



### TEMPORARY WATER POLLUTION CONTROL

LOCATION	TEMPORARY DRAINAGE INLET PROTECTION
"A-1 LINE"	
232+00, 69.3' R+	1
233+20.00, 72.4' L+	1
235+60.02, 77.2' L+	1
253+00.00, 80.5' R+	1
255+30.00, 75.9' R+	1
263+00.00, 71.7' L+	1
"SR-2 LINE"	
10+40.00, 20' L+	1
13+00.00, 20' L+	1
15+50.00, 20' L+	1
17+60.00, 20' L+	1
19+48.12, 20' L+	3
21+38, 4.0' R+	1
22+45.00, 4.0' R+	1
23+45, 4.0' R+	1
"UPV-1 LINE"	
12+00, 42.0' R+, 42.0' L+	2
13+20, 42.0' R+, 42.25' L+	2
15+31.30, 42' R+	1
16+50.00, 42' R+	1
19+75.00, 42' R+	1
21+00.00, 42' R+	1
"NR-1 LINE"	
11+00.00, 20' R+	1
13+00.00, 20' R+	1
15+87.25, 20' R+	3
18+15.00, 20' R+	1
"NR-2 LINE"	
11+43.00, 24' R+, 40' L+	2
14+50.00, 24' R+	1
17+96.68, 22.10' R+	1
18+06.69, 21.9' R+	1
18+09.19, 12.80' L+	1
21+10.00, 20' R+	1
23+00.00, 20' R+	1
"SR-1 LINE"	
11+03.20, 32' L+	1
16+40.00, 20' R+	1
18+06.80, 20' L+, 13.10' R+	2
<b>TOTAL</b>	<b>42</b>

### TEMPORARY WATER POLLUTION CONTROL

LOCATION	SIDE		TEMPORARY FIBER ROLL	TEMPORARY SILT FENCE	TEMPORARY HYDRAULIC MULCH
	L+	R+			
"A-1 LINE"					
229+00 TO 236+25	L+		725		
229+00 TO 233+50		R+	450		
249+00 TO 251+20	L+		220		
248+00 TO 250+25		R+	225		
255+00 TO 261+00		R+		600	
261+80 TO 265+50	L+		370		
"SR-1 LINE"					
20+00 TO 20+80	L+		80		
"SR-2 LINE"					
12+00 TO 24+10	L+			1,210	
"UPV-1 LINE"					
11+25 TO 14+00	R+			275	
VARIOUS LOCATIONS			1,200		87,120
<b>TOTAL</b>			<b>3,270</b>	<b>2,085</b>	<b>87,120</b>

### RELOCATE SIGN STRUCTURE (MISSION BELL SIGN STRUCTURE)

LOCATION	EA
"NR-2" 18+55 R+ 43.1'	1

### SUMMARY OF QUANTITIES

Q-5

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SB	101	83.1/83.9	102	190

REGISTERED CIVIL ENGINEER DATE 9-26-11  
 ANONH SENGSMANY No. 65236 Exp. 9-30-13 CIVIL  
 PLANS APPROVAL DATE 4-2-12

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

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SB	101	83.1/83.9	103	190

REGISTERED CIVIL ENGINEER DATE 9-26-11  
 ANONH SENGMAN  
 No. 65236  
 Exp. 9-30-13  
 CIVIL  
 PLANS APPROVAL DATE 4-2-12

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

**ROUTE 101  
NORTHBOUND LANES**

OUTSIDE ETW	STATION	3" PLASTIC PIPE (EDGE DRAIN)		3" PLASTIC PIPE (EDGE DRAIN OUTLET)		SPLASH PAD (N)	PUMP MKT TYPE "A" (N)	TREATED PERMEABLE MATERIAL (N)	FILTER FABRIC (N)				
		LF	LF	OUTLET TYPE (N)	VENT TYPE (N)					EA	EA	CY	SQYD
↑	232+15.00		20	C			1						
		185						4.8	40				
	234+00.00		35	C			1						
		200						5.2	44				
	236+00.00		55	B		1	1						
		200						5.2	44				
	238+00.00		20	C			1						
		200						5.2	44				
	240+00.00		20	C			1						
		150						3.9	33				
	241+50.00		20	C			1						
		200						5.2	44				
	243+50.00		20	C			1						
		125						3.3	27				
	244+75.00		20	C			1						
		200						5.2	44				
	246+75.00		100	B		1	1						
		175						4.6	38				
	248+50.00		35		F		1						
		200						5.2	44				
	250+50.00		30	C			1						
		150						3.9	33				
	252+00.00		45	C			1						
		200						5.2	44				
	254+00.00		28	C			1						
		200						5.2	44				
	256+00.00		25	C			1						
		200						5.2	44				
	258+00.00		20	C			1						
		190						5.0	42				
↓	259+90.00		20	C			1						
	<b>TOTAL</b>	2,590	513										

(N) NOT A SEPERATE PAY ITEM, FOR INFORMATION ONLY.

**SUMMARY OF QUANTITIES**

**Q - 6**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** 06-DESIGN  
 FUNCTIONAL SUPERVISOR: BORIS AYAVIRI  
 CALCULATED/DESIGNED BY: ANONH SENGMAN  
 CHECKED BY: [ ]  
 REVISED BY: [ ] DATE REVISED: [ ]



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SB	101	83.1/83.9	104	190

REGISTERED CIVIL ENGINEER	DATE
<i>Anonh Sengmany</i>	9-26-11
PLANS APPROVAL DATE	
4-2-12	

REGISTERED PROFESSIONAL ENGINEER
ANONH SENGMAN
No. 65236
Exp. 9-30-13
CIVIL

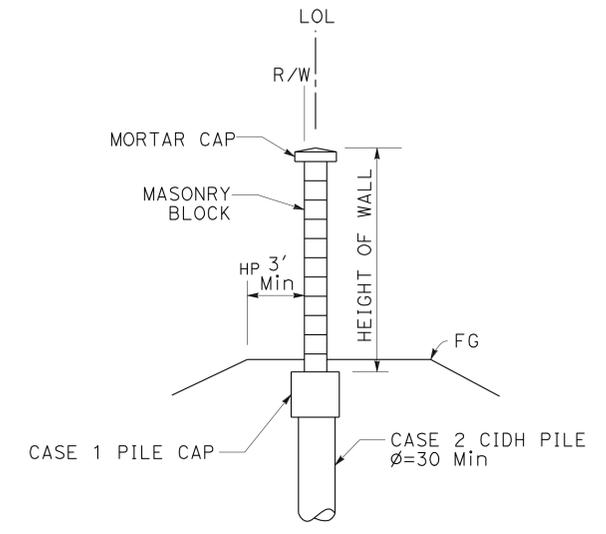
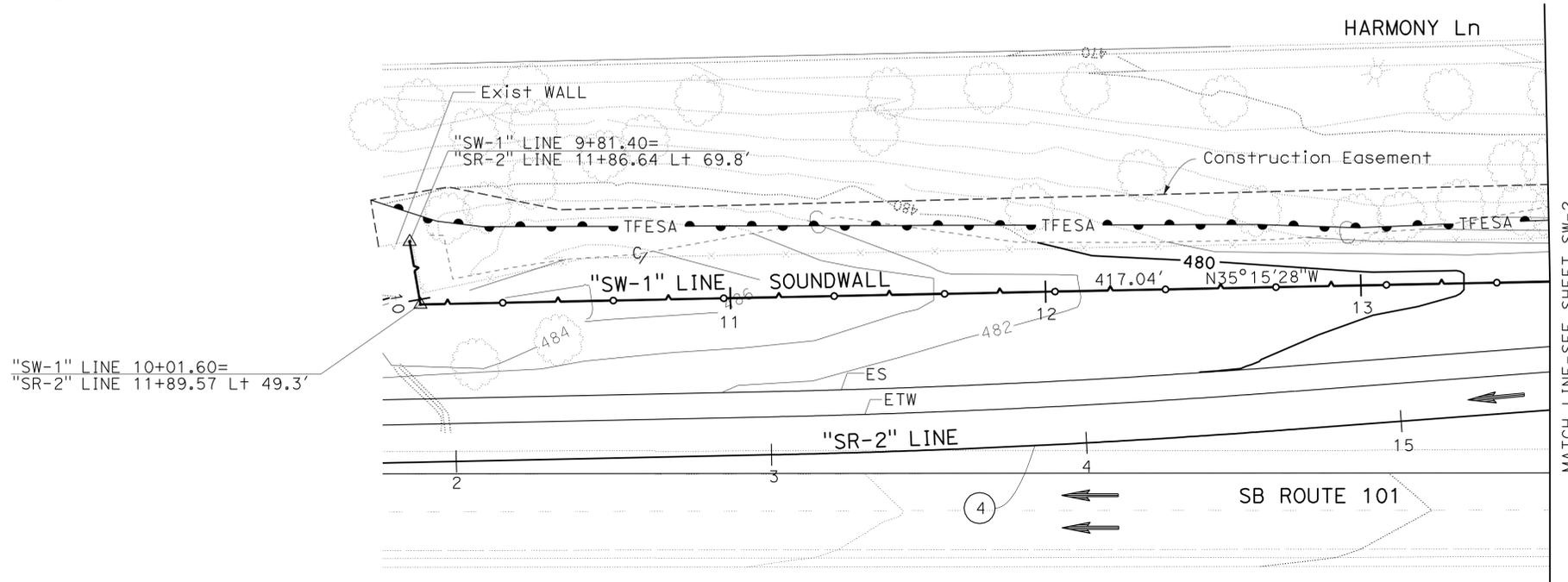
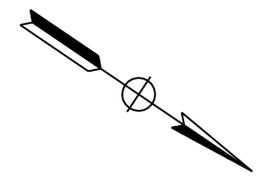
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

**NOTE:**  
FOR LOGS OF BORING SEE STRUCTURES PLANS.

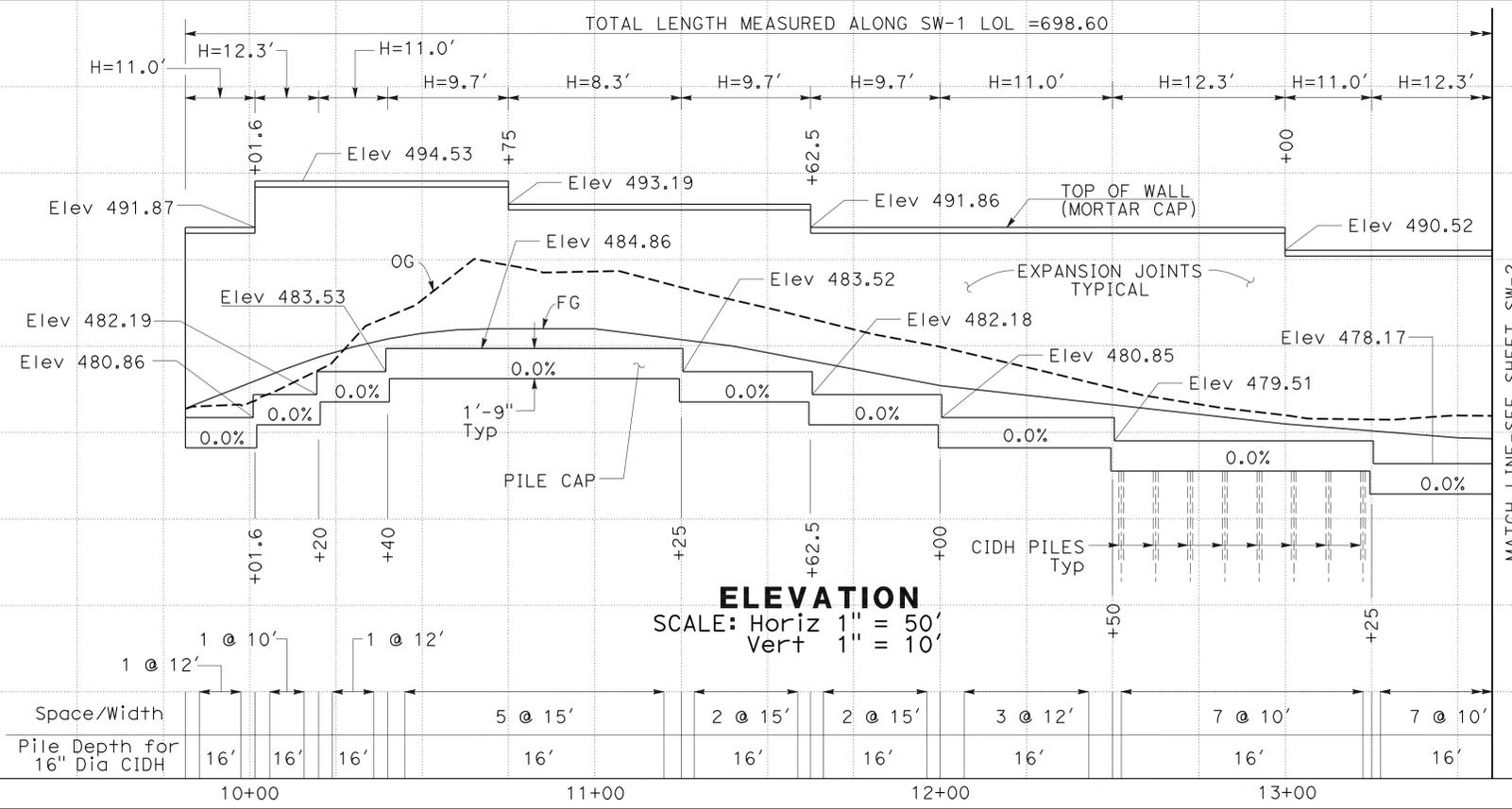
**LEGEND:**  
← DIRECTION OF TRAFFIC

**CURVE DATA**

No.	R	Δ	T	L
④	3000.00'	03° 11' 29"	83.57'	167.10'



APPROVED FOR SOUND WALL WORK ONLY



**SOUND WALL PLAN SW-1**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 06-DESIGN  
 FUNCTIONAL SUPERVISOR: BORIS AYAVIRI  
 ANONH SENGMAN  
 REVISOR: ANONH SENGMAN  
 DATE: 9-26-11  
 SHEET NO.: 104  
 TOTAL SHEETS: 190

STATION	Exc	Emb	TOTAL
10+00			
11+00			
12+00			
13+00			
TOTAL			

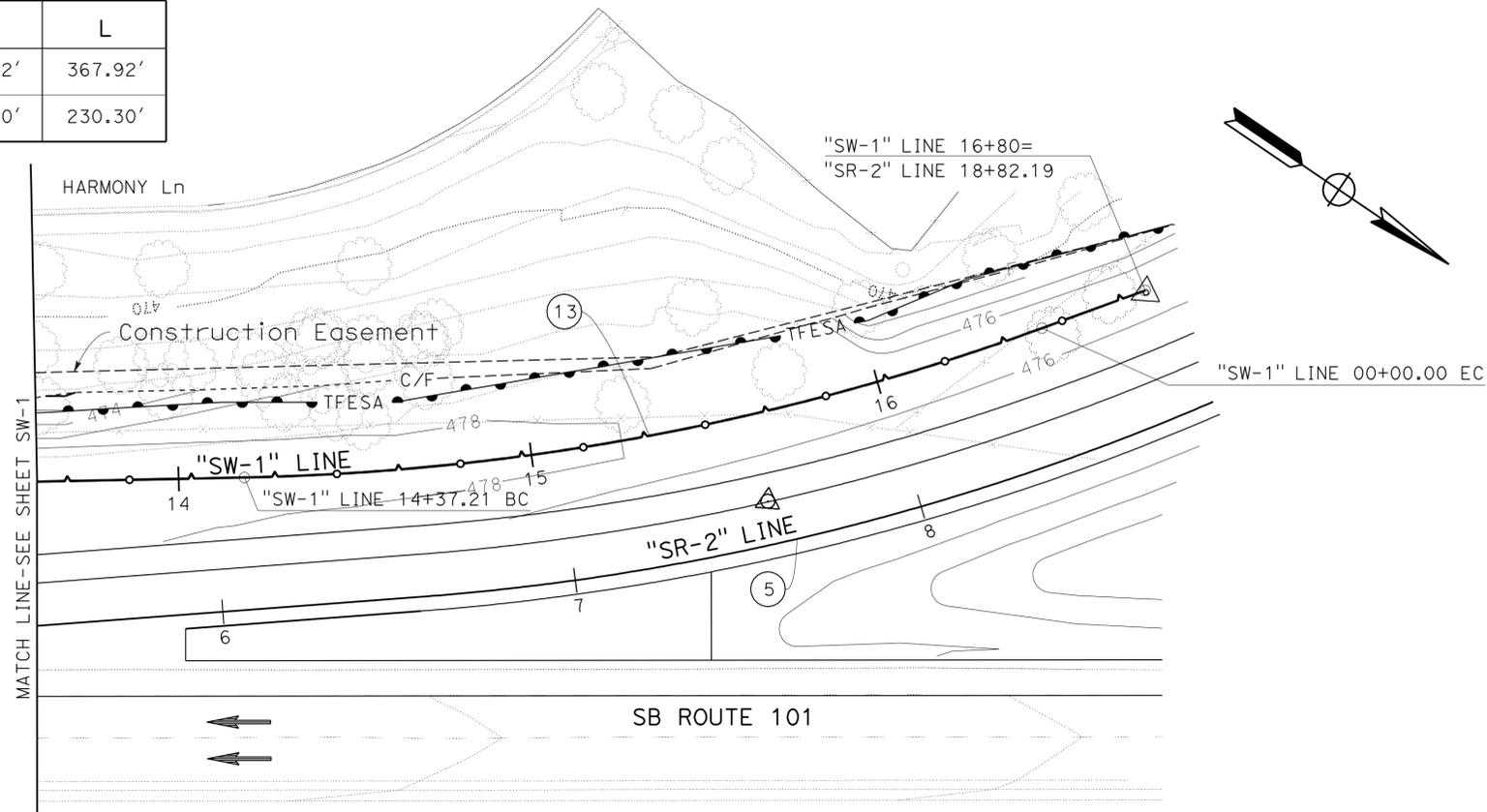
LAST REVISION DATE PLOTTED => 05-APR-2012  
 09-26-11 TIME PLOTTED => 08:24

CURVE DATA

No.	R	Δ	T	L
5	700.00'	30°06'54"	188.32'	367.92'
13	699.60'	18°51'39"	116.20'	230.30'

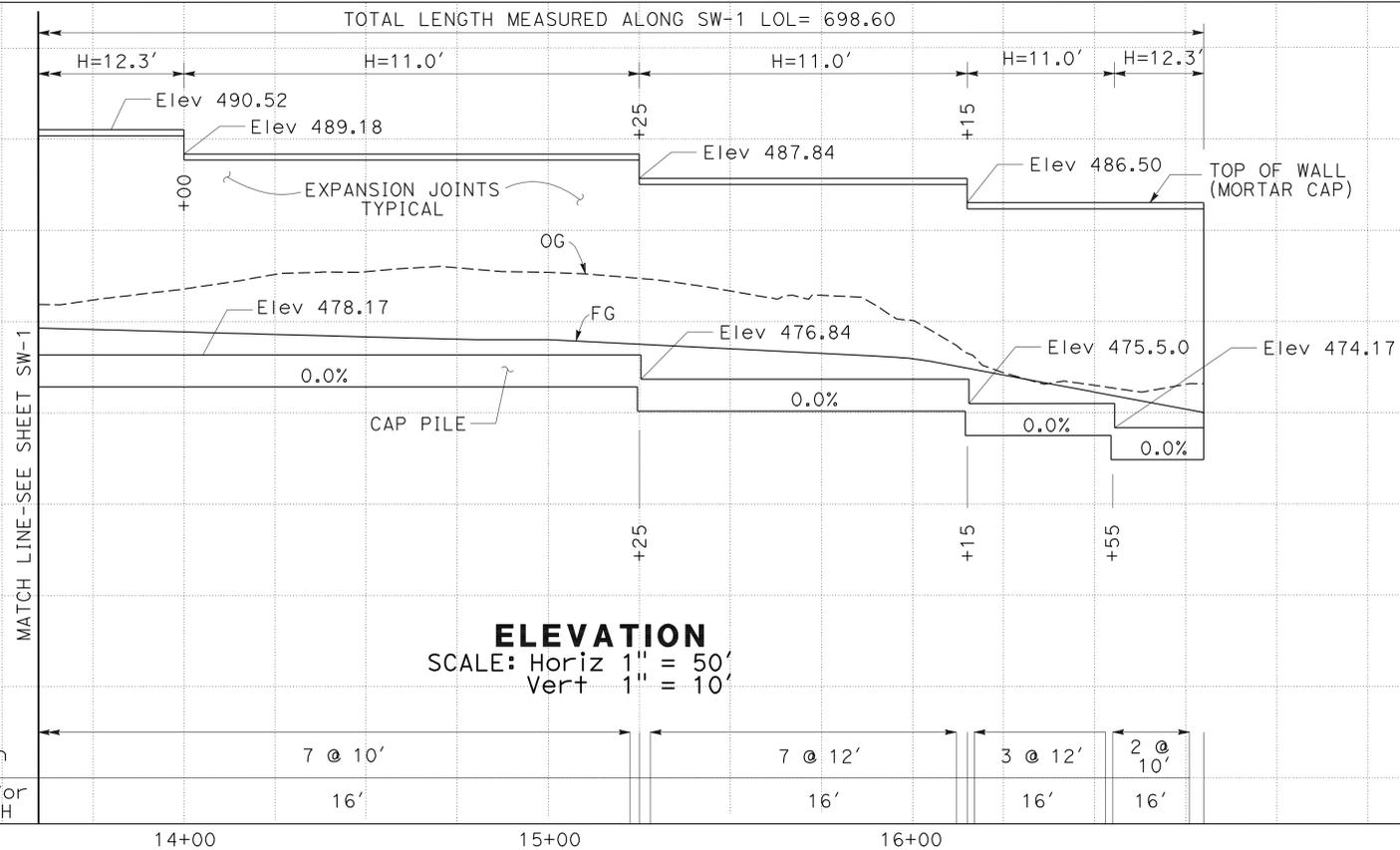
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SB	101	83.1/83.9	105	190

REGISTERED CIVIL ENGINEER DATE 9-26-11  
 ANONH SENGMAHY No. 65236 Exp. 9-30-13 CIVIL  
 PLANS APPROVAL DATE 4-2-12  
 THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



**PLAN**  
SCALE: 1" = 50'

APPROVED FOR SOUND WALL WORK ONLY



**SOUND WALL PLAN SW-2**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	REVISOR	DATE
<b>Caltrans</b>	BORIS AYAYIRI	ANONH SENGMAHY	
06-DESIGN			
CY	Exc		
	Emb		

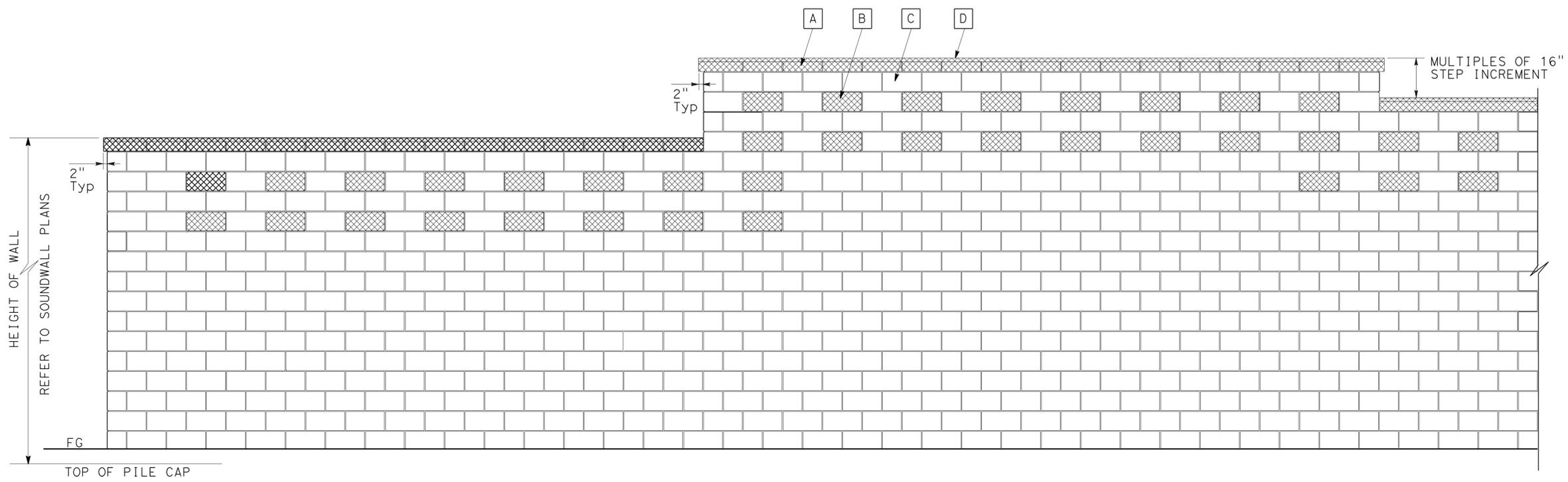
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SB	101	83.1/83.9	106	190

09-20-11  
 LICENSED LANDSCAPE ARCHITECT  
 4-2-12  
 PLANS APPROVAL DATE

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

**NOTES:**

1. ALL EXPOSED SURFACES OF ALL BLOCK MUST BE SPLIT FACE.
2. BLOCK MUST BE RUNNING BOND PATTERN AS SHOWN.
3. MORTAR JOINTS MUST BE TOOLED CONCAVE. JOINT MORTAR TAN COLOR.
4. STEPS IN WALL TO OCCUR AT EVEN NUMBER OF BLOCK COURSES.

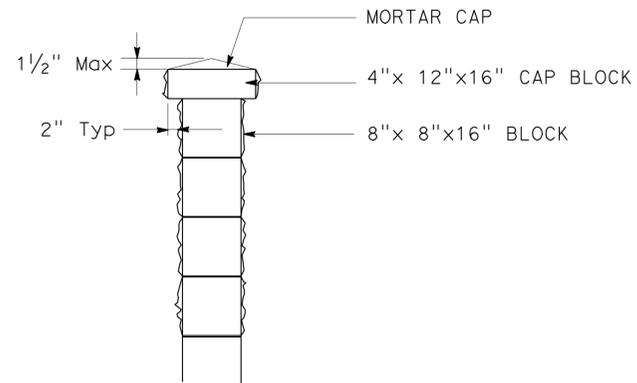


**TYPICAL ELEVATION**

NO SCALE

**LEGEND:**

- A 4"x12"x16" SPLIT FACE ADOBE COLOR
- B 8"x8"x16" SPLIT FACE ADOBE COLOR
- C 8"x8"x16" SPLIT FACE TAN COLOR
- D MORTAR CAP ADOBE COLOR



**CAP BLOCK AND MORTAR**

**SOUND WALL AESTHETICS**

SCALE: 1" = 50' **SW-3**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - LANDSCAPE ARCHITECTURE  
 Caltrans®  
 SENIOR LANDSCAPE ARCHITECT  
 LANDSCAPE ARCHITECTURE  
 DENNIS REEVES  
 CALCULATED/DESIGNED BY  
 CHECKED BY  
 PATRICK BOLGER  
 KRISTEN LANGAGER  
 REVISED BY  
 DATE REVISED



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SB	101	83.1/83.9	108	190

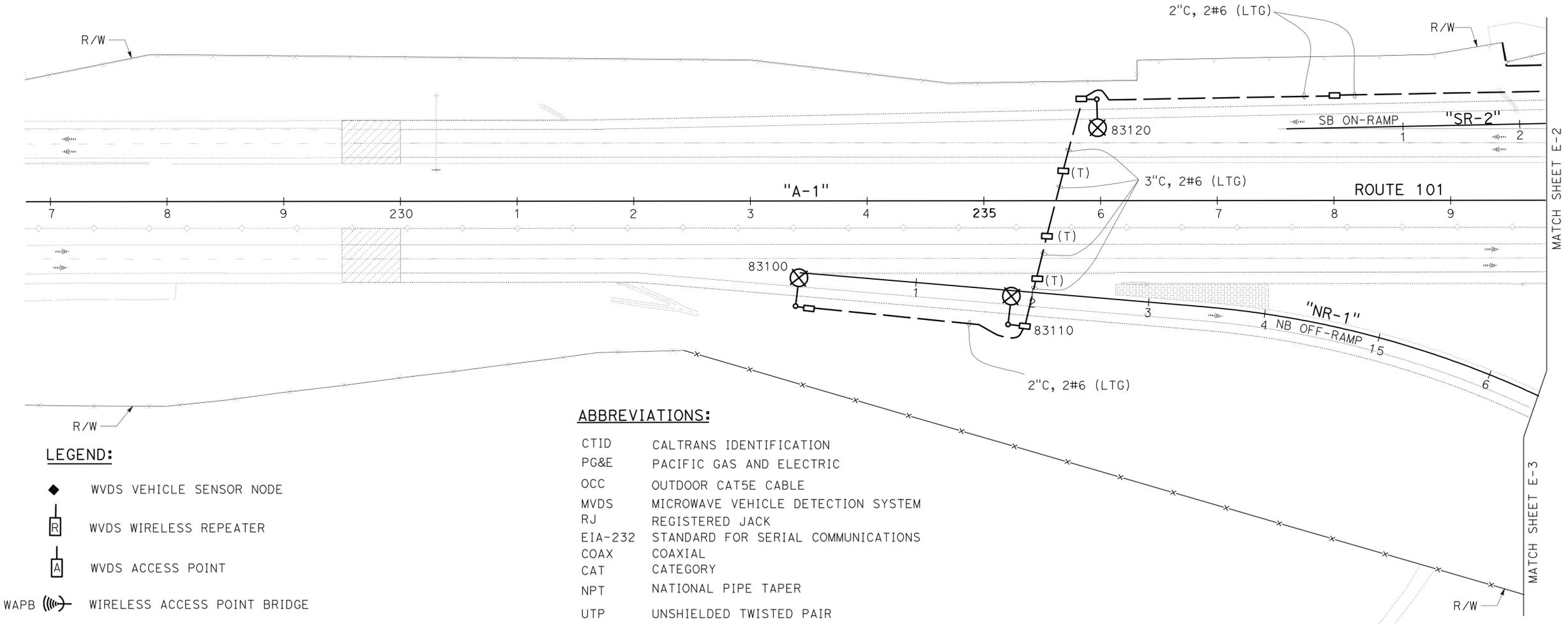
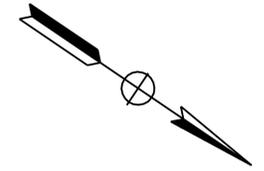
*Xavier Alfaro* 11-04-11  
 REGISTERED ELECTRICAL ENGINEER DATE  
 4-2-12  
 PLANS APPROVAL DATE  
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

**NOTES: (FOR SHEETS E-1 TO E-4)**

- 1 120/240 V, 1Ø, 3-WIRE TYPE III-BF SERVICE EQUIPMENT ENCLOSURE WITH THE FOLLOWING CIRCUIT BREAKERS:
- CTID No. 05511010083400

AMPERES	VOLTS	POLES	NAMEPLATE	METER	PHOTOELECTRIC CONTROL TYPE
100	240	2	MAIN BREAKER	YES	—
30	240	2	HIGHWAY LIGHTING	YES	V
15	120	1	LIGHTING CONTROL	YES	—
30	240	2	INTERSECTION LIGHTING	YES	V
15	120	1	LIGHTING CONTROL	YES	—
20	120	1	IRRIGATION	YES	—
30	120	1	CCTV	YES	—
20	120	1	MVDS	YES	—
20	120	1	TDC	YES	—

- 2 COIL 30 FEET OF No. 10 CONDUCTORS IN PULL BOX FOR FUTURE IRRIGATION.
- 3 COIL 30 FEET OF SIC IN PULL BOX FOR FUTURE IRRIGATION COMMUNICATION.
- 4 TYPE B TELEPHONE DEMARCATION CABINET, SEE SHEET E-5.
- 5 MODEL 334 VIDEO CABINET, SEE SHEET E-5.
- 6 VEHICLE SENSOR NODE, SEE SHEET E-8 FOR INSTALLATION DETAILS.
- 7 WVDS REPEATER ON TYPE 15 POLE.
- 8 WIRELESS ACCESS POINT BRIDGE, MVDS SENSOR AND WVDS REPEATER ON TYPE VDS 30 POLE, SEE SHEET E-5 AND STRUCTURES PLAN SHEET.
- 9 CCTV CAMERA, WIRELESS CLIENT BRIDGE AND MVDS SENSOR ON TYPE VDS 40 POLE, SEE SHEET E-6 AND STRUCTURES PLAN SHEET.
10. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
11. SEE STRUCTURE PLANS FOR ELECTRICAL EQUIPMENT ON STRUCTURES.



**LEGEND:**

- WVDS VEHICLE SENSOR NODE
- WVDS WIRELESS REPEATER
- WVDS ACCESS POINT
- WAPB WIRELESS ACCESS POINT BRIDGE
- WCB WIRELESS CLIENT BRIDGE
- PG&E ELECTROLIER (COUNTY) (POLE AND FOUNDATION INSTALLED BY OTHERS)
- Exist PG&E/COUNTY ELECTROLIER
- TYPE 15 STRUCTURE MOUNT ELECTROLIER (COUNTY)

**ABBREVIATIONS:**

- CTID CALTRANS IDENTIFICATION
- PG&E PACIFIC GAS AND ELECTRIC
- OCC OUTDOOR CAT5E CABLE
- MVDS MICROWAVE VEHICLE DETECTION SYSTEM
- RJ REGISTERED JACK
- EIA-232 STANDARD FOR SERIAL COMMUNICATIONS
- COAX COAXIAL
- CAT CATEGORY
- NPT NATIONAL PIPE TAPER
- UTP UNSHIELDED TWISTED PAIR
- bps bits per second
- WVDS WIRELESS VEHICLE DETECTION SYSTEM
- WCL WIRELESS COMMUNICATION LINK
- VSN VEHICLE SENSOR NODE
- VDS VEHICLE DETECTION SYSTEM
- ADSL ASYMMETRIC DIGITAL SUBSCRIBER LINE
- WAPB WIRELESS ACCESS POINT BRIDGE
- WCB WIRELESS CLIENT BRIDGE
- COMM COMMUNICATION

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** ELECTRICAL DESIGN  
 FUNCTIONAL SUPERVISOR: ALI BAKHDOUD  
 DESIGNED BY: XAVIER ALFARO  
 CHECKED BY: PAUL MATOS  
 REVISED BY: SRG  
 DATE REVISED: 02-23-11

APPROVED FOR ELECTRICAL WORK ONLY

**HIGHWAY LIGHTING**

SCALE: 1" = 50'

**E-1**

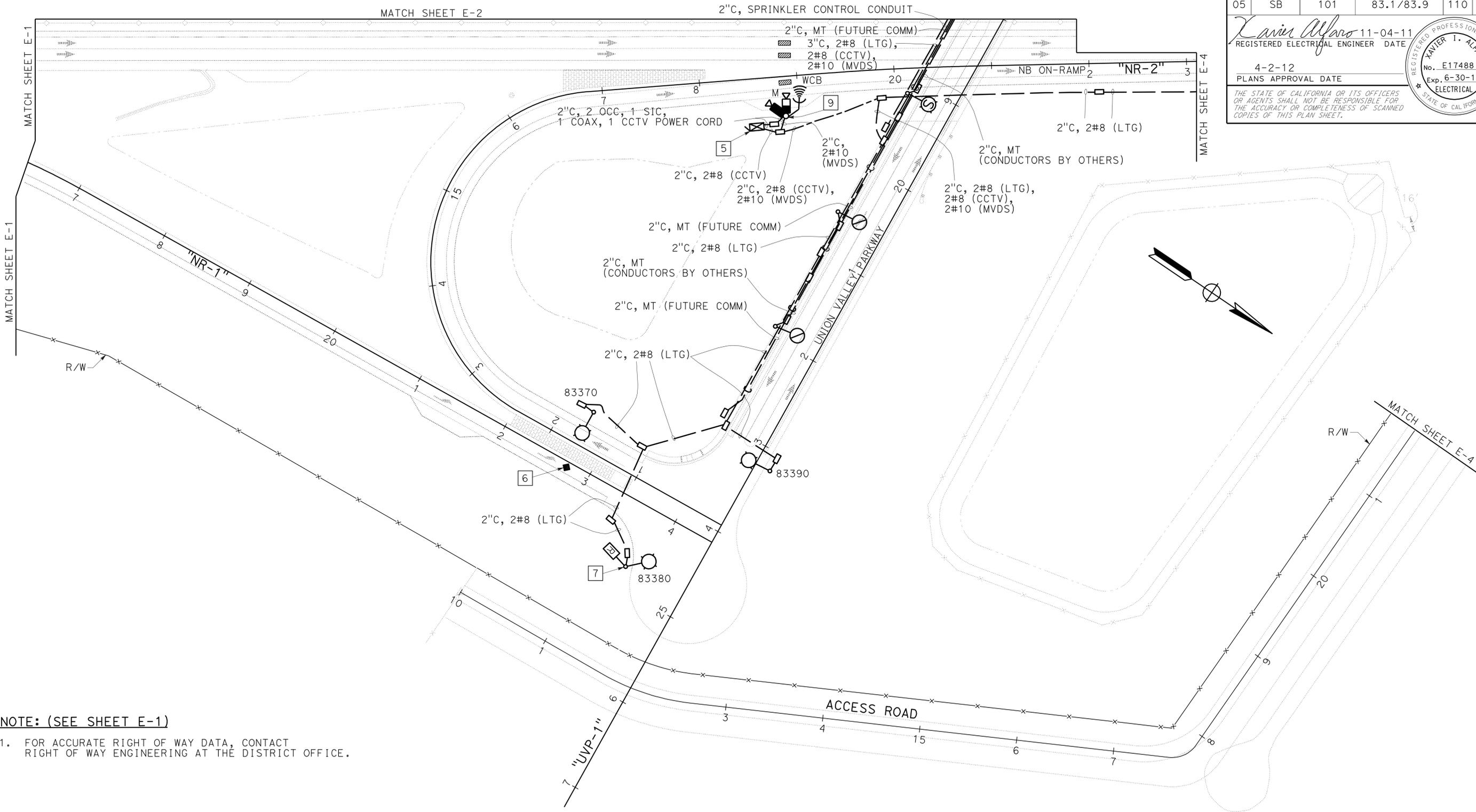


Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SB	101	83.1/83.9	110	190

*Xavier Alfaro* 11-04-11  
 REGISTERED ELECTRICAL ENGINEER DATE  
 4-2-12  
 PLANS APPROVAL DATE

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

REGISTERED PROFESSIONAL ENGINEER  
 XAVIER I. ALFARO  
 No. E17488  
 Exp. 6-30-13  
 ELECTRICAL  
 STATE OF CALIFORNIA



NOTE: (SEE SHEET E-1)

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** ELECTRICAL DESIGN  
 FUNCTIONAL SUPERVISOR: ALI BAKHDOUN  
 CALCULATED/DESIGNED BY: XAVIER ALFARO  
 CHECKED BY: PAUL MATOS  
 REVISED BY: SRG  
 DATE REVISED: 02-23-11

**HIGHWAY LIGHTING  
 STREET LIGHTING (COUNTY)  
 TRAFFIC OPERATIONS SYSTEM  
 SPRINKLER CONTROL CONDUIT (BRIDGE)**

APPROVED FOR ELECTRICAL WORK ONLY

SCALE: 1" = 50'

E-3

LAST REVISION: DATE PLOTTED => 05-APR-2012  
 12-16-11 TIME PLOTTED => 08:25



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SB	101	83.1/83.9	112	190

11-04-11  
 REGISTERED ELECTRICAL ENGINEER DATE  
 4-2-12  
 PLANS APPROVAL DATE

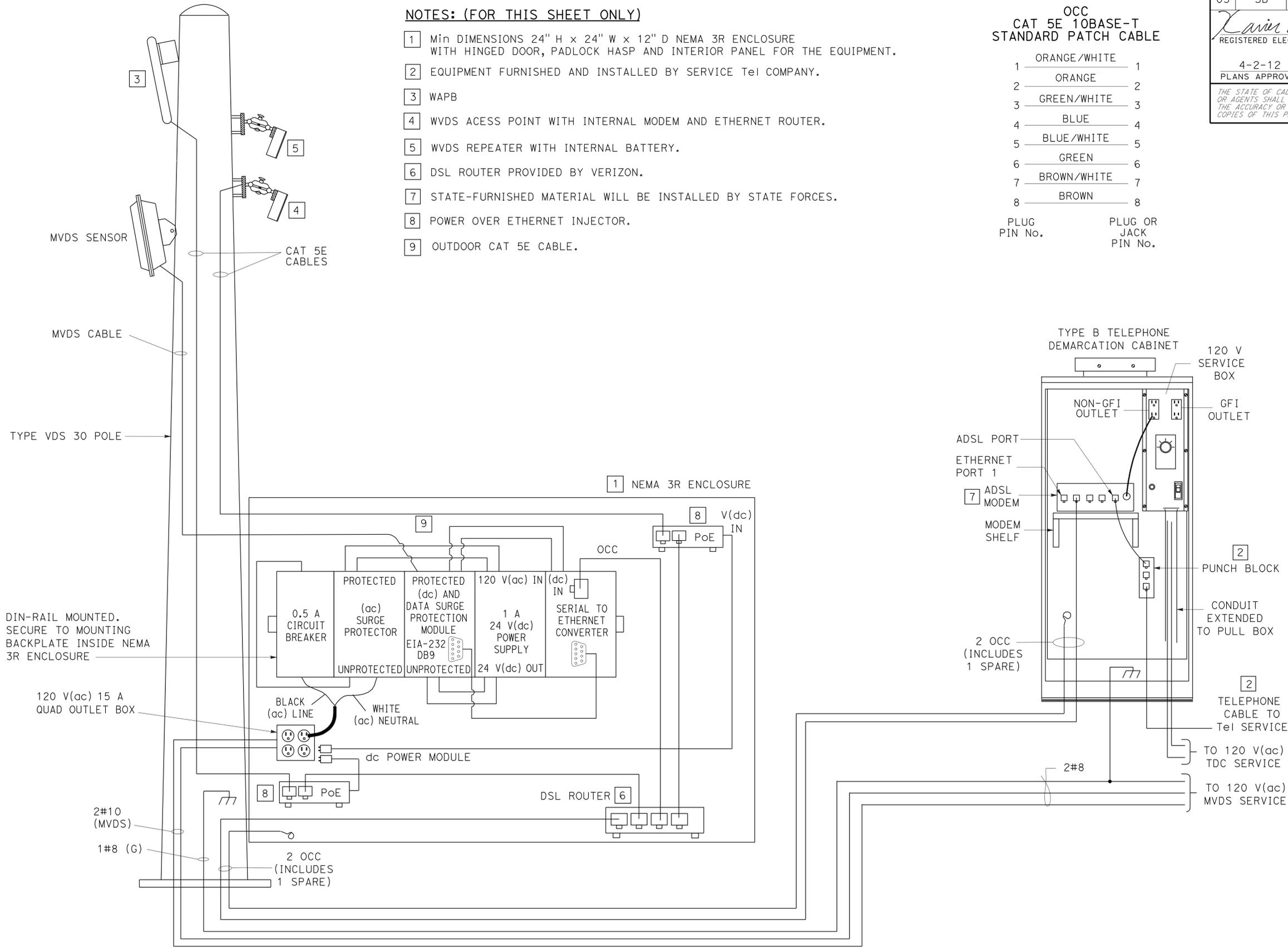
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

- NOTES: (FOR THIS SHEET ONLY)**
- 1 Min DIMENSIONS 24" H x 24" W x 12" D NEMA 3R ENCLOSURE WITH HINGED DOOR, PADLOCK HASP AND INTERIOR PANEL FOR THE EQUIPMENT.
  - 2 EQUIPMENT FURNISHED AND INSTALLED BY SERVICE TEL COMPANY.
  - 3 WAPB
  - 4 WVDS ACCESS POINT WITH INTERNAL MODEM AND ETHERNET ROUTER.
  - 5 WVDS REPEATER WITH INTERNAL BATTERY.
  - 6 DSL ROUTER PROVIDED BY VERIZON.
  - 7 STATE-FURNISHED MATERIAL WILL BE INSTALLED BY STATE FORCES.
  - 8 POWER OVER ETHERNET INJECTOR.
  - 9 OUTDOOR CAT 5E CABLE.

OCC  
CAT 5E 10BASE-T  
STANDARD PATCH CABLE

1	ORANGE/WHITE	1
2	ORANGE	2
3	GREEN/WHITE	3
4	BLUE	4
5	BLUE/WHITE	5
6	GREEN	6
7	BROWN/WHITE	7
8	BROWN	8

PLUG PIN No.                      PLUG OR JACK PIN No.



**MVDS, WVDS AP, WVDS REPEATER, WAPB, AND NEMA ENCLOSURE WIRING DETAIL**

**TRAFFIC OPERATIONS SYSTEM (ELECTRICAL DETAILS)**

APPROVED FOR ELECTRICAL WORK ONLY

NO SCALE

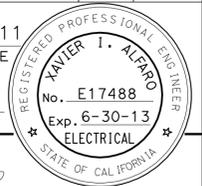
E-5

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - ELECTRICAL DESIGN

FUNCTIONAL SUPERVISOR: ALI BAKHDOUD

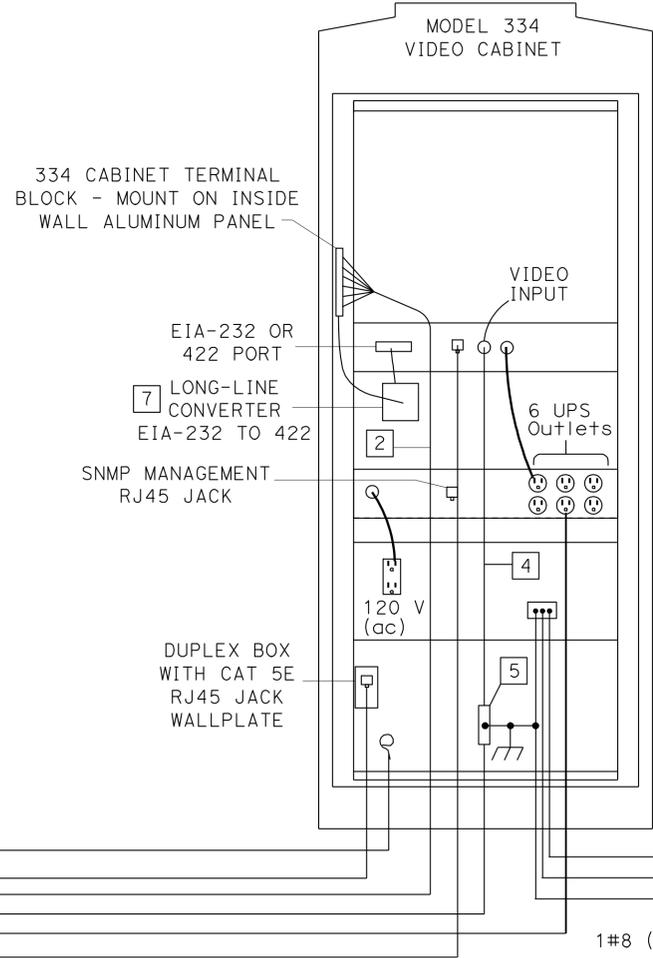
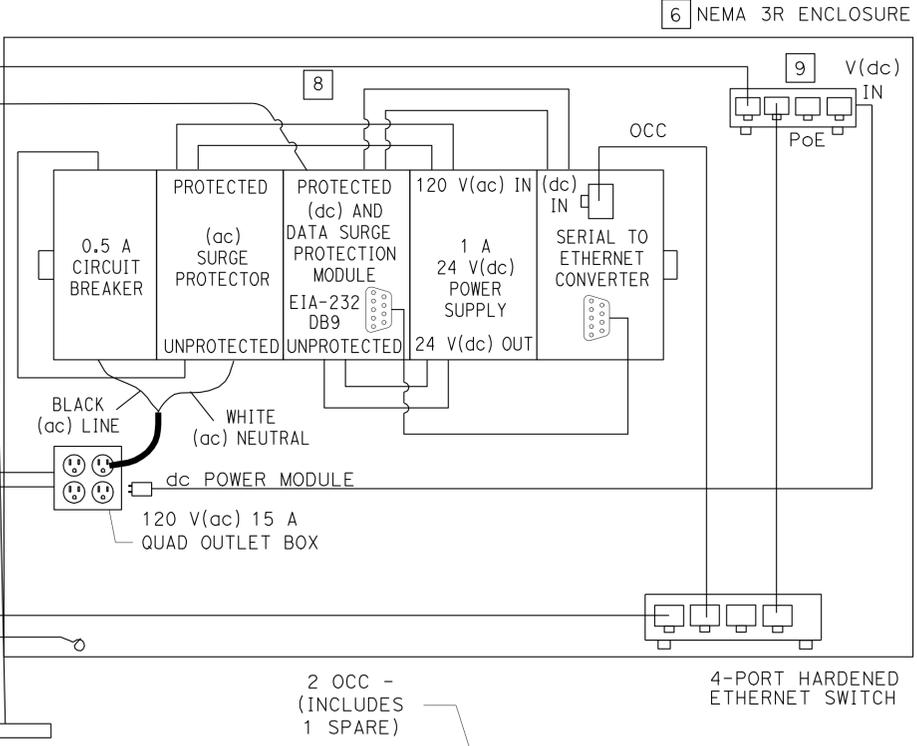
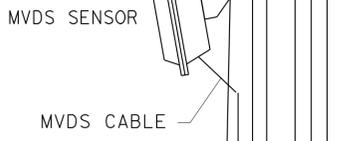
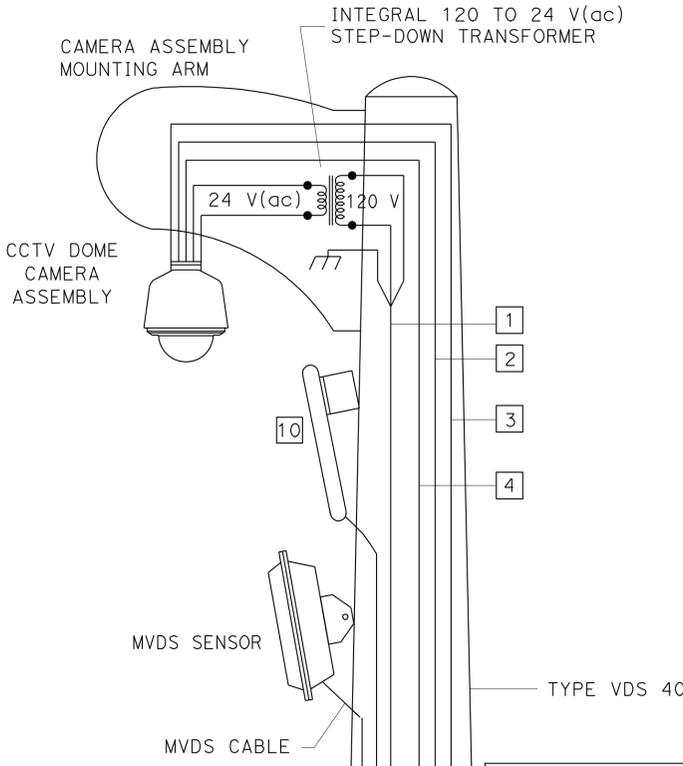
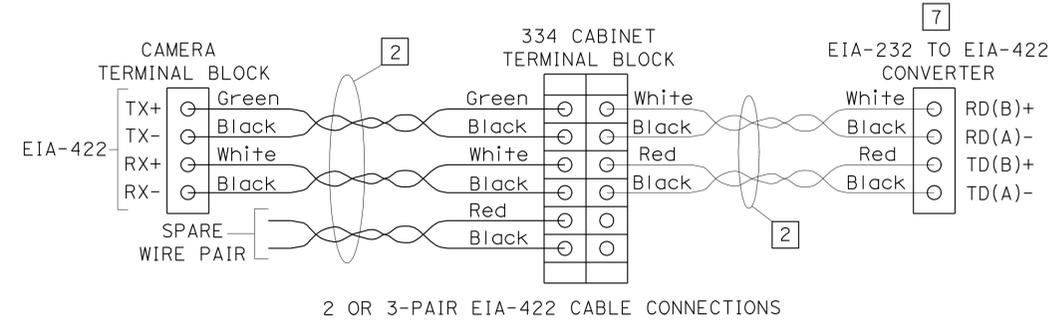
REVISOR: XAVIER ALFARO, PAUL MATOS

DATE: 11-04-11



**NOTES: (THIS SHEET ONLY)**

- 1 CCTV POWER CORD
- 2 1 SIC CABLE, USE 2 PAIR FOR EIA-422 PAN/TILT/ZOOM COMMUNICATION BETWEEN THE CCTV CAMERA AND VIDEO ENCODER. ONE PAIR WILL REMAIN AS A SPARE. COLORS MAY VARY.
- 3 OCC (OUTDOOR CAT 5E CABLE). PLUG INTO THE RJ-45 DATA PORT IN THE CCTV DOME CAMERA ASSEMBLY.
- 4 RG-6U COAXIAL CABLE: CENTER CONDUCTOR: 18 AWG SOLID COPPER  
BRAID SHIELD: WOVEN COPPER BRAID WITH MINIMUM 80 PERCENT COVERAGE (ALUMINUM FOIL SHIELDING OR FOIL WRAP IS NOT ACCEPTABLE)  
DIELECTRIC INSULATING MATERIAL: POLYURETHANE OR POLYETHYLENE  
OUTER JACKET: BLACK PVC
- 5 COAXIAL CABLE SURGE/LIGHTNING PROTECTOR: SURGE HANDLING: 5 kA; IMPEDANCE: 75 OHMS  
INSERTION LOSS: <0.1dB @ 500 MHz, CONNECTORS: TYPE F OR BNC
- 6 Min DIMENSIONS 24" H x 24" W x 12" D NEMA 3R ENCLOSURE WITH HINGED DOOR, PADLOCK HASP AND INTERIOR PANEL FOR THE EQUIPMENT.
- 7 STATE-FURNISHED MATERIAL WILL BE INSTALLED BY STATE FORCES.
- 8 OUTDOOR CAT 5E CABLE.
- 9 POWER OVER ETHERNET INJECTOR.
- 10 WCB



OCC CAT 5E 10BASE-T STANDARD PATCH CABLE

1	ORANGE/WHITE	1
2	ORANGE	2
3	GREEN/WHITE	3
4	BLUE	4
5	BLUE/WHITE	5
6	GREEN	6
7	BROWN/WHITE	7
8	BROWN	8

PLUG PIN No.      PLUG OR JACK PIN No.

**CCTV, MVDS, WCB, AND NEMA ENCLOSURE WIRING DETAIL**

**TRAFFIC OPERATIONS SYSTEM (ELECTRICAL DETAILS)**

APPROVED FOR ELECTRICAL WORK ONLY

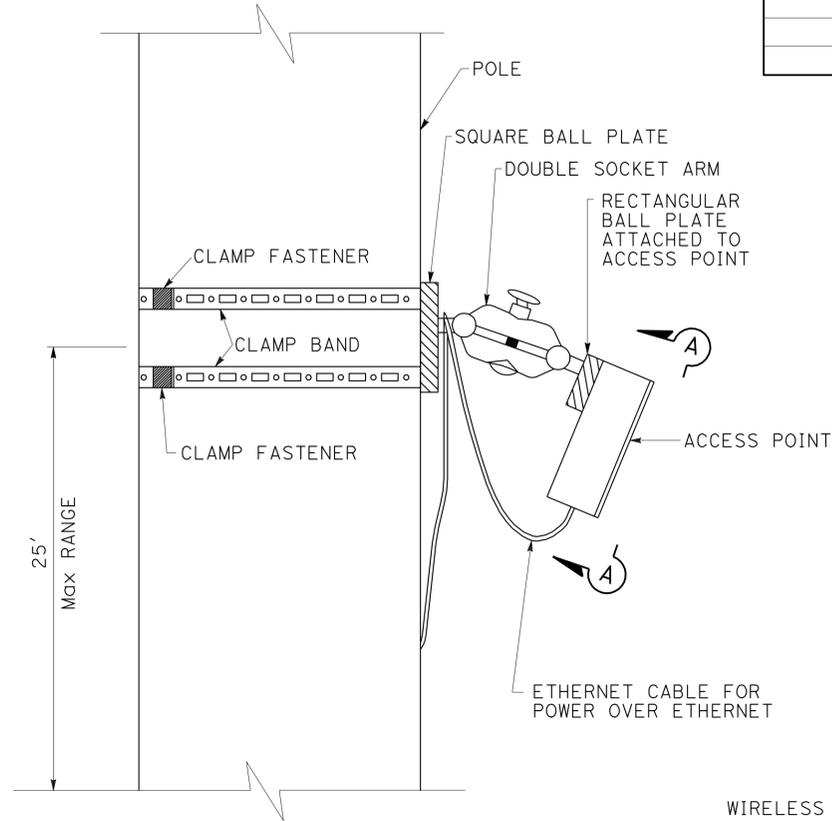
NO SCALE

E-6

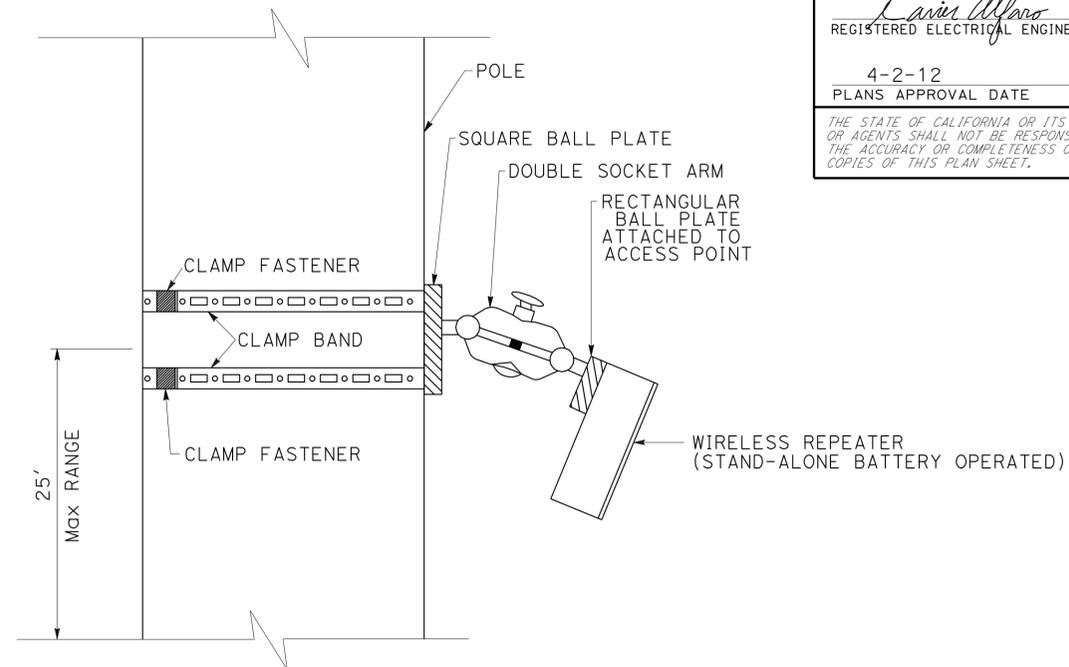
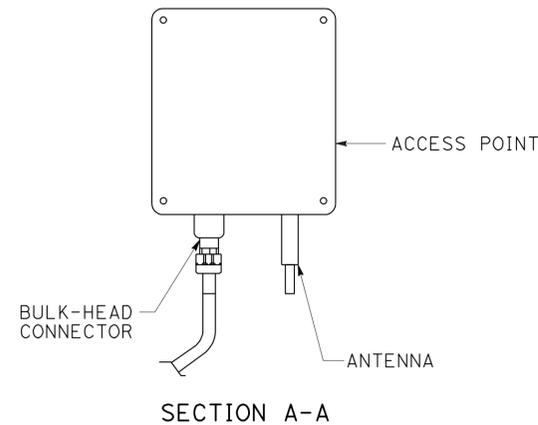
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - ELECTRICAL DESIGN  
 FUNCTIONAL SUPERVISOR: ALI BAKHDOUD  
 CALCULATED/DESIGNED BY: XAVIER ALFARO  
 CHECKED BY: PAUL MATOS  
 REVISED BY: XAVIER ALFARO  
 DATE REVISED:

ACCESS POINT/WIRELESS REPEATER

MOUNTING HEIGHT	VSN RANGE
8'	50' - 75'
16'	75' - 125'
24'	125' - 150'

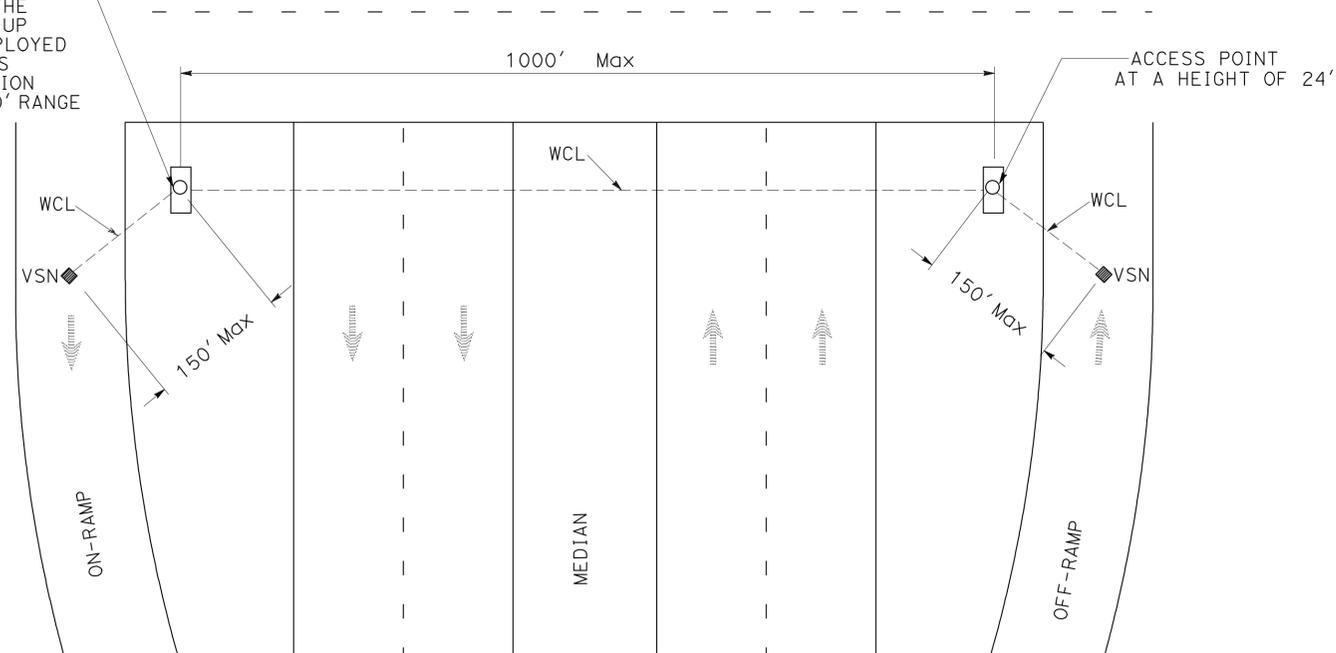


ACCESS POINT POLE MOUNT



WIRELESS REPEATER POLE MOUNT

WIRELESS REPEATER  
 THE REPEATER IS A STAND-ALONE BATTERY OPERATED UNIT THAT EXTENDS THE RANGE OF AN ACCESS POINT BY UP TO 1000'. THE REPEATER IS DEPLOYED IN CONJUNCTION WITH AN ACCESS POINT WHEN THE DESIRED LOCATION OF THE VSN IS BEYOND THE 150' RANGE OF THE ACCESS POINT.



WVDS SYSTEM DETAIL

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** ELECTRICAL DESIGN  
 FUNCTIONAL SUPERVISOR: ALI BAKHDOUD  
 CALCULATED/DESIGNED BY: XAVIER ALFARO  
 CHECKED BY: PAUL MATOS  
 REVISED BY: XAVIER ALFARO  
 DATE REVISED:

CALCULATED-DESIGNED BY  
 CHECKED BY

FUNCTIONAL SUPERVISOR  
 ALI BAKHDOUD

XAVIER ALFARO  
 PAUI MATOS

REVISED BY  
 DATE REVISED

**NOTES: (THIS SHEET ONLY)**

1. PRIOR TO INSTALLATION, NOTE SENSOR'S ID, LANE NUMBER, AND LOCATION IN LANE.
2. UNLESS OTHERWISE SPECIFIED, INSTALL SENSOR IN THE MIDDLE OF THE LANE.
3. USE DOUBLE-CYLINDER 4" CORING BIT, WITH 1.25" STANDARD MACHINE THREADED SLEEVE.
4. MARK A LINE 2.25" FROM THE BOTTOM OF THE DOUBLE-CYLINDER CORING BIT, AND DRILL THROUGH THE ASPHALT CONCRETE OR PORTLAND CEMENT TO THIS DEPTH.
5. CORE A HOLE AT LEAST 2.25" DEEP SO THAT WHEN INSTALLED THE TOP OF THE SENSOR IS AT LEAST 0.25" BELOW THE SURFACE.
6. MAKE SURE THE SENSOR INSTALLS FLAT IN THE CORED HOLE AND IS NOT TILTED.
7. ONCE THE CORRECT DEPTH IS REACHED, USE THE HAMMER DRILL TO REMOVE THE INNER AND OUTER CYLINDRICAL "SHELLS", AND THE BUSHING BIT TO FLATTEN THE SURFACE.
8. ONCE COMPLETE, REMOVE ALL DUST AND DEBRIS OUT OF THE CORED HOLE.
9. USE THE HEAT-GUN OR HOT COMPRESSED AIR TO DRY THE INSIDE OF THE CORED HOLE.
10. IF THE HOLE IS TOO DEEP OR UNEVEN, SAND CAN BE USED TO FLATTEN THE SURFACE.
11. FILL THE HOLE ABOUT 1/4 FULL OF THE SENSOR EPOXY/ADHESIVE.
12. PLACE SENSOR IN THE HOLE WITH ARROW POINTING IN THE DIRECTION OF TRAFFIC. THE EPOXY SHOULD STILL HAVE WORK TIME, SO THE SENSOR CAN BE ROTATED TO THE RIGHT POSITION. PUSH SENSOR DOWN SO IT LAYS FLAT ON THE BOTTOM OF THE HOLE. THIS ASSURES THAT THERE IS A BOND UNDERNEATH THE SENSOR WITH THE EPOXY.
13. FILL IN THE REMAINING EMPTY SPACE OF THE HOLE WITH EPOXY AND COVER THE SENSOR WITH EPOXY TO MAKE IT LEVEL WITH THE SURFACE OF THE ROAD.
14. THERE MUST BE ABSOLUTELY NO MOISTURE ON THE APPLIED SURFACE.
15. AFTER THE FIRST APPLICATION, DO NOT LET THE EPOXY SIT FOR MORE THAN 30 SECONDS BEFORE THE NEXT APPLICATION.
16. DEPENDING ON AMBIENT TEMPERATURE AND HUMIDITY, EPOXY DRYING TIME CAN VARY FROM 5 MINUTES TO 15 MINUTES. VERIFY HARDNESS OF EPOXY BEFORE REOPENING THE LANE FOR TRAFFIC.
17. INSTALL AT TEMPERATURE GREATER THAN -37°C.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SB	101	83.1/83.9	115	190

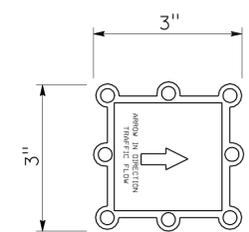
*Xavier Alfaro* 10-26-11  
 REGISTERED ELECTRICAL ENGINEER DATE

4-2-12  
 PLANS APPROVAL DATE

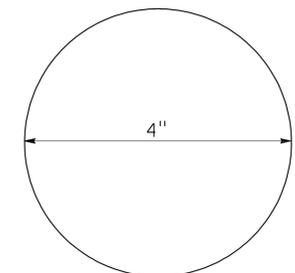
No. E17488  
 Exp. 6-30-13  
 ELECTRICAL

REGISTERED PROFESSIONAL ENGINEER  
 XAVIER I. ALFARO  
 STATE OF CALIFORNIA

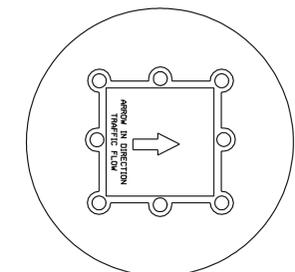
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



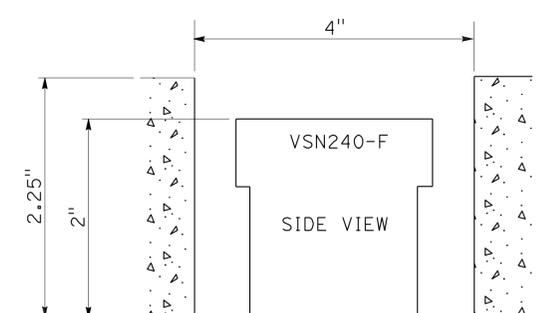
**VEHICLE SENSOR NODE**



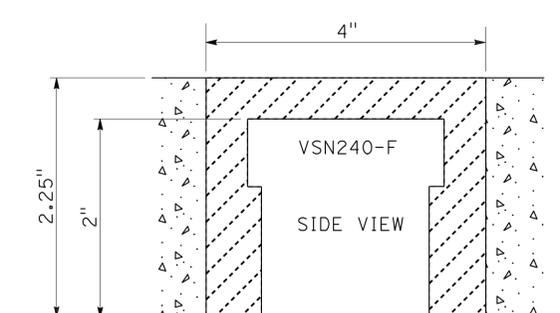
**VEHICLE SENSOR NODE CORED HOLE**



**VEHICLE SENSOR NODE IN HOLE**



**VEHICLE SENSOR NODE IN HOLE**



**VEHICLE SENSOR NODE IN HOLE WITH EPOXY**

**TRAFFIC OPERATIONS SYSTEM  
 E-8**

APPROVED FOR ELECTRICAL WORK ONLY

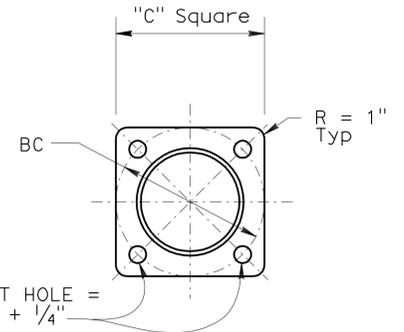
NO SCALE

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SB	101	83.1/83.9	116	190
<i>Eliseo Lopez</i> REGISTERED CIVIL ENGINEER			5-9-11	DATE	
4-2-12			PLANS APPROVAL DATE		
No. C72910 Exp. 12/31/12 CIVIL			REGISTERED PROFESSIONAL ENGINEER STATE OF CALIFORNIA		
<i>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.</i>					

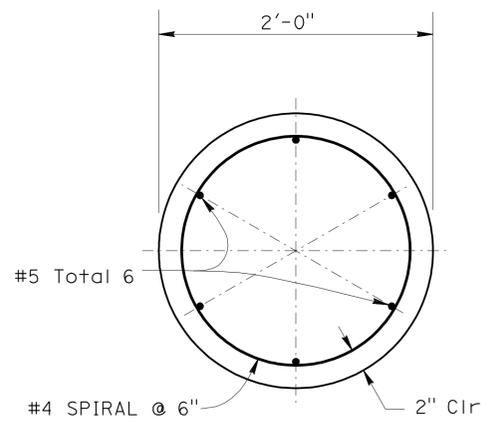
Pole Type	Pole Data				Base Plate Data				"d" 2'-0" Ø CIDH Pile		Structural Steel LBS plus 3.5% Galvanizing
	Height "h"	Min OD		Thickness "c"	Thickness	Anchor Bolts		LEVEL GROUND	SLOPING GROUND		
		BASE	TOP			SIZE	BC = BOLT CIRCLE				
VDS 40	40'	9 3/8"	3 7/8"	0.1793"	1'-1"	1"	1 1/4" x 3'-0" x 4"	1'-1"	9'-0"	11'-0"	650

Attachment	Mounting Height	Weight Limits (Max)
CCTV Camera Assembly	Top of Pole	98.5 lb
Wireless Client Bridge	38' Max	5 lb
MVDS	36' Max	7 lb
Enclosure	4'-0" Max bottom Cir	100 lb

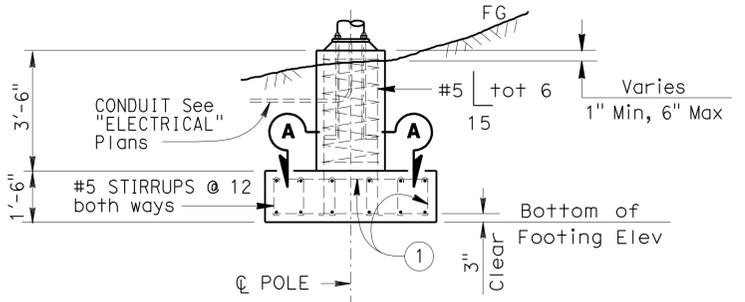
Spread Footing		
Ground	Footing Size Length x Width x Depth	Reinforcement Top & Bottom
Level	6'-0" x 6'-0" x 1'-6"	7 - #4
Sloping	7'-0" x 7'-0" x 1'-6"	8 - #4



**BASE PLATE**

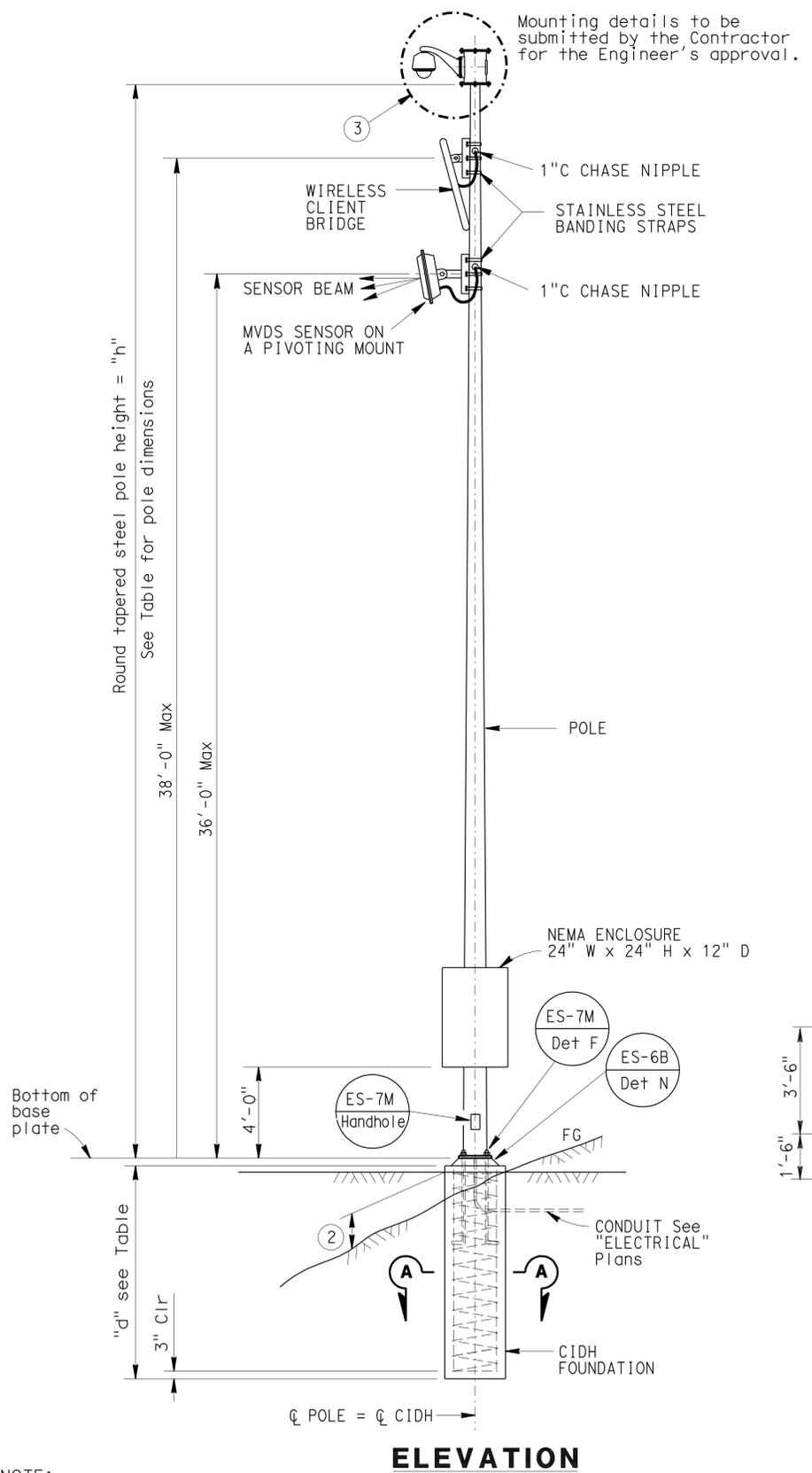


**SECTION A-A**



**ALTERNATIVE FOOTING ELEVATION**

- ① #4 bars and #5 stirrups (top & bottom) to run both longitudinal and transverse direction.
- ② 1'-3" Max for sloped finished grade.
- ③ For Pole mounting Structural details, see Sheet SES-3.



**ELEVATION**

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

**ABBREVIATIONS:**  
 VDS = Vehicle Detection System  
 MVDS = Microwave Vehicle Detection System

**GENERAL NOTES:**

**SPECIFICATIONS**  
 Design : AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals dated 2001.

**LOADING**  
 Wind Loadings : 100 mph

**UNIT STRESSES**  
 Structural Steel :  $f_y = 48,000$  psi tapered steel tube  
 $f_y = 36,000$  psi unless otherwise noted.  
 Anchor bolts = A307  
 Reinforced Concrete :  $f'_c = 3,600$  psi  
 $f_y = 60,000$  psi

**NOTES:**

- For pole locations, see "ELECTRICAL" plans.
- All steel shall be galvanized after fabrication.
- During pole erection the post shall be raked as necessary with the use of leveling nuts to provide a plumb pole axis.
- The foundation shall be treated as level ground condition if the slope inclination is flatter than 4H:1V.
- Foundation design is based on 2001 article 13.6 Broms' approximate procedure assuming a cohesionless material. The angle of internal friction used is 30 degrees and unit weight of soil used is 120 lbs/ft<sup>3</sup>.
- For details not shown, see "2006 STANDARD PLANS" and "2006 REVISED STANDARD PLANS".

<b>BRANCH CHIEF</b> JEFFREY B WOODY	DESIGN	BY E LOPEZ	CHECKED A GUTIERREZ	<b>STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION	<b>DIVISION OF ENGINEERING SERVICES</b> DESIGN AND TECHNICAL SERVICES <b>SPECIAL DESIGNS BRANCH</b>	BRIDGE NO.	N/A	<b>ELECTRICAL SYSTEMS</b> <b>MICROWAVE VEHICLE DETECTION SYSTEM</b> <b>POLE DETAILS</b>	<b>SES-1</b>
	DETAILS	BY A R DUDSAK	CHECKED A GUTIERREZ			POST MILE	83.1/83.9		
	QUANTITIES	BY	CHECKED			CONTRACT NO.:	05-463801		

(ENGLISH) SPECIAL DESIGNS BRANCH BORDER SHEET (REV. 7-1-09)

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

UNIT: 3619 PROJECT NUMBER & PHASE: 0500000550-1 CONTRACT NO.: 05-463801

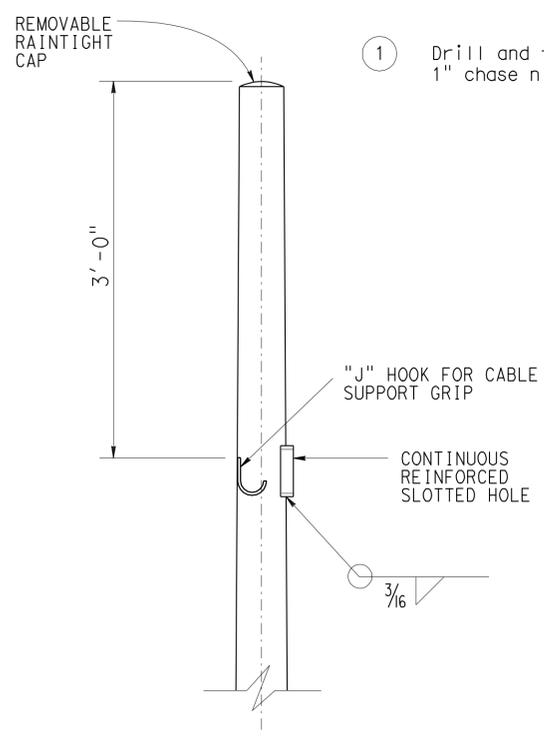
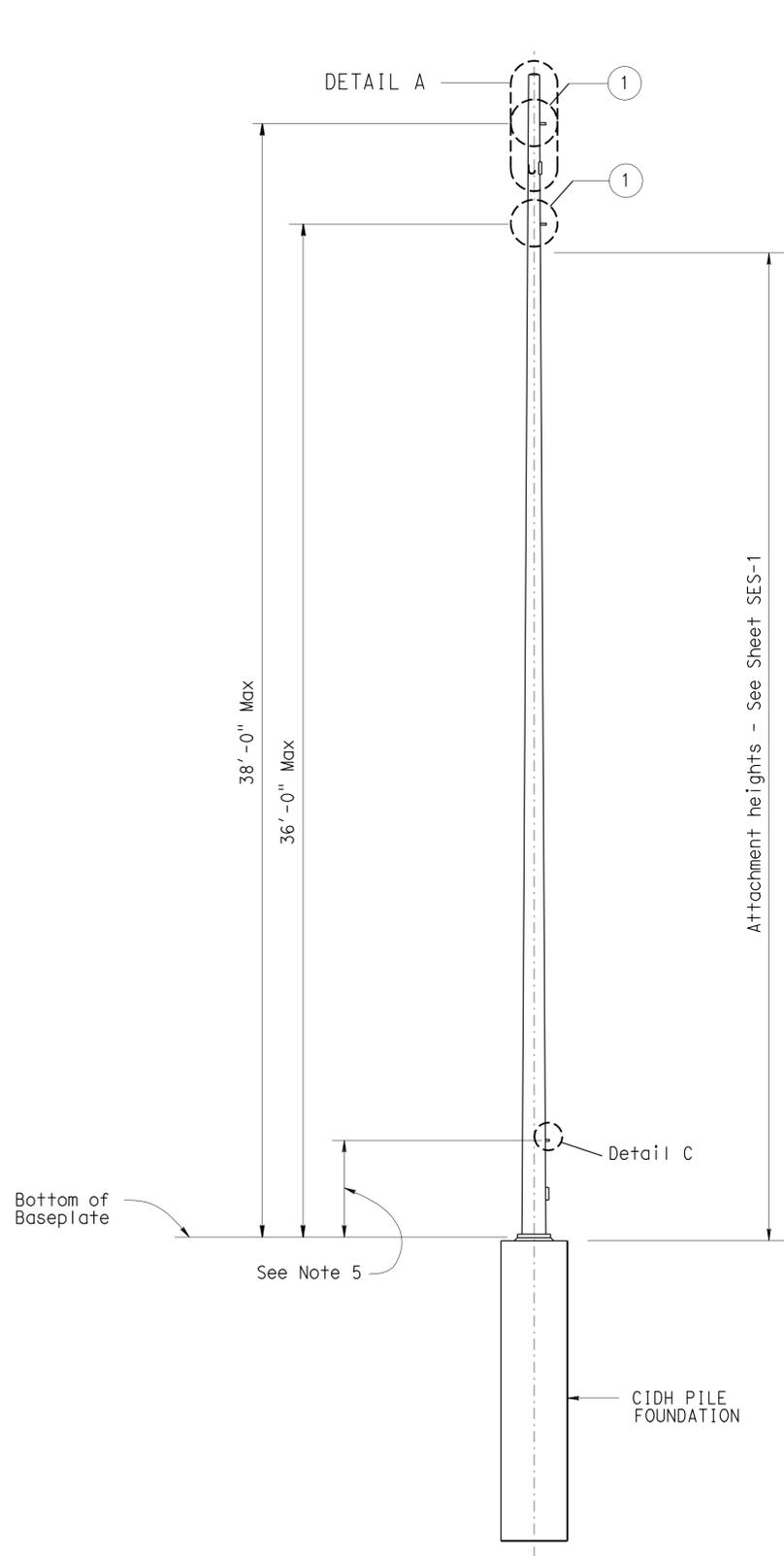
DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES	SHEET	OF
4-22-11	5-9-11	11-8-11

FILE => spec\_des\_br\_prj/2011sd/05-463801/05-463801\_ses-1.dgn

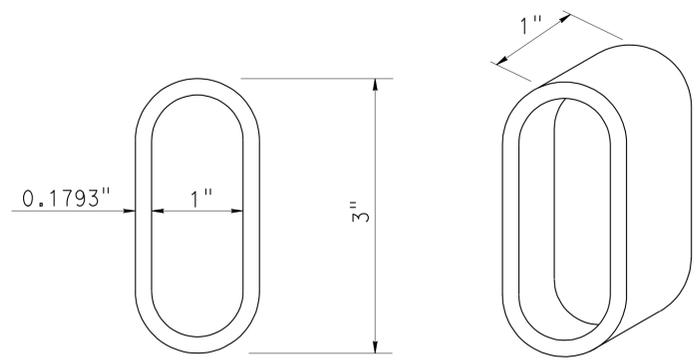
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SB	101	83.1/83.9	117	190

*Eliseo Lopez*  
 REGISTERED CIVIL ENGINEER DATE 5-9-11  
 PLANS APPROVAL DATE 4-2-12  
 No. C72910  
 Exp. 12/31/12  
 CIVIL  
 STATE OF CALIFORNIA  
 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.

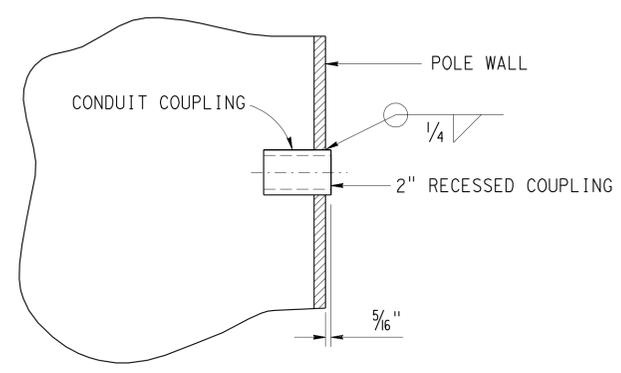


**DETAIL A**

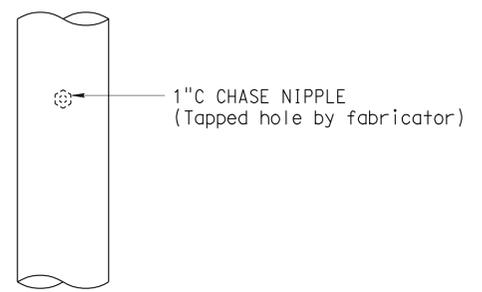
1 Drill and tap for 1" Chase nipple and plug with raintight plugs. 1" chase nipple per attachment per pole. (See Detail "B")



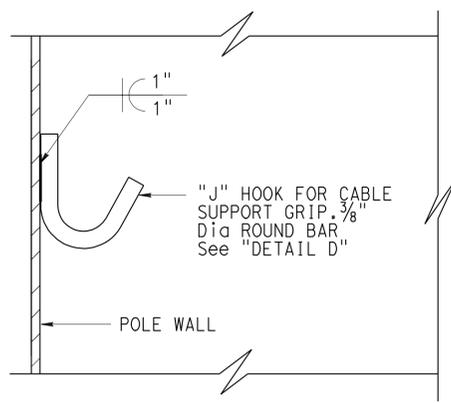
**SLOTTED HOLE**



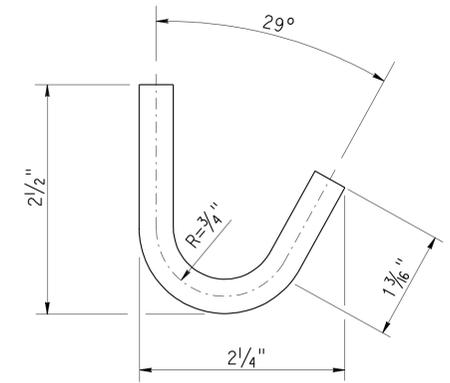
**2" RECESSED COUPLING  
DETAIL C (TYPICAL)**



**DETAIL B  
TYPICAL ELECTRICAL  
ACCESS DETAIL**



**J HOOK DETAIL**



**DETAIL D**

**NOTES:**

- Place all couplings on the same side of pole.
- Chase nipples and slotted hole shall have a raintight plug. Plug should only be removed if chase nipple or slotted hole is used.
- The chase nipples shall be 1'-0" Min vertical clearance from the slotted hole and not on the same side as the slotted hole.
- For attachment details, see sheet SES-1.
- Coupling location above ground and spacing shall be verified to match choice of enclosure, prior to fabrication.
- All attachments, unless otherwise noted, shall be mounted to pole with stainless steel straps or other method without drilling holes in pole. Enclosure may require drilling through post for mounting. Method of mounting enclosure will require the Engineer's approval.

