

INDEX OF PLANS

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THE STANDARD PLANS LIST APPLICABLE TO THIS CONTRACT IS INCLUDED IN THE NOTICE TO BIDDERS AND SPECIAL PROVISIONS BOOK.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

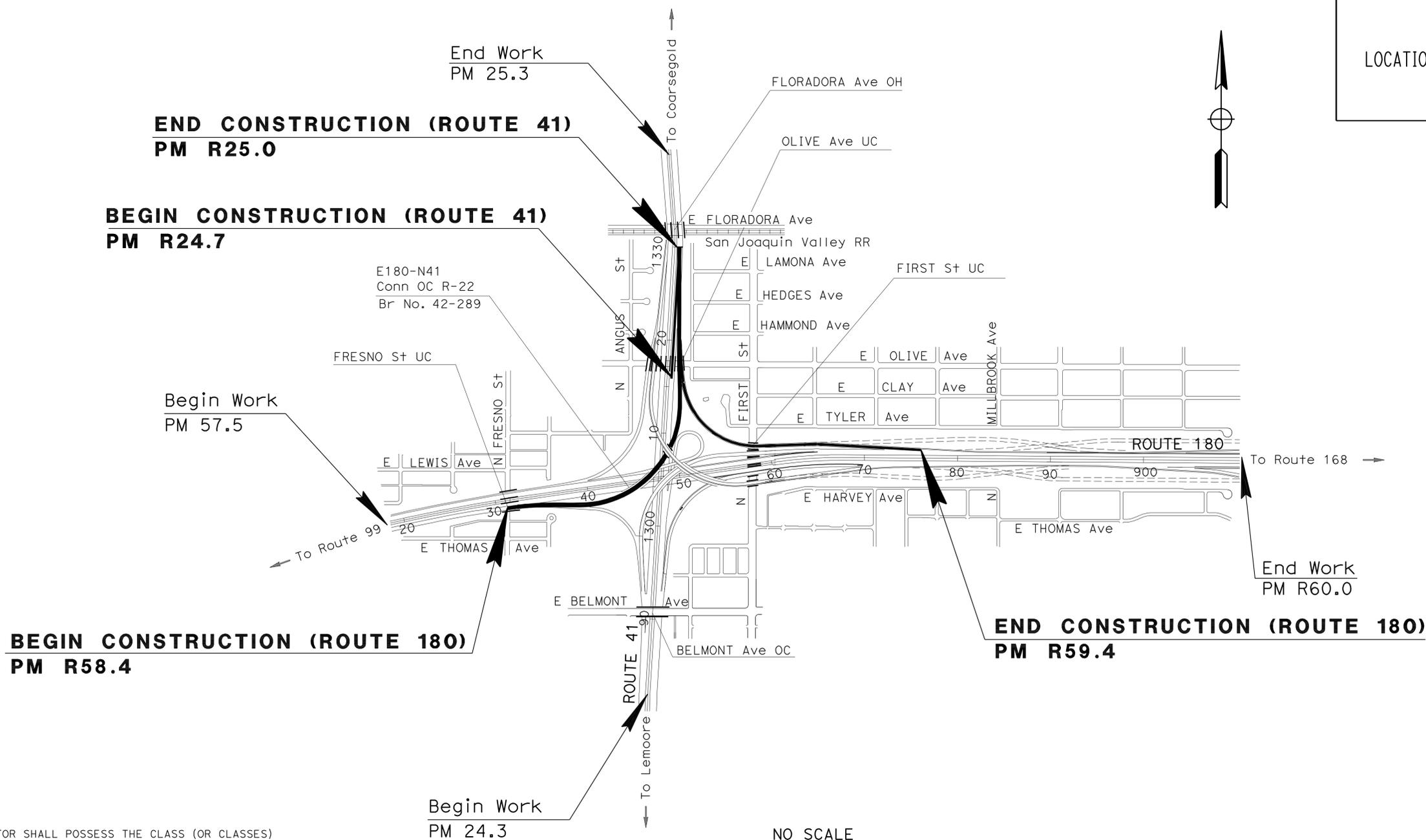
ACNH-X019(022)E

PROJECT PLANS FOR CONSTRUCTION ON
STATE HIGHWAY
IN FRESNO COUNTY
IN FRESNO ON ROUTE 41 FROM ROUTE 180/ 41
SEPARATION TO FLORADORA AVENUE OVERHEAD AND ON
ROUTE 180 FROM FRESNO STREET UNDERCROSSING TO
0.3 MILE EAST OF FIRST STREET UNDERCROSSING

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
06	Fre	41,180	R24.7/R25.0, R58.4/R59.4	1	56



TO BE SUPPLEMENTED BY STANDARD PLANS DATED MAY 2006



PROJECT MANAGER	ANAND KAPOOR
DESIGN ENGINEER	ROBERTO BANDA

THE CONTRACTOR SHALL POSSESS THE CLASS (OR CLASSES) OF LICENSE AS SPECIFIED IN THE "NOTICE TO BIDDERS."

Peter A. Chander 12-16-10
PROJECT ENGINEER DATE
REGISTERED CIVIL ENGINEER
PETER A CHANDER
No. 63988
Exp. 09-30-12
CIVIL
STATE OF CALIFORNIA

February 28, 2011
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.

CONTRACT No.	06-OH3704
PROJECT ID	0600020029

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans DESIGN DIVISION

FUNCTIONAL SUPERVISOR
 ROBERTO BANDA

CALCULATED/DESIGNED BY
 CHECKED BY

PETER CHANDER
 HAL KENYON

REVISED BY
 DATE REVISED

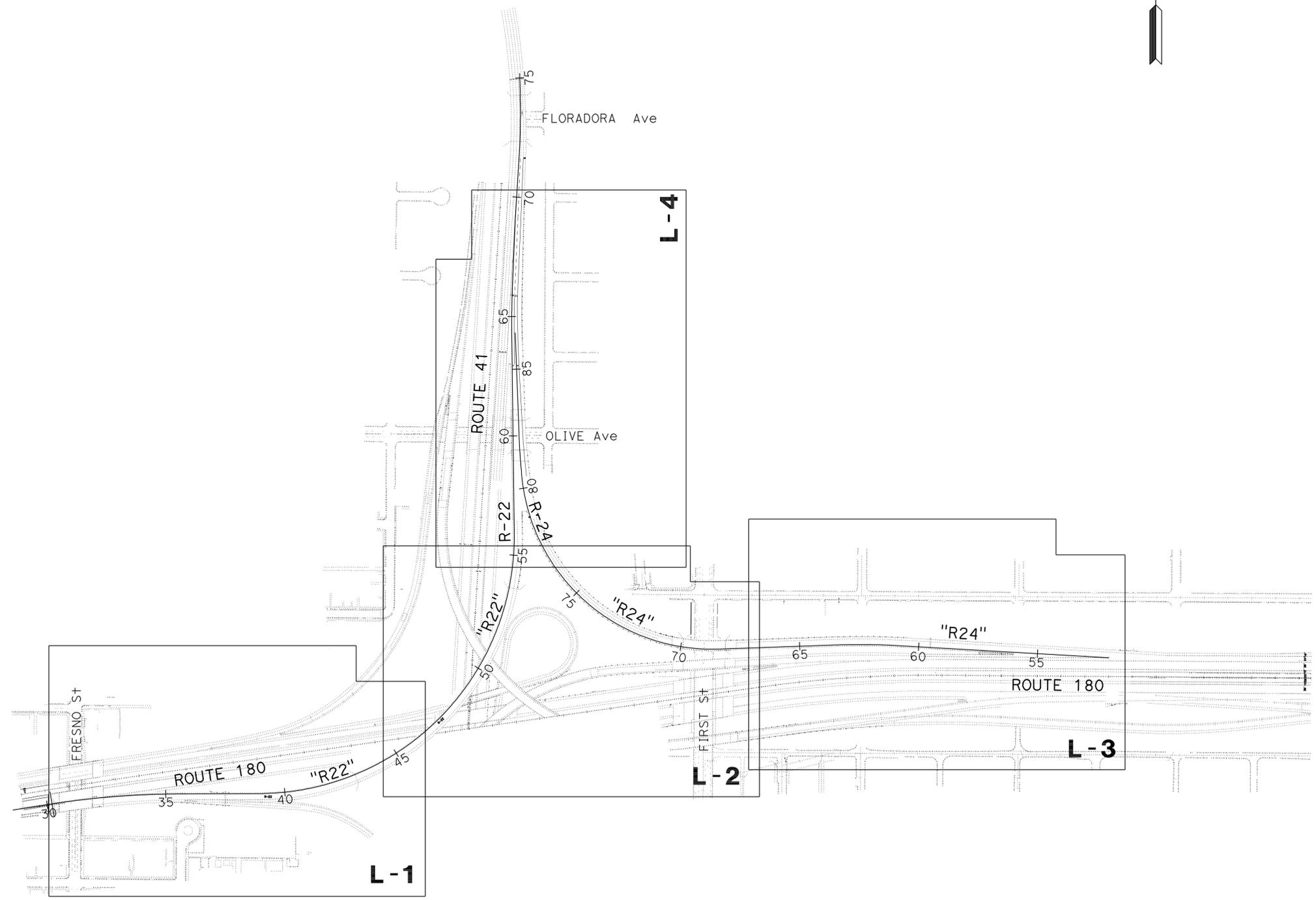
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
06	Fre	41,180	R24.7/R25.0, R58.4/R59.4	2	56

Peter Chander 12-16-10
 REGISTERED CIVIL ENGINEER DATE

2-28-11
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
 PETER A CHANDER
 No. 63988
 Exp. 09-30-12
 CIVIL
 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.



**KEY MAP
 K-1**

NO SCALE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
06	Fre	41,180	R24.7/R25.0, R58.4/R59.4	3	56

<i>Peter Chander</i>	12-16-10
REGISTERED CIVIL ENGINEER	DATE
No. 63988	
2-28-11	
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 ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
- RAMP 22 : EB Rte 180 TO NB Rte 41 CONNECTOR
RAMP 24 : WB Rte 180 TO NB Rte 41 CONNECTOR
- FOR RECONSTRUCT MBGR SEE SHEET Q-1 FOR POST TYPE.

ABBREVIATIONS:

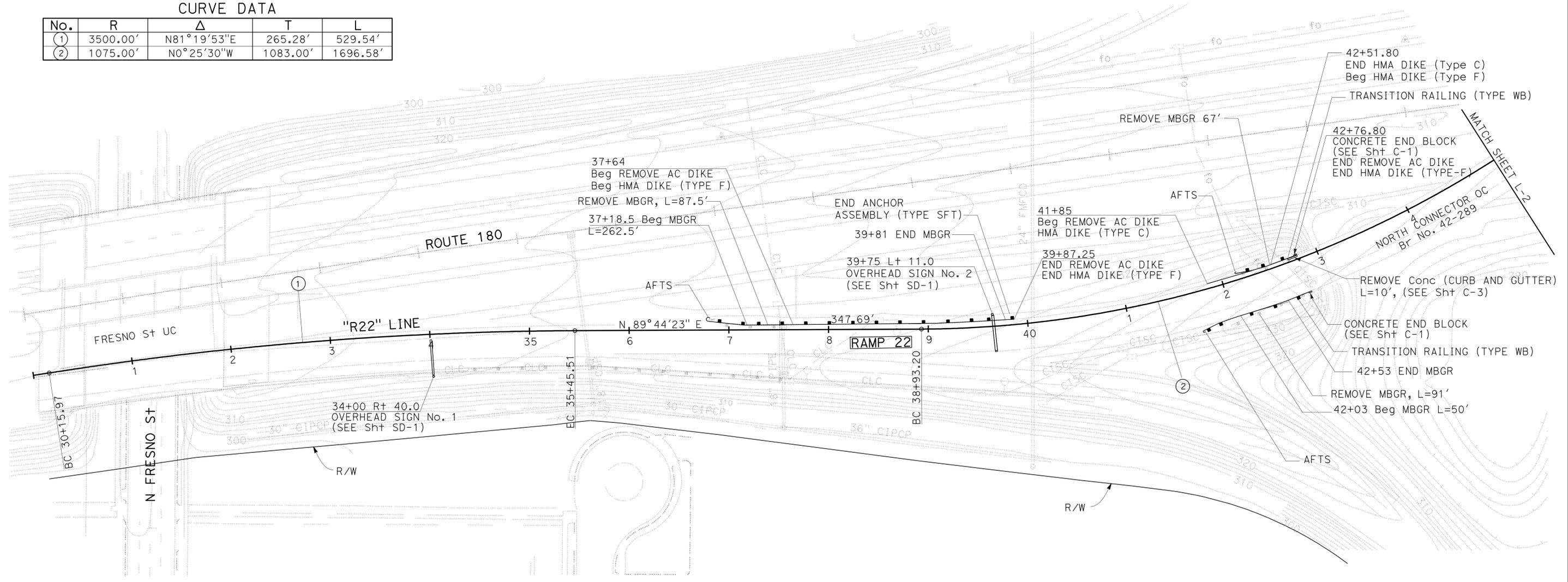
- AFTS ALTERNATIVE FLARED TERMINAL SYSTEM
 EMS EXTINGUISHABLE MESSAGE SIGN AND FLASHING BEACON
 FMFCD FRESNO METROPOLITAN FLOOD CONTROL DISTRICT
 PG&E PACIFIC GAS & ELECTRIC COMPANY
 AT&T AT&T TELECOMMUNICATIONS
 CTSC CALTRANS TRAFFIC SIGNAL CONDUIT
 CLC CALTRANS LIGHTING CONDUIT

LEGEND:

- |---|---|---| ABANDONED UTILITY
 ---e---(oh)--- PG&E AERIAL ELECTRIC 12 kV LINE
 ---e--- PG&E UNDERGROUND ELECTRIC CONDUIT
 ===|===|===|===| CALTRANS IRRIGATION CROSSOVER
 ---w--- FRESNO CITY WATER LINE
 ---s--- FRESNO CITY SEWER LINE
 ---g--- PG&E UNDERGROUND GAS LINE
 ---tv---tv--- UNDERGROUND TV CONDUIT
 ---fo---fo--- CALTRANS FIBER OPTIC CONDUIT
 ---CTSC--- CALTRANS TRAFFIC SIGNAL CONDUIT
 ---CLC--- CALTRANS LIGHTING CONDUIT

CURVE DATA

No.	R	Δ	T	L
①	3500.00'	N81°19'53"E	265.28'	529.54'
②	1075.00'	N0°25'30"W	1083.00'	1696.58'



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans DESIGN DIVISION
 FUNCTIONAL SUPERVISOR: ROBERTO BANDA
 CALCULATED/DESIGNED BY: PETER CHANDER
 CHECKED BY: HAL KENYON
 REVISED BY: PETER CHANDER
 DATE REVISED:

LAYOUT
 SCALE: 1" = 50'
L-1

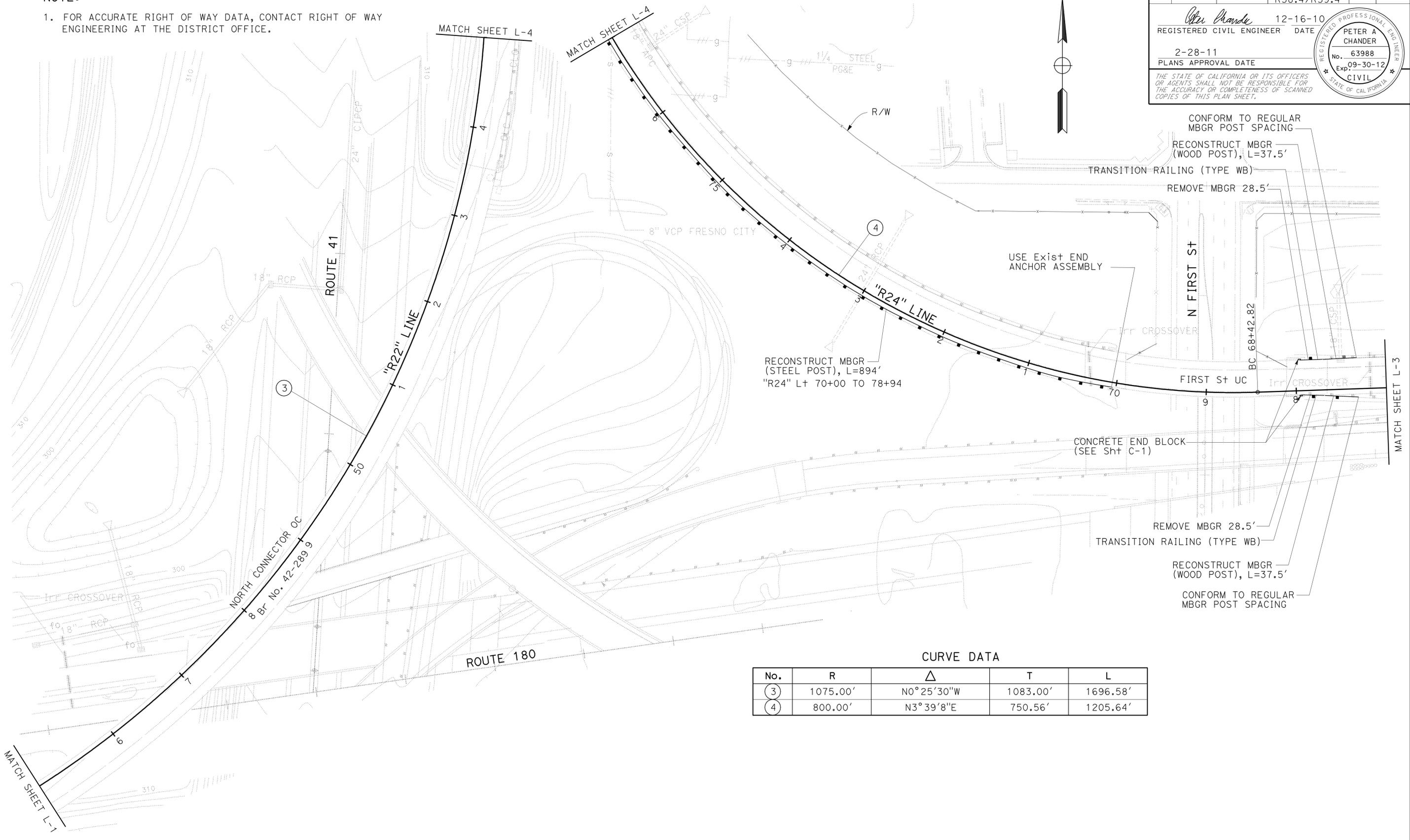
LAST REVISION DATE PLOTTED => 17-MAR-2011
 12-16-10 TIME PLOTTED => 1:3:36

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
06	Fre	41,180	R24.7/R25.0, R58.4/R59.4	4	56
			REGISTERED CIVIL ENGINEER	DATE	
			PETER A CHANDER	12-16-10	
			No. 63988		
			Exp. 09-30-12		
			CIVIL		
<small>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.</small>					



- CONFORM TO REGULAR MBGR POST SPACING
- RECONSTRUCT MBGR (WOOD POST), L=37.5'
- TRANSITION RAILING (TYPE WB)
- REMOVE MBGR 28.5'
- USE Exist END ANCHOR ASSEMBLY
- N FIRST St
- BC 68+42.82
- FIRST St UC
- CONCRETE END BLOCK (SEE Sht C-1)
- REMOVE MBGR 28.5'
- TRANSITION RAILING (TYPE WB)
- RECONSTRUCT MBGR (WOOD POST), L=37.5'
- CONFORM TO REGULAR MBGR POST SPACING

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



CURVE DATA

No.	R	Δ	T	L
3	1075.00'	N0°25'30"W	1083.00'	1696.58'
4	800.00'	N3°39'8"E	750.56'	1205.64'

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans DESIGN DIVISION
 FUNCTIONAL SUPERVISOR: ROBERTO BANDA
 CALCULATED/DESIGNED BY: PETER CHANDER
 CHECKED BY: HAL KENYON
 REVISED BY: PETER CHANDER
 DATE REVISED:

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans DESIGN DIVISION

FUNCTIONAL SUPERVISOR: ROBERTO BANDA
 CALCULATED/DESIGNED BY: PETER CHANDER
 CHECKED BY: HAL KENYON
 REVISIONS: (None listed)

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

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
06	Fre	41,180	R24.7/R25.0, R58.4/R59.4	5	56

REGISTERED CIVIL ENGINEER: *Peter Chander* 12-16-10
 DATE: 12-16-10
 No. 63988
 Exp. 09-30-12
 CIVIL
 PETER A. CHANDER
 REGISTERED CIVIL ENGINEER
 STATE OF CALIFORNIA

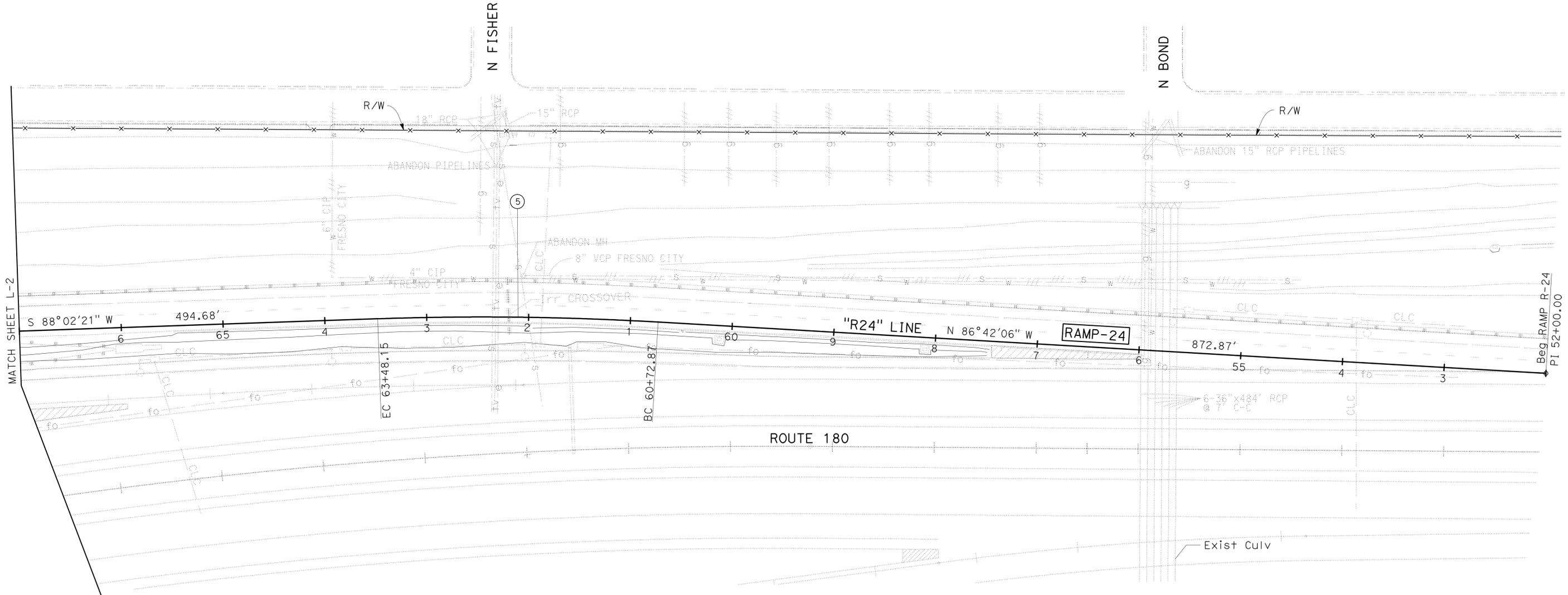
PLANS APPROVAL DATE: 2-28-11

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.



CURVE DATA

No.	R	Δ	T	L
(5)	2999.05'	N84°44'27"E	137.74'	275.28'

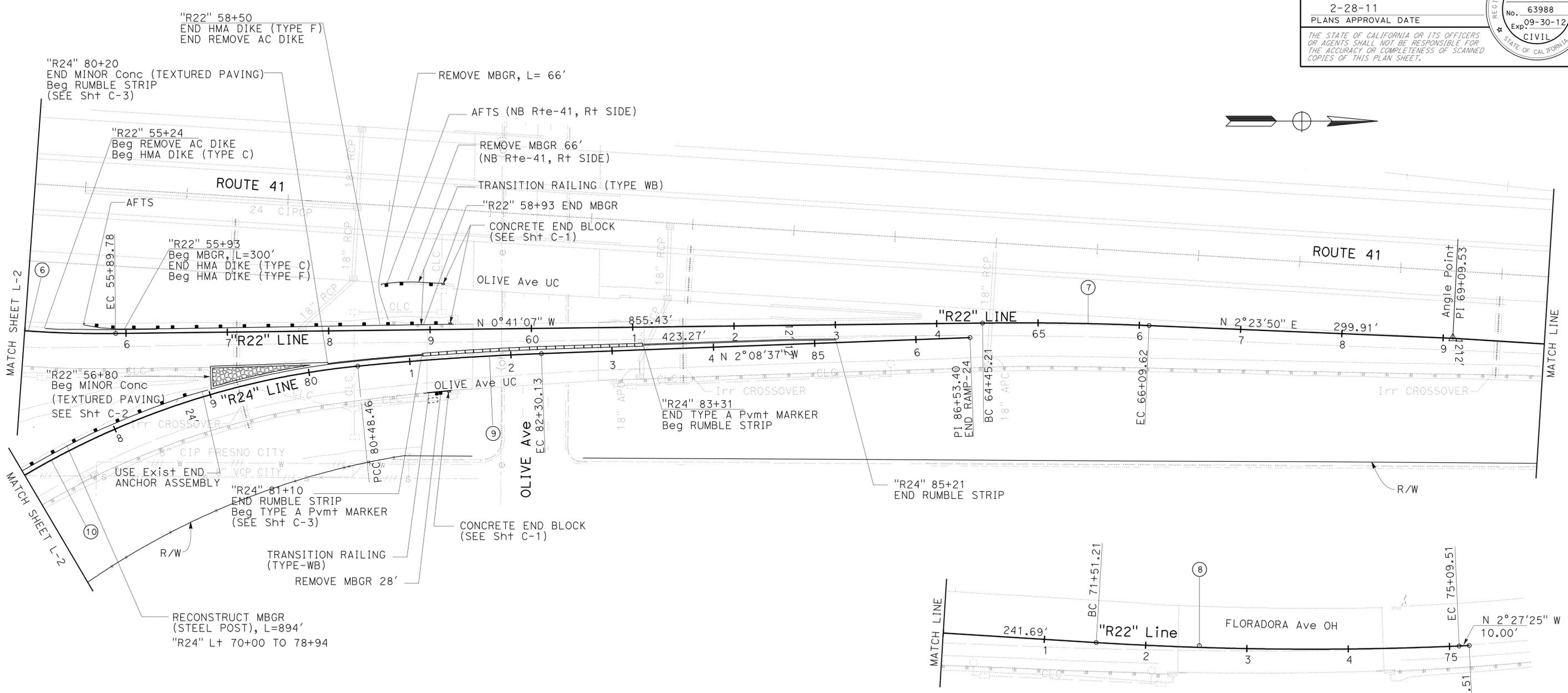


LAYOUT
 SCALE: 1" = 50' **L-3**

LAST REVISION DATE PLOTTED => 17-MAR-2011 12-16-10 TIME PLOTTED => 13:36

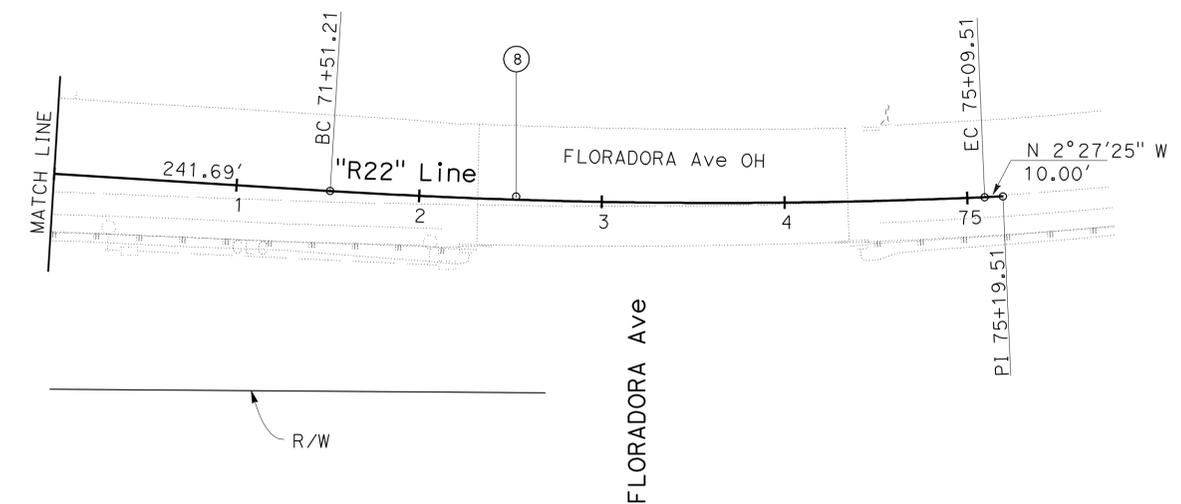
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
06	Fre	41,180	R24.7/R25.0, R58.4/R59.4	6	56
<i>Peter A. Chandler</i> REGISTERED CIVIL ENGINEER			12-16-10	DATE	
2-28-11 PLANS APPROVAL DATE					
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.					
REGISTERED PROFESSIONAL ENGINEER PETER A. CHANDER No. 63988 Exp. 09-30-12 CIVIL					

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



CURVE DATA

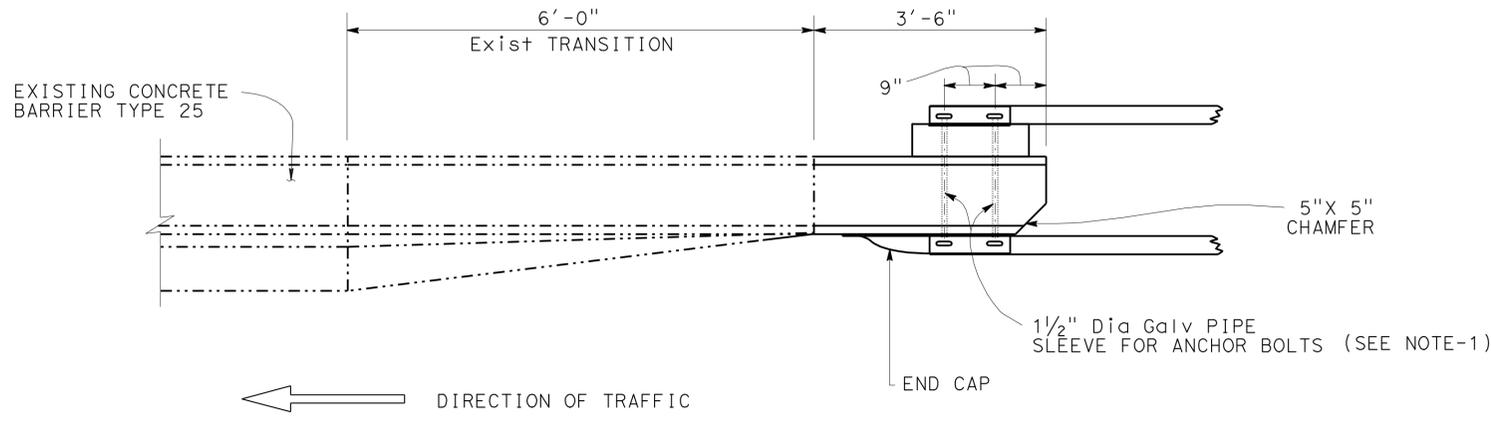
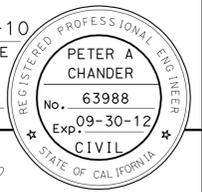
No.	R	Δ	T	L
6	1075.00'	N0°25'30"W	1083.00'	1696.58'
7	3055.81'	N86°55'2"E	82.23'	164.41'
8	3420.23'	N83°59'52"E	179.31'	358.29'
9	3000.03'	N86°31'50"E	90.86'	181.67'
10	800.00'	N3°39'8"E	750.56'	1205.64'



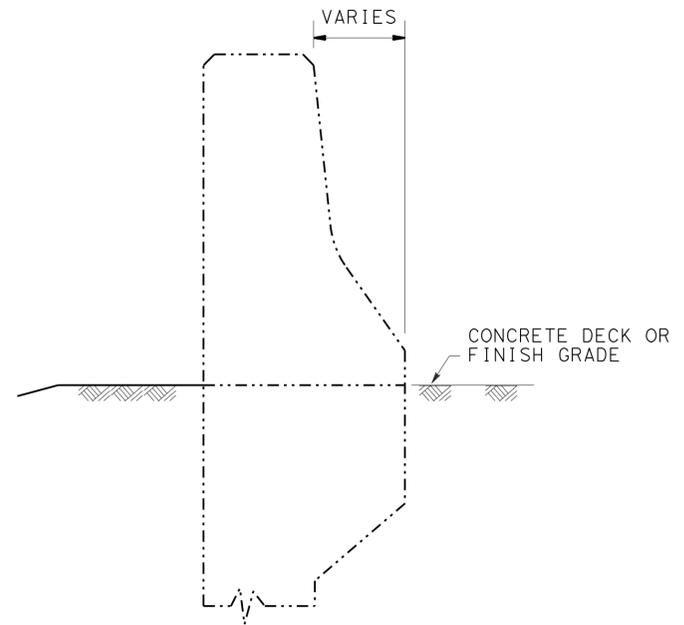
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 DESIGN DIVISION
 FUNCTIONAL SUPERVISOR: ROBERTO BANDA
 CHECKED BY: HAL KENYON
 DESIGNED BY: PETER CHANDER
 REVISIONS: PETER CHANDER, HAL KENYON, ROBERTO BANDA

LAYOUT
 SCALE: 1" = 50'
L - 4

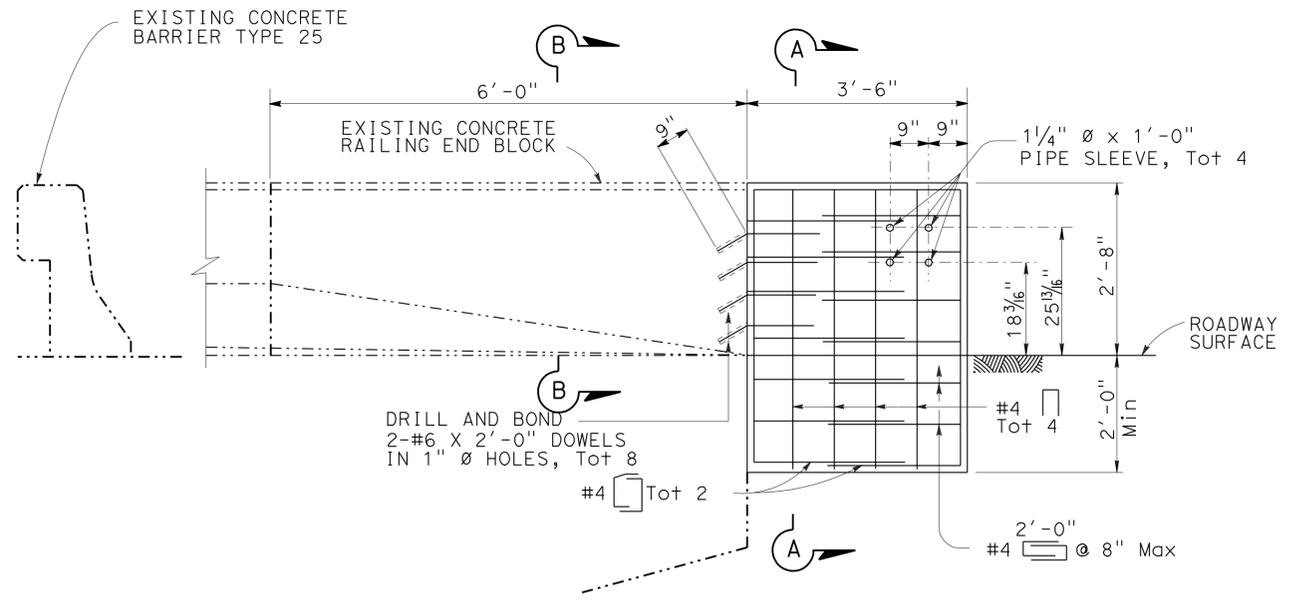
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
06	Fre	41,180	R24.7/R25.0, R58.4/R59.4	7	56
			REGISTERED CIVIL ENGINEER	DATE	
			PETER A CHANDER	12-16-10	
			No. 63988		
			Exp. 09-30-12		
			CIVIL		
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					



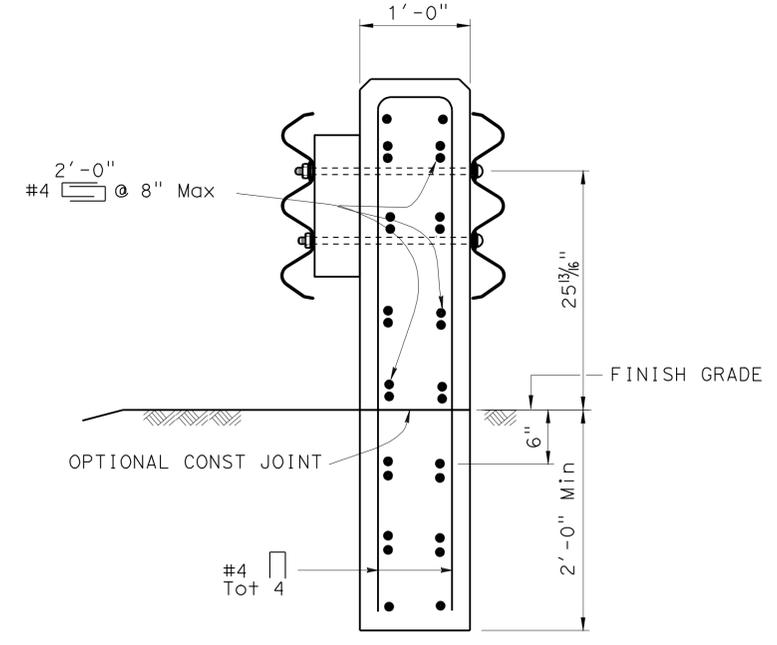
PLAN



SECTION B-B



ELEVATION



SECTION A-A

Notes:

- FOR DETAILS NOT SHOWN, SEE REVISED STANDARD PLAN RSP A78F1.
- DEPENDENT DIMENSIONS WILL BE VERIFIED IN THE FIELD BEFORE FABRICATING ANY END CONNECTION TO CONFORM WITH EXISTING PAVED CONDITIONS.
- ALL PLATES AND BOLTS ARE GALVANIZED.

LEGEND:

- INDICATES EXISTING STRUCTURE.
- INDICATES NEW CONSTRUCTION.

CONCRETE END BLOCK DETAIL

CONSTRUCTION DETAILS

NO SCALE

C-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - DESIGN DIVISION

FUNCTIONAL SUPERVISOR: ROBERTO BANDA

DESIGNED BY: PETER CHANDER

CHECKED BY: HAL KENYON

REVISOR: PETER CHANDER

DATE REVISOR: PETER CHANDER

USERNAME => frmikes1
DGN FILE => 60h370ga001.dgn



UNIT 1469

PROJECT NUMBER & PHASE

06000200291

LAST REVISION | DATE PLOTTED => 17-MAR-2011
12-28-10 TIME PLOTTED => 1:3:37

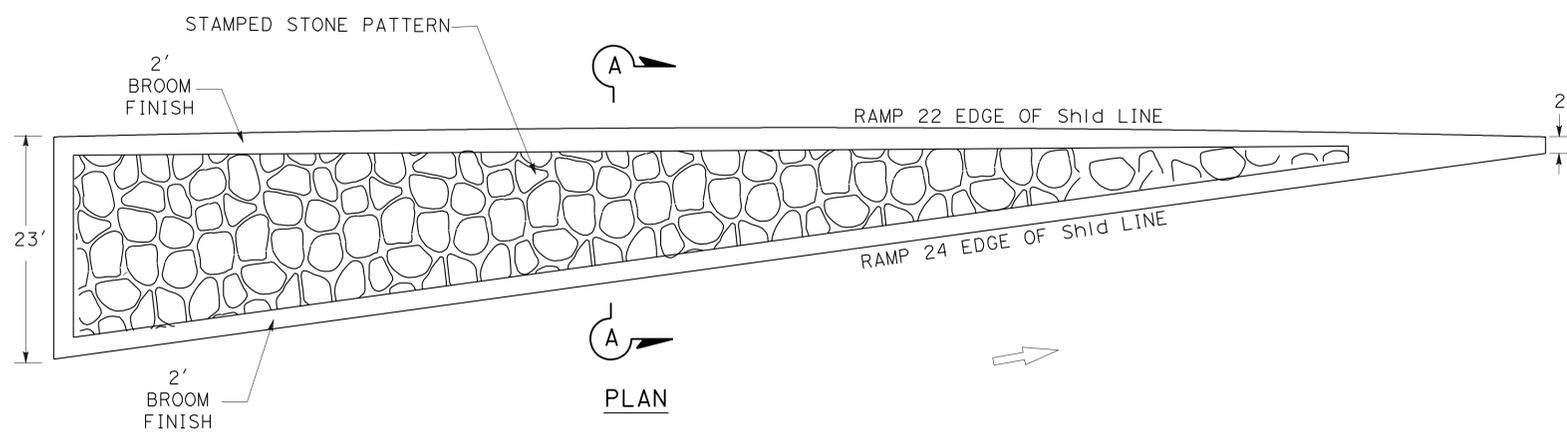
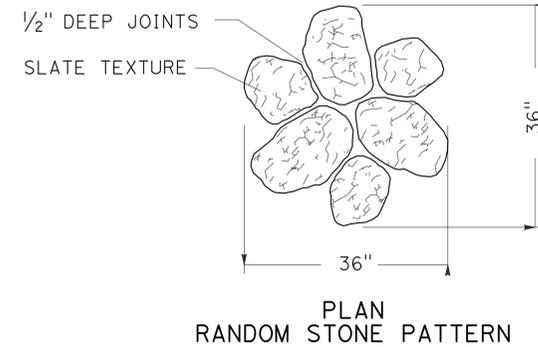
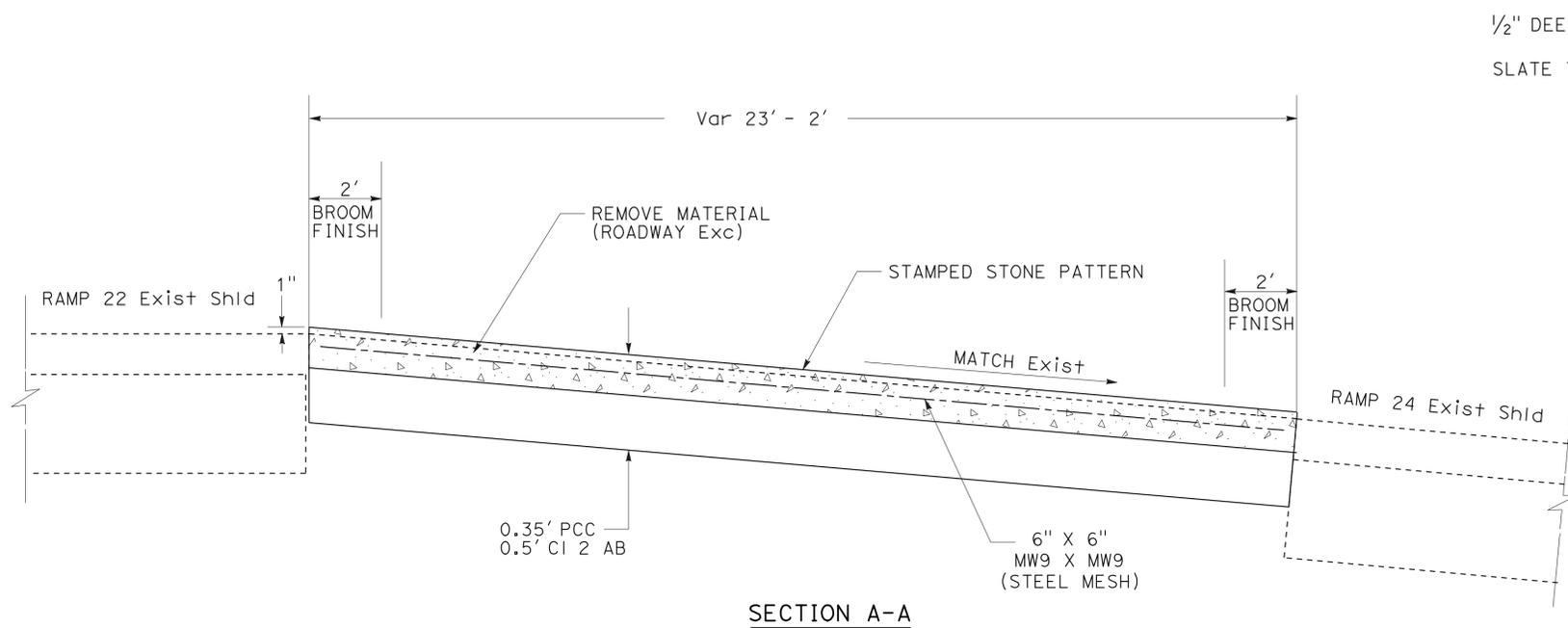
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
06	Fre	41,180	R24.7/R25.0, R58.4/R59.4	8	56
			REGISTERED CIVIL ENGINEER	DATE	
			PETER A CHANDER	12-16-10	
			PLANS APPROVAL DATE		
			No. 63988	Exp. 09-30-12	
			CIVIL		
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					

