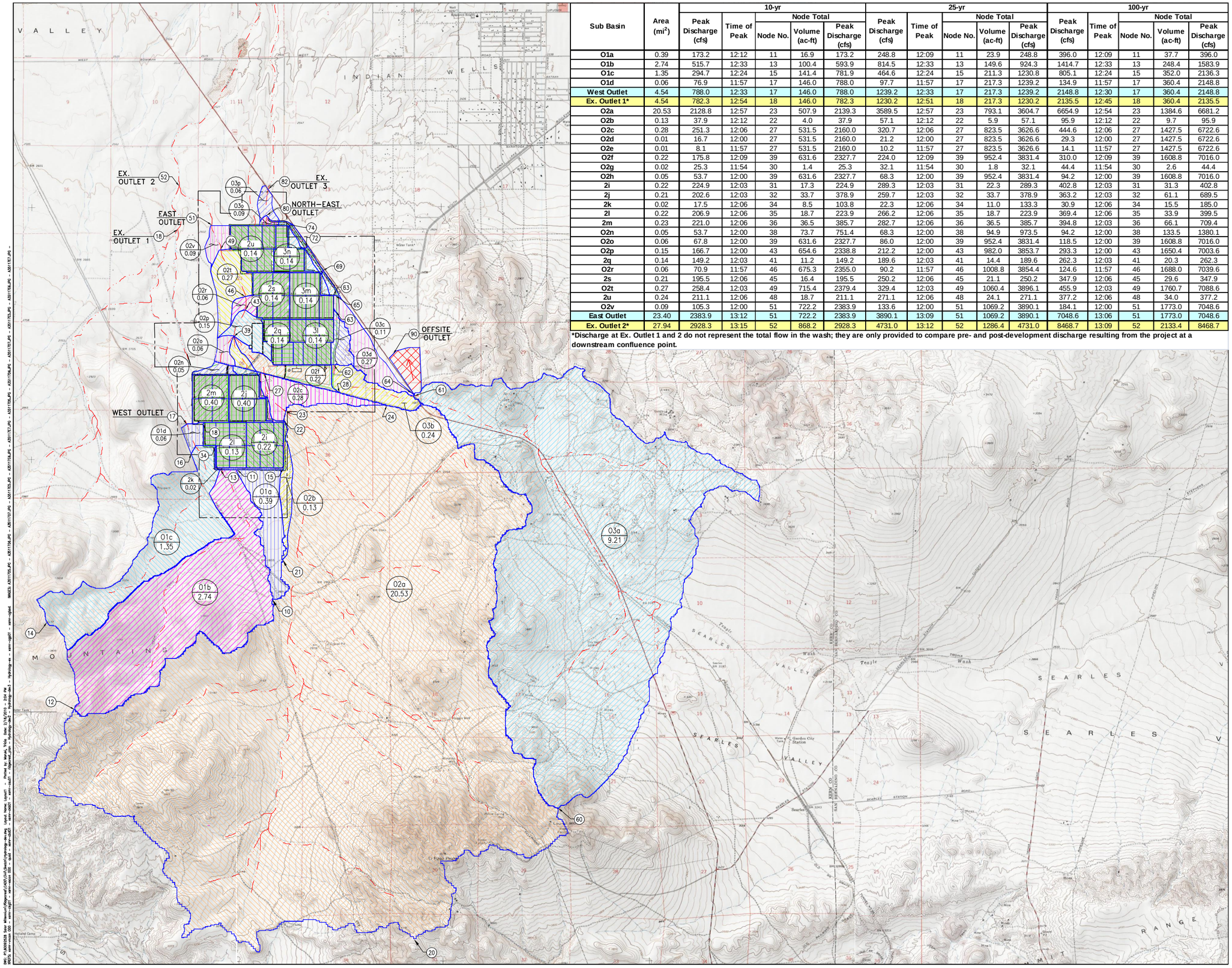
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)



Sub Basin	Area (mi^2)	10-yr Peak Discharge (cfs)	10-yr Time of Peak	10-yr Node Total Node No.	10-yr Node Total Volume (ac-ft)	10-yr Node Total Peak Discharge (cfs)	25-yr Peak Discharge (cfs)	25-yr Time of Peak	25-yr Node Total Node No.	25-yr Node Total Volume (ac-ft)	25-yr Node Total Peak Discharge (cfs)	100-yr Peak Discharge (cfs)	100-yr Time of Peak	100-yr Node Total Node No.	100-yr Node Total Volume (ac-ft)	100-yr Node Total Peak Discharge (cfs)
O1a	0.39	173.2	12:12	11	16.9	173.2	248.8	12:09	11	23.9	248.8	396.0	12:09	11	37.7	396.0
O1b	2.74	515.7	12:33	13	100.4	593.9	814.5	12:33	13	149.6	924.3	1414.7	12:33	13	248.4	1583.9
O1c	1.35	294.7	12:24	15	141.4	781.9	464.6	12:24	15	211.3	1230.8	805.1	12:24	15	352.0	2136.3
O1d	0.06	76.9	11:57	17	146.0	788.0	97.7	11:57	17	217.3	1239.2	134.9	11:57	17	360.4	2148.8
West Outlet	4.54	788.0	12:33	17	146.0	788.0	1239.2	12:33	17	217.3	1239.2	2148.8	12:30	17	360.4	2148.8
Ex. Outlet 1*	4.54	782.3	12:54	18	146.0	782.3	1230.2	12:51	18	217.3	1230.2	2135.5	12:45	18	360.4	2135.5
O2a	20.53	2128.8	12:57	23	507.9	2139.3	3589.5	12:57	23	793.1	3604.7	6654.9	12:54	23	1384.6	6681.2
O2b	0.13	37.9	12:12	22	4.0	37.9	57.1	12:12	22	5.9	57.1	95.9	12:12	22	9.7	95.9
O2c	0.28	251.3	12:06	27	531.5	2160.0	320.7	12:06	27	823.5	3626.6	444.6	12:06	27	1427.5	6722.6
O2d	0.01	16.7	12:00	27	531.5	2160.0	21.2	12:00	27	823.5	3626.6	29.3	12:00	27	1427.5	6722.6
O2e	0.01	8.1	11:57	27	531.5	2160.0	10.2	11:57	27	823.5	3626.6	14.1	11:57	27	1427.5	6722.6
O2f	0.22	175.8	12:09	39	631.6	2327.7	224.0	12:09	39	952.4	3831.4	310.0	12:09	39	1608.8	7016.0
O2g	0.02	25.3	11:54	30	1.4	25.3	32.1	11:54	30	1.8	32.1	44.4	11:54	30	2.6	44.4
O2h	0.05	53.7	12:00	39	631.6	2327.7	68.3	12:00	39	952.4	3831.4	94.2	12:00	39	1608.8	7016.0
2i	0.22	224.9	12:03	31	17.3	224.9	289.3	12:03	31	22.3	289.3	402.8	12:03	31	31.3	402.8
2j	0.21	202.6	12:03	32	33.7	378.9	259.7	12:03	32	33.7	378.9	363.2	12:03	32	61.1	689.5
2k	0.02	17.5	12:06	34	8.5	103.8	22.3	12:06	34	11.0	133.3	30.9	12:06	34	15.5	185.0
2l	0.22	206.9	12:06	35	18.7	223.9	266.2	12:06	35	18.7	223.9	369.4	12:06	35	33.9	399.5
2m	0.23	221.0	12:06	36	36.5	385.7	282.7	12:06	36	36.5	385.7	394.8	12:03	36	66.1	709.4
O2n	0.05	53.7	12:00	38	73.7	751.4	68.3	12:00	38	94.9	973.5	94.2	12:00	38	133.5	1380.1
O2o	0.06	67.8	12:00	39	631.6	2327.7	86.0	12:00	39	952.4	3831.4	118.5	12:00	39	1608.8	7016.0
O2p	0.15	166.7	12:00	43	654.6	2338.8	212.2	12:00	43	982.0	3853.7	293.3	12:00	43	1650.4	7003.6
2q	0.14	149.2	12:03	41	11.2	149.2	189.6	12:03	41	14.4	189.6	262.3	12:03	41	20.3	262.3
O2r	0.06	70.9	11:57	46	675.3	2355.0	90.2	11:57	46	1008.8	3854.4	124.6	11:57	46	1688.0	7039.6
2s	0.21	195.5	12:06	45	16.4	195.5	250.2	12:06	45	21.1	250.2	347.9	12:06	45	29.6	347.9
O2t	0.27	258.4	12:03	49	715.4	2379.4	329.4	12:03	49	1060.4	3896.1	455.9	12:03	49	1760.7	7088.6
2u	0.24	211.1	12:06	48	18.7	211.1	271.1	12:06	48	24.1	271.1	377.2	12:06	48	34.0	377.2
O2v	0.09	105.3	12:00	51	722.2	2383.9	133.6	12:00	51	1069.2	3890.1	184.1	12:00	51	1773.0	7048.6
East Outlet	23.40	2383.9	13:12	51	722.2	2383.9	3890.1	13:09	51	1069.2	3890.1	7048.6	13:06	51	1773.0	7048.6
Ex. Outlet 2*	27.94	2928.3	13:15	52	868.2	2928.3	4731.0	13:12	52	1286.4	4731.0	8468.7	13:09	52	2133.4	8468.7

*Discharge at Ex. Outlet 1 and 2 do not represent the total flow in the wash; they are only provided to compare pre- and post-development discharge resulting from the project at a downstream confluence point.

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Drawn: T.MARUK
Record Drawing by/date:

Revisions:

#	DATE	DESCRIPTION

Prepared for:

Solar Millennium LLC

LEGEND

- 02a / 15.35 — DRAINAGE AREA NAME; AREA (SQ. MILES)
- 01 — NODE NUMBER
- FLOWLINE
- SITE BOUNDARY
- DRAINAGE AREA BOUNDARY
- SOLAR FIELD LOCATION

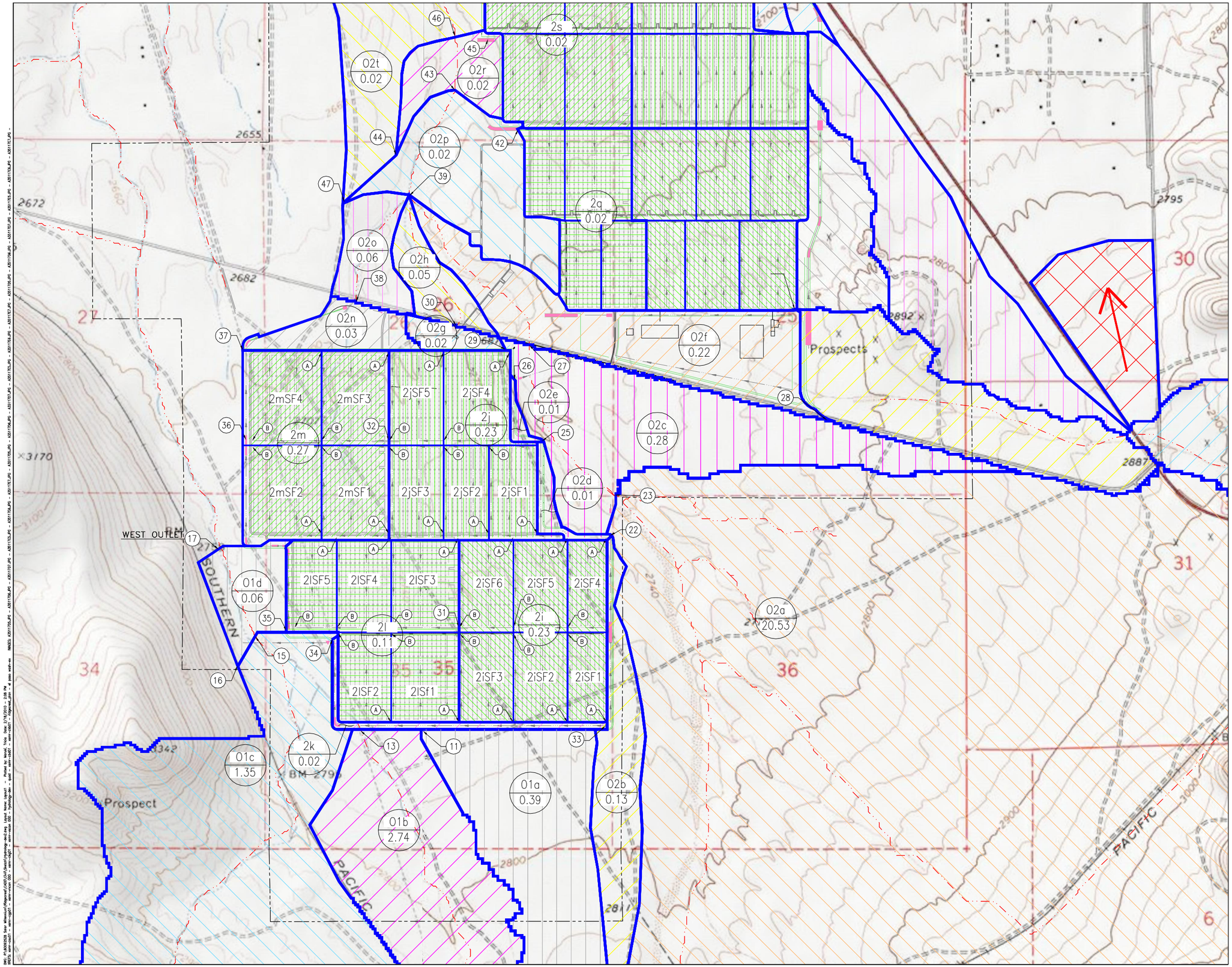
GRAPHIC SCALE:
1"=2000' 0 1000 2000 4000 6000

Ridgecrest Sola Power Project

Kern County, California

Post-Development Hydrology Map

Date: 02/10/10
Sheet: 1 OF 3



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Solar Millennium LLC

LEGEND

02a — DRAINAGE AREA NAME
15.35 — AREA (SQ. MILES)

01 — NODE NUMBER

FLOWLINE

SITE BOUNDARY

DRAINAGE AREA BOUNDARY

SOLAR FIELD LOCATION

GRAPHIC SCALE:

1"=500' 0 250 500 1000 1500

Ridgecrest Sola Power Project

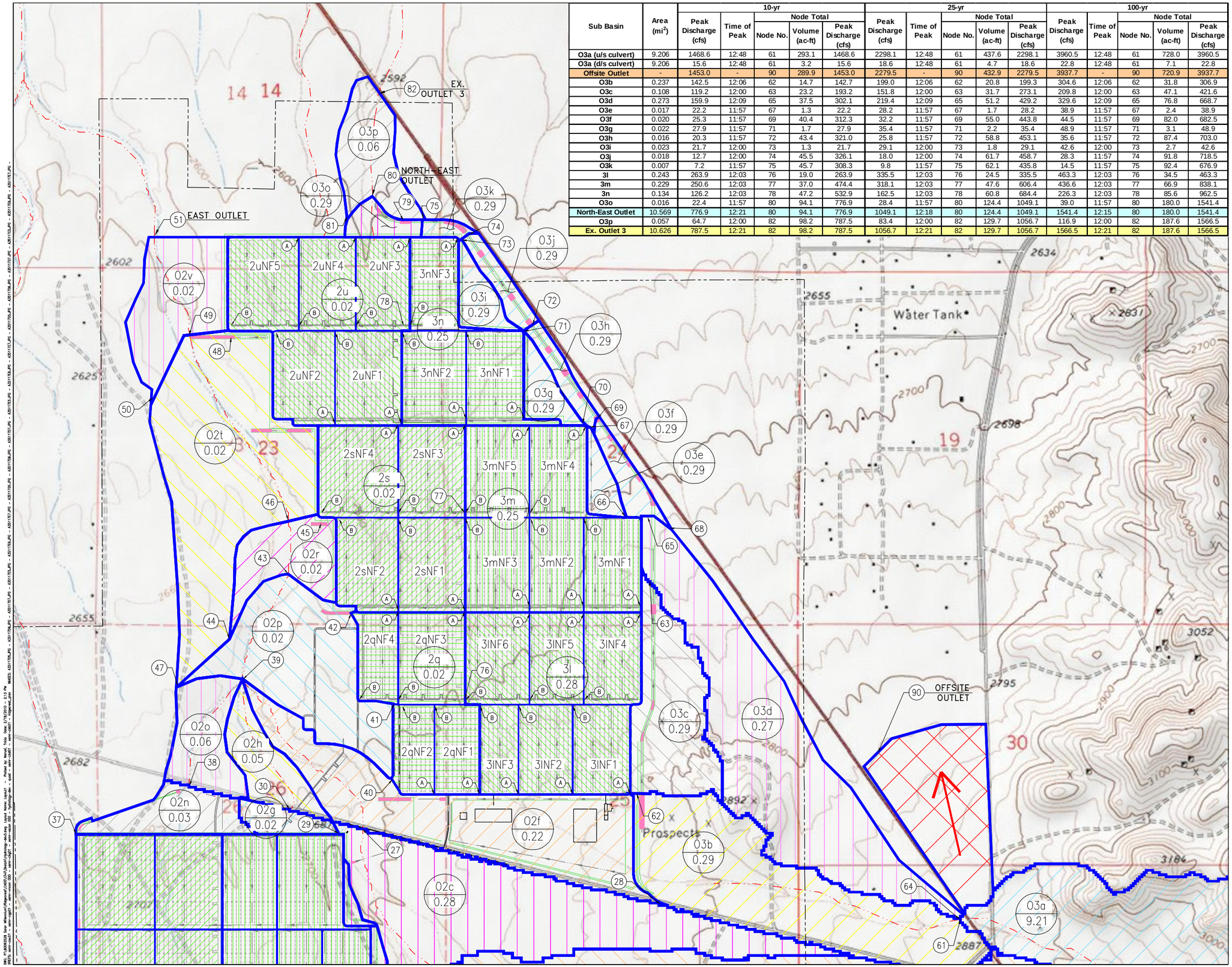
Kern County, California

Post-Development Onsit Hydrology Map (South)

Date: 02/10/10

Sheet: 2 OF 3

Sub Basin	Area (mi^2)	10-yr					25-yr					100-yr				
		Peak Discharge (cfs)	Time of Peak	Node Total			Peak Discharge (cfs)	Time of Peak	Node Total			Peak Discharge (cfs)	Time of Peak	Node Total		
				Node No.	Volume (ac-ft)	Peak Discharge (cfs)			Node No.	Volume (ac-ft)	Peak Discharge (cfs)			Node No.	Volume (ac-ft)	Peak Discharge (cfs)
O3a (u/s culvert)	9.206	1468.6	12:48	61	293.1	1468.6	2298.1	12:48	61	437.6	2298.1	3960.5	12:48	61	728.0	3960.5
O3a (d/s culvert)	9.206	15.6	12:48	61	3.2	15.6	18.6	12:48	61	4.7	18.6	22.8	12:48	61	7.1	22.8
Offsite Outlet	-	1453.0	-	90	289.9	1453.0	2279.5	-	90	432.9	2279.5	3937.7	-	90	720.9	3937.7
O3b	0.237	142.5	12:06	62	14.7	142.7	199.0	12:06	62	20.8	199.3	304.6	12:06	62	31.8	306.9
O3c	0.108	119.2	12:00	63	23.2	193.2	151.8	12:00	63	31.7	273.1	209.8	12:00	63	47.1	421.6
O3d	0.273	159.9	12:09	65	37.5	302.1	219.4	12:09	65	51.2	429.2	329.6	12:09	65	76.8	668.7
O3e	0.017	22.2	11:57	67	1.3	22.2	28.2	11:57	67	1.7	28.2	38.9	11:57	67	2.4	38.9
O3f	0.020	25.3	11:57	69	40.4	312.3	32.2	11:57	69	55.0	443.8	44.5	11:57	69	82.0	682.5
O3g	0.022	27.9	11:57	71	1.7	27.9	35.4	11:57	71	2.2	35.4	48.9	11:57	71	3.1	48.9
O3h	0.016	20.3	11:57	72	43.4	321.0	25.8	11:57	72	58.8	453.1	35.6	11:57	72	87.4	703.0
O3i	0.023	21.7	12:00	73	1.3	21.7	29.1	12:00	73	1.8	29.1	42.6	12:00	73	2.7	42.6
O3j	0.018	12.7	12:00	74	45.5	326.1	18.0	12:00	74	61.7	458.7	28.3	11:57	74	91.8	718.5
O3k	0.007	7.2	11:57	75	45.7	308.3	9.8	11:57	75	62.1	435.8	14.5	11:57	75	92.4	676.9
3l	0.243	263.9	12:03	76	19.0	263.9	335.5	12:03	76	24.5	335.5	463.3	12:03	76	34.5	463.3
3m	0.229	250.6	12:03	77	37.0	474.4	318.1	12:03	77	47.6	606.4	436.6	12:03	77	66.9	838.1
3n	0.134	126.2	12:03	78	47.2	532.9	162.5	12:03	78	60.8	684.4	226.3	12:03	78	85.6	962.5
O3o	0.016	22.4	11:57	80	94.1	776.9	28.4	11:57	80	124.4	1049.1	39.0	11:57	80	180.0	1541.4
North-East Outlet	10.569	776.9	12:21	80	94.1	776.9	1049.1	12:18	80	124.4	1049.1	1541.4	12:15	80	180.0	1541.4
O3p	0.057	64.7	12:00	82	98.2	787.5	83.4	12:00	82	129.7	1056.7	116.9	12:00	82	187.6	1566.5
Ex. Outlet 3	10.626	787.5	12:21	82	98.2	787.5	1056.7	12:21	82	129.7	1056.7	1566.5	12:21	82	187.6	1566.5



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Revisions:

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Prepared for:

Solar Millennium LLC

LEGEND

- 02a / 15.35 — DRAINAGE AREA NAME; AREA (SQ. MILES)
- 01 — NODE NUMBER
- FLOWLINE
- SITE BOUNDARY
- DRAINAGE AREA BOUNDARY
- SOLAR FIELD LOCATION

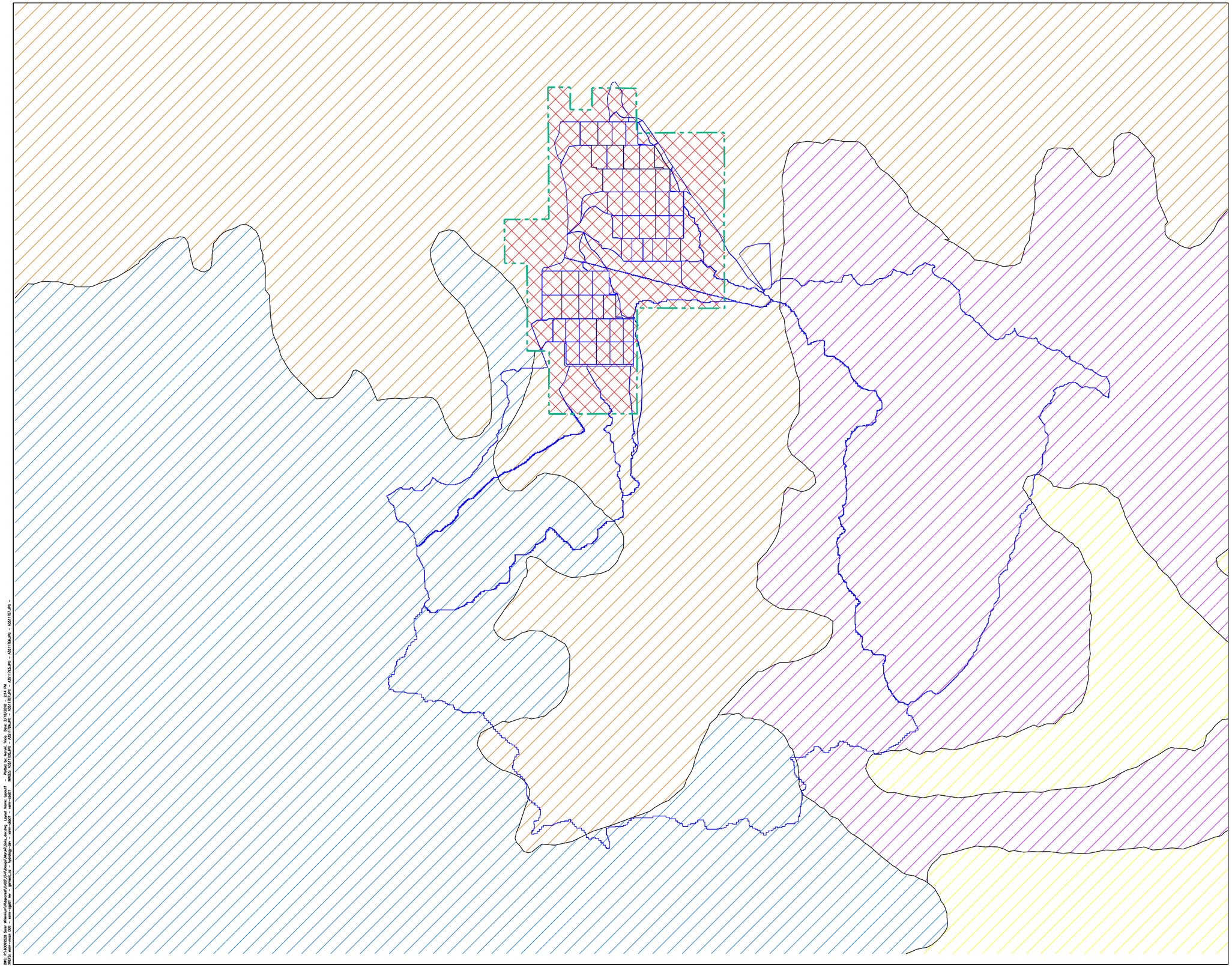
GRAPHIC SCALE:
1"=500' 0 250 500 1000 1500

Ridgecrest Sola Power Project

Kern County, California

Post-Development Onsit Hydrology Map (North)

Date: 02/10/10
Sheet: 3 OF 3



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Drawn: T.MARUK

Record Drawing by/date:

Revisions:

#	DATE	DESCRIPTION

Prepared for:

Solar Millennium LLC

LEGEND

CHAPPARAL, BROADLEAF, POOR COVER
PRORATED SOIL GROUP
%B, %C, %D

- 70, 15, 15 CN=75
- 25, 25, 50 CN=81
- 34, 0, 66 CN=81
- 50, 25, 25 CN=77
- CEMENTED SILTY SAND CN=95 (BASED ON ON-SITE PRELIMINARY GEOTECHNICAL INVESTIGATION REPORT, KLEINFELDER, AUG 2009)
- SITE BOUNDARY
- DRAINAGE AREA BOUNDARY

GRAPHIC SCALE:

1"=2000' 0 1000 2000 4000 6000

Ridgecrest Sola Power Project

Kern County, California

Soils Map Post-Development

Date: 02/10/10

Sheet: 1 OF 1

DWG: P:\60092528 Solar Millennium\Ridgecrest\CADD\Civil\Design\Hydrol\Soils_dev.dwg Layout Name: Layout1 - Plotted by: Maruk, Todd Date: 2/18/2010 - 2:14 PM
PREFN: xrefs-xrefs 000 - xrefs-rgb01 rw - gmsdl.cd - typology.cd - xrefs-cb01 - xrefs-cb01 MAKES: A3011705.JPG - A3011706.JPG - A3011707.JPG - A3011708.JPG - A3011709.JPG - A3011787.JPG -

HMS Input Parameters for Post-Development Hydrology Calculations

Post-Development Hydrology - Western Drainage Area

Sub-Basin	Area (mi^2)	Length (mi)	L_{CA} (mi)	Elev. Difference (D)	Slope (ft/mi)	n	CN	S=(1000/CN)-10	T_{lag} (hours) = $24n(LL_{CA}/S^{05})^{0.38}$	T_{lag} (mins) = $24n(LL_{CA}/S^{05})^{0.38}$	IA
O1a	0.392	1.62	0.73	131.00	80.76	0.03	85.29	1.72	0.33	20.03	0.34
O1b	2.737	4.28	2.29	1503.50	351.29	0.04	80.43	2.43	0.75	45.01	0.49
O1c	1.354	3.23	1.62	1402.00	434.32	0.04	80.24	2.46	0.57	34.03	0.49
O1d	0.059	0.36	0.14	62.00	173.67	0.03	95.00	0.53	0.09	5.24	0.11

Post-Development Hydrology - Eastern Drainage Area

Sub-Basin	Area (mi^2)	Length (mi)	L_{CA} (mi)	Elev. Difference (D)	Slope (ft/mi)	n	CN	S=(1000/CN)-10	T_{lag} (hours) = $24n(LL_{CA}/S^{05})^{0.38}$	T_{lag} (mins) = $24n(LL_{CA}/S^{05})^{0.38}$	IA
O2a	20.528	7.47	3.37	1560.00	208.89	0.04	77.46	2.91	1.19	71.12	0.58
O2b	0.130	1.60	0.79	101.00	63.05	0.03	84.69	1.81	0.36	21.47	0.36
O2c	0.284	1.48	0.50	150.00	101.35	0.03	94.79	0.55	0.27	16.03	0.11
O2d	0.014	0.45	0.18	26.00	58.30	0.03	95.00	0.53	0.13	7.59	0.11
O2e	0.006	0.23	0.12	22.00	94.02	0.03	95.00	0.53	0.08	4.64	0.11
O2f	0.216	1.45	0.84	126.00	87.20	0.03	95.00	0.53	0.33	19.91	0.11
O2g	0.018	0.16	0.06	23.00	140.24	0.03	95.00	0.53	0.05	2.90	0.11
O2h	0.046	0.44	0.27	32.00	72.73	0.03	95.00	0.53	0.14	8.52	0.11
2iSF1	0.029	0.36	0.18	4.79	13.49	0.03	95.00	0.53	0.16	9.32	0.11
2iSF2	0.040	0.40	0.21	5.92	14.84	0.03	95.00	0.53	0.17	10.07	0.11
2iSF3	0.040	0.40	0.21	5.88	14.74	0.03	95.00	0.53	0.17	10.08	0.11
2iSF4	0.030	0.36	0.18	4.79	13.34	0.03	95.00	0.53	0.15	9.27	0.11
2iSF5	0.041	0.40	0.20	6.38	15.95	0.03	95.00	0.53	0.16	9.81	0.11
2iSF6	0.041	0.40	0.20	6.70	16.75	0.03	95.00	0.53	0.16	9.72	0.11
2jSF1	0.038	0.38	0.19	4.44	11.59	0.03	95.00	0.53	0.17	10.10	0.11
2jSF2	0.035	0.37	0.22	4.34	11.64	0.03	95.00	0.53	0.17	10.41	0.11
2jSF3	0.042	0.40	0.22	4.87	12.17	0.03	95.00	0.53	0.18	10.61	0.11
2jSF4	0.053	0.43	0.26	4.74	10.95	0.03	95.00	0.53	0.20	11.89	0.11
2jSF5	0.042	0.40	0.21	4.70	11.66	0.03	95.00	0.53	0.18	10.56	0.11
2k	0.020	1.03	0.56	46.50	45.32	0.03	95.00	0.53	0.28	16.91	0.11
2lSF1	0.050	0.44	0.29	6.00	13.67	0.03	95.00	0.53	0.20	11.95	0.11
2lSF2	0.039	0.40	0.21	4.93	12.48	0.03	95.00	0.53	0.17	10.29	0.11
2lSF3	0.051	0.44	0.20	6.62	15.08	0.03	95.00	0.53	0.17	10.27	0.11
2lSF4	0.041	0.40	0.20	6.08	15.21	0.03	95.00	0.53	0.17	9.90	0.11
2lSF5	0.038	0.37	0.17	5.52	14.92	0.03	95.00	0.53	0.15	9.10	0.11
2mSF1	0.052	0.44	0.22	5.39	12.33	0.03	95.00	0.53	0.18	10.93	0.11
2mSF2	0.062	0.44	0.26	5.40	12.30	0.03	95.00	0.53	0.20	11.74	0.11
2mSF3	0.052	0.44	0.21	5.68	12.94	0.03	95.00	0.53	0.18	10.68	0.11
2mSF4	0.061	0.44	0.25	6.18	14.01	0.03	95.00	0.53	0.19	11.25	0.11
O2n	0.046	0.35	0.14	6.00	17.00	0.03	95.00	0.53	0.14	8.13	0.11
O2o	0.056	0.37	0.22	32.00	86.49	0.03	95.00	0.53	0.12	7.14	0.11
O2p	0.151	0.68	0.30	69.00	101.47	0.03	95.00	0.53	0.16	9.82	0.11
2qNF1	0.033	0.37	0.21	5.86	15.67	0.03	95.00	0.53	0.16	9.72	0.11
2qNF2	0.030	0.34	0.14	3.58	10.69	0.03	95.00	0.53	0.14	8.66	0.11
2qNF3	0.050	0.44	0.20	5.17	11.86	0.03	95.00	0.53	0.18	10.73	0.11
2qNF4	0.030	0.33	0.17	2.50	7.58	0.03	95.00	0.53	0.16	9.77	0.11
O2r	0.056	0.39	0.15	36.00	93.51	0.03	95.00	0.53	0.10	6.22	0.11
2sNF1	0.052	0.44	0.22	4.66	10.71	0.03	95.00	0.53	0.19	11.21	0.11
2sNF2	0.047	0.41	0.23	3.40	8.25	0.03	95.00	0.53	0.20	11.74	0.11
2sNF3	0.050	0.44	0.20	4.78	10.96	0.03	95.00	0.53	0.18	10.89	0.11
2sNF4	0.060	0.47	0.27	4.18	8.99	0.03	95.00	0.53	0.21	12.88	0.11
O2t	0.273	1.03	0.41	78.00	75.58	0.03	95.00	0.53	0.23	13.67	0.11

Sub-Basin	Area (mi^2)	Length (mi)	L_{CA} (mi)	Elev. Difference (D)	Slope (ft/mi)	n	CN	S=(1000/CN)-10	T_{lag} (hours) = $24n(LL_{CA}/S^{05})^{0.38}$	T_{lag} (mins) = $24n(LL_{CA}/S^{05})^{0.38}$	IA
2uNF1	0.052	0.44	0.22	4.36	10.02	0.03	95.00	0.53	0.19	11.35	0.11
2uNF2	0.047	0.41	0.23	4.16	10.10	0.03	95.00	0.53	0.19	11.30	0.11
2uNF3	0.042	0.40	0.21	2.96	7.38	0.03	95.00	0.53	0.19	11.43	0.11
2uNF4	0.044	0.41	0.21	3.02	7.40	0.03	95.00	0.53	0.19	11.50	0.11
2uNF5	0.055	0.44	0.24	3.21	7.31	0.03	95.00	0.53	0.21	12.65	0.11
O2v	0.087	0.49	0.18	43.50	89.32	0.03	95.00	0.53	0.12	7.33	0.11

HMS Output for Post-Development Hydrology Calculations

10 Year Flow Rates

Post-Development Hydrology - Western & Eastern Drainage Areas

Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
2iSF1	0.029	32.00	01Jan2009, 12:00	2.30
2iSF2	0.040	42.60	01Jan2009, 12:03	3.10
2iSF3	0.040	42.60	01Jan2009, 12:03	3.10
2iSF4	0.030	34.10	01Jan2009, 12:00	2.40
2iSF5	0.041	45.30	01Jan2009, 12:00	3.20
2iSF6	0.041	45.30	01Jan2009, 12:00	3.20
2jSF1	0.038	40.50	01Jan2009, 12:03	3.00
2jSF2	0.035	37.30	01Jan2009, 12:03	2.70
2jSF3	0.042	44.30	01Jan2009, 12:03	3.30
2jSF4	0.053	54.80	01Jan2009, 12:03	4.20
2jSF5	0.042	44.30	01Jan2009, 12:03	3.30
2k	0.020	17.50	01Jan2009, 12:06	1.60
2lSF1	0.050	51.70	01Jan2009, 12:03	3.90
2lSF2	0.039	41.50	01Jan2009, 12:03	3.10
2lSF3	0.051	54.30	01Jan2009, 12:03	4.00
2lSF4	0.041	43.70	01Jan2009, 12:03	3.20
2lSF5	0.038	43.20	01Jan2009, 12:00	3.00
2mSF1	0.052	54.80	01Jan2009, 12:03	4.10
2mSF2	0.062	64.10	01Jan2009, 12:03	4.90
2mSF3	0.052	54.80	01Jan2009, 12:03	4.10
2mSF4	0.061	63.70	01Jan2009, 12:03	4.80
2qNF1	0.033	36.40	01Jan2009, 12:00	2.60
2qNF2	0.030	35.00	01Jan2009, 12:00	2.40
2qNF3	0.050	52.70	01Jan2009, 12:03	3.90
2qNF4	0.030	33.10	01Jan2009, 12:00	2.40
2sNF1	0.052	54.30	01Jan2009, 12:03	4.10
2sNF2	0.047	48.60	01Jan2009, 12:03	3.70
2sNF3	0.050	52.20	01Jan2009, 12:03	3.90
2sNF4	0.060	60.10	01Jan2009, 12:03	4.70
2uNF1	0.052	54.30	01Jan2009, 12:03	4.10
2uNF2	0.047	49.10	01Jan2009, 12:03	3.70
2uNF3	0.042	43.80	01Jan2009, 12:03	3.30
2uNF4	0.044	45.90	01Jan2009, 12:03	3.40
2uNF5	0.055	55.10	01Jan2009, 12:03	4.30
East_Outlet	23.400	2383.90	01Jan2009, 13:12	722.20
Ex_Outlet1	4.542	782.30	01Jan2009, 12:54	146.00
Ex_Outlet2	27.942	2928.30	01Jan2009, 13:15	868.20
J0	20.962	2160.00	01Jan2009, 13:00	531.50
J1	3.129	593.90	01Jan2009, 12:33	100.40
J10	0.071	76.50	01Jan2009, 12:03	5.60
J11	0.221	224.90	01Jan2009, 12:03	17.30
J12	0.073	75.80	01Jan2009, 12:03	5.70
J13	0.336	298.60	01Jan2009, 12:12	26.30
J14	0.431	378.90	01Jan2009, 12:09	33.70
J15	0.353	293.20	01Jan2009, 12:12	27.60
J16	0.466	385.70	01Jan2009, 12:09	36.50

Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
J17	0.943	751.40	01Jan2009, 12:15	73.70
J18	22.241	2327.70	01Jan2009, 13:03	631.60
J19	22.535	2338.80	01Jan2009, 13:06	654.60
J2	4.483	781.90	01Jan2009, 12:33	141.40
J20	0.063	68.30	01Jan2009, 12:03	4.90
J21	0.143	149.20	01Jan2009, 12:03	11.20
J22	0.099	93.70	01Jan2009, 12:06	7.70
J23	0.110	102.50	01Jan2009, 12:06	8.60
J24	0.209	195.50	01Jan2009, 12:06	16.40
J25	22.800	2355.00	01Jan2009, 13:06	675.30
J26	0.099	94.30	01Jan2009, 12:06	7.80
J27	0.086	79.70	01Jan2009, 12:03	6.70
J28	0.141	118.10	01Jan2009, 12:06	11.00
J29	0.240	211.10	01Jan2009, 12:06	18.70
J3	0.089	86.30	01Jan2009, 12:03	7.00
J30	23.313	2379.40	01Jan2009, 13:09	715.40
J4	0.109	103.80	01Jan2009, 12:06	8.50
J5	0.092	95.60	01Jan2009, 12:03	7.20
J6	0.239	223.90	01Jan2009, 12:06	18.70
J7	20.658	2139.30	01Jan2009, 12:57	507.90
J8	0.069	73.10	01Jan2009, 12:03	5.40
J9	0.109	109.60	01Jan2009, 12:03	8.50
O1a	0.392	173.20	01Jan2009, 12:12	16.90
O1b	2.737	515.70	01Jan2009, 12:33	83.50
O1c	1.354	294.70	01Jan2009, 12:24	41.00
O1d	0.059	76.90	01Jan2009, 11:57	4.60
O2a	20.528	2128.80	01Jan2009, 12:57	503.90
O2b	0.130	37.90	01Jan2009, 12:12	4.00
O2c	0.284	251.30	01Jan2009, 12:06	22.00
O2d	0.014	16.70	01Jan2009, 12:00	1.10
O2e	0.006	8.10	01Jan2009, 11:57	0.50
O2f	0.216	175.80	01Jan2009, 12:09	16.90
O2g	0.018	25.30	01Jan2009, 11:54	1.40
O2h	0.046	53.70	01Jan2009, 12:00	3.60
O2n	0.046	53.70	01Jan2009, 12:00	3.60
O2o	0.056	67.80	01Jan2009, 12:00	4.40
O2p	0.151	166.70	01Jan2009, 12:00	11.80
O2r	0.056	70.90	01Jan2009, 11:57	4.40
O2t	0.273	258.40	01Jan2009, 12:03	21.40
O2v	0.087	105.30	01Jan2009, 12:00	6.80
R1	0.392	169.10	01Jan2009, 12:15	16.90
R10	20.962	2144.20	01Jan2009, 13:03	531.50
R11	0.018	24.90	01Jan2009, 12:03	1.40
R12	0.029	30.60	01Jan2009, 12:06	2.30
R13	0.069	71.10	01Jan2009, 12:06	5.40
R14	0.109	109.30	01Jan2009, 12:03	8.50
R15	0.030	32.60	01Jan2009, 12:03	2.30
R16	0.071	73.80	01Jan2009, 12:06	5.60
R17	0.221	215.00	01Jan2009, 12:12	17.30
R18	0.038	38.90	01Jan2009, 12:06	3.00
R19	0.073	72.60	01Jan2009, 12:06	5.70
R2	3.129	586.00	01Jan2009, 12:36	100.40
R20	0.336	298.60	01Jan2009, 12:12	26.30

Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
R22	0.431	369.10	01Jan2009, 12:15	33.70
R23	0.050	50.30	01Jan2009, 12:06	3.90
R24	0.089	86.30	01Jan2009, 12:06	7.00
R25	0.109	102.60	01Jan2009, 12:09	8.50
R26	0.051	52.60	01Jan2009, 12:06	4.00
R27	0.092	91.20	01Jan2009, 12:06	7.20
R28	0.239	213.80	01Jan2009, 12:15	18.70
R29	0.052	51.90	01Jan2009, 12:06	4.10
R3	4.483	780.70	01Jan2009, 12:33	141.40
R30	0.353	293.00	01Jan2009, 12:12	27.60
R31	0.052	51.70	01Jan2009, 12:06	4.10
R32	0.466	366.80	01Jan2009, 12:18	36.40
R33	0.943	744.40	01Jan2009, 12:18	73.70
R34	22.241	2313.00	01Jan2009, 13:06	631.50
R35	0.033	35.90	01Jan2009, 12:03	2.60
R36	0.063	68.10	01Jan2009, 12:03	4.90
R37	0.050	49.00	01Jan2009, 12:03	3.90
R38	0.143	145.60	01Jan2009, 12:06	11.20
R39	22.535	2329.50	01Jan2009, 13:06	654.60
R4	4.542	782.30	01Jan2009, 12:54	146.00
R40	0.052	48.70	01Jan2009, 12:06	4.10
R41	0.099	93.60	01Jan2009, 12:06	7.80
R42	0.050	46.90	01Jan2009, 12:09	3.90
R43	0.110	101.80	01Jan2009, 12:06	8.60
R44	0.209	193.70	01Jan2009, 12:06	16.40
R45	22.800	2329.90	01Jan2009, 13:09	675.30
R46	0.052	49.70	01Jan2009, 12:06	4.10
R47	0.099	94.10	01Jan2009, 12:06	7.80
R48	0.042	37.40	01Jan2009, 12:06	3.30
R49	0.086	69.70	01Jan2009, 12:09	6.70
R5	4.542	778.6	01Jan2009, 12:57	146
R50	0.141	117	01Jan2009, 12:06	11
R51	0.24	209.6	01Jan2009, 12:06	18.7
R52	23.313	2377.7	01Jan2009, 13:12	715.4
R53	23.400	2357.1	01Jan2009, 13:18	722.2
R6	0.130	37.40	01Jan2009, 12:12	4.00
R7	20.658	2125.00	01Jan2009, 13:00	507.90
R8	0.014	16.20	01Jan2009, 12:03	1.10
R9	0.006	7.90	01Jan2009, 12:00	0.50
West_Outlet	4.542	788.00	01Jan2009, 12:33	146.00

HMS Output for Post-Development Hydrology Calculations

25 Year Flow Rates

Post-Development Hydrology - Western & Eastern Drainage Areas

Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
2iSF1	0.029	40.80	01Jan2009, 12:00	2.90
2iSF2	0.040	54.30	01Jan2009, 12:00	4.00
2iSF3	0.040	54.30	01Jan2009, 12:00	4.00
2iSF4	0.030	43.40	01Jan2009, 12:00	3.00
2iSF5	0.041	57.60	01Jan2009, 12:00	4.10
2iSF6	0.041	57.60	01Jan2009, 12:00	4.10
2jSF1	0.038	51.60	01Jan2009, 12:00	3.80
2jSF2	0.035	47.50	01Jan2009, 12:00	3.50
2jSF3	0.042	56.30	01Jan2009, 12:03	4.20
2jSF4	0.053	69.70	01Jan2009, 12:03	5.30
2jSF5	0.042	56.30	01Jan2009, 12:03	4.20
2k	0.020	22.30	01Jan2009, 12:06	2.00
2lSF1	0.050	65.80	01Jan2009, 12:03	5.00
2lSF2	0.039	52.90	01Jan2009, 12:00	3.90
2lSF3	0.051	69.20	01Jan2009, 12:00	5.10
2lSF4	0.041	55.60	01Jan2009, 12:00	4.10
2lSF5	0.038	55.00	01Jan2009, 12:00	3.80
2mSF1	0.052	69.70	01Jan2009, 12:03	5.20
2mSF2	0.062	81.50	01Jan2009, 12:03	6.30
2mSF3	0.052	69.70	01Jan2009, 12:03	5.20
2mSF4	0.061	80.90	01Jan2009, 12:03	6.20
2qNF1	0.033	46.40	01Jan2009, 12:00	3.30
2qNF2	0.030	44.50	01Jan2009, 12:00	3.00
2qNF3	0.050	67.00	01Jan2009, 12:03	5.00
2qNF4	0.030	42.20	01Jan2009, 12:00	3.00
2sNF1	0.052	69.00	01Jan2009, 12:03	5.20
2sNF2	0.047	61.80	01Jan2009, 12:03	4.70
2sNF3	0.050	66.40	01Jan2009, 12:03	5.00
2sNF4	0.060	76.50	01Jan2009, 12:03	6.10
2uNF1	0.052	69.00	01Jan2009, 12:03	5.20
2uNF2	0.047	62.40	01Jan2009, 12:03	4.70
2uNF3	0.042	55.70	01Jan2009, 12:03	4.20
2uNF4	0.044	58.40	01Jan2009, 12:03	4.40
2uNF5	0.055	70.20	01Jan2009, 12:03	5.50
East_Outlet	23.400	3890.10	01Jan2009, 13:09	1069.20
Ex_Outlet1	4.542	1230.20	01Jan2009, 12:51	217.30
Ex_Outlet2	27.942	4731.00	01Jan2009, 13:12	1286.40
J0	20.962	3626.60	01Jan2009, 13:00	823.50
J1	3.129	924.30	01Jan2009, 12:33	149.60
J10	0.071	97.30	01Jan2009, 12:03	7.20
J11	0.221	289.30	01Jan2009, 12:03	22.30
J12	0.073	96.60	01Jan2009, 12:03	7.40
J13	0.336	388.80	01Jan2009, 12:09	33.90
J14	0.431	490.60	01Jan2009, 12:09	43.40

Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
J16	0.466	503.50	01Jan2009, 12:09	47.00
J17	0.943	973.50	01Jan2009, 12:15	94.90
J18	22.241	3831.40	01Jan2009, 13:03	952.40
J19	22.535	3853.70	01Jan2009, 13:03	982.00
J2	4.483	1230.80	01Jan2009, 12:33	211.30
J20	0.063	86.90	01Jan2009, 12:00	6.40
J21	0.143	189.60	01Jan2009, 12:03	14.40
J22	0.099	119.60	01Jan2009, 12:06	10.00
J23	0.110	131.40	01Jan2009, 12:06	11.10
J24	0.209	250.20	01Jan2009, 12:06	21.10
J25	22.800	3854.40	01Jan2009, 13:03	1008.80
J26	0.099	120.20	01Jan2009, 12:03	10.00
J27	0.086	102.50	01Jan2009, 12:03	8.70
J28	0.141	152.70	01Jan2009, 12:06	14.20
J29	0.240	271.10	01Jan2009, 12:06	24.10
J3	0.089	111.10	01Jan2009, 12:03	9.00
J30	23.313	3896.10	01Jan2009, 13:09	1060.40
J4	0.109	133.30	01Jan2009, 12:06	11.00
J5	0.092	122.00	01Jan2009, 12:03	9.30
J6	0.239	287.90	01Jan2009, 12:06	24.10
J7	20.658	3604.70	01Jan2009, 12:57	793.10
J8	0.069	93.30	01Jan2009, 12:03	7.00
J9	0.109	141.00	01Jan2009, 12:03	11.00
O1a	0.392	248.80	01Jan2009, 12:09	23.90
O1b	2.737	814.50	01Jan2009, 12:33	125.60
O1c	1.354	464.60	01Jan2009, 12:24	61.70
O1d	0.059	97.70	01Jan2009, 11:57	6.00
O2a	20.528	3589.50	01Jan2009, 12:57	787.20
O2b	0.130	57.10	01Jan2009, 12:12	5.90
O2c	0.284	320.70	01Jan2009, 12:06	28.40
O2d	0.014	21.20	01Jan2009, 12:00	1.40
O2e	0.006	10.20	01Jan2009, 11:57	0.60
O2f	0.216	224.00	01Jan2009, 12:09	21.80
O2g	0.018	32.10	01Jan2009, 11:54	1.80
O2h	0.046	68.30	01Jan2009, 12:00	4.60
O2n	0.046	68.30	01Jan2009, 12:00	4.60
O2o	0.056	86.00	01Jan2009, 12:00	5.60
O2p	0.151	212.20	01Jan2009, 12:00	15.20
O2r	0.056	90.20	01Jan2009, 11:57	5.60
O2t	0.273	329.40	01Jan2009, 12:03	27.50
O2v	0.087	133.60	01Jan2009, 12:00	8.80
R1	0.392	245.40	01Jan2009, 12:12	23.90
R10	20.962	3608.90	01Jan2009, 13:03	823.60
R11	0.018	32.10	01Jan2009, 12:03	1.80
R12	0.029	39.20	01Jan2009, 12:03	2.90
R13	0.069	90.70	01Jan2009, 12:06	7.00
R14	0.109	140.80	01Jan2009, 12:03	11.00
R15	0.030	41.60	01Jan2009, 12:03	3.00
R16	0.071	94.40	01Jan2009, 12:06	7.20
R17	0.221	276.20	01Jan2009, 12:12	22.30
R18	0.038	49.30	01Jan2009, 12:03	3.80
R19	0.073	92.70	01Jan2009, 12:06	7.40
R2	3.129	917.30	01Jan2009, 12:36	149.60

Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
R21	0.053	65.40	01Jan2009, 12:06	5.30
R22	0.431	480.70	01Jan2009, 12:12	43.40
R23	0.050	64.40	01Jan2009, 12:06	5.00
R24	0.089	111.00	01Jan2009, 12:06	9.00
R25	0.109	130.50	01Jan2009, 12:09	11.00
R26	0.051	66.60	01Jan2009, 12:03	5.10
R27	0.092	117.10	01Jan2009, 12:06	9.30
R28	0.239	277.10	01Jan2009, 12:12	24.10
R29	0.052	66.10	01Jan2009, 12:06	5.20
R3	4.483	1230.00	01Jan2009, 12:33	211.30
R30	0.353	380.50	01Jan2009, 12:09	35.60
R31	0.052	65.80	01Jan2009, 12:06	5.20
R32	0.466	479.80	01Jan2009, 12:15	46.90
R33	0.943	963.00	01Jan2009, 12:15	94.90
R34	22.241	3819.90	01Jan2009, 13:03	952.40
R35	0.033	44.90	01Jan2009, 12:03	3.30
R36	0.063	86.30	01Jan2009, 12:03	6.40
R37	0.050	62.60	01Jan2009, 12:03	5.00
R38	0.143	186.20	01Jan2009, 12:06	14.40
R39	22.535	3821.00	01Jan2009, 13:03	982.10
R4	4.542	1230.20	01Jan2009, 12:51	217.30
R40	0.052	62.40	01Jan2009, 12:06	5.20
R41	0.099	119.50	01Jan2009, 12:06	10.00
R42	0.050	59.30	01Jan2009, 12:09	5.00
R43	0.110	130.70	01Jan2009, 12:06	11.10
R44	0.209	248.60	01Jan2009, 12:06	21.10
R45	22.800	3834.50	01Jan2009, 13:09	1008.70
R46	0.052	62.60	01Jan2009, 12:06	5.20
R47	0.099	119.50	01Jan2009, 12:06	10.00
R48	0.042	48.10	01Jan2009, 12:06	4.20
R49	0.086	89.90	01Jan2009, 12:09	8.60
R5	4.542	1227.5	01Jan2009, 12:54	217.3
R50	0.141	151.6	01Jan2009, 12:06	14.2
R51	0.24	269.7	01Jan2009, 12:06	24.1
R52	23.313	3882	01Jan2009, 13:09	1060.4
R53	23.400	3855.3	01Jan2009, 13:15	1069.1
R6	0.130	56.60	01Jan2009, 12:12	5.90
R7	20.658	3582.80	01Jan2009, 13:00	793.10
R8	0.014	20.30	01Jan2009, 12:03	1.40
R9	0.006	10.00	01Jan2009, 12:00	0.60
West_Outlet	4.542	1239.20	01Jan2009, 12:33	217.30

HMS Output for Post-Development Hydrology Calculations

100 Year Flow Rates

Post-Development Hydrology - Western & Eastern Drainage Areas

Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
2iSF1	0.029	56.30	01Jan2009, 12:00	4.10
2iSF2	0.040	75.10	01Jan2009, 12:00	5.70
2iSF3	0.040	75.10	01Jan2009, 12:00	5.70
2iSF4	0.030	59.90	01Jan2009, 12:00	4.30
2iSF5	0.041	79.60	01Jan2009, 12:00	5.80
2iSF6	0.041	79.60	01Jan2009, 12:00	5.80
2jSF1	0.038	71.30	01Jan2009, 12:00	5.40
2jSF2	0.035	65.70	01Jan2009, 12:00	5.00
2jSF3	0.042	77.60	01Jan2009, 12:03	6.00
2jSF4	0.053	96.30	01Jan2009, 12:03	7.50
2jSF5	0.042	77.60	01Jan2009, 12:03	6.00
2k	0.020	30.90	01Jan2009, 12:06	2.80
2lSF1	0.050	90.80	01Jan2009, 12:03	7.10
2lSF2	0.039	73.20	01Jan2009, 12:00	5.50
2lSF3	0.051	95.70	01Jan2009, 12:00	7.20
2lSF4	0.041	77.00	01Jan2009, 12:00	5.80
2lSF5	0.038	75.90	01Jan2009, 12:00	5.40
2mSF1	0.052	96.10	01Jan2009, 12:03	7.40
2mSF2	0.062	112.60	01Jan2009, 12:03	8.80
2mSF3	0.052	96.10	01Jan2009, 12:03	7.40
2mSF4	0.061	111.70	01Jan2009, 12:03	8.70
2qNF1	0.033	64.10	01Jan2009, 12:00	4.70
2qNF2	0.030	61.40	01Jan2009, 12:00	4.30
2qNF3	0.050	92.40	01Jan2009, 12:03	7.10
2qNF4	0.030	58.30	01Jan2009, 12:00	4.30
2sNF1	0.052	95.20	01Jan2009, 12:03	7.40
2sNF2	0.047	85.40	01Jan2009, 12:03	6.70
2sNF3	0.050	91.60	01Jan2009, 12:03	7.10
2sNF4	0.060	105.80	01Jan2009, 12:03	8.50
2uNF1	0.052	95.20	01Jan2009, 12:03	7.40
2uNF2	0.047	86.10	01Jan2009, 12:03	6.70
2uNF3	0.042	76.90	01Jan2009, 12:03	6.00
2uNF4	0.044	80.60	01Jan2009, 12:03	6.20
2uNF5	0.055	97.00	01Jan2009, 12:03	7.80
East_Outlet	23.400	7048.60	01Jan2009, 13:06	1773.00
Ex_Outlet1	4.542	2135.50	01Jan2009, 12:45	360.40
Ex_Outlet2	27.942	8468.70	01Jan2009, 13:09	2133.40
J0	20.962	6722.60	01Jan2009, 12:57	1427.50
J1	3.129	1583.90	01Jan2009, 12:33	248.40
J10	0.071	134.70	01Jan2009, 12:03	10.10
J11	0.221	402.80	01Jan2009, 12:03	31.30
J12	0.073	134.10	01Jan2009, 12:03	10.40
J13	0.336	549.70	01Jan2009, 12:09	47.60
J14	0.431	689.50	01Jan2009, 12:09	61.10

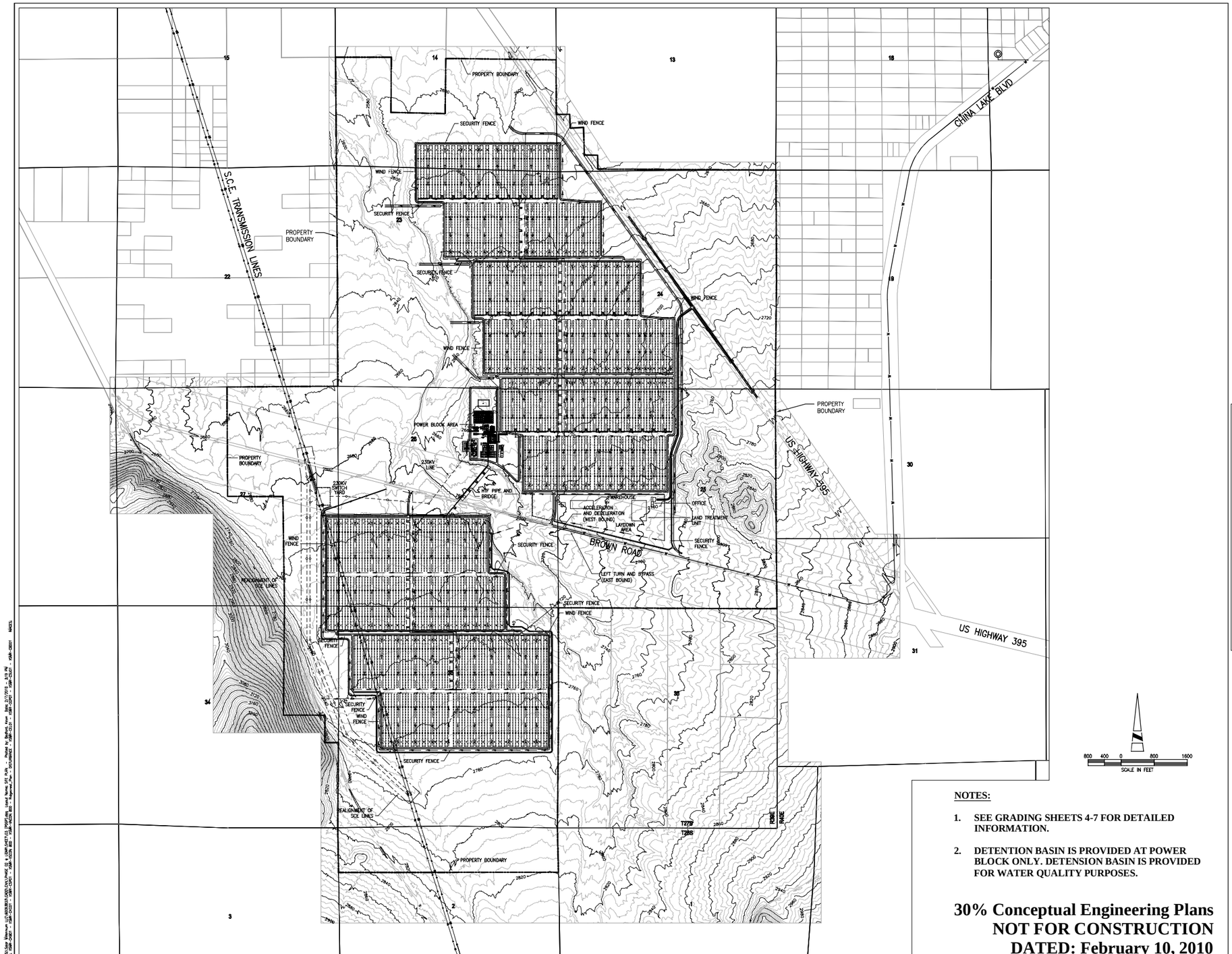
Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
J16	0.466	709.40	01Jan2009, 12:09	66.10
J17	0.943	1380.10	01Jan2009, 12:12	133.50
J18	22.241	7016.00	01Jan2009, 13:00	1608.80
J19	22.535	7003.60	01Jan2009, 13:03	1650.40
J2	4.483	2136.30	01Jan2009, 12:30	352.00
J20	0.063	120.60	01Jan2009, 12:00	8.90
J21	0.143	262.30	01Jan2009, 12:03	20.30
J22	0.099	166.80	01Jan2009, 12:03	14.00
J23	0.110	183.20	01Jan2009, 12:06	15.60
J24	0.209	347.90	01Jan2009, 12:06	29.60
J25	22.800	7039.60	01Jan2009, 13:03	1688.00
J26	0.099	168.30	01Jan2009, 12:03	14.00
J27	0.086	142.70	01Jan2009, 12:03	12.20
J28	0.141	212.20	01Jan2009, 12:06	19.90
J29	0.240	377.20	01Jan2009, 12:06	34.00
J3	0.089	155.20	01Jan2009, 12:03	12.60
J30	23.313	7088.60	01Jan2009, 13:06	1760.70
J4	0.109	185.00	01Jan2009, 12:06	15.50
J5	0.092	169.20	01Jan2009, 12:03	13.00
J6	0.239	399.50	01Jan2009, 12:06	33.90
J7	20.658	6681.20	01Jan2009, 12:54	1384.60
J8	0.069	129.10	01Jan2009, 12:03	9.80
J9	0.109	196.60	01Jan2009, 12:03	15.50
O1a	0.392	396.00	01Jan2009, 12:09	37.70
O1b	2.737	1414.70	01Jan2009, 12:33	210.70
O1c	1.354	805.10	01Jan2009, 12:24	103.60
O1d	0.059	134.90	01Jan2009, 11:57	8.40
O2a	20.528	6654.90	01Jan2009, 12:54	1374.90
O2b	0.130	95.90	01Jan2009, 12:12	9.70
O2c	0.284	444.60	01Jan2009, 12:06	40.00
O2d	0.014	29.30	01Jan2009, 12:00	2.00
O2e	0.006	14.10	01Jan2009, 11:57	0.90
O2f	0.216	310.00	01Jan2009, 12:09	30.60
O2g	0.018	44.40	01Jan2009, 11:54	2.60
O2h	0.046	94.20	01Jan2009, 12:00	6.50
O2n	0.046	94.20	01Jan2009, 12:00	6.50
O2o	0.056	118.50	01Jan2009, 12:00	7.90
O2p	0.151	293.30	01Jan2009, 12:00	21.40
O2r	0.056	124.60	01Jan2009, 11:57	7.90
O2t	0.273	455.90	01Jan2009, 12:03	38.70
O2v	0.087	184.10	01Jan2009, 12:00	12.30
R1	0.392	387.80	01Jan2009, 12:12	37.70
R10	20.962	6700.30	01Jan2009, 13:00	1427.60
R11	0.018	44.00	01Jan2009, 12:03	2.60
R12	0.029	54.50	01Jan2009, 12:03	4.10
R13	0.069	124.60	01Jan2009, 12:06	9.80
R14	0.109	196.30	01Jan2009, 12:03	15.50
R15	0.030	58.00	01Jan2009, 12:03	4.30
R16	0.071	129.70	01Jan2009, 12:03	10.10
R17	0.221	380.70	01Jan2009, 12:12	31.30
R18	0.038	68.90	01Jan2009, 12:03	5.40
R19	0.073	128.50	01Jan2009, 12:06	10.30
R2	3.129	1562.50	01Jan2009, 12:36	248.40

Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
R21	0.053	90.60	01Jan2009, 12:06	7.50
R22	0.431	680.00	01Jan2009, 12:12	61.00
R23	0.050	89.10	01Jan2009, 12:06	7.10
R24	0.089	154.20	01Jan2009, 12:06	12.60
R25	0.109	180.50	01Jan2009, 12:06	15.50
R26	0.051	92.80	01Jan2009, 12:03	7.20
R27	0.092	161.20	01Jan2009, 12:06	13.00
R28	0.239	385.80	01Jan2009, 12:12	33.90
R29	0.052	91.80	01Jan2009, 12:06	7.40
R3	4.483	2134.80	01Jan2009, 12:30	352.00
R30	0.353	541.60	01Jan2009, 12:09	50.00
R31	0.052	91.20	01Jan2009, 12:06	7.40
R32	0.466	678.40	01Jan2009, 12:15	66.00
R33	0.943	1372.90	01Jan2009, 12:15	133.50
R34	22.241	6958.20	01Jan2009, 13:03	1608.70
R35	0.033	62.20	01Jan2009, 12:03	4.70
R36	0.063	119.20	01Jan2009, 12:03	8.90
R37	0.050	87.00	01Jan2009, 12:03	7.10
R38	0.143	258.60	01Jan2009, 12:06	20.30
R39	22.535	6994.80	01Jan2009, 13:03	1650.50
R4	4.542	2135.50	01Jan2009, 12:45	360.40
R40	0.052	86.40	01Jan2009, 12:06	7.40
R41	0.099	165.20	01Jan2009, 12:06	14.00
R42	0.050	83.10	01Jan2009, 12:06	7.10
R43	0.110	182.60	01Jan2009, 12:06	15.60
R44	0.209	346.60	01Jan2009, 12:06	29.60
R45	22.800	7001.30	01Jan2009, 13:06	1688.00
R46	0.052	87.30	01Jan2009, 12:06	7.40
R47	0.099	166.00	01Jan2009, 12:06	14.00
R48	0.042	66.60	01Jan2009, 12:06	5.90
R49	0.086	123.40	01Jan2009, 12:09	12.10
R5	4.542	2129.30	01Jan2009, 12:51	360.40
R50	0.141	211.2	01Jan2009, 12:06	19.9
R51	0.240	376	01Jan2009, 12:06	34
R52	23.313	7037.2	01Jan2009, 13:06	1760.7
R53	23.4	6986.7	01Jan2009, 13:12	1773
R6	0.130	95.3	01Jan2009, 12:12	9.7
R7	20.658	6657.80	01Jan2009, 12:57	1384.60
R8	0.014	28.30	01Jan2009, 12:00	2.00
R9	0.006	13.70	01Jan2009, 12:00	0.90
West_Outlet	4.542	2148.80	01Jan2009, 12:30	360.40

Ridgecrest Solar Plant
Post-Development Hydrology Results

Sub Basin	Area (mi^2)	10-yr					25-yr					100-yr				
		Peak Discharge (cfs)	Time of Peak	Node Total			Peak Discharge (cfs)	Time of Peak	Node Total			Peak Discharge (cfs)	Time of Peak	Node Total		
				Node No.	Volume (ac-ft)	Peak Discharge (cfs)			Node No.	Volume (ac-ft)	Peak Discharge (cfs)			Node No.	Volume (ac-ft)	Peak Discharge (cfs)
O1a	0.39	173.2	12:12	11	16.9	173.2	248.8	12:09	11	23.9	248.8	396.0	12:09	11	37.7	396.0
O1b	2.74	515.7	12:33	13	100.4	593.9	814.5	12:33	13	149.6	924.3	1414.7	12:33	13	248.4	1583.9
O1c	1.35	294.7	12:24	15	141.4	781.9	464.6	12:24	15	211.3	1230.8	805.1	12:24	15	352.0	2136.3
O1d	0.06	76.9	11:57	17	146.0	788.0	97.7	11:57	17	217.3	1239.2	134.9	11:57	17	360.4	2148.8
West Outlet	4.54	788.0	12:33	17	146.0	788.0	1239.2	12:33	17	217.3	1239.2	2148.8	12:30	17	360.4	2148.8
Ex. Outlet 1*	4.54	782.3	12:54	18	146.0	782.3	1230.2	12:51	18	217.3	1230.2	2135.5	12:45	18	360.4	2135.5
O2a	20.53	2128.8	12:57	23	507.9	2139.3	3589.5	12:57	23	793.1	3604.7	6654.9	12:54	23	1384.6	6681.2
O2b	0.13	37.9	12:12	22	4.0	37.9	57.1	12:12	22	5.9	57.1	95.9	12:12	22	9.7	95.9
O2c	0.28	251.3	12:06	27	531.5	2160.0	320.7	12:06	27	823.5	3626.6	444.6	12:06	27	1427.5	6722.6
O2d	0.01	16.7	12:00	27	531.5	2160.0	21.2	12:00	27	823.5	3626.6	29.3	12:00	27	1427.5	6722.6
O2e	0.01	8.1	11:57	27	531.5	2160.0	10.2	11:57	27	823.5	3626.6	14.1	11:57	27	1427.5	6722.6
O2f	0.22	175.8	12:09	39	631.6	2327.7	224.0	12:09	39	952.4	3831.4	310.0	12:09	39	1608.8	7016.0
O2g	0.02	25.3	11:54	30	1.4	25.3	32.1	11:54	30	1.8	32.1	44.4	11:54	30	2.6	44.4
O2h	0.05	53.7	12:00	39	631.6	2327.7	68.3	12:00	39	952.4	3831.4	94.2	12:00	39	1608.8	7016.0
2i	0.22	224.9	12:03	31	17.3	224.9	289.3	12:03	31	22.3	289.3	402.8	12:03	31	31.3	402.8
2j	0.21	202.6	12:03	32	33.7	378.9	259.7	12:03	32	33.7	378.9	363.2	12:03	32	61.1	689.5
2k	0.02	17.5	12:06	34	8.5	103.8	22.3	12:06	34	11.0	133.3	30.9	12:06	34	15.5	185.0
2l	0.22	206.9	12:06	35	18.7	223.9	266.2	12:06	35	18.7	223.9	369.4	12:06	35	33.9	399.5
2m	0.23	221.0	12:06	36	36.5	385.7	282.7	12:06	36	36.5	385.7	394.8	12:03	36	66.1	709.4
O2n	0.05	53.7	12:00	38	73.7	751.4	68.3	12:00	38	94.9	973.5	94.2	12:00	38	133.5	1380.1
O2o	0.06	67.8	12:00	39	631.6	2327.7	86.0	12:00	39	952.4	3831.4	118.5	12:00	39	1608.8	7016.0
O2p	0.15	166.7	12:00	43	654.6	2338.8	212.2	12:00	43	982.0	3853.7	293.3	12:00	43	1650.4	7003.6
2q	0.14	149.2	12:03	41	11.2	149.2	189.6	12:03	41	14.4	189.6	262.3	12:03	41	20.3	262.3
O2r	0.06	70.9	11:57	46	675.3	2355.0	90.2	11:57	46	1008.8	3854.4	124.6	11:57	46	1688.0	7039.6
2s	0.21	195.5	12:06	45	16.4	195.5	250.2	12:06	45	21.1	250.2	347.9	12:06	45	29.6	347.9
O2t	0.27	258.4	12:03	49	715.4	2379.4	329.4	12:03	49	1060.4	3896.1	455.9	12:03	49	1760.7	7088.6
2u	0.24	211.1	12:06	48	18.7	211.1	271.1	12:06	48	24.1	271.1	377.2	12:06	48	34.0	377.2
O2v	0.09	105.3	12:00	51	722.2	2383.9	133.6	12:00	51	1069.2	3890.1	184.1	12:00	51	1773.0	7048.6
East Outlet	23.40	2383.9	13:12	51	722.2	2383.9	3890.1	13:09	51	1069.2	3890.1	7048.6	13:06	51	1773.0	7048.6
Ex. Outlet 2*	27.94	2928.3	13:15	52	868.2	2928.3	4731.0	13:12	52	1286.4	4731.0	8468.7	13:09	52	2133.4	8468.7

***Discharge at Ex. Outlet 1 and 2 do not represent the total flow in the wash; they are only provided to compare pre- and post-development discharge resulting from the project at a downstream confluence point.**



NOTES:

1. SEE GRADING SHEETS 4-7 FOR DETAILED INFORMATION.
2. DETENTION BASIN IS PROVIDED AT POWER BLOCK ONLY. DETENSION BASIN IS PROVIDED FOR WATER QUALITY PURPOSES.

30% Conceptual Engineering Plans
NOT FOR CONSTRUCTION
DATED: February 10, 2010

AECOM

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5001 E. Commercenter Dr.
Bakersfield, Ca 93309
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REGISTERED PROFESSIONAL ENGINEER
No. C31465
EXP. 12-31-10
CIVIL
STATE OF CALIFORNIA

Designed:	W. BLACK
Checked:	W. BLACK
Drawn:	K. S. BEDFORD
Record Drawing by/date:	

Revisions:

#	DATE	DESCRIPTION

Prepared for:

Solar Millennium LLC

LEGEND:

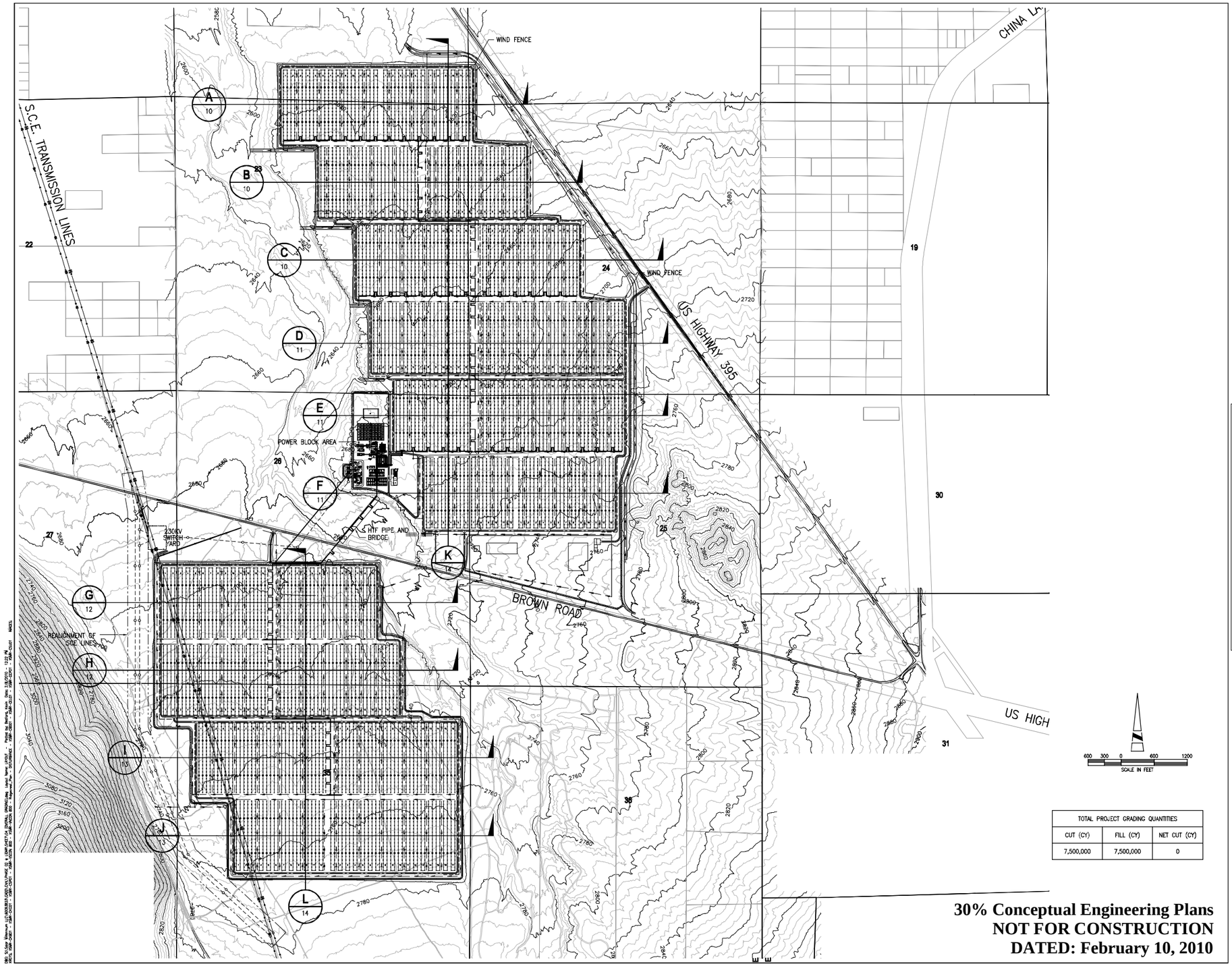
- SOLAR FIELD PARABOLIC TROUGH
- BALANCE OF PLANT FACILITIES
- PROPOSED ACCESS ROAD (PAVED)
- PROPOSED ACCESS ROAD (GRAVEL)
- RAILROAD
- PROPOSED GAS
- PROPOSED WATER
- PROPOSED TELEPHONE
- PROPOSED ELECTRIC
- EXISTING ELECTRIC
- PROPOSED SECURITY FENCE
- PROPOSED WIND FENCE
- EXISTING CONTOURS (10 FOOT INTERVALS)
- PROPOSED DRAINAGE CHANNEL/FLOW DIRECTION
- EXISTING INTERMITTENT DRAINAGE CHANNEL
- SITE BOUNDARY
- HEADER PIPING
- ACCELERATION LANE

Ridgecrest Solar Power Project

Kern County, California

Preliminary Site Plan

Date: 02/10/10
Sheet: 03 of 34



TOTAL PROJECT GRADING QUANTITIES		
CUT (CY)	FILL (CY)	NET CUT (CY)
7,500,000	7,500,000	0

30% Conceptual Engineering Plans
NOT FOR CONSTRUCTION
DATED: February 10, 2010

AECOM

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REGISTERED PROFESSIONAL ENGINEER
WILLIAM CHARLES BLACK
No. C31465
EXP. 12-31-10
CIVIL
STATE OF CALIFORNIA

Designed: W. BLACK
Checked: W. BLACK
Drawn: K. S. BEDFORD
Record Drawing by/date:

Revisions:

#	DATE	DESCRIPTION

Prepared for:

Solar Millennium LLC

LEGEND:

- SOLAR FIELD PARABOLIC TROUGH
- BALANCE OF PLANT FACILITIES
- PROPOSED ACCESS ROAD (PAVED)
- PROPOSED ACCESS ROAD (GRAVEL)
- RAILROAD
- PROPOSED GAS
- PROPOSED WATER
- PROPOSED TELEPHONE
- PROPOSED ELECTRIC
- EXISTING ELECTRIC
- PROPOSED SECURITY FENCE
- PROPOSED WIND FENCE
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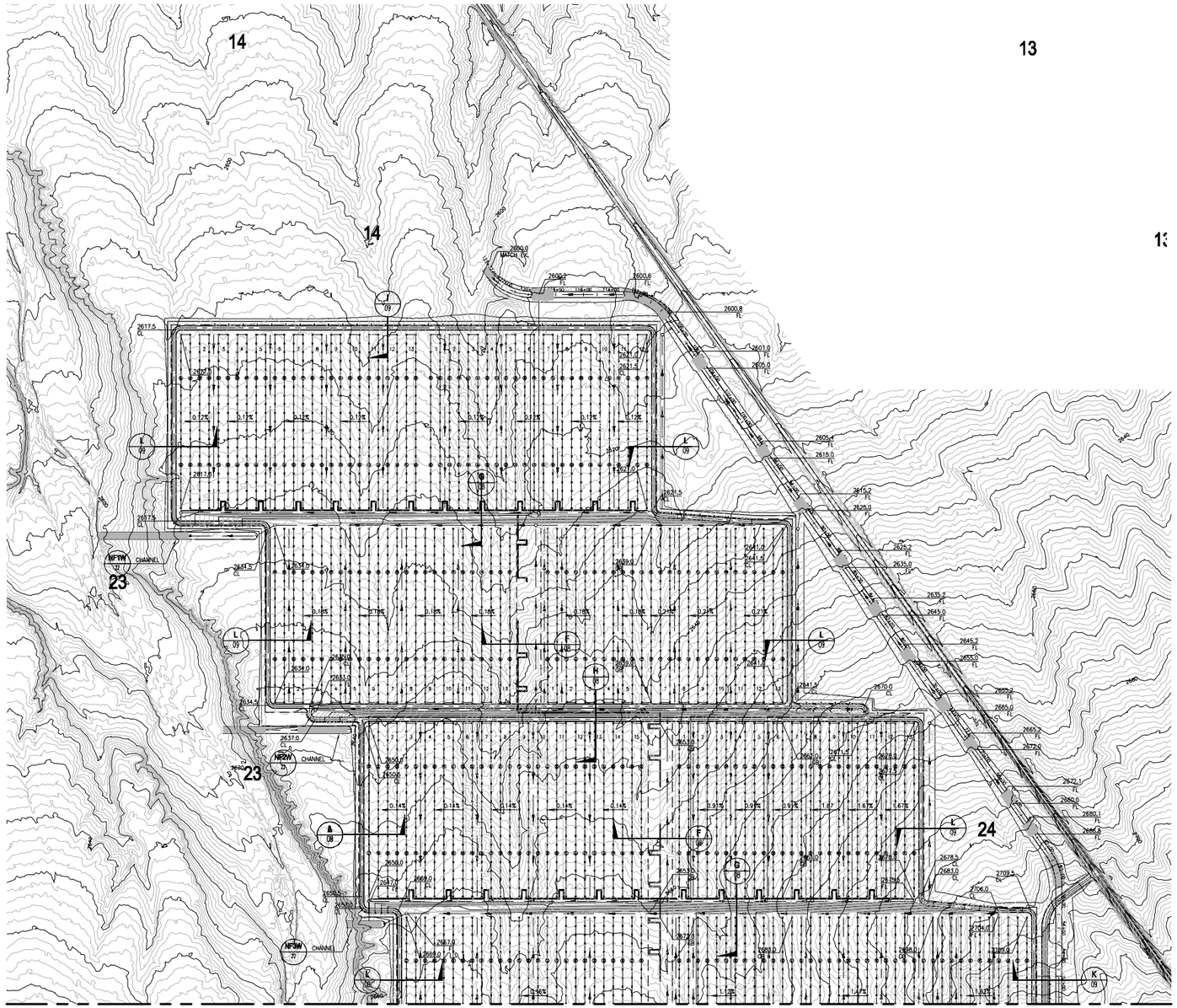
- EXISTING INTERMITTENT DRAINAGE CHANNEL
- SITE BOUNDARY
- HEADER PIPING
- ACCELERATION LANE

Ridgecrest Solar Power Project

Kern County, California

Preliminary Overall Grading Plan

Date: 02/10/10
Sheet: 04 of 34



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STATE OF CALIFORNIA

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Checked: W. BLACK
Drawn: K. S. BEDFORD
Record Drawing by/date:

Revisions:

#	DATE	DESCRIPTION

Prepared for:

Solar Millennium LLC

LEGEND:

- SOLAR FIELD PARABOLIC TROUGH
- BALANCE OF PLANT FACILITIES
- PROPOSED ACCESS ROAD (PAVED)
- PROPOSED ACCESS ROAD (GRAVEL)
- RAILROAD
- PROPOSED GAS
- PROPOSED WATER
- PROPOSED TELEPHONE
- PROPOSED ELECTRIC
- EXISTING ELECTRIC
- PROPOSED SECURITY FENCE
- PROPOSED WIND FENCE
- EXISTING CONTOURS (10 FOOT INTERVALS)
- PROPOSED DRAINAGE CHANNEL/FLOW DIRECTION
- EXISTING INTERMITTENT DRAINAGE CHANNEL
- SITE BOUNDARY
- HEADER PIPING
- ACCELERATION LANE
- DECELERATION LANE
- DISTURBANCE LIMITS
- SOIL CEMENT

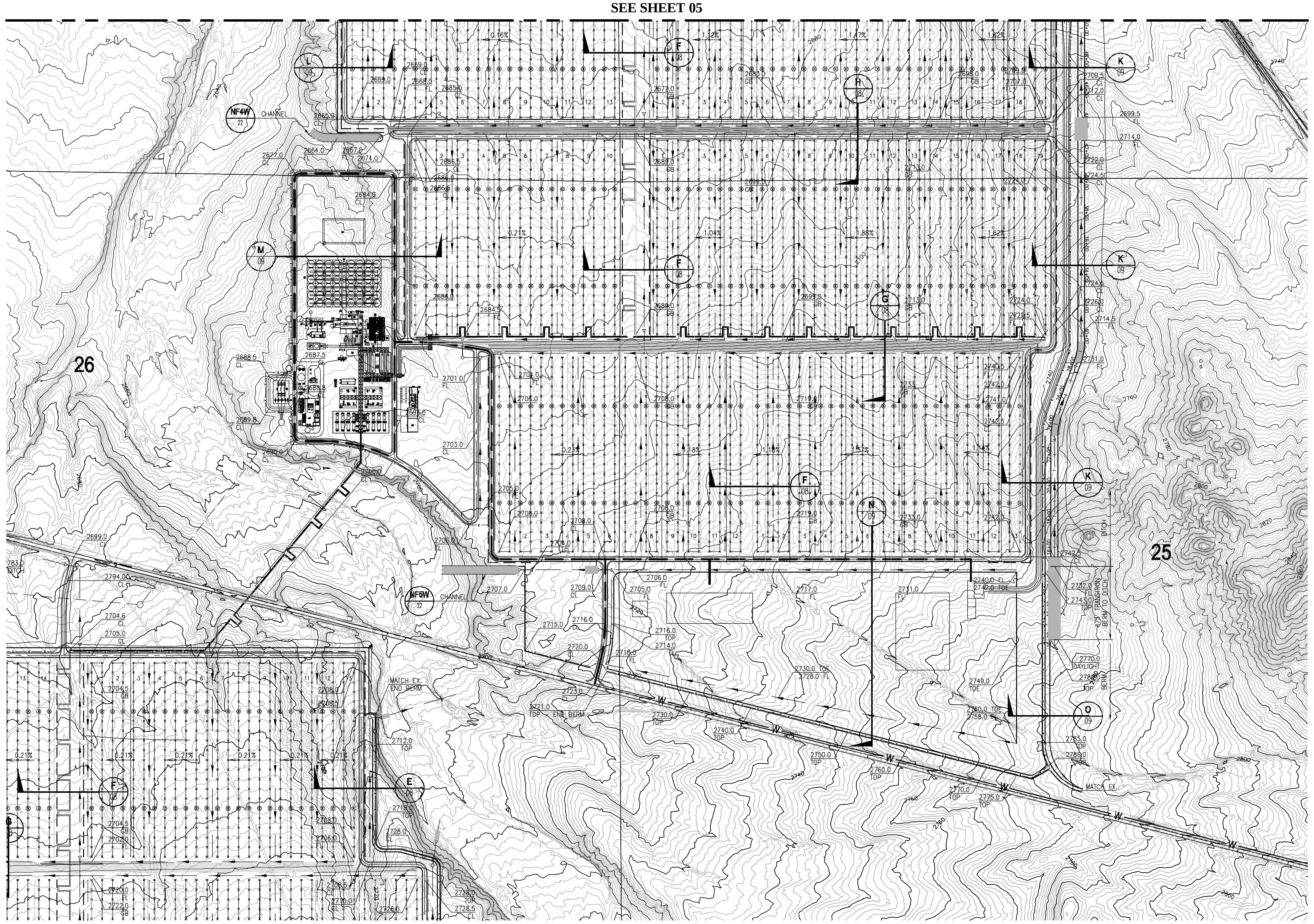
Ridgecrest Solar Power Project

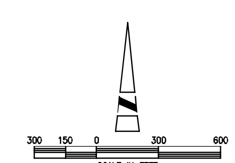
Kern County, California

Preliminary Grading Plan 01

Date: 02/10/10
Sheet: 05 of 34

MATCHLINE
SEE SHEET 05





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Ridgecrest Solar Power Project

Kern County, California

Preliminary Grading Plan 02

Date: 02/10/10
Sheet: 06 of 34

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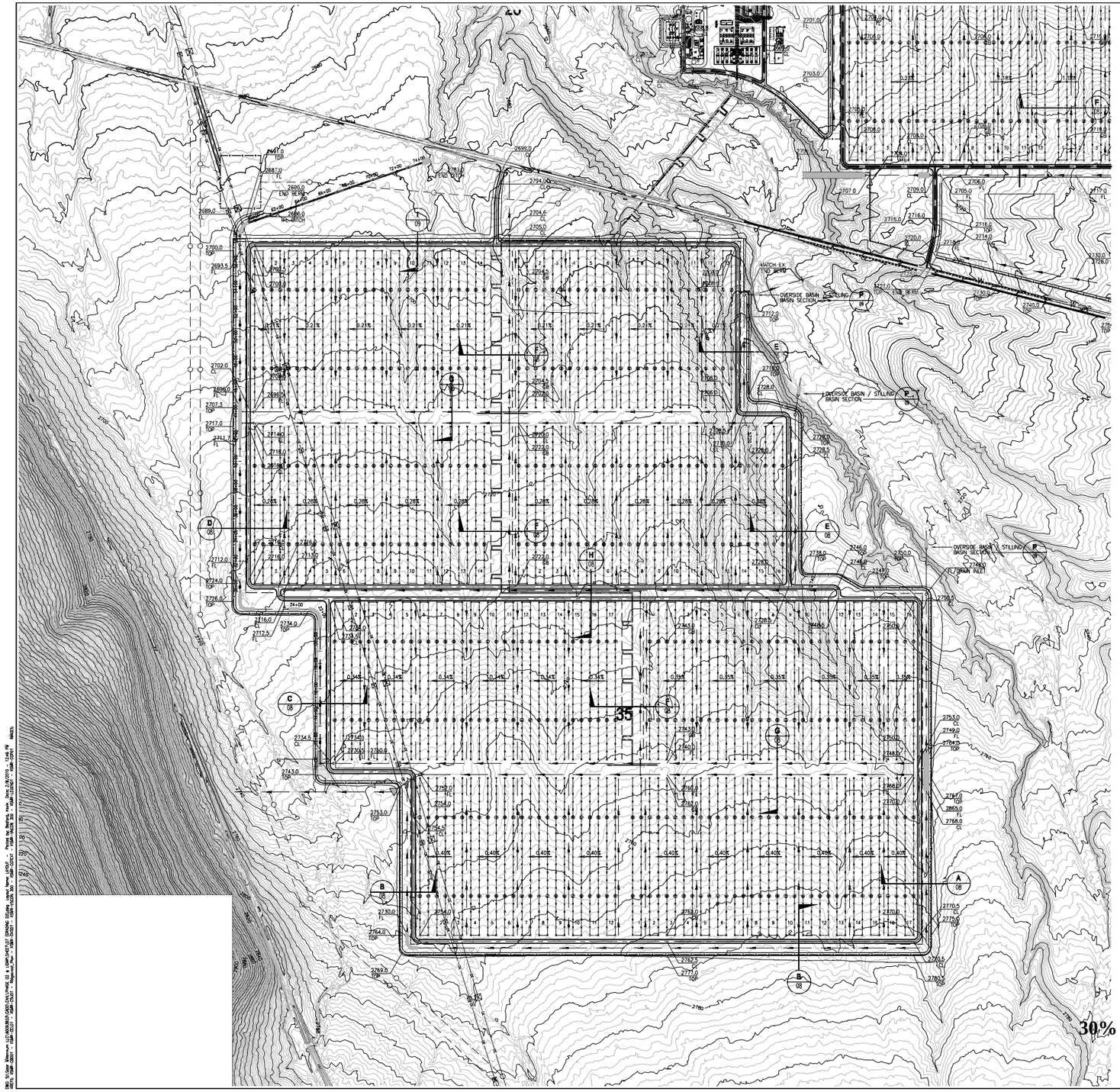

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- SOIL CEMENT

Ridgecrest Solar Power Project

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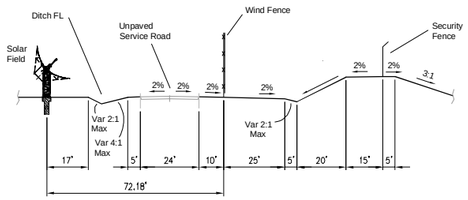
Preliminary Grading Plan 03

Date: **02/10/10**

Sheet: **07 of 34**



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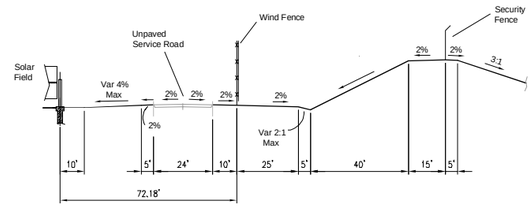

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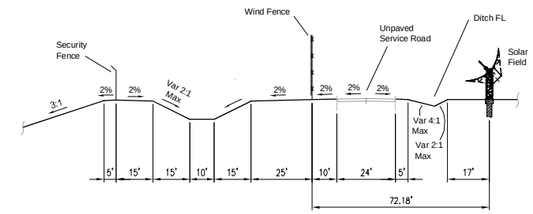

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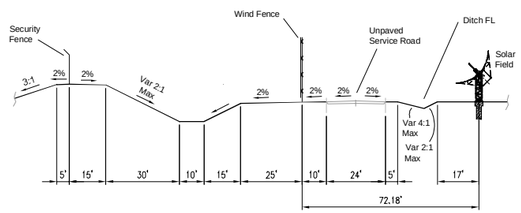

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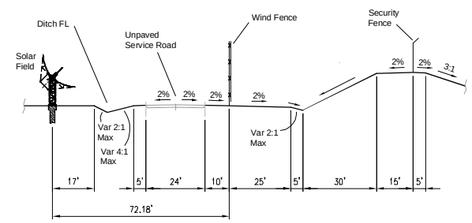

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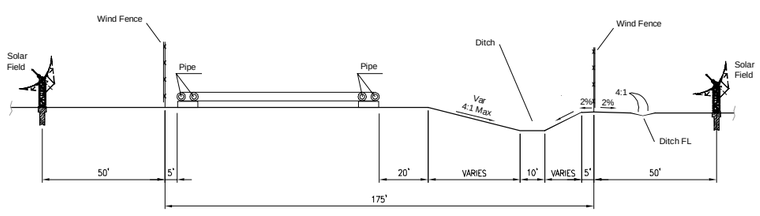

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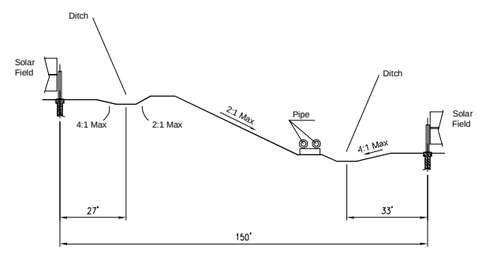

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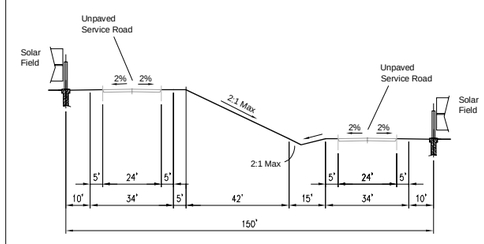

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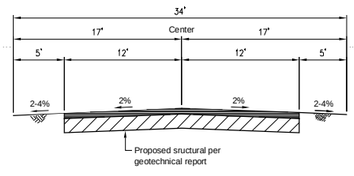

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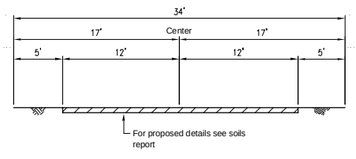

TYPICAL GRADED ROAD SECTION
SCALE: 1"=5'

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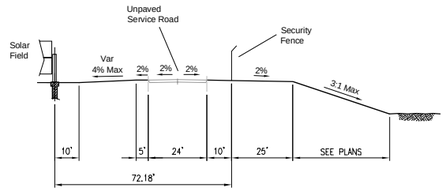
Typical Details - Sections

Date: 02/10/10
Sheet: 08 of 34



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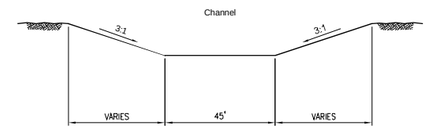

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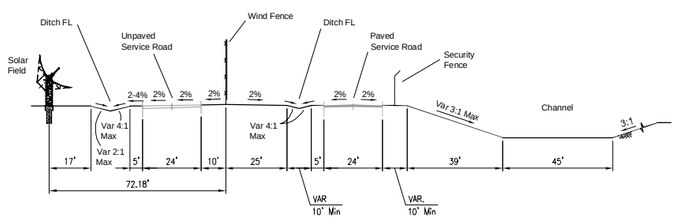

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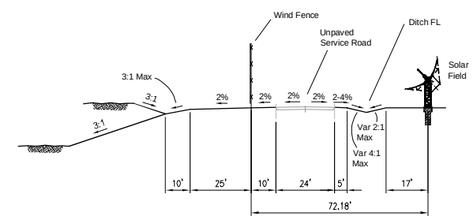

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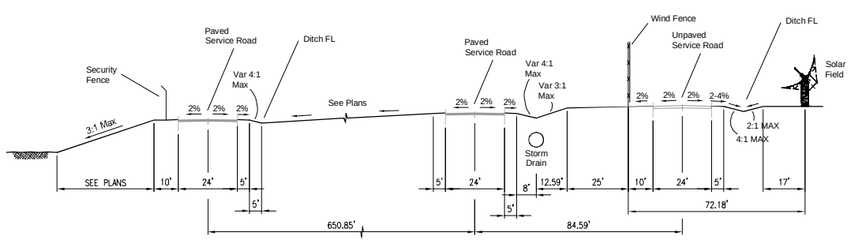

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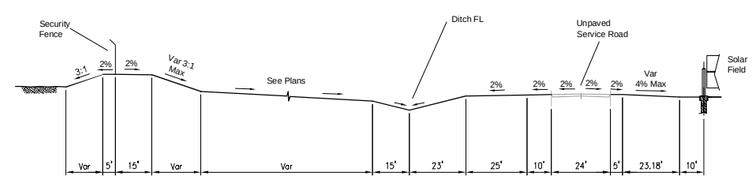

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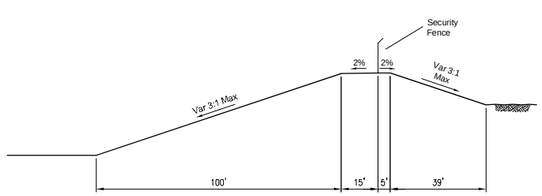

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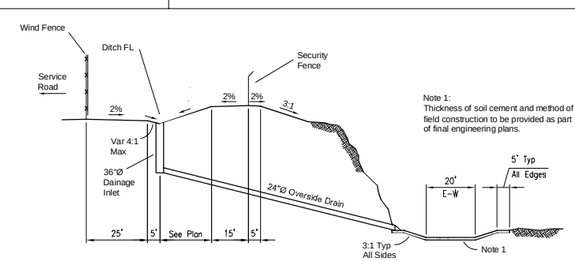

OVERSIDE DRAIN STILLING BASIN SECTION P
SCALE: 1"=20'

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Ridgecrest Solar Power Project

Kern County, California

Typical Details - Sections

Date: 02/10/10
Sheet: 09 of 34

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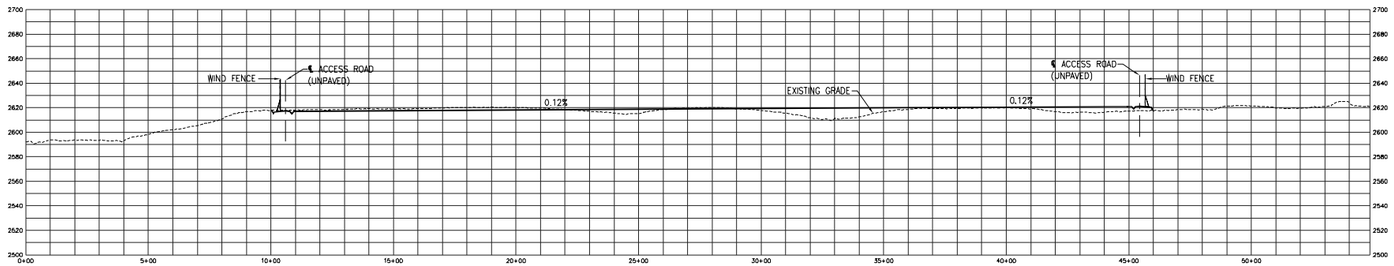

SECTION A-A

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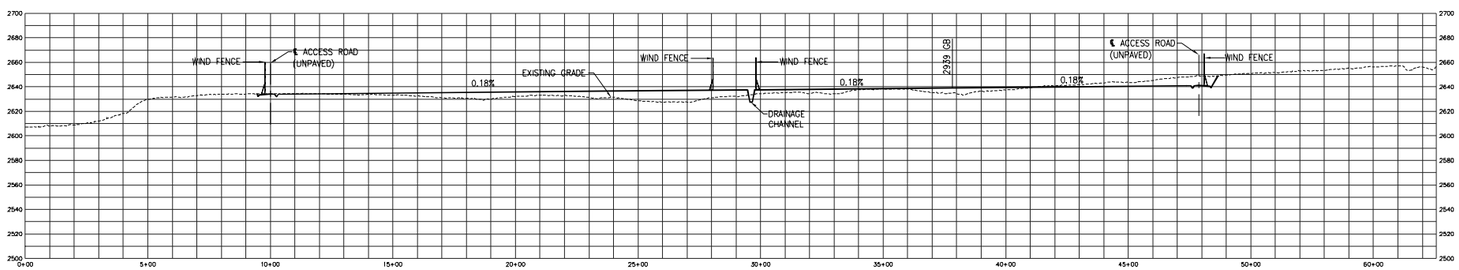

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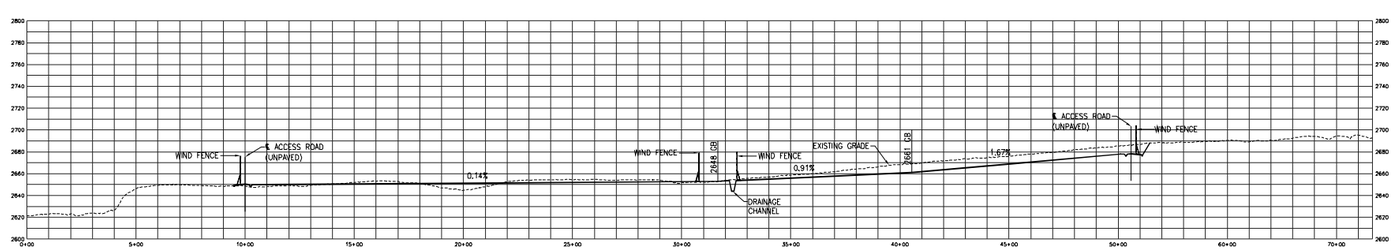

SECTION C-C

SCALE: HORIZ. 1" = 200'
VERT. 1" = 40'

VERT. 1" = 40'

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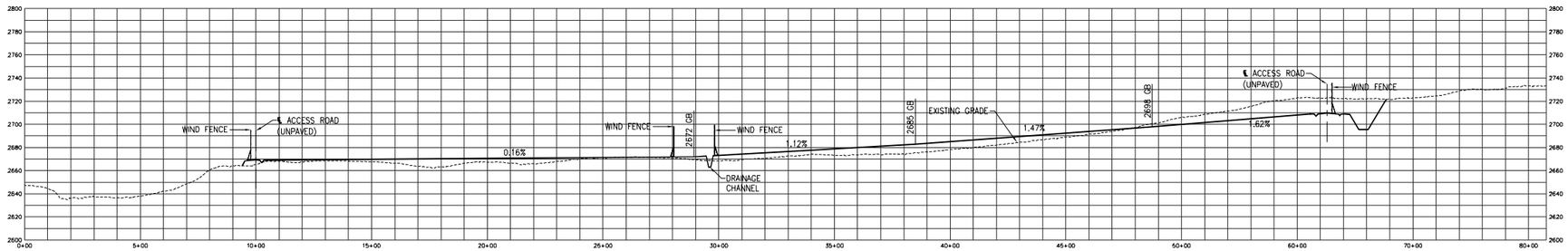
Kern County, California

Cross Sections North Field

Date: 02/10/10
Sheet: 10 of 34



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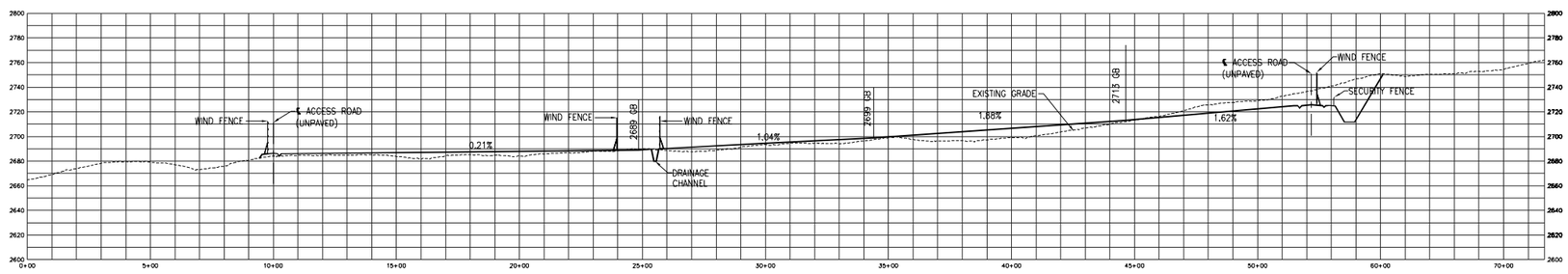

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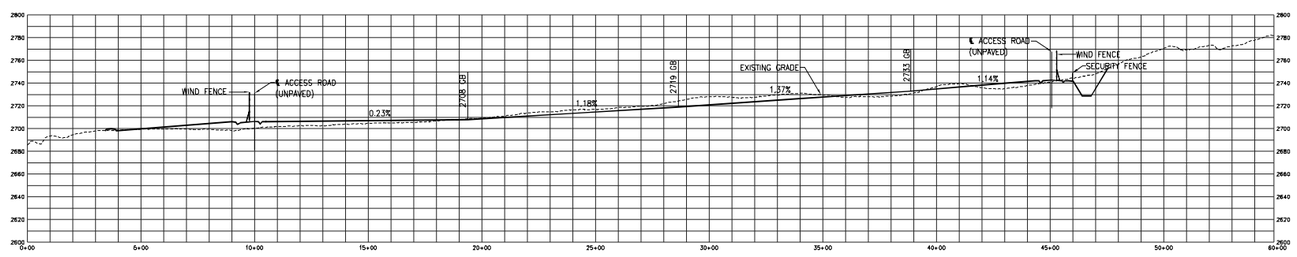

SECTION F-F

SCALE: HORIZ. 1" = 200'
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Cross Sections North Field

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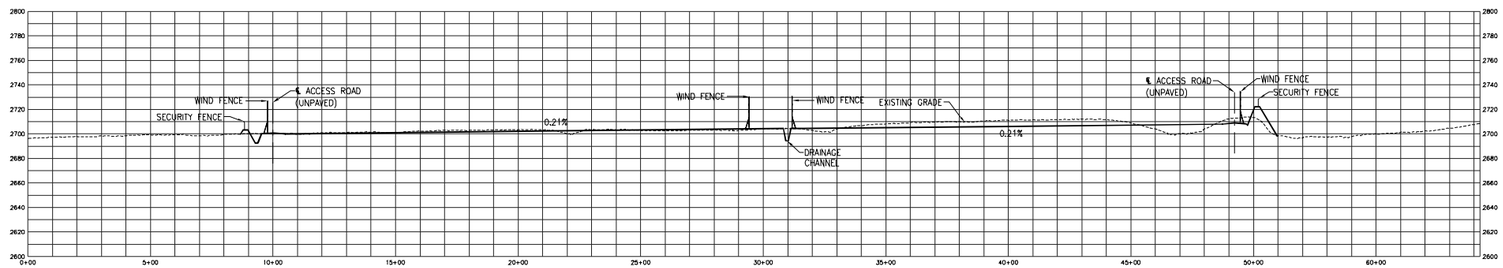
Sheet: 11 of 34



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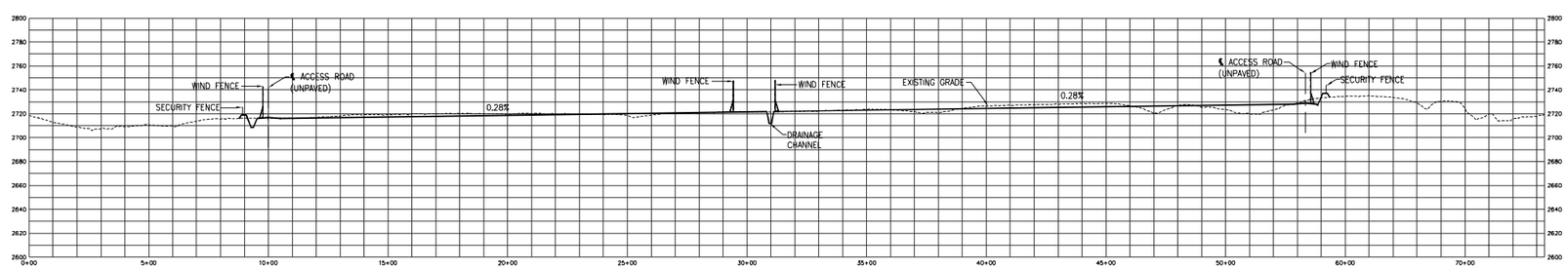

SECTION H-H

SCALE: HORIZ. 1" = 200'
VERT. 1" = 40'

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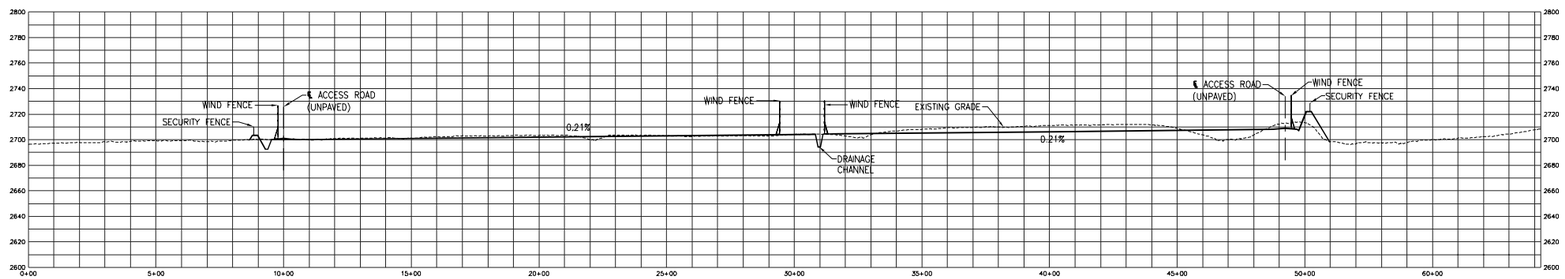

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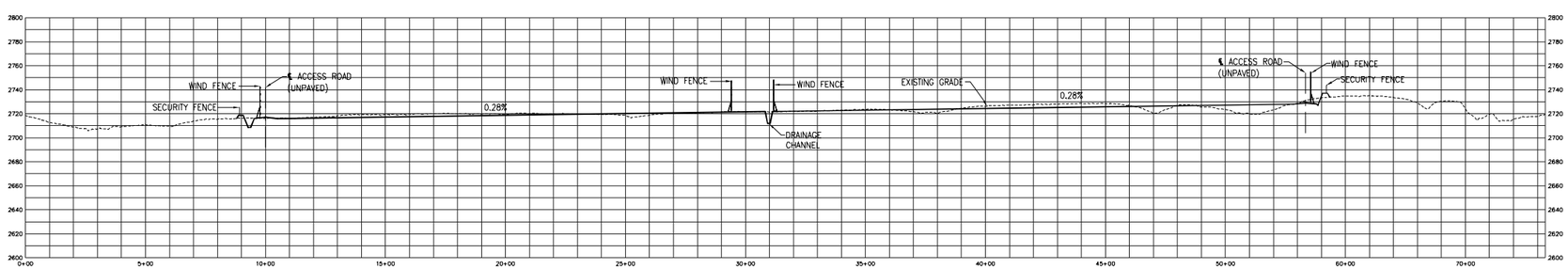

SECTION J-J

SCALE: HORIZ. 1" = 200'
VERT. 1" = 40'

VERT. 1" = 40'

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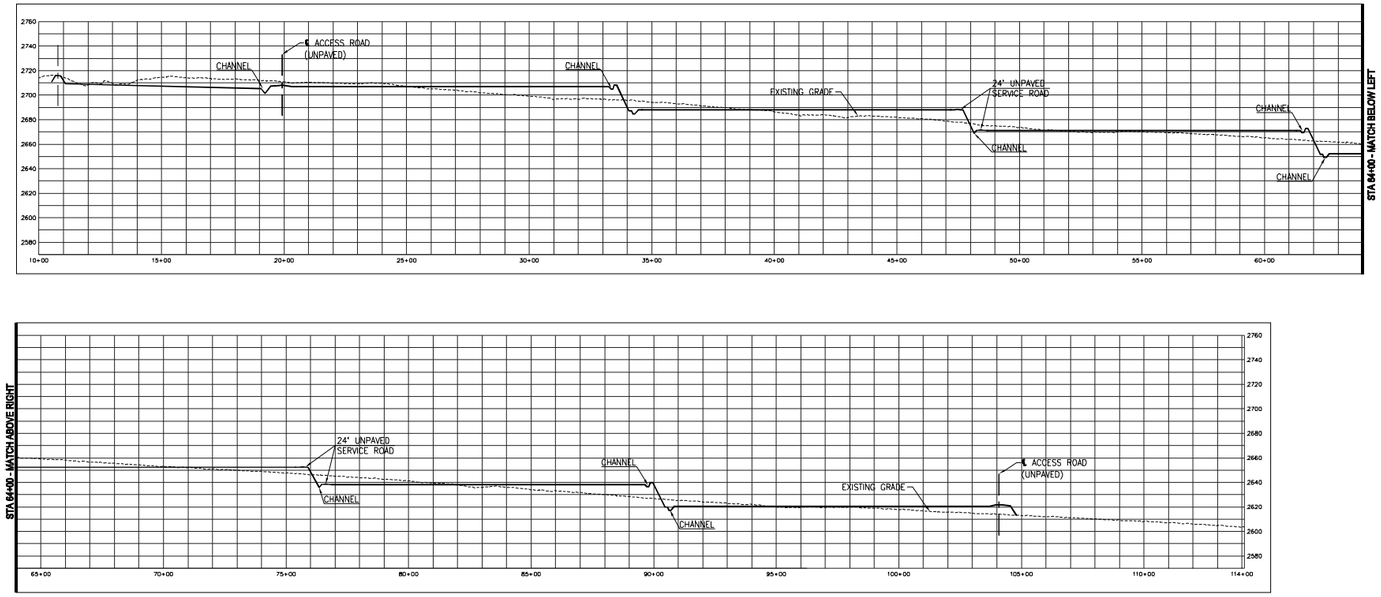

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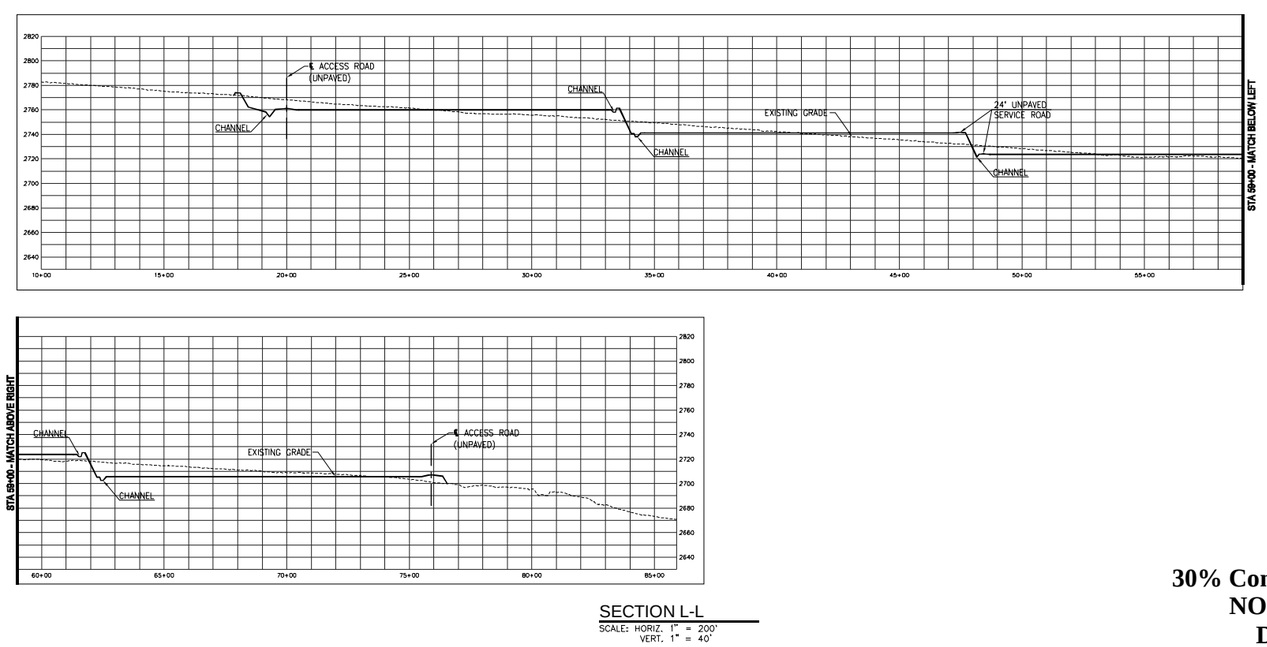

SECTION L-L

SCALE: HORIZ. 1" = 200'
VERT. 1" = 40'

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Record Drawing by/date:

Revisions:

#	DATE	DESCRIPTION

Prepared for:

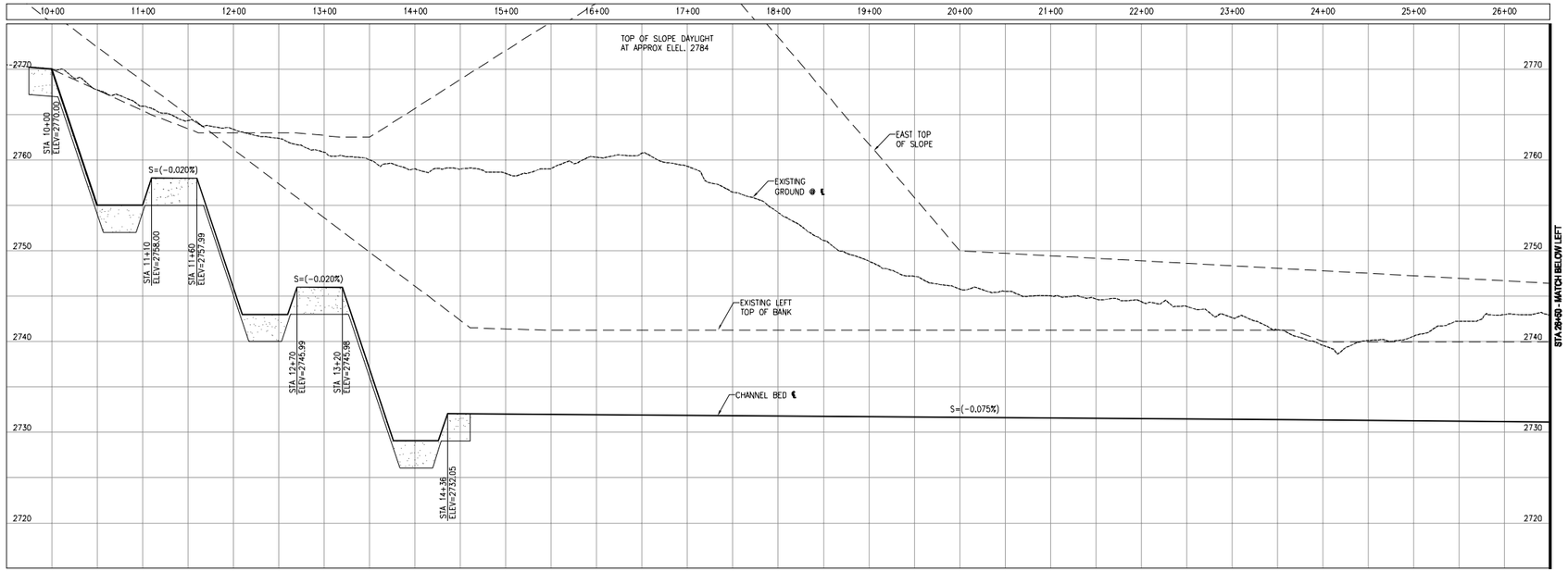
Solar Millennium LLC

Ridgecrest Solar Power Project

Kern County, California

Cross Sections North and South Field

Date: 02/10/10
Sheet: 14 of 34



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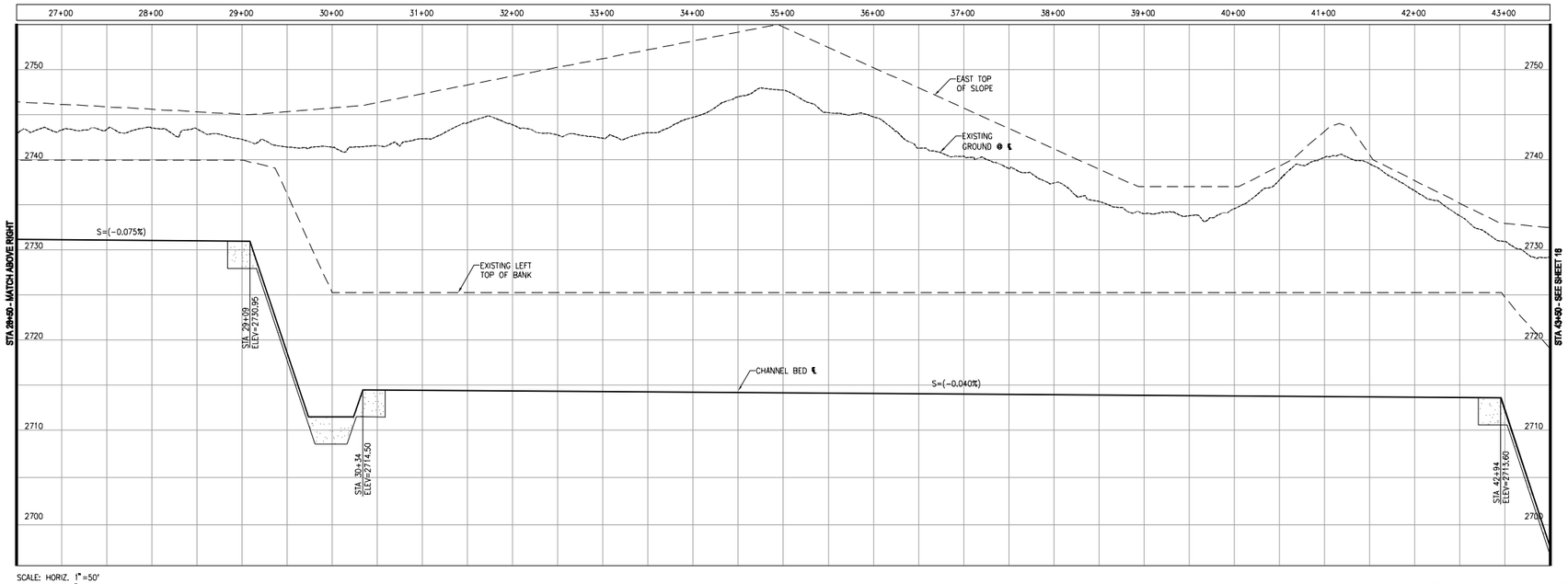

SCALE: HORIZ. 1"=50'
VERT. 1"=5'

30% Conceptual Engineering Plans
NOT FOR CONSTRUCTION
DATED: February 10, 2010

AECOM

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5001 E. Commercenter Dr.
Bakersfield, Ca 93309
Phone 661.325.7253

www.aecom.com

REGISTERED PROFESSIONAL ENGINEER
No. C31465
EXP. 12-31-10
CIVIL
STATE OF CALIFORNIA

Designed: W. BLACK
Checked: W. BLACK
Drawn: K. S. BEDFORD
Record Drawing by/date:

Revisions:

#	DATE	DESCRIPTION

Prepared for:

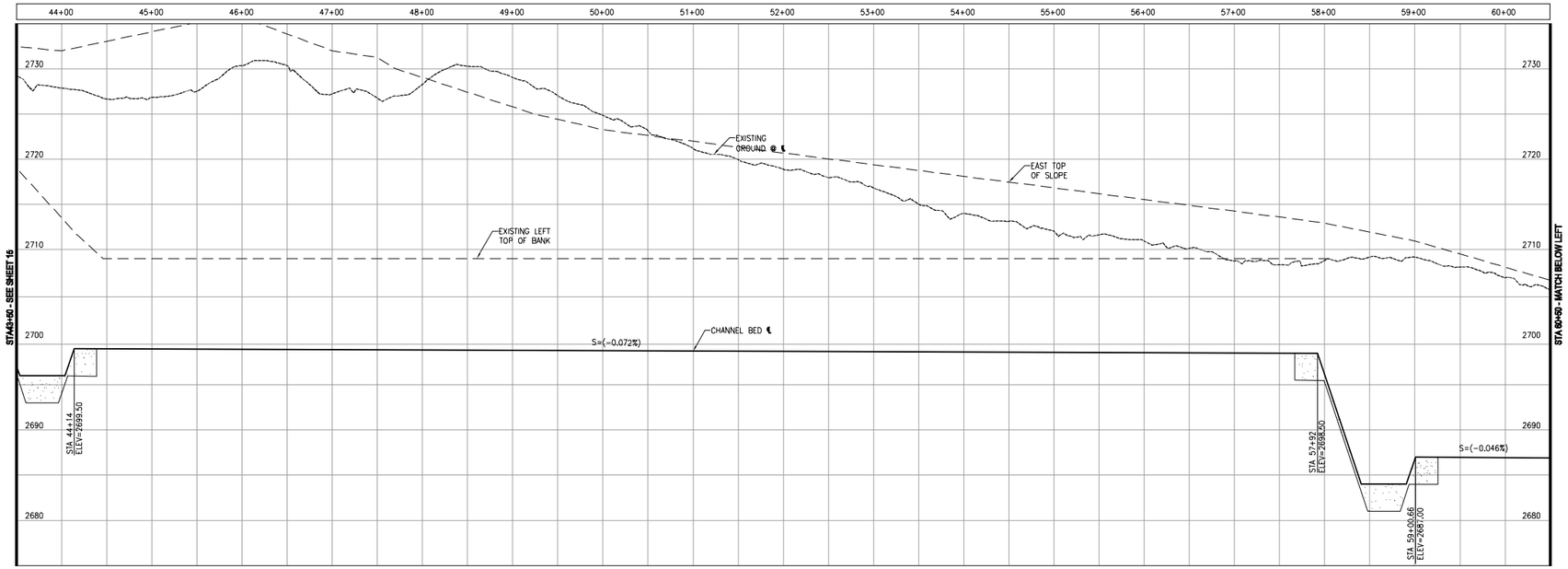
Solar Millennium LLC

Ridgecrest Solar Power Project

Kern County, California

Channel Profiles
East Channel, North Field

Date: 02/10/10
Sheet: 15 of 34



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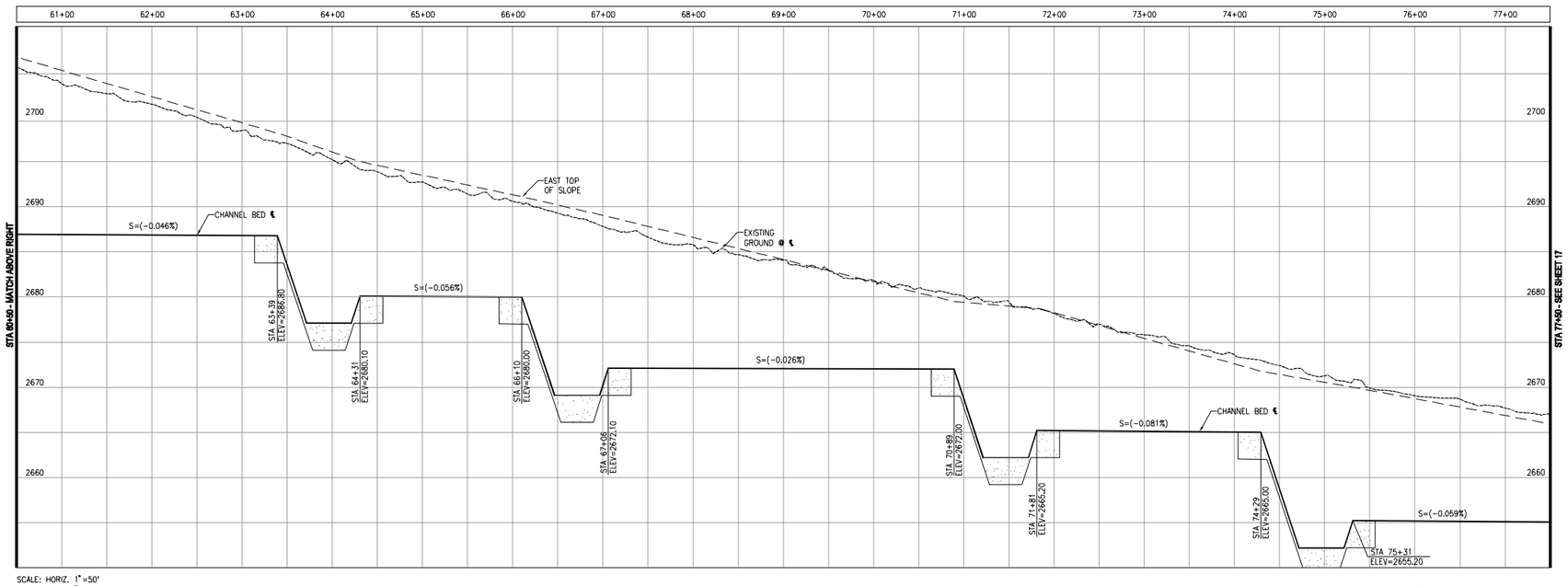

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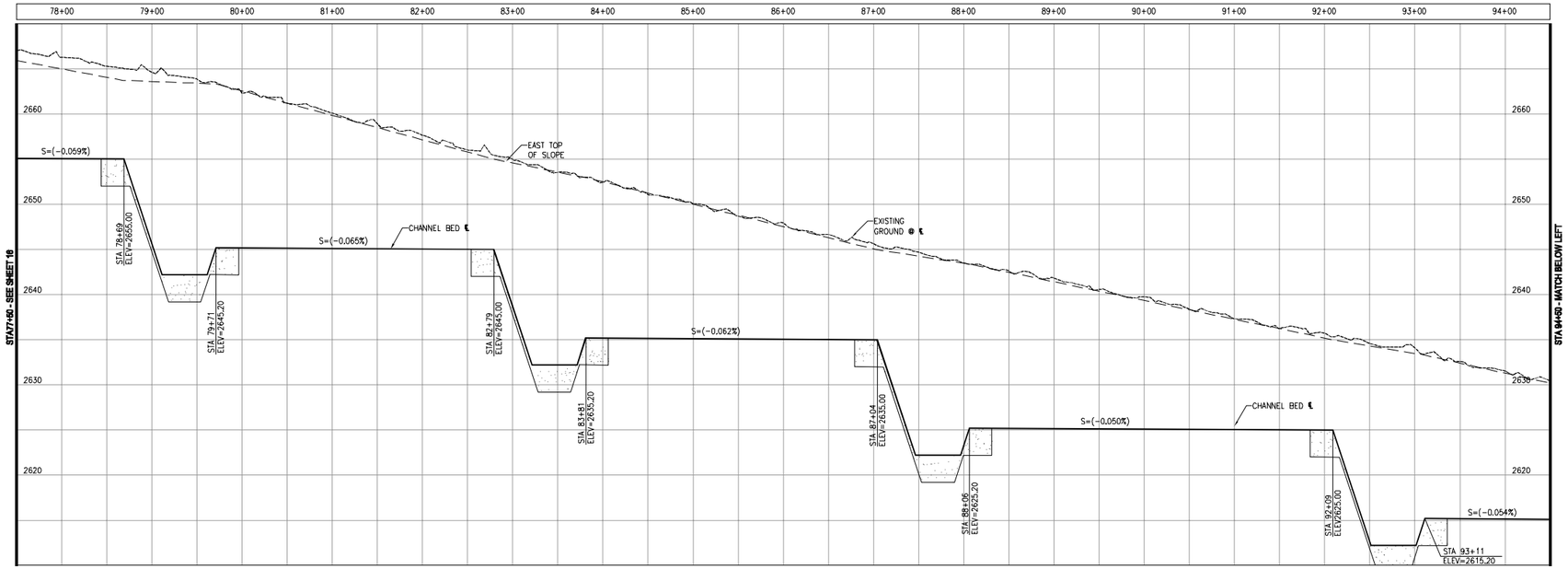
Ridgecrest Solar Power Project

Kern County, California

Channel Profiles
East Channel, North Field

Date: 02/10/10
Sheet: 16 of 34



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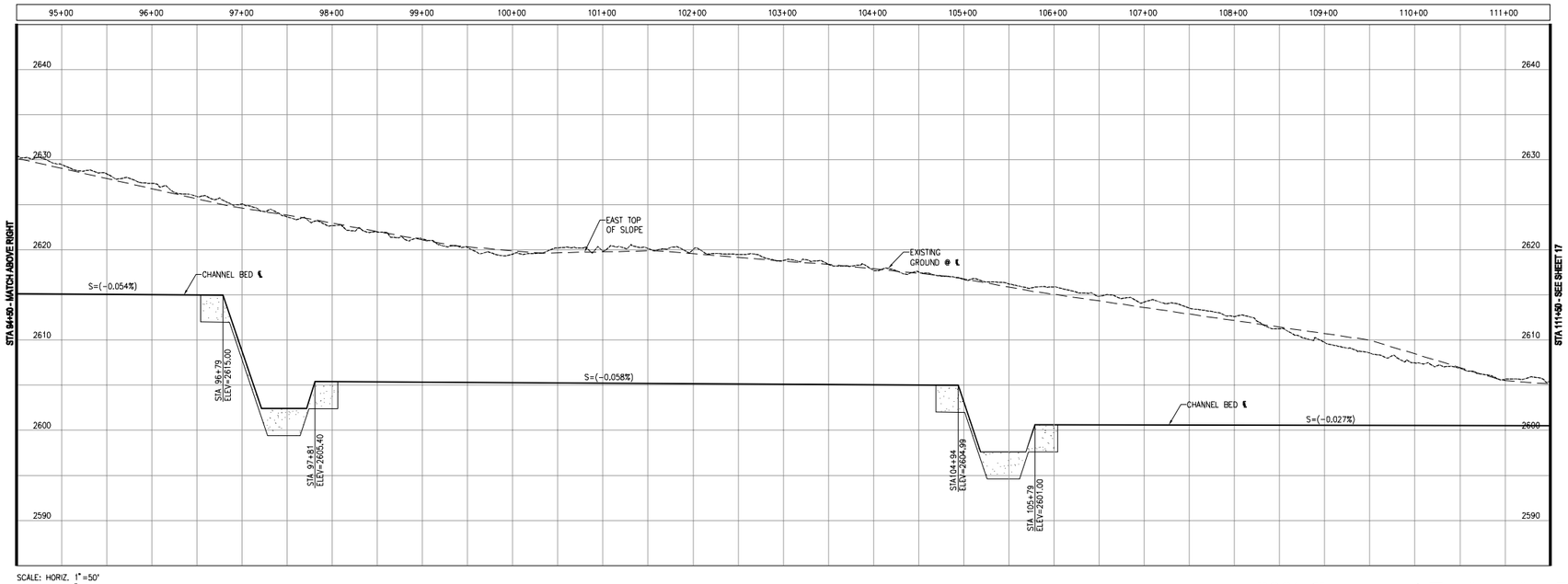

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CIVIL
STATE OF CALIFORNIA

Designed: W. BLACK
Checked: W. BLACK
Drawn: K. S. BEDFORD
Record Drawing by/date:

Revisions:

#	DATE	DESCRIPTION

Prepared for:

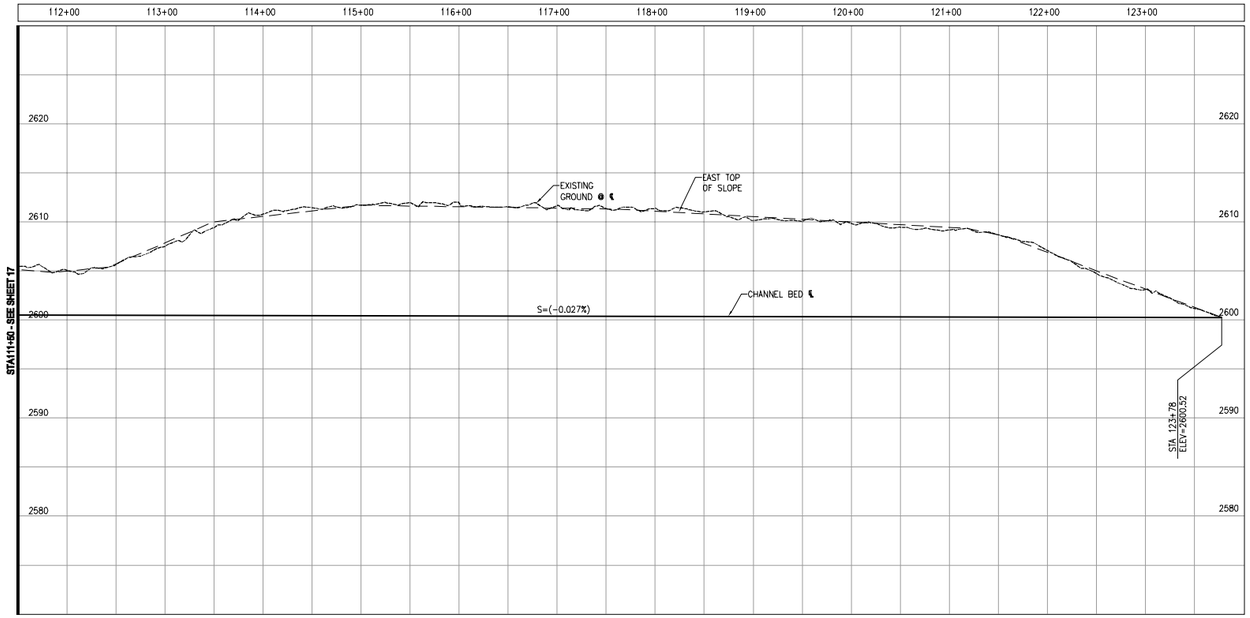
Solar Millennium LLC

Ridgecrest Solar Power Project

Kern County, California

Channel Profiles
East Channel, North Field

Date: 02/10/10
Sheet: 17 of 34



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30% Conceptual Engineering Plans
NOT FOR CONSTRUCTION
DATED: February 10, 2010

AECOM

AECOM
5001 E. Commercenter Dr.
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REGISTERED PROFESSIONAL ENGINEER
WILLIAM CHARLES BLACK
No. C31465
EXP. 12-31-10
CIVIL
STATE OF CALIFORNIA

Designed: W. BLACK
Checked: W. BLACK
Drawn: K. S. BEDFORD
Record Drawing by /date:

Revisions:

#	DATE	DESCRIPTION

Prepared for:

Solar Millennium LLC

Ridgecrest Solar Power Project

Kern County, California

Channel Profiles
East Channel, North Field

Date: 02/10/10
Sheet: 18 of 34

File: S:\Solar Millennium LLC\REDACTED\PHASE II & I CAD\SHEETS\B [PHASE]\dwg Layout: Profiles (2/10/2 - 1:33 PM
UNITS: USER DEFINED* CLASS: (2000) MODEL

SOUTH EL PASO WASH – POST-DEVELOPEMENT CONDITIONS

A detailed hydrologic analysis was also prepared for the post-development conditions to illustrate the affect that the project may have on the peak discharge and flood levels in South El Paso Wash. The post-development hydrology included a tributary area of 23.40 square miles with a resulting 1% chance discharge of 7,048.6 cfs downstream of the site. The decrease in peak discharge from 7,270.3 cfs can be attributed to the modifications in the way the water is routed through the site.

