



SEBASTIAN RIVER IMPROVEMENT DISTRICT

INDIAN RIVER COUNTY

**APRIL 12, 2017
WORKSHOP MEETING
10:00 A.M.**

**Special District Services, Inc.
The Oaks Center
2501A Burns Road
Palm Beach Gardens, FL 33410**

www.sridfl.org
561.630.4922 Telephone
877.SDS.4922 Toll Free
561.630.4923 Facsimile

AGENDA
SEBASTIAN RIVER IMPROVEMENT DISTRICT
1555 Indian River Boulevard, Suite B-125
Vero Beach, Florida 32960
BOARD OF SUPERVISORS
WORKSHOP MEETING

April 12, 2017

10:00 a.m.

- A. Call to Order
- B. Proof of Publication
- C. Establish Quorum
- D. Discussion Regarding CR510
- E. Board Members Comments
- F. Adjourn

Treasure Coast Newspapers

TCPALM

Indian River Press Journal
1801 U.S. 1, Vero Beach, FL 32960
AFFIDAVIT OF PUBLICATION

STATE OF FLORIDA
COUNTY OF INDIAN RIVER

Before the undersigned authority personally appeared, Sherri Cipriani, who on oath says that she is Classified Inside Sales Manager of the Indian River Press Journal, a daily newspaper published at Vero Beach in Indian River County, Florida: that the attached copy of advertisement was published in the Indian River Press Journal in the following issues below. Affiant further says that the said Indian River Press Journal is a newspaper published in Vero Beach in said Indian River County, Florida, and that said newspaper has heretofore been continuously published in said Indian River County, Florida, daily and distributed in Indian River County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that she has neither paid or promised any person, firm or corporation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper. The Indian River Press Journal has been entered as Periodical Matter at the Post Offices in Vero Beach, Indian River County, Florida and has been for a period of one year next preceding the first publication of the attached copy of advertisement.

Customer	Ad Number	Copyline	PO #
432751 - SPECIAL DISTRICT SERVICES INC	1538191	Meeting: 4/12/17: Workshop	Meeting: 4/12/17

Pub Dates
March 31, 2017

Sworn to and subscribed before me this day of, March 30, 2017, by

_____, who is

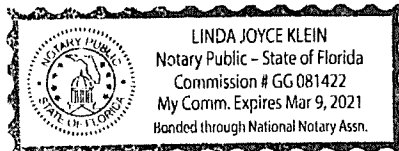
Sherri Cipriani

(X) personally known to me or

() who has produced _____ as identification.

Linda Joyce Klein

Notary Public



Ad Number: 1538191

Insertion Number: N/A

Size: 1 Col x 73 ag

Color Type: N/A

Advertiser: Special District Services of Capri...

Agency: N/A

Section-Page-Zone(s): E-6-All

Description: Meeting: 4/12/17: Workshop

Notice To Creditors

5, 2017 and is pending in the Circuit Court for St. Lucie County, Florida, Probate Division, the address of which is 201 S. Indian River Drive, Fort Pierce, FL 34950. The names and addresses of the personal representative and the personal representative's attorney are set forth below.

All creditors of the decedent and other persons having claims or demands against decedent's estate, on whom a copy of this notice is required to be served must file their claims with this court WITHIN THE LATER OF 3 MONTHS AFTER THE TIME OF THE FIRST PUBLICATION OF THIS NOTICE OR 30 DAYS AFTER THE DATE OF SERVICE OF A COPY OF THIS NOTICE ON THEM.

All claims not filed WITHIN THE TIME PERIODS SET FORTH IN SECTION 733.702 OF THE FLORIDA PROBATE CODE WILL BE FOREVER BARRED.

NOTWITHSTANDING THE TIME PERIODS SET FORTH ABOVE, ANY CLAIM FILED TWO (2) YEARS OR MORE AFTER THE DECEDENT'S DATE OF DEATH IS BARRED.

The date of the first publication of this Notice is March 31, 2017.

Personal Representative: Karla Sellers
c/o John Joseph McHugh, Jr.
Vero Beach, Florida 32960
Attorney for Personal Representative: John Joseph McHugh, Jr., Esquire
Florida Bar No. 444626
John Joseph McHugh, Jr., Esquire
2127 10th Avenue
Vero Beach, Florida 32960
Telephone: 772-778-1100
Pub: March 31, April 7, 2017
TCN 1550411

Public Notices

SEBASTIAN RIVER IMPROVEMENT DISTRICT NOTICE OF WORKSHOP

NOTICE IS HEREBY GIVEN that the Sebastian River Improvement District ("SRID") will hold a Workshop at the offices of Samuel L. Block, P.A. located at 1555 Indian River Boulevard, Suite 8-125, Vero Beach, Florida 32950, at 10:00 a.m. on April 12, 2017. The purpose of the Workshop is to discuss County Road 510. The Workshop will be open to the public and will be conducted in accordance with the provisions of Florida law. A copy of the Agenda for the workshop may be obtained from the District's website or by contacting the District Manager at (888) 636-4922 and/or toll free at 1-877-737-4922.

From time to time one or two Supervisors may participate by telephone; therefore, a speaker telephone will be present as required, at the workshop location so that Supervisors may be fully informed of the discussions taking place. Said meeting may be continued as found necessary to a time and place specified on the record.

If any person decides to appeal any decision made with respect to any matter considered at this workshop, such person will need a record of the proceedings and such person may need to insure that a verbatim record of the proceedings is made at his or her own expense and which record includes the testimony and evidence on which the appeal is based. In accordance with the provisions of the Americans with Disabilities Act, any person requiring special accommodations or an interpreter to participate at this workshop should contact the District Manager at (888) 636-4922 and/or toll free at 1-877-737-4922 at least seven (7) days prior to the date of the meeting. Meetings/Workshops may be cancelled from time to time without advertised notice.

SEBASTIAN RIVER IMPROVEMENT DISTRICT
www.sridimprovement.org
Phone: (888) 636-4922
TCN 1550411

Richard Carnell
Indian River County, Florida
Pub: March 31, April 7, 2017
TCN 1555520

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Richard Carnell
Indian River County, Florida
Pub: March 31, April 7, 2017
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From time to time one or two Supervisors may participate by telephone; therefore, a speaker telephone will be present as required, at the workshop location so that Supervisors may be fully informed of the discussions taking place. Said meeting may be continued as found necessary to a time and place specified on the record.

Public Notices

NOTICE PUBLIC HEARING

There will be a Public Hearing for the Public Hearing, available at www.martin.fl.us. Type "bids" in the Search field then click on Bid Search.

The complete bid document may be downloaded from www.demandstar.com. Martin County is an equal opportunity/affirmative action employer.

APPLICANT: Parent Construction

The Architectural Review Committee of the City of Vero Beach, Florida, will hold a public hearing concerning the Adoption of the notice with the title as shown at 2:00 p.m., on April 12, 2017 in the City Hall, Council Chambers, at 1053 20th Place, Vero Beach, Florida. At the conclusion of this public hearing the Council may enact this Ordinance into law.

Interested parties may obtain a copy of this Ordinance at the Office of the City Clerk at City Hall and are welcome to attend the public hearing concerning this Ordinance. Anyone who may wish to appeal any decision which may be made at this hearing will need to ensure that a verbatim record of the proceedings is made which includes the testimony and evidence upon which the appeal is based. Anyone who needs a special accommodation for this meeting may contact the City's Americans with Disabilities Act (ADA) Coordinator at 978-4920 at least 48 hours in advance of the meeting.

Pub: March 31, 2017
TCN 1548007

NOTICE OF HEARING

To the owners and all persons interested in the lands corporate, and other property in and adjacent to the Fellsmere Water Control District. You are notified that the Fellsmere Water Control District has filed in the Office of the Secretary of the District a resolution to consider approval of a water control plan or an amendment to the current water control plan to provide for designation of areas or parts of the District into units pursuant Chapter 258.35.

On or before its scheduled meeting of April 21, 2017 at 9:00 a.m. at the District's Offices located at 109 North Willow Street, Fellsmere, Florida.

Written objections to the proposed plan or plan amendment may be filed at the District's Offices. A public hearing on the proposed plan or plan amendment will be conducted at the scheduled meeting, an written objections will be considered at that time. At the conclusion of the hearing, the Board of Supervisors may determine to proceed with the process for approval of the proposed plan or plan amendment and direct the district engineer to prepare an Engineer's Report identifying any property to be taken, determining benefits and damages, and estimating the cost of implementing the improvements associated with the proposed plan or plan amendment. A final hearing on approval of the proposed plan or plan amendment and Engineer's Report shall be held at a regularly scheduled Board of Supervisors meeting at least 15 days but no later than 60 days after the last scheduled publication of the notice of filing of the engineer's report with the Secretary of the District.

President Board of Supervisors
Richard Carnell
Indian River County, Florida
Pub: March 31, April 7, 2017
TCN 1555520

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Pub: March 31, April 7, 2017
TCN 1555520

Request for Bids

available at www.martin.fl.us. Type "bids" in the Search field then click on Bid Search.

The complete bid document may be downloaded from www.demandstar.com. Martin County is an equal opportunity/affirmative action employer.

By order of the Board of County Commissioners of Martin County, Florida.
Pub: March 31, 2017
TCN 1548005

CITY OF FORT PIERCE
FORT PIERCE, FLORIDA

BID NO. 2017-010

Sealed bids will be received by the City of Fort Pierce, Fort Pierce, Florida, in the Purchasing Department, until:

3:00 PM, TUESDAY,
APRIL 18, 2017

for furnishing:

CITY PARK
RESTROOM CLEANING

In accordance with detailed specifications available upon request in the Purchasing Department, City Hall, 100 N. U.S. 1, Fort Pierce, Florida. Copies of the documents are available electronically from the Procurement Department by e-mail request to bidrequests@cityoffortpierce.com or on the web site of DemandStar.com (www.demandstar.com) and the City of Fort Pierce Purchasing web site (www.cityoffortpierce.com). The City of Fort Pierce encourages Minority/Women Business Enterprise participation.

CITY OF FORT PIERCE
Gelencia Carter, MPA
Purchasing Manager
Pub: March 31, April 7, 2017
TCN 1546692

Real Estate Sales

Homes For Sale

VERO BEACH Gated Community, 4bd/2ba/3car, garage, kitchen opens to family room, granite counters, in-ground pool, large screened lanai. F.S.B.O. Call 772-567-9298 WEB ID 1513022

BARGAIN HUNTER'S

WOODFIELD HOUSE - FULLY furnished 3/2 + garage, cul-de-sac, lake view! \$278,000

TRILLIUM HOUSE - 2/2 with den & garage, reduced \$10,000! \$224,900 Call JOLEE 538-0408

VISTA PLANTATION REALTY, LLC 772-562-6300/562-8583 - LYNN

Condos-Furn

CALL TODAY!

VERO BEACH VISTA PLANTATION 55+ NO PETS, LTD. GOLF, FISH, TENNIS, GOLF, CLUBHOUSE

Bldg 27 - 2nd flr, across from pool, BBQ & shuffleboard, some furn. \$92,000

Bldg 24 - 2nd flr, Bamboo flr, tile & carpet, custom window treatment, \$92,500

Bldg 31 - 2nd flr, turn key furn., Sunrises & BBQ \$89,900

Bldg 12 - 2nd flr turn key furn, large pantry, tile & new carpet! \$114,900

Bldg 34 - 1st flr, new carpet & vinyl, a steal at \$118,000

Bldg 2 - 1st flr, furn, large patio, tile & carpet, great deal at \$125,000

VISTA PLANTATION REALTY, LLC 772-562-6300/562-8583-Lynn

Condos-Unfurn

ST. LUCIE WEST - 3/2, Ideal location, near shops & I-95, Move-in ready! \$115,000 772-463-1616 Web ID 1550340

Condos-Unfurn

APARTMENT - 1 bdr/1 ba, 1 car, new carpet, new kitchen, new bathroom, new floor, new paint, new appliances, new furniture, new decor, new lighting, new window treatments, new air conditioning, new pest control, new landscaping, new pool, new pool house, new pool furniture, new pool equipment, new pool supplies, new pool chemicals, new pool filters, new pool pumps, new pool motors, new pool heaters, new pool covers, new pool enclosures, new pool gates, new pool fences, new pool walls, new pool floors, new pool ceilings, new pool roofs, new pool foundations, new pool footings, new pool piers, new pool pilings, new pool posts, new pool rails, new pool balusters, new pool handrails, new pool ladders, new pool stairs, new pool ramps, new pool bridges, new pool tunnels, new pool slides, new pool toys, new pool accessories, new pool equipment, new pool supplies, new pool chemicals, new pool filters, new pool pumps, new pool motors, new pool heaters, new pool covers, new pool enclosures, new 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BRIDGE HYDRAULIC REPORT

Canal D Bridge Comparison Analysis

PROJECT LIMITS:

C.R. 510 and CR 512/85th St. to C.R. 510/66th
Avenue, inclusively; Indian River County

FDOT Project No. 405606-2-22-02



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Canal D Bridge Comparison Analysis

CR 510 Crossing of Lateral Canal D

Bridge Comparison Analysis

FDOT is proposing to place culverts at the Later Canal-D to accommodate the proposed new alignment with wider horizontal curve to improve turning radius for traffic safety. During the March 1st Board Meeting Sebastian River Improvement District (SRID) raised a concern that the proposed culvert will impact hydraulic capacity of Later Canal-D and impede conveyance capacity of properties along the canal.

To address this concern FDOT has performed Comparison Bridge Hydraulic analysis to investigate if the proposed culvert option will provide similar hydraulic capacity, minimize clogging and not raise the Design High Water elevation in the canal.

Bridge Hydraulic Comparison Analysis

The existing bridge at CR-510 crossing Later Canal-D will not be removed and a new structure will be placed at the new crossing to accommodate the proposed roadway alignment.

The analysis was divided in to 4 alternatives:

Alternative-1: Existing bridge to remain with no new structure (No-build Alternative)

Alternative-2: Existing Bridge to remain with new bridge with 4 piers at the proposed roadway crossing.

Alternative-3: Existing bridge to remain with 3-12'x15' box culvert at the proposed crossing.

Alternative-4: Existing bridge to remain with 2-12'x15' box culvert at the proposed crossing.

Design Criteria:

- SRID- Minimum low member elevation shall be a minimum of one (1) foot above the 100 year stage.
- FDOT- Backwater increment for the design storm is limited to 0.1'
- 100 year FEMA elevation = 21' NGVD (19.54' NAVD)

The analysis was performed based on the SRID watershed modeling background data. The background data is included in this report as an attachment.

The 100-year elevation from SRID model for Lateral Canal-D = 19.11' NAVD

Flow Rated provided by SRID for Lateral Canal-D:

50-year	1117.0 cfs
100-year	1177.0 cfs
500-year	1310.0 cfs

The analysis was performed using HEC-RAS program. Flow rates from SRID was included in the analysis to model the proposed structures.

Analysis Results

Based on the alternative analysis, a 3-12'x15' box culvert will have the lowest 100-year high water elevation compares to other alternatives.

A 2-12'x15' box culvert could provide similar hydraulic capacity; however, to address potential clogging concern an additional box will be provided as a safety factor.

Recommendation

A 3-12'x15' box culvert option resulted in lowest 100-year high water elevation. The low member of the box culvert will be at 20.54' NAVD, which is 1' above the 100-year FEMA flood elevation. In addition to meeting the high water elevation and reducing clogging, a 3-12'x15' box culvert will meet the drift clearance as well. Therefore, a 3-12'x15' box culvert is the recommended option.

Canal D Alternative Bridge Hydraulic Analysis
Summary of Stage Results for Canal D

Alternative-1- Existing Condition without proposed bridge for new roadway alignment

Storm Event	Downstream of Existing Bridge (Sta 907+37.09) (ft-NAVD)	Downstream of Proposed Bridge Location (Sta 898+00) (ft-NAVD)
Design Peak Stage (50-Yr)	15.68	15.08
100- YR Peak Stage (ft)	15.83	15.21
500-YR Peak Stage (ft)	16.18	15.48

Alternative-2- Proposed New Bridge with 4 Piers for the new alignment

Storm Event	Downstream of Existing Bridge (Sta 907+37.09) (ft-NAVD)	Downstream of Proposed Bridge Location (Sta 898+00) (ft-NAVD)
Design Peak Stage (50-Yr)	15.53	15.01
100- YR Peak Stage (ft)	15.68	15.12
500-YR Peak Stage (ft)	16	15.38

Alternative-3- Proposed New Bridge with 3-12'x15.0' Box Culvert for the new alignment

Storm Event	Downstream of Existing Bridge (Sta 907+37.09) (ft-NAVD)	Downstream of Proposed Bridge Location (Sta 898+00) (ft-NAVD)
Design Peak Stage (50-Yr)	15.58	14.96
100- YR Peak Stage (ft)	15.74	15.08
500-YR Peak Stage (ft)	16.07	15.34

Alternative-4- Proposed New Bridge with 2-12'x15.0' Box Culvert for the new alignment

Storm Event	Downstream of Existing Bridge (Sta 907+37.09) (ft-NAVD)	Downstream of Proposed Bridge Location (Sta 898+00) (ft-NAVD)
Design Peak Stage (50-Yr)	15.77	15.20
100- YR Peak Stage (ft)	15.94	15.33
500-YR Peak Stage (ft)	16.31	15.64

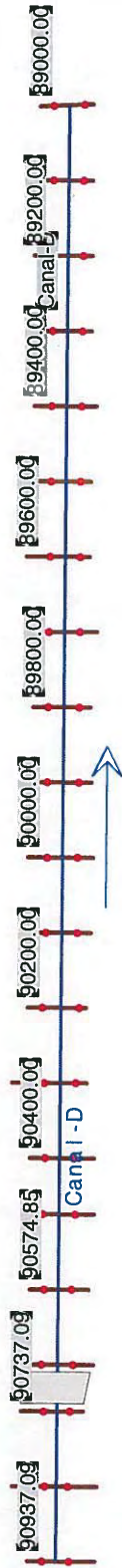
The Hydraulic Analysis was performed using HEC-RAS program. The flow rates used in the HEC-RAS model for various storm event are based on Sebastian River Improvement District(SRID) watershed model results.

Flow rates provided by SRID	
50-year	1117.0 cfs
100-year	1177.0 cfs
500-year	1310.0 cfs

A comparisons bridge hydraulic analysis was performed for the 4 alternatives. The model results indicates 3-12'x15.0' box culvert has the lowest peak stages for the design storm.

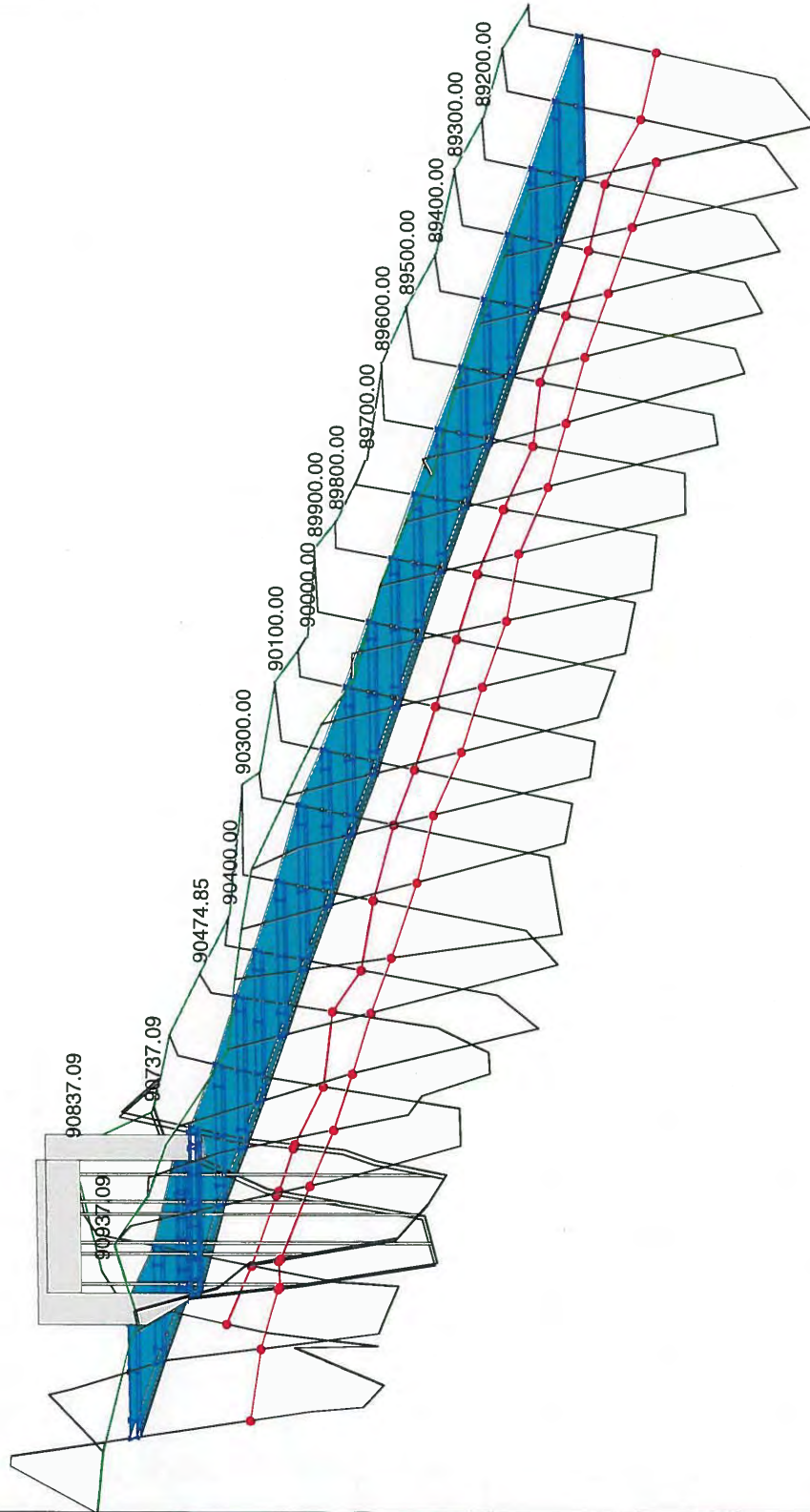
This analysis is a preliminary analysis with limited roadway and bridge design information. A detail analysis will be performed upon available of the roadway and bridge geometry.

Canal D
Alternative 1:
Existing Bridge



CR510 Canal-D Box Culvert Plan: CR 510 Canal-D Existing Condition 3/13/2017

Legend	
	WS 50 Y
	WS 100 Y
	WS 500 Y
	Ground
	Bank Sta



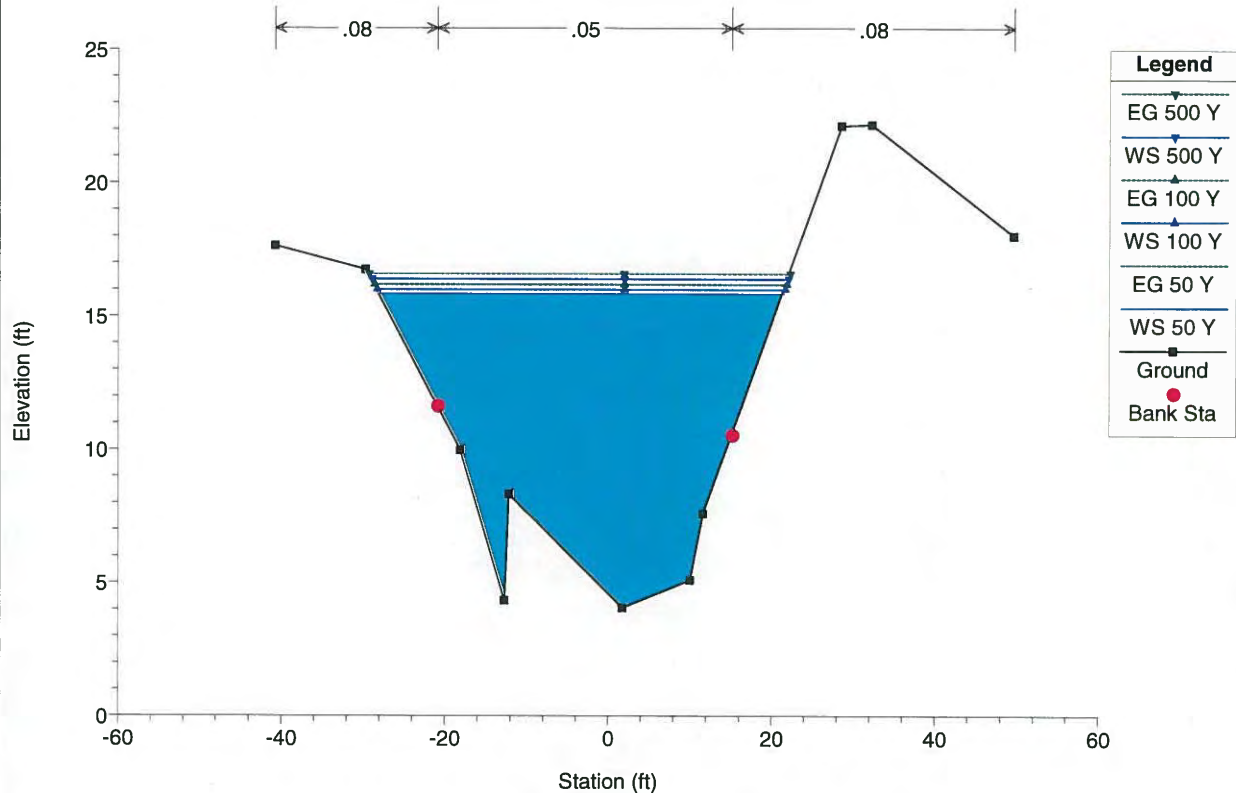
HEC-RAS Plan: CR 510 Canal D Existing Condition River: Canal-D Reach: Canal-D

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Canal-D	90937.09	50 Y	1117.00	4.06	15.87		16.03	0.000853	3.27	364.97	49.41	0.19
Canal-D	90937.09	100 Y	1177.00	4.06	16.03		16.21	0.000890	3.38	373.20	49.89	0.19
Canal-D	90937.09	500 Y	1310.00	4.06	16.40		16.59	0.000965	3.61	391.52	50.93	0.20
Canal-D	90837.09	50 Y	1117.00	4.36	15.71		15.93	0.001040	3.80	312.41	42.18	0.22
Canal-D	90837.09	100 Y	1177.00	4.36	15.87		16.10	0.001090	3.94	319.06	42.79	0.23
Canal-D	90837.09	500 Y	1310.00	4.36	16.21		16.48	0.001192	4.22	333.98	44.13	0.24
Canal-D	90737.09	50 Y	1117.00	3.66	15.68	8.47	15.83	0.000638	3.15	383.52	53.28	0.18
Canal-D	90737.09	100 Y	1177.00	3.66	15.83	8.62	16.00	0.000670	3.26	391.92	54.55	0.18
Canal-D	90737.09	500 Y	1310.00	3.66	16.18	8.92	16.36	0.000737	3.50	411.09	57.34	0.19
Canal-D	90727.09		Bridge									
Canal-D	90674.85	50 Y	1117.00	3.71	15.60		15.72	0.000488	2.75	431.15	60.25	0.16
Canal-D	90674.85	100 Y	1177.00	3.71	15.75		15.88	0.000513	2.84	440.34	60.84	0.16
Canal-D	90674.85	500 Y	1310.00	3.71	16.09		16.23	0.000563	3.05	460.90	62.13	0.17
Canal-D	90574.85	50 Y	1117.00	4.09	15.50		15.65	0.000688	3.20	371.95	51.24	0.19
Canal-D	90574.85	100 Y	1177.00	4.09	15.64		15.81	0.000723	3.32	379.44	51.75	0.19
Canal-D	90574.85	500 Y	1310.00	4.09	15.96		16.16	0.000796	3.56	396.22	52.89	0.20
Canal-D	90474.85	50 Y	1117.00	3.71	15.47		15.58	0.000495	2.74	427.05	55.41	0.16
Canal-D	90474.85	100 Y	1177.00	3.71	15.61		15.74	0.000521	2.84	435.08	55.81	0.16
Canal-D	90474.85	500 Y	1310.00	3.71	15.93		16.07	0.000574	3.05	453.02	56.68	0.17
Canal-D	90400.00	50 Y	1117.00	2.16	15.41		15.54	0.000547	2.93	408.87	54.89	0.17
Canal-D	90400.00	100 Y	1177.00	2.16	15.55		15.69	0.000577	3.04	416.64	55.42	0.17
Canal-D	90400.00	500 Y	1310.00	2.16	15.86		16.03	0.000641	3.27	434.07	56.58	0.18
Canal-D	90300.00	50 Y	1117.00	2.26	15.37		15.49	0.000482	2.74	430.11	56.28	0.16
Canal-D	90300.00	100 Y	1177.00	2.26	15.51		15.63	0.000509	2.85	437.96	56.76	0.16
Canal-D	90300.00	500 Y	1310.00	2.26	15.82		15.96	0.000565	3.06	455.55	57.83	0.17
Canal-D	90200.00	50 Y	1117.00	3.12	15.37		15.44	0.000274	2.17	531.73	60.30	0.12
Canal-D	90200.00	100 Y	1177.00	3.12	15.50		15.58	0.000291	2.26	540.13	60.67	0.12
Canal-D	90200.00	500 Y	1310.00	3.12	15.81		15.90	0.000326	2.44	558.89	61.49	0.13
Canal-D	90100.00	50 Y	1117.00	3.61	15.27		15.39	0.000563	2.89	410.38	57.04	0.17
Canal-D	90100.00	100 Y	1177.00	3.61	15.40		15.54	0.000594	3.00	417.96	57.53	0.17
Canal-D	90100.00	500 Y	1310.00	3.61	15.69		15.85	0.000659	3.22	434.99	58.62	0.18
Canal-D	90000.00	50 Y	1117.00	3.56	15.19		15.33	0.000643	3.04	387.63	54.21	0.18
Canal-D	90000.00	100 Y	1177.00	3.56	15.32		15.47	0.000679	3.16	394.58	54.66	0.19
Canal-D	90000.00	500 Y	1310.00	3.56	15.60		15.78	0.000756	3.40	410.21	55.67	0.20
Canal-D	89900.00	50 Y	1117.00	3.63	15.14		15.27	0.000581	2.92	404.29	55.76	0.17
Canal-D	89900.00	100 Y	1177.00	3.63	15.26		15.40	0.000615	3.03	411.27	56.19	0.18
Canal-D	89900.00	500 Y	1310.00	3.63	15.54		15.70	0.000686	3.26	426.97	57.16	0.19
Canal-D	89800.00	50 Y	1117.00	3.69	15.08		15.21	0.000557	2.87	407.59	54.40	0.17
Canal-D	89800.00	100 Y	1177.00	3.69	15.21		15.34	0.000591	2.99	414.21	54.79	0.17
Canal-D	89800.00	500 Y	1310.00	3.69	15.48		15.63	0.000663	3.22	429.11	55.66	0.18
Canal-D	89700.00	50 Y	1117.00	3.68	15.03		15.16	0.000530	2.84	412.06	53.29	0.16
Canal-D	89700.00	100 Y	1177.00	3.68	15.15		15.28	0.000564	2.95	418.37	53.64	0.17
Canal-D	89700.00	500 Y	1310.00	3.68	15.41		15.57	0.000636	3.19	432.55	54.41	0.18
Canal-D	89600.00	50 Y	1117.00	3.35	14.96		15.10	0.000610	3.00	391.00	52.19	0.17
Canal-D	89600.00	100 Y	1177.00	3.35	15.07		15.22	0.000649	3.12	396.92	52.55	0.18
Canal-D	89600.00	500 Y	1310.00	3.35	15.32		15.50	0.000733	3.37	410.25	53.35	0.19
Canal-D	89500.00	50 Y	1117.00	2.83	14.88		15.03	0.000697	3.15	372.99	51.34	0.19
Canal-D	89500.00	100 Y	1177.00	2.83	14.99		15.15	0.000742	3.27	378.53	51.71	0.19
Canal-D	89500.00	500 Y	1310.00	2.83	15.23		15.42	0.000840	3.54	391.02	52.51	0.20
Canal-D	89400.00	50 Y	1117.00	2.56	14.81		14.96	0.000707	3.14	374.75	53.11	0.19
Canal-D	89400.00	100 Y	1177.00	2.56	14.91		15.08	0.000754	3.26	380.23	53.49	0.19
Canal-D	89400.00	500 Y	1310.00	2.56	15.14		15.33	0.000854	3.53	392.62	54.33	0.21
Canal-D	89300.00	50 Y	1117.00	2.75	14.73		14.89	0.000752	3.21	364.25	51.52	0.19
Canal-D	89300.00	100 Y	1177.00	2.75	14.83		15.00	0.000803	3.35	369.26	51.85	0.20
Canal-D	89300.00	500 Y	1310.00	2.75	15.04		15.24	0.000914	3.63	380.60	52.61	0.21
Canal-D	89200.00	50 Y	1117.00	2.95	14.65		14.81	0.000752	3.19	365.59	52.04	0.19
Canal-D	89200.00	100 Y	1177.00	2.95	14.75		14.92	0.000805	3.32	370.38	52.36	0.20

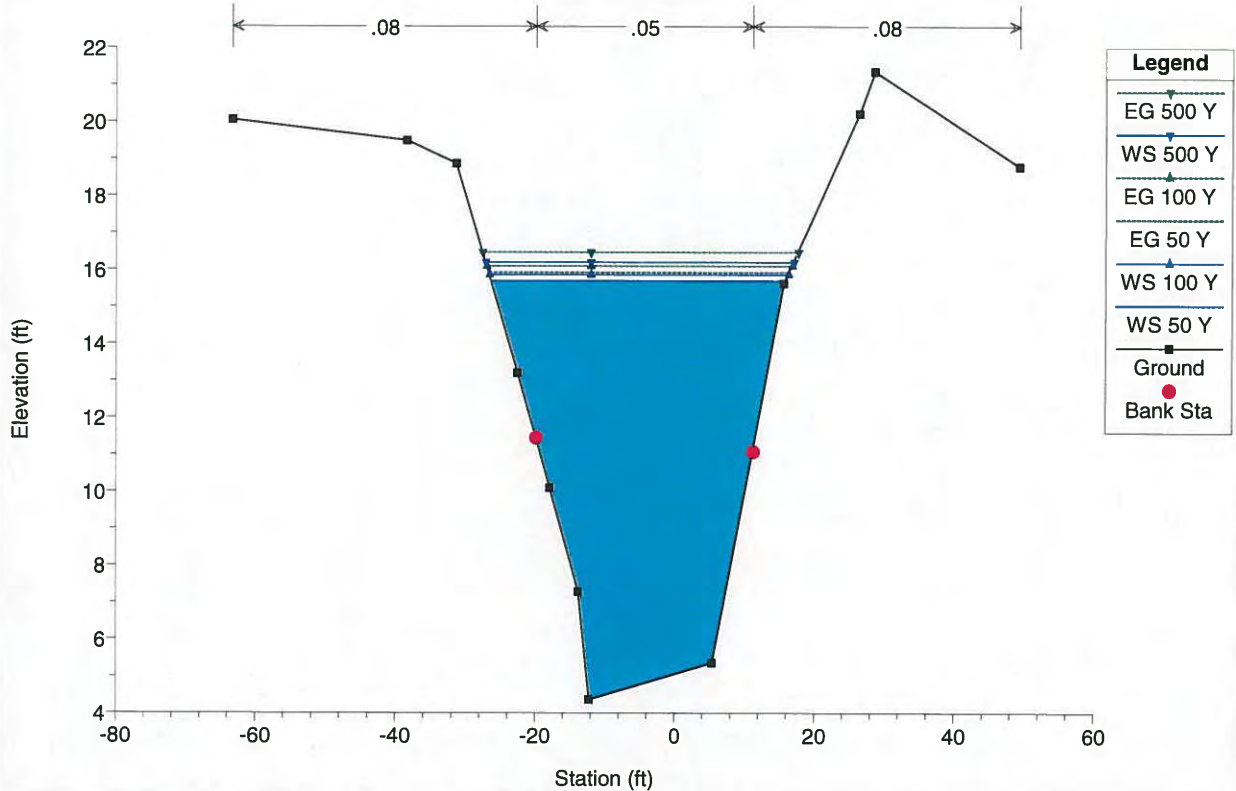
HEC-RAS Plan: CR 510 Canal D Existing Condition River: Canal-D Reach: Canal-D (Continued)

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Canal-D	89200.00	500 Y	1310.00	2.95	14.95		15.15	0.000919	3.61	381.23	53.07	0.21
Canal-D	89100.00	50 Y	1117.00	3.15	14.58		14.74	0.000756	3.22	365.19	52.53	0.19
Canal-D	89100.00	100 Y	1177.00	3.15	14.66		14.84	0.000811	3.35	369.73	52.83	0.20
Canal-D	89100.00	500 Y	1310.00	3.15	14.86		15.06	0.000930	3.65	379.98	53.50	0.22
Canal-D	89000.00	50 Y	1117.00	3.34	14.50	8.49	14.66	0.000776	3.22	363.61	53.00	0.20
Canal-D	89000.00	100 Y	1177.00	3.34	14.58	8.62	14.75	0.000834	3.36	367.86	53.28	0.20
Canal-D	89000.00	500 Y	1310.00	3.34	14.76	8.91	14.96	0.000960	3.65	377.51	53.90	0.22