NOTE

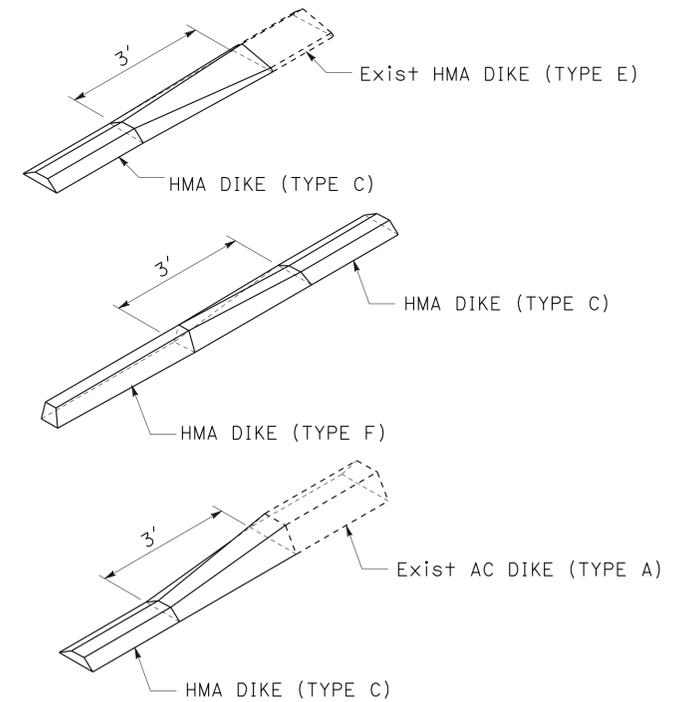
RAMP 22 : EB Rte 180 TO NB Rte 41 CONNECTOR
RAMP 24 : WB Rte 180 TO NB Rte 41 CONNECTOR

LEGEND

➔ DIRECTION OF TRAVEL



**GORE PAVING
MINOR CONCRETE (TEXTURED PAVING)**



HMA Dike TRANSITION DETAILS

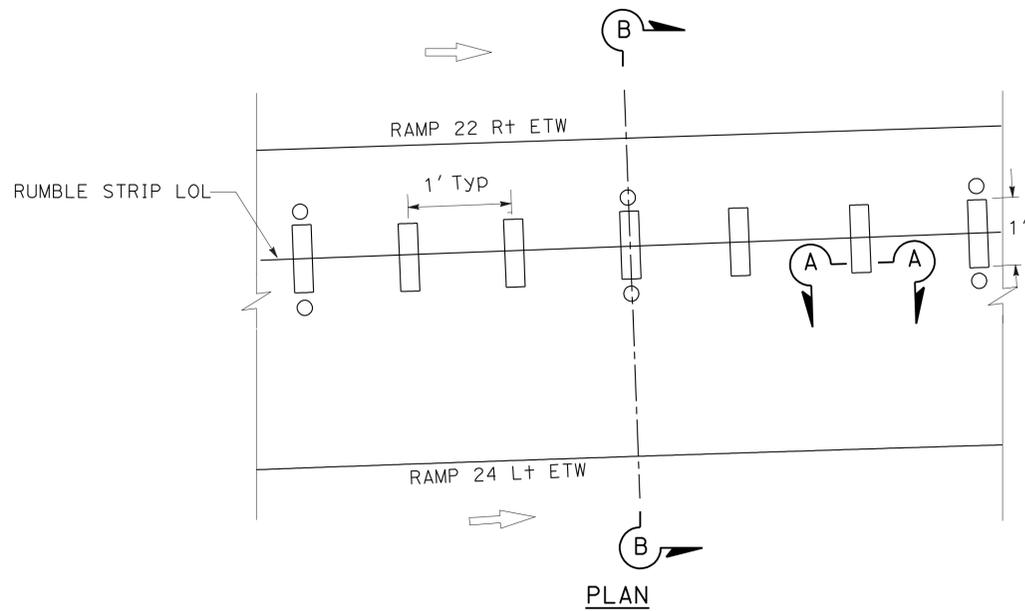
CONSTRUCTION DETAILS

NO SCALE

C-2

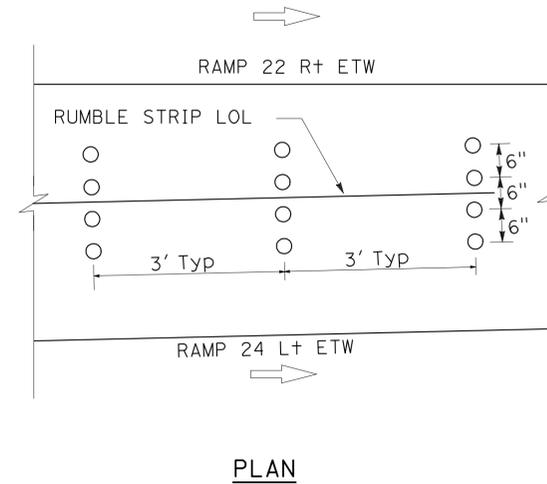
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans DESIGN DIVISION
FUNCTIONAL SUPERVISOR: ROBERTO BANDA
DESIGNED BY: PETER CHANDER
CHECKED BY: HAL KENYON
REVISOR: PETER CHANDER
DATE: 12-16-10

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
06	Fre	41,180	R24.7/R25.0, R58.4/R59.4	9	56
			REGISTERED CIVIL ENGINEER	DATE	
			PETER A CHANDER	12-16-10	
			No. 63988	PLANS APPROVAL DATE	
			Exp. 09-30-12		
			CIVIL		
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AC PAVEMENT, GROUND-IN INDENTATIONS DETAIL

"R24" STA 80+20 TO STA 81+10
"R24" STA 83+31 TO STA 85+21

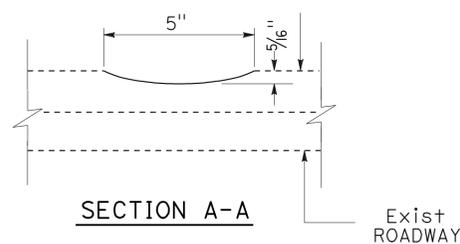


TYPE A PAVEMENT MARKER PLACEMENT DETAIL

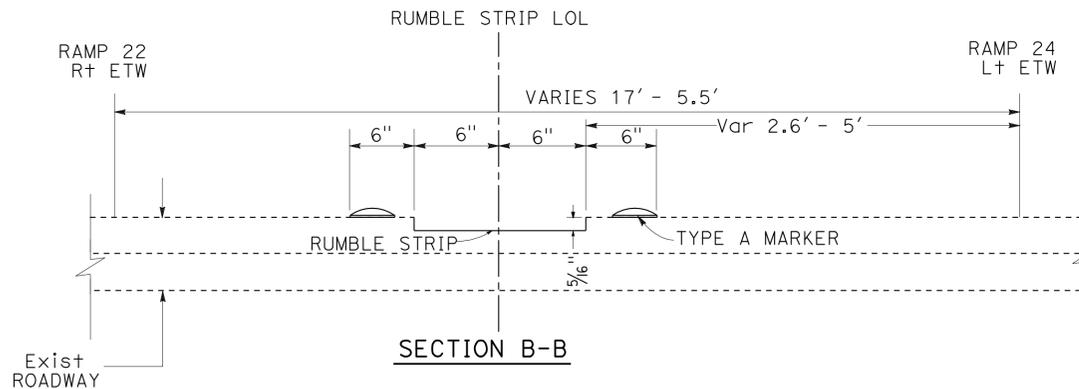
(ON CONCRETE PAVEMENT)
"R24" STA 81+10 TO STA 83+31

LEGEND

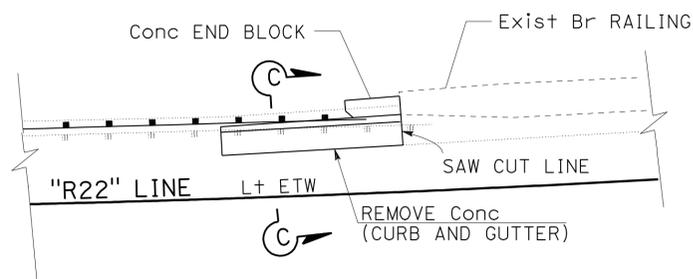
- DIRECTION OF TRAVEL
- TYPE A MARKER



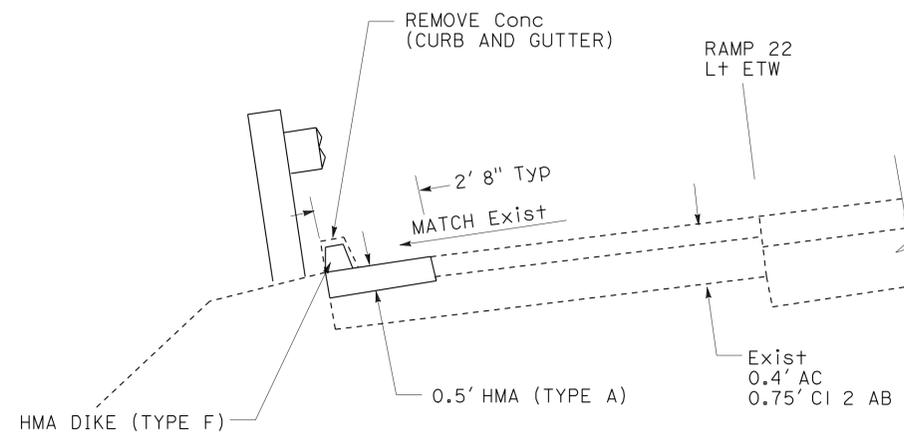
SECTION A-A



SECTION B-B



PLAN



SECTION C-C

REMOVE CONCRETE (CURB AND GUTTER) DETAIL

(FROM Sht L-1)

CONSTRUCTION DETAILS

NO SCALE

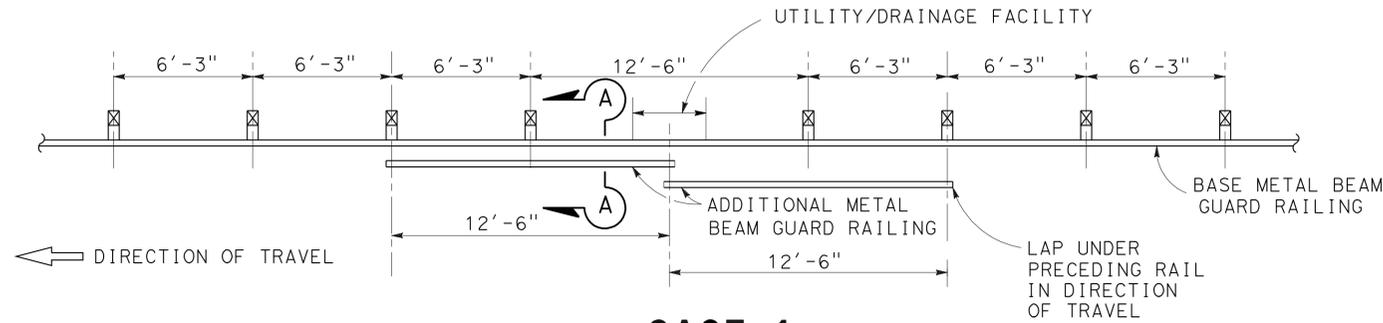
C-3

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	DESIGN DIVISION
FUNCTIONAL SUPERVISOR	ROBERTO BANDA
CALCULATED/DESIGNED BY	CHECKED BY
PETER CHANDER	HAL KENYON
REVISOR BY	DATE REVISED

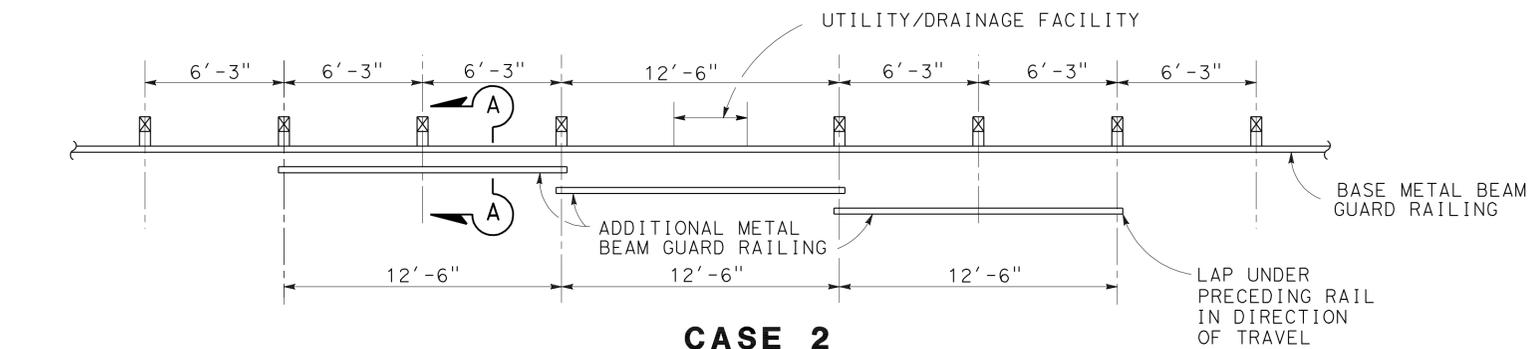
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
06	Fre	41,180	R24.7/R25.0, R58.4/R59.4	10	56
			<i>Peter Chander</i> 12-16-10 REGISTERED CIVIL ENGINEER DATE		
			2-28-11 PLANS APPROVAL DATE		
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					

NOTES:

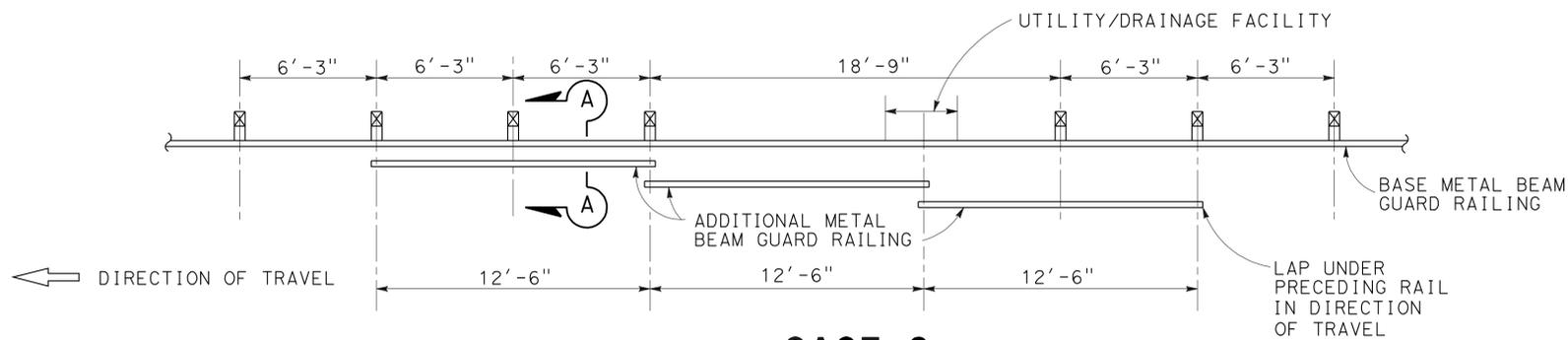
1. USE CASE 1 OR CASE 2 WHEN ONE POST OMITTED.
2. USE CASE 3 WHEN TWO POSTS ARE OMITTED.
3. FOR OTHER DETAILS, SEE STANDARD PLANS A77A2, A77B1, A77C2 AND REVISED STANDARD PLAN RSP A77C4.
4. LOCATIONS OF NESTING SHALL BE TO AVOID UTILITY / DRAINAGE FACILITY OR AS DIRECTED BY THE ENGINEER.
5. OFFSET THE ADDITIONAL METAL BEAM GUARD RAILING SPLICES 6'-3" FROM THE BASE METAL BEAM GUARD RAILING SPLICES.



**CASE 1
ONE POST OMITTED (SPLICE IN CENTER)**

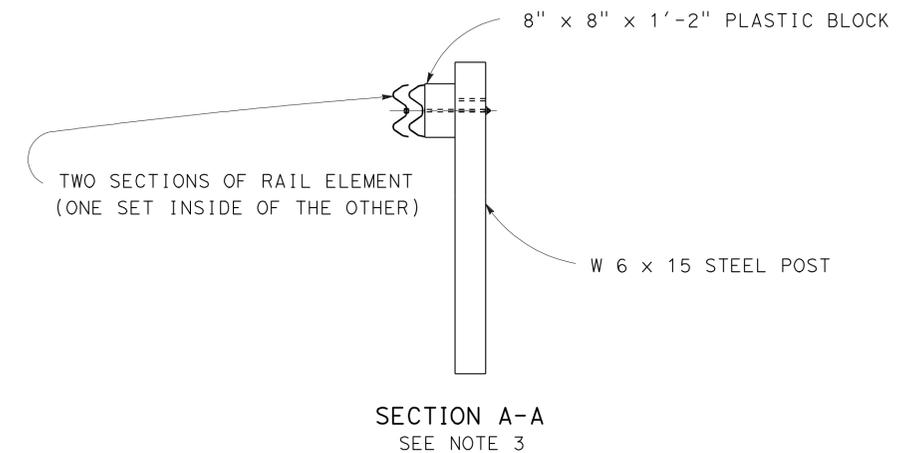


**CASE 2
ONE POST OMITTED (SPLICE AT POSTS)**



**CASE 3
TWO POSTS OMITTED**

LONG SPAN NESTED GUARD RAILING



CONSTRUCTION DETAILS

NO SCALE

C-4

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION DESIGN DIVISION
 FUNCTIONAL SUPERVISOR ROBERTO BANDA
 CALCULATED/DESIGNED BY CHECKED BY
 PETER CHANDER HAL KENYON
 REVISED BY DATE REVISED
 USERNAME => frmikes1
 DGN FILE => 60h370ga004.dgn
 BORDER LAST REVISED 7/2/2010
 RELATIVE BORDER SCALE IS IN INCHES
 UNIT 1469
 PROJECT NUMBER & PHASE 06000200291

LAST REVISION DATE PLOTTED => 17-MAR-2011
 12-16-10 TIME PLOTTED => 1:3:37

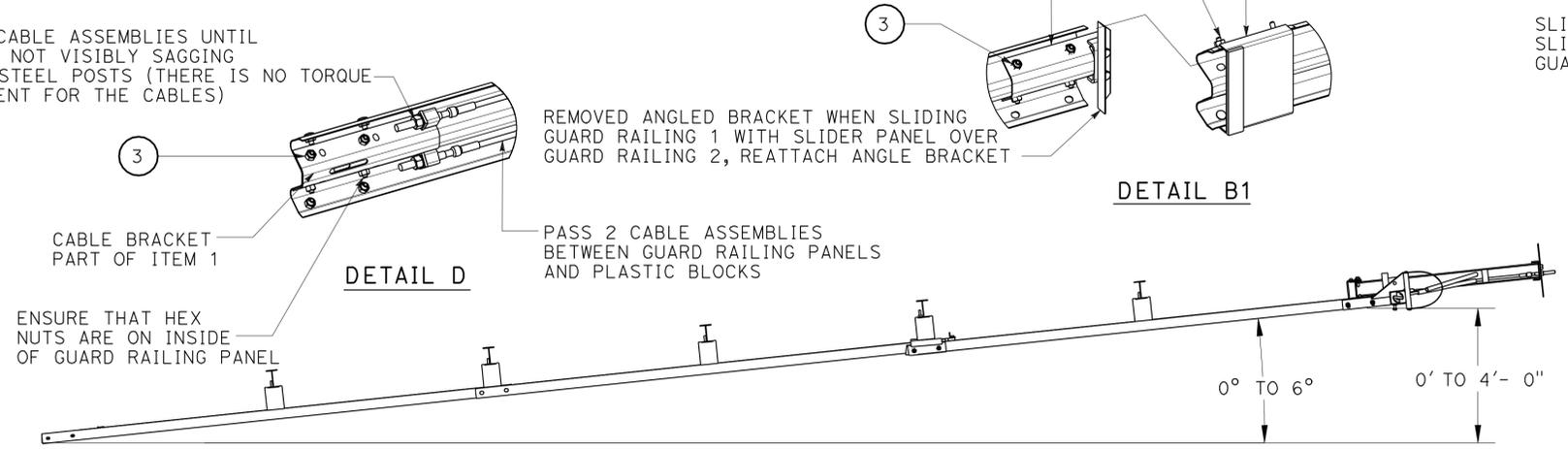
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
06	Fre	41,180	R24.7/R25.0, R58.4/R59.4	11	56
			12-16-10		
			REGISTERED CIVIL ENGINEER		
			DATE		
			2-28-11		
			PLANS APPROVAL DATE		
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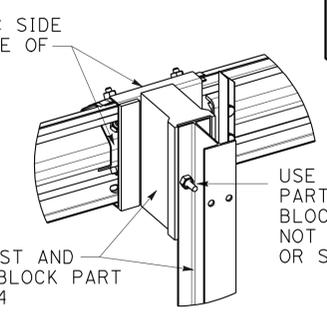
NOTES:

- SEE MANUFACTURER PLANS FOR ADDITIONAL DETAILS AND DIMENSIONS NOT SHOWN ON PLANS.
- SYSTEM SHALL BE INSTALLED PER MANUFACTURER SPECIFICATIONS.
- ONLY TIGHTEN THE CABLE ASSEMBLIES USING THE NUTS AT THE CABLE BRACKET (SEE DETAIL D). DO NOT TIGHTEN THE CABLES AT THE FRONT OF THE GROUND ANCHOR.
- WHEN DRIVING STEEL POST, ENSURE THAT A DRIVING CAP WITH TIMBER OR PLASTIC INSERT IS USED TO PREVENT DAMAGE TO THE GALVANIZING TO THE TOP OF THE STEEL POST.

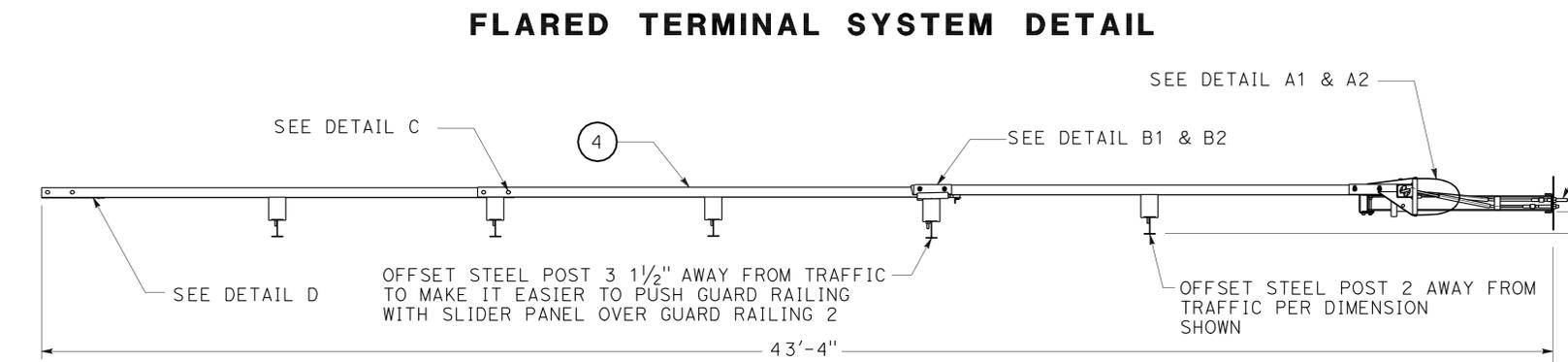
TIGHTEN CABLE ASSEMBLIES UNTIL THEY ARE NOT VISIBLY SAGGING BETWEEN STEEL POSTS (THERE IS NO TORQUE REQUIREMENT FOR THE CABLES)



DETAIL B1



USE A PRY BAR TURN FRICTION PLATE PART OF ITEM 1 COUNTER CLOCKWISE UNTIL IS COMPLETELY AGAINST LOCKING MECHANISM, SECURE IN PLACE USING 4 BOLTS PART OF ITEM 2 ON SIDE OF IMPACT HEAD WELDMENT



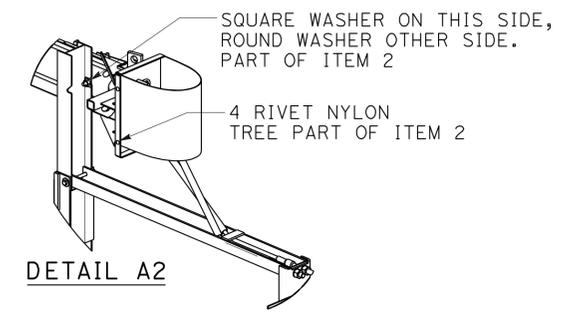
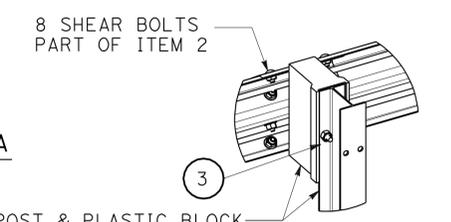
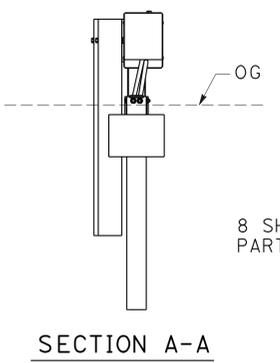
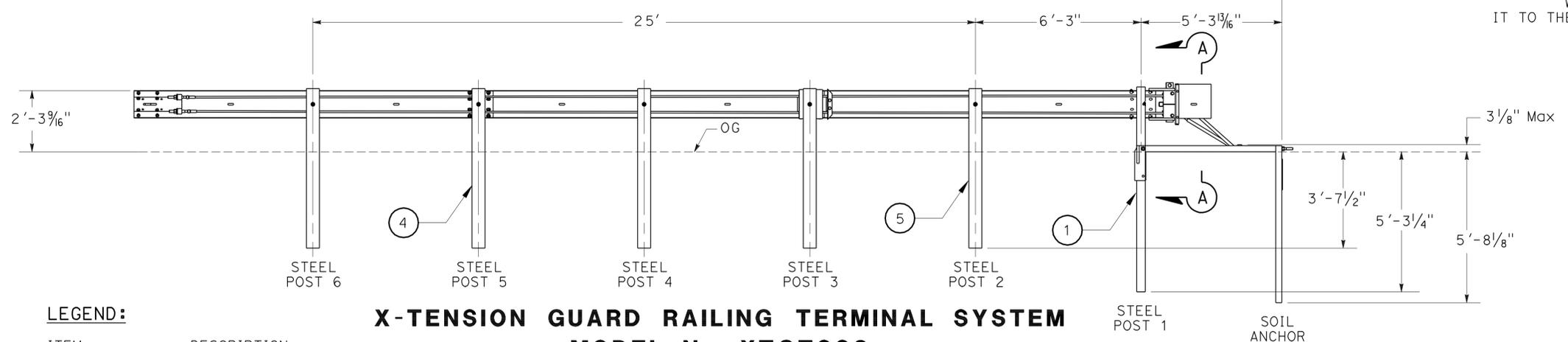
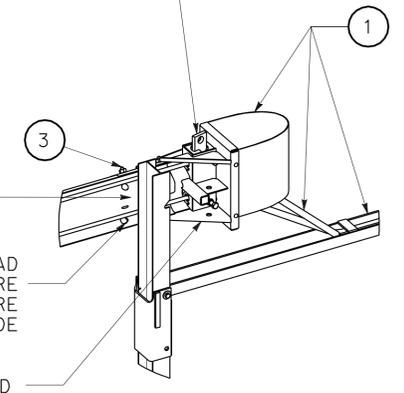
IN-LINE TERMINAL SYSTEM DETAIL

PASS CABLE ASSEMBLY UNDER THE STEEL STRAP ON THE GROUND STRUT AND FORWARD THROUGH THE HOLES AT FRONT END OF GROUND STRUT. THEN PASS CABLE ASSEMBLY THROUGH LOWER HOLE IN IMPACT HEAD WELDMENT AND THROUGH FRICTION PLATE AND OUT THE BACK SIDE OF THE IMPACT HEAD. (REPEAT FOR SECOND CABLE ASSEMBLY TO PASS THROUGH UPPER HOLE IN IMPACT HEAD WELDMENT).

NO PLASTIC BLOCK AT STEEL POST 1

WHEN MOUNTING IMPACT HEAD WELDMENT TO GUARD RAILING ENSURE THAT HEX NUTS PART OF ITEM 3 ARE ON TRAFFIC SIDE

USE PLASTIC BLOCKS TO HOLD HEAD WELDMENT UP WHILE BOLTING IT TO THE GUARD RAILING PANEL AND STEEL POST 1



LEGEND:

ITEM	DESCRIPTION
1	X-TENSION TERMINAL COMPONENT KIT
2	X-TENSION HARDWARE KIT
3	X-TENSION SYSTEM HARDWARE KIT
4	X-TENSION GUARD RAILING COMPONENT KIT 3
5	I-BEAM POST, MIDDLE, X350

CONSTRUCTION DETAILS

NO SCALE **C-5**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - DESIGN DIVISION

FUNCTIONAL SUPERVISOR: ROBERTO BANDA

CALCULATED/DESIGNED BY: PETER CHANDER

CHECKED BY: HAL KENYON

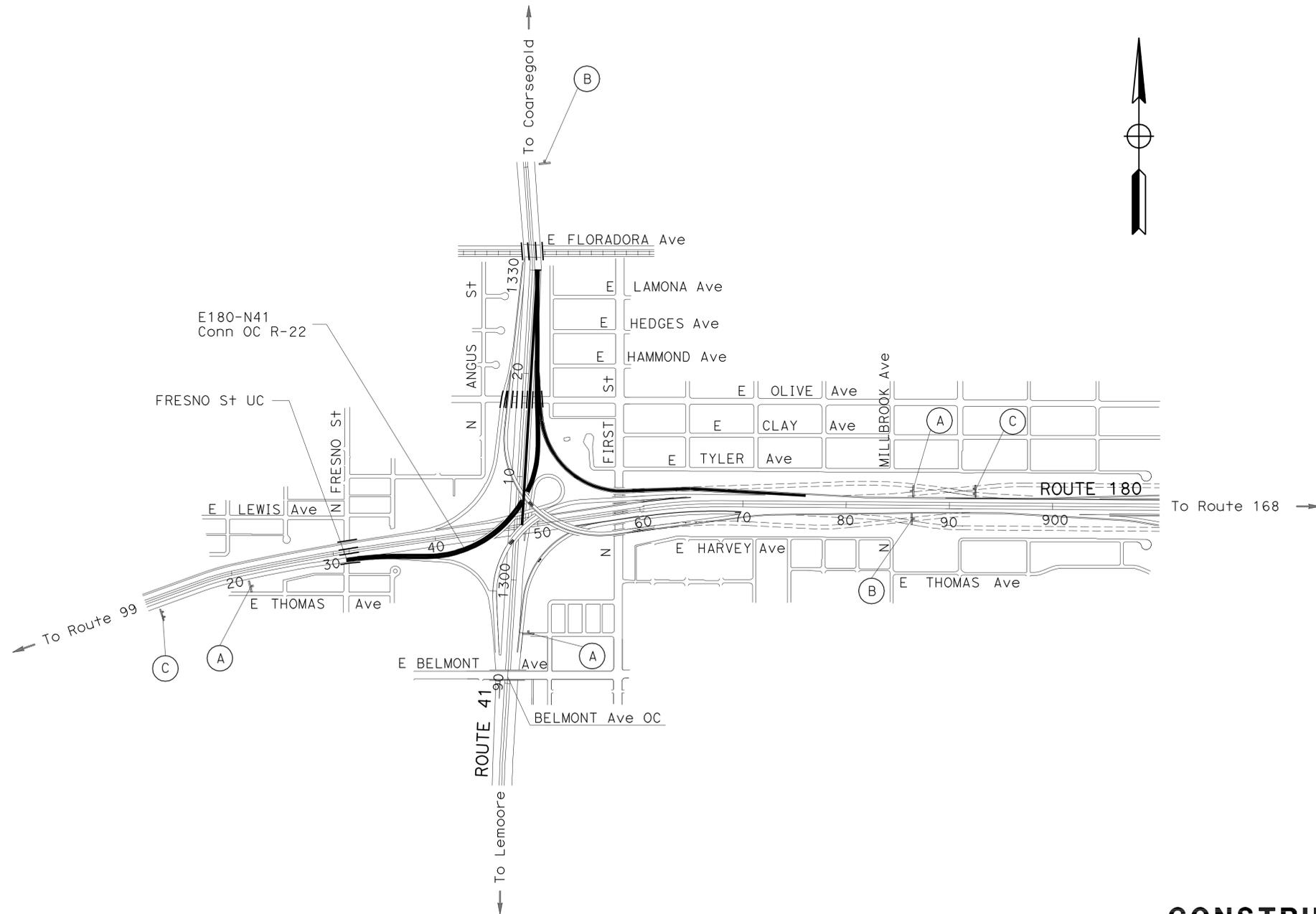
REVISED BY: DATE

LAST REVISION DATE PLOTTED => 18-MAR-2011
TIME PLOTTED => 07:32

STATIONARY MOUNTED CONSTRUCTION AREA SIGNS

SIGN No.	SIGN CODE	PANEL SIZE	SIGN MESSAGE	No. OF POSTS	POST SIZE	No. OF SIGNS
(A)	W20-1	48" x 48"	ROAD WORK AHEAD	1	6" x 6"	3
(B)	G20-2	48" x 24"	END ROAD WORK	1	4" x 6"	2
(C)	C40(CA)	144" x 60"	TRAFFIC FINES DOUBLED IN CONSTRUCTION ZONES	2	6" x 8"	2

NOTE: LOCATIONS OF CONSTRUCTION AREA SIGNS SHOWN ARE APPROXIMATE. EXACT SIGN LOCATIONS WILL BE DETERMINED BY THE ENGINEER.



CONSTRUCTION AREA SIGNS

NO SCALE

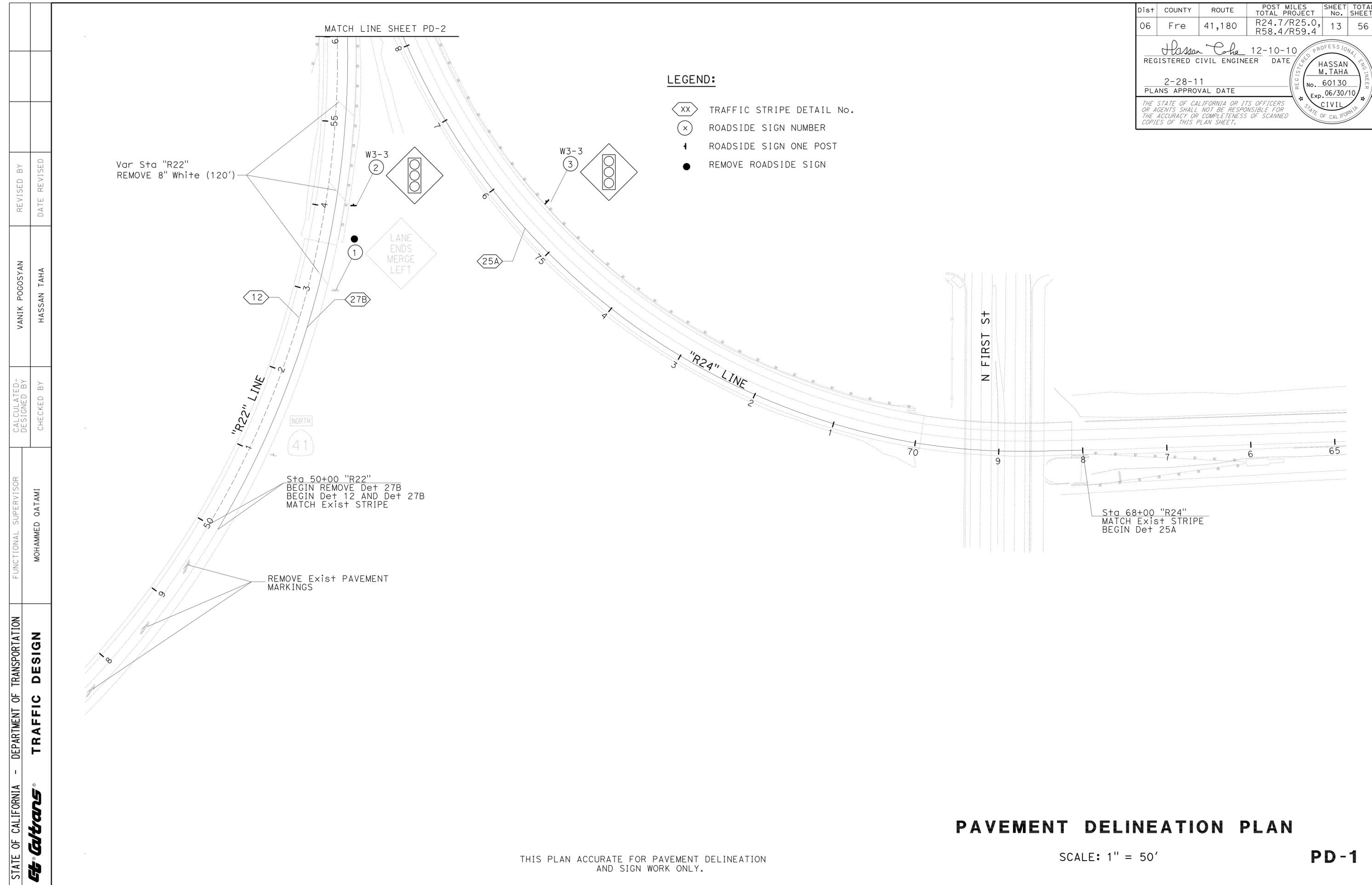
CS-1

THIS PLAN ACCURATE FOR CONSTRUCTION AREA SIGN WORK ONLY.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
06	Fre	41,180	R24.7/R25.0, R58.4/R59.4	13	56
<p>Hassan Cohe 12-10-10 REGISTERED CIVIL ENGINEER DATE</p> <p>2-28-11 PLANS APPROVAL DATE</p> <p>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.</p>					
<p>REGISTERED PROFESSIONAL ENGINEER HASSAN M. TAHA No. 60130 Exp. 06/30/10 CIVIL STATE OF CALIFORNIA</p>					

LEGEND:

- ⬡ XX TRAFFIC STRIPE DETAIL No.
- ⊗ ⊗ ROADSIDE SIGN NUMBER
- ┆ ┆ ROADSIDE SIGN ONE POST
- ● REMOVE ROADSIDE SIGN



PAVEMENT DELINEATION PLAN

SCALE: 1" = 50'

PD-1

THIS PLAN ACCURATE FOR PAVEMENT DELINEATION AND SIGN WORK ONLY.

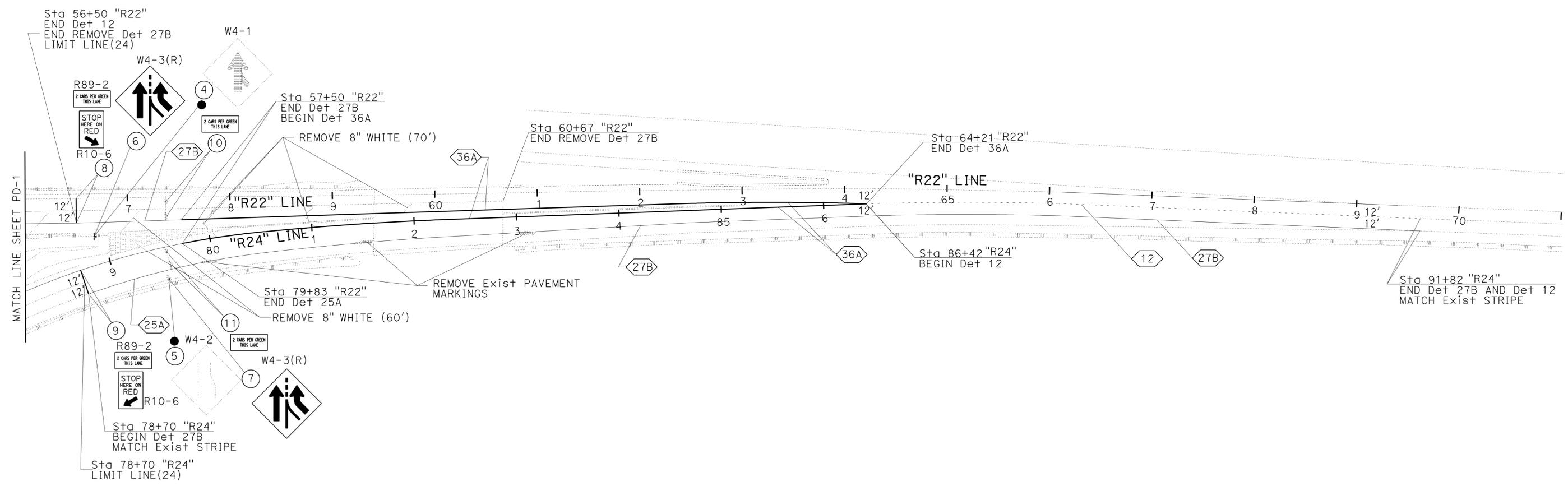
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
06	Fre	41,180	R24.7/R25.0, R58.4/R59.4	14	56

Hassan Cohe	12-10-10
REGISTERED CIVIL ENGINEER	DATE
2-28-11	
PLANS APPROVAL DATE	

REGISTERED PROFESSIONAL ENGINEER
HASSAN M. TAHA
No. 60130
Exp. 06/30/10
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.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - **Caltrans** - **TRAFFIC DESIGN**



**PAVEMENT DELINEATION
AND SIGN PLAN**
SCALE: 1" = 50'
PD-2

THIS PLAN ACCURATE FOR PAVEMENT DELINEATION
AND SIGN WORK ONLY.



BORDER LAST REVISED 7/2/2010

USERNAME => frmikes1
DGN FILE => 60H370na002.dgn

RELATIVE BORDER SCALE
IS IN INCHES

UNIT 1513

PROJECT NUMBER & PHASE

06000200291

LAST REVISION | DATE PLOTTED => 17-MAR-2011
12-10-10 | TIME PLOTTED => 1:3:43

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
06	Fre	41,180	R24.7/R25.0, R58.4/R59.4	15	56

Hassan M. Taaha 10-28-10
REGISTERED CIVIL ENGINEER DATE

2-28-11
PLANS APPROVAL DATE

HASSAN M. TAHA
No. 60130
Exp. 06/30/10
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.

PAVEMENT DELINEATION QUANTITIES

SHEET No.	LOCATION	DETAIL No.	PAVEMENT MARKER RETROREFLECTIVE		THERMOPLASTIC TRAFFIC STRIPE				REMOVE THERMOPLASTIC TRAFFIC STRIPE	THERMOPLASTIC PAVEMENT MARKING		REMOVE THERMOPLASTIC PAVEMENT MARKING	REMOVE PAVEMENT MARKER (N)
			TYPE G Clear (One-Way)	TYPE H YELLOW (One-Way)	4"		8"	4" BROKEN (36'-12')		DESCRIPTION	SQFT		
			EA	EA	WHITE	YELLOW	WHITE	LF					
PD-1 TO PD-2	50+00 TO 60+67	"R22"	27B						1067	6-TYPE VI ARROW		252	
	50+00 TO 57+50	"R22"	27B			750				2-LIMIT LINES	48		
	50+00 TO 56+50	"R22"	12	15				650		8" INCH WHITE		135	15
	68+00 TO 79+83	"R24"	25A	58		1183							58
	57+50 TO 64+21	"R22"	36A		50		671						50
	78+70 TO 79+73	"R24"	27B			103							
	86+42 TO 91+82	"R24"	12	12				540					12
	78+70 TO 91+82	"R24"	27B			1312							
SUB-TOTAL			85	50	2165	1183	671	1190	1067		48	387	
TOTAL			135		3348		671	1190	1067		48	387	

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

SIGN QUANTITIES

SIGN No.	SIGN CODE	SIGN MESSAGE	No. OF POST AND SIZE	PANEL SIZE	BACKGROUND		LEGEND		STANDARD GRAFFITI FILM	FURNISH SINGLE SHEET ALUMINUM SIGN (0.063" UNFRAMED)	ROADSIDE SIGN ONE POST	ROADSIDE SIGN (SSBM)-(N)	REMOVE ROADSIDE SIGN
					SHEETING COLOR	RETROREFLECTIVITY ASTM TYPE	SHEETING COLOR	RETROREFLECTIVITY ASTM TYPE					
1	W9-2	LANE ENDS MERGE LEFT											1
2	W3-3	SIGNAL AHEAD	MAST ARM	48" x 48"	YELLOW	III	BLACK		X	16.00		1	
3	W3-3	SIGNAL AHEAD	MAST ARM	48" x 48"	YELLOW	III	BLACK		X	16.00		1	
4	W4-1	MERGE											1
5	W4-2	LANE ENDS											1
6	W4-3(R)	ADDED LANE	1 - 6" x 6"	48" x 48"	YELLOW	III	BLACK		X	16.00	1		
7	W4-3(R)	ADDED LANE	1 - 6" x 6"	48" x 48"	YELLOW	III	BLACK		X	16.00	1		
8	R89-2	2 CARS PER GREEN THIS LANE	ON SIGNAL POLE	10" x 24"	WHITE	III	BLACK		X	3.34		2	
	R10-6	STOP HERE ON RED		24" x 30"						10.00			
9	R89-2	2 CARS PER GREEN THIS LANE	ON SIGNAL POLE	10" x 24"	WHITE	III	BLACK		X	3.34		2	
	R10-6	STOP HERE ON RED		24" x 30"						10.00			
10	R89-2	2 CARS PER GREEN THIS LANE	MAST ARM	16" x 36"	WHITE	III	BLACK		X	8.00		2	
11	R89-2	2 CARS PER GREEN THIS LANE	MAST ARM	16" x 36"	WHITE	III	BLACK		X	8.00		2	
TOTAL										106.68	2		3

(N) NOT A SEPARATE PAY ITEM, FOR INFORMATION ONLY. SEE ELECTRICAL PLAN SHEETS.

