Butte City Bridge

Caltrans®

James Ralston Resident Engineer

Justin Wood Structure Representative

Contractor Golden State Bridge

Paul Lukaszewicz Vice President GSB

Caltrans

GSB

GOLDEN STATE BRIDGE

ENGINEERS & CONTRACTORS LIC. 851187

Existing Sacramento River Bridge


Existing Sacramento River Bridge

Existing Sacramento River Bridge

Existing Sacramento River Bridge

The existing bridge was constructed in 1948 and extended on the westerly end in 1961.

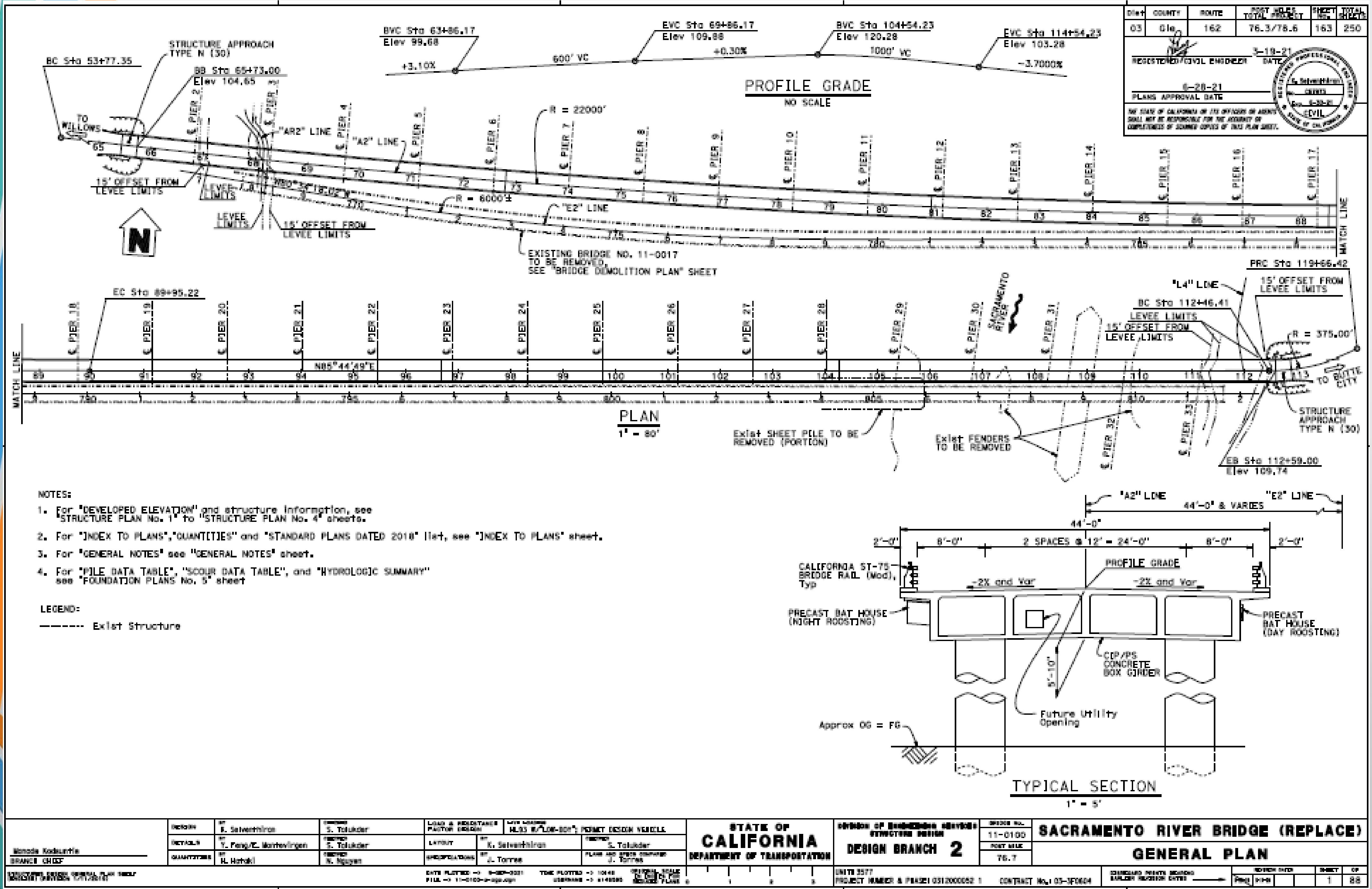
The structure features a steel truss swing bridge and a reinforced concrete viaduct totaling approximately 4,700 feet in length (0.9 miles).

Existing bridge has seismic capacity deficiencies.

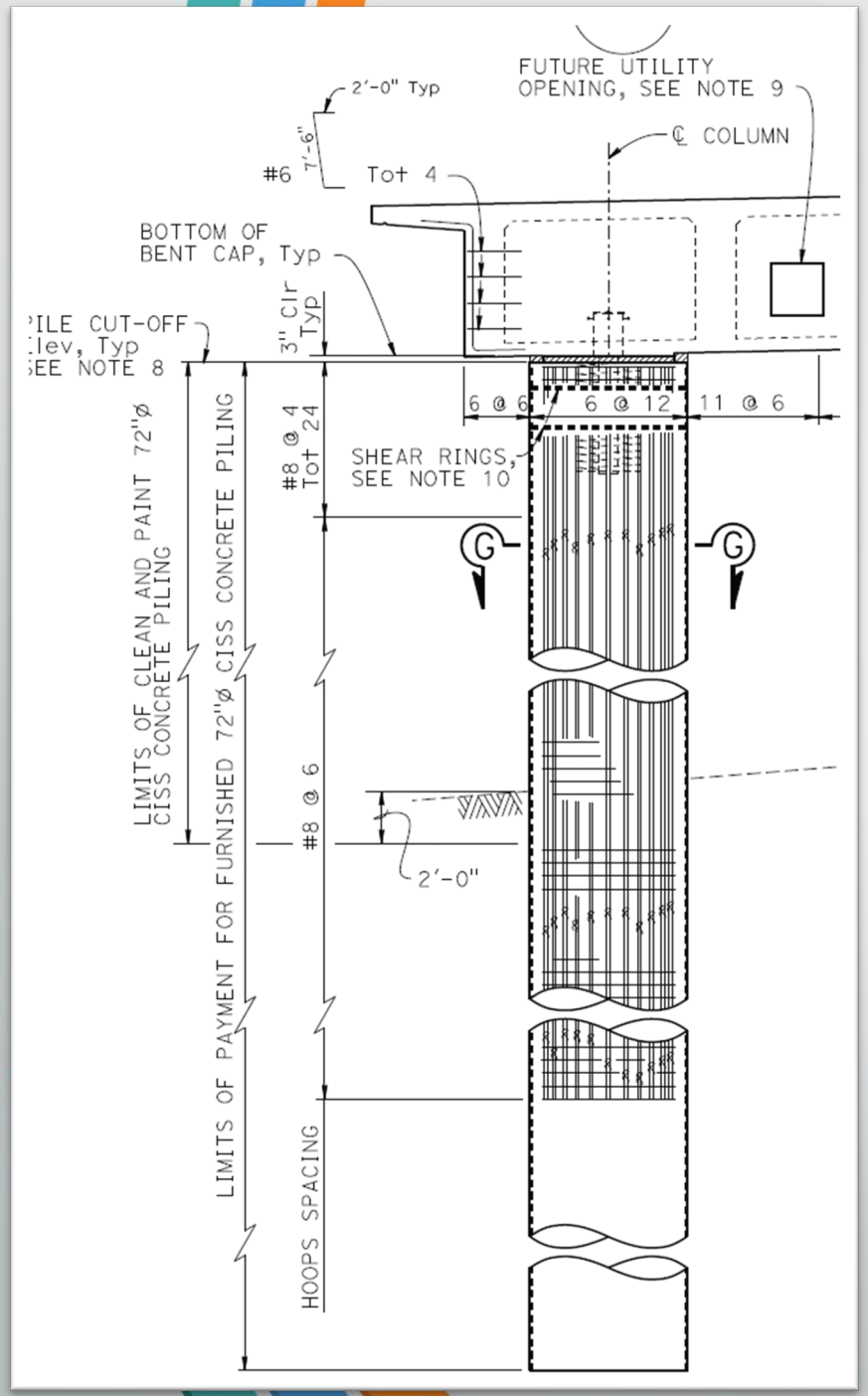
Both bridges are passed the 50 year life cycle.

