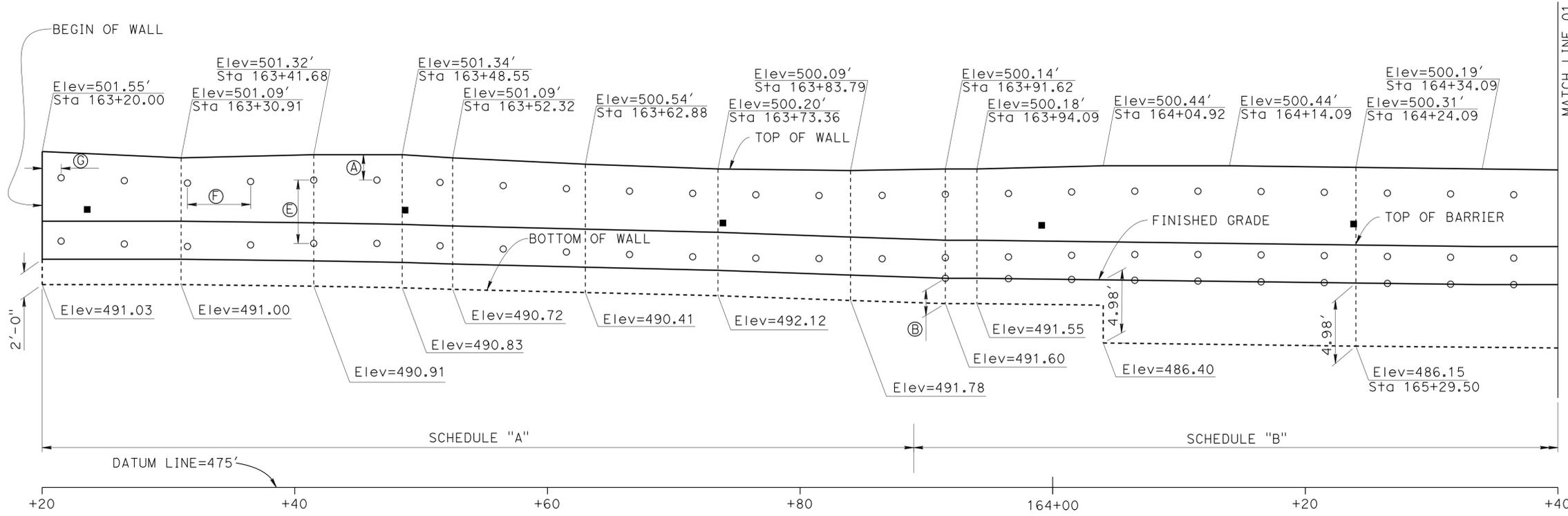


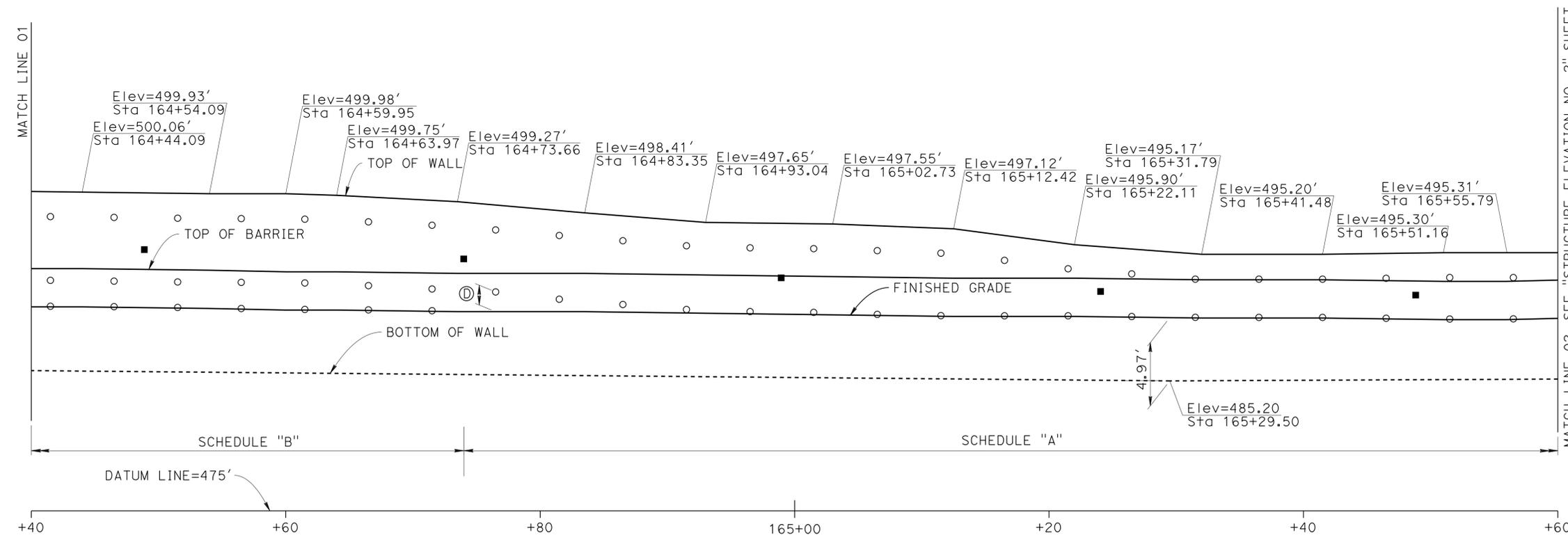
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	152	0.1/5.2	401	416

REGISTERED CIVIL ENGINEER **Sameh Hegazi** No. C64899
 DATE 08-01-12
 PLANS APPROVAL DATE 6-17-13
 Exp. 09-30-2013
 CIVIL
 STATE OF CALIFORNIA
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NAIL SCHEDULE "A"	BAR SIZE #7
No. OF NAIL ROWS	2
ROW No. TOP TO BOTTOM	1 2
EMBEDMENT LENGTH (ft)	10 10

NAIL SCHEDULE "B"	BAR SIZE #7
No. OF NAIL ROWS	3
ROW No. TOP TO BOTTOM	1 2 3
EMBEDMENT LENGTH (ft)	12 10 10



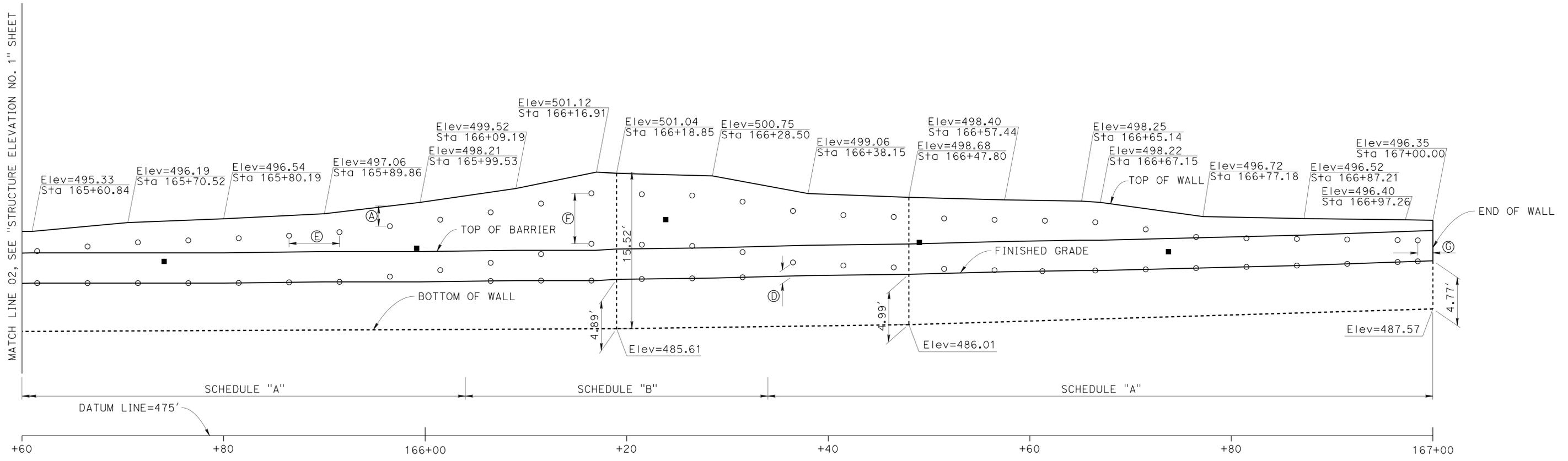
- NOTES:
- Ⓐ ST = Vertical distance from top of wall elevation to top level of soil nails, ST = 2'-0".
 - Ⓑ SB₁ = Vertical distance from bottom of wall to bottom level of the soil nails, SB₁ (Min) = 2'-0", SB₁ (Max) < 3'-0".
 - Ⓒ SB₂ = Vertical distance from bottom of wall to bottom level of the soil nails, SB₂ (Min) > 3'-0", SB₂ (Max) = 6'-8".
 - Ⓓ Discontinue row when vertical distance between soil nails are less than 1'-6".
 - Ⓔ SV = Vertical spacing of soil nails, SV (Min) = 1'-6", SV (Max) = 5'-0".
 - Ⓕ SH = Horizontal spacing of soil nails, SH (Min) = 1'-6", SH (Max) = 5'-0".
 - Ⓖ SS = Horizontal distance between the begin/end wall and first/last soil nails, SS (Min) = 1'-6", SS (Max) = 2'-6".
 - Ⓖ The exact location of the test soil nails to be determined by the Engineer.
 - Ⓗ Cable railing posts are not shown for clarity.

LEGEND:
 ○ Indicates approximate location of soil nails
 ■ Indicates approximate location of proof test nails

DEVELOPED ELEVATION
 1" = 5'

DESIGN BY Sameh Hegazi CHECKED Rangina Amir DETAILS BY Antonio Carreon CHECKED S Hegazi/R Amir QUANTITIES BY Rangina Amir CHECKED Sameh Hegazi	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 8	BRIDGE NO. 37E0120 POST MILE 3.09/3.16	HECKER PASS SOIL NAIL WALL NO. 11 STRUCTURE ELEVATION NO. 1
	UNIT: 3593 PROJECT NUMBER & PHASE: 0400000813-1 CONTRACT NO.: 04-2A2501		DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES: 05-24-12, 07-20-12, 02-08-12 SHEET 4 OF 19
	STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10) ORIGINAL SCALE IN INCHES FOR REDUCED PLANS FILE => 37e0120-d-se01.dgn			

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	152	0.1/5.2	402	416
			REGISTERED CIVIL ENGINEER	DATE	
			08-01-12		
			PLANS APPROVAL DATE		
			6-17-13		
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DEVELOPED ELEVATION
1" = 5'

LEGEND:

- o Indicates approximate location of soil nails
- Indicates approximate location of proof test nails

NOTE:

- For production nails schedule and notes, see "STRUCTURE ELEVATION NO. 1" sheet.

DESIGN	BY Sameh Hegazi	CHECKED Rangina Amir
DETAILS	BY Antonio Carreon	CHECKED S Hegazi/R Amir
QUANTITIES	BY Rangina Amir	CHECKED Sameh Hegazi

