Schaaf & Wheeler
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MEMORANDUM

TO:	Mike Muelrath, PE	DATE:	12/16/2020
FROM:	Katie Hogan, PE, CFM	JOB#:	AABC.01
SUBJECT:	**100-year Base Flood Elevation Determination – Dry Creek**		

Introduction

The property owner at APN 034-190-040 in Napa County, California is planning construction onsite. The site is generally located in the unincorporated Napa County west of Highway 29 and south of Darms Lane, as shown in Figure 1. The property boundary borders the Dry Creek stream centerline within the Napa River watershed.

A portion of the lot is located within a FEMA Special Flood Hazard Area (SFHA) Zone A floodplain on the Federal Insurance Rate Map (FIRM) panel number 06055C0505F, effective September 28, 2010, as shown in Figure 2.

The project is subject to County floodplain ordinances per the National Flood Insurance Program (NFIP), which requires that the building be elevated at least 1 foot above the base flood elevation (BFE). We completed a hydrologic and hydraulic analysis to calculate the BFE along Dry Creek near the project site.

This memorandum documents the methodology and results of the analysis.

Site Conditions

The project site is adjacent to Dry Creek, which is upstream of the Highway 29 and Solano Avenue bridge crossings. The property mostly consists of vineyards. Dry Creek conveys runoff from the Enchanted Hills east towards the Napa River.

Neighboring properties have obtained approved Letters of Map Amendment (LOMAs). LOMA case number 14-09-0308A for APN 034-212-011 across the creek from the subject property lists the 100-year base flood elevation as 106.2 feet, NAVD 88. This property is indicated in Figure 3.

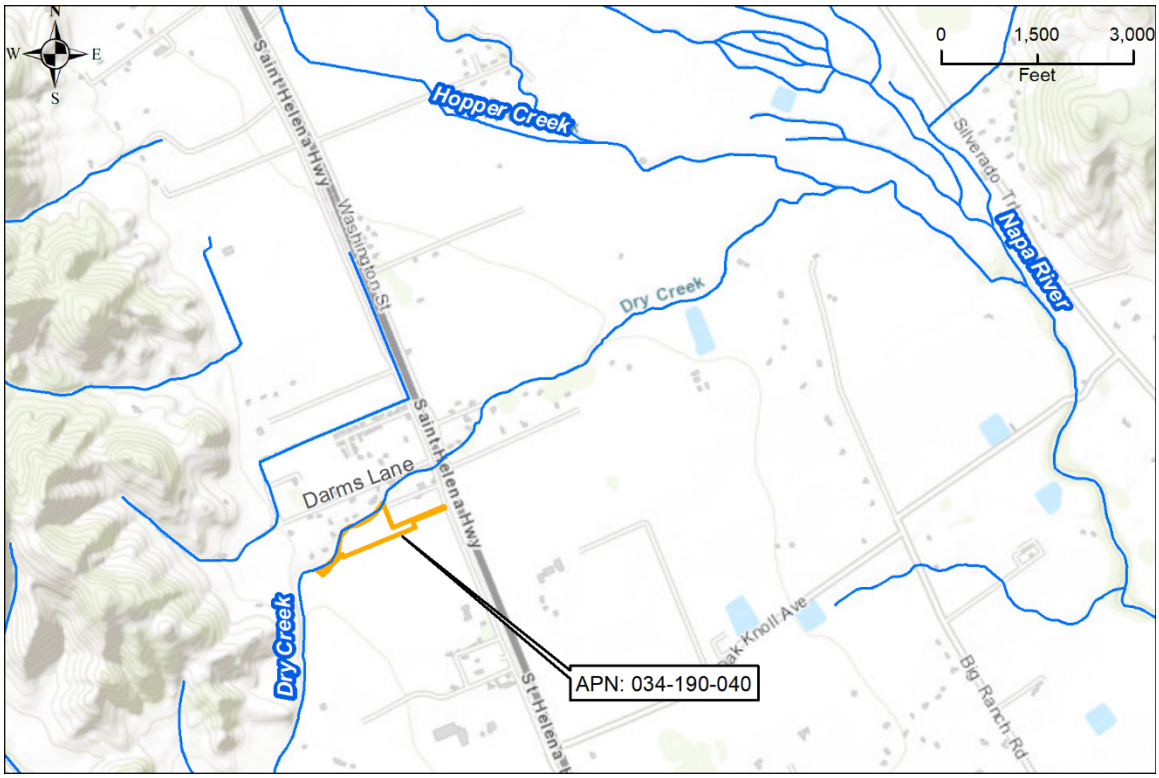


Figure 1: Location Map

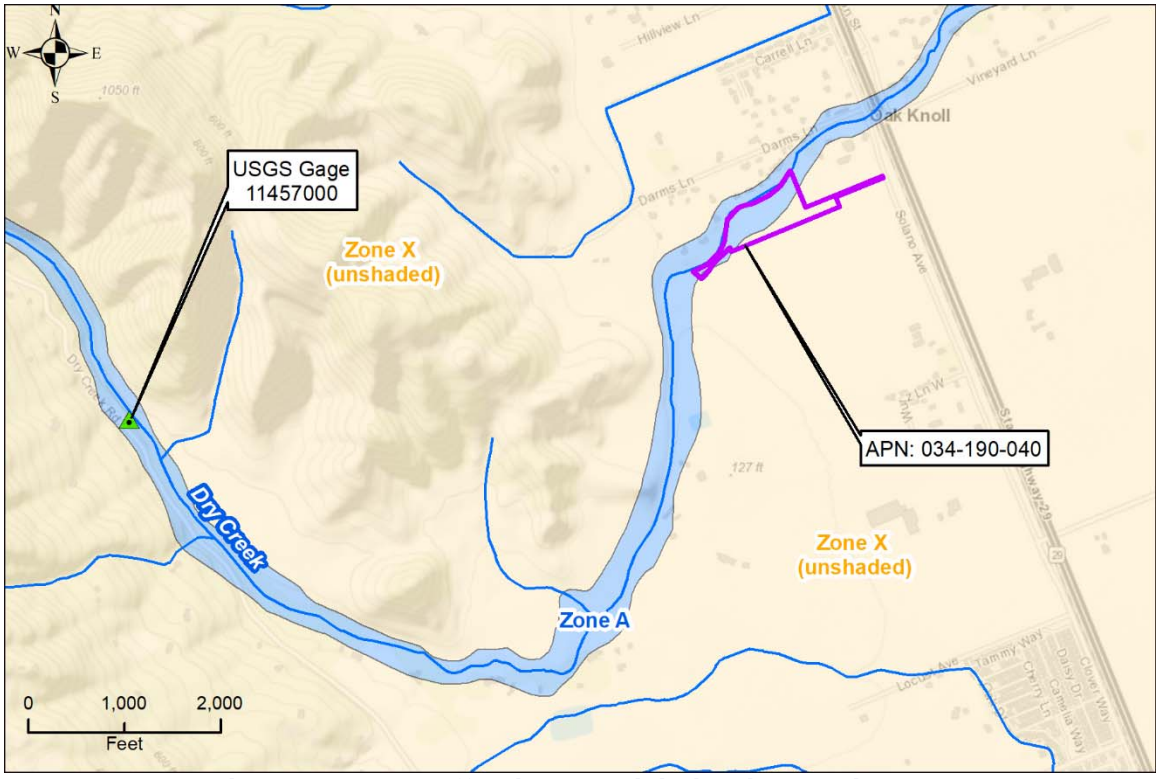


Figure 2: FEMA Effective Special Flood Hazard Areas

Hydrology

The United States Geological Survey (USGS) stream gage 11457000 (Figure 2) collected flowrate information along Dry Creek, which is upstream of the project site. The USGS Stream Statistics (StreamStats) program used this gage data to calculate a 100-year flowrate of 4,170 cfs. We used this flowrate in the hydraulic model to calculate 100-year BFEs along the subject property.

The StreamStats gage information is included as an attachment to this memorandum.

As-built plans from the California Department of Transportation (CalTrans) indicate a 100-year flowrate of 4,000 cfs at the Highway 29 bridges. While the flowrates are similar, we used the USGS gage data for this analysis because it is more conservative.

Hydraulics

We created a HEC-RAS model for Dry Creek to calculate 100-year water surface elevations. The model extends along Dry Creek from just downstream of Washington Street to approximately 800 linear feet upstream of the subject property. We developed cross sections geometry using the 2014 digital elevation model (DEM) for Napa County. We also used an onsite survey performed in 2014 to supplement the LiDAR data. The survey is included as an attachment.

We used as-built bridge plans provided by CalTrans to model the Solano Avenue, Highway 29, and Washington Street Bridges, which are attached to this memorandum.

We estimated the railroad bridge height and pier information based on available data in the CalTrans plans and the available topographic information. We used a conversion of +2.66 feet to translate the elevations (NGVD 29) in the bridge plans in order to reference the NAVD 88 vertical datum.

The elevation conversion is based on the Napa County benchmarks 723-C and 724-C along Solano Avenue near the project site. The vertical datum conversion from NGVD 29 to NAVD 88 was not available for Dry Creek in the FEMA Flood Insurance Study (FIS).

We used a normal depth of 0.7 percent slope as the downstream boundary condition measured using the DEM. There are no available, effective base flood elevations along Dry Creek. We assigned Manning's roughness values based on aerial imagery and Google Street View photos.

Figure 4 shows an image of Dry Creek looking upstream from Solano Avenue. We used a roughness value of 0.04 for the channel, and 0.08 was used for the overbanks to represent the trees, development, and vineyards in the overbanks. We reduced channel roughness to 0.035 beneath the bridges since vegetation is minimal.

Ineffective flow areas represent the expansion and contraction of the floodplain through the bridges at a 1:1 ratio upstream and 4:1 downstream. We adjusted the contraction and expansion coefficients to 0.3 and 0.5, respectively, at the cross sections upstream and downstream of the bridges.

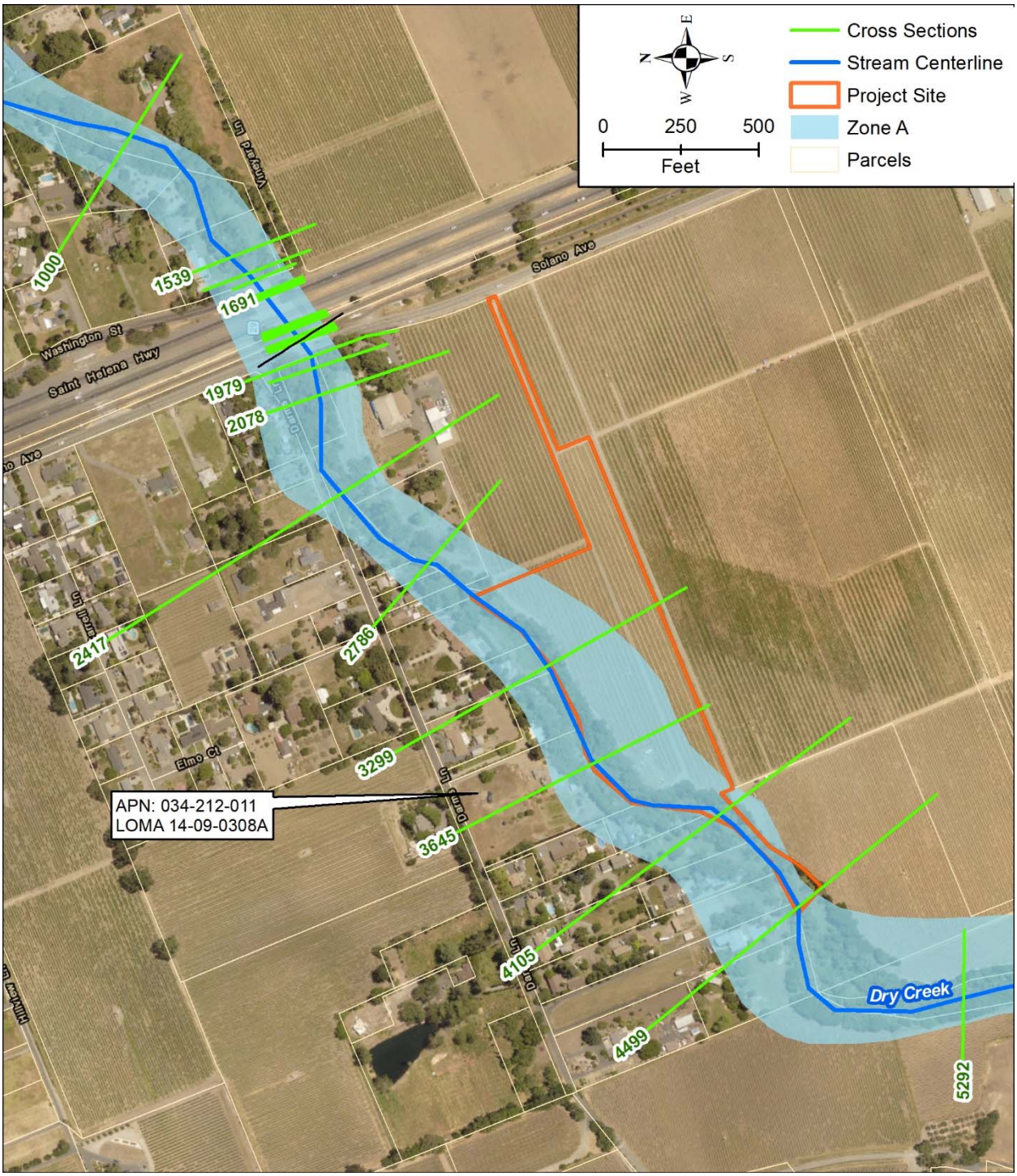


Figure 3: Hydraulic Work Map Dry Creek

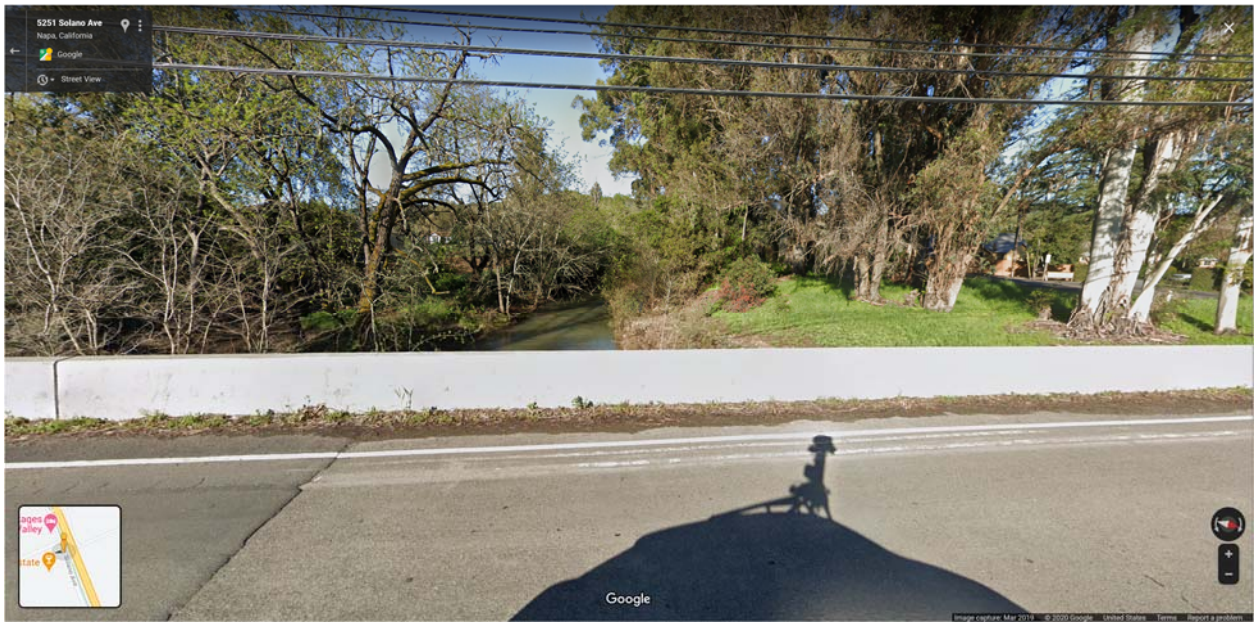


Figure 4: Google Street View on Solano Avenue Looking West (Upstream) at Dry Creek

Results

The results of the analysis indicate a 100-year base flood elevation of 109.51 feet, NAVD 88 at the upstream end of the property and 105.3 feet, NAVD 88, at the downstream end of the property.

The sections through the property site are highlighted in green in Table 1. Note that the calculated 100-year water surface elevation of 106.2 feet, NAVD 88, matches the base flood elevation determined as part of the LOMA for property APN 034-212-111.

The 100-year water surface elevation is generally contained within the channel banks of Dry Creek near the project site, as shown in Figure 5.

Table 1: Dry Creek 100-year Water Surface Elevations (ft, NAVD 88)

River Station	WSE (ft, NAV D88)	River Station	WSE (ft, NAV D88)	River Station	WSE (ft, NAV D88)
5292	114.89	1886	100.08	1703	97.18
4499	110.21	1881	100.09	1700	97.28
4105	109.51	1876	100.09	1697	97.40
3645	106.17	1870	100.10	1691	97.6
3299	105.30	1857	Railroad	1674	Washington Street
2786	103.52	1844	99.82	1645	97.64
2417	101.68	1840	99.80	1615	97.22
2078	100.77	1836	99.73	1539	96.67
2017	100.36	1832	99.66	1000	92.98
1979	100.42	1827	99.53		
1928	Solano Ave	1765	HWY 29		
1892	100.07	1709	96.94		

**Highlighted areas represent the project site*

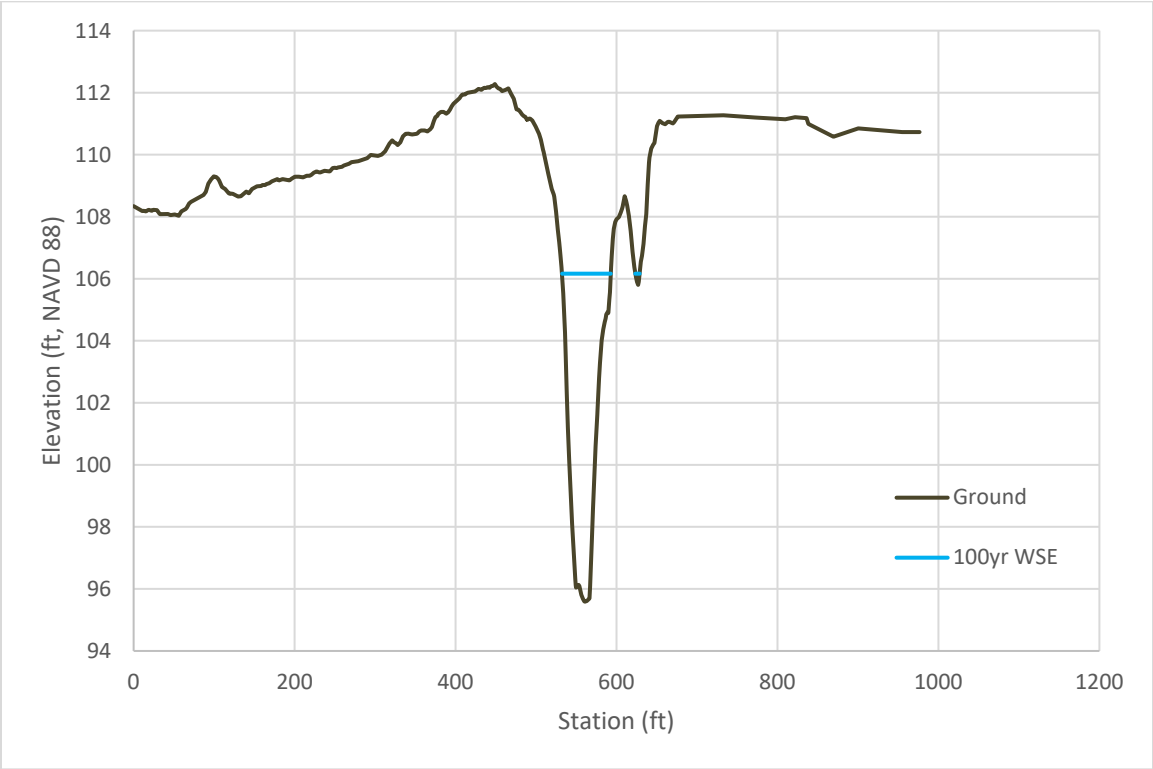


Figure 5: Cross Section 3645 100-year Water Surface Elevations

Recommendations and Conclusions

The results indicate that the 100-year flowrate calculated at the USGS gage on Dry Creek is contained within the channel banks where the floodplain is located within the subject property. The water surface elevation varies across the property site.

Note that the LiDAR data used for the channel geometry may not fully capture the channel flowline due to standing water and vegetation. A survey of the channel would provide additional detail and may change the calculations.

Structures constructed within the Zone A floodplain are required to elevate the finished floor elevation 1 foot above the base flood elevation to meet County NFIP regulations. Flood insurance rates may still apply. A LOMA or Letter of Map Revision Based on Fill (LOMR-F) would need to be submitted to FEMA to remove any structures or portions of property from the Zone A floodplain.

The lowest adjacent grade to any structure or lowest elevation within a defined portion of land must be at or above the BFE to remove the structure or area from the Zone A designation. Flood insurance requirements are subject to the lender and NFIP regulations.

Attachments:

1. USGS StreamStats Results
2. CalTrans As-built Bridge Plans
3. 2014 Onsite Survey
4. LOMA 14-09-0308A-06025
5. HEC-RAS Cross Sections
6. HEC-RAS Stream Profile

Attachment 1: USGS StreamStats Gage Data

StreamStats Data-Collection Station Report

USGS Station Number	**11457000**
Station Name	**DRY C NR NAPA CA**

Click here to link to available data on NWIS-Web for this site.

Descriptive Information

Station Type	Streamgage, continuous record
Location	
Gage	
Regulation and Diversions	
Regulated?	False
Period of Record	
Remarks	
Latitude (degrees NAD83)	38.35630164
Longitude (degrees NAD83)	-122.36497702
Hydrologic unit code	18050002
County	-
HCDN2009	No

Physical Characteristics

Characteristic Name	Value	Units	Citation Number
Descriptive Information			
High_Flow_Region_Code	1	dimensionless	230
High_Flow_Regression_Equation	Y	Yes or No	230
Datum_of_Latitude_Longitude	NAD83	dimensionless	30
District_Code	06	dimensionless	30
Begin_date_of_record	4/1/1951	days	41
End_date_of_record	9/30/1966	days	41
Number_of_days_of_record	5662	days	41
Number_of_days_GT_0	4465	days	41
Precipitation Statistics			
24_Hour_2_Year_Precipitation	3.3000	inches	31
Mean_Annual_Precipitation	40.72	inches	230
Climate Characteristics			
Mean_Annual_Lake_Evaporation	49.000	inches	31
Temperature Statistics			
Mean_Min_January_Temperature	36.000	degrees F	31
Topographical Characteristics			
Elevation_of_10_and_85_points	1200.00	feet	31
Percent_above_5000_ft	0.0000	percent	31
Mean_Basin_Elevation	1139	feet	230
Land Cover Characteristics			
Percent_Forest	29.000	percent	31
Percent_Storage	0.0000	percent	31
Stream Channel Properties			
Main_Channel_Length	10.800	miles	31
Stream_Slope_10_and_85_Method	72.000	feet per mi	31
Basin Dimensional Characteristics			
Contributing_Drainage_Area	17.400	square miles	31

Drainage_Area	17.3	square miles	230

Streamflow Statistics

Statistic Name	Value	Units	Citation Number	Preferred?	Years of Record	Standard Error, percent	Variance log-10	Lower 95% Confidence Interval	Upper 95% Confidence Interval
Peak-Flow Statistics									
Mean_Annual_Flood	617.000	cubic feet per second	31	Y					
2_Year_Peak_Flood	1580	cubic feet per second	230	Y	15	13.31	0.00331149995		
5_Year_Peak_Flood	2350	cubic feet per second	230	Y	15	13.43	0.00337069994		
10_Year_Peak_Flood	2830	cubic feet per second	230	Y	15	14.88	0.00412950013		
25_Year_Peak_Flood	3400	cubic feet per second	230	Y	15	17.42	0.00564080011		
50_Year_Peak_Flood	3800	cubic feet per second	230	Y	15	19.62	0.00712289987		
100_Year_Peak_Flood	4170	cubic feet per second	230	Y	15	21.96	0.00888239965		

200_Year_Peak_Flood	4530	cubic feet per second	230	Y	15	24.4	0.0109099997
500_Year_Peak_Flood	4980	cubic feet per second	230	Y	15	27.75	0.0139880003
Regression_2_Year_Peak_Flood	917	cubic feet per second	230	Y		58.14	0.0549179986
Regression_5_Year_Peak_Flood	1780	cubic feet per second	230	Y		47.03	0.0376829989
Regression_10_Year_Peak_Flood	2400	cubic feet per second	230	Y		44.01	0.0333979987
Regression_25_Year_Peak_Flood	3230	cubic feet per second	230	Y		42.29	0.0310299993
Regression_50_Year_Peak_Flood	3850	cubic feet per second	230	Y		42.37	0.0311450008
Regression_100_Year_Peak_Flood	4510	cubic feet per second	230	Y		43.88	0.0332069993
Regression_200_Year_Peak_Flood	5120	cubic feet per second	230	Y		44.07	0.0334799998
Regression_500_Year_Peak_Flood	5950	cubic feet per second	230	Y		45.63	0.0356810018
Weighted_5_Year_Peak_Flood	2300	cubic feet per second	230	Y		12.86	0.00309389993
Weighted_10_Year_Peak_Flood	2780	cubic feet per second	230	Y		14.03	0.00367509993
Weighted_25_Year_Peak_Flood	3370	cubic feet per second	230	Y		16.01	0.00477309991
Weighted_50_Year_Peak_Flood	3810	cubic feet per second	230	Y		17.67	0.00579709979
Weighted_100_Year_Peak_Flood	4240	cubic feet per second	230	Y		19.46	0.00700790016
Weighted_200_Year_Peak_Flood	4670	cubic feet per second	230	Y		21.1171658289881	0.00822880026
Weighted_500_Year_Peak_Flood	5230	cubic feet per second	230	Y		23.39	0.0100490004
Peak_years_with_historic_adjustment	15	years	230	N			
Weighted_2_Year_Peak_Flood	1530	cubic feet per second	230	Y		12.92	0.00312320003
Flood-Volume Statistics							
1_Day_2_Year_Maximum	596.000	cubic feet per second	31	Y			
1_Day_50_Year_Maximum	1683.00	cubic feet per second	31	Y			
3_Day_2_Year_Maximum	394.000	cubic feet per second	31	Y			

3_Day_50_Year_Maximum	1108.00	cubic feet per second	31	Y	
7_Day_2_Year_Maximum	234.000	cubic feet per second	31	Y	
7_Day_50_Year_Maximum	809.000	cubic feet per second	31	Y	
15_Day_2_Year_Maximum	149.000	cubic feet per second	31	Y	
15_Day_50_Year_Maximum	526.000	cubic feet per second	31	Y	
Flow-Duration Statistics					
1_Percent_Duration	316	cubic feet per second	325	Y	15
2_Percent_Duration	199	cubic feet per second	325	Y	15
3_Percent_Duration	144	cubic feet per second	325	Y	15
5_Percent_Duration	89	cubic feet per second	325	Y	15
10_Percent_Duration	42	cubic feet per second	325	Y	15
15_Percent_Duration	24	cubic feet per second	325	Y	15
20_Percent_Duration	14	cubic feet per second	325	Y	15
25_Percent_Duration	9.9	cubic feet per second	325	Y	15
30_Percent_Duration	7.3	cubic feet per second	325	Y	15
35_Percent_Duration	5.3	cubic feet per second	325	Y	15
40_Percent_Duration	4	cubic feet per second	325	Y	15
45_Percent_Duration	2.7	cubic feet per second	325	Y	15
50_Percent_Duration	1.9	cubic feet per second	325	Y	15
55_Percent_Duration	1.4	cubic feet per second	325	Y	15
60_Percent_Duration	0.9	cubic feet per second	325	Y	15
65_Percent_Duration	0.5	cubic feet per second	325	Y	15
70_Percent_Duration	0.2	cubic feet per second	325	Y	15
75_Percent_Duration	0.1	cubic feet per second	325	Y	15
80_Percent_Duration	0	cubic feet per second	325	Y	15
85_Percent_Duration	0	cubic feet per second	325	Y	15
90_Percent_Duration	0	cubic feet per second	325	Y	15
95_Percent_Duration	0	cubic feet per second	325	Y	15
97_Percent_Duration	0	cubic feet per second	325	Y	15
98_Percent_Duration	0	cubic feet per second	325	Y	15
99_Percent_Duration	0	cubic feet per second	325	Y	15
Annual Flow Statistics					
Mean_Annual_Flow	20	cubic feet per second	325	Y	15

Stand_Dev_of_Mean_Annual_Flow	14	cubic feet per second	325	Y	15
Maximum_Annual_Mean_Flow	48	cubic feet per second	325	Y	15
Minimum_Annual_Mean_Flow	5.4	cubic feet per second	325	Y	15
Monthly Flow Statistics					
January_Mean_Flow	59.950	cubic feet per second	31	Y	
January_STD	56.320	cubic feet per second	31	Y	
February_Mean_Flow	67.600	cubic feet per second	31	Y	
February_STD	62.210	cubic feet per second	31	Y	
March_Mean_Flow	35.510	cubic feet per second	31	Y	
March_STD	29.130	cubic feet per second	31	Y	
April_Mean_Flow	26.460	cubic feet per second	31	Y	
April_STD	39.280	cubic feet per second	31	Y	
May_Mean_Flow	5.8300	cubic feet per second	31	Y	
May_STD	4.0000	cubic feet per second	31	Y	
June_Mean_Flow	1.7800	cubic feet per second	31	Y	
June_STD	1.4800	cubic feet per second	31	Y	
October_Mean_Flow	3.0600	cubic feet per second	31	Y	
October_STD	9.9600	cubic feet per second	31	Y	
November_Mean_Flow	3.1100	cubic feet per second	31	Y	
November_STD	3.2300	cubic feet per second	31	Y	
December_Mean_Flow	35.640	cubic feet per second	31	Y	
December_STD	57.720	cubic feet per second	31	Y	
General Flow Statistics					
Minimum_daily_flow	0	cubic feet per second	325	Y	15
Maximum_daily_flow	1490	cubic feet per second	325	Y	15
Std_Dev_of_daily_flows	70	cubic feet per second	325	Y	15
Average_daily_streamflow	19.117	cubic feet per second	41	Y	15
Harmonic_Mean_Streamflow	0.54	cubic feet per second	325	Y	15
Mean_of_Logs_of_Daily_Values	0.569818	Log base 10	325	Y	15
Std_Dev_of_Logs_of_Daily_Values	0.889695	Log base 10	325	Y	15
Skew_of_Logs_of_Daily_Values	0.045182	Log base 10	325	Y	15
Non_Zero_Adjusted_Harmonic_Mean_Flow	0.68	cubic feet per second	325	Y	15
Base Flow Statistics					
Number_of_years_to_compute_BFI	15	years	42	Y	15
Average_BFI_value	0.301	dimensionless	42	Y	15
Std_dev_of_annual_BFI_values	0.096	dimensionless	42	Y	15

Probabillity Statistics

Probability_flow_durations_are_zero	0.20752	dimensionless	325	Y	15

Citations

Citation Number	*Citation Name and URL*
31	Imported from Basin Characteristics file
41	Wolock, D.M., 2003, Flow characteristics at U.S. Geological Survey streamgages in the conterminous United States: U.S. Geological Survey Open-File Report 03-146, digital data set
42	Wolock, D.M., 2003, Base-flow index grid for the conterminous United States: U.S. Geological Survey Open-File Report 03-263, digital data set
230	Gotvald, A.J., Barth, N.A., Veilleux, A.G., and Parrett, Charles, 2012, Methods for determining magnitude and frequency of floods in California, based on data through water year 2006: U.S. Geological Survey Scientific Investigations Report 2012–5113, 38 p., 1 pl.
325	Granato G.E., Ries, K.G., III, and Steeves, P.A., 2017, Compilation of streamflow statistics calculated from daily mean streamflow data collected during water years 1901–2015 for selected U.S. Geological Survey streamgages: U.S. Geological Survey Open-File Report 2017-1108, 17 p.

Attachment 2: CalTrans As-Built Bridge Plans

California Department of Transportation
Division of Maintenance

Structure Maintenance and Investigations

BRIDGE

INSPECTION

RECORDS

INFORMATION

SYSTEM

The requested documents have been generated by BIRIS.

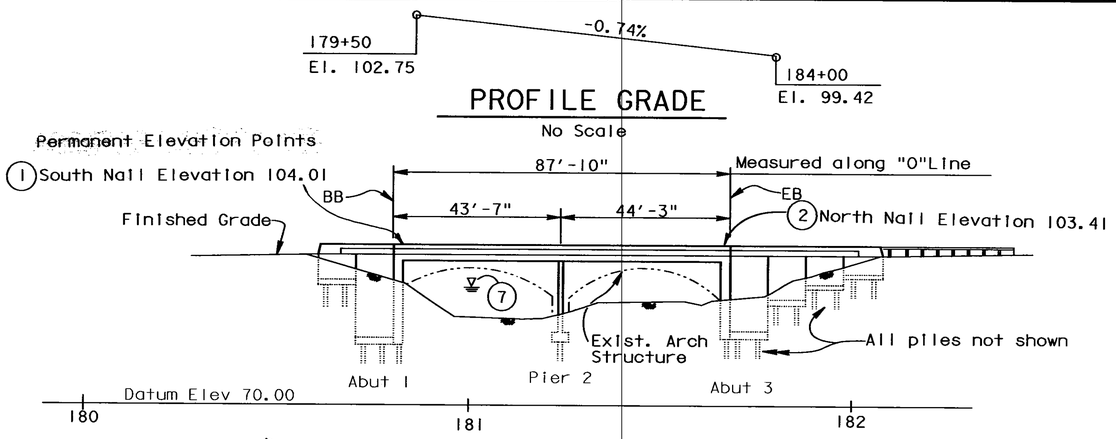
Records for “Confidential” bridges may only be released outside the Department of Transportation upon execution of a confidentiality agreement.

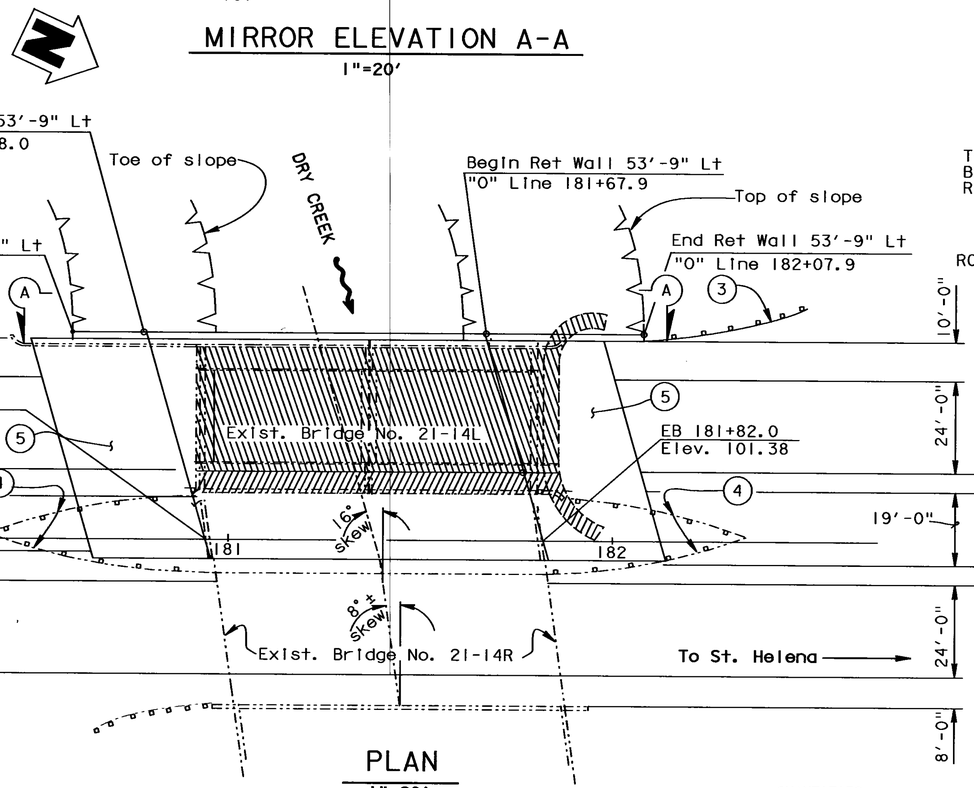
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Nap	29	16.3/16.7	53	68

REGISTERED CIVIL ENGINEER

Garry L. Tolen No. 25298 Exp. 12-31-97 CIVIL — REGISTERED PROFESSIONAL ENGINEER — STATE OF CALIFORNIA

11-18-96
PLANS APPROVAL DATE





PLAN
1"=20'

NOTES:

(1) Remove Existing Barrier & Refinish Deck, Stage 1
(2) Temporary Railing (Type K), See Road Plans
(3) MBGR See "Road Plans"
(4) Remove existing MBGR, Stage 1
(5) Structure Approach Type N(30D)
(6) Remove Existing A/C Overlay 3"±
(7) For Hydraulic Data, See "Foundation Plan" sheet.

Stage 1 - Bridge Removal

Stage 3 - Bridge Removal

For "General Notes" See "Deck Contours" sheet.

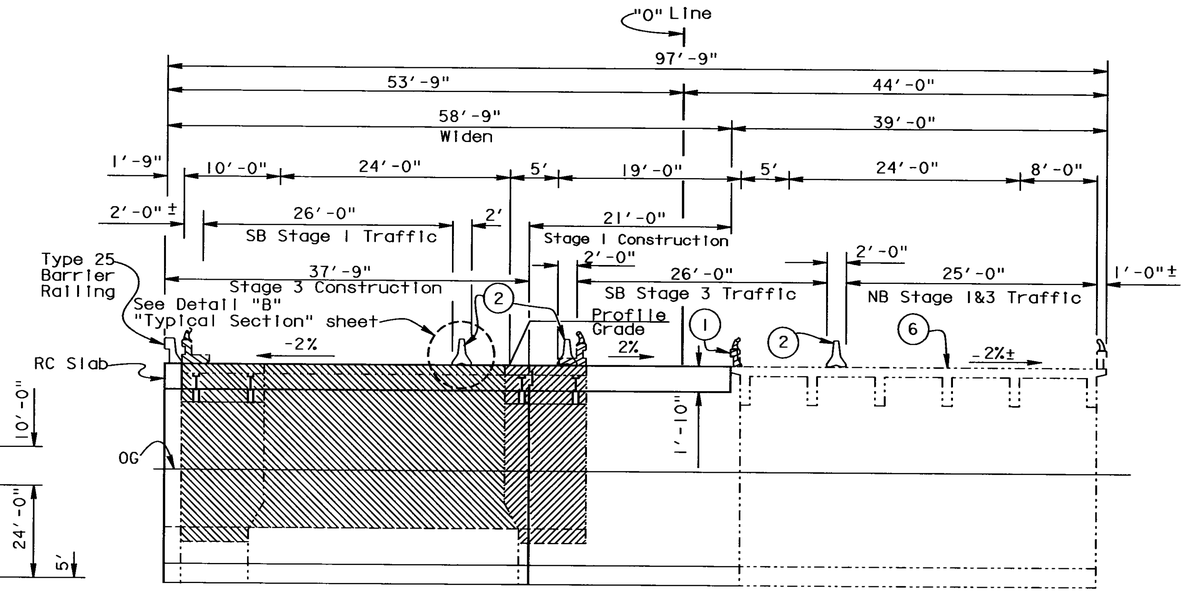
SYMBOLS

---------- Indicates exsiting structure
———— Indicates new construction

PILE DATA

CLASS 45C PILE					
LOCATION	DESIGN LOADING (SERVICE)	NOMINAL RESISTANCE		DESIGN TIP ELEVATION (a), (c)&(d)	SPECIFIED TIP ELEVATION
		COMPRESSION	TENSION		
Abut 1	45 tons	180 kips	0 kips	40.0	40.0
Pier 2	45 tons	180 kips	90 kips	40.0	40.0
Abut 3	45 tons	180 kips	0 kips	40.0	40.0
Retaining Wall	45 tons	180 kips	0 kips	40.0	40.0

Design tip elevation is controlled by the following demands:
(a) Compression; (c) Lateral Loads; (d) Scour potential to Elevation 78.0



TYPICAL SECTION
1/8"=1'-0"

INDEX TO PLANS

STANDARD PLANS DATED JULY 1992

A10A	ABBREVATIONS
A10B	SYMBOLS
A62C	LIMITS OF PAYMENT FOR EXCAVATION AND BACKFILL-BRIDGE
B0-1	BRIDGE DETAILS
B0-3	BRIDGE DETAILS
B0-5	BRIDGE DETAILS
B2-8	PILE DETAILS CLASS 45C AND CLASS 70C
B3-1	RETAINING WALL TYPE 1 H=4" 30"
B3-8	RETAINING WALL DETAILS NO. 1
B6-21	JOINT SEALS (MAX. MOVEMENT RATING=2"
B11-53	CONCRETE BARRIER TYPE 25

QUANTITIES

REMOVE ASPHALT CONCRETE SURFACING	353	SQYD
BRIDGE REMOVAL	LUMP	SUM
BRIDGE REMOVAL (PORTION)	LUMP	SUM
STRUCTURE EXCAVATION (BRIDGE)	128	CY
STRUCTURE EXCAVATION (TYPE D)	664	CY
STRUCTURE BACKFILL (BRIDGE)	395	CY
FURNISH PILING (CLASS 45C)	2,933	LF
DRIVE PILE (CLASS 45C)	68	EA
STRUCTURAL CONCRETE, BRIDGE FOOTING	80	CY
STRUCTURAL CONCRETE, BRIDGE	582	CY
STRUCTURAL CONCRETE, APPROACH SLAB (TYPE N)	127	CY
DRILL AND BOND DOWEL	94	LF
REFINISH BRIDGE DECK	172	SQFT
JOINT SEAL (MR 1/2")	118	LF
BAR REINFORCING STEEL (BRIDGE)	128,200	LB
CONCRETE BARRIER (TYPE 25)	148	LF

AS BUILT

CORRECTIONS BY Mishail Assadi/G. Sam

CONTRACT NO. 04-149304

DATE 12-08-97 3-2-98

Note:
The contractor shall verify all controlling field dimensions before ordering or fabricating any material

DESIGN ENGINEER

DESIGNS	BY Garry L. Tolen	3-96	CHECKED Mike Whiteside	5-96	LOAD FACTOR DESIGN	LIVE LOADING HS 20-44 AND ALTERNATIVE AND PERMIT DESIGN LOAD	
DETAILS	BY Janice Sam	3-96	CHECKED Mike Whiteside	5-96	LAYOUT	BY Garry L. Tolen	CHECKED Mike Whiteside 5-96
QUANTITIES	BY Garry L. Tolen	6-96	CHECKED Kristi Westoby	6-96	SPECIFICATIONS	BY	PLANS AND SPECS COMPARED

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES 0 1 2 3

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DISTRICT 2
SEISMIC DESIGN

CU 04
EA 149301

BRIDGE NO. 21-0014
POST MILE 16.5

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY): 4-17-96 | 6-5-96 | 6-11-96 | 6-18-96 | 6-28-96 | 7-8-96 | 7-25-96 | 9-23-96 | 10-25-96

EARTHQUAKE RETROFIT PROJECT NO. 412

DRY CREEK BRIDGE
GENERAL PLAN

SHEET 1 OF 16

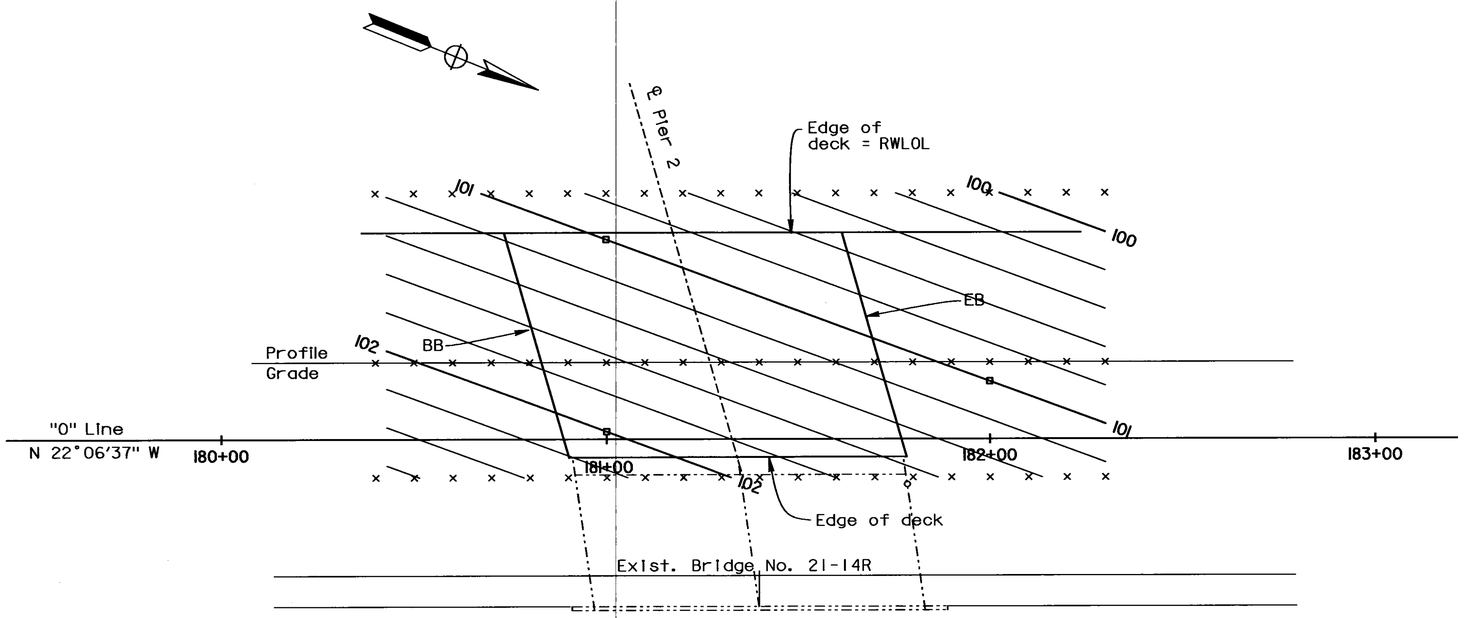
DATE PLOTTED => 18-Nov-1996
TIME PLOTTED => 06:59
USERNAME => trpauld
DGN FILE => [ESC-05]gen01.pdf

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Nap	29	16.3/16.7	54	68

REGISTERED ENGINEER - CIVIL

PROFESSIONAL ENGINEER — REGISTERED — Garry Tolen — No. 25298 — Exp. 2-31-97 — CIVIL — STATE OF CALIFORNIA

11-18-96
PLANS APPROVAL DATE



PLAN
1" = 20'

GENERAL NOTES
LOAD FACTOR DESIGN

DESIGN: BRIDGE DESIGN SPECIFICATIONS
(1983 AASHTO with Interims and Revisions by CALTRANS)

DEAD LOAD: Includes 35 psf for future wearing surface.

LIVE LOADING: HS20-44 and alternative and permit design load.

SEISMIC LOADING: Peak Rock Acceleration = 0.6 g
Depth of Alluvium = 80-150 ft.

REINFORCED CONCRETE: f_y = 60,000 psi
f'_c = 4,000 psi
n = 9

NOTES:

——— Indicates Even Foot Contours

X 10' Intervals along Station Line
Contours do not include Camber
Barrier Rail and Deck Drains not shown.

RWLOL= Retaining Wall Layout Line

No Changes
AS BUILT G. Tolen
CORRECTIONS BY Michael Assad
CONTRACT NO. 04-149304
DATE 12-08-97 3-2-98

DESIGN	BY Garry Tolen	3-96	CHECKED Mike Whiteside	5-96	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION
DETAILS	BY JF Casarino	3-96	CHECKED Mike Whiteside	5-96	
QUANTITIES	BY Garry Tolen	3-96	CHECKED Kristi Westoby	5-96	

DISTRIC 2
SEISMIC DESIGN

BRIDGE NO. 21-0014
POST MILE 16.5

CU 04
EA 149301

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES (PRELIMINARY STAGE ONLY): ~~5-6-96~~ ~~6-18-96~~ ~~6-20-96~~ ~~7-1-96~~ ~~7-29-96~~ ~~3-23-96~~

SHEET 2 OF 16

EARTHQUAKE RETROFIT PROJECT NO. 412
DRY CREEK BRIDGE
DECK CONTOURS

DS OSD 2J 39 (CADD J 0/95)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

USERNAME => trpauld
DGN FILE => [ESC-OE]aadkc.psf

DATE PLOTTED => 18-Nov-1996
TIME PLOTTED => 06:59

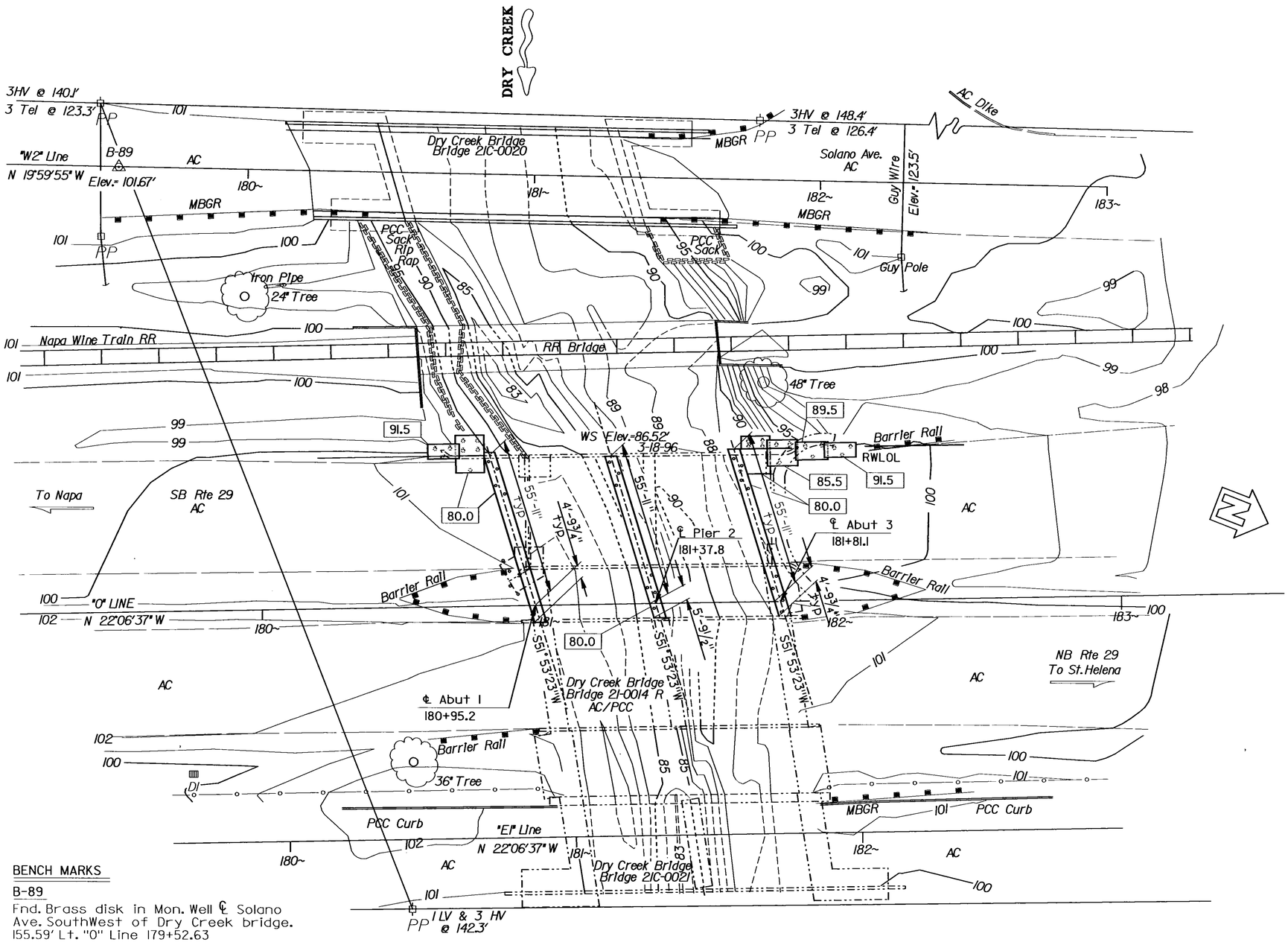
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Nap	29	16.3/16.7	55	68

Garry L. Tolen
REGISTERED ENGINEER-CIVIL

REGISTERED PROFESSIONAL ENGINEER — Garry Tolen — No. 25298 — Exp. 12-31-97 — CIVIL — STATE OF CALIFORNIA

11-18-96
PLANS APPROVAL DATE

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.



BENCH MARKS

B-89
Fnd. Brass disk in Mon. Well ℄ Solano Ave. SouthWest of Dry Creek bridge. 155.59' Lt. "0" Line 179+52.63
El.=101.67'

DRY
Fnd. Bronze disk 41.6' SW of ℄ Rte. 29 19.0' NE of ℄ Solano Ave. 11.6' NE of the NE rail of the Napa Wine Train RR tracks.
El.=100.13'

PLAN
1" = 20'

NOTE:
[ ] Indicates bottom of footing elevation.

The Streambed Elevation on 11-26-97 was 86.76' Considering the Dry Bench Mark

AS BUILT J. Sam
CORRECTIONS BY Michael Assad
CONTRACT NO. 04-149304
DATE 12-08-97 3-2-98

HYDROLOGIC SUMMARY
DRAINAGE AREA: 18.8 SQUARE MILES

	DESIGN FLOOD	BASE FLOOD	OVERTOPPING FLOOD
FREQUENCY (YEARS)	50	100	500 Est.
DISCHARGE (CUBIC FEET PER SECOND)	3600	4000	5400 ±
WATER SURFACE (ELEVATION AT BRIDGE)	96.0	97.0	99.0 ±

FLOOD PLAIN DATA ARE BASED UPON INFORMATION AVAILABLE WHEN THE PLANS WERE PREPARED AND ARE SHOWN TO MEET FEDERAL REQUIREMENTS. THE ACCURACY OF SAID INFORMATION IS NOT WARRANTED BY THE STATE AND INTERESTED OR AFFECTED PARTIES SHOULD MAKE THEIR OWN INVESTIGATION.