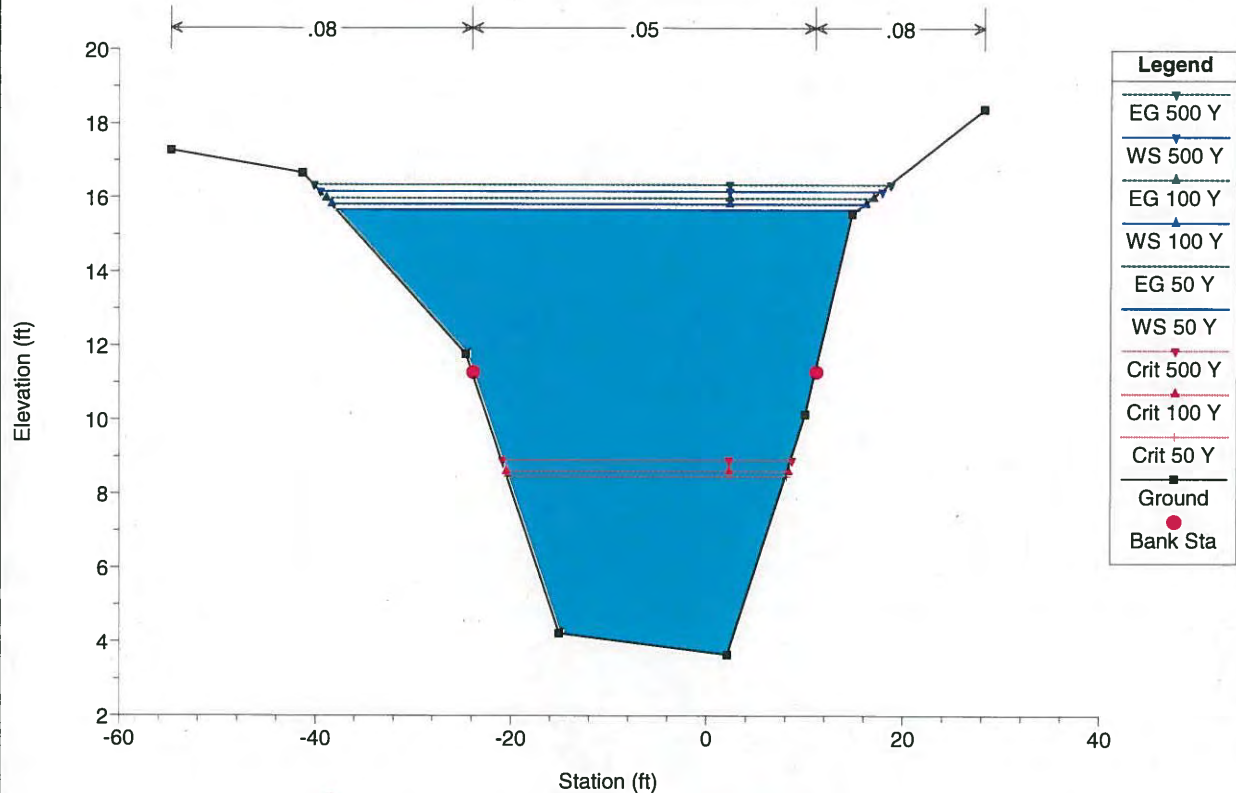
CR510 Canal-D Box Culvert Plan: CR 510 Canal-D Existing Condition 3/13/2017
Sta 909+37.09



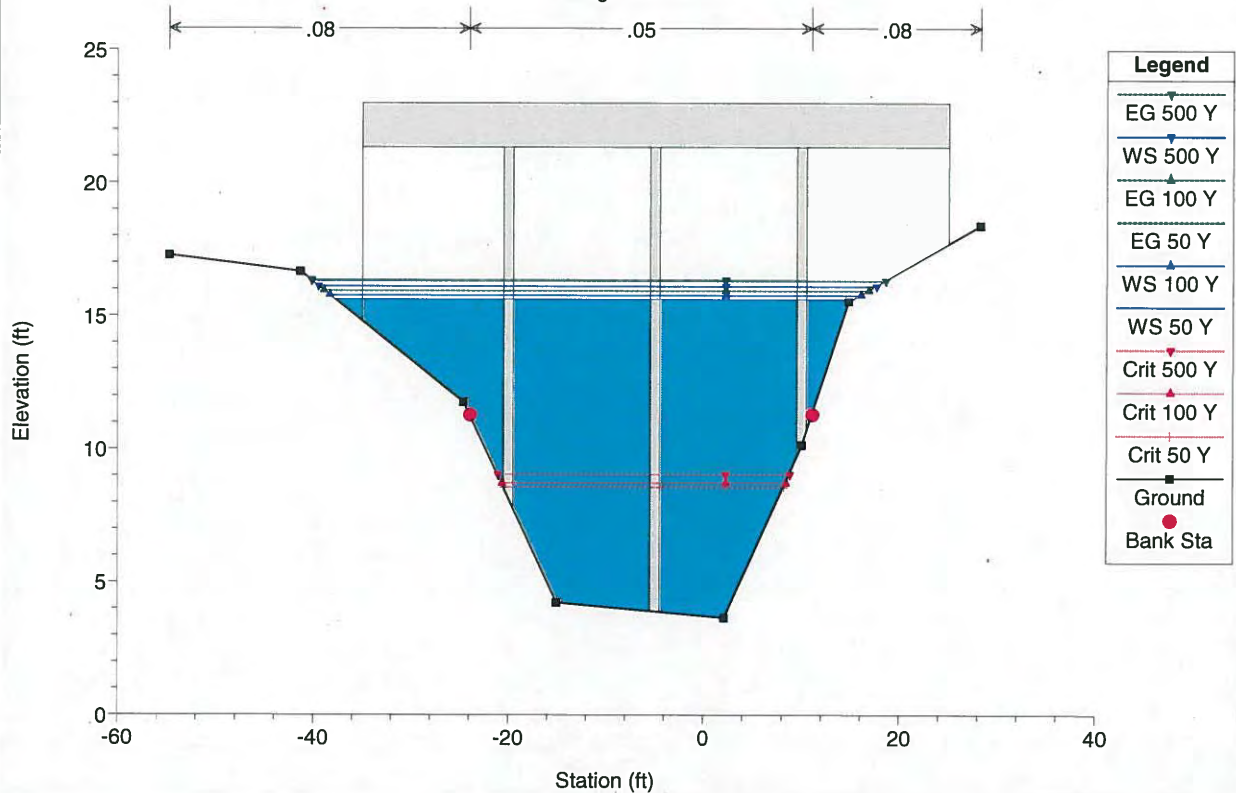
CR510 Canal-D Box Culvert Plan: CR 510 Canal-D Existing Condition 3/13/2017
Station 908+37.09



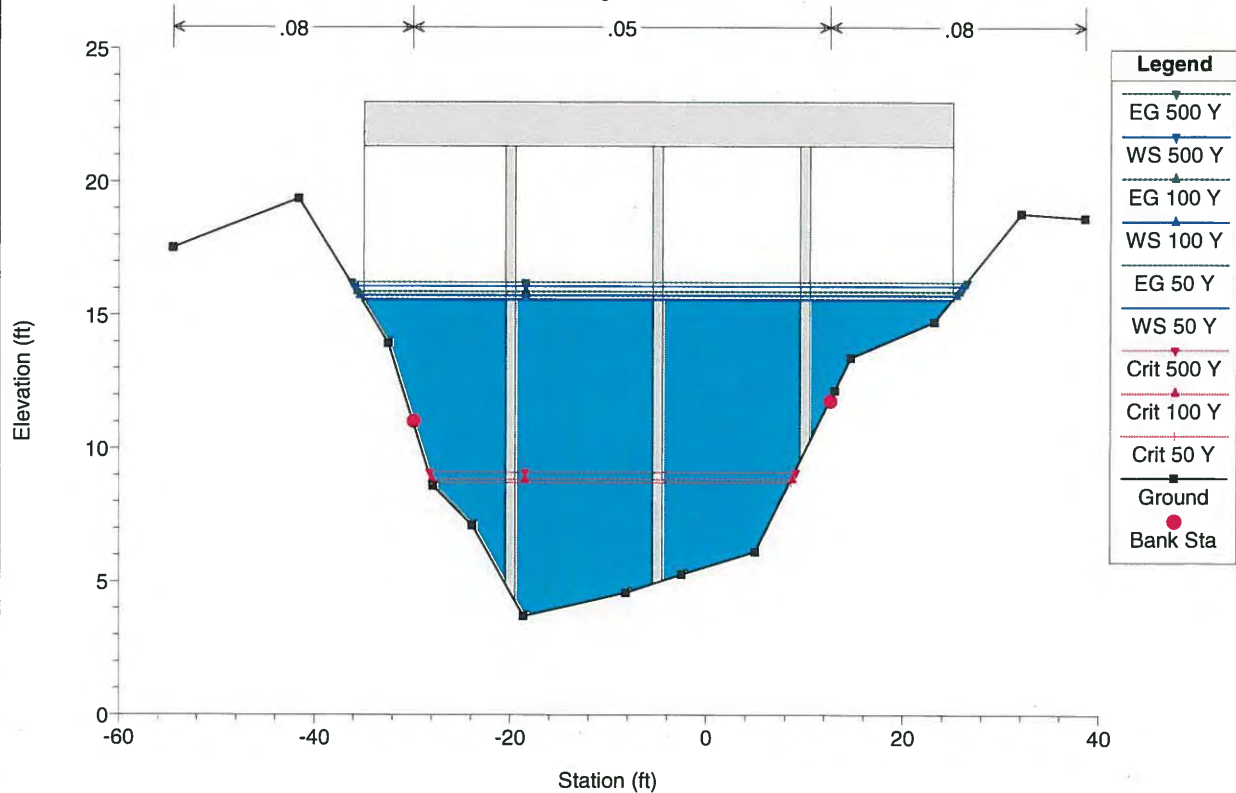
CR510 Canal-D Box Culvert Plan: CR 510 Canal-D Existing Condition 3/13/2017
Station 907+37.09



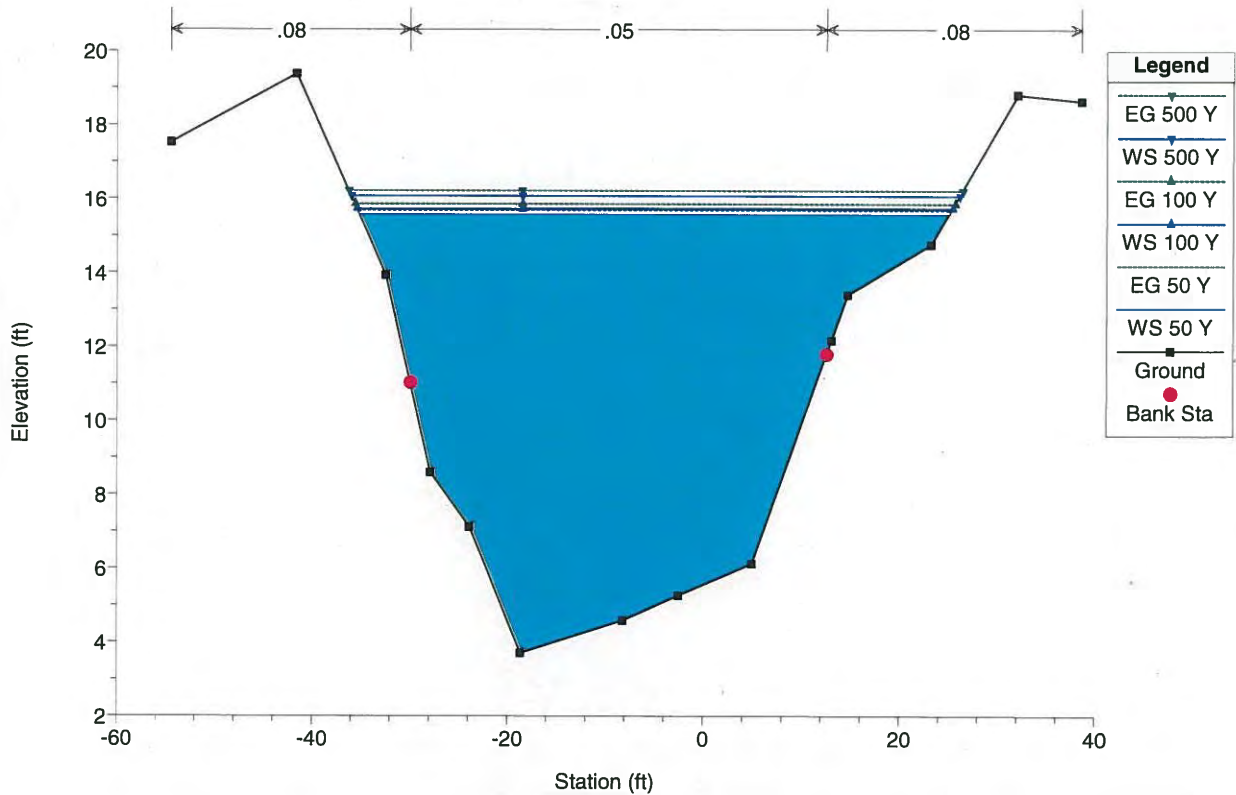
CR510 Canal-D Box Culvert Plan: CR 510 Canal-D Existing Condition 3/13/2017
Bridge 880047



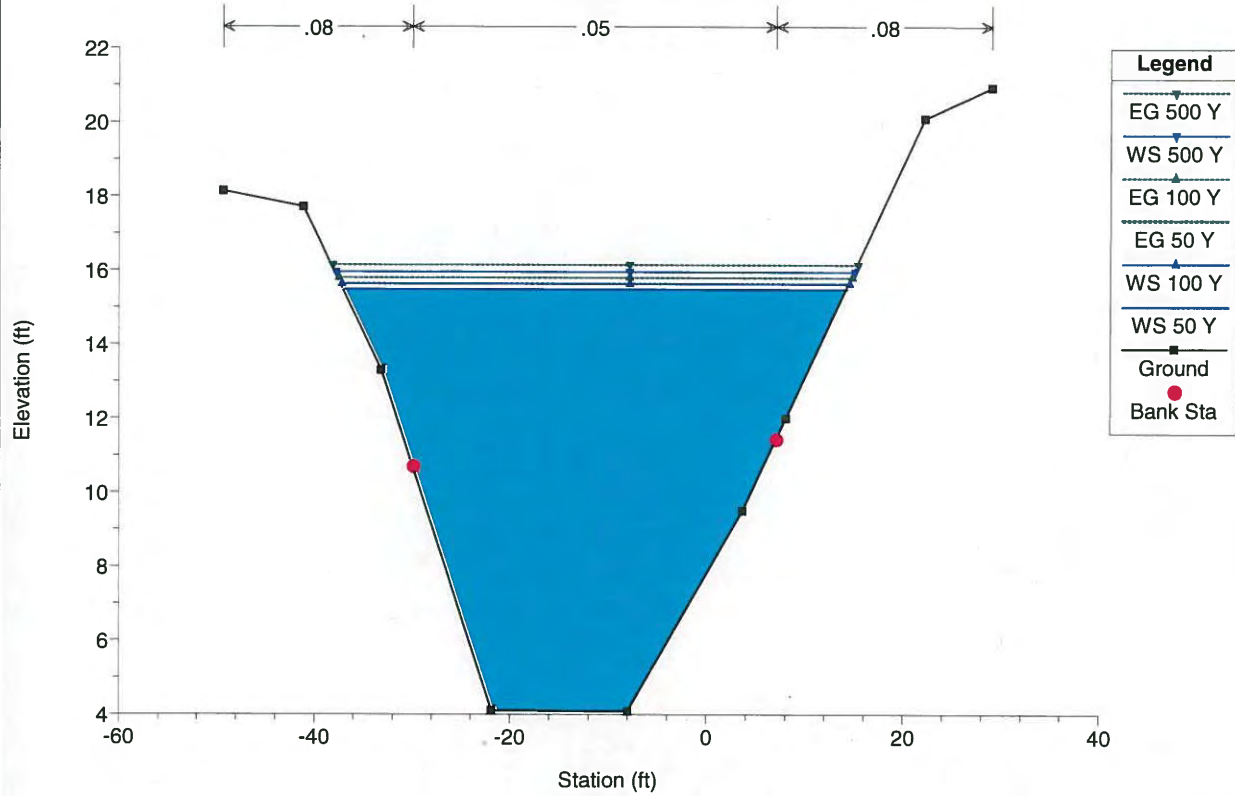
CR510 Canal-D Box Culvert Plan: CR 510 Canal-D Existing Condition 3/13/2017
Bridge 880047



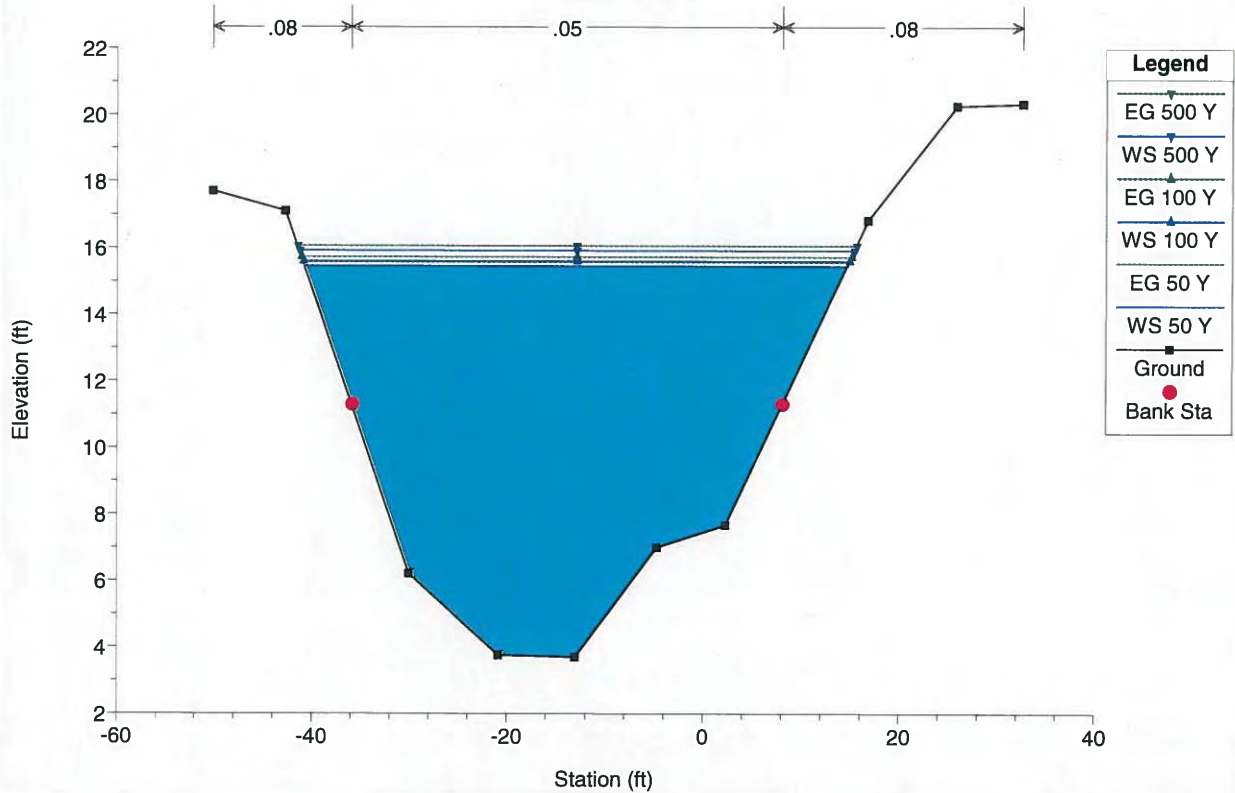
CR510 Canal-D Box Culvert Plan: CR 510 Canal-D Existing Condition 3/13/2017
Station 906+74.85



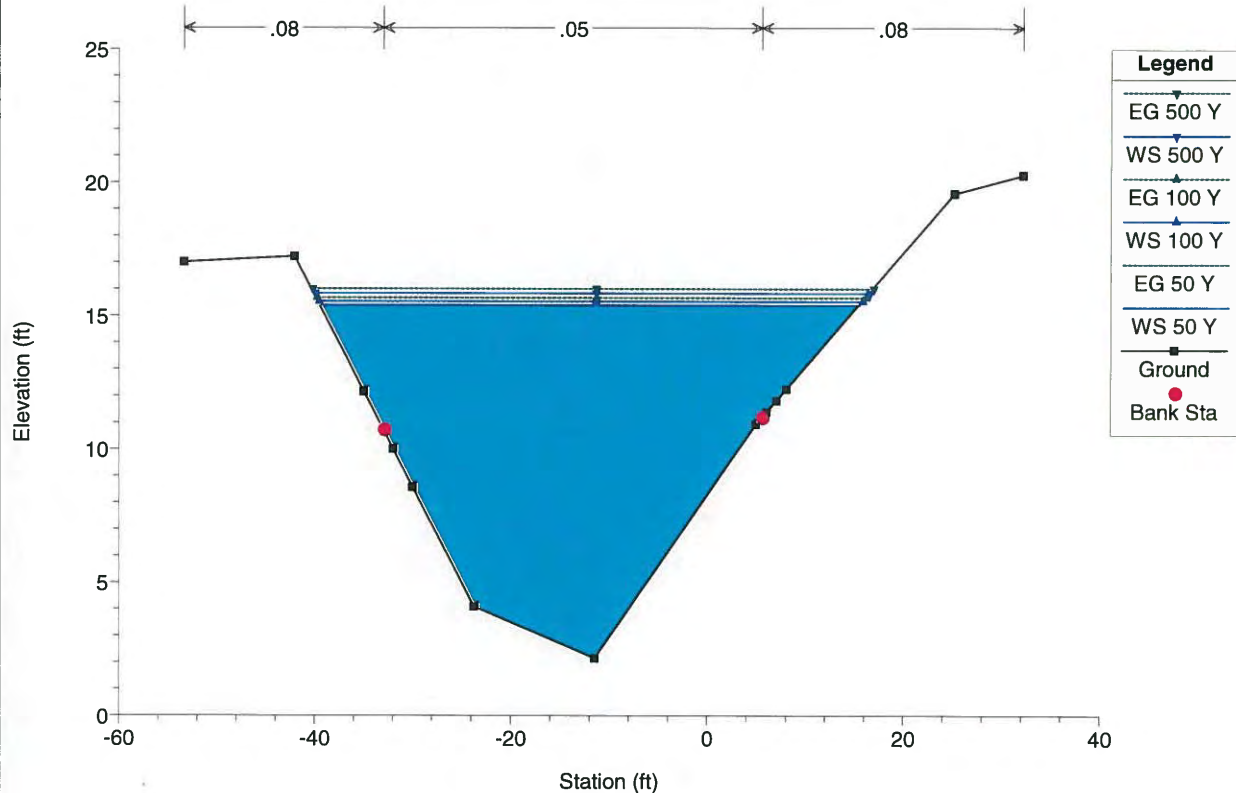
CR510 Canal-D Box Culvert Plan: CR 510 Canal-D Existing Condition 3/13/2017
Station 905+74.85



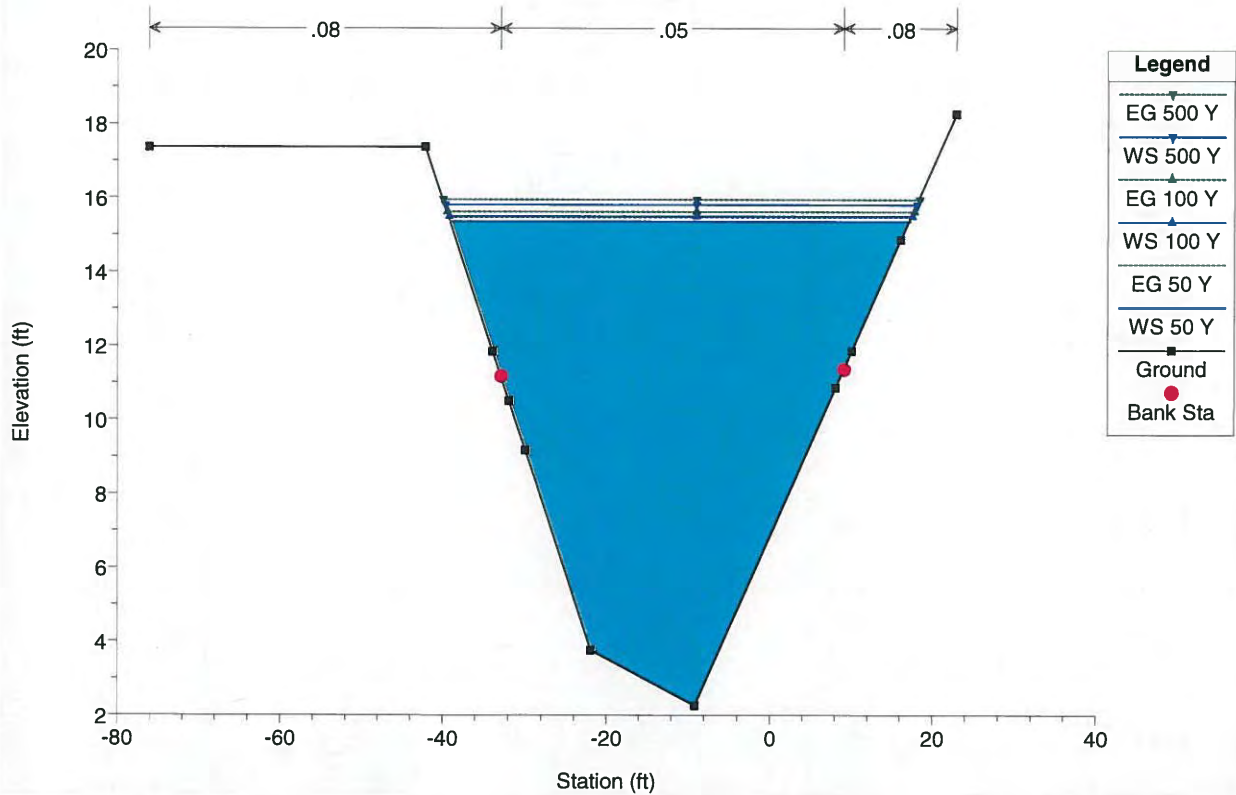
CR510 Canal-D Box Culvert Plan: CR 510 Canal-D Existing Condition 3/13/2017
Sta 904+74.85



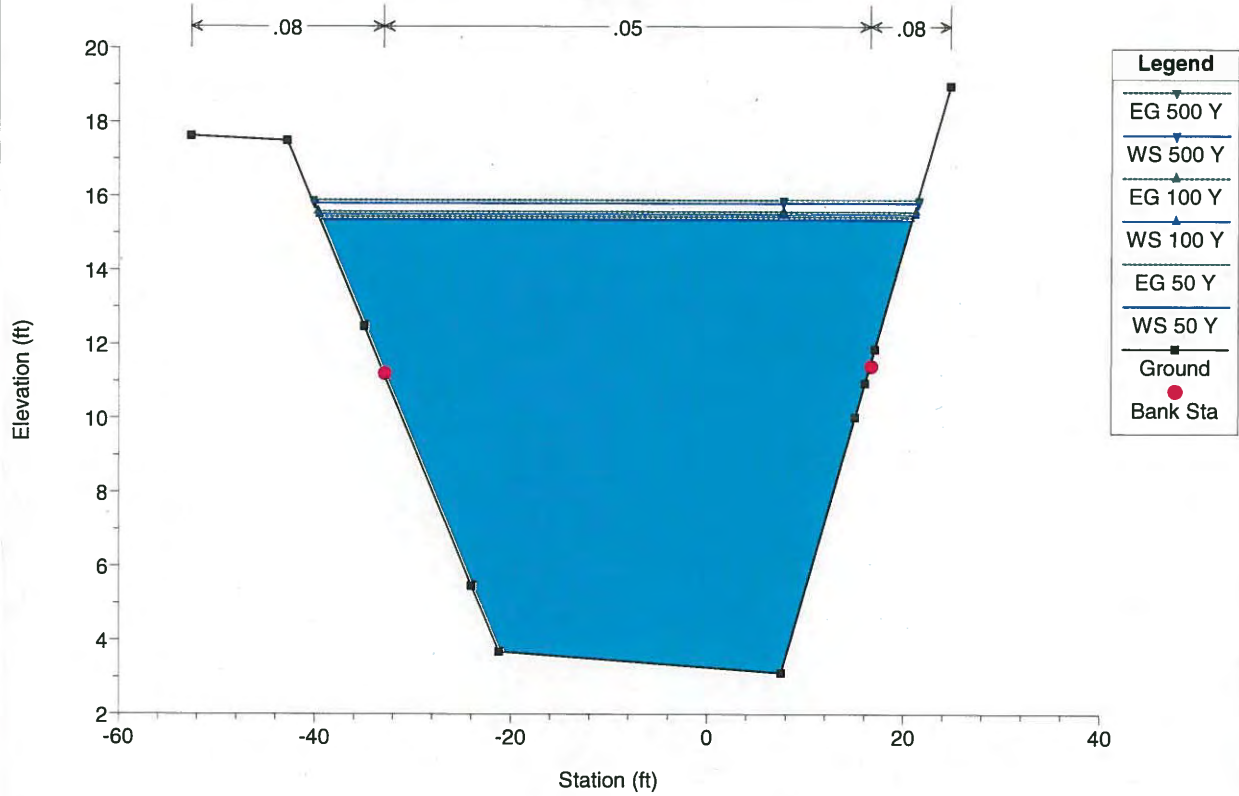
CR510 Canal-D Box Culvert Plan: CR 510 Canal-D Existing Condition 3/13/2017
Sta 904+00.00



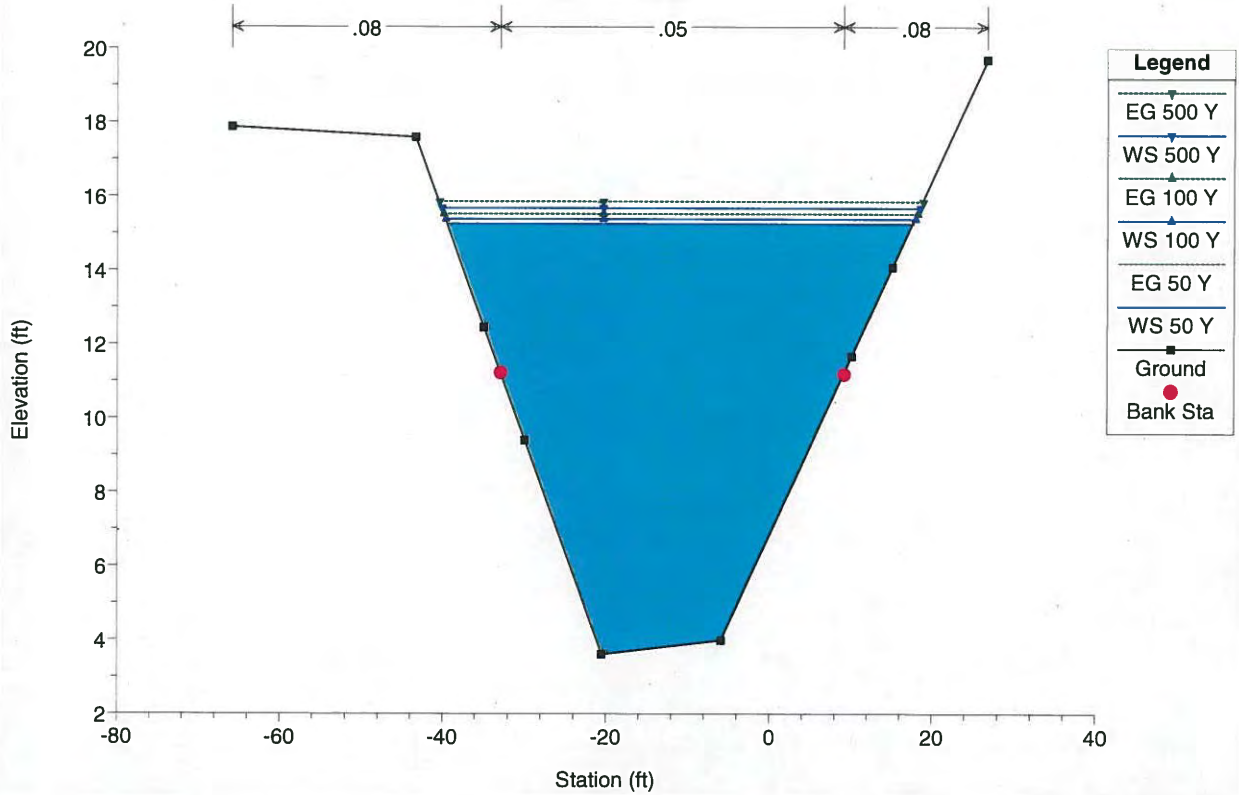
CR510 Canal-D Box Culvert Plan: CR 510 Canal-D Existing Condition 3/13/2017
Sta 903+00.00

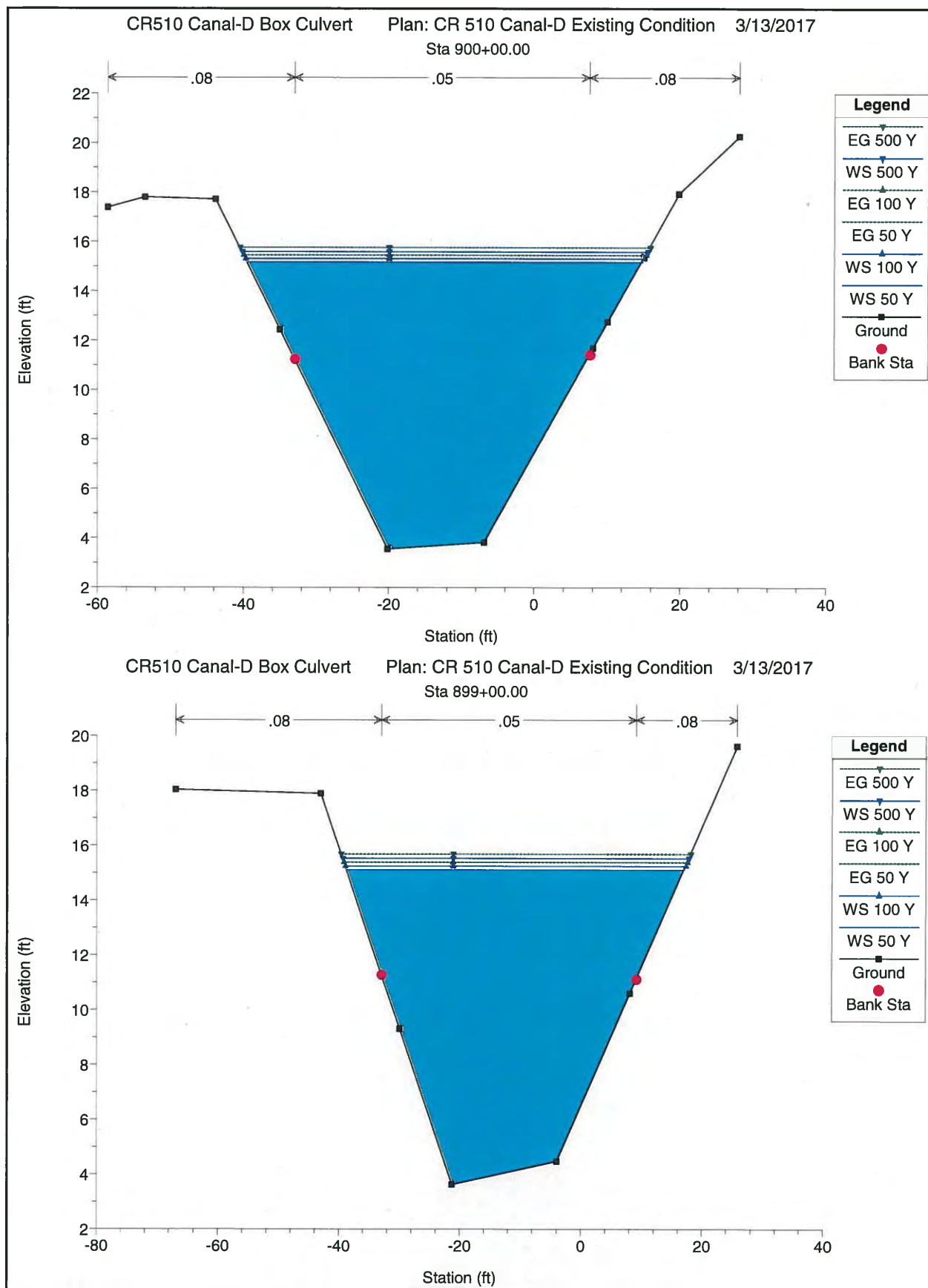


CR510 Canal-D Box Culvert Plan: CR 510 Canal-D Existing Condition 3/13/2017
Sta 902+00.00