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

**ELEVATION**

NO SCALE

BRANCH CHIEF	DESIGN	BY E LOPEZ	CHECKED A GUTIERREZ
	DETAILS	BY A R DUDSAK	CHECKED A GUTIERREZ
	QUANTITIES	BY	CHECKED

JEFFREY B WOODY

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
 DESIGN AND TECHNICAL SERVICES  
 SPECIAL DESIGNS BRANCH

BRIDGE NO.	N/A
POST MILE	83.1/83.9

**ELECTRICAL SYSTEMS**  
**MICROWAVE VEHICLE DETECTION SYSTEM**  
**POLE DETAILS**

**SES-2**

(ENGLISH) SPECIAL DESIGNS BRANCH BORDER SHEET (REV. 7-1-09)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3619  
 PROJECT NUMBER & PHASE: 05-0500000550-1 CONTRACT NO.: 05-463801

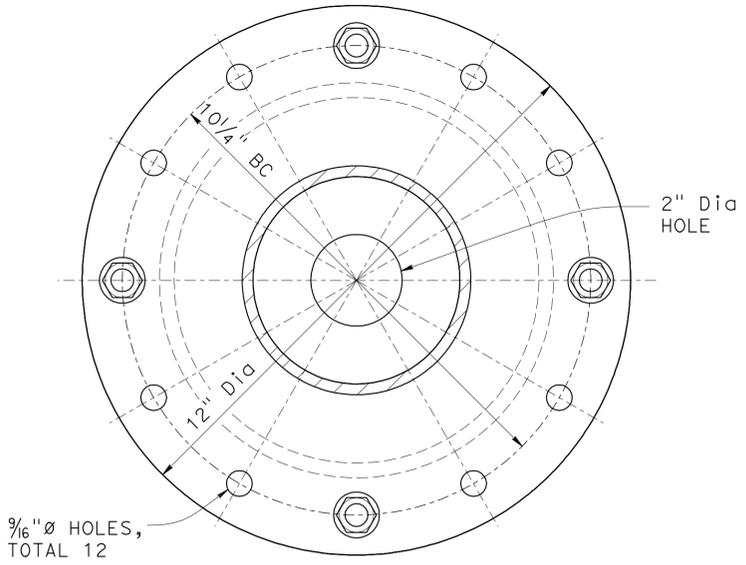
DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES	SHEET	OF
4-22-11	5-9-11	11-8-11

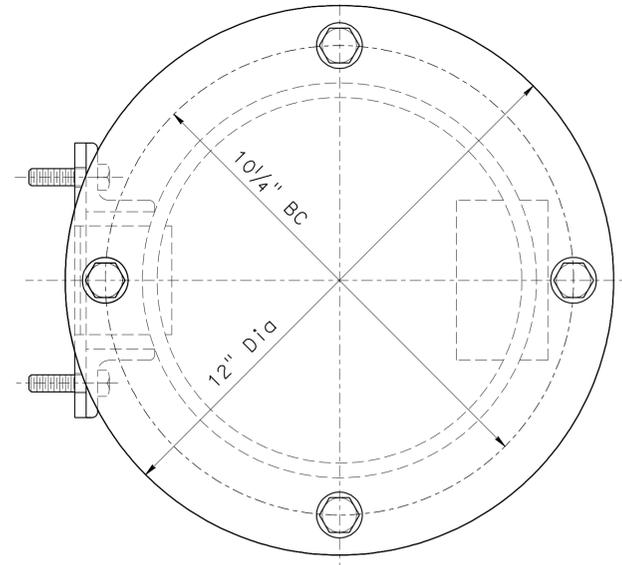
FILE => spec\_des\_br\_prj/2011sd/05-463801/05-463801\_ses-2.dgn

USERNAME => s114640 DATE PLOTTED => 05-APR-2012 TIME PLOTTED => 07:45

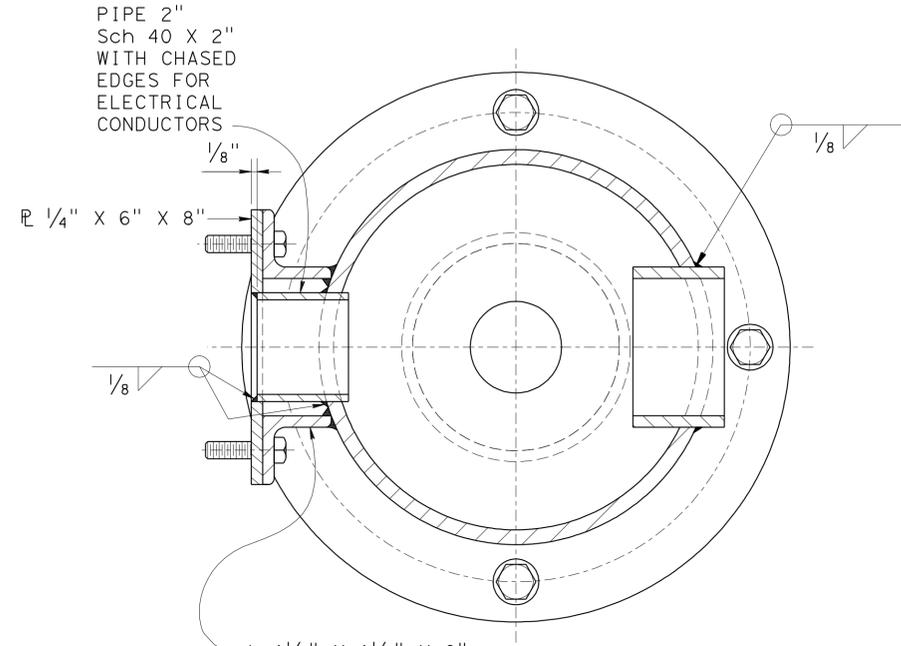
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SB	101	83.1/83.9	118	190
<i>Eliseo Lopez</i> REGISTERED CIVIL ENGINEER DATE 5-9-11					
4-2-12 PLANS APPROVAL DATE					
<small>The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.</small>					



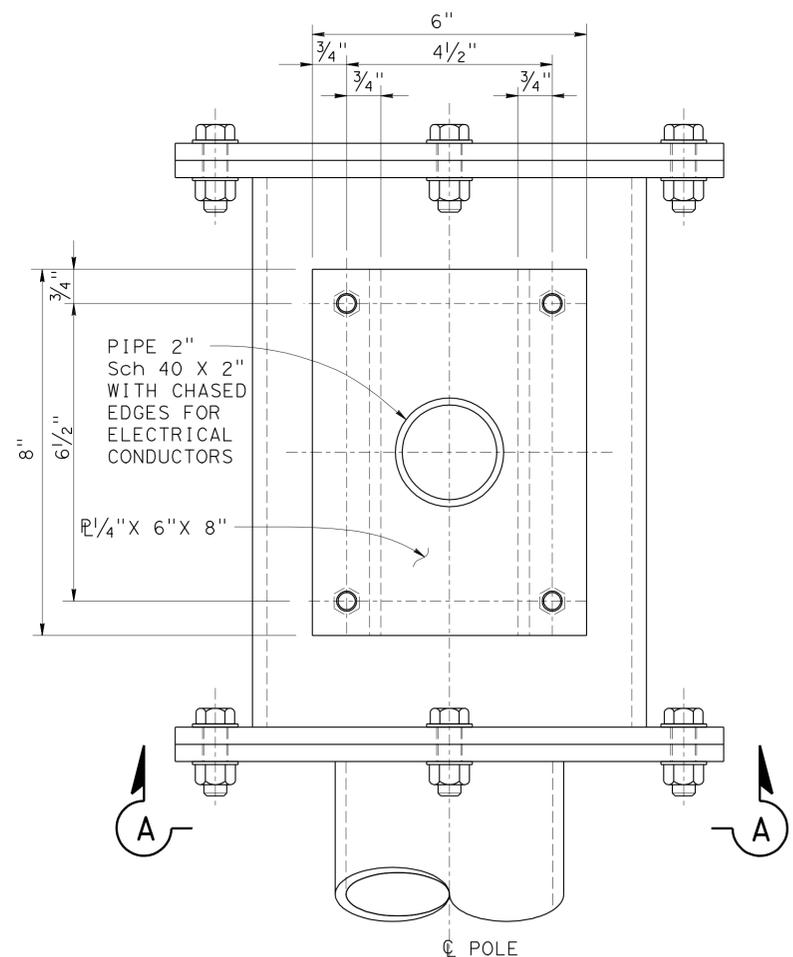
**SECTION A-A**  
Scale 6" = 1'-0"



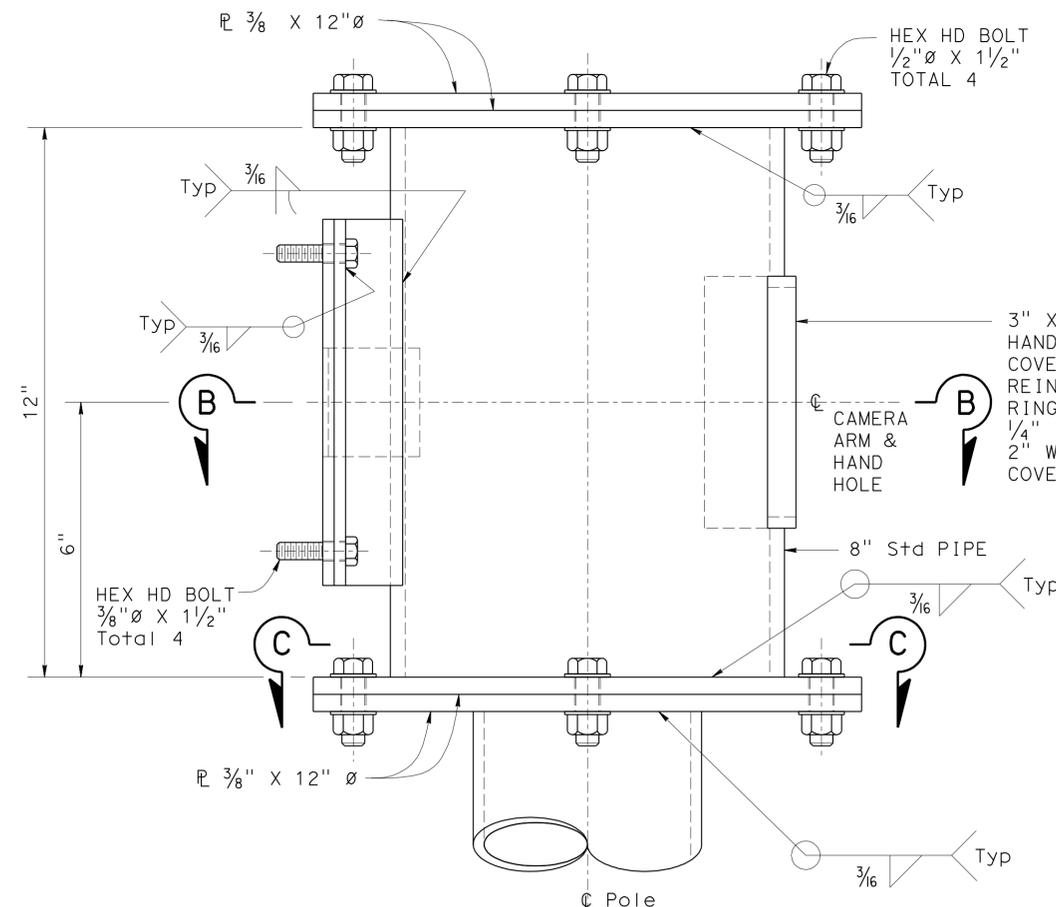
**PLAN**  
Scale 6" = 1'-0"



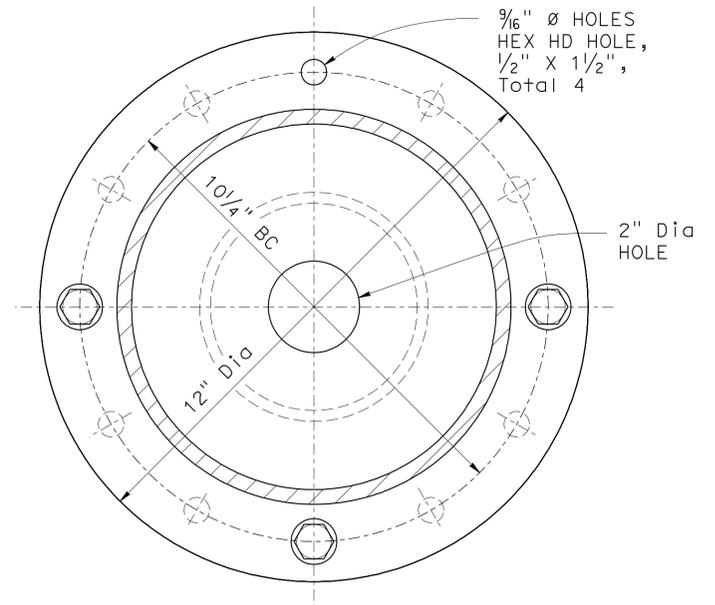
**SECTION B-B**  
Scale 6" = 1'-0"



**LEFT SIDE**  
Scale 6" = 1'-0"



**FRONT**  
Scale 6" = 1'-0"



**SECTION C-C**  
Scale 6" = 1'-0"

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

BRANCH CHIEF JEFFREY B WOODY	DESIGN	BY E LOPEZ	CHECKED A GUTIERREZ	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES DESIGN AND TECHNICAL SERVICES SPECIAL DESIGNS BRANCH	BRIDGE NO.	N/A	<b>ELECTRICAL SYSTEMS</b> <b>CLOSED CIRCUIT TELEVISION SYSTEM</b> <b>POLE DETAILS</b>	<b>SES-3</b>
	DETAILS	BY A R DUDSAK	CHECKED A GUTIERREZ			POST MILE	83.1/83.9		
	QUANTITIES	BY	CHECKED						

(ENGLISH) SPECIAL DESIGNS BRANCH BORDER SHEET (REV. 7-1-09)	ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	0	1	2	3	UNIT: 3619 PROJECT NUMBER & PHASE: 0500000550-1	CONTRACT NO.: 05-463801	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES	SHEET	OF
									4-22-11 5-9-11 11-8-11	X	X

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SB	101	83.1/83.9	119	190

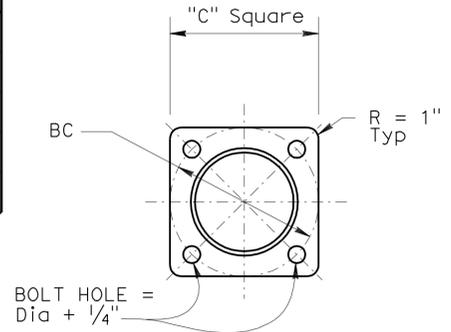
Eliseo Lopez  
 REGISTERED CIVIL ENGINEER DATE 5-9-11  
 PLANS APPROVAL DATE 4-2-12  
 No. C72910  
 Exp. 12/31/12  
 CIVIL  
 STATE OF CALIFORNIA

*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.*

Pole Type	Pole Data				Base Plate Data				Structural Steel LBS plus 3.5% Galvanizing		
	Height "h"	Min OD		Thickness "c"	Thickness	Anchor Bolts		"d" 2'-0" Ø CIDH Pile			
		BASE	TOP			SIZE	BC = BOLT CIRCLE			LEVEL GROUND	SLOPING GROUND
VDS 30	30'	8"	3 7/8"	0.1793"	1'-0"	1"	1" x 3'-0 x 4"	11"	8'-0"	10'-0"	475

Attachment	Mounting Height	Weight Limits (Max)
Wireless Access Point Bridge	28' Max	5 lb
MVDS	26' Max	7 lb
WVDS Access Point	24' Max	5 lb
WVDS Repeater	23' Max	5 lb
Enclosure	4'-0" Max bottom Clr	100 lb

TABLE C		
Spread Footing		
Ground	Footing Size Length x Width x Depth	Reinforcement Top & Bottom
Level	6'-0" x 6'-0" x 1'-6"	7 - #4
Sloping	7'-0" x 7'-0" x 1'-6"	8 - #4



**ABBREVIATIONS:**  
 VDS = Vehicle Detection System  
 MVDS = Microwave Vehicle Detection System  
 WVDS = Wireless Vehicle Detection System

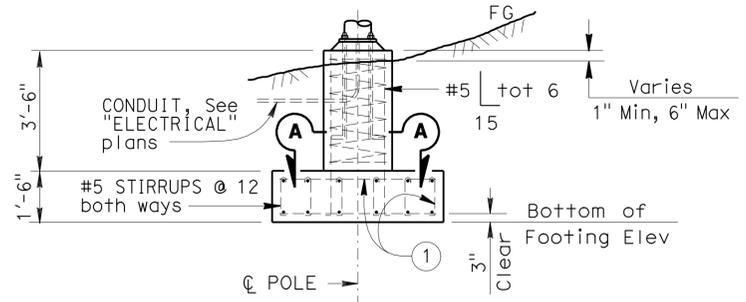
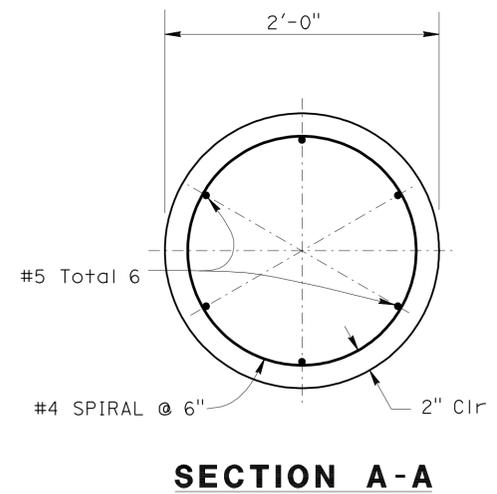
**GENERAL NOTES:**

**SPECIFICATIONS**  
 Design : AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals dated 2001.

**LOADING**  
 Wind Loadings : 100 mph

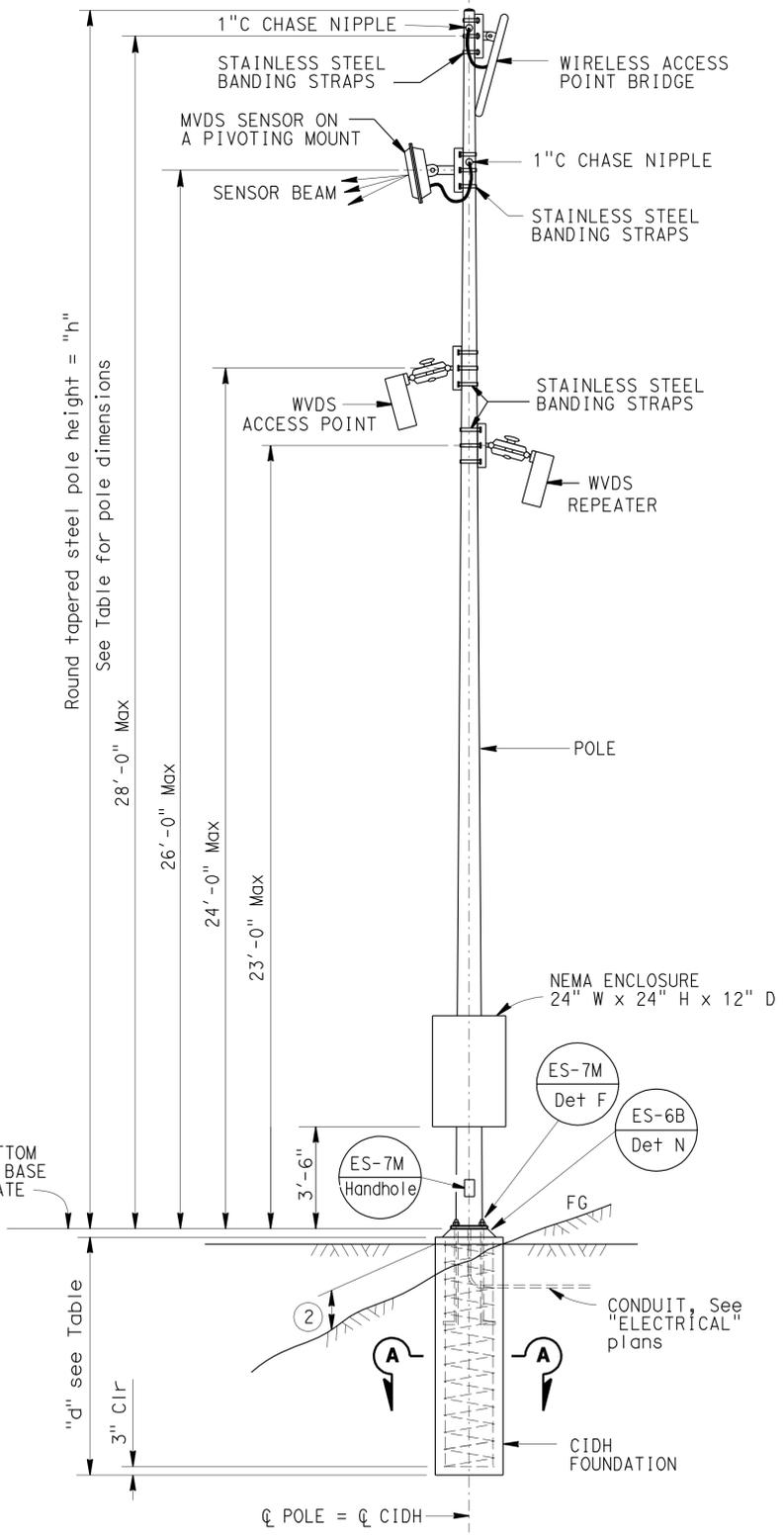
**UNIT STRESSES**  
 Structural Steel : fy = 48,000 psi tapered steel tube  
 fy = 36,000 psi unless otherwise noted.  
 Anchor bolts = A307  
 Reinforced Concrete : f'c = 3,600 psi  
 fy = 60,000 psi

- NOTES:**
- For pole locations, see "ELECTRICAL" plans.
  - All steel shall be galvanized after fabrication.
  - During pole erection the post shall be raked as necessary with the use of leveling nuts to provide a plumb pole axis.
  - The foundation shall be treated as level ground condition if the slope inclination is flatter than 4H:1V.
  - Foundation design is based on 2001 article 13.6 Broms' approximate procedure assuming a cohesionless material. The angle of internal friction used is 30 degrees and unit weight of soil used is 120 lbs/ft<sup>3</sup>.
  - For details not shown, see "2006 STANDARD PLANS" and "2006 REVISED STANDARD PLANS".



**ALTERNATIVE FOOTING ELEVATION**

- #4 bars and #5 stirrups (top & bottom) to run both longitudinal and transverse direction.
- 1'-3" Max for sloped finished grade.



**ELEVATION**

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

<b>BRANCH CHIEF</b> JEFFERY B WOODY	DESIGN	BY E LOPEZ	CHECKED A GUTIERREZ	<b>STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION	<b>DIVISION OF ENGINEERING SERVICES</b> DESIGN AND TECHNICAL SERVICES <b>SPECIAL DESIGNS BRANCH</b>	BRIDGE NO.	N/A	<b>ELECTRICAL SYSTEMS</b> <b>MICROWAVE VEHICLE DETECTION SYSTEM</b> <b>POLE DETAILS</b>	<b>SES-4</b>
	DETAILS	BY A R DUDSAK	CHECKED A GUTIERREZ			POST MILE	83.1/83.9		
	QUANTITIES	BY	CHECKED			UNIT: 3619	PROJECT NUMBER & PHASE: 0500000550-1		

(ENGLISH) SPECIAL DESIGNS BRANCH BORDER SHEET (REV. 7-1-09)

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

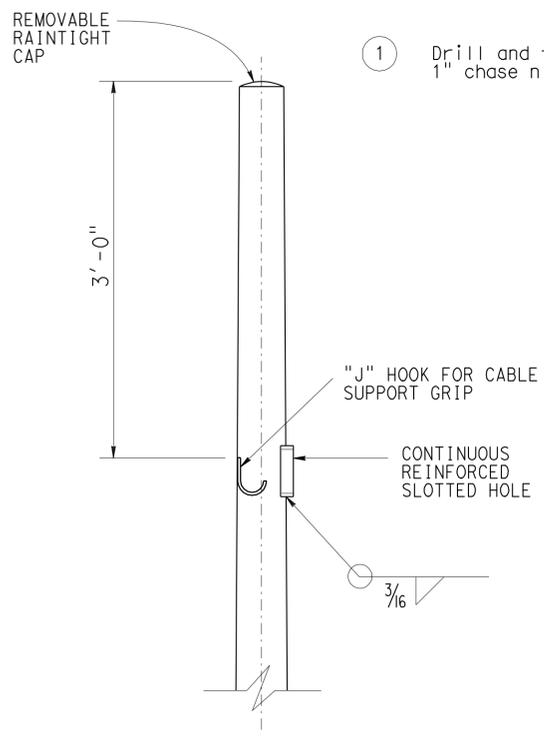
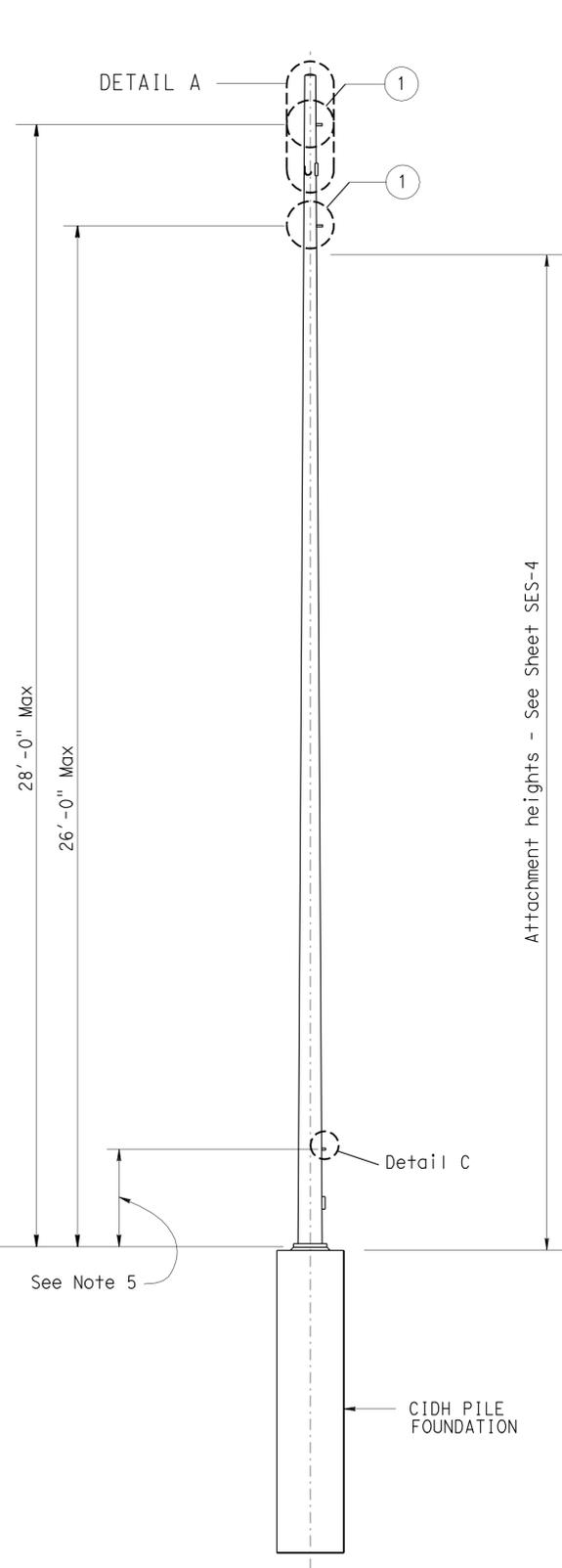
DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES	SHEET	OF
4-22-11 5-9-11 11-8-11		

FILE => spec\_des\_br\_prj/2011sd/05-463801/05-463801\_ses-4.dgn

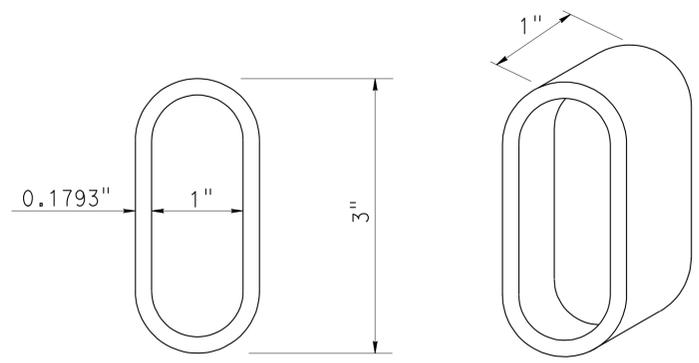
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SB	101	83.1/83.9	120	190

*Eliseo Lopez*  
 REGISTERED CIVIL ENGINEER DATE 5-9-11  
 PLANS APPROVAL DATE 4-2-12  
 No. C72910  
 Exp. 12/31/12  
 CIVIL  
 STATE OF CALIFORNIA  
 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.

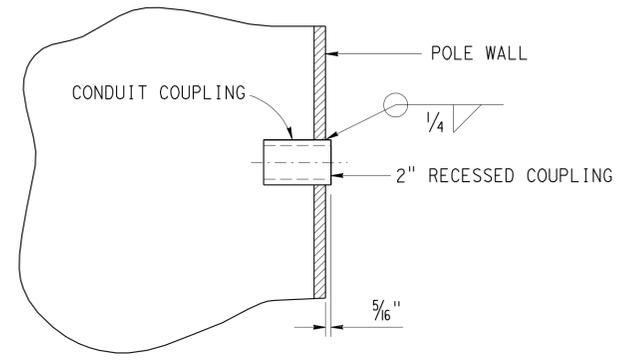


**DETAIL A**

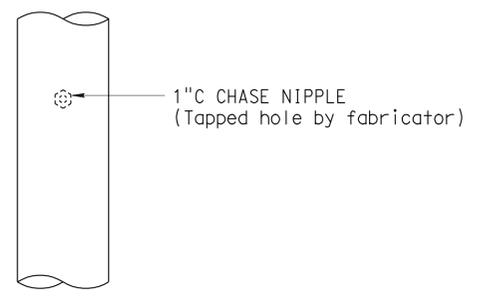
1 Drill and tap for 1" Chase nipple and plug with raintight plugs. 1" chase nipple per attachment per pole. (See Detail "B")



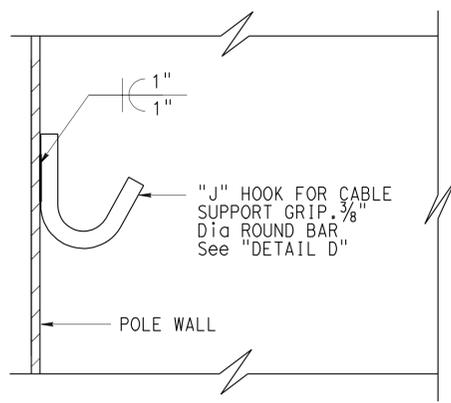
**SLOTTED HOLE**



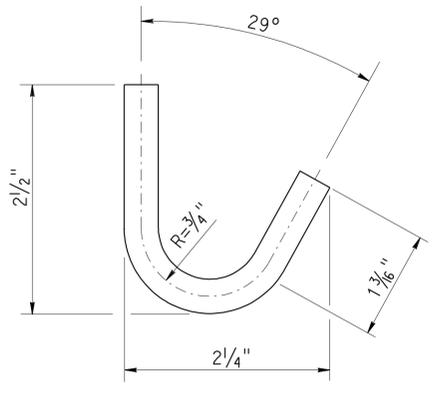
**2" RECESSED COUPLING  
DETAIL C (TYPICAL)**



**DETAIL B  
TYPICAL ELECTRICAL  
ACCESS DETAIL**



**J HOOK DETAIL**



**DETAIL D**

**NOTES:**

- Place all couplings on the same side of pole.
- Chase nipples and slotted hole shall have a raintight plug. Plug should only be removed if chase nipple or slotted hole is used.
- The chase nipples shall be 1'-0" Min vertical clearance from the slotted hole and not on the same side as the slotted hole.
- For attachment details, see sheet SES-4.
- Coupling location above ground and spacing shall be verified to match choice of enclosure, prior to fabrication.
- All attachments, unless otherwise noted, shall be mounted to pole with stainless steel straps or other method without drilling holes in pole. Enclosure may require drilling through post for mounting. Method of mounting enclosure will require the Engineer's approval.

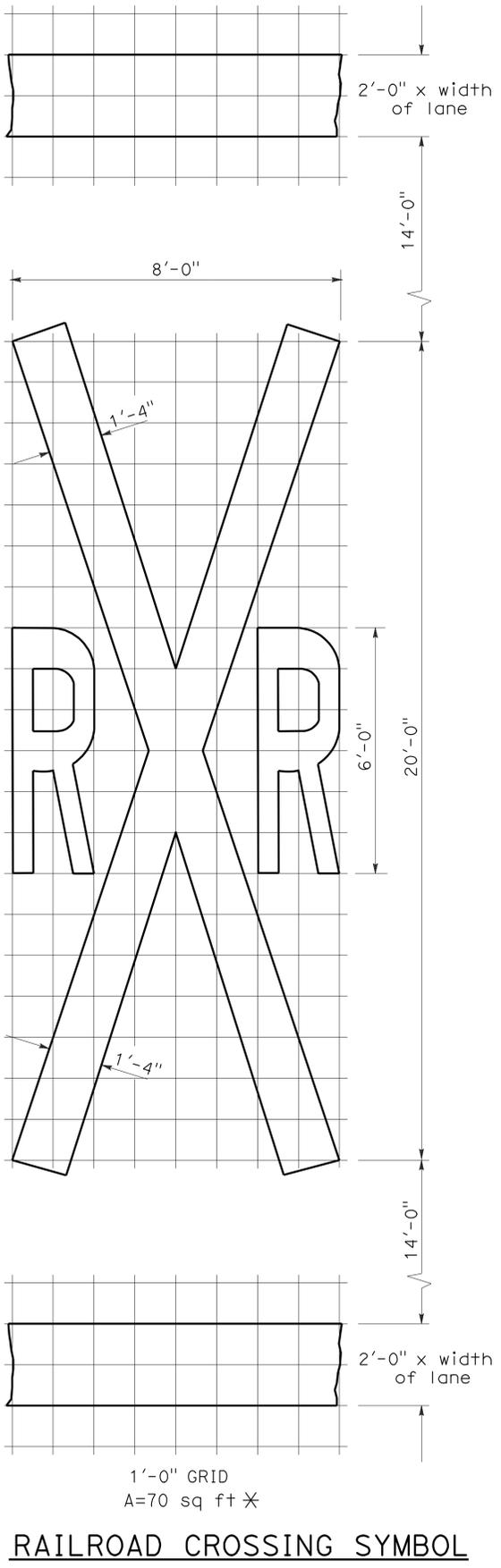
NOTE:  
 THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

**ELEVATION**

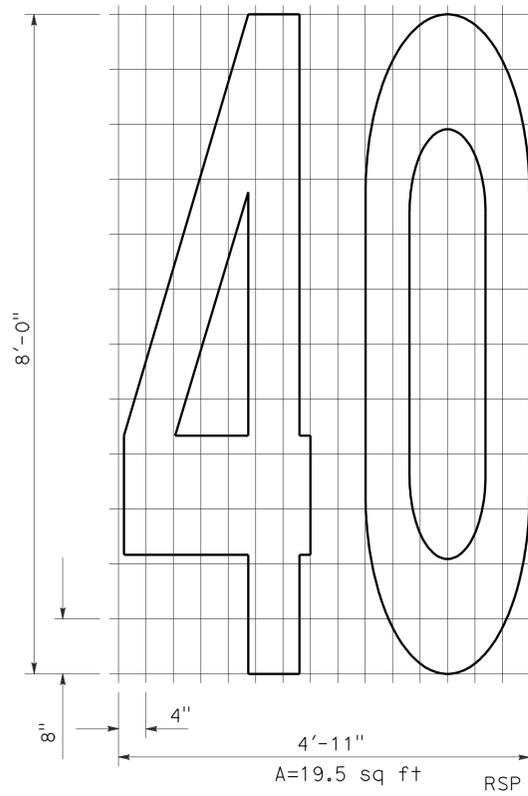
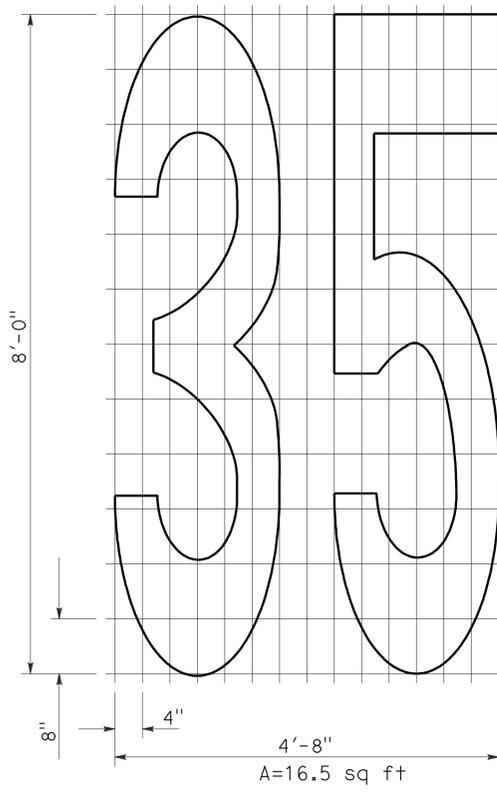
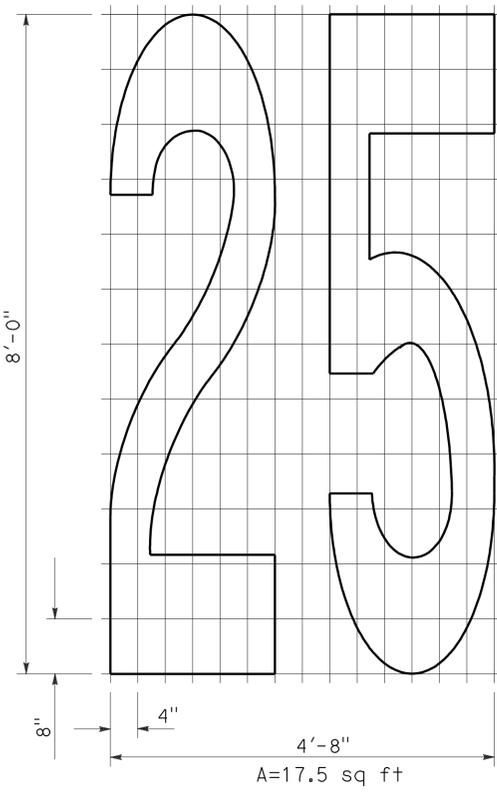
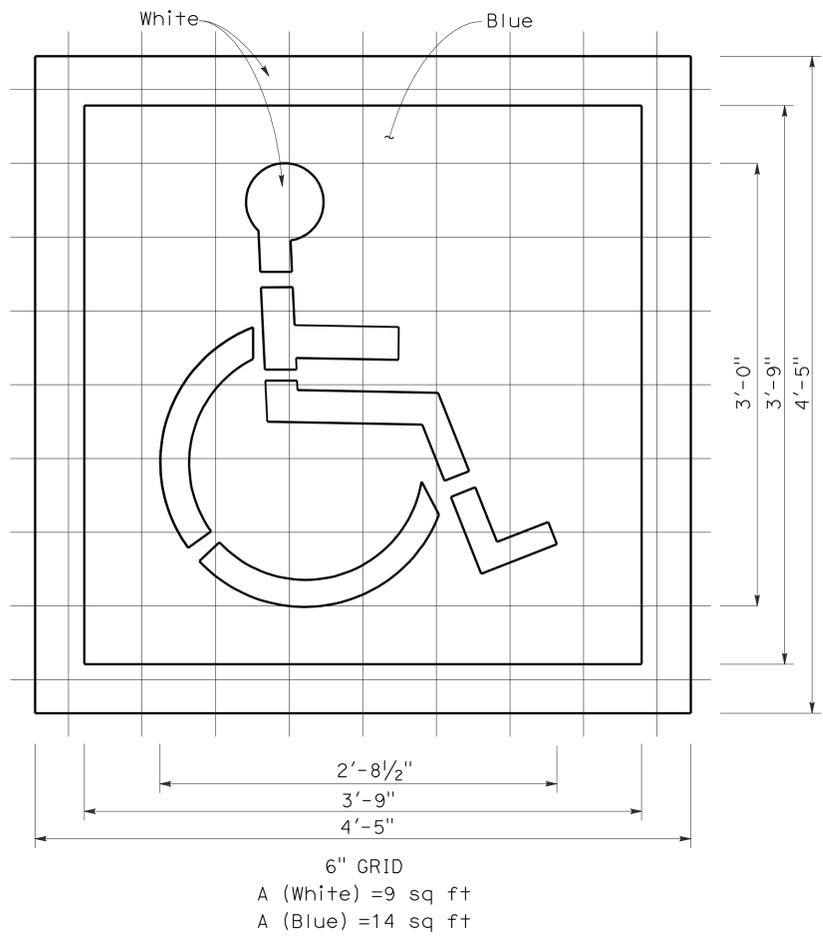
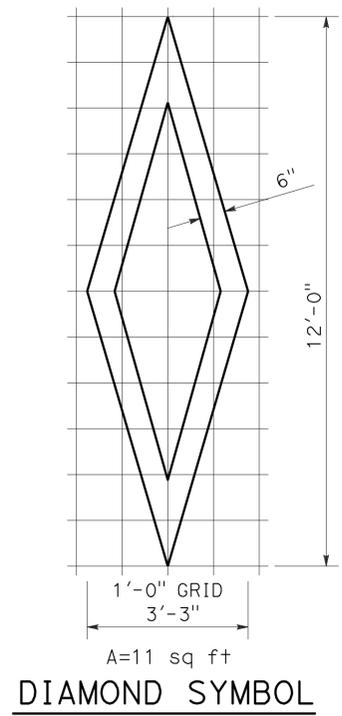
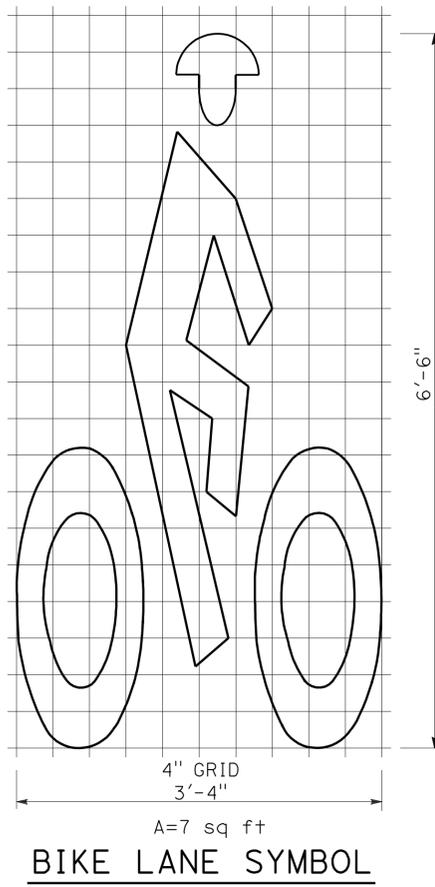
NO SCALE

BRANCH CHIEF JEFFREY B WOODY	DESIGN	BY E LOPEZ	CHECKED A GUTIERREZ	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES DESIGN AND TECHNICAL SERVICES SPECIAL DESIGNS BRANCH <b>A</b>	BRIDGE NO.	N/A	ELECTRICAL SYSTEMS MICROWAVE VEHICLE DETECTION SYSTEM POLE DETAILS	SES-5
	DETAILS	BY A R DUDSAK	CHECKED A GUTIERREZ			POST MILE	83.1/83.9		
	QUANTITIES	BY	CHECKED						

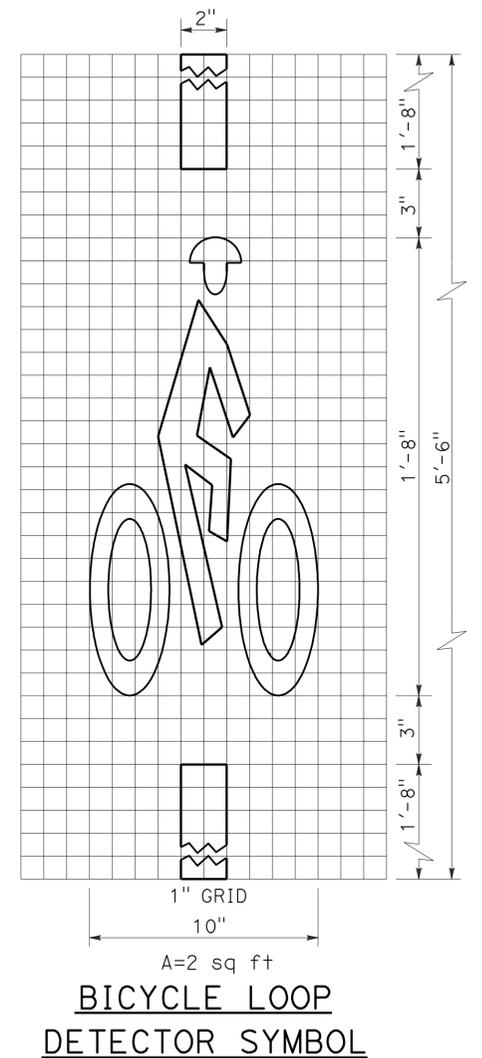
To accompany plans dated 4-2-12



\*70 sq ft DOES NOT INCLUDE THE 2'-0" x VARIABLE WIDTH TRANSVERSE LINES.



**NUMERALS**



**NOTE:**  
1. Minor variations in dimensions may be accepted by the Engineer.

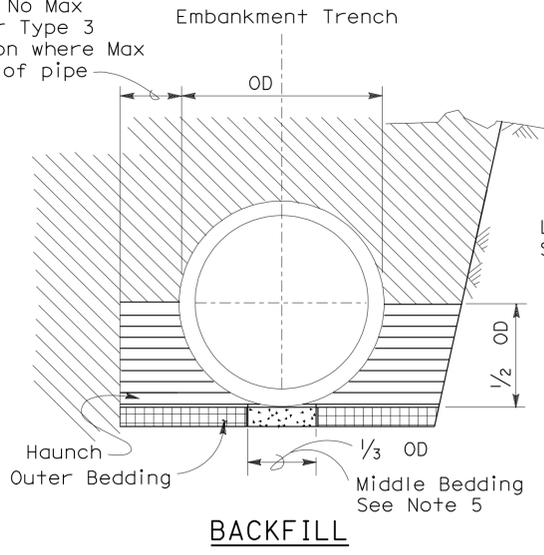
STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**PAVEMENT MARKINGS SYMBOLS AND NUMERALS**  
NO SCALE

RSP A24C DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A24C DATED MAY 1, 2006 - PAGE 11 OF THE STANDARD PLANS BOOK DATED MAY 2006.

2006 REVISED STANDARD PLAN RSP A24C

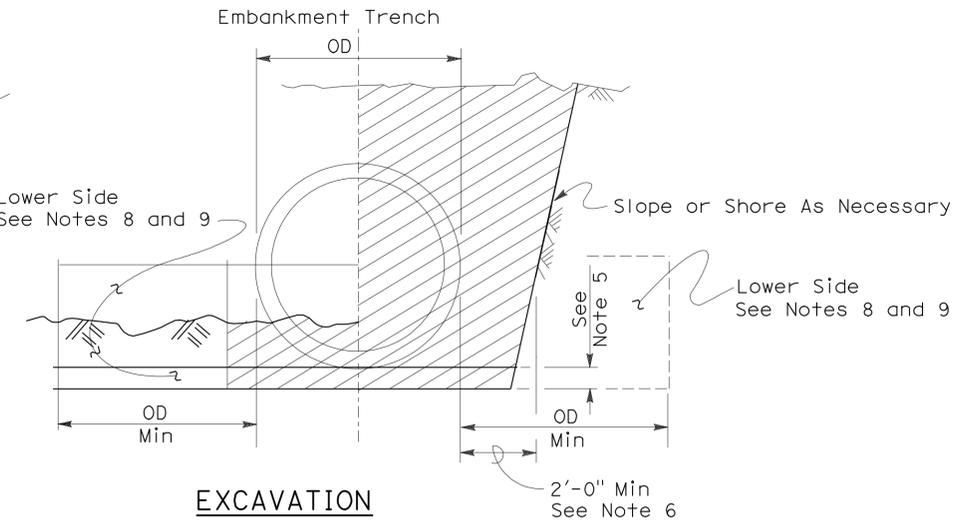
2006 REVISED STANDARD PLAN RSP A62DA

2'-0" Min; No Max except for Type 3 Installation where Max Equals OD of pipe



**BACKFILL**

- Roadway Embankment
- Structure Backfill (Culvert) See Note 6
- Structure Backfill (Culvert) See Note 6
- Loose Backfill



**EXCAVATION**

- Excavation Structure (Culvert)

**TYPE 1 INSTALLATION:**

The haunch and outer bedding shall be compacted to a minimum 90 percent relative compaction. In addition, the minimum sand equivalent in these areas shall be 30 and the maximum percentage passing the 75 μm sieve size shall be 12.

**TYPE 2 INSTALLATION:**

The haunch and outer bedding shall be compacted to a minimum 90 percent relative compaction. In addition, the minimum sand equivalent in these areas shall be 25.

**TYPE 3 INSTALLATION:**

The haunch and outer bedding shall be compacted to a minimum 85 percent relative compaction. 90 percent relative compaction will be required where the fill over the pipe is less than 4'-0" or 1/2 OD.

**NOTES:**

- Unless otherwise shown on the plans or specified in the special provision, the Contractor shall have the option of selecting the class of RCP and the type of installation to be used, provided the height of cover does not exceed the value shown for the RCP selected.  
 Example: 24" RCP culvert with maximum cover of 19'-0" the options are:
  - Class III or stronger with Installation Type 1.
  - Class III Special or stronger with Installation Type 2.
  - Class IV Special or stronger with Installation Type 3.
 Cover is defined as the maximum vertical distance from top of the pipe to finished grade within the length of any given culvert.
- The class of RCP and Installation Type selected shall be the same throughout the length of any given culvert.
- The "length of any culvert" is defined as the culvert between:
  - Successive drainage structure (inlets, junction boxes, headwalls, etc.).
  - A drainage structure and the inlet or outlet end of the culvert.
  - The inlet and outlet end of the culvert when there are no intervening drainage structures.
- Oval and arch shaped RCP shall not be used.
- 1/25 OD Min, not less than 3".
- Slurry cement backfill may be substituted for backfill in the outer bedding and haunch areas. If slurry is used the outer and middle beddings shall be omitted. Prior to installation the soil under the middle 1/3 of the outside diameter of the pipe shall be softened by scarifying or other means to a minimum depth of 1/25 OD, but not less than 3". Where slurry cement backfill is used clear distance to trench wall may be reduced as set forth in Section 19-3.062 of the Standard Specifications.
- Backfill shall be placed full width of excavation except where dimensions are shown for backfill width or thickness. Dimensions shown are minimums.
- Lower side shall be suitable material as determined by the Engineer. Otherwise it shall be considered unsuitable as set forth in Section 19-2.02 of the Standard Specifications. See Note 9.
- Where the pipe is placed in a trench, if the trench walls are sloped at 5 vertical to 1 horizontal or steeper for at least 90 percent of the trench height or up to not less than 12" from the grading plane, the firmness of the soil in the lower side need not be considered.
- Non-reinforced precast concrete pipe sizes 3'-0" or smaller may be placed under installation Types 1, 2 or 3.

**INSTALLATION TYPE 1**

MINIMUM CLASS AND D-LOAD	COVER	
	108" Dia AND SMALLER	OVER 108" Dia
Class II 1000D	14.9'	12.9'
Class III 1350D	15.0' - 20.9'	13.0' - 18.9'
Class III Special 1700D	21.0' - 26.9'	19.0' - 24.9'
Class IV 2000D	27.0' - 31.9'	25.0' - 29.9'
Class IV Special 2500D	32.0' - 40.9'	30.0' - 38.9'
Class V 3000D	41.0' - 49.9'	39.0' - 46.9'
Class V Special 3600D	50.0' - 59.0'	47.0' - 58.0'

**INSTALLATION TYPE 2**

MINIMUM CLASS AND D-LOAD	COVER
Class II 1000D	9.9'
Class III 1350D	10.0' - 14.9'
Class III Special 1700D	15.0' - 19.9'
Class IV 2000D	20.0' - 24.9'
Class IV Special 2500D	25.0' - 31.9'
Class V 3000D	32.0' - 38.9'
Class V Special 3600D	39.0' - 47.0'

**INSTALLATION TYPE 3**

MINIMUM CLASS AND D-LOAD	COVER	
	48" Dia AND SMALLER	OVER 48" Dia
Class II 1000D	7.9'	5.9'
Class III 1350D	8.0' - 10.9'	6.0' - 8.9'
Class III Special 1700D	11.0' - 14.9'	9.0' - 12.9'
Class IV 2000D	15.0' - 17.9'	13.0' - 15.9'
Class IV Special 2500D	18.0' - 21.9'	16.0' - 19.9'
Class V 3000D	22.0' - 26.9'	20.0' - 24.9'
Class V Special 3600D	30.0' - 33.0'	25.0' - 31.0'

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**EXCAVATION AND BACKFILL  
CONCRETE PIPE CULVERTS**

NO SCALE

RSP A62DA DATED NOVEMBER 17, 2006 SUPERSEDES STANDARD PLAN A62DA DATED MAY 1, 2006 - PAGE 20 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP A62DA**

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SB	101	83.1/83.9	123	190

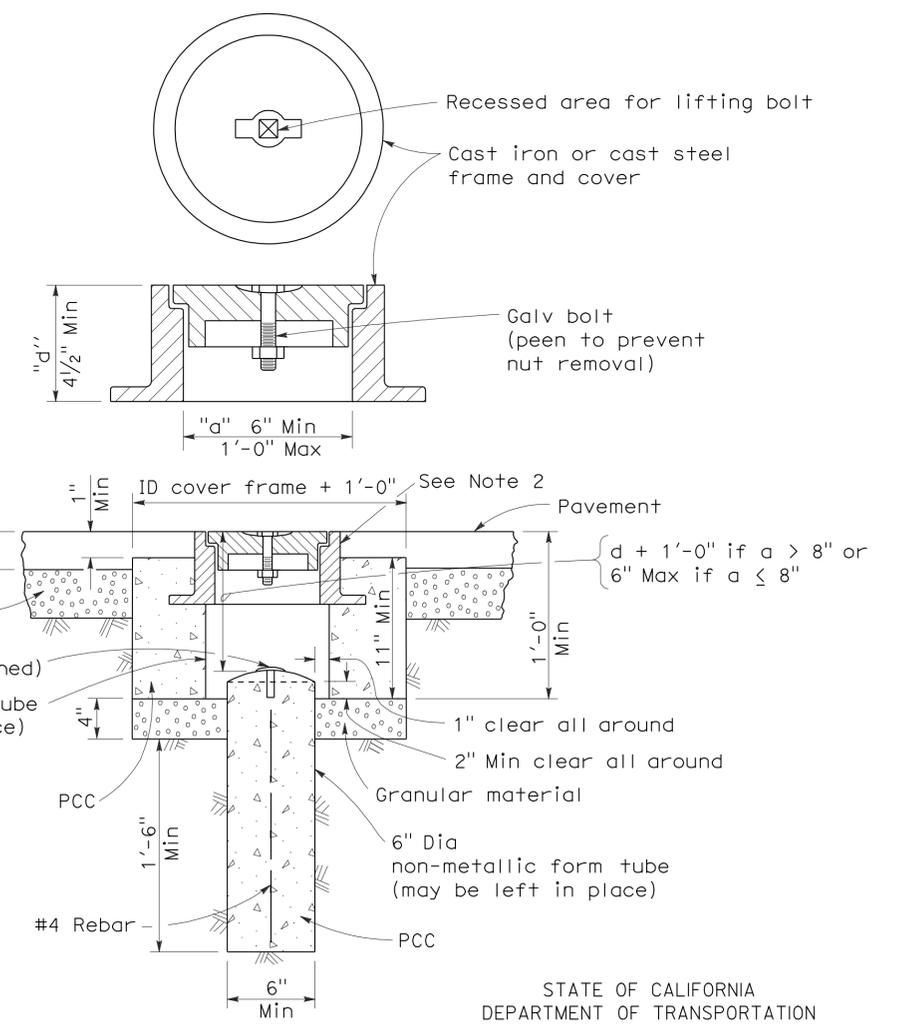
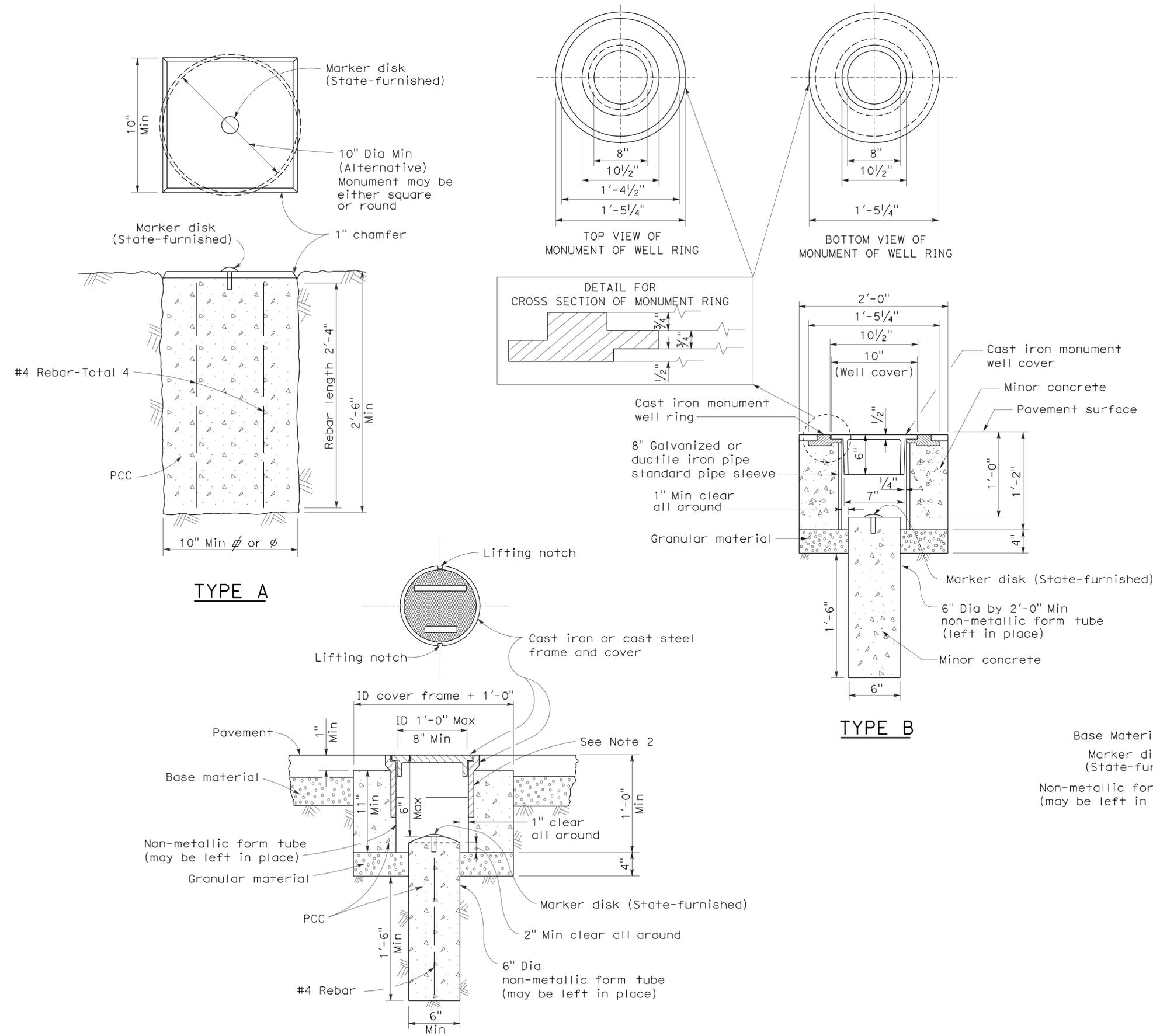
*Mark S. Turner*  
 PROFESSIONAL LAND SURVEYOR  
 June 30, 2006  
 PLANS APPROVAL DATE  
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

LICENSED LAND SURVEYOR  
 Mark S. Turner  
 No. 6228  
 Exp. 3-31-08  
 STATE OF CALIFORNIA

To accompany plans dated 4-2-12

**NOTES:**

1. The configuration of the cast iron or cast steel frame and cover may vary from that shown.
2. Frame shall be embedded in the concrete a minimum of 3".
3. Type D monument shall be either Alternative No. 1 or Alternative No. 2 at the contractor's option.
4. All portland cement concrete shall be Class 2 or minor concrete with 1" maximum aggregate.



**TYPE D SURVEY MONUMENTS**  
 Alternative No. 2  
 NO SCALE

RSP A74 DATED JUNE 30, 2006 SUPERSEDES STANDARD PLAN DATED MAY 1, 2006 - PAGE 28 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP A74**

2006 REVISED STANDARD PLAN RSP A74

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SB	101	83.1/83.9	124	190

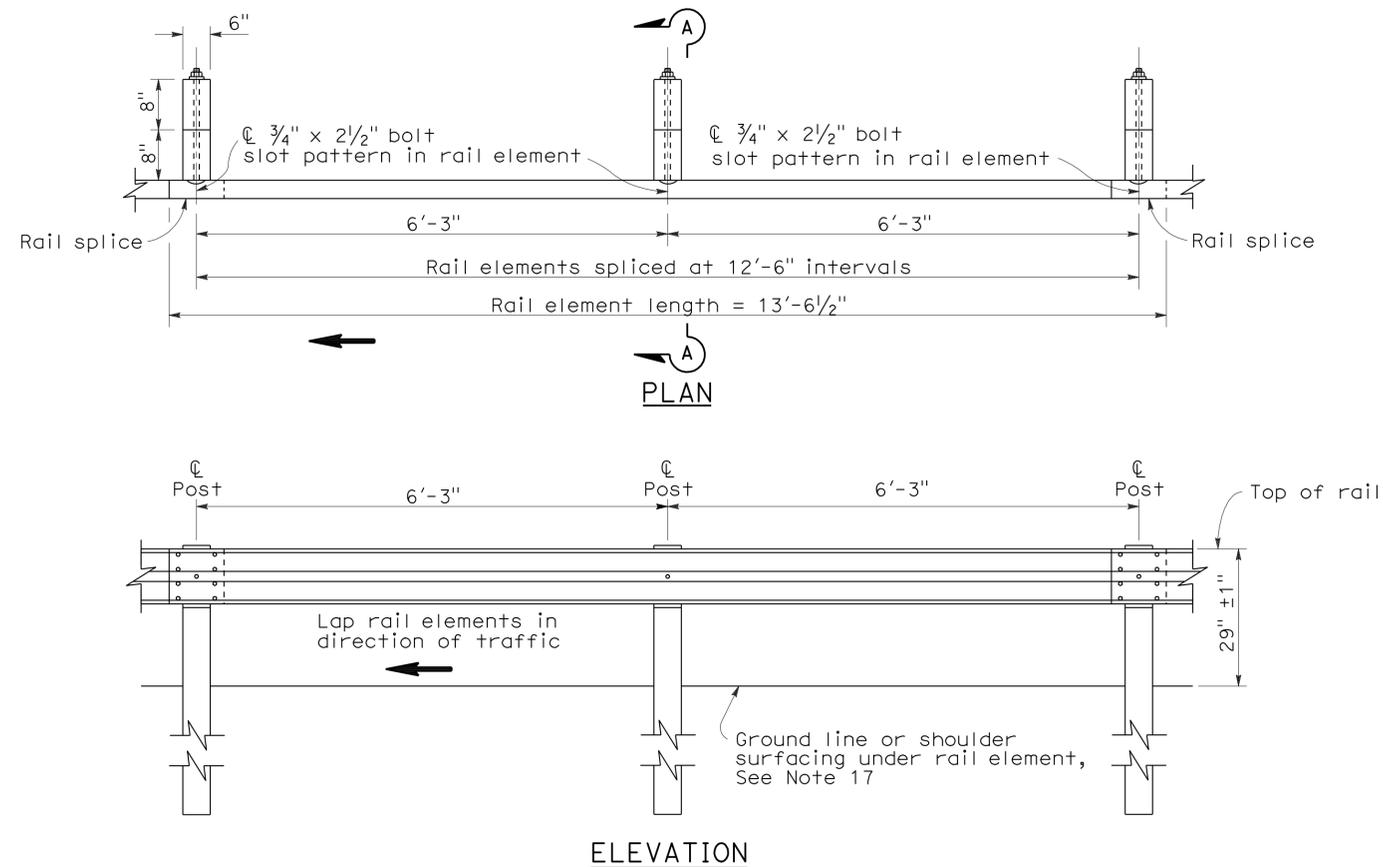
**Randell D. Hiatt**  
REGISTERED CIVIL ENGINEER

May 20, 2011  
PLANS APPROVAL DATE

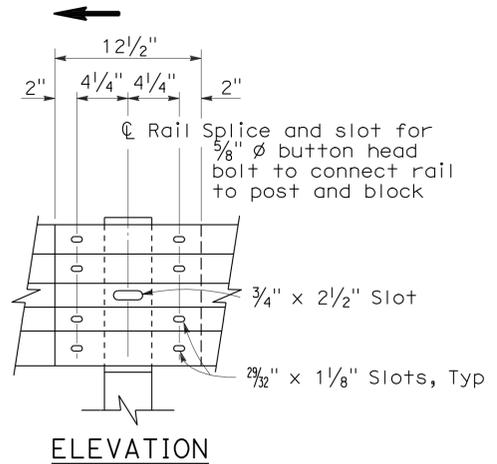
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

To accompany plans dated 4-2-12

**Randell D. Hiatt**  
REGISTERED PROFESSIONAL ENGINEER  
No. C50200  
Exp. 6-30-11  
CIVIL  
STATE OF CALIFORNIA

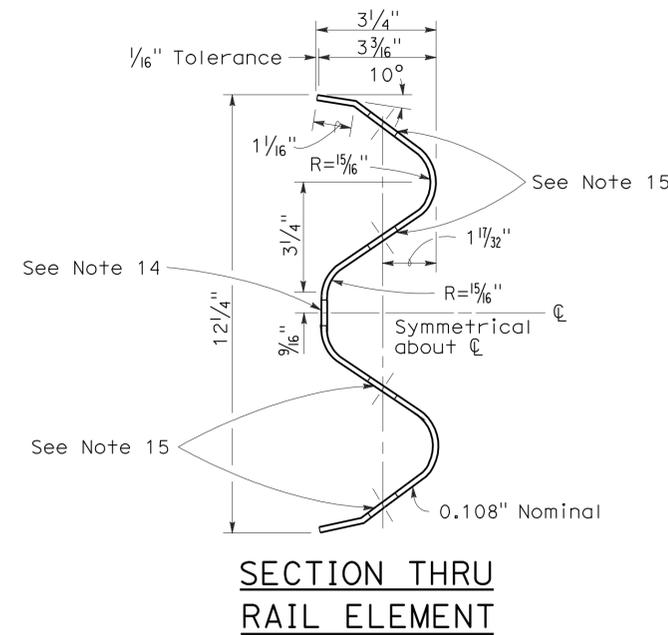


**METAL BEAM GUARD RAILING WITH WOOD POST AND BLOCKS**

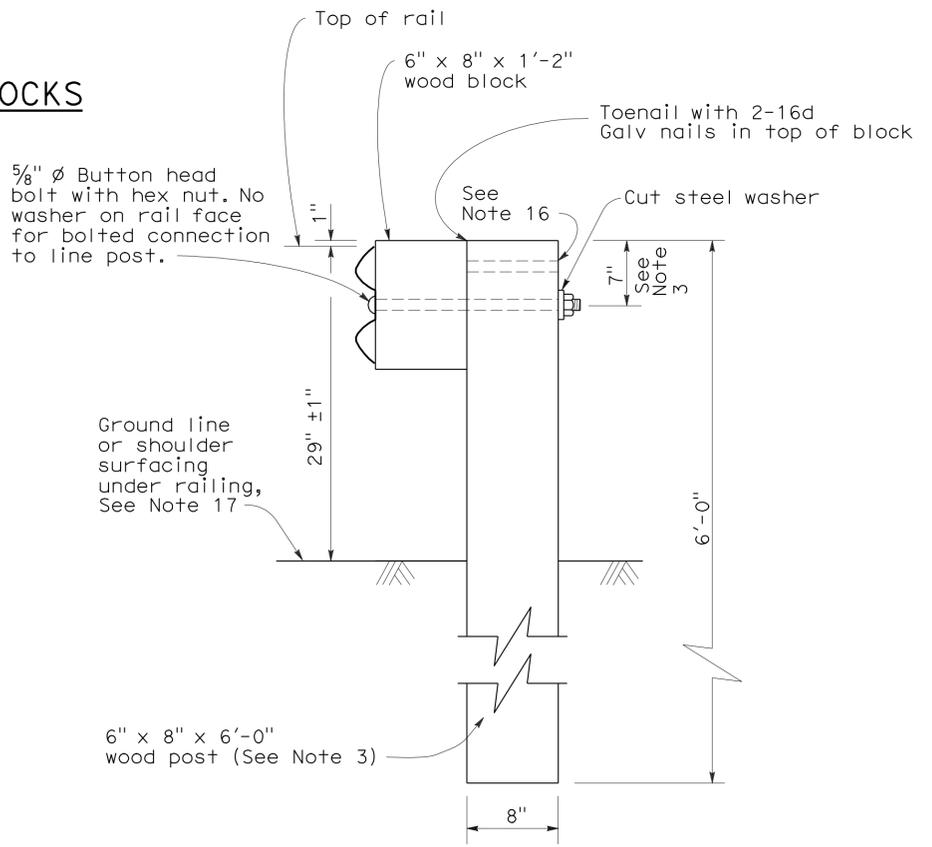


**RAIL ELEMENT SPLICE DETAIL**

- Connect the over lapped end of the rail elements with 5/8"  $\phi$  x 1 3/8" button head oval shoulder splice bolts inserted into the 2 3/32" x 1 1/8" slots and bolted together with 5/8"  $\phi$  recessed hex nuts. Recess of hex nut points toward rail element. A total of 8 bolts and nuts are to be used at each rail splice connection.
- The ends of the rail elements are to be overlapped in the direction of traffic (see details).
- Where end cap is to be attached to the end of a rail element, a total of 4 of the above described splice bolts and nuts are to be used.



**SECTION THRU RAIL ELEMENT**



**SECTION A-A  
TYPICAL WOOD LINE  
POST INSTALLATION**

See Note 4

**NOTES:**

- For details of steel post installations, see Standard Plan A77A2.
- For details of standard hardware used to construct guard railing, see Standard Plan A77B1.
- For details of wood posts and wood blocks used to construct guard railing, see Standard Plan A77C1.
- For additional installation details, see Standard Plan A77C3.
- Guard railing post spacing to be 6'-3" center to center, except as otherwise noted.
- For guard railing typical layouts, see the A77E, A77F and A77G Series of Standard Plans.
- For terminal system end treatment details, see the A77L Series of Standard Plans. To connect railing to terminal system end treatment, transition the top of railing height at a ratio of 120:1 to terminal system end treatment height plus one 12'-6" standard railing section at the transitioned height for a horizontal connection to the end treatment.
- For guard railing end anchor details, see Standard Plans A77H1 and A77I2.
- For details of guard railing transition to bridge railing, see Standard Plan A77J4.
- For additional details of guard railing connection to bridge railings, see Standard Plans A77J1, A77J2 and A77K1.
- For guard railing connection details to abutments and walls, see Standard Plan A77J3.
- Direction of adjacent traffic indicated by  $\rightarrow$ .
- For typical guard railing delineation and dike positioning details, see Standard Plan A77C4.
- Slotted hole for bolted connection of rail element to block and post. See "Section Thru Rail Element".
- Slotted holes for splice bolts to overlap ends of rail element. See "Section Thru Rail Element".
- Additional hole in uppermost portion of line post is for potential future adjustments of railing height. See Standard Plan A77C1.
- Install posts in soil.

**METAL BEAM GUARD RAILING  
STANDARD RAILING SECTION  
(WOOD POST WITH  
WOOD BLOCK)**

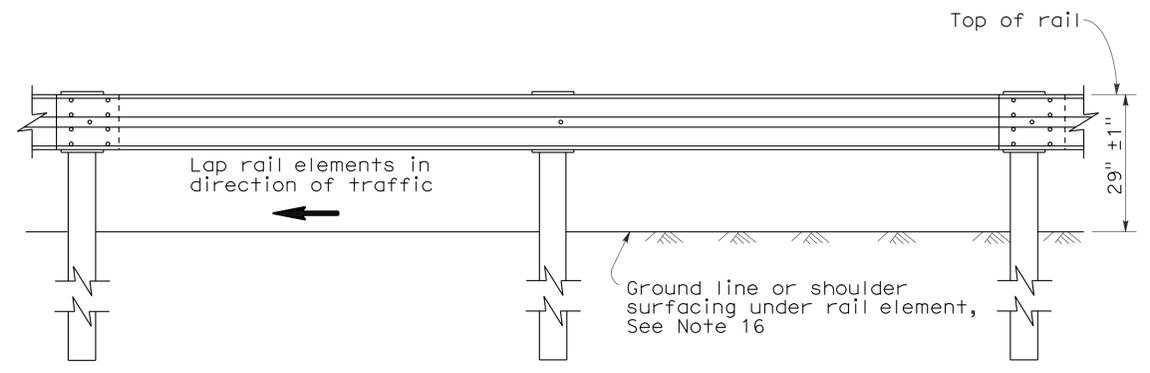
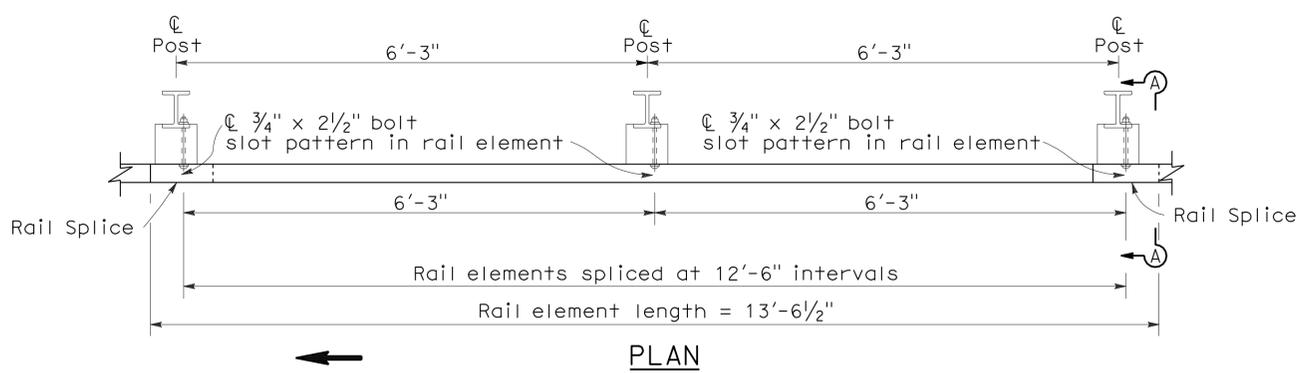
NO SCALE

RSP A77A1 DATED MAY 20, 2011 SUPERSEDES STANDARD PLAN A77A1  
DATED MAY 1, 2006 - PAGE 41 OF THE STANDARD PLANS BOOK DATED MAY 2006.

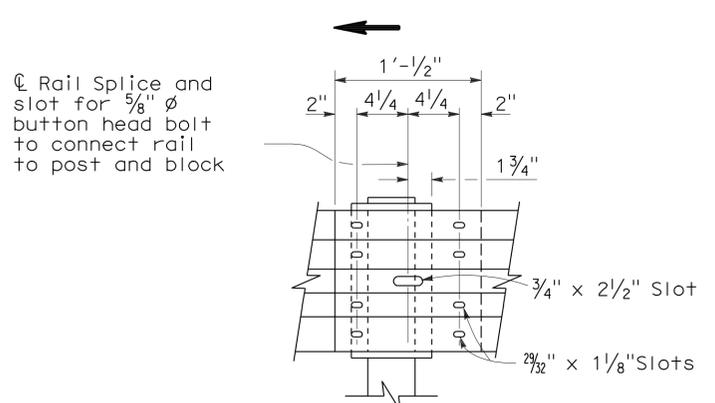
**REVISED STANDARD PLAN RSP A77A1**

2006 REVISED STANDARD PLAN RSP A77A1

2006 REVISED STANDARD PLAN RSP A77A2

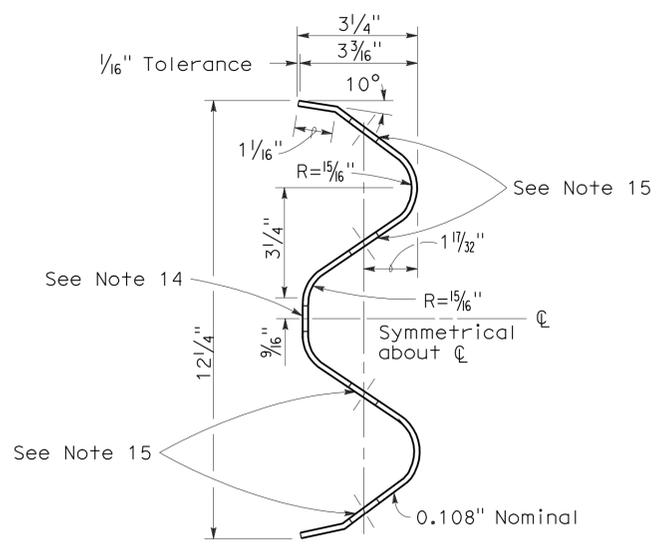


**METAL BEAM GUARD RAILING WITH STEEL POSTS AND NOTCHED WOOD OR NOTCHED RECYCLED PLASTIC BLOCKS**

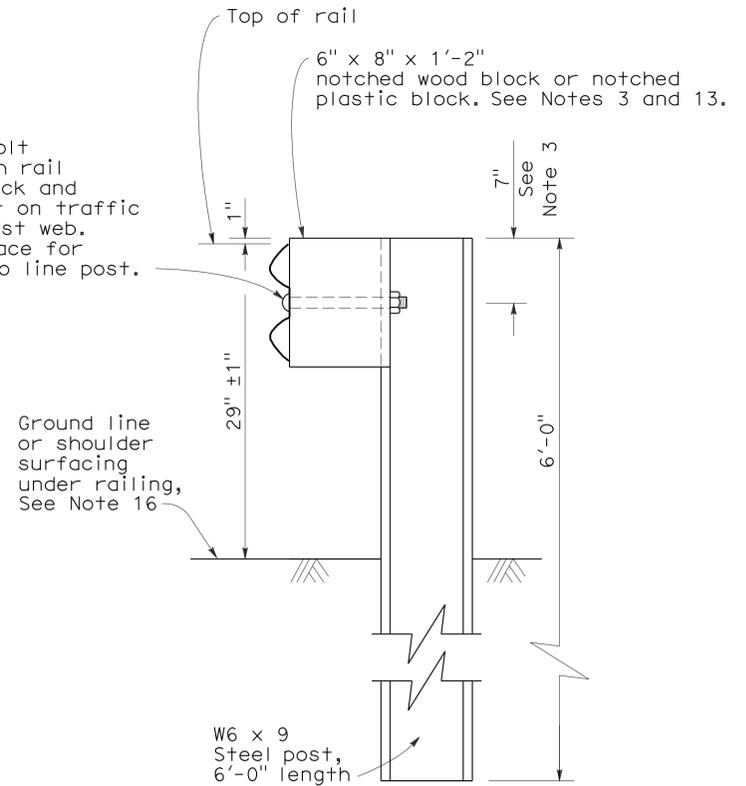


**ELEVATION  
RAIL ELEMENT SPLICE DETAIL**

- Connect the overlapped end of the rail elements with  $\frac{5}{8}$ "  $\phi$  x  $1\frac{3}{8}$ " button head oval shoulder splice bolts inserted into the  $\frac{27}{32}$ " x  $1\frac{1}{8}$ " slots and bolted together with  $\frac{5}{8}$ "  $\phi$  recessed hex nuts. Recess of hex nut points toward rail element. A total of 8 bolts and nuts are to be used at each rail splice connection.
- The ends of the rail elements are to be overlapped in the direction of traffic (see details).
- Where end cap is to be attached to the end of a rail element, a total of 4 of the above described splice bolts and nuts are to be used.



**SECTION THRU  
RAIL ELEMENT**



**SECTION A-A  
TYPICAL STEEL LINE  
POST INSTALLATION**

See Note 4

**NOTES:**

- For details of wood post installations, see Standard Plan A77A1.
- For details of standard hardware used to construct guard railing, see Standard Plan A77B1.
- For details of steel posts and notched wood blocks used to construct guard railing, see Standard Plan A77C2.
- For additional installation details, see Standard Plan A77C3.
- Guard railing post spacing to be 6'-3" center to center, except as otherwise noted.
- For guard railing typical layouts, see the A77E, A77F and A77G Series of Standard Plans.
- For terminal system end treatment details, see the A77L Series of Standard Plans. To connect railing to terminal system end treatment, transition the top of railing height at a ratio of 120:1 to terminal system end treatment height plus one 12'-6" standard railing section at the transitioned height for a horizontal connection to the end treatment.
- For guard railing end anchor details, see Standard Plans A77H1 and A77I2.
- For details of guard railing transition to bridge railing, see Standard Plan A77J4.
- For additional details of guard railing connection to bridge railings, see Standard Plans A77J1, A77J2 and A77K1.
- For dike positioning and guard railing delineation details, see Standard Plan A77C4.
- Direction of adjacent traffic indicated by  $\rightarrow$ .
- Notched face of block faces steel post.
- Slotted hole for bolted connection of rail element to block and post. See "Section Thru Rail Element".
- Slotted holes for splice bolts to overlap ends of rail element. See "Section Thru Rail Element".
- Install posts in soil.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**METAL BEAM GUARD RAILING  
STANDARD RAILING SECTION  
(STEEL POST WITH NOTCHED  
WOOD OR NOTCHED  
RECYCLED PLASTIC BLOCK)**

NO SCALE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SB	101	83.1/83.9	126	190

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

May 20, 2011  
PLANS APPROVAL DATE

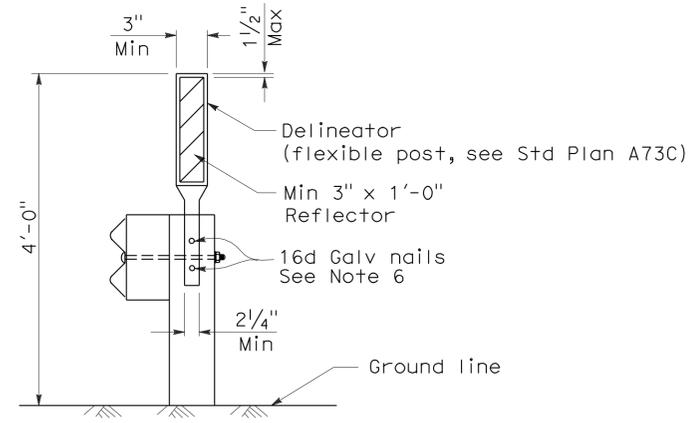
*The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.*



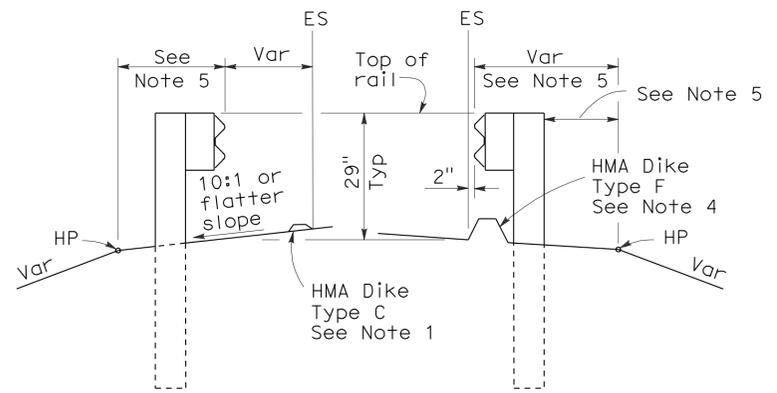
To accompany plans dated 4-2-12

**NOTES:**

1. When necessary to place dike in front of face of guard railing, only Type C dike may be used. For dike details, see Standard Plan A87B.
2. For standard railing post embedment, see Standard Plans A77C3.
3. Guard railing delineation to be used where shown on the Project Plans.
4. When dike or curb is placed under guard railing, the maximum height of the dike or curb shall be 4". Mountable dike should not be used. For dike and curb details, see Standard Plans A87A and A87B.
5. For details of typical distance between the face of rail and hinge point, see Standard Plan A77C3.
6. For steel line posts, use 1/4" - 20 self-tapping screws in 0.22" diameter holes or 1/4" bolts in 3/32" diameter holes.



**GUARD RAILING DELINEATION**  
See Note 3



**DIKE POSITIONING**  
See Note 1

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**METAL BEAM GUARD RAILING  
TYPICAL RAILING DELINEATION  
AND DIKE POSITIONING DETAILS**

NO SCALE

RSP A77C4 DATED MAY 20, 2011 SUPERSEDES RSP A77C4 DATED JUNE 6, 2008 AND STANDARD PLAN A77C4 DATED MAY 1, 2006 - PAGE 47 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP A77C4**

2006 REVISED STANDARD PLAN RSP A77C4

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SB	101	83.1/83.9	127	190

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

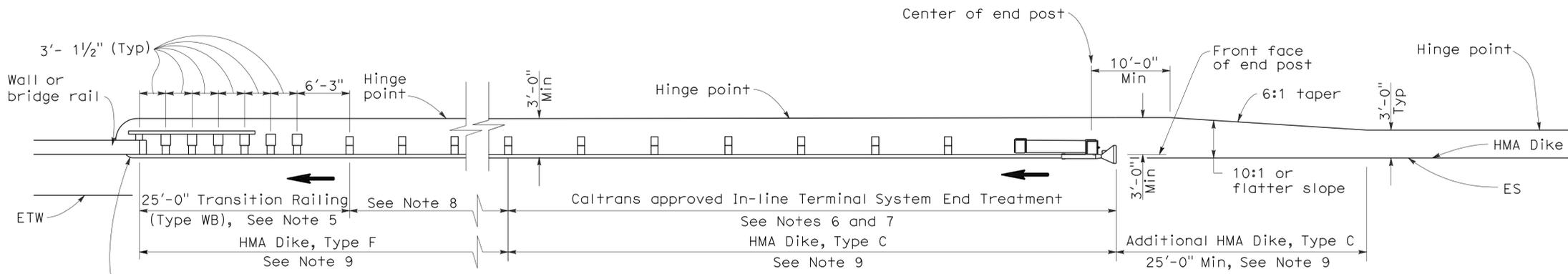
June 6, 2008  
PLANS APPROVAL DATE

*Randell D. Hiatt*  
REGISTERED PROFESSIONAL ENGINEER  
No. C50200  
Exp. 6-30-09  
CIVIL  
STATE OF CALIFORNIA

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.

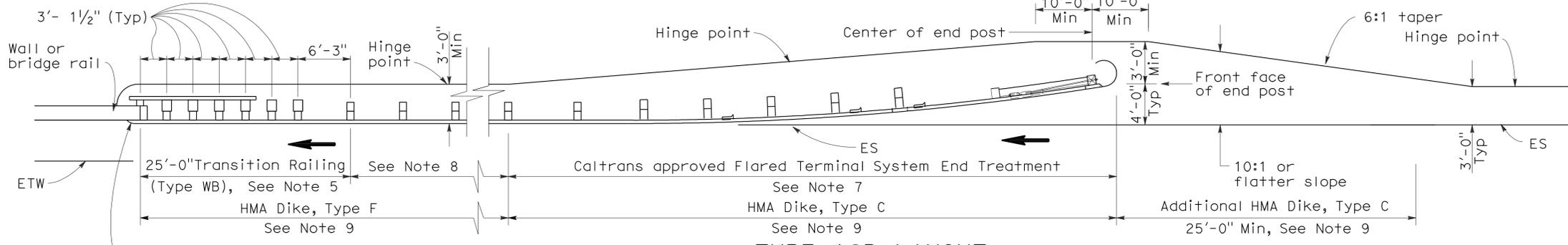
To accompany plans dated 4-2-12

2006 REVISED STANDARD PLAN RSP A77F1



**TYPE 12A LAYOUT**

(GUARD RAILING INSTALLATION AT STRUCTURE APPROACH WITH AN IN-LINE END TREATMENT AT TRAFFIC APPROACH END OF RAILING)  
See Notes 10



**TYPE 12B LAYOUT**

(GUARD RAILING INSTALLATION AT STRUCTURE APPROACH WITH A FLARED END TREATMENT AT TRAFFIC APPROACH END OF RAILING)  
See Notes 10

**NOTES:**

- Line post, blocks and hardware to be used are shown on Standard Plans A77A1, A77A2, A77B1, A77C1 and A77C2.
- Guard rail post spacing to be 6'-3" center to center, except as otherwise noted.
- Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks. W6 x 9 steel posts, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or plastic blocks may be used for 6" x 8" x 6'-0" wood posts with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
- Direction of adjacent traffic indicated by  $\rightarrow$ .
- For Transition Railing (Type WB) details for Types 12A and 12B Layouts, see Standard Plan A77J4.
- In-line Terminal System End Treatments are used where site conditions will not accommodate a flared end treatment.
- The type of terminal system end treatment to be used will be shown on the Project Plans.
- Dependent on site conditions (embankment height, side slopes, or other fixed objects), it may be advisable to construct additional guard railing (a length equal to multiples of 12'-6" with 6'-3" post spacing) between the transition railing and end treatment.