The proposed solar fields were located to avoid physical impact on the South El Paso Wash floodplain. A new bridge will be constructed across the wash, approximately 1,000 feet downstream from the Brown Road crossing. The bridge will be 730 feet long and will carry a heat transfer fluid (HTF) pipeline. The bridge has been designed with twenty six 5-feet diameter piers. A debris load of 2 feet per pier was added, per Kern County standards, and the hydraulic analysis shows that the piers have minimal impact on the water surface in the wash. The results show a downstream water surface elevation of 2587.68 feet (HEC-RAS, Section 9). The revised 1% floodplain is shown on the FIRM Panels.

NOTES TO USERS

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Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). 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 jurisdiction. 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.

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 National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures.** Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 11. The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum.** For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, MD 20910-3282

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242,** or visit its website at http://www.ngs.noaa.gov/.

Base map information shown on this FIRM was derived from USDA - Farm Service Agency - Aerial Photography Field Office dated 2005 and from U.S. Geological Survey Digital Orthophoto Quadrangles produced at a scale of 1:12,000 from photography dated 1992 or later.

This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables *in the Flood Insurance Study report (which contains authoritative hydraulic data)* may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, *a Flood Insurance Study report,* and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at http://www.msc.fema.gov/.

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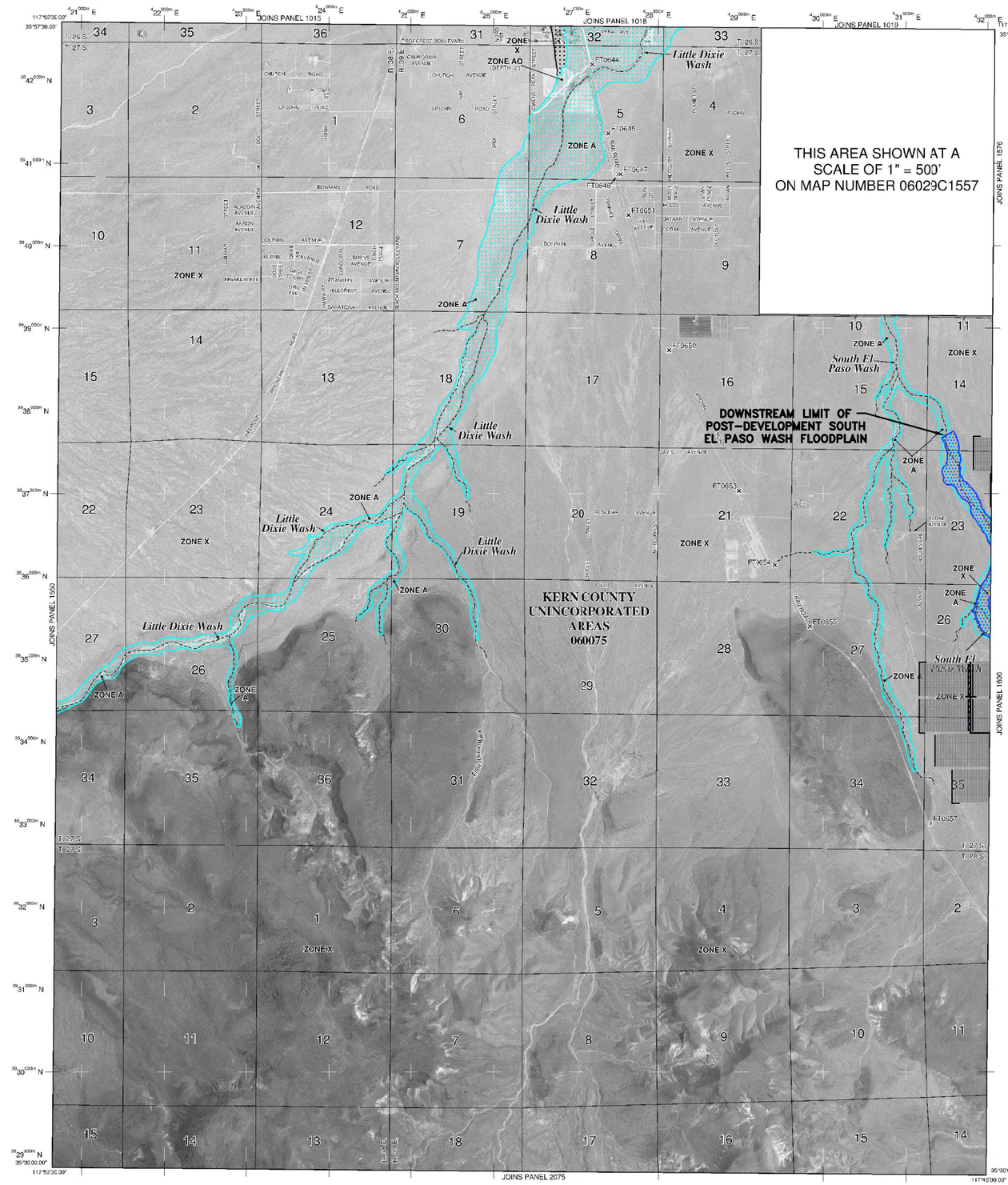

LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance 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 AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

	1% annual chance floodplain boundary
	0.2% annual chance floodplain boundary
	Floodway boundary
	Zone D boundary
	CBRS and OPA boundary
	Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
~~ 513 ~~~	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

(A)———(A)	Cross section line
(23)- - - - - -(23)	Transect line
97°07'30", 32°22'30"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
4275000mN	1000-meter Universal Transverse Mercator grid ticks, zone 11
6000000 M	5000-foot grid ticks: California State Plane coordinate system, V zone (FIPSZONE 0405), Lambert Conformal Conic
DX5510 ×	Bench mark (see explanation in Notes to Users section of this FIRM panel)
• M1.5	River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 26, 2008
EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

N

MAP SCALE 1" = 2000'

1000 0 2000 4000 FEET

600 0 600 1200 METERS

NFIP NATIONAL FLOOD INSURANCE PROGRAM

PANEL 1575E

FIRM
FLOOD INSURANCE RATE MAP
KERN COUNTY, CALIFORNIA
AND INCORPORATED AREAS

PANEL 1575 OF 4125
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
KERN COUNTY	060075	1575	E

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
06029C1575E

EFFECTIVE DATE
SEPTEMBER 26, 2008

Federal Emergency Management Agency

NOTES TO USERS

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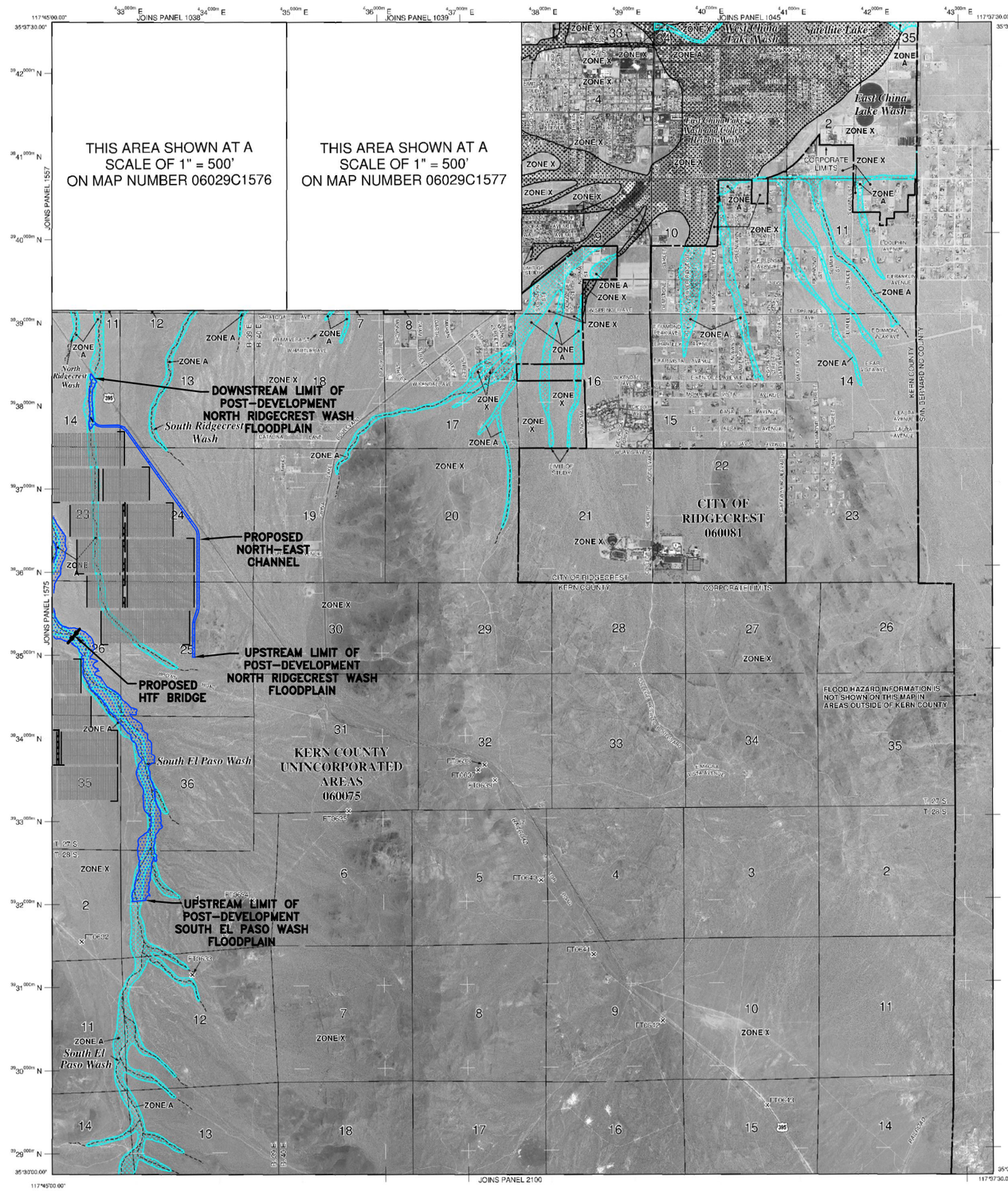

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0.2% annual chance floodplain boundary
Floodway boundary
Zone D boundary
CBRS and OPA boundary
Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.

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(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

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DX5510 ×	Bench mark (see explanation in Notes to Users section of this FIRM panel)
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FLOOD INSURANCE RATE MAP
September 26, 2008
EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

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MAP SCALE 1" = 2000'

1000 0 2000 4000 FEET

600 0 600 1200 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 1600E

FIRM
FLOOD INSURANCE RATE MAP
KERN COUNTY, CALIFORNIA
AND INCORPORATED AREAS

PANEL 1600 OF 4125
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

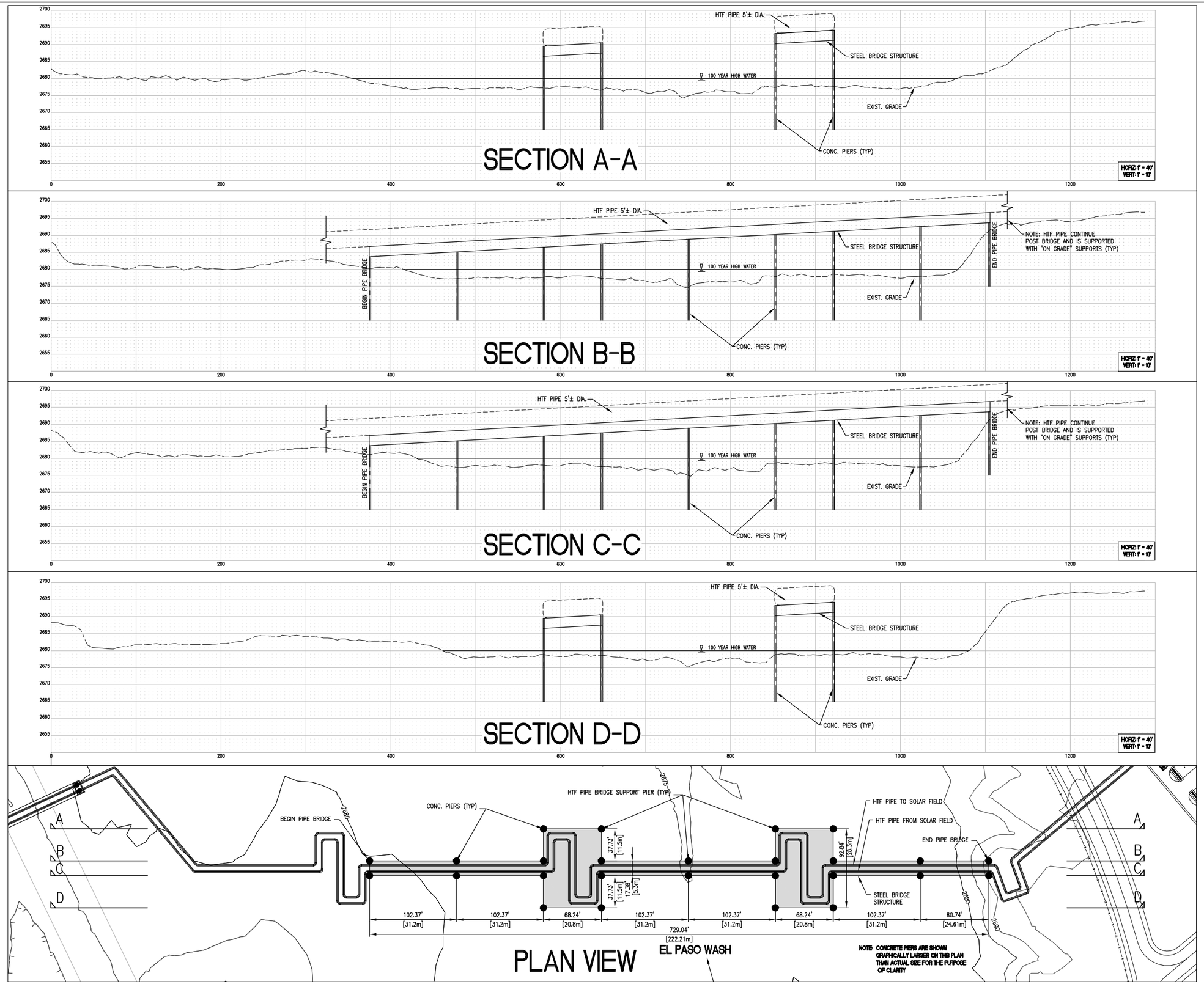
COMMUNITY	NUMBER	PANEL	SUFFIX
KERN COUNTY	060075	1600	F
RIDGECREST, CITY OF	060081	1600	E

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
06029C1600E

EFFECTIVE DATE
SEPTEMBER 26, 2008

Federal Emergency Management Agency



AECOM

AECOM
5001 E. Commercenter Dr.
Bakersfield, Ca 93309
Phone 661.325.7253

www.aecom.com

Designed: X
Checked: X
Drawn: X
Record Drawing by/date:

Revisions:

#	DATE	DESCRIPTION

Prepared for:

Solar Millennium LLC

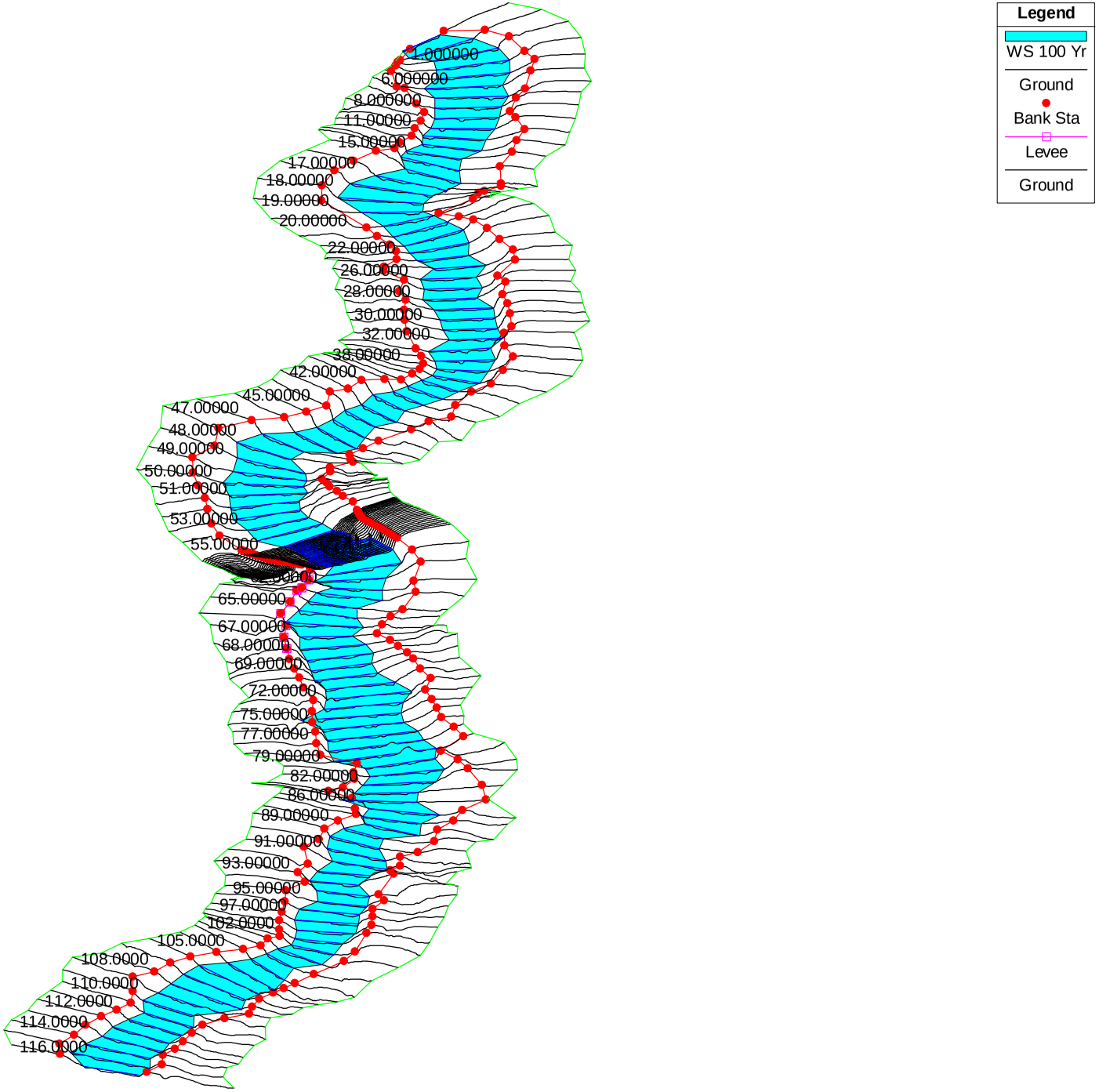
Ridgecrest Solar Power Project

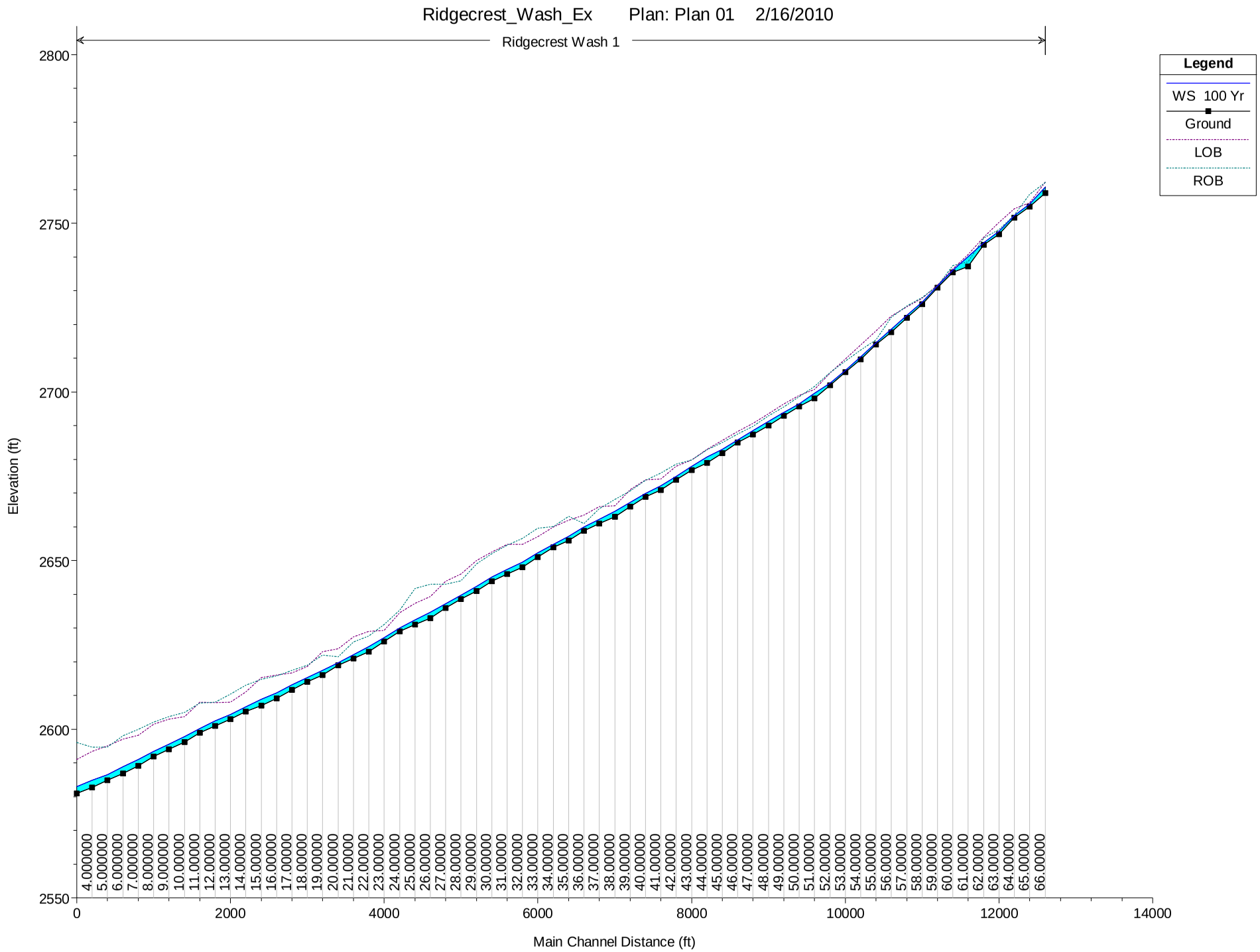
Kern County, California

HTF PIPE BRIDGE AT EL PASO WASH

Date: 02/10/10
Sheet: 33

Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010




Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
Ridgecrest Wash 1
Legend
WS 100 Yr
Ground
LOB
ROB
Elevation (ft)
Main Channel Distance (ft)
2550
2600
2650
2700
2750
2800
0
2000
4000
6000
8000
10000
12000
14000
4.000000
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6.000000
7.000000
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RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
South El Paso Wash - Post-development Conditions
10-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Dev. El Paso Wash	1	116	10 Yr	2139.3	2819.35	2821.61	2.26	2821.64	2822.11	0.015012	5.62	380.6	426.68	1.05
Dev. El Paso Wash	1	115	10 Yr	2139.3	2816.92	2818.7	1.78	2818.75	2819.2	0.017327	5.65	378.87	469.85	1.11
Dev. El Paso Wash	1	114	10 Yr	2139.3	2814	2815.89	1.89	2815.89	2816.37	0.013873	5.56	384.96	413.94	1.02
Dev. El Paso Wash	1	113	10 Yr	2139.3	2811	2813.06	2.06	2813.07	2813.54	0.014371	5.56	384.68	424.2	1.03
Dev. El Paso Wash	1	112	10 Yr	2139.3	2808	2810.42	2.42	2810.38	2810.85	0.012081	5.23	409.36	435.11	0.95
Dev. El Paso Wash	1	111	10 Yr	2139.3	2806	2807.78	1.78	2807.78	2808.25	0.013939	5.47	390.79	431.17	1.01
Dev. El Paso Wash	1	110	10 Yr	2139.3	2803	2804.69	1.69	2804.73	2805.19	0.016563	5.66	378.16	452.23	1.09
Dev. El Paso Wash	1	109	10 Yr	2139.3	2800.49	2801.99	1.5	2801.99	2802.49	0.012873	5.66	378.09	374.11	0.99
Dev. El Paso Wash	1	108	10 Yr	2139.3	2796.35	2798.63	2.28	2798.78	2799.4	0.01859	7.04	303.94	285.32	1.2
Dev. El Paso Wash	1	107	10 Yr	2139.3	2794	2796.06	2.06	2795.88	2796.76	0.01124	6.72	318.13	219.25	0.98
Dev. El Paso Wash	1	106	10 Yr	2139.3	2791	2793.49	2.49	2793.54	2794.07	0.015087	6.09	351.53	351.04	1.07
Dev. El Paso Wash	1	105	10 Yr	2139.3	2788	2790.55	2.55	2790.58	2791.27	0.012972	6.82	313.65	235.85	1.04
Dev. El Paso Wash	1	104	10 Yr	2139.3	2786	2787.93	1.93	2787.8	2788.34	0.009463	5.12	418.16	381.83	0.86
Dev. El Paso Wash	1	103	10 Yr	2139.3	2783.21	2785.58	2.37	2785.58	2786.13	0.012836	5.92	361.37	333.21	1
Dev. El Paso Wash	1	102	10 Yr	2139.3	2781	2783.26	2.26	2782.95	2783.68	0.006383	5.19	412.44	274.54	0.75
Dev. El Paso Wash	1	101	10 Yr	2139.3	2779.34	2781.34	2	2781.34	2781.9	0.01309	5.98	357.81	330.09	1.01
Dev. El Paso Wash	1	100	10 Yr	2139.3	2776	2778.5	2.5	2778.56	2779.08	0.015293	6.13	348.84	347.91	1.08
Dev. El Paso Wash	1	99	10 Yr	2139.3	2774	2775.72	1.72	2775.77	2776.32	0.014783	6.24	342.8	324.88	1.07
Dev. El Paso Wash	1	98	10 Yr	2139.3	2771	2772.57	1.57	2772.66	2773.37	0.014475	7.19	297.67	224.65	1.1
Dev. El Paso Wash	1	97	10 Yr	2139.3	2768.55	2770.56	2.01	2770.34	2771.07	0.007506	5.78	370.37	236.82	0.81
Dev. El Paso Wash	1	96	10 Yr	2139.3	2765.45	2768.48	3.03	2768.48	2769.17	0.012099	6.69	319.91	235.12	1.01
Dev. El Paso Wash	1	95	10 Yr	2139.3	2764	2765.21	1.21	2765.37	2765.91	0.023331	6.69	319.57	383.85	1.29
Dev. El Paso Wash	1	94	10 Yr	2139.3	2761.17	2763.25	2.08	2763.26	2763.78	0.013664	5.82	367.35	364.08	1.02
Dev. El Paso Wash	1	93	10 Yr	2139.3	2758	2760.44	2.44	2760.48	2760.95	0.015242	5.73	373.59	412.1	1.06
Dev. El Paso Wash	1	92	10 Yr	2139.3	2756	2758.17	2.17	2758.13	2758.58	0.011682	5.15	415.73	440.71	0.93
Dev. El Paso Wash	1	91	10 Yr	2139.3	2753	2755.53	2.53	2755.53	2756.07	0.013509	5.88	364.07	352.92	1.02
Dev. El Paso Wash	1	90	10 Yr	2139.3	2751	2752.97	1.97	2752.97	2753.42	0.012714	5.41	395.64	415.12	0.98
Dev. El Paso Wash	1	89	10 Yr	2139.3	2748.73	2750.23	1.5	2750.25	2750.71	0.014562	5.54	386.32	433.08	1.03
Dev. El Paso Wash	1	88	10 Yr	2139.3	2746	2748.2	2.2	2747.98	2748.59	0.007346	5.01	427.32	333.46	0.78
Dev. El Paso Wash	1	87	10 Yr	2139.3	2744	2746.25	2.25	2746.24	2746.68	0.012966	5.21	410.45	461.9	0.97
Dev. El Paso Wash	1	86	10 Yr	2139.3	2741.62	2743.49	1.87	2743.49	2743.94	0.014547	5.36	398.95	468.95	1.02
Dev. El Paso Wash	1	85	10 Yr	2139.3	2738.1	2740.49	2.39	2740.36	2740.96	0.009075	5.47	390.82	312.64	0.86
Dev. El Paso Wash	1	84	10 Yr	2139.3	2736	2738.42	2.42	2738.39	2738.86	0.012103	5.32	402.4	417.35	0.95
Dev. El Paso Wash	1	83	10 Yr	2139.3	2734	2735.83	1.83	2735.83	2736.28	0.013762	5.41	395.4	439.94	1.01
Dev. El Paso Wash	1	82	10 Yr	2139.3	2732	2733.62	1.62	2733.49	2733.93	0.009298	4.48	477.15	524.47	0.83
Dev. El Paso Wash	1	81	10 Yr	2139.3	2728	2731.18	3.18	2731.18	2731.61	0.014615	5.25	407.63	496.59	1.02
Dev. El Paso Wash	1	80	10 Yr	2139.3	2726.32	2728.71	2.39	2728.62	2729.04	0.010415	4.63	462.18	527.22	0.87
Dev. El Paso Wash	1	79	10 Yr	2139.3	2724	2726.46	2.46	2726.41	2726.79	0.012084	4.63	462.35	589.94	0.92
Dev. El Paso Wash	1	78	10 Yr	2139.3	2722	2723.98	1.98	2723.98	2724.36	0.012267	4.89	437.1	518.32	0.94
Dev. El Paso Wash	1	77	10 Yr	2160	2719.31	2721.49	2.18	2721.26	2721.7	0.006064	3.67	589.14	635.37	0.67

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
South El Paso Wash - Post-development Conditions
10-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Dev. El Paso Wash	1	76	10 Yr	2160	2716.53	2719.43	2.9	2719.43	2719.94	0.013136	5.78	373.73	363.14	1
Dev. El Paso Wash	1	75	10 Yr	2160	2714	2717.19	3.19	2717.07	2717.5	0.009948	4.42	488.46	576	0.85
Dev. El Paso Wash	1	74	10 Yr	2160	2712	2714.67	2.67	2714.67	2715.17	0.013615	5.68	379.99	389.03	1.01
Dev. El Paso Wash	1	73	10 Yr	2160	2709.54	2712.25	2.71	2712.15	2712.63	0.010968	4.95	436	466.37	0.9
Dev. El Paso Wash	1	72	10 Yr	2160	2707.17	2709.74	2.57	2709.74	2710.26	0.012775	5.78	373.99	356.22	0.99
Dev. El Paso Wash	1	71	10 Yr	2160	2705	2707.83	2.83	2707.57	2708.23	0.00799	5.06	426.86	348.66	0.81
Dev. El Paso Wash	1	70	10 Yr	2160	2703.32	2705.76	2.44	2705.76	2706.2	0.013272	5.32	406.04	450.82	0.99
Dev. El Paso Wash	1	69	10 Yr	2160	2701.12	2703.81	2.69	2703.55	2704.07	0.007055	4.07	530.36	547.31	0.73
Dev. El Paso Wash	1	68	10 Yr	2160	2699.17	2701.69	2.52	2701.69	2702.11	0.014421	5.17	417.79	515.38	1.01
Dev. El Paso Wash	1	67	10 Yr	2160	2697.04	2699.5	2.46	2699.33	2699.92	0.008481	5.2	415.53	341.38	0.83
Dev. El Paso Wash	1	66	10 Yr	2160	2696	2697.99	1.99	2697.69	2698.44	0.006446	5.41	399.03	251.11	0.76
Dev. El Paso Wash	1	65	10 Yr	2160	2693	2695.71	2.71	2695.71	2696.76	0.010463	8.19	263.66	127.7	1
Dev. El Paso Wash	1	64	10 Yr	2160	2691	2694.18	3.18	2694.01	2694.6	0.008295	5.21	414.73	333.93	0.82
Dev. El Paso Wash	1	63	10 Yr	2327.7	2690	2691.94	1.94	2691.94	2692.61	0.011703	6.58	353.52	259.43	0.99
Dev. El Paso Wash	1	62	10 Yr	2327.7	2686	2688.06	2.06	2688.38	2689.2	0.026073	8.59	270.98	243.33	1.43
Dev. El Paso Wash	1	61	10 Yr	2327.7	2683	2686.17	3.17	2686.09	2686.55	0.011781	4.9	475.46	546.63	0.93
Dev. El Paso Wash	1	60	10 Yr	2327.7	2681	2683.54	2.54	2683.54	2684.04	0.013224	5.72	406.93	403.96	1
Dev. El Paso Wash	1	59	10 Yr	2327.7	2679	2681.12	2.12	2681.04	2681.48	0.010858	4.85	480.36	527.64	0.89
Dev. El Paso Wash	1	58.9*	10 Yr	2327.7	2678.7	2680.89	2.19	2680.8	2681.27	0.010786	4.9	474.76	509.86	0.9
Dev. El Paso Wash	1	58.8*	10 Yr	2327.7	2678.4	2680.64	2.24	2680.56	2681.04	0.011261	5.07	458.95	483.88	0.92
Dev. El Paso Wash	1	58.7*	10 Yr	2327.7	2678.1	2680.41	2.31	2680.33	2680.81	0.010913	5.08	458.44	471.34	0.91
Dev. El Paso Wash	1	58.6*	10 Yr	2327.7	2677.8	2680.14	2.34	2680.09	2680.58	0.011582	5.29	439.87	444.42	0.94
Dev. El Paso Wash	1	58.5*	10 Yr	2327.7	2677.5	2679.89	2.39	2679.85	2680.34	0.011692	5.41	430.16	423.29	0.95
Dev. El Paso Wash	1	58.4*	10 Yr	2327.7	2677.2	2679.63	2.43	2679.6	2680.1	0.011915	5.46	426.35	419.84	0.95
Dev. El Paso Wash	1	58.3*	10 Yr	2327.7	2676.9	2679.46	2.56	2679.35	2679.87	0.009582	5.1	456.15	422.09	0.87
Dev. El Paso Wash	1	58.2*	10 Yr	2327.7	2676.6	2679.32	2.72	0	2679.68	0.007731	4.8	484.67	413.45	0.78
Dev. El Paso Wash	1	58.1*	10 Yr	2327.7	2676.3	2679.25	2.95	0	2679.53	0.005428	4.19	554.94	443.44	0.66
Dev. El Paso Wash	1	58	10 Yr	2327.7	2676	2679.24	3.24	0	2679.42	0.003031	3.46	673.48	469.19	0.51
Dev. El Paso Wash	1	57.9*	10 Yr	2327.7	2675.8	2678.67	2.87	2678.67	2679.27	0.013093	6.2	375.71	324.88	1.02
Dev. El Paso Wash	1	57.8*	10 Yr	2327.7	2675.6	2678.29	2.69	2678.3	2679	0.012519	6.77	343.76	249.82	1.02
Dev. El Paso Wash	1	57.7*	10 Yr	2327.7	2675.4	2677.85	2.45	2677.97	2678.71	0.016292	7.42	313.76	241.69	1.15
Dev. El Paso Wash	1	57.6*	10 Yr	2327.7	2675.2	2677.67	2.47	2677.72	2678.43	0.014138	7	332.45	248.08	1.07
Dev. El Paso Wash	1	57.5*	10 Yr	2327.7	2675	2677.2	2.2	2677.37	2678.09	0.019599	7.58	307.21	268.54	1.25
Dev. El Paso Wash	1	57.4*	10 Yr	2327.7	2674.8	2677.08	2.28	2677.16	2677.8	0.014829	6.82	341.5	283.67	1.09
Dev. El Paso Wash	1	57.3*	10 Yr	2327.7	2674.6	2677.05	2.45	2676.95	2677.57	0.009718	5.82	400.04	307.07	0.9
Dev. El Paso Wash	1	57.2*	10 Yr	2327.7	2674.4	2676.87	2.47	2676.76	2677.37	0.009441	5.69	409.1	316.93	0.88
Dev. El Paso Wash	1	57.1*	10 Yr	2327.7	2674.2	2676.71	2.51	0	2677.17	0.009008	5.45	426.89	341.24	0.86
Dev. El Paso Wash	1	57	10 Yr	2327.7	2674	2676.49	2.49	2676.42	2676.98	0.010515	5.61	415.04	357.18	0.92
Dev. El Paso Wash	1	56.9*	10 Yr	2327.7	2673.8	2676.29	2.49	0	2676.78	0.009772	5.59	416.76	341.63	0.89
Dev. El Paso Wash	1	56.8*	10 Yr	2327.7	2673.61	2676.1	2.49	2675.98	2676.58	0.009392	5.61	415.01	328.16	0.88

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
South El Paso Wash - Post-development Conditions
10-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Dev. El Paso Wash	1	56.7*	10 Yr	2327.7	2673.41	2675.91	2.5	2675.79	2676.38	0.010114	5.53	420.57	358.68	0.9
Dev. El Paso Wash	1	56.6*	10 Yr	2327.7	2673.21	2675.73	2.52	0	2676.18	0.009079	5.37	433.14	356.06	0.86
Dev. El Paso Wash	1	56.5*	10 Yr	2327.7	2673.02	2675.56	2.54	2675.36	2675.99	0.009845	5.25	443.6	401.68	0.88
Dev. El Paso Wash	1	56.4*	10 Yr	2327.7	2672.82	2675.37	2.55	2675.23	2675.78	0.010002	5.15	452.38	426.93	0.88
Dev. El Paso Wash	1	56.3*	10 Yr	2327.7	2672.62	2675.17	2.55	2675.06	2675.57	0.010234	5.08	458.36	448.84	0.89
Dev. El Paso Wash	1	56.2*	10 Yr	2327.7	2672.42	2674.97	2.55	2674.88	2675.37	0.009817	5.04	461.51	442.57	0.87
Dev. El Paso Wash	1	56.1*	10 Yr	2327.7	2672.23	2674.79	2.56	0	2675.17	0.009362	5	465.81	437.12	0.85
Dev. El Paso Wash	1	56	10 Yr	2327.7	2672.03	2674.61	2.58	2674.48	2674.99	0.008758	4.92	473.27	432.58	0.83
Dev. El Paso Wash	1	55	10 Yr	2327.7	2670.93	2672.48	1.55	2672.44	2672.94	0.012025	5.44	428.26	427.66	0.96
Dev. El Paso Wash	1	54	10 Yr	2327.7	2668.49	2670.54	2.05	2670.38	2670.86	0.008716	4.53	514.11	530.39	0.81
Dev. El Paso Wash	1	53	10 Yr	2327.7	2666	2668.18	2.18	2668.18	2668.72	0.01315	5.87	396.43	376.93	1.01
Dev. El Paso Wash	1	52	10 Yr	2327.7	2663	2665.93	2.93	2665.67	2666.29	0.007733	4.8	485.06	418.93	0.79
Dev. El Paso Wash	1	51	10 Yr	2327.7	2661.32	2663.79	2.47	2663.79	2664.22	0.014426	5.23	444.87	538.93	1.01
Dev. El Paso Wash	1	50	10 Yr	2327.7	2659.53	2661.66	2.13	2661.47	2661.93	0.0074	4.17	558.35	576.48	0.75
Dev. El Paso Wash	1	49	10 Yr	2327.7	2657	2659.5	2.5	2659.5	2659.98	0.013105	5.59	416.22	424.64	1
Dev. El Paso Wash	1	48	10 Yr	2327.7	2655	2657.48	2.48	2657.04	2657.78	0.004459	4.38	531.58	348.79	0.63
Dev. El Paso Wash	1	47	10 Yr	2327.7	2653	2655.81	2.81	2655.81	2656.32	0.013471	5.75	404.65	404.13	1.01
Dev. El Paso Wash	1	46	10 Yr	2327.7	2651	2653.34	2.34	2653.2	2653.93	0.009222	6.19	376.27	253.52	0.89
Dev. El Paso Wash	1	45	10 Yr	2327.7	2649	2651.78	2.78	2651.61	2652.12	0.008133	4.69	496.81	462.2	0.8
Dev. El Paso Wash	1	44	10 Yr	2327.7	2647	2649.56	2.56	2649.56	2650.07	0.013069	5.7	408.06	403.36	1
Dev. El Paso Wash	1	43	10 Yr	2327.7	2645	2647.35	2.35	2646.87	2647.74	0.006886	5.06	459.73	335.67	0.76
Dev. El Paso Wash	1	42	10 Yr	2327.7	2642.49	2645.7	3.21	2645.54	2646.18	0.008819	5.56	418.69	319.79	0.86
Dev. El Paso Wash	1	41	10 Yr	2327.7	2640.63	2643.58	2.95	2643.57	2644.12	0.012225	5.88	395.57	354.63	0.98
Dev. El Paso Wash	1	40	10 Yr	2327.7	2639	2642.09	3.09	0	2642.47	0.005658	4.96	469.77	305.85	0.7
Dev. El Paso Wash	1	39	10 Yr	2355	2638	2640.26	2.26	2640.22	2640.89	0.01111	6.37	369.7	273.82	0.97
Dev. El Paso Wash	1	38	10 Yr	2355	2635.72	2638.58	2.86	0	2639.02	0.007584	5.32	442.99	323.24	0.8
Dev. El Paso Wash	1	37	10 Yr	2355	2634	2636.57	2.57	2636.54	2637.14	0.011713	6.06	388.72	323.26	0.97
Dev. El Paso Wash	1	36	10 Yr	2355	2632	2634.79	2.79	0	2635.19	0.007824	5.06	464.99	373.9	0.8
Dev. El Paso Wash	1	35	10 Yr	2355	2630	2632.77	2.77	2632.72	2633.32	0.011203	5.98	394.1	323.39	0.95
Dev. El Paso Wash	1	34	10 Yr	2355	2628	2630.95	2.95	0	2631.37	0.008249	5.16	456.29	370.79	0.82
Dev. El Paso Wash	1	33	10 Yr	2355	2626	2629.54	3.54	0	2629.91	0.006412	4.88	482.64	353.22	0.74
Dev. El Paso Wash	1	32	10 Yr	2355	2625	2627.76	2.76	2627.72	2628.23	0.011191	5.51	427.34	395.82	0.93
Dev. El Paso Wash	1	31	10 Yr	2355	2623	2625.7	2.7	2625.61	2626.11	0.009924	5.19	453.59	420	0.88
Dev. El Paso Wash	1	30	10 Yr	2355	2621.57	2623.62	2.05	2623.53	2624.05	0.010624	5.28	445.82	423.4	0.91
Dev. El Paso Wash	1	29	10 Yr	2355	2620	2621.62	1.62	2621.51	2622	0.009722	4.98	473.33	460.27	0.86
Dev. El Paso Wash	1	28	10 Yr	2355	2618	2619.64	1.64	2619.53	2620.06	0.009638	5.22	451.53	406.37	0.87
Dev. El Paso Wash	1	27	10 Yr	2355	2616	2617.75	1.75	2617.62	2618.17	0.009363	5.22	451.43	397.45	0.86
Dev. El Paso Wash	1	26	10 Yr	2355	2614	2615.87	1.87	2615.75	2616.29	0.009535	5.2	452.86	406.13	0.87
Dev. El Paso Wash	1	25	10 Yr	2355	2612	2614.23	2.23	0	2614.59	0.007429	4.85	485.71	401.17	0.78
Dev. El Paso Wash	1	24	10 Yr	2355	2610	2612.12	2.12	2612.1	2612.65	0.012832	5.89	399.89	371.79	1

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
South El Paso Wash - Post-development Conditions
10-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Dev. El Paso Wash	1	23	10 Yr	2355	2608.22	2610.38	2.16	0	2610.7	0.007239	4.57	515	455.59	0.76
Dev. El Paso Wash	1	22	10 Yr	2355	2606	2608.29	2.29	2608.29	2608.77	0.013373	5.58	422.41	439.7	1
Dev. El Paso Wash	1	21	10 Yr	2355	2604	2606.37	2.37	2606.18	2606.74	0.007688	4.84	486.3	412.58	0.79
Dev. El Paso Wash	1	20	10 Yr	2355	2602	2605.31	3.31	0	2605.59	0.004277	4.22	557.96	374.9	0.61
Dev. El Paso Wash	1	19	10 Yr	2383.9	2600.56	2603.64	3.08	2603.64	2604.18	0.012963	5.93	401.79	372.03	1.01
Dev. El Paso Wash	1	18	10 Yr	2383.9	2600	2602.15	2.15	2601.83	2602.36	0.005415	3.69	645.9	633.67	0.64
Dev. El Paso Wash	1	17	10 Yr	2383.9	2598.55	2600.24	1.69	2600.24	2600.69	0.014237	5.37	443.99	512.4	1.02
Dev. El Paso Wash	1	16	10 Yr	2383.9	2595	2598.42	3.42	2598	2598.77	0.005136	4.7	507.11	332.02	0.67
Dev. El Paso Wash	1	15	10 Yr	2383.9	2594	2596.86	2.86	2596.75	2597.34	0.010529	5.51	432.26	381.77	0.91
Dev. El Paso Wash	1	14	10 Yr	2383.9	2593	2595.17	2.17	0	2595.59	0.007241	5.19	458.93	334.8	0.78
Dev. El Paso Wash	1	13	10 Yr	2383.9	2591	2593.66	2.66	2593.52	2594.01	0.008431	4.73	504.04	474.58	0.81
Dev. El Paso Wash	1	12	10 Yr	2383.9	2589	2591.77	2.77	2591.68	2592.16	0.01024	5.01	475.54	475.07	0.88
Dev. El Paso Wash	1	11	10 Yr	2383.9	2587	2590.01	3.01	0	2590.33	0.007978	4.51	528.84	513.54	0.78
Dev. El Paso Wash	1	10	10 Yr	2383.9	2585	2588.05	3.05	2587.95	2588.47	0.010941	5.18	459.78	458.73	0.91
Dev. El Paso Wash	1	9	10 Yr	2383.9	2583	2586.45	3.45	0	2586.82	0.006331	4.88	488.54	354.11	0.73
Dev. El Paso Wash	1	8	10 Yr	2383.9	2581.49	2584.88	3.39	2584.76	2585.24	0.010132	4.86	490.49	509.38	0.87
Dev. El Paso Wash	1	7	10 Yr	2383.9	2579	2582.91	3.91	2582.76	2583.25	0.009727	4.74	502.87	525.58	0.85
Dev. El Paso Wash	1	6	10 Yr	2383.9	2578	2581.06	3.06	2580.91	2581.35	0.00908	4.37	545.96	613.01	0.82
Dev. El Paso Wash	1	5	10 Yr	2383.9	2577	2578.9	1.9	2578.87	2579.27	0.011934	4.85	491.79	579.84	0.93
Dev. El Paso Wash	1	4	10 Yr	2383.9	2574	2576.86	2.86	2576.71	2577.21	0.008931	4.73	503.54	494.77	0.83
Dev. El Paso Wash	1	3	10 Yr	2383.9	2572	2574.53	2.53	2574.53	2574.97	0.014213	5.31	449	526.19	1.01
Dev. El Paso Wash	1	2	10 Yr	2383.9	2570	2572.74	2.74	2572.49	2573.01	0.006151	4.12	578.44	529	0.69
Dev. El Paso Wash	1	1	10 Yr	2383.9	2569	2570.77	1.77	2570.77	2571.3	0.012069	6	422.4	406.23	0.98

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
South El Paso Wash - Post-development Conditions
25-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Dev. El Paso Wash	1	116	25 Yr	3604.7	2819.35	2821.96	2.61	2822.06	2822.67	0.014996	6.75	533.8	454.03	1.1
Dev. El Paso Wash	1	115	25 Yr	3604.7	2816.92	2819.11	2.19	2819.14	2819.71	0.014309	6.2	581.54	543.17	1.06
Dev. El Paso Wash	1	114	25 Yr	3604.7	2814	2816.3	2.3	2816.33	2816.89	0.013889	6.16	585.34	539.94	1.04
Dev. El Paso Wash	1	113	25 Yr	3604.7	2811	2813.44	2.44	2813.48	2814.09	0.014015	6.47	557.57	481.38	1.06
Dev. El Paso Wash	1	112	25 Yr	3604.7	2808	2810.79	2.79	2810.79	2811.37	0.013109	6.08	592.66	533.41	1.02
Dev. El Paso Wash	1	111	25 Yr	3604.7	2806	2808.16	2.16	2808.18	2808.8	0.013341	6.39	563.88	477.08	1.04
Dev. El Paso Wash	1	110	25 Yr	3604.7	2803	2804.99	1.99	2805.11	2805.75	0.017399	7	514.65	463.52	1.17
Dev. El Paso Wash	1	109	25 Yr	3604.7	2800.49	2802.43	1.94	2802.43	2803.09	0.01235	6.48	556.37	435.55	1.01
Dev. El Paso Wash	1	108	25 Yr	3604.7	2796.35	2799.14	2.79	2799.37	2800.07	0.018464	7.74	465.5	376.86	1.23
Dev. El Paso Wash	1	107	25 Yr	3604.7	2794	2796.81	2.81	2796.81	2797.36	0.012641	5.96	604.72	545.62	1
Dev. El Paso Wash	1	106	25 Yr	3604.7	2791	2794.1	3.1	2794.13	2794.62	0.014827	5.75	627.18	673.75	1.05
Dev. El Paso Wash	1	105	25 Yr	3604.7	2788	2791.32	3.32	2791.32	2791.85	0.013013	5.85	616.13	584.56	1
Dev. El Paso Wash	1	104	25 Yr	3604.7	2786	2788.17	2.17	2788.3	2788.93	0.016356	7	515.22	443.42	1.14
Dev. El Paso Wash	1	103	25 Yr	3604.7	2783.21	2786.12	2.91	2786.12	2786.77	0.011889	6.43	560.71	431.37	0.99
Dev. El Paso Wash	1	102	25 Yr	3604.7	2781	2783.74	2.74	2783.52	2784.41	0.007667	6.55	550.7	296.65	0.85
Dev. El Paso Wash	1	101	25 Yr	3604.7	2779.34	2781.86	2.52	2781.86	2782.5	0.012185	6.41	562.45	443.04	1
Dev. El Paso Wash	1	100	25 Yr	3604.7	2776	2778.89	2.89	2779.01	2779.74	0.015065	7.38	488.68	365.3	1.12
Dev. El Paso Wash	1	99	25 Yr	3604.7	2774	2776.23	2.23	2776.25	2776.95	0.012664	6.82	528.71	390.74	1.03
Dev. El Paso Wash	1	98	25 Yr	3604.7	2771	2773.17	2.17	2773.35	2774.18	0.01488	8.09	445.52	287.37	1.15
Dev. El Paso Wash	1	97	25 Yr	3604.7	2768.55	2771.4	2.85	2771.24	2771.83	0.007937	5.24	688.18	531.68	0.81
Dev. El Paso Wash	1	96	25 Yr	3604.7	2765.45	2769.21	3.76	2769.21	2769.81	0.012889	6.21	580.7	500.5	1.02
Dev. El Paso Wash	1	95	25 Yr	3604.7	2764	2765.57	1.57	2765.78	2766.52	0.021118	7.84	459.92	404.65	1.3
Dev. El Paso Wash	1	94	25 Yr	3604.7	2761.17	2763.69	2.52	2763.71	2764.4	0.012173	6.78	531.64	384.58	1.02
Dev. El Paso Wash	1	93	25 Yr	3604.7	2758	2760.73	2.73	2760.87	2761.56	0.017348	7.3	493.54	416.41	1.18
Dev. El Paso Wash	1	92	25 Yr	3604.7	2756	2758.51	2.51	2758.51	2759.14	0.011979	6.36	566.74	445.47	0.99
Dev. El Paso Wash	1	91	25 Yr	3604.7	2753	2756.02	3.02	2756.02	2756.67	0.012776	6.44	559.49	453.01	1.02
Dev. El Paso Wash	1	90	25 Yr	3604.7	2751	2753.3	2.3	2753.36	2753.93	0.015195	6.38	564.71	528.06	1.09
Dev. El Paso Wash	1	89	25 Yr	3604.7	2748.73	2750.54	1.81	2750.63	2751.28	0.015673	6.9	522.15	444.36	1.12
Dev. El Paso Wash	1	88	25 Yr	3604.7	2746	2748.62	2.62	2748.45	2749.24	0.008455	6.31	570.86	349.39	0.87
Dev. El Paso Wash	1	87	25 Yr	3604.7	2744	2746.61	2.61	2746.61	2747.21	0.012443	6.25	576.38	478.43	1
Dev. El Paso Wash	1	86	25 Yr	3604.7	2741.62	2743.8	2.18	2743.87	2744.48	0.015071	6.62	544.57	479.26	1.09
Dev. El Paso Wash	1	85	25 Yr	3604.7	2738.1	2740.96	2.86	2740.86	2741.64	0.009565	6.64	543.24	338.71	0.92
Dev. El Paso Wash	1	84	25 Yr	3604.7	2736	2738.79	2.79	2738.79	2739.42	0.012862	6.36	566.6	469.86	1.02
Dev. El Paso Wash	1	83	25 Yr	3604.7	2734	2736.22	2.22	2736.24	2736.82	0.013167	6.2	581.11	509.49	1.02
Dev. El Paso Wash	1	82	25 Yr	3604.7	2732	2733.97	1.97	2733.86	2734.41	0.009797	5.32	677.9	599.94	0.88
Dev. El Paso Wash	1	81	25 Yr	3604.7	2728	2731.52	3.52	2731.52	2732.13	0.013331	6.22	579.53	510.71	1.03
Dev. El Paso Wash	1	80	25 Yr	3604.7	2726.32	2729.05	2.73	2728.98	2729.52	0.011138	5.51	653.87	603.48	0.93
Dev. El Paso Wash	1	79	25 Yr	3604.7	2724	2726.78	2.78	2726.74	2727.25	0.011673	5.5	655.62	629.27	0.95
Dev. El Paso Wash	1	78	25 Yr	3604.7	2722	2724.32	2.32	2724.32	2724.77	0.013156	5.41	666.27	716.47	0.99
Dev. El Paso Wash	1	77	25 Yr	3626.6	2719.31	2721.88	2.57	2721.57	2722.16	0.005834	4.25	853.97	717.65	0.69

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
South El Paso Wash - Post-development Conditions
25-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Dev. El Paso Wash	1	76	25 Yr	3626.6	2716.53	2719.96	3.43	2719.96	2720.49	0.012632	5.85	619.44	573.54	0.99
Dev. El Paso Wash	1	75	25 Yr	3626.6	2714	2717.54	3.54	2717.41	2717.96	0.009548	5.17	701.63	634.86	0.87
Dev. El Paso Wash	1	74	25 Yr	3626.6	2712	2715.16	3.16	2715.16	2715.74	0.012885	6.11	593.52	523.24	1.01
Dev. El Paso Wash	1	73	25 Yr	3626.6	2709.54	2712.66	3.12	2712.61	2713.13	0.011235	5.51	657.9	610.5	0.94
Dev. El Paso Wash	1	72	25 Yr	3626.6	2707.17	2710.25	3.08	2710.23	2710.86	0.011318	6.27	578.1	444.2	0.97
Dev. El Paso Wash	1	71	25 Yr	3626.6	2705	2708.35	3.35	2708.2	2708.82	0.008886	5.48	662.15	520.33	0.86
Dev. El Paso Wash	1	70	25 Yr	3626.6	2703.32	2706.15	2.83	2706.15	2706.72	0.0124	6.08	596.26	514.59	1
Dev. El Paso Wash	1	69	25 Yr	3626.6	2701.12	2704.14	3.02	2703.96	2704.54	0.00769	5.07	715.46	567.26	0.8
Dev. El Paso Wash	1	68	25 Yr	3626.6	2699.17	2702.06	2.89	2702.06	2702.61	0.012284	5.96	608.9	538.59	0.99
Dev. El Paso Wash	1	67	25 Yr	3626.6	2697.04	2700.18	3.14	2699.83	2700.63	0.006019	5.39	673.45	405.74	0.74
Dev. El Paso Wash	1	66	25 Yr	3626.6	2696	2699.13	3.13	2698.34	2699.45	0.005447	4.51	804.07	586.37	0.68
Dev. El Paso Wash	1	65	25 Yr	3626.6	2693	2696.72	3.72	2696.72	2697.94	0.009697	8.86	409.34	166.5	1
Dev. El Paso Wash	1	64	25 Yr	3626.6	2691	2694.29	3.29	2694.5	2695.29	0.018084	8.02	452.32	342.09	1.23
Dev. El Paso Wash	1	63	25 Yr	3831.4	2690	2692.5	2.5	2692.5	2693.39	0.010597	7.56	506.72	280.47	0.99
Dev. El Paso Wash	1	62	25 Yr	3831.4	2686	2688.46	2.46	2689.09	2690.11	0.02714	10.29	372.37	262.84	1.52
Dev. El Paso Wash	1	61	25 Yr	3831.4	2683	2686.5	3.5	2686.47	2687.02	0.011668	5.82	658.81	580.81	0.96
Dev. El Paso Wash	1	60	25 Yr	3831.4	2681	2684.06	3.06	2684.06	2684.58	0.012727	5.78	663.3	630.67	0.99
Dev. El Paso Wash	1	59	25 Yr	3831.4	2679	2681.46	2.46	2681.39	2681.98	0.010577	5.78	662.63	547.52	0.93
Dev. El Paso Wash	1	58.9*	25 Yr	3831.4	2678.7	2681.24	2.54	2681.17	2681.76	0.010745	5.81	659.14	546.82	0.93
Dev. El Paso Wash	1	58.8*	25 Yr	3831.4	2678.4	2681.03	2.63	2680.94	2681.55	0.010436	5.77	664.58	546.11	0.92
Dev. El Paso Wash	1	58.7*	25 Yr	3831.4	2678.1	2680.79	2.69	2680.74	2681.33	0.010868	5.85	654.75	542.4	0.94
Dev. El Paso Wash	1	58.6*	25 Yr	3831.4	2677.8	2680.59	2.79	2680.5	2681.11	0.010526	5.81	659.96	540.13	0.93
Dev. El Paso Wash	1	58.5*	25 Yr	3831.4	2677.5	2680.33	2.83	2680.28	2680.88	0.011064	5.96	642.35	524.03	0.95
Dev. El Paso Wash	1	58.4*	25 Yr	3831.4	2677.2	2680.11	2.91	2680.02	2680.66	0.010679	5.97	642.26	510.07	0.94
Dev. El Paso Wash	1	58.3*	25 Yr	3831.4	2676.9	2679.98	3.08	0	2680.45	0.008121	5.54	692.01	500.51	0.83
Dev. El Paso Wash	1	58.2*	25 Yr	3831.4	2676.6	2679.86	3.26	0	2680.29	0.006758	5.25	729.8	491.22	0.76
Dev. El Paso Wash	1	58.1*	25 Yr	3831.4	2676.3	2679.81	3.51	0	2680.15	0.004869	4.67	820.69	513.6	0.65
Dev. El Paso Wash	1	58	25 Yr	3831.4	2676	2679.8	3.8	0	2680.05	0.003046	3.98	961.69	542.55	0.53
Dev. El Paso Wash	1	57.9*	25 Yr	3831.4	2675.8	2679.55	3.75	2679.21	2679.95	0.006292	5.09	753.23	503.93	0.73
Dev. El Paso Wash	1	57.8*	25 Yr	3831.4	2675.6	2678.95	3.35	2678.95	2679.74	0.011597	7.13	537.35	341.46	1
Dev. El Paso Wash	1	57.7*	25 Yr	3831.4	2675.4	2678.51	3.11	2678.64	2679.47	0.014193	7.88	486.28	308.7	1.11
Dev. El Paso Wash	1	57.6*	25 Yr	3831.4	2675.2	2678.24	3.04	2678.36	2679.22	0.013894	7.93	483.01	294.09	1.09
Dev. El Paso Wash	1	57.5*	25 Yr	3831.4	2675	2677.65	2.65	2677.91	2678.88	0.018043	8.92	429.54	275.91	1.26
Dev. El Paso Wash	1	57.4*	25 Yr	3831.4	2674.8	2677.6	2.8	2677.65	2678.54	0.012487	7.77	492.98	294.82	1.06
Dev. El Paso Wash	1	57.3*	25 Yr	3831.4	2674.6	2677.5	2.9	2677.44	2678.28	0.009974	7.05	543.46	318.93	0.95
Dev. El Paso Wash	1	57.2*	25 Yr	3831.4	2674.4	2677.36	2.96	2677.24	2678.07	0.009013	6.75	568.02	328.28	0.9
Dev. El Paso Wash	1	57.1*	25 Yr	3831.4	2674.2	2677.25	3.05	2677.03	2677.85	0.009201	6.23	614.89	408.82	0.9
Dev. El Paso Wash	1	57	25 Yr	3831.4	2674	2677.07	3.07	2676.99	2677.64	0.010544	6.06	631.79	484.66	0.94
Dev. El Paso Wash	1	56.9*	25 Yr	3831.4	2673.8	2676.85	3.05	2676.79	2677.41	0.011237	6.02	636.73	518.47	0.96
Dev. El Paso Wash	1	56.8*	25 Yr	3831.4	2673.61	2676.62	3.01	2676.58	2677.19	0.011358	6.08	630.11	509.23	0.96

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
South El Paso Wash - Post-development Conditions
25-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Dev. El Paso Wash	1	56.7*	25 Yr	3831.4	2673.41	2676.39	2.98	2676.35	2676.97	0.01121	6.11	626.91	497.84	0.96
Dev. El Paso Wash	1	56.6*	25 Yr	3831.4	2673.21	2676.17	2.96	2676.13	2676.75	0.010926	6.12	626.31	487.21	0.95
Dev. El Paso Wash	1	56.5*	25 Yr	3831.4	2673.02	2675.96	2.94	2675.91	2676.54	0.010611	6.1	627.82	479.48	0.94
Dev. El Paso Wash	1	56.4*	25 Yr	3831.4	2672.82	2675.76	2.94	2675.68	2676.33	0.010108	6.05	633.46	472.79	0.92
Dev. El Paso Wash	1	56.3*	25 Yr	3831.4	2672.62	2675.57	2.95	2675.47	2676.12	0.009731	6	638.93	469.49	0.91
Dev. El Paso Wash	1	56.2*	25 Yr	3831.4	2672.42	2675.38	2.96	2675.26	2675.93	0.009377	5.93	645.97	469.32	0.89
Dev. El Paso Wash	1	56.1*	25 Yr	3831.4	2672.23	2675.21	2.98	2675.07	2675.74	0.00892	5.85	655.42	468.73	0.87
Dev. El Paso Wash	1	56	25 Yr	3831.4	2672.03	2675.04	3.01	2674.88	2675.55	0.008443	5.73	668.91	473.33	0.85
Dev. El Paso Wash	1	55	25 Yr	3831.4	2670.93	2672.83	1.9	2672.83	2673.5	0.012577	6.54	585.76	458.26	1.02
Dev. El Paso Wash	1	54	25 Yr	3831.4	2668.49	2670.88	2.39	2670.74	2671.35	0.008701	5.47	700.35	543.28	0.85
Dev. El Paso Wash	1	53	25 Yr	3831.4	2666	2668.64	2.64	2668.64	2669.29	0.012111	6.49	590.74	454.81	1
Dev. El Paso Wash	1	52	25 Yr	3831.4	2663	2666.3	3.3	2666.18	2666.84	0.009148	5.89	650.81	469.19	0.88
Dev. El Paso Wash	1	51	25 Yr	3831.4	2661.32	2664.17	2.85	2664.17	2664.68	0.012976	5.73	668.33	652.13	1
Dev. El Paso Wash	1	50	25 Yr	3831.4	2659.53	2662.03	2.5	2661.81	2662.41	0.007152	4.96	772.71	599.47	0.77
Dev. El Paso Wash	1	49	25 Yr	3831.4	2657	2659.89	2.89	2659.89	2660.55	0.012069	6.53	586.5	445.54	1
Dev. El Paso Wash	1	48	25 Yr	3831.4	2655	2657.89	2.89	2657.5	2658.39	0.005675	5.67	675.51	360.2	0.73
Dev. El Paso Wash	1	47	25 Yr	3831.4	2653	2656.3	3.3	2656.24	2656.86	0.010786	6.01	637.26	504.14	0.94
Dev. El Paso Wash	1	46	25 Yr	3831.4	2651	2653.97	2.97	2653.95	2654.66	0.01107	6.64	577.19	401.32	0.98
Dev. El Paso Wash	1	45	25 Yr	3831.4	2649	2652.16	3.16	2652	2652.66	0.008624	5.67	675.66	493.31	0.85
Dev. El Paso Wash	1	44	25 Yr	3831.4	2647	2649.99	2.99	2649.99	2650.65	0.011715	6.52	588.02	438.62	0.99
Dev. El Paso Wash	1	43	25 Yr	3831.4	2645	2647.94	2.94	2647.6	2648.44	0.006185	5.67	675.4	383.55	0.75
Dev. El Paso Wash	1	42	25 Yr	3831.4	2642.49	2646.13	3.64	2646.06	2646.85	0.010165	6.84	559.75	348.11	0.95
Dev. El Paso Wash	1	41	25 Yr	3831.4	2640.63	2644.06	3.43	2644	2644.76	0.010662	6.71	571.21	379.76	0.96
Dev. El Paso Wash	1	40	25 Yr	3831.4	2639	2642.67	3.67	0	2643.2	0.005609	5.85	655.43	330.88	0.73
Dev. El Paso Wash	1	39	25 Yr	3854.4	2638	2640.77	2.77	2640.77	2641.64	0.01098	7.46	516.4	298.87	1
Dev. El Paso Wash	1	38	25 Yr	3854.4	2635.72	2639.06	3.34	2638.85	2639.69	0.007824	6.38	603.84	342.72	0.85
Dev. El Paso Wash	1	37	25 Yr	3854.4	2634	2637.02	3.02	2637.02	2637.82	0.011352	7.19	536.06	336.7	1
Dev. El Paso Wash	1	36	25 Yr	3854.4	2632	2635.27	3.27	2635.03	2635.82	0.007455	5.96	647.01	393.28	0.82
Dev. El Paso Wash	1	35	25 Yr	3854.4	2630	2633.24	3.24	2633.24	2633.96	0.011753	6.78	568.3	399.85	1
Dev. El Paso Wash	1	34	25 Yr	3854.4	2628	2631.5	3.5	2631.25	2631.99	0.006957	5.61	687.6	434.49	0.79
Dev. El Paso Wash	1	33	25 Yr	3854.4	2626	2630.16	4.16	0	2630.59	0.00684	5.25	733.88	505	0.77
Dev. El Paso Wash	1	32	25 Yr	3854.4	2625	2628.14	3.14	2628.13	2628.82	0.01156	6.65	579.85	415.41	0.99
Dev. El Paso Wash	1	31	25 Yr	3854.4	2623	2626.1	3.1	2626	2626.68	0.009685	6.15	627.02	442.5	0.91
Dev. El Paso Wash	1	30	25 Yr	3854.4	2621.57	2623.98	2.41	2623.93	2624.62	0.011026	6.4	602.18	440.86	0.97
Dev. El Paso Wash	1	29	25 Yr	3854.4	2620	2621.99	1.99	2621.89	2622.54	0.009648	5.94	648.93	480.99	0.9
Dev. El Paso Wash	1	28	25 Yr	3854.4	2618	2620.06	2.06	2619.94	2620.65	0.00922	6.14	628.09	428.43	0.89
Dev. El Paso Wash	1	27	25 Yr	3854.4	2616	2618.17	2.17	2618.07	2618.75	0.009774	6.09	632.58	455.66	0.91
Dev. El Paso Wash	1	26	25 Yr	3854.4	2614	2616.3	2.3	2616.16	2616.87	0.009056	6.08	633.71	432.24	0.89
Dev. El Paso Wash	1	25	25 Yr	3854.4	2612	2614.64	2.64	0	2615.18	0.007844	5.9	653.08	418.34	0.83
Dev. El Paso Wash	1	24	25 Yr	3854.4	2610	2612.55	2.55	2612.55	2613.27	0.01167	6.78	568.32	398.17	1

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
South El Paso Wash - Post-development Conditions
25-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Dev. El Paso Wash	1	23	25 Yr	3854.4	2608.22	2610.77	2.55	2610.56	2611.24	0.007693	5.47	704.82	498.97	0.81
Dev. El Paso Wash	1	22	25 Yr	3854.4	2606	2608.69	2.69	2608.69	2609.3	0.012367	6.26	616.2	508.99	1
Dev. El Paso Wash	1	21	25 Yr	3854.4	2604	2606.88	2.88	2606.58	2607.35	0.006536	5.53	697.18	429.27	0.76
Dev. El Paso Wash	1	20	25 Yr	3854.4	2602	2605.83	3.83	0	2606.23	0.004671	5.06	761.59	416.33	0.66
Dev. El Paso Wash	1	19	25 Yr	3890.1	2600.56	2604.09	3.53	2604.09	2604.79	0.011779	6.71	579.45	414.88	1
Dev. El Paso Wash	1	18	25 Yr	3890.1	2600	2602.53	2.53	2602.17	2602.82	0.005488	4.36	893.17	690.42	0.67
Dev. El Paso Wash	1	17	25 Yr	3890.1	2598.55	2600.59	2.04	2600.59	2601.19	0.012799	6.19	628.38	540.78	1.01
Dev. El Paso Wash	1	16	25 Yr	3890.1	2595	2598.86	3.86	2598.53	2599.4	0.006378	5.91	658.22	359.58	0.77
Dev. El Paso Wash	1	15	25 Yr	3890.1	2594	2597.39	3.39	2597.25	2597.91	0.008835	5.8	671.03	482.23	0.87
Dev. El Paso Wash	1	14	25 Yr	3890.1	2593	2595.64	2.64	0	2596.23	0.007894	6.22	625.9	372.14	0.84
Dev. El Paso Wash	1	13	25 Yr	3890.1	2591	2594	3	2593.88	2594.53	0.009001	5.85	665.28	478.5	0.87
Dev. El Paso Wash	1	12	25 Yr	3890.1	2589	2592.15	3.15	2592.06	2592.69	0.009459	5.87	663.1	492.94	0.89
Dev. El Paso Wash	1	11	25 Yr	3890.1	2587	2590.31	3.31	2590.2	2590.81	0.009193	5.68	684.99	523.11	0.87
Dev. El Paso Wash	1	10	25 Yr	3890.1	2585	2588.51	3.51	2588.36	2589.02	0.00878	5.76	675.69	488.52	0.86
Dev. El Paso Wash	1	9	25 Yr	3890.1	2583	2586.89	3.89	2586.63	2587.45	0.00706	6	648.22	373.84	0.8
Dev. El Paso Wash	1	8	25 Yr	3890.1	2581.49	2585.21	3.72	2585.14	2585.74	0.010389	5.84	666.4	535.74	0.92
Dev. El Paso Wash	1	7	25 Yr	3890.1	2579	2583.27	4.27	2583.15	2583.74	0.009472	5.5	707.28	579.87	0.88
Dev. El Paso Wash	1	6	25 Yr	3890.1	2578	2581.34	3.34	2581.24	2581.79	0.010018	5.41	719.57	631.33	0.89
Dev. El Paso Wash	1	5	25 Yr	3890.1	2577	2579.25	2.25	2579.17	2579.73	0.010454	5.58	696.6	601.43	0.91
Dev. El Paso Wash	1	4	25 Yr	3890.1	2574	2577.22	3.22	2577.13	2577.7	0.009825	5.51	705.77	593.02	0.89
Dev. El Paso Wash	1	3	25 Yr	3890.1	2572	2574.88	2.88	2574.88	2575.47	0.012576	6.16	631.08	539.26	1
Dev. El Paso Wash	1	2	25 Yr	3890.1	2570	2573.17	3.17	2572.85	2573.52	0.00586	4.76	816.72	579.65	0.71
Dev. El Paso Wash	1	1	25 Yr	3890.1	2569	2571.18	2.18	2571.18	2571.91	0.011221	7.04	588.72	408.66	0.99

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
South El Paso Wash - Post-development Conditions
100-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Dev. El Paso Wash	1	116	100 Yr	6681.2	2819.35	2822.51	3.16	2822.68	2823.58	0.015005	8.3	805.42	503.38	1.16
Dev. El Paso Wash	1	115	100 Yr	6681.2	2816.92	2819.61	2.69	2819.76	2820.53	0.015108	7.71	866.87	608.21	1.14
Dev. El Paso Wash	1	114	100 Yr	6681.2	2814	2816.84	2.84	2816.89	2817.69	0.013166	7.4	902.35	606.5	1.07
Dev. El Paso Wash	1	113	100 Yr	6681.2	2811	2814	3	2814.12	2814.94	0.014366	7.76	861.03	575.92	1.12
Dev. El Paso Wash	1	112	100 Yr	6681.2	2808	2811.31	3.31	2811.36	2812.21	0.012953	7.62	876.73	557.58	1.07
Dev. El Paso Wash	1	111	100 Yr	6681.2	2806	2808.76	2.76	2808.82	2809.68	0.012447	7.69	869.16	529.36	1.06
Dev. El Paso Wash	1	110	100 Yr	6681.2	2803	2805.5	2.5	2805.75	2806.71	0.017657	8.84	755.87	485.51	1.25
Dev. El Paso Wash	1	109	100 Yr	6681.2	2800.49	2803.11	2.62	2803.11	2804.01	0.011122	7.58	880.85	503.22	1.01
Dev. El Paso Wash	1	108	100 Yr	6681.2	2796.35	2799.75	3.4	2800.1	2801.01	0.020677	9.01	741.33	520.44	1.33
Dev. El Paso Wash	1	107	100 Yr	6681.2	2794	2797.38	3.38	2797.39	2798.07	0.011956	6.64	1005.88	740.13	1
Dev. El Paso Wash	1	106	100 Yr	6681.2	2791	2794.51	3.51	2794.62	2795.36	0.015384	7.37	906.34	689.07	1.13
Dev. El Paso Wash	1	105	100 Yr	6681.2	2788	2791.86	3.86	2791.88	2792.62	0.012061	6.99	955.19	654.77	1.02
Dev. El Paso Wash	1	104	100 Yr	6681.2	2786	2788.74	2.74	2788.95	2789.81	0.01622	8.3	804.96	532.83	1.19
Dev. El Paso Wash	1	103	100 Yr	6681.2	2783.21	2786.78	3.57	2786.78	2787.74	0.010801	7.84	852.37	453.23	1.01
Dev. El Paso Wash	1	102	100 Yr	6681.2	2781	2784.43	3.43	2784.46	2785.6	0.010403	8.68	769.62	341.22	1.02
Dev. El Paso Wash	1	101	100 Yr	6681.2	2779.34	2782.48	3.14	2782.52	2783.45	0.0116	7.91	844.92	467.97	1.04
Dev. El Paso Wash	1	100	100 Yr	6681.2	2776	2779.54	3.54	2779.76	2780.82	0.014766	9.07	736.62	397.82	1.17
Dev. El Paso Wash	1	99	100 Yr	6681.2	2774	2776.85	2.85	2776.99	2777.99	0.013147	8.6	777.01	416.96	1.11
Dev. El Paso Wash	1	98	100 Yr	6681.2	2771	2774.18	3.18	2774.31	2775.23	0.014238	8.2	814.88	498.5	1.13
Dev. El Paso Wash	1	97	100 Yr	6681.2	2768.55	2771.95	3.4	2771.8	2772.67	0.008646	6.8	982.31	546.83	0.89
Dev. El Paso Wash	1	96	100 Yr	6681.2	2765.45	2769.82	4.37	2769.82	2770.7	0.01121	7.52	888.82	517.68	1.01
Dev. El Paso Wash	1	95	100 Yr	6681.2	2764	2766.1	2.1	2766.52	2767.6	0.020876	9.82	680.66	423.57	1.36
Dev. El Paso Wash	1	94	100 Yr	6681.2	2761.17	2764.44	3.27	2764.44	2765.39	0.01092	7.81	855.74	461.75	1.01
Dev. El Paso Wash	1	93	100 Yr	6681.2	2758	2761.26	3.26	2761.53	2762.61	0.017605	9.32	716.96	424.33	1.26
Dev. El Paso Wash	1	92	100 Yr	6681.2	2756	2759.16	3.16	2759.16	2760.1	0.01067	7.8	856.53	454.39	1
Dev. El Paso Wash	1	91	100 Yr	6681.2	2753	2756.54	3.54	2756.7	2757.62	0.014505	8.35	799.69	482.25	1.14
Dev. El Paso Wash	1	90	100 Yr	6681.2	2751	2753.84	2.84	2753.93	2754.79	0.013498	7.8	856.51	542.44	1.09
Dev. El Paso Wash	1	89	100 Yr	6681.2	2748.73	2751.43	2.7	2751.28	2752.24	0.008487	7.22	924.74	463.92	0.9
Dev. El Paso Wash	1	88	100 Yr	6681.2	2746	2749.26	3.26	2749.26	2750.34	0.010372	8.34	800.8	376.12	1.01
Dev. El Paso Wash	1	87	100 Yr	6681.2	2744	2747.21	3.21	2747.24	2748.12	0.011338	7.63	876.12	503.64	1.02
Dev. El Paso Wash	1	86	100 Yr	6681.2	2741.62	2744.29	2.67	2744.49	2745.4	0.016269	8.45	791.01	511.46	1.2
Dev. El Paso Wash	1	85	100 Yr	6681.2	2738.1	2741.6	3.5	2741.66	2742.44	0.012812	7.35	908.8	605.08	1.06
Dev. El Paso Wash	1	84	100 Yr	6681.2	2736	2739.46	3.46	2739.46	2740.23	0.011536	7.02	951.51	627.21	1
Dev. El Paso Wash	1	83	100 Yr	6681.2	2734	2736.73	2.73	2736.84	2737.69	0.01384	7.85	850.92	543.84	1.11
Dev. El Paso Wash	1	82	100 Yr	6681.2	2732	2734.31	2.31	2734.41	2735.19	0.014377	7.52	888.3	623.07	1.11
Dev. El Paso Wash	1	81	100 Yr	6681.2	2728	2732.16	4.16	2732.16	2732.93	0.011936	7.03	950.08	641.06	1.02
Dev. El Paso Wash	1	80	100 Yr	6681.2	2726.32	2729.43	3.11	2729.53	2730.32	0.014276	7.56	883.84	611.95	1.11
Dev. El Paso Wash	1	79	100 Yr	6681.2	2724	2727.27	3.27	2727.28	2727.97	0.01232	6.71	995.13	737.08	1.02
Dev. El Paso Wash	1	78	100 Yr	6681.2	2722	2724.76	2.76	2724.79	2725.46	0.013028	6.75	989.92	758.42	1.04
Dev. El Paso Wash	1	77	100 Yr	6722.6	2719.31	2722.45	3.14	2722.11	2722.87	0.005658	5.2	1292.29	782.82	0.71

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
South El Paso Wash - Post-development Conditions
100-Year Hydraulics

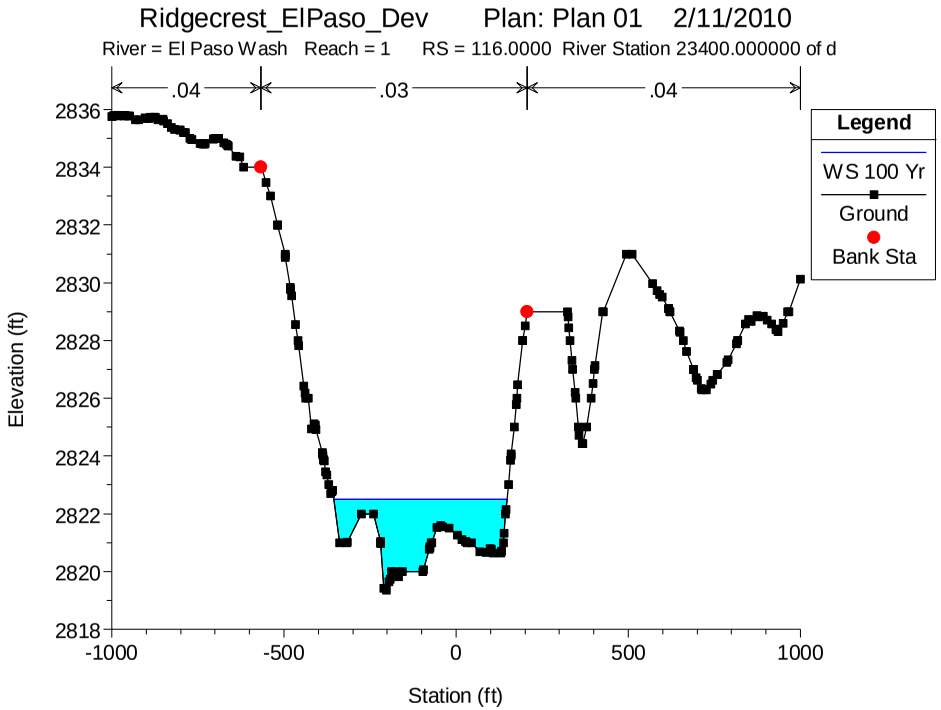
River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Dev. El Paso Wash	1	76	100 Yr	6722.6	2716.53	2720.52	3.99	2720.52	2721.24	0.012198	6.83	984.75	705.48	1.02
Dev. El Paso Wash	1	75	100 Yr	6722.6	2714	2718.06	4.06	2717.99	2718.69	0.010104	6.4	1050.87	731.43	0.93
Dev. El Paso Wash	1	74	100 Yr	6722.6	2712	2715.79	3.79	2715.79	2716.52	0.011711	6.86	980.51	677.04	1
Dev. El Paso Wash	1	73	100 Yr	6722.6	2709.54	2713.09	3.55	2713.17	2713.9	0.014534	7.21	931.92	700.66	1.1
Dev. El Paso Wash	1	72	100 Yr	6722.6	2707.17	2710.95	3.78	2710.95	2711.76	0.010957	7.24	927.98	560.82	0.99
Dev. El Paso Wash	1	71	100 Yr	6722.6	2705	2708.91	3.91	2708.8	2709.67	0.009358	6.97	964.13	548.26	0.93
Dev. El Paso Wash	1	70	100 Yr	6722.6	2703.32	2706.72	3.4	2706.72	2707.6	0.011354	7.49	896.97	529.68	1.01
Dev. El Paso Wash	1	69	100 Yr	6722.6	2701.12	2704.69	3.57	2704.53	2705.35	0.008096	6.53	1029.76	580.47	0.86
Dev. El Paso Wash	1	68	100 Yr	6722.6	2699.17	2702.63	3.46	2702.63	2703.45	0.011182	7.25	927.18	568.96	1
Dev. El Paso Wash	1	67	100 Yr	6722.6	2697.04	2700.81	3.77	2700.61	2701.61	0.007641	7.17	937.2	439.23	0.87
Dev. El Paso Wash	1	66	100 Yr	6722.6	2696	2699.96	3.96	2699.36	2700.37	0.004304	5.12	1311.74	661.83	0.64
Dev. El Paso Wash	1	65	100 Yr	6722.6	2693	2698.14	5.14	2698.14	2699.02	0.011012	7.52	893.68	512.07	1
Dev. El Paso Wash	1	64	100 Yr	6722.6	2691	2695.04	4.04	2695.34	2696.32	0.016301	9.08	740.14	429.5	1.22
Dev. El Paso Wash	1	63	100 Yr	7016	2690	2693.53	3.53	2693.53	2694.48	0.010327	7.83	896.15	461.71	0.99
Dev. El Paso Wash	1	62	100 Yr	7016	2686	2689.21	3.21	2689.79	2691.12	0.029664	11.09	632.75	426.82	1.6
Dev. El Paso Wash	1	61	100 Yr	7016	2683	2687.05	4.05	2687.05	2687.83	0.010922	7.08	990.77	618.65	0.99
Dev. El Paso Wash	1	60	100 Yr	7016	2681	2684.5	3.5	2684.59	2685.34	0.014275	7.36	953.33	686.99	1.1
Dev. El Paso Wash	1	59	100 Yr	7016	2679	2681.98	2.98	2682.06	2682.82	0.011301	7.36	953.59	576.87	1.01
Dev. El Paso Wash	1	58.9*	100 Yr	7016	2678.7	2681.88	3.18	2681.81	2682.6	0.010423	6.83	1026.82	653.33	0.96
Dev. El Paso Wash	1	58.8*	100 Yr	7016	2678.4	2681.64	3.24	2681.58	2682.38	0.010503	6.93	1012.88	635.05	0.97
Dev. El Paso Wash	1	58.7*	100 Yr	7016	2678.1	2681.41	3.31	2681.36	2682.16	0.010569	6.95	1009.11	632.13	0.97
Dev. El Paso Wash	1	58.6*	100 Yr	7016	2677.8	2681.19	3.39	2681.14	2681.94	0.010497	6.95	1009.94	630.17	0.97
Dev. El Paso Wash	1	58.5*	100 Yr	7016	2677.5	2681	3.5	2680.93	2681.73	0.010049	6.82	1028.07	637.62	0.95
Dev. El Paso Wash	1	58.4*	100 Yr	7016	2677.2	2680.87	3.67	0	2681.52	0.008651	6.49	1080.86	645.79	0.88
Dev. El Paso Wash	1	58.3*	100 Yr	7016	2676.9	2680.78	3.88	0	2681.34	0.006828	6.01	1167.93	656.28	0.79
Dev. El Paso Wash	1	58.2*	100 Yr	7016	2676.6	2680.68	4.08	0	2681.2	0.00602	5.77	1216.1	650.44	0.74
Dev. El Paso Wash	1	58.1*	100 Yr	7016	2676.3	2680.64	4.34	0	2681.07	0.004592	5.28	1328.63	660.73	0.66
Dev. El Paso Wash	1	58	100 Yr	7016	2676	2680.63	4.63	0	2680.97	0.003158	4.69	1495.88	678.13	0.56
Dev. El Paso Wash	1	57.9*	100 Yr	7016	2675.8	2680.43	4.63	0	2680.88	0.004909	5.41	1296.1	654.33	0.68
Dev. El Paso Wash	1	57.8*	100 Yr	7016	2675.6	2679.89	4.29	2679.88	2680.7	0.011392	7.24	968.67	594.05	1
Dev. El Paso Wash	1	57.7*	100 Yr	7016	2675.4	2679.54	4.14	2679.53	2680.46	0.011333	7.69	912.61	509.79	1.01
Dev. El Paso Wash	1	57.6*	100 Yr	7016	2675.2	2679.31	4.11	2679.31	2680.24	0.011231	7.74	906.62	489.13	1
Dev. El Paso Wash	1	57.5*	100 Yr	7016	2675	2678.64	3.64	2678.93	2679.93	0.016881	9.12	769.23	452.34	1.23
Dev. El Paso Wash	1	57.4*	100 Yr	7016	2674.8	2678.58	3.78	2678.63	2679.57	0.011919	8	877.29	484.32	1.05
Dev. El Paso Wash	1	57.3*	100 Yr	7016	2674.6	2678.2	3.6	2678.34	2679.3	0.014309	8.43	832.12	488.74	1.14
Dev. El Paso Wash	1	57.2*	100 Yr	7016	2674.4	2678.04	3.64	2678.14	2679.04	0.012708	8.04	873.09	500.79	1.07
Dev. El Paso Wash	1	57.1*	100 Yr	7016	2674.2	2677.74	3.54	2677.86	2678.78	0.013819	8.18	857.97	513.41	1.11
Dev. El Paso Wash	1	57	100 Yr	7016	2674	2677.58	3.58	2677.66	2678.52	0.012504	7.78	901.3	539.42	1.06
Dev. El Paso Wash	1	56.9*	100 Yr	7016	2673.8	2677.34	3.54	2677.43	2678.3	0.012766	7.84	894.58	538.67	1.07
Dev. El Paso Wash	1	56.8*	100 Yr	7016	2673.61	2677.11	3.5	2677.21	2678.08	0.012956	7.92	886.01	531.76	1.08

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
South El Paso Wash - Post-development Conditions
100-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Dev. El Paso Wash	1	56.7*	100 Yr	7016	2673.41	2676.89	3.48	2677	2677.87	0.012974	7.97	880.84	524.59	1.08
Dev. El Paso Wash	1	56.6*	100 Yr	7016	2673.21	2676.64	3.43	2676.77	2677.67	0.013597	8.14	861.41	513.88	1.11
Dev. El Paso Wash	1	56.5*	100 Yr	7016	2673.02	2676.39	3.37	2676.55	2677.47	0.014403	8.35	840.57	504.69	1.14
Dev. El Paso Wash	1	56.4*	100 Yr	7016	2672.82	2676.24	3.42	2676.35	2677.25	0.01286	8.09	867.31	501.33	1.08
Dev. El Paso Wash	1	56.3*	100 Yr	7016	2672.62	2675.98	3.36	2676.14	2677.06	0.013957	8.34	841.41	494.16	1.13
Dev. El Paso Wash	1	56.2*	100 Yr	7016	2672.42	2675.81	3.39	2675.94	2676.86	0.013427	8.24	850.96	493.75	1.11
Dev. El Paso Wash	1	56.1*	100 Yr	7016	2672.23	2675.62	3.39	2675.74	2676.67	0.013328	8.21	855	496.86	1.1
Dev. El Paso Wash	1	56	100 Yr	7016	2672.03	2675.43	3.4	2675.55	2676.46	0.013689	8.16	859.68	513.91	1.11
Dev. El Paso Wash	1	55	100 Yr	7016	2670.93	2673.55	2.62	2673.55	2674.35	0.011578	7.17	979	627.63	1.01
Dev. El Paso Wash	1	54	100 Yr	7016	2668.49	2671.42	2.93	2671.32	2672.19	0.009394	7.03	998.15	563.09	0.93
Dev. El Paso Wash	1	53	100 Yr	7016	2666	2669.32	3.32	2669.32	2670.14	0.011201	7.27	964.97	590.34	1
Dev. El Paso Wash	1	52	100 Yr	7016	2663	2666.79	3.79	2666.88	2667.74	0.012754	7.8	899.84	546.07	1.07
Dev. El Paso Wash	1	51	100 Yr	7016	2661.32	2664.67	3.35	2664.67	2665.43	0.011561	6.99	1003.45	666.58	1
Dev. El Paso Wash	1	50	100 Yr	7016	2659.53	2662.63	3.1	2662.37	2663.22	0.006987	6.15	1140.86	629.63	0.81
Dev. El Paso Wash	1	49	100 Yr	7016	2657	2660.61	3.61	2660.61	2661.46	0.011097	7.39	949.48	563.04	1
Dev. El Paso Wash	1	48	100 Yr	7016	2655	2658.83	3.83	2658.48	2659.4	0.006706	6.04	1160.97	638.08	0.79
Dev. El Paso Wash	1	47	100 Yr	7016	2653	2656.92	3.92	2656.87	2657.74	0.010125	7.29	962.07	543.35	0.97
Dev. El Paso Wash	1	46	100 Yr	7016	2651	2654.67	3.67	2654.67	2655.64	0.010801	7.88	890.91	470.63	1.01
Dev. El Paso Wash	1	45	100 Yr	7016	2649	2652.75	3.75	2652.65	2653.56	0.008942	7.2	974.8	511.38	0.92
Dev. El Paso Wash	1	44	100 Yr	7016	2647	2650.66	3.66	2650.66	2651.58	0.010792	7.71	909.57	495.29	1
Dev. El Paso Wash	1	43	100 Yr	7016	2645	2648.79	3.79	2648.38	2649.53	0.005887	6.89	1018.07	415.9	0.78
Dev. El Paso Wash	1	42	100 Yr	7016	2642.49	2646.88	4.39	2646.88	2647.97	0.010189	8.39	836.5	384.15	1
Dev. El Paso Wash	1	41	100 Yr	7016	2640.63	2644.91	4.28	2644.79	2645.83	0.008736	7.69	912.34	425.53	0.93
Dev. El Paso Wash	1	40	100 Yr	7016	2639	2643.61	4.61	0	2644.38	0.005729	7.05	995.82	386.02	0.77
Dev. El Paso Wash	1	39	100 Yr	7039.6	2638	2641.69	3.69	2641.69	2642.86	0.010017	8.68	811	349.3	1
Dev. El Paso Wash	1	38	100 Yr	7039.6	2635.72	2639.82	4.1	2639.68	2640.83	0.008351	8.07	872.18	365.5	0.92
Dev. El Paso Wash	1	37	100 Yr	7039.6	2634	2637.83	3.83	2637.83	2638.97	0.010224	8.6	818.75	363.54	1.01
Dev. El Paso Wash	1	36	100 Yr	7039.6	2632	2635.95	3.95	2635.78	2636.85	0.008282	7.6	926.4	422.94	0.9
Dev. El Paso Wash	1	35	100 Yr	7039.6	2630	2633.98	3.98	2633.98	2634.98	0.010499	8.04	876.11	439.27	1
Dev. El Paso Wash	1	34	100 Yr	7039.6	2628	2632.22	4.22	2632	2632.96	0.007841	6.91	1019.49	515.47	0.87
Dev. El Paso Wash	1	33	100 Yr	7039.6	2626	2630.84	4.84	0	2631.5	0.006579	6.5	1083.47	526.24	0.8
Dev. El Paso Wash	1	32	100 Yr	7039.6	2625	2628.85	3.85	2628.85	2629.82	0.010531	7.92	889.34	457.22	1
Dev. El Paso Wash	1	31	100 Yr	7039.6	2623	2626.65	3.65	2626.68	2627.65	0.011183	8.01	878.85	464.42	1.03
Dev. El Paso Wash	1	30	100 Yr	7039.6	2621.57	2624.63	3.06	2624.63	2625.58	0.010576	7.86	895.7	467.12	1
Dev. El Paso Wash	1	29	100 Yr	7039.6	2620	2622.67	2.67	2622.52	2623.46	0.008604	7.15	984.29	506.66	0.9
Dev. El Paso Wash	1	28	100 Yr	7039.6	2618	2620.71	2.71	2620.64	2621.63	0.00956	7.7	914.45	456.14	0.96
Dev. El Paso Wash	1	27	100 Yr	7039.6	2616	2618.81	2.81	2618.75	2619.69	0.009761	7.51	936.91	492.3	0.96
Dev. El Paso Wash	1	26	100 Yr	7039.6	2614	2617.02	3.02	2616.86	2617.85	0.008554	7.32	961.72	476.02	0.91
Dev. El Paso Wash	1	25	100 Yr	7039.6	2612	2615.32	3.32	2615.16	2616.17	0.008229	7.43	947.8	445.75	0.9
Dev. El Paso Wash	1	24	100 Yr	7039.6	2610	2613.28	3.28	2613.28	2614.29	0.010757	8.07	872.25	442.84	1.01