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 8

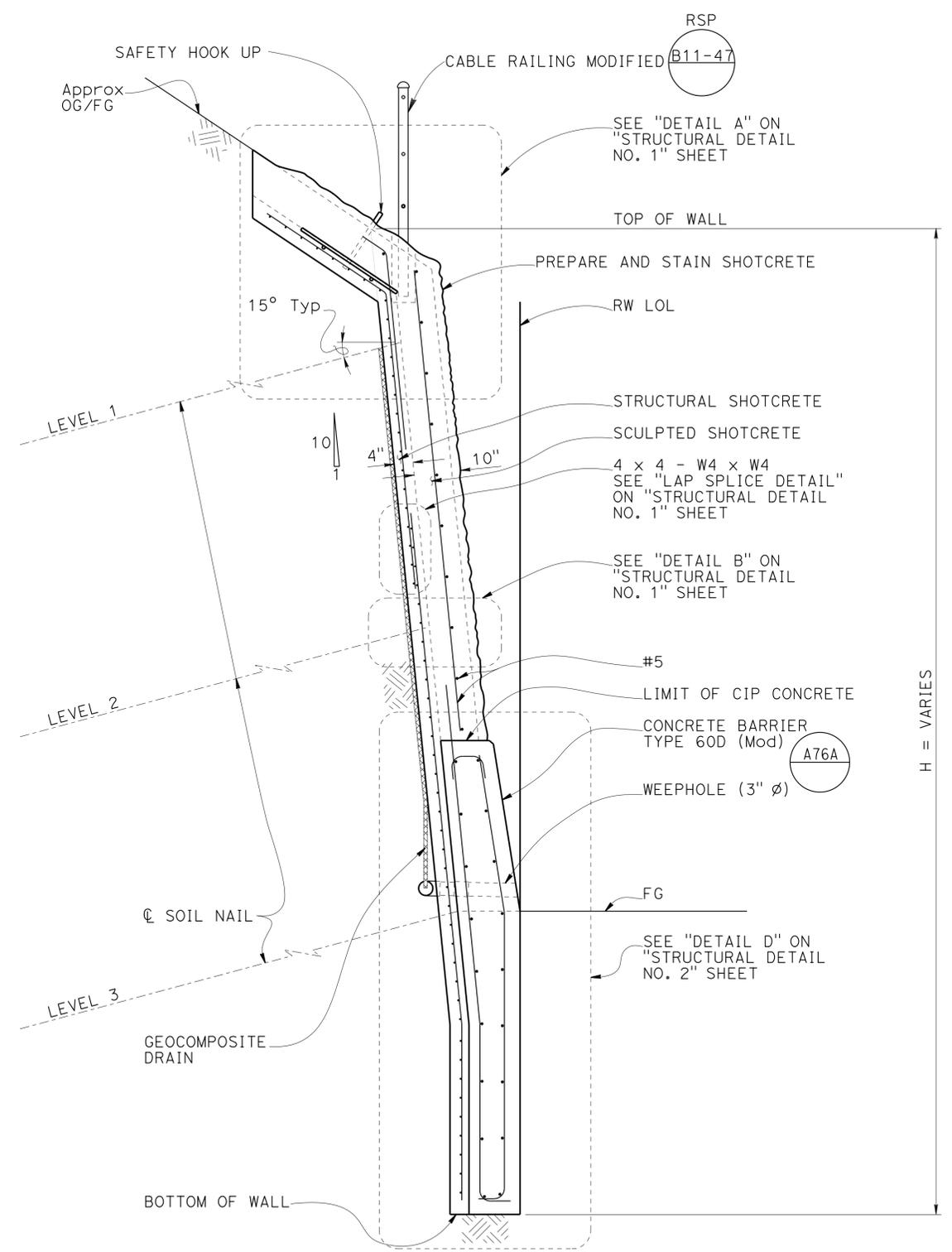
BRIDGE NO.	37E0120
POST MILE	3.09/3.16

HECKER PASS SOIL NAIL WALL NO. 11
STRUCTURE ELEVATION NO. 2

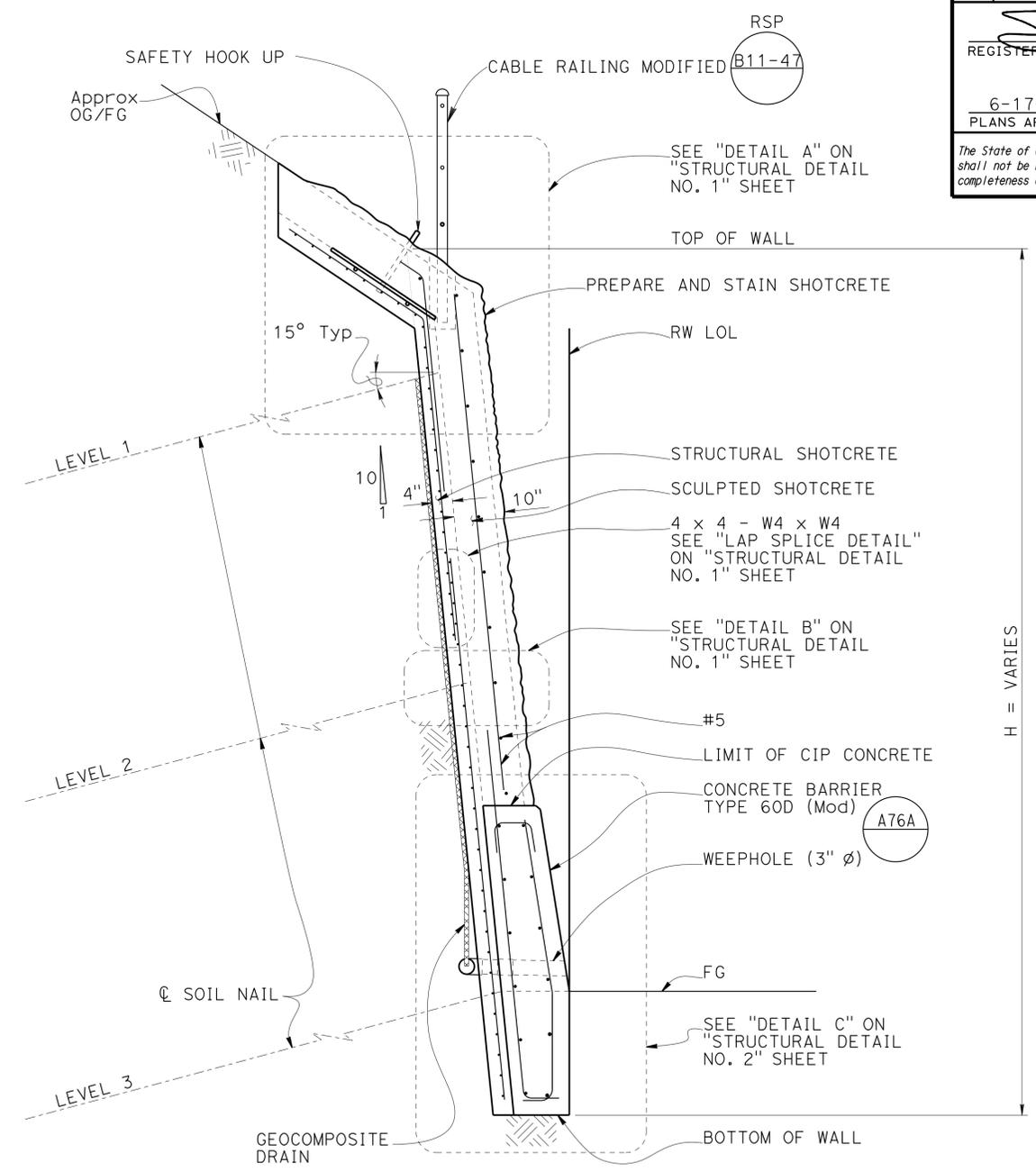
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	152	0.1/5.2	403	416

05-15-13
 REGISTERED CIVIL ENGINEER DATE
 6-17-13
 PLANS APPROVAL DATE
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Sameh Hegazi
 No. C64899
 Exp. 09-30-2013
 CIVIL
 STATE OF CALIFORNIA



TYPICAL SECTION AT FOUNDATION DROP
3/4" = 1'-0"



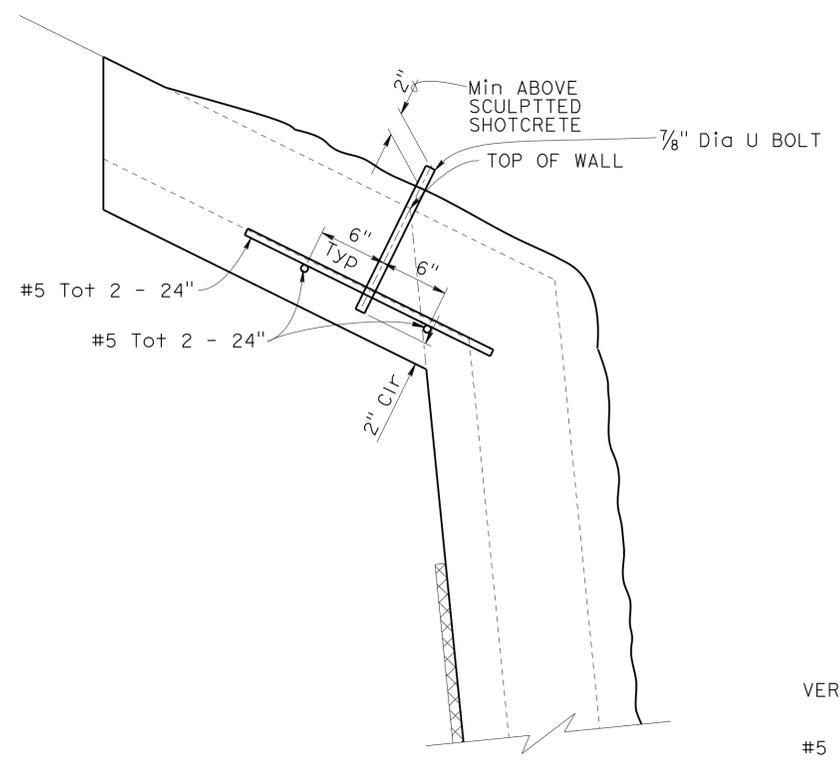
TYPICAL SECTION
3/4" = 1'-0"

- NOTES:
- For "PRODUCTION SOIL NAIL DETAIL" and "PROOF TEST SOIL NAIL DETAIL", see "STRUCTURAL DETAIL NO.3" sheet.
 - For sculpted shotcrete treatment, see "SCULPTED SHOTCRETE TREATMENT" sheet.
 - For geocomposite drain detail, see "DRAINAGE DETAILS NO. 2" sheet.

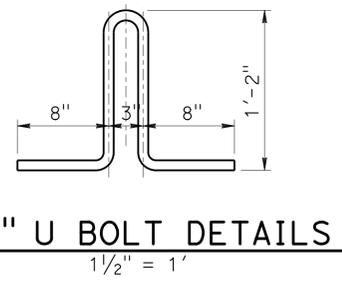
DESIGN	BY Sameh Hegazi	CHECKED Rangina Amir	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 8	BRIDGE NO.	HECKER PASS SOIL NAIL WALL NO. 11 TYPICAL SECTION			
DETAILS	BY Antonio Carreon	CHECKED S Hegazi/R Amir			37E0120				
QUANTITIES	BY Rangina Amir	CHECKED Sameh Hegazi			POST MILE 3.09/3.16				
STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10)			ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	UNIT: 3593	PROJECT NUMBER & PHASE: 0400000813-1	CONTRACT NO.: 04-2A2501	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES	SHEET 6 OF 19

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	152	0.1/5.2	404	416

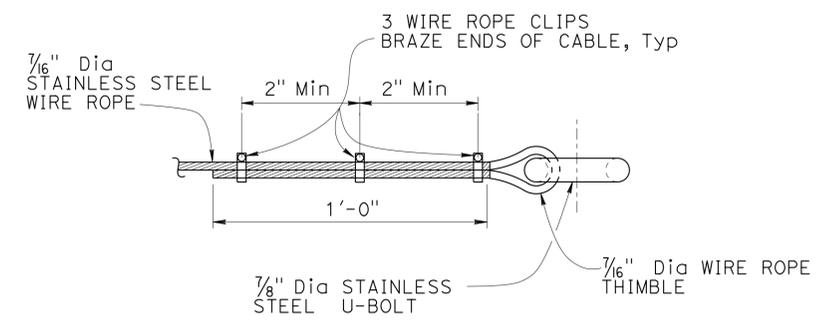
05-15-13
 REGISTERED CIVIL ENGINEER DATE
 6-17-13
 PLANS APPROVAL DATE
 Sameh Hegazi
 No. C64899
 Exp. 09-30-2013
 CIVIL
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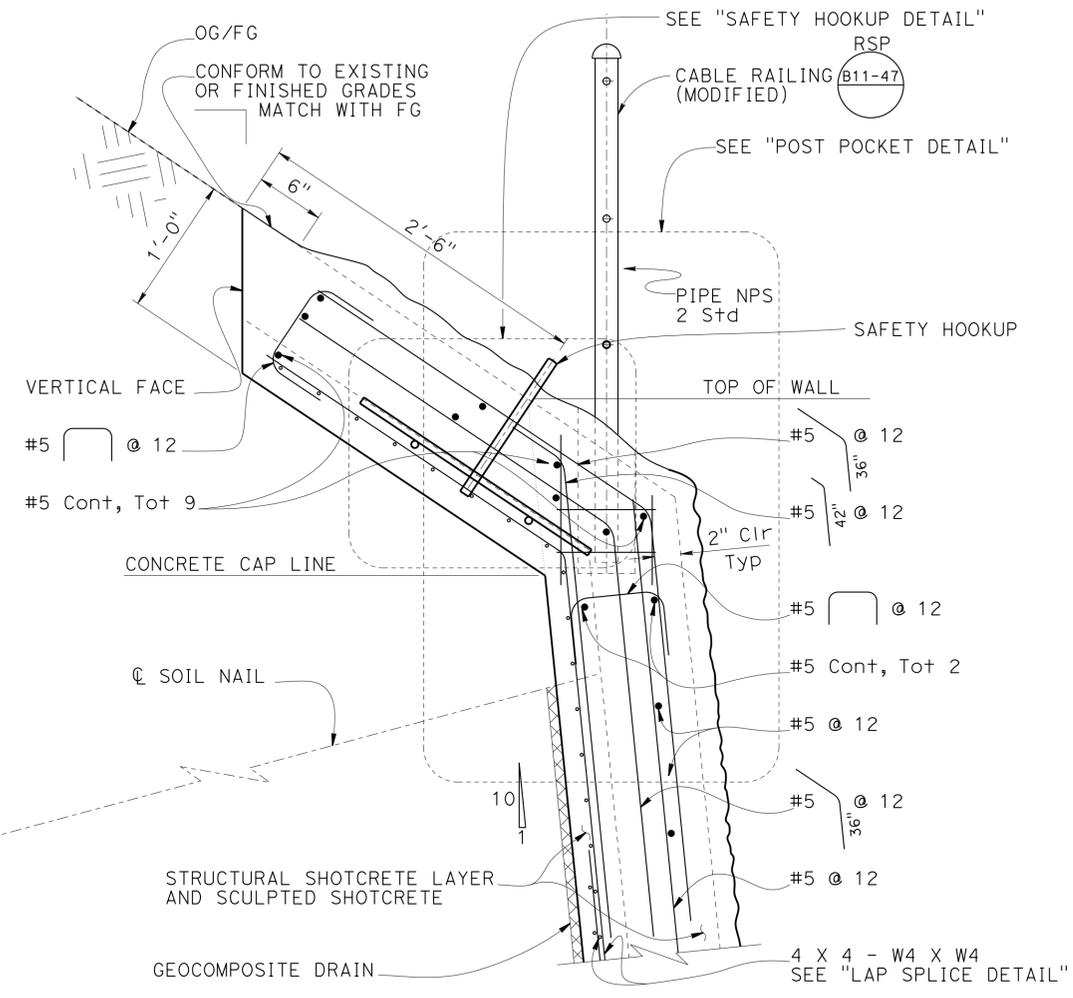
SAFETY HOOKUP DETAIL
No Scale



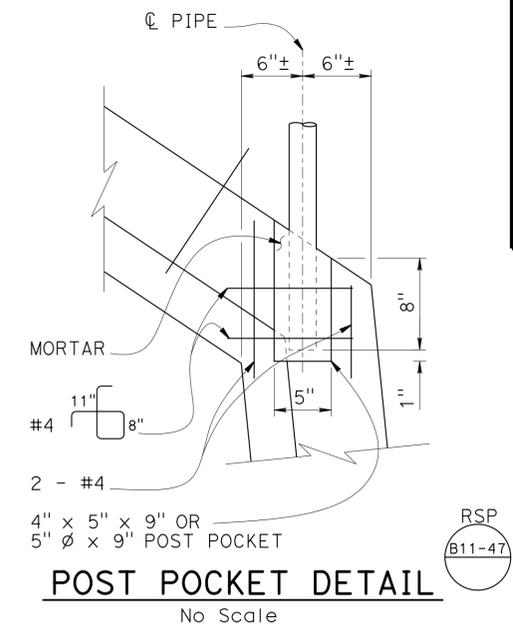
7/8" U BOLT DETAILS
1 1/2" = 1'