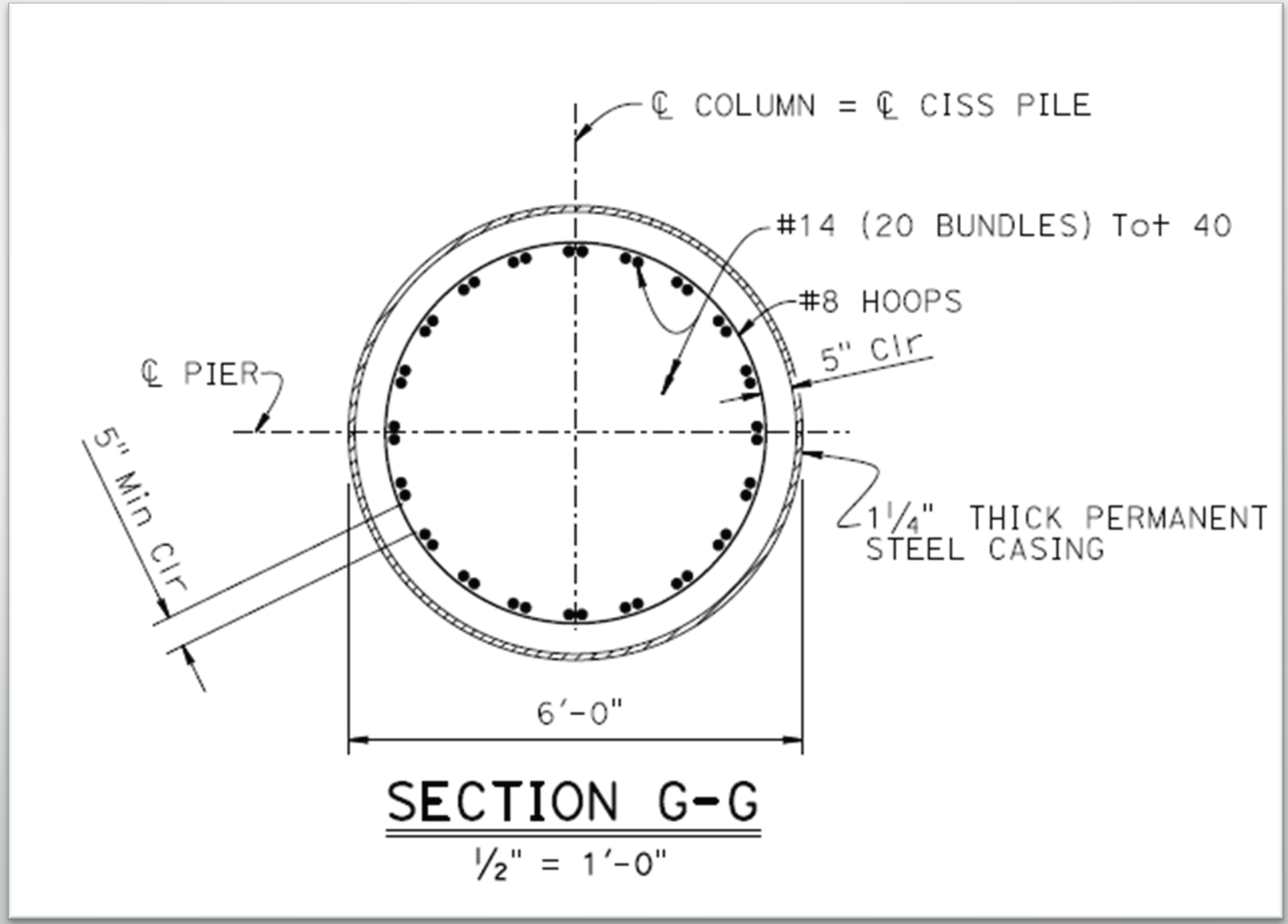
Project is to construct a new bridge (with 12-foot lanes and 8-foot shoulders in each direction) on a parallel alignment just north of the existing alignment.

The new bridge will be a cast-in-place prestressed box girder broken up into 6 frames.