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
South El Paso Wash - Post-development Conditions
100-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Dev. El Paso Wash	1	23	100 Yr	7039.6	2608.22	2611.35	3.13	2611.21	2612.11	0.008626	7.02	1003.12	532.28	0.9
Dev. El Paso Wash	1	22	100 Yr	7039.6	2606	2609.32	3.32	2609.32	2610.16	0.011105	7.36	955.96	570.22	1
Dev. El Paso Wash	1	21	100 Yr	7039.6	2604	2607.74	3.74	2607.33	2608.35	0.005817	6.25	1126.42	528.79	0.75
Dev. El Paso Wash	1	20	100 Yr	7039.6	2602	2606.58	4.58	0	2607.22	0.005385	6.43	1094.97	465.17	0.74
Dev. El Paso Wash	1	19	100 Yr	7048.6	2600.56	2604.89	4.33	2604.89	2605.75	0.01027	7.47	943.71	519.57	0.98
Dev. El Paso Wash	1	18	100 Yr	7048.6	2600	2603.02	3.02	2602.71	2603.51	0.006418	5.64	1249.12	736.33	0.76
Dev. El Paso Wash	1	17	100 Yr	7048.6	2598.55	2601.4	2.85	2601.22	2602.03	0.008487	6.34	1111.85	678.44	0.87
Dev. El Paso Wash	1	16	100 Yr	7048.6	2595	2599.69	4.69	2599.44	2600.39	0.00783	6.73	1047.73	549.89	0.86
Dev. El Paso Wash	1	15	100 Yr	7048.6	2594	2598.11	4.11	2597.91	2598.83	0.007789	6.8	1036.6	533.58	0.86
Dev. El Paso Wash	1	14	100 Yr	7048.6	2593	2596.47	3.47	2596.32	2597.21	0.008406	6.88	1024.42	548.31	0.89
Dev. El Paso Wash	1	13	100 Yr	7048.6	2591	2594.59	3.59	2594.5	2595.45	0.009124	7.4	952.19	485.54	0.93
Dev. El Paso Wash	1	12	100 Yr	7048.6	2589	2592.74	3.74	2592.67	2593.58	0.009564	7.35	959.17	512.72	0.95
Dev. El Paso Wash	1	11	100 Yr	7048.6	2587	2590.88	3.88	2590.79	2591.67	0.009453	7.16	984.16	541.81	0.94
Dev. El Paso Wash	1	10	100 Yr	7048.6	2585	2589.21	4.21	2589.02	2589.93	0.007937	6.79	1038.76	544.17	0.87
Dev. El Paso Wash	1	9	100 Yr	7048.6	2583	2587.68	4.68	0	2588.37	0.007557	6.67	1056.32	546.99	0.85
Dev. El Paso Wash	1	8	100 Yr	7048.6	2581.49	2585.76	4.27	2585.73	2586.58	0.010556	7.3	965.15	561.14	0.98
Dev. El Paso Wash	1	7	100 Yr	7048.6	2579	2583.81	4.81	2583.71	2584.53	0.009666	6.81	1034.94	625.25	0.93
Dev. El Paso Wash	1	6	100 Yr	7048.6	2578	2581.83	3.83	2581.78	2582.54	0.010294	6.78	1040.07	663.59	0.95
Dev. El Paso Wash	1	5	100 Yr	7048.6	2577	2579.79	2.79	2579.73	2580.52	0.010064	6.86	1028.14	634.22	0.95
Dev. El Paso Wash	1	4	100 Yr	7048.6	2574	2577.74	3.74	2577.69	2578.48	0.010344	6.89	1023.62	640.17	0.96
Dev. El Paso Wash	1	3	100 Yr	7048.6	2572	2575.46	3.46	2575.46	2576.29	0.011475	7.33	962.18	592.41	1.01
Dev. El Paso Wash	1	2	100 Yr	7048.6	2570	2573.92	3.92	2573.45	2574.39	0.005031	5.54	1272.77	642.62	0.69
Dev. El Paso Wash	1	1	100 Yr	7048.6	2569	2571.88	2.88	2571.88	2572.94	0.010266	8.57	876.12	412.81	1.01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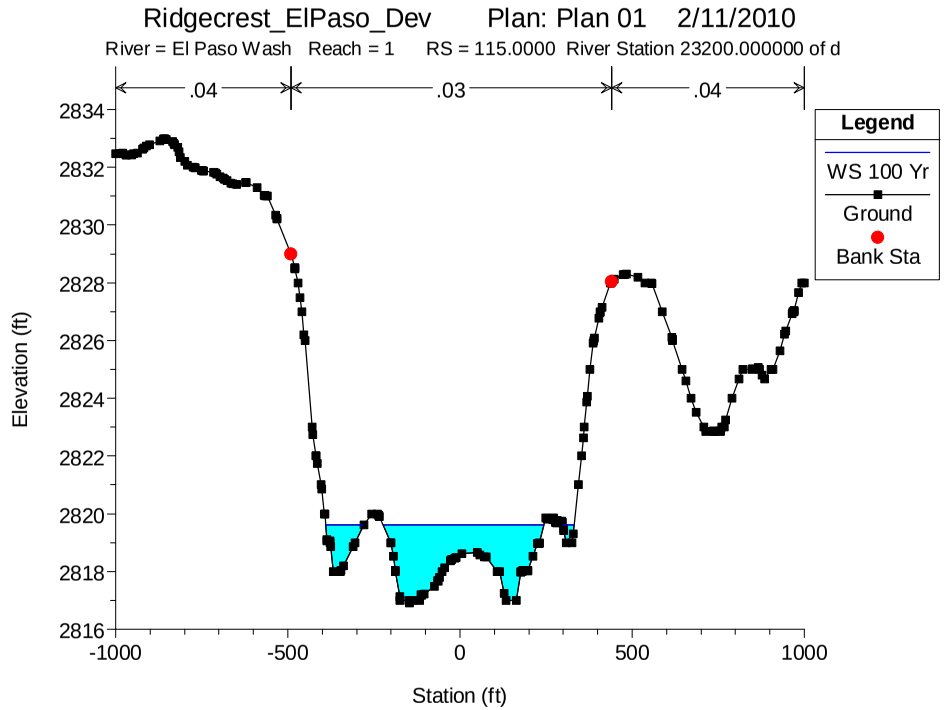
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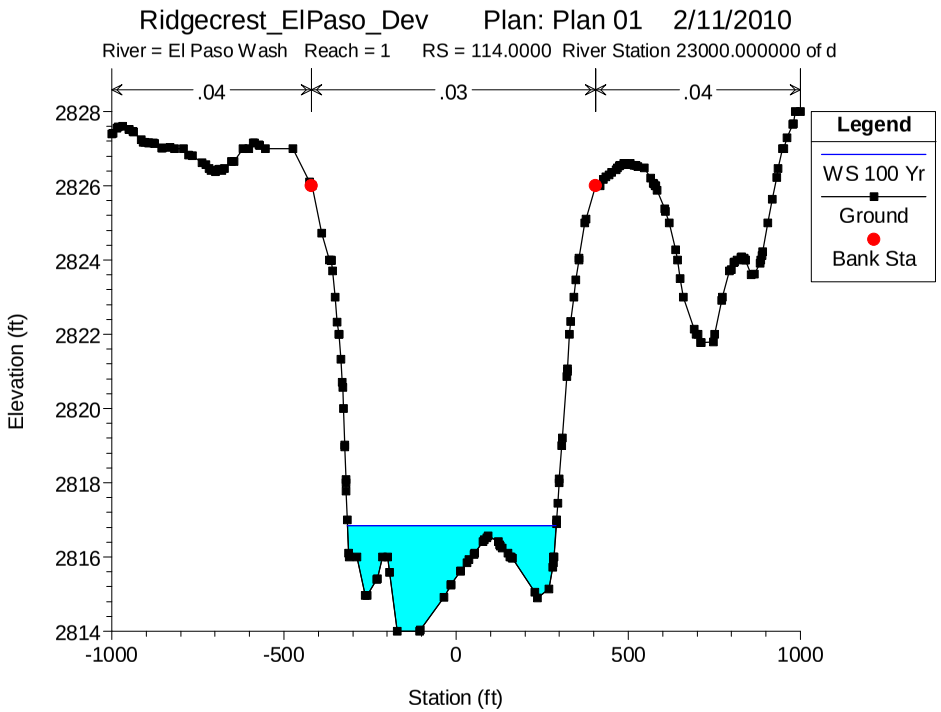
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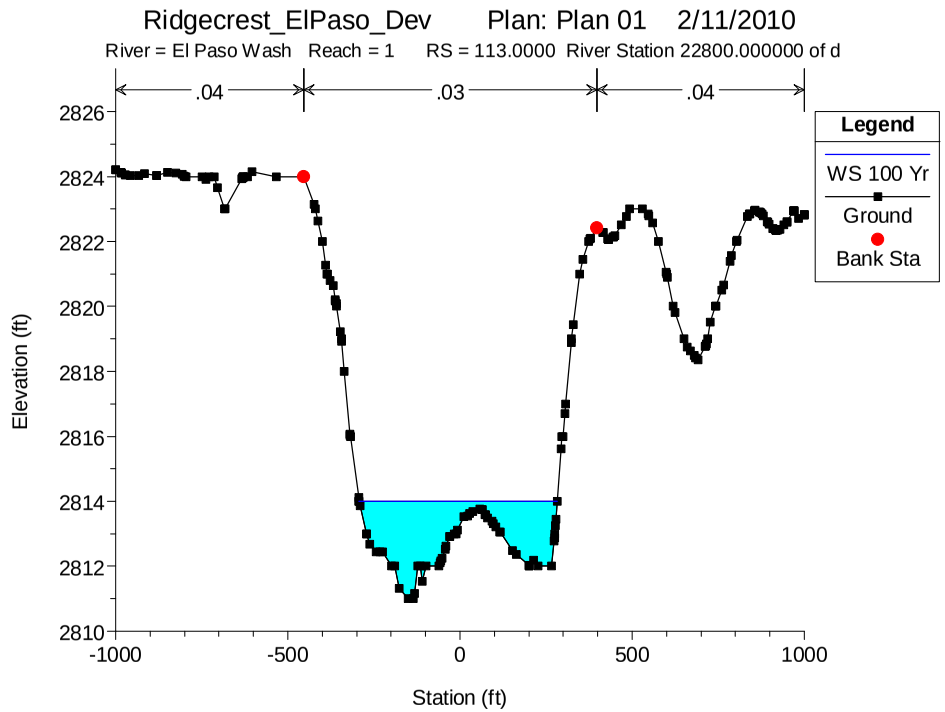
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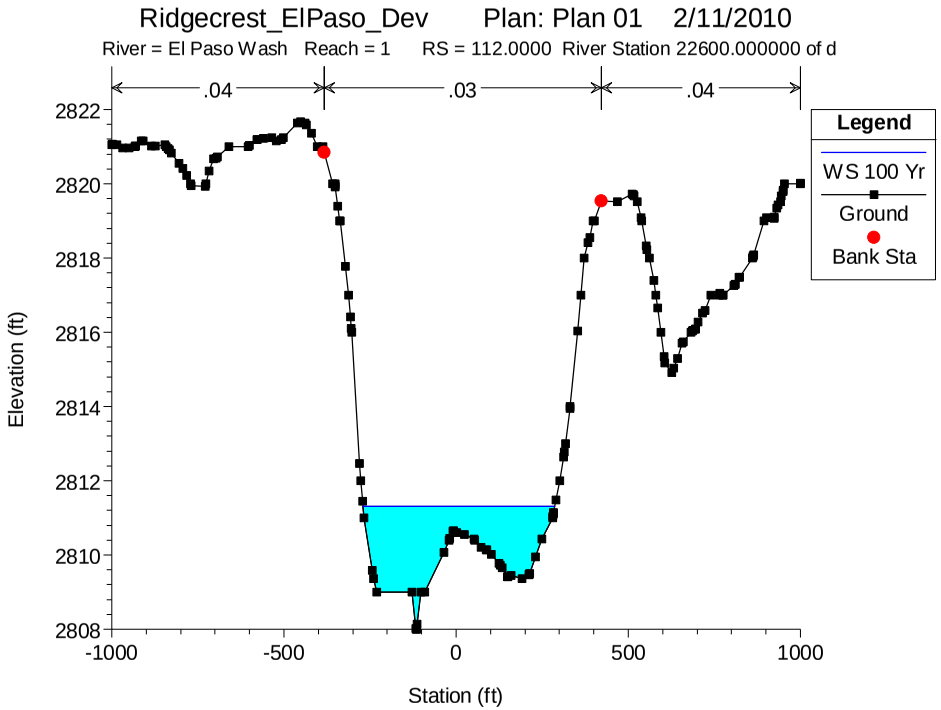
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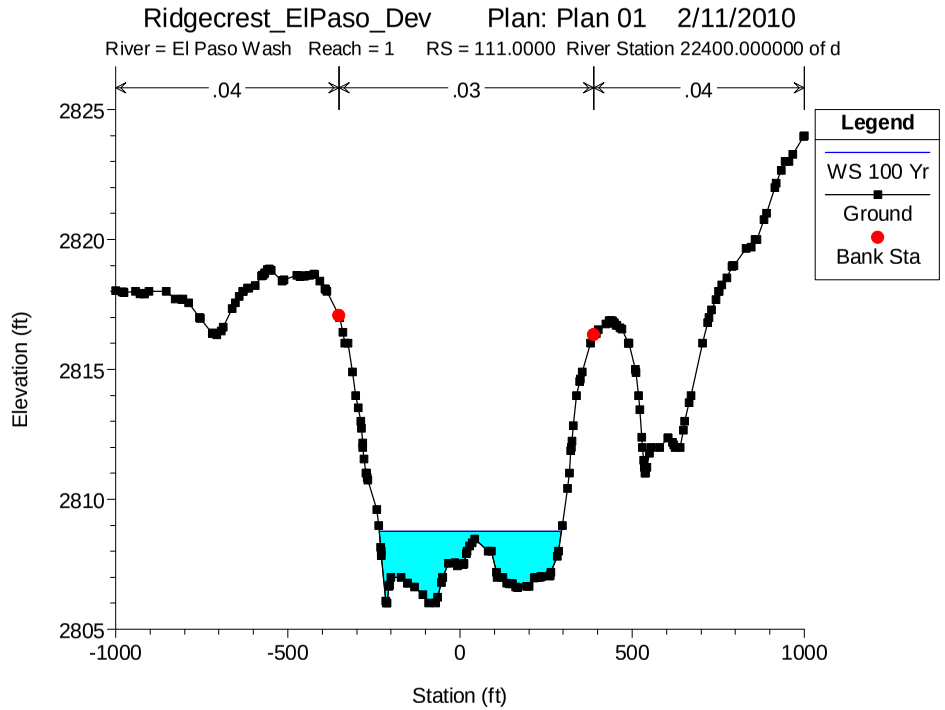
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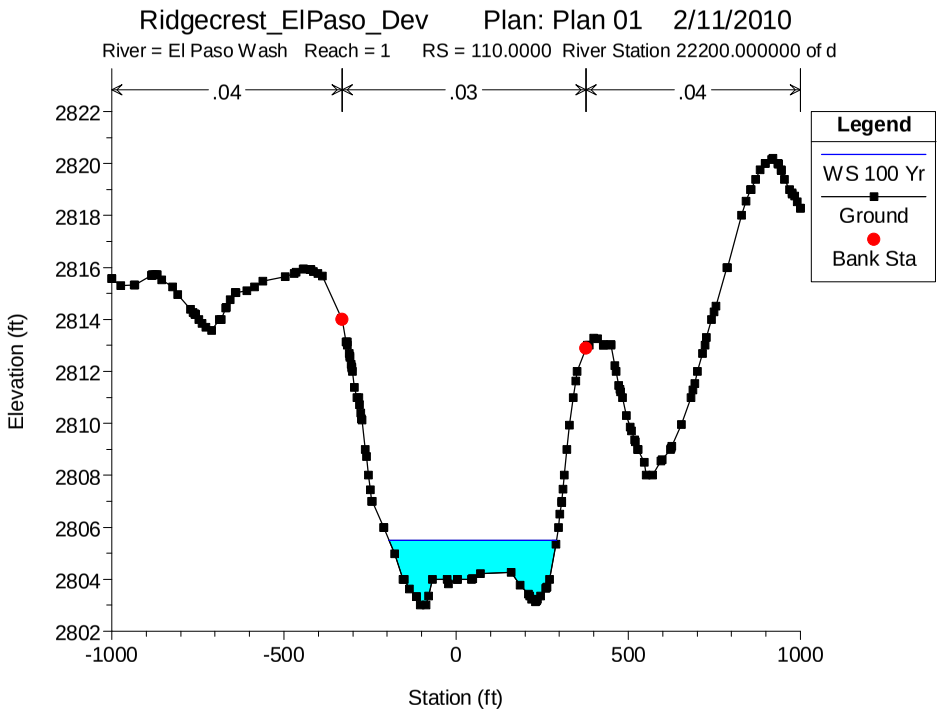
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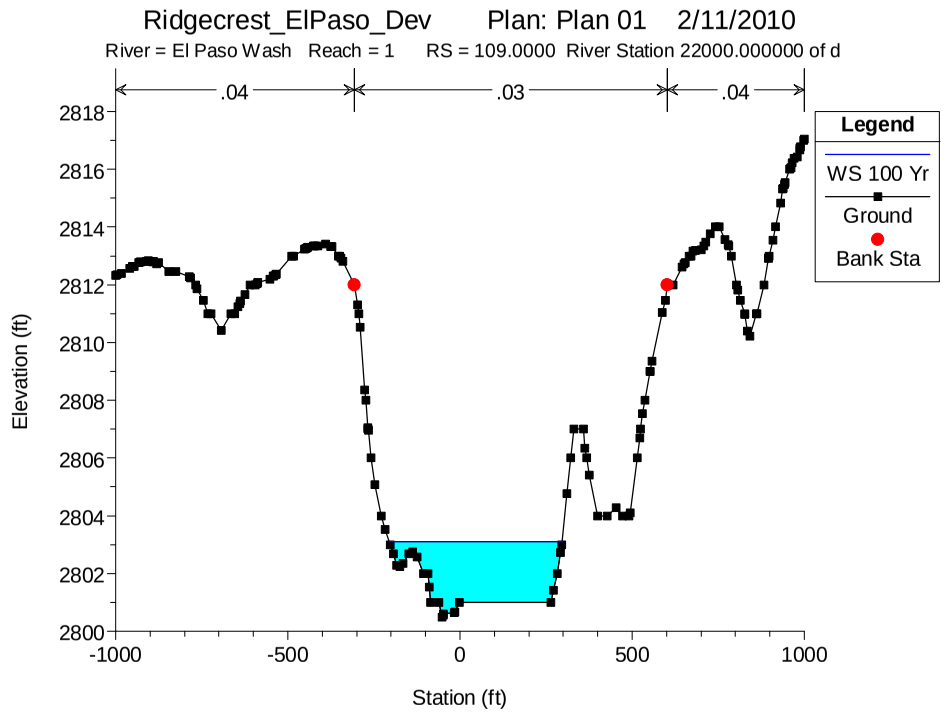
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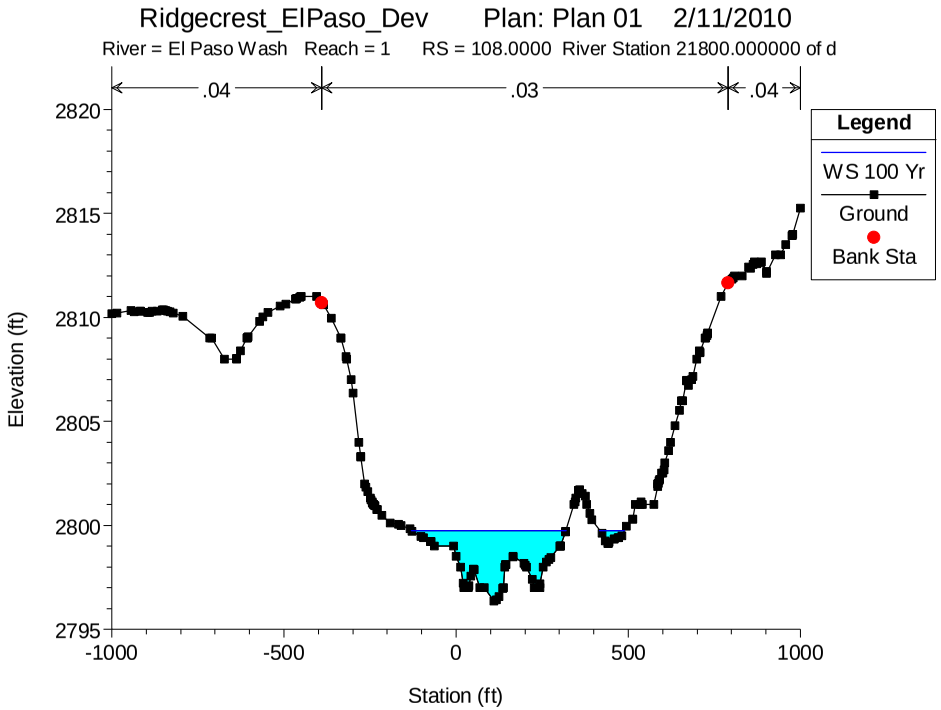
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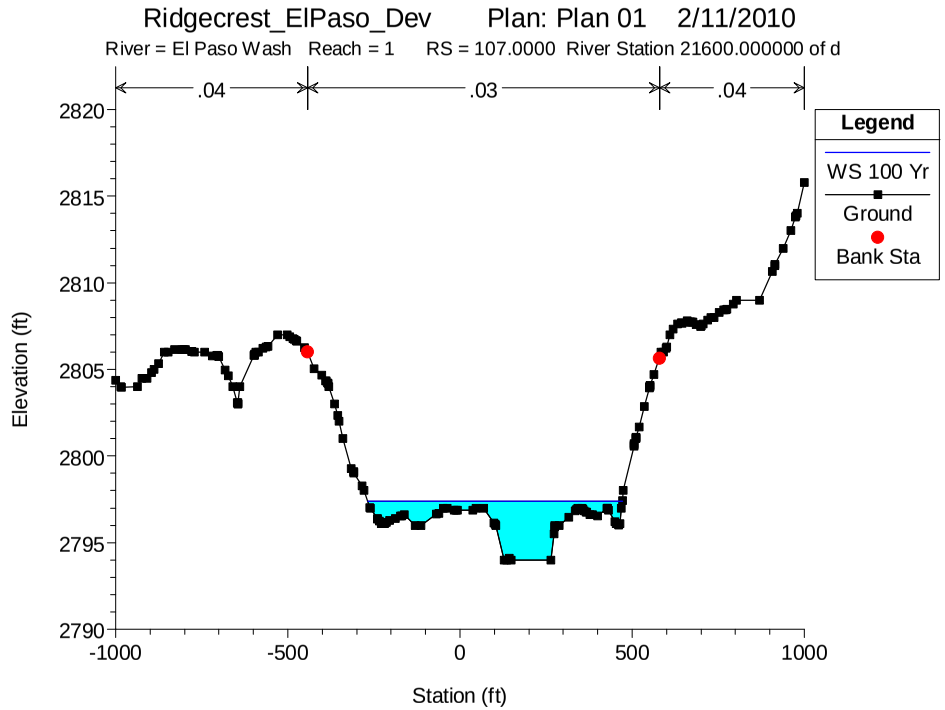
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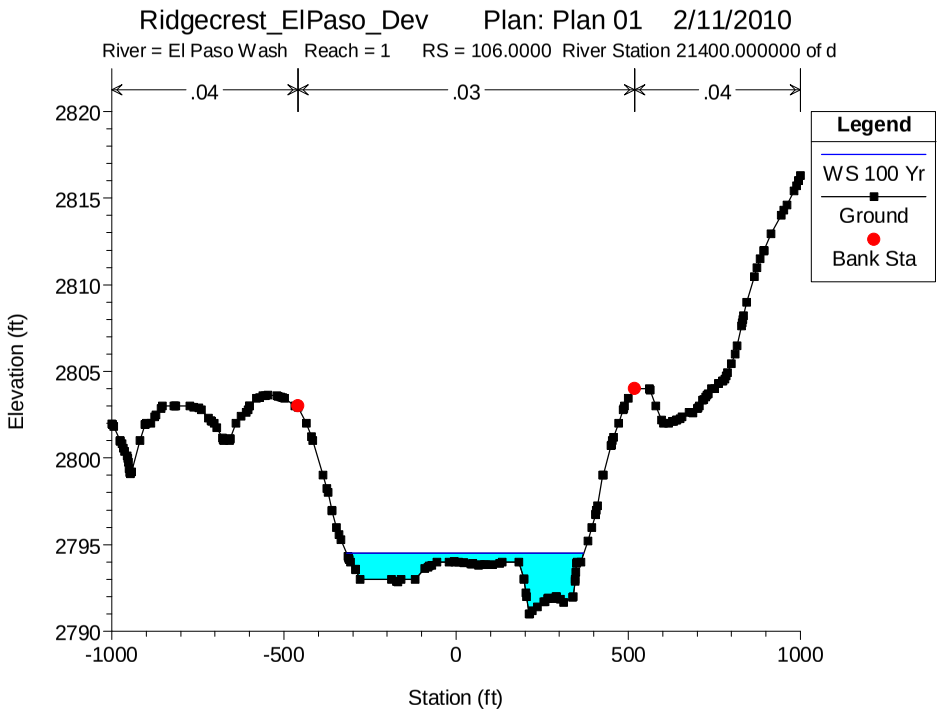
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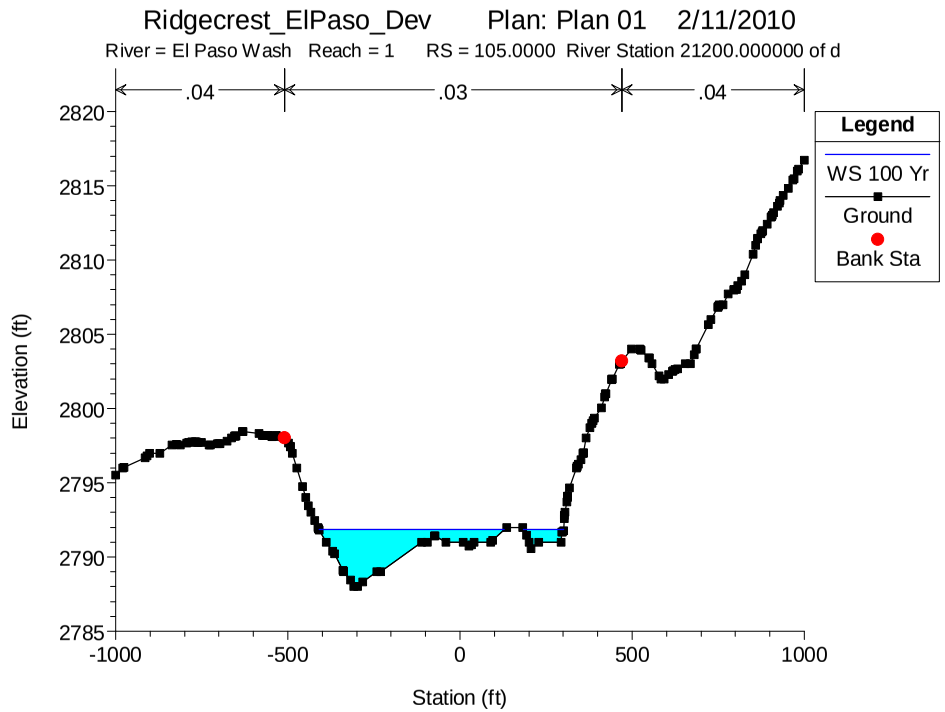
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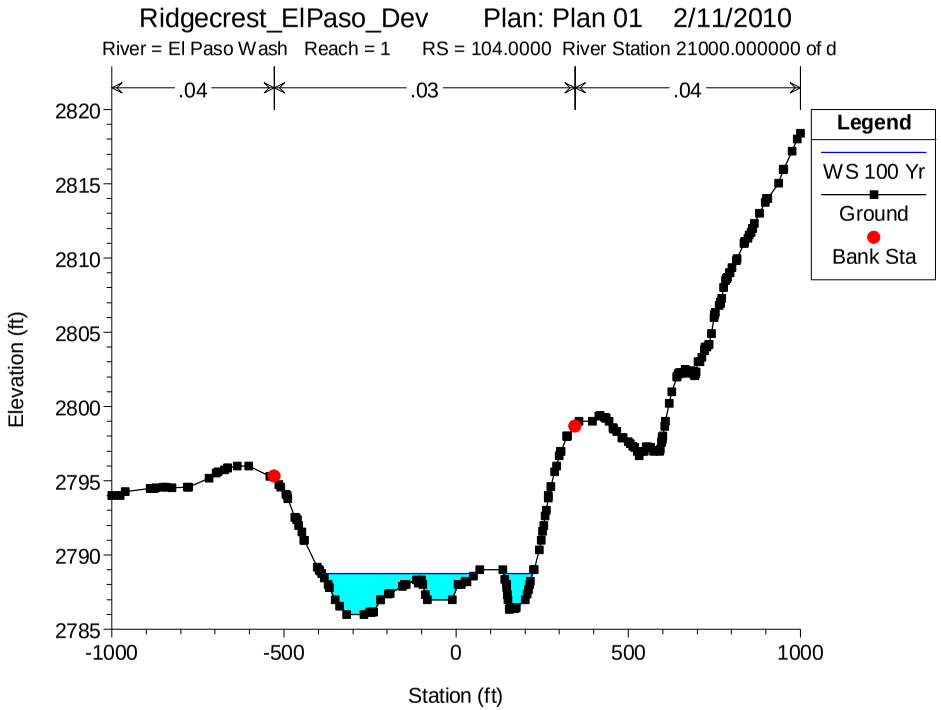
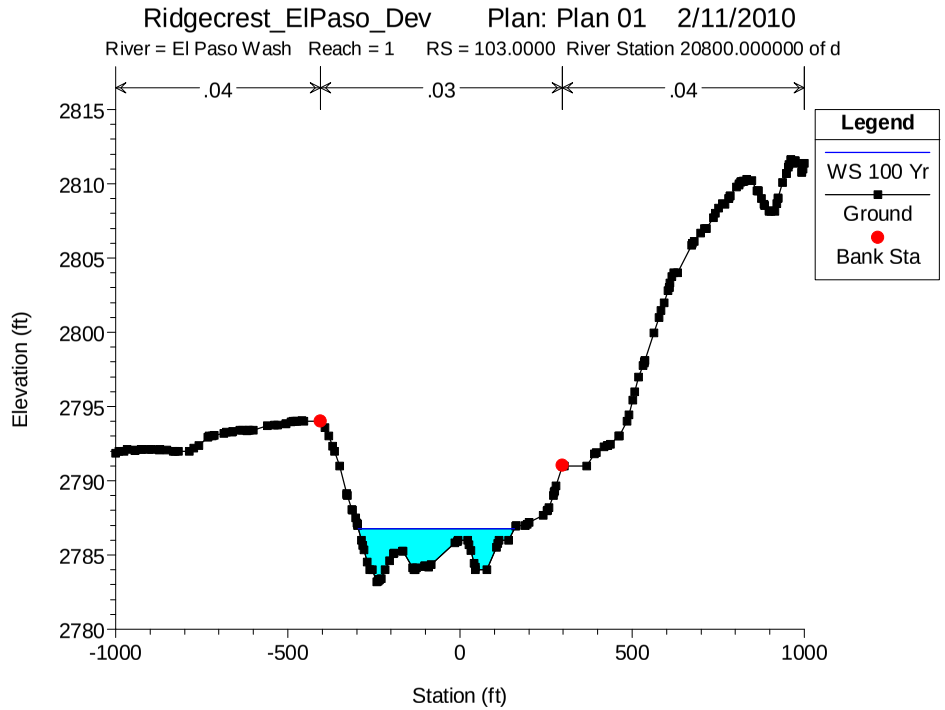
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 104.0000 River Station 21000.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 103.0000 River Station 20800.000000 of d
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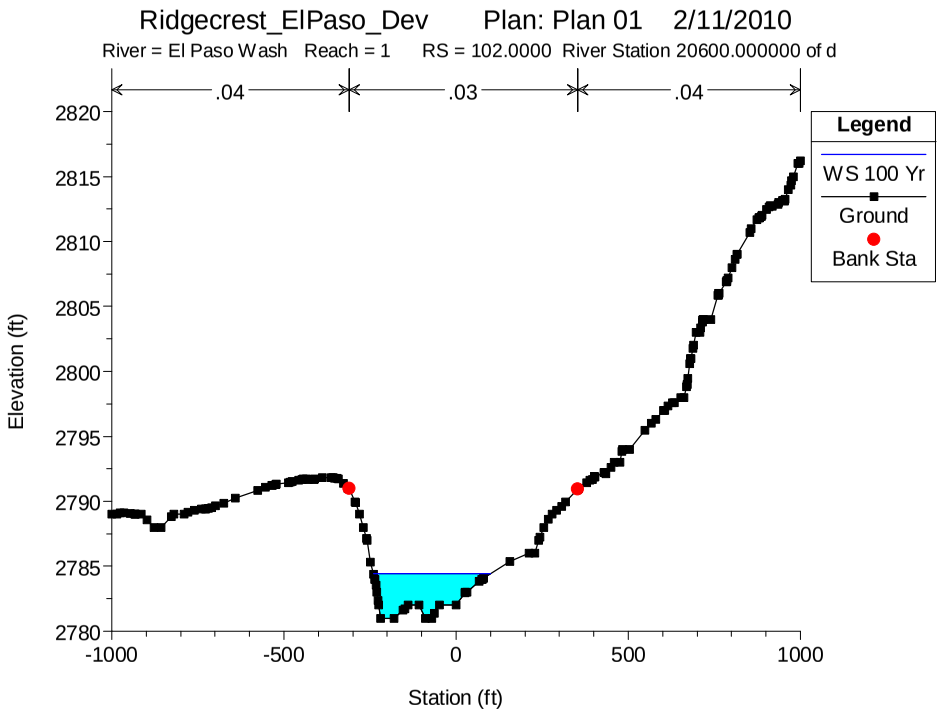
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 102.0000 River Station 20600.000000 of d
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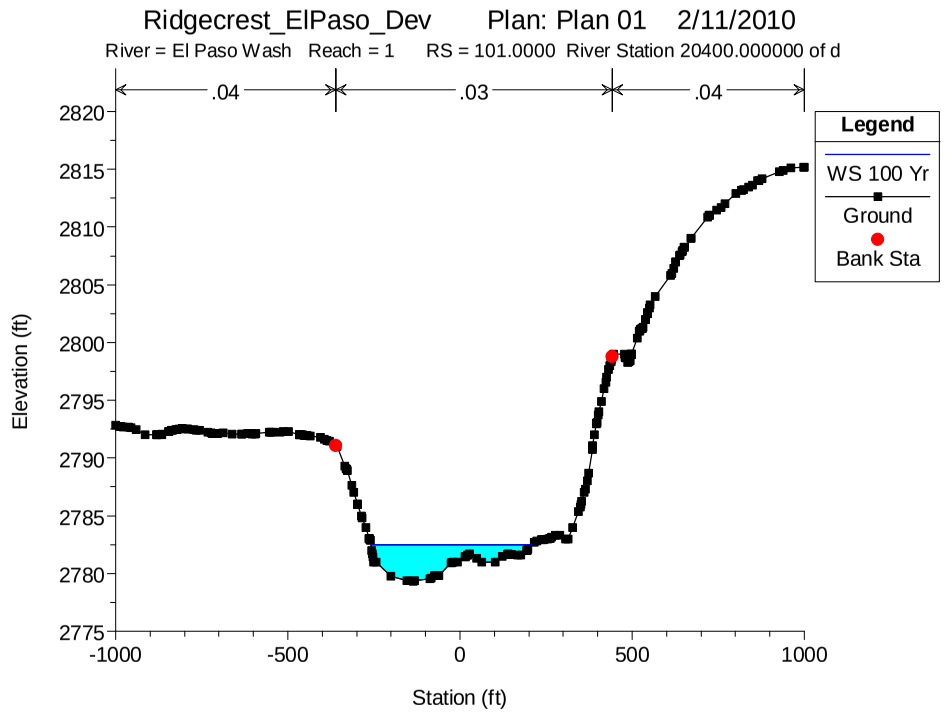
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 101.0000 River Station 20400.000000 of d
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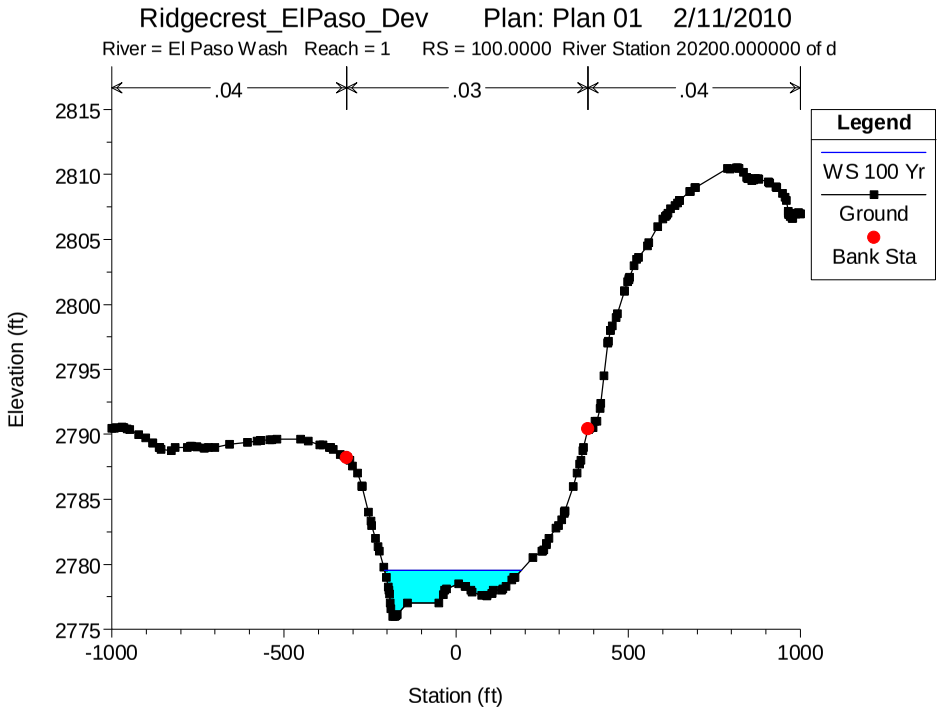
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 100.0000 River Station 20200.000000 of d
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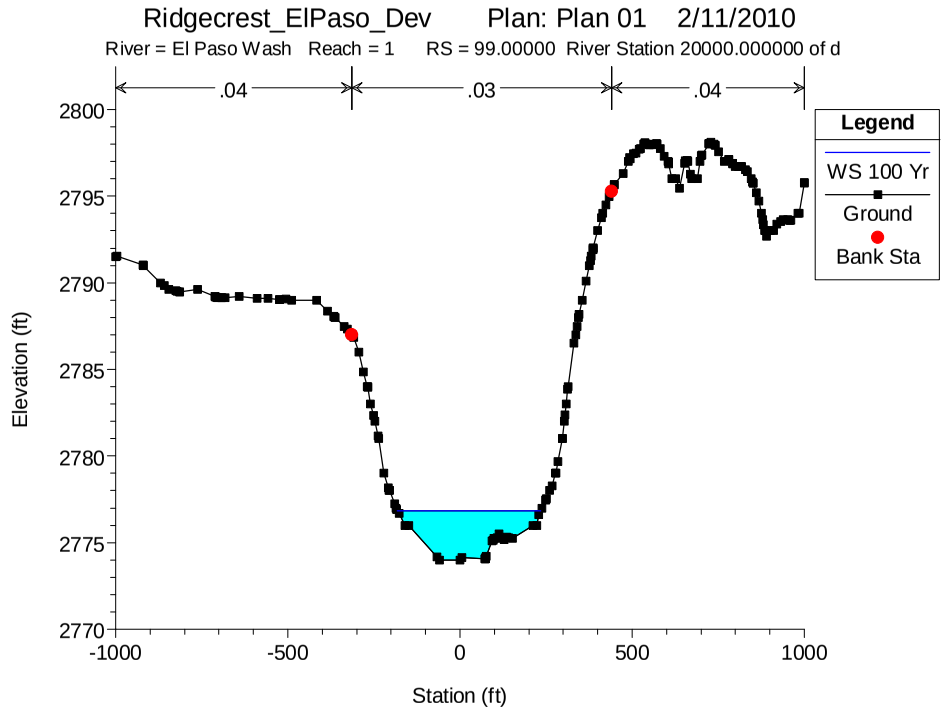
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 99.00000 River Station 20000.000000 of d
.04
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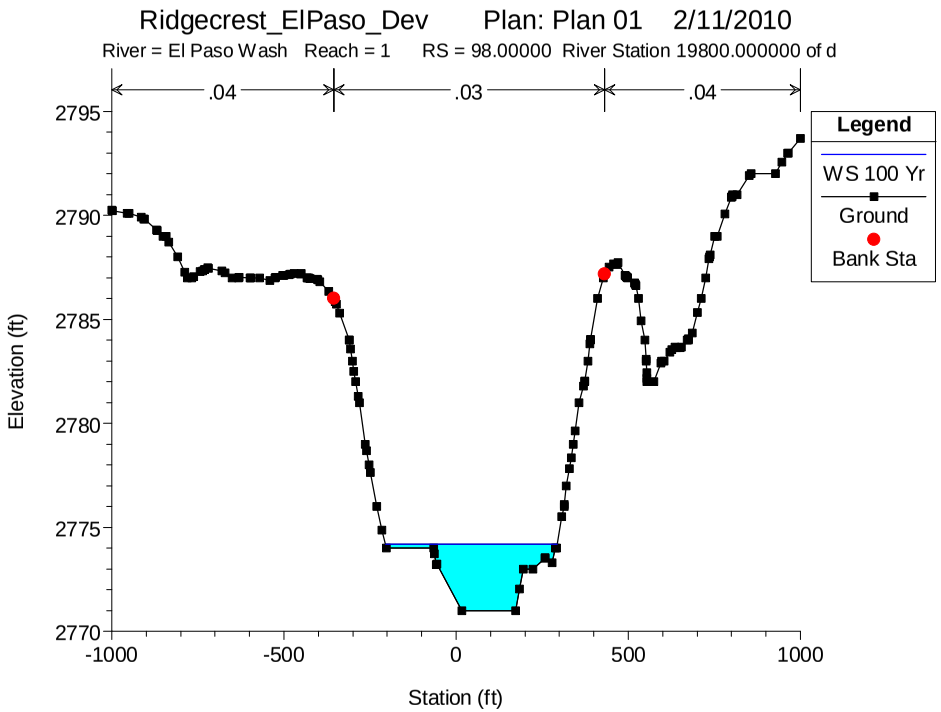
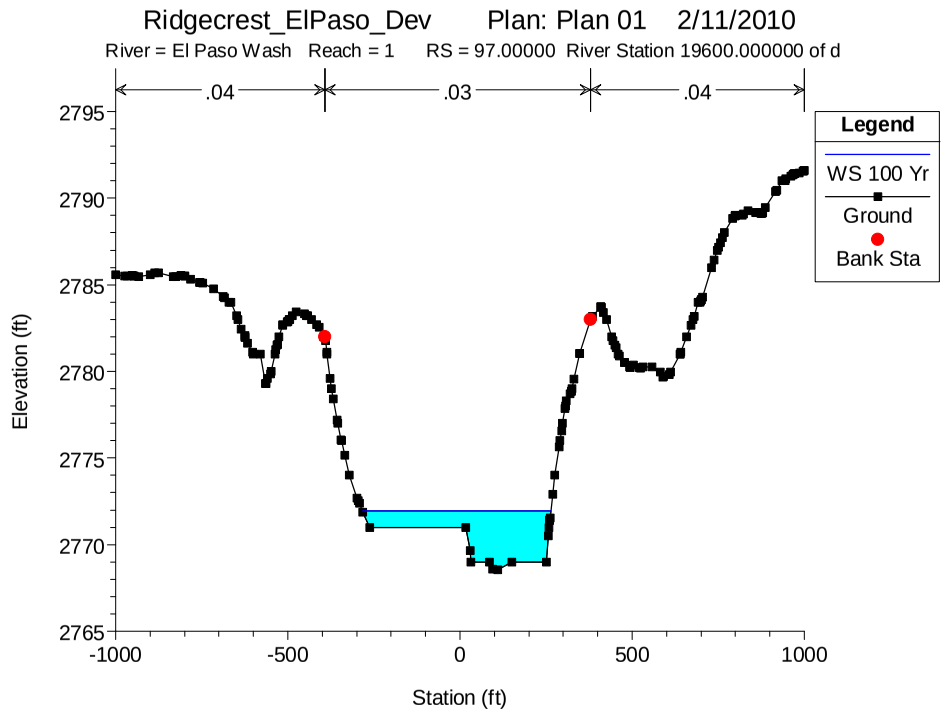
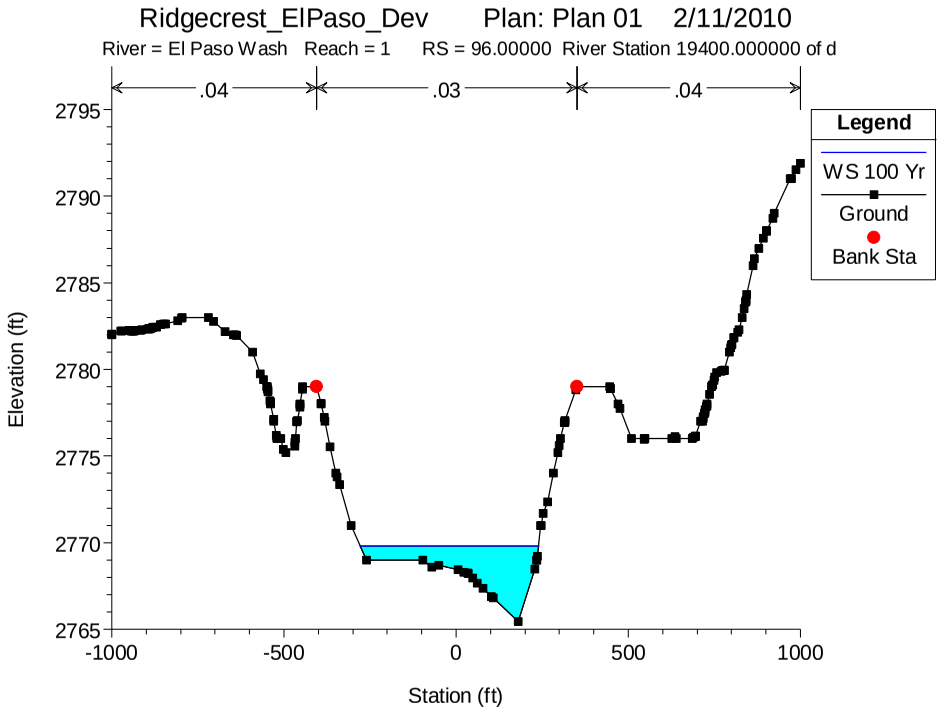
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 98.00000 River Station 19800.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 97.00000 River Station 19600.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 96.00000 River Station 19400.000000 of d
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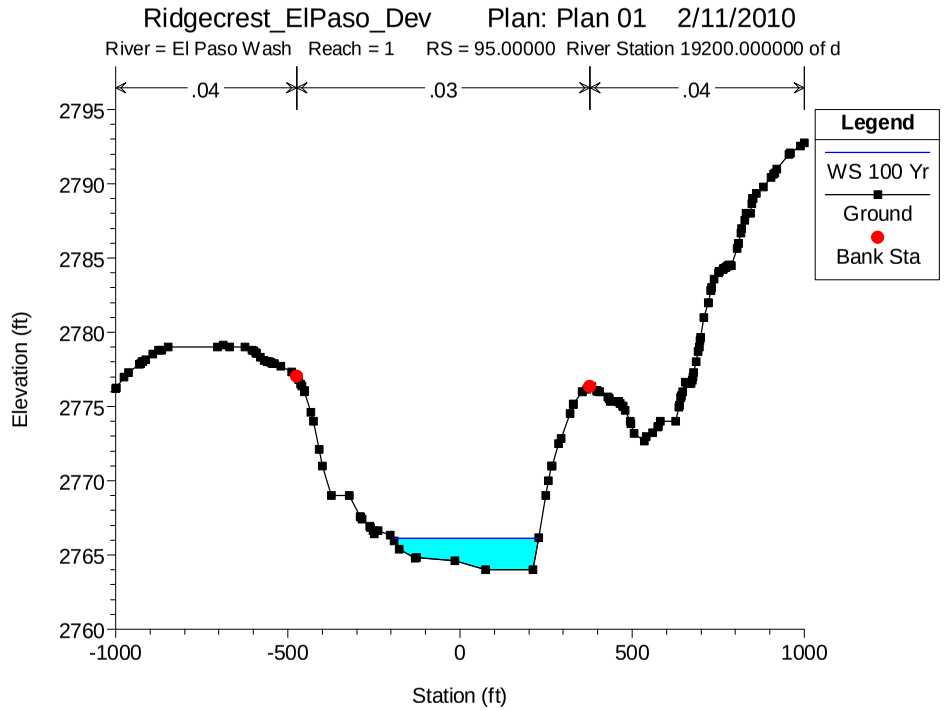
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 95.00000 River Station 19200.000000 of d
.04
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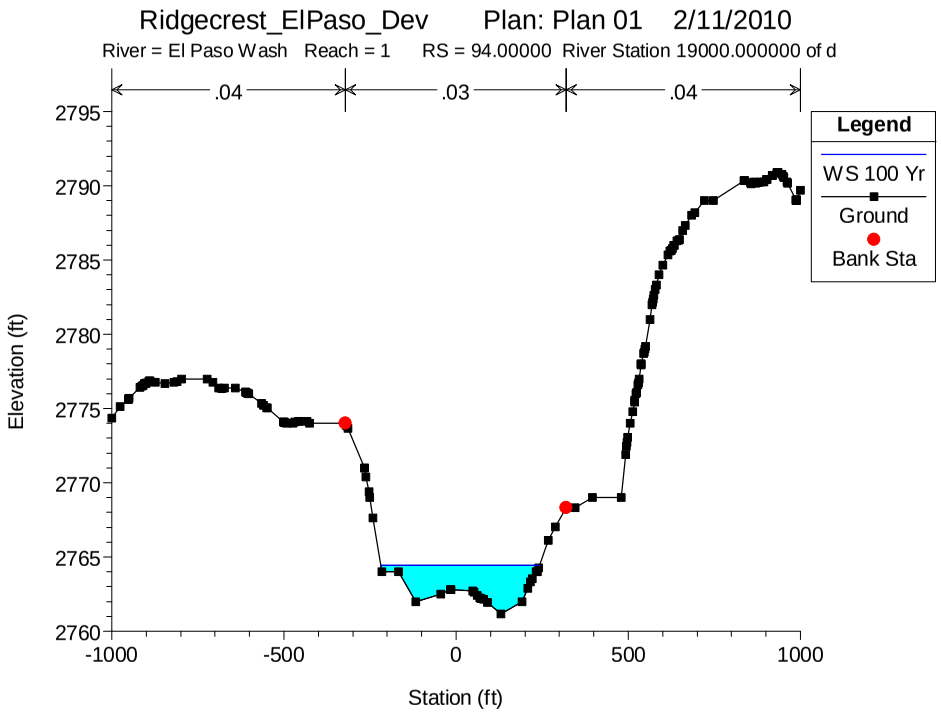
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 94.00000 River Station 19000.000000 of d
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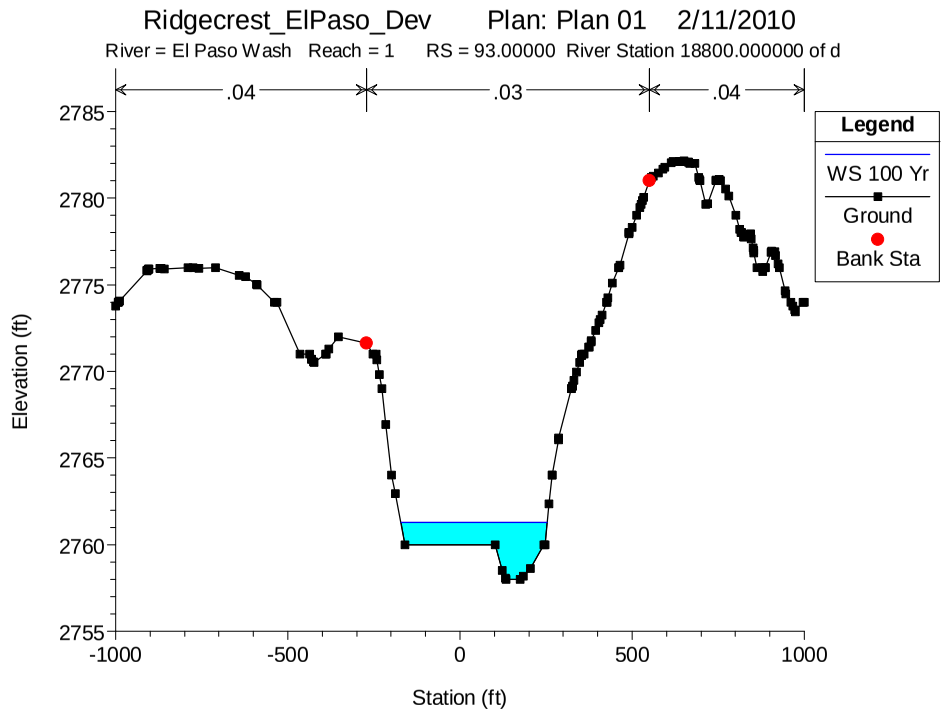
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 93.00000 River Station 18800.000000 of d
.04
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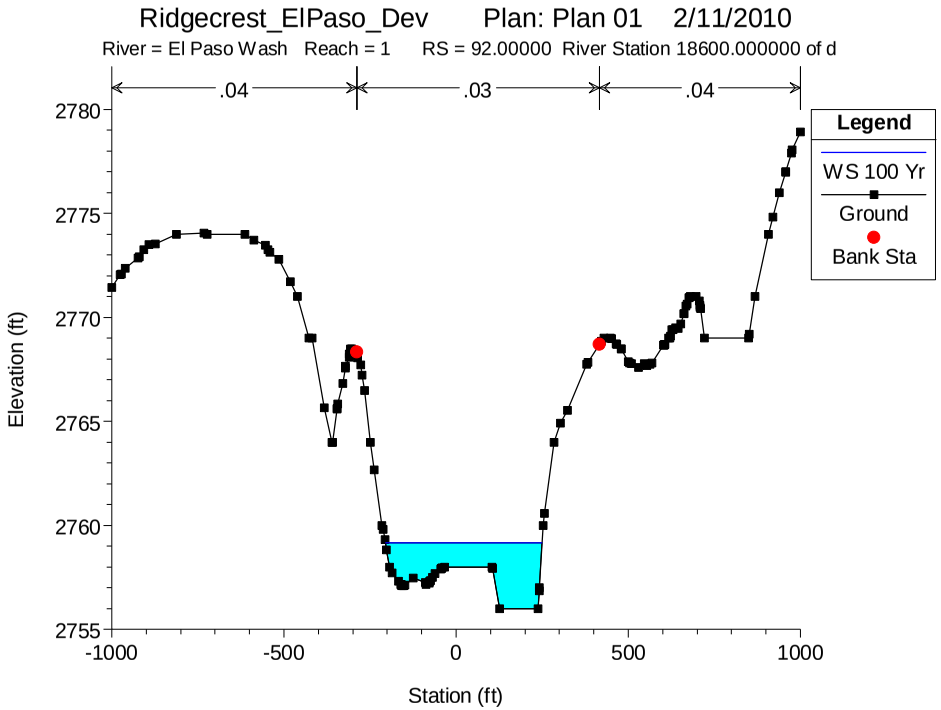
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 92.00000 River Station 18600.000000 of d
.04
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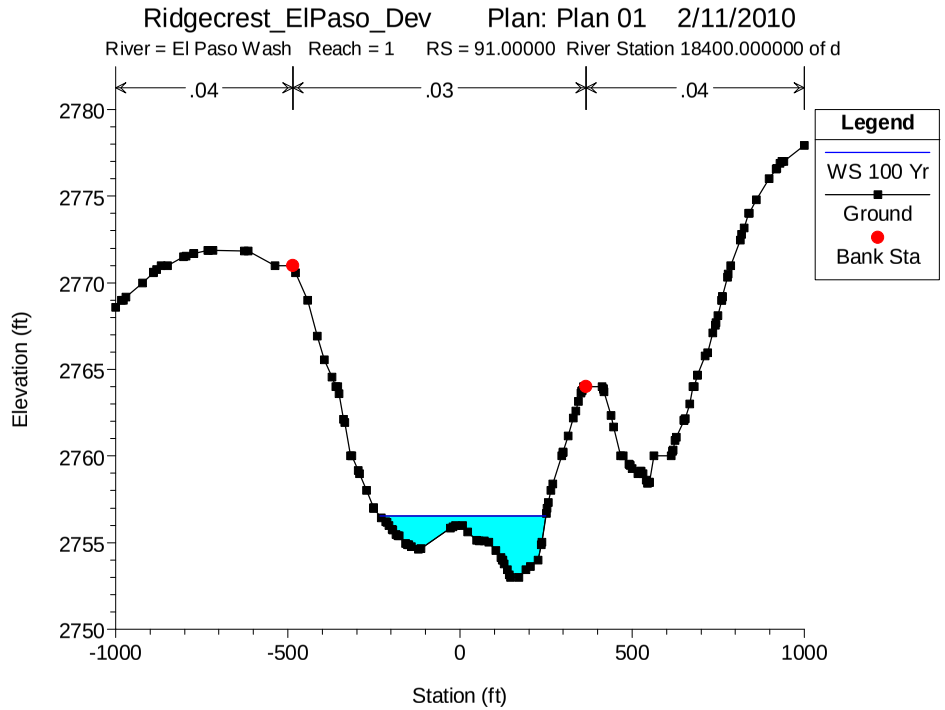
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 91.00000 River Station 18400.000000 of d
.04
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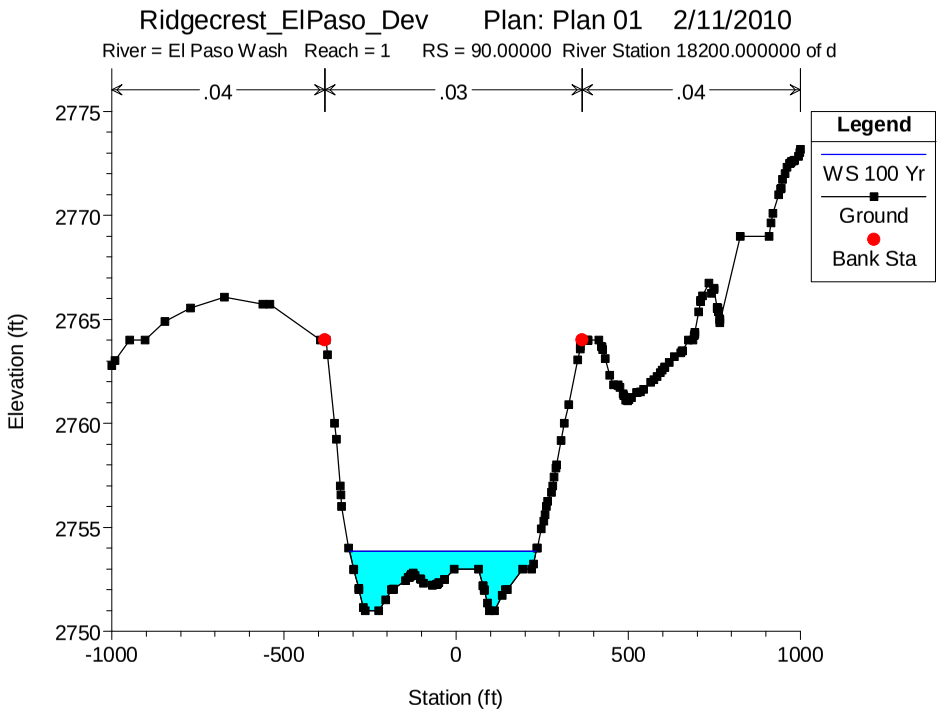
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 90.00000 River Station 18200.000000 of d
.04
.03
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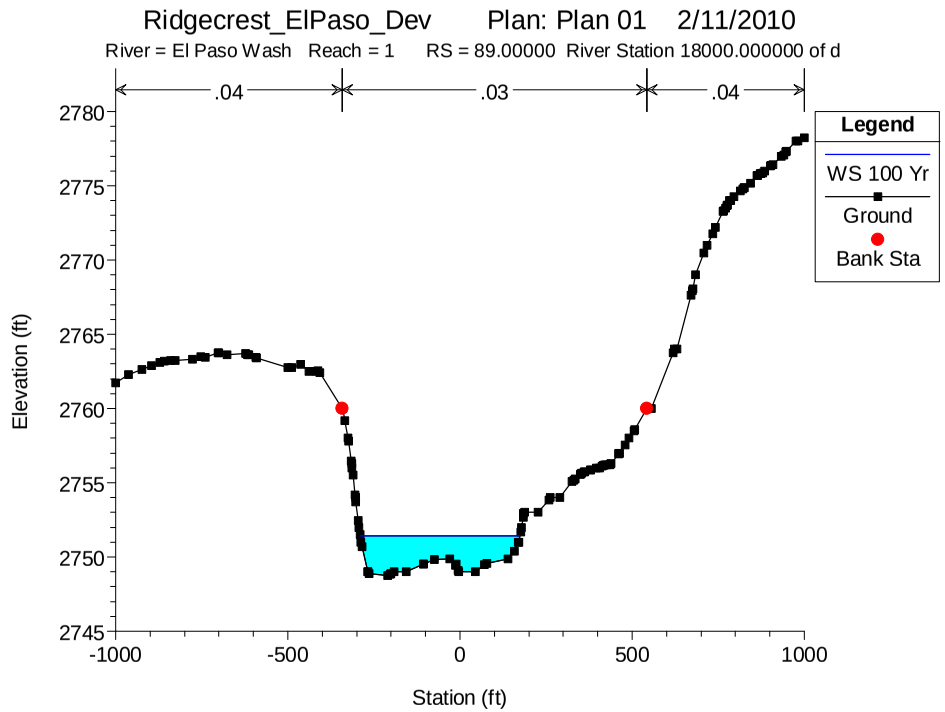
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 89.00000 River Station 18000.000000 of d
.04
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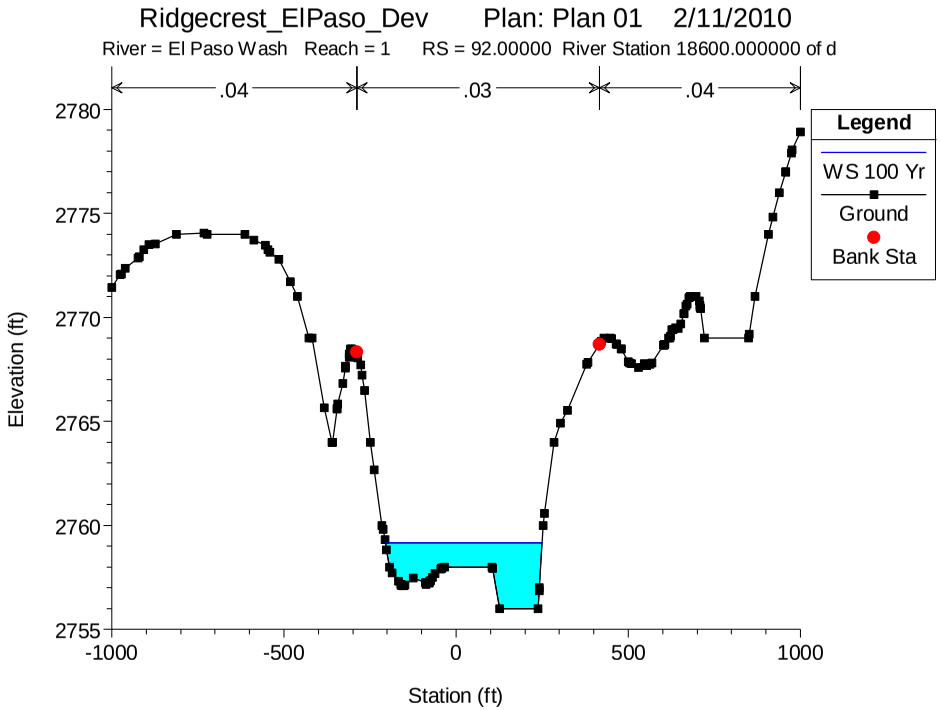
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 92.00000 River Station 18600.000000 of d
.04
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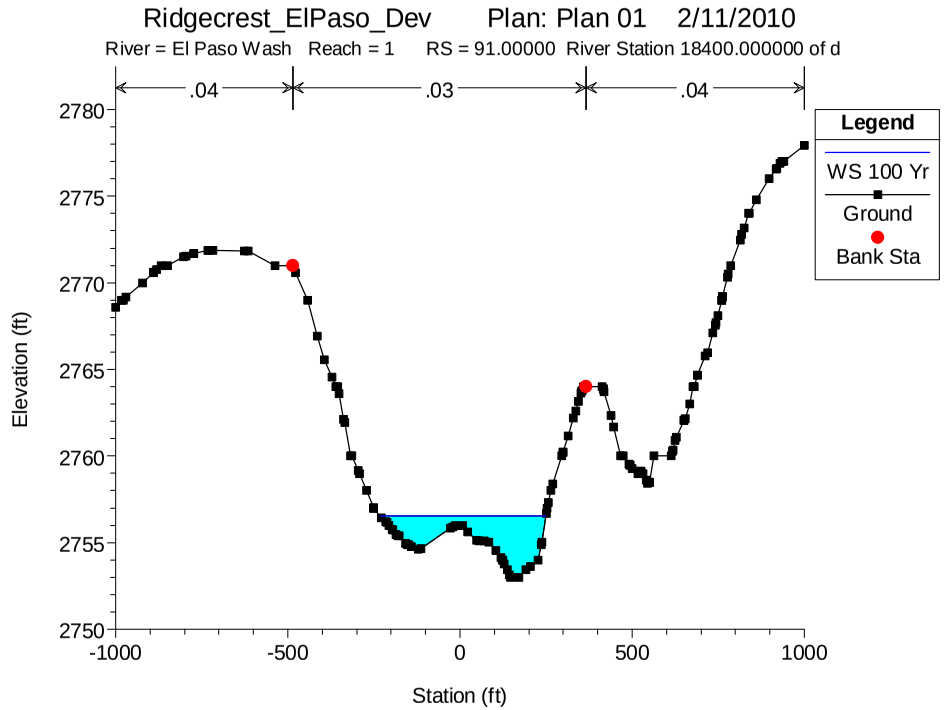
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 91.00000 River Station 18400.000000 of d
.04
.03
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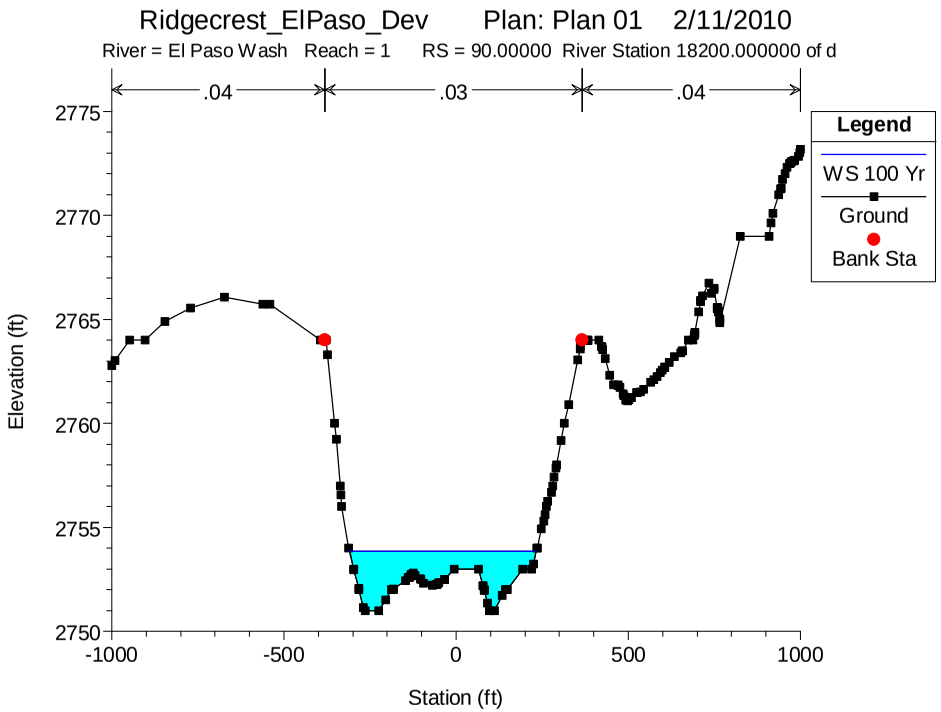
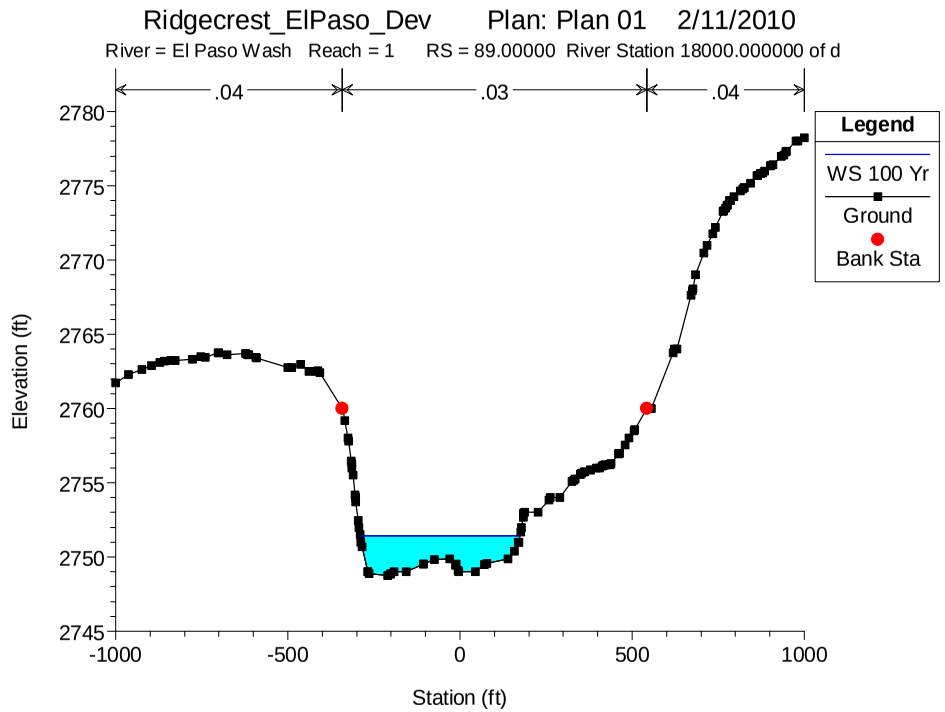
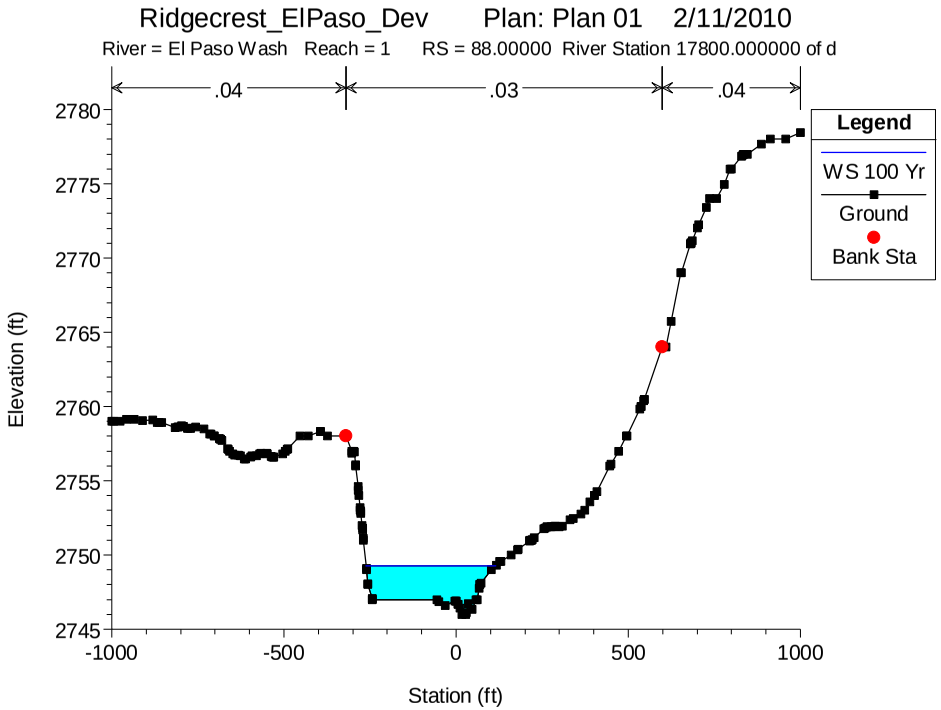
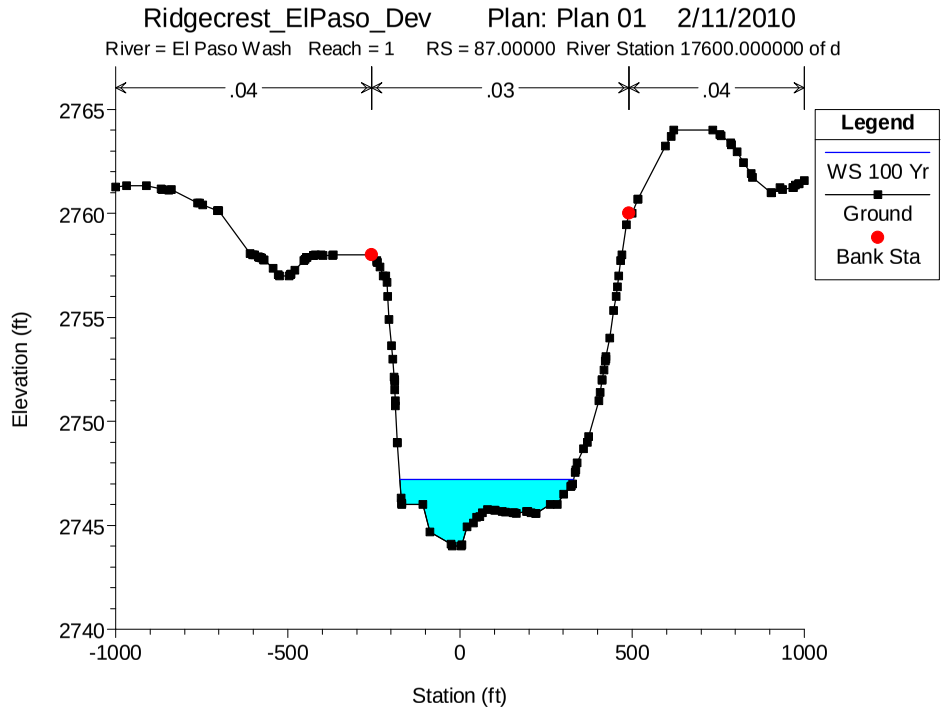
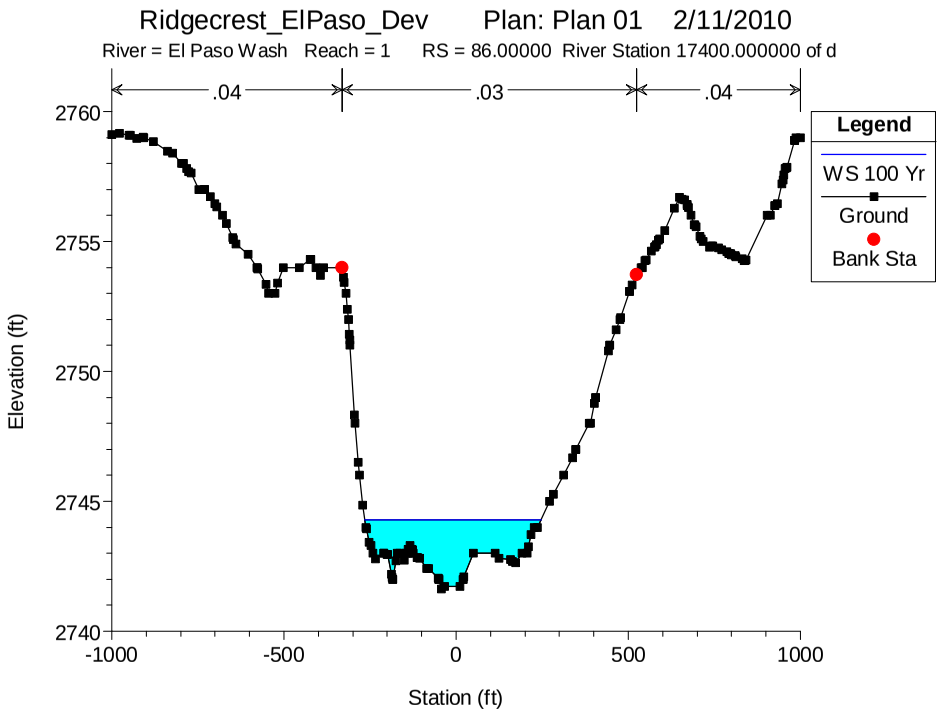
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

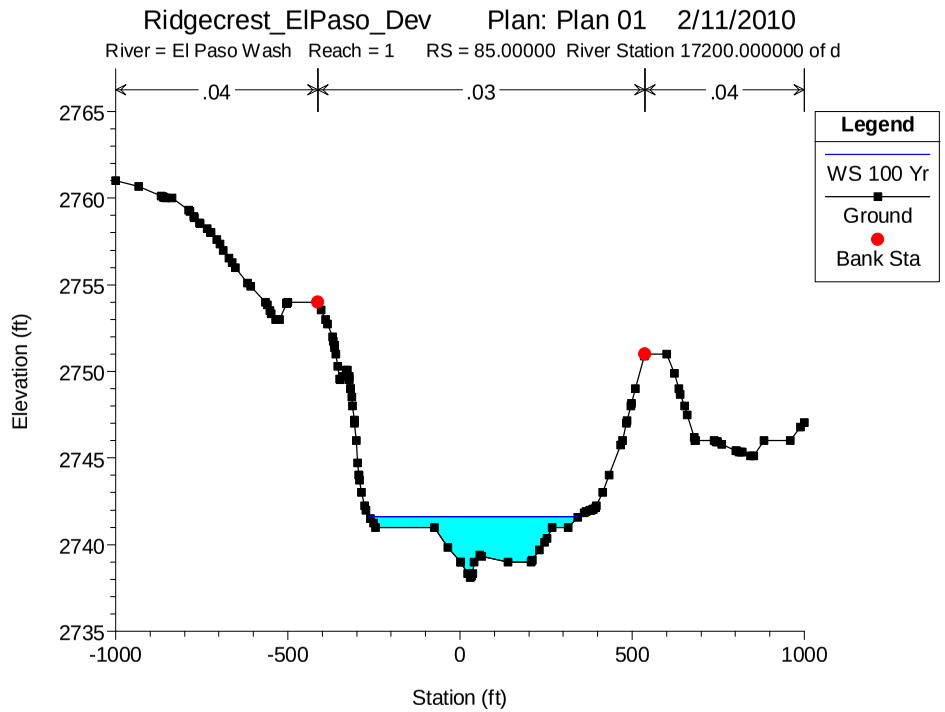

Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 90.00000 River Station 18200.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 89.00000 River Station 18000.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 88.00000 River Station 17800.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 87.00000 River Station 17600.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 86.00000 River Station 17400.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 85.00000 River Station 17200.000000 of d
.04
.03
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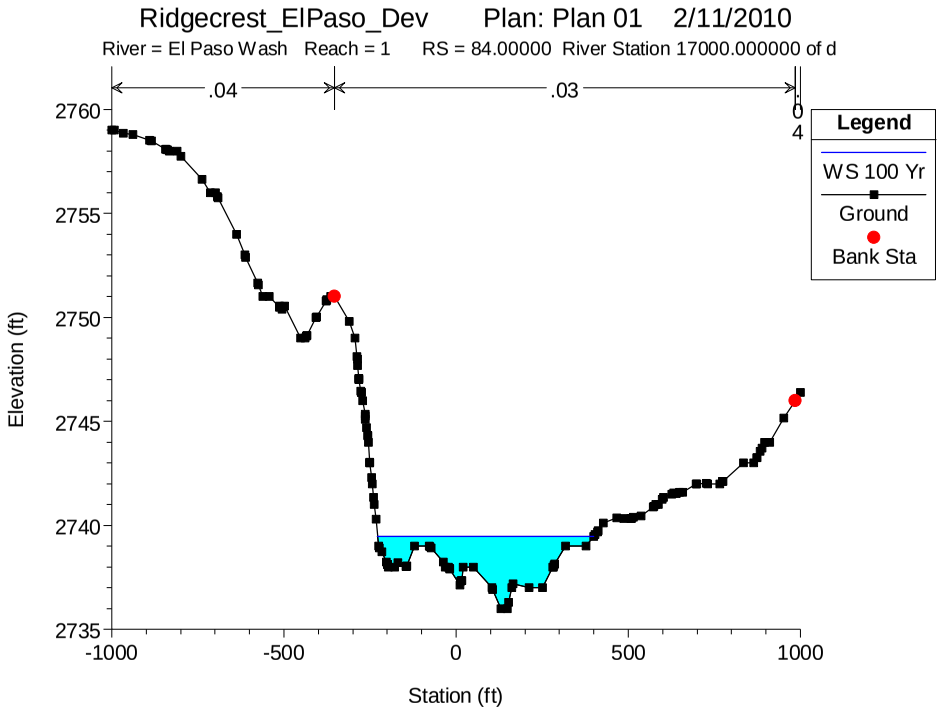
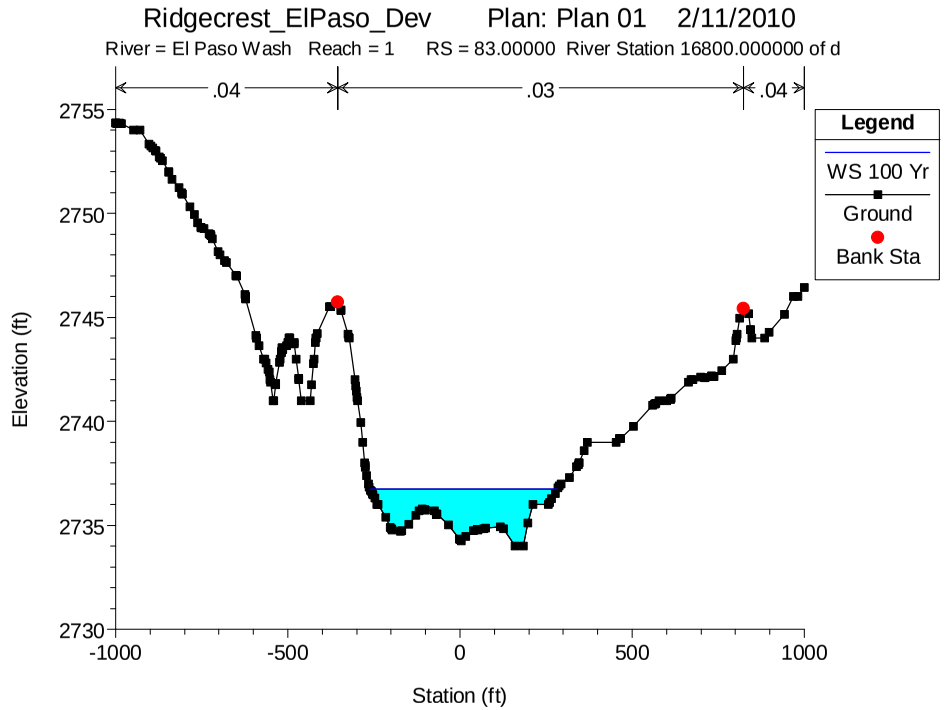
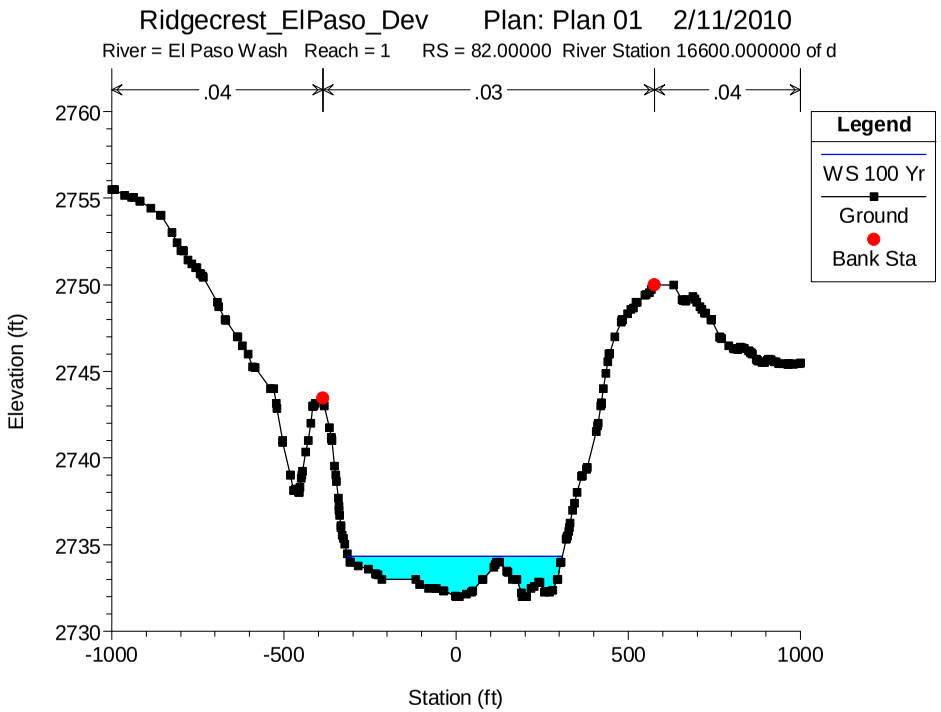
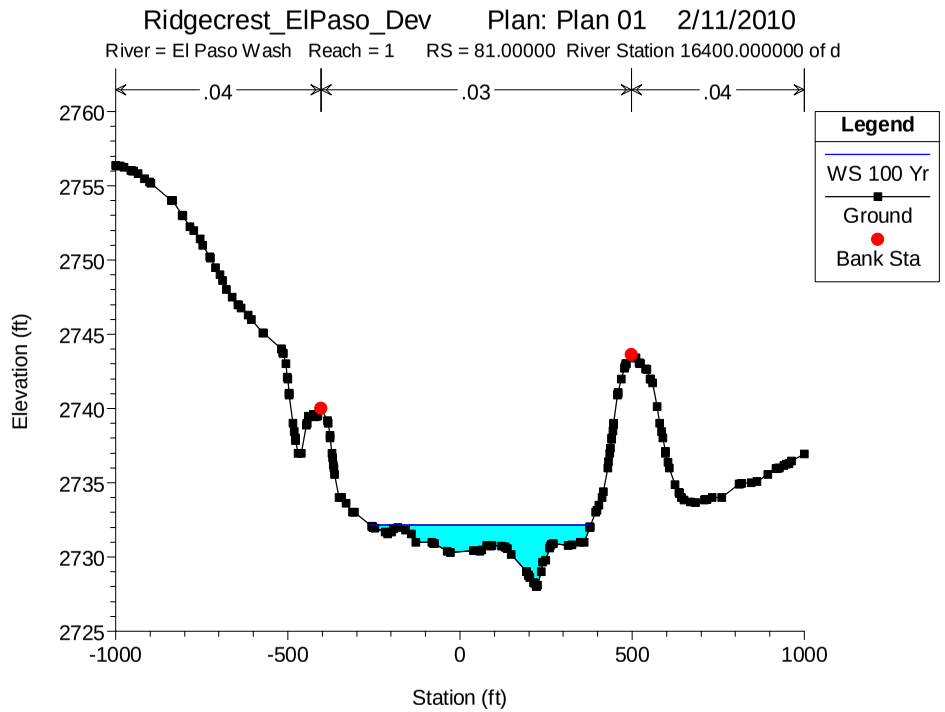
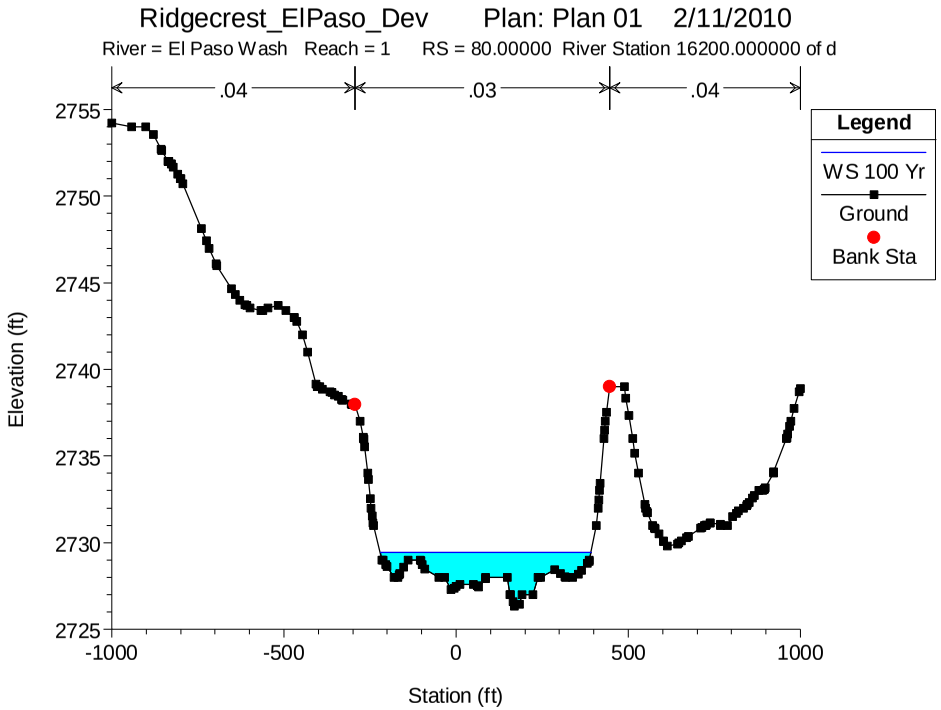
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

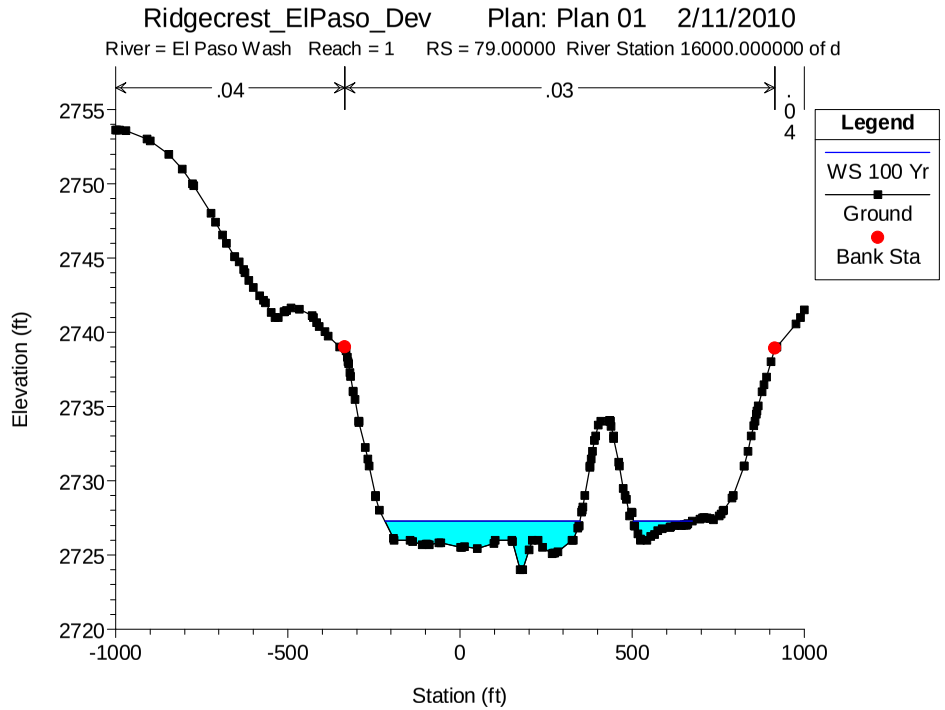

Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 84.00000 River Station 17000.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

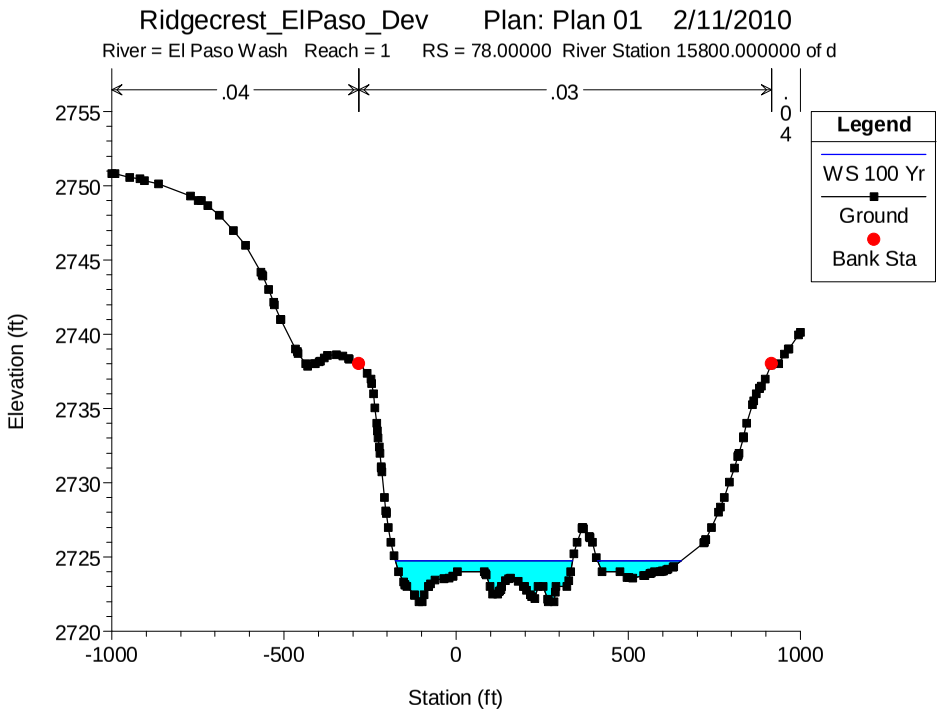

Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 83.00000 River Station 16800.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

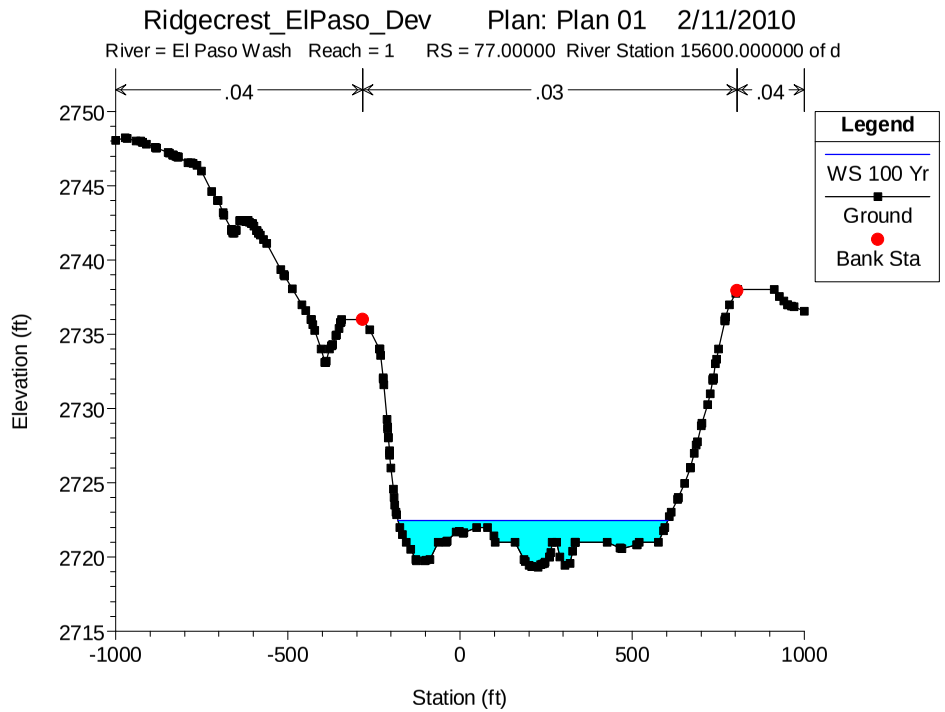

Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 82.00000 River Station 16600.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

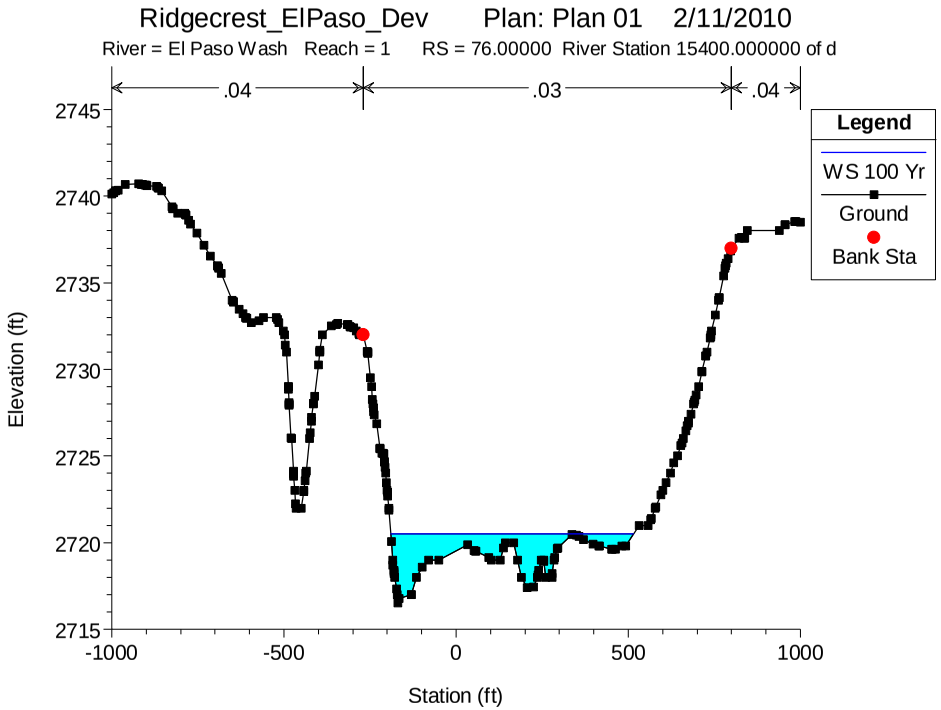

Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 81.00000 River Station 16400.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

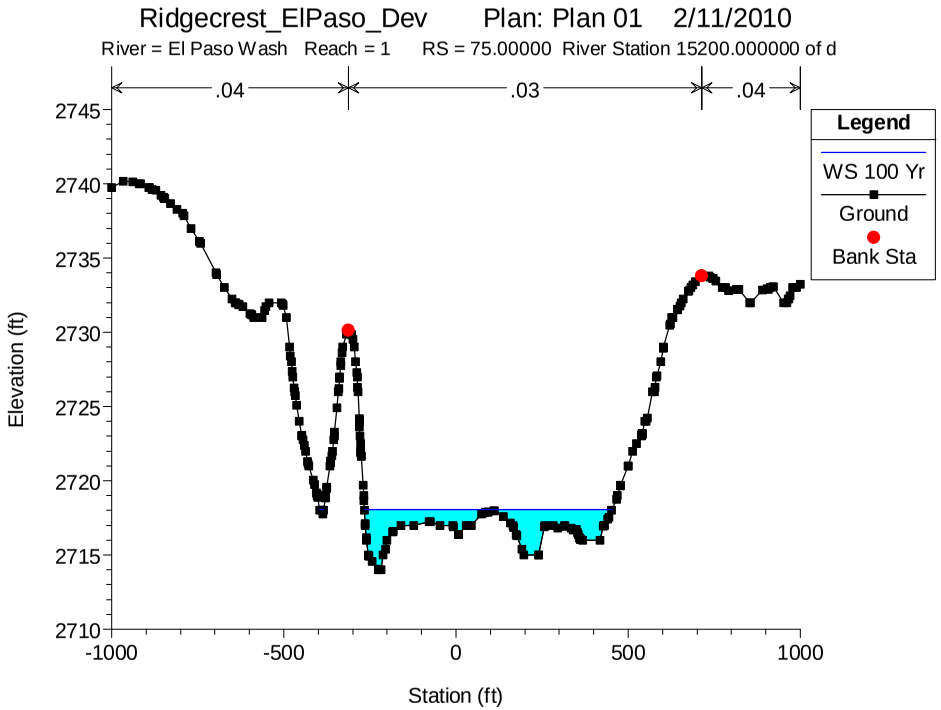

Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 80.00000 River Station 16200.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

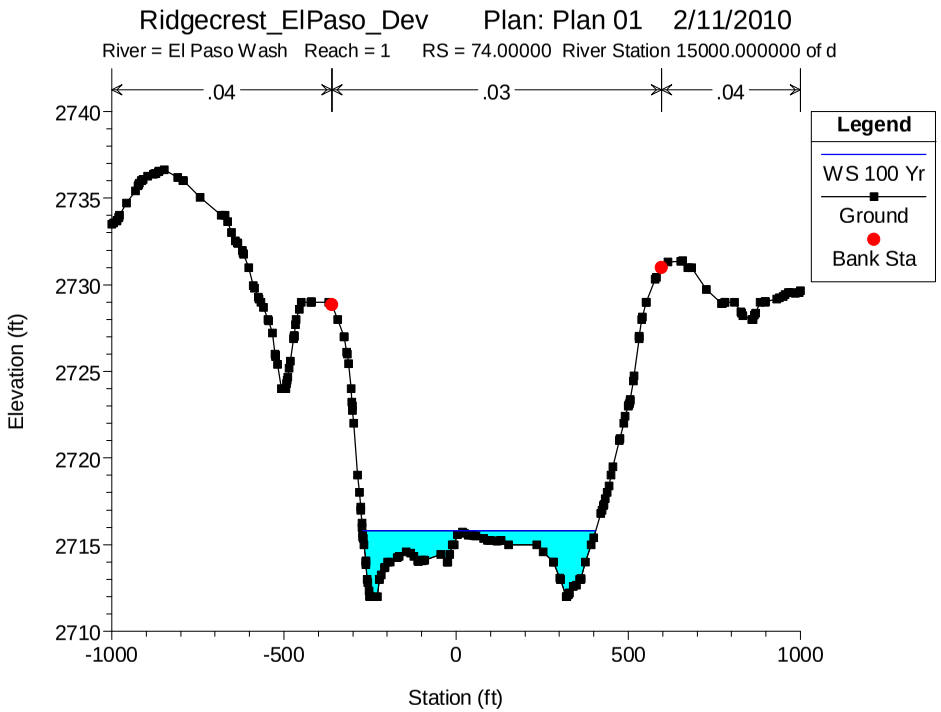

Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 79.00000 River Station 16000.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

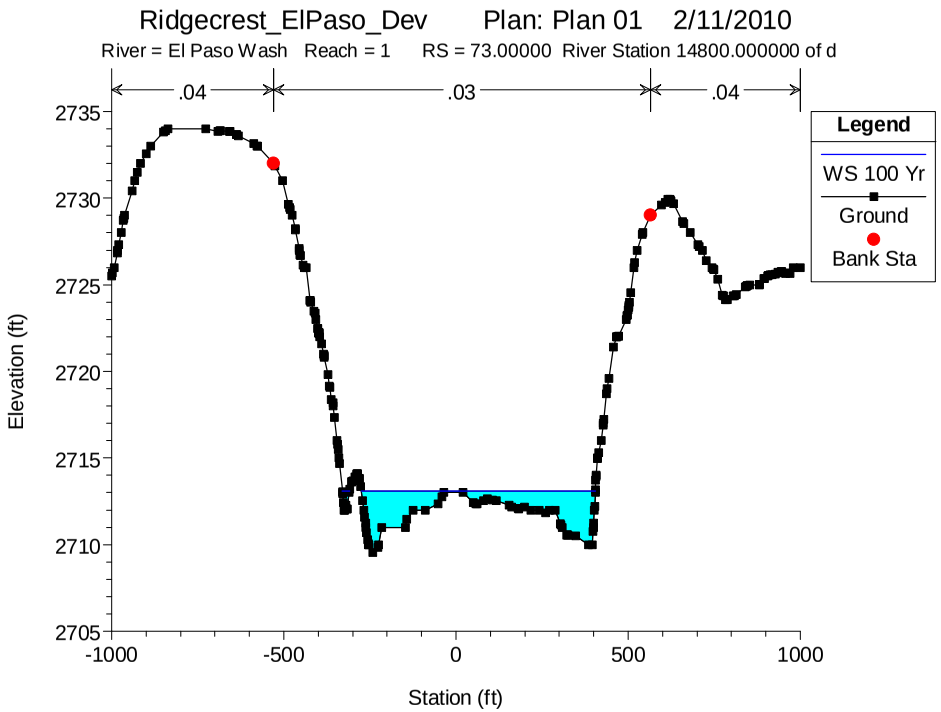

Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 78.00000 River Station 15800.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

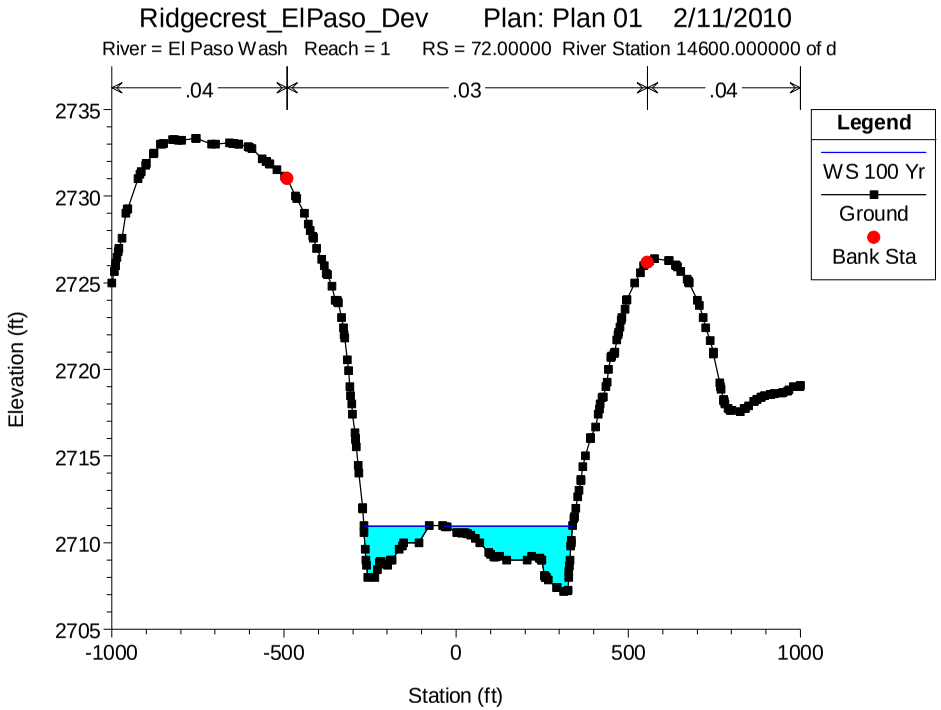

Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 77.00000 River Station 15600.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

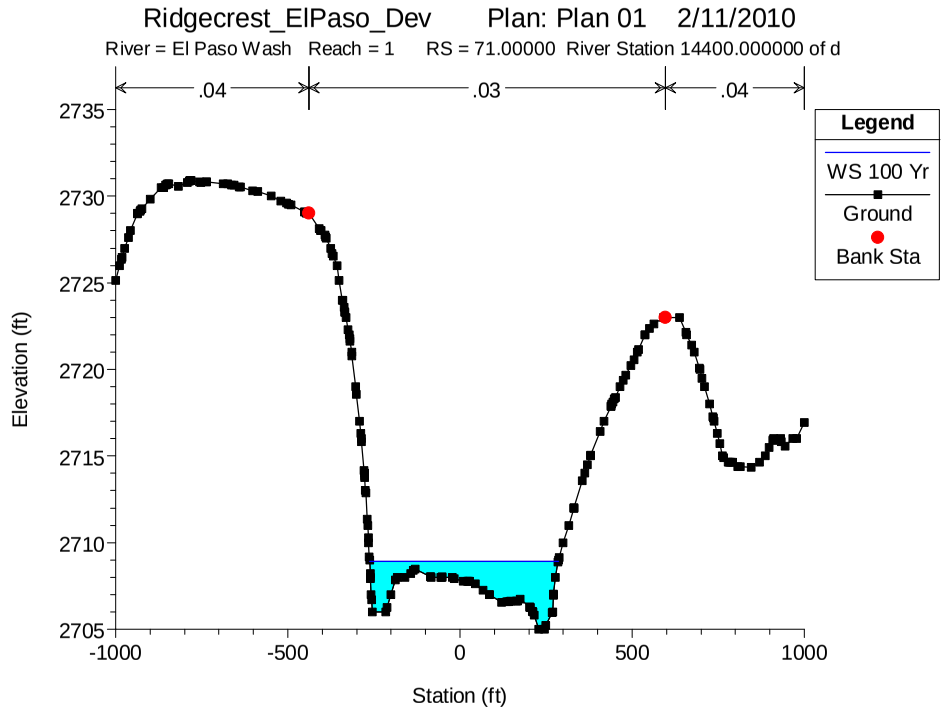

Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 76.00000 River Station 15400.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

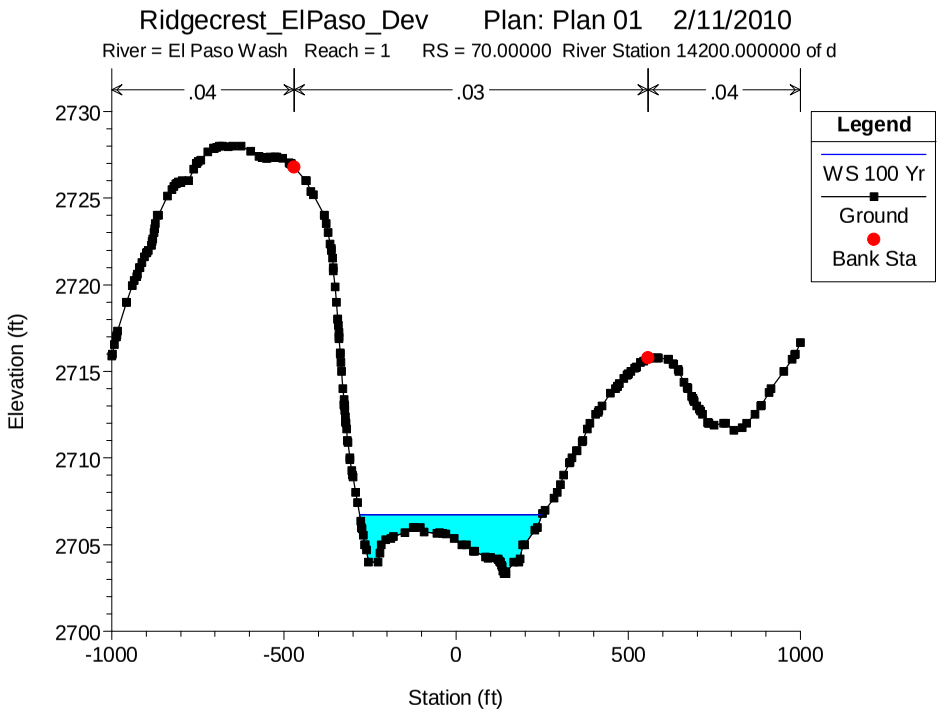

Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 75.00000 River Station 15200.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 74.00000 River Station 15000.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 73.00000 River Station 14800.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 72.00000 River Station 14600.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 71.00000 River Station 14400.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 70.00000 River Station 14200.000000 of d
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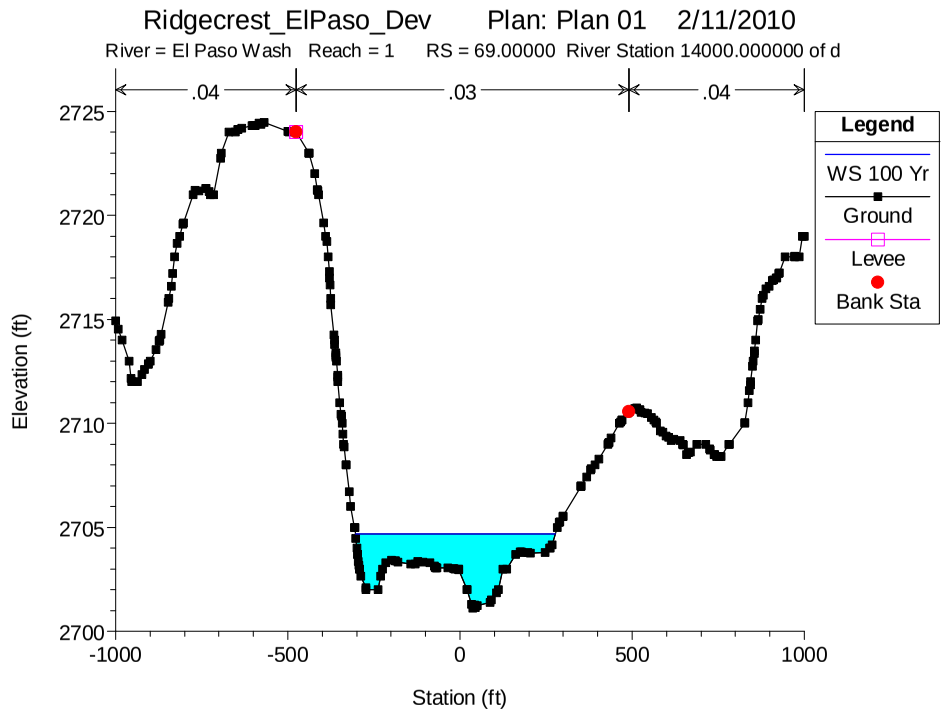
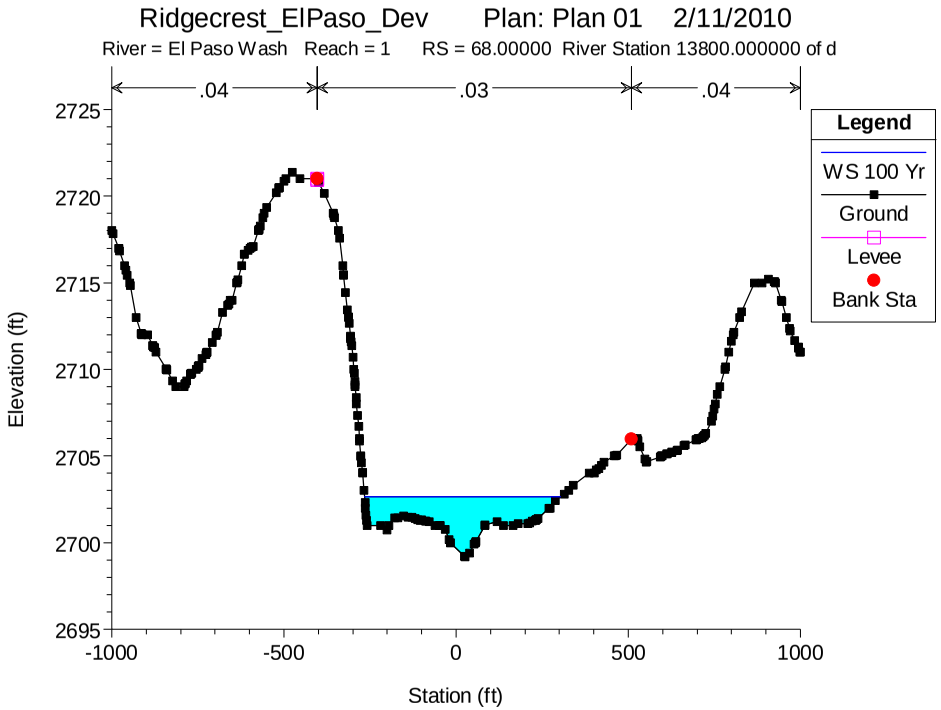
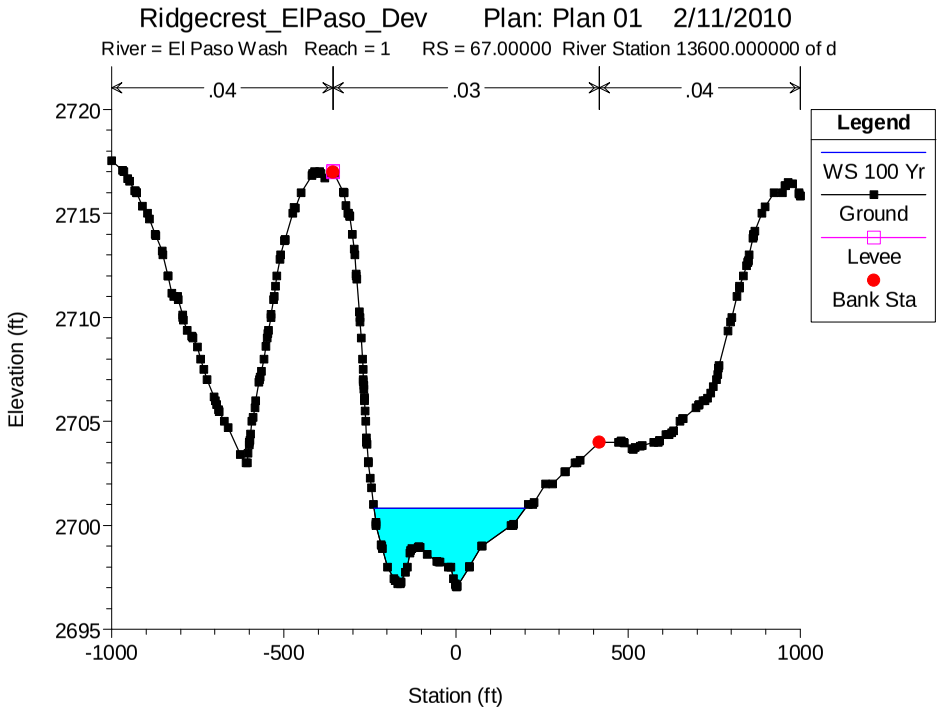
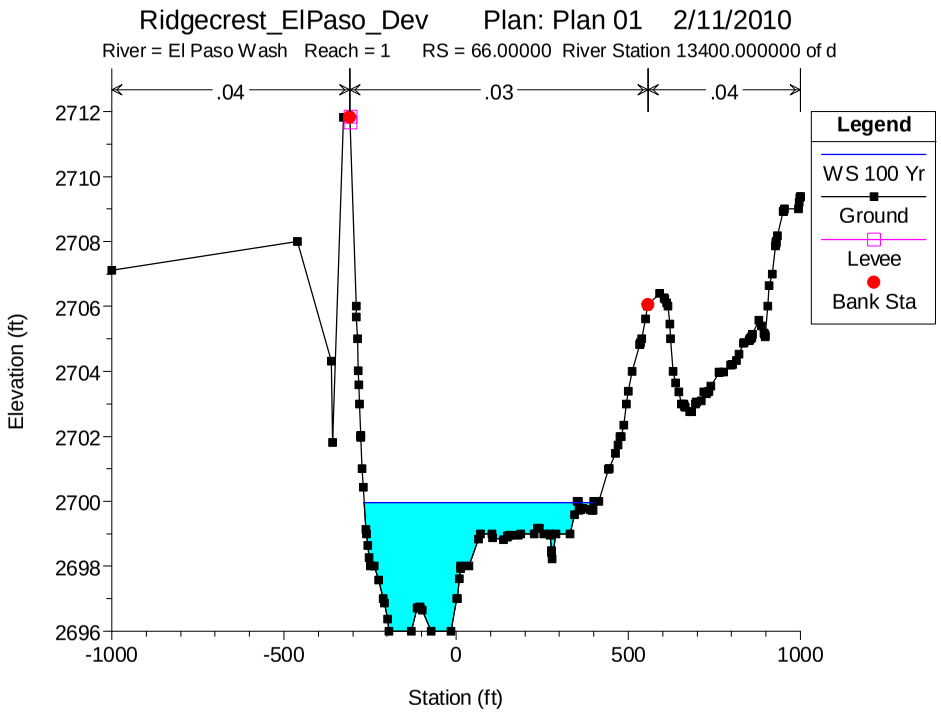
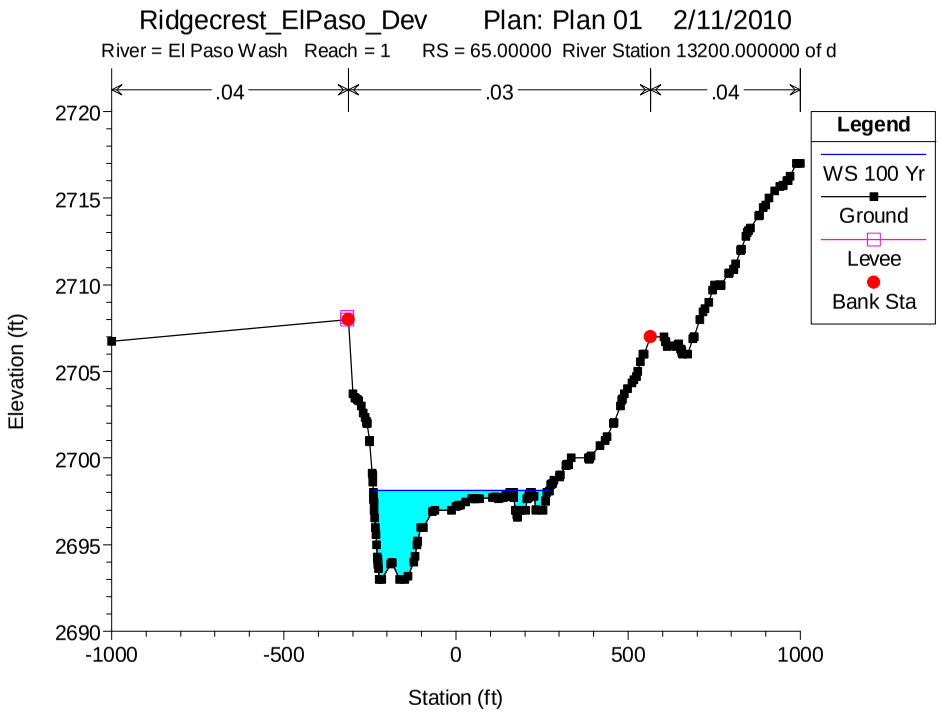
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

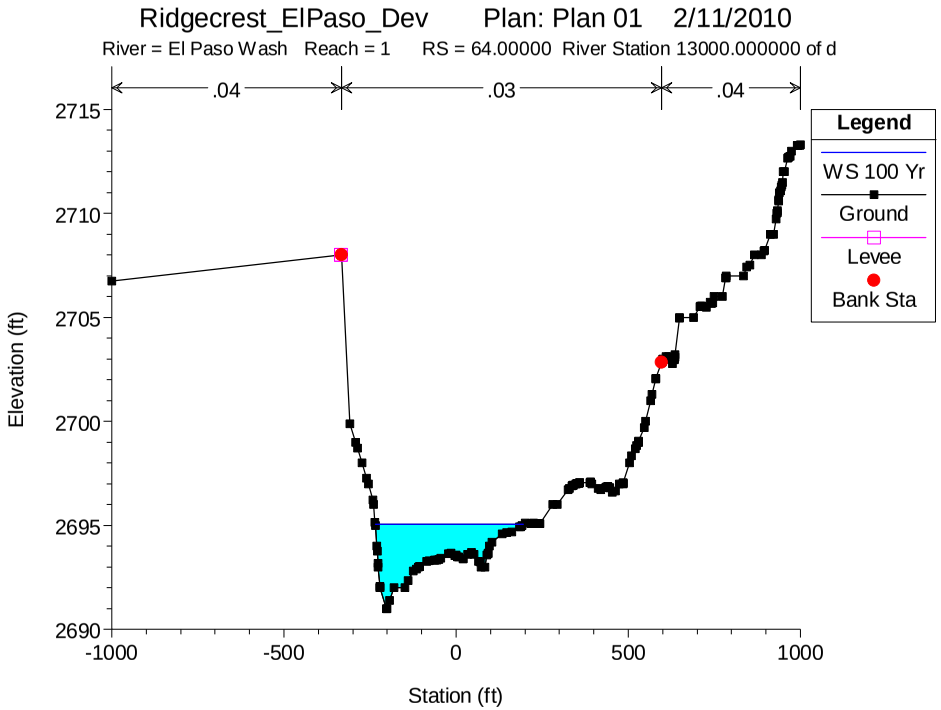

Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 69.00000 River Station 14000.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

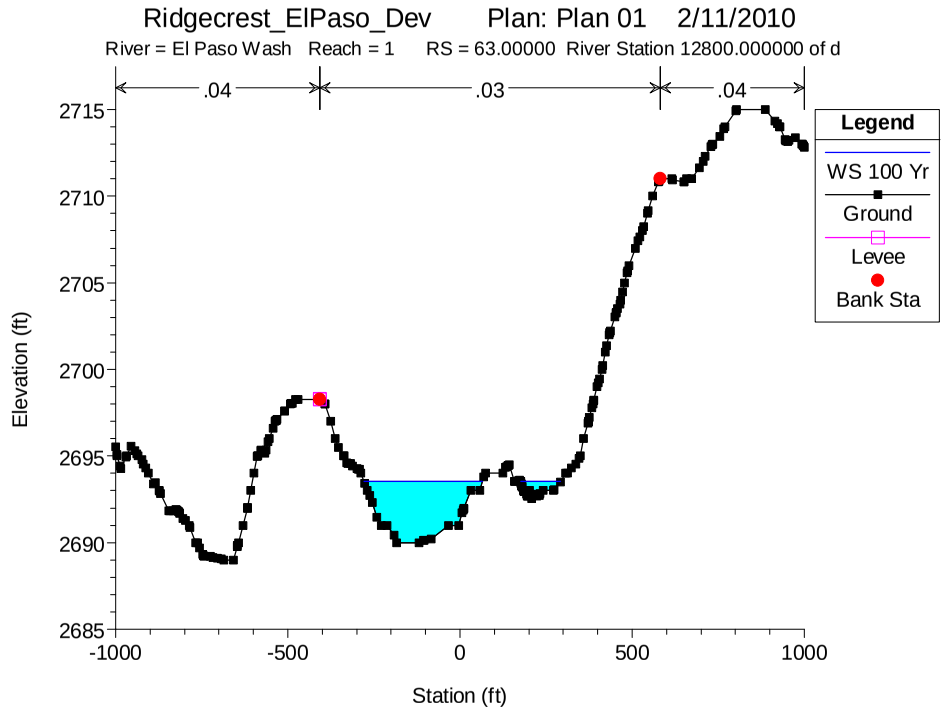

Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 68.00000 River Station 13800.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 67.00000 River Station 13600.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 66.00000 River Station 13400.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 65.00000 River Station 13200.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 64.00000 River Station 13000.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)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River = El Paso Wash Reach = 1 RS = 63.00000 River Station 12800.000000 of d
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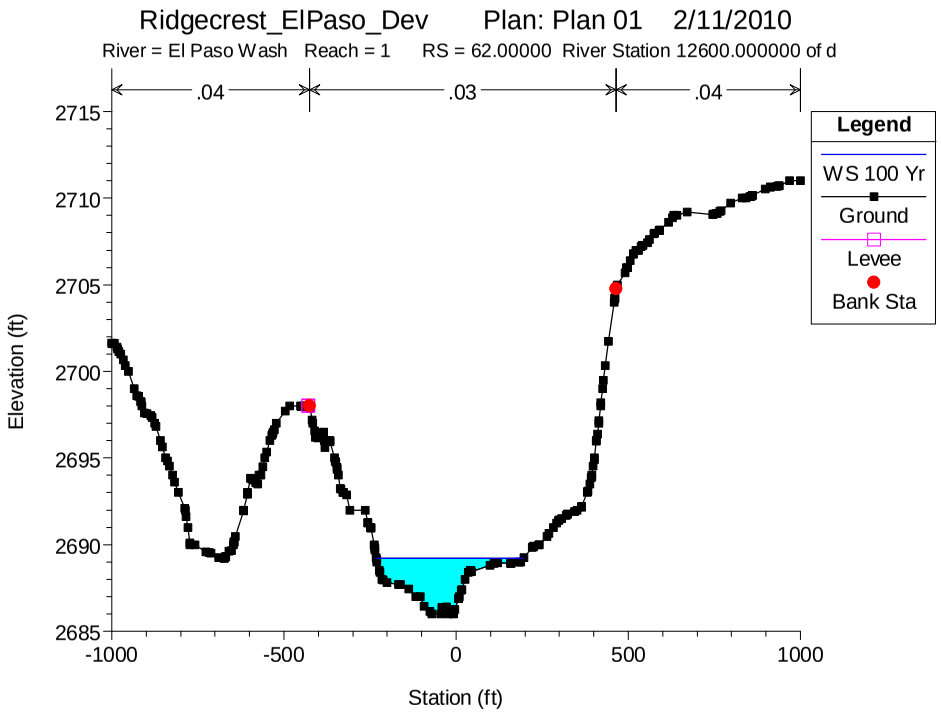
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)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River = El Paso Wash Reach = 1 RS = 62.00000 River Station 12600.000000 of d
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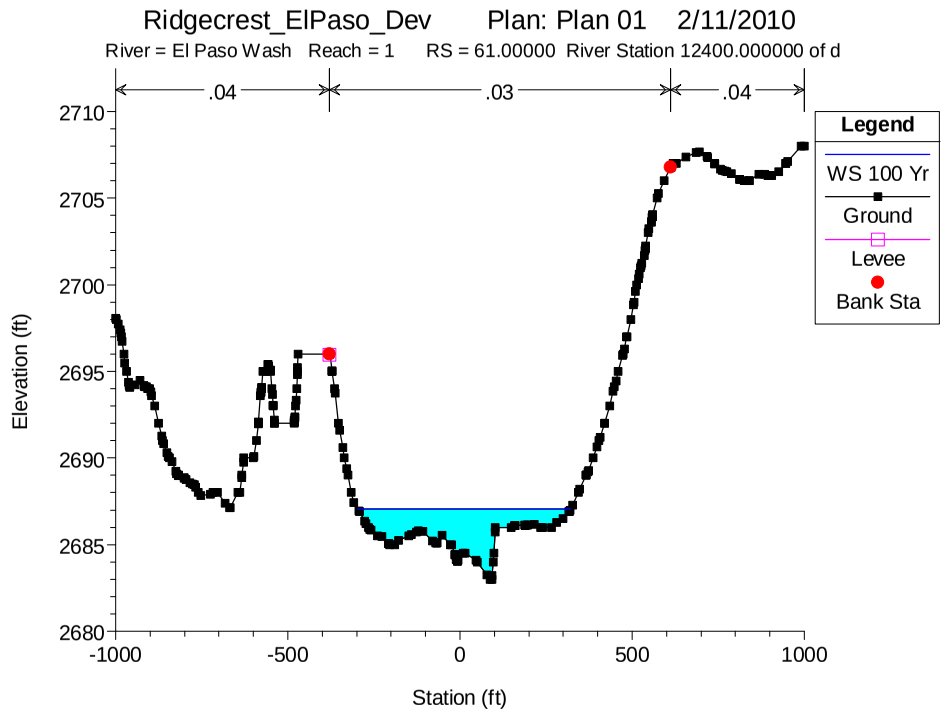
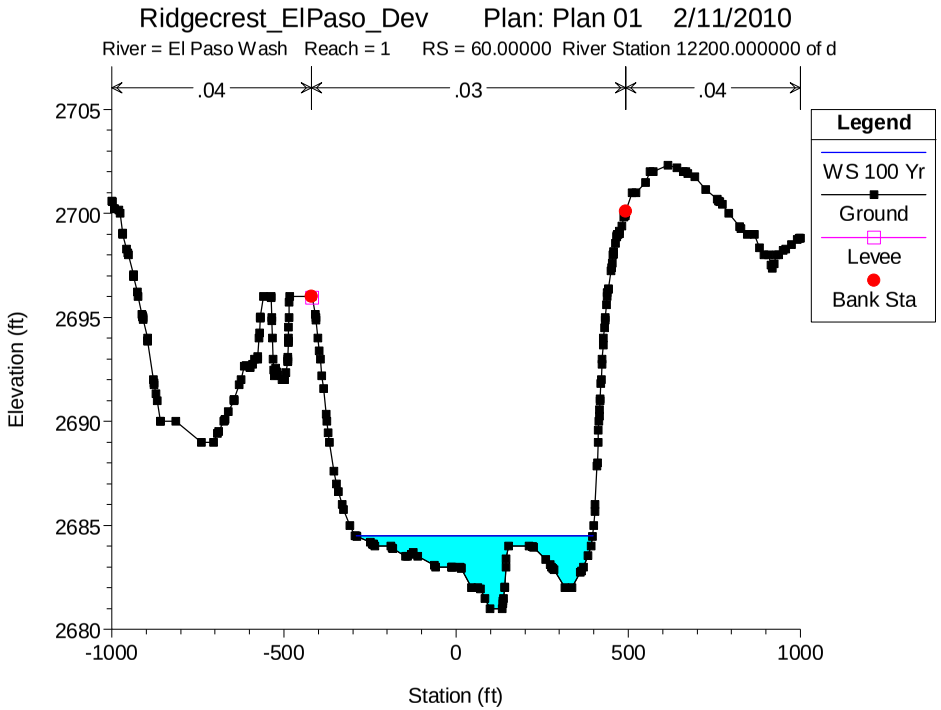
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 61.00000 River Station 12400.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 60.00000 River Station 12200.000000 of d
.04
.03
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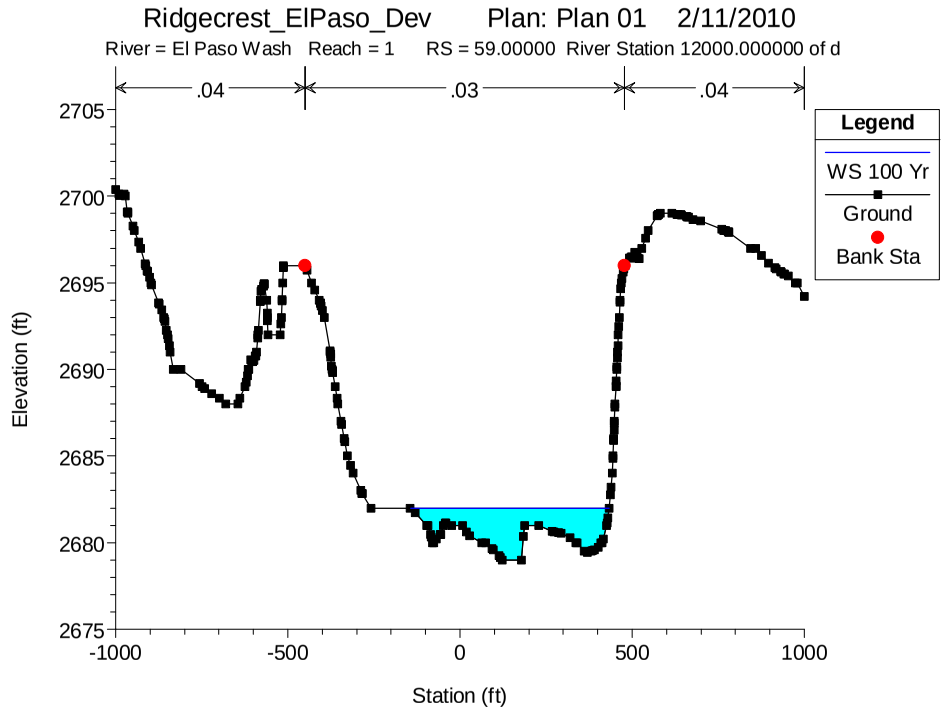
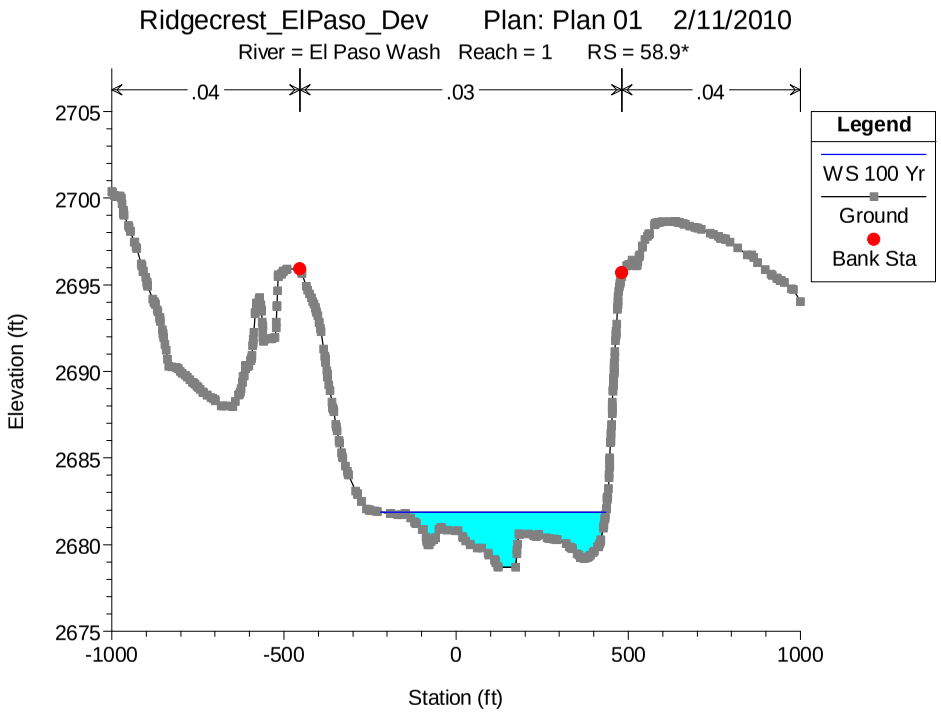
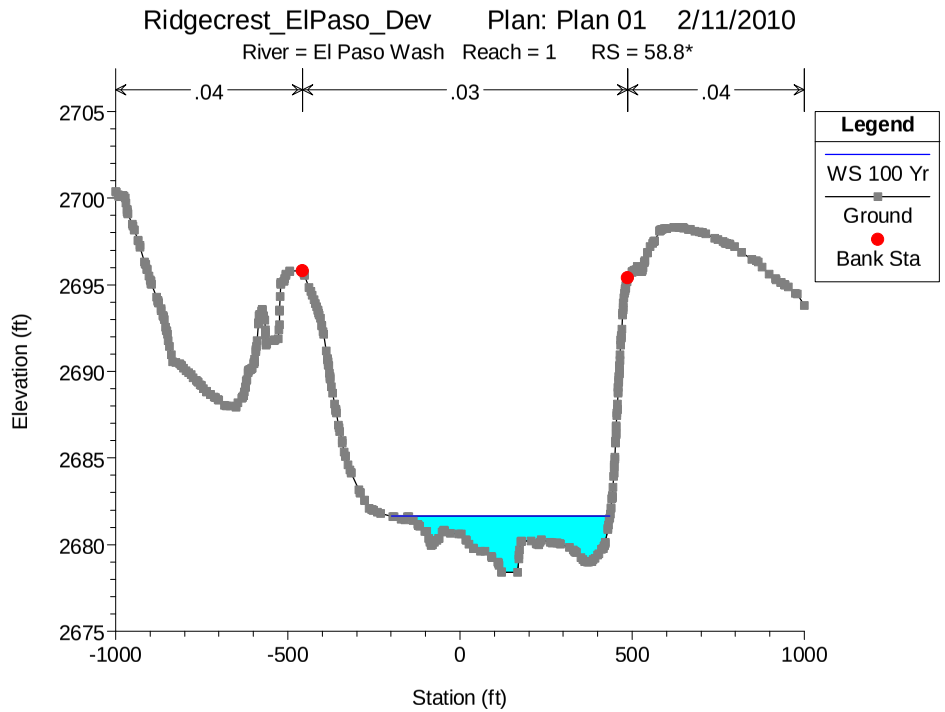
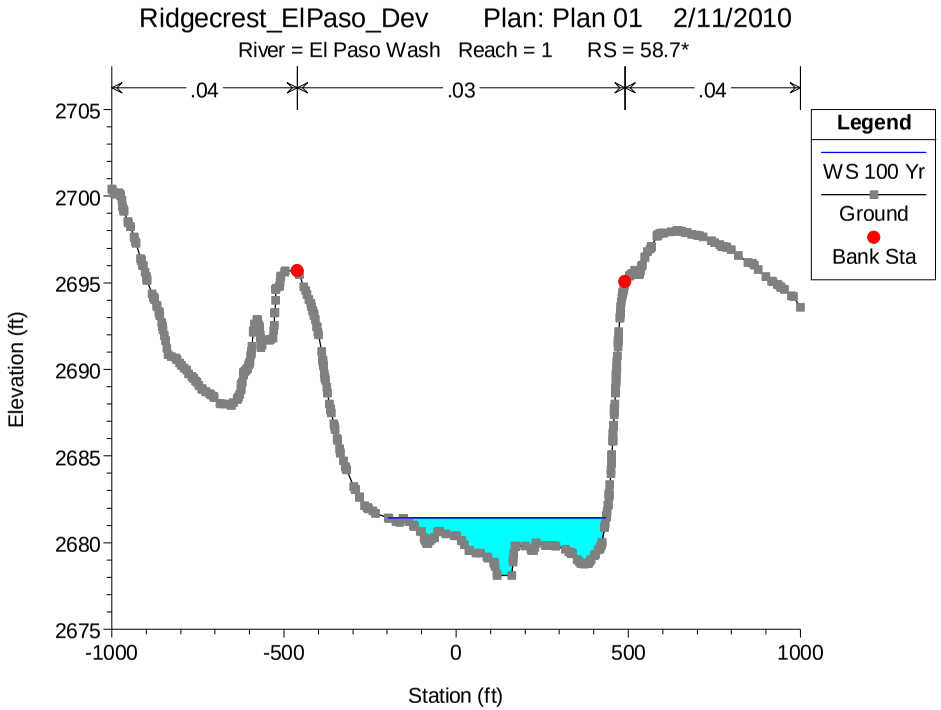
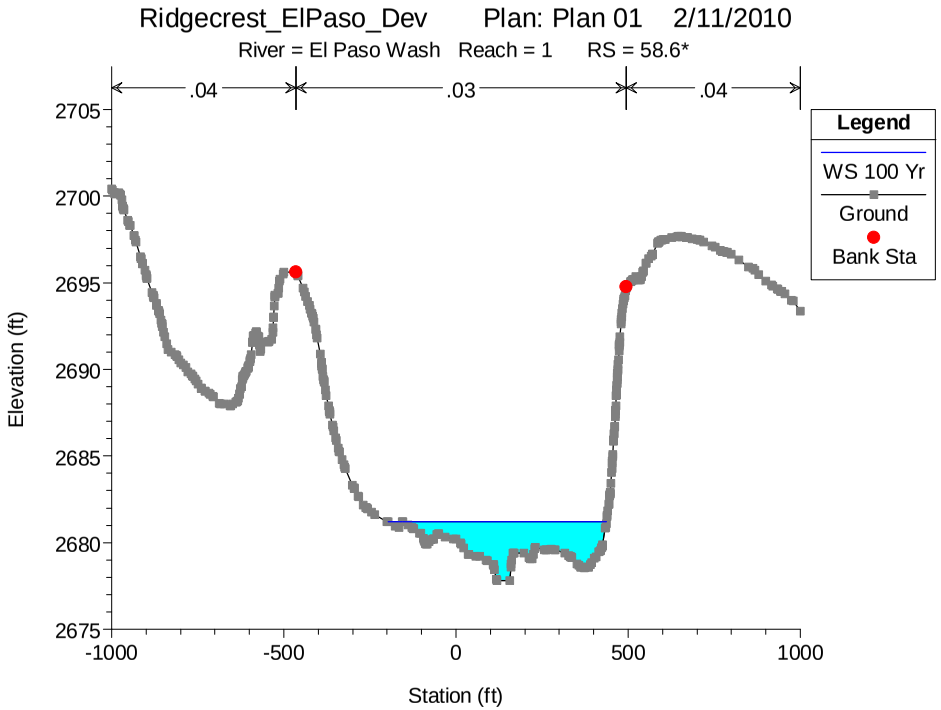
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 59.00000 River Station 12000.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 58.9*
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 58.8*
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 58.7*
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
2705
2700
2695
2690
2685
2680
2675
-1000
-500
0
500
1000
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 58.6*
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
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2700
2695
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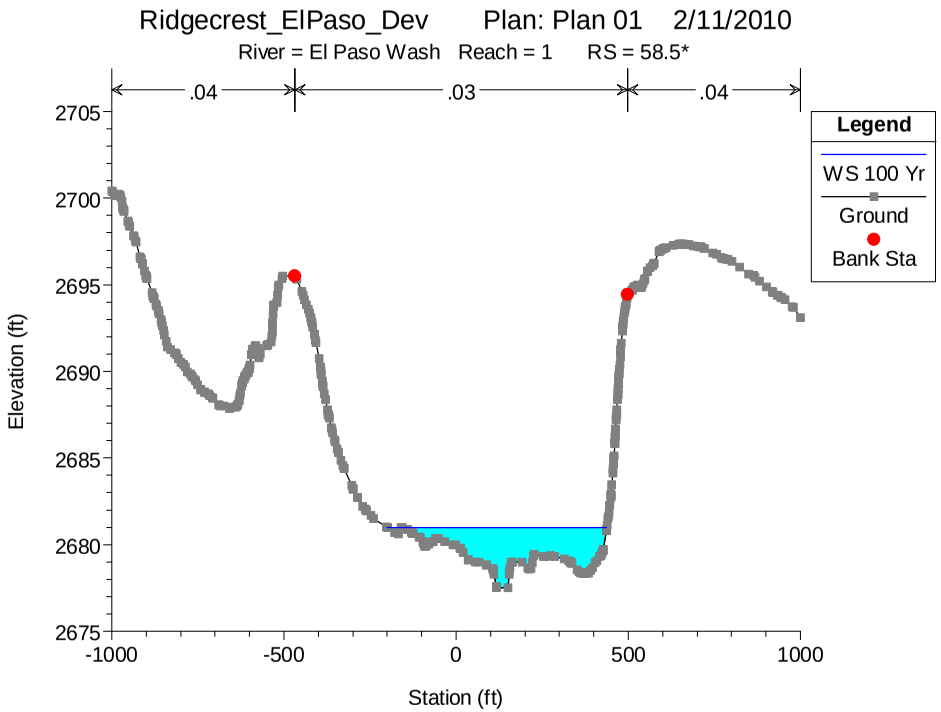
2685
2680
2675
-1000
-500
0
500
1000
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 58.5*
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
2705
2700
2695
2690
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2680
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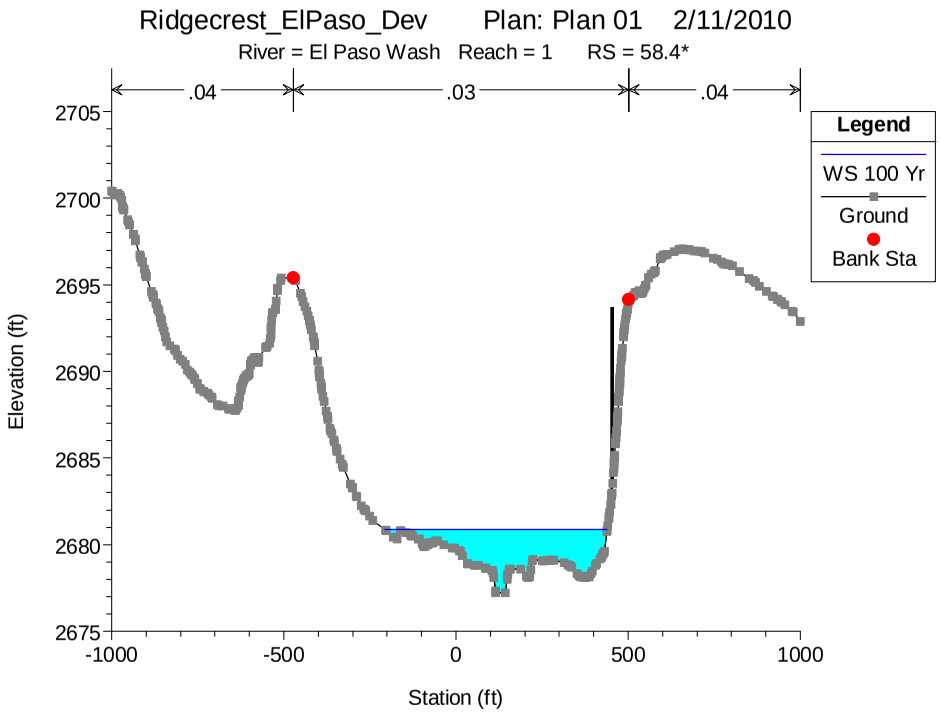
-1000
-500
0
500
1000
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 58.4*
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
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2700
2695
2690
2685
2680
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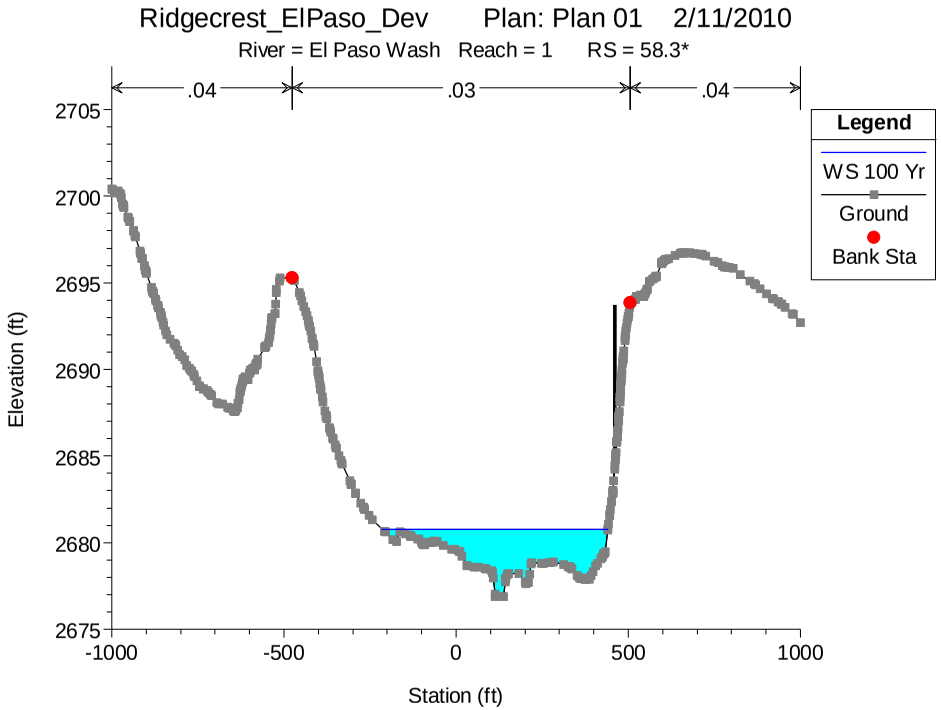
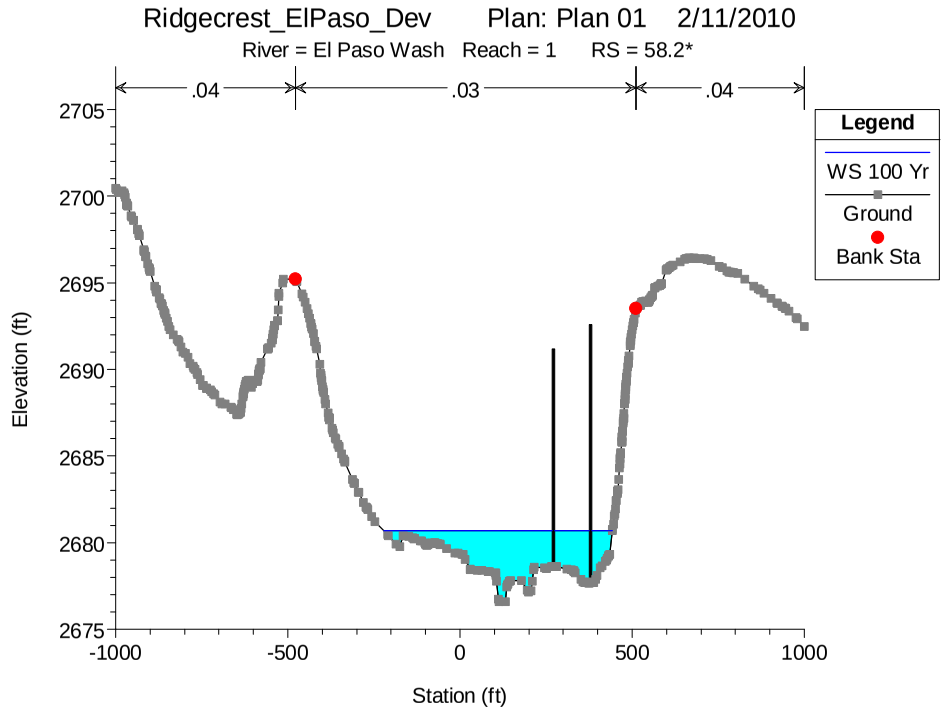
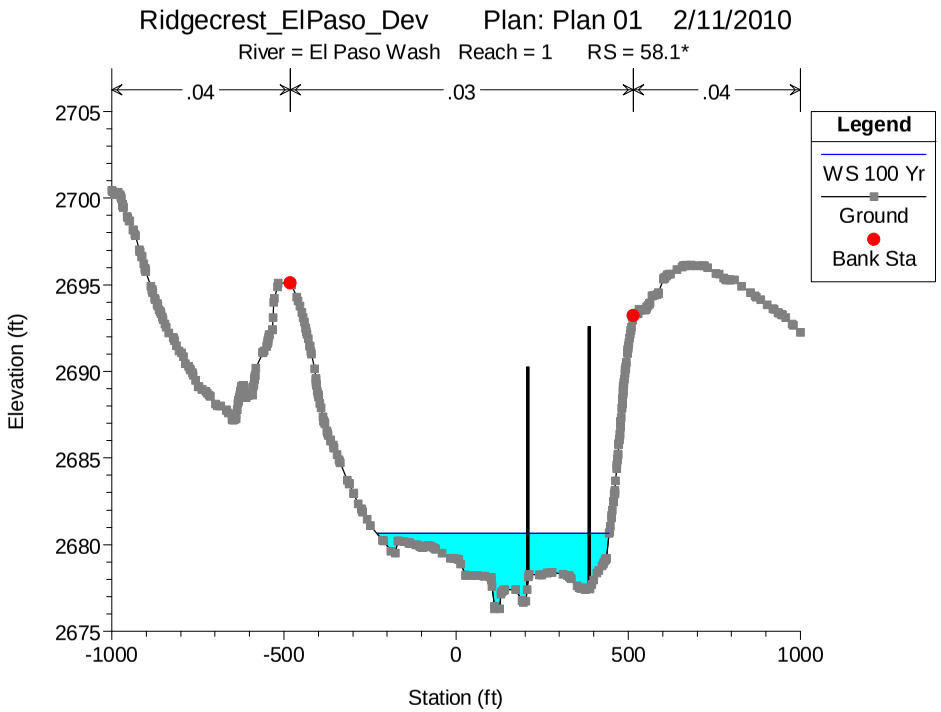
-1000
-500
0
500
1000
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 58.3*
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 58.2*
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 58.1*
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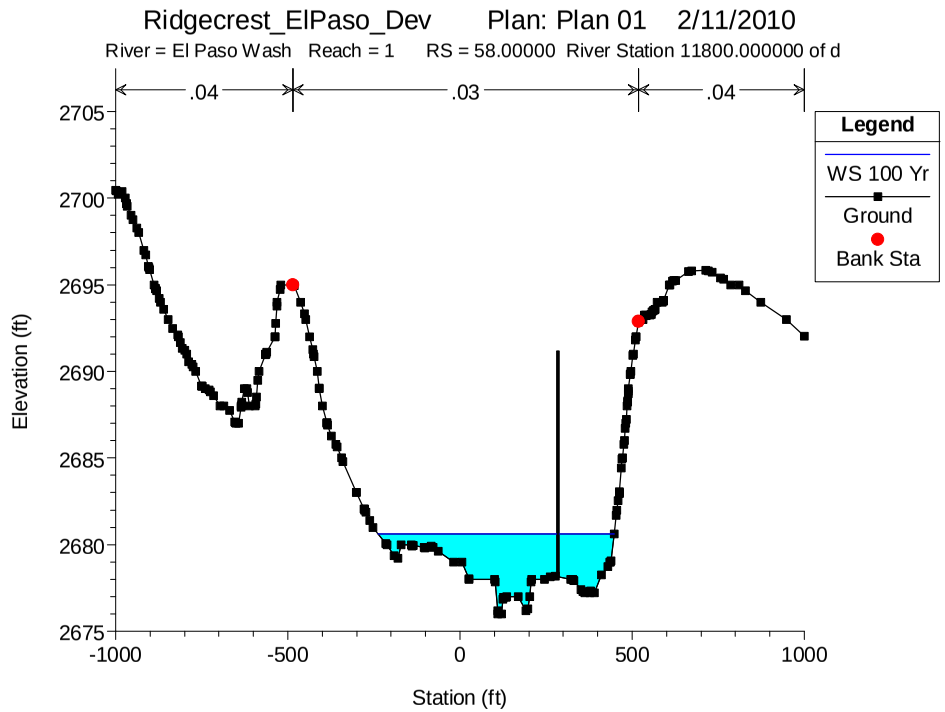
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 58.00000 River Station 11800.000000 of d
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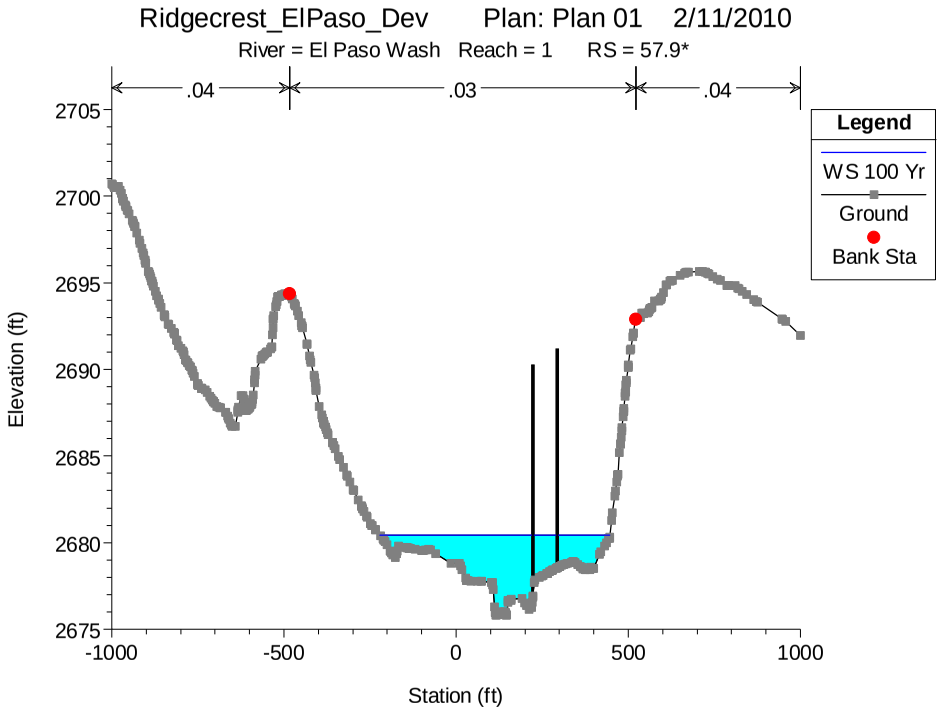
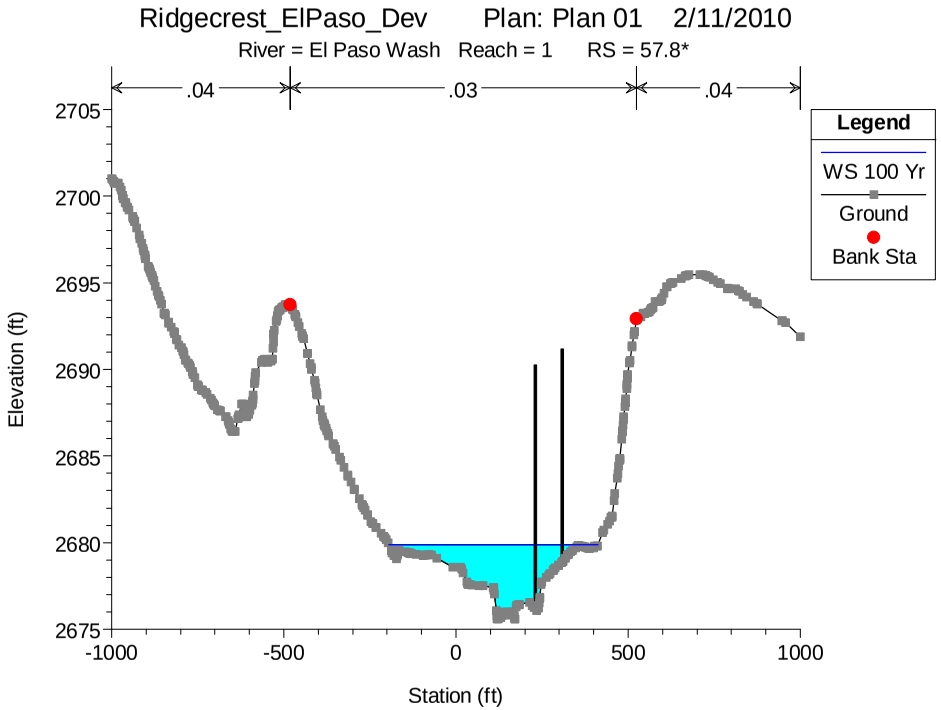
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 57.9*
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 57.8*
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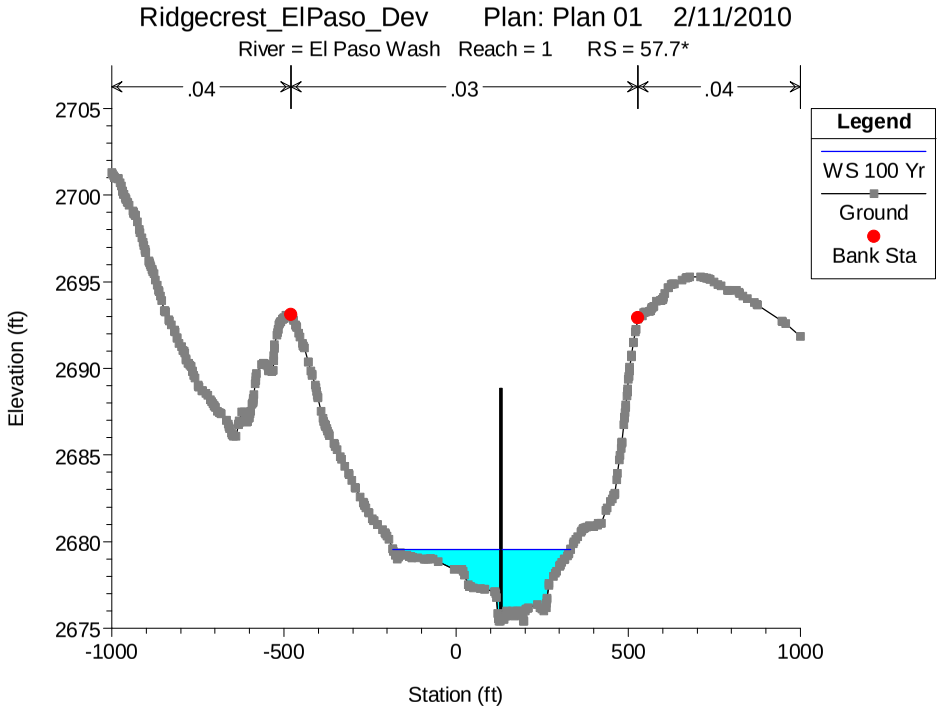
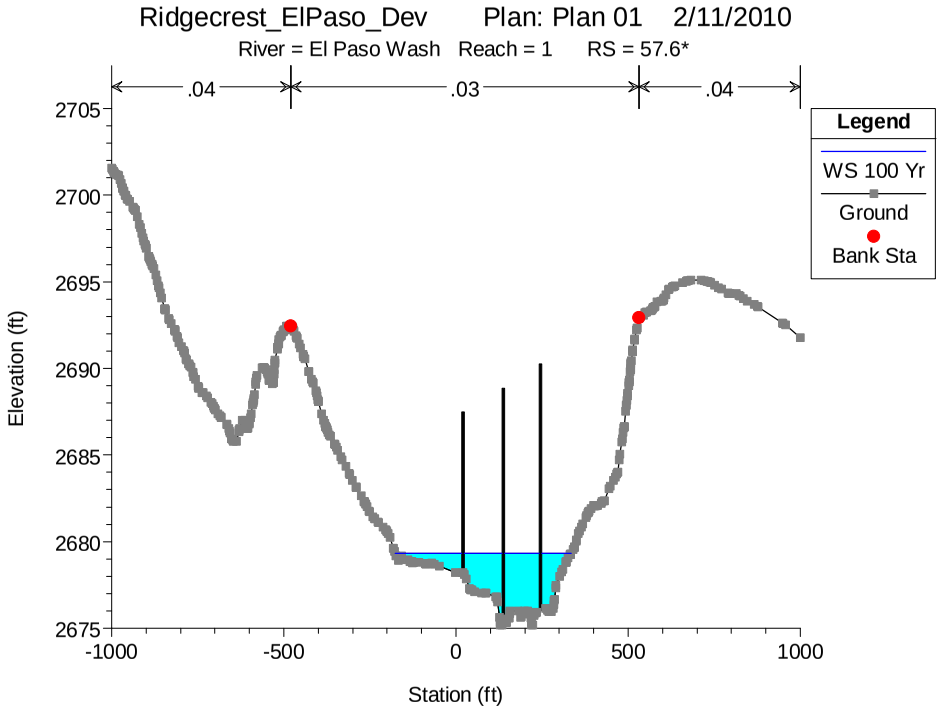
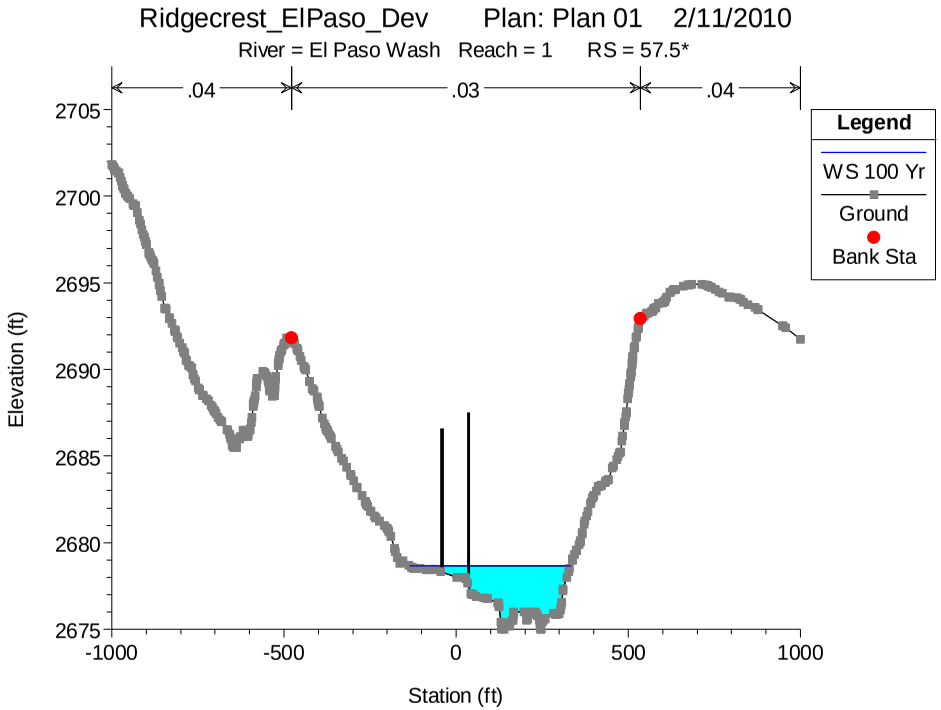
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 57.7*
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 57.6*
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 57.5*
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.03
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Legend
WS 100 Yr
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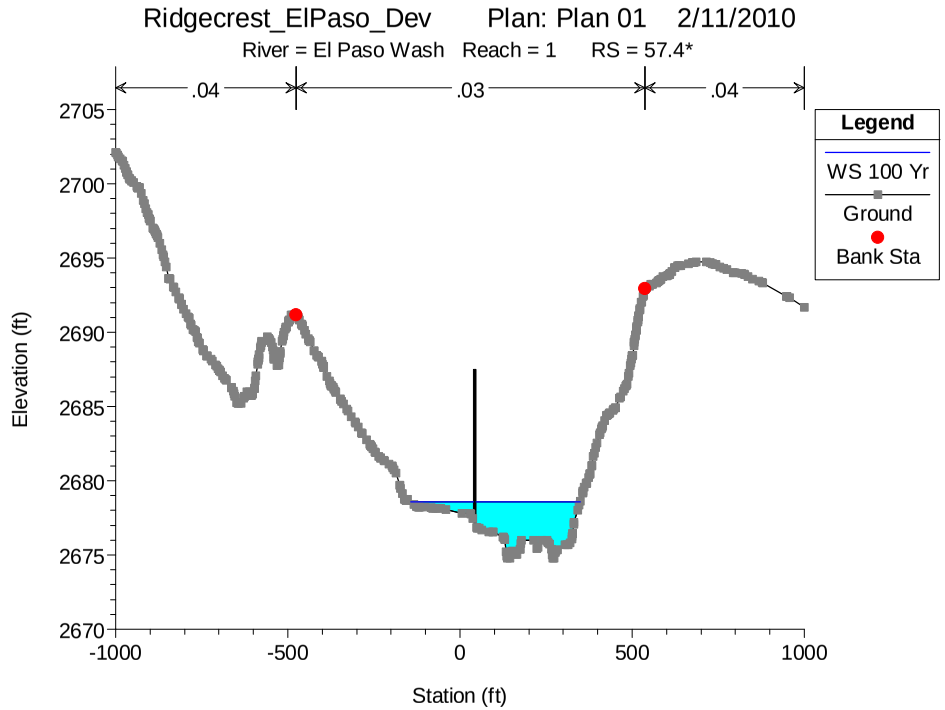
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
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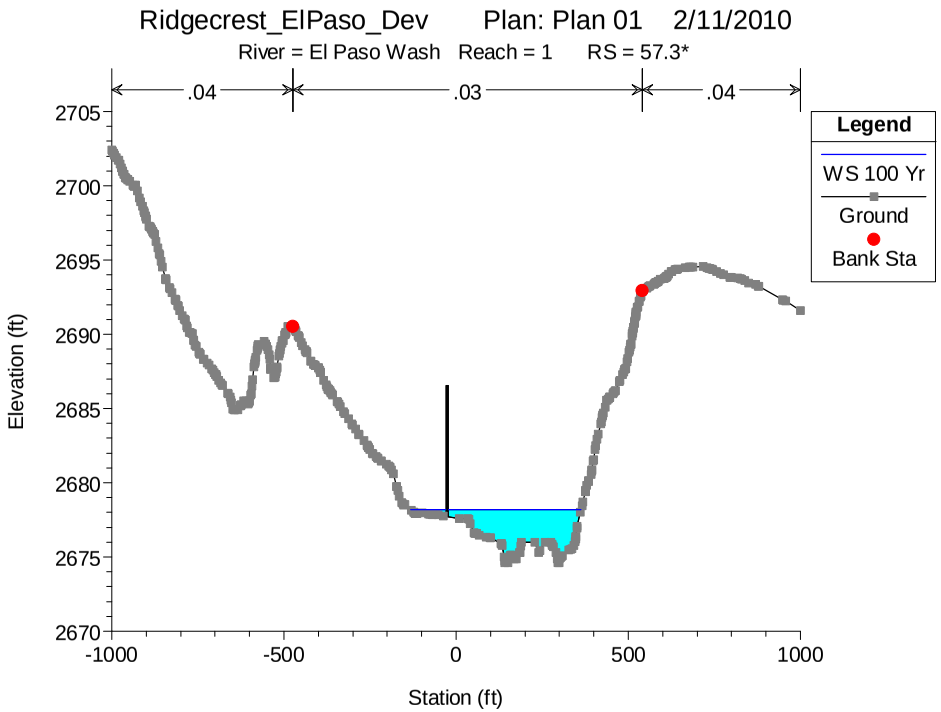
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
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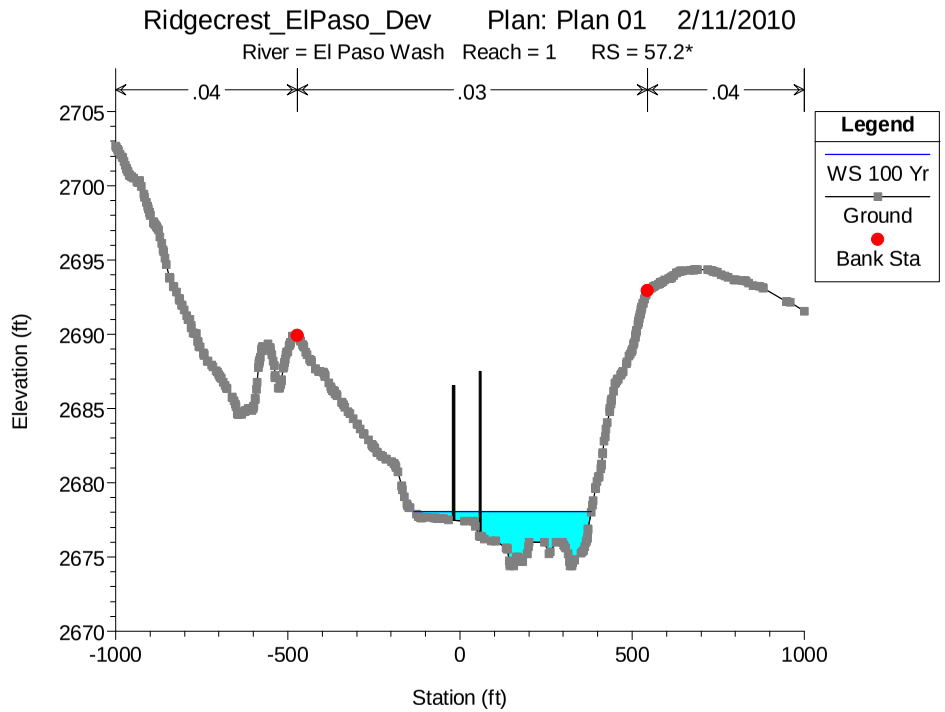
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 57.2*
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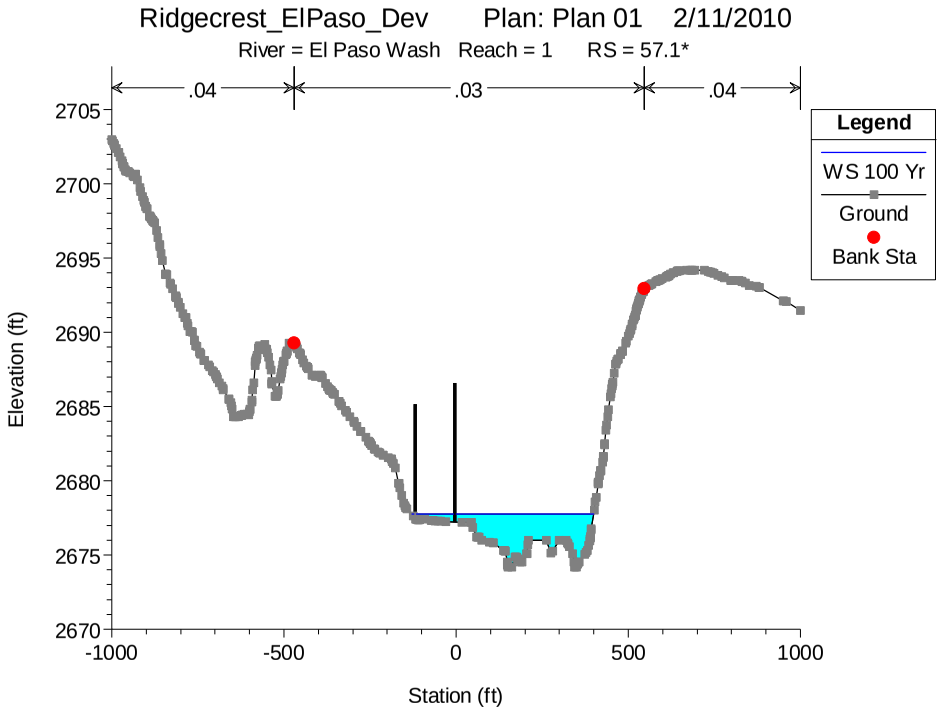
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 57.1*
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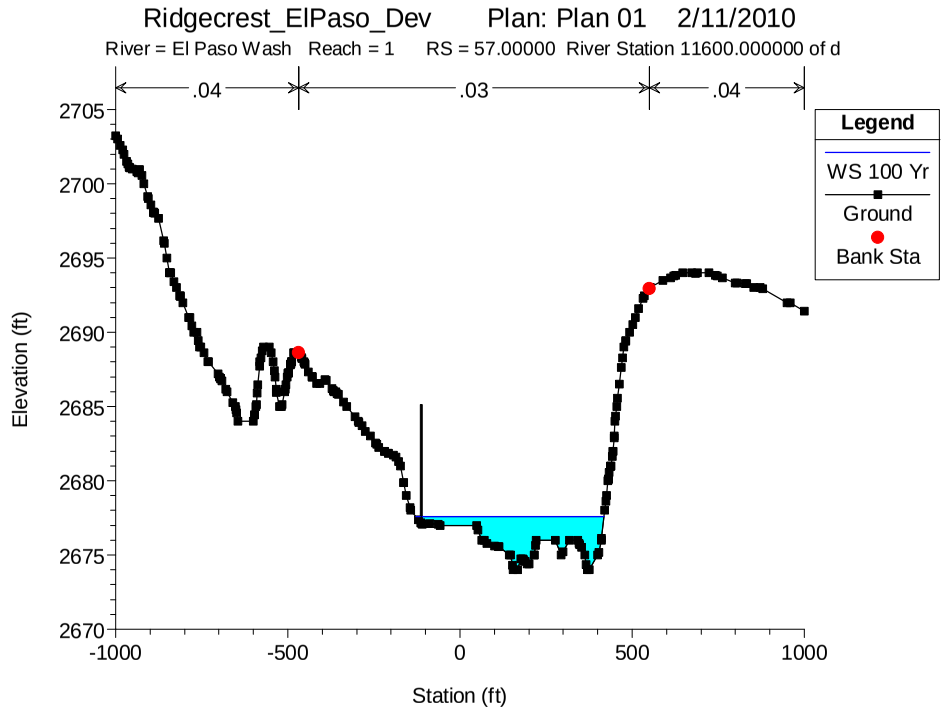
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
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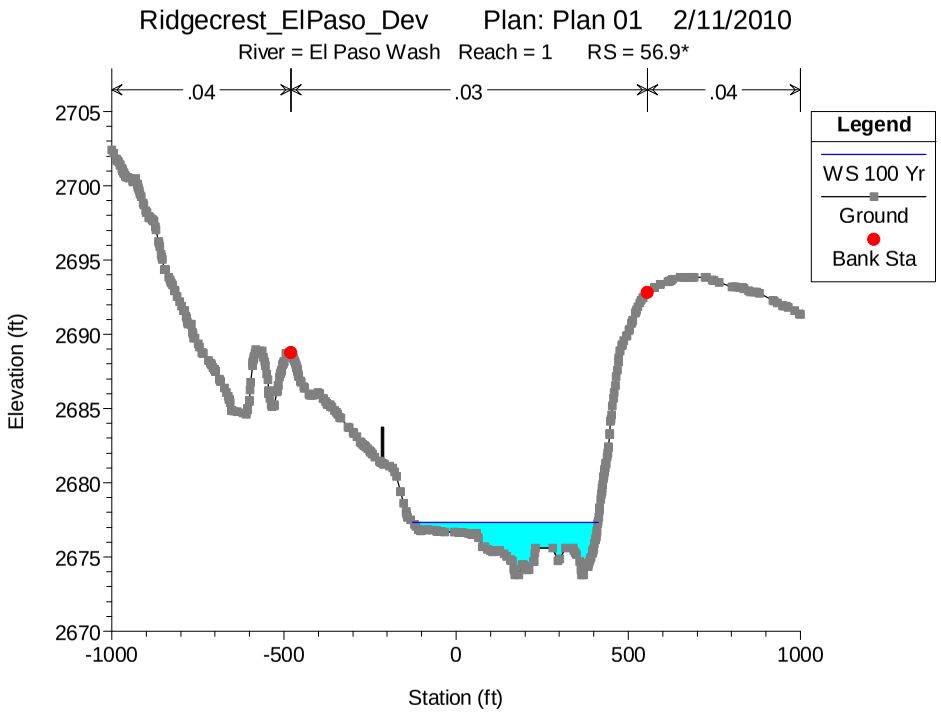
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 56.9*
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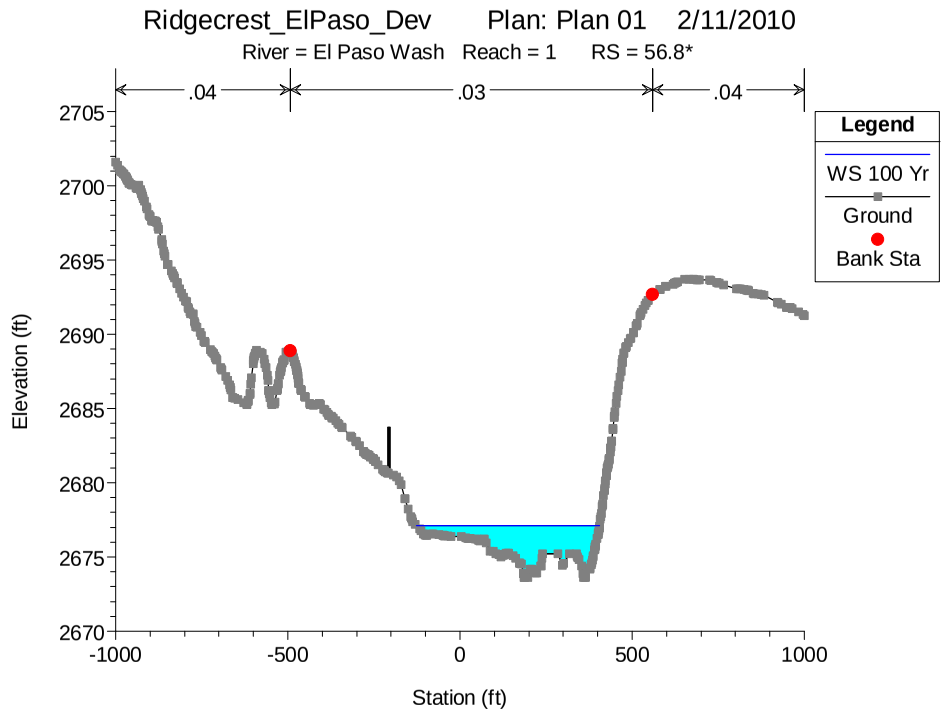
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
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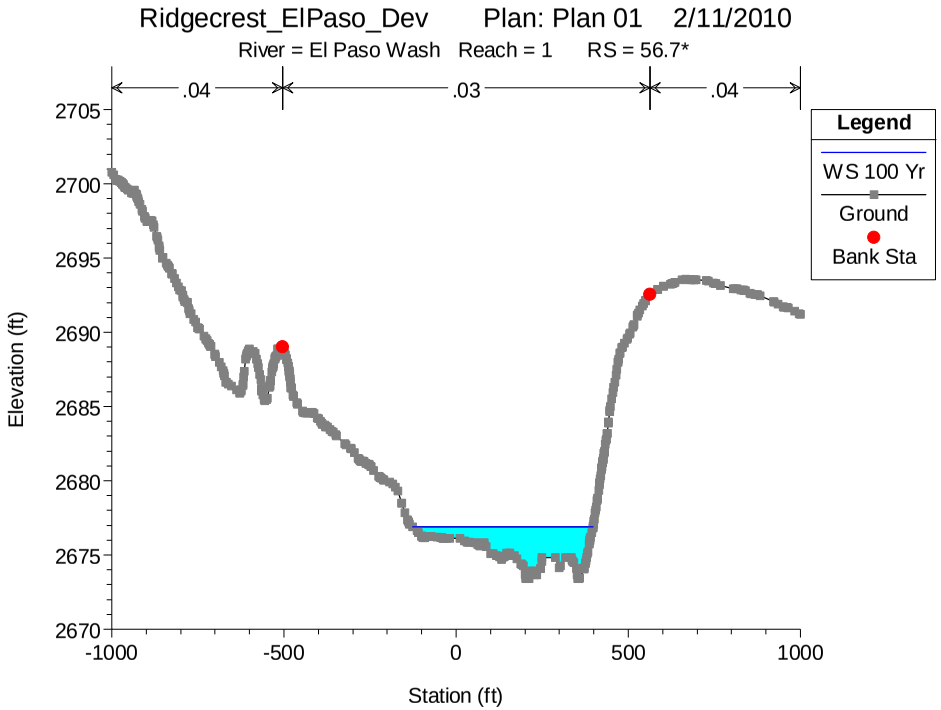
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
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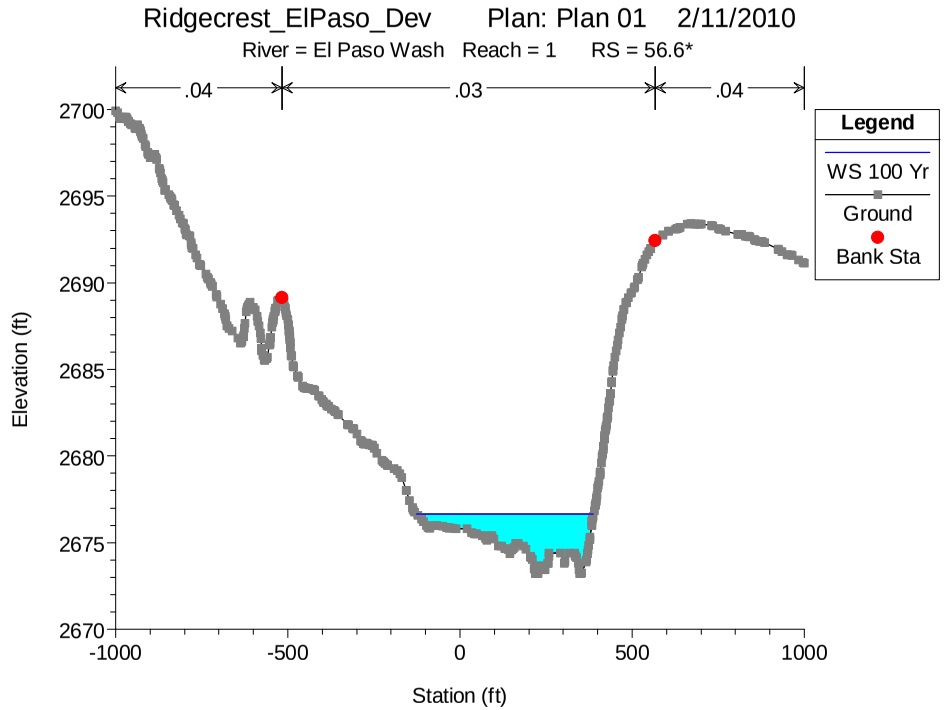
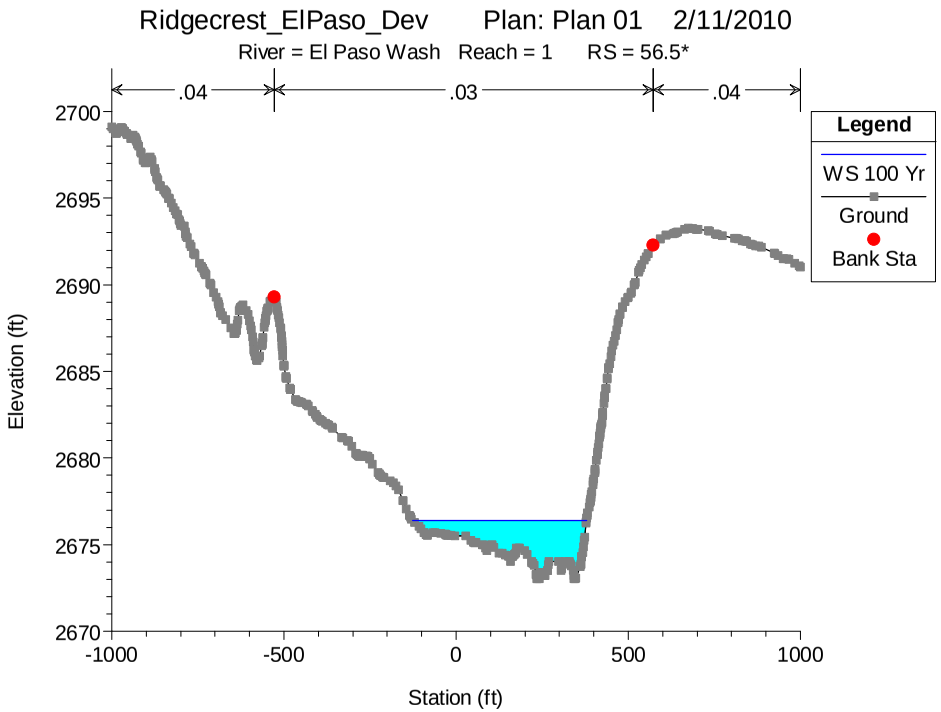
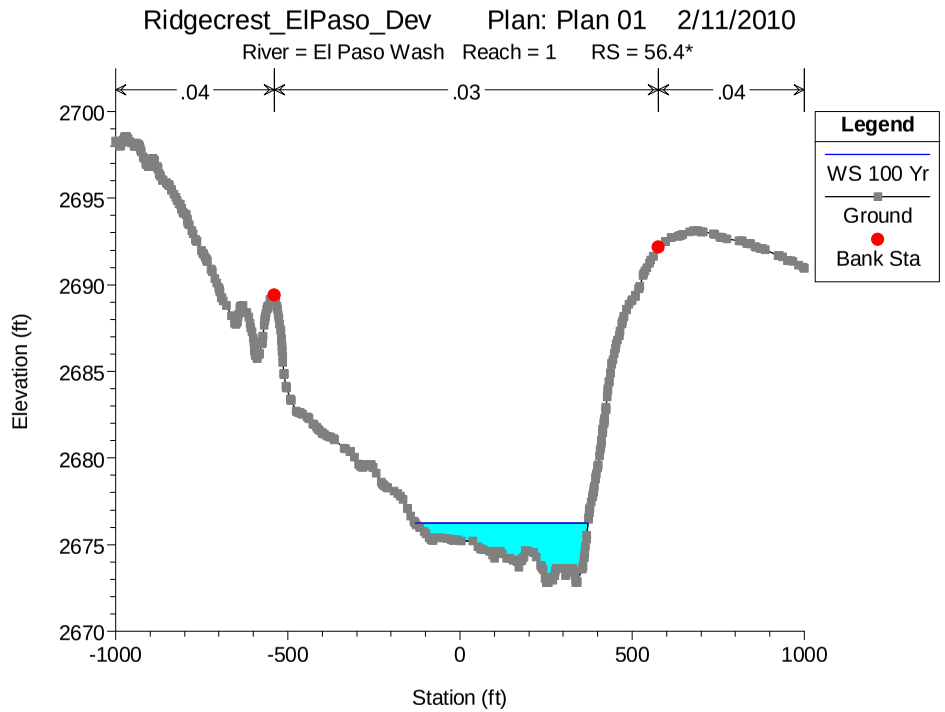
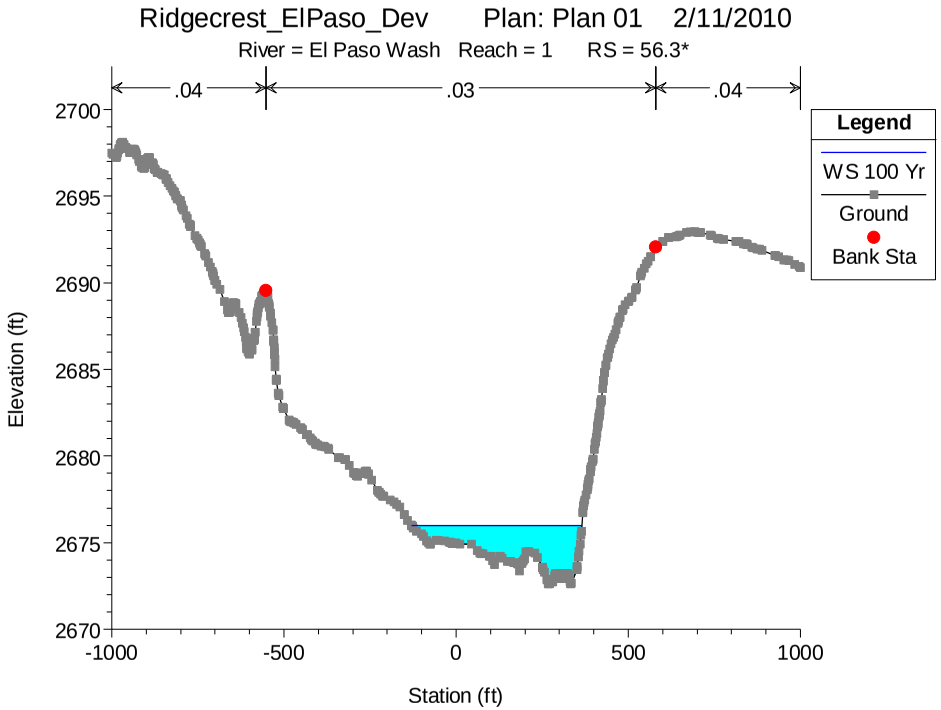
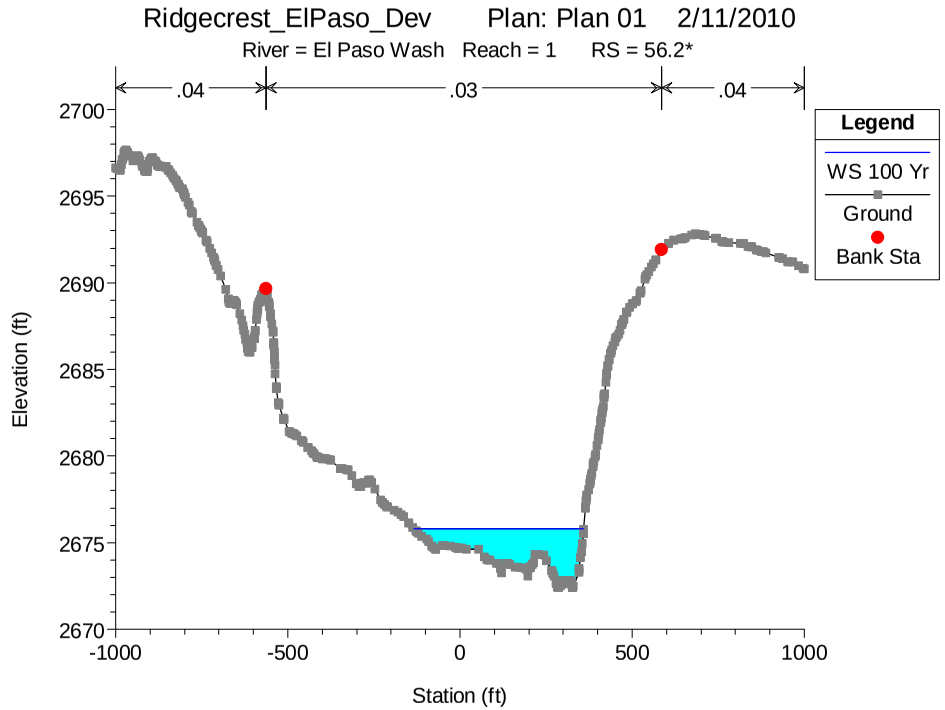
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