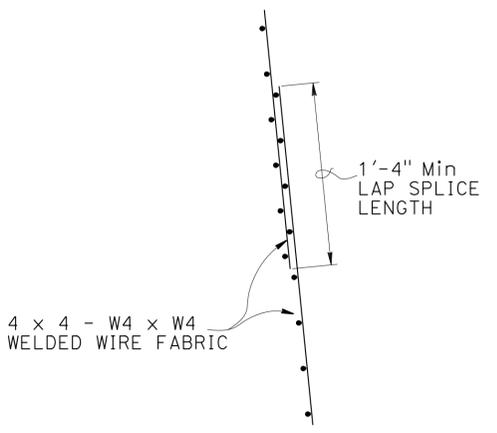
SAFETY WIRE ROPE DETAIL
No Scale



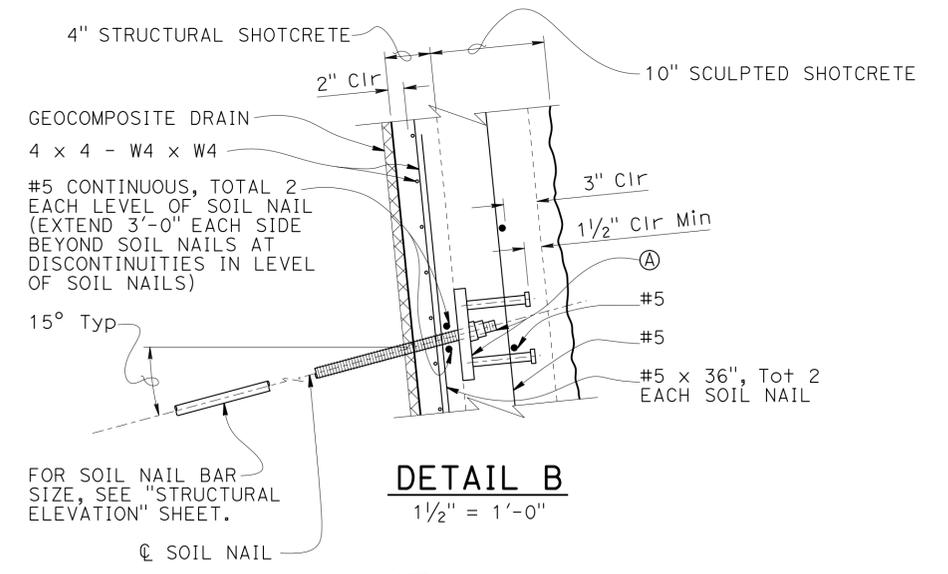
DETAIL A
1 1/2" = 1'-0"



POST POCKET DETAIL
No Scale



LAP SPLICE DETAIL
No Scale



DETAIL B
1 1/2" = 1'-0"

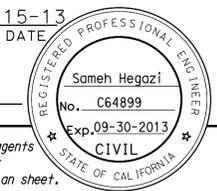
- NOTE:
- Ⓐ For bearing plate and soil nail details not shown, see "STRUCTURAL DETAILS NO. 3" sheet.
 - 1. Safety hookups shall be placed behind cable railing posts with 10'-0" Max spacing.
 - 2. Safety wire rope shall be extended between safety hookups at top of wall.
 - 3. Safety wire rope and safety hookups shall be placed at locations where wall heights from top of wall to finished grade exceed 5 feet.

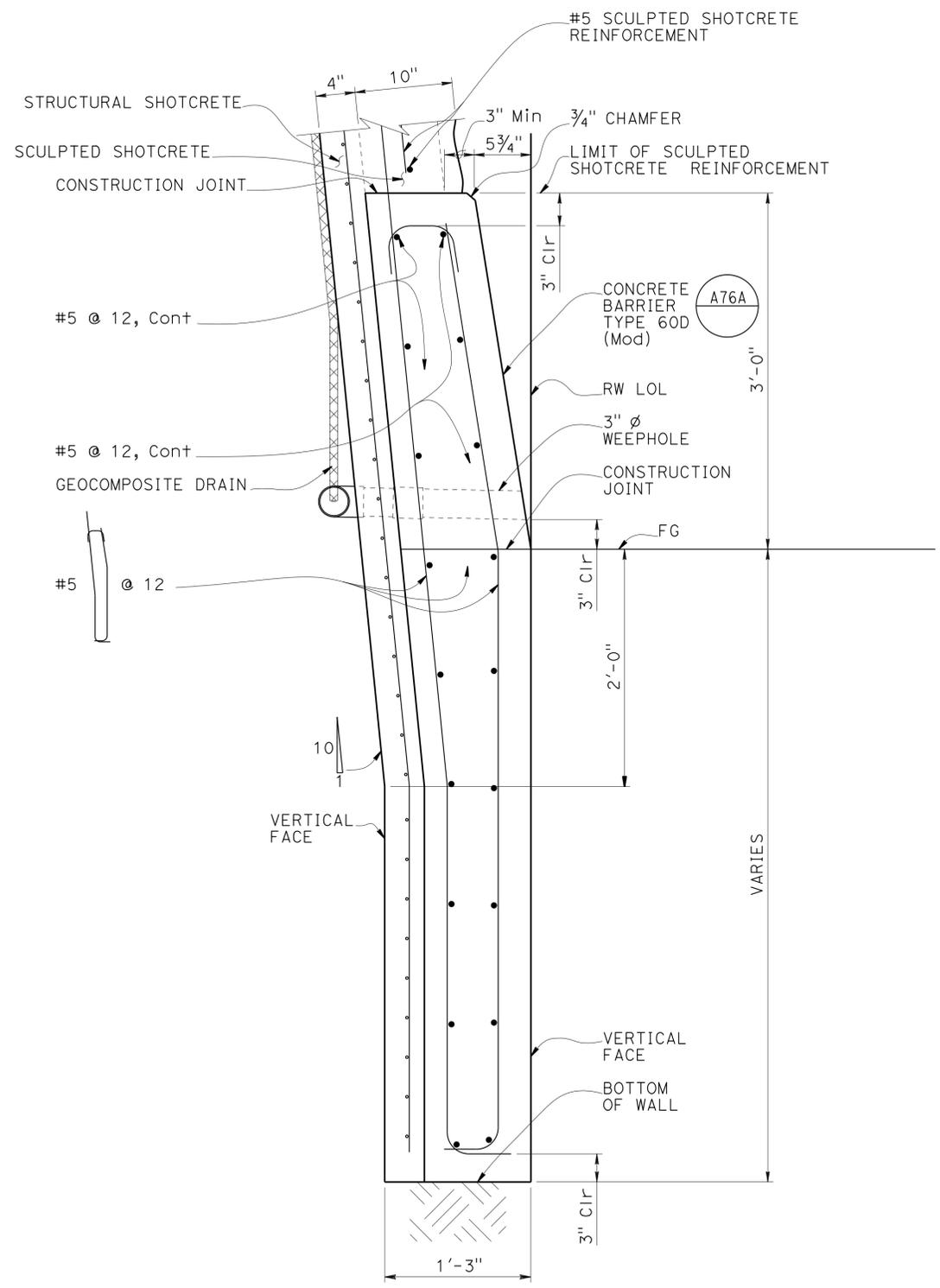
DESIGN	BY Sameh Hegazi	CHECKED Rangina Amir
DETAILS	BY Antonio Carreon	CHECKED S Hegazi/R Amir
QUANTITIES	BY Rangina Amir	CHECKED Sameh Hegazi

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
BRIDGE NO. 37E0120
POST MILE 3.09/3.16
DESIGN BRANCH 8

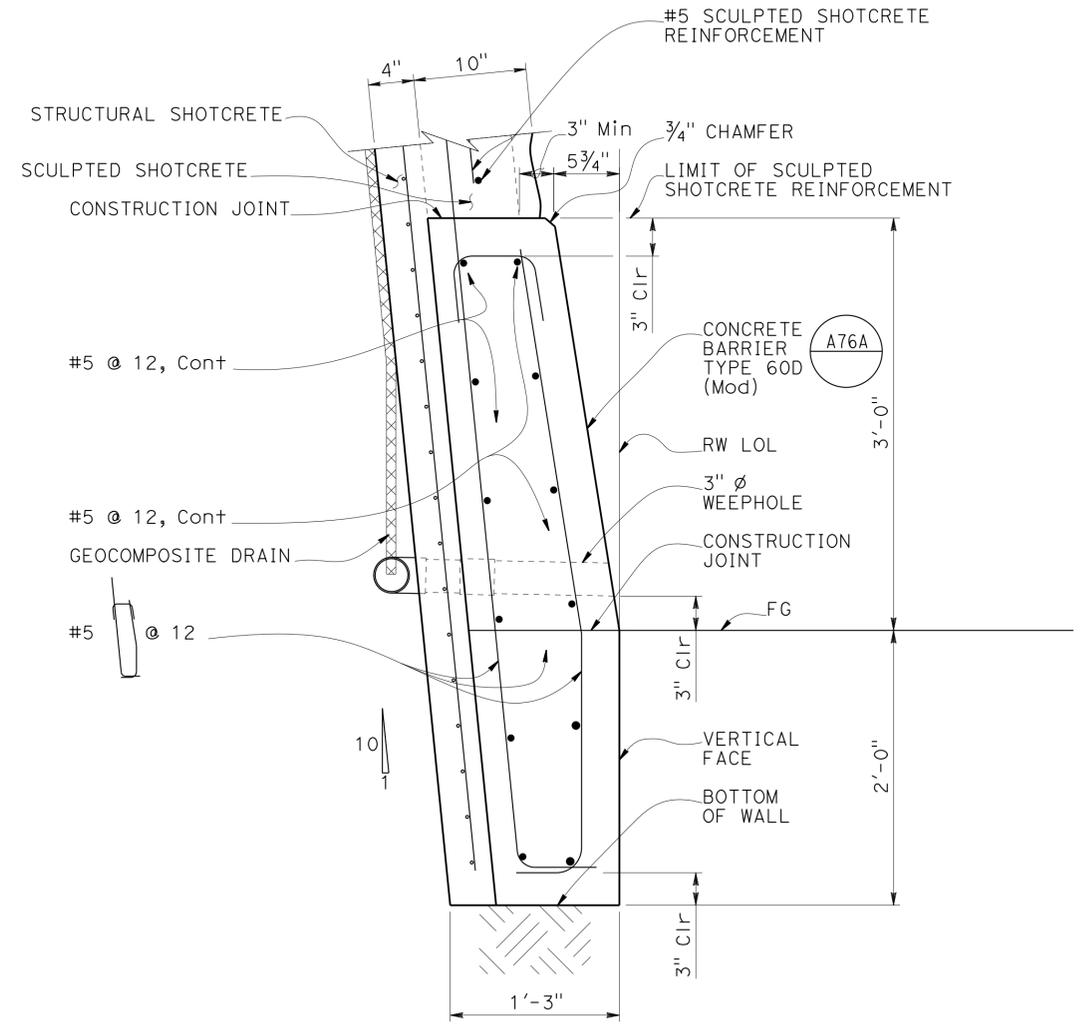
HECKER PASS SOIL NAIL WALL NO. 11
STRUCTURAL DETAILS NO. 1

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	152	0.1/5.2	405	416
				05-15-13	DATE
REGISTERED CIVIL ENGINEER				STATE OF CALIFORNIA	
6-17-13				PLANS APPROVAL DATE	
					
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DETAIL D
1/2" = 1'-0"

NOTE:
1. Soil nails not shown for clarity.
2. Concrete barrier shall be integrally colored.



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

DESIGN	BY Sameh Hegazi	CHECKED Rangina Amir
DETAILS	BY Antonio Carreon	CHECKED S Hegazi/R Amir
QUANTITIES	BY Rangina Amir	CHECKED Sameh Hegazi

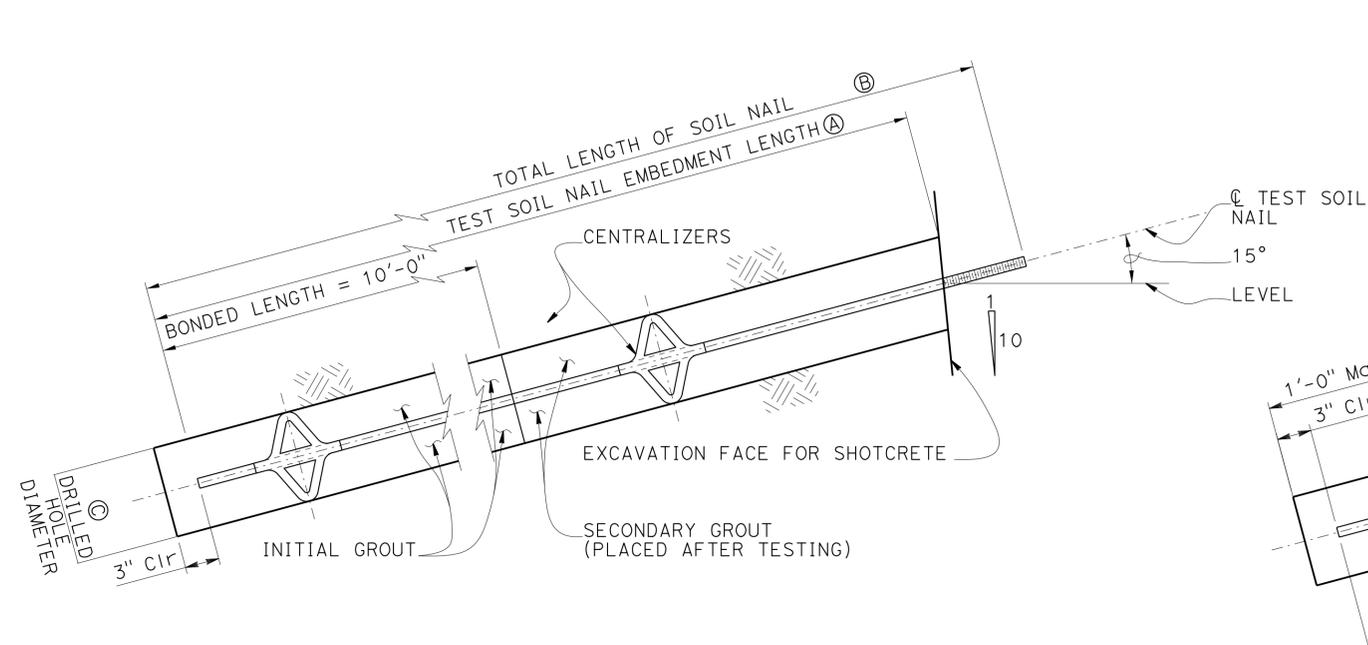
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 8