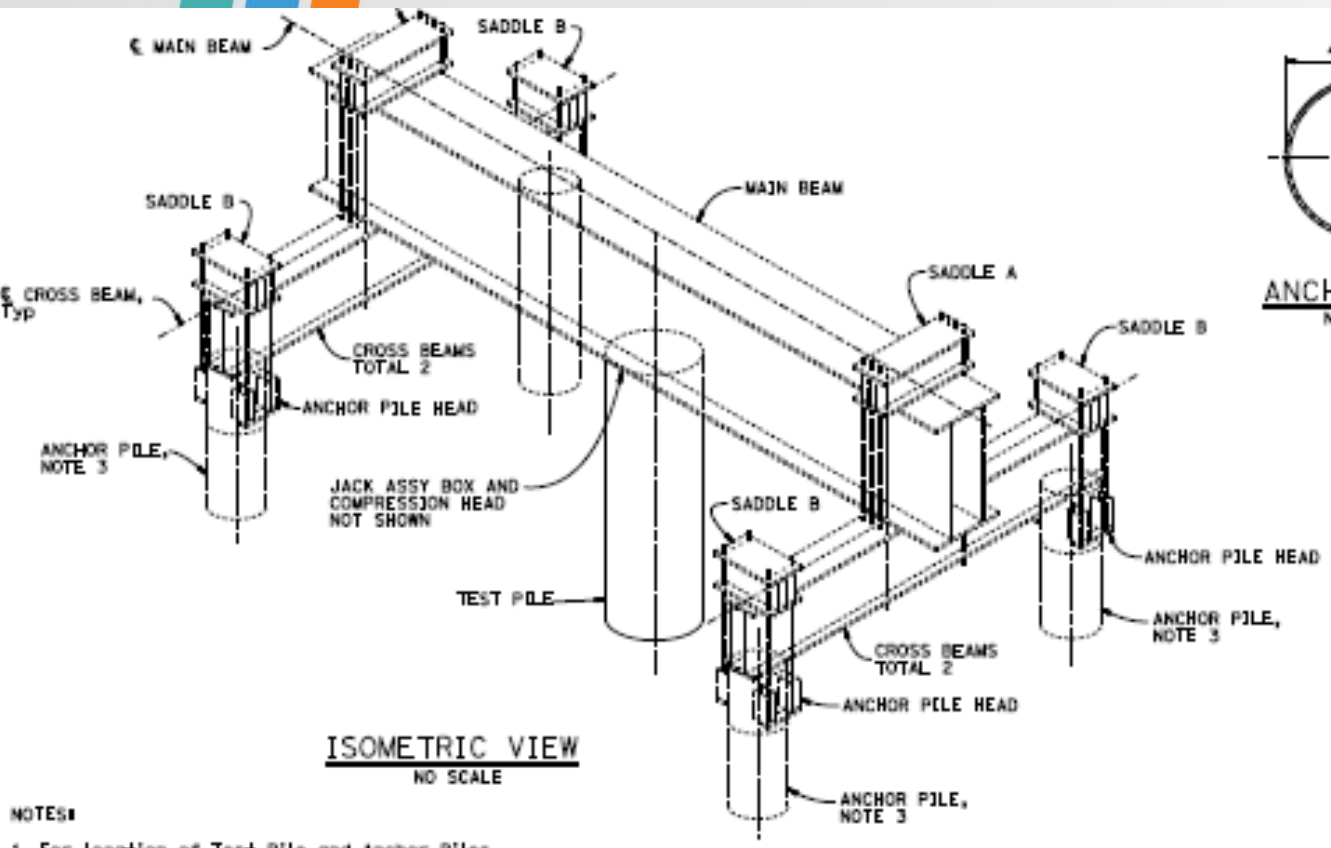

PROFILE GRADE
NO SCALE
BVC Sta 63+86.17 Elev 99.68
EVC Sta 69+86.17 Elev 109.88
BVC Sta 104+54.23 Elev 120.28
EVC Sta 114+54.23 Elev 103.28
+3.10%
600' VC
+0.30%
1000' VC
-3.7000%
STRUCTURE APPROACH TYPE N (30)
BC Sta 53+77.35
BB Sta 65+73.00 Elev 104.65
TO WILLOWS
"AR2" LINE
"A2" LINE
R = 22000'
R = 6000'±
"E2" LINE
15' OFFSET FROM LEVEE LIMITS
LEVEE LIMITS
EXISTING BRIDGE NO. 11-0017 TO BE REMOVED, SEE "BRIDGE DEMOLITION PLAN" SHEET
MATCH LINE
EC Sta 89+95.22
N85°44'49"E
PRC Sta 119+66.42
"L4" LINE
15' OFFSET FROM LEVEE LIMITS
BC Sta 112+46.41
LEVEE LIMITS
R = 375.00'
TO BUTTE CITY
SACRAMENTO RIVER
STRUCTURE APPROACH TYPE N (30)
EB Sta 112+59.00 Elev 109.74
Exist SHEET PILE TO BE REMOVED (PORTION)
Exist FENDERS TO BE REMOVED
PLAN
1" = 80'
NOTES:
1. For "DEVELOPED ELEVATION" and structure information, see "STRUCTURE PLAN No. 1" to "STRUCTURE PLAN No. 4" sheets.
2. For "INDEX TO PLANS","QUANTITIES" and "STANDARD PLANS DATED 2018" list, see "INDEX TO PLANS" sheet.
3. For "GENERAL NOTES" see "GENERAL NOTES" sheet.
4. For "PILE DATA TABLE", "SCOUR DATA TABLE", and "HYDROLOGIC SUMMARY" see "FOUNDATION PLANS No. 5" sheet
LEGEND:
------- Exist Structure
"A2" LINE
"E2" LINE
44'-0" & VARIES
44'-0"
2'-0"
8'-0"
2 SPACES @ 12' = 24'-0"
CALIFORNIA ST-75 BRIDGE RAIL (Mod), Typ
PROFILE GRADE
-2% and Var
PRECAST BAT HOUSE (NIGHT ROOSTING)
PRECAST BAT HOUSE (DAY ROOSTING)
CIP/PS CONCRETE BOX GIRDER
5'-10"
Future Utility Opening
Approx OG = FG
TYPICAL SECTION
1" = 5'
STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION
DESIGN BRANCH 2
SACRAMENTO RIVER BRIDGE (REPLACE)
GENERAL PLAN
11-0100
76.7
03 Gle 162 76.3/78.6 163 250
REGISTERED CIVIL ENGINEER
3-19-21
6-28-21
PLANS APPROVAL DATE

60” & 72” CISS PILES

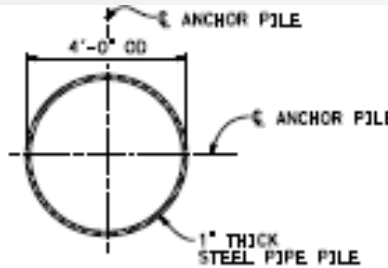




State Furnished Load Test Beam



ISOMETRIC VIEW
NO SCALE

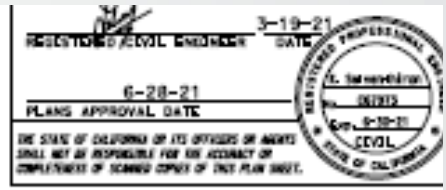


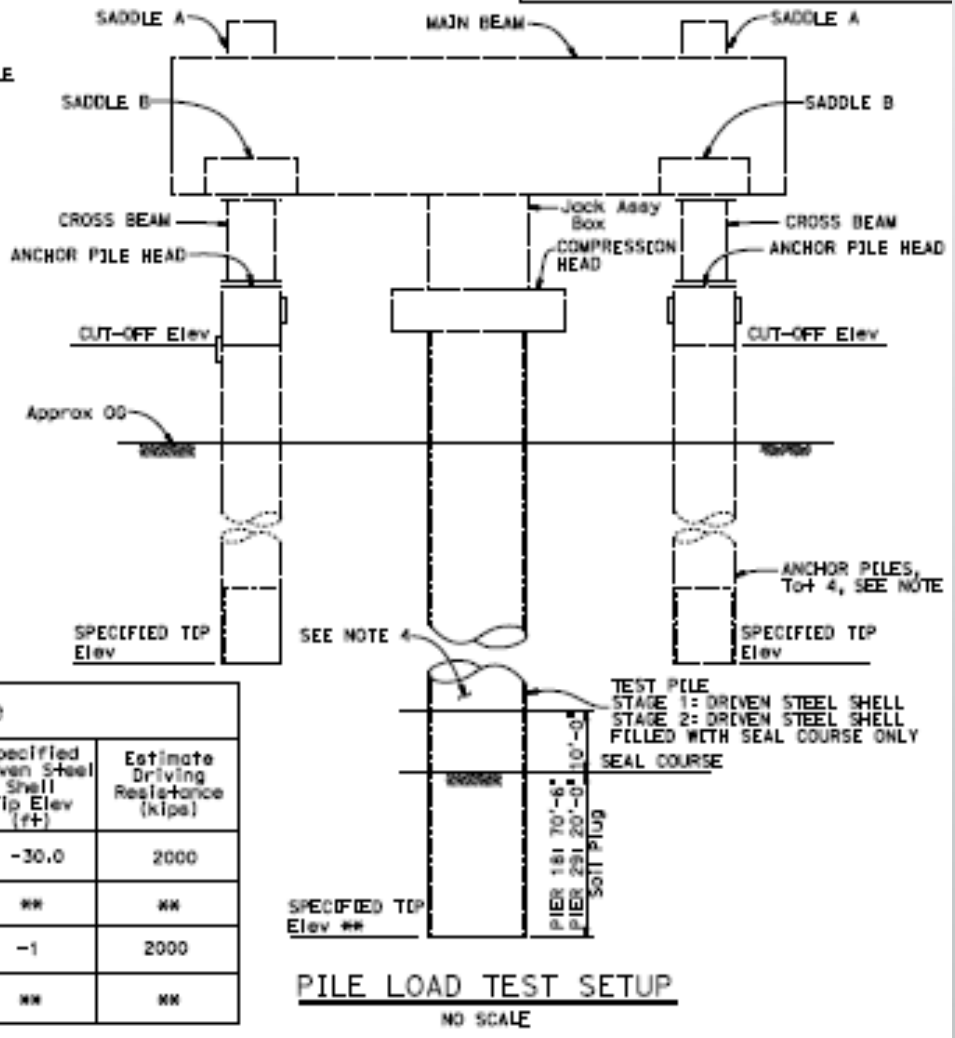
ANCHOR PILE
NO SCALE

NOTES:

1. For location of Test Pile and Anchor Piles see "FOUNDATION PLAN" sheet.
2. Anchor Piles, Anchor Pile Heads, Cross Beams, Main Beam, Jacking Assembly, Saddle A, Saddle B and Compression Head to be furnished by the State.
3. Anchor Piles to be removed 4' below OG and Test Pile to be spliced to final cut-off elevation upon completion of Pile Load Test. Anchor Pile voids to be backfilled with with minor concrete up to 4' below OG and top 4' with structure backfill.
4. After completion of Stage 1 Load Test, clean out inside of Test Pile to Specified Elev and place seal course for Stage 2 Load Test.

Load Test Pile Data Table					
Location	Pile Type	Approximate Ground Elevation (ft)	Cut-off Elevation (ft)	Specified Driven Steel Shell Tip Elev (ft)	Estimate Driving Resistance (kips)
Anchor Piles for Pier 18 North Pile	48" Driven Pipe Pile	87.0	92.0 *97.0	-30.0	2000
Test Pile at Pier 18 North Pile	60" CISS	87.0	99.0	**	**
Anchor Piles for Pier 29 North Pile	48" Driven Pipe Pile	Varies from 73-86	97.0 *99.0	-1	2000
Test Piles at Pier 29 North Pile	72" CISS	85.0	116	**	**





PILE LOAD TEST SETUP
NO SCALE

Change Order

Force Account

Support Caltrans Foundation Testing to Complete Load Tests

$440,000 provided in Contract for Supplemental Work

Test Pile Program Drive 48”
Anchor Piles

48” Anchor Piles did not reach required capacity

Change Order
Extend anchor piles
Force Account

Drive 60” and 72” dia Load Test Piles

D180 Diesel Hammer
Weight = 160,000 lbs.