PAVEMENT DELINEATION AND SIGN QUANTITIES

PDQ-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 FUNCTIONAL SUPERVISOR: MOHAMMED OATAMI
 DESIGNED BY: VANIK POGOSYAN
 CHECKED BY: HASSAN TAHA
 REVISIONS: 10-28-10, 2-28-11

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
06	Fre	41,180	R24.7/R25.0, R58.4/R59.4	16	56
			12-16-10	DATE	
REGISTERED CIVIL ENGINEER			PETER A. CHANDER		
2-28-11			PLANS APPROVAL DATE		
No. 63988			Exp. 09-30-12		
CIVIL			STATE OF CALIFORNIA		
<small>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.</small>					

NOTES:

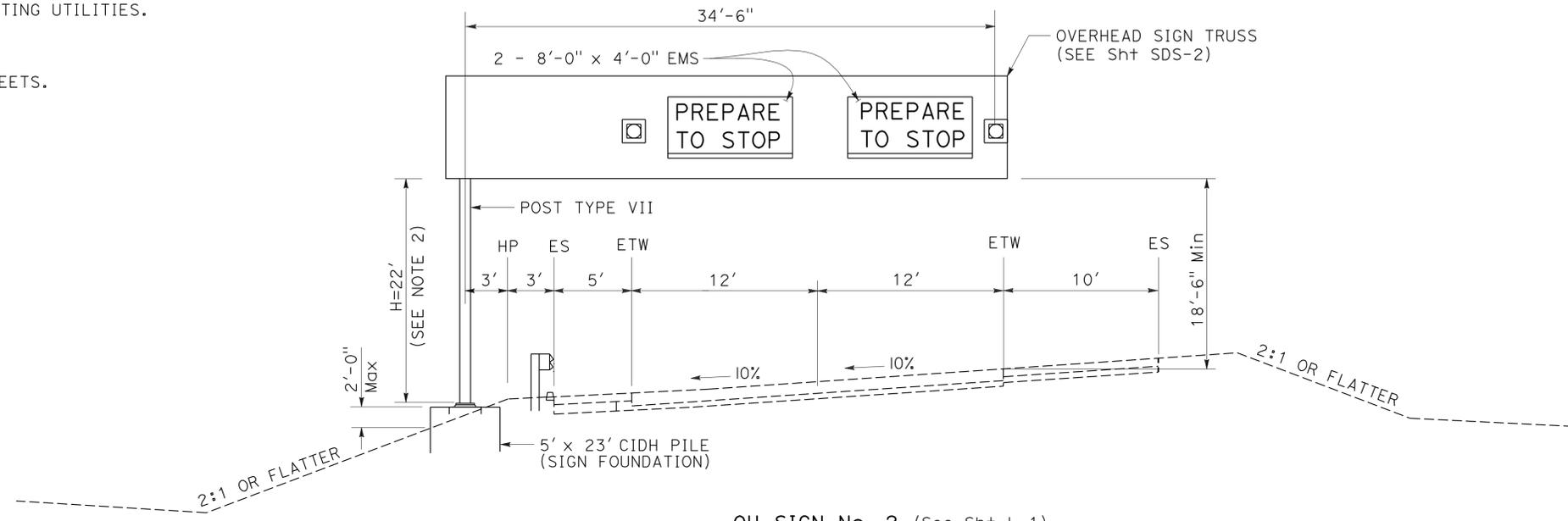
- OVERHEAD SIGN INSTALLATIONS SHALL MAINTAIN A MINIMUM CLEARANCE OF 18'-6" BETWEEN THE HIGH POINT OF FINISHED SURFACE OF THE ROADBED AND THE BOTTOM OF THE TRUSS FRAME.
- "H" HEIGHT SHOWN IS FOR QUANTITY ESTIMATES ONLY AND IS SUBJECT TO CHANGE BASED ON FIELD CONDITIONS.
- SIGN ELEVATIONS AND DIMENSIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR.
- INSTALL ELECTRICAL CONDUIT IN FOUNDATION AS PER S+D PLAN S-8 AND ELECTRICAL PLANS.
- THE CONTRACTOR SHALL VERIFY EXISTING UTILITY LOCATIONS BEFORE DRILLING FOR CIDH PILE FOUNDATION. EMS LOCATIONS MAY BE ADJUSTED ±10' BY THE ENGINEER, TO AVOID IMPACT TO ANY EXISTING UTILITIES.
- NO WALKWAY OR ILLUMINATION REQUIRED.
- FOR EMS MOUTING DETAILS, SEE "SDS" SHEETS.

ABBREVIATION:

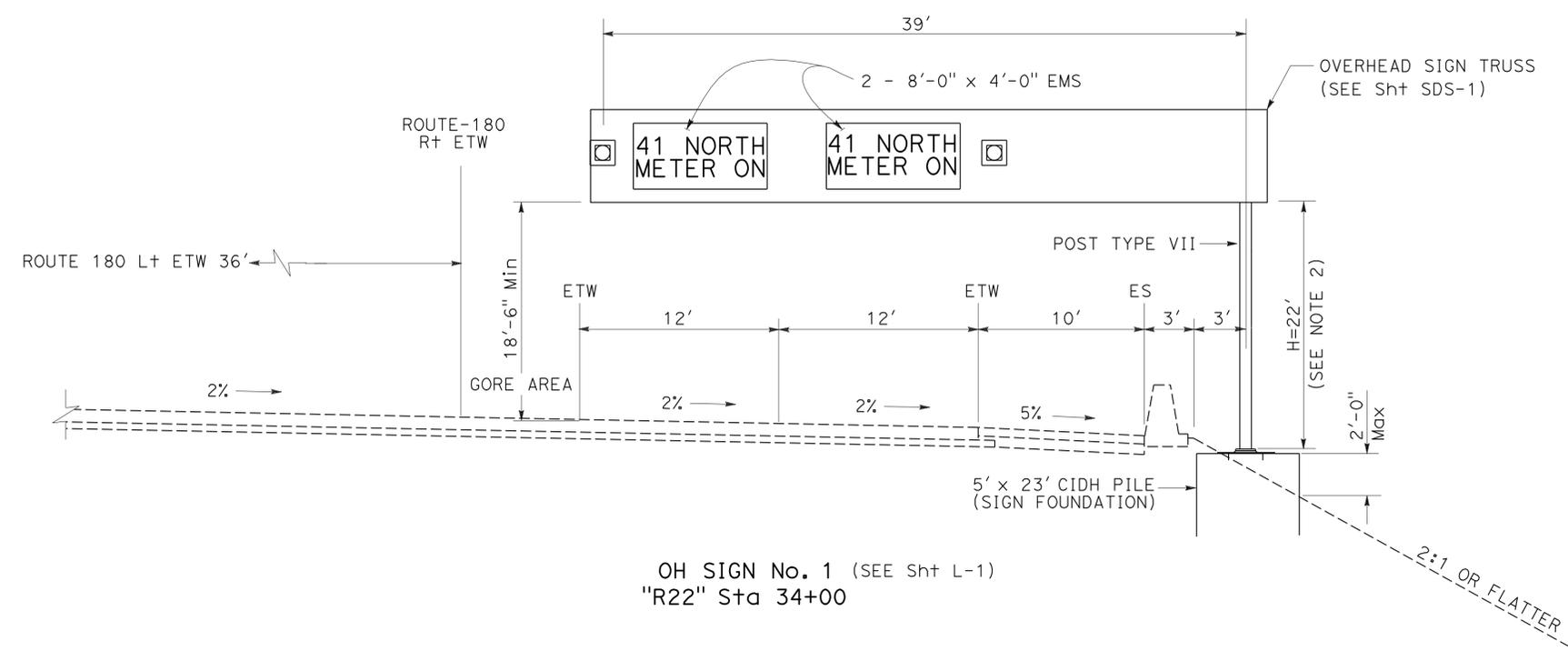
EMS - EXTINGUISHABLE MESSAGE SIGN WITH FLASHING BEACONS

LEGEND:

 12" FLASHING BEACON



OH SIGN No. 2 (See Sht L-1)
"R22" Sta 39+75



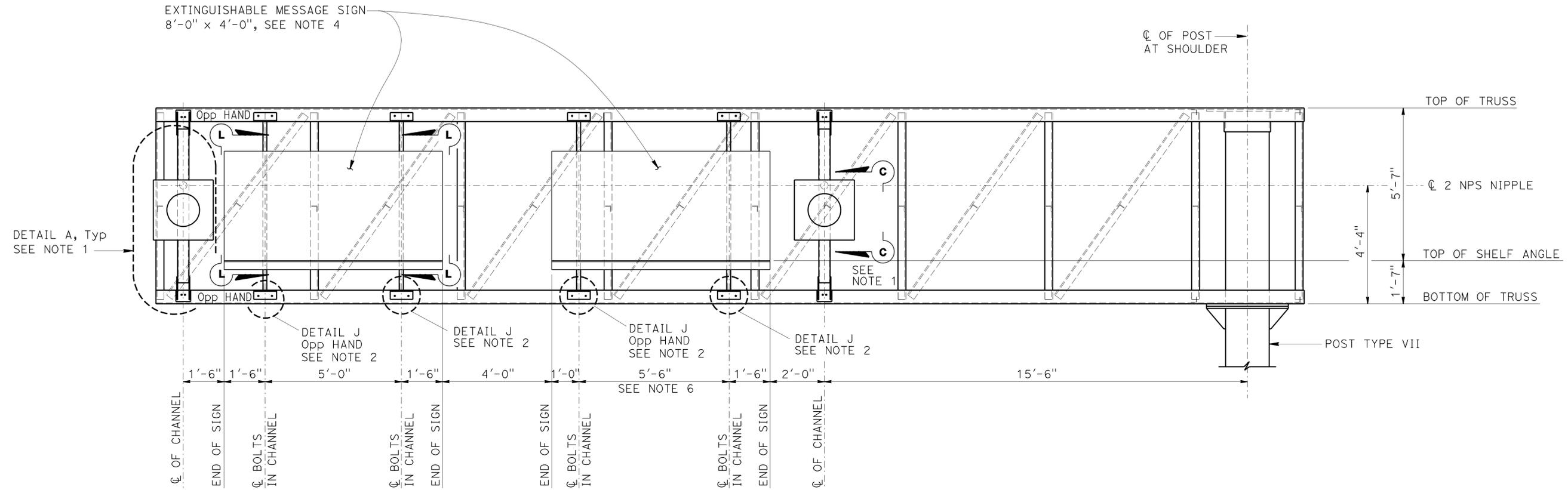
OH SIGN No. 1 (SEE Sht L-1)
"R22" Sta 34+00

OVERHEAD SIGN DETAILS
NO SCALE **SD-1**

THIS PLAN ACCURATE FOR OVERHEAD SIGN WORK ONLY.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	DESIGN DIVISION
FUNCTIONAL SUPERVISOR	ROBERTO BANDA
CALCULATED/DESIGNED BY	CHECKED BY
PETER CHANDER	HAL KENYON
REVISOR BY	DATE REVISED

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
06	Fre	41,180	R24.7/R25.0, R58.4/R59.4	17	56
			K. C. Liu 11-10-10 REGISTERED CIVIL ENGINEER DATE		
			2-28-11 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>					



NOTES:

- FOR "DETAIL A" AND "VIEW C-C", SEE SHEET SDS-4.
- FOR "DETAIL J" AND "SECTION L-L", SEE SHEET SDS-3.
- ALL HOLES IN MEMBERS SHALL BE DRILLED. THERMAL CUTTING AND TORCH CUTTING NOT ALLOWED.
- FOR ADDITIONAL INFORMATION ON EXTINGUISHABLE MESSAGE SIGN, SEE ELECTRICAL PLANS.
- FOR DETAILS NOT SHOWN, SEE STANDARD PLANS.
- DETAIL A AND DETAIL J PLACEMENT SHALL BE ADJUSTED TO AVOID BOTH VERTICAL AND DIAGONAL MEMBERS, OR AS APPROVED BY THE ENGINEER.
- ALL STEEL SHALL BE GALVANIZED AFTER FABRICATION.
- THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

ELEVATION

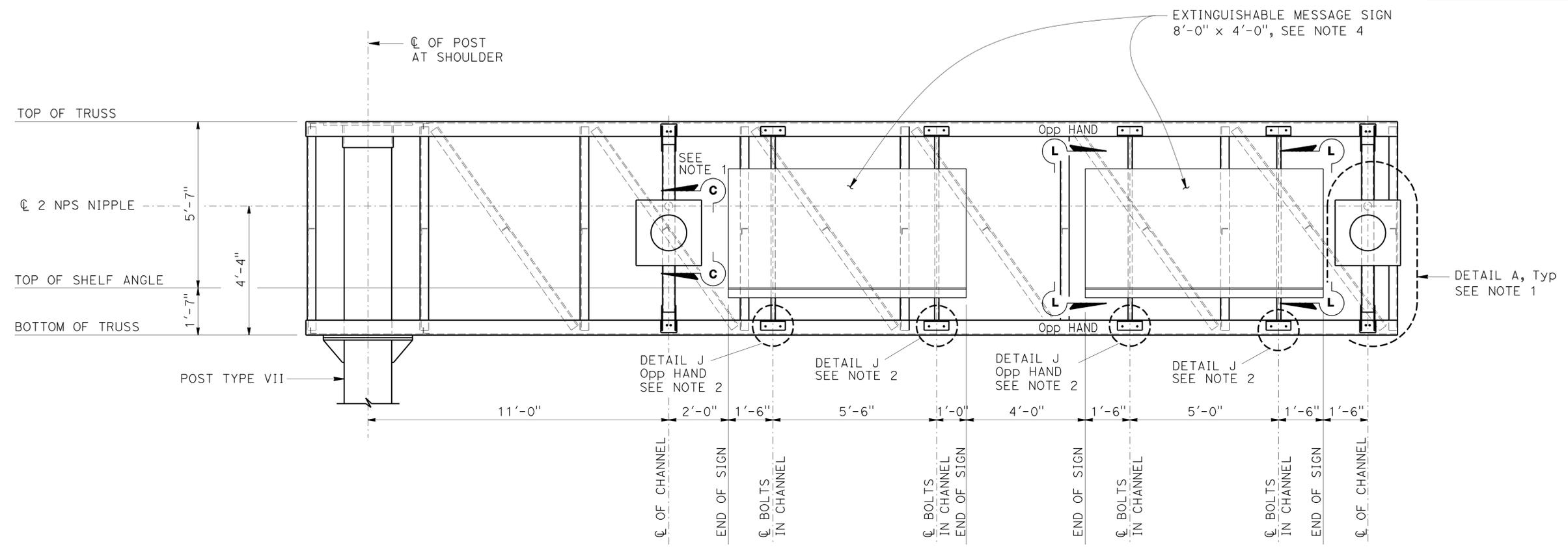
OVERHEAD SIGN NUMBER 1
"R22" Sta 34+00

NO SCALE

BRANCH CHIEF	DESIGN	BY A GUTIERREZ	CHECKED K. C. LIU	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES DESIGN AND TECHNICAL SERVICES SPECIAL DESIGNS BRANCH A	BRIDGE NO.	N/A	OVERHEAD SIGN TRUSS EXTINGUISHABLE MESSAGE SIGN AND FLASHING BEACON DETAIL	SDS-1
	DETAILS	BY D W JUSTICE Jr	CHECKED A GUTIERREZ			POST MILE			
	QUANTITIES	BY A GUTIERREZ	CHECKED						
(ENGLISH) SPECIAL DESIGNS BRANCH BORDER SHEET (REV. 7-1-09)				ORIGINAL SCALE IN INCHES FOR REDUCED PLANS		CU 06 EA 0H3701		DISREGARD PRINTS BEARING EARLIER REVISION DATES	
				0 1 2 3		11-18-10 12-22-10		SHEET OF	

USERNAME => hrmikes DATE PLOTTED => 17-MAR-2011 TIME PLOTTED => 13:30

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
06	Fre	41,180	R24.7/R25.0, R58.4/R59.4	18	56
			K. C. Liu	11-10-10	
			REGISTERED CIVIL ENGINEER	DATE	
			2-28-11		
			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.					



- NOTES:**
1. FOR "DETAIL A" AND "VIEW C-C", SEE SHEET SDS-4.
 2. FOR "DETAIL J" AND "SECTION L-L", SEE SHEET SDS-3.
 3. ALL HOLES IN MEMBERS SHALL BE DRILLED. THERMAL CUTTING AND TORCH CUTTING NOT ALLOWED.
 4. FOR ADDITIONAL INFORMATION ON EXTINGUISHABLE MESSAGE SIGN, SEE ELECTRICAL PLANS.
 5. FOR DETAILS NOT SHOWN, SEE STANDARD PLANS.
 6. DETAIL A AND DETAIL J PLACEMENT SHALL BE ADJUSTED TO AVOID BOTH VERTICAL AND DIAGONAL MEMBERS, OR AS APPROVED BY THE ENGINEER.
 7. ALL STEEL SHALL BE GALVANIZED AFTER FABRICATION.
 8. THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

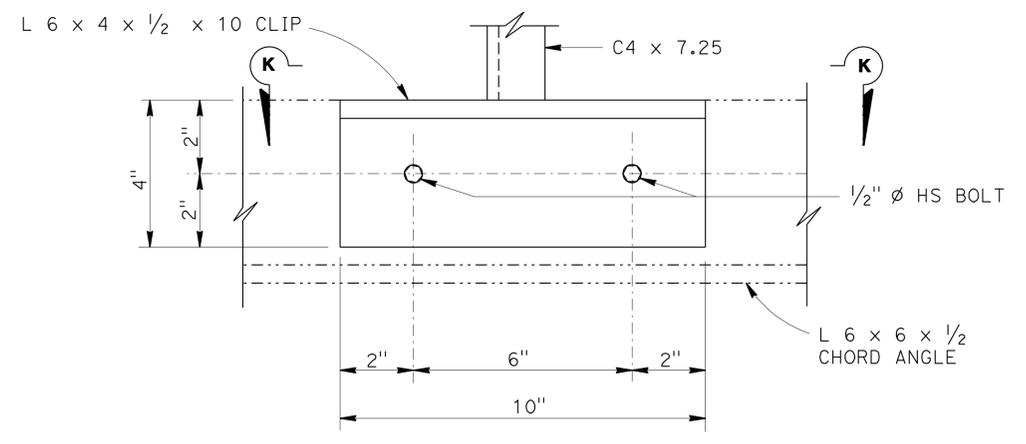
ELEVATION
OVERHEAD SIGN NUMBER 2
"R22" Sta 39+75

NO SCALE

BRANCH CHIEF 	DESIGN	BY A GUTIERREZ	CHECKED K. C. LIU	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES DESIGN AND TECHNICAL SERVICES SPECIAL DESIGNS BRANCH A	BRIDGE NO.	N/A	OVERHEAD SIGN TRUSS EXTINGUISHABLE MESSAGE SIGN AND FLASHING BEACON DETAIL	SDS-2
	DETAILS	BY D W JUSTICE Jr	CHECKED A GUTIERREZ			POST MILE			
	QUANTITIES	BY A GUTIERREZ	CHECKED						
(ENGLISH) SPECIAL DESIGNS BRANCH BORDER SHEET (REV. 7-1-09)				ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	0 1 2 3	CU 06 EA 0H3701	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES	SHEET 18 OF 56

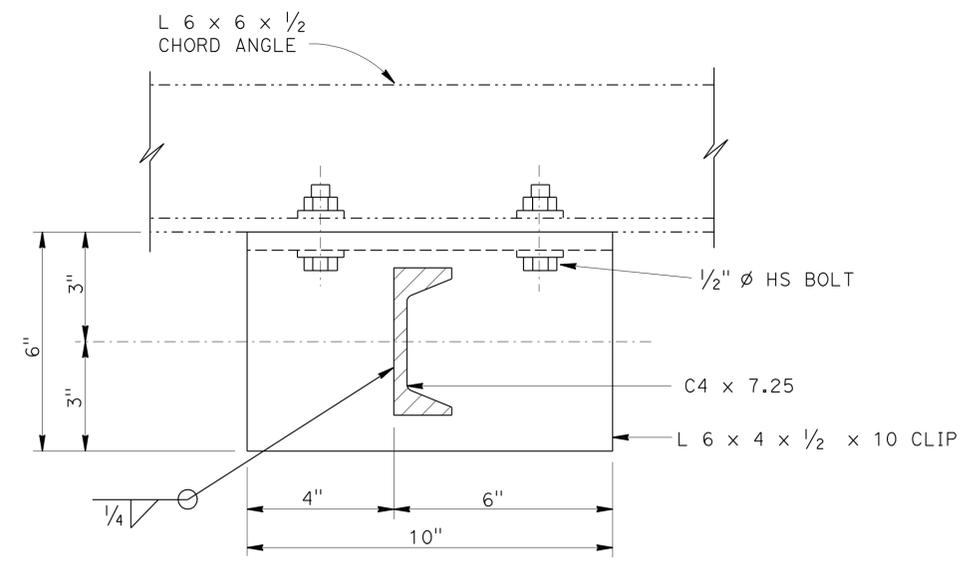
USERNAME => hrmikes DATE PLOTTED => 17-MAR-2011 TIME PLOTTED => 13:30

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
06	Fre	41,180	R24.7/R25.0, R58.4/R59.4	19	56
K. C. Liu				11-10-10	
REGISTERED CIVIL ENGINEER				DATE	
2-28-11				PLANS APPROVAL DATE	
K. C. LIU				No. C 50291	
Exp. 06-30-09				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.					

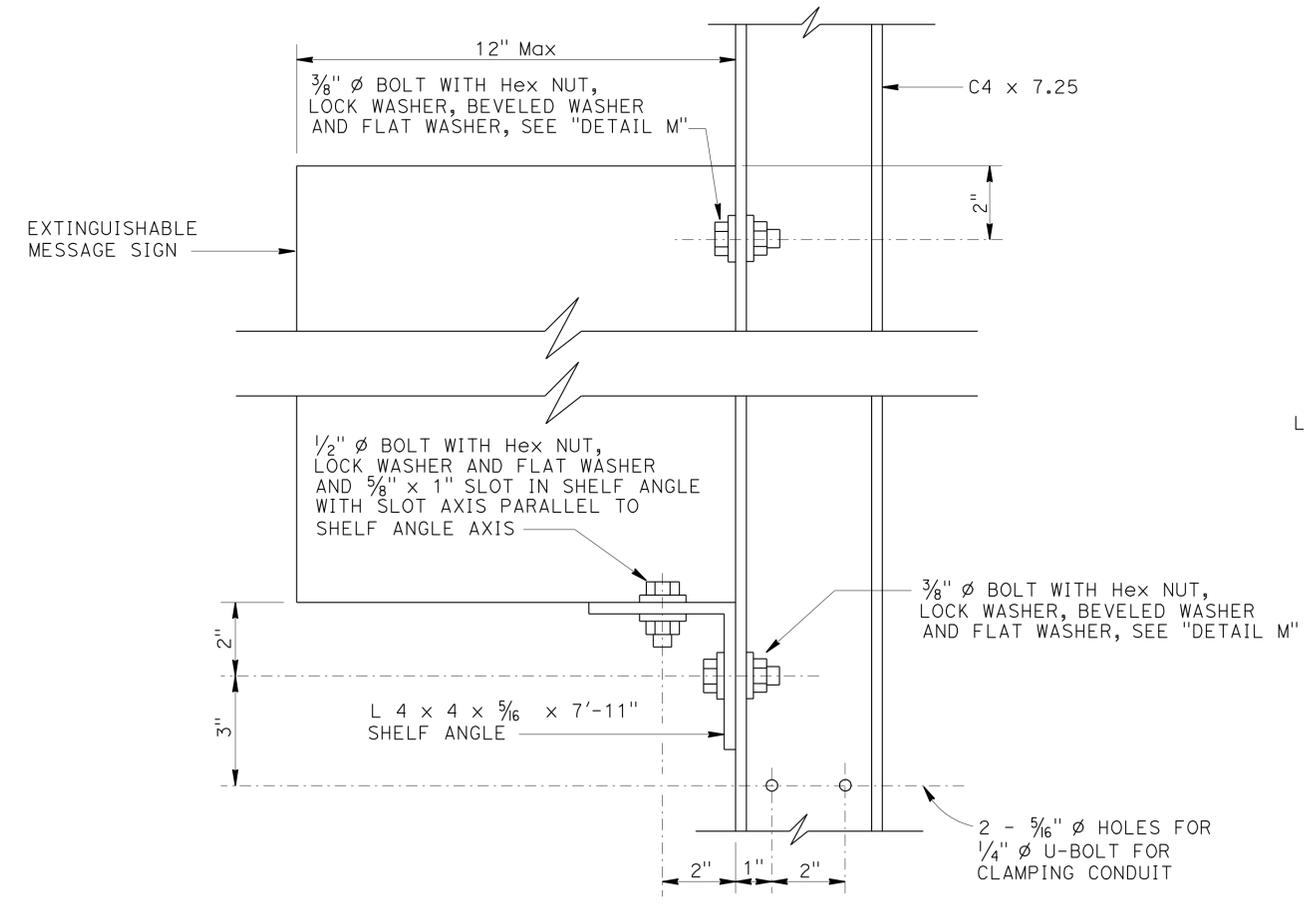


DETAIL J

BOTTOM CHORD CONNECTION SHOWN. FOR TOP CHORD CONNECTION REVERSE TOP TO BOTTOM.

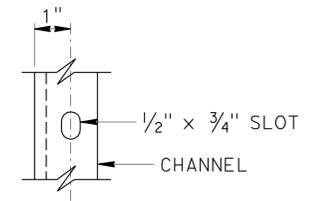


SECTION K-K



SECTION L-L

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



DETAIL M

RIGHT CHANNEL SHOWN, LEFT CHANNEL IS Opp HAND

NO SCALE

BRANCH CHIEF *Jeffrey B. Woody*

DESIGN	BY A GUTIERREZ	CHECKED K. C. LIU
DETAILS	BY D W JUSTICE Jr	CHECKED A GUTIERREZ
QUANTITIES	BY A GUTIERREZ	CHECKED

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
DESIGN AND TECHNICAL SERVICES
SPECIAL DESIGNS BRANCH **A**

BRIDGE NO.	N/A
POST MILE	

OVERHEAD SIGN TRUSS
EXTINGUISHIBLE MESSAGE SIGN
CONNECTION DETAILS

SDS-3

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

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

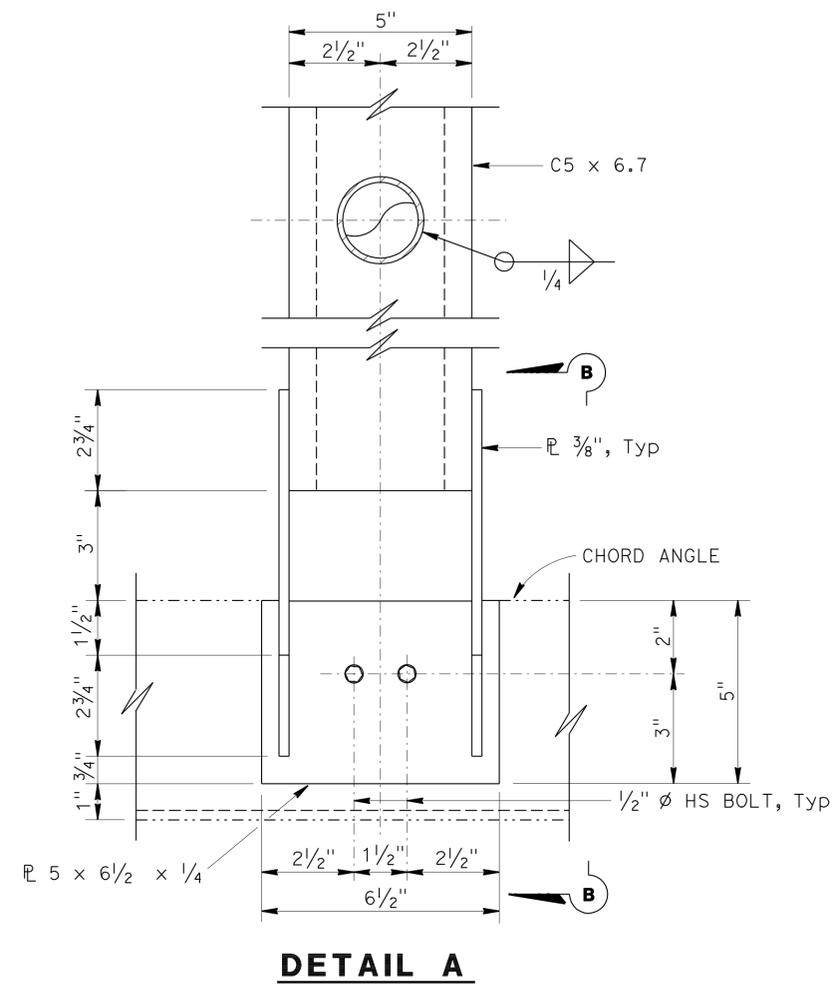
CU 06
EA 0H3701

DISREGARD PRINTS BEARING EARLIER REVISION DATES

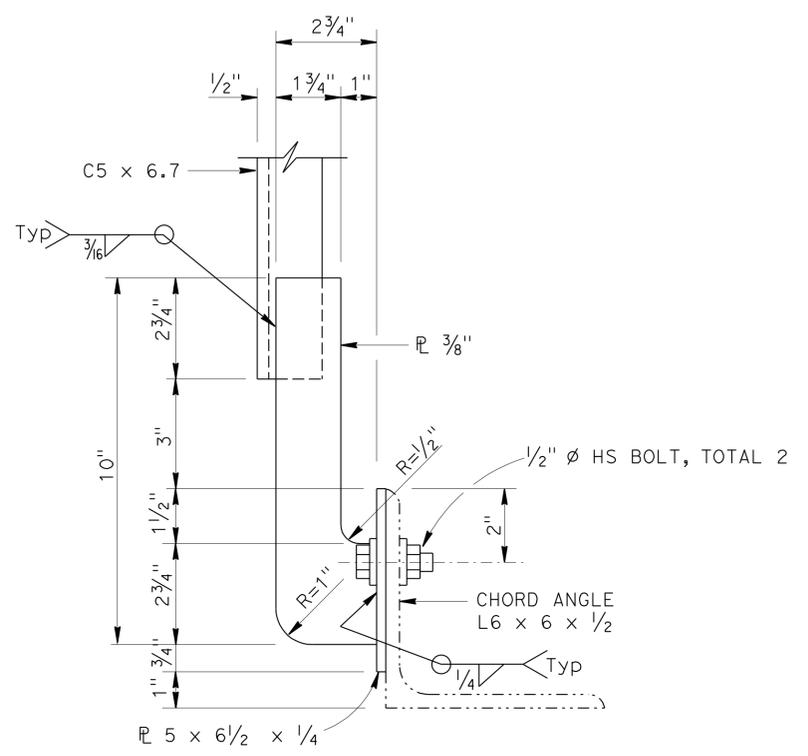
REVISION DATES									
SHEET	OF								

USERNAME => hrmikes DATE PLOTTED => 17-MAR-2011 TIME PLOTTED => 13:30

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
06	Fre	41,180	R24.7/R25.0, R58.4/R59.4	20	56
			K. C. Liu 11-10-10 REGISTERED CIVIL ENGINEER DATE		
			2-28-11 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>					

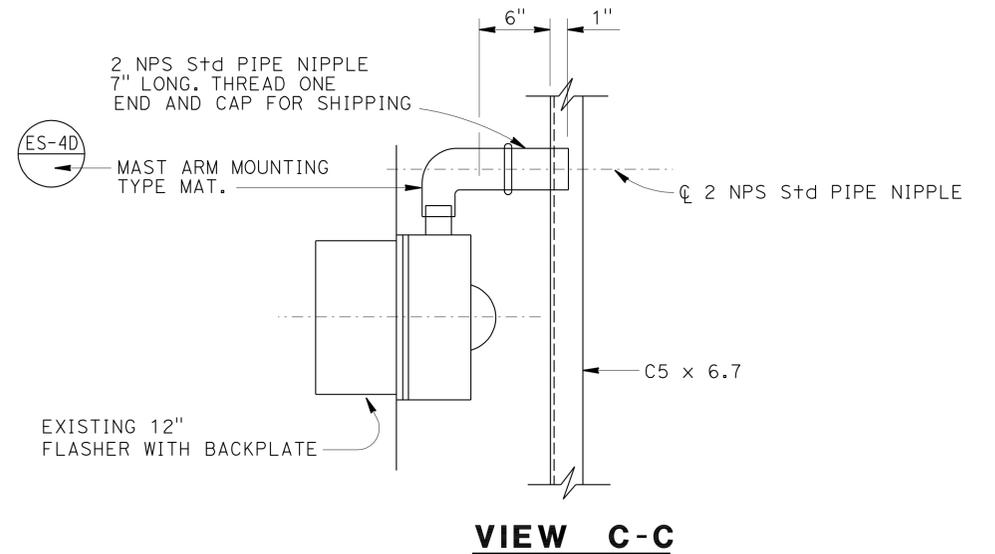


DETAIL A



SECTION B-B

NOTES: BOTTOM CHORD CONNECTION SHOWN.
TOP CHORD CONNECTION SIMILAR.
OTHER FRAMING NOT SHOWN FOR CLARITY.



VIEW C-C

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

NO SCALE

BRANCH CHIEF	DESIGN	BY A GUTIERREZ	CHECKED K. C. LIU	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES DESIGN AND TECHNICAL SERVICES SPECIAL DESIGNS BRANCH A	BRIDGE NO.	N/A	OVERHEAD SIGN TRUSS EXTINGUISHIBLE MESSAGE SIGN AND FLASHING BEACON DETAIL	SDS-4
	DETAILS	BY D W JUSTICE Jr	CHECKED A GUTIERREZ			POST MILE			
	QUANTITIES	BY A GUTIERREZ	CHECKED						
(ENGLISH) SPECIAL DESIGNS BRANCH BORDER SHEET (REV. 7-1-09)				ORIGINAL SCALE IN INCHES FOR REDUCED PLANS		CU 06 EA 0H3701		DISREGARD PRINTS BEARING EARLIER REVISION DATES	
				0 1 2 3		11-10-10		SHEET OF	

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
06	Fre	41,180	R24.7/R25.0, R58.4/R59.4	21	56

Peter Chander 12-16-10
 REGISTERED CIVIL ENGINEER DATE
 2-28-11
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
 PETER A CHANDER
 No. 63988
 Exp. 09-30-12
 CIVIL
 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.

GORE PAVEMENT QUANTITY

SHEET	STATION	MINOR CONCRETE (TEXTURED PAVING)	CI 2 AB
		SQFT	CY
L-4	"R22" 56+80 To 58+00	1260	23.4

ROADWAY QUANTITIES

SHEET	SIDE	STATION	ROADWAY EXCAVATION	REMOVE AC DIKE	HMA DIKE (TYPE C)	HMA DIKE (TYPE F)	HMA (TYPE A)	REMOVE CONCRETE (CURB AND GUTTER)
			CY	LF	LF	LF	TON	LF
L-1	LEFT	"R22" 37+64 To 39+87.25		230		230	3.0	
	LEFT	"R22" 41+85 To 42+76.8		92	67	25	1.9	10
L-4	LEFT	"R22" 55+24 To 58+50		326	69	257	3.8	
	RIGHT	"R22" 56+80 To 58+00	40					
Total			40	648	136	512	8.7	10

OVERHEAD SIGN TRUSS QUANTITIES

SHEET	STATION	FURNISH SIGN STRUCTURE (TRUSS)	INSTALL SIGN STRUCTURE (TRUSS)	60" Dia CIDH CONCRETE PILE (SIGN FOUNDATION)
		LB	LB	LF
L-1	34+00 "R22" R+ 40.0	7,900	7,900	23'
	39+75 "R22" L+ 11.0	7,100	7,100	23'
TOTAL		15,000	15,000	46'

METAL BEAM GUARD RAILING

SHEET	SIDE	STATION	REMOVE MBGR	RECONSTRUCT MBGR		ALTERNATIVE FLARED TERMINAL SYSTEM	MBGR (STEEL POST)	TRANSITION RAILING (TYPE WB)	END CAP (TYPE TC)	END ANCHOR ASSEMBLY (TYPE SFT)	MINOR CONCRETE (MINOR Str) *	MBGR LAYOUT TYPE (N)
				WOOD POST	STEEL POST							
				LF	LF							
L-1	LEFT	"R22" 36+80 TO 39+87.25	87.5			1	262.5			1		16B
	RIGHT	"R22" 41+71 TO 42+80	91			1	50	1	1		0.61	12B
	LEFT	"R22" 42+15 TO 42+76	67			1		1	1		0.61	12B
L-2	LEFT	"R24" 67+31 TO 67+97	28.5	37.5				1	1		0.61	
	RIGHT	"R24" 67+31 TO 67+97	28.5	37.5				1	1		0.61	
	LEFT	"R24" 70+00 TO 78+94			894							
L-4	LEFT	"R22" 55+93 TO 58+93	66			1	300	1	1		0.61	12B
	RIGHT	NB R+e 41	66			1		1	1		0.61	12B
		"R24" 81+15	28					1	1		0.61	
SUBTOTAL			393	75	894	5	612.5	7	7	1	4.27	
TOTAL			462.5		969	5	612.5	7	7	1	4.27	

(N) NOT A SEPARATE PAY ITEM, FOR INFORMATION ONLY.
 * FOR CONCRETE END BLOCK

RUMBLE STRIP

SHEET	STATION	RUMBLE STRIP
		LF
L-4	"R24" 80+20 To 81+10	90
	"R24" 83+31 To 85+21	190
TOTAL		280

PAVEMENT MARKER (NON-REFLECTIVE)

SHEET	STATION	TYPE A WHITE
		EA
L-4	"R24" 80+20 To 81+10	60
	"R24" 81+10 To 83+31	300
	"R24" 83+31 To 85+21	126
TOTAL		486

SUMMARY OF QUANTITIES

Q-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION DESIGN DIVISION
 FUNCTIONAL SUPERVISOR ROBERTO BANDA
 CALCULATED/DESIGNED BY CHECKED BY
 PETER CHANDER HAL KENYON
 REVISED BY DATE REVISED
 x x x x x

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans ELECTRICAL DESIGN
 FUNCTIONAL SUPERVISOR - ALI BAKHDOUD
 CALCULATED/DESIGNED BY - KARIM ABDOLLAHIAN
 CHECKED BY - PAUL MATOS
 REVISIONS: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48

LEGEND: (FOR SHEETS E-1 THROUGH E-5)

1 120/240 V, 1Ø, 3-WIRE, TYPE III-CF SERVICE EQUIPMENT ENCLOSURE WITH THE FOLLOWING CIRCUIT BREAKERS:
 CTID No. 06420410024722T

AMPERES	VOLTS	POLES	NAMEPLATE	METER	PHOTOELECTRIC CONTROL TYPE
100	240	2	MAIN BREAKER	YES	—
30	240	2	EASTBOUND EMS SUBPANEL	YES	—
30	240	2	WESTBOUND EMS SUBPANEL	YES	—
30	120	1	RAMP METERING CONTROLLER	YES	—
30	120	1	CCTV CABINET	YES	—
—	—	6	SPACE	—	—

CTID No. 06420410024722L

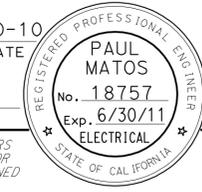
AMPERES	VOLTS	POLES	NAMEPLATE	METER	PHOTOELECTRIC CONTROL TYPE
100	240	2	MAIN BREAKER	YES	—
30	240	2	SOFFIT LIGHTING	YES	V
30	240	2	HIGHWAY LIGHTING & SIGN ILLUMINATION	YES	—
15	120	1	LIGHTING CONTROLS	YES	—
40	240	2	SPARE	YES	—
—	—	6	SPACE	—	—

- 2 INSTALL TYPE III-BF UNMETERED SERVICE EQUIPMENT ENCLOSURE (SUB PANEL), SEE DETAIL K ON SHEET E-8.
- 3 PULL BOX PER PG&E REQUIREMENTS.
- 4 INSTALL STATE-FURNISHED MODEL 2070 CONTROLLER ASSEMBLY. "O" LOOP WIRING IN MODEL 334 CABINET SHALL BE TERMINATED AS DIRECTED BY THE ENGINEER.
- 5 OVERHEAD SIGN STRUCTURE WITH FLASHING BEACONS AND 2 EMS. SEE SDS-1.
- 6 INSTALL EMS CONTROL ASSEMBLY ENCLOSURE ON SIGN POST PER DETAIL J ON SHEET E-8.
- 7 INSTALL 2 EMS (LED) ON OVERHEAD SIGN STRUCTURE WITH MESSAGE "41 NORTH METER ON" AND FLASHING BEACONS, 2250 FEET FROM LIMIT LINE. SEE SDS-1.
- 8 INSTALL 2 EMS (LED) ON OVERHEAD SIGN STRUCTURE WITH MESSAGE "PREPARE TO STOP" AND FLASHING BEACONS, 1674 FEET FROM LIMIT LINE. SEE SDS-2.
- 9 Q4 LOOPS SHALL HAVE 5 TURNS.
- 10 INSTALL EMS SIGN (LED) WITH MESSAGE "41 NORTH METER ON" AND FLASHING BEACONS ON WOOD POST, 2120 FEET FROM LIMIT LINE. SEE DETAILS F, G, AND H ON SHEET E-7.
- 11 INSTALL EMS SIGN (LED) WITH MESSAGE "PREPARE TO STOP" AND FLASHING BEACONS ON WOOD POST. SEE DETAILS F,G, AND H ON SHEET E-7.
- 12 SEE DETAIL D ON SHEET E-6 FOR INDUCTIVE LOOP DETECTOR PLACEMENT AND IDENTIFICATION ON MAINLINE.
- 13 TYPE 1-A SIGNAL STANDARD, SEE DETAIL A ON SHEET E-6.
- 14 TYPE 26A-4-100 SIGNAL STANDARD WITH 40' SMA, SEE DETAIL B ON SHEET E-6.
- 15 TYPE 24A-4-100 SIGNAL STANDARD WITH 35' SMA, SEE DETAIL N ON SHEET E-6.
- 16 SEE DETAIL C ON SHEET E-6 FOR INDUCTIVE LOOP DETECTOR PLACEMENT AND IDENTIFICATION ON RAMPS.
- 17 ATTACH 2" TYPE 1 CONDUIT ON THE OUTSIDE OF THE BARRIER.
- 18 CORE DRILL A 2 1/2" HOLE BEHIND THE BARRIER. REFER TO DETAIL L ON SHEET E-10.
- 19 SEE DETAIL M ON SHEET E-10 FOR DETECTOR LOOP CONDUIT TERMINATION INSTALLATION.

- 20 1375 FEET TO LIMIT LINE.
- 21 1115 FEET TO LIMIT LINE.
- 22 660 FEET TO LIMIT LINE.
- 23 273 FEET TO LIMIT LINE.
- 24 237 FEET TO LIMIT LINE. TYPE 9B CANTILEVER FLASHING BEACON WITH W3-3 SIGN. SEE SIGN PLANS FOR SIGN DETAIL.
- 25 1692 FEET TO LIMIT LINE.
- 26 1270 FEET TO LIMIT LINE.
- 27 770 FEET TO LIMIT LINE.
- 28 370 FEET TO LIMIT LINE.
- 29 325 FEET TO LIMIT LINE. TYPE 9B CANTILEVER FLASHING BEACON WITH W3-3 SIGN. SEE SIGN PLANS FOR SIGN DETAIL.
- 30 MODEL 334 CABINET FOR CCTV SYSTEM. FOR FIBER OPTIC TERMINATION DETAIL SEE SHEET E-9.
- 31 TYPE CCTV 35 POLE WITH CAMERA ASSEMBLY.
- 32 OVERHEAD SIGN STRUCTURE WITH FLASHING BEACONS AND 2 EMS. SEE SDS-2.
- 33 2" CONDUIT EXPANSION-DEFLECTION FITTING FOR MOVEMENT RATING GREATER THAN 4".
- 34 FOR FIBER OPTIC SPLICES, SEE SHEET E-9.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
06	Fre	41,180	R24.7/R25.0, R58.4/R59.4	22	56

12-20-10
 REGISTERED ELECTRICAL ENGINEER DATE
 2-28-11
 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 PULL BOXES SHALL BE No. 5 WITH EXTENSION UNLESS OTHERWISE NOTED.
- 2. EXCEPT UNDER EXISTING PAVEMENT, ALL FIBER OPTIC CONDUIT SHALL BE INSTALLED AS SHOWN ON SHEET E-6, DETAIL E.

ABBREVIATIONS:

- PG&E = PACIFIC GAS AND ELECTRIC COMPANY
- CTID = CALTRANS IDENTIFICATION
- SPST = SINGLE POLE SINGLE THROW
- SMFO = SINGLEMODE FIBER OPTIC

CONDUIT AND CONDUCTOR SCHEDULE

CONDUCTOR DESIGNATION		CONDUIT RUN NUMBER AND SIZE																																																									
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48										
CABLE/AWG	CIRCUIT	2"	2"	2"	2"	2"	1 1/2"	1 1/2"	1 1/2"	2"	3"	3"	3"	3"	2"	3"	2-4"	4"	4"	3"	3"	3"	3"	3"	3"	2"	1 1/2"	2"	2"	3"	1 1/2"	2"	2"	2"	2"	2"	2"	2"	2"	2"	2"	2"	2"	2"	2"	2"	2"	2"	2"	2"	2"								
9CSC	RAMP SIGNAL														3	2	1	6	3	2	1																																						
#6	EMS(SUB PANEL)		2		2	2	2	2	2	2	2	2	2	2																																													
#8	EMS	2																																																									
#6	CONTROLLER																2	2	2	2	2	2																																					
#2	SERVICE																																																										
#2	SERVICE RISER																																																										
	COUNT DETECTOR																																																										
	DEMAND DETECTOR																																																										
	PASSAGE DETECTOR																																																										
	QUEUE DETECTOR																																																										
	MAINLINE DETECTOR																																																										
#8	SOFFIT LIGHTING																																																										
#8	Hwy LIGHTING AND SIGN ILLUMINATION																																																										
#8	TIME SWITCHING OF EMS'S BY CONTROLLER	2		2	2	2	2	2	2	2	2	2	2	2																																													
#8	FLASHING BEACON																																																										
12 SMFO	FIBER OPTIC																																																										
#8	CCTV CABINET																																																										
	COMPOSITE CAMERA																																																										

* EXISTING CONDUIT. [RC] EXISTING CONDUCTORS. INSTALL CONDUCTORS AS SHOWN IN ABOVE TABLE.
 ** FIBER OPTIC CONDUIT. FOR INSTALLATION DETAILS, SEE DETAIL E ON SHEET E-6.