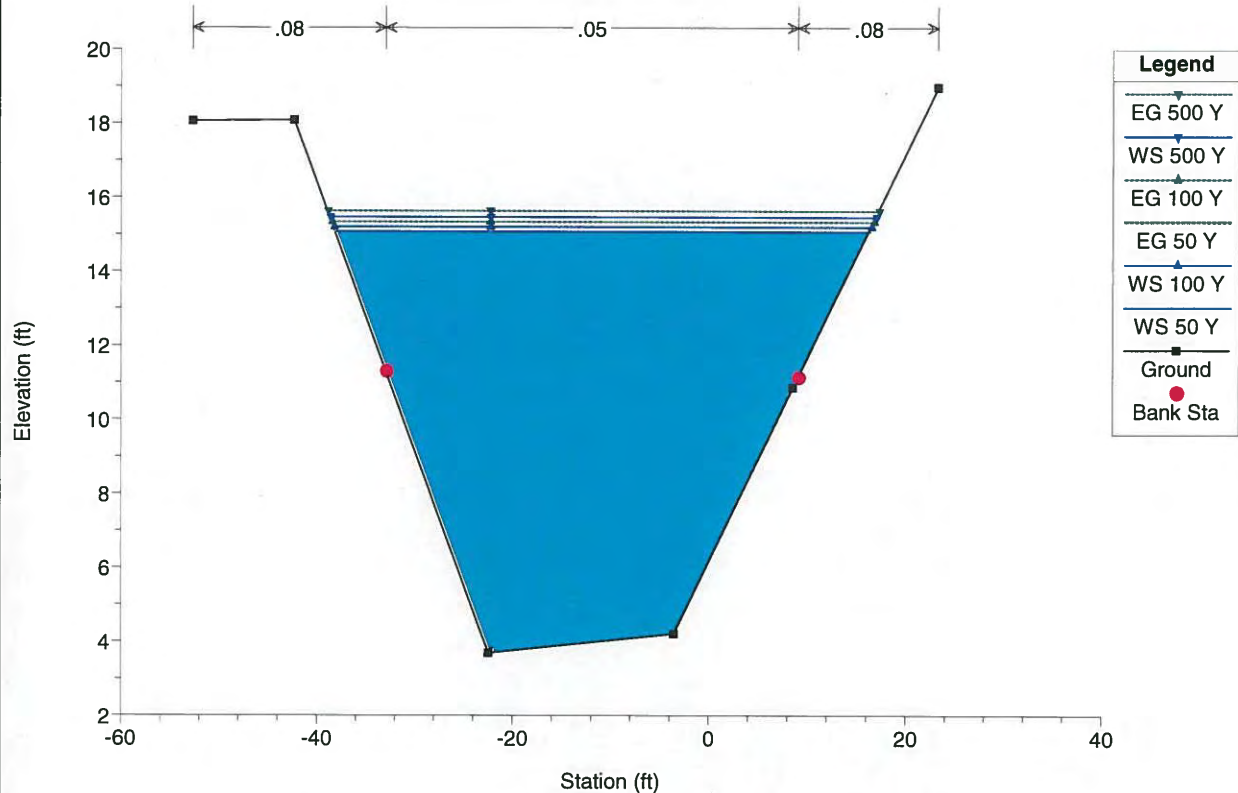


CR510 Canal-D Box Culvert Plan: CR 510 Canal-D Existing Condition 3/13/2017
Sta 901+00.00

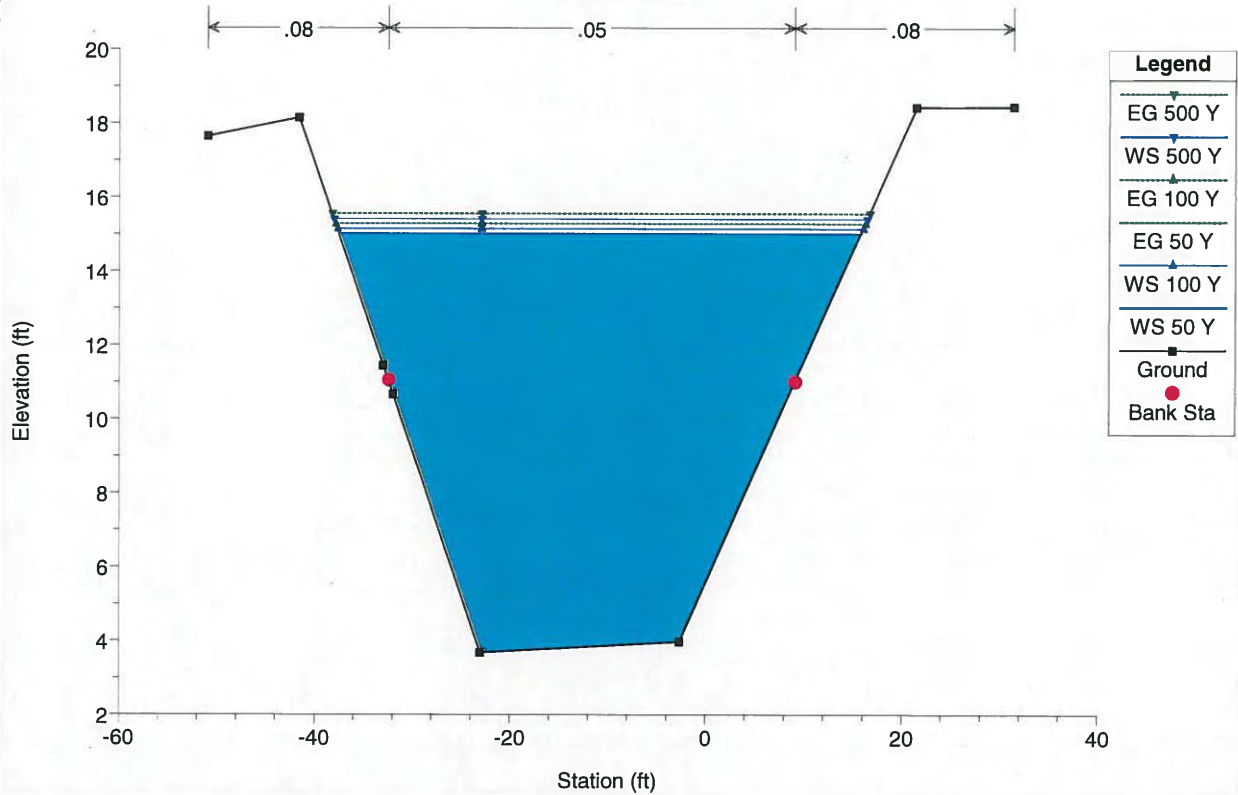




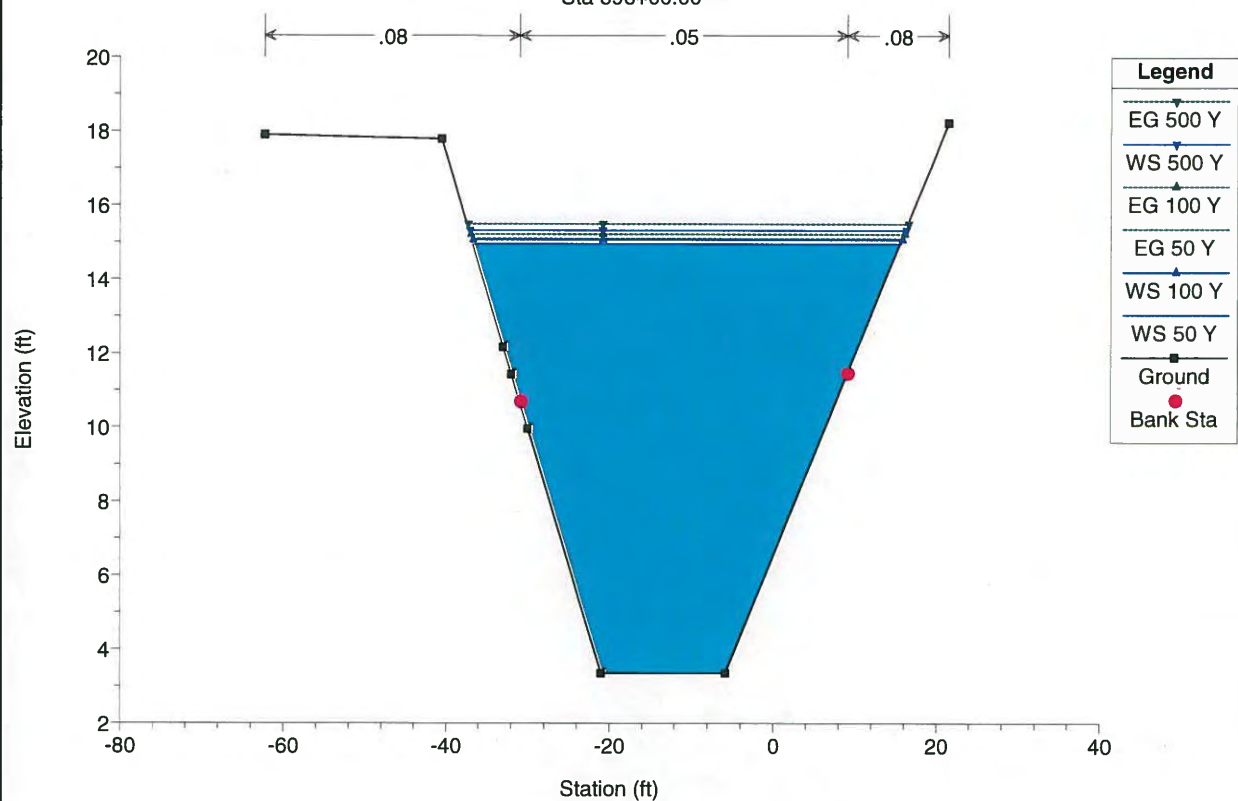
CR510 Canal-D Box Culvert Plan: CR 510 Canal-D Existing Condition 3/13/2017
Sta 898+00.00



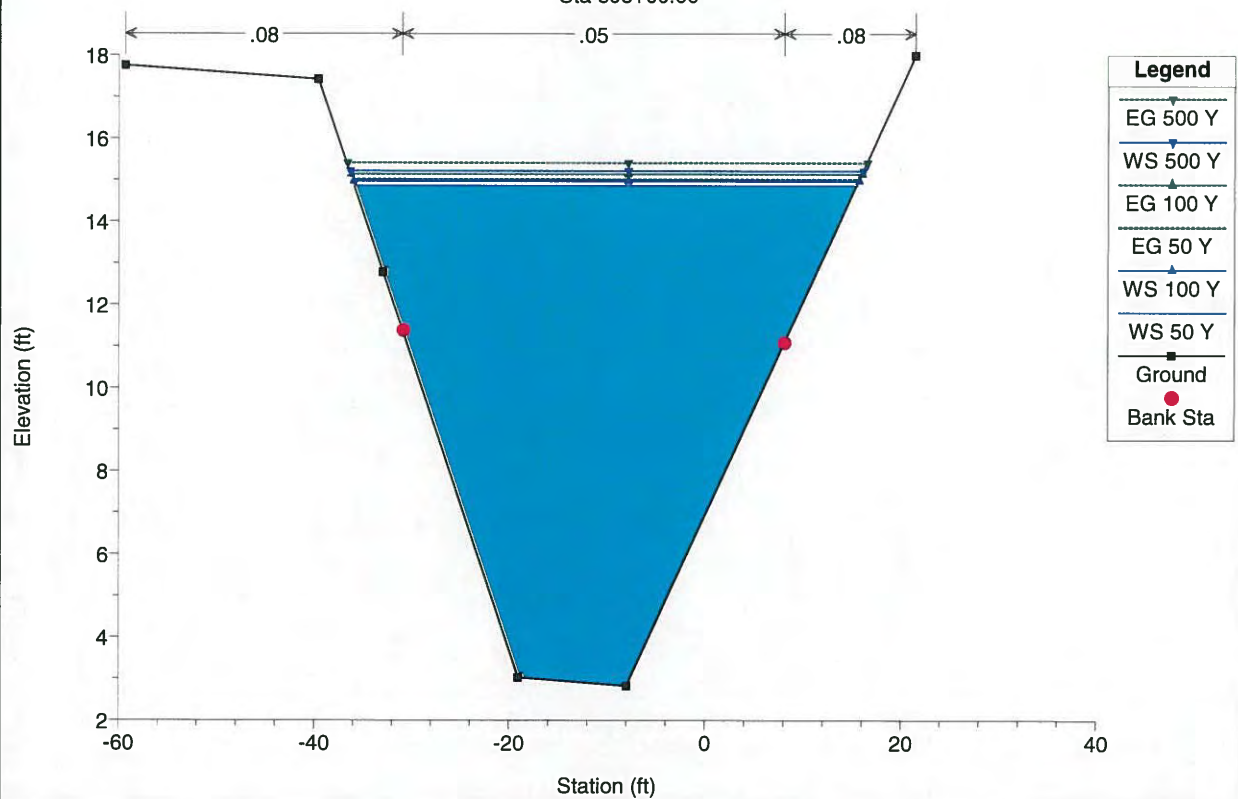
CR510 Canal-D Box Culvert Plan: CR 510 Canal-D Existing Condition 3/13/2017
Sta 897+00.00



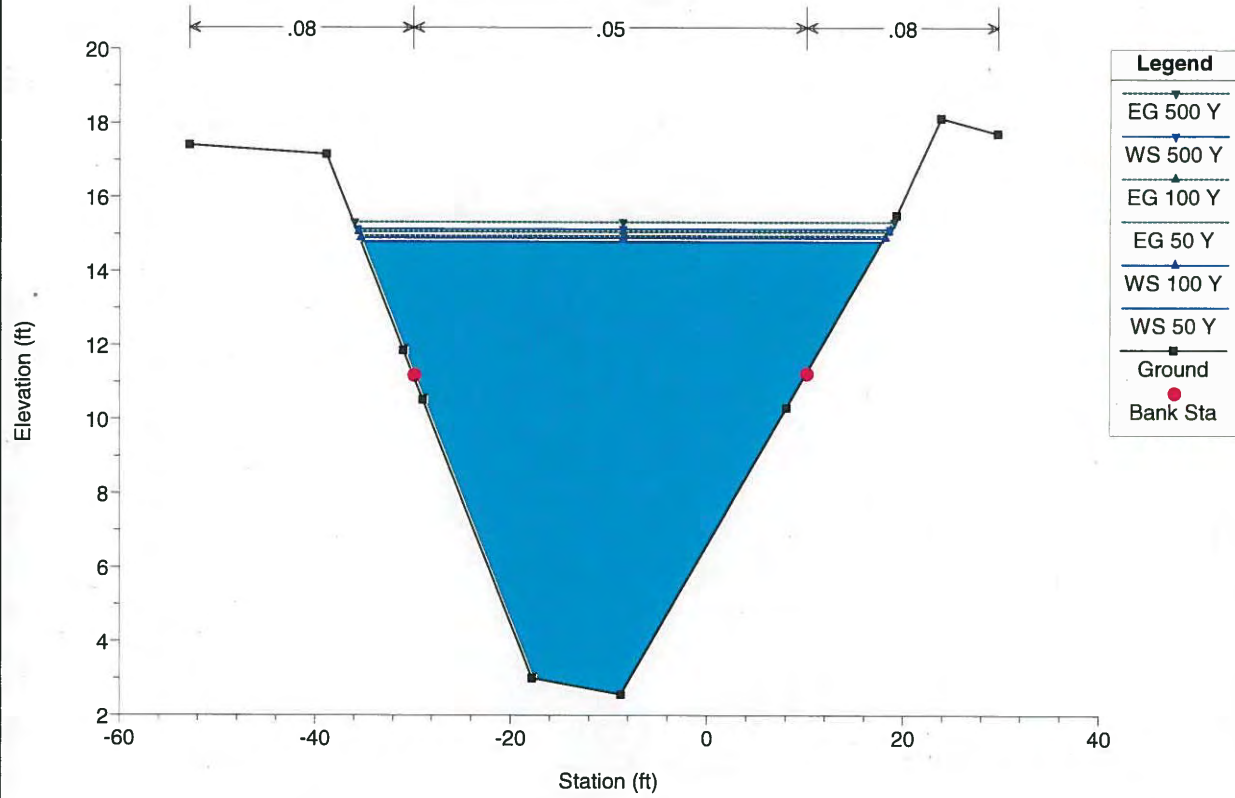
CR510 Canal-D Box Culvert Plan: CR 510 Canal-D Existing Condition 3/13/2017
Sta 896+00.00



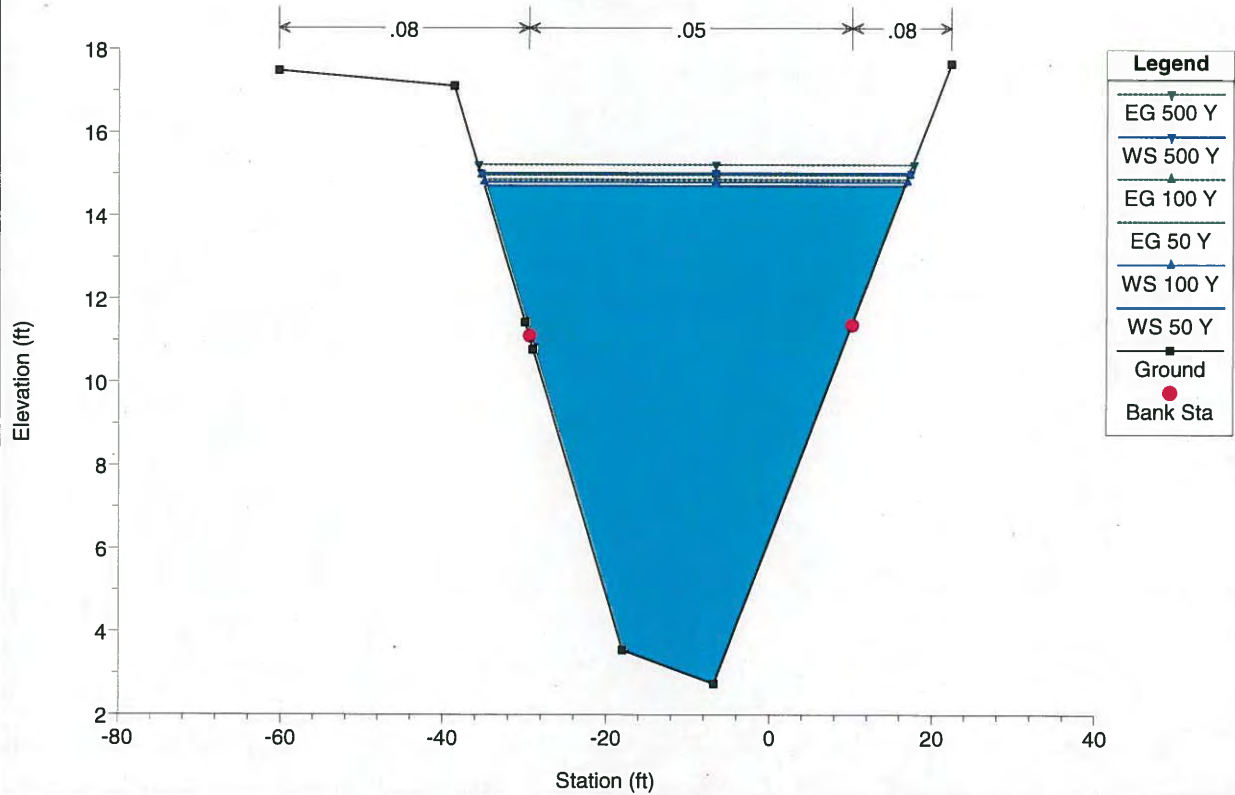
CR510 Canal-D Box Culvert Plan: CR 510 Canal-D Existing Condition 3/13/2017
Sta 895+00.00



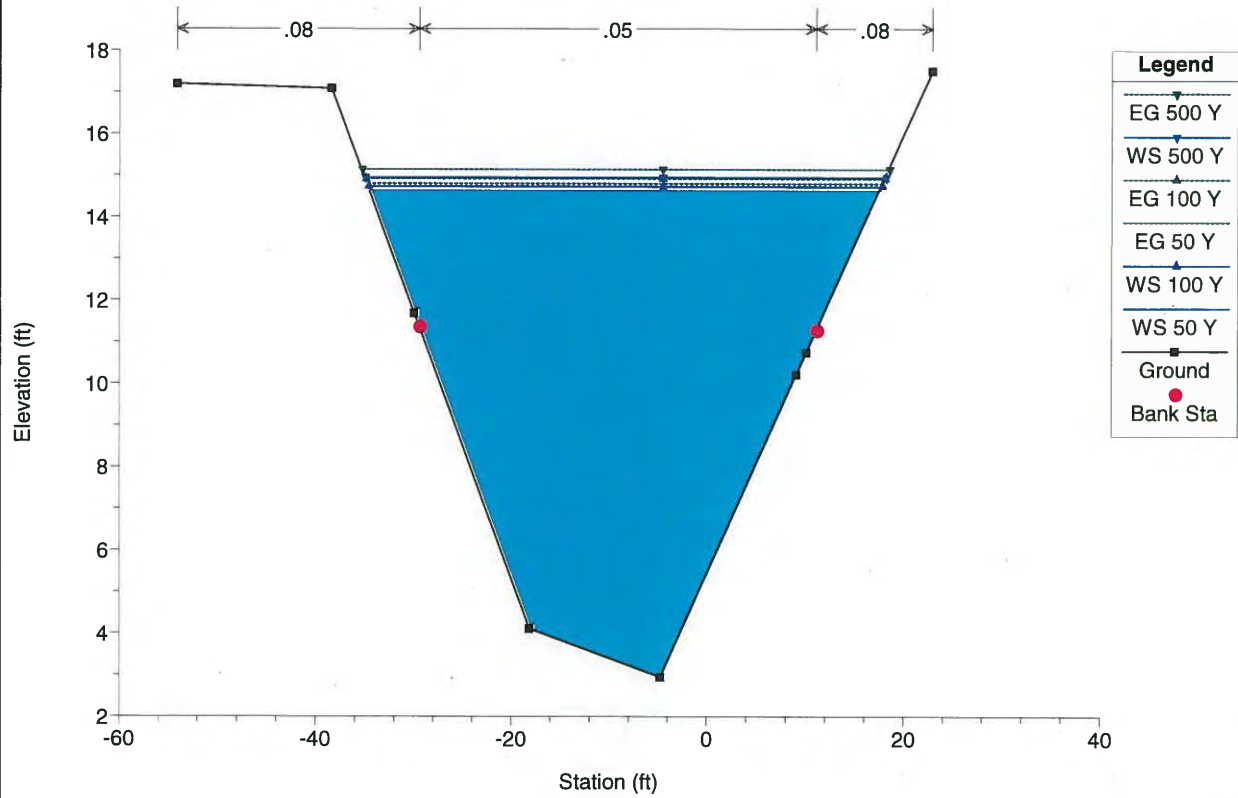
CR510 Canal-D Box Culvert Plan: CR 510 Canal-D Existing Condition 3/13/2017
Sta 894+00.00



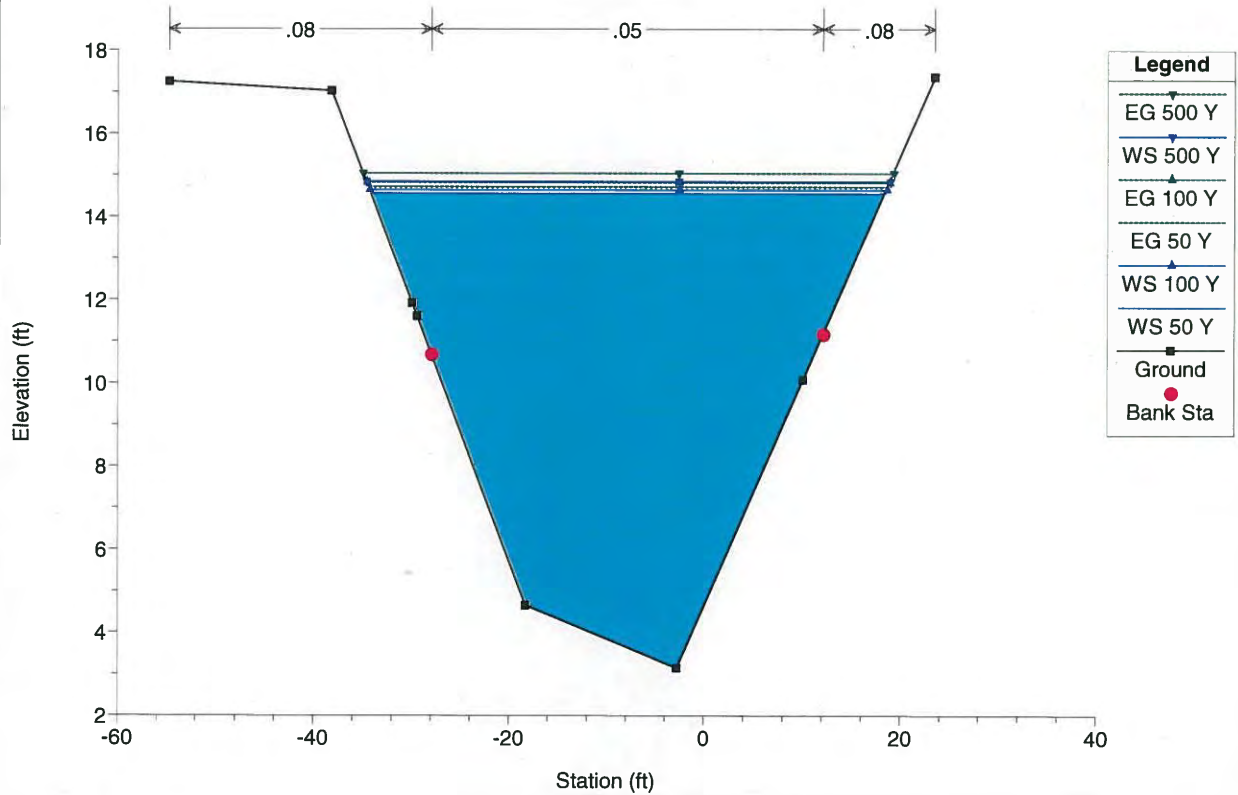
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Sta 893+00.00



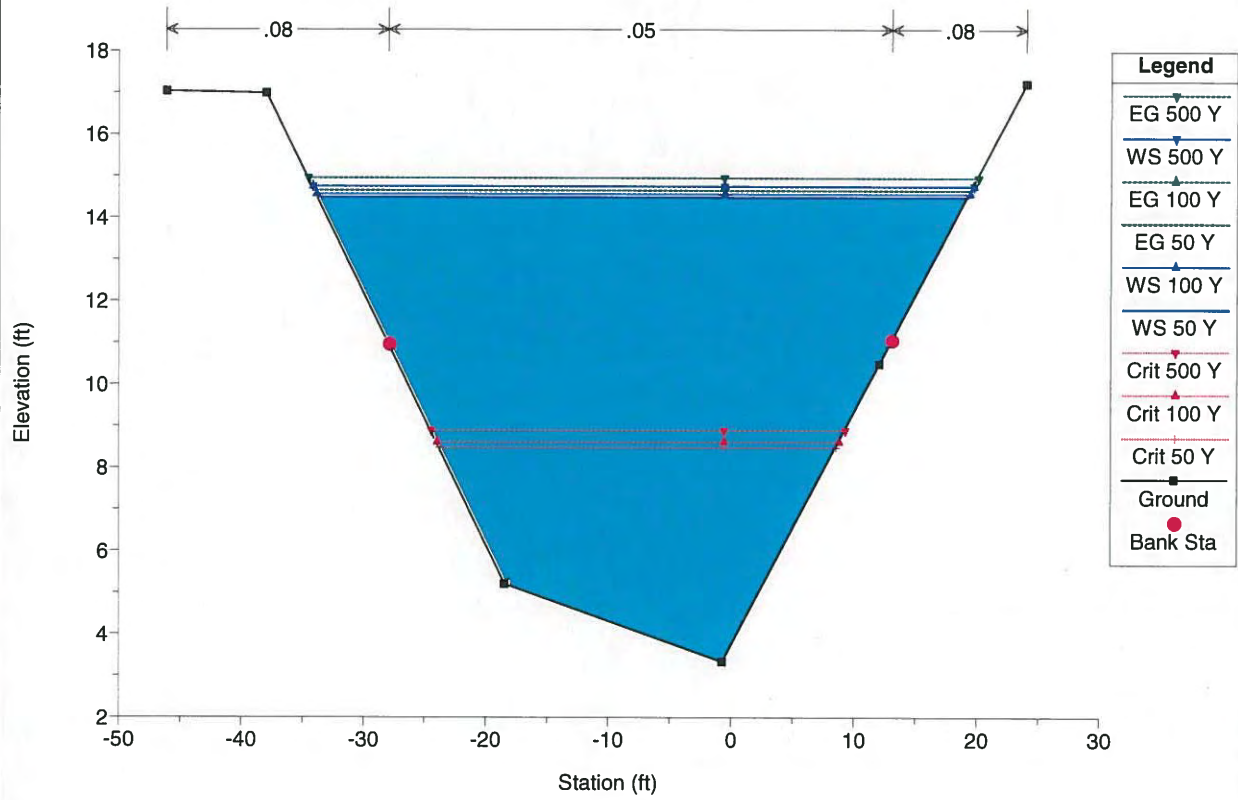
CR510 Canal-D Box Culvert Plan: CR 510 Canal-D Existing Condition 3/13/2017
Sta 892+00.00

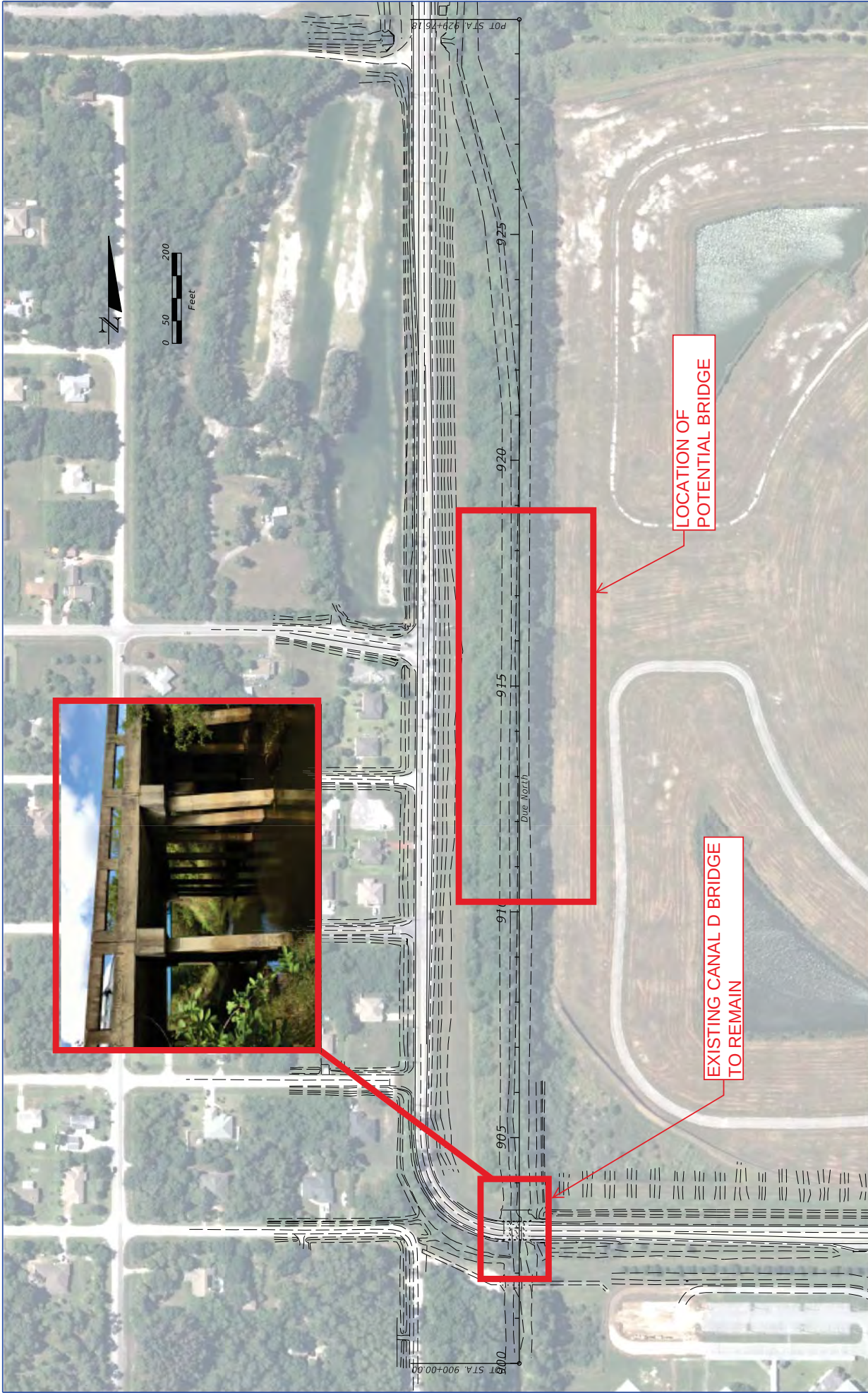


CR510 Canal-D Box Culvert Plan: CR 510 Canal-D Existing Condition 3/13/2017
Sta 891+00.00

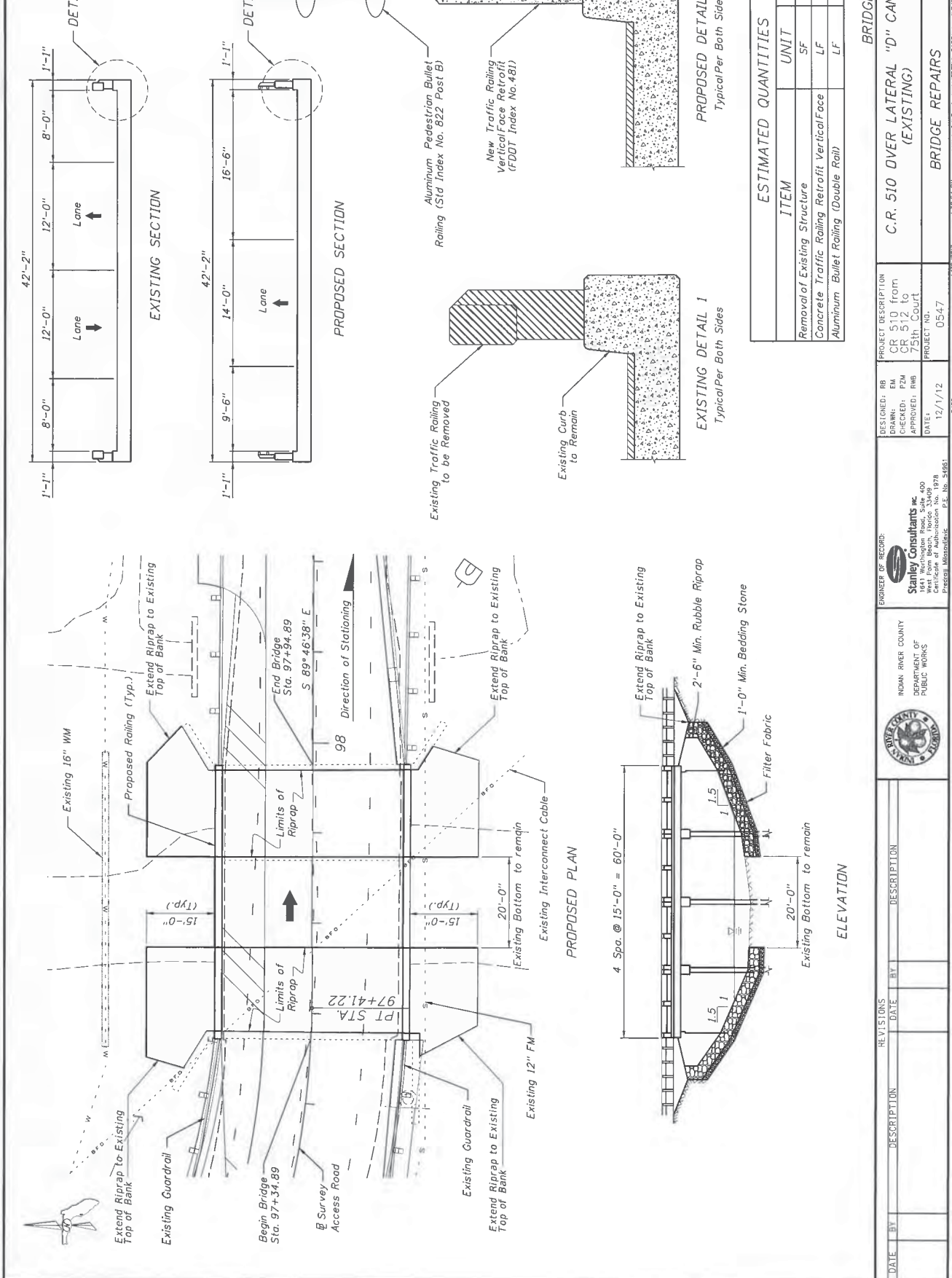


CR510 Canal-D Box Culvert Plan: CR 510 Canal-D Existing Condition 3/13/2017
Sta 890+00.00





DATE	DESCRIPTION	REVISIONS		STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION			CANAL D EXISTING BRIDGE		SHEET NO.
		DATE	DESCRIPTION	ROAD NO.	COUNTY	FINANCIAL PROJECT ID			



100% ISSUE - NOT FOR CONSTRUCTION

INDIAN RIVER COUNTY PROJECT NO. 0547

BRIDGE NO. 880047

C.R. 510 OVER LATERAL "D" CANAL (EXISTING)