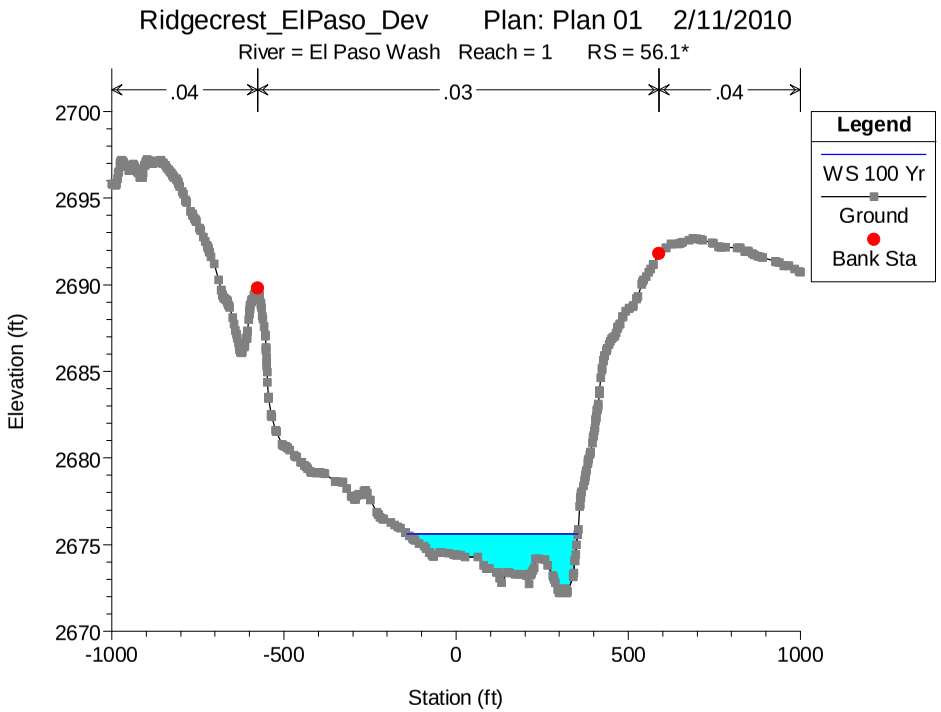

Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 56.6*
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

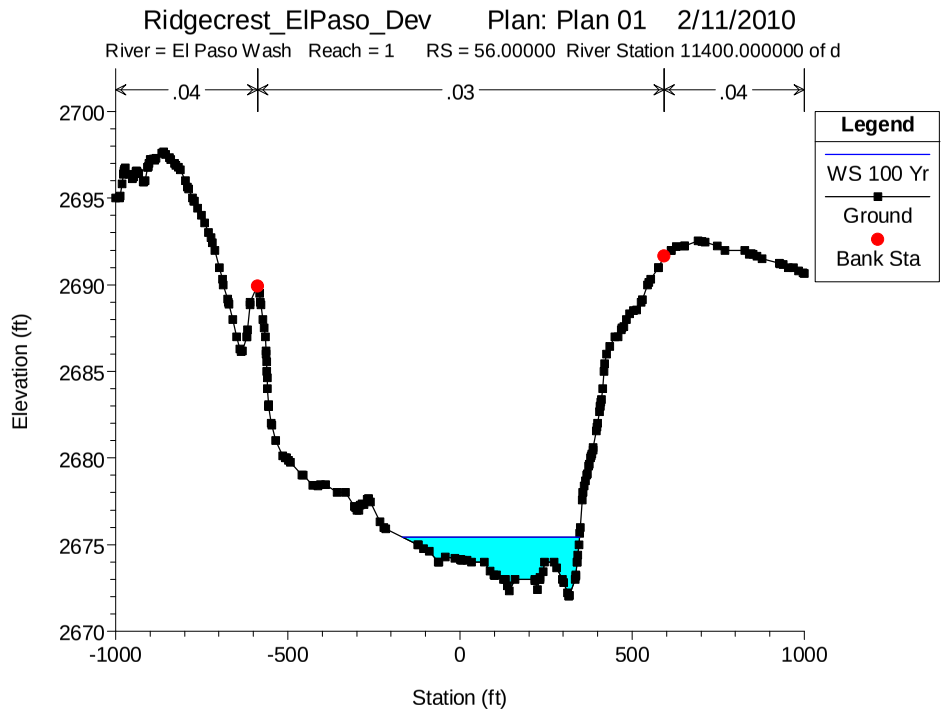

Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 56.5*
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

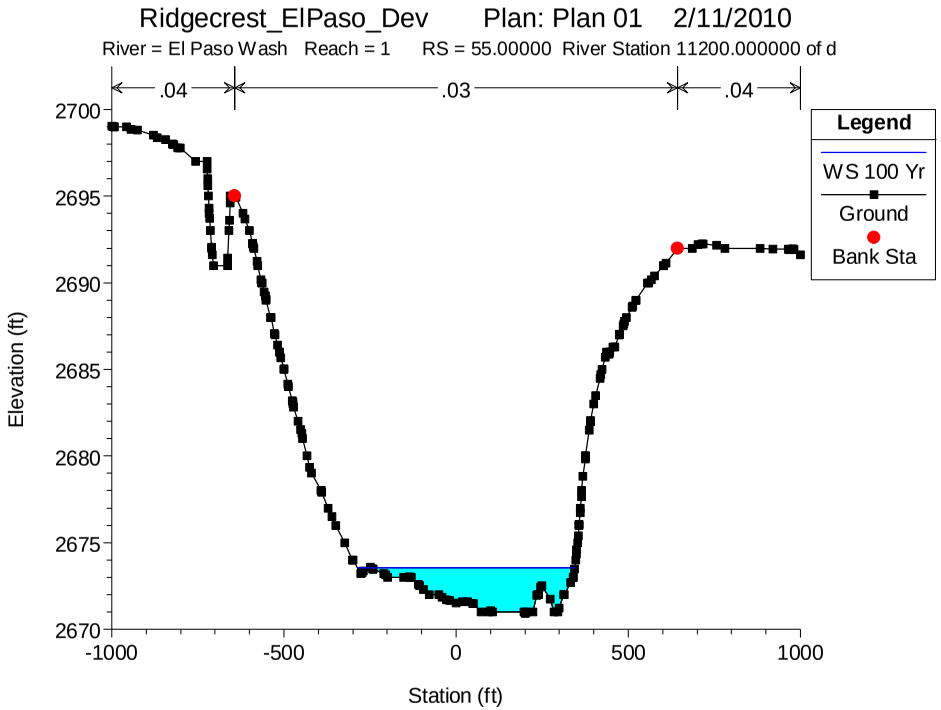

Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 56.4*
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

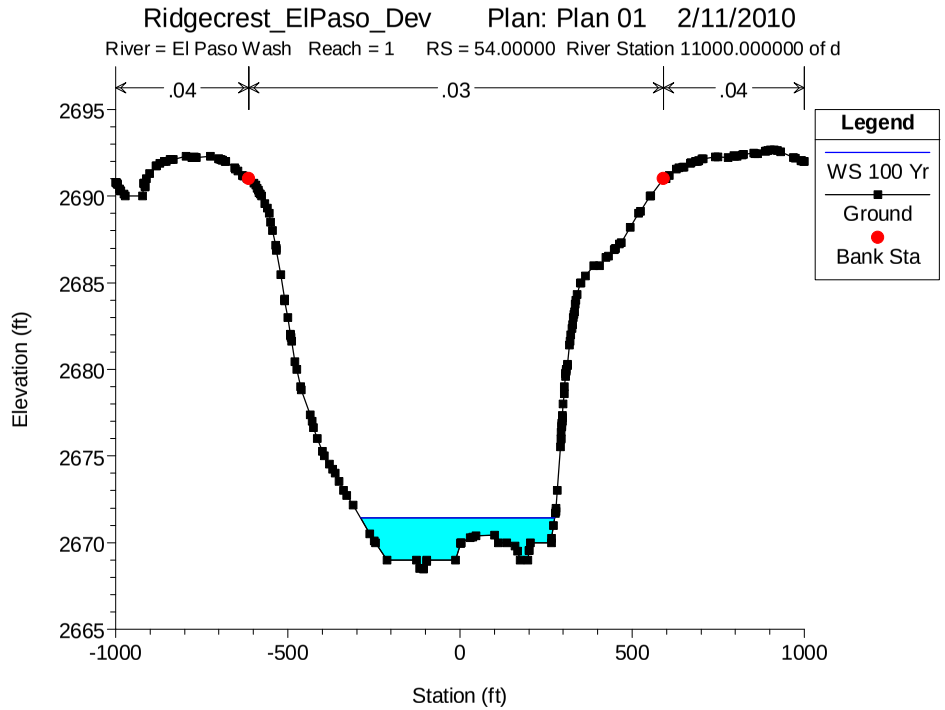

Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 56.3*
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

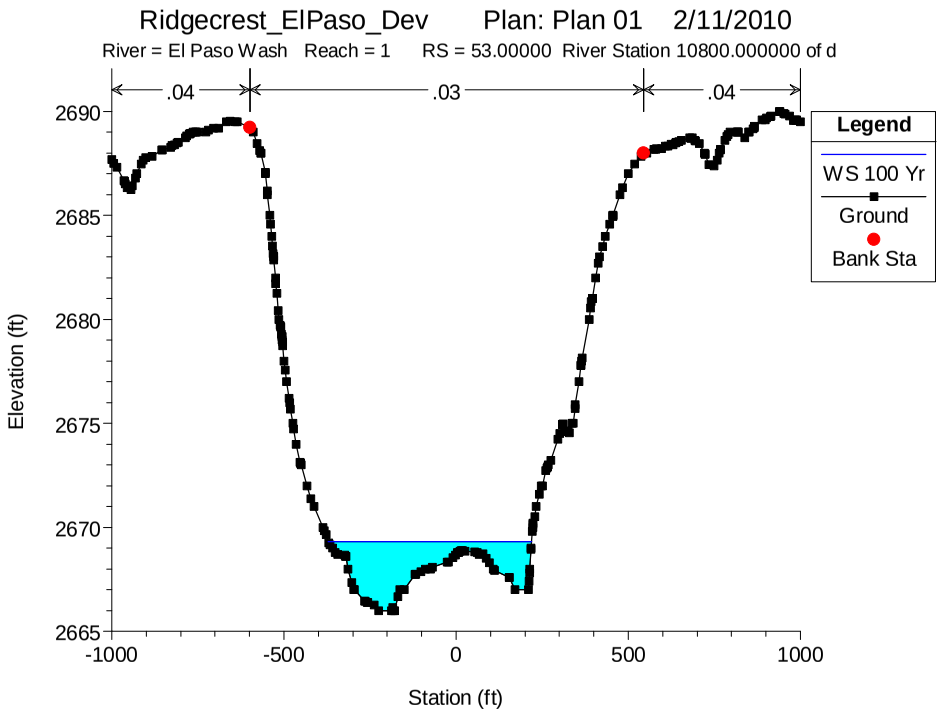

Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 56.2*
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

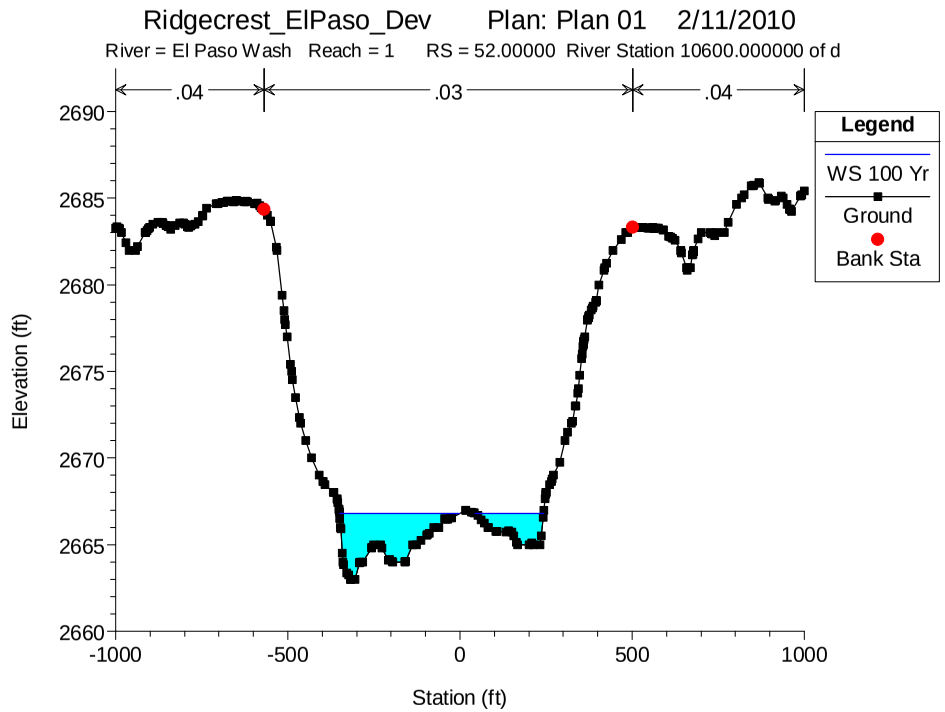

Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 56.1*
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

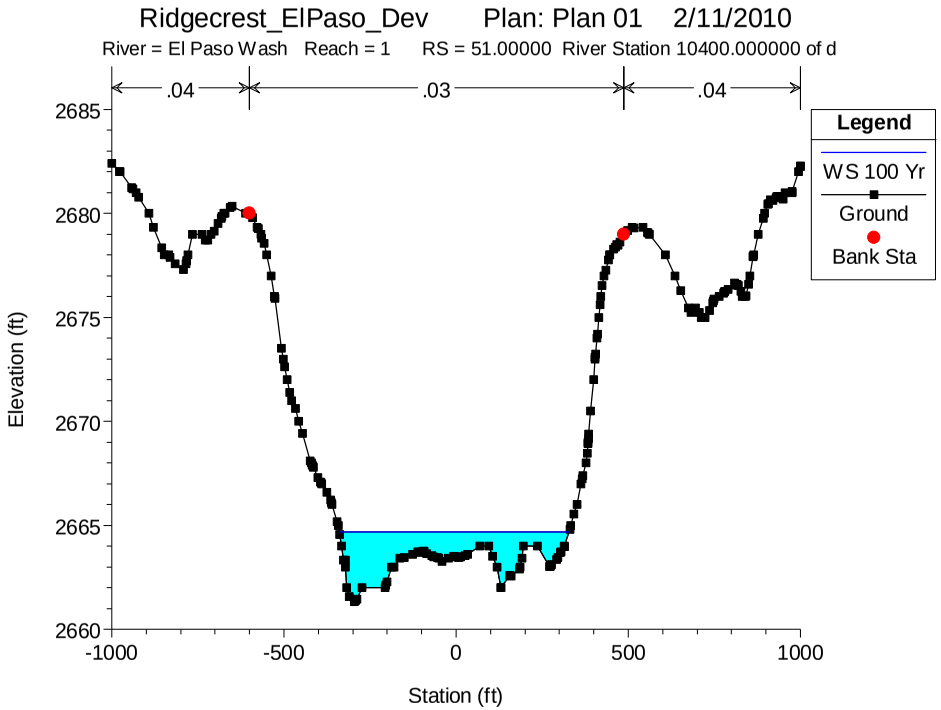

Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 56.00000 River Station 11400.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

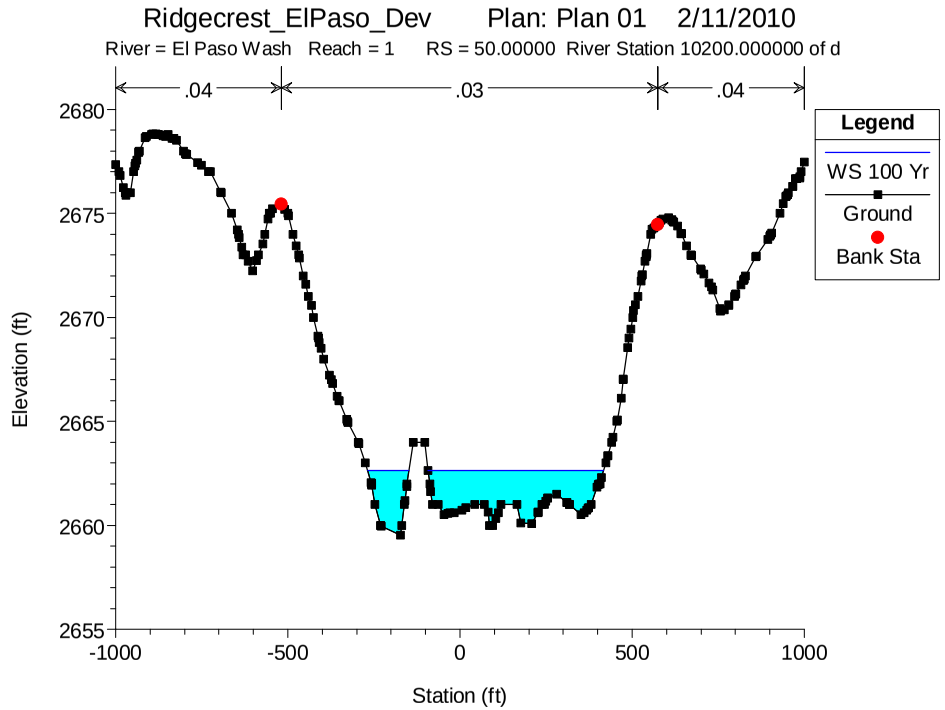

Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 55.00000 River Station 11200.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

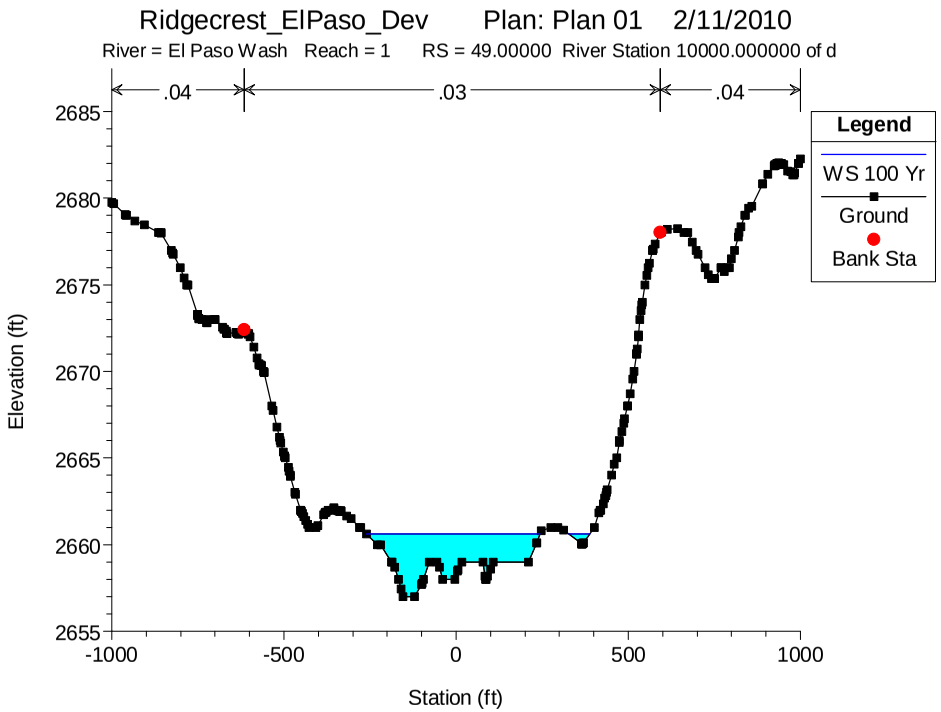

Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 54.00000 River Station 11000.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

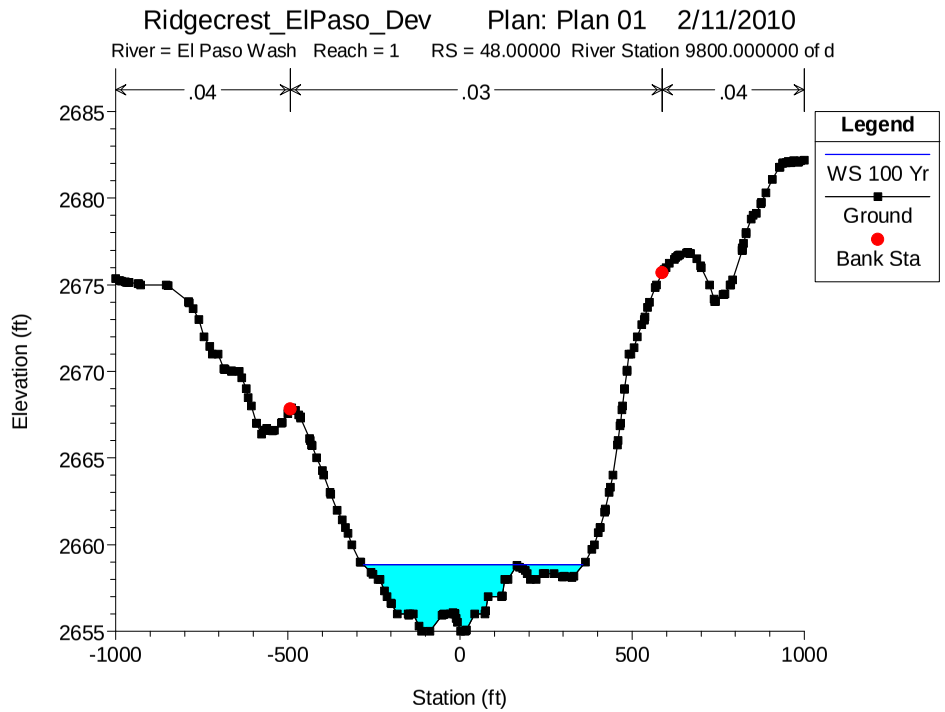

Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 53.00000 River Station 10800.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

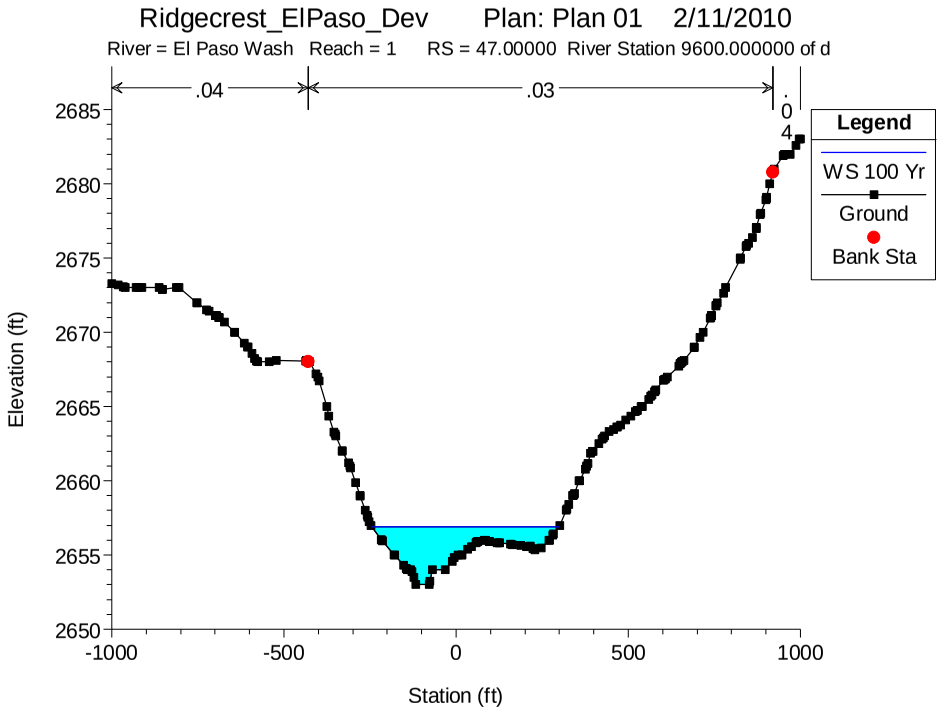

Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 52.00000 River Station 10600.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

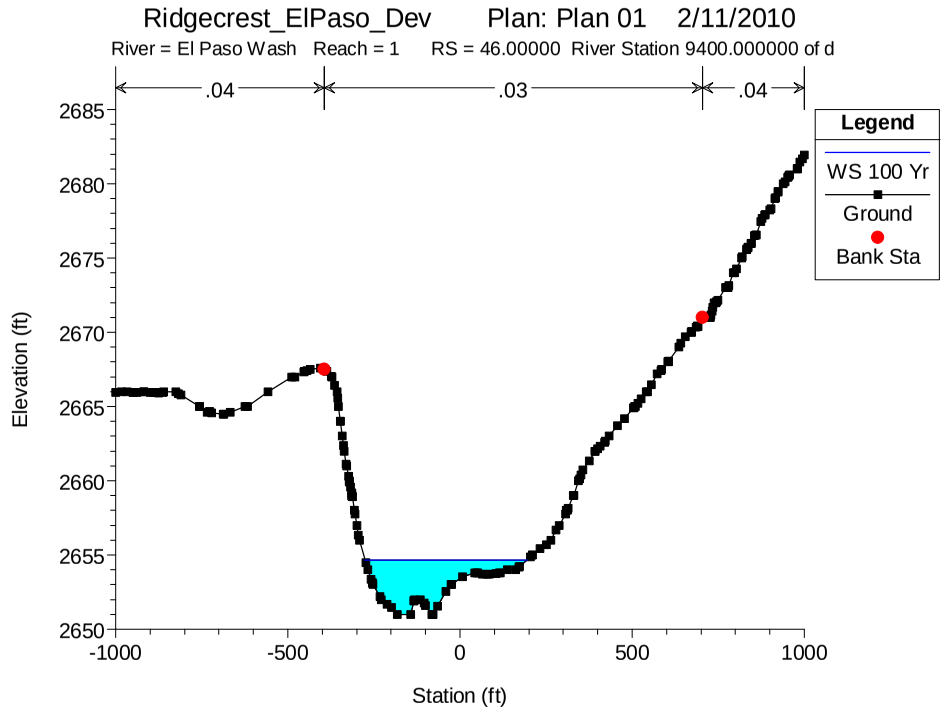

Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 51.00000 River Station 10400.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

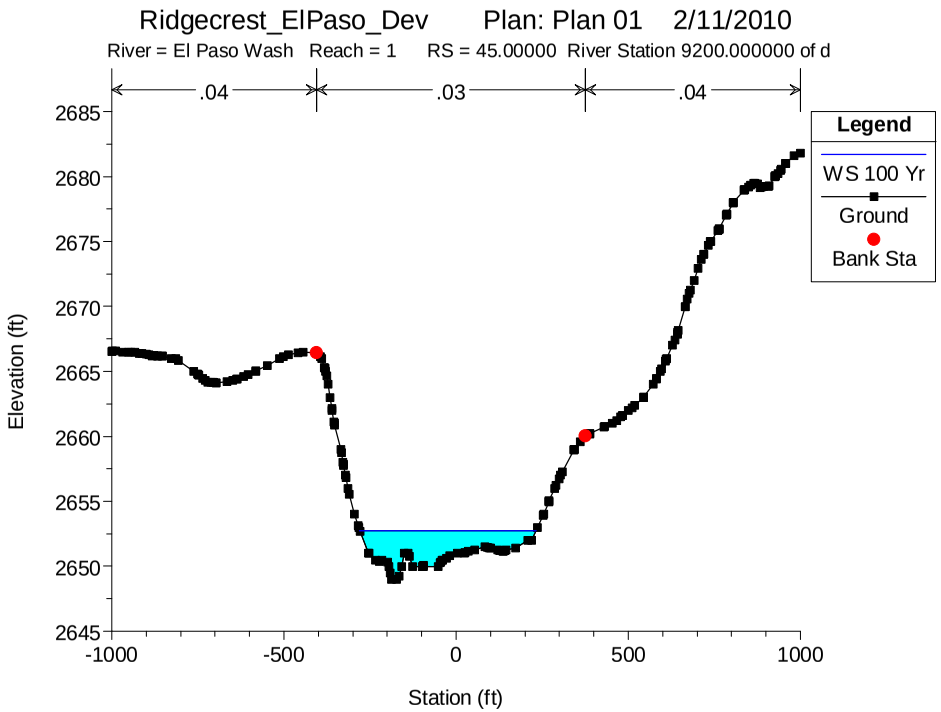

Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 50.00000 River Station 10200.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

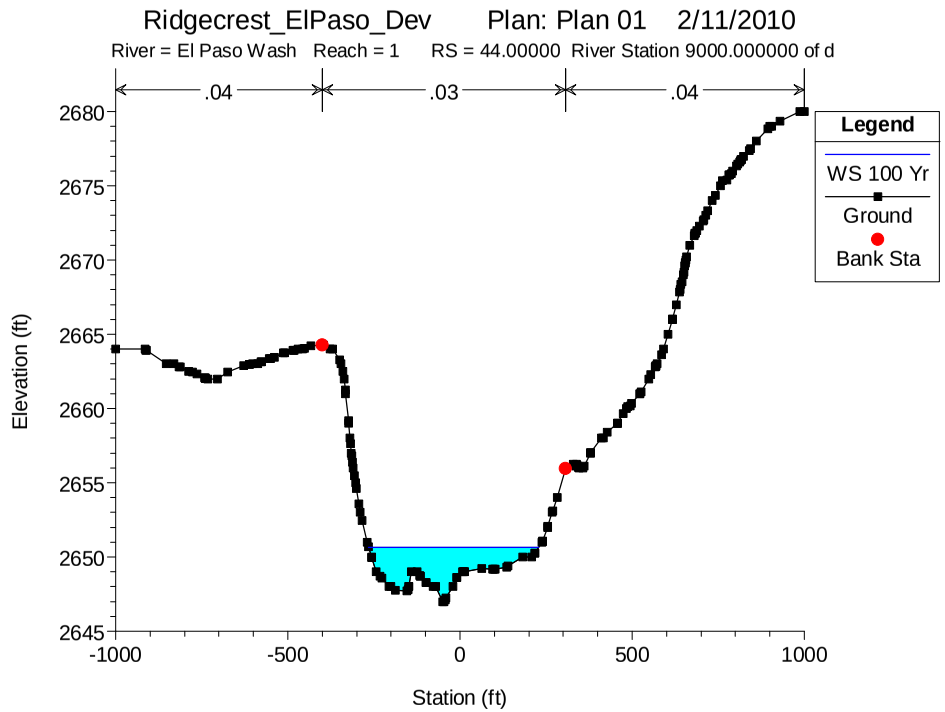

Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 49.00000 River Station 10000.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

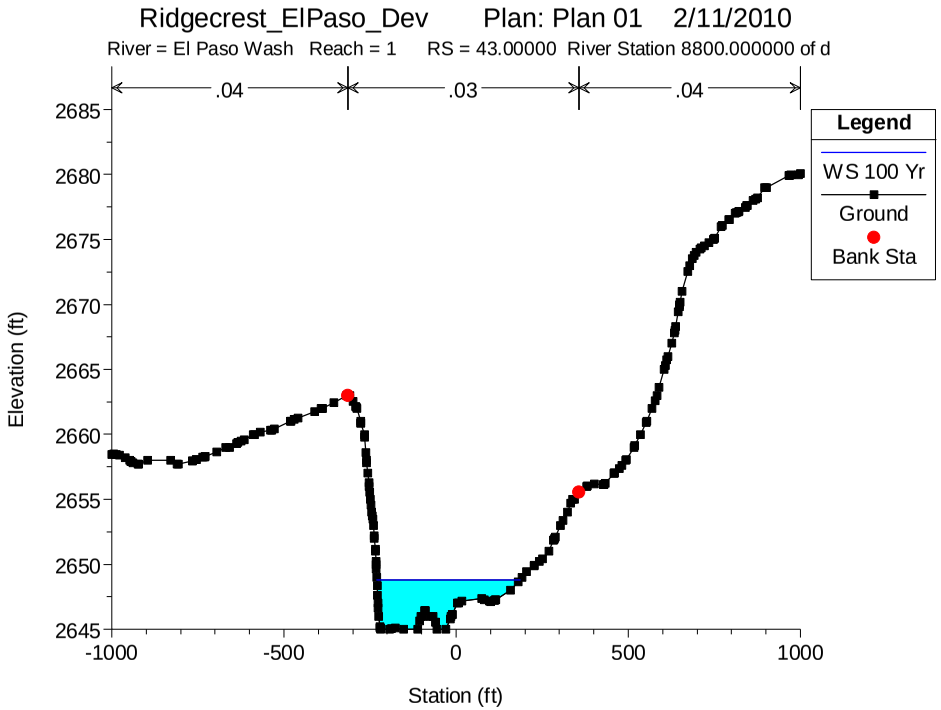

Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 48.00000 River Station 9800.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

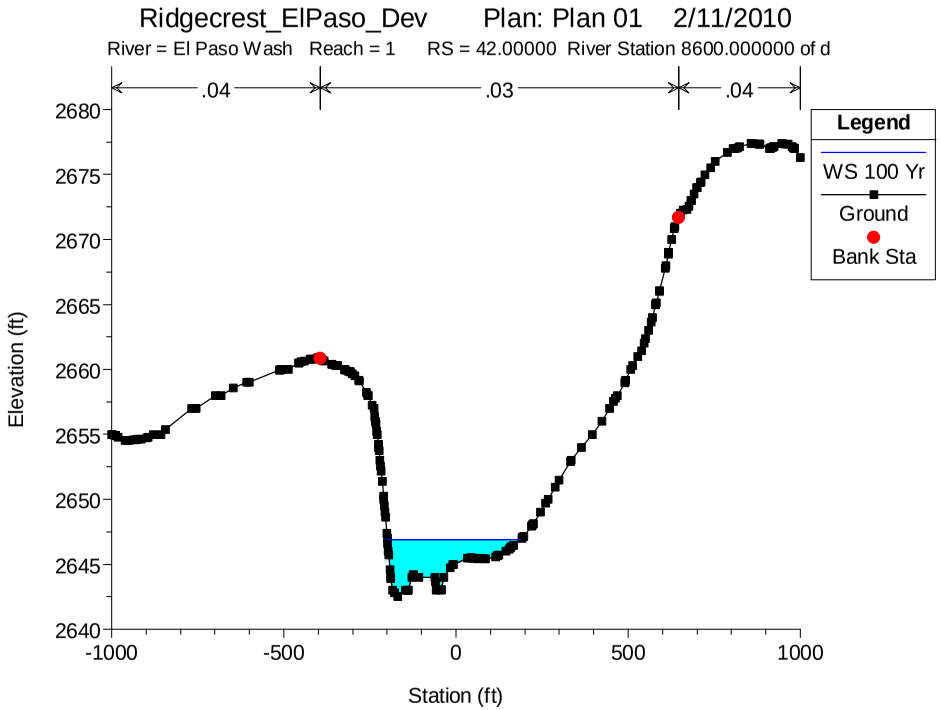

Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 47.00000 River Station 9600.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

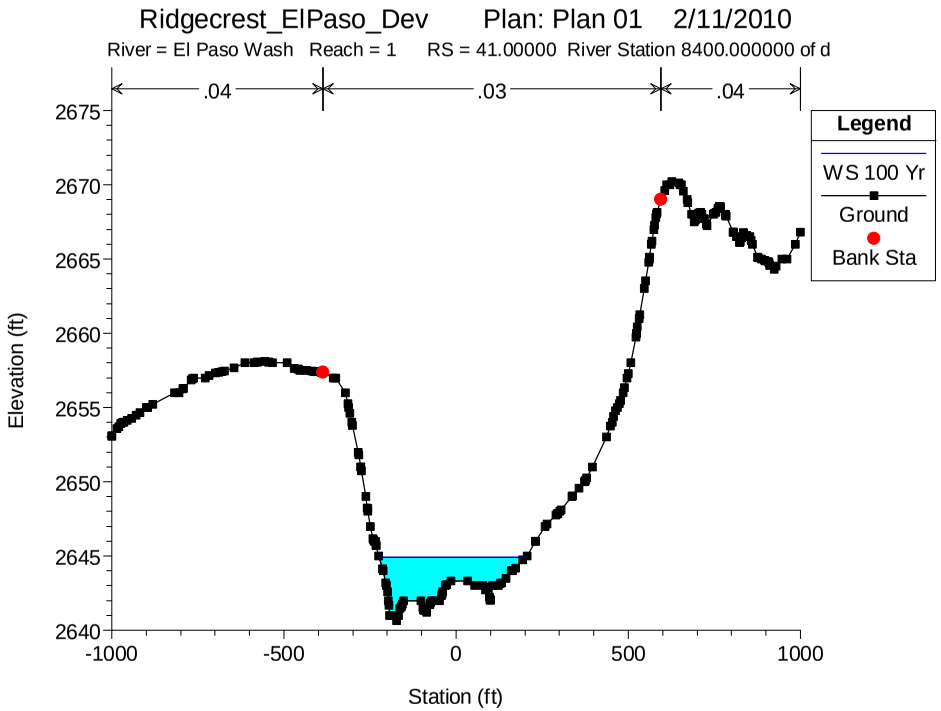

Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 46.00000 River Station 9400.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

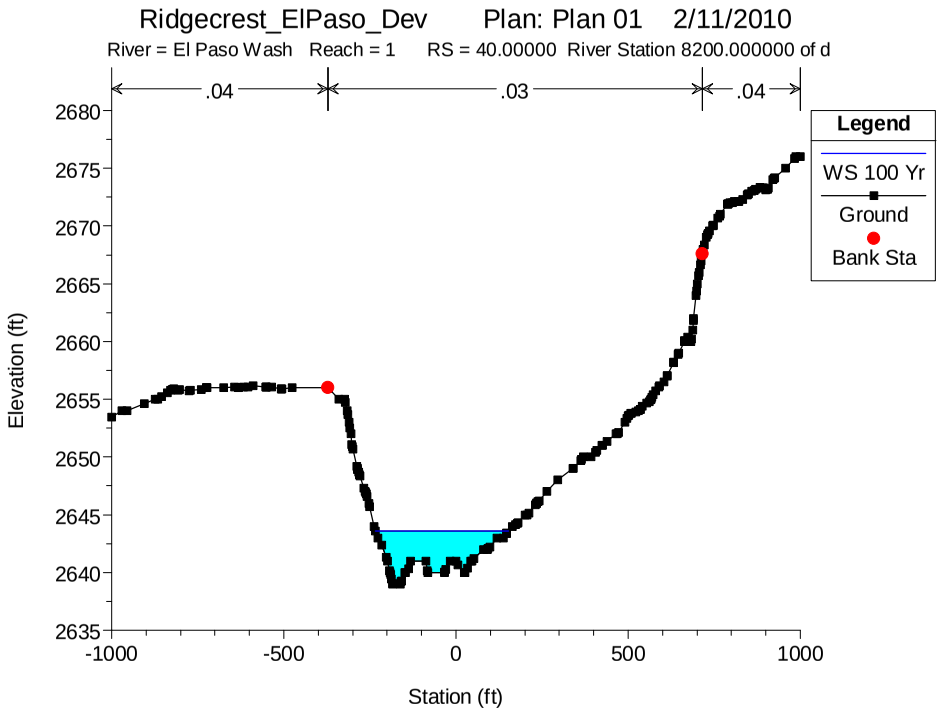

Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 45.00000 River Station 9200.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

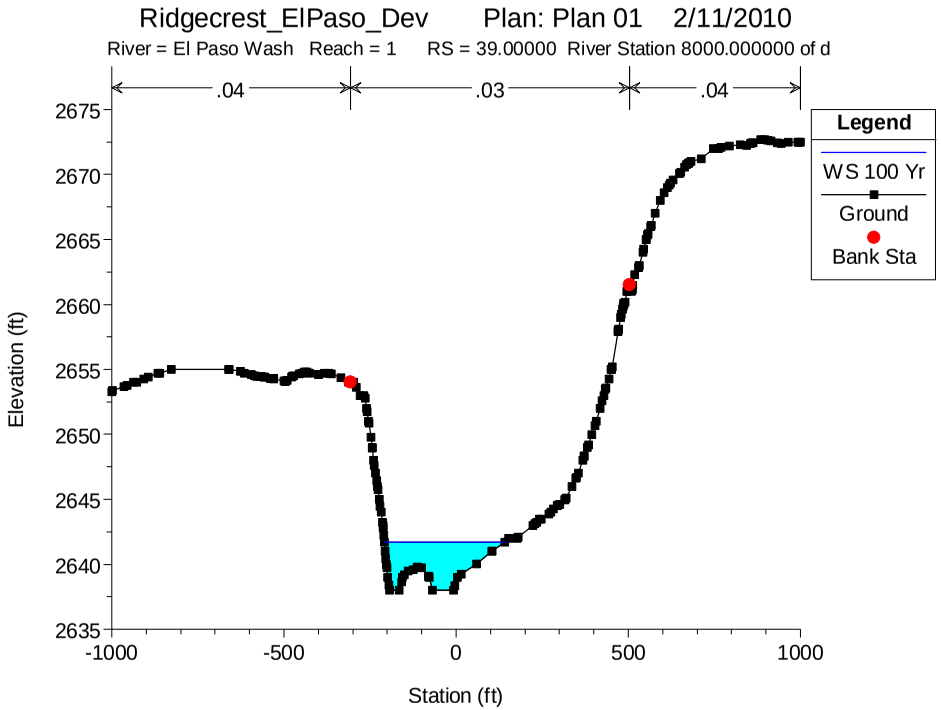

Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 44.00000 River Station 9000.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

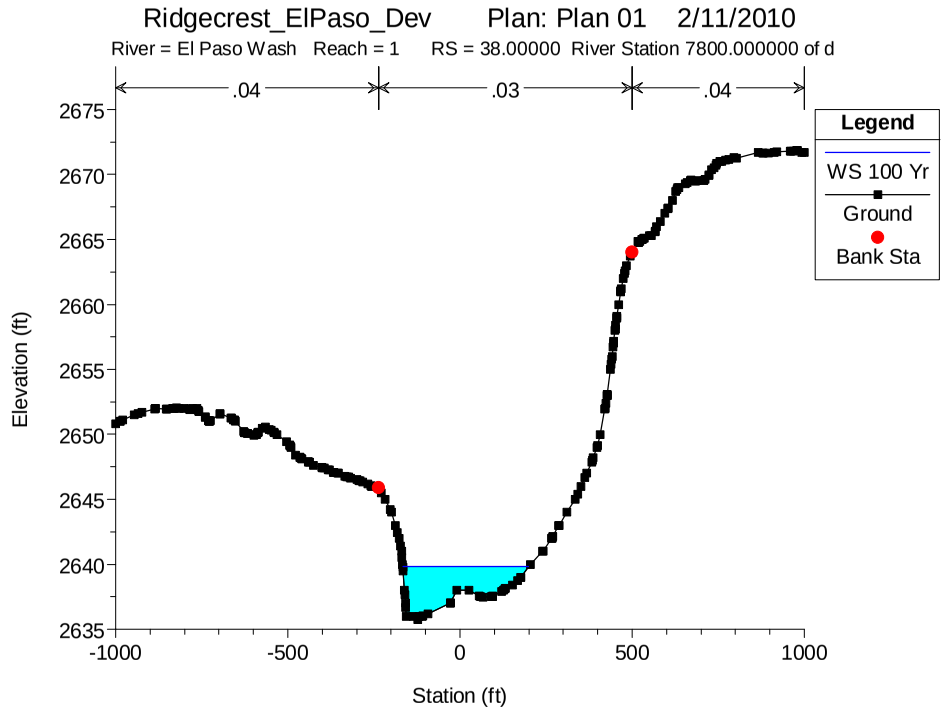

Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 43.00000 River Station 8800.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

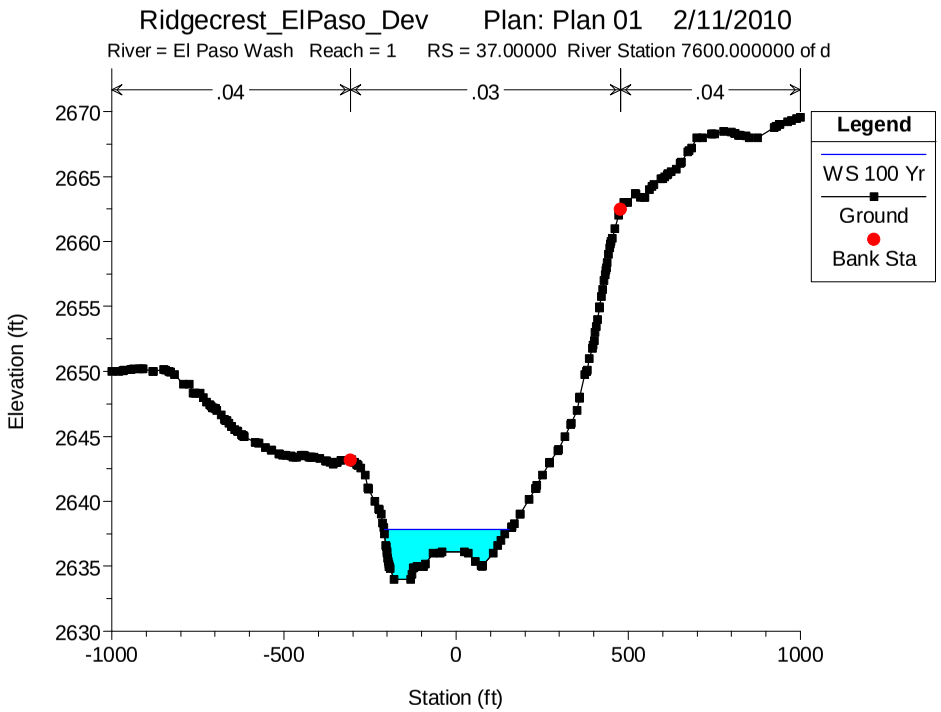

Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 42.00000 River Station 8600.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

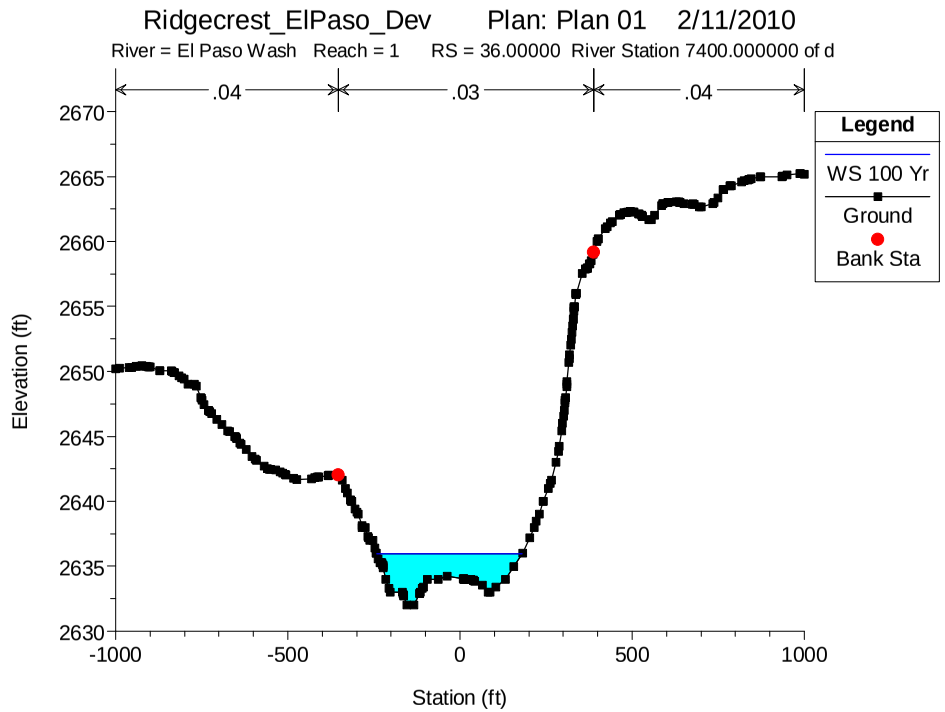

Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 41.00000 River Station 8400.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

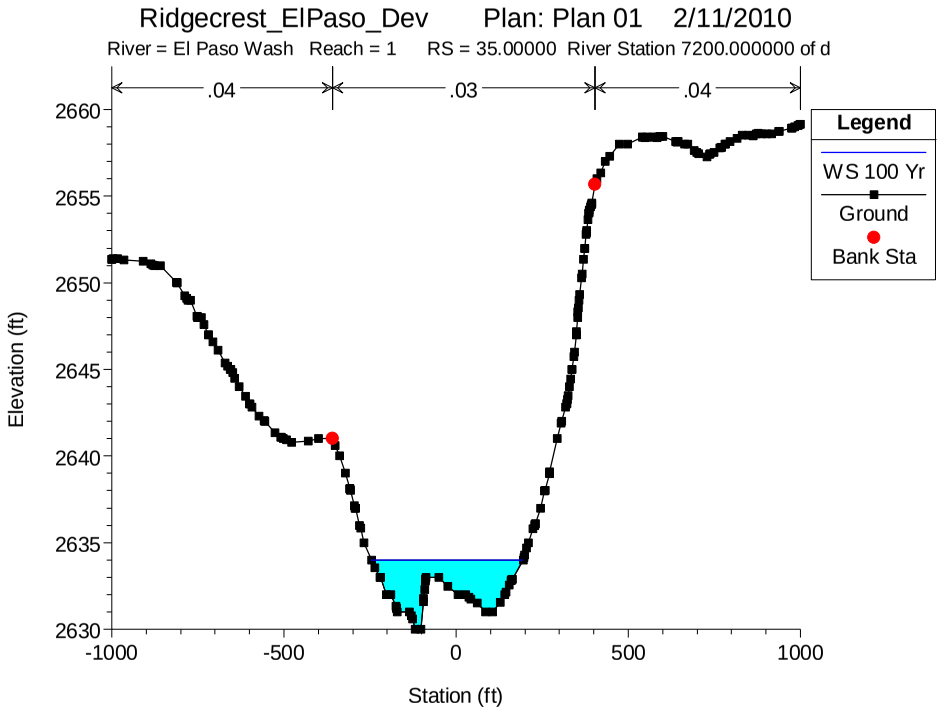

Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 40.00000 River Station 8200.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

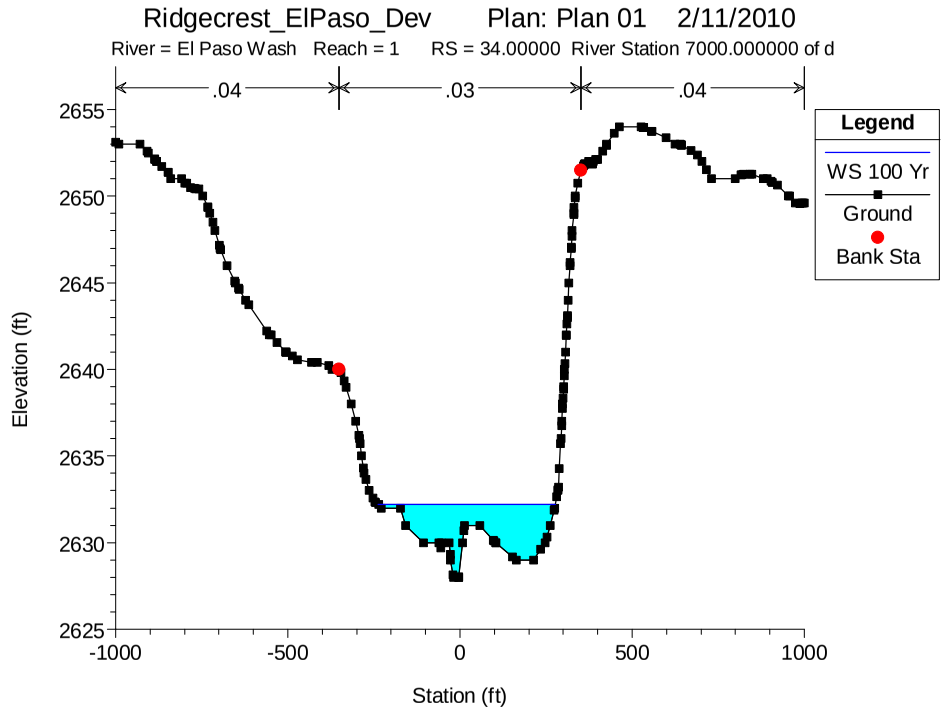

Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 39.00000 River Station 8000.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

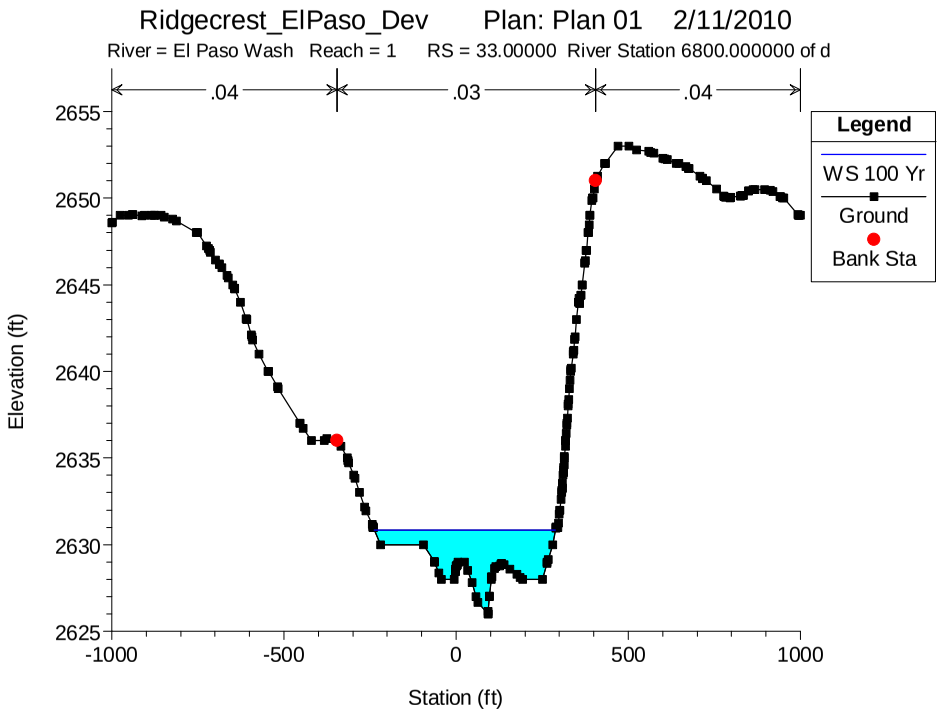

Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 38.00000 River Station 7800.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

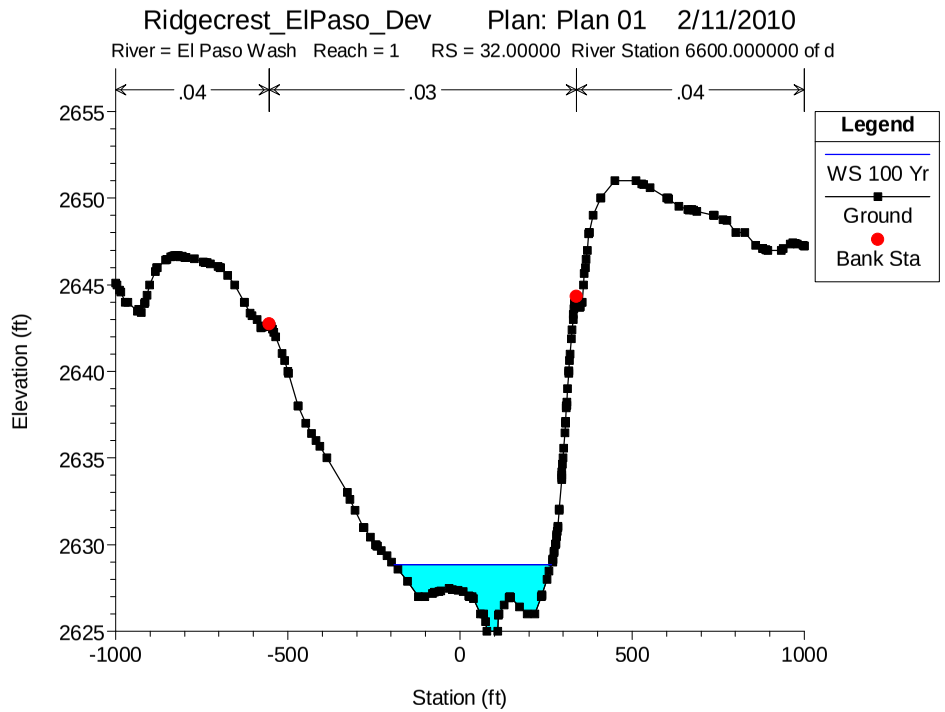

Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 37.00000 River Station 7600.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

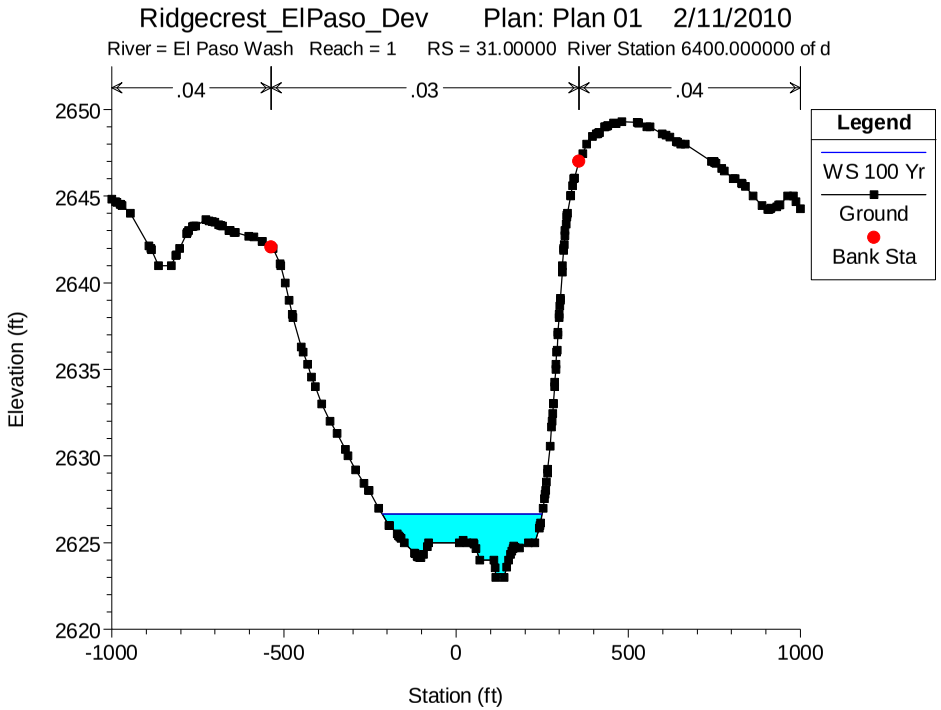

Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 36.00000 River Station 7400.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

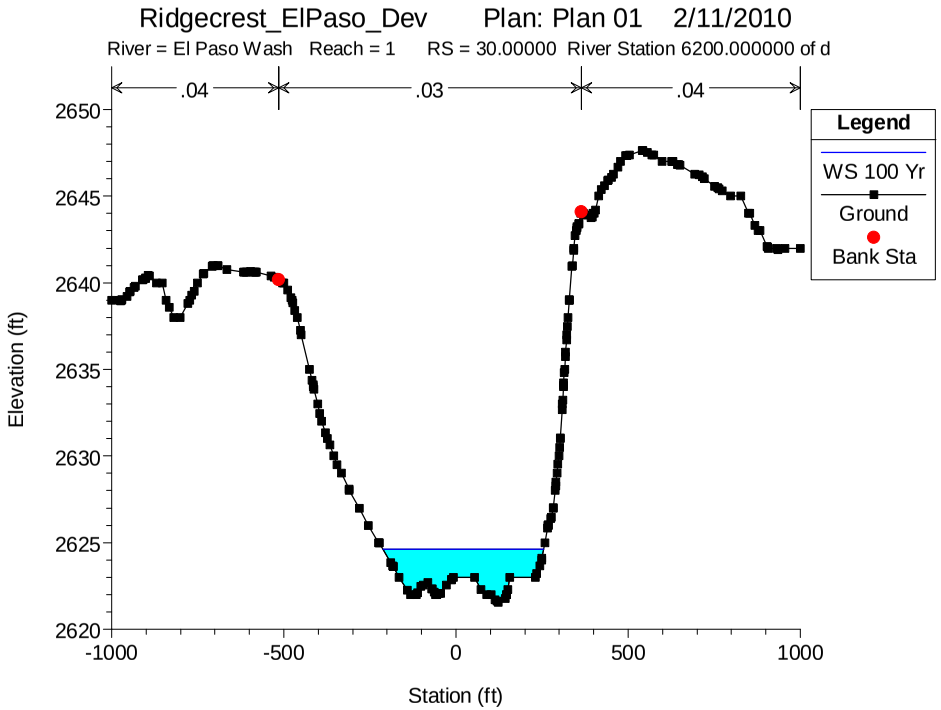

Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 35.00000 River Station 7200.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

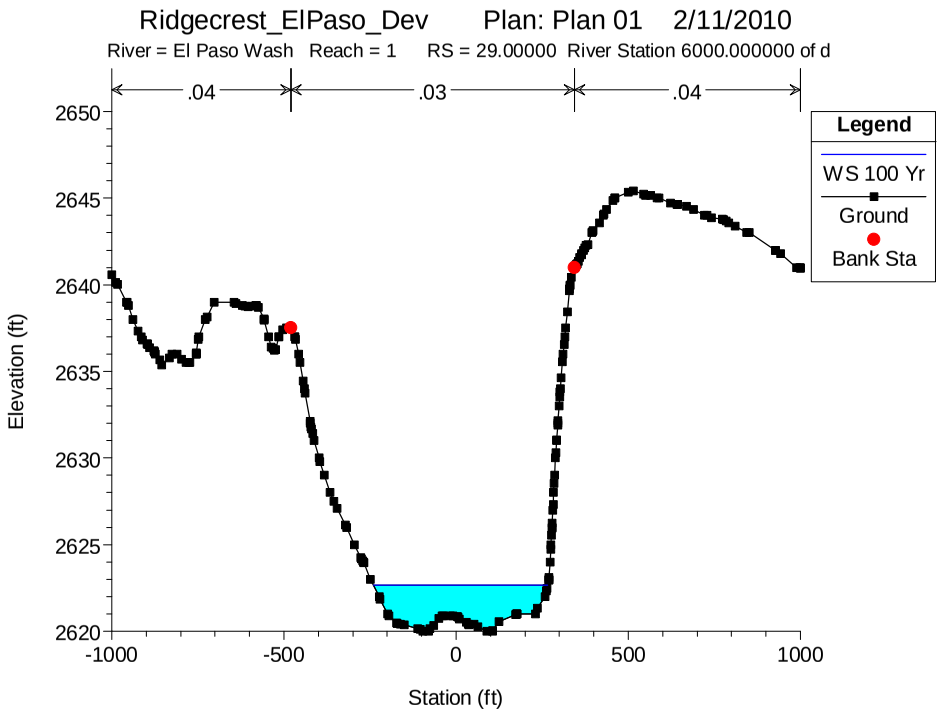

Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 34.00000 River Station 7000.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

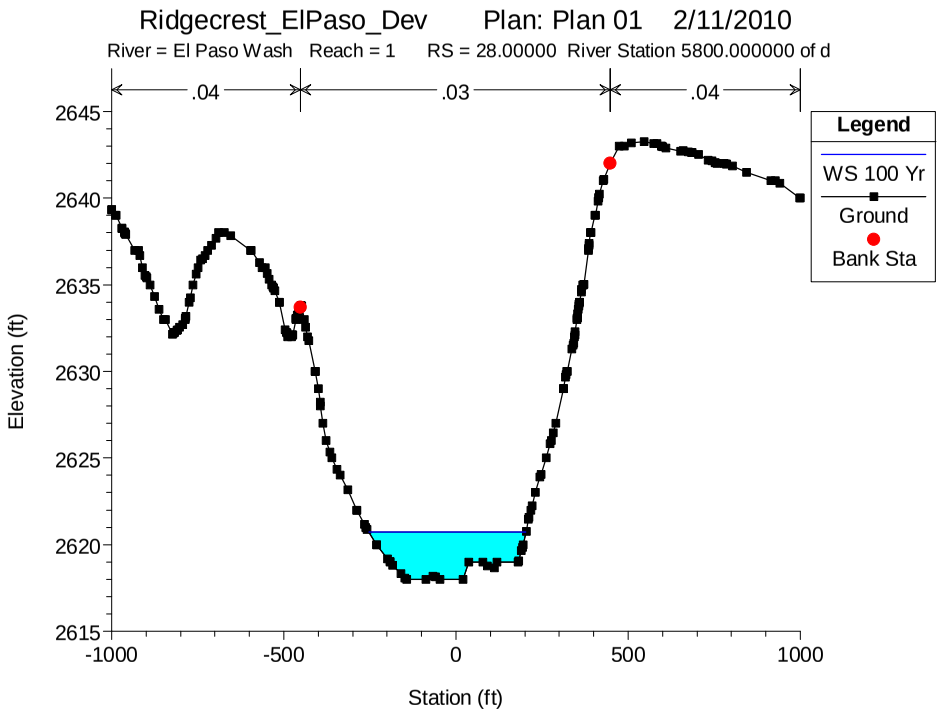

Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 33.00000 River Station 6800.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

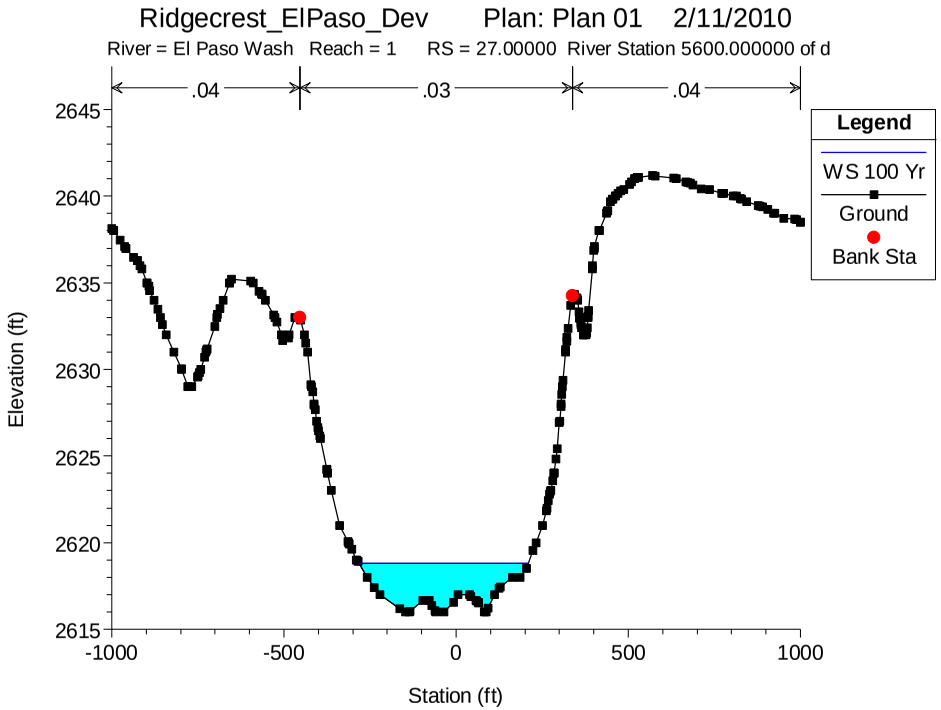

Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 32.00000 River Station 6600.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

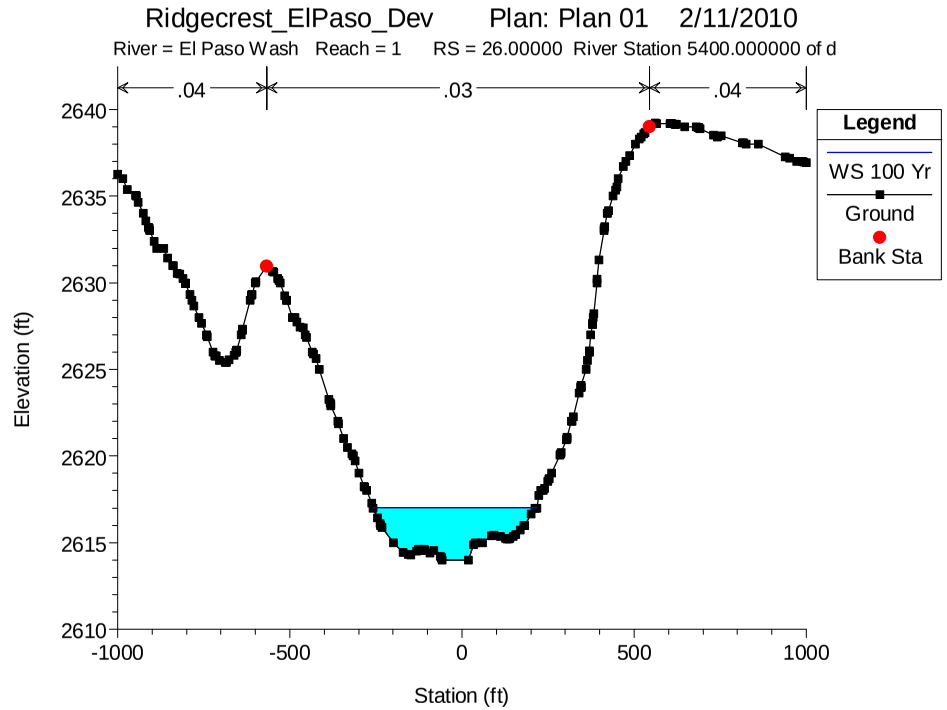

Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 31.00000 River Station 6400.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
2650
2645
2640
2635
2630
2625
2620
-1000
-500
0
500
1000

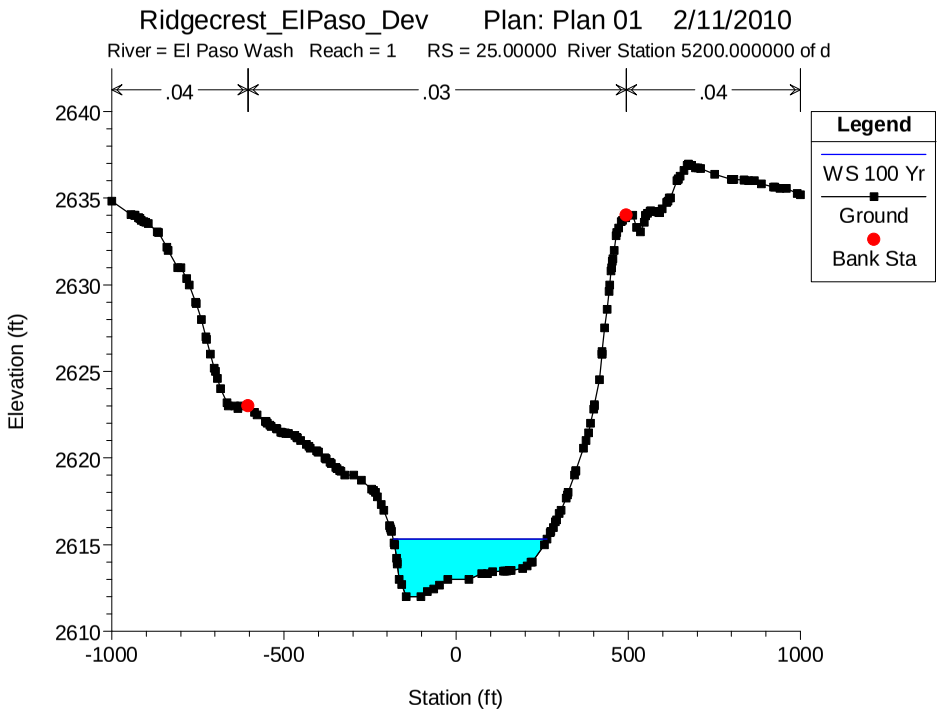

Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 30.00000 River Station 6200.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
2650
2645
2640
2635
2630
2625
2620
-1000
-500
0
500
1000

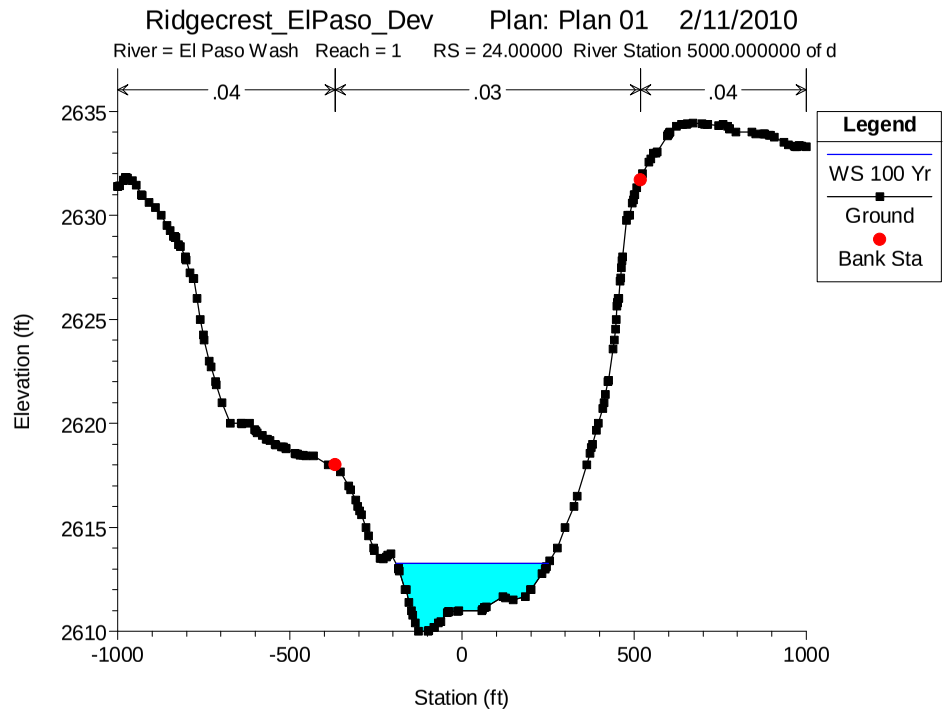

Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 29.00000 River Station 6000.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
2650
2645
2640
2635
2630
2625
2620
-1000
-500
0
500
1000


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 28.00000 River Station 5800.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
2645
2640
2635
2630
2625
2620
2615
-1000
-500
0
500
1000


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 27.00000 River Station 5600.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 26.00000 River Station 5400.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_ElPaso_Dev Plan: Plan 01 2/11/2010
River = El Paso Wash Reach = 1 RS = 25.00000 River Station 5200.000000 of d
.04
.03
.04
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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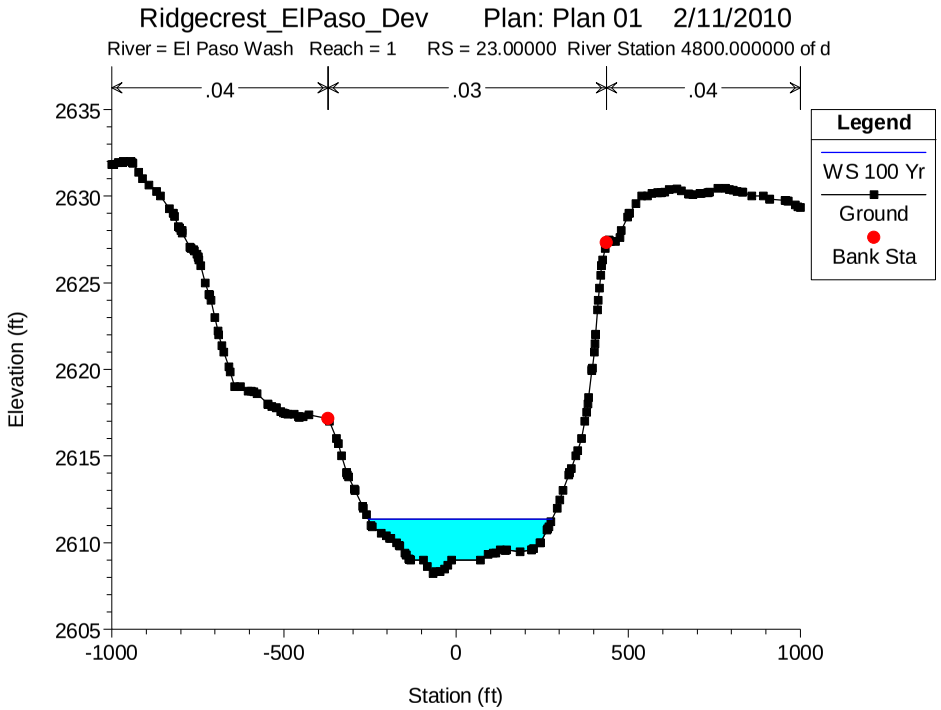
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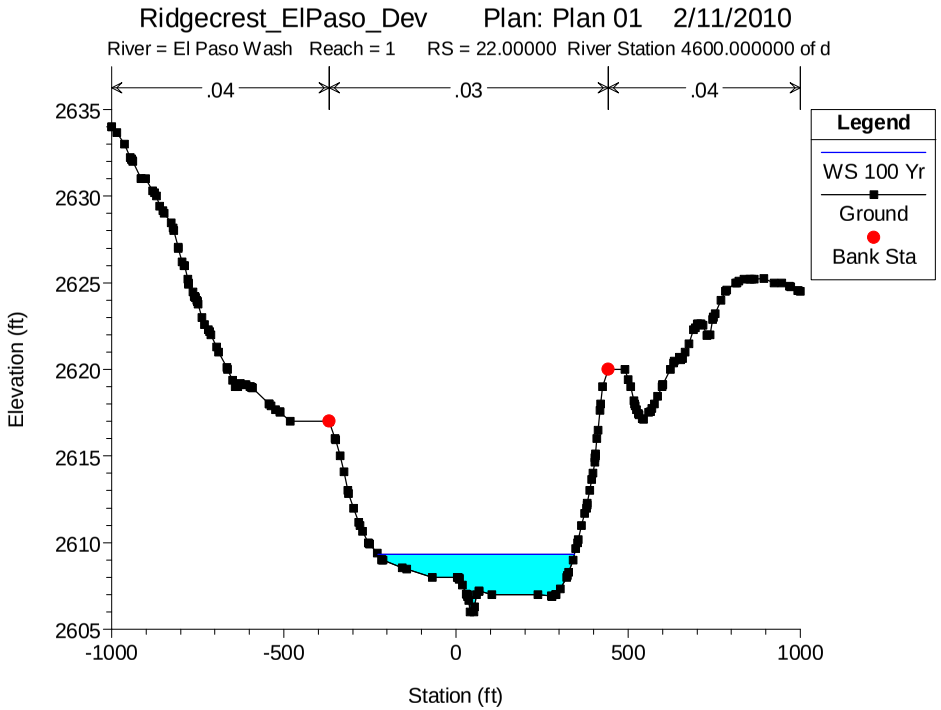
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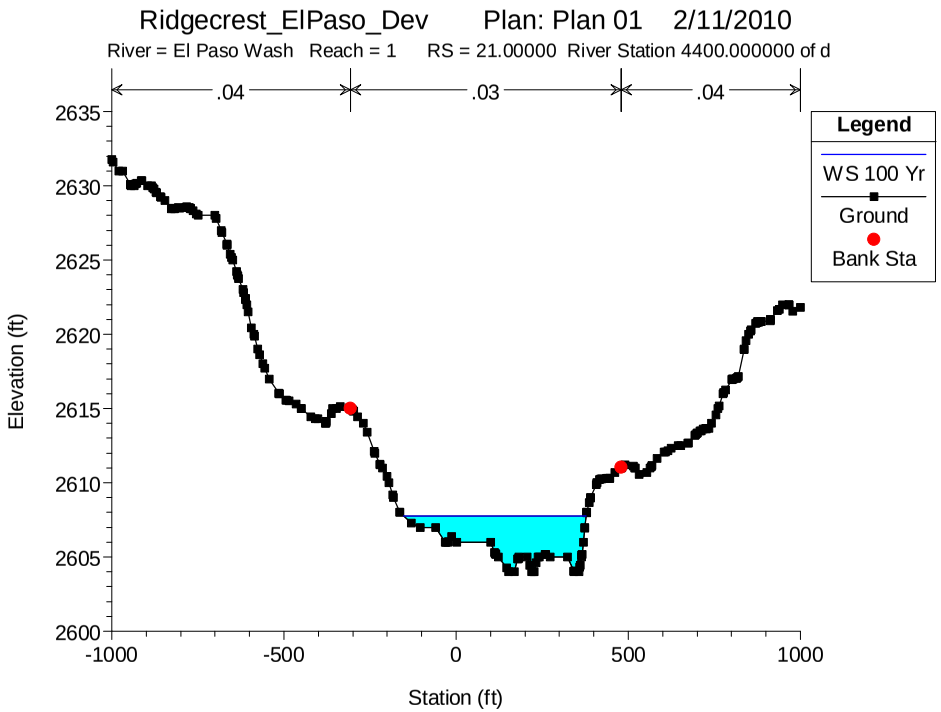
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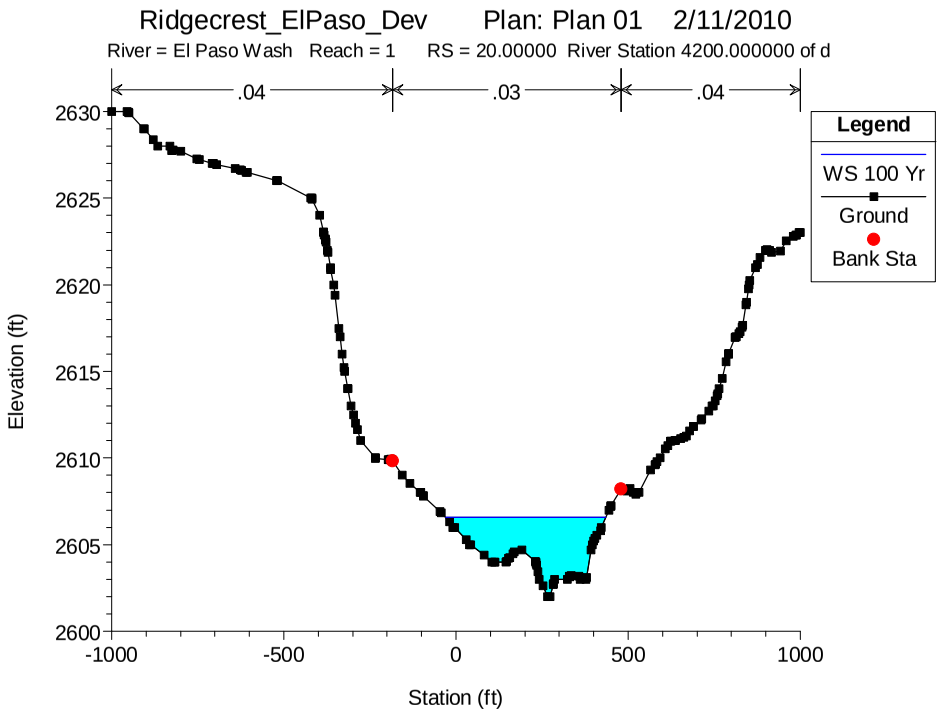
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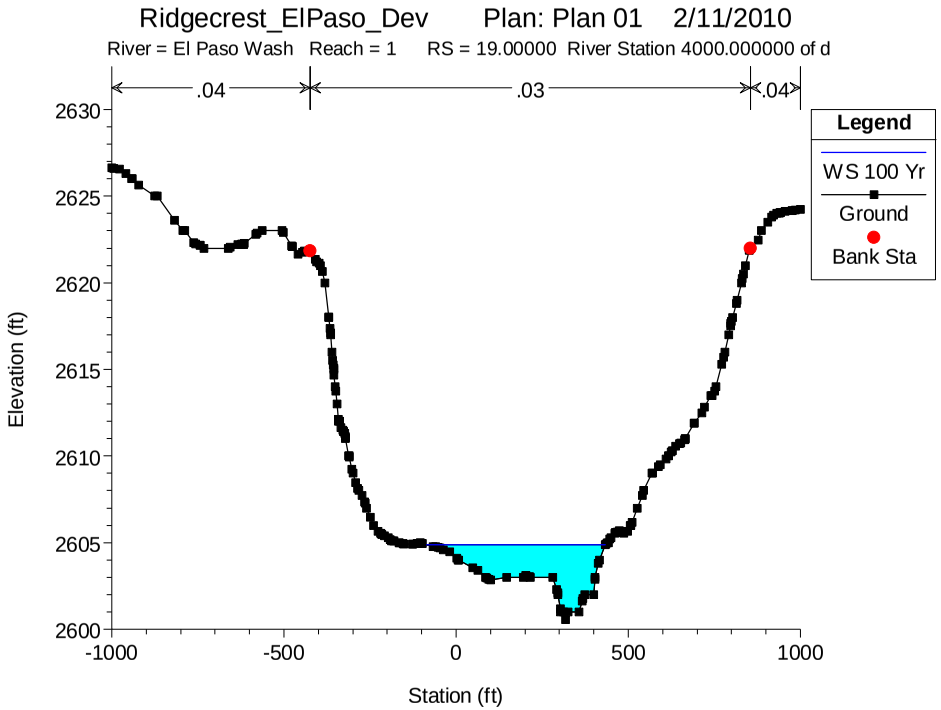
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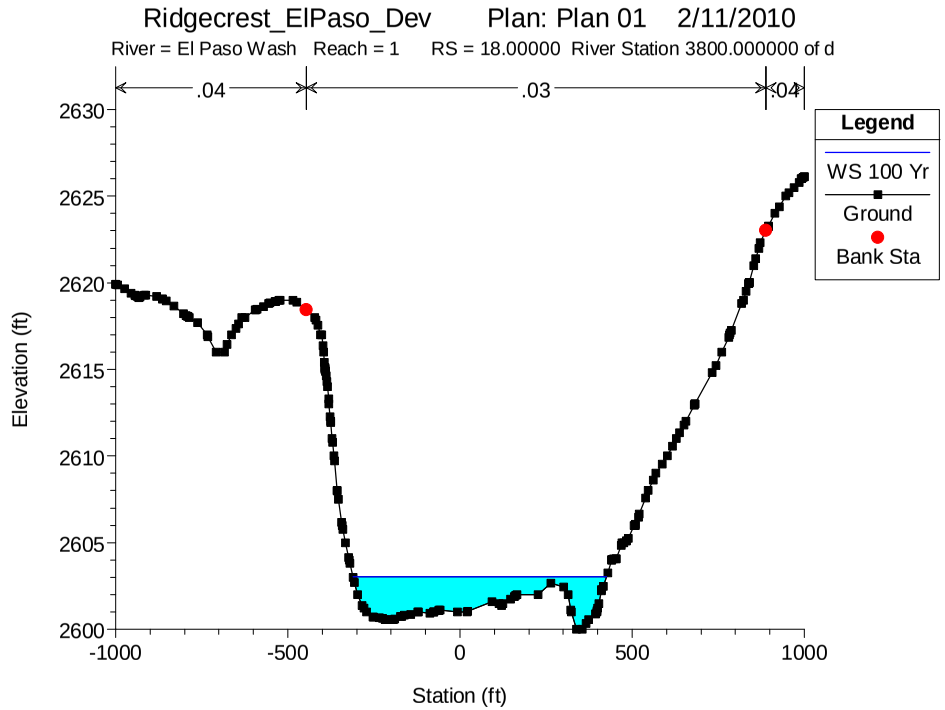
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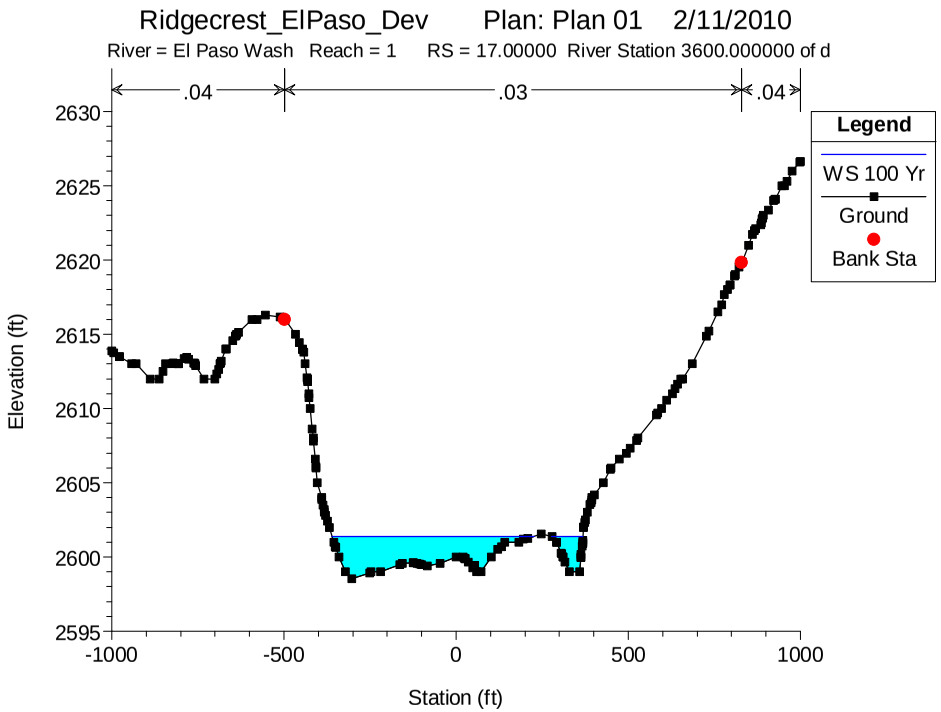
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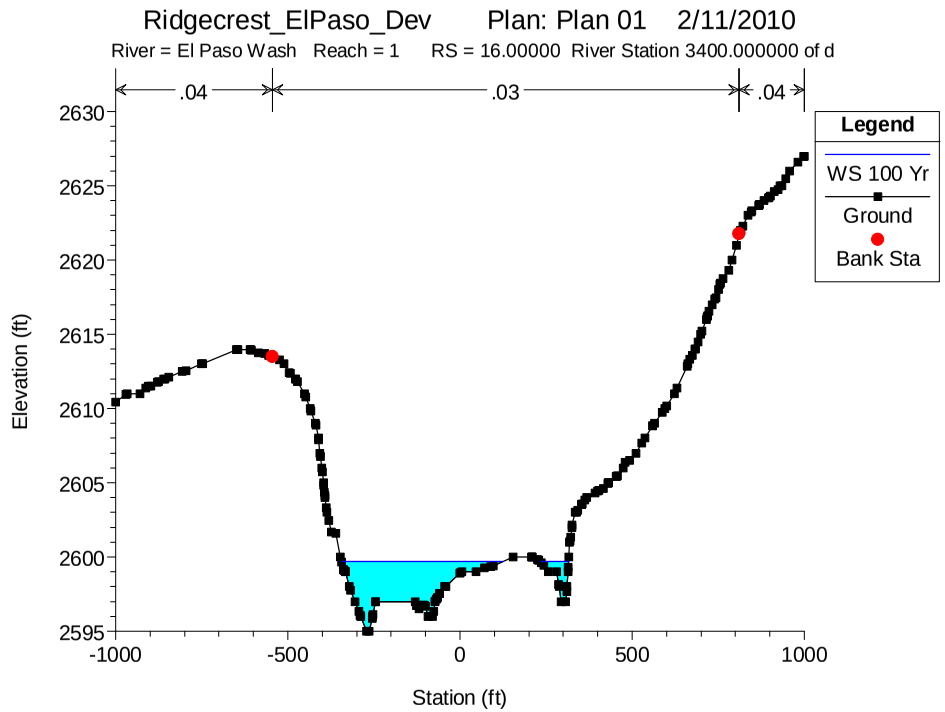
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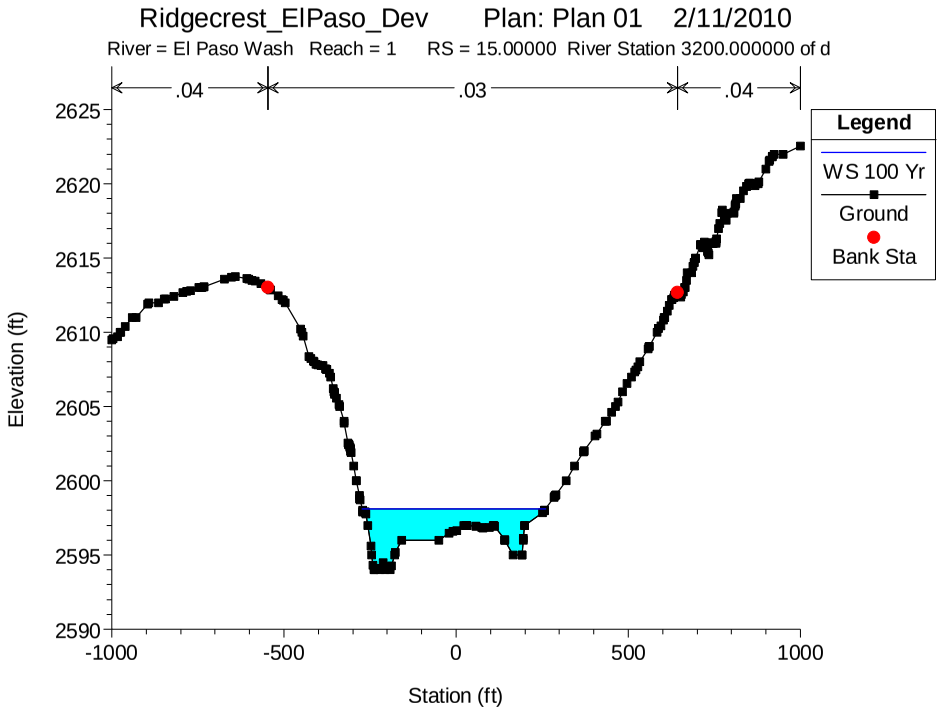
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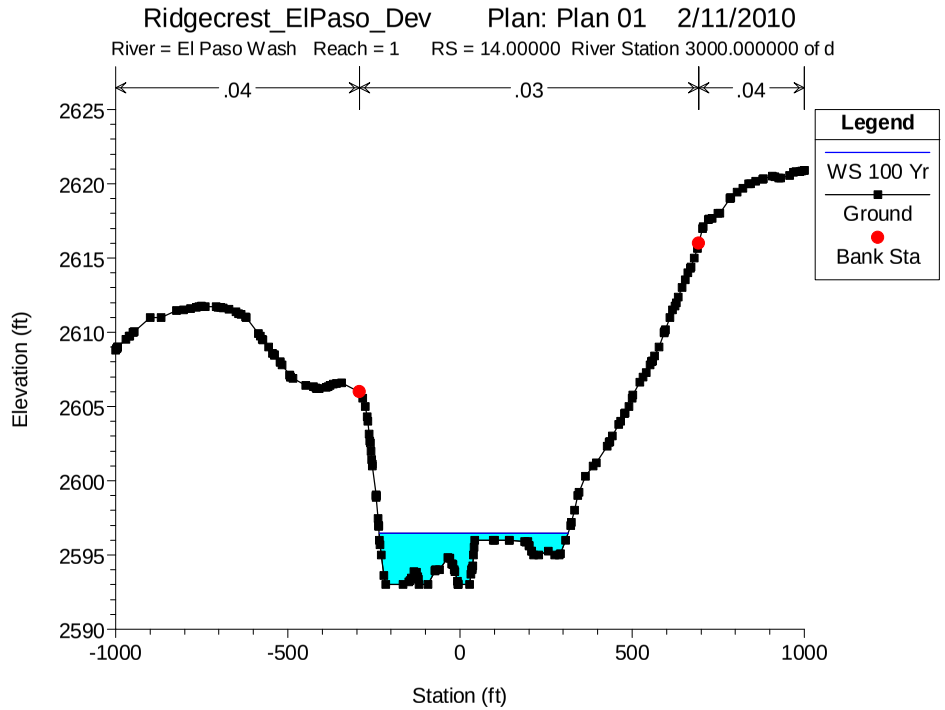
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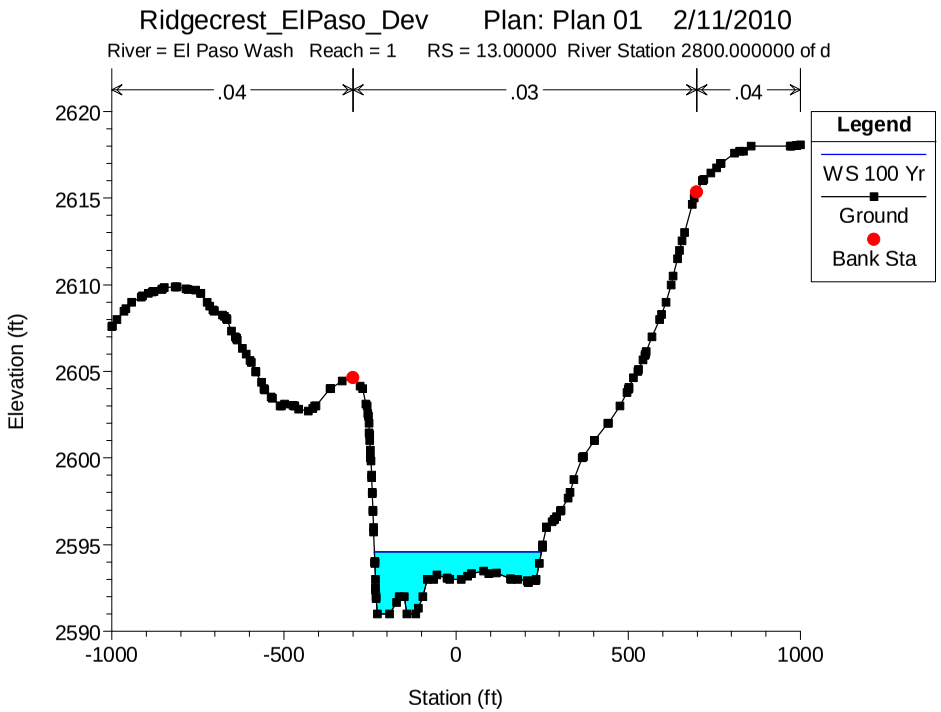
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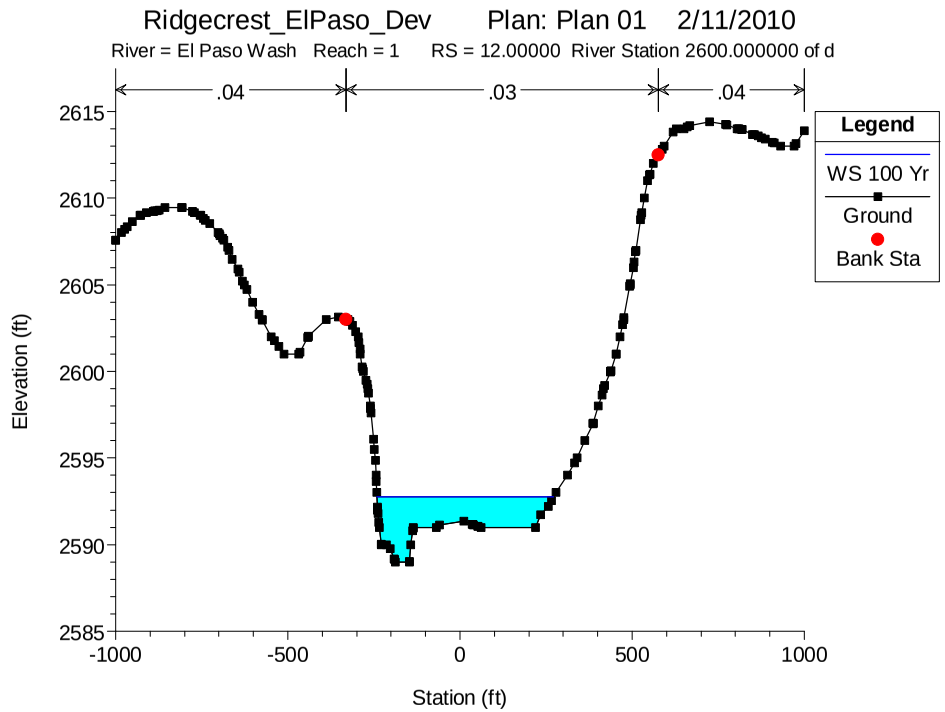
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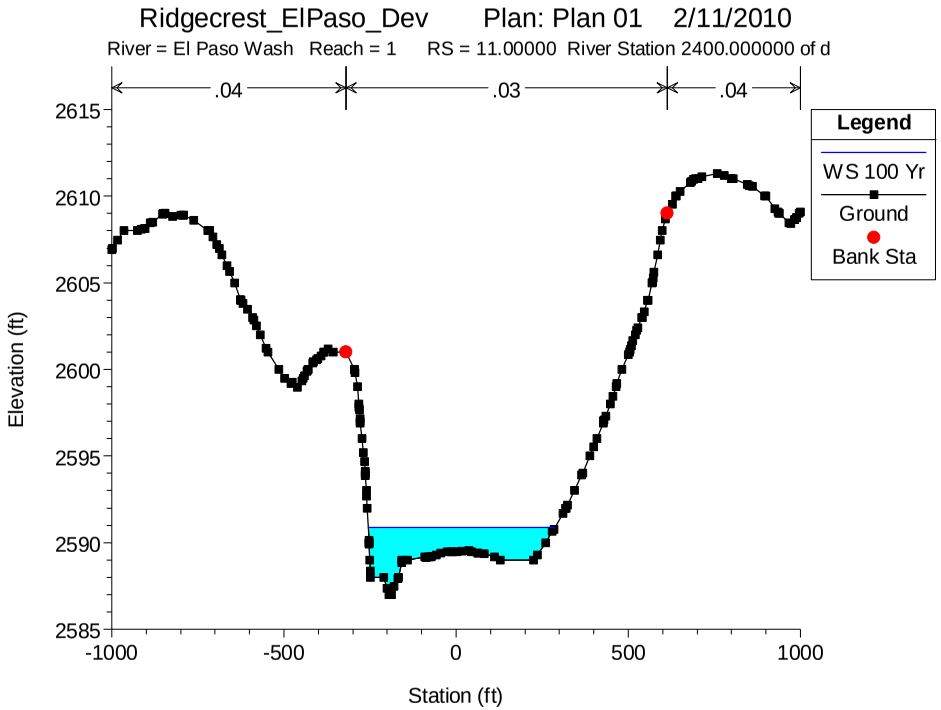
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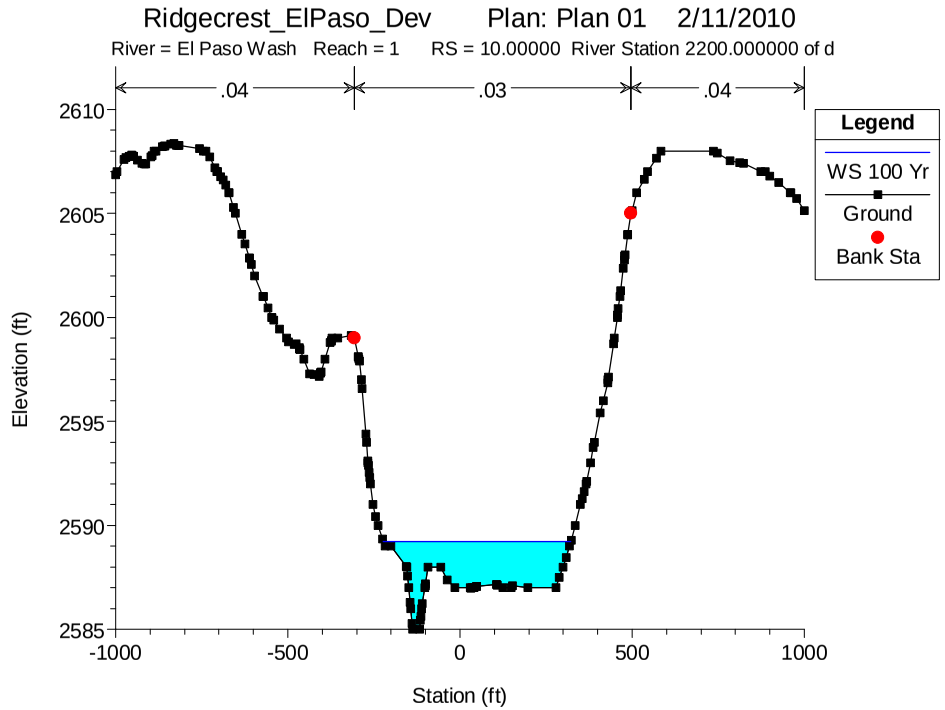
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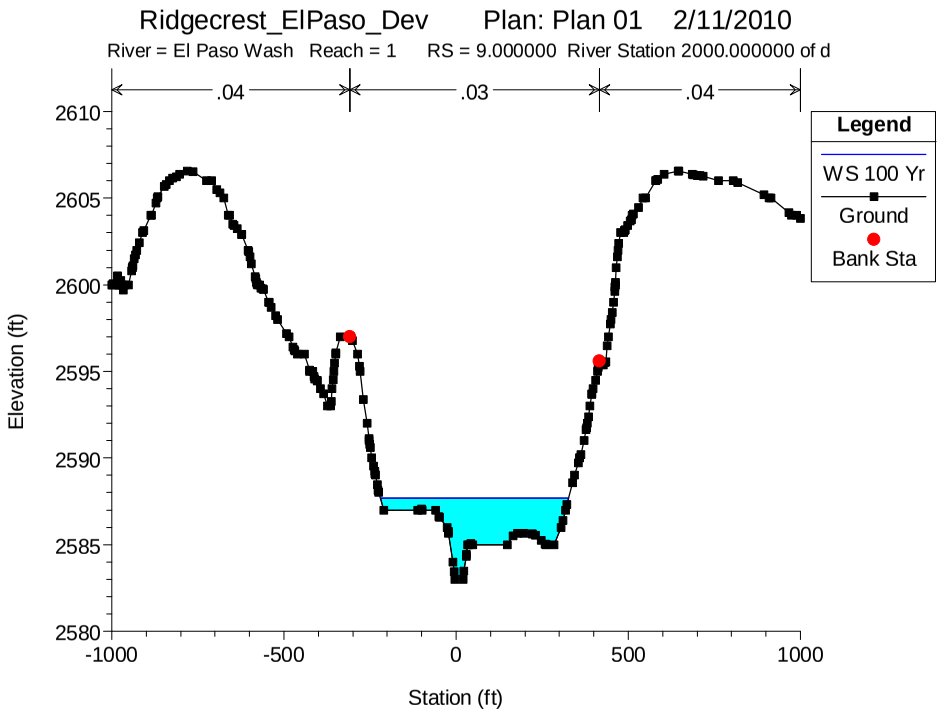
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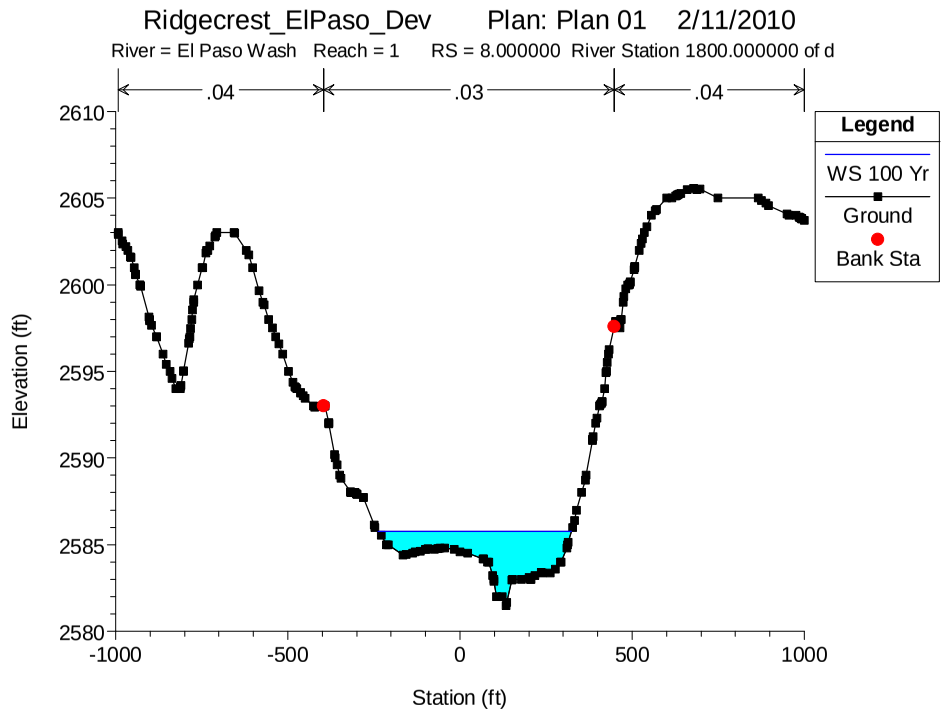
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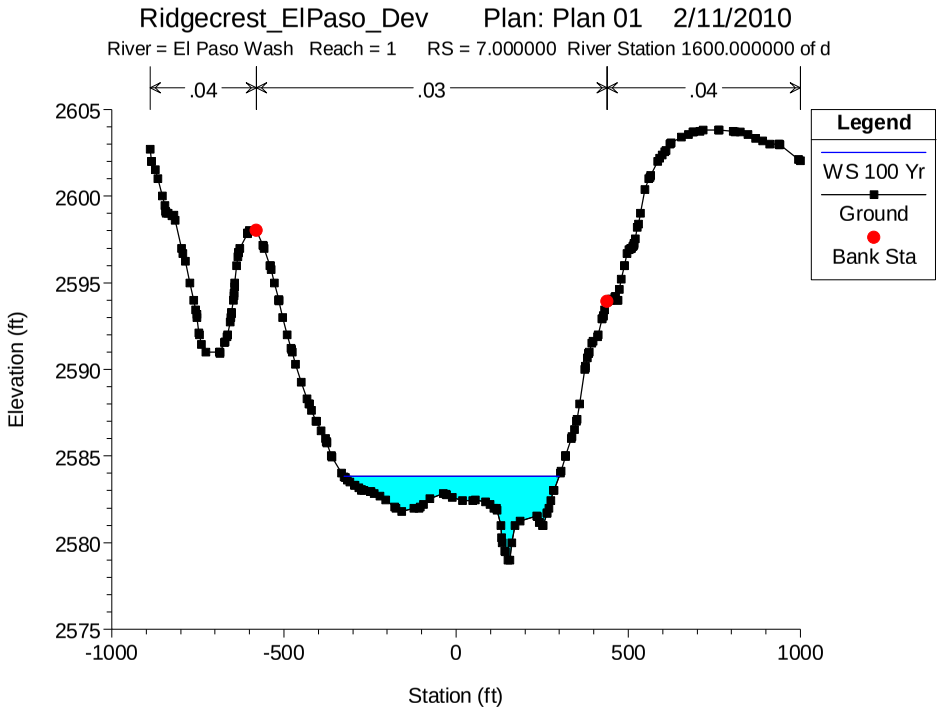
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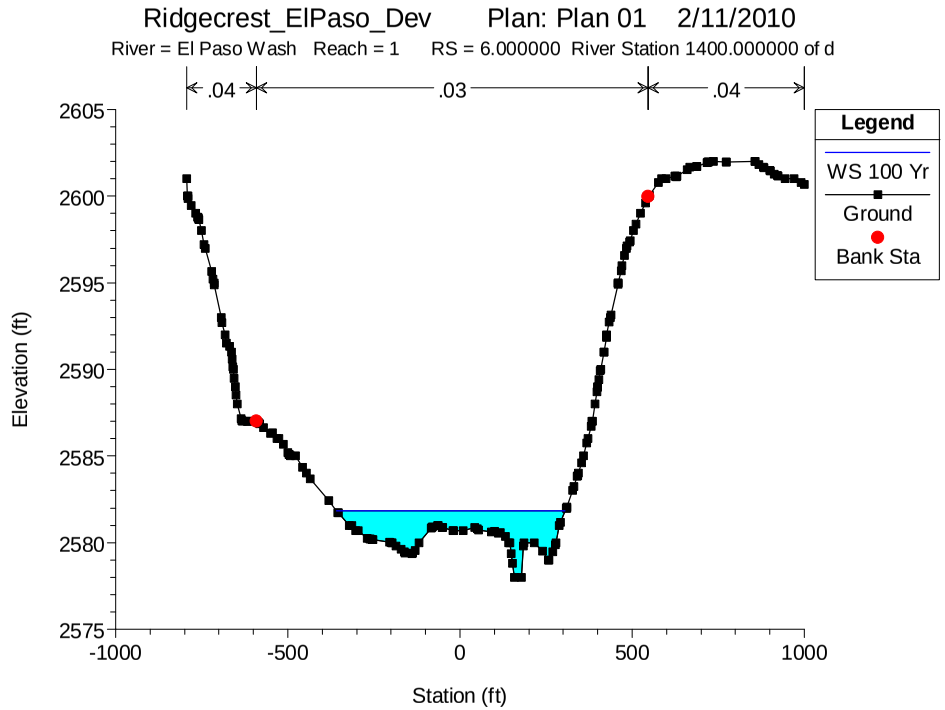
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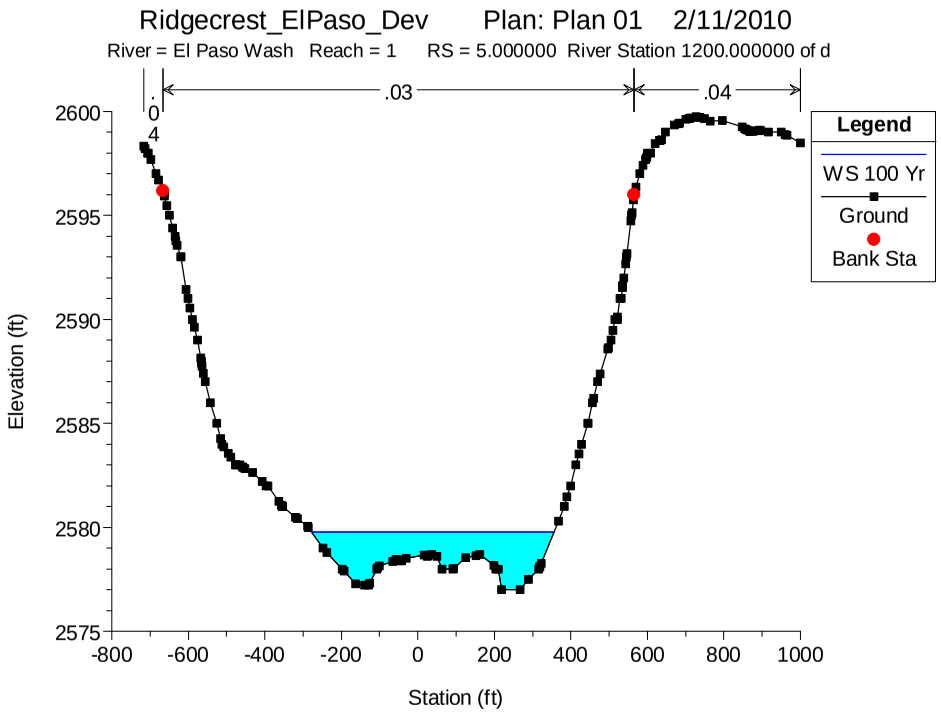
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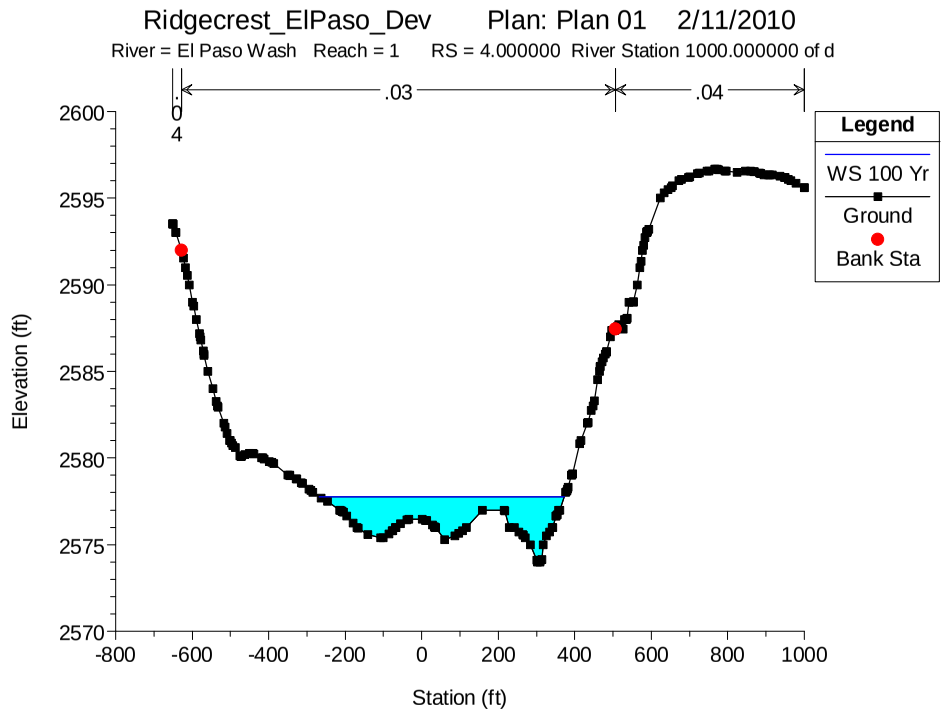
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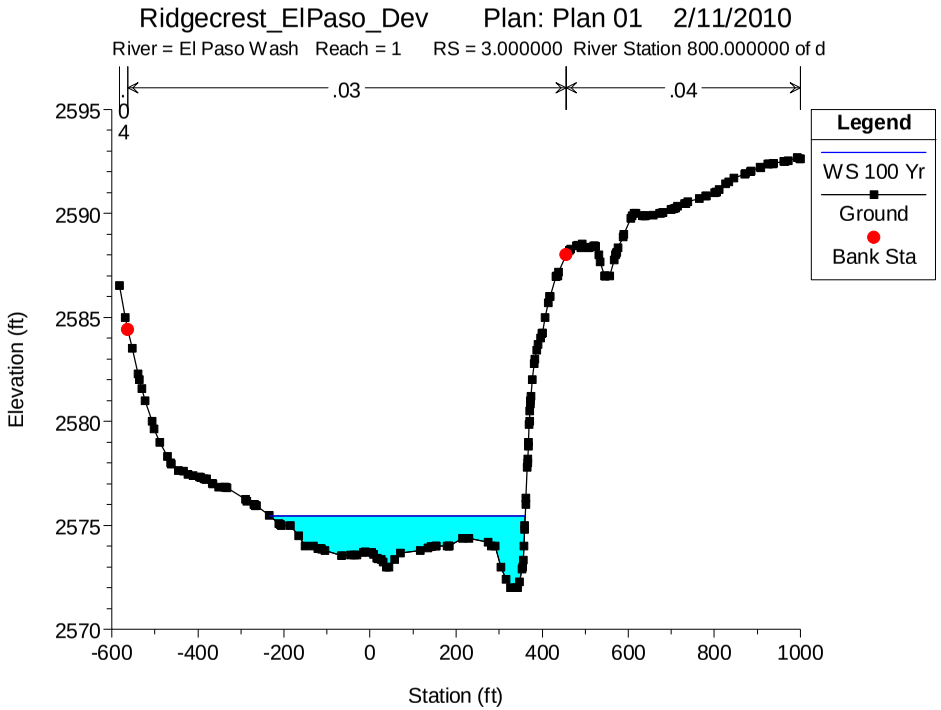
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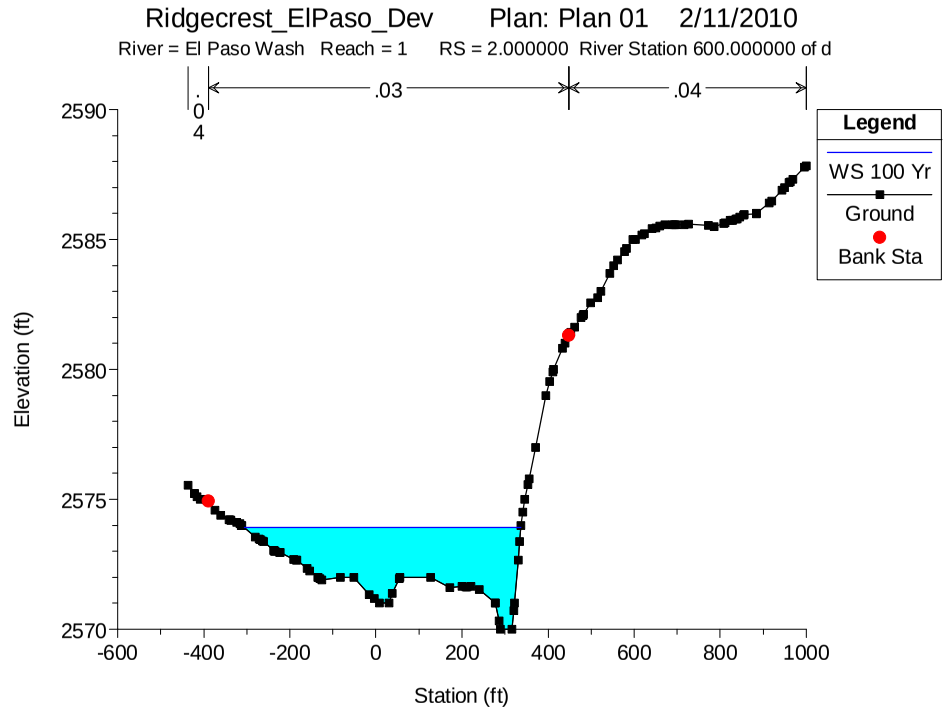
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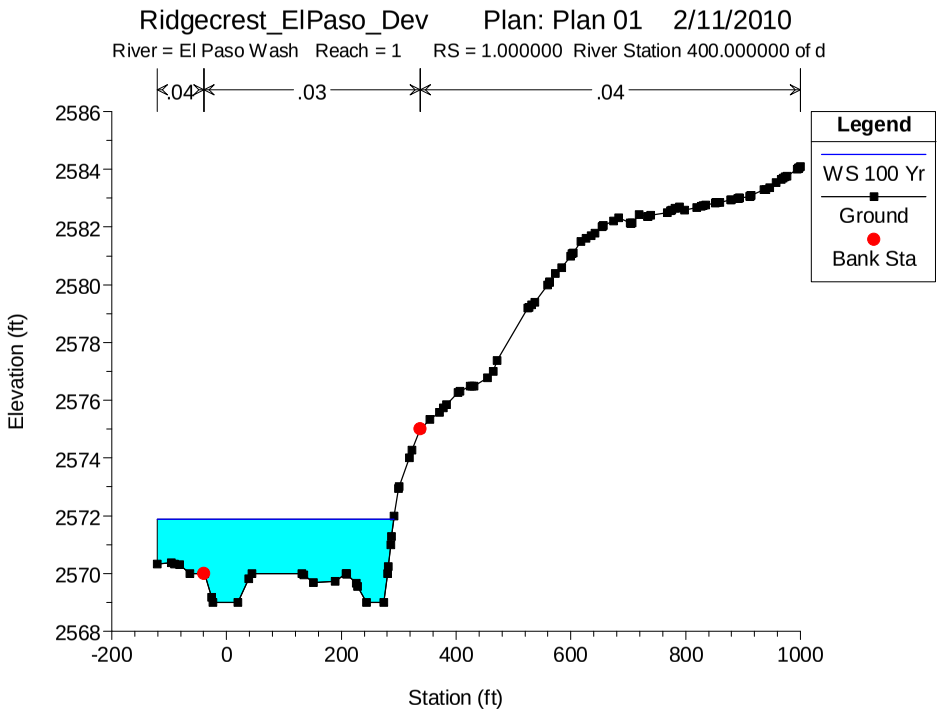
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Elevation (ft)
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U.S. DEPARTMENT OF HOMELAND SECURITY - FEDERAL EMERGENCY MANAGEMENT AGENCY

OVERVIEW & CONCURRENCE FORM

O.M.B No. 1660-0016
Expires: 12/31/2010

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, U.S. Department of Homeland Security, Federal Emergency Management Agency, 500 C Street, SW, Washington DC 20472, Paperwork Reduction Project (1660-0016). 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 DHS-FEMA

This request is for a (check one):

☑ CLOMR: A letter from DHS-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 DHS-FEMA officially revising the current NFIP map to show the changes to floodplains, regulatory floodway or flood elevations. (See 44 CFR Ch. 1, Parts 60, 65 & 72)

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
060075	Kern County	CA	06029C	1600E	09/26/08

2. a. Flooding Source: North Ridgecrest Wash

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

   ☐ Alluvial fan ☐ Lakes ☐ Other (Attach Description)

3. Project Name/Identifier: Ridgecrest Solar Power Plant

4. FEMA zone designations affected: A (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 ☐ Base Map Changes

   ☐ Coastal Analysis ☑ Hydraulic Analysis ☑ Hydrologic Analysis ☐ Corrections

   ☐ Weir-Dam Changes ☐ Levee Certification ☐ Alluvial Fan Analysis ☐ Natural Changes

   ☑ New Topographic Data ☐ 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 structures (check all that apply)

   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: $4400

☐ No, Attach Explanation

Please see the DHS-FEMA Web site at http://www.fema.gov/plan/prevent/fhm/frm_fees.shtm **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: William Hagmaier	Company: AECOM, agent for Solar Millennium, LLC	
Mailing Address: 999 Town & Country Road Orange, CA 92868	Daytime Telephone No.:714.567.2618	Fax No.:714.267.2441
	E-Mail Address: bill.hagmaier@aecom.com	
Signature of Requester (required):	Date:	

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: Charles Lackey, Dir. Engineering & Surveying	Community Name: Kern County, CA	
Mailing Address: 2700 "M" Street, Suite 570 Bakersfield, CA 93301-2370	Daytime Telephone No.:661.862.5100	Fax No.:661.862.5101
	E-Mail Address: ess@co.kern.ca.us	
Community Official's Signature (required):	Date:	

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 data, hydrologic and hydraulic analysis, and any other supporting information as per NFIP regulations paragraph 65.2(b) and as described in the MT-2 Forms Instructions. 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: William Hagmaier	License No.: 44325	Expiration Date: 06/2011
Company Name: AECOM	Telephone No.:714.567.2618	Fax No.: 714.267.2441
Signature:		Date:

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

Seal (Optional)

Print Form

U.S. DEPARTMENT OF HOMELAND SECURITY - FEDERAL EMERGENCY MANAGEMENT AGENCY

RIVERINE HYDROLOGY & HYDRAULICS FORM

O.M.B No. 1660-0016
Expires: 12/31/2010

PAPERWORK REDUCTION ACT

Public reporting burden for this form is estimated to average 3.25 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, U.S. Department of Homeland Security, Federal Emergency Management Agency, 500 C Street, SW, Washington DC 20472, Paperwork Reduction Project (1660-0016). 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: North Ridgecrest Wash, Kern County, California
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 B) ☑ 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.)	Effective/FIS (cfs)	Revised (cfs)
Cross Section 3	10.63 (10.99 existing)	N/A (1,745.3 existing)	1,566.5
Cross Section 4-10	10.57 (9.93 existing)	N/A (706.7 existing)	1,541.4
Cross Section 11-47	10.57 (9.93 existing)	N/A (717.9 existing)	N/A
Cross Section 4-10	10.57 (9.93 existing)	N/A (194.0 existing)	N/A

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

☐ Statistical Analysis of Gage Records ☑ Precipitation/Runoff Model
☐ 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.