**RAMP METERING SYSTEM
 CLOSED CIRCUIT TELEVISION SYSTEM
 E-1**

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
06	Fre	41,180	R24.7/R25.0, R58.4/R59.4	23	56

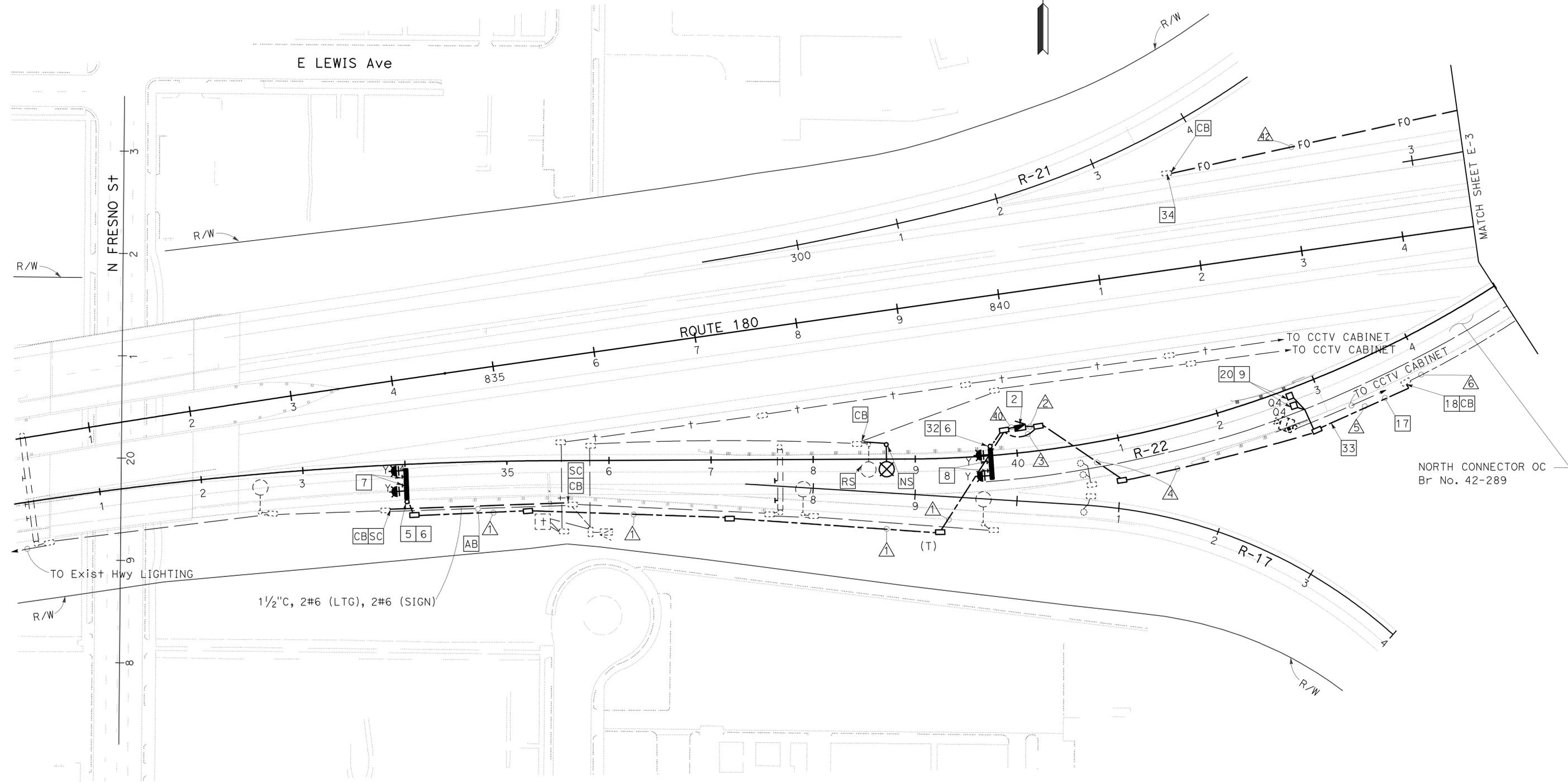
<i>Paul Matos</i>	12-20-10
REGISTERED ELECTRICAL ENGINEER	DATE
2-28-11	
PLANS APPROVAL DATE	

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. SEE SHEET E-1 FOR LEGEND AND SCHEDULES.
2. 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 BAKHOUD
 CALCULATED/DESIGNED BY: PAUL MATOS
 CHECKED BY: PAUL MATOS
 REVISED BY: KARIM ABDOLLAHIAN
 DATE REVISED:

RAMP METERING SYSTEM E-2

SCALE: 1" = 50'

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.

LAST REVISION: 02-25-11
 DATE PLOTTED => 17-MAR-2011
 TIME PLOTTED => 13:38

NOTES:

1. SEE SHEET E-1 FOR LEGEND AND SCHEDULES.
2. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

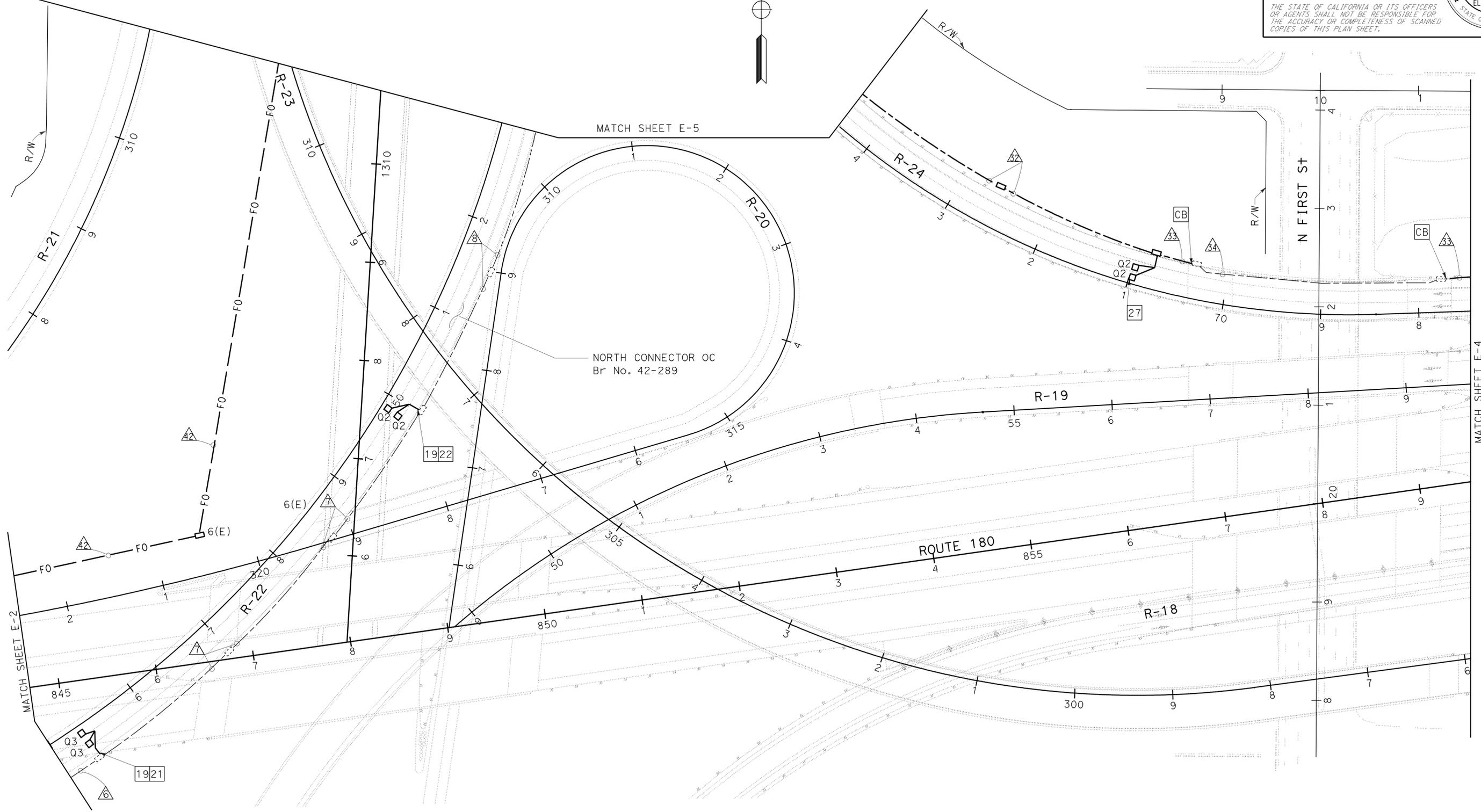
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
06	Fre	41,180	R24.7/R25.0, R58.4/R59.4	24	56

Paul Matos 12-20-10
 REGISTERED ELECTRICAL ENGINEER DATE

2-28-11
 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
PAUL MATOS
 No. 18757
 Exp. 6/30/11
 ELECTRICAL
 STATE OF CALIFORNIA



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans ELECTRICAL DESIGN
 FUNCTIONAL SUPERVISOR: ALI BAKHDOUD
 CALCULATED/DESIGNED BY: PAUL MATOS
 CHECKED BY:
 REVISIONS:
 REVISION NO. | DATE | BY | DESCRIPTION
 REVISION NO. | DATE | BY | DESCRIPTION

RAMP METERING SYSTEM
E-3

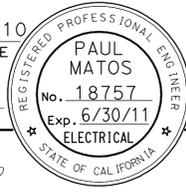
THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.

SCALE: 1" = 50'

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
06	Fre	41,180	R24.7/R25.0, R58.4/R59.4	25	56

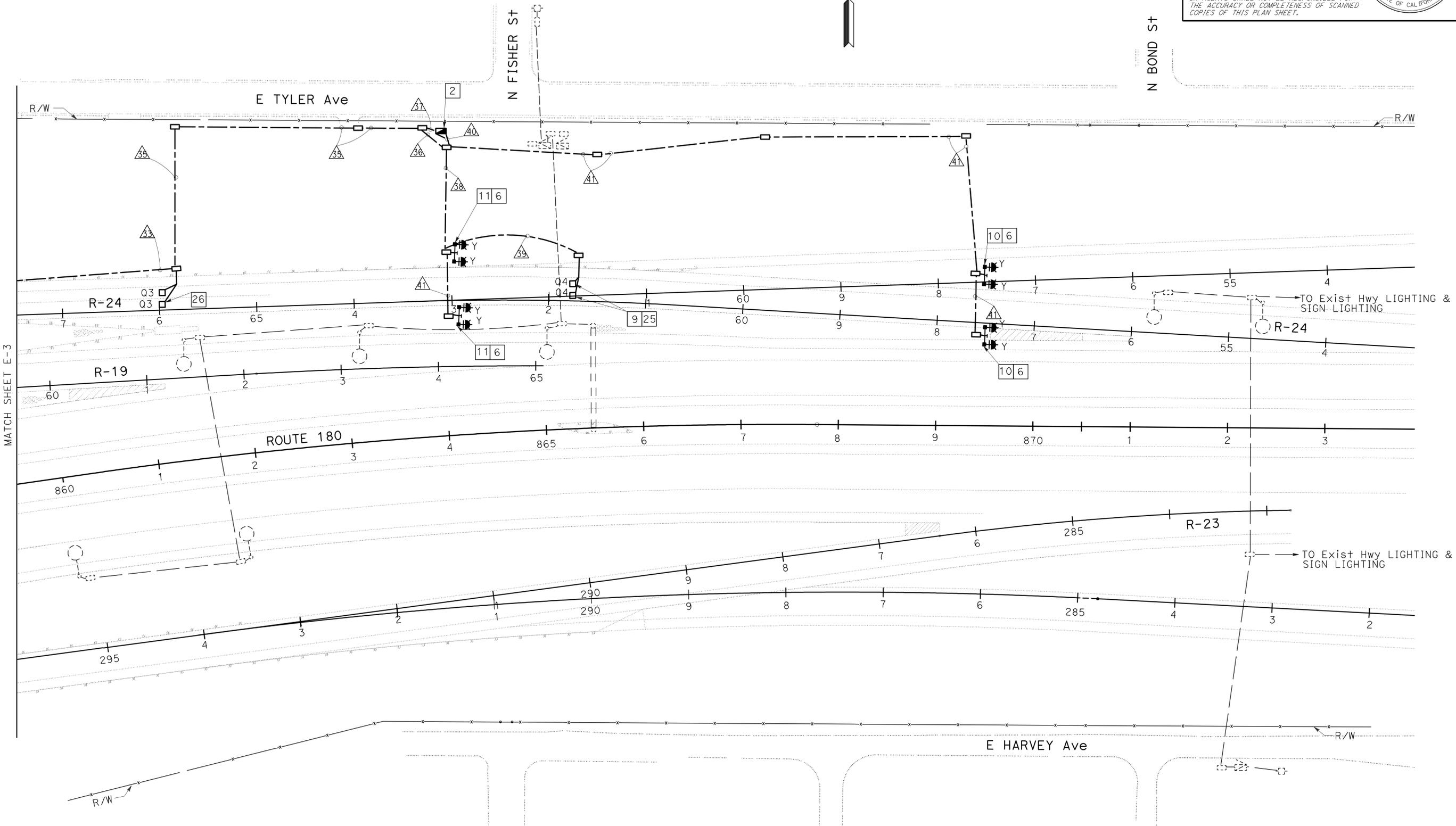
<i>Paul Matos</i>	12-20-10
REGISTERED ELECTRICAL ENGINEER	DATE
2-28-11	
PLANS APPROVAL DATE	

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. SEE SHEET E-1 FOR LEGEND AND SCHEDULES.
2. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



MATCH SHEET E-3

RAMP METERING SYSTEM
SCALE: 1" = 50' **E-4**

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans ELECTRICAL DESIGN

REVISOR BY
DATE

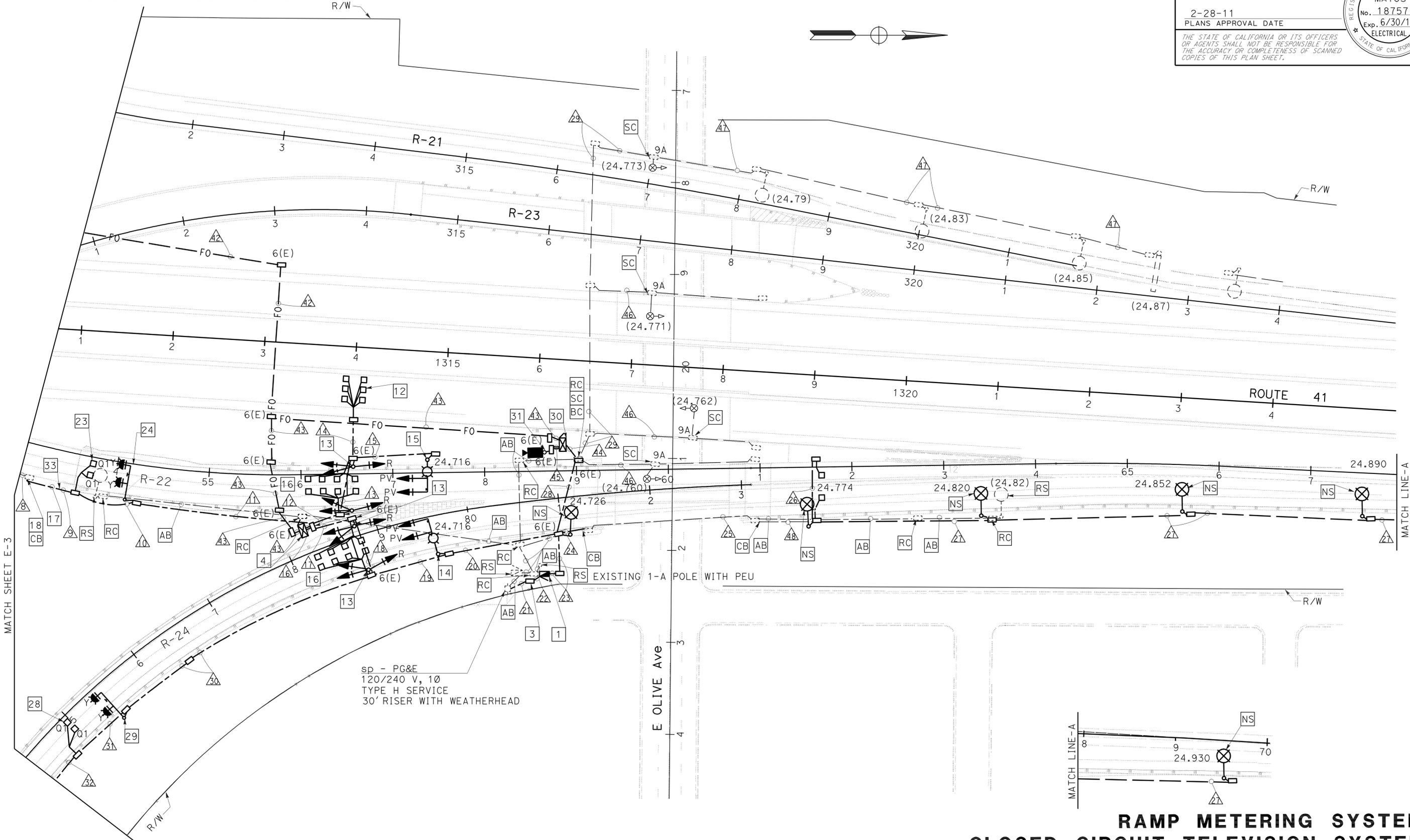
KARIM ABDOLLAHIAN
PAUL MATOS

CALCULATED/DESIGNED BY
CHECKED BY

FUNCTIONAL SUPERVISOR
ALI BAKHDOUD

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
06	Fre	41,180	R24.7/R25.0, R58.4/R59.4	26	56
<i>Paul Matos</i> 12-20-10 REGISTERED ELECTRICAL ENGINEER DATE					
2-28-11			PLANS APPROVAL DATE		
<small>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.</small>					

- NOTES:**
- SEE SHEET E-1 FOR LEGEND AND SCHEDULES.
 - FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



**RAMP METERING SYSTEM
CLOSED CIRCUIT TELEVISION SYSTEM
E-5**

SCALE: 1" = 50'

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans ELECTRICAL DESIGN

FUNCTIONAL SUPERVISOR: ALI BAKHOUD
CALCULATED/DESIGNED BY: CHECKED BY:
KARIM ABDOLLAHIAN PAUL MATOS

REVISED BY: DATE REVISED:

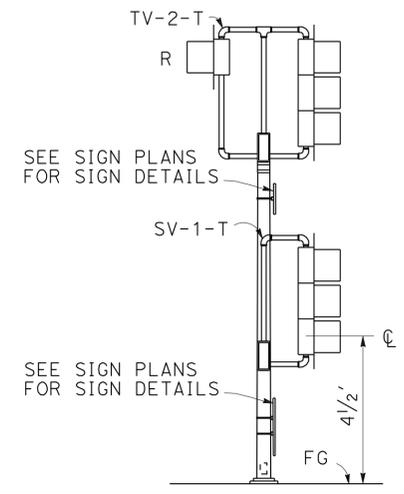


Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
06	Fre	41,180	R24.7/R25.0, R58.4/R59.4	27	56

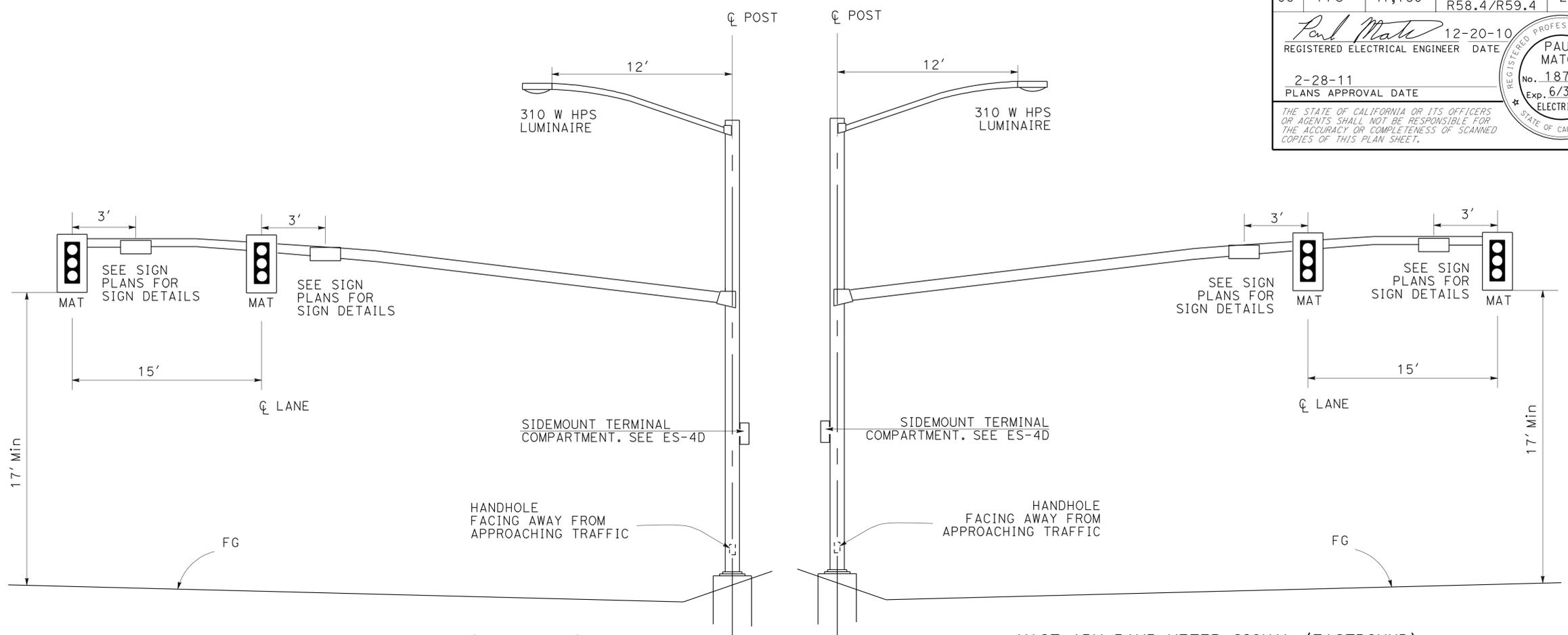
12-20-10
 REGISTERED ELECTRICAL ENGINEER DATE
 2-28-11
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
PAUL MATOS
 No. 18757
 Exp. 6/30/11
 ELECTRICAL
 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.



**RAMP METER SIGNAL
DETAIL A**

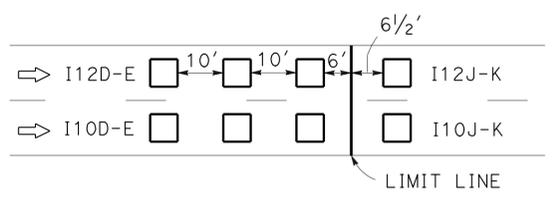


MAST ARM RAMP METER SIGNAL (WESTBOUND)

DETAIL B

MAST ARM RAMP METER SIGNAL (EASTBOUND)

DETAIL N



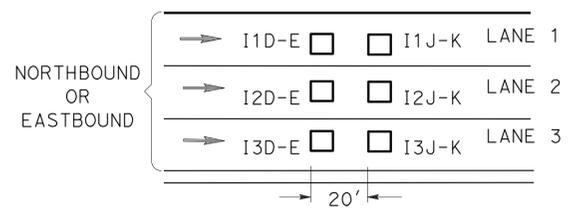
RAMP METER LOOP INSTALLATION DETAIL

DETAIL C

DLC IDENTIFICATION



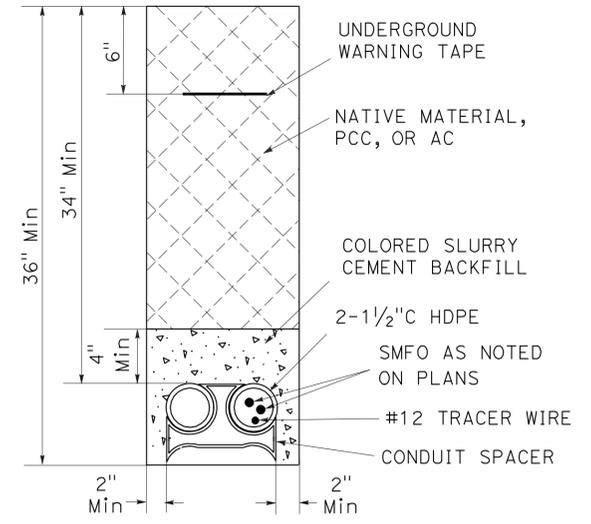
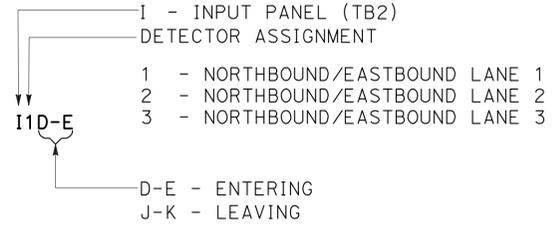
- 1 - ENTERING
- 2 - LEAVING
- LANE NUMBER



MAINLINE LOOP INSTALLATION DETAIL

DETAIL D

DLC TERMINATION (TB2)



DETAIL E

**RAMP METERING SYSTEM
E-6**

NO SCALE

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans ELECTRICAL DESIGN
 FUNCTIONAL SUPERVISOR: ALI BAKHDOO
 CALCULATED/DESIGNED BY: PAUL MATOS
 CHECKED BY: KARIM ABDOLLAHIAN
 REVISIONS: REVISOR: DATE: REVISION: DATE:

USERNAME => frmikes1
 DGN FILE => 60H370Ua006.dgn



UNIT 1515

PROJECT NUMBER & PHASE

06000200291

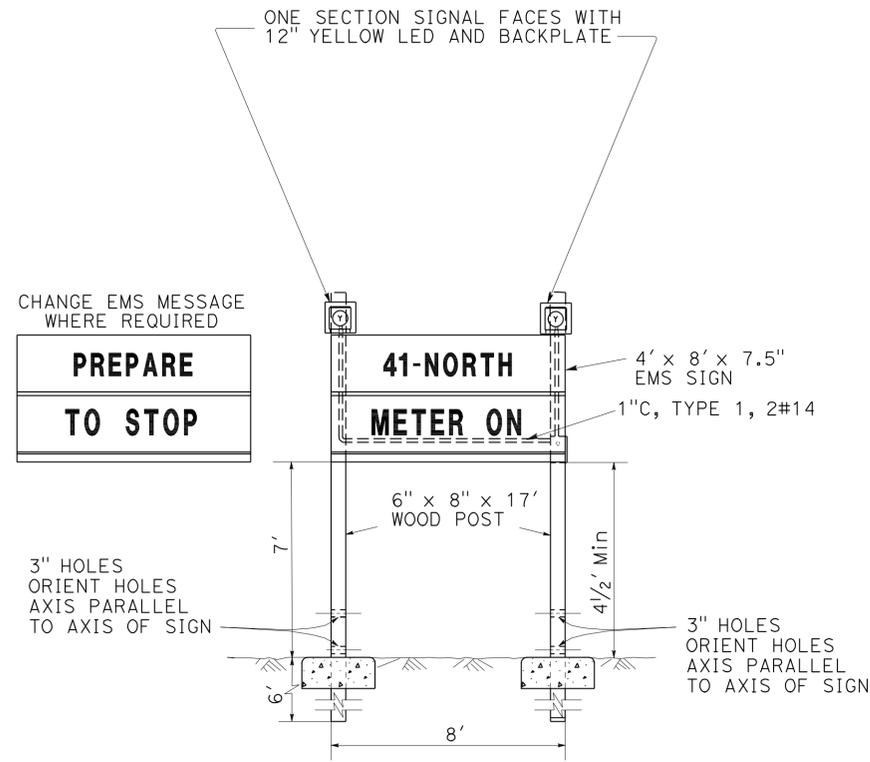
LAST REVISION: DATE PLOTTED => 17-MAR-2011
 12-30-10 TIME PLOTTED => 1:3:38

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
06	Fre	41,180	R24.7/R25.0, R58.4/R59.4	28	56

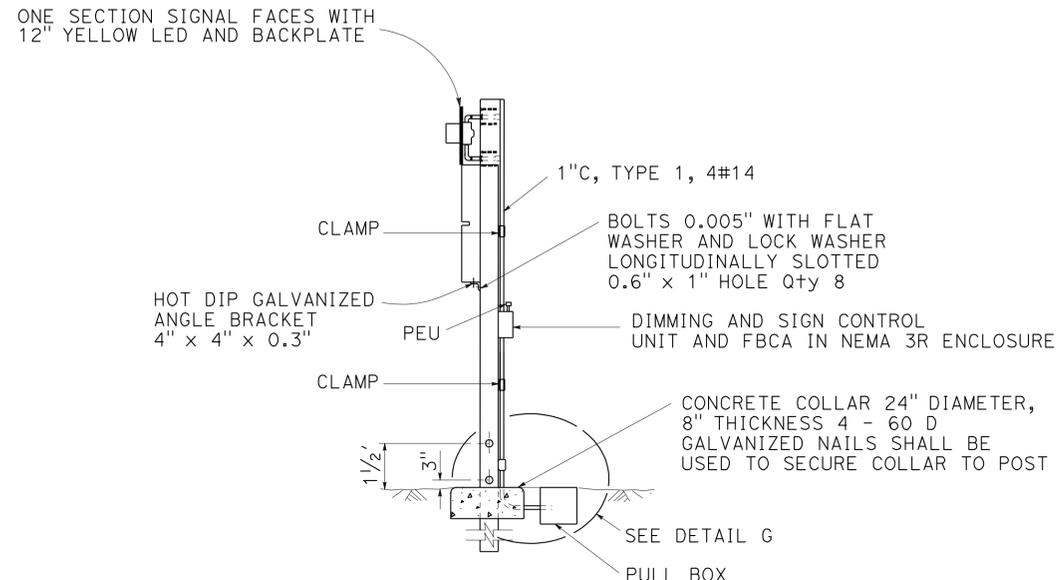
<i>Paul Matos</i>	12-20-10
REGISTERED ELECTRICAL ENGINEER	DATE
2-28-11	
PLANS APPROVAL DATE	

REGISTERED PROFESSIONAL ENGINEER
PAUL MATOS
No. 18757
Exp. 6/30/11
ELECTRICAL
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.

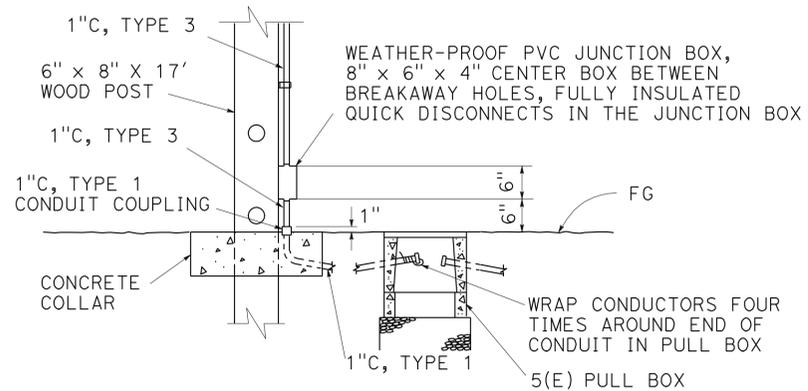


FRONT VIEW

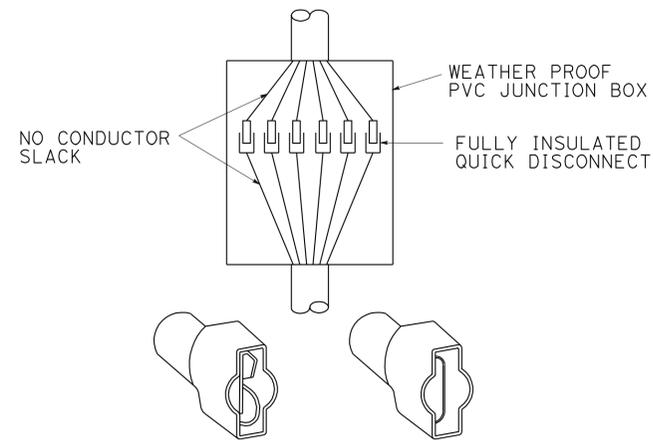


SIDE VIEW

EMS SIGN WITH FLASHING BEACONS ON WOOD POSTS
DETAIL F



DETAIL G



DETAIL H

**RAMP METERING SYSTEM
E-7**

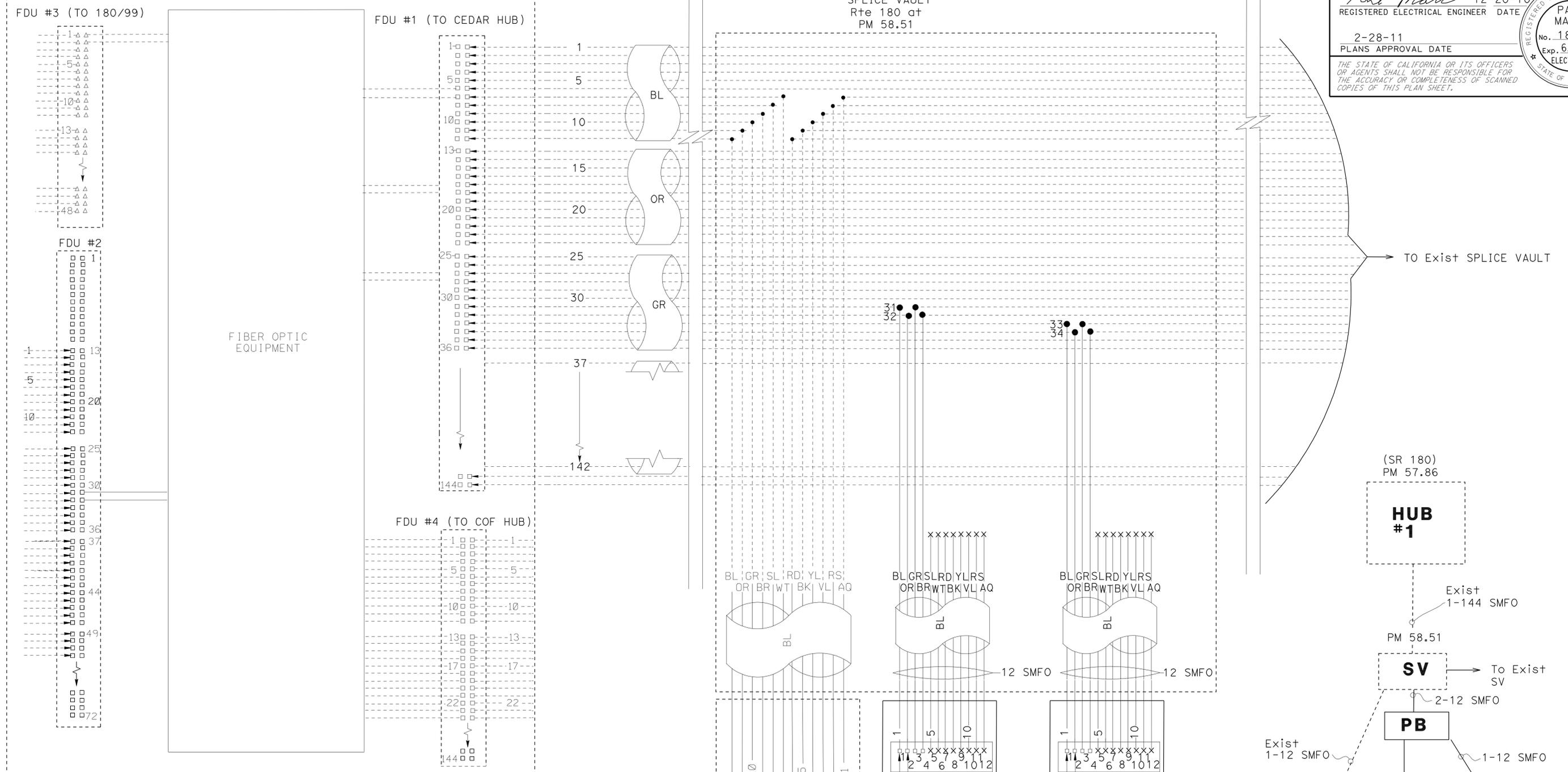
NO SCALE

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans ELECTRICAL DESIGN
FUNCTIONAL SUPERVISOR
ALI BAKHDOUD
CALCULATED/DESIGNED BY
CHECKED BY
KARIM ABDOLLAHIAN
PAUL MATOS
REVISOR
DATE
REVISION
DATE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
06	Fre	41,180	R24.7/R25.0, R58.4/R59.4	30	56
			12-20-10	DATE	
REGISTERED ELECTRICAL ENGINEER			PAUL MATOS No. 18757 Exp. 6/30/11 ELECTRICAL		
2-28-11 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.		

HUB #1 Rte 180 PM 57.86

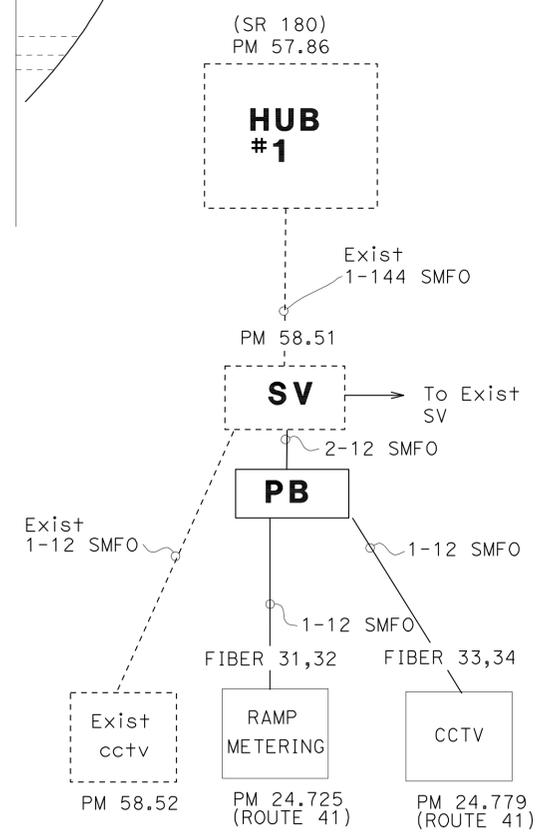
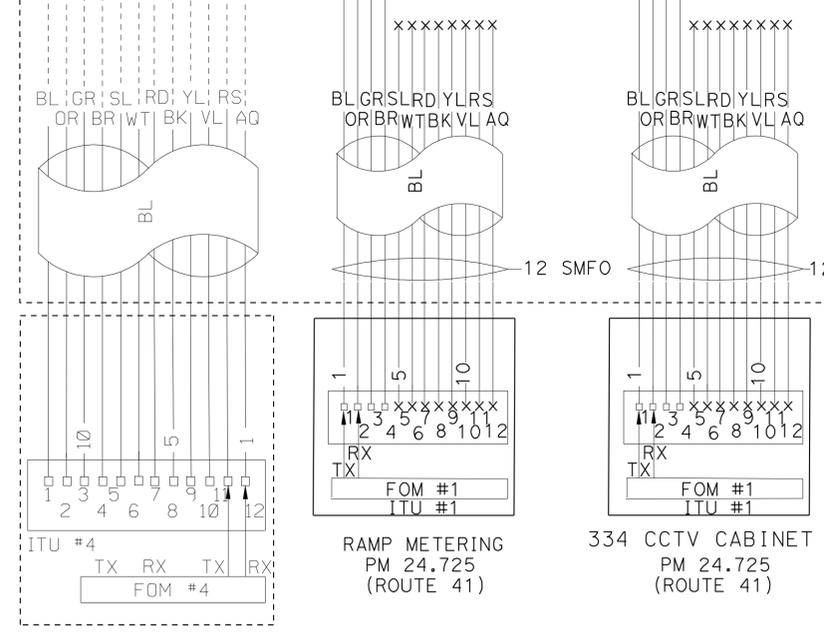


ABBREVIATIONS:

FDU	FIBER DISTRIBUTION UNIT	BL	BLUE
FO	FIBER OPTIC	OR	ORANGE
FOM	FIBER OPTIC MODEM (SF)	GR	GREEN
ITU	INTERCONNECT TERMINATION UNIT (SF)	BR	BROWN
MUX	MULTIPLEXER (SF)	SL	SLATE
RX	RECEIVE	WT	WHITE
SC	COMPRESSION CONNECTOR	RD	RED
(SF)	STATE FURNISHED	BK	BLACK
SMFO	SINGLE MODE FIBER OPTIC CABLE	YL	YELLOW
SV	SPLICE VAULT	VL	VIOLET
TCVR	VIDEO TRANSCEIVER (SF)	RS	ROSE
TX	TRANSMIT	AQ	AQUA

LEGEND:

- EXISTING ELEMENT
- SPLICE FIBER TO FIBER
- x CUT END OF FIBER
- SC CONNECTOR ON NEW FDU OR ITU



**RAMP METERING SYSTEM
CLOSED CIRCUIT TELEVISION SYSTEM
E-9**

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.

NO SCALE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
06	Fre	41,180	R24.7/R25.0, R58.4/R59.4	31	56

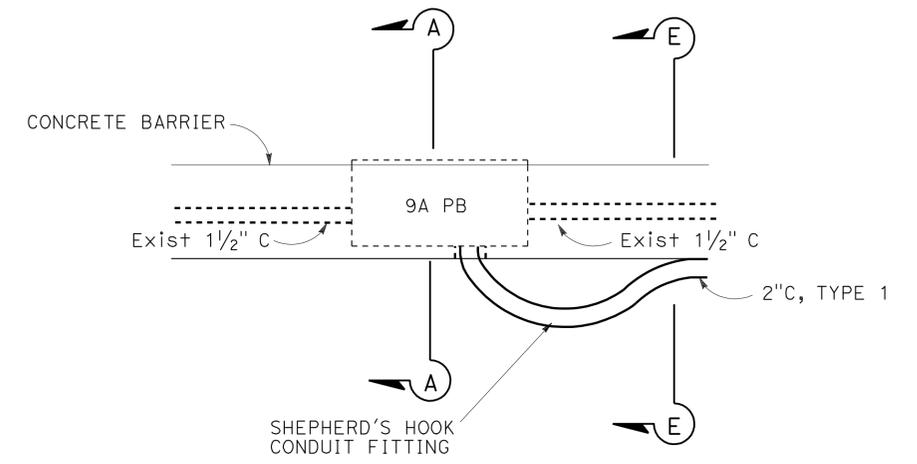
<i>Paul Matos</i>	12-20-10
REGISTERED ELECTRICAL ENGINEER	DATE
2-28-11	
PLANS APPROVAL DATE	

REGISTERED PROFESSIONAL ENGINEER
PAUL MATOS
No. 18757
Exp. 6/30/11
ELECTRICAL
STATE OF CALIFORNIA

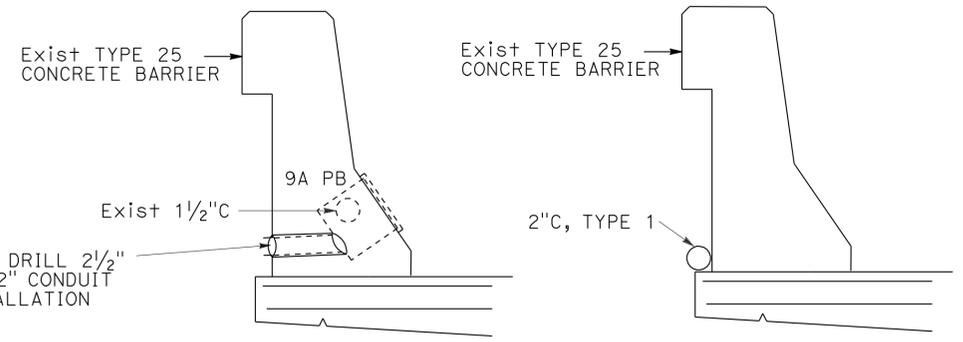
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NOTE: (FOR THIS SHEET ONLY).

- INSTALLATION OF CONDUIT SHALL BE DONE BY SAW CUTTING CONCRETE AND REMOVING WITH A PNEUMATIC CHIPPING HAMMER. CONCRETE SHALL BE REPLACED WITH THE MAGNESIUM PHOSPHATE TYPE (SET 45).
- THE DEPTH OF THE CONCRETE COVER SHALL BE DETERMINED ELECTRONICALLY BY THE CONTRACTOR AND VERIFIED IN THE PRESENCE OF A REPRESENTATIVE OF THE OFFICE OF STRUCTURE CONSTRUCTION. ELECTRONIC READINGS SHALL BE TAKEN AT 5' MAXIMUM INTERVALS ALONG THE LINE OF THE LOOP. A MINIMUM OF 3 LOCATIONS ALONG THE SIDES OF THE LOOP AND 1 LOCATION AT EACH OF THE ENDS SHALL BE USED TO DETERMINE THE DEPTH OF CONCRETE COVER. APPROVAL SHALL BE OBTAINED FROM THE OFFICE OF STRUCTURE CONSTRUCTION PRIOR TO ANY SAWCUTTING ON THE BRIDGE DECK.