DATE PLOTTED => 18-Nov-1996
TIME PLOTTED => 07:00

PRELIMINARY INVESTIGATION SECTION

SCALE 1" = 20'	DATUM NGVD1929 (Adj1951)	PHOTOGRAMMETRY AS OF:	DRAWN	BY BWL 3/96	
ALIGNMENT TIES As Builts		SURVEYED BY BWL 3/96	TRACED	BY BWL 4/96	
		FIELD CHECKED BY	CHECKED	BY PJC 4/96	

DS OSD 2145 (4/89)

	BY		CHECKED	
DESIGN	Garry L. Tolen	3-96	Mike Whiteside	5-96
DETAILS	JFCasarino	6-96	Mike Whiteside	5-96
QUANTITIES	Garry L. Tolen	6-96	Kristi Westoby	6-96

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

STATE OF **CALIFORNIA** DEPARTMENT OF TRANSPORTATION

DISTRICT 2
SEISMIC DESIGN

CU 04
EA 149301

USERNAME => trpauld
DGN FILE => [ESC-OE]aafnd.psf

BRIDGE NO. 21-0014
POST MILE 16.5

EARTHQUAKE RETROFIT PROJECT NO. 412

DRY CREEK BRIDGE
FOUNDATION PLAN

DISREGARD PRINTS BEARING EARLIER REVISION DATES →
REVISION DATES (PRELIMINARY STAGE ONLY): 6-4-96; 6-5-96; 6-6-96; 6-18-96; 6-21-96; 9-23-96

SHEET 3 OF 16

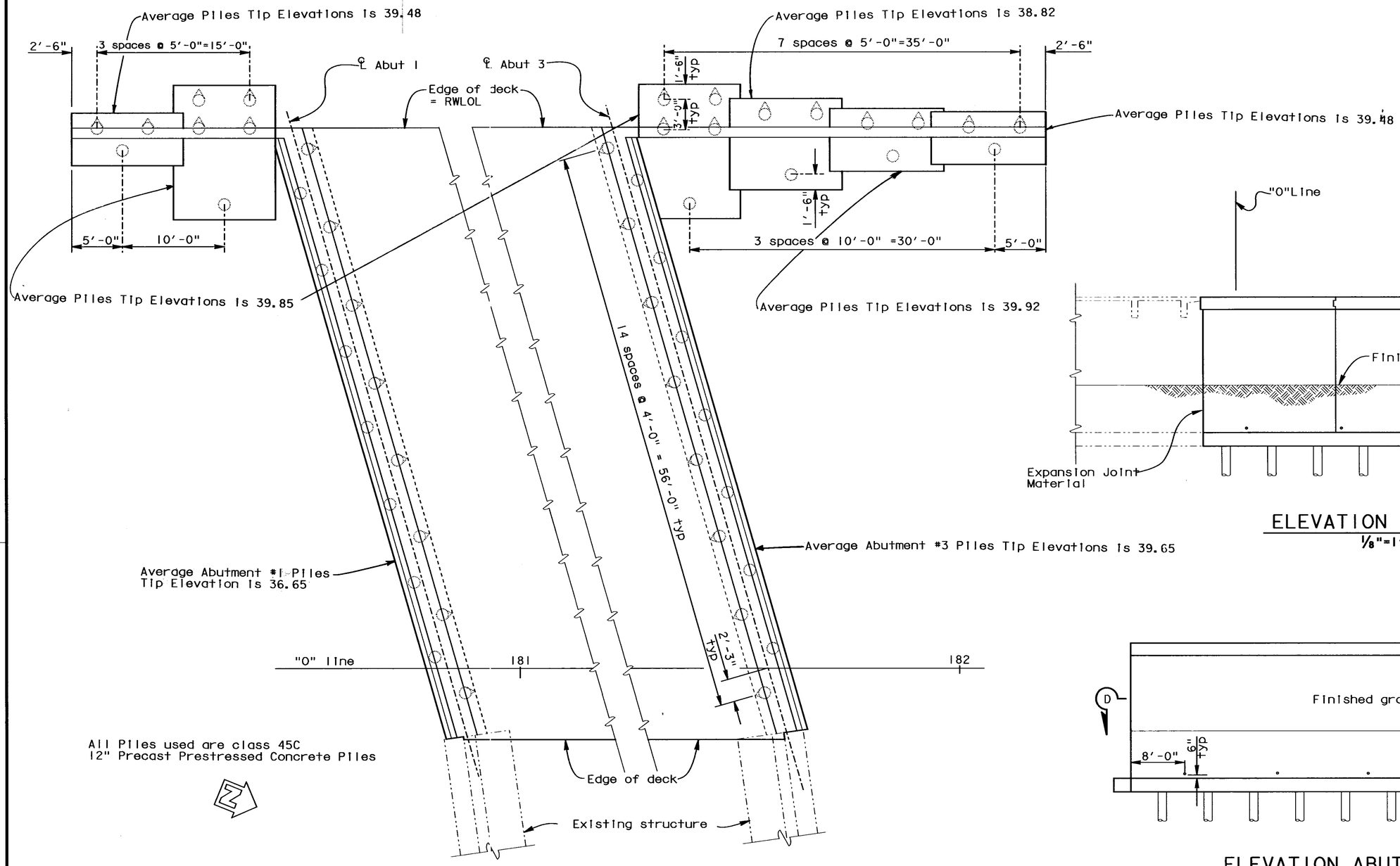
DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Nap	29	16.3/16.7	56	68

REGISTERED ENGINEER - CIVIL

PROFESSIONAL ENGINEER — Garry Tolen No. 25298 Exp. 12-31-97 CIVIL — STATE OF CALIFORNIA

11-18-96
PLANS APPROVAL DATE

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

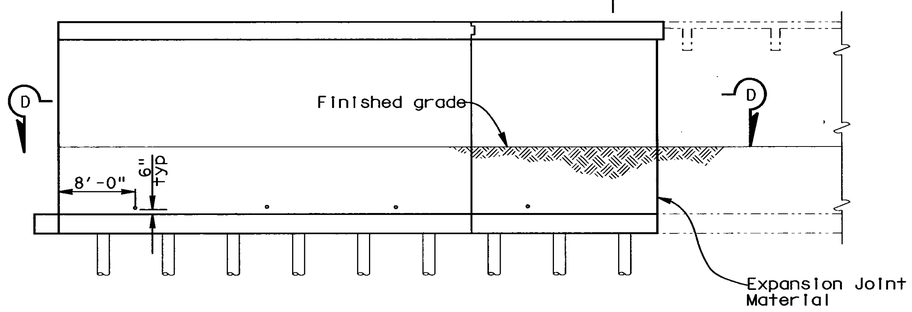


ABUTMENT PLAN

3/16"=1'-0"

ELEVATION ABUTMENT 1

1/8"=1'-0"



ELEVATION ABUTMENT 3

1/8"=1'-0"

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

AS BUILT J. Sam

CORRECTIONS BY Michael Assad

CONTRACT NO. 04-149304

DATE 12-08-97 3-2-98

Notes:
1. For "Section D-D" See "Abutment Details" sheet.
- Indicates 3"Ø formed hole total 4 spaced @ 14'-0"
- ○ Indicates vertical pile
- ◇ Indicates battered pile

EARTHQUAKE RETROFIT PROJECT NO. 412

DRY CREEK BRIDGE

ABUTMENT LAYOUT

	BY		CHECKED	
DESIGN	Garry Tolen	3-96	Mike Whiteside	5-96
DETAILS	Andy Onodera	3-96	Mike Whiteside	5-96
QUANTITIES	Garry Tolen	6-96	Kristi Westoby	6-96

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DISTRICT 2
SEISMIC DESIGN

BRIDGE NO. 21-0014
POST MILE 16.5

DS OSD 2139 (CADD 10/95)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04___
EA 149301___

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES (PRELIMINARY STAGE ONLY): ~~3-27-96~~ ~~6-5-96~~ ~~6-6-96~~ ~~6-19-96~~ ~~7-9-96~~ ~~7-30-96~~ ~~9-23-96~~ 10-22-96 10-28-96

SHEET 4 OF 16

USERNAME => trpauld
DGN FILE => [ESC-OE]aaabtlay.psf

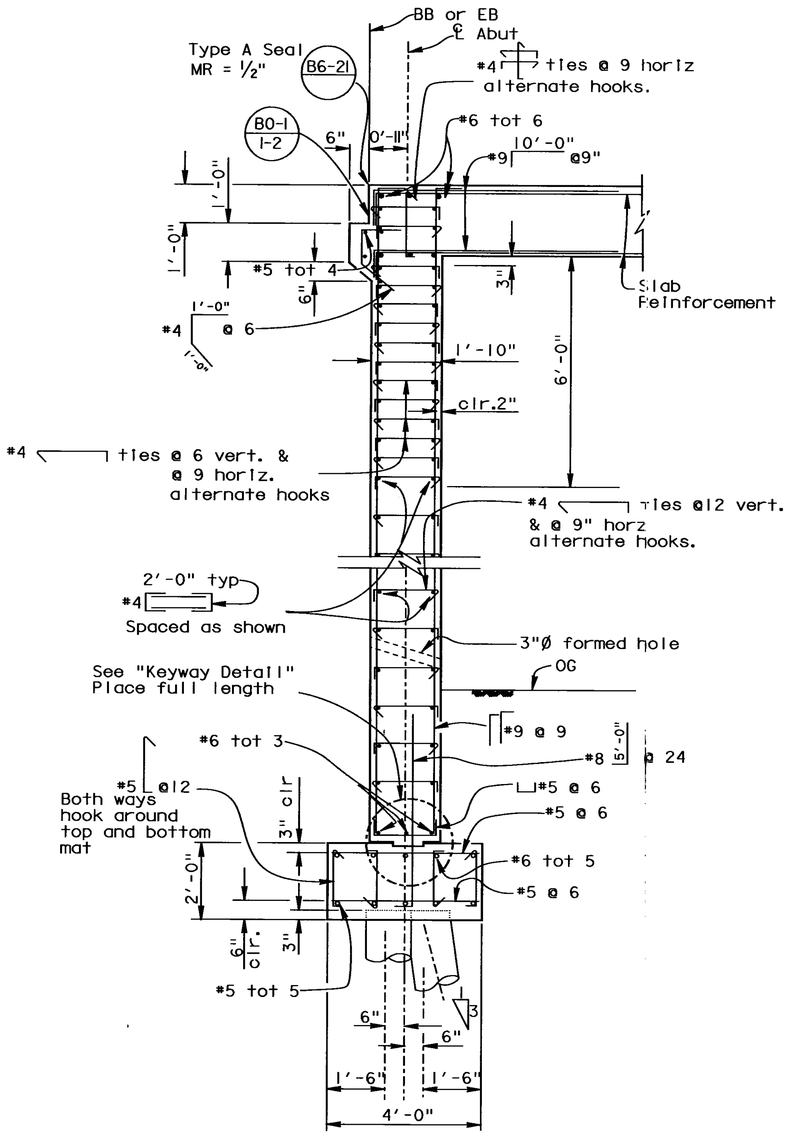
DATE PLOTTED => 18-Nov-1996
TIME PLOTTED => 07:00

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Nap	29	16.3/16.7	57	68

REGISTERED ENGINEER - CIVIL

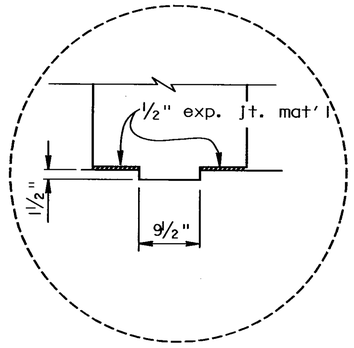
REGISTERED PROFESSIONAL ENGINEER
Garry Tolen
No. 25298
Exp. 12-31-97
CIVIL
STATE OF CALIFORNIA

11-18-96
PLANS APPROVAL DATE

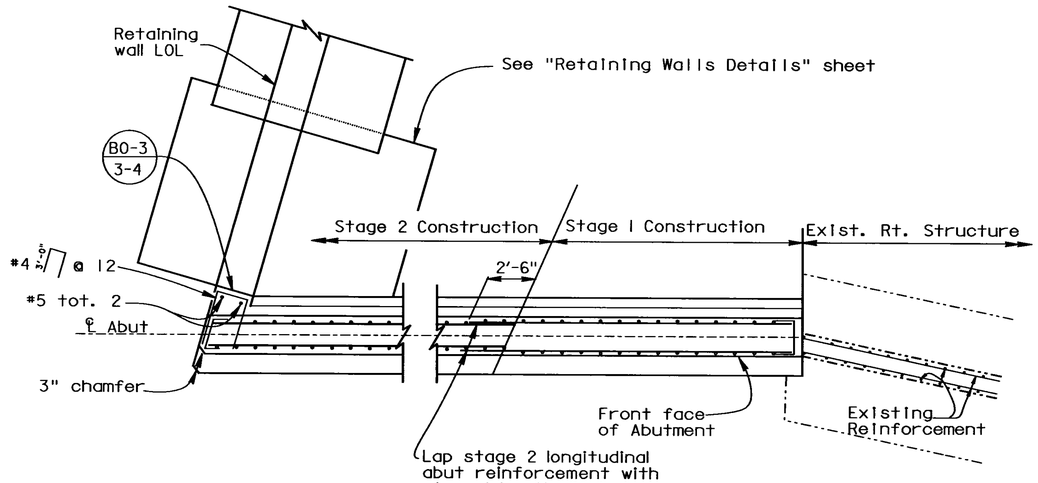


TYPICAL ABUTMENT SECTION

1/2"=1'-0"



KEYWAY DETAIL



SECTION D-D

1/4"=1'-0"

Notes:

1. For location of Section D-D, See "Abutment Layout" sheet.
2. Abutment 3 shown, Abutment 1 Similar.
3. Once deck is completed, backfill shall be placed simultaneously at both Abutments.

No Changes
AS BUILT J. Sam
CORRECTIONS BY Michael Russo
CONTRACT NO. 04-149304
DATE 12-08-97 3-2-98

DATE PLOTTED => 18-Nov-1996
TIME PLOTTED => 07:01

DESIGN	BY Garry Tolen 3-96	CHECKED Mike Whiteside 5-96	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DISTRIC 2 SEISMIC DESIGN
DETAILS	BY Janice Sam 3-96	CHECKED Mike Whiteside 5-96		
QUANTITIES	BY Garry Tolen 6-96	CHECKED Kristi Westoby 6-96		

DS OSD 2139 (CADD 10/95)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04___
EA 149301____

USERNAME => trpauld
DGN FILE => [ESC-OE]aaabtdet.psf

BRIDGE NO. 21-0014
POST MILE 16.5

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY): 3-22-96 6-6-96 6-18-96 6-28-96 7-8-96 7-30-96 9-27-96 10-24-96 10-28-96

EARTHQUAKE RETROFIT PROJECT NO. 412

DRY CREEK BRIDGE

ABUTMENT DETAILS

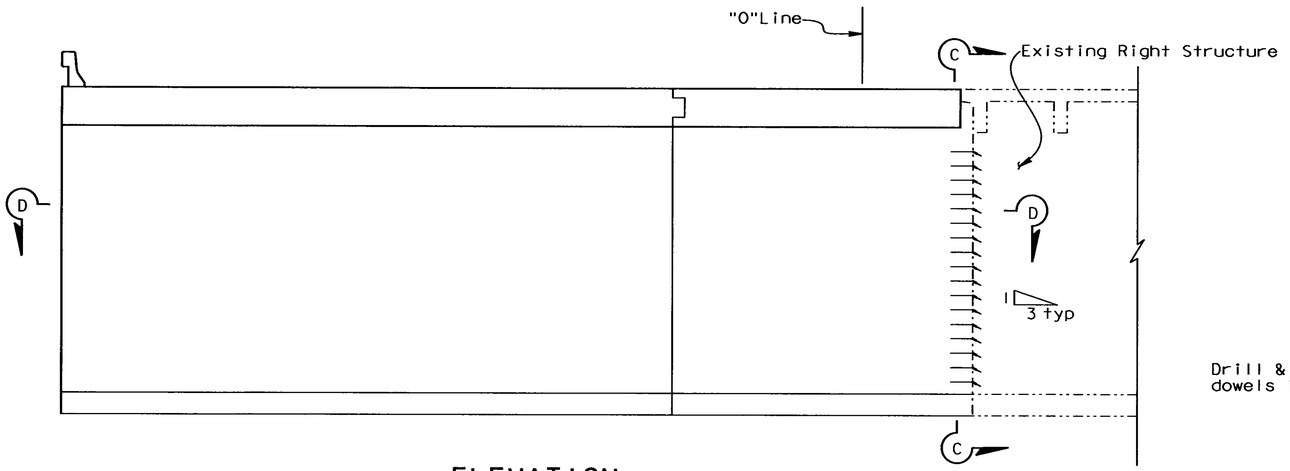
SHEET 5 OF 16

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Nap	29	16.3/16.7	58	68

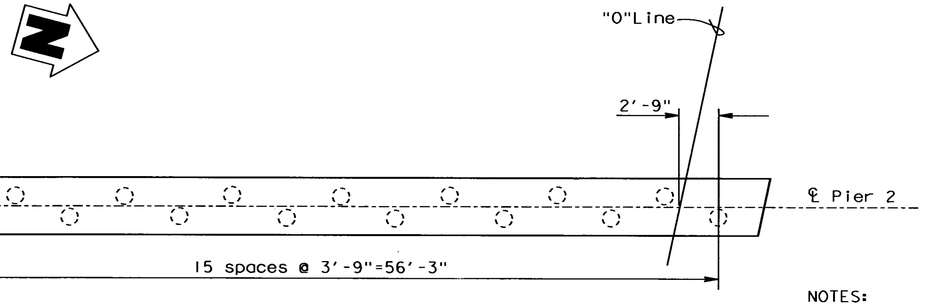
Garry L. Tolen
REGISTERED ENGINEER - CIVIL

REGISTERED PROFESSIONAL ENGINEER
Garry Tolen
No. 25298
Exp. 12-31-97
CIVIL
STATE OF CALIFORNIA

11-18-96
PLANS APPROVAL DATE

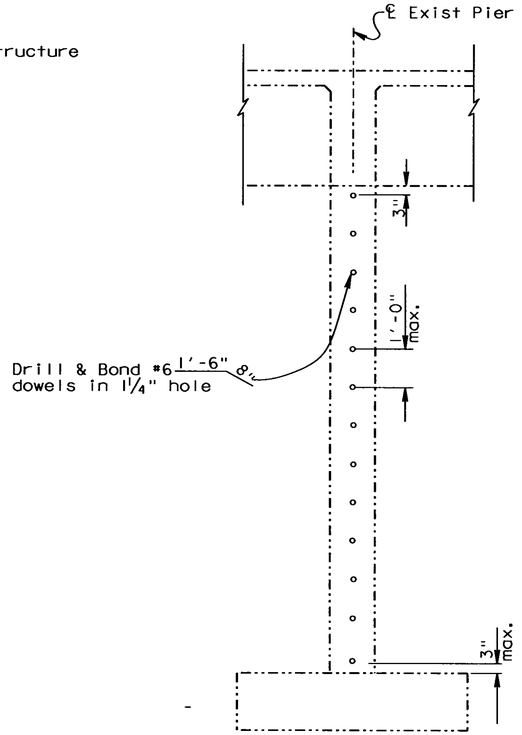


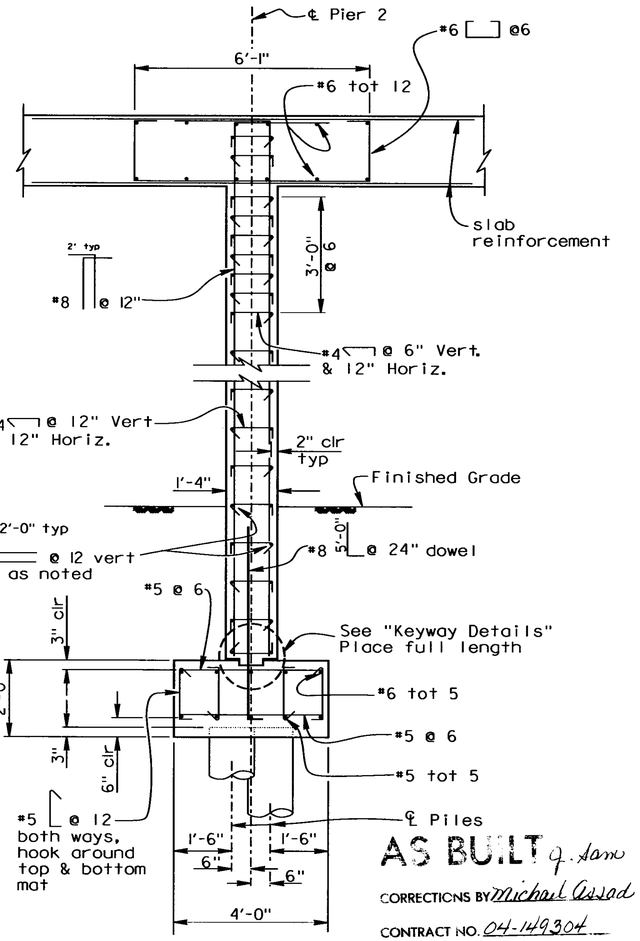
ELEVATION
3/16 "=1'-0"



PILE LAYOUT
3/16 "=1'-0"

Average Pier #2 Piles Tip Elevation Is 39.25



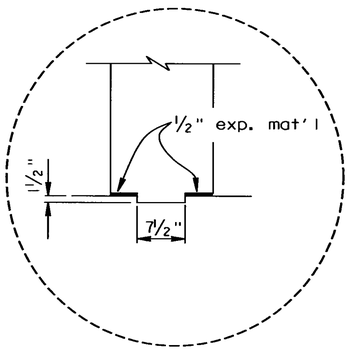


AS BUILT q. Sam
CORRECTIONS BY Michael Assad
CONTRACT NO. 04-149304
DATE 12-08-97 3-2-98

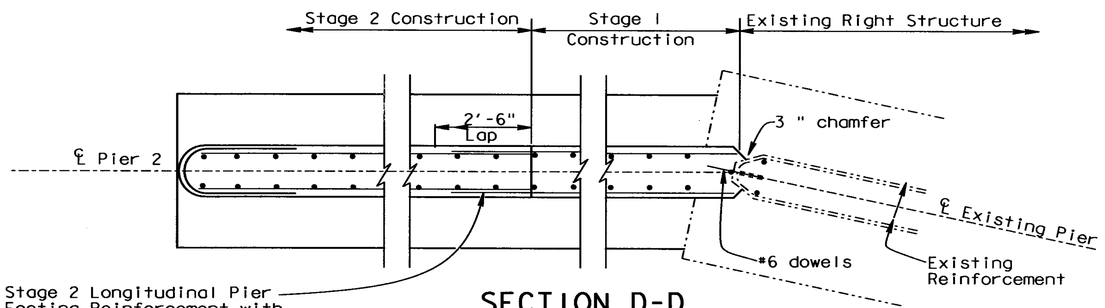
TYPICAL PIER SECTION
1/2"=1'-0"

NOTES:
1. Cross Ties shall be placed so that 90° & 135° hooks of adjacent Ties, Horizontally & Vertically, shall be alternated.
2. Hooks of adjacent cross ties to face each other in alternate spaces between pairs of main bars.

SECTION C-C
1/2"=1'-0"



KEYWAY DETAILS



SECTION D-D
1/2"=1'-0"

DESIGN	BY Garry Tolen 3-96	CHECKED Mike Whiteside 5-96	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	District 2 SEISMIC DESIGN	BRIDGE NO. 21-0014
DETAILS	BY Janice Sam 3-96	CHECKED Mike Whiteside 5-96			POST MILE 16.5
QUANTITIES	BY Garry Tolen 6-96	CHECKED Kristi Westoby 6-96		CU 04 EA 149301	

EARTHQUAKE RETROFIT PROJECT NO. 412

DRY CREEK BRIDGE

PIER DETAILS

DS OSD 2139 (CADD 9/95)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY): 10-25-96 10-28-96 6-6-96 6-6-96 6-19-96 7-10-96 7-30-96 9-23-96 10-22-96

SHEET 6 OF 16

USERNAME => trienard
aapir18063429

DATE PLOTTED => 18-Nov-1996
TIME PLOTTED => 06:34

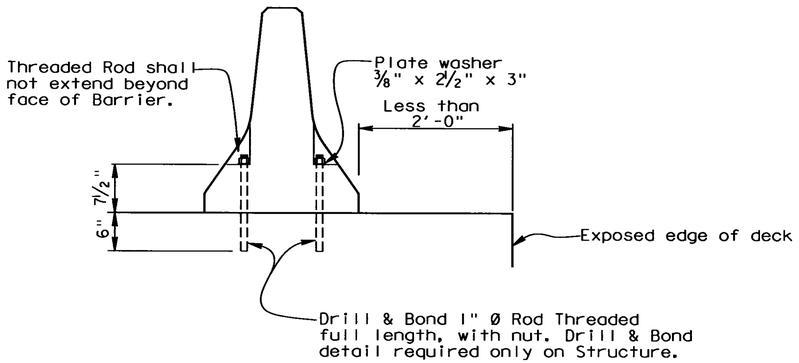
aapir

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Nap	29	16.3/16.7	59	68

Garry L. Tolen
REGISTERED ENGINEER - CIVIL

REGISTERED PROFESSIONAL ENGINEER
Garry L. Tolen
No. 25298
Exp. 12-31-97
CIVIL
STATE OF CALIFORNIA

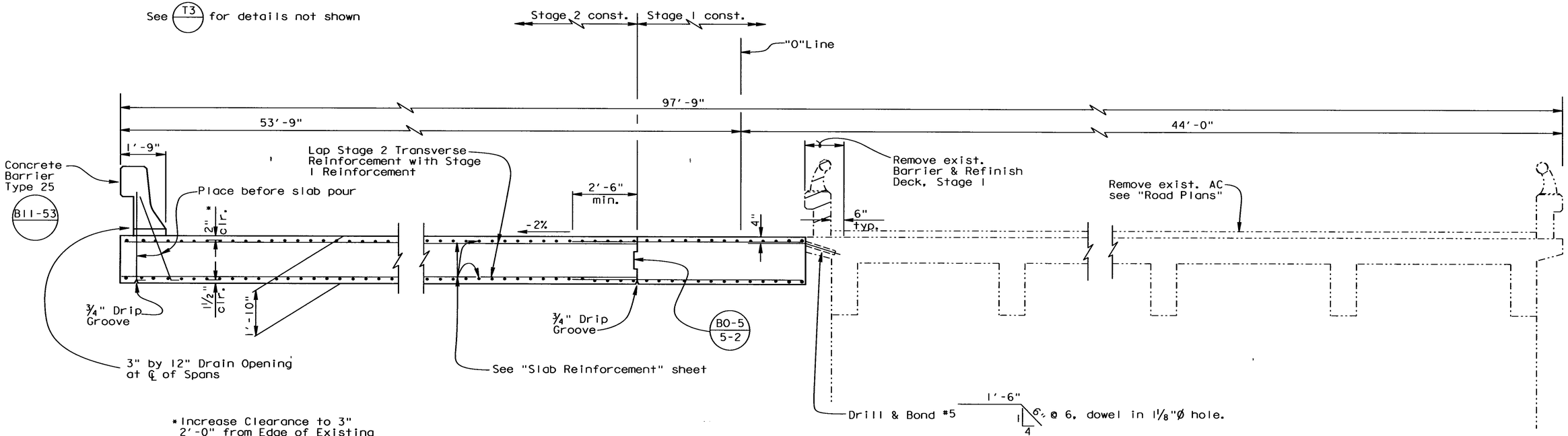
11-18-96
PLANS APPROVAL DATE



DETAIL B

1"=1'-0"

See (T3) for details not shown



*Increase Clearance to 3" 2'-0" from Edge of Existing Structure

TYPICAL SECTION

1/2"=1'-0"

No Changes
AS BUILT J. Sam
CORRECTIONS BY Mehak Aswad
CONTRACT NO. 04-149304
DATE 12-08-97 3-2-98

DATE PLOTTED => 18-Nov-1996
TIME PLOTTED => 06:39

DESIGN	BY Garry Tolen	3-96	CHECKED Mike Whiteside	5-96
DETAILS	BY Janice Sam	3-96	CHECKED Mike Whiteside	5-96
QUANTITIES	BY Garry Tolen	6-96	CHECKED Kristi Westoby	6-96

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DISTRICT 2
SEISMIC DESIGN

BRIDGE NO. 21-0014
POST MILE 16.5

EARTHQUAKE RETROFIT PROJECT NO. 412

DRY CREEK BRIDGE

TYPICAL SECTION

DS OSD 2139 (CADD 9/95)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 149301

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY)
3-8-96 | 5-5-96 | 5-8-96 | 6-20-96 | 7-8-96 | 7-30-96 | 9-23-96 | 10-23-96

SHEET 7 OF 16

USERNAME => trienard
aatyp18063945

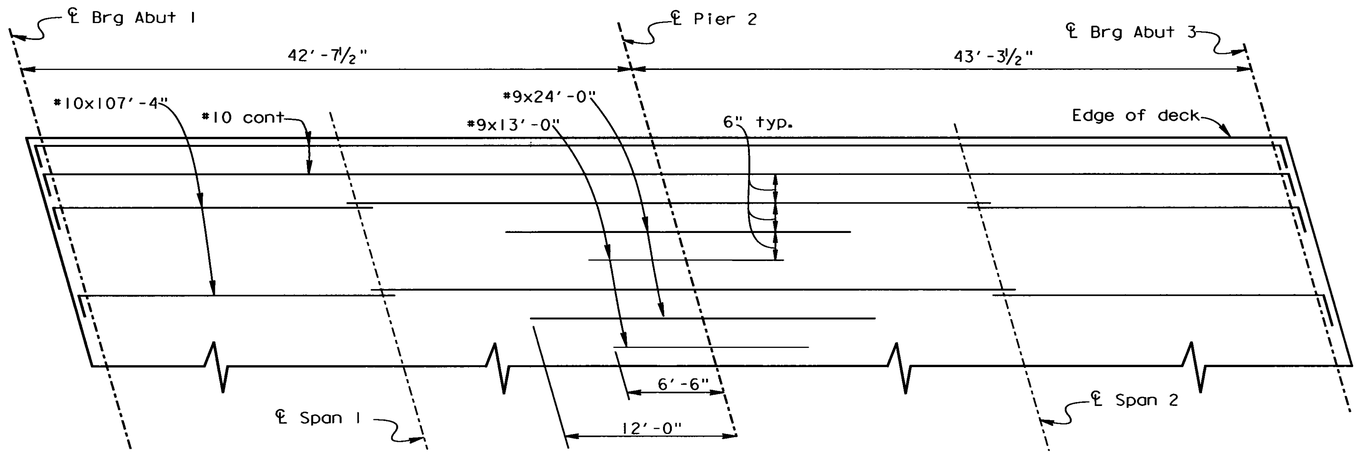
aatyp

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Nap	29	16.3/16.7	60	68

Garry L. Tolen
REGISTERED ENGINEER - CIVIL

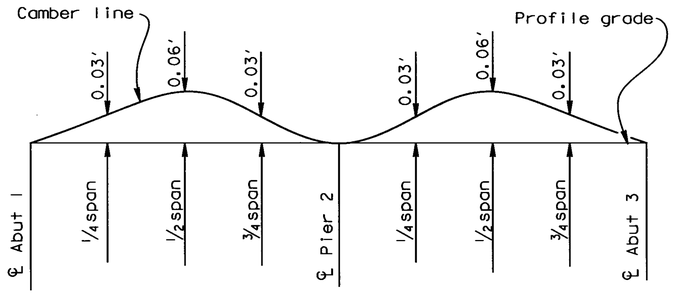
REGISTERED PROFESSIONAL ENGINEER
Garry L. Tolen
No. 25298
Exp. 12-31-97
CIVIL
STATE OF CALIFORNIA

11-18-96
PLANS APPROVAL DATE



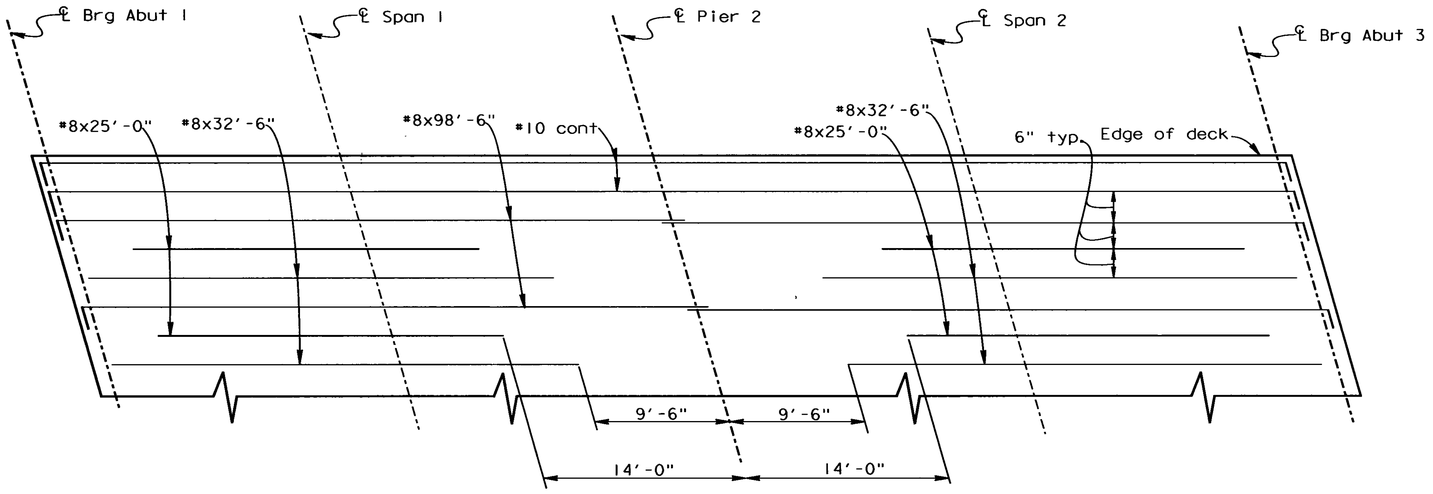
TOP SLAB REINFORCEMENT

No Scale



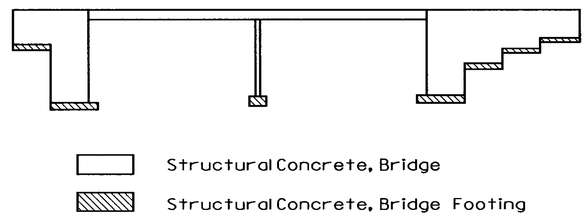
CAMBER DIAGRAM

Does not include allowance for falsework settlement



BOTTOM SLAB REINFORCEMENT

No Scale



Structural Concrete, Bridge

Structural Concrete, Bridge Footing

CONCRETE STRENGTH AND TYPE LIMITS

No Scale

Notes:

1. Falsework shall not be released less than 28 days after the last Concrete has been placed.
2. All bars spaced at 6" max. across entire width of bridge.

No changes
AS BUILT
CORRECTIONS BY Michael Assad
CONTRACT NO. 04-149304
DATE 12-08-97 3-2-98

DATE PLOTTED => 18-Nov-1996
TIME PLOTTED => 06:41

EARTHQUAKE RETROFIT PROJECT NO. 412

	BY		CHECKED	
DESIGN	Garry Tolen	3-96	Mike Whiteside	5-96
DETAILS	Janice Sam	3-96	Mike Whiteside	5-96
QUANTITIES	Garry Tolen	6-96	Kristi Westoby	6-96

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DISTRICT 2
SEISMIC DESIGNS

CU 04
EA 149301

BRIDGE NO. 21-0014
POST MILE 16.5

DRY CREEK BRIDGE
SLAB REINFORCEMENT

DS OSD 2139 (CADD 9/95)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

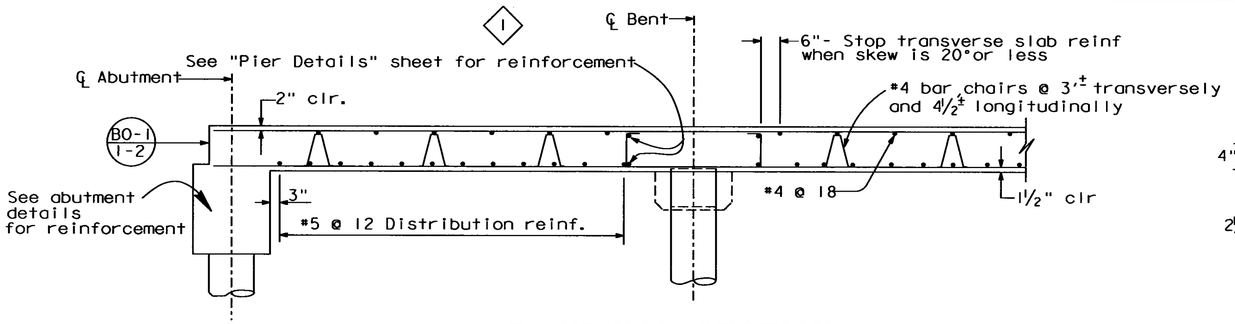
DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY): 3-8-96 5-7-96 6-6-96 6-12-96 6-18-96 7-10-96 7-30-96 9-23-96

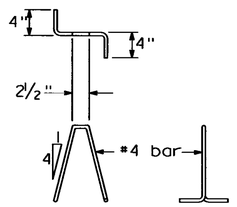
SHEET 8 OF 16

USERNAME => trienard
aamscslab218064128

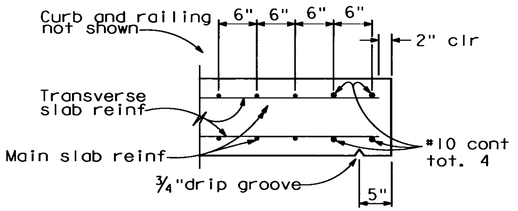
aamscslab2



LONGITUDINAL SECTION



BAR CHAIR DETAIL



EDGE OF SLAB DETAILS

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Nap	29	16.3/16.7	61	68

Garry L. Tolen
REGISTERED ENGINEER - CIVIL

REGISTERED PROFESSIONAL ENGINEER
Garry Tolen
No. 25298
Exp. 12-31-97
CIVIL
STATE OF CALIFORNIA

11-18-96
PLANS APPROVAL DATE

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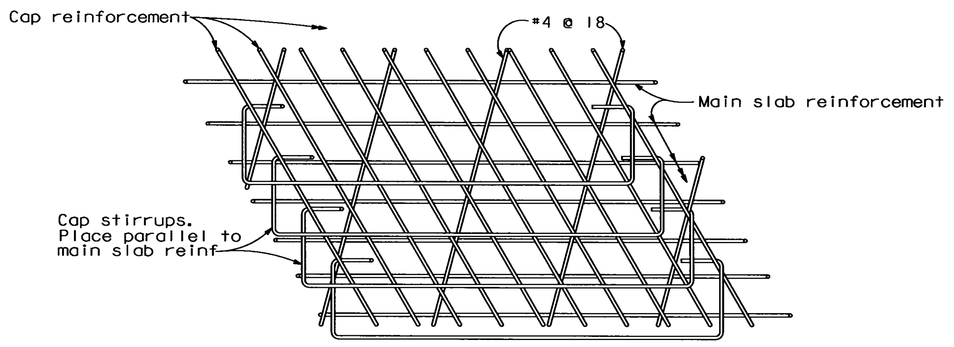
BAR SPLICE LENGTH								
Bar size	#4	#5	#6	#7	#8	#9	#10	#11
All bars, except top bars in spans over 24'	23"	28"	34"	39"	45"	68"	76"	85"
Top bars in spans over 24'	23"	28"	34"	53"	60"	77"	97"	120"

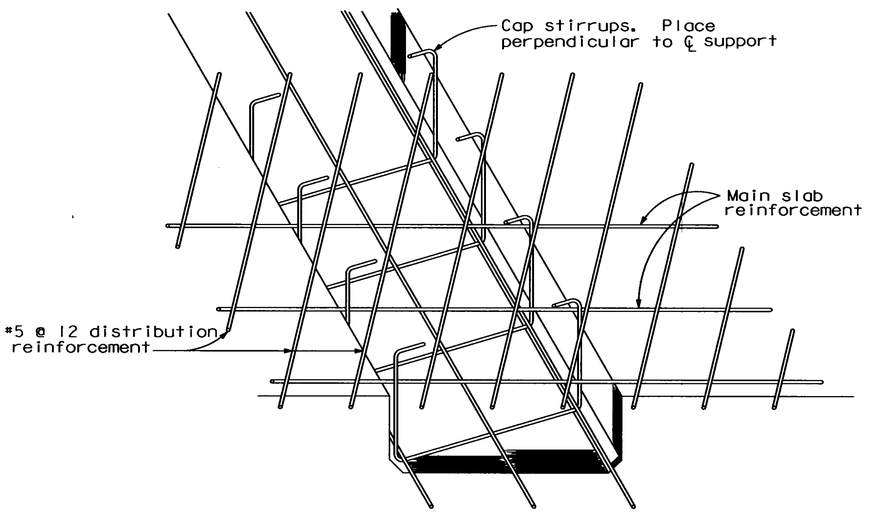
REINFORCEMENT NOTES:

Splice in top bars to be located near center of span.
Splice in bottom main bars to be located near bent.
Spacing of all transverse bars is measured along ℄ roadway.
Skew 0° to 20°: Place all transverse bars parallel to bent.
Skew over 20°: Place transverse slab bars perpendicular to ℄ bridge. See details at right and below.

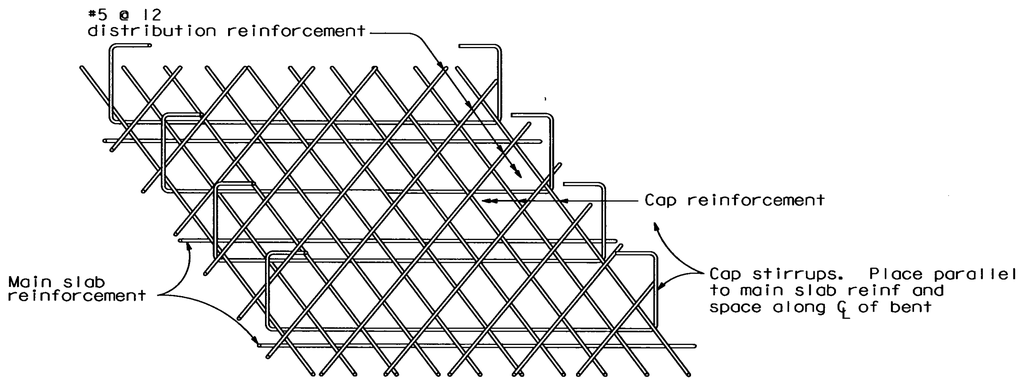


TOP SLAB REINFORCEMENT AT BENT

Note: View for main span over 24'. Bar placement similar for spans under 24'



DROPPED CAP



FLUSH CAP

BOTTOM SLAB REINFORCEMENT AT BENT

No Changes
AS BUILT g. Tolen
CORRECTIONS BY Michael Wood
CONTRACT NO. 04-149304
DATE 12-08-97 3-2-98

EARTHQUAKE RETROFIT PROJECT NO. 412

STANDARD DRAWING				
FILE NO. XS 12-55	DESIGN	BY L.Y. Lee	CHECKED T. Farnan	APPROVAL RECOMMENDED BY Richard D. Land DESIGN SUPERVISOR
DESIGN DATE 8/86	DETAILS	BY R. YEE	CHECKED T. Farnan	
	SUBMITTED BY R.S. Watanabe			

1 Changed notes

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DISTRICT 2
SEISMIC DESIGN

BRIDGE NO. 21-0014
POST MILE 16.5

DRY CREEK BRIDGE
SLAB REINFORCEMENT DETAILS

DS OSD 2147A (CADD 4/89)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 149301

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES (PRELIMINARY STAGE ONLY)								SHEET	OF
6-6-96	7-30-96							9	16

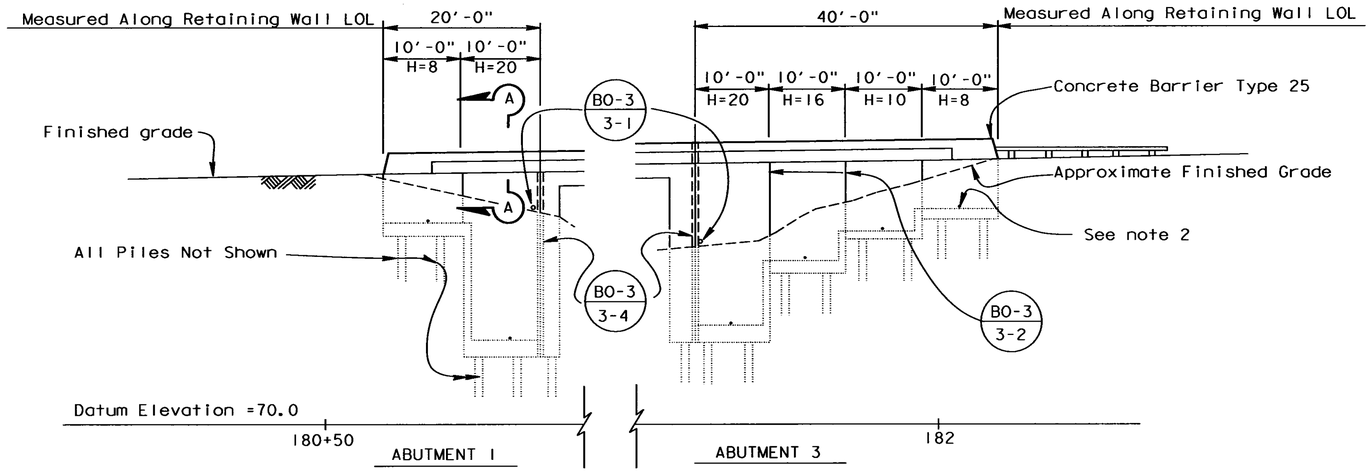
aamscslabl

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Nap	29	16.3/16.7	62	68

Garry L. Tolen
REGISTERED ENGINEER - CIVIL

REGISTERED PROFESSIONAL ENGINEER
Garry Tolen
No. 25298
Exp. 12-31-97
CIVIL
STATE OF CALIFORNIA

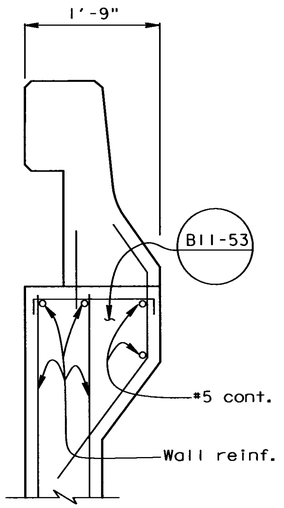
11-18-96
PLANS APPROVAL DATE



RETAINING WALL MIRROR ELEVATION

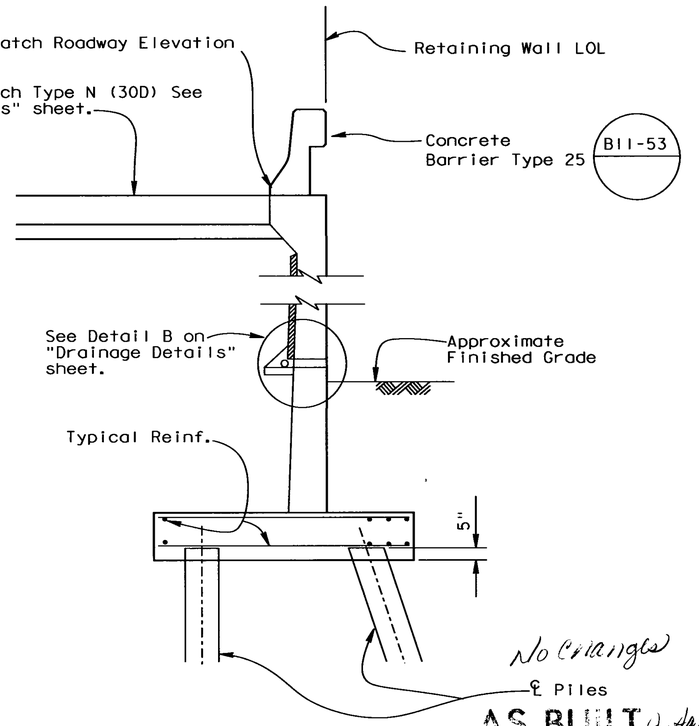
1"=10'-0"

B0-3 B3-1 B3-8



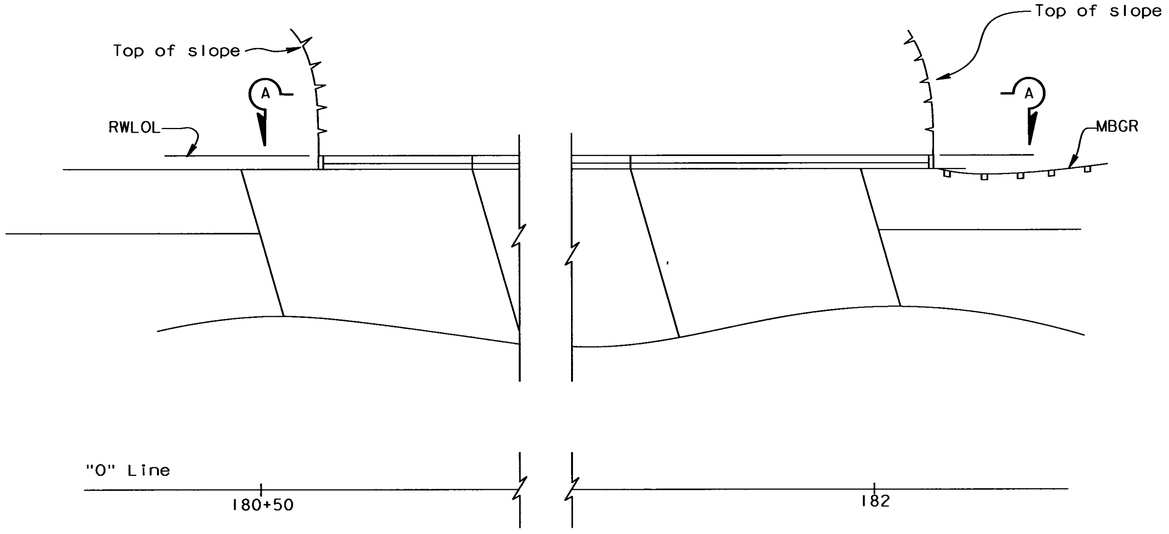
SECTION A-A

1"=10'-0"



TYPICAL SECTION

3/8"=1'-0"



PLAN

1"=10'-0"

Notes:

1. H = Design Height
2. ° = 3" diam. formed hole

No Changes

AS BUILT 4-Jam

CORRECTIONS BY Michael Wood

CONTRACT NO. 04-149304

DATE 12-08-97 3-2-98

DATE PLOTTED => 18-Nov-1996
TIME PLOTTED => 06:57

EARTHQUAKE RETROFIT PROJECT NO. 412

DRY CREEK BRIDGE

RETAINING WALLS DETAILS

	BY		CHECKED	
DESIGN	Mike Whiteside	5-96	Mike Whiteside	5-96
DETAILS	Janice Sam	5-96	Mike Whiteside	5-96
QUANTITIES	Garry Tolen	6-96	Kristi Westoby	6-96

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DISTRICT 2
SEISMIC DESIGN

CU 04
EA 149301

BRIDGE NO. 21-0014
POST MILE 16.5

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY): 5-10-96 6-12-96 7-10-96

SHEET 10 OF 16

DS OSD 2139 (CADD 9/95)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

USERNAME => trienard
oartw18065728

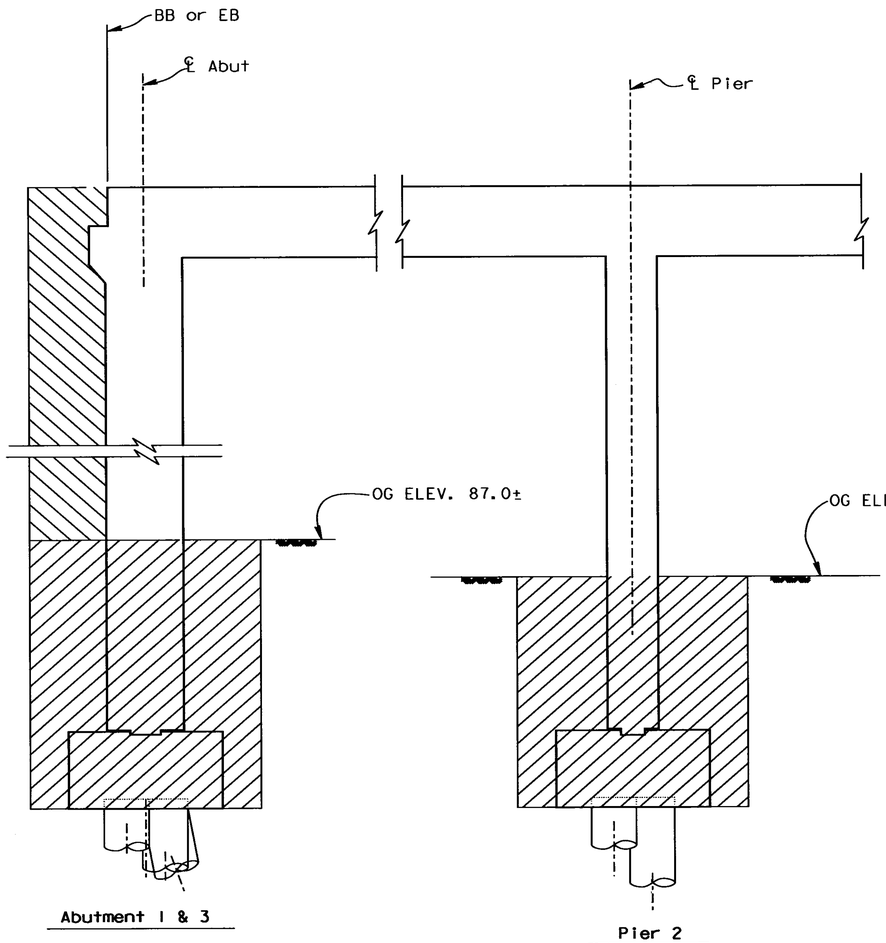
oartw

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Nap	29	16.3/16.7	63	68

Garry L. Tolen
REGISTERED ENGINEER - CIVIL

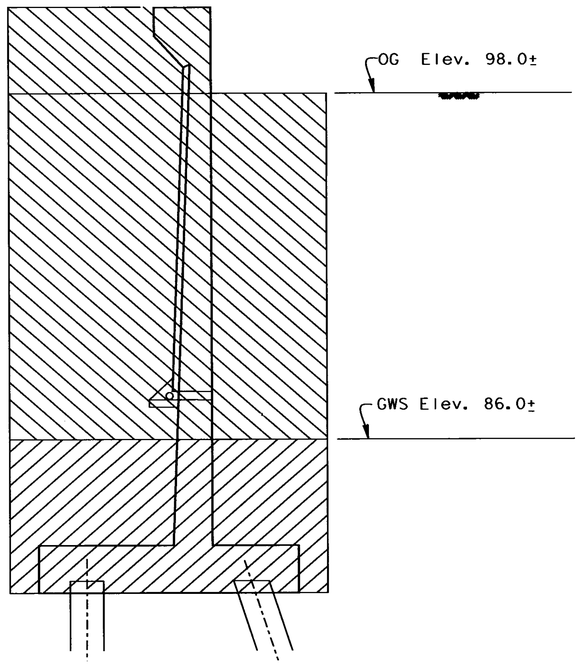
REGISTERED PROFESSIONAL ENGINEER
Garry L. Tolen
No. 25298
Exp. 12-31-97
CIVIL
STATE OF CALIFORNIA

11-18-96
PLANS APPROVAL DATE

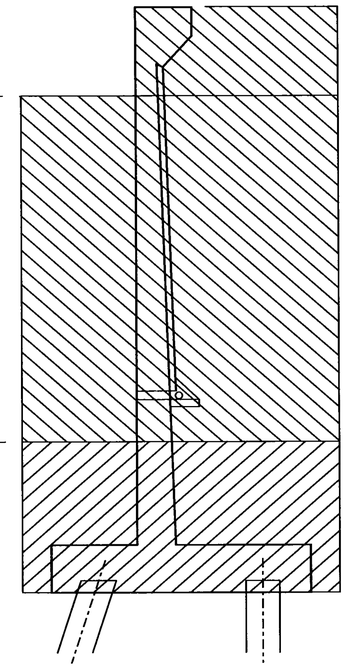


Abutment 1 & 3

Pier 2



Abutment 1 Retaining Wall, H=20'



Abutment 3 Retaining Wall, H=20'

No Changes
AS BUILT 9-1-98
CORRECTIONS BY Michael Assad
CONTRACT NO. 04-149304
DATE 12-08-97 3-2-98

Note:
For Details not shown, See "Limits of Payment for Structure Excavation and Backfill Bridge" A62-C

Structure Excavation Bridge
Structure Excavation Bridge (Type D)

LIMITS OF PAYMENT FOR STRUCTURE EXCAVATION BRIDGE

No Scale

DESIGN	BY Garry Tolen 3-96	CHECKED Mike Whiteside 5-96	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DISTRICT 2 SEISMIC DESIGN	BRIDGE NO. 21-0014
DETAILS	BY Janice Sam 3-96	CHECKED Mike Whiteside 5-96			POST MILE 16.5
QUANTITIES	BY Garry Tolen 6-96	CHECKED Kristie Westoby 6-96		CU 04 EA 149301	