BRIDGE REPAIRS

DESIGNED: RB

DRAWN: EM

CHECKED: PFM

APPROVED: RWB

DATE: 12/1/12

PROJECT NO. 0547

PROJECT NO. 0547

DATE: 12/1/12

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DATE: 12/1/12

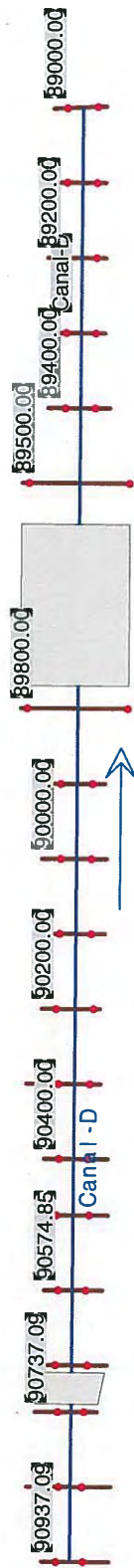
PROJECT NO. 0547

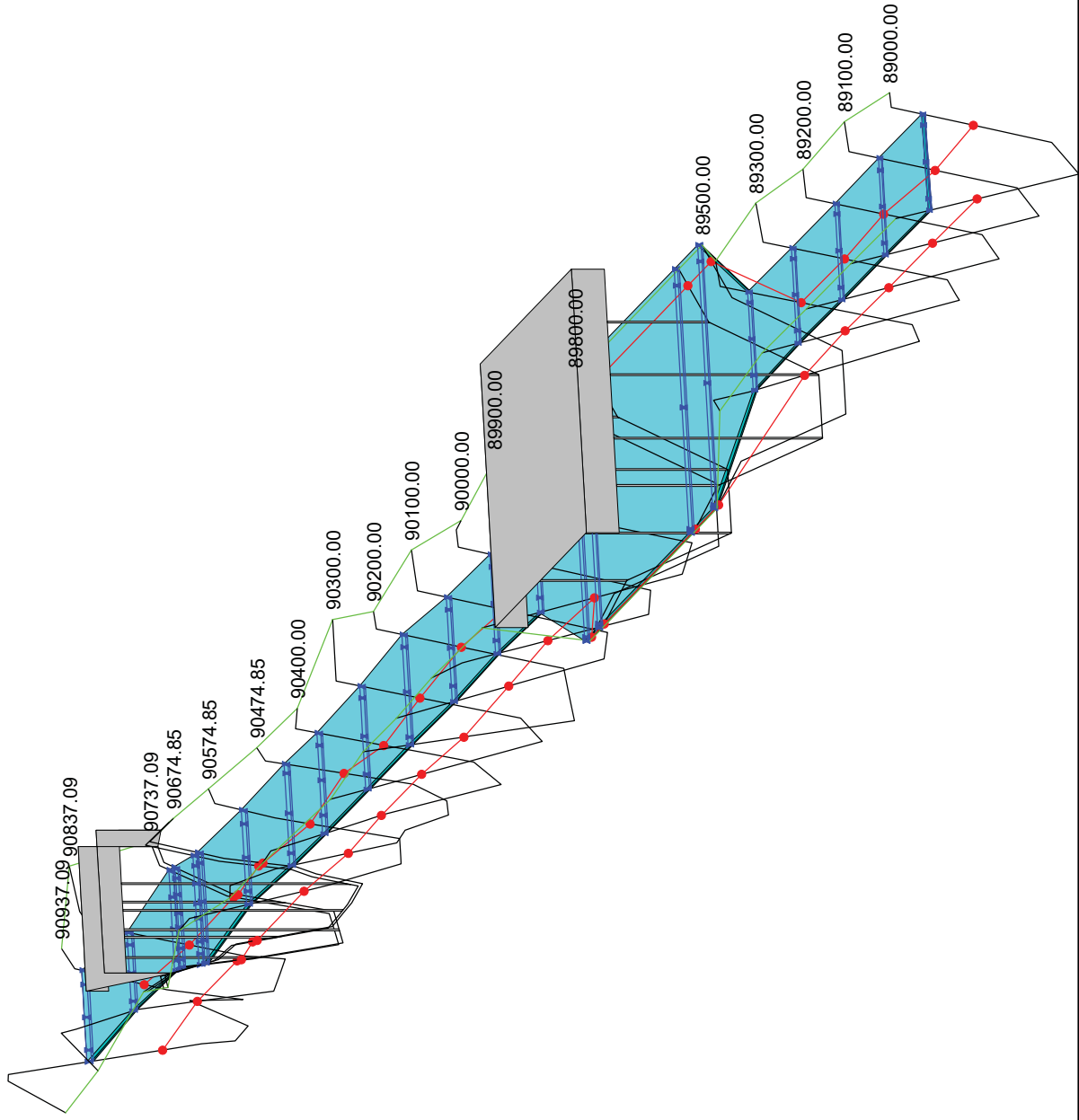
DATE: 12/1/12

PROJECT NO. 0547

DATE: 12/1/12

Canal D
Alternative 2:
Bridge with 4 Pier
Columns





HEC-RAS Plan: CR 510 Canal D Proposed with bridge River: Canal-D Reach: Canal-D

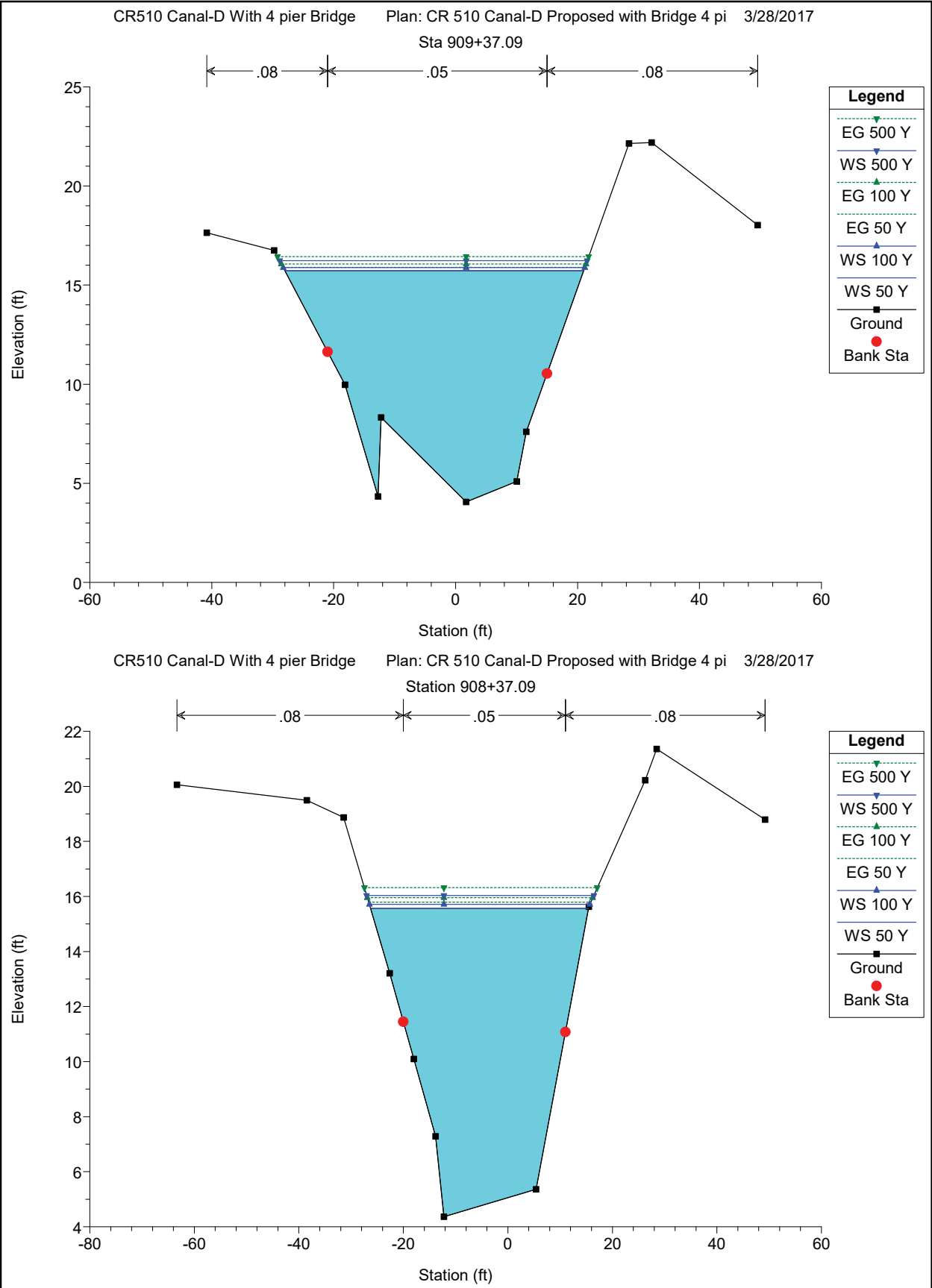
Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Canal-D	90937.09	50 Y	1117.00	4.06	15.73		15.90	0.000899	3.33	358.19	49.01	0.19
Canal-D	90937.09	100 Y	1177.00	4.06	15.89		16.07	0.000940	3.44	365.97	49.47	0.20
Canal-D	90937.09	500 Y	1310.00	4.06	16.24		16.44	0.001023	3.68	383.34	50.47	0.21
Canal-D	90837.09	50 Y	1117.00	4.36	15.56		15.79	0.001099	3.87	306.32	41.70	0.23
Canal-D	90837.09	100 Y	1177.00	4.36	15.71		15.96	0.001154	4.01	312.52	42.19	0.23
Canal-D	90837.09	500 Y	1310.00	4.36	16.04		16.32	0.001268	4.30	326.46	43.46	0.24
Canal-D	90737.09	50 Y	1117.00	3.66	15.53	8.46	15.69	0.000673	3.20	375.72	52.18	0.18
Canal-D	90737.09	100 Y	1177.00	3.66	15.68	8.61	15.84	0.000709	3.32	383.47	53.27	0.19
Canal-D	90737.09	500 Y	1310.00	3.66	16.00	8.92	16.19	0.000783	3.57	401.17	55.91	0.20
Canal-D	90727.09	Bridge										
Canal-D	90674.85	50 Y	1117.00	3.71	15.45		15.57	0.000517	2.80	421.94	59.66	0.16
Canal-D	90674.85	100 Y	1177.00	3.71	15.59		15.72	0.000545	2.90	430.47	60.21	0.17
Canal-D	90674.85	500 Y	1310.00	3.71	15.90		16.05	0.000601	3.11	449.58	61.42	0.18
Canal-D	90574.85	50 Y	1117.00	4.09	15.34		15.50	0.000731	3.26	363.84	50.67	0.19
Canal-D	90574.85	100 Y	1177.00	4.09	15.47		15.65	0.000771	3.38	370.73	51.15	0.20
Canal-D	90574.85	500 Y	1310.00	4.09	15.77		15.97	0.000854	3.64	386.20	52.21	0.21
Canal-D	90474.85	50 Y	1117.00	3.71	15.31		15.43	0.000526	2.79	418.13	54.97	0.16
Canal-D	90474.85	100 Y	1177.00	3.71	15.44		15.57	0.000555	2.89	425.53	55.34	0.17
Canal-D	90474.85	500 Y	1310.00	3.71	15.74		15.89	0.000616	3.11	442.08	56.15	0.18
Canal-D	90400.00	50 Y	1117.00	2.16	15.25		15.38	0.000581	2.99	399.87	54.28	0.17
Canal-D	90400.00	100 Y	1177.00	2.16	15.38		15.52	0.000615	3.10	406.97	54.76	0.18
Canal-D	90400.00	500 Y	1310.00	2.16	15.67		15.84	0.000687	3.34	422.92	55.84	0.19
Canal-D	90300.00	50 Y	1117.00	2.26	15.20		15.32	0.000512	2.80	420.73	55.69	0.16
Canal-D	90300.00	100 Y	1177.00	2.26	15.33		15.46	0.000543	2.90	427.87	56.14	0.17
Canal-D	90300.00	500 Y	1310.00	2.26	15.62		15.77	0.000607	3.13	443.92	57.13	0.18
Canal-D	90200.00	50 Y	1117.00	3.12	15.20		15.27	0.000290	2.21	521.62	59.86	0.12
Canal-D	90200.00	100 Y	1177.00	3.12	15.33		15.41	0.000309	2.30	529.29	60.20	0.13
Canal-D	90200.00	500 Y	1310.00	3.12	15.61		15.70	0.000348	2.49	546.45	60.95	0.14
Canal-D	90100.00	50 Y	1117.00	3.61	15.09		15.23	0.000602	2.95	400.51	56.40	0.17

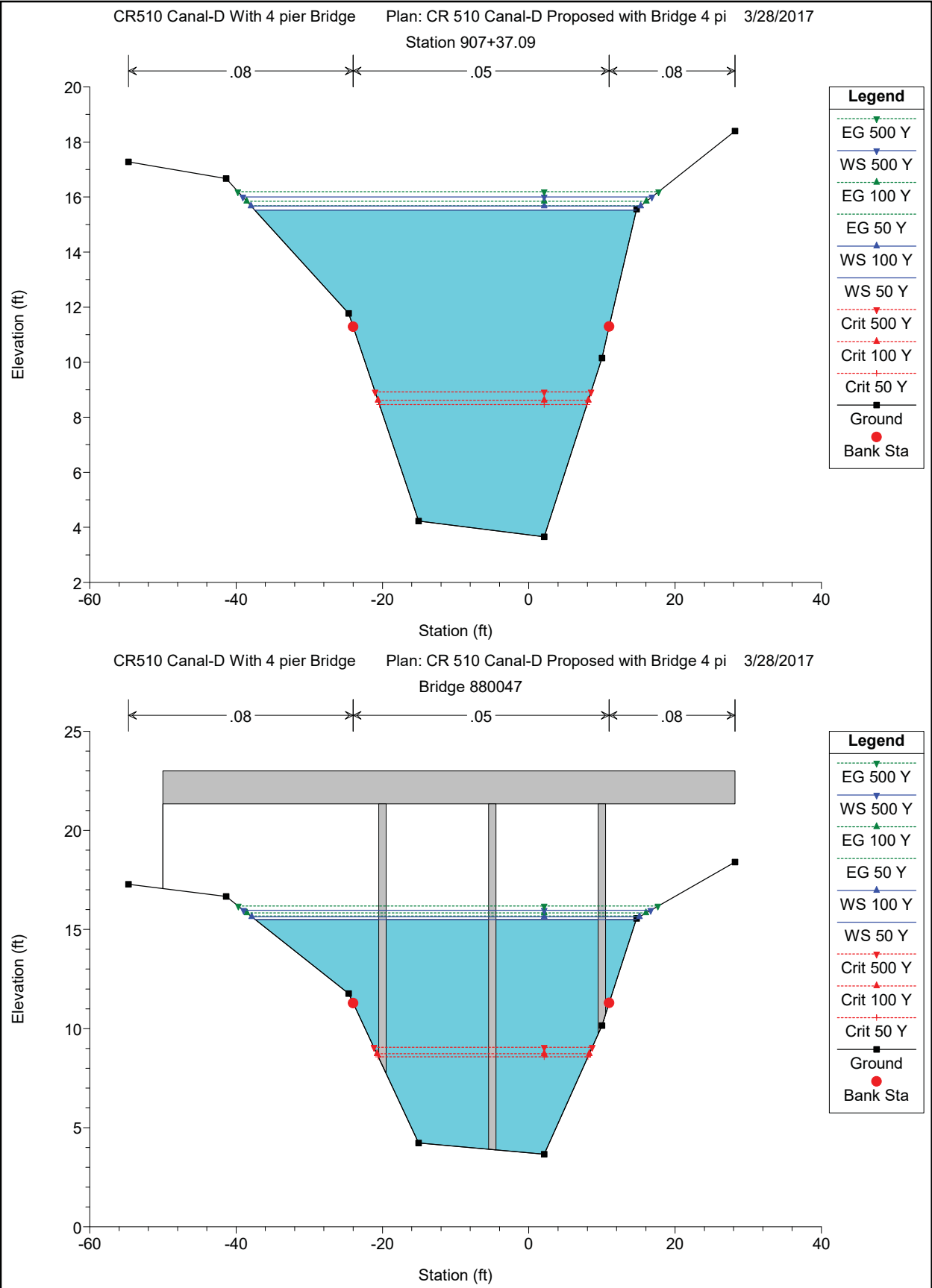
HEC-RAS Plan: CR 510 Canal D Proposed with bridge River: Canal-D Reach: Canal-D (Continued)

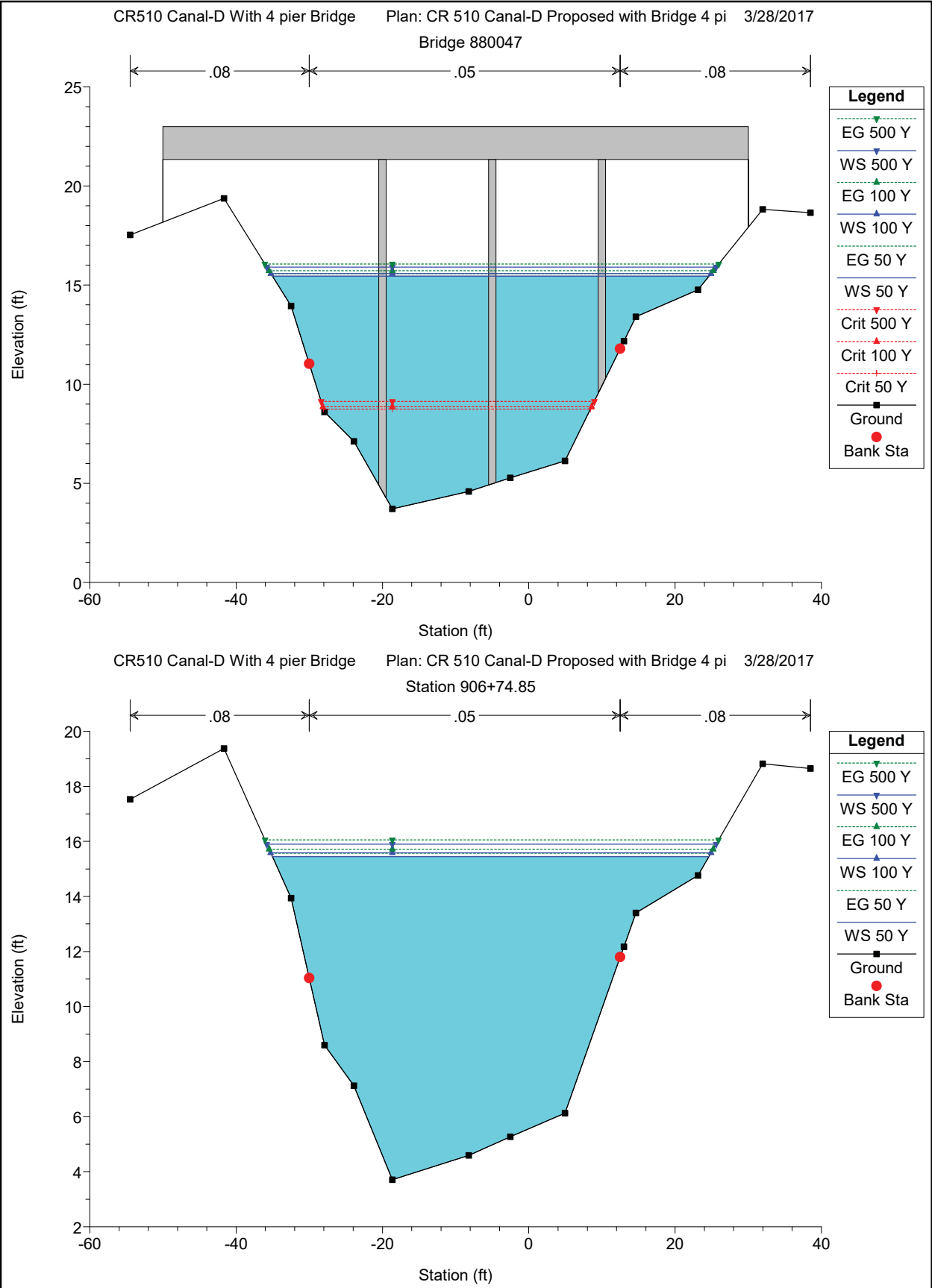
Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Canal-D	90100.00	100 Y	1177.00	3.61	15.21		15.36	0.000638	3.06	407.33	56.85	0.18
Canal-D	90100.00	500 Y	1310.00	3.61	15.48		15.65	0.000713	3.30	422.69	57.84	0.19
Canal-D	90000.00	50 Y	1117.00	3.56	15.01		15.16	0.000690	3.11	377.97	53.57	0.19
Canal-D	90000.00	100 Y	1177.00	3.56	15.13		15.29	0.000732	3.23	384.17	53.98	0.19
Canal-D	90000.00	500 Y	1310.00	3.56	15.38		15.57	0.000821	3.49	398.12	54.89	0.20
Canal-D	89900.00	50 Y	1117.00	3.63	14.96		15.09	0.000624	2.98	394.12	55.12	0.18
Canal-D	89900.00	100 Y	1177.00	3.63	15.07		15.21	0.000663	3.10	400.30	55.51	0.18
Canal-D	89900.00	500 Y	1310.00	3.63	15.32		15.49	0.000746	3.35	414.22	56.37	0.20
Canal-D	89800.00	50 Y	1117.00	5.00	15.01	7.86	15.04	0.000101	1.52	735.73	145.00	0.11
Canal-D	89800.00	100 Y	1177.00	5.00	15.12	7.95	15.16	0.000104	1.57	752.68	145.00	0.12
Canal-D	89800.00	500 Y	1310.00	5.00	15.38	8.14	15.43	0.000110	1.67	790.50	145.00	0.12
Canal-D	89770	Bridge										
Canal-D	89500.00	50 Y	1117.00	5.00	14.96		14.99	0.000104	1.54	728.78	143.82	0.12
Canal-D	89500.00	100 Y	1177.00	5.00	15.07		15.11	0.000107	1.59	745.42	145.00	0.12
Canal-D	89500.00	500 Y	1310.00	5.00	15.33		15.37	0.000114	1.68	782.67	145.00	0.12
Canal-D	89400.00	50 Y	1117.00	2.56	14.81		14.96	0.000707	3.14	374.75	53.11	0.19
Canal-D	89400.00	100 Y	1177.00	2.56	14.91		15.08	0.000754	3.26	380.23	53.49	0.19
Canal-D	89400.00	500 Y	1310.00	2.56	15.14		15.33	0.000854	3.53	392.63	54.33	0.21
Canal-D	89300.00	50 Y	1117.00	2.75	14.73		14.89	0.000752	3.21	364.25	51.52	0.19
Canal-D	89300.00	100 Y	1177.00	2.75	14.83		15.00	0.000803	3.35	369.26	51.85	0.20
Canal-D	89300.00	500 Y	1310.00	2.75	15.04		15.24	0.000914	3.63	380.61	52.61	0.21
Canal-D	89200.00	50 Y	1117.00	2.95	14.65		14.81	0.000752	3.19	365.59	52.04	0.19
Canal-D	89200.00	100 Y	1177.00	2.95	14.75		14.92	0.000805	3.32	370.38	52.36	0.20
Canal-D	89200.00	500 Y	1310.00	2.95	14.95		15.15	0.000919	3.61	381.24	53.07	0.21
Canal-D	89100.00	50 Y	1117.00	3.15	14.58		14.74	0.000756	3.22	365.19	52.53	0.19
Canal-D	89100.00	100 Y	1177.00	3.15	14.66		14.84	0.000811	3.35	369.73	52.83	0.20
Canal-D	89100.00	500 Y	1310.00	3.15	14.86		15.06	0.000930	3.65	379.99	53.50	0.22
Canal-D	89000.00	50 Y	1117.00	3.34	14.50	8.49	14.66	0.000776	3.22	363.61	53.00	0.20
Canal-D	89000.00	100 Y	1177.00	3.34	14.58	8.62	14.75	0.000834	3.36	367.86	53.28	0.20

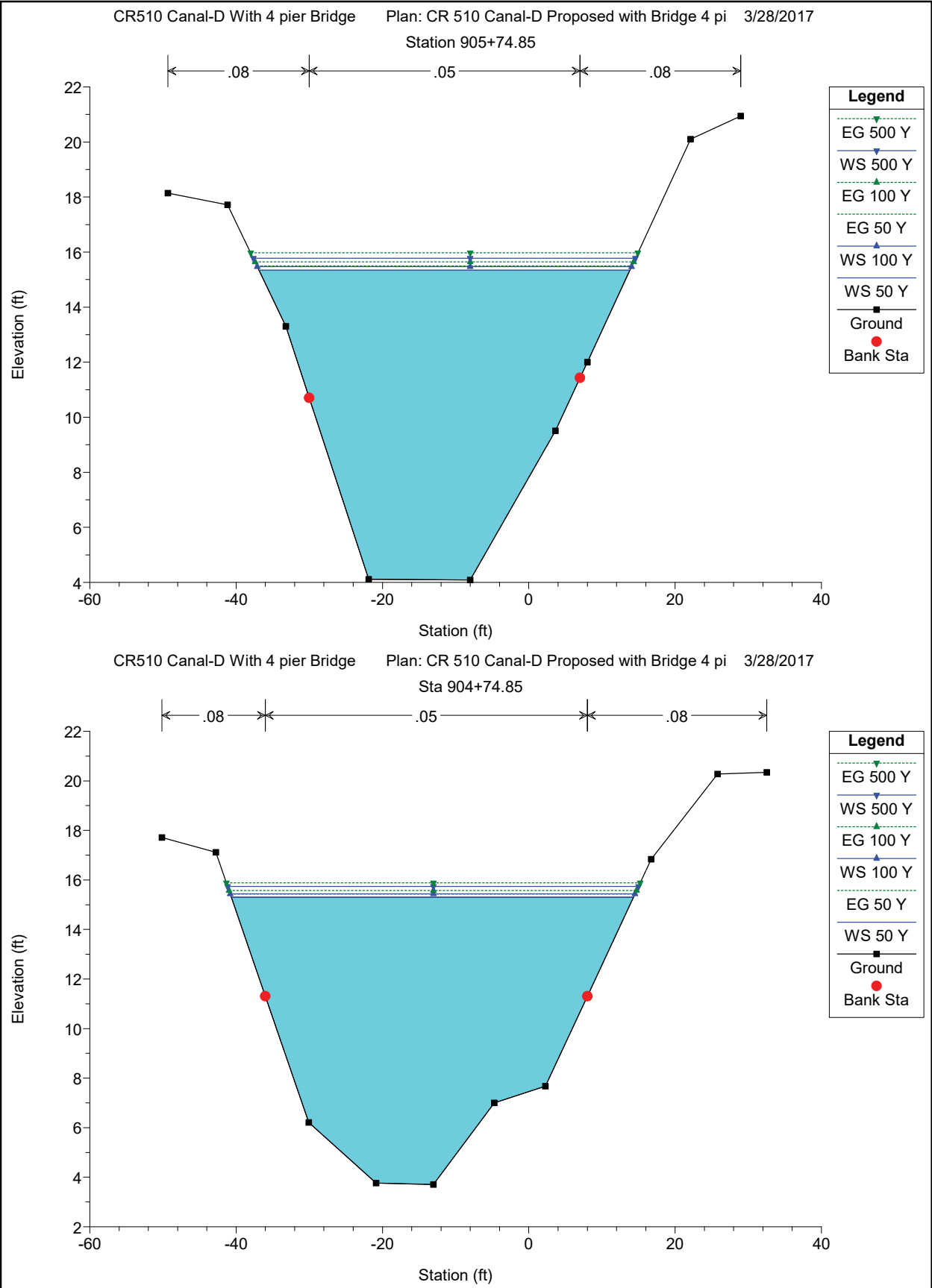
HEC-RAS Plan: CR 510 Canal D Proposed with bridge River: Canal-D Reach: Canal-D (Continued)

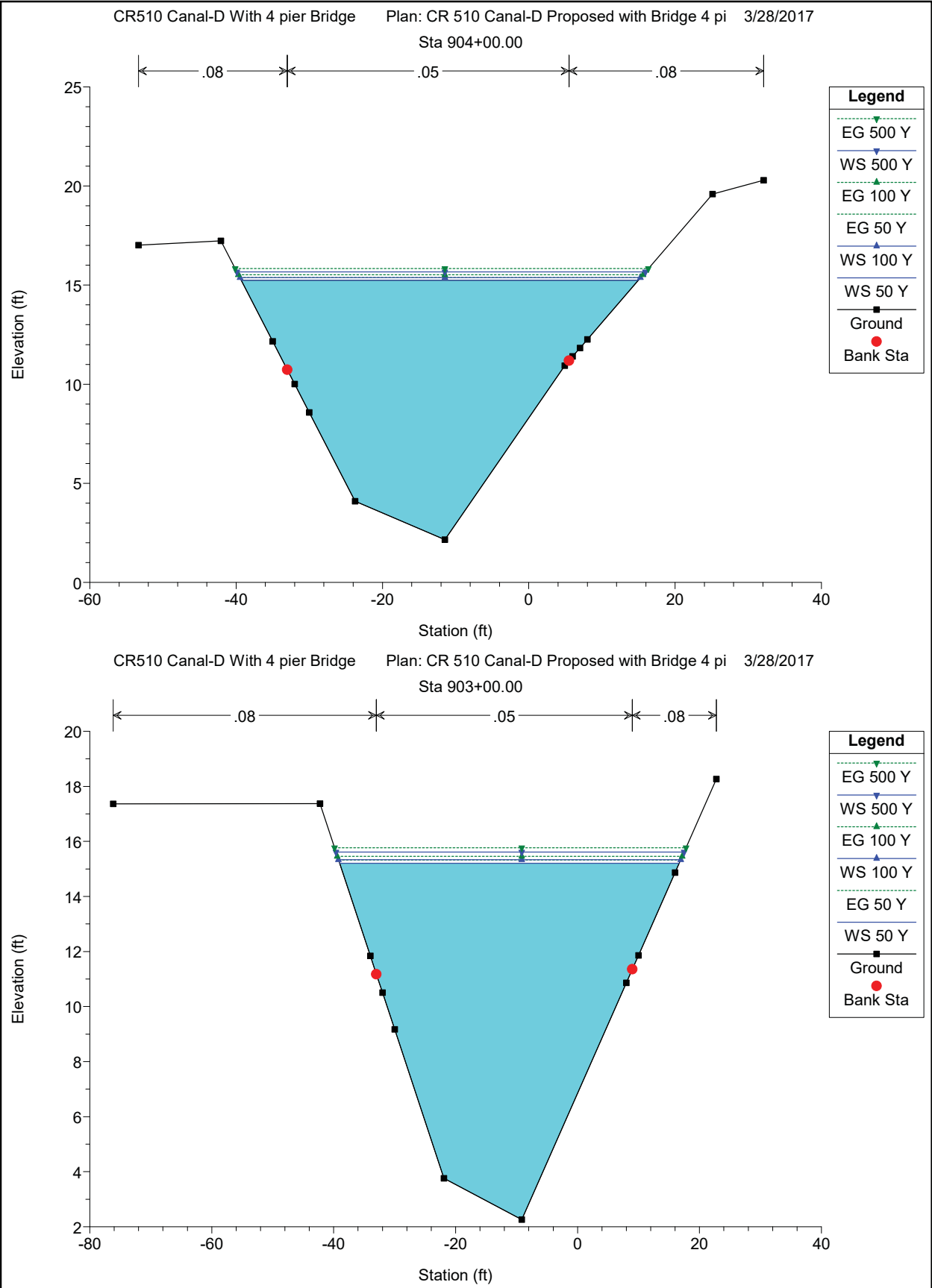
Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Canal-D	89000.00	500 Y	1310.00	3.34	14.76	8.91	14.96	0.000960	3.65	377.51	53.90	0.22