Construct Pile Load Test Frames

Construct Pile Load Test Frames

60” and 72” Load Test Piles did not come up to required capacity

Change Order
Extend Load Test Piles
Force Account

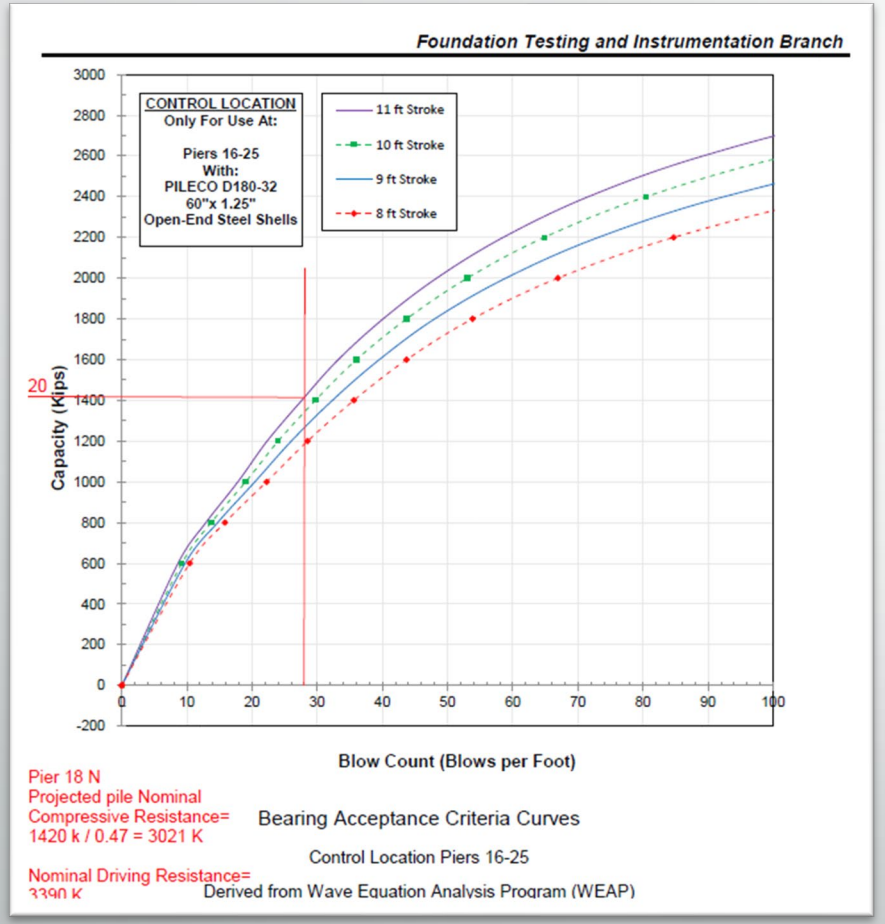
Change Order

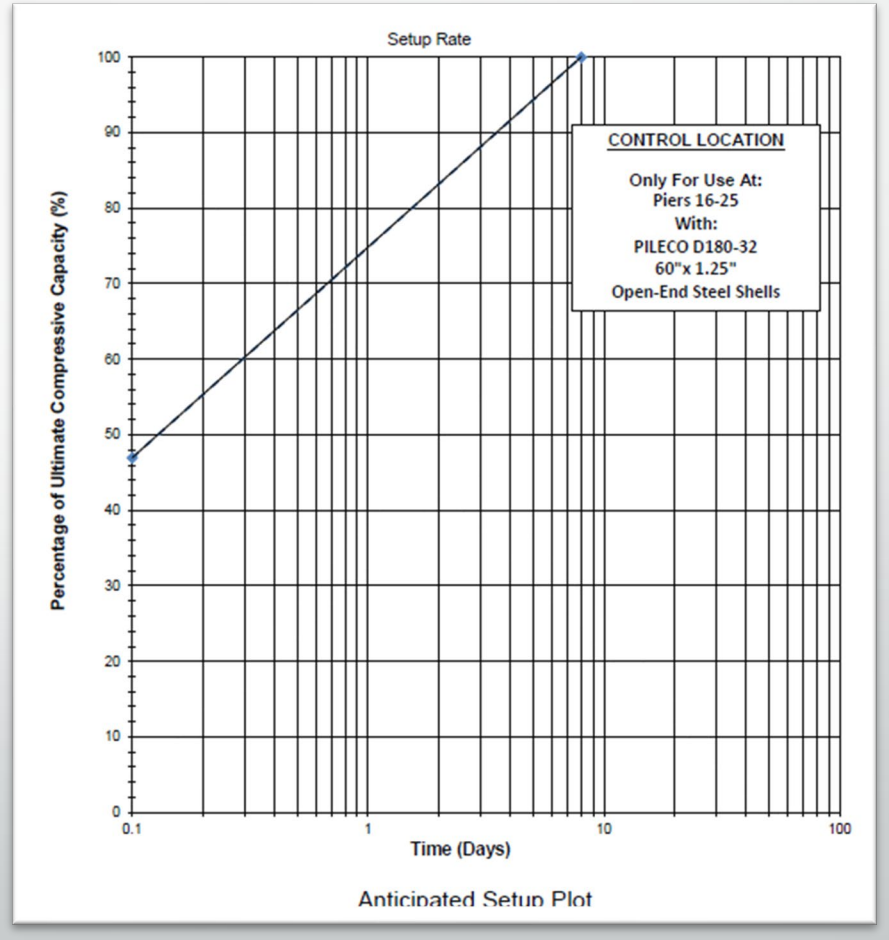
Allow Contractor to start production piles before Load Test completed

No Cost Deferred Time

2nd Pile Load Test performed by CT Foundation Testing Branch

Received Pile Drive Criteria From Foundation Testing Branch





Change Oder
Revised Pile Data Table from Geotech Engineer New Tip Elevations

Dist	COUNTY	ROUTE	POST MILE
03	Gle	162	76.3/7

REGISTERED CIVIL ENGINEER — DATE 3-19-

PLANS APPROVAL DATE 6-28-21

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

MARK	DATE	REVISION DESCRIPTION
-		-
-		-
MHE		Revised elevs
MHE		Revised note

CHANGE ORDER No. 14 SHEET 2 OF 3

MARK	DATE	REVISION DESCRIPTION
-		-
MHE		New Border
MHE		Add note
MHE		Revised numbers