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.

Sediment transport was not considered because in existing conditions it is negligible due to diversion at US 395 and the new portion of the channel will replicate this condition. The flow characteristics of the existing wash downstream of the project will not change in post-project conditions.

B. HYDRAULICS

1. Reach to be Revised

South El Paso Wash

	Description	Cross Section	Water-Surface Elevations (ft.) Effective	Proposed/Revised
Downstream Limit	Downstream of proposed project	3	N/A (2,582.38 existing)	2,582.08
Upstream Limit	Upstream of proposed project	116.4	N/A	2,771.22

2. Hydraulic Method/Model Used

HEC-RAS 4.0

B. HYDRAULICS (CONTINUED)

3. Pre-Submittal Review of Hydraulic Models

DHS-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 may help 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/plan/prevent/fhm/frm_soft.shtm. We recommend that you review your HEC-2 and HEC-RAS models with CHECK-2 and CHECK-RAS. Review of your submittal and resolution of valid modeling discrepancies may result in reduced review time.

4.

Models Submitted	Natural Run		Floodway Run		Datum
Duplicate Effective Model*	File Name:	Plan Name:	File Name:	Plan Name:	
Corrected Effective Model*	File Name:	Plan Name:	File Name:	Plan Name:	
Existing or Pre-Project Conditions Model	File Name: A	Plan Name: 01	File Name:	Plan Name:	NAVD 88
Revised or Post-Project Conditions Model	File Name: B	Plan Name: 01	File Name:	Plan Name:	NAVD 88
Other - (attach description)	File Name:	Plan Name:	File Name:	Plan Name:	

* For details, refer to the corresponding section of the instructions.

☑ Digital Models Submitted? (Required)

A = Ridgecrest_Wash_Ex
B = Ridgecrest_Wash_Dev

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.).

☑ Digital Mapping (GIS/CADD) Data Submitted

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.

☑ Annotated FIRM and/or FBFM (Required)

D. COMMON REGULATORY REQUIREMENTS*

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

   a. 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 or without BFEs established and would result in increases above 1.00 foot.

   b. 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.

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/CLOMR requests, does this request have the potential to impact an endangered species? ☐ Yes ☒ No

   If Yes, please submit documentation to the community to show that you have complied with Sections 9 and 10 of the Endangered Species Act (ESA). Section 9 of the ESA prohibits anyone from “taking” or harming an endangered species. If an action might harm an endangered species, a permit is required from U.S. Fish and Wildlife Service or National Marine Fisheries Service under Section 10 of the ESA.

   For actions authorized, funded, or being carried out by Federal or State agencies, please submit documentation from the agency showing its compliance with Section 7(a)(2) of the ESA.

* Not inclusive of all applicable regulatory requirements. For details, see 44 CFR parts 60 and 65.

U.S. DEPARTMENT OF HOMELAND SECURITY - FEDERAL EMERGENCY MANAGEMENT AGENCY

RIVERINE STRUCTURES FORM

O.M.B No. 1660-0016
Expires: 12/31/2010

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, U.S. Department of Homeland Security, Federal Emergency Management Agency, 500 C Street, SW, Washington DC 20472, Paperwork Reduction Project (1660-0016). 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: North Ridgecrest 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/Basin ..... complete Section D
Levee/Floodwall ..... complete Section E
Sediment Transport..... complete Section F (if required)

Description Of Structure

1. Name of Structure: North-East Channel

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

Location of Structure: Upstream portion of North Ridgecrest Wash

Downstream Limit/Cross Section: 3

Upstream Limit/Cross Section: 116.4

2. Name of Structure:

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

Location of Structure:

Downstream Limit/Cross Section:

Upstream Limit/Cross Section:

3. Name of Structure:

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

Location of Structure:

Downstream Limit/Cross Section:

Upstream Limit/Cross Section:

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

B. CHANNELIZATION

Flooding Source: North Ridgecrest Wash

Name of Structure: North-East Channel

1. Accessory Structures

The channelization includes (check one):

- ☐ Levees [Attach Section E (Levee/Floodwall)]
- ☐ Superelevated sections
- ☐ Debris basin/detention basin [Attach Section D (Dam/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 (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:

Name of Structure:

1. This revision reflects (check one):

- ☐ Bridge/culvert not modeled in the FIS
- ☐ Modified bridge/culvert previously modeled in the FIS
- ☐ Revised 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):
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. Sediment transport was not considered because we are replicating existing conditions and flow characteristics.

D. DAM/BASIN

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. The Dam was permitted as (check one):

   a. ☐ Federal Dam ☐ State Dam

      Provide the permit or identification number (ID) for the dam and the appropriate permitting agency or organization

      Permit or ID number Permitting Agency or Organization

   b. ☐ Local Government Dam ☐ Private Dam

      Provided related drawings, specification and supporting design information.

4. Does the project involve revised hydrology? ☐ Yes ☐ No

   If Yes, complete the Riverine Hydrology & Hydraulics Form (Form 2).

   Was the dam/basin designed using critical duration storm?

   ☐ Yes, provide supporting documentation with your completed Form 2.

   ☐ No, provide a written explanation and justification for not using the critical duration storm.

5. 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.

6. 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		

7. 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.

E. LEVEE/FLOODWALL (CONTINUED)

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)

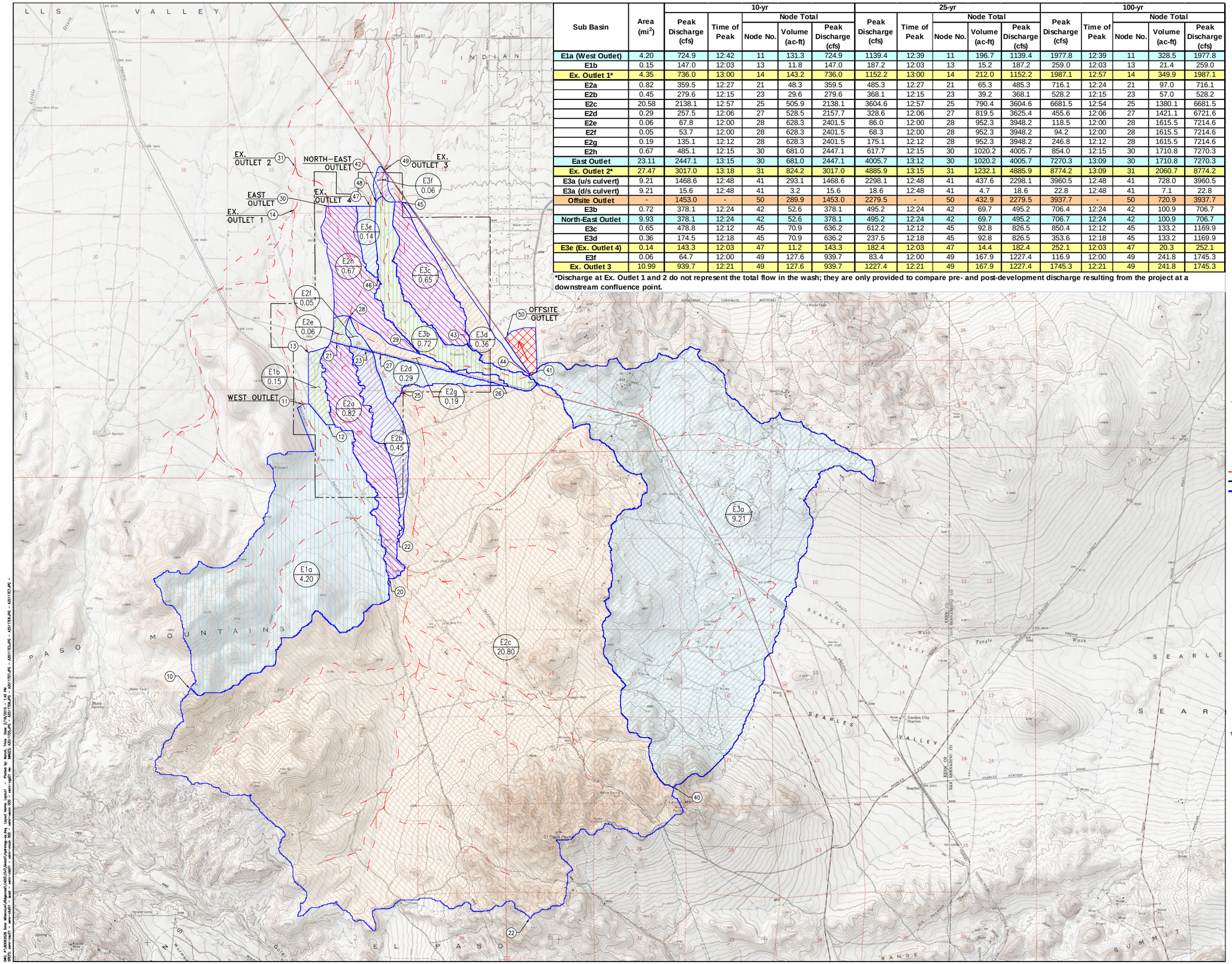
Method used to estimate sediment transport:

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.



Sub Basin	Area (mi^2)	10-yr Peak Discharge (cfs)	10-yr Time of Peak	10-yr Node Total Node No.	10-yr Node Total Volume (ac-ft)	10-yr Node Total Peak Discharge (cfs)	25-yr Peak Discharge (cfs)	25-yr Time of Peak	25-yr Node Total Node No.	25-yr Node Total Volume (ac-ft)	25-yr Node Total Peak Discharge (cfs)	100-yr Peak Discharge (cfs)	100-yr Time of Peak	100-yr Node Total Node No.	100-yr Node Total Volume (ac-ft)	100-yr Node Total Peak Discharge (cfs)
E1a (West Outlet)	4.20	724.9	12:42	11	131.3	724.9	1139.4	12:39	11	196.7	1139.4	1977.8	12:39	11	328.5	1977.8
E1b	0.15	147.0	12:03	13	11.8	147.0	187.2	12:03	13	15.2	187.2	259.0	12:03	13	21.4	259.0
Ex. Outlet 1*	4.35	736.0	13:00	14	143.2	736.0	1152.2	13:00	14	212.0	1152.2	1987.1	12:57	14	349.9	1987.1
E2a	0.82	359.5	12:27	21	48.3	359.5	485.3	12:27	21	65.3	485.3	716.1	12:24	21	97.0	716.1
E2b	0.45	279.6	12:15	23	29.6	279.6	368.1	12:15	23	39.2	368.1	528.2	12:15	23	57.0	528.2
E2c	20.58	2138.1	12:57	25	505.9	2138.1	3604.6	12:57	25	790.4	3604.6	6681.5	12:54	25	1380.1	6681.5
E2d	0.29	257.5	12:06	27	528.5	2157.7	328.6	12:06	27	819.5	3625.4	455.6	12:06	27	1421.1	6721.6
E2e	0.06	67.8	12:00	28	628.3	2401.5	86.0	12:00	28	952.3	3948.2	118.5	12:00	28	1615.5	7214.6
E2f	0.05	53.7	12:00	28	628.3	2401.5	68.3	12:00	28	952.3	3948.2	94.2	12:00	28	1615.5	7214.6
E2g	0.19	135.1	12:12	28	628.3	2401.5	175.1	12:12	28	952.3	3948.2	246.8	12:12	28	1615.5	7214.6
E2h	0.67	485.1	12:15	30	681.0	2447.1	617.7	12:15	30	1020.2	4005.7	854.0	12:15	30	1710.8	7270.3
East Outlet	23.11	2447.1	13:15	30	681.0	2447.1	4005.7	13:12	30	1020.2	4005.7	7270.3	13:09	30	1710.8	7270.3
Ex. Outlet 2*	27.47	3017.0	13:18	31	824.2	3017.0	4885.9	13:15	31	1232.1	4885.9	8774.2	13:09	31	2060.7	8774.2
E3a (u/s culvert)	9.21	1468.6	12:48	41	293.1	1468.6	2298.1	12:48	41	437.6	2298.1	3960.5	12:48	41	728.0	3960.5
E3a (d/s culvert)	9.21	15.6	12:48	41	3.2	15.6	18.6	12:48	41	4.7	18.6	22.8	12:48	41	7.1	22.8
Offsite Outlet	-	1453.0	-	50	289.9	1453.0	2279.5	-	50	432.9	2279.5	3937.7	-	50	720.9	3937.7
E3b	0.72	378.1	12:24	42	52.6	378.1	495.2	12:24	42	69.7	495.2	706.4	12:24	42	100.9	706.7
North-East Outlet	9.93	378.1	12:24	42	52.6	378.1	495.2	12:24	42	69.7	495.2	706.7	12:24	42	100.9	706.7
E3c	0.65	478.8	12:12	45	70.9	636.2	612.2	12:12	45	92.8	826.5	850.4	12:12	45	133.2	1169.9
E3d	0.36	174.5	12:18	45	70.9	636.2	237.5	12:18	45	92.8	826.5	353.6	12:18	45	133.2	1169.9
E3e (Ex. Outlet 4)	0.14	143.3	12:03	47	11.2	143.3	182.4	12:03	47	14.4	182.4	252.1	12:03	47	20.3	252.1
E3f	0.06	64.7	12:00	49	127.6	939.7	83.4	12:00	49	167.9	1227.4	116.9	12:00	49	241.8	1745.3
Ex. Outlet 3	10.99	939.7	12:21	49	127.6	939.7	1227.4	12:21	49	167.9	1227.4	1745.3	12:21	49	241.8	1745.3

*Discharge at Ex. Outlet 1 and 2 do not represent the total flow in the wash; they are only provided to compare pre- and post-development discharge resulting from the project at a downstream confluence point.

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Revisions:

#	DATE	DESCRIPTION

Prepared for:

Solar Millennium LLC

LEGEND

- E1 / 15.35 — DRAINAGE AREA NAME / AREA (SQ. MILES)
- 01 — NODE NUMBER
- FLOWLINE
- SITE BOUNDARY
- DRAINAGE AREA BOUNDARY

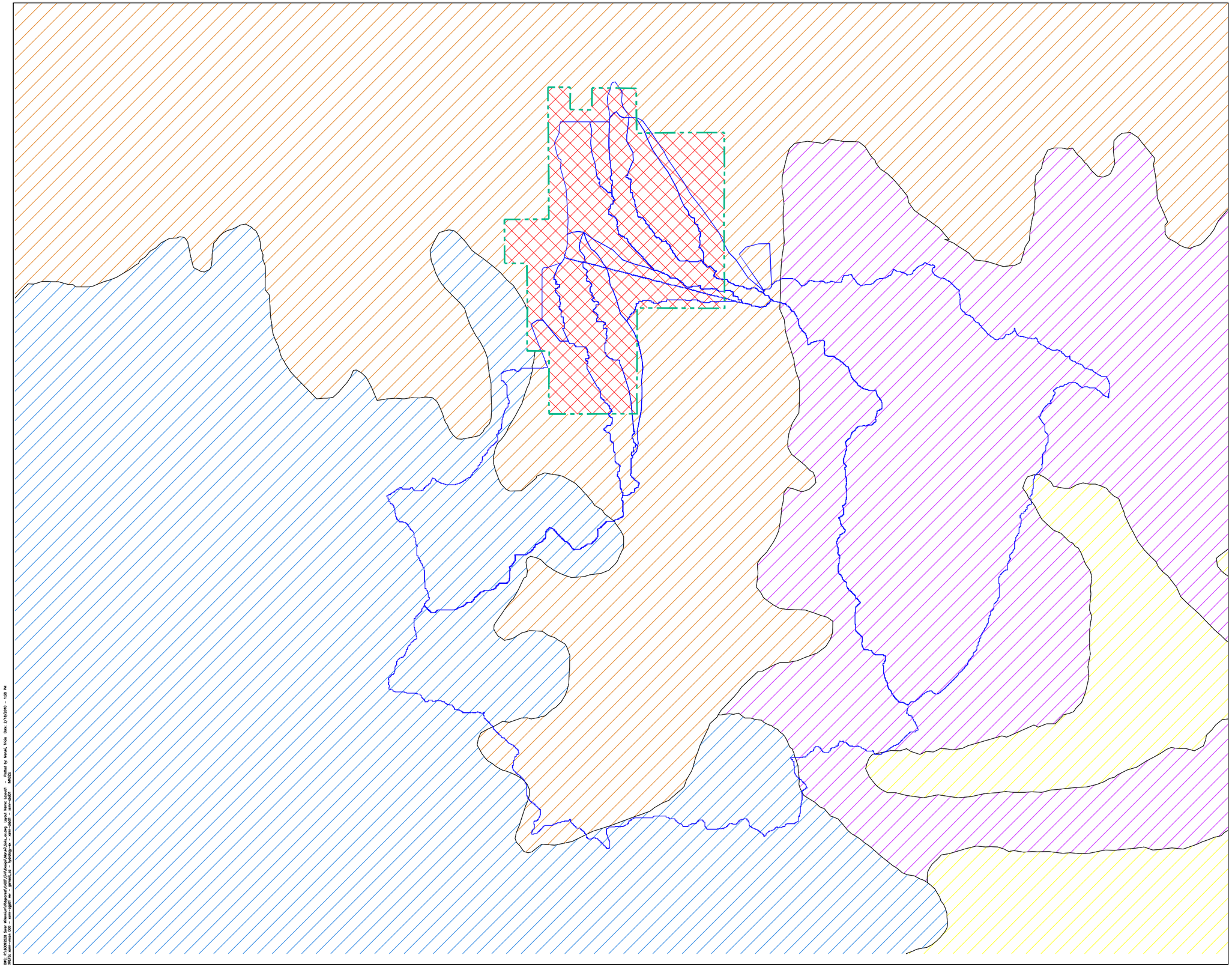
GRAPHIC SCALE:
1"=2000' 0 1000 2000 4000 6000

Ridgecrest Sola Power Project

Kern County, California

Pre-Development Hydrology Map

Date: 02/10/10
Sheet: 1 OF 1



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Prepared for:

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LEGEND

CHAPPARAL, BROADLEAF, POOR COVER
PRORATED SOIL GROUP
%B, %C, %D

- 70, 15, 15 CN=75
- 25, 25, 50 CN=81
- 34, 0, 66 CN=81
- 50, 25, 25 CN=77
- CEMENTED SILTY SAND CN=95 (BASED ON ON-SITE PRELIMINARY GEOTECHNICAL INVESTIGATION REPORT, KLEINFELDER, AUG 2009)
- SITE BOUNDARY
- DRAINAGE AREA BOUNDARY

GRAPHIC SCALE:

1"=2000' 0 1000 2000 4000 6000

Ridgecrest Sola Power Project

Kern County, California

Soils Map
Pre-Development

Date: 02/10/10

Sheet: 1 OF 1

DWG: P:\60092528 Solar Millennium\Ridgecrest\CADD\Civil\Design\Maruk\Soils_ex.dwg Layout Name: Layout1 - Plotted by Maruk, Tricia Date: 2/18/2010 - 1:38 PM
PREFIX: aecom-mode 000 - aecom-cgb01 rw - gmsdl.cd - typology-rw - aecom-cdd01 - aecom-cdd01 MAGES:

Residential Landscaping (Lawn, Shrubs, etc.) - The pervious portions of commercial establishments, single and multiple family dwellings, trailer parks and schools where the predominant land cover is lawn, shrubbery and trees.

Row Crops - Lettuce, tomatoes, beets, tulips or any field crop planted in rows far enough apart that most of the soil surface is exposed to rainfall impact throughout the growing season. At plowing, planting and harvest times it is equivalent to fallow.

Small Grain - Wheat, oats, barley, flax, etc. planted in rows close enough that the soil surface is not exposed except during planting and shortly thereafter.

Legumes - Alfalfa, sweetclover, timothy, etc. and combinations are either planted in close rows or broadcast.

Fallow - Fallow land is land plowed but not yet seeded or tilled.

Woodland - grass - Areas with an open cover of broadleaf or coniferous trees usually live oak and pines, with the intervening ground space occupied by annual grasses or weeds. The trees may occur singly or in small clumps. Canopy density, the amount of ground surface shaded at high noon, is from 20 to 50 percent.

Woodland - Areas on which coniferous or broadleaf trees predominate. The canopy density is at least 50 percent. Open areas may have a cover of annual or perennial grasses or of brush. Herbaceous plant cover under the trees is usually sparse because of leaf or needle litter accumulation.

Chaparral - Land on which the principal vegetation consists of evergreen shrubs with broad, hard, stiff leaves such as manzonita, ceanothus and scrub oak. The brush cover is usually dense or moderately dense. Diffusely branched evergreen shrubs with fine needle-like leaves, such as chamise and redchank, with dense high growth are also included in this soil cover.

Annual Grass - Land on which the principal vegetation consists of annual grasses and weeds such as annual bromes, wild barley, soft chess, ryegrass and filaree.

Irrigated Pasture - Irrigated land planted to perennial grasses and legumes for production of forage and which is cultivated only to establish or renew the stand of plants. Dry land pasture is considered as annual grass.

Meadow - Land areas with seasonally high water table, locally called cienegas. Principal vegetation consists of sod-forming grasses interspersed with other plants.

Orchard (Deciduous) - Land planted to such deciduous trees as apples, apricots, pears, walnuts, and almonds.

Orchard (Evergreen) - Land planted to evergreen trees which include citrus and avocados and coniferous plantings.

Turf - Golf courses, parks and similar lands where the predominant cover is irrigated mowed close-grown turf grass. Parks in which trees are dense may be classified as woodland.

(CN table)

Curve[1] Numbers of Hydrologic Soil-Cover Complexes For Pervious Areas-AMC II

Cover Type (3)	Quality of Cover (2)	Soil Group A	B	C	D
NATURAL COVERS -					
Barren (Rockland, eroded and graded land)		77	86	91	94
Chaparral, Broadleaf (Manzonita, ceanothus and scrub oak)	Poor	53	70	80	85
	Fair	40	63	75	81
	Good	31	57	71	78
Chaparral, Narrowleaf (Chamise and Redskank)	Poor	71	82	88	91
	Fair	55	72	81	86
Grass, Annual or Perennial	Poor	68	79	86	89
	Fair	49	69	79	84
	Good	39	61	74	80
Meadows or Cienagas (Areas with seasonally high water table, principal vegatation is sod forming grass)	Poor	63	77	85	88
	Fair	51	70	80	84
	Good	30	58	71	78
Open Brush (Soft wood shrubs-buckwheat,sage,etc.)	Poor	62	76	84	88
	Fair	46	66	77	83
	Good	41	63	75	81
Woodland (4) (Coniferous or broadleaf trees predominate. Canopy density is at least 50 percent)	Poor	45	66	77	83
	Fair	36	60	73	79
	Good	30	55	70	77
Woodland, Grass (Coniferous or broadleaf trees with canopy density from 20 to 50 percent)	Poor	57	73	82	86
	Fair	43	65	76	82
	Good	32	58	72	79
URBAN COVERS -					
Residential or Commercial Landscaping (Lawns, shrubs, etc.)	Good	39	61	74	80
Turf (Irrigated and mowed grass)	Poor	68	79	86	89
	Fair	49	69	79	84
	Good	39	61	74	80

KERN COUNTY
Hydrology Manual

CURVE NUMBERS FOR PERVIOUS AREAS

FIGURE C-2 (1 of 2)

Curve[1] Numbers of Hydrologic Soil-Cover Complexes For Pervious Areas-AMC II

Cover Type (3)	Quality of Cover (2)	Soil Group A	B	C	D
AGRICULTURAL COVERS -					
Fallow (Bare Soil)		77	86	91	94
Close Seeded (alfalfa, sweetclover, timothy, etc.)	Poor	66	77	85	89
	Good	58	72	81	85
Orchards, Evergreen (Citrus, avacodos, etc.)	Poor	57	73	82	86
	Fair	43	65	76	82
	Good	32	58	72	79
Pasture (Grassland or range, continuos forage for grazing)	Poor	68	79	86	89
	Fair	49	69	79	84
	Good	39	61	74	80
Row Crops (Straight row, non-contoured)	Poor	72	81	88	91
	Good	67	78	85	89
Small Grain (Straight row, non-contoured)	Poor	65	76	84	88
	Good	63	75	83	87

Notes:

1. Average runoff condition, Ia = 0.2(S)

2. Poor: Heavily grazed, regularly burned areas, or areas of high burn potential. Less than 50 percent of the ground surface is protected by plant cover or brush and tree canopy.

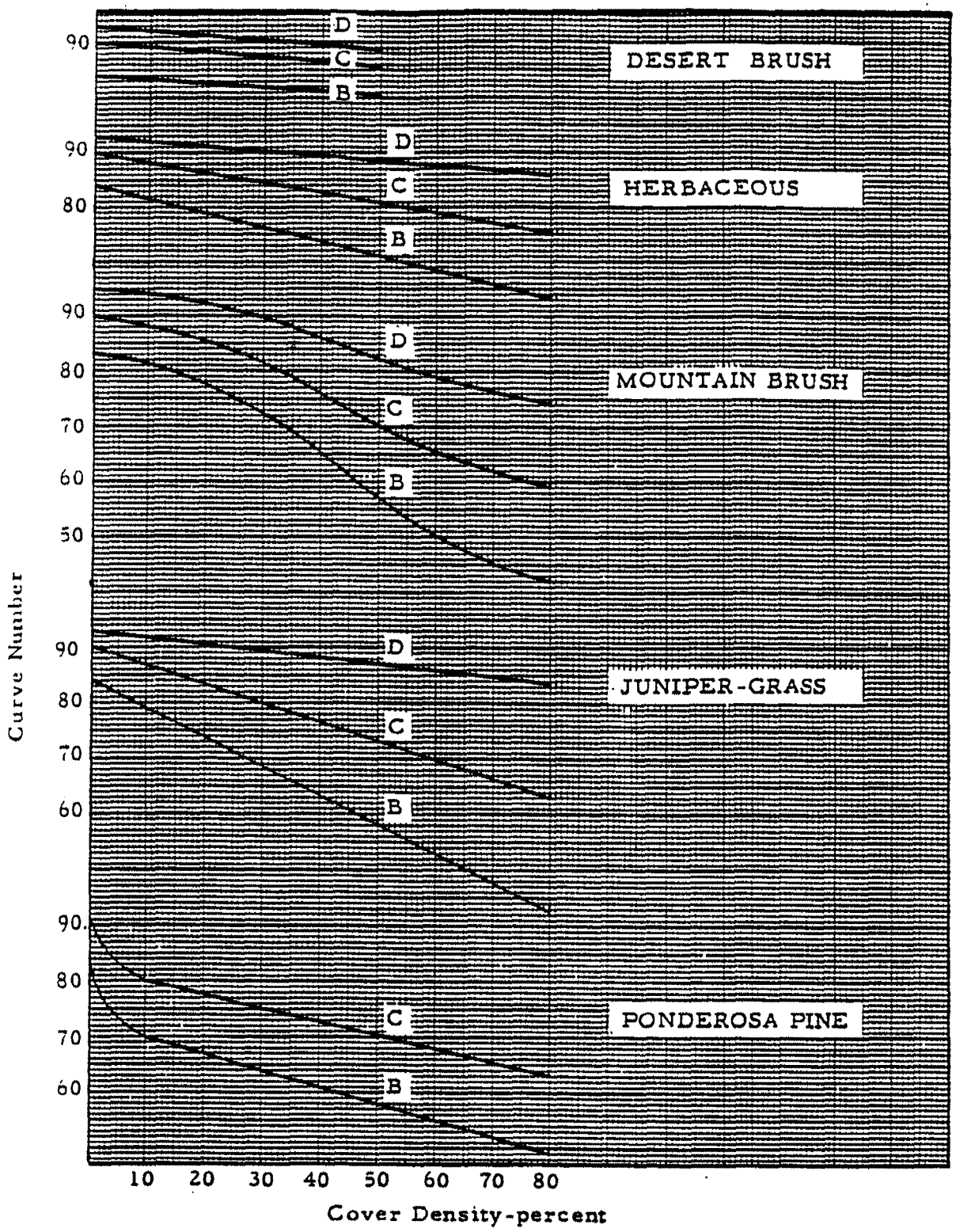
   Fair: Moderate cover with 50 percent to 75 percent of the ground surface protected. In wooded areas the woods are grazed but not burned, and some forest litter covers the soil.

   Good: Heavy or dense cover with more than 75 percent of the ground surface protected. In wooded areas the woods are protected from grazing, litter and brush adequately cover soil.

3. See Figure C-1 for definition of cover types.

KERN COUNTY
Hydrology Manual

CURVE NUMBERS FOR PERVIOUS AREAS

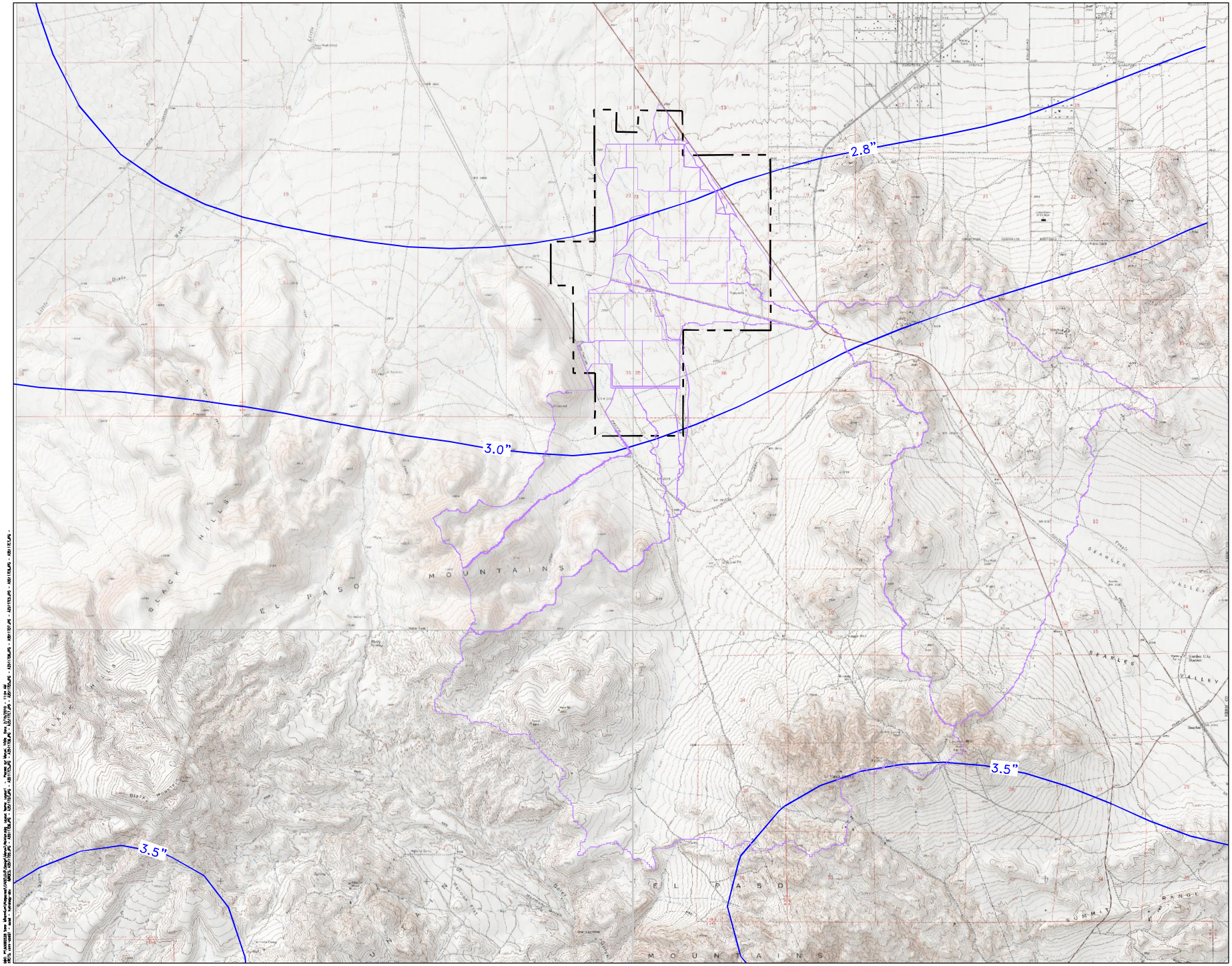


KERN COUNTY

HYDROLOGY MANUAL

HYDROLOGIC SOIL COVER COMPLEXES AND ASSOCIATED CURVE NUMBERS

FIGURE C-7



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Revisions

#	DATE	DESCRIPTION

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Solar Millennium LLC

LEGEND

- SITE BOUNDARY
- 100 Yr-24 Hr ISOHYET
- DRAINAGE AREA BOUNDARY

GRAPHIC SCALE:

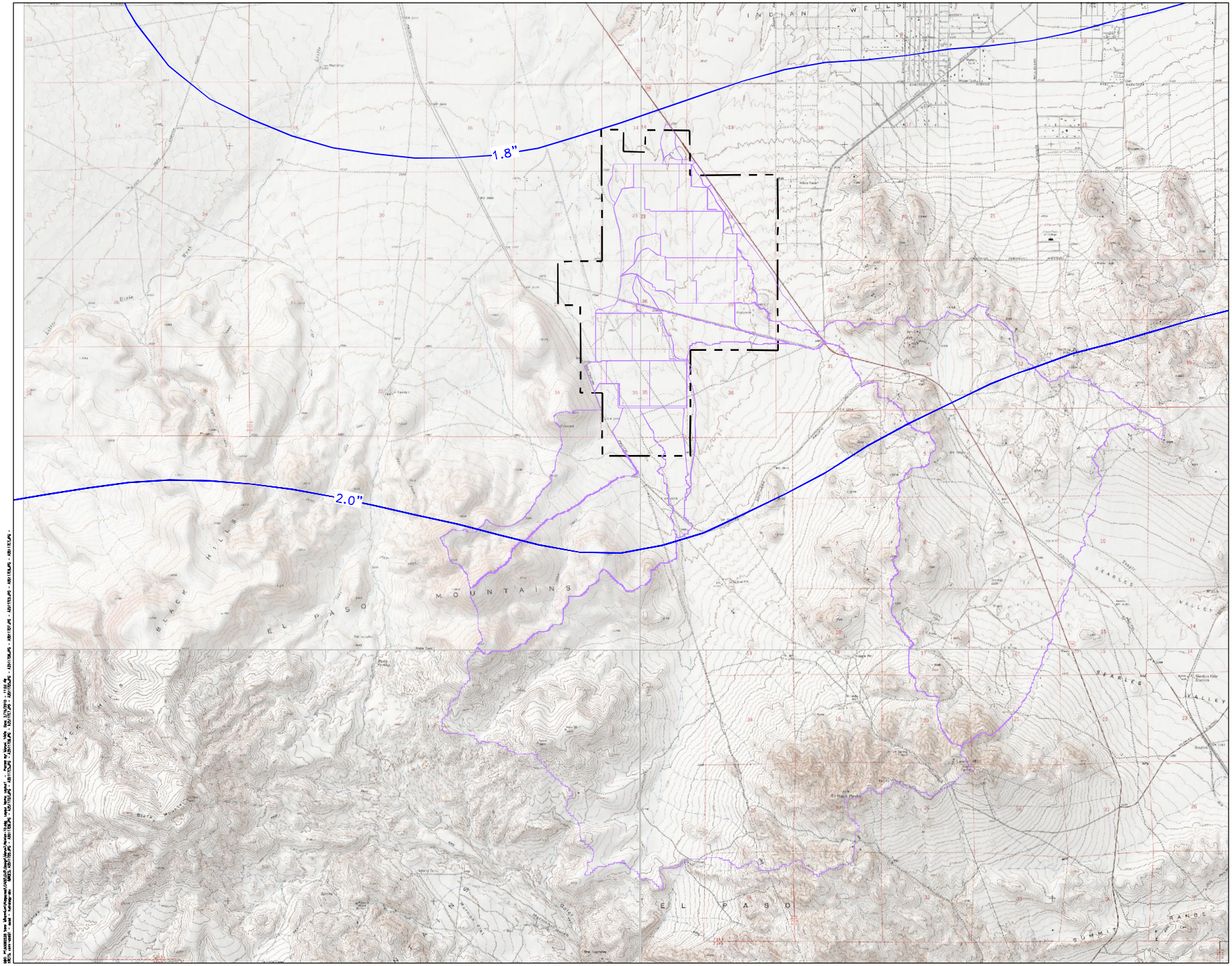
1"=2000' 0 1000 2000 4000 6000

Ridgecrest Solar Power Project

Kern County, California

100 Yr 24 Hr Rainfall Map

Date: 02/10/10
Sheet: 1 OF 2



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LEGEND

- SITE BOUNDARY
- 10 Yr-24 Hr ISOHYET
- DRAINAGE AREA BOUNDARY

GRAPHIC SCALE:

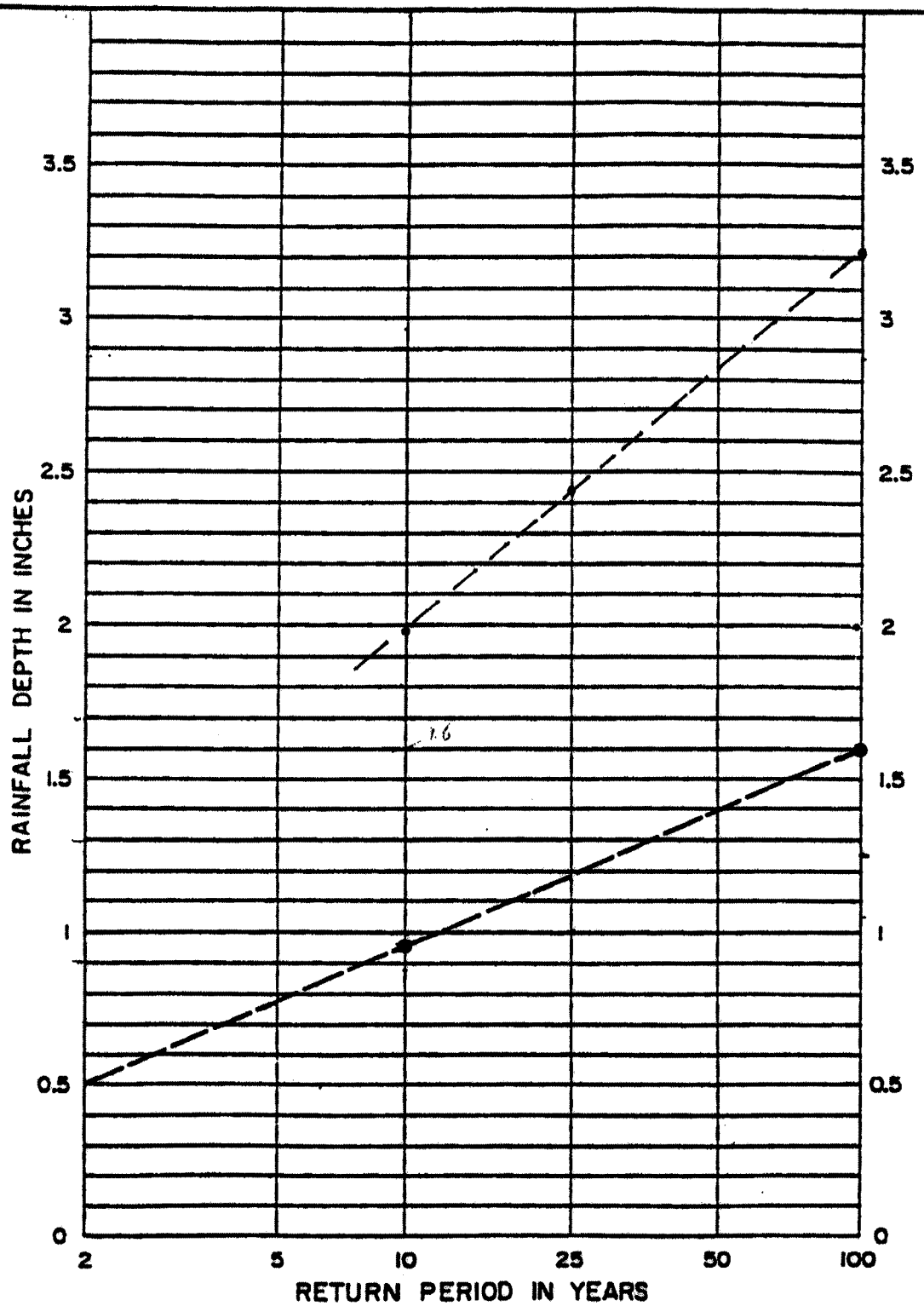
1"=2000' 0 1000 2000 4000 6000

Ridgecrest Solar Power Project

Kern County, California

10 Yr 24 Hr Rainfall Map

Date: 02/10/10
Sheet: 2 OF 2



NOTE:

1. FOR INTERMEDIATE RETURN PERIODS PLOT 10-YEAR AND 100-YEAR ONE HOUR VALUES FROM MAPS, THEN CONNECT POINTS AND READ VALUE FOR DESIRED RETURN PERIOD. FOR EXAMPLE GIVEN 10-YEAR ONE HOUR = 0.95" AND 100-YEAR ONE HOUR = 1.60", 25-YEAR ONE HOUR = 1.18".

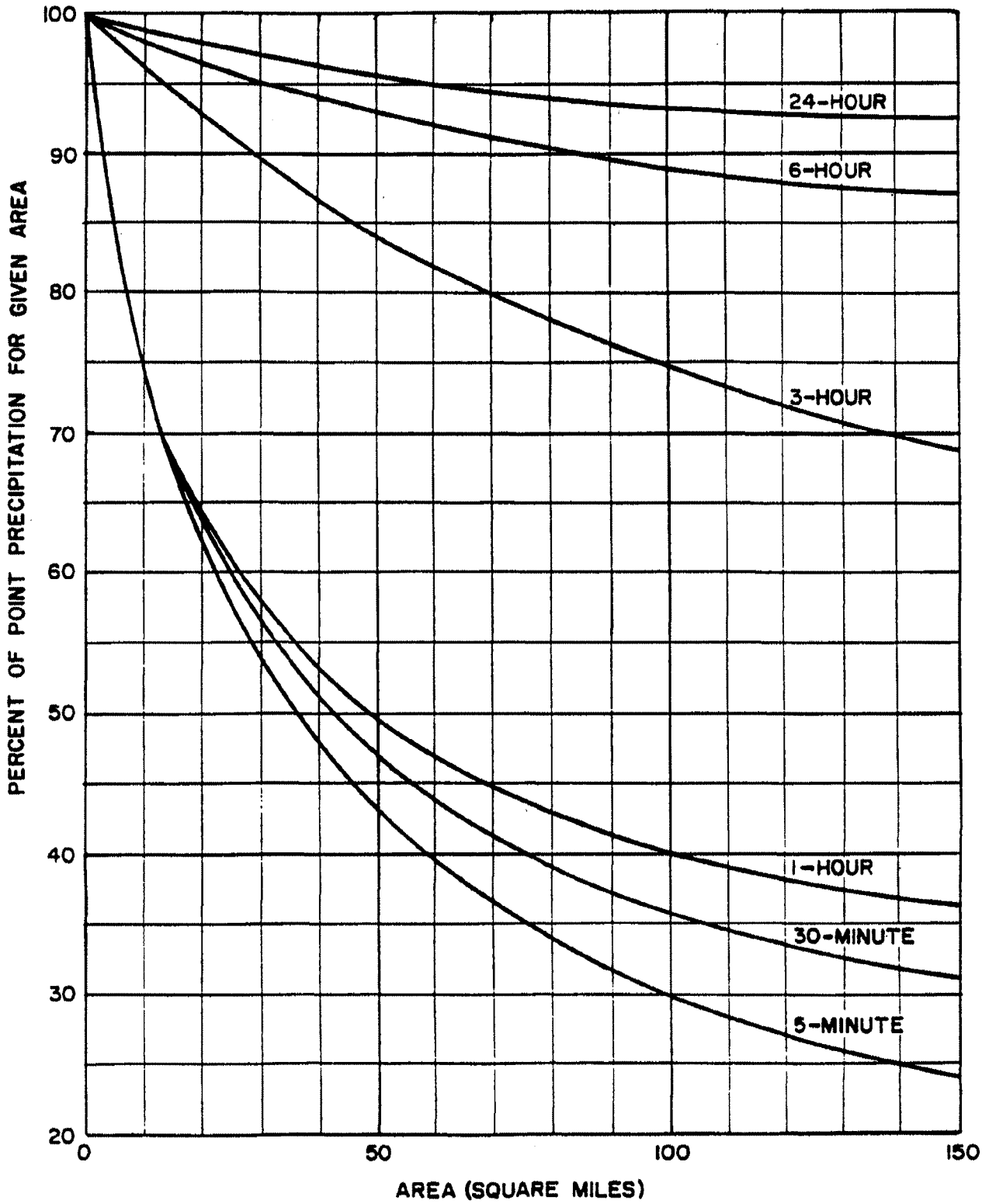
REFERENCE: NOAA ATLAS 2, VOLUME XI - CAL., 1973

KERN COUNTY

HYDROLOGY MANUAL

RAINFALL DEPTH VERSUS RETURN PERIOD FOR PARTIAL DURATION SERIES

FIGURE D-3



KERN COUNTY

HYDROLOGY MANUAL

DESIGN STORM
DEPTH AREA
CURVES

Figure E-4

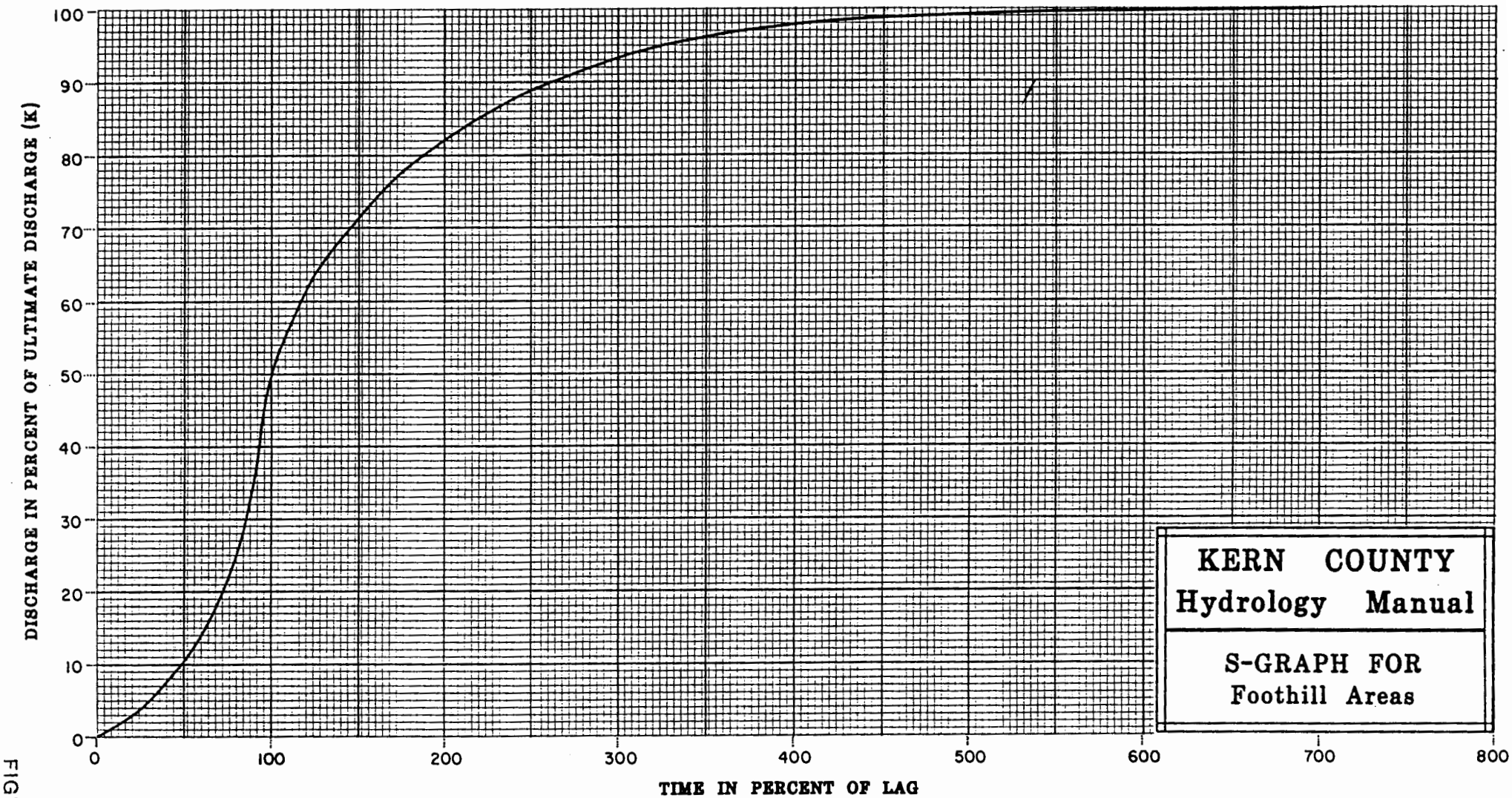

DISCHARGE IN PERCENT OF ULTIMATE DISCHARGE (K)
100
90
80
70
60
50
40
30
20
10
0
0
100
200
300
400
500
600
700
800
TIME IN PERCENT OF LAG
KERN COUNTY
Hydrology Manual
S-GRAPH FOR
Foothill Areas

FIGURE E-3b

HMS Input Parameters for Pre-Development Hydrology Calculations

Pre-Development - North-Eastern Drainage Area

Sub-Basin	Area (mi^2)	Length (mi)	L_{CA} (mi)	Elev. Difference (D)	Slope (ft/mi)	n	Composite CN	S=(1000/CN)-10	T_{lag} (hours) = $24n(LL_{CA}/S^{05})^{0.38}$	T_{lag} (mins) = $24n(LL_{CA}/S^{05})^{0.38}$	IA
E3a	9.206	6.36	3.05	1505.00	236.64	0.04	80.97	2.35	1.05	62.91	0.47
E3b	0.720	3.44	1.72	279.00	81.15	0.03	92.81	0.78	0.61	36.77	0.16
E3c	0.652	2.04	1.11	230.00	112.52	0.03	94.74	0.56	0.40	24.04	0.11
E3d	0.359	2.55	1.51	270.00	105.76	0.03	89.76	1.14	0.50	29.72	0.23
E3e	0.143	0.85	0.36	54.00	63.60	0.03	95.00	0.53	0.21	12.50	0.11
E3f	0.057	0.38	0.172	30.00	79.16	0.03	93.46	0.70	0.11	6.67	0.14

HMS Output for Pre-Development Hydrology Calculations

10 Year Flow Rates

Pre-Development Hydrology - North-Eastern Drainage Area

Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
Culvert	9.206	15.60	01Jan2009, 12:48	3.20
E3a	9.206	1468.60	01Jan2009, 12:48	293.10
E3b	0.720	378.10	01Jan2009, 12:24	49.40
E3c	0.652	478.80	01Jan2009, 12:12	50.50
E3d	0.359	174.50	01Jan2009, 12:18	20.40
E3e	0.143	143.30	01Jan2009, 12:03	11.20
E3f	0.057	64.7	01Jan2009, 12:00	4.1
Ex_Outlet3	10.994	939.7	01Jan2009, 12:21	127.6
Ex_Outlet 4	0.143	143.3	01Jan2009, 12:03	11.2
J2	1.011	636.2	01Jan2009, 12:15	70.9
NE_Outlet	9.926	378.1	01Jan2009, 12:24	52.6
R1	9.206	16.8	01Jan2009, 14:00	3.2
R2	9.926	374.7	01Jan2009, 12:27	52.6
R3	1.011	630	01Jan2009, 12:18	70.9

HMS Output for Pre-Development Hydrology Calculations

25 Year Flow Rates

Pre-Development Hydrology - North-Eastern Drainage Area

Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
Culvert	9.206	18.60	01Jan2009, 12:48	4.70
E3a	9.206	2298.10	01Jan2009, 12:48	437.60
E3b	0.720	495.20	01Jan2009, 12:24	65.00
E3c	0.652	612.20	01Jan2009, 12:12	65.10
E3d	0.359	237.50	01Jan2009, 12:18	27.70
E3e	0.143	182.40	01Jan2009, 12:03	14.40
E3f	0.057	83.4	01Jan2009, 12:00	5.3
Ex_Outlet3	10.994	1227.4	01Jan2009, 12:21	167.9
Ex_Outlet 4	0.143	182.4	01Jan2009, 12:03	14.4
J2	1.011	826.5	01Jan2009, 12:15	92.8
NE_Outlet	9.926	495.2	01Jan2009, 12:24	69.7
R1	9.206	18.5	01Jan2009, 13:57	4.7
R2	9.926	490.8	01Jan2009, 12:27	69.7
R3	1.011	816.3	01Jan2009, 12:18	92.8

HMS Output for Pre-Development Hydrology Calculations

100 Year Flow Rates

Pre-Development Hydrology - North-Eastern Drainage Area

Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
Culvert	9.206	22.80	01Jan2009, 12:48	7.10
E3a	9.206	3960.50	01Jan2009, 12:48	728.00
E3b	0.720	706.40	01Jan2009, 12:24	93.80
E3c	0.652	850.40	01Jan2009, 12:12	91.80
E3d	0.359	353.60	01Jan2009, 12:18	41.40
E3e	0.143	252.10	01Jan2009, 12:03	20.30
E3f	0.057	116.9	01Jan2009, 12:00	7.6
Ex_Outlet3	10.994	1745.3	01Jan2009, 12:21	241.8
Ex_Outlet 4	0.143	252.1	01Jan2009, 12:03	20.3
J2	1.011	1169.9	01Jan2009, 12:15	133.2
NE_Outlet	9.926	706.7	01Jan2009, 12:24	100.9
R1	9.206	22.8	01Jan2009, 13:51	7.2
R2	9.926	701.6	01Jan2009, 12:27	100.9
R3	1.011	1157.7	01Jan2009, 12:18	133.2

Ridgecrest Solar Plant
Pre-Development Hydrology Results

Sub Basin	Area (mi^2)	10-yr					25-yr					100-yr				
		Peak Discharge (cfs)	Time of Peak	Node Total			Peak Discharge (cfs)	Time of Peak	Node Total			Peak Discharge (cfs)	Time of Peak	Node Total		
				Node No.	Volume (ac-ft)	Peak Discharge (cfs)			Node No.	Volume (ac-ft)	Peak Discharge (cfs)			Node No.	Volume (ac-ft)	Peak Discharge (cfs)
E3a (u/s culvert)	9.21	1468.6	12:48	41	293.1	1468.6	2298.1	12:48	41	437.6	2298.1	3960.5	12:48	41	728.0	3960.5
E3a (d/s culvert)	9.21	15.6	12:48	41	3.2	15.6	18.6	12:48	41	4.7	18.6	22.8	12:48	41	7.1	22.8
Offsite Outlet	-	1453.0	-	50	289.9	1453.0	2279.5	-	50	432.9	2279.5	3937.7	-	50	720.9	3937.7
E3b	0.72	378.1	12:24	42	52.6	378.1	495.2	12:24	42	69.7	495.2	706.4	12:24	42	100.9	706.7
North-East Outlet	9.93	378.1	12:24	42	52.6	378.1	495.2	12:24	42	69.7	495.2	706.7	12:24	42	100.9	706.7
E3c	0.65	478.8	12:12	45	70.9	636.2	612.2	12:12	45	92.8	826.5	850.4	12:12	45	133.2	1169.9
E3d	0.36	174.5	12:18	45	70.9	636.2	237.5	12:18	45	92.8	826.5	353.6	12:18	45	133.2	1169.9
E3e (Ex. Outlet 4)	0.14	143.3	12:03	47	11.2	143.3	182.4	12:03	47	14.4	182.4	252.1	12:03	47	20.3	252.1
E3f	0.06	64.7	12:00	49	127.6	939.7	83.4	12:00	49	167.9	1227.4	116.9	12:00	49	241.8	1745.3
Ex. Outlet 3	10.99	939.7	12:21	49	127.6	939.7	1227.4	12:21	49	167.9	1227.4	1745.3	12:21	49	241.8	1745.3

NORTH RIDGECREST WASH – EXISTING CONDITIONS

The existing conditions of North Ridgecrest Wash have not been studied in detail. The Flood Insurance Study for Kern County, California, dated September 26, 2008, indicates that North Ridgecrest Wash was studied by approximate analysis. The approximate floodplain for the 1% chance event is shown on the original FIRM Panel 1600E. The study also states that the peak 1% chance discharge for North Ridgecrest Wash at the Ridgecrest corporate limits is 1,800 cfs for a drainage area of 6.9 square miles.

The City of Ridgecrest prepared a Master Drainage Plan in May 1989. An analysis of the Ridgecrest Wash Drainage Basin was performed using HEC-1. The results show that for a drainage area of 11.74 square miles, the 100 year peak flow would be 2,240 cfs. The study encompassed a tributary area up to the Ridgecrest corporate limits and a longer portion of the wash than the area affected by the project, thus resulting in a difference in discharge.

For this development, a detailed hydrologic study was prepared using one-foot contour topography and methodology based on the Kern County Hydrology Manual. The existing hydrology included a tributary area of 10.99 square miles with a resulting 1% chance discharge of 1,745.3 cfs downstream of the site. A hydraulic analysis of 13,000 feet of the wash was performed with HEC-RAS using a mixed flow regime. The results show a downstream water surface level of 2582.38 ft. The resulting 1% floodplain was overlayed onto the existing FIRM Panels. It is assumed that during the 100-year flood 3,938 cfs is diverted to the north along the easterly side for US 395 and South China Lake Blvd. and does not enter the project site. This is based on City of Ridgecrest Master Drainage Plan, dated May 1989.

NOTES TO USERS

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. The **community map repository** should be consulted for possible updated or additional flood hazard information.

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 and/or Summary of Stillwater Elevations 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. These BFEs 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 report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). 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 jurisdiction. 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.

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 National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures.** Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 11. The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum.** For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, MD 20910-3282

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242,** or visit its website at http://www.ngs.noaa.gov/.

Base map information shown on this FIRM was derived from USDA - Farm Service Agency - Aerial Photography Field Office dated 2005 and from U.S. Geological Survey Digital Orthophoto Quadrangles produced at a scale of 1:12,000 from photography dated 1992 or later.

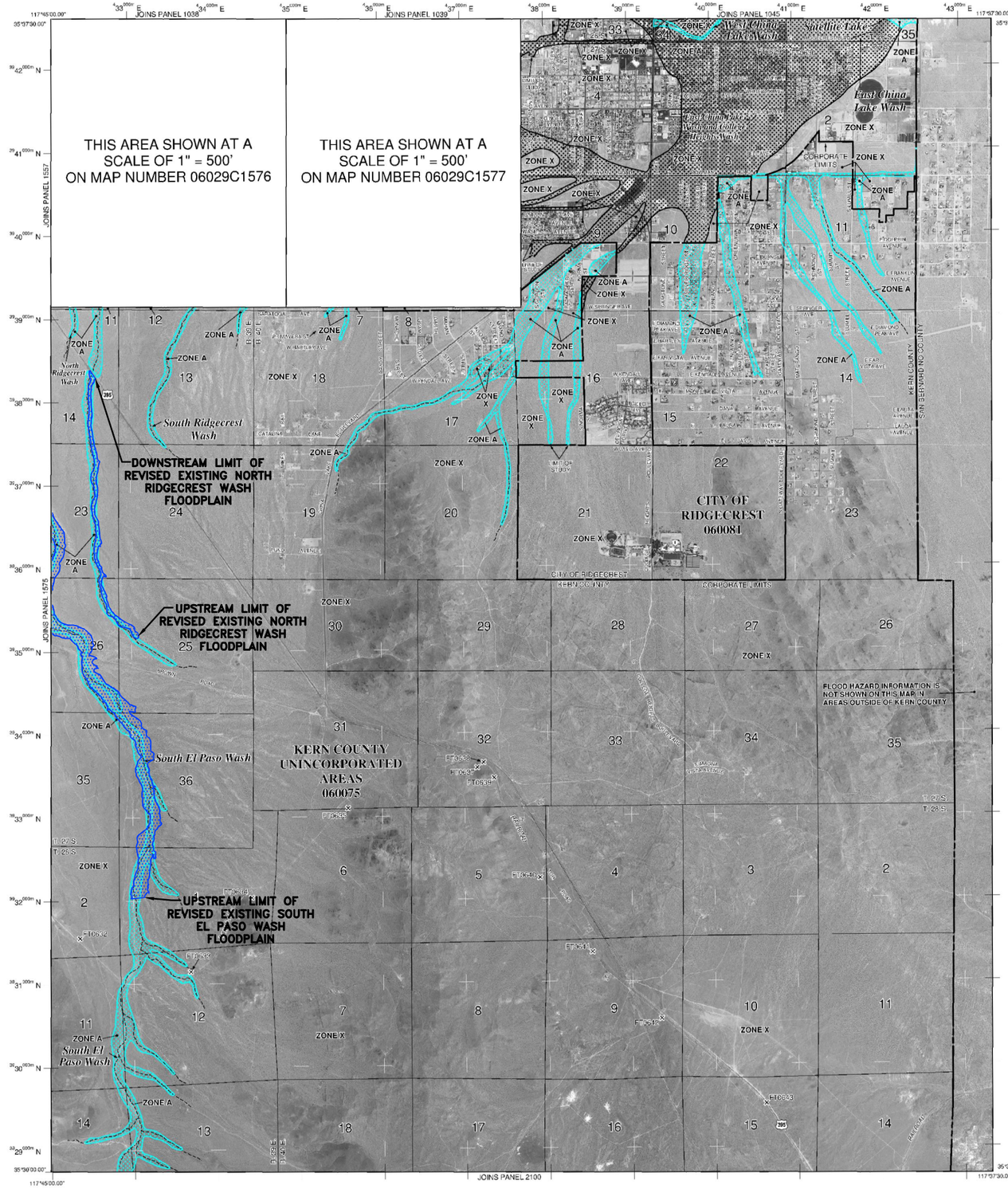
This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables *in the Flood Insurance Study report (which contains authoritative hydraulic data)* may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a *Flood Insurance Study report,* and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at http://www.msc.fema.gov/.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/.



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance 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 AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

1% annual chance floodplain boundary
0.2% annual chance floodplain boundary
Floodway boundary
Zone D boundary
CBRS and OPA boundary
Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.

513	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

(A)———(A)	Cross section line
(23)- - - - - -(23)	Transect line
97°07'30", 32°22'30"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
4275000 mN	1000-meter Universal Transverse Mercator grid ticks, zone 11
6000000 M	5000-foot grid ticks: California State Plane coordinate system, V zone (FIPSZONE 0405), Lambert Conformal Conic
DX5510 ×	Bench mark (see explanation in Notes to Users section of this FIRM panel)
• M1.5	River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 26, 2008
EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 2000'
1000 0 2000 4000 FEET
600 0 600 1200 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 1600E

FIRM
FLOOD INSURANCE RATE MAP
KERN COUNTY, CALIFORNIA
AND INCORPORATED AREAS

PANEL 1600 OF 4125
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
KERN COUNTY	060075	1600	E
RIDGECREST, CITY OF	060081	1600	E

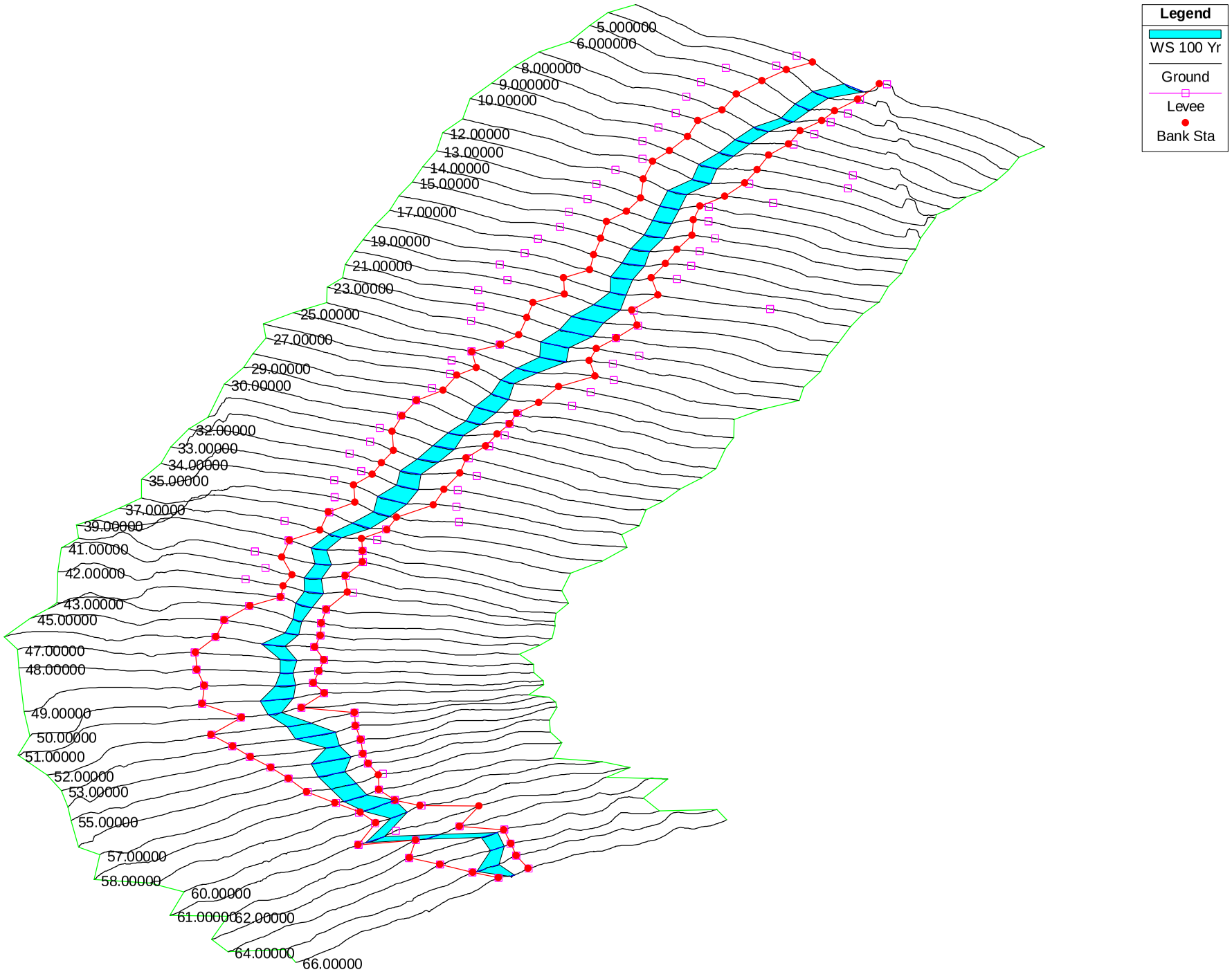
Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

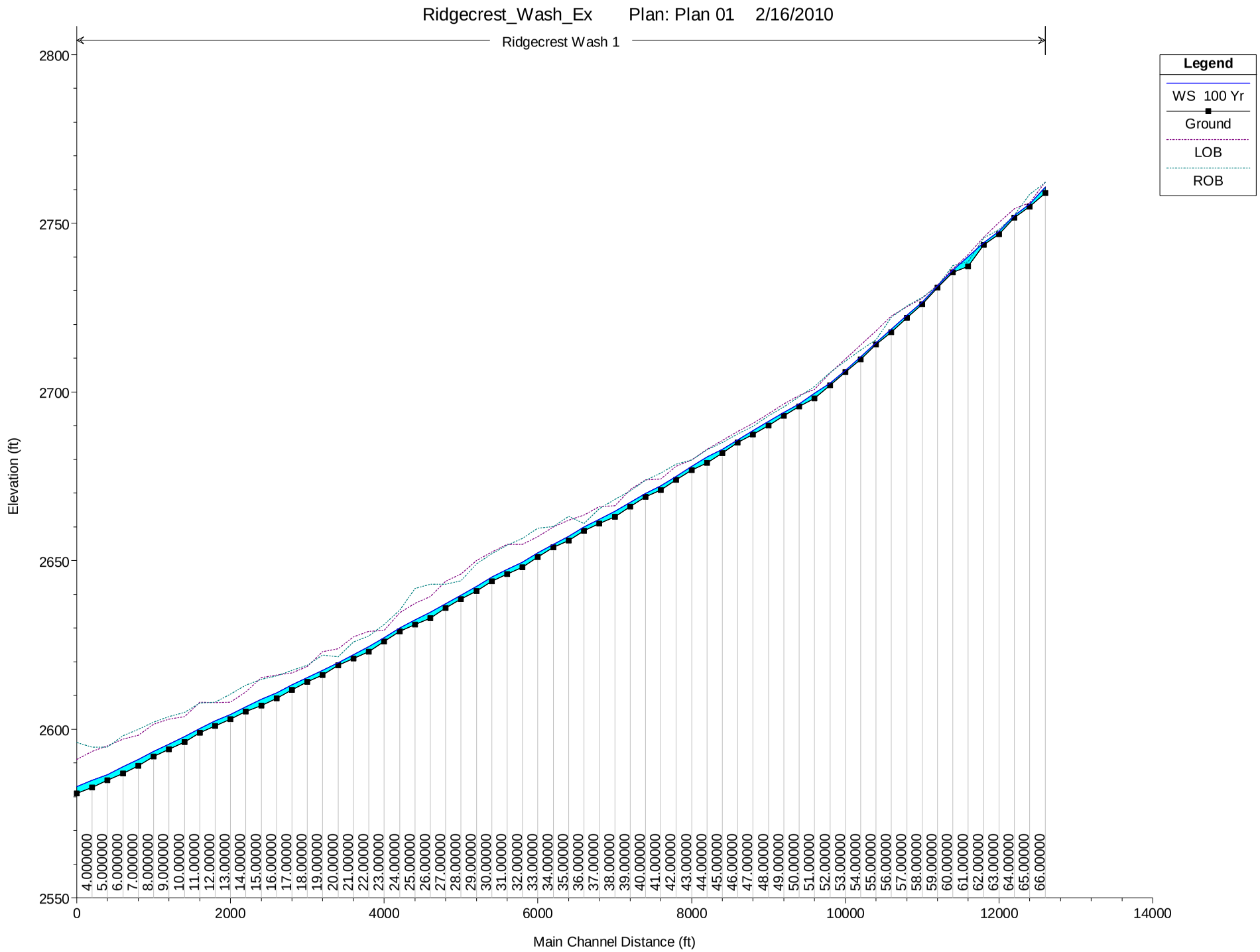
MAP NUMBER
06029C1600E

EFFECTIVE DATE
SEPTEMBER 26, 2008

Federal Emergency Management Agency

Ridgecrest_Wash_Ex Plan: Plan 01 2/12/2010




Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
Ridgecrest Wash 1
Legend
WS 100 Yr
Ground
LOB
ROB
Elevation (ft)
Main Channel Distance (ft)
2550
2600
2650
2700
2750
2800
0
2000
4000
6000
8000
10000
12000
14000
4.000000
5.000000
6.000000
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RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
North Ridgecrest Wash - Pre-development Conditions
10-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Ex. Ridgecrest Wash	1	66	10 Yr	107	2758.98	2760.55	1.57	2760.55	2760.78	0.016801	3.86	27.75	59.46	0.99
Ex. Ridgecrest Wash	1	65	10 Yr	107	2755	2755.53	0.53	2755.5	2755.69	0.015658	3.13	34.15	94.95	0.92
Ex. Ridgecrest Wash	1	64	10 Yr	107	2751.65	2752.14	0.49	2752.14	2752.27	0.018616	2.89	37.02	132.37	0.96
Ex. Ridgecrest Wash	1	63	10 Yr	107	2746.74	2747.45	0.71	2747.41	2747.58	0.013603	2.96	36.15	98.58	0.86
Ex. Ridgecrest Wash	1	62	10 Yr	107	2743.67	2744.14	0.47	2744.13	2744.26	0.020768	2.77	38.65	160.03	0.99
Ex. Ridgecrest Wash	1	61	10 Yr	107	2737.24	2740.02	2.78	2739.99	2740.17	0.020069	3.13	34.22	115.04	1.01
Ex. Ridgecrest Wash	1	60	10 Yr	107	2735.47	2735.96	0.49	2735.96	2736.09	0.020658	2.91	36.8	140.95	1
Ex. Ridgecrest Wash	1	59	10 Yr	107	2730.92	2731.35	0.43	2731.35	2731.47	0.02175	2.8	38.28	161.68	1.01
Ex. Ridgecrest Wash	1	58	10 Yr	107	2725.99	2726.51	0.52	2726.5	2726.63	0.018419	2.81	38.09	141	0.95
Ex. Ridgecrest Wash	1	57	10 Yr	107	2722.05	2722.68	0.63	2722.68	2722.77	0.020211	2.44	43.82	214.6	0.95
Ex. Ridgecrest Wash	1	56	10 Yr	107	2717.72	2718.39	0.67	2718.43	2718.59	0.021483	3.59	29.79	85.6	1.07
Ex. Ridgecrest Wash	1	55	10 Yr	107	2714.07	2714.46	0.39	2714.46	2714.55	0.022547	2.47	43.27	225.65	1
Ex. Ridgecrest Wash	1	54	10 Yr	107	2709.71	2710.25	0.54	2710.23	2710.38	0.017778	2.88	37.2	129.41	0.95
Ex. Ridgecrest Wash	1	53	10 Yr	107	2705.87	2706.35	0.48	2706.35	2706.45	0.021631	2.45	43.74	224.74	0.98
Ex. Ridgecrest Wash	1	52	10 Yr	107	2701.95	2702.42	0.47	2702.4	2702.52	0.015298	2.55	41.99	156.5	0.87
Ex. Ridgecrest Wash	1	51	10 Yr	107	2698.11	2699.33	1.22	2699.3	2699.55	0.014457	3.72	28.76	58.15	0.93
Ex. Ridgecrest Wash	1	50	10 Yr	107	2695.66	2696.36	0.7	2696.33	2696.46	0.016221	2.45	43.61	179.73	0.88
Ex. Ridgecrest Wash	1	49	10 Yr	198	2692.88	2693.69	0.81	2693.63	2693.89	0.011421	3.54	55.96	102.37	0.84
Ex. Ridgecrest Wash	1	48	10 Yr	198	2689.99	2690.96	0.97	2690.96	2691.22	0.015548	4.09	48.39	89.69	0.98
Ex. Ridgecrest Wash	1	47	10 Yr	198	2687.34	2688.35	1.01	2688.27	2688.51	0.010922	3.21	61.71	126.42	0.81
Ex. Ridgecrest Wash	1	46	10 Yr	198	2684.97	2685.58	0.61	2685.58	2685.77	0.017646	3.5	56.5	145.35	0.99
Ex. Ridgecrest Wash	1	45	10 Yr	198	2681.89	2682.72	0.83	2682.61	2682.9	0.010109	3.45	57.44	99.73	0.8
Ex. Ridgecrest Wash	1	44	10 Yr	198	2678.96	2680.32	1.36	2680.28	2680.62	0.012907	4.41	44.85	64.47	0.93
Ex. Ridgecrest Wash	1	43	10 Yr	198	2676.8	2677.65	0.85	2677.64	2677.9	0.01424	3.96	49.95	90.91	0.94
Ex. Ridgecrest Wash	1	42	10 Yr	198	2673.95	2674.59	0.64	2674.59	2674.84	0.016487	4.08	48.52	94.36	1
Ex. Ridgecrest Wash	1	41	10 Yr	198	2670.97	2671.91	0.94	2671.75	2672.08	0.008055	3.32	59.62	92.3	0.73
Ex. Ridgecrest Wash	1	40	10 Yr	198	2668.93	2669.61	0.68	2669.61	2669.83	0.016755	3.82	51.8	112.51	0.99
Ex. Ridgecrest Wash	1	39	10 Yr	198	2666	2666.99	0.99	2666.89	2667.15	0.009762	3.25	60.87	112.3	0.78
Ex. Ridgecrest Wash	1	38	10 Yr	198	2663	2664.36	1.36	2664.36	2664.63	0.016772	4.21	47.04	88.35	1.02
Ex. Ridgecrest Wash	1	37	10 Yr	198	2660.98	2661.99	1.01	2661.84	2662.13	0.007489	3	66.07	113	0.69
Ex. Ridgecrest Wash	1	36	10 Yr	198	2658.86	2659.65	0.79	2659.65	2659.93	0.017575	4.22	46.88	90.85	1.04
Ex. Ridgecrest Wash	1	35	10 Yr	198	2655.96	2657	1.04	2656.91	2657.12	0.010815	2.76	71.82	183.4	0.78
Ex. Ridgecrest Wash	1	34	10 Yr	198	2653.93	2654.56	0.63	2654.51	2654.74	0.013149	3.44	57.63	122.47	0.88
Ex. Ridgecrest Wash	1	33	10 Yr	289	2650.97	2651.96	0.99	2651.91	2652.21	0.012199	4.05	71.42	112.23	0.89
Ex. Ridgecrest Wash	1	32	10 Yr	289	2648.03	2649.18	1.15	2649.18	2649.47	0.015517	4.36	66.28	111.54	1
Ex. Ridgecrest Wash	1	31	10 Yr	289	2645.99	2647.06	1.07	2646.91	2647.24	0.008	3.44	84.04	122.83	0.73
Ex. Ridgecrest Wash	1	30	10 Yr	289	2643.86	2644.78	0.92	2644.78	2645.08	0.015216	4.36	66.33	110.12	0.99
Ex. Ridgecrest Wash	1	29	10 Yr	289	2641	2642.13	1.13	2642.07	2642.35	0.011965	3.75	77.04	133.67	0.87
Ex. Ridgecrest Wash	1	28	10 Yr	289	2638.63	2639.4	0.77	2639.39	2639.63	0.015519	3.88	74.57	149.79	0.97
Ex. Ridgecrest Wash	1	27	10 Yr	289	2635.98	2636.92	0.94	2636.83	2637.11	0.010396	3.55	81.47	138.35	0.81

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
North Ridgecrest Wash - Pre-development Conditions
10-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Ex. Ridgecrest Wash	1	26	10 Yr	289	2632.95	2634.28	1.33	2634.28	2634.6	0.015291	4.56	63.38	98.63	1
Ex. Ridgecrest Wash	1	25	10 Yr	289	2631	2632.13	1.13	2632	2632.28	0.008182	3.13	92.38	158.32	0.72
Ex. Ridgecrest Wash	1	24	10 Yr	289	2629	2629.74	0.74	2629.74	2629.97	0.017327	3.83	75.41	167.28	1.01
Ex. Ridgecrest Wash	1	23	10 Yr	289	2626	2626.91	0.91	2626.81	2627.05	0.009322	2.99	96.58	195.07	0.75
Ex. Ridgecrest Wash	1	22	10 Yr	289	2623	2624.33	1.33	2624.33	2624.53	0.018002	3.56	81.22	207.16	1
Ex. Ridgecrest Wash	1	21	10 Yr	289	2620.98	2621.88	0.9	2621.77	2622	0.008841	2.84	101.73	213.51	0.73
Ex. Ridgecrest Wash	1	20	10 Yr	289	2618.91	2619.51	0.6	2619.49	2619.71	0.015175	3.62	79.93	175.23	0.94
Ex. Ridgecrest Wash	1	19	10 Yr	289	2616	2617.23	1.23	2617.13	2617.39	0.009094	3.14	92.07	169.92	0.75
Ex. Ridgecrest Wash	1	18	10 Yr	289	2613.99	2615.02	1.03	2614.98	2615.21	0.013106	3.46	83.45	174.82	0.88
Ex. Ridgecrest Wash	1	17	10 Yr	378.1	2611.67	2612.8	1.13	2612.7	2613.01	0.009601	3.67	102.92	156.26	0.8
Ex. Ridgecrest Wash	1	16	10 Yr	378.1	2609.18	2610.37	1.19	2610.35	2610.69	0.014338	4.51	83.74	126.05	0.98
Ex. Ridgecrest Wash	1	15	10 Yr	378.1	2607	2608.47	1.47	2608.29	2608.66	0.007334	3.5	107.97	143.88	0.71
Ex. Ridgecrest Wash	1	14	10 Yr	378.1	2605.27	2606.32	1.05	2606.32	2606.65	0.014487	4.59	82.34	121.76	0.98
Ex. Ridgecrest Wash	1	13	10 Yr	378.1	2602.98	2603.96	0.98	2603.83	2604.19	0.009244	3.87	97.66	133.17	0.8
Ex. Ridgecrest Wash	1	12	10 Yr	378.1	2600.97	2602.14	1.17	2602.02	2602.37	0.009022	3.83	98.67	134.19	0.79
Ex. Ridgecrest Wash	1	11	10 Yr	378.1	2598.95	2599.79	0.84	2599.79	2600.11	0.014449	4.54	83.37	125.37	0.98
Ex. Ridgecrest Wash	1	10	10 Yr	384.1	2596.15	2597.48	1.33	2597.39	2597.73	0.009892	4.02	95.56	129.61	0.82
Ex. Ridgecrest Wash	1	9	10 Yr	384.1	2593.98	2595.19	1.21	2595.15	2595.52	0.012248	4.62	83.13	107.39	0.93
Ex. Ridgecrest Wash	1	8	10 Yr	384.1	2591.87	2593.07	1.2	2592.97	2593.34	0.009575	4.17	92.05	115.17	0.82
Ex. Ridgecrest Wash	1	7	10 Yr	384.1	2589.07	2590.65	1.58	2590.65	2591.01	0.014443	4.85	79.18	107.55	1
Ex. Ridgecrest Wash	1	6	10 Yr	384.1	2586.9	2588.42	1.52	2588.28	2588.71	0.009077	4.32	88.9	101.43	0.81
Ex. Ridgecrest Wash	1	5	10 Yr	384.1	2584.84	2586.12	1.28	2586.12	2586.45	0.014325	4.62	83.09	120.59	0.98
Ex. Ridgecrest Wash	1	4	10 Yr	384.1	2582.77	2584.31	1.54	2583.86	2584.42	0.002922	2.63	146.22	150.37	0.47
Ex. Ridgecrest Wash	1	3	10 Yr	939.7	2580.95	2582.4	1.45	2582.4	2582.93	0.012368	5.86	160.39	146.14	0.99

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
North Ridgecrest Wash - Pre-development Conditions
25-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Ex. Ridgecrest Wash	1	66	25 Yr	138	2758.98	2760.65	1.67	2760.65	2760.9	0.016257	4.02	34.35	67.53	0.99
Ex. Ridgecrest Wash	1	65	25 Yr	138	2755	2755.6	0.6	2755.58	2755.78	0.015166	3.35	41.21	101.28	0.92
Ex. Ridgecrest Wash	1	64	25 Yr	138	2751.65	2752.19	0.54	2752.19	2752.35	0.019644	3.21	43	136.81	1.01
Ex. Ridgecrest Wash	1	63	25 Yr	138	2746.74	2747.51	0.77	2747.48	2747.67	0.014745	3.28	42.11	104.68	0.91
Ex. Ridgecrest Wash	1	62	25 Yr	138	2743.67	2744.19	0.52	2744.19	2744.32	0.019132	2.97	46.45	162.67	0.98
Ex. Ridgecrest Wash	1	61	25 Yr	138	2737.24	2740.07	2.83	2740.09	2740.25	0.021709	3.4	40.56	127.37	1.06
Ex. Ridgecrest Wash	1	60	25 Yr	138	2735.47	2736	0.53	2736.02	2736.16	0.022881	3.25	42.46	148.6	1.07
Ex. Ridgecrest Wash	1	59	25 Yr	138	2730.92	2731.4	0.48	2731.4	2731.53	0.020886	2.95	46.85	177.46	1.01
Ex. Ridgecrest Wash	1	58	25 Yr	138	2725.99	2726.57	0.58	2726.55	2726.71	0.017309	3.01	45.88	146.26	0.95
Ex. Ridgecrest Wash	1	57	25 Yr	138	2722.05	2722.71	0.66	2722.71	2722.82	0.021811	2.74	50.4	220.08	1.01
Ex. Ridgecrest Wash	1	56	25 Yr	138	2717.72	2718.54	0.82	2718.51	2718.68	0.018311	2.99	46.11	154.53	0.97
Ex. Ridgecrest Wash	1	55	25 Yr	138	2714.07	2714.49	0.42	2714.49	2714.6	0.022583	2.7	51.13	234.16	1.02
Ex. Ridgecrest Wash	1	54	25 Yr	138	2709.71	2710.3	0.59	2710.29	2710.45	0.017825	3.11	44.33	137.22	0.97
Ex. Ridgecrest Wash	1	53	25 Yr	138	2705.87	2706.39	0.52	2706.39	2706.5	0.02183	2.69	51.36	230.82	1
Ex. Ridgecrest Wash	1	52	25 Yr	138	2701.95	2702.49	0.54	2702.45	2702.6	0.012908	2.66	51.87	159.5	0.82
Ex. Ridgecrest Wash	1	51	25 Yr	138	2698.11	2699.41	1.3	2699.41	2699.67	0.016519	4.09	33.75	65.49	1
Ex. Ridgecrest Wash	1	50	25 Yr	138	2695.66	2696.42	0.76	2696.39	2696.52	0.014438	2.58	53.4	186.61	0.85
Ex. Ridgecrest Wash	1	49	25 Yr	258	2692.88	2693.8	0.92	2693.74	2694.03	0.011504	3.81	67.67	111.28	0.86
Ex. Ridgecrest Wash	1	48	25 Yr	258	2689.99	2691.09	1.1	2691.09	2691.37	0.015416	4.29	60.12	103.1	0.99
Ex. Ridgecrest Wash	1	47	25 Yr	258	2687.34	2688.44	1.1	2688.37	2688.63	0.011514	3.5	73.82	138.4	0.84
Ex. Ridgecrest Wash	1	46	25 Yr	258	2684.97	2685.66	0.69	2685.66	2685.88	0.016651	3.77	68.49	151.35	0.99
Ex. Ridgecrest Wash	1	45	25 Yr	258	2681.89	2682.84	0.95	2682.74	2683.05	0.009869	3.67	70.36	109.33	0.81
Ex. Ridgecrest Wash	1	44	25 Yr	258	2678.96	2680.48	1.52	2680.44	2680.81	0.012714	4.62	55.79	73.95	0.94
Ex. Ridgecrest Wash	1	43	25 Yr	258	2676.8	2677.75	0.95	2677.75	2678.05	0.014859	4.36	59.13	96.22	0.98
Ex. Ridgecrest Wash	1	42	25 Yr	258	2673.95	2674.69	0.74	2674.69	2674.99	0.015782	4.39	58.71	98.88	1.01
Ex. Ridgecrest Wash	1	41	25 Yr	258	2670.97	2672.03	1.06	2671.89	2672.24	0.00827	3.61	71.4	99.33	0.75
Ex. Ridgecrest Wash	1	40	25 Yr	258	2668.93	2669.7	0.77	2669.7	2669.96	0.016604	4.11	62.8	121.6	1.01
Ex. Ridgecrest Wash	1	39	25 Yr	258	2666	2667.09	1.09	2666.99	2667.29	0.010106	3.57	72.3	119.16	0.81
Ex. Ridgecrest Wash	1	38	25 Yr	258	2663	2664.48	1.48	2664.48	2664.79	0.015807	4.45	57.99	95.91	1.01
Ex. Ridgecrest Wash	1	37	25 Yr	258	2660.98	2662.09	1.11	2661.95	2662.26	0.008138	3.35	77.05	118.75	0.73
Ex. Ridgecrest Wash	1	36	25 Yr	258	2658.86	2659.79	0.93	2659.79	2660.08	0.015178	4.29	60.17	102.13	0.98
Ex. Ridgecrest Wash	1	35	25 Yr	258	2655.96	2657.07	1.11	2657.01	2657.21	0.011308	3.08	83.77	187.29	0.81
Ex. Ridgecrest Wash	1	34	25 Yr	258	2653.93	2654.66	0.73	2654.61	2654.87	0.012207	3.66	70.52	129	0.87
Ex. Ridgecrest Wash	1	33	25 Yr	378	2650.97	2652.08	1.11	2652.04	2652.38	0.012537	4.45	84.98	118.29	0.92
Ex. Ridgecrest Wash	1	32	25 Yr	378	2648.03	2649.3	1.27	2649.3	2649.64	0.015058	4.71	80.27	117.67	1
Ex. Ridgecrest Wash	1	31	25 Yr	378	2645.99	2647.19	1.2	2647.04	2647.41	0.008046	3.75	100.71	129.65	0.75
Ex. Ridgecrest Wash	1	30	25 Yr	378	2643.86	2644.91	1.05	2644.91	2645.25	0.01512	4.69	80.61	119.31	1.01
Ex. Ridgecrest Wash	1	29	25 Yr	378	2641	2642.24	1.24	2642.19	2642.5	0.012182	4.13	91.62	139.71	0.9
Ex. Ridgecrest Wash	1	28	25 Yr	378	2638.63	2639.5	0.87	2639.49	2639.77	0.015306	4.23	89.39	155.89	0.98
Ex. Ridgecrest Wash	1	27	25 Yr	378	2635.98	2637.04	1.06	2636.95	2637.27	0.010393	3.85	98.17	147.4	0.83

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
North Ridgecrest Wash - Pre-development Conditions
25-Year Hydraulics

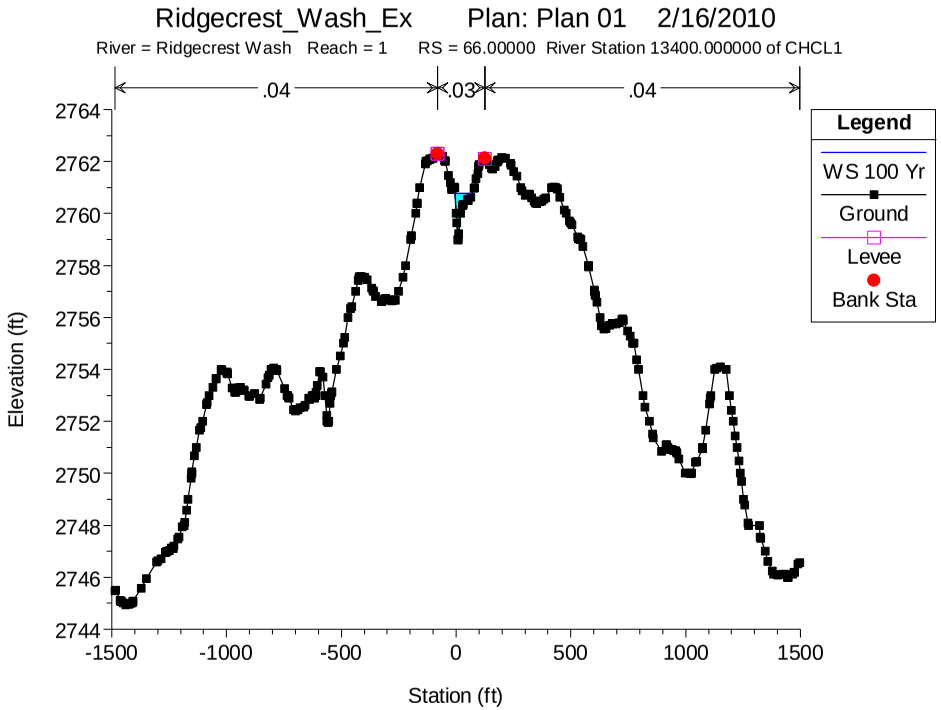
River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Ex. Ridgecrest Wash	1	26	25 Yr	378	2632.95	2634.42	1.47	2634.42	2634.79	0.014913	4.86	77.72	107.75	1.01
Ex. Ridgecrest Wash	1	25	25 Yr	378	2631	2632.23	1.23	2632.1	2632.42	0.009	3.51	107.78	167.11	0.77
Ex. Ridgecrest Wash	1	24	25 Yr	378	2629	2629.84	0.84	2629.84	2630.1	0.015367	4.07	92.89	172.12	0.98
Ex. Ridgecrest Wash	1	23	25 Yr	378	2626	2626.99	0.99	2626.91	2627.17	0.009941	3.35	112.86	202.05	0.79
Ex. Ridgecrest Wash	1	22	25 Yr	378	2623	2624.41	1.41	2624.41	2624.64	0.016437	3.84	98.51	209.62	0.99
Ex. Ridgecrest Wash	1	21	25 Yr	378	2620.98	2621.97	0.99	2621.87	2622.12	0.008953	3.12	120.98	222.24	0.75
Ex. Ridgecrest Wash	1	20	25 Yr	378	2618.91	2619.6	0.69	2619.59	2619.84	0.014744	3.92	96.38	183.01	0.95
Ex. Ridgecrest Wash	1	19	25 Yr	378	2616	2617.33	1.33	2617.23	2617.52	0.00922	3.44	109.85	178.43	0.77
Ex. Ridgecrest Wash	1	18	25 Yr	378	2613.99	2615.11	1.12	2615.07	2615.34	0.012951	3.81	99.3	178.89	0.9
Ex. Ridgecrest Wash	1	17	25 Yr	495.2	2611.67	2612.94	1.27	2612.83	2613.18	0.009466	3.97	124.88	167.29	0.81
Ex. Ridgecrest Wash	1	16	25 Yr	495.2	2609.18	2610.51	1.33	2610.51	2610.87	0.014352	4.85	102.13	138.25	0.99
Ex. Ridgecrest Wash	1	15	25 Yr	495.2	2607	2608.62	1.62	2608.43	2608.84	0.007262	3.78	131.09	154.79	0.72
Ex. Ridgecrest Wash	1	14	25 Yr	495.2	2605.27	2606.46	1.19	2606.46	2606.84	0.014408	4.99	99.31	129.26	1
Ex. Ridgecrest Wash	1	13	25 Yr	495.2	2602.98	2604.11	1.13	2603.98	2604.38	0.009131	4.21	117.71	140.41	0.81
Ex. Ridgecrest Wash	1	12	25 Yr	495.2	2600.97	2602.28	1.31	2602.16	2602.55	0.009224	4.2	117.8	141.76	0.81
Ex. Ridgecrest Wash	1	11	25 Yr	495.2	2598.95	2599.93	0.98	2599.93	2600.3	0.013968	4.87	101.58	133.64	0.99
Ex. Ridgecrest Wash	1	10	25 Yr	502.7	2596.15	2597.62	1.47	2597.52	2597.92	0.009899	4.36	115.21	138.23	0.84
Ex. Ridgecrest Wash	1	9	25 Yr	502.7	2593.98	2595.36	1.38	2595.31	2595.73	0.011972	4.94	101.82	117.06	0.93
Ex. Ridgecrest Wash	1	8	25 Yr	502.7	2591.87	2593.22	1.35	2593.13	2593.55	0.009908	4.59	109.45	121.69	0.85
Ex. Ridgecrest Wash	1	7	25 Yr	502.7	2589.07	2590.81	1.74	2590.81	2591.22	0.013723	5.19	96.95	114.67	0.99
Ex. Ridgecrest Wash	1	6	25 Yr	502.7	2586.9	2588.6	1.7	2588.47	2588.94	0.009103	4.67	107.68	109.62	0.83
Ex. Ridgecrest Wash	1	5	25 Yr	502.7	2584.84	2586.24	1.4	2586.24	2586.65	0.014615	5.09	98.69	125.71	1.01
Ex. Ridgecrest Wash	1	4	25 Yr	502.7	2582.77	2584.54	1.77	2584	2584.66	0.00269	2.76	182.23	163.69	0.46
Ex. Ridgecrest Wash	1	3	25 Yr	1227.4	2580.95	2582.63	1.68	2582.63	2583.24	0.012041	6.28	195.45	157.3	0.99

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
North Ridgecrest Wash - Pre-development Conditions
100-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Ex. Ridgecrest Wash	1	66	100 Yr	194	2758.98	2760.78	1.8	2760.78	2761.09	0.016082	4.42	43.88	74.12	1.01
Ex. Ridgecrest Wash	1	65	100 Yr	194	2755	2755.69	0.69	2755.69	2755.92	0.016744	3.84	50.56	109.09	0.99
Ex. Ridgecrest Wash	1	64	100 Yr	194	2751.65	2752.28	0.63	2752.28	2752.46	0.017706	3.47	55.84	145.9	0.99
Ex. Ridgecrest Wash	1	63	100 Yr	194	2746.74	2747.61	0.87	2747.59	2747.81	0.014871	3.66	53.07	112.7	0.94
Ex. Ridgecrest Wash	1	62	100 Yr	194	2743.67	2744.25	0.58	2744.25	2744.43	0.019344	3.39	57.29	166.24	1.02
Ex. Ridgecrest Wash	1	61	100 Yr	194	2737.24	2740.15	2.91	2740.18	2740.37	0.0213	3.81	50.97	133.37	1.09
Ex. Ridgecrest Wash	1	60	100 Yr	194	2735.47	2736.09	0.62	2736.09	2736.26	0.020439	3.38	57.34	173.56	1.04
Ex. Ridgecrest Wash	1	59	100 Yr	194	2730.92	2731.49	0.57	2731.49	2731.63	0.019026	3	64.62	222.2	0.98
Ex. Ridgecrest Wash	1	58	100 Yr	194	2725.99	2726.63	0.64	2726.63	2726.82	0.01899	3.48	55.7	152.82	1.02
Ex. Ridgecrest Wash	1	57	100 Yr	194	2722.05	2722.77	0.72	2722.78	2722.91	0.019969	3.01	64.49	228.86	1
Ex. Ridgecrest Wash	1	56	100 Yr	194	2717.72	2718.61	0.89	2718.61	2718.79	0.017989	3.32	58.43	165.36	0.98
Ex. Ridgecrest Wash	1	55	100 Yr	194	2714.07	2714.55	0.48	2714.55	2714.69	0.020414	2.95	65.84	245.07	1
Ex. Ridgecrest Wash	1	54	100 Yr	194	2709.71	2710.37	0.66	2710.38	2710.57	0.020671	3.63	53.4	146.57	1.06
Ex. Ridgecrest Wash	1	53	100 Yr	194	2705.87	2706.45	0.58	2706.45	2706.58	0.020458	2.97	65.43	241.65	1
Ex. Ridgecrest Wash	1	52	100 Yr	194	2701.95	2702.57	0.62	2702.51	2702.71	0.011833	2.94	65.99	163.69	0.82
Ex. Ridgecrest Wash	1	51	100 Yr	194	2698.11	2699.55	1.44	2699.55	2699.86	0.017331	4.43	43.84	78.33	1.04
Ex. Ridgecrest Wash	1	50	100 Yr	194	2695.66	2696.5	0.84	2696.46	2696.62	0.012357	2.75	70.45	199.14	0.82
Ex. Ridgecrest Wash	1	49	100 Yr	365	2692.88	2693.97	1.09	2693.89	2694.24	0.011548	4.2	86.85	123.76	0.88
Ex. Ridgecrest Wash	1	48	100 Yr	365	2689.99	2691.29	1.3	2691.29	2691.58	0.015394	4.34	84.1	141.66	0.99
Ex. Ridgecrest Wash	1	47	100 Yr	365	2687.34	2688.59	1.25	2688.53	2688.81	0.011883	3.78	96.49	164.53	0.87
Ex. Ridgecrest Wash	1	46	100 Yr	365	2684.97	2685.79	0.82	2685.79	2686.05	0.016187	4.15	87.87	164.14	1
Ex. Ridgecrest Wash	1	45	100 Yr	365	2681.89	2683.05	1.16	2682.91	2683.28	0.008964	3.85	94.69	127.02	0.79
Ex. Ridgecrest Wash	1	44	100 Yr	365	2678.96	2680.68	1.72	2680.67	2681.08	0.013531	5.11	71.47	85.56	0.98
Ex. Ridgecrest Wash	1	43	100 Yr	365	2676.8	2677.92	1.12	2677.92	2678.28	0.014329	4.78	76.36	105.46	0.99
Ex. Ridgecrest Wash	1	42	100 Yr	365	2673.95	2674.88	0.93	2674.88	2675.21	0.014205	4.65	78.46	112.11	0.98
Ex. Ridgecrest Wash	1	41	100 Yr	365	2670.97	2672.2	1.23	2672.07	2672.46	0.008933	4.09	89.33	109.52	0.8
Ex. Ridgecrest Wash	1	40	100 Yr	365	2668.93	2669.85	0.92	2669.85	2670.16	0.015448	4.42	82.55	135.6	1
Ex. Ridgecrest Wash	1	39	100 Yr	365	2666	2667.23	1.23	2667.15	2667.49	0.01072	4.03	90.47	129.62	0.85
Ex. Ridgecrest Wash	1	38	100 Yr	365	2663	2664.66	1.66	2664.66	2665.01	0.014285	4.76	76.7	106.29	0.99
Ex. Ridgecrest Wash	1	37	100 Yr	365	2660.98	2662.26	1.28	2662.12	2662.47	0.008383	3.71	98.35	132.82	0.76
Ex. Ridgecrest Wash	1	36	100 Yr	365	2658.86	2659.96	1.1	2659.96	2660.3	0.014561	4.68	77.91	112.23	0.99
Ex. Ridgecrest Wash	1	35	100 Yr	365	2655.96	2657.17	1.21	2657.12	2657.36	0.012011	3.56	102.58	193.26	0.86
Ex. Ridgecrest Wash	1	34	100 Yr	365	2653.93	2654.82	0.89	2654.73	2655.06	0.01097	3.95	92.47	139.3	0.85
Ex. Ridgecrest Wash	1	33	100 Yr	536	2650.97	2652.26	1.29	2652.24	2652.65	0.012867	5	107.12	127.4	0.96
Ex. Ridgecrest Wash	1	32	100 Yr	536	2648.03	2649.48	1.45	2649.48	2649.9	0.014602	5.2	103	127.01	1.02
Ex. Ridgecrest Wash	1	31	100 Yr	536	2645.99	2647.39	1.4	2647.23	2647.66	0.008314	4.22	126.89	140.23	0.78
Ex. Ridgecrest Wash	1	30	100 Yr	536	2643.86	2645.1	1.24	2645.1	2645.5	0.014543	5.07	105.72	135.16	1.01
Ex. Ridgecrest Wash	1	29	100 Yr	536	2641	2642.39	1.39	2642.36	2642.73	0.01291	4.71	113.74	148.41	0.95
Ex. Ridgecrest Wash	1	28	100 Yr	536	2638.63	2639.65	1.02	2639.65	2639.99	0.014577	4.68	114.63	165.78	0.99
Ex. Ridgecrest Wash	1	27	100 Yr	536	2635.98	2637.2	1.22	2637.13	2637.49	0.010744	4.32	124.04	160.59	0.87

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
North Ridgecrest Wash - Pre-development Conditions
100-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Ex. Ridgecrest Wash	1	26	100 Yr	536	2632.95	2634.64	1.69	2634.64	2635.06	0.013781	5.2	103	121.59	1
Ex. Ridgecrest Wash	1	25	100 Yr	536	2631	2632.39	1.39	2632.28	2632.63	0.009033	3.92	136.64	179.59	0.79
Ex. Ridgecrest Wash	1	24	100 Yr	536	2629	2629.98	0.98	2629.98	2630.31	0.015447	4.61	116.32	179.54	1.01
Ex. Ridgecrest Wash	1	23	100 Yr	536	2626	2627.13	1.13	2627.04	2627.35	0.010265	3.8	141.03	213.95	0.82
Ex. Ridgecrest Wash	1	22	100 Yr	536	2623	2624.53	1.53	2624.53	2624.82	0.015784	4.33	123.8	213.2	1
Ex. Ridgecrest Wash	1	21	100 Yr	536	2620.98	2622.09	1.11	2621.98	2622.29	0.00965	3.6	148.96	234.2	0.8
Ex. Ridgecrest Wash	1	20	100 Yr	536	2618.91	2619.76	0.85	2619.73	2620.04	0.01325	4.25	126.13	195.98	0.93
Ex. Ridgecrest Wash	1	19	100 Yr	536	2616	2617.47	1.47	2617.38	2617.72	0.010192	3.98	134.7	189.7	0.83
Ex. Ridgecrest Wash	1	18	100 Yr	536	2613.99	2615.27	1.28	2615.21	2615.54	0.011561	4.16	128.71	186.11	0.88
Ex. Ridgecrest Wash	1	17	100 Yr	706.7	2611.67	2613.13	1.46	2613.01	2613.44	0.00977	4.48	157.72	180.09	0.84
Ex. Ridgecrest Wash	1	16	100 Yr	706.7	2609.18	2610.73	1.55	2610.73	2611.16	0.013468	5.24	134.89	154.98	0.99
Ex. Ridgecrest Wash	1	15	100 Yr	706.7	2607	2608.84	1.84	2608.65	2609.12	0.007393	4.24	166.76	167.94	0.75
Ex. Ridgecrest Wash	1	14	100 Yr	706.7	2605.27	2606.68	1.41	2606.68	2607.14	0.013629	5.45	129.76	141.91	1
Ex. Ridgecrest Wash	1	13	100 Yr	706.7	2602.98	2604.34	1.36	2604.2	2604.67	0.008827	4.67	151.28	150.33	0.82
Ex. Ridgecrest Wash	1	12	100 Yr	706.7	2600.97	2602.49	1.52	2602.38	2602.84	0.009538	4.74	149	153.43	0.85
Ex. Ridgecrest Wash	1	11	100 Yr	706.7	2598.95	2600.15	1.2	2600.15	2600.6	0.013253	5.34	132.35	146	0.99
Ex. Ridgecrest Wash	1	10	100 Yr	717.9	2596.15	2597.84	1.69	2597.74	2598.21	0.010058	4.88	147.19	151.21	0.87
Ex. Ridgecrest Wash	1	9	100 Yr	717.9	2593.98	2595.61	1.63	2595.56	2596.06	0.011483	5.42	132.51	128.44	0.94
Ex. Ridgecrest Wash	1	8	100 Yr	717.9	2591.87	2593.44	1.57	2593.35	2593.87	0.010411	5.22	137.4	130.66	0.9
Ex. Ridgecrest Wash	1	7	100 Yr	717.9	2589.07	2591.06	1.99	2591.06	2591.55	0.012877	5.63	127.59	127.3	0.99
Ex. Ridgecrest Wash	1	6	100 Yr	717.9	2586.9	2588.84	1.94	2588.73	2589.27	0.009861	5.31	135.29	120.64	0.88
Ex. Ridgecrest Wash	1	5	100 Yr	717.9	2584.84	2586.47	1.63	2586.47	2586.96	0.013704	5.6	128.15	134.84	1.01
Ex. Ridgecrest Wash	1	4	100 Yr	717.9	2582.77	2584.89	2.12	2584.22	2585.03	0.002394	2.96	242.59	179.67	0.45
Ex. Ridgecrest Wash	1	3	100 Yr	1745.3	2580.95	2583	2.05	2583	2583.71	0.011389	6.77	257.84	177.85	0.99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.04
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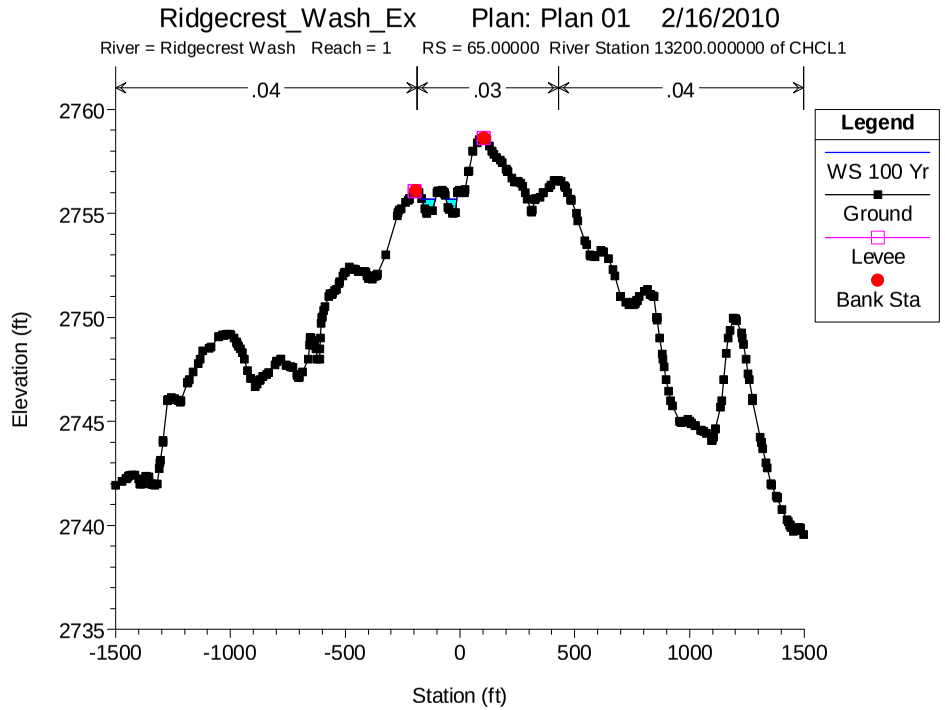
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 65.00000 River Station 13200.000000 of CHCL1
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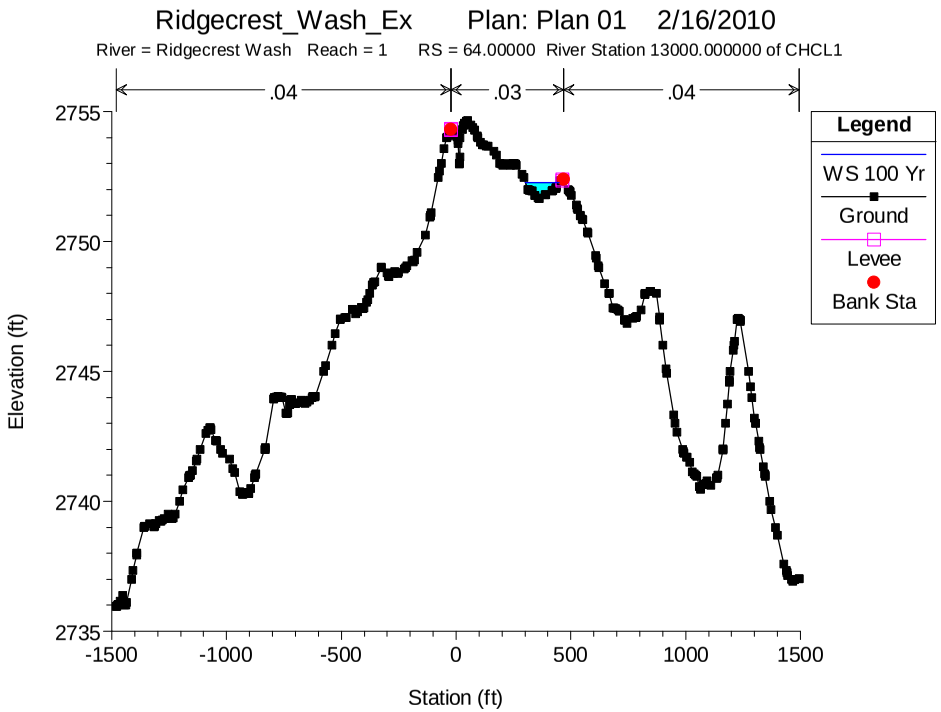
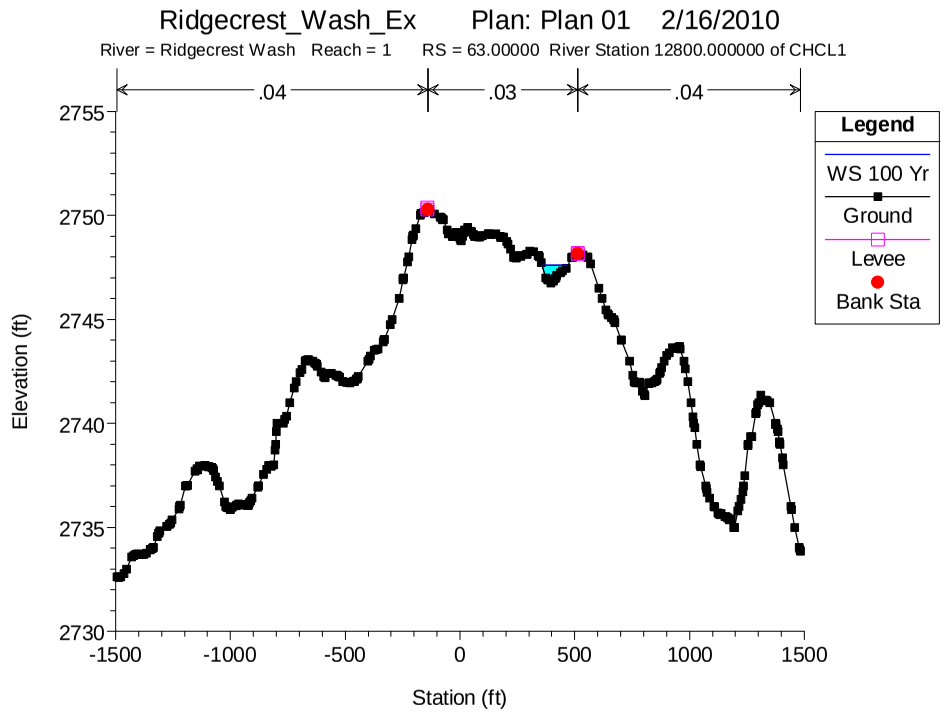
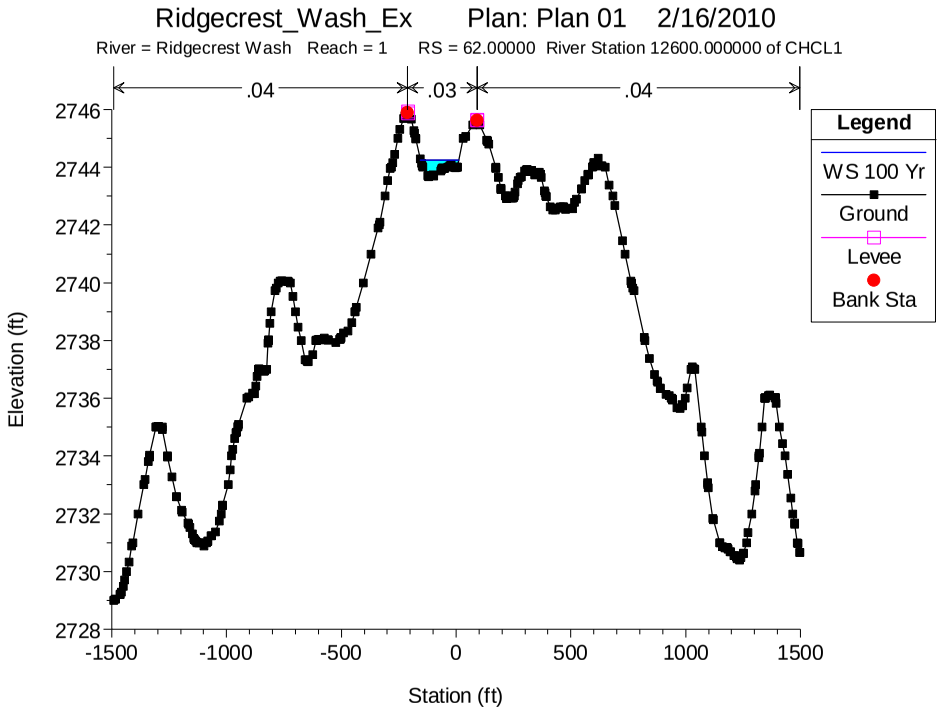
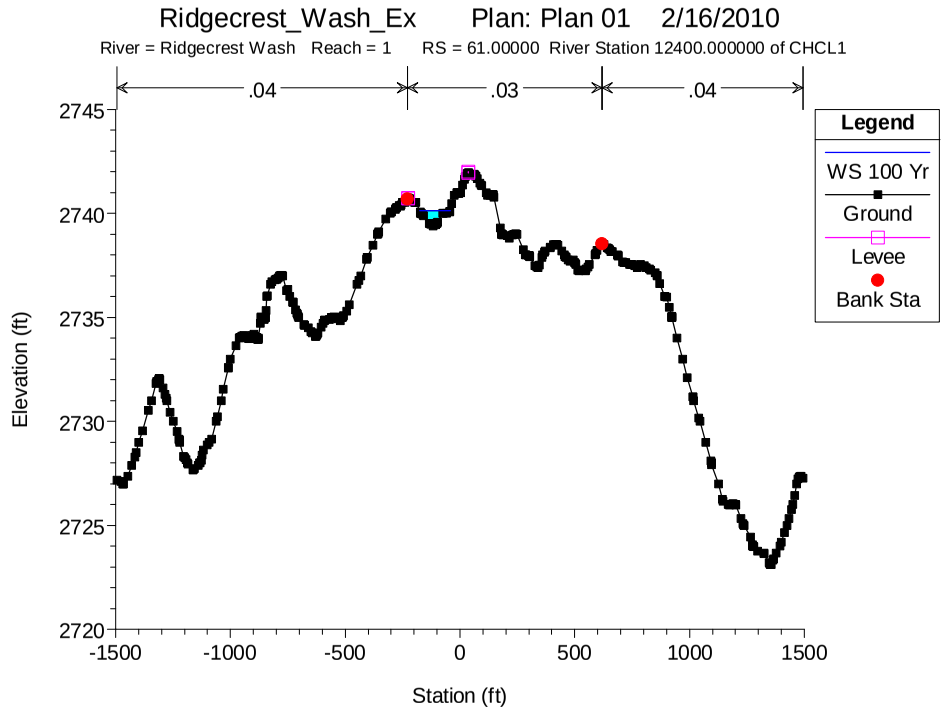
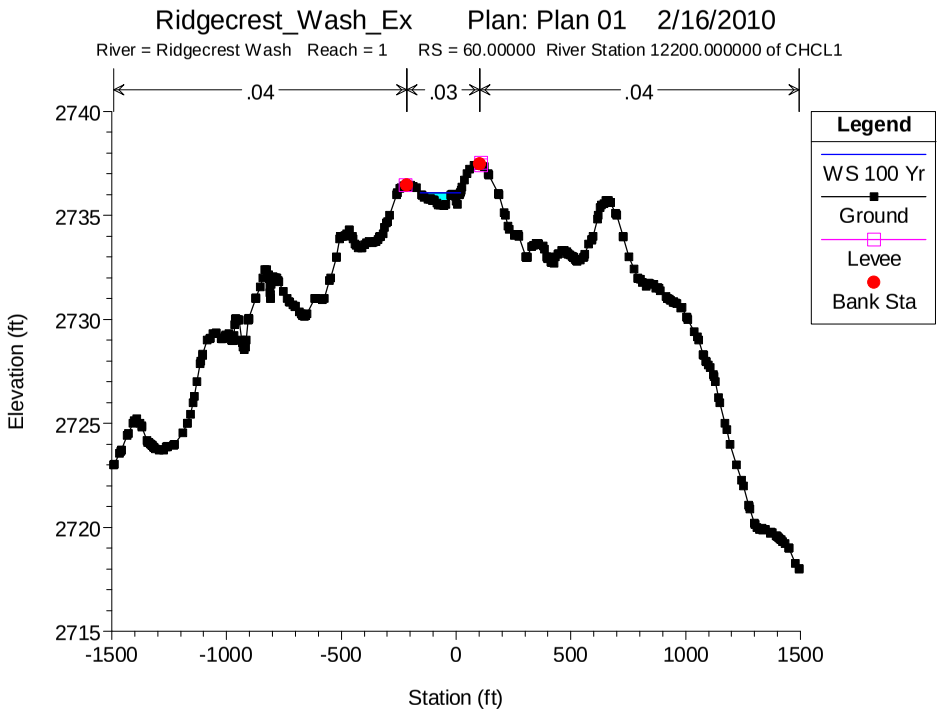
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