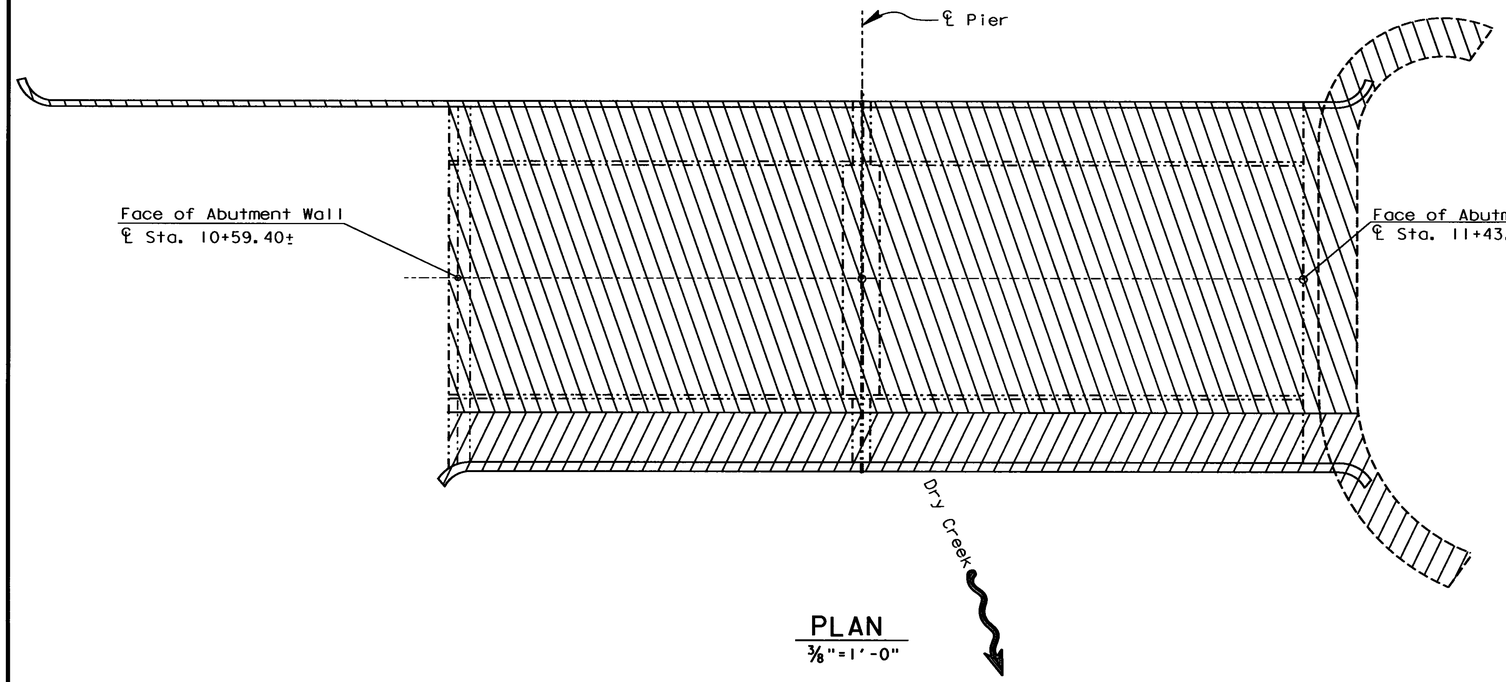
EARTHQUAKE RETROFIT PROJECT NO. 412
DRY CREEK BRIDGE
MISCELLANEOUS DETAILS

DS OSD 2139 (CADD 9/95)
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3
DISREGARD PRINTS BEARING EARLIER REVISION DATES →
REVISION DATES (PRELIMINARY STAGE ONLY): 3-27-96 | 5-5-96 | 6-12-96 | 6-20-96 | 6-28-96 | 7-1-96 | 7-30-96 | 10-22-93
SHEET 11 OF 16

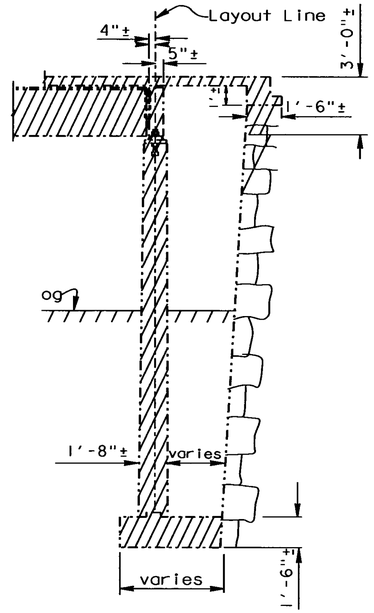
DATE PLOTTED => 18-Nov-1996
TIME PLOTTED => 06:58

USERNAME => trienard
aamsc18065839

aamsc



PLAN
3/8"=1'-0"



SECTION G-G
1/4"=1'-0"

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Nap	29	16.3/16.7	64	68

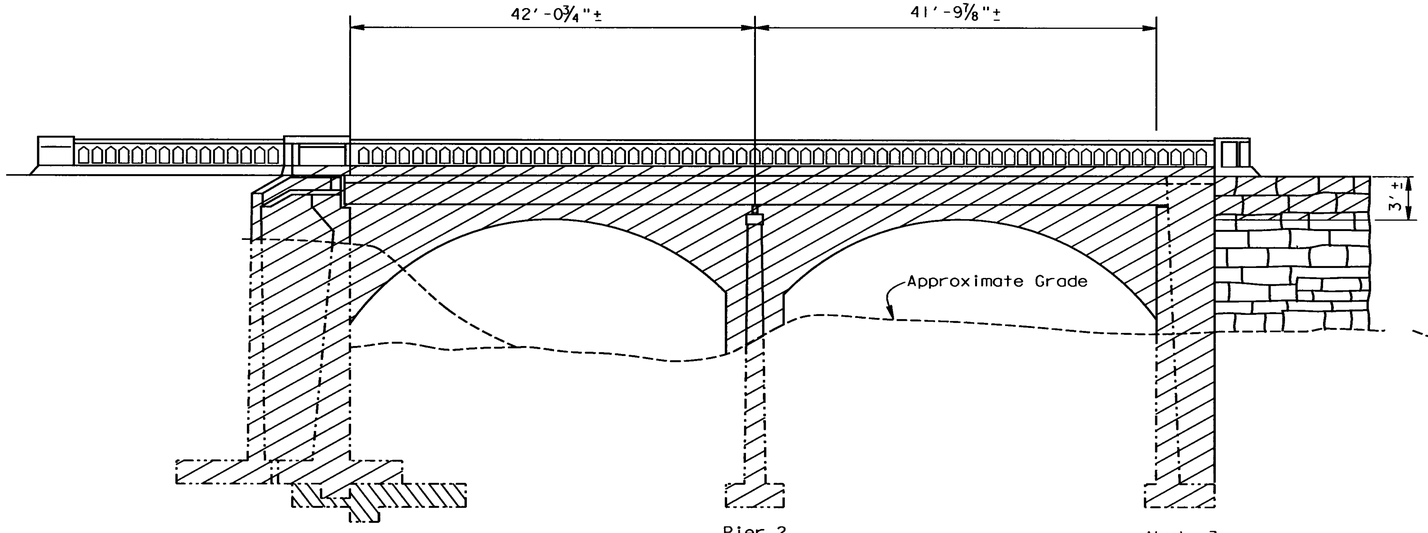
Garry L. Tolen
REGISTERED ENGINEER - CIVIL

REGISTERED PROFESSIONAL ENGINEER
Garry Tolen
No. 25298
Exp. 12-31-97
CIVIL
STATE OF CALIFORNIA

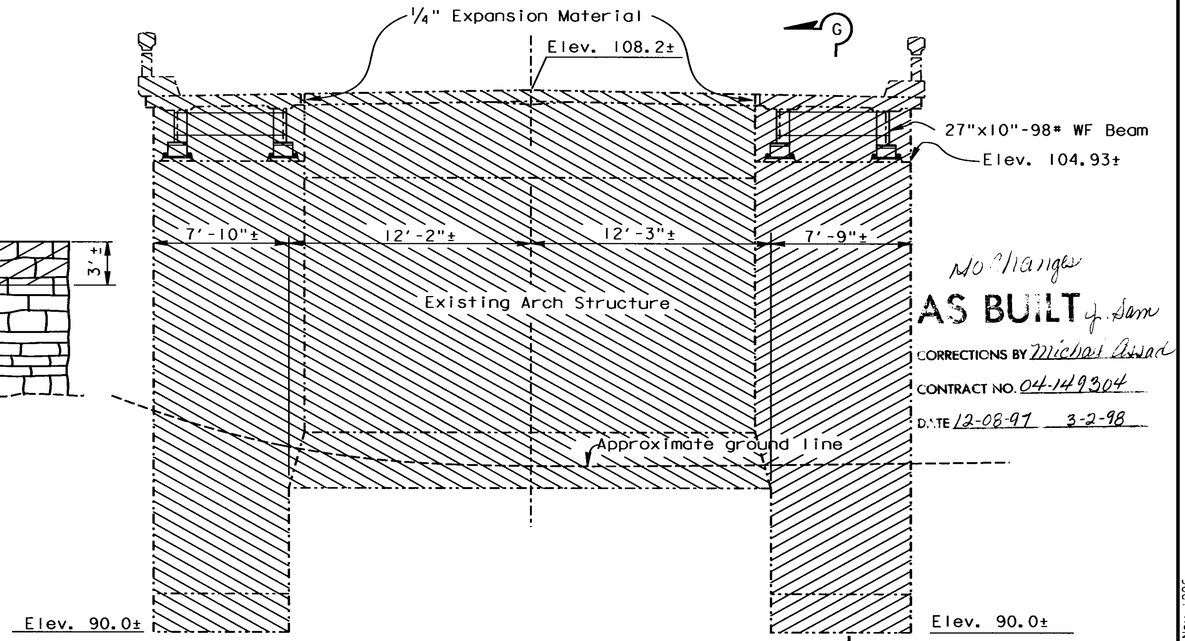
11-18-96
PLANS APPROVAL DATE

NOTES:
- Stage 1 Removal
- Stage 3 Removal

All Elevations given are referenced from 1938 As-Built



ELEVATION
3/16"=1'-0"



No Changes
AS BUILT J. Sam
CORRECTIONS BY Michael Awad
CONTRACT NO. 04-149304
DATE 12-08-97 3-2-98

EXISTING ABUTMENT 3 ELEVATION
1/4"=1'-0"

DATE PLOTTED => 18-Nov-1996
TIME PLOTTED => 07:01

DESIGN	BY Garry Tolen	5-96	CHECKED Mike Whiteside	5-96
DETAILS	BY Janice Sam	5-96	CHECKED Mike Whiteside	5-96
QUANTITIES	BY Garry Tolen	6-96	CHECKED Kristi Westoby	6-96

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DISTRICT 2
SEISMIC DESIGN

CU 04
EA 149301

BRIDGE NO. 21-0014
POST MILE 16.5

EARTHQUAKE RETROFIT PROJECT NO. 412
DRY CREEK BRIDGE
BRIDGE REMOVAL DETAILS NO. 1

DS OSD 2139 (CADD 9/95)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY): 5-23-96 7-8-96 7-30-96

SHEET 12 OF 16

USERNAME => trlenard
aamscremv118070103

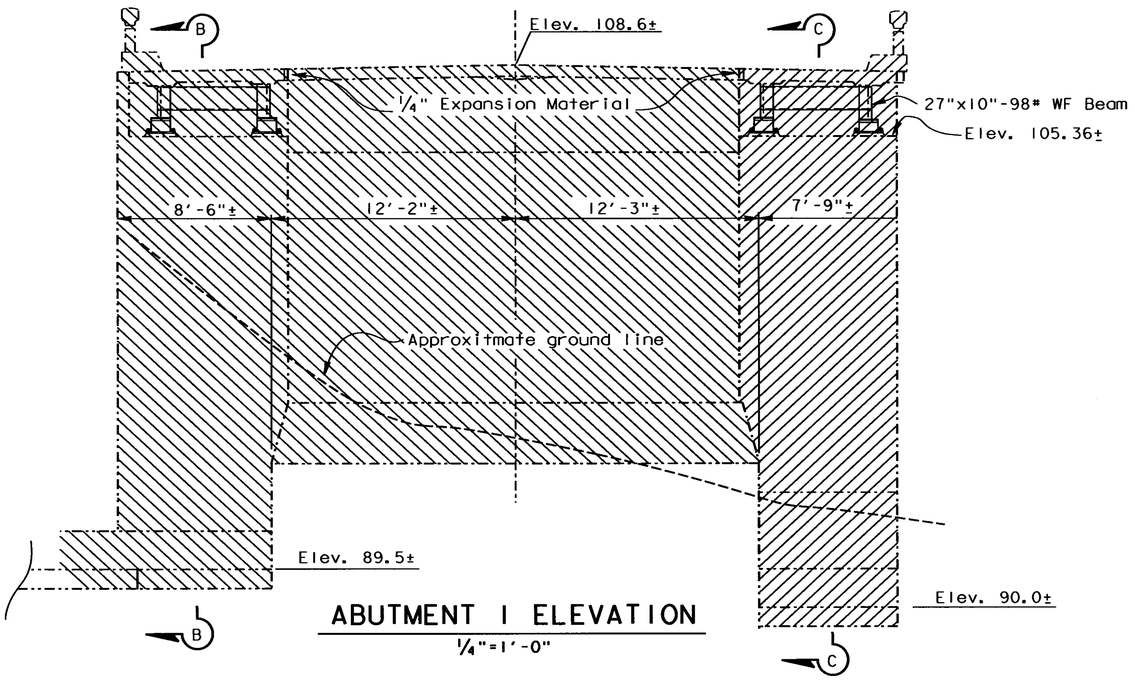
aamscremv1

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Nap	29	16.3/16.7	65	68

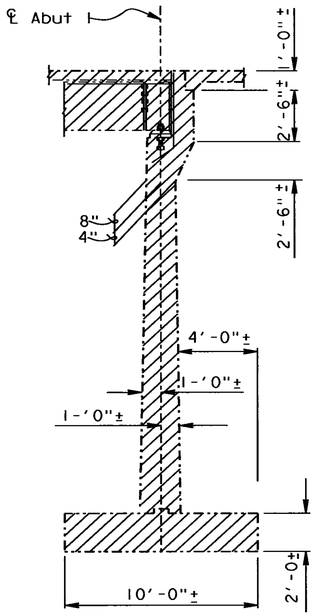
Garry L. Tolen
REGISTERED ENGINEER - CIVIL

REGISTERED PROFESSIONAL ENGINEER
Garry Tolen
No. 25298
Exp. 12-31-97
CIVIL
STATE OF CALIFORNIA

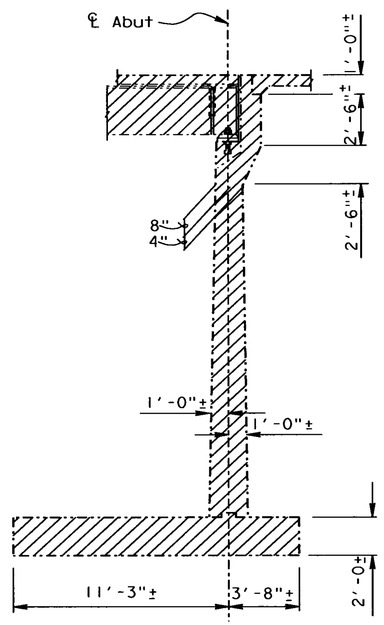
11-18-96
PLANS APPROVAL DATE



ABUTMENT 1 ELEVATION
1/4"=1'-0"

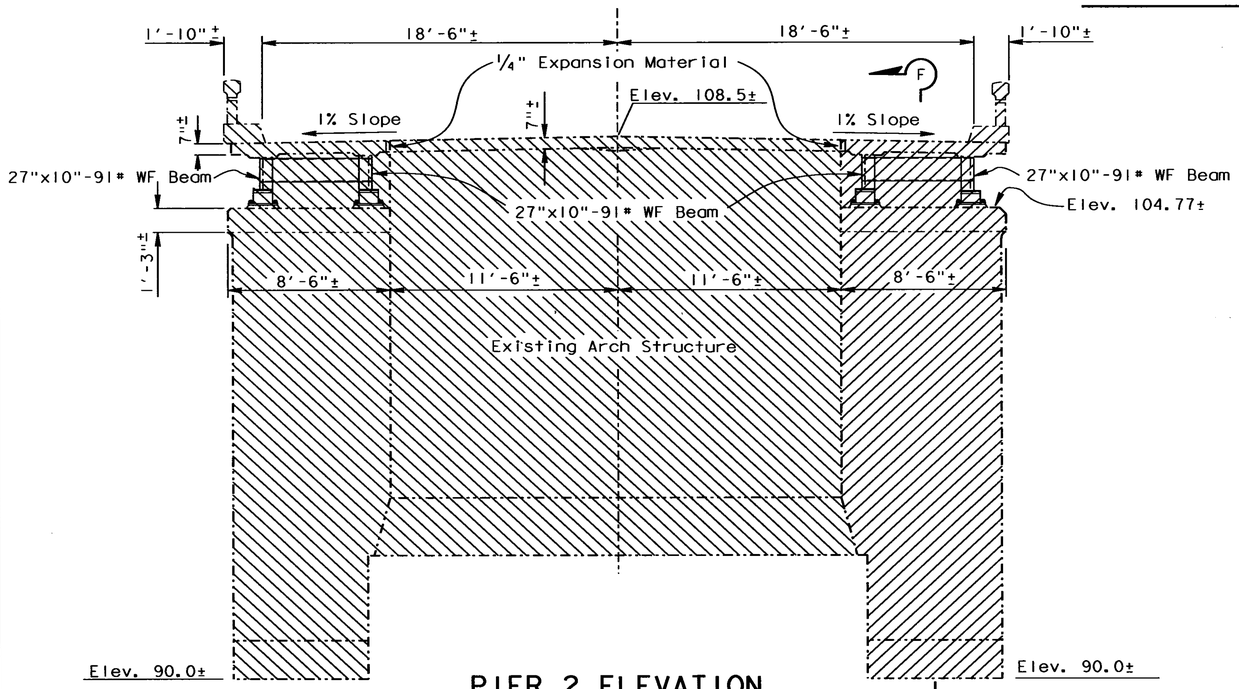


SECTION B-B
1/4"=1'-0"



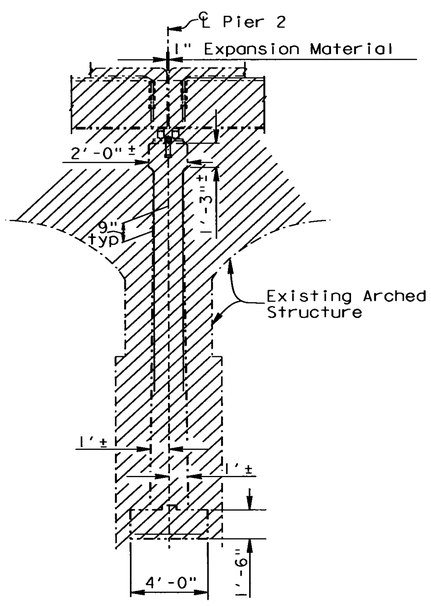
SECTION C-C
1/4"=1'-0"

EXISTING ABUTMENT 1 DETAILS



PIER 2 ELEVATION
1/4"=1'-0"

Note:
All Elevations given are from 1938 As-Built plans



SECTION F-F
1/4"=1'-0"

EXISTING PIER 2 DETAILS

NOTES:

Stage 1 Removal

Stage 3 Removal

All Elevations given are from 1938 As-Built plans

No Changes
AS BUILT 4-Jam
CORRECTIONS BY Michael Assad
CONTRACT NO. 04-149304
DATE 12-08-97 3-2-98

DESIGN	BY Mike Whiteside	5-96	CHECKED Mike Whiteside	5-96	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION
DETAILS	BY Janice Sam	5-96	CHECKED Mike Whiteside	5-96	
QUANTITIES	BY Garry Tolen	6-96	CHECKED Kristi Westoby	6-96	

DISTRICT 2
SEISMIC DESIGN

BRIDGE NO.	EARTHQUAKE RETROFIT PROJECT NO. 412
21-0014	DRY CREEK BRIDGE
POST MILE 16.5	BRIDGE REMOVAL DETAILS NO. 2

DS OSD 2139 (CADD 9/95)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 149301

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES (PRELIMINARY STAGE ONLY): 5-22-96, 6-3-96

SHEET 13 OF 16

USERNAME => frlenard
aamscremv218070303

aamscremv2

DATE PLOTTED => 18-Nov-1996
TIME PLOTTED => 07:03

RELEASED 11-2-96

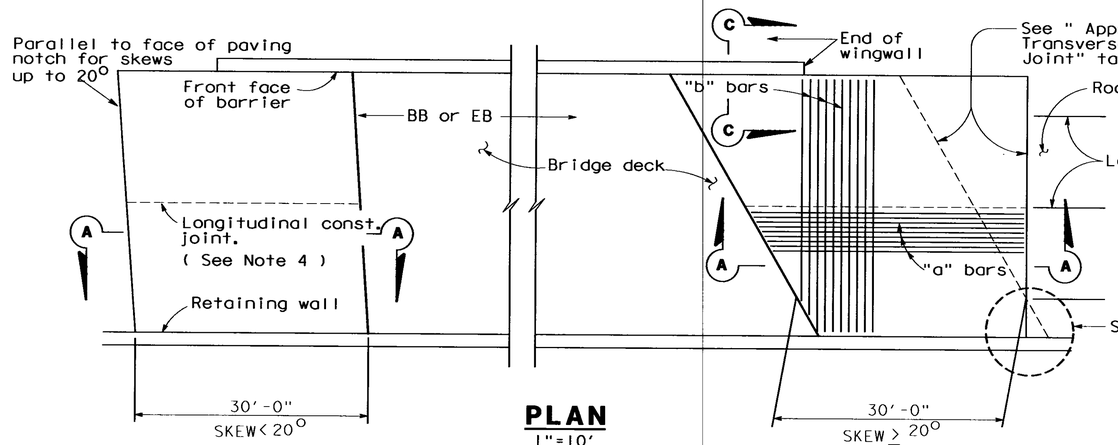
DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Nap	29	16.3/16.7	66	68

Garry L. Tolen
REGISTERED ENGINEER - CIVIL

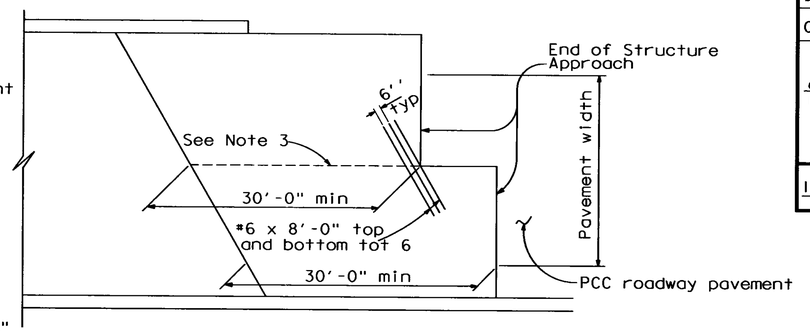
REGISTERED PROFESSIONAL ENGINEER — Garry Tolen — No. 25298 — Exp. 12-31-97 — CIVIL — STATE OF CALIFORNIA

11-18-96
PLANS APPROVAL DATE

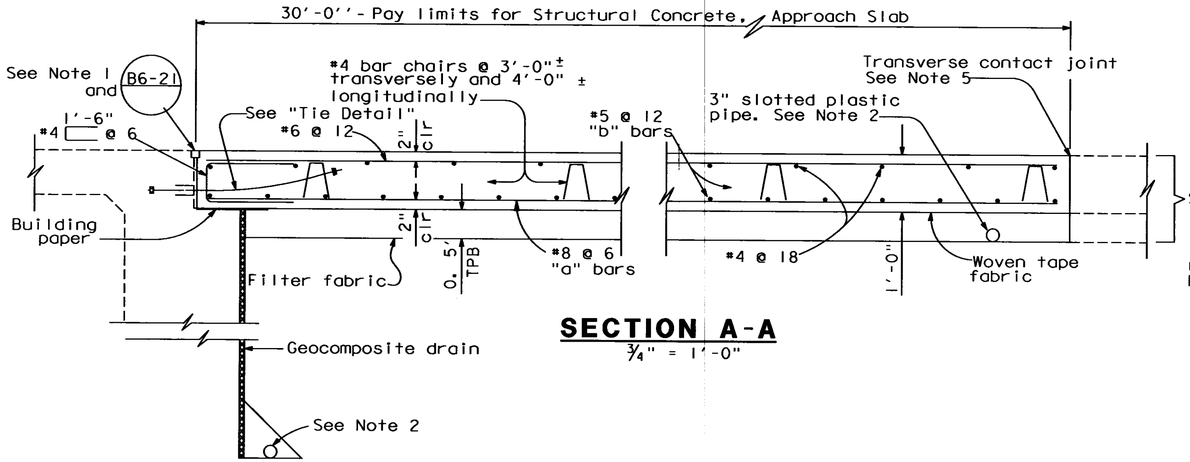
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.



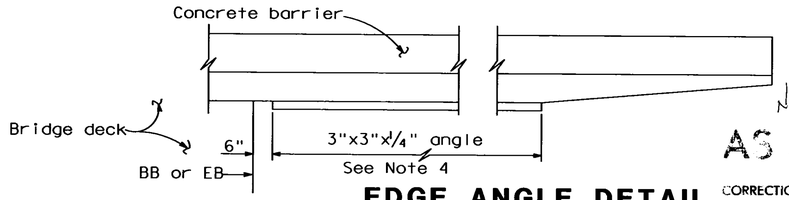
PLAN
1"=10'



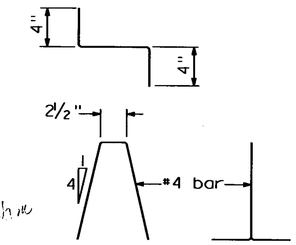
STRUCTURE APPROACH - END STAGGER DETAIL
NO SCALE



SECTION A-A
¾" = 1'-0"



EDGE ANGLE DETAIL
½" = 1'-0"



BAR CHAIR DETAIL
1½"=1'-0"

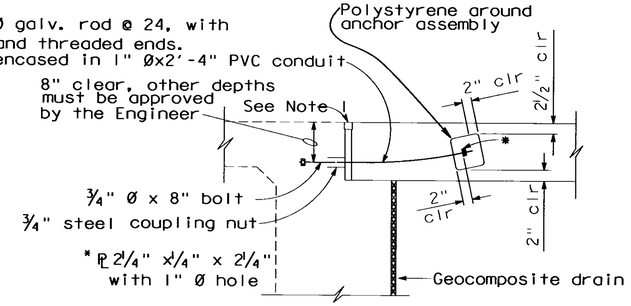
No changes

AS BUILT 4-24-98

CORRECTIONS BY Michael Assad

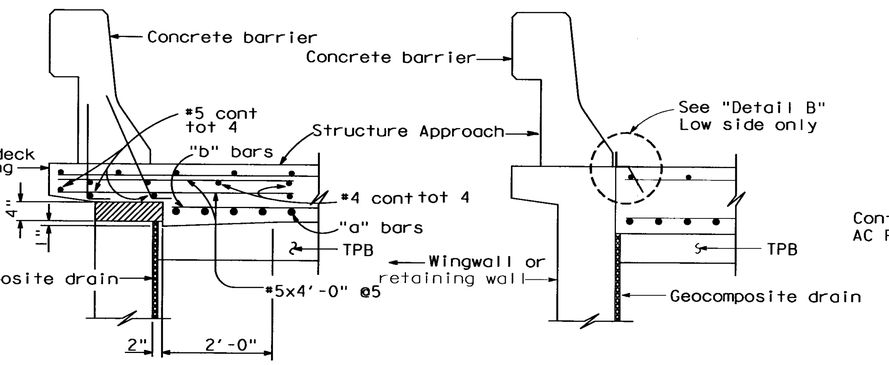
CONTRACT NO. 04-149304

DATE 12-08-97 3-2-98



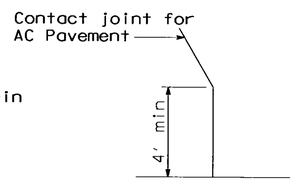
TIE DETAIL
¾" = 1'-0"

APPROACH SLAB TRANSVERSE CONTACT JOINT		
APPROACH SKEW	WITH AC ROADWAY PAVEMENT	WITH PCC ROADWAY PAVEMENT
< 20°	Parallel to face of paving notch	Parallel to face of paving notch
20° - 45°	Parallel to face of PN use (Detail A)	Stagger lines 24' to 36' apart
> 45°	Parallel to face of PN use (Detail A)	Stagger at each lane line

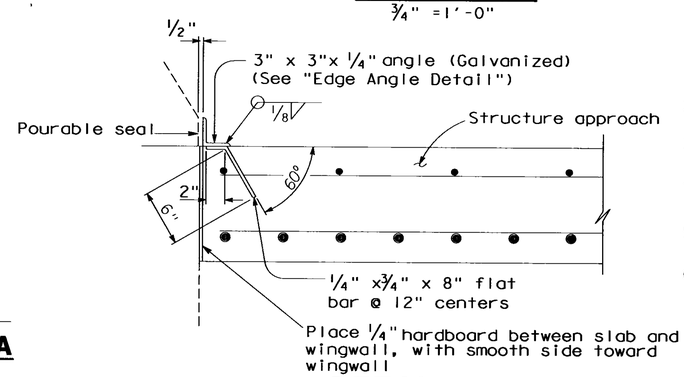


TYPE E-1 **TYPE E-2**

SECTION C-C
¾"=1'-0"
(Type E-1 to be used, unless otherwise shown on plans)



DETAIL A
NO SCALE



DETAIL B
1½"=1'-0"

NOTES:

1. For details not noted or shown, see Structure Plans.
2. For drainage details, see "Structure Approach Drainage Details" sheet.
3. Longitudinal construction joints, when permitted by the Engineer, shall be located on lane lines.
4. End angle at beginning of barrier transition, end of wingwall or end of structure approach, as applicable.
5. For transverse contact joint with new PCC paving, refer to Standard Plan A35-A.
6. At the contractor's option, approach slab transverse reinforcement may be placed parallel to paving notch. Spacing of transverse reinforcement is measured along ℄ roadway.

▨ Polystyrene to be removed.

STANDARD DRAWING				
FILE NO. XS 22-24	DESIGN	BY M. Traffalis	CHECKED E. Thorkildsen	APPROVAL RECOMMENDED BY Richard D. Land DESIGN SUPERVISOR
DESIGN DATE 8/92	DETAILS	BY R. Yee	CHECKED E. Thorkildsen	
	SUBMITTED BY	M. Ha		

DS OSD 2147A (CADD 4/89)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DISTRICT 2
SEISMIC DESIGN

CU 04
EA 149301

BRIDGE NO. 21-0014
POST MILE 16.5

EARTHQUAKE RETROFIT PROJECT NO. 412

DRY CREEK BRIDGE

STRUCTURE APPROACH TYPE N(30D)

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES (PRELIMINARY STAGE ONLY)

SHEET 14 OF 16

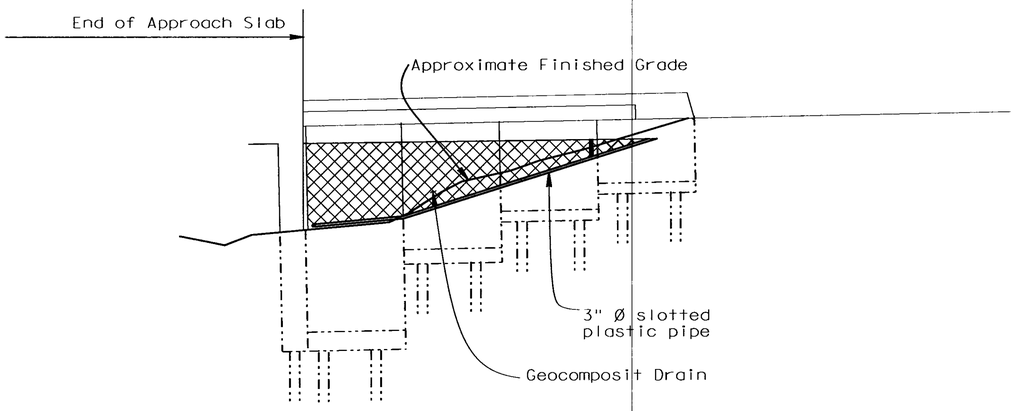
aasap

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Nap	29	16.3/16.7	67	68

REGISTERED ENGINEER - CIVIL

REGISTERED PROFESSIONAL ENGINEER — Garry Tolen No. 25298 Exp. 12-31-97 CIVIL — STATE OF CALIFORNIA

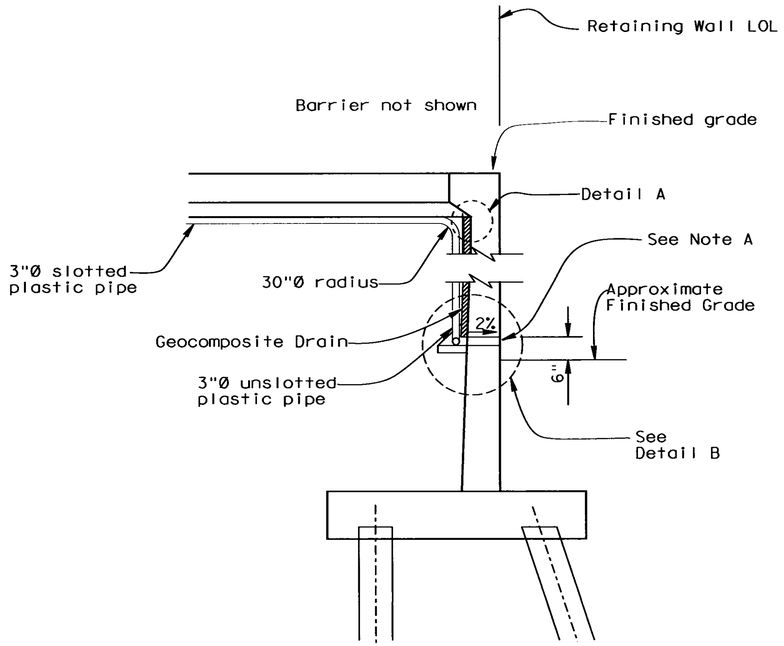
11-18-96
PLANS APPROVAL DATE



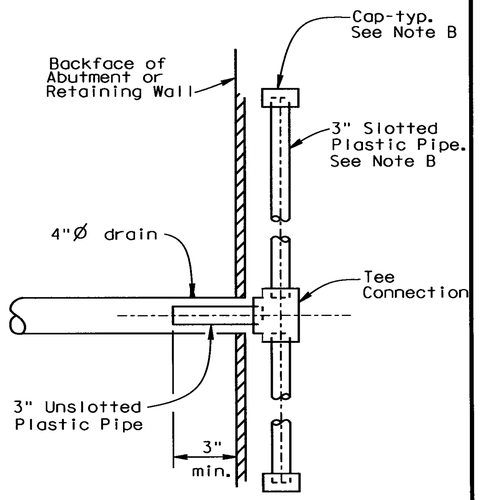
VIEW A-A

1/8"=1'-0"

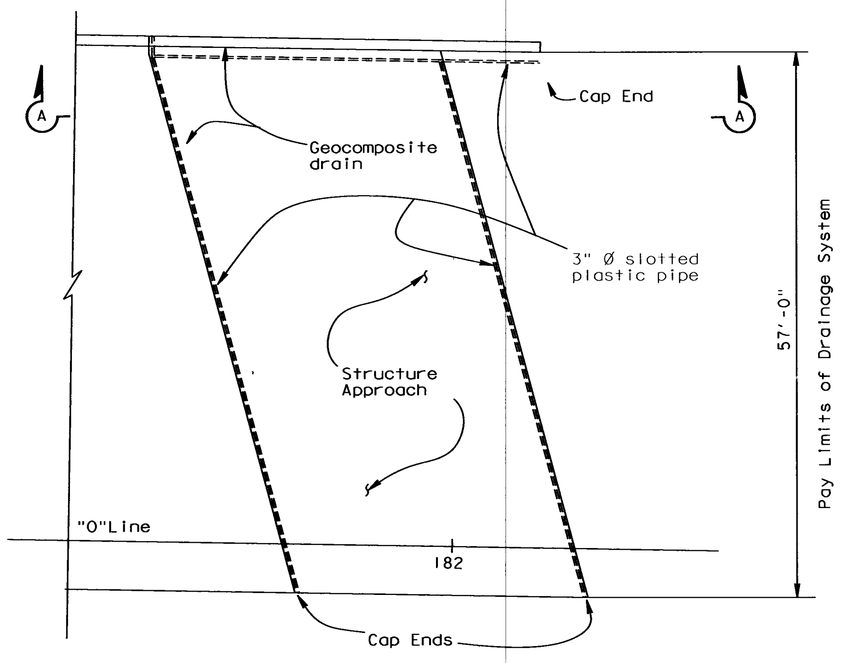
NOTES:
Abutment 3 shown. Abutment 1 similar



WALL SECTION

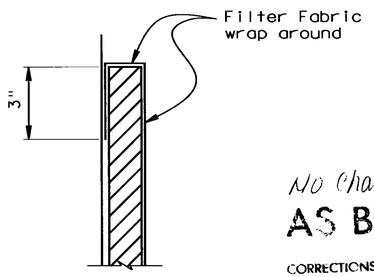


SECTION B-B

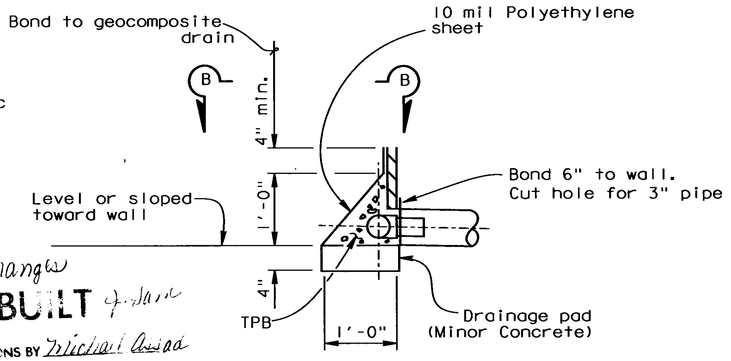


PLAN

1/8"=1'-0"



DETAIL "A"



DETAIL "B"

No Changes
AS BUILT J. Jain
CORRECTIONS BY Michael Awad
CONTRACT NO. 04-149304
DATE 12-08-97 3-2-98

WEEP HOLE AND GEOCOMPOSITE DRAIN

ALTERNATIVE TO BRIDGE DETAIL B0-3 / 3-1

Notes:
A. Geocomposite drain, cement treated permeable base, and 3"Ø slotted plastic pipe continuous behind retaining wall or abutment. Cap ends of pipe. Provide "Tee" connection at each 4" Ø drain.

DESIGN	BY Garry Tolen	3-96	CHECKED Mike Whiteside	5-96	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION
DETAILS	BY Janice Sam	3-96	CHECKED Mike Whiteside	5-96	
QUANTITIES	BY Garry Tolen	6-96	CHECKED Kristi Westoby	6-96	

DISTRICT 2
SEISMIC DESIGN

BRIDGE NO. 21-0014
POST MILE 16.5

EARTHQUAKE RETROFIT PROJECT NO. 412
DRY CREEK BRIDGE
DRAINAGE DETAILS

DS OSD 2139 (CADD 10/95)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

CU 04
EA 149301

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY): 3-19-96 | 6-6-96 | 6-12-96 | 7-1-96 | 7-10-96 | 10-23-96

SHEET 15 OF 16

USERNAME => trienard
aamscdrain18070612

DATE PLOTTED => 18-Nov-1996
TIME PLOTTED => 07:06

aamscdrain

EARTHQUAKE RETROFIT PROJECT NO. SR-412

DIST.	COUNTY	ROUTE	POST MILES - TOTAL PROJECT	Sheet No.	Total Sheets
04	Nap	29	16.3/16.7	68	68

STRUCTURAL FOUNDATIONS BRANCH - ENGINEERING SERVICE CENTER

REGISTERED ENGINEER - CIVIL — PLANS APPROVAL DATE 11-18-96

R.R. PRICE, No. 49593, Exp. 9-30-96, CIVIL — REGISTERED PROFESSIONAL ENGINEER, STATE OF CALIFORNIA

DRY CREEK BRIDGE (REPLACE)

LOG OF TEST BORINGS

NOTE: THIS LOG OF TEST BORINGS IS AVAILABLE ON MICROFILM AT OFFICE OF STRUCTURES DESIGN SACRAMENTO, CALIFORNIA — CU: 04, EA: 149301 — BRIDGE No. 21-0014 L

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

No change(s)
AS BUILT
CORRECTIONS BY Michael Assa...
CONTRACT NO. 04-149304
DATE 12-08-97 3-2-98

No As-Built Changes
AS BUILT
CORRECTIONS BY E.S. Foster
CONTRACT NO. 04-102134
DATE 5-13-70

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

DRY CREEK BRIDGES

LOG OF TEST BORINGS

SCALE As Noted — BRIDGE 21C-20, 21-14R, 21C-21 — FILE — DRAWING

WO 102131
CU 04204

Disregard prints bearing earlier numbers → PREL. DRAWING No.

NOTE: Classification of earth material as shown on this sheet is based upon field inspection and is not to be construed to imply mechanical analysis.

ENGINEERING GEOLOGY SECTION

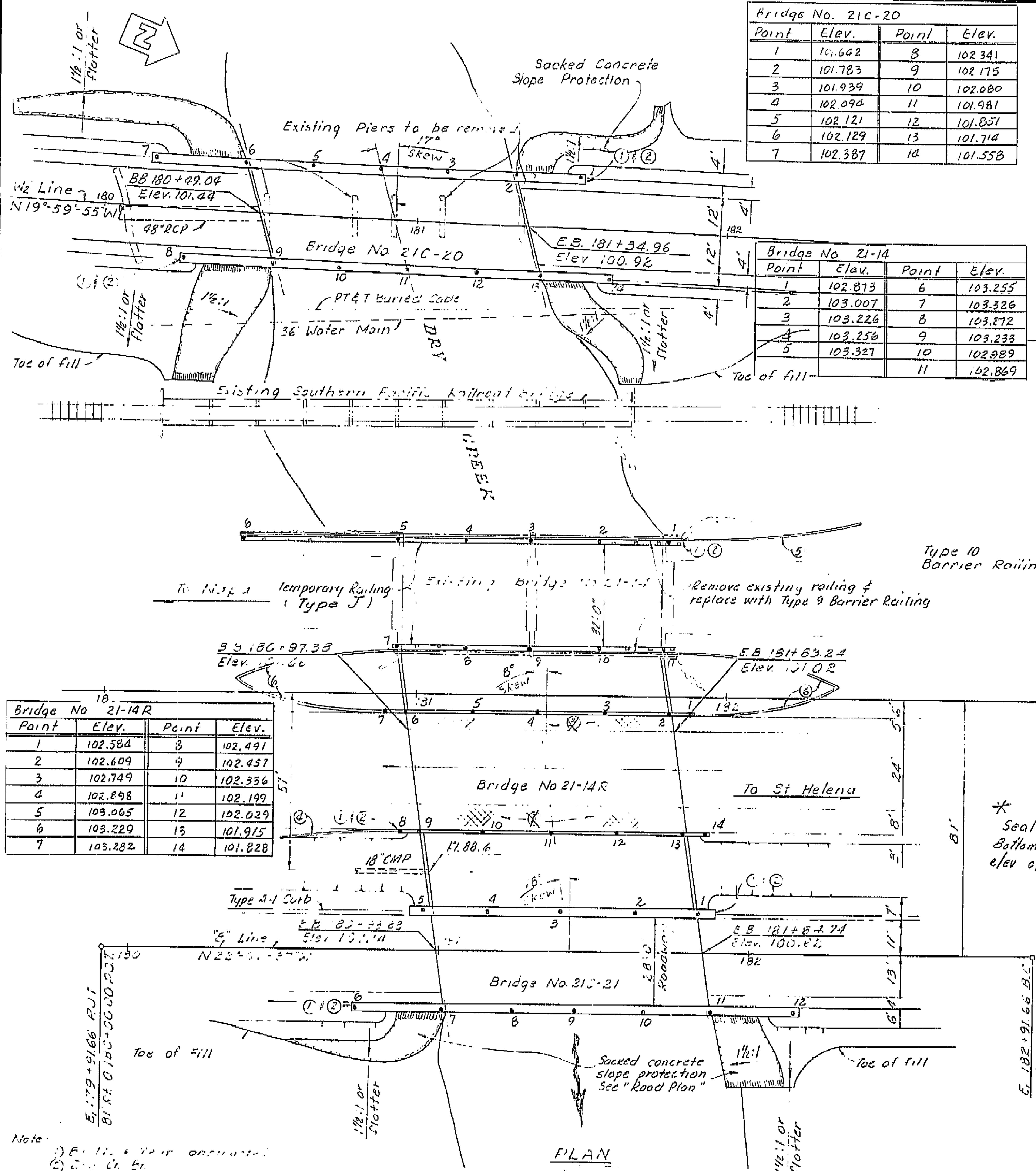
FED. ROAD DIV. No.	STATE	F. A. PROJECT No.	SHEET No.	TOTAL SHEETS
7	CALIF.			

DIST.	COUNTY	ROUTE	SECTION	SHEET No.	TOTAL SHEETS
04	Nap	29	15.0/19.6	46	69

BRIDGE ENGINEER — CIVIL ENGINEER — LICENSE 5585

ASSISTANT STATE HIGHWAY ENGINEER — CIVIL ENGINEER — LICENSE 4390

DATE APPROVED September 23, 1968



Bridge No. 21C-20			
Point	Elev.	Point	Elev.
1	101.642	8	102.341
2	101.783	9	102.175
3	101.939	10	102.080
4	102.094	11	101.981
5	102.121	12	101.851
6	102.129	13	101.714
7	102.387	14	101.558

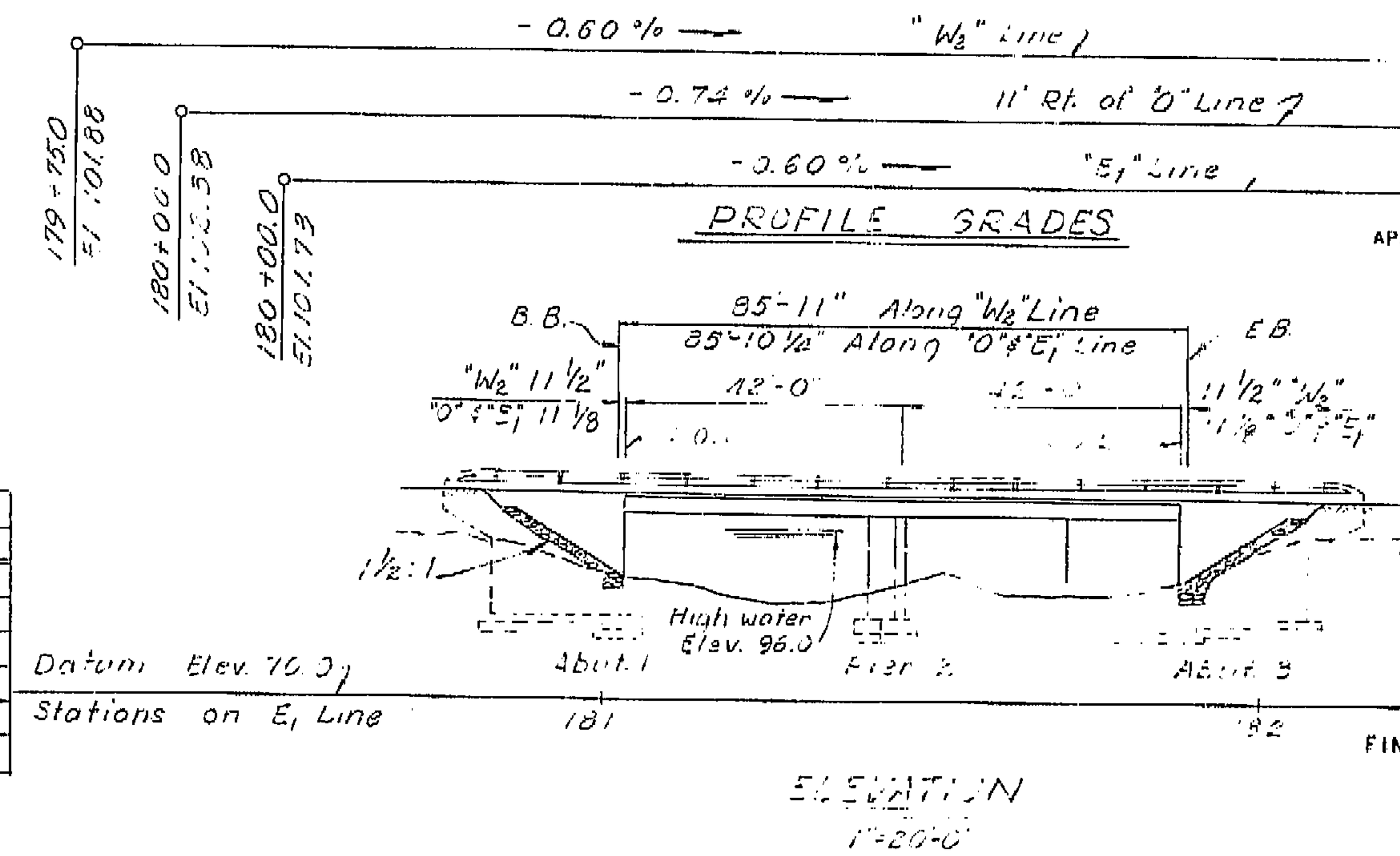
Bridge No 21-14			
Point	Elev.	Point	Elev.
1	102.873	6	103.255
2	103.007	7	103.326
3	103.226	8	103.272
4	103.256	9	103.233
5	103.327	10	102.989
		11	102.869

Bridge No 21-14R			
Point	Elev.	Point	Elev.
1	102.584	8	102.491
2	102.609	9	102.457
3	102.749	10	102.336
4	102.898	11	102.199
5	103.065	12	102.029
6	103.229	13	101.915
7	103.282	14	101.828

Bridge No 21C-21			
Point	Elev.	Point	Elev.
1	101.988	7	101.893
2	102.097	8	101.790
3	102.182	9	101.668
4	102.299	10	101.570
5	102.547	11	101.362
6	101.974	12	101.251

Bench Mark: USC&GS "Dry", Elev. 99.79

Note:
1) [illegible]
2) [illegible]
~~3) Contrast Treatment~~ Deleted ~ CCO #31
4) B.A.G.R. Type 8 L=38'-6" W=3'-0" Type 1 Flare
5) B.A.G.R. Type 8 L=58'-6" W=5'-0" Type 1 Flare
6) B.A.G.R. Type 8 L=48'-6" W=20'± Type 3 Flare

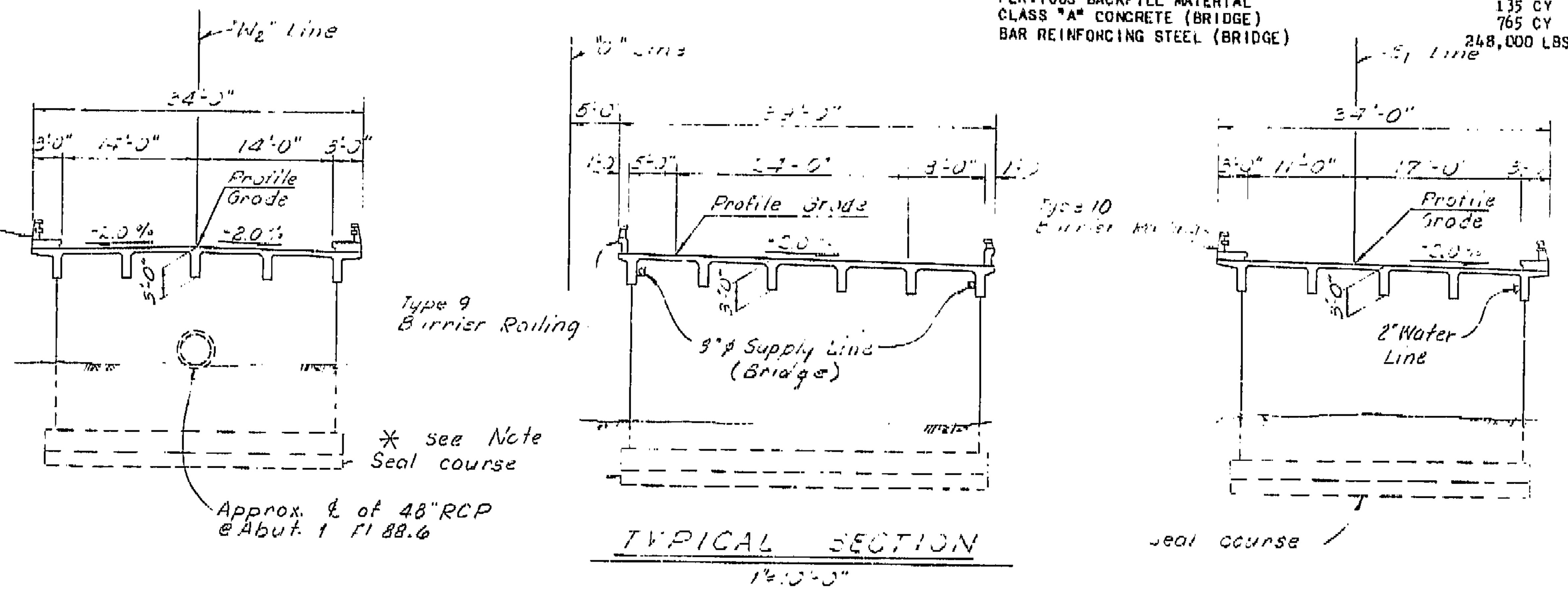


APPROXIMATE QUANTITIES

TEMPORARY RAILING (TYPE J)	236 LF
REMOVING PORTIONS OF BRIDGES	LUMP SUM
~~2" GALVANIZED STEEL PIPE (WATER LINE)~~ Deleted CCO #11	~~88~~ LF
3" SUPPLY LINE (BRIDGE)	224 LF
CLASS "A" CONCRETE (FOOTING BLOCK)	580 CY
REFINISHING BRIDGE DECK	235 SF
DRILLING AND GROUTING DOWELS	280 LF
~~CONTRAST TREATMENT~~ Deleted ~ CCO #31	~~128~~ SY
BRIDGE APPROACH GUARD RAILING (TYPE 8)	291 LF
BARRIER RAILING (TYPE 9)	432 LF
BARRIER RAILING (TYPE 10)	518 LF

FINAL QUANTITIES

STRUCTURE EXCAVATION (BRIDGE)	15 CY
STRUCTURE BACKFILL (BRIDGE)	1,770 CY
STRUCTURE EXCAVATION (TYPE "A")	2,170 CY
PERVIOUS BACKFILL MATERIAL	135 CY
CLASS "A" CONCRETE (BRIDGE)	765 CY
BAR REINFORCING STEEL (BRIDGE)	248,000 LBS



* Seal course eliminated at all footings. Bottom of all footings built at planned elev of seal course.

AS BUILT
CONTRACTOR L.S. Foster
CONTRACT No. 04-102134
DATE 5-13-70
TBM 7/9/70

STANDARD PLANS dated February 1968

A62-B2	Excavation & Backfill Bridges & Walls
B3-1	Retaining Wall Type I H=4'-30'
B3-8	Retaining Wall Details No. 1
B3-9	Retaining Wall Details No. 2
B6-1	T-Beam Details No. 1
B11-43	Barrier Railing Details for Types 9, 10, 11 & 12
B11-40	Barrier Railing Type 10
B11-30	Temporary Railings

INDEX TO PLANS

Sheet No.	Title
1.	General Plan
2.	Foundation Plan
3.	Abutment Details W2 Line
4.	Abutment Details E1 & O Line
5.	Pier Details
6.	Typical Section
7.	Girder Layout
8	Girder Reinforcement
9.	Strutted Abutment - Spread Footing
10.	Barrier Railing Type 9
11.	Bridge Approach Guard Railing Type 8 (Details)
12.	Bridge Approach Guard Railing Type 8 (Layout)
13.	Log of Test Boring.

