

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	405	39.4/48.6	101	179

REGISTERED CIVIL ENGINEER DATE: 2-09-12  
 7-30-12  
 PLANS APPROVAL DATE

BALDEV K. BHALLA  
 No. 34350  
 Exp. 09/30/13  
 CIVIL

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DRAINAGE SHEET No		AUSTIN VAULT SAND FILTER																								
DRAINAGE SYSTEM No	DRAINAGE UNIT	EA	CY	LB	LF	CY	LF	LF	LF	LF	LF	EA	FT	CY	CY	CY	CY	LB	CY	LF	SQYD	CY	LB	LF	LF	
D-1	1	1																								
	z				2.5								13.4													
	a		3.07	235								10.14	1													
	b							8.7					7.6													
	b'												14.1											8.5		
	c													412	2,180	340	125	111,133	16	293	290	123	115	47	226	
	c'						140																			
	d												10													
	e		3.07	235								5.35	1													
	f																									
	f'																									
	g		0.20																							
<b>TOTAL</b>		1	6.34	470	248	28.9	140	2.5	8.7	247.3	15.49			412	2,180	340	125	111,133	16	293	290	123	115	55.5	226	

NOTES: PIPE JOINTS ARE STANDARD  
 (N) NOT A SEPARATE PAY ITEM, FOR INFORMATION ONLY.

DESCRIPTION	STATION
AUTO DRAINAGE GATE	
12" RCP	
MANHOLE No. 1	101.33' Lt 2093+81.31
18" RCP	
6" PLASTIC PIPE	
AVSF L-10000-6	
Exist 24" RCP	
24" RCP	
MANHOLE No. 1	101.34' Lt 2095+26.81
24" RCP	
Exist 24" RCP	
CONCRETE COLLAR	55.93' Lt 2097+61.29

\* 6" PLASTIC PIPE UNDERDRAIN WILL BE PAID FOR AS 6" PERFORATED PLASTIC PIPE UNDERDRAIN

**DRAINAGE QUANTITIES**  
**DQ-1**

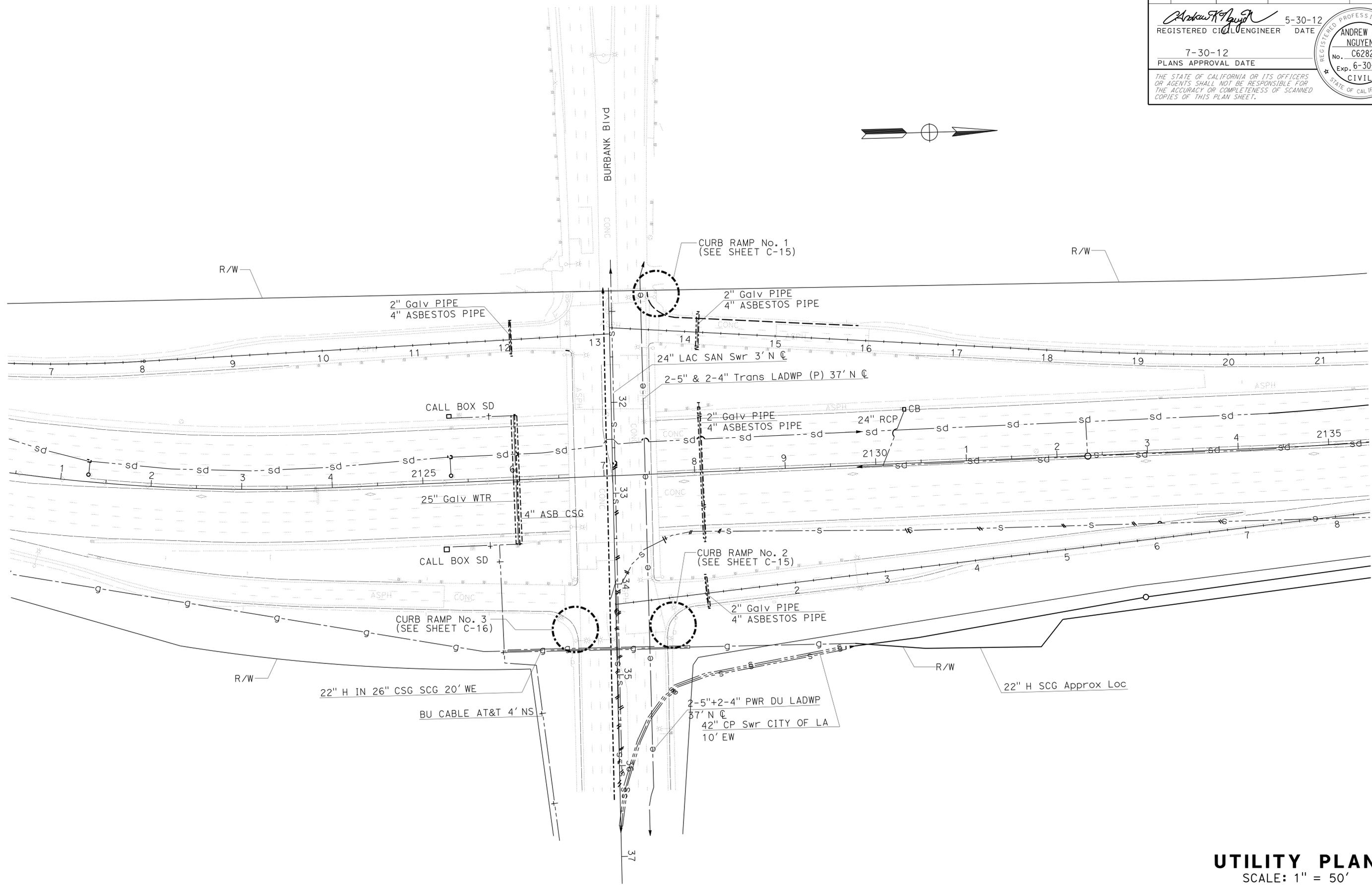
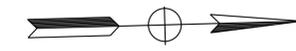


Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	405	39.4/48.6	103	179

 5-30-12  
 REGISTERED CIVIL ENGINEER DATE  
 7-30-12  
 PLANS APPROVAL DATE  
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

REGISTERED PROFESSIONAL ENGINEER  
**ANDREW K. NGUYEN**  
 No. C62828  
 Exp. 6-30-14  
 CIVIL  
 STATE OF CALIFORNIA

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** MAINTENANCE ENGINEERING  
 FUNCTIONAL SUPERVISOR PAUL CRISPI  
 CALCULATED/DESIGNED BY CHECKED BY  
 ANDREW NGUYEN PAUL CRISPI  
 REVISED BY DATE REVISED  
 PAUL CRISPI



**UTILITY PLAN**  
 SCALE: 1" = 50'  
**U-2**

APPROVED FOR EXISTING UTILITIES ONLY

LAST REVISION DATE PLOTTED => 14-FEB-2013  
 07-30-12 TIME PLOTTED => 13:32

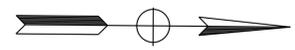
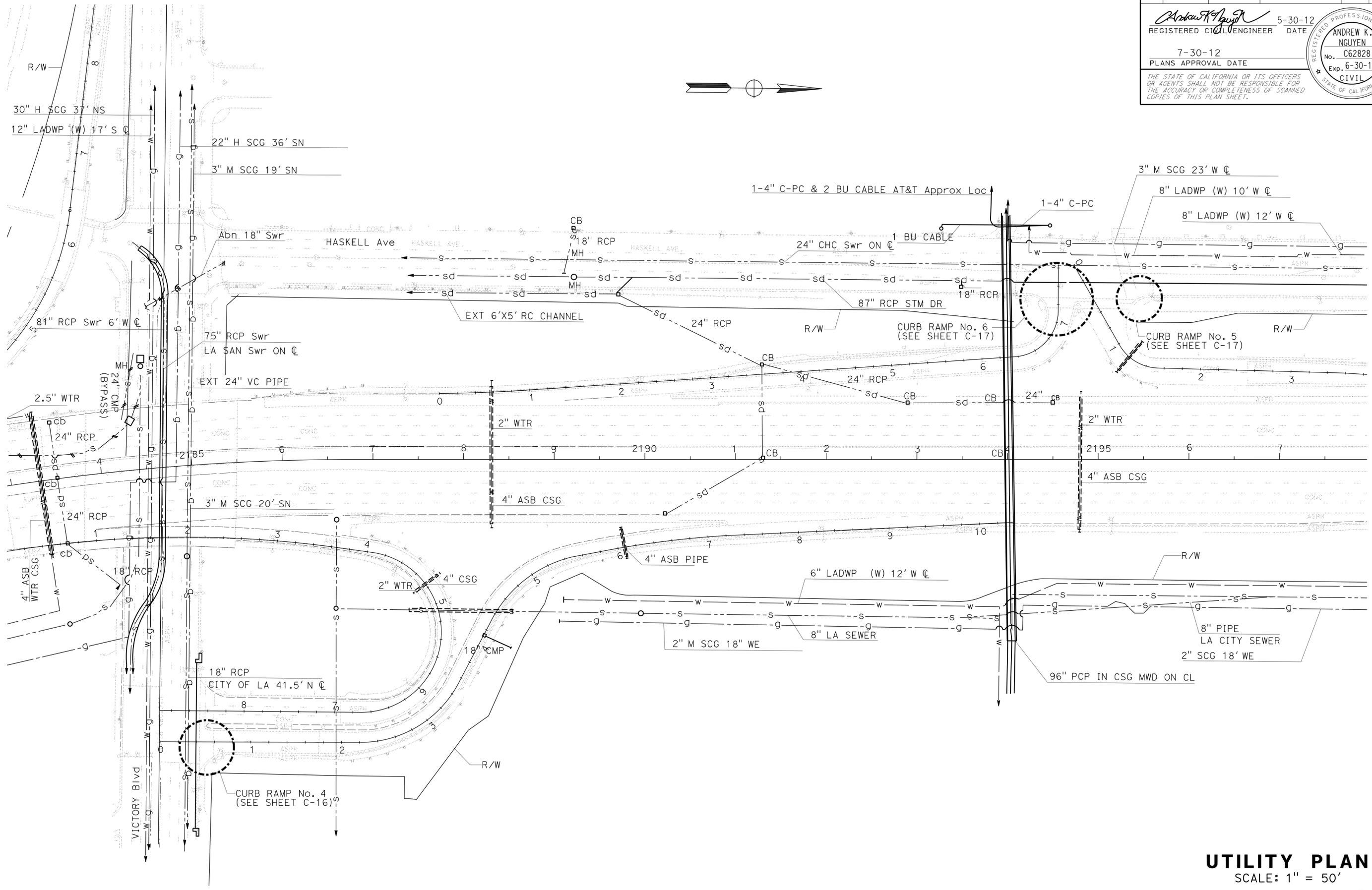
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	405	39.4/48.6	104	179

REGISTERED PROFESSIONAL ENGINEER  
 ANDREW K. NGUYEN  
 No. C62828  
 Exp. 6-30-14  
 CIVIL  
 STATE OF CALIFORNIA

5-30-12 DATE  
 7-30-12 PLANS APPROVAL DATE

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

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** MAINTENANCE ENGINEERING  
 FUNCTIONAL SUPERVISOR: PAUL CRISPI  
 CHECKED BY: PAUL CRISPI  
 CALCULATED/DESIGNED BY: PAUL CRISPI  
 REVISED BY: ANDREW NGUYEN  
 DATE REVIS: PAUL CRISPI



**UTILITY PLAN**  
 SCALE: 1" = 50'  
**U-3**

APPROVED FOR EXISTING UTILITIES ONLY

LAST REVISION: DATE PLOTTED => 14-FEB-2013  
 07-30-12 TIME PLOTTED => 1:32

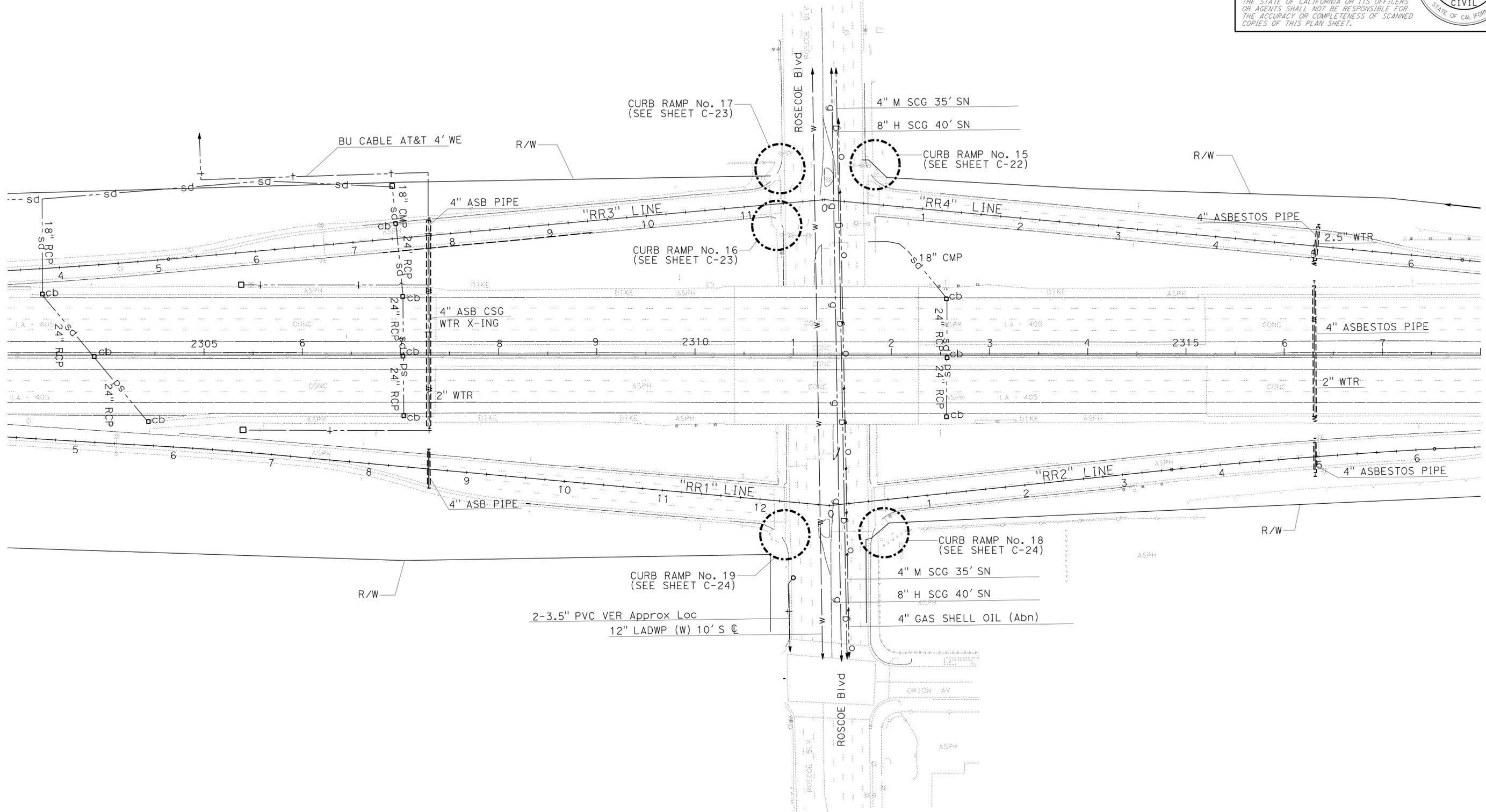
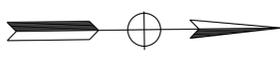


Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	405	39.4/48.6	106	179

REGISTERED CIVIL ENGINEER DATE 5-30-12  
 ANDREW K. NGUYEN  
 No. C62828  
 Exp. 6-30-14  
 CIVIL  
 STATE OF CALIFORNIA

7-30-12  
 PLANS APPROVAL DATE

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



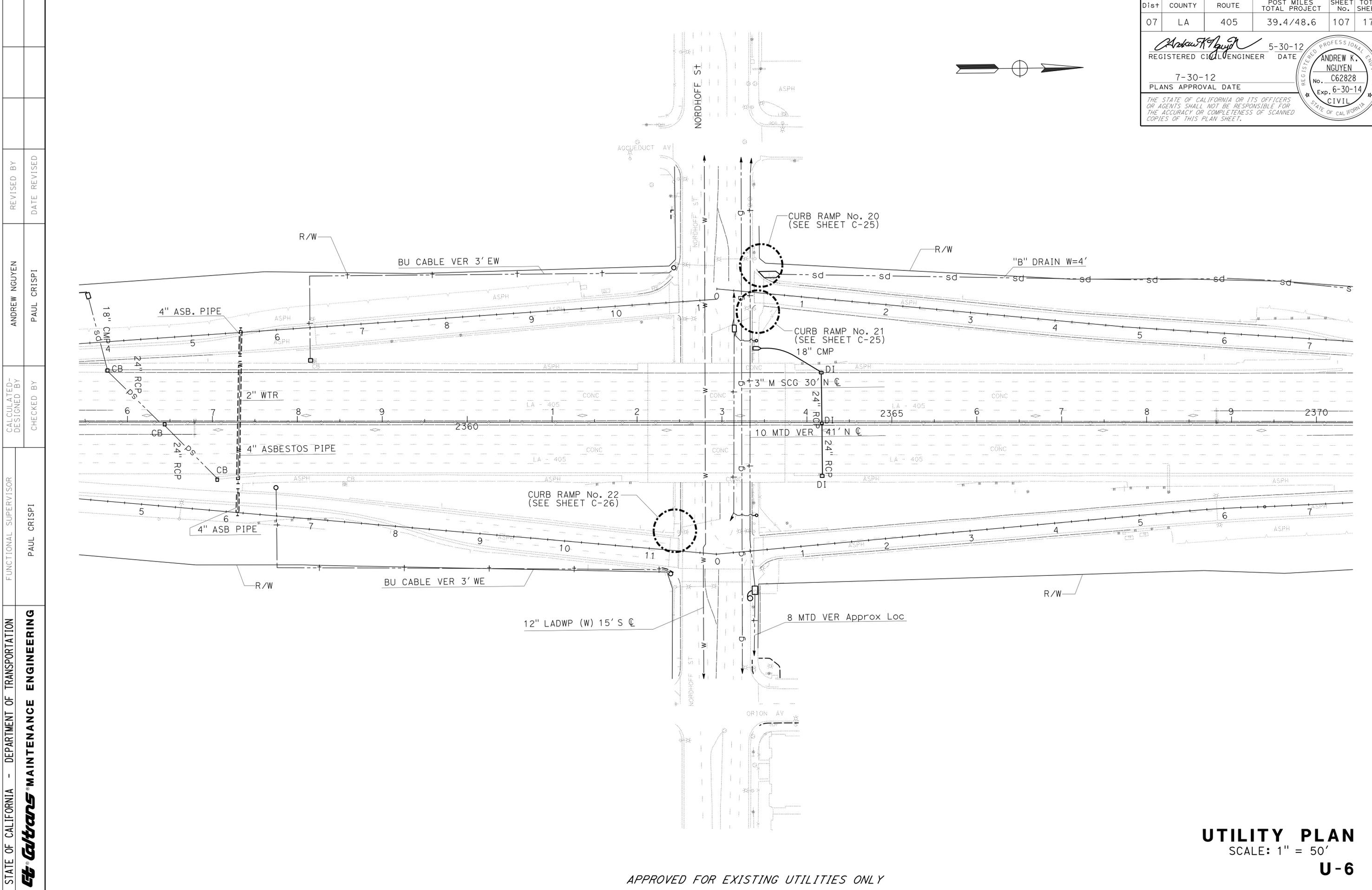
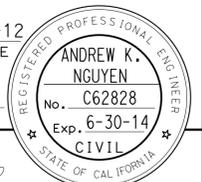
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** MAINTENANCE ENGINEERING  
 FUNCTIONAL SUPERVISOR PAUL CRISPI  
 CHECKED BY PAUL CRISPI  
 CALCULATED/DESIGNED BY ANDREW NGUYEN  
 REVISED BY PAUL CRISPI  
 DATE REVISIED

**UTILITY PLAN**  
 SCALE: 1" = 50'  
**U-5**

APPROVED FOR EXISTING UTILITIES ONLY

LAST REVISION DATE PLOTTED => 14-FEB-2013  
 07-30-12 TIME PLOTTED => 13:32

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	405	39.4/48.6	107	179
 REGISTERED CIVIL ENGINEER			5-30-12	DATE	
PLANS APPROVAL DATE			7-30-12		
<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>					



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	REVISOR	DATE
<b>Caltrans</b> MAINTENANCE ENGINEERING	ANDREW NGUYEN	PAUL CRISPI
	PAUL CRISPI	PAUL CRISPI
FUNCTIONAL SUPERVISOR	CHECKED BY	DESIGNED BY
PAUL CRISPI	PAUL CRISPI	ANDREW NGUYEN
DESIGNED BY	CHECKED BY	REVISOR
ANDREW NGUYEN	PAUL CRISPI	PAUL CRISPI
REVISOR	DATE	DATE
PAUL CRISPI		

**UTILITY PLAN**  
SCALE: 1" = 50'  
**U-6**

APPROVED FOR EXISTING UTILITIES ONLY

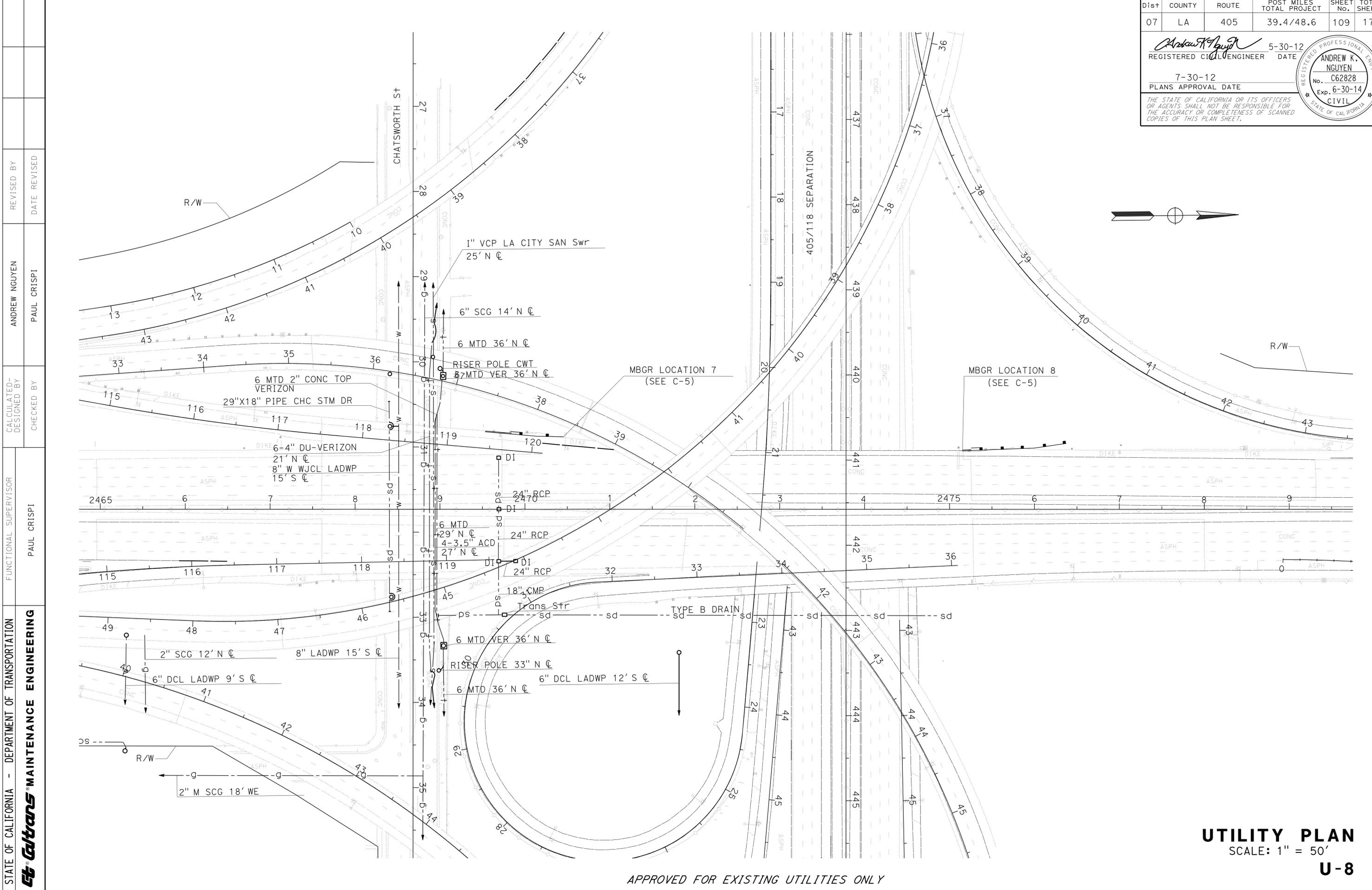
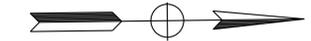
LAST REVISION DATE PLOTTED => 14-FEB-2013 07-30-12 TIME PLOTTED => 13:32



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	405	39.4/48.6	109	179

 5-30-12  
 REGISTERED CIVIL ENGINEER DATE  
 7-30-12  
 PLANS APPROVAL DATE  
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

REGISTERED PROFESSIONAL ENGINEER  
**ANDREW K. NGUYEN**  
 No. C62828  
 Exp. 6-30-14  
 CIVIL  
 STATE OF CALIFORNIA



APPROVED FOR EXISTING UTILITIES ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans MAINTENANCE ENGINEERING**  
 FUNCTIONAL SUPERVISOR PAUL CRISPI  
 CHECKED BY PAUL CRISPI  
 CALCULATED/DESIGNED BY  
 ANDREW NGUYEN  
 REVISED BY PAUL CRISPI  
 DATE REVISED

LAST REVISION DATE PLOTTED => 14-FEB-2013  
 07-30-12 TIME PLOTTED => 13:32

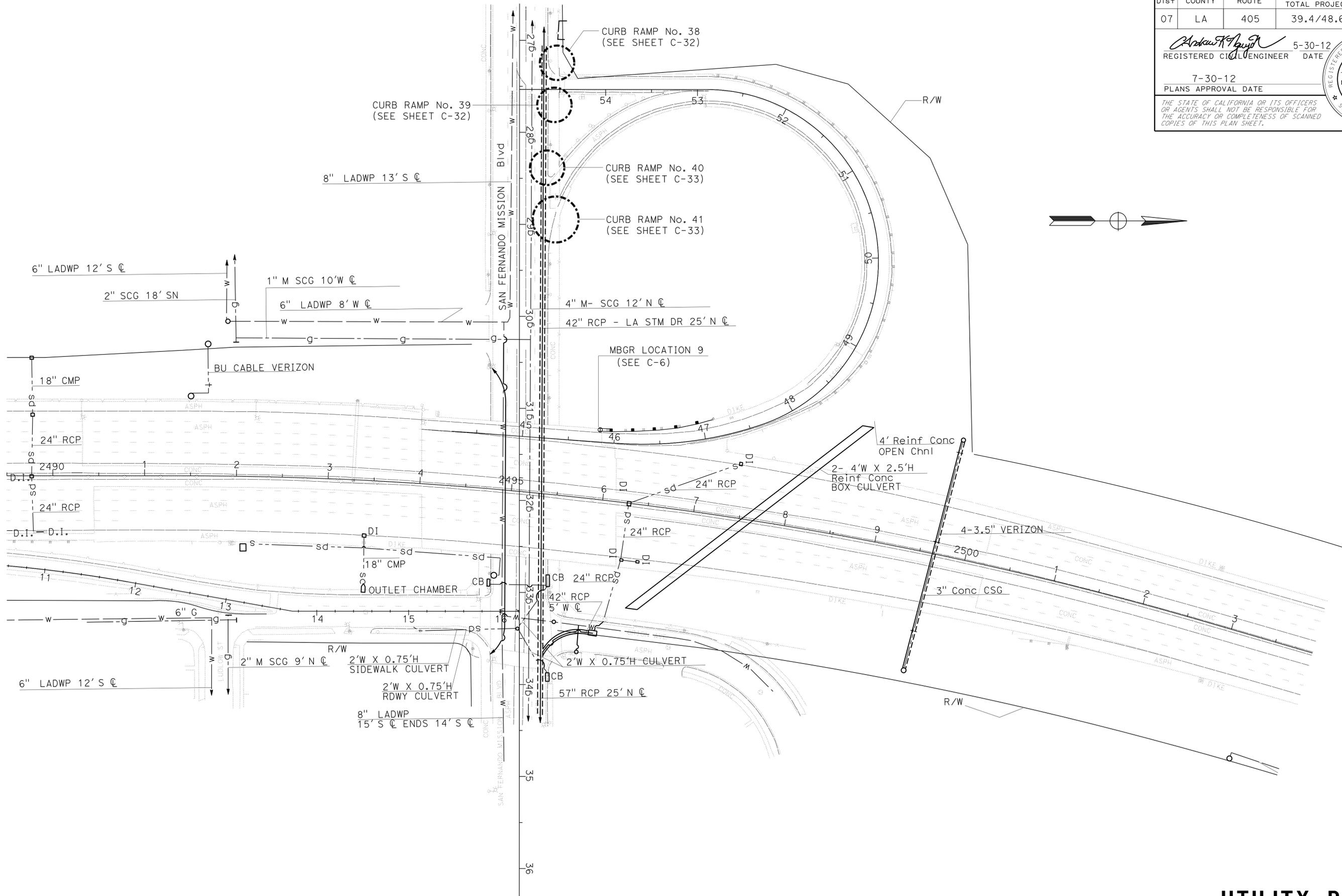
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	405	39.4/48.6	110	179

REGISTERED PROFESSIONAL ENGINEER  
 ANDREW K. NGUYEN  
 No. C62828  
 Exp. 6-30-14  
 CIVIL  
 STATE OF CALIFORNIA

5-30-12  
 REGISTERED CIVIL ENGINEER DATE  
 7-30-12  
 PLANS APPROVAL DATE

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

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	MAINTENANCE ENGINEERING
FUNCTIONAL SUPERVISOR	PAUL CRISPI
CALCULATED/DESIGNED BY	CHECKED BY
ANDREW NGUYEN	PAUL CRISPI
REVISED BY	DATE REVISED



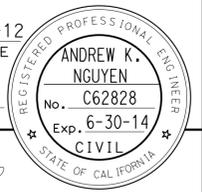
**UTILITY PLAN**  
 SCALE: 1" = 50'  
**U-9**

APPROVED FOR EXISTING UTILITIES ONLY

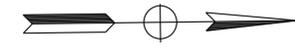
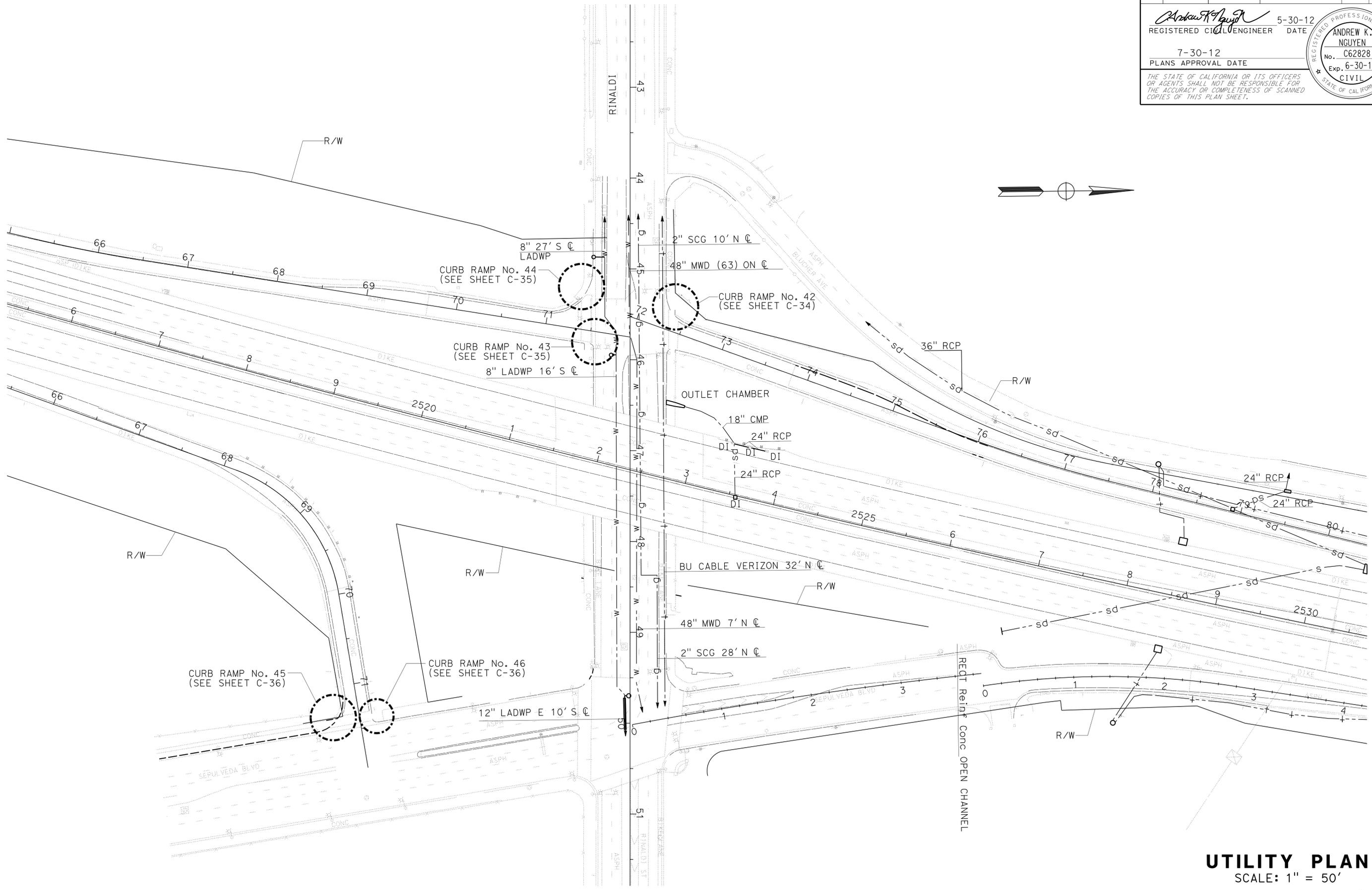
LAST REVISION DATE PLOTTED => 14-FEB-2013  
 07-30-12 TIME PLOTTED => 13:32

