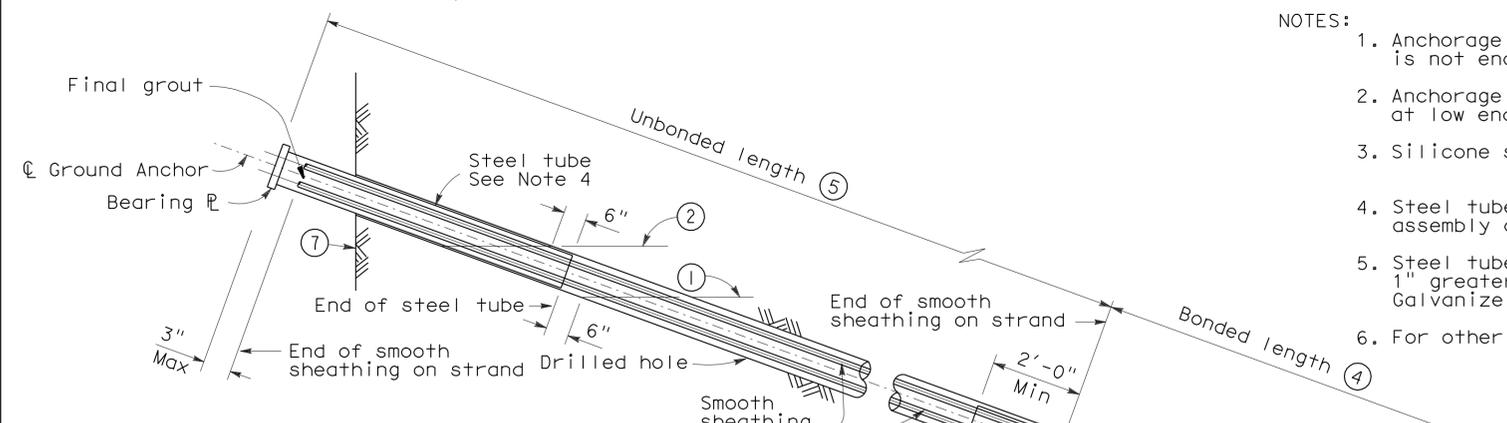


DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Hum	299	20.2/20.5	101	128

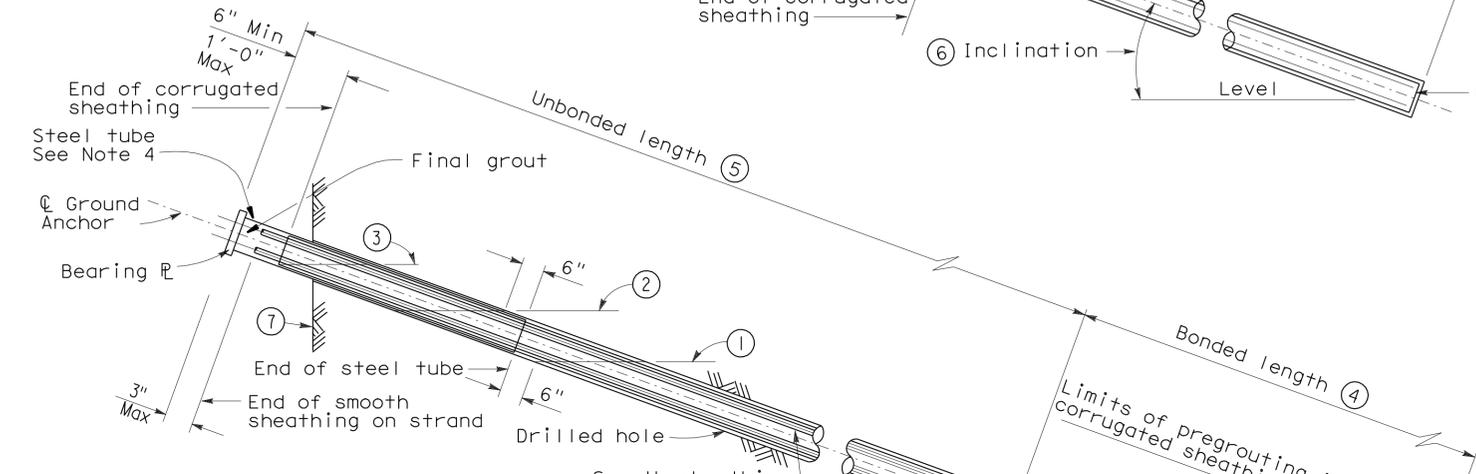
  

REGISTERED ENGINEER - CIVIL 5-7-12 PLANS APPROVAL DATE	
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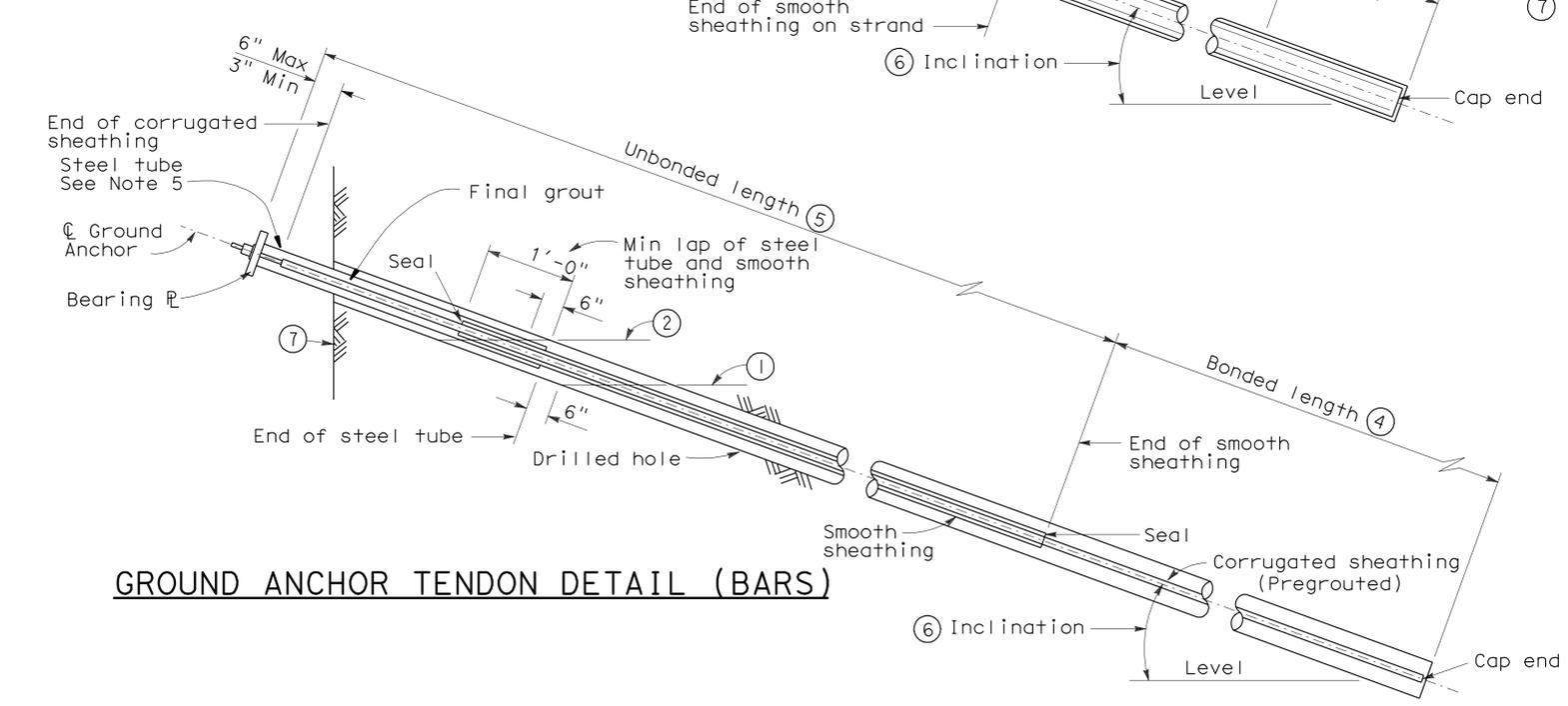
- NOTES:
1. Anchorage enclosure shall only be used when anchor head assembly is not enclosed in concrete.
  2. Anchorage enclosure shall have provisions to allow injecting grout at low end and venting at high end. Galvanize after fabrication.
  3. Silicone sealant to cover full width of flange.
  4. Steel tube welded to bearing plate (Min thickness = 1/4"). Galvanize assembly after fabrication.
  5. Steel tube welded to bearing plate inside diameter of steel tube to be 1" greater than outside diameter of smooth sheathing (Min thickness = 1/4") Galvanize assembly after fabrication.
  6. For other wall details, see Structural Plans.



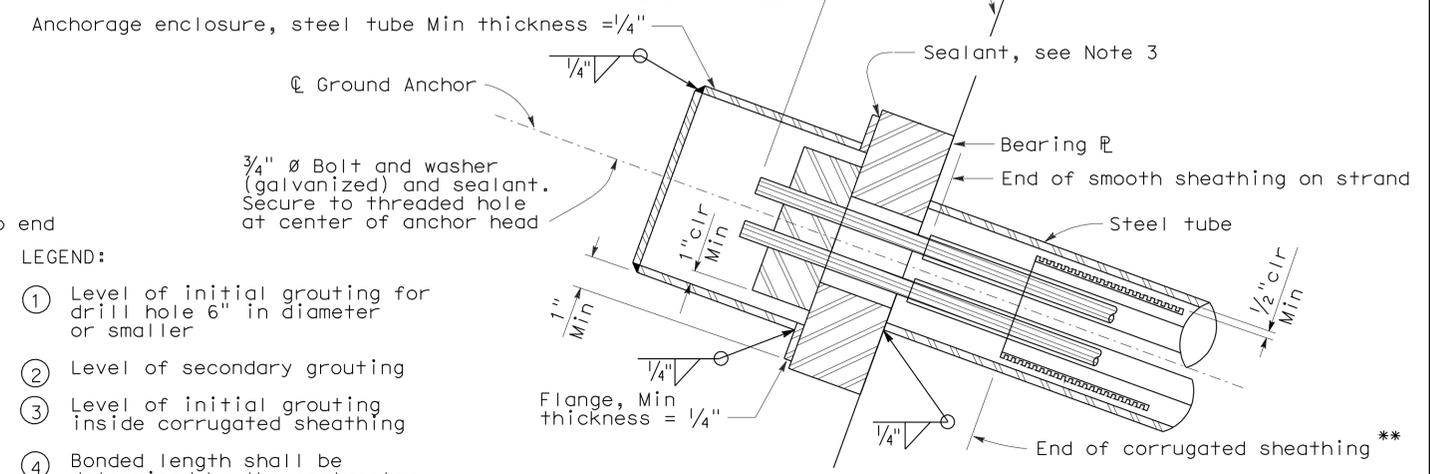
**GROUND ANCHOR TENDON DETAIL (STRAND) - (ALTERNATIVE A)**



**GROUND ANCHOR TENDON DETAIL (STRAND) - (ALTERNATIVE B)**



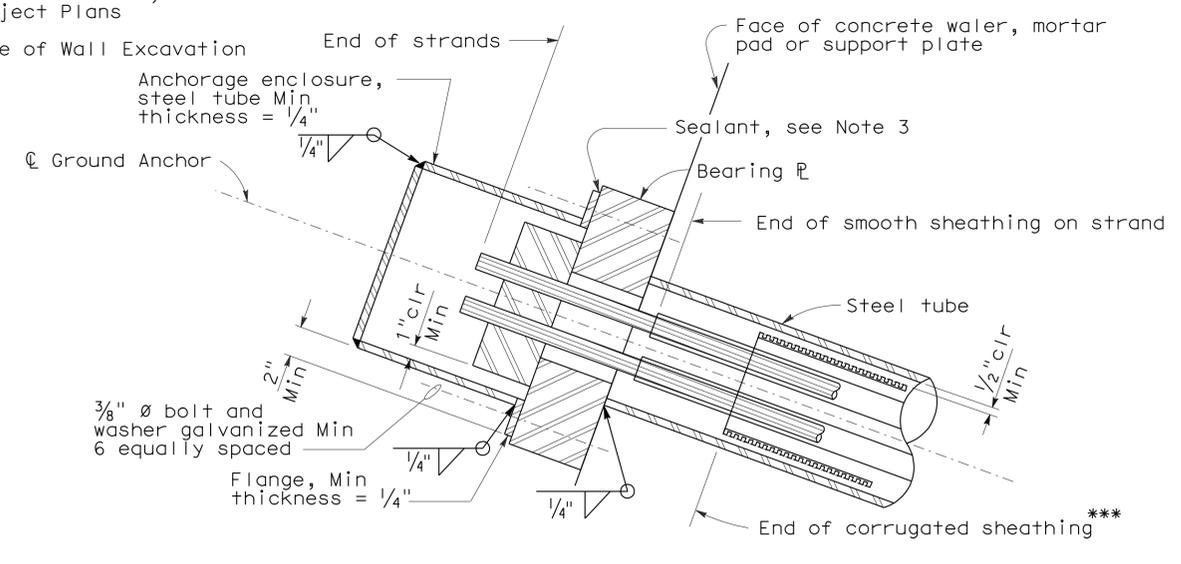
**GROUND ANCHOR TENDON DETAIL (BARS)**



**ALTERNATIVE X**

\*\* Alternative B tendon only

- LEGEND:
- 1 Level of initial grouting for drill hole 6" in diameter or smaller
  - 2 Level of secondary grouting
  - 3 Level of initial grouting inside corrugated sheathing
  - 4 Bonded length shall be determined by the contractor
  - 5 Unbonded length= 120'-0" (Ground Anchor level 1)  
Unbonded length= 100'-0" (Ground Anchor level 2)  
Unbonded length= 80'-0" (Ground Anchor level 3)  
Unbonded length= 60'-0" (Ground Anchor level 4)  
Unbonded length= 40'-0" (Ground Anchor level 5)
  - 6 For inclination, see Project Plans
  - 7 Face of Wall Excavation



**ALTERNATIVE Y**

\*\*\* Alternative B tendon only

**ANCHORAGE ENCLOSURE DETAILS**

REVISED STANDARD DRAWING		
FILE NO. <b>xs12-040e</b>	APPROVED BY <u>G. WANG</u> RESPONSIBLE TECHNICAL SPECIALIST	RELEASED BY <u>ROBERTO LACALLE</u> RESPONSIBLE OFFICE CHIEF
	APPROVAL DATE <u>2-27-09</u>	RELEASE DATE <u>2-27-09</u>

1 Note revised

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF 3  
ENGINEERING SERVICES

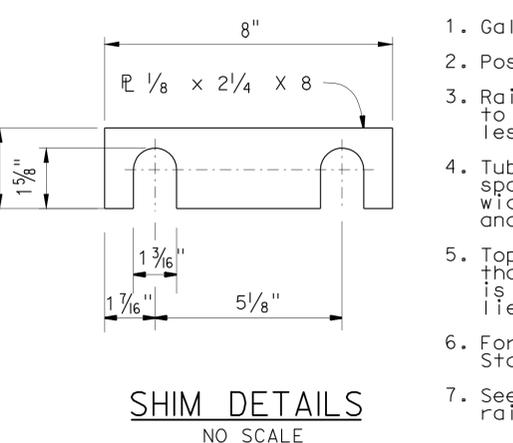
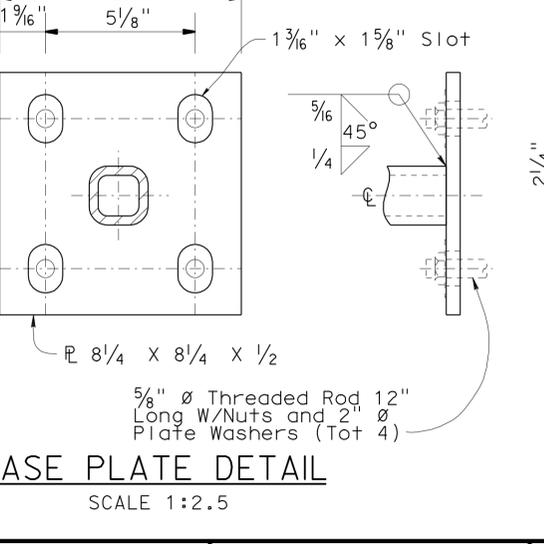
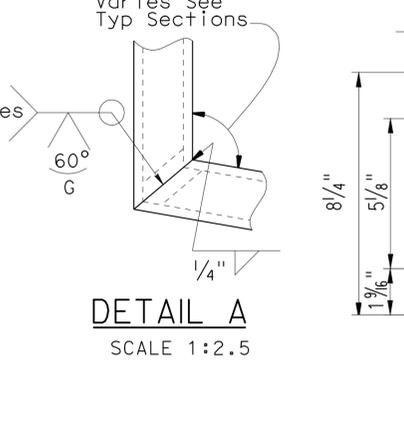
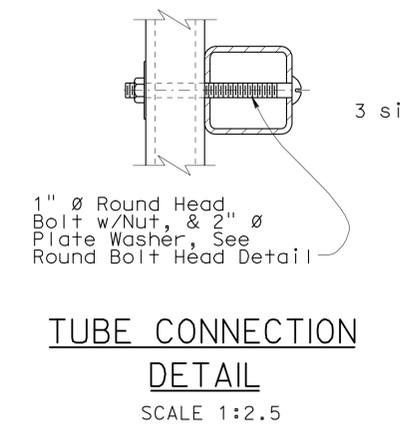
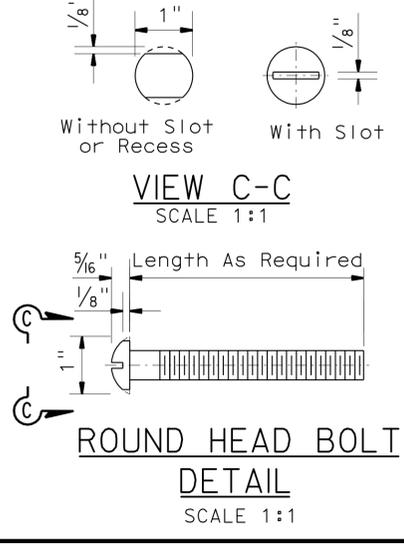
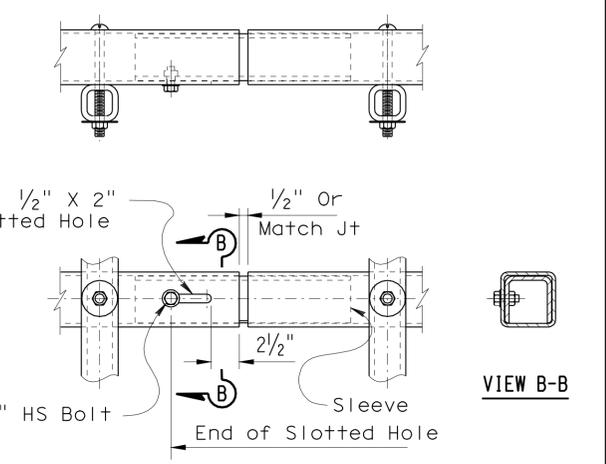
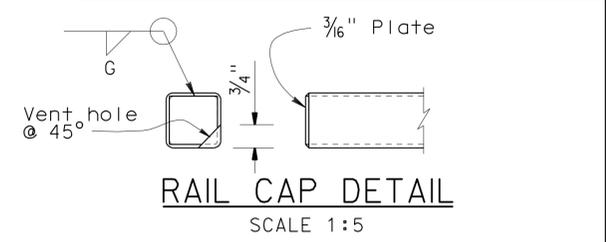
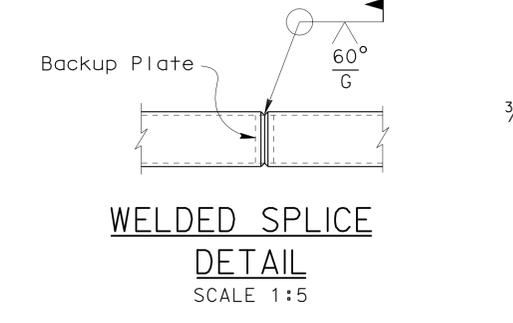
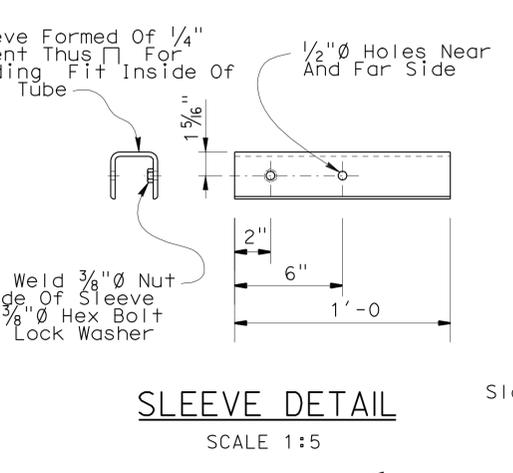
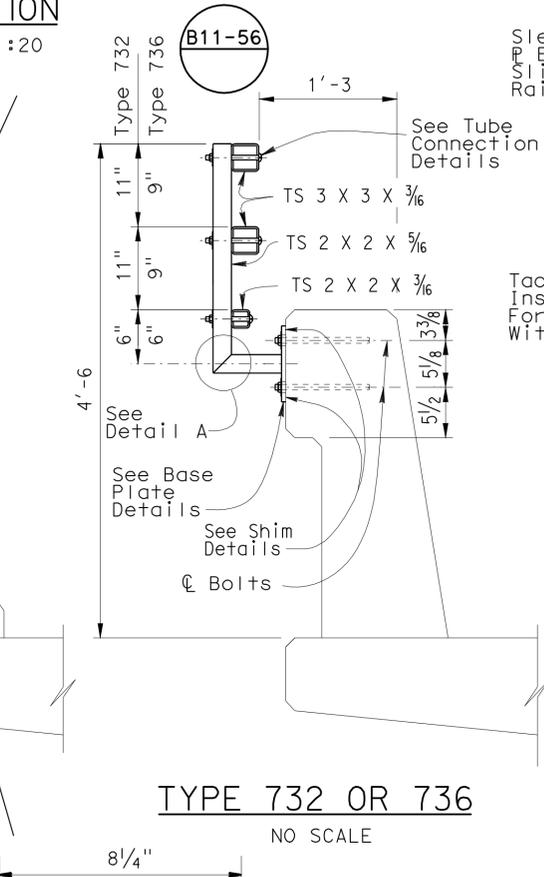
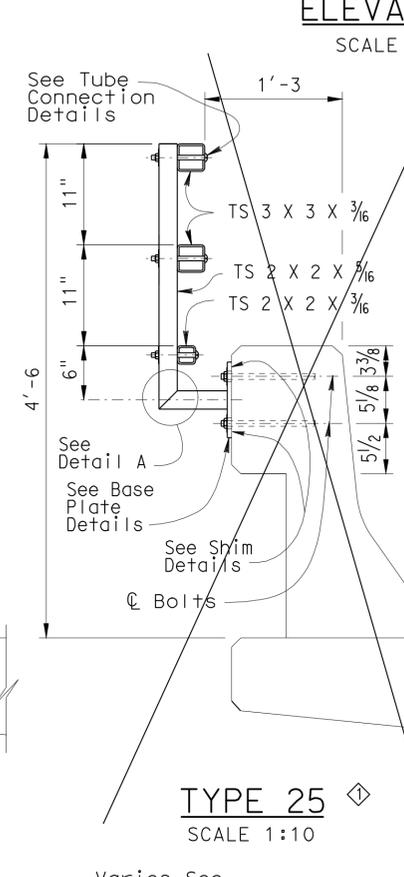
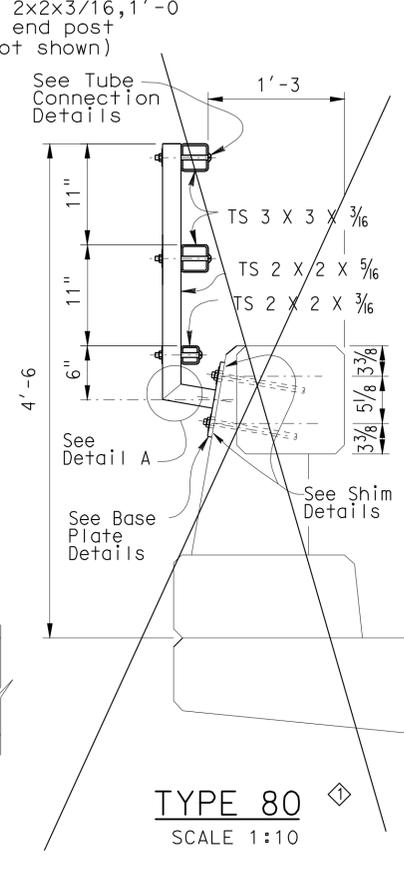
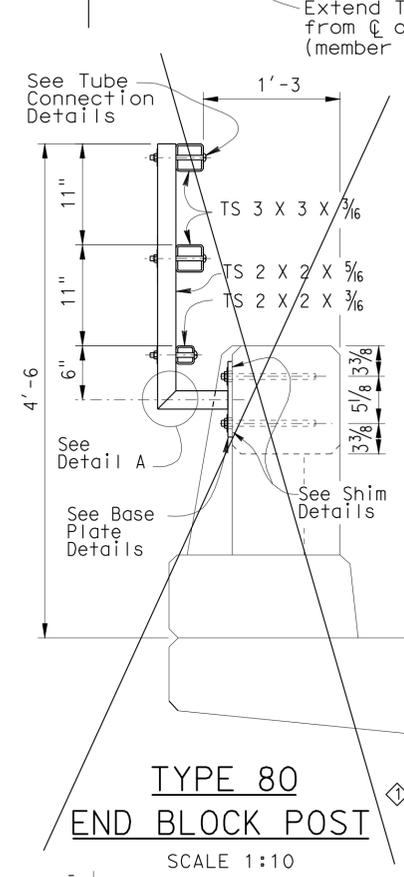
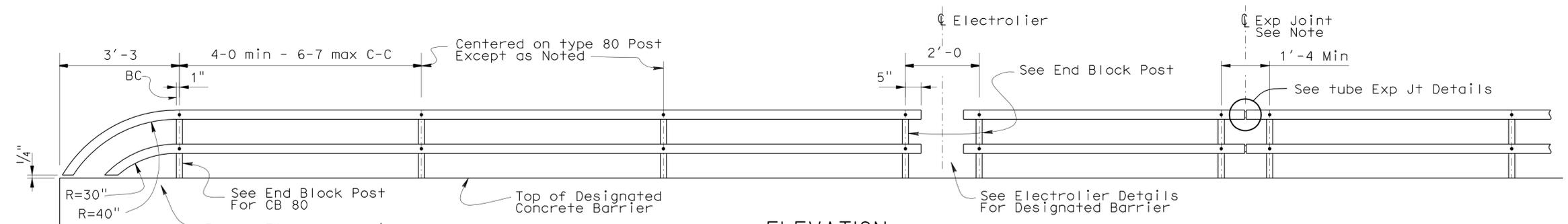
BRIDGE NO. 04E0028  
POST MILE 20.2