NOTE:
THE CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS IN THE FIELD BEFORE ORDERING OR FABRICATING ANY MATERIAL.

FOR GENERAL NOTES SEE Foundation Plan Sheet

LIVE LOADING H20 - 44 AND ALTERNATIVE

AS BUILT PLANS
Contract No. 04-102134
Date Completed
Document No. 40001324

BRIDGE DEPARTMENT
*** DESIGN SECTION *** 12
Section Supervisor
Project Designer

	By	Checked
DESIGN		12-63
DETAILS		12-63
LAYOUT		12-63
QUANTITIES		6-64
SPECIFICATIONS	Amaro 4-68	Plans and Specs. Compared

Approval Recommended by — Design Engineer — Civil Engr. License No. 5013

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

DRY CREEK BRIDGES

LOCATED 2.2 MILES NORTH OF THE NORTH CITY LIMITS OF NAPA IN NAPA COUNTY

GENERAL PLAN

SCALE AS NOTED | BRIDGE 21C-20, 21-14R, 21C-21 | FILE | DRAWING 2114-1

WO 192131
CU 04204

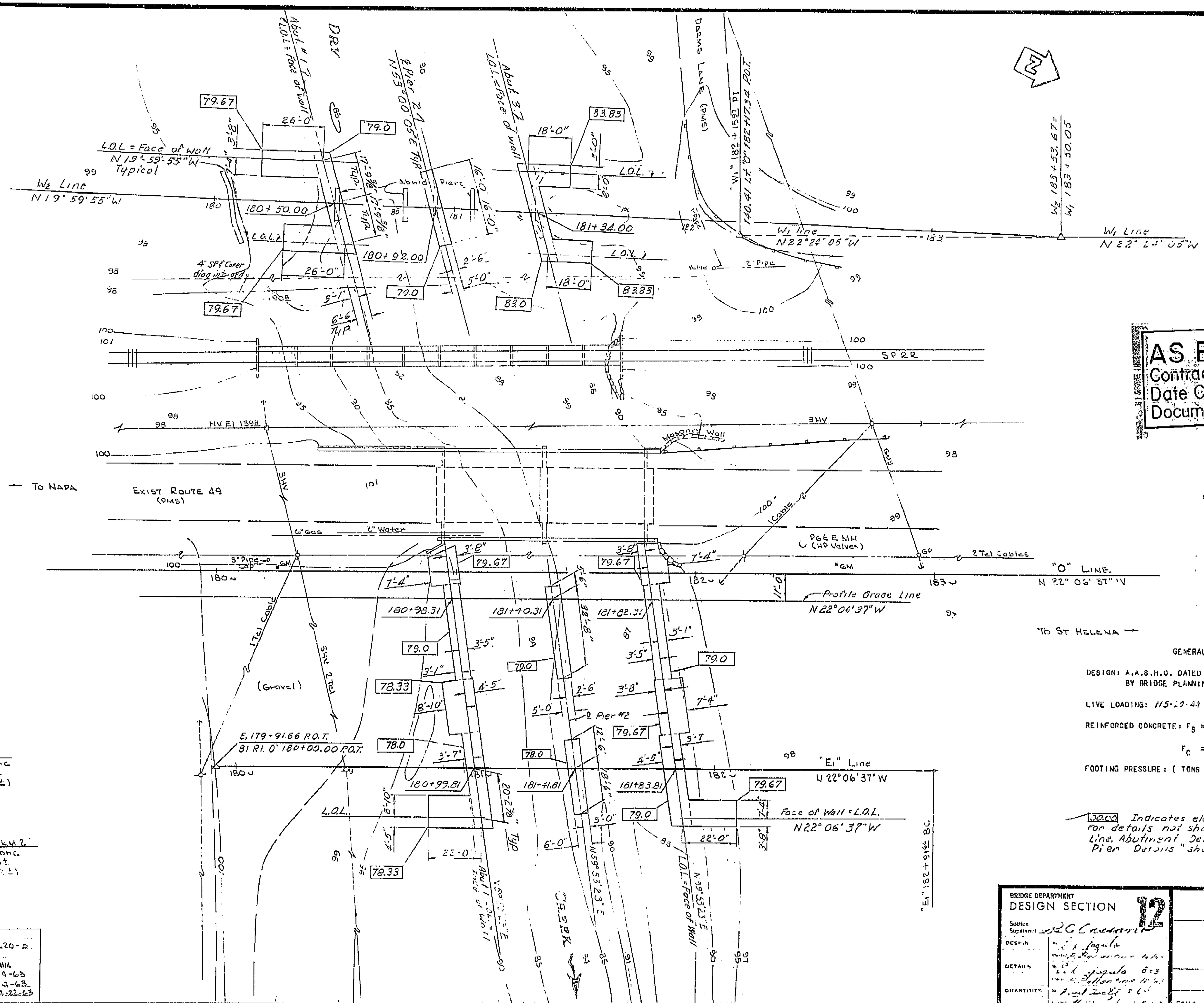
Disregard prints bearing earlier revision dates →

PRELIMINARY DRAWING No. P-2114-1 | REVISION DATES

I HEREBY CERTIFY THAT THIS IS A TRUE AND ACCURATE COPY OF THE ABOVE DOCUMENT TAKEN UNDER MY DIRECTION AND CONTROL ON THIS DATE IN SACRAMENTO, CALIFORNIA PURSUANT TO AUTHORIZATION BY THE DIRECTOR OF PUBLIC WORKS.
DATE March 8, 1971 SIGNATURE TITLE Highways Administrative Assistant

Dist.	County	Route	Section	Sheet No.	Total Sheets
04	Nap	29	15.0/19.6	47	69

September 23, 1968



USC&GS "Dry"
Fd. std disc in conc
312 Lt. PL 651+51±
77' Lt "O" 178+54±)
Exist El 99.72

USC&GS "Dry RM 2"
Fd. std disc in conc
31 Lt. PL 651+80±
74' Lt "O" 178+82±)
Exist El 99.56

LEVEL DATUM: DISTRICT
FOR ALINEMENT TIES SEE PR 21C20-3
CONTOURS AS OF 4-63
SITE PLAN TO SUPPLEMENT DISTRICT DATA
SURVEY BY JHC DATE 4-63
DRAWN BY LBT DATE 4-63
TRACED BY JS DATE 4-22-63

AS BUILT PLANS
Contract No. 04-102134
Date Completed
Document No. 40001324

04-102134
5 13-70
1/4m 7/9/70

GENERAL NOTES

DESIGN: A.A.S.H.O. DATED 1965 WITH REVISIONS AND AS SUPPLEMENTED BY BRIDGE PLANNING AND DESIGN MANUAL.

LIVE LOADING: HS-20-44 AND ALTERNATIVE

REINFORCED CONCRETE: F_S = 20,000 P.S.I., N = 10

F_C = 1,200 P.S.I.

FOOTING PRESSURE: (TONS P.S.F.)

Br No. 21-14R	2.5
Br. No. 21C-20	2.5
Br. No. 21C-21	2.0

00.00 Indicates elev. for bottom of Footing
For details not shown see "Abut Details W2 Line, Abutment Details E1 & C Line and Pier Details" sheet.

BRIDGE DEPARTMENT
DESIGN SECTION 12
Section Supervisor R C Cressman
DESIGN / DETAILS / QUANTITIES

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

DRY CREEK BRIDGES

FOUNDATION PLAN

SCALE 1" = 20' | BRIDGE 21C-20, 21-14R, 21C-21 | FILE E-21 | DRAWING 2114-Z

62-04TioH10?1.3

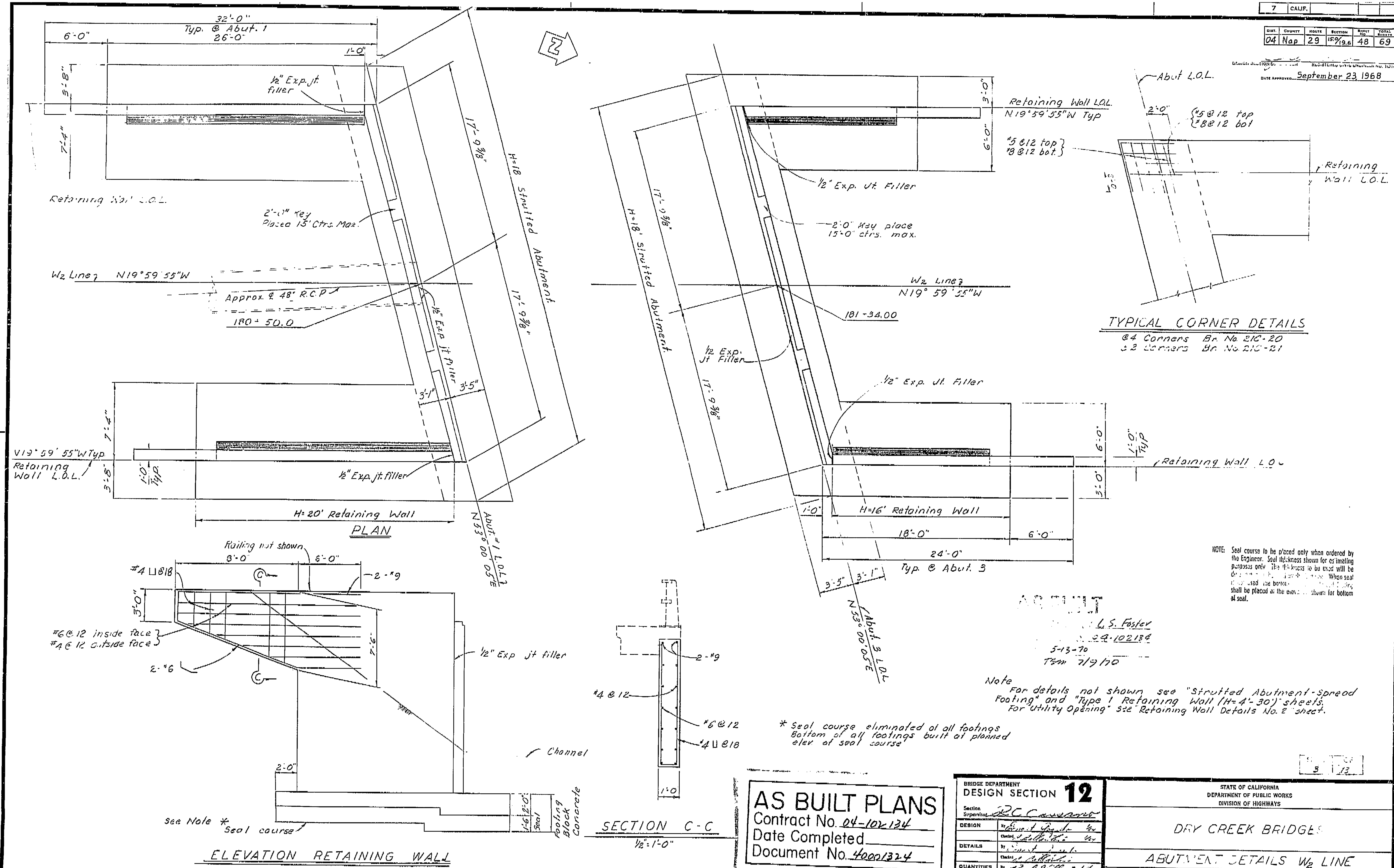
WO 102151
CU 04 204

I HEREBY CERTIFY THAT THIS IS A TRUE AND ACCURATE COPY OF THE ABOVE DOCUMENT TAKEN UNDER MY DIRECTION AND CONTROL ON THIS DATE IN SACRAMENTO, CALIFORNIA PURSUANT TO AUTHORIZATION BY THE DIRECTOR OF PUBLIC WORKS.
DATE March 8, 1971 SIGNATURE TITLE Highway Administrative Officer

SCALE 1" = 50' MICROFILM - STATE OF CALIFORNIA - DEPARTMENT OF PUBLIC WORKS - MICROFILM SCALE 1" = 50' SCALE 1" = 20' MICROFILM - STATE OF CALIFORNIA - DEPARTMENT OF PUBLIC WORKS - MICROFILM SCALE 1" = 20'

DIST.	COUNTY	ROUTE	SECTION	SHEET No.	TOTAL SHEETS
04	Nap	29	15.0/19.6	48	69

DATE APPROVED September 23, 1968



NOTE: Seal course to be placed only when ordered by the Engineer. Seal thickness shown for estimating purposes only. The thickness to be used will be [illegible] When seal [illegible] used the bottom [illegible] shall be placed at the elev[illegible] shown for bottom of seal.

AS BUILT
L. S. Foster
5-13-70
7/9/70

Note
For details not shown see "Strutted Abutment-Spread Footing" and "Type 1 Retaining Wall (H=4'-30')" sheets.
For Utility Opening see Retaining Wall Details No. 2 sheet.

* Seal course eliminated at all footings
Bottom of all footings built at planned elev. of seal course

3 of 13

AS BUILT PLANS
Contract No. 04-102134
Date Completed ______
Document No. 40001324

BRIDGE DEPARTMENT
DESIGN SECTION **12**

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

DRY CREEK BRIDGES

ABUTMENT DETAILS W2 LINE

SCALE 1/4"=1'-0" or as Noted | BRIDGE 21C-20, 21-14R, 21C-21 | FILE | DRAWING 2114-3

WO 102131
CU 04204

Disregard prints bearing earlier revision dates →

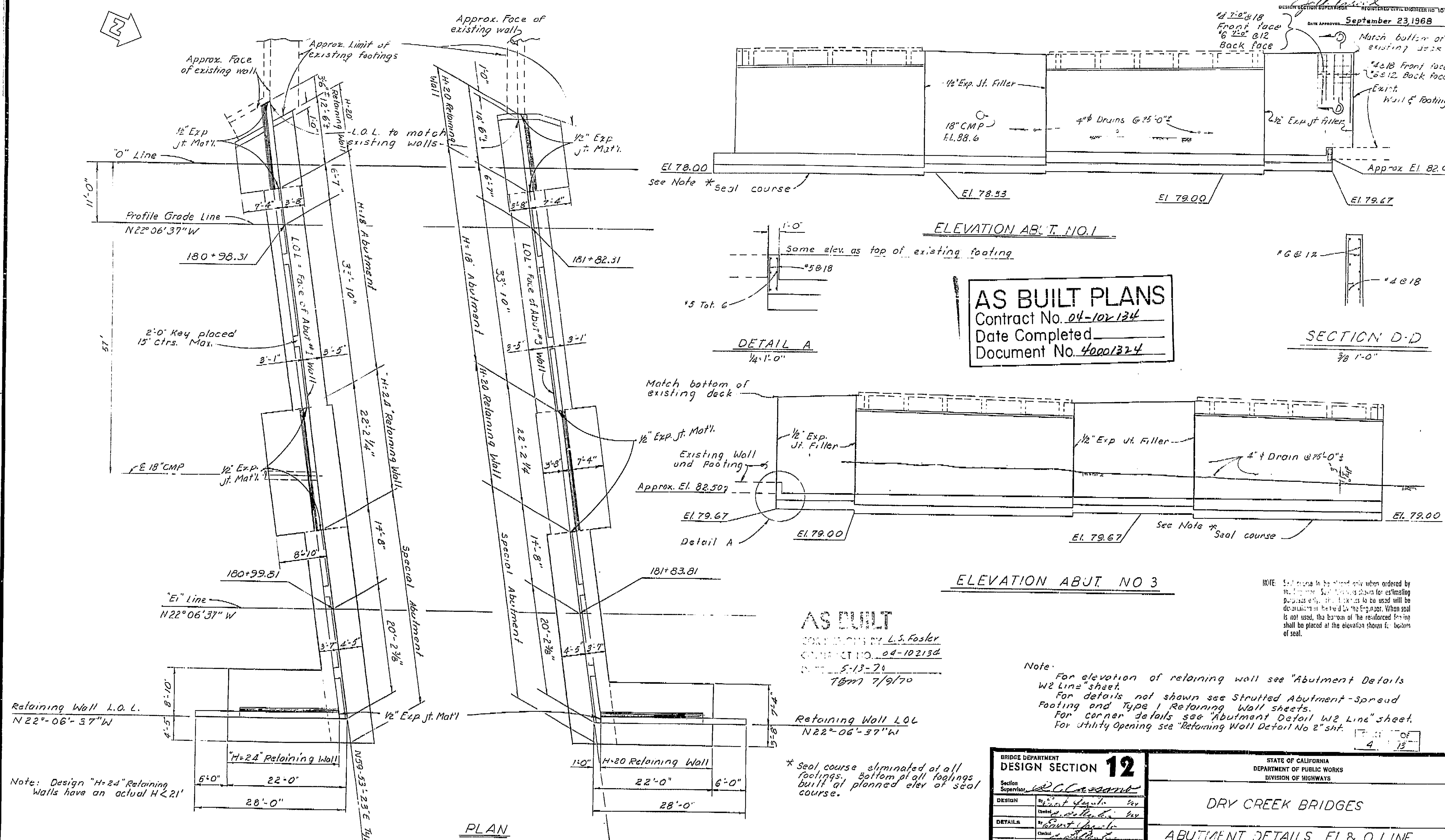
PRELIMINARY DRAWING No. P-2114-

REVISION DATES

I HEREBY CERTIFY THAT THIS IS A TRUE AND ACCURATE COPY OF THE ABOVE DOCUMENT TAKEN UNDER MY DIRECTION AND CONTROL ON THIS DATE IN SACRAMENTO, CALIFORNIA PURSUANT TO AUTHORIZATION BY THE DIRECTOR OF PUBLIC WORKS.
DATE March 8, 1971 SIGNATURE ______ TITLE Highways Administrative Officer

DIVI.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
04	Nap	29	15.0/18.6	49	69

September 23, 1968



NOTE: Seal course to be placed only when ordered by the Engineer. Seal thickness shown for estimating purposes only. Thickness to be used will be determined in the field by the Engineer. When seal is not used, the bottom of the reinforced footing shall be placed at the elevation shown for bottom of seal.

Note:
For elevation of retaining wall see "Abutment Details W2 Line" sheet.
For details not shown see Strutted Abutment-Spread Footing and Type I Retaining Wall sheets.
For corner details see "Abutment Detail W2 Line" sheet.
For Utility Opening see "Retaining Wall Detail No 2" sht.

* Seal course eliminated at all footings. Bottom of all footings built at planned elev of seal course.

Sheet 4 of 13

BRIDGE DEPARTMENT DESIGN SECTION 12	STATE OF CALIFORNIA DEPARTMENT OF PUBLIC WORKS DIVISION OF HIGHWAYS
Section Supervisor	DRY CREEK BRIDGES
DESIGN / DETAILS / QUANTITIES	ABUTMENT DETAILS EI & O LINE
SCALE ⅛" 1'-0" or as noted	BRIDGE 21C-20, 21-14R, 21C-21 — FILE — DRAWING 2114-4

WO 102131
CU 04204

Disregard prints bearing earlier revision dates

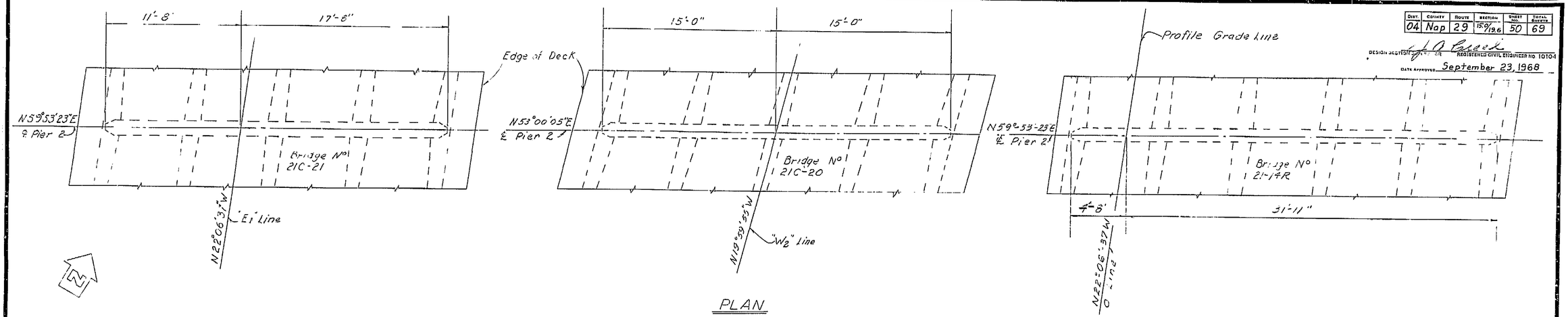
PRELIMINARY DRAWING NO. P-2114-

I HEREBY CERTIFY THAT THIS IS A TRUE AND ACCURATE COPY OF THE ABOVE DOCUMENT TAKEN UNDER MY DIRECTION AND CONTROL ON THIS DATE IN SACRAMENTO, CALIFORNIA PURSUANT TO AUTHORIZATION BY THE DIRECTOR OF PUBLIC WORKS.
DATE March 8, 1971 SIGNATURE TITLE Highways Administrative Agent

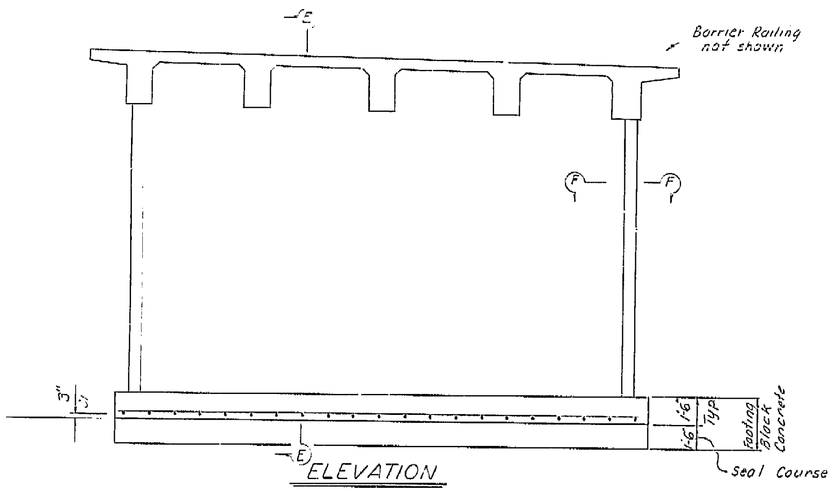
DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
04	Nap	29	15%/19.6	50	69

DESIGN SECTION 12 Supervisor L. C. Cassanello

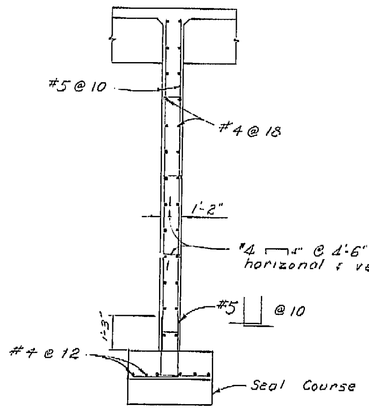
DATE APPROVED September 23, 1968



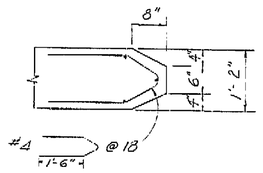
PLAN



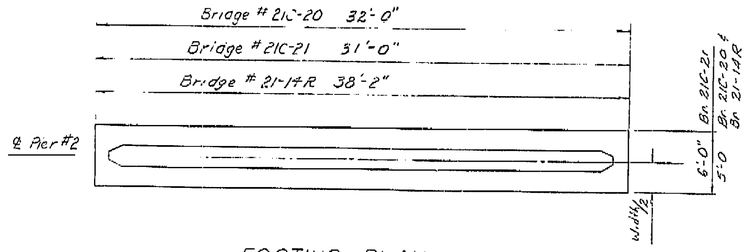
ELEVATION



SECTION E-F
No Scale



SECTION F-F
No Scale



FOOTING PLAN
No Scale

NO AS BUILT CHANGES

AS BUILT
[illegible] - S. Foster
04-102134
5-13-70
TBM 7/9/70

AS BUILT PLANS
Contract No. 04-102134
Date Completed
Document No. 40001324

SHEET	OF
5	13

DESIGN	By	Ernest Zapata
	Checked	L. C. Cassanello
DETAILS	By	Ernest Zapata
	Checked	L. C. Cassanello
QUANTITIES	By	Frank Hall 2-69
	Checked	Keiji Tokagi 2/69

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

DRY CREEK BRIDGES

PIER DETAILS

SCALE ½"=1'-0" or as noted | BRIDGE 21C-20, 21-14R, 21C-21 | FILE | DRAWING 2114-5

PRELIMINARY DRAWING No. P-2114

REVISION DATES

WO 102131
CU 04204

Disregard prints bearing earlier revision dates →

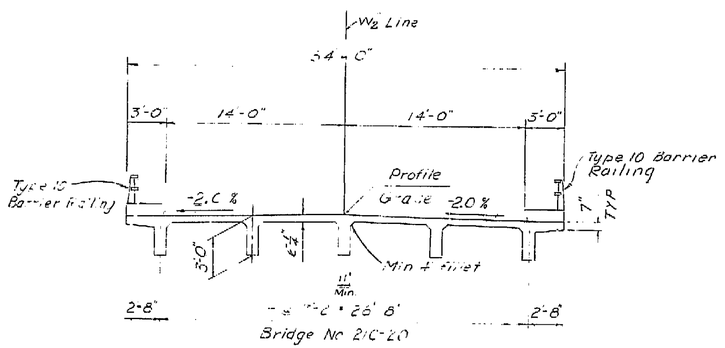
I HEREBY CERTIFY THAT THIS IS A TRUE AND ACCURATE COPY OF THE ABOVE DOCUMENT TAKEN UNDER MY DIRECTION AND CONTROL ON THIS DATE IN SACRAMENTO, CALIFORNIA PURSUANT TO AUTHORIZATION BY THE DIRECTOR OF PUBLIC WORKS.
DATE March 8, 1971 SIGNATURE [signature] TITLE Highways Administrative Officer I

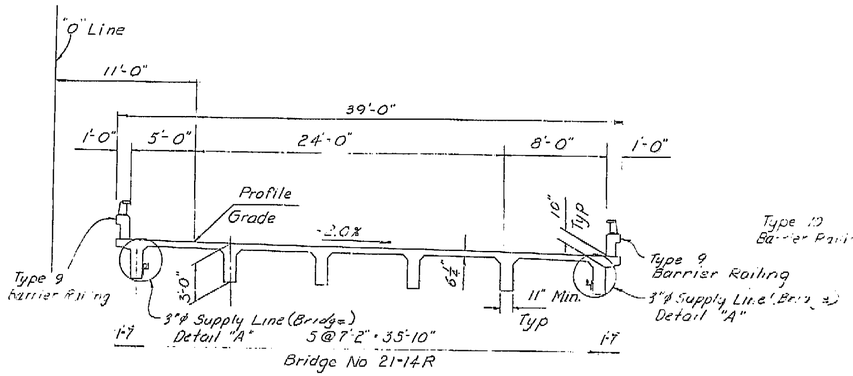
DIV. No.	STATE	F. A. PROJECT No.	FED. AID No.	SHEET No.
7	CALIF.			

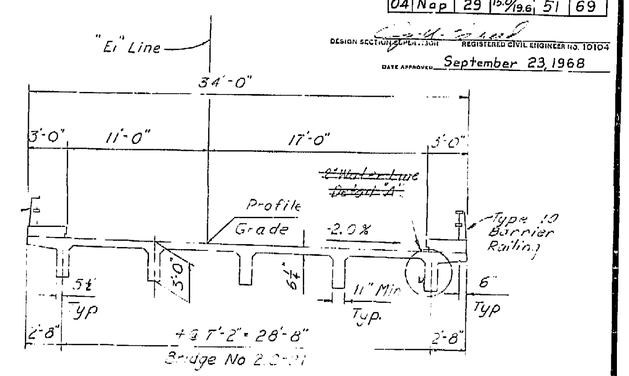
DIST.	COUNTY	ROUTE	SECTION	BRIDGE No.	TOTAL SHEETS
04	Nap	29	15.9/19.6	51	69

DESIGN SECTION 12 SUPERVISOR — REGISTERED CIVIL ENGINEER NO. 10104

DATE APPROVED: September 23, 1968

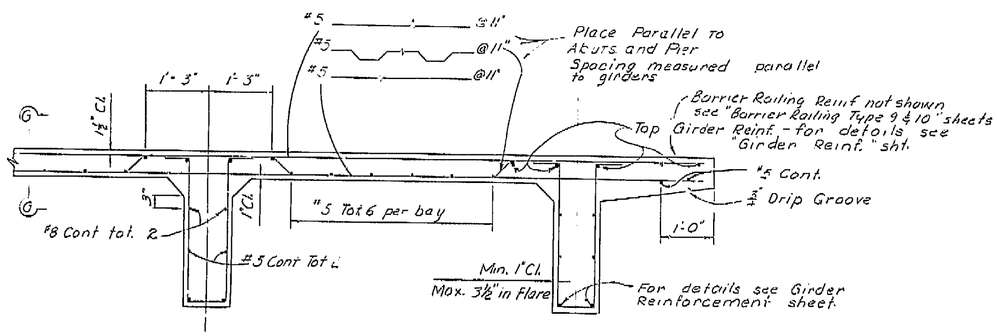




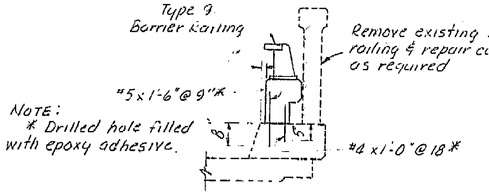


Type 10 Barrier Railing

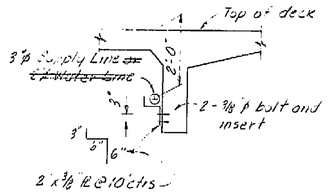
TYPICAL SECTION
Scale: ¾" = 1'-0"



PART SECTION
Scale: ¾" = 1'-0"



RAILING REPLACEMENT FOR EXISTING BR. NO. 21-14
(Typical)



DETAIL "A"
No Scale

-TEE-BEAM-SUPERSTRUCTURE-PLACING-DIAGRAM-

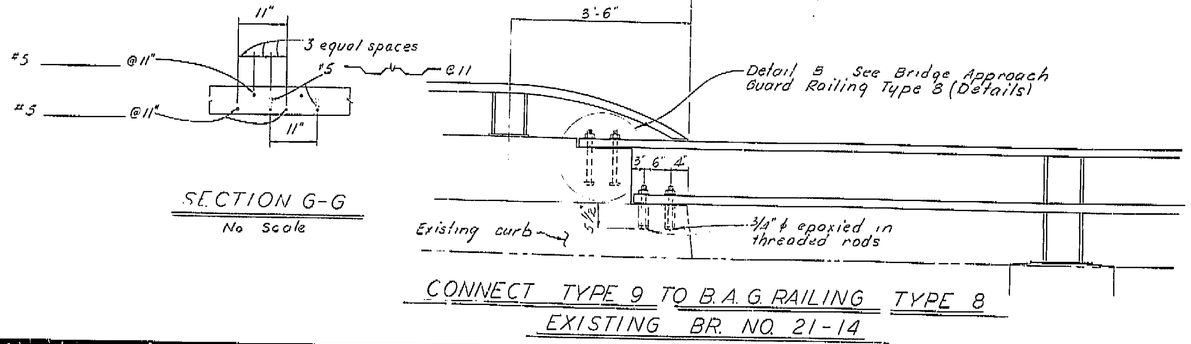
NUMBERS (1) AND (2) INDICATE SEQUENCE OF PLACING GIRDER STEM CONCRETE. (2) MAY BE PLACED SIMULTANEOUSLY WITH (1) WHEN APPROVED BY THE ENGINEER, AND PROVIDED THAT THE (1) SECTIONS ARE PLACED IN ADJOINING SPANS.

TOP SLAB CONCRETE (3) MAY BE PLACED SEPARATELY FROM (1) AND (2). (3) MAY BE PLACED CONTINUOUSLY OR IN PARTS AS APPROVED BY THE ENGINEER, HOWEVER THE ONLY JOINTS PERMITTED SHALL BE LOCATED WITHIN 2'-0" OF THE GIRDER JOINTS BETWEEN (1) AND (2).

U = 1/4 SPAN LENGTH

FOR ANY DEVIATION FROM THE ABOVE THE CONTRACTOR SHALL SUBMIT A DIAGRAM THE ENGINEER.

NOTE: THIS DETAIL DOES NOT APPLY



SECTION G-G
No Scale

CONNECT TYPE 9 TO B.A.G. RAILING TYPE 8
EXISTING BR. NO. 21-14

AS BUILT

Signed L.S. Foster
04-102134
5-13-70
TBM 7/9/70

AS BUILT PLANS
Contract No. 04-102134
Date Completed
Document No. 40001324

SHEET OF
6 13

BRIDGE DEPARTMENT
DESIGN SECTION 12
Section Supervisor K C Crossmont

DESIGN	By Ernest Tayat	1/64
	Checked K. C. Crossmont	1/64
DETAILS	By Ernest Tayat	
	Checked A. Sattar Khan	2/64
QUANTITIES	By Paul Dilk	3-64
	Checked Keiji Sakai	4/64

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

DRY CREEK BRIDGES

TYPICAL SECTION

SCALE As Noted | BRIDGE 21C-20, 21-14R, 21C-21 | FILE | DRAWING 2114-6

PRELIMINARY DRAWING No. P-2114

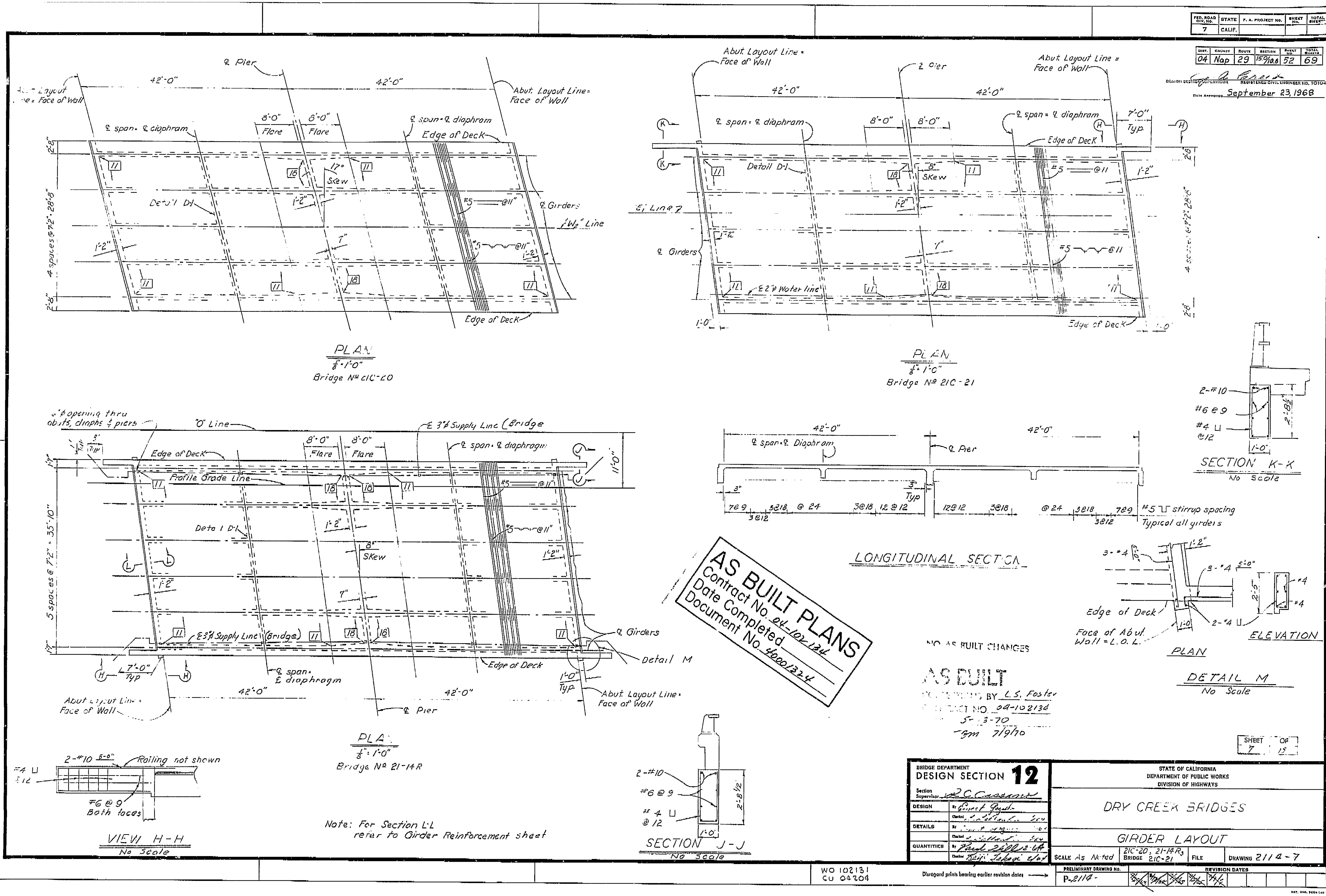
REVISION DATES

WO 102131
CU 04204

Disregard prints bearing earlier revision dates →

I HEREBY CERTIFY THAT THIS IS A TRUE AND ACCURATE COPY OF THE ABOVE DOCUMENT TAKEN UNDER MY DIRECTION AND CONTROL ON THIS DATE IN SACRAMENTO, CALIFORNIA PURSUANT TO AUTHORIZATION BY THE DIRECTOR OF PUBLIC WORKS.

DATE March 8, 1971 SIGNATURE [signature] TITLE Highways Administrative Officer



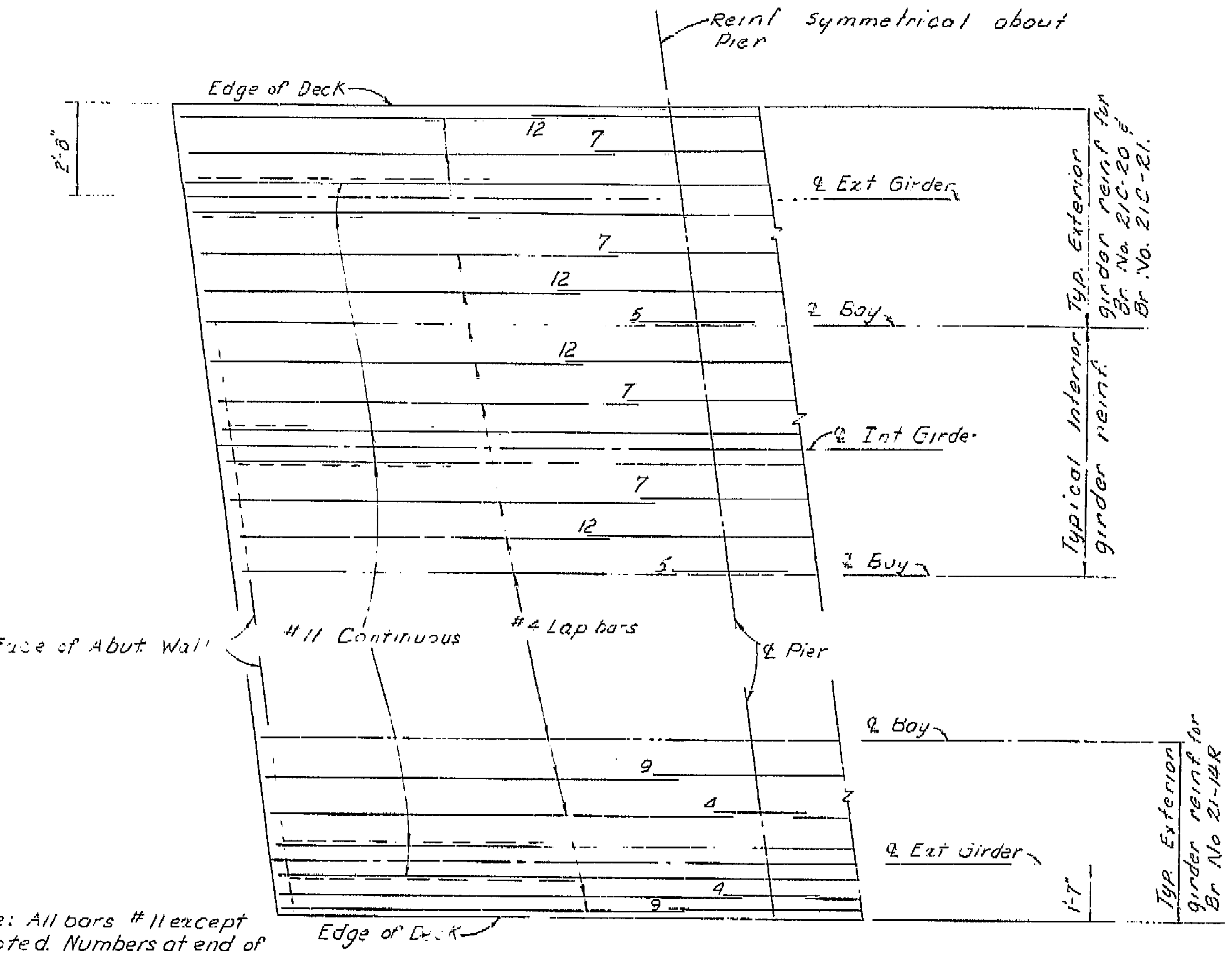
I HEREBY CERTIFY THAT THIS IS A TRUE AND ACCURATE COPY OF THE ABOVE DOCUMENT TAKEN UNDER MY DIRECTION AND CONTROL ON THIS DATE IN SACRAMENTO, CALIFORNIA PURSUANT TO AUTHORIZATION BY THE DIRECTOR OF PUBLIC WORKS.

DATE March 8, 1971 SIGNATURE [signature] TITLE Highways Administrative Agent

FED. ROAD DIV. No.	STATE	F. A. PROJECT No.	SHEET No.	TOTAL SHEETS
7	CALIF.			

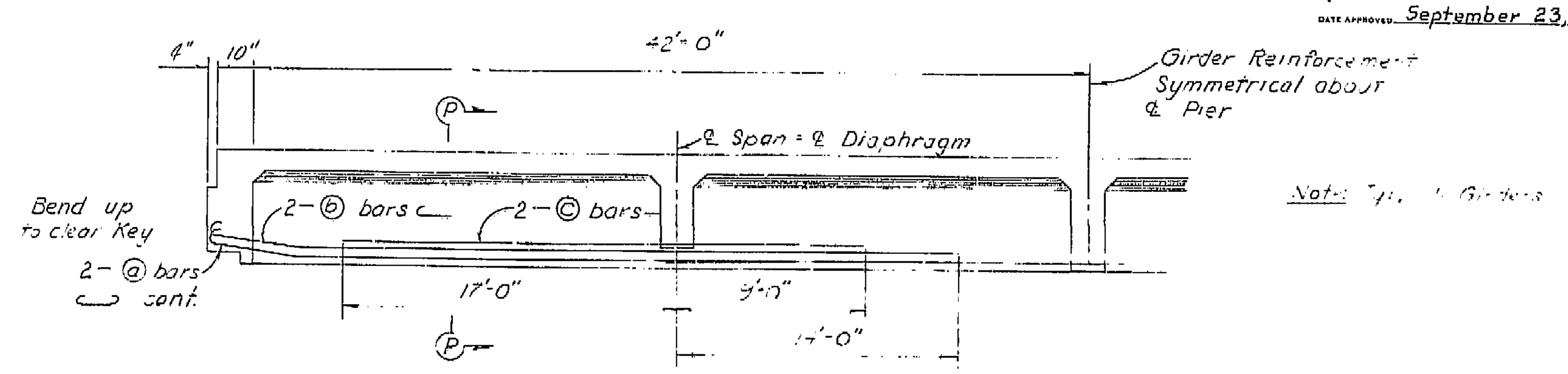
DIST.	COUNTY	ROUTE	SECTION	SHEET No.	TOTAL SHEETS
04	Nap	29	15.9/19.6	53	69

REGISTERED CIVIL ENGINEER
DATE APPROVED September 23, 1968

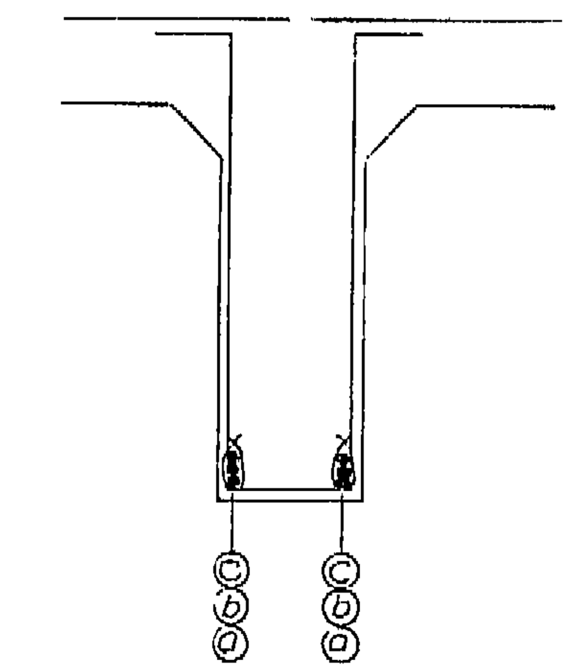


Note: All bars #11 except as noted. Numbers at end of bars indicate distance in feet from Ⱡ Pier.

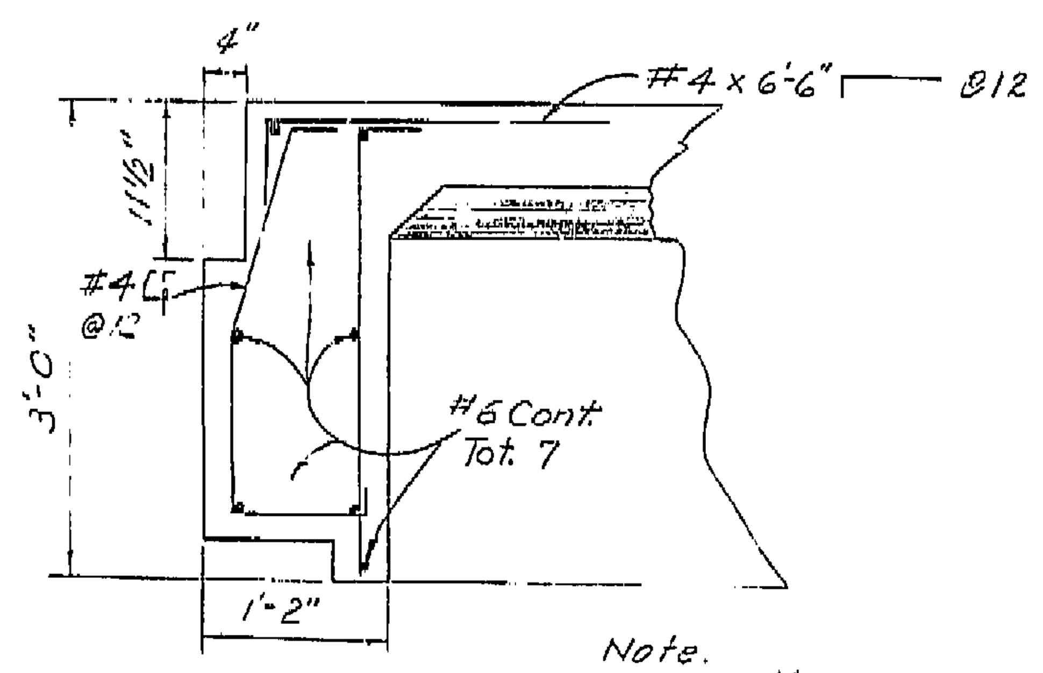
TOP REINFORCEMENT
Scale: None



LONGITUDINAL SECTION
Scale: None



SECTION P-P
Scale: None



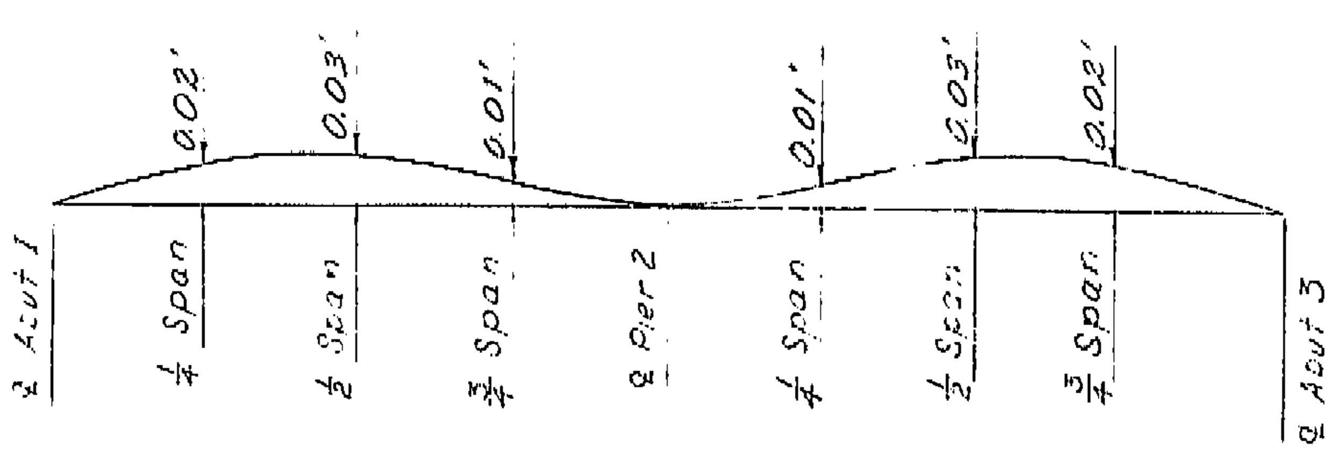
SECTION L-L
Scale: 1" = 1'-0"

Note.
Section located on "Girder Layout" sheet.

AS BUILT PLANS
Contract No. 04-102134
Date Completed
Document No. 40001324

NO AS BUILT CHANGES

AS BUILT
CORRECTIONS BY L.S. Foster
CONTRACT NO. 04-102134
5-13-70
7/9/70



CAMBER DIAGRAM
Scale: None
Total girder deflection due to dead loads

Note:
The total deflection will be reached about four years after falsework removal. For values at time of falsework removal, divide those shown by 4.

The amount of camber for construction will be determined by the Engineer.

BRIDGE DEPARTMENT
DESIGN SECTION 12
Section Supervisor R C Cassano
DESIGN / DETAILS / QUANTITIES

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

DRY CREEK BRIDGES
GIRDER REINFORCEMENT

SCALE As Noted | BRIDGE 21C-20, 21-14R, 21C-21 | FILE | DRAWING 2114-8

WO 102131
CU 04204

Disregard prints bearing earlier revision dates ⟶

PRELIMINARY DRAWING No. P-2114-
REVISION DATES

I HEREBY CERTIFY THAT THIS IS A TRUE AND ACCURATE COPY OF THE ABOVE DOCUMENT TAKEN UNDER MY DIRECTION AND CONTROL ON THIS DATE IN SACRAMENTO, CALIFORNIA PURSUANT TO AUTHORIZATION BY THE DIRECTOR OF PUBLIC WORKS.
DATE March 8, 1971 SIGNATURE

Note Added 8/59 Design Data JTJ

...r mat'l. note in ...ge & Backfill det. ...10-61 JTJ

...d "Drain Thru Curb" ...l. Rev. notes in "Drainage ...fill" detail. Revised ...mat'l. to read exp. jt. ...r. ...1-61 RJK

...oved Key and added ...st. Jt. 10-17-61 JTJ

...m. Rubber from ... waterstop Notes, ...ated Signature ...ock & Block above ...-Rt-Sec Rev. ...-Rt-Sec + Title ...ock JTJ 9-5-63

...Note in ...ainage and Backfill ...tail. 4" etc., ...10-63 JTJ

...v. Notes & Dim. ..."Drainage & Backfill" ...tail. Deleted split ...on waterstop. ...leted "min." from 1" ...n. in Drainage & ...ackfill detail. ...12-63 JTJ

...dded backfill to ...l pervious Material ...otes. JTJ 2-64

...ed Sealed Deck Joint ...Aug 64 EJS ...vised Sheet Layout.