CHANGE ORDER No. 15 SHEET 2 OF 3

PILE DATA TABLE

Support Location	Pile Type	Pile Cutoff Elevation (ft)	Nominal Resistance		Design Tip Elevation (ft)				Specified Tip Elevation (ft)	Required Nominal Driving Resistance (kips)	Column Reactor Case Tip Elev (ft)
			Compression	Tension	(a)	(b)	(c)	(d)			
Abut 1	CLASS 200 Alt. B	90.4	330	0	37	N/A	58	64	37	330	N/A
PIER 2 NORTH	CISS 60"x1.25"	83.0	⚠ 3190	0	-5	N/A	23	30	-5 * ⚠	⚠ 3190	35.0
PIER 2 SOUTH	CISS 60"x1.25"	83.0	⚠ 3200	0	-5	N/A	23	30	-5 * ⚠	⚠ 3200	35.0
PIER 3 NORTH	CISS 60"x1.25"	81.0	⚠ 3200	0	-9	N/A	13	34	-9 * ⚠	⚠ 3200	31.0
PIER 3 SOUTH	CISS 60"x1.25"	81.0	⚠ 3220	0	-9	N/A	13	34	-9 * ⚠	⚠ 3220	31.0
PIER 4 NORTH	CISS 60"x1.25"	81.0	⚠ 3190	0	1	N/A	26	34	1 * ⚠	⚠ 3190	42.0
PIER 4 SOUTH	CISS 60"x1.25"	81.0	⚠ 3190	0	1	N/A	26	34	1 * ⚠	⚠ 3190	42.0
PIER 5 NORTH	CISS 60"x1.25"	80.0	⚠ 3290	0	-9	N/A	9	27	-9 * ⚠	⚠ 3290	27.0
PIER 5 SOUTH	CISS 60"x1.25"	80.0	⚠ 3290	0	-9	N/A	9	27	-9 * ⚠	⚠ 3290	27.0
PIER 6 NORTH	CISS 60"x1.25"	80.0	⚠ 3430	0	-14	N/A	9	20	-14 * ⚠	⚠ 3430	25.0
PIER 6 SOUTH	CISS 60"x1.25"	80.0	⚠ 3430	0	-14	N/A	9	20	-14 * ⚠	⚠ 3430	25.0
PIER 7 NORTH	CISS 60"x1.25"	82.0	⚠ 3280	0	-9	N/A	14	29	-9 * ⚠	⚠ 3280	27.0
PIER 7 SOUTH	CISS 60"x1.25"	82.0	⚠ 3280	0	-9	N/A	14	29	-9 * ⚠	⚠ 3280	27.0
PIER 8 NORTH	CISS 60"x1.25"	82.0	⚠ 3150	0	-4	N/A	17	-1	-4 * ⚠	⚠ 3150	29.0
PIER 8 SOUTH	CISS 60"x1.25"	82.0	⚠ 3150	0	-4	N/A	17	-1	-4 * ⚠	⚠ 3150	29.0
PIER 9 NORTH	CISS 60"x1.25"	83.0	⚠ 3180	0	-12	N/A	13	34	-12 * ⚠	⚠ 3180	30.0
PIER 9 SOUTH	CISS 60"x1.25"	83.0	⚠ 3180	0	-12	N/A	13	34	-12 * ⚠	⚠ 3180	30.0
PIER 10 NORTH	CISS 60"x1.25"	83.0	⚠ 3150	0	-11	N/A	14	31	-11 * ⚠	⚠ 3150	31.0
PIER 10 SOUTH	CISS 60"x1.25"	83.0	⚠ 3150	0	-11	N/A	14	31	-11 * ⚠	⚠ 3150	31.0
PIER 11 NORTH	CISS 60"x1.25"	84.0	⚠ 3270	0	-7	N/A	20	30	-7 * ⚠	⚠ 3270	34.0
PIER 11 SOUTH	CISS 60"x1.25"	84.0	⚠ 3270	0	-7	N/A	20	30	-7 * ⚠	⚠ 3270	34.0
PIER 12 NORTH	CISS 60"x1.25"	84.0	⚠ 3400	0	-13	N/A	8	34	-13 * ⚠	⚠ 3400	27.0
PIER 12 SOUTH	CISS 60"x1.25"	84.0	⚠ 3400	0	-13	N/A	8	34	-13 * ⚠	⚠ 3400	27.0
PIER 13 NORTH	CISS 60"x1.25"	84.0	⚠ 3270	0	-4	N/A	16	36	-4 * ⚠	⚠ 3270	33.0
PIER 13 SOUTH	CISS 60"x1.25"	84.0	⚠ 3270	0	-4	N/A	16	36	-4 * ⚠	⚠ 3270	33.0
PIER 14 NORTH	CISS 60"x1.25"	84.0	⚠ 3180	0	-3	N/A	16	35	-3 * ⚠	⚠ 3180	33.0
PIER 14 SOUTH	CISS 60"x1.25"	84.0	⚠ 3180	0	-3	N/A	16	35	-3 * ⚠	⚠ 3180	33.0
PIER 15 NORTH	CISS 60"x1.25"	84.0	⚠ 3180	0	-7	N/A	16	34	-7 * ⚠	⚠ 3180	31.0
PIER 15 SOUTH	CISS 60"x1.25"	84.0	⚠ 3180	0	-7	N/A	16	34	-7 * ⚠	⚠ 3180	31.0
PIER 16 NORTH	CISS 60"x1.25"	84.0	⚠ 3190	0	⚠ -90	N/A	-7	26	⚠ -90	⚠ 3190	18.5
PIER 16 SOUTH	CISS 60"x1.25"	84.0	⚠ 3190	0	⚠ -90	N/A	-7	26	⚠ -90	⚠ 3190	18.5
PIER 17 NORTH	CISS 60"x1.25"	84.0	⚠ 3300	0	⚠ -95	N/A	-12	29	⚠ -95	⚠ 3300	19.0
PIER 17 SOUTH	CISS 60"x1.25"	84.0	⚠ 3300	0	⚠ -95	N/A	-12	29	⚠ -95	⚠ 3300	19.0
PIER 18 NORTH	CISS 60"x1.25"	84.0	⚠ 3390	0	⚠ -113	N/A	-19	11	⚠ -113	⚠ 3390	14.5
PIER 18 SOUTH	CISS 60"x1.25"	84.0	⚠ 3390	0	⚠ -113	N/A	-19	11	⚠ -113	⚠ 3390	14.5
PIER 19 NORTH	CISS 60"x1.25"	84.0	⚠ 3440	0	⚠ -110	N/A	-9	15	⚠ -110	⚠ 3440	15.0
PIER 19 SOUTH	CISS 60"x1.25"	84.0	⚠ 3440	0	⚠ -110	N/A	-9	15	⚠ -110	⚠ 3440	15.0
PIER 20 NORTH	CISS 60"x1.25"	84.0	⚠ 3670	0	⚠ -110	N/A	-1	11	⚠ -110	⚠ 3670	10.5
PIER 20 SOUTH	CISS 60"x1.25"	84.0	⚠ 3670	0	⚠ -110	N/A	-1	11	⚠ -110	⚠ 3670	10.5
PIER 21 NORTH	CISS 60"x1.25"	84.0	⚠ 3520	0	⚠ -108	N/A	-4	11	⚠ -108	⚠ 3520	10.5
PIER 21 SOUTH	CISS 60"x1.25"	84.0	⚠ 3520	0	⚠ -108	N/A	-4	11	⚠ -108	⚠ 3520	10.5

NOTES:

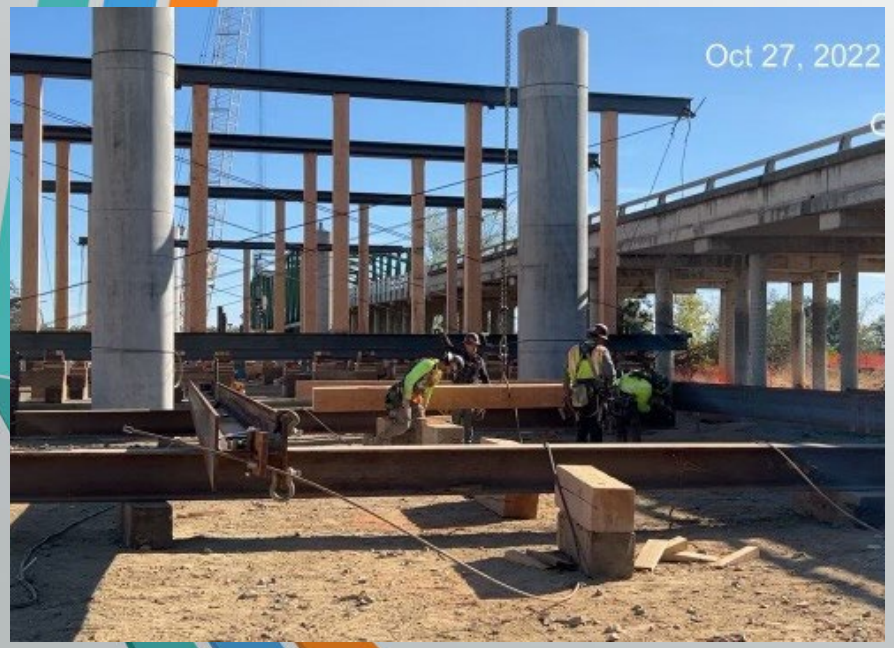
Change Oder
Revised Pile Data Table from Geotech Engineer – New Tip Elevations

Clay Zone: Added 50 ft to each 60" pile from Pier 16 to Pier 25 (20 piles total)

Silty Sandy Gravel Zone: Added 10 ft to piles from Pier 2 to Pier 15 and Pier 33 (30 piles total)

Total estimated cost to extend piles = $7.4 Million
Added 10% cost to entire project.