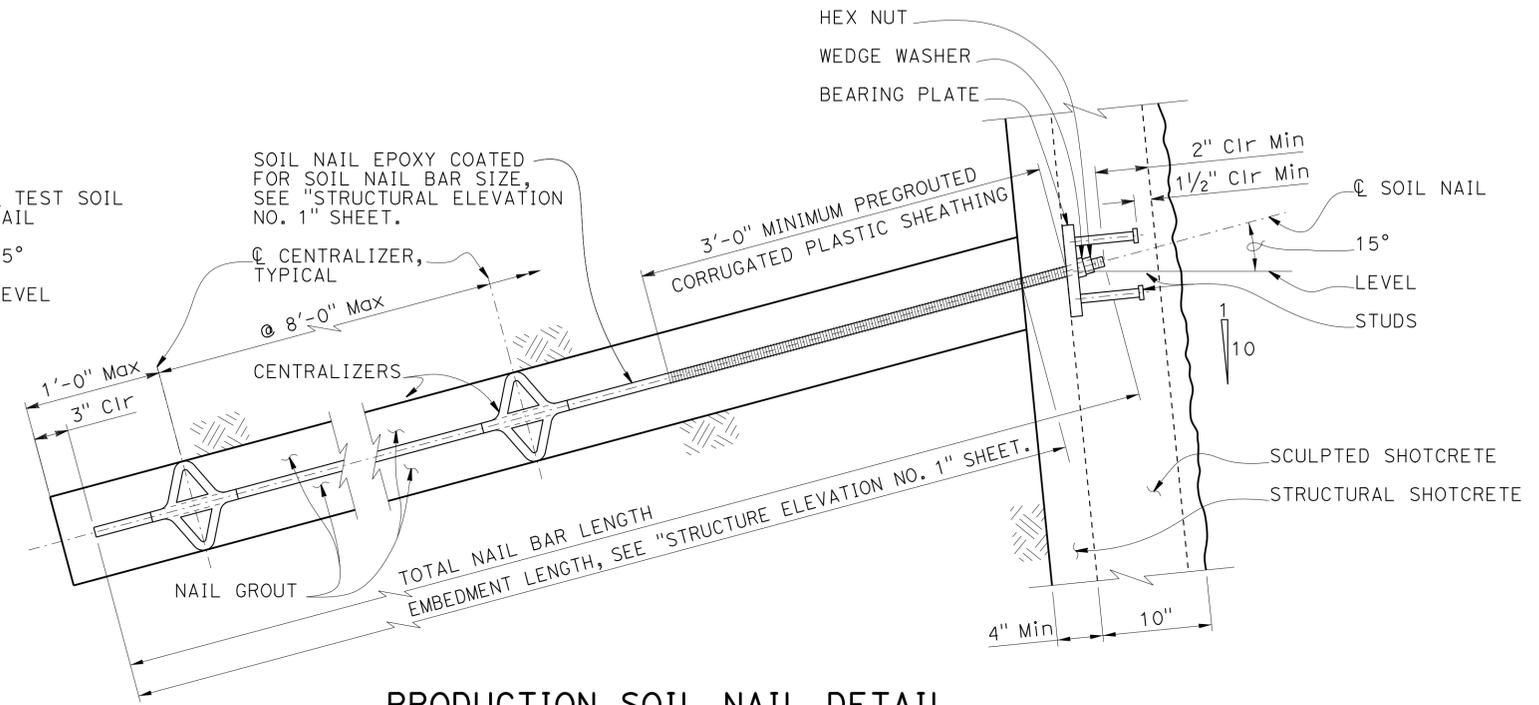
BRIDGE NO.	37E0120
POST MILE	3.09/3.16

HECKER PASS SOIL NAIL WALL NO. 11
STRUCTURAL DETAILS NO. 2

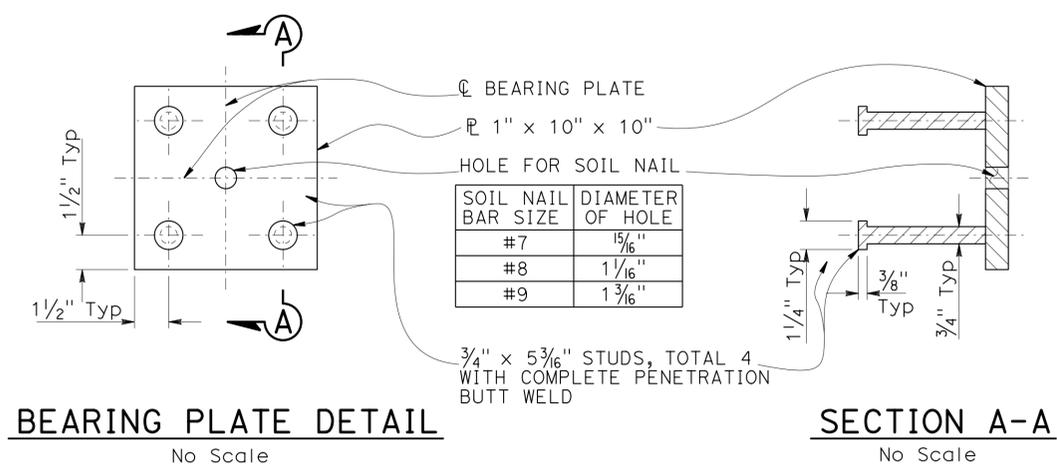
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	152	0.1/5.2	406	416
			08-01-12	REGISTERED CIVIL ENGINEER DATE	
			6-17-13	PLANS APPROVAL DATE	
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PROOF TEST SOIL NAIL DETAIL
No Scale



PRODUCTION SOIL NAIL DETAIL
No Scale



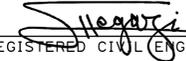
BEARING PLATE DETAIL
No Scale

SECTION A-A
No Scale

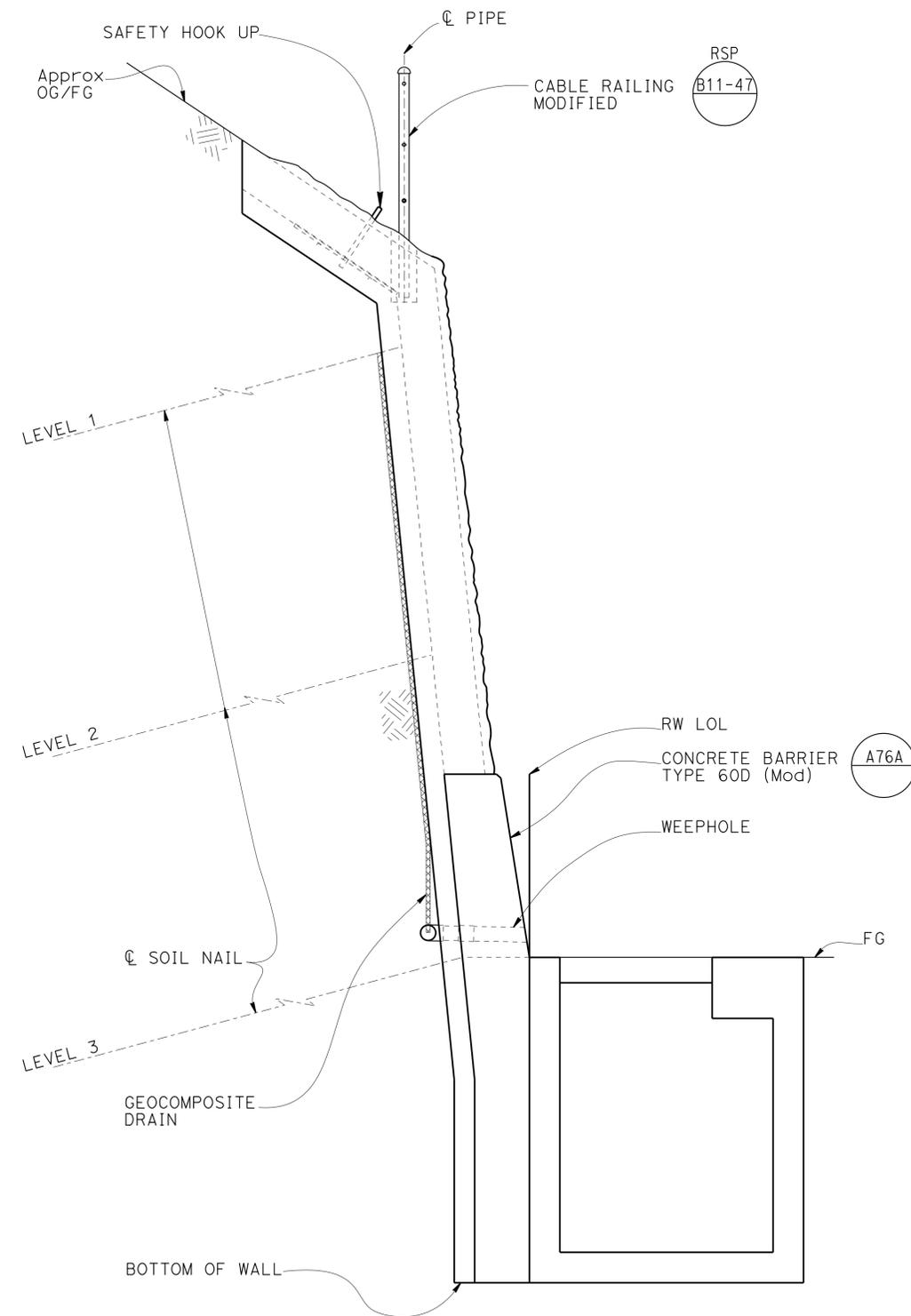
- NOTES:
- Geocomposite drain not shown for clarity.
 - Wall reinforcement not shown for clarity.
 - Finished grout surface to be normal to the bar
- (A) Embedment length of test soil nails equals 2/3 of embedment length of adjacent production soil nails, but not less than 12'-0".
- (B) Total length of test soil nail equals embedment length plus length required for jacking equipment.
- (C) Contractor to determine drilled hole diameter.

DESIGN	BY	Sameh Hegazi	CHECKED	Rangina Amir	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 8	BRIDGE NO.	37E0120	HECKER PASS SOIL NAIL WALL NO. 11 STRUCTURAL DETAILS NO. 3				
	DETAILS	BY	Antonio Carreon	CHECKED			S Hegazi/R Amir	POST MILE		3.09/3.16			
QUANTITIES	BY	Rangina Amir	CHECKED	Sameh Hegazi	UNIT: 3593	PROJECT NUMBER & PHASE: 040000813-1	CONTRACT NO.: 04-2A2501	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES	SHEET	OF		
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS					0	1	2	3	07-20-12	08-24-12	09-24-12	9	19

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	152	0.1/5.2	407	416

 05-15-13
 REGISTERED CIVIL ENGINEER DATE
 6-17-13
 PLANS APPROVAL DATE


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TYPICAL SECTION WITH DROP INLET
No Scale