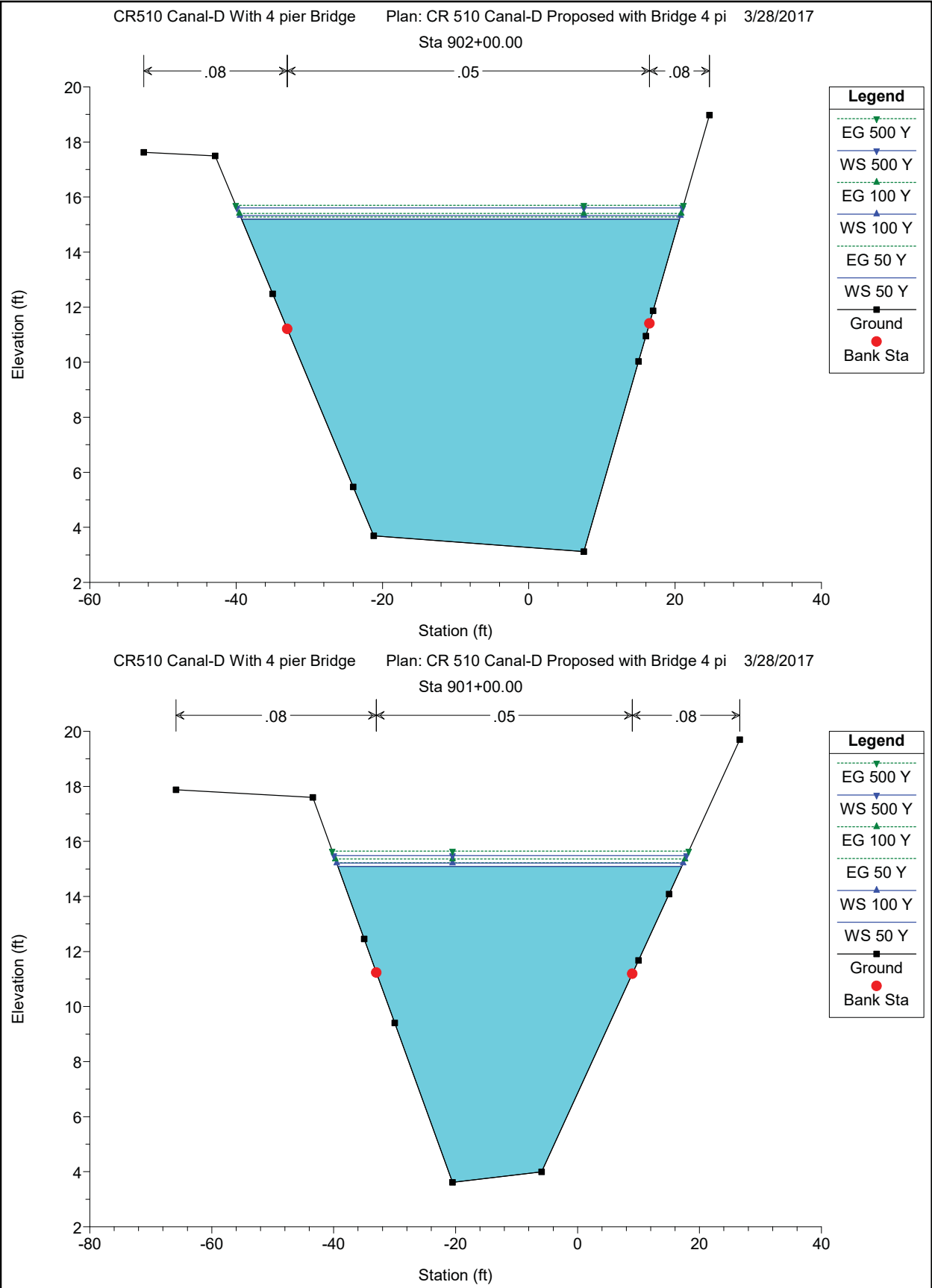


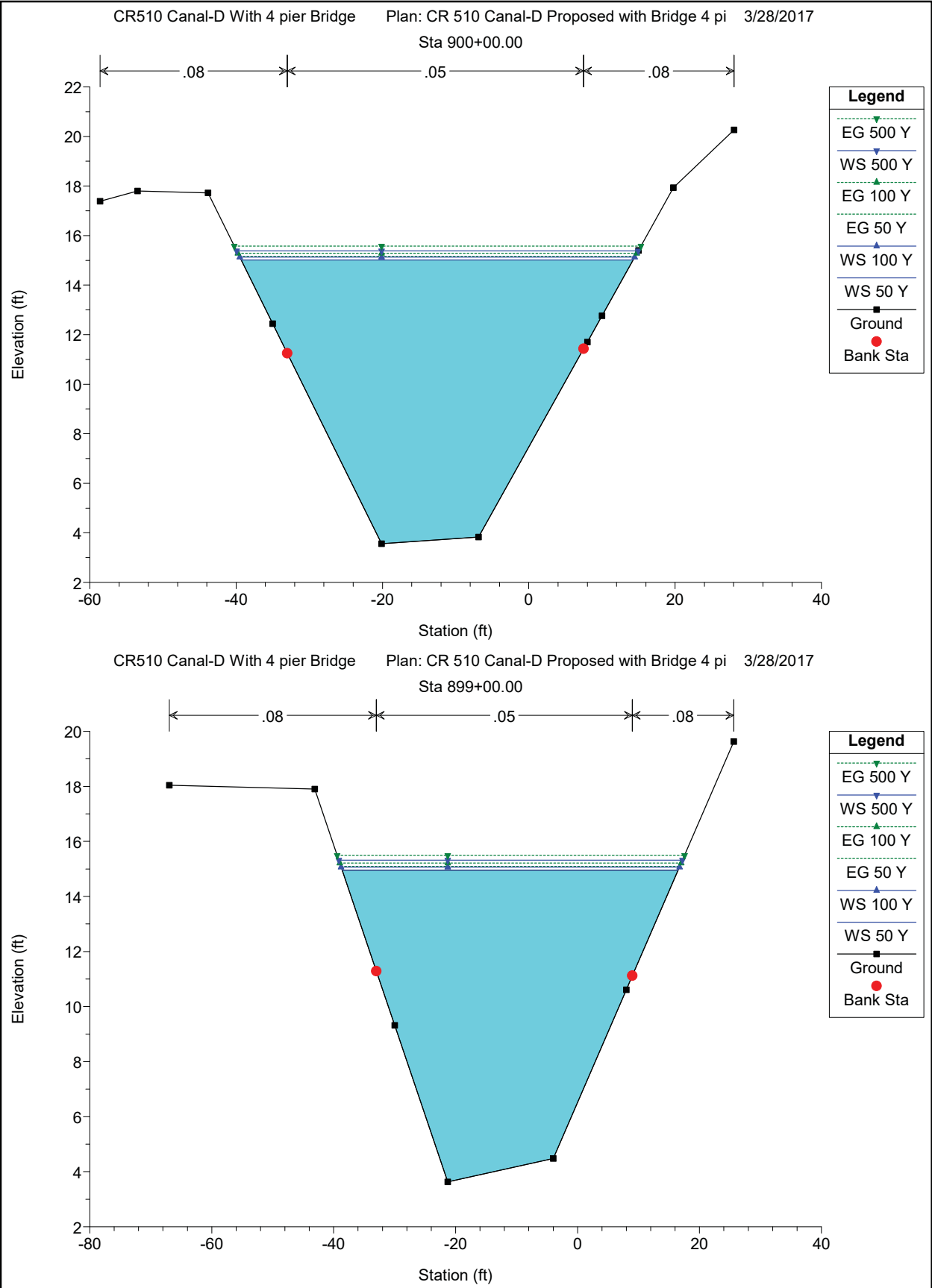


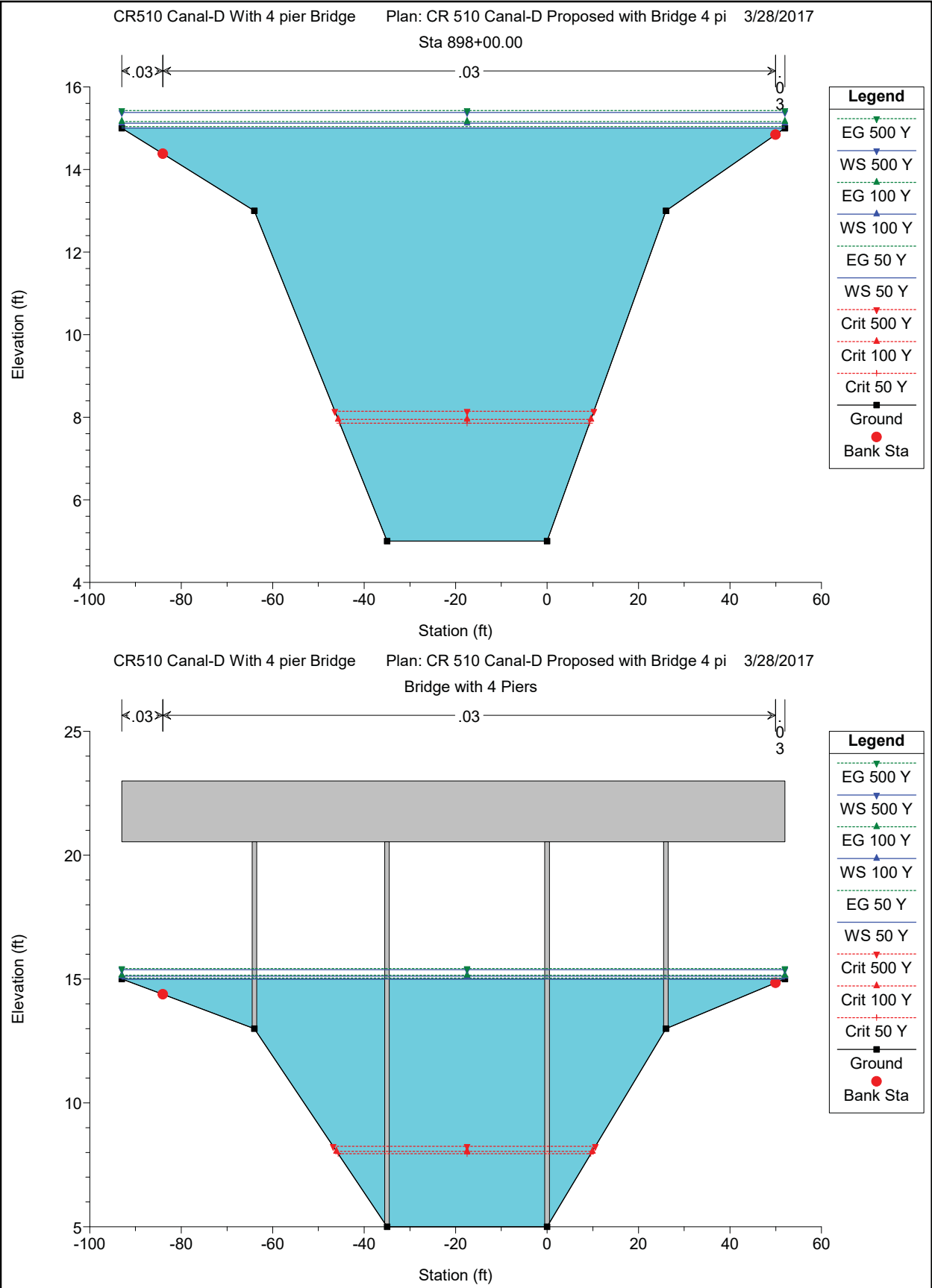


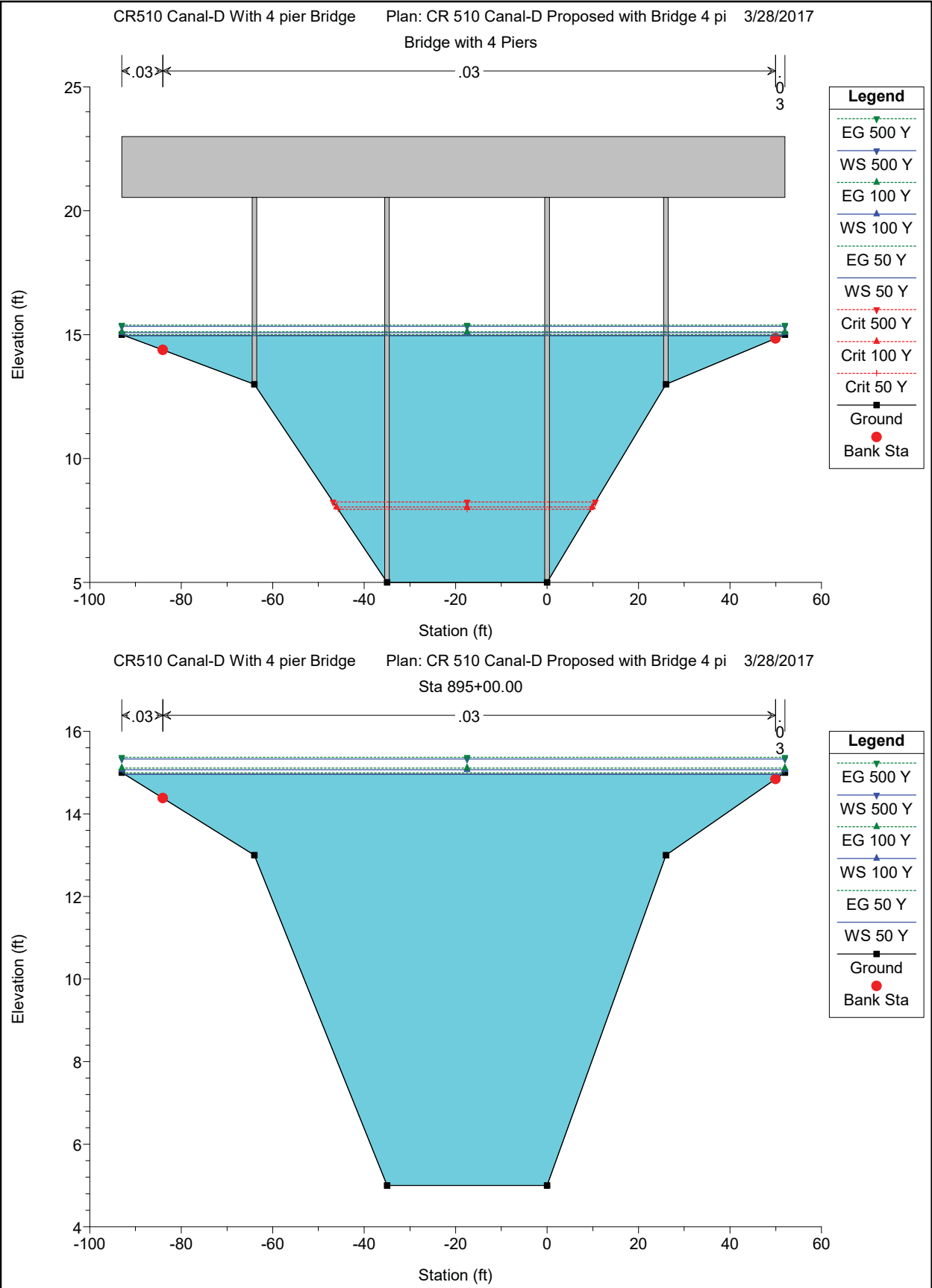


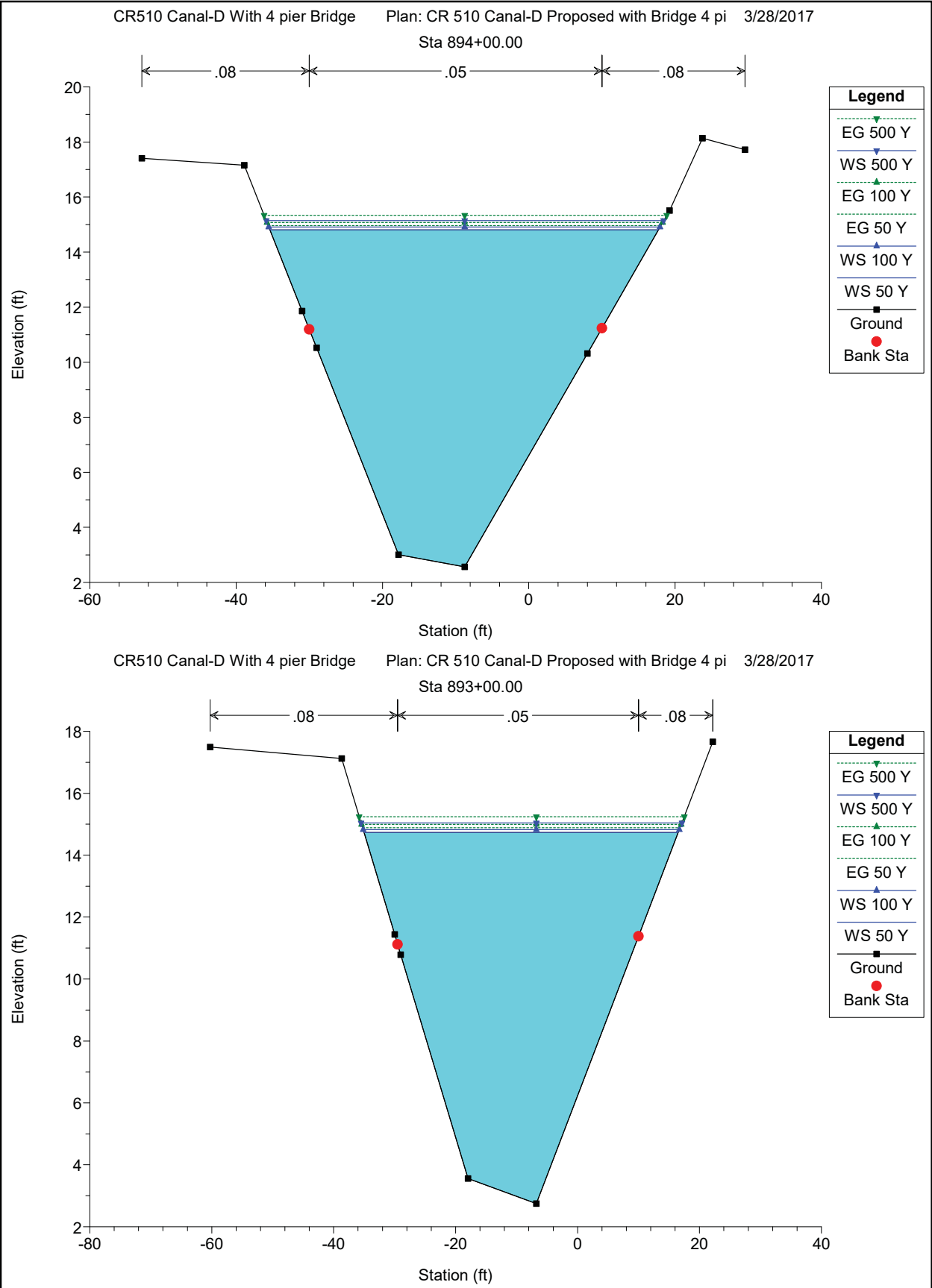


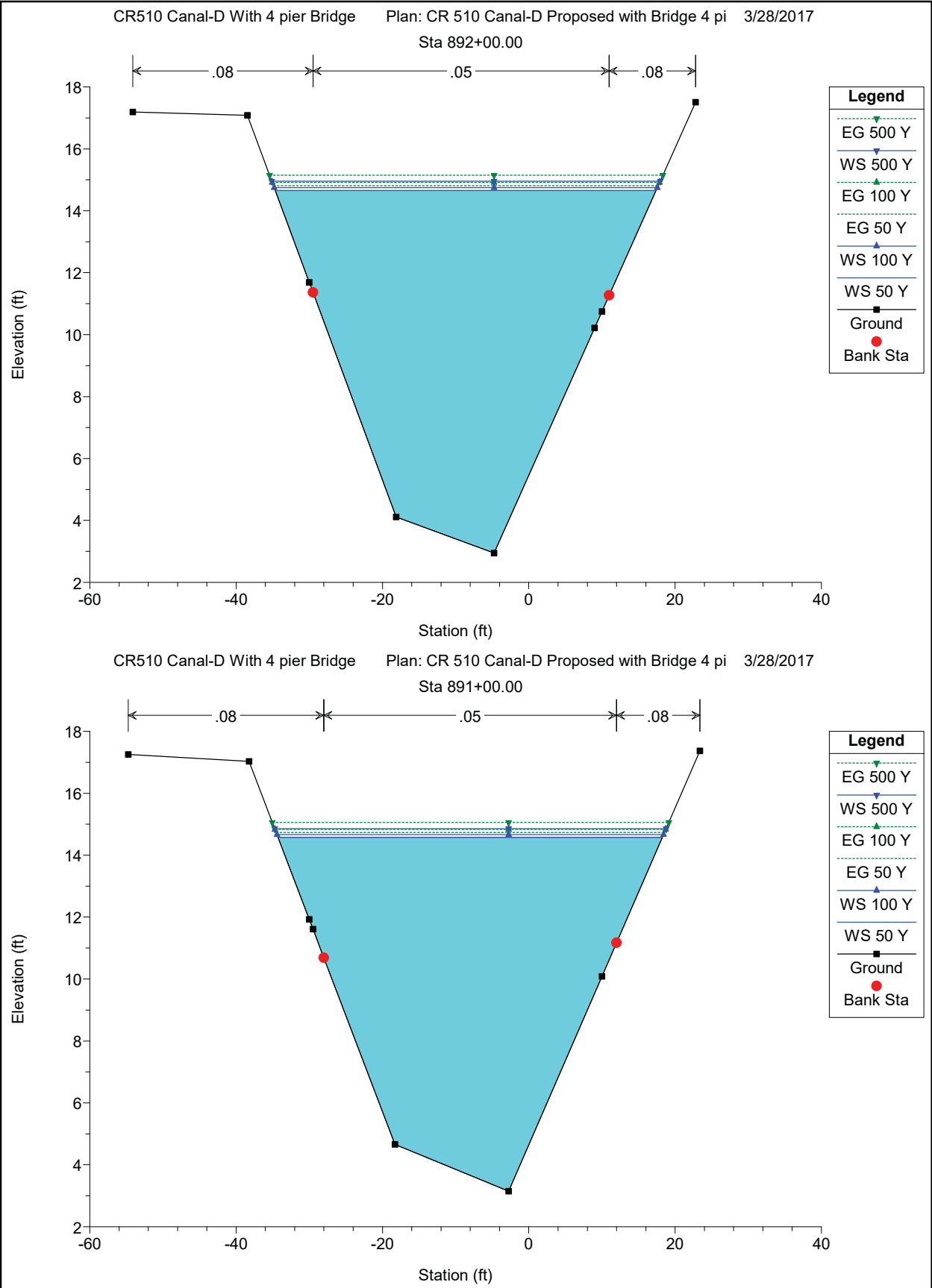




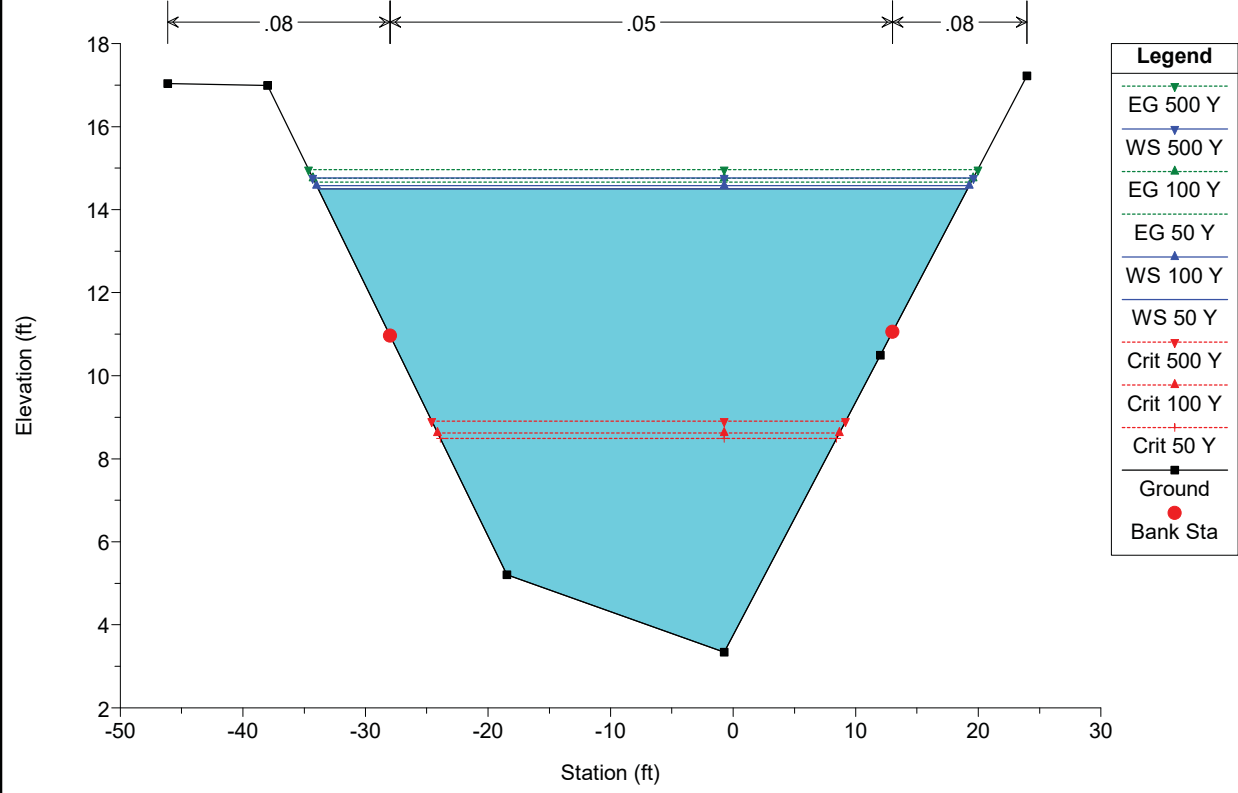


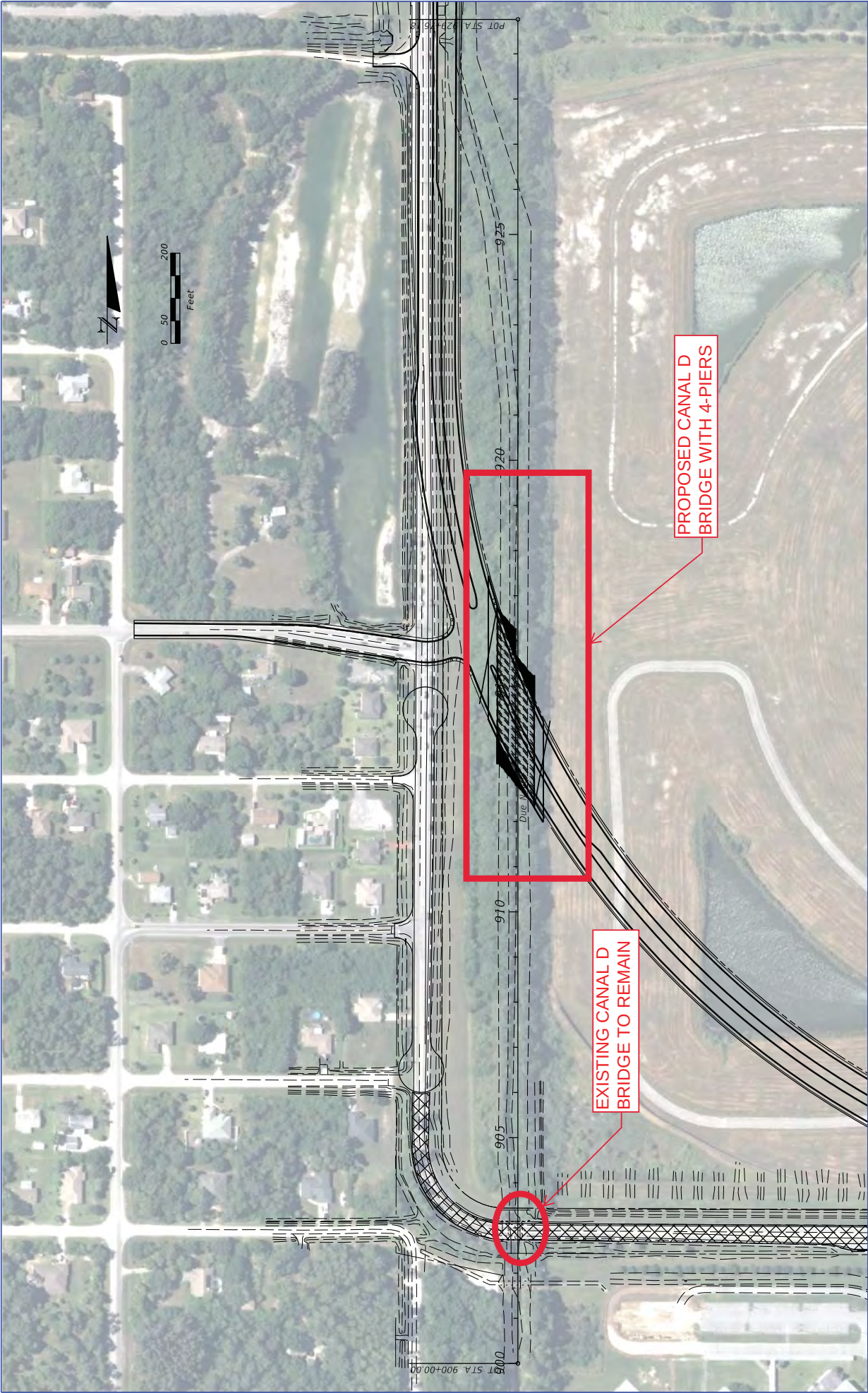






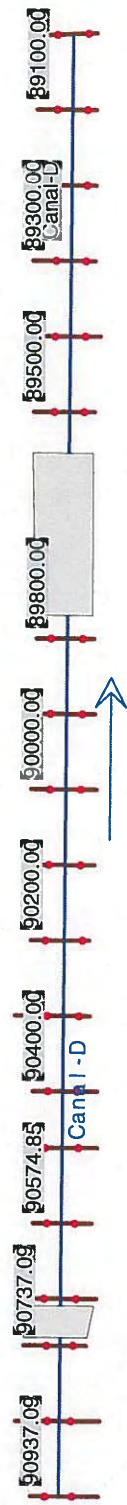
CR510 Canal-D With 4 pier Bridge Plan: CR 510 Canal-D Proposed with Bridge 4 pi 3/28/2017
Sta 890+00.00

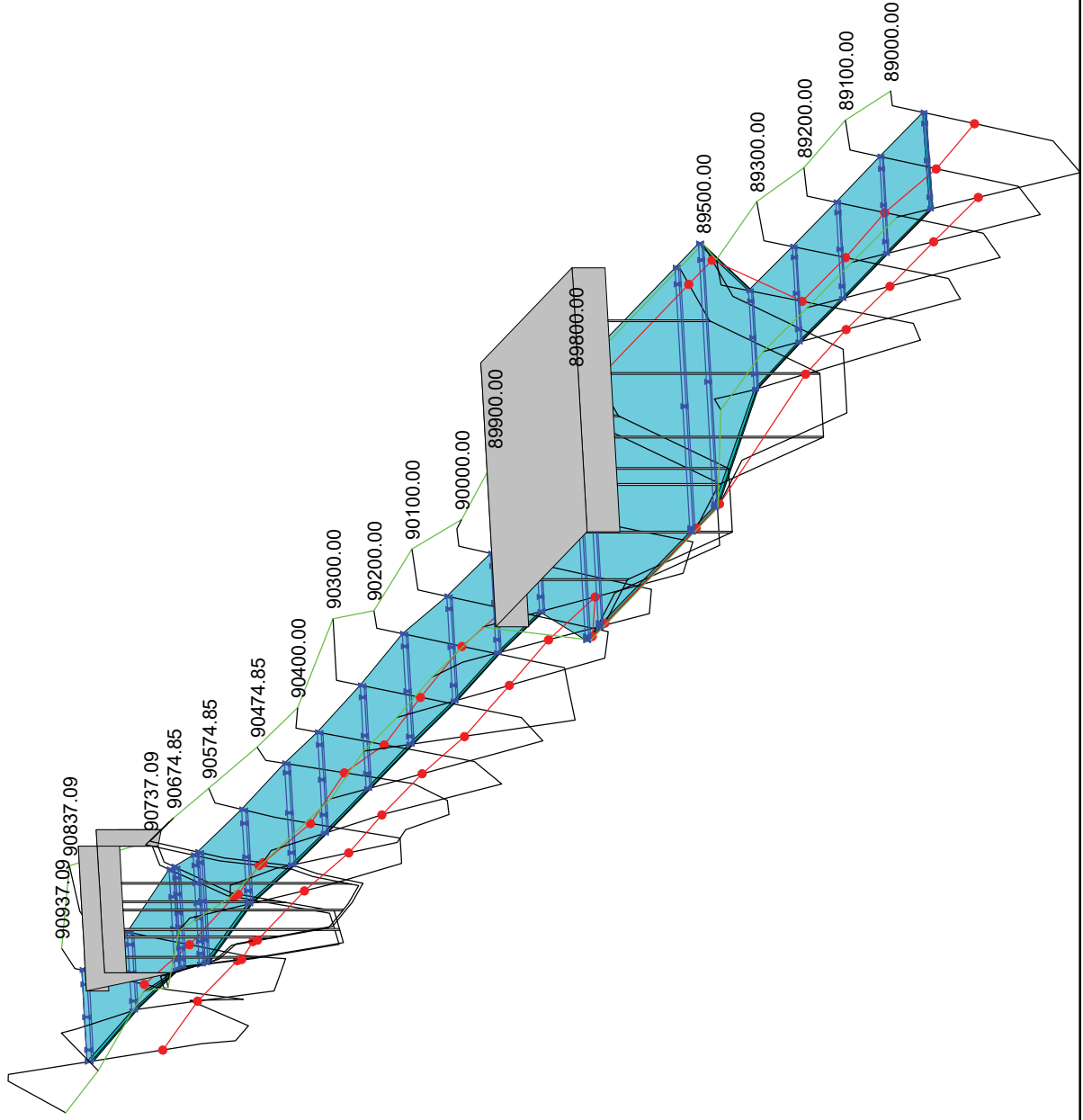




REVISIONS		STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		CANAL D PROPOSED BRIDGE WITH 4 PIER COLUMNS		SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	ROAD NO.	FINANCIAL PROJECT ID	
				COUNTY		

Canal D
Alternative 3:
With 3
Concrete Box Culvert





HEC-RAS Plan: CR 510 Canal D Proposed with CBC River: Canal-D Reach: Canal-D

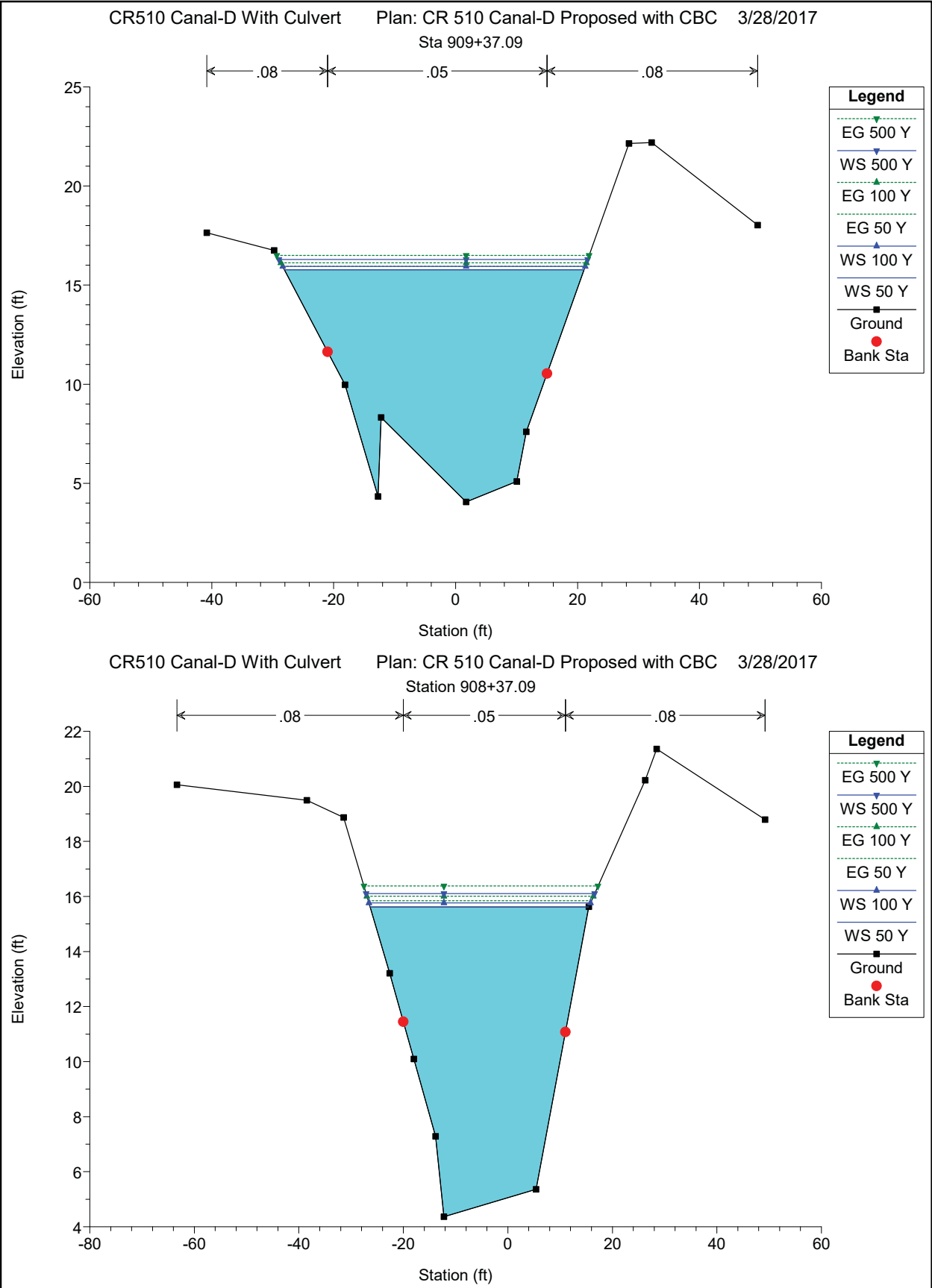
Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Canal-D	90937.09	50 Y	1117.00	4.06	15.78		15.94	0.000882	3.31	360.59	49.16	0.19
Canal-D	90937.09	100 Y	1177.00	4.06	15.94		16.12	0.000921	3.42	368.63	49.62	0.20
Canal-D	90937.09	500 Y	1310.00	4.06	16.30		16.50	0.001000	3.65	386.55	50.65	0.21
Canal-D	90837.09	50 Y	1117.00	4.36	15.62		15.84	0.001078	3.85	308.48	41.83	0.22
Canal-D	90837.09	100 Y	1177.00	4.36	15.77		16.01	0.001130	3.98	314.92	42.41	0.23
Canal-D	90837.09	500 Y	1310.00	4.36	16.11		16.38	0.001238	4.27	329.41	43.72	0.24
Canal-D	90737.09	50 Y	1117.00	3.66	15.58	8.46	15.74	0.000660	3.18	378.48	52.50	0.18
Canal-D	90737.09	100 Y	1177.00	3.66	15.74	8.60	15.90	0.000694	3.30	386.56	53.74	0.18
Canal-D	90737.09	500 Y	1310.00	3.66	16.07	8.92	16.26	0.000764	3.54	405.05	56.47	0.19
Canal-D	90727.09	Bridge										
Canal-D	90674.85	50 Y	1117.00	3.71	15.50		15.62	0.000507	2.78	425.19	59.87	0.16
Canal-D	90674.85	100 Y	1177.00	3.71	15.65		15.78	0.000533	2.88	434.07	60.44	0.16
Canal-D	90674.85	500 Y	1310.00	3.71	15.97		16.12	0.000586	3.09	454.01	61.70	0.17
Canal-D	90574.85	50 Y	1117.00	4.09	15.39		15.56	0.000715	3.24	366.71	50.87	0.19
Canal-D	90574.85	100 Y	1177.00	4.09	15.54		15.71	0.000753	3.36	373.92	51.37	0.19
Canal-D	90574.85	500 Y	1310.00	4.09	15.85		16.05	0.000830	3.61	390.12	52.48	0.21
Canal-D	90474.85	50 Y	1117.00	3.71	15.36		15.48	0.000515	2.77	421.29	55.13	0.16
Canal-D	90474.85	100 Y	1177.00	3.71	15.50		15.63	0.000542	2.87	429.03	55.51	0.17
Canal-D	90474.85	500 Y	1310.00	3.71	15.81		15.96	0.000599	3.08	446.37	56.36	0.18
Canal-D	90400.00	50 Y	1117.00	2.16	15.31		15.44	0.000569	2.97	403.05	54.50	0.17
Canal-D	90400.00	100 Y	1177.00	2.16	15.44		15.59	0.000601	3.08	410.50	55.00	0.17
Canal-D	90400.00	500 Y	1310.00	2.16	15.74		15.91	0.000668	3.31	427.29	56.13	0.18
Canal-D	90300.00	50 Y	1117.00	2.26	15.26		15.38	0.000501	2.78	424.05	55.90	0.16
Canal-D	90300.00	100 Y	1177.00	2.26	15.40		15.52	0.000530	2.88	431.57	56.37	0.16
Canal-D	90300.00	500 Y	1310.00	2.26	15.69		15.84	0.000590	3.10	448.48	57.40	0.17
Canal-D	90200.00	50 Y	1117.00	3.12	15.26		15.33	0.000284	2.20	525.21	60.02	0.12
Canal-D	90200.00	100 Y	1177.00	3.12	15.39		15.47	0.000302	2.28	533.26	60.37	0.13
Canal-D	90200.00	500 Y	1310.00	3.12	15.69		15.78	0.000339	2.47	551.33	61.16	0.13
Canal-D	90100.00	50 Y	1117.00	3.61	15.16		15.29	0.000588	2.93	404.00	56.63	0.17