- Where placement of dike is required with guard railing installations, see Revised Standard Plan RSP A77C4 for dike positioning details.
- Type 12A or Type 12B Layouts are typically used:
  - To the right of approaching traffic, at the end of a structure, on two-lane conventional highway where the roadbed width across the structure is less than 40 feet.
  - To the left of approaching traffic, at the end of a structure, on two-lane conventional highway where the roadbed width across the structure is less than 40 feet.
  - To the right of approaching traffic at the end of each structure on multilane freeways or expressways with separate adjacent or parallel bridges.
  - To the right of approaching traffic at the end of the structure on multilane freeways or expressways with decked median on the bridge.
- See Revised Standard Plan RSP A77F3 for typical layout used left of approaching traffic at the ends of each structure on multilane freeways or expressways with separate adjacent or parallel bridges.

- For additional details of typical connections to bridge rail, see Connection Detail AA on Revised Standard Plans RSP A77J1 and RSP A77J2 and Connection Detail FF on Standard Plans A77K1 and A77K2.
- For additional details of a typical connection to walls or abutments, see Standard Plan A77J3.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**METAL BEAM GUARD RAILING  
TYPICAL LAYOUTS FOR  
STRUCTURE APPROACH**

NO SCALE

RSP A77F1 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77F1  
DATED MAY 1, 2006 - PAGE 54 OF THE STANDARD PLANS BOOK DATED MAY 2006.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SB	101	83.1/83.9	128	190

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

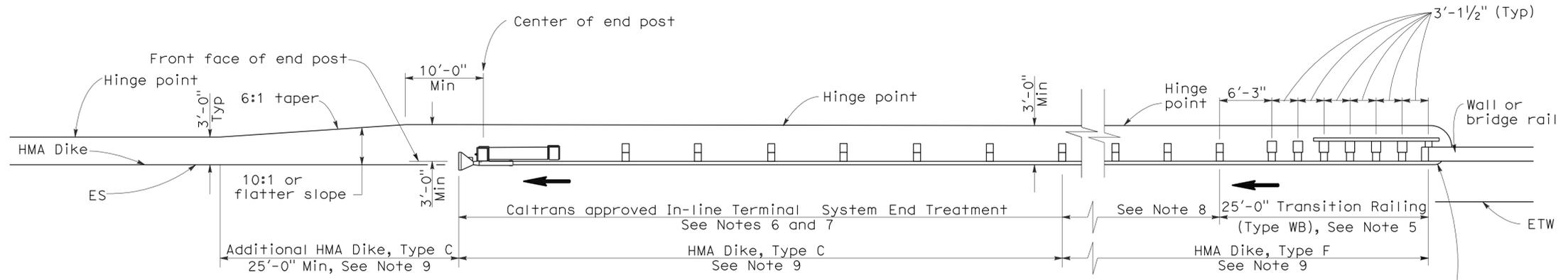
June 6, 2008  
PLANS APPROVAL DATE

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

REGISTERED PROFESSIONAL ENGINEER  
Randell D. Hiatt  
No. C50200  
Exp. 6-30-09  
CIVIL  
STATE OF CALIFORNIA

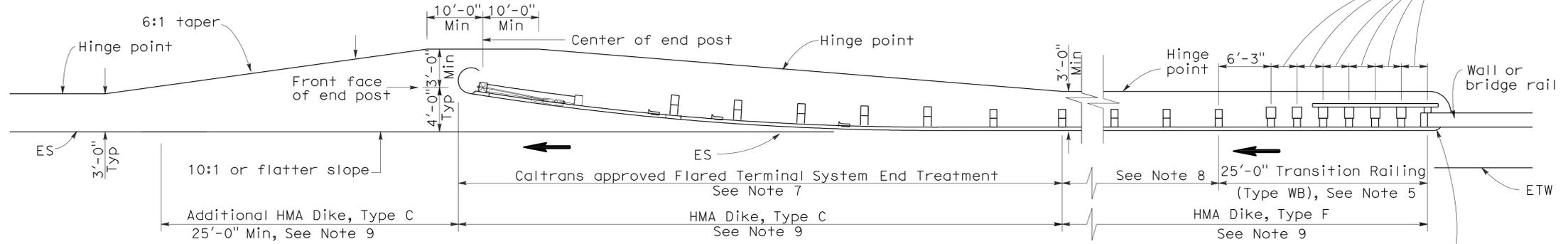
To accompany plans dated 4-2-12

2006 REVISED STANDARD PLAN RSP A77F4



**TYPE 12AA LAYOUT**

(GUARD RAILING INSTALLATION AT STRUCTURE DEPARTURE WITH AN IN-LINE END TREATMENT AT TRAILING END OF RAILING)  
See Notes 9 and 10



**TYPE 12BB LAYOUT**

(GUARD RAILING INSTALLATION AT STRUCTURE DEPARTURE WITH A FLARED END TREATMENT AT TRAILING END OF RAILING)  
See Notes 9 and 10

**NOTES:**

- Line post, blocks and hardware to be used are shown on Standard Plans A77A1, A77A2, A77B1, A77C1 and A77C2.
- Guard rail post spacing to be 6'-3" center to center, except as otherwise noted.
- Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks. W6 x 9 steel posts, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or notched recycled plastic blocks may be used for 6" x 8" x 6'-0" wood posts with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
- Direction of adjacent traffic indicated by  $\rightarrow$ .
- For Transition Railing (Type WB) details for Types 12AA and 12BB Layouts, see Standard Plan A77J4.
- In-line Terminal System Treatments are used where site conditions will not accommodate a flared end treatment.
- The type of terminal system to be used will be shown on the Project Plans.
- Dependent on site conditions (embankment height, side slopes, other fixed objects), it may be advisable to construct additional guard railing (a length equal to multiples of 12'-6" with 6'-3" post spacing) between the transition railing and end treatments.
- Where placement of dike is required with guard railing installations, see Revised Standard Plan RSP A77C4 for dike positioning details.
- Type 12AA or Type 12BB Layouts are typically used to the right of traffic departing a structure on two-way conventional highways where the roadbed width across the structure is less than 40 feet.
- For additional details of typical connections to bridge rail, see Connection Detail CC on Revised Standard Plan RSP A77J2 and Connection Detail HH on Standard Plans A77k2.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**METAL BEAM GUARD RAILING  
TYPICAL LAYOUTS FOR  
STRUCTURE DEPARTURE**  
NO SCALE

RSP A77F4 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77F4  
DATED MAY 1, 2006 - PAGE 57 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP A77F4**

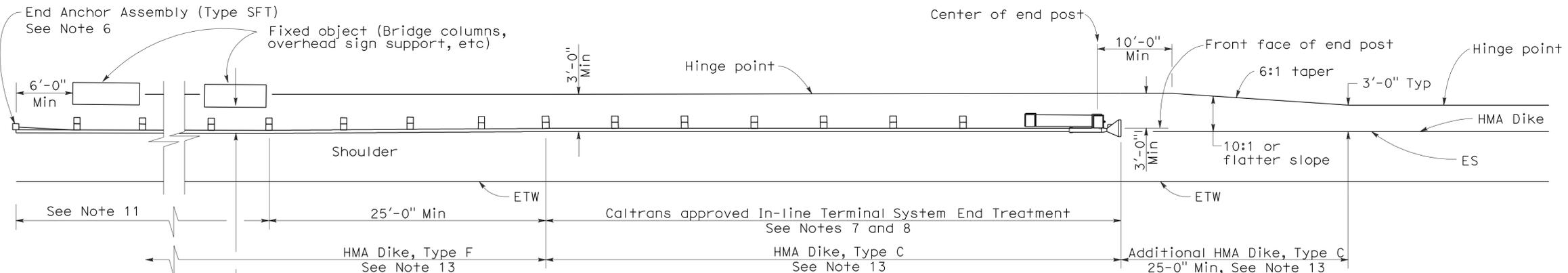
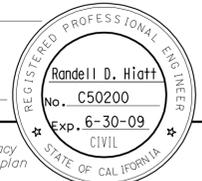
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SB	101	83.1/83.9	129	190

**Randell D. Hiatt**  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

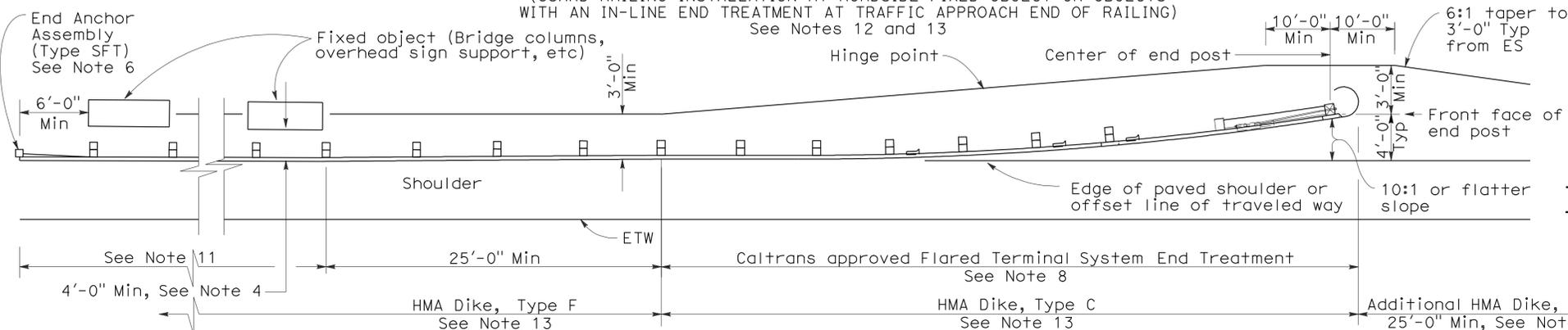
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

To accompany plans dated 4-2-12



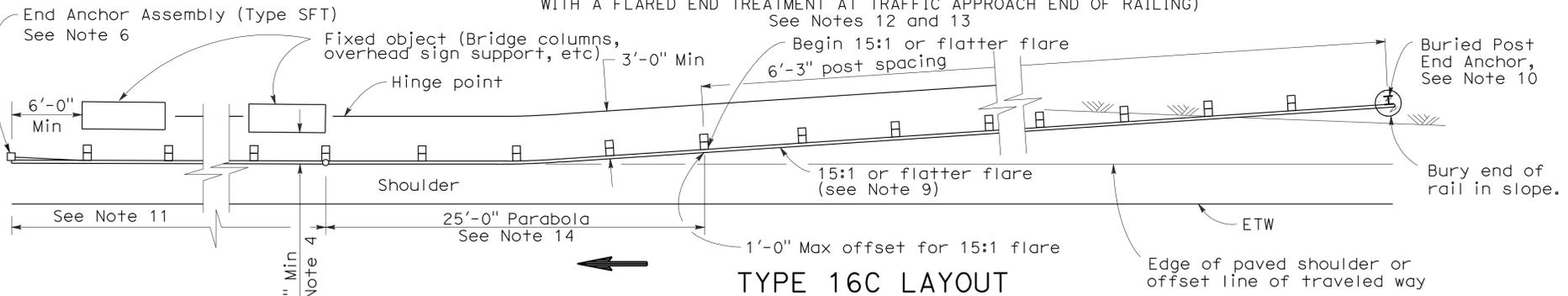
**TYPE 16A LAYOUT**

(GUARD RAILING INSTALLATION AT ROADSIDE FIXED OBJECT OR OBJECTS WITH AN IN-LINE END TREATMENT AT TRAFFIC APPROACH END OF RAILING)  
See Notes 7 and 8



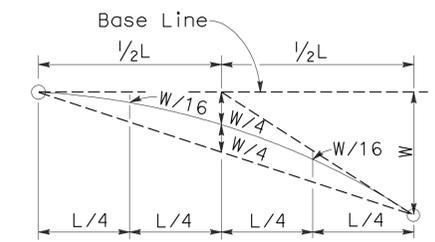
**TYPE 16B LAYOUT**

(GUARD RAILING INSTALLATION AT ROADSIDE FIXED OBJECT OR OBJECTS WITH A FLARED END TREATMENT AT TRAFFIC APPROACH END OF RAILING)  
See Notes 12 and 13

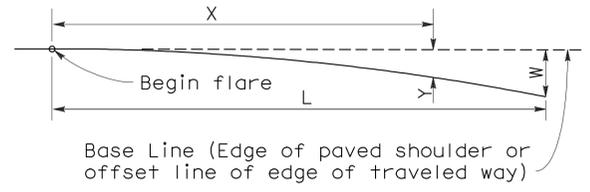


**TYPE 16C LAYOUT**

(GUARD RAILING INSTALLATION AT ROADSIDE FIXED OBJECT OR OBJECTS WITH A BURIED END ANCHOR TREATMENT AT TRAFFIC APPROACH END OF RAILING)  
See Notes 12 and 13



**TYPICAL PARABOLIC LAYOUT**

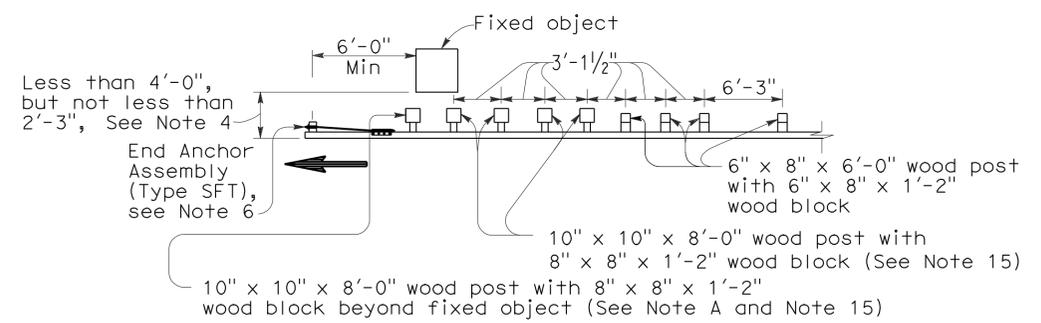


Base Line (Edge of paved shoulder or offset line of edge of traveled way)  
Y = Offset from base line  
W = Maximum offset  
X = Distance along base line  
L = Length of flare

**PARABOLIC FLARE OFFSETS**

**NOTES:**

- Line post, blocks and hardware to be used are shown on Revised Standard Plans A77A1, A77A2, A77B1, A77C1 and A77C2.
- Guard railing post spacing to be 6'-3" center to center, except as otherwise noted.
- Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks. W6 x 9 steel posts, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or notched recycled plastic blocks may be used for 6" x 8" x 6'-0" wood line posts with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
- A 4'-0" minimum clearance is required between the face of the railing and the face of a fixed object located directly behind standard guard railing sections with post spacing of 6'-3". Construct guard railing as shown in the detail "Strengthened Railing Sections for Fixed Objects" on this plan, where the clearance between the face of the railing and the face of a fixed object is less than 4'-0", but not less than 2'-3". Where the clearance is less than 2'-3", a concrete wall or barrier should be constructed to shield the fixed object(s).
- Direction of adjacent traffic indicated by  $\rightarrow$ .
- For End Anchor Assembly (Type SFT) details, see Standard Plan A77H1.
- In-line Terminal System End Treatments are used where site conditions will not accommodate a flared end treatment.
- The type of terminal system to be used will be shown on the Project Plans.
- The 15:1 or flatter flare used with Type 16C Layout is based on the edge of the paved shoulder or offset line of edge of the traveled way. The length of guard railing within the 15:1 or flatter flare is based on site conditions and should be a length equal to multiples of 12'-6".
- For details of the Buried Post End Anchor used with Type 16C Layout, see Standard Plan A77I2.
- As site conditions dictate, construct additional guard railing to shield fixed object(s). Additional guard railing length equal to multiples of 12'-6". Post spacing at 6'-3" except as specified in Note 4.
- Layout Types 16A, 16B or 16C are typically used where guard railing is recommended to shield roadside fixed object(s) and a crashworthy end treatment is required for only one direction of traffic.
- Where placement of dike is required with guard railing, see Revised Standard Plan RSP A77C4 for dike positioning details.
- For typical flare offsets for 25'-0" length parabola with maximum offset of 1'-0", see Revised Standard Plan RSP A77E1.
- W6 x 15 steel post, 8'-0" in length, with 8" x 8" x 1'-2" notched wood block or notched recycled plastic blocks may be used in place of the 10" x 10" x 8'-0" wood post with 8" x 8" x 1'-2" wood block shown in the "Strengthened Railing Sections Detail".



**NOTE A:** For a series of fixed objects (bridge columns, overhead sign supports, etc.) additional 10" x 10" x 8'-0" wood post with 8" x 8" x 1'-2" wood blocks at 3'-1/2" center to center spacing are to be used between fixed objects.

**STRENGTHENED RAILING SECTIONS FOR FIXED OBJECT**

Use strengthened railing sections with Types 16A, 16B or 16C Layouts where minimum clearance between the face of the guard railing and fixed object(s) is less than 4'-0", but not less than 2'-3". See Note 4

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**METAL BEAM GUARD RAILING TYPICAL LAYOUTS FOR ROADSIDE FIXED OBJECTS**

NO SCALE

RSP A77G3 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77G3 DATED MAY 1, 2006 - PAGE 61 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP A77G3**

2006 REVISED STANDARD PLAN RSP A77G3

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SB	101	83.1/83.9	130	190

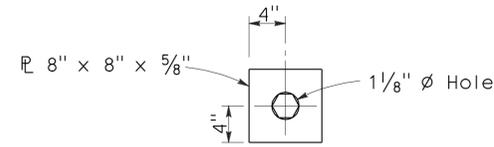
Randell D. Hiatt  
REGISTERED CIVIL ENGINEER

May 20, 2011  
PLANS APPROVAL DATE

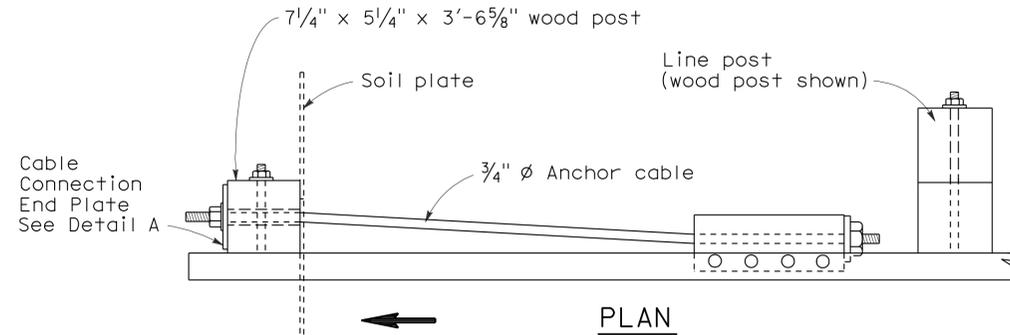
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

To accompany plans dated 4-2-12

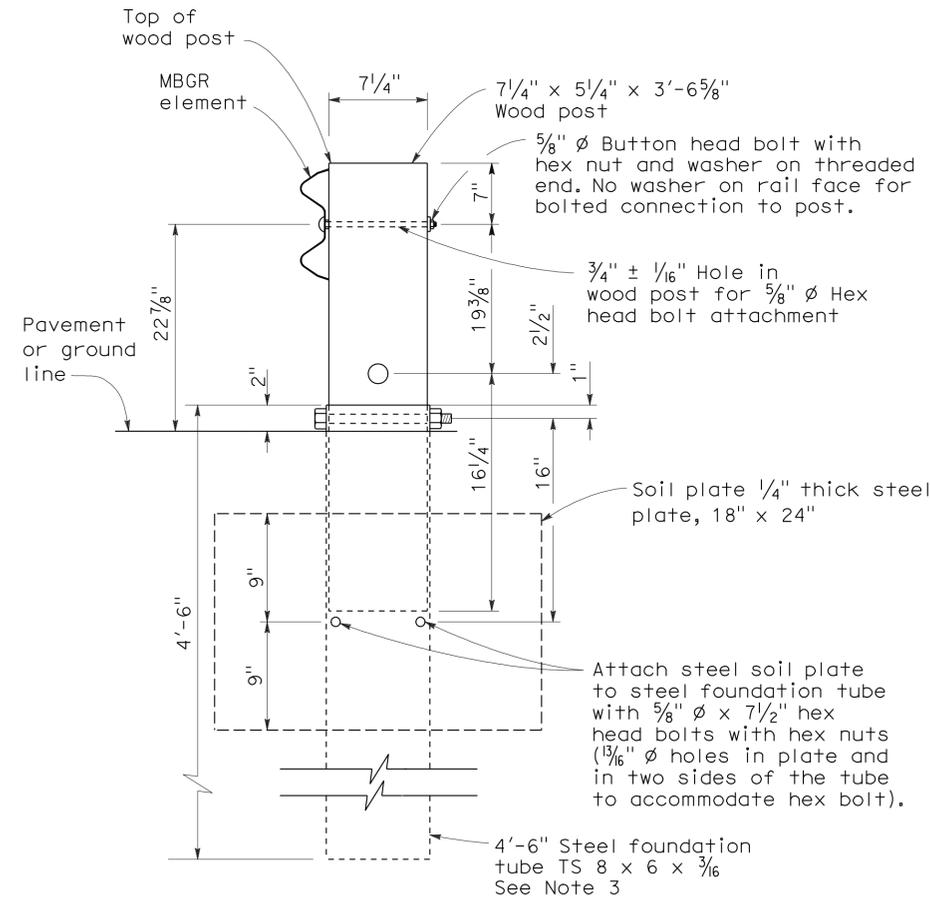
REGISTERED PROFESSIONAL ENGINEER  
Randell D. Hiatt  
No. C50200  
Exp. 6-30-11  
CIVIL  
STATE OF CALIFORNIA



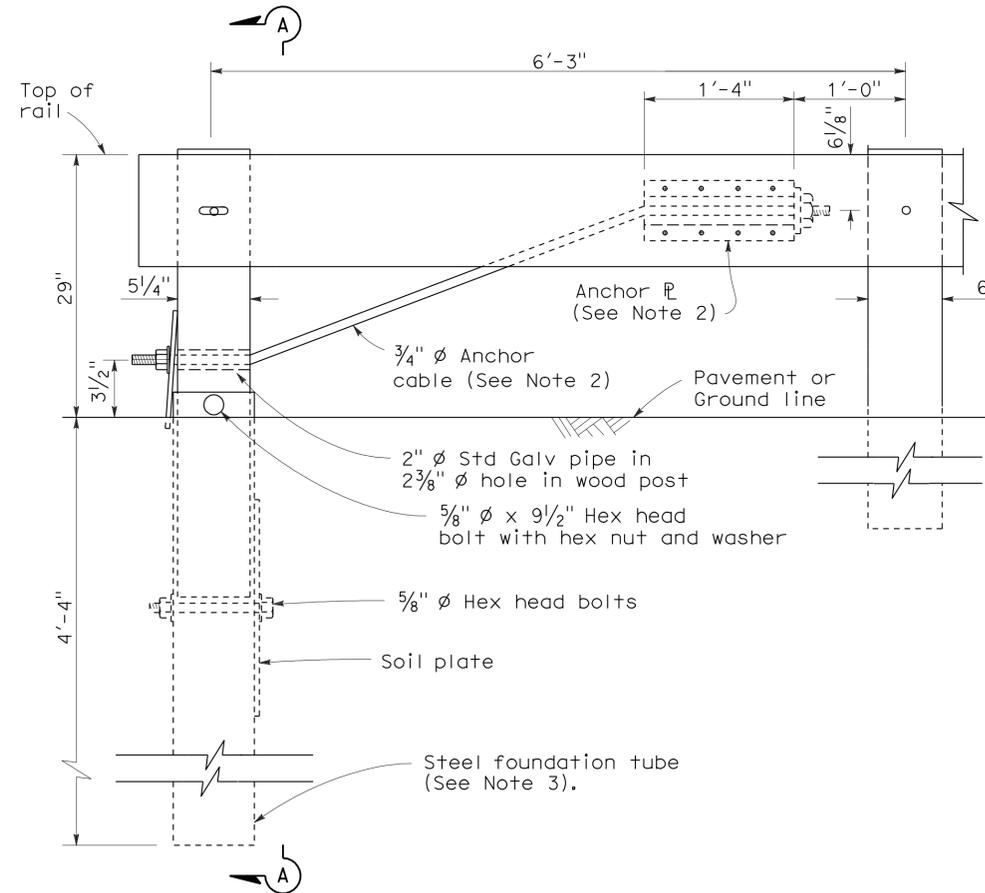
**DETAIL A**  
**CABLE CONNECTION**  
**END PLATE**



**PLAN**



**SECTION A-A**



**ELEVATION**  
**END ANCHOR**  
**ASSEMBLY (TYPE SFT)**

See Note 1

**NOTES:**

1. See the A77E, A77F and A77G series of Standard Plans for typical use of End Anchor Assembly (Type SFT).
2. For details of the anchor plate and 3/4" cable, see Standard Plan A77H3.
3. A 6'-0" length steel foundation tube, TS 8 x 6 x 3/16, without a soil plate, may be furnished and installed in place of the 4'-6" length steel foundation tube and soil plate shown. Minimum embedment of the 6'-0" length tube shall be 5'-9". A 5/8" diameter hex head bolt and nut shall be installed in the hole in the 6'-0" length tube to keep the wood post from dropping into the tube.
4. Direction of traffic indicated by  $\Rightarrow$ .
5. Install line post, steel foundation tube and soil plate in soil.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**METAL RAILING**  
**END ANCHOR ASSEMBLY**  
**(TYPE SFT)**

NO SCALE

RSP A77H1 DATED MAY 20, 2011 SUPERSEDES STANDARD PLAN A77H1  
DATED MAY 1, 2006 - PAGE 67 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP A77H1**

2006 REVISED STANDARD PLAN RSP A77H1

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SB	101	83.1/83.9	131	190

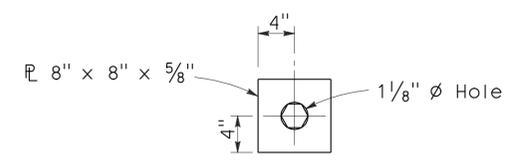
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

May 20, 2011  
PLANS APPROVAL DATE

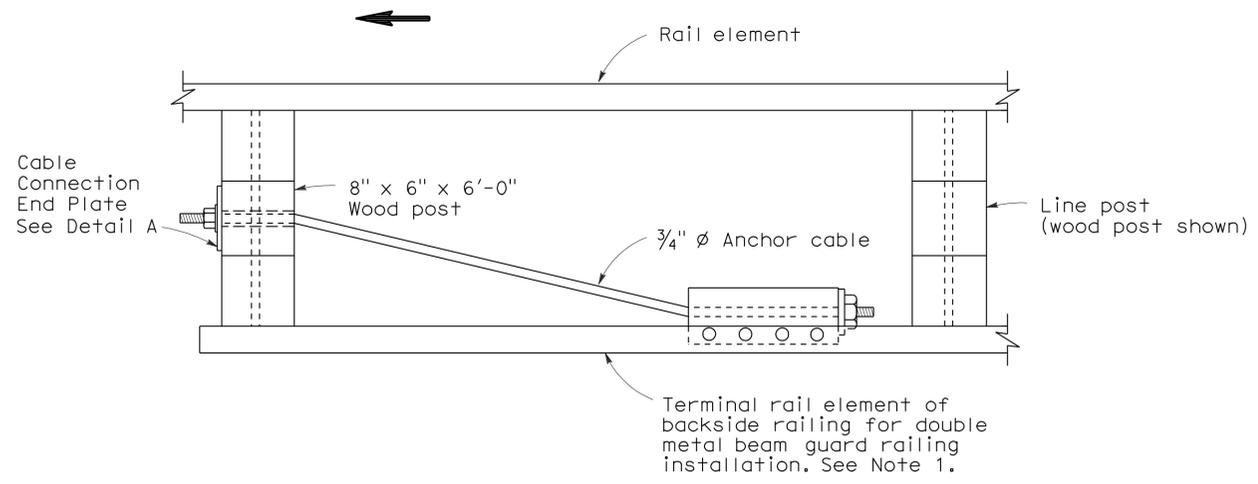
*Randell D. Hiatt*  
REGISTERED PROFESSIONAL ENGINEER  
No. C50200  
Exp. 6-30-11  
CIVIL  
STATE OF CALIFORNIA

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.

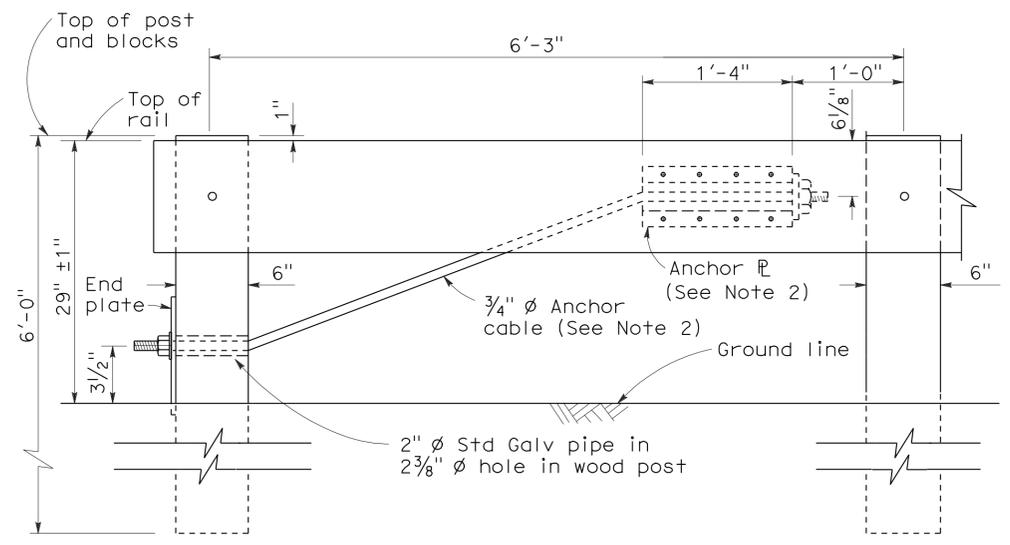
To accompany plans dated 4-2-12



**DETAIL A**  
**CABLE CONNECTION**  
**END PLATE**



**PLAN**



**ELEVATION**  
**RAIL TENSIONING**  
**ASSEMBLY**  
See Note 1

**NOTES:**

1. See Standard Plan A77F3 and Standard Plan A77G1 for typical use of rail tensioning assembly.
2. For details of the anchor plate and 3/4 inch cable, see Standard Plan A77H3.
3. Direction of traffic indicated by →.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**METAL RAILING**  
**RAIL TENSIONING ASSEMBLY**

NO SCALE

RSP A77H2 DATED MAY 20, 2011 SUPERSEDES STANDARD PLAN A77H2  
DATED MAY 1, 2006 - PAGE 68 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP A77H2**

2006 REVISED STANDARD PLAN RSP A77H2

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SB	101	83.1/83.9	132	190

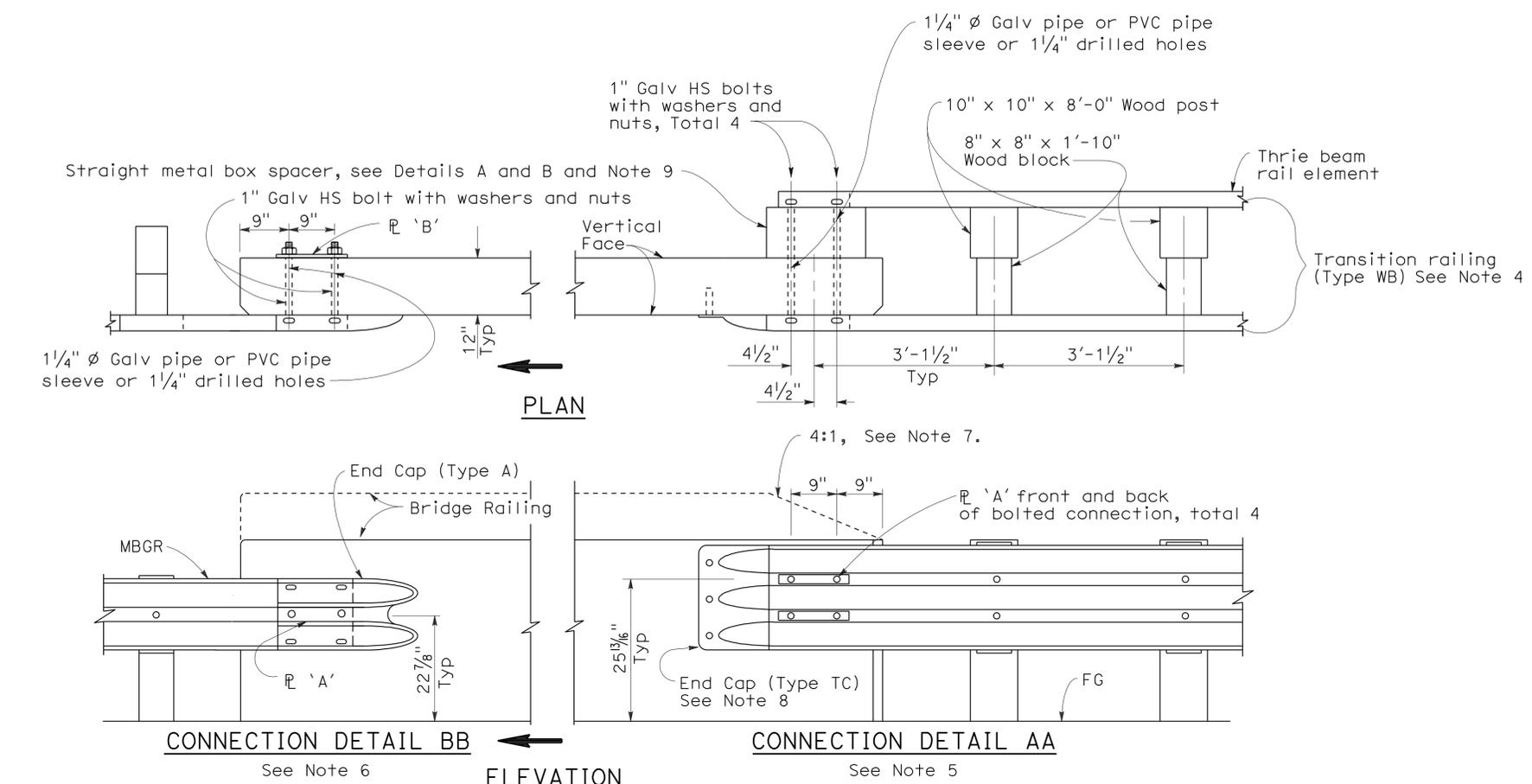
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

May 20, 2011  
PLANS APPROVAL DATE

*Randell D. Hiatt*  
REGISTERED PROFESSIONAL ENGINEER  
No. C50200  
Exp. 6-30-11  
CIVIL  
STATE OF CALIFORNIA

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.

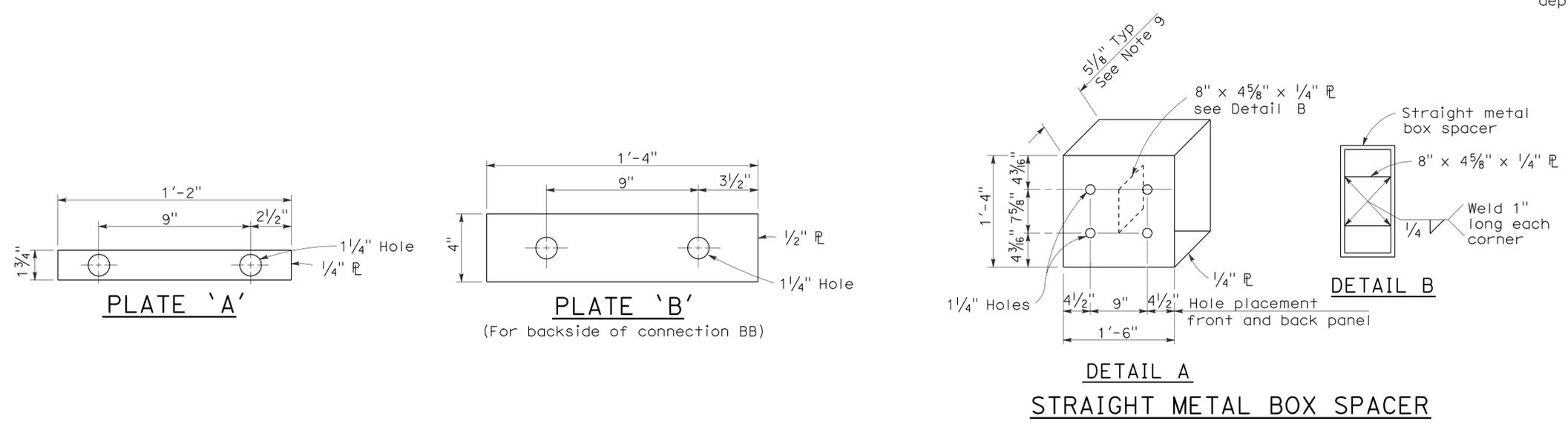
To accompany plans dated 4-2-12



**NOTES:**

1. See Revised Standard Plan RSP A77J2 for additional connection details to bridges without sidewalks.
2. Additional details of posts, blocks and hardware are shown on Standard Plan A77B1, A77C1 and A77C2.
3. Direction of adjacent traffic indicated by  $\rightarrow$ .
4. For additional details of Transition Railing (Type WB), see Standard Plan A77J4. Transition Railing (Type WB) transitions the 12 gage w-beam standard railing section of guard railing to a heavier gage nested thrie beam railing section which is connected to the concrete bridge railing.
5. For typical use of Connection Detail AA, see Layout Types 12A and 12B on Revised Standard Plan RSP A77F1, Layout Types 12C and 12D on Standard Plan A77F2, and Layout Type 12E on Revised Standard Plan RSP A77F3.
6. For typical use of Connection Detail BB, see Layout Type 12D (structure departure railing connection) on Standard Plan A77F2 and Layout Type 12DD on Standard Plan A77F5.
7. Where the height of the bridge railing exceeds the height of the thrie beam railing by more than 1" at Connection Detail AA, taper the top of the end of the bridge railing at 4:1 to match the top elevation of the thrie beam rail.
8. For details of End Cap (Type TC), see Standard Plan A77J4.
9. See Standard Plan A77J4 for additional details regarding depth dimension for straight metal box spacer.

**GUARD RAILING CONNECTION TO BRIDGE RAILING WITHOUT SIDEWALK**



STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**METAL BEAM GUARD RAILING CONNECTIONS TO BRIDGE RAILINGS WITHOUT SIDEWALKS DETAILS No.1**

NO SCALE

RSP A77J1 DATED MAY 20, 2011 SUPERSEDES RSP A77J1 DATED JUNE 6, 2008 AND STANDARD PLAN A77J1 DATED MAY 1, 2006 - PAGE 72 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP A77J1**

2006 REVISED STANDARD PLAN RSP A77J1

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SB	101	83.1/83.9	133	190

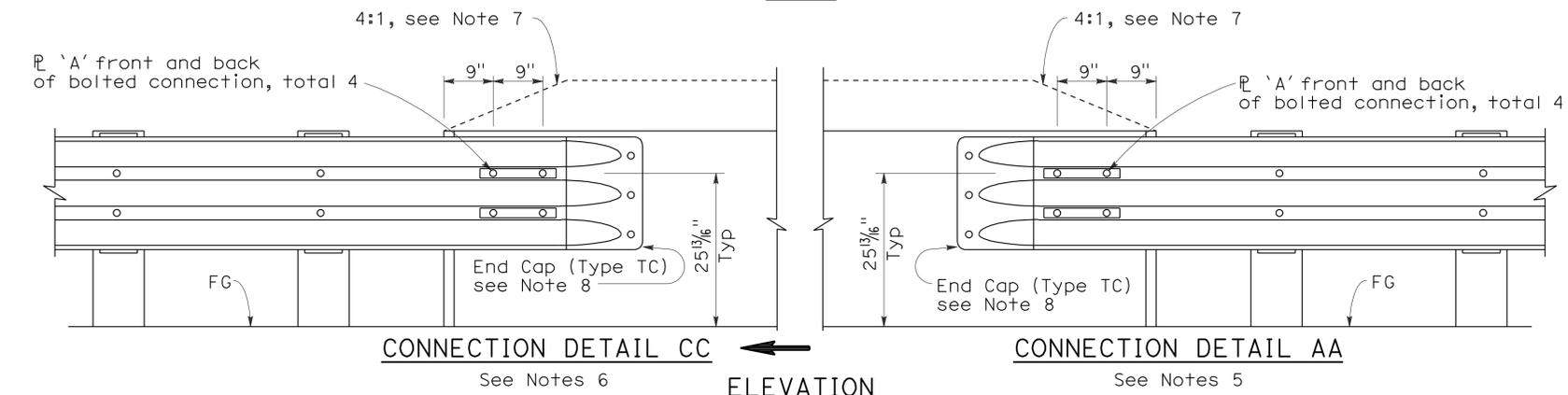
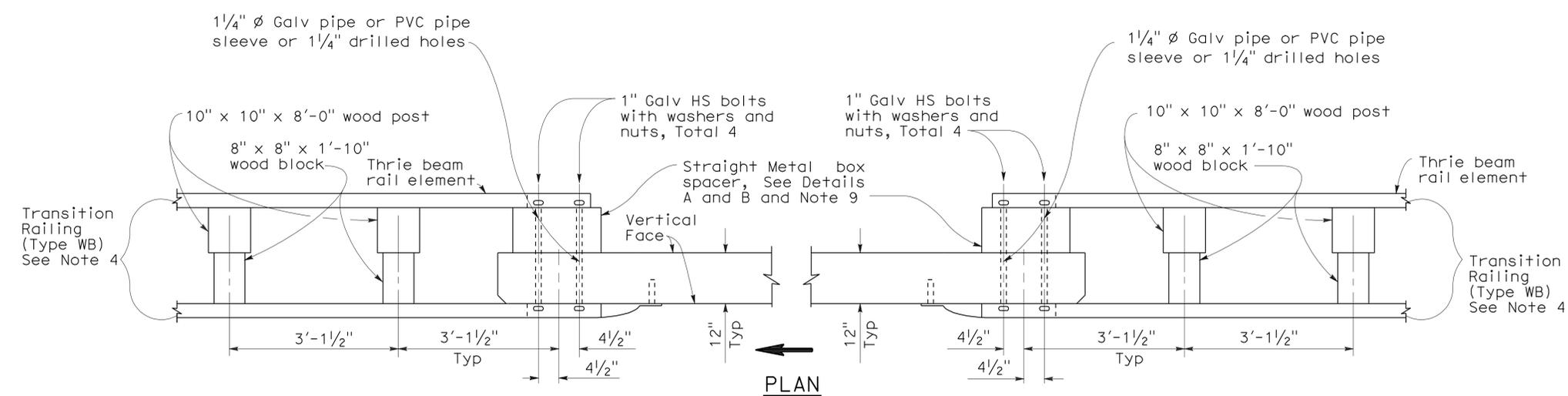
**Randell D. Hiatt**  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

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

REGISTERED PROFESSIONAL ENGINEER  
No. C50200  
Exp. 6-30-09  
CIVIL  
STATE OF CALIFORNIA

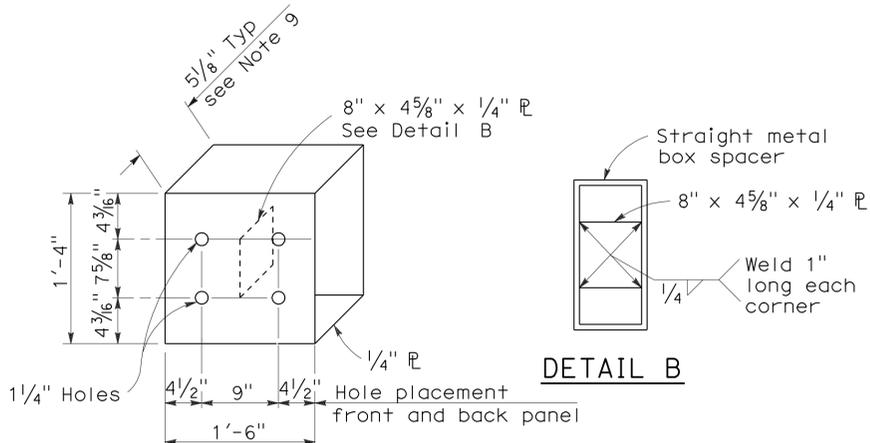
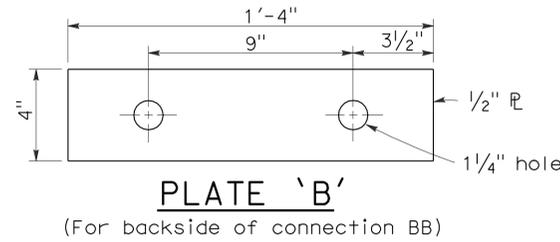
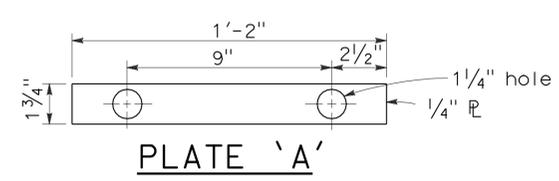
To accompany plans dated 4-2-12



**GUARD RAILING CONNECTION TO BRIDGE RAILING WITHOUT SIDEWALK**

**NOTES:**

- See Revised Standard Plan RSP A77J1 for additional connection details to bridges without sidewalks.
- Additional details of posts, blocks and hardware are shown on Standard Plan A77B1, A77C1 and A77C2.
- Direction of adjacent traffic indicated by →.
- For additional details of Transition Railing (Type WB), see Standard Plan A77J4. Transition Railing (Type WB) transitions the 12 gage w-beam standard railing section of guard railing to a heavier gage nested thrie beam railing section which is connected to the concrete bridge railing.
- For typical use of Connection Detail AA, see Layout Types 12A and 12B on Revised Standard Plan RSP A77F1, Layout Types 12C and 12D on Standard Plan A77F2, and Layout Type 12E on Revised Standard Plan RSP A77F3.
- For typical use of Connection Detail CC, see Layout Types 12AA and 12BB on Standard Plan A77F4 and Layout Type 12CC on Standard Plan A77F5.
- Where the height of the bridge railing exceeds the height of the thrie beam railing by more than 1" at Connection Detail AA and connection Detail CC, taper the top of the end of the bridge railing at 4:1 to match the top elevation of the thrie beam railing.
- For details of End Cap (Type TC), see Standard Plans A77J4.
- See Standard Plans A77J4 for additional details regarding depth dimension for straight metal box spacer.



**DETAIL A  
STRAIGHT METAL BOX SPACER**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

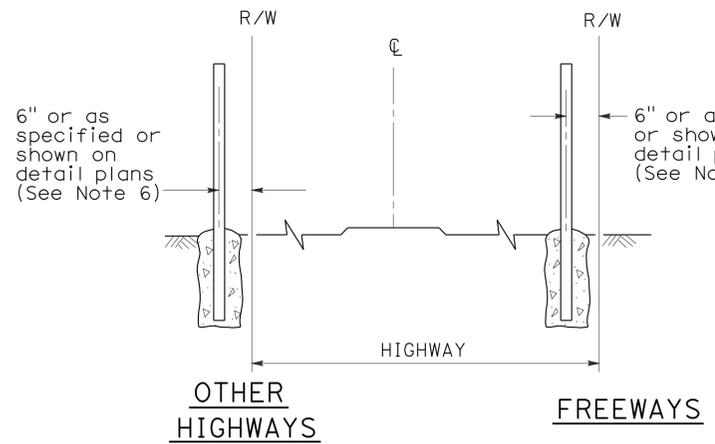
**METAL BEAM GUARD RAILING  
CONNECTIONS TO BRIDGE RAILINGS  
WITHOUT SIDEWALKS DETAILS No.2**

NO SCALE  
RSP A77J2 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77J2  
DATED MAY 1, 2006 - PAGE 73 OF THE STANDARD PLANS BOOK DATED MAY 2006.

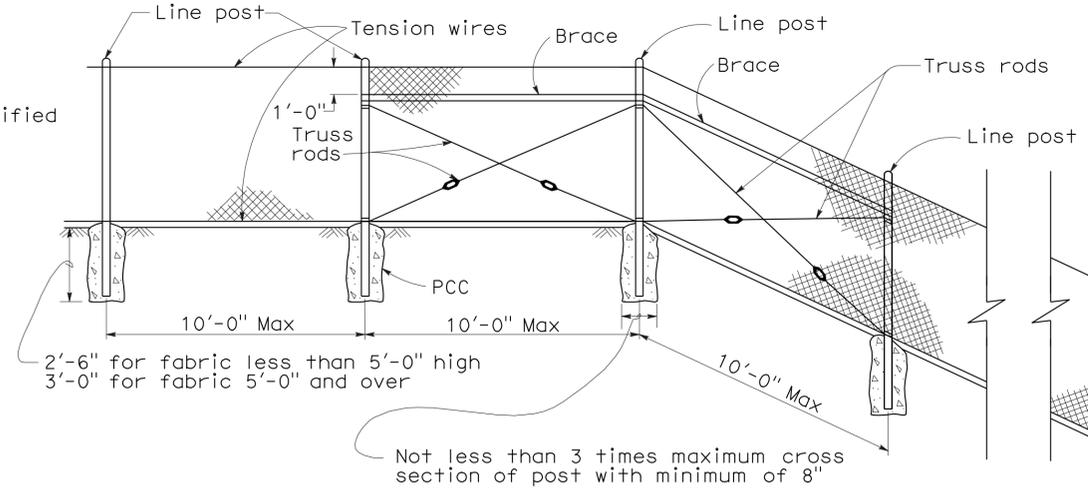
**REVISED STANDARD PLAN RSP A77J2**

2006 REVISED STANDARD PLAN RSP A77J2

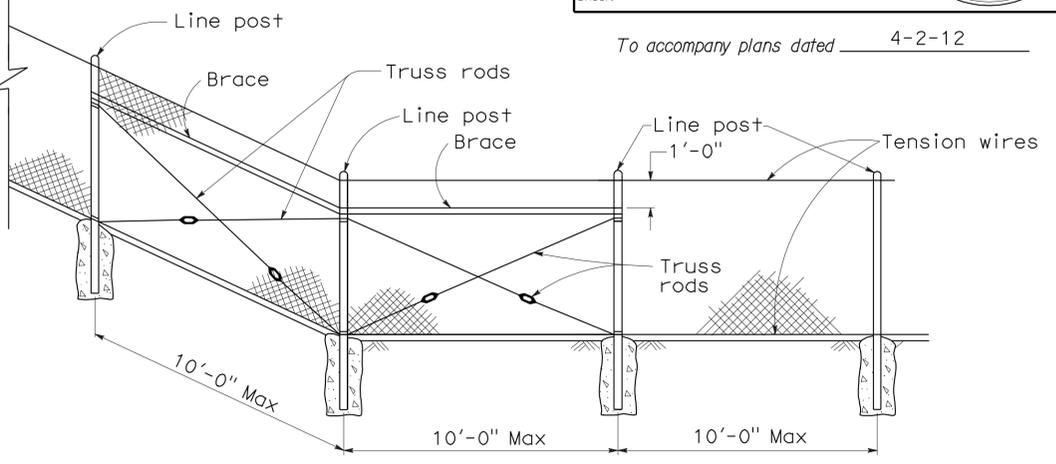




**FENCE LOCATION**

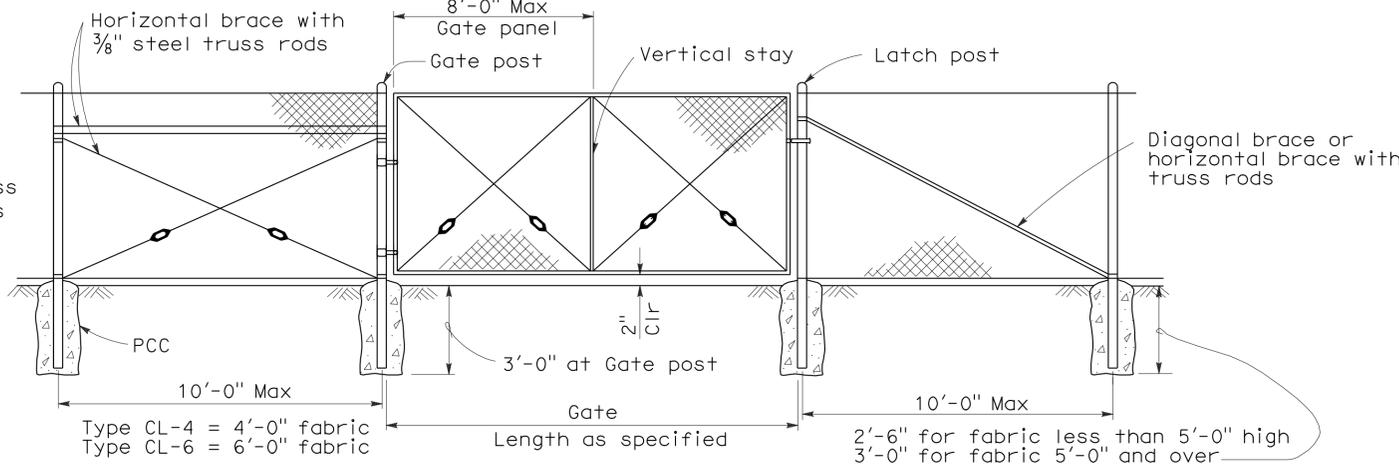
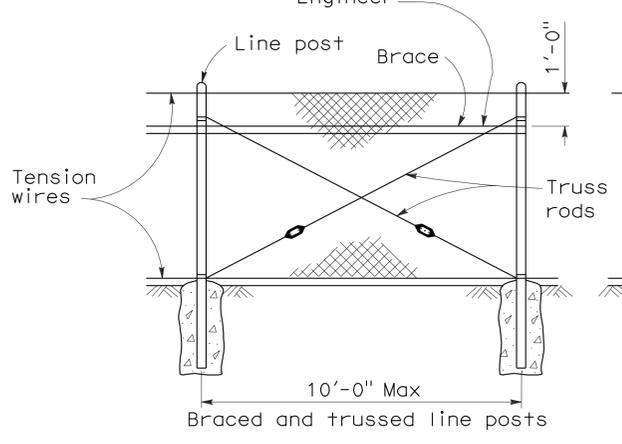


**CHAIN LINK FENCE ON SHARP BREAK IN GRADE**



To accompany plans dated 4-2-12

Brace to be removed after all other fence construction is completed unless otherwise directed by the Engineer



**CHAIN LINK GATE INSTALLATION**

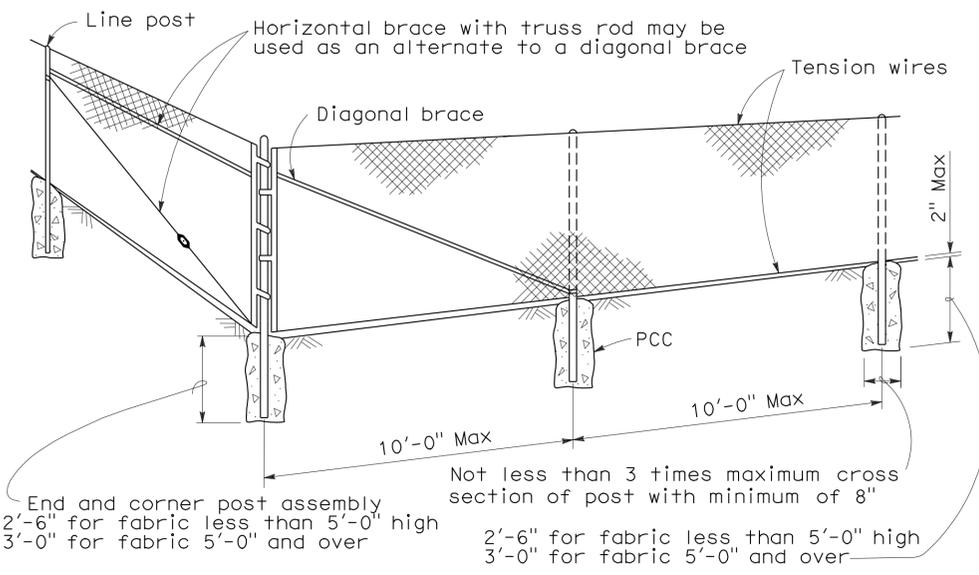
GATE POST			
FENCE HEIGHT	GATE WIDTHS	NOMINAL ID	WEIGHT PER FOOT
6'-0" and Less	Up thru 6'-0"	2 1/2"	4.95 LB
	Over 6'-0" thru 12'-0"	4"	10.79 LB
	Over 12'-0" thru 18'-0"	5"	14.62 LB
	Over 18'-0" to 24'-0" Max	6"	18.97 LB
Over 6'-0"	Up thru 6'-0"	3"	7.58 LB
	Over 6'-0" thru 12'-0"	5"	14.62 LB
	Over 12'-0" thru 18'-0"	6"	18.97 LB
	Over 18'-0" to 24'-0" Max	8"	28.55 LB

Above post dimensions and weights are minimums. Larger sizes may be used on approval of the Engineer.

**NOTES:**

- The below table shows examples of post and brace sections which may comply with the Specifications.
- Sections shown in the tables must also comply with the strength requirements and other provisions of the Specifications.
- Other sections which comply with the strength requirements and other provisions of the Specifications may be used on approval of the Engineer.
- Options exercised shall be uniform on any one project.
- Dimensions shown are nominal.
- Offset to be 2'-0" at monument locations, measured at right angles to R/W lines. Taper to achieve offset to be at least 20'-0" long.

FENCE HEIGHT	TYPICAL MEMBER DIMENSIONS (See Notes)									
	LINE POSTS			END, LATCH & CORNER POSTS			BRACES			
	ROUND ID	H	ROLL FORMED	ROUND ID	ROLL FORMED		ROUND ID	H	ROLL FORMED	
6' & less	1 1/2"	1 7/8" x 1 5/8"	1 7/8" x 1 5/8"	2"	3 1/2" x 3 1/2"	2" x 1 3/4"	1 1/4"	1 1/2" x 1 5/16"	1 5/8" x 1 1/4"	1 3/4" x 1 1/4"
Over 6'	2"	2 1/4" x 2"	2" x 1 3/4"	2 1/2"	3 1/2" x 3 1/2"	2 1/2" x 2 1/2"	1 1/4"	1 1/2" x 1 5/16"	1 5/8" x 1 1/4"	1 3/4" x 1 1/4"



**CORNER POST**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**CHAIN LINK FENCE**  
NO SCALE

RSP A85 DATED JUNE 5, 2009 SUPERSEDES STANDARD PLAN A85 DATED MAY 1, 2006 - PAGE 111 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP A85**

2006 REVISED STANDARD PLAN RSP A85

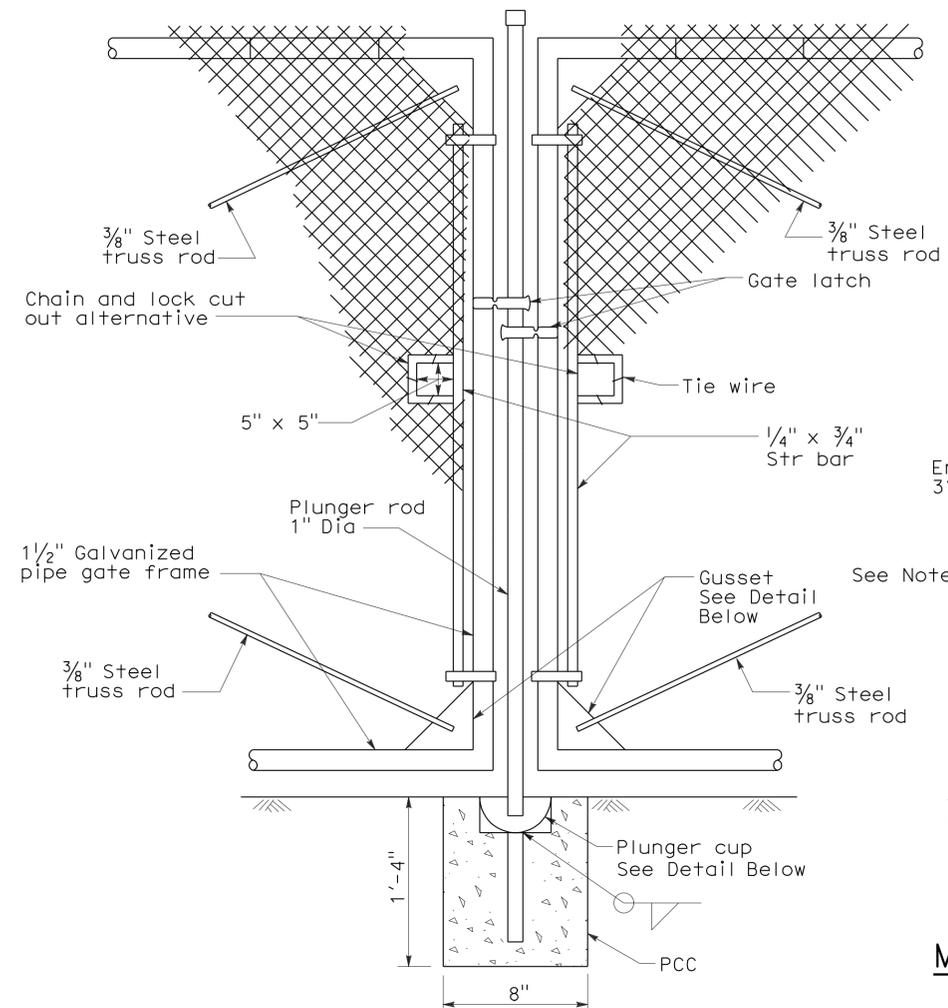
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SB	101	83.1/83.9	136	190

Glenn DeCou  
 REGISTERED CIVIL ENGINEER  
 June 5, 2009  
 PLANS APPROVAL DATE  
 The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

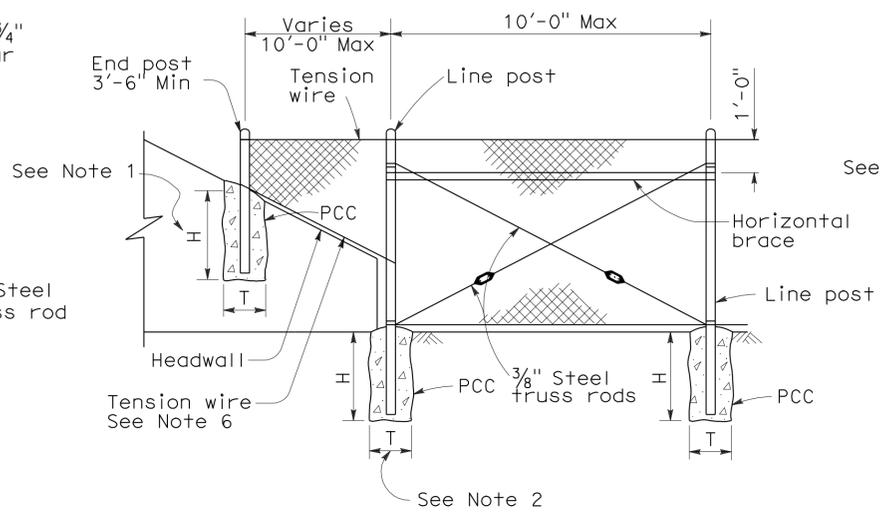
REGISTERED PROFESSIONAL ENGINEER  
 Glenn DeCou  
 No. C34547  
 Exp. 9-30-09  
 CIVIL  
 STATE OF CALIFORNIA

To accompany plans dated 4-2-12

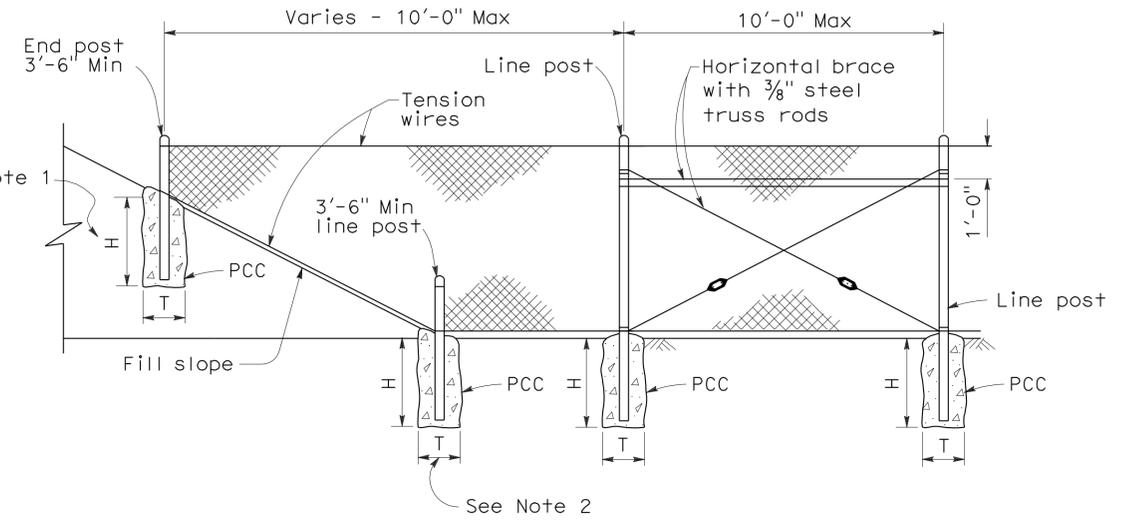
- NOTES:**
- H is 2'-6" for fabric less than 5'-0" high.  
H is 3'-0" for fabric 5'-0" and over.
  - T is not less than 3 times maximum cross section of post with minimum of 8".
  - Arms with barbed wire to be used where shown on plans.
  - See Revised Standard Plan RSP A85 for Chain Link Fencing dimensions.
  - Reinforcing must comply with ASTM A 706.
  - See Detail A on New Standard Plan NSP A86B for connection at headwall.



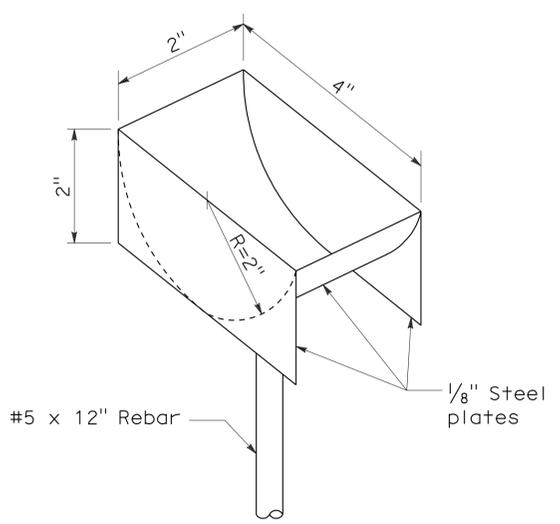
**TYPICAL DOUBLE GATE REMOVABLE CENTER POST**



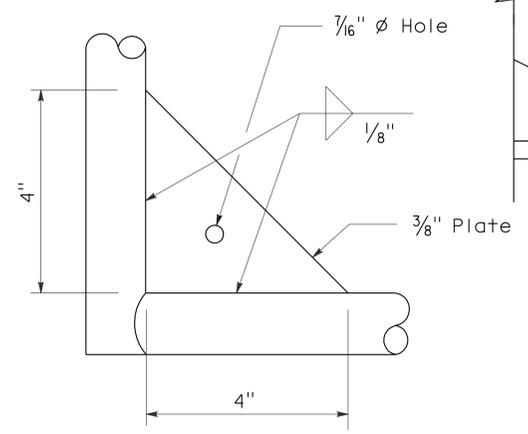
**METHOD OF TYING FENCE TO HEADWALL**



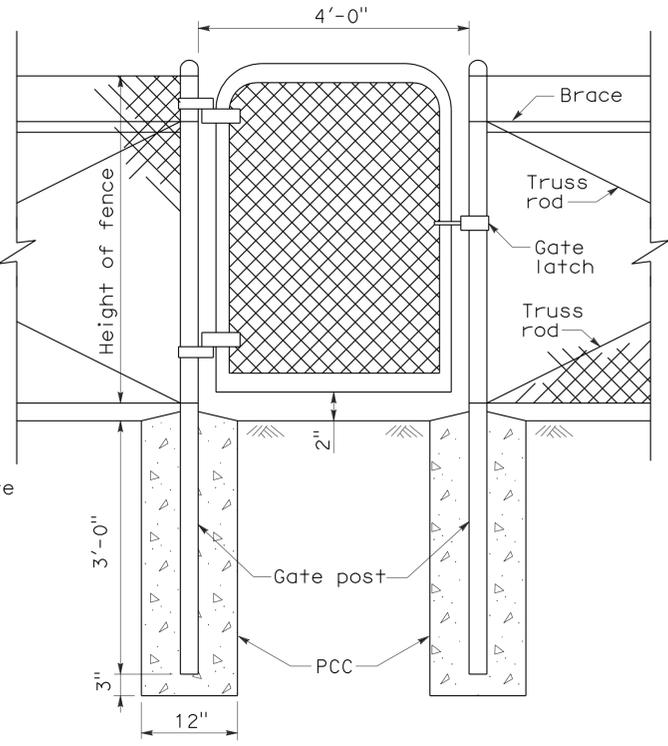
**METHOD OF ERECTING FENCE FOR FILL SLOPE**



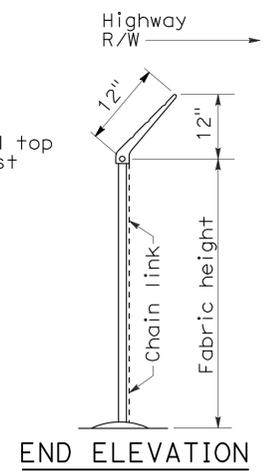
**PLUNGER CUP DETAIL**



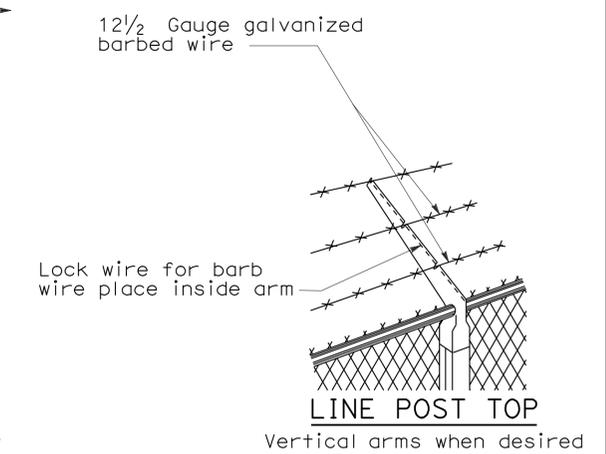
**GUSSET DETAIL**



**WALK GATE**



**BARBED WIRE POST TOP**  
See Note 3



STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**CHAIN LINK FENCE DETAILS**  
 NO SCALE

NSP A85A DATED JUNE 5, 2009 SUPPLEMENTS THE STANDARD PLANS BOOK DATED MAY 2006.

2006 NEW STANDARD PLAN NSP A85A

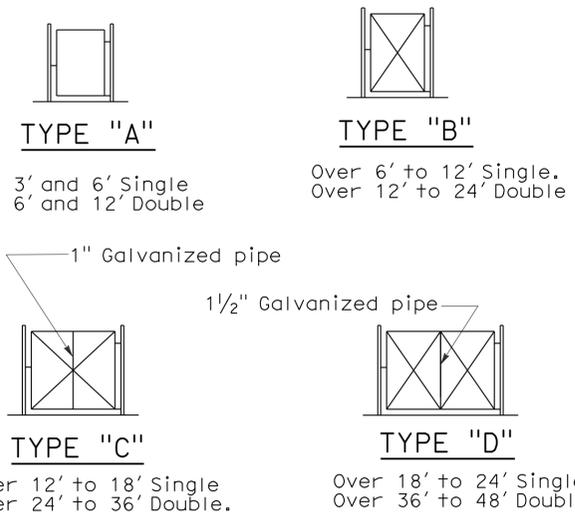
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SB	101	83.1/83.9	137	190

Glenn DeCou  
 REGISTERED CIVIL ENGINEER  
 No. C34547  
 Exp. 9-30-09  
 STATE OF CALIFORNIA

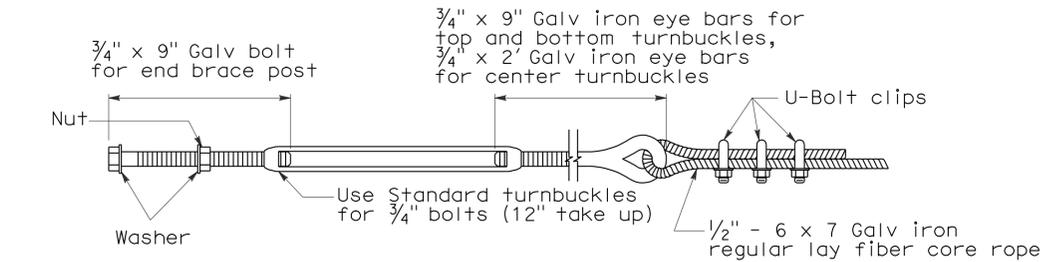
June 5, 2009  
 PLANS APPROVAL DATE

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

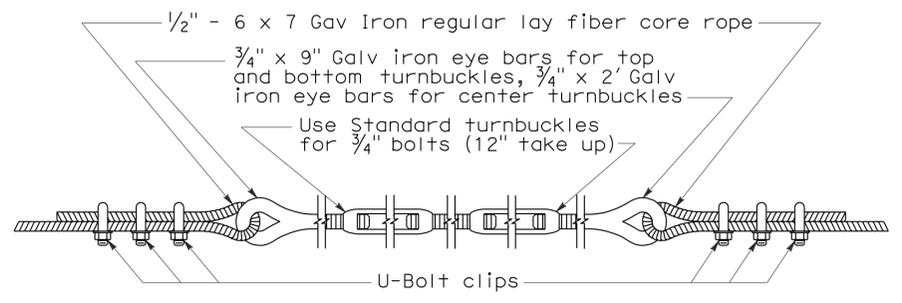
To accompany plans dated 4-2-12



**TYPICAL FRAMEWORK SHOWING NUMBER OF BAYS IN GATE**



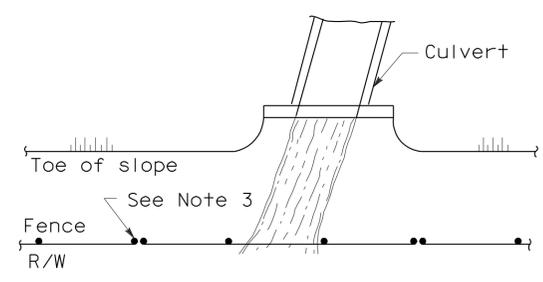
**TURNBUCKLE A**



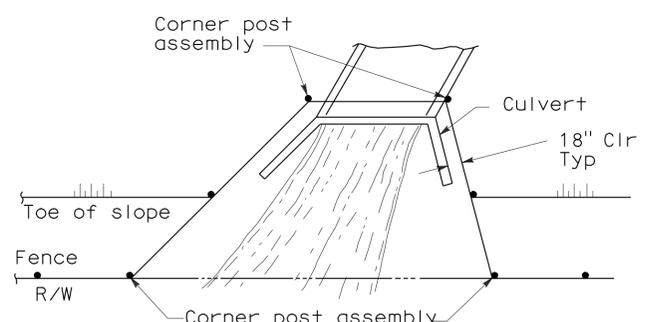
**TURNBUCKLE B**

**NOTES:**

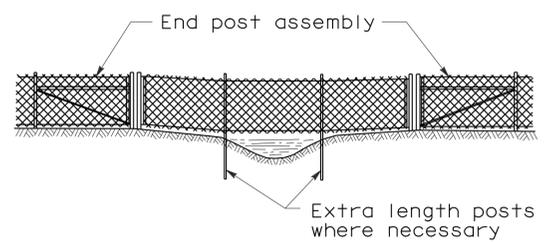
1. All material for abutment connection to be galvanized.
2. The chain link fabric shall be replaced by barbed wire strands at 12" maximum centers between the double posts.
3. When the width of the culvert makes it necessary to anchor a post to the top of the culvert, a cast iron shoe or other device approved by the Engineer shall be used.
4. Fencing over stream and around headwall may also use Barbed Wire or Wire Mesh fencing with either wood post or steel post installation.
5. See Revised Standard Plan RSP A85 for Chain Link fence dimensions. See Standard Plan A86 for Barbed Wire and Wire Mesh fence dimensions and for wood post and steel post installation.



**PLAN**

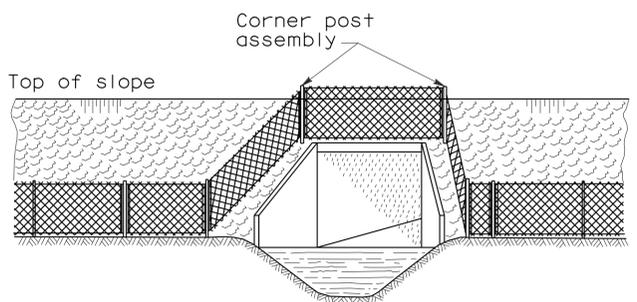


**PLAN**



**ELEVATION**

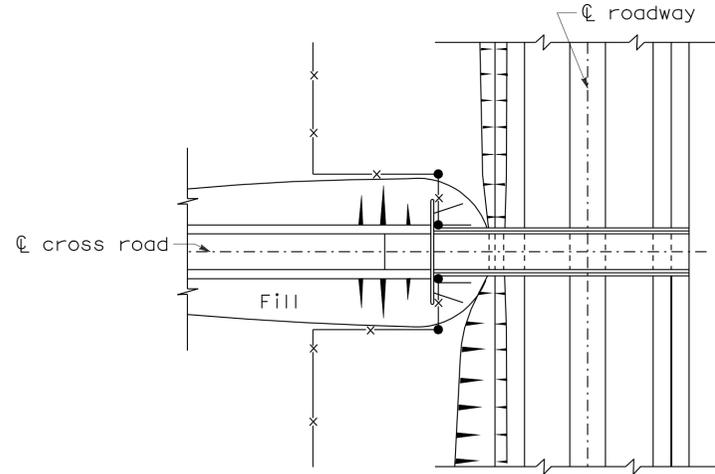
**INSTALLATION OVER STREAM**



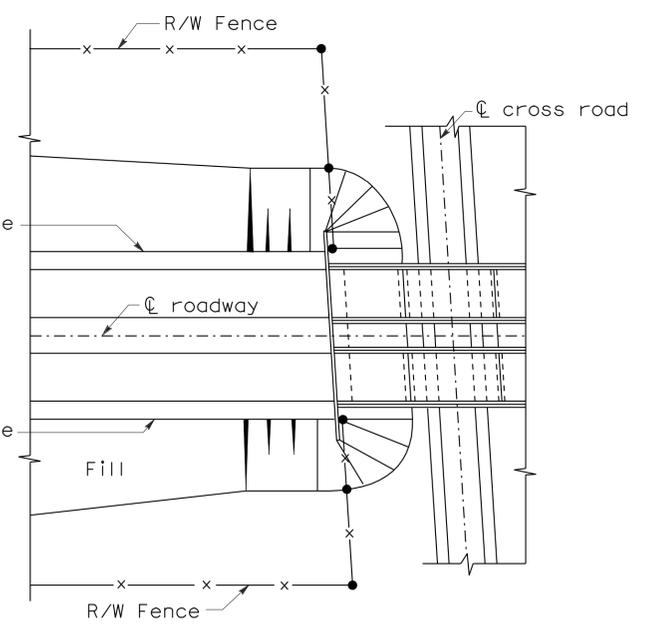
**ELEVATION**

**INSTALLATION AROUND HEADWALL**

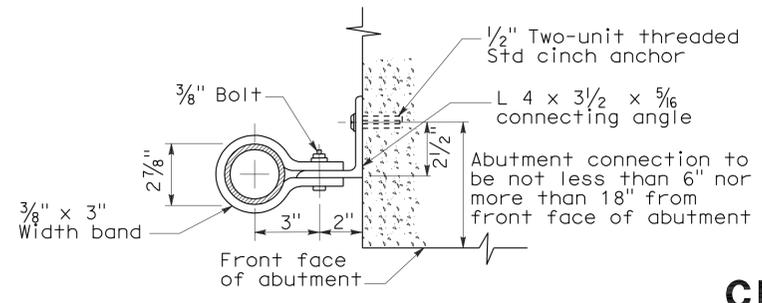
See Note 4



**PLAN OF ROADWAY - UNDERPASS**



**PLAN OF ROADWAY - OVERPASS**



**ABUTMENT CONNECTION**

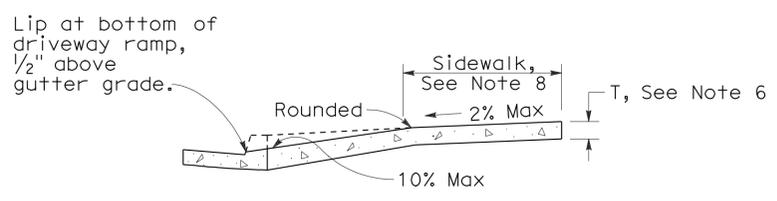
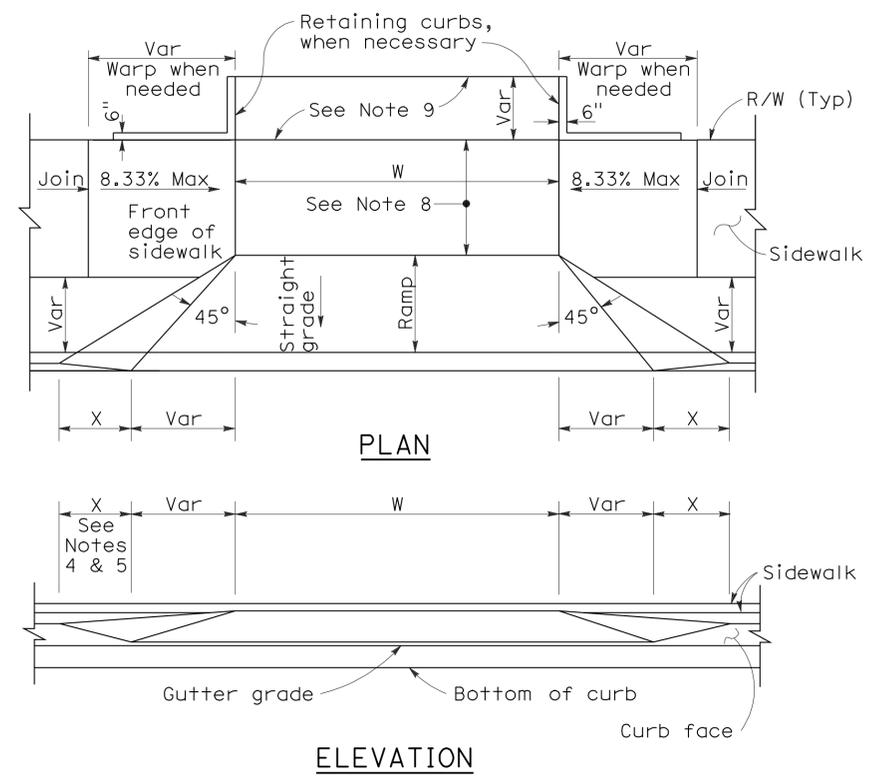
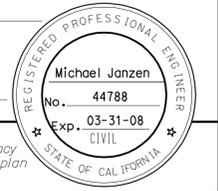
**TYPICAL INSTALLATION AT BRIDGES**

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**CHAIN LINK FENCE DETAILS**  
 NO SCALE

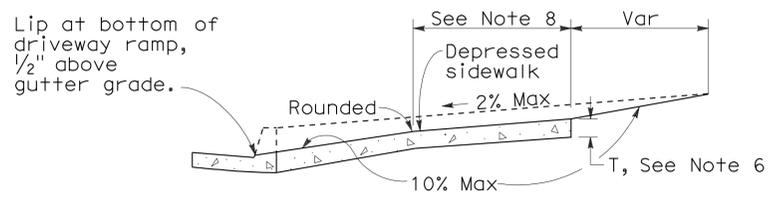
NSP A85B DATED JUNE 5, 2009 SUPPLEMENTS THE STANDARD PLANS BOOK DATED MAY 2006.