...leted Detail L-1 from Sealed ...k Joint. Revised Detail W-1 ...Aug 64 EJS

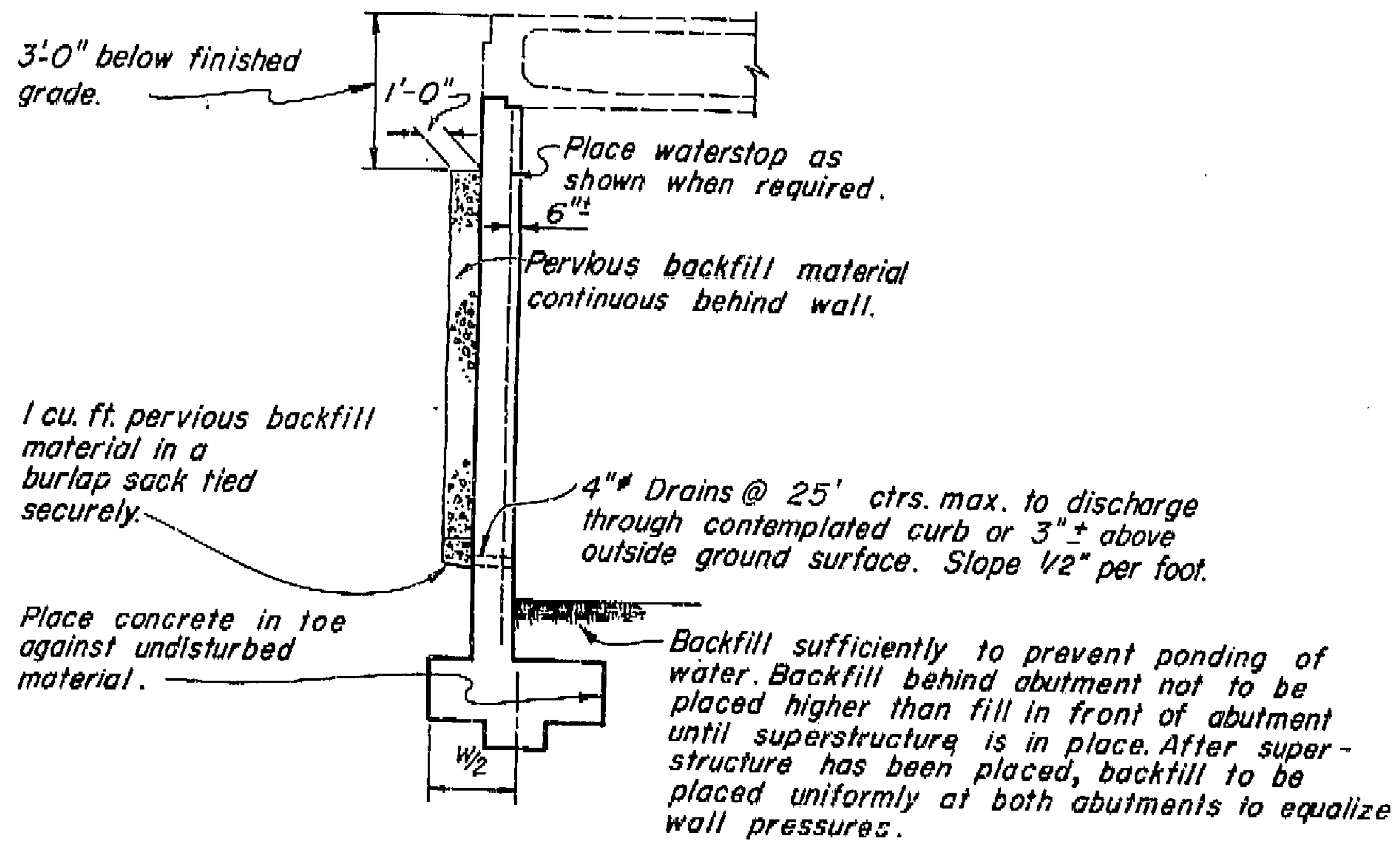
...vised W-1 Detail ...Dec 64 EJS

...ised W-1 Detail"; 22.5' ...25' spacing on 4" drains ..."Drainage and Backfill"; ...& block 14 Dec 65 EJS

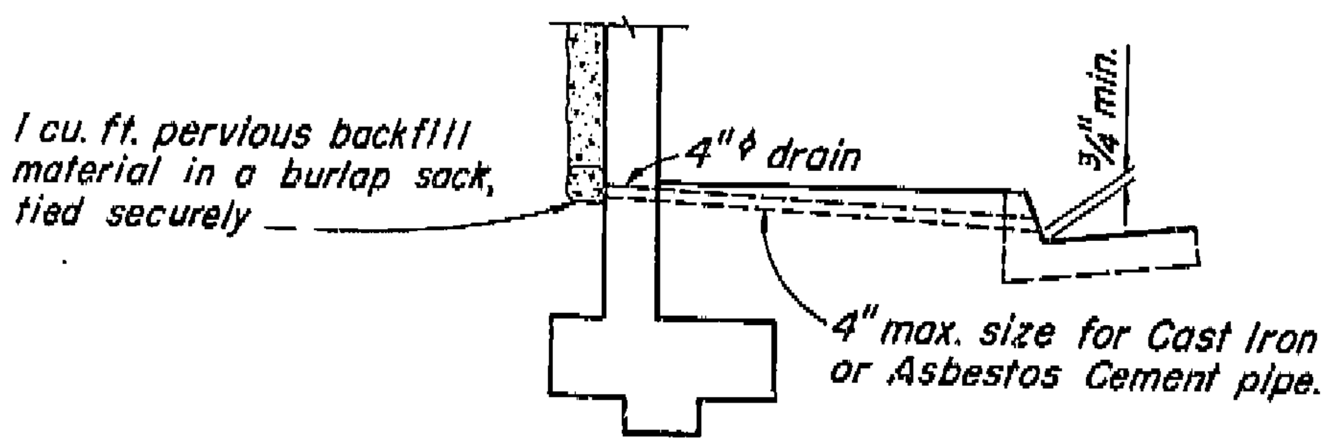
...aced "Expansion Joint" ..."Detail J-6" ...n 68 EJS

DIST	COUNTY	ROUTE	POST MILES-TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Nap	29	15.0/19.6	54	69

Date Approved September 23, 1968



DRAINAGE AND BACKFILL



DRAIN THROUGH CURB

Loading Notes

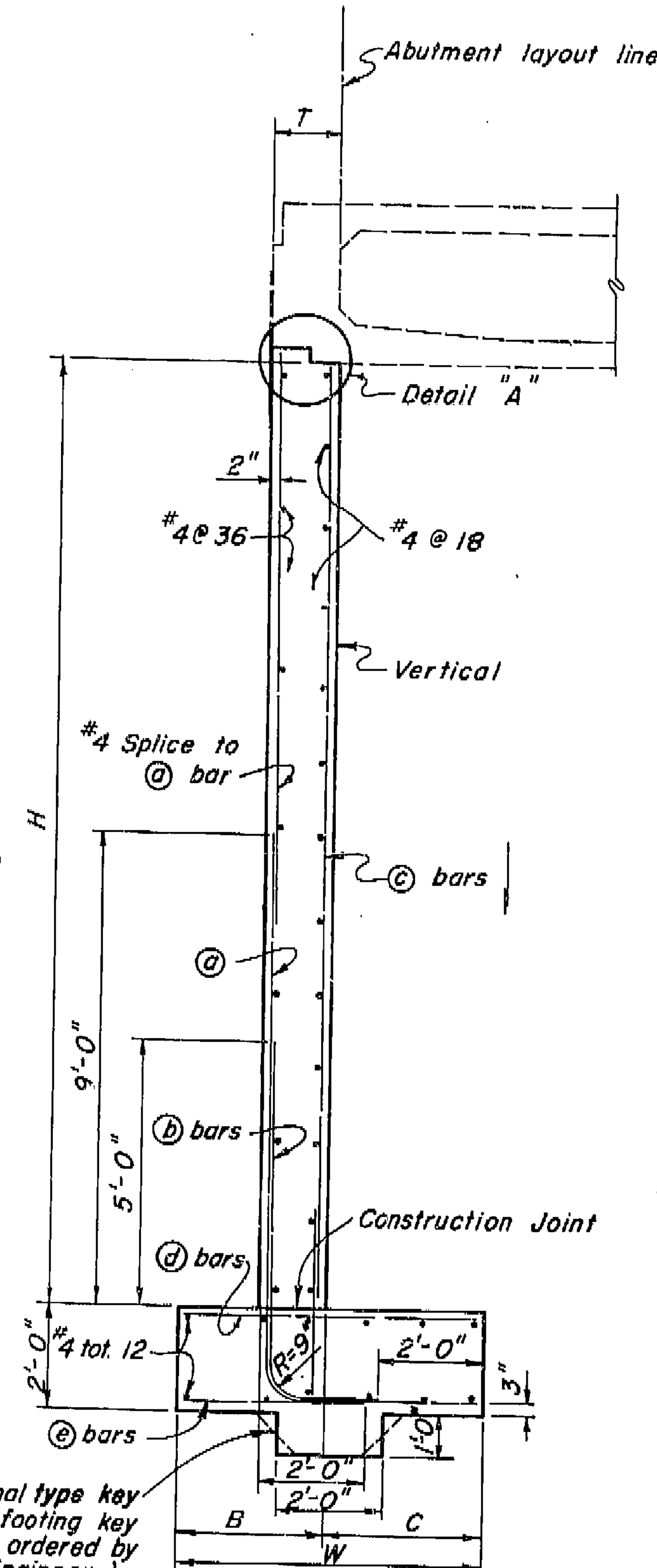
Superstructure load assumed to vary between 5.0^k-20.0^k per lineal foot, H=22 to H=28

5.0^k-17.5^k per lineal foot, H=18 & H=20

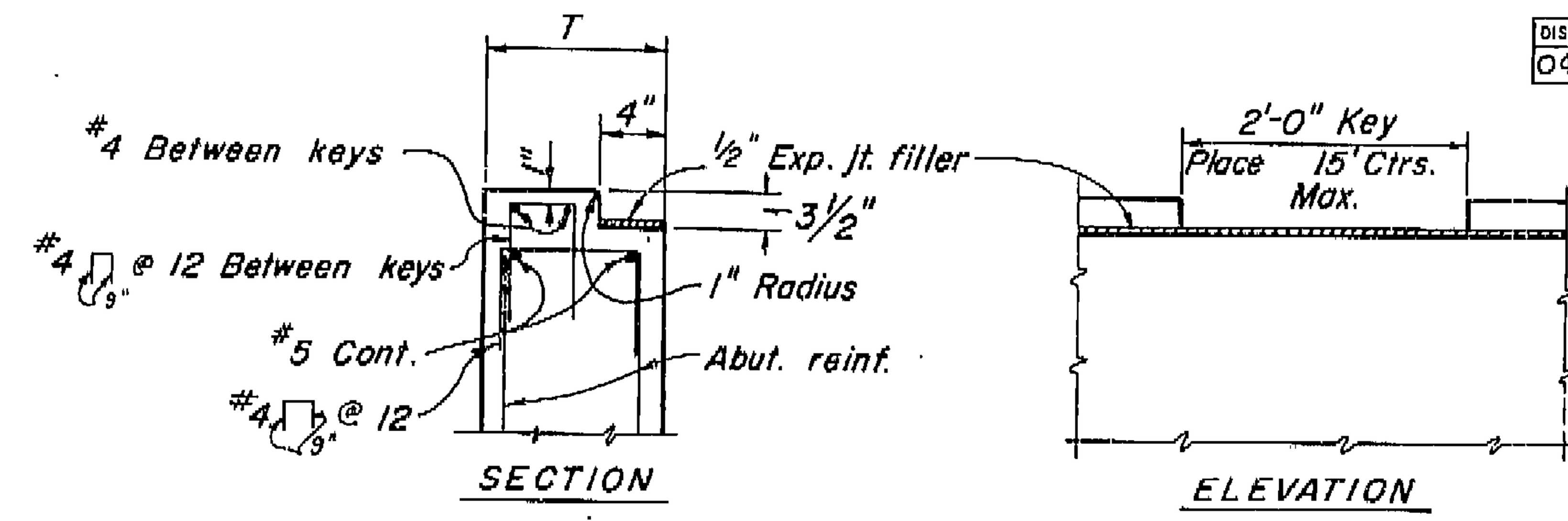
2' Level surcharge used.

Depth of superstructure: 2' min., 7' max.

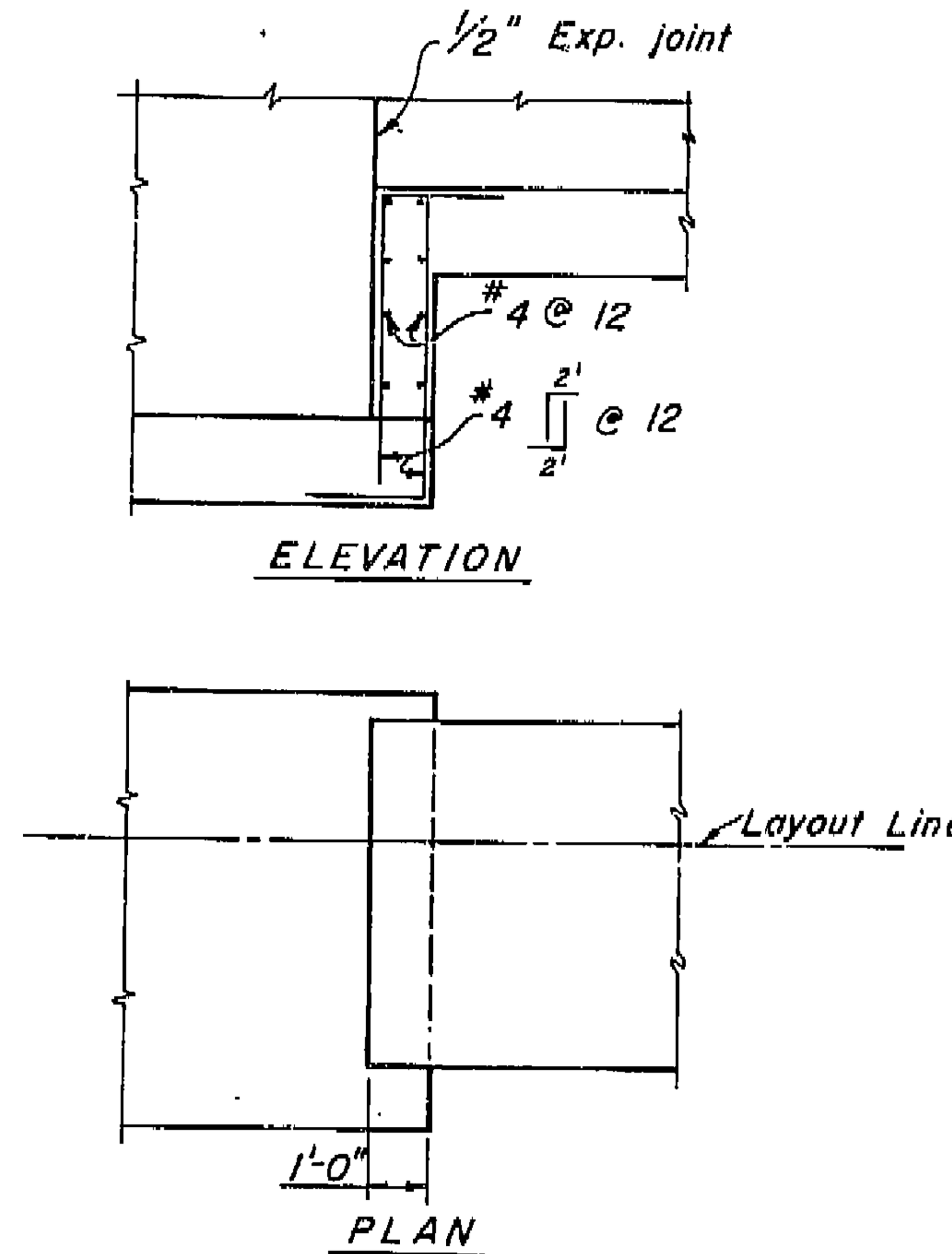
AS BUILT PLANS
Contract No. 04-10y134
Date Completed
Document No. 4000/314



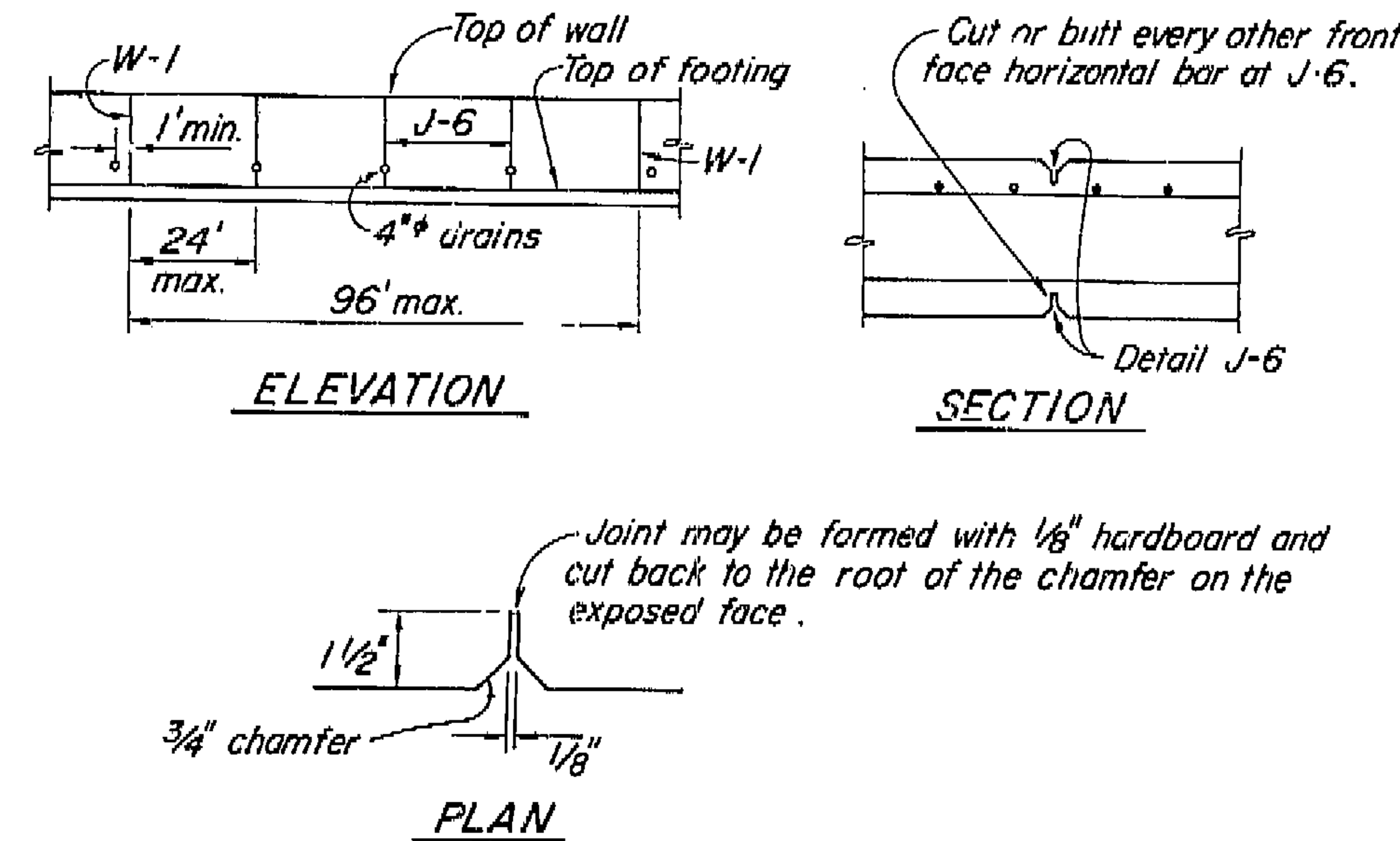
SECTION



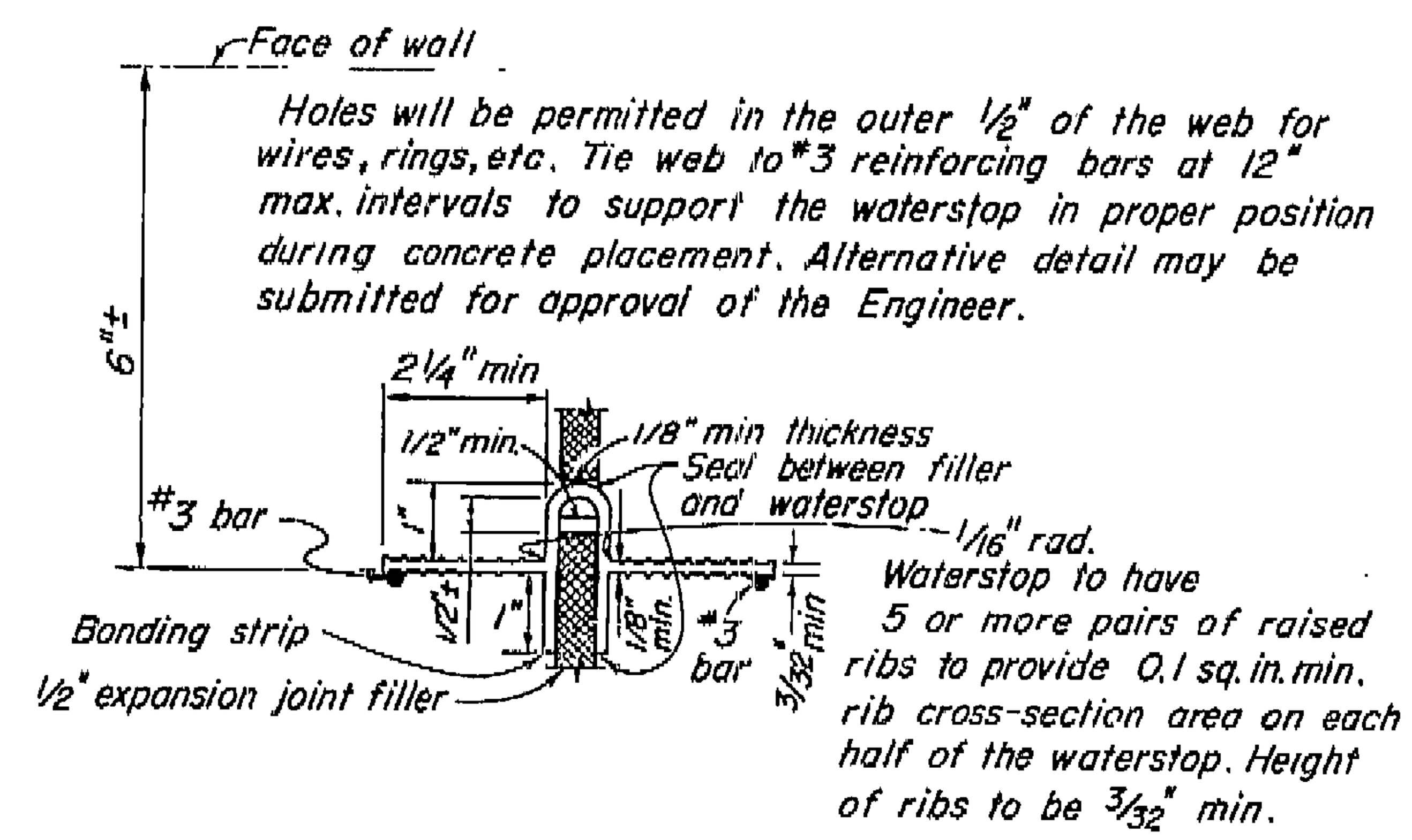
DETAIL "A"



FOOTING STEP



DETAIL J-6



DETAIL W-1

TABLE OF REINFORCING STEEL, DIMENSIONS AND DATA

H	18'	20'	22'	24'	26'	28'	Special
T	1'-2"	1'-4"	1'-6"	1'-8"	1'-10"	2'-0"	1'-2"
W	6'-6"	7'-3"	8'-0"	8'-9"	9'-6"	10'-3"	8'-0"
C	3'-5"	3'-10"	4'-3"	4'-7"	5'-0"	5'-5"	4'-5"
B	3'-1"	3'-5"	3'-9"	4'-2"	4'-6"	4'-10"	3'-7"
ⓐ Bars	#9 @ 15	#10 @ 17	#10 @ 15	#11 @ 16	#11 @ 15	#11 @ 14	#9 @ 15
ⓑ Bars	#9 @ 15	#10 @ 17	#10 @ 15	#11 @ 16	#11 @ 15	#11 @ 14	#9 @ 15
ⓒ Bars	#9 @ 7½	#10 @ 8½	#10 @ 7½	#11 @ 8	#11 @ 7½	#11 @ 7	#9 @ 7½
ⓓ Bars	#4 @ 7½	#4 @ 8½	#4 @ 7½	#5 @ 8	#5 @ 7½	#5 @ 7	#5 @ 7½
ⓔ Bars	#5 @ 7½	#5 @ 8½	#5 @ 7½	#6 @ 8	#6 @ 7½	#6 @ 7	#6 @ 7½
Conc. c.f. / ft.	36.2	43.3	51.3	59.8	68.0	78.8	
Steel lbs./ft.	233	271	326	399	451	510	

NO AS BUILT CHANGES

AS BUILT
CORRECTIONS BY L.S. Fosler
CONTRACT NO. 04-102134
DATE 5-13-70
TGm 7/9/70

STANDARD DRAWING

12/67

STATE OF CALIFORNIA
TRANSPORTATION AGENCY
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

File XS-22-1

DRY CREEK BRIDGES

STRUTTED ABUTMENT - SPREAD-FOOTING

BRIDGE NO.	POST MILE	DRAWING NO.	SHEET	OF
21-14R, 21C-20, 21C-21		2114-9	9	13

WO 102131
CU 04204

Disregard prints bearing earlier revision dates →

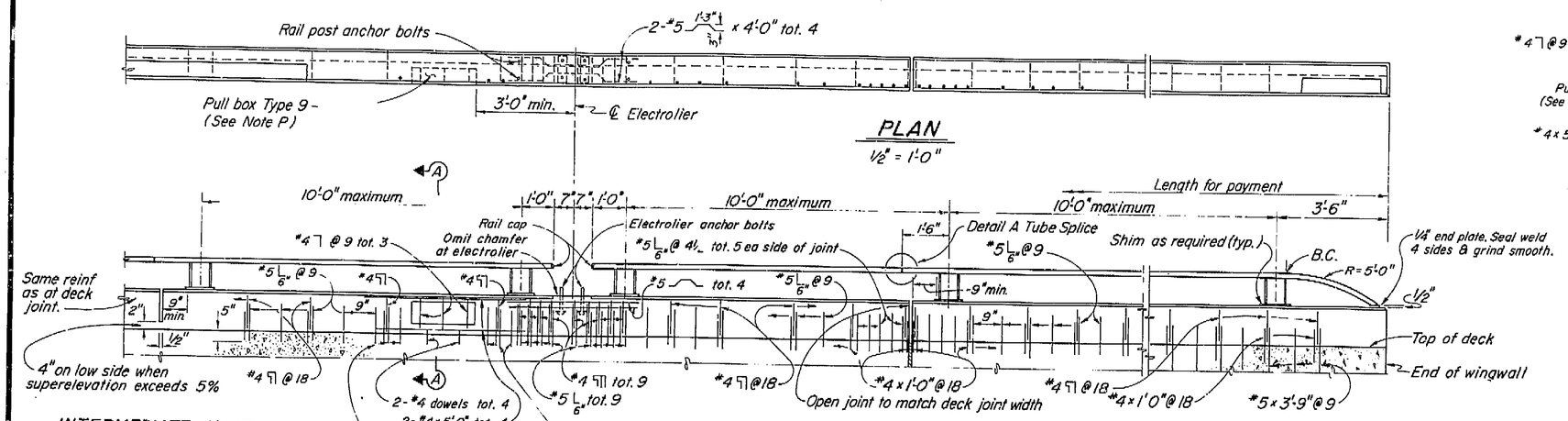
REVISION DATES (PRELIMINARY STAGE ONLY) 2/5/8

54

DIST.	COUNTY	ROUTE	POST MILES—TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Nap	29	15.0/19.6	55	69

BRIDGE ENGINEER — REGISTERED CIVIL ENGINEER — LICENSE 5581

DATE APPROVED: September 23, 1968



PLAN
1/2" = 1'-0"

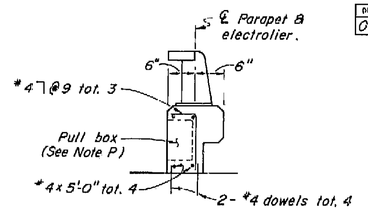
INTERMEDIATE JOINT
See Note D

ELECTROLIER

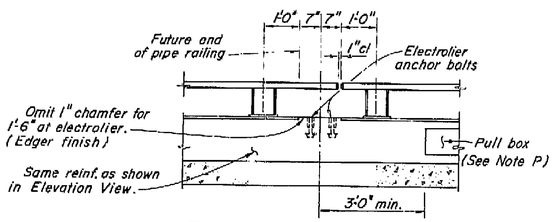
DECK OR WALL JOINT
See Note C

TYPE 9A RAILING
Without approach guard railing

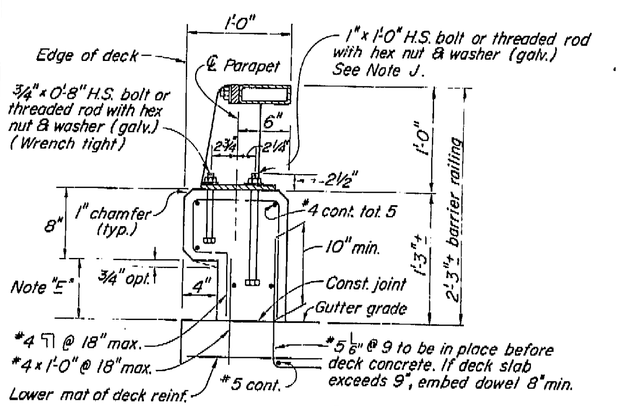
ELEVATION
1/2" = 1'-0"



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

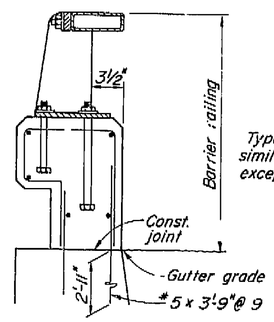


FUTURE ELECTROLIER
1/2" = 1'-0"



Conc.: 1.05 cu. ft. per lineal foot.
Reinforcing: 8.7 lbs. per lineal foot.

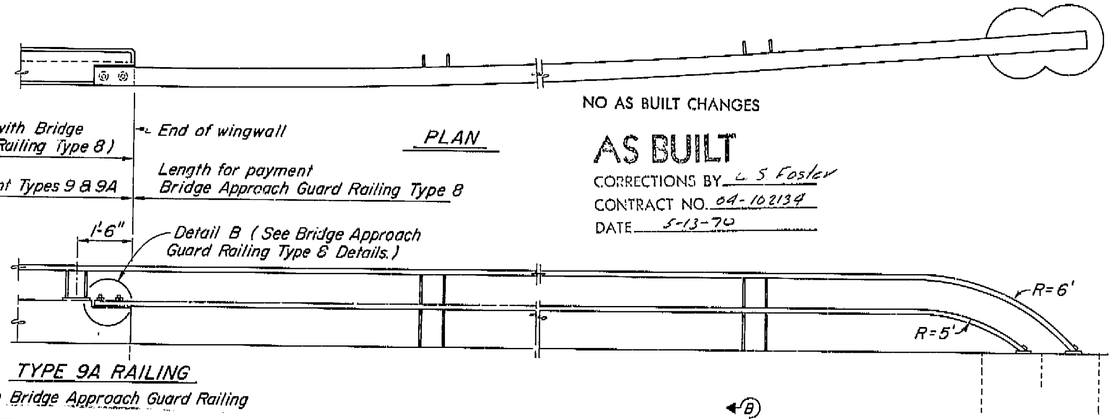
TYPE 9



Type 9A details are similar to Type 9 except as noted.

Conc.: 1.05 cu.ft. per lineal foot.
Reinf: 10.5 lbs. per lineal foot.

TYPE 9A

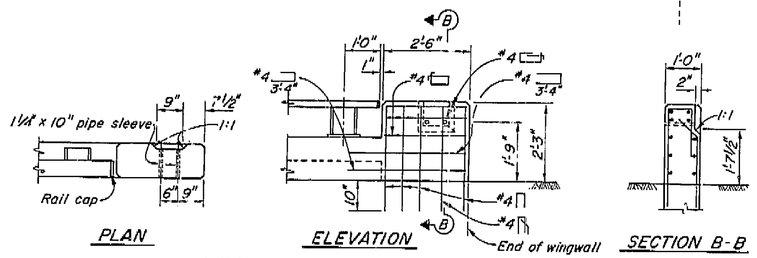


TYPE 9A RAILING
With Bridge Approach Guard Railing

NO AS BUILT CHANGES

AS BUILT
CORRECTIONS BY L S Foster
CONTRACT NO. 04-102134
DATE 5-13-70

AS BUILT PLANS
Contract No. 04-102134
Date Completed
Document No. 4000132 4



METAL BEAM GUARD RAIL ANCHORAGE
1/2" = 1'-0"

Note: For Metal Beam Guard Rail connection details see STANDARD PLANS.

A. Tubing shall be bent to fit horizontal curve when radius is less than 950'.
B. Posts shall be normal to railing.
C. Tube splice shall be located in the tube spanning deck joints. Increase joint width in tube to match deck opening and increase sleeve length correspondingly.
D. Open intermediate joints in concrete shall be located at ℄ piers, abutments or bents and at uniform spacing (40'-0" max.)
E. Dimensions will vary with cross slope.
F. Construct 3" deep x 12" wide overflow scupper 2" above deck at low points in grade.
G. Walls are to be backfilled before railing is placed.
H. Clearance to reinforcing steel in curb and railing to be 1". Longitudinal reinforcement to stop at all joints.
J. High strength rods threaded both ends with 2 nuts and washers (all galv.) may be substituted for high strength anchor bolts.
K. Torque rail to post nuts to 175 ft. lbs.
L. Tubing shall be continuous over not less than 2 intermediate posts, with a minimum length of 2 panels, except as noted.
M. All exposed corners shall be ground smooth.
N. Galvanize rail assembly after fabrication.
O. Locate pull box near mid-point between posts, but not in same panel as deck joints or electroliers.
P. Reinforcement is shown for Type 9 pull box. If Type 9A pull box is to be used refer to "Type 9A Pull Box" sheet.

5/68

STATE OF CALIFORNIA
TRANSPORTATION AGENCY
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

XS-9-84

DRY CREEK BRIDGES

BARRIER RAILING TYPE 9

BRIDGE NO.	POST MILE	DRAWING NO.	SHEET	OF
21-14R 21C-20, 21C-21			10	13

WO 102131
CU 04 204

Disregard prints bearing earlier revision dates

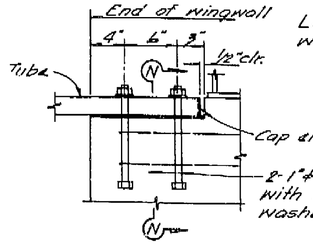
REVISION DATES

DESIGN
DETAILS
Approved Recommended [illegible]

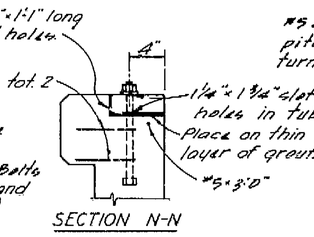
I HEREBY CERTIFY THAT THIS IS A TRUE AND ACCURATE COPY OF THE ABOVE DOCUMENT TAKEN UNDER MY DIRECTION AND CONTROL ON THIS DATE IN SACRAMENTO, CALIFORNIA PURSUANT TO AUTHORIZATION BY THE DIRECTOR OF PUBLIC WORKS.

DIST.	COUNTY	ROUTE	POST MILES—TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Nap	29	15.0/19.6	56	69

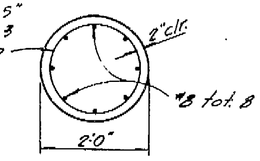
September 23, 1968



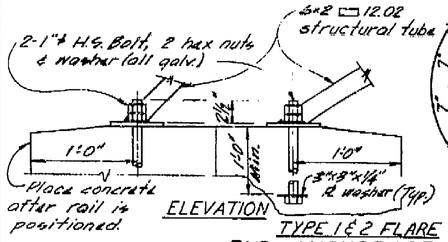
DETAIL B
1½"=1'-0"



SECTION N-N

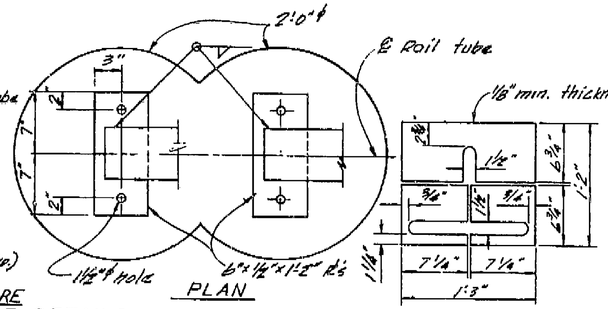


SECTION B-B
3/4"=1'-0"



ELEVATION

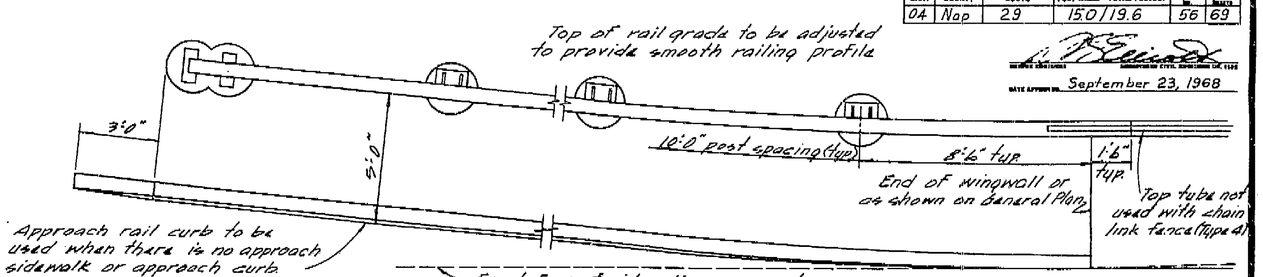
TYPE 1 & 2 FLARE



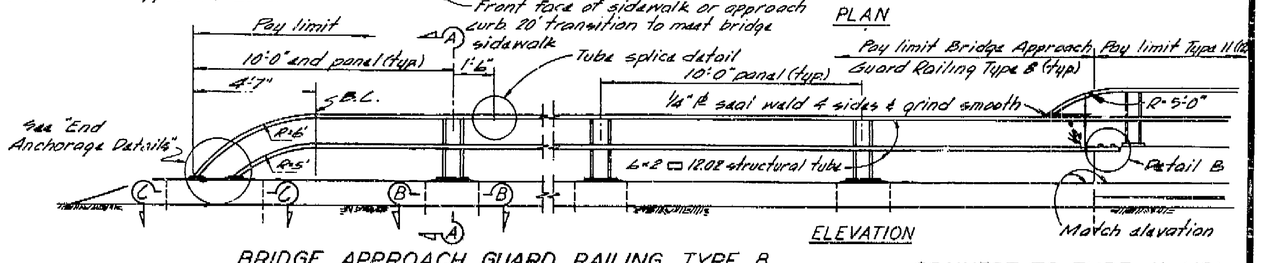
PLAN

SHIM DETAILS
1½"=1'-0"

END ANCHORAGE DETAILS
1½"=1'-0"



PLAN

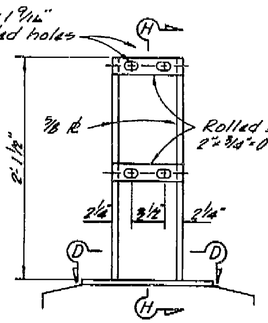


ELEVATION

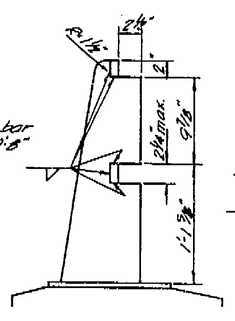
BRIDGE APPROACH GUARD RAILING TYPE 8
3/8"=1'-0"

CONNECT TO TYPE 11 (12)

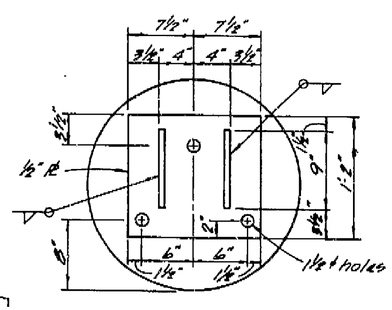
AS BUILT PLANS
Contract No. 04-10X 134
Date Completed
Document No. 4000/324



ELEVATION

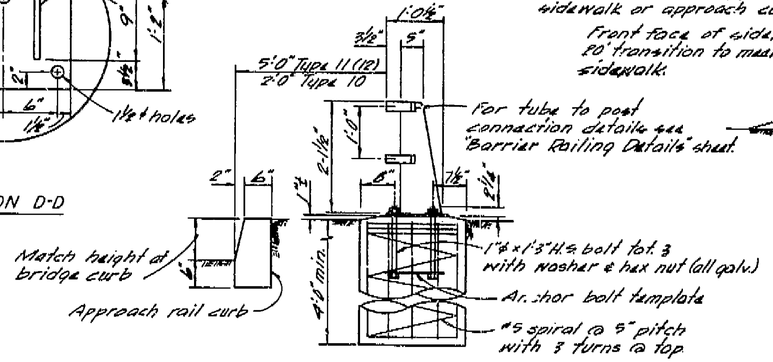


SECTION H-H



SECTION D-D

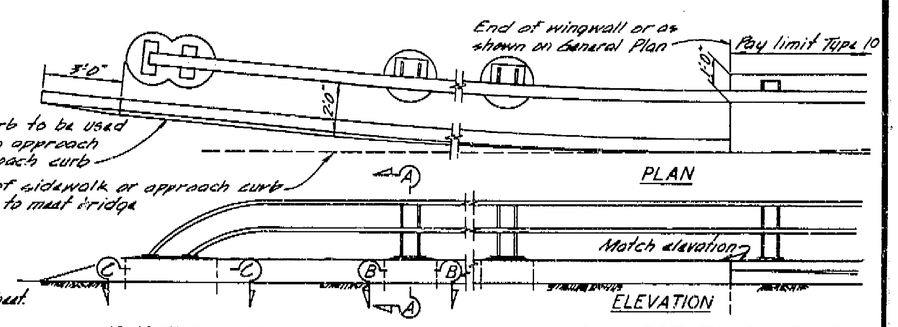
RAIL POST DETAILS
1½"=1'-0"



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

NO AS BUILT CHANGES

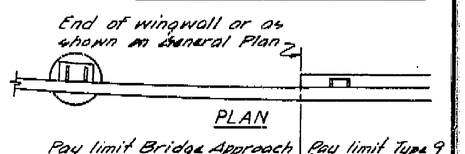
AS BUILT
CORRECTIONS BY C.S. Foster
CONTRACT NO. 04-102134
DATE 5-13-70
7/8m 7/9/70



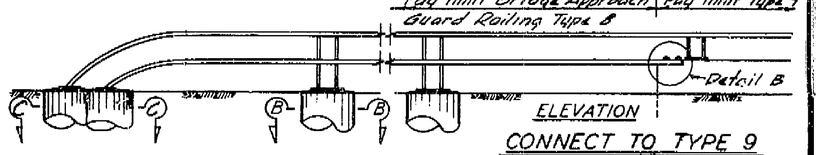
PLAN

ELEVATION

CONNECT TO TYPE 10

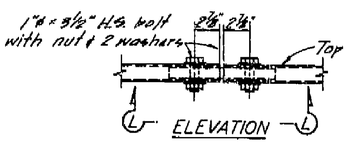


PLAN

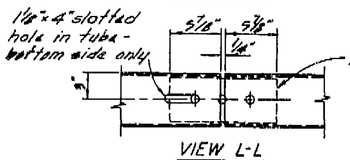


ELEVATION

CONNECT TO TYPE 9



ELEVATION



VIEW L-L

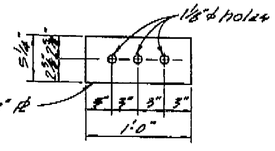
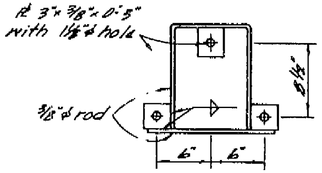
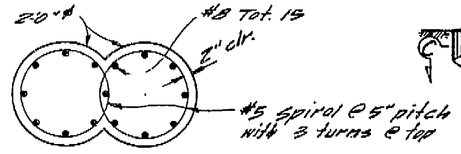


PLATE - PLAN VIEW

TUBE SPLICE DETAILS
1½"=1'-0"



ANCHOR BOLT TEMPLATE
1½"=1'-0"



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

5/68	STATE OF CALIFORNIA TRANSPORTATION AGENCY DEPARTMENT OF PUBLIC WORKS DIVISION OF HIGHWAYS	XS-9-83

DRY CREEK BRIDGES

BRIDGE APPROACH GUARD RAILING TYPE 8 (DETAILS)

BRIDGE NO.	POST MILE	DRAWING NO.	SHEET	OF
21-14 R 21C-20, 21C-21			11	13

REVISION DATES (PRELIMINARY STAGE ONLY)

Disregard prints bearing earlier revision dates

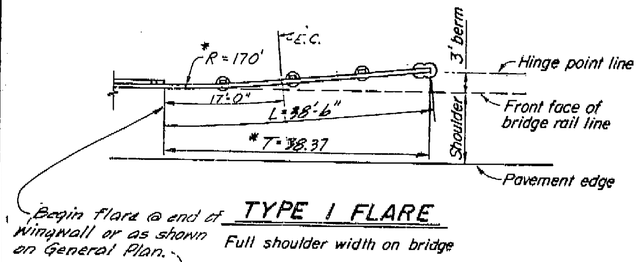
WO 102131
CU 04204

56

I HEREBY CERTIFY THAT THIS IS A TRUE AND ACCURATE COPY OF THE ABOVE DOCUMENT TAKEN UNDER MY DIRECTION AND CONTROL ON THIS DATE IN SACRAMENTO, CALIFORNIA PURSUANT TO AUTHORIZATION BY THE DIRECTOR OF PUBLIC WORKS.

DIST.	COUNTY	ROUTE	POST MILES—TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Nap	29	15.0/19.6	57	69

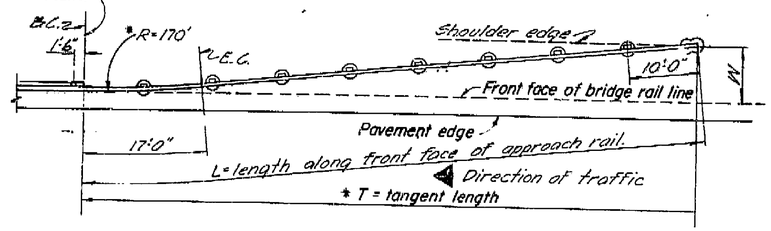
DATE APPROVED September 23, 1968



TYPE 1 FLARE		
L	*T	W
38'-6"	38.36	3'
48'-6"	48.31	4'
58'-6"	58.26	5'
68'-6"	68.21	6'
78'-6"	78.16	7'
88'-6"	88.11	8'

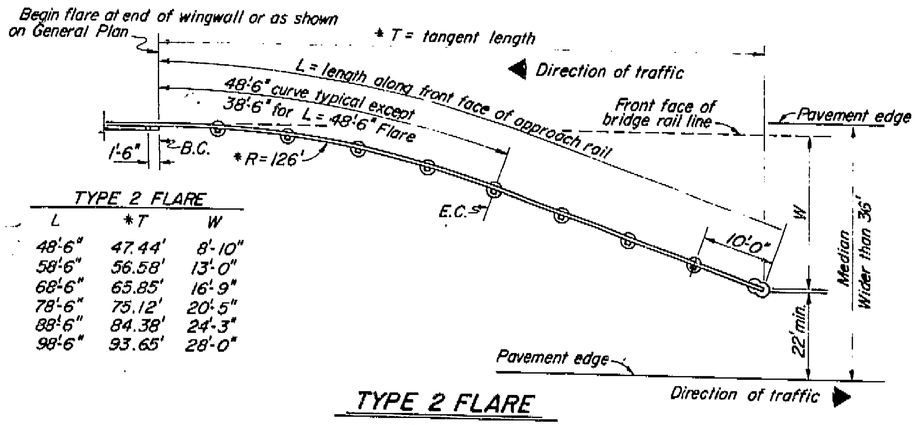
TYPE 1 FLARE

Full shoulder width on bridge



TYPE 1 FLARE

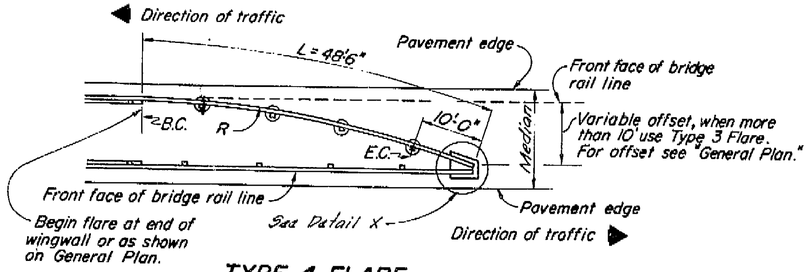
Reduced shoulder width on bridge (right or left)



TYPE 2 FLARE		
L	*T	W
48'-6"	47.44'	8'-10"
58'-6"	56.58'	13'-0"
68'-6"	65.85'	16'-9"
78'-6"	75.12'	20'-5"
88'-6"	84.38'	24'-3"
98'-6"	93.65'	28'-0"

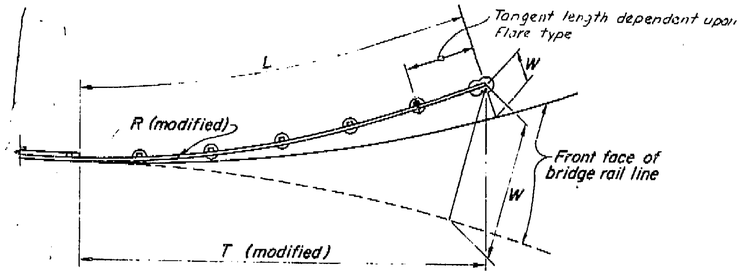
TYPE 2 FLARE

Approach rail in median



TYPE 4 FLARE

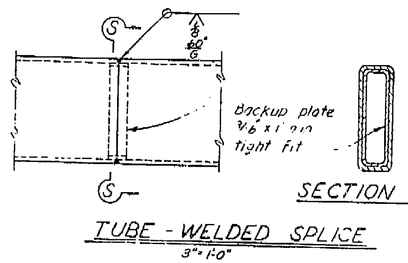
Approach rail in median



FLARE LAYOUT ON CURVED ROADWAY

Note: W is radial to front face of bridge rail line

Railing shown for roadway curve to left



TUBE - WELDED SPLICE

3"=1'-0"

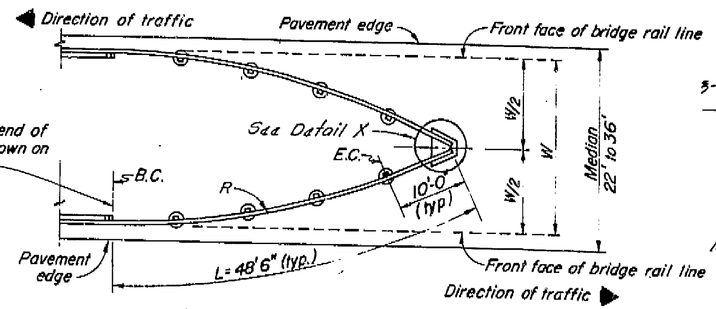
Notes:

A. Tubing shall be shop bent or fabricated to fit horizontal curves of less than 950' radius.
B. Posts shall be vertical and spaced at 10'-0" c.c. max.
C. Top of rail elevations to be determined by the Engineer unless shown on the plans.
D. Torque rail to post nuts to 175 ft. lbs.
E. No more than one tube splice per panel is permitted.
F. All exposed edges shall be ground smooth.
G. Galvanize rail assembly after fabrication.
H. For details not shown see "Barrier Railing" sheet.
J. Front face of bridge rail line is parallel or concentric to pavement edge.
K. Dimensions marked * are valid for tangent roadway alignment only. Modify for curved roadway.
L. R for Type 3 & 4 Flare must be calculated for each offset.