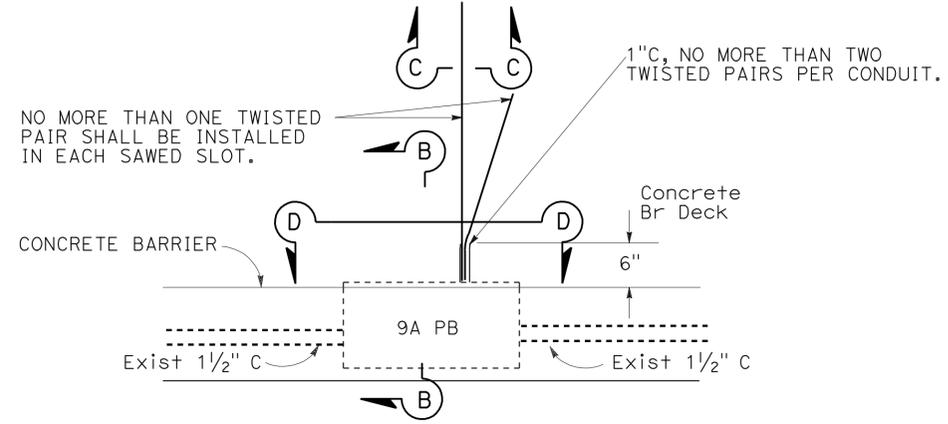
PLAN VIEW



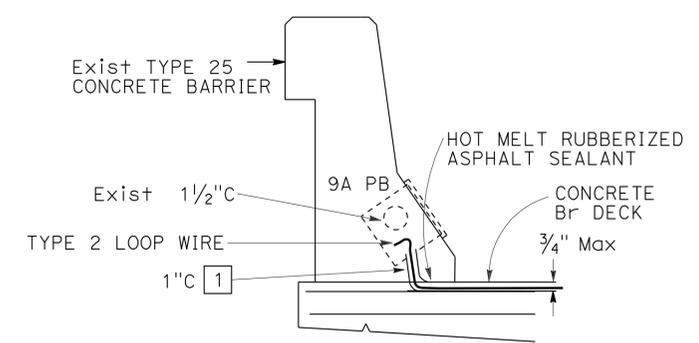
SECTION A-A

SECTION E-E

**DETAIL L
CONDUIT INSTALLATION**

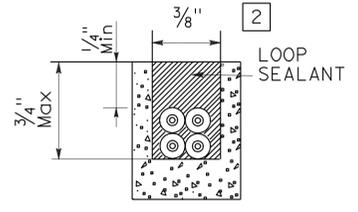


PLAN VIEW

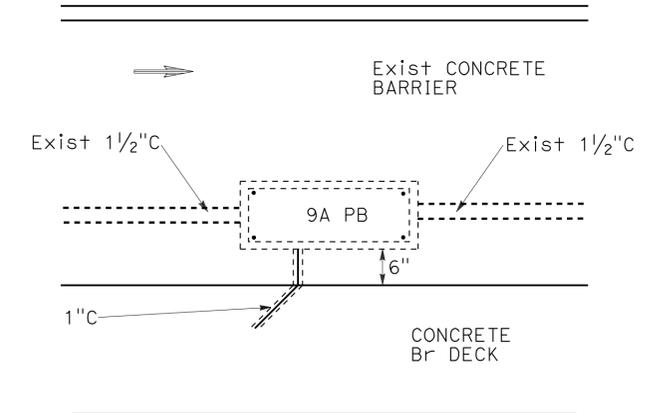


SECTION B-B

**DETAIL M
DETECTOR LOOP CONDUIT
TERMINATION INSTALLATION**



**SECTION C-C
DETECTOR LOOP HOME RUN**



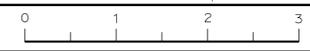
SECTION D-D

**RAMP METERING SYSTEM
(LOOP WIRE INSTALLATION DETAIL)**

NO SCALE

E-10

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans ELECTRICAL DESIGN
 FUNCTIONAL SUPERVISOR: ALI BAKHDOUD
 CALCULATED/DESIGNED BY: [blank]
 CHECKED BY: [blank]
 REVISOR: KARIM ABDOLLAHIAN
 DATE: [blank]
 REVISION: PAUL MATOS
 DATE: [blank]

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
06	Fre	41,180	R24.7/R25.0, R58.4/R59.4	32	56

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

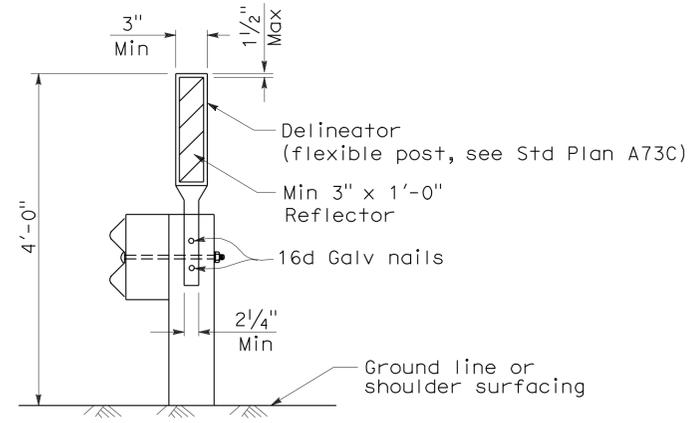
June 6, 2008
PLANS APPROVAL DATE

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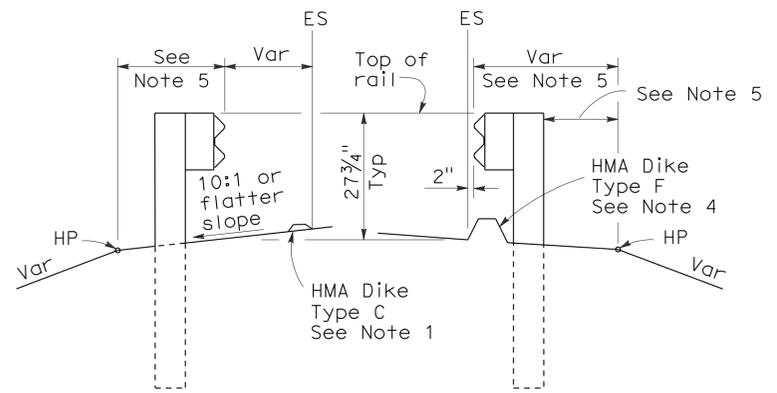
To accompany plans dated 2-28-11

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 Revised Standard Plans RSP A87A and Standard Plan A87B.
5. For details of typical distance between the face of rail and hinge point, see Standard Plan A77C3.



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 JUNE 6, 2008 SUPERSEDES 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
06	Fre	41,180	R24.7/R25.0, R58.4/R59.4	33	56

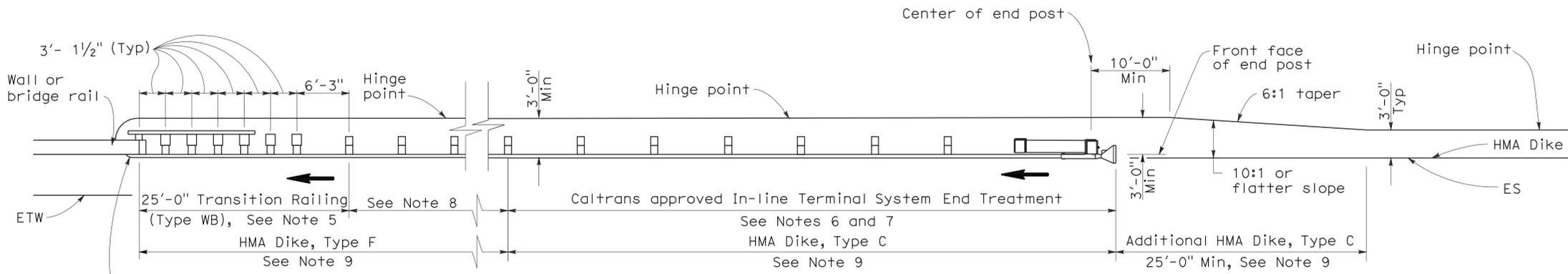
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

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

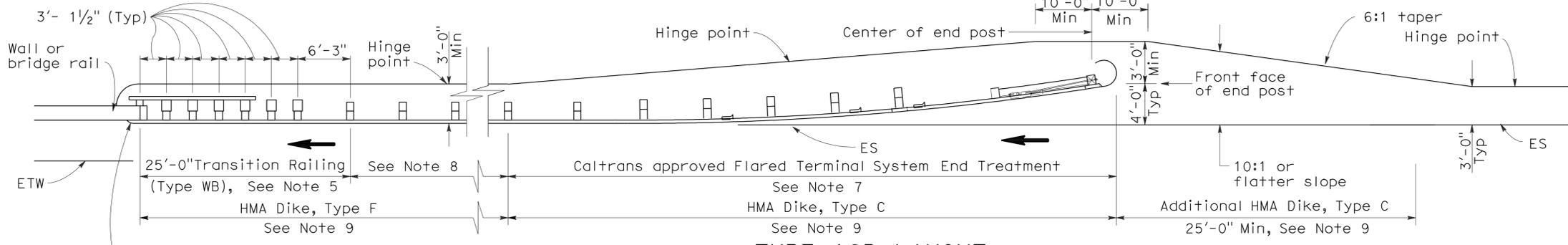
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To accompany plans dated 2-28-11



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.

REVISED STANDARD PLAN RSP A77F1

2006 REVISED STANDARD PLAN RSP A77F1

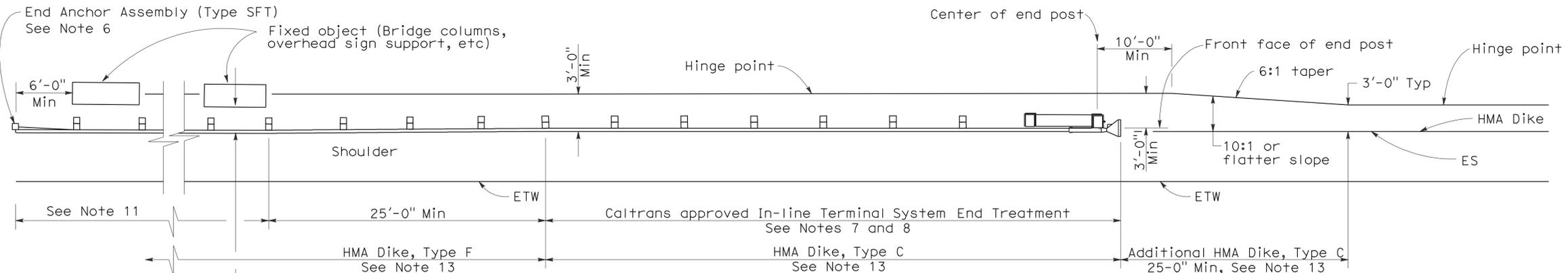
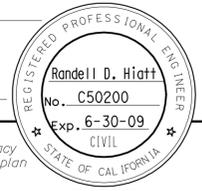
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
06	Fre	41,180	R24.7/R25.0, R58.4/R59.4	34	56

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

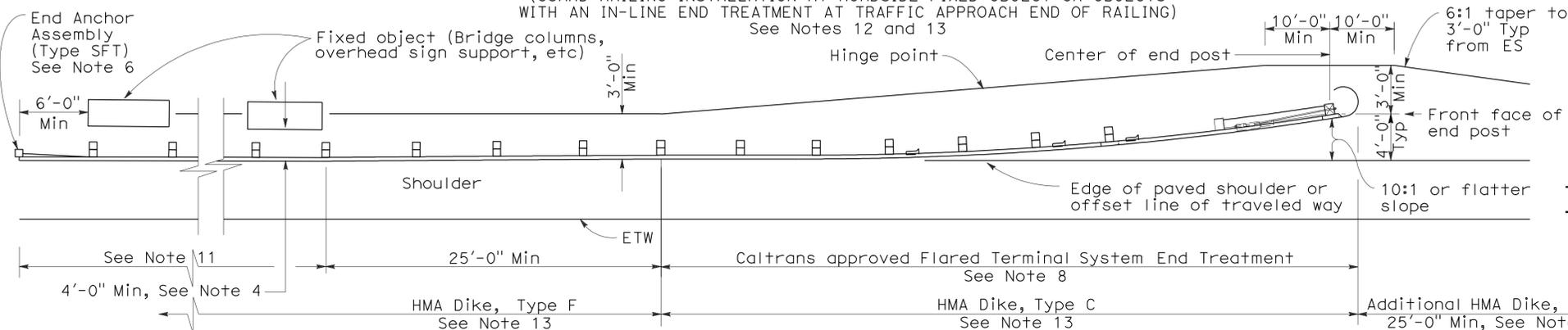
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To accompany plans dated 2-28-11



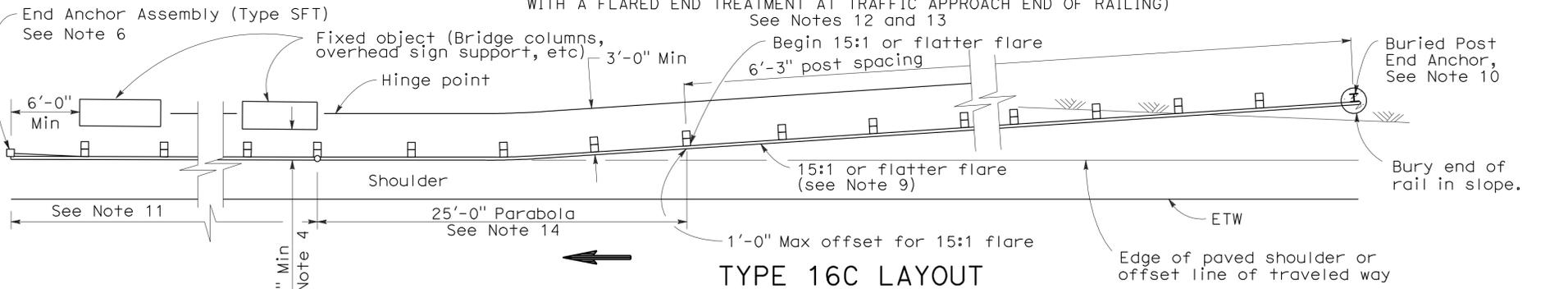
TYPE 16A LAYOUT

(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



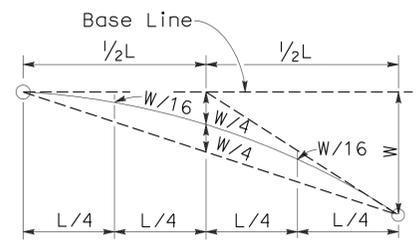
TYPE 16B LAYOUT

(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

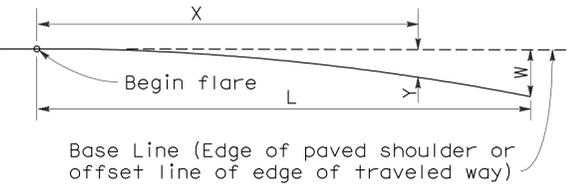


TYPE 16C LAYOUT

(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)

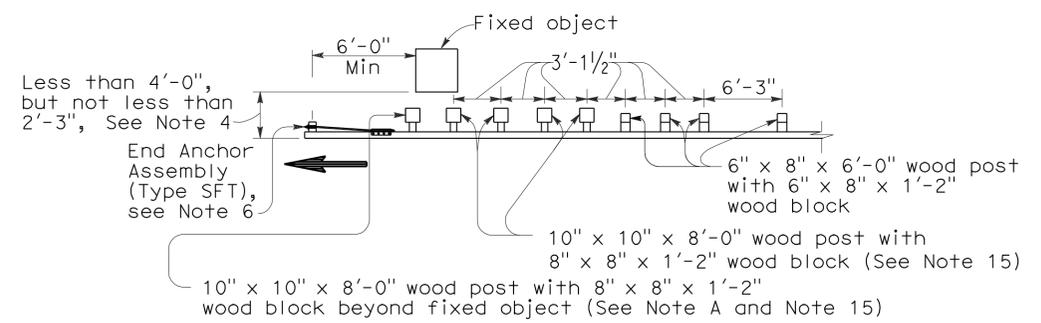
$Y = \frac{WX^2}{L^2}$

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
06	Fre	41,180	R24.7/R25.0, R58.4/R59.4	35	56

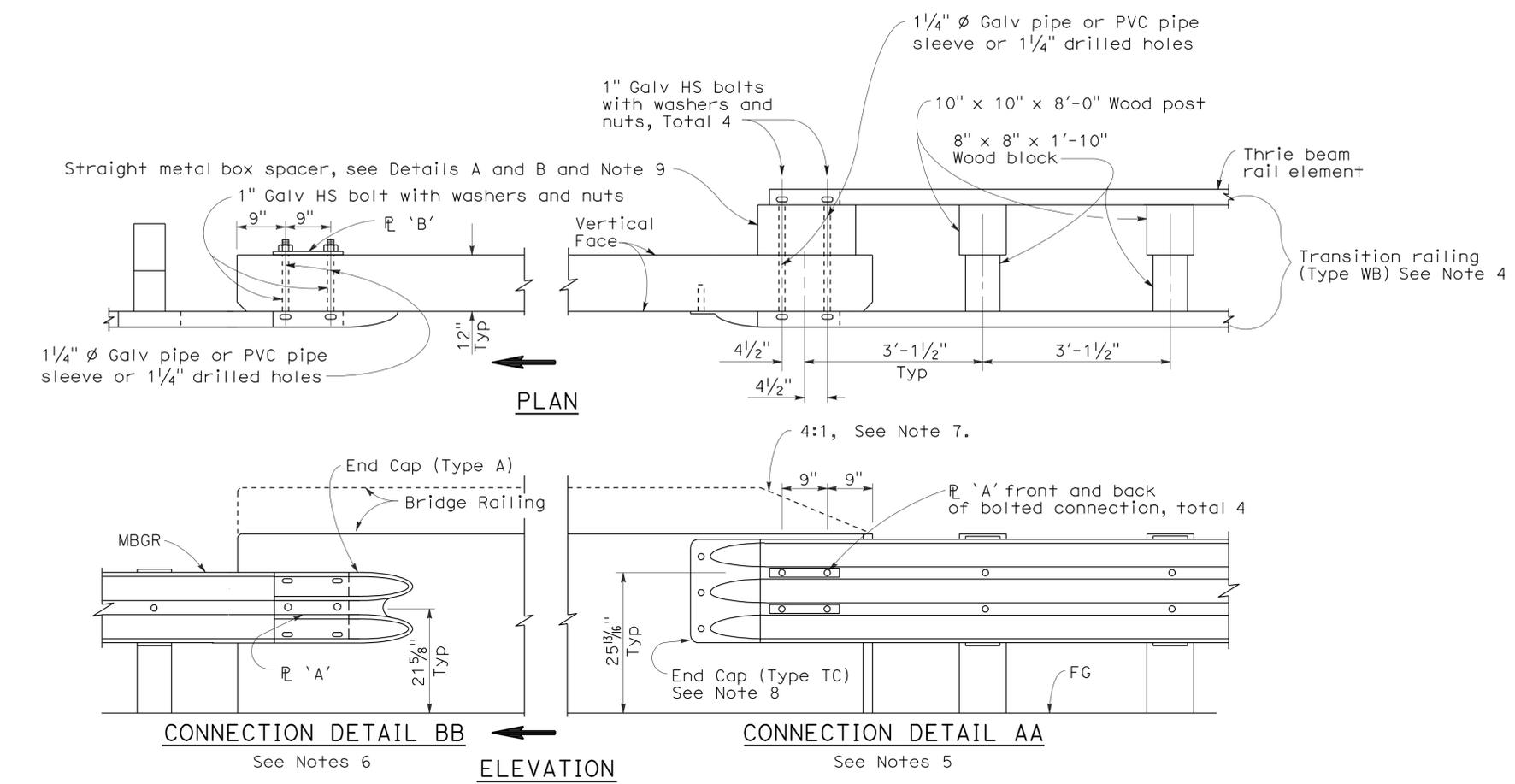
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

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

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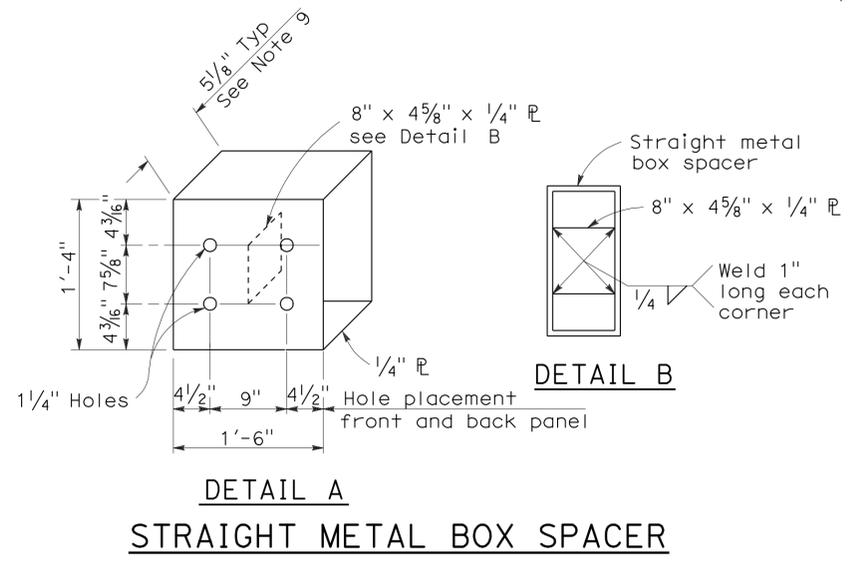
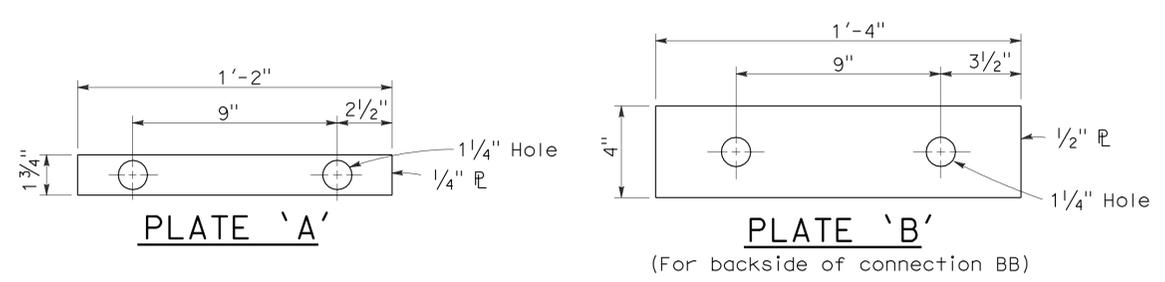
To accompany plans dated 2-28-11



GUARD RAILING CONNECTION TO BRIDGE RAILING WITHOUT SIDEWALK

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.



STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

METAL BEAM GUARD RAILING CONNECTIONS TO BRIDGE RAILINGS WITHOUT SIDEWALKS DETAILS No.1

NO SCALE
RSP A77J1 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77J1
DATED MAY 1, 2006 - PAGE 72 OF THE STANDARD PLANS BOOK DATED MAY 2006.

2006 REVISED STANDARD PLAN RSP A77J1

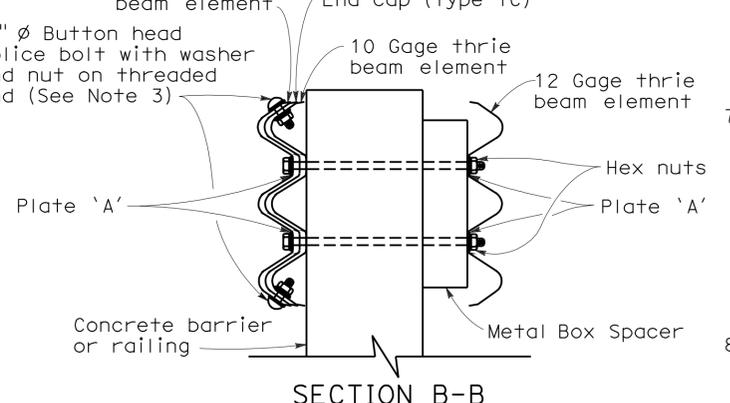
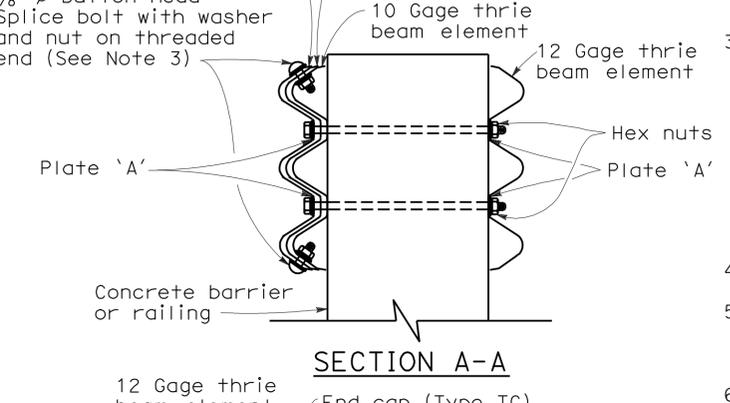
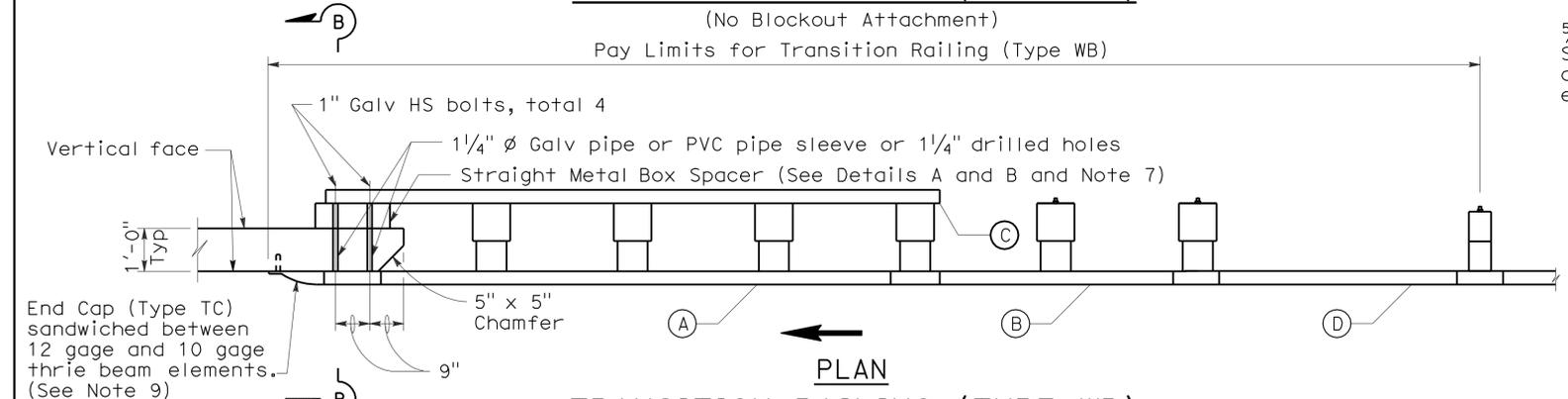
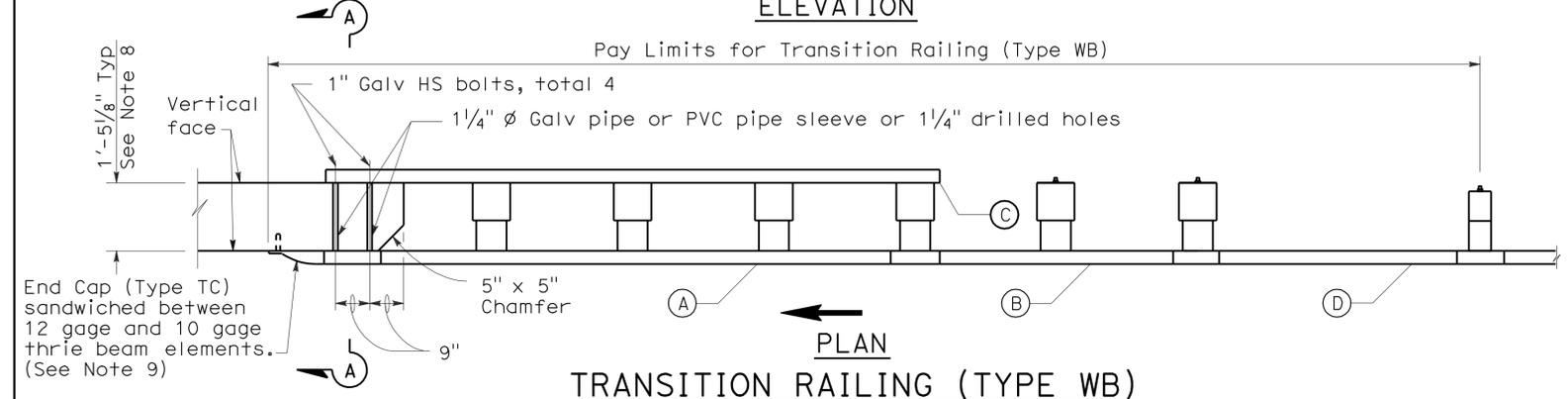
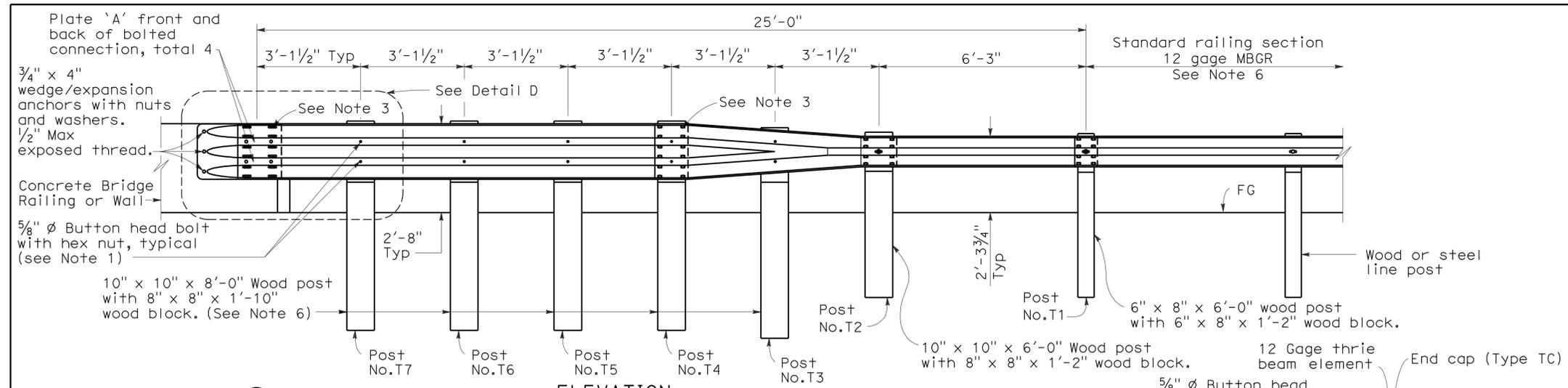
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
06	Fre	41,180	R24.7/R25.0, R58.4/R59.4	36	56

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

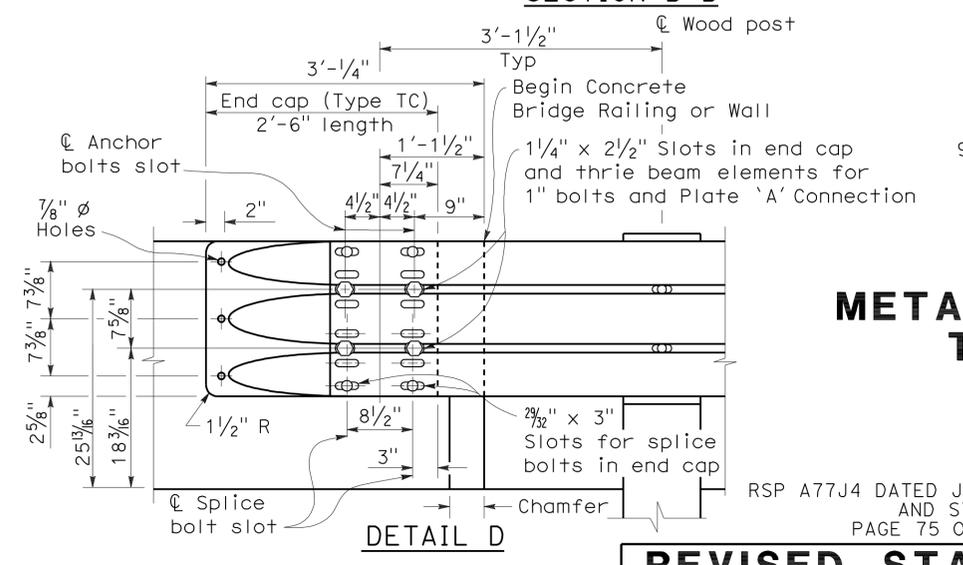
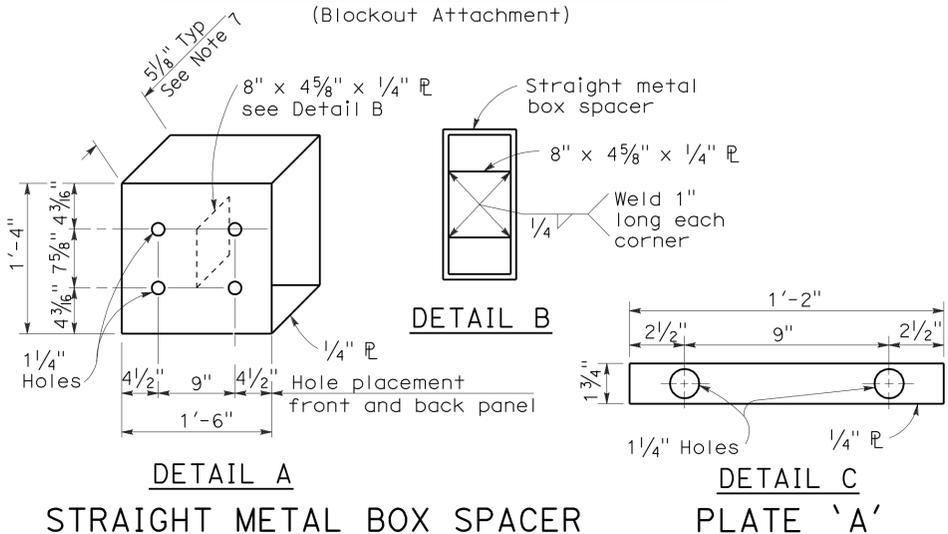
June 5, 2009
PLANS APPROVAL DATE

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No. C50200
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- LEGEND**
- (A) Nested thrie beam elements (one 12 gage element nested over one 10 gage element).
 - (B) One 10 gage "W" beam to thrie beam element.
 - (C) One 12 gage thrie beam element.
 - (D) One 10 gage "W" beam rail element (7'-3 1/2" length)
- 10 gage = 0.135" thick
12 gage = 0.108" thick



- NOTES:** To accompany plans dated 2-28-11
1. Use 5/8" ø Button head bolts and hex nuts for connections to posts. No washer on rail face for bolted connections to post.
 2. The nested rail elements, end cap, and "W" beam to thrie beam element may be spliced together prior to bolting the elements to the wood post and concrete barrier or railing.
 3. Exterior splice bolt holes for rail element splices at Post No. T4 and the connection to the concrete barrier or railing shall be the standard 29/32" x 1 1/8" slot size. Interior splice bolt holes at these locations may be increased up to 1 1/4" ø. Only the top 2 and the bottom 2 splice bolts with washers and nuts are required for rail splices at Post No. T4 and the connection to the concrete barrier or railing.
 4. Direction of adjacent traffic indicated by →.
 5. The top elevation of Post Nos. T2 through T7 shall not project more than 1" above the top elevation of the rail element.
 6. Typically, the railing connected to Transition Railing (Type WB) will be either standard railing section of metal beam guard railing or an approved Caltrans end treatment attached to Post No. T1.
 7. The depth of the metal box spacer varies from the 5 1/8" to 1 1/2" and is dependent on the width of the concrete railing or wall. The combined dimension for the depth of the metal box spacer plus the width of railing or wall is typically 17 1/8". Where the space between the backside of the concrete railing or wall and the rear thrie beam element is less than 1 1/2", metal plates similar to Plate 'A' are to be used as spacers.
 8. Where the width of the concrete railing or wall is greater than 17 1/8", wood blocks are to be used to fill the space created between the backside of Posts No. 4 through No. 7 and the rear thrie beam element. These wood blocks shall be 8" in width and 1'-2" in length. The dimension between the front thrie beam element and the rear thrie beam element is to match the width of the concrete railing or wall.
 9. End cap may be installed over 12 gage and 10 gage thrie beam elements where transition railing is installed on the departure end of bridge railing.

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DEPARTMENT OF TRANSPORTATION

**METAL BEAM GUARD RAILING
TRANSITION RAILING
(TYPE WB)**

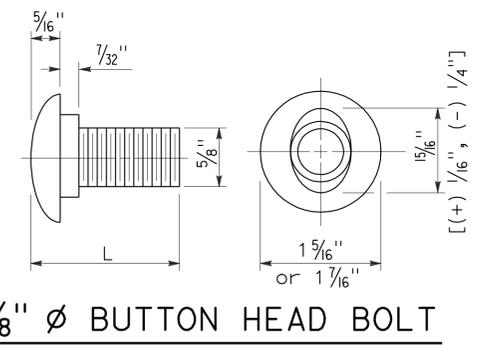
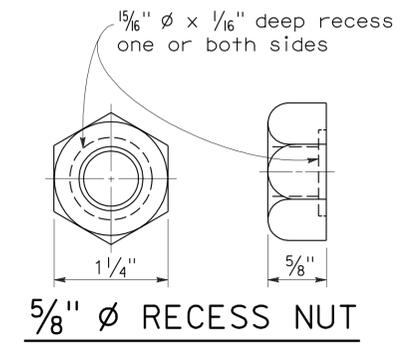
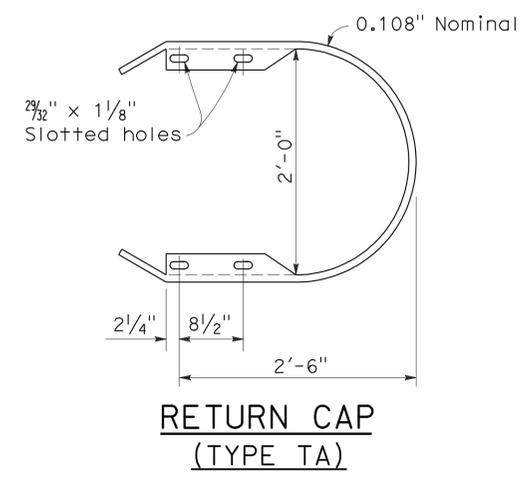
NO SCALE

RSP A77J4 DATED JUNE 5, 2009 SUPERSEDES RSP A77J4 DATED JUNE 6, 2008
AND STANDARD PLAN A77J4 DATED MAY 1, 2006 -
PAGE 75 OF THE STANDARD PLANS BOOK DATED MAY 2006.

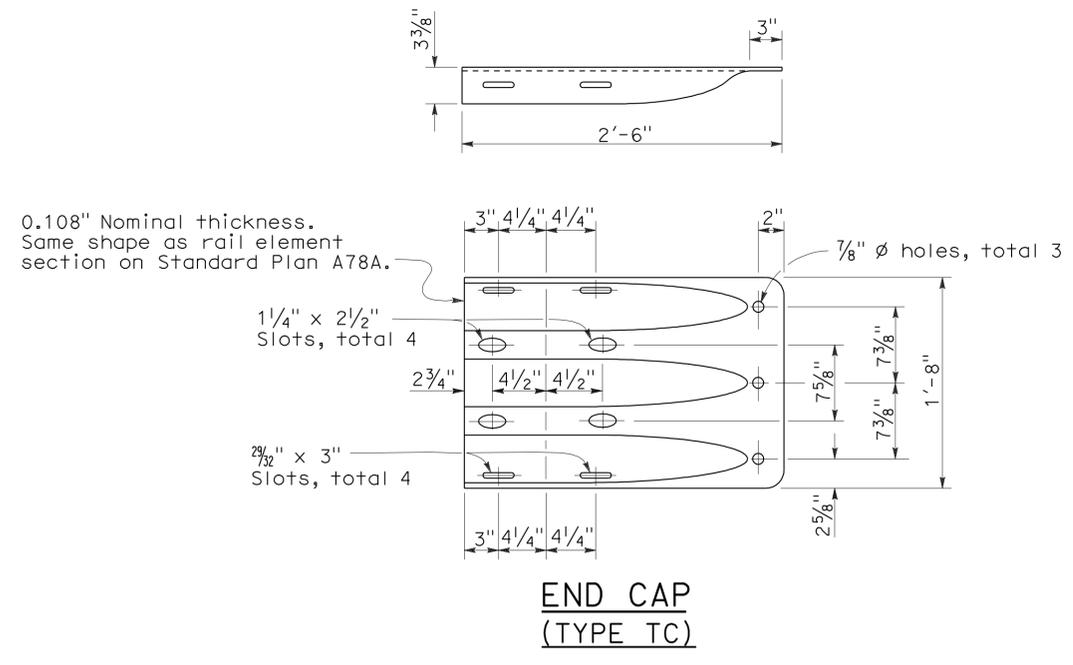
REVISED STANDARD PLAN RSP A77J4

2006 REVISED STANDARD PLAN RSP A77J4

To accompany plans dated 2-28-11



L	THREAD LENGTH
1 1/4"	full thread length
2"	full thread length
9/2"	4" Min thread length
18"	4" Min thread length



STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**THRIE BEAM BARRIER
STANDARD HARDWARE DETAILS**

NO SCALE

RSP A78C1 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A78C1
DATED MAY 1, 2006 - PAGE 85 OF THE STANDARD PLANS BOOK DATED MAY 2006.

2006 REVISED STANDARD PLAN RSP A78C1

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
06	Fre	41,180	R24.7/R25.0, R58.4/R59.4	38	56

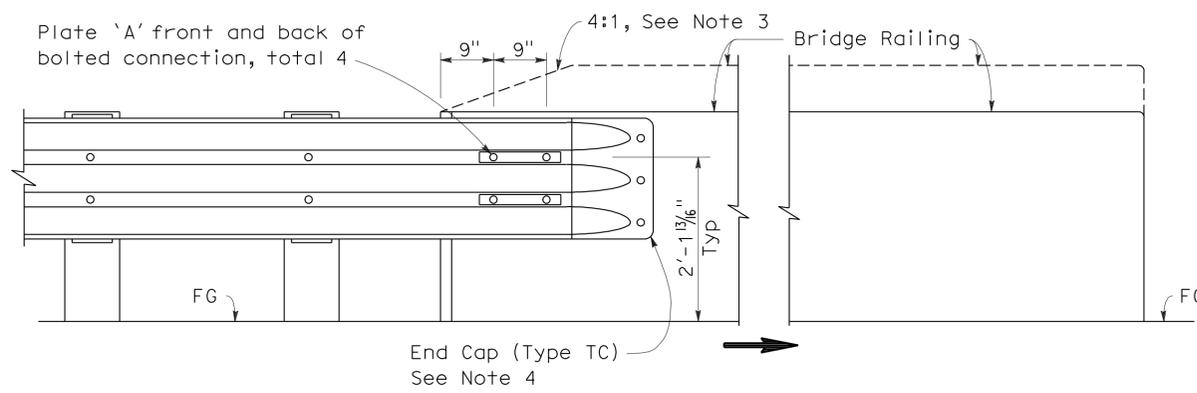
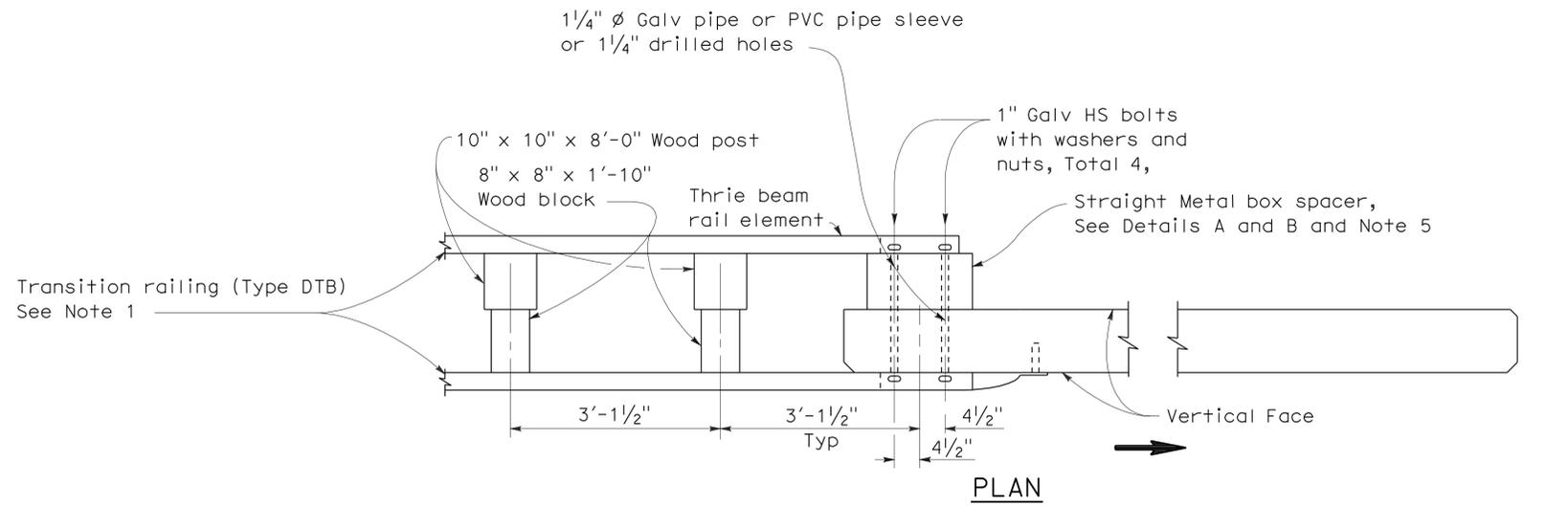
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

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

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To accompany plans dated 2-28-11

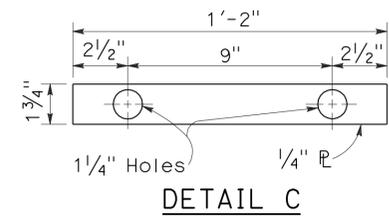
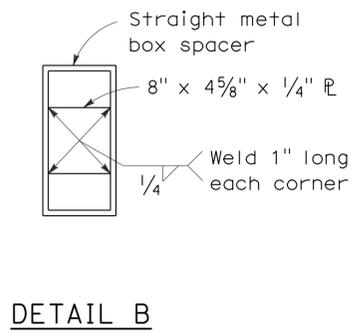
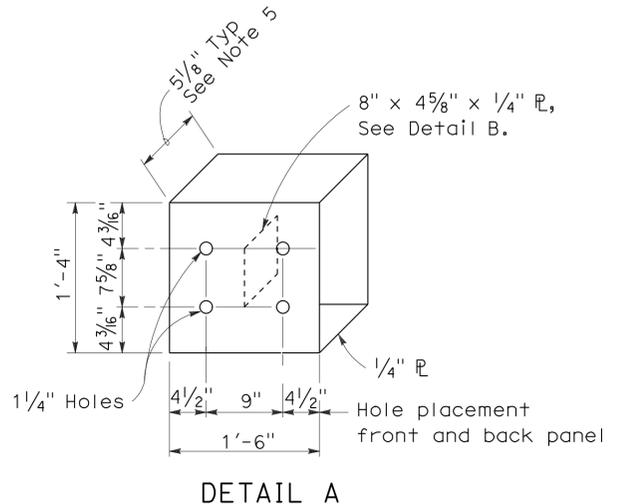


CONNECTION DETAIL 1A
See Note 2

DOUBLE THRIE BEAM BARRIER CONNECTION TO BRIDGE RAILING WITHOUT SIDEWALK

NOTES:

- For additional details of Transition Railing (Type DTB), see Standard Plans A78K. Transition Railing (Type DTB) transitions the standard 12 gage double thrie beam barrier to a heavier gage double thrie beam railing section then to a heavier gage nested double thrie beam barrier section which then is connected to the concrete bridge railing.
- For typical use of Connection Detail 1A, see Type 25A Connection Layout on Revised Standard Plan RSP A78H.
- Where the height of the bridge railing exceeds the height of the thrie beam railing by more than 1" at Connection Detail 1A, 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 Plan A78C1.
- See Standard Plan A78K for additional details regarding depth dimension for straight metal box spacer.
- Direction of adjacent traffic indicated by →.