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	405	39.4/48.6	111	179

 5-30-12  
 REGISTERED CIVIL ENGINEER DATE  
 7-30-12  
 PLANS APPROVAL DATE  
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** MAINTENANCE ENGINEERING  
 FUNCTIONAL SUPERVISOR: PAUL CRISPI  
 CHECKED BY: PAUL CRISPI  
 DESIGNED BY: ANDREW NGUYEN  
 REVISIONS: PAUL CRISPI  
 DATE: 7/2/2010



APPROVED FOR EXISTING UTILITIES ONLY

**UTILITY PLAN**  
 SCALE: 1" = 50'  
**U-10**

LAST REVISION DATE PLOTTED => 14-FEB-2013  
 07-30-12 TIME PLOTTED => 13:32

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	405	39.4/48.6	112	179

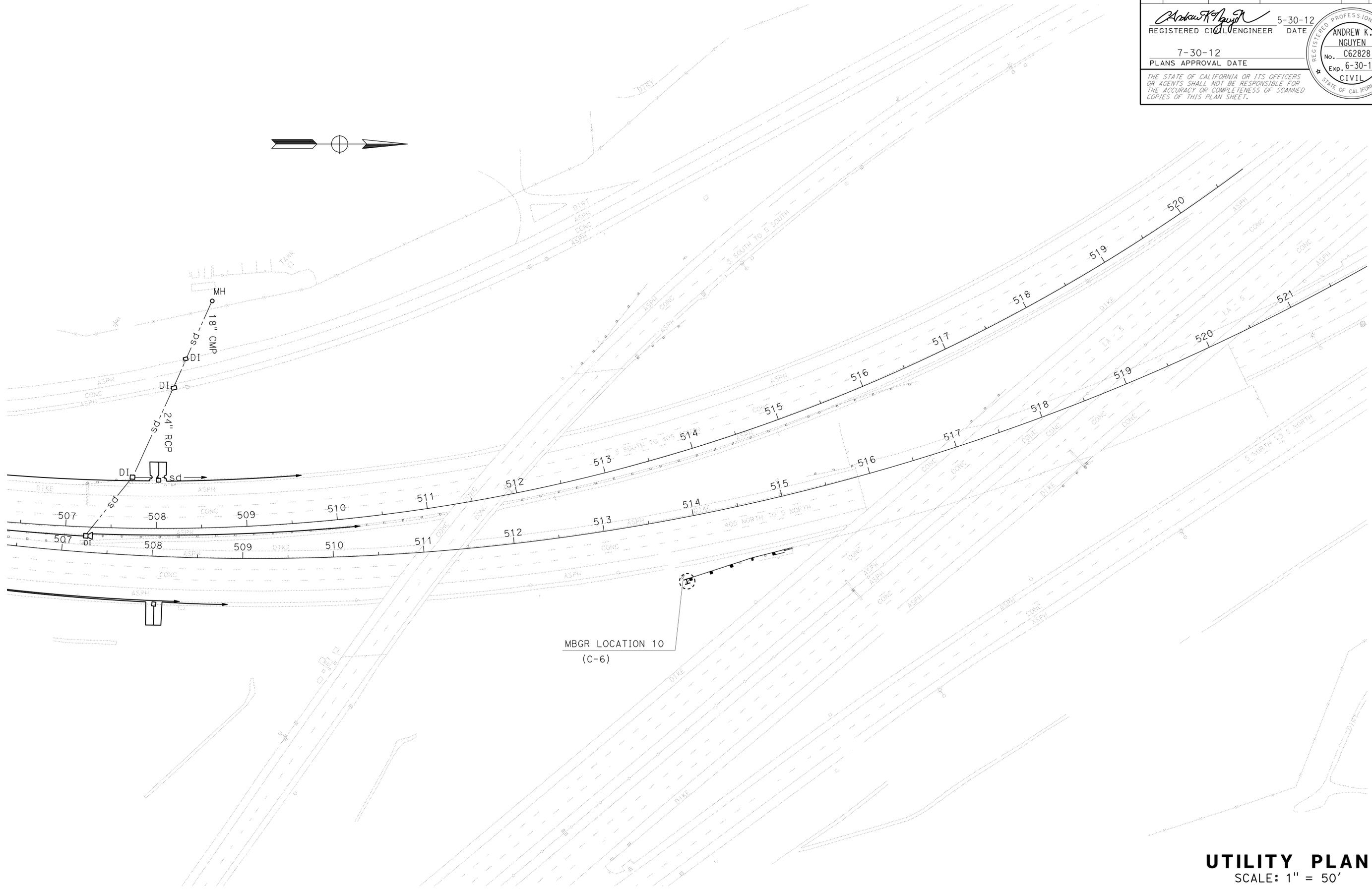
<i>Andrew K. Nguyen</i>	5-30-12
REGISTERED CIVIL ENGINEER	DATE
7-30-12	
PLANS APPROVAL DATE	

REGISTERED PROFESSIONAL ENGINEER
ANDREW K. NGUYEN
No. C62828
Exp. 6-30-14
CIVIL
STATE OF CALIFORNIA

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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
<b>Caltrans</b> MAINTENANCE ENGINEERING
FUNCTIONAL SUPERVISOR
PAUL CRISPI
CALCULATED/DESIGNED BY
CHECKED BY
ANDREW NGUYEN
PAUL CRISPI
REVISED BY
DATE REVISED



APPROVED FOR EXISTING UTILITIES ONLY

**UTILITY PLAN**  
SCALE: 1" = 50'  
**U-11**

LAST REVISION | DATE PLOTTED => 14-FEB-2013  
07-30-12 | TIME PLOTTED => 13:32

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	405	39.4/48.6	113	179

REGISTERED PROFESSIONAL ENGINEER  
 ANDREW K. NGUYEN  
 No. C62828  
 Exp. 6-30-14  
 CIVIL  
 STATE OF CALIFORNIA

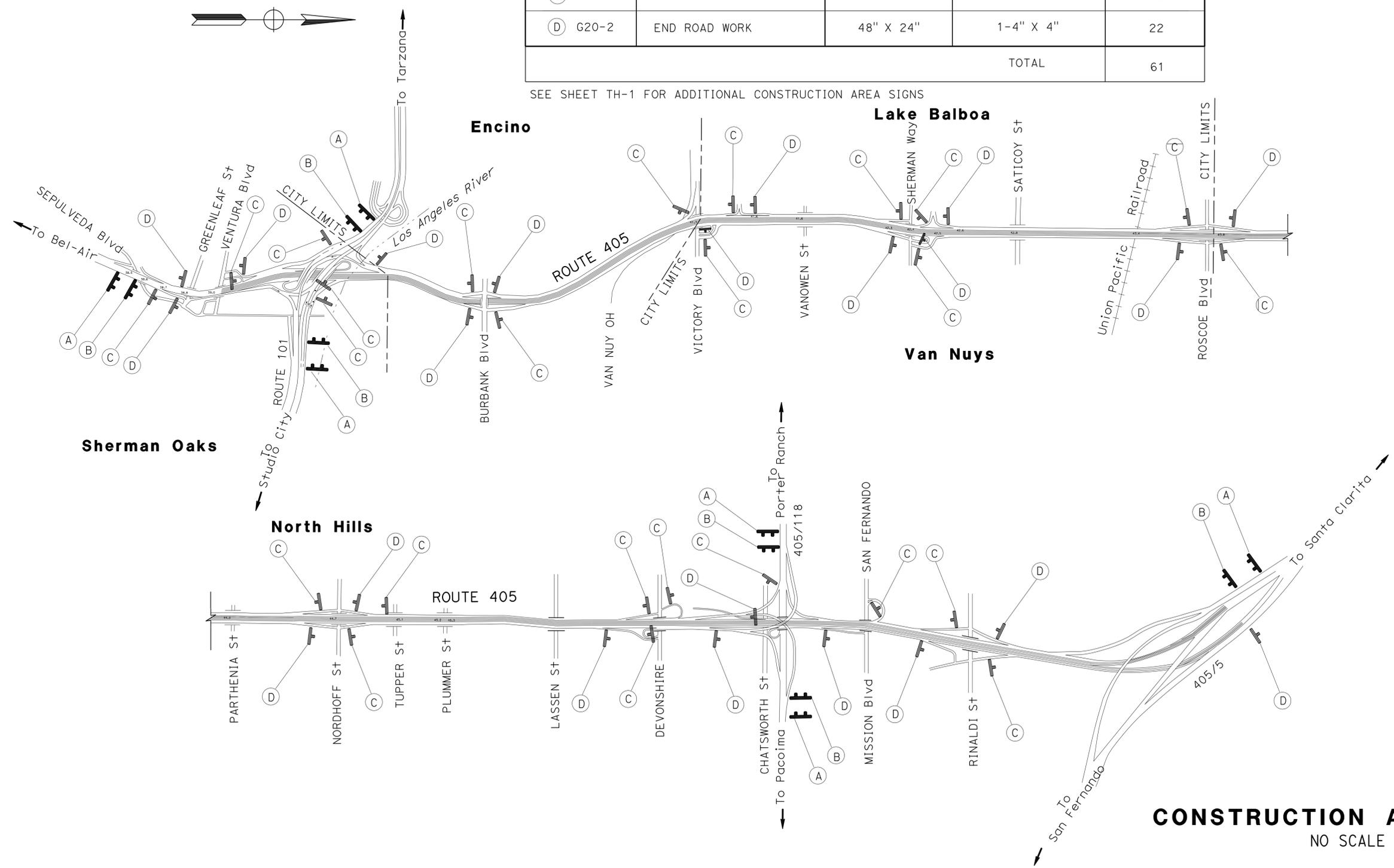
5-30-12 DATE  
 7-30-12 PLANS APPROVAL DATE

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

CONSTRUCTION AREA SIGNS (STATIONARY MOUNTED)				
SIGN NUMBER AND CODE	DESCRIPTION	PANEL SIZE	NUMBER OF POSTS AND SIZE	NUMBER OF SIGNS
(A) C40(CA)	TRAFFIC FINES DOUBLED IN CONSTRUCTION ZONES	144" X 60"	2- 4" X 6"	7
(B) W20-1	ROAD WORK AHEAD	60" X 60"	2- 6" X 6"	7
(C) W20-1	ROAD WORK AHEAD	48" X 48"	1- 6" X 6"	25
(D) G20-2	END ROAD WORK	48" X 24"	1-4" X 4"	22
TOTAL				61

SEE SHEET TH-1 FOR ADDITIONAL CONSTRUCTION AREA SIGNS



**CONSTRUCTION AREA SIGNS**  
 NO SCALE

APPROVED FOR CONSTRUCTION AREA SIGN WORK ONLY

**CS-1**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

**Caltrans** MAINTENANCE ENGINEERING

FUNCTIONAL SUPERVISOR: PAUL CRISPI

DESIGNED BY: ANDREW NGUYEN

CHECKED BY: PAUL CRISPI

REVISIONS:

NO.	DATE	BY	DESCRIPTION

LAST REVISION DATE PLOTTED => 14-FEB-2013  
 07-30-12 TIME PLOTTED => 1:32

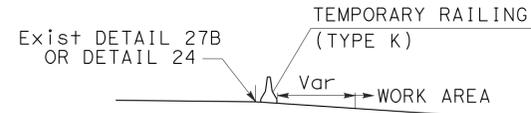
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	405	39.4/48.6	114	179

REGISTERED CIVIL ENGINEER DATE 6-22-12  
 ESTHER M. KIM No. 48363 Exp. 6/30/14 CIVIL  
 PLANS APPROVAL DATE 7-30-12

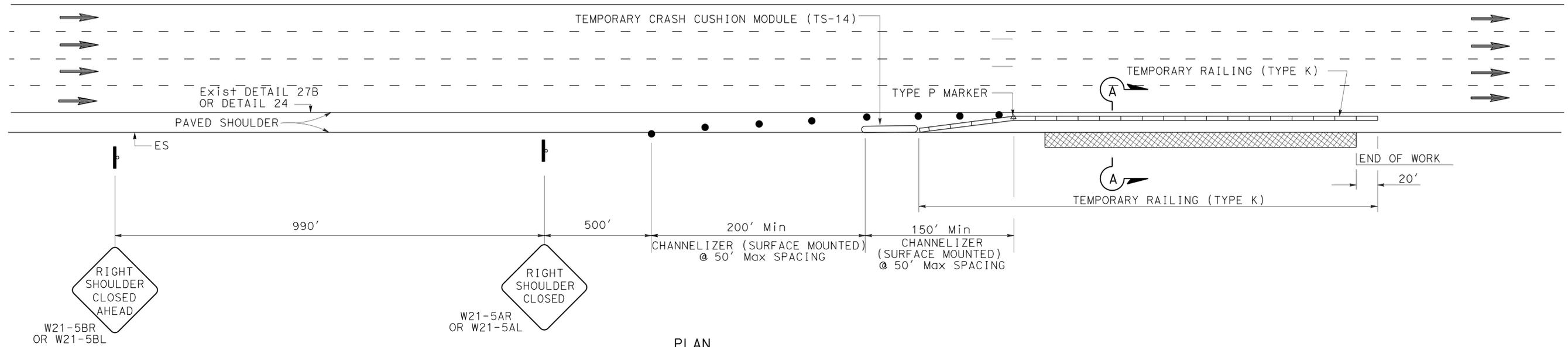
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

**LEGEND:**

- DIRECTION OF TRAVEL
- CHANNELIZER (SURFACE MOUNTED)
- TEMPORARY CRASH CUSHION MODULE
- WORK AREA
- TEMPORARY RAILING (TYPE K)
- CONSTRUCTION AREA SIGN



**SECTION A-A**



**PLAN**

**TRAFFIC HANDLING QUANTITIES**

LOCATION No.	CHANNELIZER (SURFACE MOUNTED)	Temp CRASH CUSHION MODULE	Temp RAILING (TYPE K)	CONSTRUCTION AREA SIGNS	
				48" X 48"	
				W21-5A (R OR L)	W21-5B (R OR L)
	EA	EA	LF	EA	EA
1	8	14	460	1	1
2	8	14	300	1	1
6	8	14	280	1	1
7	8	14	300	1	1
8	8	14	320	1	1
10	8	14	300	1	1
<b>TOTAL</b>	<b>48</b>	<b>84</b>	<b>1960</b>	<b>6</b>	<b>6</b>

**NOTE:**

SEE STANDARD PLANS FOR APPROPRIATE CRASH CUSHION MODULE.