**GREEN POINT SINK RETAINING WALL NO. 1**  
**GROUND ANCHOR DETAILS**

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Ham	299	20.2/20.5	102	128

REGISTERED CIVIL ENGINEER  
 DATE 10-27-11  
 Lewis L Shen  
 No. 56921  
 Exp. 6-30-13  
 CIVIL  
 STATE OF CALIFORNIA

5-7-12  
 PLANS APPROVAL DATE  
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- NOTES:**
- Galvanize rail assembly after fabrication.
  - Post shall be normal to railing.
  - Rail tubes shall be shop bent or fabricated to fit horizontal curve when radius is less than 12 inches.
  - Tube splices shall be located in the tubes spanning deck or wall joints. Increase joint width in tubes to match expansion joint width and increase sleeve length correspondingly.
  - Top rail tube shall be continuous over not less than two posts except a short post spacing is permitted near deck or wall joints, electroliers, or other rail discontinuities as noted.
  - For details and reinforcement not shown see Standard Plan.
  - See project plans for limits of tubular hand railing.

STANDARD DRAWING	
FILE NO. <b>xs16-500e</b>	APPROVED BY <b>T SATTER</b> RESPONSIBLE TECHNICAL SPECIALIST APPROVAL DATE <b>4-15-08</b>
RELEASED BY <b>ROBERTO LACALLE</b> RESPONSIBLE OFFICE CHIEF RELEASE DATE <b>4-15-08</b>	

Deleted Detail

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF ENGINEERING SERVICES

**GREEN POINT SINK RETAINING WALL NO. 1**  
**CONCRETE BARRIER TYPE 25, 80, 732 & 736**  
**TUBULAR BICYCLE RAILING DETAILS**

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Hum	299	20.2/20.5	103	128

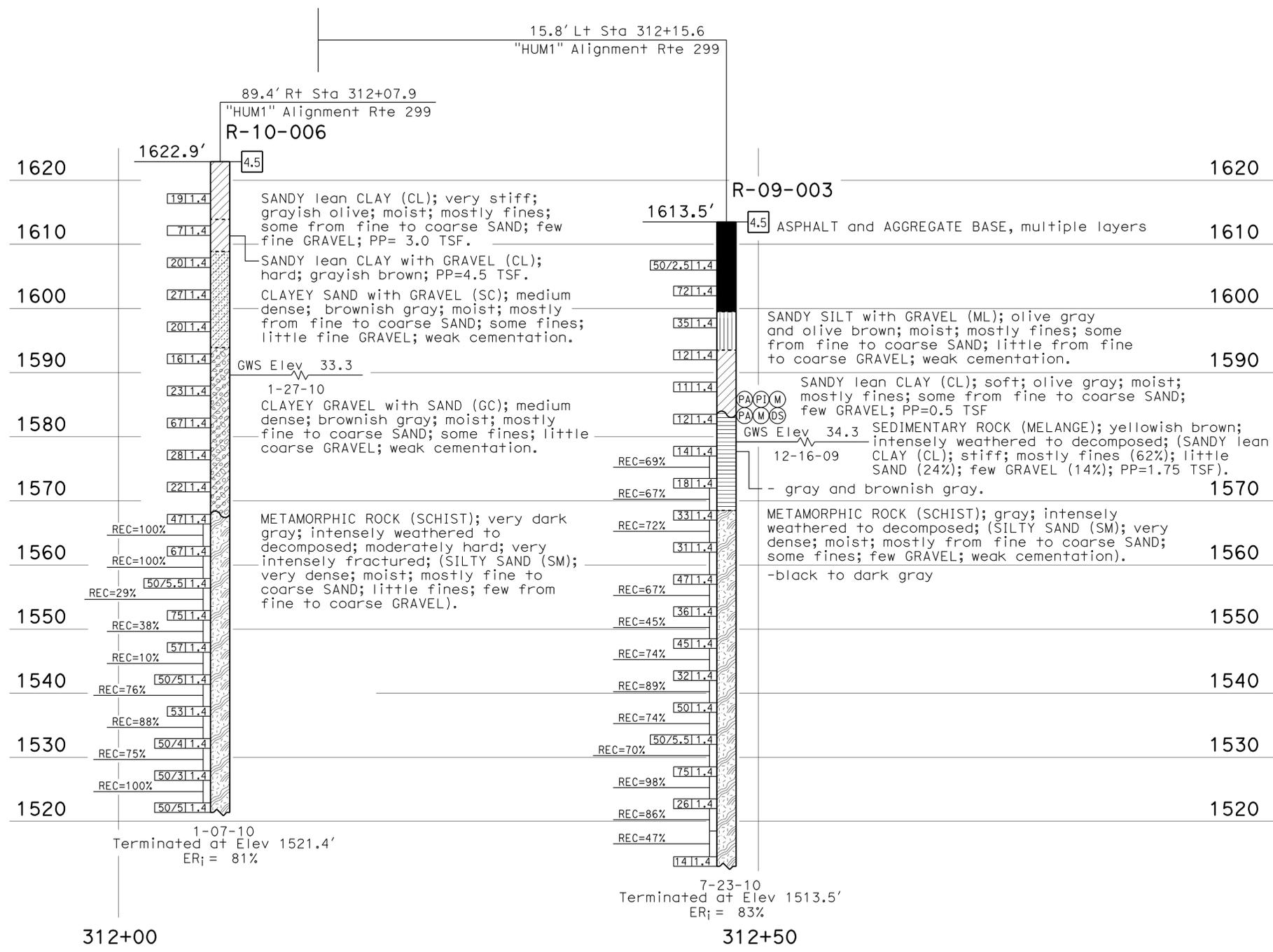
10-12-11  
 CERTIFIED ENGINEERING GEOLOGIST DATE

5-7-12  
 PLANS APPROVAL DATE

PROFESSIONAL GEOLOGIST  
 Charlie Narwold  
 No. 2335  
 Exp. 9-30-13  
 CERTIFIED ENGINEERING GEOLOGIST  
 STATE OF CALIFORNIA

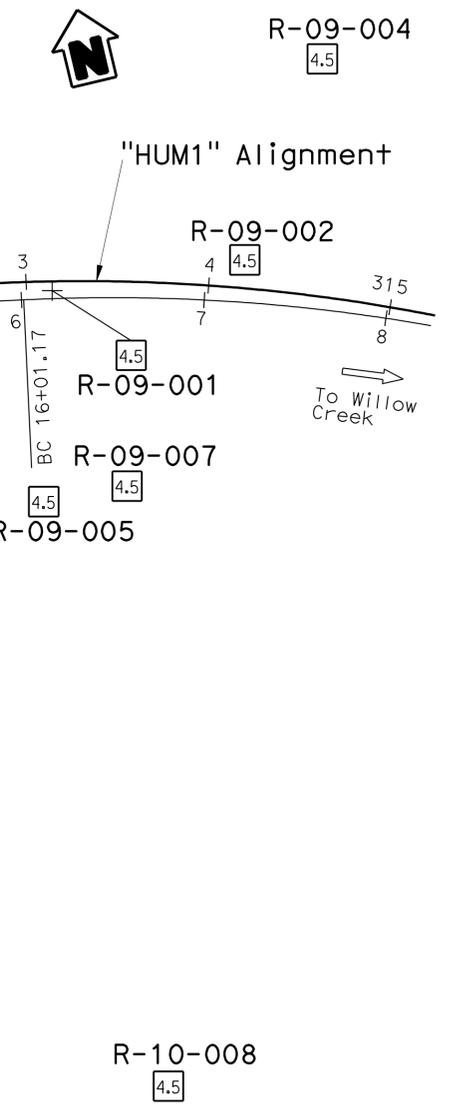
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**PROFILE**  
 Horiz: 1" = 5'  
 Vert: 1" = 10'

**BENCH MARK**  
 BM F1403 Elev 1,513.1'  
 Steel Rod in Aluminum Monument Well  
 South side of driveway 22302 Rte 299  
 Sta 329+80.4 106.8' Lt "HUM1" alignment  
 NAVD88

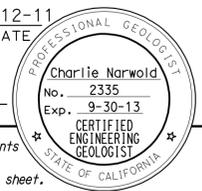


**PLAN**  
 1" = 50'

<b>ENGINEERING SERVICES</b>		<b>GEOTECHNICAL SERVICES</b>		<b>STATE OF CALIFORNIA</b>		<b>DIVISION OF ENGINEERING SERVICES</b>		<b>BRIDGE NO.</b>		<b>GREEN POINT SINK RETAINING WALL NO. 1</b>	
FUNCTIONAL SUPERVISOR		DRAWN BY: G. Dickerson		DEPARTMENT OF TRANSPORTATION		STRUCTURE DESIGN		04E0028		<b>LOG OF TEST BORINGS 1 OF 8</b>	
NAME: R. Bibbens		CHECKED BY: XX		FIELD INVESTIGATION BY:		<b>DESIGN BRANCH 3</b>		POST MILE			
				R. Zarnegar, D. McGuire				20.2			
OGS CIVIL LOG OF TEST BORINGS SHEET		ORIGINAL SCALE IN INCHES FOR REDUCED PLANS		UNIT: 3578		PROJECT NUMBER & PHASE: 01000001720		CONTRACT NO.: 01-423701		DISREGARD PRINTS BEARING EARLIER REVISION DATES	
				0 1 2 3						REVISION DATES	
										3-13-11 10-06-11 10-11-11	
										SHEET 11 OF 18	

FILE => 04e0028-z-1+D01.dgn

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Hum	299	20.2/20.5	104	128
			10-12-11	DATE	
CERTIFIED ENGINEERING GEOLOGIST			DATE		
5-7-12			PLANS APPROVAL DATE		
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FOR PLAN VIEW, SEE  
"LOG OF TEST BORINGS" 1 OF 8



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PROFILE  
Horiz: 1" = 5'  
Vert: 1" = 10'

ENGINEERING SERVICES		GEOTECHNICAL SERVICES		STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION		DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 3		BRIDGE NO. 04E0028 POST MILE 20.2		GREEN POINT SINK RETAINING WALL NO. 1	
FUNCTIONAL SUPERVISOR NAME: R. Bibbens		DRAWN BY: G. Dickerson CHECKED BY: XX		FIELD INVESTIGATION BY: R. Zarnegar		UNIT: 3578 PROJECT NUMBER & PHASE: 0100000172-0		CONTRACT NO.: 01-423701		LOG OF TEST BORINGS 2 OF 8	
OGS CIVIL LOG OF TEST BORINGS SHEET				ORIGINAL SCALE IN INCHES FOR REDUCED PLANS				DISREGARD PRINTS BEARING EARLIER REVISION DATES		REVISION DATES SHEET OF	
				0 1 2 3				3-13-11 10-06-11 10-11-11		12 18	

USERNAME => s124496 DATE PLOTTED => 08-MAY-2012 TIME PLOTTED => 10:52

FOR PLAN VIEW, SEE  
"LOG OF TEST BORINGS" 1 OF 8

5.0' Rt Sta 313+14.3  
"HUM1" Alignment Rte 299  
R-09-001

1606.9'	4.5 ASPHALT. SILTY SAND with GRAVEL (SM); dense; dark yellowish brown; dry; mostly from fine to coarse SAND; little from fine to coarse GRAVEL (FILL).	1600
1590	SILTY SAND with GRAVEL (SM); loose; gray and yellowish red; moist; mostly from fine to coarse SAND; some fines; little fine GRAVEL. SANDY lean CLAY (CL); hard; dark yellowish brown; moist; fines (50%); SAND (37%); fine GRAVEL (13%). PP=4.25 TSF. - yellowish red; PP=4.25 TSF.	1590
1580	SILTY GRAVEL with SAND (GM); medium dense; yellowish brown; moist; from fine to coarse GRAVEL (36%); some from fine to coarse SAND (34%); fines (30%).	1580
1570	METAMORPHIC ROCK (SCHIST); dark gray; decomposed; (SILTY SAND with GRAVEL (SM); medium dense; moist; SAND (48%); fines (29%); GRAVEL (23%).	1570
1560	- very dense; from fine to coarse SAND (47%); fine GRAVEL (31%); fines (22%). GWS Elev. 46.3 METAMORPHIC ROCK (SCHIST); dark gray; intensely weathered to decomposed; (SILTY SAND (ML); dense; moist; fines (50%); SAND (46%); trace GRAVEL (4%)). 4-28-10	1560
1550	METAMORPHIC ROCK (SCHIST); dark gray and gray; decomposed; (SILTY SAND (SM); very dense; moist; SAND (46%); fines (39%); GRAVEL (15%).	1550
1540	- from fine to coarse SAND (57%); fines (37%); fine GRAVEL (6%).	1540
1530	- from fine to coarse SAND (57%); fines (38%); fine GRAVEL (5%).	1530
1520	- from fine to coarse SAND (64%); fines (36%).	1520
1510	METAMORPHIC ROCK (SCHIST); dark gray; intensely weathered; very soft to soft; very intensely fractured.	1510
1500	- moderately to slightly weathered; moderately hard.	1500
1490	METAMORPHIC ROCK (SCHIST); dark gray; intensely weathered to decomposed; soft; intensely fractured; (SILTY SAND with GRAVEL (SM); moist; mostly coarse SAND; some fines; little GRAVEL).	1490
1480	METAMORPHIC ROCK (SCHIST); dark gray; intensely weathered to decomposed; soft; intensely fractured; (SILTY SAND with GRAVEL (SM); moist; mostly coarse SAND; some fines; little GRAVEL).	1480
1470	METAMORPHIC ROCK (SCHIST); dark gray; intensely weathered to decomposed; soft; intensely fractured; (SILTY SAND with GRAVEL (SM); moist; mostly coarse SAND; some fines; little GRAVEL).	1470
1460	METAMORPHIC ROCK (SCHIST); dark gray; intensely weathered to decomposed; soft; intensely fractured; (SILTY SAND with GRAVEL (SM); moist; mostly coarse SAND; some fines; little GRAVEL).	1460
1450	METAMORPHIC ROCK (SCHIST); dark gray; moderately soft to moderately hard; very intensely fractured.	1450
1440	METAMORPHIC ROCK (SCHIST); gray; decomposed; (Poorly-graded GRAVEL with SAND (GP); moist; mostly fine GRAVEL with some coarse SAND).	1440
1430		1430
1420		1420
1410		1410

313+00 Terminated at Elev 1406.9'  
ER = 83%

313+50

PROFILE  
Horiz: 1" = 5'  
Vert: 1" = 10'

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Hum	299	20.2/20.5	105	128

10-12-11  
CERTIFIED ENGINEERING GEOLOGIST DATE

5-7-12  
PLANS APPROVAL DATE

Charlie Narwold  
No. 2335  
Exp. 9-30-13  
CERTIFIED ENGINEERING GEOLOGIST  
STATE OF CALIFORNIA

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ENGINEERING SERVICES		GEOTECHNICAL SERVICES		STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION		DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 3		BRIDGE NO. 04E0028 POST MILE 20.2		GREEN POINT SINK RETAINING WALL NO. 1 LOG OF TEST BORINGS 3 OF 8	
FUNCTIONAL SUPERVISOR NAME: R. Bibbens		DRAWN BY: G. Dickerson CHECKED BY: XX		FIELD INVESTIGATION BY: D. McGuire		UNIT: 3578 PROJECT NUMBER & PHASE: 0100000172-0		CONTRACT NO.: 01-423701		DISREGARD PRINTS BEARING EARLIER REVISION DATES	
OGS CIVIL LOG OF TEST BORINGS SHEET		ORIGINAL SCALE IN INCHES FOR REDUCED PLANS		0 1 2 3		REVISION DATES		SHEET OF		13 18	