STRAIGHT METAL BOX SPACER

PLATE 'A'

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**DOUBLE THRIE BEAM BARRIER
CONNECTION TO
BRIDGE RAILINGS
WITHOUT SIDEWALKS**

NO SCALE

RSP A78F1 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A78F1
DATED MAY 1, 2006 - PAGE 92 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A78F1

2006 REVISED STANDARD PLAN RSP A78F1

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
06	Fre	41,180	R24.7/R25.0, R58.4/R59.4	39	56

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

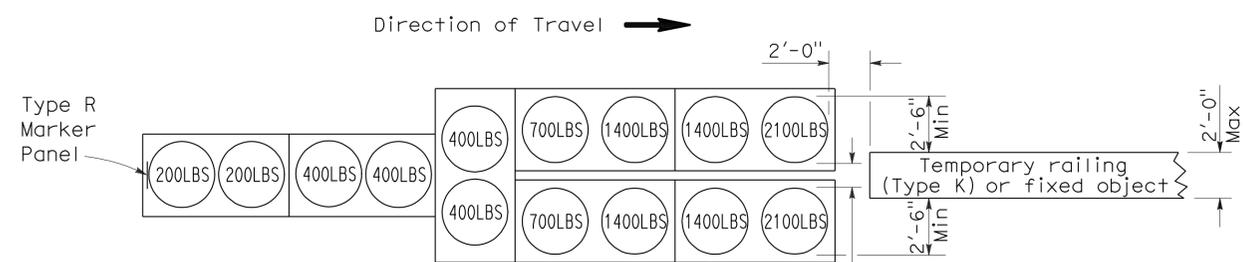
June 6, 2008
PLANS APPROVAL DATE

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

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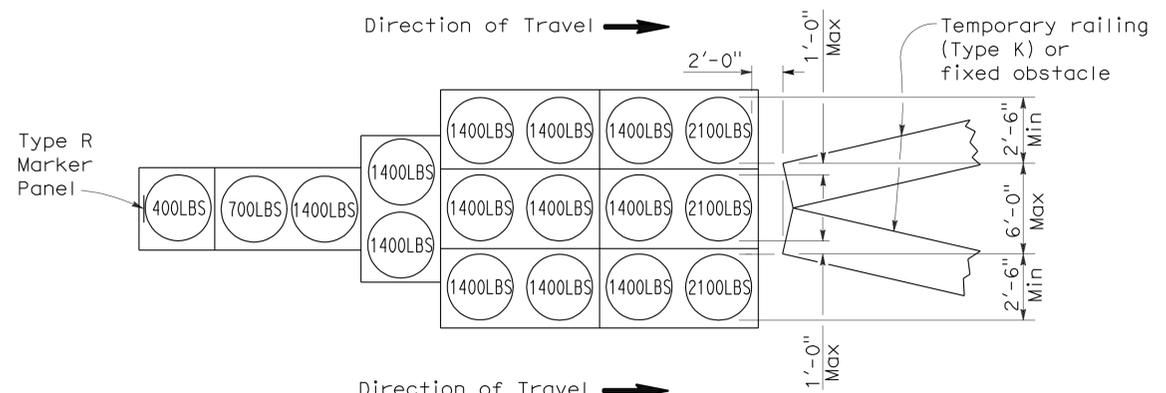
To accompany plans dated 2-28-11

2006 REVISED STANDARD PLAN RSP T1A



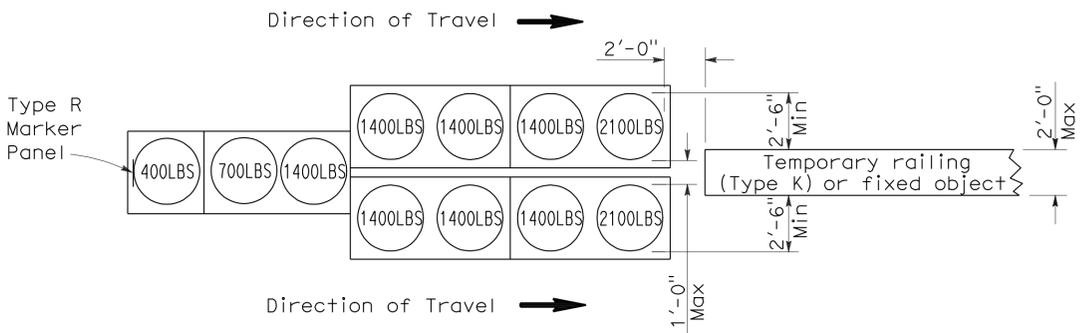
ARRAY 'TU14'

Approach speed 45 mph or more



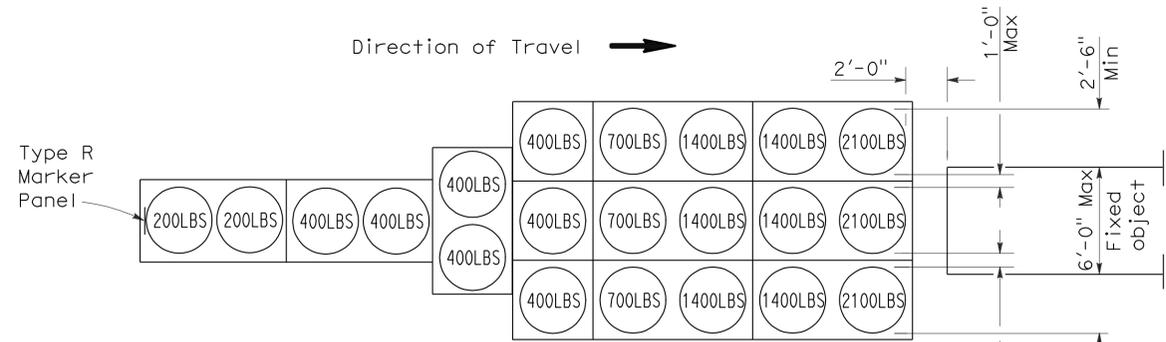
ARRAY 'TU17'

Approach speed less than 45 mph



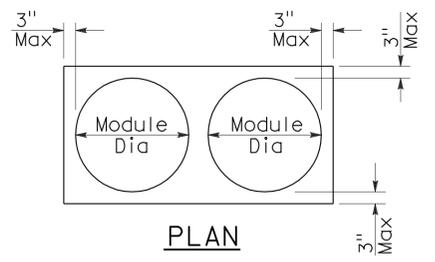
ARRAY 'TU11'

Approach speed less than 45 mph

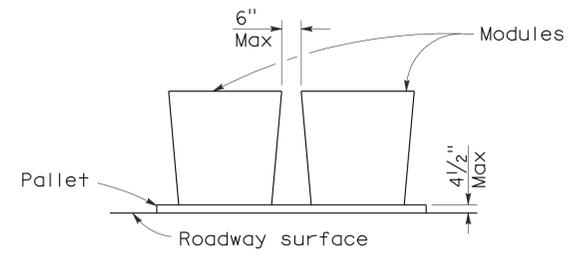


ARRAY 'TU21'

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.

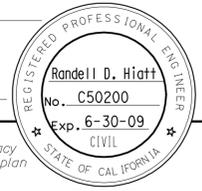
REVISED STANDARD PLAN RSP T1A

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
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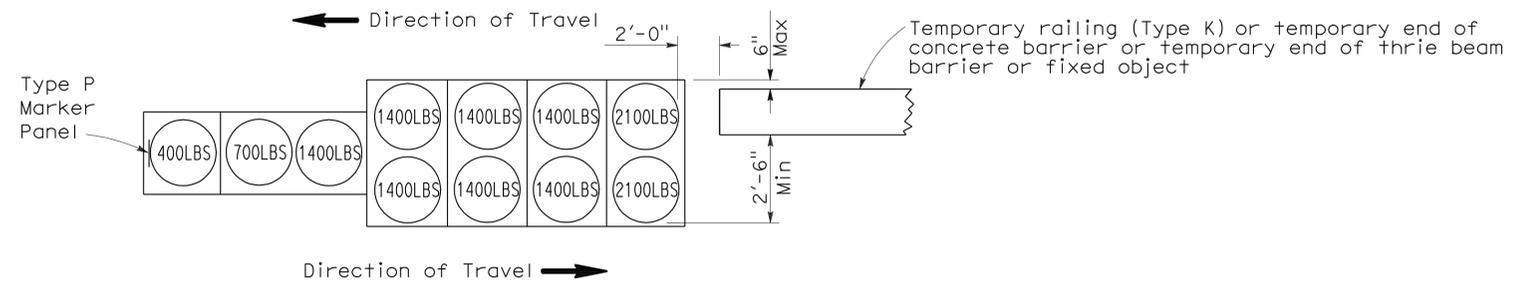
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

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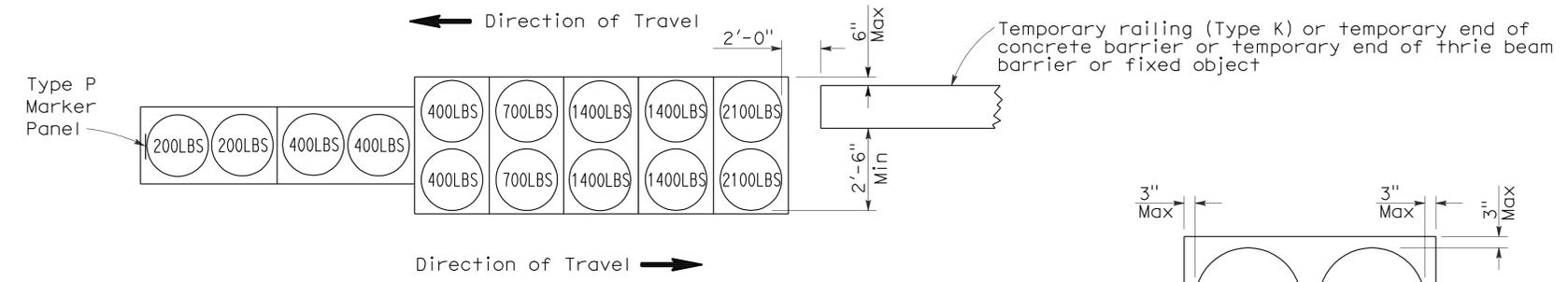


To accompany plans dated 2-28-11



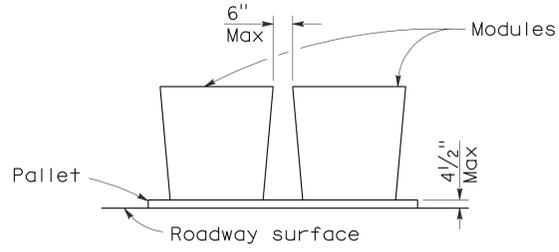
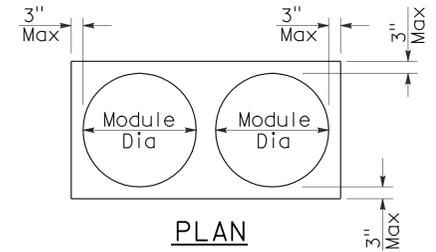
ARRAY 'TB11'

Approach speed less than 45 mph



ARRAY 'TB14'

Approach speed 45 mph or more



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

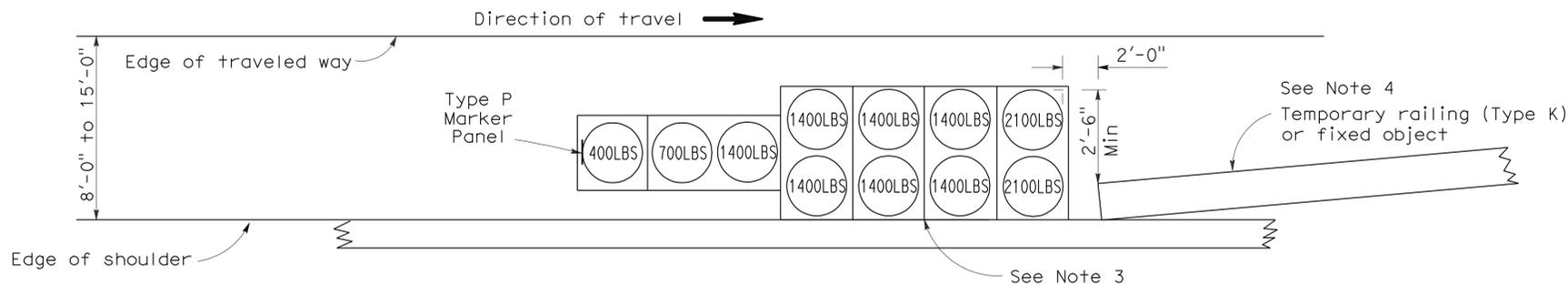
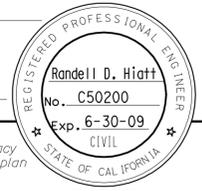
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
06	Fre	41,180	R24.7/R25.0, R58.4/R59.4	41	56

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

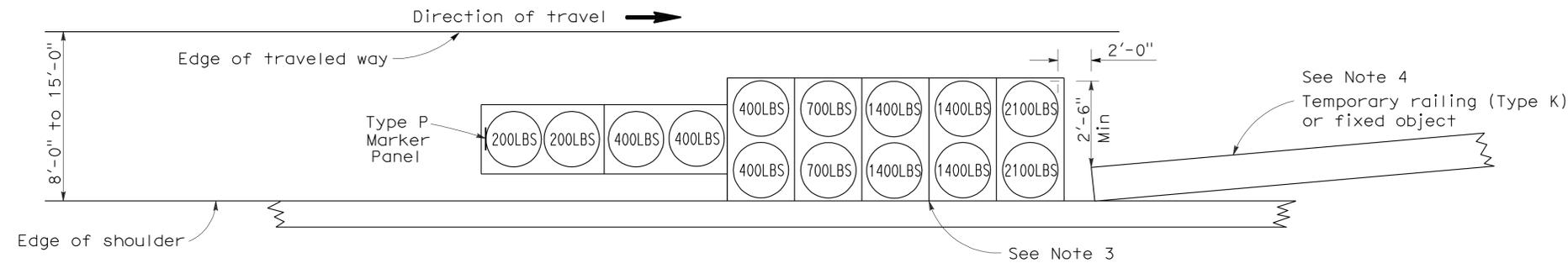
June 6, 2008
PLANS APPROVAL DATE

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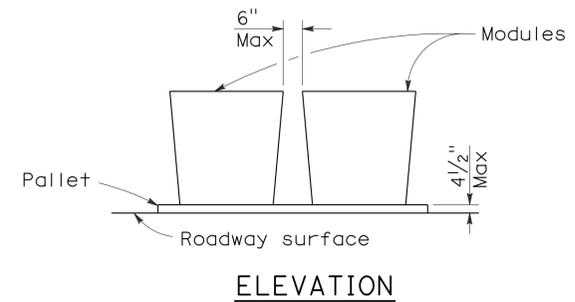
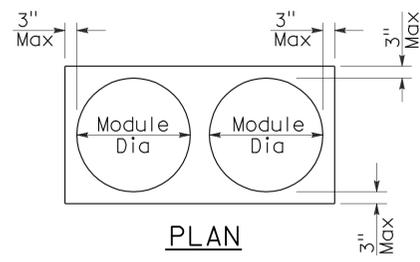
To accompany plans dated 2-28-11



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

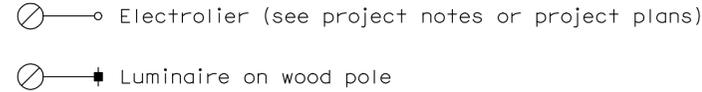
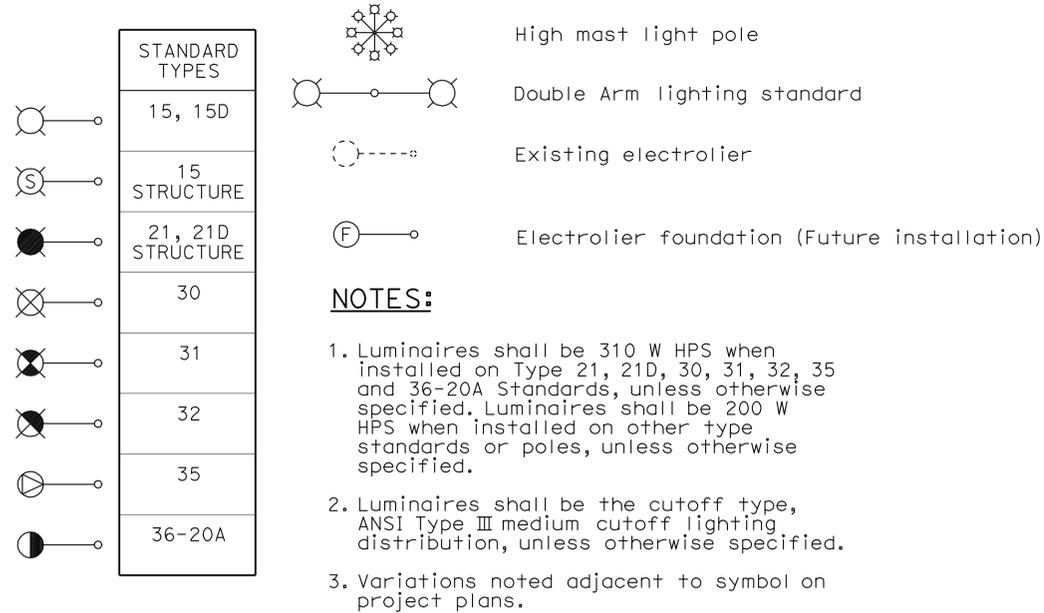
**TEMPORARY CRASH CUSHION,
SAND FILLED
(SHOULDER INSTALLATIONS)**

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

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
06	Fre	41,180	R24.7/R25.0, R58.4/R59.4	42	56

Jeffery G. McRae
REGISTERED ELECTRICAL ENGINEER

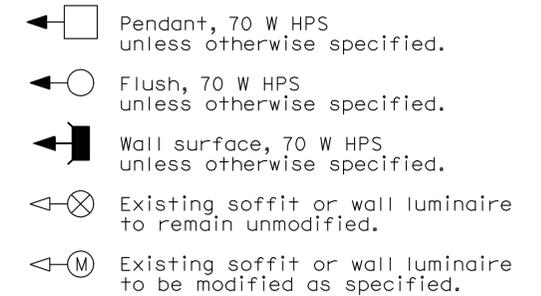
October 5, 2007
PLANS APPROVAL DATE

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

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To accompany plans dated 2-28-11

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

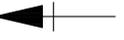
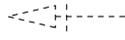
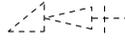
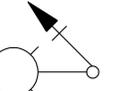
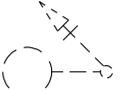
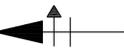
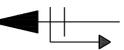
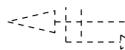
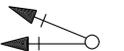
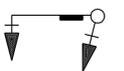
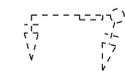
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
06	Fre	41,180	R24.7/R25.0, R58.4/R59.4	43	56

Jeffrey G. McRae
 REGISTERED ELECTRICAL ENGINEER
 October 5, 2007
 PLANS APPROVAL DATE
 Jeffrey G. McRae
 No. E14512
 Exp. 6-30-08
 ELECTRICAL
 STATE OF CALIFORNIA
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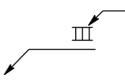
CONDUIT

PROPOSED	EXISTING	
---	---	Lighting Conduit, unless otherwise indicated or noted
---	---	Traffic signal conduit
-C-	-c-	Communication conduit
-T-	-t-	Telephone conduit
-F-	-f-	Fire alarm conduit
-FO-	-fo-	Fiber optic conduit
---	---	Conduit termination 
		Conduit riser in/on structure or service pole

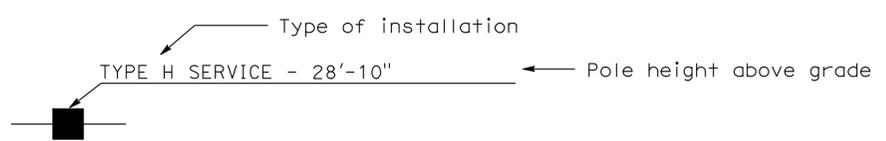
SIGNAL EQUIPMENT

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

SERVICE EQUIPMENT

PROPOSED	EXISTING	
---OH---	---oh---	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

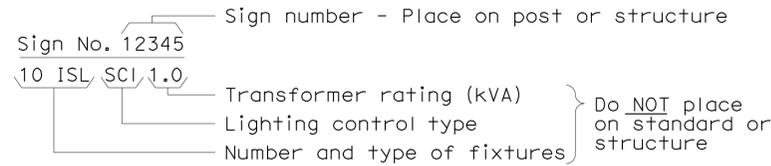
RSP ES-1B DATED OCTOBER 5, 2007 SUPERCEDES STANDARD PLAN ES-1B
 DATED MAY 1, 2006 - PAGE 401 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP ES-1B

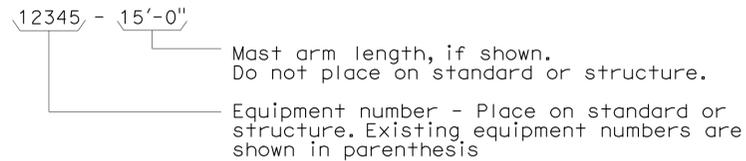
2006 REVISED STANDARD PLAN RSP ES-1B

EQUIPMENT IDENTIFICATION

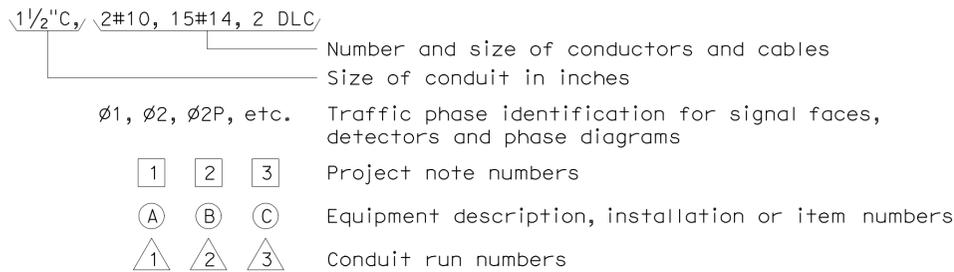
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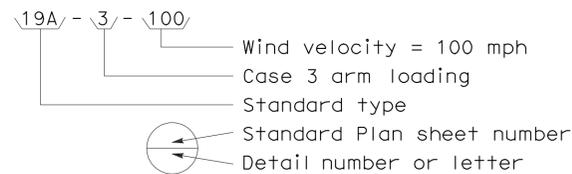
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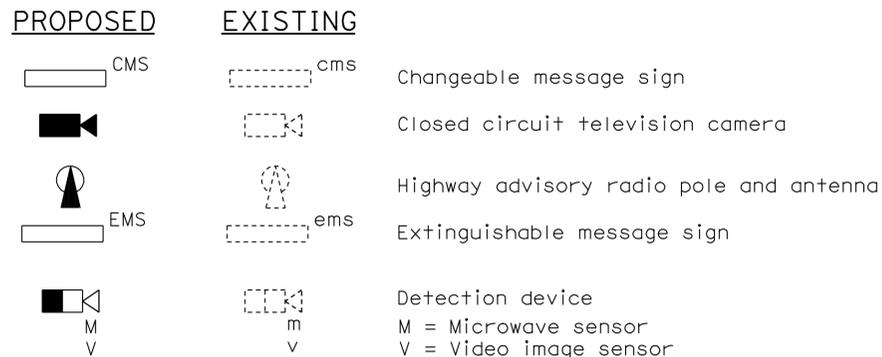
CONDUIT AND CONDUCTOR IDENTIFICATION:



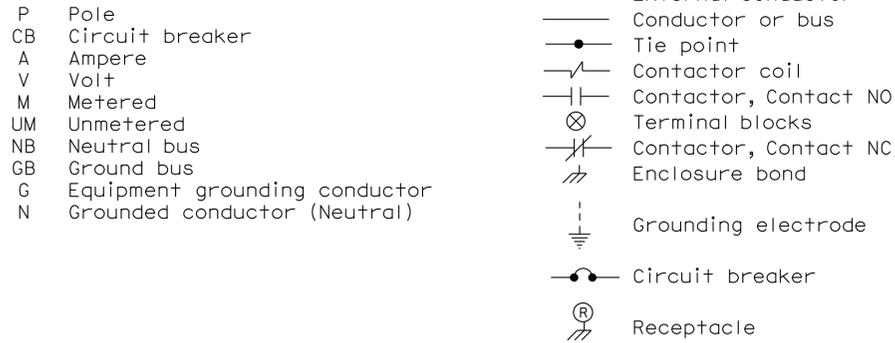
SIGNAL AND LIGHTING STANDARD (TYPICAL DESIGNATION):



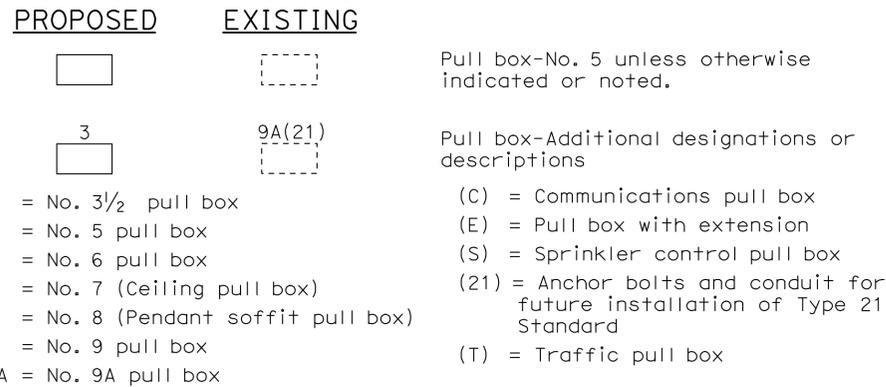
MISCELLANEOUS EQUIPMENT



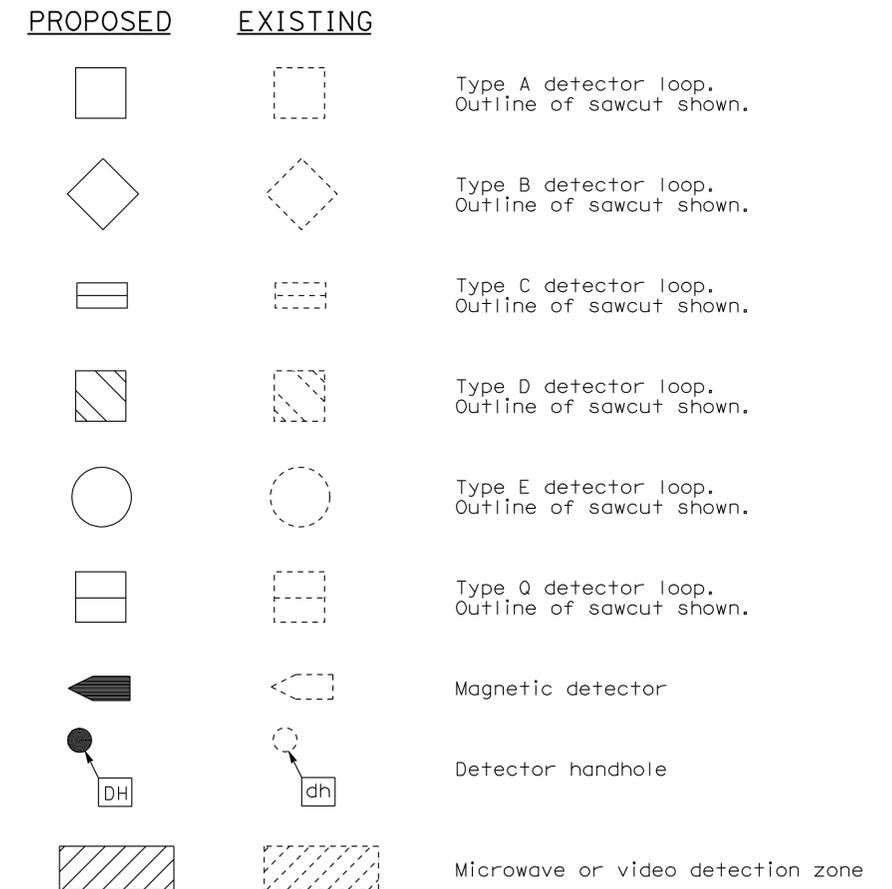
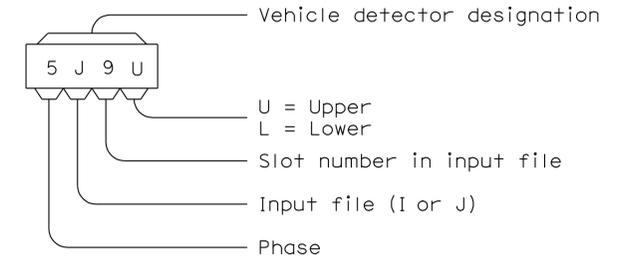
WIRING DIAGRAM LEGEND



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.

2006 REVISED STANDARD PLAN RSP ES-1C

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
06	Fre	41,180	R24.7/R25.0, R58.4/R59.4	45	56

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.

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)."

To accompany plans dated 2-28-11

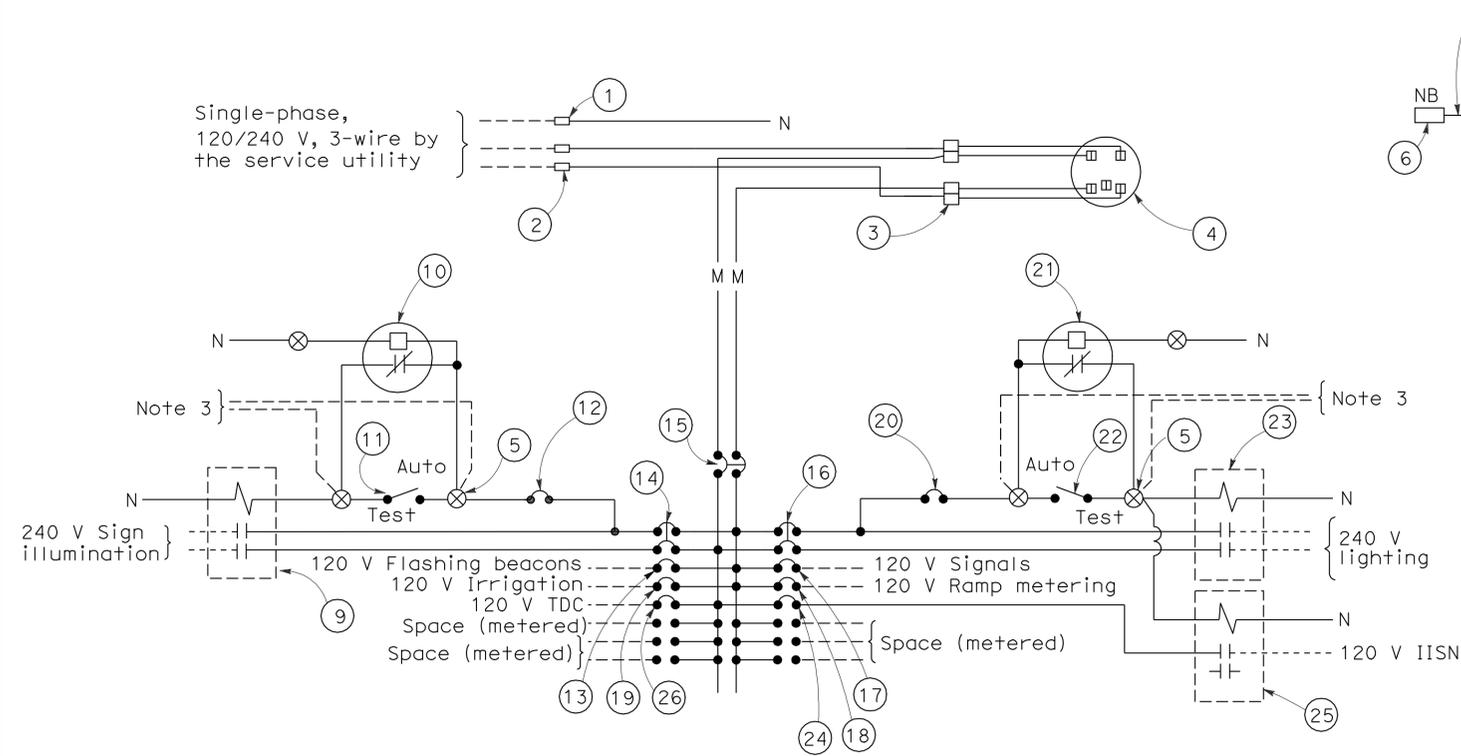
2006 REVISED STANDARD PLAN RSP ES-2C

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
**ELECTRICAL SYSTEMS
 (SERVICE EQUIPMENT NOTES
 TYPE III SERIES)**

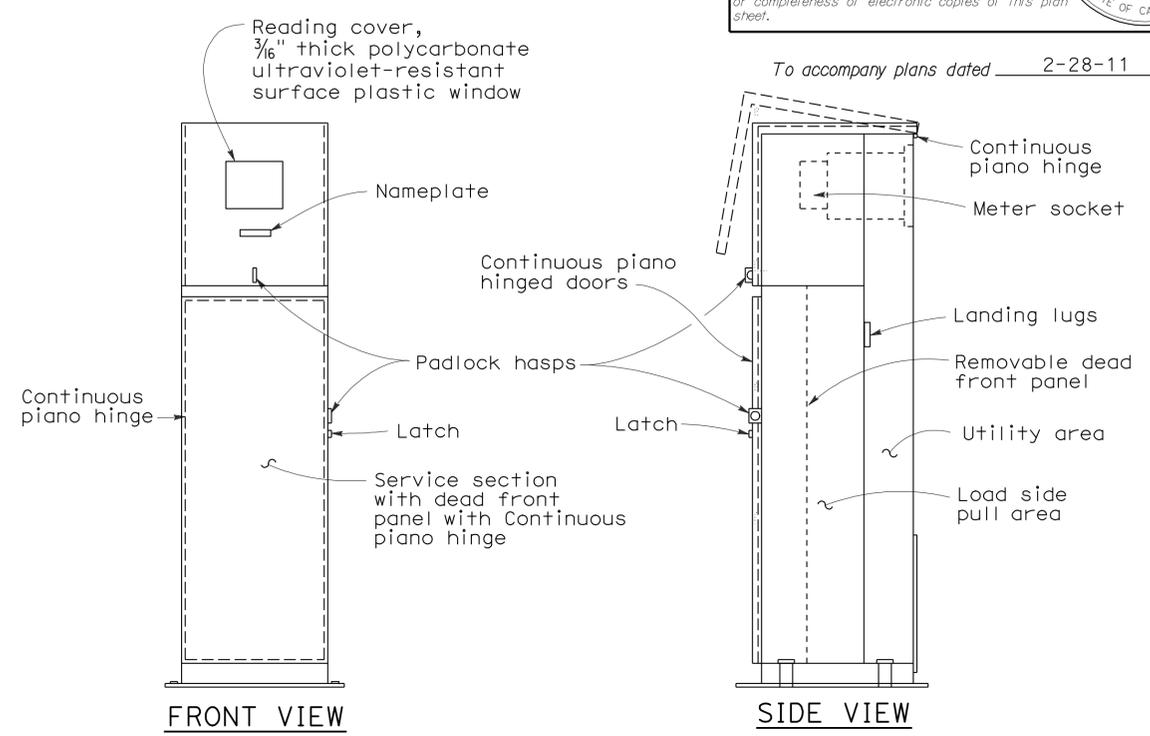
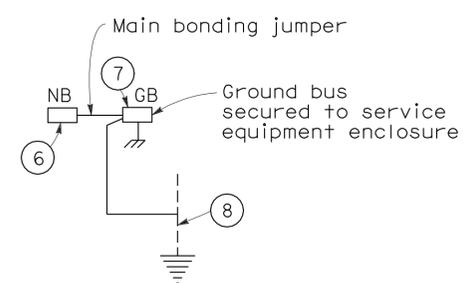
NO SCALE

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



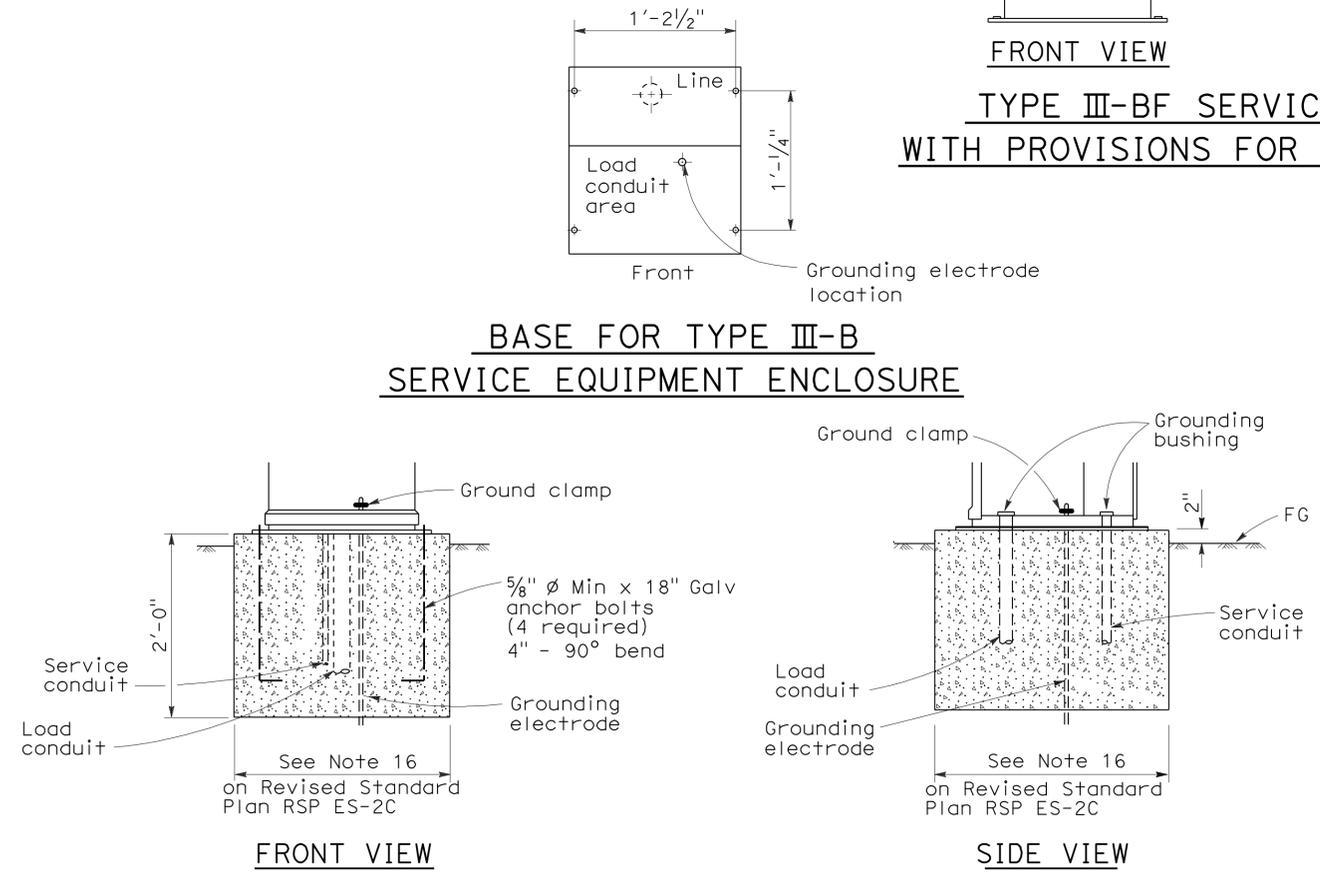
120/240 V SERVICE WIRING DIAGRAM (TYPICAL)



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



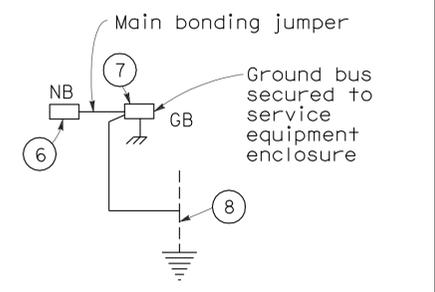
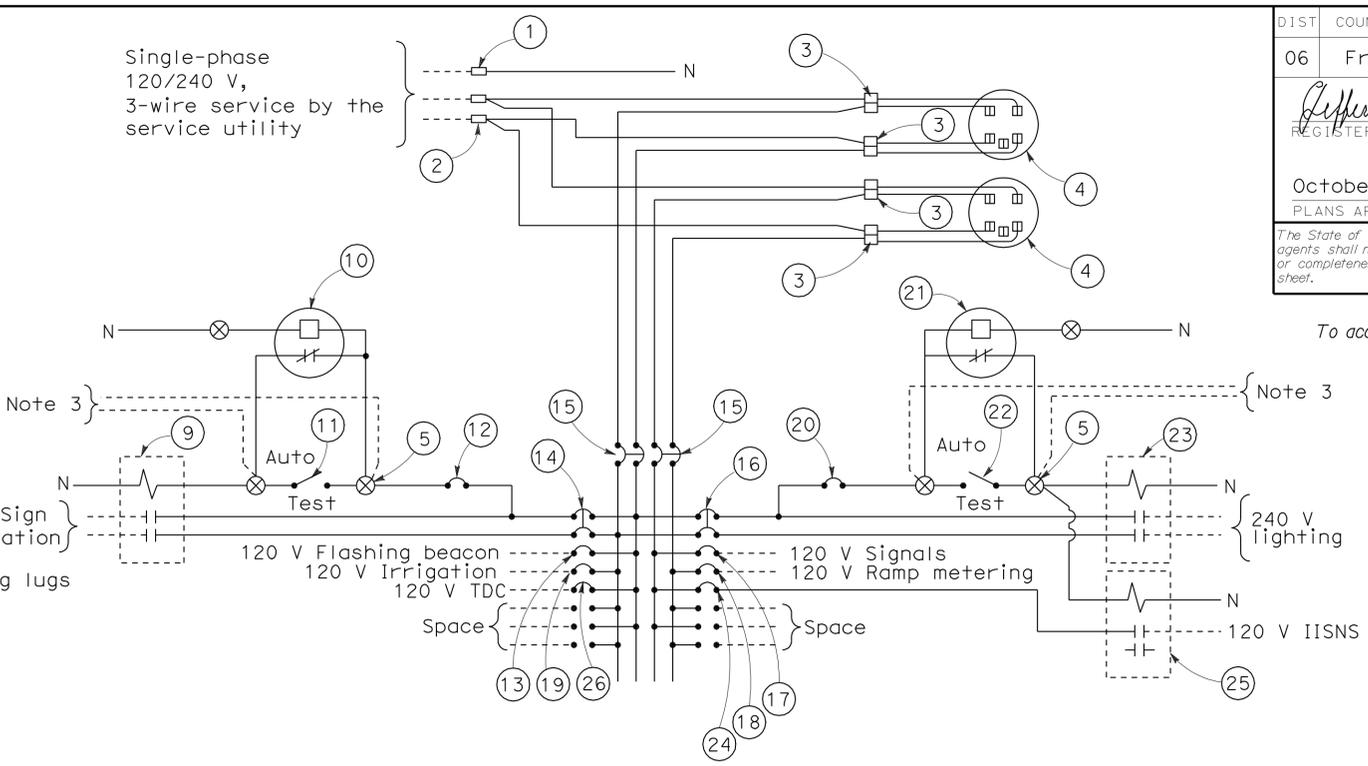
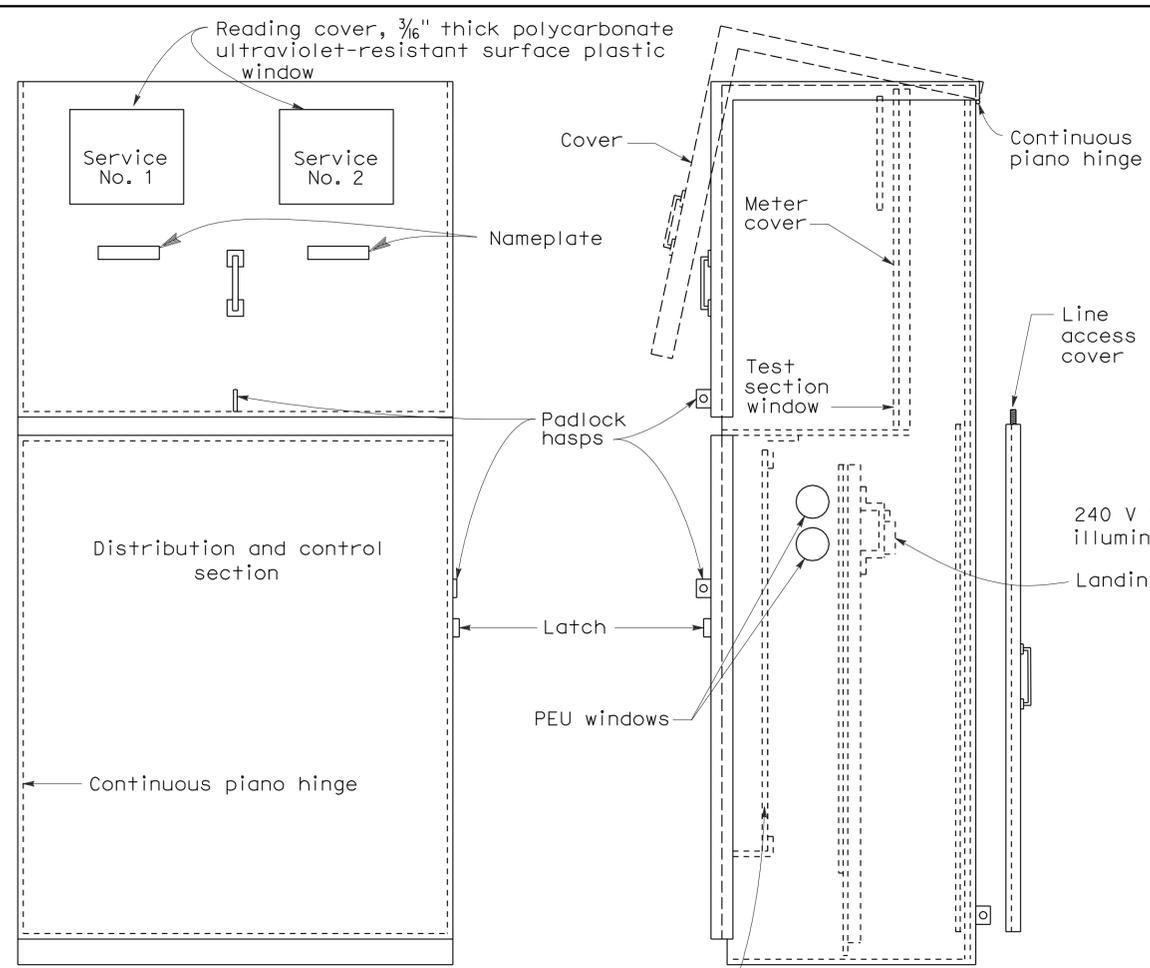
TYPE III-B SERVICE EQUIPMENT ENCLOSURE FOUNDATION DETAILS

- 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



120/240 V SERVICE WIRING DIAGRAM (TYPICAL)

TYPE III-CF SERVICE EQUIPMENT ENCLOSURE WITH PROVISIONS FOR TWO 100 A METERS (TYPICAL)

TYPE III-C SERVICE (120/240 V) EQUIPMENT LEGEND

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

NOTES: (FOR SERVICE EQUIPMENT ENCLOSURE)

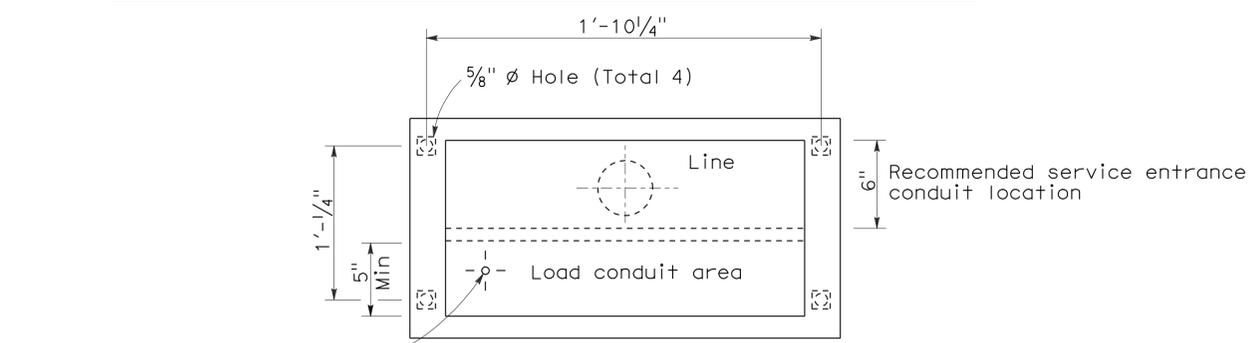
- Voltage ratings of service equipment shall conform to the service voltages indicated on the plans.
- Unless otherwise indicated on the plans, service equipment items shall be provided for each service equipment enclosure as shown.
- Connect to remote test switch mounted on lighting standards, sign 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

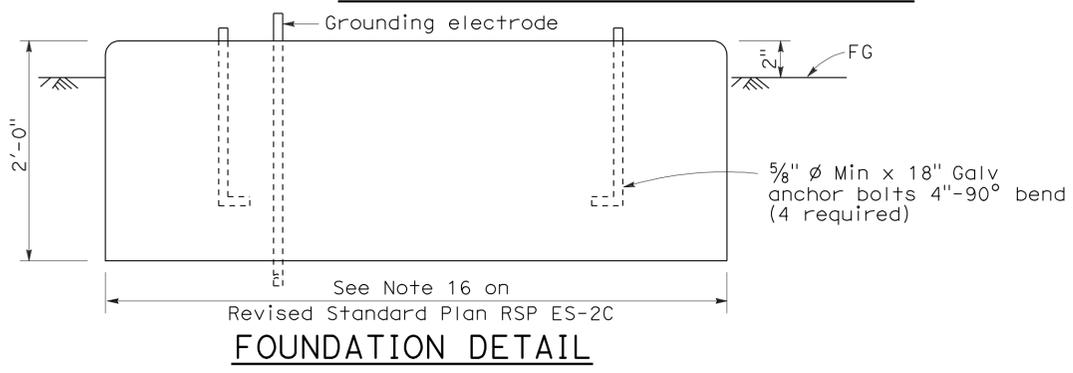
**ELECTRICAL SYSTEMS
(SERVICE EQUIPMENT AND
TYPICAL WIRING DIAGRAM
TYPE III - C SERIES)**

NO SCALE

RSP ES-2F DATED OCTOBER 5, 2007 SUPERCEDES STANDARD PLAN ES-2F DATED MAY 1, 2006 - PAGE 408 OF THE STANDARD PLANS BOOK DATED MAY 2006.