**TRAFFIC HANDLING PLAN**  
NO SCALE

**TH-1**

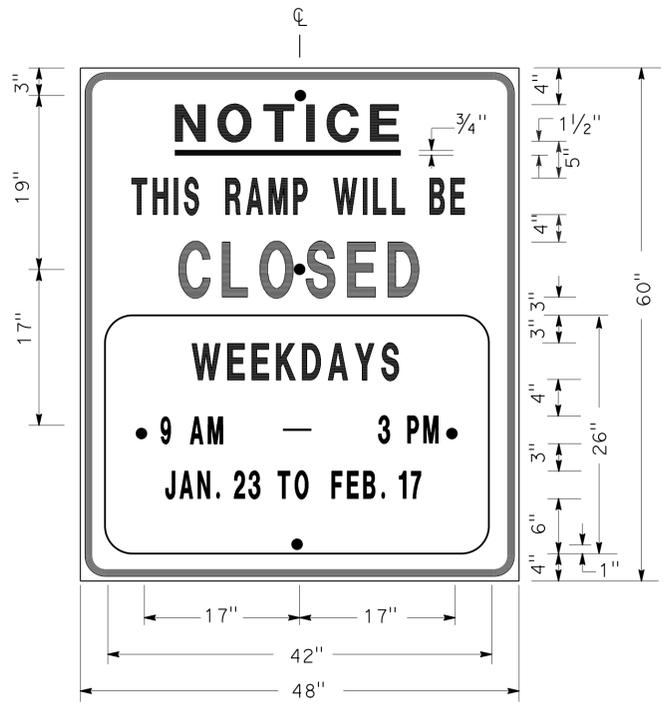
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 STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
 FUNCTIONAL SUPERVISOR: MOHAMMED CHOWDHURY  
 CALCULATED/DESIGNED BY: ESTHER M. KIM  
 CHECKED BY: RICHARD KHAW  
 REVISIONS: 07-30-12  
 DATE PLOTTED => 14-FEB-2013  
 TIME PLOTTED => 13:32

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	405	39.4/48.6	115	179

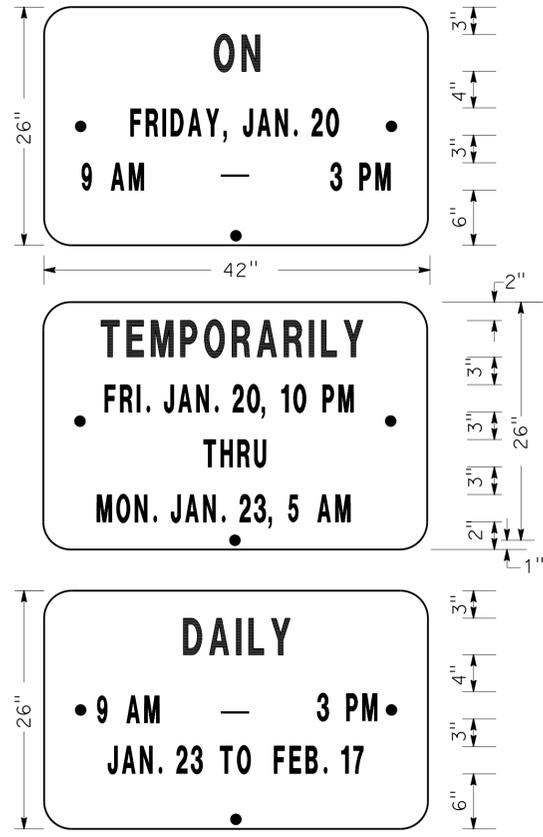
REGISTERED CIVIL ENGINEER  
 ALBERT K. YU  
 No. 43220  
 Exp. 3/31/14  
 CIVIL  
 STATE OF CALIFORNIA

2-28-12  
 DATE  
 7-30-12  
 PLANS APPROVAL DATE

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SIGN SP-1



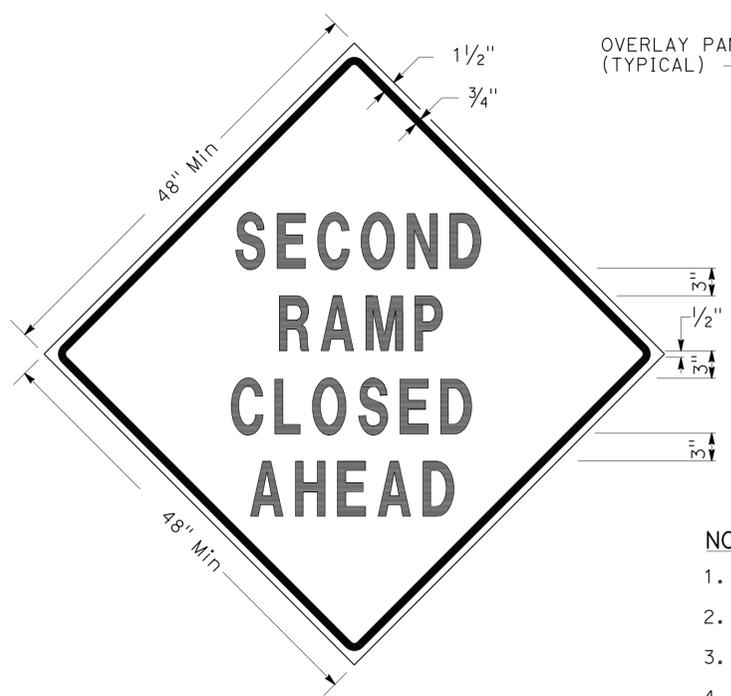
ALTERNATE OVERLAY PANELS (TYPICAL)

- NOTES:**(SIGN SP-1)
- SIGNS SHALL HAVE ORANGE RETROREFLECTORIZED BACKGROUND WITH BLACK BORDER AND LETTERS.
  - BOLT HOLES SHALL BE 3/8" DIAMETER.
  - BASE MATERIAL SHALL BE ALUMINUM (MINIMUM 0.06").
  - SIGNS SHALL BE MOUNTED WITH BOTTOMS OF SIGNS A MINIMUM OF 6' ABOVE GROUND.

SIZE	BORDER		LETTER SIZE					CORNER RADIUS
	WIDTH	MARGIN WIDTH	LINE 1	LINE 2*	LINE 3	LINE 4	LINE 5,6 & 7*	
48"x60"	1 1/4"	3/4"	4E	4D	6E	4D		3"
42"x26"	OVERLAY						3D	1 1/2"

\* CONDENSED SPACING IF NECESSARY

**SPECIAL ADVANCE NOTICE PUBLICITY SIGN**



SIGN SP-3

**SPECIAL SIGN FOR EXIT RAMP CLOSURES**

- NOTES:** (SIGNS SP-3 & SP-5)
- LETTERS - 6" SERIES D.
  - LETTERS AND BORDERS - BLACK ON RETROREFLECTORIZED ORANGE BACKGROUND.
  - BASE MATERIAL SHALL BE ALUMINUM (MINIMUM 0.06").
  - SIGNS SHALL BE MOUNTED WITH BOTTOMS OF SIGNS A MINIMUM OF 6' ABOVE GROUND.



SIGN SP-5



SIGN SP-4

- NOTES:** (SIGN SP-4)
- LETTERS - 6" SERIES C.
  - LETTERS AND BORDERS - BLACK ON RETROREFLECTORIZED WHITE BACKGROUND.
  - BASE MATERIAL SHALL BE ALUMINUM (MINIMUM 0.06").
  - SIGNS SHALL BE PLACED AT RAMP ENTRANCES IN ADDITION TO SIGNS POSTED IN ACCORDANCE WITH STANDARD PLAN T14.

**SPECIAL SIGN FOR ENTRANCE RAMP CLOSURES**

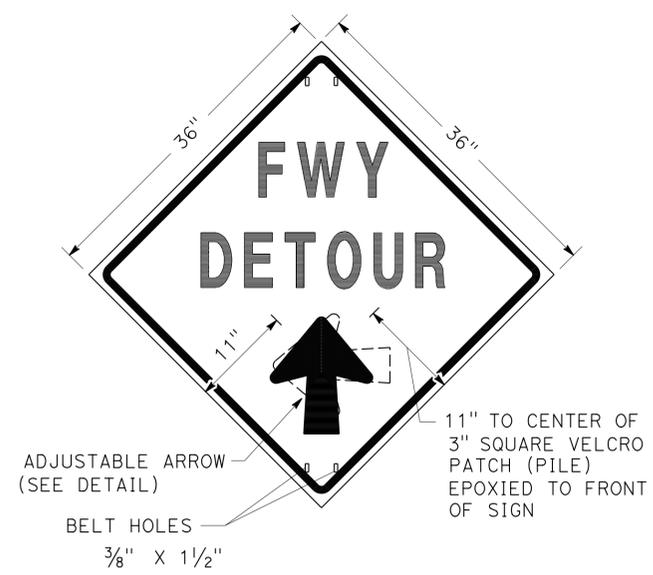
**TRAFFIC HANDLING DETAILS  
 TRAFFIC CONTROL SYSTEM  
 FOR RAMP CLOSURES, DETOUR SIGNS  
 AND MISCELLANEOUS DETAILS**

SHEET 1 OF 2

NO SCALE

THD-1

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	405	39.4/48.6	116	179
			2-28-12	DATE	
REGISTERED CIVIL ENGINEER			ALBERT K. YU		
7-30-12			PLANS APPROVAL DATE		
No. 43220			Exp. 3/31/14		
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>					



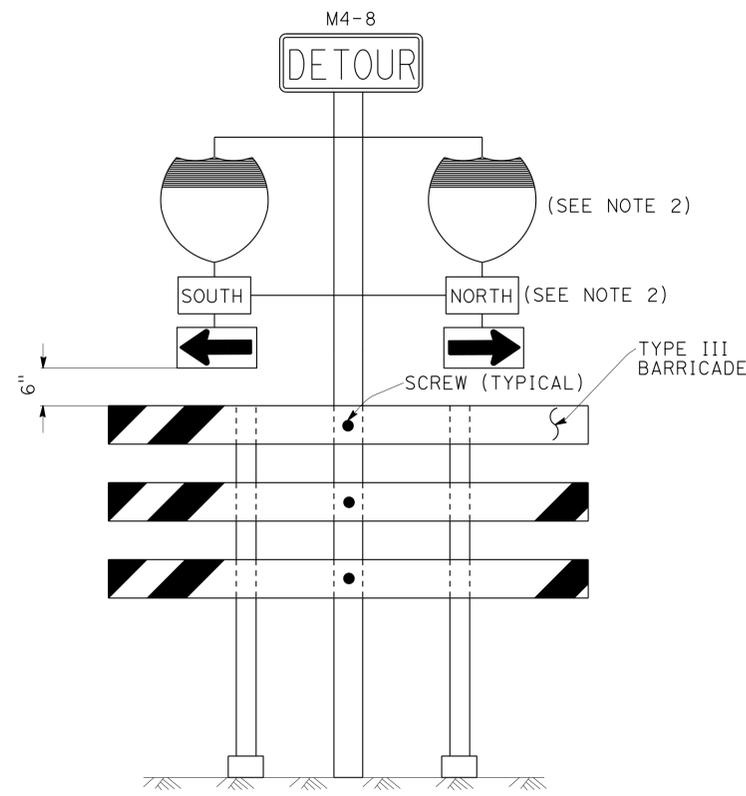
SIGN SP-2

**NOTES:** (SIGN SP-2)

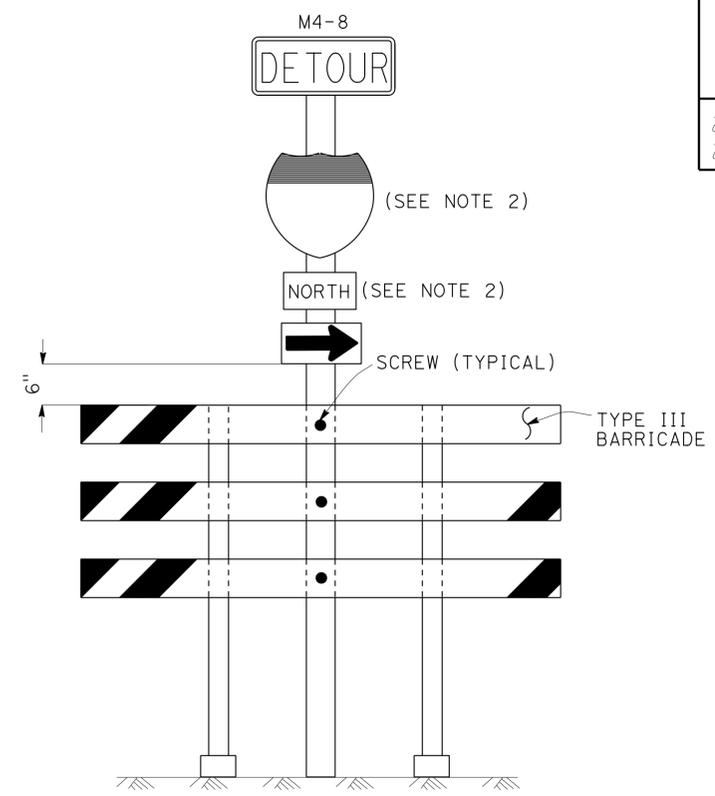
- LETTERS -6" SERIES E.
- LETTERS, BORDER AND ARROW - BLACK ON RETROREFLECTORIZED ORANGE BACKGROUND.
- BASE MATERIAL FOR SIGNS AND ARROWS SHALL BE ALUMINUM (MINIMUM 0.06").
- BELTS (LUGGAGE STRAPS) SHALL BE 1" WIDE BY 48" LONG, MADE OF COTTON OR POLYPROPYLENE WEB MATERIAL.
- SIGNS SHALL BE MOUNTED WITH BOTTOMS OF SIGNS A MINIMUM OF 6' ABOVE GROUND EXCEPT AS OTHERWISE SHOWN ON OTHER TRAFFIC HANDLING DETAILS PLANS.

**ABBREVIATION**

(CA) CALIFORNIA CODE



SIGN SP-6 (SEE NOTE 1)

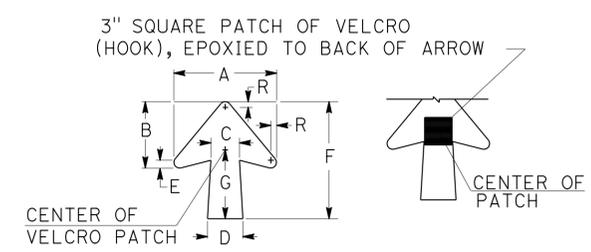


SIGN SP-7 (SEE NOTE 1)

**NOTES:** (SIGNS SP-6 & SP-7)

- IN LIEU OF PLACING SIGNS ON TYPE III BARRICADES, SIGNS, INCLUDING POSTS, MAY BE PLACED INTO THE GROUND OR FASTENED ONTO ELECTROLIERS.
- USE APPROPRIATE ROUTE SHIELD [G26-2(CA), G27-2(CA), G28-2(CA)] AND CARDINAL DIRECTION [NORTH (M3-1), SOUTH (M3-3), EAST (M3-2), WEST (M3-4)]

**SPECIAL PORTABLE FREEWAY DETOUR SIGNS**



ADJUSTABLE ARROW DETAIL

DIMENSIONS							
A	B	C	D	E	F	G	R
11 1/4"	7 1/4"	3 3/8"	4"	7/8"	13"	7 1/2"	5/8"

SPECIAL PORTABLE FREEWAY DETOUR SIGN

**TRAFFIC HANDLING DETAILS**  
**TRAFFIC CONTROL SYSTEM**  
**FOR RAMP CLOSURES, DETOUR SIGNS**  
**AND MISCELLANEOUS DETAILS**  
**SHEET 2 OF 2**  
 NO SCALE

**THD-2**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 DT  
 FUNCTIONAL SUPERVISOR JOHN YANG  
 CHECKED BY  
 CALCULATED/DESIGNED BY  
 REVISIONS:  
 REVISED BY JC DATE REVISED 7/10  
 DESIGNED BY ALBERT K YU  
 CHECKED BY JOCELYN C CHIANG

LAST REVISION DATE PLOTTED => 14-FEB-2013  
 07-30-12 TIME PLOTTED => 13:32

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	405	39.4/48.6	117	179

REGISTERED CIVIL ENGINEER	DATE
<i>Albert K. Yu</i>	2-28-12
PLANS APPROVAL DATE	
7-30-12	

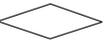
REGISTERED PROFESSIONAL ENGINEER
ALBERT K. YU
No. 43220
Exp. 3/31/14
CIVIL

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.