NO AS BUILT CHANGES

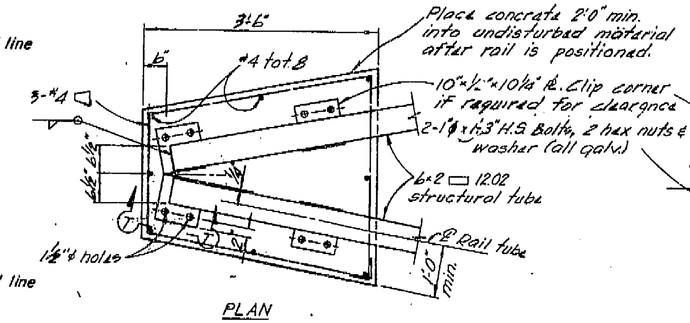
AS BUILT
CORRECTIONS BY L.S. Foster
CONTRACT NO. 04-102134
DATE 5-13-70
7/9/70

AS BUILT PLANS
Contract No. 04-102134
Date Completed
Document No. 4000132-4



TYPE 3 FLARE

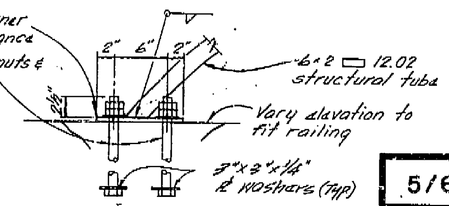
Approach rail in median



PLAN

DETAIL X

No Scale



SECTION T-T

5/68	STATE OF CALIFORNIA TRANSPORTATION AGENCY DEPARTMENT OF PUBLIC WORKS DIVISION OF HIGHWAYS	XS-9-87

DRY CREEK BRIDGES

BRIDGE APPROACH GUARD RAILING TYPE 8 (LAYOUT)

BRIDGE NO.	POST MILE	DRAWING NO.	SHEET	OF
21-14R 21C-20, 21C-21			12	13

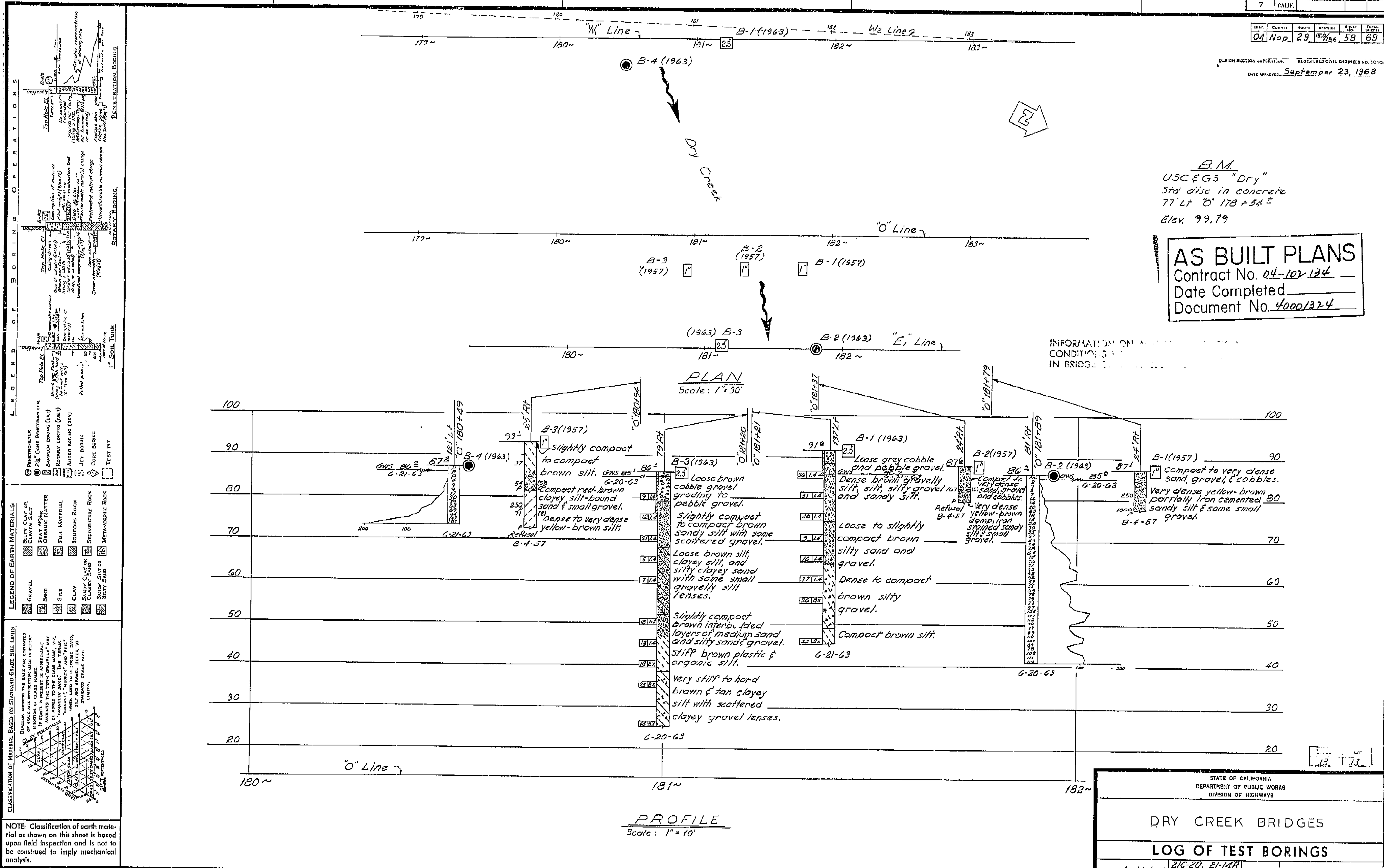
REVISION DATES

WO 102131
CU 04204

Disregard prints bearing earlier revision dates →

DESIGN DETAILS CHECK Approved for Publication

57



"W" Line
W2 Line
B-4 (1963)
B-1 (1963)
Dry Creek
B.M.
USC&GS "Dry"
Std disc in concrete
77' Lt "O" 178+54±
Elev. 99.79
"O" Line
B-3 (1957)
B-2 (1957)
B-1 (1957)
(1963) B-3
B-2 (1963)
"E" Line
PLAN
Scale: 1" = 30'
Slightly compact to compact brown silt.
Compact red-brown clayey silt-bound sand & small gravel.
Dense to very dense yellow-brown silt.
Loose brown cobble gravel grading to pebble gravel.
Slightly compact to compact brown sandy silt with some scattered gravel.
Loose brown silt, clayey silt, and silty clayey sand with some small gravelly silt lenses.
Slightly compact brown interbedded layers of medium sand and silty sand & gravel.
Stiff brown plastic & organic silt.
Very stiff to hard brown & tan clayey silt with scattered clayey gravel lenses.
Loose grey cobble and pebble gravel.
Dense brown gravelly silt, silt, silty gravel and sandy silt.
Loose to slightly compact brown silty sand and gravel.
Dense to compact brown silty gravel.
Compact brown silt.
Compact to very dense sand, gravel and cobbles.
Very dense yellow-brown damp, iron stained sandy silt & small gravel.
Compact to very dense sand, gravel & cobbles.
Very dense yellow-brown partially iron cemented sandy silt & some small gravel.
Refusal
PROFILE
Scale: 1" = 10'
"O" Line
180~
181~
182~
LEGEND OF BORING OPERATIONS
LEGEND OF EARTH MATERIALS
CLASSIFICATION OF MATERIAL BASED ON STANDARD GRADE SIZE LIMITS
NOTE: Classification of earth material as shown on this sheet is based upon field inspection and is not to be construed to imply mechanical analysis.
BRIDGE DEPARTMENT
ENGINEERING GEOLOGY SECTION
AS BUILT PLANS
Contract No. 04-102134
Date Completed
Document No. 40001324

DIST.	COUNTY	ROUTE	SECTION	SHEET NO.	TOTAL SHEETS
04	Nap	29	15.0/19.6	58	69

Date Approved September 23, 1968

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS

DRY CREEK BRIDGES

LOG OF TEST BORINGS

SCALE As Noted | BRIDGE 21C-20, 21-14R, 21C-21 | FILE | DRAWING 21/4-14

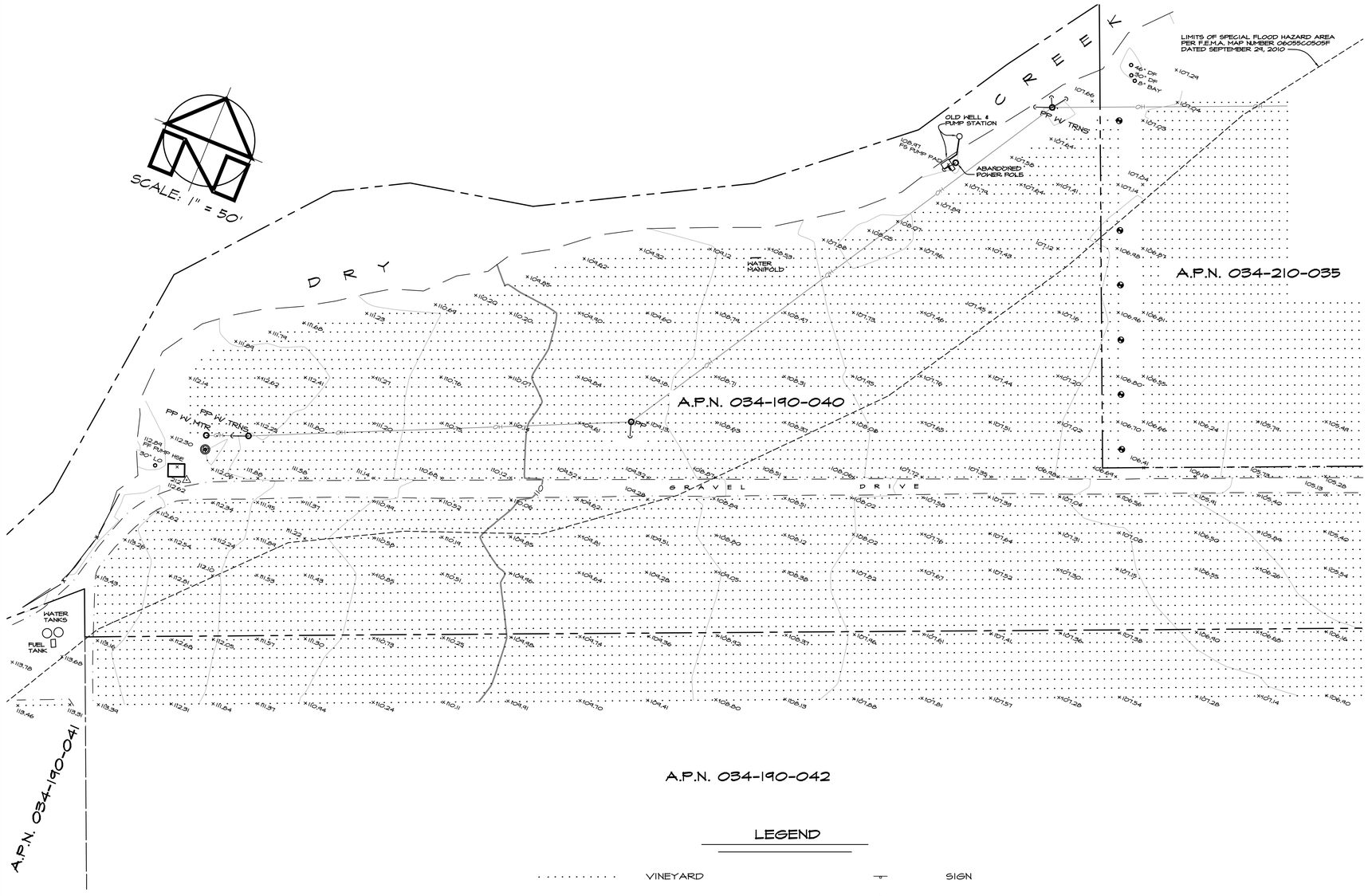
WO 102131
CU 04204

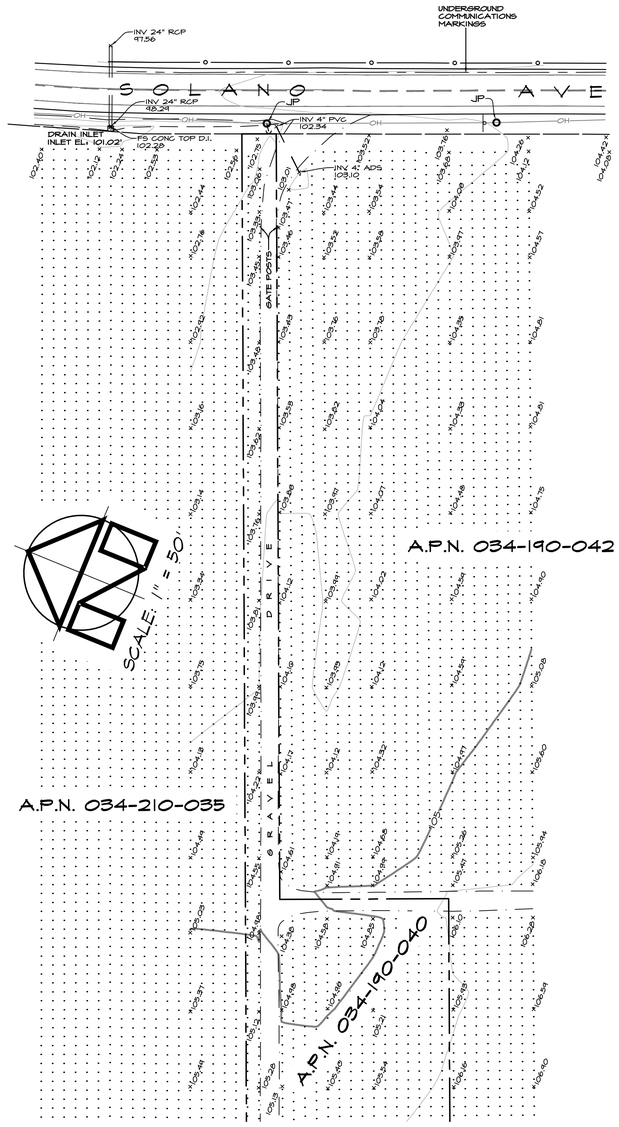
PREL. DRAWING NO. PR-21/4-14

58

I HEREBY CERTIFY THAT THIS IS A TRUE AND ACCURATE COPY OF THE ABOVE DOCUMENT TAKEN UNDER MY DIRECTION AND CONTROL ON THIS DATE IN SACRAMENTO, CALIFORNIA PURSUANT TO

Attachment 3: 2014 Onsite Survey





LEGEND

. . . . .	VINEYARD	—•—	SIGN
——— x ———	WIRE FENCE	Ⓦ	WELL
— — — —	TOE OF BANK	⟵	GUY WIRE
——— ———	TOP OF BANK	o	UTILITY POLE
— – – – —	PROPERTY LINE	⊕	WATER VALVE
— · — · —	EDGE OF ROAD	o 10" TREE	TREE (AS NOTED)
———o———	CHAINLINK FENCE	△	SURVEY CONTROL STATION
– – – – – – – –	FLOOD HAZARD LINE		
———OH———	OVERHEAD UTILITY LINES		
——— – ———	UNDERGROUND COMMUNICATIONS MARKINGS		

NOTES

1. BENCHMARK: CITY OF NAPA BM #1165. ELEVATION = 75.89' (NAVD 1988) PUBLISHED ELEVATION = 73.27 (NGVD 1929).
2. CONTOURS ARE SHOWN EVERY ONE FOOT (1'), HIGHLIGHTED EVERY FIVE FEET (5').
3. TREES ADJACENT TO THE TOP OF BANK OF DRY CREEK WERE NOT LOCATED ON THIS SURVEY.

TOPOGRAPHIC MAP

OF A PORTION OF THE LANDS OF

L'ATTITUDE VINEYARDS, LLC

A.P.N. 034-190-040

NAPA COUNTY, CALIFORNIA

PREPARED BY:

CONSULTING LAND SURVEYORS AND CIVIL ENGINEERS
RIECHERS SPENCE ASSOCIATES
1515 Fourth Street
Napa, Calif., 94559
v 707.252.3301
f 707.252.4466

FEBRUARY, 2014

DWG: 4389TOPO.DWG

SHEET 1 OF 1

Attachment 4: LOMA 14-09-0308A-06025

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP AMENDMENT
DETERMINATION DOCUMENT (REMOVAL)

COMMUNITY AND MAP PANEL INFORMATION		LEGAL PROPERTY DESCRIPTION
COMMUNITY	NAPA COUNTY, CALIFORNIA (Unincorporated Areas)	A parcel of land, as described in the Grant Deed recorded as Document No. 2013-0004244, in the Office of the Recorder, Napa County, California (APN:034-212-011)
	COMMUNITY NO.: 060205	
AFFECTED MAP PANEL	NUMBER: 06055C0505F	
	DATE: 9/29/2010	
FLOODING SOURCE: DRY CREEK		APPROXIMATE LATITUDE & LONGITUDE OF PROPERTY: 38.363, -122.343 SOURCE OF LAT & LONG: GOOGLE EARTH PRO DATUM: NAD 83

DETERMINATION

LOT	BLOCK/ SECTION	SUBDIVISION	STREET	OUTCOME WHAT IS REMOVED FROM THE SFHA	FLOOD ZONE	1% ANNUAL CHANCE FLOOD ELEVATION (NAVD 88)	LOWEST ADJACENT GRADE ELEVATION (NAVD 88)	LOWEST LOT ELEVATION (NAVD 88)
--	--	--	1088 Darms Lane	Structure (Residence)	X (unshaded)	106.2 feet	110.5 feet	--

Special Flood Hazard Area (SFHA) - The SFHA is an area that would be inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood).

ADDITIONAL CONSIDERATIONS (Please refer to the appropriate section on Attachment 1 for the additional considerations listed below.)

DETERMINATION TABLE (CONTINUED)
PORTIONS REMAIN IN THE SFHA
ZONE A

This document provides the Federal Emergency Management Agency's determination regarding a request for a Letter of Map Amendment for the property described above. Using the information submitted and the effective National Flood Insurance Program (NFIP) map, we have determined that the structure(s) on the property(ies) is/are not located in the SFHA, an area inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood). This document amends the effective NFIP map to remove the subject property from the SFHA located on the effective NFIP map; therefore, the Federal mandatory flood insurance requirement does not apply. However, the lender has the option to continue the flood insurance requirement to protect its financial risk on the loan. A Preferred Risk Policy (PRP) is available for buildings located outside the SFHA. Information about the PRP and how one can apply is enclosed.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, LOMC Clearinghouse, 847 South Pickett Street, Alexandria, VA 22304-4605.

Luis Rodriguez, P.E., Chief
Engineering Management Branch
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency
Washington, D.C. 20472

LETTER OF MAP AMENDMENT
DETERMINATION DOCUMENT (REMOVAL)

ATTACHMENT 1 (ADDITIONAL CONSIDERATIONS)

DETERMINATION TABLE (CONTINUED)

LOT	BLOCK/ SECTION	SUBDIVISION	STREET	**OUTCOME** WHAT IS REMOVED FROM THE SFHA	FLOOD ZONE	1% ANNUAL CHANCE FLOOD ELEVATION (NAVD 88)	LOWEST ADJACENT GRADE ELEVATION (NAVD 88)	LOWEST LOT ELEVATION (NAVD 88)
--	--	--	1088 Darms Lane	Structure (Garage)	X (unshaded)	106.2 feet	111.3 feet	--

PORTIONS OF THE PROPERTY REMAIN IN THE SFHA (This Additional Consideration applies to the preceding 2 Properties.)

Portions of this property, but not the subject of the Determination/Comment document, may remain in the Special Flood Hazard Area. Therefore, any future construction or substantial improvement on the property remains subject to Federal, State/Commonwealth, and local regulations for floodplain management.

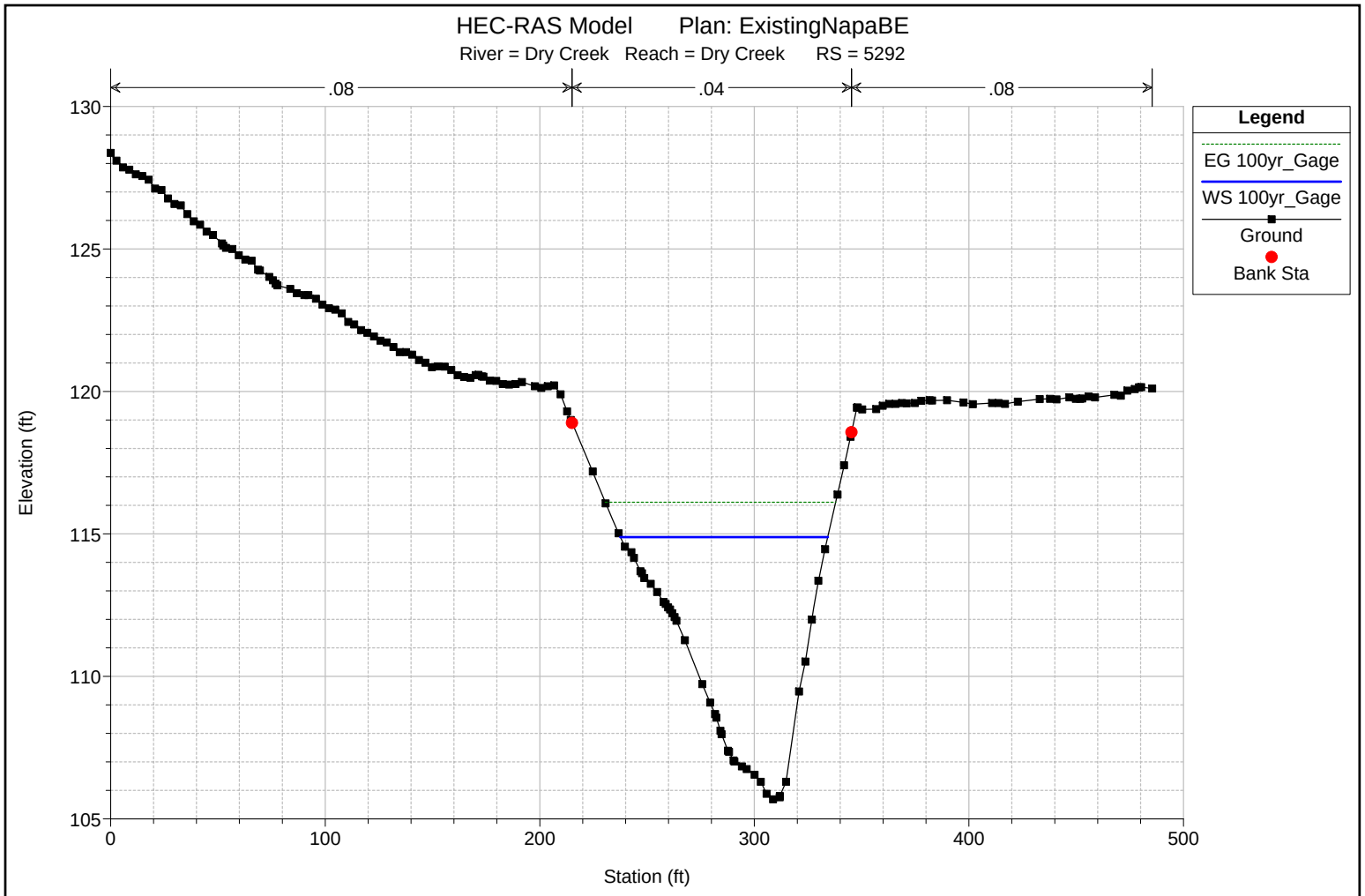
ZONE A (This Additional Consideration applies to the preceding 2 Properties.)

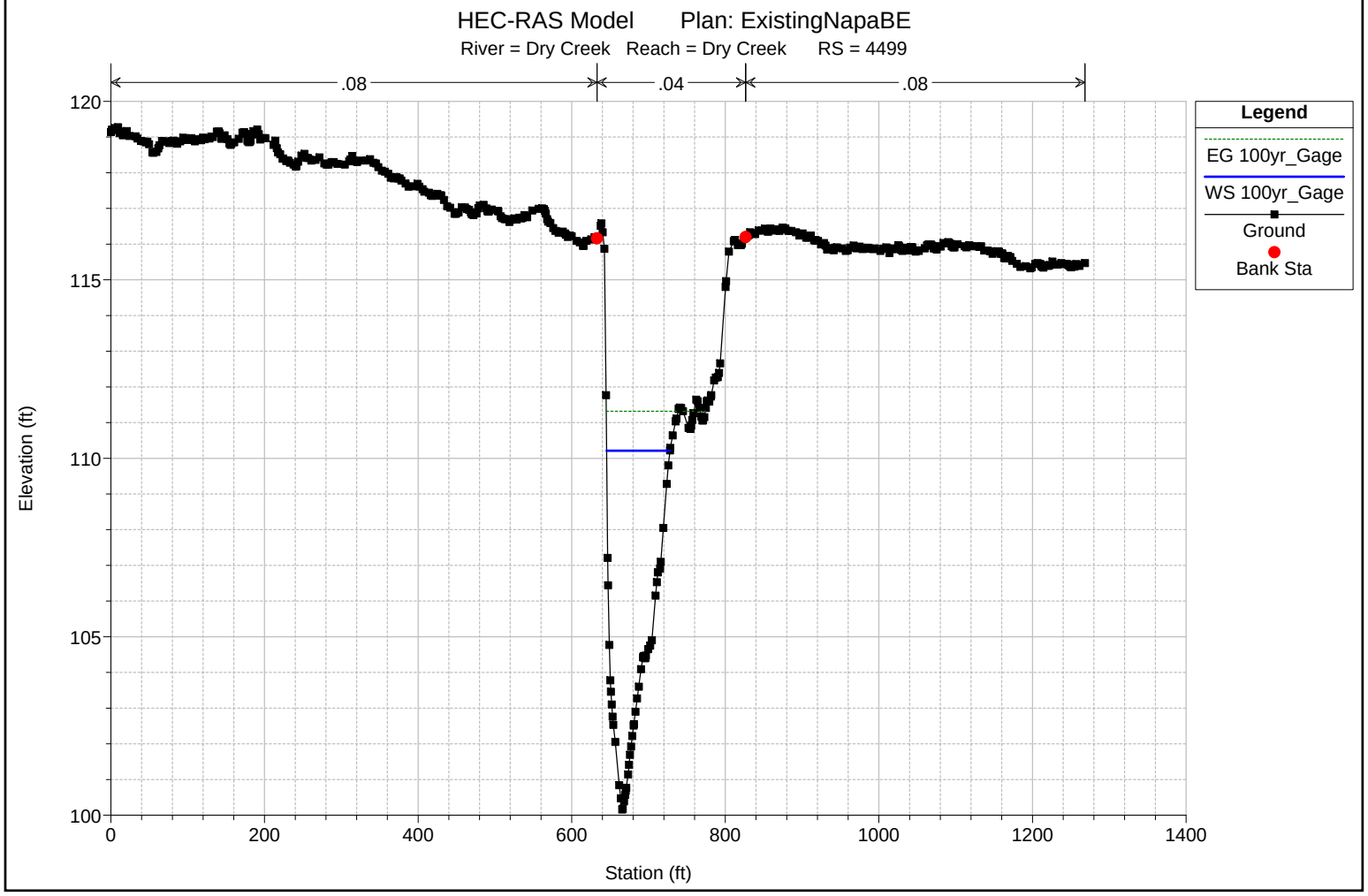
The National Flood Insurance Program map affecting this property depicts a Special Flood Hazard Area that was determined using the best flood hazard data available to FEMA, but without performing a detailed engineering analysis. The flood elevation used to make this determination is based on approximate methods and has not been formalized through the standard process for establishing base flood elevations published in the Flood Insurance Study. This flood elevation is subject to change.

This attachment provides additional information regarding this request. If you have any questions about this attachment, please contact the FEMA Map Assistance Center toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, LOMC Clearinghouse, 847 South Pickett Street, Alexandria, VA 22304-4605.

Luis Rodriguez, P.E., Chief
Engineering Management Branch
Federal Insurance and Mitigation Administration

Attachment 5: HEC-RAS Cross Sections


HEC-RAS Model Plan: ExistingNapaBE
River = Dry Creek Reach = Dry Creek RS = 5292
.08
.04
.08
Legend
EG 100yr_Gage
WS 100yr_Gage
Ground
Bank Sta
Elevation (ft)
Station (ft)
130
125
120
115
110
105
0
100
200
300
400
500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River = Dry Creek Reach = Dry Creek RS = 4499
.08
.04
.08
Legend
EG 100yr_Gage
WS 100yr_Gage
Ground
Bank Sta
Elevation (ft)
Station (ft)
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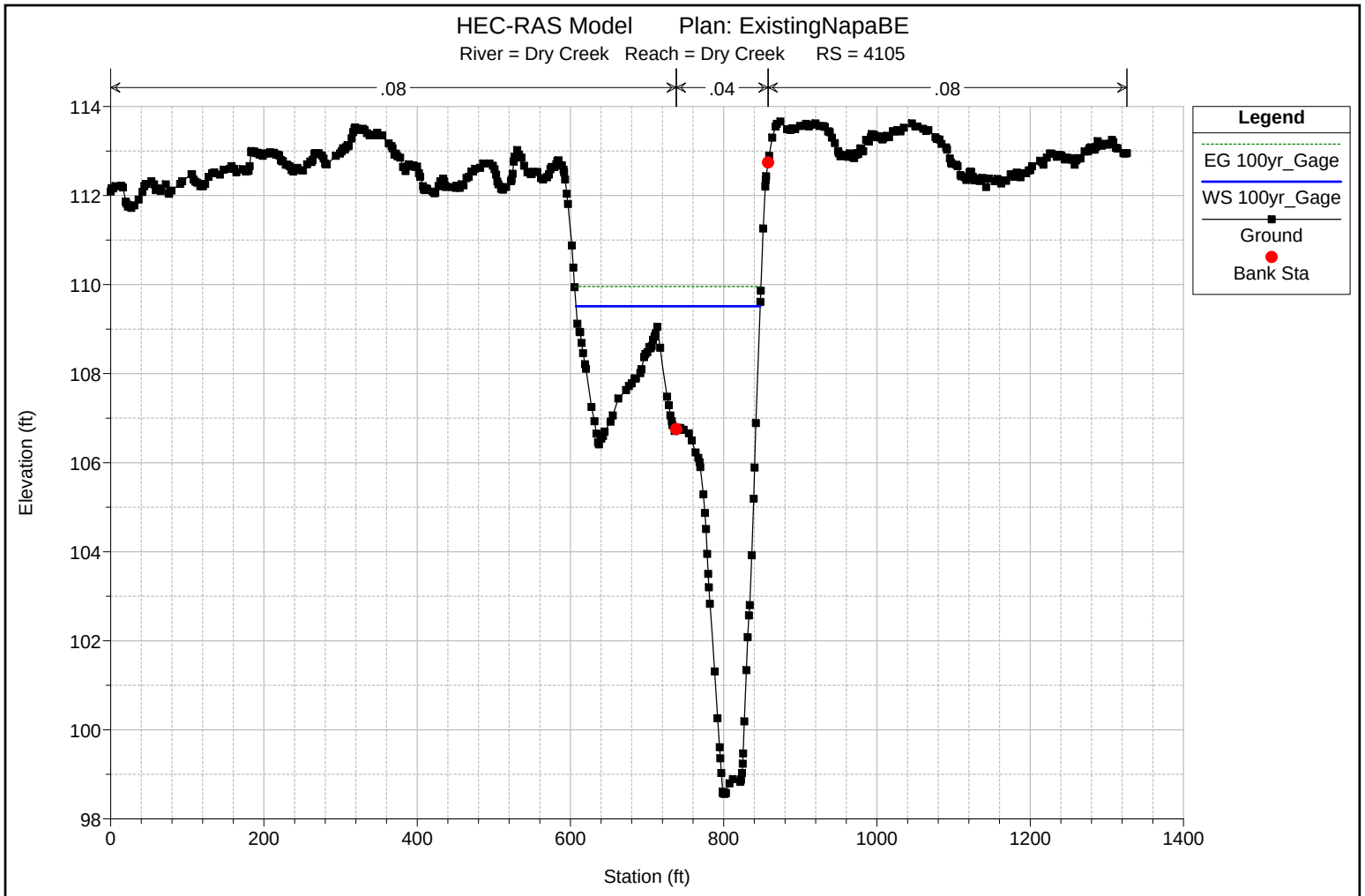
115
110
105
100
0
200
400
600
800
1000
1200
1400


HEC-RAS Model Plan: ExistingNapaBE
River = Dry Creek Reach = Dry Creek RS = 4105
.08
.04
.08
Legend
EG 100yr_Gage
WS 100yr_Gage
Ground
Bank Sta
Elevation (ft)
Station (ft)
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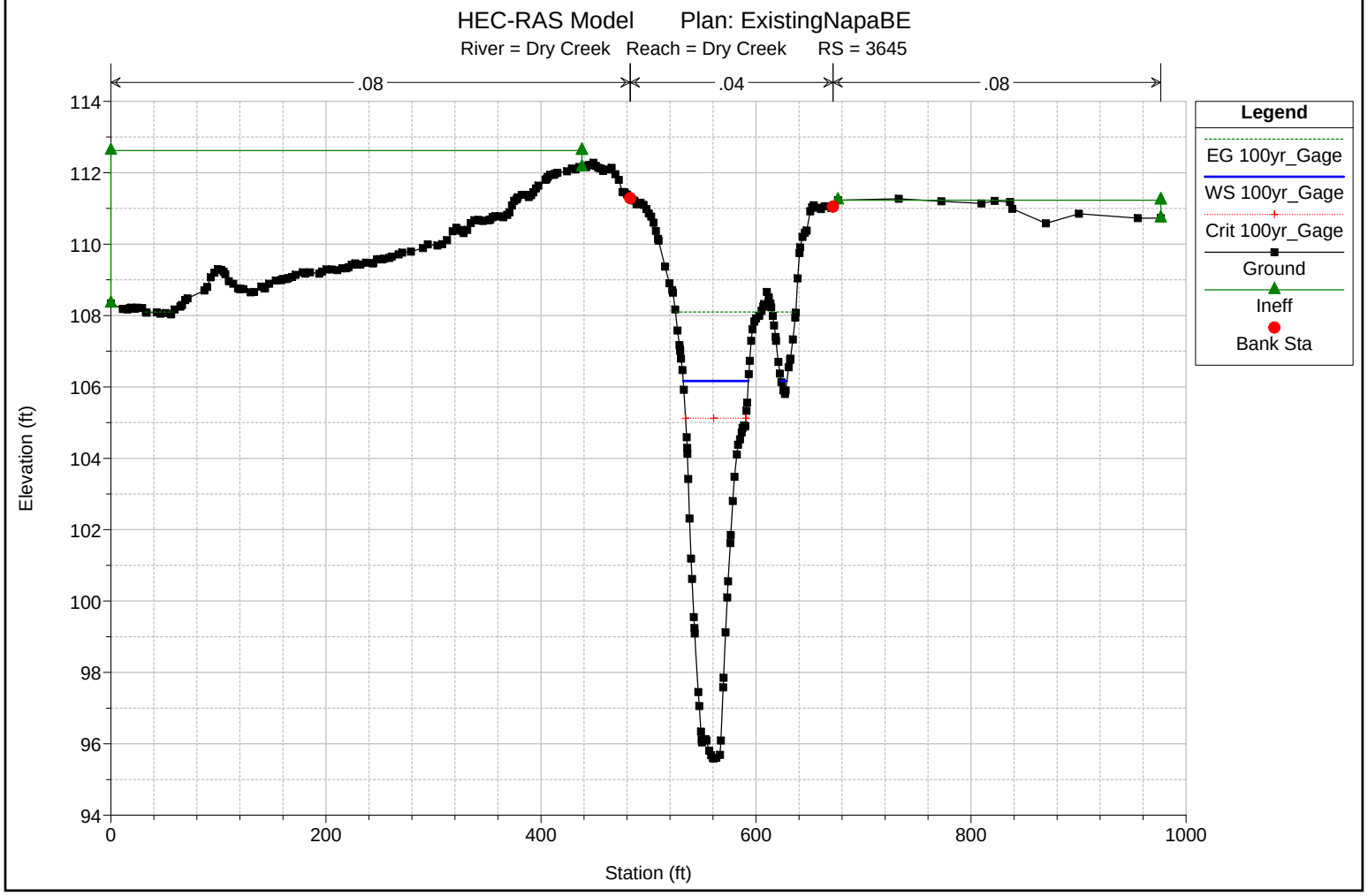
112
110
108
106
104
102
100
98
0
200
400
600
800
1000
1200
1400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River = Dry Creek Reach = Dry Creek RS = 3645
.08
.04
.08
Legend
EG 100yr_Gage
WS 100yr_Gage
Crit 100yr_Gage
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
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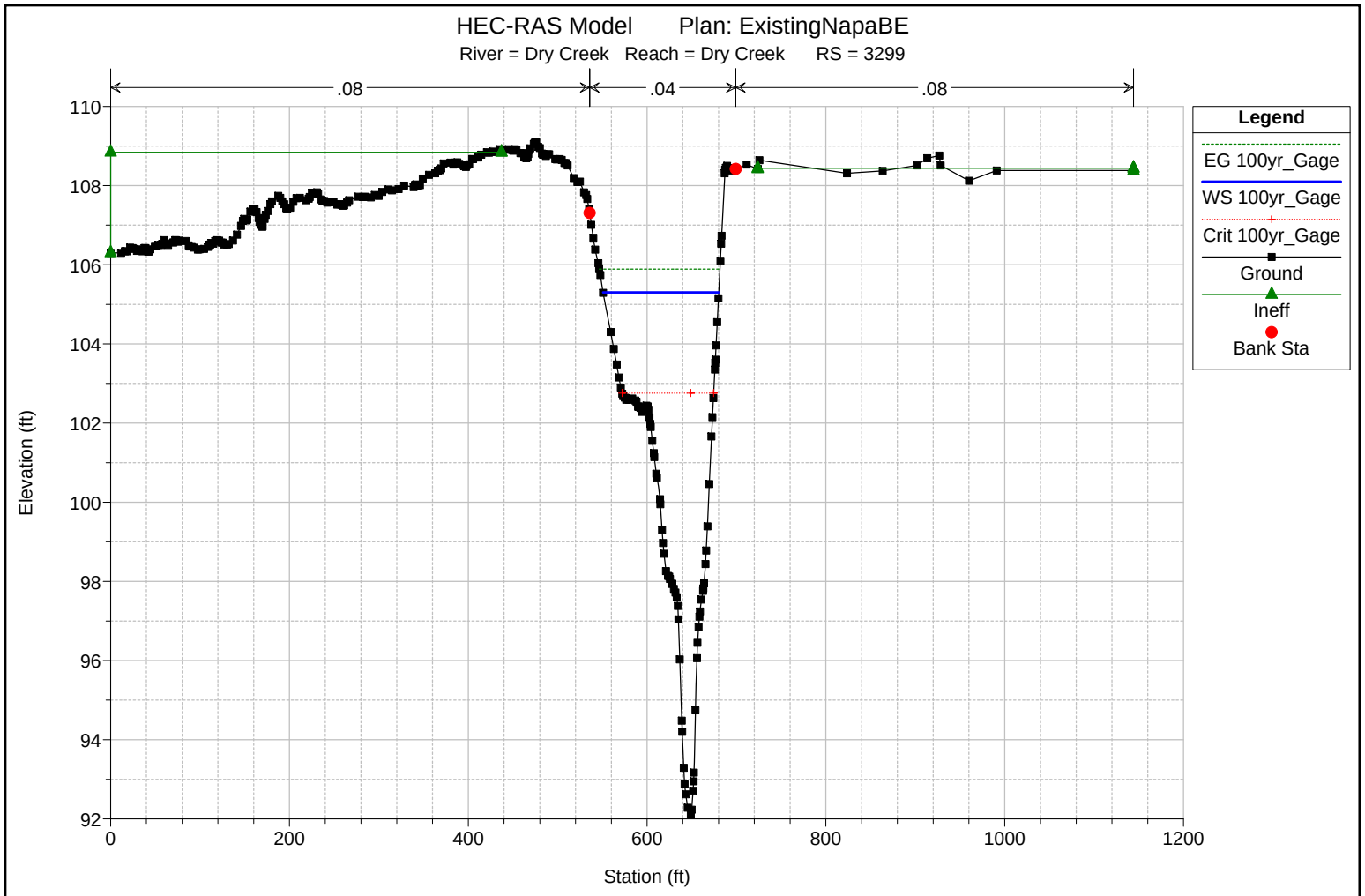
112
110
108
106
104
102
100
98
96
94
0
200
400
600
800
1000


HEC-RAS Model Plan: ExistingNapaBE
River = Dry Creek Reach = Dry Creek RS = 3299
.08
.04
.08
Legend
EG 100yr_Gage
WS 100yr_Gage
Crit 100yr_Gage
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
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108
106
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102
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92
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400
600
800
1000
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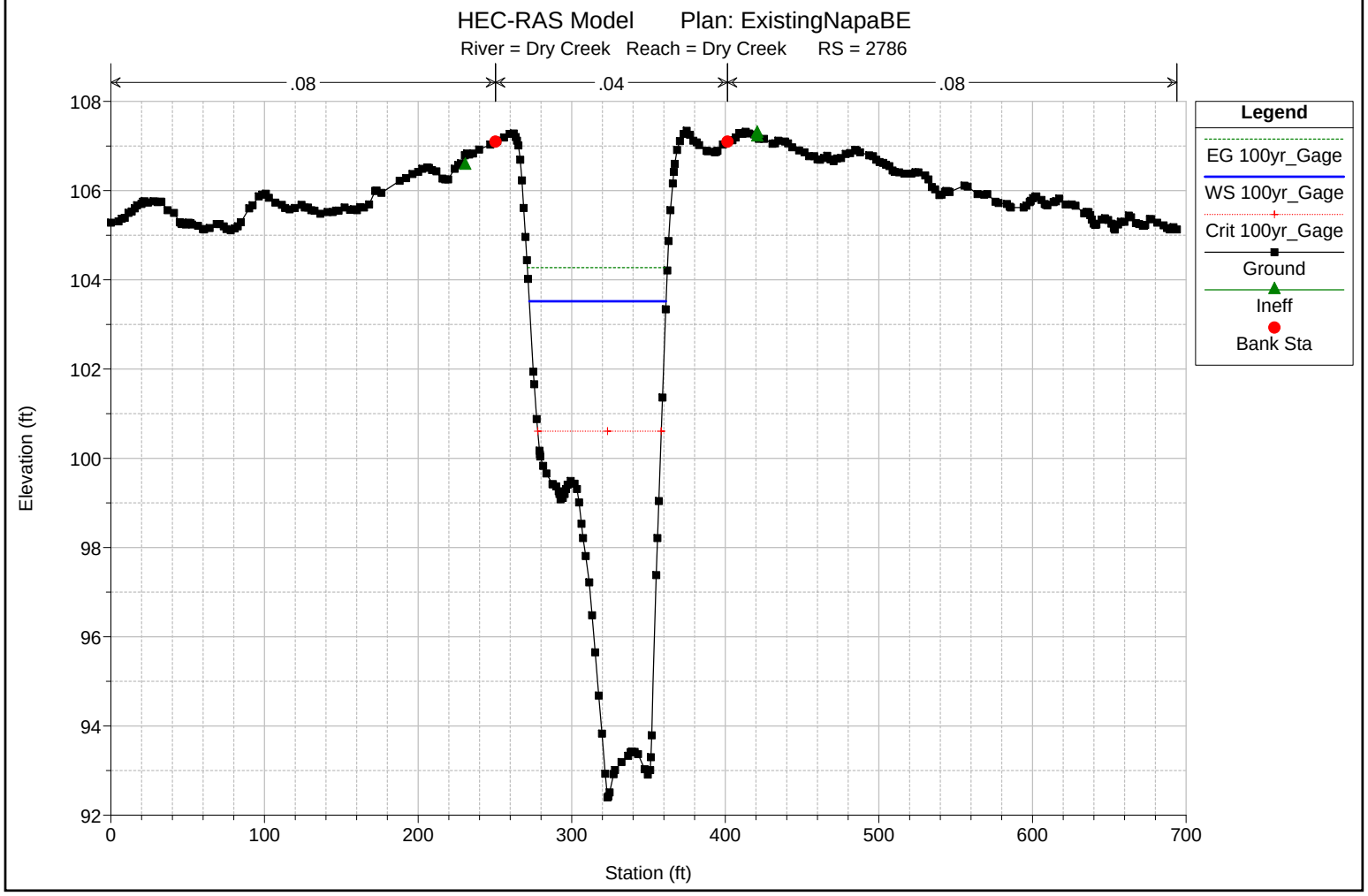
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River = Dry Creek Reach = Dry Creek RS = 2786
.08
.04
.08
Legend
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WS 100yr_Gage
Crit 100yr_Gage
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
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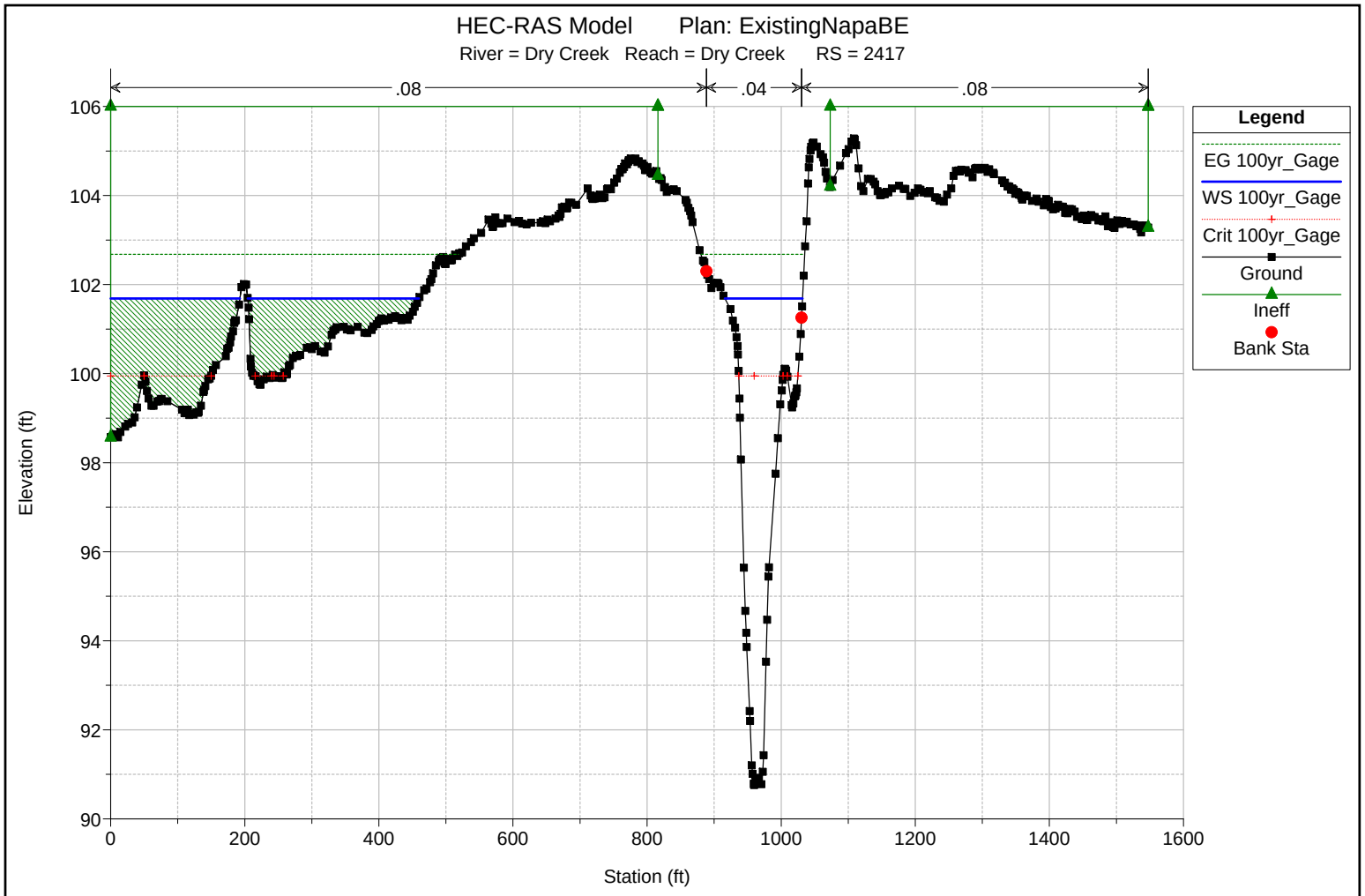
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.04
.08
Legend
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WS 100yr_Gage
Crit 100yr_Gage
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
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102
100
98
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92
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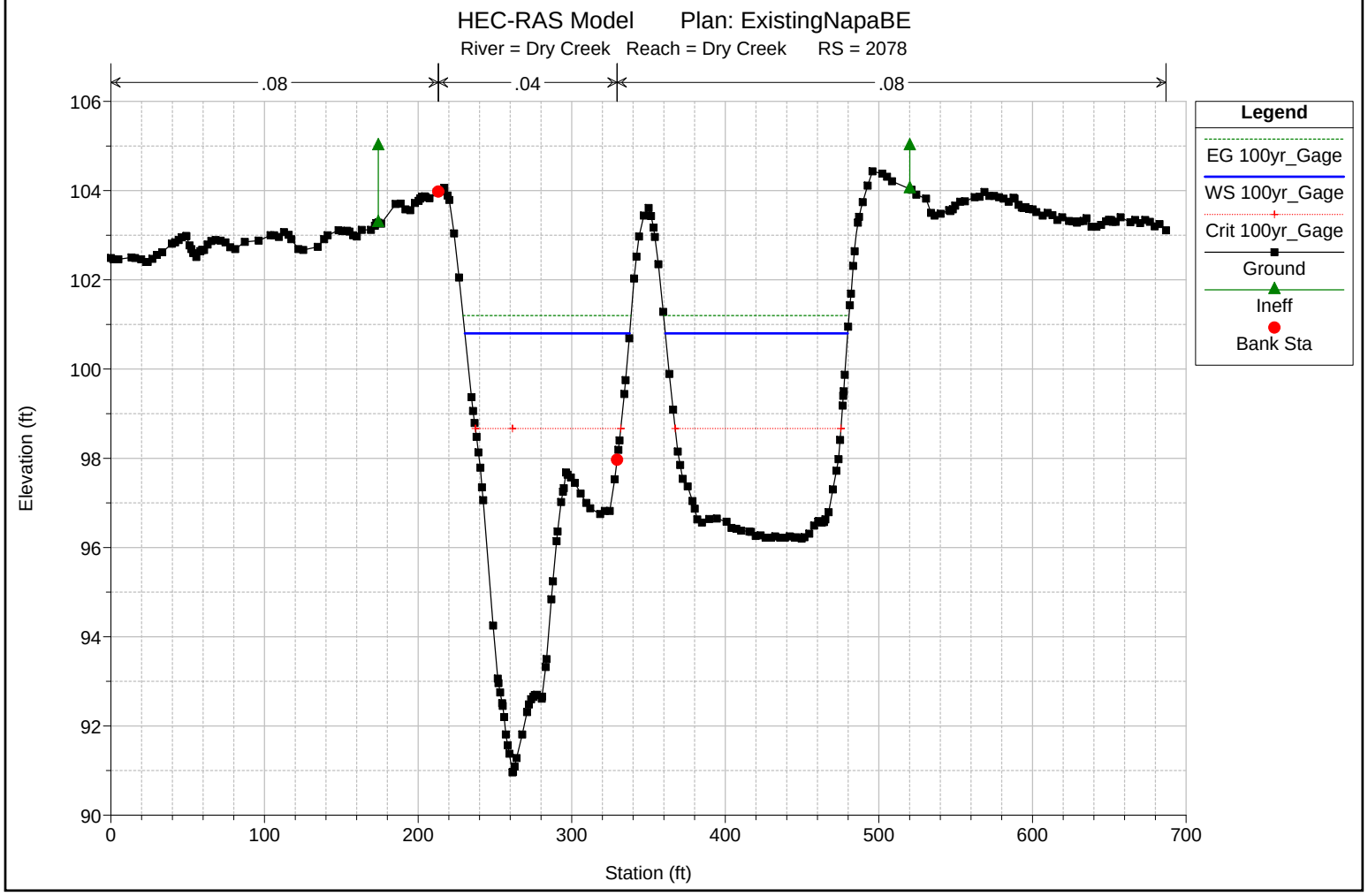
800
1000
1200
1400
1600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.04
.08
Legend
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WS 100yr_Gage
Crit 100yr_Gage
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
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104
102
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98
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92
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500
600
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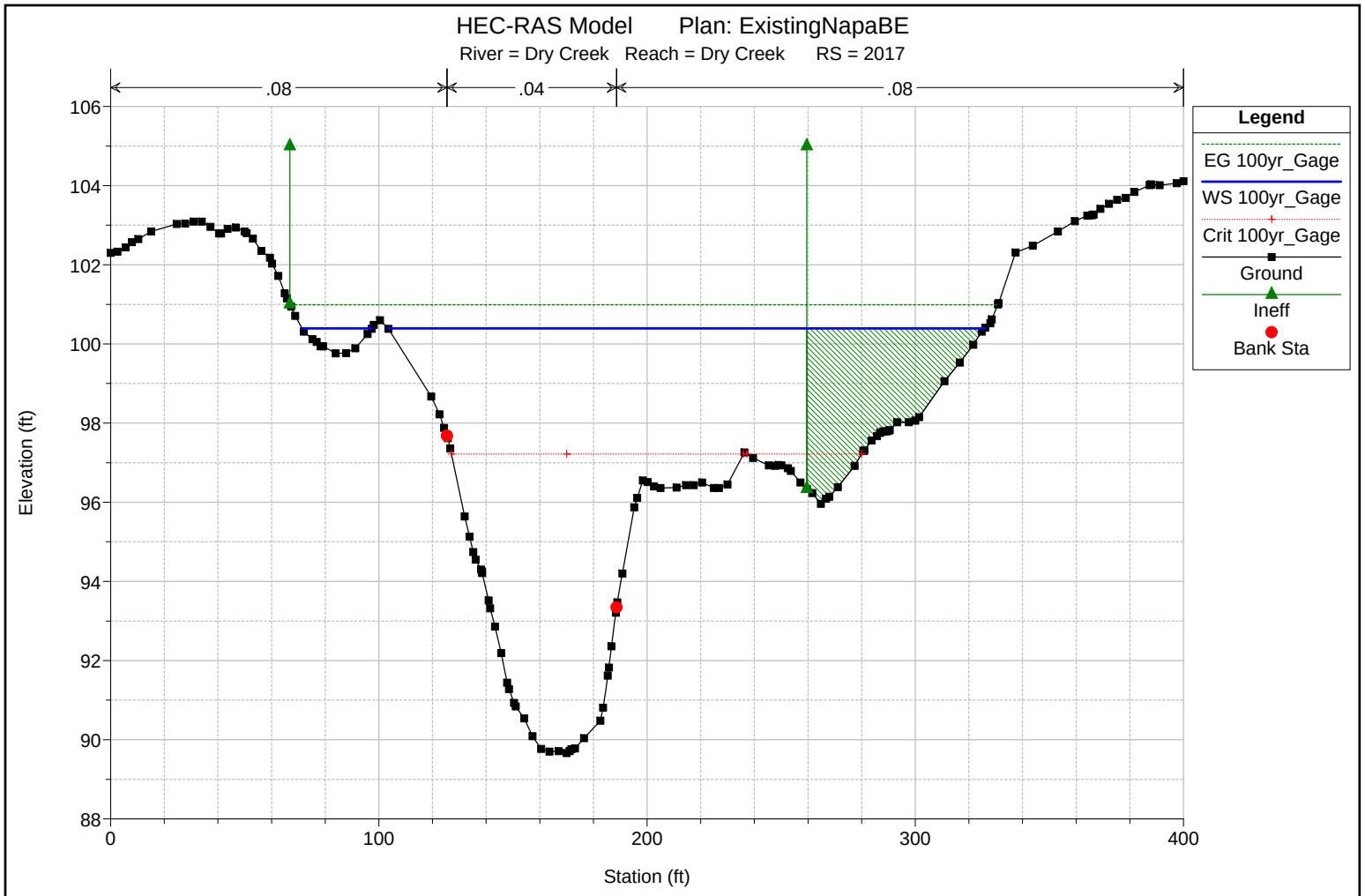
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.08
.04
.08
Legend
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WS 100yr_Gage
Crit 100yr_Gage
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
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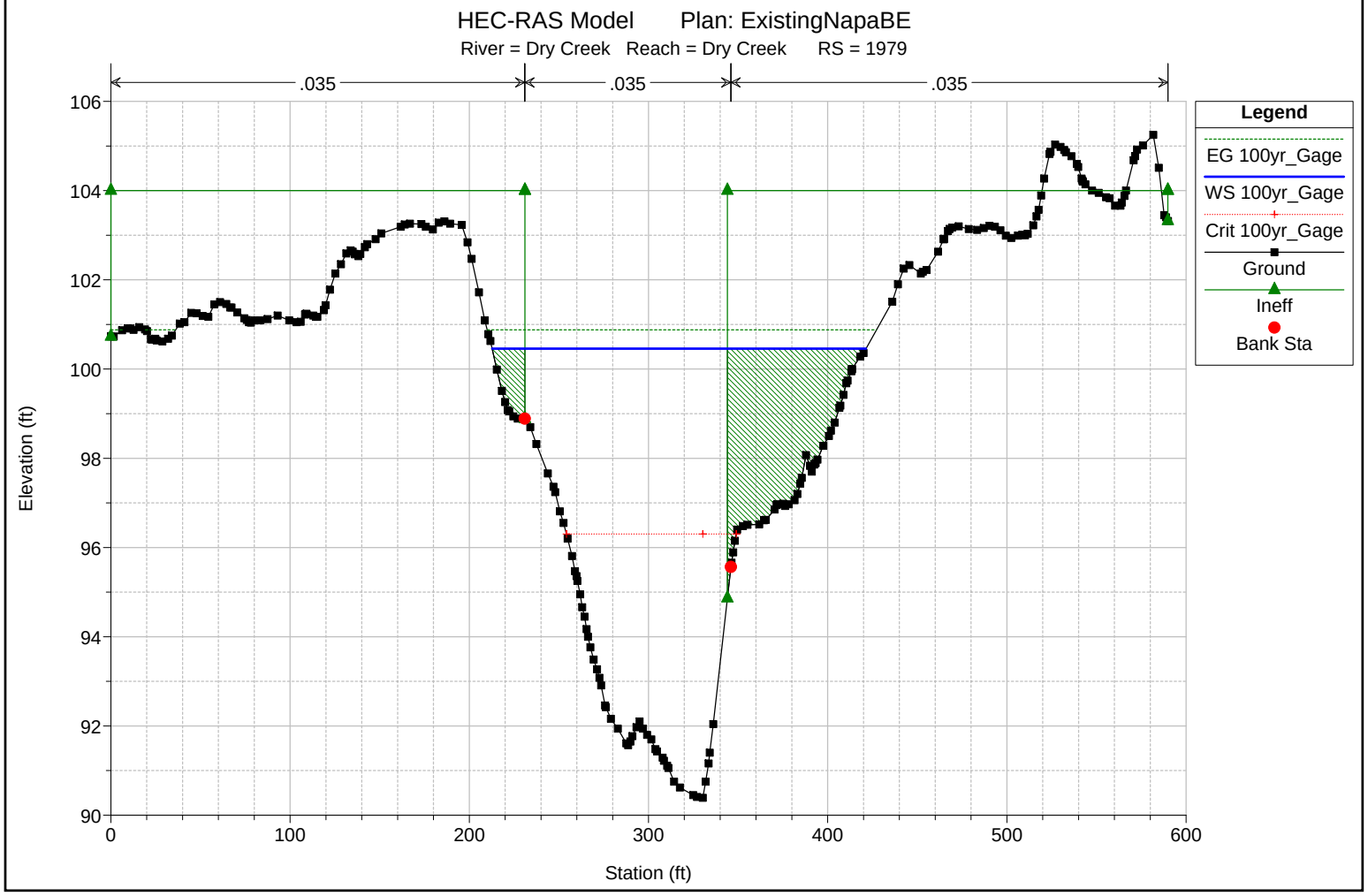
104
102
100
98
96
94
92
90
88
0
100
200
300
400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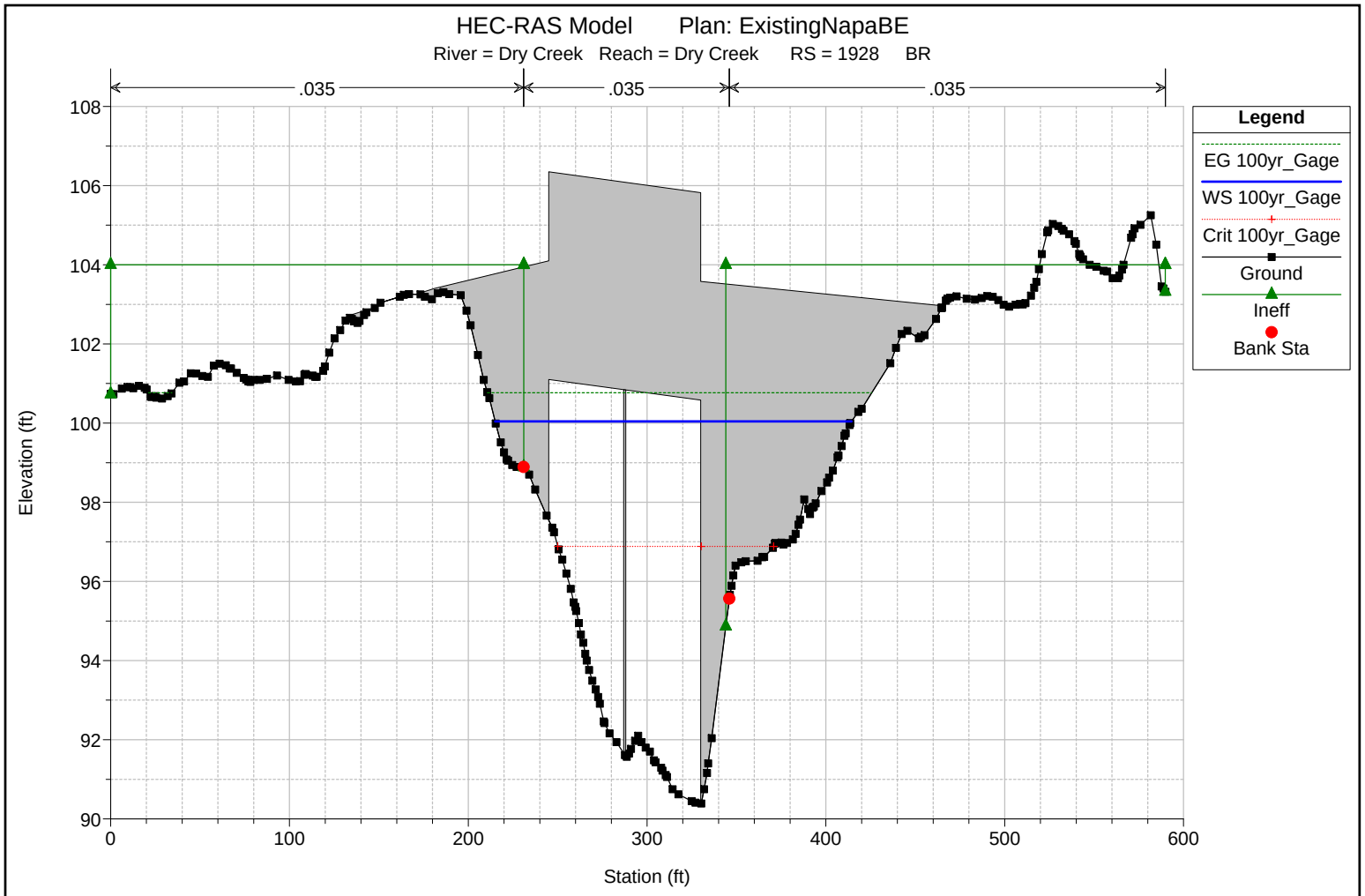
.035
.035
Legend
EG 100yr_Gage
WS 100yr_Gage
Crit 100yr_Gage
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
106
104
102
100
98
96
94
92
90
0
100
200
300
400
500
600