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Hum	299	20.2/20.5	106	128

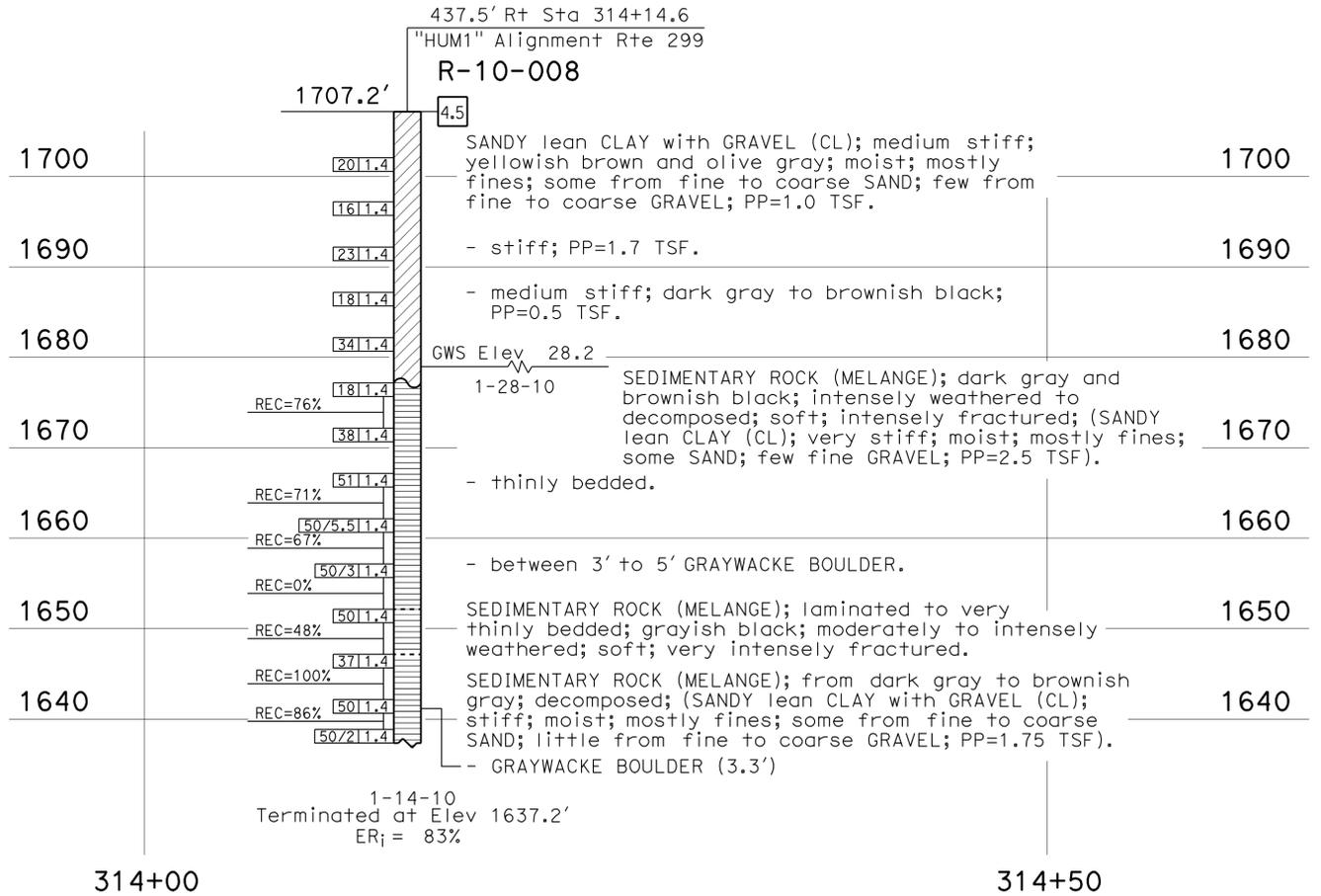
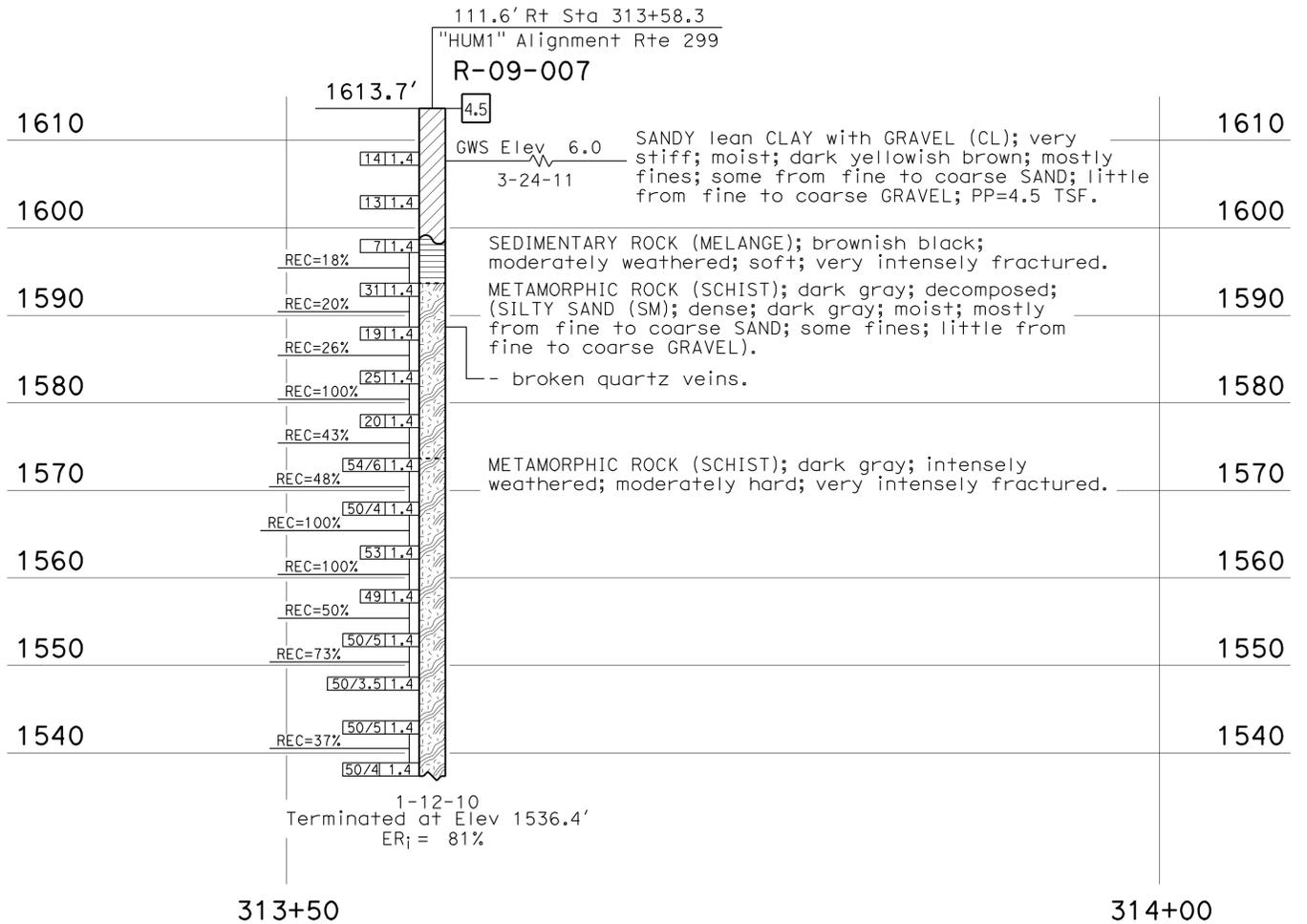
10-12-11  
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 5-7-12  
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FOR PLAN VIEW, SEE  
 "LOG OF TEST BORINGS" 1 OF 8

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PROFILE  
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 Vert: 1" = 10'

PROFILE  
 Horiz: 1" = 5'  
 Vert: 1" = 10'

ENGINEERING SERVICES		GEOTECHNICAL SERVICES		STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION		DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 3		BRIDGE NO. 04E0028 POST MILE 20.2		GREEN POINT SINK RETAINING WALL NO. 1 LOG OF TEST BORINGS 4 OF 8	
FUNCTIONAL SUPERVISOR NAME: R. Bibbens		DRAWN BY: G. Dickerson CHECKED BY: XX		FIELD INVESTIGATION BY: D. McGuire		UNIT: 3578 PROJECT NUMBER & PHASE: 0100000172-0		CONTRACT NO.: 01-423701		DISREGARD PRINTS BEARING EARLIER REVISION DATES	
OGS CIVIL LOG OF TEST BORINGS SHEET		ORIGINAL SCALE IN INCHES FOR REDUCED PLANS		0 1 2 3		FILE => 04e0028-z-1+D04.dgn		REVISION DATES 3-14-11 10-06-11 10-11-11		SHEET OF 14 18	

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Hum	299	20.2/20.5	107	128

10-12-11  
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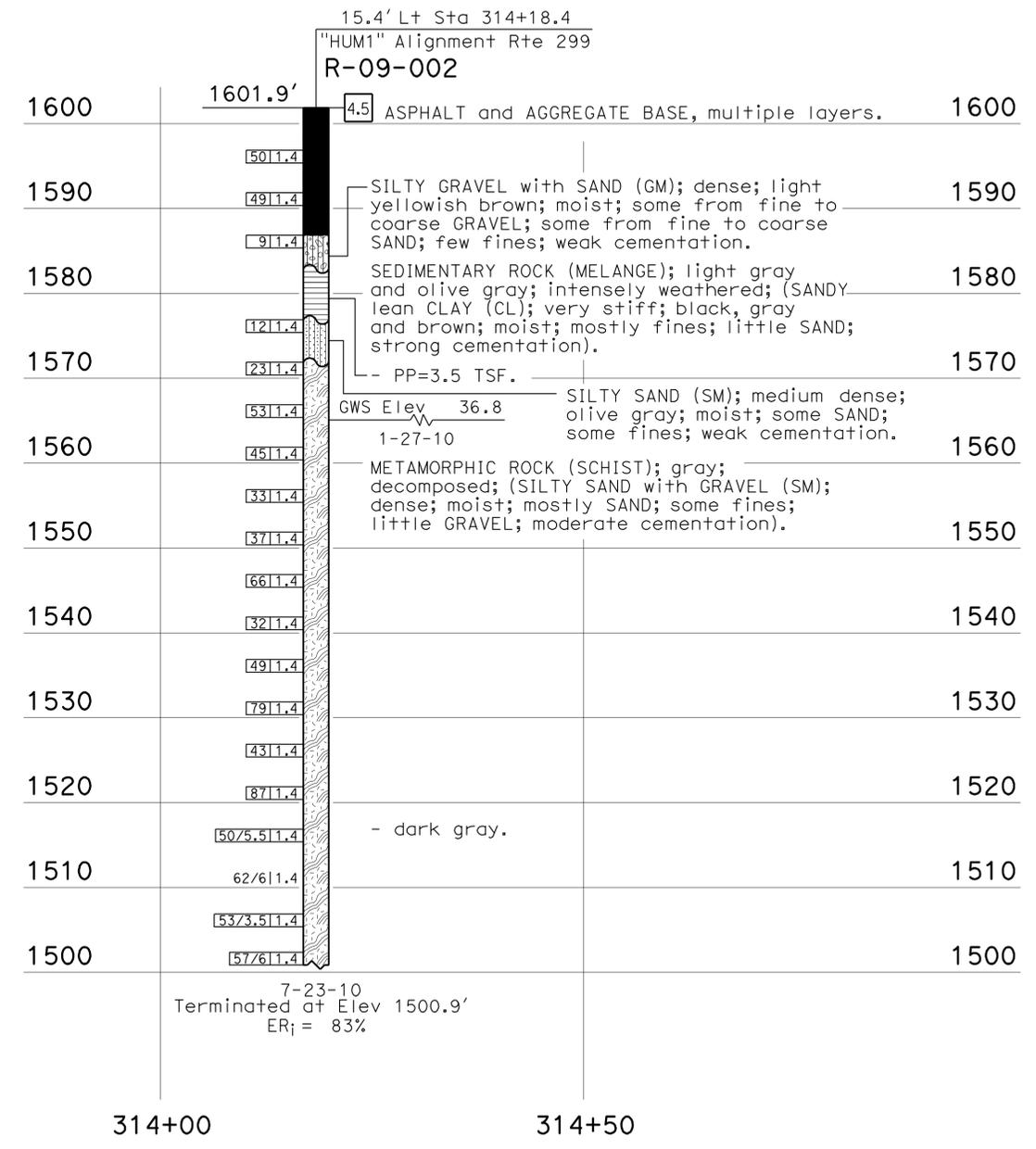
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PROFESSIONAL GEOLOGIST  
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 No. 2335  
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 STATE OF CALIFORNIA

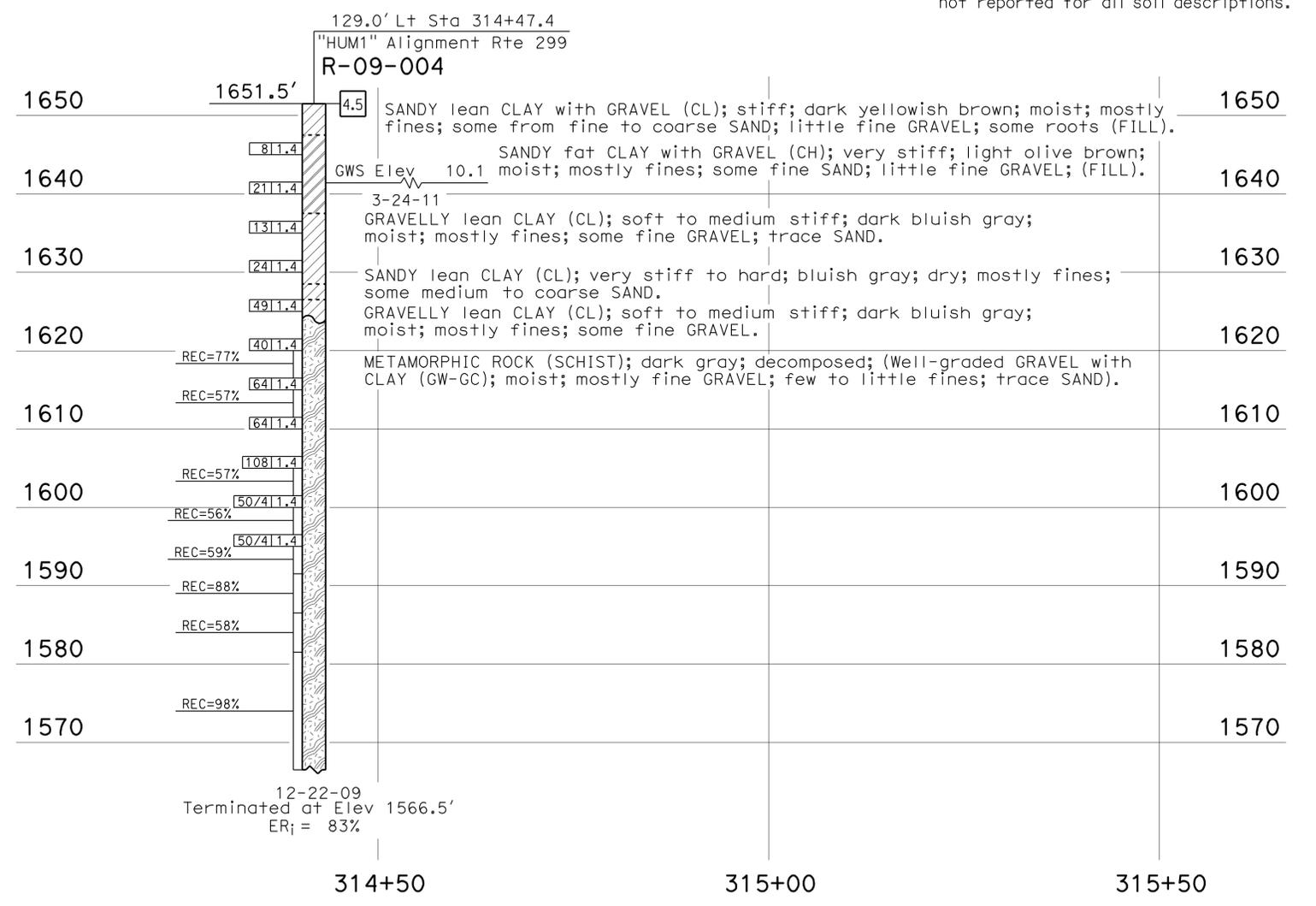
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 "LOG OF TEST BORINGS" 1 OF 8

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PROFILE  
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 Vert: 1" = 10'



PROFILE  
 Horiz: 1" = 10'  
 Vert: 1" = 10'

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01	Hum.	299	20.2/20.5	108	128
			10-12-11	DATE	
			5-7-12	PLANS APPROVAL DATE	
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GROUP SYMBOLS AND NAMES					
Graphic/Symbol	Group Names	Graphic/Symbol	Group Names	Graphic/Symbol	Group Names
	GW		CL		Lean CLAY
	GW-GM				Well-graded GRAVEL with SILT
	GP		CL		Lean CLAY with SAND
	GP-GM				Poorly-graded GRAVEL with SILT
	GW-GM		CL-ML		SANDY lean CLAY
	GW-GC				Well-graded GRAVEL with CLAY (or SILTY CLAY)
	GW-GC		CL-ML		GRAVELLY lean CLAY
	GP-GM				Poorly-graded GRAVEL with SILT and SAND
	GP-GM		ML		SILTY CLAY
	GP-GC				Poorly-graded GRAVEL with CLAY (or SILTY CLAY)
	GP-GC		ML		SANDY SILTY CLAY with GRAVEL
	GM				SILTY GRAVEL
	GM		OL		GRAVELLY SILTY CLAY with SAND
	GC				CLAYEY GRAVEL
	GC		OL		ORGANIC lean CLAY with SAND
	GC-GM				SILTY, CLAYEY GRAVEL
	GC-GM		OL		SANDY ORGANIC lean CLAY
	SW				Well-graded SAND
	SW		OL		GRAVELLY ORGANIC lean CLAY with SAND
	SP				Poorly-graded SAND
	SP		CH		ORGANIC SILT with SAND
	SW-SM				Well-graded SAND with SILT
	SW-SM		CH		SANDY ORGANIC SILT
	SW-SC				Well-graded SAND with CLAY (or SILTY CLAY)
	SW-SC		MH		GRAVELLY ORGANIC SILT
	SP-SM				Poorly-graded SAND with SILT
	SP-SM		MH		ORGANIC fat CLAY
	SP-SC				Poorly-graded SAND with CLAY (or SILTY CLAY)
	SP-SC		OH		ORGANIC fat CLAY with GRAVEL
	SM				SILTY SAND
	SM		OH		GRAVELLY ORGANIC fat CLAY
	SC				CLAYEY SAND
	SC		OH		ORGANIC elastic SILT
	SC-SM				SILTY, CLAYEY SAND
	SC-SM		OH		ORGANIC elastic SILT with GRAVEL
	PT				PEAT
	PT		OL/OH		GRAVELLY ORGANIC elastic SILT
					COBBLES
			OL/OH		ORGANIC SOIL
					COBBLES and BOULDERS
					ORGANIC SOIL with GRAVEL
					SANDY ORGANIC SOIL
					SANDY ORGANIC SOIL with GRAVEL
					GRAVELLY ORGANIC SOIL
					GRAVELLY ORGANIC SOIL with SAND

FIELD AND LABORATORY TESTING	
(C)	Consolidation (ASTM D 2435)
(CL)	Collapse Potential (ASTM D 5333)
(CP)	Compaction Curve (CTM 216)
(CR)	Corrosivity Testing (CTM 643, CTM 422, CTM 417)
(CU)	Consolidated Undrained Triaxial (ASTM D 4767)
(DS)	Direct Shear (ASTM D 3080)
(EI)	Expansion Index (ASTM D 4829)
(M)	Moisture Content (ASTM D 2216)
(OC)	Organic Content-% (ASTM D 2974)
(P)	Permeability (CTM 220)
(PA)	Particle Size Analysis (ASTM D 422)
(PI)	Plasticity Index (AASHTO T 90) Liquid Limit (AASHTO T 89)
(PL)	Point Load Index (ASTM D 5731)
(PM)	Pressure Meter
(R)	R-Value (CTM 301)
(SE)	Sand Equivalent (CTM 217)
(SG)	Specific Gravity (AASHTO T 100)
(SL)	Shrinkage Limit (ASTM D 427)
(SW)	Swell Potential (ASTM D 4546)
(UC)	Unconfined Compression-Soil (ASTM D 2166) Unconfined Compression-Rock (ASTM D 2938)
(UU)	Unconsolidated Undrained Triaxial (ASTM D 2850)
(UW)	Unit Weight (ASTM D 4767)

APPARENT DENSITY OF COHESIONLESS SOILS	
Description	SPT N <sub>60</sub> (Blows / 12 in.)
Very Loose	0 - 5
Loose	5 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	Greater than 50

MOISTURE	
Description	Criteria
Dry	No discernable moisture
Moist	Moisture present, but no free water
Wet	Visible free water

PERCENT OR PROPORTION OF SOILS	
Description	Criteria
Trace	Particles are present but estimated to be less than 5%
Few	5% - 10%
Little	15% - 25%
Some	30% - 45%
Mostly	50% - 100%

PARTICLE SIZE		
Description	Size (in.)	
Boulder	Greater than 12	
Cobble	3 - 12	
Gravel	Coarse	3/4 - 3
	Fine	1/5 - 3/4
Sand	Coarse	1/16 - 1/5
	Fine	1/64 - 1/16
Silt and Clay	Less than 1/300	

USERNAME => s124496 DATE PLOTTED => 08-MAY-2012 TIME PLOTTED => 10:53

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Hum	299	20.2/20.5	109	128

10-12-11  
DATE

CERTIFIED ENGINEERING GEOLOGIST

5-7-12  
PLANS APPROVAL DATE

PROFESSIONAL GEOLOGIST

Charlie Narwold  
No. 2335  
Exp. 9-30-13  
CERTIFIED ENGINEERING GEOLOGIST  
STATE OF CALIFORNIA