**NOTES:**

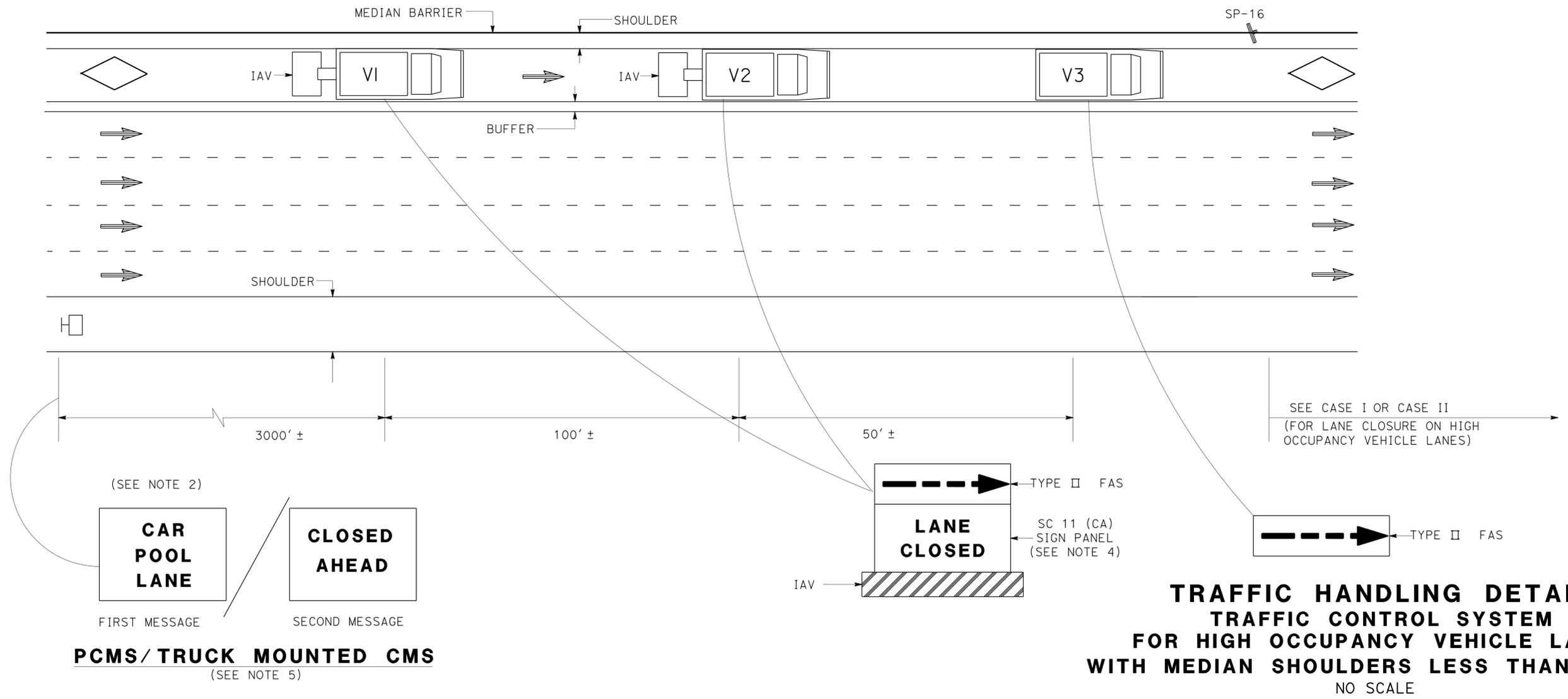
- LANE CLOSURES SHALL NOT BE PLACED ON CREST VERTICAL CURVES OR ON HORIZONTAL CURVES.
- PCMS SHALL BE ACTIVATED PRIOR TO TRAFFIC CONTROL ACTIVITIES ON THE HOV LANE.
- A MINIMUM SIGHT DISTANCE OF 1500' SHALL BE PROVIDED IN ADVANCE OF PCMS.
- VEHICLE-MOUNTED SIGN PANELS SHALL BE TYPE III OR IV RETROREFLECTORIZED SHEETING, BLACK ON WHITE OR BLACK ON ORANGE WITH 8" MINIMUM SERIES D LETTERS PER CALTRANS SIGN SPECIFICATIONS.
- PLACE PCMS ON THE MEDIAN SHOULDER WHERE SUFFICIENT ROOM (SUCH AS CHP ENFORCEMENT AREAS) EXISTS.

**LEGEND**

- V1, V2 SHADOW VEHICLE
- V3 WORK/APPLICATION VEHICLE
-  PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)
-  DIRECTION OF TRAVEL
-  HOV LANE

**ABBREVIATIONS**

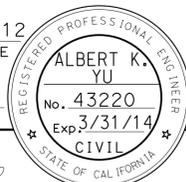
- FAS FLASHING ARROW SIGN
- IAV IMPACT ATTENUATOR VEHICLE
- CMS CHANGEABLE MESSAGE SIGN
- (CA) CALIFORNIA CODE
- PCMS PORTABLE CHANGEABLE MESSAGE SIGN
- HOV HIGH OCCUPANCY VEHICLE

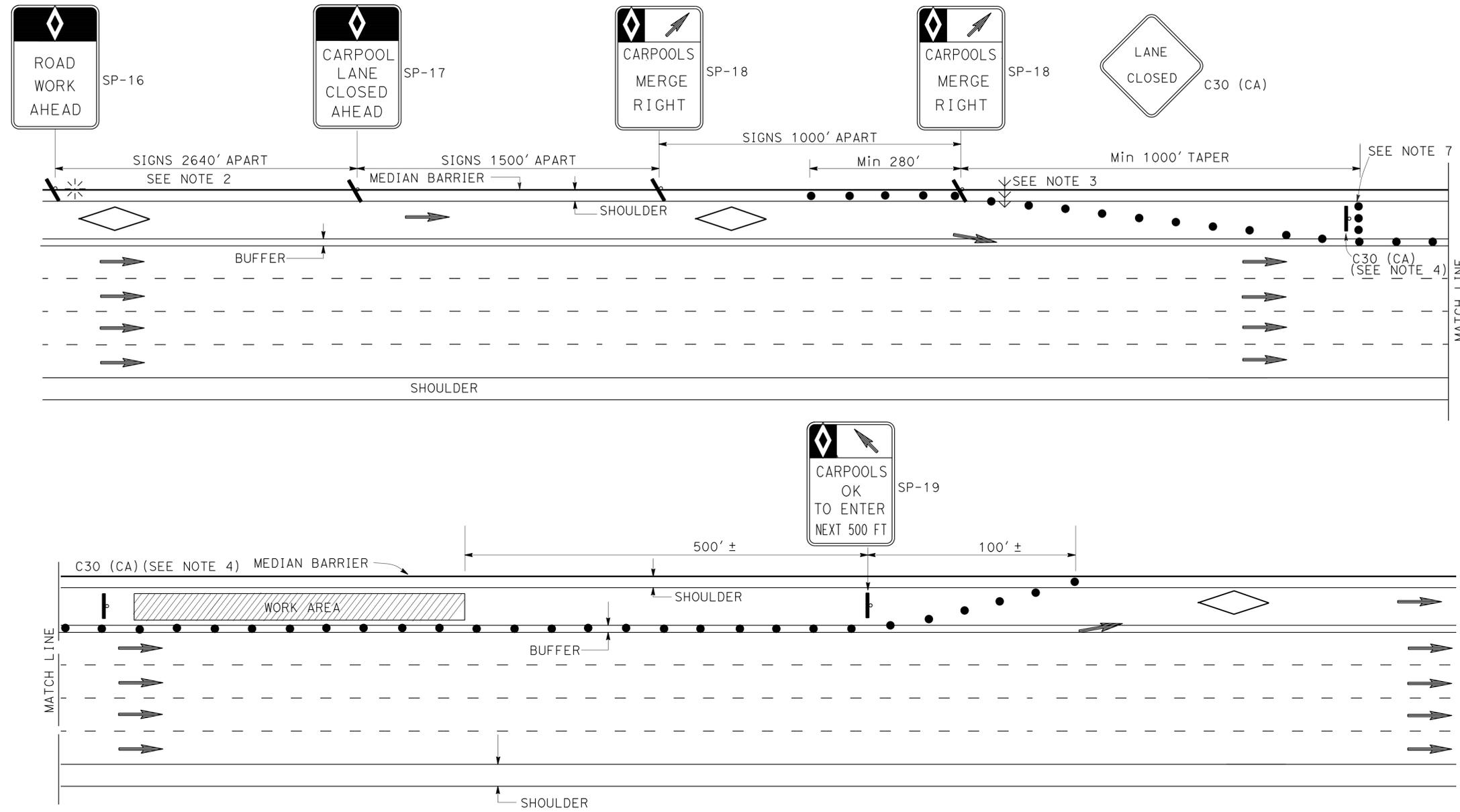


**TRAFFIC HANDLING DETAILS  
TRAFFIC CONTROL SYSTEM  
FOR HIGH OCCUPANCY VEHICLE LANES  
WITH MEDIAN SHOULDERS LESS THAN 8 FEET  
NO SCALE**

**THD-3**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	DTM	FUNCTIONAL SUPERVISOR	ALBERT K YU	REVISOR	JC
		CHECKED BY	JOCELYN C CHIANG	DATE REVISED	7/10
Caltrans		DESIGNED BY			

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	405	39.4/48.6	118	179
 REGISTERED CIVIL ENGINEER DATE 2-28-12					
7-30-12 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>					



**ABBREVIATIONS**

(CA)	CALIFORNIA CODE
HOV	HIGH OCCUPANCY VEHICLE

**NOTES: FOR CASE I AND CASE II**

- AT LEAST ONE PERSON SHALL BE ASSIGNED TO FULL TIME MAINTENANCE OF TRAFFIC CONTROL DEVICES ON NIGHT LANE CLOSURES OR DAY-TIME CLOSURES EXCEEDING 1 MILE LENGTH, INCLUDING TAPERS.
- ADVANCE WARNING SIGN INSTALLATIONS SHALL BE EQUIPPED WITH FLAGS FOR DAYTIME CLOSURES. TYPE B HIGH INTENSITY FLASHING WARNING LIGHTS SHALL BE USED ON SP-16 SIGNS DURING NIGHT LANE CLOSURES. FLAGS AND WARNING LIGHTS SHALL BE ATTACHED TO SIGNS AS APPROVED BY THE ENGINEER.
- THE FLASHING ARROW SIGN SHALL BE TYPE I.
- PLACE C30 (CA) SIGNS EVERY 2000' THROUGHOUT THE LENGTH OF LANE CLOSURE.
- A MINIMUM 1500' OF SIGHT DISTANCE SHALL BE PROVIDED WHERE POSSIBLE FOR VEHICLES APPROACHING THE FLASHING ARROW SIGN. LANE CLOSURES SHALL NOT BE PLACED ON CREST VERTICAL CURVES OR ON HORIZONTAL CURVES.
- PORTABLE DELINEATORS PLACED AT ONE-HALF THE SPACING INDICATED FOR TRAFFIC CONES MAY BE USED INSTEAD OF CONES FOR DAYTIME CLOSURES.
- A MINIMUM OF 3 CONES SHALL BE PLACED TRANSVERSELY ACROSS CLOSED LANES WHERE TAPERS END AND EVERY 2000'. TWO TYPE II BARRICADES MAY BE USED INSTEAD OF 3 CONES. THE ALIGNMENT OF CONES OR BARRICADES MAY BE SHIFTED FROM THE TRANSVERSE ALIGNMENT TO PROVIDE ACCESS TO WORK.
- IF AN INGRESS/EGRESS AREA IS WITHIN 5250' UPSTREAM OR DOWNSTREAM OF THE WORK AREA, LANE CLOSURES SHALL BE EXTENDED TO THAT AREA AS SHOWN IN CASE II.
- SIGNS SP-16, 17, 18, AND 19 MAY BE OVERLAID ON EXISTING CARPOOL SIGNS IN MEDIANS AS APPROVED BY THE ENGINEER.
- SIGNS SP-16, 17, 18, AND C30 (CA) SHALL BE BLACK ON ORANGE BACKGROUND. SIGN SP-19 SHALL BE BLACK ON WHITE BACKGROUND. DIAMONDS ON SIGNS SHALL BE WHITE.
- FOR CLOSURE OF LANE(S) ADJACENT TO HOV LANES, SEE CASE II.
- THE MAXIMUM SPACING BETWEEN CONES SHALL BE APPROXIMATELY 50' IN TAPERS AND 100' ON TANGENTS.

**LEGEND**

●	CONE
⚡	FLASHING BEACON
◇	HOV LANE
←←←	FLASHING ARROW SIGN
⏏	PORTABLE SIGN
→	DIRECTION OF TRAVEL

**SIGN PANEL SIZE (MIN)**

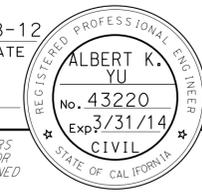
SP-16	36" X 54"
SP-17	36" X 54"
SP-18	36" X 48"
SP-19	36" X 60"
C30 (CA)	30" X 30"
G20-2	48" X 24"

**TRAFFIC HANDLING DETAILS  
TRAFFIC CONTROL SYSTEM  
FOR HIGH OCCUPANCY VEHICLE LANES  
AT NON-INGRESS/EGRESS AREAS**

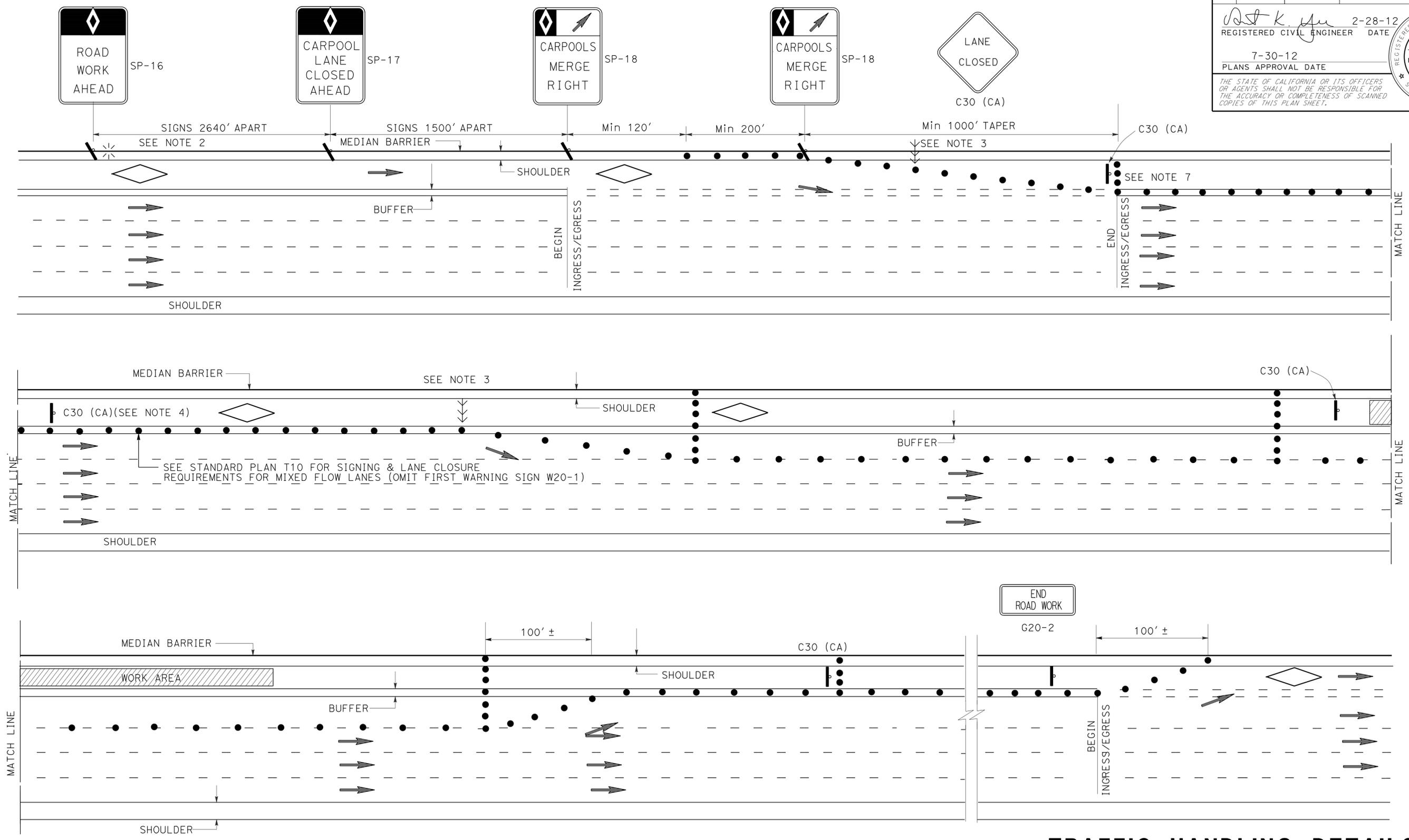
**CASE I  
NO SCALE**

**THD-4**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
  
 FUNCTIONAL SUPERVISOR: JOHN YANG  
 CHECKED BY: JOCELYN C CHIANG  
 DESIGNED BY: ALBERT K YU  
 REVISIONS: 7/10  
 DATE: 7/10

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	405	39.4/48.6	119	179
 REGISTERED CIVIL ENGINEER DATE 2-28-12					
7-30-12 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>					

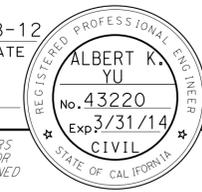
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 DT M  
 FUNCTIONAL SUPERVISOR JOHN YANG  
 CHECKED BY JOCELYN C CHIANG  
 DESIGNED BY ALBERT K YU  
 REVISED BY JC  
 DATE REVISED 7/10



- NOTES:**
- SEE CASE I FOR NOTES, LEGENDS AND ABBREVIATIONS FOR THIS SHEET.
  - CLOSURES OF ONE MIXED FLOW TRAFFIC LANE ADJACENT TO HOV LANE SHOWN. MULTIPLE MIXED FLOW LANE CLOSURES ARE SIMILAR.