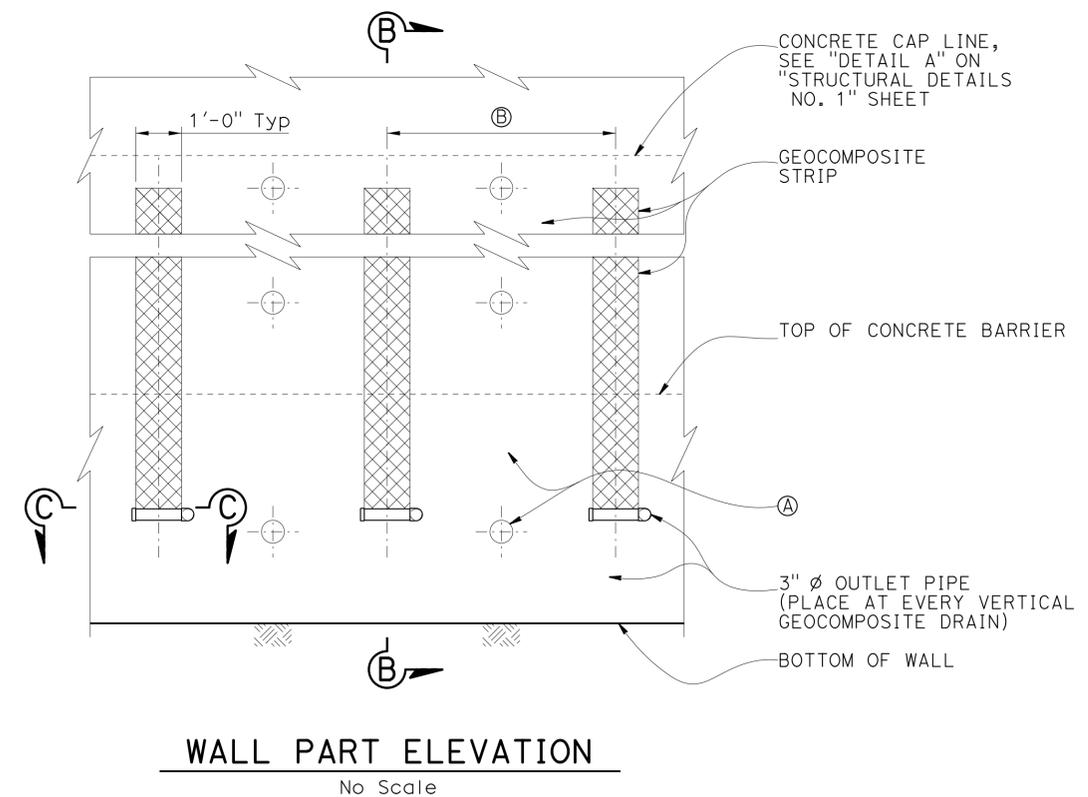
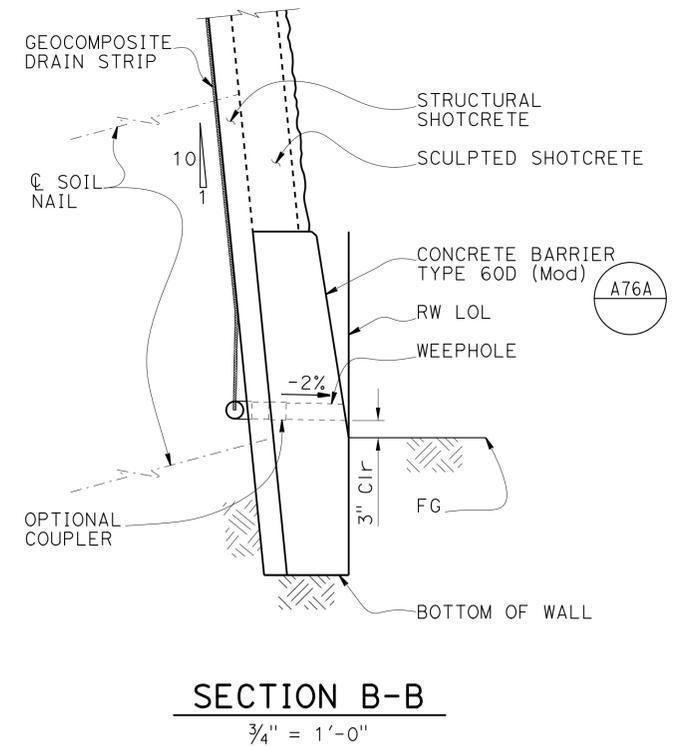
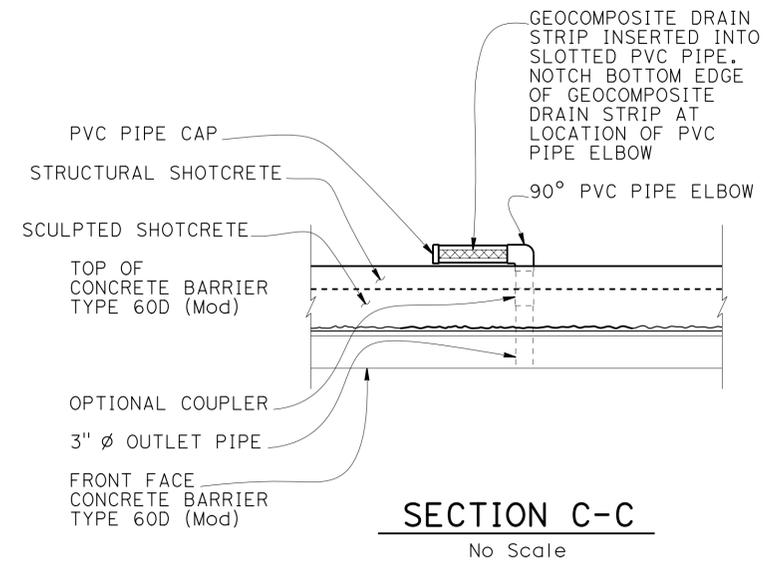
- NOTES:
1. For drainage details not shown, see "ROADWAY PLANS".
 2. For drop inlet type, locations and elevations, see "ROAD PLANS".
 3. Engineer must adjust bottom elevation to accommodate drainage system shown on "ROAD PLANS".
 4. Bottom of wall to be placed against undisturbed material.
 5. Drop inlets shall be centered vertically between soil nails.

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10)	DESIGN	BY Sameh Hegazi	CHECKED Rangina Amir	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 8	BRIDGE NO.	37E0120	HECKER PASS SOIL NAIL WALL NO. 11 DRAINAGE DETAILS NO. 1		
	DETAILS	BY Antonio Carreon	CHECKED S Hegazi/R Amir			POST MILE	3.09/3.16			
	QUANTITIES	BY Rangina Amir	CHECKED Sameh Hegazi							
				ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	0 1 2 3	UNIT: 3593 PROJECT NUMBER & PHASE: 0400000813-1	CONTRACT NO.: 04-2A2501	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES 01-26-12 05-10-13 05-24-12	SHEET 10 OF 19

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	152	0.1/5.2	408	416


 08-01-12
 REGISTERED CIVIL ENGINEER DATE
 6-17-13
 PLANS APPROVAL DATE
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- NOTES:
- Wall reinforcement not shown for clarity.
- (A)  Indicates soil nail locations.
 (B) Center of geocomposite strips shall be centered vertically between soil nails.



DESIGN	BY Sameh Hegazi	CHECKED Rangina Amir
DETAILS	BY Antonio Carreon	CHECKED S Hegazi/R Amir
QUANTITIES	BY Rangina Amir	CHECKED Sameh Hegazi

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION

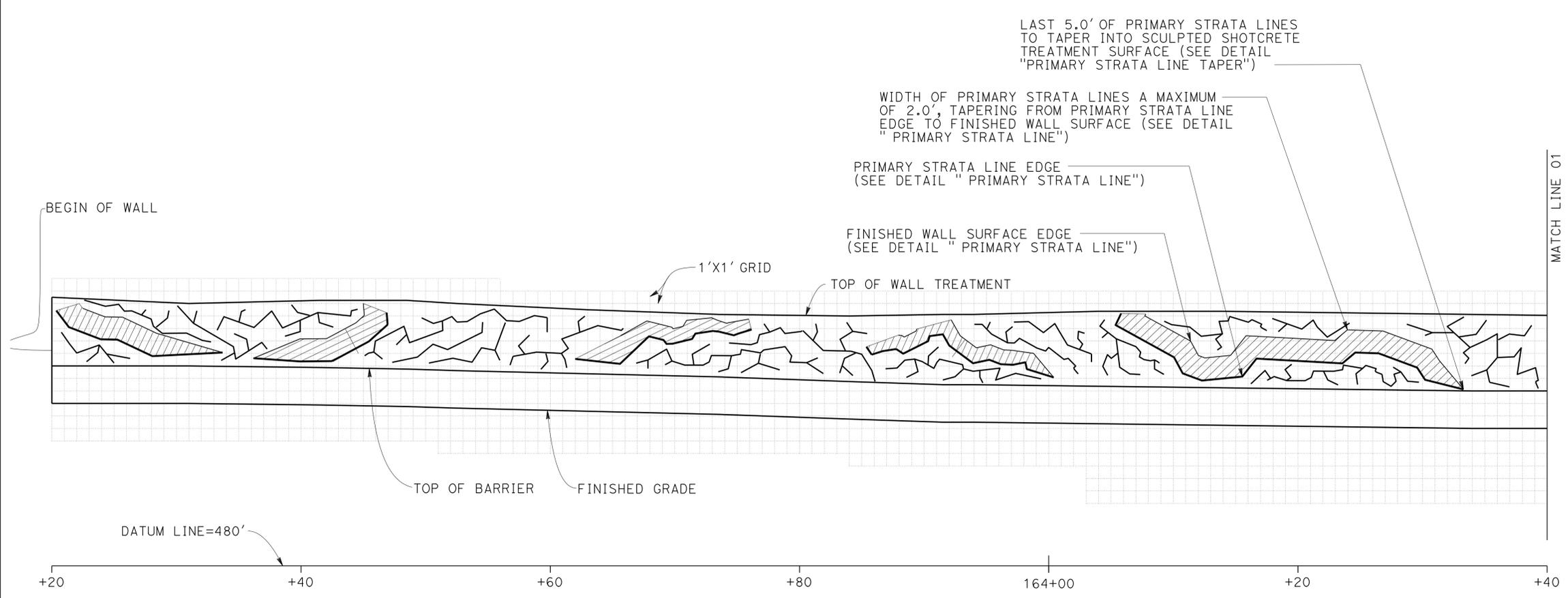
DIVISION OF ENGINEERING SERVICES
 STRUCTURE DESIGN
 DESIGN BRANCH **8**

BRIDGE NO.	37E0120
POST MILE	3.09/3.16

HECKER PASS SOIL NAIL WALL NO. 11
DRAINAGE DETAILS NO. 2

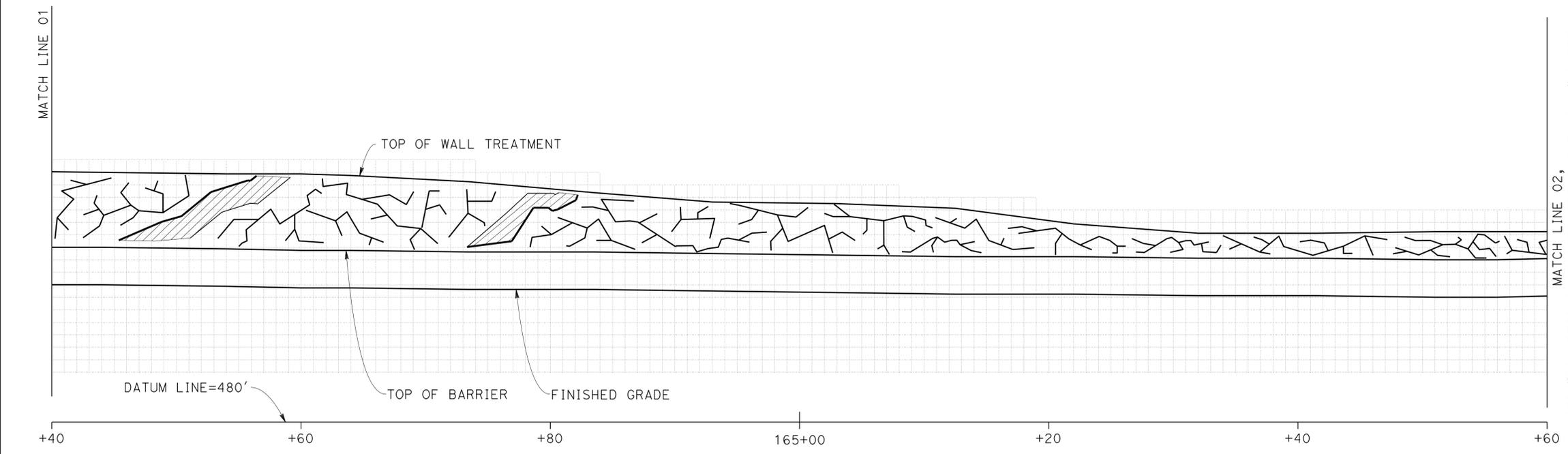
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	152	0.1/5.2	409	416

08-01-12
 REGISTERED CIVIL ENGINEER DATE
 Sameh Hegazi
 No. C64899
 Exp. 09-30-2013
 CIVIL
 STATE OF CALIFORNIA
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LEGEND:

- PRIMARY STRATA LINES
 - Finished wall surface edge
 - Primary strata line edge
 - 2'-0" Max Conform of strata end to wall surface
 - 5'-0"
- SECONDARY STRATA LINES
- Indicates location of weakend planes joint. Joints should not be placed within 18 inches of a nail head. For details, see $\frac{B0-3}{3-2}$



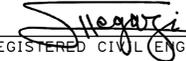
- NOTES:**
- Primary strata lines drawn on the front elevation are to be used as a guide for layout of primary strata line reinforcement. See "SCULPTED SHOTCRETE TREATMENT DETAILS NO. 1" and "SCULPTED SHOTCRETE TREATMENT DETAILS NO. 2" sheets.
 - Secondary strata lines drawn on the front elevation are to be used as a general guide. Strata lines shall be sculpted to mimic local geology.
 - This sheet is accurate for sculpted shotcrete treatment only.
 - Sculpted shotcrete surface treatment shall be continuous throughout the face of the wall.
 - Additional shotcrete needed for carving the primary strata lines to be reinforced as shown on "SCULPTED SHOTCRETE TREATMENT DETAILS NO. 1" and "SCULPTED SHOTCRETE TREATMENT DETAILS NO. 2" sheets.
 - Primary strata lines to be tapered into the top and bottom of wall.
 - Secondary strata lines are not to exceed 2" amplitude.
 - 3" ϕ weepholes are not shown.
 - Cable railing is not shown.