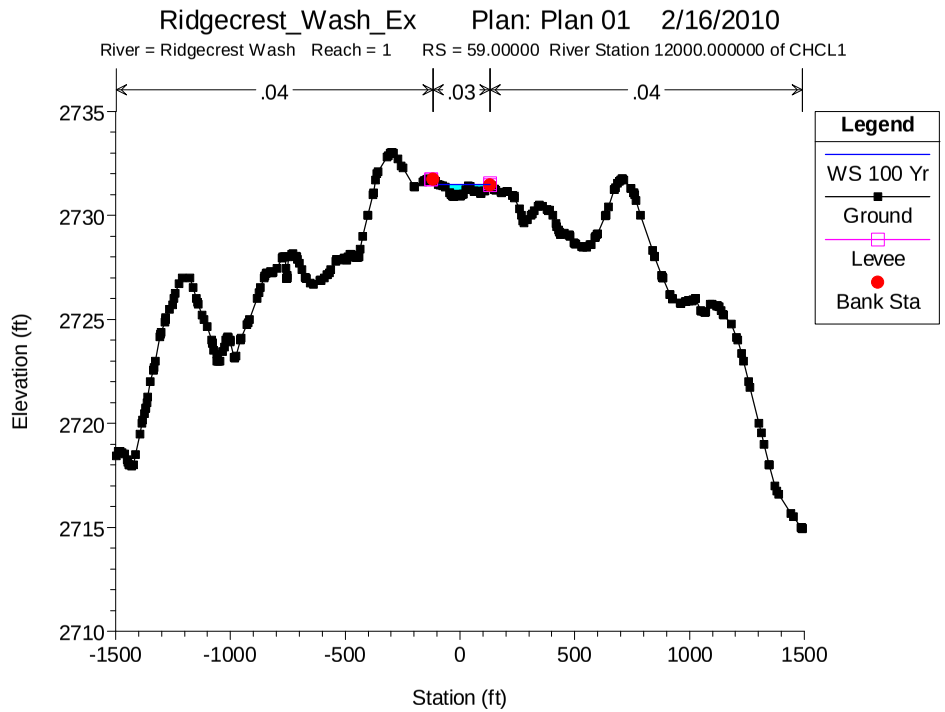

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 64.00000 River Station 13000.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

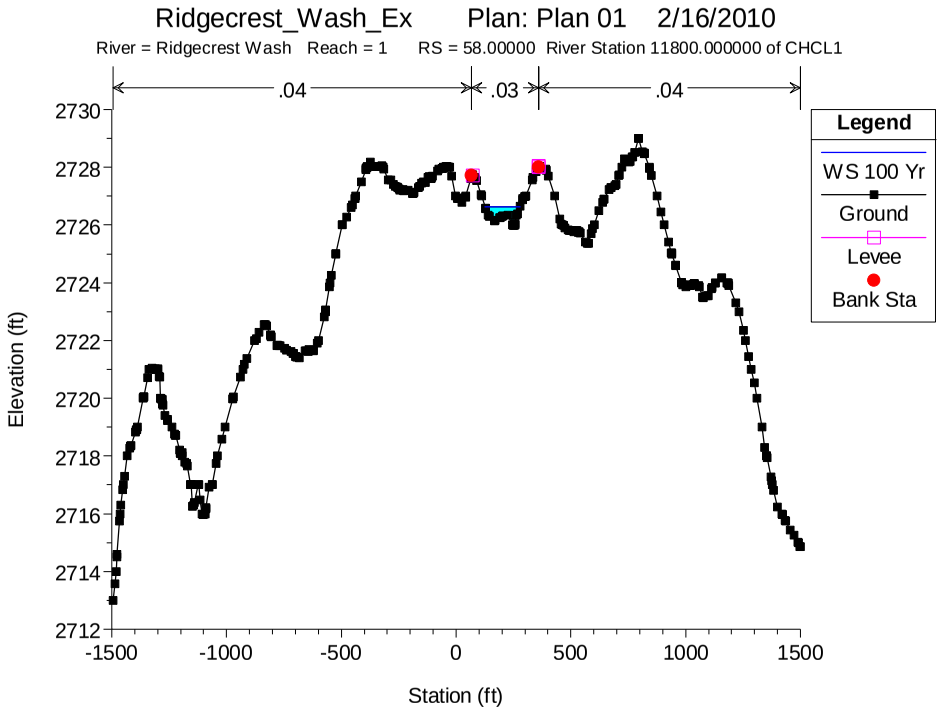

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 63.00000 River Station 12800.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

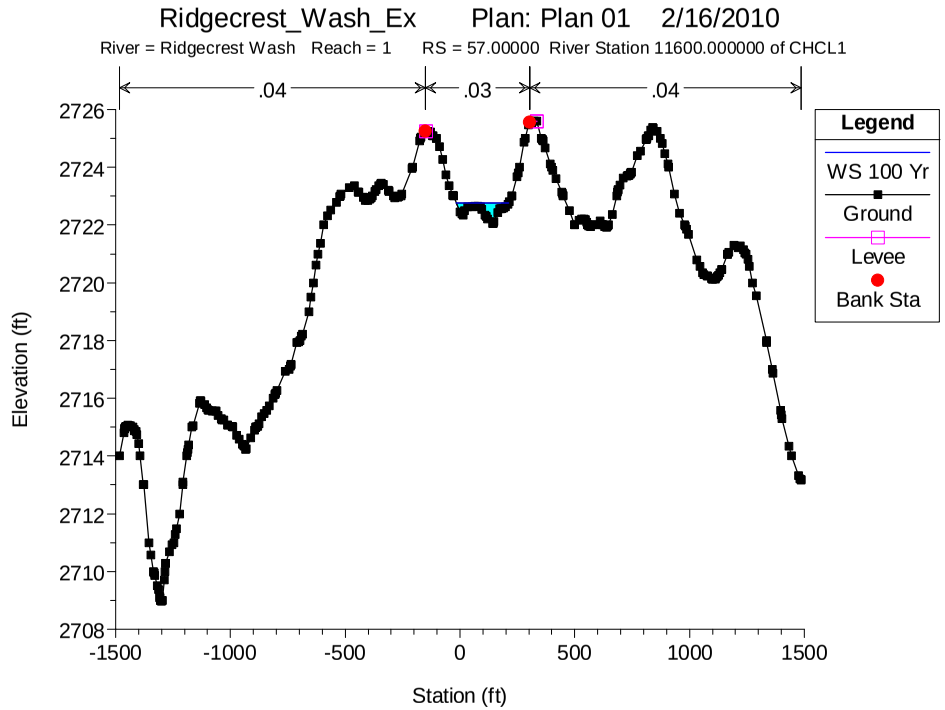

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 62.00000 River Station 12600.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

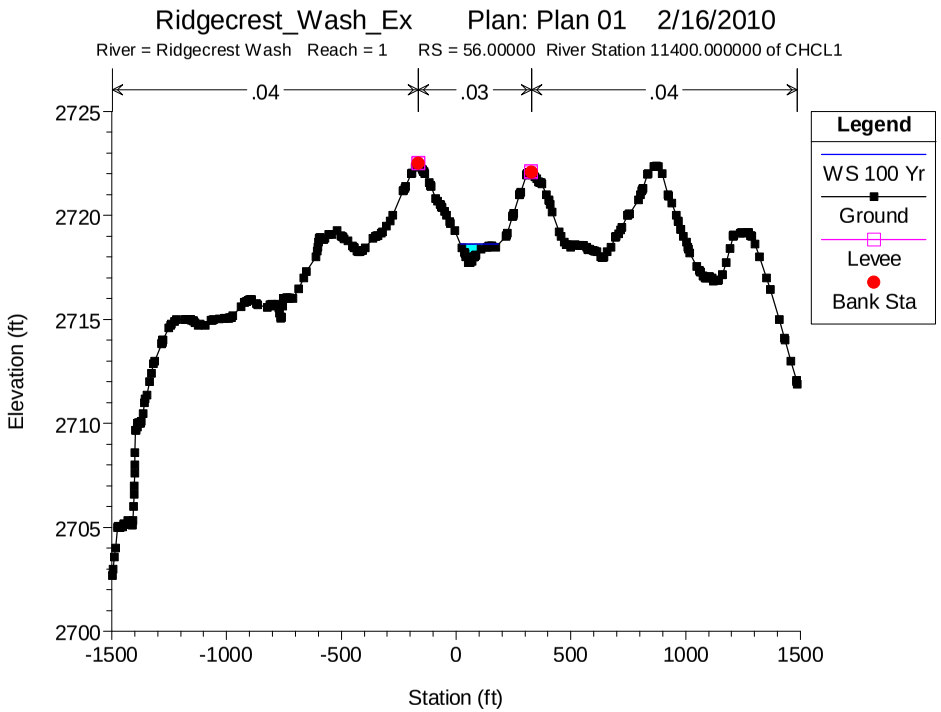

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 61.00000 River Station 12400.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

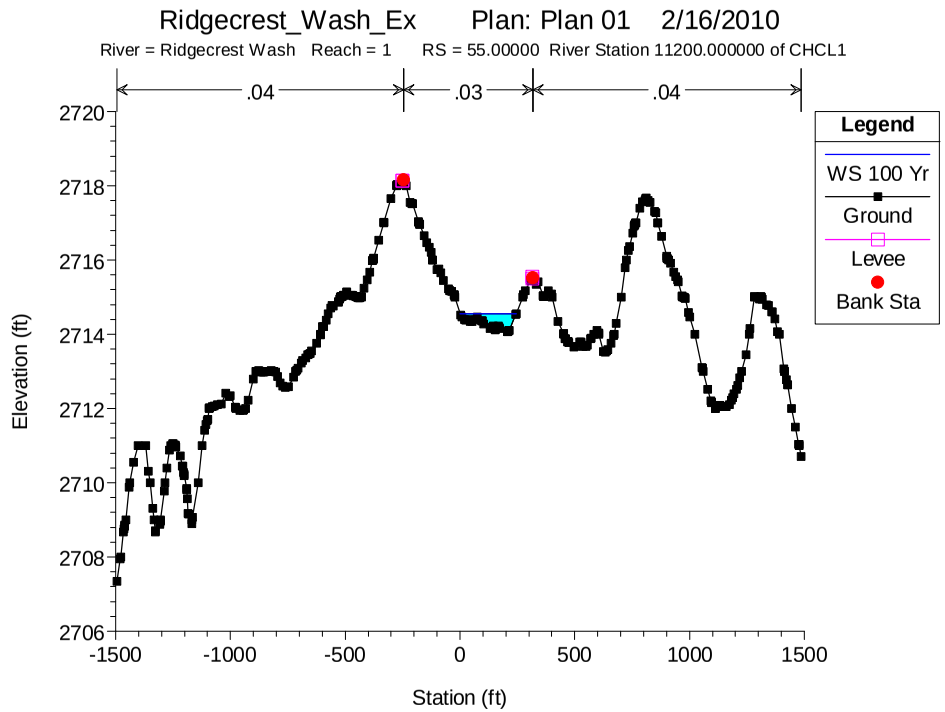

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 60.00000 River Station 12200.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

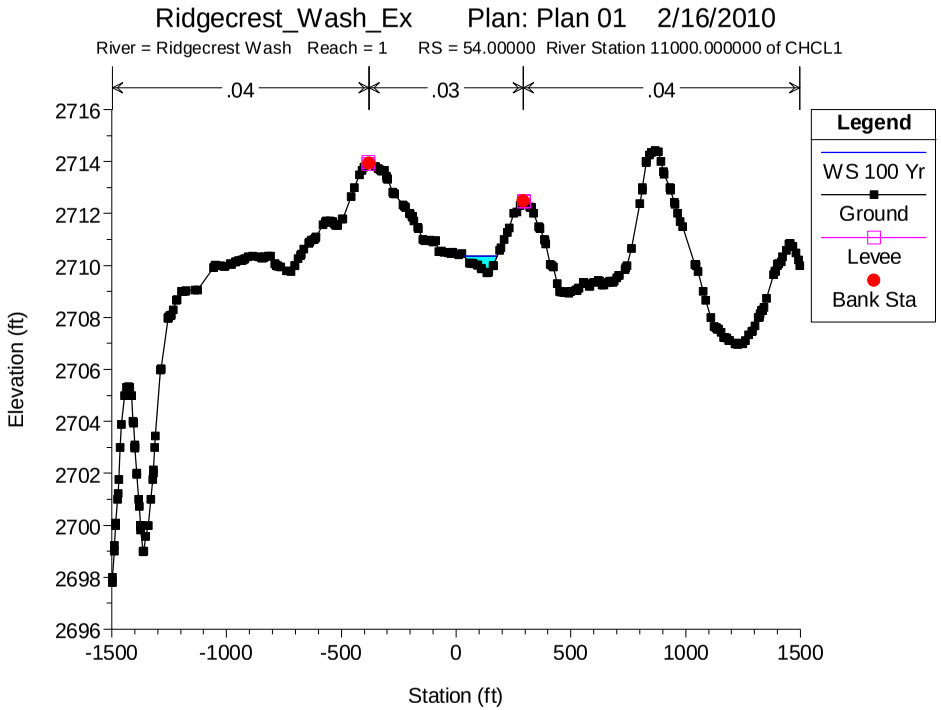

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 59.00000 River Station 12000.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

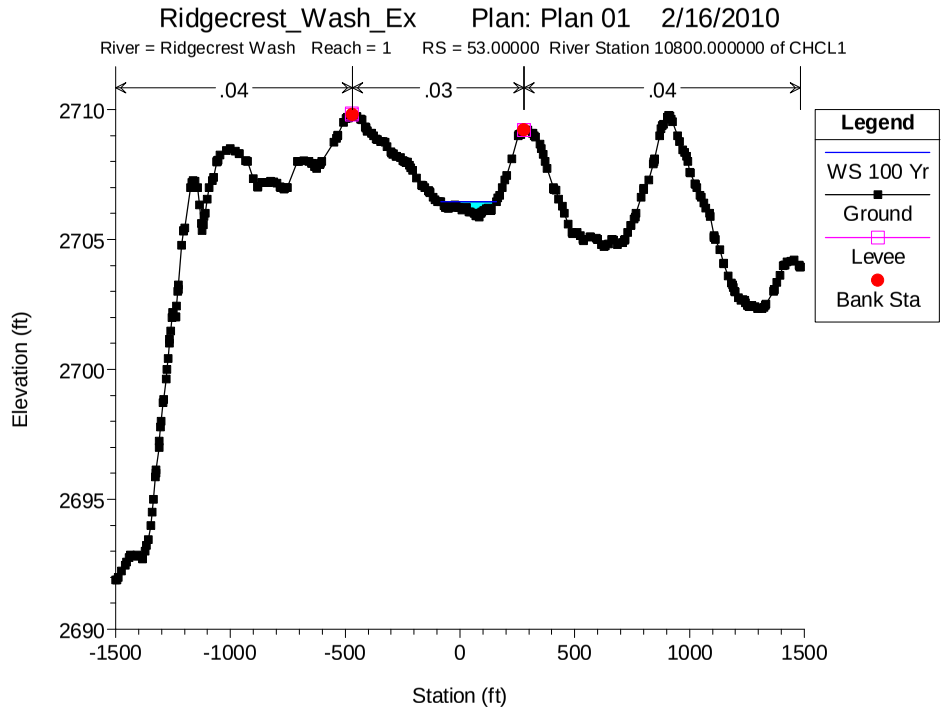

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 58.00000 River Station 11800.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

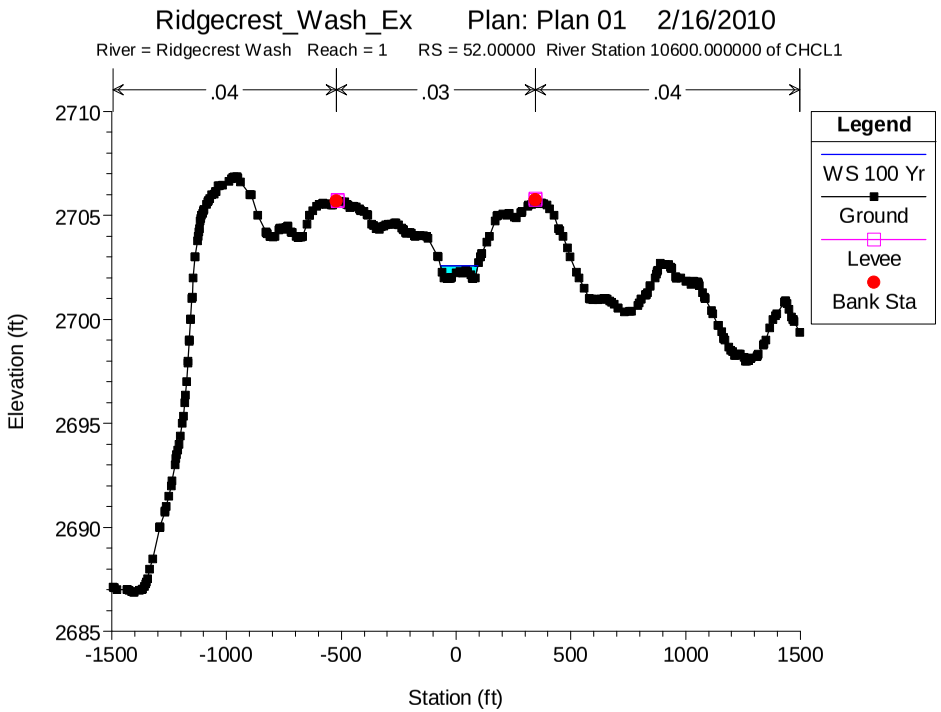

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 57.00000 River Station 11600.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

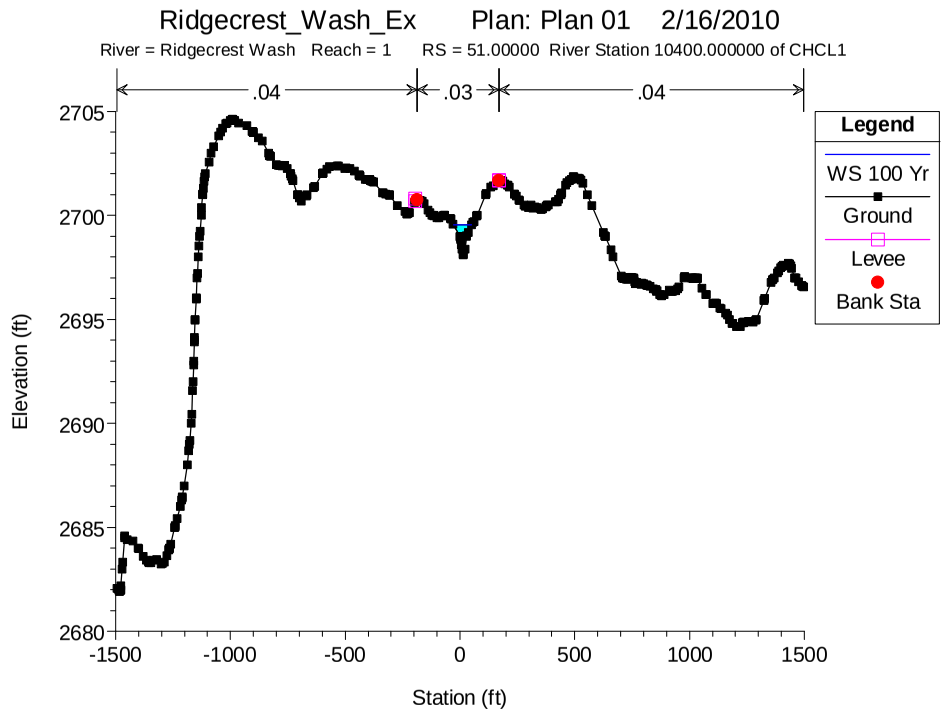

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 56.00000 River Station 11400.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

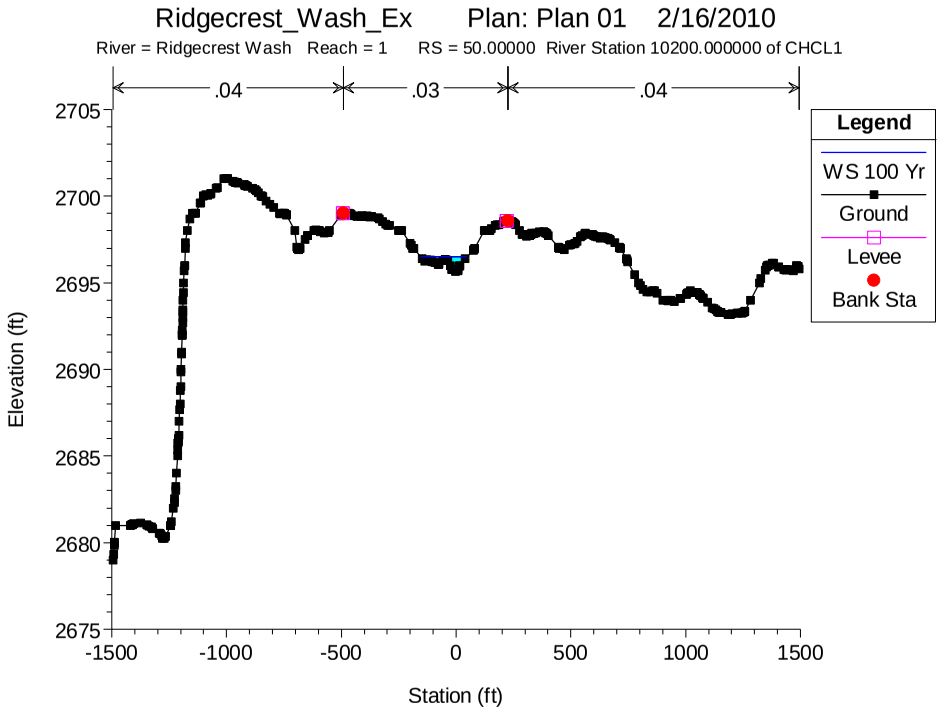

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 55.00000 River Station 11200.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

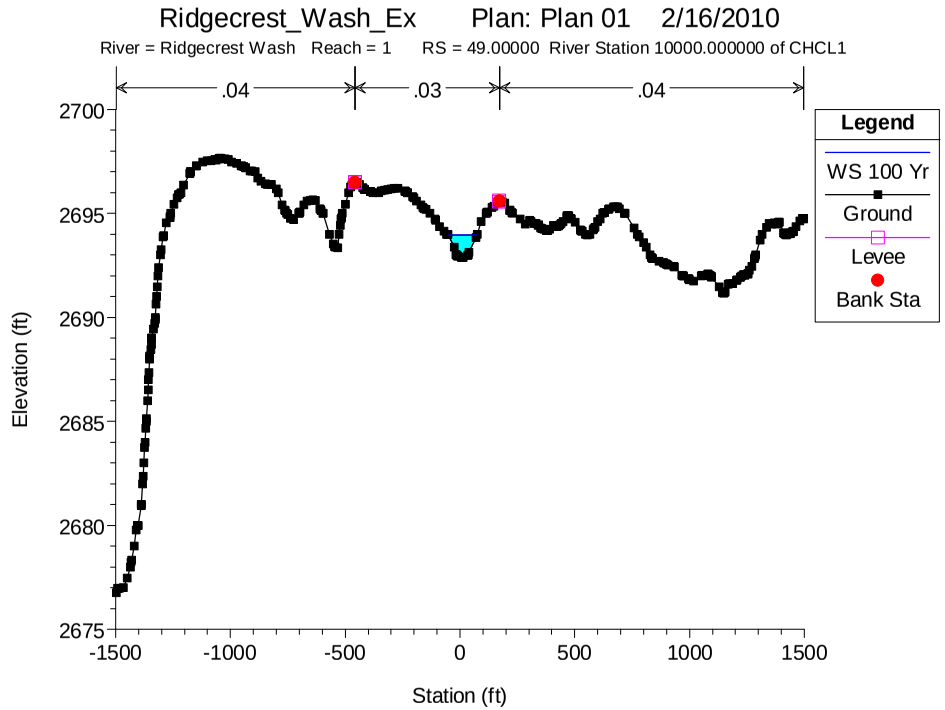

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 54.00000 River Station 11000.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

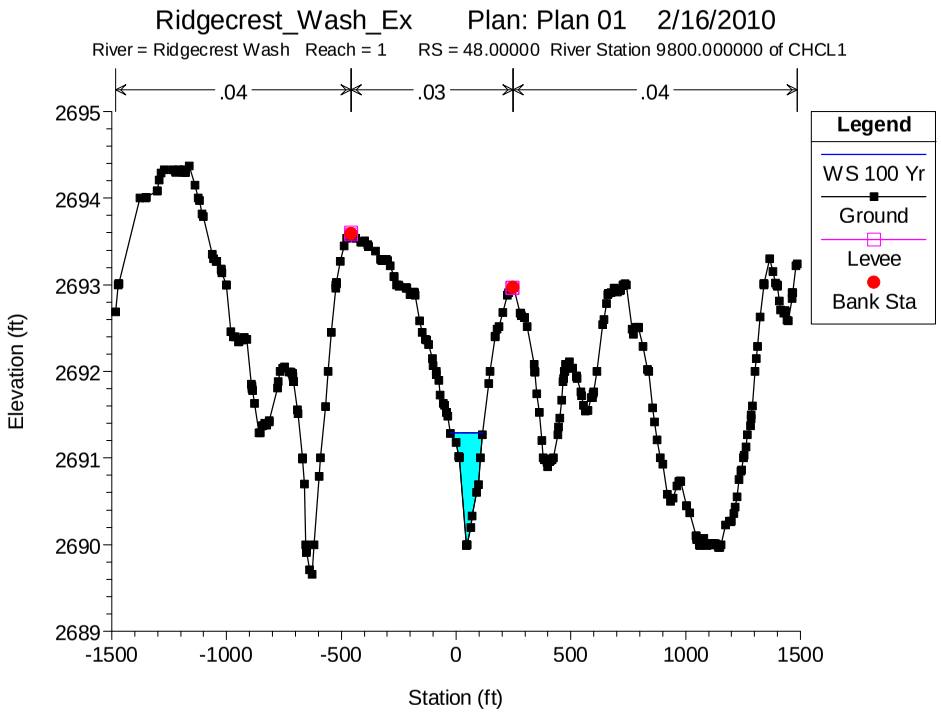

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 53.00000 River Station 10800.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

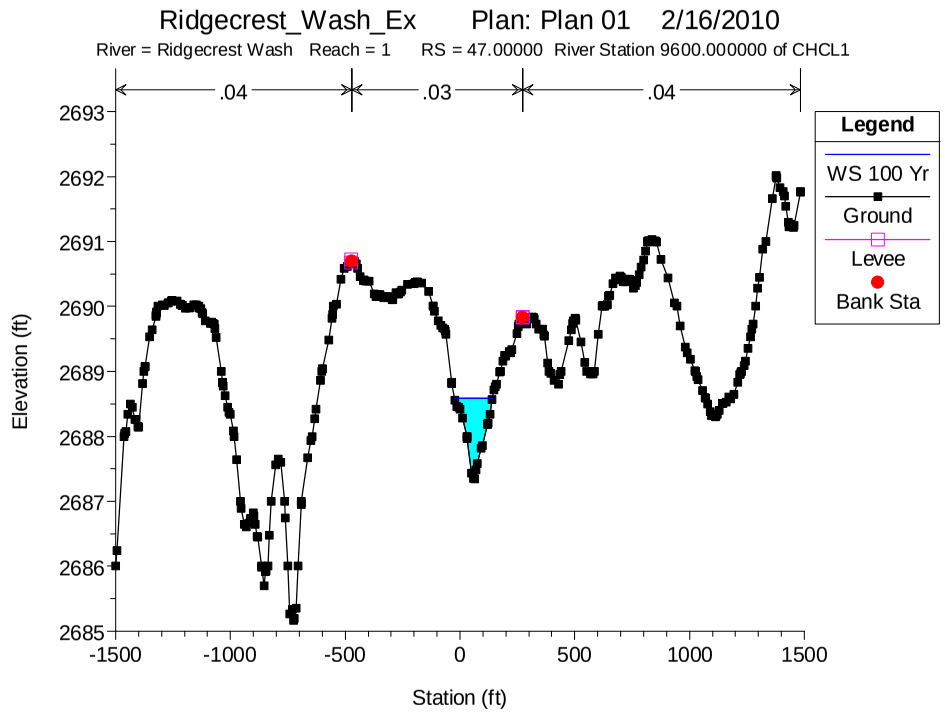

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 52.00000 River Station 10600.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

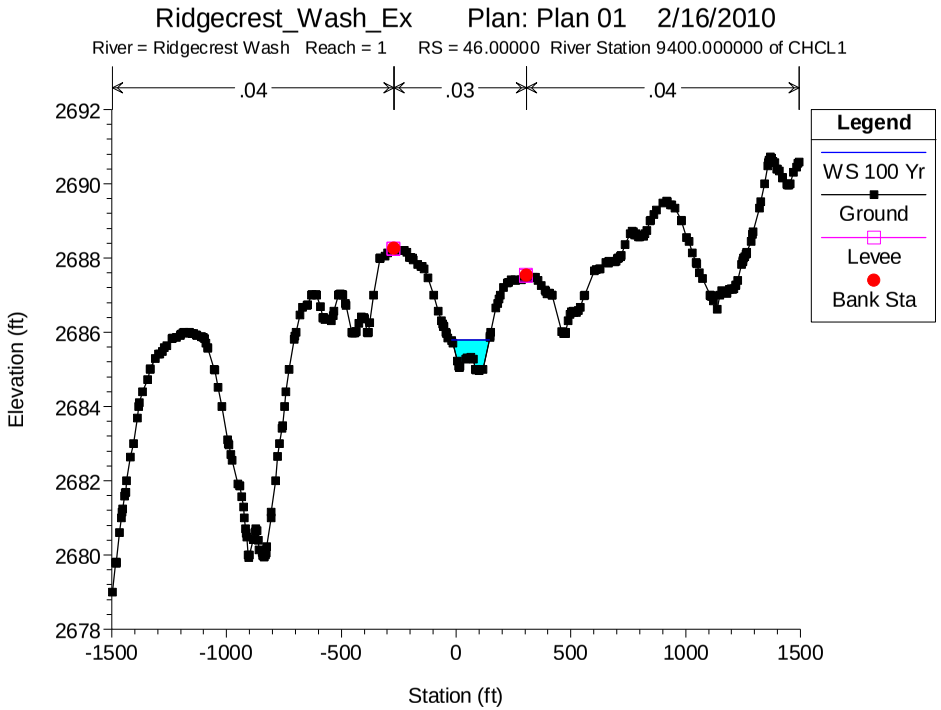

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 51.00000 River Station 10400.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

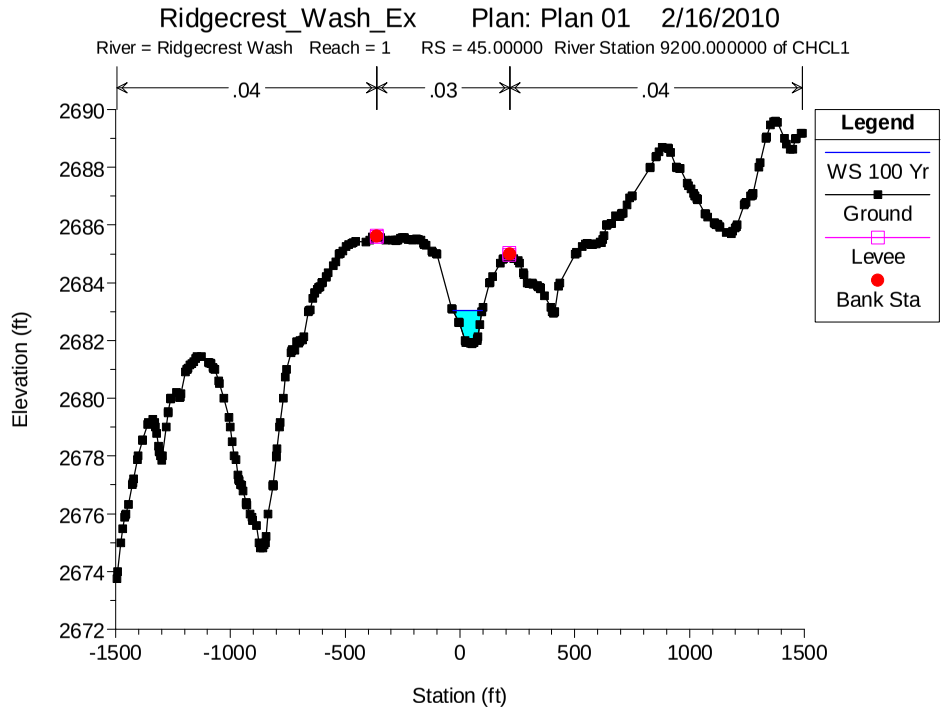

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 50.00000 River Station 10200.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

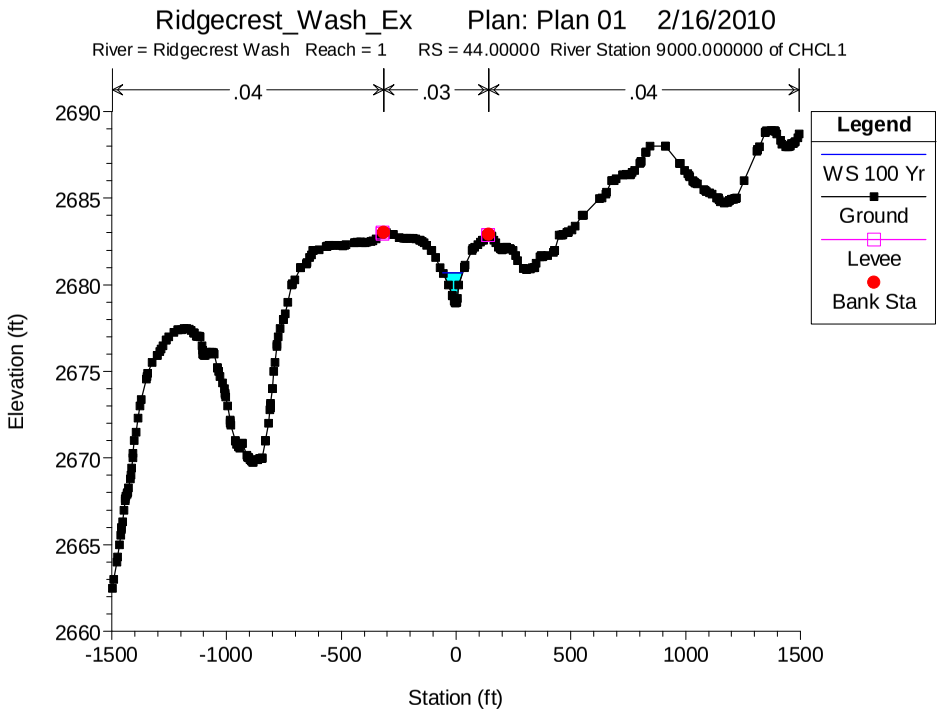

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 49.00000 River Station 10000.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

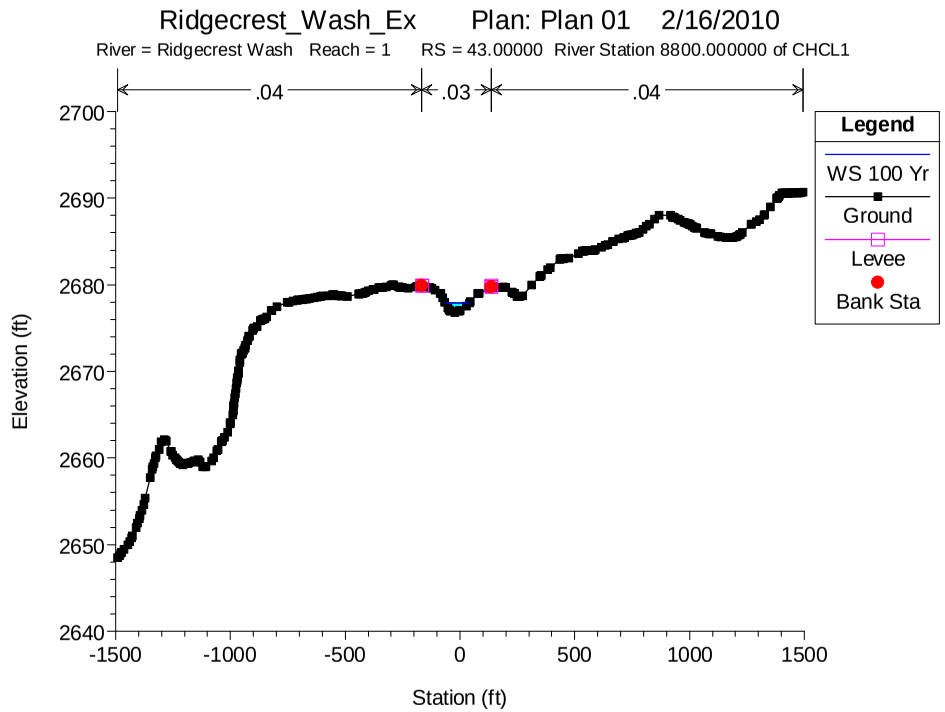

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 48.00000 River Station 9800.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

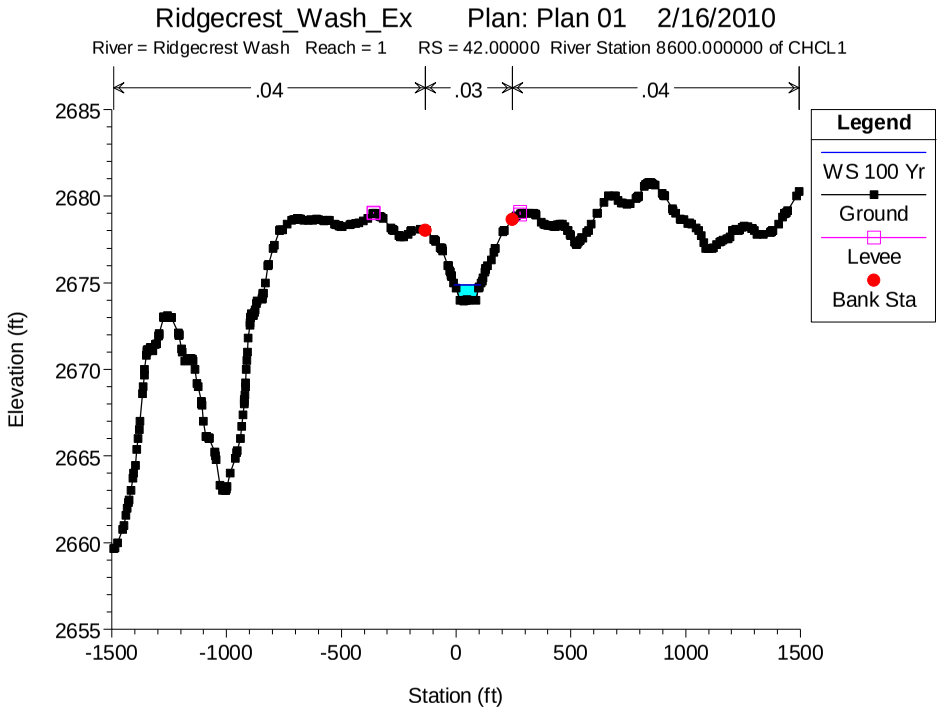

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 47.00000 River Station 9600.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

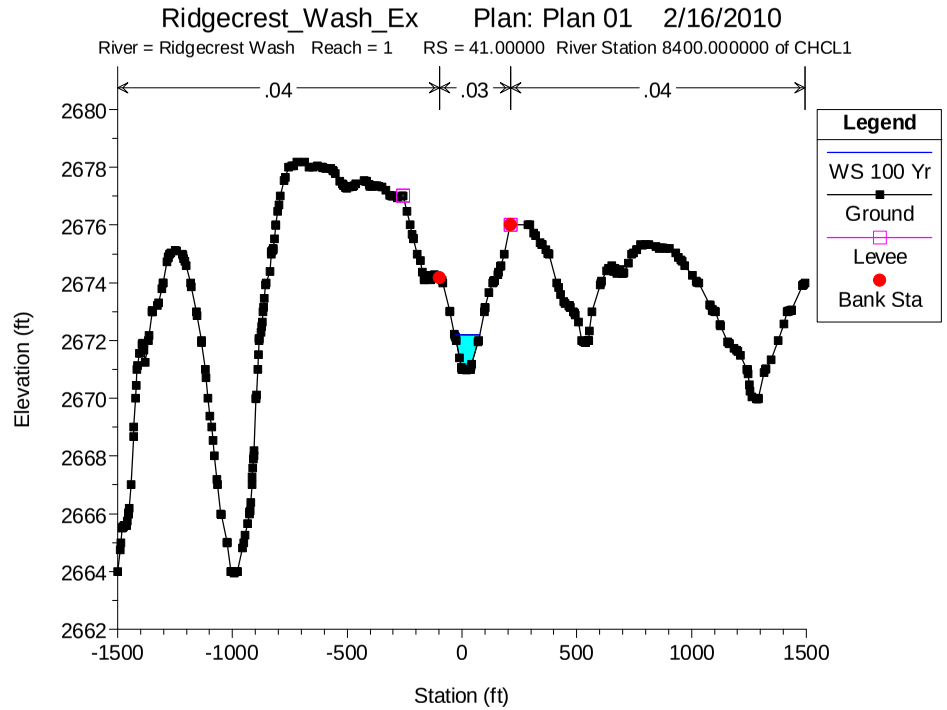

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 46.00000 River Station 9400.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

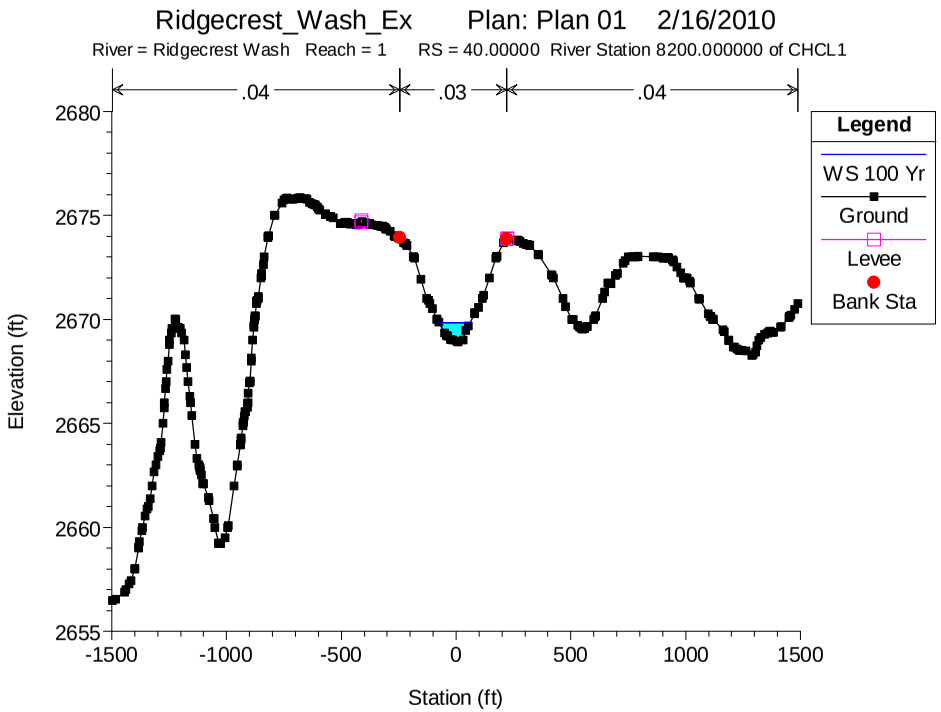

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 45.00000 River Station 9200.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

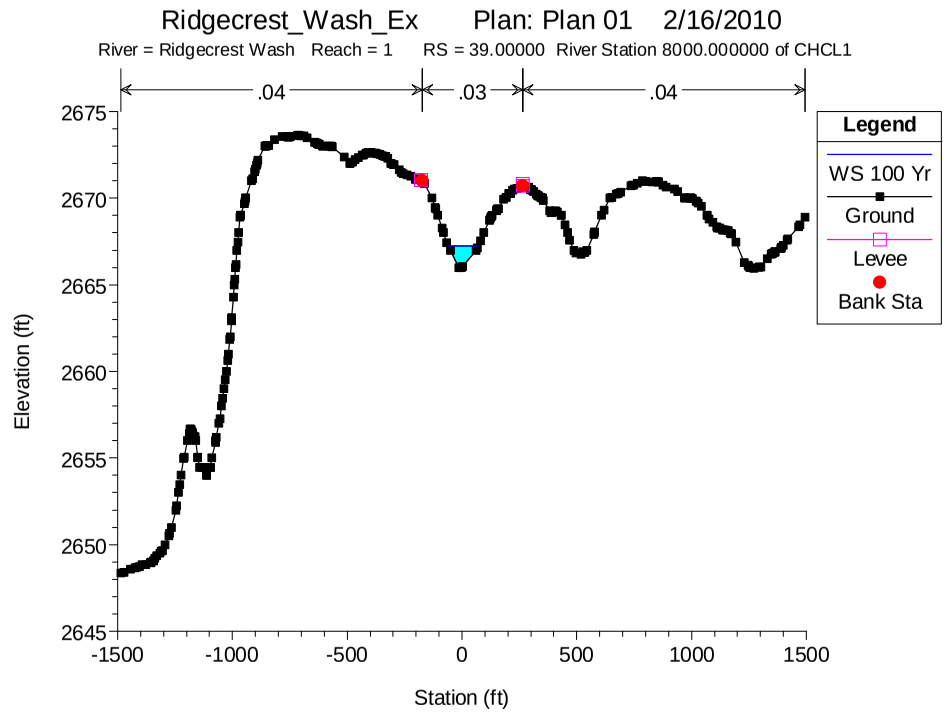

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 44.00000 River Station 9000.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

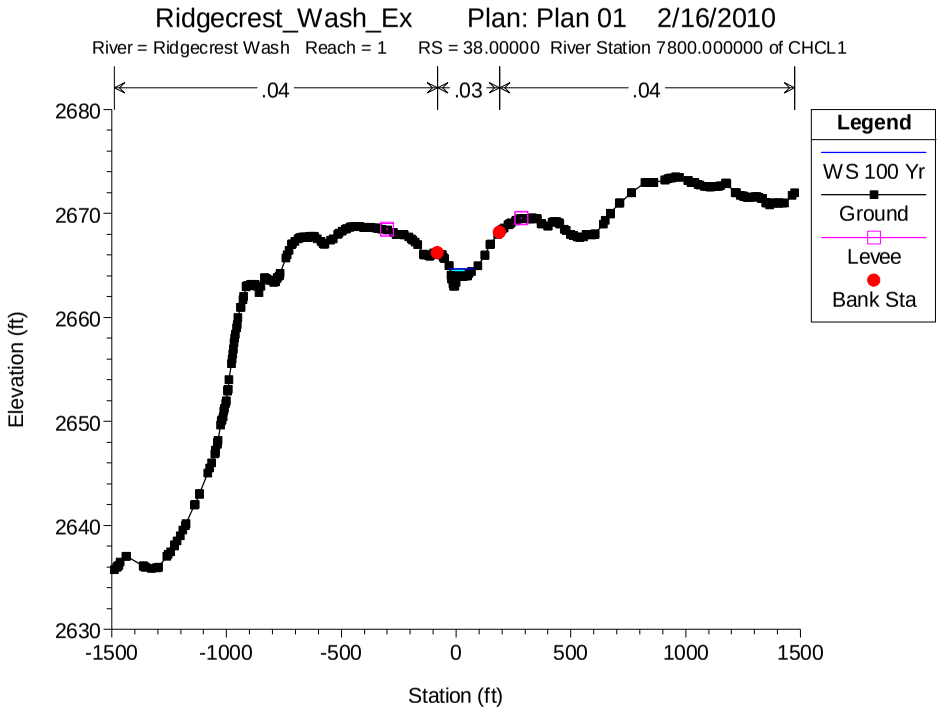

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 43.00000 River Station 8800.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

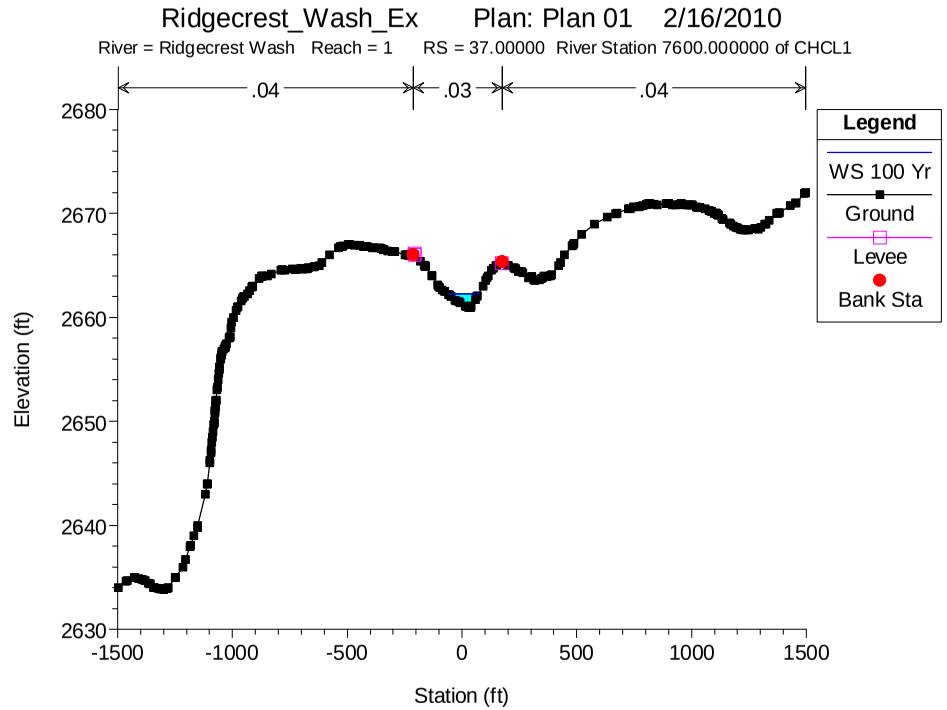

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 42.00000 River Station 8600.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

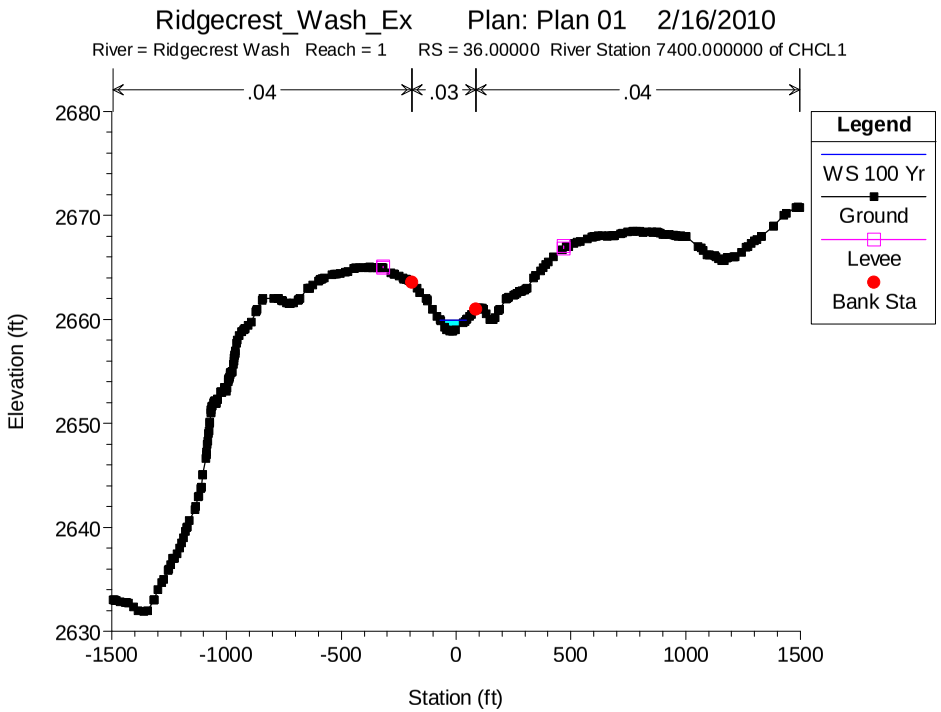

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 41.00000 River Station 8400.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

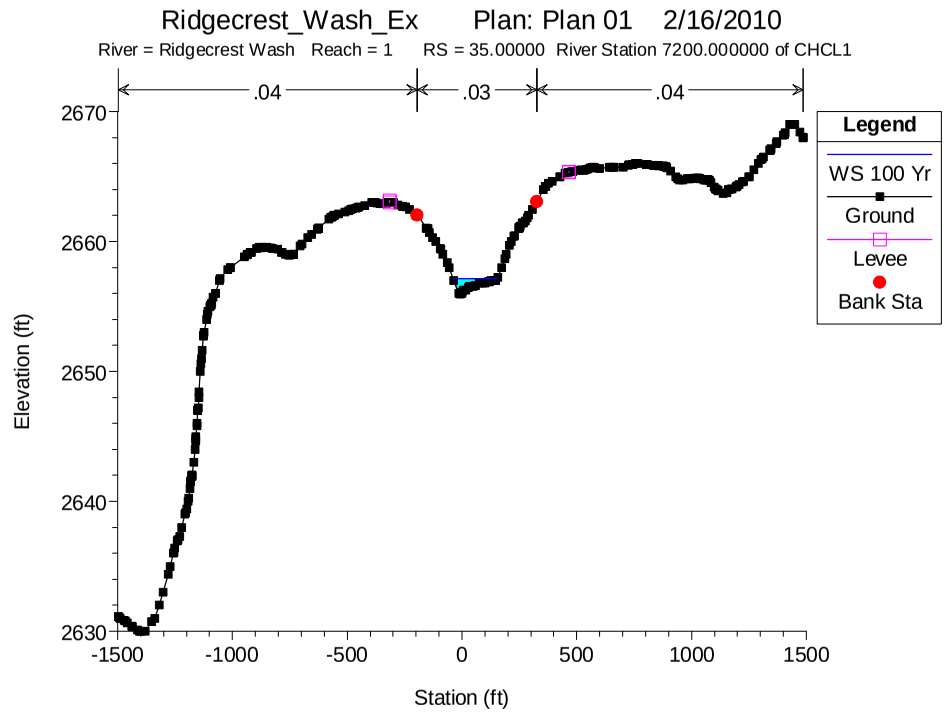

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 40.00000 River Station 8200.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

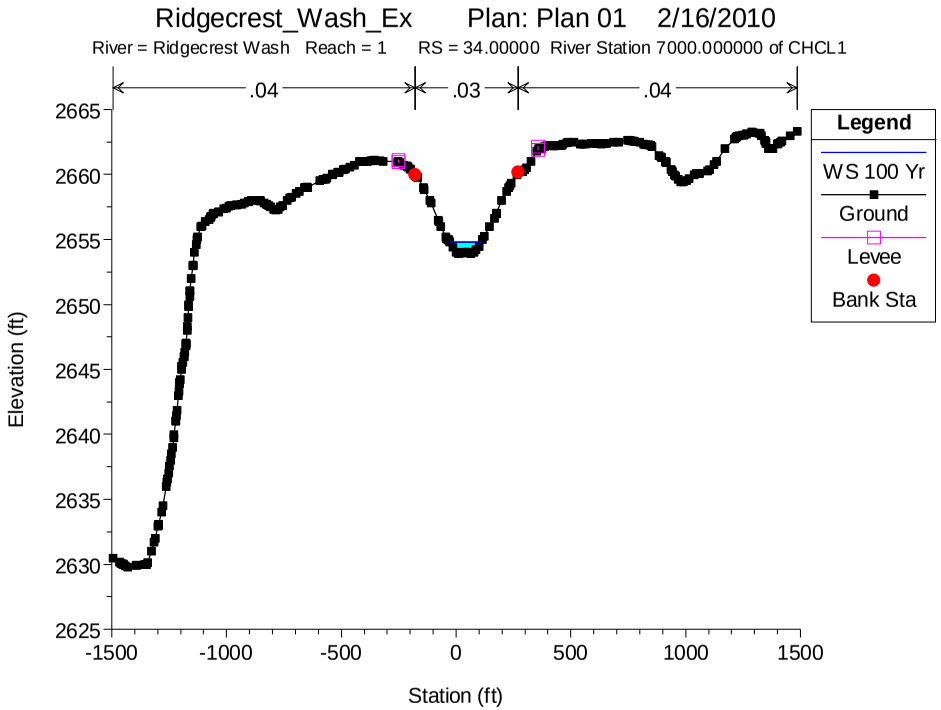

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 39.00000 River Station 8000.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

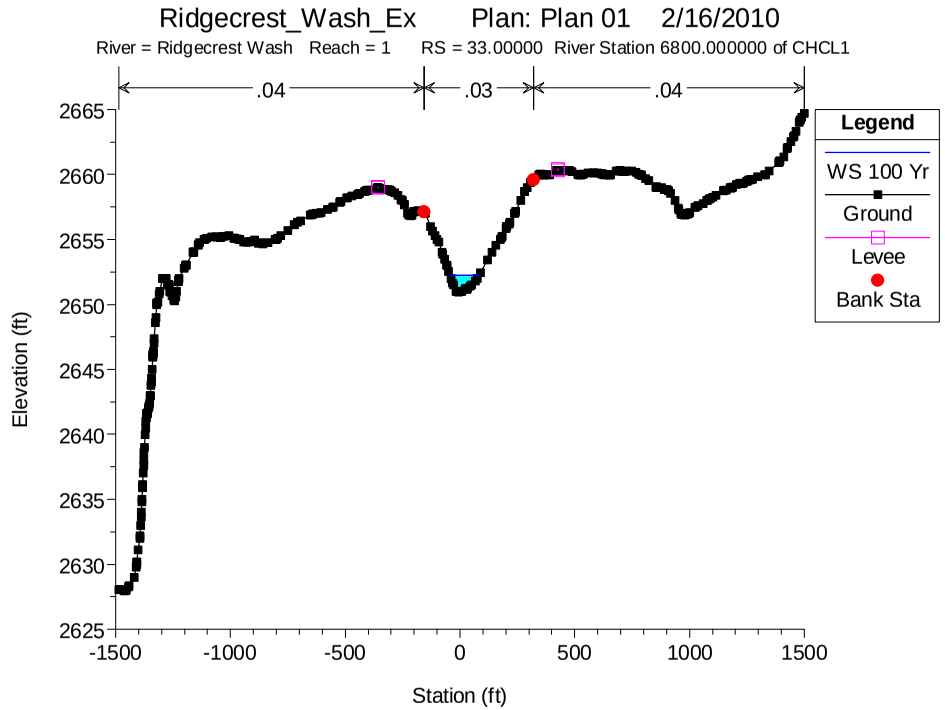

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 38.00000 River Station 7800.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

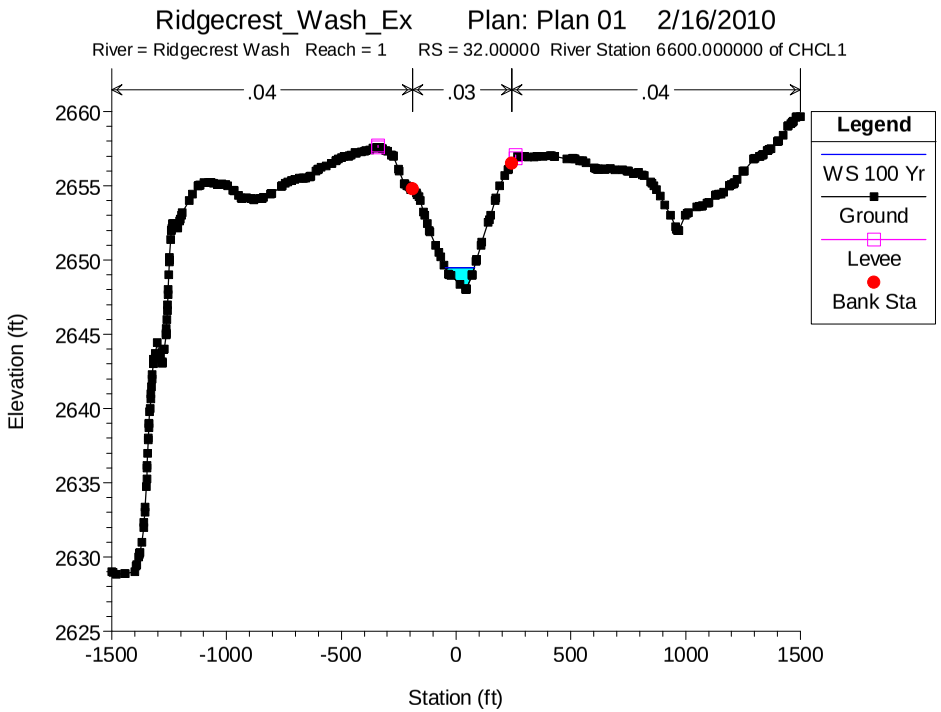

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 37.00000 River Station 7600.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

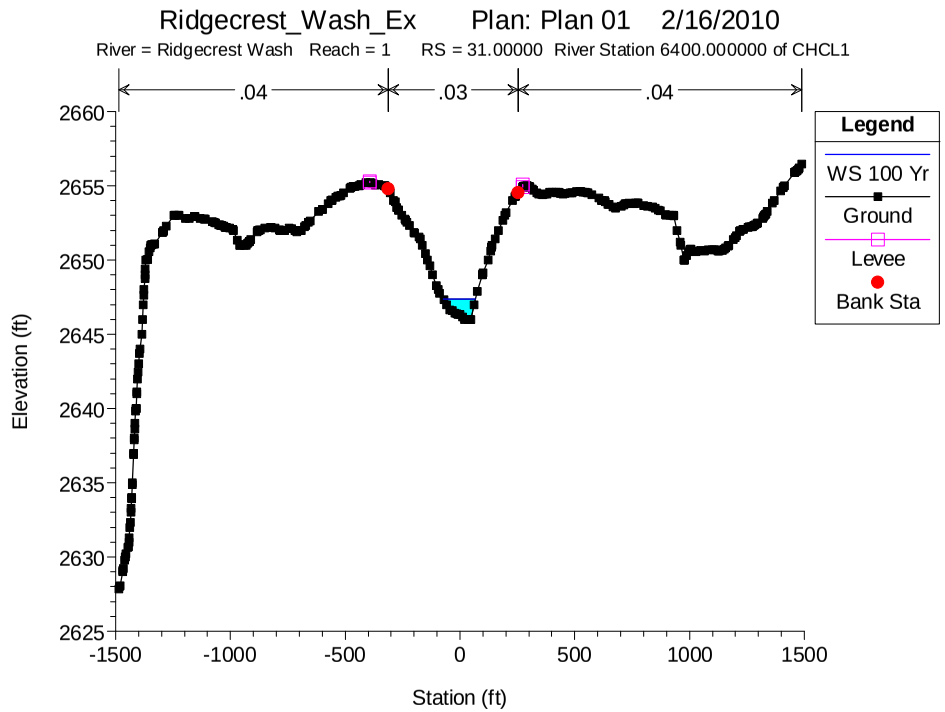

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 36.00000 River Station 7400.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

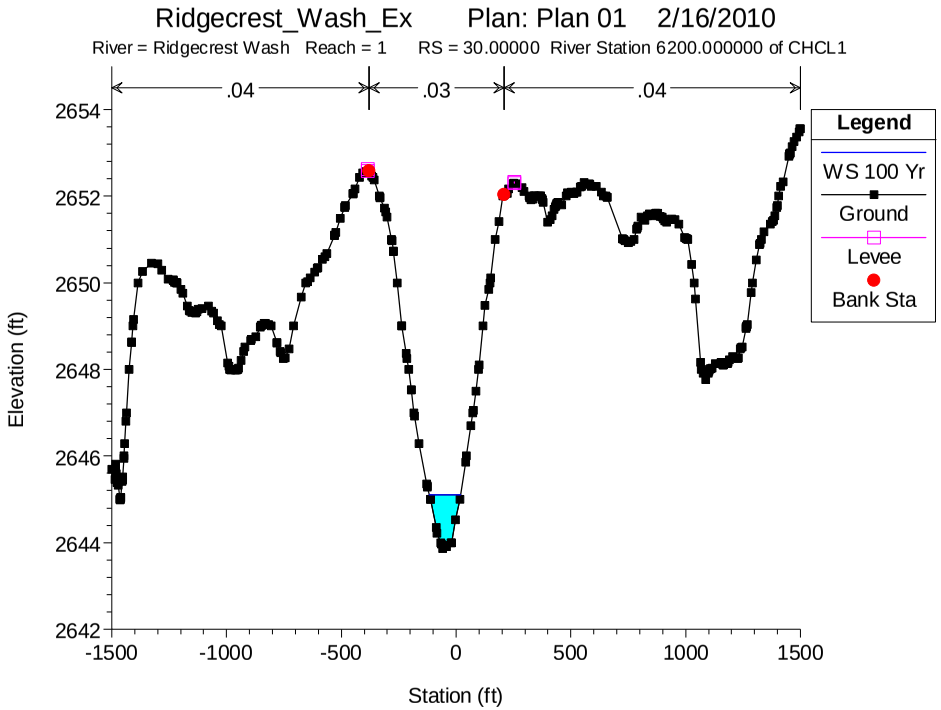

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 35.00000 River Station 7200.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

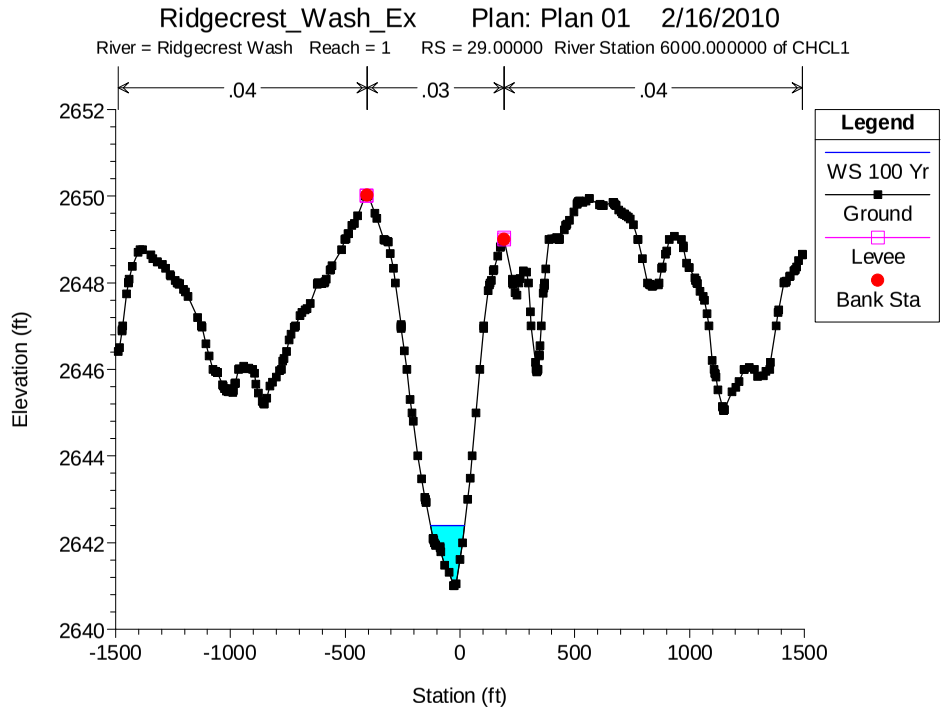

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 34.00000 River Station 7000.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

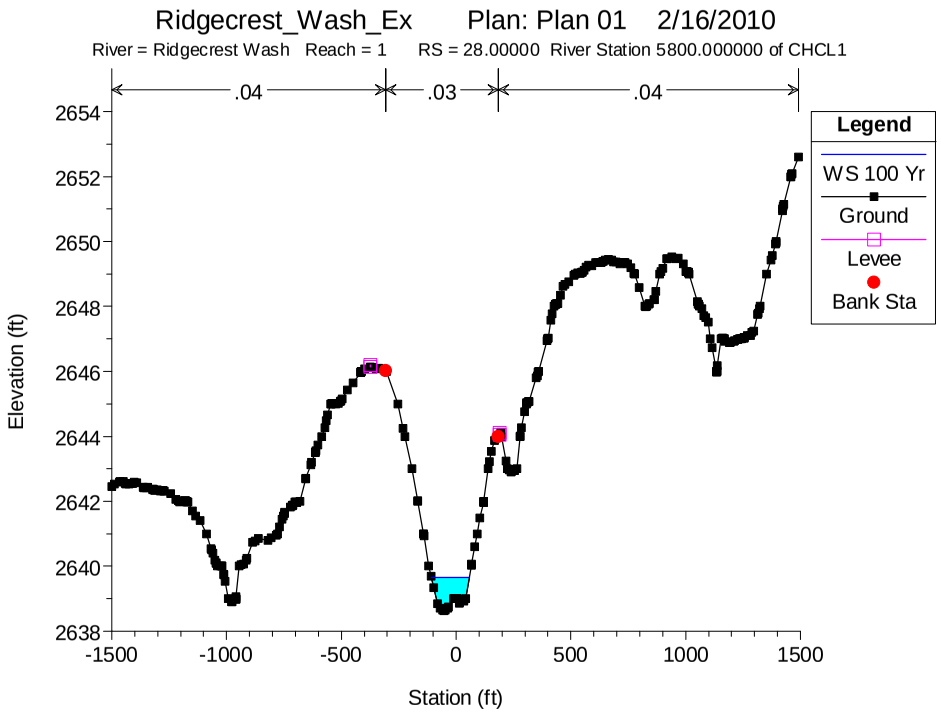

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 33.00000 River Station 6800.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

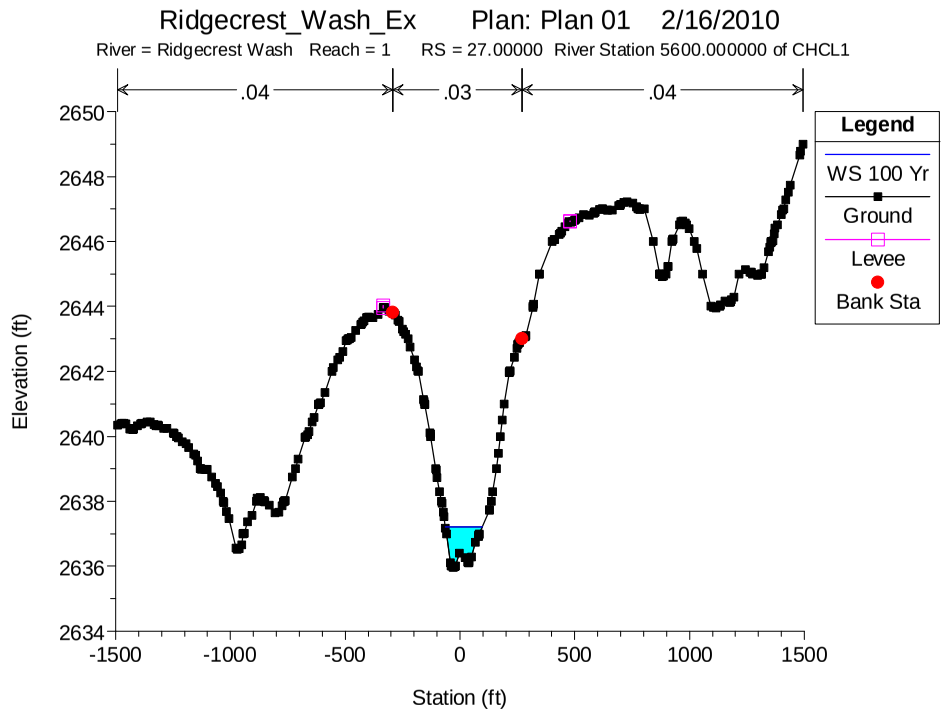

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 32.00000 River Station 6600.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

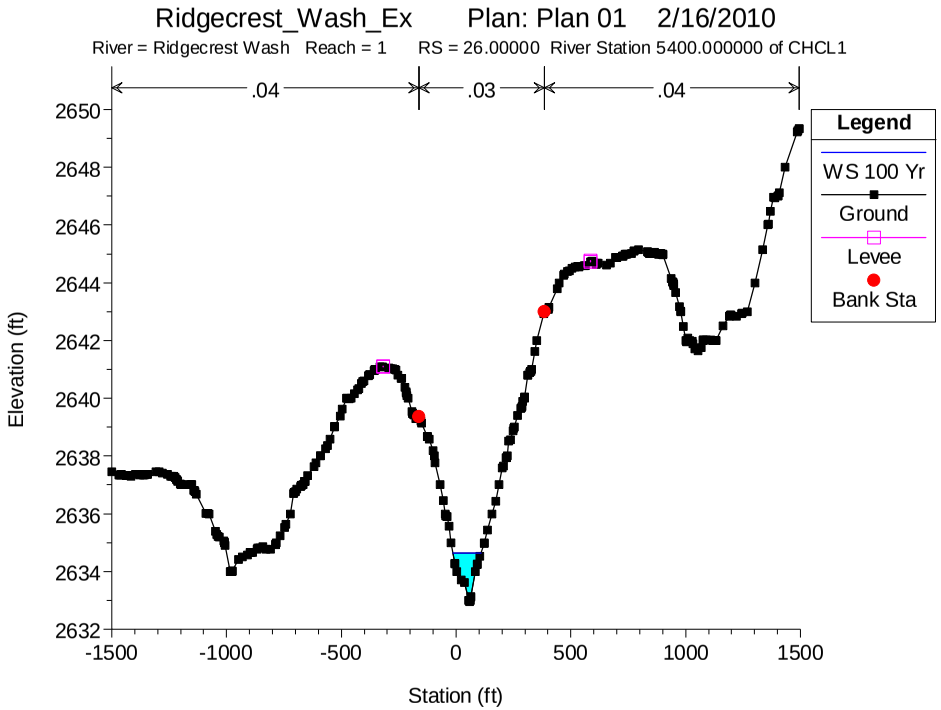

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 31.00000 River Station 6400.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

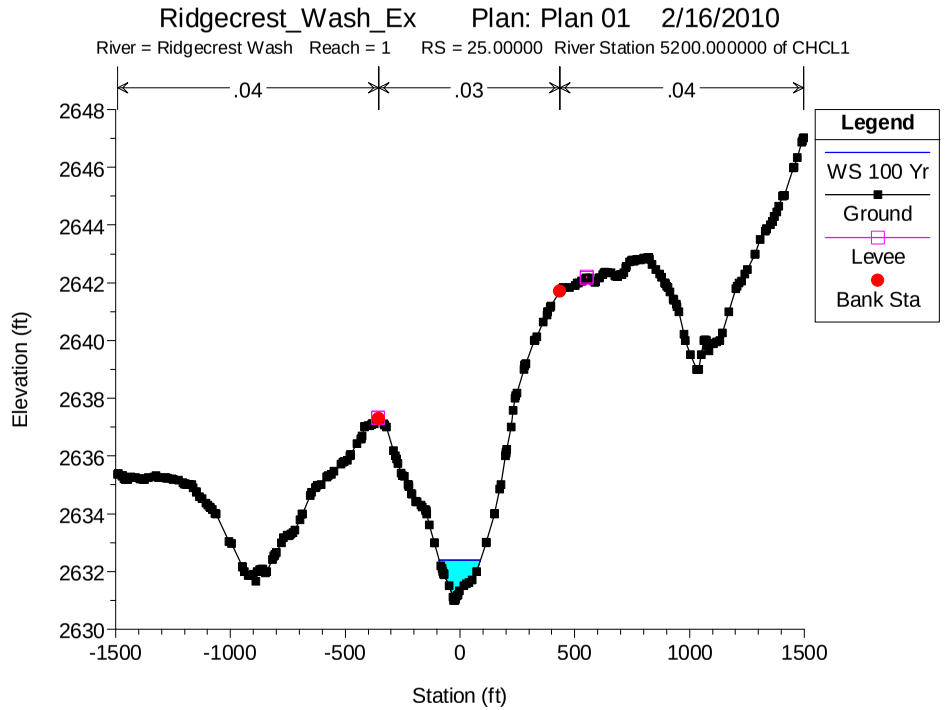

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 30.00000 River Station 6200.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

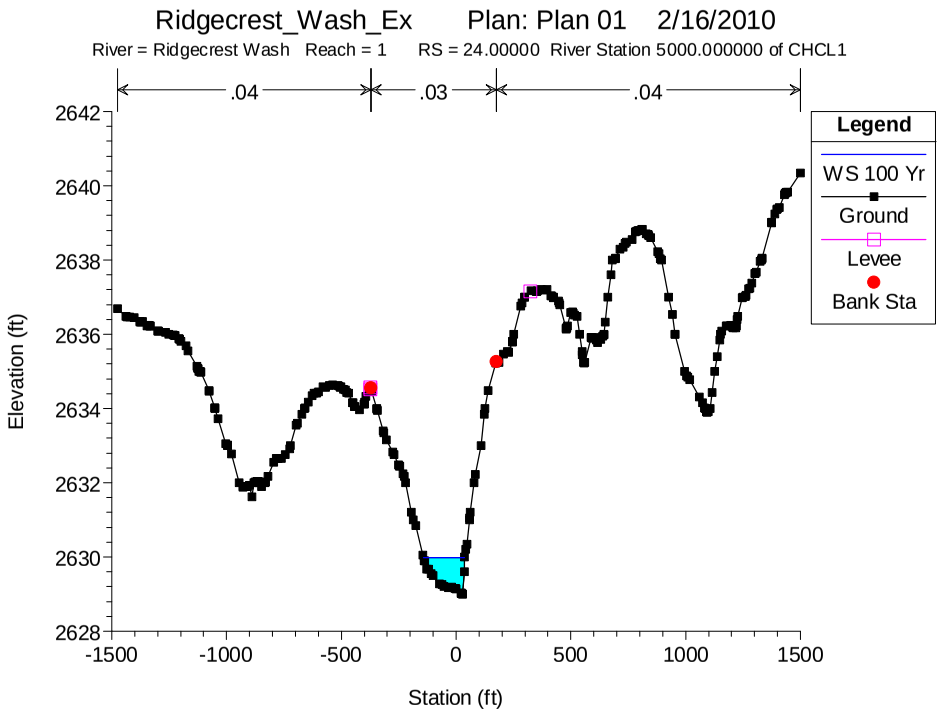

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 29.00000 River Station 6000.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

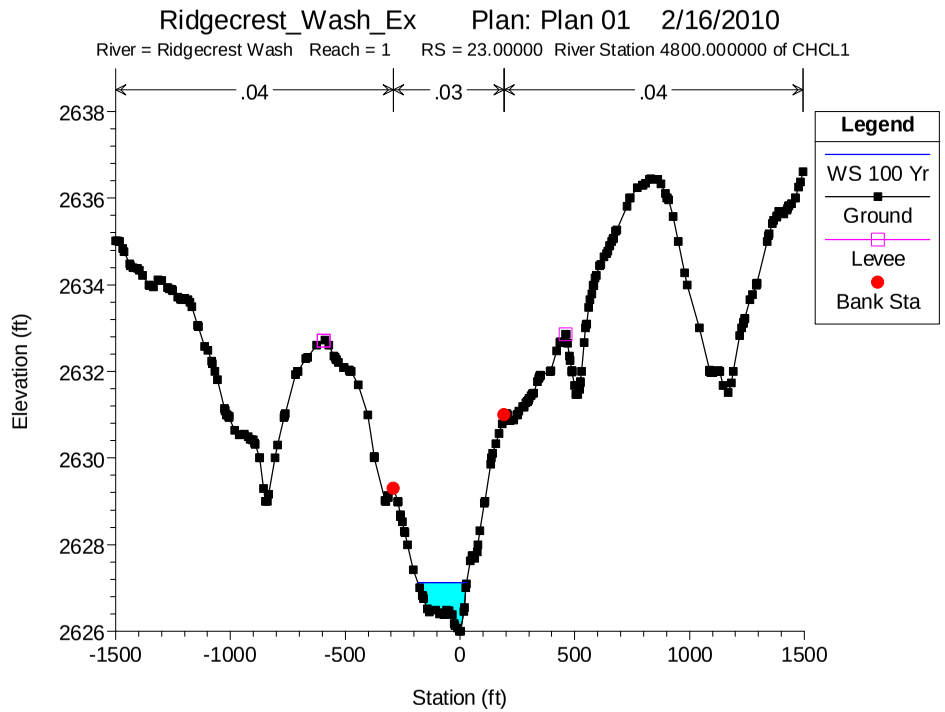

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 28.00000 River Station 5800.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

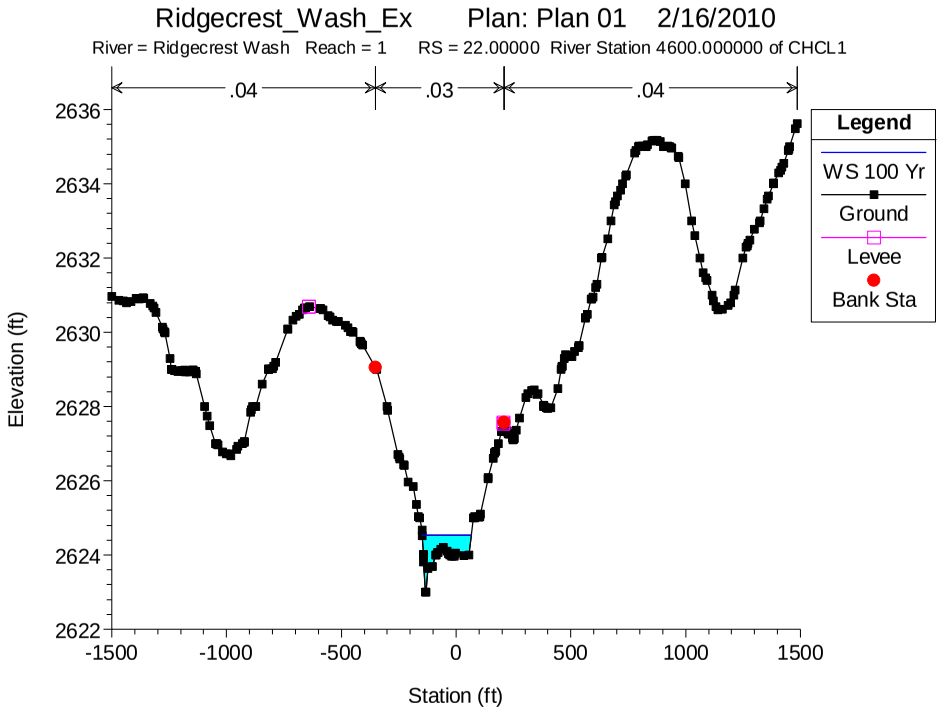

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 27.00000 River Station 5600.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

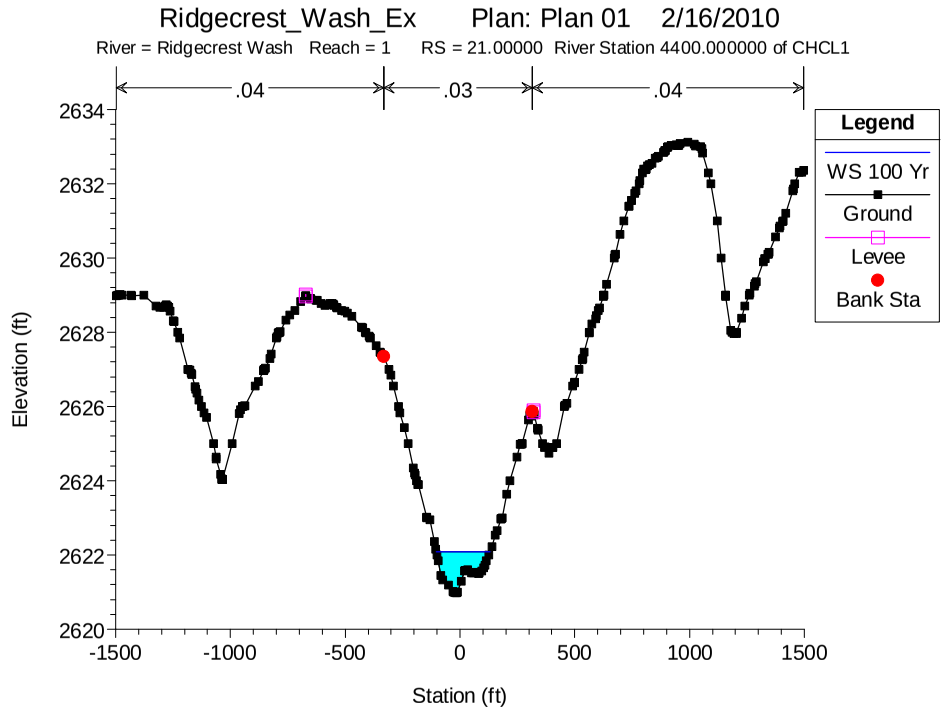

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 26.00000 River Station 5400.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

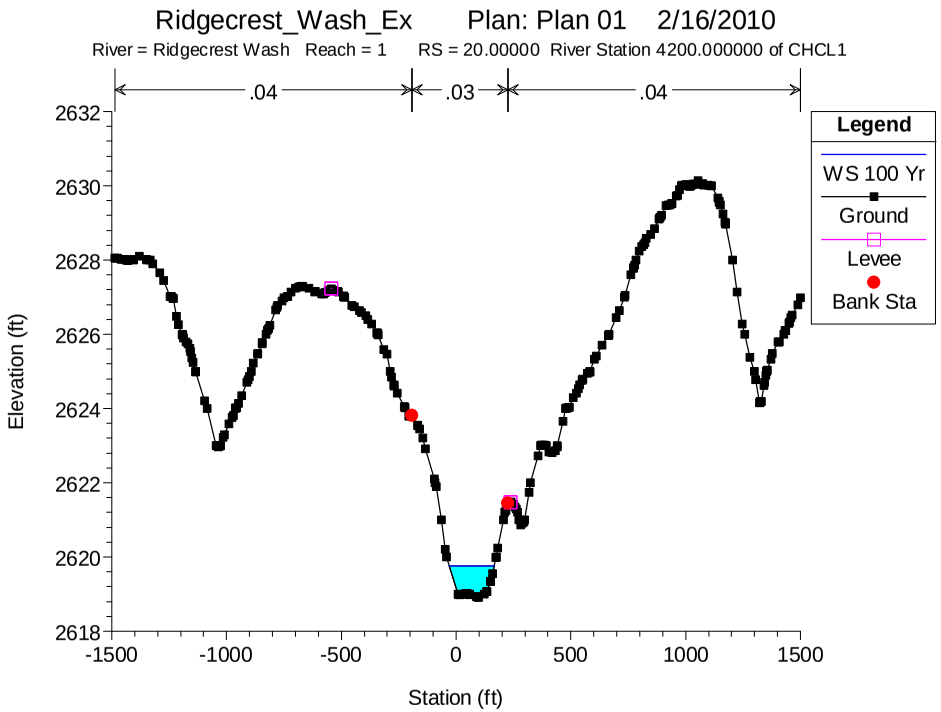

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 25.00000 River Station 5200.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

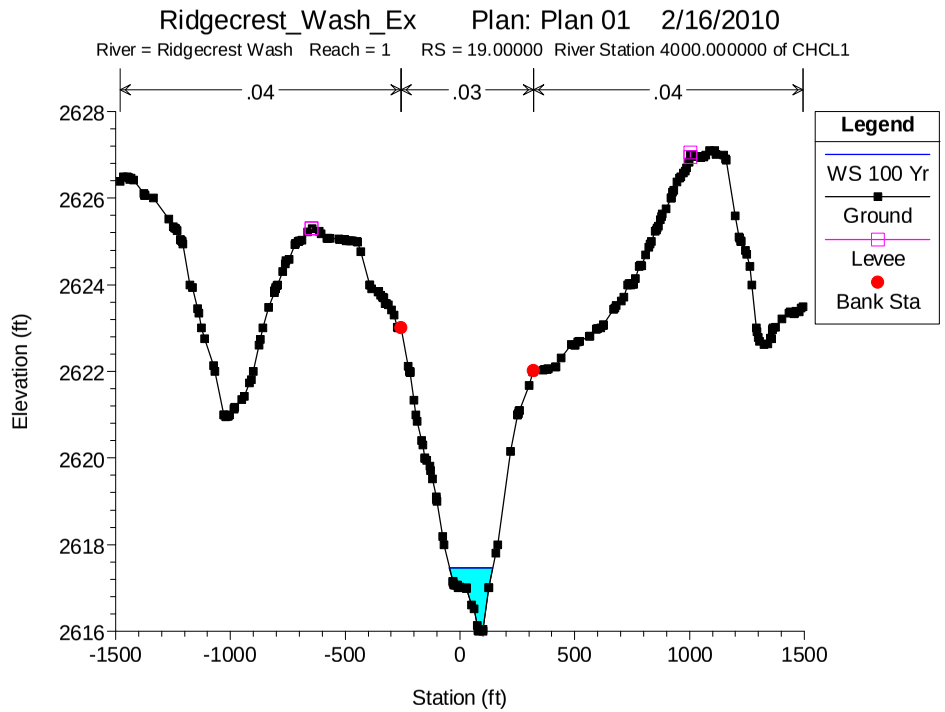

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 24.00000 River Station 5000.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

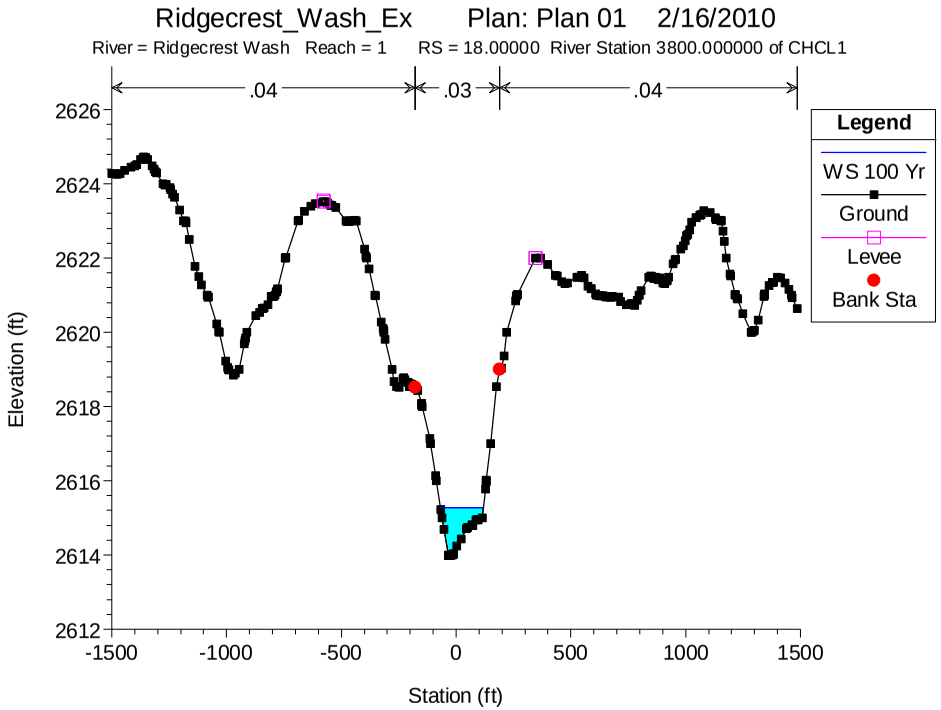

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 23.00000 River Station 4800.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

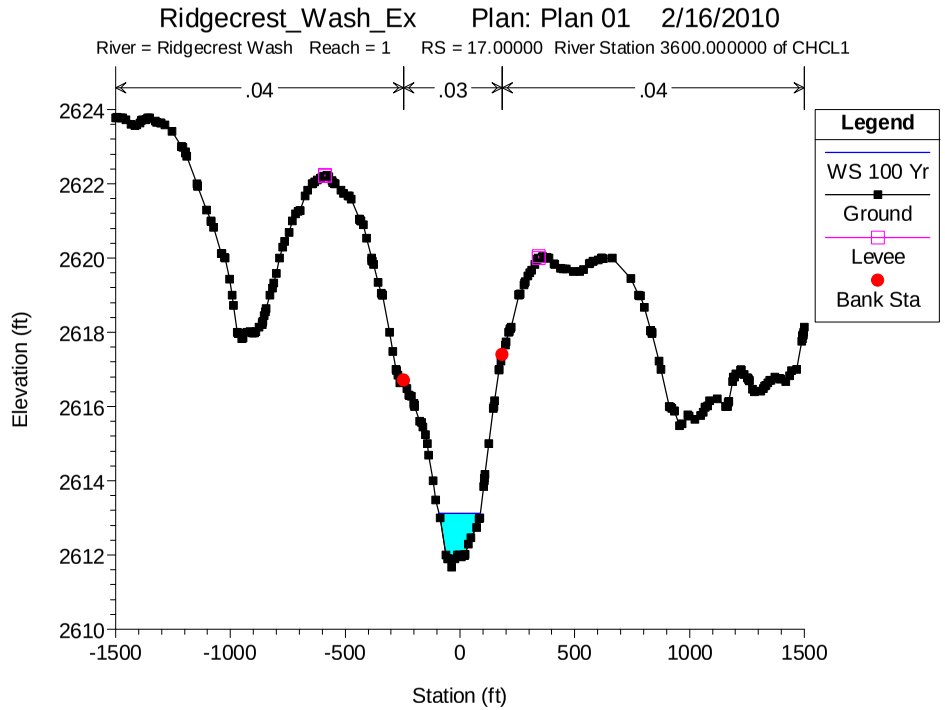

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 22.00000 River Station 4600.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

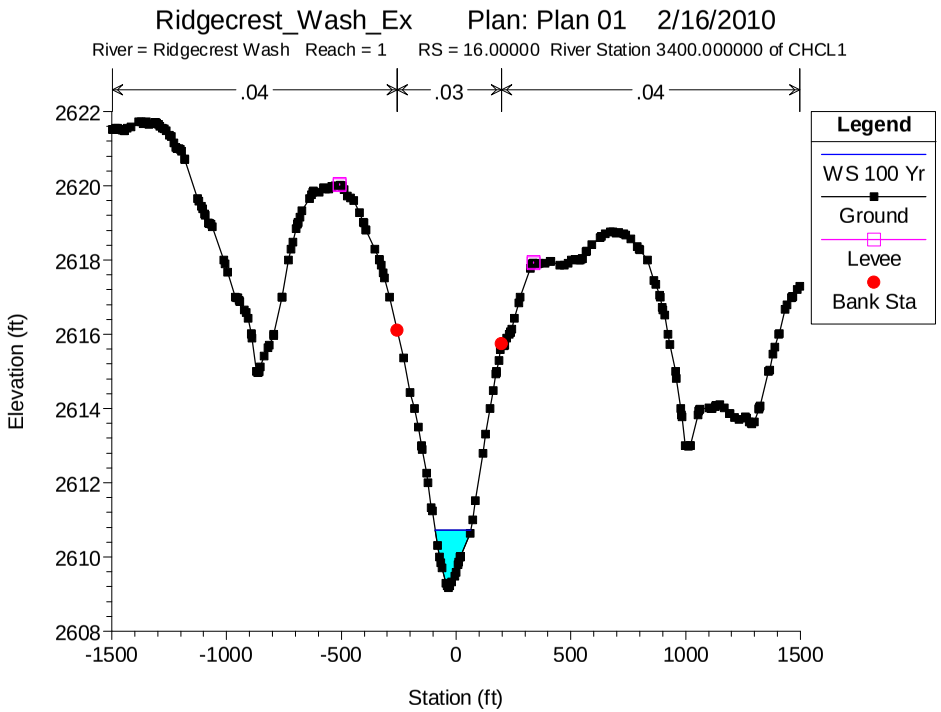

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 21.00000 River Station 4400.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

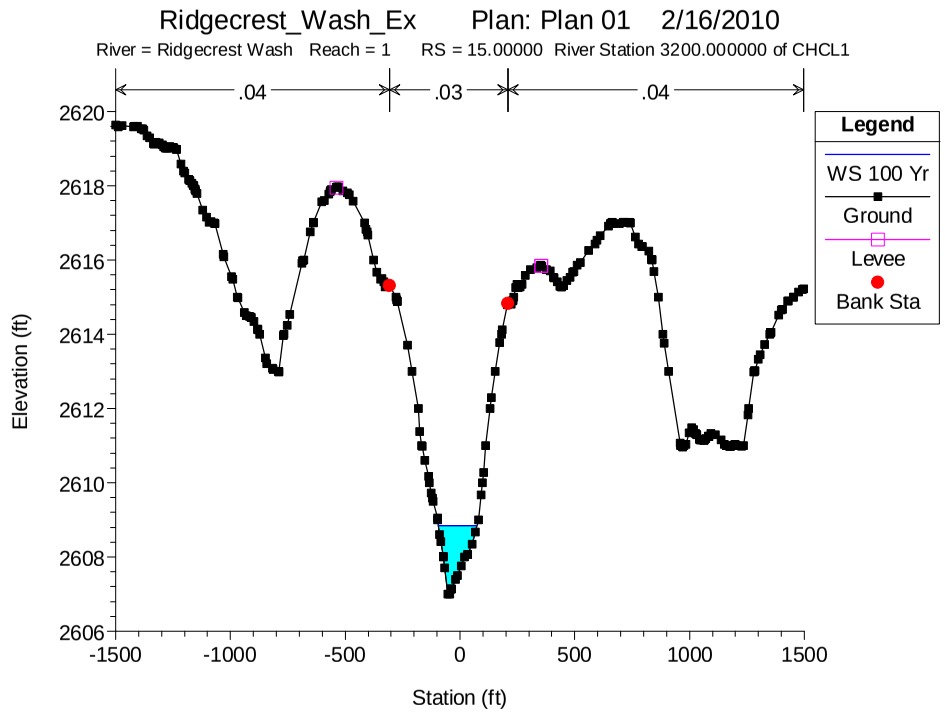

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 20.00000 River Station 4200.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

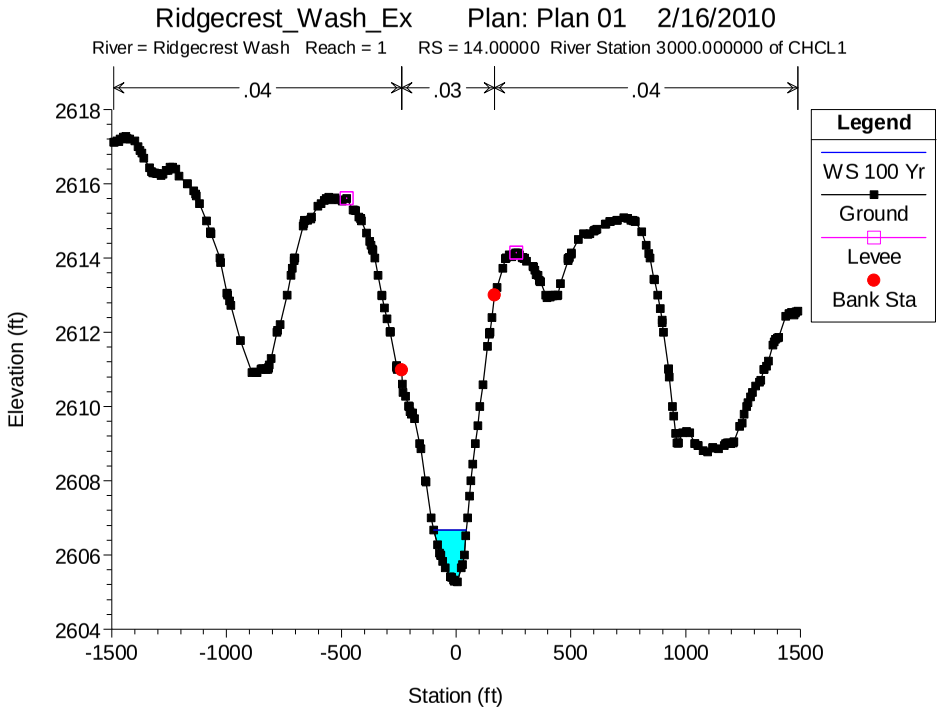

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 19.00000 River Station 4000.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

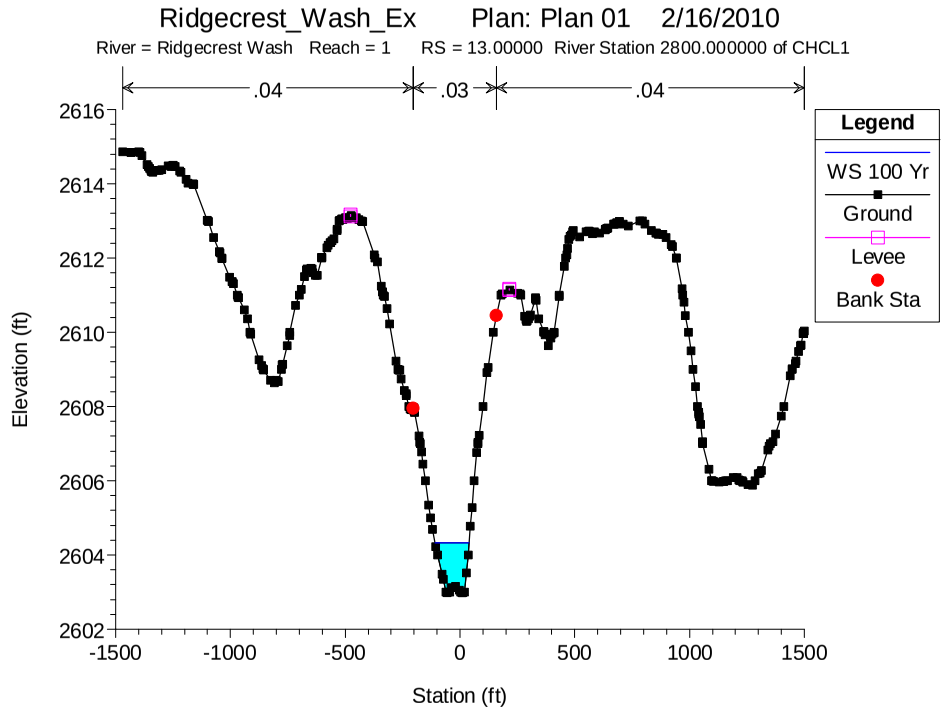

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 18.00000 River Station 3800.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

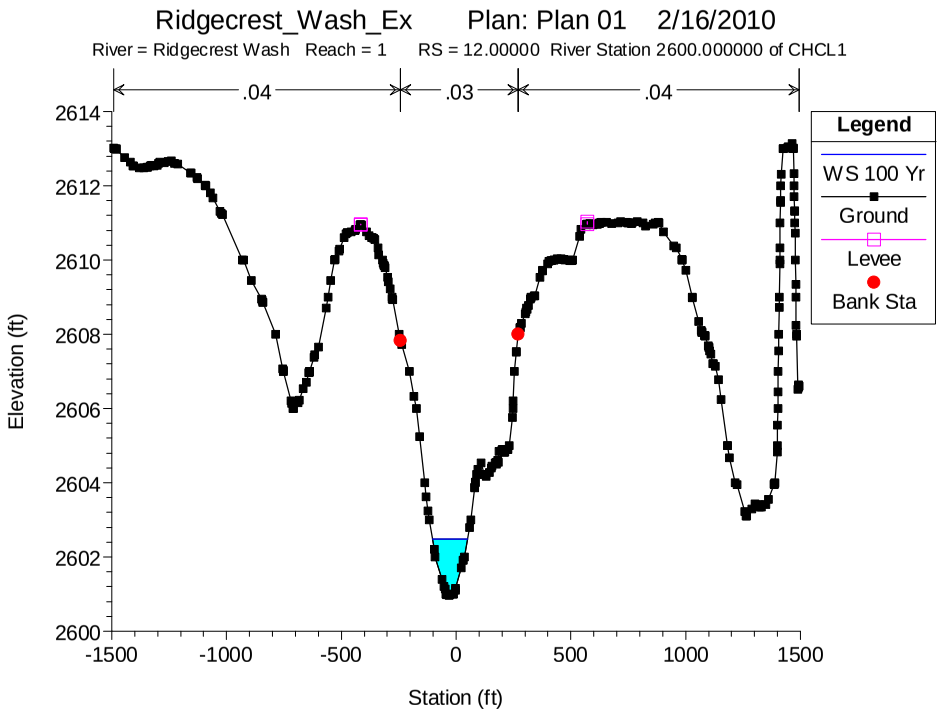

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 17.00000 River Station 3600.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

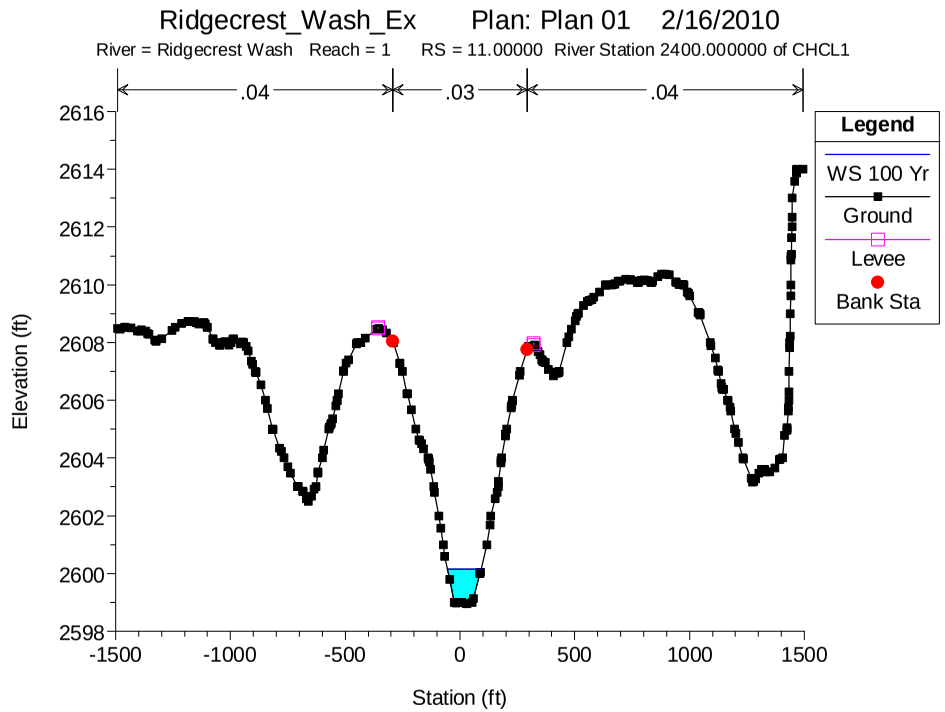

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 16.00000 River Station 3400.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

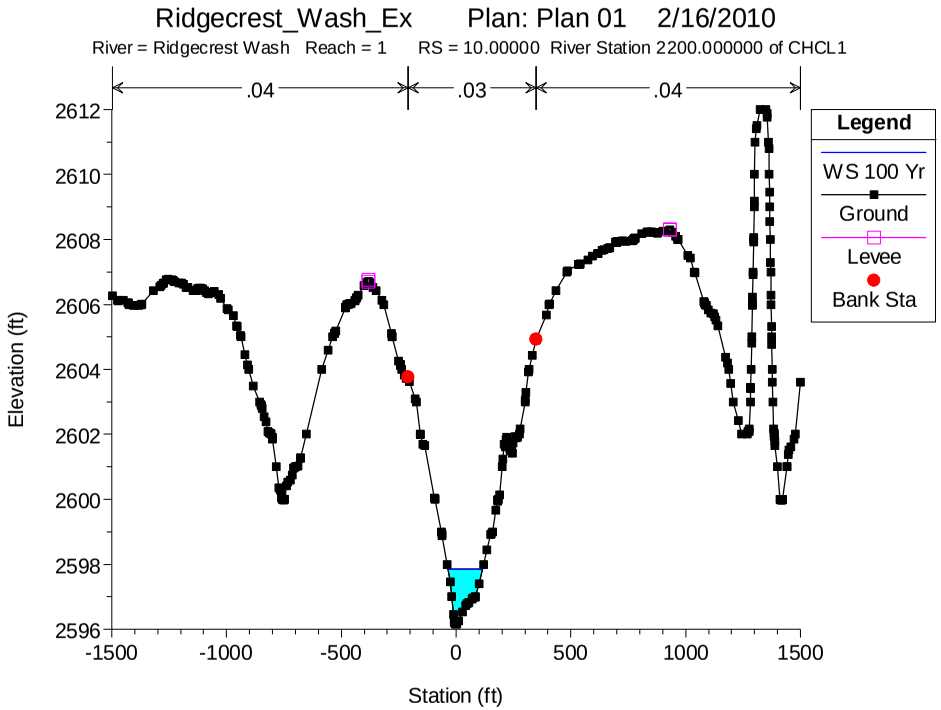

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 15.00000 River Station 3200.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

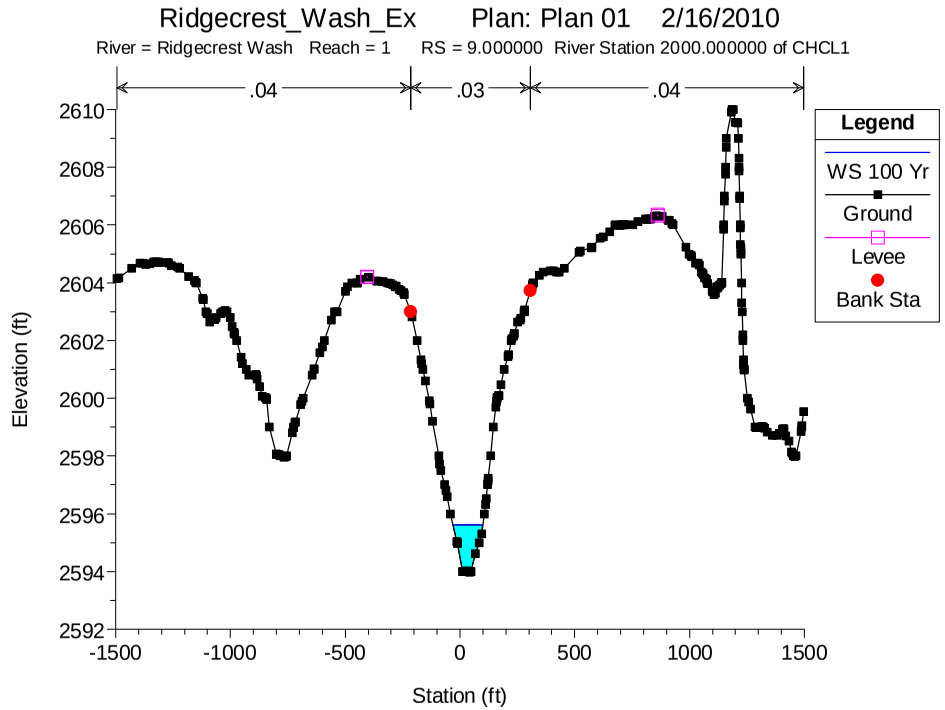

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 14.00000 River Station 3000.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

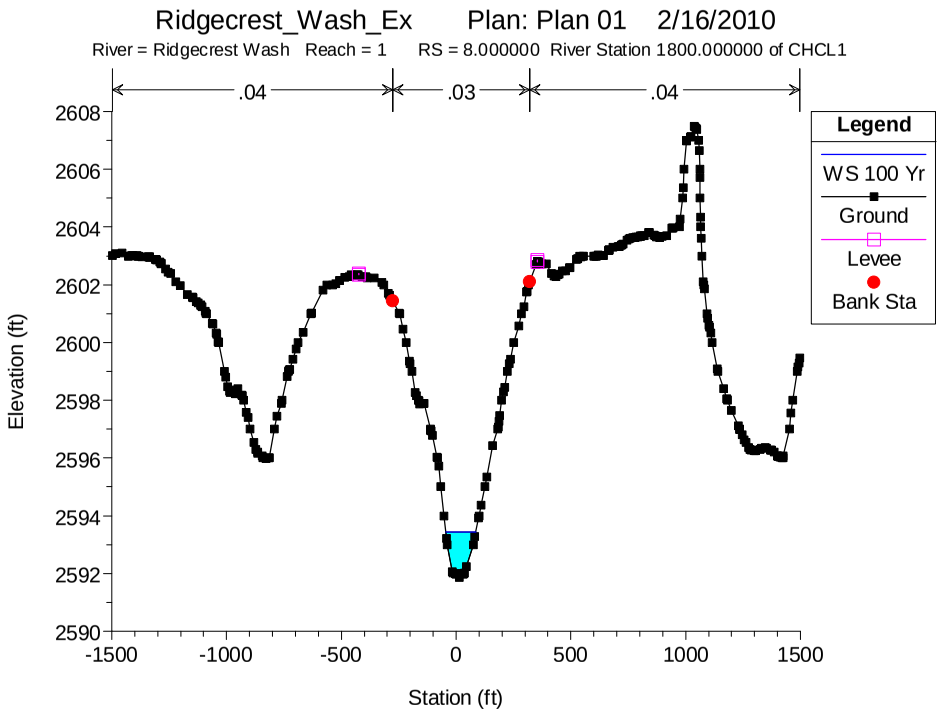

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 13.00000 River Station 2800.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

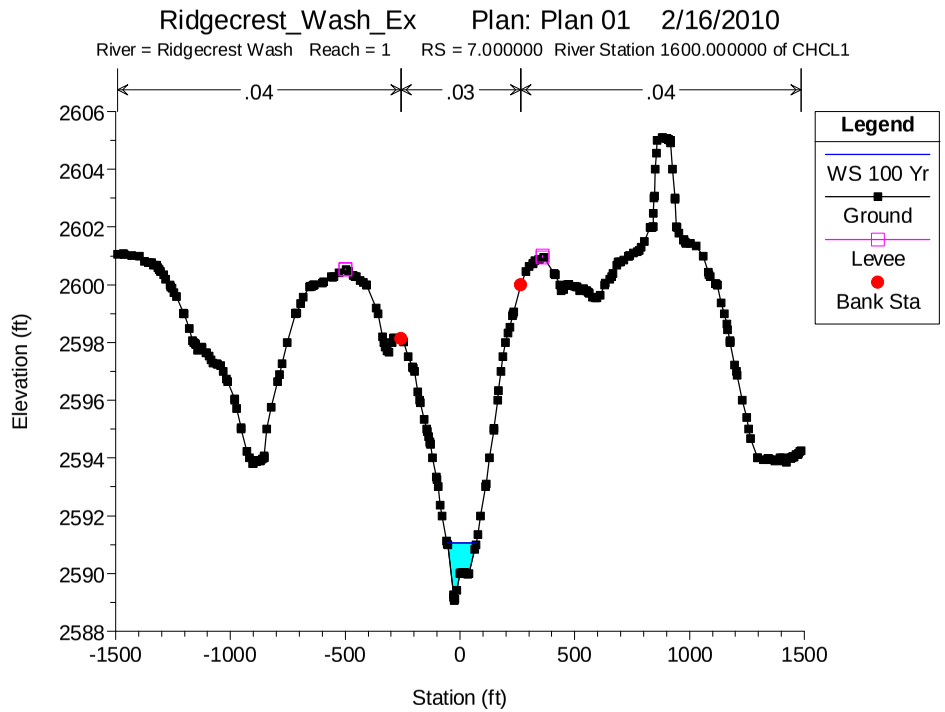

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 12.00000 River Station 2600.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

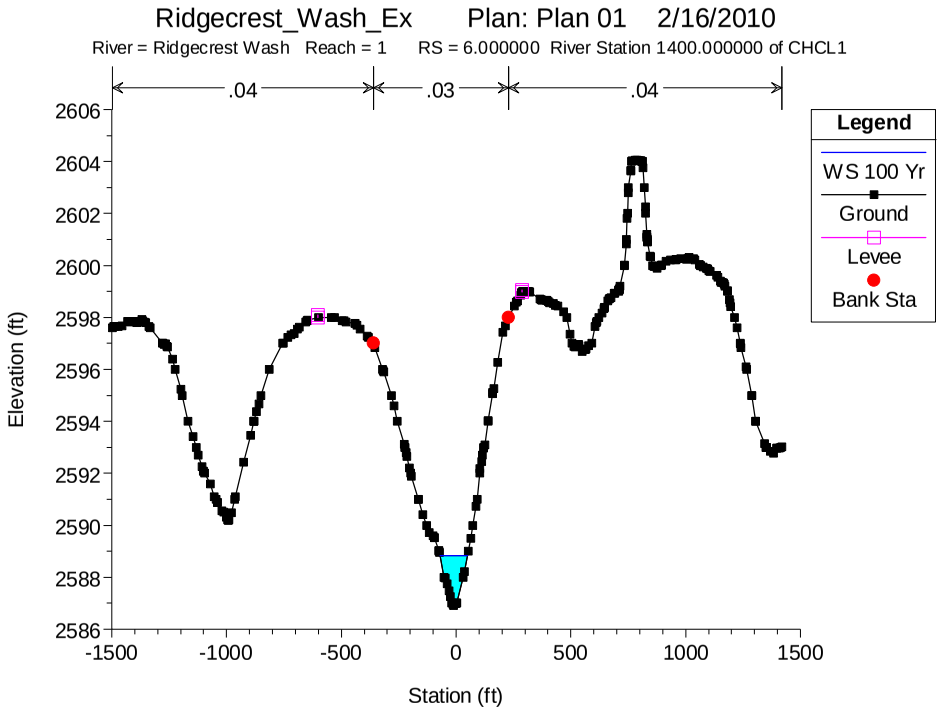

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 11.00000 River Station 2400.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

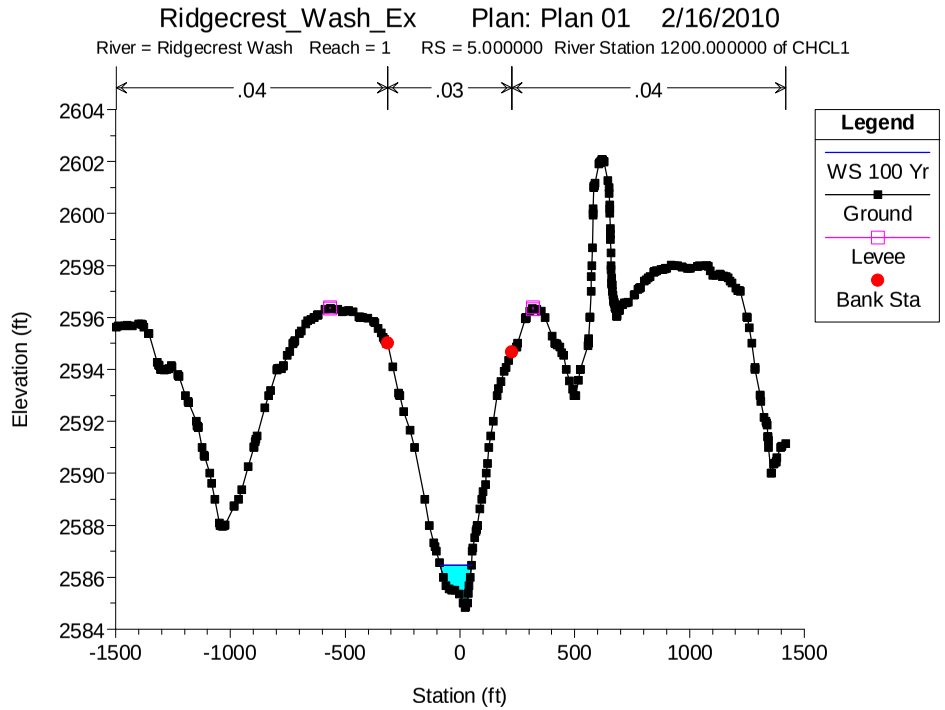

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 10.00000 River Station 2200.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

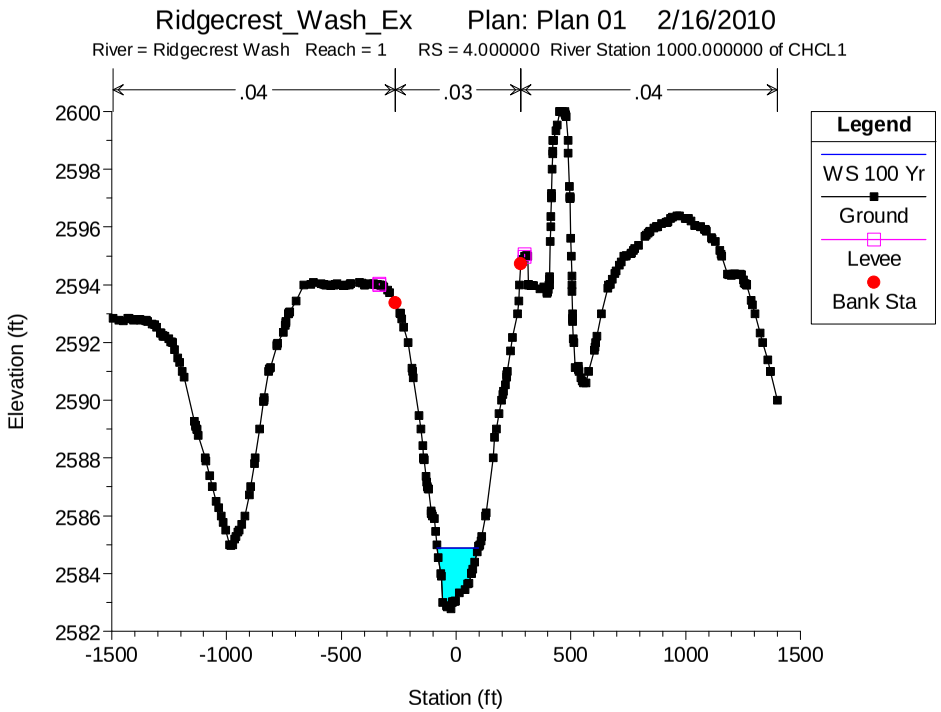

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 9.000000 River Station 2000.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

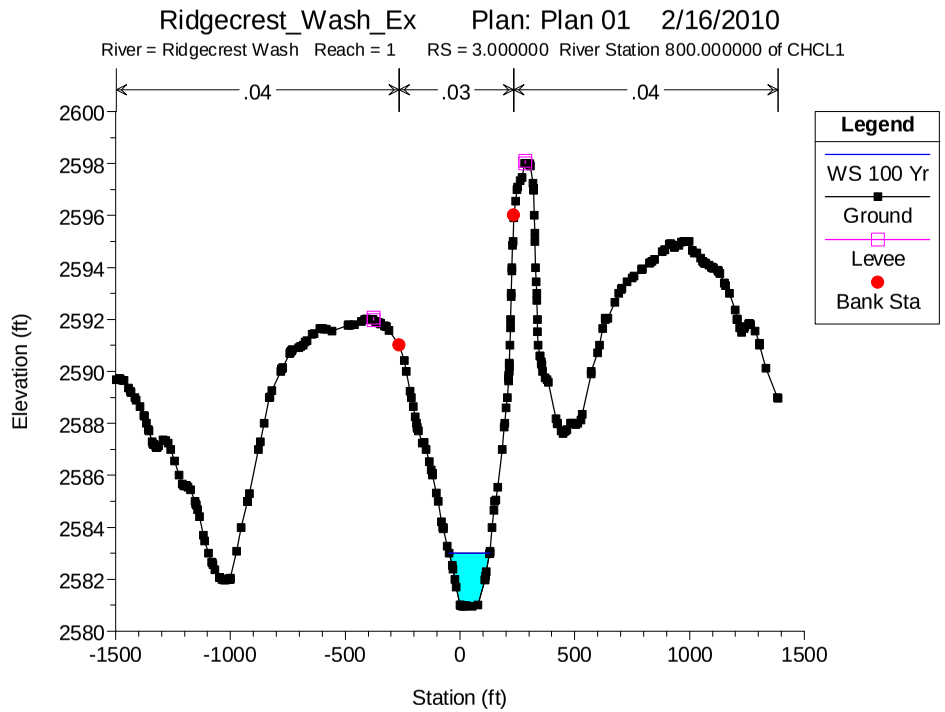

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 8.000000 River Station 1800.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

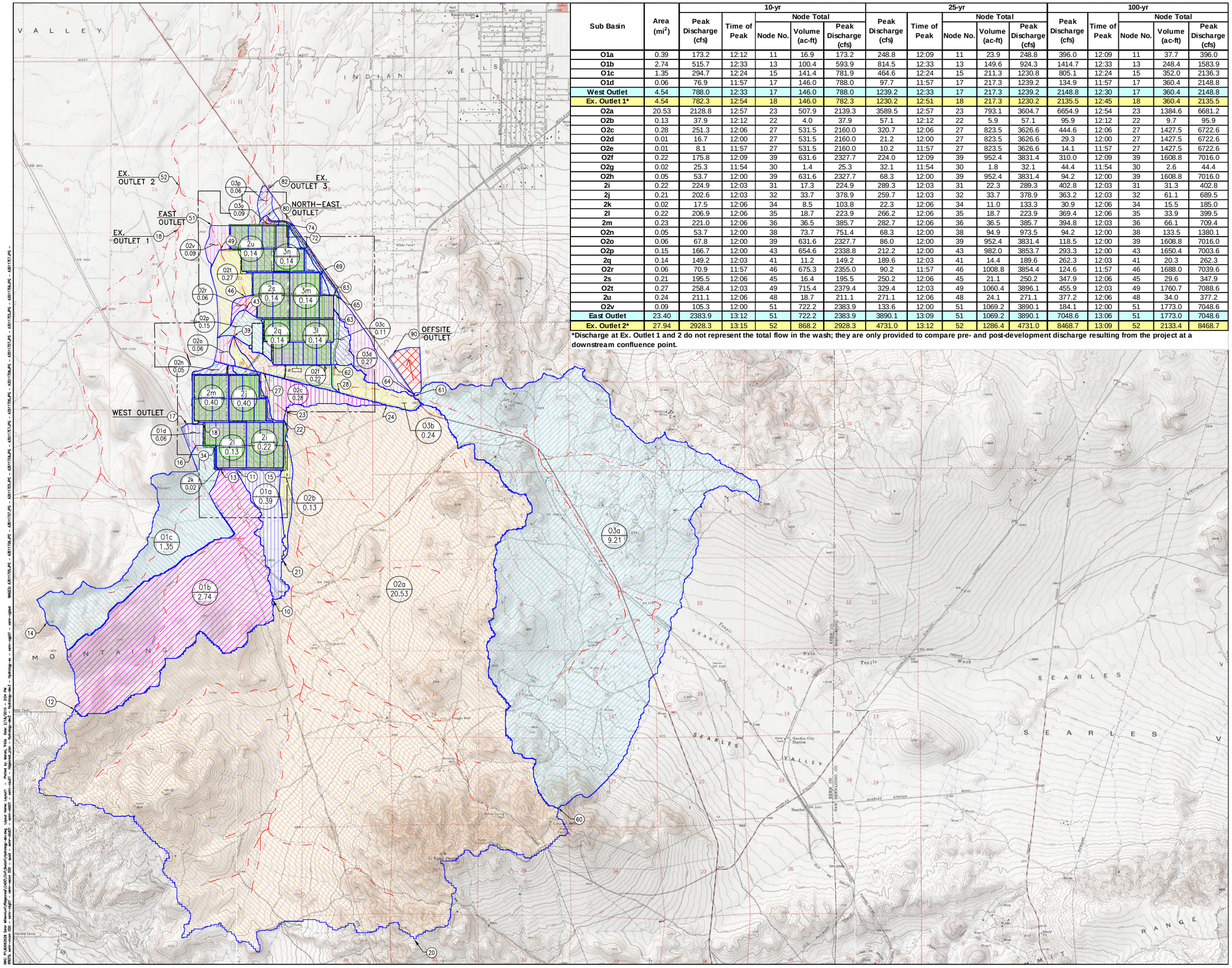

Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 7.000000 River Station 1600.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 6.000000 River Station 1400.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 5.000000 River Station 1200.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 4.000000 River Station 1000.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)


Ridgecrest_Wash_Ex Plan: Plan 01 2/16/2010
River = Ridgecrest Wash Reach = 1 RS = 3.000000 River Station 800.000000 of CHCL1
.04
.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)



Sub Basin	Area (mi^2)	10-yr Peak Discharge (cfs)	10-yr Time of Peak	10-yr Node Total Node No.	10-yr Node Total Volume (ac-ft)	10-yr Node Total Peak Discharge (cfs)	25-yr Peak Discharge (cfs)	25-yr Time of Peak	25-yr Node Total Node No.	25-yr Node Total Volume (ac-ft)	25-yr Node Total Peak Discharge (cfs)	100-yr Peak Discharge (cfs)	100-yr Time of Peak	100-yr Node Total Node No.	100-yr Node Total Volume (ac-ft)	100-yr Node Total Peak Discharge (cfs)
O1a	0.39	173.2	12:12	11	16.9	173.2	248.8	12:09	11	23.9	248.8	396.0	12:09	11	37.7	396.0
O1b	2.74	515.7	12:33	13	100.4	593.9	814.5	12:33	13	149.6	924.3	1414.7	12:33	13	248.4	1583.9
O1c	1.35	294.7	12:24	15	141.4	781.9	464.6	12:24	15	211.3	1230.8	805.1	12:24	15	352.0	2136.3
O1d	0.06	76.9	11:57	17	146.0	788.0	97.7	11:57	17	217.3	1239.2	134.9	11:57	17	360.4	2148.8
West Outlet	4.54	788.0	12:33	17	146.0	788.0	1239.2	12:33	17	217.3	1239.2	2148.8	12:30	17	360.4	2148.8
Ex. Outlet 1*	4.54	782.3	12:54	18	146.0	782.3	1230.2	12:51	18	217.3	1230.2	2135.5	12:45	18	360.4	2135.5
O2a	20.53	2128.8	12:57	23	507.9	2139.3	3589.5	12:57	23	793.1	3604.7	6654.9	12:54	23	1384.6	6681.2
O2b	0.13	37.9	12:12	22	4.0	37.9	57.1	12:12	22	5.9	57.1	95.9	12:12	22	9.7	95.9
O2c	0.28	251.3	12:06	27	531.5	2160.0	320.7	12:06	27	823.5	3626.6	444.6	12:06	27	1427.5	6722.6
O2d	0.01	16.7	12:00	27	531.5	2160.0	21.2	12:00	27	823.5	3626.6	29.3	12:00	27	1427.5	6722.6
O2e	0.01	8.1	11:57	27	531.5	2160.0	10.2	11:57	27	823.5	3626.6	14.1	11:57	27	1427.5	6722.6
O2f	0.22	175.8	12:09	39	631.6	2327.7	224.0	12:09	39	952.4	3831.4	310.0	12:09	39	1608.8	7016.0
O2g	0.02	25.3	11:54	30	1.4	25.3	32.1	11:54	30	1.8	32.1	44.4	11:54	30	2.6	44.4
O2h	0.05	53.7	12:00	39	631.6	2327.7	68.3	12:00	39	952.4	3831.4	94.2	12:00	39	1608.8	7016.0
2i	0.22	224.9	12:03	31	17.3	224.9	289.3	12:03	31	22.3	289.3	402.8	12:03	31	31.3	402.8
2j	0.21	202.6	12:03	32	33.7	378.9	259.7	12:03	32	33.7	378.9	363.2	12:03	32	61.1	689.5
2k	0.02	17.5	12:06	34	8.5	103.8	22.3	12:06	34	11.0	133.3	30.9	12:06	34	15.5	185.0
2l	0.22	206.9	12:06	35	18.7	223.9	266.2	12:06	35	18.7	223.9	369.4	12:06	35	33.9	399.5
2m	0.23	221.0	12:06	36	36.5	385.7	282.7	12:06	36	36.5	385.7	394.8	12:03	36	66.1	709.4
O2n	0.05	53.7	12:00	38	73.7	751.4	68.3	12:00	38	94.9	973.5	94.2	12:00	38	133.5	1380.1
O2o	0.06	67.8	12:00	39	631.6	2327.7	86.0	12:00	39	952.4	3831.4	118.5	12:00	39	1608.8	7016.0
O2p	0.15	166.7	12:00	43	654.6	2338.8	212.2	12:00	43	982.0	3853.7	293.3	12:00	43	1650.4	7003.6
2q	0.14	149.2	12:03	41	11.2	149.2	189.6	12:03	41	14.4	189.6	262.3	12:03	41	20.3	262.3
O2r	0.06	70.9	11:57	46	675.3	2355.0	90.2	11:57	46	1008.8	3854.4	124.6	11:57	46	1688.0	7039.6
2s	0.21	195.5	12:06	45	16.4	195.5	250.2	12:06	45	21.1	250.2	347.9	12:06	45	29.6	347.9
O2t	0.27	258.4	12:03	49	715.4	2379.4	329.4	12:03	49	1060.4	3896.1	455.9	12:03	49	1760.7	7088.6
2u	0.24	211.1	12:06	48	18.7	211.1	271.1	12:06	48	24.1	271.1	377.2	12:06	48	34.0	377.2
O2v	0.09	105.3	12:00	51	722.2	2383.9	133.6	12:00	51	1069.2	3890.1	184.1	12:00	51	1773.0	7048.6
East Outlet	23.40	2383.9	13:12	51	722.2	2383.9	3890.1	13:09	51	1069.2	3890.1	7048.6	13:06	51	1773.0	7048.6
Ex. Outlet 2*	27.94	2928.3	13:15	52	868.2	2928.3	4731.0	13:12	52	1286.4	4731.0	8468.7	13:09	52	2133.4	8468.7

*Discharge at Ex. Outlet 1 and 2 do not represent the total flow in the wash; they are only provided to compare pre- and post-development discharge resulting from the project at a downstream confluence point.