**TRAFFIC HANDLING DETAILS**  
**TRAFFIC CONTROL SYSTEM**  
**FOR HIGH OCCUPANCY**  
**VEHICLE LANES AND ADJACENT FREEWAY LANES**  
**BETWEEN INGRESS/EGRESS AREAS**  
**CASE II**  
 NO SCALE **THD-5**

LAST REVISION DATE PLOTTED => 14-FEB-2013  
 07-30-12 TIME PLOTTED => 13:32

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	405	39.4/48.6	120	179
 2-28-12 REGISTERED CIVIL ENGINEER DATE					
7-30-12 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:**

- WORDING DISPLAYED ON PCMS WILL BE APPROVED BY THE ENGINEER.
- EXACT LOCATIONS OF PCMS WILL BE DETERMINED BY THE ENGINEER.
- CHANGE PCMS MESSAGE AT THE BEGINNING OF CURE PERIOD TO REFLECT NUMBER OF CLOSED LANES.

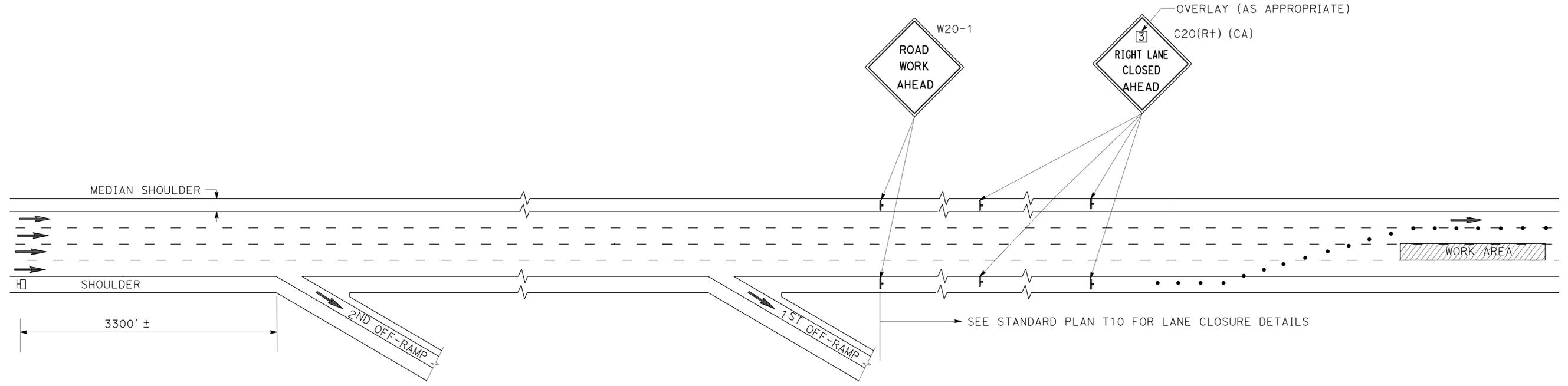
**ABBREVIATIONS**

PCMS PORTABLE CHANGEABLE MESSAGE SIGN  
 (CA) CALIFORNIA CODE

**LEGEND**

- CONE
- ⊥ PORTABLE SIGN
- DIRECTION OF TRAVEL
- PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)
- (CA) CALIFORNIA CODE

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
 Et Caltrans®  
 DTM  
 FUNCTIONAL SUPERVISOR JOHN YANG  
 CALCULATED/DESIGNED BY ALBERT K YU  
 CHECKED BY JOCELYN C CHIANG  
 REVISED BY JC  
 DATE REVISED 7/10

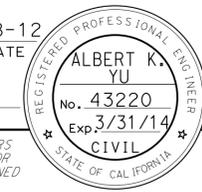


FIRST FLASH MESSAGE	<b>X (NO OF LANES) RIGHT / LEFT</b>	← 1ST LINE (TYPICAL)
	<b>LANES</b>	← 2ND LINE (TYPICAL)
	<b>CLOSED</b>	← 3RD LINE (TYPICAL)
SECOND FLASH MESSAGE	<b>A ST</b>	← LIMIT OF CLOSURE (TYPICAL)
	<b>TO B DR</b>	← LIMIT OF CLOSURE (TYPICAL)

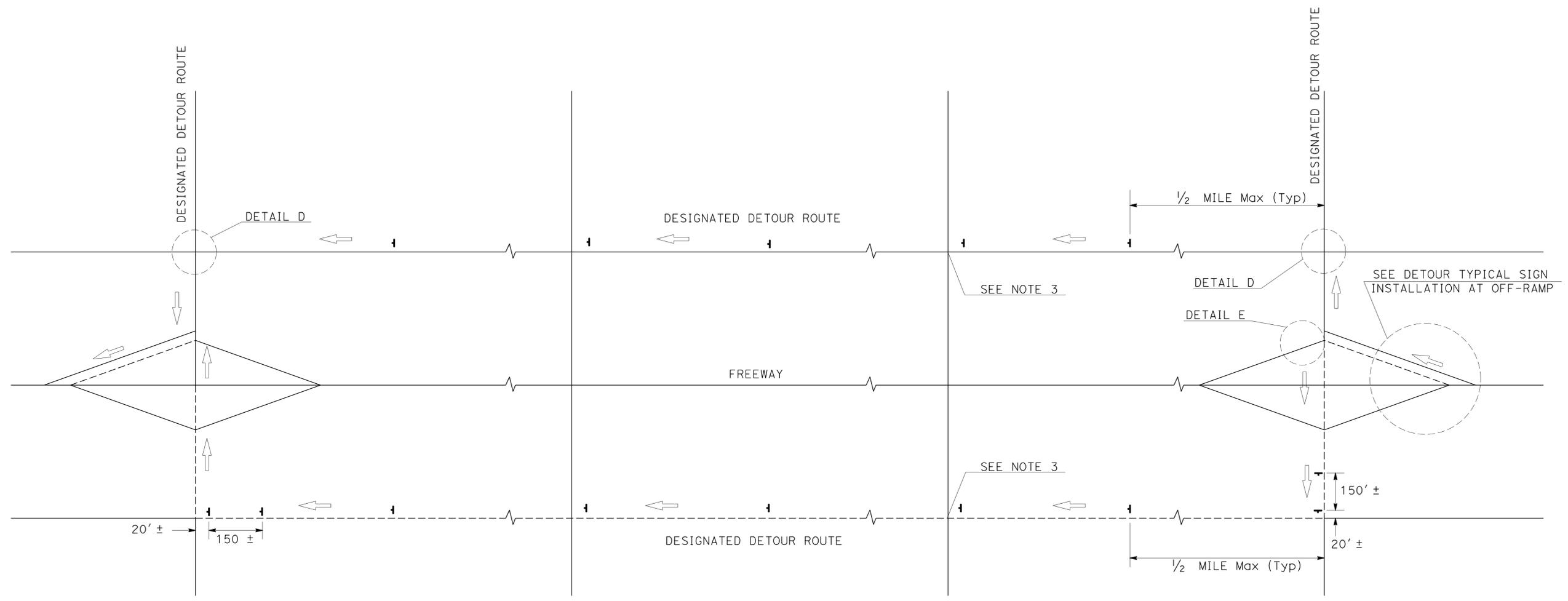
**WORDING FOR PORTABLE CHANGEABLE MESSAGE SIGN**

**TRAFFIC HANDLING DETAILS  
 TRAFFIC CONTROL SYSTEM  
 FOR CONCRETE PAVEMENT AND  
 APPROACH SLAB REPLACEMENT  
 NO SCALE**

**THD-6**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	405	39.4/48.6	121	179
			2-28-12	DATE	
REGISTERED CIVIL ENGINEER					
7-30-12			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>					

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	ALBERT K YU	REVISOR BY	JC
DTM	JOCELYN C CHIANG	DATE REVISED	7/10
FUNCTIONAL SUPERVISOR	JOHN YANG	CHECKED BY	
CALCULATED/DESIGNED BY			



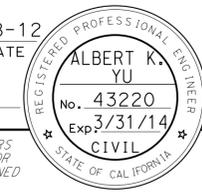
**TYPICAL DETOUR SIGN INSTALLATION ALONG DESIGNATED DETOUR ROUTE**

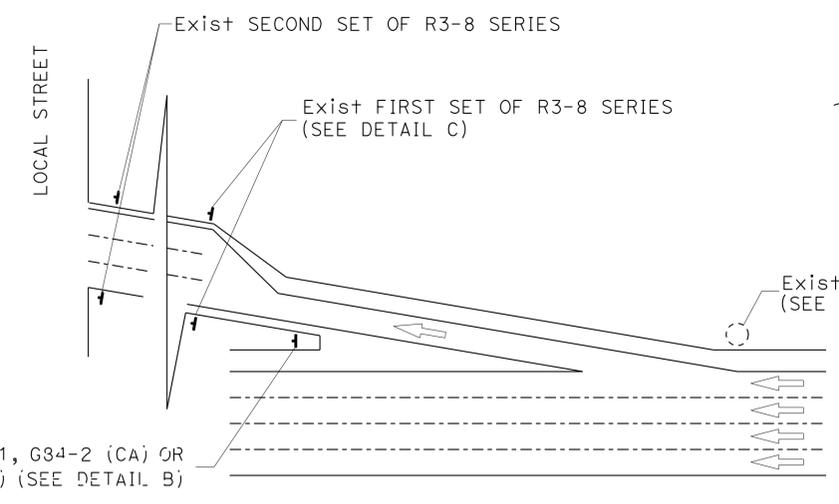
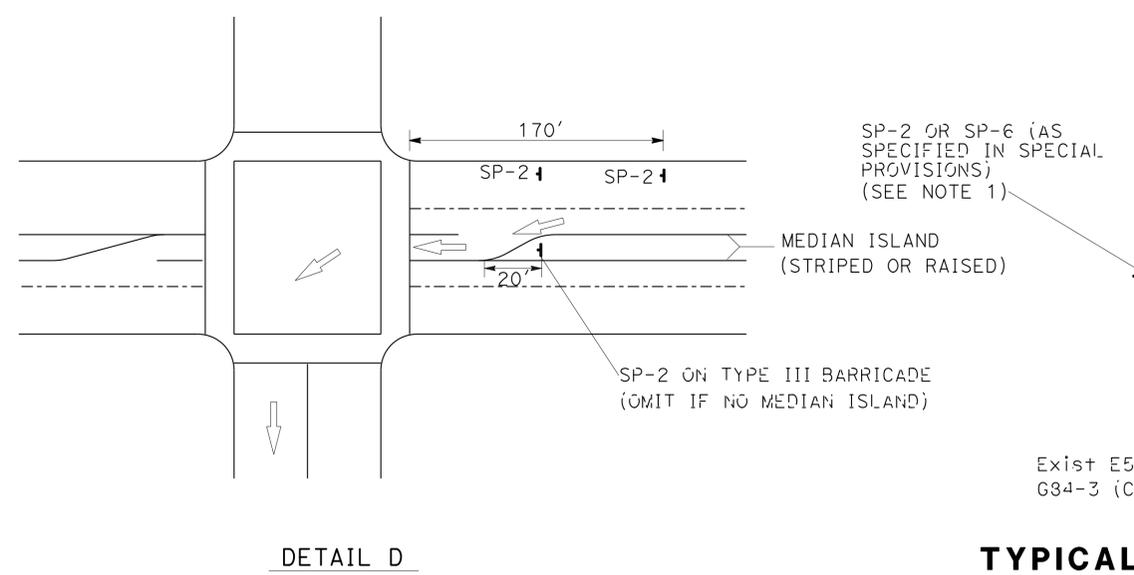
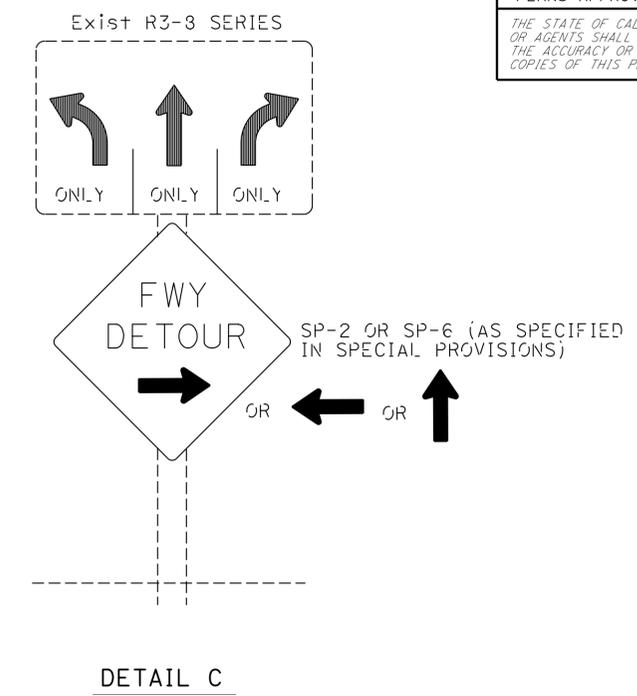
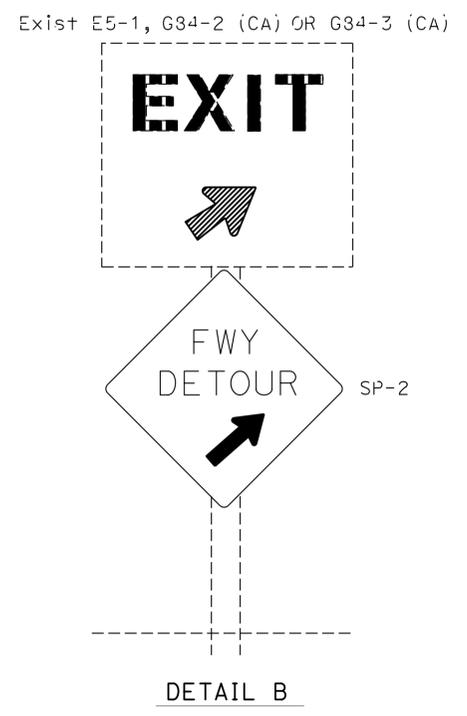
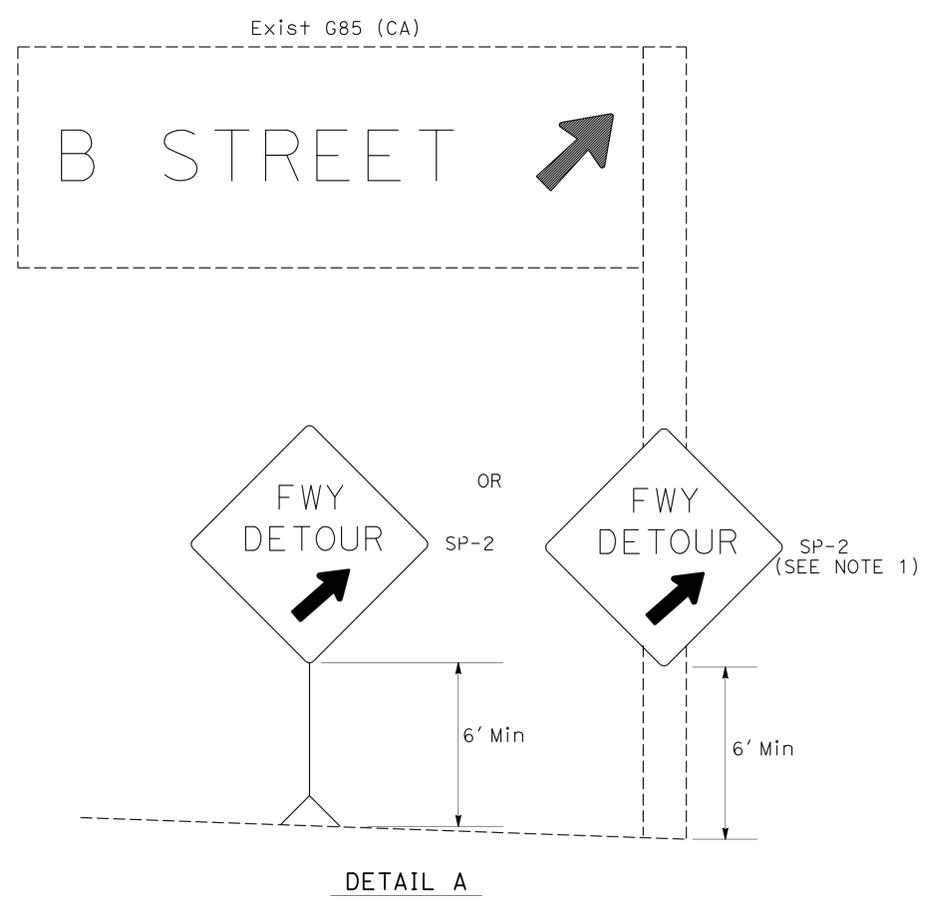
- LEGEND**
-  TEMPORARY SIGN (SP-2)
  -  AND/OR DESIGNATED DETOUR ROUTE
  -  DIRECTION OF TRAVEL

- NOTES:**
1. SP-2 SIGNS SHALL NOT BE INSTALLED ON BARRICADES EXCEPT AS OTHERWISE SHOWN.
  2. SIGN LOCATIONS ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED BY THE ENGINEER.
  3. SP-2 SIGNS SHALL BE POSTED AT SIGNALIZED INTERSECTIONS ALONG THE DESIGNATED DETOUR ROUTE OR 1/2 MILE MAXIMUM APART.