SCULPTED SHOTCRETE SURFACE TREATMENT
 1" = 5'

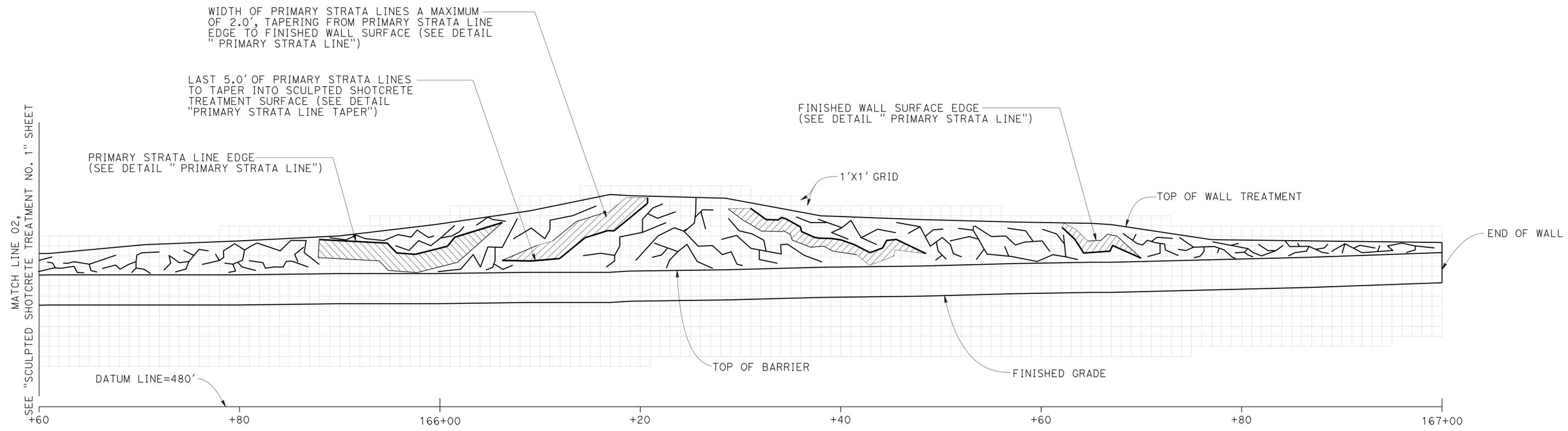
STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10)	DESIGN	BY Sameh Hegazi	CHECKED Rangina Amir	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 8	BRIDGE NO.	HECKER PASS SOIL NAIL WALL NO. 11 SCULPTED SHOTCRETE TREATMENT NO. 1	
	DETAILS	BY Antonio Carreon	CHECKED S Hegazi/R Amir			37E0120		
	QUANTITIES	BY Rangina Amir	CHECKED Sameh Hegazi			POST MILE 3.09/3.16		
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS				UNIT: 3593 PROJECT NUMBER & PHASE: 0400000813-1	CONTRACT NO.: 04-2A2501	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES 07-20-12 02-24-12 05-24-12	SHEET 12 OF 19

FILE => 37e0120-u-at01.dgn
 USERNAME => s124486 DATE PLOTTED => 21-JUN-2013 TIME PLOTTED => 07:06

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	152	0.1/5.2	410	416

 08-01-12
 REGISTERED CIVIL ENGINEER DATE
 6-17-13
 PLANS APPROVAL DATE

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DEVELOPED ELEVATION
 1" = 5'

DESIGN	BY Sameh Hegazi	CHECKED Rangina Amir
DETAILS	BY Antonio Carreon	CHECKED S Hegazi/R Amir
QUANTITIES	BY Rangina Amir	CHECKED Sameh Hegazi

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION

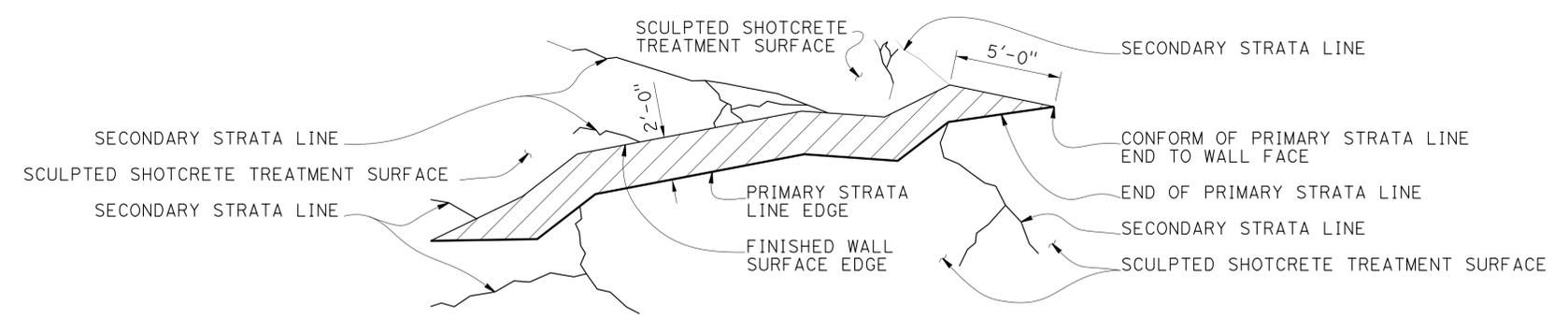
DIVISION OF ENGINEERING SERVICES
 STRUCTURE DESIGN
DESIGN BRANCH 8

BRIDGE NO.	37E0120
POST MILE	3.09/3.16

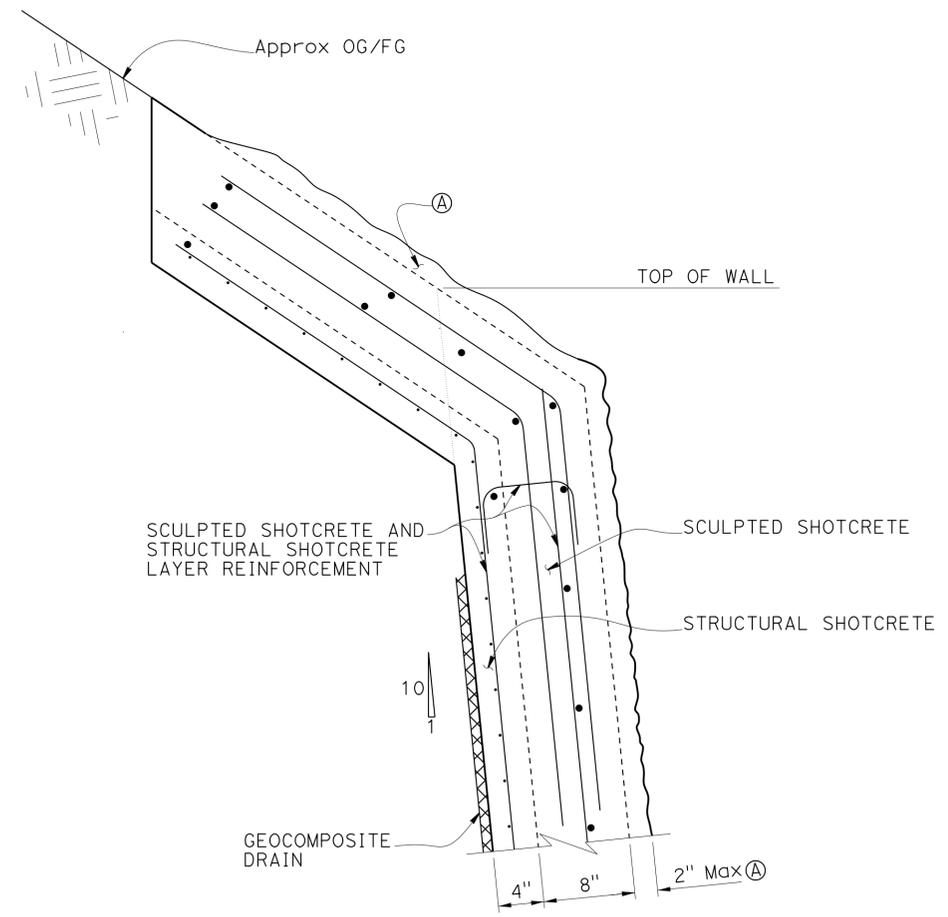
HECKER PASS SOIL NAIL WALL NO. 11
SCULPTED SHOTCRETE TREATMENT NO. 2

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	152	0.1/5.2	411	416

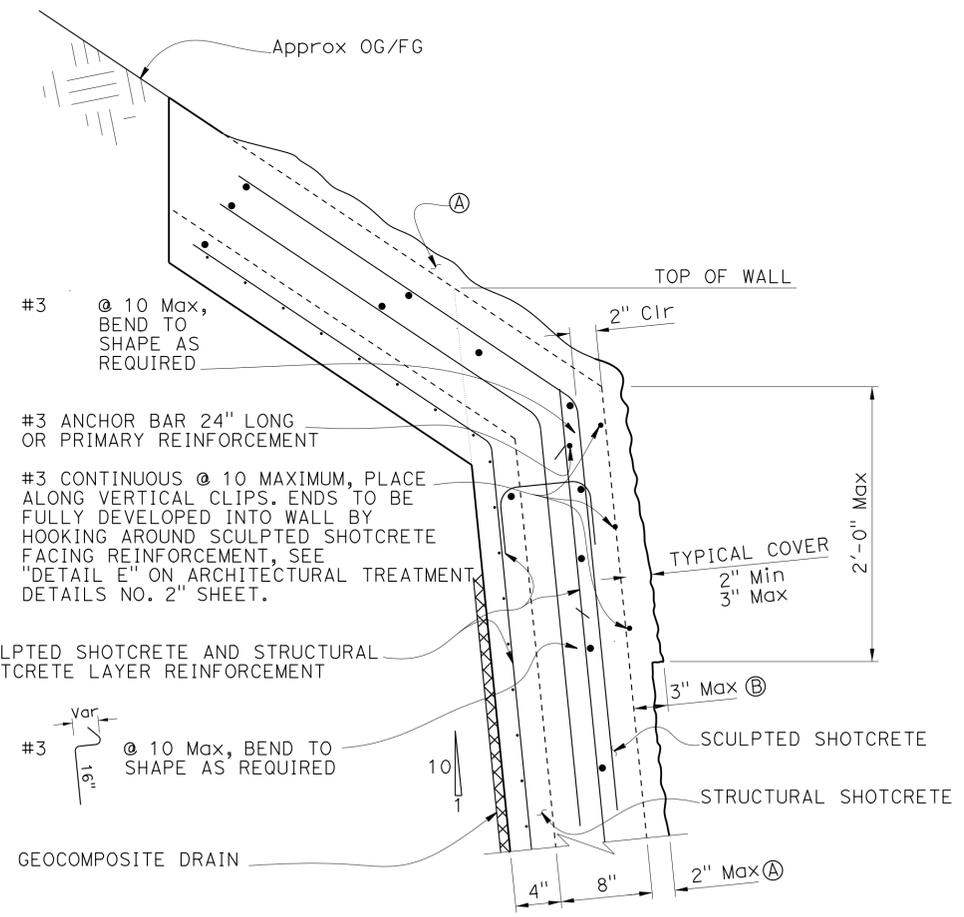

 08-01-12
 REGISTERED CIVIL ENGINEER DATE
 6-17-13
 PLANS APPROVAL DATE
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PRIMARY STRATA LINE ELEVATION DETAIL
No Scale



TOP OF WALL SCULPTED SHOTCRETE TREATMENT REINFORCEMENT
No Scale



PRIMARY STRATA LINE AT TOP OF WALL SCULPTED SHOTCRETE TREATMENT REINFORCEMENT
No Scale

- NOTES:
- See also "SCULPTED SHOTCRETE TREATMENT DETAILS NO. 2" sheet for reinforcement.
 - Soil nail not shown for clarity.
 - Longitudinal bars shall taper to a point and be flush with the finished wall surface at primary strata line ends where it transitions into the wall face.
 - Cable railing post not shown for clarity.
- (A) Max 2" thick unreinforced sculpted shotcrete zone for sculpted shotcrete treatment.
- (B) Max 3" thick reinforced sculpted shotcrete zone for top of wall sculpted shotcrete treatment.

DESIGN	BY Sameh Hegazi	CHECKED Rangina Amir
DETAILS	BY Antonio Carreon	CHECKED S Hegazi/R Amir
QUANTITIES	BY Rangina Amir	CHECKED Sameh Hegazi

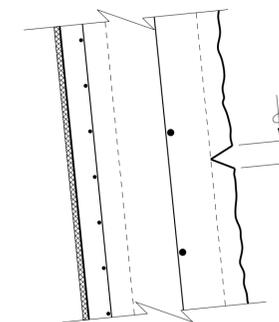
STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF ENGINEERING SERVICES
 STRUCTURE DESIGN
DESIGN BRANCH 8

BRIDGE NO.	37E0120	HECKER PASS SOIL NAIL WALL NO. 11
POST MILE	3.09/3.16	
SCULPTED SHOTCRETE TREATMENT DETAILS NO. 1		

USERNAME => s124486 DATE PLOTTED => 21-JUN-2013 TIME PLOTTED => 07:06

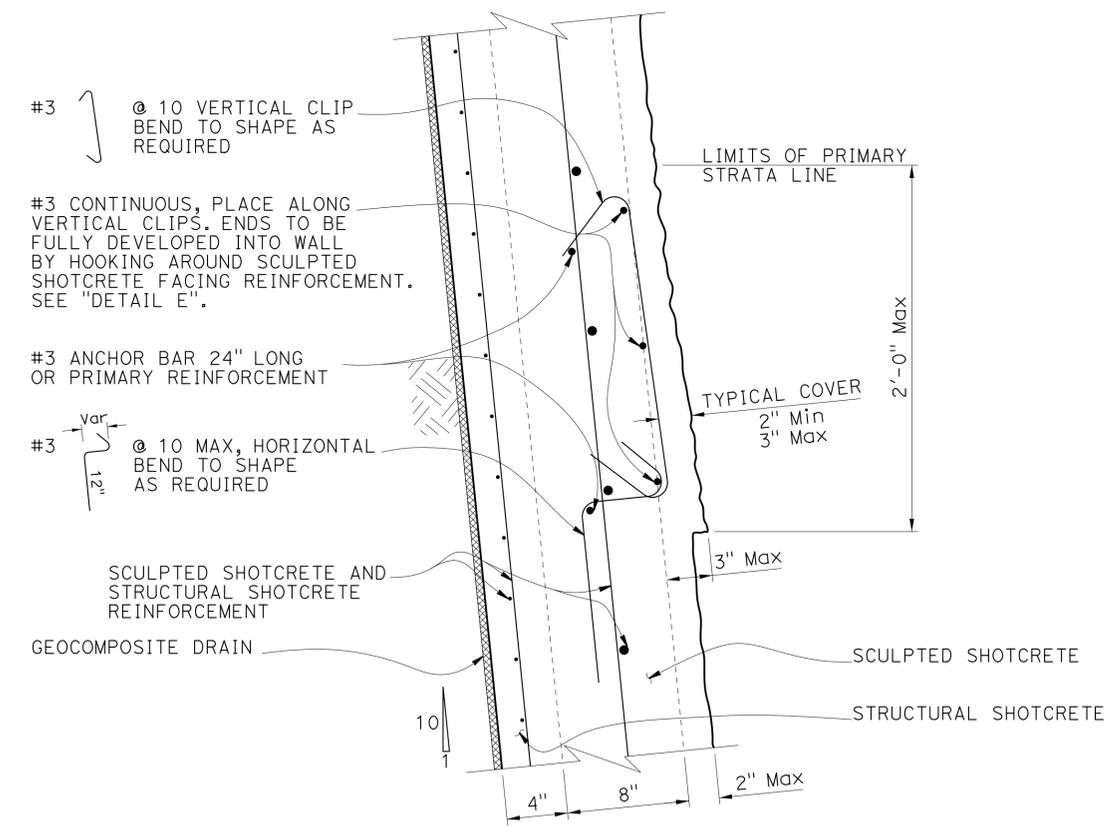
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SCI	152	0.1/5.2	412	416