**NEW STANDARD PLAN NSP A85B**

2006 NEW STANDARD PLAN NSP A85B



**CASE A**  
Typical driveway, sidewalk not depressed



**CASE B**  
Driveway with depressed sidewalk

**SECTIONS**

**CURB QUANTITIES**

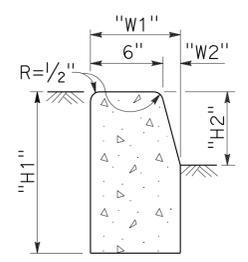
TYPE	CUBIC YARDS PER LINEAR FOOT
A1-6	0.02585
A1-8	0.03084
A2-6	0.05903
A2-8	0.06379
A3-6	0.01036
A3-8	0.01435
B1-4	0.02185
B1-6	0.02930
B2-4	0.05515
B2-6	0.06171
B3-4	0.00641
B3-6	0.01074
B4	0.05709
D-4	0.04083
D-6	0.06804
E	0.06661

**TABLE A**

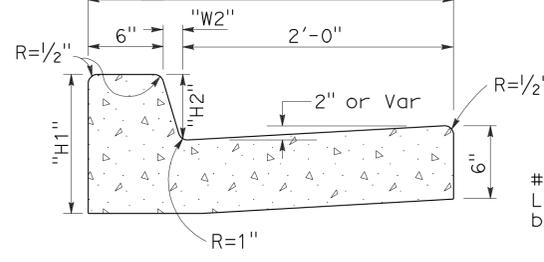
CURB TYPE	DIMENSIONS			
	"H1"	"H2"	"W1"	"W2"
A1-6	1'-2"	6"	7 1/2"	1 1/2"
A1-8	1'-4"	8"	8"	2"
A2-6	1'-0"	6"	2'-7 1/2"	1 1/2"
A2-8	1'-2"	8"	2'-8"	2"
A3-6	6"	5"	7 1/4"	1 1/4"
A3-8	8"	7"	7 3/4"	1 3/4"
B1-4	1'-0"	4"	7 1/2"	2 1/2"
B1-6	1'-2"	6"	9"	4"
B2-4	10"	4"	2'-7 1/2"	2 1/2"
B2-6	1'-0"	6"	2'-9"	4"
B3-4	4"	3"	7"	2"
B3-6	6"	5"	8 1/2"	3 1/2"
D-4	10"	4"	1'-6"	1'-1"
D-6	1'-0"	6"	2'-2"	1'-8"

To accompany plans dated 4-2-12

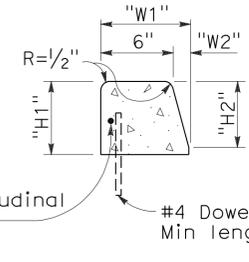
**DRIVEWAYS**



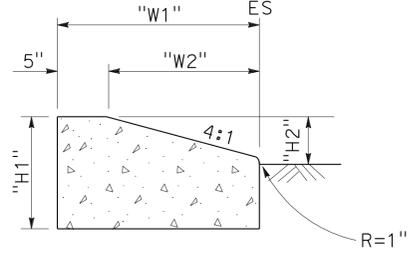
**TYPE A1 CURBS**  
See Table A



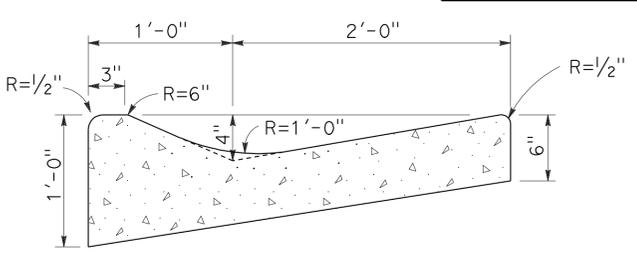
**TYPE A2 CURBS**  
See Table A



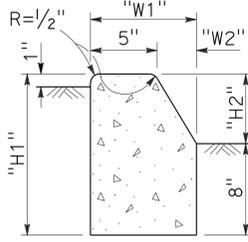
**TYPE A3 CURBS**  
Superimposed on existing pavement  
See Table A



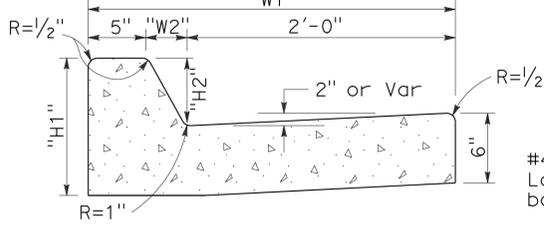
**TYPE D CURBS**  
See Table A



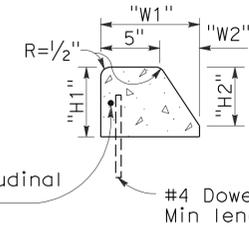
**TYPE E CURB**



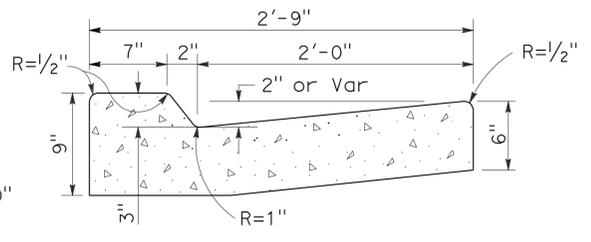
**TYPE B1 CURBS**  
See Table A



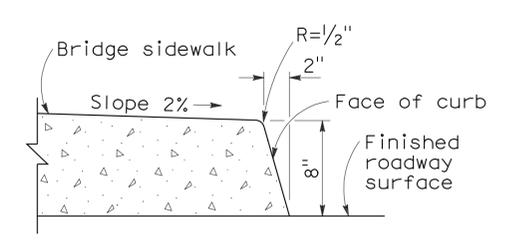
**TYPE B2 CURBS**  
See Table A



**TYPE B3 CURBS**  
Superimposed on existing pavement  
See Table A



**TYPE B4 CURBS**



**TYPE H CURB**  
On Bridges

**CURBS**

**NOTES:**

- Case A driveway section typically applies.
- Use Case B driveway section when ramp slopes would exceed 10% in Case A.
- Use Case B driveway section when sidewalk cross slope would exceed 2% in Case A.
- X=3'-0" except for curb heights over 10" where 4:1 slopes shall be used on curb slope.
- X is a variable when sidewalk is located where wheelchairs may traverse the surface. Slopes shall not exceed 8.33%.
- Sidewalk and ramp thickness "T" at driveway shall be 4" for residential and 6" for commercial.
- Difference in slope of the driveway ramp and the slope of a line between the gutter and a point on the roadway 5'-0" from gutter line shall not exceed 15%. Reduce driveway ramp slope, not gutter slope, where required.
- Minimum width of clear passageway for sidewalk shall be 4'-0".
- Retaining curbs and acquisition of construction easement may be necessary for narrow sidewalks or curb heights in excess of 6".
- Across the pedestrian route at curb ramp locations, the gutter pan slope shall not exceed 1" of depth for each 2'-0" of width.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**CURBS AND DRIVEWAYS**

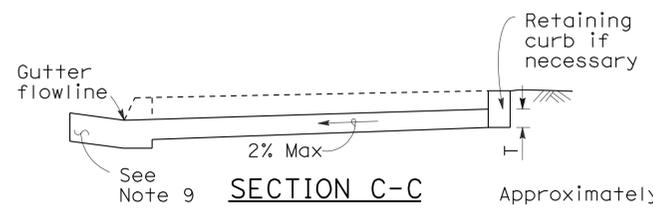
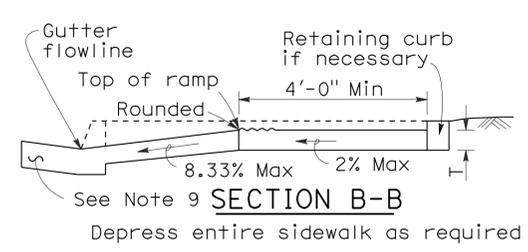
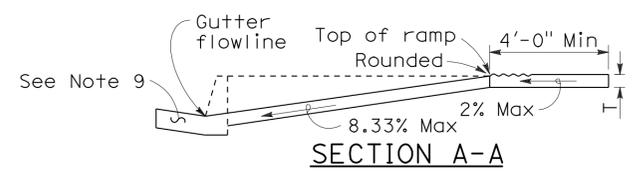
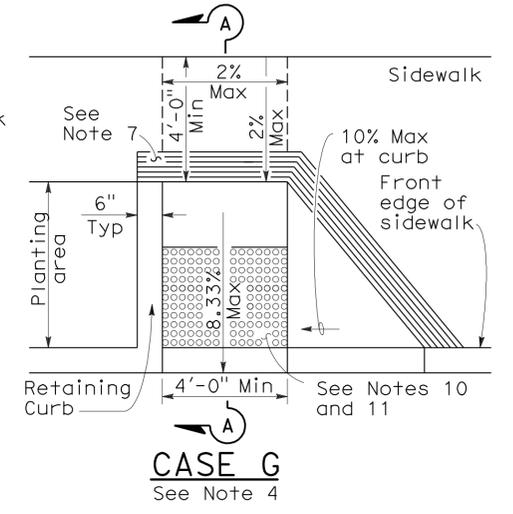
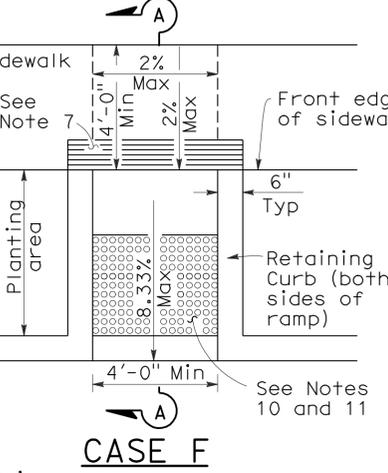
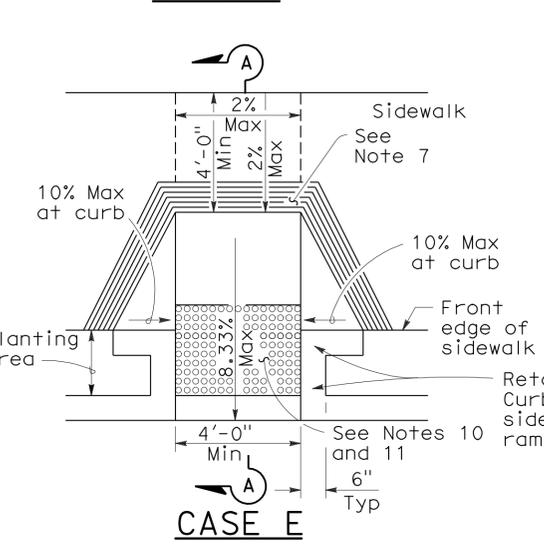
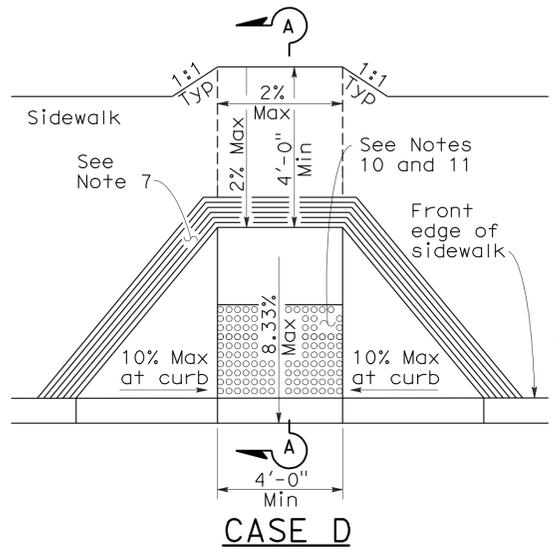
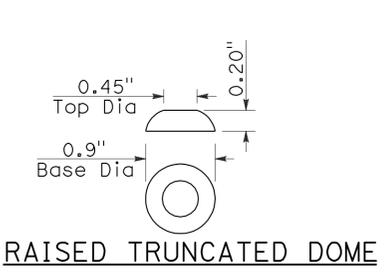
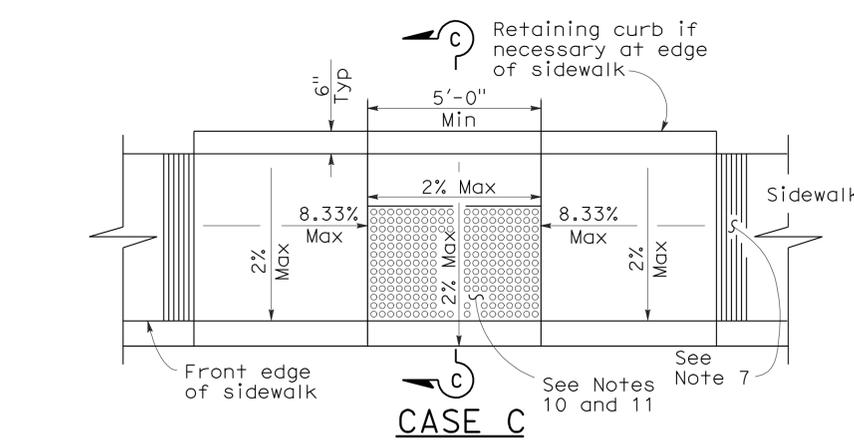
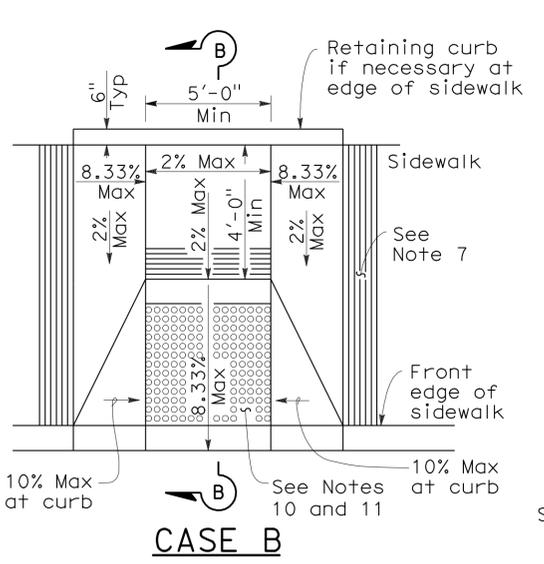
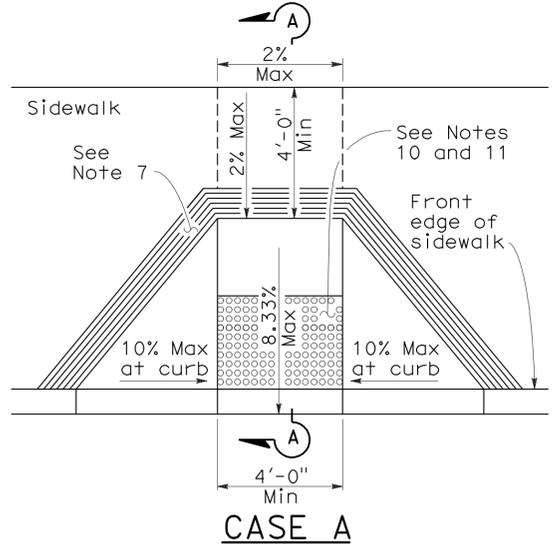
NO SCALE

2006 REVISED STANDARD PLAN RSP A87A

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SB	101	83.1/83.9	139	190

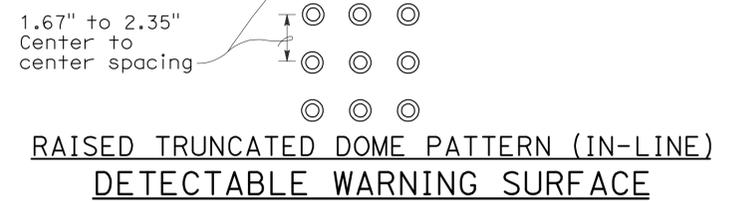
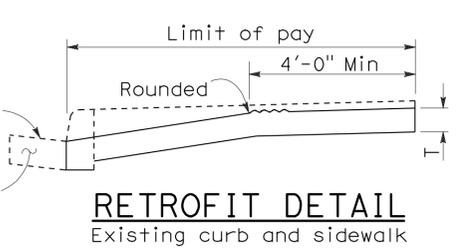
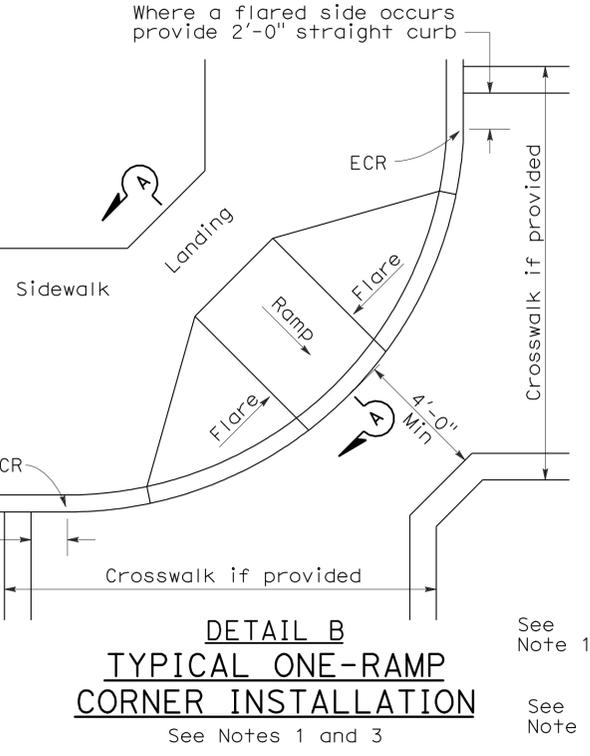
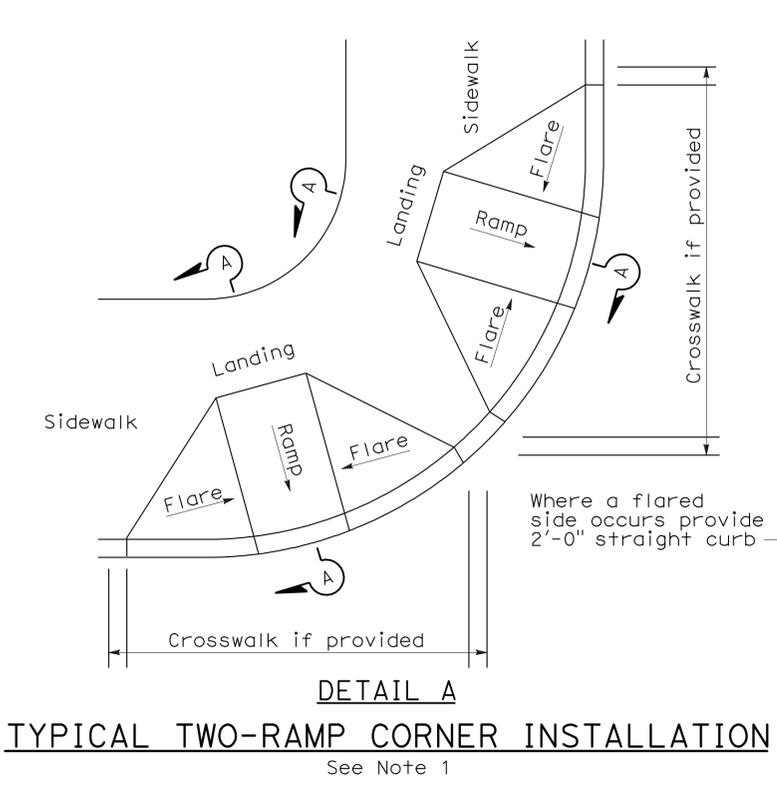
H. David Cordova  
 REGISTERED CIVIL ENGINEER  
 September 1, 2006  
 PLANS APPROVAL DATE  
 The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

REGISTERED PROFESSIONAL ENGINEER  
 Hector David Cordova  
 No. C41957  
 Exp. 3-31-08  
 CIVIL  
 STATE OF CALIFORNIA



**NOTES:**

- As site conditions dictate, Case A through Case G curb ramps may be used for corner installations similar to those shown in Detail A and Detail B. The case of curb ramps used in Detail A do not have to be the same. Case A through Case G curb ramps also may be used at mid block locations, as site conditions dictate.
- If distance from curb to back of sidewalk is too short to accommodate ramp and 4'-0" platform (landing) as shown in Case A, the sidewalk may be depressed longitudinally as in Case B, or C or may be widened as in Case D.
- When ramp is located in center of curb return, crosswalk configuration must be similar to that shown for Detail B.
- As site conditions dictate, the retaining curb side and the flared side of the Case G ramp shall be constructed in reversed position.
- If located on a curve, the sides of the ramp need not be parallel, but the minimum width of the ramp shall be 4'-0".
- Side slope of ramp flares vary uniformly from a maximum of 10% at curb to conform with longitudinal sidewalk slope adjacent to top of the ramp, except in Case C and Case F.
- The curb ramp shall be outlined, as shown, with a 1'-0" wide border with 1/4" grooves approximately 3/4" on center. See grooving detail.
- Transitions from ramps and landing to walks, gutters or streets shall be flush and free of abrupt changes.
- Maximum slopes of adjoining gutters, the road surface immediately adjacent to the curb ramp or accessible route shall not exceed 5 percent within 4'-0" of the top and bottom of the curb ramp.
- Curb ramps shall have a detectable warning surface that extends the full width and 3'-0" depth of the ramp. Detectable Warning Surfaces shall conform to the details on this plan and the requirements in the Special Provisions.
- The edge of the detectable warning surface nearest the street shall be between 6" and 8" from the gutter flowline.
- Sidewalk and ramp thickness, "T", shall be 3/2" minimum.
- Utility pull boxes, manholes, vaults and all other utility facilities within the boundaries of the curb ramp will be relocated or adjusted to grade by the owner prior to, or in conjunction with, curb ramp construction.
- For retrofit conditions, removal and replacement of curb apron will be at the Contractor's option, unless otherwise shown on project plans.



See Note 10  
STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**CURB RAMP DETAILS**  
NO SCALE

2006 REVISED STANDARD PLAN RSP A88A



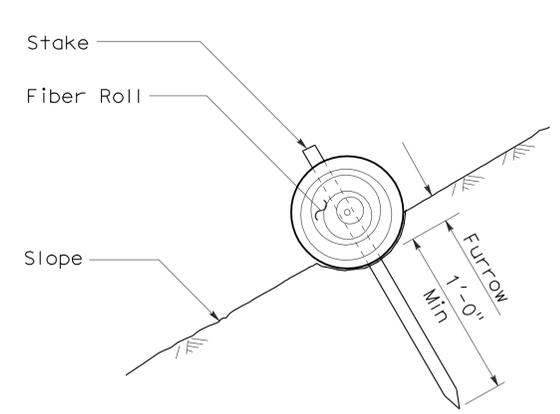
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SB	101	83.1/83.9	141	190

*Gregory A. Balzer*  
 LICENSED LANDSCAPE ARCHITECT  
 April 3, 2009  
 PLANS APPROVAL DATE  
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

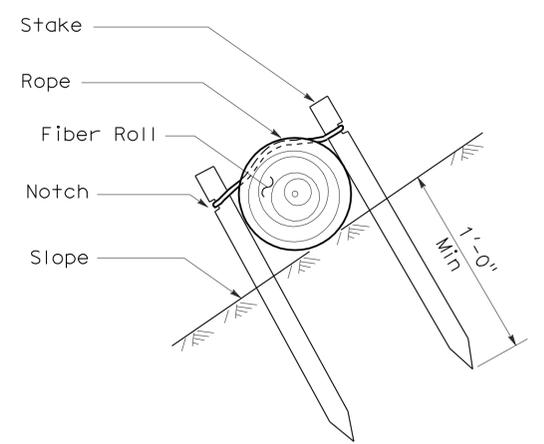
To accompany plans dated 4-2-12

**NOTES:**

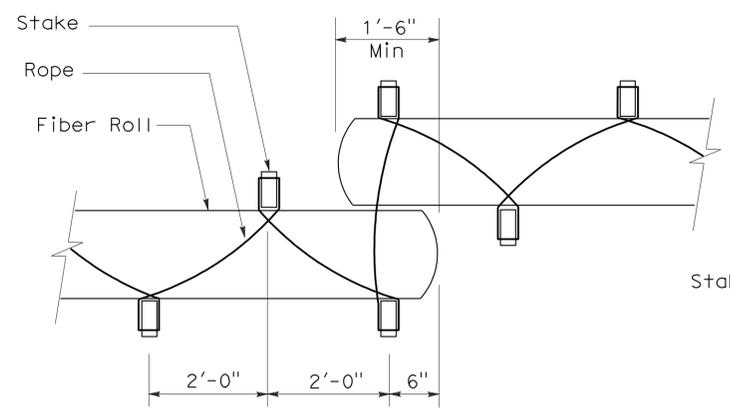
1. Fiber roll spacing varies depending upon slope inclination.
2. Installations shown in the perspectives are for slope inclination of 10:1 and steeper.



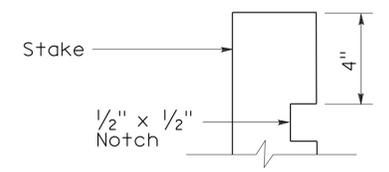
**SECTION**  
**FIBER ROLL**  
**(TYPE 1)**



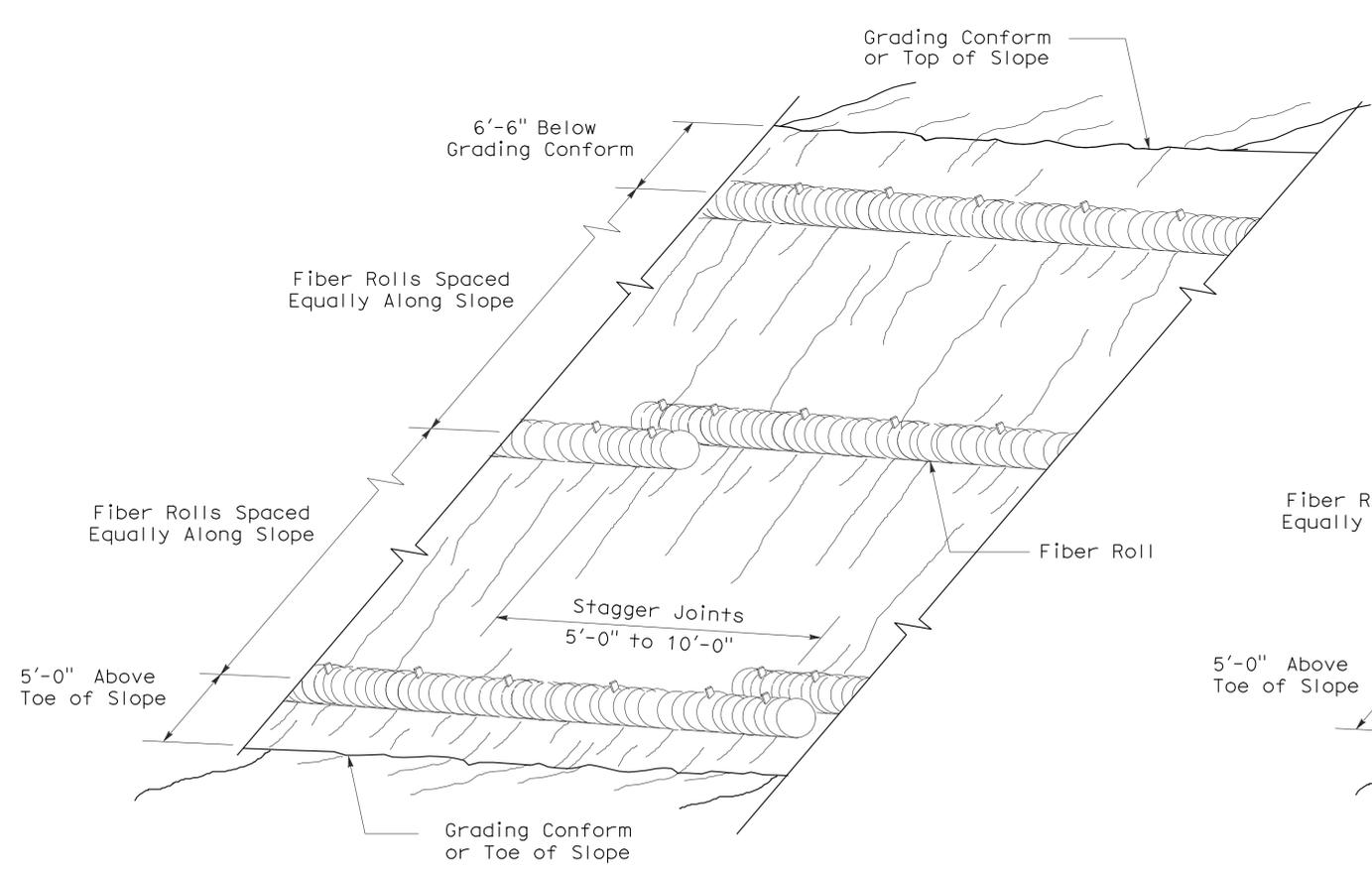
**SECTION**



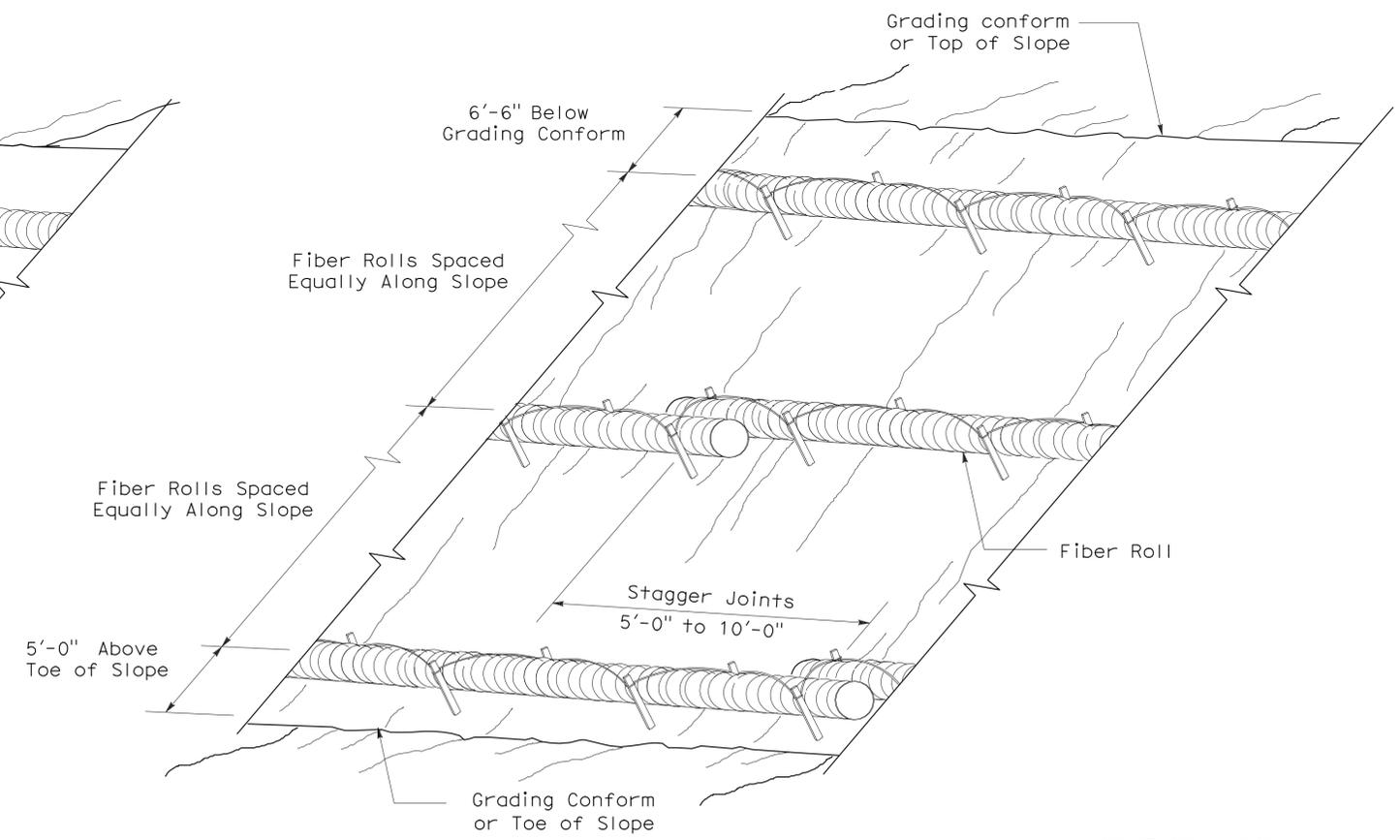
**PLAN**



**ELEVATION**  
**STAKE NOTCH DETAIL**



**PERSPECTIVE**  
**FIBER ROLL (TYPE 1)**



**PERSPECTIVE**  
**FIBER ROLL (TYPE 2)**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**EROSION CONTROL DETAILS**  
**(FIBER ROLL)**

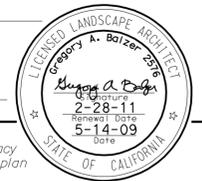
NO SCALE

RNSP H51 DATED APRIL 3, 2009 SUPERSEDES NSP H51 DATED DECEMBER 1, 2006 THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED MAY 2006.

2006 REVISED NEW STANDARD PLAN RNSP H51

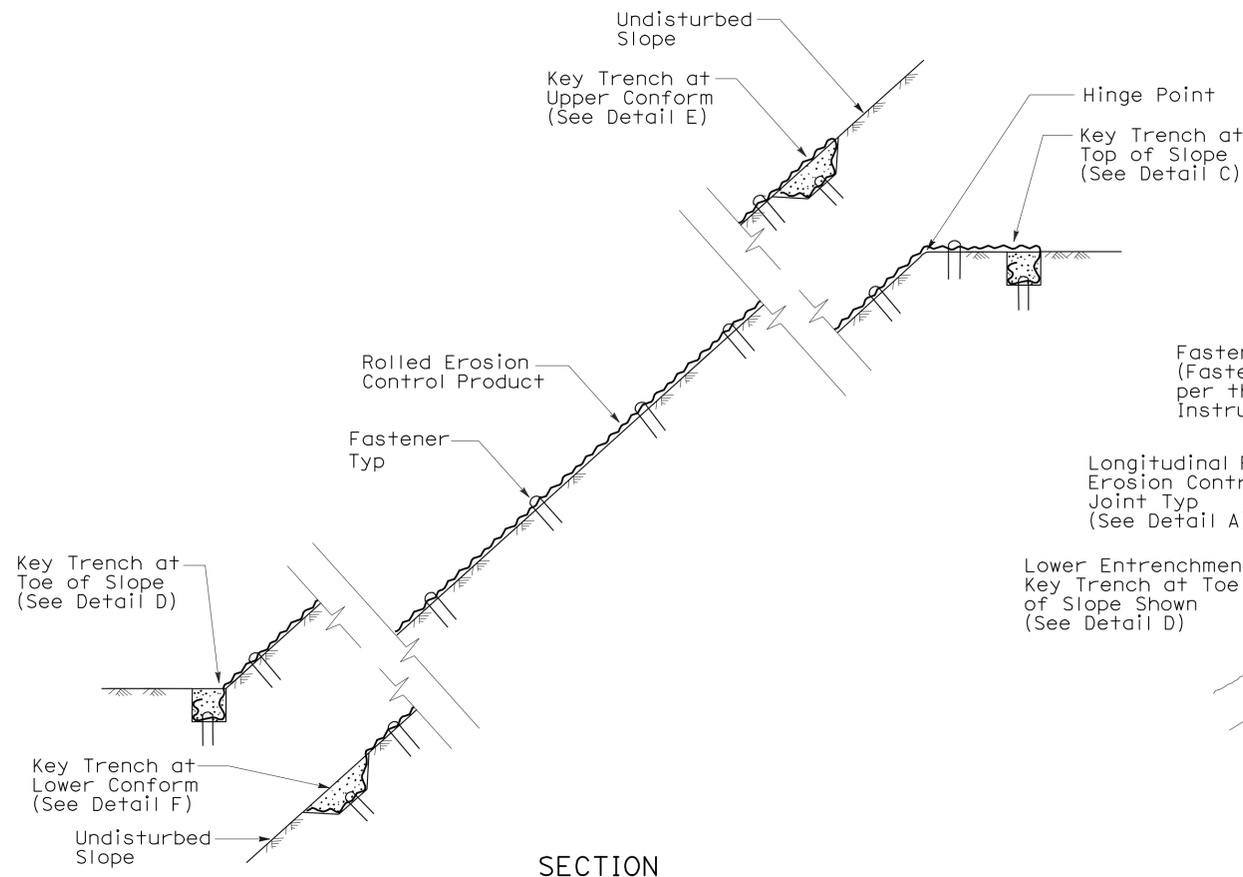
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SB	101	83.1/83.9	142	190

*Gregory A. Balzer*  
 LICENSED LANDSCAPE ARCHITECT  
 June 5, 2009  
 PLANS APPROVAL DATE  
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

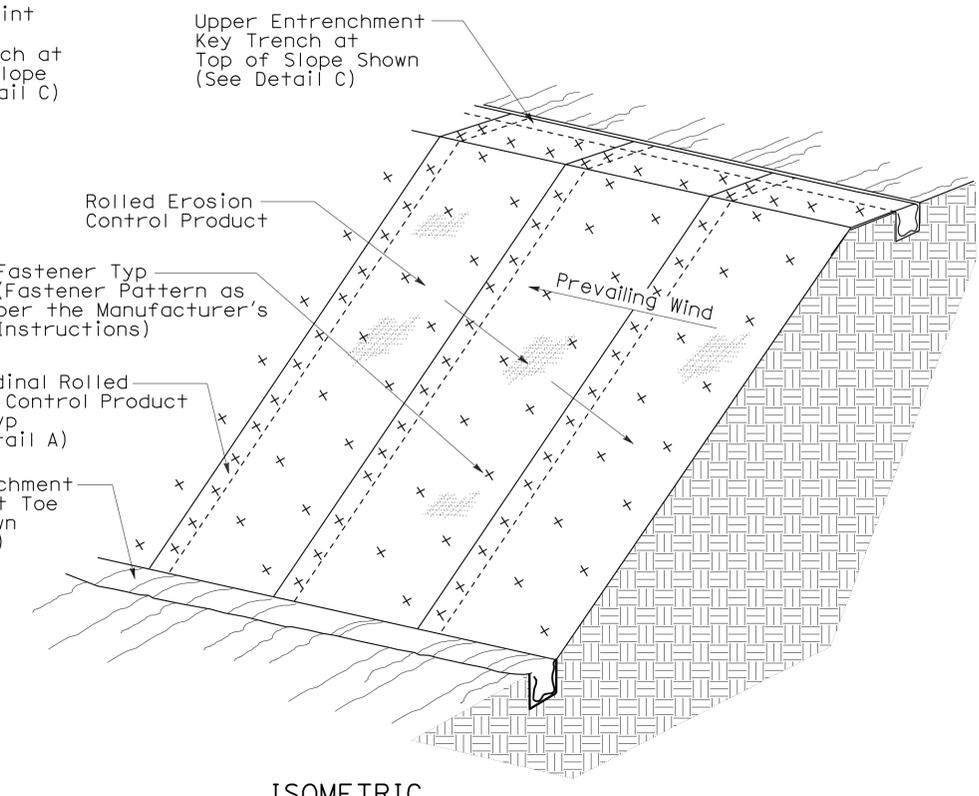


To accompany plans dated 4-2-12

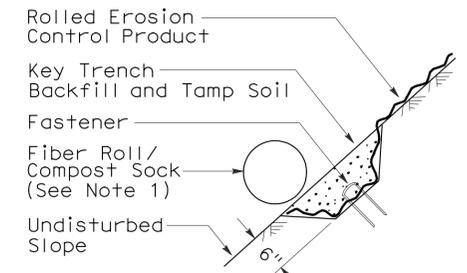
- NOTE:**
1. Fiber Roll/Compost Sock shown for reference purposes only.
  2. If transverse rolled erosion control product joints are required on slopes, see Detail B.



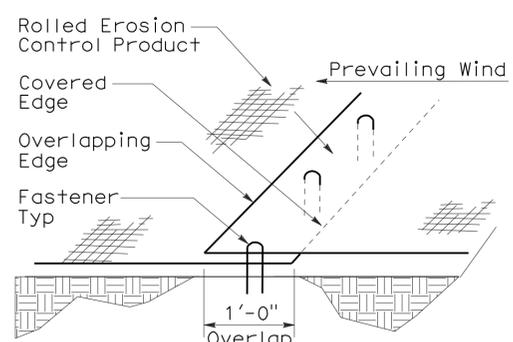
**SECTION**  
**ROLLED EROSION CONTROL PRODUCT**  
**ON SLOPE WITH VARIOUS KEY ENTRENCHMENTS**



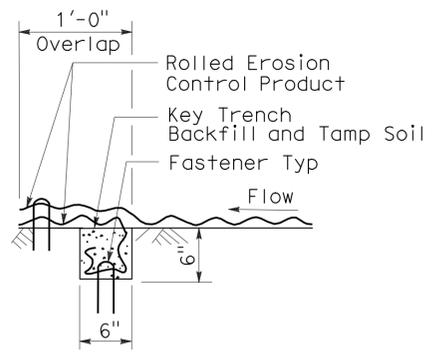
**ISOMETRIC**  
**ROLLED EROSION CONTROL PRODUCT**  
**ON SLOPE**



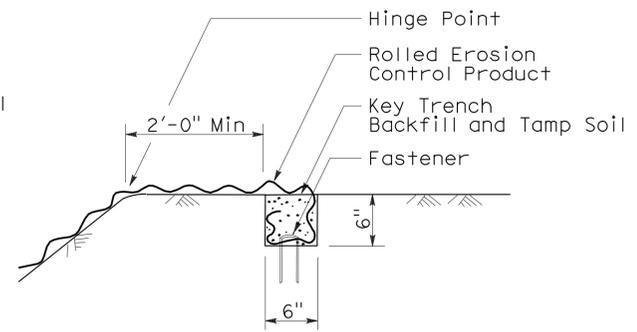
**SECTION**  
**DETAIL F**  
**KEY TRENCH AT**  
**LOWER CONFORM**



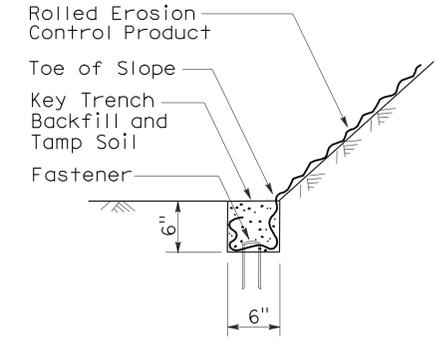
**PERSPECTIVE**  
**DETAIL A**  
**LONGITUDINAL ROLLED EROSION**  
**CONTROL PRODUCT JOINT**



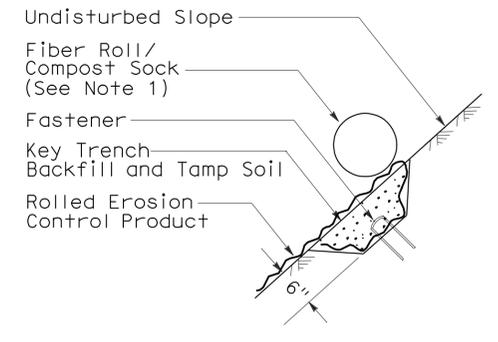
**SECTION**  
**DETAIL B**  
**TRANSVERSE ROLLED EROSION**  
**CONTROL PRODUCT JOINT**



**SECTION**  
**DETAIL C**  
**KEY TRENCH AT**  
**TOP OF SLOPE**



**SECTION**  
**DETAIL D**  
**KEY TRENCH AT**  
**TOE OF SLOPE**



**SECTION**  
**DETAIL E**  
**KEY TRENCH AT**  
**UPPER CONFORM**

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION

**ROLLED EROSION CONTROL PRODUCT**

NO SCALE

NSP H53 DATED JUNE 5, 2009 SUPPLEMENTS  
 THE STANDARD PLANS BOOK DATED MAY 2006.

2006 NEW STANDARD PLAN NSP H53

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SB	101	83.1/83.9	143	190

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

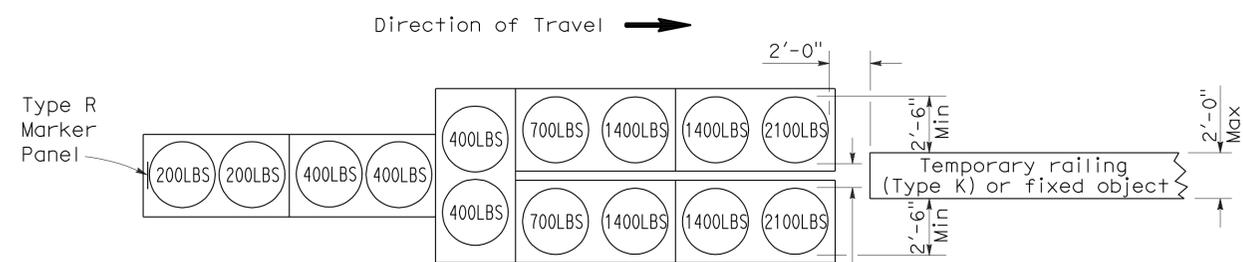
June 6, 2008  
PLANS APPROVAL DATE

*Randell D. Hiatt*  
REGISTERED PROFESSIONAL ENGINEER  
No. C50200  
Exp. 6-30-09  
CIVIL  
STATE OF CALIFORNIA

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.

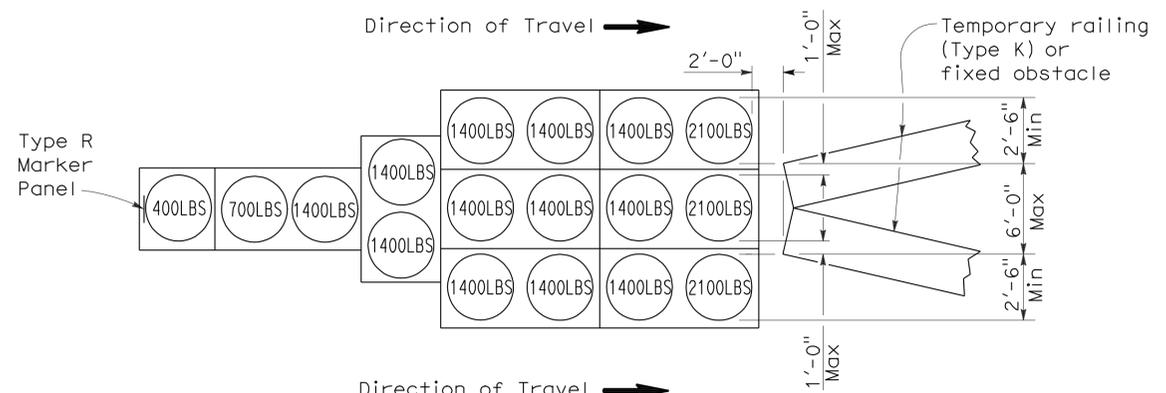
To accompany plans dated 4-2-12

2006 REVISED STANDARD PLAN RSP T1A



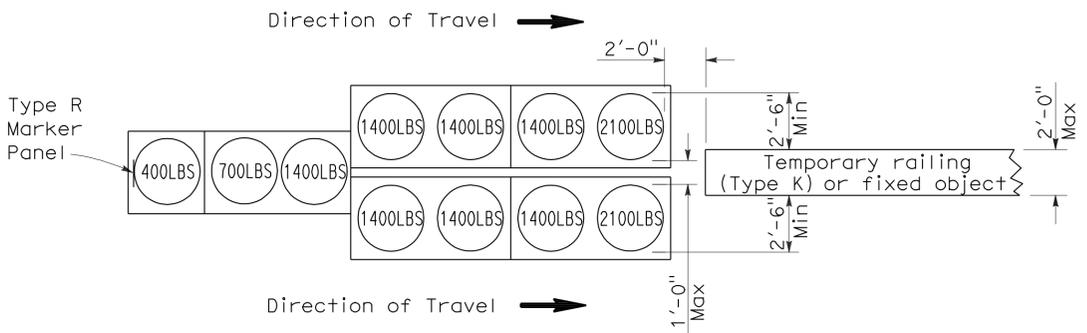
**ARRAY 'TU14'**

Approach speed 45 mph or more



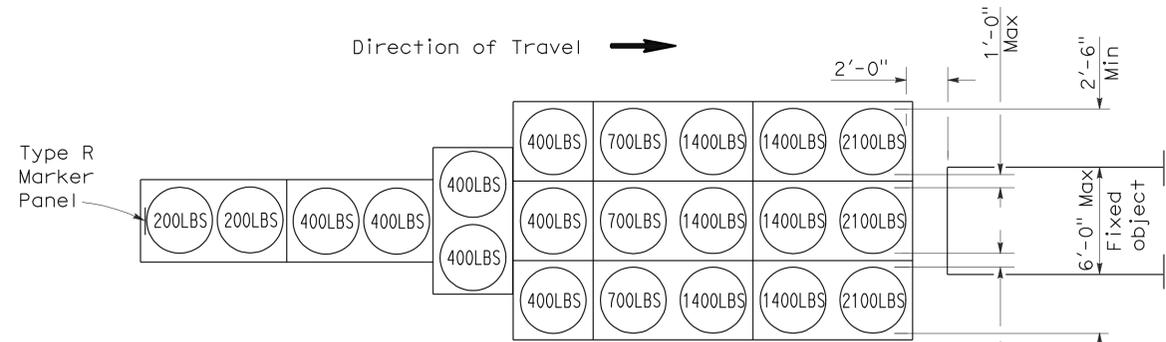
**ARRAY 'TU17'**

Approach speed less than 45 mph



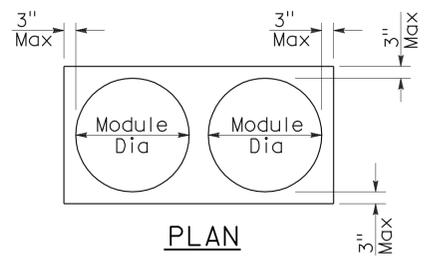
**ARRAY 'TU11'**

Approach speed less than 45 mph

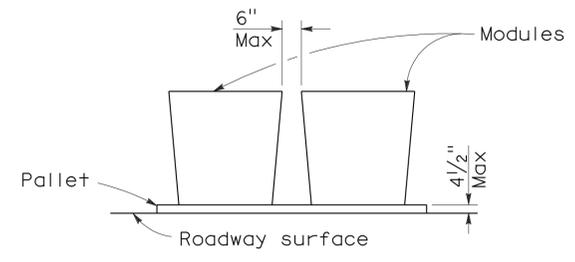


**ARRAY 'TU21'**

Approach speed 45 mph or more



**PLAN**



**ELEVATION**

**CRASH CUSHION PALLET DETAIL**

See Note 7

**NOTES:**

1. (XXX) Indicates sand filled module location and weight of sand in pounds for each module. Module spacing is based on the greater diameter of the module.
2. All sand weights are nominal.
3. Temporary crash cushion arrays shall not encroach on the traveled way.
4. Place the top of Type R marker panel 1" below the module lid.
5. Refer to Standard Plan A73B for marker details.
6. Approach speeds indicated conform to NCHRP 350 Report criteria.
7. Use of pallets is optional.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**TEMPORARY CRASH CUSHION,  
SAND FILLED  
(UNIDIRECTIONAL)**

NO SCALE

RSP T1A DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN T1A  
DATED MAY 1, 2006 - PAGE 211 OF THE STANDARD PLANS BOOK DATED MAY 2006.

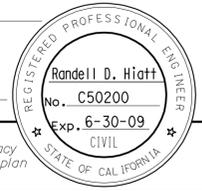
**REVISED STANDARD PLAN RSP T1A**

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SB	101	83.1/83.9	144	190

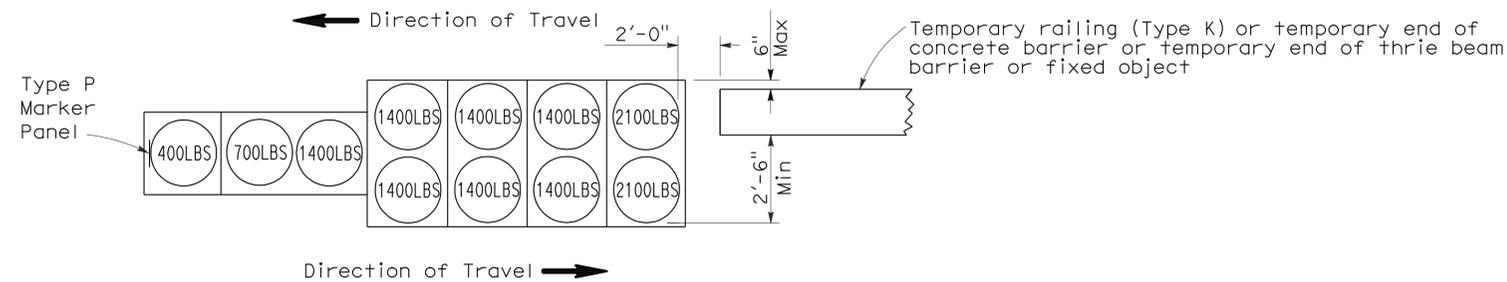
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

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

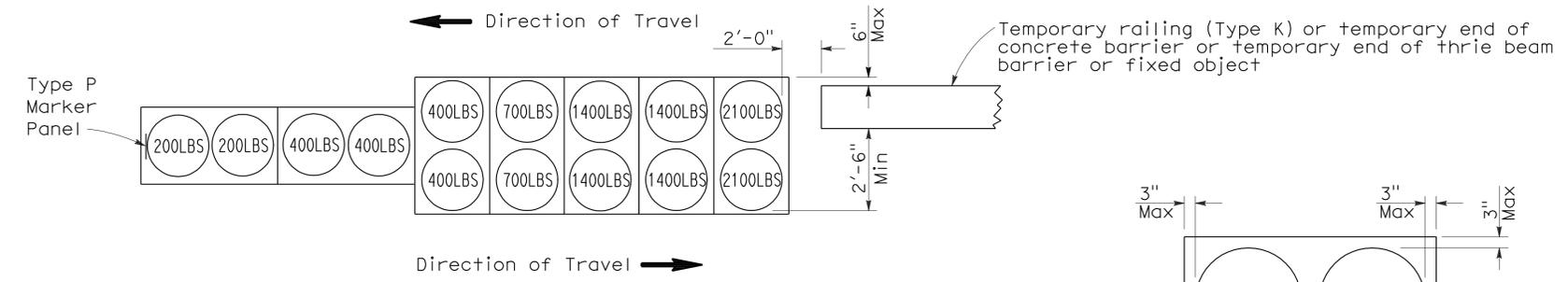


To accompany plans dated 4-2-12



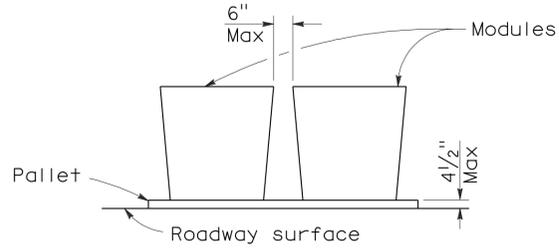
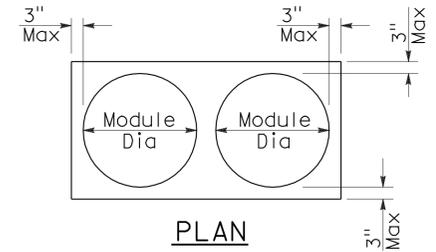
**ARRAY 'TB11'**

Approach speed less than 45 mph



**ARRAY 'TB14'**

Approach speed 45 mph or more



**ELEVATION**  
**CRASH CUSHION PALLET DETAIL**  
See Note 7

**NOTES:**

1. (XXX) Indicates sand filled module location and weight of sand in pounds for each module. Module spacing is based on the greater diameter of the module.
2. All sand weights are nominal.
3. Temporary crash cushion arrays shall not encroach on the traveled way.
4. Place the Type P marker panel so that the bottom of the panel rests upon the pallet.
5. Refer to Standard Plan A73B for marker details.
6. Approach speeds indicated conform to NCHRP 350 Report criteria.
7. Use of pallets is optional.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**TEMPORARY CRASH CUSHION,  
SAND FILLED  
(BIDIRECTIONAL)**

NO SCALE

RSP T1B DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN T1B  
DATED MAY 1, 2006 - PAGE 212 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP T1B**

2006 REVISED STANDARD PLAN RSP T1B

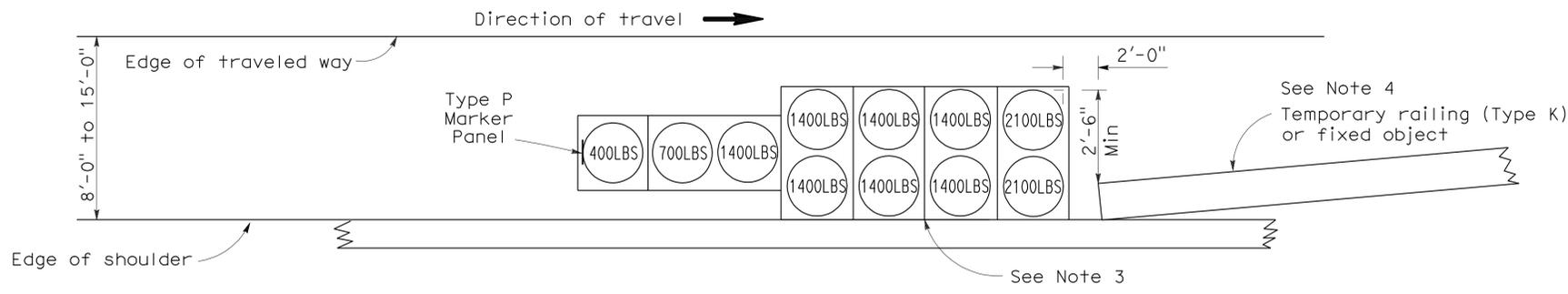
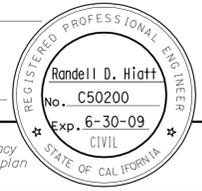
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SB	101	83.1/83.9	145	190

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

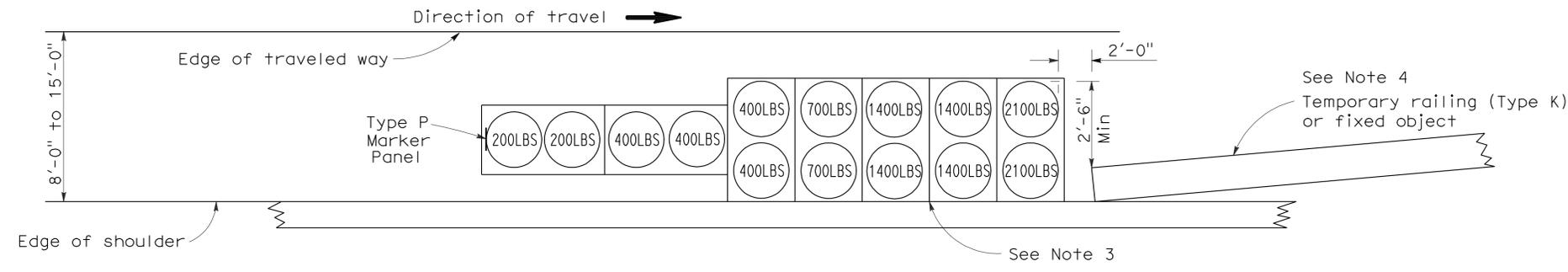
June 6, 2008  
PLANS APPROVAL DATE

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

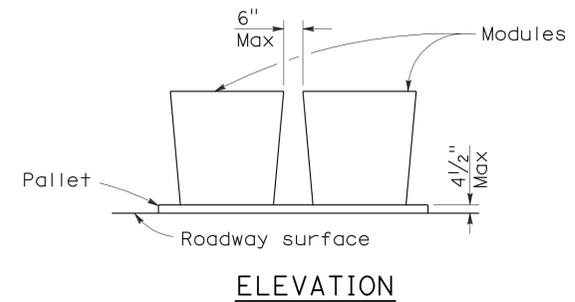
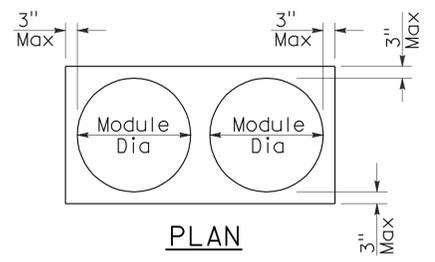
To accompany plans dated 4-2-12



**ARRAY 'TS11'**  
Approach speed less than 45 mph  
See Note 9



**ARRAY 'TS14'**  
Approach speed 45 mph or more  
See Note 9



**CRASH CUSHION PALLET DETAIL**  
See Note 11

**NOTES:**

- (XXX) Indicates sand filled module location and weight of sand in pounds for each module. Module spacing is based on the greater diameter of the module.
- All sand weights are nominal.
- The temporary crash cushion arrays shown on this plan shall be used only in locations where there will be traffic on one side of the temporary crash cushion array.
- If the fixed object or approach end of the temporary railing is less than 15'-0" from the edge of traveled way, a temporary crash cushion is required in a construction or work zone.
- Temporary crash cushion arrays shall not encroach on the traveled way.
- Arrays for median shoulders shall conform to details shown on this plan for outside shoulders.
- Place the Type P marker panel so that the bottom of the panel rests upon the pallet and faces traffic.
- Refer to Standard Plan A73B for marker details.
- For shoulder widths less than 8'-0", appropriate approved crash cushion protection, other than sand filled modules, shall be provided at fixed objects and at approach ends of temporary railing. The specific type of crash cushion shall be as shown on the project plans or as specified in the Special Provisions, or if not shown on the project plans or specified in the Special Provisions, shall be as approved by the Engineer.
- Approach speeds indicated conform to NCHRP 350 Report criteria.
- Use of pallets is optional.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**TEMPORARY CRASH CUSHION,  
SAND FILLED  
(SHOULDER INSTALLATIONS)**

NO SCALE  
RSP T2 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN T2  
DATED MAY 1, 2006 - PAGE 213 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP T2**

2006 REVISED STANDARD PLAN RSP T2

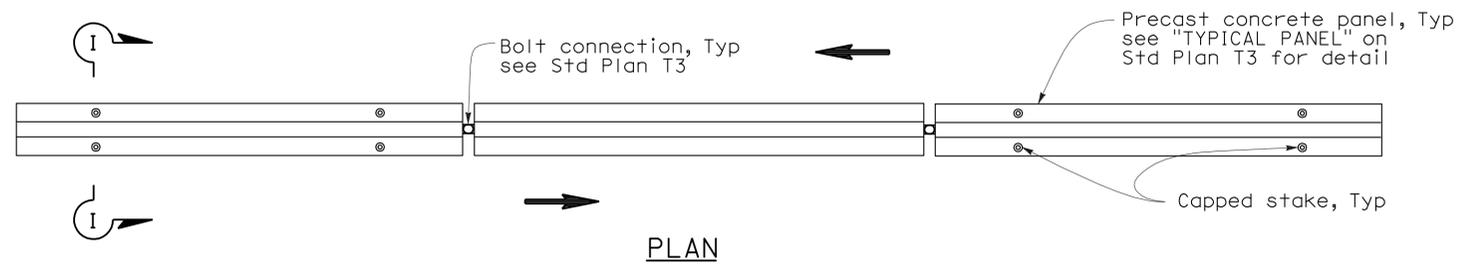
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SB	101	83.1/83.9	146	190

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

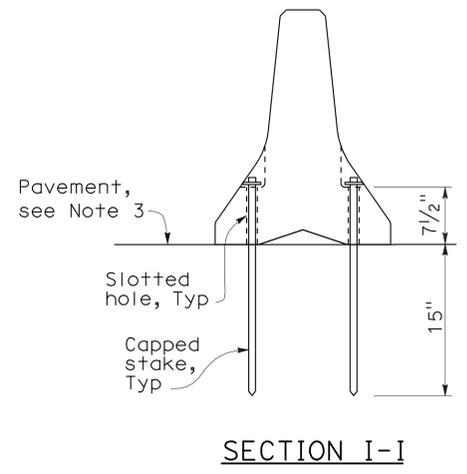
May 20, 2011  
PLANS APPROVAL DATE

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

To accompany plans dated 4-2-12

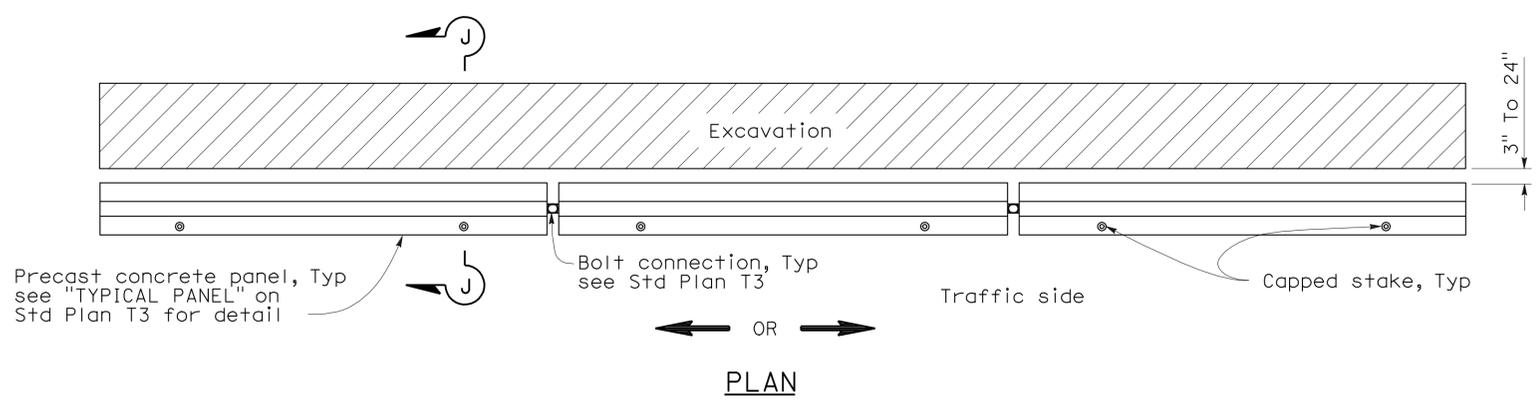


**RAILING STAKING CONFIGURATION FOR TWO-WAY TRAFFIC**  
See Note 1

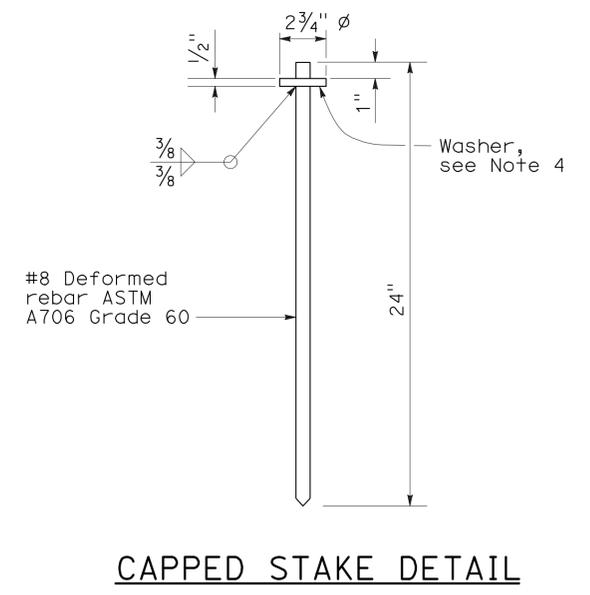
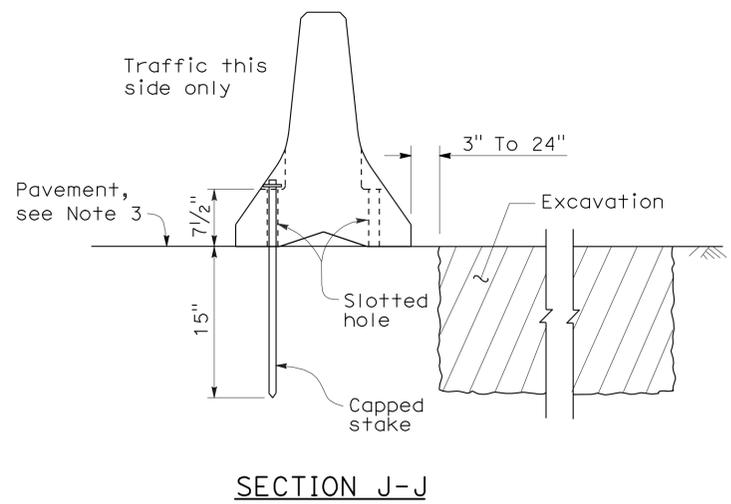


**NOTES:**

1. Where Type K Temporary Railing is placed as a temporary or long term barrier in two-way traffic on highways with less than 24" from the edge of traveled way, use four capped stakes per every other panel with end panels staked.
2. Where Type K Temporary Railing is placed 3" to 24" from the edge of an excavation on highways, use two capped stakes per panel along the traffic side.
3. Staked Type K Temporary Railing must be supported by at least 4" thick concrete, hot mix asphalt or existing asphalt pavement.
4. The minimum yield strength for the washer must be 60,000 psi.
5. Direction of adjacent traffic indicated by  $\Rightarrow$ .



**RAILING STAKING CONFIGURATION ADJACENT TO AN EXCAVATION**  
See Note 2



STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**TEMPORARY RAILING  
(TYPE K)**  
NO SCALE

NSP T3A DATED MAY 20, 2011 SUPPLEMENTS  
THE STANDARD PLANS BOOK DATED MAY 2006.

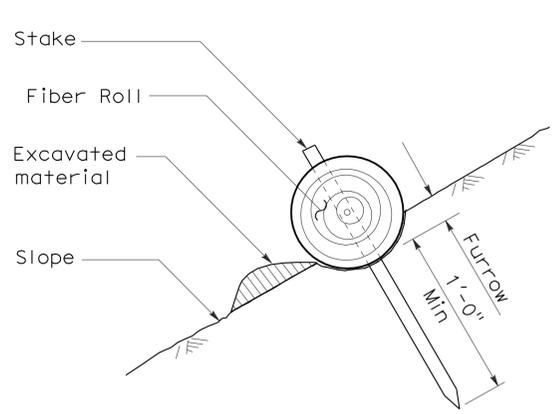
2006 NEW STANDARD PLAN NSP T3A



DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SB	101	83.1/83.9	148	190

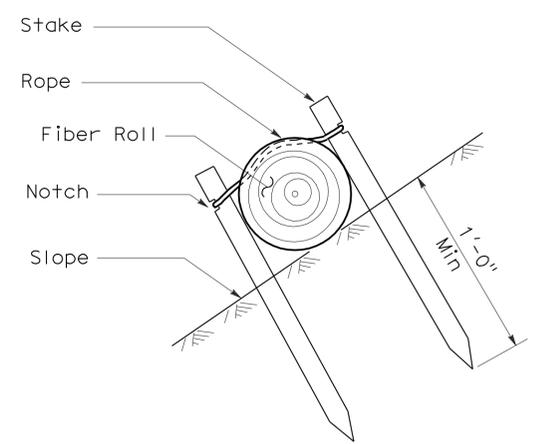
*Robert B. Schott*  
 LICENSED LANDSCAPE ARCHITECT  
 April 3, 2009  
 PLANS APPROVAL DATE  
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

To accompany plans dated 4-2-12



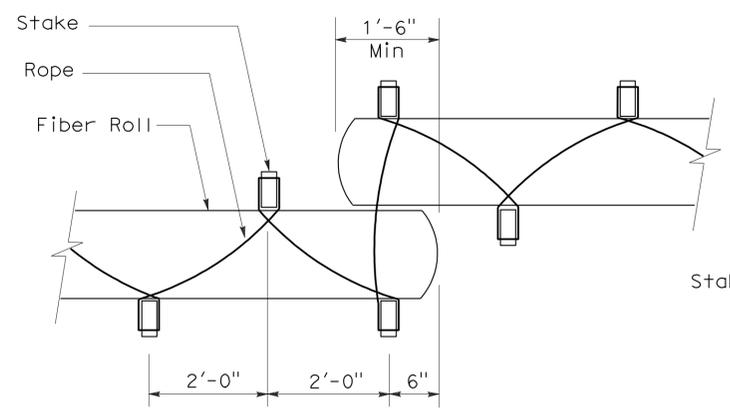
**SECTION**

**TEMPORARY FIBER ROLL (TYPE 1)**

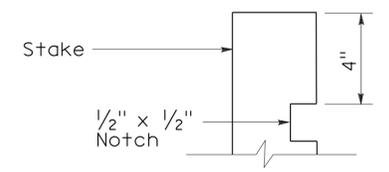


**SECTION**

**TEMPORARY FIBER ROLL (TYPE 2)**



**PLAN**

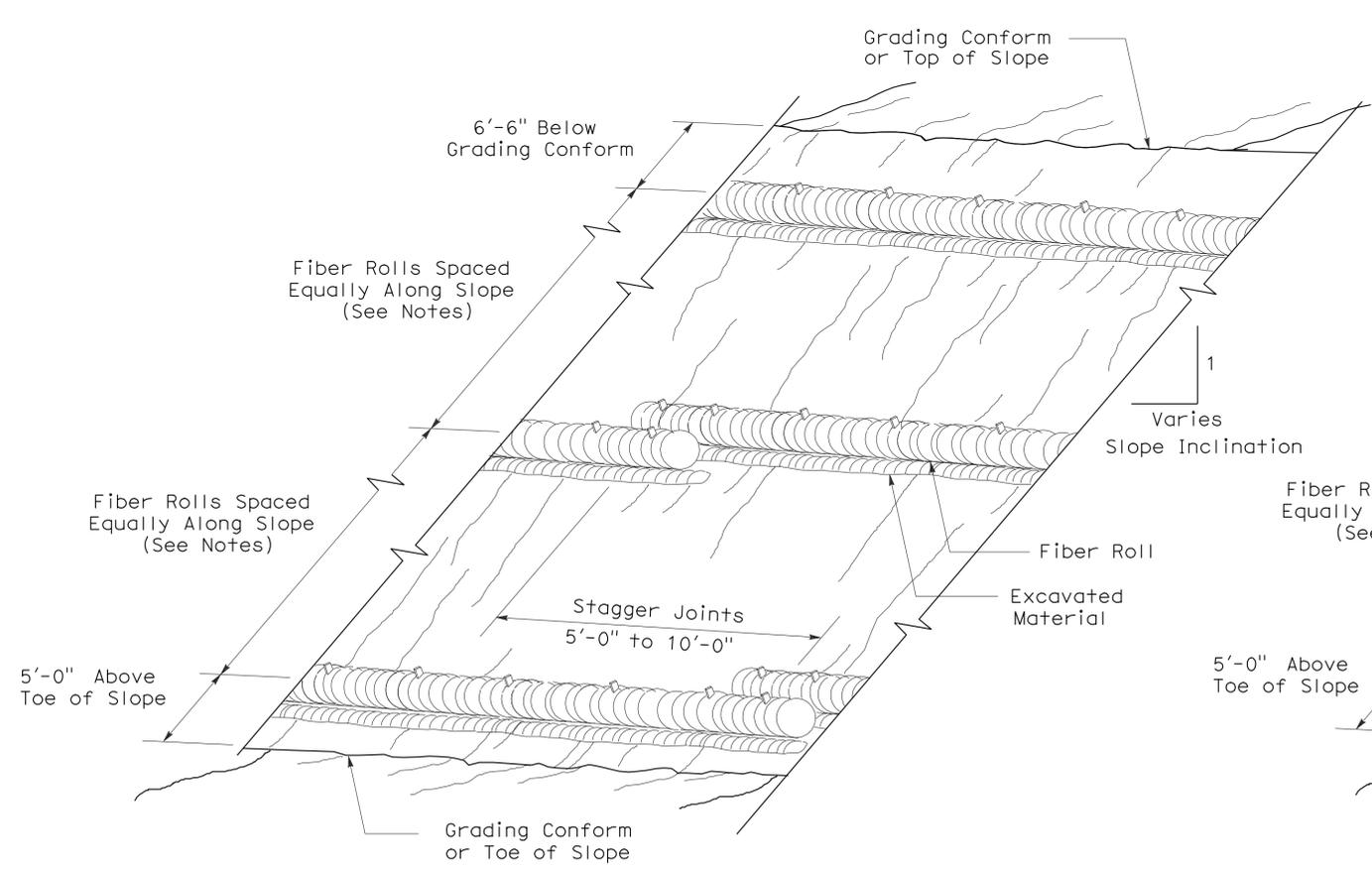


**ELEVATION**

**STAKE NOTCH DETAIL**

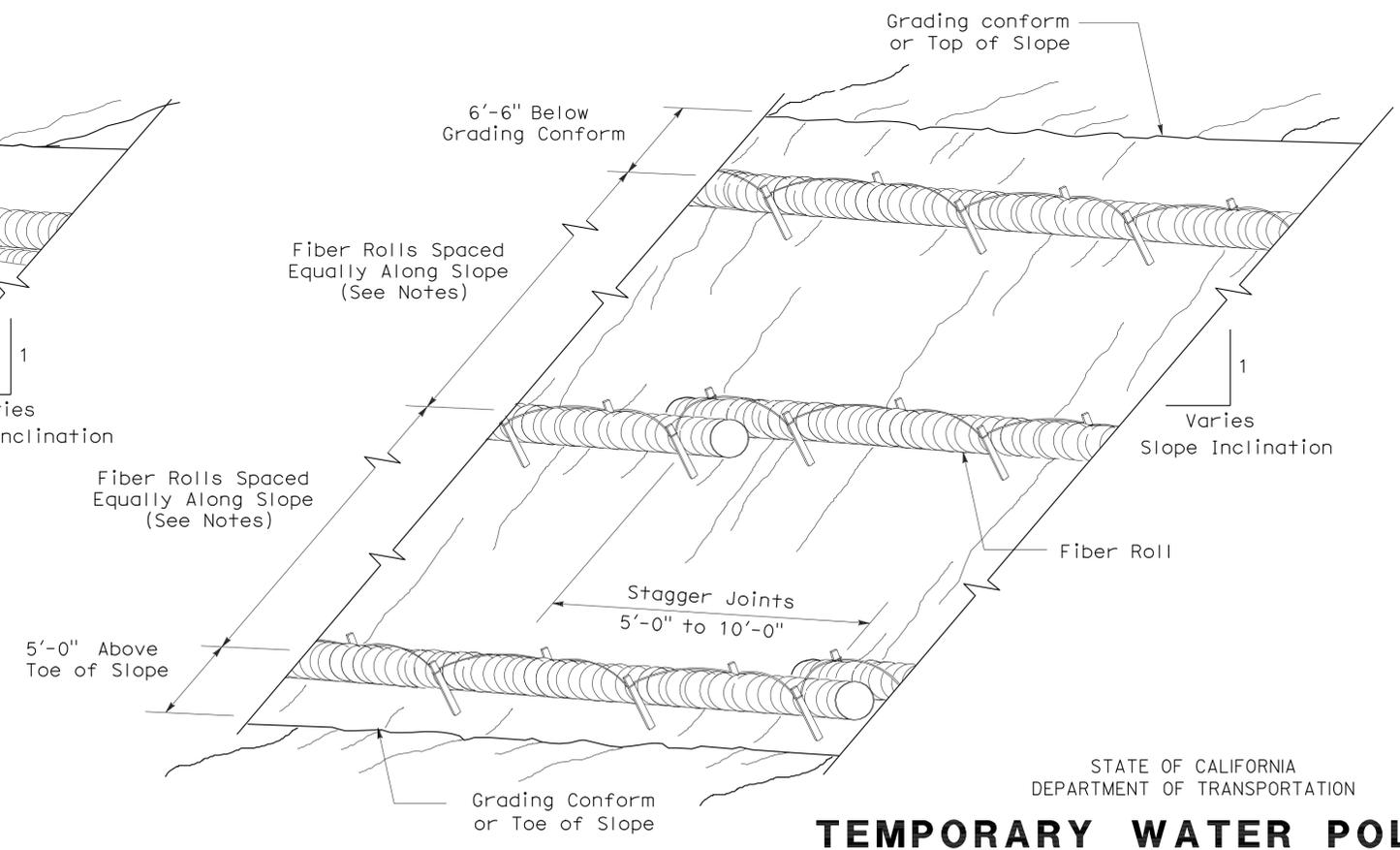
**NOTES:**

1. Temporary fiber roll spacing varies depending upon slope inclination.
2. Installations shown in the perspectives are for slope inclination of 10:1 and steeper.



**PERSPECTIVE**

**TEMPORARY FIBER ROLL (TYPE 1)**



**PERSPECTIVE**

**TEMPORARY FIBER ROLL (TYPE 2)**

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**TEMPORARY WATER POLLUTION CONTROL DETAILS (TEMPORARY FIBER ROLL)**

NO SCALE

RSP T56 DATED APRIL 3, 2009 SUPERSEDES STANDARD PLAN T56 DATED MAY 1, 2006 - PAGE 232 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP T56**

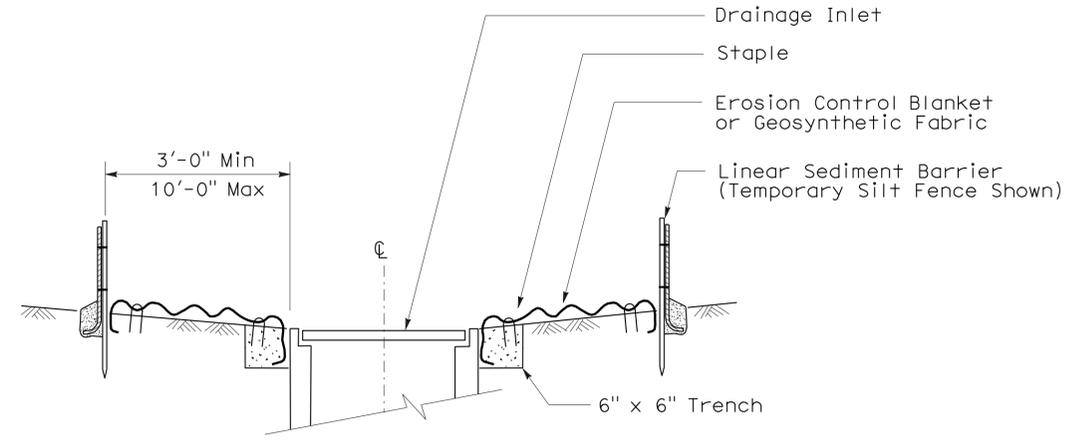
2006 REVISED STANDARD PLAN RSP T56

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SB	101	83.1/83.9	149	190

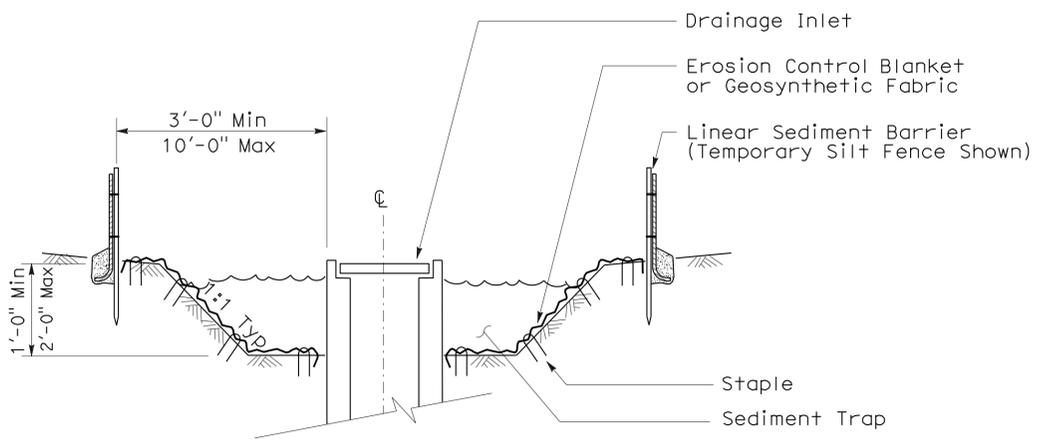
Robert B. Schott  
 LICENSED LANDSCAPE ARCHITECT  
 August 15, 2008  
 PLANS Approval DATE  
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.



To accompany plans dated 4-2-12



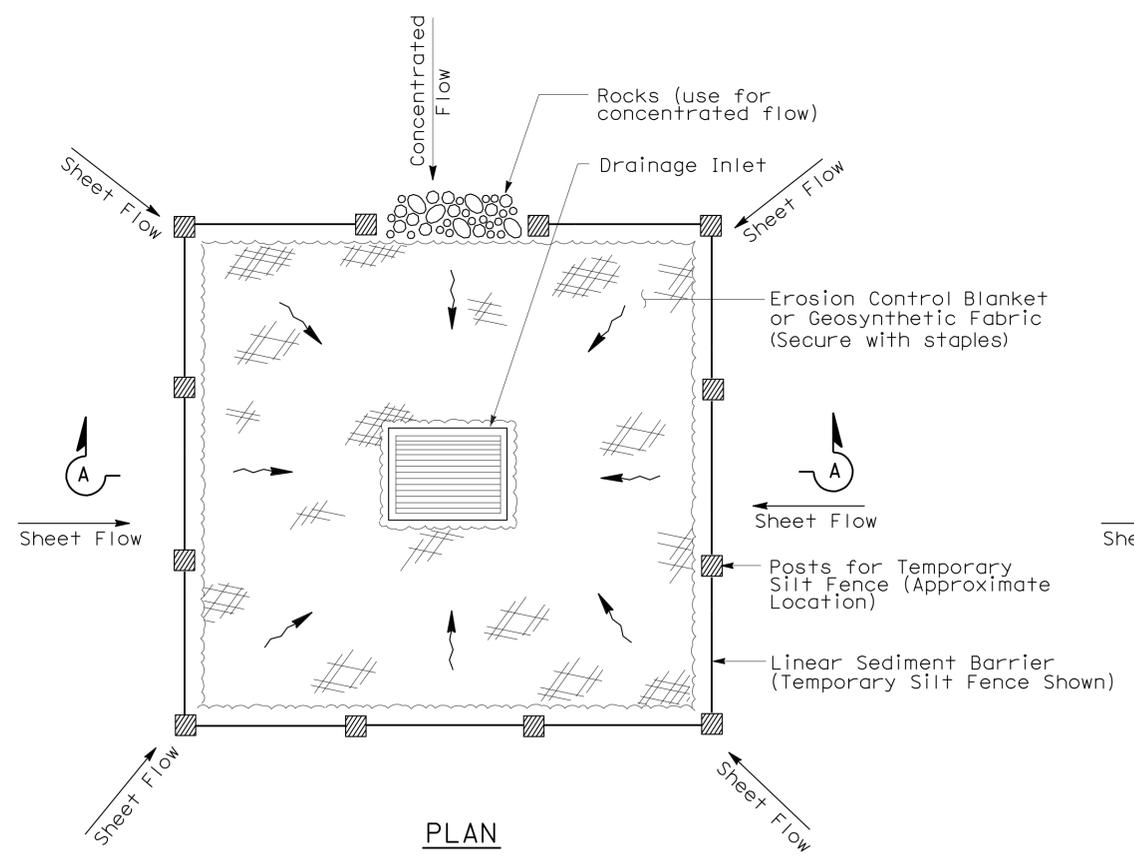
SECTION A-A



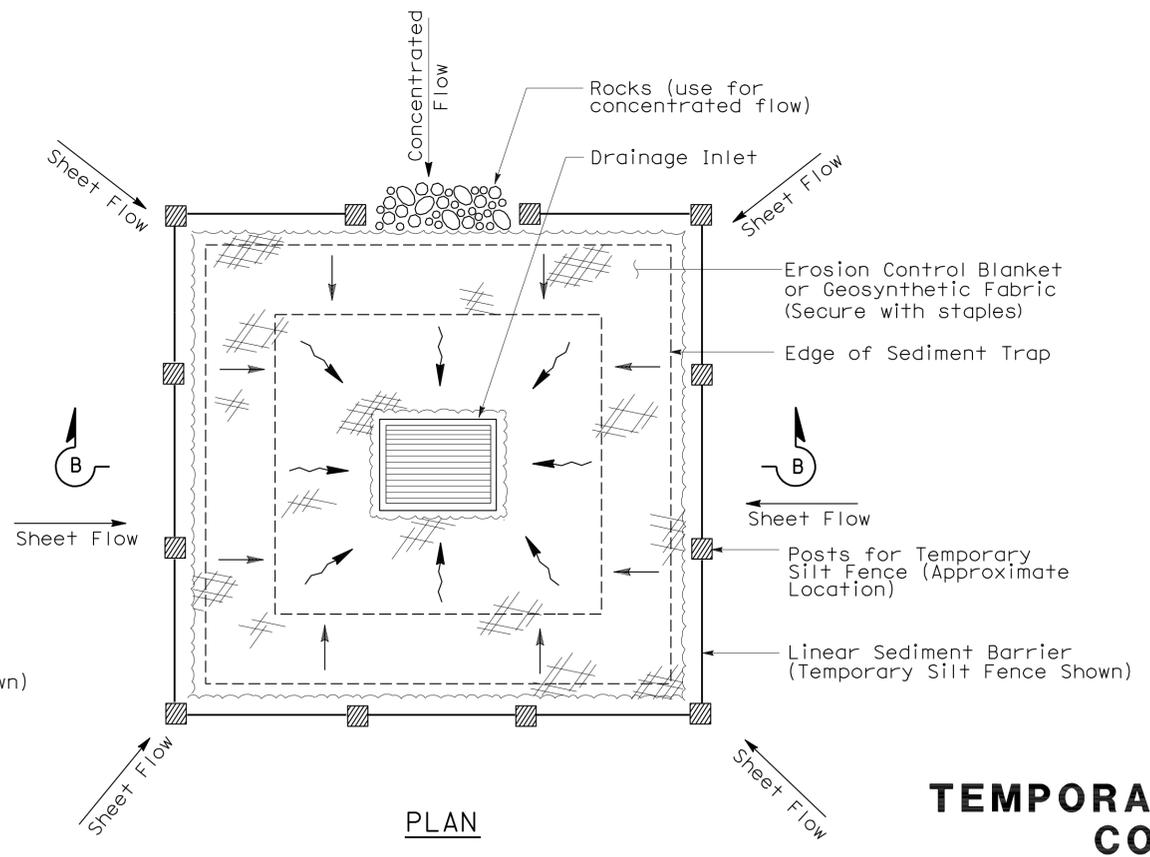
SECTION B-B

**NOTES:**

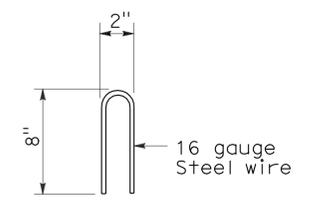
1. See Standard Plan T51 for Temporary Silt Fence.
2. Dimensions may vary to fit field conditions.



TEMPORARY DRAINAGE INLET PROTECTION (TYPE 1)



TEMPORARY DRAINAGE INLET PROTECTION (TYPE 2) (EXCAVATED SEDIMENT TRAP)



STAPLE DETAIL

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**TEMPORARY WATER POLLUTION CONTROL DETAILS**  
**(TEMPORARY DRAINAGE INLET PROTECTION)**  
 NO SCALE

NSP T61 DATED AUGUST 15, 2008 SUPPLEMENTS THE STANDARD PLANS BOOK DATED MAY 2006.