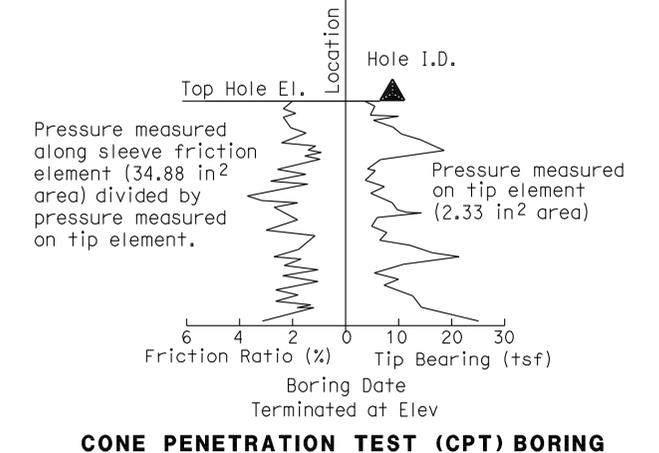
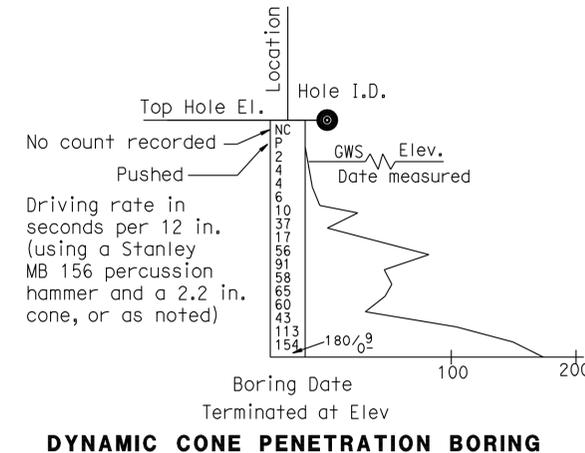
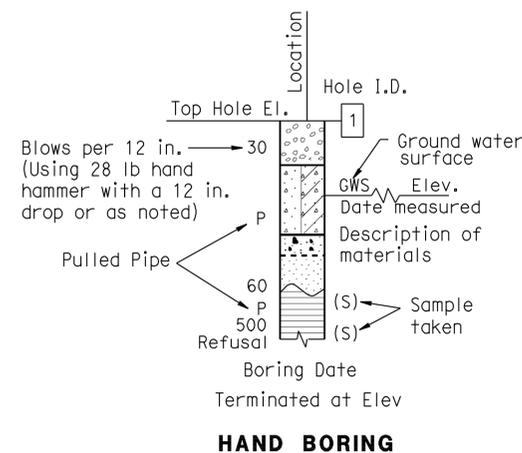
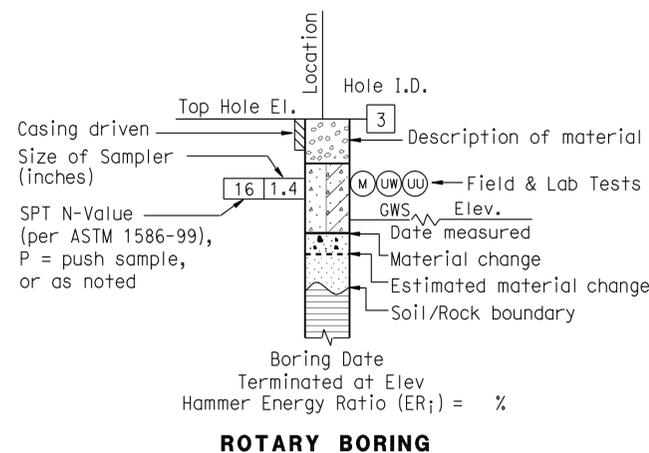
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CEMENTATION	
Description	Criteria
Weak	Crumbles or breaks with handling or little finger pressure.
Moderate	Crumbles or breaks with considerable finger pressure.
Strong	Will not crumble or break with finger pressure.

BOREHOLE IDENTIFICATION		
Symbol	Hole Type	Description
	A	Auger Boring (hollow or solid stem bucket)
	R	Rotary drilled boring (conventional)
	RW	Rotary drilled with self-casing wire-line
	RC	Rotary core with continuously-sampled, self-casing wire-line
	P	Rotary percussion boring (air)
	R	Rotary drilled diamond core
	RC	Rotary drilled rock core
	HD	Hand driven (1-inch soil tube)
	HA	Hand Auger
	D	Dynamic Cone Penetration Boring
	CPT	Cone Penetration Test (ASTM D 5778)
	O	Other (note on LOTB)

**Note: Size in inches.**

CONSISTENCY OF COHESIVE SOILS				
Description	Shear Strength (tsf)	Pocket Penetrometer Measurement, PP, (tsf)	Torvane Measurement, TV, (tsf)	Vane Shear Measurement, VS, (tsf)
Very Soft	Less than 0.12	Less than 0.25	Less than 0.12	Less than 0.12
Soft	0.12 - 0.25	0.25 - 0.5	0.12 - 0.25	0.12 - 0.25
Medium Stiff	0.25 - 0.5	0.5 - 1	0.25 - 0.5	0.25 - 0.5
Stiff	0.5 - 1	1 - 2	0.5 - 1	0.5 - 1
Very Stiff	1 - 2	2 - 4	1 - 2	1 - 2
Hard	Greater than 2	Greater than 4	Greater than 2	Greater than 2



DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Hum	299	20.2/20.5	110	128

10-12-11  
 CERTIFIED ENGINEERING GEOLOGIST DATE

5-7-12  
 PLANS APPROVAL DATE

PROFESSIONAL GEOLOGIST  
 Charlie Narwold  
 No. 2335  
 Exp. 9-30-13  
 CERTIFIED ENGINEERING GEOLOGIST  
 STATE OF CALIFORNIA

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**PERCENT CORE RECOVERY (REC) & ROCK QUALITY DESIGNATION (RQD)**

REC =  $\frac{\sum \text{Length of the recovered core pieces (in.)}}{\text{Total length of core run (in.)}} \times 100\%$

RQD =  $\frac{\sum \text{Length of intact core pieces} \geq 4 \text{ in.}}{\text{Total length of core run (in.)}} \times 100\%$

RQD\* Indicates soundness criteria not met.

**BEDDING SPACING**

Description	Thickness / Spacing
Massive	Greater than 10 ft
Very Thickly Bedded	3 ft - 10 ft
Thickly Bedded	1 ft - 3 ft
Moderately Bedded	4 in. - 1 ft
Thinly Bedded	1 in. - 4 in.
Very Thinly Bedded	1/4 in. - 1 in.
Laminated	Less than 1/4 in.

**LEGEND OF ROCK MATERIALS**

- IGNEOUS ROCK
- SEDIMENTARY ROCK
- METAMORPHIC ROCK

**ROCK HARDNESS**

Description	Criteria
Extremely Hard	Cannot be scratched with a pocketknife or sharp pick. Can only be chipped with repeated heavy hammer blows.
Very Hard	Cannot be scratched with a pocketknife or sharp pick. Breaks with repeated heavy hammer blows.
Hard	Can be scratched with a pocketknife or sharp pick with difficulty (heavy pressure). Breaks with heavy hammer blows.
Moderately Hard	Can be scratched with pocketknife or sharp pick with light or moderate pressure. Breaks with moderate hammer blows.
Moderately Soft	Can be grooved 1/16 in. deep with a pocketknife or sharp pick with moderate or heavy pressure. Breaks with light hammer blow or heavy manual pressure.
Soft	Can be grooved or gouged easily by a pocketknife or sharp pick with light pressure, can be scratched with fingernail. Breaks with light to moderate manual pressure.
Very Soft	Can be readily indented, grooved or gouged with fingernail, or carved with a pocketknife. Breaks with light manual pressure.

**WEATHERING DESCRIPTORS FOR INTACT ROCK**

Description	Diagnostic Features				General Characteristics	
	Chemical Weathering-Discoloration and/or Oxidation		Mechanical Weathering-Grain Boundary Conditions (Disaggregation) Primarily for Granitics and Some Coarse-Grained Sediments	Texture and Leaching		
	Body of Rock	Fracture Surfaces		Texture		Leaching
Fresh	No discoloration, not oxidized.	No discoloration or oxidation.	No separation, intact (tight).	No change	No leaching	Hammer rings when crystalline rocks are struck.
Slightly Weathered	Discoloration or oxidation is limited to surface of, or short distance from, fractures; some feldspar crystals are dull.	Minor to complete discoloration or oxidation of most surfaces.	No visible separation, intact (tight).	Preserved	Minor leaching of some soluble minerals.	Hammer rings when crystalline rocks are struck. Body of rock not weakened.
Moderately Weathered	Discoloration or oxidation extends from fractures usually throughout; Fe-Mg minerals are "rusty," feldspar crystals are "cloudy."	All fracture surfaces are discolored or oxidized.	Partial separation of boundaries visible.	Generally preserved	Soluble minerals may be mostly leached.	Hammer does not ring when rock is struck. Body of rock is slightly weakened.
Intensely Weathered	Discoloration or oxidation throughout; all feldspars and Fe-Mg minerals are altered to clay to some extent; or chemical alteration produces in-situ disaggregation, see grain boundary conditions.	All fracture surfaces are discolored or oxidized, surfaces friable.	Partial separation, rock is friable; in semiarid conditions granitics are disaggregated.	Texture altered by chemical disintegration (hydration, argillation).	Leaching of soluble minerals may be complete.	Dull sound when struck with hammer, usually can be broken with moderate to heavy manual pressure or by light hammer blow without reference to planes of weakness such as incipient or hairline fractures, or veinlets. Rock is significantly weakened.
Decomposed	Discolored or oxidized throughout, but resistant minerals such as quartz may be unaltered; all feldspars and Fe-Mg minerals are completely altered to clay.		Complete separation of grain boundaries (disaggregated).	Resembles a soil, partial or complete remnant rock structure may be preserved; leaching of soluble minerals usually complete.		Can be granulated by hand. Resistant minerals such as quartz may be present as "stringers" or "dikes."

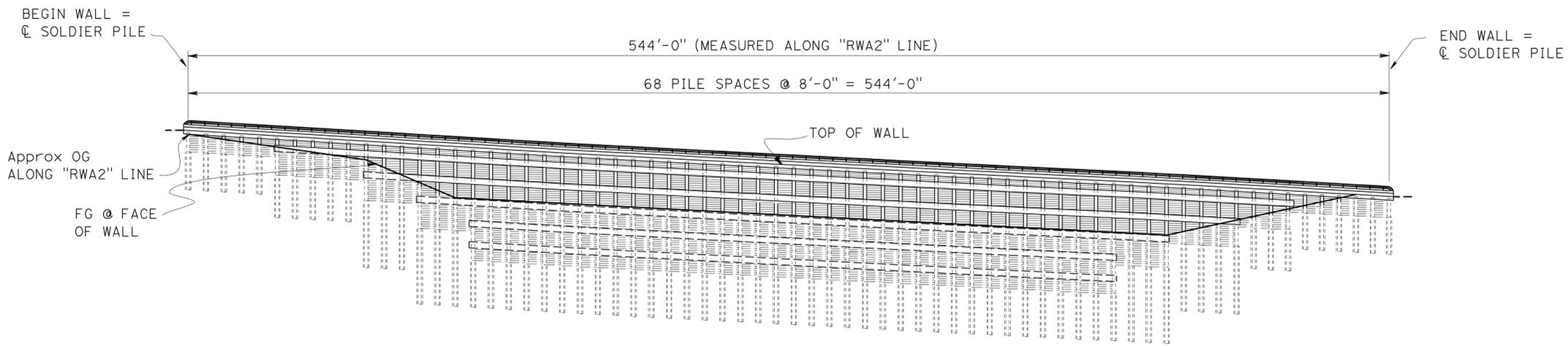
**FRACTURE DENSITY**

Description	Observed Fracture Density
Unfractured	No fractures.
Very Slightly Fractured	Core lengths greater than 3 ft.
Slightly Fractured	Core lengths mostly from 1 to 3 ft.
Moderately Fractured	Core lengths mostly from 4 in. to 1 ft.
Intensely Fractured	Core lengths mostly from 1 to 4 in.
Very Intensely Fractured	Mostly chips and fragments.

<b>ENGINEERING SERVICES</b>	<b>MATERIALS AND GEOTECHNICAL SERVICES</b>	<b>STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION	<b>DIVISION OF ENGINEERING SERVICES</b> STRUCTURE DESIGN <b>DESIGN BRANCH 3</b>	BRIDGE NO. 04E0028 POST MILE 20.2	<b>GREEN POINT SINK RETAINING WALL NO. 1</b> <b>LOG OF TEST BORINGS 8 OF 8</b>
PREPARED BY: XX		UNIT: 3578 PROJECT NUMBER & PHASE: 01000001 720		CONTRACT NO.: 01-423701	
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS		DISREGARD PRINTS BEARING EARLIER REVISION DATES		REVISION DATES	
0 1 2 3		10-11-11		SHEET 18 OF 18	

GS LOTB SOIL LEGEND  
 FILE => 04e0028-z-1+b08.dgn

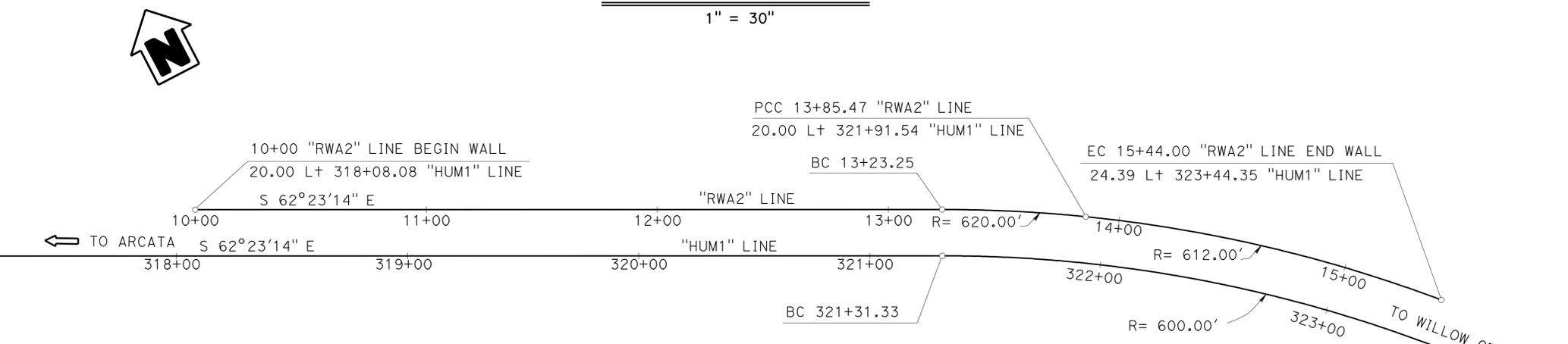
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Hum	299	20.2/20.5	111	128
 REGISTERED CIVIL ENGINEER			10-27-11	DATE	
5-7-12			PLANS APPROVAL DATE		
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DATUM Elev 1460.00

10+00 11+00 12+00 13+00 14+00 15+00

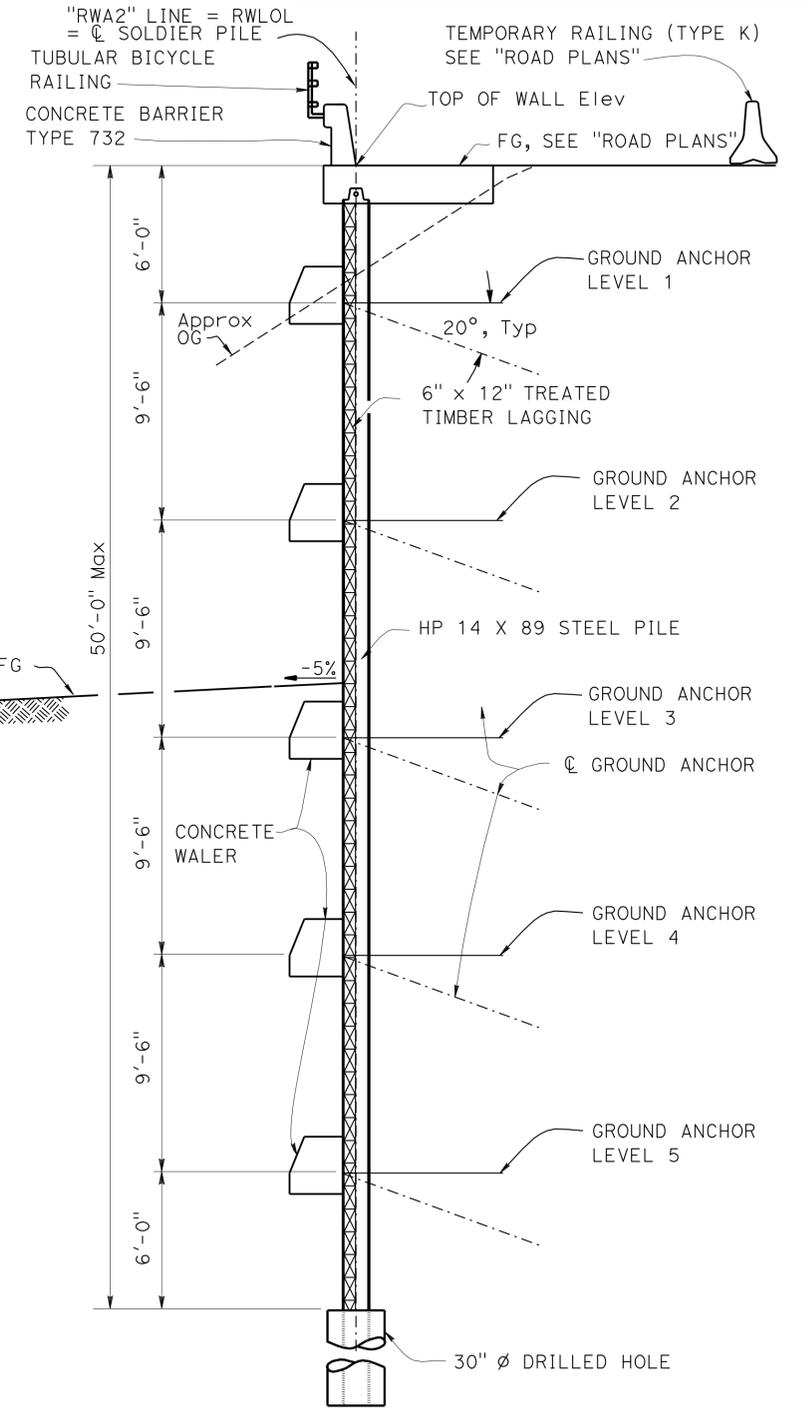
**MIRROR ELEVATION**  
1" = 30"



**QUANTITIES**

STRUCTURE EXCAVATION (SOLDIER PILE WALL)	710	CY
STRUCTURE BACKFILL (SOLDIER PILE WALL)	219	CY
LEAN CONCRETE BACKFILL	440	CY
GROUND ANCHOR	220	EA
STEEL SOLDIER PILE (HP 14 X 89)	3,950	LF
30" DRILLED HOLE	3,950	LF
STRUCTURAL CONCRETE, RETAINING WALL	380	CY
STRUCTURAL CONCRETE, BARRIER SLAB	250	CY
CONCRETE BACKFILL (SOLDIER PILE WALL)	280	CY
BAR REINFORCING STEEL (RETAINING WALL)	144,690	LB
BAR REINFORCING STEEL (EPOXY COATED) (BRIDGE)	37,350	LB
TIMBER LAGGING	106	MFBM
CLEAN AND PAINT STEEL SOLDIER PILING	LUMP	SUM
TUBULAR BICYCLE RAILING	548	LF
CONCRETE BARRIER (TYPE 732)	548	LF

**PLAN**  
1" = 30"



**TYPICAL SECTION**  
1/4" = 1'-0"

Joseph E Downing  
DESIGN ENGINEER

DESIGN	BY Sharon Yen	CHECKED Ye Yang	LOAD FACTOR DESIGN
DETAILS	BY Shadi Motalebi	CHECKED Ye Yang	LAYOUT BY Sharon Yen
QUANTITIES	BY Sharon Yen	CHECKED Ye Yang	SPECIFICATIONS BY Dave Klein
			CHECKED Ye Yang
			PLANS AND SPECS COMPARED Dave Klein

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
DESIGN BRANCH 3

BRIDGE NO. 04E0029  
POST MILE 20.4

**GREEN POINT SINK RETAINING WALL NO. 2**  
**GENERAL PLAN**

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Hum	299	20.2/20.5	112	128
			10-27-11	DATE	
			5-7-12	PLANS APPROVAL DATE	
REGISTERED CIVIL ENGINEER Lewis L. Shen No. 56921 Exp. 6-30-13 CIVIL STATE OF CALIFORNIA					
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**GENERAL NOTES**

**DESIGN:** BRIDGE DESIGN SPECIFICATIONS - April 2000 (LFD)  
 (1996 AASHTO with Interims and Revisions by CALTRANS)  
 (FHWA Geotechnical Engineering Circular No. 4-June 1999)

**SOIL PARAMETERS:**  
 (For determination of design lateral earth pressures)  
 $\phi = 35^\circ, \gamma_m = 135 \text{ pcf}$  0 ft - 12 ft  
 $\phi = 30^\circ, \gamma_m = 131 \text{ pcf}$  12 ft - 47 ft  
 $\phi = 27.5^\circ, \gamma_m = 113 \text{ pcf}$  47 ft - 60 ft  
 $\phi = 33^\circ, \gamma_m = 130 \text{ pcf}, c = 1000 \text{ psf}$  60 ft & below

**REINFORCED CONCRETE**  
 $f'_c = 4 \text{ ksi}$  (Concrete compressive strength at 28 days)  
 $f_y = 60 \text{ ksi}$  (Yield strength of reinforcement)