 08-01-12
 REGISTERED CIVIL ENGINEER DATE
 6-17-13
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SECONDARY STRATA LINES
 VARY (3/4" - 2") SHARP EDGE
 OUT INTO SHOTCRETE TO
 MIMIC NATURAL ROCK LINES

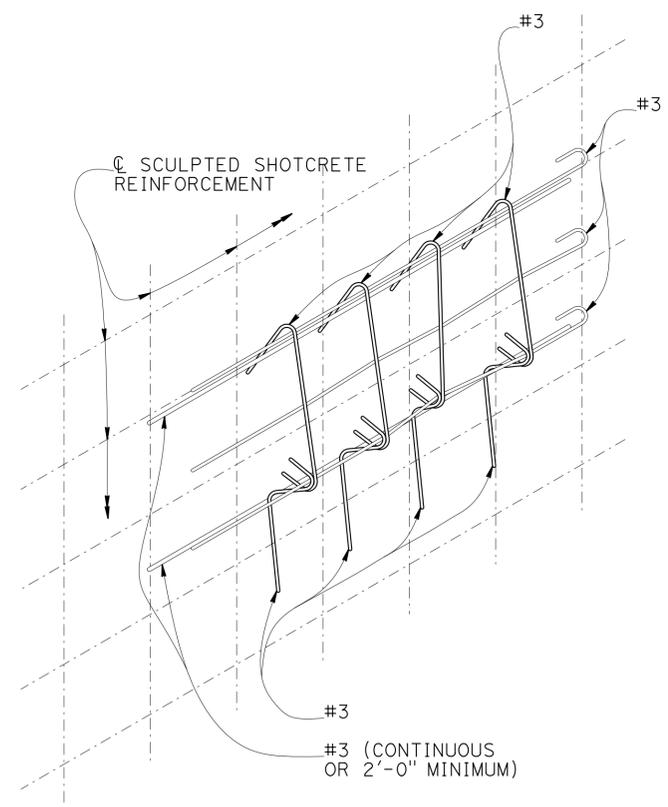
**CROSS SECTION
 SECONDARY STRATA LINE**
 No Scale



#3 @ 10 VERTICAL CLIP
 BEND TO SHAPE AS
 REQUIRED
 #3 CONTINUOUS, PLACE ALONG
 VERTICAL CLIPS. ENDS TO BE
 FULLY DEVELOPED INTO WALL
 BY HOOKING AROUND SCULPTED
 SHOTCRETE FACING REINFORCEMENT.
 SEE "DETAIL E".
 #3 ANCHOR BAR 24" LONG
 OR PRIMARY REINFORCEMENT
 #3 @ 10 MAX, HORIZONTAL
 BEND TO SHAPE
 AS REQUIRED

LIMITS OF PRIMARY
 STRATA LINE
 TYPICAL COVER
 2" Min
 3" Max
 2'-0" Max
 3" Max
 SCULPTED SHOTCRETE AND
 STRUCTURAL SHOTCRETE
 REINFORCEMENT
 GEOCOMPOSITE DRAIN
 SCULPTED SHOTCRETE
 STRUCTURAL SHOTCRETE
 4" 8" 2" Max

**PRIMARY STRATA LINE
 SCULPTED SHOTCRETE TREATMENT REINFORCEMENT**
 No Scale



SCULPTED SHOTCRETE
 REINFORCEMENT

#3
 #3 (CONTINUOUS
 OR 2'-0" MINIMUM)

DETAIL E
 No Scale

DESIGN	BY Sameh Hegazi	CHECKED Rangina Amir
DETAILS	BY Antonio Carreon	CHECKED S Hegazi/R Amir
QUANTITIES	BY Rangina Amir	CHECKED Sameh Hegazi

STATE OF
CALIFORNIA
 DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
 STRUCTURE DESIGN
DESIGN BRANCH 8

BRIDGE NO.	37E0120
POST MILE	3.09/3.16

HECKER PASS SOIL NAIL WALL NO. 11
SCULPTED SHOTCRETE TREATMENT DETAILS NO. 2

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SCI	152	0.1/5.2	413	416

BENCH MARK

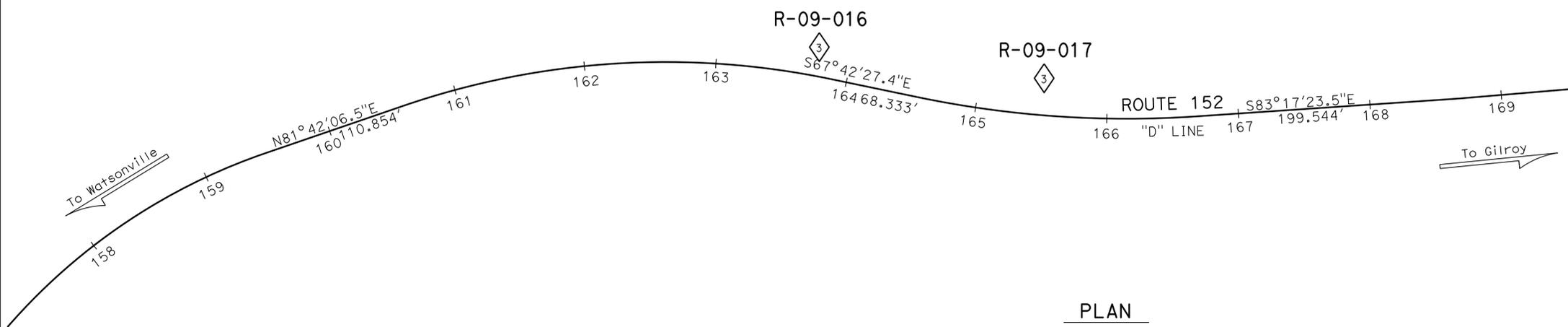
SUHV106
 18.31 Rt. "D1" Line, @ Rte 152
 Sta. 166+22.12
 N 1,825,933.551
 E 6,217,201.688
 EL=491.74

Ali Kaddoura 02-15-12
 REGISTERED CIVIL ENGINEER
 6-17-13
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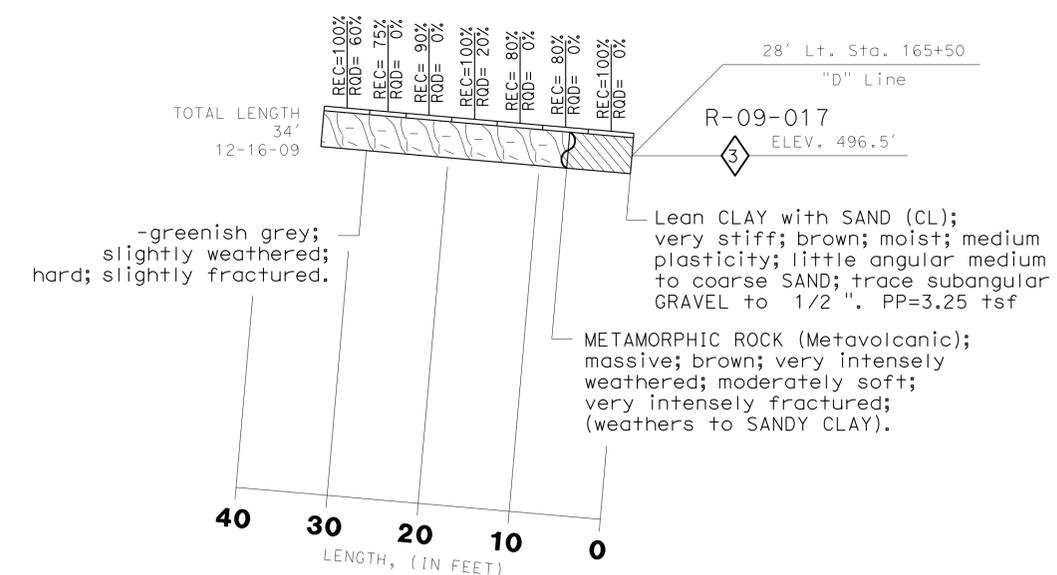
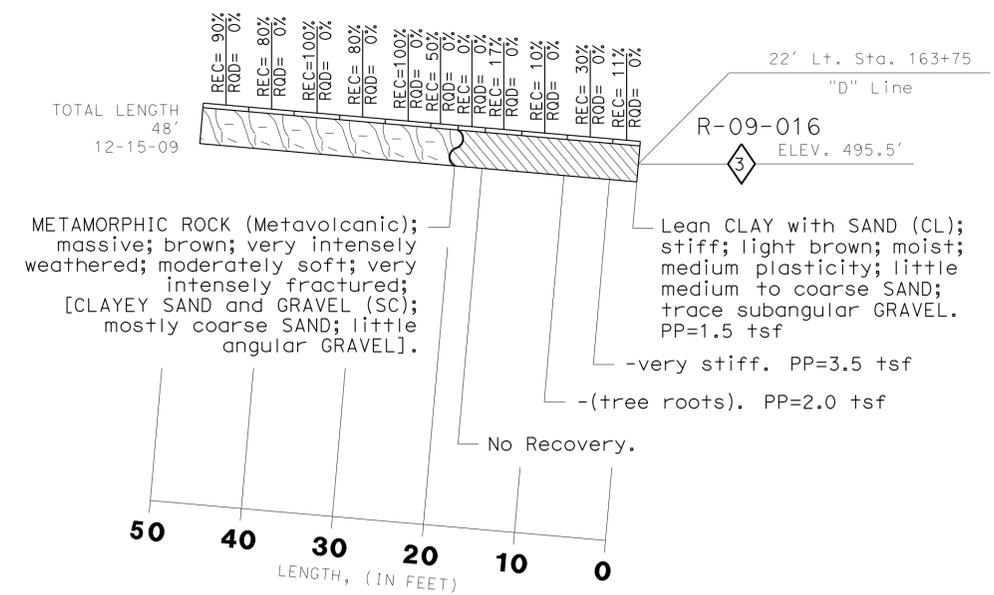
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This LOTB sheet was prepared in accordance with the Caltrans Soil & Rock Logging, Classification, & Presentation Manual (2010 Edition).

- NOTE:** 1. This LOTB sheet was prepared in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (April 2010).
 2. PP=unconfined compressive strength (tsf) as measured by pocket penetrometer.



PLAN
 1" = 50'



PROFILE
 HOR. 1"=10'
 VER. 1"=10'

ENGINEERING SERVICES		GEOTECHNICAL SERVICES		STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES OFFICE OF GEOTECHNICAL DESIGN BRANCH	BRIDGE NO. 37E0120	HECKER PASS SOIL NAIL WALL NO. 11
FUNCTIONAL SUPERVISOR	DRAWN BY: M. Reynolds 10/10	FIELD INVESTIGATION BY:	A. Kaddoura			POST MILES 3.09/3.16	
NAME:	CHECKED BY: M. Gaffney			CU EA	04 2A2501	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS				0 1 2 3	FILE => 37e0120-z-1+tb01.dgn	03-08-12 05-24-12	SHEET 16 OF 19

USERNAME => s124496 DATE PLOTTED => 21-JUN-2013 TIME PLOTTED => 07:06

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
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Ali Kaddoura 02-15-12
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6-17-13
 PLANS APPROVAL DATE

Ali K. Kaddoura
 No. 55710
 Exp. 12-31-12
 CIVIL ENGINEER
 STATE OF CALIFORNIA

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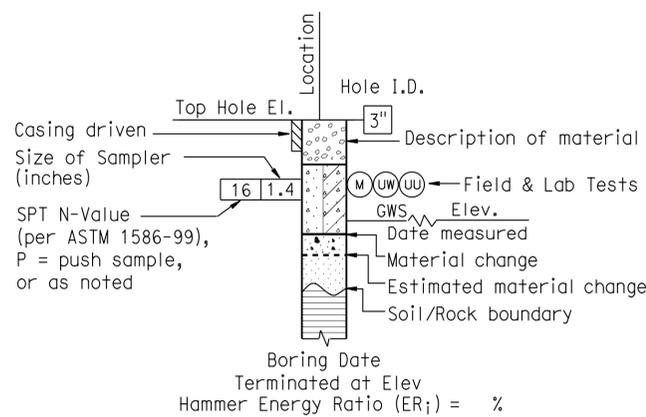
CEMENTATION	
Description	Criteria
Weak	Crumbles or breaks with handling or little finger pressure.
Moderate	Crumbles or breaks with considerable finger pressure.
Strong	Will not crumble or break with finger pressure.