**TRAFFIC HANDLING DETAILS  
TRAFFIC CONTROL SYSTEM  
FOR DETOUR SIGN INSTALLATION  
ALONG DESIGNATED DETOUR ROUTE  
SHEET 1 OF 2  
NO SCALE**

**THD-7**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	405	39.4/48.6	122	179
 REGISTERED CIVIL ENGINEER			2-28-12	DATE	
7-30-12 PLANS APPROVAL DATE					
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.					
					



**TYPICAL DETOUR SIGN INSTALLATION AT OFF-RAMP**

- NOTES:**
1. TEMPORARY SIGNS MAY BE STRAPPED ON EXISTING ELECTROLIER, SIGNAL POSTS, OR SIGN POSTS.
  2. OMIT DETAIL A AND DETAIL B FOR FULL FREEWAY CLOSURES.
  3. SEE TRAFFIC HANDLING DETAILS PLAN-TRAFFIC CONTROL SYSTEM FOR RAMP CLOSURES, DETOUR SIGNS AND MISCELLANEOUS DETAILS SHEET 2 OF 2 FOR SP-6.

**ABBREVIATIONS**  
(CA) CALIFORNIA CODE

- LEGENDS**
- TRAFFIC CONE
  - ↑ TEMPORARY SIGN
  - DIRECTION OF TRAVEL
  - EXISTING OVERHEAD SIGN

**TRAFFIC HANDLING DETAILS  
TRAFFIC CONTROL SYSTEM  
FOR DETOUR SIGN INSTALLATION  
ALONG DESIGNATED DETOUR ROUTE  
SHEET 2 OF 2  
NO SCALE**

**THD-8**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
DTM  
ALBERT K YU  
JOCELYN C CHIANG  
JOHN YANG

USERNAME => s122436  
DGN FILE => 725200me008.dgn

RELATIVE BORDER SCALE IS IN INCHES  
0 1 2 3

UNIT 1863

PROJECT NUMBER & PHASE

07120000741

LAST REVISION DATE PLOTTED => 14-FEB-2013  
07-30-12 TIME PLOTTED => 13:33

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	405	39.4/48.6	123	179

REGISTERED CIVIL ENGINEER DATE 5-30-12  
 ANDREW K. NGUYEN  
 No. C62828  
 Exp. 6-30-14  
 CIVIL  
 STATE OF CALIFORNIA

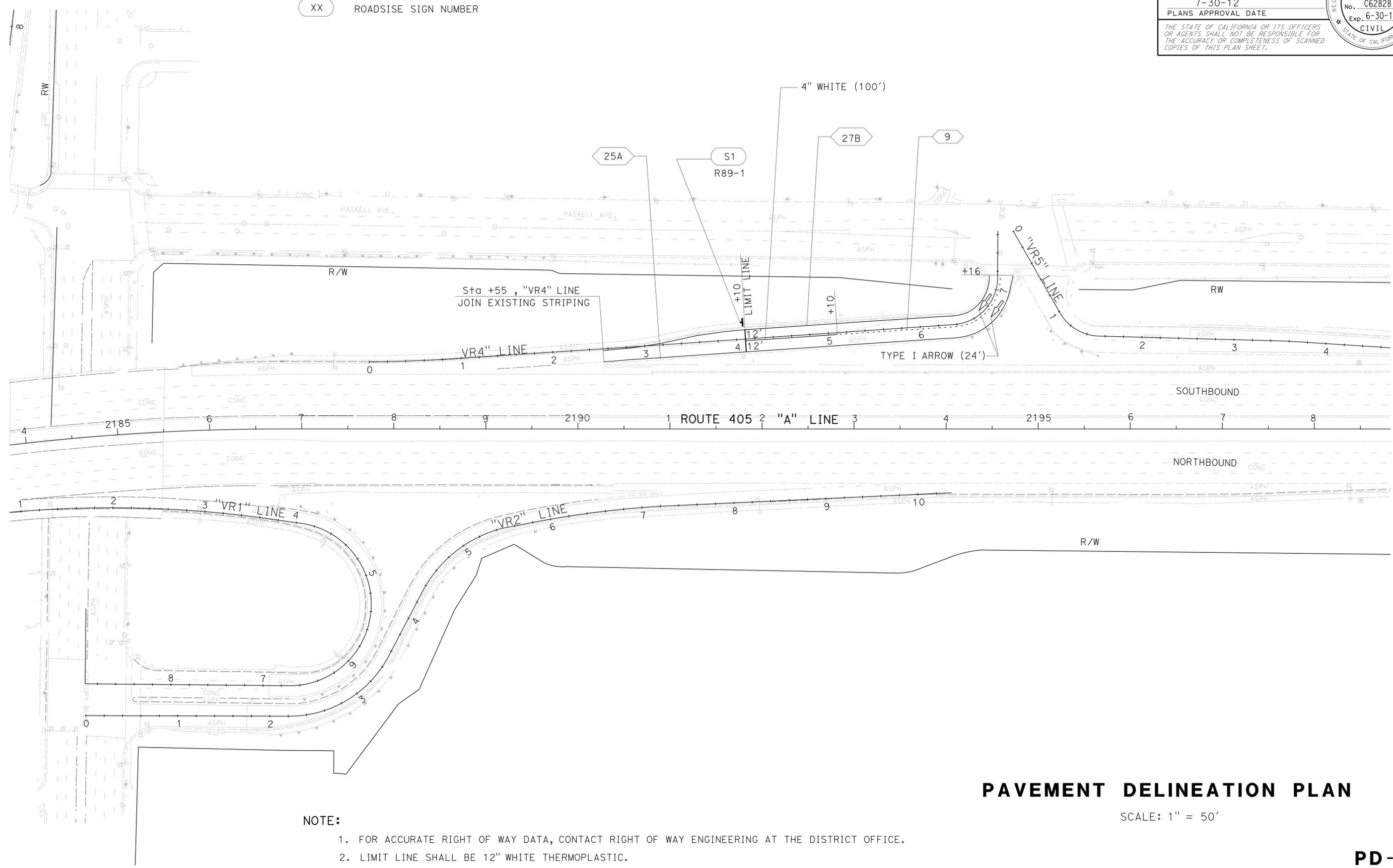
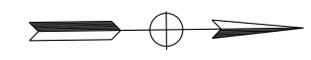
7-30-12  
 PLANS APPROVAL DATE

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

**LEGEND:**

No. TRAFFIC STRIPE DETAIL NUMBER

XX ROADSIDE SIGN NUMBER



**NOTE:**

- FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
- LIMIT LINE SHALL BE 12" WHITE THERMOPLASTIC.
- APPROVED FOR PAVEMENT DELINEATION PLANE SHEETS.

**PAVEMENT DELINEATION PLAN**

SCALE: 1" = 50'

**PD-1**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	REVISOR	DATE
<b>Caltrans</b> MAINTENANCE ENGINEERING	PAUL CRISPI	ANDREW NGUYEN	
	CHECKED BY	REVISOR	DATE
	PAUL CRISPI	PAUL CRISPI	

LAST REVISION: DATE PLOTTED => 14-FEB-2013  
07-30-12 TIME PLOTTED => 13:33

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	405	39.4/48.6	124	179

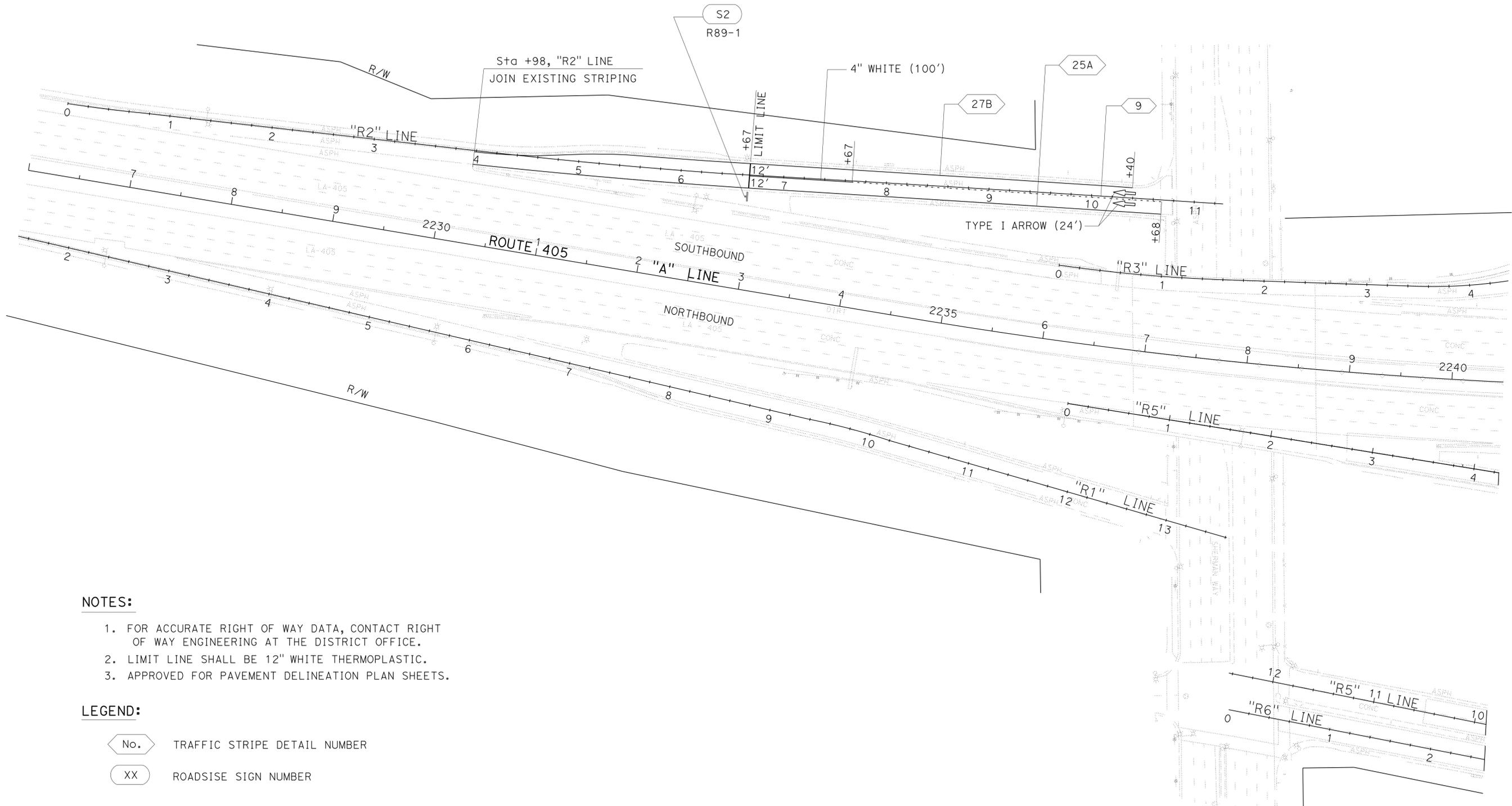
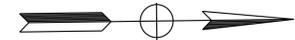
  

<i>Andrew K. Nguyen</i>	5-30-12
REGISTERED CIVIL ENGINEER	DATE
7-30-12	
PLANS APPROVAL DATE	

REGISTERED PROFESSIONAL ENGINEER
ANDREW K. NGUYEN
No. C62828
Exp. 6-30-14
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.



- NOTES:**
1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
  2. LIMIT LINE SHALL BE 12" WHITE THERMOPLASTIC.
  3. APPROVED FOR PAVEMENT DELINEATION PLAN SHEETS.

- LEGEND:**
- No. TRAFFIC STRIPE DETAIL NUMBER
  - XX ROADSIDE SIGN NUMBER

# PAVEMENT DELINEATION PLAN

SCALE: 1" = 50'

**PD-2**

APPROVED FOR PAVEMENT DELINEATION WORK ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CHECKED BY	REVISOR	DATE
<b>Caltrans</b> MAINTENANCE ENGINEERING	PAUL CRISPI	PAUL CRISPI	ANDREW NGUYEN	
			PAUL CRISPI	

USERNAME => s122436  
DGN FILE => 725200na002.dgn



UNIT 1965

PROJECT NUMBER & PHASE

07120000741

BORDER LAST REVISED 7/2/2010

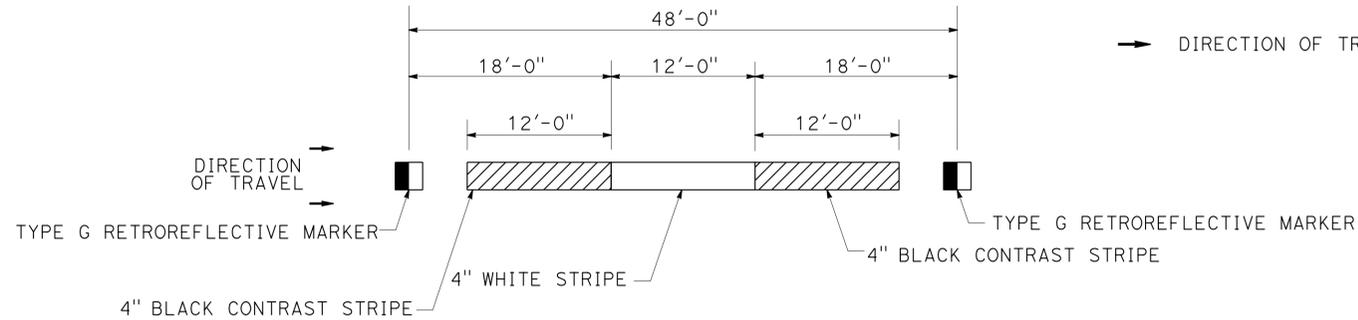
LAST REVISION DATE PLOTTED => 14-FEB-2013  
07-30-12 TIME PLOTTED => 13:33

**NOTE:**

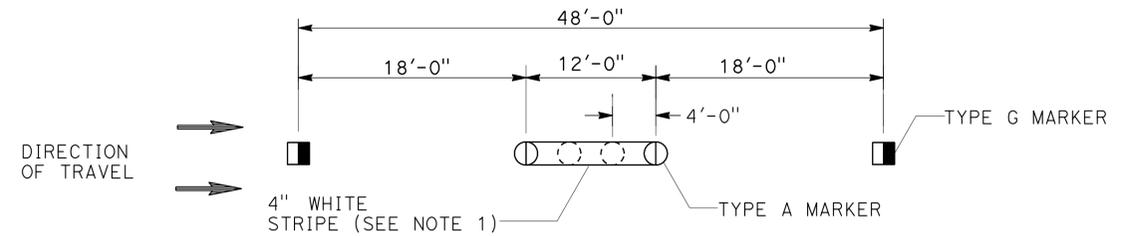
APPLY 4" WIDE WHITE THERMOPLASTIC TRAFFIC STRIPE ON TOP OF TYPE A NON-REFLECTIVE MARKERS.