**STRUCTURAL STEEL:**  
 $f_y = 50 \text{ ksi}$

**STRUCTURAL TIMBER:**  
 Treated Douglas Fir, Grade No. 1 or better  
 Timber to be full sawn

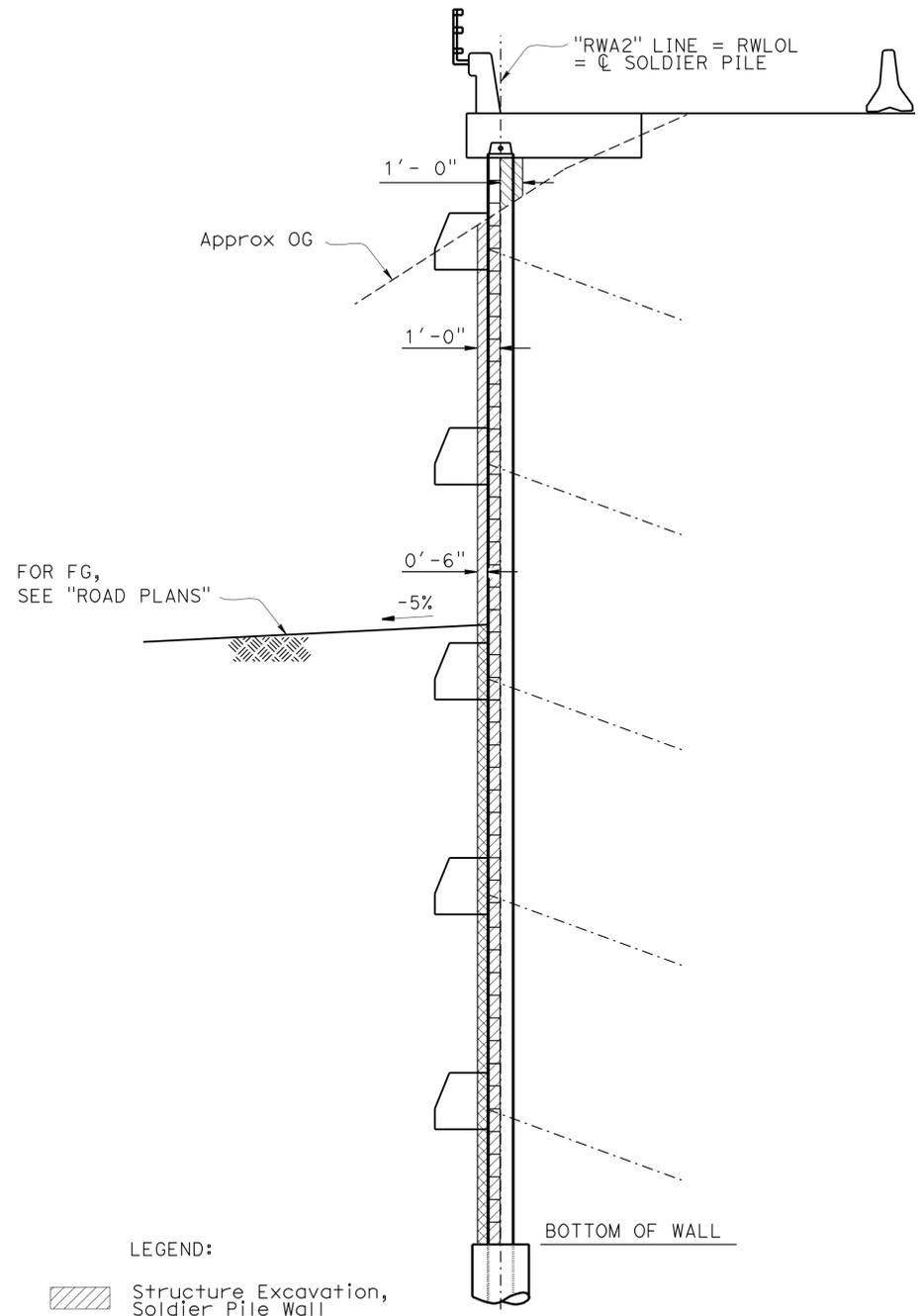
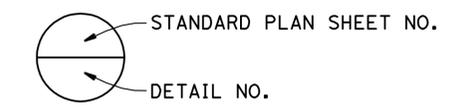
**PRESTRESSING STEEL: (GROUND ANCHOR)**  
 Strands - ASTM designation A416  
 $T = \text{Design Force per Ground Anchor} = 160 \text{ kip}$   
 $f_{pu} = \text{Minimum tensile strength of prestressing steel (ksi)}$   
 $A_s (\text{Min}) = \text{Minimum cross sectional area of prestressing steel in Ground Anchor tendon (in}^2\text{)}$   
 $A_s (\text{Min}) = \frac{1.5 T}{0.75 f_{pu}}$

**INDEX TO PLANS**

Sheet No.	Title
1	GENERAL PLAN
2	INDEX TO PLANS
3	STRUCTURE PLAN NO. 1
4	STRUCTURE PLAN NO. 2
5	FOUNDATION PLAN
6	TYPICAL SECTION
7	WALL DETAILS NO. 1
8	WALL DETAILS NO. 2
9	GROUND ANCHOR DETAILS
10	TUBULAR BICYCLE RAILING DETAILS
11	LOG OF TEST BORINGS 1 OF 8
12	LOG OF TEST BORINGS 2 OF 8
13	LOG OF TEST BORINGS 3 OF 8
14	LOG OF TEST BORINGS 4 OF 8
15	LOG OF TEST BORINGS 5 OF 8
16	LOG OF TEST BORINGS 6 OF 8
17	LOG OF TEST BORINGS 7 OF 8
18	LOG OF TEST BORINGS 8 OF 8

**STANDARD PLANS DATED MAY 2006**

A10A	ACRONYMS AND ABBREVIATIONS (SHEET 1 OF 2)
A10B	ACRONYMS AND ABBREVIATIONS (SHEET 2 OF 2)
A10C	SYMBOLS (SHEET 1 OF 2)
A10D	SYMBOLS (SHEET 2 OF 2)
B11-55	CONCRETE BARRIER TYPE 732



**LEGEND:**  
 Structure Excavation, Soldier Pile Wall  
 Structure Backfill, Soldier Pile Wall

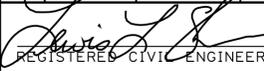
**NOTE:**  
 For limits of roadway excavation and backfill, see "ROAD PLANS"

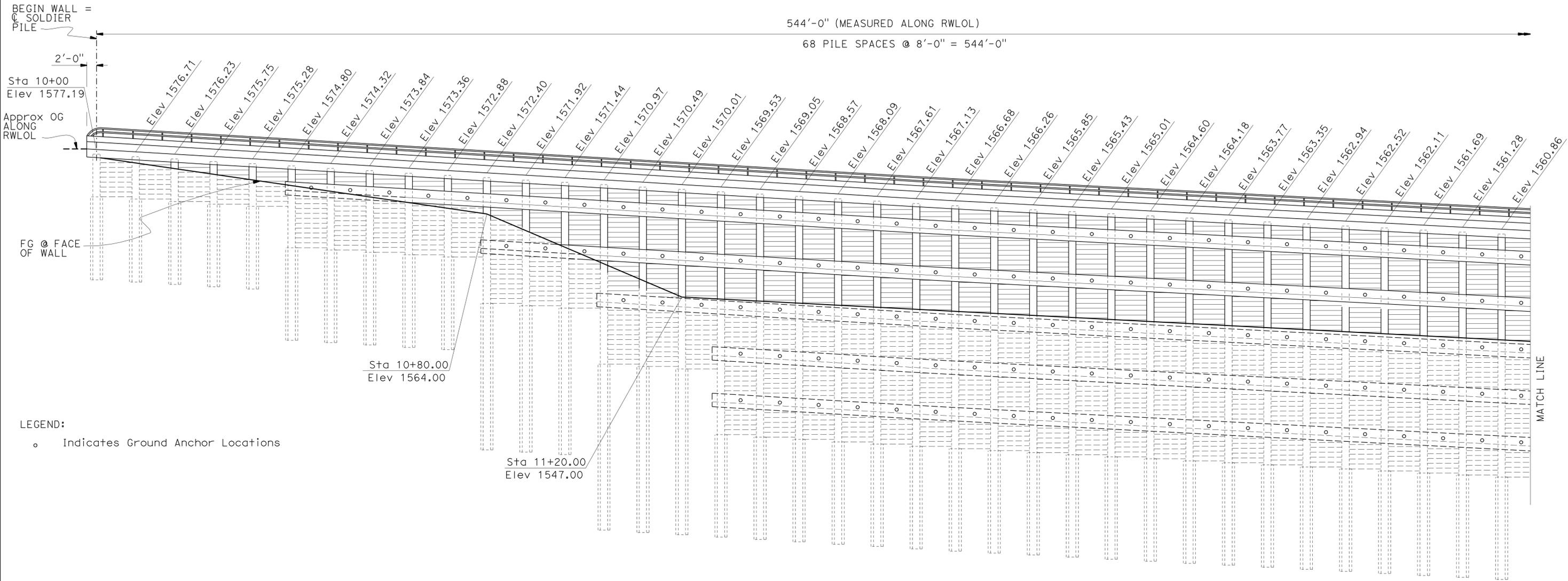
**LIMITS OF PAYMENT FOR EXCAVATION AND BACKFILL**

1/4" = 1'-0"

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10)	DESIGN	BY Sharon Yen	CHECKED Ye Yang	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 3	BRIDGE NO.	GREEN POINT SINK RETAINING WALL NO. 2			
	DETAILS	BY Shadi Motalebi	CHECKED Ye Yang			POST MILE		20.4		
	QUANTITIES	BY Sharon Yen	CHECKED Ye Yang				INDEX TO PLANS			
	ORIGINAL SCALE IN INCHES FOR REDUCED PLANS				UNIT: 3578	PROJECT NUMBER & PHASE: 0100000172-0	CONTRACT NO.: 01-423701	REVISION DATES	SHEET 2	OF 18
					DISREGARD PRINTS BEARING EARLIER REVISION DATES			4-5-11	5-19-11	

USERNAME => 8124486 DATE PLOTTED => 08-MAY-2012 TIME PLOTTED => 11:04

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Hum	299	20.2/20.5	113	128
 REGISTERED CIVIL ENGINEER			10-27-11	DATE	
5-7-12			PLANS APPROVAL DATE		
Lewis L. Shen No. 56921 Exp. 6-30-13 CIVIL STATE OF CALIFORNIA			REGISTERED PROFESSIONAL ENGINEER		
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PILE NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
NUMBER OF LAGGING MEMBERS	8	8	8	8	8	16	16	16	16	16	25	25	25	36	36	36	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49
PILE LENGTH	25'-0"					35'-0"					55'-0"					70'-0"																					
	PILES 1 - 5					PILES 6 - 10					PILES 11 - 13					PILES 14 - 56																					
DATUM	Elev 1460.00																																				
	10+00										11+00										12+00																

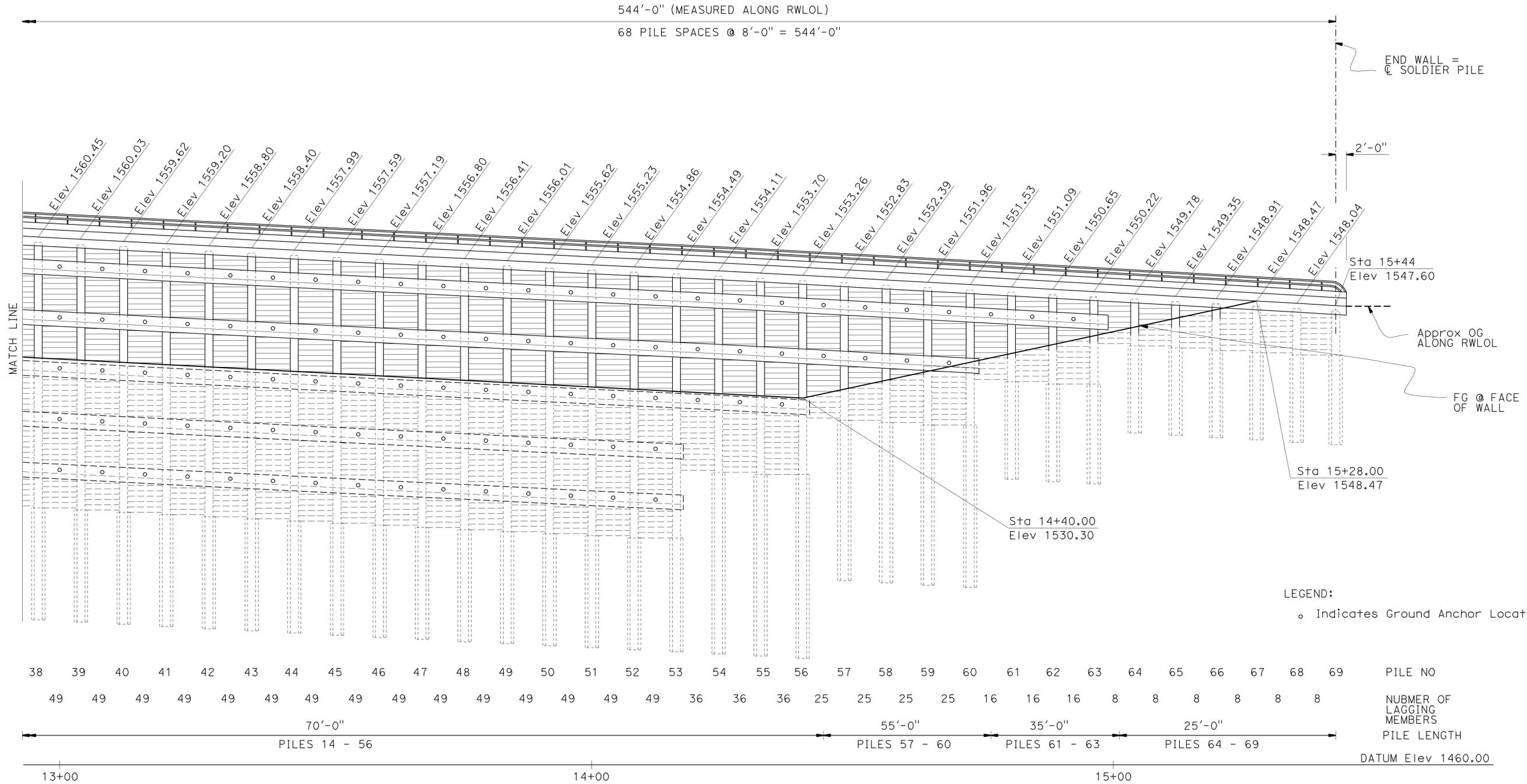
**PART MIRRORED ELEVATION**  
1" = 10'

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10)	DESIGN	BY Sharon Yen	CHECKED Ye Yang	<b>STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN <b>DESIGN BRANCH 3</b>	BRIDGE NO.	04E0029	<b>GREEN POINT SINK RETAINING WALL NO. 2</b> <b>STRUCTURE PLAN NO. 1</b>		
	DETAILS	BY Shadi Motalebi	CHECKED Ye Yang			POST MILE	20.4			
	QUANTITIES	BY Sharon Yen	CHECKED Ye Yang			UNIT: 3578	PROJECT NUMBER & PHASE: 0100000172-0		CONTRACT NO.: 01-423701	
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS								DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES 3-11-11	SHEET 3 OF 18

USERNAME => 8124486 DATE PLOTTED => 08-MAY-2012 TIME PLOTTED => 11:04

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Hum	299	20.2/20.5	114	128

REGISTERED CIVIL ENGINEER DATE 10-27-11  
 Lewis L Shen  
 No. 56921  
 Exp. 6-30-13  
 CIVIL  
 STATE OF CALIFORNIA  
 PLANS APPROVAL DATE 5-7-12  
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**PART MIRORED ELEVATION**  
1" = 10'

DESIGN	BY Sharon Yen	CHECKED Ye Yang
DETAILS	BY Shadi Motalebi	CHECKED Ye Yang
QUANTITIES	BY Sharon Yen	CHECKED Ye Yang

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
DESIGN BRANCH 3

BRIDGE NO.	04E0029
POST MILE	20.4

**GREEN POINT SINK RETAINING WALL NO. 2**  
**STRUCTURE PLAN NO. 2**

**SURVEY CONTROL**  
 CM20.29 (NOT SHOWN ON PLAN)  
 Fnd CT ALUM CAP ON 3/4" REBAR  
 23.77 FT Lt. @ Rte 1  
 Sta. 315+64.07  
 N 2,222,443.36  
 E 6,056,420.74  
 Elev. = 1,592.42

CM20.34  
 Fnd CT ALUM CAP ON 3/4" REBAR  
 24.17 FT Lt. @ Rte 1  
 Sta. 318+60.62  
 N 2,222,306.20  
 E 6,056,684.03  
 Elev. = 1,574.00

CURVE DATA				
No.	R	Δ	T	L
(A)	600.00	71°19'19"	430.52	746.88
(B)	620.00	5°44'60"	31.14	62.22
(C)	612.00	14°50'31"	79.71	158.53

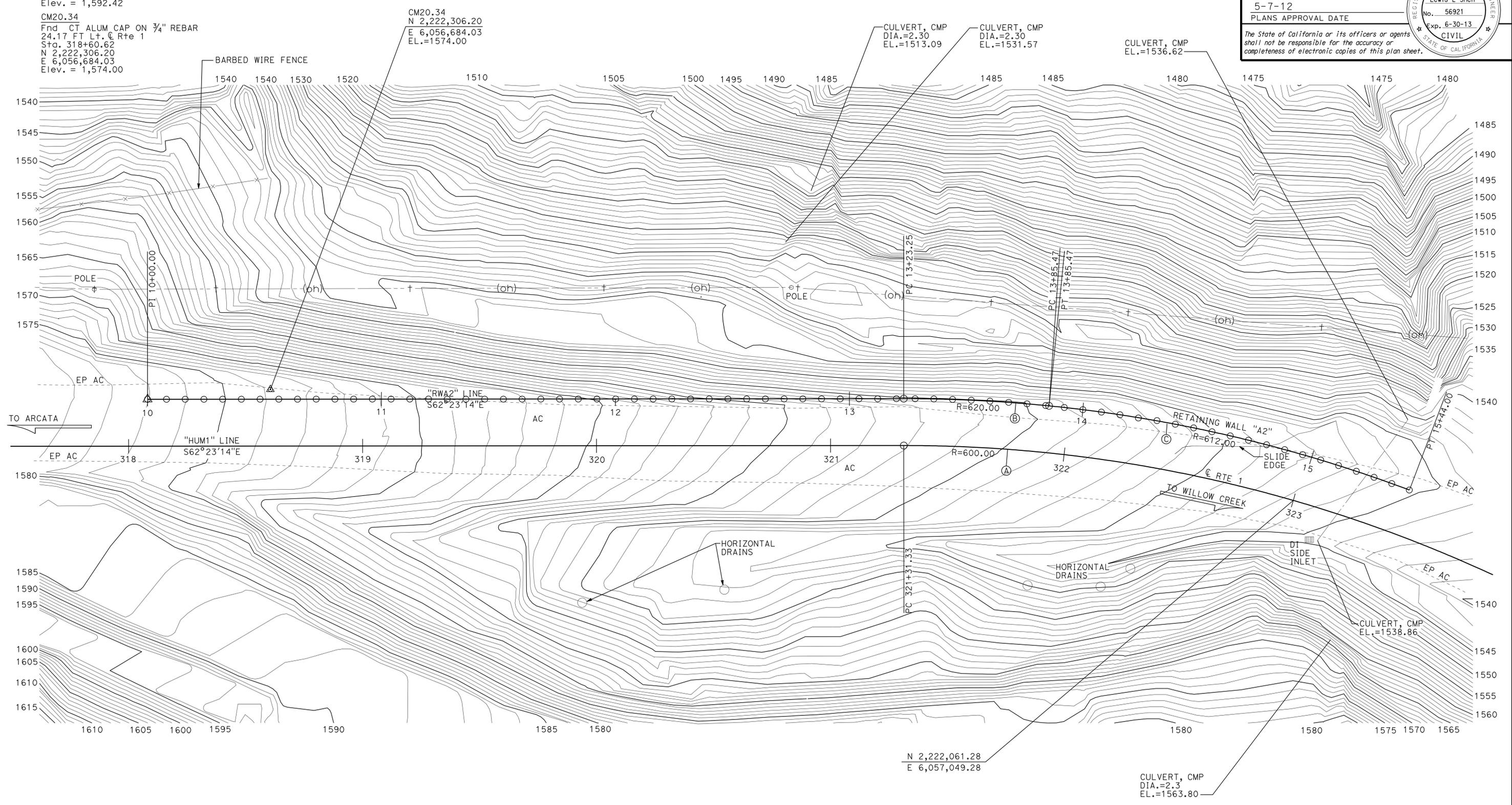
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Hum	299	20.2/20.5	115	128

10-27-11  
 REGISTERED CIVIL ENGINEER DATE

5-7-12  
 PLANS APPROVAL DATE

Lewis L. Shen  
 No. 56921  
 Exp. 6-30-13  
 CIVIL

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<b>PRELIMINARY INVESTIGATION SECTION</b>				DESIGN	By Sharon Yen	CHECKED	Ye Yang	<b>STATE OF CALIFORNIA</b> <b>DEPARTMENT OF TRANSPORTATION</b>	<b>DIVISION OF ENGINEERING SERVICES</b> <b>STRUCTURE DESIGN</b> <b>DESIGN BRANCH 3</b>	BRIDGE NO.	04E0029	<b>GREEN POINT SINK RETAINING WALL NO. 2</b> <b>FOUNDATION PLAN</b>	
SCALE	VERT. DATUM	PHOTOGRAMMETRY	AS OF: X	DETAILS	By Shadi Motalebi	CHECKED	Ye Yang			POST MILE	20.4		
1"=20'	HORIZ. DATUM	SURVEYED	BY District/J. Borden	CHECKED	BY J. Borden	12/2010	QUANTITIES			BY Sharon Yen	CHECKED		