2006 NEW STANDARD PLAN NSP T61

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SB	101	83.1/83.9	150	190

*Robert B. Schott*  
 LICENSED LANDSCAPE ARCHITECT

August 15, 2008  
 PLANS APPROVAL DATE

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

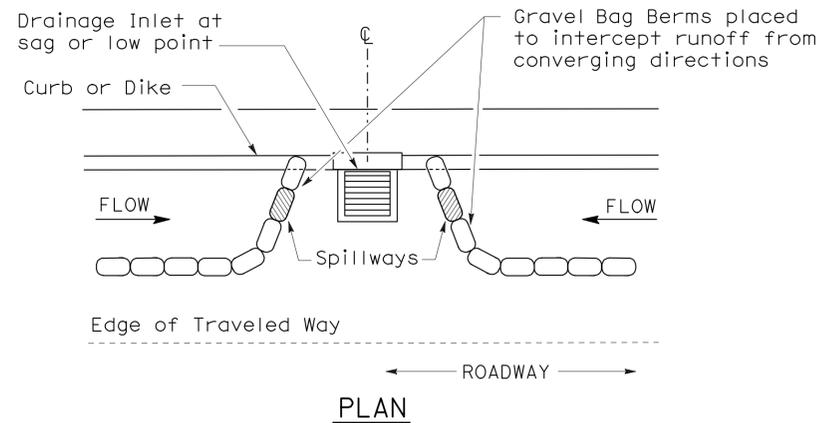
To accompany plans dated 4-2-12

2006 NEW STANDARD PLAN NSP T62

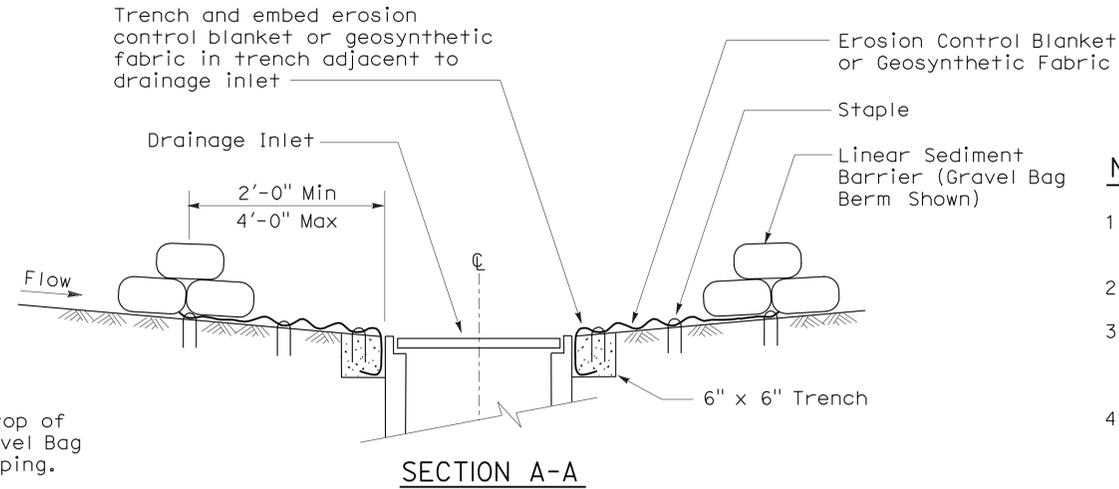
**GRAVEL BAG BERM (TYPE 3A) SPACING TABLE**

SLOPE OF ROADWAY (PERCENT)	1 to 3.9	4 to 5.9	6 to 7.9	8 to 10	10+
INTERVAL BETWEEN BERM	100'	75'	50'	25'	12'

For slope of less than 1%, install barriers only if erosion/sediment is prevalent



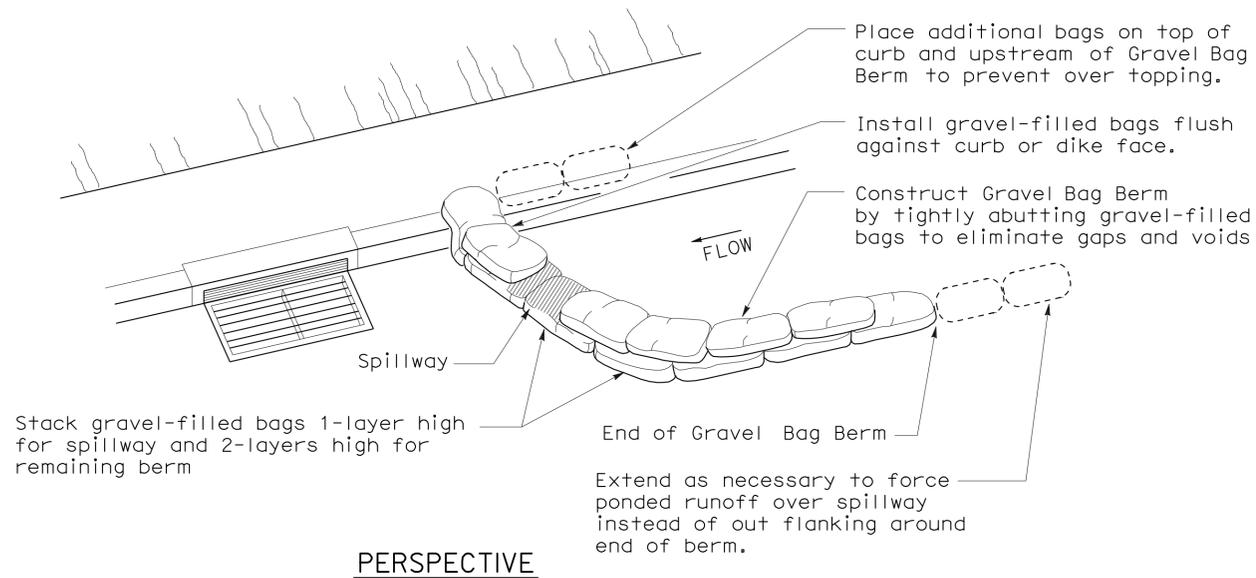
**PLAN**  
**CONFIGURATION FOR SAG POINT INLET (GRAVEL BAG BERM)**



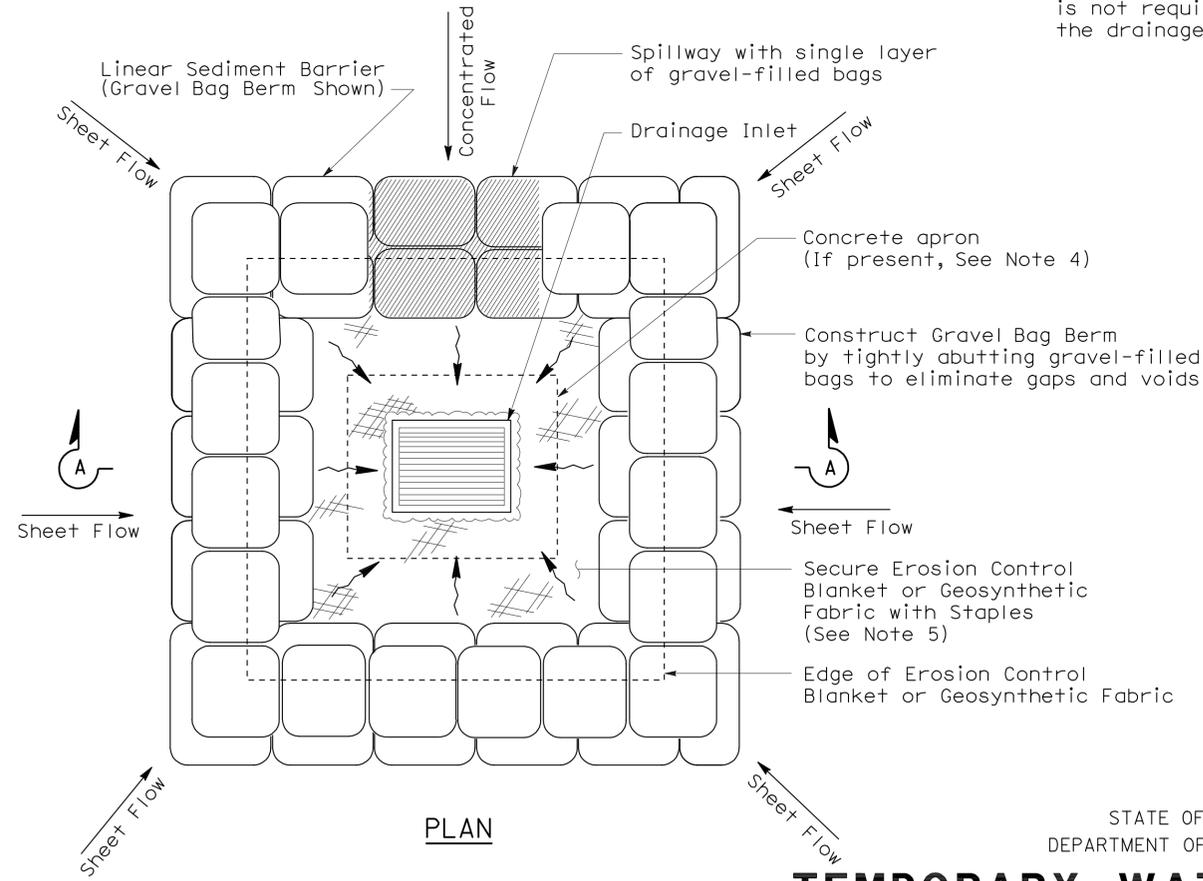
**SECTION A-A**

**NOTES:**

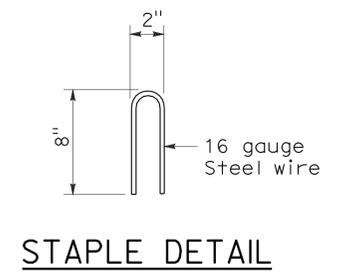
1. Place safety cones adjacent to drainage inlet protection.
2. Dimensions may vary to fit field conditions.
3. Install a minimum of 3 gravel bag berms upstream of each drainage inlet to be protected.
4. Position erosion control blanket or geosynthetic fabric at edge of concrete apron and secure in trench.
5. Erosion control blanket or geosynthetic fabric is not required if the area adjacent to the drainage inlet is vegetated or paved.



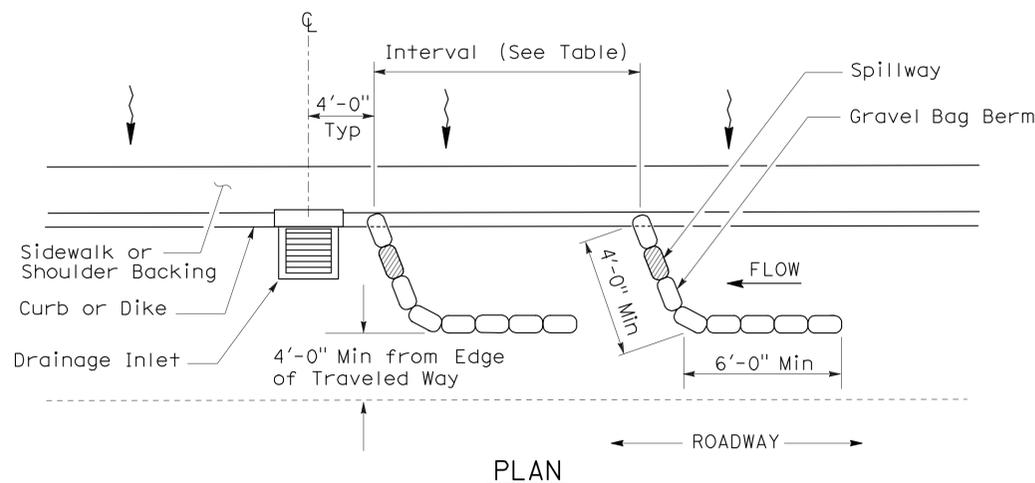
**PERSPECTIVE**



**PLAN**  
**TEMPORARY DRAINAGE INLET PROTECTION (TYPE 3B)**



**STAPLE DETAIL**



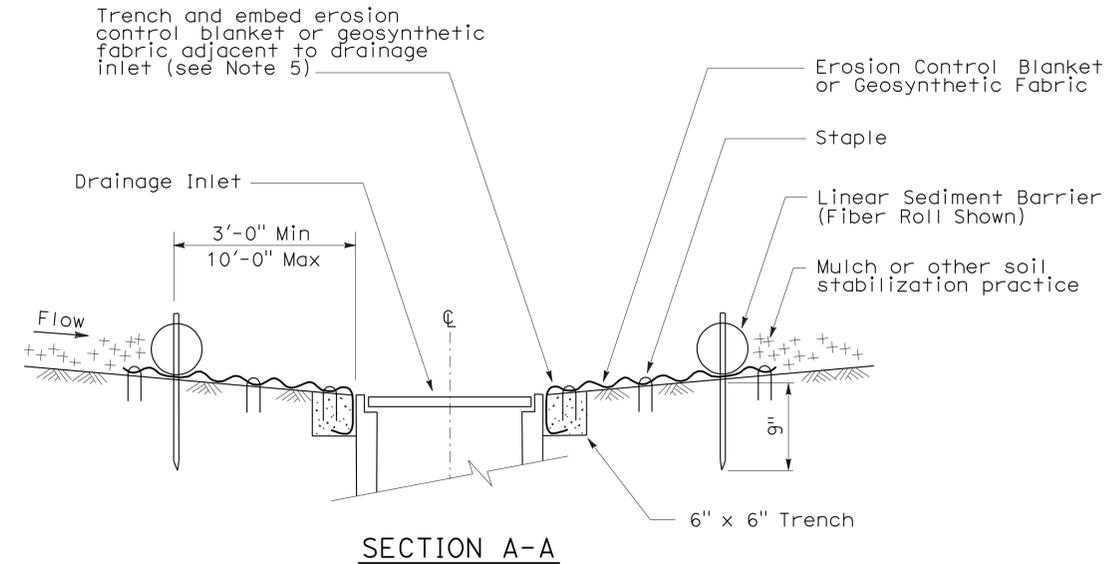
**PLAN**  
**TEMPORARY DRAINAGE INLET PROTECTION (TYPE 3A) (GRAVEL BAG BERM)**

**STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION**  
**TEMPORARY WATER POLLUTION CONTROL DETAILS (TEMPORARY DRAINAGE INLET PROTECTION)**

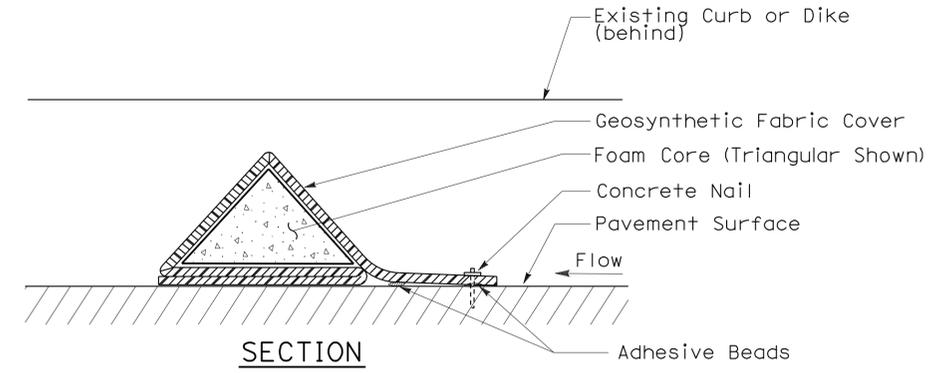
NO SCALE  
NSP T62 DATED AUGUST 15, 2008 SUPPLEMENTS THE STANDARD PLANS BOOK DATED MAY 2006.

**FLEXIBLE SEDIMENT BARRIER SPACING TABLE**

SLOPE OF ROADWAY (PERCENT)	0 to 0.9	1 to 1.9	2 to 2.9	3 to 4	5+
INTERVAL BETWEEN BARRIERS	50'	35'	30'	25'	20'
ANGLE FROM FACE OF CURB	70°	70°	70°	45°	45°
SUGGESTED BARRIER LENGTH	6'	6'	6'	6'	6'



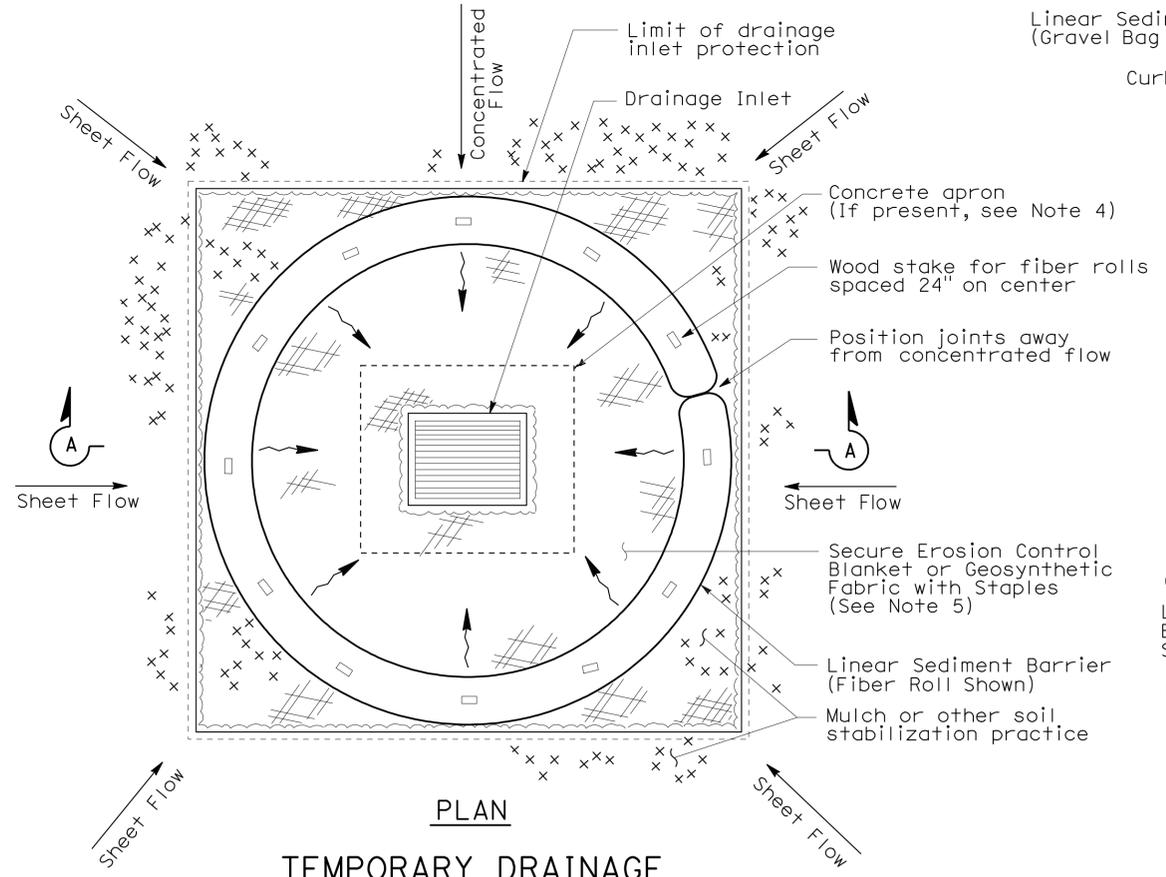
**SECTION A-A**



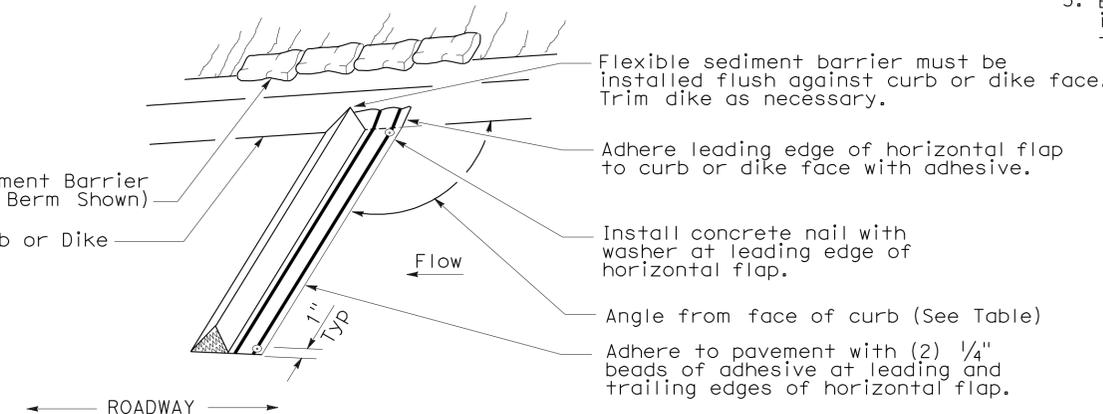
**FLEXIBLE SEDIMENT BARRIER DETAIL (FOAM BARRIER SHOWN)**

**NOTES:**

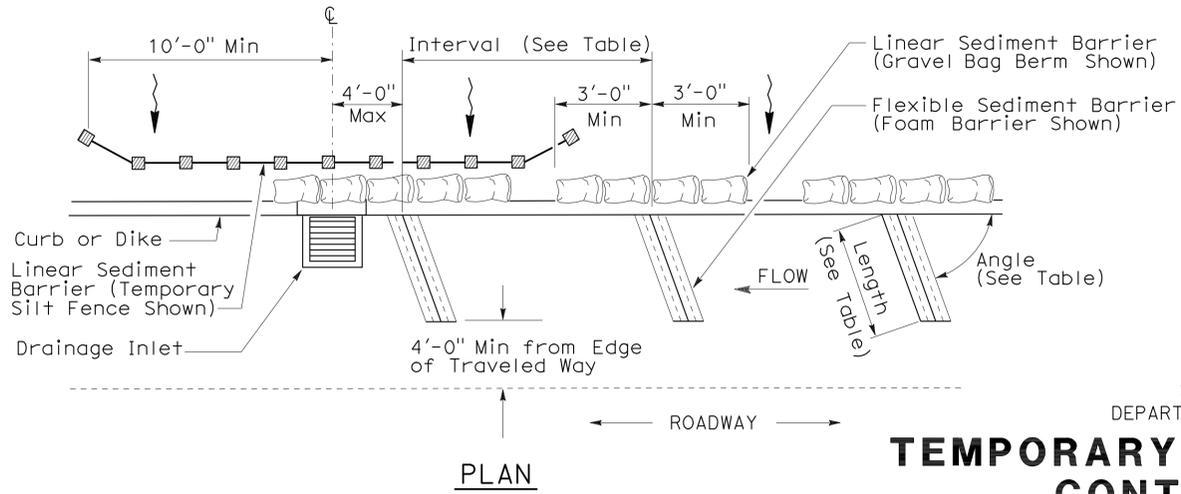
1. See Standard Plan T51 for Temporary Silt Fence.
2. Dimensions may vary to fit field conditions.
3. Install a minimum of 3 flexible sediment barriers upstream of each drainage inlet to be protected.
4. Position erosion control blanket or geosynthetic fabric at edge of concrete apron and secure in trench.
5. Erosion control blanket or geosynthetic fabric is not required if the area adjacent to the drainage inlet is vegetated.



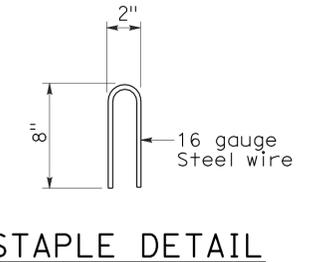
**TEMPORARY DRAINAGE INLET PROTECTION (TYPE 4A)**



**PERSPECTIVE**



**TEMPORARY DRAINAGE INLET PROTECTION (TYPE 4B) FLEXIBLE SEDIMENT BARRIER**

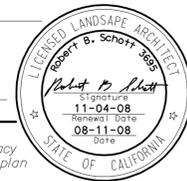


**STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION**  
**TEMPORARY WATER POLLUTION CONTROL DETAILS (TEMPORARY DRAINAGE INLET PROTECTION)**

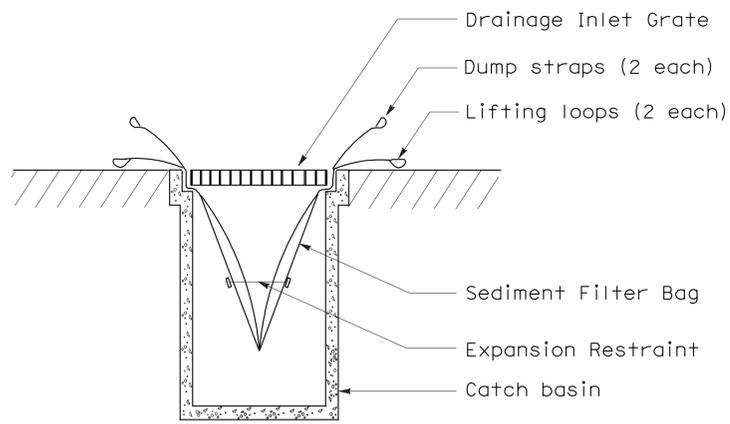
NO SCALE  
 NSP T63 DATED AUGUST 15, 2008 SUPPLEMENTS THE STANDARD PLANS BOOK DATED MAY 2006.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SB	101	83.1/83.9	152	190

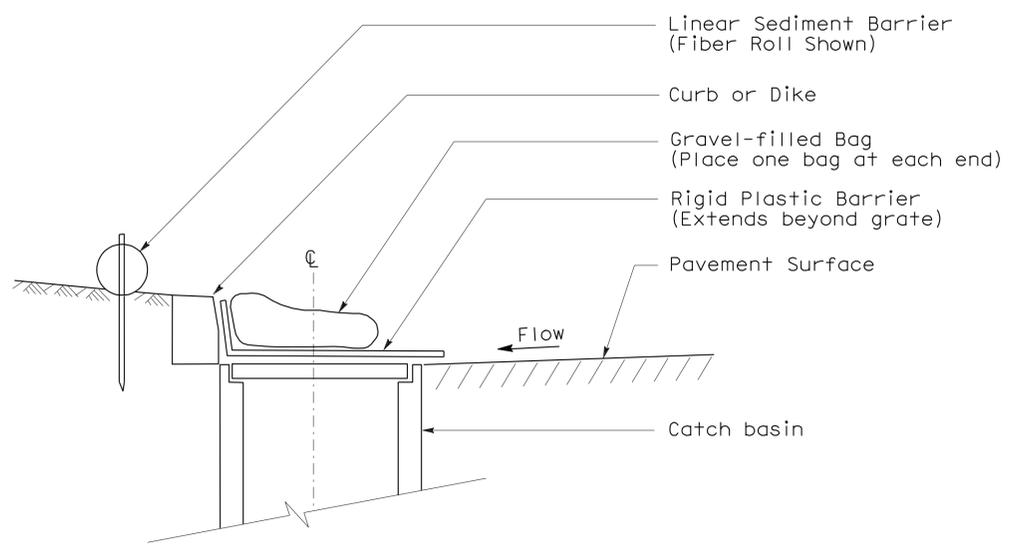
*Robert B. Schott*  
 LICENSED LANDSCAPE ARCHITECT  
 August 15, 2008  
 PLANS APPROVAL DATE  
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.



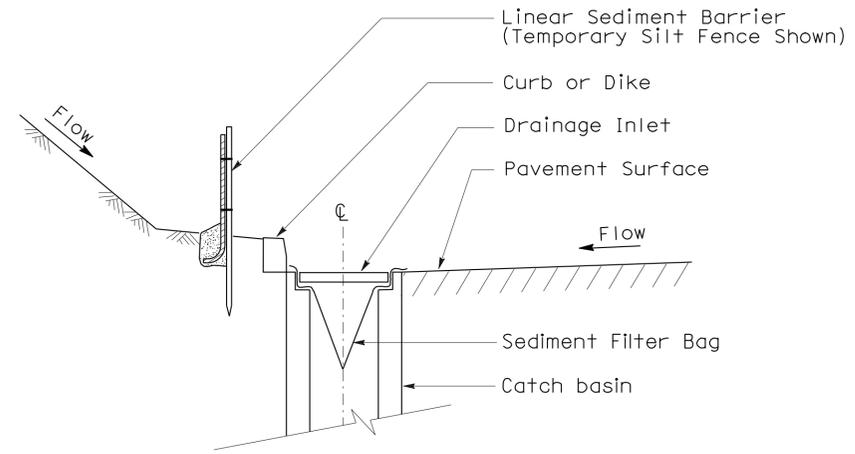
To accompany plans dated 4-2-12



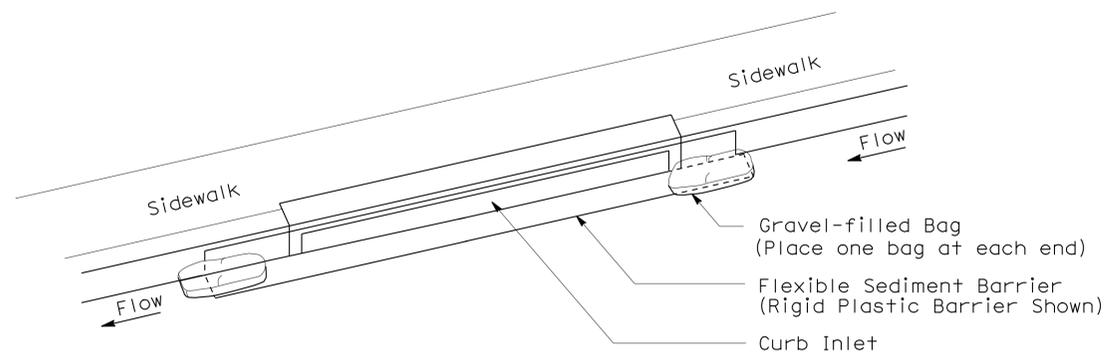
**SECTION B-B**  
**SEDIMENT FILTER BAG DETAIL**



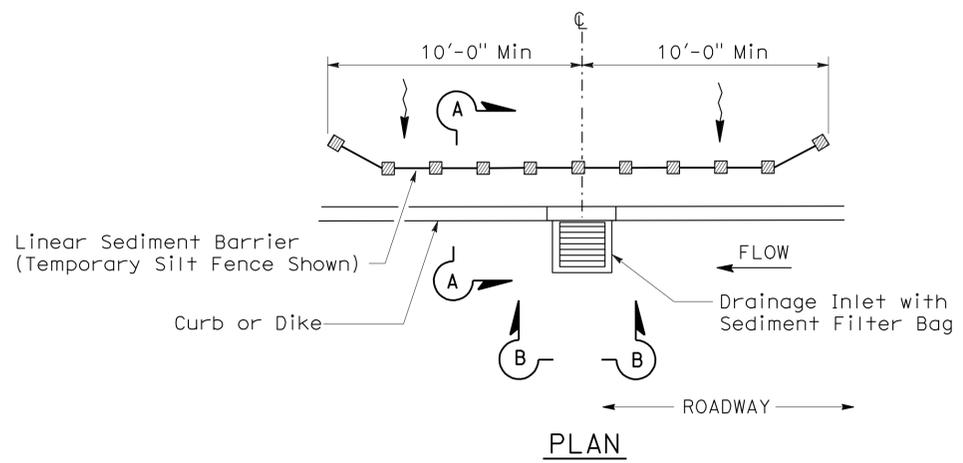
**SECTION**  
**TEMPORARY DRAINAGE INLET PROTECTION (TYPE 6A)**  
**(CATCH BASIN WITH GRATE)**



**SECTION A-A**



**PERSPECTIVE**  
**TEMPORARY DRAINAGE INLET PROTECTION (TYPE 6B)**  
**(CURB INLET WITHOUT GRATE)**



**PLAN**  
**TEMPORARY DRAINAGE INLET PROTECTION (TYPE 5)**  
**(SEDIMENT FILTER BAG)**

**NOTES:**

1. See Standard Plan T51 for Temporary Silt Fence.
2. Dimensions may vary to fit field conditions.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**TEMPORARY WATER POLLUTION CONTROL DETAILS (TEMPORARY DRAINAGE INLET PROTECTION)**

NO SCALE

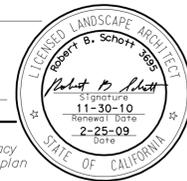
NSP T64 DATED AUGUST 15, 2008 SUPPLEMENTS THE STANDARD PLANS BOOK DATED MAY 2006.

**NEW STANDARD PLAN NSP T64**

2006 NEW STANDARD PLAN NSP T64

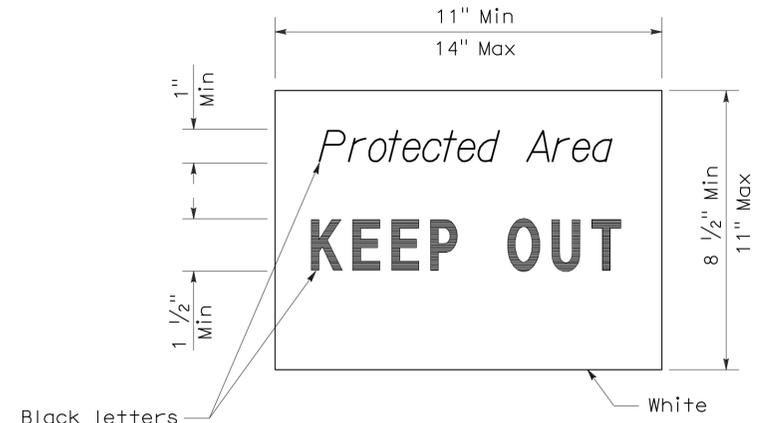
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SB	101	83.1/83.9	153	190

*Robert B. Schott*  
 LICENSED LANDSCAPE ARCHITECT  
 April 3, 2009  
 PLANS APPROVAL DATE  
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

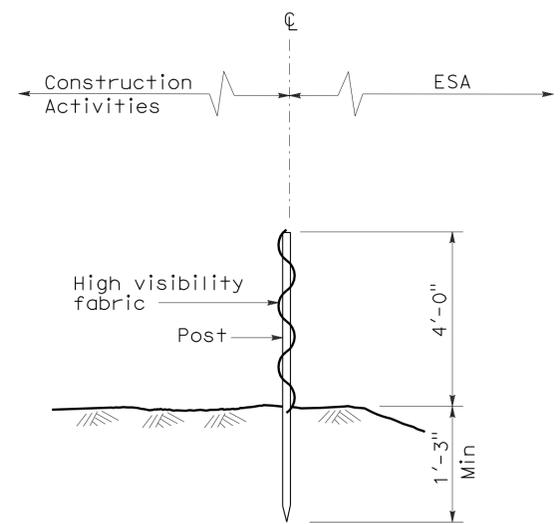


To accompany plans dated 4-2-12

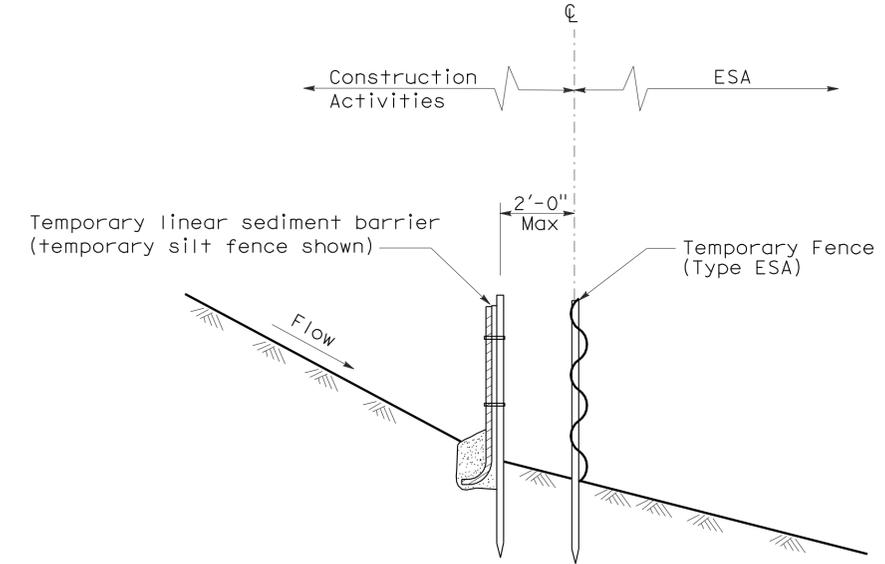
- NOTE:**
1. Temporary silt fence and temporary straw bale barrier shown for reference purposes only.



**SIGN DETAIL**

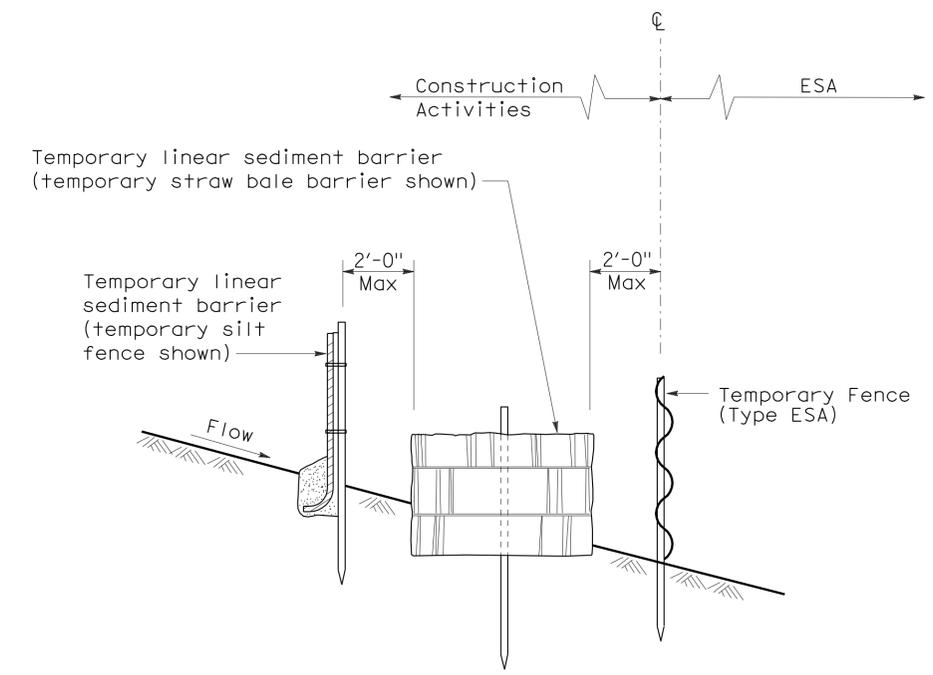


**SECTION TEMPORARY FENCE (TYPE ESA)**



**SECTION PLACEMENT DETAIL FOR TEMPORARY LINEAR SEDIMENT BARRIER USED WITH TEMPORARY FENCE (TYPE ESA)**

(See Note 1 )



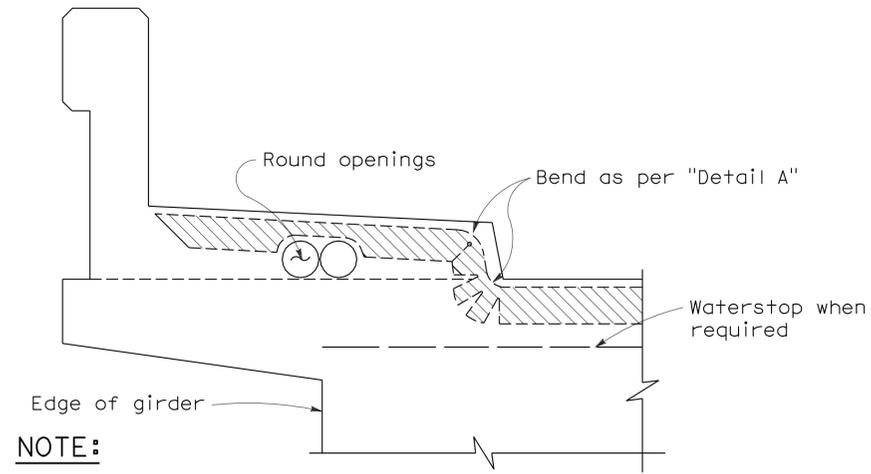
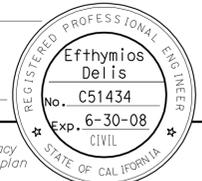
**SECTION PLACEMENT DETAIL FOR TEMPORARY SILT FENCE AND TEMPORARY STRAW BALE BARRIER USED WITH TEMPORARY FENCE (TYPE ESA)**

(See Note 1 )

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**TEMPORARY WATER POLLUTION CONTROL DETAILS**  
**[TEMPORARY FENCE (TYPE ESA)]**  
 NO SCALE

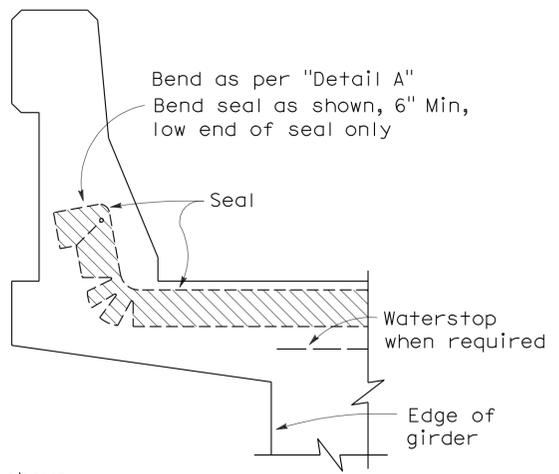
NSP T65 DATED APRIL 3, 2009 SUPPLEMENTS  
 THE STANDARD PLANS BOOK DATED MAY 2006.

2006 NEW STANDARD PLAN NSP T65

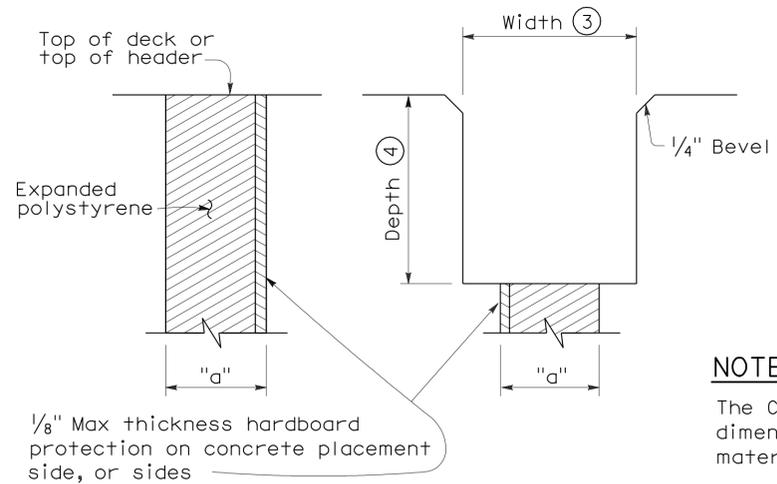


**NOTE:**  
 Type "B" seal shown. Type "A" seals to conform to the general path of seal shown, cuts for bending not required. Bend Type "A" seals 3" up into curb or barrier rail on only the low end of the seal.

**CONCRETE BARRIER AND SIDEWALK**



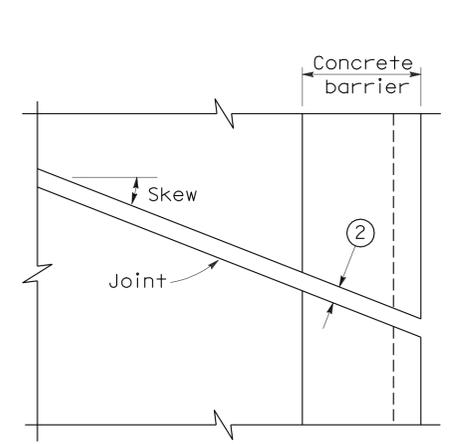
**CONCRETE BARRIER**



**FORMING DETAIL SAWCUT DETAIL**

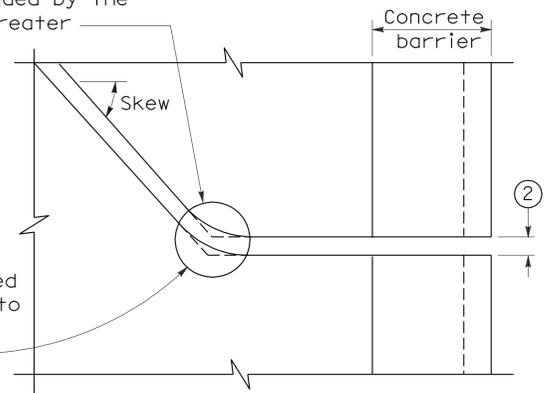
**NOTE:**  
 The Contractor shall verify all controlling field dimensions before ordering or fabricating any material.

**JOINT SEALS DETAILS**



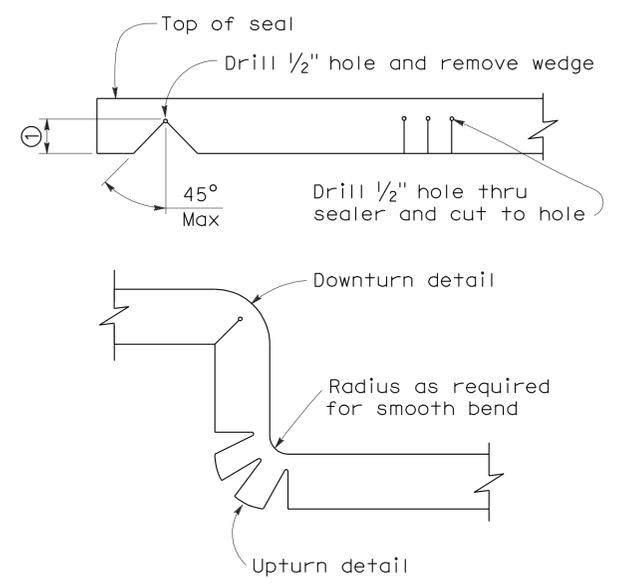
**PLAN OF JOINT (SKEW ≤ 20°)**

Min  $\phi$  radius to be 4 times uncompressed width of seal or as recommended by the manufacturer, whichever is greater



**PLAN OF JOINT (SKEW > 20°)**

In lieu of saw cutting, this area may be blocked out and reconstructed to match saw cutting on both sides.



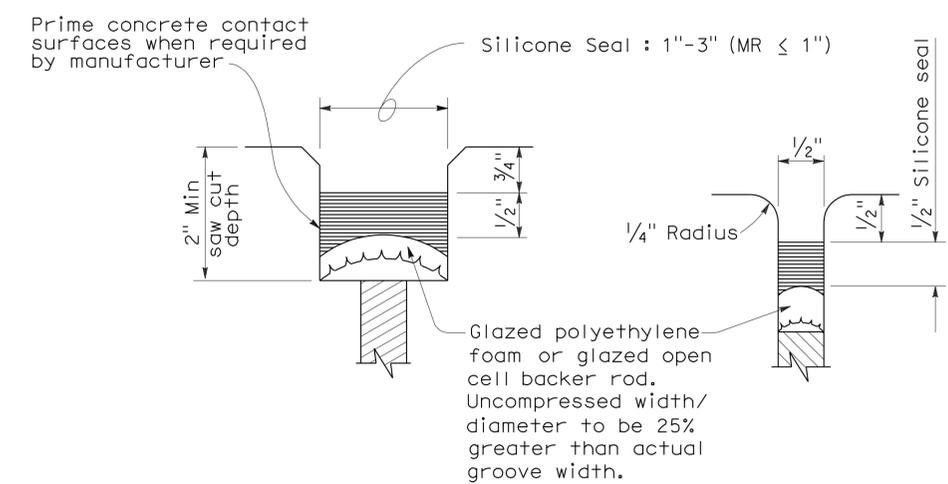
**DETAIL A**

- NOTES:**
- Make smooth cuts from the bottom of seal to 1 1/2" clear of top leaving at least one complete cell between the top of the cut and top of the seal. When necessary cut back of seal to clear conduit and round openings.
  - Opening in barrier to match width of sawn deck joint.
  - Sawcut groove widths shall be as ordered by the Engineer.
  - Depth of sawcut: Type A - Depth to be 2" minimum. Type B - Depth to be equal to or greater than the depth of seal measured along the contact surface, when compressed to minimum width position (W<sub>2</sub>) plus dimensions shown.
  - MR (movement rating) as shown on other plan sheets.
  - Other depths must be approved by the Engineer.

**DIMENSIONS "a" OF JOINT REQUIRED**

Movement Rating (MR) ⑤	Bridge Type	"a" Dimension		
		Deck Concrete Placed		
		Winter	Fall-Spring	Summer
2"	All except CIP/PS	1 1/2"	1 1/4"	3/4"
	CIP/PS	1 1/4"	1"	1/2"
1 1/2"	All except CIP/PS	1 1/4"	1"	1/2"
	CIP/PS	1"	3/4"	1/2"
1"	All except CIP/PS	1"	3/4"	1/2"
	CIP/PS	3/4"	1/2"	1/2"
1/2"	All except CIP/PS	3/4"	3/4"	1/2"
	CIP/PS	1/2"	1/2"	1/2"

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**JOINT SEALS**  
**(MAXIMUM MOVEMENT RATING = 2")**  
 NO SCALE

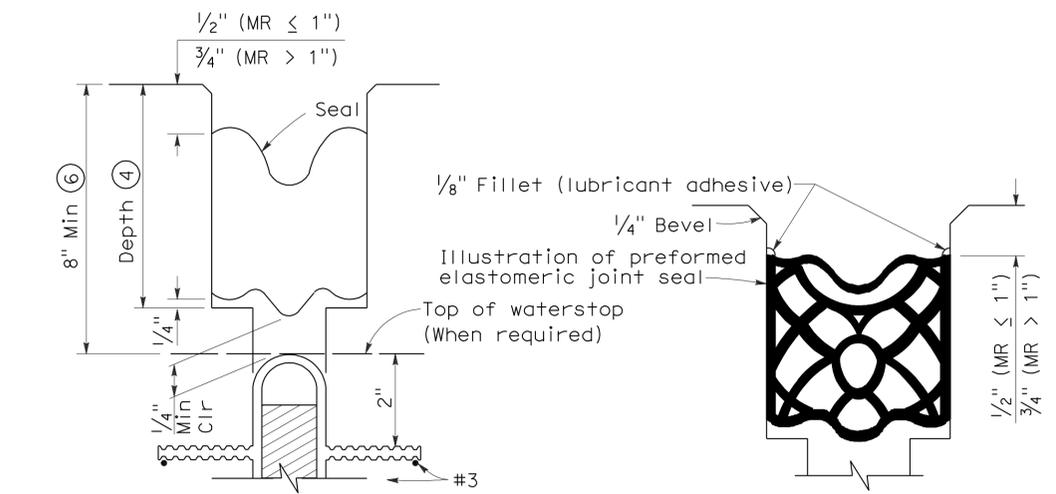


**TYPE A SEAL**

Movement rating : Silicone = 1" Max

**TYPE AL SEAL**

Longitudinal joints only



**TYPE B JOINT SEAL IN MINIMUM WIDTH POSITION (W<sub>2</sub>)**

**TYPE B SEAL**

Movement Rating ≤ 2"

RSP B6-21 DATED OCTOBER 5, 2007 SUPERSEDES STANDARD PLAN B6-21 DATED MAY 1, 2006 - PAGE 258 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP B6-21**

2006 REVISED STANDARD PLAN RSP B6-21

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SB	101	83.1/83.9	155	190

*Douglas J. Dunrud*  
REGISTERED CIVIL ENGINEER

October 5, 2007  
PLANS APPROVAL DATE

*Douglas J. Dunrud*  
REGISTERED PROFESSIONAL ENGINEER  
No. C47240  
Exp. 12-31-07  
CIVIL  
STATE OF CALIFORNIA

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.

To accompany plans dated 4-2-12

**GENERAL NOTES:**

- A. For type of block and joint finish, see other sheets.
- B. When blocks are laid in stacked bond, ladder type, galvanized joint reinforcement shall be provided. A minimum of 2-9 gauge wires continuous at 4'-0" maximum to be used. Locate reinforcement in joints that are at the approximate midpoint between bond beams.
- C. Horizontal joints shall be tooled concave or may be weathered. Vertical joints shall be tooled concave or may be raked.
- D. For intermediate wall heights that are between the "H's" given, use the tabular information for the next higher "H".
- E. Masonry strengths are listed in the "SOUND WALL REINFORCEMENT TABLE". See Standard Plan B15-3.

**DESIGN NOTES:**

**DESIGN**

Uniform Building Code, 1997 Edition  
and the Bridge Design Specifications.

**DESIGN WIND LOAD**

20 psf

**DESIGN SEISMIC LOAD**

0.57 Dead load

**REINFORCED CONCRETE**

f'c = 3.6 ksi  
fy = 60 ksi

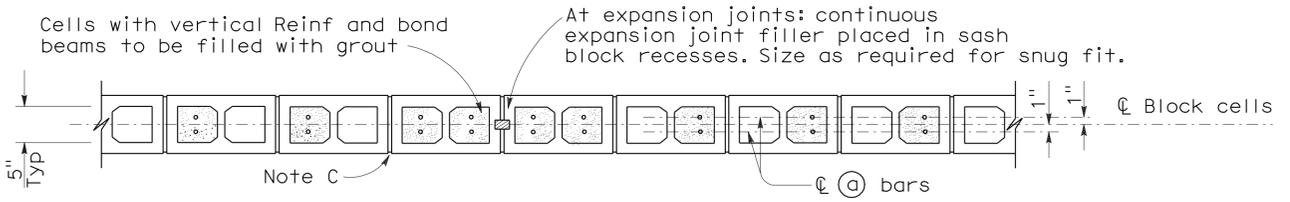
**CONCRETE MASONRY**

**REGULAR STRENGTH**

f'm = 1500 psi  
fb = 495 psi  
fs = 24,000 psi  
n = 25.8

**HIGH STRENGTH**

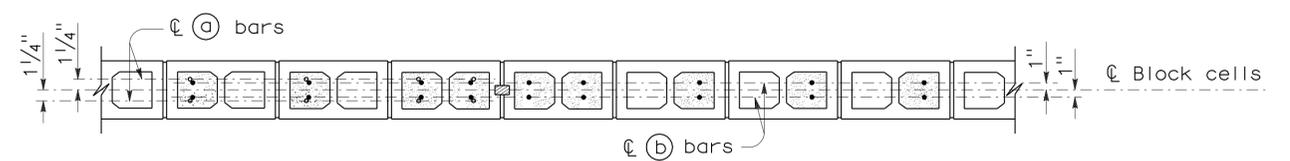
f'm = 2000 psi	f'm = 2500 psi
fb = 660 psi	fb = 830 psi
fs = 24,000 psi	fs = 24,000 psi
n = 19.3	n = 15.5



**SECTION A-A**

For details not shown, see other sections.

**H=6'-0" THRU H=10'-0"**



**SECTION A-A**

For details not shown, see other sections.

**H=12'-0" THRU H=16'-0"**

**SECTION B-B**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**SOUND WALL  
MASONRY BLOCK ON PILE CAP  
DETAILS (2)**

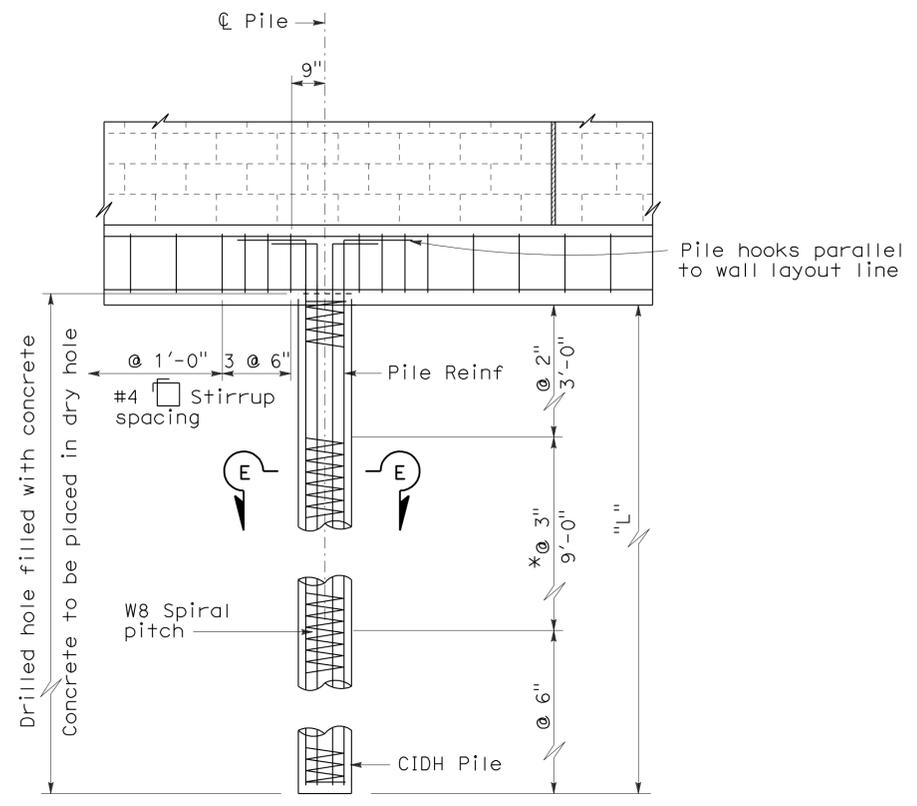
NO SCALE

RSP B15-4 DATED OCTOBER 5, 2007 SUPERSEDES STANDARD PLAN B15-4  
DATED MAY 1, 2006 - PAGE 294 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP B15-4**

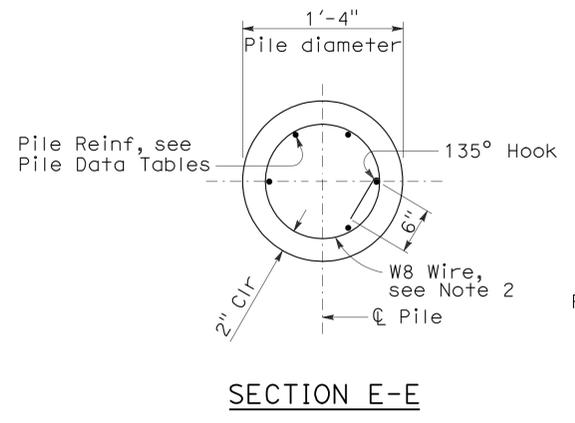
2006 REVISED STANDARD PLAN RSP B15-4

To accompany plans dated 4-2-12

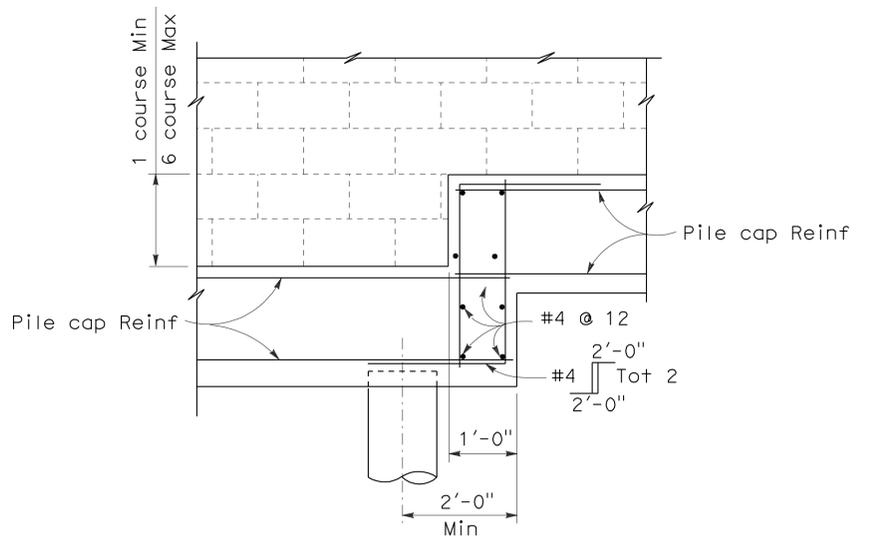


**DETAIL D**

\* @ 2" at option of Contractor



**SECTION E-E**



**PILE CAP STEP DETAIL**

**NOTES:**

1. For details not shown, see Standard Plan B15-3 and Revised Standard Plan RSP B15-4.
2. Lapped splices in spiral reinforcement shall be lapped at least 80 wire diameters. Spiral reinforcement at splices and at ends shall be terminated with a 135° hook with a 6" tail hooked around a longitudinal bar.

Maximum H	∅ = 25 Min			∅ = 30 Min			∅ = 35 Min			Maximum H
	S	L	Pile Reinf	S	L	Pile Reinf	S	L	Pile Reinf	
6'-0"	16'-0"	7'-0"	#6 Tot 6	16'-0"	5'-6"	#6 Tot 6	16'-0"	4'-6"	#6 Tot 6	6'-0"
8'-0"	16'-0"	8'-6"	#6 Tot 7	16'-0"	7'-0"	#6 Tot 7	16'-0"	5'-6"	#6 Tot 7	8'-0"
10'-0"	16'-0"	10'-0"	#7 Tot 6	16'-0"	8'-0"	#7 Tot 6	16'-0"	6'-6"	#7 Tot 6	10'-0"
12'-0"	15'-0"	11'-6"	#8 Tot 7	16'-0"	9'-6"	#8 Tot 7	16'-0"	7'-6"	#8 Tot 7	12'-0"
14'-0"	13'-0"	11'-6"	#8 Tot 7	14'-0"	10'-0"	#8 Tot 7	14'-0"	8'-0"	#8 Tot 7	14'-0"
16'-0"	12'-0"	12'-0"	#8 Tot 7	13'-0"	10'-6"	#8 Tot 7	13'-0"	8'-6"	#8 Tot 7	16'-0"

Case 1 - Level ground (±10%) on both sides of the sound wall.

Maximum H	∅ = 30 Min			∅ = 35 Min			Maximum H
	S	L	Pile Reinf	S	L	Pile Reinf	
6'-0"	16'-0"	11'-6"	#8 Tot 7	16'-0"	8'-6"	#6 Tot 7	6'-0"
8'-0"	16'-0"	14'-0"	#8 Tot 7	16'-0"	10'-6"	#7 Tot 6	8'-0"
10'-0"	15'-0"	16'-0"	#8 Tot 7	16'-0"	12'-0"	#7 Tot 7	10'-0"
12'-0"	12'-0"	16'-0"	#8 Tot 7	15'-0"	13'-6"	#8 Tot 7	12'-0"
14'-0"	10'-0"	16'-0"	#8 Tot 7	12'-0"	13'-6"	#8 Tot 7	14'-0"
16'-0"	8'-0"	16'-0"	#8 Tot 7	11'-0"	14'-0"	#8 Tot 7	16'-0"

Case 2 - Level ground (±10%) on traffic side of the sound wall and sloping ground on opposite side.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

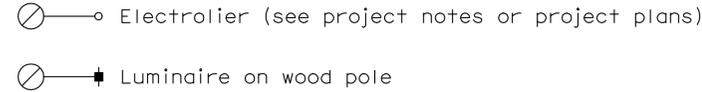
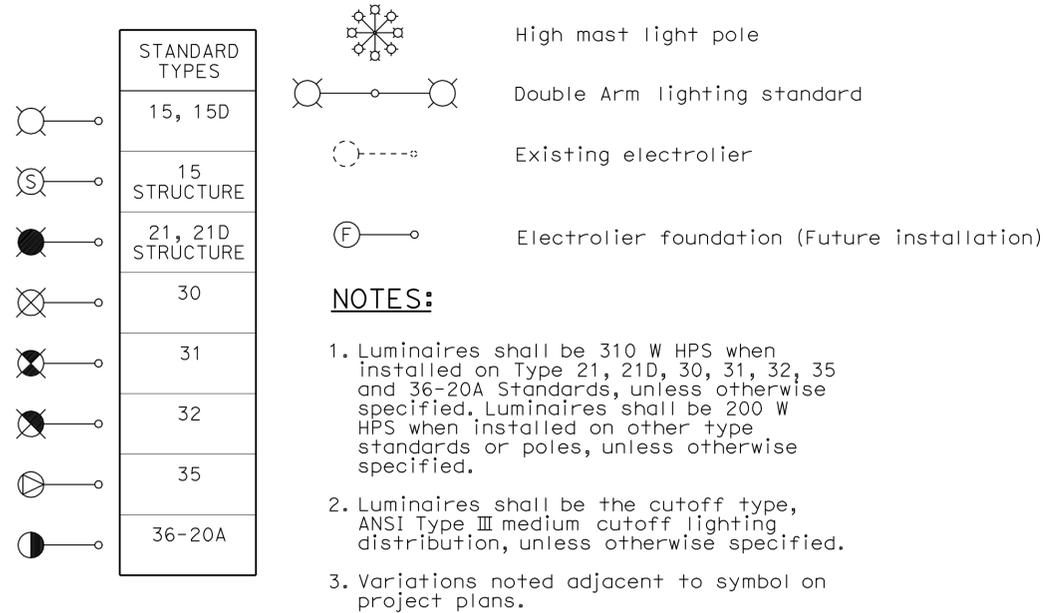
**SOUND WALL  
MASONRY BLOCK ON PILE CAP  
DETAILS (3)**

NO SCALE

RSP B15-5 DATED OCTOBER 5, 2007 SUPERSEDES STANDARD PLAN B15-5  
DATED MAY 1, 2006 - PAGE 295 OF THE STANDARD PLANS BOOK DATED MAY 2006.

2006 REVISED STANDARD PLAN RSP B15-5

# ELECTROLIERS



## STANDARD NOTES:

- AB** Abandon. If applied to conduit, remove conductors.
- BC** Install pull box in existing conduit run.
- BP** Pedestrian barricade, type as indicated on plan.
- CB** Install conduit into existing pull box.
- CC** Connect new and existing conduit. Remove existing conductors and install conductors as indicated.
- CF** Conduit to remain for future use. Remove conductors. Install pull wire or rope.
- DH** Detector handhole.
- FA** Foundation to be abandoned.
- IS** Install sign on signal mast arm.
- NS** No slip base on standard.
- PEC** Photoelectric control.
- PEU** Photoelectric unit.
- RC** Equipment or material to be removed and become the property of the Contractor.
- RE** Remove electrolier, fuses and ballast. Tape ends of conductors.
- RL** Relocate equipment.
- RR** Remove and reuse equipment.
- RS** Remove and salvage equipment.
- SC** Splice new to existing conductors.
- SD** Service disconnect.
- SF** Standard to remain for future use. Remove luminaire, pole conductors, fuses and ballast.
- TSP** Telephone service point.

# ABBREVIATIONS AND EQUIPMENT DESIGNATIONS

## PROPOSED EXISTING

BBS	bbs	Battery backup system
BC	bc	Bolt circle
C	C	Conduit
CCTV	cctv	Closed circuit television
CKT	ckt	Circuit
CMS	cms	Changeable message sign
DLC	dlc	Loop detector lead-in cable
EMS	ems	Extinguishable message sign
EVC	evc	Emergency vehicle cable
EVD	evd	Emergency vehicle detector
FB	fb	Flashing beacon
FBCA	fbca	Flashing beacon control assembly
FBS	fbs	Flashing beacon with slip base
FO	fo	Fiber optic
G	G	Ground (Equipment Grounding Conductor)
GFCI	GFCI	Ground fault circuit interrupt
HAR	har	Highway advisory radio
HEX	hex	Hexagonal
HPS	hps	High pressure sodium
IISNS	iisns	Internally illuminated street name sign
ISL	isl	Induction sign lighting
LED	led	Light emitting diode
LMA	lma	Luminaire mast arm
LPS	lps	Low pressure sodium
LTG	ltg	Lighting
LUM	lum	Luminaire
MAT	mat	Mast arm mounting vehicle signal faces, top attachment
MAS	mas	Mast arm mounting vehicle signal faces, side attachment
MAS-4A	mas-4A	Mast arm mounting vehicle signal faces, side attachment - 4 signal section
MAS-4B	mas-4B	
MAS-4C	mas-4C	
MAS-5A	mas-5A	Mast arm mounting vehicle signal faces, side attachment - 5 signal section
MAS-5B	mas-5B	
MC	mc	Mercury contactor
M/M	m/m	Multiple to multiple transformer
MT	mt	Conduit with pull wire or rope only
MTG	mtg	Mounting
	mv	Mercury vapor lighting fixture
N	N	Neutral (Grounded Conductor)
NC	NC	Normally closed
NO	NO	Normally open
PB	pb	Pull box
PEC	pec	Photoelectric control (Type I, II, III, IV or V as shown)
PED	ped	Pedestrian
PEU	peu	Photoelectric unit
PPB	ppb	Pedestrian push button
RL		Relocated equipment
RM	rm	Ramp metering
SB	sb	Slip base
SIC	sic	Signal interconnect cable
SIG	sig	Signal
SMA	sma	Signal mast arm
SNS	sns	Street name sign
SP	sp	Service point
TDC	tdc	Telephone demarcation cabinet
TMS	tms	Traffic monitoring station
TOS	tos	Traffic Operations System
VEH	veh	Vehicle
XFMR	xfmr	Transformer
COMM	comm	Communication
RWIS	rwis	Roadway weather information system

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SB	101	83.1/83.9	157	190

*Jeffery G. McRae*  
REGISTERED ELECTRICAL ENGINEER

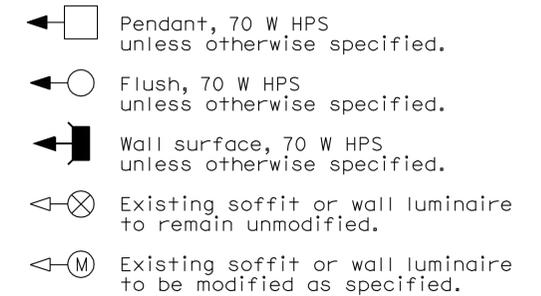
October 5, 2007  
PLANS APPROVAL DATE

Jeffery G. McRae  
No. E14512  
Exp. 6-30-08  
ELECTRICAL  
STATE OF CALIFORNIA

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.

To accompany plans dated 4-2-12

## SOFFIT AND WALL MOUNTED LUMINAIRES



### NOTE:

Arrow indicates "street side" of luminaire.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

## ELECTRICAL SYSTEMS (SYMBOLS AND ABBREVIATIONS)

NO SCALE

RSP ES-1A DATED OCTOBER 5, 2007 SUPERSEDES STANDARD PLAN ES-1A DATED MAY 1, 2006 - PAGE 400 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP ES-1A**

2006 REVISED STANDARD PLAN RSP ES-1A

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SB	101	83.1/83.9	158	190

*Jeffery G. McRae*  
 REGISTERED ELECTRICAL ENGINEER  
 October 5, 2007  
 PLANS APPROVAL DATE  
 The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

REGISTERED PROFESSIONAL ENGINEER  
 Jeffrey G. McRae  
 No. E14512  
 Exp. 6-30-08  
 ELECTRICAL  
 STATE OF CALIFORNIA

### CONDUIT

PROPOSED	EXISTING	
		Lighting Conduit, unless otherwise indicated or noted
		Traffic signal conduit
		Communication conduit
		Telephone conduit
		Fire alarm conduit
		Fiber optic conduit
		Conduit termination
		Conduit riser in/on structure or service pole

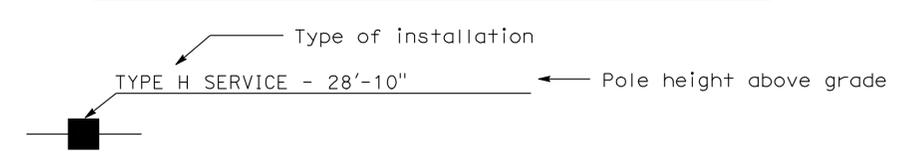
### SIGNAL EQUIPMENT

PROPOSED	EXISTING	
		Pedestrian signal face
		Pedestrian push button post
		Pedestrian barricade
		Vehicle signal face (with backplate, 3-Section: red, yellow and green)
		Vehicle signal face with angle visors
		Modifications of basic symbols: "L" indicates all non-arrow sections louvered "LG" indicates louvered green section only "PV" indicates 12" programmed visibility sections "8" indicates all 8" sections (only when specified)
		Type 15TS and Vehicle signal face
		Vehicle signal face with red, yellow and green left arrow sections
		Vehicle signal face with red and yellow sections and up green arrow
		Vehicle signal face (5 Section) with red, yellow and green sections and yellow and green right arrows
		Type 1 Standard and attached vehicle signal faces
		Standard with signal mast arm only and attached vehicle signal faces and internally illuminated street name sign
		Type 33 Standard, Left-turn vehicle signal face and sign
		Standard with luminaire and signal mast arms and attached vehicle signal faces
		Cantilever flashing beacon Type 9 Frame, with a sign unless otherwise specified or indicated
		Type 15-FBS Standard with two vehicle signal face sections with lens, backplate and visor with a sign
		Flashing beacon. One vehicle signal face section with lens, backplate and visor. "R" indicates red indication, "Y" indicates yellow indication
		Controller assembly. Door indicates front of cabinet

### SERVICE EQUIPMENT

PROPOSED	EXISTING	
		Overhead lines
		Wood pole "U" indicates utility owned
		Pole guy with anchor
		Utility transformer - ground mounted
		Service equipment enclosure type
		Service equipment enclosure door indicates front of enclosure
		Telephone demarcation cabinet

### POLE-MOUNTED SERVICE DESIGNATION



### ILLUMINATED OVERHEAD SIGN

PROPOSED	EXISTING	
		Overhead sign - Single post
		Overhead sign - Two post
		Overhead sign - Mounted on structure
		Overhead sign with electrolier

### SIGNAL EQUIPMENT Cont

PROPOSED	EXISTING	
		Guard post
		Type 1 Standard with "Meter On" sign
		Emergency Vehicle detector

### NOTES:

- All signal sections shall be 12" unless shown otherwise.
- Signal heads shall be provided with backplates unless shown otherwise.
- Signal indication shall be LED.

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS**  
**(SYMBOLS AND ABBREVIATIONS)**  
 NO SCALE

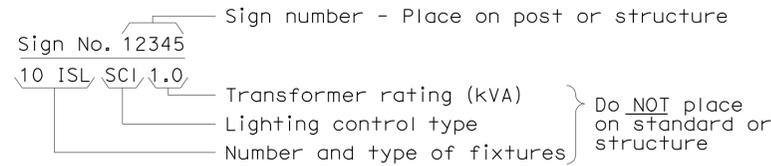
RSP ES-1B DATED OCTOBER 5, 2007 SUPERCEDES STANDARD PLAN ES-1B  
 DATED MAY 1, 2006 - PAGE 401 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP ES-1B**

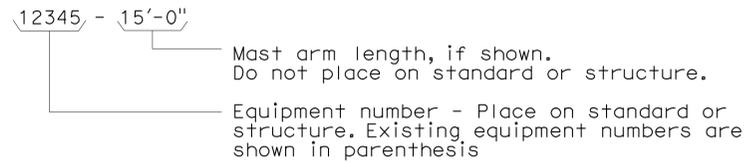
2006 REVISED STANDARD PLAN RSP ES-1B

### EQUIPMENT IDENTIFICATION

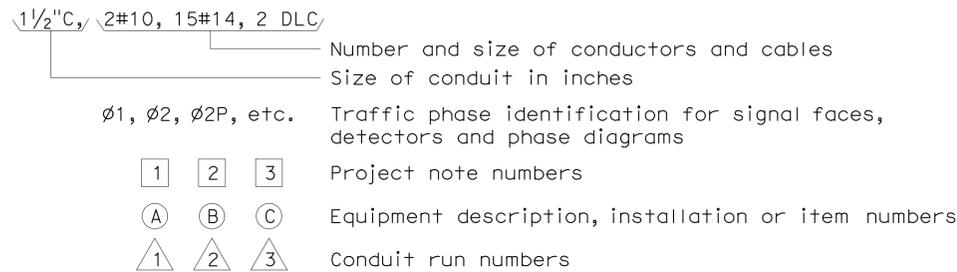
#### ILLUMINATED SIGN IDENTIFICATION NUMBER:



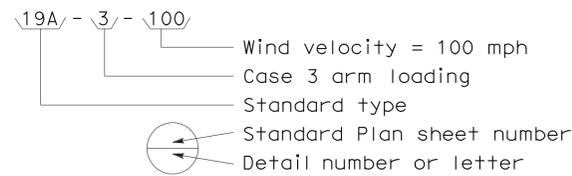
#### ELECTROLIER OR EQUIPMENT IDENTIFICATION NUMBER:



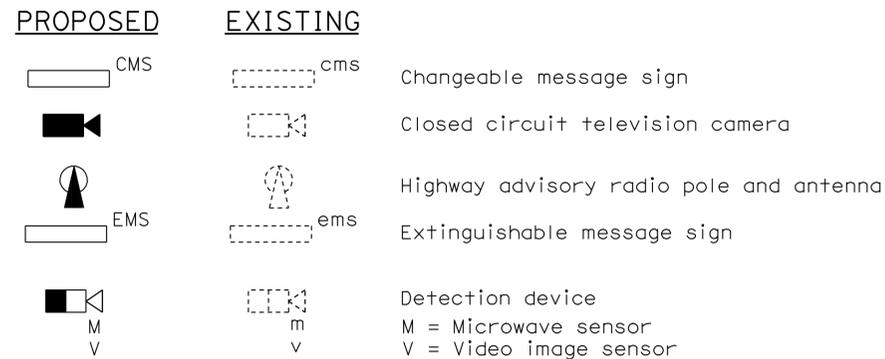
#### CONDUIT AND CONDUCTOR IDENTIFICATION:



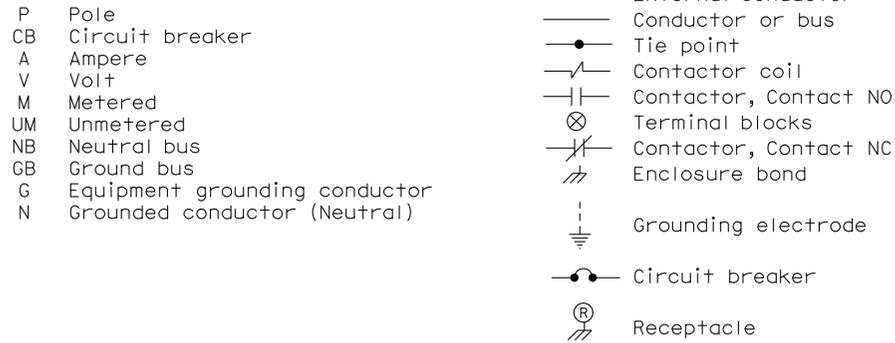
#### SIGNAL AND LIGHTING STANDARD (TYPICAL DESIGNATION):



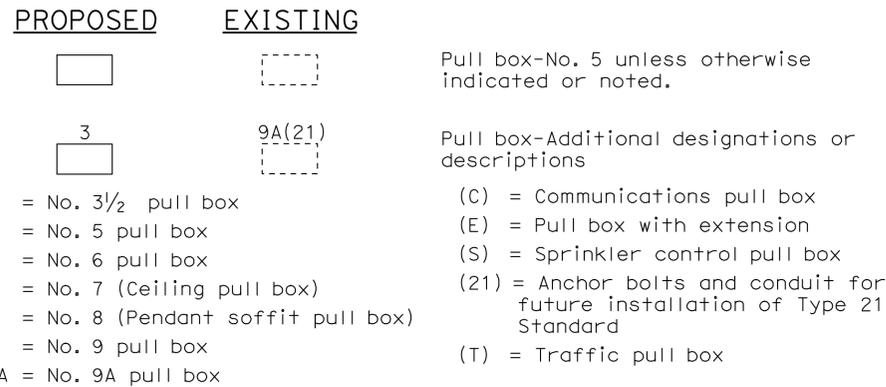
### MISCELLANEOUS EQUIPMENT



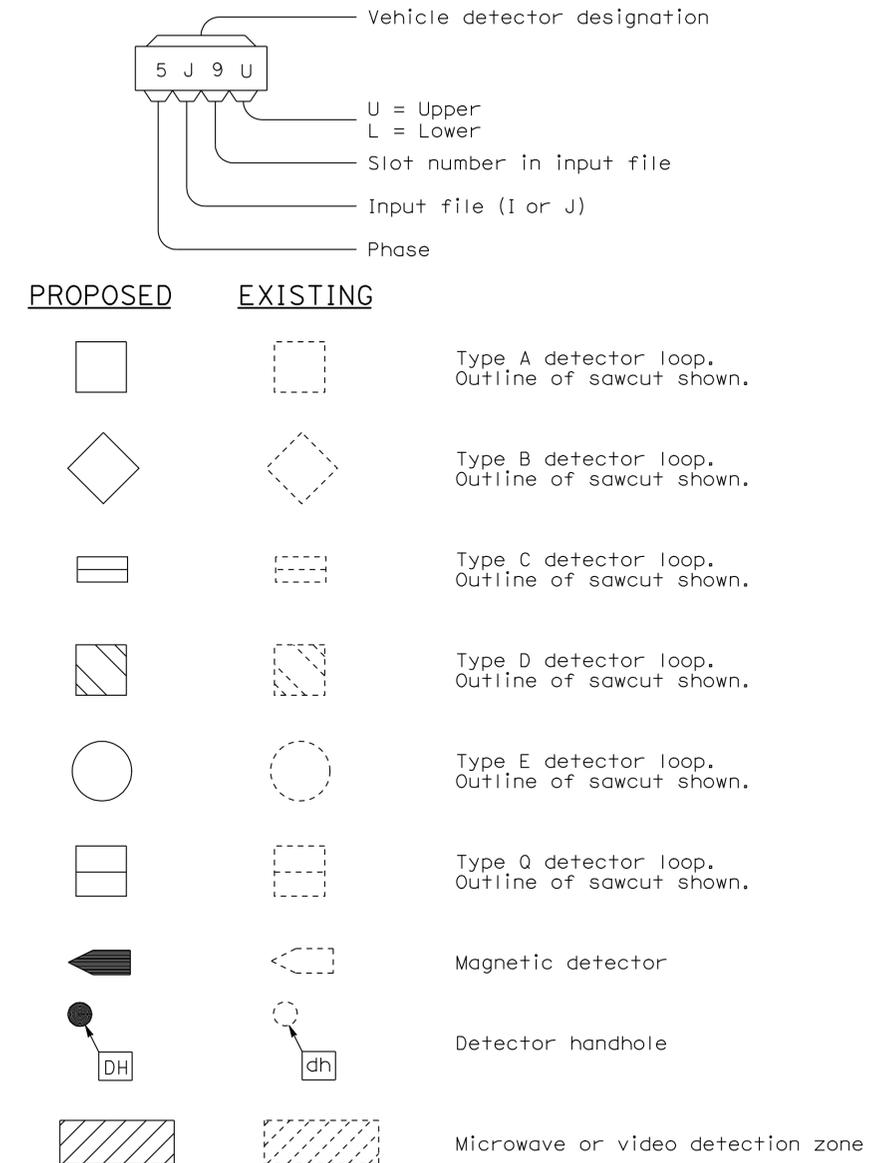
### WIRING DIAGRAM LEGEND



### PULL BOXES



### VEHICLE DETECTORS



STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS  
(SYMBOLS AND ABBREVIATIONS)**

NO SCALE

RSP ES-1C DATED OCTOBER 5, 2007 SUPERCEDES STANDARD PLAN ES-1C  
DATED MAY 1, 2006 - PAGE 402 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP ES-1C**

2006 REVISED STANDARD PLAN RSP ES-1C

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SB	101	83.1/83.9	160	190

*Jeffery G. McRae*  
 REGISTERED ELECTRICAL ENGINEER

October 5, 2007  
 PLANS APPROVAL DATE

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

REGISTERED PROFESSIONAL ENGINEER  
 Jeffery G. McRae  
 No. E14512  
 Exp. 6-30-08  
 ELECTRICAL  
 STATE OF CALIFORNIA

To accompany plans dated 4-2-12

**NOTES-TYPE III SERVICE EQUIPMENT ENCLOSURES:**

1. Service equipment enclosure and metering equipment shall meet the requirements of the service utility. The meter area shall have a sealable, lockable, weathertight cover that can be removed without the use of tools.
2. Service equipment enclosures shall be factory wired and conform to NEMA standards.
3. Dimensions of service equipment enclosures shall meet the requirements of the service utility.
4. The dead front panels on Type III service equipment enclosures shall have a continuous stainless steel or aluminum piano hinge. The panel in front of the breakers shall be secured with a latch or captive screws. No live parts shall be mounted on the dead front panel.
5. The exterior door shall have provisions for padlocking. The padlock hole shall be a minimum diameter of  $\frac{1}{16}$ ".
6. Enclosures housing transformers of more than one kVA shall have effective screened ventilation louver of not less than 50 square inches. Screen shall be stainless steel No. 304, with a No. 10 size mesh. Framed screen shall be secured with at least four bolts.
7. Fasteners on the exterior of the enclosure shall be vandal-resistant and shall not be removable from the exterior. Exterior screws, nuts, bolts and washers shall be stainless steel.
8. Landing lugs for incoming service conductors shall be compatible with either copper or aluminum conductors sized to suit the conductors shown on the plan. Landing lugs shall be copper or tin-plated aluminum. Neutral bus shall be rated for 125 A and be suitable for copper or aluminum conductors unless otherwise specified. The terminal shall include but not be limited to:
  - a) Incoming terminals (landing lugs)
  - b) Neutral lugs
  - c) Solid neutral terminal strip
9. At least 6 standard single pole circuit breaker spaces,  $\frac{3}{4}$ " nominal, shall be provided for branch circuits. Circuit breaker interiors shall be copper. Interiors of enclosure shall accept plug-in or cable-in/cable-out circuit breakers.
10. Control wiring shall be 600 V, 14 stranded machine tool wire. Where subject to flexing, 19 strand wire shall be used.
11. Main bus shall be rated for 125 A and shall be tin-plated copper.
12. A plastic laminated wiring diagram shall be provided with brass mounting eyelets and attached to the inside of the enclosure and the wiring diagram shall be affixed to the interior with a UL or ETL approved method.

13. An engraved phenolic nameplate on the dead front panel indicating the function of each circuit or device shall be installed with stainless steel rivets or stainless steel screws:
  - a) Adjacent to the breaker or device with character size a minimum of  $\frac{1}{8}$ ".
  - b) At the top of the exterior door panel indicating State system number, voltage level and number of phases with character size a minimum of  $\frac{3}{16}$ ".
14. The plan shows the approximate location of devices within the enclosure. Components may be rearranged, however, the "working" clearances within the service equipment enclosure shall be maintained.
15. In unpaved areas a raised portland cement concrete pad 2'-0" x 4" x width of foundation shall be constructed in front of new service equipment enclosure installation. Pad shall be set to elevation of foundation.
16. Foundation shall extend 2" minimum beyond edge of service equipment enclosure.
17. Internal bus, where shown, is typical only. Alternative design of proposed service equipment enclosure shall be submitted to the Engineer for approval.
18. Plug-in circuit breakers may be mounted in the vertical or horizontal position. Cable-in/cable-out circuit breakers shall be mounted in the vertical position.
19. Type III-AF and Type III-BF service equipment enclosures shall have the meter viewing windows located on the front side of the service equipment enclosures.
20. Type III-AR and Type III-BR service equipment enclosures shall be similarly constructed as Type III-AF and Type III-BF respectively, except the meter viewing windows shall be located on the back side of the service equipment enclosures.
21. Minimum clearance shall be required for front and back of service equipment enclosure per National Electrical Code, Article 110.26, "Spaces About Electric Equipment (600 Volts, Nominal, or Less)."