Go Forward With Building a Bridge



Go Forward With Building a Bridge

Sacramento River flooding – January 2023

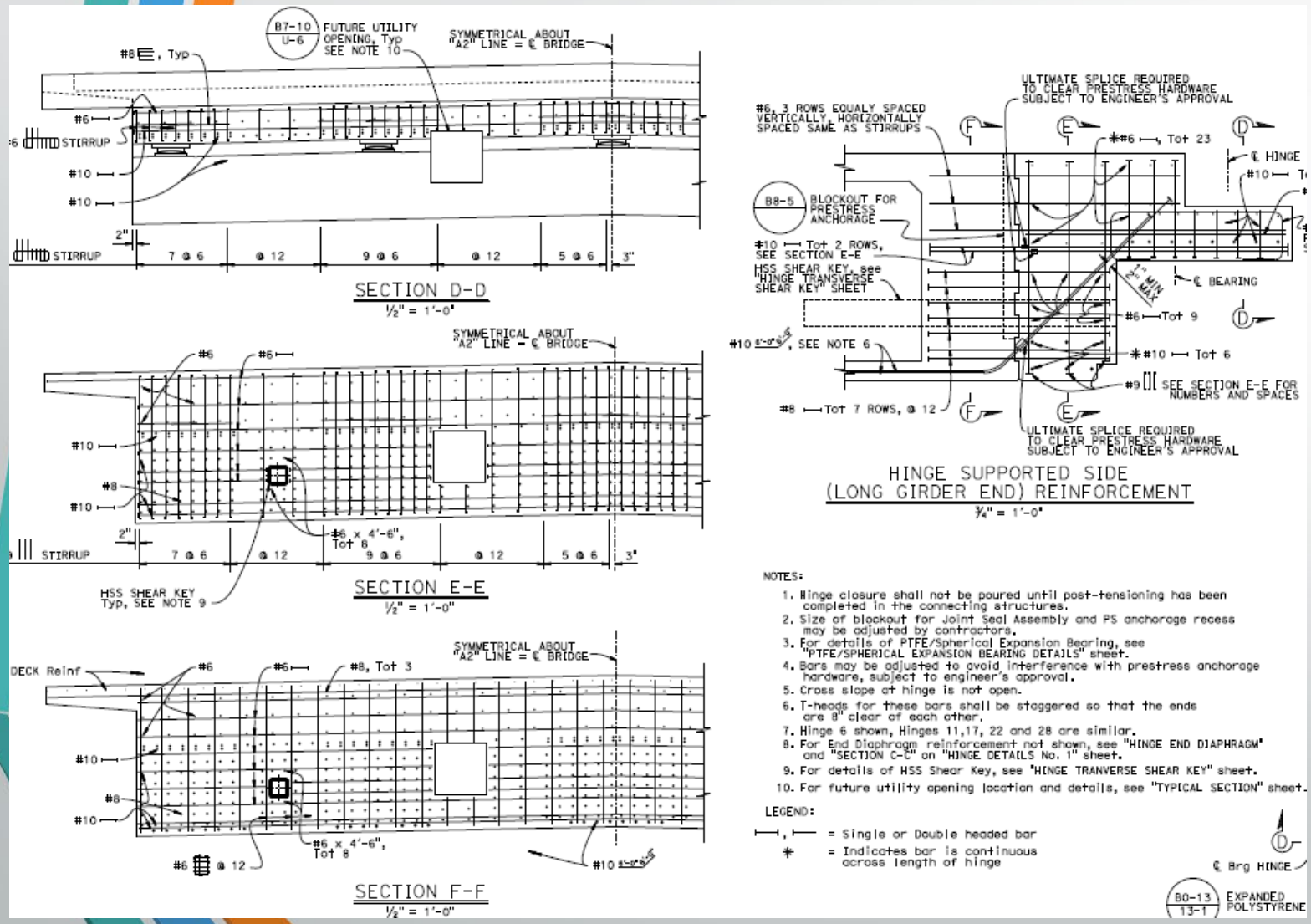
Sacramento River Flooding – March 2023

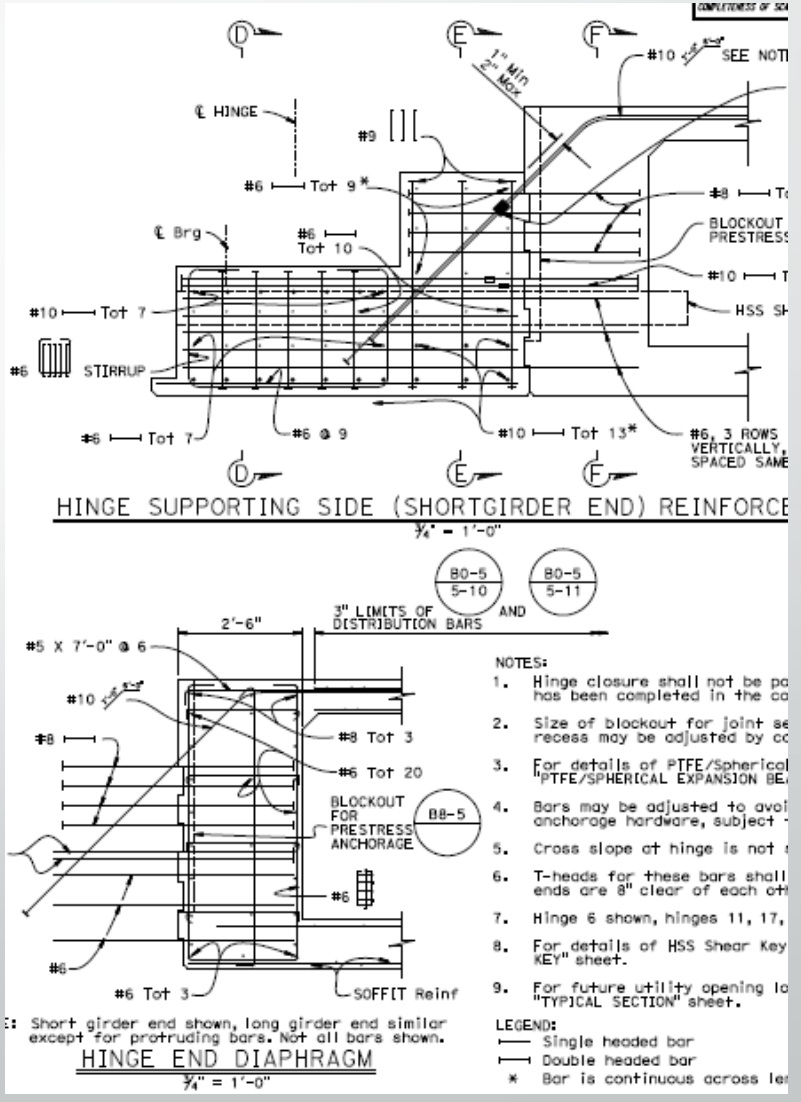
Sacramento River Flooding – March 2023

Frames 4 & 5 looking east

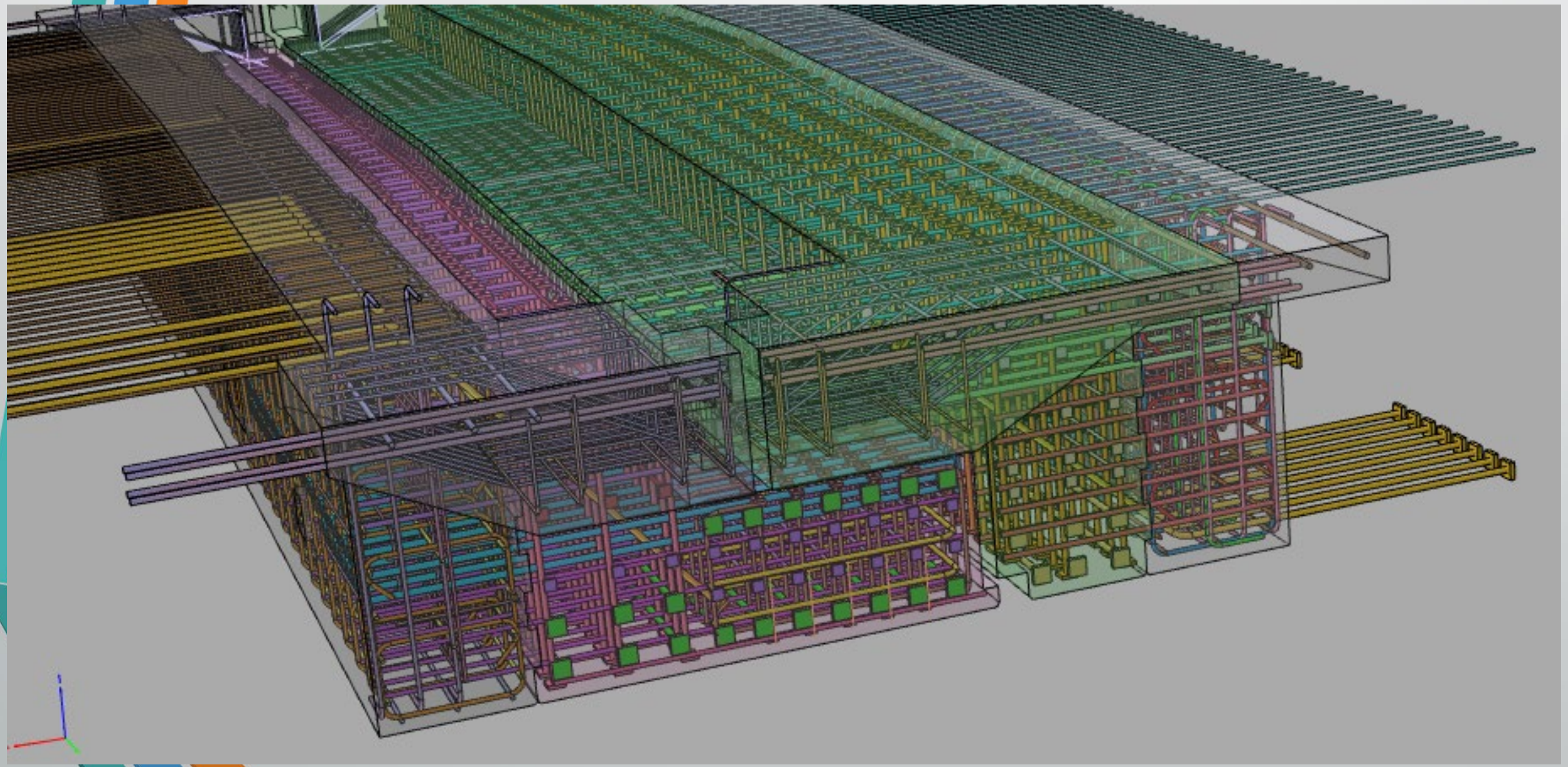
Frames 4 & 5 looking west

Hinge Details

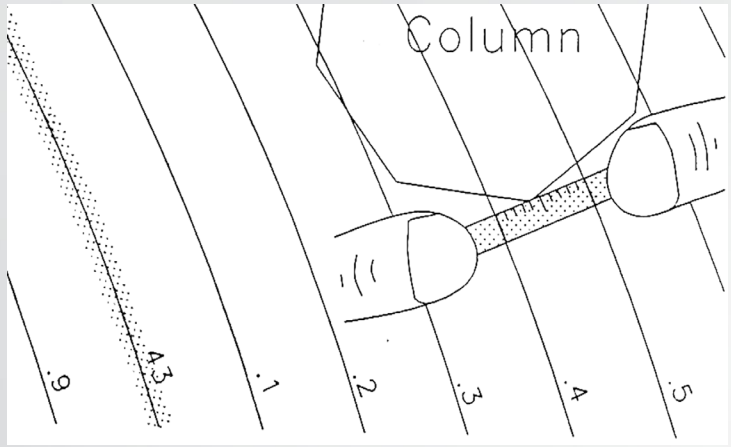


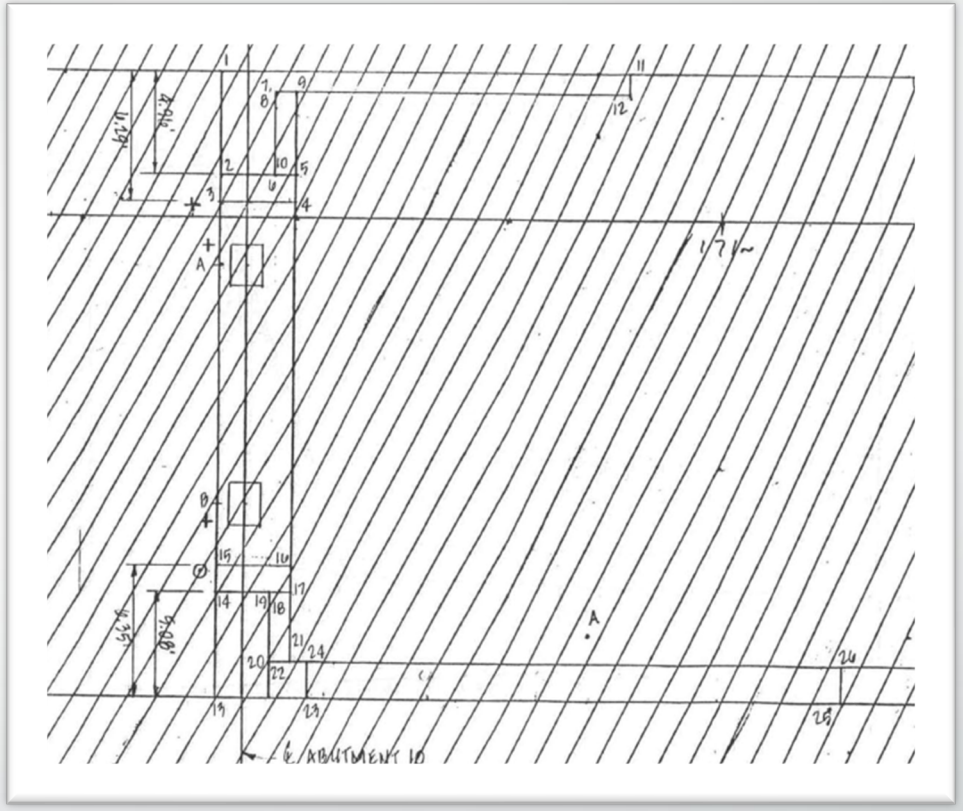


3D Modeling of Hinge



Picking Grades from 4-Scales



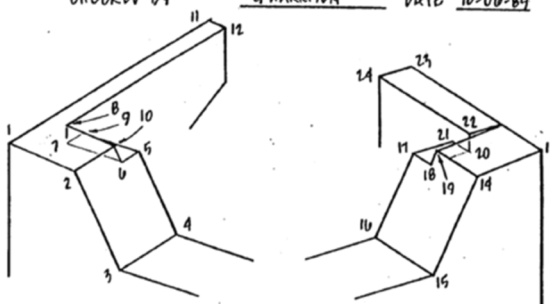


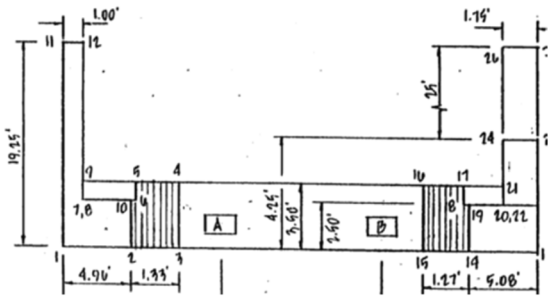