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Bakersfield, Ca 93309
Phone 661.325.7253

www.aecom.com

Designed: T.MARUK
Checked:
Drawn: T.MARUK
Record Drawing by/date:

Revisions:

#	DATE	DESCRIPTION

Prepared for:

Solar Millennium LLC

LEGEND

- 02a / 15.35 — DRAINAGE AREA NAME; AREA (SQ. MILES)
- 01 — NODE NUMBER
- FLOWLINE
- SITE BOUNDARY
- DRAINAGE AREA BOUNDARY
- SOLAR FIELD LOCATION

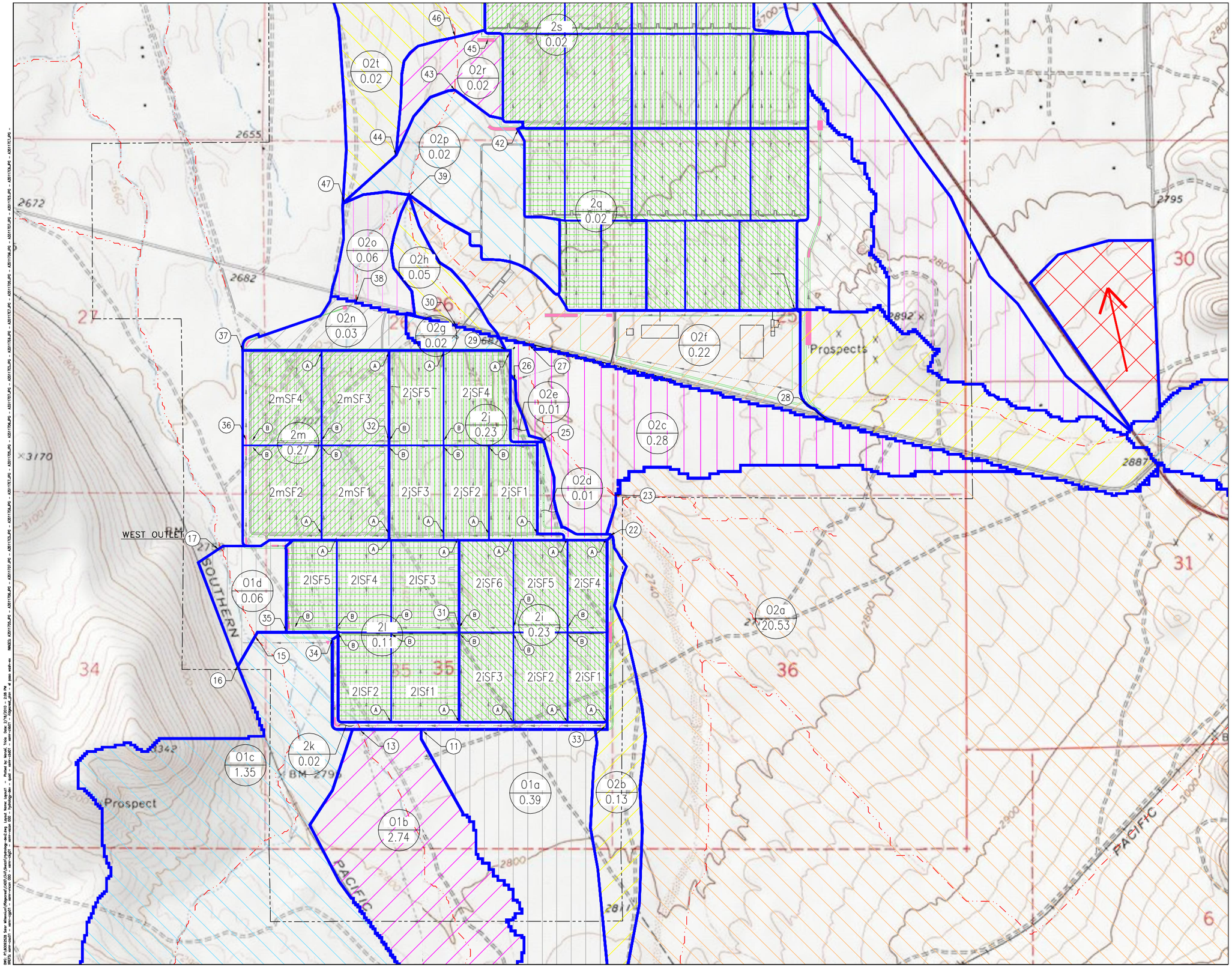
GRAPHIC SCALE:
1"=2000' 0 1000 2000 4000 6000

Ridgecrest Sola Power Project

Kern County, California

Post-Development Hydrology Map

Date: 02/10/10
Sheet: 1 OF 3



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02a — DRAINAGE AREA NAME
15.35 — AREA (SQ. MILES)

01 — NODE NUMBER

FLOWLINE

SITE BOUNDARY

DRAINAGE AREA BOUNDARY

SOLAR FIELD LOCATION

GRAPHIC SCALE:

1"=500' 0 250 500 1000 1500

Ridgecrest Sola Power Project

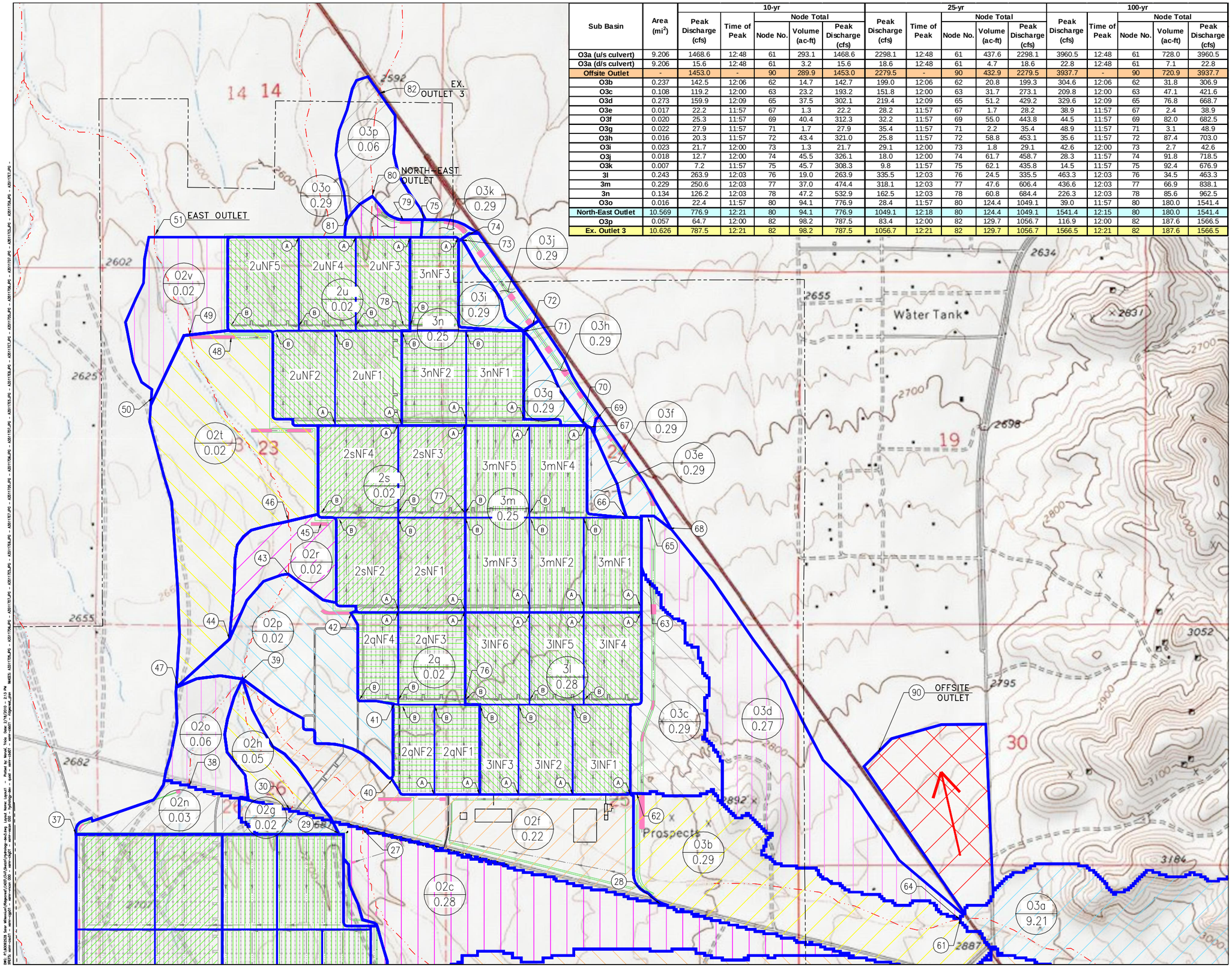
Kern County, California

Post-Development Onsit Hydrology Map (South)

Date: 02/10/10

Sheet: 2 OF 3

Sub Basin	Area (mi^2)	10-yr					25-yr					100-yr				
		Peak Discharge (cfs)	Time of Peak	Node Total			Peak Discharge (cfs)	Time of Peak	Node Total			Peak Discharge (cfs)	Time of Peak	Node Total		
				Node No.	Volume (ac-ft)	Peak Discharge (cfs)			Node No.	Volume (ac-ft)	Peak Discharge (cfs)			Node No.	Volume (ac-ft)	Peak Discharge (cfs)
O3a (u/s culvert)	9.206	1468.6	12:48	61	293.1	1468.6	2298.1	12:48	61	437.6	2298.1	3960.5	12:48	61	728.0	3960.5
O3a (d/s culvert)	9.206	15.6	12:48	61	3.2	15.6	18.6	12:48	61	4.7	18.6	22.8	12:48	61	7.1	22.8
Offsite Outlet	-	1453.0	-	90	289.9	1453.0	2279.5	-	90	432.9	2279.5	3937.7	-	90	720.9	3937.7
O3b	0.237	142.5	12:06	62	14.7	142.7	199.0	12:06	62	20.8	199.3	304.6	12:06	62	31.8	306.9
O3c	0.108	119.2	12:00	63	23.2	193.2	151.8	12:00	63	31.7	273.1	209.8	12:00	63	47.1	421.6
O3d	0.273	159.9	12:09	65	37.5	302.1	219.4	12:09	65	51.2	429.2	329.6	12:09	65	76.8	668.7
O3e	0.017	22.2	11:57	67	1.3	22.2	28.2	11:57	67	1.7	28.2	38.9	11:57	67	2.4	38.9
O3f	0.020	25.3	11:57	69	40.4	312.3	32.2	11:57	69	55.0	443.8	44.5	11:57	69	82.0	682.5
O3g	0.022	27.9	11:57	71	1.7	27.9	35.4	11:57	71	2.2	35.4	48.9	11:57	71	3.1	48.9
O3h	0.016	20.3	11:57	72	43.4	321.0	25.8	11:57	72	58.8	453.1	35.6	11:57	72	87.4	703.0
O3i	0.023	21.7	12:00	73	1.3	21.7	29.1	12:00	73	1.8	29.1	42.6	12:00	73	2.7	42.6
O3j	0.018	12.7	12:00	74	45.5	326.1	18.0	12:00	74	61.7	458.7	28.3	11:57	74	91.8	718.5
O3k	0.007	7.2	11:57	75	45.7	308.3	9.8	11:57	75	62.1	435.8	14.5	11:57	75	92.4	676.9
3l	0.243	263.9	12:03	76	19.0	263.9	335.5	12:03	76	24.5	335.5	463.3	12:03	76	34.5	463.3
3m	0.229	250.6	12:03	77	37.0	474.4	318.1	12:03	77	47.6	606.4	436.6	12:03	77	66.9	838.1
3n	0.134	126.2	12:03	78	47.2	532.9	162.5	12:03	78	60.8	684.4	226.3	12:03	78	85.6	962.5
O3o	0.016	22.4	11:57	80	94.1	776.9	28.4	11:57	80	124.4	1049.1	39.0	11:57	80	180.0	1541.4
North-East Outlet	10.569	776.9	12:21	80	94.1	776.9	1049.1	12:18	80	124.4	1049.1	1541.4	12:15	80	180.0	1541.4
O3p	0.057	64.7	12:00	82	98.2	787.5	83.4	12:00	82	129.7	1056.7	116.9	12:00	82	187.6	1566.5
Ex. Outlet 3	10.626	787.5	12:21	82	98.2	787.5	1056.7	12:21	82	129.7	1056.7	1566.5	12:21	82	187.6	1566.5



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- 01 — NODE NUMBER
- FLOWLINE
- SITE BOUNDARY
- DRAINAGE AREA BOUNDARY
- SOLAR FIELD LOCATION

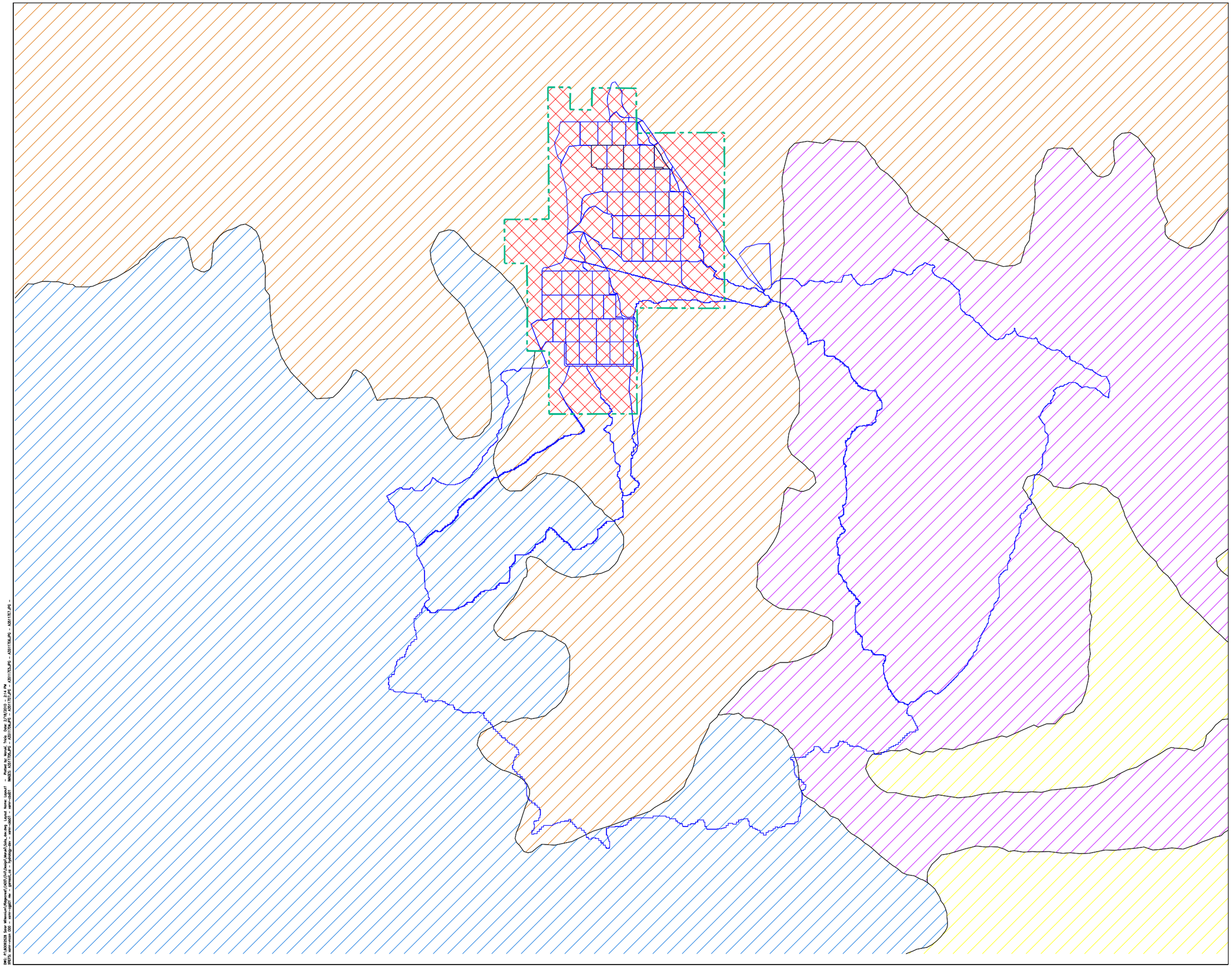
GRAPHIC SCALE:
1"=500' 0 250 500 1000 1500

Ridgecrest Sola Power Project

Kern County, California

Post-Development Onsit Hydrology Map (North)

Date: 02/10/10
Sheet: 3 OF 3



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Record Drawing by/date:

Revisions:

#	DATE	DESCRIPTION

Prepared for:

Solar Millennium LLC

LEGEND

CHAPPARAL, BROADLEAF, POOR COVER
PRORATED SOIL GROUP
%B, %C, %D

- 70, 15, 15 CN=75
- 25, 25, 50 CN=81
- 34, 0, 66 CN=81
- 50, 25, 25 CN=77
- CEMENTED SILTY SAND CN=95 (BASED ON ON-SITE PRELIMINARY GEOTECHNICAL INVESTIGATION REPORT, KLEINFELDER, AUG 2009)
- SITE BOUNDARY
- DRAINAGE AREA BOUNDARY

GRAPHIC SCALE:

1"=2000' 0 1000 2000 4000 6000

Ridgecrest Sola Power Project

Kern County, California

Soils Map Post-Development

Date: 02/10/10

Sheet: 1 OF 1

DWG: P:\60092528 Solar Millennium\Ridgecrest\CADD\Civil\Design\Hydrol\Soils_dev.dwg Layout Name: Layout1 - Plotted by: Maruk, Todd Date: 2/18/2010 - 2:14 PM
PREFN: xrefs-xrefs 000 - xrefs-rgb01 rw - gmsdl.cd - typology.cd - xrefs-cb01 - xrefs-cb01 MAKES: A3011705.JPG - A3011706.JPG - A3011707.JPG - A3011708.JPG - A3011709.JPG - A3011787.JPG -

HMS Input Parameters for Post-Development Hydrology Calculations

Post-Development Hydrology - North-Eastern Drainage Area

Sub-Basin	Area (mi^2)	Length (mi)	L_{CA} (mi)	Elev. Difference (D)	Slope (ft/mi)	n	CN	S=(1000/CN)-10	T_{lag} (hours) = $24n(LL_{CA}/S^{05})^{0.38}$	T_{lag} (mins) = $24n(LL_{CA}/S^{05})^{0.38}$	IA
O3a	9.206	6.36	3.05	1505.00	236.64	0.04	80.97	2.35	1.05	62.91	0.47
O3b	0.237	1.07	0.54	143.00	133.40	0.03	87.19	1.47	0.23	13.83	0.29
O3c	0.108	0.72	0.40	141.13	197.11	0.03	95.00	0.53	0.16	9.82	0.11
O3d	0.273	1.52	0.74	176.46	116.02	0.03	88.82	1.26	0.31	18.32	0.25
O3e	0.017	0.28	0.16	33.00	116.61	0.03	95.00	0.53	0.09	5.42	0.11
O3f	0.020	0.38	0.19	55.00	145.50	0.03	95.00	0.53	0.10	6.14	0.11
O3g	0.022	0.33	0.18	39.00	116.77	0.03	95.00	0.53	0.10	5.94	0.11
O3h	0.016	0.36	0.17	51.00	140.50	0.03	95.00	0.53	0.10	5.81	0.11
O3i	0.023	0.34	0.17	28.00	83.58	0.03	90.04	1.11	0.11	6.31	0.22
O3j	0.018	0.32	0.17	34.00	105.59	0.03	85.22	1.73	0.10	5.87	0.35
O3k	0.007	0.17	0.07	11.60	69.88	0.03	89.29	1.20	0.06	3.51	0.24
3lNF1	0.042	0.41	0.23	14.23	35.05	0.03	95.00	0.53	0.15	8.99	0.11
3lNF2	0.040	0.40	0.23	12.83	32.07	0.03	95.00	0.53	0.15	9.03	0.11
3lNF3	0.029	0.36	0.18	11.75	33.01	0.03	95.00	0.53	0.13	7.87	0.11
3lNF4	0.043	0.41	0.23	15.57	37.98	0.03	95.00	0.53	0.15	8.80	0.11
3lNF5	0.041	0.40	0.23	11.65	29.12	0.03	95.00	0.53	0.15	9.16	0.11
3lNF6	0.048	0.43	0.26	13.28	30.96	0.03	95.00	0.53	0.16	9.74	0.11
3mNF1	0.045	0.41	0.24	15.51	37.83	0.03	95.00	0.53	0.15	8.99	0.11
3mNF2	0.042	0.40	0.24	13.99	35.06	0.03	95.00	0.53	0.15	9.03	0.11
3mNF3	0.050	0.43	0.27	14.00	32.71	0.03	95.00	0.53	0.16	9.81	0.11
3mNF4	0.044	0.41	0.23	18.22	44.77	0.03	95.00	0.53	0.14	8.53	0.11
3mNF5	0.048	0.43	0.26	10.78	25.13	0.03	95.00	0.53	0.17	10.13	0.11
3nNF1	0.046	0.41	0.22	4.21	10.32	0.03	95.00	0.53	0.18	11.09	0.11
3nNF2	0.050	0.43	0.25	3.35	7.83	0.03	95.00	0.53	0.21	12.40	0.11
3nNF3	0.038	0.38	0.20	3.32	8.71	0.03	94.05	0.63	0.18	10.81	0.13
O3o	0.016	0.19	0.07	18.00	95.74	0.03	95.00	0.53	0.06	3.44	0.11
O3p	0.057	0.38	0.172	30.00	79.16	0.03	93.46	0.70	0.11	6.67	0.14

HMS Output for Post-Development Hydrology Calculations

10 Year Flow Rates

Post-Development Hydrology - North-Eastern Drainage Area

Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
3lNF1	0.042	47.80	01Jan2009, 12:00	3.30
3lNF2	0.040	45.50	01Jan2009, 12:00	3.10
3lNF3	0.029	34.60	01Jan2009, 12:00	2.30
3lNF4	0.043	48.90	01Jan2009, 12:00	3.40
3lNF5	0.041	46.60	01Jan2009, 12:00	3.20
3lNF6	0.048	53.00	01Jan2009, 12:00	3.80
3mNF1	0.045	51.20	01Jan2009, 12:00	3.50
3mNF2	0.042	47.80	01Jan2009, 12:00	3.30
3mNF3	0.050	55.20	01Jan2009, 12:00	3.90
3mNF4	0.044	51.40	01Jan2009, 12:00	3.40
3mNF5	0.048	51.10	01Jan2009, 12:03	3.80
3nNF1	0.046	48.50	01Jan2009, 12:03	3.60
3nNF2	0.050	50.10	01Jan2009, 12:03	3.90
3nNF3	0.038	38.30	01Jan2009, 12:03	2.80
Culvert	9.206	15.60	01Jan2009, 12:48	3.20
Ex_Outlet3	10.626	787.50	01Jan2009, 12:21	98.20
J1	9.443	142.70	01Jan2009, 12:06	14.70
J10	9.947	308.30	01Jan2009, 12:21	45.70
J11	0.082	89.90	01Jan2009, 12:00	6.40
J12	0.111	121.00	01Jan2009, 12:03	8.70
J13	0.084	92.00	01Jan2009, 12:00	6.60
J14	0.243	263.90	01Jan2009, 12:03	19.00
J15	0.087	95.50	01Jan2009, 12:00	6.80
J16	0.380	384.10	01Jan2009, 12:06	29.80
J17	0.472	474.40	01Jan2009, 12:06	37.00
J18	0.568	513.10	01Jan2009, 12:12	44.40
J19	0.606	532.90	01Jan2009, 12:12	47.20
J2	9.551	193.20	01Jan2009, 12:12	23.20
J20	10.553	793.00	01Jan2009, 12:15	92.90
J3	9.824	302.10	01Jan2009, 12:09	37.50
J4	0.017	22.20	01Jan2009, 11:57	1.30
J5	9.861	312.30	01Jan2009, 12:12	40.40
J6	0.022	27.90	01Jan2009, 11:57	1.70
J7	9.899	321.00	01Jan2009, 12:15	43.40
J8	0.023	21.70	01Jan2009, 12:00	1.30
J9	9.940	326.10	01Jan2009, 12:18	45.50
NE_Outlet	10.569	776.90	01Jan2009, 12:21	94.10
O3a	9.206	1468.60	01Jan2009, 12:48	293.10
O3b	0.237	142.50	01Jan2009, 12:06	11.50
O3c	0.108	119.20	01Jan2009, 12:00	8.50
O3d	0.273	159.90	01Jan2009, 12:09	14.70
O3e	0.017	22.20	01Jan2009, 11:57	1.30
O3f	0.020	25.30	01Jan2009, 11:57	1.60
O3g	0.022	27.90	01Jan2009, 11:57	1.70
O3h	0.016	20.30	01Jan2009, 11:57	1.30
O3i	0.023	21.70	01Jan2009, 12:00	1.30

Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
O3k	0.007	7.20	01Jan2009, 11:57	0.40
O3o	0.016	22.40	01Jan2009, 11:57	1.30
O3p	0.057	64.70	01Jan2009, 12:00	4.10
R1	9.206	15.60	01Jan2009, 13:09	3.20
R10	9.940	307.30	01Jan2009, 12:21	45.40
R11	9.947	298.80	01Jan2009, 12:21	45.70
R12	0.042	46.80	01Jan2009, 12:03	3.30
R13	0.082	89.70	01Jan2009, 12:03	6.40
R14	0.111	120.80	01Jan2009, 12:03	8.70
R15	0.043	47.90	01Jan2009, 12:03	3.40
R16	0.084	91.60	01Jan2009, 12:03	6.60
R17	0.243	254.00	01Jan2009, 12:09	19.00
R18	0.045	50.10	01Jan2009, 12:03	3.50
R19	0.087	95.50	01Jan2009, 12:03	6.80
R2	9.443	139.10	01Jan2009, 12:12	14.80
R20	0.380	383.80	01Jan2009, 12:06	29.80
R21	0.044	50.50	01Jan2009, 12:03	3.40
R22	0.472	443.60	01Jan2009, 12:12	36.90
R23	0.046	42.40	01Jan2009, 12:06	3.60
R24	0.568	512.70	01Jan2009, 12:12	44.40
R25	0.606	525.50	01Jan2009, 12:15	47.20
R26	10.553	774.30	01Jan2009, 12:21	92.80
R27	10.569	775.60	01Jan2009, 12:21	94.10
R3	9.551	149.70	01Jan2009, 12:12	22.80
R4	9.824	299.70	01Jan2009, 12:12	37.50
R5	0.017	21.80	01Jan2009, 11:57	1.30
R6	9.861	309.70	01Jan2009, 12:15	40.40
R7	0.022	27.60	01Jan2009, 11:57	1.70
R8	9.899	318.10	01Jan2009, 12:18	43.40
R9	0.023	21.60	01Jan2009, 12:00	1.30

HMS Output for Post-Development Hydrology Calculations

25 Year Flow Rates

Post-Development Hydrology - North-Eastern Drainage Area

Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
3lNF1	0.042	60.80	01Jan2009, 12:00	4.20
3lNF2	0.040	57.90	01Jan2009, 12:00	4.00
3lNF3	0.029	44.00	01Jan2009, 12:00	2.90
3lNF4	0.043	62.20	01Jan2009, 12:00	4.30
3lNF5	0.041	59.30	01Jan2009, 12:00	4.10
3lNF6	0.048	67.40	01Jan2009, 12:00	4.80
3mNF1	0.045	65.10	01Jan2009, 12:00	4.50
3mNF2	0.042	60.80	01Jan2009, 12:00	4.20
3mNF3	0.050	70.30	01Jan2009, 12:00	5.00
3mNF4	0.044	65.30	01Jan2009, 12:00	4.40
3mNF5	0.048	65.10	01Jan2009, 12:00	4.80
3nNF1	0.046	61.60	01Jan2009, 12:03	4.60
3nNF2	0.050	63.80	01Jan2009, 12:03	5.00
3nNF3	0.038	49.10	01Jan2009, 12:03	3.70
Culvert	9.206	18.60	01Jan2009, 12:48	4.70
Ex_Outlet3	10.626	1056.70	01Jan2009, 12:21	129.70
J1	9.443	199.30	01Jan2009, 12:06	20.80
J10	9.947	435.80	01Jan2009, 12:18	62.10
J11	0.082	114.30	01Jan2009, 12:00	8.30
J12	0.111	153.20	01Jan2009, 12:03	11.20
J13	0.084	117.40	01Jan2009, 12:00	8.50
J14	0.243	335.50	01Jan2009, 12:03	24.50
J15	0.087	121.90	01Jan2009, 12:00	8.80
J16	0.380	492.00	01Jan2009, 12:06	38.30
J17	0.472	606.40	01Jan2009, 12:06	47.60
J18	0.568	658.80	01Jan2009, 12:12	57.20
J19	0.606	684.40	01Jan2009, 12:12	60.80
J2	9.551	273.10	01Jan2009, 12:09	31.70
J20	10.553	1067.10	01Jan2009, 12:15	122.80
J3	9.824	429.20	01Jan2009, 12:09	51.20
J4	0.017	28.20	01Jan2009, 11:57	1.70
J5	9.861	443.80	01Jan2009, 12:12	55.00
J6	0.022	35.40	01Jan2009, 11:57	2.20
J7	9.899	453.10	01Jan2009, 12:15	58.80
J8	0.023	29.10	01Jan2009, 12:00	1.80
J9	9.940	458.70	01Jan2009, 12:18	61.70
NE_Outlet	10.569	1049.10	01Jan2009, 12:18	124.40
O3a	9.206	2298.10	01Jan2009, 12:48	437.60
O3b	0.237	199.00	01Jan2009, 12:06	16.00
O3c	0.108	151.80	01Jan2009, 12:00	10.90
O3d	0.273	219.40	01Jan2009, 12:09	20.10
O3e	0.017	28.20	01Jan2009, 11:57	1.70
O3f	0.020	32.20	01Jan2009, 11:57	2.00
O3g	0.022	35.40	01Jan2009, 11:57	2.20
O3h	0.016	25.80	01Jan2009, 11:57	1.60
O3i	0.023	29.10	01Jan2009, 12:00	1.80

Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
O3k	0.007	9.80	01Jan2009, 11:57	0.50
O3o	0.016	28.40	01Jan2009, 11:57	1.60
O3p	0.057	83.40	01Jan2009, 12:00	5.30
R1	9.206	18.50	01Jan2009, 13:06	4.70
R10	9.940	434.40	01Jan2009, 12:18	61.50
R11	9.947	420.80	01Jan2009, 12:21	62.00
R12	0.042	59.00	01Jan2009, 12:03	4.20
R13	0.082	113.60	01Jan2009, 12:03	8.30
R14	0.111	153.10	01Jan2009, 12:03	11.20
R15	0.043	60.80	01Jan2009, 12:03	4.30
R16	0.084	117.20	01Jan2009, 12:03	8.50
R17	0.243	321.80	01Jan2009, 12:06	24.50
R18	0.045	63.00	01Jan2009, 12:03	4.50
R19	0.087	121.40	01Jan2009, 12:03	8.80
R2	9.443	197.70	01Jan2009, 12:12	20.80
R20	0.380	491.80	01Jan2009, 12:06	38.30
R21	0.044	63.90	01Jan2009, 12:03	4.40
R22	0.472	571.50	01Jan2009, 12:12	47.50
R23	0.046	54.40	01Jan2009, 12:06	4.60
R24	0.568	658.60	01Jan2009, 12:12	57.20
R25	0.606	675.80	01Jan2009, 12:12	60.80
R26	10.553	1045.40	01Jan2009, 12:18	122.80
R27	10.569	1041.60	01Jan2009, 12:21	124.40
R3	9.551	213.10	01Jan2009, 12:12	31.10
R4	9.824	428.00	01Jan2009, 12:12	51.30
R5	0.017	27.80	01Jan2009, 11:57	1.70
R6	9.861	438.90	01Jan2009, 12:15	55.00
R7	0.022	35.20	01Jan2009, 11:57	2.20
R8	9.899	448.10	01Jan2009, 12:18	58.80
R9	0.023	29.00	01Jan2009, 12:00	1.80

HMS Output for Post-Development Hydrology Calculations

100 Year Flow Rates

Post-Development Hydrology - North-Eastern Drainage Area

Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
3lNF1	0.042	83.90	01Jan2009, 12:00	6.00
3lNF2	0.040	79.90	01Jan2009, 12:00	5.70
3lNF3	0.029	60.60	01Jan2009, 12:00	4.10
3lNF4	0.043	85.90	01Jan2009, 12:00	6.10
3lNF5	0.041	81.90	01Jan2009, 12:00	5.80
3lNF6	0.048	93.20	01Jan2009, 12:00	6.80
3mNF1	0.045	89.90	01Jan2009, 12:00	6.40
3mNF2	0.042	83.90	01Jan2009, 12:00	6.00
3mNF3	0.050	97.10	01Jan2009, 12:00	7.10
3mNF4	0.044	90.10	01Jan2009, 12:00	6.20
3mNF5	0.048	90.10	01Jan2009, 12:00	6.80
3nNF1	0.046	85.00	01Jan2009, 12:03	6.50
3nNF2	0.050	88.20	01Jan2009, 12:03	7.10
3nNF3	0.038	68.50	01Jan2009, 12:03	5.20
Culvert	9.206	22.80	01Jan2009, 12:48	7.10
Ex_Outlet3	10.626	1566.50	01Jan2009, 12:18	187.60
J1	9.443	306.90	01Jan2009, 12:06	31.80
J10	9.947	676.90	01Jan2009, 12:18	92.40
J11	0.082	159.30	01Jan2009, 12:00	11.60
J12	0.111	212.90	01Jan2009, 12:00	15.80
J13	0.084	162.40	01Jan2009, 12:00	11.90
J14	0.243	463.30	01Jan2009, 12:03	34.50
J15	0.087	168.50	01Jan2009, 12:00	12.30
J16	0.380	682.10	01Jan2009, 12:06	53.90
J17	0.472	838.10	01Jan2009, 12:06	66.90
J18	0.568	915.50	01Jan2009, 12:09	80.40
J19	0.606	962.50	01Jan2009, 12:09	85.60
J2	9.551	421.60	01Jan2009, 12:09	47.10
J20	10.553	1572.50	01Jan2009, 12:12	177.90
J3	9.824	668.70	01Jan2009, 12:09	76.80
J4	0.017	38.90	01Jan2009, 11:57	2.40
J5	9.861	682.50	01Jan2009, 12:12	82.00
J6	0.022	48.90	01Jan2009, 11:57	3.10
J7	9.899	703.00	01Jan2009, 12:12	87.40
J8	0.023	42.60	01Jan2009, 12:00	2.70
J9	9.940	718.50	01Jan2009, 12:15	91.80
NE_Outlet	10.569	1541.40	01Jan2009, 12:15	180.00
O3a	9.206	3960.50	01Jan2009, 12:48	728.00
O3b	0.237	304.60	01Jan2009, 12:06	24.70
O3c	0.108	209.80	01Jan2009, 12:00	15.30
O3d	0.273	329.60	01Jan2009, 12:09	30.40
O3e	0.017	38.90	01Jan2009, 11:57	2.40
O3f	0.020	44.50	01Jan2009, 11:57	2.80
O3g	0.022	48.90	01Jan2009, 11:57	3.10
O3h	0.016	35.60	01Jan2009, 11:57	2.30
O3i	0.023	42.60	01Jan2009, 12:00	2.70

Hydrologic Element	Drainage Area (mi^2)	Peak Discharge (cfs)	Time of Peak	Volume (ac-ft)
O3k	0.007	14.50	01Jan2009, 11:57	0.80
O3o	0.016	39.00	01Jan2009, 11:57	2.30
O3p	0.057	116.90	01Jan2009, 12:00	7.60
R1	9.206	22.80	01Jan2009, 13:06	7.20
R10	9.940	674.90	01Jan2009, 12:18	91.60
R11	9.947	659.30	01Jan2009, 12:18	92.20
R12	0.042	81.70	01Jan2009, 12:03	6.00
R13	0.082	157.40	01Jan2009, 12:03	11.60
R14	0.111	211.80	01Jan2009, 12:03	15.80
R15	0.043	83.40	01Jan2009, 12:03	6.10
R16	0.084	161.70	01Jan2009, 12:03	11.90
R17	0.243	447.40	01Jan2009, 12:06	34.50
R18	0.045	87.50	01Jan2009, 12:03	6.40
R19	0.087	166.10	01Jan2009, 12:03	12.30
R2	9.443	302.40	01Jan2009, 12:12	31.80
R20	0.380	682.00	01Jan2009, 12:06	53.90
R21	0.044	87.60	01Jan2009, 12:03	6.20
R22	0.472	795.90	01Jan2009, 12:12	66.80
R23	0.046	74.70	01Jan2009, 12:06	6.50
R24	0.568	914.60	01Jan2009, 12:09	80.40
R25	0.606	957.20	01Jan2009, 12:12	85.60
R26	10.553	1535.80	01Jan2009, 12:18	177.70
R27	10.569	1541.00	01Jan2009, 12:18	180.00
R3	9.551	339.10	01Jan2009, 12:09	46.40
R4	9.824	660.90	01Jan2009, 12:12	76.80
R5	0.017	38.40	01Jan2009, 11:57	2.40
R6	9.861	680.00	01Jan2009, 12:12	82.00
R7	0.022	48.60	01Jan2009, 11:57	3.10
R8	9.899	699.90	01Jan2009, 12:15	87.40
R9	0.023	42.50	01Jan2009, 12:00	2.70

Ridgecrest Solar Plant
Post-Development Hydrology Results

Sub Basin	Area (mi^2)	10-yr					25-yr					100-yr				
		Peak Discharge (cfs)	Time of Peak	Node Total			Peak Discharge (cfs)	Time of Peak	Node Total			Peak Discharge (cfs)	Time of Peak	Node Total		
				Node No.	Volume (ac-ft)	Peak Discharge (cfs)			Node No.	Volume (ac-ft)	Peak Discharge (cfs)			Node No.	Volume (ac-ft)	Peak Discharge (cfs)
O3a (u/s culvert)	9.21	1468.6	12:48	61	293.1	1468.6	2298.1	12:48	61	437.6	2298.1	3960.5	12:48	61	728.0	3960.5
O3a (d/s culvert)	9.21	15.6	12:48	61	3.2	15.6	18.6	12:48	61	4.7	18.6	22.8	12:48	61	7.1	22.8
Offsite Outlet	-	1453.0	-	90	289.9	1453.0	2279.5	-	90	432.9	2279.5	3937.7	-	90	720.9	3937.7
O3b	0.24	142.5	12:06	62	14.7	142.7	199.0	12:06	62	20.8	199.3	304.6	12:06	62	31.8	306.9
O3c	0.11	119.2	12:00	63	23.2	193.2	151.8	12:00	63	31.7	273.1	209.8	12:00	63	47.1	421.6
O3d	0.27	159.9	12:09	65	37.5	302.1	219.4	12:09	65	51.2	429.2	329.6	12:09	65	76.8	668.7
O3e	0.02	22.2	11:57	67	1.3	22.2	28.2	11:57	67	1.7	28.2	38.9	11:57	67	2.4	38.9
O3f	0.02	25.3	11:57	69	40.4	312.3	32.2	11:57	69	55.0	443.8	44.5	11:57	69	82.0	682.5
O3g	0.02	27.9	11:57	71	1.7	27.9	35.4	11:57	71	2.2	35.4	48.9	11:57	71	3.1	48.9
O3h	0.02	20.3	11:57	72	43.4	321.0	25.8	11:57	72	58.8	453.1	35.6	11:57	72	87.4	703.0
O3i	0.02	21.7	12:00	73	1.3	21.7	29.1	12:00	73	1.8	29.1	42.6	12:00	73	2.7	42.6
O3j	0.02	12.7	12:00	74	45.5	326.1	18.0	12:00	74	61.7	458.7	28.3	11:57	74	91.8	718.5
O3k	0.01	7.2	11:57	75	45.7	308.3	9.8	11:57	75	62.1	435.8	14.5	11:57	75	92.4	676.9
3l	0.24	263.9	12:03	76	19.0	263.9	335.5	12:03	76	24.5	335.5	463.3	12:03	76	34.5	463.3
3m	0.23	250.6	12:03	77	37.0	474.4	318.1	12:03	77	47.6	606.4	436.6	12:03	77	66.9	838.1
3n	0.13	126.2	12:03	78	47.2	532.9	162.5	12:03	78	60.8	684.4	226.3	12:03	78	85.6	962.5
O3o	0.02	22.4	11:57	80	94.1	776.9	28.4	11:57	80	124.4	1049.1	39.0	11:57	80	180.0	1541.4
North-East Outlet	10.57	776.9	12:21	80	94.1	776.9	1049.1	12:18	80	124.4	1049.1	1541.4	12:15	80	180.0	1541.4
O3p	0.06	64.7	12:00	82	98.2	787.5	83.4	12:00	82	129.7	1056.7	116.9	12:00	82	187.6	1566.5
Ex. Outlet 3	10.63	787.5	12:21	82	98.2	787.5	1056.7	12:21	82	129.7	1056.7	1566.5	12:21	82	187.6	1566.5

NORTH RIDGECREST WASH – POST-DEVELOPMENT CONDITIONS

A detailed hydrologic analysis was also prepared for the post-development conditions to illustrate the affect that the project may have on the peak discharge and flood levels in North Ridgecrest Wash, downstream from the project site. The post-development hydrology included a tributary area of 10.63 square miles with a resulting 1% chance discharge of 1,566.5 cfs at the downstream end. The decrease in peak discharge can be attributed to the modifications in the way the water is routed through the site.

The proposed north solar field is located directly on the existing wash, so a new North-East Channel will be constructed to direct the offsite storm flows around the field and will discharge back into North Ridgecrest Wash at a point downstream from the site. The North-East Channel will include drop structures in order to dissipate the energy and replicate the flow characteristics in the existing wash. A hydraulic analysis of the proposed channel and the downstream portion of the wash was performed with HEC-RAS. The results show a downstream water surface level of 2582.08 ft. The resulting 1% floodplain is shown on the FIRM Panels.

NOTES TO USERS

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. The **community map repository** should be consulted for possible updated or additional flood hazard information.

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 and/or Summary of Stillwater Elevations 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. These BFEs 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 report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). 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 jurisdiction. 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.

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 National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures.** Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 11. The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum.** For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, MD 20910-3282

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242,** or visit its website at http://www.ngs.noaa.gov/.

Base map information shown on this FIRM was derived from USDA - Farm Service Agency - Aerial Photography Field Office dated 2005 and from U.S. Geological Survey Digital Orthophoto Quadrangles produced at a scale of 1:12,000 from photography dated 1992 or later.

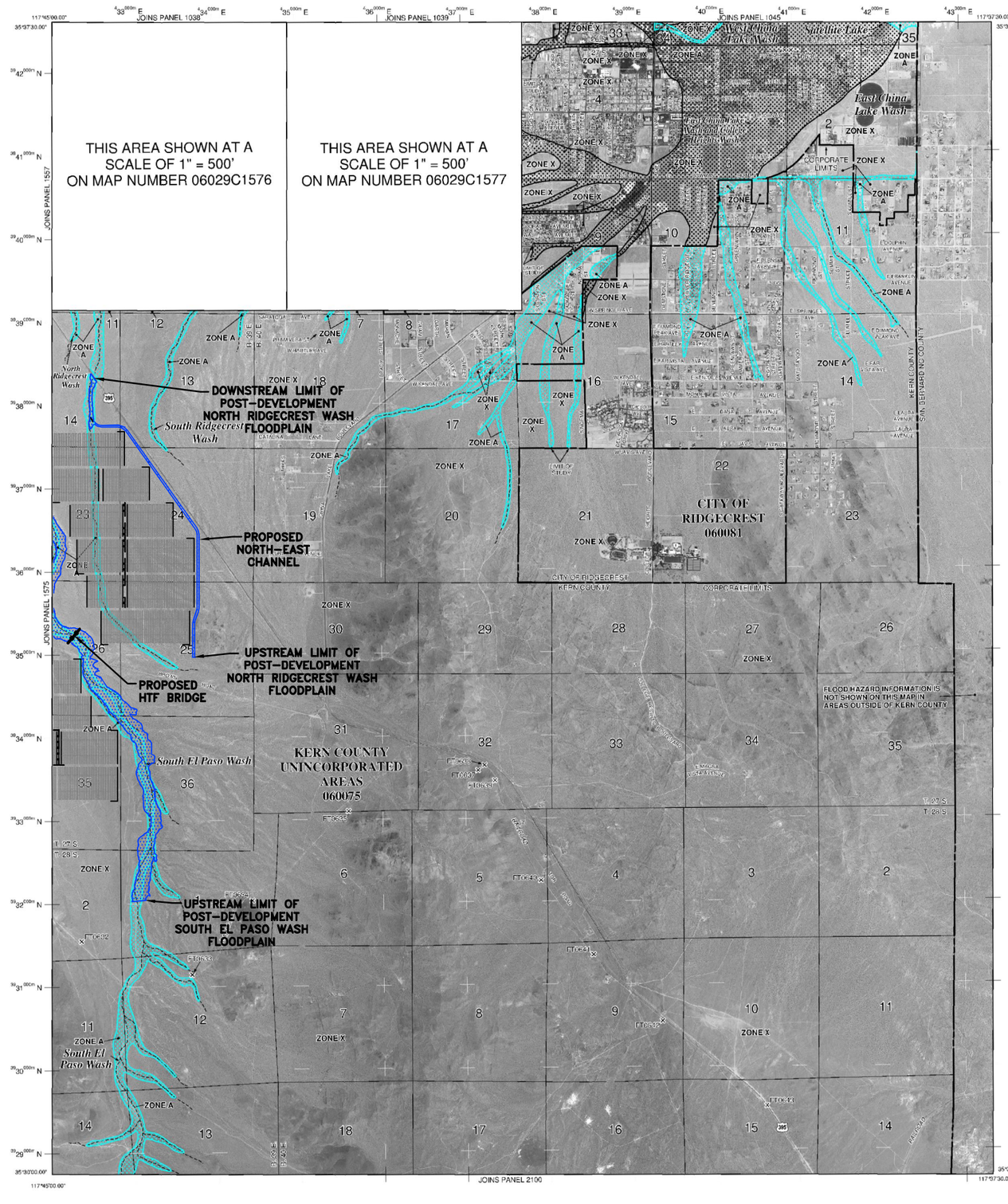
This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables *in the Flood Insurance Study report (which contains authoritative hydraulic data)* may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a *Flood Insurance Study report*, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at http://www.msc.fema.gov/.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/.



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance 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 AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

1% annual chance floodplain boundary
0.2% annual chance floodplain boundary
Floodway boundary
Zone D boundary
CBRS and OPA boundary
Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.

~~ 513 ~~~	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

(A)———(A)	Cross section line
(23)- - - - - -(23)	Transect line
97°07'30", 32°22'30"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
4275000mN	1000-meter Universal Transverse Mercator grid ticks, zone 11
6000000 M	5000-foot grid ticks: California State Plane coordinate system, V zone (FIPSZONE 0405), Lambert Conformal Conic
DX5510 ×	Bench mark (see explanation in Notes to Users section of this FIRM panel)
• M1.5	River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 26, 2008
EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 2000'

1000 0 2000 4000 FEET

600 0 600 1200 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 1600E

FIRM
FLOOD INSURANCE RATE MAP
KERN COUNTY, CALIFORNIA
AND INCORPORATED AREAS

PANEL 1600 OF 4125
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
KERN COUNTY	060075	1600	F
RIDGECREST, CITY OF	060081	1600	E

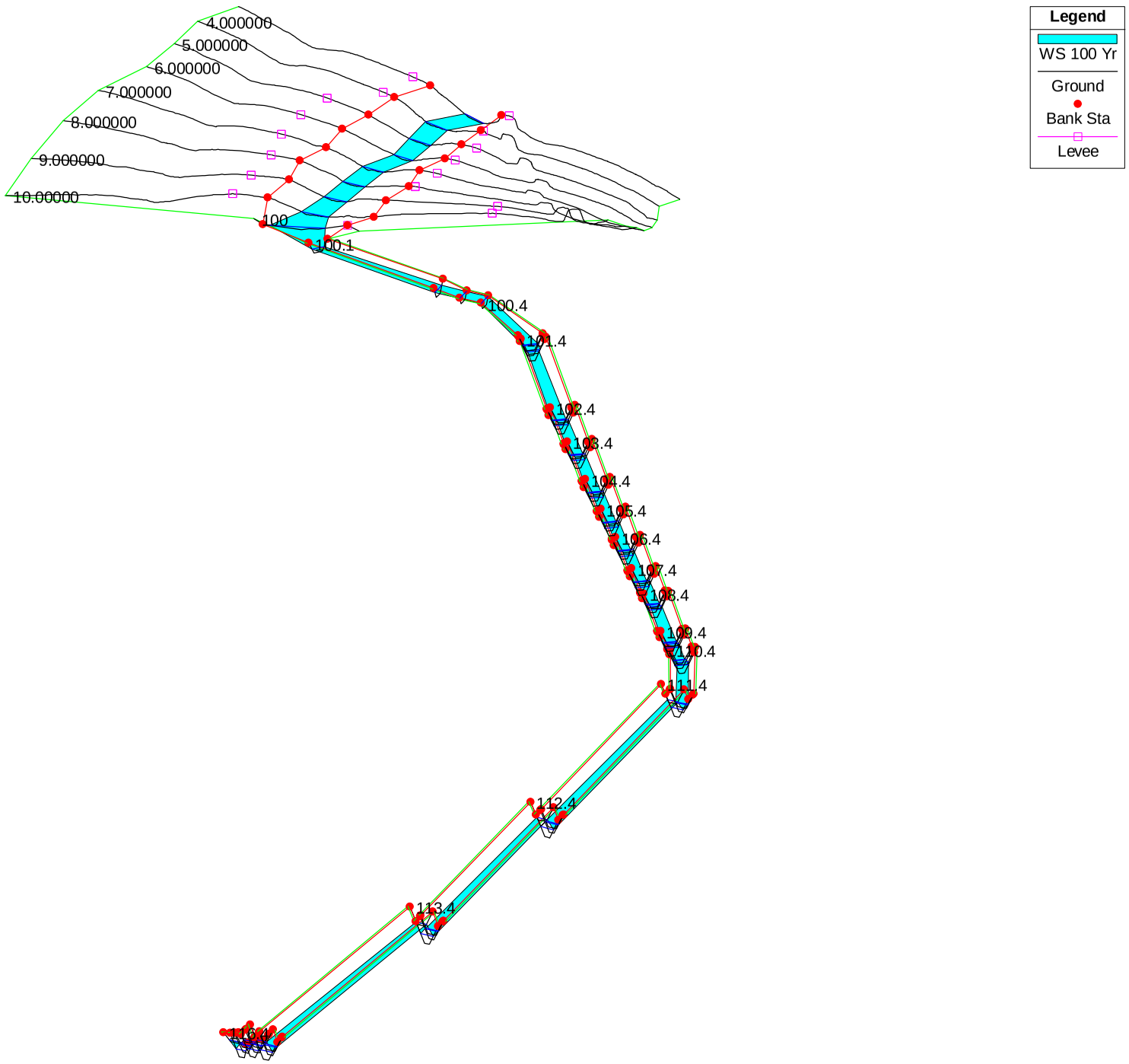
Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

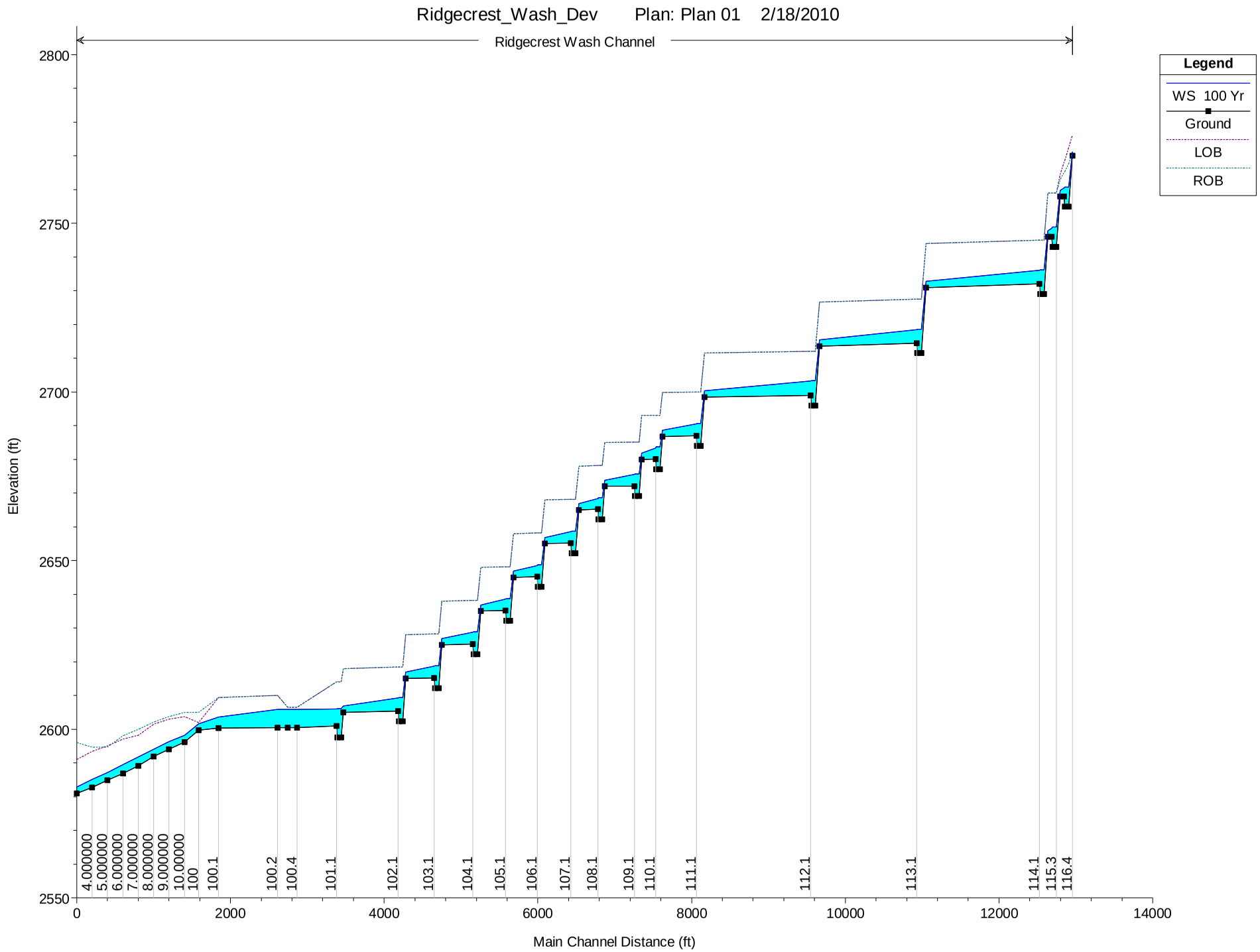
MAP NUMBER
06029C1600E

EFFECTIVE DATE
SEPTEMBER 26, 2008

Federal Emergency Management Agency

Ridgecrest_Wash_Dev Plan: Plan 01 2/12/2010




Ridgecrest_Wash_Dev Plan: Plan 01 2/18/2010
Ridgecrest Wash Channel
Legend
WS 100 Yr
Ground
LOB
ROB
Elevation (ft)
Main Channel Distance (ft)
2800
2750
2700
2650
2600
2550
0
2000
4000
6000
8000
10000
12000
14000
4.000000
5.000000
6.000000
7.000000
8.000000
9.000000
10.00000
100
100.1
100.2
100.4
101.1
102.1
103.1
104.1
105.1
106.1
107.1
108.1
109.1
110.1
111.1
112.1
113.1
114.1
115.3
116.4

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
North Ridgecrest Wash - Post-development Conditions
10-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Dev. Ridgecrest Wash	Channel	116.4	10 Yr	302.1	2770	2770.82	0.82	2770.94	2771.34	0.024996	5.78	52.22	82.17	1.28
Dev. Ridgecrest Wash	Channel	116.3	10 Yr	302.1	2755	2759.86	4.86	2756.5	2759.9	0.000202	1.66	181.93	47.94	0.15
Dev. Ridgecrest Wash	Channel	116.2	10 Yr	302.1	2755	2759.85	4.85	0	2759.89	0.000177	1.52	198.73	54.93	0.14
Dev. Ridgecrest Wash	Channel	116.1	10 Yr	302.1	2758	2759.66	1.66	2759.09	2759.87	0.003169	3.64	82.97	55.01	0.52
Dev. Ridgecrest Wash	Channel	115.4	10 Yr	302.1	2757.99	2759.06	1.07	2759.06	2759.55	0.013453	5.61	53.85	55.57	1
Dev. Ridgecrest Wash	Channel	115.3	10 Yr	302.1	2742.99	2747.88	4.89	2744.47	2747.91	0.000168	1.48	203.69	56.33	0.14
Dev. Ridgecrest Wash	Channel	115.2	10 Yr	302.1	2742.99	2747.87	4.88	0	2747.91	0.000169	1.49	203.21	56.28	0.14
Dev. Ridgecrest Wash	Channel	115.1	10 Yr	302.1	2745.99	2747.69	1.7	2747.08	2747.88	0.002927	3.55	85.06	55.19	0.5
Dev. Ridgecrest Wash	Channel	114.4	10 Yr	302.1	2745.98	2747.07	1.09	2747.07	2747.58	0.01317	5.74	52.64	51.54	1
Dev. Ridgecrest Wash	Channel	114.3	10 Yr	302.1	2729.05	2734.85	5.8	2730.53	2734.87	0.000087	1.17	257.42	61.79	0.1
Dev. Ridgecrest Wash	Channel	114.2	10 Yr	302.1	2729.05	2734.84	5.79	0	2734.87	0.000087	1.17	257.15	61.76	0.1
Dev. Ridgecrest Wash	Channel	114.1	10 Yr	302.1	2732.05	2734.79	2.74	2733.14	2734.86	0.000561	2.07	145.99	61.46	0.24
Dev. Ridgecrest Wash	Channel	113.4	10 Yr	302.1	2730.95	2732.04	1.09	2732.04	2732.55	0.01317	5.74	52.64	51.54	1
Dev. Ridgecrest Wash	Channel	113.3	10 Yr	302.1	2711.5	2717.26	5.76	2712.98	2717.29	0.000089	1.18	255.32	61.59	0.1
Dev. Ridgecrest Wash	Channel	113.2	10 Yr	302.1	2711.5	2717.26	5.76	0	2717.28	0.000089	1.18	255.04	61.56	0.1
Dev. Ridgecrest Wash	Channel	113.1	10 Yr	302.1	2714.5	2717.21	2.71	2715.59	2717.28	0.000588	2.1	143.77	61.24	0.24
Dev. Ridgecrest Wash	Channel	112.4	10 Yr	302.1	2713.6	2714.69	1.09	2714.69	2715.2	0.01317	5.74	52.64	51.54	1
Dev. Ridgecrest Wash	Channel	112.3	10 Yr	302.1	2696	2701.97	5.97	2697.48	2701.99	0.000078	1.13	268.23	62.83	0.1
Dev. Ridgecrest Wash	Channel	112.2	10 Yr	302.1	2696	2701.97	5.97	0	2701.99	0.000078	1.13	267.99	62.81	0.1
Dev. Ridgecrest Wash	Channel	112.1	10 Yr	302.1	2699	2701.93	2.93	2700.09	2701.98	0.000449	1.92	157.29	62.55	0.21
Dev. Ridgecrest Wash	Channel	111.4	10 Yr	312.3	2698.5	2699.61	1.11	2699.61	2700.14	0.013136	5.8	53.8	51.68	1
Dev. Ridgecrest Wash	Channel	111.3	10 Yr	312.3	2684	2689.5	5.5	2685.51	2689.52	0.000115	1.31	238.97	59.97	0.12
Dev. Ridgecrest Wash	Channel	111.2	10 Yr	312.3	2684	2689.49	5.49	0	2689.52	0.000115	1.31	238.62	59.94	0.12
Dev. Ridgecrest Wash	Channel	111.1	10 Yr	312.3	2687	2689.41	2.41	2688.11	2689.51	0.000938	2.48	125.94	59.47	0.3
Dev. Ridgecrest Wash	Channel	110.4	10 Yr	312.3	2686.8	2687.91	1.11	2687.91	2688.44	0.013136	5.8	53.8	51.68	1
Dev. Ridgecrest Wash	Channel	110.3	10 Yr	312.3	2677.1	2682.61	5.51	2678.61	2682.63	0.000114	1.3	239.68	60.04	0.11
Dev. Ridgecrest Wash	Channel	110.2	10 Yr	312.3	2677.1	2682.6	5.5	0	2682.63	0.000114	1.3	239.32	60.01	0.12
Dev. Ridgecrest Wash	Channel	110.1	10 Yr	312.3	2680.1	2682.37	2.27	2681.59	2682.6	0.0028	3.89	80.25	43.75	0.51
Dev. Ridgecrest Wash	Channel	109.4	10 Yr	312.3	2680	2681.11	1.11	2681.11	2681.64	0.013136	5.8	53.8	51.68	1
Dev. Ridgecrest Wash	Channel	109.3	10 Yr	312.3	2669.1	2674.58	5.48	2670.61	2674.61	0.000116	1.31	238.04	59.88	0.12
Dev. Ridgecrest Wash	Channel	109.2	10 Yr	312.3	2669.1	2674.57	5.47	0	2674.6	0.000116	1.31	237.68	59.84	0.12
Dev. Ridgecrest Wash	Channel	109.1	10 Yr	312.3	2672.1	2674.49	2.39	0	2674.59	0.000961	2.5	124.94	59.37	0.3
Dev. Ridgecrest Wash	Channel	108.4	10 Yr	312.3	2672	2673.11	1.11	2673.11	2673.64	0.013136	5.8	53.8	51.68	1
Dev. Ridgecrest Wash	Channel	108.3	10 Yr	312.3	2662.2	2667.48	5.28	2663.71	2667.51	0.000134	1.38	226.2	58.68	0.12
Dev. Ridgecrest Wash	Channel	108.2	10 Yr	312.3	2662.2	2667.47	5.27	0	2667.5	0.000134	1.38	225.8	58.64	0.12
Dev. Ridgecrest Wash	Channel	108.1	10 Yr	312.3	2665.2	2667.37	2.17	2666.31	2667.49	0.00135	2.79	111.74	58.02	0.35
Dev. Ridgecrest Wash	Channel	107.4	10 Yr	321	2665	2666.13	1.13	2666.13	2666.67	0.013162	5.87	54.71	51.78	1.01
Dev. Ridgecrest Wash	Channel	107.3	10 Yr	321	2652.2	2657.62	5.42	2653.74	2657.64	0.000128	1.37	234.17	59.49	0.12
Dev. Ridgecrest Wash	Channel	107.2	10 Yr	321	2652.2	2657.61	5.41	0	2657.64	0.000129	1.37	233.78	59.45	0.12
Dev. Ridgecrest Wash	Channel	107.1	10 Yr	321	2655.2	2657.52	2.32	2656.33	2657.63	0.001138	2.67	120.34	58.9	0.33
Dev. Ridgecrest Wash	Channel	106.4	10 Yr	321	2655	2656.13	1.13	2656.13	2656.67	0.013162	5.87	54.71	51.78	1.01

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
North Ridgecrest Wash - Post-development Conditions
10-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Dev. Ridgecrest Wash	Channel	106.3	10 Yr	321	2642.2	2647.58	5.38	2643.74	2647.61	0.000132	1.38	231.88	59.26	0.12
Dev. Ridgecrest Wash	Channel	106.2	10 Yr	321	2642.2	2647.57	5.37	0	2647.6	0.000132	1.39	231.48	59.22	0.12
Dev. Ridgecrest Wash	Channel	106.1	10 Yr	321	2645.2	2647.47	2.27	2646.33	2647.59	0.001215	2.73	117.77	58.64	0.34
Dev. Ridgecrest Wash	Channel	105.4	10 Yr	321	2645	2646.13	1.13	2646.13	2646.67	0.013162	5.87	54.71	51.78	1.01
Dev. Ridgecrest Wash	Channel	105.3	10 Yr	321	2632.2	2637.6	5.4	2633.74	2637.63	0.00013	1.38	233.04	59.38	0.12
Dev. Ridgecrest Wash	Channel	105.2	10 Yr	321	2632.2	2637.59	5.39	0	2637.62	0.00013	1.38	232.65	59.34	0.12
Dev. Ridgecrest Wash	Channel	105.1	10 Yr	321	2635.2	2637.5	2.3	2636.33	2637.61	0.001175	2.7	119.07	58.77	0.33
Dev. Ridgecrest Wash	Channel	104.4	10 Yr	321	2635	2636.13	1.13	2636.13	2636.67	0.013162	5.87	54.71	51.78	1.01
Dev. Ridgecrest Wash	Channel	104.3	10 Yr	321	2622.2	2627.7	5.5	2623.74	2627.73	0.00012	1.34	239.41	60.02	0.12
Dev. Ridgecrest Wash	Channel	104.2	10 Yr	321	2622.2	2627.7	5.5	0	2627.73	0.000121	1.34	239.05	59.98	0.12
Dev. Ridgecrest Wash	Channel	104.1	10 Yr	321	2625.2	2627.61	2.41	2626.33	2627.72	0.000986	2.54	126.13	59.49	0.31
Dev. Ridgecrest Wash	Channel	103.4	10 Yr	326.1	2625	2626.14	1.14	2626.14	2626.68	0.013051	5.89	55.41	51.86	1
Dev. Ridgecrest Wash	Channel	103.3	10 Yr	326.1	2612.2	2617.67	5.47	2613.75	2617.7	0.000127	1.37	237.48	59.82	0.12
Dev. Ridgecrest Wash	Channel	103.2	10 Yr	326.1	2612.2	2617.66	5.46	0	2617.69	0.000128	1.38	237.09	59.78	0.12
Dev. Ridgecrest Wash	Channel	103.1	10 Yr	326.1	2615.2	2617.58	2.38	2616.34	2617.68	0.001077	2.63	123.8	59.25	0.32
Dev. Ridgecrest Wash	Channel	102.4	10 Yr	326.1	2615	2616.14	1.14	2616.14	2616.68	0.013051	5.89	55.41	51.86	1
Dev. Ridgecrest Wash	Channel	102.3	10 Yr	326.1	2602.4	2608.1	5.7	2603.95	2608.13	0.000108	1.3	251.65	61.23	0.11
Dev. Ridgecrest Wash	Channel	102.2	10 Yr	326.1	2602.4	2608.1	5.7	0	2608.13	0.000109	1.3	251.31	61.19	0.11
Dev. Ridgecrest Wash	Channel	102.1	10 Yr	326.1	2605.4	2608.03	2.63	2606.54	2608.12	0.000755	2.34	139.21	60.79	0.27
Dev. Ridgecrest Wash	Channel	101.4	10 Yr	326.1	2604.99	2606.13	1.14	2606.13	2606.67	0.013051	5.89	55.41	51.86	1
Dev. Ridgecrest Wash	Channel	101.3	10 Yr	326.1	2597.6	2604.42	6.82	2599.16	2604.44	0.000055	1.02	320.25	66.92	0.08
Dev. Ridgecrest Wash	Channel	101.2	10 Yr	326.1	2597.6	2604.42	6.82	0	2604.43	0.000055	1.02	320.07	66.9	0.08
Dev. Ridgecrest Wash	Channel	101.1	10 Yr	326.1	2601	2604.38	3.38	0	2604.43	0.000315	1.75	186.46	65.29	0.18
Dev. Ridgecrest Wash	Channel	100.4	10 Yr	308.3	2600.5	2604.27	3.77	0	2604.3	0.000192	1.45	211.96	67.59	0.14
Dev. Ridgecrest Wash	Channel	100.3	10 Yr	308.3	2600.48	2604.24	3.76	0	2604.28	0.000193	1.46	211.78	67.57	0.14
Dev. Ridgecrest Wash	Channel	100.2	10 Yr	308.3	2600.45	2604.22	3.77	0	2604.25	0.000192	1.45	212.04	67.6	0.14
Dev. Ridgecrest Wash	Channel	100.1	10 Yr	776.9	2600.31	2602.94	2.63	0	2603.42	0.004318	5.59	138.86	60.76	0.65
Dev. Ridgecrest Wash	Channel	100	10 Yr	776.9	2599.7	2601.15	1.45	2601.15	2601.51	0.014521	4.81	161.47	223.08	1
Dev. Ridgecrest Wash	Channel	10	10 Yr	787.5	2596.15	2597.67	1.52	2597.82	2598.32	0.020795	6.47	121.65	140.94	1.23
Dev. Ridgecrest Wash	Channel	9	10 Yr	787.5	2593.98	2595.68	1.7	2595.64	2596.16	0.011307	5.54	142.2	131.82	0.94
Dev. Ridgecrest Wash	Channel	8	10 Yr	787.5	2591.87	2593.5	1.63	2593.44	2593.96	0.010629	5.42	145.42	133.09	0.91
Dev. Ridgecrest Wash	Channel	7	10 Yr	787.5	2589.07	2591.13	2.06	2591.13	2591.65	0.012656	5.75	136.94	130.51	0.99
Dev. Ridgecrest Wash	Channel	6	10 Yr	787.5	2586.9	2588.9	2	2588.8	2589.37	0.010239	5.52	142.7	123.44	0.9
Dev. Ridgecrest Wash	Channel	5	10 Yr	787.5	2584.84	2586.54	1.7	2586.54	2587.05	0.01324	5.71	137.99	137.62	1
Dev. Ridgecrest Wash	Channel	4	10 Yr	787.5	2582.77	2584.45	1.68	2584.27	2584.8	0.008295	4.69	167.96	158.43	0.8
Dev. Ridgecrest Wash	Channel	3	10 Yr	787.5	2580.95	2582.26	1.31	2582.26	2582.74	0.012883	5.62	140.21	140.35	0.99

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
North Ridgecrest Wash - Post-development Conditions
25-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Dev. Ridgecrest Wash	Channel	116.4	25 Yr	429.2	2770	2770.99	0.99	2771.15	2771.63	0.025022	6.43	66.79	89.84	1.31
Dev. Ridgecrest Wash	Channel	116.3	25 Yr	429.2	2755	2760.22	5.22	2756.88	2760.29	0.000068	2.15	199.62	49.5	0.19
Dev. Ridgecrest Wash	Channel	116.2	25 Yr	429.2	2755	2760.22	5.22	0	2760.28	0.000059	1.95	219.62	57.08	0.18
Dev. Ridgecrest Wash	Channel	116.1	25 Yr	429.2	2758	2759.98	1.98	2759.37	2760.26	0.003508	4.26	100.78	56.93	0.56
Dev. Ridgecrest Wash	Channel	115.4	25 Yr	429.2	2757.99	2759.33	1.34	2759.33	2759.93	0.0125	6.2	69.27	58.25	1
Dev. Ridgecrest Wash	Channel	115.3	25 Yr	429.2	2742.99	2748.27	5.28	2744.83	2748.32	0.000055	1.9	225.95	58.66	0.17
Dev. Ridgecrest Wash	Channel	115.2	25 Yr	429.2	2742.99	2748.26	5.27	0	2748.32	0.000055	1.9	225.78	58.64	0.17
Dev. Ridgecrest Wash	Channel	115.1	25 Yr	429.2	2745.99	2748.04	2.05	2747.36	2748.3	0.003124	4.1	104.58	57.27	0.54
Dev. Ridgecrest Wash	Channel	114.4	25 Yr	429.2	2745.98	2747.35	1.37	2747.35	2747.98	0.012431	6.41	67	53.19	1.01
Dev. Ridgecrest Wash	Channel	114.3	25 Yr	429.2	2729.05	2735.39	6.34	2730.89	2735.42	0.000027	1.47	291.79	65.04	0.12
Dev. Ridgecrest Wash	Channel	114.2	25 Yr	429.2	2729.05	2735.39	6.34	0	2735.42	0.000027	1.47	291.69	65.03	0.12
Dev. Ridgecrest Wash	Channel	114.1	25 Yr	429.2	2732.05	2735.33	3.28	2733.42	2735.42	0.000608	2.39	179.72	64.67	0.25
Dev. Ridgecrest Wash	Channel	113.4	25 Yr	429.2	2730.95	2732.32	1.37	2732.32	2732.95	0.012431	6.41	67	53.19	1.01
Dev. Ridgecrest Wash	Channel	113.3	25 Yr	429.2	2711.5	2717.79	6.29	2713.34	2717.82	0.000028	1.49	288.48	64.74	0.12
Dev. Ridgecrest Wash	Channel	113.2	25 Yr	429.2	2711.5	2717.79	6.29	0	2717.82	0.000028	1.49	288.38	64.73	0.12
Dev. Ridgecrest Wash	Channel	113.1	25 Yr	429.2	2714.5	2717.72	3.22	2715.87	2717.82	0.000645	2.44	176.24	64.34	0.26
Dev. Ridgecrest Wash	Channel	112.4	25 Yr	429.2	2713.6	2714.97	1.37	2714.97	2715.6	0.012431	6.41	67	53.19	1.01
Dev. Ridgecrest Wash	Channel	112.3	25 Yr	429.2	2696	2702.53	6.53	2697.84	2702.56	0.000024	1.41	303.9	66.15	0.12
Dev. Ridgecrest Wash	Channel	112.2	25 Yr	429.2	2696	2702.52	6.52	0	2702.56	0.000024	1.41	303.81	66.14	0.12
Dev. Ridgecrest Wash	Channel	112.1	25 Yr	429.2	2699	2702.47	3.47	2700.37	2702.55	0.000496	2.23	192.42	65.83	0.23
Dev. Ridgecrest Wash	Channel	111.4	25 Yr	443.8	2698.5	2699.9	1.4	2699.9	2700.55	0.01233	6.47	68.63	53.37	1.01
Dev. Ridgecrest Wash	Channel	111.3	25 Yr	443.8	2684	2689.96	5.96	2685.88	2690.01	0.000037	1.66	267.68	62.78	0.14
Dev. Ridgecrest Wash	Channel	111.2	25 Yr	443.8	2684	2689.96	5.96	0	2690	0.000037	1.66	267.56	62.77	0.14
Dev. Ridgecrest Wash	Channel	111.1	25 Yr	443.8	2687	2689.86	2.86	2688.4	2689.99	0.001042	2.89	153.5	62.19	0.32
Dev. Ridgecrest Wash	Channel	110.4	25 Yr	443.8	2686.8	2688.2	1.4	2688.2	2688.85	0.01233	6.47	68.63	53.37	1.01
Dev. Ridgecrest Wash	Channel	110.3	25 Yr	443.8	2677.1	2683.07	5.97	2678.98	2683.11	0.000037	1.66	268.05	62.81	0.14
Dev. Ridgecrest Wash	Channel	110.2	25 Yr	443.8	2677.1	2683.07	5.97	0	2683.11	0.000037	1.66	267.93	62.8	0.14
Dev. Ridgecrest Wash	Channel	110.1	25 Yr	443.8	2680.1	2682.76	2.66	2681.95	2683.08	0.003162	4.52	98.09	46.67	0.55
Dev. Ridgecrest Wash	Channel	109.4	25 Yr	443.8	2680	2681.4	1.4	2681.4	2682.05	0.01233	6.47	68.63	53.37	1.01
Dev. Ridgecrest Wash	Channel	109.3	25 Yr	443.8	2669.1	2675.04	5.94	2670.98	2675.09	0.000037	1.67	266.44	62.66	0.14
Dev. Ridgecrest Wash	Channel	109.2	25 Yr	443.8	2669.1	2675.04	5.94	0	2675.09	0.000037	1.67	266.32	62.65	0.14
Dev. Ridgecrest Wash	Channel	109.1	25 Yr	443.8	2672.1	2674.94	2.84	2673.5	2675.08	0.00107	2.92	152.15	62.06	0.33
Dev. Ridgecrest Wash	Channel	108.4	25 Yr	443.8	2672	2673.4	1.4	2673.4	2674.05	0.01233	6.47	68.63	53.37	1.01
Dev. Ridgecrest Wash	Channel	108.3	25 Yr	443.8	2662.2	2667.91	5.71	2664.08	2667.96	0.000043	1.76	252.11	61.27	0.15
Dev. Ridgecrest Wash	Channel	108.2	25 Yr	443.8	2662.2	2667.91	5.71	0	2667.96	0.000043	1.76	251.98	61.26	0.15
Dev. Ridgecrest Wash	Channel	108.1	25 Yr	443.8	2665.2	2667.78	2.58	2666.6	2667.95	0.001498	3.26	136.07	60.48	0.38
Dev. Ridgecrest Wash	Channel	107.4	25 Yr	453.1	2665	2666.42	1.42	2666.42	2667.07	0.012244	6.5	69.7	53.49	1
Dev. Ridgecrest Wash	Channel	107.3	25 Yr	453.1	2652.2	2658.06	5.86	2654.11	2658.11	0.000041	1.73	261.44	62.18	0.15
Dev. Ridgecrest Wash	Channel	107.2	25 Yr	453.1	2652.2	2658.06	5.86	0	2658.11	0.000041	1.73	261.31	62.17	0.15
Dev. Ridgecrest Wash	Channel	107.1	25 Yr	453.1	2655.2	2657.95	2.75	2656.62	2658.1	0.001255	3.1	146.27	61.48	0.35
Dev. Ridgecrest Wash	Channel	106.4	25 Yr	453.1	2655	2656.42	1.42	2656.42	2657.07	0.012244	6.5	69.7	53.49	1

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
North Ridgecrest Wash - Post-development Conditions
25-Year Hydraulics

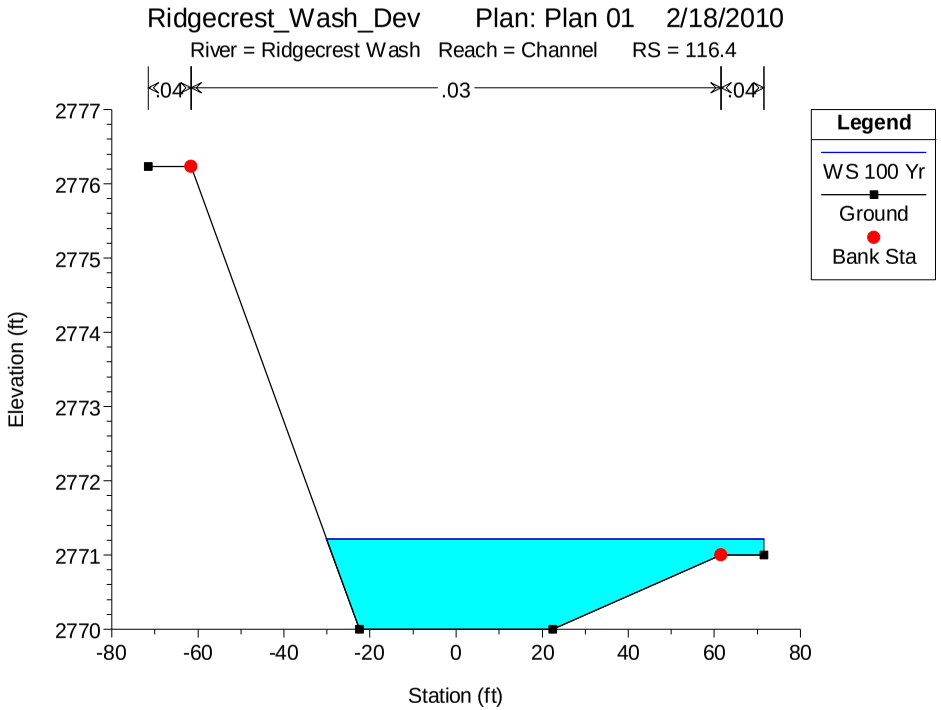
River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Dev. Ridgecrest Wash	Channel	106.3	25 Yr	453.1	2642.2	2648.02	5.82	2644.11	2648.07	0.000042	1.75	258.85	61.93	0.15
Dev. Ridgecrest Wash	Channel	106.2	25 Yr	453.1	2642.2	2648.02	5.82	0	2648.07	0.000042	1.75	258.72	61.92	0.15
Dev. Ridgecrest Wash	Channel	106.1	25 Yr	453.1	2645.2	2647.9	2.7	2646.62	2648.06	0.001334	3.16	143.37	61.2	0.36
Dev. Ridgecrest Wash	Channel	105.4	25 Yr	453.1	2645	2646.42	1.42	2646.42	2647.07	0.012244	6.5	69.7	53.49	1
Dev. Ridgecrest Wash	Channel	105.3	25 Yr	453.1	2632.2	2638.05	5.85	2634.11	2638.09	0.000041	1.74	260.29	62.07	0.15
Dev. Ridgecrest Wash	Channel	105.2	25 Yr	453.1	2632.2	2638.04	5.84	0	2638.09	0.000041	1.74	260.15	62.06	0.15
Dev. Ridgecrest Wash	Channel	105.1	25 Yr	453.1	2635.2	2637.93	2.73	2636.62	2638.08	0.001289	3.13	144.98	61.36	0.36
Dev. Ridgecrest Wash	Channel	104.4	25 Yr	453.1	2635	2636.42	1.42	2636.42	2637.07	0.012244	6.5	69.7	53.49	1
Dev. Ridgecrest Wash	Channel	104.3	25 Yr	453.1	2622.2	2628.16	5.96	2624.11	2628.21	0.000038	1.69	267.54	62.77	0.14
Dev. Ridgecrest Wash	Channel	104.2	25 Yr	453.1	2622.2	2628.16	5.96	0	2628.2	0.000038	1.69	267.42	62.75	0.14
Dev. Ridgecrest Wash	Channel	104.1	25 Yr	453.1	2625.2	2628.06	2.86	2626.62	2628.19	0.001095	2.96	153.08	62.14	0.33
Dev. Ridgecrest Wash	Channel	103.4	25 Yr	458.7	2625	2626.43	1.43	2626.43	2627.09	0.012252	6.53	70.23	53.55	1.01
Dev. Ridgecrest Wash	Channel	103.3	25 Yr	458.7	2612.2	2618.12	5.92	2614.12	2618.17	0.00004	1.73	265.16	62.54	0.15
Dev. Ridgecrest Wash	Channel	103.2	25 Yr	458.7	2612.2	2618.12	5.92	0	2618.17	0.00004	1.73	265.02	62.52	0.15
Dev. Ridgecrest Wash	Channel	103.1	25 Yr	458.7	2615.2	2618.01	2.81	2616.63	2618.16	0.001187	3.05	150.23	61.87	0.35
Dev. Ridgecrest Wash	Channel	102.4	25 Yr	458.7	2615	2616.43	1.43	2616.43	2617.09	0.012252	6.53	70.23	53.55	1.01
Dev. Ridgecrest Wash	Channel	102.3	25 Yr	458.7	2602.4	2608.6	6.2	2604.32	2608.64	0.000034	1.62	282.67	64.2	0.14
Dev. Ridgecrest Wash	Channel	102.2	25 Yr	458.7	2602.4	2608.6	6.2	0	2608.64	0.000034	1.62	282.56	64.19	0.14
Dev. Ridgecrest Wash	Channel	102.1	25 Yr	458.7	2605.4	2608.52	3.12	2606.83	2608.63	0.000829	2.71	169.38	63.7	0.29
Dev. Ridgecrest Wash	Channel	101.4	25 Yr	458.7	2604.99	2606.42	1.43	2606.42	2607.08	0.012252	6.53	70.23	53.55	1.01
Dev. Ridgecrest Wash	Channel	101.3	25 Yr	458.7	2597.6	2605.07	7.47	2599.53	2605.09	0.000016	1.26	364.92	70.72	0.1
Dev. Ridgecrest Wash	Channel	101.2	25 Yr	458.7	2597.6	2605.07	7.47	0	2605.09	0.000016	1.26	364.87	70.72	0.1
Dev. Ridgecrest Wash	Channel	101.1	25 Yr	458.7	2601	2605.03	4.03	0	2605.09	0.000336	2	229.84	69.16	0.19
Dev. Ridgecrest Wash	Channel	100.4	25 Yr	435.8	2600.5	2604.9	4.4	0	2604.94	0.000221	1.7	255.93	71.39	0.16
Dev. Ridgecrest Wash	Channel	100.3	25 Yr	435.8	2600.48	2604.87	4.39	0	2604.92	0.000222	1.71	255.5	71.35	0.16
Dev. Ridgecrest Wash	Channel	100.2	25 Yr	435.8	2600.45	2604.84	4.39	0	2604.89	0.000222	1.71	255.5	71.35	0.16
Dev. Ridgecrest Wash	Channel	100.1	25 Yr	1049.1	2600.31	2603.25	2.94	0	2603.93	0.005312	6.63	158.26	62.64	0.73
Dev. Ridgecrest Wash	Channel	100	25 Yr	1049.1	2599.7	2601.32	1.62	2601.32	2601.74	0.014149	5.2	201.56	242.71	1.01
Dev. Ridgecrest Wash	Channel	10	25 Yr	1056.7	2596.15	2597.87	1.72	2598.01	2598.63	0.020282	7	150.97	152.67	1.24
Dev. Ridgecrest Wash	Channel	9	25 Yr	1056.7	2593.98	2595.95	1.97	2595.89	2596.49	0.010604	5.9	179.17	144.02	0.93
Dev. Ridgecrest Wash	Channel	8	25 Yr	1056.7	2591.87	2593.71	1.84	2593.67	2594.28	0.011385	6.07	174.14	141.47	0.96
Dev. Ridgecrest Wash	Channel	7	25 Yr	1056.7	2589.07	2591.4	2.33	2591.38	2591.98	0.011767	6.11	172.85	142.3	0.98
Dev. Ridgecrest Wash	Channel	6	25 Yr	1056.7	2586.9	2589.14	2.24	2589.08	2589.71	0.010897	6.1	173.31	135.24	0.95
Dev. Ridgecrest Wash	Channel	5	25 Yr	1056.7	2584.84	2586.78	1.94	2586.78	2587.37	0.012582	6.15	171.94	147.66	1
Dev. Ridgecrest Wash	Channel	4	25 Yr	1056.7	2582.77	2584.68	1.91	2584.52	2585.09	0.00841	5.14	205.5	170.52	0.83
Dev. Ridgecrest Wash	Channel	3	25 Yr	1056.7	2580.95	2582.49	1.54	2582.49	2583.06	0.012284	6.06	174.43	150.41	0.99

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
North Ridgecrest Wash - Post-development Conditions
100-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Dev. Ridgecrest Wash	Channel	116.4	100 Yr	668.7	2770	2771.22	1.22	2771.45	2772.11	0.025008	7.59	89.69	101.63	1.37
Dev. Ridgecrest Wash	Channel	116.3	100 Yr	668.7	2755	2760.79	5.79	2757.49	2760.93	0.000113	2.92	228.74	51.98	0.25
Dev. Ridgecrest Wash	Channel	116.2	100 Yr	668.7	2755	2760.8	5.8	0	2760.91	0.000095	2.64	253.73	60.43	0.23
Dev. Ridgecrest Wash	Channel	116.1	100 Yr	668.7	2758	2760.46	2.46	2759.81	2760.88	0.004005	5.18	129.04	59.85	0.62
Dev. Ridgecrest Wash	Channel	115.4	100 Yr	668.7	2757.99	2759.76	1.77	2759.76	2760.53	0.011515	7.01	95.33	62.51	1
Dev. Ridgecrest Wash	Channel	115.3	100 Yr	668.7	2742.99	2748.89	5.9	2745.41	2748.99	0.000087	2.54	263.45	62.37	0.22
Dev. Ridgecrest Wash	Channel	115.2	100 Yr	668.7	2742.99	2748.88	5.89	0	2748.98	0.000087	2.54	263.16	62.35	0.22
Dev. Ridgecrest Wash	Channel	115.1	100 Yr	668.7	2745.99	2748.58	2.59	2747.8	2748.95	0.003358	4.89	136.65	60.54	0.57
Dev. Ridgecrest Wash	Channel	114.4	100 Yr	668.7	2745.98	2747.79	1.81	2747.79	2748.62	0.011435	7.31	91.51	55.89	1.01
Dev. Ridgecrest Wash	Channel	114.3	100 Yr	668.7	2729.05	2736.21	7.16	2731.47	2736.27	0.000041	1.93	347.08	69.96	0.15
Dev. Ridgecrest Wash	Channel	114.2	100 Yr	668.7	2729.05	2736.21	7.16	0	2736.27	0.000041	1.93	346.92	69.94	0.15
Dev. Ridgecrest Wash	Channel	114.1	100 Yr	668.7	2732.05	2736.13	4.08	2733.86	2736.26	0.000681	2.86	233.51	69.48	0.28
Dev. Ridgecrest Wash	Channel	113.4	100 Yr	668.7	2730.95	2732.76	1.81	2732.76	2733.59	0.011435	7.31	91.51	55.89	1.01
Dev. Ridgecrest Wash	Channel	113.3	100 Yr	668.7	2711.5	2718.59	7.09	2713.92	2718.65	0.000042	1.95	342.53	69.57	0.16
Dev. Ridgecrest Wash	Channel	113.2	100 Yr	668.7	2711.5	2718.59	7.09	0	2718.65	0.000042	1.95	342.38	69.55	0.16
Dev. Ridgecrest Wash	Channel	113.1	100 Yr	668.7	2714.5	2718.51	4.01	2716.31	2718.64	0.000724	2.92	228.69	69.06	0.28
Dev. Ridgecrest Wash	Channel	112.4	100 Yr	668.7	2713.6	2715.41	1.81	2715.41	2716.24	0.011435	7.31	91.51	55.89	1.01
Dev. Ridgecrest Wash	Channel	112.3	100 Yr	668.7	2696	2703.35	7.35	2698.42	2703.4	0.000037	1.86	360.28	71.08	0.15
Dev. Ridgecrest Wash	Channel	112.2	100 Yr	668.7	2696	2703.35	7.35	0	2703.4	0.000037	1.86	360.14	71.07	0.15
Dev. Ridgecrest Wash	Channel	112.1	100 Yr	668.7	2699	2703.28	4.28	2700.81	2703.39	0.000575	2.7	247.4	70.67	0.25
Dev. Ridgecrest Wash	Channel	111.4	100 Yr	682.5	2698.5	2700.34	1.84	2700.34	2701.18	0.011379	7.35	92.88	56.03	1.01
Dev. Ridgecrest Wash	Channel	111.3	100 Yr	682.5	2684	2690.67	6.67	2686.45	2690.74	0.000056	2.18	313.5	67.02	0.18
Dev. Ridgecrest Wash	Channel	111.2	100 Yr	682.5	2684	2690.67	6.67	0	2690.74	0.000056	2.18	313.31	67	0.18
Dev. Ridgecrest Wash	Channel	111.1	100 Yr	682.5	2687	2690.54	3.54	2688.84	2690.73	0.001172	3.47	196.93	66.24	0.35
Dev. Ridgecrest Wash	Channel	110.4	100 Yr	682.5	2686.8	2688.64	1.84	2688.64	2689.48	0.011379	7.35	92.88	56.03	1.01
Dev. Ridgecrest Wash	Channel	110.3	100 Yr	682.5	2677.1	2683.76	6.66	2679.55	2683.83	0.000057	2.18	312.57	66.93	0.18
Dev. Ridgecrest Wash	Channel	110.2	100 Yr	682.5	2677.1	2683.75	6.65	0	2683.83	0.000057	2.18	312.37	66.91	0.18
Dev. Ridgecrest Wash	Channel	110.1	100 Yr	682.5	2680.1	2683.33	3.23	2682.5	2683.79	0.003682	5.43	125.63	50.84	0.61
Dev. Ridgecrest Wash	Channel	109.4	100 Yr	682.5	2680	2681.84	1.84	2681.84	2682.68	0.011379	7.35	92.88	56.03	1.01
Dev. Ridgecrest Wash	Channel	109.3	100 Yr	682.5	2669.1	2675.74	6.64	2671.55	2675.82	0.000057	2.19	311.62	66.85	0.18
Dev. Ridgecrest Wash	Channel	109.2	100 Yr	682.5	2669.1	2675.74	6.64	0	2675.81	0.000057	2.19	311.43	66.83	0.18
Dev. Ridgecrest Wash	Channel	109.1	100 Yr	682.5	2672.1	2675.61	3.51	2673.94	2675.8	0.001209	3.5	194.86	66.06	0.36
Dev. Ridgecrest Wash	Channel	108.4	100 Yr	682.5	2672	2673.84	1.84	2673.84	2674.68	0.011379	7.35	92.88	56.03	1.01
Dev. Ridgecrest Wash	Channel	108.3	100 Yr	682.5	2662.2	2668.59	6.39	2664.65	2668.68	0.000066	2.31	295.13	65.35	0.19
Dev. Ridgecrest Wash	Channel	108.2	100 Yr	682.5	2662.2	2668.59	6.39	0	2668.67	0.000066	2.31	294.91	65.33	0.19
Dev. Ridgecrest Wash	Channel	108.1	100 Yr	682.5	2665.2	2668.42	3.22	2667.04	2668.66	0.001634	3.88	176.08	64.33	0.41
Dev. Ridgecrest Wash	Channel	107.4	100 Yr	703	2665	2666.88	1.88	2666.88	2667.73	0.011299	7.41	94.89	56.25	1.01
Dev. Ridgecrest Wash	Channel	107.3	100 Yr	703	2652.2	2658.77	6.57	2654.69	2658.85	0.000063	2.29	306.81	66.41	0.19
Dev. Ridgecrest Wash	Channel	107.2	100 Yr	703	2652.2	2658.77	6.57	0	2658.85	0.000063	2.29	306.58	66.39	0.19
Dev. Ridgecrest Wash	Channel	107.1	100 Yr	703	2655.2	2658.62	3.42	2657.07	2658.83	0.001409	3.72	188.78	65.5	0.39
Dev. Ridgecrest Wash	Channel	106.4	100 Yr	703	2655	2656.88	1.88	2656.88	2657.73	0.011299	7.41	94.89	56.25	1.01

RIDGECREST SOLAR PLANT HEC-RAS OUTPUT
North Ridgecrest Wash - Post-development Conditions
100-Year Hydraulics

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	W. Depth	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)	(ft/s)	(sq ft)	(ft)	
Dev. Ridgecrest Wash	Channel	106.3	100 Yr	703	2642.2	2648.72	6.52	2644.69	2648.8	0.000065	2.32	303.43	66.11	0.19
Dev. Ridgecrest Wash	Channel	106.2	100 Yr	703	2642.2	2648.71	6.51	0	2648.8	0.000065	2.32	303.2	66.09	0.19
Dev. Ridgecrest Wash	Channel	106.1	100 Yr	703	2645.2	2648.56	3.36	2647.07	2648.78	0.001499	3.8	184.92	65.15	0.4
Dev. Ridgecrest Wash	Channel	105.4	100 Yr	703	2645	2646.88	1.88	2646.88	2647.73	0.011299	7.41	94.89	56.25	1.01
Dev. Ridgecrest Wash	Channel	105.3	100 Yr	703	2632.2	2638.74	6.54	2634.69	2638.83	0.000064	2.3	305.14	66.26	0.19
Dev. Ridgecrest Wash	Channel	105.2	100 Yr	703	2632.2	2638.74	6.54	0	2638.82	0.000064	2.31	304.91	66.24	0.19
Dev. Ridgecrest Wash	Channel	105.1	100 Yr	703	2635.2	2638.59	3.39	2637.07	2638.81	0.001452	3.76	186.88	65.33	0.39
Dev. Ridgecrest Wash	Channel	104.4	100 Yr	703	2635	2636.88	1.88	2636.88	2637.73	0.011299	7.41	94.89	56.25	1.01
Dev. Ridgecrest Wash	Channel	104.3	100 Yr	703	2622.2	2628.9	6.7	2624.69	2628.97	0.000059	2.23	315.29	67.17	0.18
Dev. Ridgecrest Wash	Channel	104.2	100 Yr	703	2622.2	2628.89	6.69	0	2628.97	0.000059	2.23	315.07	67.16	0.18
Dev. Ridgecrest Wash	Channel	104.1	100 Yr	703	2625.2	2628.76	3.56	2627.07	2628.96	0.001218	3.54	198.32	66.37	0.36
Dev. Ridgecrest Wash	Channel	103.4	100 Yr	718.5	2625	2626.9	1.9	2626.9	2627.76	0.011227	7.45	96.45	56.41	1
Dev. Ridgecrest Wash	Channel	103.3	100 Yr	718.5	2612.2	2618.86	6.66	2614.73	2618.94	0.000063	2.3	312.64	66.94	0.19
Dev. Ridgecrest Wash	Channel	103.2	100 Yr	718.5	2612.2	2618.85	6.65	0	2618.94	0.000063	2.3	312.41	66.92	0.19
Dev. Ridgecrest Wash	Channel	103.1	100 Yr	718.5	2615.2	2618.71	3.51	2617.1	2618.92	0.00134	3.69	194.86	66.06	0.38
Dev. Ridgecrest Wash	Channel	102.4	100 Yr	718.5	2615	2616.9	1.9	2616.9	2617.76	0.011227	7.45	96.45	56.41	1
Dev. Ridgecrest Wash	Channel	102.3	100 Yr	718.5	2602.4	2609.38	6.98	2604.93	2609.46	0.000052	2.15	334.87	68.9	0.17
Dev. Ridgecrest Wash	Channel	102.2	100 Yr	718.5	2602.4	2609.38	6.98	0	2609.45	0.000052	2.15	334.69	68.89	0.17
Dev. Ridgecrest Wash	Channel	102.1	100 Yr	718.5	2605.4	2609.28	3.88	2607.3	2609.44	0.000944	3.27	219.44	68.25	0.32
Dev. Ridgecrest Wash	Channel	101.4	100 Yr	718.5	2604.99	2606.89	1.9	2606.89	2607.75	0.011212	7.45	96.49	56.42	1
Dev. Ridgecrest Wash	Channel	101.3	100 Yr	718.5	2597.6	2606.09	8.49	2600.13	2606.13	0.000024	1.63	440.08	76.69	0.12
Dev. Ridgecrest Wash	Channel	101.2	100 Yr	718.5	2597.6	2606.09	8.49	0	2606.13	0.000024	1.63	439.99	76.68	0.12
Dev. Ridgecrest Wash	Channel	101.1	100 Yr	718.5	2601	2606.04	5.04	0	2606.12	0.000369	2.37	302.71	75.22	0.21
Dev. Ridgecrest Wash	Channel	100.4	100 Yr	676.9	2600.5	2605.89	5.39	0	2605.96	0.000256	2.05	329.94	77.36	0.18
Dev. Ridgecrest Wash	Channel	100.3	100 Yr	676.9	2600.48	2605.86	5.38	0	2605.93	0.000257	2.06	329.13	77.3	0.18
Dev. Ridgecrest Wash	Channel	100.2	100 Yr	676.9	2600.45	2605.83	5.38	0	2605.89	0.000258	2.06	328.74	77.26	0.18
Dev. Ridgecrest Wash	Channel	100.1	100 Yr	1541.4	2600.31	2603.64	3.33	2603.38	2604.74	0.00739	8.41	183.34	65	0.88
Dev. Ridgecrest Wash	Channel	100	100 Yr	1541.4	2599.7	2601.61	1.91	2601.61	2602.09	0.012785	5.6	275.2	275.13	0.99
Dev. Ridgecrest Wash	Channel	10	100 Yr	1566.5	2596.15	2598.17	2.02	2598.39	2599.13	0.020353	7.87	199.11	169.4	1.28
Dev. Ridgecrest Wash	Channel	9	100 Yr	1566.5	2593.98	2596.33	2.35	2596.28	2597.01	0.01055	6.62	236.46	159.03	0.96
Dev. Ridgecrest Wash	Channel	8	100 Yr	1566.5	2591.87	2594.08	2.21	2594.08	2594.81	0.011512	6.85	228.64	156.11	1
Dev. Ridgecrest Wash	Channel	7	100 Yr	1566.5	2589.07	2591.74	2.67	2591.76	2592.5	0.012353	6.98	224.41	157.03	1.03
Dev. Ridgecrest Wash	Channel	6	100 Yr	1566.5	2586.9	2589.52	2.62	2589.52	2590.24	0.011607	6.83	229.37	158.32	1
Dev. Ridgecrest Wash	Channel	5	100 Yr	1566.5	2584.84	2587.15	2.31	2587.18	2587.87	0.012111	6.8	230.43	165.31	1.01
Dev. Ridgecrest Wash	Channel	4	100 Yr	1566.5	2582.77	2585.05	2.28	2584.87	2585.57	0.008432	5.77	271.56	189.98	0.85
Dev. Ridgecrest Wash	Channel	3	100 Yr	1566.5	2580.95	2582.86	1.91	2582.86	2583.56	0.011933	6.7	233.85	169.67	1.01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Bank Sta
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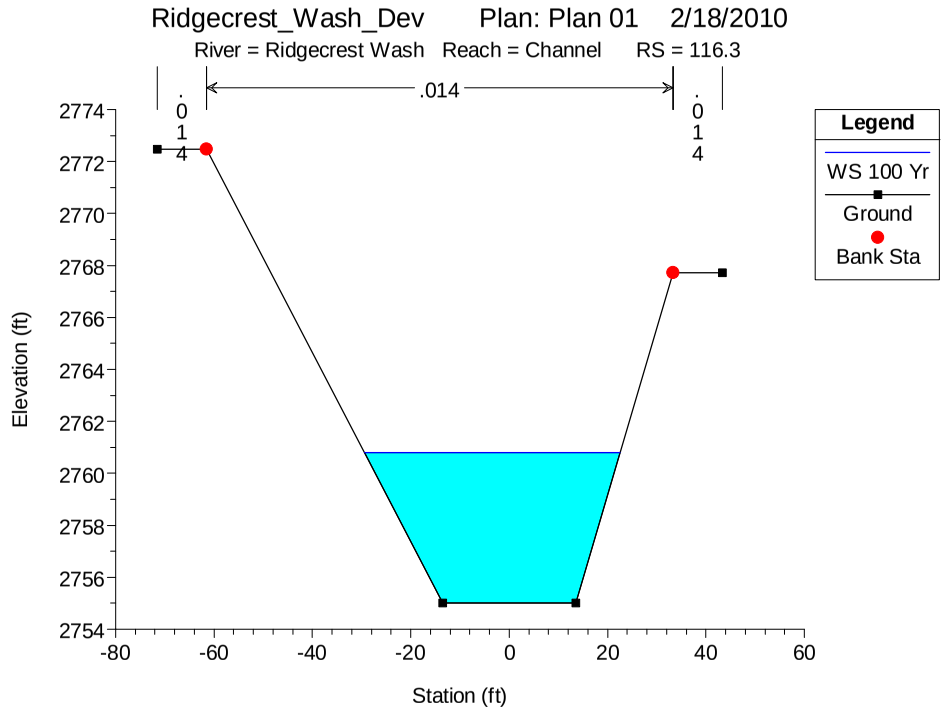
Station (ft)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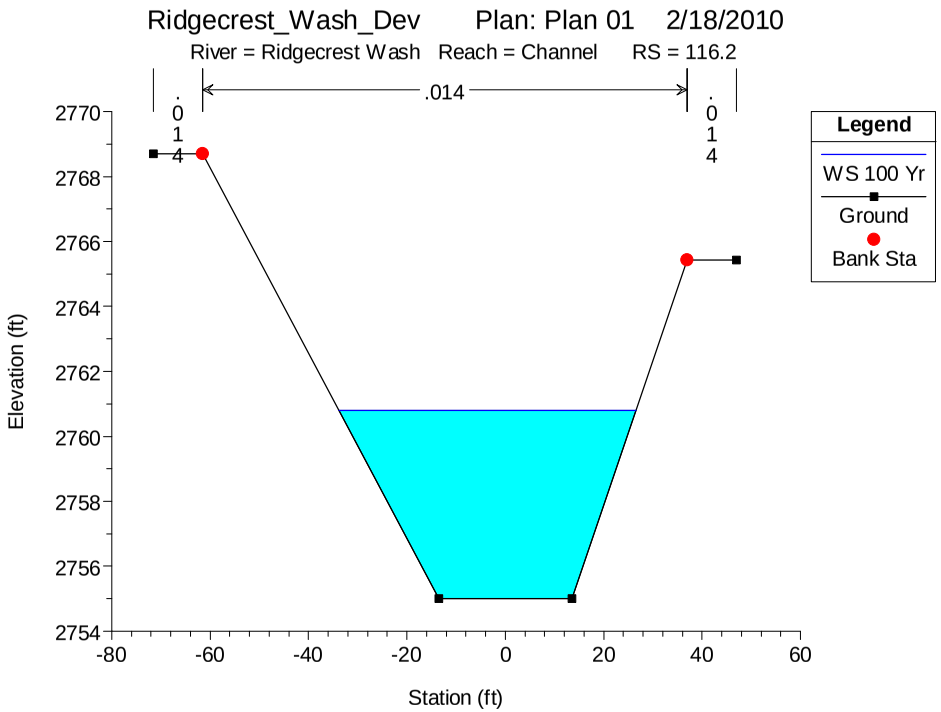
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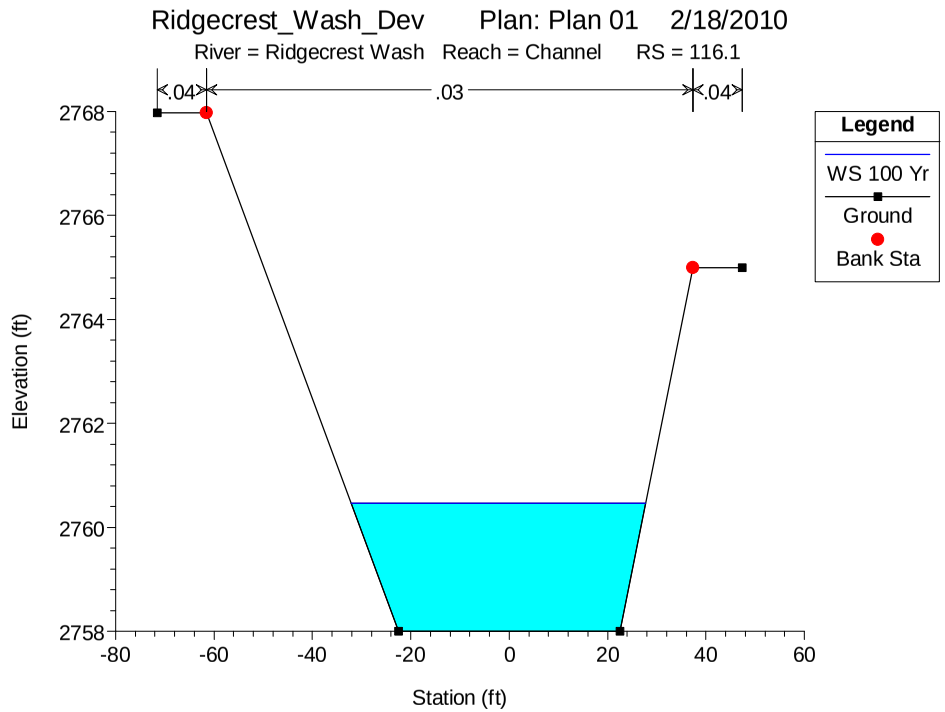
Station (ft)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Legend
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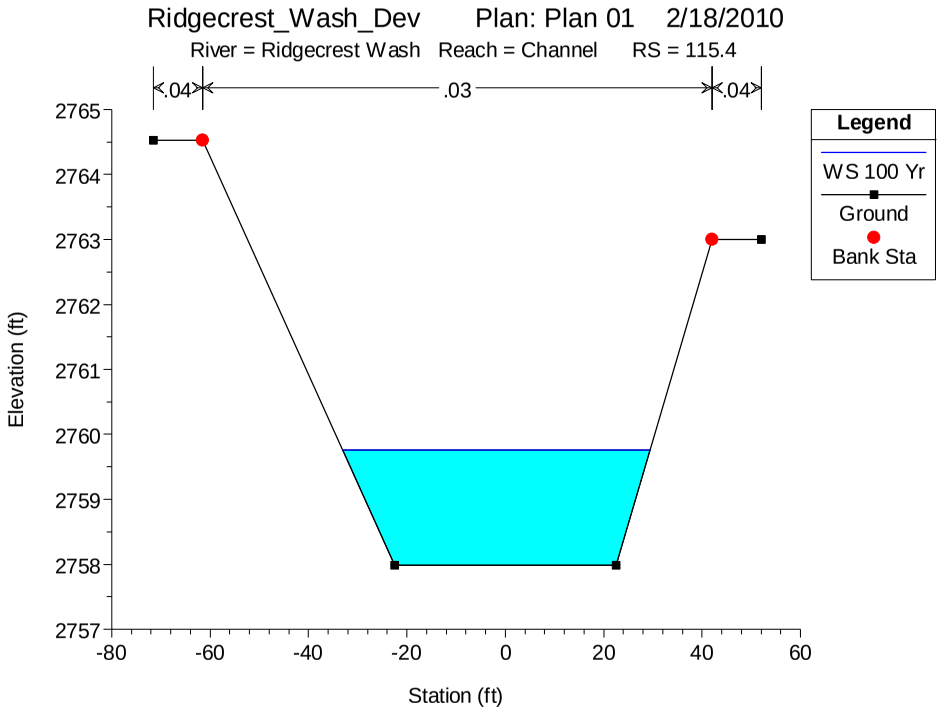
Bank Sta
Elevation (ft)
Station (ft)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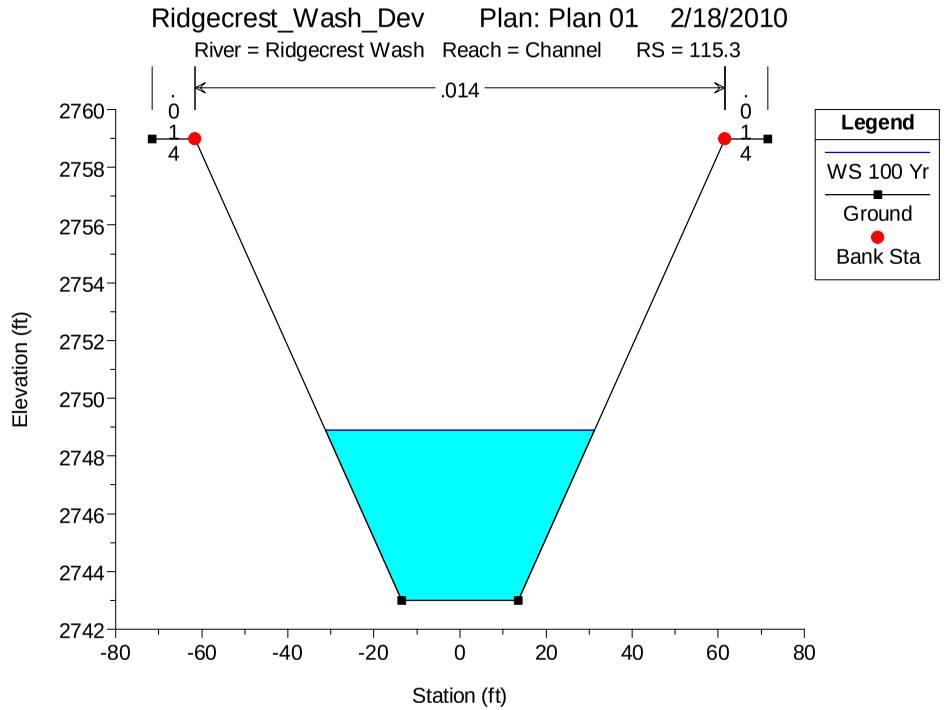
Elevation (ft)
Station (ft)