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

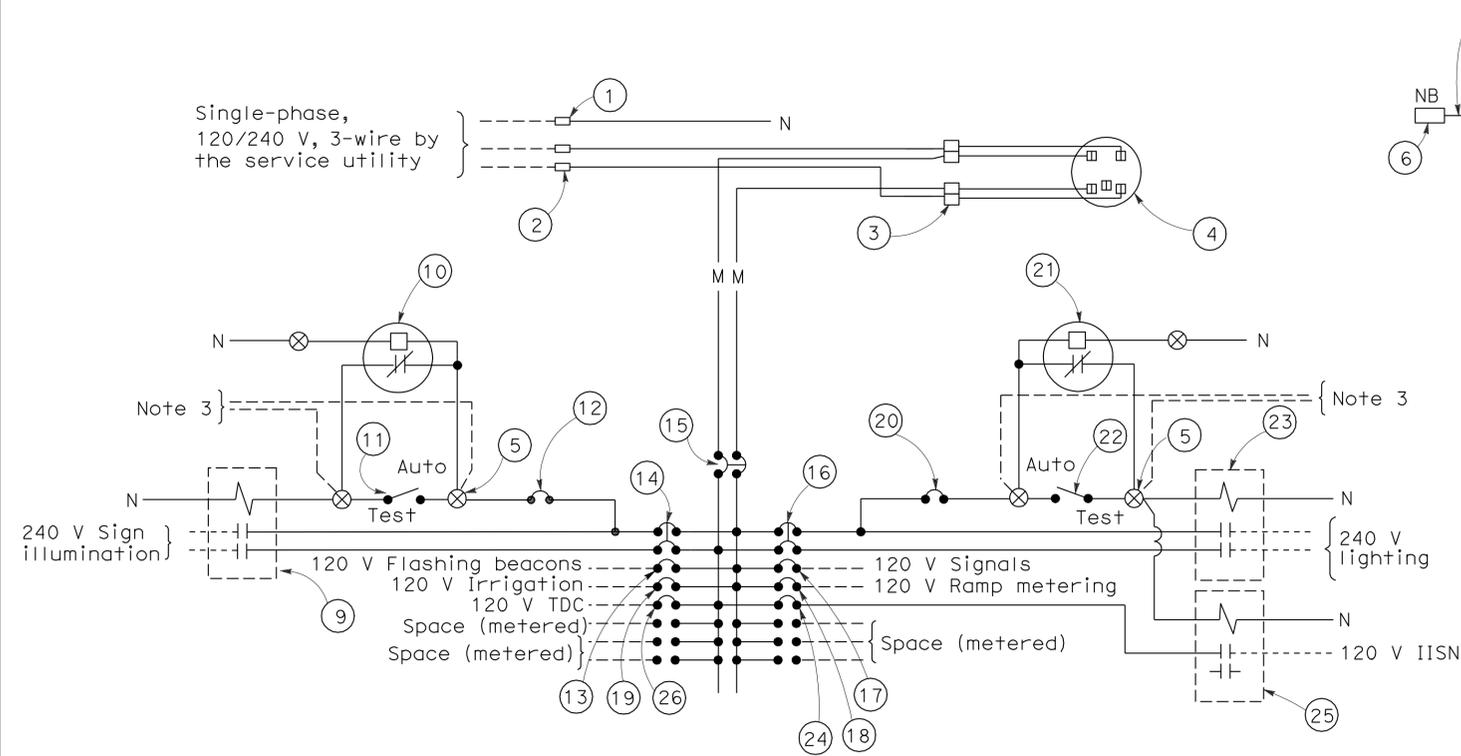
**ELECTRICAL SYSTEMS  
(SERVICE EQUIPMENT NOTES  
TYPE III SERIES)**

NO SCALE

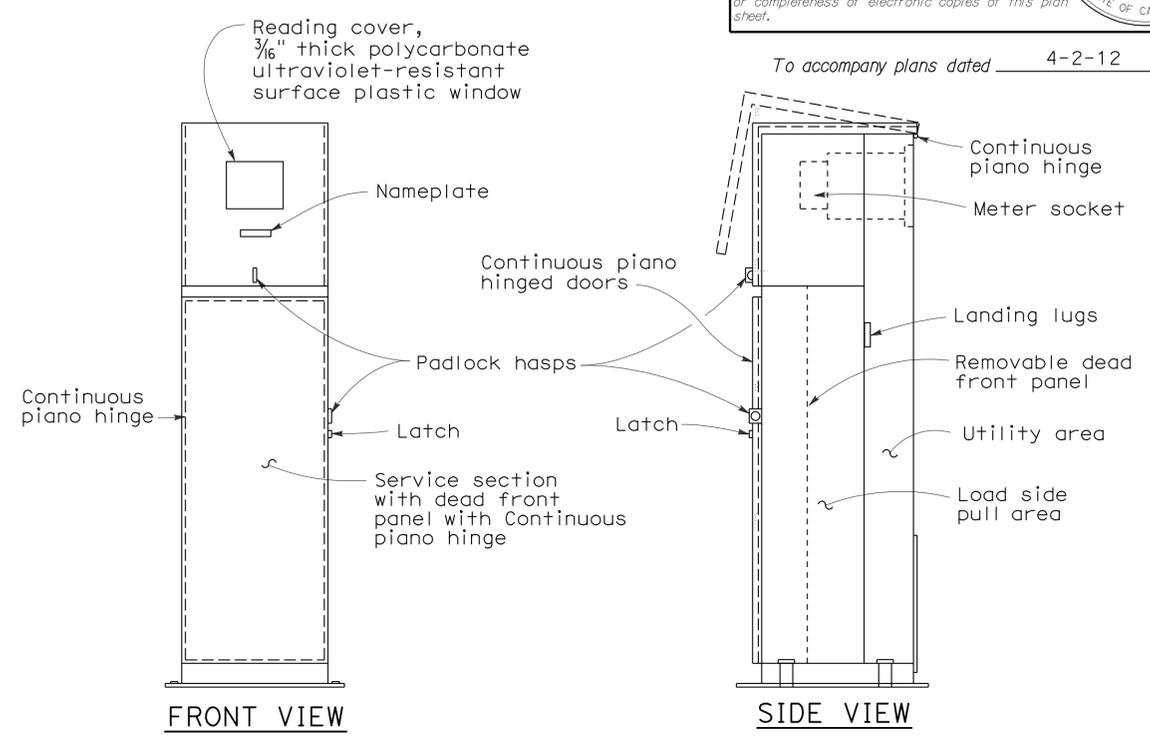
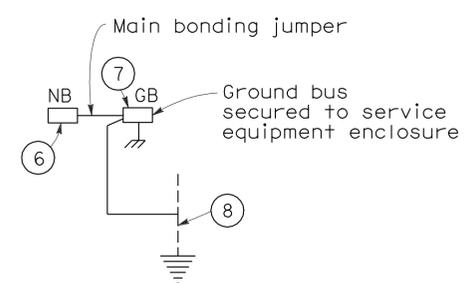
RSP ES-2C DATED OCTOBER 5, 2007 SUPERCEDES STANDARD PLAN ES-2C  
DATED MAY 1, 2006 - PAGE 405 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP ES-2C**

2006 REVISED STANDARD PLAN RSP ES-2C

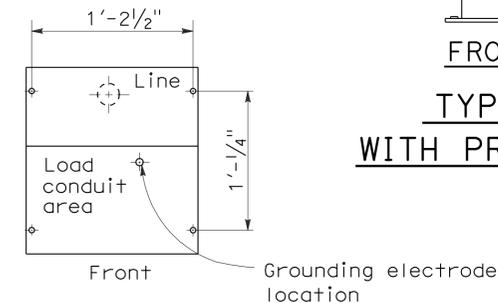


**120/240 V SERVICE WIRING DIAGRAM (TYPICAL)**

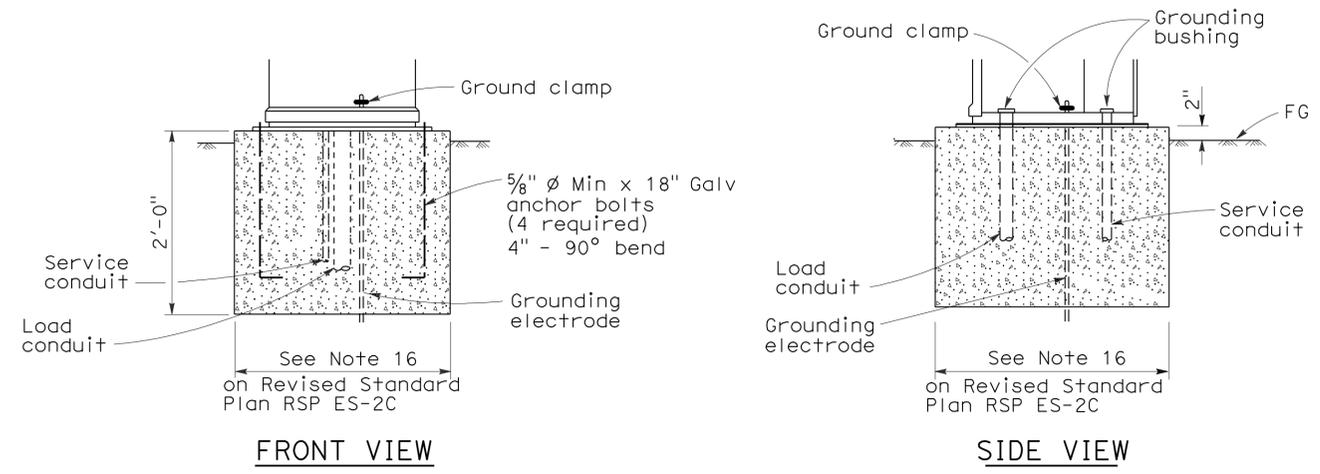


**TYPE III-BF SERVICE EQUIPMENT ENCLOSURE WITH PROVISIONS FOR ONE 100 A METER (TYPICAL)**

TYPE III-B SERVICE (120/240 V) EQUIPMENT LEGEND		
ITEM No.	COMPONENT	NAME PLATE DESCRIPTION
①	Neutral lug	
②	Landing lug (Note 6)	
③	Test bypass facility	
④	Meter socket and support	
⑤	Terminal blocks	
⑥	Neutral bus	
⑦	Ground bus	
⑧	Grounding electrode	
⑨	30 A, 2PNO Contactor	Sign Illumination
⑩	Photoelectric unit (Note 7)	
⑪	15 A, 1P, Test switch	Sign Illumination Test Switch
⑫	15 A, 120 V, 1P, CB	Sign Illumination Control
⑬	15 A, 120 V, 1P, CB	Flashing Beacon
⑭	30 A, 240 V, 2P, CB	Sign Illumination
⑮	100 A, 240 V, 2P, CB	Main Breaker
⑯	30 A, 240 V, 2P, CB	Lighting
⑰	50 A, 120 V, 1P, CB	Signals
⑱	30 A, 120 V, 1P, CB	Ramp Metering
⑲	20 A, 120 V, 1P, CB	Irrigation
⑳	15 A, 120 V, 1P, CB	Lighting Control
㉑	Photoelectric unit (Note 7)	
㉒	15 A, 1P, Test switch	Lighting Test Switch
㉓	60 A, 2PNO Contactor	Lighting
㉔	15 A, 120 V, 1P, CB	IISNS
㉕	30 A, 2PNO Contactor	IISNS
㉖	20 A, 120 V, 1P, CB	Telephone Demarcation Cabinet



**BASE FOR TYPE III-B SERVICE EQUIPMENT ENCLOSURE**



**TYPE III-B SERVICE EQUIPMENT ENCLOSURE FOUNDATION DETAILS**

- NOTES: (FOR SERVICE EQUIPMENT ENCLOSURE)**
- Voltage ratings of service equipment shall conform to the service voltages indicated on the plans.
  - Unless otherwise indicated on the plans, service equipment items shall be provided for each service equipment enclosure as shown.
  - Connect to remote test switch mounted on lighting standards, sign post or structure when required.
  - Items No. ① and ⑥ shall be isolated from the service equipment enclosure.
  - Meter sockets shall be 5 clip type.
  - The landing lug shall be suitable for multiple conductors.
  - Type I photoelectric control shall be used unless otherwise indicated on the plans.

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS (SERVICE EQUIPMENT AND TYPICAL WIRING DIAGRAM, TYPE III-B SERIES)**  
 NO SCALE

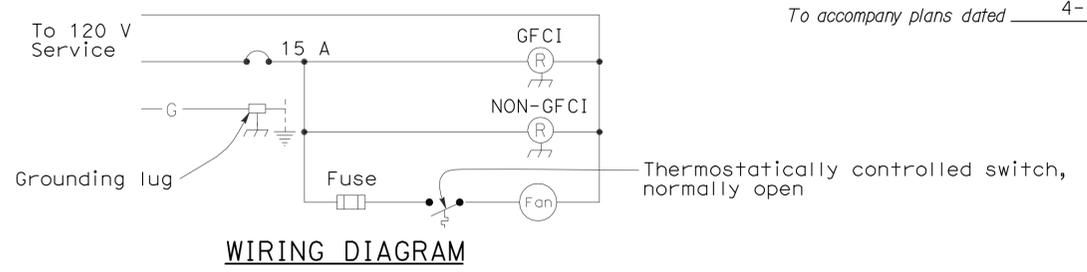
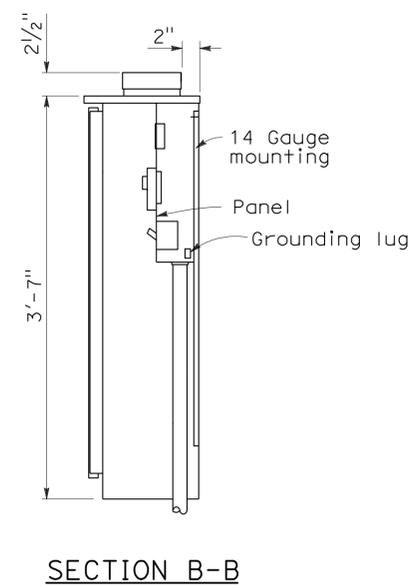
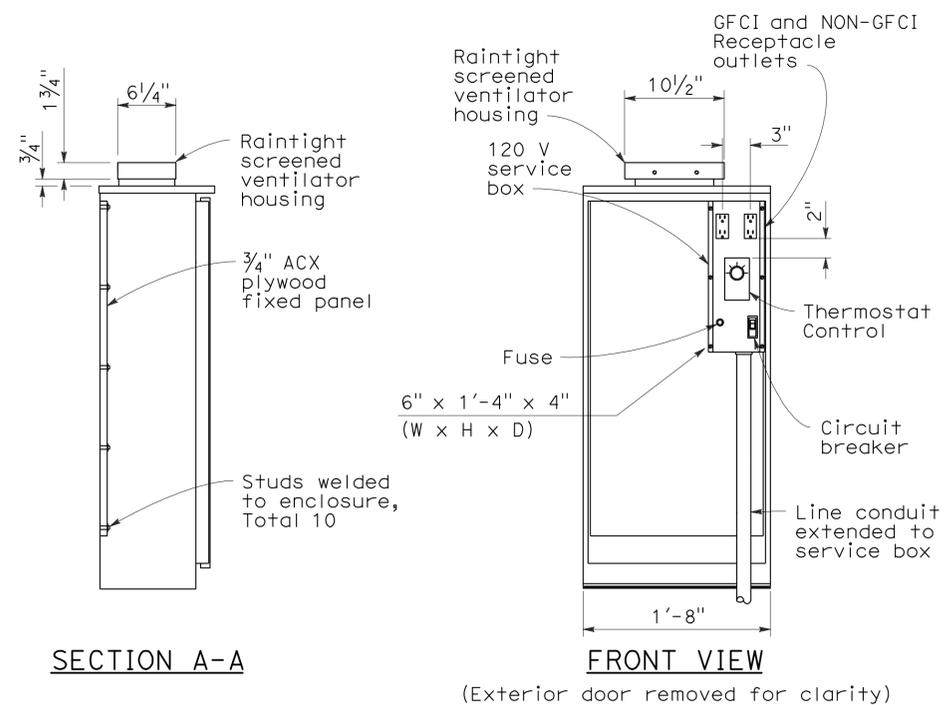
RSP ES-2E DATED OCTOBER 5, 2007 SUPERCEDES STANDARD PLAN ES-2E  
 DATED MAY 1, 2006 - PAGE 407 OF THE STANDARD PLANS BOOK DATED MAY 2006.

2006 REVISED STANDARD PLAN RSP ES-2E

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SB	101	83.1/83.9	162	190

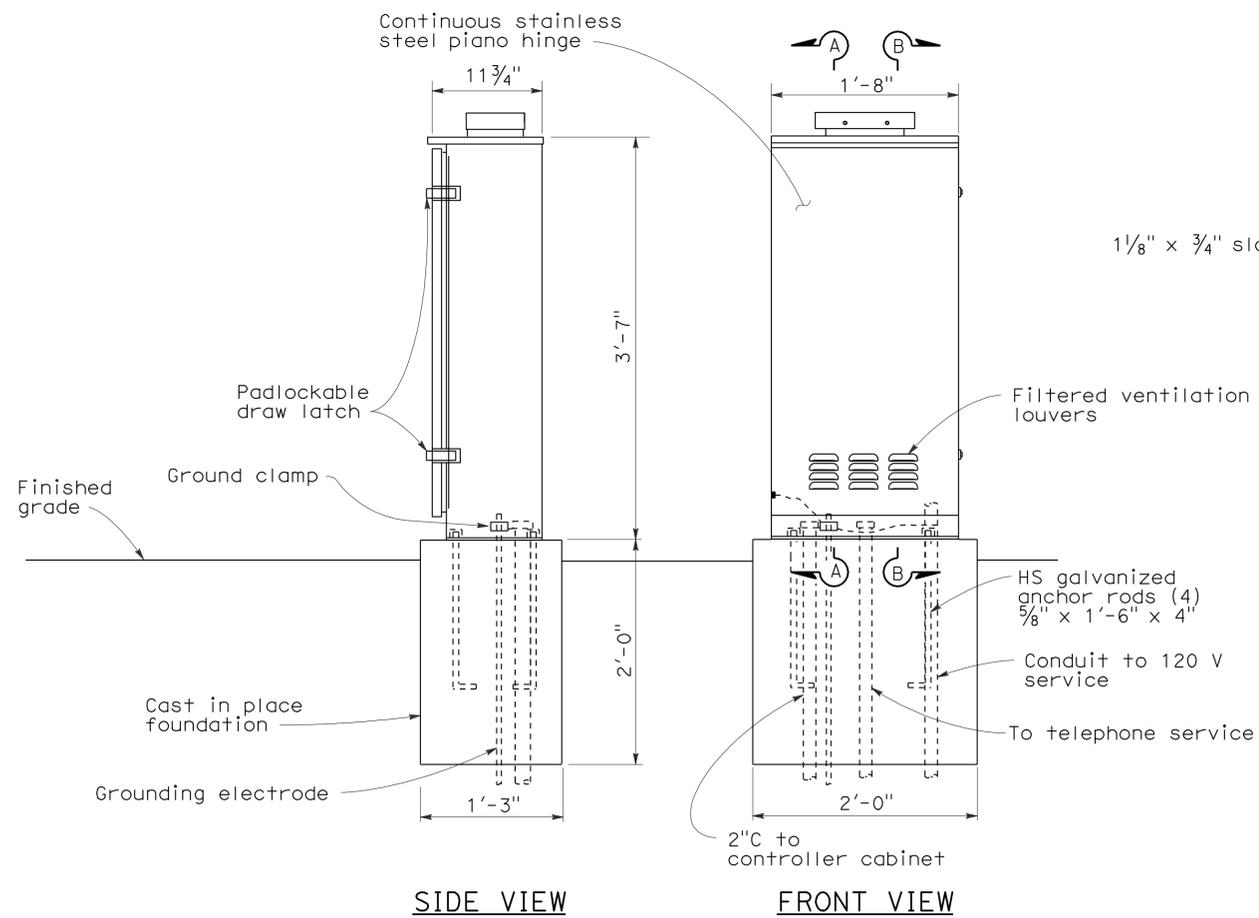
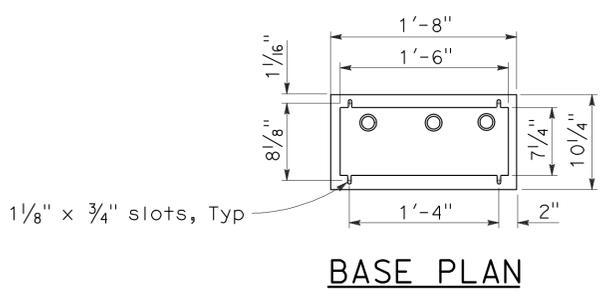
*Jeffery G. McRae*  
 REGISTERED ELECTRICAL ENGINEER  
 October 5, 2007  
 PLANS APPROVAL DATE  
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

REGISTERED PROFESSIONAL ENGINEER  
 Jeffery G. McRae  
 No. E14512  
 Exp. 6-30-08  
 ELECTRICAL  
 STATE OF CALIFORNIA



**NOTES:**

1. Telephone demarcation cabinet shall be furnished with a mounting panel, outlets, circuit breaker and deadfront plates in place. Dimensions are nominal.
2. An approved mastic or caulking compound shall be placed on the foundation prior to placing the cabinet to seal openings between the bottom of the cabinet and the foundation.
3. In unpaved areas, a raised PCC pad shall be placed in front of the telephone demarcation cabinet. Pad shall be 2'-0" x 1'-10" x 4" thick, with 2" above the finished grade.
4. All conduits shall be bonded to the enclosure.
5. Telephone demarcation cabinet:
  - a) Material shall be anodized aluminum (1/8" thick).
  - b) Fabrication shall conform to the requirements of the Standard Specifications.
  - c) The exterior door shall be side hung and secured with a padlockable draw latch, the padlock hole shall be a minimum diameter of 1/16" to receive a padlock.
  - d) Ventilation louvers shall be located on the door.
  - e) Fan shall be mounted in a ventilator housing.
  - f) Fan shall be thermostatically controlled and adjustable to turn on between 80°F and 130°F.
  - g) Fan circuit shall be fused at 175 percent of the fan motor capacity.
  - h) Fan capacity shall be at least 25 cubic feet per minute.
  - i) Fasten fixed mounting panels with nuts, lock and flat washers to 3/16" ø x 1" studs welded to enclosure.



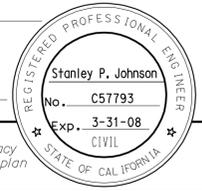
STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS  
(TELEPHONE DEMARICATION  
CABINET, TYPE B)**

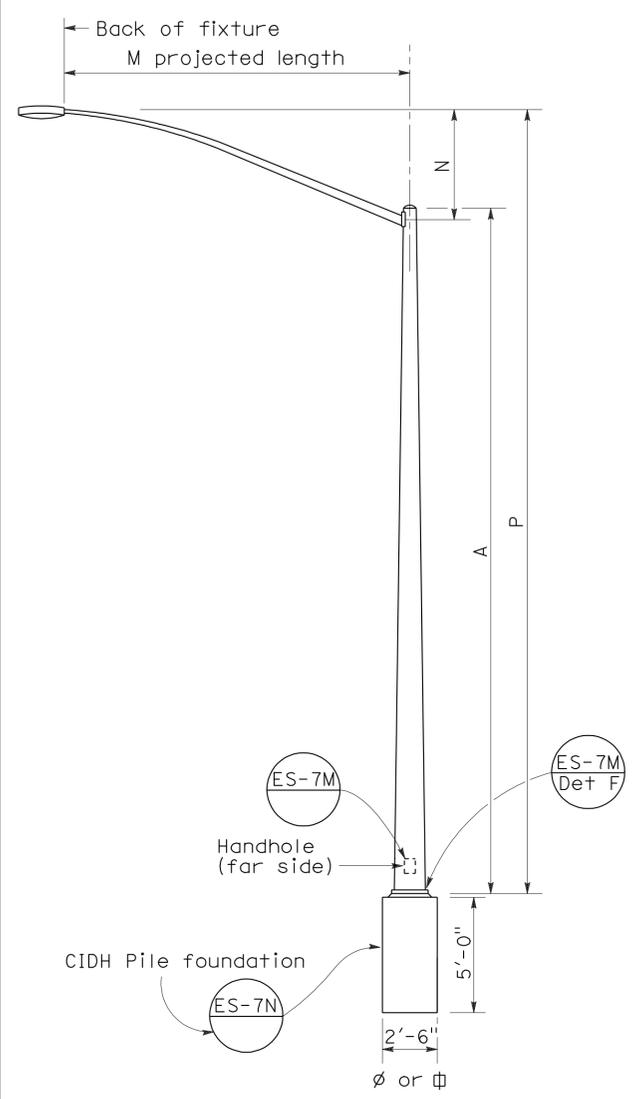
NO SCALE

RSP ES-3E DATED OCTOBER 5, 2007 SUPERCEDES STANDARD PLAN ES-3E  
DATED MAY 1, 2006 - PAGE 414 OF THE STANDARD PLANS BOOK DATED MAY 2006.

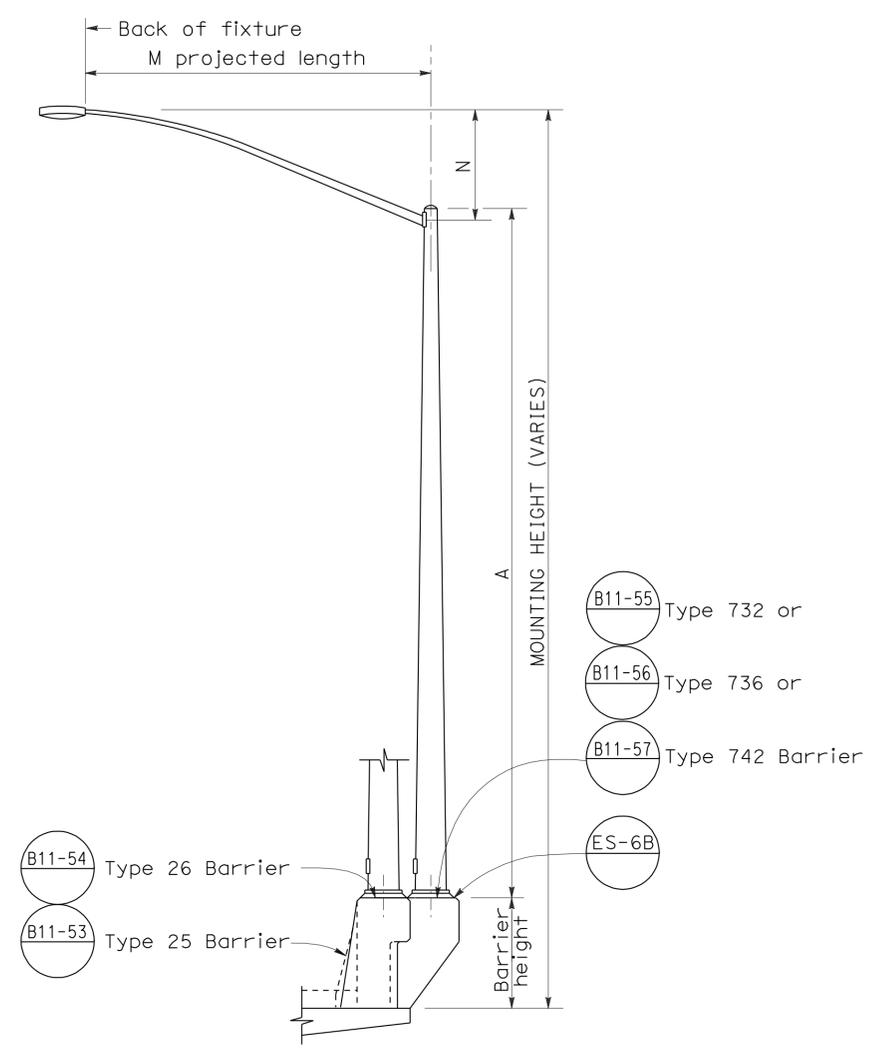
2006 REVISED STANDARD PLAN RSP ES-3E



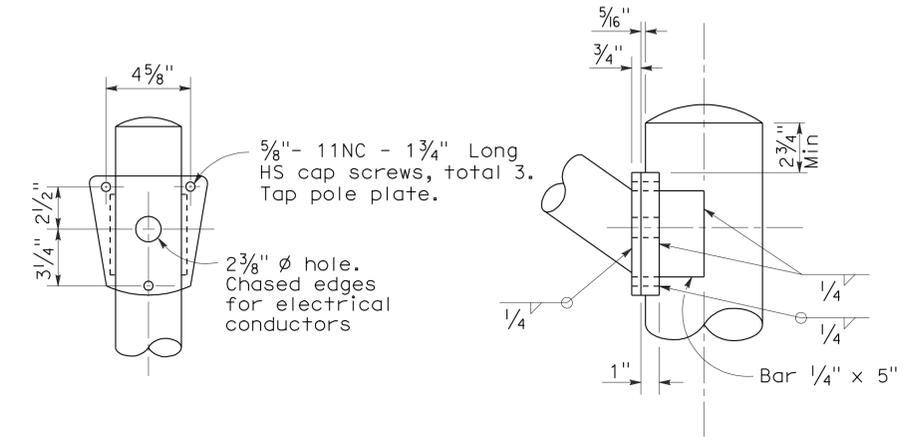
To accompany plans dated 4-2-12



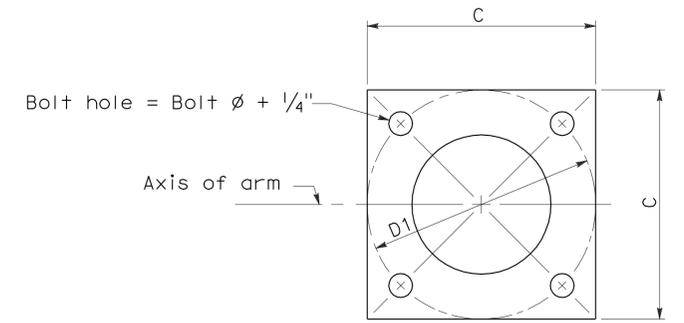
**ELEVATION**  
**TYPE 15 AND TYPE 21**



**ELEVATION**  
**TYPE 15 AND TYPE 21 BARRIER RAIL MOUNTED**



**DETAIL R**  
**LUMINAIRE ARM CONNECTION**



**BASE PLATE**

POLE TYPE	POLE DATA				BASE PLATE DATA				LUMINAIRE ARM
	A Height	Min OD		Wall Thickness	C	D1 Bolt Circle	Thick-ness	Anchor Bolts Size	
15	30'	8"	3 7/8"	0.1196"	1'-0"	1'-0"	1"	1" ø x 3'-0" x 4"*	6' - 15' 12'
21	35'	8 5/8"	3 7/8"	0.1196"	1'-0"	1'-0"	1"	1 1/4" ø x 3'-0" x 4"*	6' - 15' 12'

\* For barrier rail bolts, see Standard Plan ES-6B.

M Projected Length	N Rise	Min OD At Pole	Nominal Thickness	LUMINAIRE ARM DATA	
				Type 15	Type 21
6'-0"	2'-0"±	3/4"	0.1196"	31'-6"±	36'-6"±
8'-0"	2'-6"±	3/2"	0.1196"	32'-0"±	37'-0"±
10'-0"	3'-3"±	3 7/8"	0.1196"	32'-9"±	37'-9"±
12'-0"	4'-3"±	3 7/8"	0.1196"	33'-9"±	38'-9"±
15'-0"	4'-9"±	4 1/4"	0.1196"	34'-3"±	39'-3"±

**NOTES:**

- Indicates arm length to be used unless otherwise noted on the plans.
- For Type 15-SB, use Type 15 standard with Type 30 slip base plate details, see Standard Plan ES-6F.
- For additional notes, see Standard Plan ES-7M and ES-7N.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS**  
**(LIGHTING STANDARD**  
**TYPES 15 AND 21)**

NO SCALE

RSP ES-6A DATED OCTOBER 5, 2007 SUPERCEDES STANDARD PLAN ES-6A DATED MAY 1, 2006 - PAGE 427 OF THE STANDARD PLANS BOOK DATED MAY 2006.

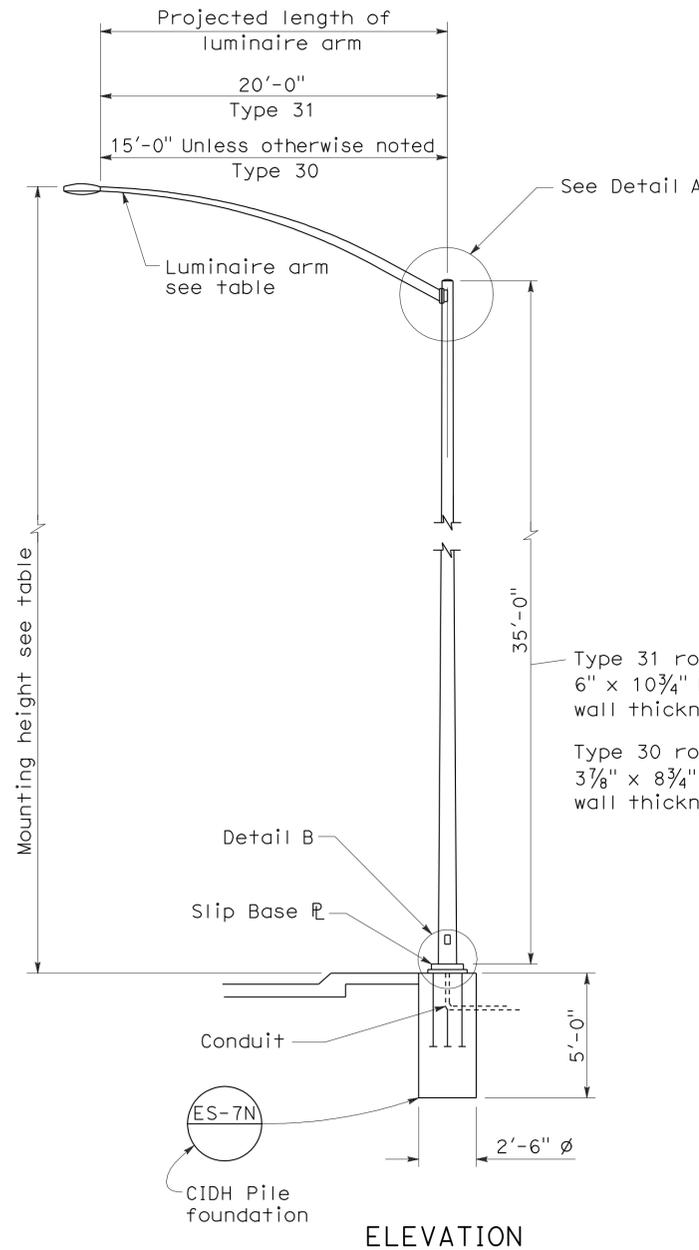
**REVISED STANDARD PLAN RSP ES-6A**

2006 REVISED STANDARD PLAN RSP ES-6A

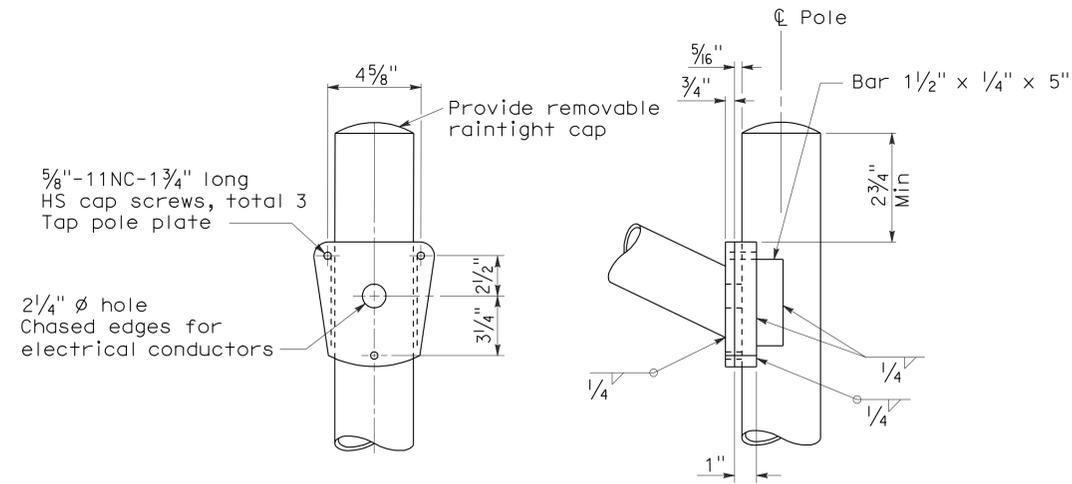
**LUMINAIRE ARM DATA**

PROJECTED LENGTH	THICKNESS	MINIMUM OD @ POLE	MOUNTING HEIGHT
* 6'-0"	0.1196"	3/4"	36'-9"±
8'-0"		3/2"	37'-3"±
10'-0"		3 3/4"	38'-0"±
12'-0"		3 3/4"	39'-0"±
15'-0"		4 1/4"	39'-6"±
** 20'-0"	0.1793"	5"	37'-0"±

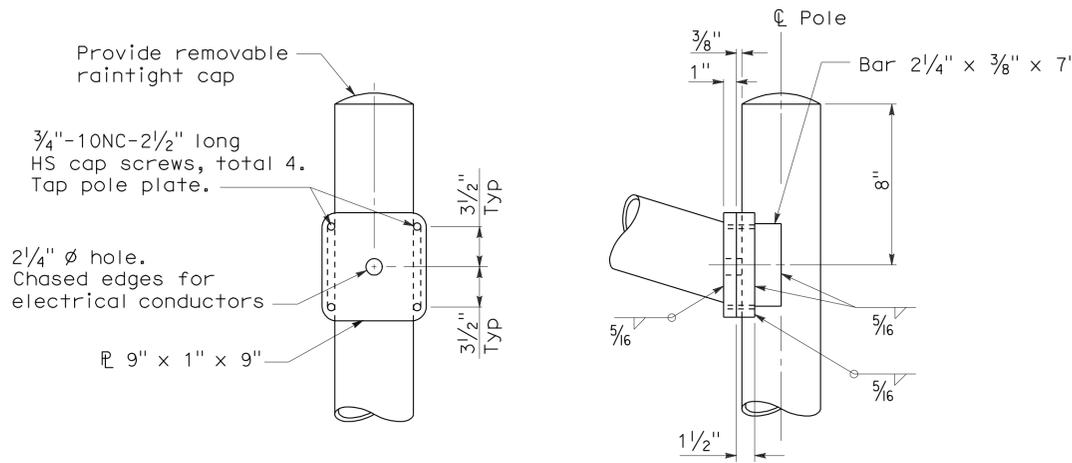
\* Type 30 - arm length 6'-0" - 15'-0" maximum  
 \*\* Type 31 - arm lengths 20'-0"



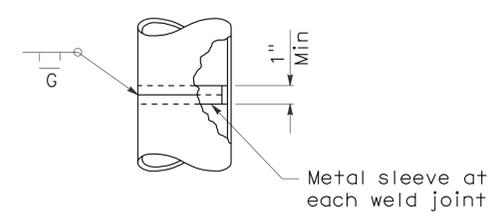
**ELEVATION**



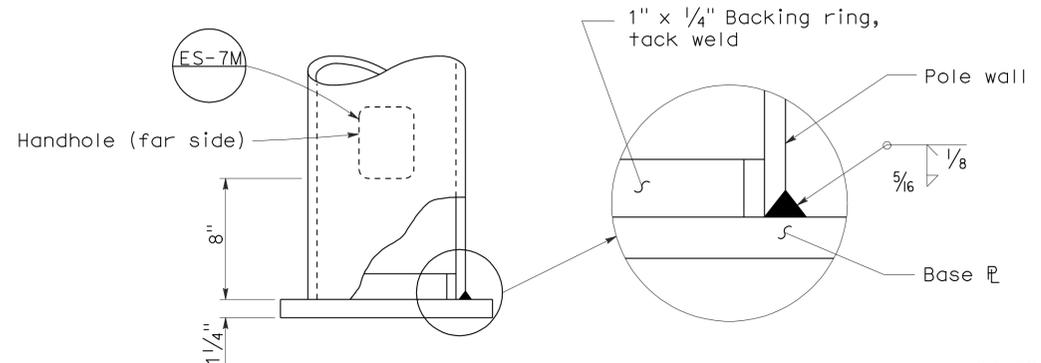
**DETAIL A - TYPE 30**



**DETAIL A - TYPE 31**



**POLE SPLICE**



**DETAIL B**

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SB	101	83.1/83.9	164	190

Stanley P. Johnson  
 REGISTERED CIVIL ENGINEER

January 18, 2008  
 PLANS APPROVAL DATE

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

To accompany plans dated 4-2-12

**NOTES:**

1. Sheet steel shall have a minimum yield of 48,000 psi.
2. For slip base details see Standard Plan ES-6F.
3. For Type 30 fixed base use Type 15 base plate, and foundation shown on Revised Standard Plan RSP ES-6A. Use 1 1/4" Dia x 3'-6" x 4" anchor bolts.
4. For Type 31 fixed base use Type 32 base plate, anchor bolts and foundation on Standard Plan ES-6G.
5. Handhole shall be located on downstream side of traffic unless noted otherwise on plans.
6. For additional general notes refer to Standard Plan ES-7M.

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS  
 (LIGHTING STANDARD  
 TYPES 30 AND 31)**

NO SCALE

RSP ES-6E DATED JANUARY 18, 2008 SUPERCEDES STANDARD PLAN ES-6E  
 DATED MAY 1, 2006 - PAGE 430 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP ES-6E**

2006 REVISED STANDARD PLAN RSP ES-6E

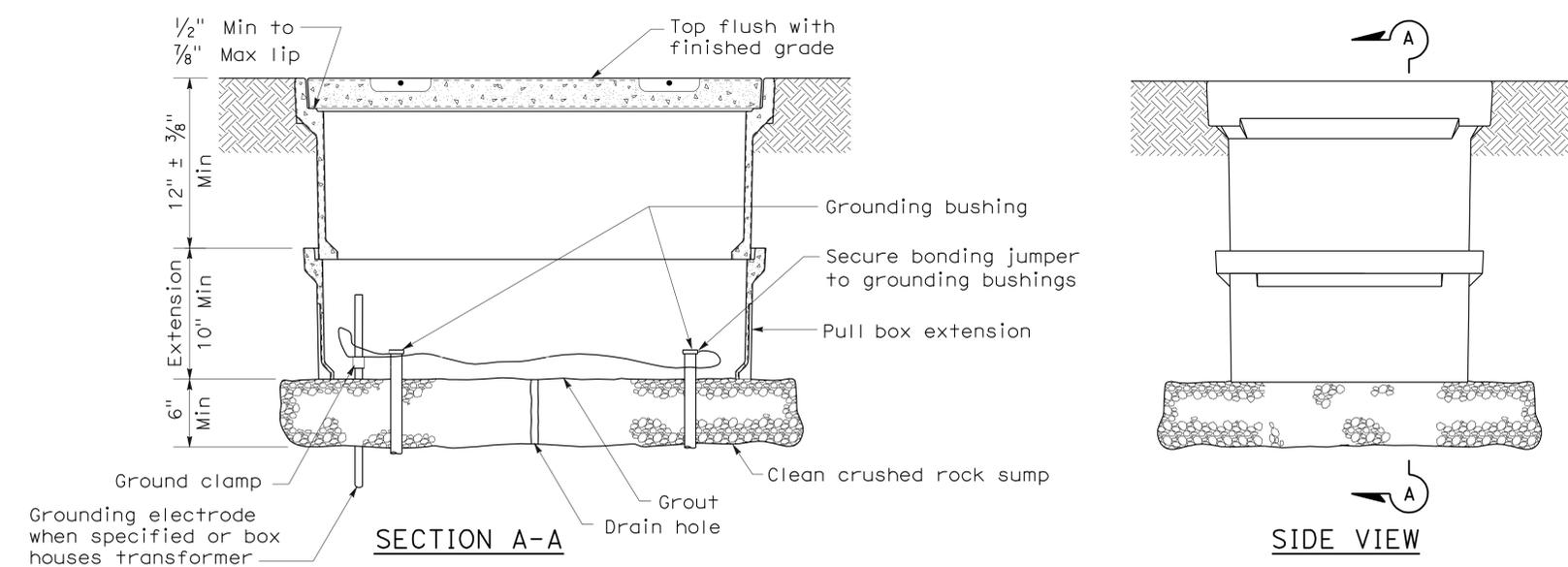
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SB	101	83.1/83.9	165	190

*Jeffery G. McRae*  
 REGISTERED ELECTRICAL ENGINEER  
 No. E14512  
 Exp. 6-30-12  
 ELECTRICAL  
 STATE OF CALIFORNIA

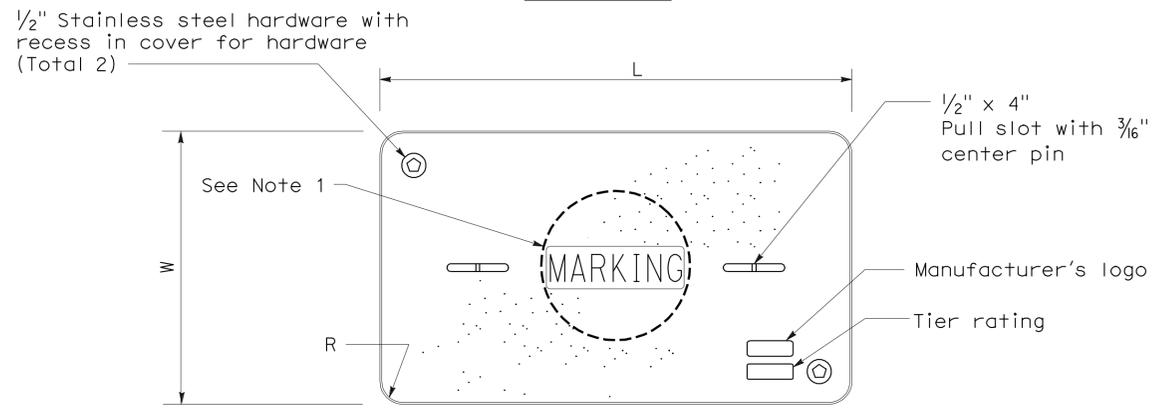
January 20, 2012  
 PLANS APPROVAL DATE

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

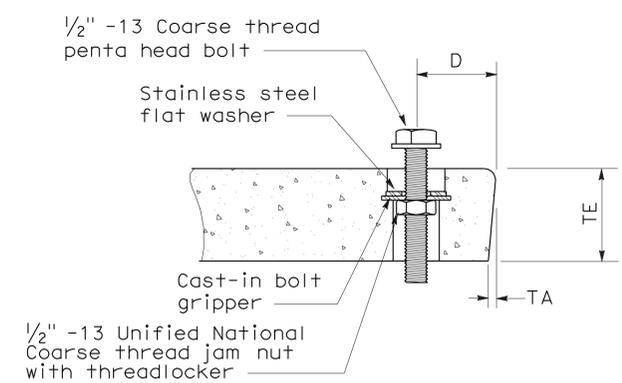
To accompany plans dated 4-2-12



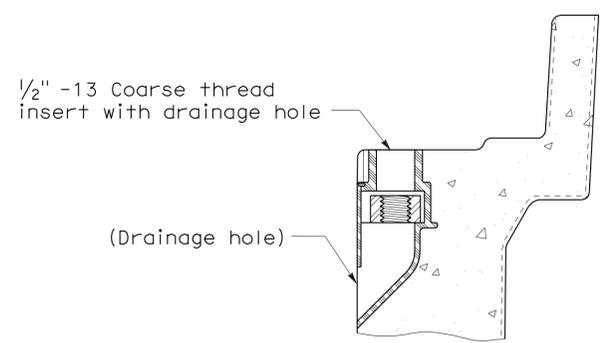
**INSTALLATION DETAILS**  
**DETAIL A**



**COVER TOP VIEW**



**TYPICAL COVER CAPTIVE BOLT**  
(Or similar)



**TYPICAL THREADED INSERT**  
(Or similar)

**NOTES ON PULL BOXES:**

- Pull box covers must be marked as follows: "SERVICE" Service circuits between service point and service disconnect; "SPRINKLER-CONTROL" sprinkler control circuits, 50 V or less; "CALTRANS" on all pull boxes, except pull boxes marked "SPRINKLER-CONTROL"; and "TELEPHONE" Telephone service;
  - No. 3/2 pull box.
    - "SIGNAL" - Traffic signal circuits with or without street or sign lighting circuits.
    - "ST LIGHTING" - Street or sign lighting circuits where voltage is under 600 V.
  - No. 5, 6, 9 or 9A pull box.
    - "TRAFFIC SIGNAL" - Traffic signal circuits with or without street or sign lighting circuits.
    - "STREET LIGHTING" - Street or sign lighting circuits where voltage is under 600 V.
    - "STREET LIGHTING-HIGH VOLTAGE" - Street or sign lighting circuits where voltage is above 600 V.
    - "IRRIGATION" - Circuits to irrigation controller 120 V or more.
    - "RAMP METER" - Ramp meter circuits.
    - "COUNT STATION" - Count or speed monitor circuits.
    - "COMMUNICATIONS" - Communication circuits.
    - "TOS COMMUNICATIONS" - TOS communication line.
    - "TOS POWER" - TOS power.
    - "TDC POWER" - Telephone demarcation cabinet power.
    - "CCTV" - Closed circuit television circuits.
    - "TMS" - Traffic monitoring station circuits.
    - "CMS" - Changeable message sign circuits.
    - "HAR" - Highway advisory radio circuits.
- The nominal dimensions of the opening in which the cover sets must be the same as the cover dimensions (L and W) plus 1/8" or greater.
- Covers and boxes must be interchangeable with California Standard. When interchanged with a standard, the top surfaces must be flush within 1/8". Top outside radius of covers and pull boxes must have a 1/8" radius.
- Pull box extension may be another pull box as long as the bottom edge of the pull box can fit into the cover opening.

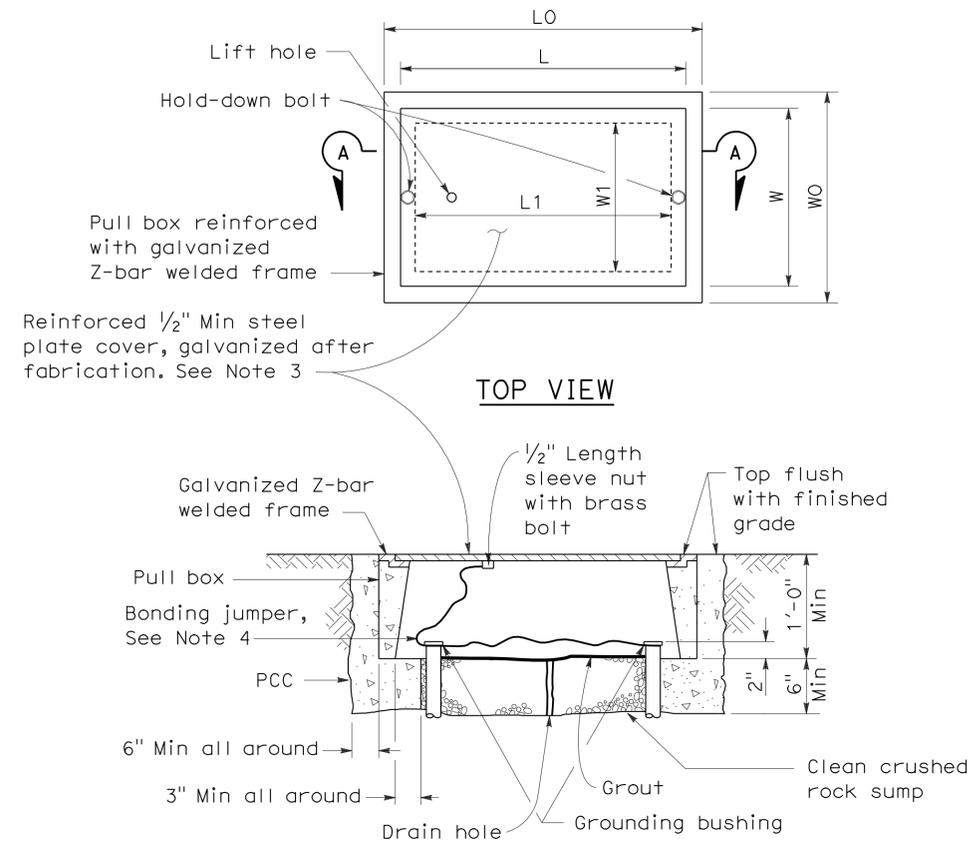
PULL BOX	PULL BOX			COVER						
	Minimum Depth Box	Minimum Depth Extension	Maximum Weight	L	W	R	TE	TA	D	Maximum Weight
No. 3/2	12"	N/A	40 lb	1' - 3 3/8"	10 1/8"	1 3/8"	2"	1/8"	1 3/4"	30 lb
No. 5	12"	10"	55 lb	1' - 11 1/4"	1' - 1 3/4"	1 3/8"	2"	1/8"	1 3/4"	60 lb
No. 6	12"	10"	70 lb	2' - 6 1/2"	1' - 5 1/2"	1 3/8"	2"	1/8"	2"	85 lb

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS**  
**(PULL BOX)**  
NO SCALE

NSP ES-8A DATED JANUARY 20, 2012 SUPPLEMENTS THE STANDARD PLANS BOOK DATED MAY 2006.

2006 NEW STANDARD PLAN NSP ES-8A

2006 NEW STANDARD PLAN NSP ES-8B



**SECTION A-A**  
**No. 3 1/2(T), No. 5(T) AND**  
**No. 6(T) TRAFFIC PULL BOX**

**NOTES ON PULL BOXES:**

- Traffic pull box shall be provided with steel cover and special concrete footing. Steel cover shall have embossed non-skid pattern.
- Steel reinforcing shall be as regularly used in the standard products of the respective manufacturer.
- Pull box covers must be marked as follows: "SERVICE" Service circuits between service point and service disconnect; "SPRINKLER-CONTROL" Sprinkler control circuits, 50 V or less; "CALTRANS" On all pull boxes, except pull boxes marked "SPRINKLER-CONTROL"; and "TELEPHONE" Telephone service.
  - No. 3 1/2(T) pull box.
    - "SIGNAL" - Traffic signal circuits with or without street or sign lighting circuits.
    - "ST LIGHTING" - Street or sign lighting circuits where voltage is under 600 V.
  - No. 5(T) or 6(T) pull box.
    - "TRAFFIC SIGNAL" - Traffic signal circuits with or without street or sign lighting circuits.
    - "STREET LIGHTING" - Street or sign lighting circuits where voltage is under 600 V.
    - "STREET LIGHTING-HIGH VOLTAGE" - Street or sign lighting circuits where voltage is above 600 V.
    - "IRRIGATION" - Circuits to irrigation controller 120 V or more.
    - "RAMP METER" - Ramp meter circuits.
    - "COUNT STATION" - Count or speed monitor circuits.
    - "COMMUNICATION" - Communication circuits.
    - "TOS COMMUNICATIONS" - TOS communications line.
    - "TOS POWER" - TOS power.
    - "TDC POWER" - Telephone demarcation cabinet power.
    - "CCTV" - Closed circuit television circuits.
    - "TMS" - Traffic monitoring station circuits.
    - "CMS" - Changeable message sign circuits.
    - "HAR" - Highway advisory radio circuits.
- Bonding jumper for metal covers shall be 3' long, minimum.
- The nominal dimensions of the opening in which the cover sets must be the same as the cover dimensions except the length and width dimensions shall be 1/8" greater.
- Covers and boxes must be interchangeable with California standard male and female gages. When interchanged with a standard male or female gage, the top surfaces must be flush within 1/8".

PULL BOX	BOX						COVER				
	Minimum * Thickness	Minimum Depth Box and Extension	W0	L0	L1	W1	L **	W **	R	Edge Thickness	Edge Taper
No. 3 1/2(T)	1 1/2"	1'-0"	1'-5" ± 1"	1'-8 7/8" ±	1'-2 1/2" ±	10 5/8" ± 1"	1'-8" ±	1'-1 3/4" ±	0"	1/2"	None
No. 5(T)	1 3/4"	1'-0"	1'-11 1/2" ± 1"	2'-5 1/2" ±	1'-7" ±	1'-1" ± 1"	2'-3" ±	1'-4" ±	0"	1/2"	None
No. 6(T)	2"	1'-0"	2'-6" ± 1"	2'-11 1/2" ±	1'-11 1/2" ±	1'-5" ± 1"	2'-9" ±	1'-8" ±	0"	1/2"	None

\* Excluding conduit web      \*\* Top dimension

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS**  
**(TRAFFIC RATED PULL BOX)**  
 NO SCALE

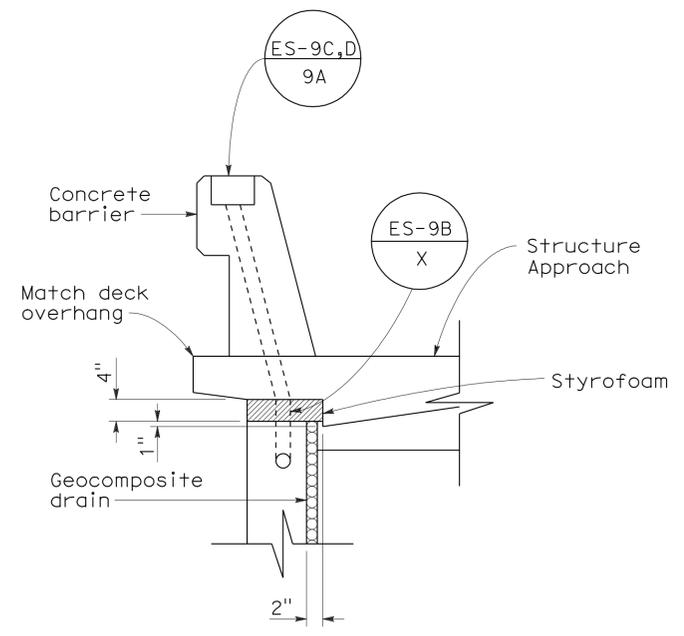
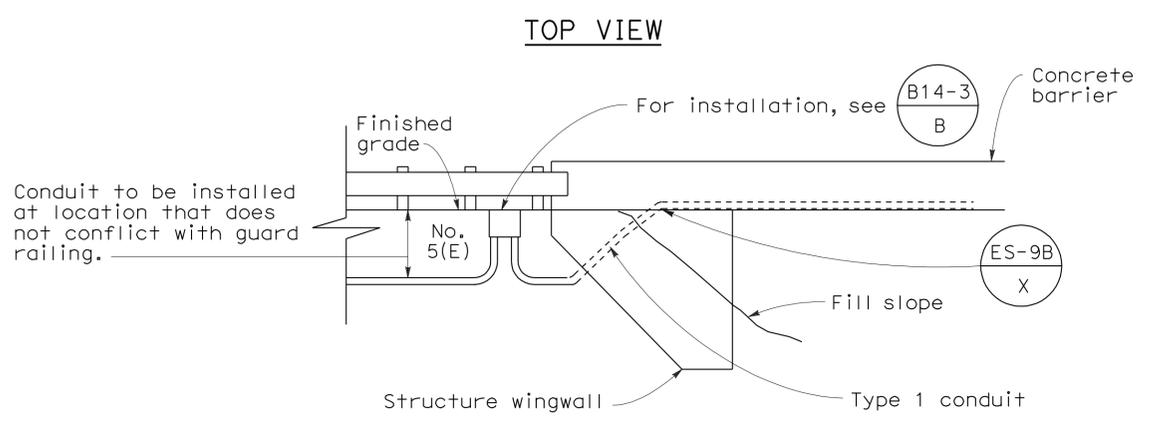
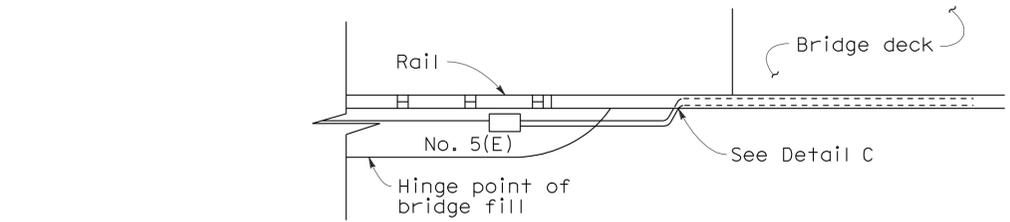
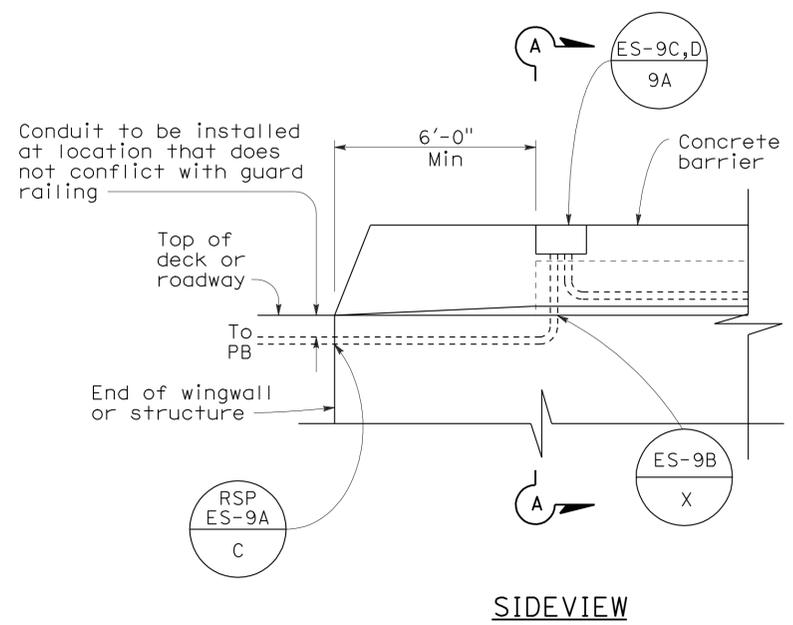
NSP ES-8B DATED JANUARY 20, 2012 SUPPLEMENTS THE STANDARD PLANS BOOK DATED MAY 2006.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SB	101	83.1/83.9	167	190

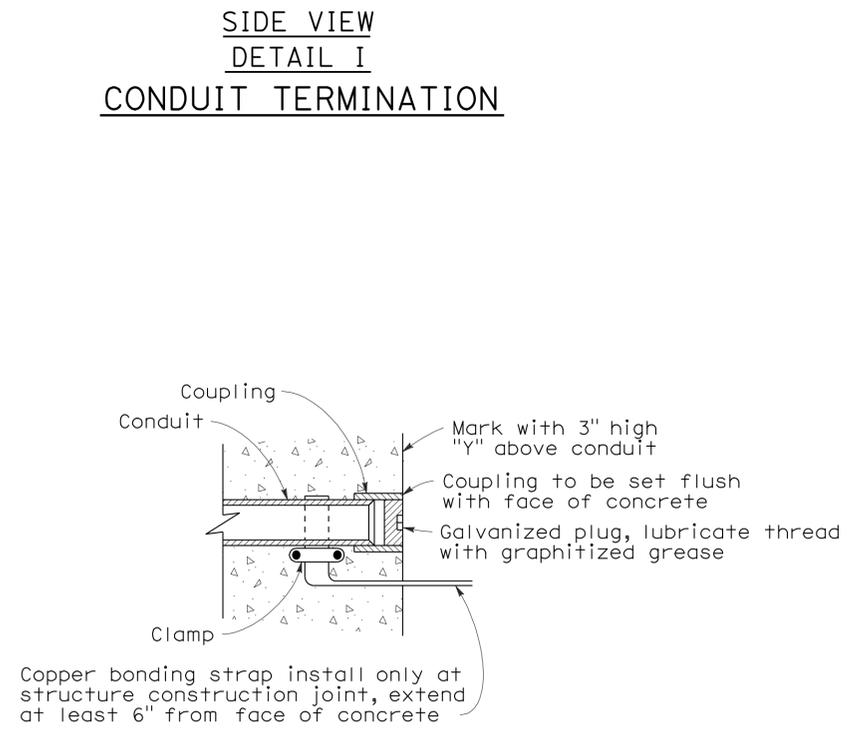
*Jeffery G. McRae*  
 REGISTERED ELECTRICAL ENGINEER  
 October 5, 2007  
 PLANS APPROVAL DATE  
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

REGISTERED PROFESSIONAL ENGINEER  
 Jeffery G. McRae  
 No. E14512  
 Exp. 6-30-08  
 ELECTRICAL  
 STATE OF CALIFORNIA

To accompany plans dated 4-2-12



**DETAIL A**  
**CONDUIT TERMINATION**



**DETAIL C**  
**CONDUIT TERMINATION**

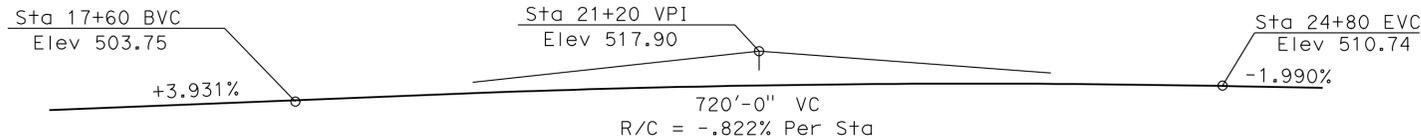
Copper bonding strap install only at structure construction joint, extend at least 6" from face of concrete

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

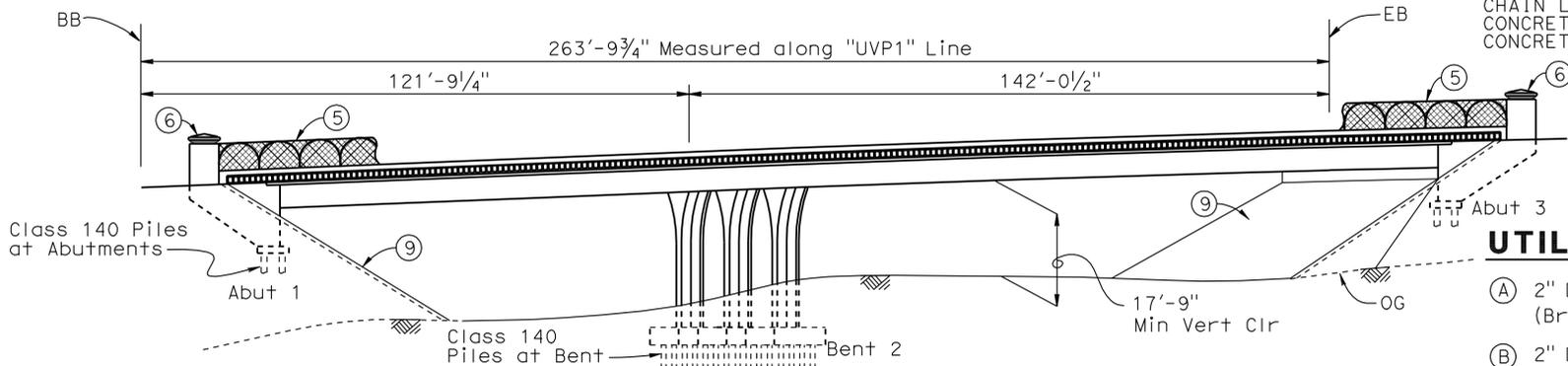
**ELECTRICAL SYSTEMS  
(ELECTRICAL DETAILS  
STRUCTURE INSTALLATIONS)**

NO SCALE  
RSP ES-9A DATED OCTOBER 5, 2007 SUPERCEDES STANDARD PLAN ES-9A  
DATED MAY 1, 2006 - PAGE 454 OF THE STANDARD PLANS BOOK DATED MAY 2006.

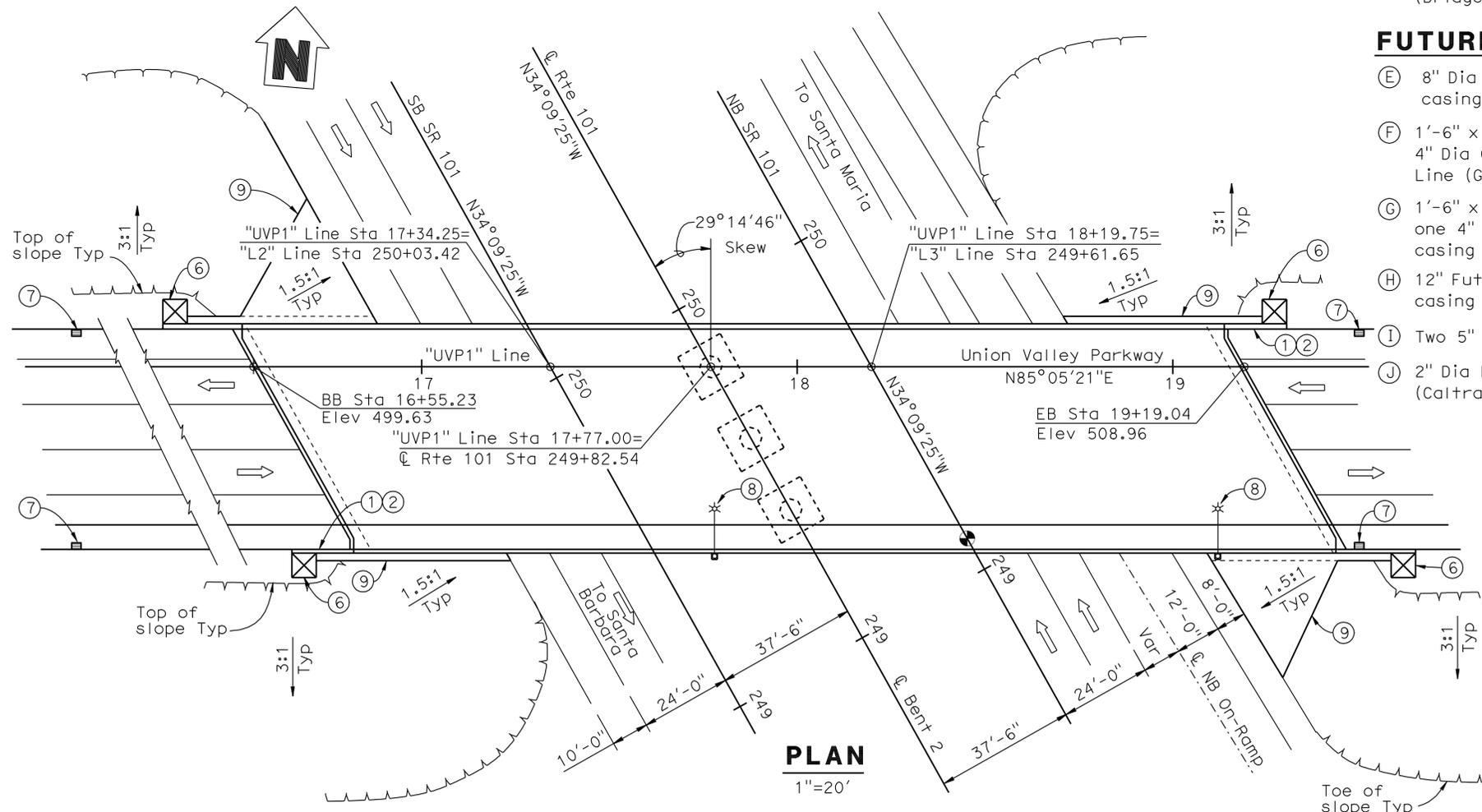
**2006 REVISED STANDARD PLAN RSP ES-9A**



**PROFILE GRADE**  
No Scale



**ELEVATION**  
1"=20'



**PLAN**  
1"=20'

**QUANTITIES**

- STRUCTURE EXCAVATION (BRIDGE) 640 CY
- STRUCTURE BACKFILL (BRIDGE) 400 CY
- FURNISH PILING (CLASS 140) 2,769 LF
- DRIVE PILE (CLASS 140) 56 EA
- PRESTRESSING CAST-IN-PLACE CONCRETE LUMP SUM
- STRUCTURAL CONCRETE, BRIDGE FOOTING 159 CY
- STRUCTURAL CONCRETE, BRIDGE 1,540 CY
- JOINT SEAL (MR 2") 130 LF
- BAR REINFORCING STEEL (BRIDGE) 390,000 LB
- SLOPE PAVING (CONCRETE) 89 CY
- CHAIN LINK RAILING (TYPE 6) 570 LF
- CONCRETE BARRIER (TYPE 26 MODIFIED) 299 LF
- CONCRETE BARRIER (TYPE 736 MODIFIED) 299 LF

- 640 CY
- 400 CY
- 2,769 LF
- 56 EA
- LUMP SUM
- 159 CY
- 1,540 CY
- 130 LF
- 390,000 LB
- 89 CY
- 570 LF
- 299 LF
- 299 LF

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SB	101	83.1/83.9	168	190

*Renée M. Anderson* 12-05-11  
REGISTERED CIVIL ENGINEER DATE

4-2-12  
PLANS APPROVAL DATE

**R. ANDERSON**  
No. C61040  
Exp. 12-31-12  
CIVIL  
STATE OF CALIFORNIA

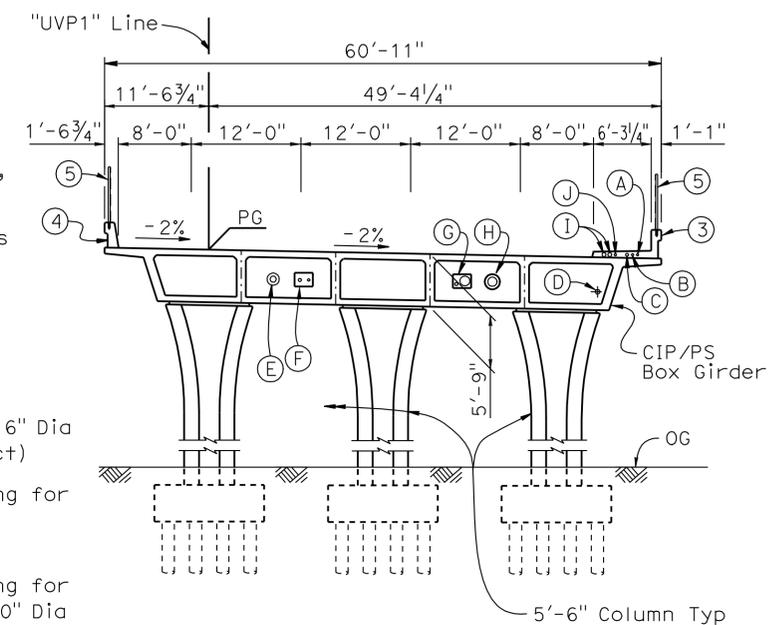
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

**UTILITIES:**

- (A) 2" Dia Sprinkler Control Conduit (Bridge)
- (B) 2" Dia Electrical Conduit (PG & E), see "ROAD PLANS"
- (C) 3" Dia Electrical Conduit (Caltrans Operations), see "ROAD PLANS"
- (D) 6" Opening and 2" Dia Supply Line (Bridge), (Caltrans Landscape)

**FUTURE UTILITIES:**

- (E) 8" Dia Future Sewer Main within 16" Dia casing (Laguna Sanitation District)
- (F) 1'-6" x 2'-0" Future Utility Opening for 4" Dia Oil Line and 4" Dia Gas Line (Greka Energy)
- (G) 1'-6" x 2'-0" Future Utility Opening for one 4" Dia Duct (Comcast) and a 10" Dia casing for gas line (So. Calif Gas)
- (H) 12" Future Water Main within 20" Dia casing (Golden State Water)
- (I) Two 5" Dia Openings for Future Utilities
- (J) 2" Dia Future Electrical Conduit (Caltrans Electrical)



**TYPICAL SECTION**  
1"=10'-0"

**NOTES:**

- Indicates location of Minimum Vertical Clearance
- ① Paint Bridge Name "UNION VALLEY PARKWAY OC"
- ② Paint Bridge No. "51-0338"
- ③ Concrete Barrier Type 26 (Mod)
- ④ Concrete Barrier Type 736 (Mod)
- ⑤ Chain Link Railing (Type 6)
- ⑥ Concrete Pilaster
- ⑦ Drainage Inlet, see "ROAD PLANS"
- ⑧ Electrolier, see "ROAD PLANS"
- ⑨ Slope paving, full slope

For "General Notes", "Index to Plans", "Standard Plans", and "Pile Data", see "INDEX TO PLANS" Sheet.

DESIGN ENGINEER <b>DANIEL T. ADAMS</b>	DESIGN	BY R. Anderson	CHECKED T. Sanderson	LOAD & RESISTANCE FACTOR DESIGN	LIVE LOADING: HL93 W/"LOW-BOY"; PERMIT DESIGN VEHICLE	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN <b>DESIGN BRANCH 10</b>	BRIDGE NO.	51-0338	<b>UNION VALLEY PARKWAY OC</b> <b>GENERAL PLAN</b>
	DETAILS	BY G. Hallstrom	CHECKED T. Sanderson	LAYOUT	BY R. Anderson			POST MILE	83.45	
	QUANTITIES	BY R. Anderson	CHECKED H. Vu	SPECIFICATIONS	BY Xiahong Li			PLANS AND SPECS COMPARED	Xiahong Li	

UNIT: 3589 PROJECT NUMBER & PHASE: 05000005501 CONTRACT NO.: 05-463801

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES	SHEET	OF
8-18-09	12-02-11	1
		23

STRUCUTRES DESIGN GENERAL PLAN SHEET (ENGLISH) (REV.09-01-10) FILE => 510338bagp01.dgn

# INDEX TO PLANS

SHEET NO.	TITLE
1	GENERAL PLAN
2	INDEX TO PLANS
3	DECK CONTOURS
4	FOUNDATION PLAN
5	ABUTMENT LAYOUT
6	ABUTMENT DETAILS No. 1
7	ABUTMENT DETAILS No. 2
8	ABUTMENT DETAILS No. 3
9	BENT LAYOUT
10	BENT DETAILS No. 1
11	BENT DETAILS No. 2
12	TYPICAL SECTION
13	GIRDER LAYOUT
14	REINFORCEMENT DETAILS
15	ARCHITECTURAL DETAILS No. 1
16	ARCHITECTURAL DETAILS No. 2
17	SLOPE PAVING
18	CHAIN LINK RAILING TYPE 6
19	LOG OF TEST BORINGS 1 OF 5
20	LOG OF TEST BORINGS 2 OF 5
21	LOG OF TEST BORINGS 3 OF 5
22	LOG OF TEST BORINGS 4 OF 5
23	LOG OF TEST BORINGS 5 OF 5

# 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)
A62C	LIMITS OF PAYMENT FOR EXCAVATION AND BACKFILL-BRIDGE
B0-1	BRIDGE DETAILS
B0-3	BRIDGE DETAILS
B0-5	BRIDGE DETAILS
B0-13	BRIDGE DETAILS
B2-5	PILE DETAILS CLASS 90 AND CLASS 140
RSP B6-21	JOINT SEALS (MAXIMUM MOVEMENT RATING = 2")
B7-1	BOX GIRDER DETAILS
B7-10	UTILITY OPENING BOX GIRDER
B7-11	UTILITY DETAILS
B8-5	CAST-IN-PLACE PRESTRESSED GIRDER DETAILS
B11-54	CONCRETE BARRIER TYPE 26
B11-56	CONCRETE BARRIER TYPE 736
B14-3	COMMUNICATION AND SPRINKLER CONTROL CONDUITS
B14-4	WATER SUPPLY LINE (BRIDGE)
B14-5	WATER SUPPLY LINE (DETAILS)
T-3	TEMPORARY RAILING (TYPE K)

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SB	101	83.1/83.9	169	190

*Renee M. Anderson* 12-05-11  
 REGISTERED CIVIL ENGINEER DATE

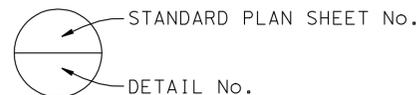
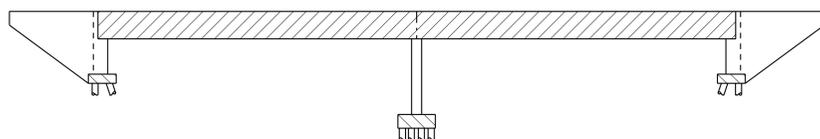
4-2-12  
 PLANS APPROVAL DATE

R. ANDERSON  
 No. C61040  
 Exp. 12-31-12  
 CIVIL  
 STATE OF CALIFORNIA

*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.*

## GENERAL NOTES LOAD AND RESISTANCE FACTOR DESIGN

- DESIGN: AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 4th Edition and the CALTRANS Amendments, preface dated Dec. 2008.
- SEISMIC DESIGN: Caltrans Seismic Design Criteria (SDC) Version 1.4, July, 2006
- DEAD LOAD: Includes 35 Psf for future wearing surface.
- LIVE LOADING: HL93 with alternative and permit design load.
- SEISMIC LOADING: Modified SDC ARS Curve for Soil Profile Type D (M=7.25±0.25) Spectrum Peak Rock Acceleration = 0.4 g



- Structural Concrete, Bridge
- Structural Concrete, Bridge Footing
- Structural Concrete, Bridge (4000 psi @ 28 days)

## CONCRETE STRENGTH AND TYPE LIMITS

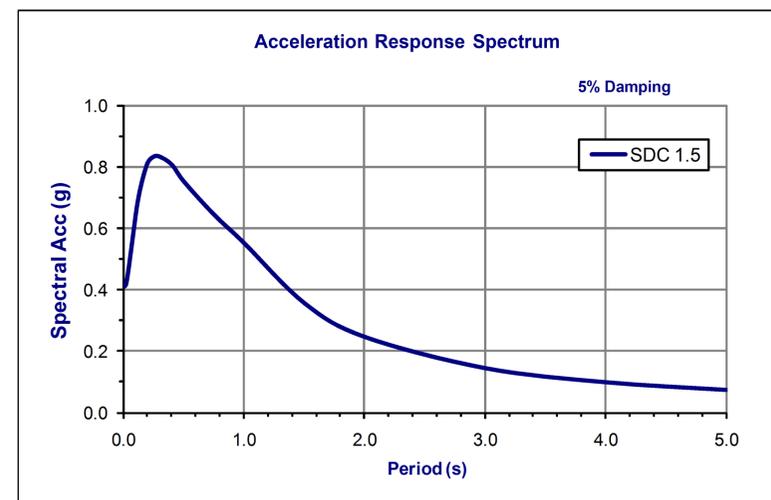
NO SCALE

### PILE DATA TABLE (B2-5)

Location	Pile Type	Nominal Resistance (kips)		Design Tip Elevation (ft)	Specified Tip Elevation (ft)	Nominal Driving Resistance Required (kips)
		Compression	Tension			
Abut 1	Class 140	220	0	430(a), 430(c)	430	220
Bent 2	Class 140	264	0	431(a-I), 446(a-II), 431(c)	431	264
Abut 3	Class 140	220	0	443(a), 443(c)	443	220

Notes:

- Design tip elevations for Abutments are controlled by: (a) Compression and (c) Settlement.
- Design tip elevations for Bents are controlled by: (a-I) Compression (Strength Limit), (a-II) Compression (Extreme Event), and (c) Settlement.
- The specified tip elevation shall not be raised above the design tip elevations for tension load, lateral load, and tolerable settlement.



REINFORCED CONCRETE:  $f_y = 60$  ksi  
 $f'_c = 3600$  psi @ 28 Days  
 $n = 8.5$

PRESTRESSED CONCRETE: See "Prestressing Notes" on "GIRDER LAYOUT" sheet.

DESIGN	BY R. Anderson	CHECKED T. Sanderson
DETAILS	BY G. Hallstrom	CHECKED T. Sanderson
QUANTITIES	BY R. Anderson	CHECKED H. Vu

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
DESIGN BRANCH 10

BRIDGE NO.	51-0338
POST MILE	83.45

UNION VALLEY PARKWAY OC  
INDEX TO PLANS

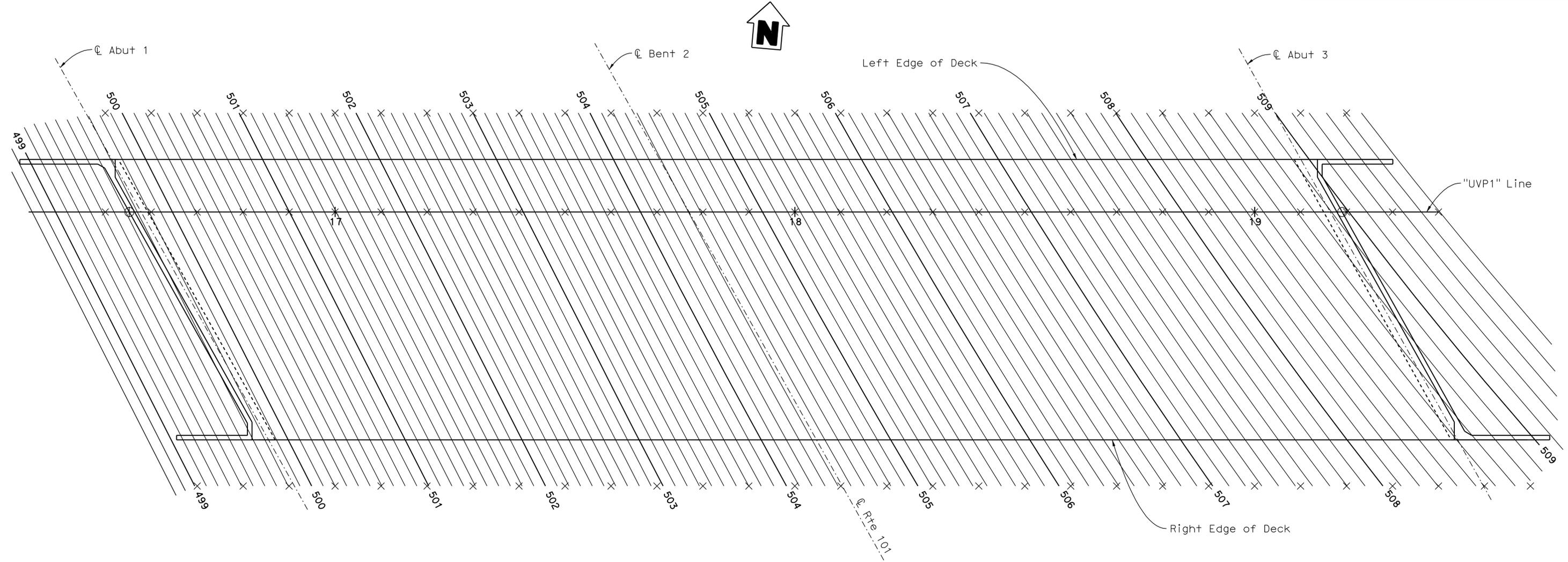
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SB	101	83.1/83.9	170	190

*Renee M. Anderson* 12-05-11  
REGISTERED CIVIL ENGINEER DATE

4-2-12  
PLANS APPROVAL DATE

*R. ANDERSON*  
No. C61040  
Exp. 12-31-12  
CIVIL  
STATE OF CALIFORNIA

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.



**DECK CONTOURS**  
 $\frac{3}{32}'' = 1'-0''$

- NOTES:**
- x - 10'-0" intervals along station line.
  - Contour intervals = 0.1'.
  - Contours do not include camber.