BRIDGE SOUTHWEST CONNECTOR
ABUTMENT # 10

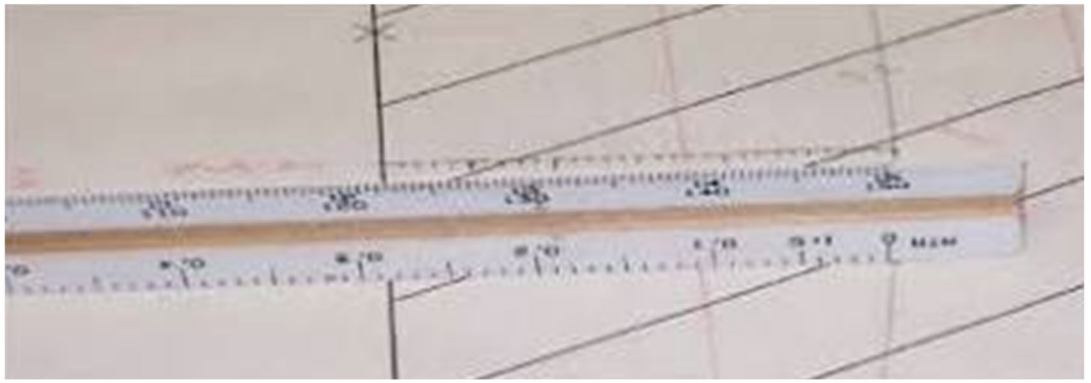
DRAWN/PLOTTED BY R STARR DATE 10-02-87
CHECKED BY G HARRISON DATE 10-06-89

PT	PECK GRADE	CUT	POUR GRADE
1	USE.ST	0.92	US1.05
2	6.30	1.33	7.03
3	8.31	5.11	3.19
4	8.02	5.11	2.85
5	8.01	2.00	6.01
6	8.15	2.00	6.15
7	8.31	2.00	6.31
8	8.31	0.92	7.39
9	8.24	2.00	6.24
10	8.15	1.33	6.82
11	6.98	0.92	6.06
12	6.95	0.92	6.03
13	7.31	0.92	6.39
14	7.51	1.33	6.18
15	7.56	5.11	2.39
16	7.32	5.11	2.15
17	7.20	2.00	5.20
18	7.33	2.00	5.33
19	7.33	1.33	6.00
20	7.19	2.00	5.19
21	7.13	2.00	5.13
22	7.19	0.92	6.27
23	6.99	0.92	6.07