STRUCTURES FOUNDATION PLAN SHEET (ENGLISH) (REV. 09-01-10)

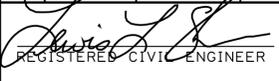
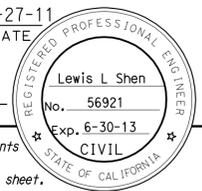
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

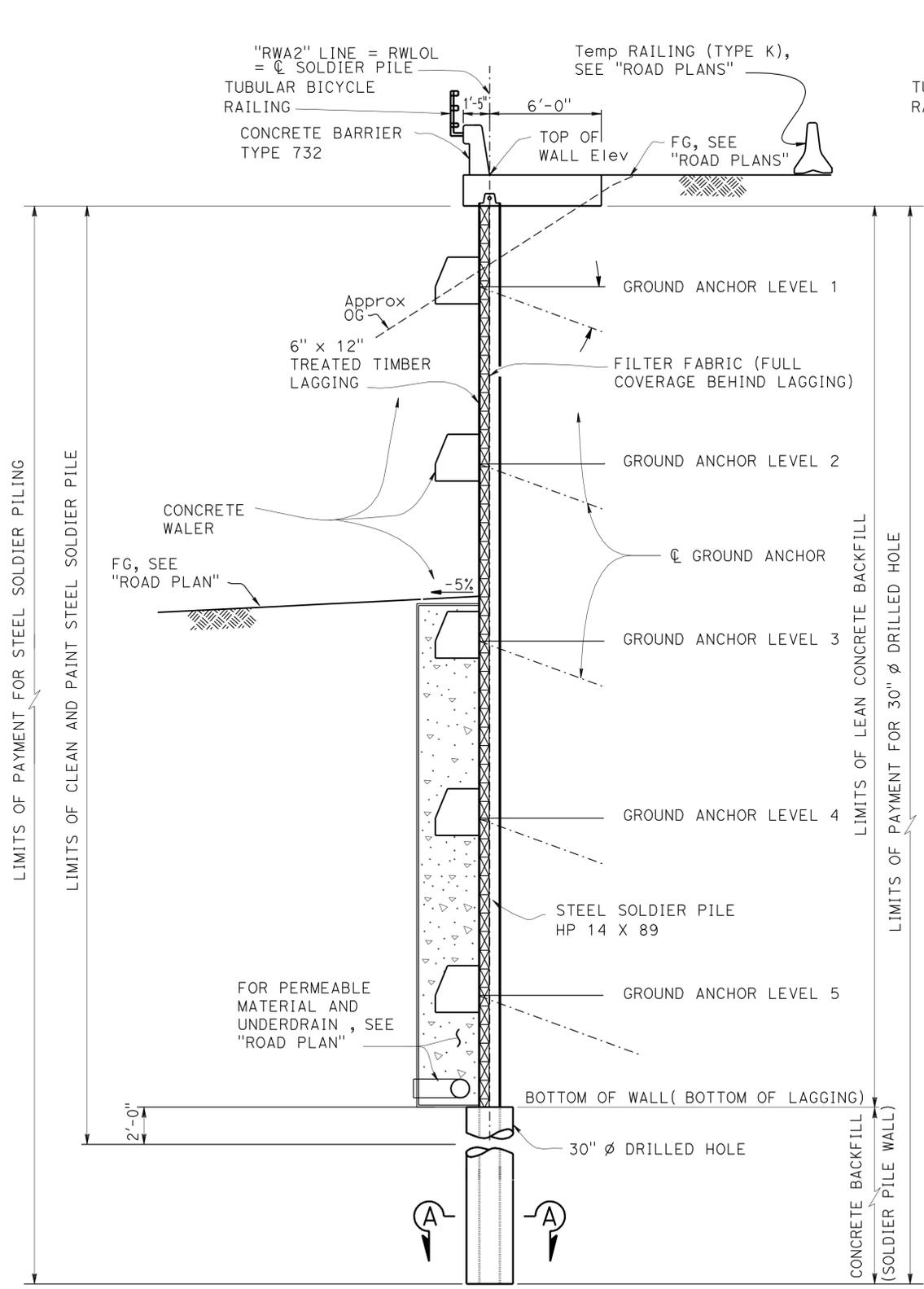
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 CONTRACT NO.: 01-423701

DISREGARD PRINTS BEARING EARLIER REVISION DATES

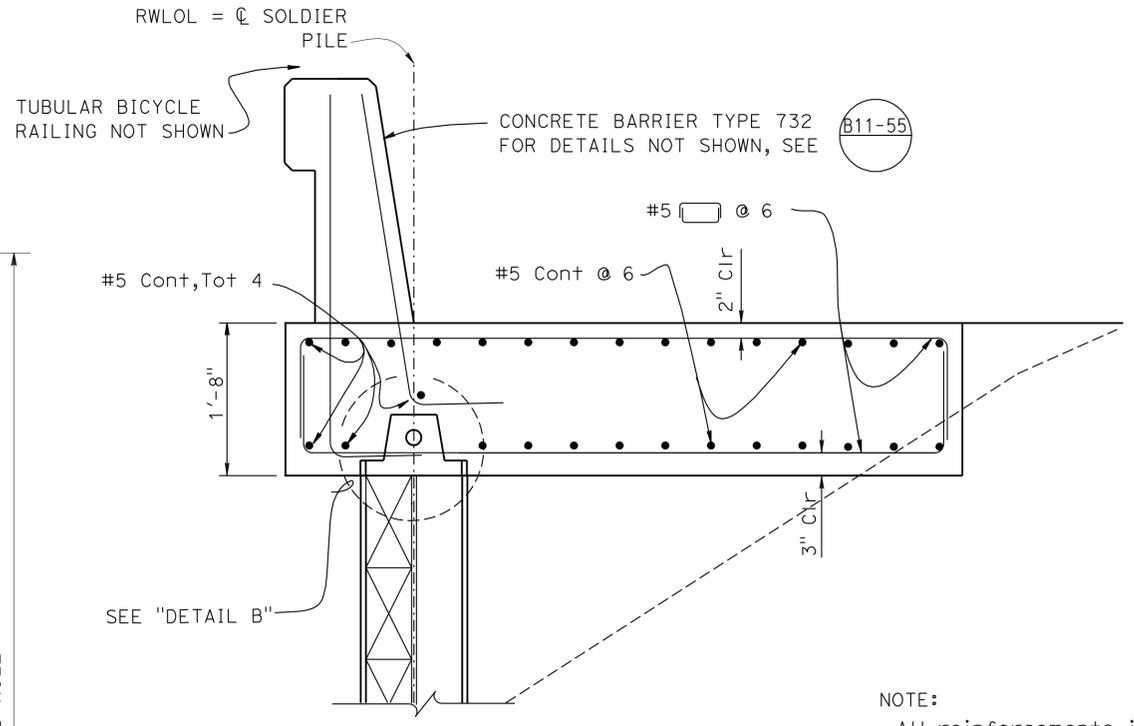
REVISION DATES	SHEET
02/09/11	5

18

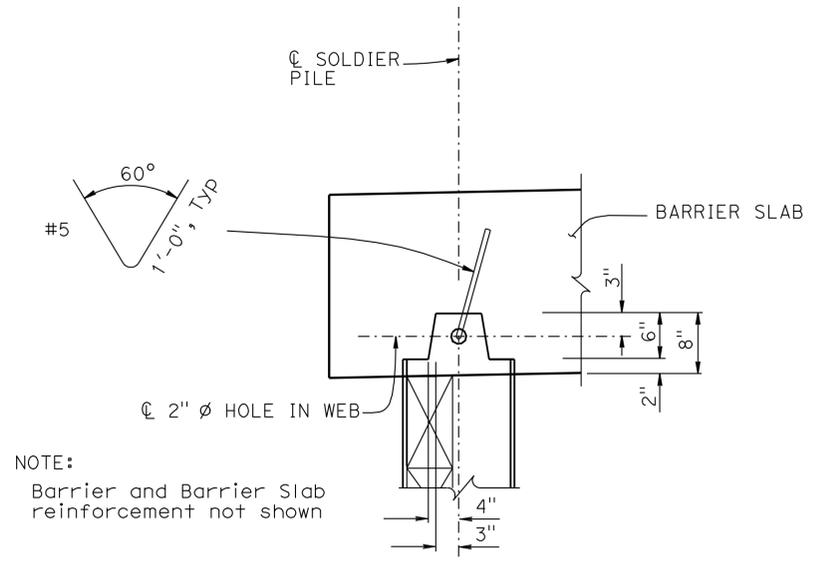
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Hum	299	20.2/20.5	116	128
 REGISTERED CIVIL ENGINEER			10-27-11	DATE	
5-7-12 PLANS APPROVAL DATE					
<small>The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.</small>					



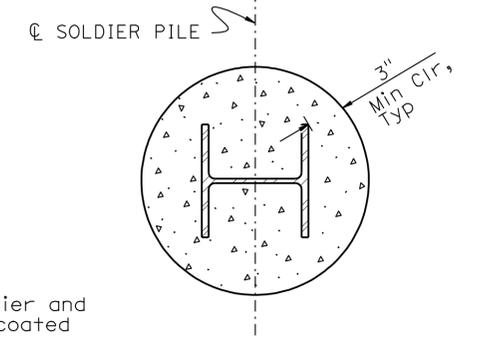
**TYPICAL SECTION**  
1/4" = 1'-0"



**PART TYPICAL SECTION**  
1" = 1'-0"



**DETAIL B**  
1" = 1'-0"



**SECTION A-A**  
NO SCALE

NOTE:  
All reinforcements in Barrier and Barrier Slab to be epoxy coated

NOTE:  
Barrier and Barrier Slab reinforcement not shown

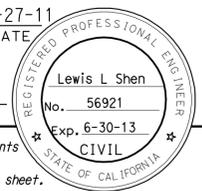
DESIGN	BY Sharon Yen	CHECKED Ye Yang
DETAILS	BY Shadi Motalebi	CHECKED Ye Yang
QUANTITIES	BY Sharon Yen	CHECKED Ye Yang

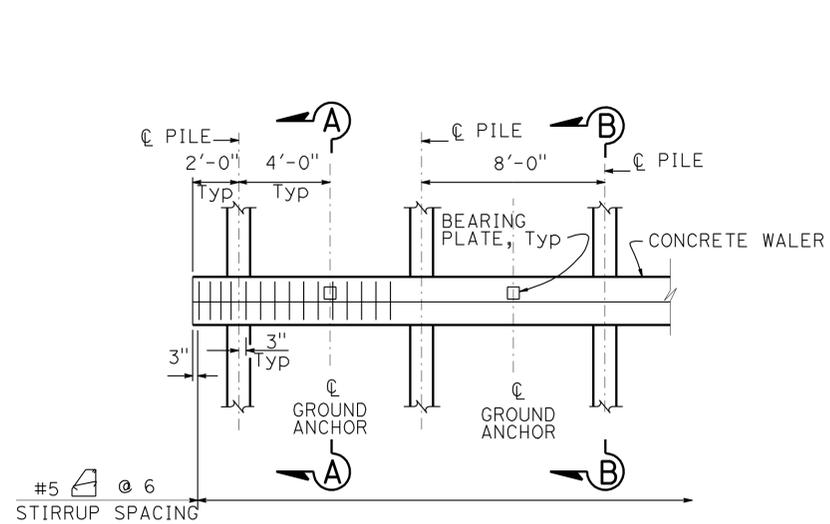
STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
DESIGN BRANCH 3

BRIDGE NO.	04E0029
POST MILE	20.4

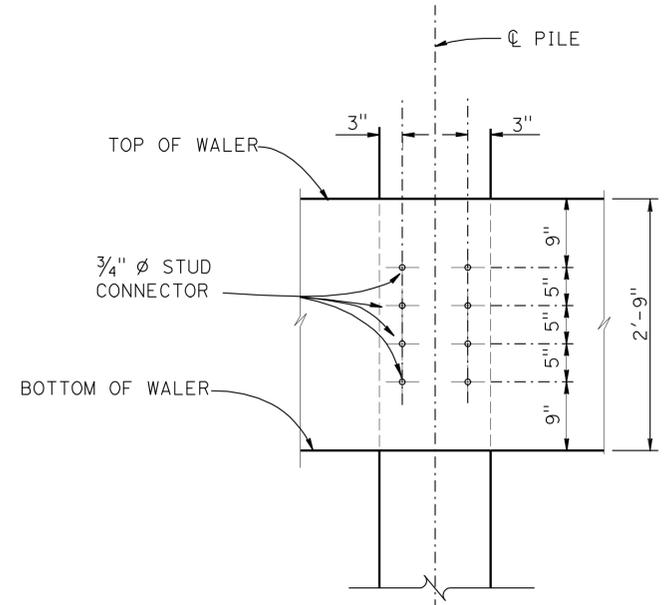
**GREEN POINT SINK RETAINING WALL NO. 2**  
**TYPICAL SECTION**

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Hum	299	20.2/20.5	117	128
 REGISTERED CIVIL ENGINEER			10-27-11	DATE	
5-7-12 PLANS APPROVAL DATE					
<small>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.</small>					

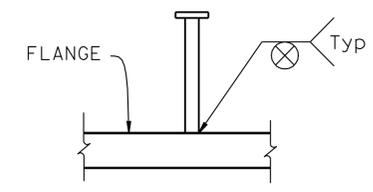


NOTE: Timber lagging not shown

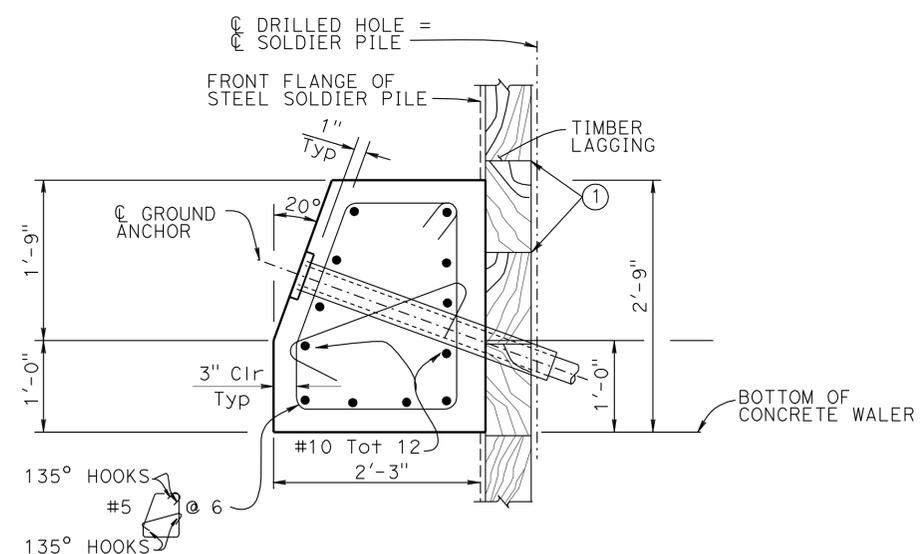
**PART ELEVATION**  
NO SCALE



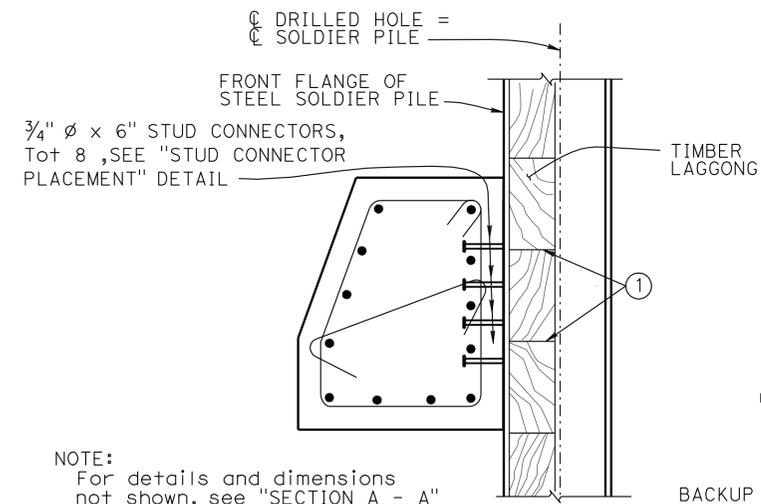
**STUD CONNECTOR PLACEMENT**  
1"=1'-0"



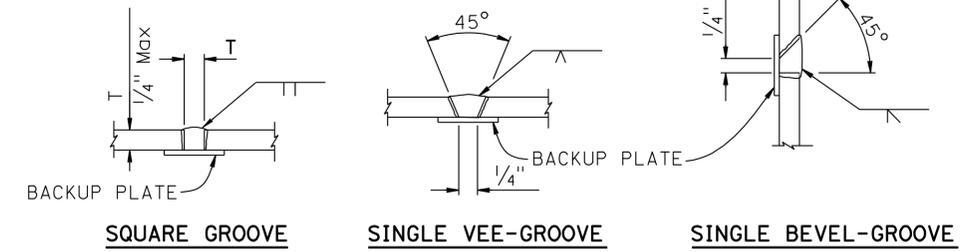
**STUD CONNECTOR DETAIL**  
NO SCALE



**SECTION A-A**  
1"=1'-0"



**SECTION B-B**  
1"=1'-0"



**PILE WELDING DETAIL-BUTT JOINTS**

- NOTES :
1. Single Vee-Groove and Square Groove permitted for all positions.
  2. Single Bevel-Groove permitted for horizontal joints only

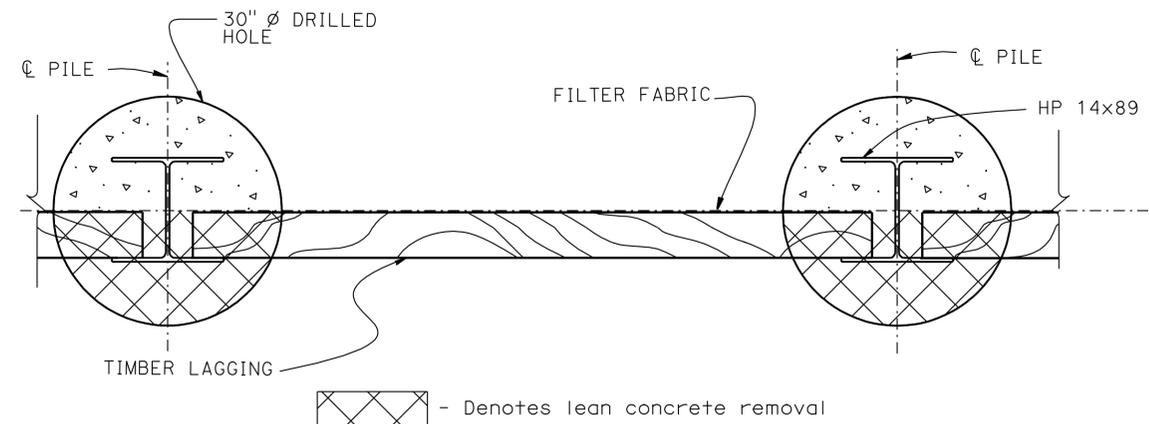
- NOTES :
1. Omit gap between lagging members at joints behind concrete waler

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10)	DESIGN	BY Sharon Yen	CHECKED Ye Yang	<b>STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN <b>DESIGN BRANCH 3</b>	BRIDGE NO.	<b>GREEN POINT SINK RETAINING WALL NO. 2</b> <b>WALL DETAILS NO. 1</b>
	DETAILS	BY Shadi Motalebi	CHECKED Ye Yang			04E0029	
	QUANTITIES	BY Sharon Yen	CHECKED Ye Yang			POST MILE 20.4	
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS				UNIT: 3578	PROJECT NUMBER & PHASE: 0100000172-0	CONTRACT NO.: 01-423701	DISREGARD PRINTS BEARING EARLIER REVISION DATES REVISION DATES: 3-22-11 SHEET 7 OF 18

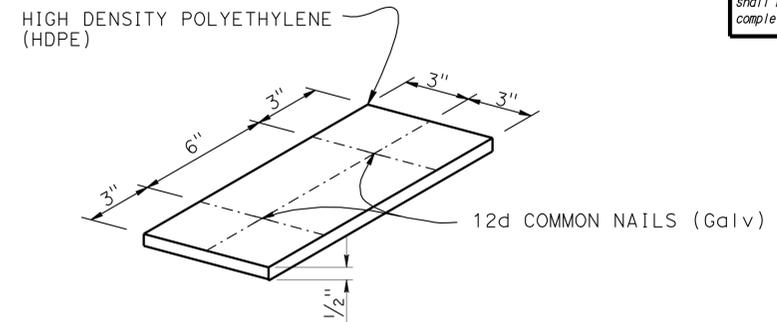
USERNAME => s124496 DATE PLOTTED => 08-MAY-2012 TIME PLOTTED => 11:04

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Hum	299	20.2/20.5	118	128

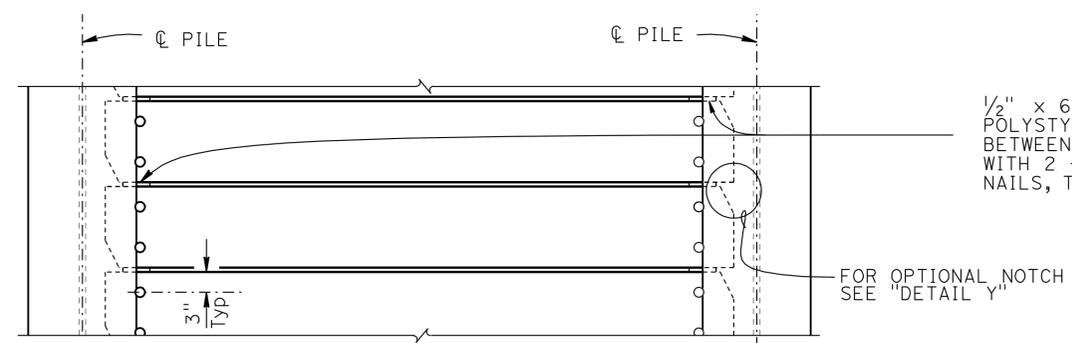
REGISTERED CIVIL ENGINEER DATE 10-27-11  
 Lewis L. Shen  
 No. 56921  
 Exp. 6-30-13  
 CIVIL  
 STATE OF CALIFORNIA  
 PLANS APPROVAL DATE 5-7-12  
 The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.