BASE FOR TYPE III-C SERVICE EQUIPMENT ENCLOSURE

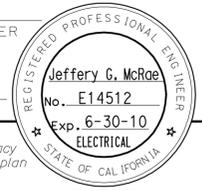


FOUNDATION DETAIL

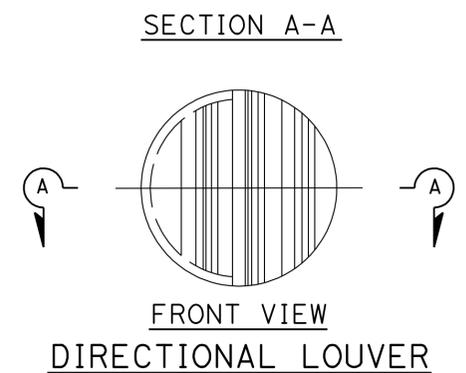
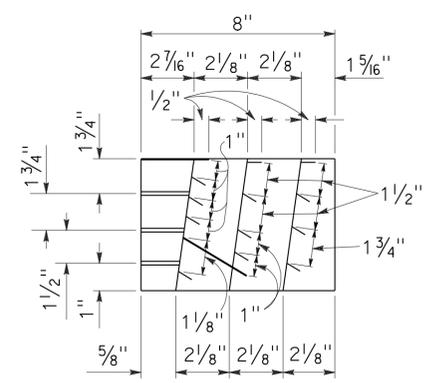
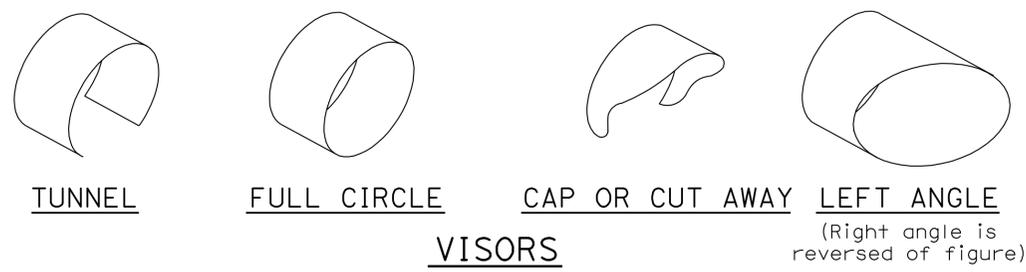
2006 REVISED STANDARD PLAN RSP ES-2F

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
06	Fre	41,180	R24.7/R25.0, R58.4/R59.4	48	56

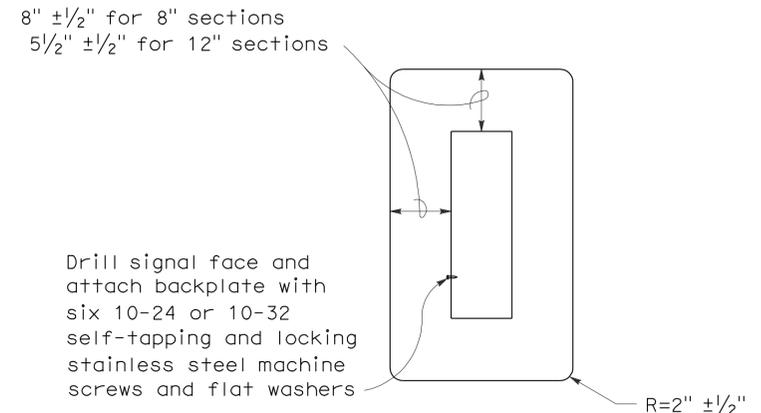
Jeffrey G. McRae
 REGISTERED ELECTRICAL ENGINEER
 June 6, 2008
 PLANS APPROVAL DATE
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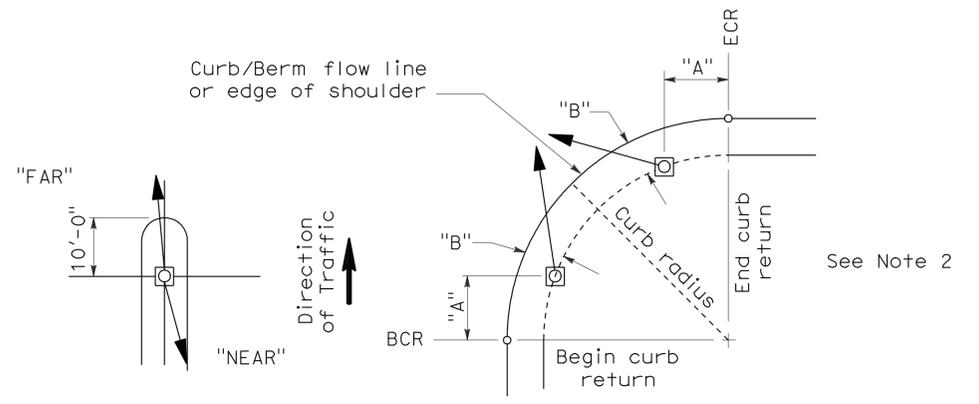
To accompany plans dated 2-28-11



DIRECTIONAL LOUVER
 Directional louvers shall be oriented as directed by the Engineer and secured in place with one plated brass machine screw and nut.

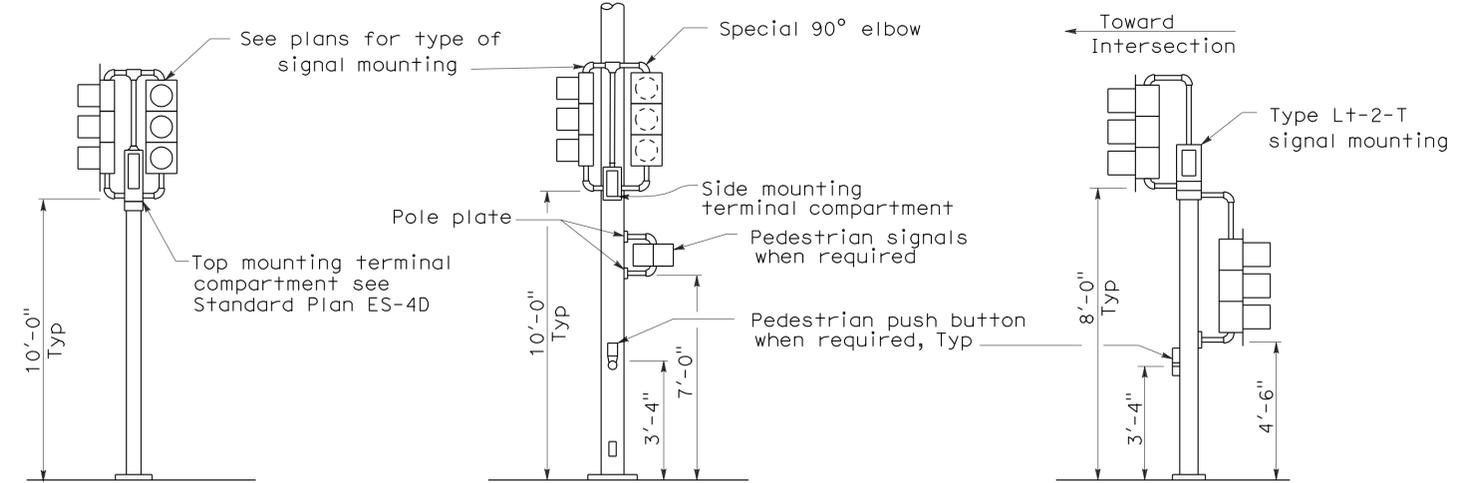


8" AND 12" SECTIONS
BACKPLATE
 1/16" minimum thickness
 3001-14 aluminum, or plastic when specified



- NOTES:**
1. Typical signal pole placement unless dimensioned on plans.
 2. For "A" and "B" dimensions, see Pole Schedule, or as directed by the Engineer.

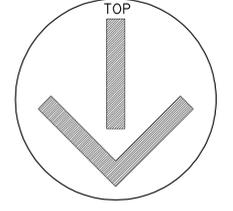
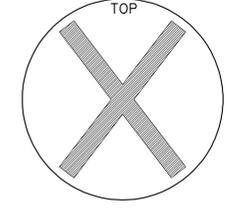
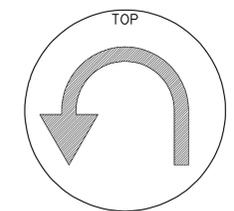
SIGNAL STANDARD PLACEMENT DIMENSIONS AND EQUIPMENT LOCATIONS



TOP MOUNTED SIGNALS (TV)
 Type 1-A, 1-B, 1-C and 1-D standard as indicated on the plans

SIDE MOUNTED SIGNALS (SV AND SP)
 Normally used on standards with luminaire or signal mast arm

LEFT TURN LANE SIGNAL
 Type 1-A, 1-B, 1-C and 1-D standard as indicated on plans



U-TURN SIGNAL FACE **BICYCLE SIGNAL FACE** **LANE CONTROL SIGNAL FACE** **LANE CONTROL SIGNAL FACE**

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
ELECTRICAL SYSTEMS (SIGNAL HEADS AND MOUNTINGS)
 NO SCALE

RSP ES-4C DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN ES-4C DATED MAY 1, 2006 - PAGE 420 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP ES-4C

2006 REVISED STANDARD PLAN RSP ES-4C

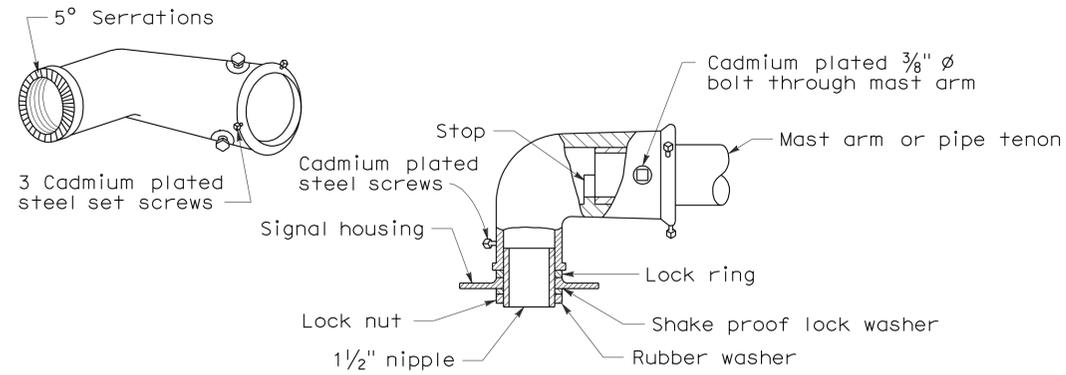
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
06	Fre	41,180	R24.7/R25.0, R58.4/R59.4	49	56

Jeffrey G. McRae
 REGISTERED ELECTRICAL ENGINEER
 No. E14512
 Exp. 6-30-10
 ELECTRICAL
 STATE OF CALIFORNIA

June 6, 2008
 PLANS APPROVAL DATE

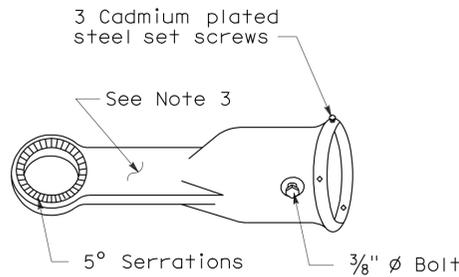
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

To accompany plans dated 2-28-11



MAST ARM MOUNTING - TYPE "MAT"

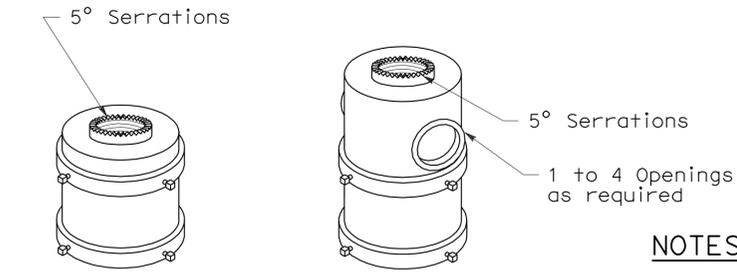
For 2 NPS pipe, see Note 1.



MAST ARM MOUNTING - TYPE "MAS"

For 2 NPS pipe. See Note 1.

SIGNAL SLIP FITTERS



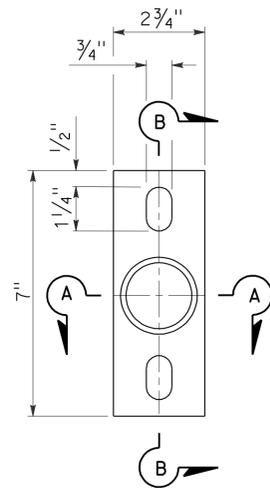
For one mounting For multiple mountings

TOP MOUNTINGS

For 4 NPS pipe, see Note 2.

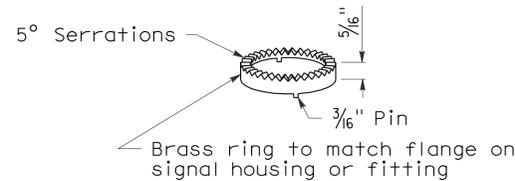
NOTES:

- After mast arm signal has been plumbed and secured, drill 7/16" hole through mast arm tenon in line with slip fitter hole. Place a cadmium plated 3/8" diameter galvanized bolt with washer under bolt head through hole and secure with washer, nut, and locknut. Seal openings between mast arm mountings and mast arm with mastic.
- (a) Threaded top mounted slip fitter openings shall be 1/2 NPS.
(b) Serrations in fittings shall match those on bottom of signal heads or in lock ring.
(c) Top opening shall be offset when backplate is used.
- Wireway shall have a cross section area of 0.95 square inch minimum. Minimum width of 1/2".



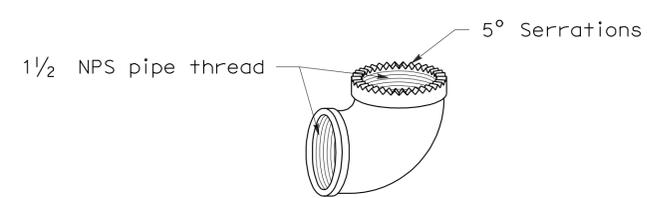
POLE PLATE

For side mountings



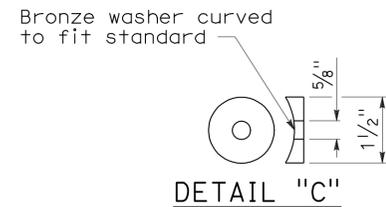
LOCK RING

Use where locking ring is not integral with signal housing or fitting.



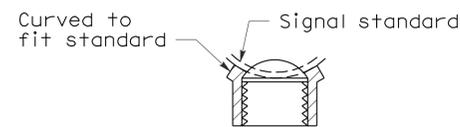
SPECIAL 90° ELBOW

One for each signal head, except those with special slip fitter mounting

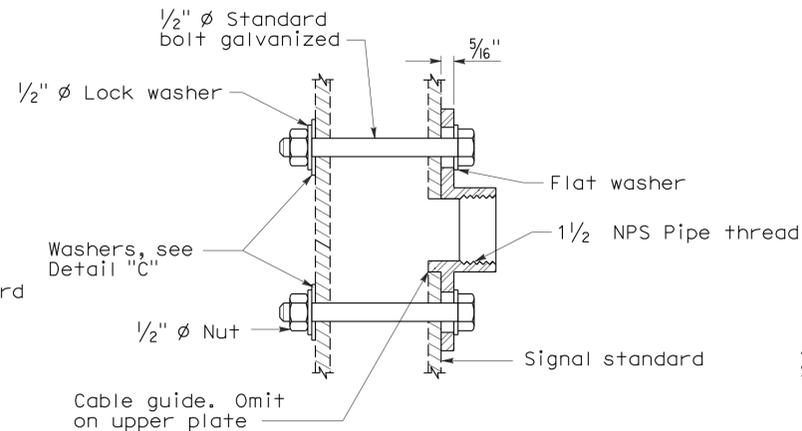


DETAIL "C"

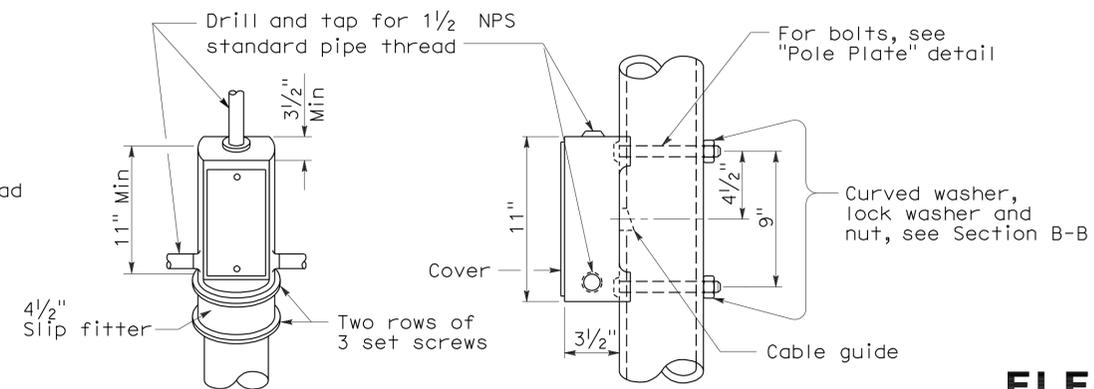
MISCELLANEOUS MOUNTING HARDWARE



SECTION A-A



SECTION B-B



TOP MOUNTING

SIDE MOUNTING

TERMINAL COMPARTMENTS

ELECTRICAL SYSTEMS (SIGNAL HEADS AND MOUNTINGS)

NO SCALE

RSP ES-4D DATED June 6, 2008 SUPERSEDES STANDARD PLAN ES-4D DATED MAY 1, 2006 - PAGE 421 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP ES-4D

2006 REVISED STANDARD PLAN RSP ES-4D

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
06	Fre	41,180	R24.7/R25.0, R58.4/R59.4	50	56

Registered Electrical Engineer
 Jeffrey G. McRae
 No. E14512
 Exp. 6-30-08
 ELECTRICAL
 STATE OF CALIFORNIA

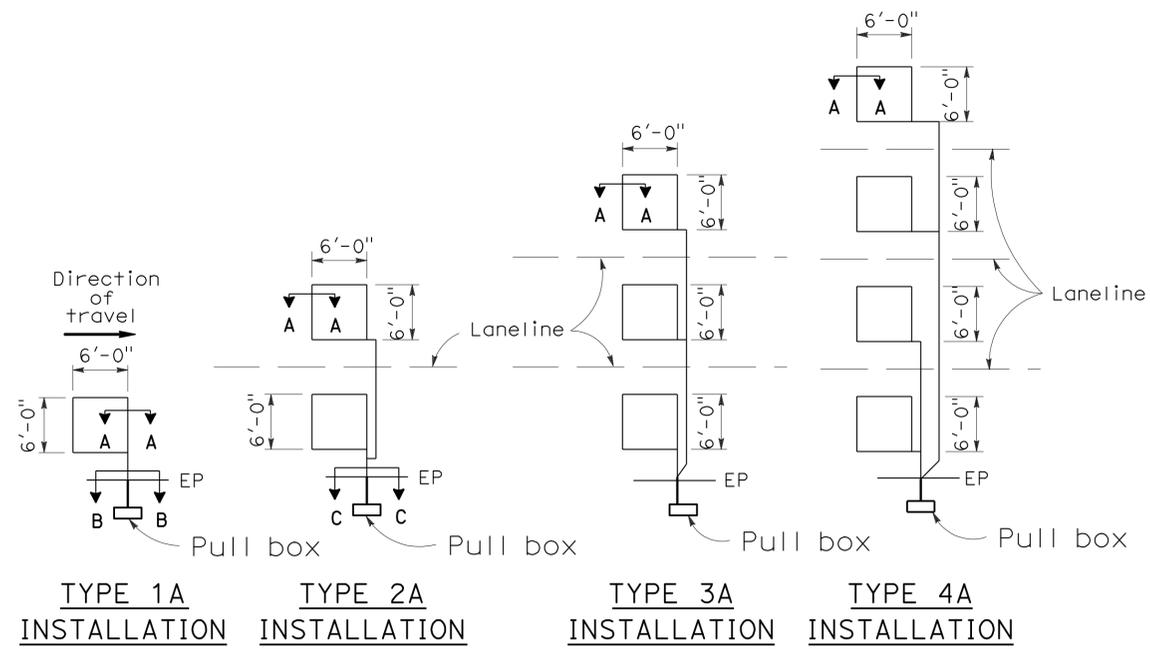
October 5, 2007
 PLANS APPROVAL DATE

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.

To accompany plans dated 2-28-11

LOOP INSTALLATION PROCEDURE

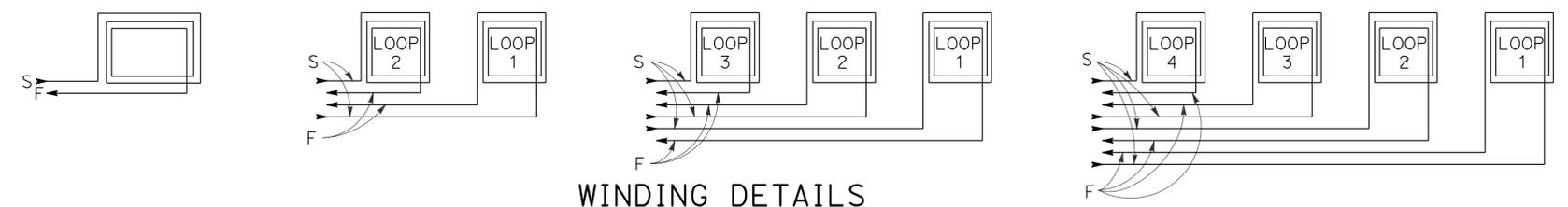
- Loops shall be centered in lanes.
- Saw slots in pavement for loop conductors as shown in details.
- Distance between side of loop and a lead-in saw cut from adjacent detectors shall be 2'-0" minimum. Distance between lead-in saw cuts shall be 6" minimum.
- Bottom of saw slot shall be smooth with no sharp edges.
- Slots shall be washed until clean, blown out and thoroughly dried before installing loop conductors.
- Adjacent loops on the same sensor unit channel shall be wound in opposite directions.
- Identify and tag loop circuit pairs in the pull box with loop number, start (S) and finish (F) of conductor. Identify and tag lead-in-cable with sensor number and phase.
- Install loop conductor in slot using a 3/16" to 1/4" thick wood paddle. Hold loop conductors with wood paddles (at the bottom of the sawed slot) during sealant placement.
- No more than 2 twisted pairs shall be installed in one sawed slot.
- Allow additional 5'-0" of slack length of conductor for the lead-in run to pull box.
- The additional length of each conductor for each loop shall be twisted together into a pair (6 turns per 3'-4" minimum) before being placed in the slot and conduit leading to pull box.
- Test each loop circuit for continuity, circuit resistance and insulation resistance at the pull box before filling slots.
- Fill slots as shown in details.
- Splice loop conductors to lead-in-cable. Splices shall be soldered.
- End of lead-in-cable and Type 2 loop conductor shall be waterproofed prior to installing in conduit to prevent moisture from entering the cable.
- Lead-in-cable shall not be spliced between the pull box and the controller cabinet terminals.
- Test each loop circuit for continuity, circuit resistance and insulation resistance at the controller cabinet location.
- Where loop conductors are not to be spliced to a lead-in-cable, the ends of the conductors shall be taped and waterproofed with electrical insulating coating.



TYPE 1A INSTALLATION TYPE 2A INSTALLATION TYPE 3A INSTALLATION TYPE 4A INSTALLATION

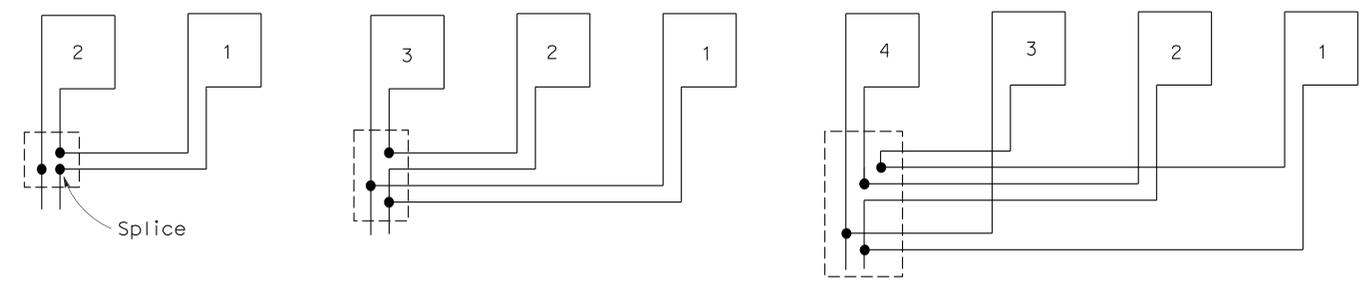
SAWCUT DETAILS

- (Type A loop detector configurations illustrated)
- 1A thru 4A = 1 Type A loop configuration in each lane.
 - 1B thru 4B = 1 Type B loop configuration in each lane.
 - 1C = 1 Type C loop configuration entering lanes as required.
 - 1D thru 4D = 1 Type D loop configuration in each lane.
 - 1E thru 4E = 1 Type E loop configuration in each lane.
 - 1Q thru 4Q = 1 Type Q loop configuration in each lane.
- (Use Type A, B, C, D, E or Q loop detector configurations only when specified or shown on plans)



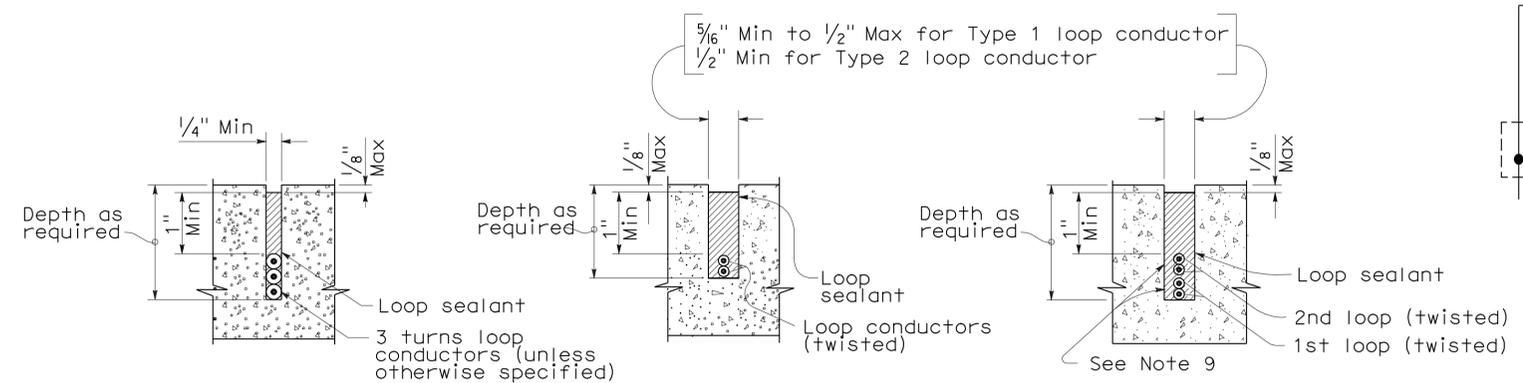
WINDING DETAILS

See Notes 6 and 7



TYPICAL LOOP CONNECTIONS

(Dashed lines represent the pull box)



SECTION A-A SECTION B-B SECTION C-C
SLOT DETAILS - TYPE 1 AND TYPE 2 LOOP CONDUCTOR

ELECTRICAL SYSTEMS (DETECTORS)

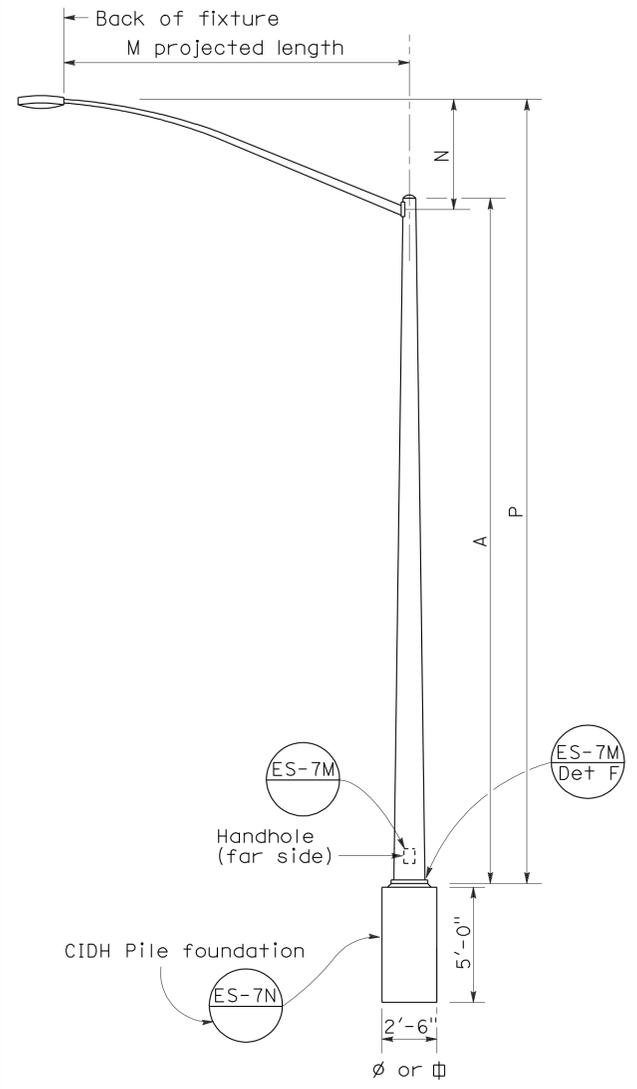
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

NO SCALE

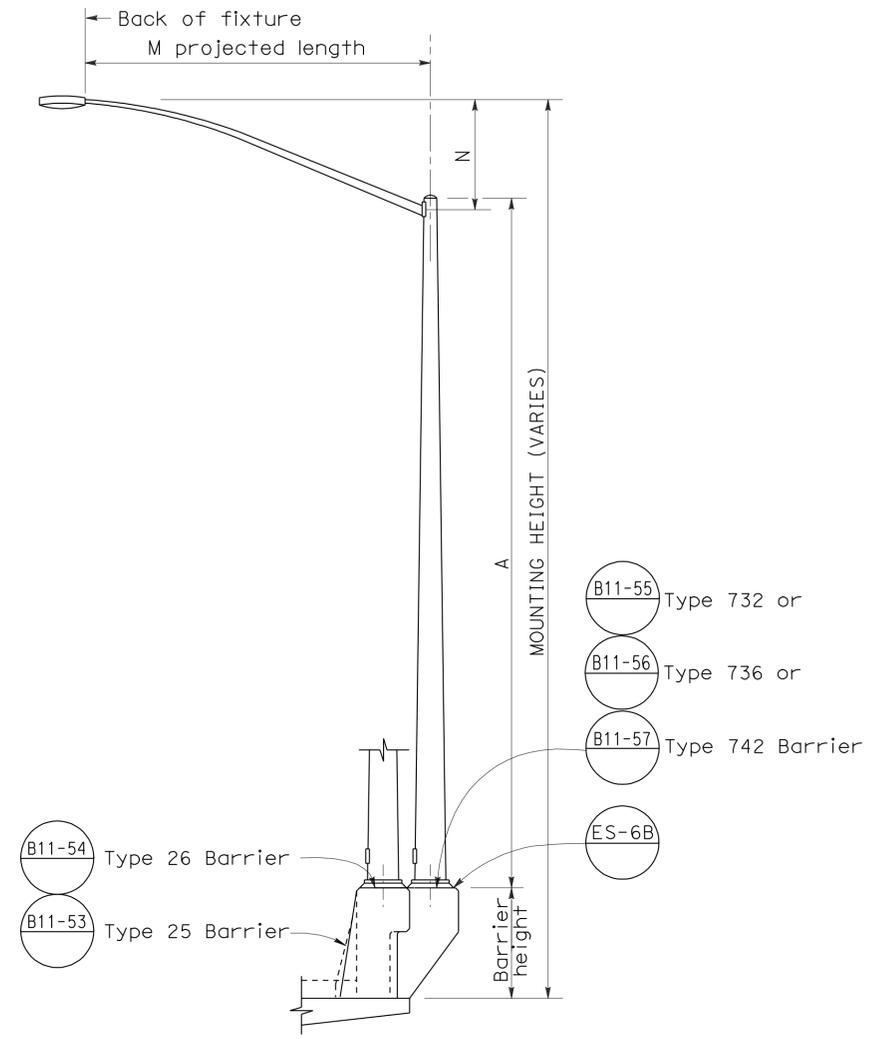
RSP ES-5A DATED OCTOBER 5, 2007 SUPERCEDES STANDARD PLAN ES-5A DATED MAY 1, 2006 - PAGE 423 OF THE STANDARD PLANS BOOK DATED MAY 2006.

2006 REVISED STANDARD PLAN RSP ES-5A

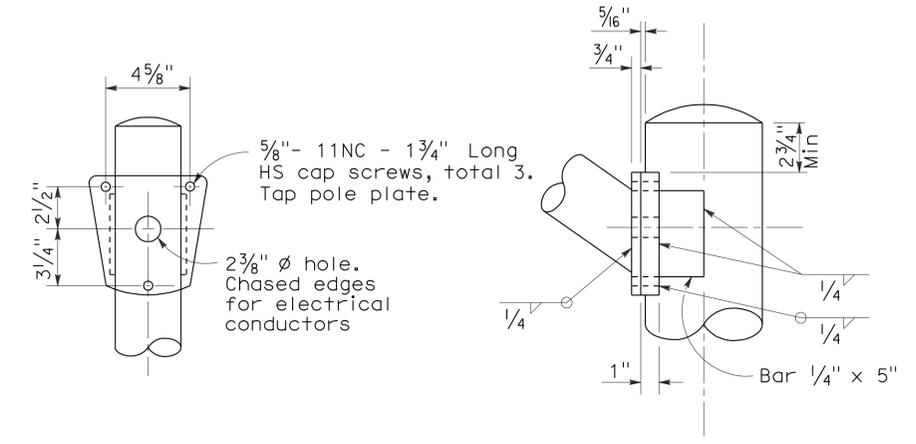
To accompany plans dated 2-28-11



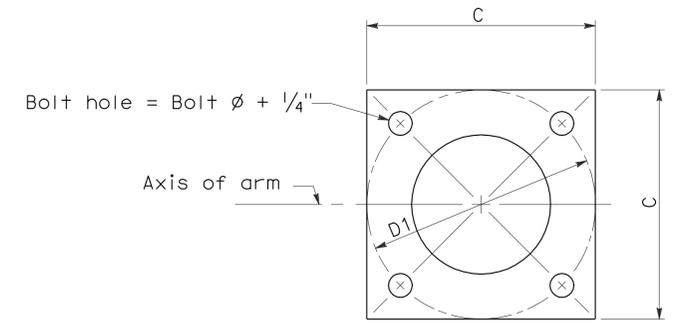
ELEVATION
TYPE 15 AND TYPE 21



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 Base	Min OD Top	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.