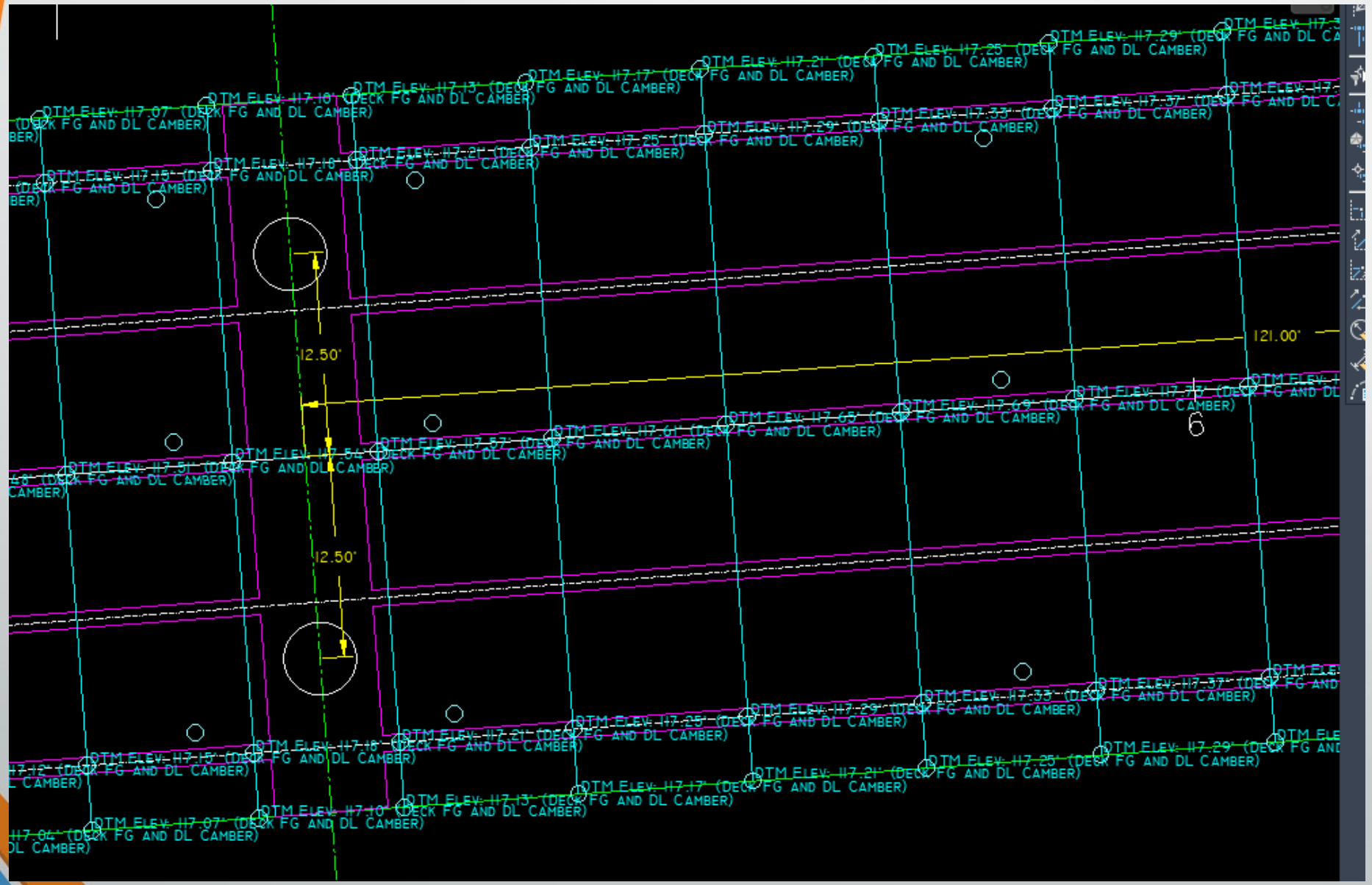
PT	PECK GRADE	CUT	POUR GRADE
24	7.06	0.92	6.14
25	5.21	0.92	4.29
26	5.27	0.92	4.35
A	8.17	5.11	3.00
B	7.66	5.11	2.51



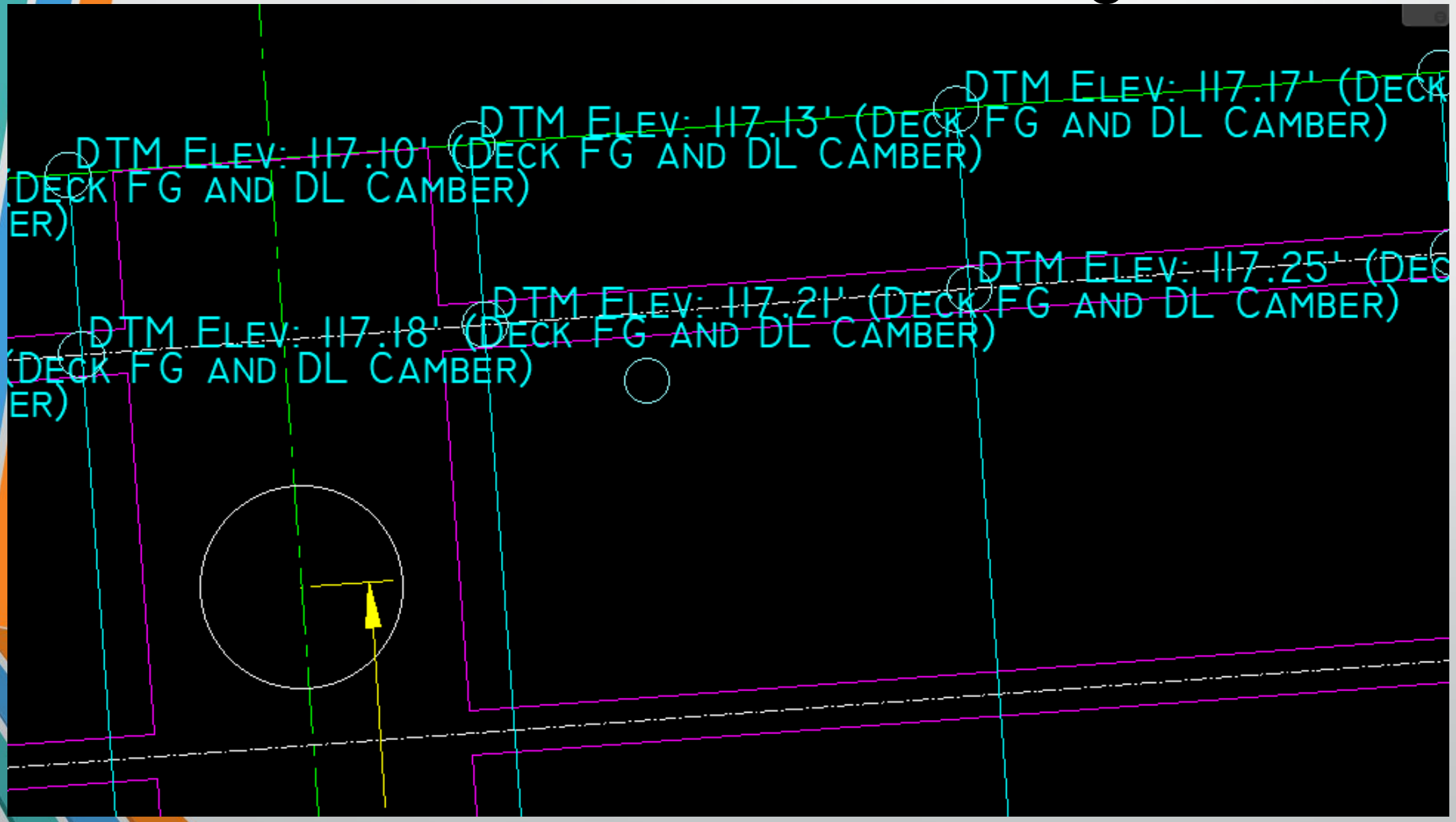




Civil 3D Surface Modeling



Civil 3D Surface Modeling



On schedule to finish bridge work Fall 2025

Plant Establishment finish November 2026.

Questions?