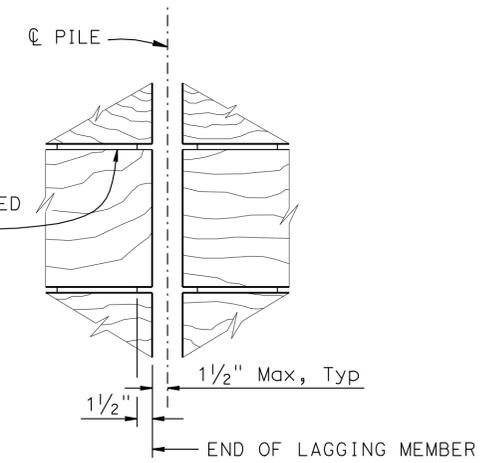
**PART PLAN AT LAGGING**  
1" = 1'-0"



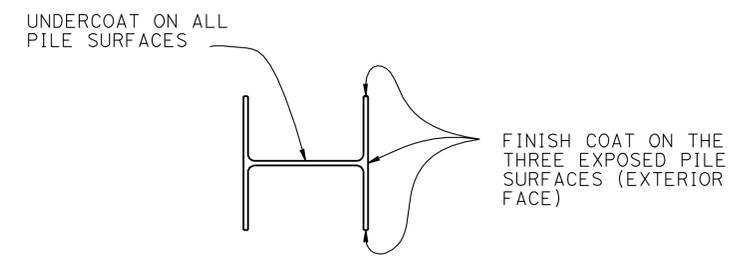
**SHIM DETAILS**  
NO SCALE



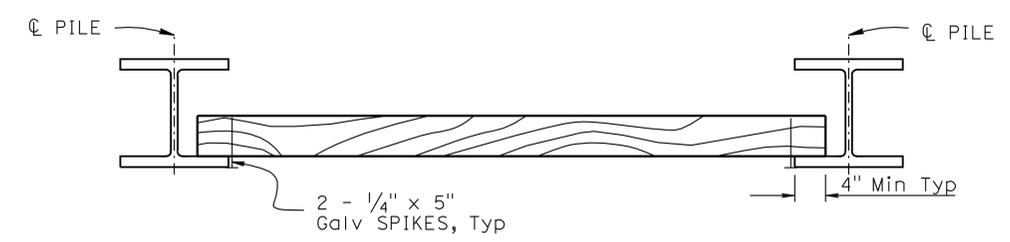
**PART ELEVATION**



**PART ELEVATION**

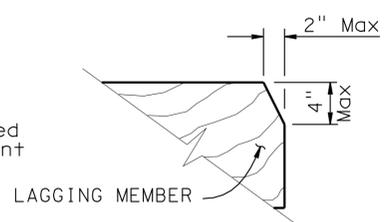


**LIMITS OF CLEAN & PAINT STEEL SOLDIER PILE**  
NO SCALE



**PART PLAN OF LAGGING MEMBER**

NOTE :  
Diagonally opposite corners may be clipped to facilitate placement



**DETAIL Y**

**LAGGING DETAILS**  
NO SCALE

DESIGN	BY Sharon Yen	CHECKED Ye Yang
DETAILS	BY Shadi Motalebi	CHECKED Ye Yang
QUANTITIES	BY Sharon Yen	CHECKED Ye Yang

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
 STRUCTURE DESIGN  
 DESIGN BRANCH **3**

BRIDGE NO.	04E0029
POST MILE	20.4

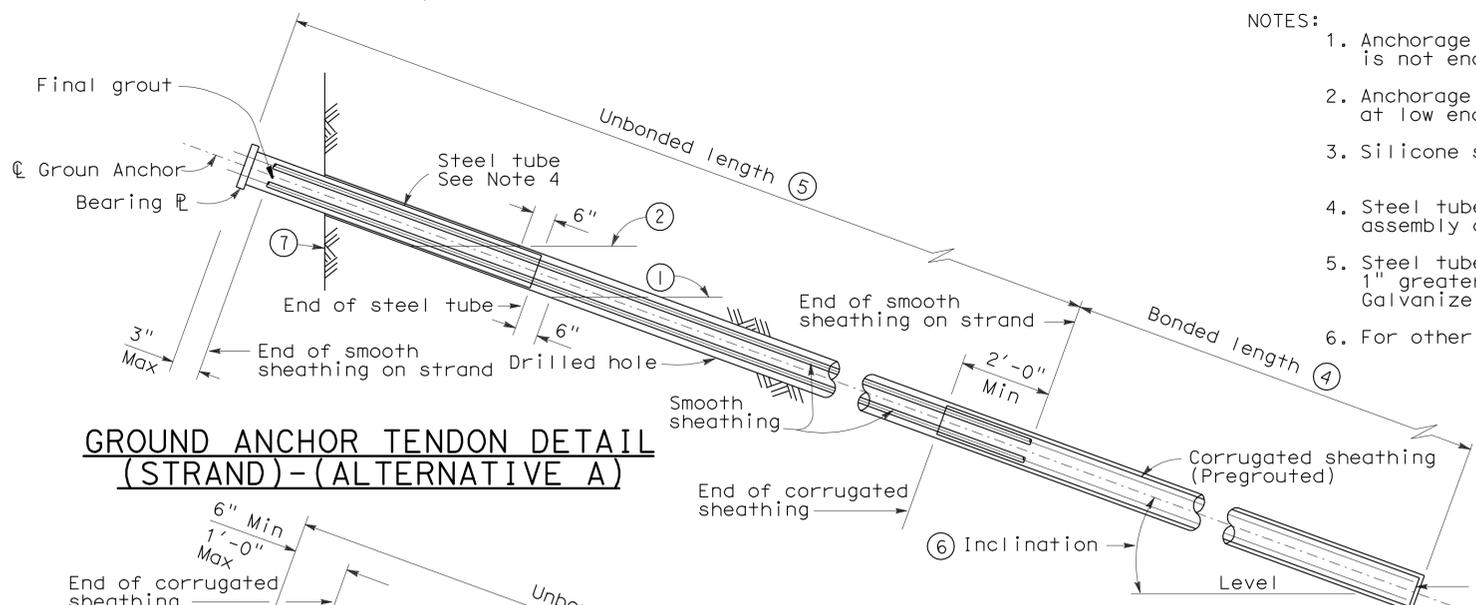
**GREEN POINT SINK RETAINING WALL NO. 2**  
**WALL DETAILS NO. 2**

DIST.	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Hum	299	20.2/20.5	119	128

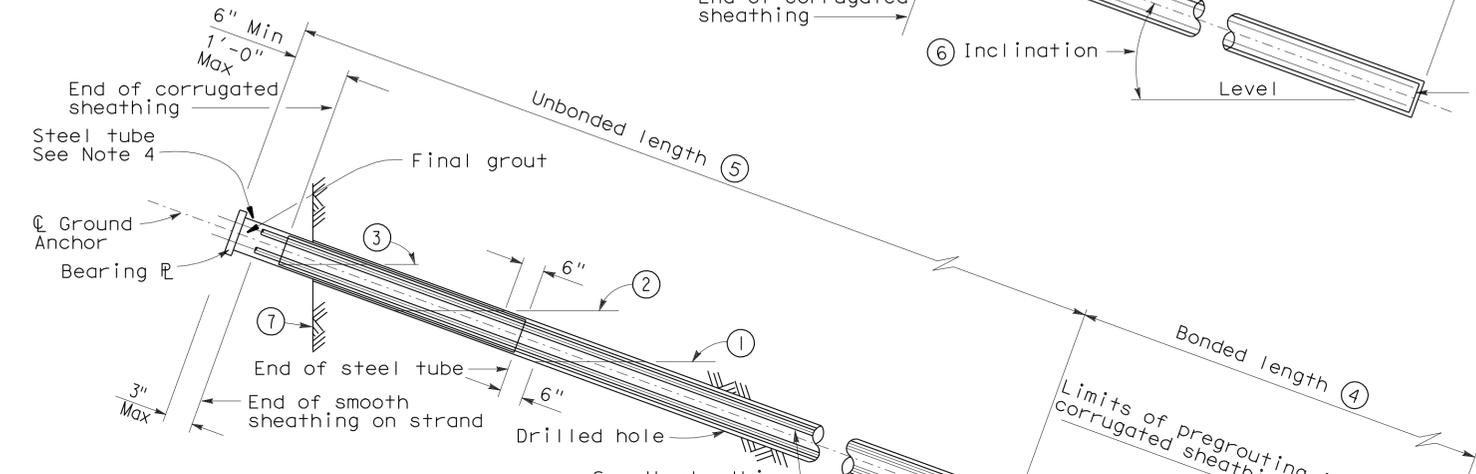
  

REGISTERED ENGINEER - CIVIL Lewis L. Shen No. 56921 Exp. 6-30-13 CIVIL STATE OF CALIFORNIA	
5-7-12 PLANS APPROVAL DATE	
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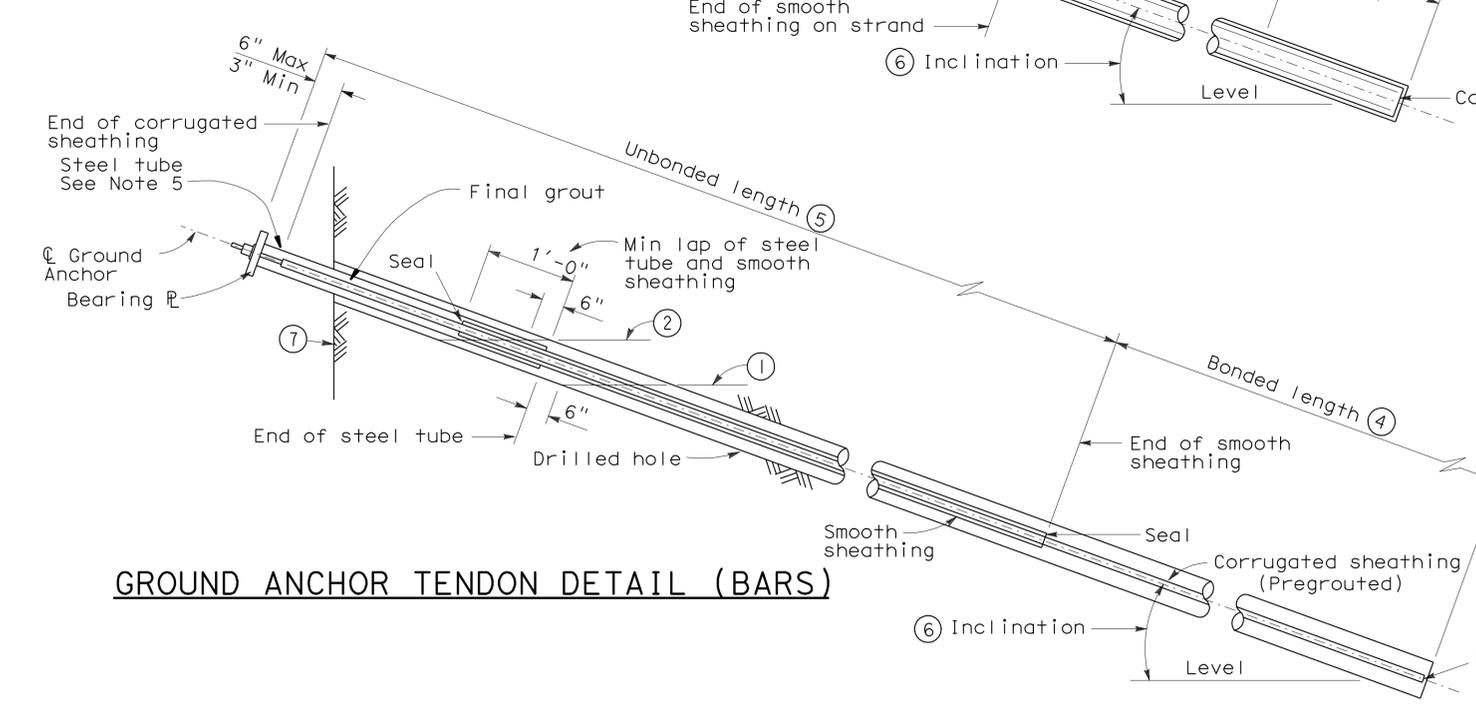
- NOTES:
1. Anchorage enclosure shall only be used when anchor head assembly is not enclosed in concrete.
  2. Anchorage enclosure shall have provisions to allow injecting grout at low end and venting at high end. Galvanize after fabrication.
  3. Silicone sealant to cover full width of flange.
  4. Steel tube welded to bearing plate (Min thickness = 1/4"). Galvanize assembly after fabrication.
  5. Steel tube welded to bearing plate inside diameter of steel tube to be 1" greater than outside diameter of smooth sheathing (Min thickness = 1/4") Galvanize assembly after fabrication.
  6. For other wall details, see Structural Plans.



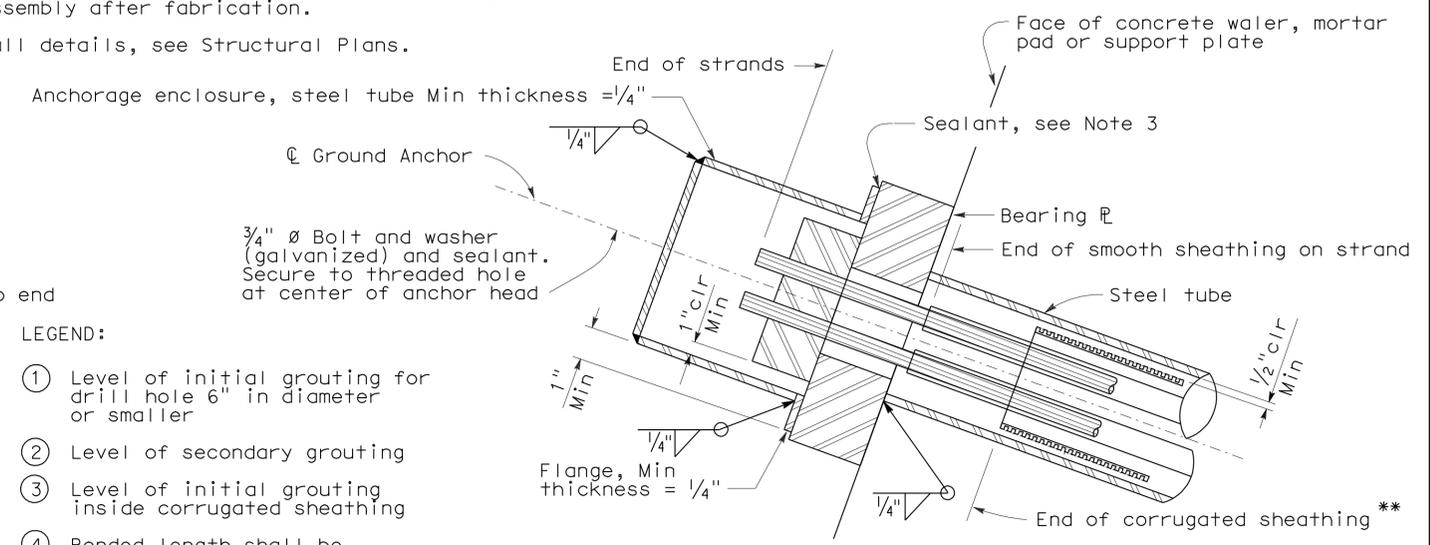
**GROUND ANCHOR TENDON DETAIL (STRAND) - (ALTERNATIVE A)**



**GROUND ANCHOR TENDON DETAIL (STRAND) - (ALTERNATIVE B)**



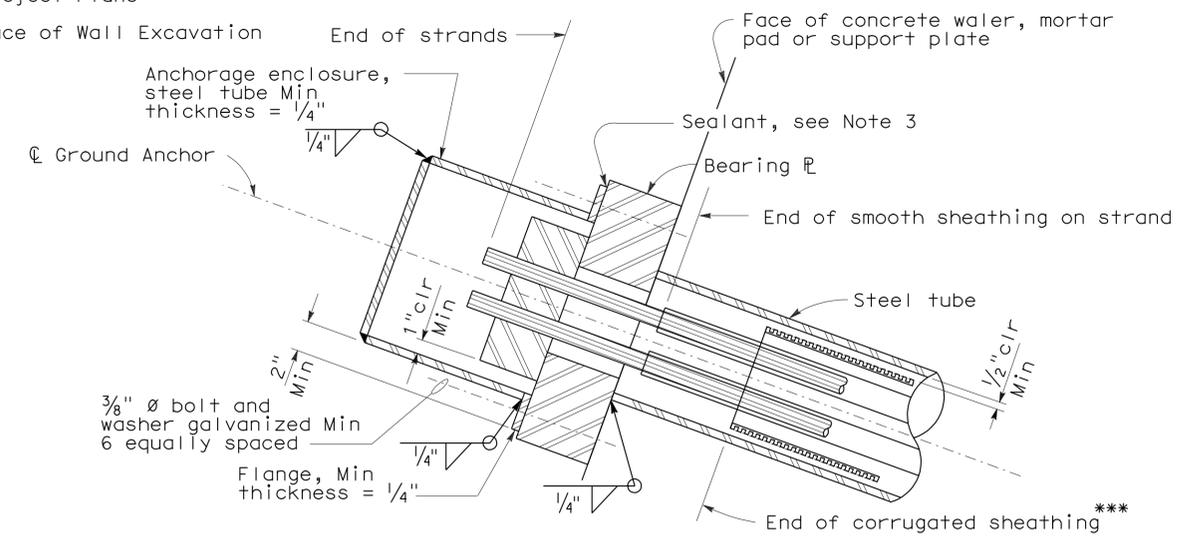
**GROUND ANCHOR TENDON DETAIL (BARS)**



**ALTERNATIVE X**

\*\* Alternative B tendon only

- LEGEND:
- 1 Level of initial grouting for drill hole 6" in diameter or smaller
  - 2 Level of secondary grouting
  - 3 Level of initial grouting inside corrugated sheathing
  - 4 Bonded length shall be determined by the contractor
  - 5 Unbonded length= 85'-0" (Ground Anchor Level 1)  
Unbonded length= 70'-0" (Ground Anchor Level 2)  
Unbonded length= 55'-0" (Ground Anchor Level 3)  
Unbonded length= 40'-0" (Ground Anchor Level 4)  
Unbonded length= 25'-0" (Ground Anchor Level 5)
  - 6 For inclination, see Project Plans
  - 7 Face of Wall Excavation



**ALTERNATIVE Y**

\*\*\* Alternative B tendon only

**ANCHORAGE ENCLOSURE DETAILS**

<b>STANDARD DRAWING</b>		
FILE NO. <b>xs12-040e</b>	APPROVED BY <u>G. WANG</u> RESPONSIBLE TECHNICAL SPECIALIST	RELEASED BY <u>ROBERTO LACALLE</u> RESPONSIBLE OFFICE CHIEF
	APPROVAL DATE <u>2-27-09</u>	RELEASE DATE <u>2-27-09</u>

1 Note revised

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF 3  
ENGINEERING SERVICES

BRIDGE NO. 04E0029	<b>GREEN POINT SINK RETAINING WALL NO. 2</b>
POST MILE 20.4	
<b>GROUND ANCHOR DETAILS</b>	







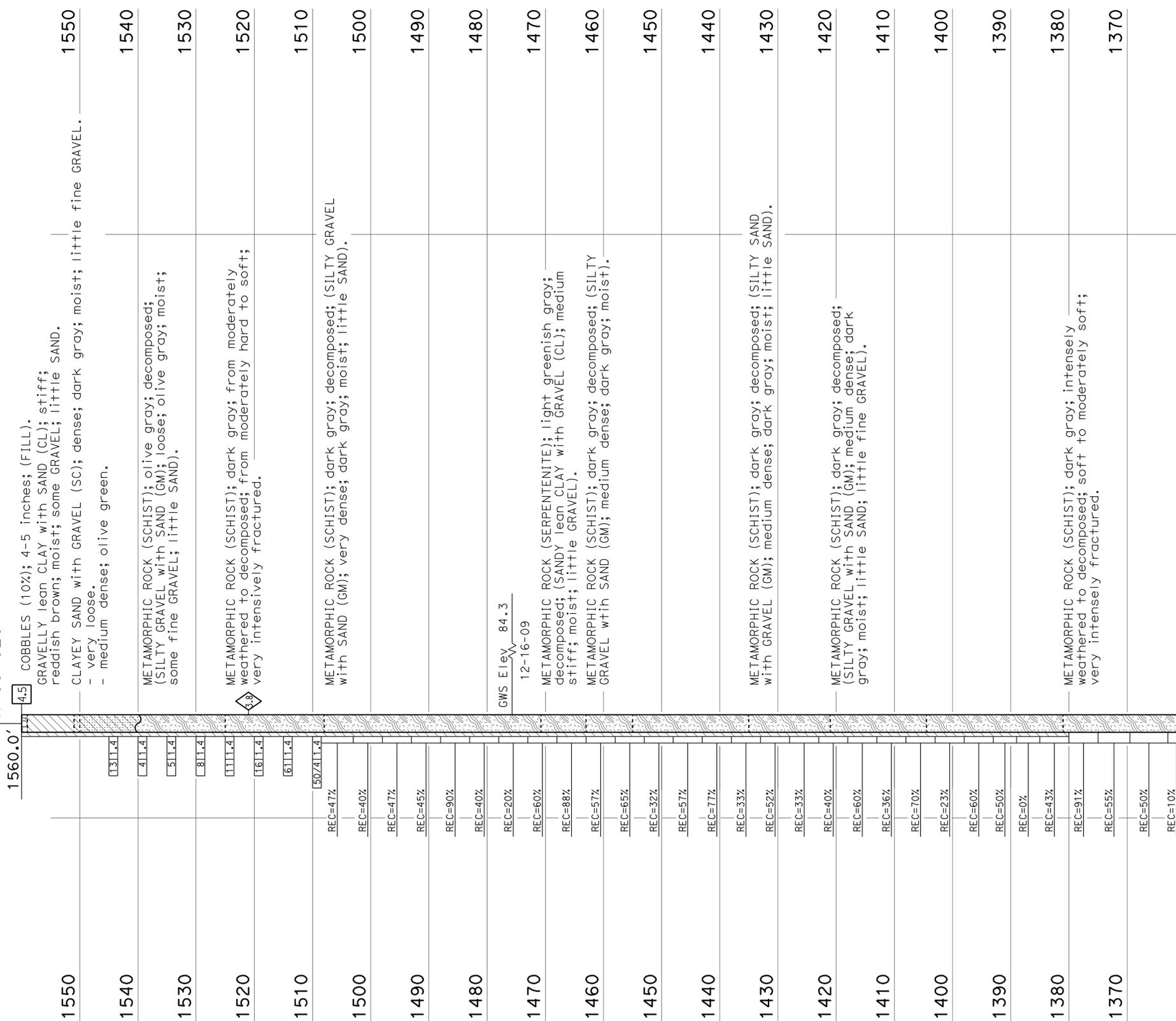


FOR PLAN VIEW, SEE  
"LOG OF TEST BORINGS" 1 OF 8

17.8' Rt Sta 320+58.1

"HUM" Alignment Rte 299

R-09-020



12-07-09  
Terminated at Elev 1360.0'  
ER<sub>t</sub> = 68%

320+50

321+00

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Hum	299	20.2/20.5	124	128

REGISTERED CIVIL ENGINEER DATE 10-12-11  
Kathryn Gallagher  
No. C62012  
Exp. 9-30-13  
CIVIL  
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This LOTB sheet was prepared in accordance with the Caltrans Soil & Rock Logging, Classification, & Presentation Manual (2010).  
Note the following exceptions:  
Type code for all holes reported as R. Holes are RC per section 2.4 of 2010 Manual. Percentage and proportion and size of gravel, sand, and fines not reported for all soil descriptions.