HEC-RAS Model Plan: ExistingNapaBE
River = Dry Creek Reach = Dry Creek RS = 1928 BR
.035
.035
.035
Legend
EG 100yr_Gage
WS 100yr_Gage
Crit 100yr_Gage
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
108
106
104
102
100
98
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94
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90
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300
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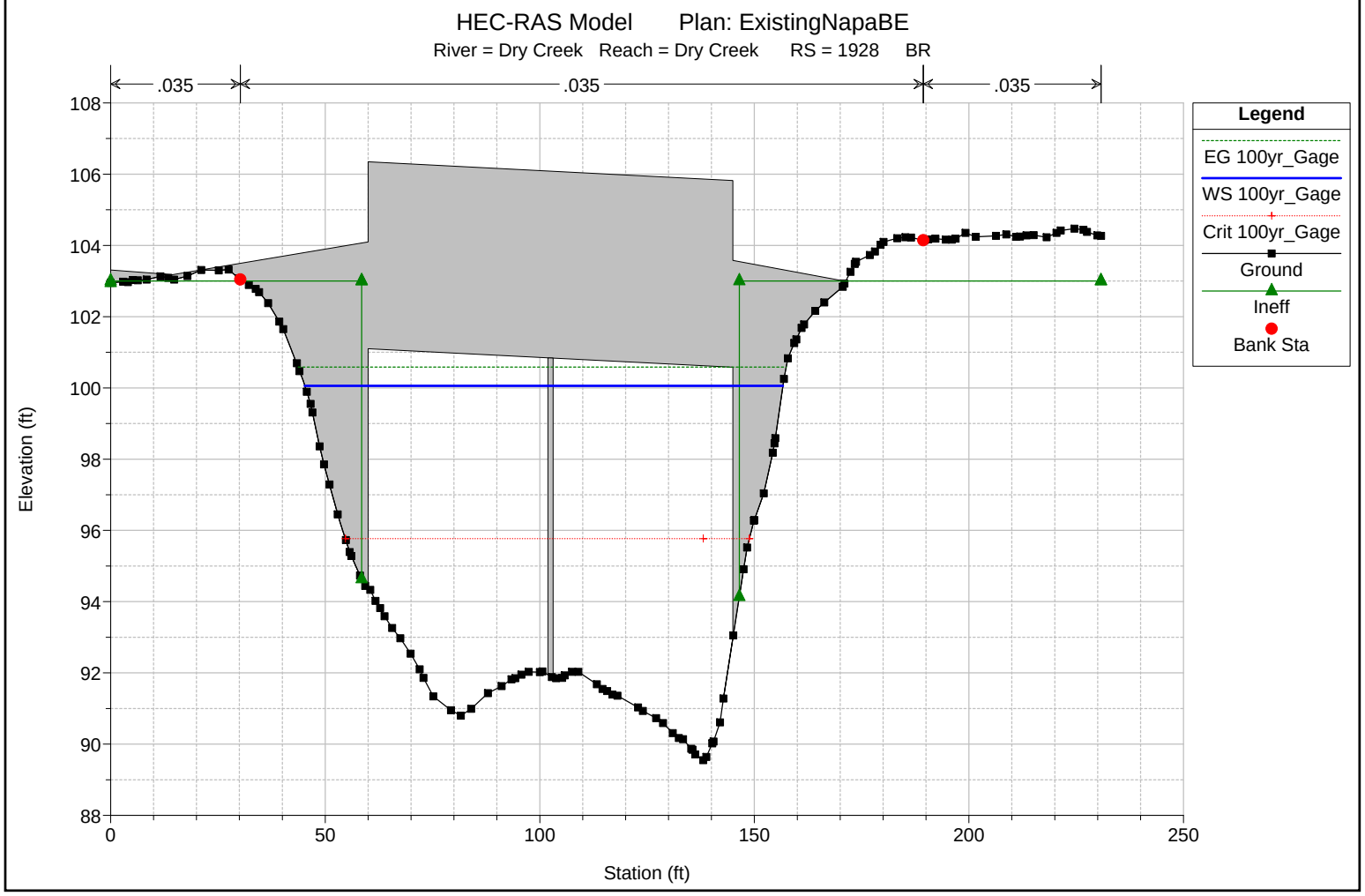
HEC-RAS Model Plan: ExistingNapaBE
River = Dry Creek Reach = Dry Creek RS = 1928 BR
.035
.035
.035
Legend
EG 100yr_Gage
WS 100yr_Gage
Crit 100yr_Gage
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
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106
104
102
100
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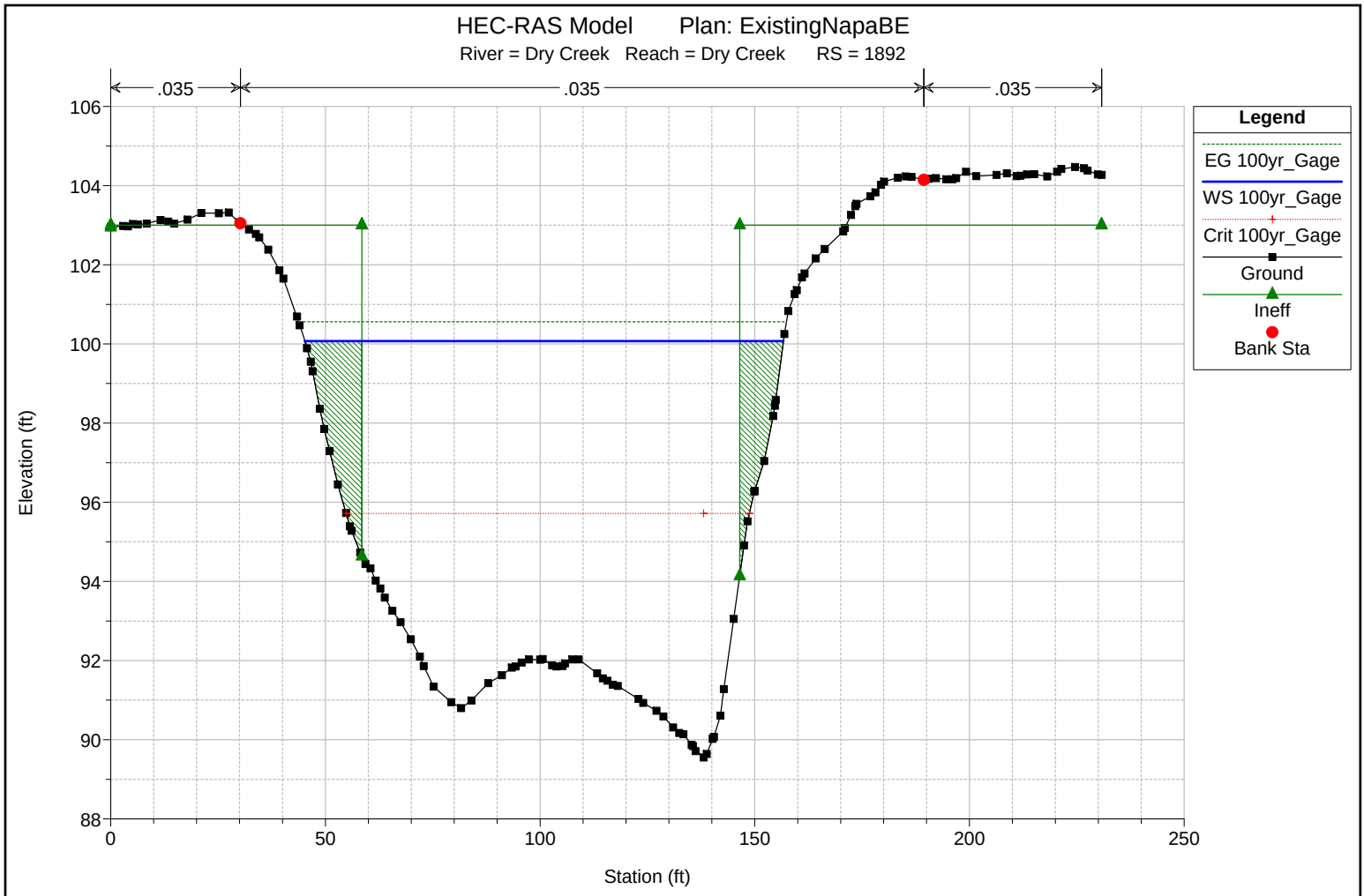
HEC-RAS Model Plan: ExistingNapaBE
River = Dry Creek Reach = Dry Creek RS = 1892
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.035
.035
Legend
EG 100yr_Gage
WS 100yr_Gage
Crit 100yr_Gage
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
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104
102
100
98
96
94
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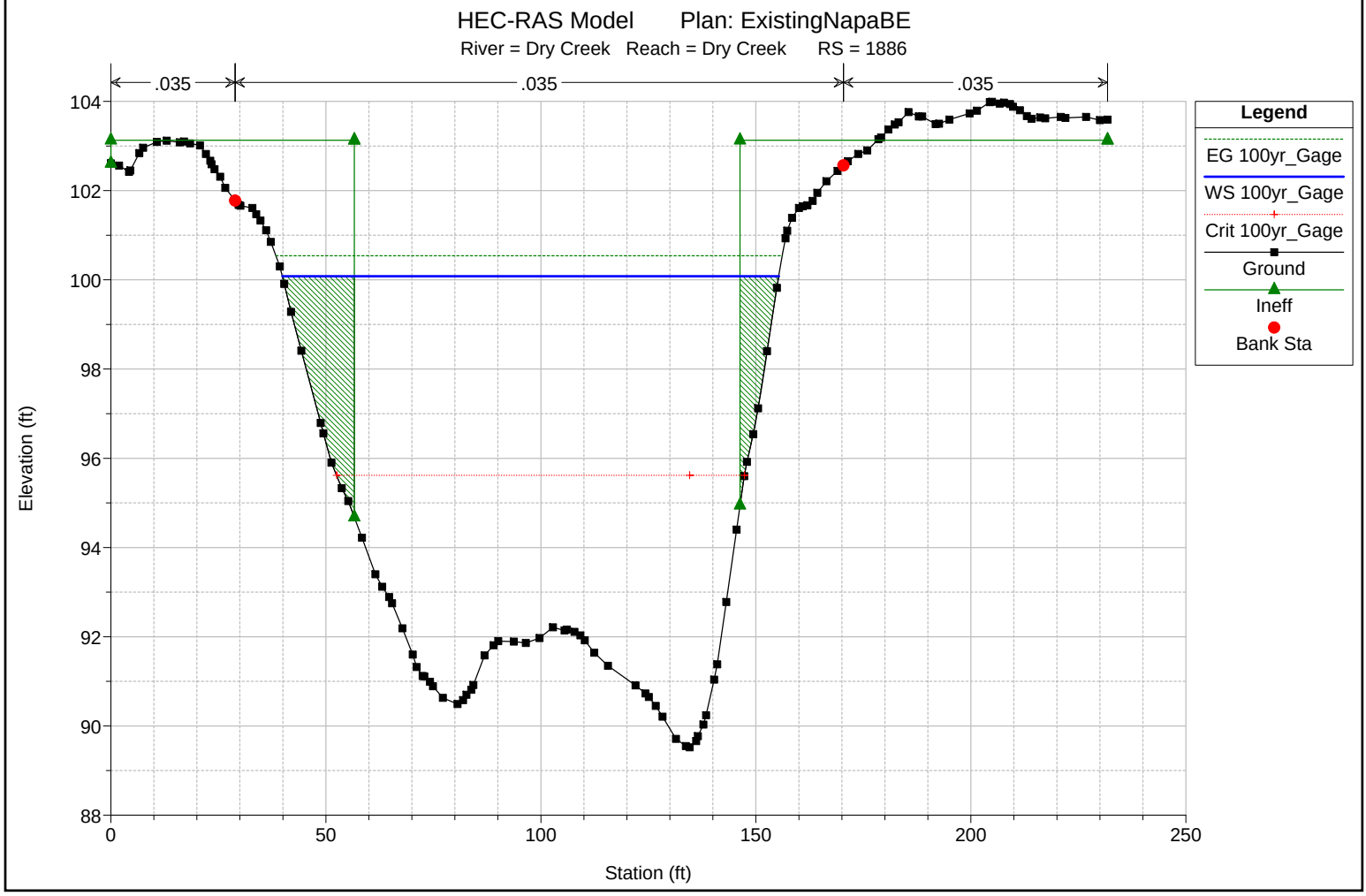
HEC-RAS Model Plan: ExistingNapaBE
River = Dry Creek Reach = Dry Creek RS = 1886
.035
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.035
Legend
EG 100yr_Gage
WS 100yr_Gage
Crit 100yr_Gage
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
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102
100
98
96
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90
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100
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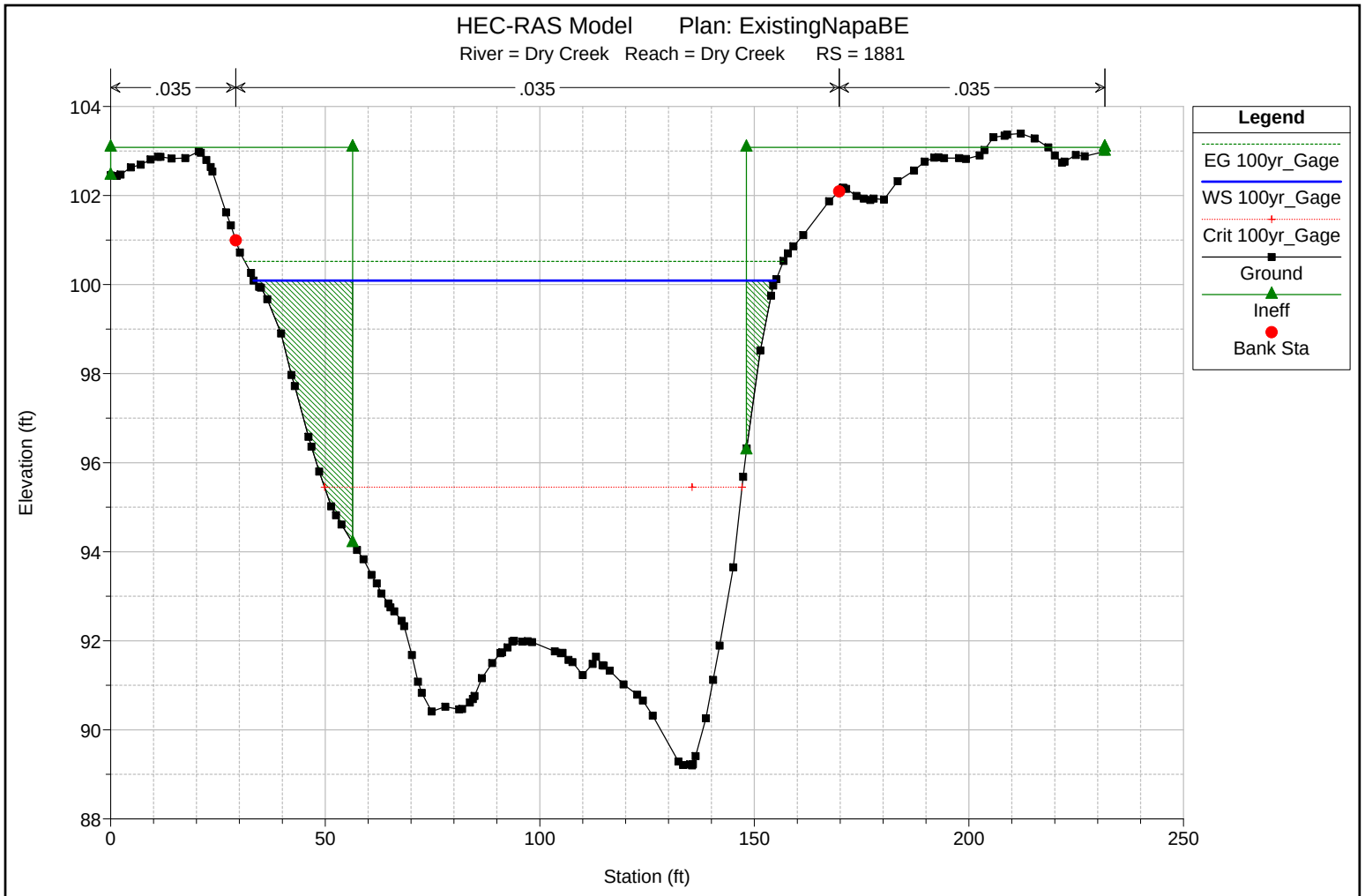
HEC-RAS Model Plan: ExistingNapaBE
River = Dry Creek Reach = Dry Creek RS = 1881
.035
.035
.035
Legend
EG 100yr_Gage
WS 100yr_Gage
Crit 100yr_Gage
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
104
102
100
98
96
94
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90
88
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100
150
200
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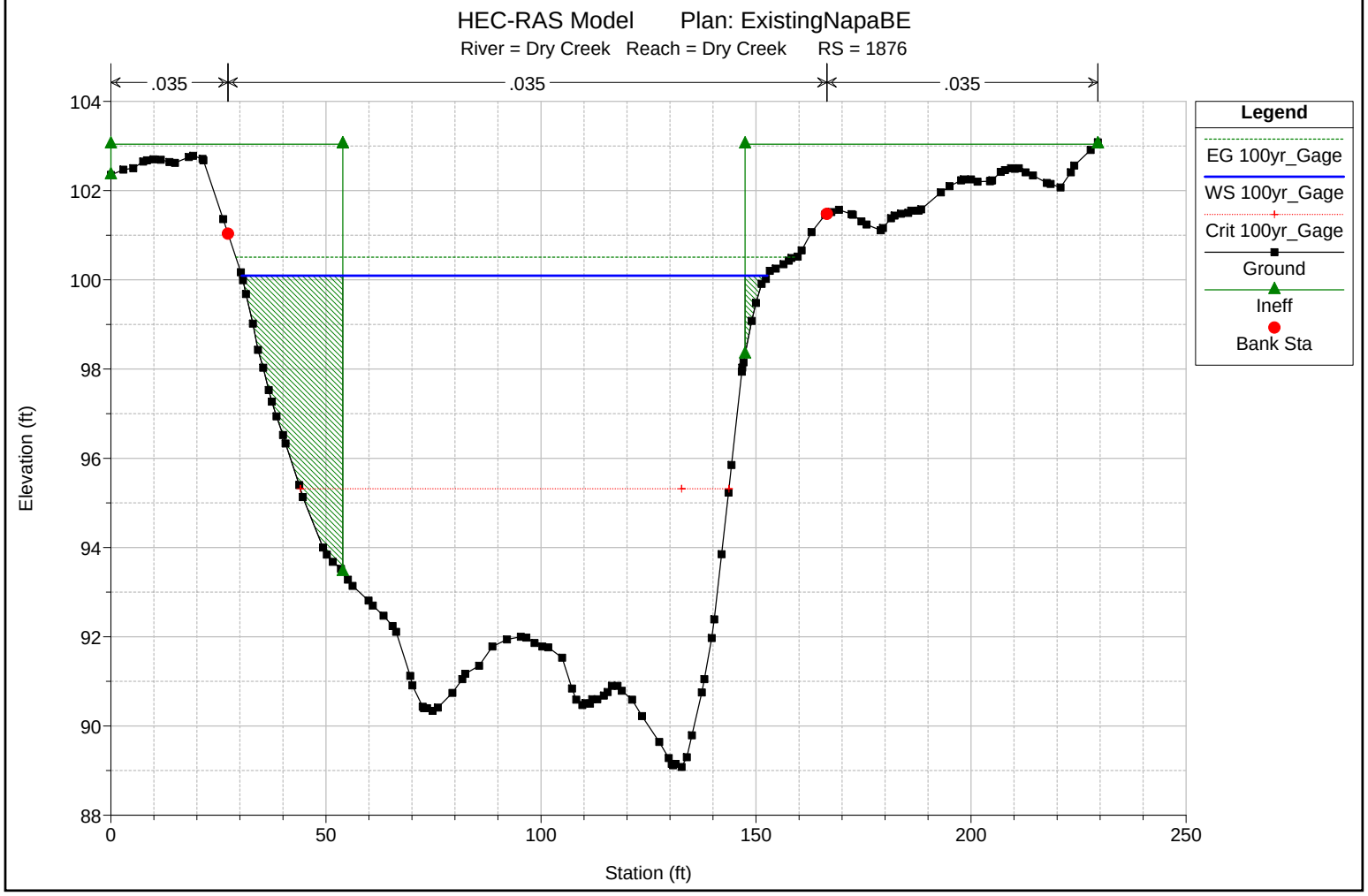
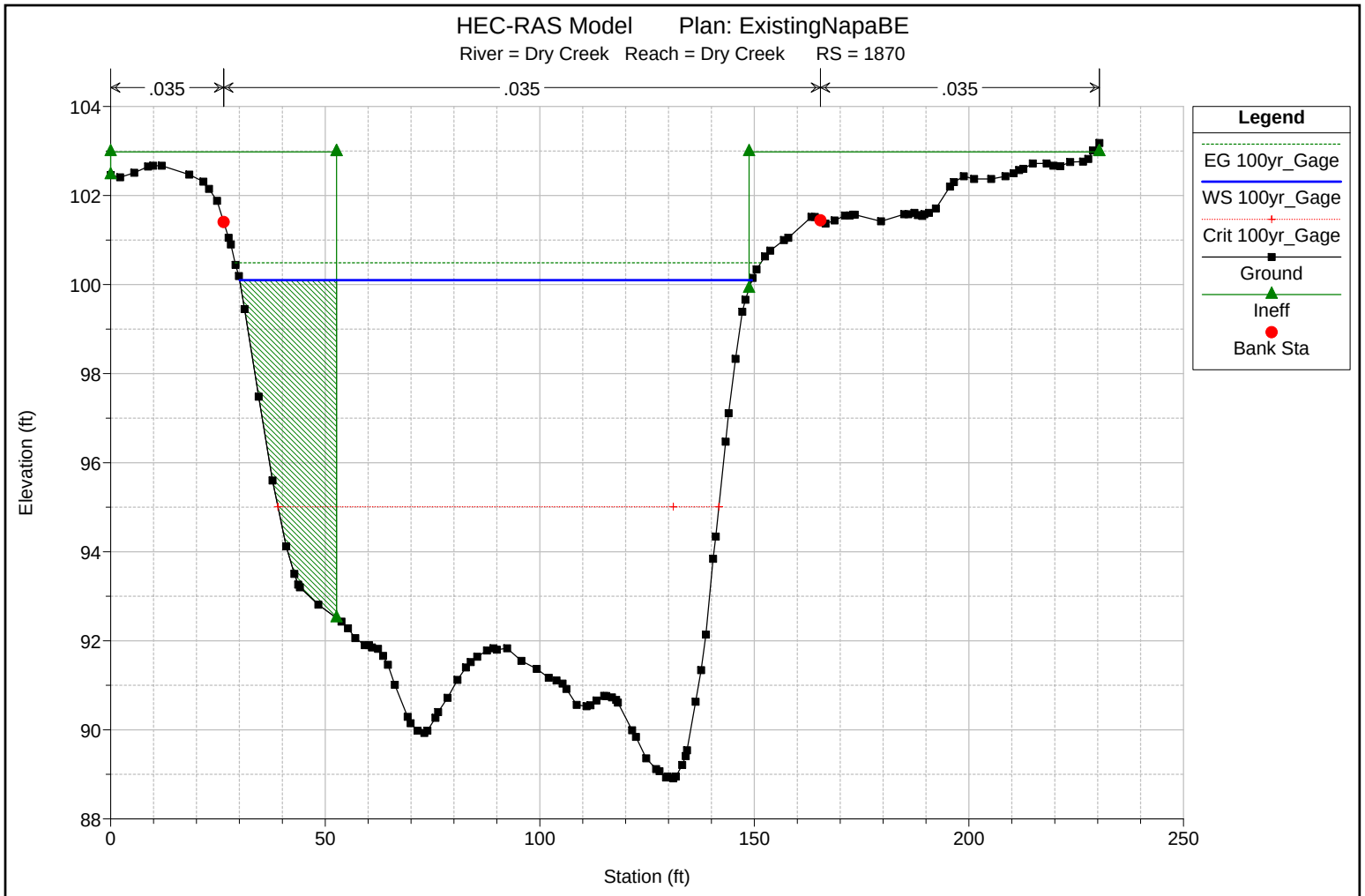

HEC-RAS Model Plan: ExistingNapaBE
River = Dry Creek Reach = Dry Creek RS = 1876
.035
.035
.035
Legend
EG 100yr_Gage
WS 100yr_Gage
Crit 100yr_Gage
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
104
102
100
98
96
94
92
90
88
0
50
100
150
200
250


HEC-RAS Model Plan: ExistingNapaBE
River = Dry Creek Reach = Dry Creek RS = 1870
.035
.035
.035
Legend
EG 100yr_Gage
WS 100yr_Gage
Crit 100yr_Gage
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
104
102
100
98
96
94
92
90
88
0
50
100
150
200
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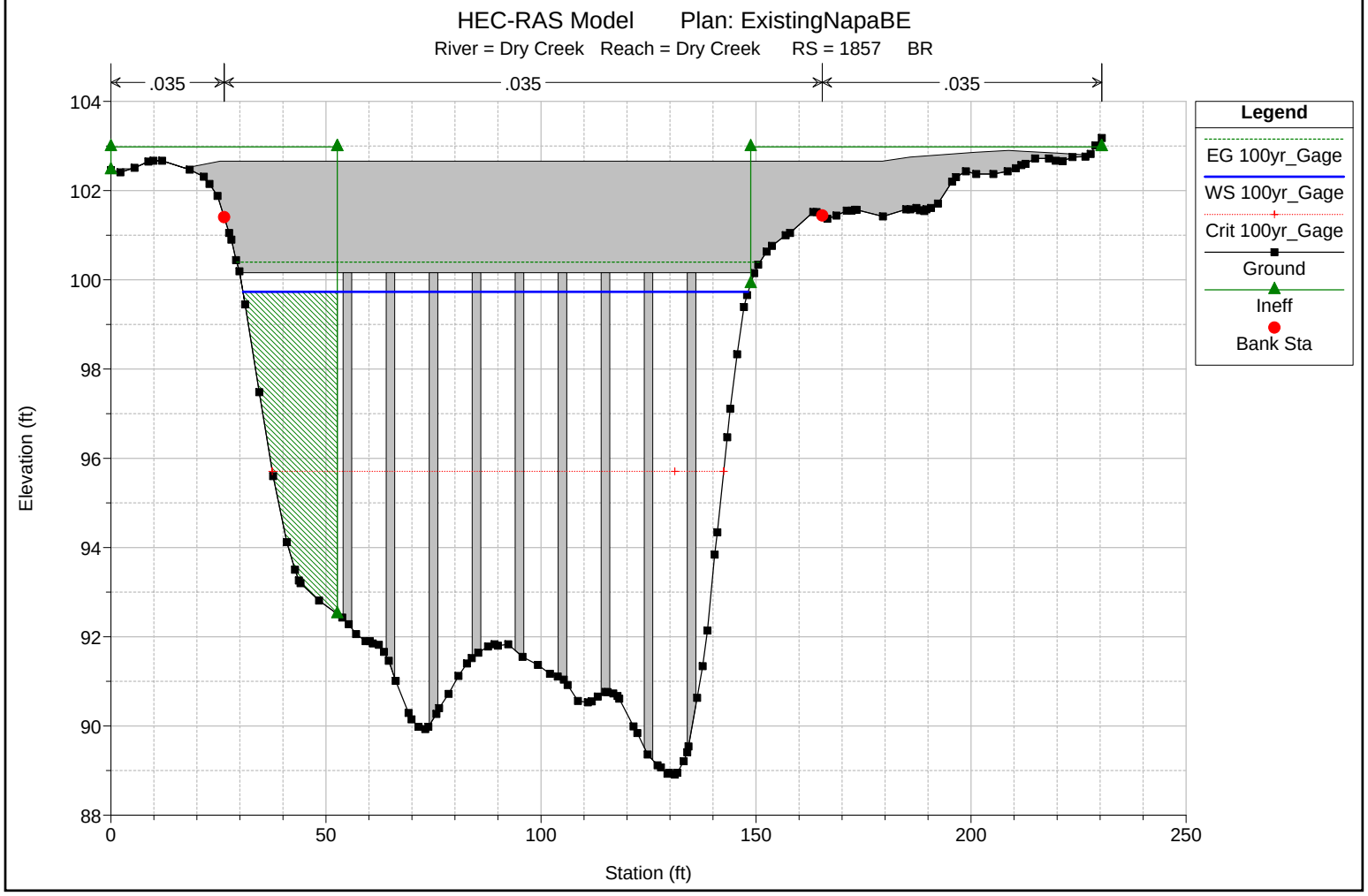
HEC-RAS Model Plan: ExistingNapaBE
River = Dry Creek Reach = Dry Creek RS = 1857 BR
.035
.035
.035
Legend
EG 100yr_Gage
WS 100yr_Gage
Crit 100yr_Gage
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
104
102
100
98
96
94
92
90
88
0
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100
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200
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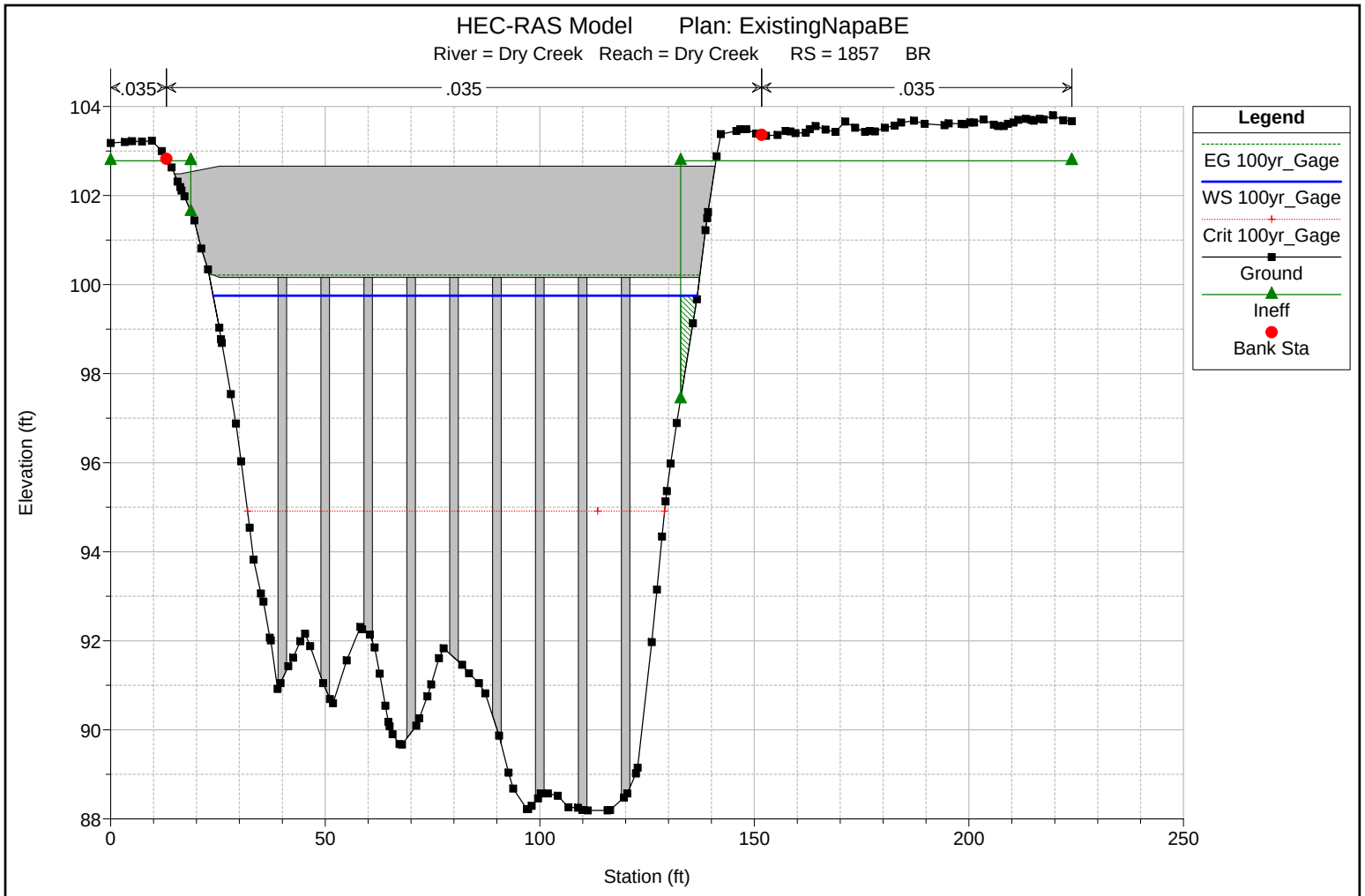
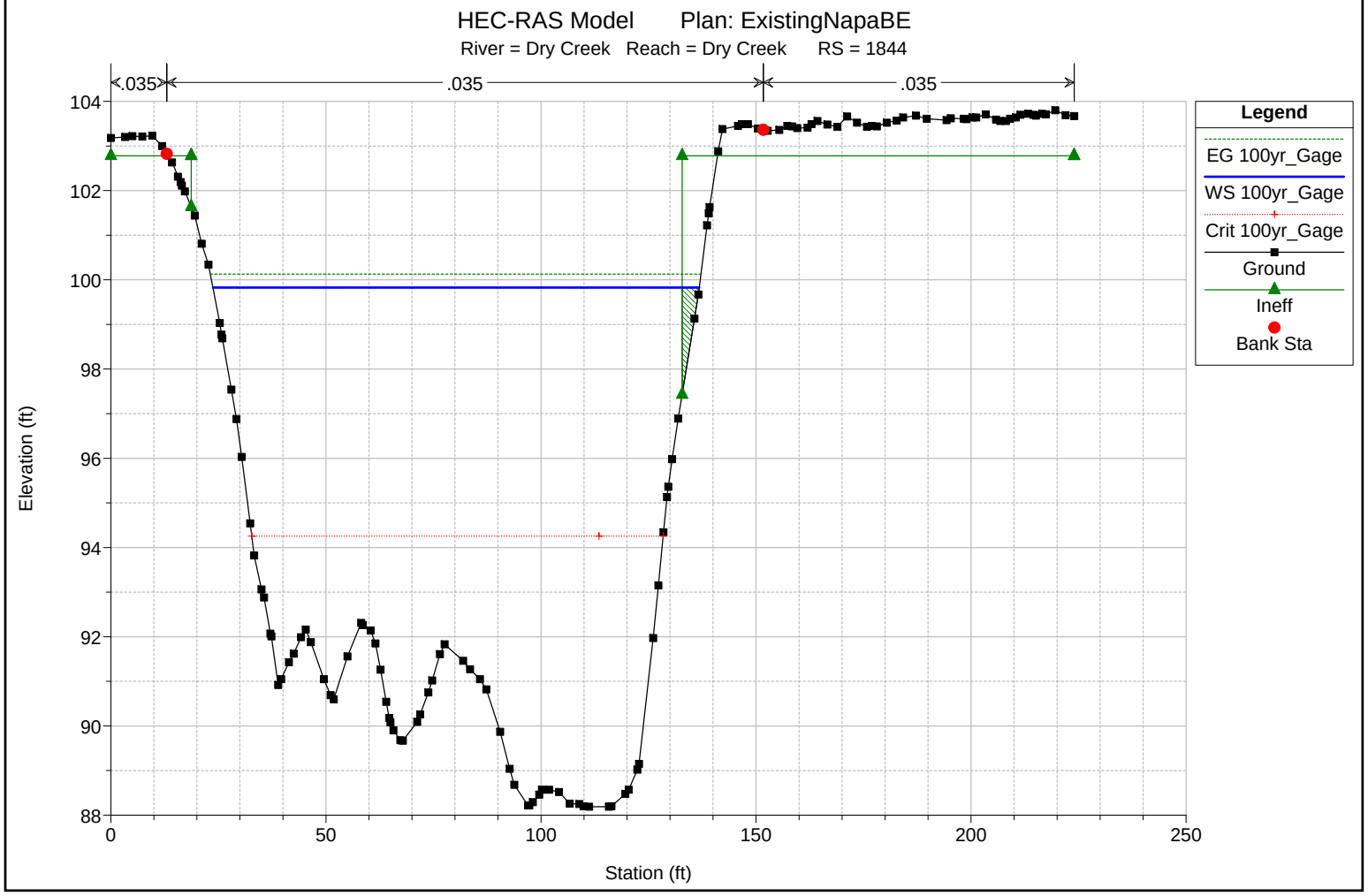
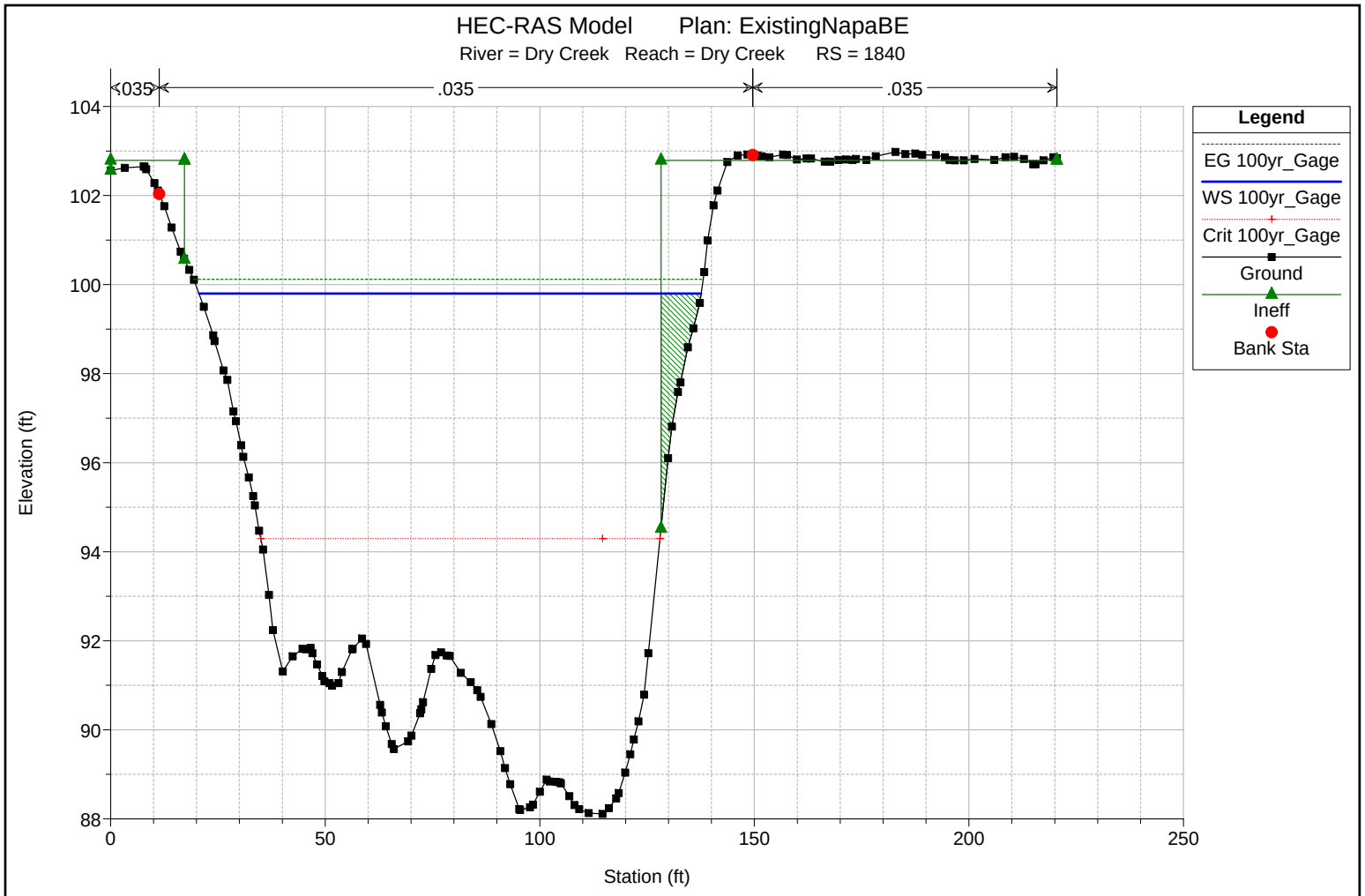
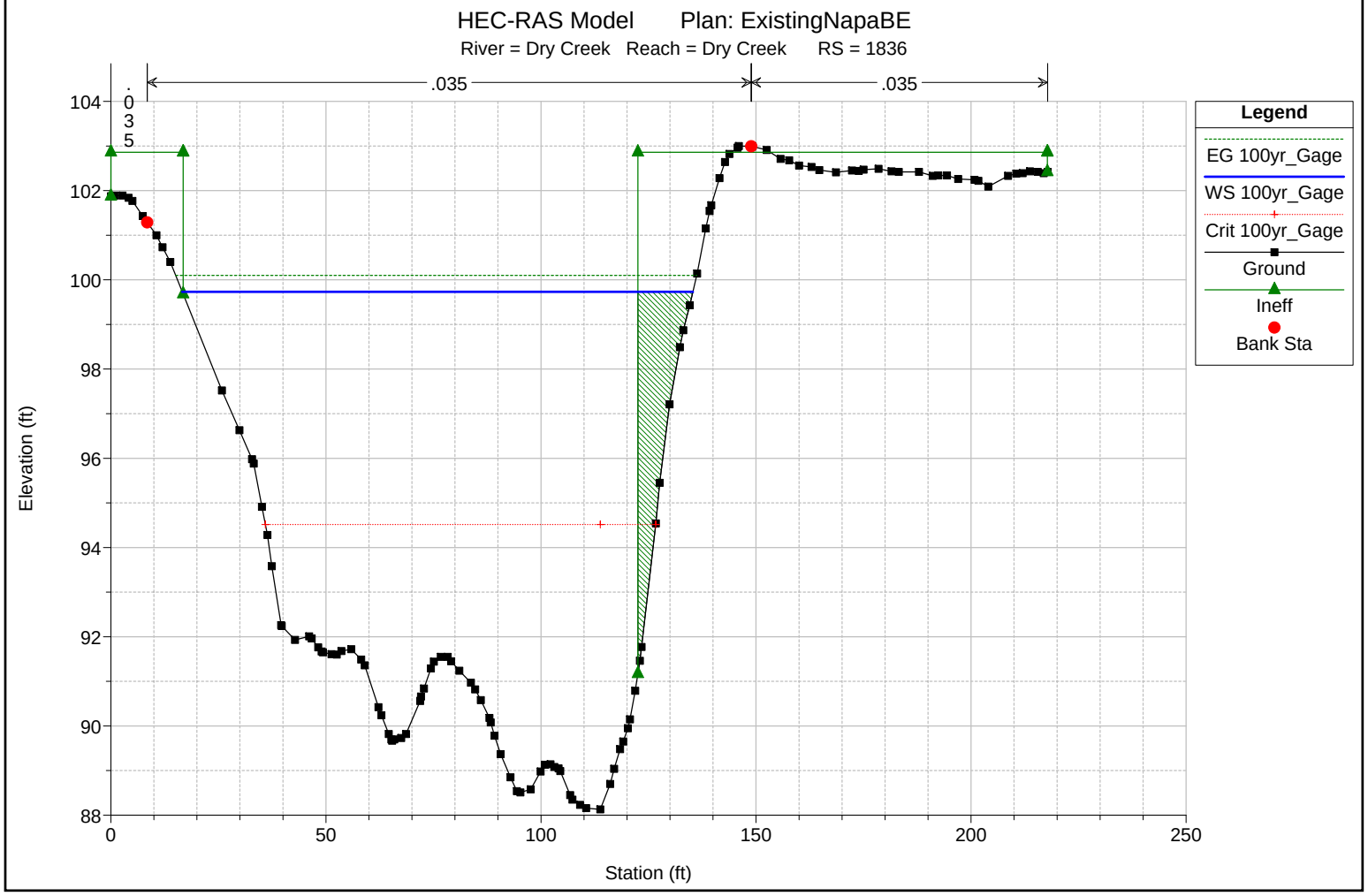
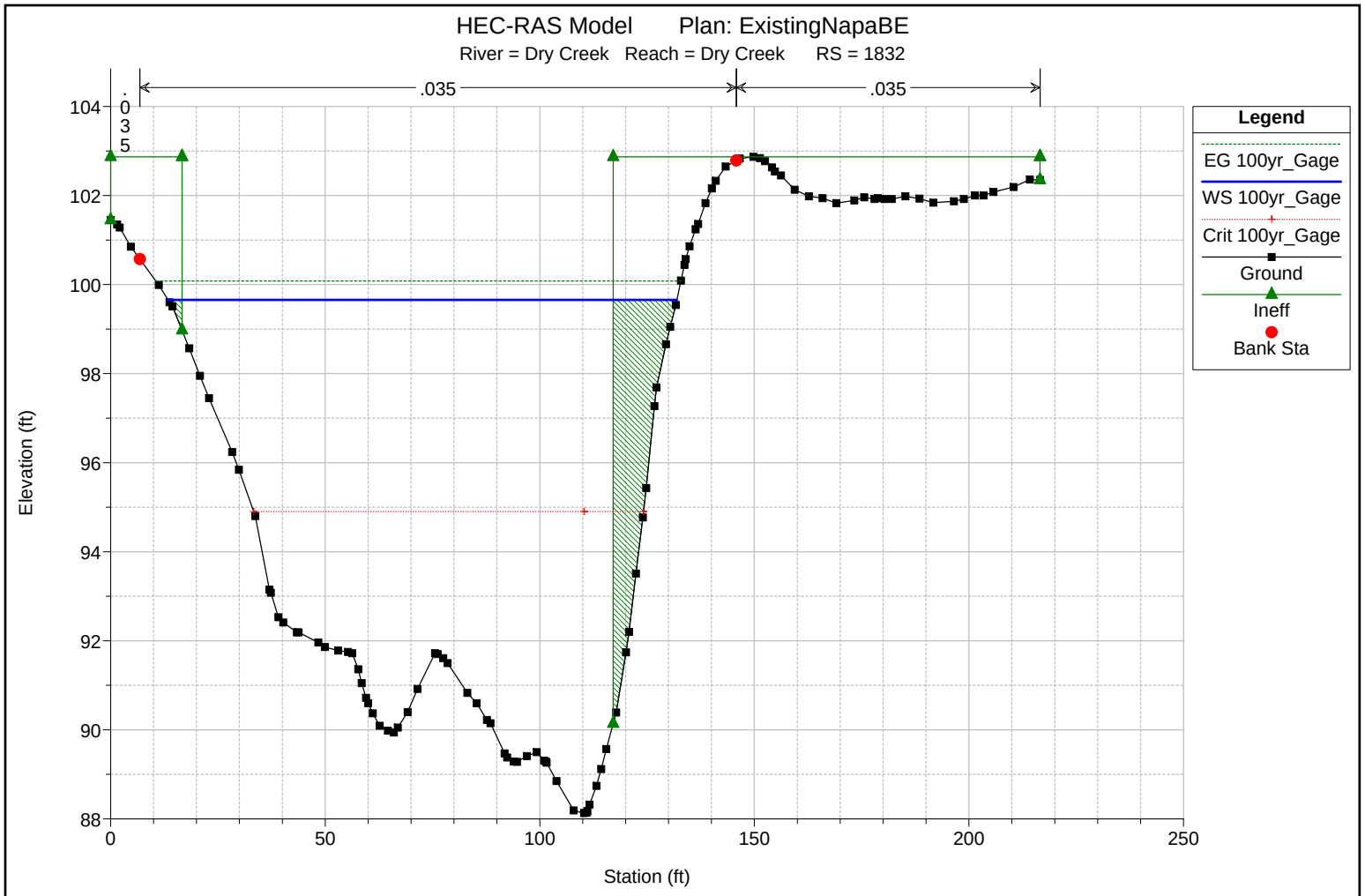
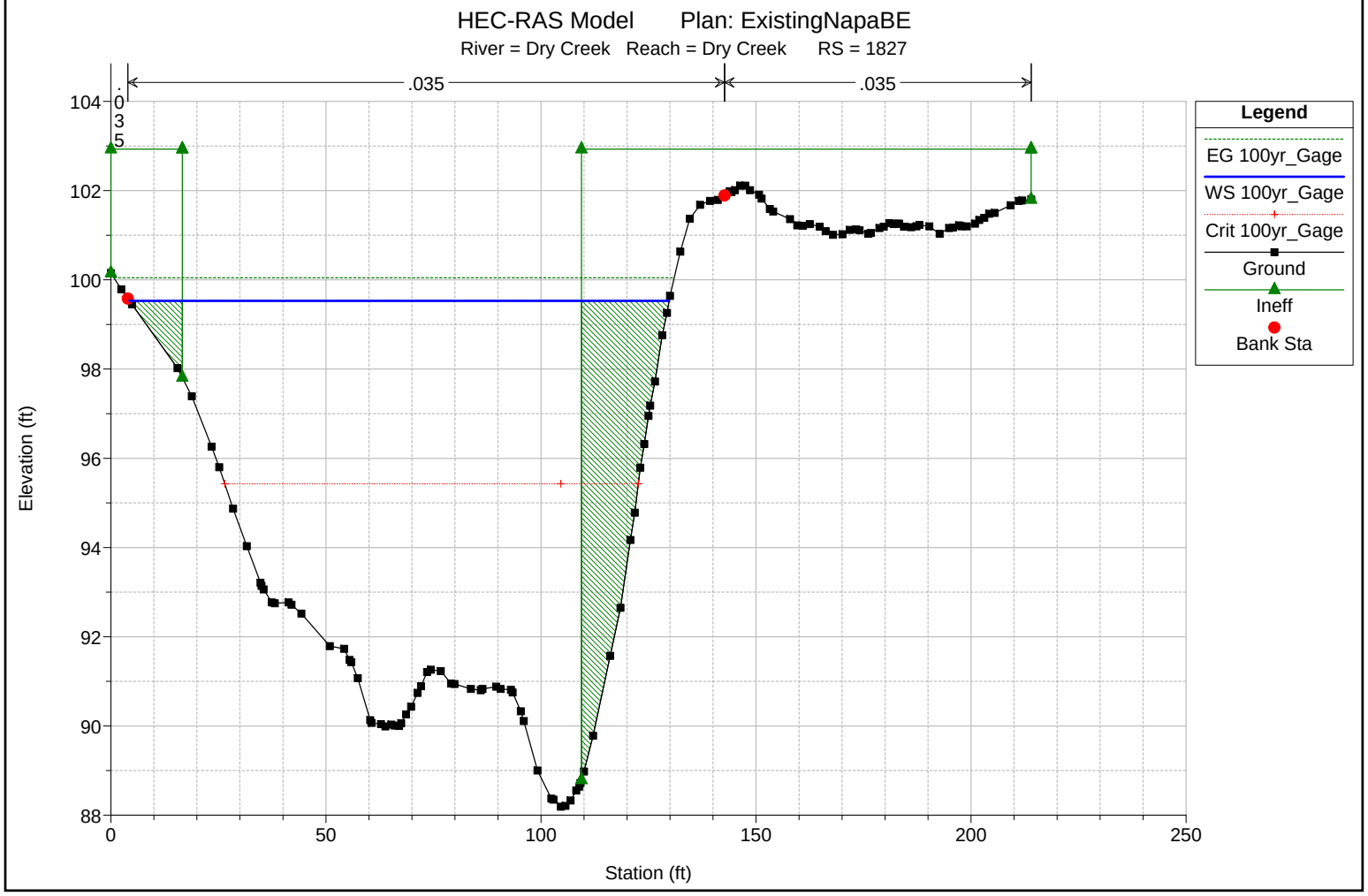

HEC-RAS Model Plan: ExistingNapaBE
River = Dry Creek Reach = Dry Creek RS = 1857 BR
.035
.035
.035
Legend
EG 100yr_Gage
WS 100yr_Gage
Crit 100yr_Gage
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
104
102
100
98
96
94
92
90
88
0
50
100
150
200
250

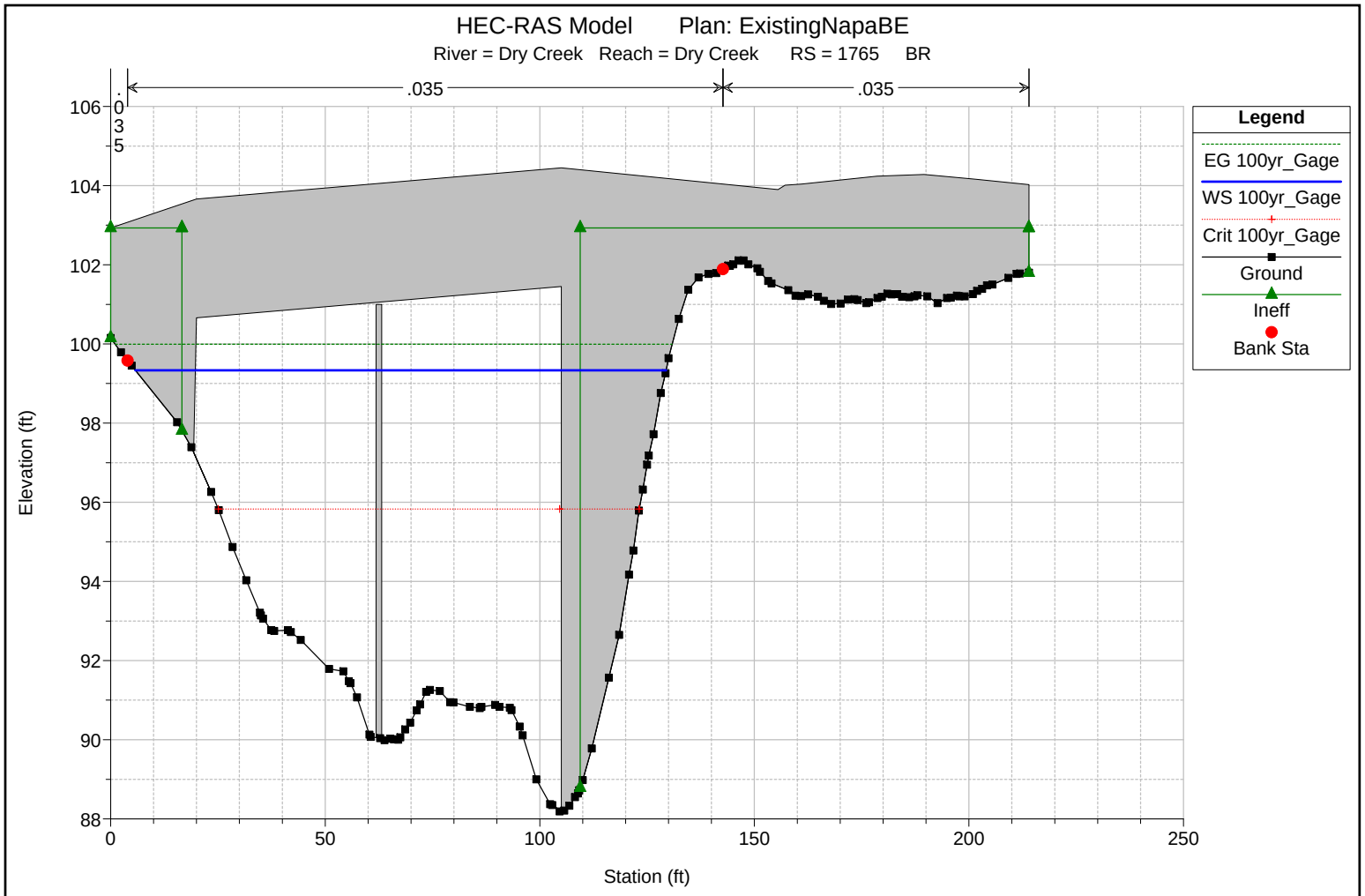

HEC-RAS Model Plan: ExistingNapaBE
River = Dry Creek Reach = Dry Creek RS = 1844
.035
.035
.035
Legend
EG 100yr_Gage
WS 100yr_Gage
Crit 100yr_Gage
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
104
102
100
98
96
94
92
90
88
0
50
100
150
200
250