DESIGN	BY R. Anderson	CHECKED T. Sanderson
DETAILS	BY G. Hallstrom	CHECKED T. Sanderson
QUANTITIES	BY R. Anderson	CHECKED H. Vu

**STATE OF CALIFORNIA**  
DEPARTMENT OF TRANSPORTATION

**DIVISION OF ENGINEERING SERVICES**  
STRUCTURE DESIGN  
**DESIGN BRANCH 10**

BRIDGE NO.	51-0338
POST MILE	83.45

**UNION VALLEY PARKWAY OC**  
**DECK CONTOURS**



REVISION DATES	SHEET	OF
12-09-10 11-17-11	3	23

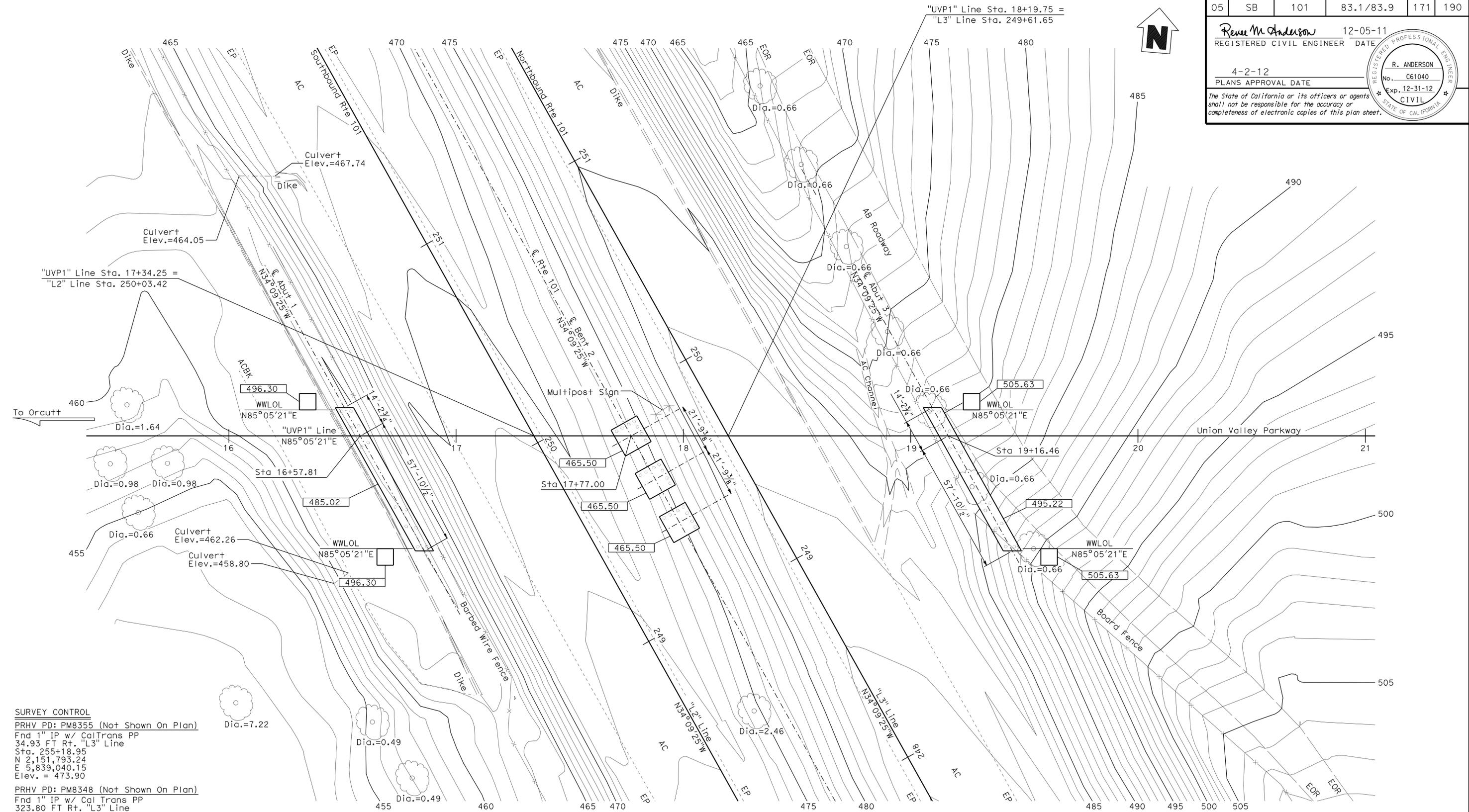
TIME PLOTTED => 05-APR-2012 07:55  
DATE PLOTTED => 05-APR-2012 07:55  
USER NAME => s124496

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SB	101	83.1/83.9	171	190

**Renee M. Anderson** 12-05-11  
REGISTERED CIVIL ENGINEER DATE

4-2-12  
PLANS APPROVAL DATE

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



**SURVEY CONTROL**  
PRHV PD: PM8355 (Not Shown On Plan)  
Fnd 1" IP w/ CalTrans PP  
34.93 FT Rt. "L3" Line  
Sta. 255+18.95  
N 2,151,793.24  
E 5,839,040.15  
Elev. = 473.90

PRHV PD: PM8348 (Not Shown On Plan)  
Fnd 1" IP w/ CalTrans PP  
323.80 FT Rt. "L3" Line  
Sta. 251+77.65  
N 2,151,673.01  
E 5,839,470.82  
Elev. = 480.34

XXX.XX Indicates bottom of footing elevation

<b>PRELIMINARY INVESTIGATION SECTION</b>				DESIGN BY R. Anderson	CHECKED T. Sanderson	<b>STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN <b>DESIGN BRANCH 10</b>	BRIDGE NO. 51-0338	<b>UNION VALLEY PARKWAY OC</b> <b>FOUNDATION PLAN</b>
SCALE 1"=20'	VERT. DATUM NGVD29	PHOTOGRAMMETRY AS OF: X	DETAILS BY G. Hallstrom	CHECKED T. Sanderson	POST MILE 83.45				
ALIGNMENT TIES Dist. Traverse Sheet	SURVEYED BY District	CHECKED BY J. Borden 7/2009	QUANTITIES BY R. Anderson	CHECKED H. Vu	REVISION DATES				
STRUCTURES FOUNDATION PLAN SHEET (ENGLISH) (REV. 10/25/05)						ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	CU 05 EA 463801	DISREGARD PRINTS BEARING EARLIER REVISION DATES	SHEET 4 OF 23

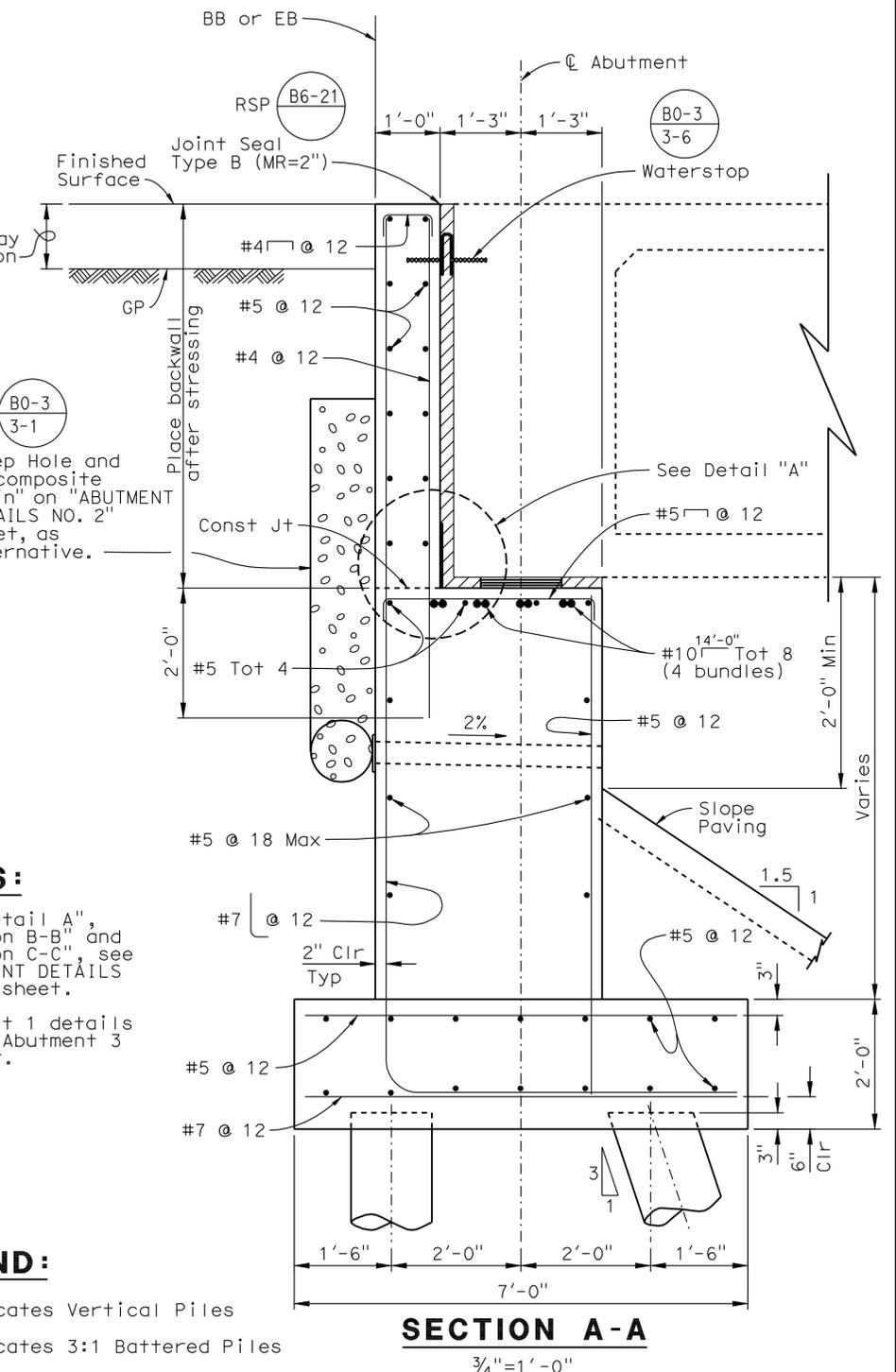
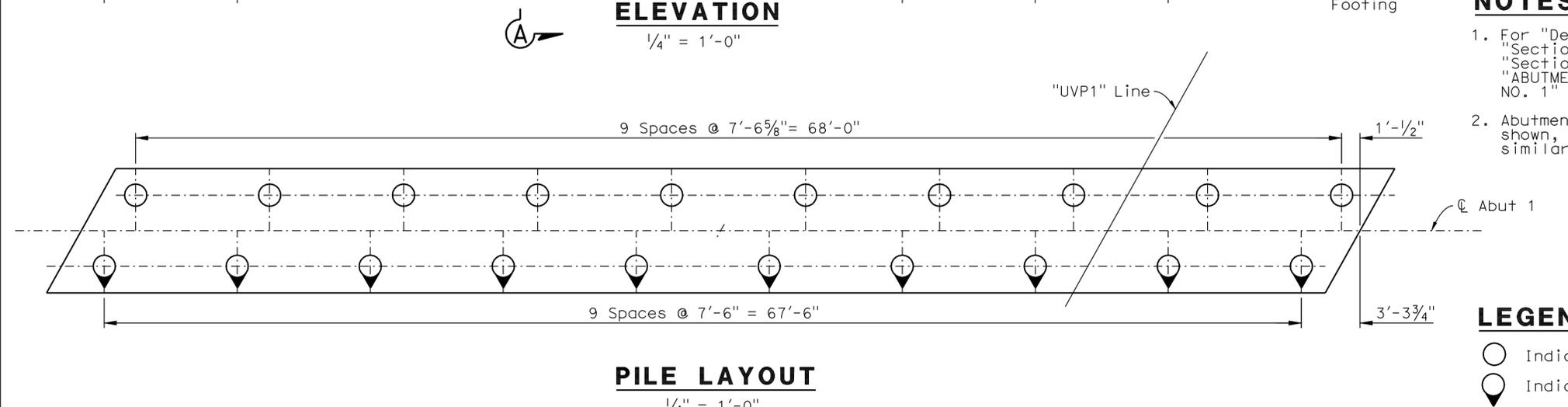
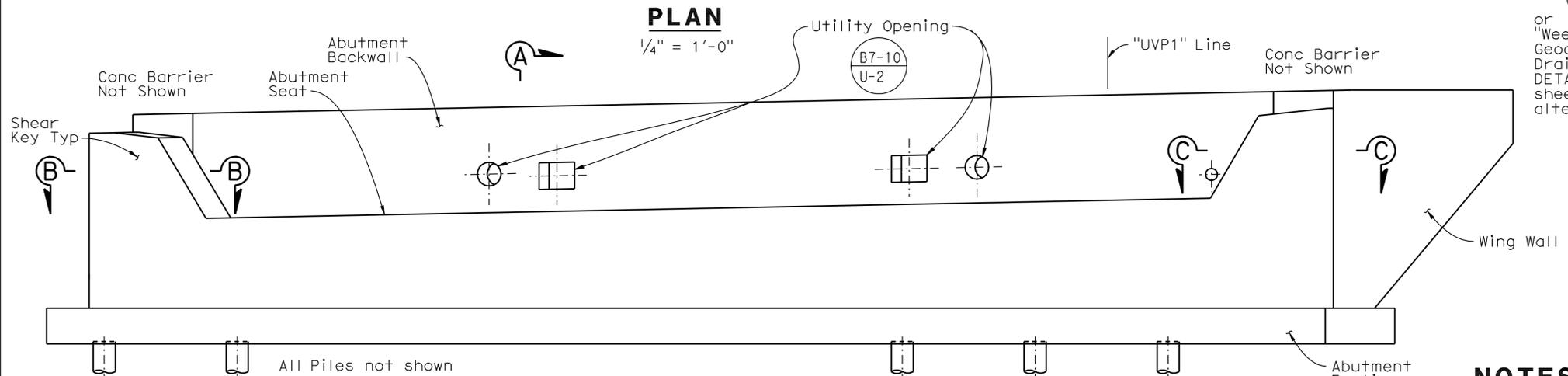
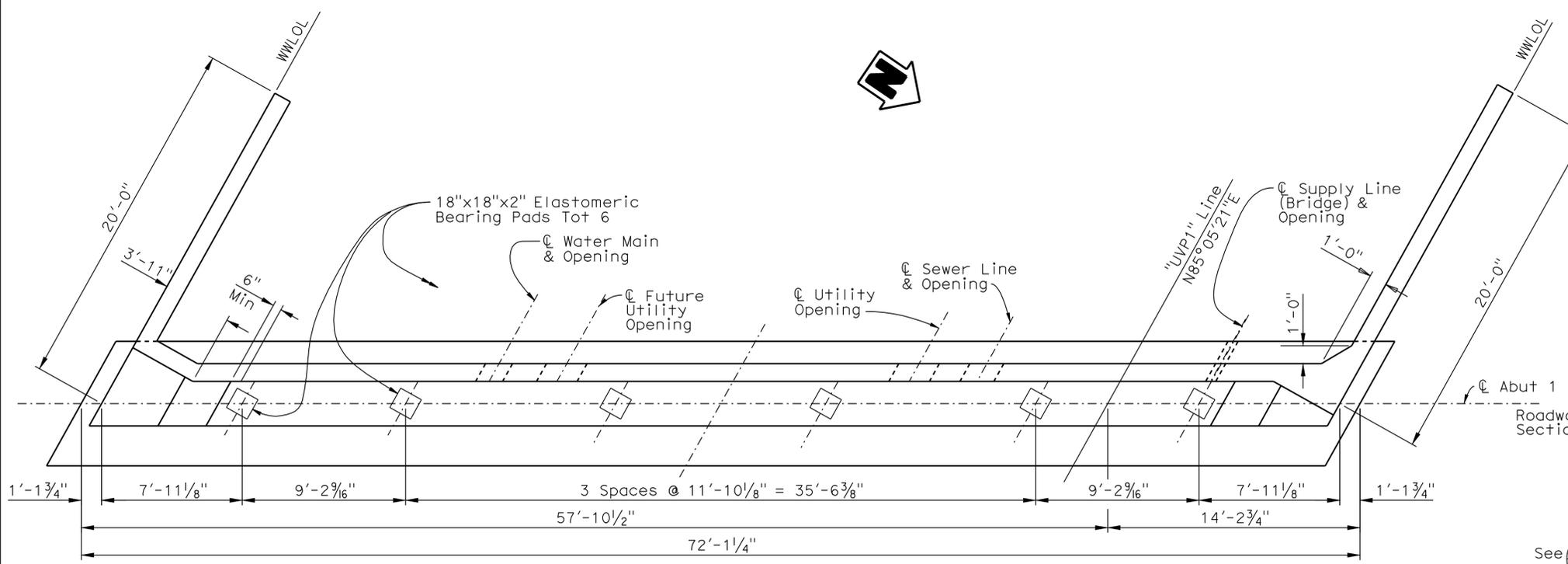
FILE => 510338efdp104.dgn  
DATE PLOTTED => 05-APR-2012  
TIME PLOTTED => 08:33  
USERNAME => s114640

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SB	101	83.1/83.9	172	190

<i>Renee M. Anderson</i> REGISTERED CIVIL ENGINEER		12-05-11 DATE
4-2-12 PLANS APPROVAL DATE		R. ANDERSON No. C61040 Exp. 12-31-12 CIVIL STATE OF CALIFORNIA

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.

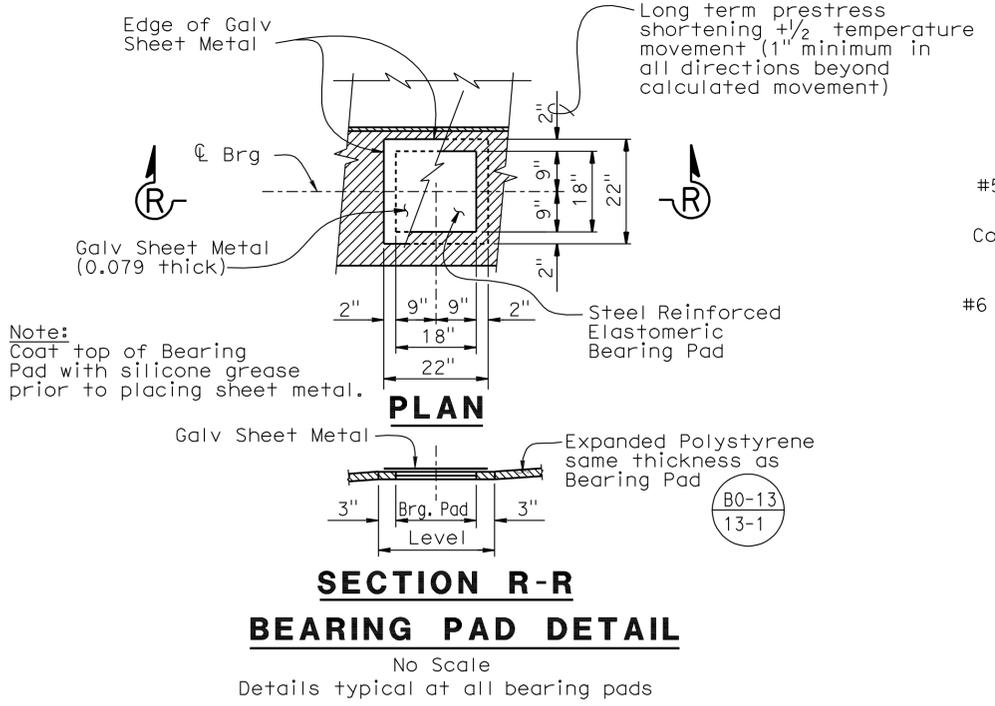
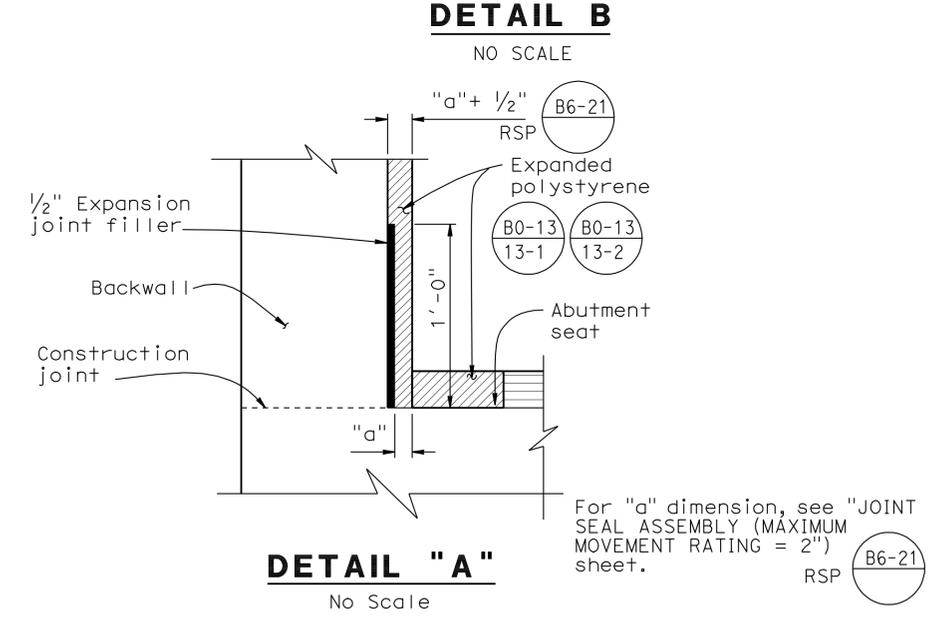
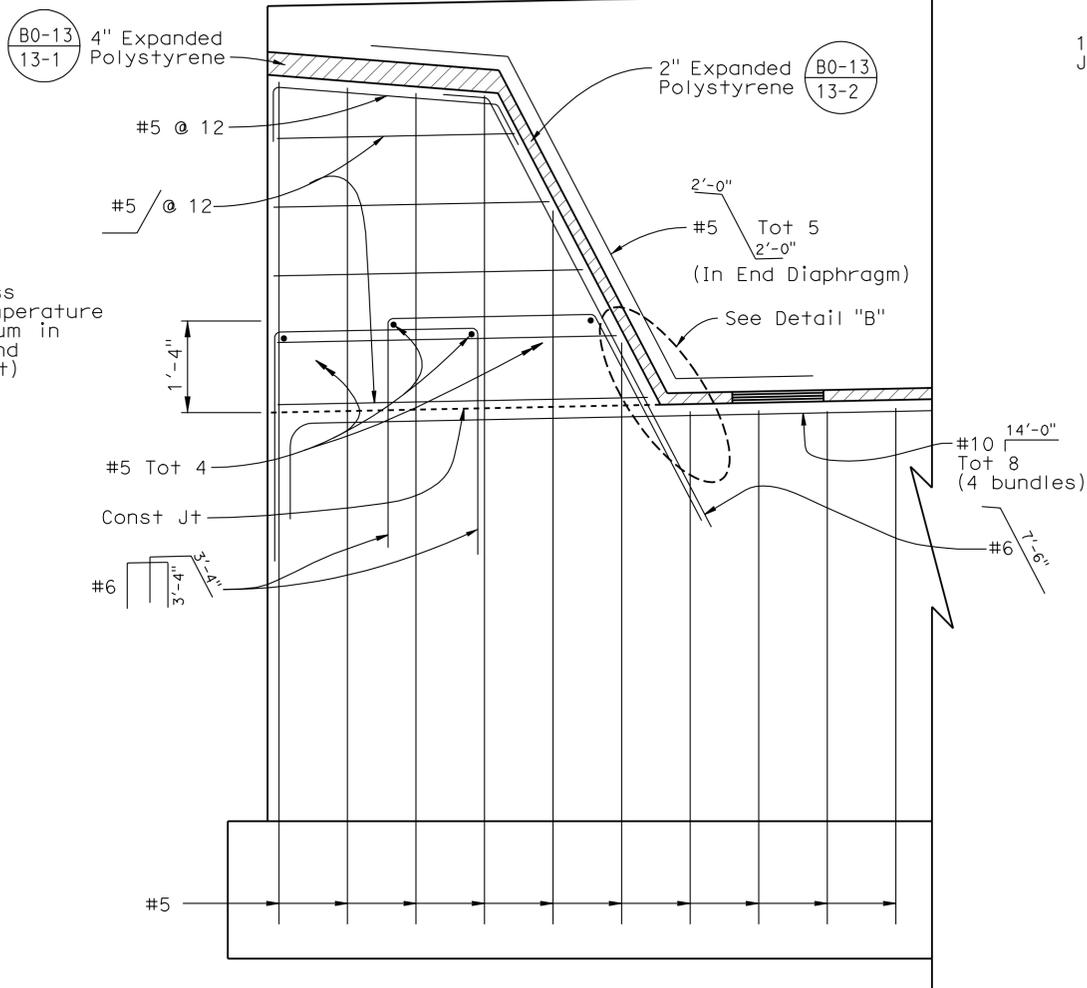
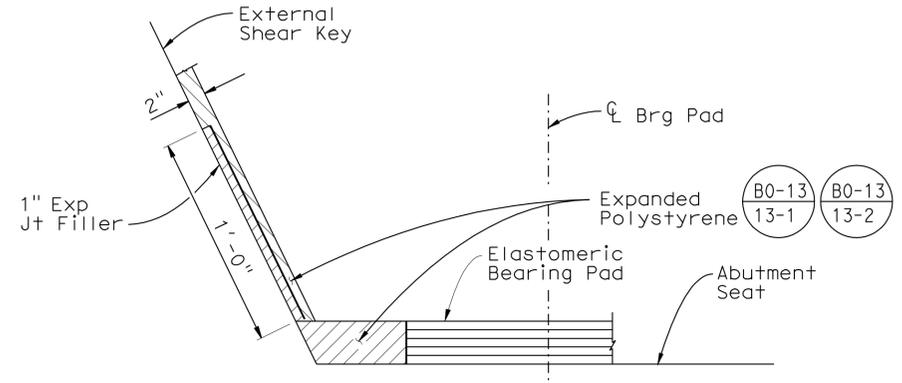
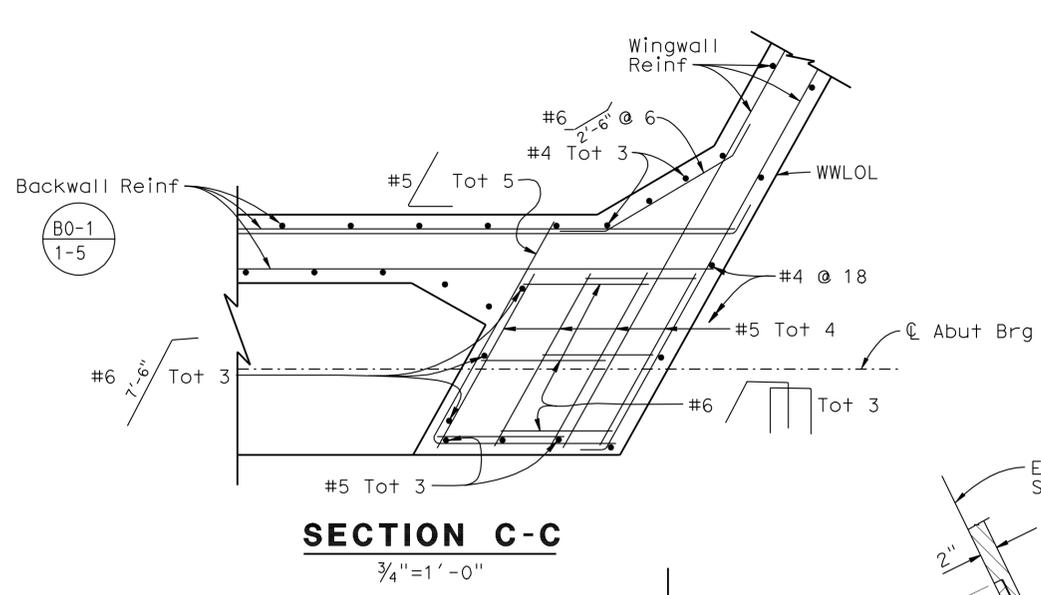
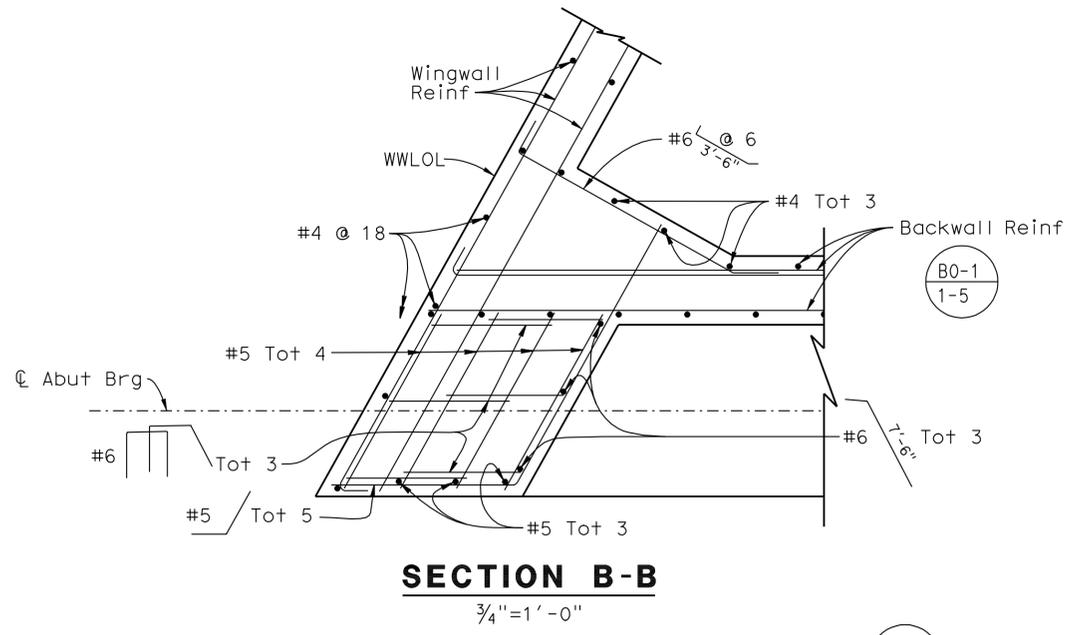


- NOTES:**
- For "Detail A", "Section B-B" and "Section C-C", see "ABUTMENT DETAILS NO. 1" sheet.
  - Abutment 1 details shown, Abutment 3 similar.

- LEGEND:**
- Indicates Vertical Piles
  - ◐ Indicates 3:1 Battered Piles

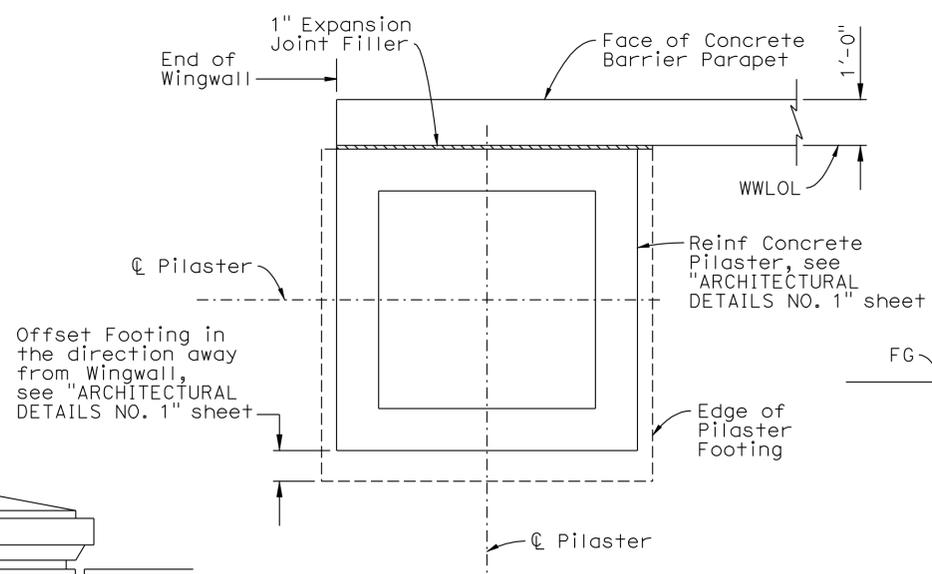
DESIGN BY R. Anderson CHECKED T. Sanderson DETAILS BY G. Hallstrom CHECKED T. Sanderson QUANTITIES BY R. Anderson CHECKED H. Vu	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN <b>DESIGN BRANCH 10</b>	BRIDGE NO. 51-0338	<b>UNION VALLEY PARKWAY OC</b> <b>ABUTMENT LAYOUT</b>
			POST MILE 83.45	
			UNIT: 3589 PROJECT NUMBER & PHASE: 05000005501 CONTRACT NO.: 05-463801	

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SB	101	83.1/83.9	173	190
<i>Rene M. Anderson</i> REGISTERED CIVIL ENGINEER			12-05-11 DATE		
4-2-12 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>					

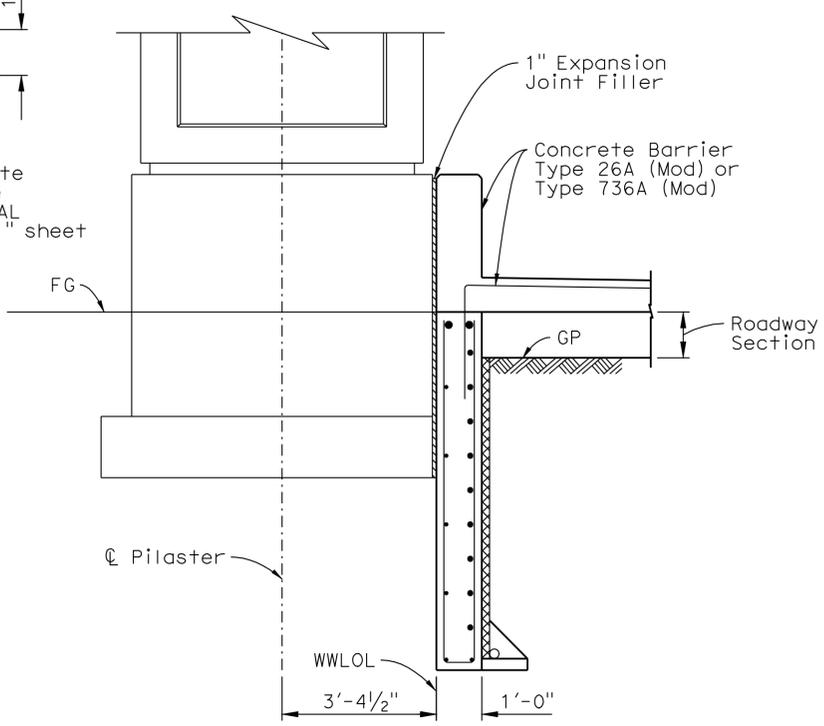


DESIGN BY R. Anderson		CHECKED T. Sanderson		<b>STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN <b>DESIGN BRANCH 10</b>	BRIDGE NO.	<b>UNION VALLEY PARKWAY OC</b> <b>ABUTMENT DETAILS No. 1</b>
DETAILS BY G. Hallstrom		CHECKED T. Sanderson				51-0338	
QUANTITIES BY R. Anderson		CHECKED H. Vu				POST MILE 83.45	
STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10)				ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	UNIT: 3589 PROJECT NUMBER & PHASE: 05000005501	CONTRACT NO.: 05-463801	DISREGARD PRINTS BEARING EARLIER REVISION DATES
				0 1 2 3	FILE => 510338Fad+06.dgn	REVISION DATES	SHEET 6 OF 23

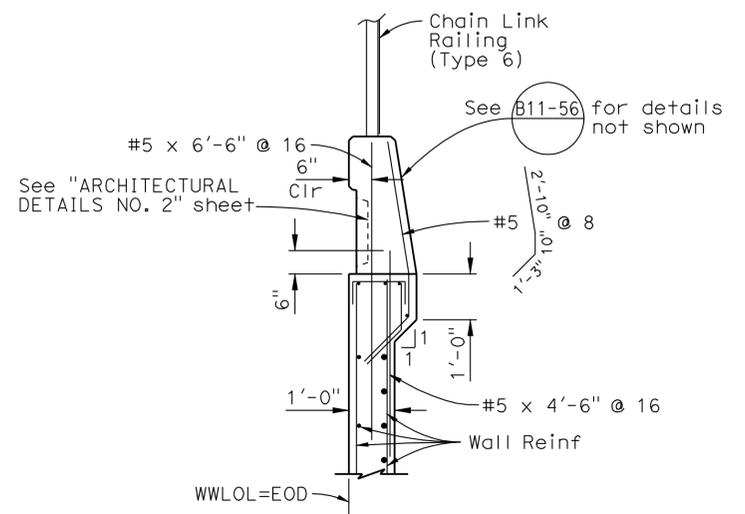
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SB	101	83.1/83.9	174	190
<i>Rene M. Anderson</i> REGISTERED CIVIL ENGINEER			12-05-11 DATE		
4-2-12 PLANS APPROVAL DATE					
<small>The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.</small>					



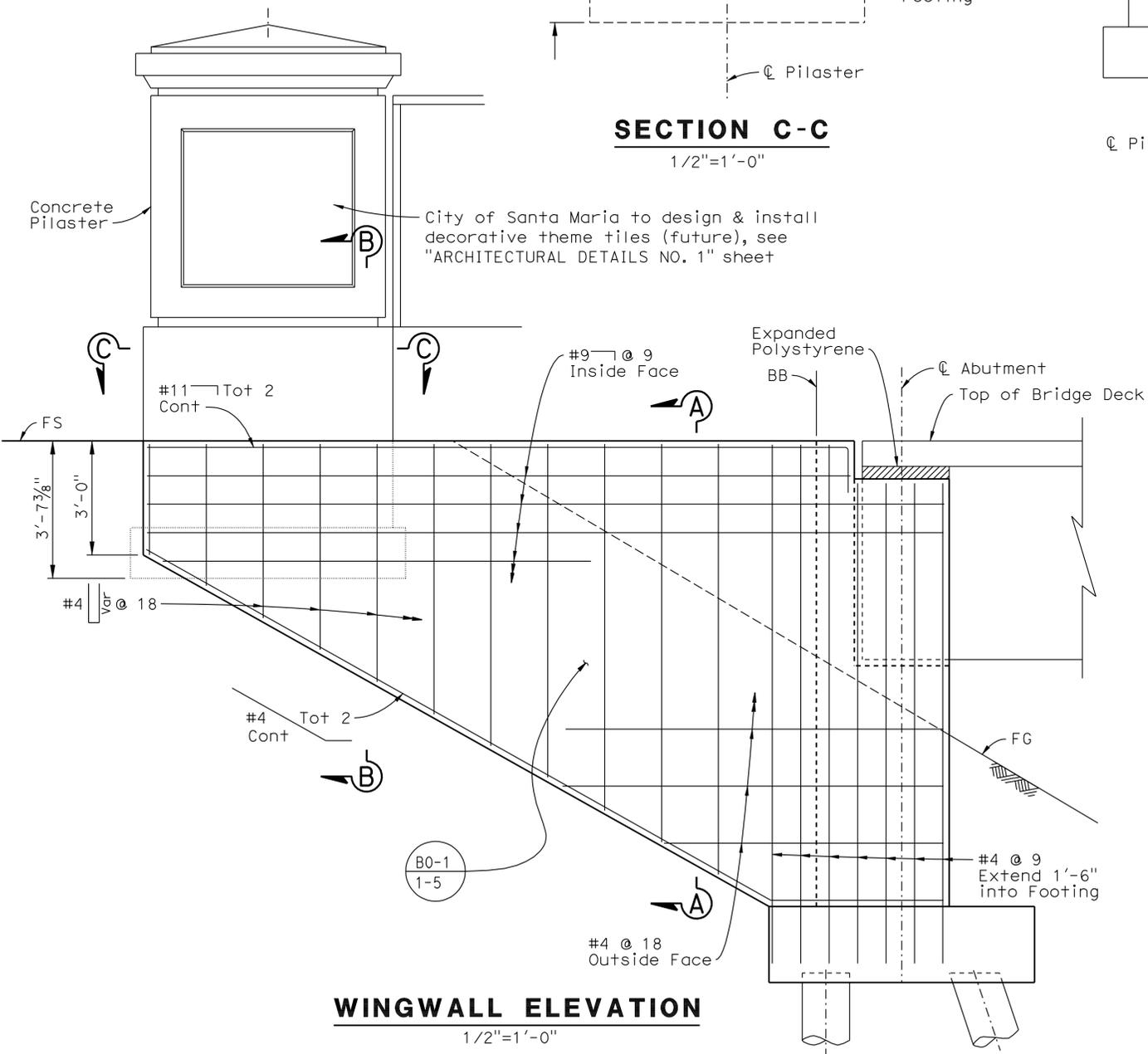
**SECTION C-C**  
1/2"=1'-0"



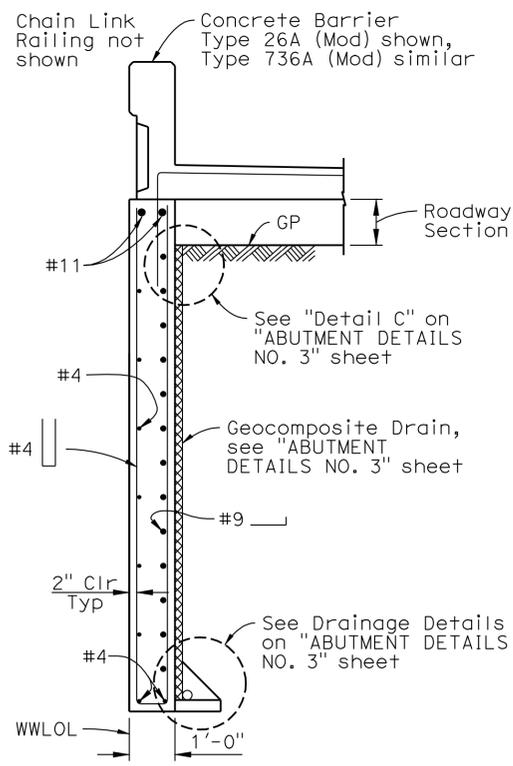
**SECTION B-B**  
1/2"=1'-0"



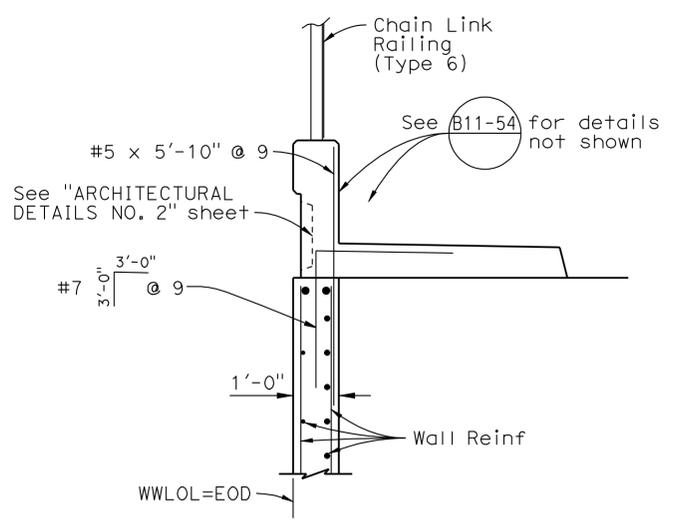
**CONCRETE BARRIER TYPE 736A (MOD)**  
1/2"=1'-0"



**WINGWALL ELEVATION**  
1/2"=1'-0"



**SECTION A-A**  
1/2"=1'-0"



**CONCRETE BARRIER TYPE 26A (MOD)**  
1/2"=1'-0"

DESIGN	BY R. Anderson	CHECKED T. Sanderson
DETAILS	BY G. Hallstrom	CHECKED T. Sanderson
QUANTITIES	BY R. Anderson	CHECKED H. Vu

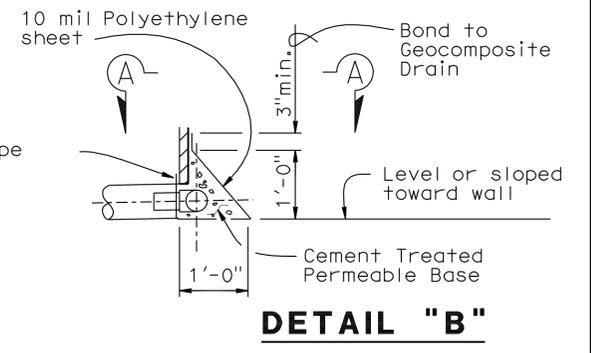
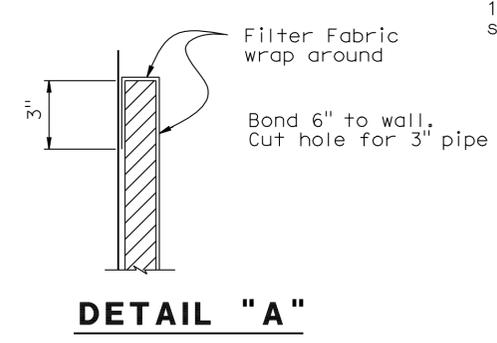
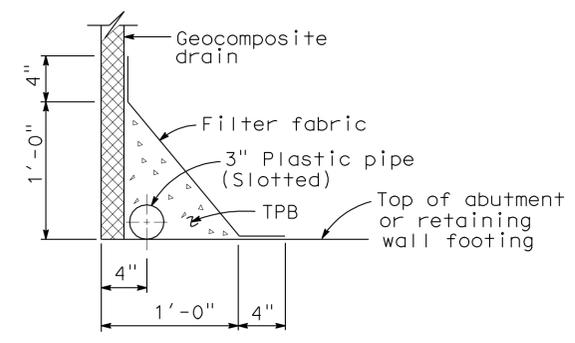
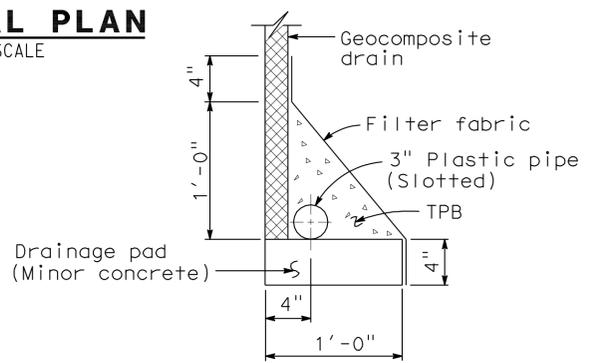
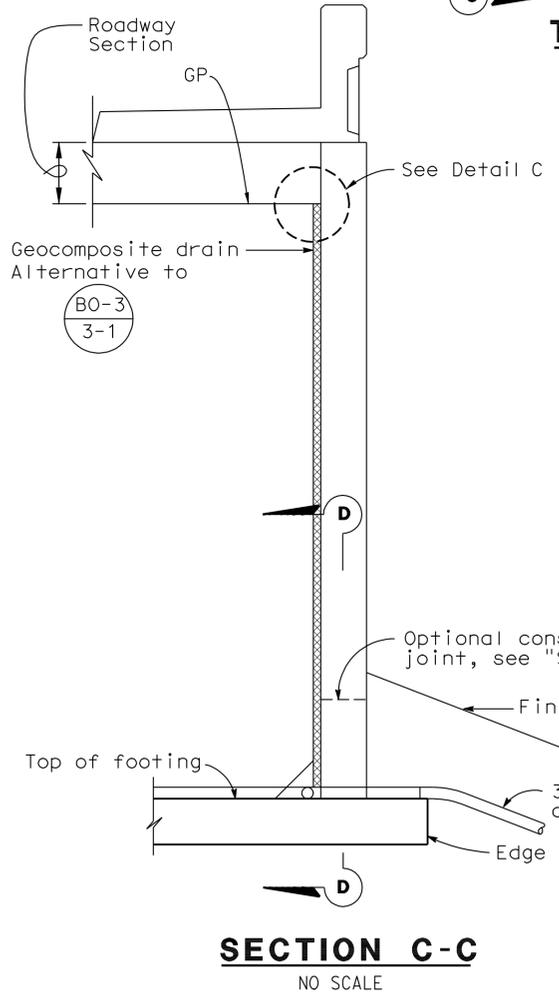
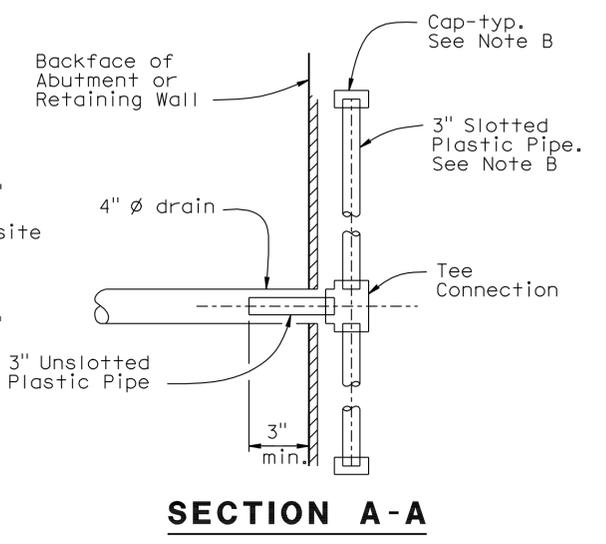
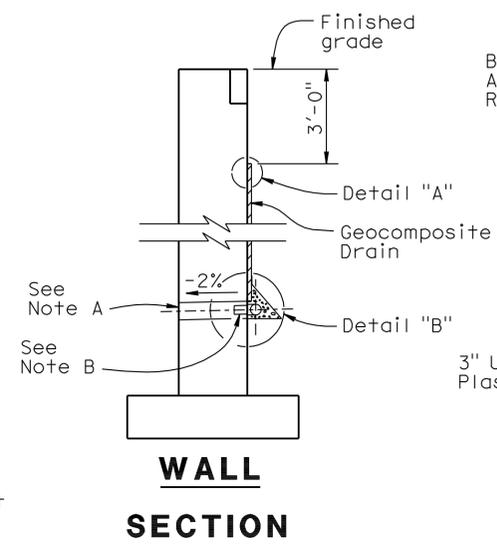
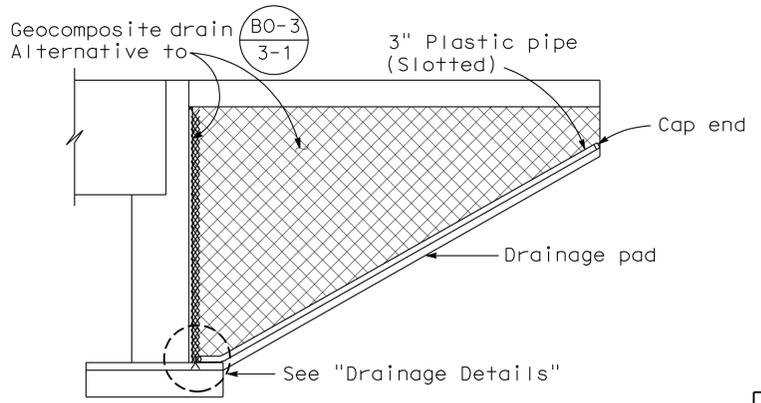
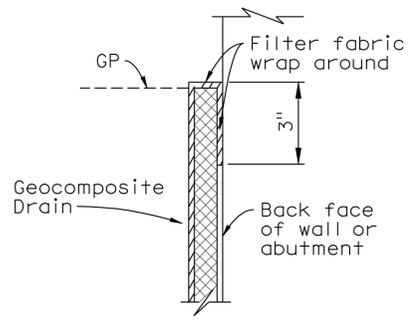
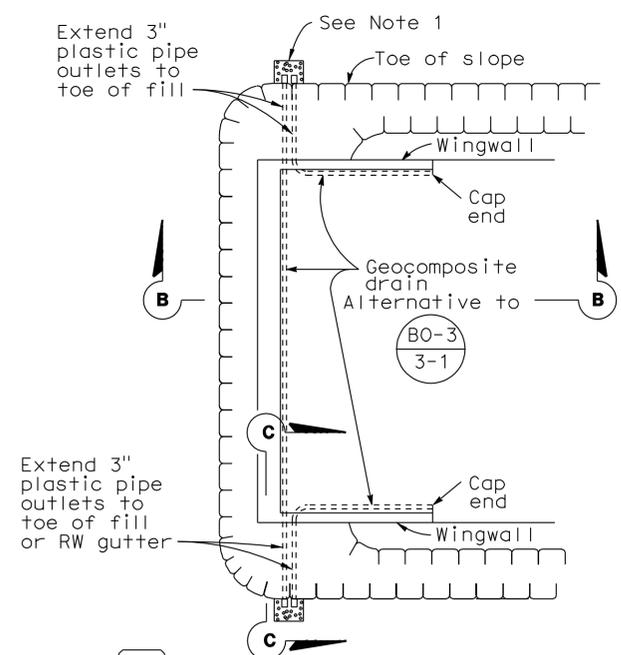
STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
**DESIGN BRANCH 10**

BRIDGE NO.	51-0338
POST MILE	83.45

**UNION VALLEY PARKWAY OC**  
**ABUTMENT DETAILS No. 2**

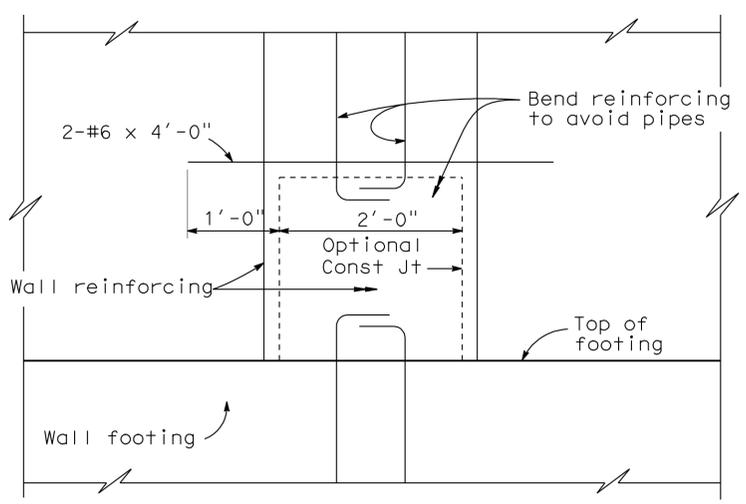
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SB	101	83.1/83.9	175	190
<i>Rene M. Anderson</i> REGISTERED CIVIL ENGINEER			12-05-11 DATE		
4-2-12 PLANS APPROVAL DATE					
<small>The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.</small>					



**WEEP HOLE AND GEOCOMPOSITE DRAIN**

ALTERNATIVE TO BRIDGE DETAIL (BO-3 3-1)

- Notes:
- A. 4" Ø drains at intermediate sag points and at 25' max center to center (9' c-c for Type 3 and 9'-3" c-c for Type 4 retaining walls). For walls adjacent to sidewalks or curbs, provide 4" cast iron or asbestos cement pipe under the sidewalk to discharge through curb face. Exposed wall drains shall be located 3"± above finished grade.
  - B. Geocomposite drain, cement treated permeable base, and 3"Ø slotted plastic pipe continuous behind retaining wall or abutment. Cap ends of pipe. Provide "Tee" connection at each 4" Ø drain.
  - C. Connect the low end of plastic pipe to the main outlet pipe as applicable.



**SECTION D-D**  
NO SCALE

- NOTES:
1. Place 1.0 ft<sup>3</sup> gravel bed at pipe outlets at toe of fill.
  2. Bends and junctions in 3" plastic pipe are 30" radius Min.

DESIGN	BY R. Anderson	CHECKED T. Sanderson
DETAILS	BY G. Hallstrom	CHECKED T. Sanderson
QUANTITIES	BY R. Anderson	CHECKED H. Vu

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
**DESIGN BRANCH 10**

BRIDGE NO.	51-0338
POST MILE	83.45

**UNION VALLEY PARKWAY OC**  
**ABUTMENT DETAILS No. 3**

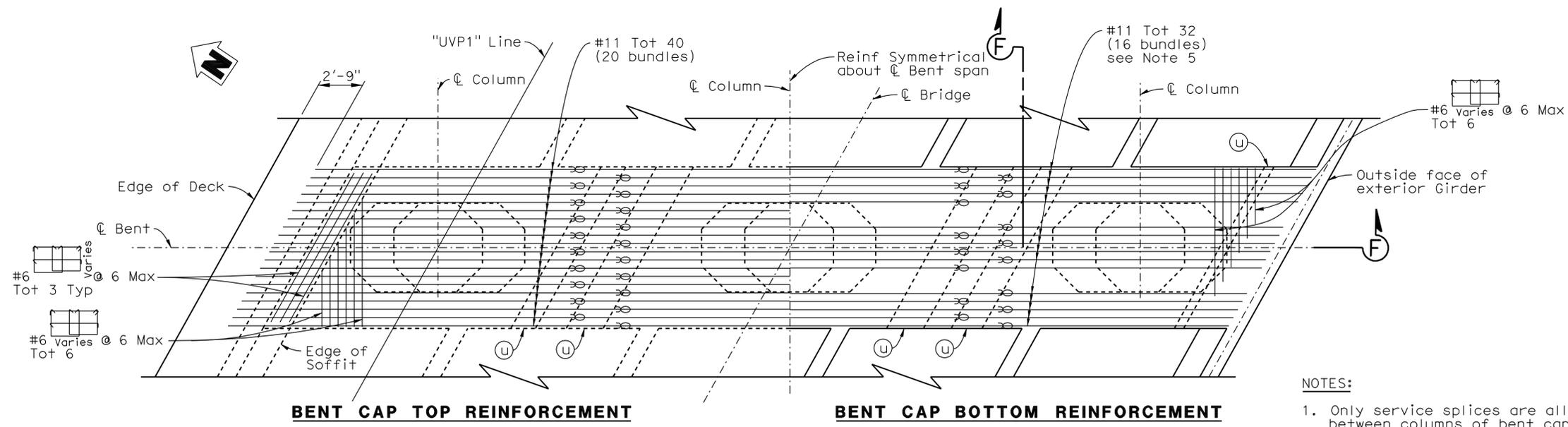
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SB	101	83.1/83.9	176	190

*Renee M. Anderson* 12-05-11  
REGISTERED CIVIL ENGINEER DATE

4-2-12  
PLANS APPROVAL DATE

R. ANDERSON  
No. C61040  
Exp. 12-31-12  
CIVIL  
STATE OF CALIFORNIA

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.



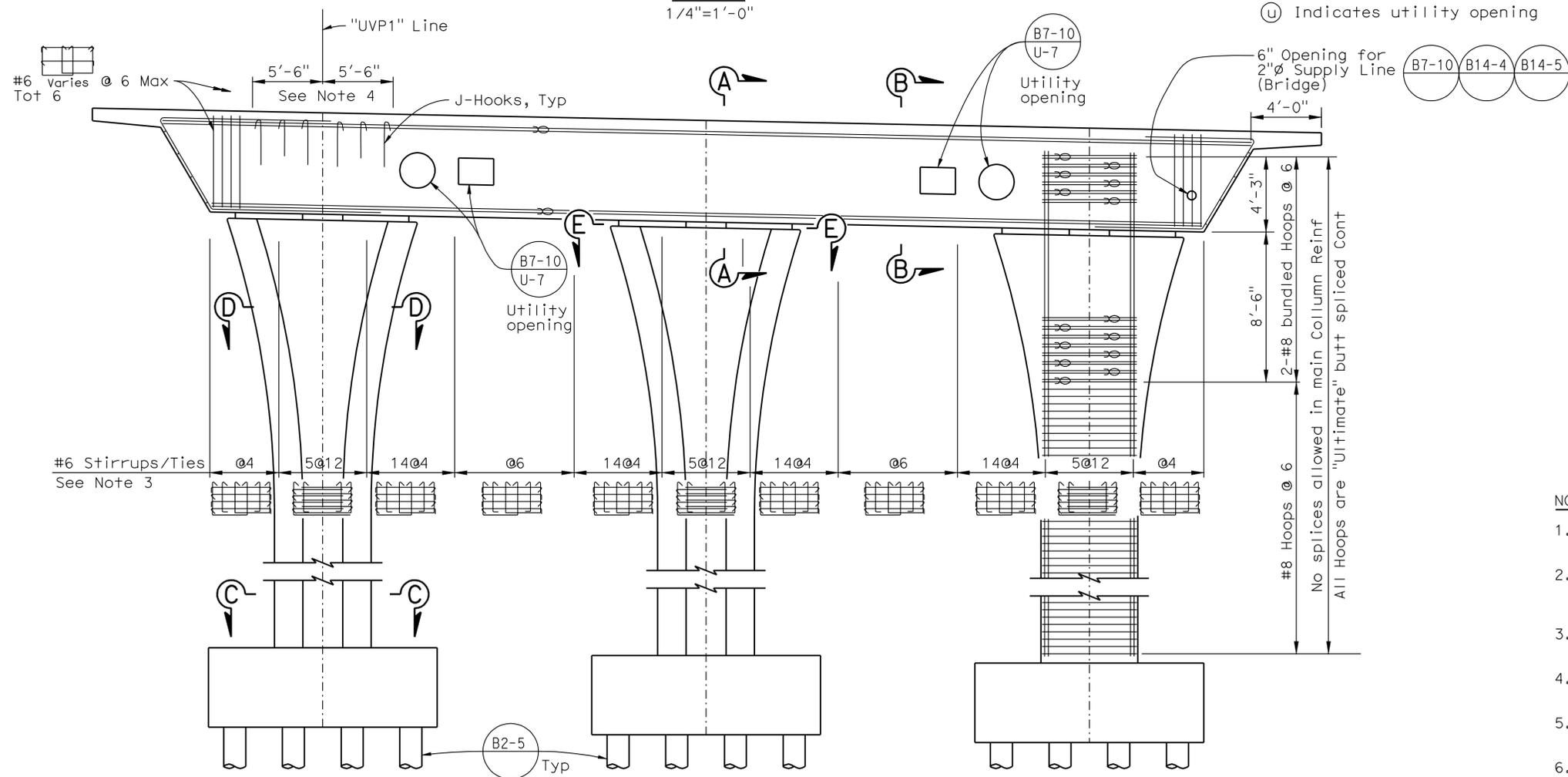
**BENT CAP TOP REINFORCEMENT**

**BENT CAP BOTTOM REINFORCEMENT**

**PLAN**  
1/4"=1'-0"

**NOTES:**

1. Only service splices are allowed within 12" of midspan between columns of bent cap.
- ⊗ Indicates bundled rebar
- ⊙ Indicates utility opening



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

**NOTES:**

1. For Section A-A and Section B-B. see "BENT DETAILS NO. 1" sheet.
2. For Section C-C, Section D-D, Section E-E, and Section F-F, see "BENT DETAILS NO. 2" sheet.
3. Place stirrups normal to Q Bent and space along Q Bent.
4. Limits for distribution of J-Hooks, total 24 per column.
5. Place 3'-3" hook on each end of top bars of each bundle as shown in "Elevation".
6. Use service splices for bent cap main bars.

DESIGN	BY R. Anderson	CHECKED T. Sanderson
DETAILS	BY G. Hallstrom	CHECKED T. Sanderson
QUANTITIES	BY R. Anderson	CHECKED H. Vu

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
**DESIGN BRANCH 10**

BRIDGE NO.	51-0338
POST MILE	83.45

**UNION VALLEY PARKWAY OC**  
**BENT LAYOUT**

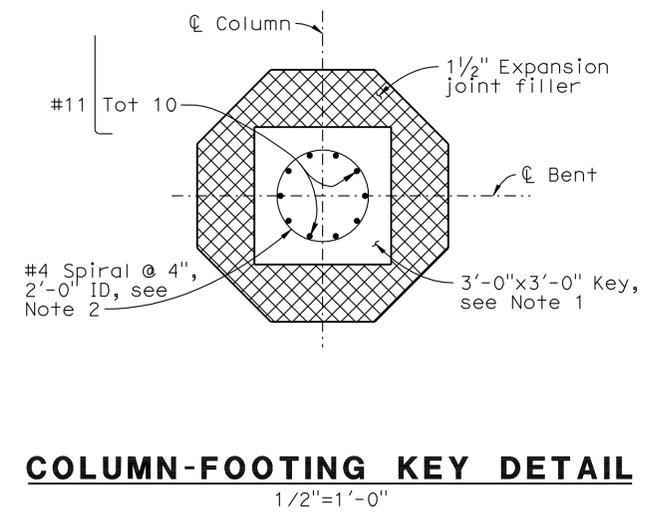
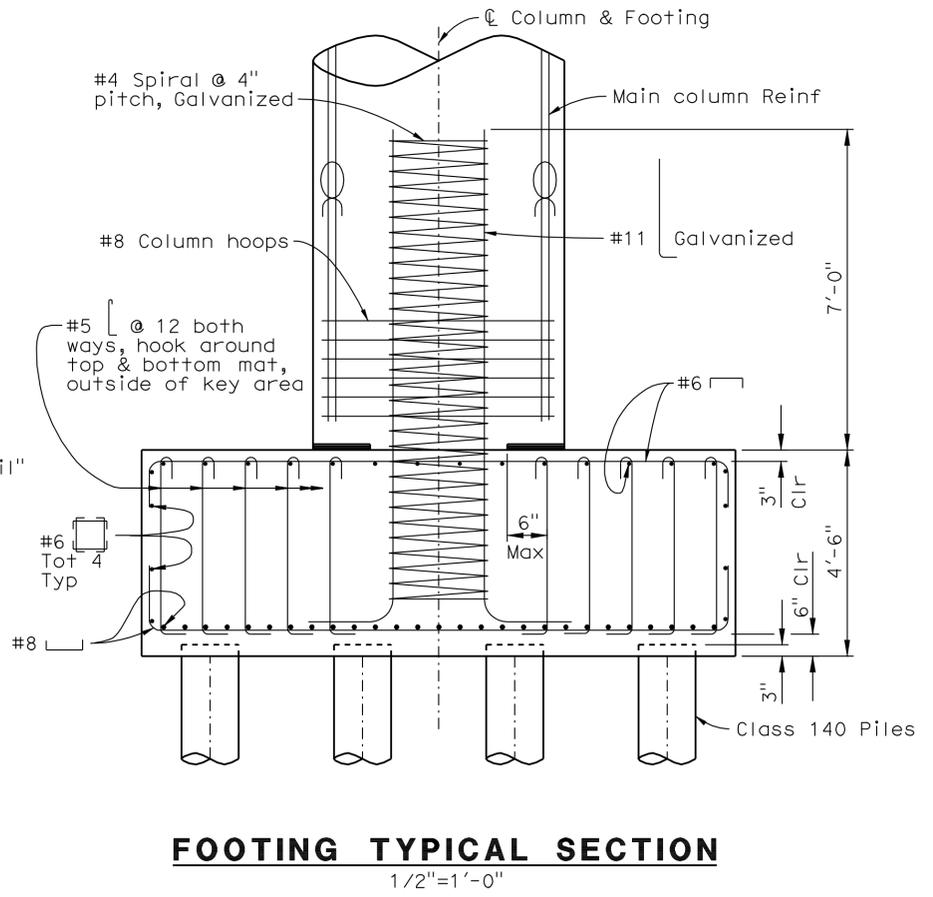
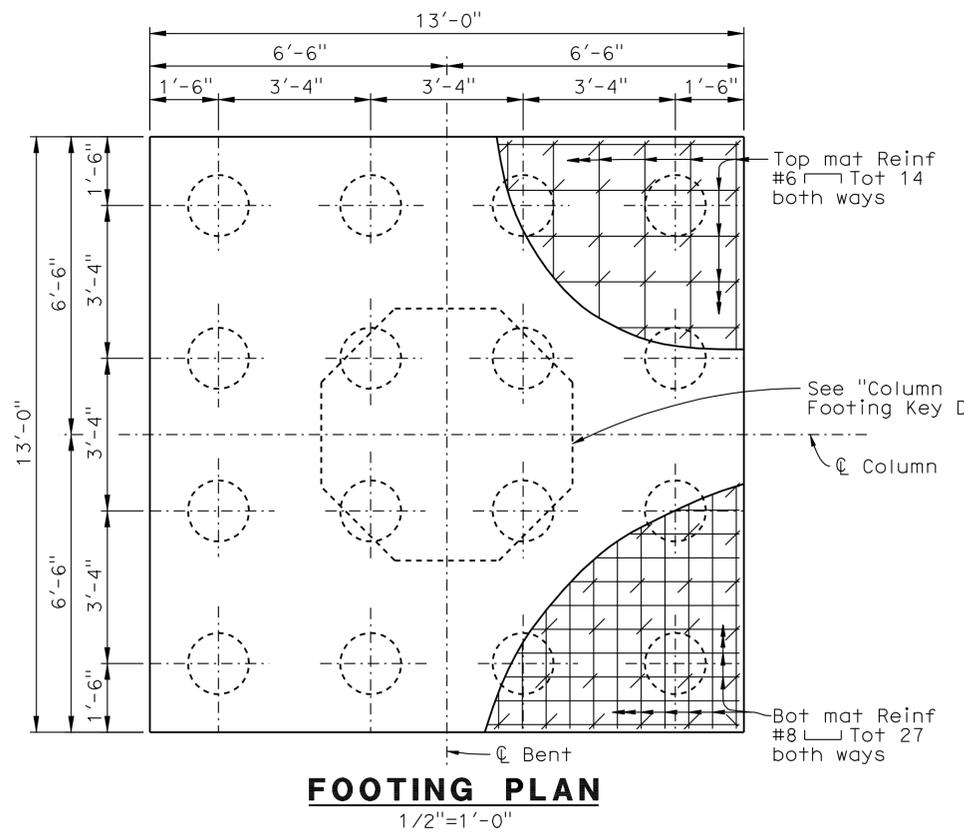
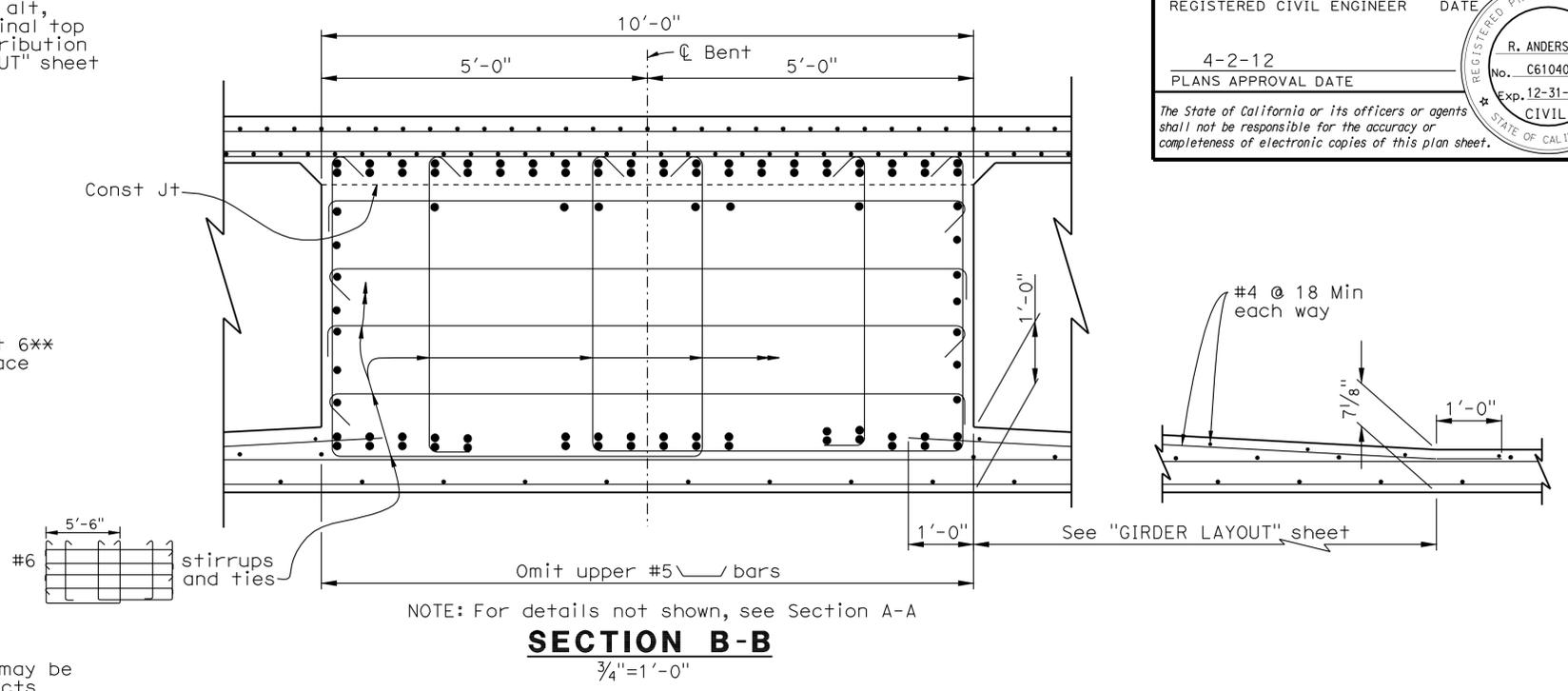
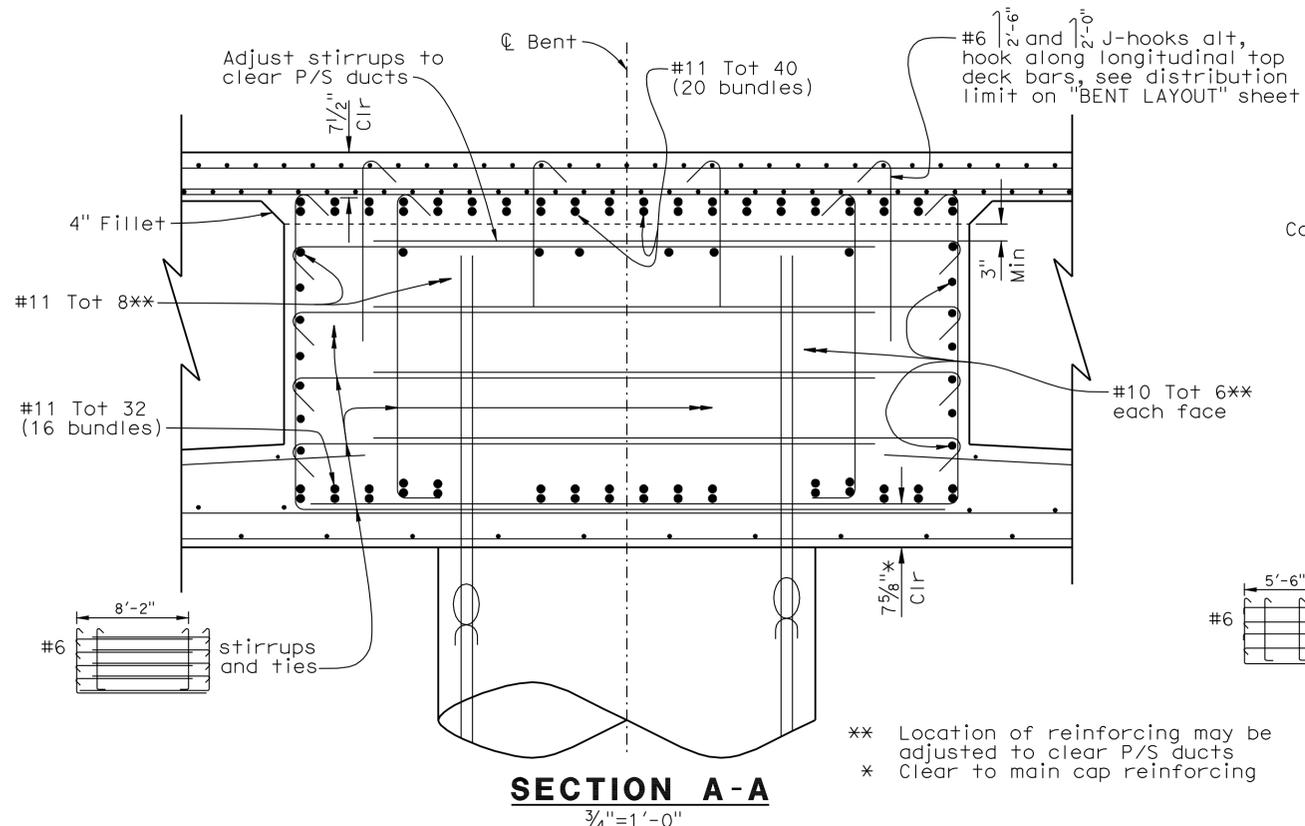
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SB	101	83.1/83.9	177	190

*Rever M. Anderson* 12-05-11  
 REGISTERED CIVIL ENGINEER DATE

4-2-12  
 PLANS APPROVAL DATE

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

REGISTERED PROFESSIONAL ENGINEER  
 R. ANDERSON  
 No. C61040  
 Exp. 12-31-12  
 CIVIL  
 STATE OF CALIFORNIA



- NOTES:
1. Key area shall be roughened to 1/4" amplitude.
  2. Spiral may be discontinuous at top of footing reinforcement with extra turn with 90° tail equal to diameter of cage.
  3. For location of Section A-A and Section B-B, see "BENT LAYOUT" sheet.

DESIGN	BY R. Anderson	CHECKED T. Sanderson
DETAILS	BY G. Hallstrom	CHECKED T. Sanderson
QUANTITIES	BY R. Anderson	CHECKED H. Vu

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION

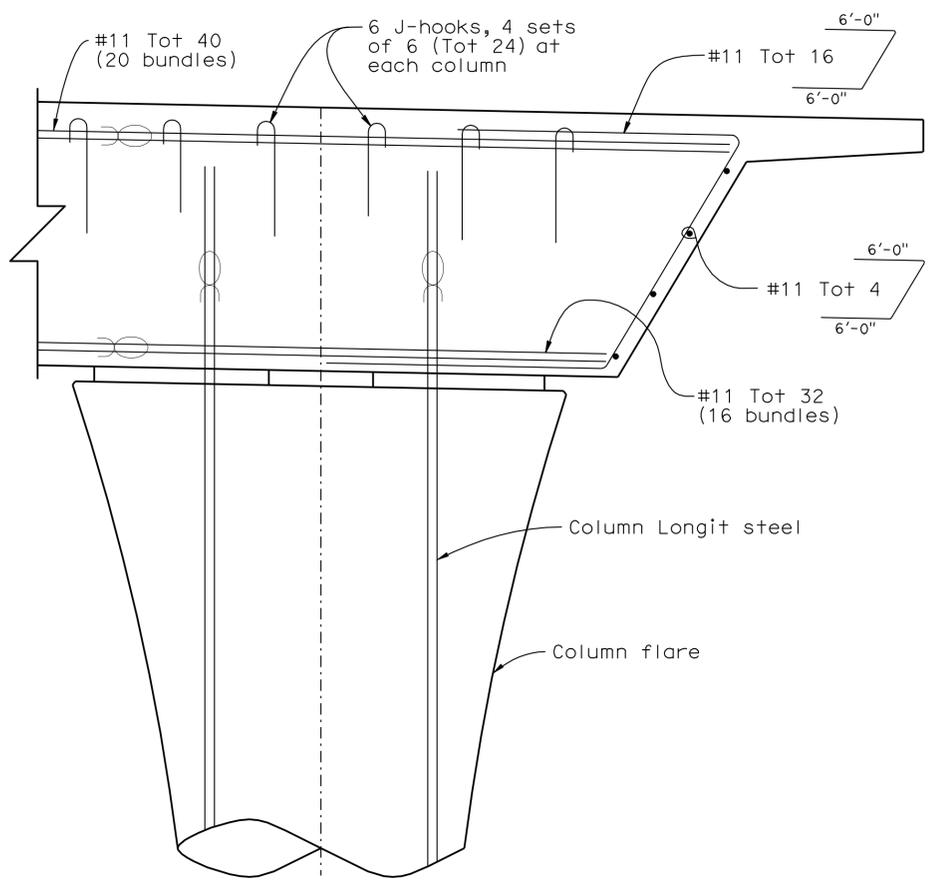
DIVISION OF ENGINEERING SERVICES  
 STRUCTURE DESIGN  
**DESIGN BRANCH 10**

BRIDGE NO. 51-0338  
 POST MILE 83.45

UNION VALLEY PARKWAY OC  
**BENT DETAILS No 1**

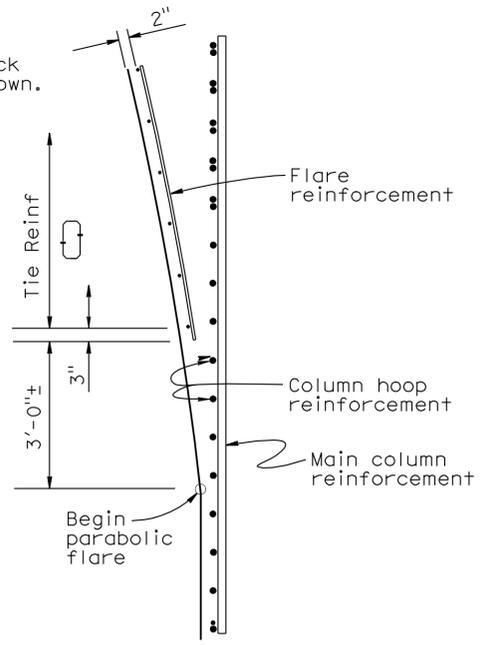
BRIDGE NO. 51-0338  
 POST MILE 83.45

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SB	101	83.1/83.9	178	190
<i>Rever M. Anderson</i> REGISTERED CIVIL ENGINEER			12-05-11 DATE		
4-2-12 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>					

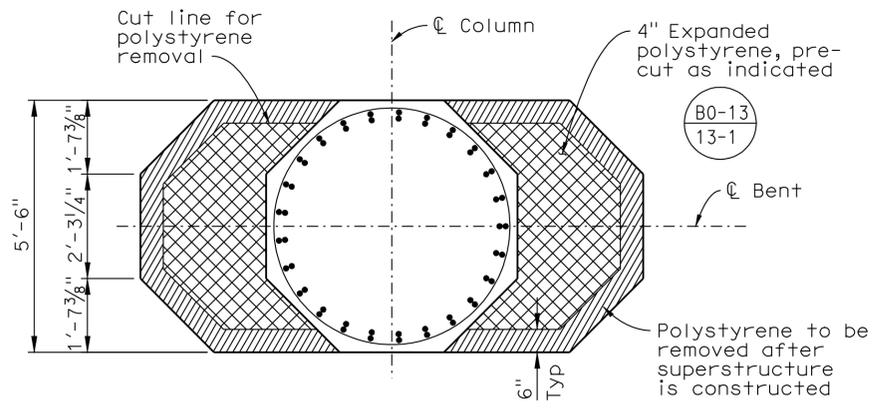


**SECTION F-F**  
1/2"=1'-0"

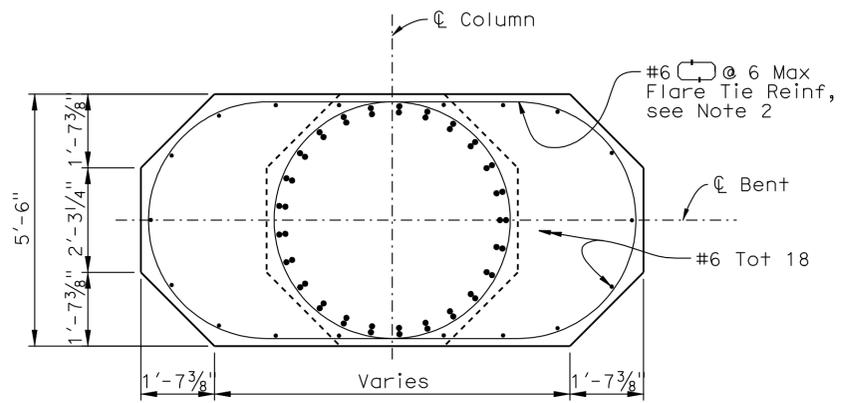
NOTE: Transverse column reinforcement and deck reinforcement not shown.



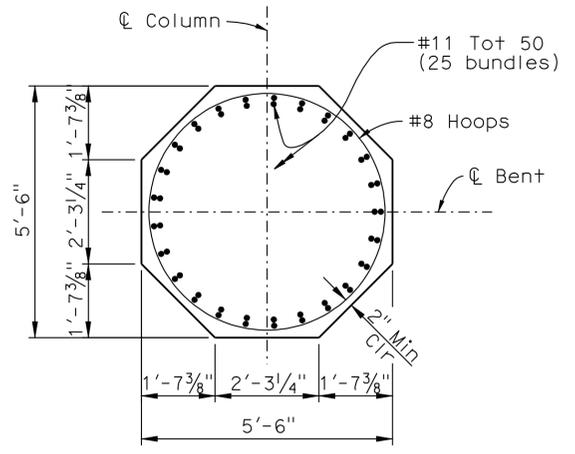
**HOOP AND TIE DETAIL**  
NO SCALE



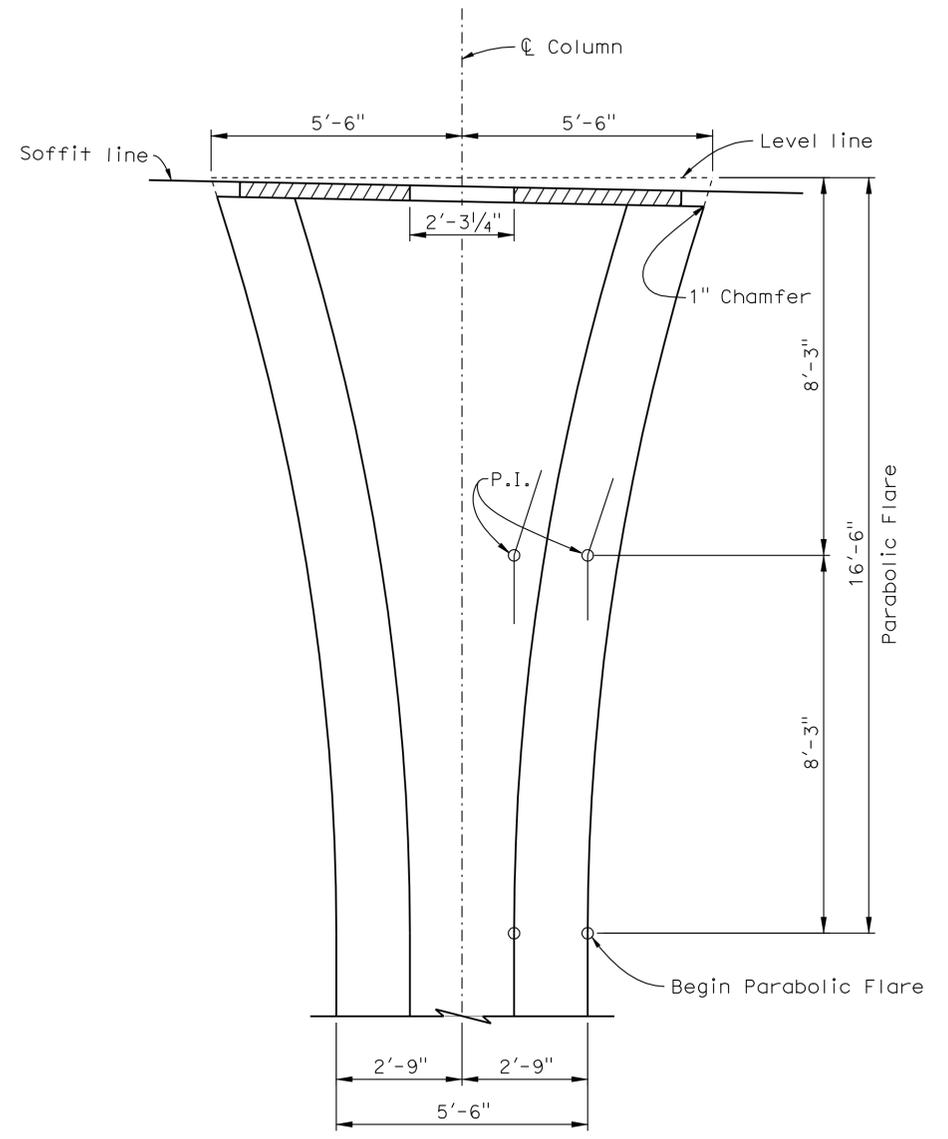
**SECTION E-E**  
1/2"=1'-0"



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



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



**COLUMN GEOMETRICS**  
NO SCALE

- NOTES:
- For locations of Section C-C, Section D-D, Section E-E, and Section F-F, see "BENT LAYOUT" sheet.
  - Splice Flare Tie Reinforcement with mechanical couplers. Stagger location of couplers.
- ⊙ Indicates bundled rebar

DESIGN	BY R. Anderson	CHECKED T. Sanderson
DETAILS	BY G. Hallstrom	CHECKED T. Sanderson
QUANTITIES	BY R. Anderson	CHECKED H. Vu

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
**DESIGN BRANCH 10**

BRIDGE NO.	51-0338
POST MILE	83.45

**UNION VALLEY PARKWAY OC**  
**BENT DETAILS No. 2**

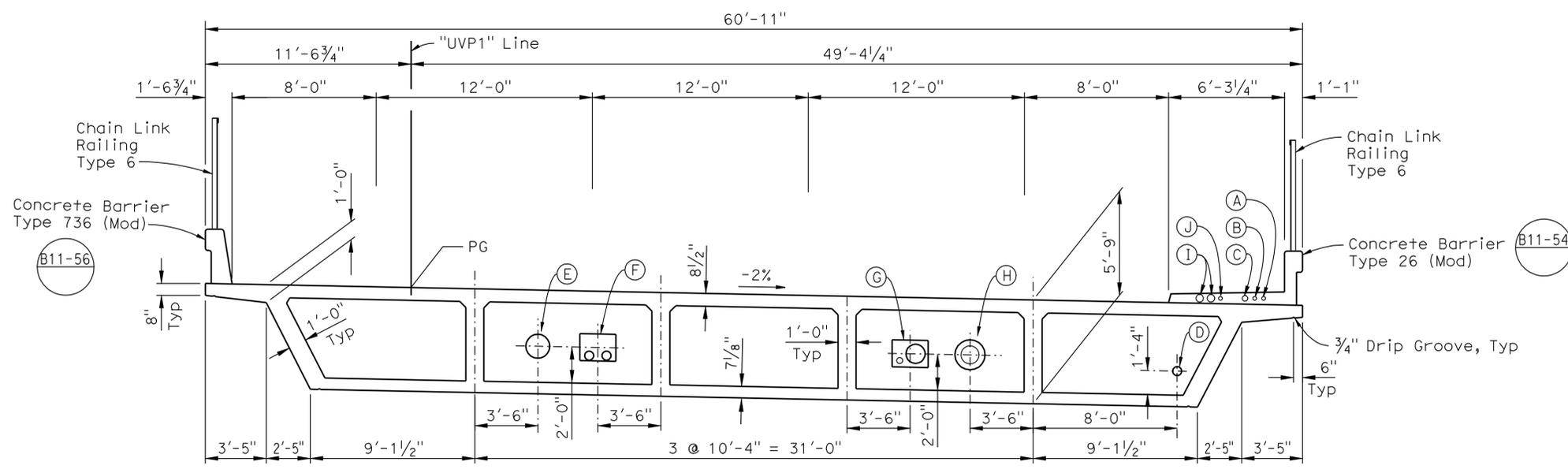
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SB	101	83.1/83.9	179	190

*Renee M. Anderson* 12-05-11  
REGISTERED CIVIL ENGINEER DATE

4-2-12  
PLANS APPROVAL DATE

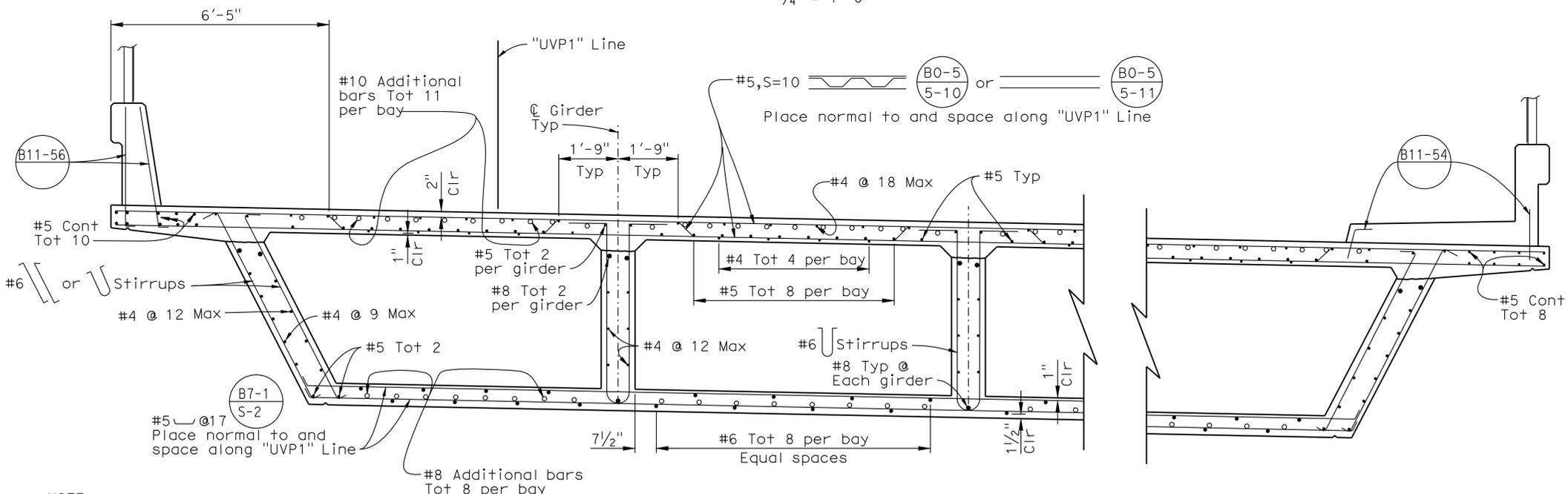
R. ANDERSON  
No. C61040  
Exp 12-31-12  
CIVIL  
STATE OF CALIFORNIA

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.