PROFILE  
Horiz: 1" = 5'  
Vert: 1" = 10'

ENGINEERING SERVICES		GEOTECHNICAL SERVICES		STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION		DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 3		BRIDGE NO. 04E0029 POST MILE 20.4		GREEN POINT SINK RETAINING WALL NO. 2 LOG OF TEST BORINGS 4 OF 8	
FUNCTIONAL SUPERVISOR NAME: Charlie Narwold		DRAWN BY: G. Dickerson CHECKED BY: XX		FIELD INVESTIGATION BY: K. Gallagher		UNIT: 3578 PROJECT NUMBER & PHASE: 0100000172-0		CONTRACT NO.: 01-423701		DISREGARD PRINTS BEARING EARLIER REVISION DATES	
OGS CIVIL LOG OF TEST BORINGS SHEET		ORIGINAL SCALE IN INCHES FOR REDUCED PLANS		0 1 2 3		REVISION DATES		SHEET 14 OF 18		DATE PLOTTED => 08-MAY-2012 TIME PLOTTED => 11:05 USERNAME => s124496	



DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Hum	299	20.2/20.5	126	128

10-12-11  
 REGISTERED CIVIL ENGINEER DATE  
 5-7-12  
 PLANS APPROVAL DATE  
 Kathryn Gallagher  
 No. C62012  
 Exp. 9-30-13  
 CIVIL  
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GROUP SYMBOLS AND NAMES					
Graphic/Symbol	Group Names	Graphic/Symbol	Group Names	Graphic/Symbol	Group Names
	GW	Well-graded GRAVEL		CL	Lean CLAY
		Well-graded GRAVEL with SAND			Lean CLAY with SAND
	GP	Poorly-graded GRAVEL		CL-ML	Lean CLAY with GRAVEL
		Poorly-graded GRAVEL with SAND			SANDY lean CLAY
	GW-GM	Well-graded GRAVEL with SILT		ML	SANDY lean CLAY with GRAVEL
		Well-graded GRAVEL with SILT and SAND			GRAVELLY lean CLAY
	GW-GC	Well-graded GRAVEL with CLAY (or SILTY CLAY)		OL	GRAVELLY lean CLAY with SAND
		Well-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)			SILTY CLAY
	GP-GM	Poorly-graded GRAVEL with SILT		OL	SILTY CLAY with SAND
		Poorly-graded GRAVEL with SILT and SAND			SILTY CLAY with GRAVEL
	GP-GC	Poorly-graded GRAVEL with CLAY (or SILTY CLAY)		OL	SANDY SILTY CLAY
		Poorly-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)			SANDY SILTY CLAY with GRAVEL
	GM	SILTY GRAVEL		OH	GRAVELLY SILTY CLAY
		SILTY GRAVEL with SAND			GRAVELLY SILTY CLAY with SAND
	GC	CLAYEY GRAVEL		OH	ORGANIC lean CLAY
		CLAYEY GRAVEL with SAND			ORGANIC lean CLAY with SAND
	GC-GM	SILTY, CLAYEY GRAVEL		OH	ORGANIC lean CLAY with GRAVEL
		SILTY, CLAYEY GRAVEL with SAND			SANDY ORGANIC lean CLAY
	SW	Well-graded SAND		CH	SANDY ORGANIC lean CLAY with GRAVEL
		Well-graded SAND with GRAVEL			GRAVELLY ORGANIC lean CLAY
	SP	Poorly-graded SAND		MH	GRAVELLY ORGANIC lean CLAY with SAND
		Poorly-graded SAND with GRAVEL			ORGANIC fat CLAY
	SW-SM	Well-graded SAND with SILT		MH	Fat CLAY with SAND
		Well-graded SAND with SILT and GRAVEL			Fat CLAY with GRAVEL
	SW-SC	Well-graded SAND with CLAY (or SILTY CLAY)		OH	SANDY fat CLAY
		Well-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)			SANDY fat CLAY with GRAVEL
	SP-SM	Poorly-graded SAND with SILT		OH	GRAVELLY fat CLAY
		Poorly-graded SAND with SILT and GRAVEL			GRAVELLY fat CLAY with SAND
	SP-SC	Poorly-graded SAND with CLAY (or SILTY CLAY)		OH	ORGANIC elastic SILT
		Poorly-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)			ORGANIC elastic SILT with SAND
	SM	SILTY SAND		OH	ORGANIC elastic SILT with GRAVEL
		SILTY SAND with GRAVEL			SANDY ORGANIC elastic SILT
	SC	CLAYEY SAND		OH	SANDY ORGANIC elastic SILT with GRAVEL
		CLAYEY SAND with GRAVEL			GRAVELLY ORGANIC elastic SILT
	SC-SM	SILTY, CLAYEY SAND		OH	GRAVELLY ORGANIC elastic SILT with SAND
		SILTY, CLAYEY SAND with GRAVEL			ORGANIC SOIL
	PT	PEAT		OL/OH	ORGANIC SOIL with SAND
		PEAT			ORGANIC SOIL with GRAVEL
		COBBLES		OL/OH	SANDY ORGANIC SOIL
		COBBLES and BOULDERS			GRAVELLY ORGANIC SOIL
		BOULDERS			GRAVELLY ORGANIC SOIL with SAND

FIELD AND LABORATORY TESTING	
(C)	Consolidation (ASTM D 2435)
(CL)	Collapse Potential (ASTM D 5333)
(CP)	Compaction Curve (CTM 216)
(CR)	Corrosivity Testing (CTM 643, CTM 422, CTM 417)
(CU)	Consolidated Undrained Triaxial (ASTM D 4767)
(DS)	Direct Shear (ASTM D 3080)
(EI)	Expansion Index (ASTM D 4829)
(M)	Moisture Content (ASTM D 2216)
(OC)	Organic Content-% (ASTM D 2974)
(P)	Permeability (CTM 220)
(PA)	Particle Size Analysis (ASTM D 422)
(PI)	Plasticity Index (AASHTO T 90) Liquid Limit (AASHTO T 89)
(PL)	Point Load Index (ASTM D 5731)
(PM)	Pressure Meter
(R)	R-Value (CTM 301)
(SE)	Sand Equivalent (CTM 217)
(SG)	Specific Gravity (AASHTO T 100)
(SL)	Shrinkage Limit (ASTM D 427)
(SW)	Swell Potential (ASTM D 4546)
(UC)	Unconfined Compression-Soil (ASTM D 2166) Unconfined Compression-Rock (ASTM D 2938)
(UU)	Unconsolidated Undrained Triaxial (ASTM D 2850)
(UW)	Unit Weight (ASTM D 4767)

APPARENT DENSITY OF COHESIONLESS SOILS	
Description	SPT N <sub>60</sub> (Blows / 12 in.)
Very Loose	0 - 5
Loose	5 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	Greater than 50

MOISTURE	
Description	Criteria
Dry	No discernable moisture
Moist	Moisture present, but no free water
Wet	Visible free water

PERCENT OR PROPORTION OF SOILS	
Description	Criteria
Trace	Particles are present but estimated to be less than 5%
Few	5% - 10%
Little	15% - 25%
Some	30% - 45%
Mostly	50% - 100%

PARTICLE SIZE		
Description	Size (in.)	
Boulder	Greater than 12	
Cobble	3 - 12	
Gravel	Coarse	3/4 - 3
	Fine	1/5 - 3/4
Sand	Coarse	1/16 - 1/5
	Medium	1/64 - 1/16
	Fine	1/300 - 1/64
Silt and Clay	Less than 1/300	

ENGINEERING SERVICES	MATERIALS AND GEOTECHNICAL SERVICES	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 3	BRIDGE NO. 04E0029	GREEN POINT SINK RETAINING WALL NO. 2 LOG OF TEST BORINGS 6 OF 8
				POST MILE 20.4	
PREPARED BY: XX	UNIT: 3578 PROJECT NUMBER & PHASE: 01000001720	CONTRACT NO.: 01-423701	REVISION DATES	SHEET 16 OF 18	

GS LOTB SOIL LEGEND ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

FILE => 04e0029-z-1+006.dgn

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Hum	299	20.2/20.5	127	128

10-12-11  
 REGISTERED CIVIL ENGINEER DATE  
 5-7-12  
 PLANS APPROVAL DATE

Kathryn Gallagher  
 No. C62012  
 Exp. 9-30-13  
 CIVIL

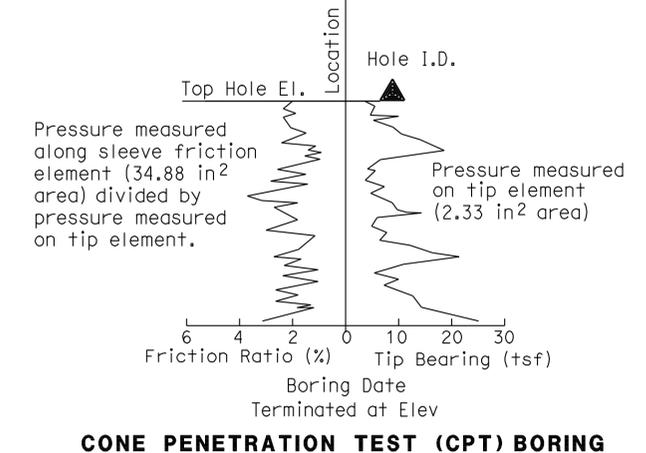
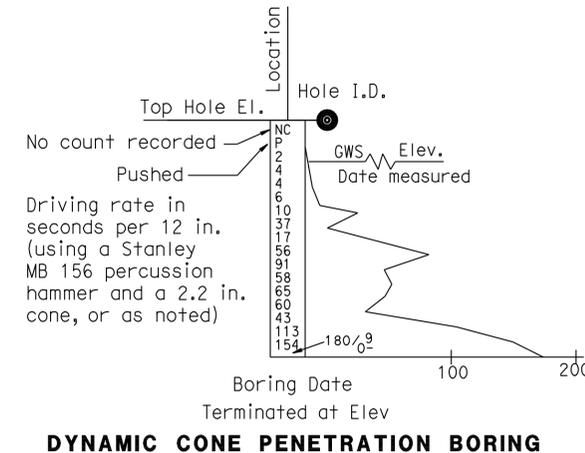
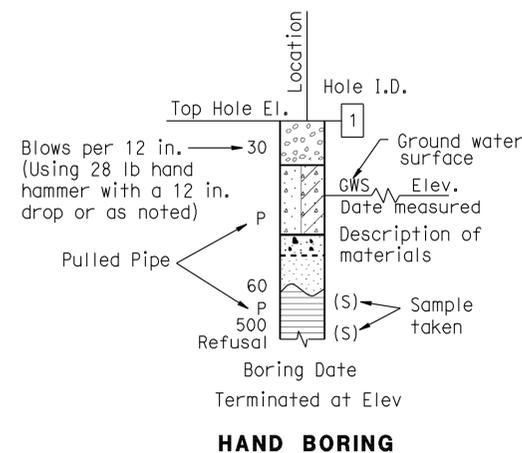
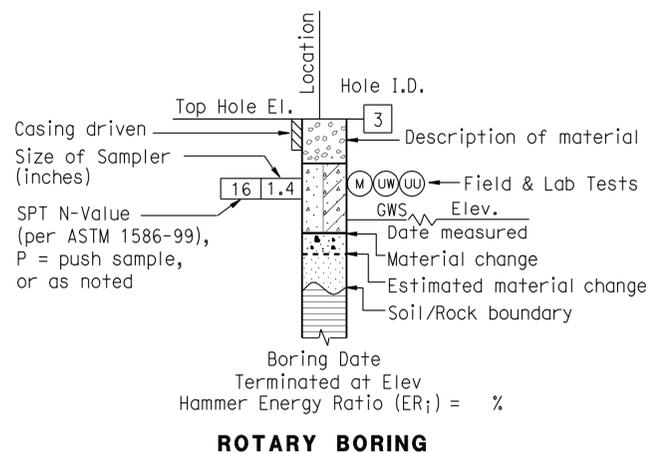
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CEMENTATION	
Description	Criteria
Weak	Crumbles or breaks with handling or little finger pressure.
Moderate	Crumbles or breaks with considerable finger pressure.
Strong	Will not crumble or break with finger pressure.

BOREHOLE IDENTIFICATION		
Symbol	Hole Type	Description
	A	Auger Boring (hollow or solid stem bucket)
	R	Rotary drilled boring (conventional)
	RW	Rotary drilled with self-casing wire-line
	RC	Rotary core with continuously-sampled, self-casing wire-line
	P	Rotary percussion boring (air)
	R	Rotary drilled diamond core
	RC	Rotary drilled rock core
	HD	Hand driven (1-inch soil tube)
	HA	Hand Auger
	D	Dynamic Cone Penetration Boring
	CPT	Cone Penetration Test (ASTM D 5778)
	O	Other (note on LOTB)

Note: Size in inches.

CONSISTENCY OF COHESIVE SOILS				
Description	Shear Strength (tsf)	Pocket Penetrometer Measurement, PP, (tsf)	Torvane Measurement, TV, (tsf)	Vane Shear Measurement, VS, (tsf)
Very Soft	Less than 0.12	Less than 0.25	Less than 0.12	Less than 0.12
Soft	0.12 - 0.25	0.25 - 0.5	0.12 - 0.25	0.12 - 0.25
Medium Stiff	0.25 - 0.5	0.5 - 1	0.25 - 0.5	0.25 - 0.5
Stiff	0.5 - 1	1 - 2	0.5 - 1	0.5 - 1
Very Stiff	1 - 2	2 - 4	1 - 2	1 - 2
Hard	Greater than 2	Greater than 4	Greater than 2	Greater than 2



DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Hum	299	20.2/20.5	128	128

10-12-11  
 REGISTERED CIVIL ENGINEER DATE  
 Kathryn Gallagher  
 No. C62012  
 Exp. 9-30-13  
 CIVIL  
 STATE OF CALIFORNIA  
 5-7-12  
 PLANS APPROVAL DATE  
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**PERCENT CORE RECOVERY (REC) & ROCK QUALITY DESIGNATION (RQD)**

$$REC = \frac{\sum \text{Length of the recovered core pieces (in.)}}{\text{Total length of core run (in.)}} \times 100\%$$

$$RQD = \frac{\sum \text{Length of intact core pieces} \geq 4 \text{ in.}}{\text{Total length of core run (in.)}} \times 100\%$$

RQD\* Indicates soundness criteria not met.

**BEDDING SPACING**

Description	Thickness / Spacing
Massive	Greater than 10 ft
Very Thickly Bedded	3 ft - 10 ft
Thickly Bedded	1 ft - 3 ft
Moderately Bedded	4 in. - 1 ft
Thinly Bedded	1 in. - 4 in.
Very Thinly Bedded	1/4 in. - 1 in.
Laminated	Less than 1/4 in.

**LEGEND OF ROCK MATERIALS**

- IGNEOUS ROCK
- SEDIMENTARY ROCK
- METAMORPHIC ROCK

**ROCK HARDNESS**

Description	Criteria
Extremely Hard	Cannot be scratched with a pocketknife or sharp pick. Can only be chipped with repeated heavy hammer blows.
Very Hard	Cannot be scratched with a pocketknife or sharp pick. Breaks with repeated heavy hammer blows.
Hard	Can be scratched with a pocketknife or sharp pick with difficulty (heavy pressure). Breaks with heavy hammer blows.
Moderately Hard	Can be scratched with pocketknife or sharp pick with light or moderate pressure. Breaks with moderate hammer blows.
Moderately Soft	Can be grooved 1/16 in. deep with a pocketknife or sharp pick with moderate or heavy pressure. Breaks with light hammer blow or heavy manual pressure.
Soft	Can be grooved or gouged easily by a pocketknife or sharp pick with light pressure, can be scratched with fingernail. Breaks with light to moderate manual pressure.
Very Soft	Can be readily indented, grooved or gouged with fingernail, or carved with a pocketknife. Breaks with light manual pressure.

**WEATHERING DESCRIPTORS FOR INTACT ROCK**

Description	Diagnostic Features				General Characteristics	
	Chemical Weathering-Discoloration and/or Oxidation		Mechanical Weathering-Grain Boundary Conditions (Disaggregation) Primarily for Granitics and Some Coarse-Grained Sediments	Texture and Leaching		
	Body of Rock	Fracture Surfaces		Texture		Leaching
Fresh	No discoloration, not oxidized.	No discoloration or oxidation.	No separation, intact (tight).	No change	No leaching	Hammer rings when crystalline rocks are struck.
Slightly Weathered	Discoloration or oxidation is limited to surface of, or short distance from, fractures; some feldspar crystals are dull.	Minor to complete discoloration or oxidation of most surfaces.	No visible separation, intact (tight).	Preserved	Minor leaching of some soluble minerals.	Hammer rings when crystalline rocks are struck. Body of rock not weakened.
Moderately Weathered	Discoloration or oxidation extends from fractures usually throughout; Fe-Mg minerals are "rusty," feldspar crystals are "cloudy."	All fracture surfaces are discolored or oxidized.	Partial separation of boundaries visible.	Generally preserved	Soluble minerals may be mostly leached.	Hammer does not ring when rock is struck. Body of rock is slightly weakened.
Intensely Weathered	Discoloration or oxidation throughout; all feldspars and Fe-Mg minerals are altered to clay to some extent; or chemical alteration produces in-situ disaggregation, see grain boundary conditions.	All fracture surfaces are discolored or oxidized, surfaces friable.	Partial separation, rock is friable; in semiarid conditions granitics are disaggregated.	Texture altered by chemical disintegration (hydration, argillation).	Leaching of soluble minerals may be complete.	Dull sound when struck with hammer, usually can be broken with moderate to heavy manual pressure or by light hammer blow without reference to planes of weakness such as incipient or hairline fractures, or veinlets. Rock is significantly weakened.
Decomposed	Discolored or oxidized throughout, but resistant minerals such as quartz may be unaltered; all feldspars and Fe-Mg minerals are completely altered to clay.		Complete separation of grain boundaries (disaggregated).	Resembles a soil, partial or complete remnant rock structure may be preserved; leaching of soluble minerals usually complete.		Can be granulated by hand. Resistant minerals such as quartz may be present as "stringers" or "dikes."

**FRACTURE DENSITY**

Description	Observed Fracture Density
Unfractured	No fractures.
Very Slightly Fractured	Core lengths greater than 3 ft.
Slightly Fractured	Core lengths mostly from 1 to 3 ft.
Moderately Fractured	Core lengths mostly from 4 in. to 1 ft.
Intensely Fractured	Core lengths mostly from 1 to 4 in.
Very Intensely Fractured	Mostly chips and fragments.

<b>ENGINEERING SERVICES</b>	<b>MATERIALS AND GEOTECHNICAL SERVICES</b>	<b>STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION	<b>DIVISION OF ENGINEERING SERVICES</b> STRUCTURE DESIGN <b>DESIGN BRANCH 3</b>	BRIDGE NO. 04E0029 POST MILE 20.4	<b>GREEN POINT SINK RETAINING WALL NO. 2</b> <b>LOG OF TEST BORINGS 8 OF 8</b>
PREPARED BY: XX		UNIT: 3578 PROJECT NUMBER & PHASE: 01000001 720		CONTRACT NO.: 01-423701	
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3		DISREGARD PRINTS BEARING EARLIER REVISION DATES		REVISION DATES	SHEET 18 OF 18

GS LOTB SOIL LEGEND  
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