Ridgecrest_Wash_Dev Plan: Plan 01 2/18/2010
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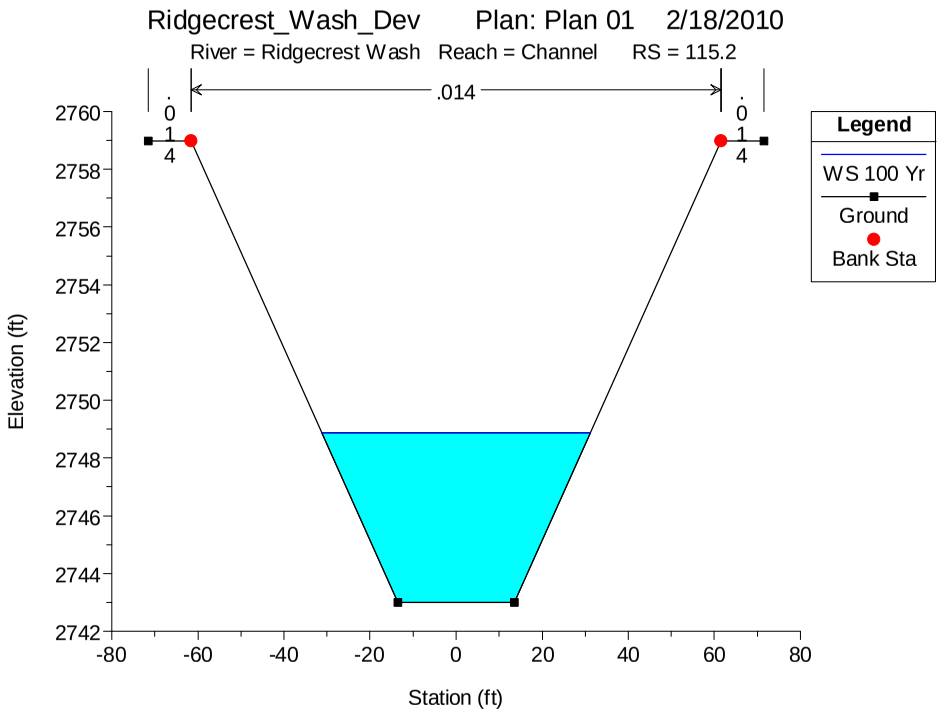
Legend
WS 100 Yr
Ground
Bank Sta
Elevation (ft)
Station (ft)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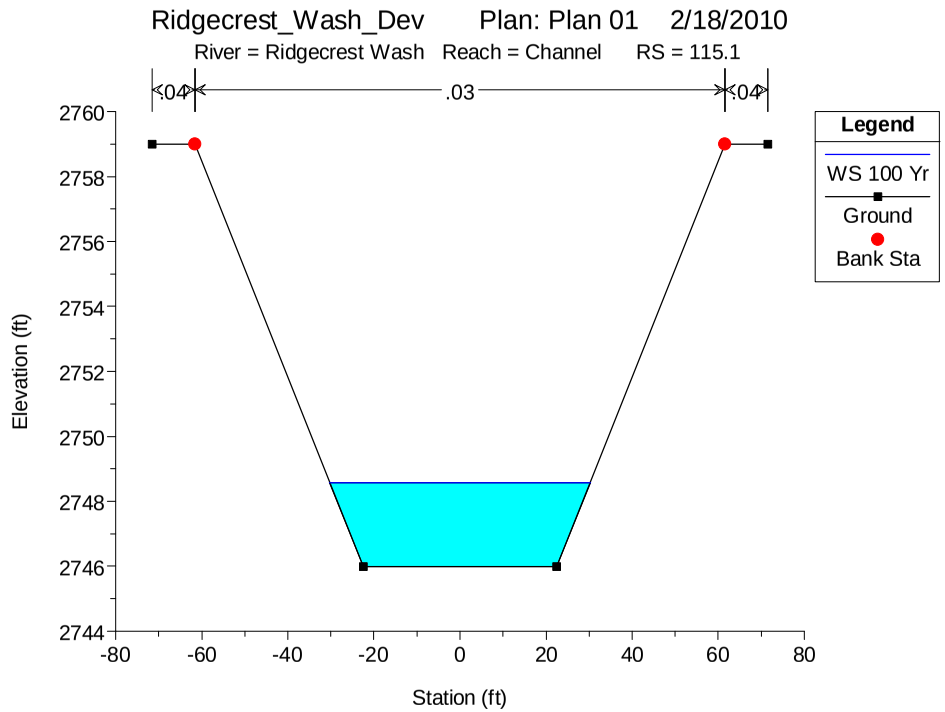
Bank Sta
Elevation (ft)
Station (ft)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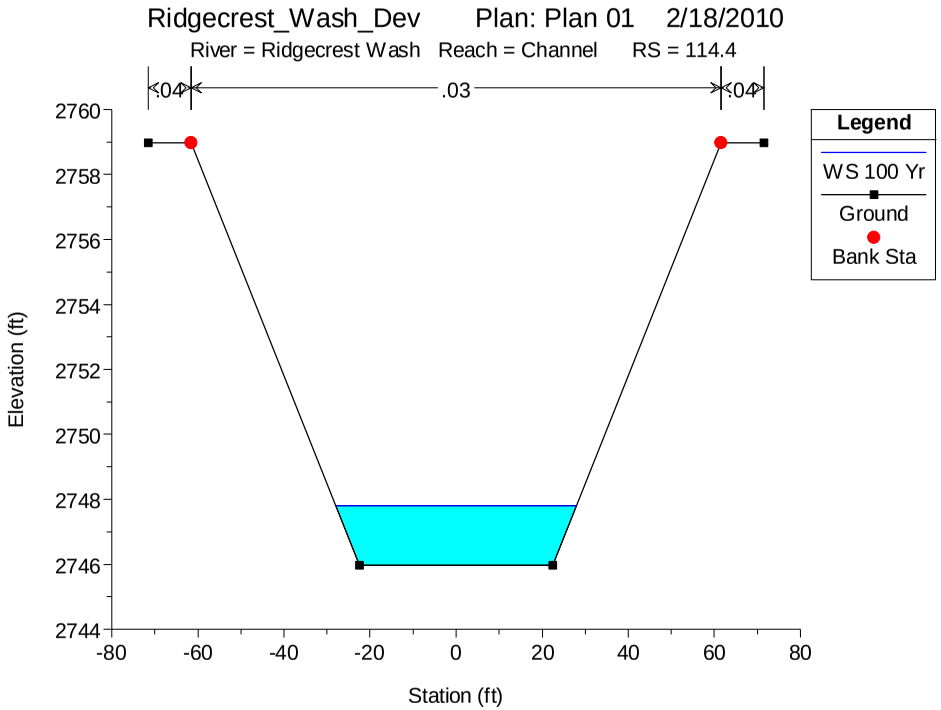
Bank Sta
Elevation (ft)
Station (ft)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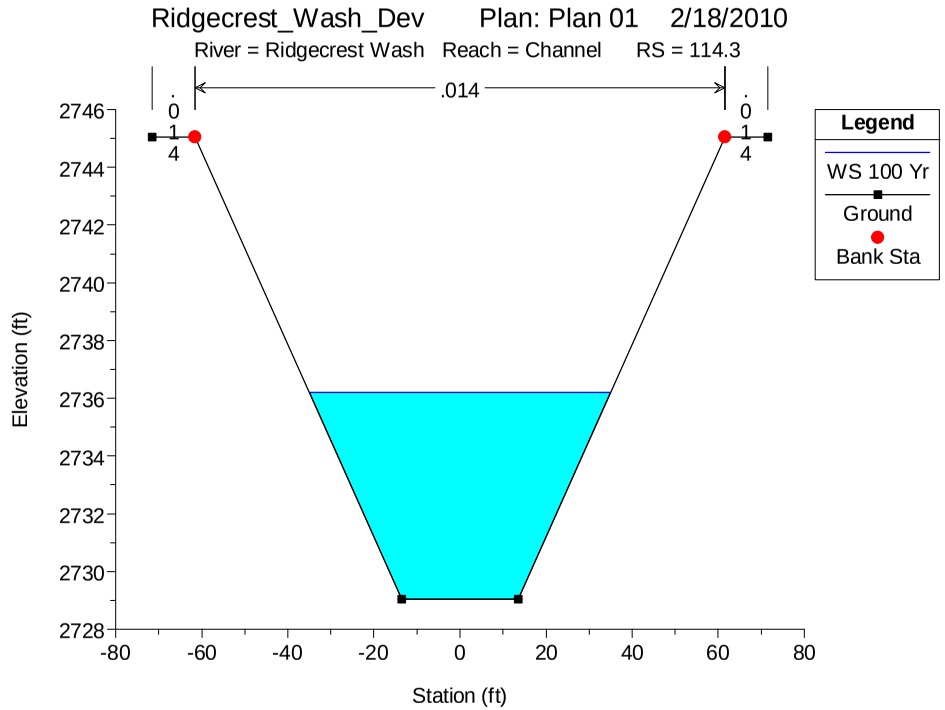
Station (ft)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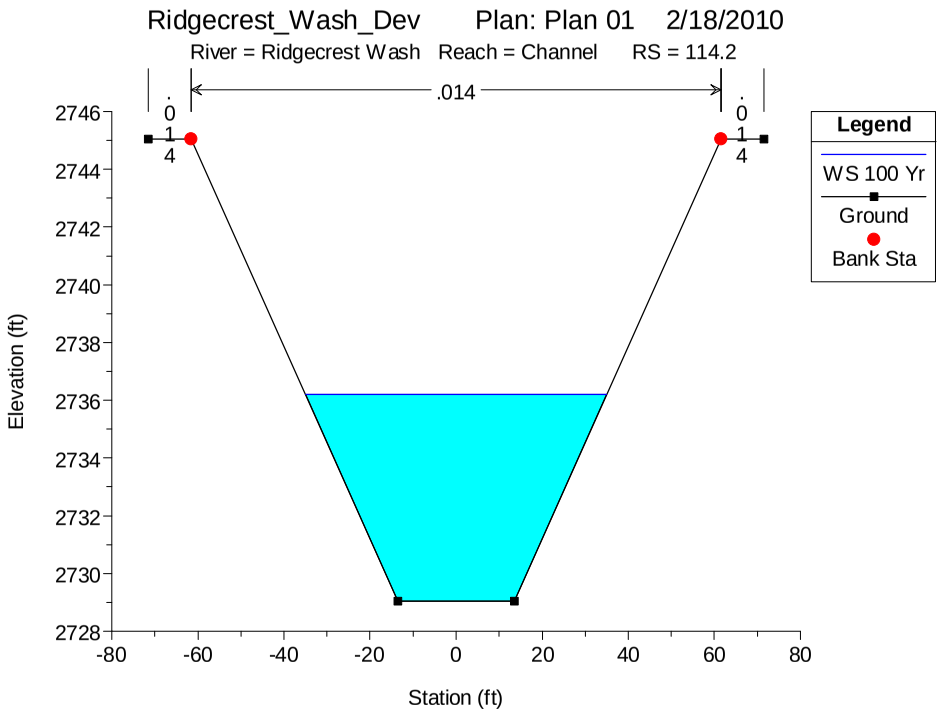
Station (ft)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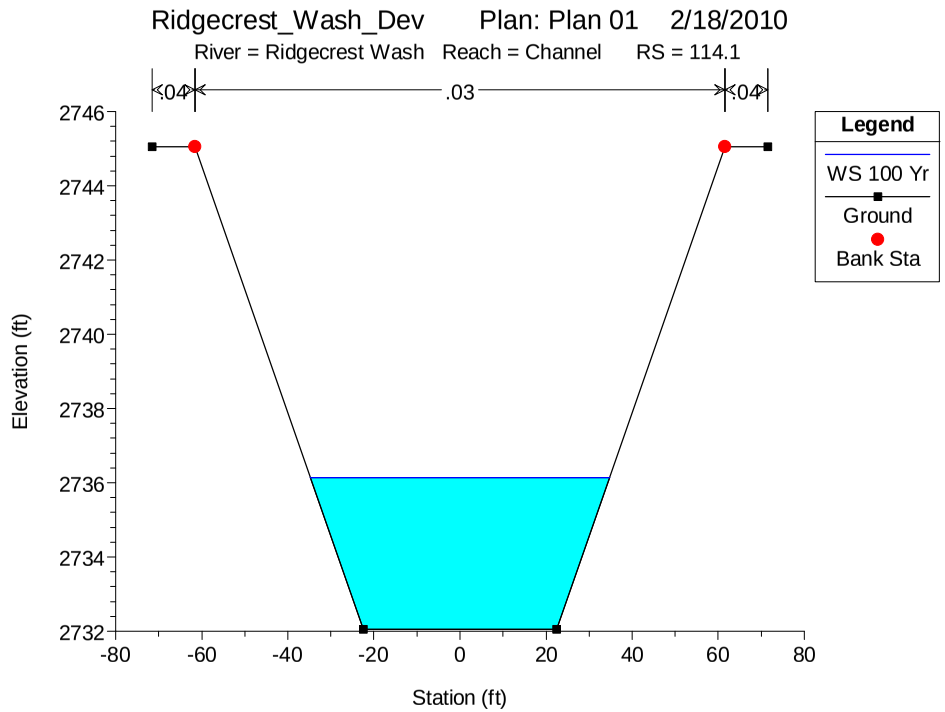
Elevation (ft)
Station (ft)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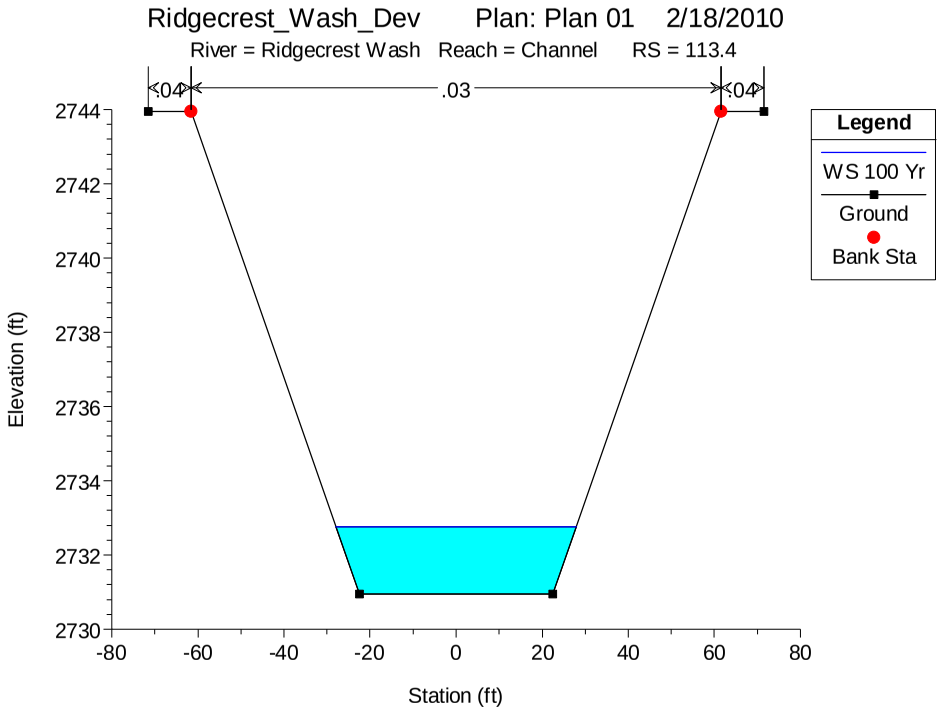
Elevation (ft)
Station (ft)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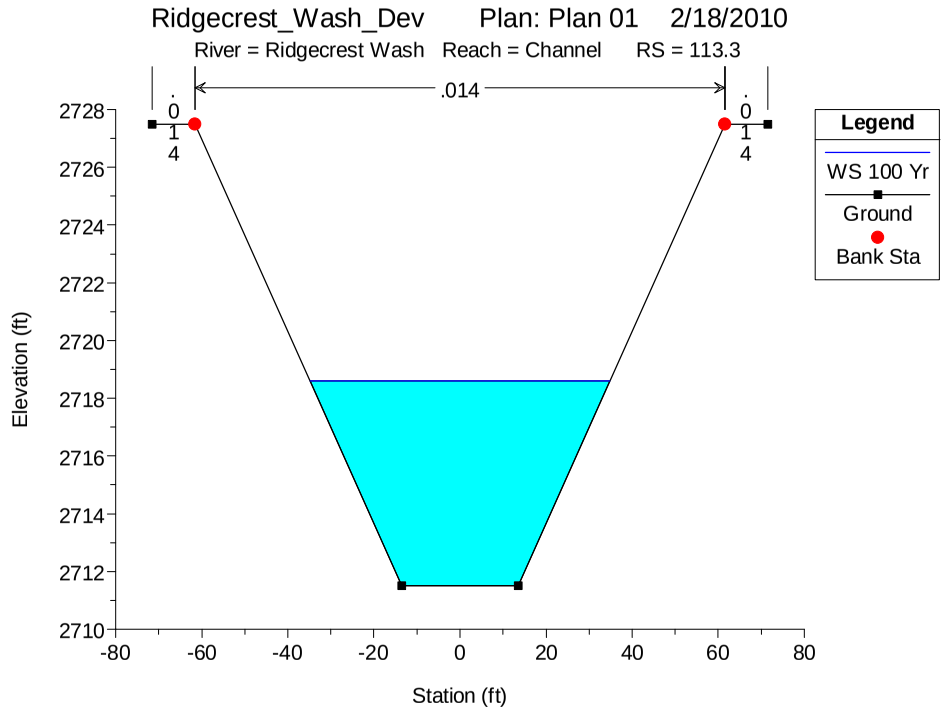
Bank Sta
Elevation (ft)
Station (ft)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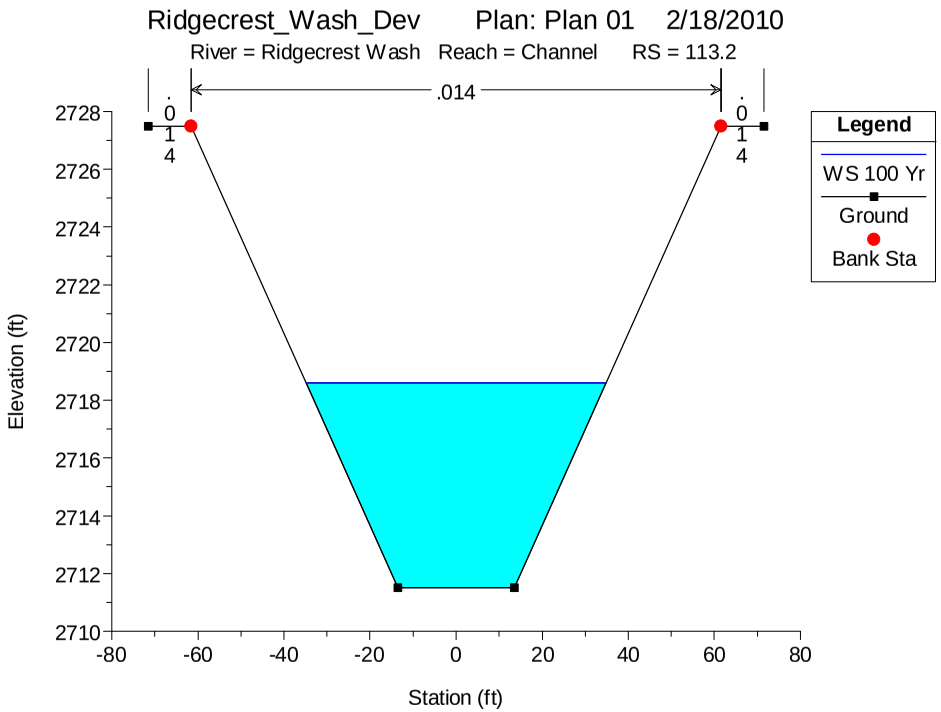
Elevation (ft)
Station (ft)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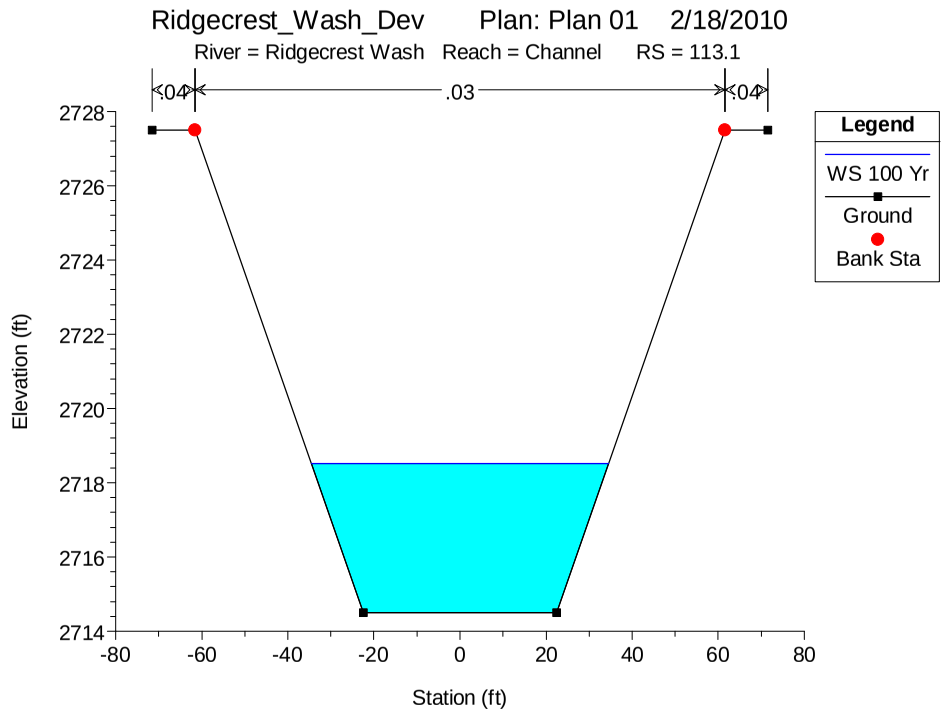
Elevation (ft)
Station (ft)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Legend
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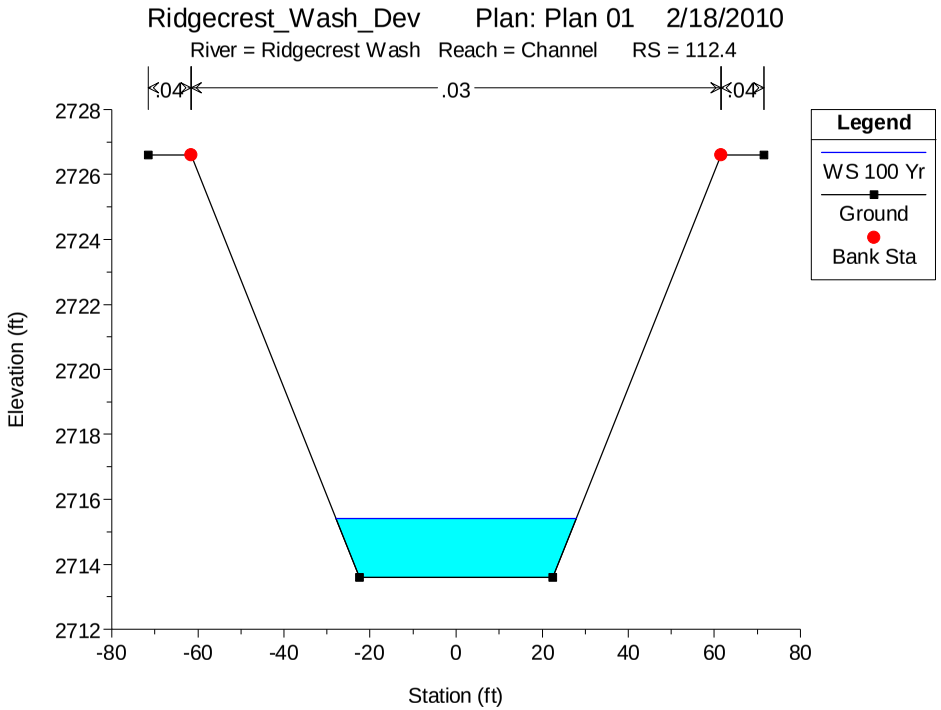
Ground
Bank Sta
Elevation (ft)
Station (ft)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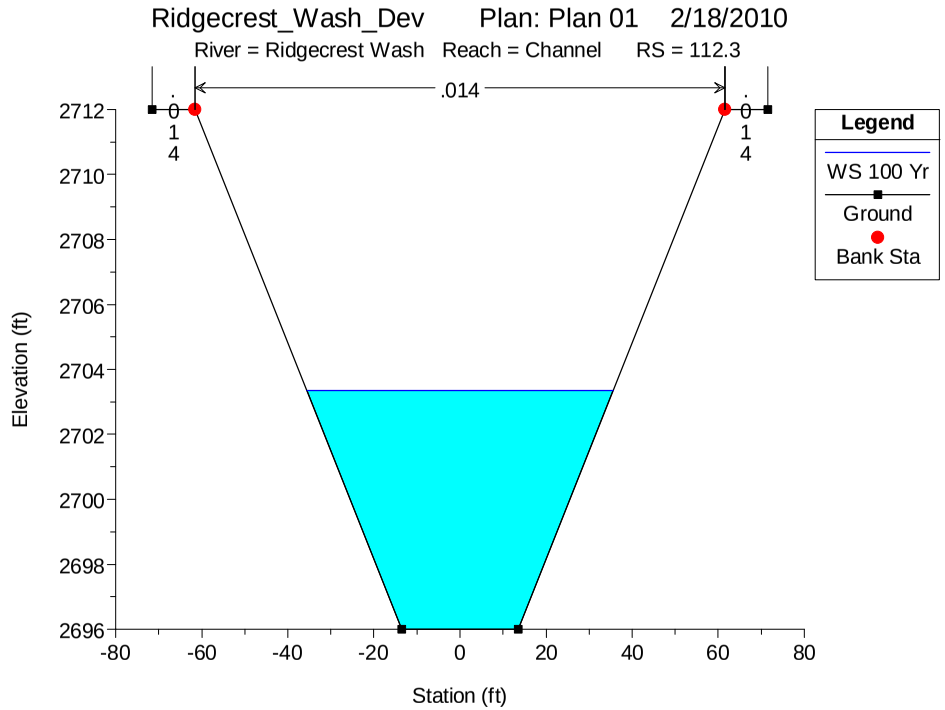
Bank Sta
Elevation (ft)
Station (ft)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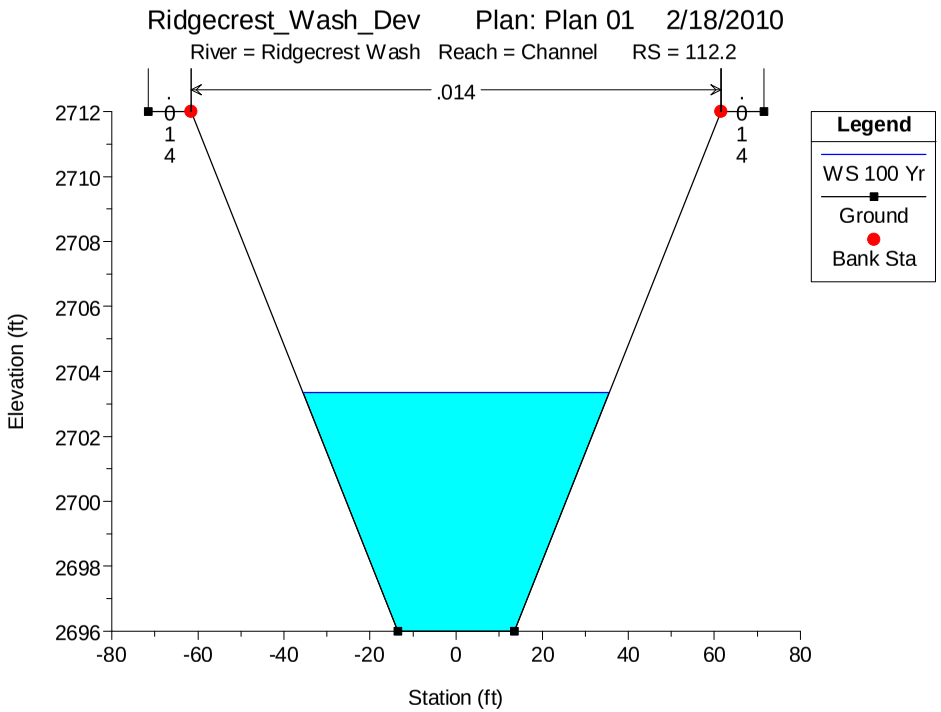
Elevation (ft)
Station (ft)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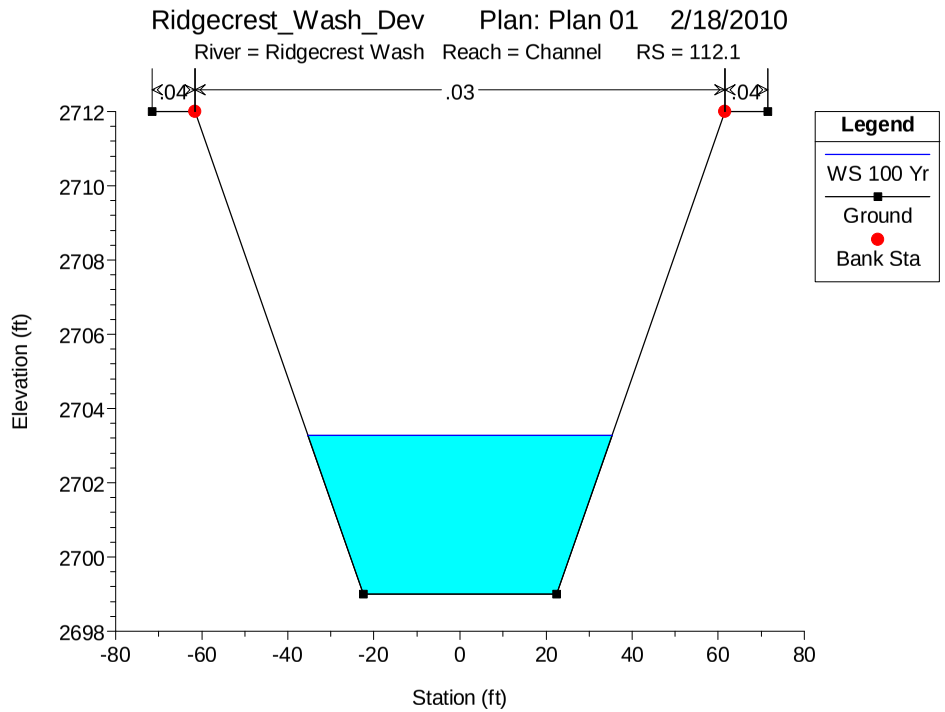
Elevation (ft)
Station (ft)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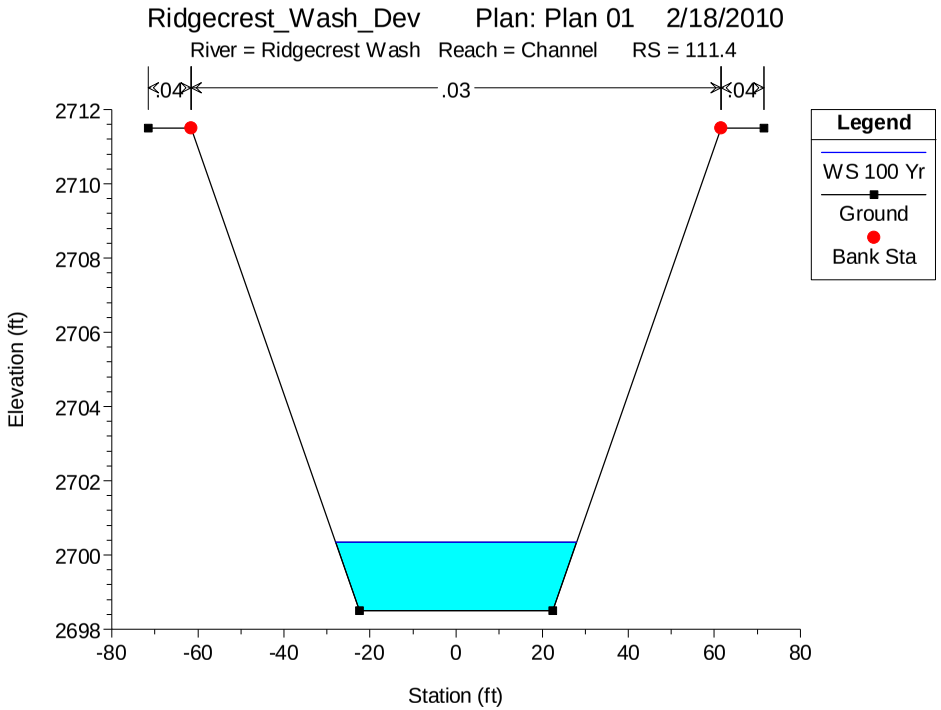
Bank Sta
Elevation (ft)
Station (ft)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Elevation (ft)
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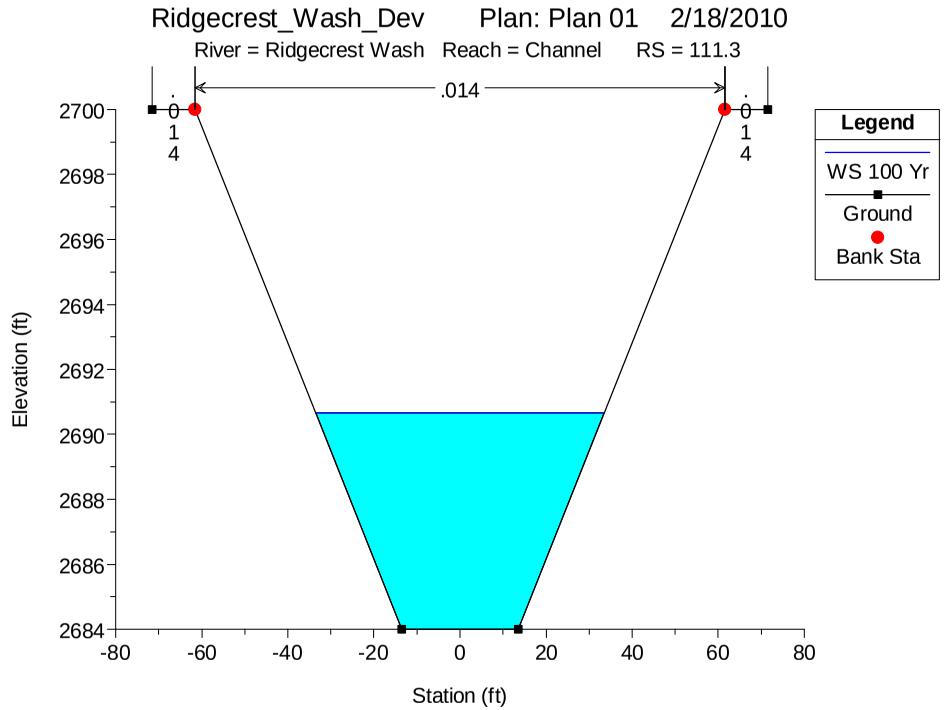
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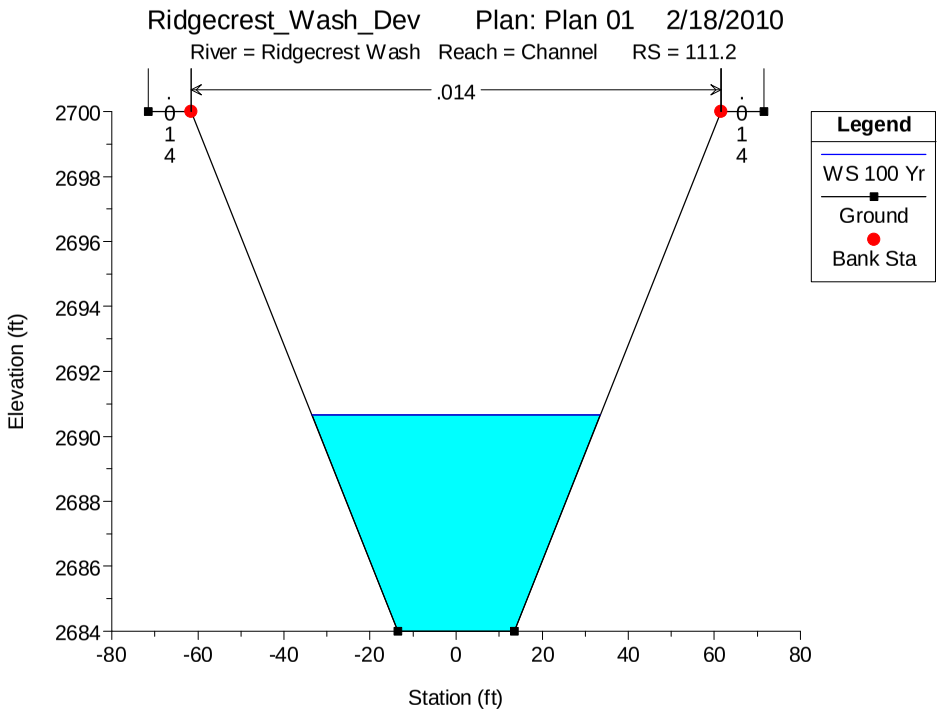
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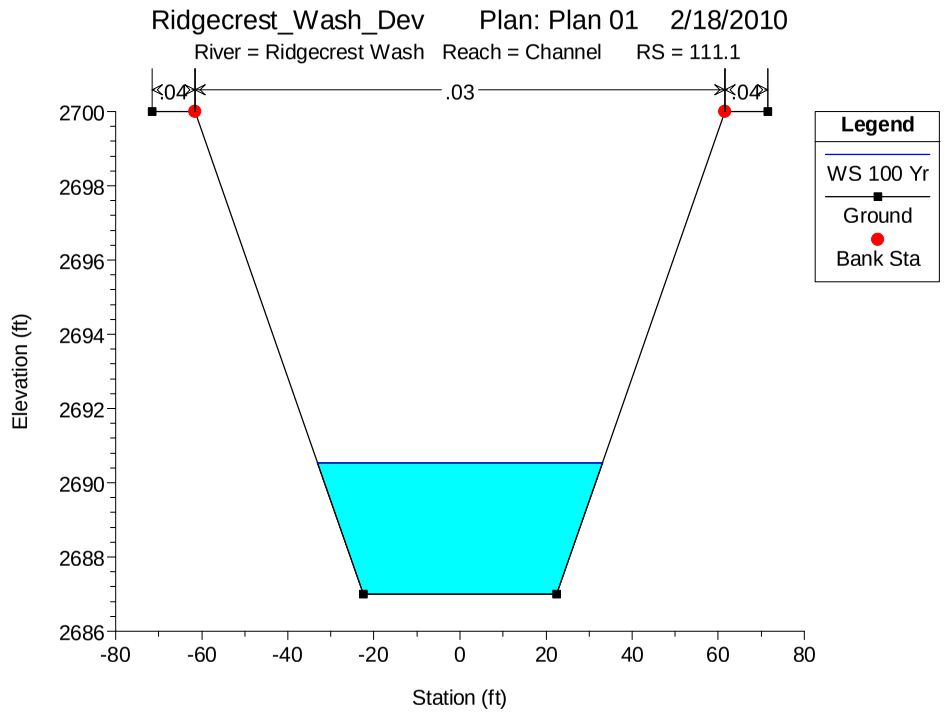
Station (ft)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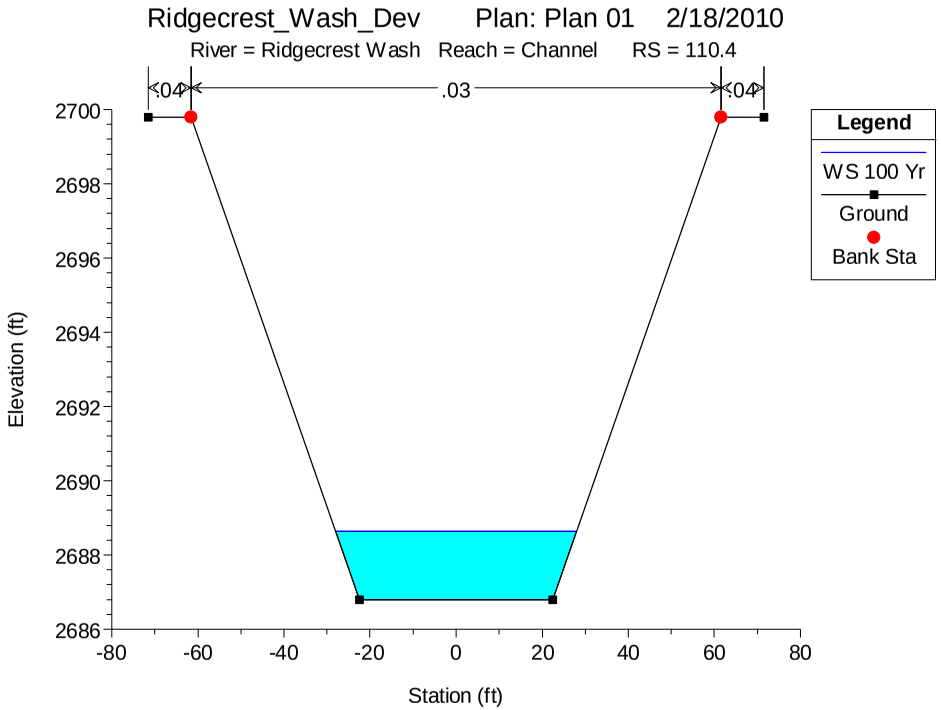
Elevation (ft)
Station (ft)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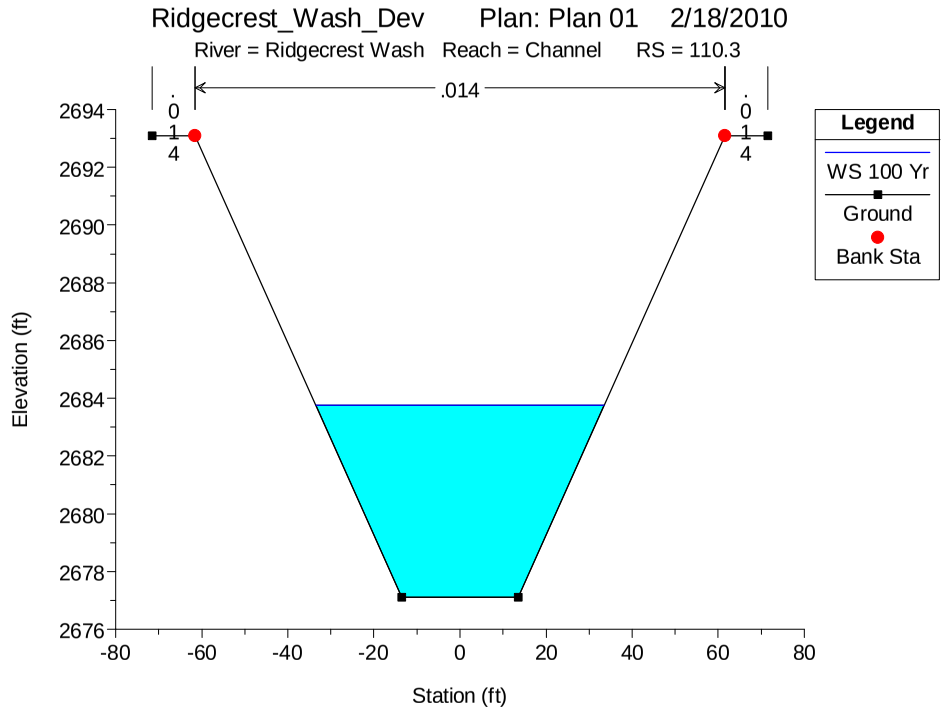
Bank Sta
Elevation (ft)
Station (ft)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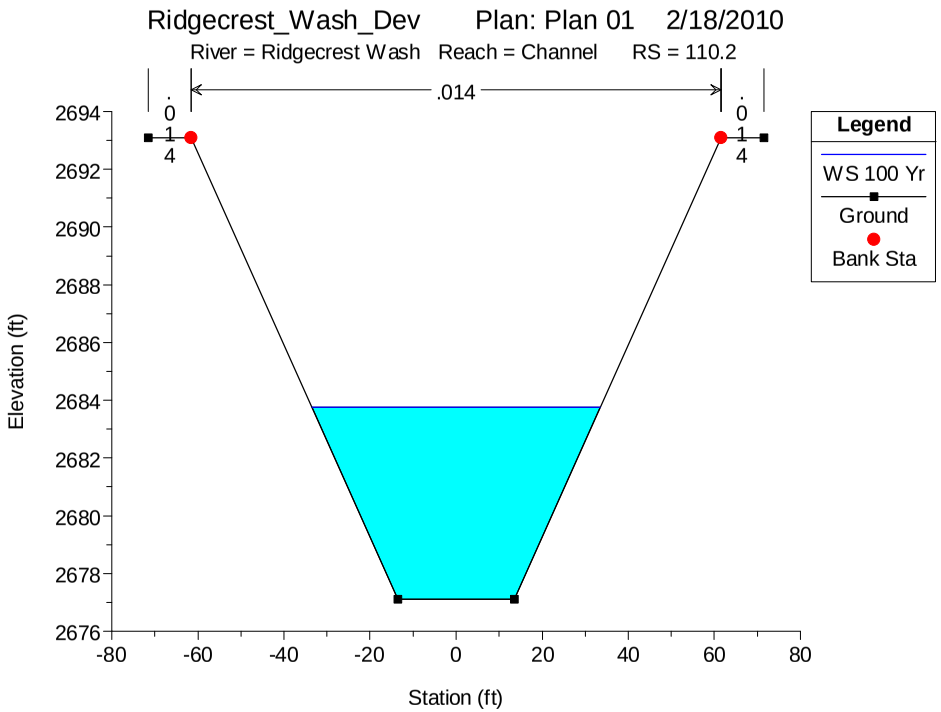
Elevation (ft)
Station (ft)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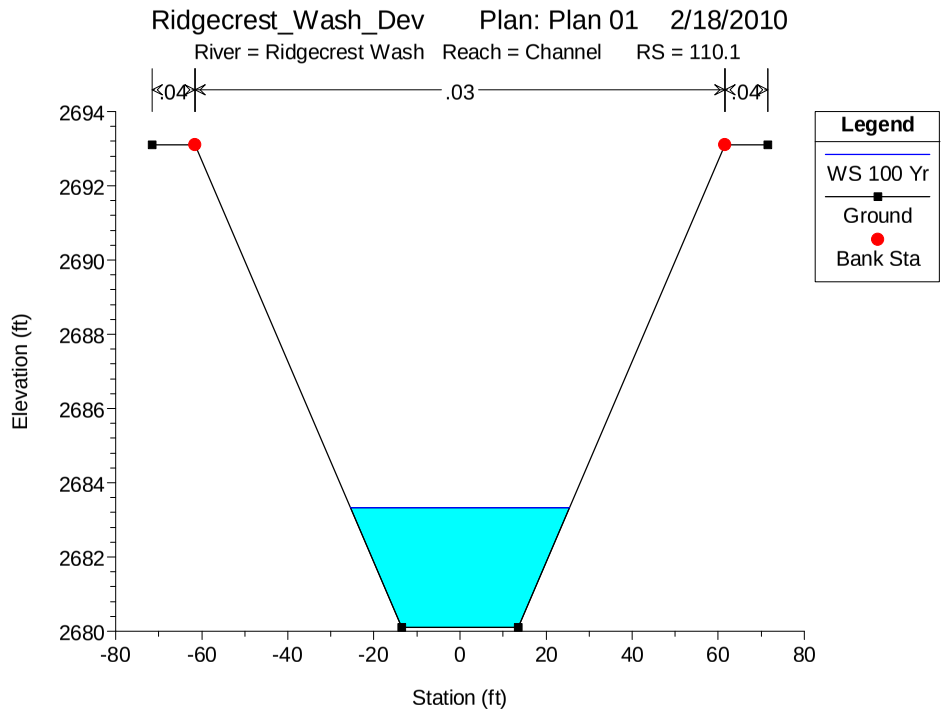
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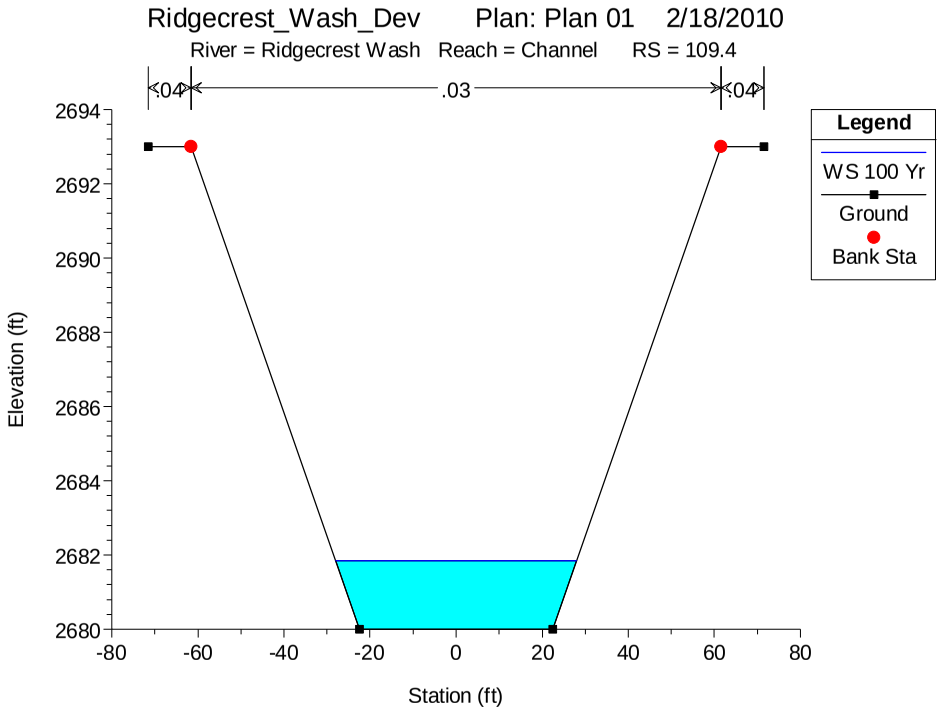
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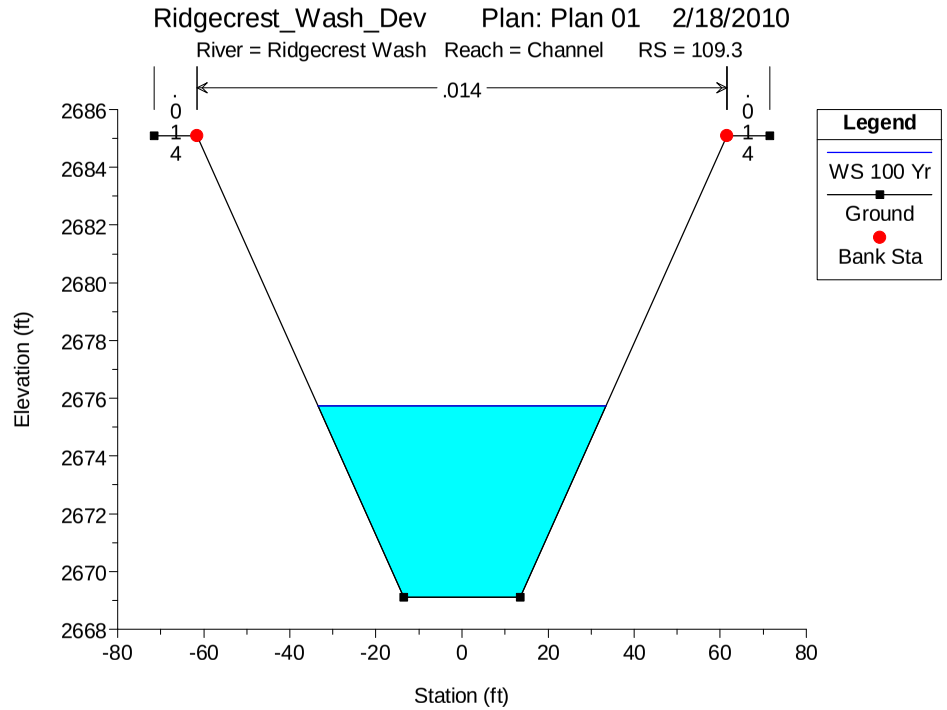
Bank Sta
Elevation (ft)
Station (ft)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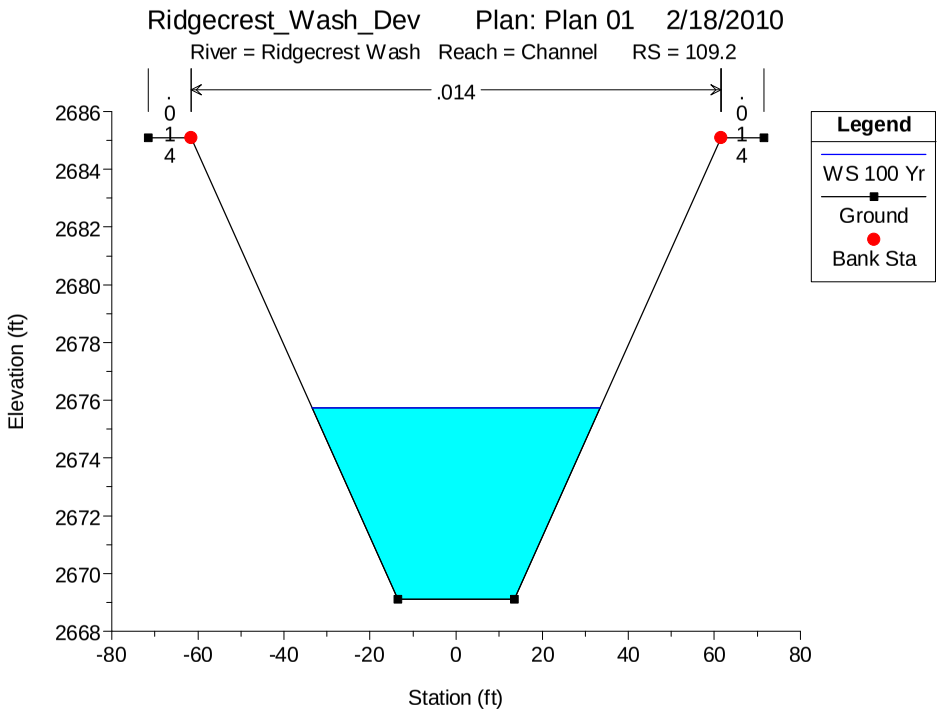
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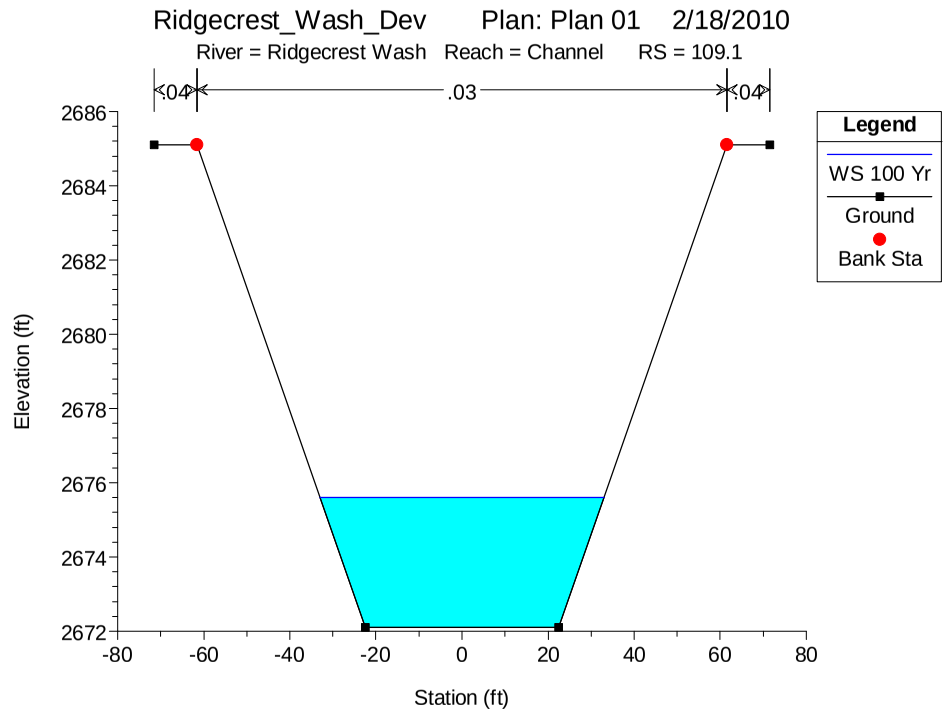
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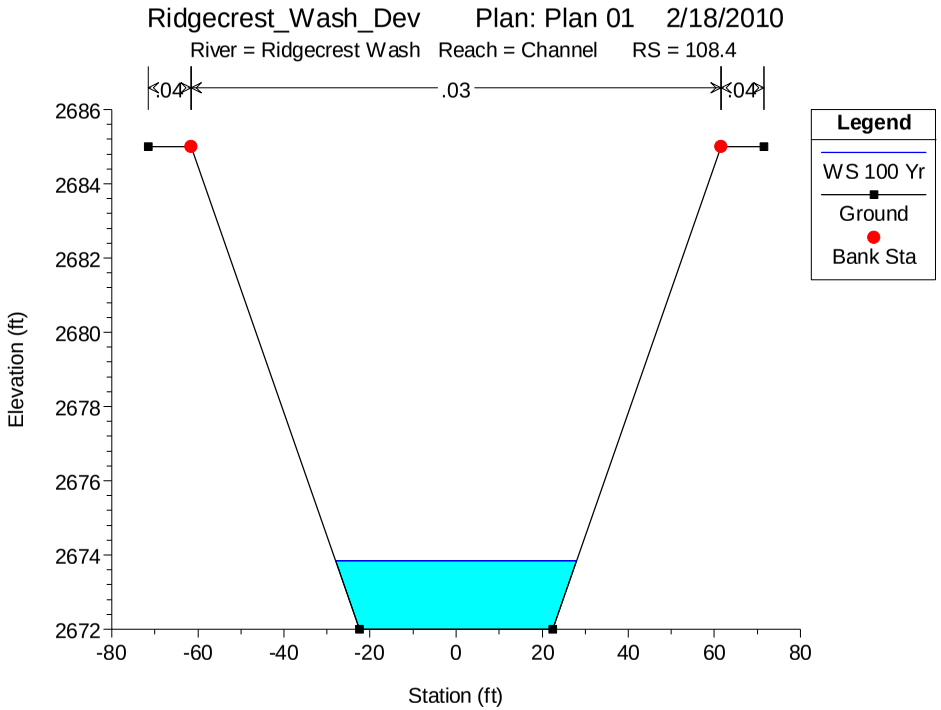
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Elevation (ft)
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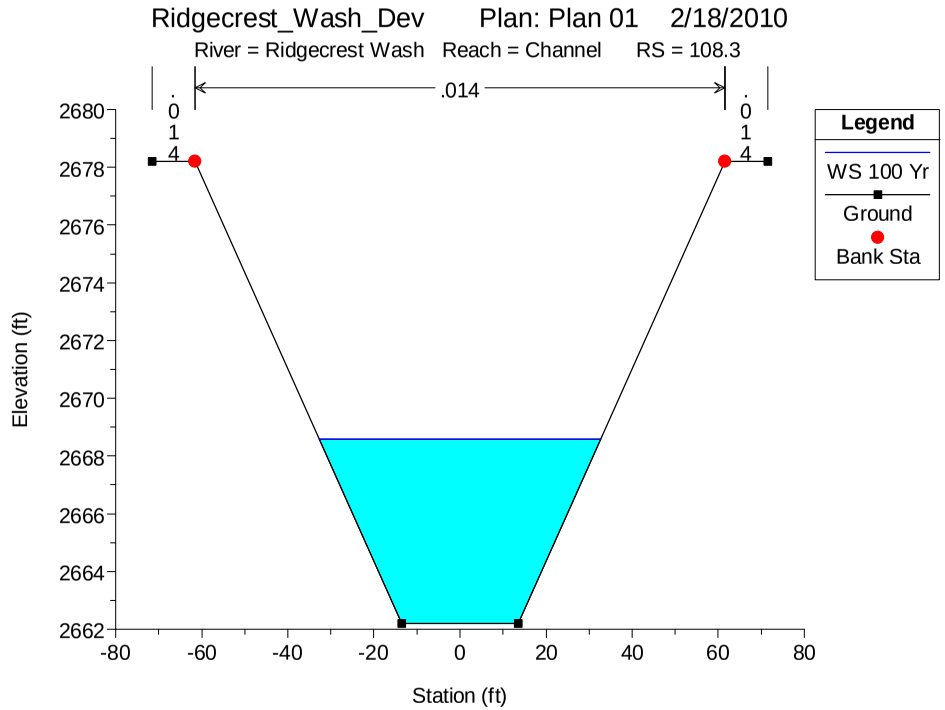
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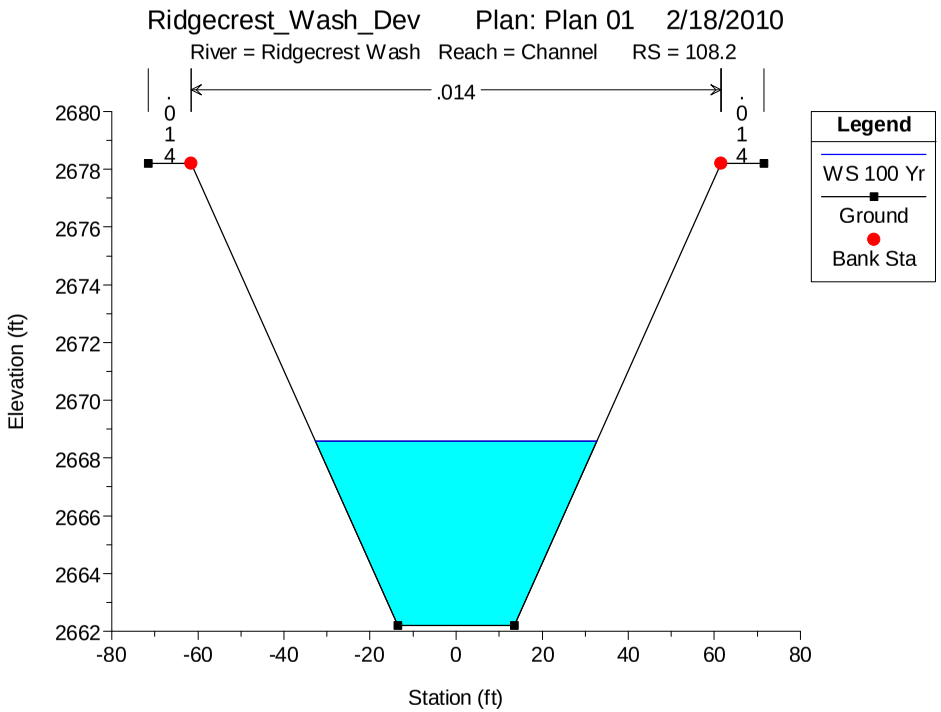
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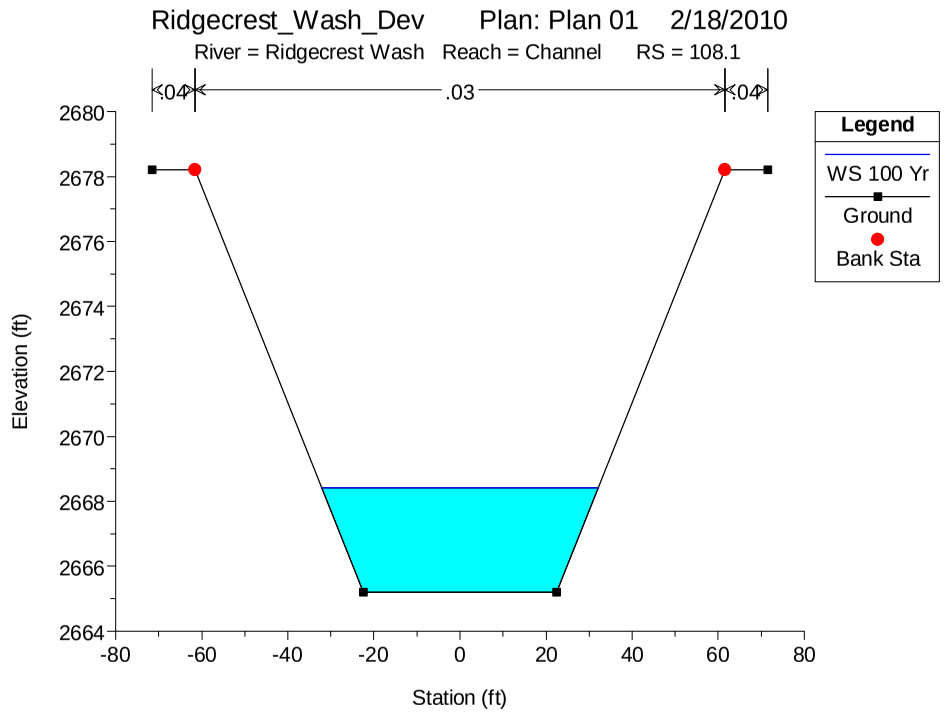
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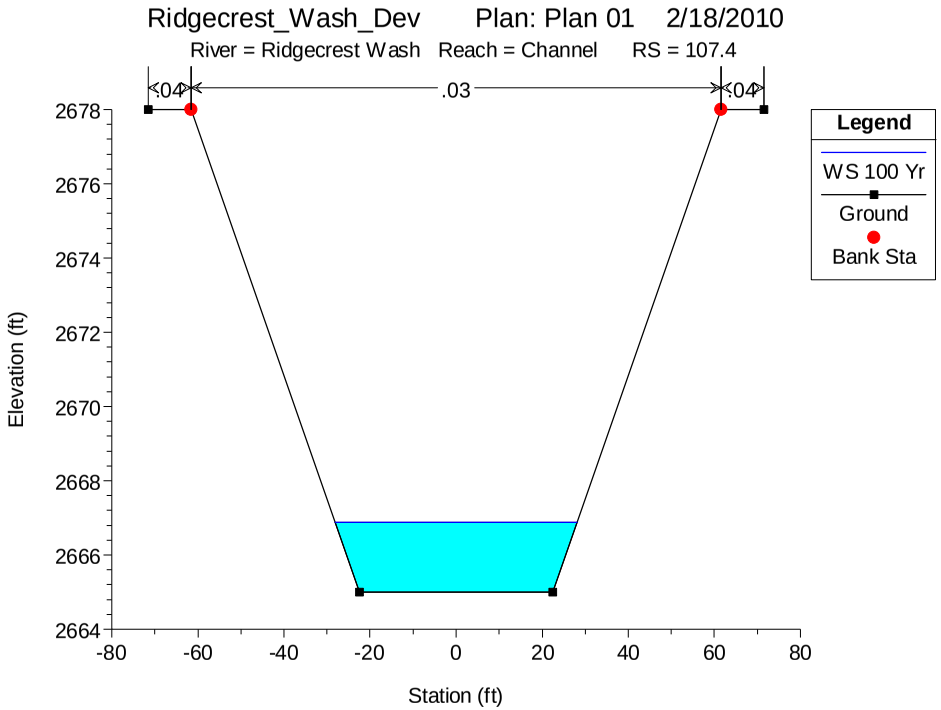
Station (ft)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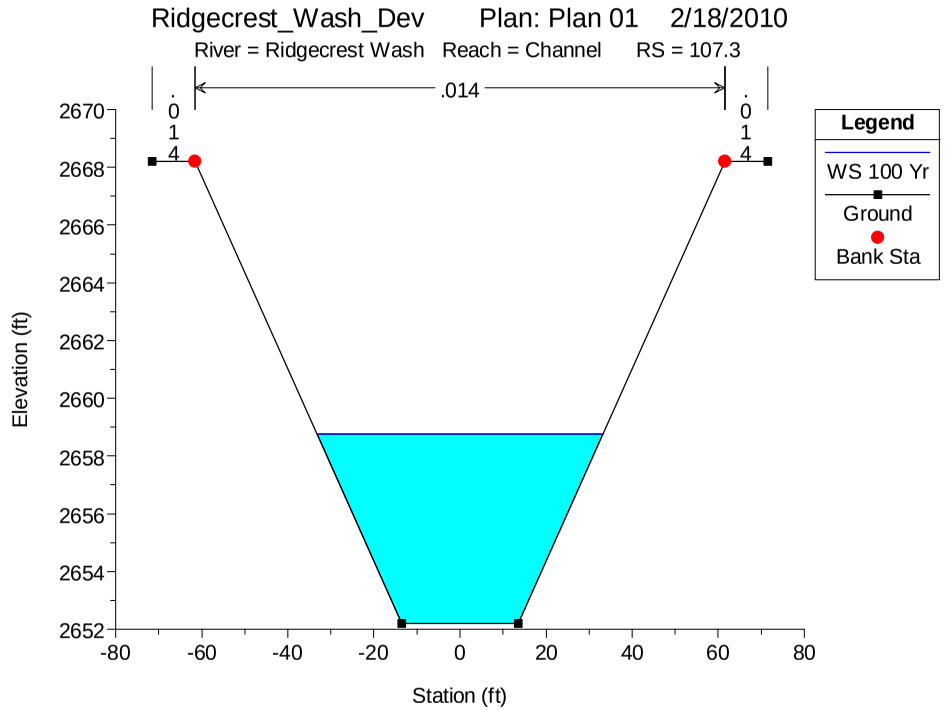
Station (ft)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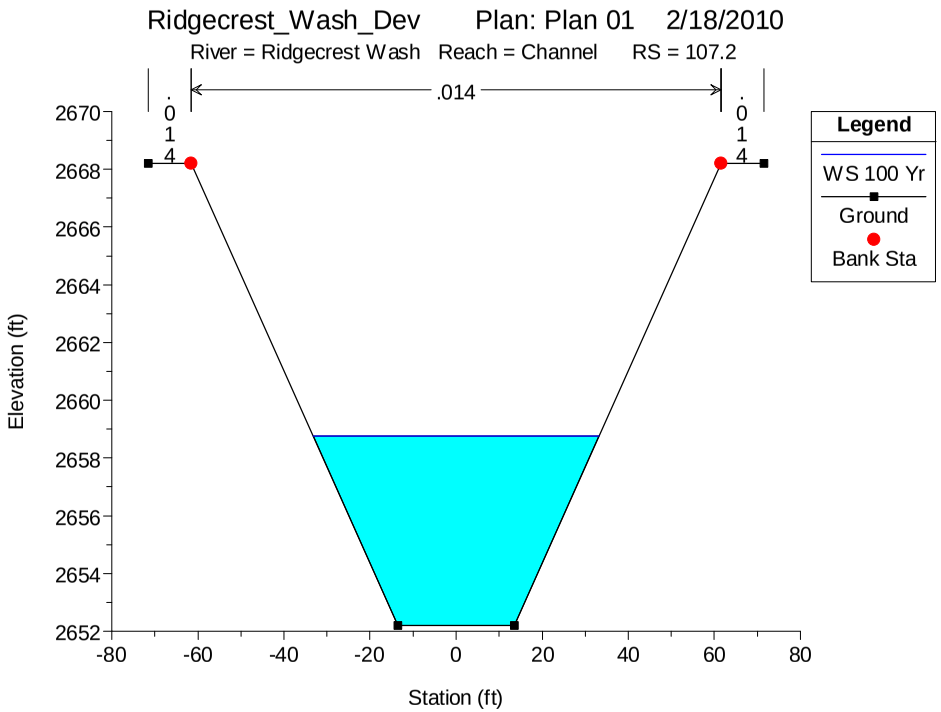
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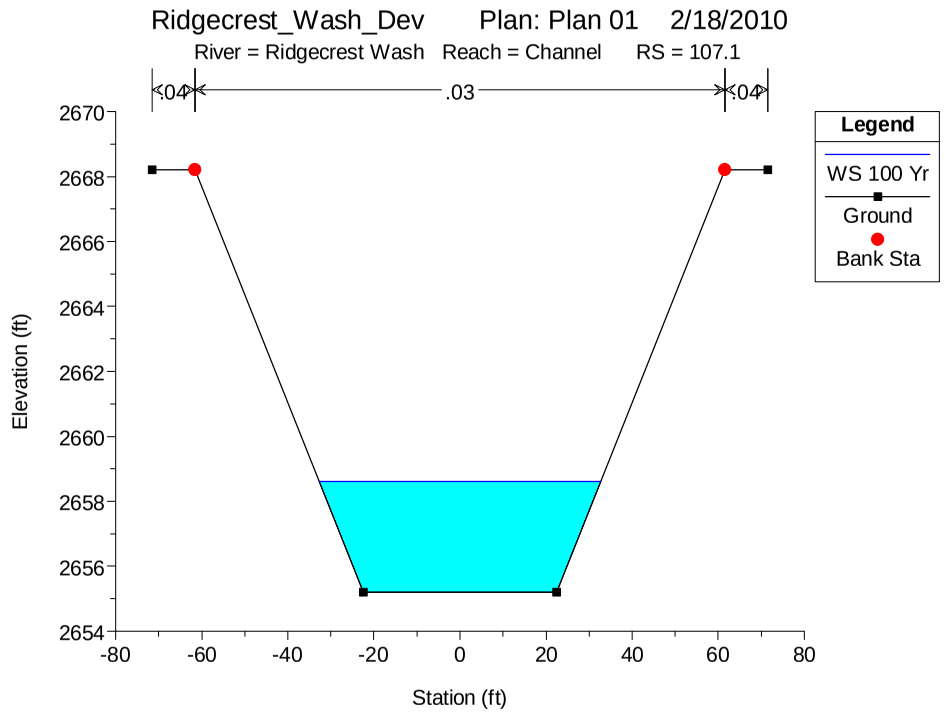
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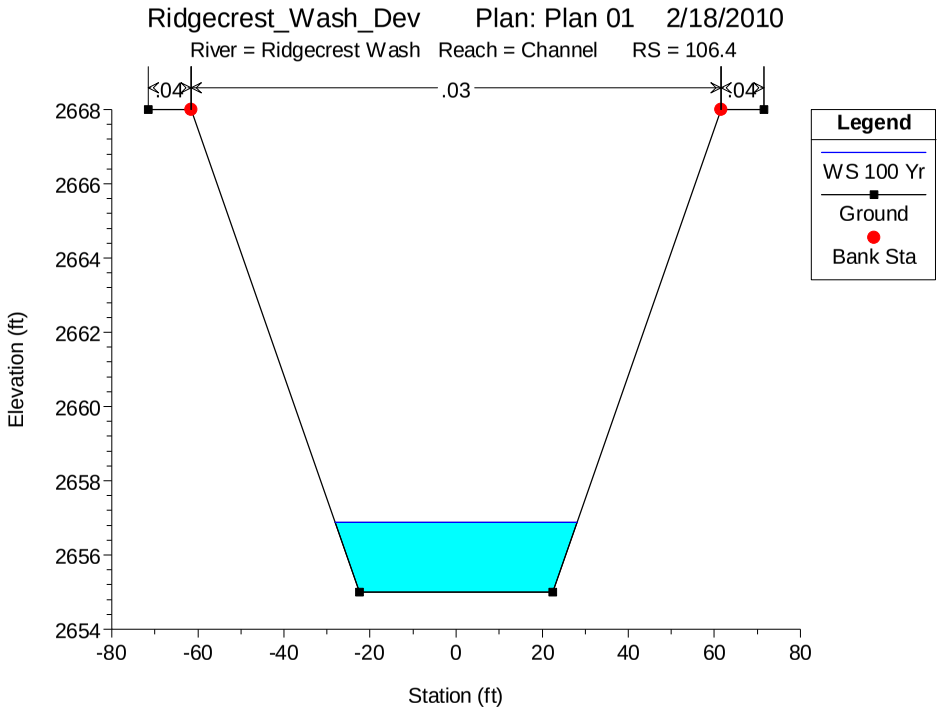
Bank Sta
Elevation (ft)
Station (ft)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Legend
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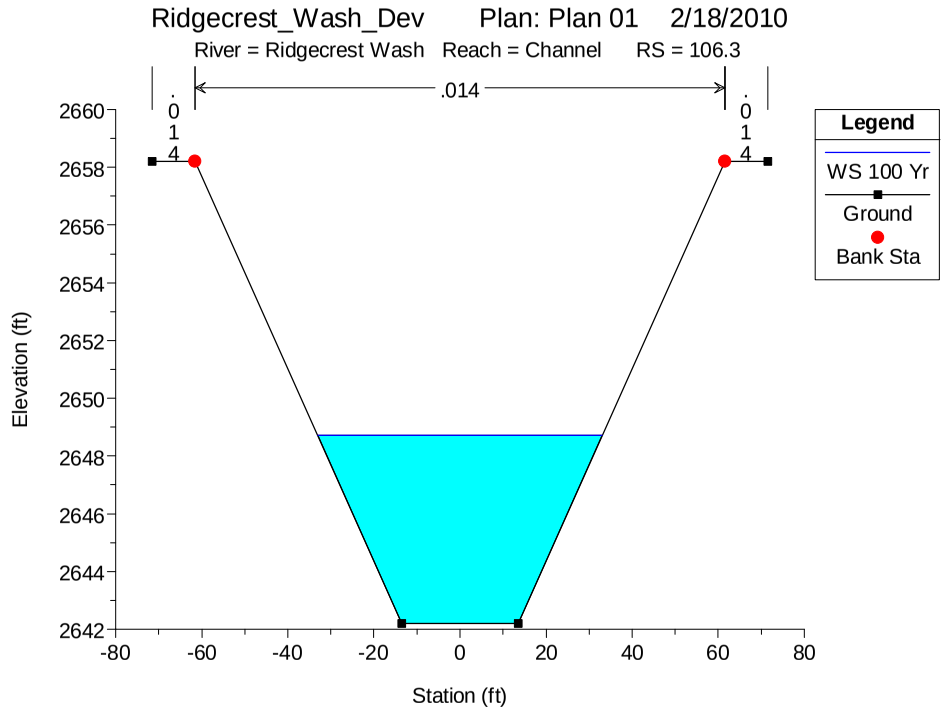
Bank Sta
Elevation (ft)
Station (ft)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Bank Sta
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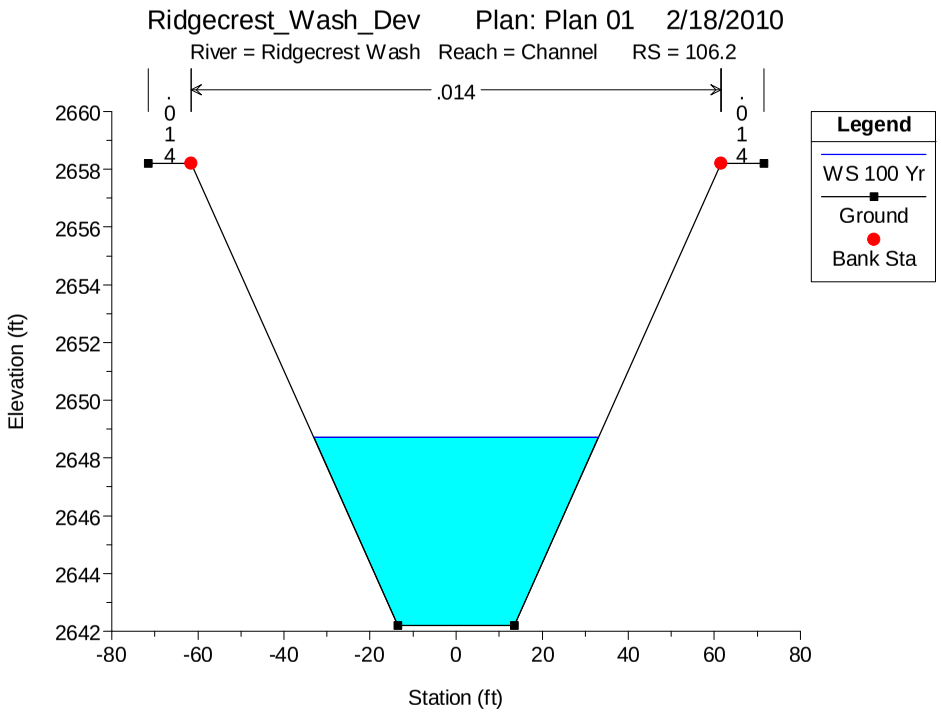
Station (ft)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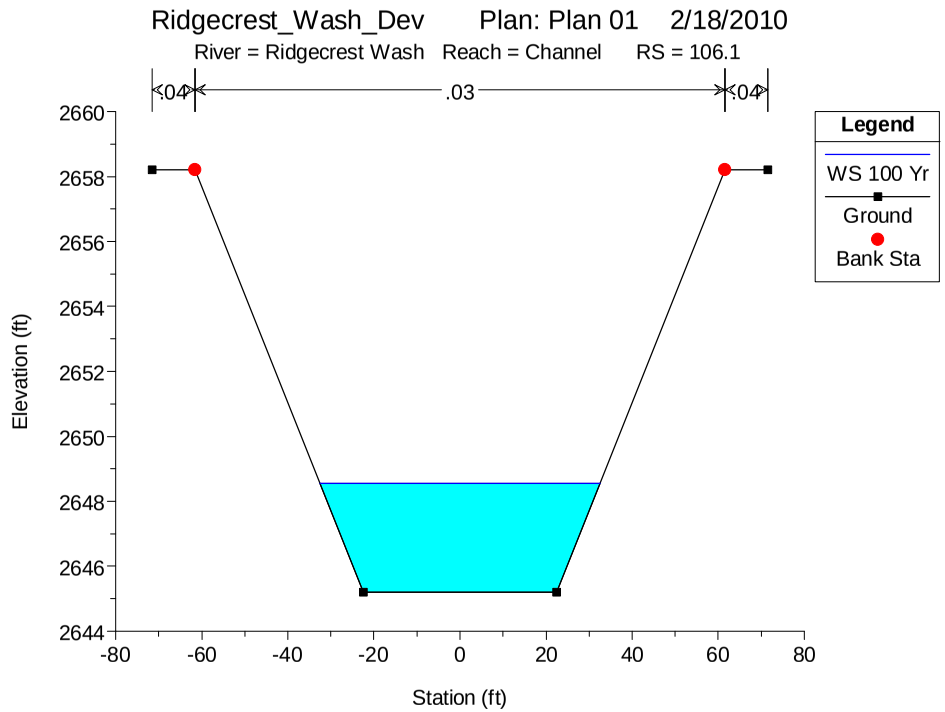
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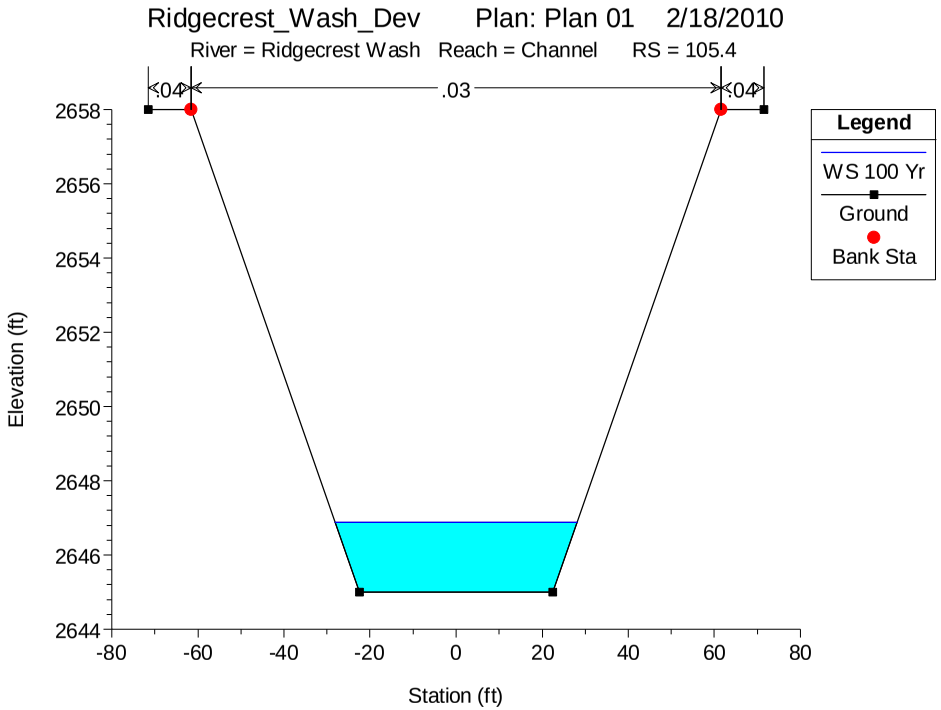
Bank Sta
Elevation (ft)
Station (ft)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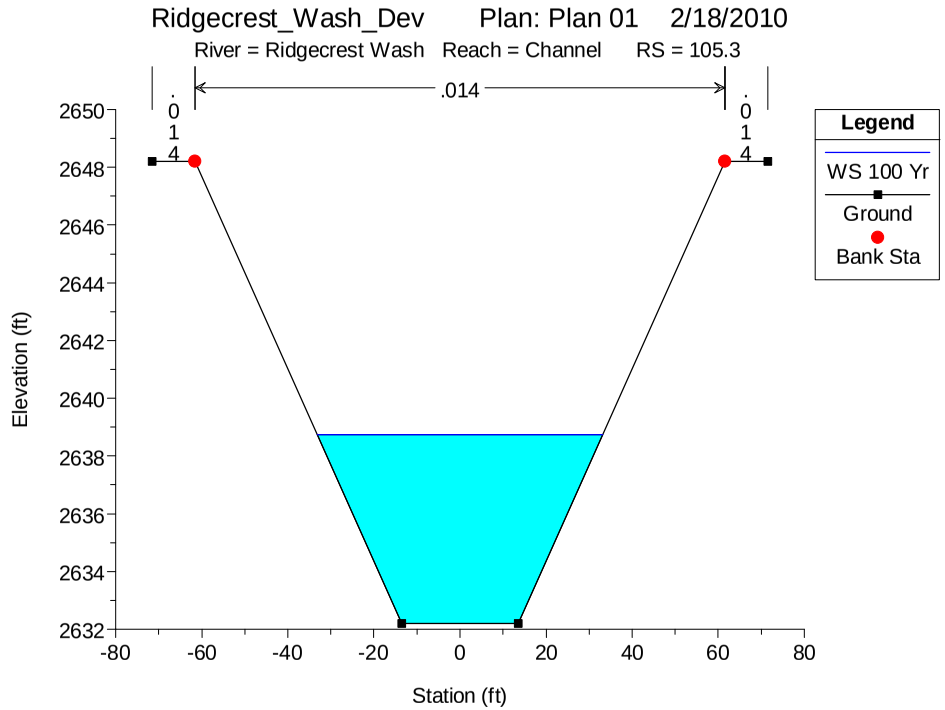
Station (ft)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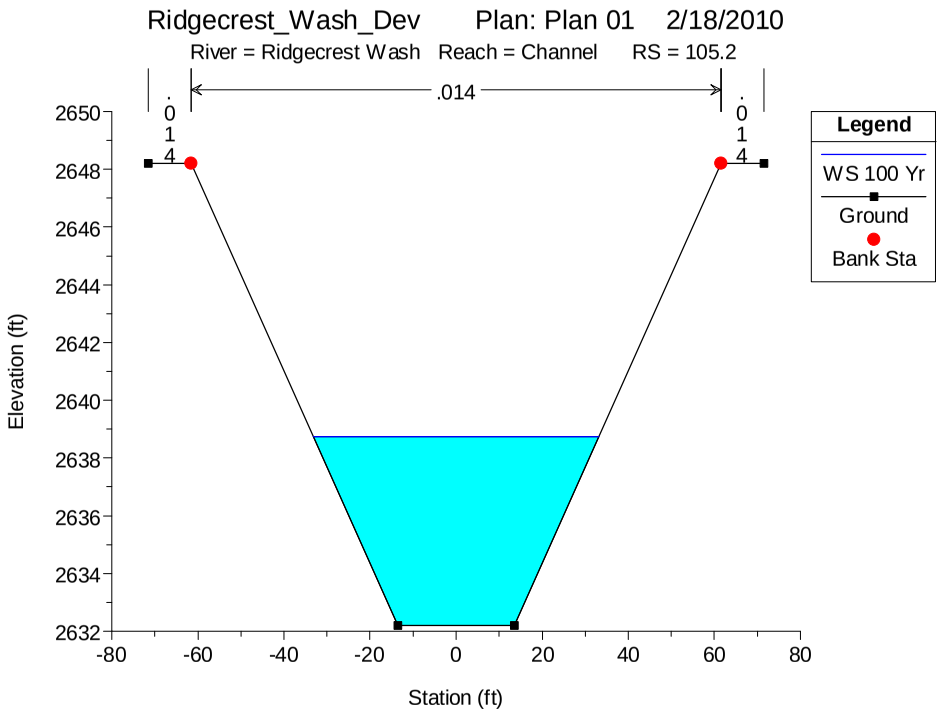
Station (ft)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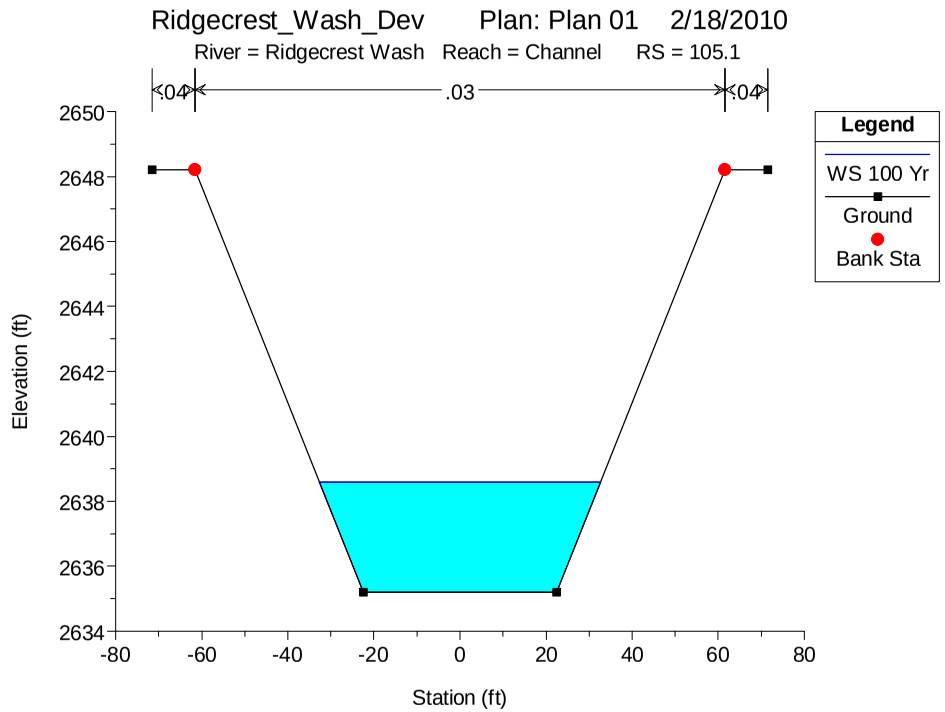
Station (ft)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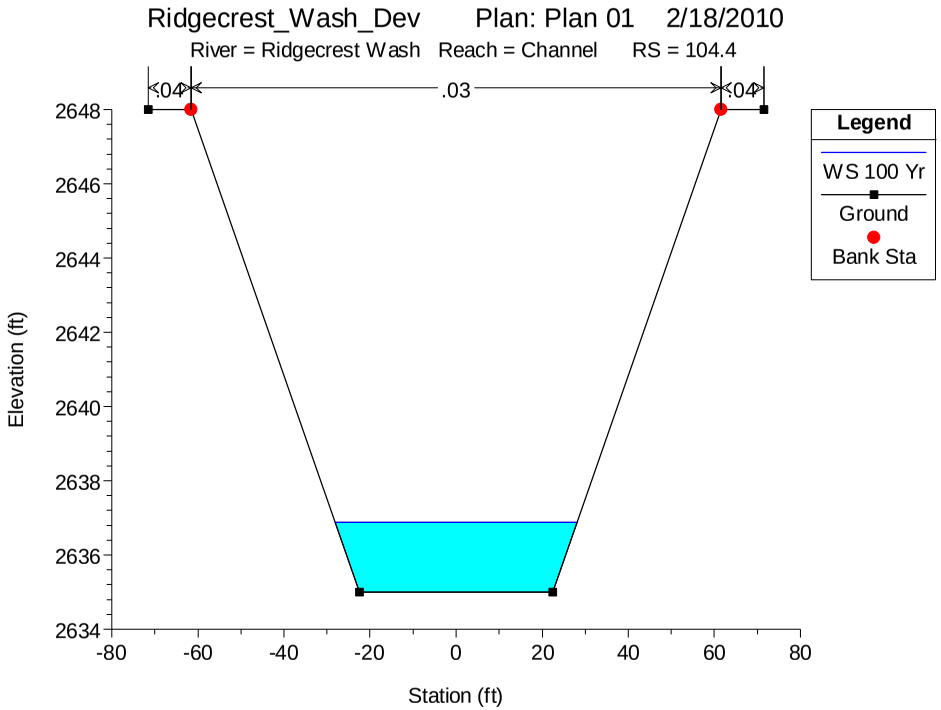
Station (ft)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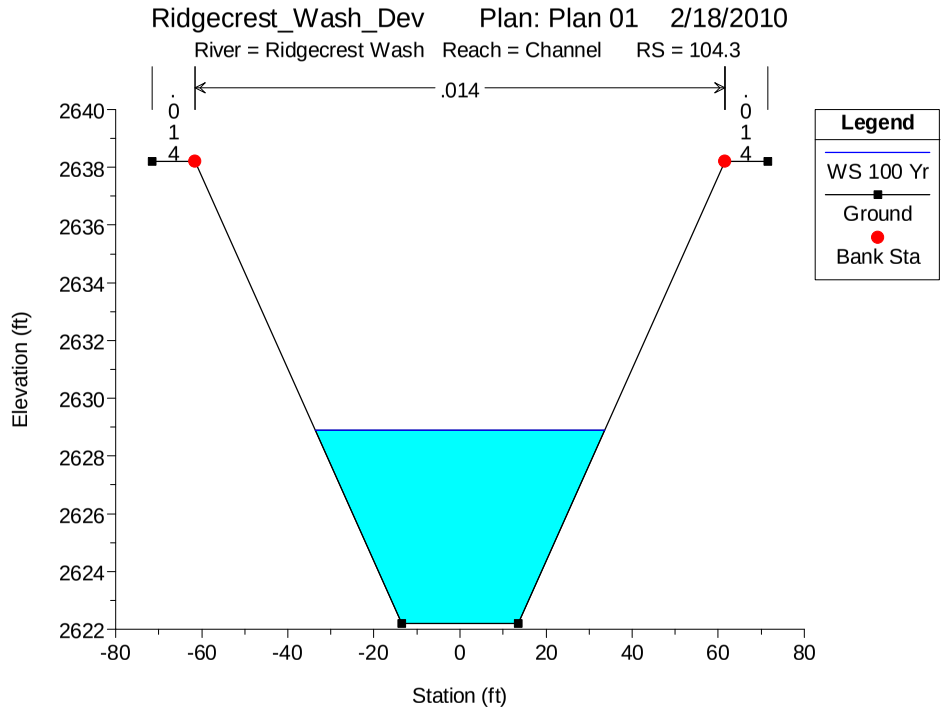
Station (ft)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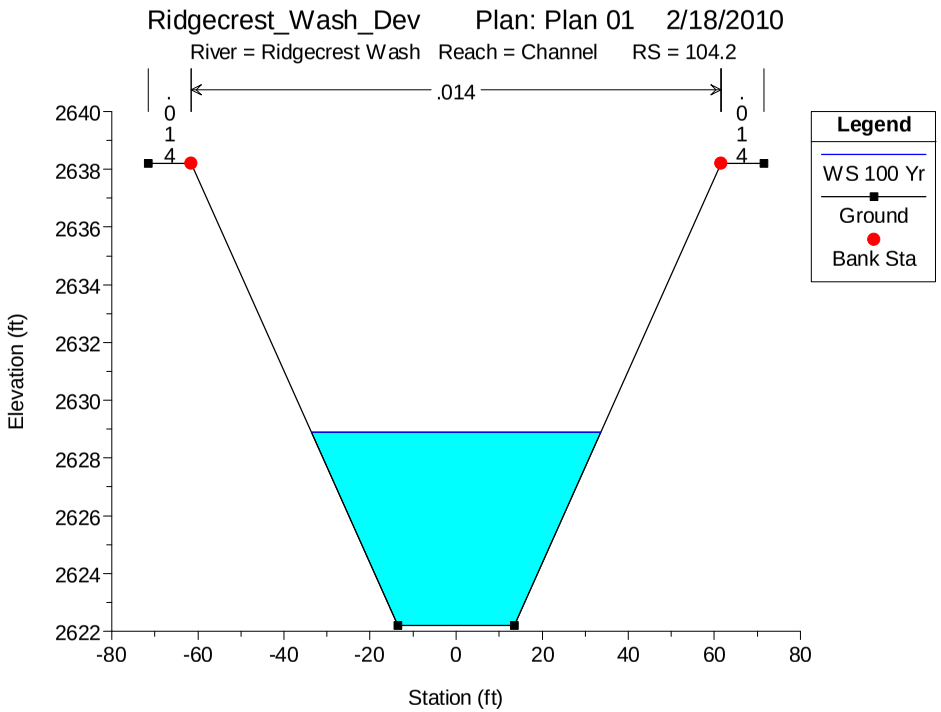
Elevation (ft)
Station (ft)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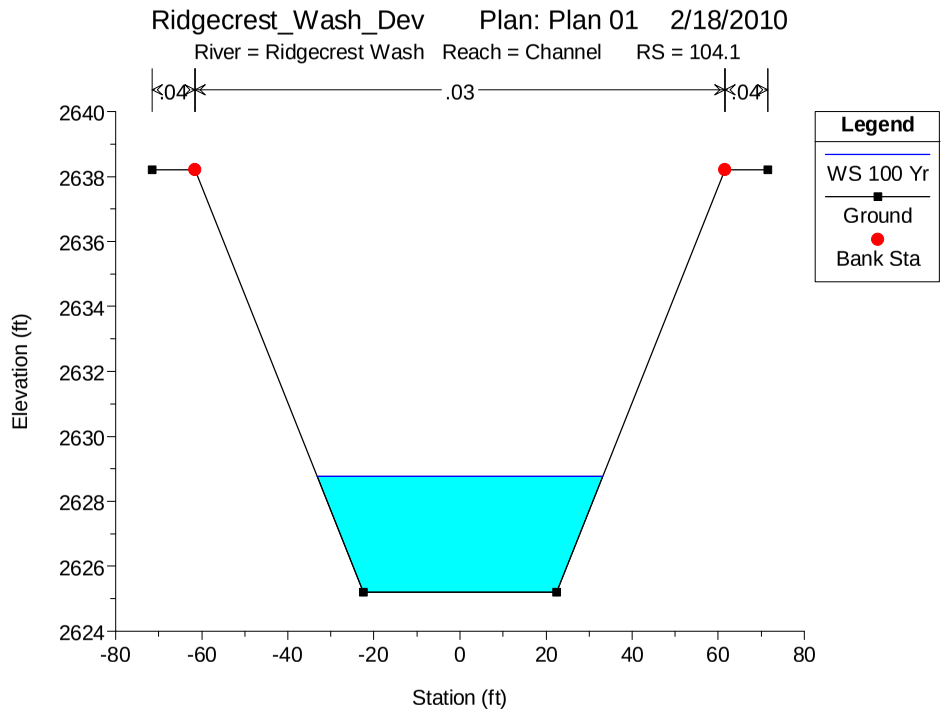
Elevation (ft)
Station (ft)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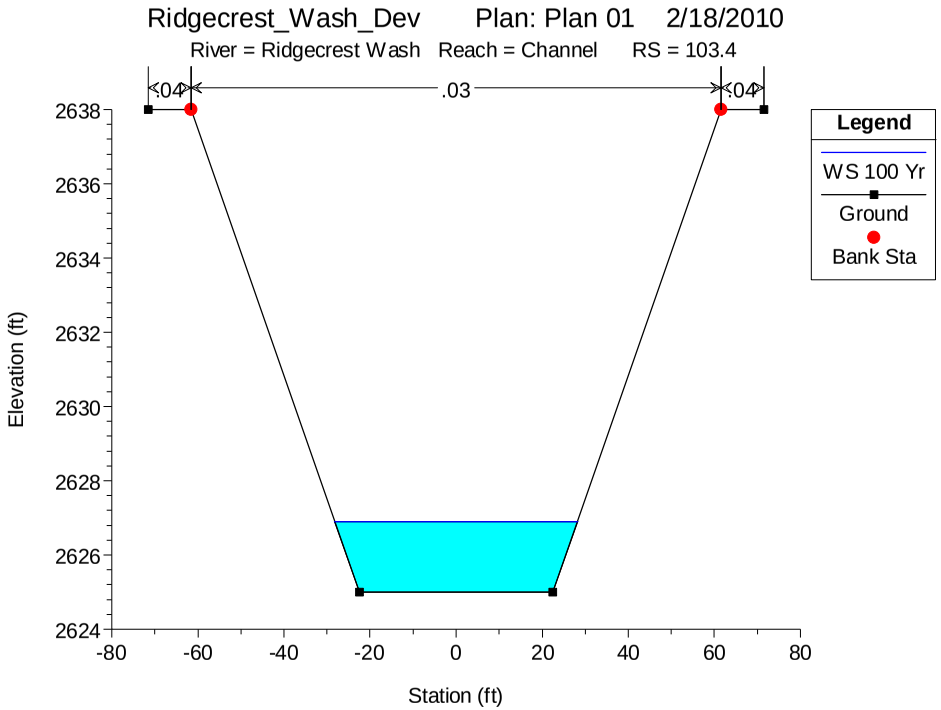
Bank Sta
Elevation (ft)
Station (ft)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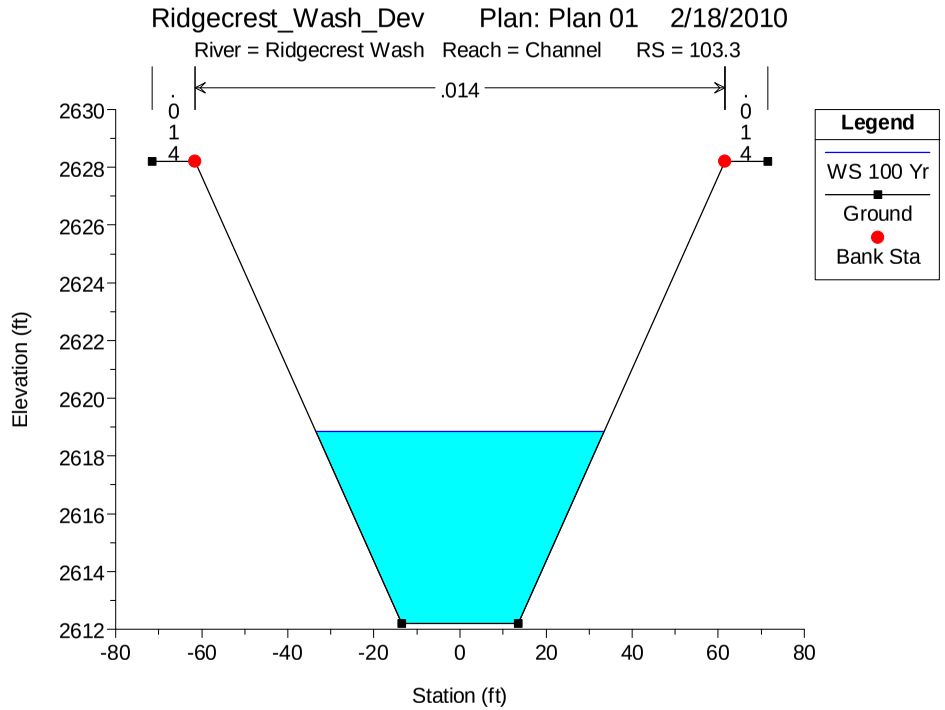
Bank Sta
Elevation (ft)
Station (ft)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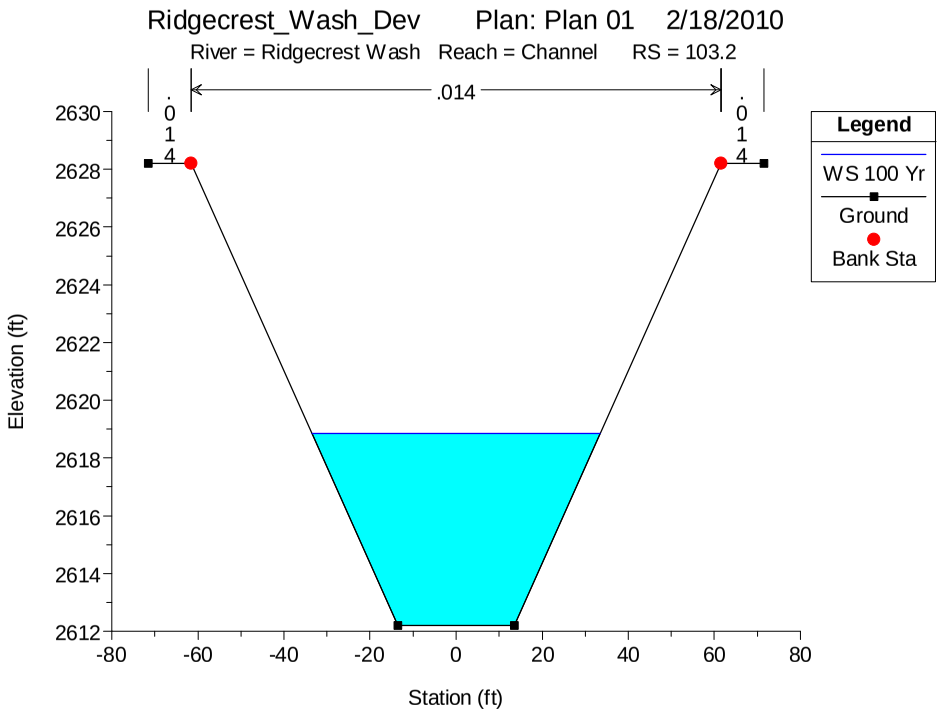
Station (ft)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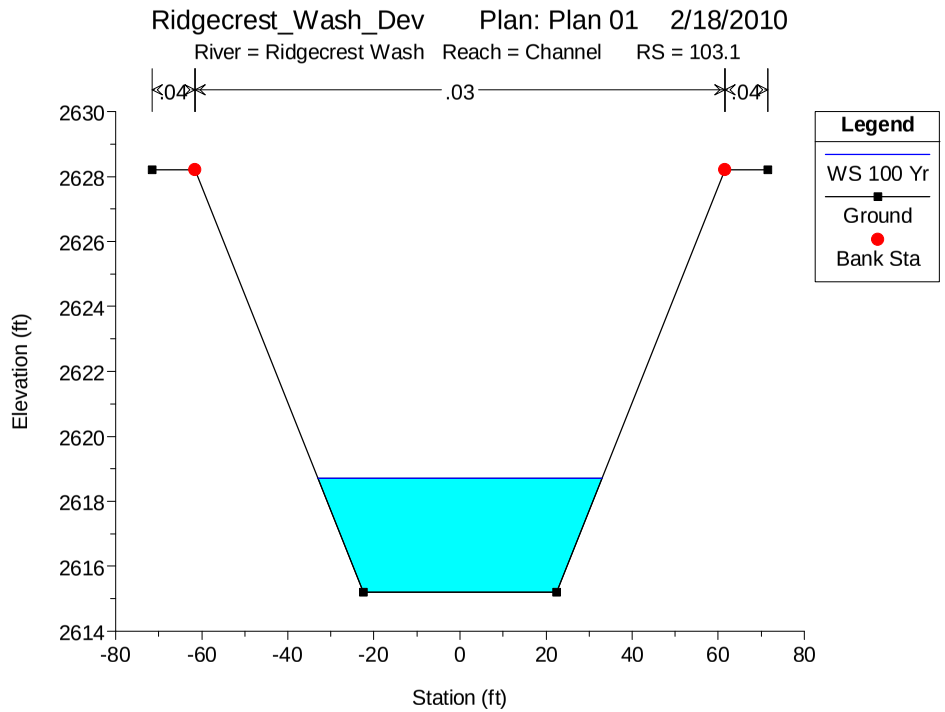
Elevation (ft)
Station (ft)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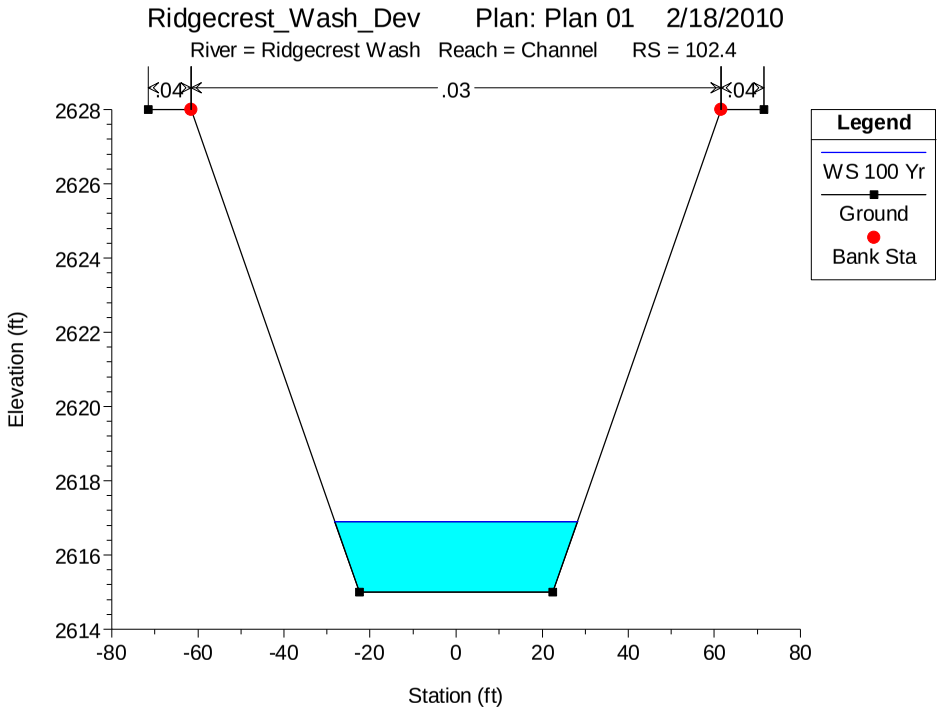
Elevation (ft)
Station (ft)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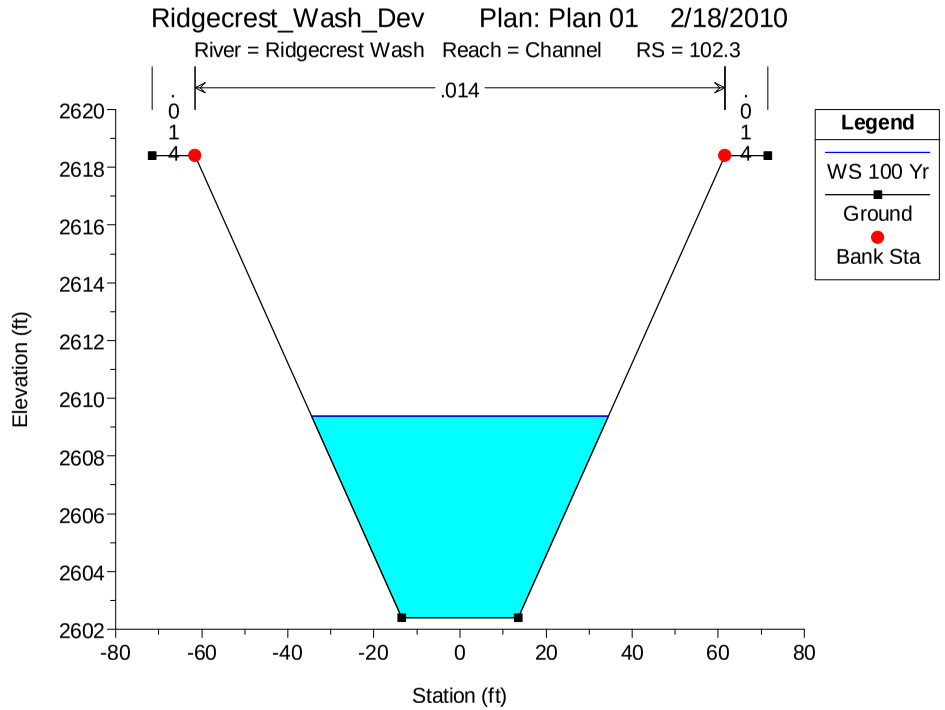
Station (ft)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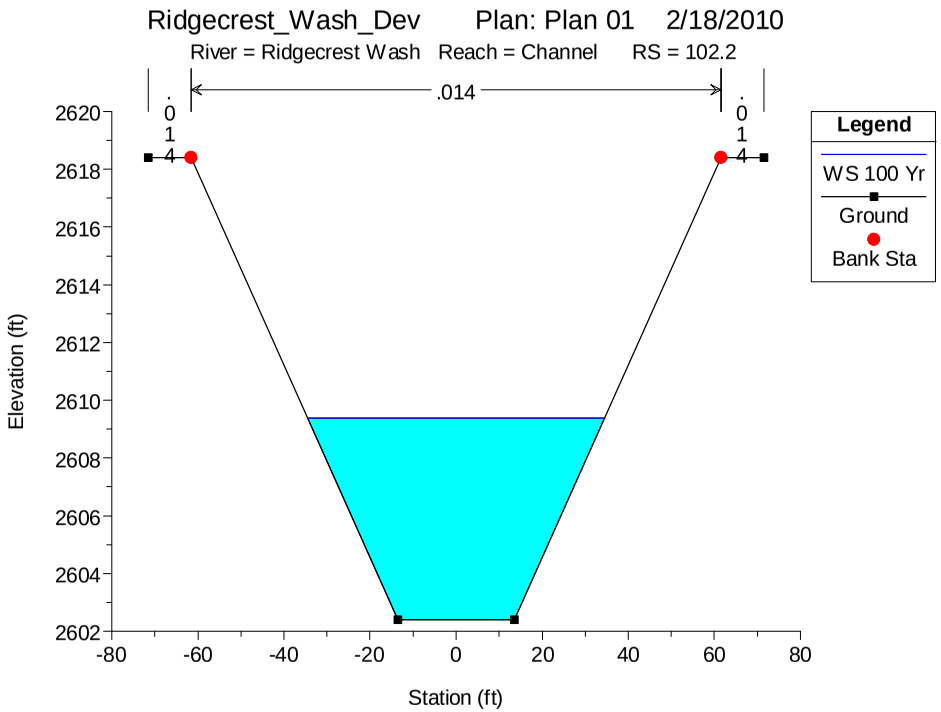
Elevation (ft)
Station (ft)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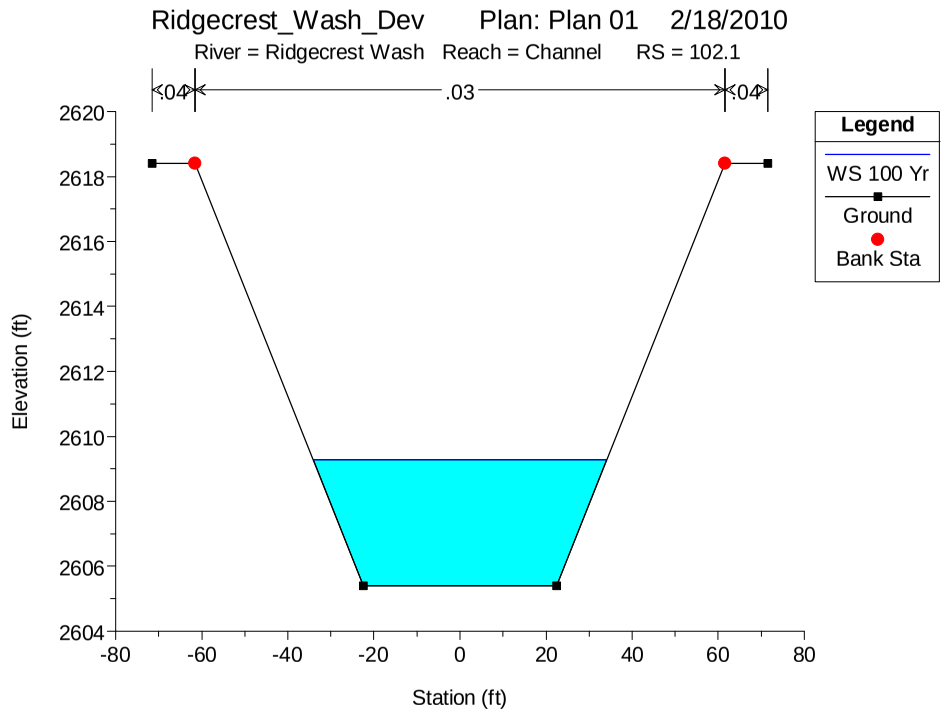
Bank Sta
Elevation (ft)
Station (ft)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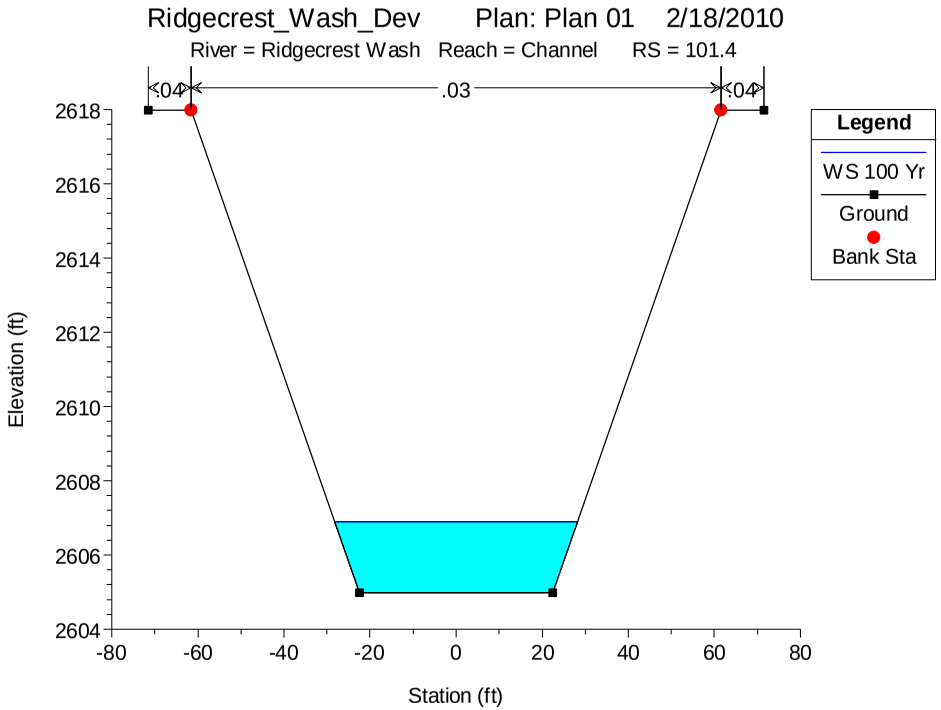
Elevation (ft)
Station (ft)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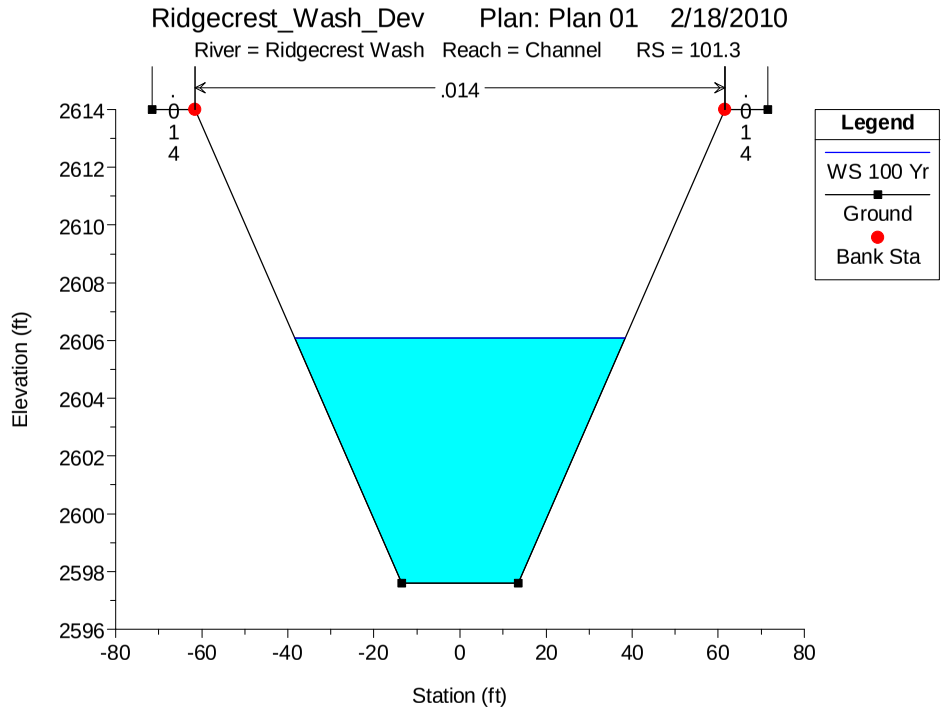
Bank Sta
Elevation (ft)
Station (ft)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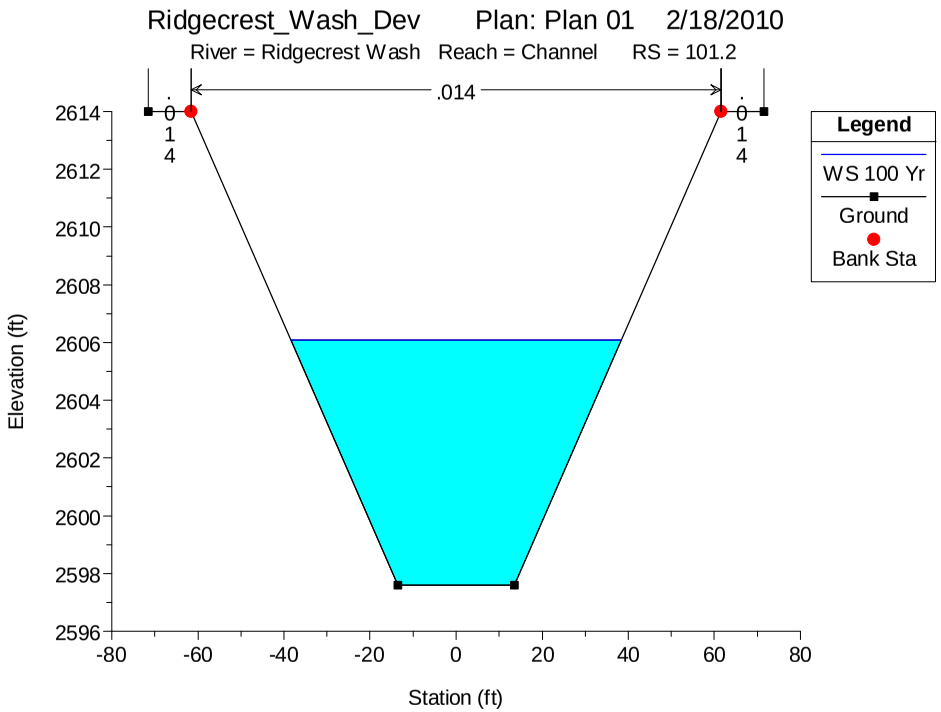
Bank Sta
Elevation (ft)
Station (ft)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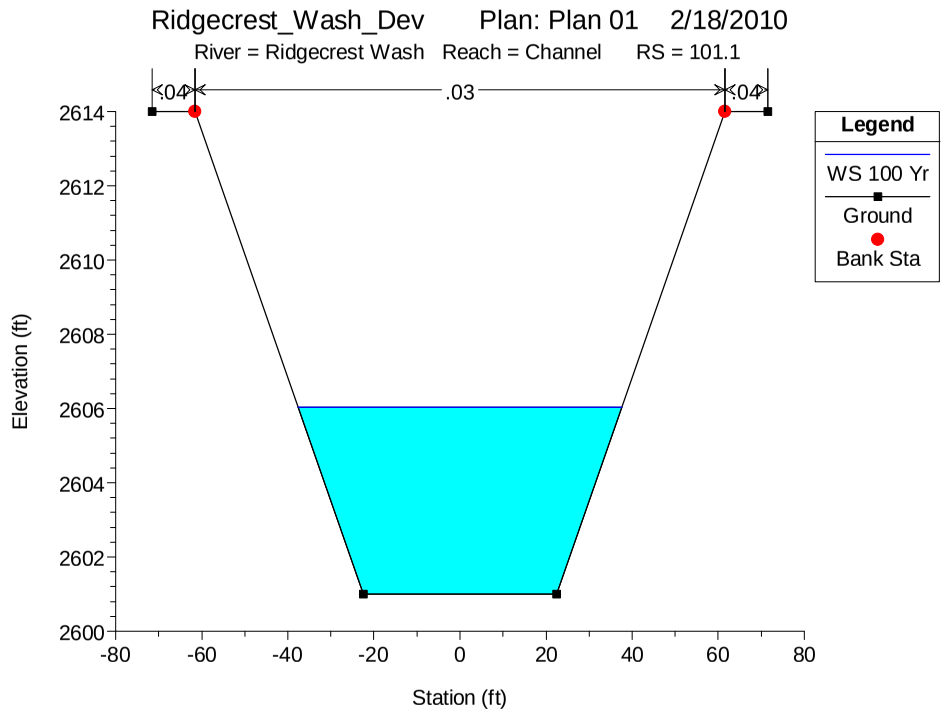
Bank Sta
Elevation (ft)
Station (ft)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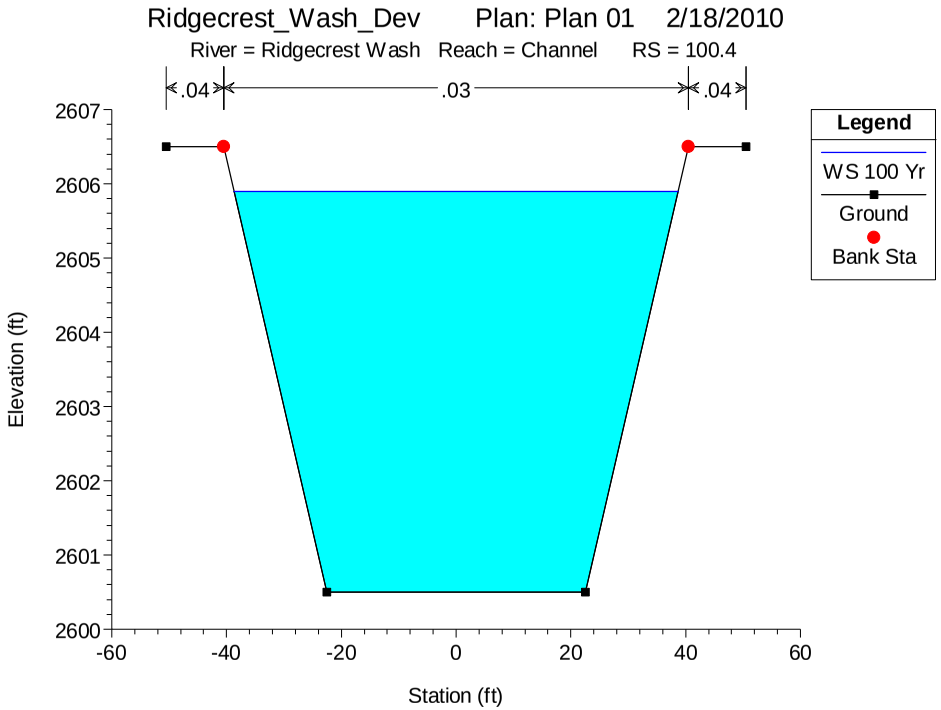
Bank Sta
Elevation (ft)
Station (ft)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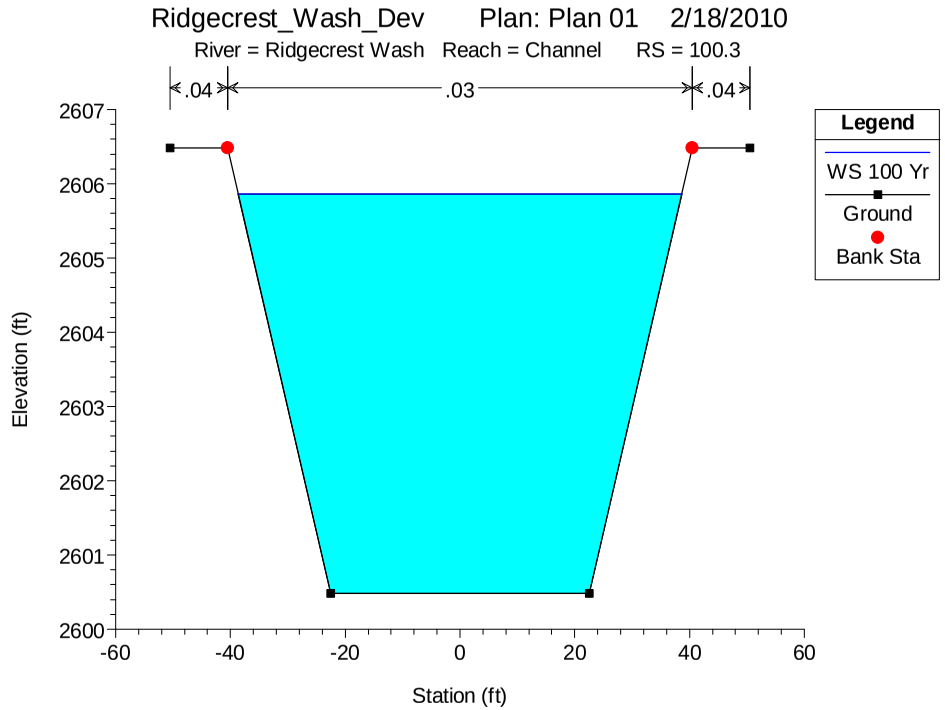
Bank Sta
Elevation (ft)
Station (ft)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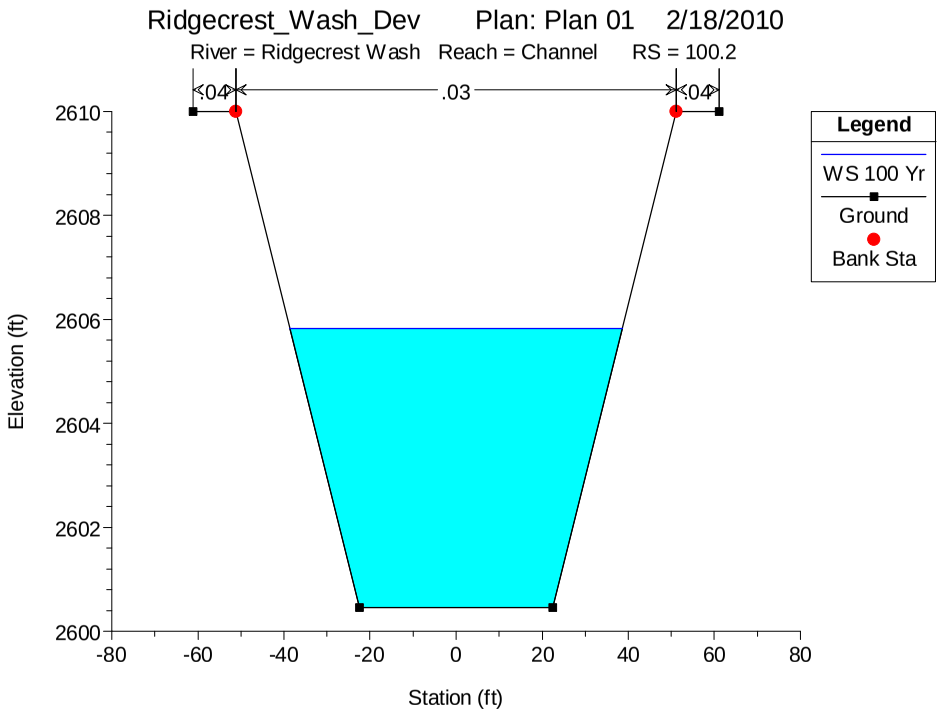
Bank Sta
Elevation (ft)
Station (ft)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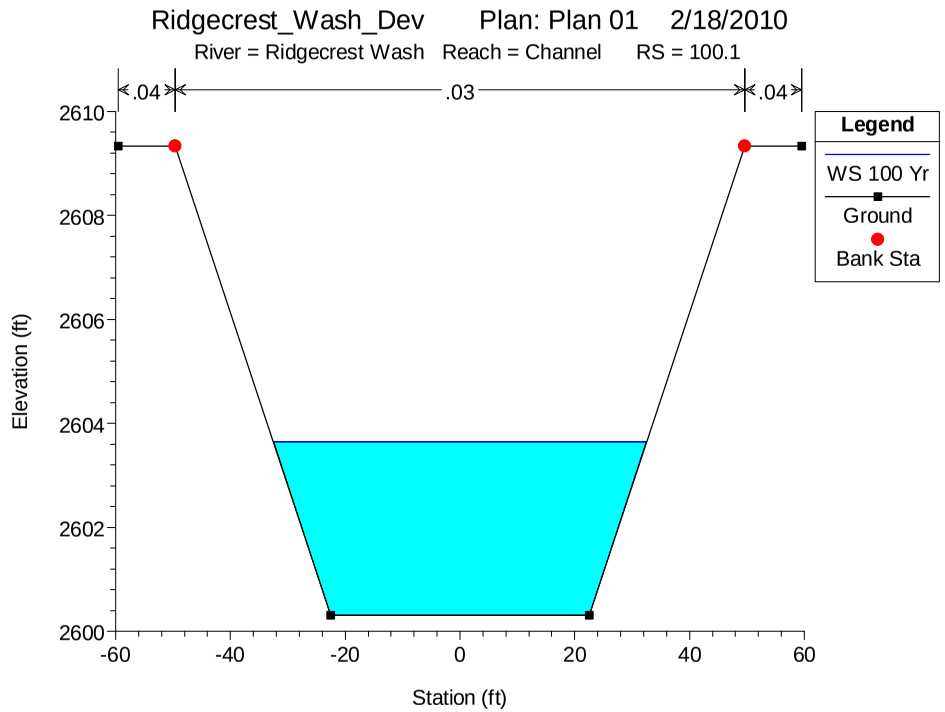
Bank Sta
Elevation (ft)
Station (ft)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.04
.03
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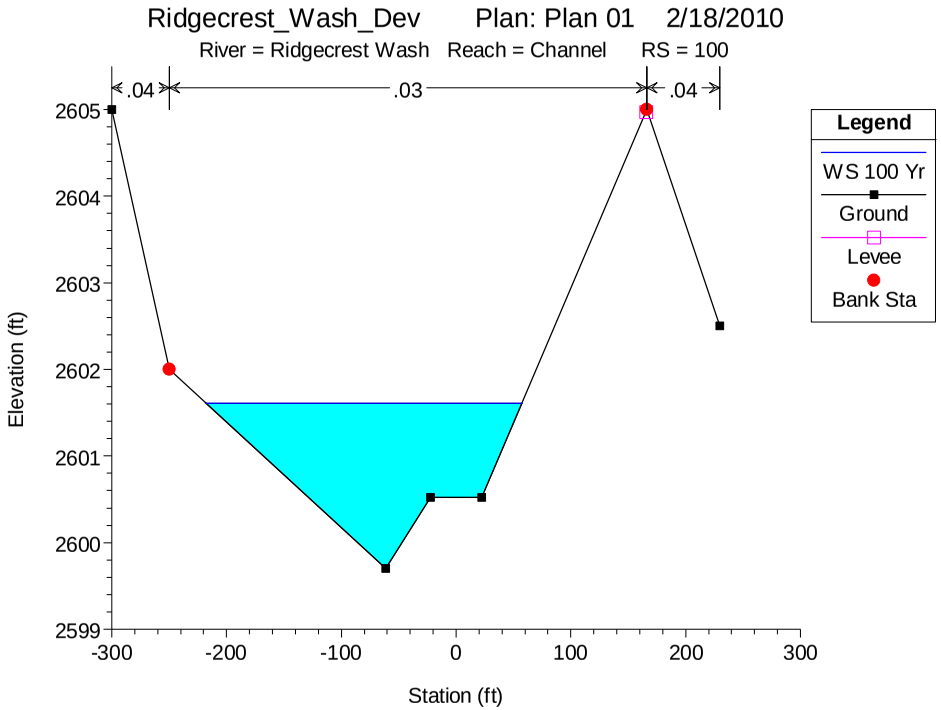
Bank Sta
Elevation (ft)
Station (ft)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.03
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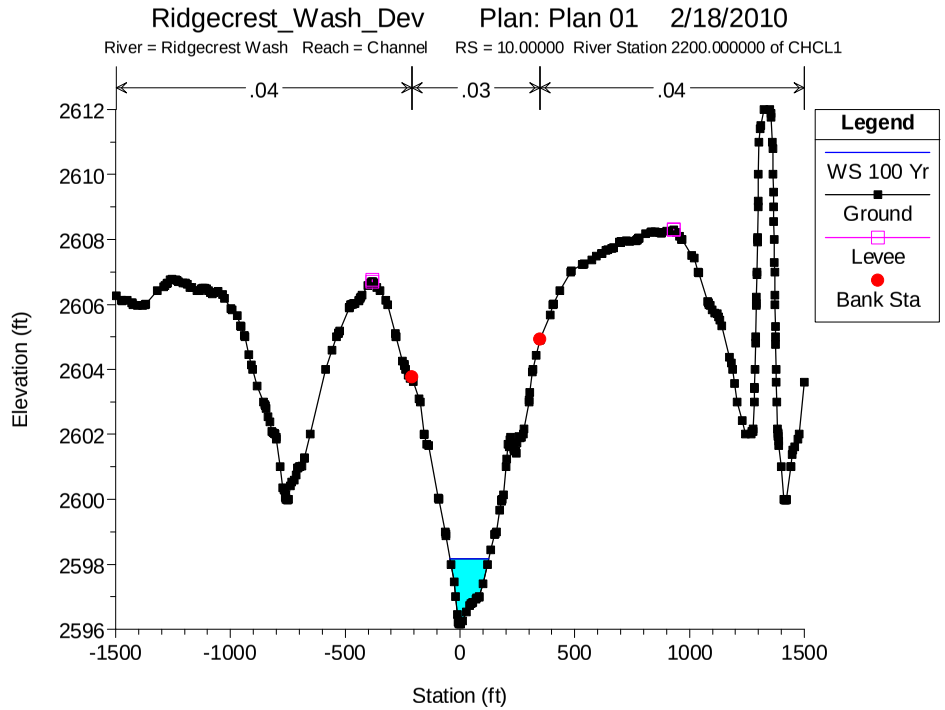
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)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.03
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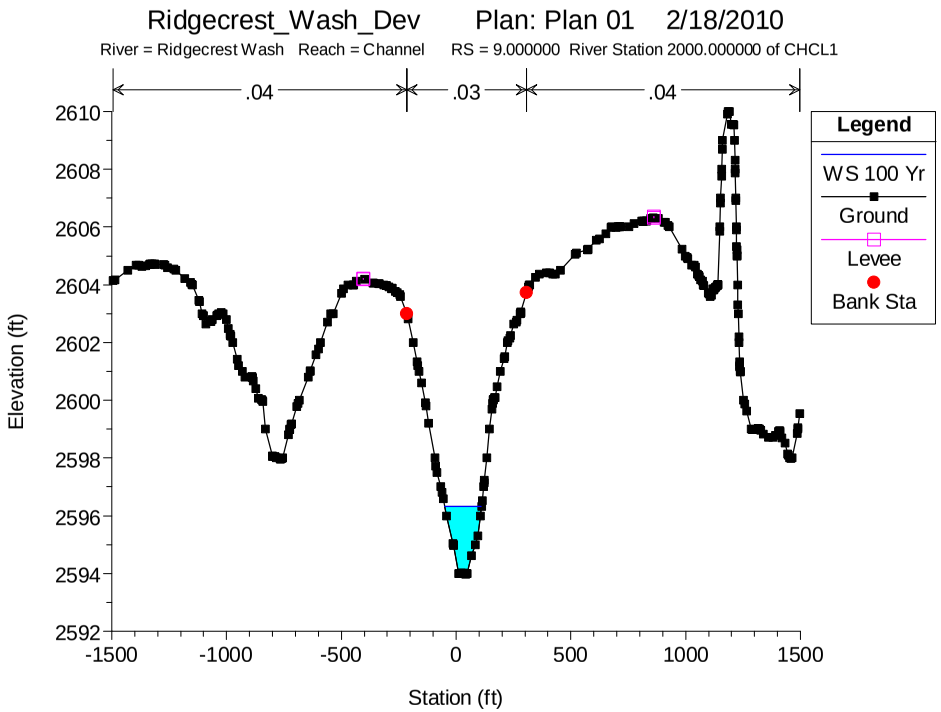
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)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.03
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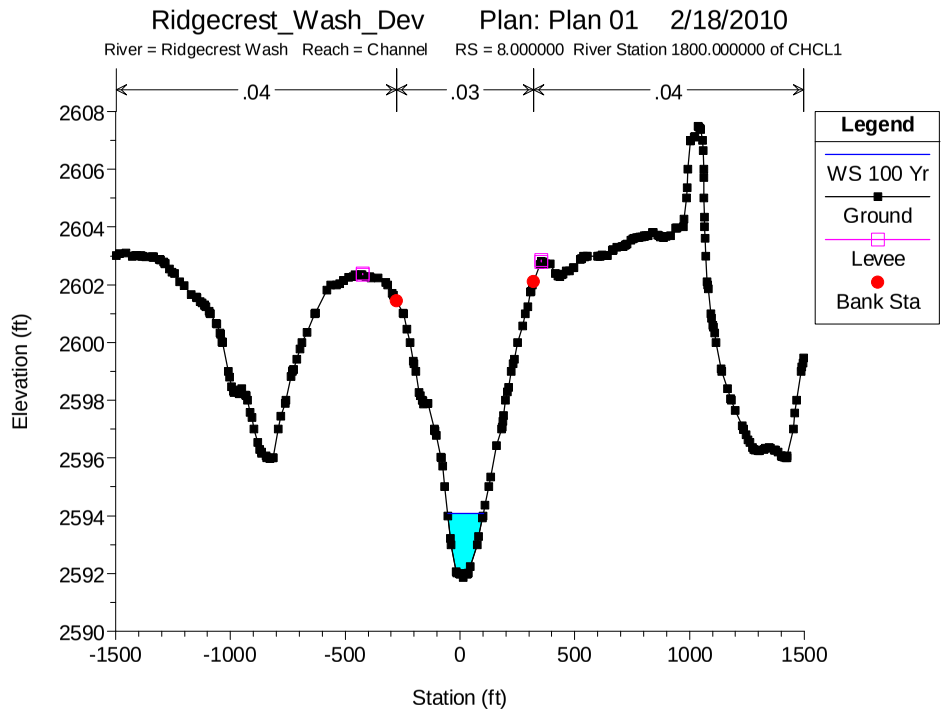
Levee
Bank Sta
Elevation (ft)
Station (ft)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Ground
Levee
Bank Sta
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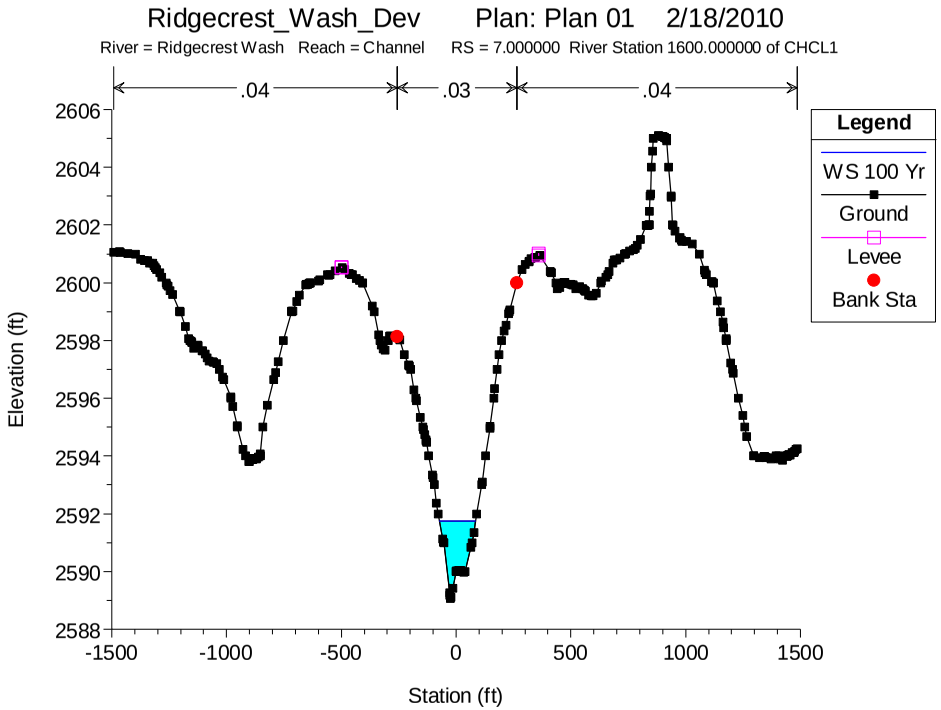
Station (ft)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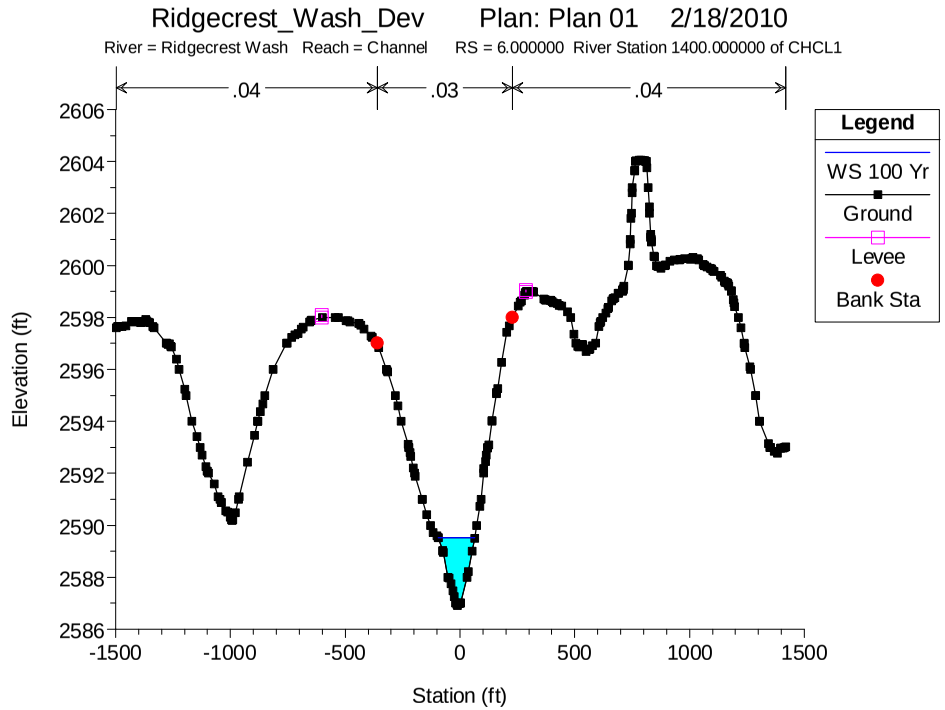
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)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.03
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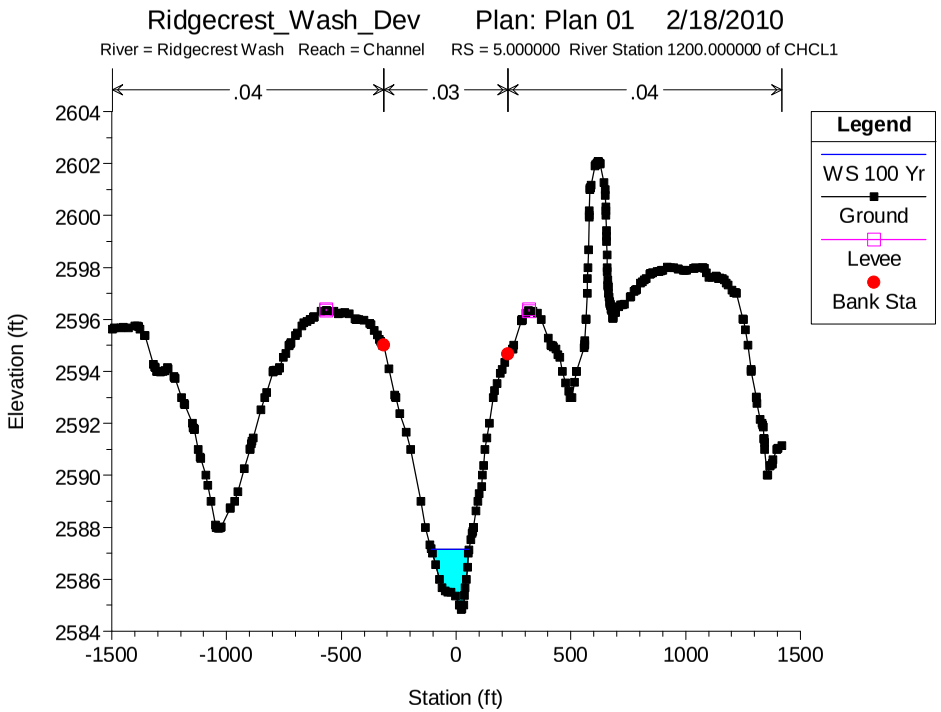
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)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.03
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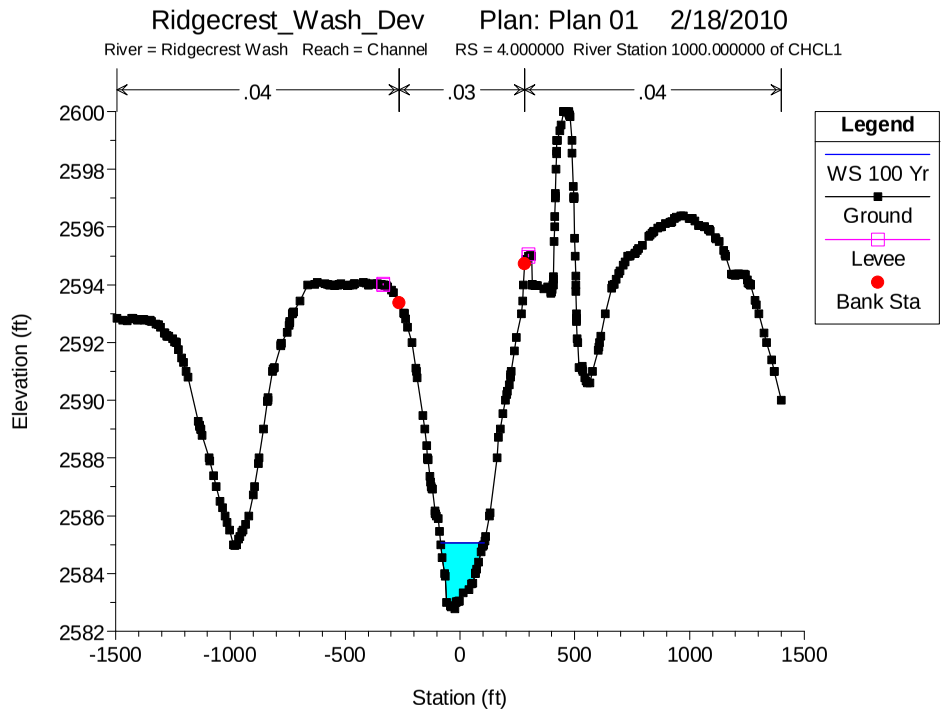
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)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.03
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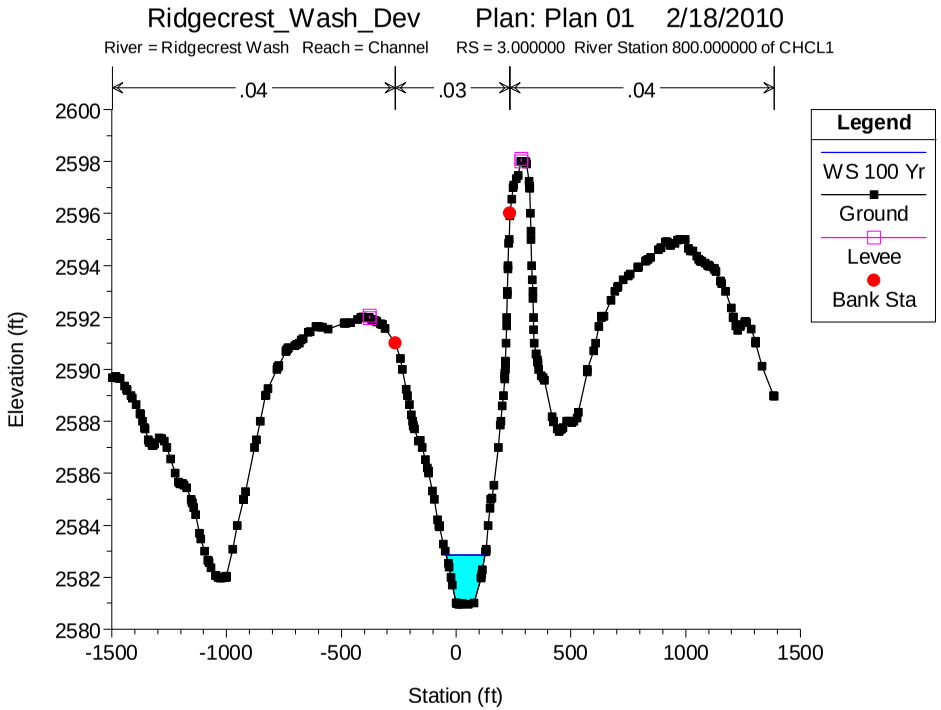
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)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.03
.04
Legend
WS 100 Yr
Ground
Levee
Bank Sta
Elevation (ft)
2600
2598
2596
2594
2592
2590
2588
2586
2584
2582
2580
-1500
-1000
-500
0
500
1000
1500
Station (ft)

DECLARATION OF SERVICE

I, Elizabeth Copley, declare that on February 23, 2010, I served and filed copies of the attached Ridgecrest Solar Power Project (Docket No. 09-AFC-9) Supplemental Data Response Information for Soils and Water (175, 176, 177, 180, 181, 185, 191, 192). The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at:

[http://www.energy.ca.gov/sitingcases/solar_millennium_ridgecrest].

The document has been sent to both the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit, in the following manner:

(*Check all that Apply*)

For service to all other parties:

_ sent electronically to all email addresses on the Proof of Service list;

X by personal delivery or by overnight delivery service or depositing in the United States mail at Oakland, California with postage or fees thereon fully prepaid and addressed as provided on the Proof of Service list above to those addresses **NOT** marked "email preferred."

AND

For filing with the Energy Commission:

X sending an original paper copy and one electronic copy, mailed and emailed Respectively, to the address below (preferred method);

OR

__ depositing in the mail an original and 12 paper copies, as follows:

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 09-AFC-9
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512
docket@energy.state.ca.us

I declare under penalty of perjury that the foregoing is true and correct.

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA
1516 NINTH STREET, SACRAMENTO, CA 95814
1-800-822-6228 – WWW.ENERGY.CA.GOV

APPLICATION FOR CERTIFICATION
For the *RIDGECREST SOLAR POWER PROJECT*

Docket No. 09-AFC-9

PROOF OF SERVICE
(Revised 2/4/2010)

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