**TYPICAL SECTION**

1/4" = 1'-0"



**PART TYPICAL SECTION**

1/2" = 1'-0"

**UTILITIES:**

- (A) 2" Dia Irrigation Control Conduit, see "ROAD PLANS"
- (B) 2" Dia Electrical Conduit (PG & E), see "ROAD PLANS"
- (C) 3" Dia Electrical Conduit (Caltrans Operations), see "ROAD PLANS"
- (D) 6" Opening for 2" Dia Irrigation Line (Caltrans Landscape), see "ROAD PLANS"

**FUTURE UTILITIES:**

- (E) 8" Dia Future Sewer Main within 16" Dia casing (Laguna Sanitation District)
- (F) 1'-6" x 2'-0" Future Utility Opening for 4" Dia Oil Line and 4" Dia Gas Line (Greka Energy)
- (G) 1'-6" x 2'-0" Future Utility Opening with one 4" Dia Duct (Comcast) and XX" Dia Gas Line in 10" Dia casing (So. Calif Gas)
- (H) 12" Future Water Main within 20" Dia casing (Golden State Water)
- (I) Two 5" Dia Openings for Future Utilities
- (J) 2" Dia Future Electrical Conduit (Caltrans Electrical)

**NOTE:**

See "REINFORCEMENT DETAILS" sheet for additional bars in top and bottom slabs.

DESIGN	BY R. Anderson	CHECKED T. Sanderson
DETAILS	BY G. Hallstrom	CHECKED T. Sanderson
QUANTITIES	BY R. Anderson	CHECKED H. Vu

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
**DESIGN BRANCH 10**

BRIDGE NO.	51-0338
POST MILE	83.45

**UNION VALLEY PARKWAY OC**  
**TYPICAL SECTION**

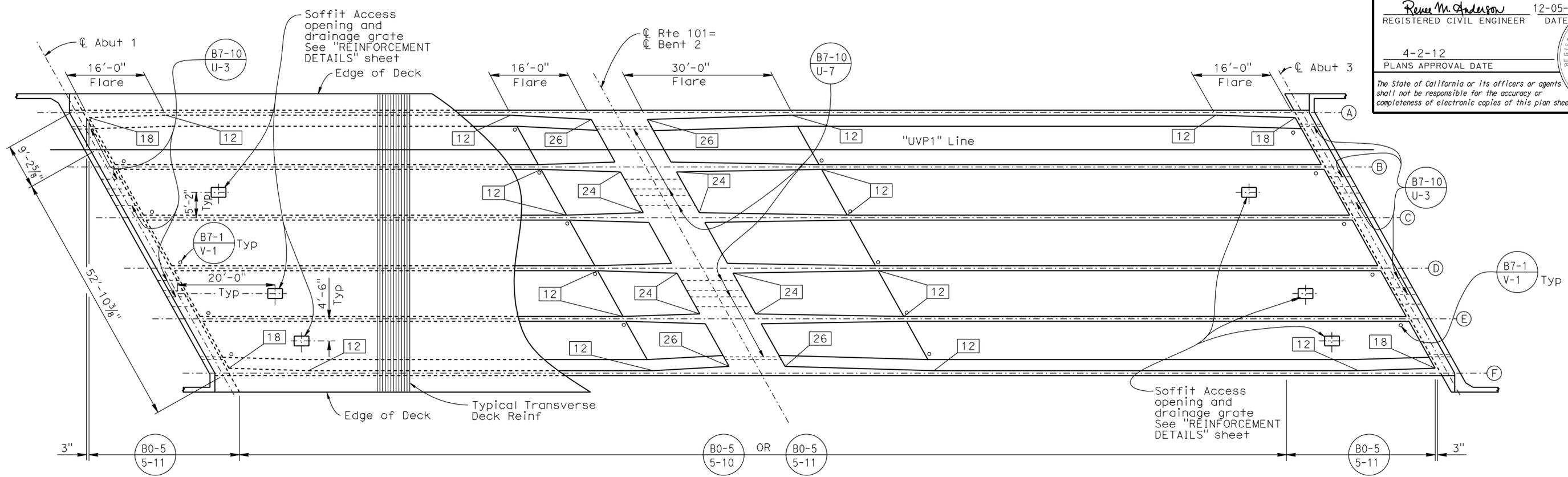
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SB	101	83.1/83.9	180	190

**Rene M. Anderson** 12-05-11  
 REGISTERED CIVIL ENGINEER DATE

4-2-12  
 PLANS APPROVAL DATE

**R. ANDERSON**  
 No. C61040  
 Exp. 12-31-12  
 CIVIL  
 STATE OF CALIFORNIA

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.



NOTE: See "GIRDER REINFORCEMENT" sheet for transverse reinforcement near abutment diaphragm.

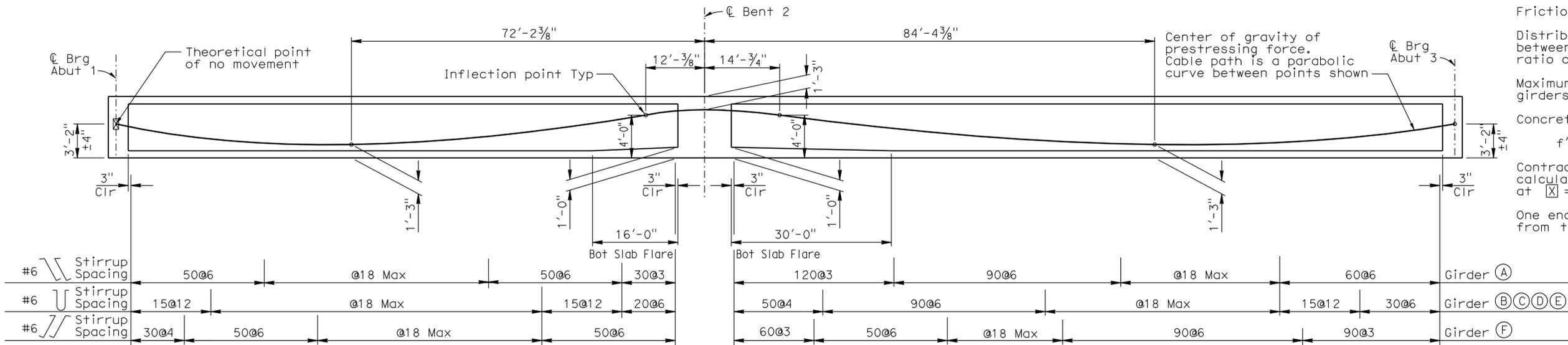
**GIRDER LAYOUT**  
 $\frac{3}{32}'' = 1' - 0''$

**NOTES:**

- For locations and sizes of utility openings, see "TYPICAL SECTION" sheet.
- XX Denotes stem girder width.
- o Denotes soffit vent.

**PRESTRESSING NOTES:**

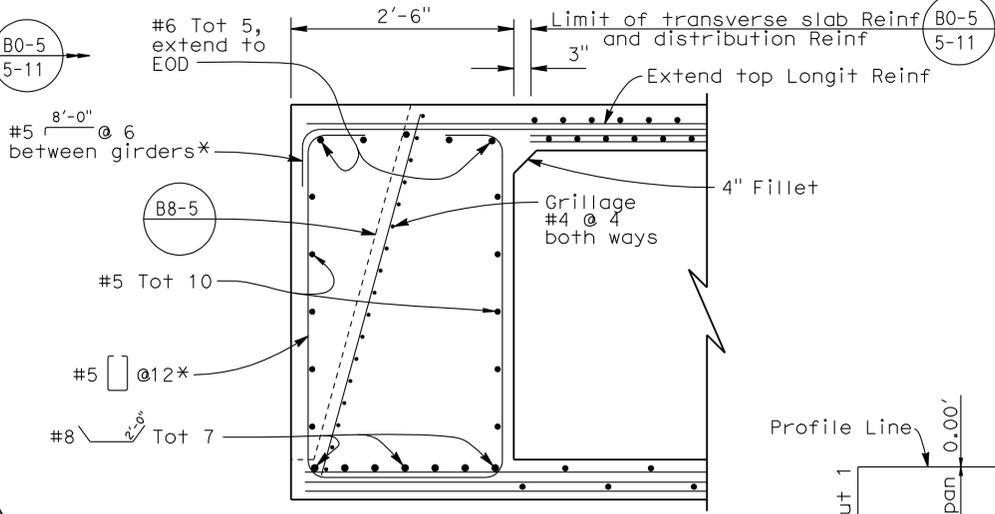
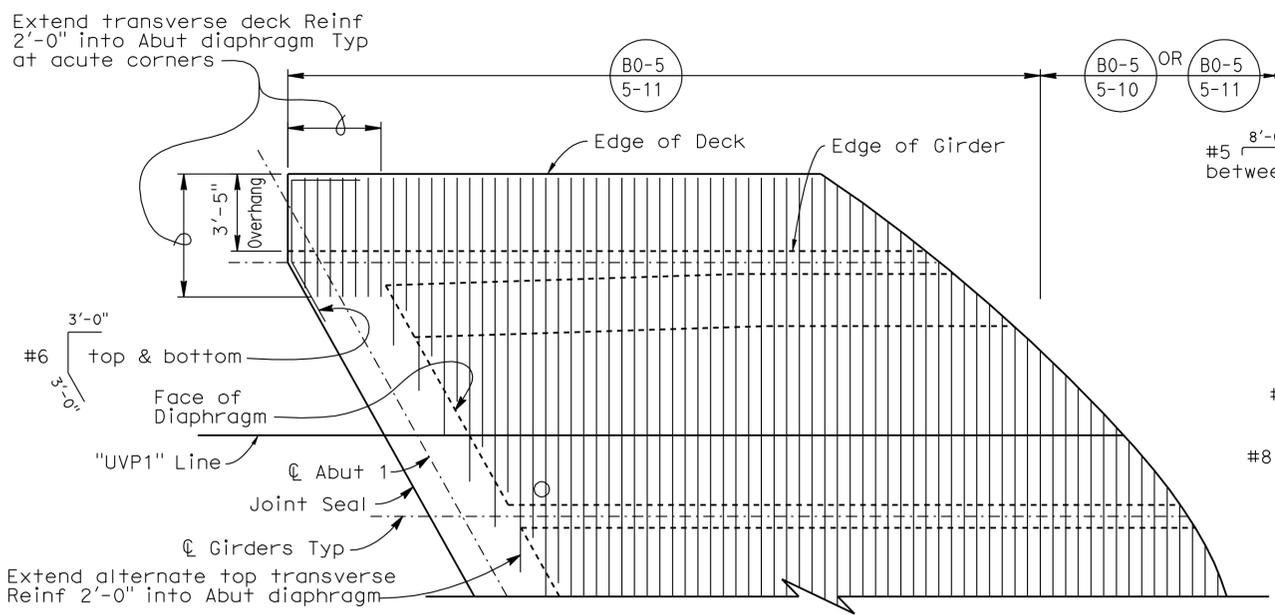
270 ksi Low Relaxation Strand:  
 Pjack = 12,900k  
 Anchor Set =  $\frac{3}{8}''$   
 Number of Girders = 6  
 Friction wobble coefficient  $K=0.0002(1/F+t)$   
 Distribution of prestress force ( $P_{jack}$ ) between girders shall not exceed the ratio of 3:2.  
 Maximum final force variation between girders shall not exceed 725k.  
 Concrete:  $f'_c = 4000\text{psi @ 28 days}$   
 $f'_c i = 3600\text{psi @ time of stressing}$   
 Contractor shall submit elongation calculations based on initial stress at  $X = 0.915$  times jacking stress.  
 One end stressing shall be performed from the long-span end only.



**LONGITUDINAL SECTION**  
 NO SCALE

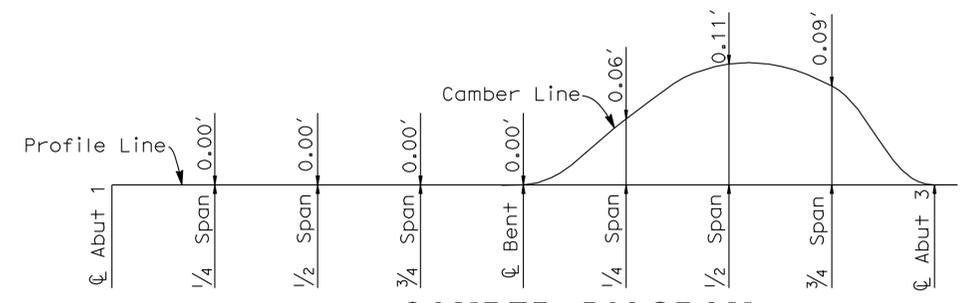
DESIGN BY R. Anderson	BY T. Sanderson	CHECKED T. Sanderson	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN <b>DESIGN BRANCH 10</b>	BRIDGE NO. 51-0338	<b>UNION VALLEY PARKWAY OC GIRDER LAYOUT</b>
					POST MILE 83.45	
					REVISION DATES 11-19-10 12-05-11 11-08-11	
DETAILS BY G. Hallstrom	BY T. Sanderson	CHECKED T. Sanderson	UNIT: 3589 PROJECT NUMBER & PHASE: 05000005501	CONTRACT NO.: 05-463801	DISREGARD PRINTS BEARING EARLIER REVISION DATES	SHEET 13 OF 23
QUANTITIES BY R. Anderson	BY H. Vu	CHECKED H. Vu	STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10)	ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	FILE => 5103381g_1o13.dgn	

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SB	101	83.1/83.9	181	190
<i>Rene M. Anderson</i> REGISTERED CIVIL ENGINEER			12-05-11 DATE		
4-2-12 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>					



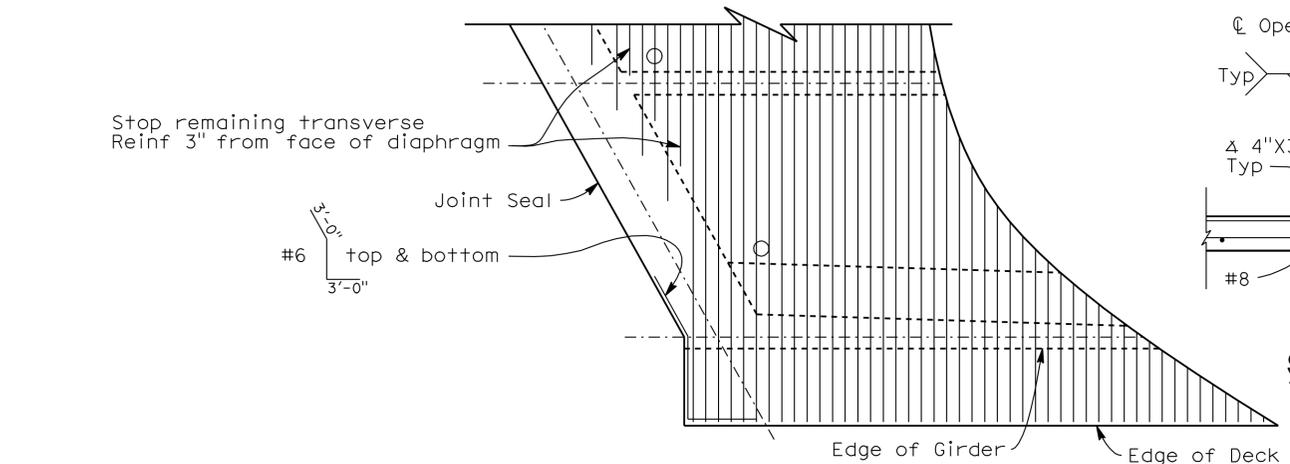
**END DIAPHRAGM**  
NO SCALE

NOTE: \* Place parallel to girders and space perpendicular to centerline of girder

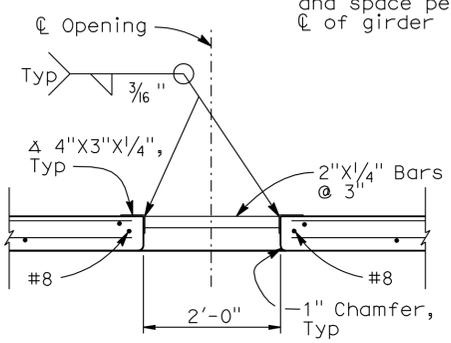


**CAMBER DIAGRAM**  
NO SCALE

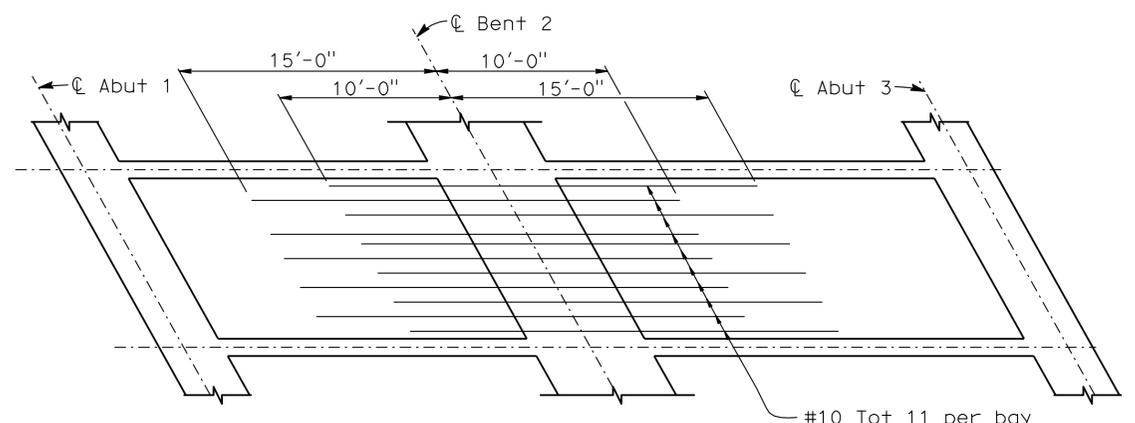
Does not include allowance for falsework settlement



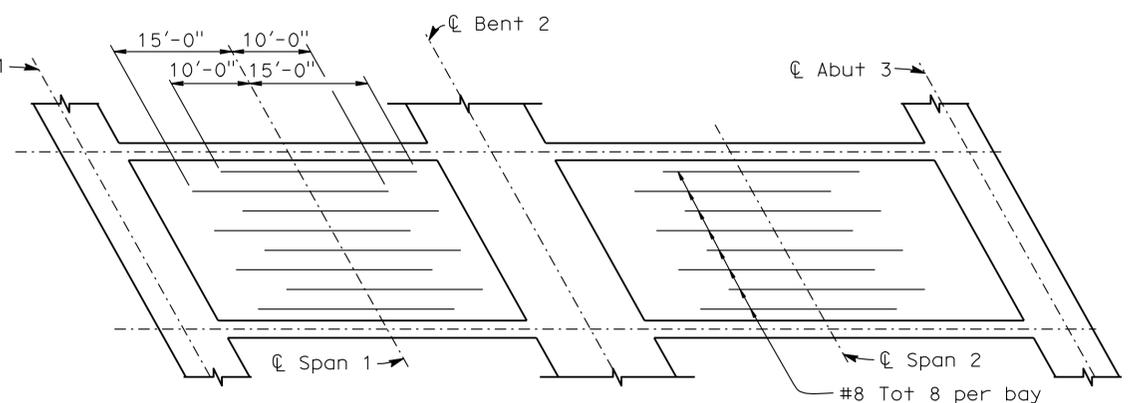
**DECK CORNER TRANSVERSE REINFORCEMENT**  
NO SCALE



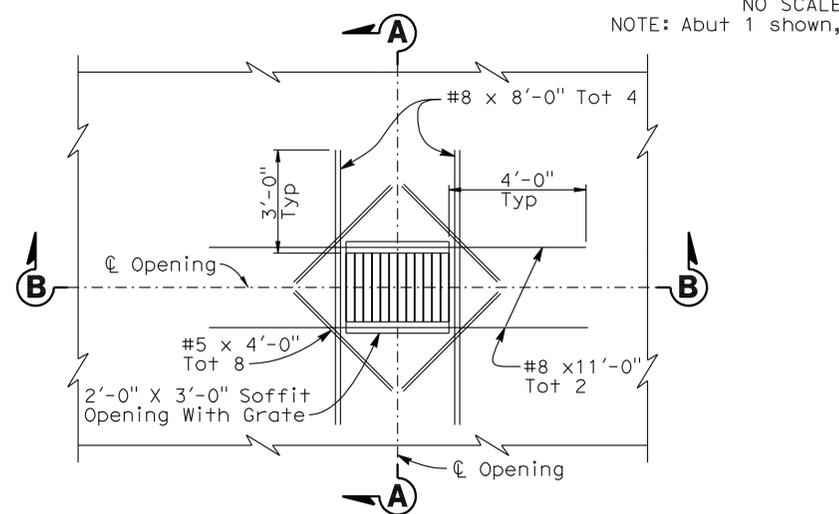
**SECTION A-A**  
NO SCALE



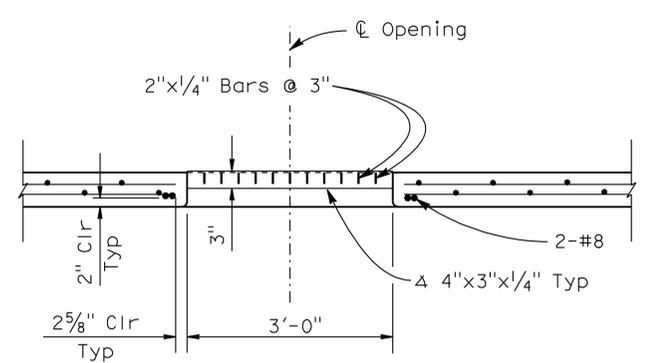
**ADDITIONAL TOP REINFORCEMENT**  
NO SCALE



**ADDITIONAL BOTTOM REINFORCEMENT**  
NO SCALE



**SOFFIT OPENING & DRAINAGE GRATE DETAIL**  
NO SCALE

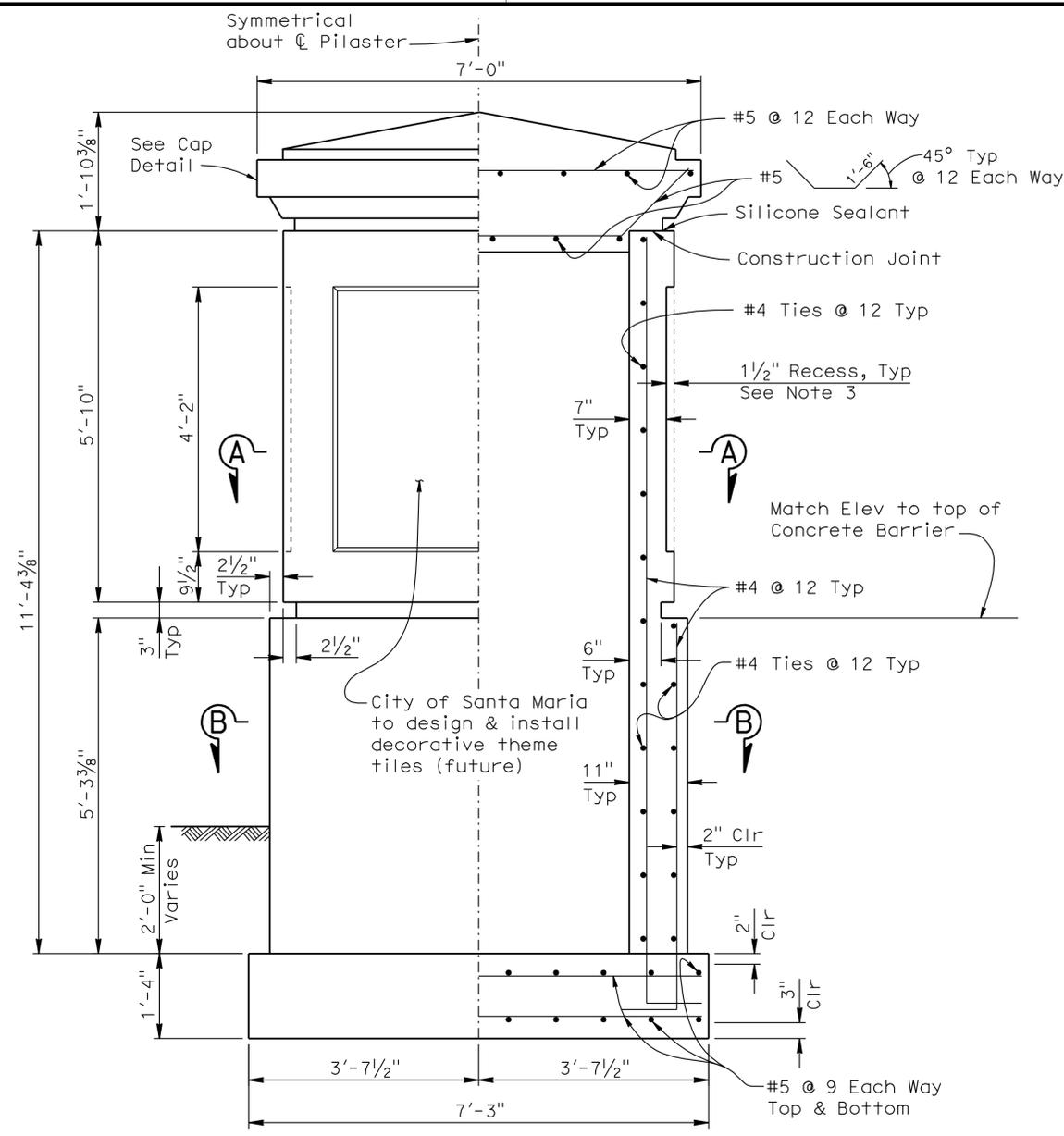


**SECTION B-B**  
NO SCALE

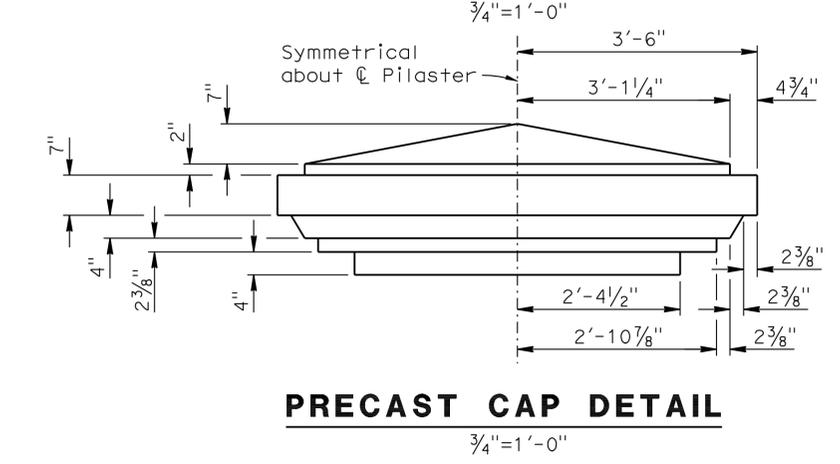
NOTE: For locations of Soffit Opening & Drainage Grate, see "GIRDER LAYOUT" sheet.

DESIGN	BY R. Anderson	CHECKED T. Sanderson	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN <b>DESIGN BRANCH 10</b>	BRIDGE NO.	<b>UNION VALLEY PARKWAY OC</b> <b>REINFORCEMENT DETAILS</b>
DETAILS	BY G. Hallstrom	CHECKED T. Sanderson			51-0338	
QUANTITIES	BY R. Anderson	CHECKED H. Vu			POST MILE 83.45	

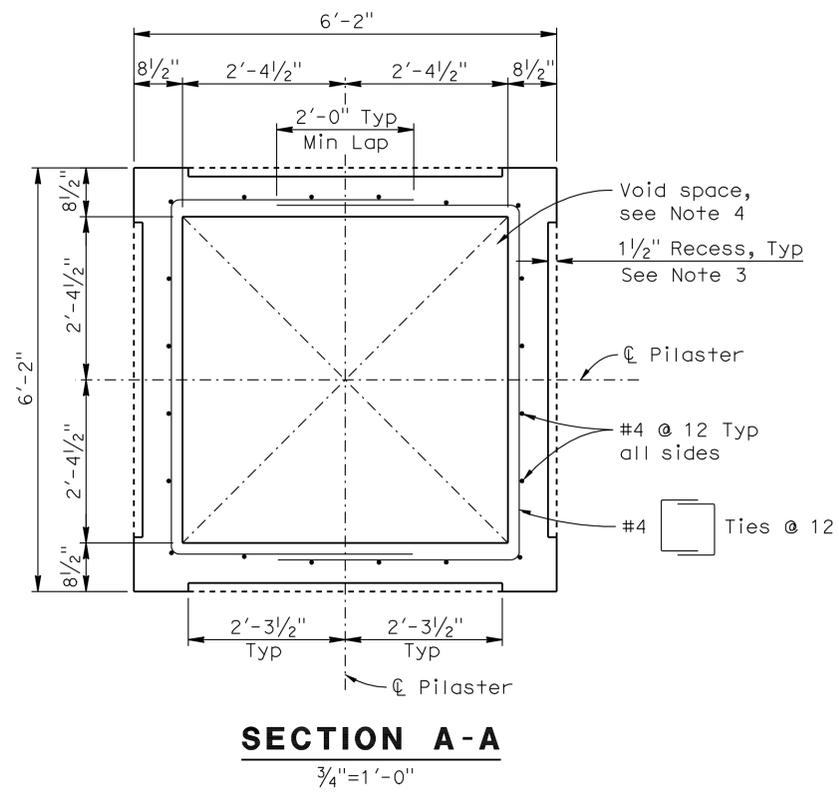
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SB	101	83.1/83.9	182	190
<i>Renee M. Anderson</i> REGISTERED CIVIL ENGINEER			12-05-11 DATE		
4-2-12 PLANS APPROVAL DATE					
<small>The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.</small>					



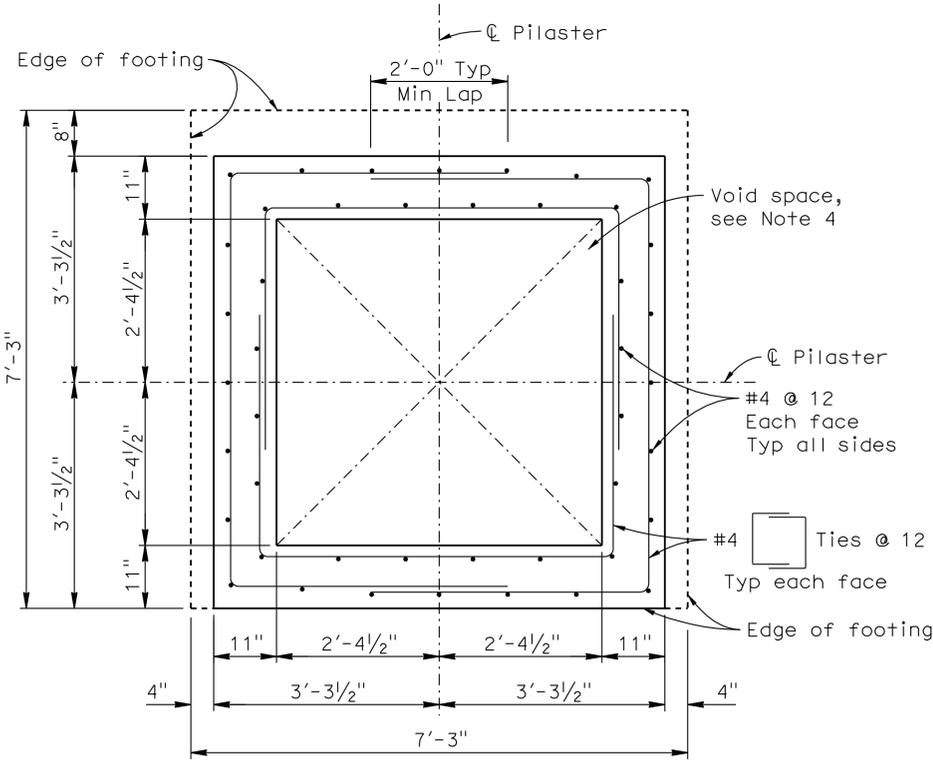
**PILASTER ELEVATION**  
3/4"=1'-0"



**PRECAST CAP DETAIL**  
3/4"=1'-0"



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



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

**DESIGN NOTES:**

- DESIGN:**  
Uniform Building Code 1997 edition and the Building Design Specifications.
- DESIGN WIND LOAD** 30psf      **DESIGN SEISMIC LOAD** 0.3 Dead Load
- REINFORCED CONCRETE** (Strength Design Method)  
 $f'_c = 3600\text{psi}$   
 $f_y = 60\text{ksi}$
- SPREAD FOOTING**  
 Allowable Bearing Pressure = 2000psf  
 Design Bearing Pressure = 1000psf  
 Ultimate Bearing Capacity = 6200psf  
 Ultimate Design Pressure = 3900psf
- STRENGTH REDUCTION FACTORS,  $\phi$**   
 Reinforced Concrete:  
 For Flexure..... $\phi = 0.90$   
 For Shear..... $\phi = 0.85$
- FACTORS OF SAFETY FOR SPREAD FOOTING DESIGN**  
 Overturning..... 1.5 Minimum  
 Sliding..... 1.2 Minimum

**NOTES:**

- Class 1 surface finish shall be applied to Pilaster and Cap.
- Footings and Pilaster designed by the ultimate strength method.
- 4'-7" wide x 4'-2" high City of Santa Maria decorative theme tile (future), Typ all sides.
- The contractor shall remove all formwork from inside of Pilaster prior to placement of cap.

DESIGN	BY R. Anderson	CHECKED T. Sanderson
DETAILS	BY G. Hallstrom	CHECKED T. Sanderson
QUANTITIES	BY R. Anderson	CHECKED H. Vu

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES  
STRUCTURE DESIGN  
**DESIGN BRANCH 10**

BRIDGE NO.	51-0338
POST MILE	83.45

**UNION VALLEY PARKWAY OC**  
**ARCHITECTURAL DETAILS No. 1**

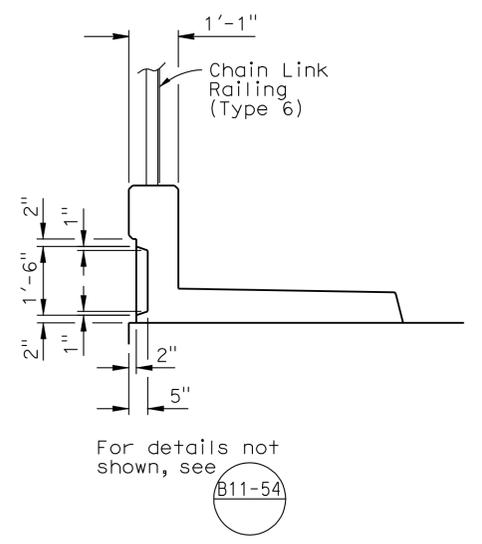
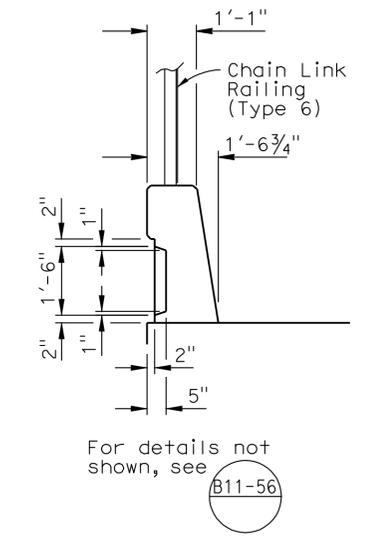
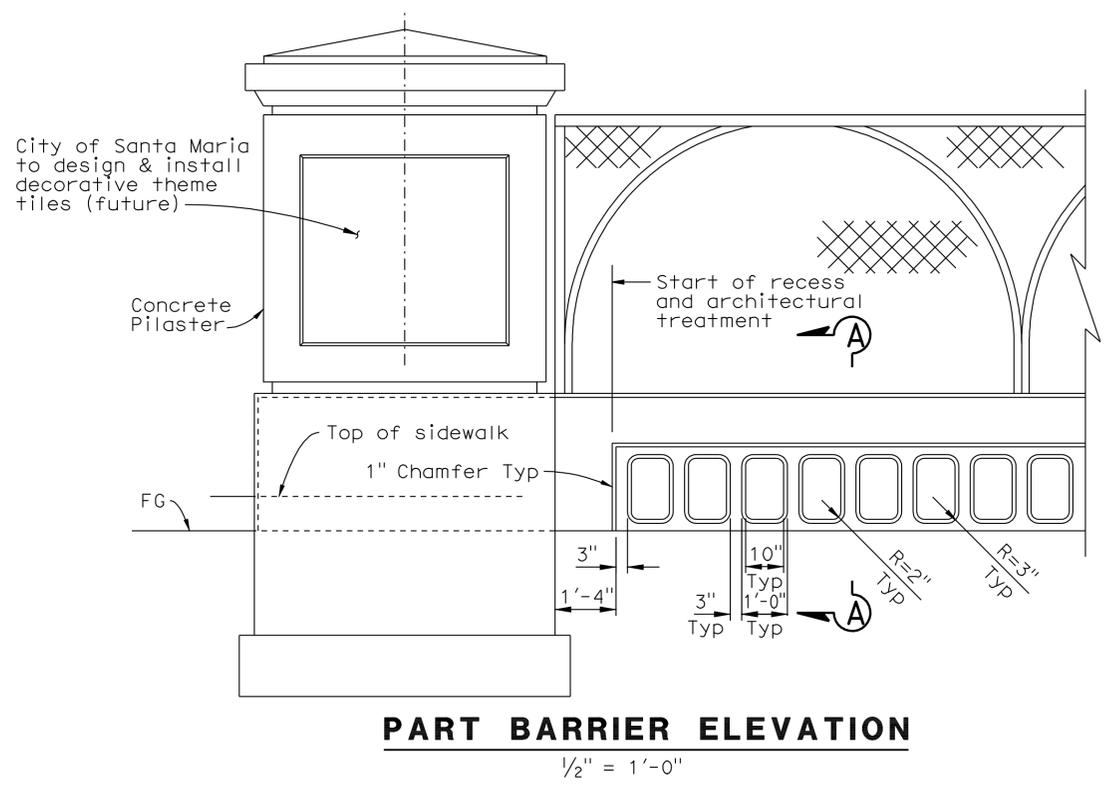
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SB	101	83.1/83.9	183	190

*Renee M. Anderson* 12-05-11  
REGISTERED CIVIL ENGINEER DATE

4-2-12  
PLANS APPROVAL DATE

R. ANDERSON  
No. C61040  
Exp. 12-31-12  
CIVIL  
STATE OF CALIFORNIA

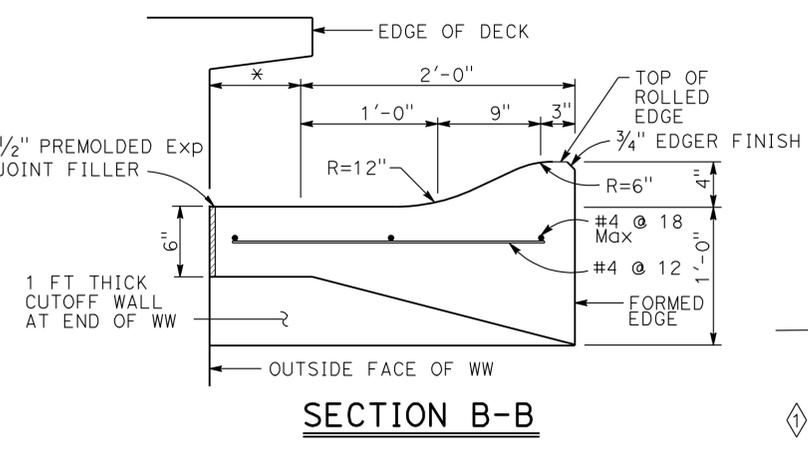
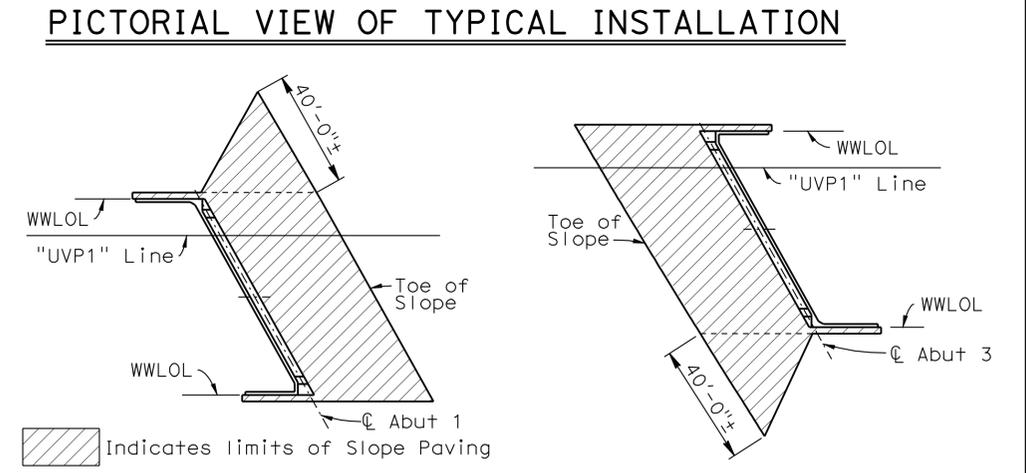
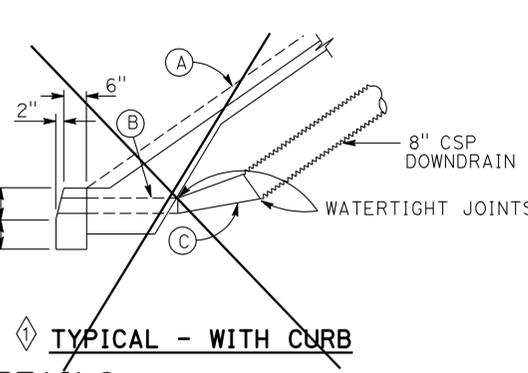
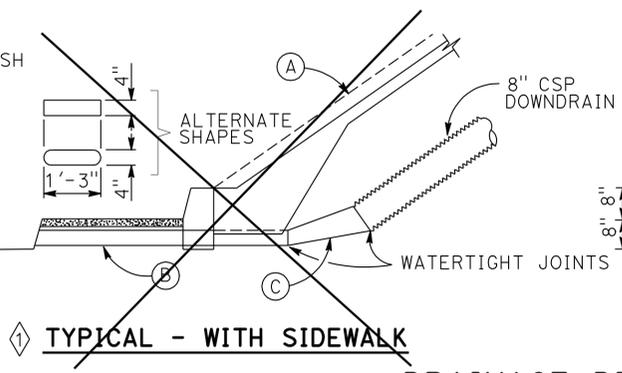
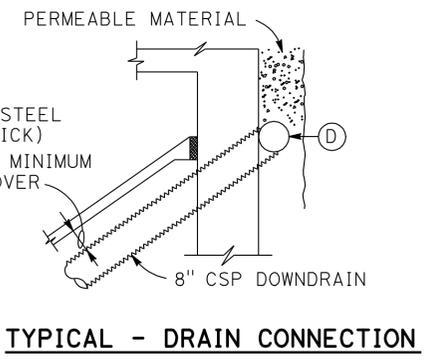
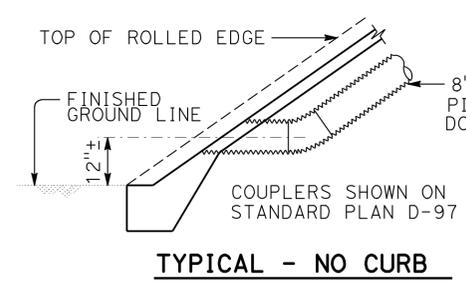
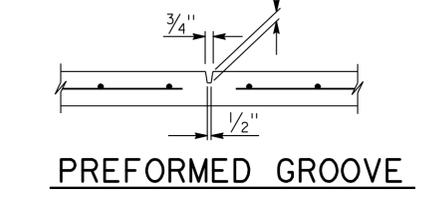
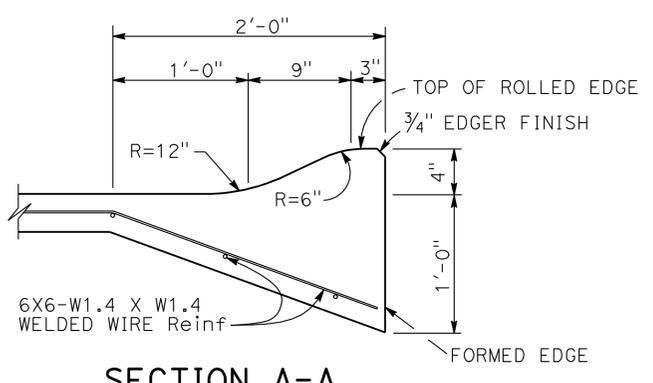
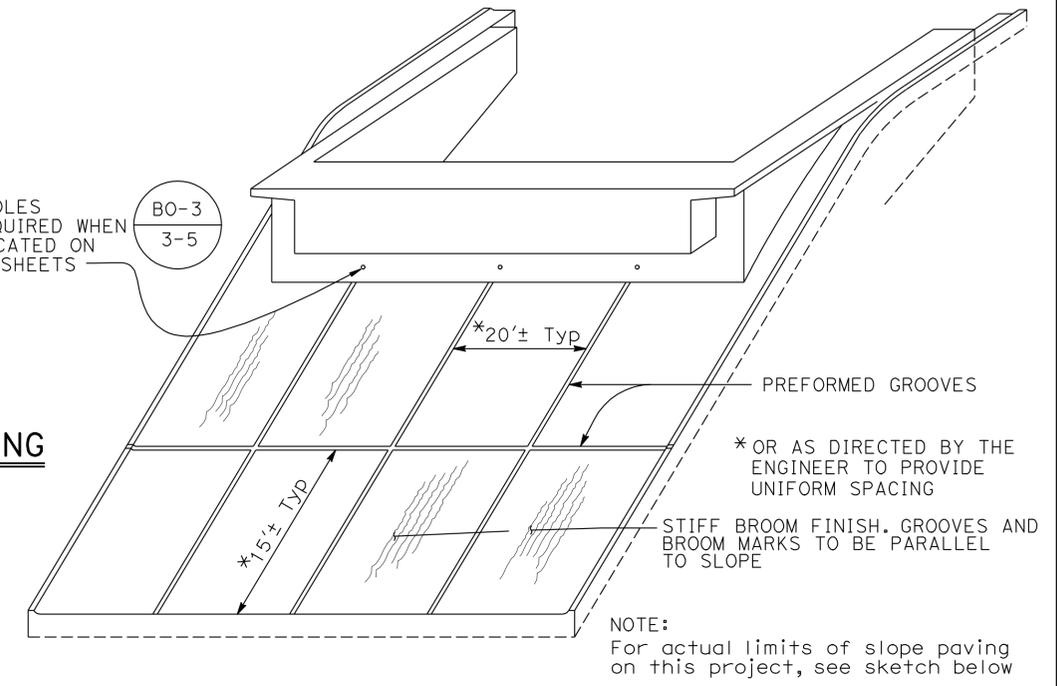
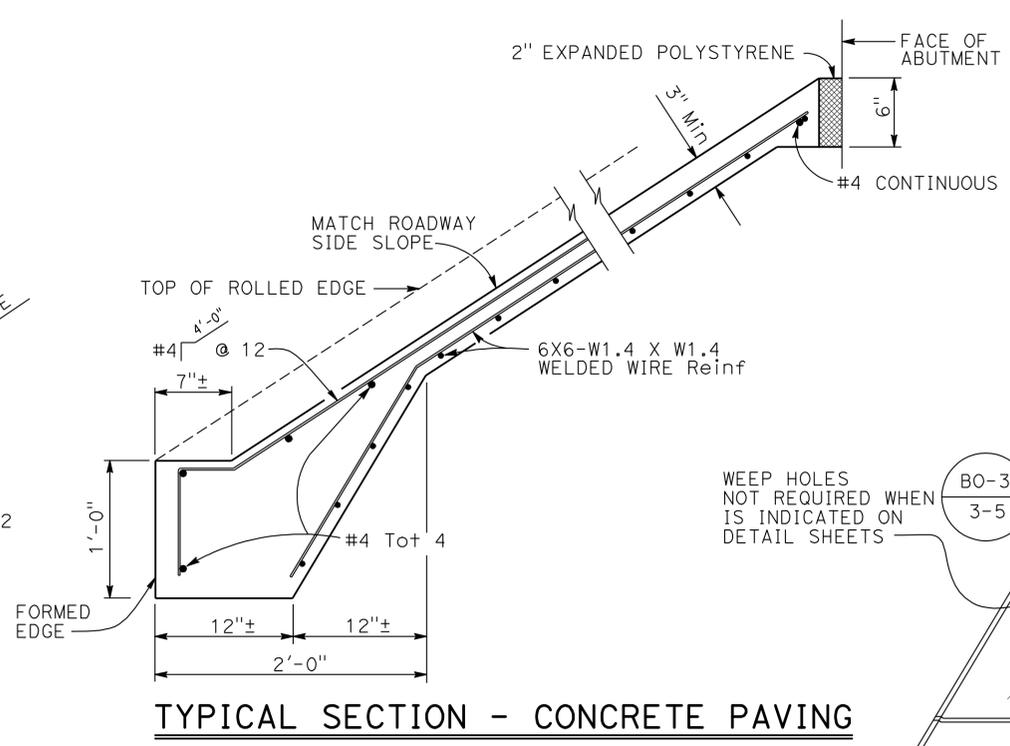
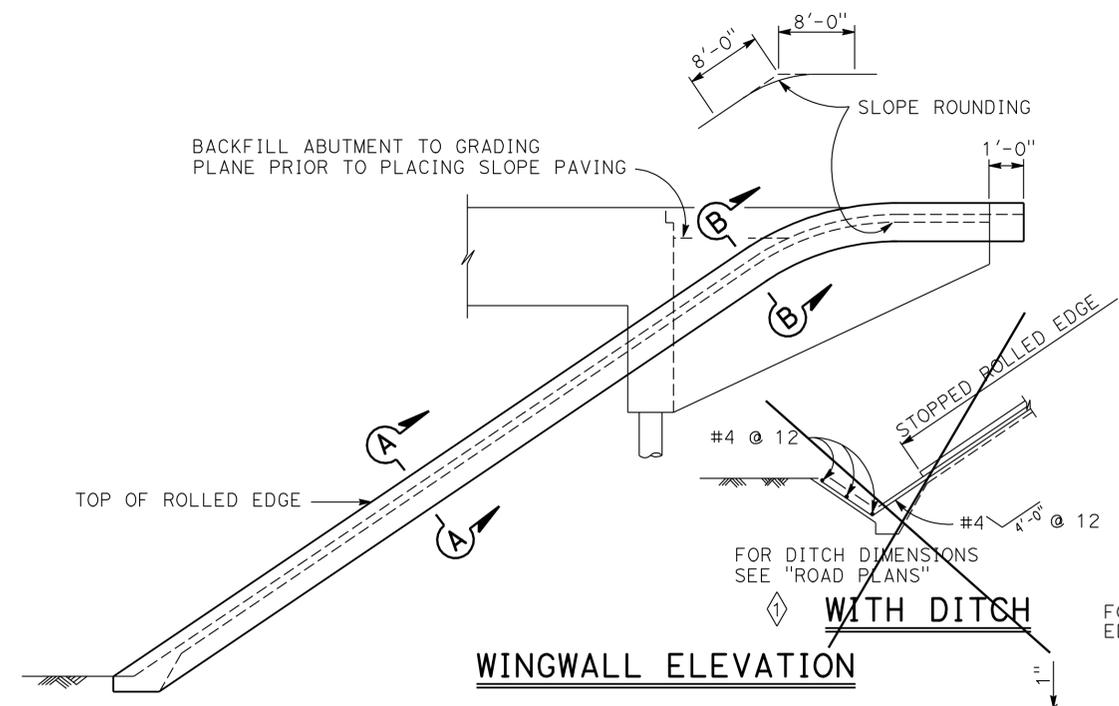
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.



STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10)	DESIGN	BY R. Anderson	CHECKED T. Sanderson	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 10	BRIDGE NO.	51.0338	UNION VALLEY PARKWAY OC ARCHITECTURAL DETAILS No. 2	
	DETAILS	BY G. Hallstrom	CHECKED T. Sanderson			POST MILE	83.45		
	QUANTITIES	BY R. Anderson	CHECKED H. Vu			CONTRACT NO.: 05-463801			
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS				0 1 2 3	UNIT: 3589 PROJECT NUMBER & PHASE: 05000005501	DISREGARD PRINTS BEARING EARLIER REVISION DATES		REVISION DATES	SHEET 16 OF 23

USERNAME => s114640 DATE PLOTTED => 05-APR-2012 TIME PLOTTED => 08:03

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SB	101	83.1/83.9	184	190
Renee M. Anderson			12-05-11	REGISTERED CIVIL ENGINEER DATE	
4-2-12			PLANS APPROVAL DATE		
R. ANDERSON			No. C61040		
Exp. 12-31-12			CIVIL		
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.					



**DRAINAGE DETAILS**

NOTE: Drainage details are only applicable when is indicated on detail sheets.



- LIMITS OF SLOPE PAVING & DRAINAGE LAYOUT**
- (A) Top of rolled edge
  - (B) Conduit: 0.064" galv corrugated steel or 0.109" smooth galv steel
  - (C) Taper: { 0.064" galv corrugated steel or 0.109" smooth galv steel
  - (D) 8" perforated steel pipe ( 0.064" thick ) underdrain behind abutment. Connect to down drain as shown on limits of Slope Paving & Drainage layout.
- NO SCALE

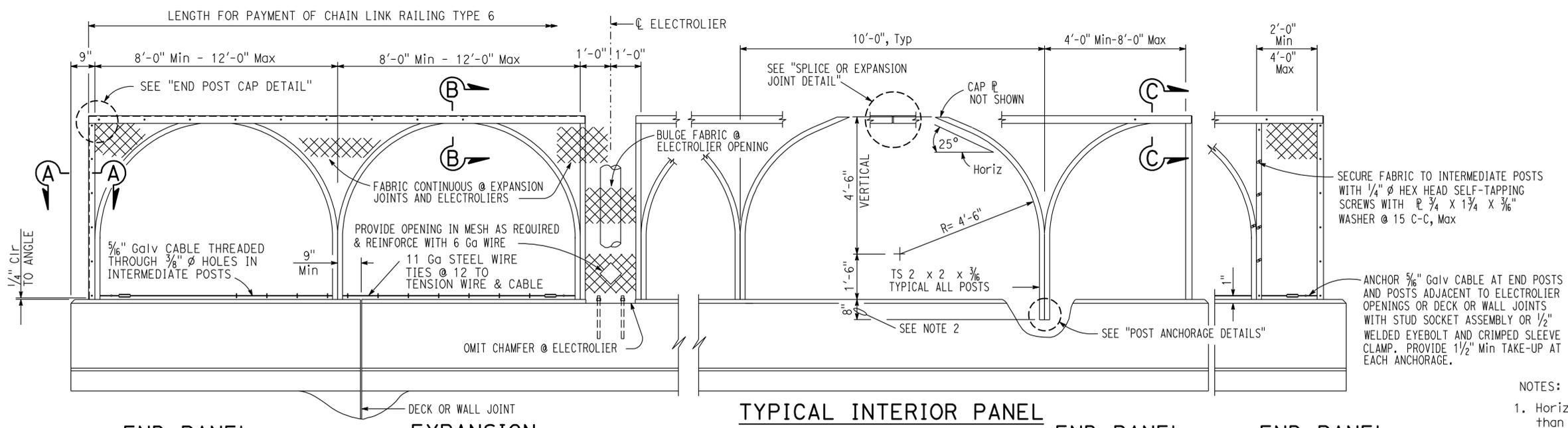
REVISED STANDARD DRAWING	
FILE NO. <b>xs4-210</b>	APPROVAL DATE July 2011

Does Not Apply

STATE OF CALIFORNIA	DIVISION OF ENGINEERING SERVICES
DEPARTMENT OF TRANSPORTATION	

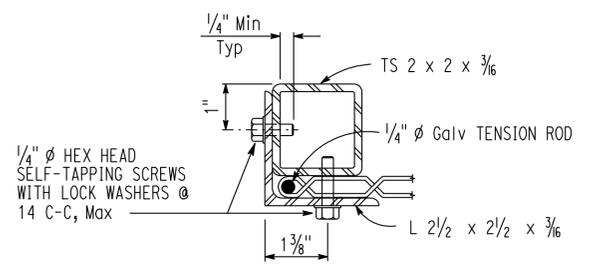
BRIDGE NO. 51-0338	UNION VALLEY PARKWAY OC
POST MILE 83.45	
SLOPE PAVING-FULL SLOPE	

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SB	101	83.1/83.9	185	190
<i>Renee M. Anderson</i> REGISTERED CIVIL ENGINEER			12-05-11 DATE		
4-2-12 PLANS APPROVAL DATE					
<i>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.</i>					

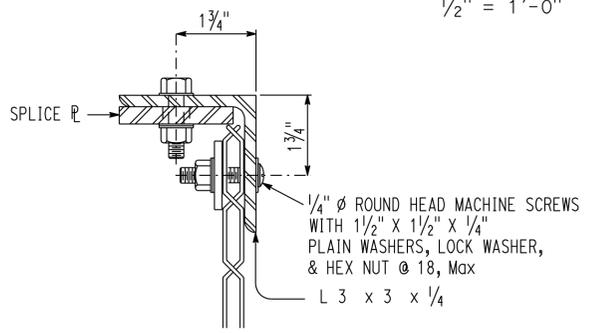


**END PANEL** 8'-0" - 12'-0"  
**EXPANSION PANEL**  
**AT ELECTROLIER**  
**TYPICAL INTERIOR PANEL**  
**END PANEL** 4'-0" - 8'-0"  
**END PANEL** 2'-0" - 4'-0"

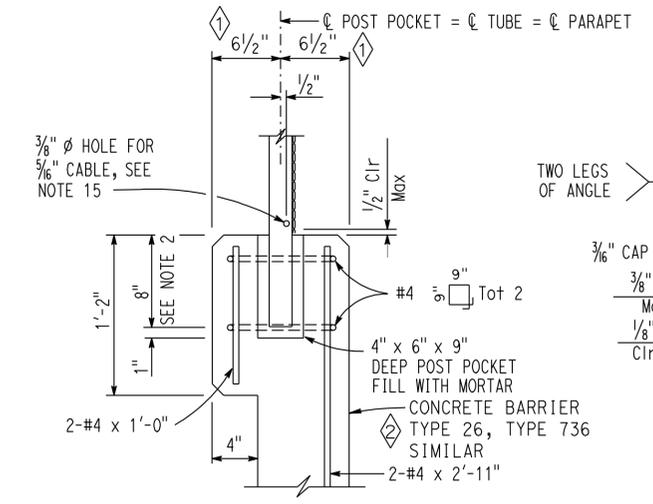
- NOTES:
- Horizontal angle shall be continuous over not less than two intermediate posts except that a shorter length is permitted at expansion joints, electroliers and other rail discontinuities.
  - One post may be embedded 6" minimum to accommodate grade changes, otherwise fabricate post lengths as required.
  - Curved posts may be rotated in plan within its post pocket to accommodate curved horizontal alignment.
  - Straight posts and straight portions of curved posts shall be installed normal to bridge profile grade.
  - Top horizontal angle shall be parallel to bridge profile grade and shall be shop bent to fit horizontal curves.
  - When railing is on slope, fabric shall be placed parallel to slope.
  - Alternative details may be submitted by Contractor for Engineer's approval.
  - For details and reinforcement not shown, see "CONCRETE BARRIER TYPE 26" sheet. (B11-54)
  - See Bridge Plans for limits of Chain Link Railing Type 6.
  - Provide thimbles at all cable loops.
  - Chain link fabric to be 6'-0" wide with 1" mesh and with knuckled selvage top and bottom.
  - When railing is placed on a horizontal alignment with a radius of 150'-0" or less, thread 5/16" cable through 3/8" diameter welded eye rods embedded 4" into the top of the concrete parapet and equally spaced to limit the middle ordinate distance between 5/16" cable and the curve to 1" maximum.
  - Splices and expansion joints shall be located at center panel.
  - Holes in posts for 5/16" cable and its anchorage may be field drilled and painted with zinc rich paint.



**SECTION A-A**  
6" = 1'-0"



**SECTION B-B**  
6" = 1'-0"

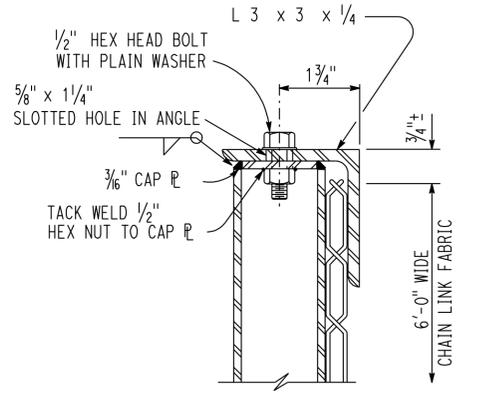


**POST ANCHORAGE DETAIL**  
1 1/2" = 1'-0"

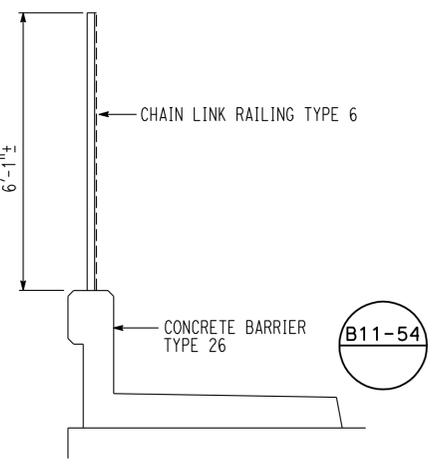
NOTE:  
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

**ELEVATION**

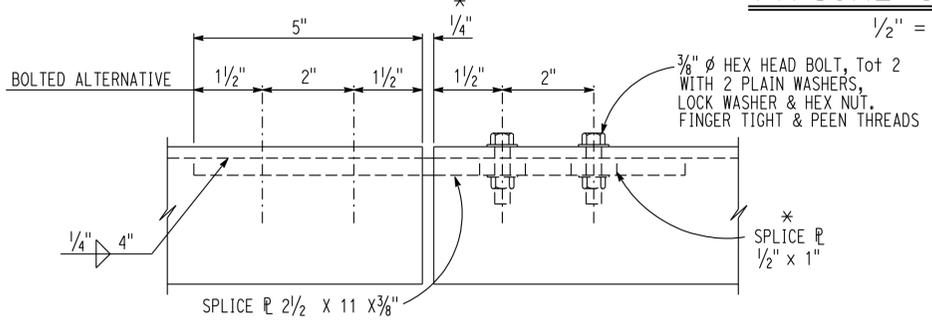
1/2" = 1'-0"



**SECTION C-C**  
6" = 1'-0"



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



**SPLICE OR EXPANSION JOINT DETAIL**  
6" = 1'-0"

\* Expansion joint same dimension as expansion joint in deck or wall. Increase slotted hole length and splice length correspondingly.

STANDARD DRAWING	Revised Detail
FILE NO. <b>xs16-200</b>	Added Note
APPROVAL DATE July 2011	

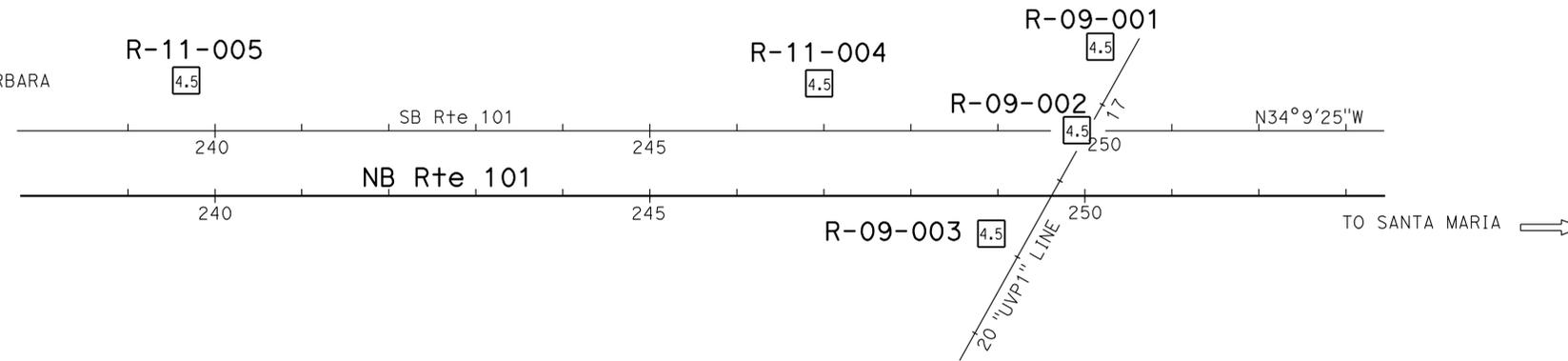
STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES	BRIDGE NO.	<b>UNION VALLEY PARKWAY OC</b> <b>CHAIN LINK RAILING TYPE 6</b>
		51-0338	
		POST MILE	
		83.45	

**BENCH MARK**

PRHV PD: PM8355  
 Fnd 1" IP w/ CalTrans PP  
 34.93 Ft Rt "L3" Line  
 Sta 255+18.95  
 N 2,151,793.24  
 E 5,839,040.15  
 Elev = 473.90'

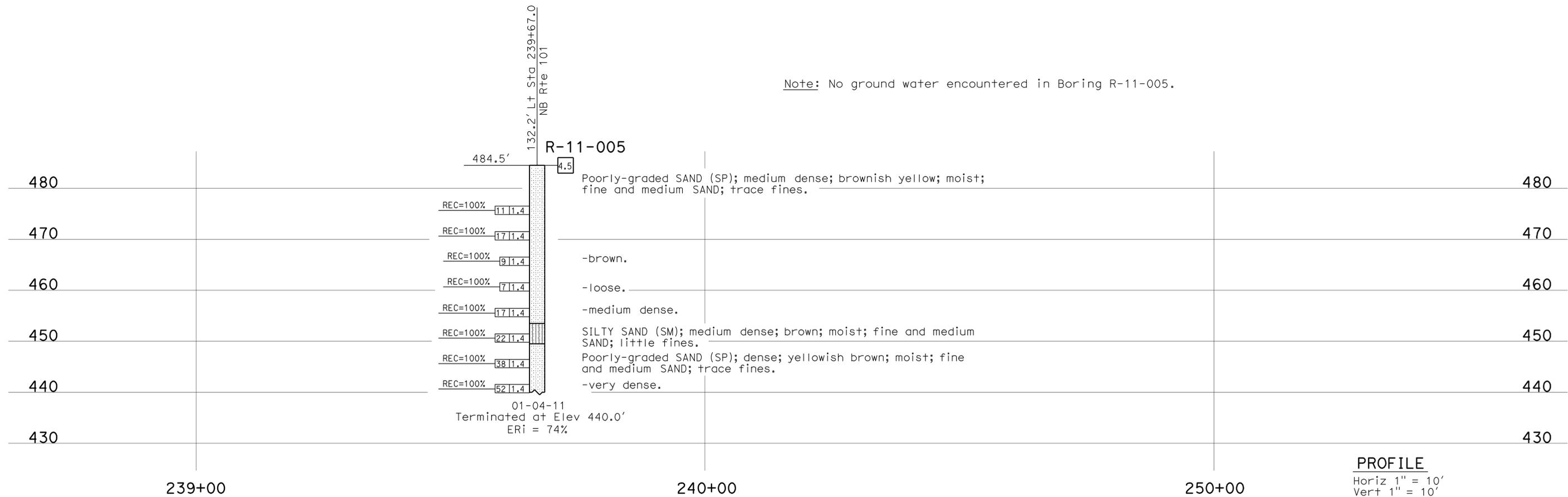
PRHV PD: PM8348  
 Fnd 1" IP w/ CalTrans PP  
 323.80 Ft Rt "L3" Line  
 Sta 251+77.65  
 N 2,151,673.01  
 E 5,839,470.82  
 Elev = 480.34'

← TO SANTA BARBARA



**PLAN**  
 1" = 100'

Note: No ground water encountered in Boring R-11-005.



**PROFILE**

Horiz 1" = 10'  
 Vert 1" = 10'

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SB	101	83.1/83.9	186	190

REGISTERED CIVIL ENGINEER DATE 6-16-11  
 4-2-12  
 PLANS APPROVAL DATE  
 Ryan Turner  
 No. C73956  
 Exp. 6-30-13  
 CIVIL  
 STATE OF CALIFORNIA

This LOTB sheet was prepared in accordance with the Caltrans Soil & Rock Logging, Classification, & Presentation Manual (June 2007).

ENGINEERING SERVICES		GEOTECHNICAL SERVICES		STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION		DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH		BRIDGE NO. 51-0338 POST MILES 83.1/83.9		UNION VALLEY PARKWAY OC LOG OF TEST BORINGS 1 OF 5	
FUNCTIONAL SUPERVISOR NAME: M. Finegan	DRAWN BY: F. Nguyen 9/10 CHECKED BY: M. Jurasius	FIELD INVESTIGATION BY: R. Turner, D. Appelbaum, W. Hoon		CU 05 EA 463801		DISREGARD PRINTS BEARING EARLIER REVISION DATES		REVISION DATES		SHEET 19	OF 23

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

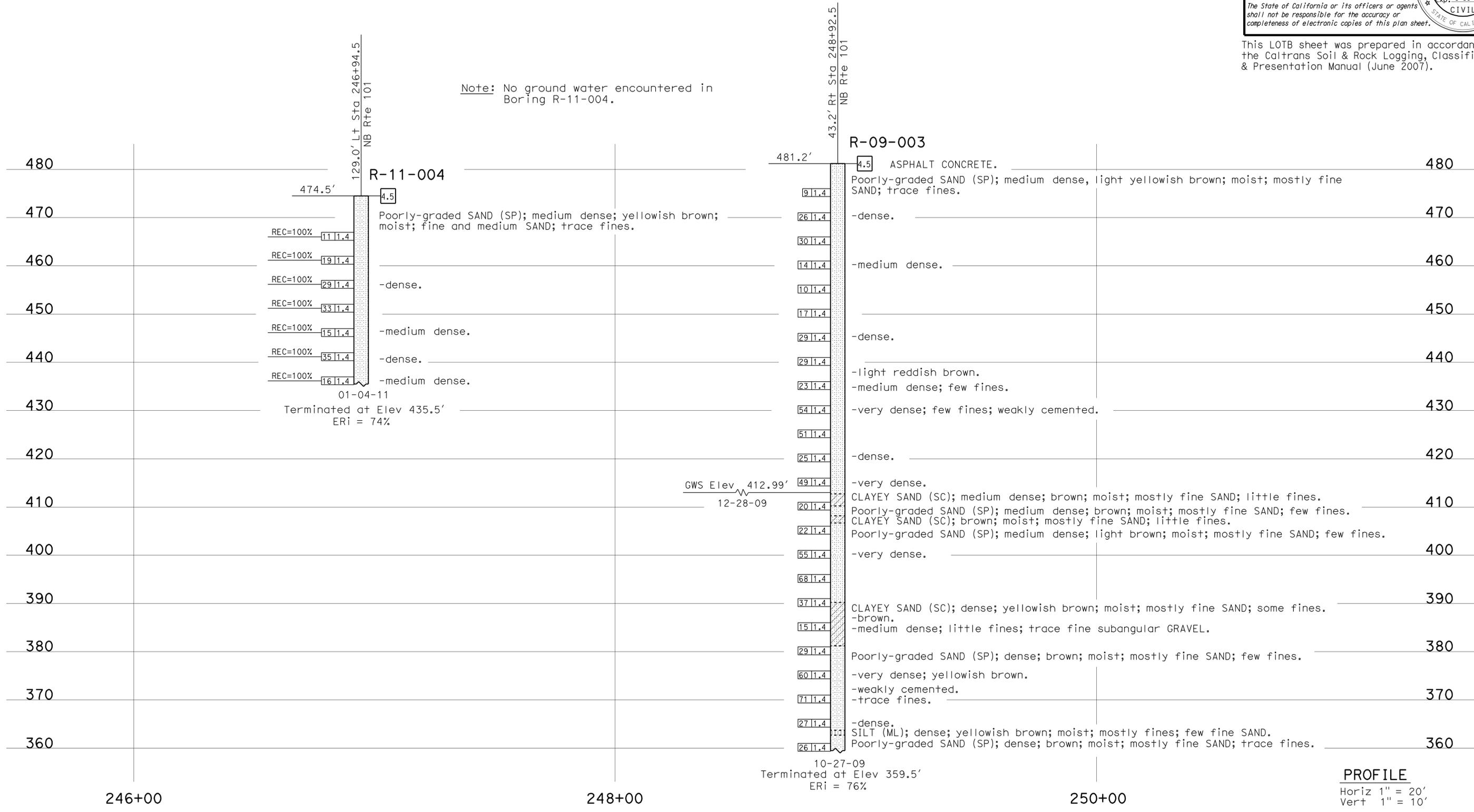


DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SB	101	83.1/83.9	187	190

REGISTERED CIVIL ENGINEER DATE 6-16-11  
 PLANS APPROVAL DATE 4-2-12  
 Ryan Turner  
 No. C73956  
 Exp. 6-30-13  
 CIVIL  
 STATE OF CALIFORNIA

FOR PLAN VIEW, SEE  
"LOG OF TEST BORINGS 1 OF 5"

Note: No ground water encountered in Boring R-11-004.



PROFILE  
Horiz 1" = 20'  
Vert 1" = 10'

ENGINEERING SERVICES		GEOTECHNICAL SERVICES		STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION		DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH		BRIDGE NO. 51-0338 POST MILES 83.1/83.9		UNION VALLEY PARKWAY OC LOG OF TEST BORINGS 2 OF 5			
FUNCTIONAL SUPERVISOR NAME: M. Finegan		DRAWN BY: F. Nguyen 9/10 CHECKED BY: M. Jurasius		FIELD INVESTIGATION BY: W. Hoon, R. Turner, D. Appelbaum		CU 05 EA 463801		DISREGARD PRINTS BEARING EARLIER REVISION DATES		REVISION DATES			
06S CIVIL LOG OF TEST BORINGS SHEET		ORIGINAL SCALE IN INCHES FOR REDUCED PLANS		0 1 2 3		FILE => 510338z1+b20.dgn		10-14-10 10-28-10 06-09-11		SHEET 20 OF 23			

USERNAME => s114640 DATE PLOTTED => 05-APR-2012 TIME PLOTTED => 08:03

FOR PLAN VIEW, SEE  
"LOG OF TEST BORINGS 1 OF 5"

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SB	101	83.1/83.9	188	190

*Ryan Turner*  
REGISTERED CIVIL ENGINEER DATE 6-16-11

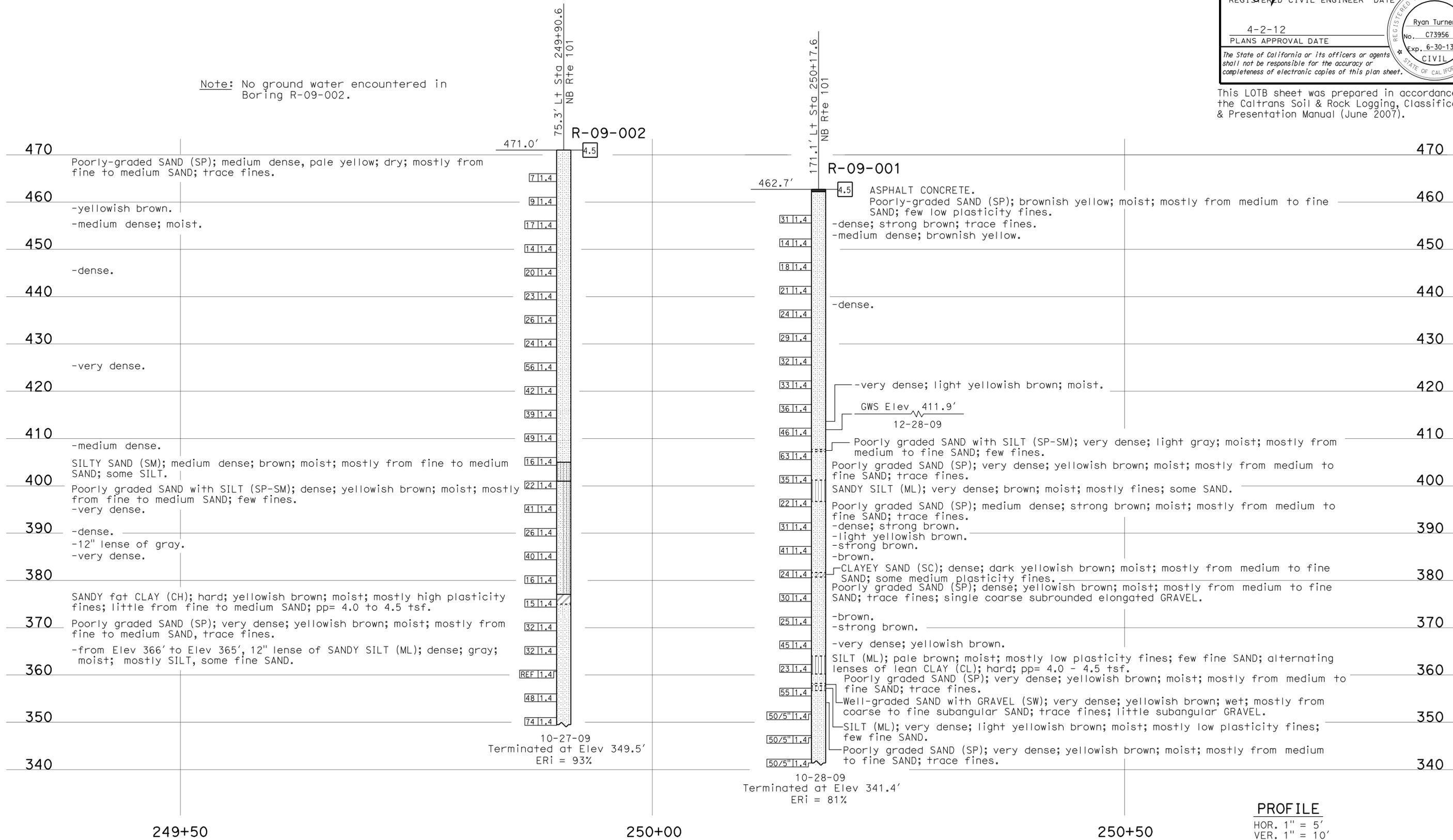
4-2-12  
PLANS APPROVAL DATE

STATE OF CALIFORNIA REGISTERED PROFESSIONAL ENGINEER  
No. C73956  
Exp. 6-30-13  
CIVIL

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.

This LOTB sheet was prepared in accordance with the Caltrans Soil & Rock Logging, Classification, & Presentation Manual (June 2007).

Note: No ground water encountered in Boring R-09-002.



PROFILE  
HOR. 1" = 5'  
VER. 1" = 10'

<b>ENGINEERING SERVICES</b>		<b>GEOTECHNICAL SERVICES</b>		<b>STATE OF CALIFORNIA</b>		<b>DIVISION OF ENGINEERING SERVICES</b>		<b>BRIDGE NO.</b>		<b>UNION VALLEY PARKWAY OC</b>	
FUNCTIONAL SUPERVISOR		DRAWN BY: F. Nguyen 9/10		DEPARTMENT OF TRANSPORTATION		STRUCTURE DESIGN		51-0338		LOG OF TEST BORINGS 3 OF 5	
NAME: M. Finegan		CHECKED BY: M. Jurasius		R. Turner, D. Appelbaum, W. Hoon		DESIGN BRANCH		POST MILES		REVISION DATES	
065 CIVIL LOG OF TEST BORINGS SHEET		ORIGINAL SCALE IN INCHES FOR REDUCED PLANS		CU 05 EA 463801		83.1/83.9		83.1/83.9		SHEET 21 OF 23	

USERNAME => S114640 DATE PLOTTED => 05-APR-2012 TIME PLOTTED => 08:33

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
05	SB	101	83.1/83.9	189	190

REGISTERED CIVIL ENGINEER DATE 6-16-11  
 PLANS APPROVAL DATE 4-2-12  
 Ryan Turner  
 No. C73956  
 Exp. 6-30-13  
 CIVIL  
 STATE OF CALIFORNIA  
 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.

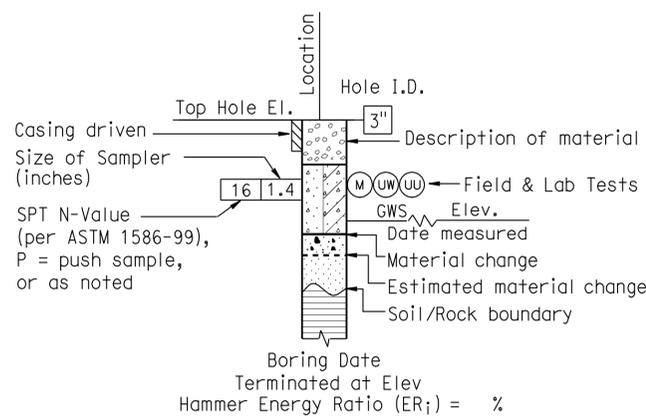
CEMENTATION	
Description	Criteria
Weak	Crumbles or breaks with handling or little finger pressure.
Moderate	Crumbles or breaks with considerable finger pressure.
Strong	Will not crumble or break with finger pressure.

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

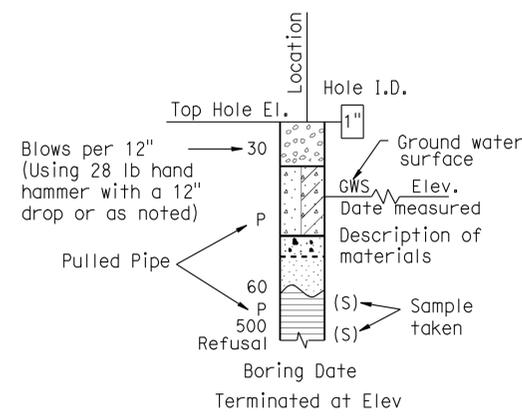
BOREHOLE IDENTIFICATION		
Symbol	Hole Type	Description
	A	Auger Boring
	R	Rotary drilled boring
	P	Rotary percussion boring (air)
	R	Rotary drilled diamond core
	HD	Hand driven (1-inch soil tube)
	HA	Hand Auger
	D	Dynamic Cone Penetration Boring
	CPT	Cone Penetration Test (ASTM D 5778-95)
	O	Other

Note: Size in inches.

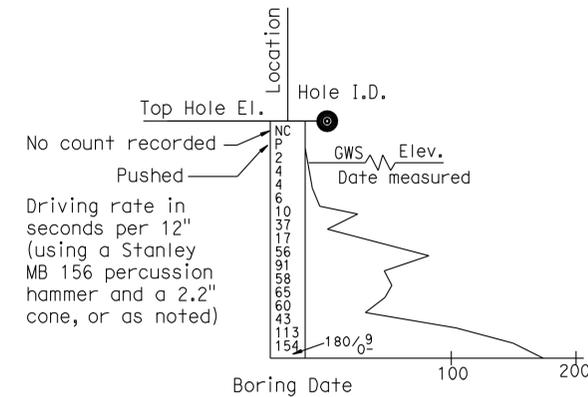
PLASTICITY OF FINE-GRAINED SOILS	
Description	Criteria
Nonplastic	A 1/8-inch thread cannot be rolled at any water content.
Low	The thread can barely be rolled and the lump cannot be formed when drier than the plastic limit.
Medium	The thread is easy to roll and not much time is required to reach the 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.



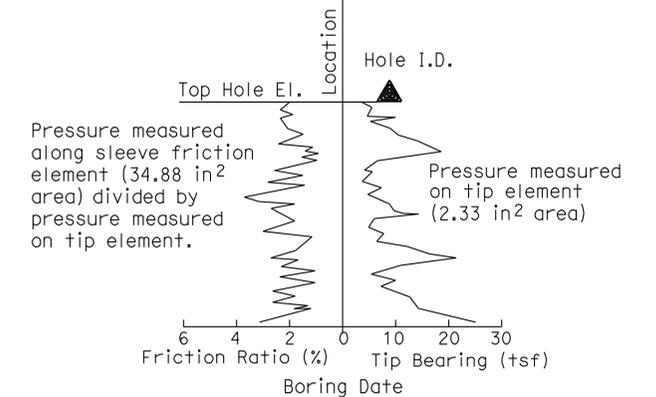
ROTARY BORING



HAND BORING



DYNAMIC CONE PENETRATION BORING

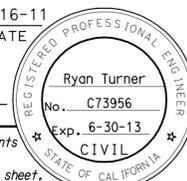


CONE PENETRATION TEST (CPT) SOUNDING

ENGINEERING SERVICES	GEOTECHNICAL SERVICES	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH	BRIDGE NO. 51-0338	UNION VALLEY PARKWAY OC LOG OF TEST BORINGS 4 OF 5
	PREPARED BY: F. Nguyen 9/10			POST MILE 83.1/83.9	
GS LOTB SOIL LEGEND	ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	CU 05 EA 463801	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES	SHEET 22 OF 23

FILE => 510338z1+b22.dgn

USERNAME => s114640 DATE PLOTTED => 05-APR-2012 TIME PLOTTED => 08:34


 6-16-11  
 REGISTERED CIVIL ENGINEER DATE  
 4-2-12  
 PLANS APPROVAL DATE  
 The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

GROUP SYMBOLS AND NAMES			
Graphic/Symbol	Group Names	Graphic/Symbol	Group Names
	GW Well-graded GRAVEL		CL Lean CLAY Lean CLAY with SAND Lean CLAY with GRAVEL SANDY lean CLAY SANDY lean CLAY with GRAVEL GRAVELLY lean CLAY GRAVELLY lean CLAY with SAND
	GP Poorly graded GRAVEL Poorly graded GRAVEL with SAND		
	GW-GM Well-graded GRAVEL with SILT Well-graded GRAVEL with SILT and SAND		CL-ML SILTY CLAY SILTY CLAY with SAND SILTY CLAY with GRAVEL SANDY SILTY CLAY SANDY SILTY CLAY with GRAVEL GRAVELLY SILTY CLAY GRAVELLY SILTY CLAY with SAND
	GW-GC Well-graded GRAVEL with CLAY (or SILTY CLAY) Well-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		
	GP-GM Poorly graded GRAVEL with SILT Poorly graded GRAVEL with SILT and SAND		ML SILT SILT with SAND SILT with GRAVEL SANDY SILT SANDY SILT with GRAVEL GRAVELLY SILT GRAVELLY SILT with SAND
	GP-GC Poorly graded GRAVEL with CLAY (or SILTY CLAY) Poorly graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		
	GM SILTY GRAVEL SILTY GRAVEL with SAND		OL ORGANIC lean CLAY ORGANIC lean CLAY with SAND ORGANIC lean CLAY with GRAVEL SANDY ORGANIC lean CLAY SANDY ORGANIC lean CLAY with GRAVEL GRAVELLY ORGANIC lean CLAY GRAVELLY ORGANIC lean CLAY with SAND
	GC CLAYEY GRAVEL CLAYEY GRAVEL with SAND		
	GC-GM SILTY, CLAYEY GRAVEL SILTY, CLAYEY GRAVEL with SAND		OL ORGANIC SILT ORGANIC SILT with SAND ORGANIC SILT with GRAVEL SANDY ORGANIC SILT SANDY ORGANIC SILT with GRAVEL GRAVELLY ORGANIC SILT GRAVELLY ORGANIC SILT with SAND
	SW Well-graded SAND Well-graded SAND with GRAVEL		
	SP Poorly graded SAND Poorly graded SAND with GRAVEL		CH Fat CLAY Fat CLAY with SAND Fat CLAY with GRAVEL SANDY fat CLAY SANDY fat CLAY with GRAVEL GRAVELLY fat CLAY GRAVELLY fat CLAY with SAND
	SW-SM Well-graded SAND with SILT Well-graded SAND with SILT and GRAVEL		
	SW-SC Well-graded SAND with CLAY (or SILTY CLAY) Well-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)		MH Elastic SILT Elastic SILT with SAND Elastic SILT with GRAVEL SANDY elastic SILT SANDY elastic SILT with GRAVEL GRAVELLY elastic SILT GRAVELLY elastic SILT with SAND
	SP-SM Poorly graded SAND with SILT Poorly graded SAND with SILT and GRAVEL		
	SP-SC Poorly graded SAND with CLAY (or SILTY CLAY) Poorly graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)		OH ORGANIC fat CLAY ORGANIC fat CLAY with SAND ORGANIC fat CLAY with GRAVEL SANDY ORGANIC fat CLAY SANDY ORGANIC fat CLAY with GRAVEL GRAVELLY ORGANIC fat CLAY GRAVELLY ORGANIC fat CLAY with SAND
	SM SILTY SAND SILTY SAND with GRAVEL		
	SC CLAYEY SAND CLAYEY SAND with GRAVEL		OH ORGANIC elastic SILT ORGANIC elastic SILT with SAND ORGANIC elastic SILT with GRAVEL SANDY ORGANIC elastic SILT SANDY ORGANIC elastic SILT with GRAVEL GRAVELLY ORGANIC elastic SILT GRAVELLY ORGANIC elastic SILT with SAND
	SC-SM SILTY, CLAYEY SAND SILTY, CLAYEY SAND with GRAVEL		
	PT PEAT		OL/OH ORGANIC SOIL ORGANIC SOIL with SAND 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
(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 <sub>60</sub> (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