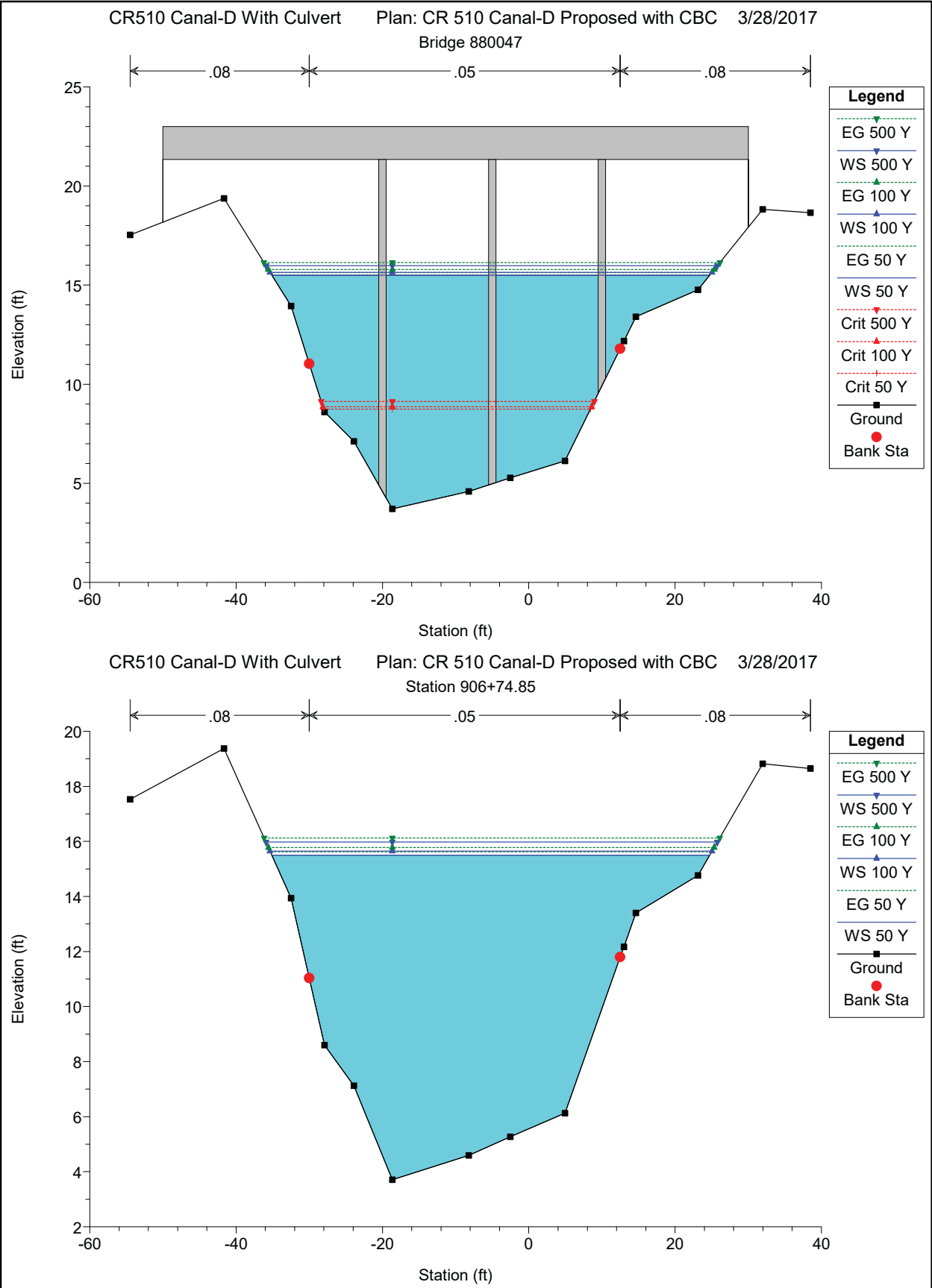
HEC-RAS Plan: CR 510 Canal D Proposed with CBC River: Canal-D Reach: Canal-D (Continued)

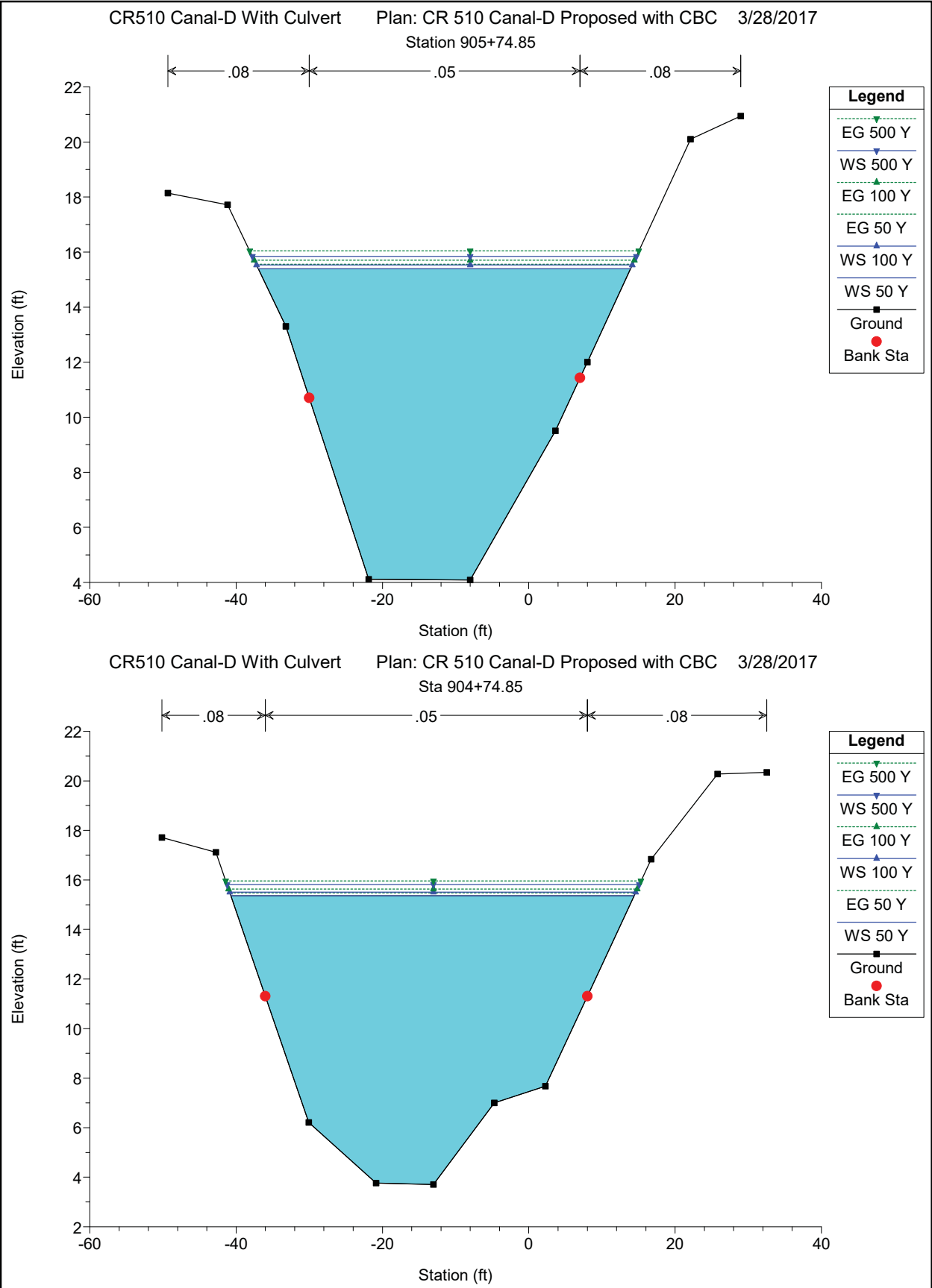
Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Canal-D	90100.00	100 Y	1177.00	3.61	15.28		15.42	0.000621	3.04	411.23	57.10	0.18
Canal-D	90100.00	500 Y	1310.00	3.61	15.57		15.73	0.000691	3.27	427.52	58.15	0.19
Canal-D	90000.00	50 Y	1117.00	3.56	15.08		15.22	0.000673	3.09	381.39	53.80	0.18
Canal-D	90000.00	100 Y	1177.00	3.56	15.20		15.36	0.000712	3.20	387.99	54.23	0.19
Canal-D	90000.00	500 Y	1310.00	3.56	15.47		15.65	0.000795	3.45	402.87	55.20	0.20
Canal-D	89900.00	50 Y	1117.00	3.63	15.02		15.15	0.000608	2.96	397.73	55.35	0.18
Canal-D	89900.00	100 Y	1177.00	3.63	15.14		15.28	0.000645	3.07	404.33	55.76	0.18
Canal-D	89900.00	500 Y	1310.00	3.63	15.40		15.57	0.000722	3.31	419.23	56.68	0.19
Canal-D	89800.00	50 Y	1117.00	3.69	14.96	8.15	15.09	0.000583	2.91	401.04	54.02	0.17
Canal-D	89800.00	100 Y	1177.00	3.69	15.08	8.28	15.22	0.000620	3.03	407.28	54.39	0.18
Canal-D	89800.00	500 Y	1310.00	3.69	15.34	8.57	15.50	0.000698	3.27	421.38	55.21	0.19
Canal-D	89770		Culvert									
Canal-D	89500.00	50 Y	1117.00	2.83	14.88		15.03	0.000697	3.15	372.99	51.34	0.19
Canal-D	89500.00	100 Y	1177.00	2.83	14.99		15.15	0.000742	3.27	378.53	51.71	0.19
Canal-D	89500.00	500 Y	1310.00	2.83	15.23		15.42	0.000840	3.54	391.02	52.51	0.20
Canal-D	89400.00	50 Y	1117.00	2.56	14.81		14.96	0.000707	3.14	374.75	53.11	0.19
Canal-D	89400.00	100 Y	1177.00	2.56	14.91		15.08	0.000754	3.26	380.23	53.49	0.19
Canal-D	89400.00	500 Y	1310.00	2.56	15.14		15.33	0.000854	3.53	392.63	54.33	0.21
Canal-D	89300.00	50 Y	1117.00	2.75	14.73		14.89	0.000752	3.21	364.25	51.52	0.19
Canal-D	89300.00	100 Y	1177.00	2.75	14.83		15.00	0.000803	3.35	369.26	51.85	0.20
Canal-D	89300.00	500 Y	1310.00	2.75	15.04		15.24	0.000914	3.63	380.61	52.61	0.21
Canal-D	89200.00	50 Y	1117.00	2.95	14.65		14.81	0.000752	3.19	365.59	52.04	0.19
Canal-D	89200.00	100 Y	1177.00	2.95	14.75		14.92	0.000805	3.32	370.38	52.36	0.20
Canal-D	89200.00	500 Y	1310.00	2.95	14.95		15.15	0.000919	3.61	381.23	53.07	0.21
Canal-D	89100.00	50 Y	1117.00	3.15	14.58		14.74	0.000756	3.22	365.19	52.53	0.19
Canal-D	89100.00	100 Y	1177.00	3.15	14.66		14.84	0.000811	3.35	369.73	52.83	0.20
Canal-D	89100.00	500 Y	1310.00	3.15	14.86		15.06	0.000930	3.65	379.99	53.50	0.22
Canal-D	89000.00	50 Y	1117.00	3.34	14.50	8.49	14.66	0.000776	3.22	363.61	53.00	0.20
Canal-D	89000.00	100 Y	1177.00	3.34	14.58	8.62	14.75	0.000834	3.36	367.86	53.28	0.20

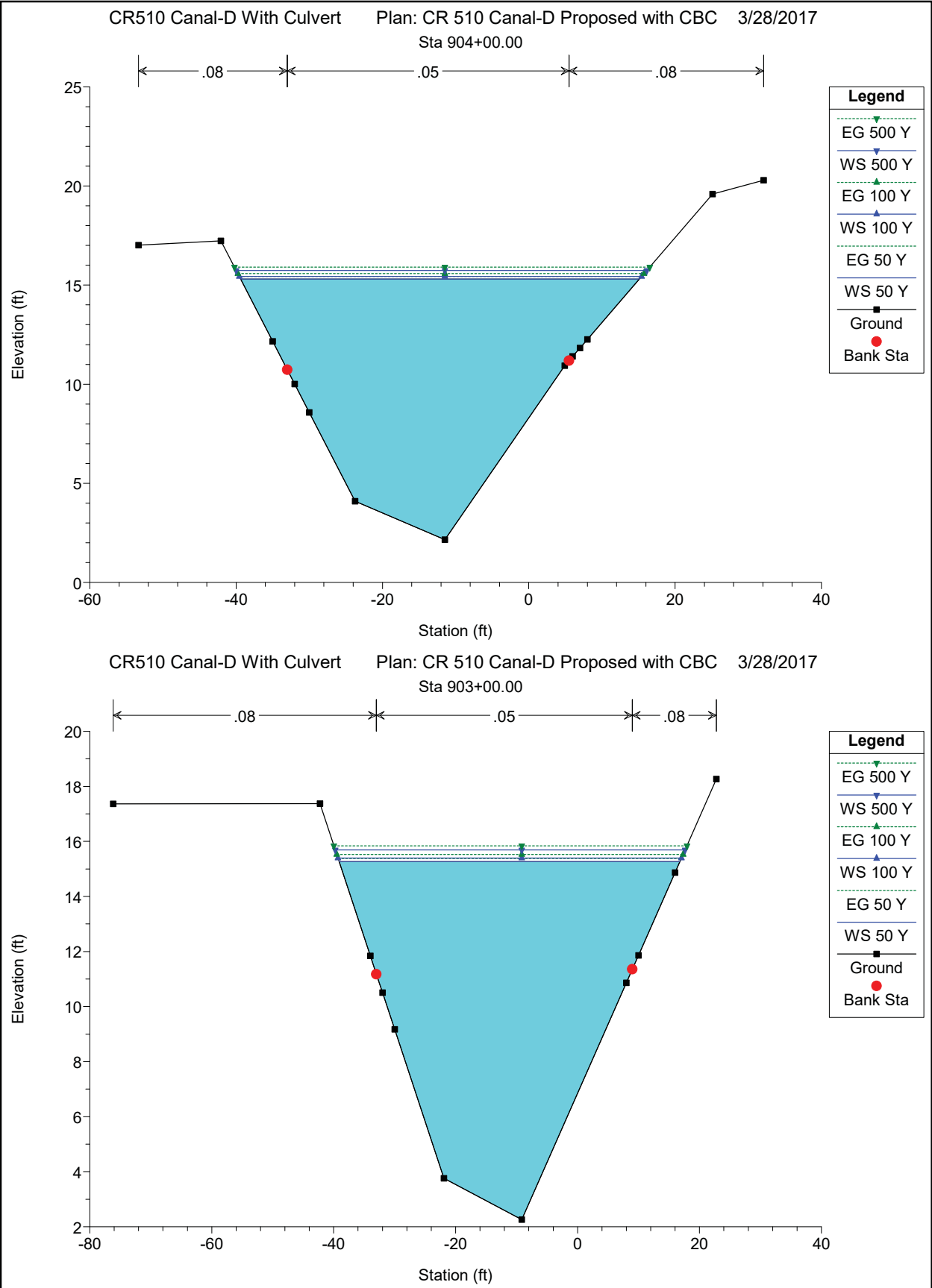
HEC-RAS Plan: CR 510 Canal D Proposed with CBC River: Canal-D Reach: Canal-D (Continued)

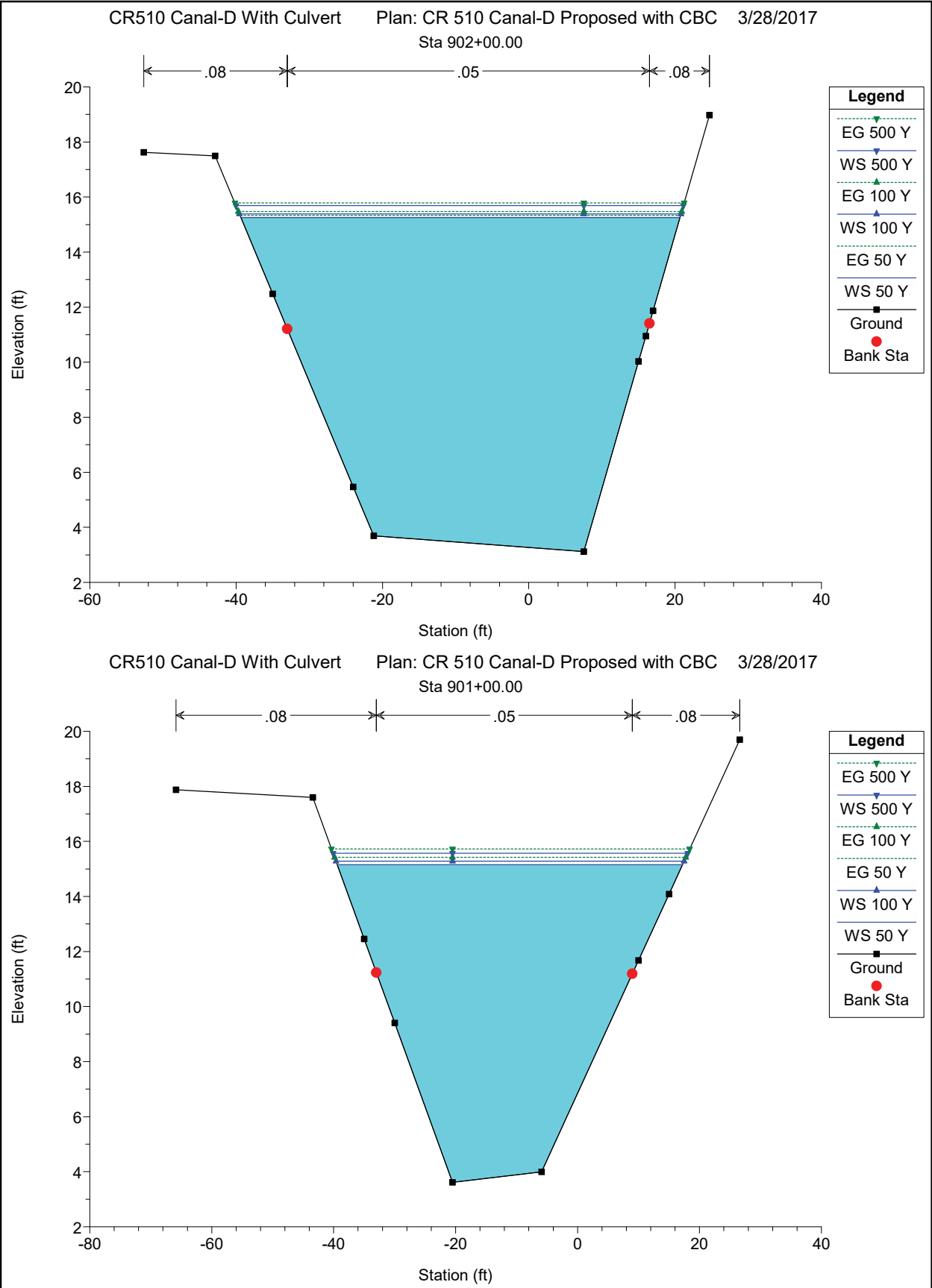
Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Canal-D	89000.00	500 Y	1310.00	3.34	14.76	8.91	14.96	0.000960	3.65	377.51	53.90	0.22

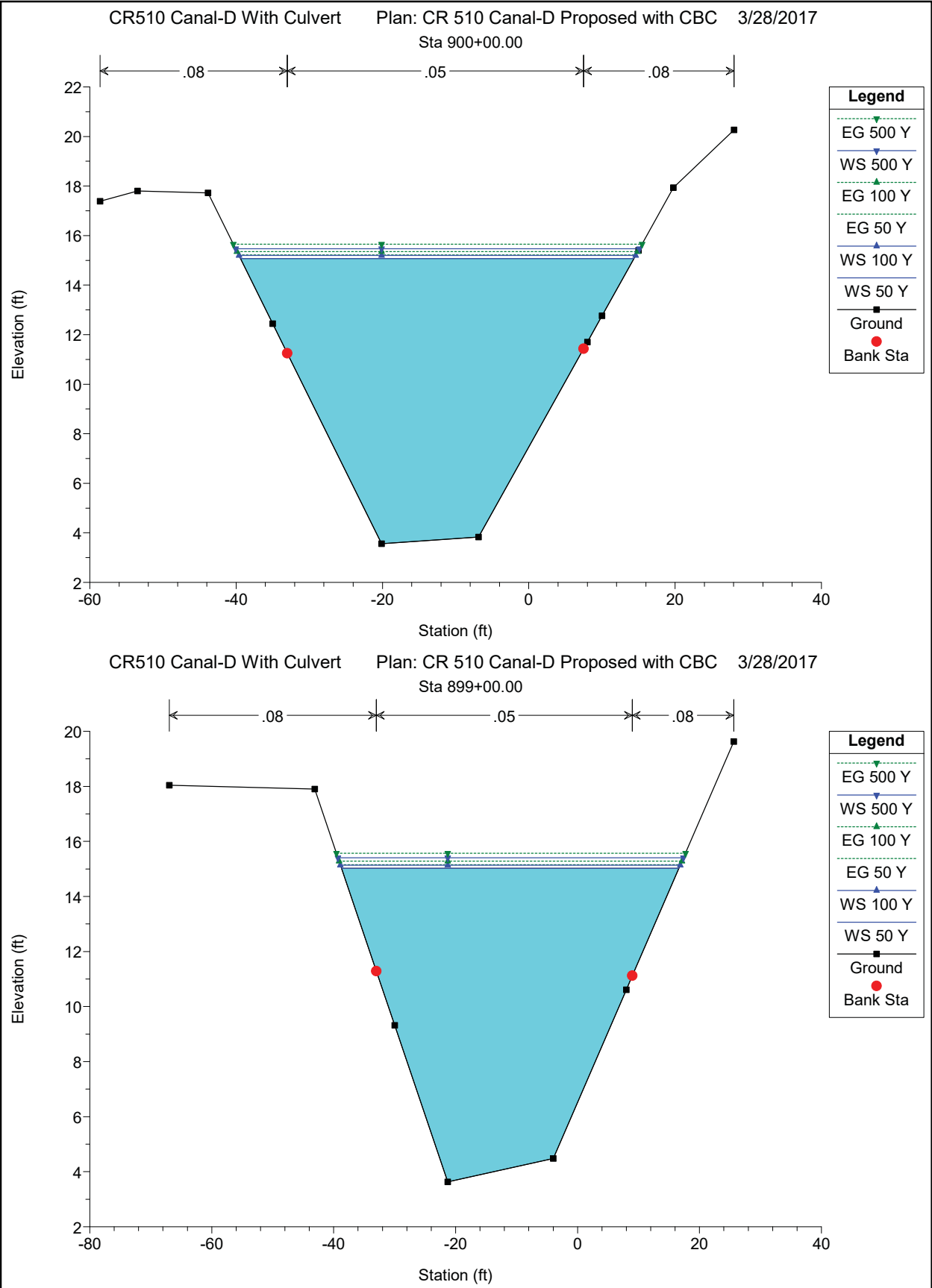


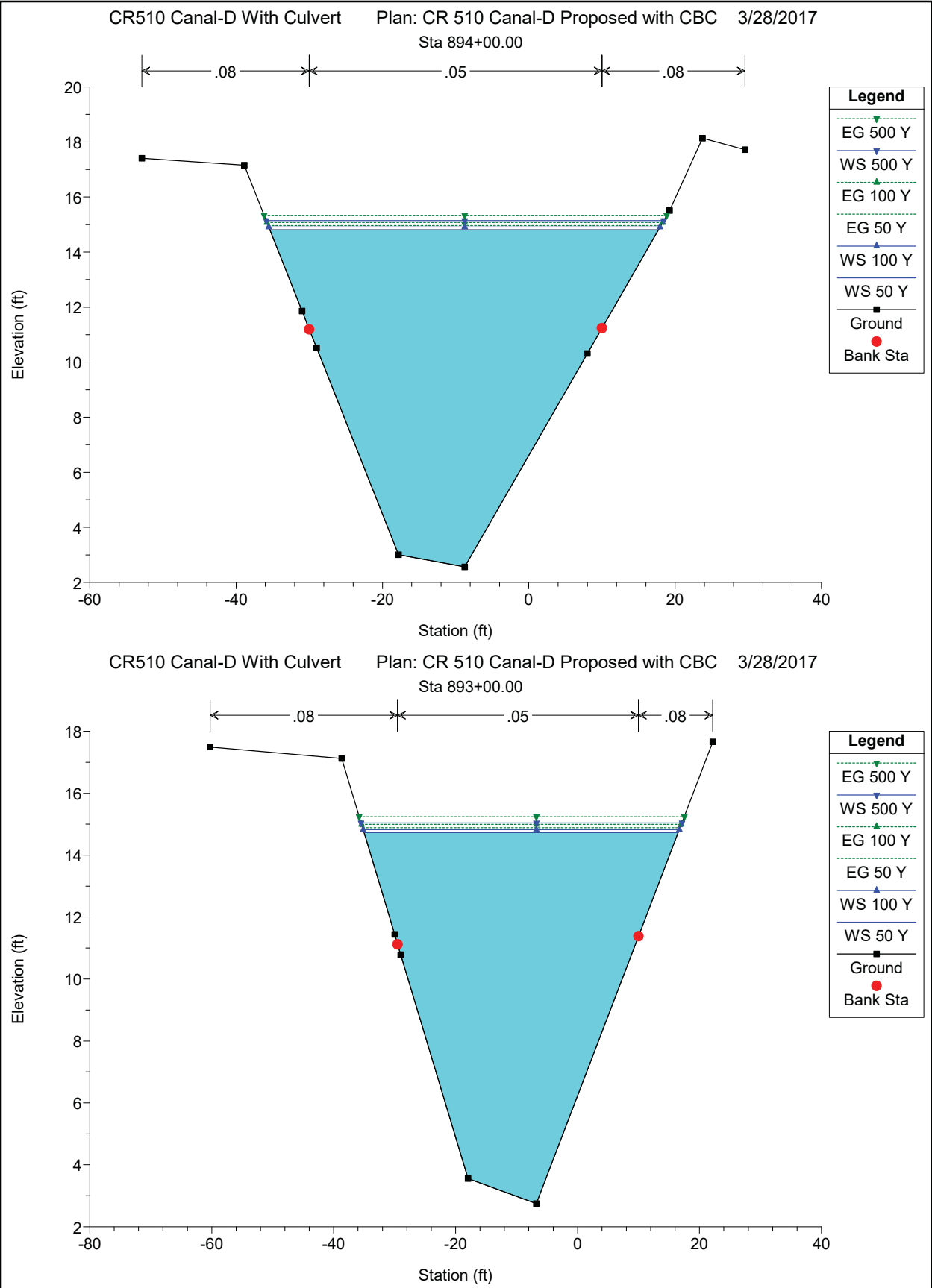




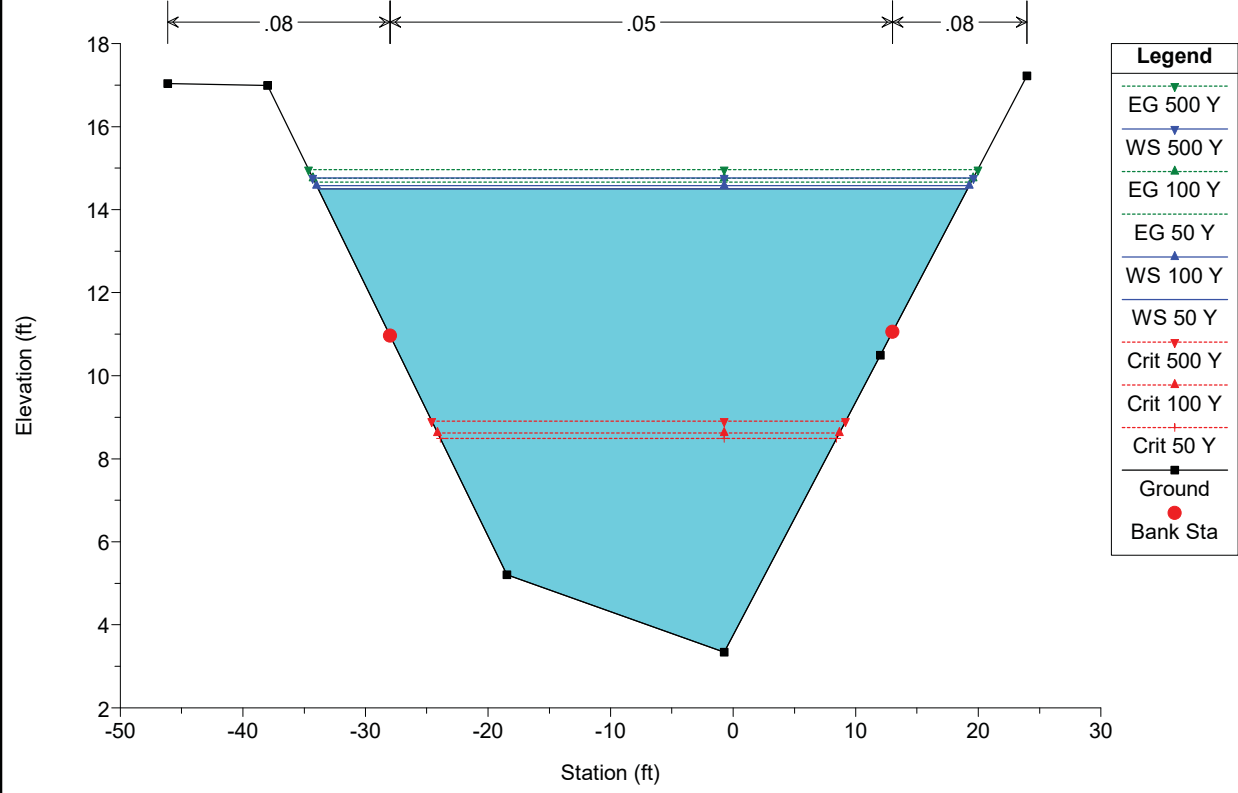


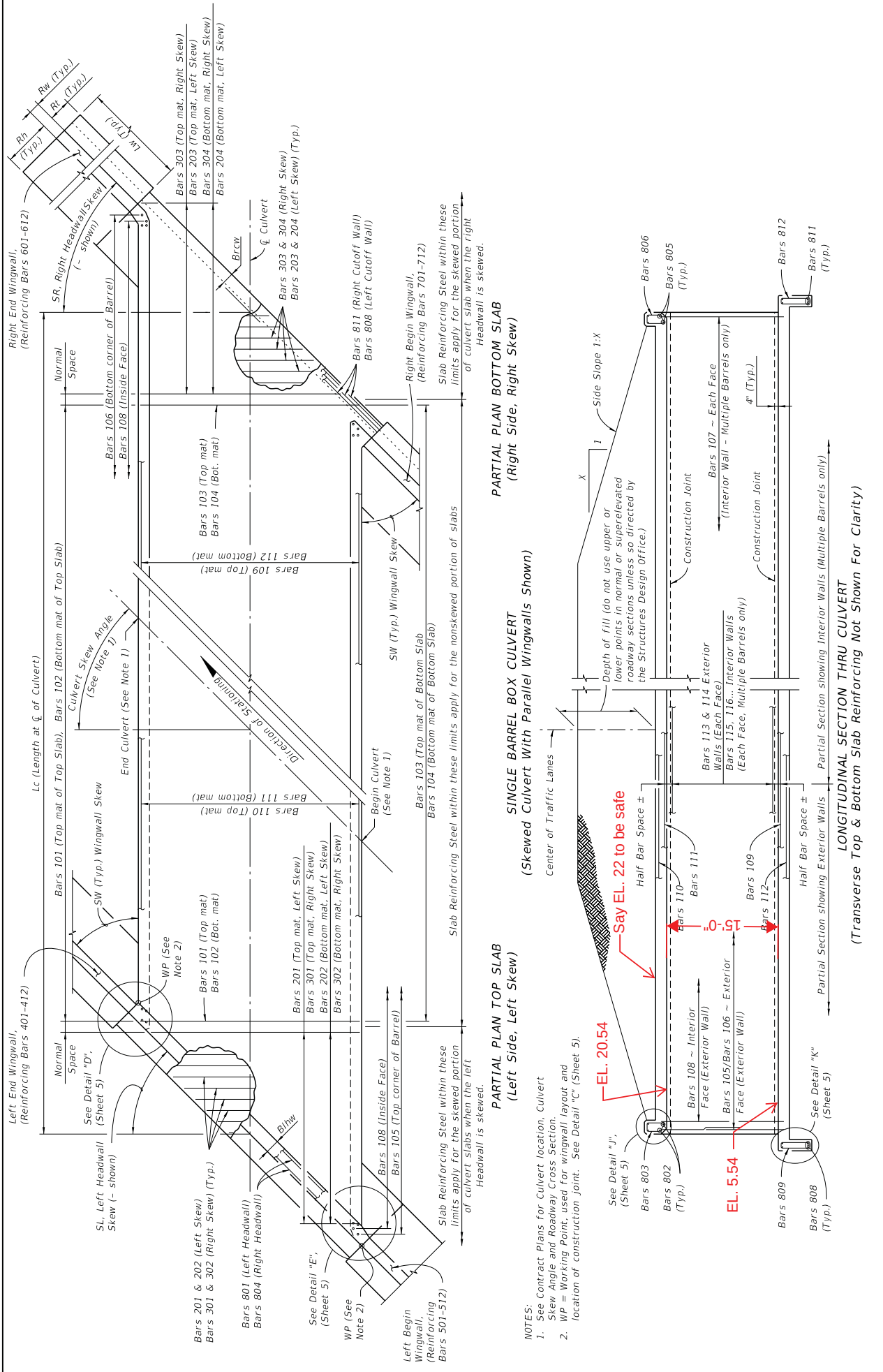




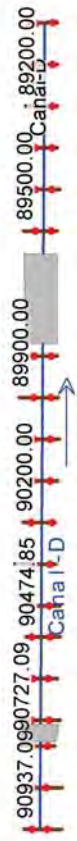


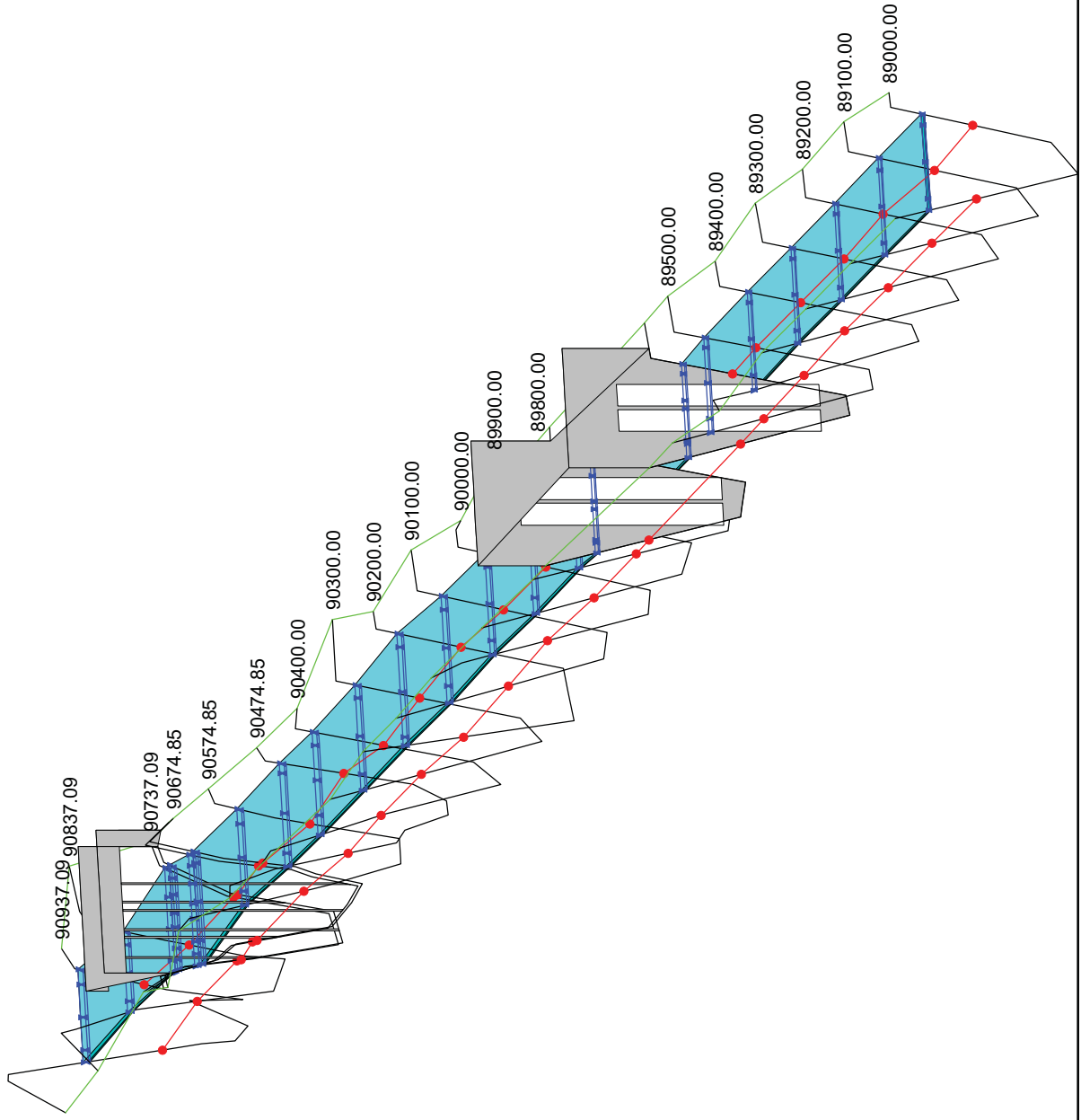
CR510 Canal-D With Culvert Plan: CR 510 Canal-D Proposed with CBC 3/28/2017
 Sta 890+00.00