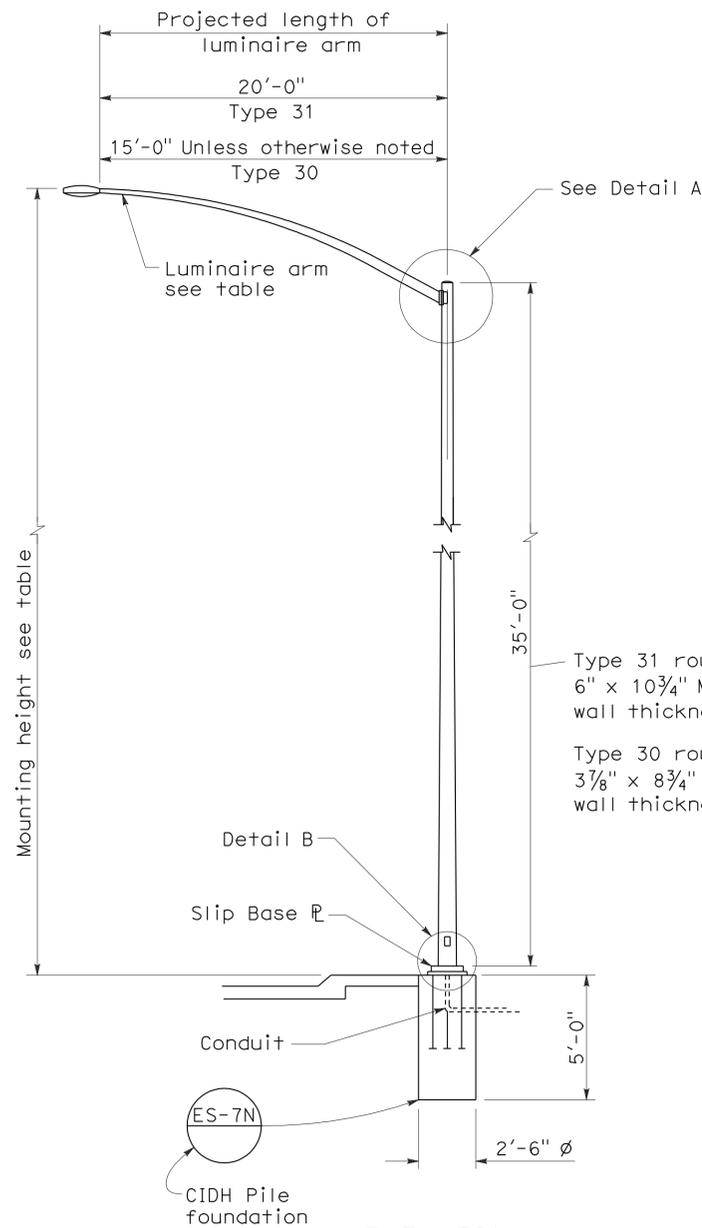
REVISED STANDARD PLAN RSP ES-6A

2006 REVISED STANDARD PLAN RSP ES-6A

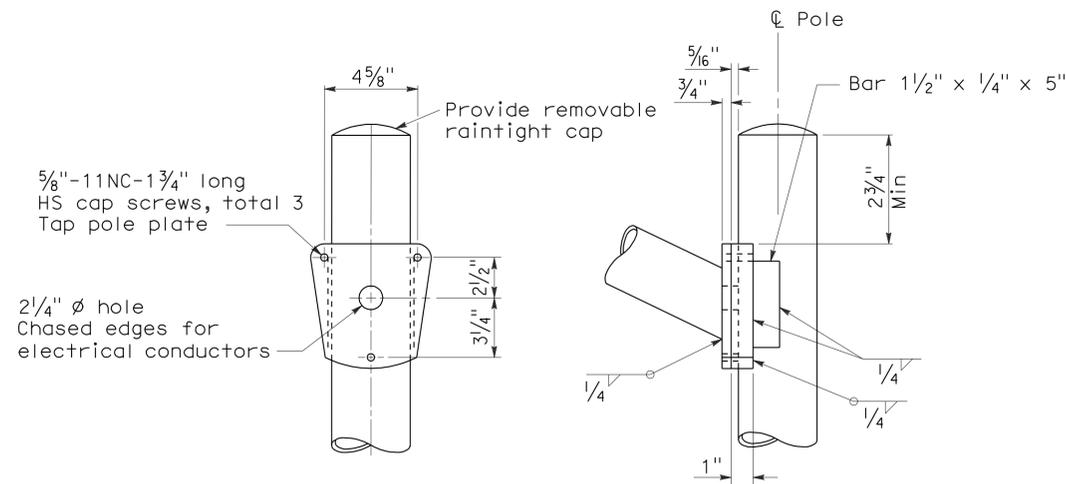
LUMINAIRE ARM DATA

PROJECTED LENGTH	THICKNESS	MINIMUM OD @ POLE	MOUNTING HEIGHT
* 6'-0"	0.1196"	3 1/4"	36'-9"±
8'-0"		3 1/2"	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"±

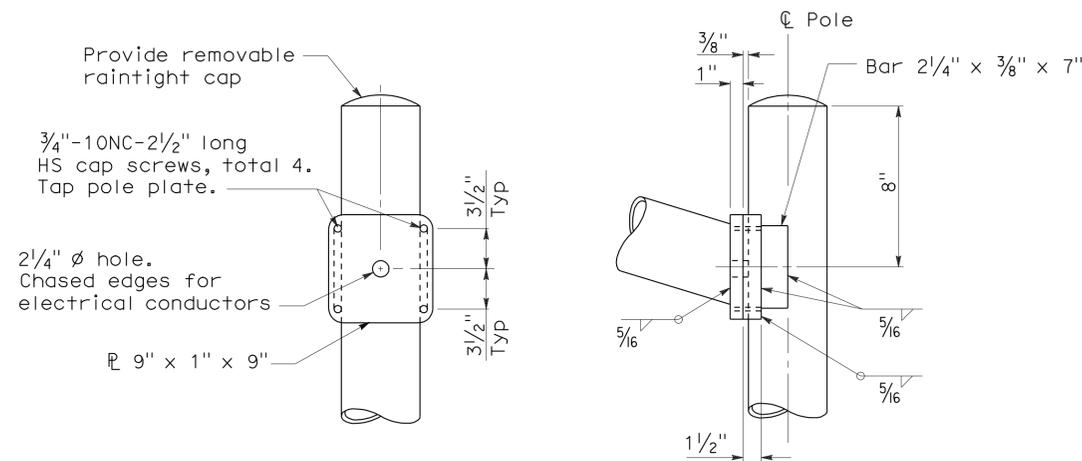
* Type 30 - arm length 6'-0" - 15'-0" maximum
 ** Type 31 - arm lengths 20'-0"



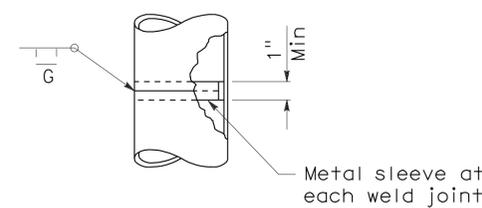
ELEVATION



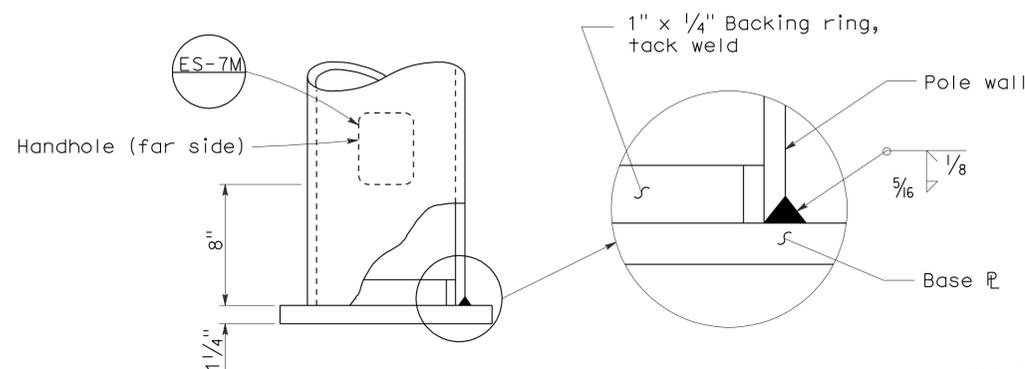
DETAIL A - TYPE 30



DETAIL A - TYPE 31



POLE SPLICE



DETAIL B

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
06	Fre	41,180	R24.7/R25.0, R58.4/R59.4	52	56

Stanley P. Johnson
 REGISTERED CIVIL ENGINEER
 No. C57793
 Exp. 03-31-08
 CIVIL
 STATE OF CALIFORNIA

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 2-28-11

NOTES:

- Sheet steel shall have a minimum yield of 48,000 psi.
- For slip base details see Standard Plan ES-6F.
- 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.
- For Type 31 fixed base use Type 32 base plate, anchor bolts and foundation on Standard Plan ES-6G.
- Handhole shall be located on downstream side of traffic unless noted otherwise on plans.
- 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

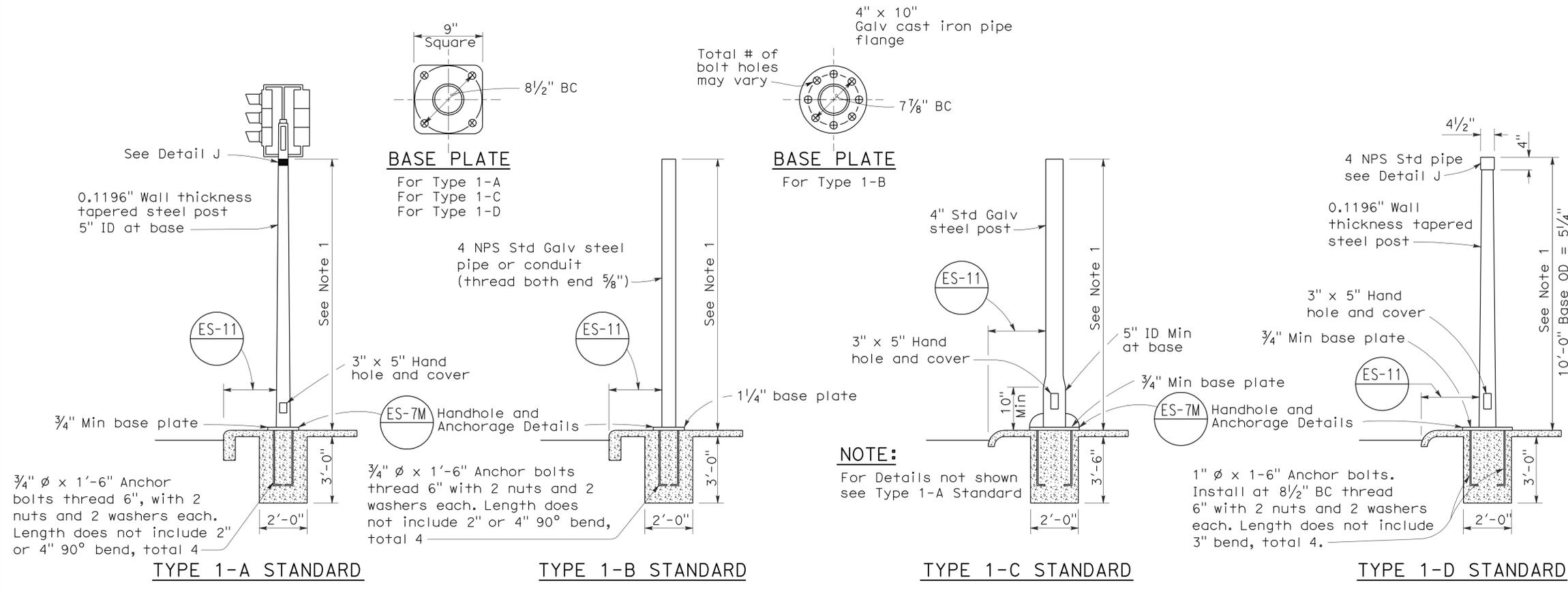
2006 REVISED STANDARD PLAN RSP ES-6E

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
06	Fre	41,180	R24.7/R25.0, R58.4/R59.4	53	56

Stanley P. Johnson
 REGISTERED CIVIL ENGINEER
 October 5, 2007
 PLANS APPROVAL DATE
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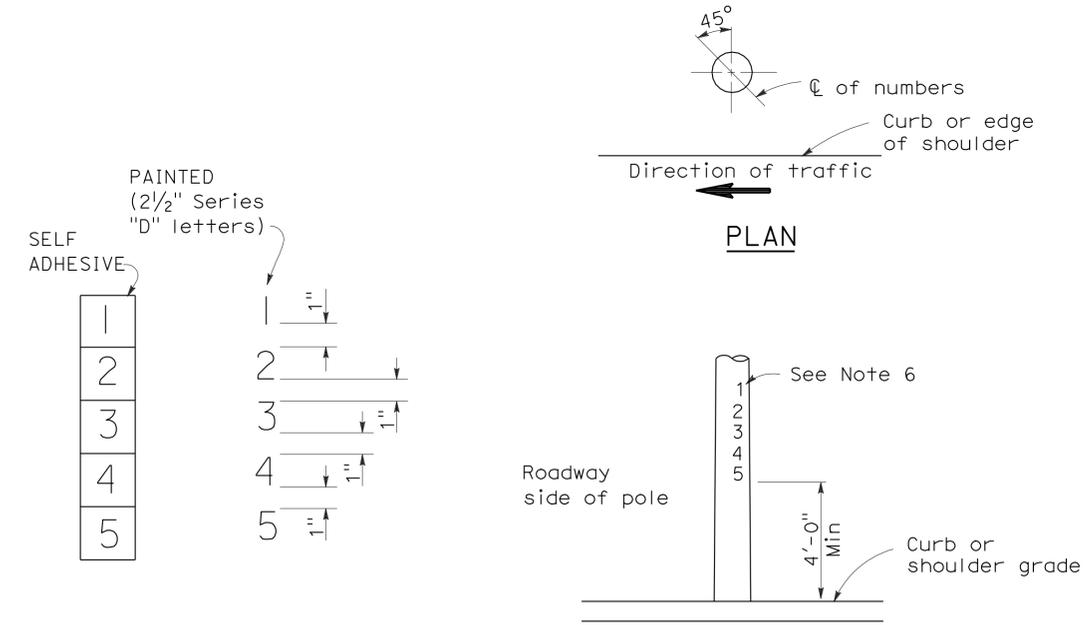
REGISTERED PROFESSIONAL ENGINEER
 Stanley P. Johnson
 No. C57793
 Exp. 3-31-08
 CIVIL
 STATE OF CALIFORNIA

2006 REVISED STANDARD PLAN RSP ES-7B

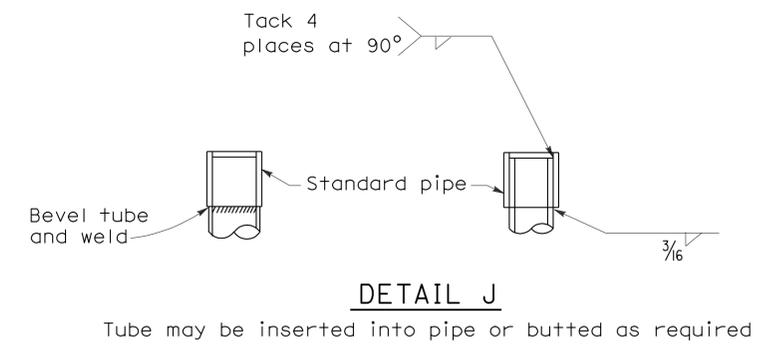
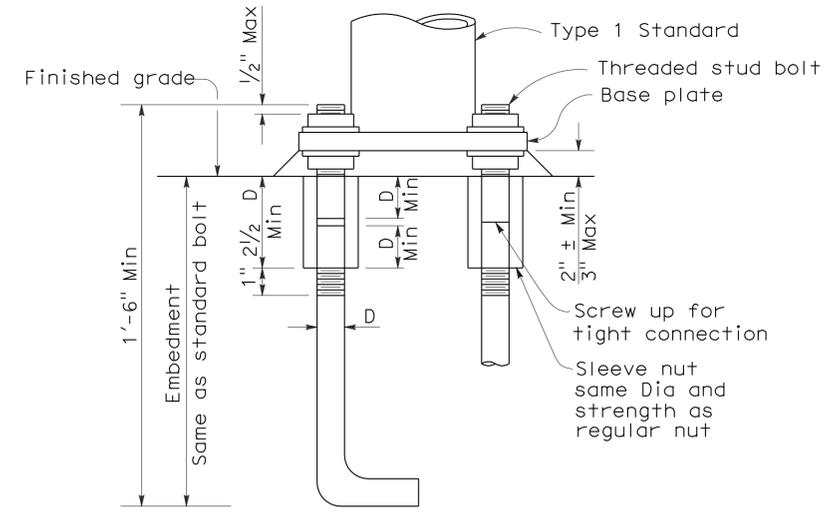


- NOTES:**
- Standards shall be 10'-0" \pm 2" for vehicle signals and 7'-0" \pm 2" for pedestrian signals unless otherwise noted on plans.
 - Top of standards shall be 4 1/2" OD.
 - Conduits shall extend 2" maximum above finished surface of foundation and for Types 1-A, 1-C and 1-D shall be sloped toward handhole.
 - Anchor bolts shall be bonded to conduit or grounding conductor.
 - Conduit between standard and adjacent pull box shall be 2" minimum.
 - Paint numbers on roadway side facing traffic when electrolier or post is left of direction of traffic.

TYPE 1 SIGNAL STANDARDS



LOCATION OF EQUIPMENT NUMBERS ON STANDARDS AND POSTS

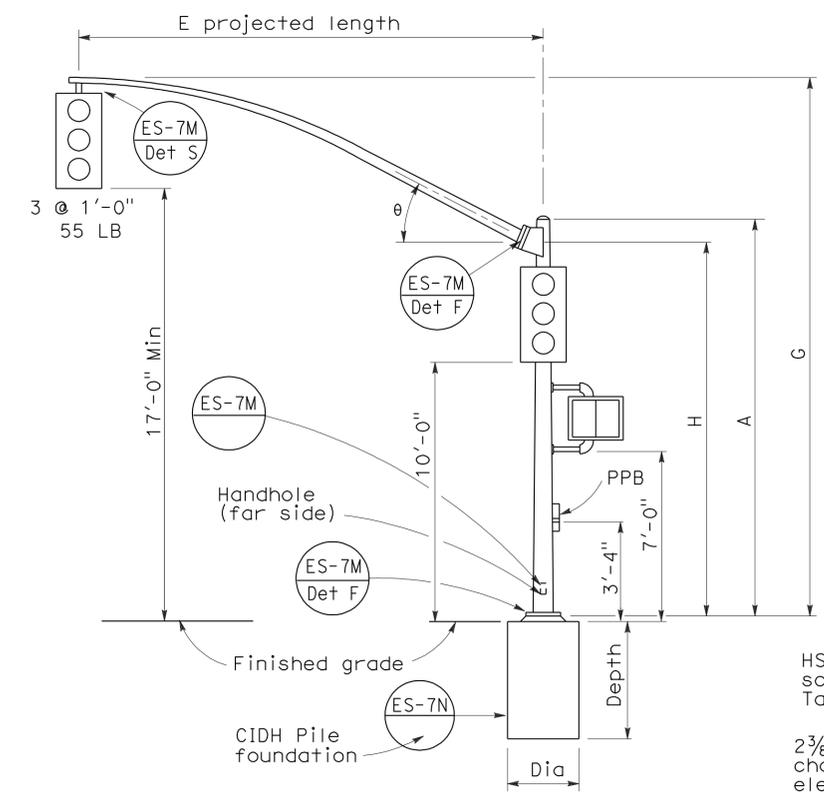


ELECTRICAL SYSTEMS (SIGNAL AND LIGHTING STANDARD TYPE 1 STANDARD AND EQUIPMENT NUMBERING)

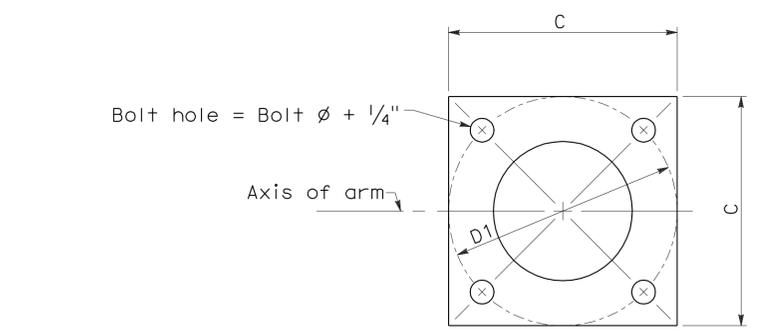
NO SCALE

RSP ES-7B DATED OCTOBER 5, 2007 SUPERCEDES STANDARD PLAN ES-7B DATED MAY 1, 2006 - PAGE 438 OF THE STANDARD PLANS BOOK DATED MAY 2006.

2006 REVISED STANDARD PLAN RSP ES-7C

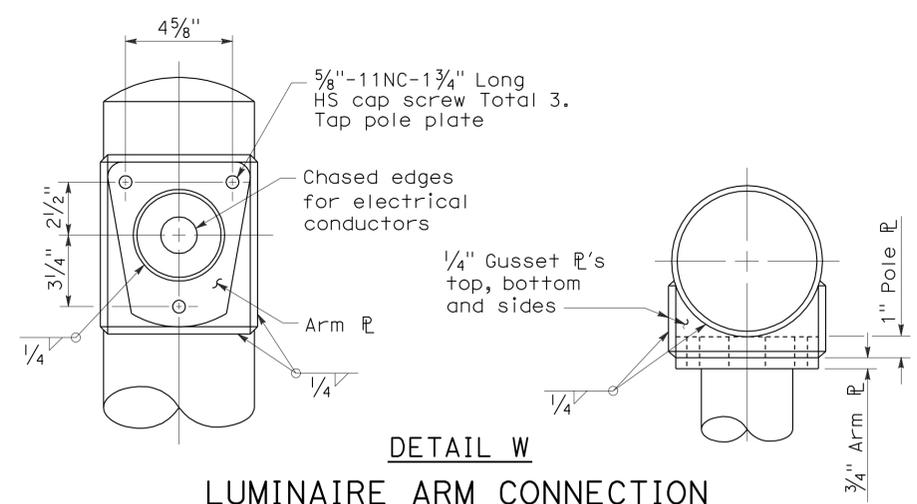


ELEVATION
TYPE 16-1-100, 18-1-100

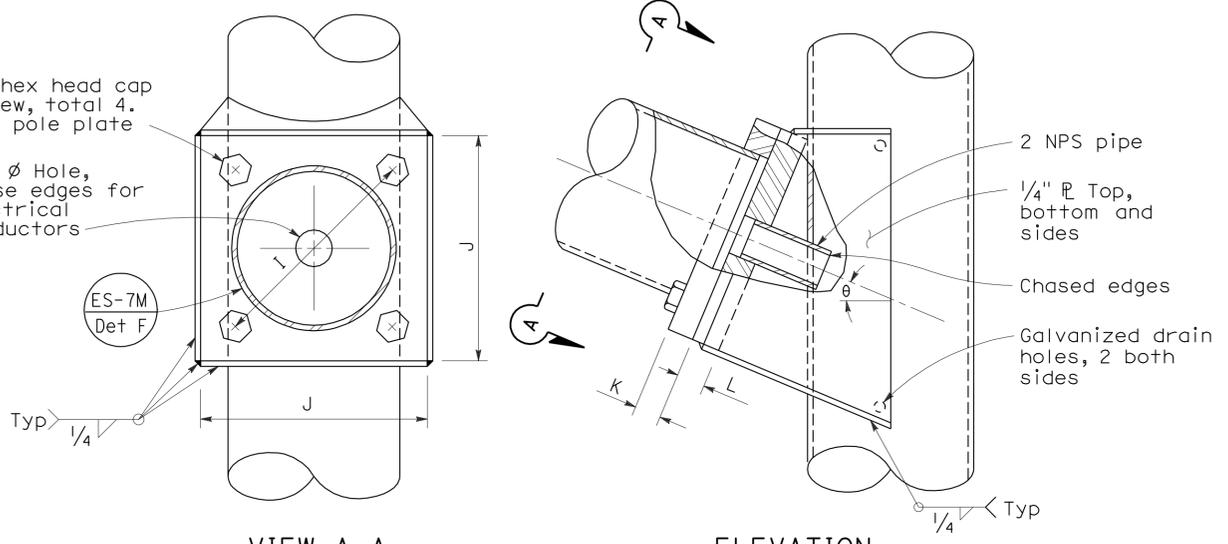


BASE PLATE

E Projected Length	G Mounting Height	H	Min OD At Pole	Thickness	I Bolt Circle	HS Cap Screws	J Plate size	K Arm ⌀ Thickness	L Pole ⌀ Thickness	θ
15'-0"	21'-8"±	17'-6"	7"	0.1196"	12"	1 1/4"-7NC-3"	1'-0"	1 1/4"	1 1/2"	23°
20'-0"	21'-8"±		7 1/8"							
25'-0"	22'-8"±	16'-0"	7 5/8"							
30'-0"	23'-0"±		8"							

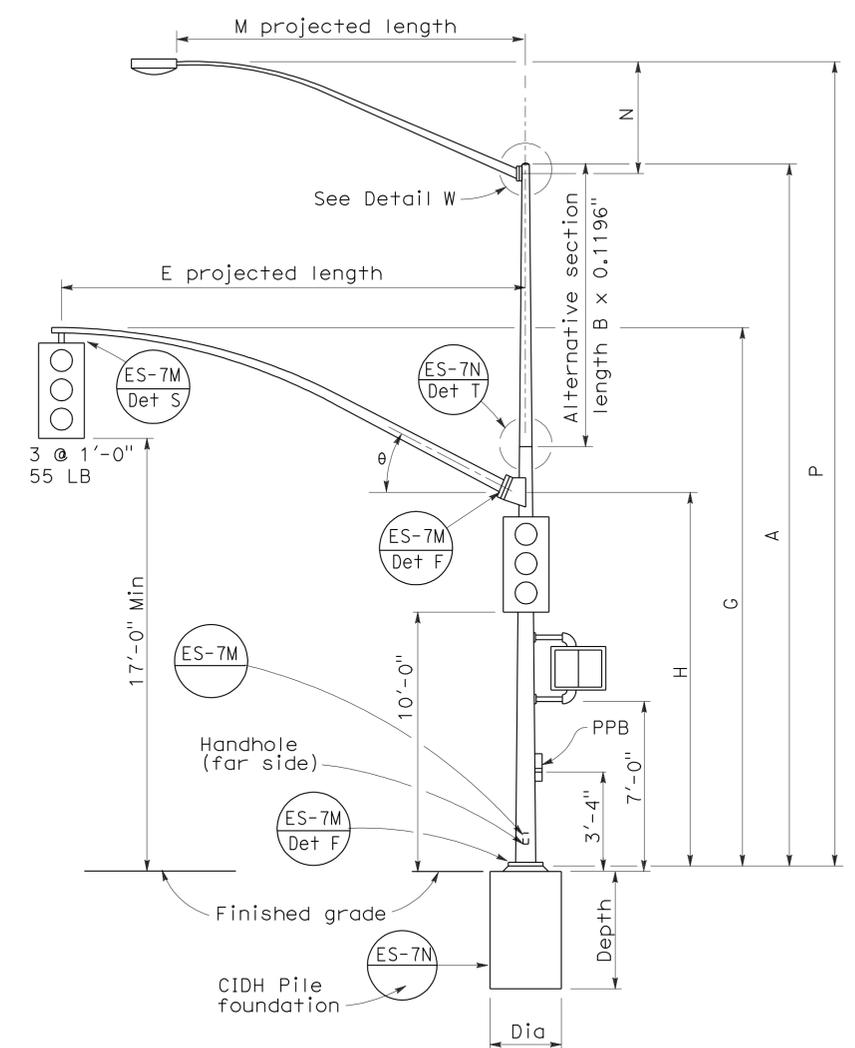


DETAIL W
LUMINAIRE ARM CONNECTION



VIEW A-A
SIGNAL ARM CONNECTION DETAILS

M Projected Length	N Rise	Min OD at Pole	Thickness	P Mounting Height	
				30'-0" Pole	35'-0" Pole
6'-0"	2'-0"±	3 1/4"	0.1196"	31'-6"±	36'-6"±
8'-0"	2'-6"±	3 1/2"		32'-0"±	37'-0"±
10'-0"	3'-3"±	3 3/8"		32'-9"±	37'-9"±
12'-0"	4'-3"±			33'-9"±	38'-9"±
15'-0"	4'-9"±	4 1/4"		34'-3"±	39'-3"±



ELEVATION
TYPE 19-1-100, 19A-1-100

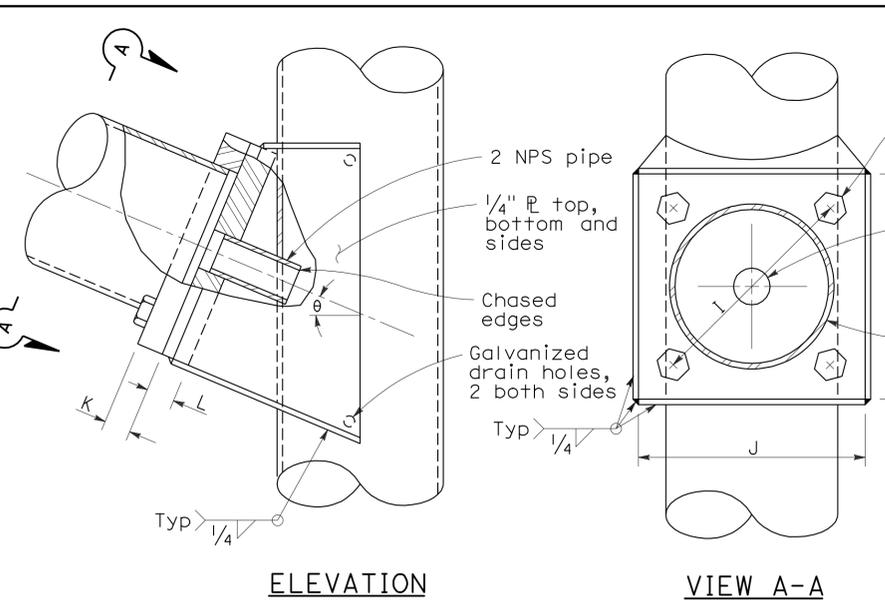
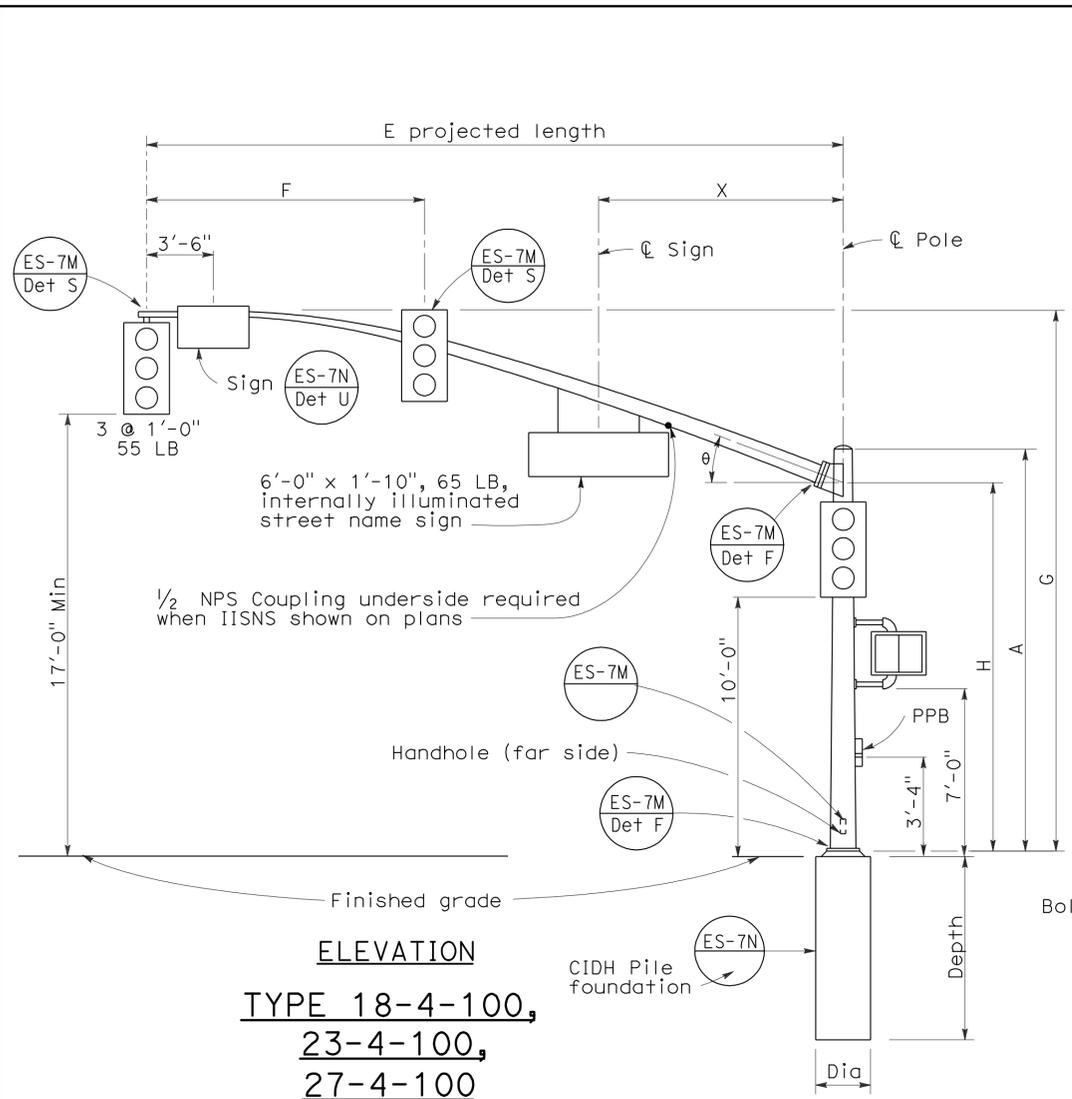
Pole Type	Load Case	Wind Velocity mph	POLE DATA					BASE PLATE DATA					CIDH PILE FOUNDATION						
			A Height	Min OD		Thickness	Alternative Section			C	D1 Bolt Circle	Thickness	Anchor Bolts		Luminaire Arm	Signal Arm	Diameter	Depth	Reinforced
				Base	Top		B Length	Bottom	Top				Size						
16-1-100	1	100	18'-6"	8 1/4"	0.1793"	None			1'-6"	1'-5 1/2"	1 1/4"	1 1/2" ⌀ x 42" x 6"		None	15'-0"	2'-6"	7'-2"	Yes	
18-1-100			17'-0"	8 7/8"		None								None	20'-0"				
19-1-100			30'-0"	6 5/8"		10'-0"	8"	6 5/8"						6'-15' [12'-0"]	25'-0"				
19A-1-100			35'-0"	5 1/6"		15'-0"	5 1/6"	6'-15' [15'-0"]						30'-0"					

□ Indicates arm length to be used unless otherwise noted on plans.

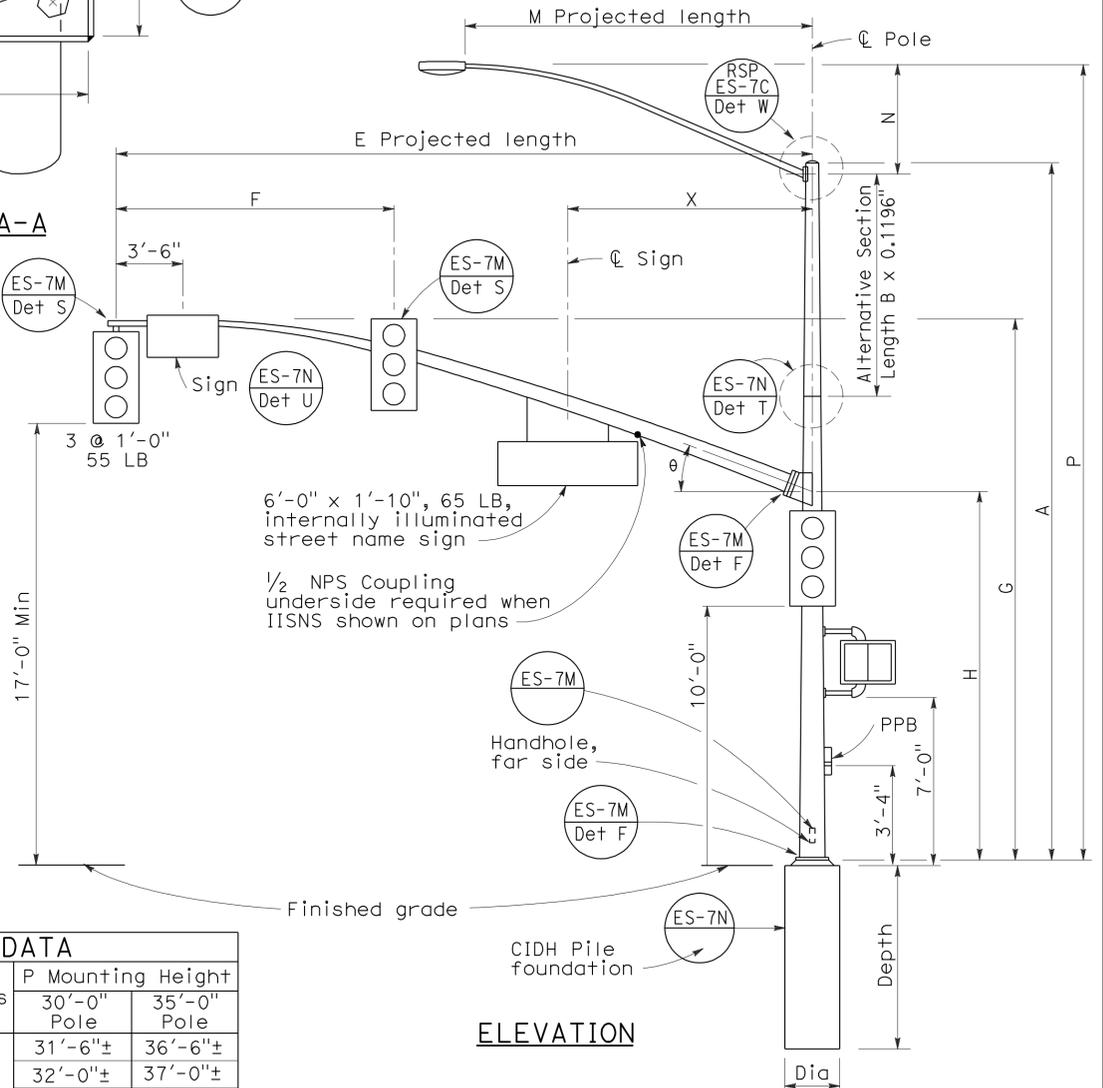
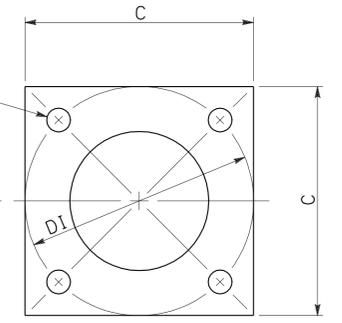
STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
ELECTRICAL SYSTEMS
(SIGNAL AND LIGHTING STANDARD
CASE 1 ARM LOADING
WIND VELOCITY = 100 MPH
ARM LENGTHS 15' TO 30')
 NO SCALE

RSP ES-7C DATED JUNE 15, 2007 SUPERSEDES STANDARD PLAN ES-7C DATED MAY 1, 2006 - PAGE 439 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP ES-7C



SIGNAL ARM CONNECTION DETAILS



ELEVATION

TYPE 19-4-100, 19A-4-100,
 24-4-100, 24A-4-100,
 26-4-100, 26A-4-100

E Projected Length	F Min Spacing	G Mounting Height	H	Min OD at Pole	Thickness	I Bolt Circle	HS Cap Screws	J Plate Size	K Arm \varnothing Thickness	L Pole \varnothing Thickness	θ	X Max
25'-0"	10'-0"	22'-8"±	16'-0"	7 5/16"	0.2391"	12"	1 1/4"-7NC-3"	1'-0"	1 1/4"	1 1/2"	23°	10'-6"
30'-0"	12'-0"	8"										
35'-0"	14'-0"	8 1/16"										
40'-0"	15'-0"	9 3/8"										
45'-0"	15'-0"	10 1/4"										

M Projected Length	N Rise	Min OD at Pole	Thickness	P Mounting Height	
				30'-0" Pole	35'-0" Pole
6'-0"	2'-0"±	3 1/4"	0.1196"	31'-6"±	36'-6"±
8'-0"	2'-6"±	3 1/2"		32'-0"±	37'-0"±
10'-0"	3'-3"±	3 7/8"		32'-9"±	37'-9"±
12'-0"	4'-3"±	4"		33'-9"±	38'-9"±
15'-0"	4'-9"±	4 1/4"		34'-3"±	39'-3"±

Pole Type	Load Case	Wind Velocity mph	POLE DATA						BASE PLATE DATA				Luminaire Arm	Signal Arm	CIDH PILE FOUNDATION			
			A Height	Min OD		Thickness	Alternative Section			C	DI Bolt Circle	Thickness			Anchor Bolts Size	Dia	Depth	Reinforced
				Base	Top		B Length	Bottom	Top									
18-4-100	4	100	17'-0"	12"	9"	0.2391"	None	9 3/8"	8"	1'-6"	1'-6"	1 1/2"	2" \varnothing x 42" x 6"	3'-0"	9'-0"	Yes		
19-4-100			30'-0"				8"										None	8"
19A-4-100			35'-0"				7 5/16"										15'-0"	7 5/16"
23-4-100			17'-0"				9"										None	None
24-4-100			30'-0"				8"										10'-0"	8"
24A-4-100			35'-0"	7 5/16"	15'-0"	7 5/16"												
26-4-100			30'-0"	8"	10'-0"	8 3/8"												
26A-4-100			35'-0"	7 5/16"	15'-0"	9 3/4"												
27-4-100			17'-0"	9 3/4"	None	None												

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
**ELECTRICAL SYSTEMS
 (SIGNAL AND LIGHTING STANDARD
 CASE 4 ARM LOADING
 WIND VELOCITY=100 MPH
 ARM LENGTHS 25' TO 45')**
 NO SCALE

RSP ES-7F DATED OCTOBER 5, 2007 SUPERCEDES RSP ES-7F DATED NOVEMBER 17, 2006 AND STANDARD PLAN ES-7F DATED MAY 1, 2006 - PAGE 442 OF THE STANDARD PLANS BOOK DATED MAY 2006.

□ Indicates arm length to be used unless otherwise noted on plans.

REVISED STANDARD PLAN RSP ES-7F

2006 REVISED STANDARD PLAN RSP ES-7F

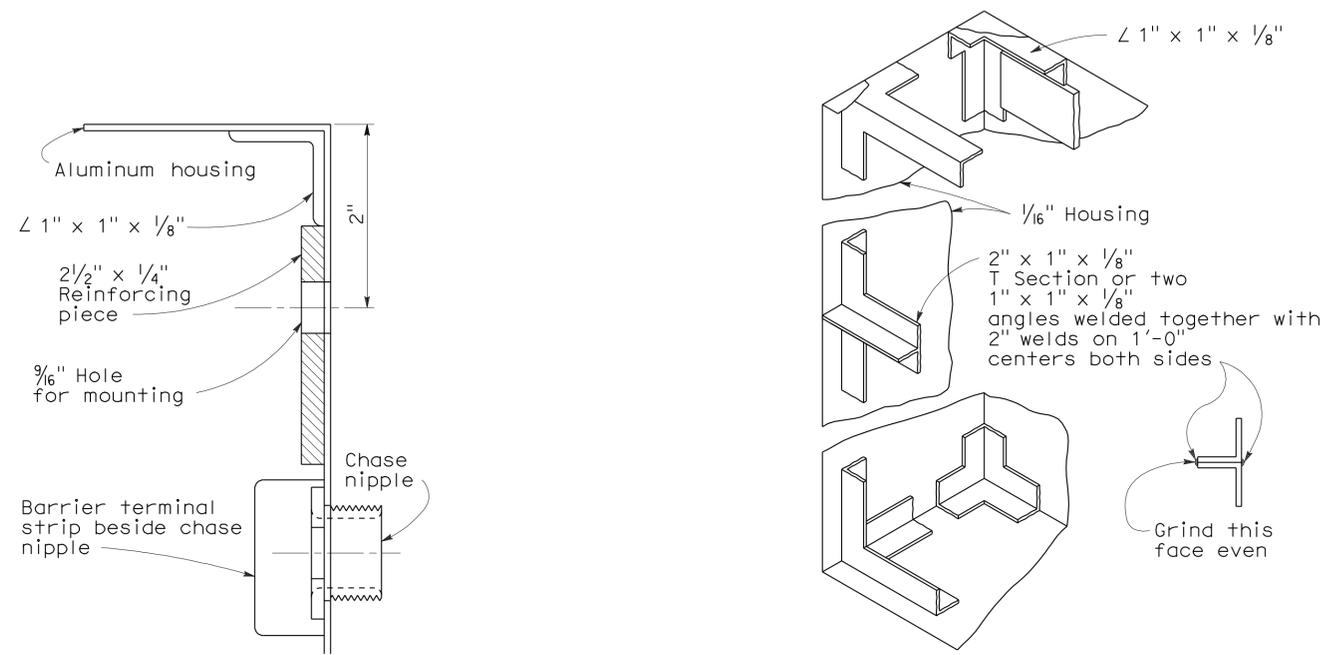
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
06	Fre	41,180	R24.7/R25.0, R58.4/R59.4	56	56

Jeffery G. McRae
 REGISTERED ELECTRICAL ENGINEER
 October 5, 2007
 PLANS APPROVAL DATE

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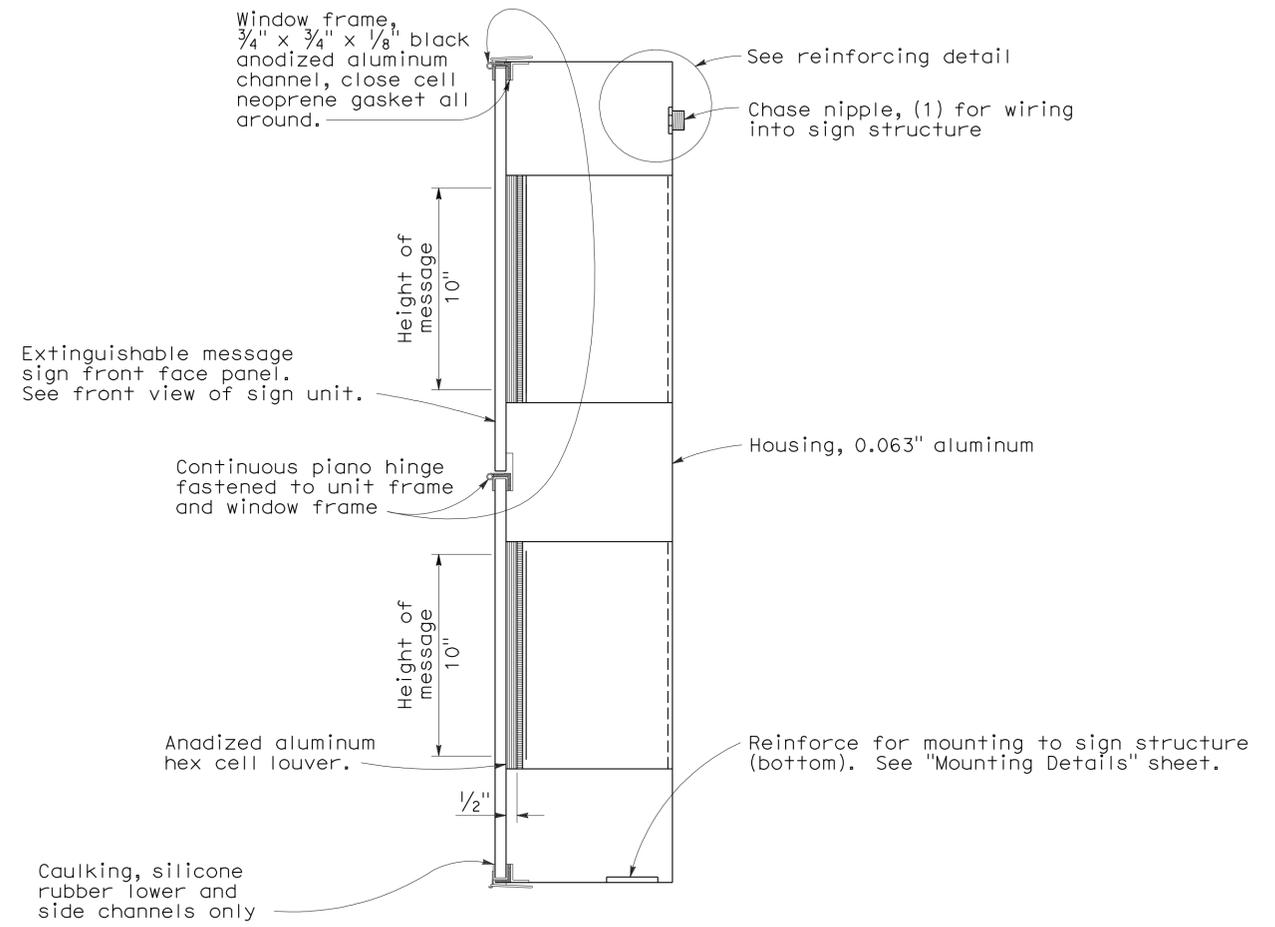
REGISTERED PROFESSIONAL ENGINEER
 Jeffery G. McRae
 No. E14512
 Exp. 6-30-08
 ELECTRICAL
 STATE OF CALIFORNIA

To accompany plans dated 2-28-11



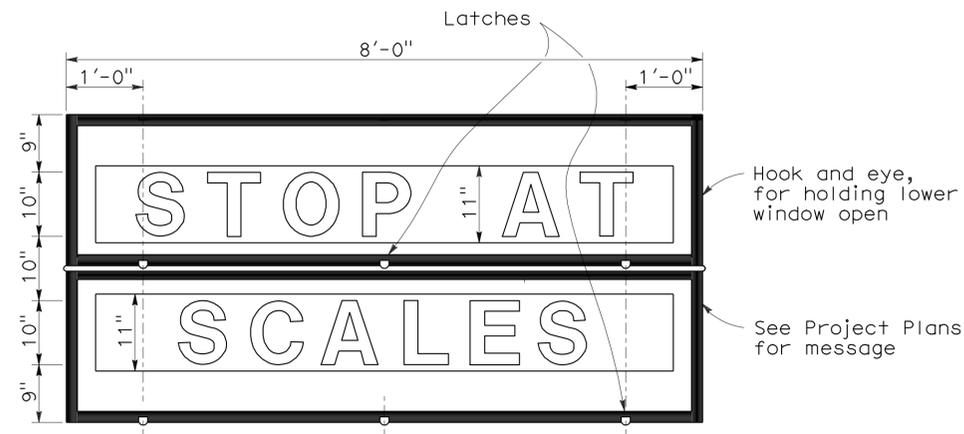
REINFORCING DETAIL

FRAMING DETAILS



CROSS-SECTION OF SIGN

Note:
See Wiring Notes and Symbols on Revised Standard Plan RSP ES-14B.



FRONT VIEW OF SIGN

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS
(LED EXTINGUISHABLE MESSAGE SIGN
10" LETTERS)**

NO SCALE

RSP ES-14A DATED OCTOBER 5, 2007 SUPERCEDES STANDARD PLAN ES-14A DATED MAY 1, 2006 - PAGE 466 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP ES-14A

2006 REVISED STANDARD PLAN RSP ES-14A