CONSISTENCY OF COHESIVE SOILS				
Description	Unconfined Compressive Strength (tsf)	Pocket Penetrometer Measurement (tsf)	Torvane Measurement (tsf)	Field Approximation
Very Soft	< 0.25	< 0.25	< 0.12	Easily penetrated several inches by fist
Soft	0.25 to 0.50	0.25 to 0.50	0.12 to 0.25	Easily penetrated several inches by thumb
Medium Stiff	0.50 to 1.0	0.50 to 1.0	0.25 to 0.50	Penetrated several inches by thumb with moderate effort
Stiff	1 to 2	1 to 2	0.50 to 1.0	Readily indented by thumb but penetrated only with great effort
Very Stiff	2 to 4	2 to 4	1.0 to 2.0	Readily indented by thumbnail
Hard	> 4.0	> 4.0	> 2.0	Indented by thumbnail with difficulty

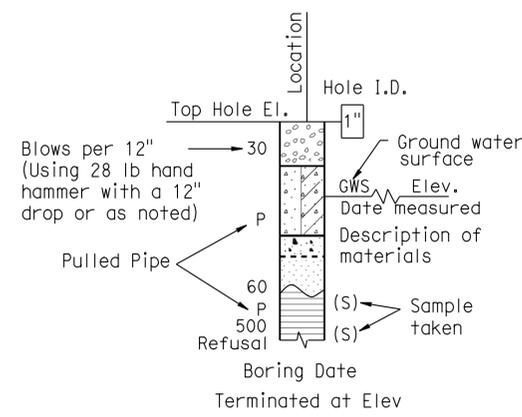
BOREHOLE IDENTIFICATION		
Symbol	Hole Type	Description
	A	Auger Boring
	R	Rotary drilled boring
	P	Rotary percussion boring (air)
	R	Rotary drilled diamond core
	HD	Hand driven (1-inch soil tube)
	HA	Hand Auger
	D	Dynamic Cone Penetration Boring
	CPT	Cone Penetration Test (ASTM D 5778-95)
	O	Other

Note: Size in inches.

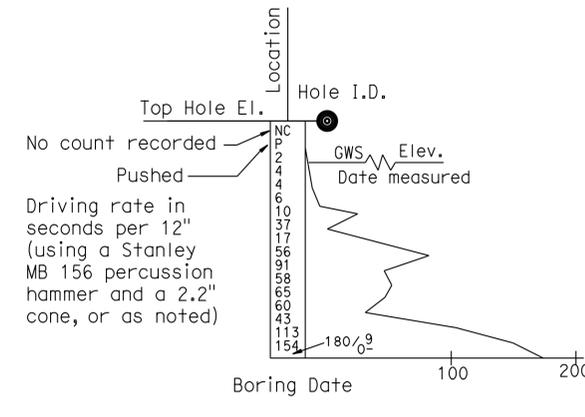
PLASTICITY OF FINE-GRAINED SOILS	
Description	Criteria
Nonplastic	A 1/8-inch thread cannot be rolled at any water content.
Low	The thread can barely be rolled and the lump cannot be formed when drier than the plastic limit.
Medium	The thread is easy to roll and not much time is required to reach the plastic limit. The thread cannot be rerolled after reaching the plastic limit. The lump crumbles when drier than the plastic limit.
High	It takes considerable time rolling and kneading to reach the plastic limit. The thread can be rerolled several times after reaching the plastic limit. The lump can be formed without crumbling when drier than the plastic limit.



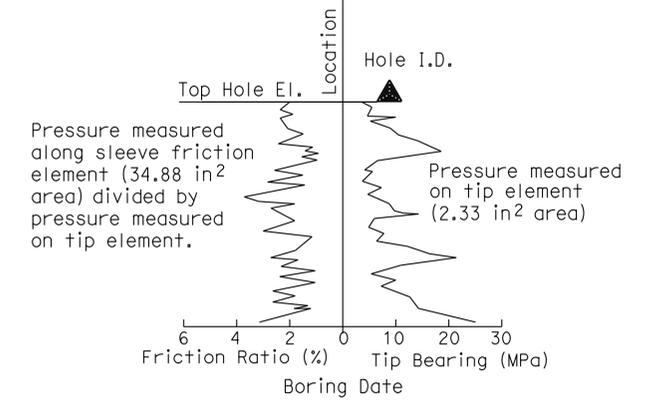
ROTARY BORING



HAND BORING



DYNAMIC CONE PENETRATION BORING



CONE PENETRATION TEST (CPT) SOUNDING

ENGINEERING SERVICES		GEOTECHNICAL SERVICES		STATE OF CALIFORNIA		DIVISION OF ENGINEERING SERVICES		BRIDGE NO.		HECKER PASS SOIL NAIL WALL NO. 11	
FUNCTIONAL SUPERVISOR	PREPARED BY M. Reynolds 10/10	FIELD INVESTIGATION BY:	A. Kaddoura C. Risden	DEPARTMENT OF TRANSPORTATION		OFFICE OF GEOTECHNICAL DESIGN BRANCH		37E0120	LOG OF TEST BORINGS 2 OF 4		
NAME:	CHECKED BY M. Gaffney			CU 04 EA 2A2501		3.09/3.16		DISREGARD PRINTS BEARING EARLIER REVISION DATES		REVISION DATES	
GS LOTB SOIL LEGEND		ORIGINAL SCALE IN INCHES FOR REDUCED PLANS		0 1 2 3		FILE => 37e0120-z-1+tb02.dgn		03-08-12 05-24-12		SHEET 17	OF 19

USERNAME => s124496 DATE PLOTTED => 21-JUN-2013 TIME PLOTTED => 07:06

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SCI	152	0.1/5.2	415	416

Ali Kaddoura 02-15-12
 REGISTERED CIVIL ENGINEER DATE

6-17-13
 PLANS APPROVAL DATE

Ali K. Kaddoura
 No. 55710
 Exp. 12-31-12
 CIVIL ENGINEER
 STATE OF CALIFORNIA

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GROUP SYMBOLS AND NAMES			
Graphic/Symbol	Group Names	Graphic/Symbol	Group Names
	Well-graded GRAVEL		Lean CLAY
	Well-graded GRAVEL with SAND		Lean CLAY with SAND
	Poorly graded GRAVEL		SANDY lean CLAY
	Poorly graded GRAVEL with SAND		GRAVELLY lean CLAY
	Well-graded GRAVEL with SILT		SILTY CLAY
	Well-graded GRAVEL with SILT and SAND		SILTY CLAY with SAND
	Well-graded GRAVEL with CLAY (or SILTY CLAY)		SANDY SILTY CLAY
	Well-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		GRAVELLY SILTY CLAY
	Poorly graded GRAVEL with SILT		GRAVELLY SILTY CLAY with SAND
	Poorly graded GRAVEL with SILT and SAND		
	Poorly graded GRAVEL with CLAY (or SILTY CLAY)		SILT
	Poorly graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		SILT with SAND
	SILTY GRAVEL		SILT with GRAVEL
	SILTY GRAVEL with SAND		SANDY SILT
	CLAYEY GRAVEL		SANDY SILT with GRAVEL
	CLAYEY GRAVEL with SAND		GRAVELLY SILT
	SILTY, CLAYEY GRAVEL		GRAVELLY SILT with SAND
	SILTY, CLAYEY GRAVEL with SAND		
	Well-graded SAND		ORGANIC lean CLAY
	Well-graded SAND with GRAVEL		ORGANIC lean CLAY with SAND
	Poorly graded SAND		ORGANIC lean CLAY with GRAVEL
	Poorly graded SAND with GRAVEL		SANDY ORGANIC lean CLAY
	Well-graded SAND with SILT		SANDY ORGANIC lean CLAY with GRAVEL
	Well-graded SAND with SILT and GRAVEL		GRAVELLY ORGANIC lean CLAY
	Well-graded SAND with CLAY (or SILTY CLAY)		GRAVELLY ORGANIC lean CLAY with SAND
	Well-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)		
	Poorly graded SAND with SILT		ORGANIC SILT
	Poorly graded SAND with SILT and GRAVEL		ORGANIC SILT with SAND
	Poorly graded SAND with CLAY (or SILTY CLAY)		ORGANIC SILT with GRAVEL
	Poorly graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)		SANDY ORGANIC SILT
	SILTY SAND		SANDY ORGANIC SILT with GRAVEL
	SILTY SAND with GRAVEL		GRAVELLY ORGANIC SILT
	CLAYEY SAND		GRAVELLY ORGANIC SILT with SAND
	CLAYEY SAND with GRAVEL		
	SILTY, CLAYEY SAND		ORGANIC fat CLAY
	SILTY, CLAYEY SAND with GRAVEL		ORGANIC fat CLAY with SAND
	PEAT		ORGANIC fat CLAY with GRAVEL
			SANDY ORGANIC fat CLAY
	COBBLES		SANDY ORGANIC fat CLAY with GRAVEL
	COBBLES and BOULDERS		GRAVELLY ORGANIC fat CLAY
			GRAVELLY ORGANIC fat CLAY 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
(PP)	Pocket Penetrometer
(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)
(TV)	Pocket Torvane
(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)
(VS)	Vane Shear (AASHTO T 223)

APPARENT DENSITY OF COHESIONLESS SOILS	
Description	SPT N ₆₀ (Blows / 12 inches)
Very loose	0 - 4
Loose	5 - 10
Medium Dense	11 - 30
Dense	31 - 50
Very Dense	> 50

MOISTURE	
Description	Criteria
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, usually soil is below water table

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

PARTICLE SIZE		
Description	Size	
Boulder	> 12"	
Cobble	3" to 12"	
Gravel	Coarse	3/4" to 3"
	Fine	No. 4 to 3/4"
Sand	Coarse	No. 10 to No. 4
	Medium	No. 40 to No. 10
	Fine	No. 200 to No. 40

ENGINEERING SERVICES		GEOTECHNICAL SERVICES		STATE OF CALIFORNIA		DIVISION OF ENGINEERING SERVICES OFFICE OF GEOTECHNICAL		BRIDGE NO. 37E0120		HECKER PASS SOIL NAIL WALL NO. 11	
FUNCTIONAL SUPERVISOR	PREPARED BY M. Reynolds 10/10	FIELD INVESTIGATION BY:	A. Kadoura	DEPARTMENT OF TRANSPORTATION		DESIGN BRANCH		POST MILE 3.09/3.16	LOG OF TEST BORINGS 3 OF 4		
NAME:	CHECKED BY M. Gaffney		C. Risden	CU 04		EA 2A2501		DISREGARD PRINTS BEARING EARLIER REVISION DATES		03-08-12	05-24-12
GS LOTB SOIL LEGEND		ORIGINAL SCALE IN INCHES FOR REDUCED PLANS		0 1 2 3		FILE => 37e0120-z-1+tb03.dgn		REVISION DATES		SHEET 18	OF 19

USERNAME => s124496 DATE PLOTTED => 21-JUN-2013 TIME PLOTTED => 07:06

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
04	SCI	152	0.1/5.2	416	416

Ali Kaddoura 02-15-12
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6-17-13
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Ali K. Kaddoura
 No. 55710
 Exp. 12-31-12
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 STATE OF CALIFORNIA

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

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

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

RELATIVE STRENGTH OF INTACT ROCK

Term	Uniaxial Compressive Strength (PSI)
Extremely Strong	> 30,000
Very Strong	14,500 - 30,000
Strong	7,000 - 14,500
Medium Strong	3,500 - 7,000
Weak	700 - 3,500
Very Weak	150 - 700
Extremely Weak	< 150

BEDDING SPACING

Description	Thickness / Spacing
Massive	Greater than 10 ft
Very thickly bedded	3 to 10 ft
Thickly bedded	1 to 3 ft
Moderately bedded	3-5/8" to 1 ft
Thinly bedded	1-1/4" to 3-5/8"
Very thinly bedded	3/8" to 1-1/4"
Laminated	Less than 3/8"

LEGEND OF ROCK MATERIALS

- IGNEOUS ROCK
- SEDIMENTARY ROCK
- METAMORPHIC ROCK

ROCK HARDNESS

Description	Criteria
Extremely Hard	Specimen cannot be scratched with a pocket knife or sharp pick; can only be chipped with repeated heavy hammer blows.
Very Hard	Specimen cannot be scratched with a pocket knife or sharp pick. Breaks with repeated heavy hammer blows.
Hard	Specimen can be scratched with a pocket knife or sharp pick with difficulty (heavy pressure). Heavy hammer blows required to break specimen.
Moderately Hard	Specimen can be scratched with pocket knife or sharp pick with light or moderate pressure. Core breaks with moderate hammer pressure.
Moderately Soft	Specimen can be grooved 1/6" deep with a pocket knife or sharp pick with moderate or heavy pressure. Breaks with light hammer blow or heavy manual pressure.
Soft	Specimen can be grooved or gouged easily by a pocket knife or sharp pick with light pressure, can be scratched with fingernail. Breaks with light to moderate manual pressure.
Very Soft	Specimen can be readily indented, grooved or gouged with fingernail, or carved with a pocket knife. 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 Solutioning		
	Body of Rock	Fracture Surfaces		Texture	Solutioning	
Fresh	No discoloration, not oxidized.	No discoloration or oxidation.	No separation, intact (tight).	No change.	No solutioning.	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 may be noted.	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."

Combination descriptors (such as "slightly weathered to fresh") are permissible where equal distribution of both weathering characteristics is present over significant intervals or where characteristics present are "in between" the diagnostic feature. However, combination descriptors should not be used where significant, identifiable zones can be delineated. Only two adjacent descriptors may be combined. "Very intensely weathered" is the combination descriptor for "intensely weathered to decomposed."

FRACTURE DENSITY

Description	Observed Fracture Density
Unfractured	No fractures.
Very slightly fractured	Lengths greater than 3 feet.
Slightly fractured	Lengths from 1 to 3 feet with few lengths less than 1 foot or greater than 3 feet.
Moderately fractured	Lengths mostly in 4" to 1 foot range with most lengths about 8"
Intensely fractured	Lengths average from 1 to 4" with scattered fragmented intervals with lengths less than 4"
Very intensely fractured	Mostly chips and fragments with a few scattered short core lengths.

Combination descriptors (such as "Very intensely to intensely fractured") are used where equal distribution of both fracture density characteristics is present over a significant interval or exposure, or where characteristics are "in between" the descriptor definitions. Only two adjacent descriptors may be combined.

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FUNCTIONAL SUPERVISOR	PREPARED BY M. Reynolds 10/10	FIELD INVESTIGATION BY: A. Kaddoura C. Risdan		DEPARTMENT OF TRANSPORTATION		DESIGN BRANCH		POST MILE 3.09/3.16		LOG OF TEST BORINGS 4 OF 4	
NAME: CHECKED BY M. Gaffney		ORIGINAL SCALE IN INCHES FOR REDUCED PLANS		CU 04 EA 2A2501		DISREGARD PRINTS BEARING EARLIER REVISION DATES		REVISION DATES		SHEET 19 OF 19	

FILE => 37e0120-z-1+04.dgn