Canal D
Alternative 4:
With 2
Concrete Box Culvert





HEC-RAS Plan: CR 510 Canal D Proposed 2-CBC River: Canal-D Reach: Canal-D

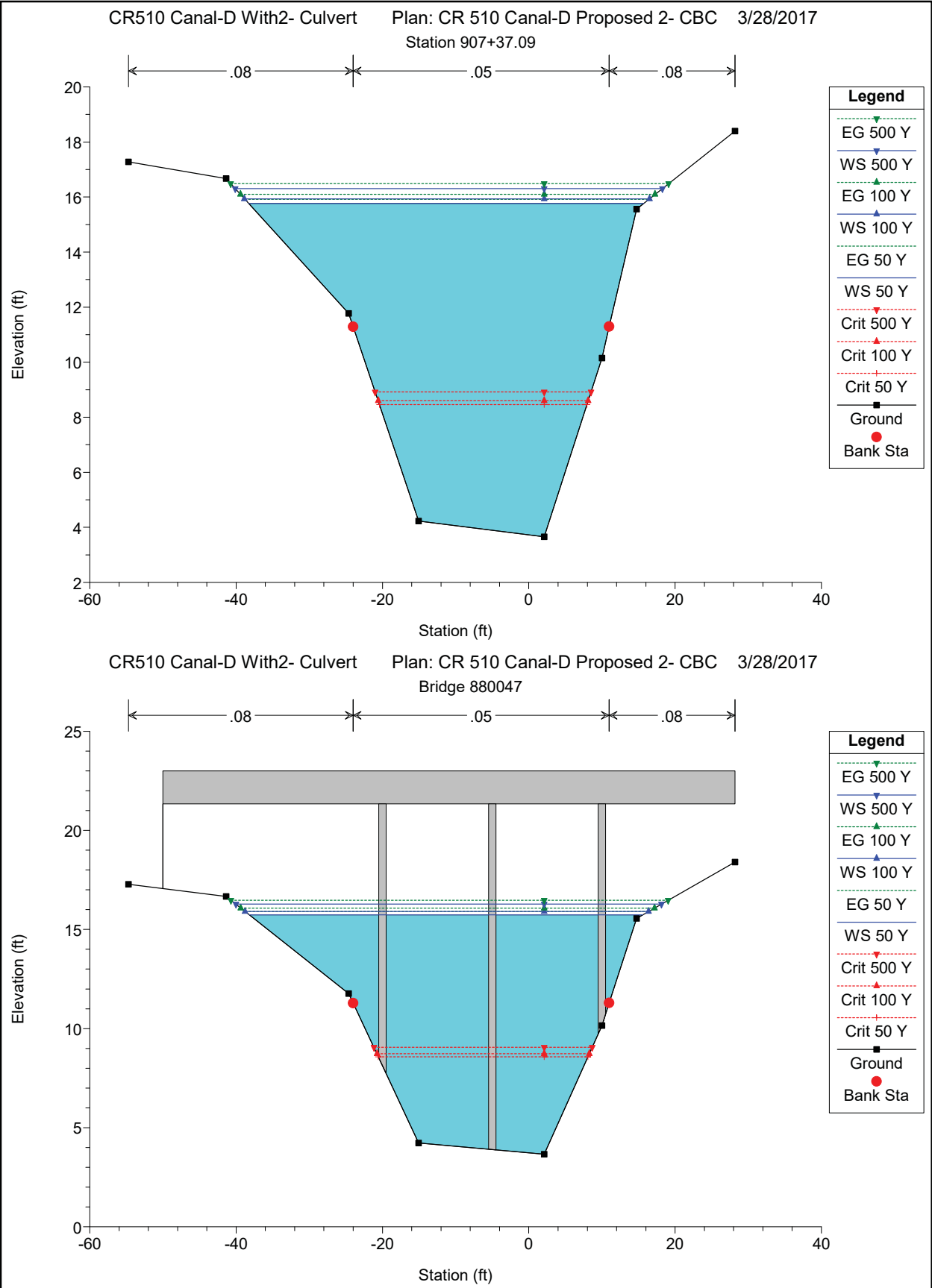
Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Canal-D	90937.09	50 Y	1117.00	4.06	15.95		16.11	0.000826	3.24	369.21	49.66	0.19
Canal-D	90937.09	100 Y	1177.00	4.06	16.13		16.30	0.000859	3.35	377.98	50.16	0.19
Canal-D	90937.09	500 Y	1310.00	4.06	16.52		16.71	0.000925	3.56	397.60	51.27	0.20
Canal-D	90837.09	50 Y	1117.00	4.36	15.80		16.02	0.001006	3.77	316.23	42.53	0.22
Canal-D	90837.09	100 Y	1177.00	4.36	15.97		16.20	0.001051	3.89	323.39	43.18	0.22
Canal-D	90837.09	500 Y	1310.00	4.36	16.34		16.60	0.001140	4.16	339.58	44.63	0.23
Canal-D	90737.09	50 Y	1117.00	3.66	15.77	8.46	15.92	0.000618	3.12	388.44	54.02	0.17
Canal-D	90737.09	100 Y	1177.00	3.66	15.94	8.60	16.09	0.000647	3.23	397.56	55.38	0.18
Canal-D	90737.09	500 Y	1310.00	3.66	16.31	8.92	16.48	0.000705	3.45	418.52	58.39	0.19
Canal-D	90727.09	Bridge										
Canal-D	90674.85	50 Y	1117.00	3.71	15.69		15.81	0.000472	2.72	436.79	60.62	0.16
Canal-D	90674.85	100 Y	1177.00	3.71	15.86		15.98	0.000493	2.81	446.72	61.24	0.16
Canal-D	90674.85	500 Y	1310.00	3.71	16.22		16.35	0.000537	3.00	469.08	62.64	0.17
Canal-D	90574.85	50 Y	1117.00	4.09	15.59		15.75	0.000663	3.17	376.92	51.58	0.18
Canal-D	90574.85	100 Y	1177.00	4.09	15.75		15.91	0.000695	3.28	385.07	52.14	0.19
Canal-D	90574.85	500 Y	1310.00	4.09	16.10		16.29	0.000758	3.51	403.46	53.37	0.20
Canal-D	90474.85	50 Y	1117.00	3.71	15.57		15.68	0.000477	2.70	432.49	55.68	0.16
Canal-D	90474.85	100 Y	1177.00	3.71	15.72		15.84	0.000500	2.80	441.23	56.11	0.16
Canal-D	90474.85	500 Y	1310.00	3.71	16.07		16.21	0.000547	3.00	460.88	57.06	0.17
Canal-D	90400.00	50 Y	1117.00	2.16	15.51		15.64	0.000528	2.90	414.36	55.26	0.16
Canal-D	90400.00	100 Y	1177.00	2.16	15.66		15.80	0.000555	3.00	422.87	55.84	0.17
Canal-D	90400.00	500 Y	1310.00	2.16	16.01		16.16	0.000610	3.22	442.10	57.11	0.18
Canal-D	90300.00	50 Y	1117.00	2.26	15.47		15.59	0.000464	2.71	435.83	56.63	0.15
Canal-D	90300.00	100 Y	1177.00	2.26	15.62		15.75	0.000488	2.81	444.44	57.16	0.16
Canal-D	90300.00	500 Y	1310.00	2.26	15.96		16.10	0.000538	3.02	463.89	58.33	0.17
Canal-D	90200.00	50 Y	1117.00	3.12	15.47		15.54	0.000265	2.15	537.88	60.57	0.12
Canal-D	90200.00	100 Y	1177.00	3.12	15.62		15.70	0.000280	2.23	547.09	60.98	0.12
Canal-D	90200.00	500 Y	1310.00	3.12	15.96		16.04	0.000312	2.40	567.78	61.87	0.13
Canal-D	90100.00	50 Y	1117.00	3.61	15.37		15.50	0.000540	2.85	416.38	57.43	0.17

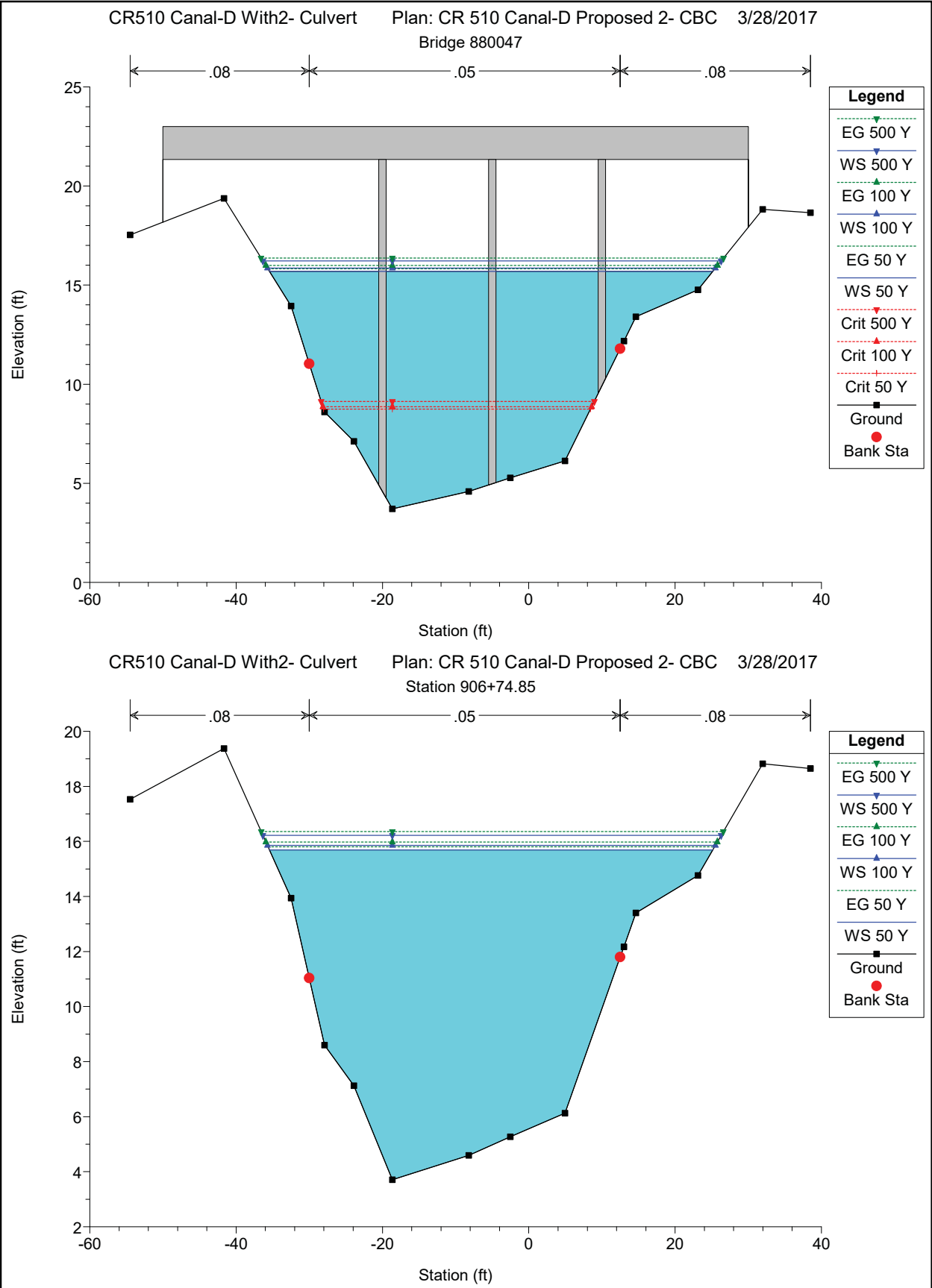
HEC-RAS Plan: CR 510 Canal D Proposed 2-CBC River: Canal-D Reach: Canal-D (Continued)

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Canal-D	90100.00	100 Y	1177.00	3.61	15.52		15.65	0.000568	2.96	424.79	57.97	0.17
Canal-D	90100.00	500 Y	1310.00	3.61	15.84		16.00	0.000624	3.17	443.81	59.18	0.18
Canal-D	90000.00	50 Y	1117.00	3.56	15.30		15.44	0.000617	3.00	393.50	54.59	0.18
Canal-D	90000.00	100 Y	1177.00	3.56	15.44		15.59	0.000649	3.11	401.26	55.10	0.18
Canal-D	90000.00	500 Y	1310.00	3.56	15.76		15.93	0.000714	3.34	418.85	56.22	0.19
Canal-D	89900.00	50 Y	1117.00	3.63	15.25		15.38	0.000557	2.88	410.46	56.14	0.17
Canal-D	89900.00	100 Y	1177.00	3.63	15.39		15.52	0.000586	2.98	418.29	56.62	0.17
Canal-D	89900.00	500 Y	1310.00	3.63	15.70		15.86	0.000647	3.20	436.05	57.71	0.18
Canal-D	89800.00	50 Y	1117.00	3.69	15.20	8.15	15.32	0.000534	2.84	413.72	54.76	0.16
Canal-D	89800.00	100 Y	1177.00	3.69	15.33	8.28	15.47	0.000564	2.94	421.20	55.20	0.17
Canal-D	89800.00	500 Y	1310.00	3.69	15.64	8.57	15.79	0.000625	3.17	438.16	56.17	0.18
Canal-D	89770	Culvert										
Canal-D	89500.00	50 Y	1117.00	2.83	14.88		15.03	0.000697	3.15	372.99	51.34	0.19
Canal-D	89500.00	100 Y	1177.00	2.83	14.99		15.15	0.000742	3.27	378.53	51.71	0.19
Canal-D	89500.00	500 Y	1310.00	2.83	15.23		15.42	0.000840	3.54	391.01	52.51	0.20
Canal-D	89400.00	50 Y	1117.00	2.56	14.81		14.96	0.000707	3.14	374.75	53.11	0.19
Canal-D	89400.00	100 Y	1177.00	2.56	14.91		15.08	0.000753	3.26	380.24	53.49	0.19
Canal-D	89400.00	500 Y	1310.00	2.56	15.14		15.33	0.000854	3.53	392.61	54.33	0.21
Canal-D	89300.00	50 Y	1117.00	2.75	14.73		14.89	0.000752	3.21	364.25	51.52	0.19
Canal-D	89300.00	100 Y	1177.00	2.75	14.83		15.00	0.000803	3.35	369.27	51.85	0.20
Canal-D	89300.00	500 Y	1310.00	2.75	15.04		15.24	0.000915	3.63	380.59	52.61	0.21
Canal-D	89200.00	50 Y	1117.00	2.95	14.65		14.81	0.000752	3.19	365.59	52.04	0.19
Canal-D	89200.00	100 Y	1177.00	2.95	14.75		14.92	0.000805	3.32	370.39	52.36	0.20
Canal-D	89200.00	500 Y	1310.00	2.95	14.95		15.15	0.000919	3.61	381.22	53.07	0.21
Canal-D	89100.00	50 Y	1117.00	3.15	14.58		14.74	0.000756	3.22	365.19	52.53	0.19
Canal-D	89100.00	100 Y	1177.00	3.15	14.66		14.84	0.000811	3.35	369.73	52.83	0.20
Canal-D	89100.00	500 Y	1310.00	3.15	14.86		15.06	0.000931	3.65	379.97	53.50	0.22
Canal-D	89000.00	50 Y	1117.00	3.34	14.50	8.49	14.66	0.000776	3.22	363.61	53.00	0.20
Canal-D	89000.00	100 Y	1177.00	3.34	14.58	8.62	14.75	0.000834	3.36	367.86	53.28	0.20

HEC-RAS Plan: CR 510 Canal D Proposed 2-CBC River: Canal-D Reach: Canal-D (Continued)

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Canal-D	89000.00	500 Y	1310.00	3.34	14.76	8.91	14.96	0.000960	3.65	377.51	53.90	0.22





CR510 Canal-D With2- Culvert

Plan: CR 510 Canal-D Proposed 2- CBC

3/28/2017

Station 906+74.85

Elevation (ft)

Station (ft)

Legend

EG 500 Y

WS 500 Y

EG 100 Y

WS 100 Y

EG 50 Y

WS 50 Y

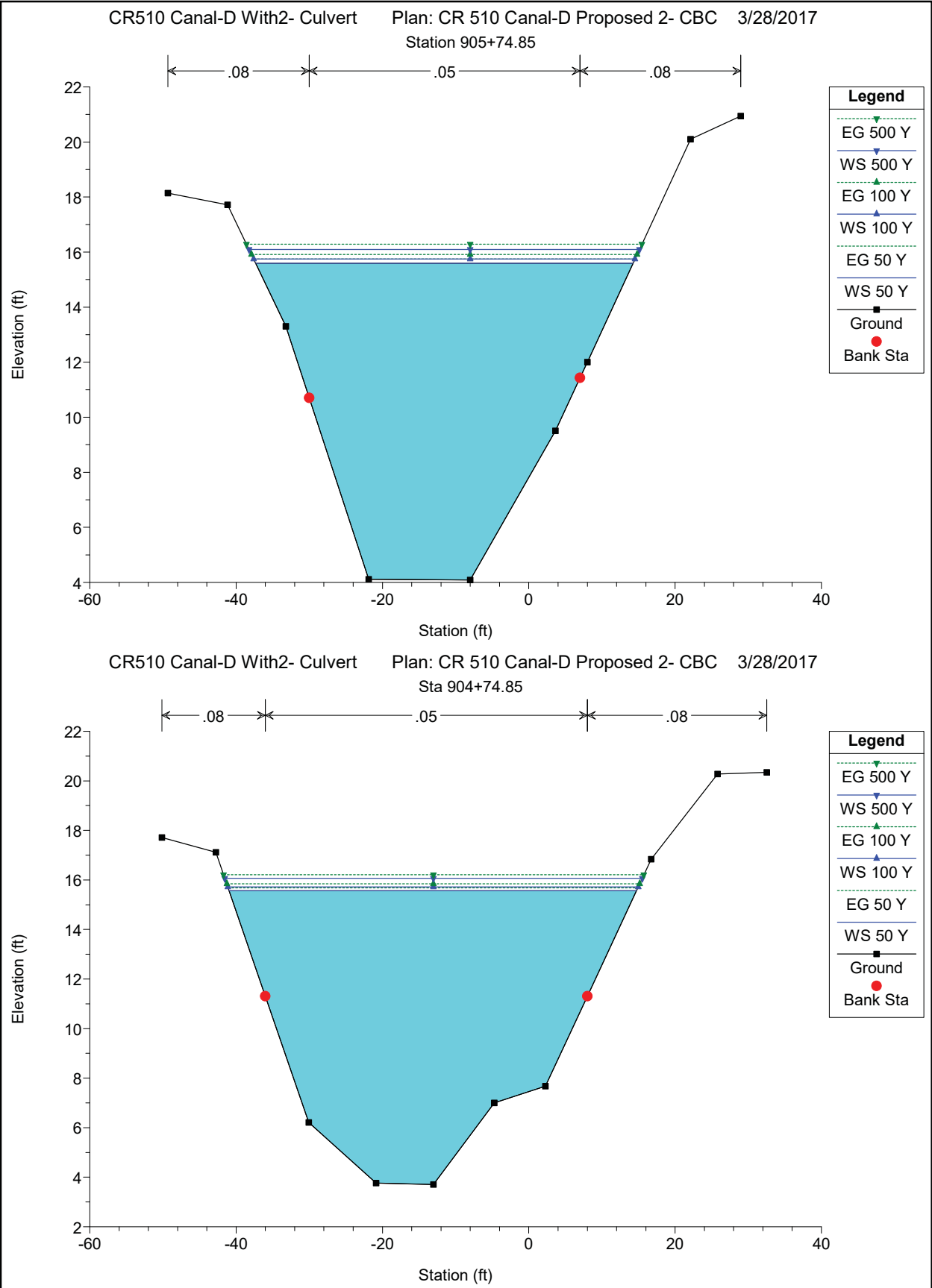
Ground

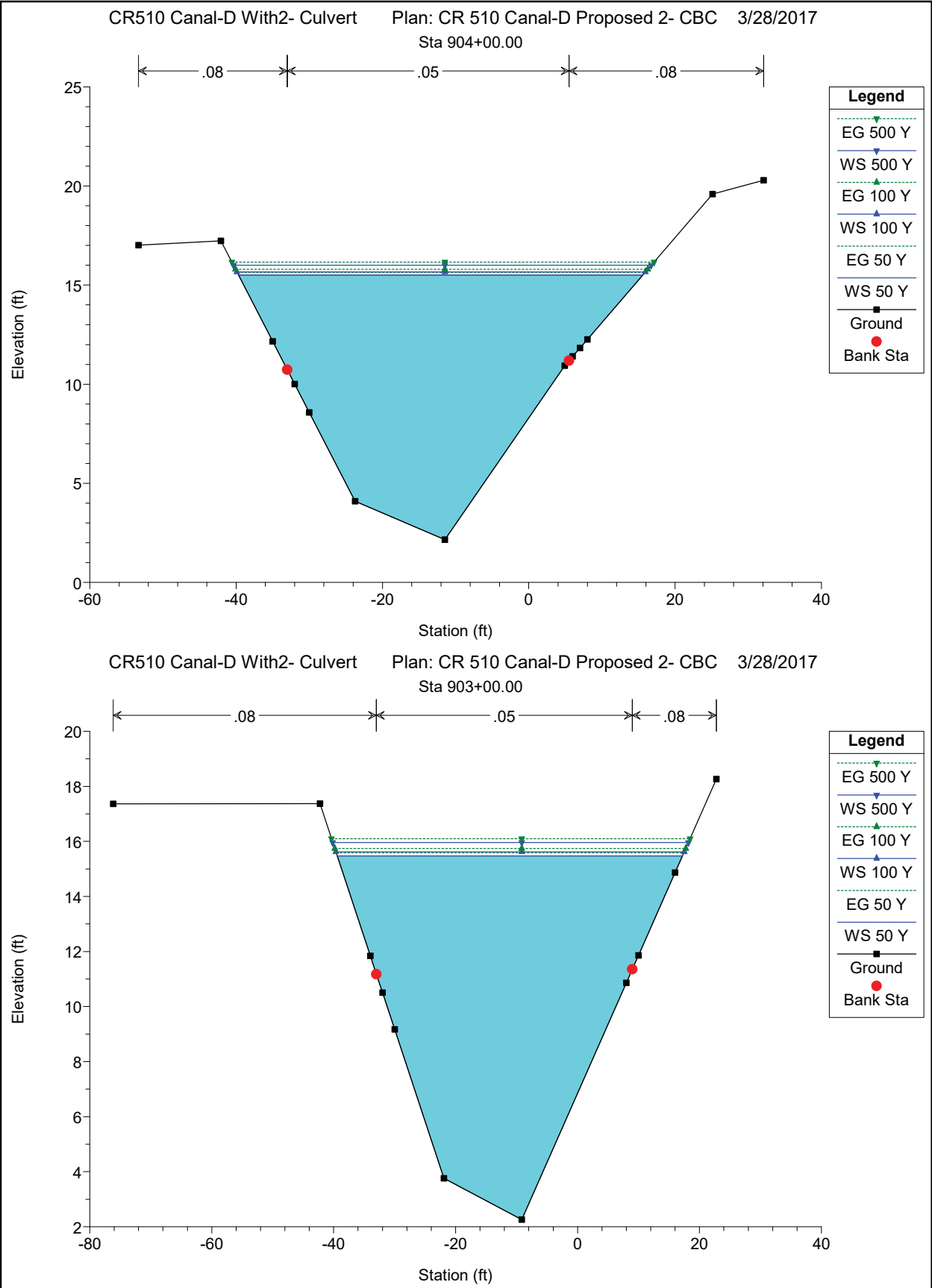
Bank Sta

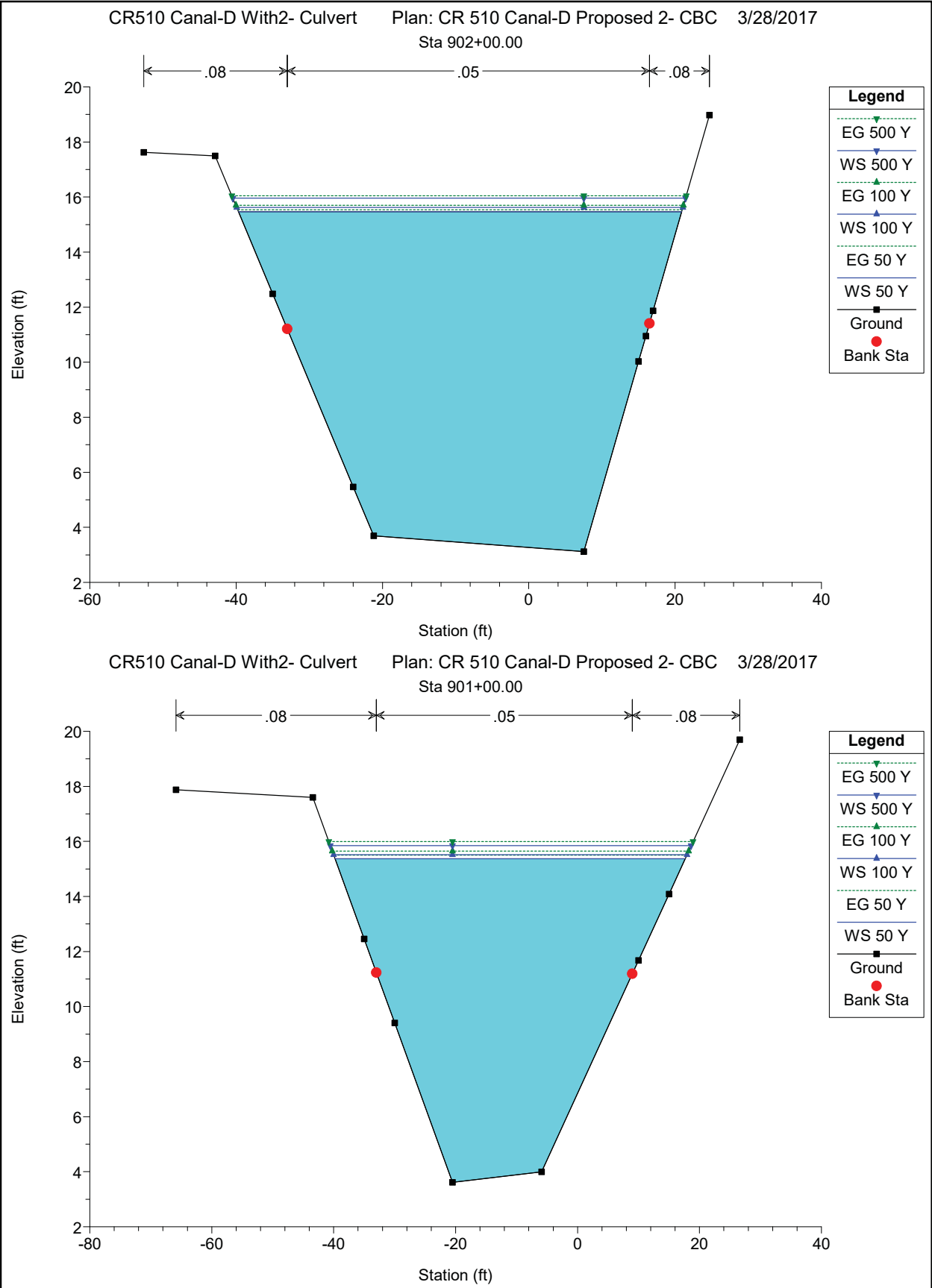
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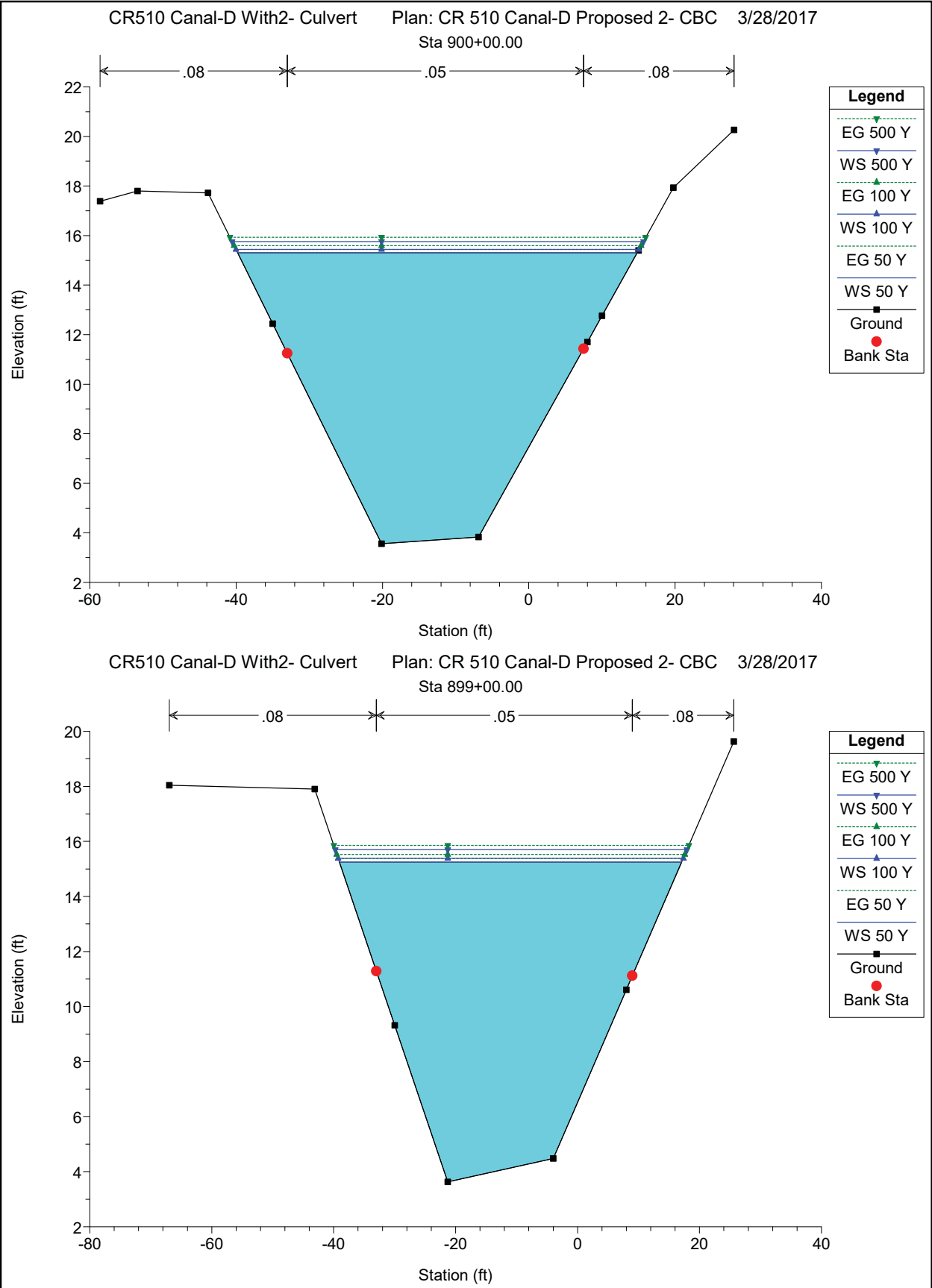
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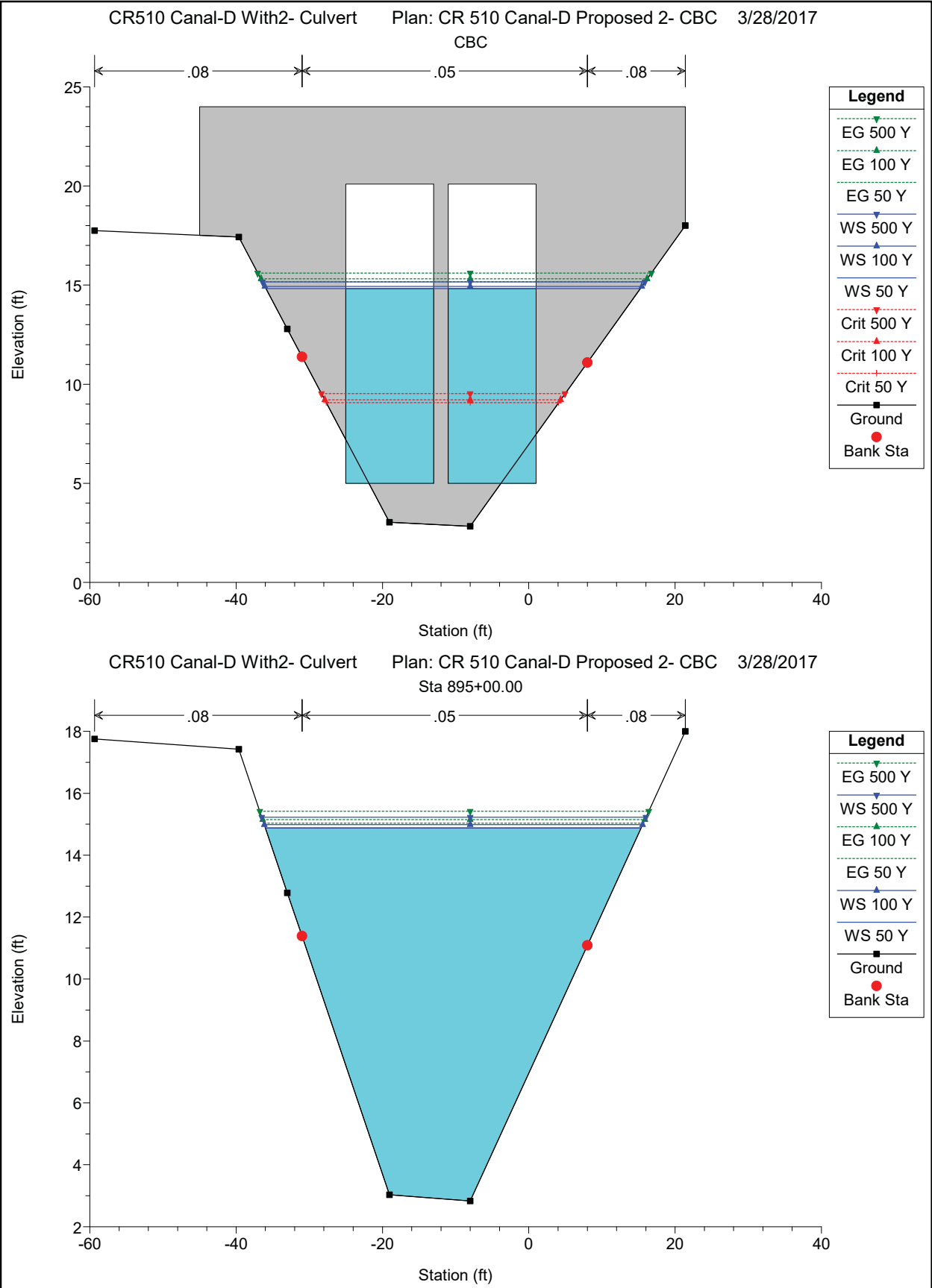
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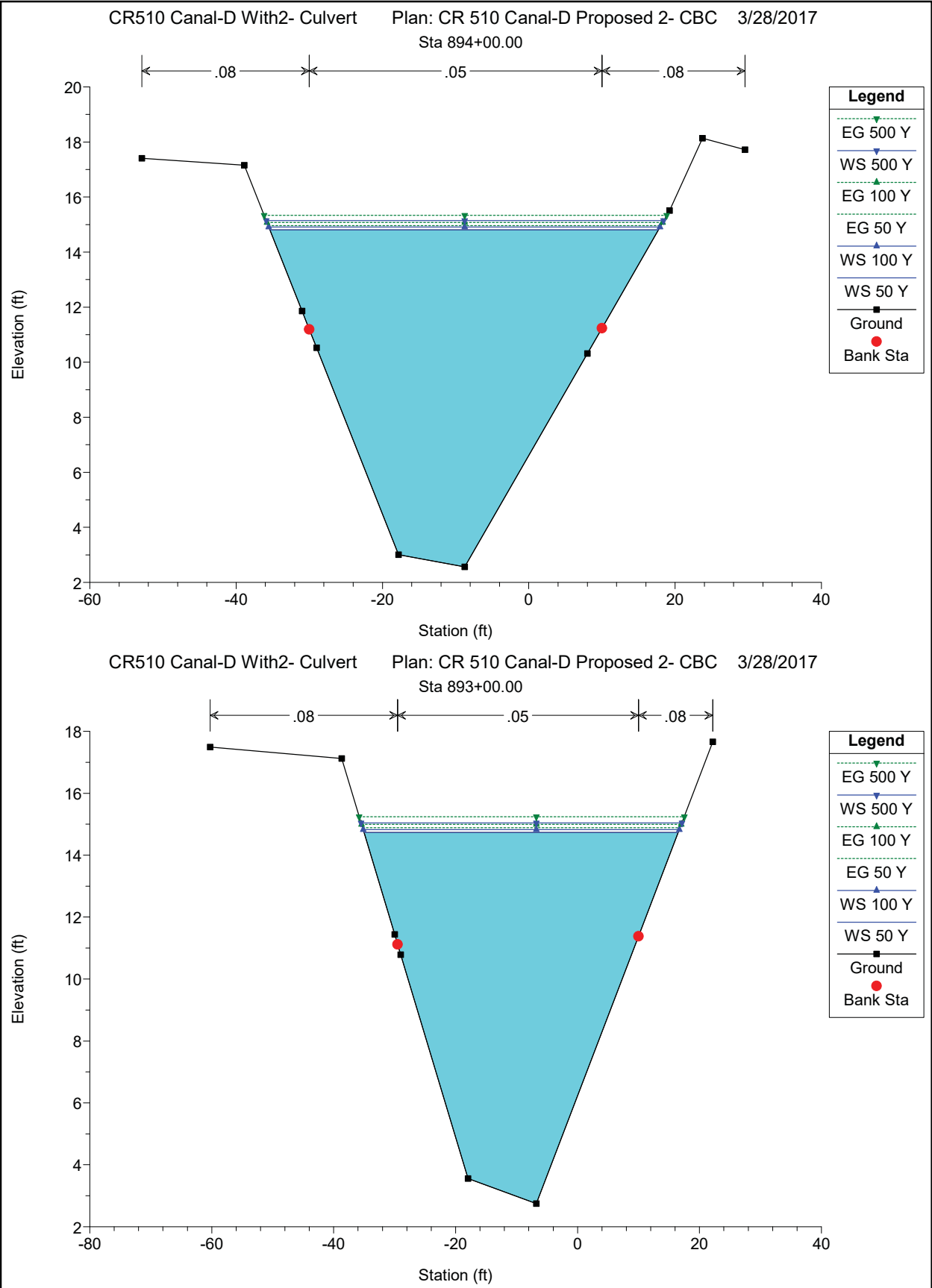