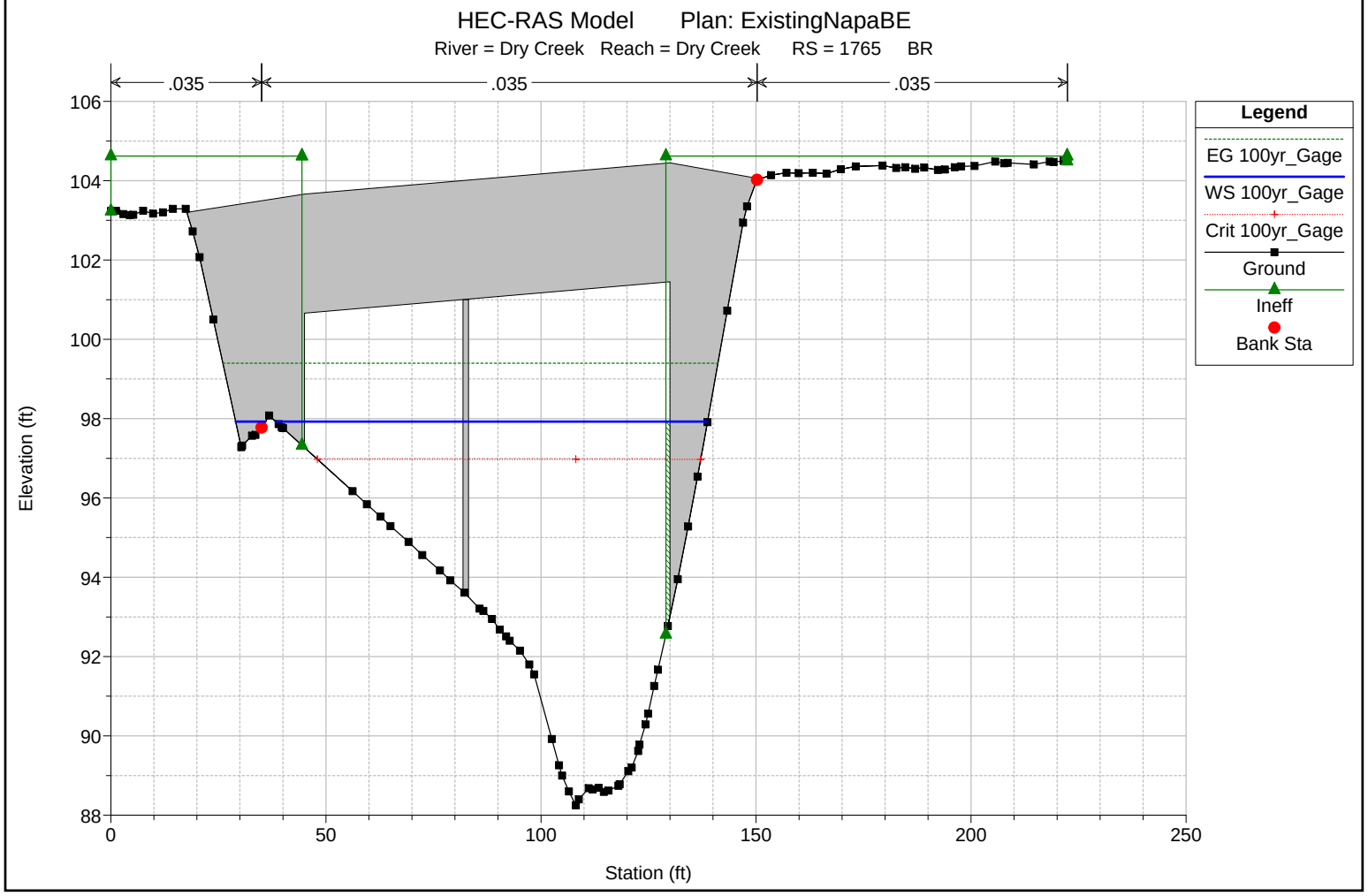

HEC-RAS Model Plan: ExistingNapaBE
River = Dry Creek Reach = Dry Creek RS = 1840
.035
.035
.035
Legend
EG 100yr_Gage
WS 100yr_Gage
Crit 100yr_Gage
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
104
102
100
98
96
94
92
90
88
0
50
100
150
200
250

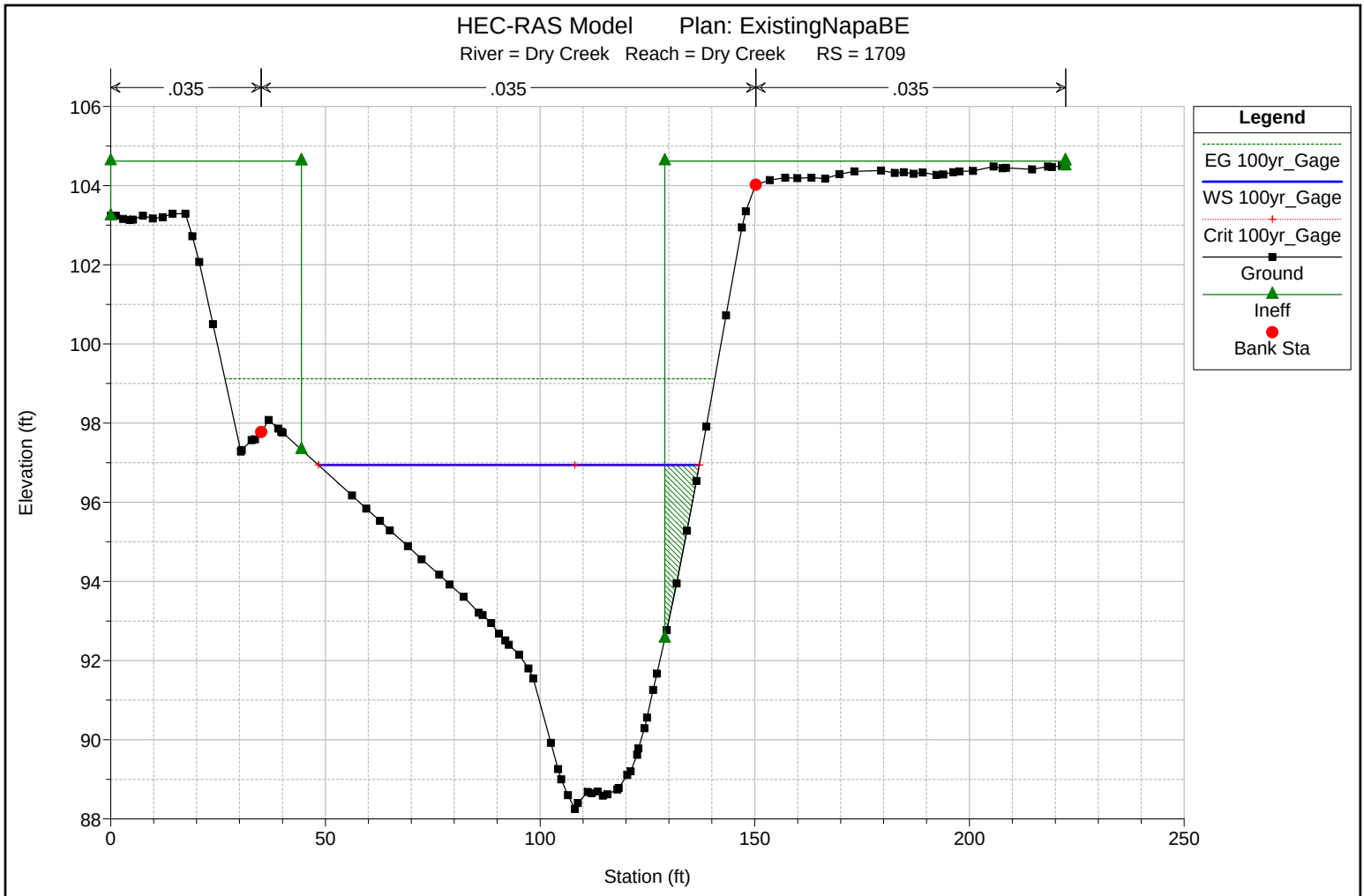

HEC-RAS Model Plan: ExistingNapaBE
River = Dry Creek Reach = Dry Creek RS = 1836
.035
.035
.035
Legend
EG 100yr_Gage
WS 100yr_Gage
Crit 100yr_Gage
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
104
102
100
98
96
94
92
90
88
0
50
100
150
200
250

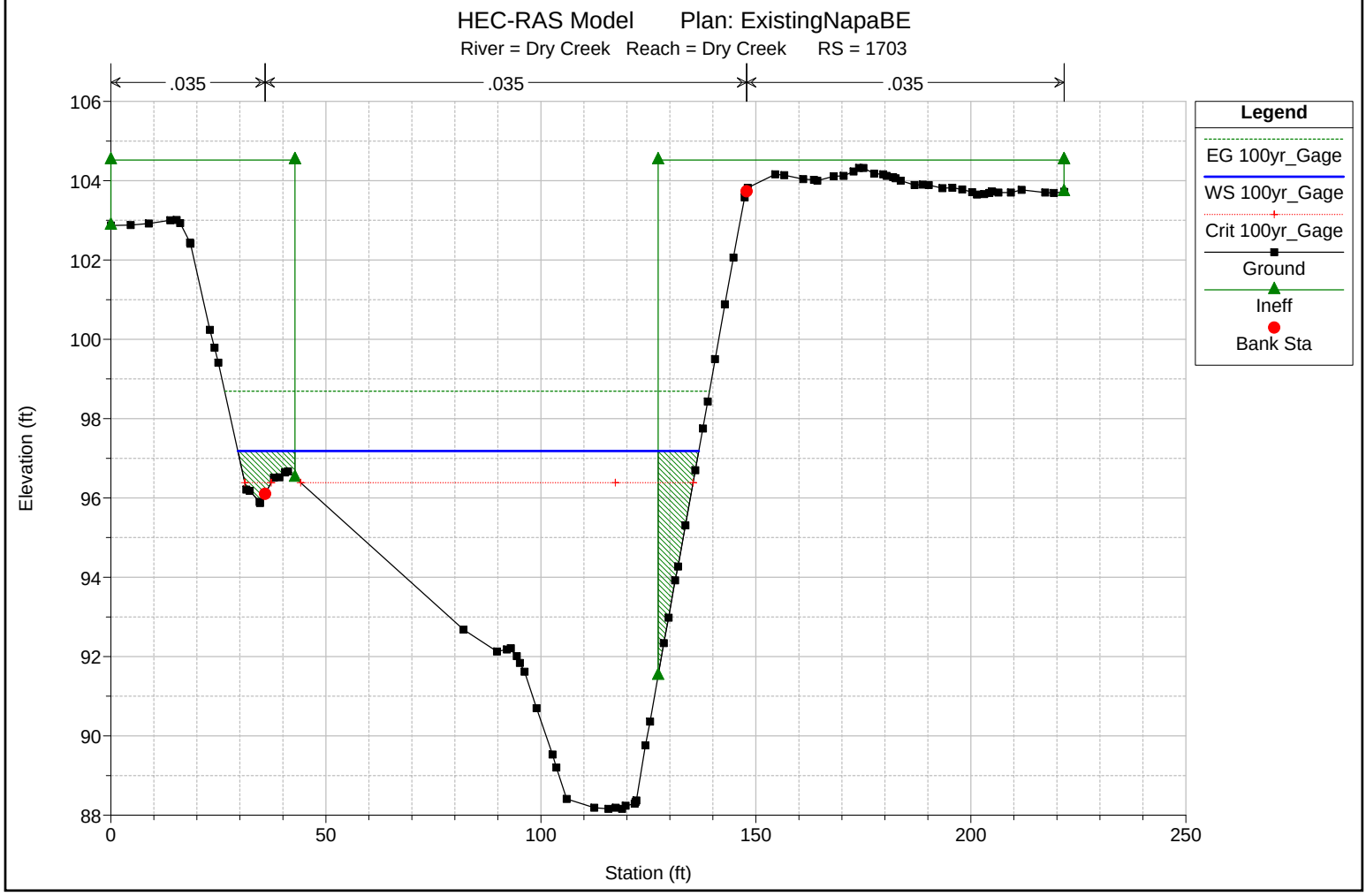

HEC-RAS Model Plan: ExistingNapaBE
River = Dry Creek Reach = Dry Creek RS = 1832
.035
.035
.035
Legend
EG 100yr_Gage
WS 100yr_Gage
Crit 100yr_Gage
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
104
102
100
98
96
94
92
90
88
0
50
100
150
200
250

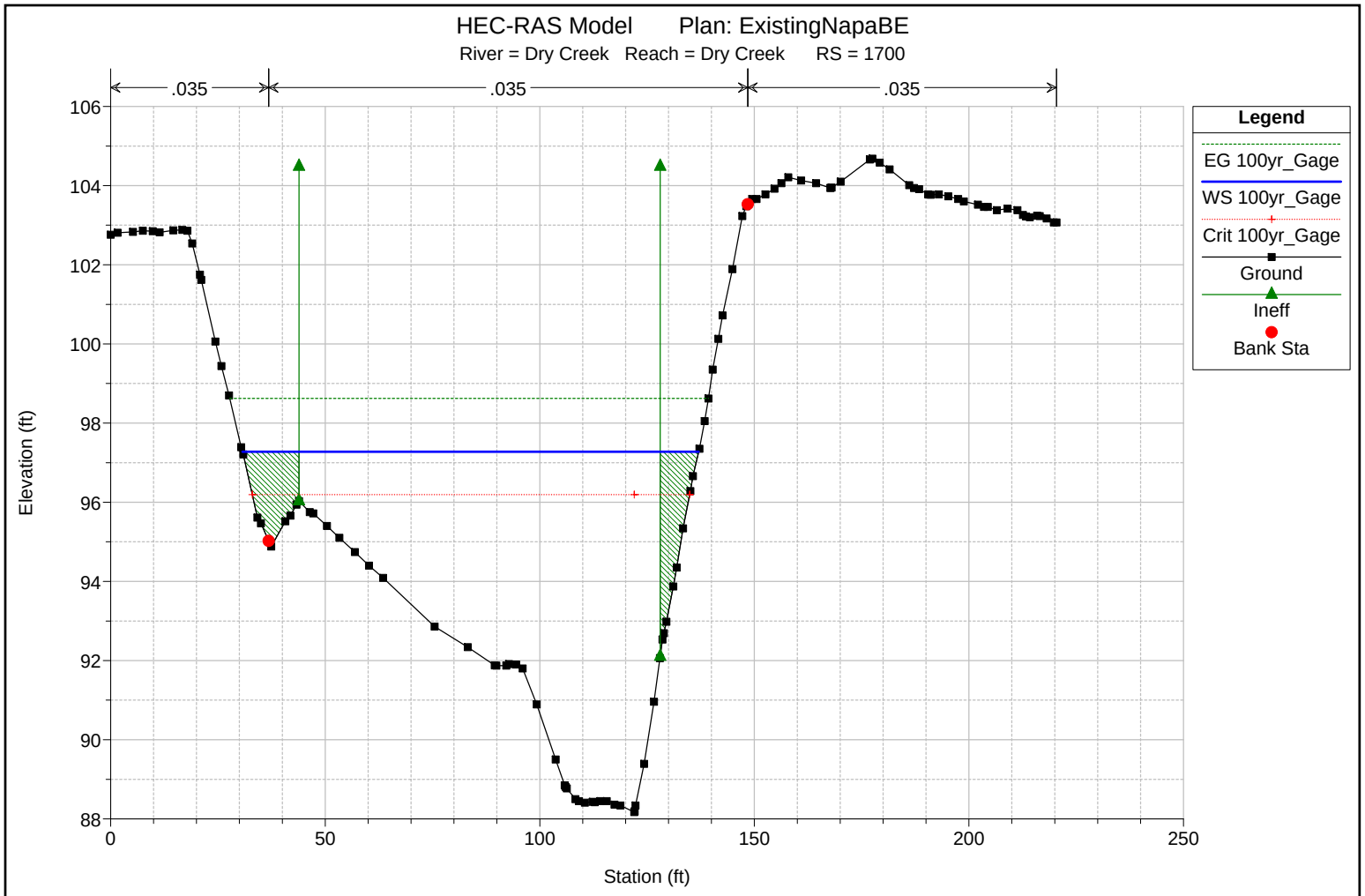

HEC-RAS Model Plan: ExistingNapaBE
River = Dry Creek Reach = Dry Creek RS = 1827
.035
.035
.035
Legend
EG 100yr_Gage
WS 100yr_Gage
Crit 100yr_Gage
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
104
102
100
98
96
94
92
90
88
0
50
100
150
200
250


HEC-RAS Model Plan: ExistingNapaBE
River = Dry Creek Reach = Dry Creek RS = 1765 BR
.035
.035
.035
Legend
EG 100yr_Gage
WS 100yr_Gage
Crit 100yr_Gage
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
106
104
102
100
98
96
94
92
90
88
0
50
100
150
200
250


HEC-RAS Model Plan: ExistingNapaBE
River = Dry Creek Reach = Dry Creek RS = 1765 BR
.035
.035
.035
Legend
EG 100yr_Gage
WS 100yr_Gage
Crit 100yr_Gage
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
106
104
102
100
98
96
94
92
90
88
0
50
100
150
200
250


HEC-RAS Model Plan: ExistingNapaBE
River = Dry Creek Reach = Dry Creek RS = 1709
.035
.035
.035
Legend
EG 100yr_Gage
WS 100yr_Gage
Crit 100yr_Gage
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
106
104
102
100
98
96
94
92
90
88
0
50
100
150
200
250


HEC-RAS Model Plan: ExistingNapaBE
River = Dry Creek Reach = Dry Creek RS = 1703
.035
.035
.035
Legend
EG 100yr_Gage
WS 100yr_Gage
Crit 100yr_Gage
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
106
104
102
100
98
96
94
92
90
88
0
50
100
150
200
250


HEC-RAS Model Plan: ExistingNapaBE
River = Dry Creek Reach = Dry Creek RS = 1700
.035
.035
.035
Legend
EG 100yr_Gage
WS 100yr_Gage
Crit 100yr_Gage
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
106
104
102
100
98
96
94
92
90
88
0
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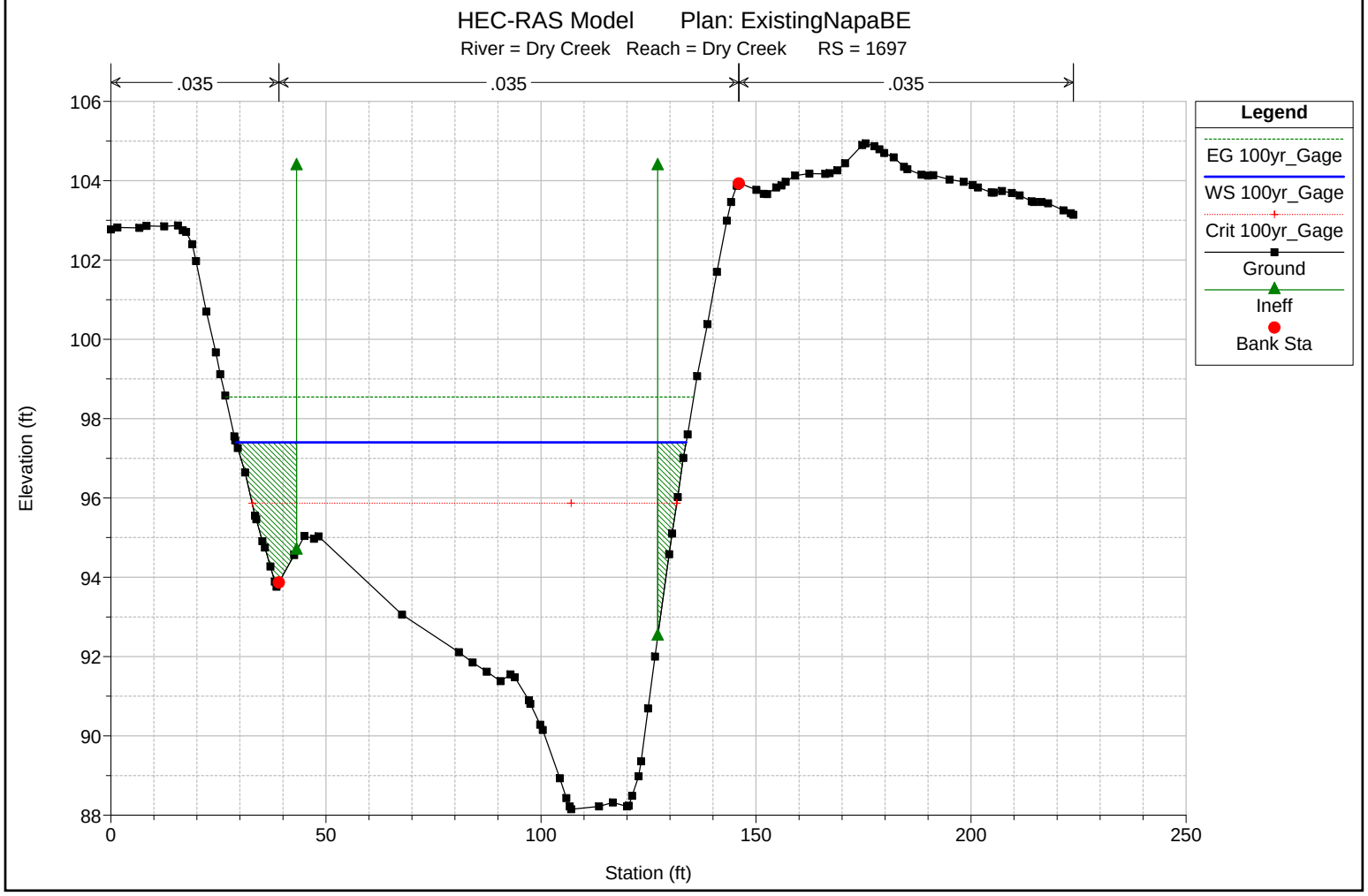
100
150
200
250


HEC-RAS Model Plan: ExistingNapaBE
River = Dry Creek Reach = Dry Creek RS = 1697
.035
.035
.035
Legend
EG 100yr_Gage
WS 100yr_Gage
Crit 100yr_Gage
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
106
104
102
100
98
96
94
92
90
88
0
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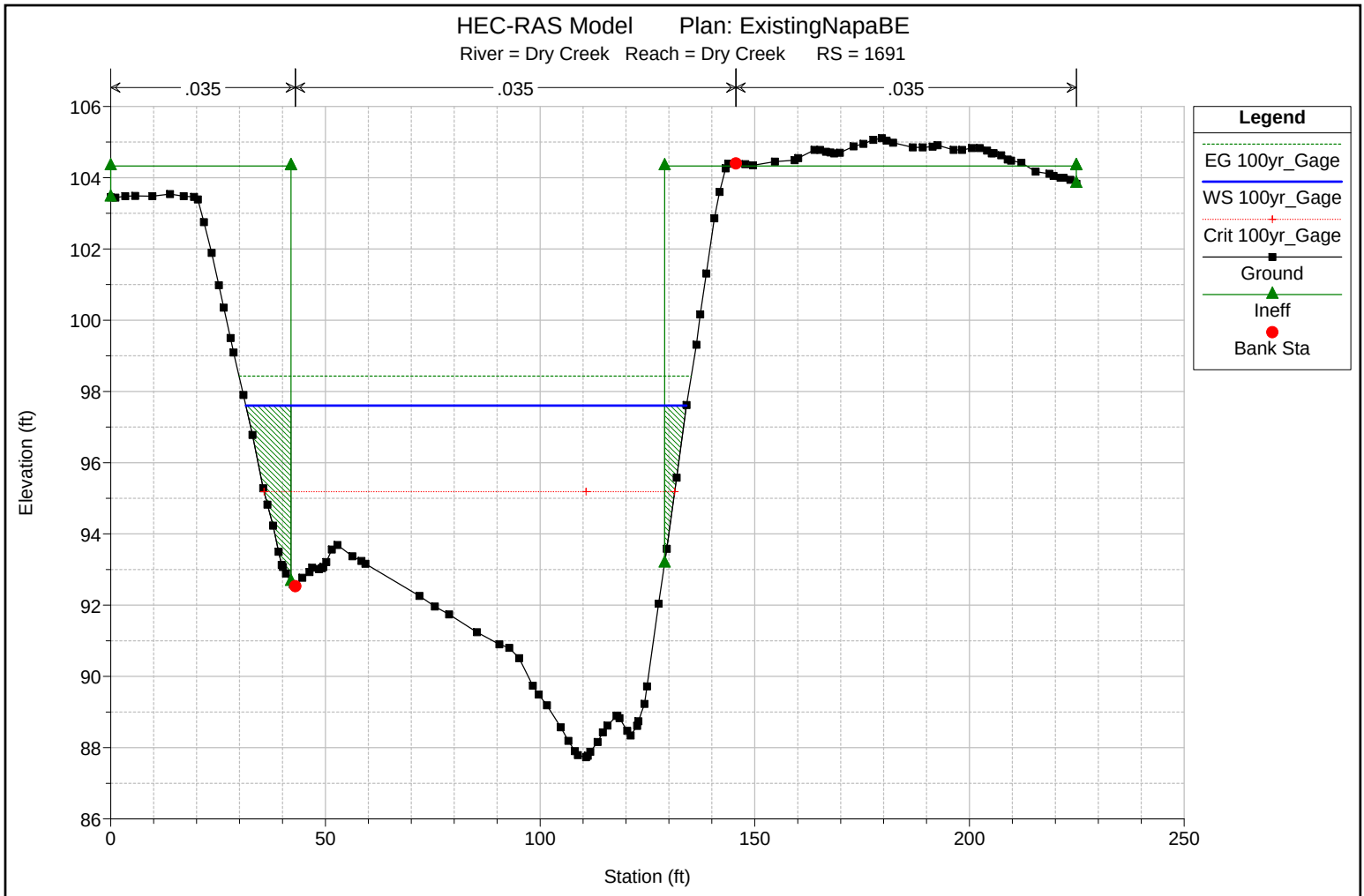
100
150
200
250


HEC-RAS Model Plan: ExistingNapaBE
River = Dry Creek Reach = Dry Creek RS = 1691
.035
.035
.035
Legend
EG 100yr_Gage
WS 100yr_Gage
Crit 100yr_Gage
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
106
104
102
100
98
96
94
92
90
88
86
0
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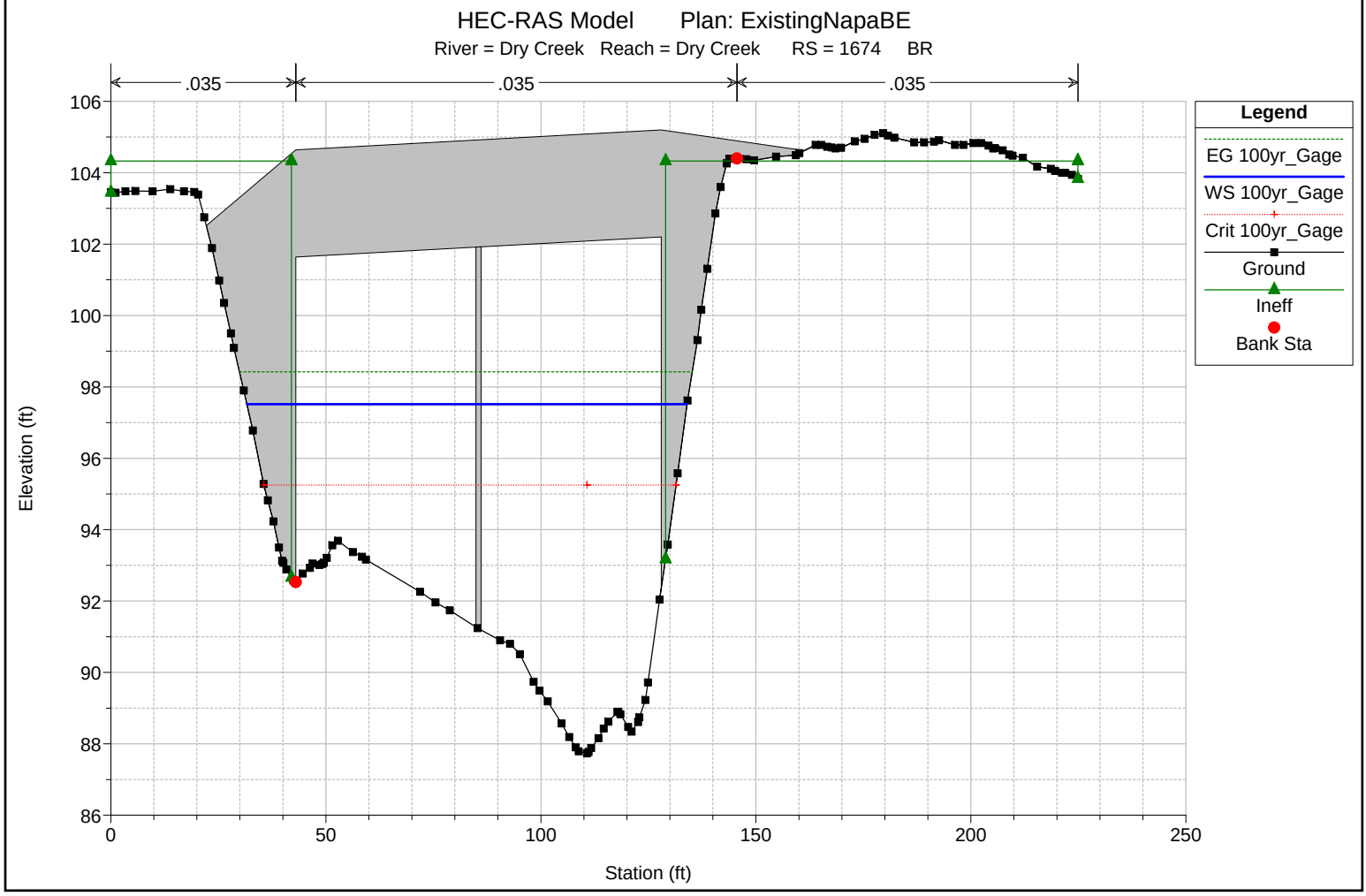
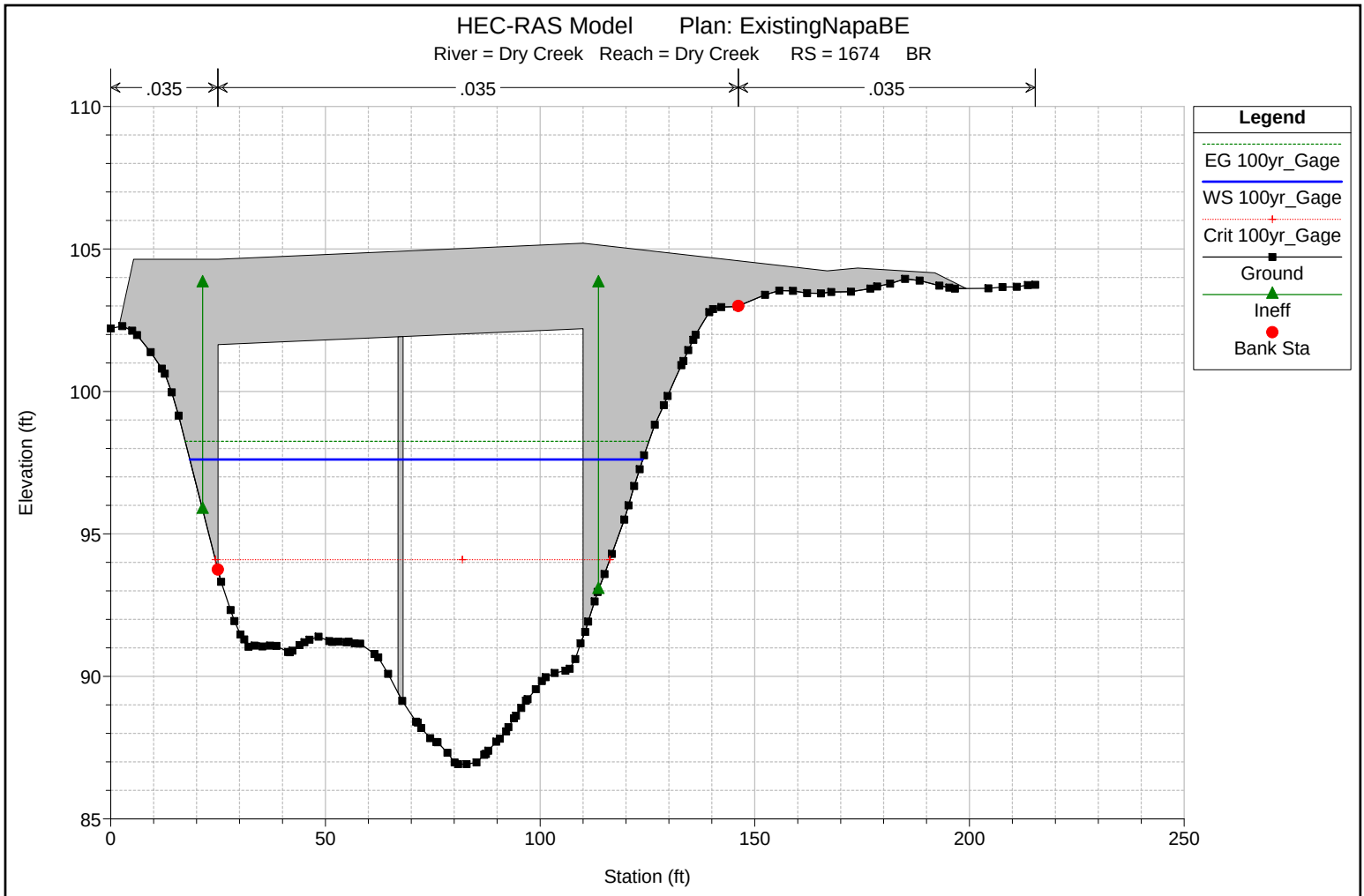
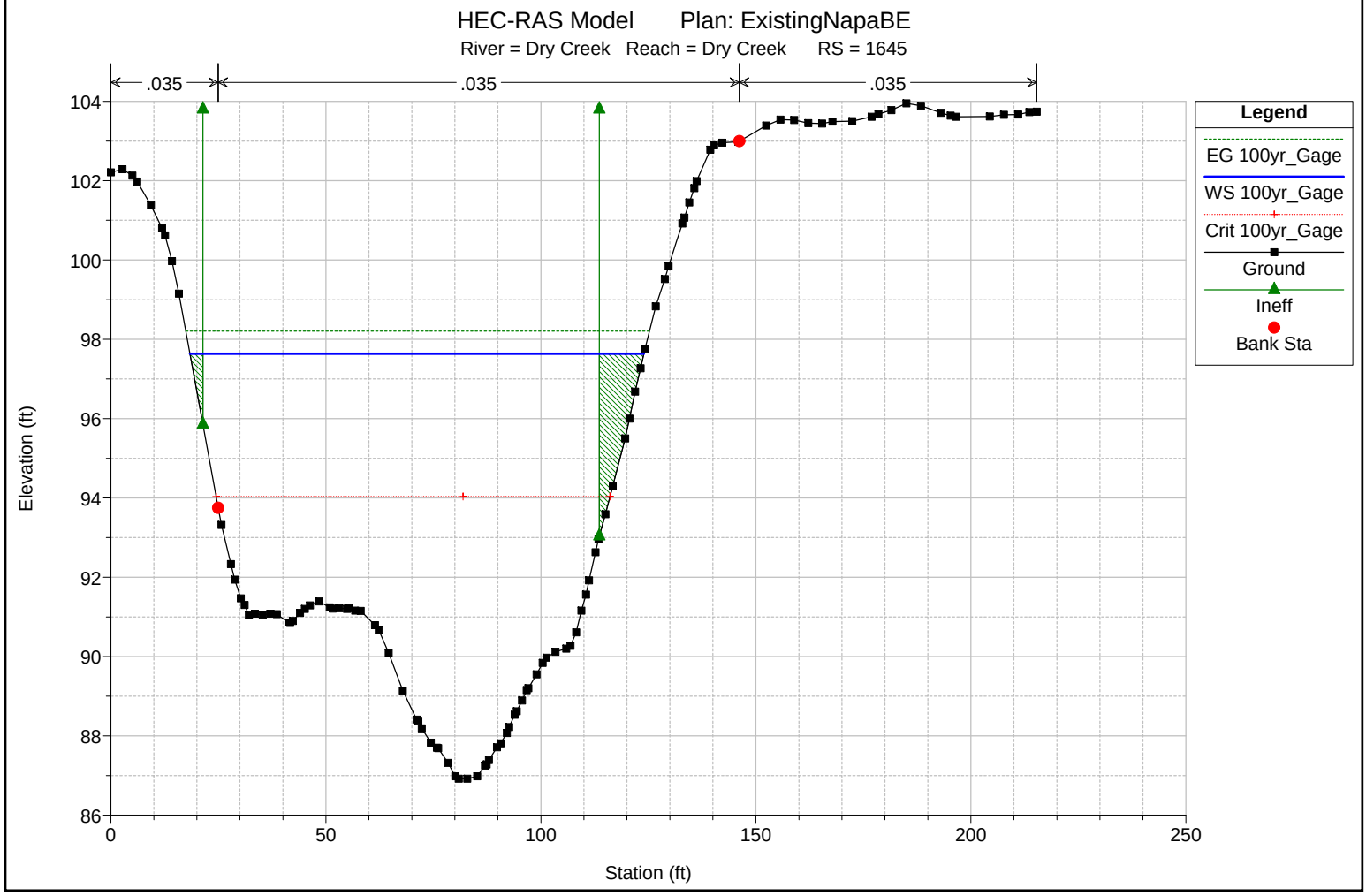
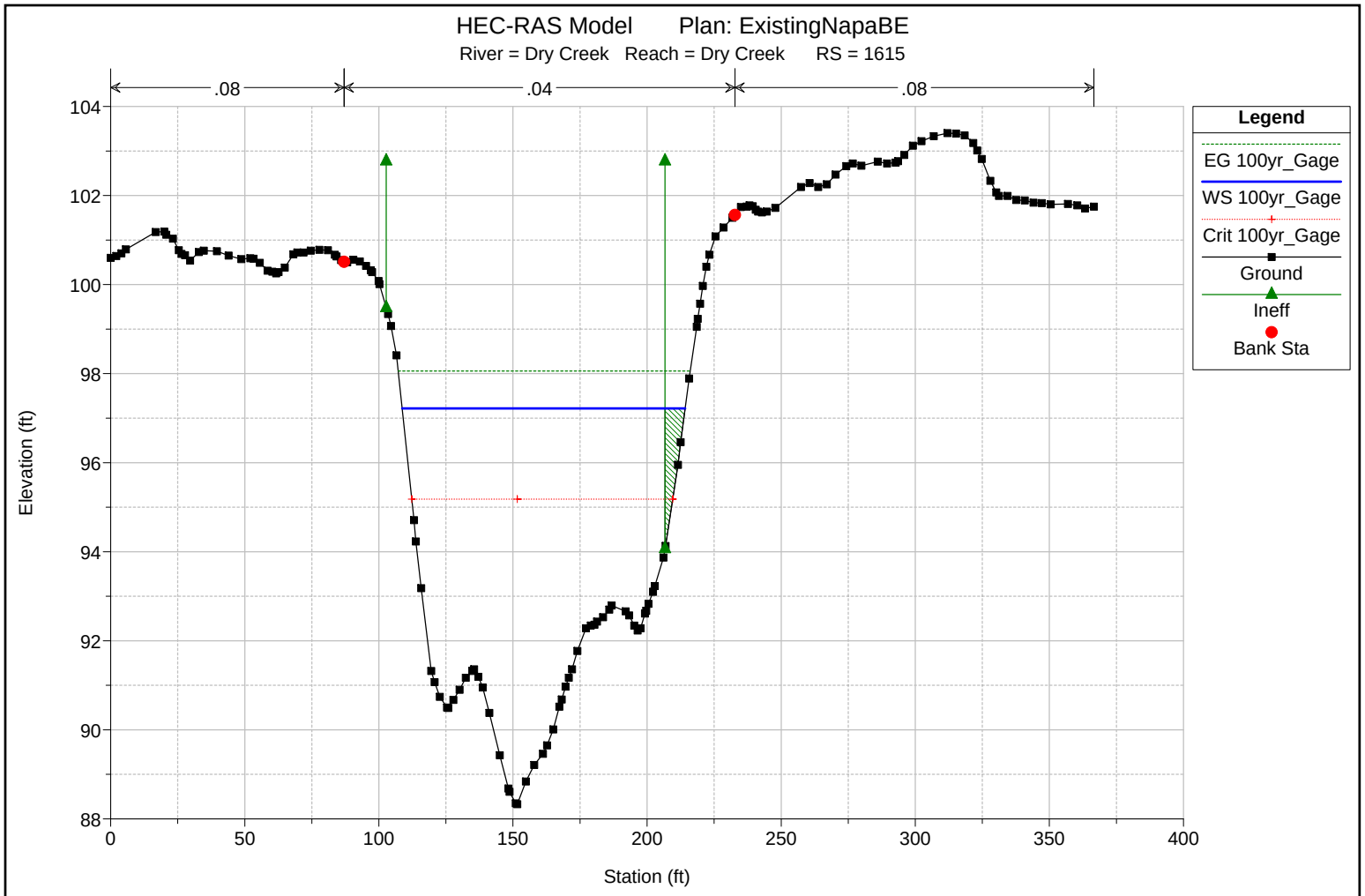
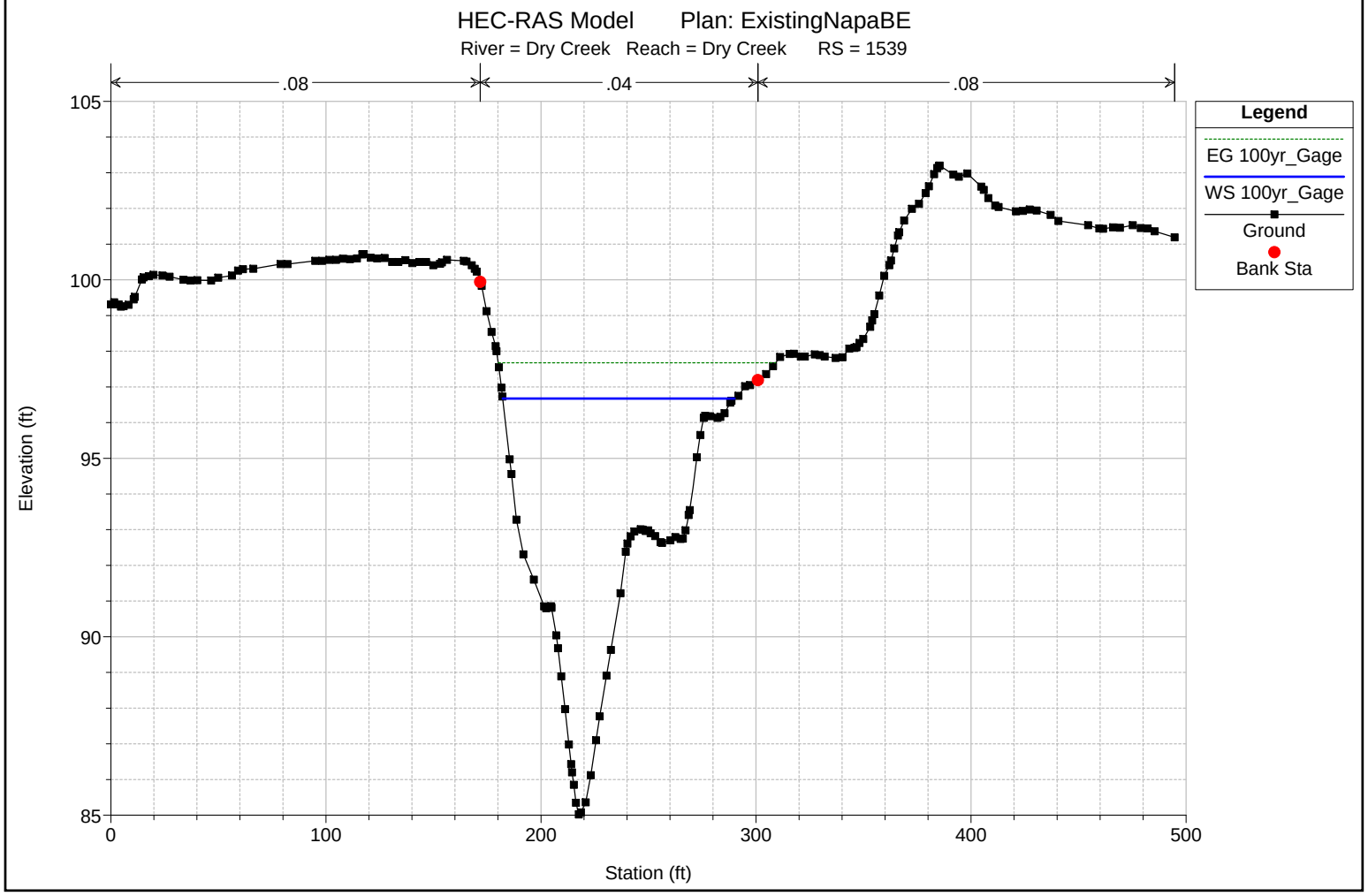
100
150
200
250

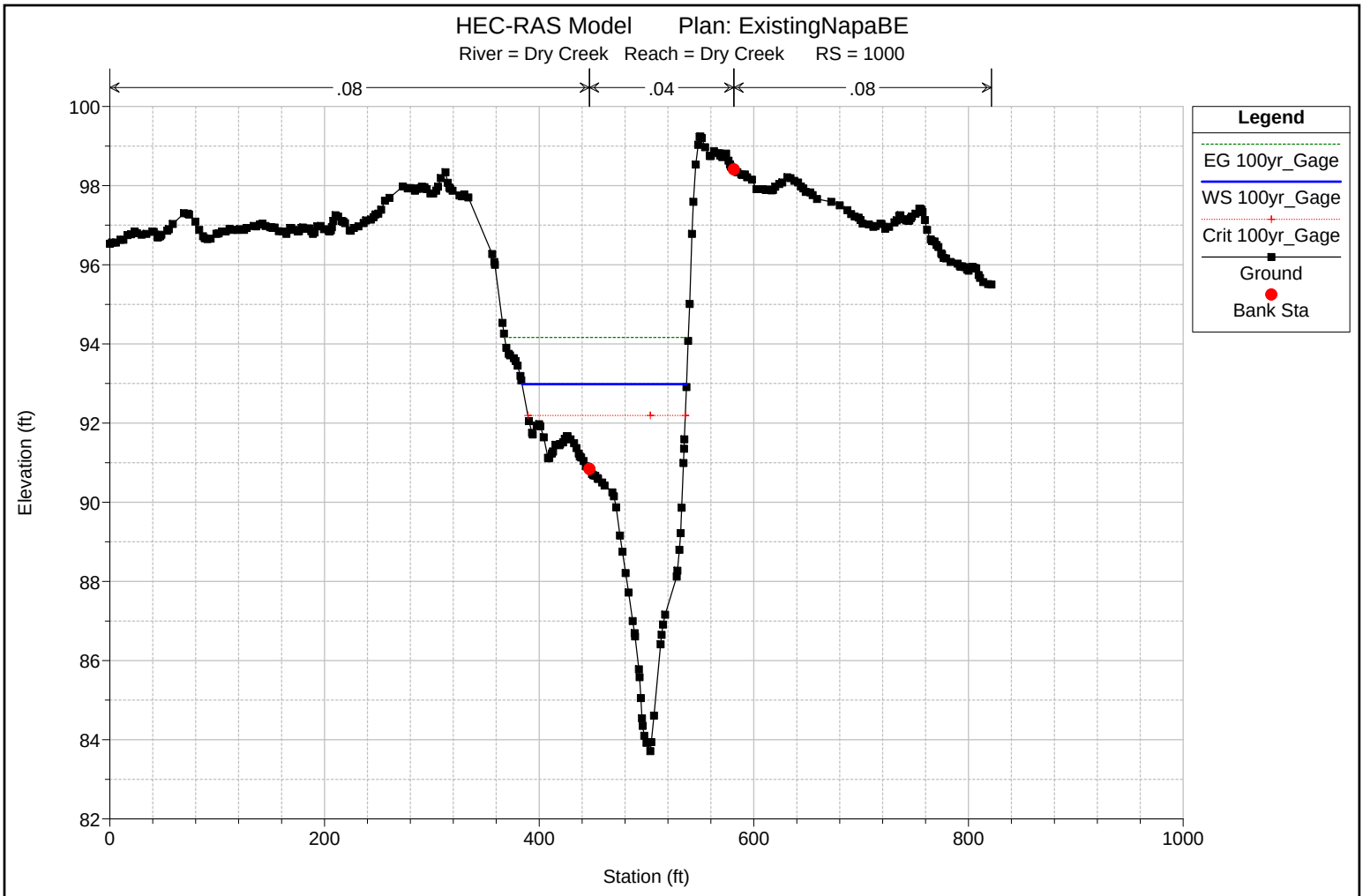

HEC-RAS Model Plan: ExistingNapaBE
River = Dry Creek Reach = Dry Creek RS = 1674 BR
.035
.035
.035
Legend
EG 100yr_Gage
WS 100yr_Gage
Crit 100yr_Gage
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
106
104
102
100
98
96
94
92
90
88
86
0
50
100
150
200
250


HEC-RAS Model Plan: ExistingNapaBE
River = Dry Creek Reach = Dry Creek RS = 1674 BR
.035
.035
.035
Legend
EG 100yr_Gage
WS 100yr_Gage
Crit 100yr_Gage
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
110
105
100
95
90
85
0
50
100
150
200
250

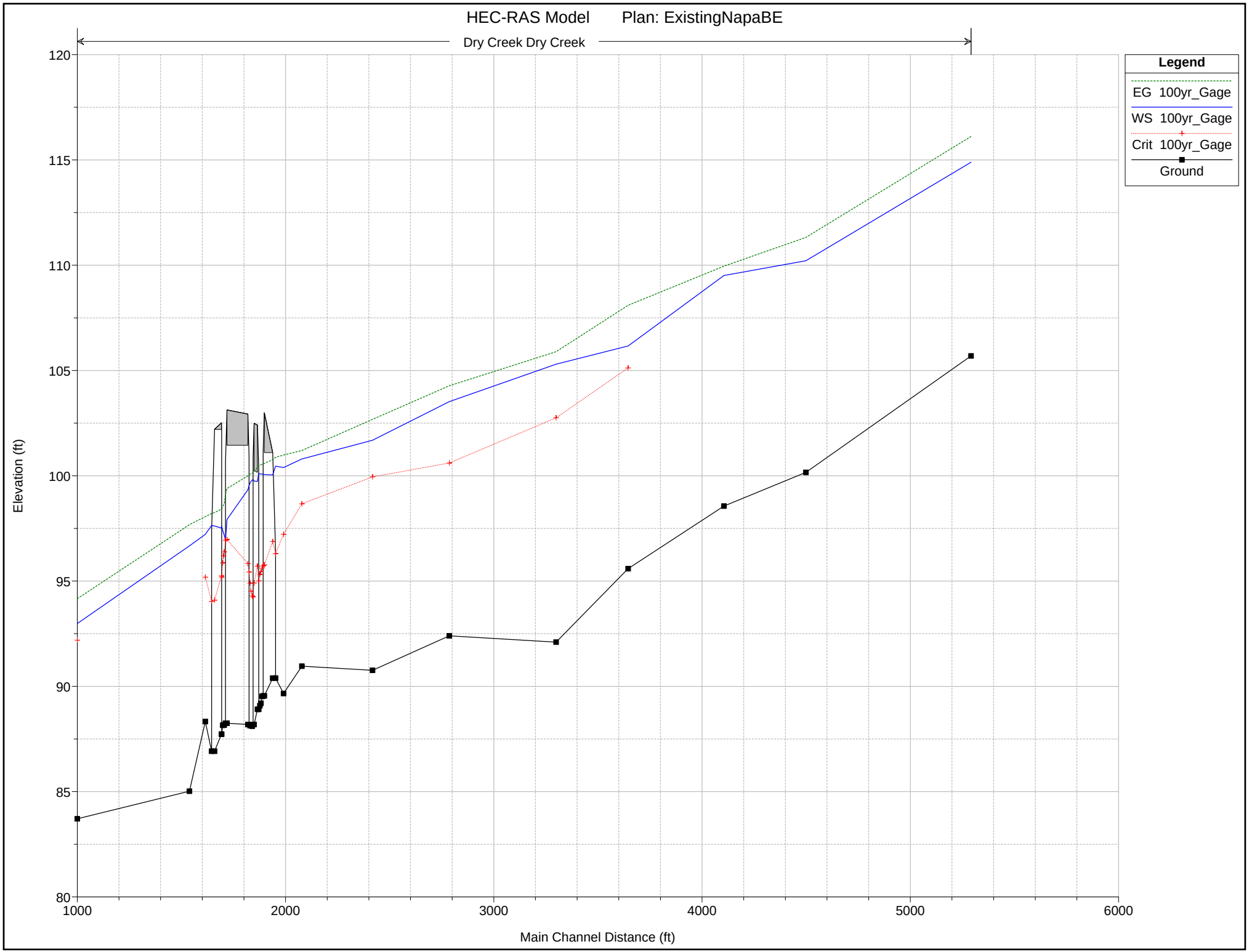

HEC-RAS Model Plan: ExistingNapaBE
River = Dry Creek Reach = Dry Creek RS = 1645
.035
.035
.035
Legend
EG 100yr_Gage
WS 100yr_Gage
Crit 100yr_Gage
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
104
102
100
98
96
94
92
90
88
86
0
50
100
150
200
250


HEC-RAS Model Plan: ExistingNapaBE
River = Dry Creek Reach = Dry Creek RS = 1615
.08
.04
.08
Legend
EG 100yr_Gage
WS 100yr_Gage
Crit 100yr_Gage
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)
104
102
100
98
96
94
92
90
88
0
50
100
150
200
250
300
350
400


HEC-RAS Model Plan: ExistingNapaBE
River = Dry Creek Reach = Dry Creek RS = 1539
.08
.04
.08
Legend
EG 100yr_Gage
WS 100yr_Gage
Ground
Bank Sta
Elevation (ft)
Station (ft)
105
100
95
90
85
0
100
200
300
400
500


HEC-RAS Model Plan: ExistingNapaBE
River = Dry Creek Reach = Dry Creek RS = 1000
.08
.04
.08
Legend
EG 100yr_Gage
WS 100yr_Gage
Crit 100yr_Gage
Ground
Bank Sta
Elevation (ft)
Station (ft)
100
98
96
94
92
90
88
86
84
82
0
200
400
600
800
1000

Attachment 6: HEC-RAS Stream Profile


HEC-RAS Model Plan: ExistingNapaBE
Dry Creek Dry Creek
Legend
EG 100yr_Gage
WS 100yr_Gage
Crit 100yr_Gage
Ground
Elevation (ft)
120
115
110
105
100
95
90
85
80
1000
2000
3000
4000
5000
6000
Main Channel Distance (ft)