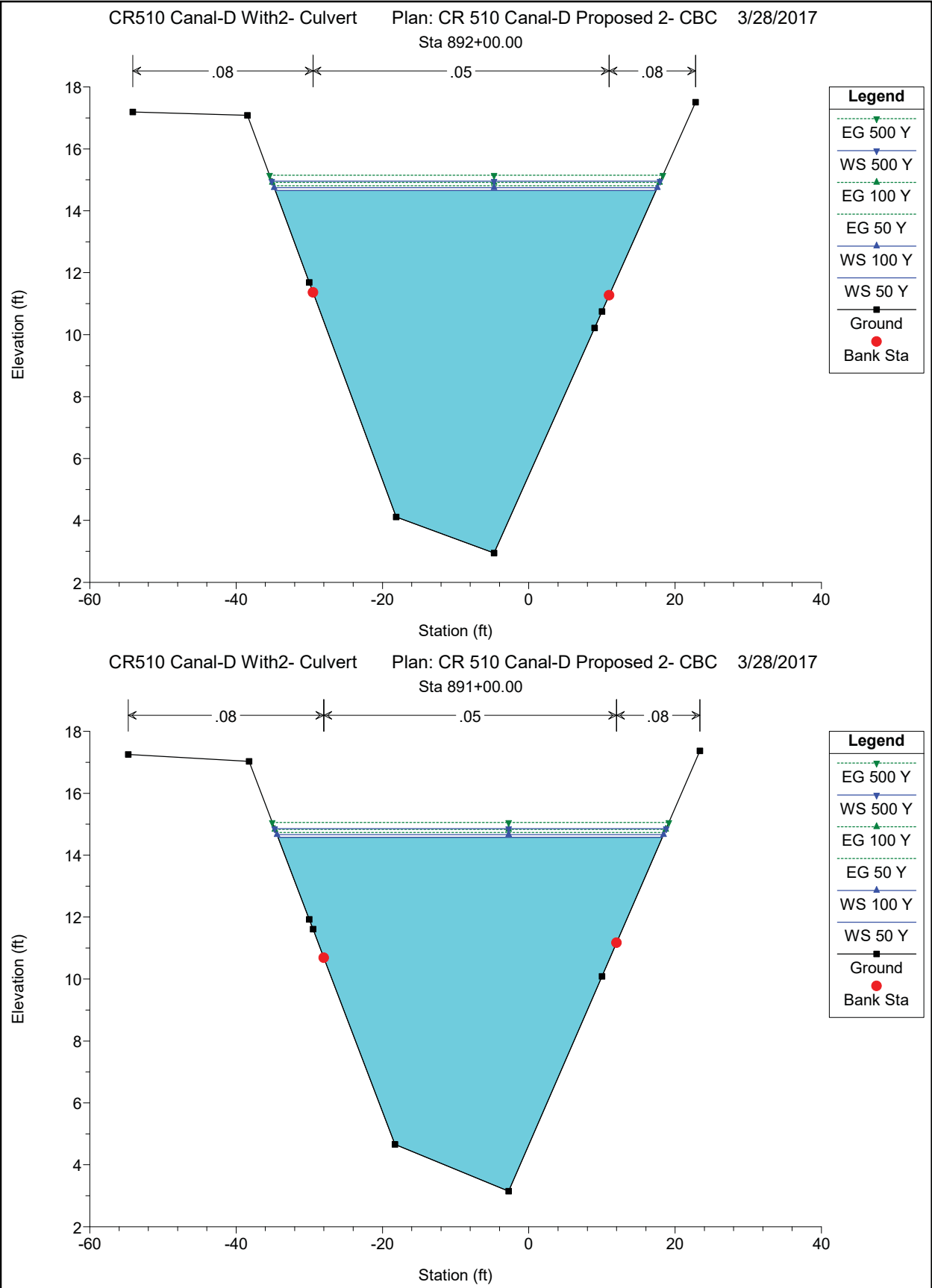




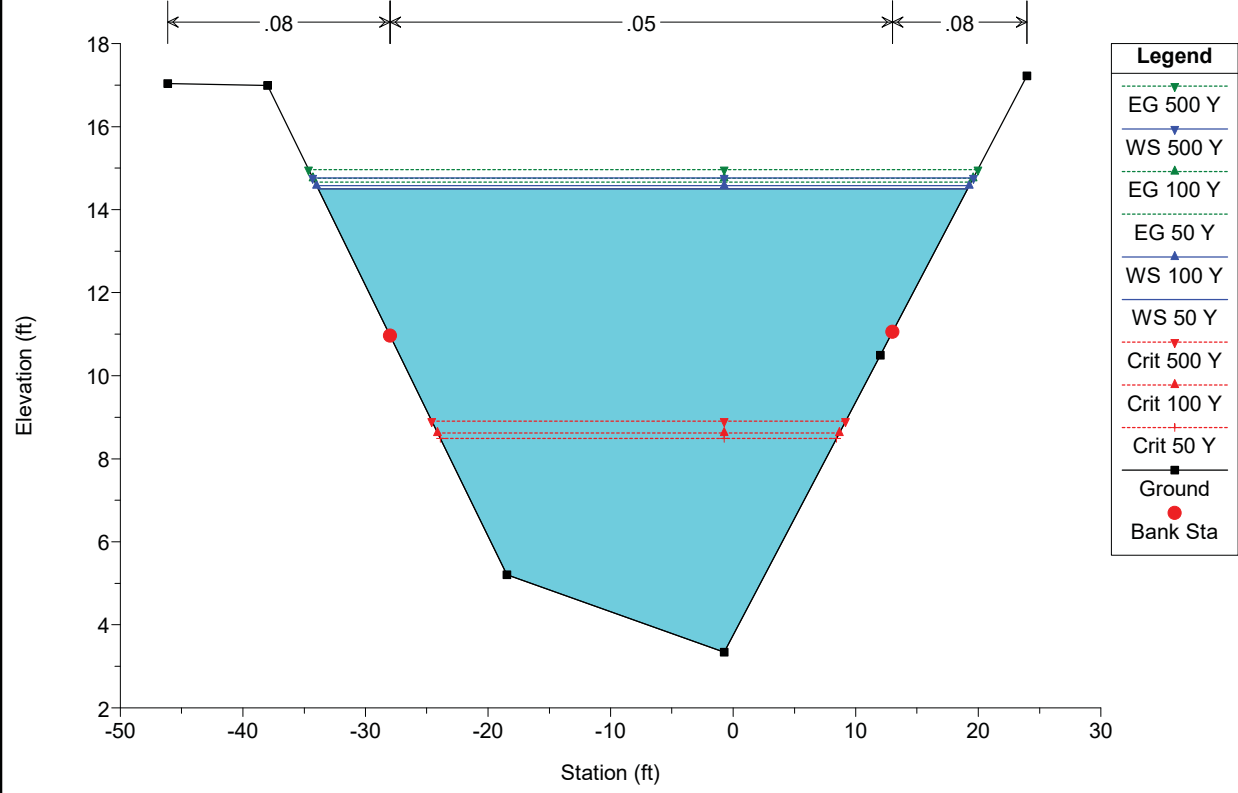


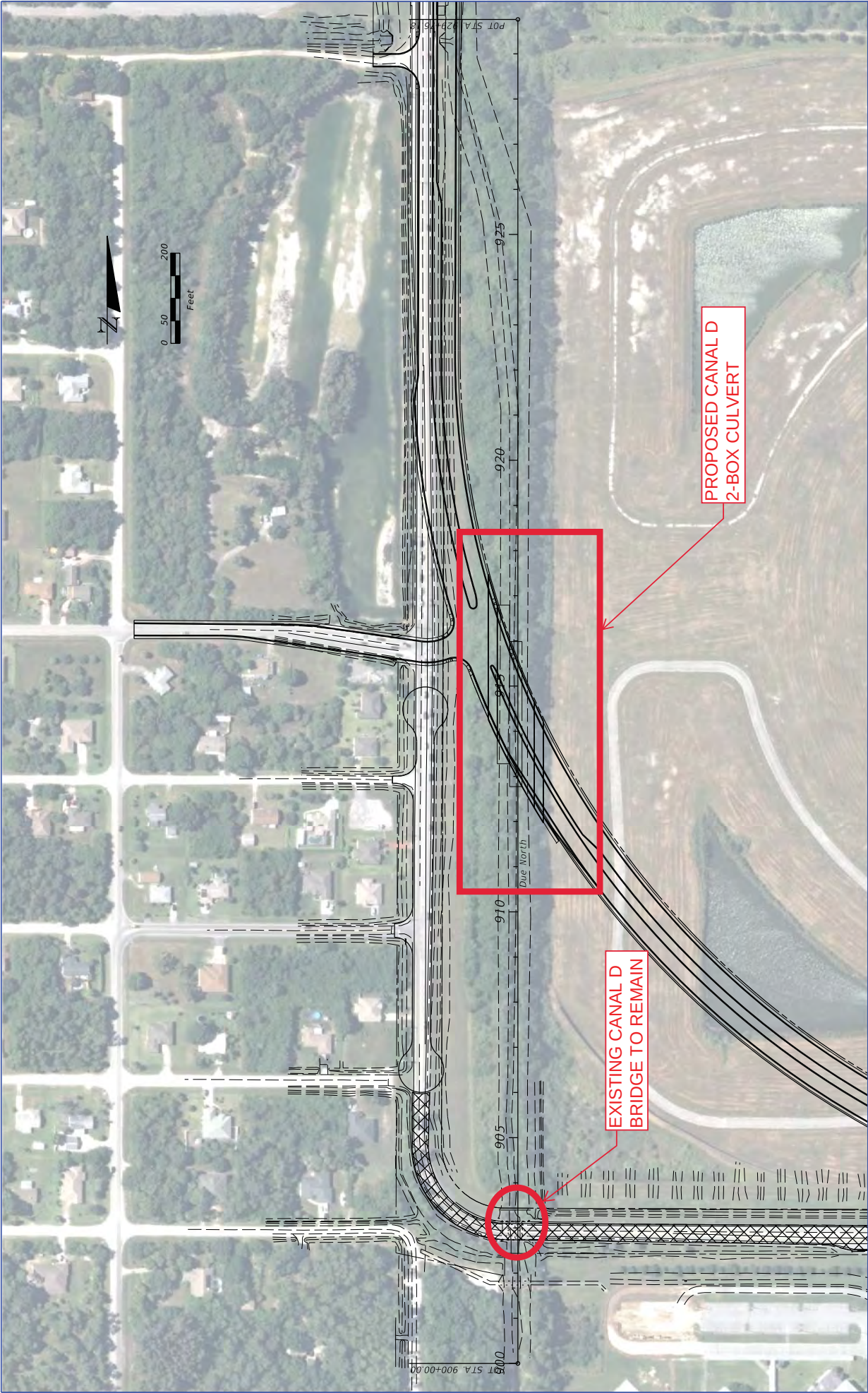






CR510 Canal-D With2- Culvert Plan: CR 510 Canal-D Proposed 2- CBC 3/28/2017
 Sta 890+00.00





REVISIONS		STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		CANAL D WITH PROPOSED BOX CULVERT		SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION	ROAD NO.	FINANCIAL PROJECT ID	
				COUNTY		

Background Data
used in Analysis
from Sebastian
River Improvement
District (SRID)

Chandra

- 1

From: Chandra Raman [mailto:chandra.raman@metriceng.com]
Sent: Friday, January 27, 2017 2:20 PM
To: George Simons
Subject: RE: CR-510 Widening from CR 512 to 58th Avenue

Thank You George!

Have a great weekend.

CHANDRA RAMAN, P.E.
Project Manager & Senior Drainage Engineer



11760 Marco Beach Dr,
Jacksonville, Florida 32224
Office: (904)-260-1567
Cell: (561)-713-8977
Fax: (904)-260-1613
chandra.raman@metriceng.com
www.metriceng.com

From: George Simons [mailto:GeorgeS@carterassoc.com]
Sent: Friday, January 27, 2017 2:16 PM
To: Chandra Raman <chandra.raman@metriceng.com>; twodraska@sdsinc.org
Cc: Tommy Ruiz (Snubbs Consulting Inc.) <Tommy.Ruiz@snubbs.com>; Gabriela Garcia <GGarcia@metriceng.com>;
kathy.Tauteau@snubbs.com
Subject: RE: CR-510 Widening from CR 512 to 58th Avenue

Chandra

I received your e-mail and will be working on your requested items next week.

Thanks

George A. Simons, P.E.
Principal
Carter Associates, Inc.
1708 21st Street
Vero Beach, FL 32960
772 562-4191 EXT.111
772 562-7180 Fax

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YOUR COOPERATION IS GREATLY APPRECIATED.

ANY DOCUMENTS ATTACHED TO THIS TRANSMISSION MAY CONSTITUTE OUR WORK PRODUCTS.

From: Chandra Raman [<mailto:chandra.raman@metriceng.com>]
Sent: Wednesday, January 25, 2017 12:22 PM
To: George Simons; twodraska@sdsinc.org
Cc: Tommy Ruiz (Snubbs Consulting Inc.); Gabriela Garcia; kathy.Tauteau@snubbs.com
Subject: CR-510 Widening from CR 512 to 58th Avenue

George/Todd

Following up to the meeting we had in your office on the 19th of last week, we would like to request for the watershed or basin model information for some of the existing bridge crossings. Here are the list of things that we need from your model:

Specifically for Lateral Canal D, C and L where it crosses CR 510.

- 1) Contributing drainage basin area for Canal D, Canal C and Canal L.
- 2) 50 year, 100 year and 500 year discharge volume at each bridge location.
- 3) 50 year, 100 year and 500 year peak stages at each bridge location.
- 4) Normal water level at the existing bridge locations.
- 5) Graphics that shows the contributing basin boundaries for Canal D,C and L.

It will be great if you could extract these information from your model and provide to us. If not please send us the hard copy of your model than we can extract those information from the report.

Thank You

CHANDRA RAMAN, P.E.
Project Manager & Senior Drainage Engineer



11760 Marco Beach Dr,
Jacksonville, Florida 32224
Office: (904)-260-1567
Cell: 561-7138977
Fax: (904)-260-1613
chandra.raman@metriceng.com
www.metriceng.com

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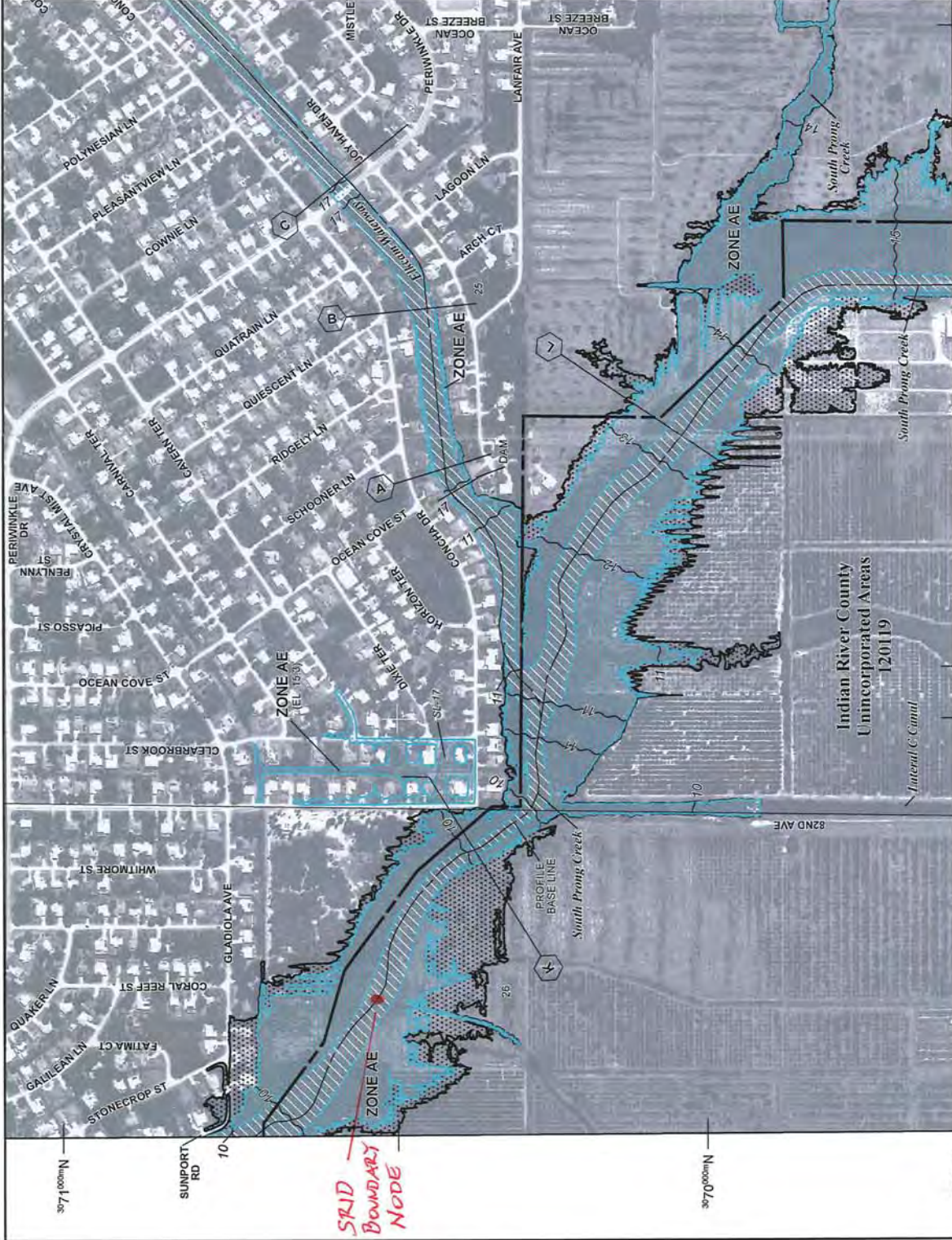
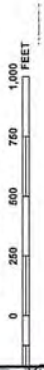
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Program at 1-800-838-8620.



MAP SCALE 1" = 500'



PANEL 0113H

FIRM

FLOOD INSURANCE RATE MAP
INDIAN RIVER
COUNTY,
FLORIDA
AND INCORPORATED AREAS

PANEL 113 OF 390

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

COMMUNITY:
INDIAN RIVER COUNTY
INDIAN RIVER CITY OF

NUMBER: 00019
DATE: 0113
REVISION: 0113

MAP NUMBER: 12061C0113H
MAP REVISED: DECEMBER 4, 2012



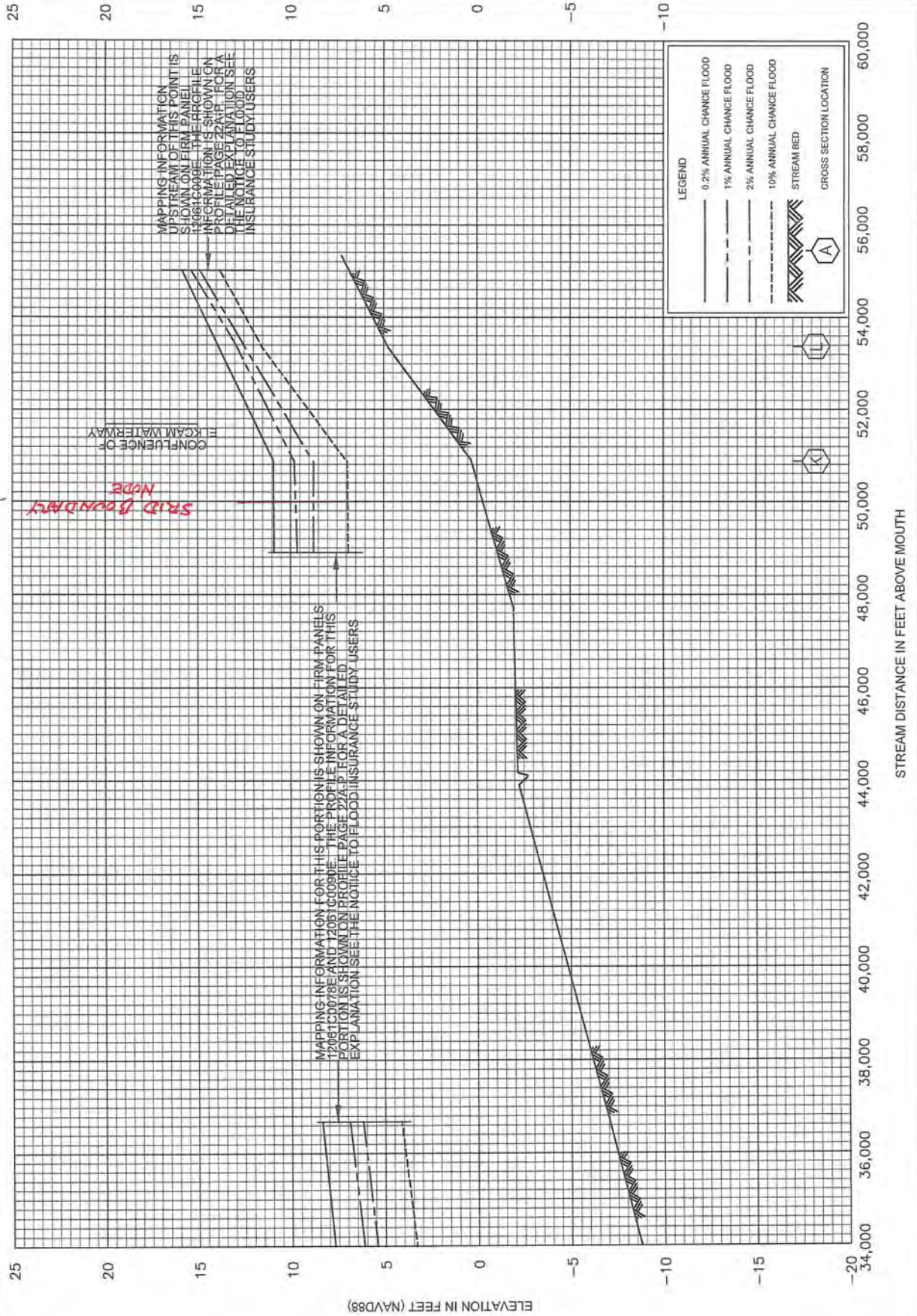
Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the map. For the most current information, please visit the FEMA Flood Map Store at www.fema.gov.

JOINS PANEL 0226

82°00'00" W

27°45'00" N



Name: 100YR Node: NDITCHD-3 Type: Stage

Time(hrs)	Stage(ft)
0.000	9.300
24.000	9.950
30.000	10.550
36.000	11.250
42.000	12.150
48.000	14.000
66.000	18.550
88.000	18.000
94.000	17.450
100.000	16.850
110.000	15.700
140.000	13.450
170.000	11.200
192.000	10.450

Name: 25YR Node: NDITCHD-3 Type: Stage

Time(hrs)	Stage(ft)
0.000	9.300
24.000	9.600
30.000	10.150
36.000	10.850
42.000	11.600
48.000	12.500
66.000	16.540
88.000	16.040
94.000	15.540
100.000	15.040
110.000	14.000
140.000	12.000
170.000	10.000
192.000	9.300

Name: 500YR Node: NDITCHD-3 Type: Stage

Time(hrs)	Stage(ft)
0.000	9.300
24.000	10.120
30.000	10.880
36.000	11.770
42.000	12.900
48.000	15.240
66.000	21.000
88.000	20.300
94.000	19.610
100.000	18.850
110.000	17.400
140.000	14.550
170.000	11.700
192.000	10.750

Name: 50YR Node: NDITCHD-3 Type: Stage

Time(hrs)	Stage(ft)
0.000	9.300
24.000	9.880
30.000	10.410
36.000	11.040
42.000	11.840
48.000	13.490
66.000	17.550
88.000	17.060
94.000	16.570
100.000	16.030
110.000	15.010
140.000	13.000
170.000	10.990
192.000	10.330

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
NC1A	Lateral C	100YR	55.62	15.12	17.50	-0.0026	75809	51.00	1176.35	51.04	1176.18
NL1B	Lateral L	100YR	64.38	15.63	12.00	0.0034	47219	52.05	305.52	52.12	303.98
NC1A	Lateral C	25YR	17.40	14.88	17.50	-0.0026	75127	15.34	1078.70	15.39	1078.58
NL1B	Lateral L	25YR	23.86	15.02	12.00	0.0034	45827	0.07	302.39	16.45	294.30
NC1A	Lateral C	500YR	51.25	15.41	17.50	-0.0026	76653	51.47	1277.17	51.44	1278.11
NL1B	Lateral L	500YR	64.32	16.11	12.00	0.0034	48333	52.01	318.99	52.45	317.84
NC1A	Lateral C	50YR	51.14	14.90	17.50	-0.0026	75179	51.08	1119.56	51.11	1119.53
NL1B	Lateral L	50YR	61.11	15.36	12.00	0.0034	46615	0.07	302.39	51.89	296.01

Peak flow and peak stage at Lateral D / CR 510
1/31/2017

Name	Group	Simulation	Max Time Stage hrs	Max Stage ft	Warning Stage ft	Max Delta Stage ft	Max Surf Area ft2	Max Time Inflow hrs	Max Inflow cfs	Max Time Outflow hrs	Max Outflow cfs
NDITCHD2A	VLE-EAST	100YR-96HR	66.99	19.11	16.19	0.0004	106462	104.18	1201.55	105.93	1176.77
NDITCHD2A	VLE-EAST	25YR-24HR	66.17	16.85	16.19	0.0013	93607	24.04	1100.96	24.12	1100.99
NDITCHD2A	VLE-EAST	500YR-96HR	66.25	21.13	16.19	0.0006	113423	110.00	1348.42	110.00	1309.55
NDITCHD2A	VLE-EAST	50YR-96HR	67.66	18.35	16.19	0.0003	102027	96.51	1094.66	96.36	1116.52

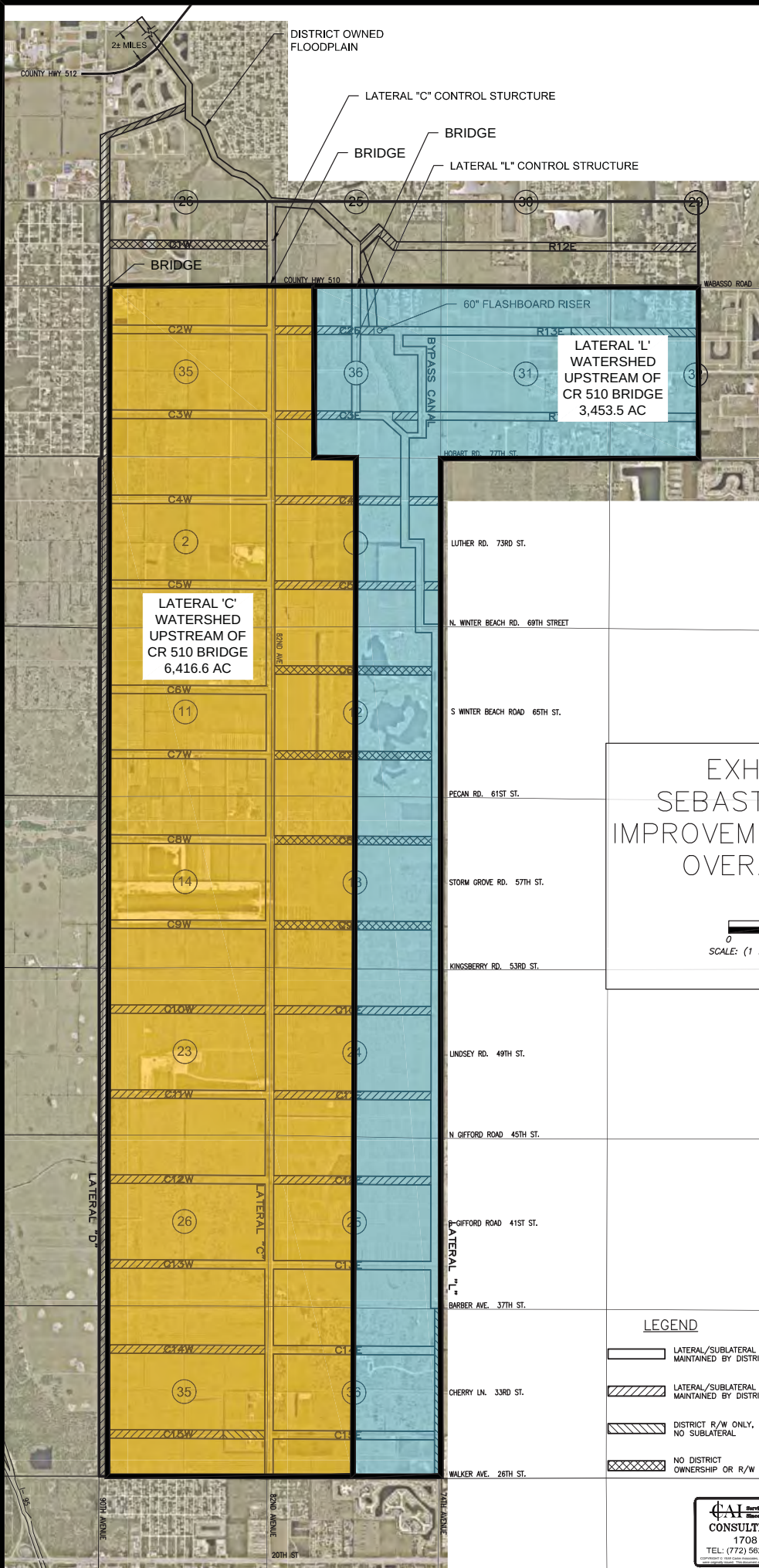


EXHIBIT VII SEBASTIAN RIVER IMPROVEMENT DISTRICT OVERALL MAP

0 1500 3000
SCALE: (1 inch = 3000 Feet)

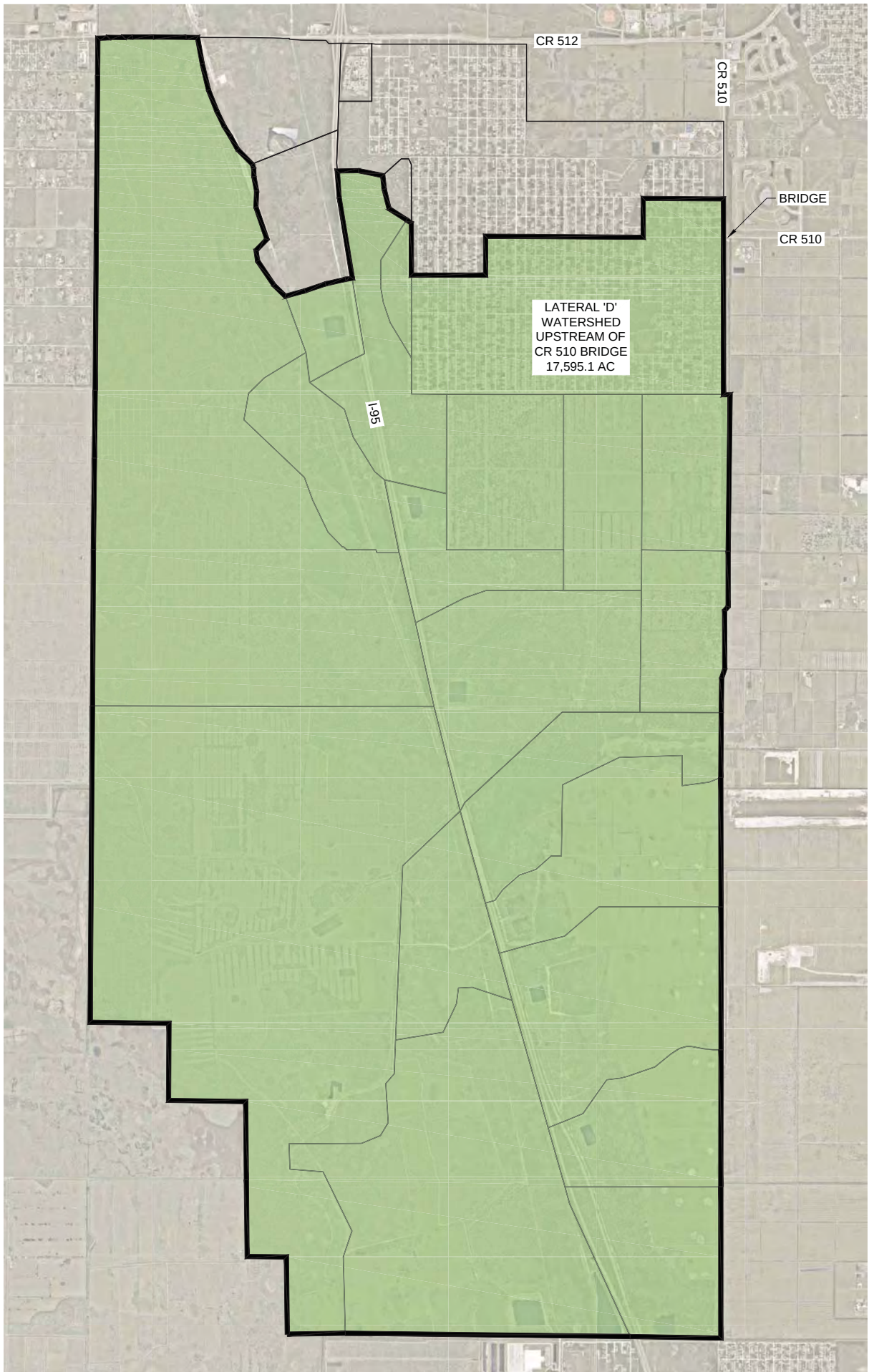
LEGEND

- LATERAL/SUBLATERAL MAINTAINED BY DISTRICT
- LATERAL/SUBLATERAL NOT MAINTAINED BY DISTRICT
- DISTRICT R/W ONLY, NO SUBLATERAL
- NO DISTRICT OWNERSHIP OR R/W

KINGS HWY. 58TH AVE.

REV. 01-31-17

CARTER ASSOCIATES, INC.
CONSULTING ENGINEERS AND LAND SURVEYORS
1708 21st STREET, VERO BEACH, FL 32960
TEL: (772) 562-4191 FAX: (772) 562-7180



0 1500 3000
SCALE: (1 Inch = 3000 Feet)

REV. 01-31-17

Carter Associates, Inc.
CONSULTING ENGINEERS AND LAND SURVEYORS
1708 21st STREET, VERO BEACH, FL 32960
TEL: (772) 562-4191 FAX: (772) 562-7180

S.R.I.D.
LATERAL D WATERSHED
UPSTREAM OF CR 510 BRIDGE

SHEET
1 OF 1
Dwg. #:

Name: 100YEAR	Node: NBNDRY	Type: Stage
Time(hrs)	Stage(ft)	
0.000	3.500	
12.000	4.000	
36.000	5.000	
48.000	6.000	
60.000	7.000	
72.000	8.000	
84.000	9.500	
96.000	9.400	

Name: 25YEAR	Node: NBNDRY	Type: Stage
Time(hrs)	Stage(ft)	
0.000	3.500	
8.000	4.000	
12.000	5.000	
16.000	6.000	
20.000	8.000	
24.000	8.250	
30.000	8.000	
36.000	7.800	
42.000	7.500	
48.000	7.000	
72.000	6.000	

Name: 500Year	Node: NBNDRY	Type: Stage
Time(hrs)	Stage(ft)	
0.000	3.500	
12.000	4.120	
36.000	5.350	
48.000	6.580	
60.000	7.820	
72.000	9.050	
84.000	10.900	
96.000	10.780	

Name: 50YEAR	Node: NBNDRY	Type: Stage
Time(hrs)	Stage(ft)	
0.000	3.500	
12.000	3.940	
36.000	4.810	
48.000	5.690	
60.000	6.560	
72.000	7.440	
84.000	8.750	
96.000	8.660	