**LEGEND:**

-  THERMOPLASTIC WHITE STRIPE
-  BLACK CONTRAST STRIPE
-  2-TYPE G ONE-WAY CLEAR RETROREFLECTIVE MARKERS
-  DIRECTION OF TRAVEL



**TEMPORARY TRAFFIC STRIPE**



**DETAIL 13 (MODIFIED)**

**PAVEMENT DELINEATION QUANTITIES**

LOCATION	REMOVE				THERMOPLASTIC TRAFFIC STRIPE											THERMOPLASTIC PAVEMENT MARKING				PAVEMENT MARKERS			
	YELLOW THERMOPLASTIC TRAFFIC STRIPE (HAZARDOUS WASTE)	THERMOPLASTIC TRAFFIC STRIPE	PAVEMENT MARKER	PAVEMENT MARKING	DETAIL 13 MODIFIED BROKEN (36-13)	DETAIL 37 BROKEN (12-3)	4" SOLID					8" SOLID			CAR POOL ONLY	DIAMOND	TYPE I-VIII ARROW	STOP AHEAD	(NON-REFLECTIVE)		(RETROREFLECTIVE)		
							DETAIL 8	DETAIL 25	DETAIL 25A	DETAIL 27	DETAIL 27B	DETAIL 36	DETAIL 36A	DETAIL 36B					TYPE A	TYPE C	TYPE G	TYPE H	
LF	LF	EA	SQFT	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	SQFT	SQFT	SQFT	SQFT	EA	EA	EA	EA	
Jc+ N/B 101/405 TO BURBANK Blvd OC	17,320	17,320	4,200	33	34,640	2,480		8,660	2,152	8,660	10,812	630		1,145	496	99	210		2,887	80	783	451	
BURBANK Blvd OC TO VICTORY Blvd UC	22,684	22,684	5,400	12	45,368		130	11,342	2,815	1,1342	14,157	1,870	155		186	33	183		3,781		1,030	590	
VICTORY Blvd UC TO VAN OWEN St UC	10,644	10,644	2,619	12	21,288		255	5,322	3,412	5,322	8,734	560	350		186	33	408	562	1,774		481	364	
VAN OWEN St UC TO SHERMAN WAY UC	10,580	10,580	2,566	12	21,160		135	5,290	2,290	5,290	7,580	900	210		186	33	102	562	1,763		487	316	
SHERMAN WAY UC TO SATICOY St UC	10,644	10,644	2,661	16	21,288		100	5,322	4,435	5,322	9,757	670	215		248	44	243		1,774		480	407	
SATICOY St UC TO ROSCOE Blvd UC	18,756	18,756	4,430	12	37,512		170	9,378	2,285	9,378	11,663	670	200		186	33	57		3,126		818	486	
ROSCOE Blvd UC TO PARTHENIA St UC	10,160	10,160	2,500	8	20,320	1,440	150	5,080	2,050	5,080	7,130	740	210		124	22	66		1,693	47	463	297	
PARTHENIA St UC TO NORDHOFF St UC	10,516	10,516	2,575	8	21,032	1,440	125	5,258	1,880	5,258	7,138	700	250	300	124	22	195		1,753	47	478	297	
NOROFF St UC TO DEVONSHIRE St UC			363	12			365		6,545		6,545	1,720	440				798	562			90	273	
DEVONSHIRE St UC TO RTE 405/118 Sep			241	1					5,795		5,795						189					241	
Rte 405/118 SEP TO SAN FERNANDO MISSION			102	3		485			1,350		1,350	710					306			16	30	56	
SAN FERNANDO MISSION TO RINALDI St UC			162				275		3,045		3,045	620	225				66				35	127	
RINALDI St UC TO 405/5			164				175		2,680		2,680	1,040	215				159				52	112	
<b>SUB TOTAL</b>	111,304	111,304	27,983	129	222,608	5,845	1,880	55,652	40,734	55,652	96,386	10,830	2,470	1,445	1,736	319	2,982	1686	18,551	190	5,227	4,017	
<b>TOTAL</b>	111,304	111,304	27,983	129	222,608	5,845		250,304					14,745			6,723				18,551	9,433		

**PAVEMENT DELINEATION QUANTITIES**  
NO SCALE

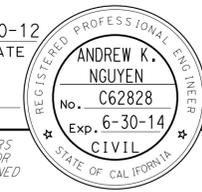
**PDQ-1**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	405	39.4/48.6	126	179

 5-30-12  
 REGISTERED CIVIL ENGINEER DATE

7-30-12  
 PLANS APPROVAL DATE

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



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** MAINTENANCE ENGINEERING  
 FUNCTIONAL SUPERVISOR  
 PAUL CRISPI  
 CALCULATED/DESIGNED BY  
 CHECKED BY  
 PAUL CRISPI  
 ANDREW NGUYEN  
 PAUL CRISPI  
 REVISED BY  
 DATE  
 REVISED  
 DATE

PRECAST PRESTRESSED SLABS QUANTITIES									
LAYOUTS	ROADWAY EXCAVATION	REMOVE CONCRETE	REMOVE UNDERLYING BASE	LEAN CONCRETE BASE RS	PRECAST PRESTRESSED CONCRETE PAVEMENT	SEAL PAVEMENT JOINT	SEAL ISOLATION JOINT	REPAIR SPALLED JOINTS (POLYESTER GROUT)	STATIONS
	CY	CY	CY	CY	CY	LF	LF	SQYD	
L-5	1,480	990	100	1,480	990	611	1,340	40	2174+90 TO 2180+00
	120	80	10	120	80	88	100	4	2182+90 TO 2183+45
L-9	530	360	40	530	360	195	600	14	2289+50 TO 2292+50
	510	340	40	510	340	194	580	14	2294+65 TO 2297+60
L-10	1,060	710	80	1,060	710	381	1,120	29	2307+30 TO 2310+10
	980	660	70	980	660	363	1,060	26	2312+55 TO 2315+20
L-12	490	330	40	490	330	182	528	13	2332+80 TO 2335+50
L-14	900	610	70	900	610	300	1,000	27	2373+00 TO 2378+10
L-15	630	420	50	630	420	198	540	21	2412+00 TO 2414+85
L-19	1,010	680	70	1,010	680	340	960	30	2464+90 TO 2467+60
	850	570	60	850	570	265	600	23	2469+75 TO 2472+00
	1,340	900	90	1,340	900	413	1,250	36	2475+50 TO 2479+30
L-21	1,500	1,010	110	1,500	1,010	449	1,340	40	2490+25 TO 2493+70
	1,480	1,000	100	1,480	1,000	476	1,520	41	2496+40 TO 2500+25
L-22	3,280	2,200	220	3,280	2,200	1,210	4,520	88	2509+80 TO 2521+20
L-23	2,020	1,350	140	2,020	1,350	765	2,720	54	2523+50 TO 2530+40
<b>TOTAL</b>	<b>18,180</b>	<b>12,210</b>	<b>1,290</b>	<b>18,180</b>	<b>12,210</b>	<b>6,430</b>	<b>19,778</b>	<b>500</b>	

**SUMMARY OF QUANTITIES**  
**Q-1**

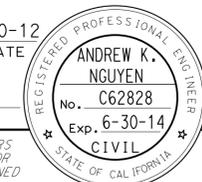
LAST REVISION DATE PLOTTED => 14-FEB-2013  
 07-30-12 TIME PLOTTED => 13:33

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	405	39.4/48.6	127	179

 5-30-12  
 REGISTERED CIVIL ENGINEER DATE

7-30-12  
 PLANS APPROVAL DATE

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DOWEL BAR RETROFIT		
STATION	N/B	EA
2363+24 TO 2373+00	X	1050
TOTAL		1050

GRIND EXISTING CONCRETE PAVEMENT	
STATION	SQYD
2083+50 TO 2126+62	54,350
2170+60 TO 2176+08	63,600
2180+50 TO 2183+50	570
2185+50 TO 2210+50	33,360
2211+90 TO 2236+87	33,360
2238+66 TO 2263+50	34,470
2265+00 TO 2292+90	38,650
2294+50 TO 2307+30	16,640
2315+25 TO 2335+90	25,500
2337+30 TO 2362+15	32,600
TOTAL	333,100

ADA CURB RAMPS									
LOCATION	REMOVE CONCRETE (Misc)	MINOR CONCRETE (Misc Const)	CURB RAMP DETECTABLE WARNING SURFACE	ROCK BLANKET	LOCATION	REMOVE CONCRETE (Misc)	MINOR CONCRETE (Misc Const)	CURB RAMP DETECTABLE WARNING SURFACE	ROCK BLANKET
	CY	CY	SQFT	SQYD		CY	CY	SQFT	SQYD
1	5.4	5.9			24			13.5	
2	2.6	3.2			25			13.5	
3	4.1	4.9			26			13.5	
4			13.5		27	2.2	2.4		2.0
5	5.6	6.1			28			13.5	
6	6.1	6.7			29	3.3	3.6		
7	6.9	7.6			30	2.3	2.6		
8			13.5		31			13.5	
9			13.5		32	4.5	4.9		
10	2.0	2.2			33	5.3	5.8		
11	6.3	6.9			34			13.5	
12	2.2	2.4			35			13.5	
13	2.8	3.0			36	1.9	2.1		1.0
14	2.9	3.1			37	2.4	2.7		3.0
15	3.4	3.7			38			13.5	
16	5.1	5.6			39	2.6	2.9		
17	4.9	5.3			40			13.5	
18	2.4	2.7			41	3.8	4.1		
19	2.9	3.1			42			13.5	
20			13.5		43			13.5	
21	2.9	3.1		1.0	44	3.5	3.8		
22	1.8	2.0		1.0	45	2.5	2.8		
23			13.5		46	4.0	4.3		
SUBTOTAL	70.3	77.5	67.5	2.0	SUBTOTAL	38.3	42.0	148.5	6.0
TOTAL		TOTAL		TOTAL		108.6	119.2	216.0	8.0

TEMPORARY WATER POLLUTION CONTROL QUANTITIES				
	TEMPORARY SILT FENCE	TEMPORARY CONSTRUCTION ENTRANCE	TEMPORARY DRAINAGE INLET PROTECTION	TEMPORARY SOIL BINDER
	LF	EA	EA	SQYD
	1,000	1	48	19,100
TOTAL	1,000	1	48	19,100

**SUMMARY OF QUANTITIES**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** MAINTENANCE ENGINEERING  
 ANDREW NGUYEN  
 PAUL CRISPI  
 CHECKED BY  
 PAUL CRISPI  
 FUNCTIONAL SUPERVISOR  
 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, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

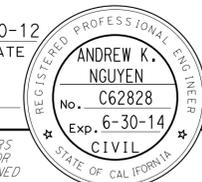
LAST REVISION | DATE PLOTTED => 14-FEB-2013  
 07-30-12 TIME PLOTTED => 13:33

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	405	39.4/48.6	128	179

 5-30-12  
 REGISTERED CIVIL ENGINEER DATE

7-30-12  
 PLANS APPROVAL DATE

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



ROADWAY QUANTITIES								
DESCRIPTION	COLD PLANE ASPHALT CONCRETE PAVEMENT					RUBERIZED HOT MIXED ASPHALT, SUPERPAVE (GAP GRADED)	TACK COAT	REPLACE ASPHALT CONCRETE SURFACING
	RAMPS				MAINLINE SHOULDER			
	SOUTH BOUND		NORTH BOUND					
	ON-RAMP	OFF-RAMP	ON-RAMP	OFF-RAMP				
	SQYD	SQYD	SQYD	SQYD	SQYD			
VENTURA Blvd UC		1170				160	10	10
Jct 101/405					4340	590	10	30
BURBANK Blvd OC	2380	2030	2450	1430	7700	2160	20	110
VICTORY Blvd UC			2700	770	10100	1840	20	100
HASKELL Blvd	2080	1290				460	10	30
VAN OWEN St UC					4730	640	10	40
SHERMAN WAY UC	3750	2680	2070	3970	4700	2320	20	120
SATICOY St UC					4730	640	10	40
ROSCOE Blvd UC	2260	2110	2300	2490	8340	2320	20	120
PARTHENIA St UC					4520	620	10	40
NORDHOFF St UC	2060	2440	2580	1930	1680	1450	10	80
DEVONSHIRE St UC	8230	1160	7840	2580	14,120	4590	40	230
Rte 405/118 Sep			1580		5740	990	10	50
SAN FERNANDO	2080				3630	1030	10	60
RINALDI St UC	1990	1970	4290	1900	5070	2040	20	110
Jct 405/5 Sep				1740	8150	1100	10	60
<b>SUBTOTAL</b>	24,830	14,850	25,810	16,810	87,550	22,950	240	1230
<b>TOTAL</b>			169,850			22,950	240	1,230

APPROACH SLAB QUANTITIES						
LAYOUTS	BRIDGE NAME	BRIDGE NUMBER	AGGREGATE BASE (APPROACH SLAB)	STRUCTURE CONCRETE, APPROACH SLAB (TYPE R)	PAVING NOTCH EXTENSION	JOINT SEAL (MR-1/2")
			CF	CY	CF	FT
L-5	WEST VAN NUYS OH	53-1362	13	130	208	271
L-5	VICTORY Blvd UC	53-1443	14	140	120	153
L-9	RAYMER St OH	53-1348	10	100	122	145
L-10	ROSCOE Blvd UC	53-1409	18	180	215	280
L-12	PARTHENIA St UC	53-1439	5	50	50	72
L-15	LASSEN St UC	53-1498	5	50	60	85
	<b>TOTAL</b>		64	650	775	1006

## SUMMARY OF QUANTITIES

Q-3

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	405	39.4/48.6	129	179

REGISTERED CIVIL ENGINEER DATE: 6-22-12  
 7-30-12  
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
**ESTHER M. KIM**  
 No. 48363  
 Exp. 6/30/14  
 CIVIL  
 STATE OF CALIFORNIA

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### ROADWAY QUANTITIES

LOCATION	DIRECTION	SHEET No.	PLACE HMA DIKE (TYPE C) *	PLACE HMA DIKE (TYPE F) *	MINOR CONCRETE (MINOR STRUCTURE)	IMPORTED BORROW	MINOR HOT MIX ASPHALT	MINOR CONCRETE	MINOR CONCRETE (CURB)	GUARD RAILING DELINEATOR	METAL BEAM GUARD RAILING (WOOD POST)	BURIED POST END ANCHOR (N)	TRANSITION RAILING (TYPE WB)	TRANSITION RAILING (TYPE SP)	ALTERNATIVE FLARED TERMINAL SYSTEM	ALTERNATIVE IN-LINE TERMINAL SYSTEM	END ANCHOR ASSEMBLY (TYPE SFT)	VEGETATION CONTROL (MINOR CONCRETE)	REMOVE METAL BEAM GUARD RAILING	REMOVE ASPHALT CONCRETE DIKE	REMOVE CONCRETE CURB	END CAP
			LF	LF	CY	CY	TON	CY	CY	EA	LF	EA	EA	EA	EA	EA	EA	SQYD	LF	LF	LF	EA
1	SB	C-1			0.7					10	212.5		1			1			287.5			
2	SB	C-1			2.2	5.0	2.4	0.3		2	50.0		1			1		74.2	62.5			
3	SB	C-2								2	50.0			1		1		74.2	125.0			1
4	NB	C-2						1.1	10.5	15	362.5					1	1		400.0		449.5	
5	NB	C-3							5.8	10	212.5					1	1	23.1	262.5		293.5	
6	NB	C-3	65.5	28.0	1.9		0.9			2			1		1			62.5	103.5			
7	SB	C-4	76.0	25.0	5.5		0.9			2			1		1			9.7	62.5	131.0		
8	SB	C-4	68.5	75.0	1.8		1.5			2	50.0		1		1			74.2	50.0	153.5		
9	SB	C-5	68.5	87.5			1.7			2	62.5			1	1			74.2	125.0	156.0		1
10	NB	C-5			2.1					2	87.5	1	1					16.3	62.5			
<b>TOTAL</b>			278.5	215.5	14.2	5.0	7.4	1.4	16.3	49	1087.5		6	2	4	5	2	345.9	1500.0	544.0	743.0	2

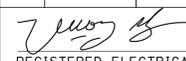
(N) NOT A SEPARATE PAY ITEM, FOR INFORMATION ONLY.  
 (\*) INCLUDES HMA DIKE TRANSITION.

## SUMMARY OF QUANTITIES

**Q-4**



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	405	39.4/48.6	131	179

 5/30/12  
 REGISTERED ELECTRICAL ENGINEER DATE

7-30-12  
 PLANS APPROVAL DATE

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### SUMMARY OF INDUCTIVE LOOP DETECTORS

No.	PM	LOCATIONS	QUANTITY			LOOP LOCATIONS (SEE DETAILS SHEET E-1)													
			STUB- OUTS	PULL BOX	LOOPS	50	51	52	53	54									
1	40.43	NB 405 MAIN LINE NORTH OF BURBANK Blvd	1	1	5	50	51	52	53	54									
2	40.42	NB 405 OFF RAMP SOUTH OF BURBANK Blvd	2	2	4	31	60	61	62										
3	40.42	NB 405 ON RAMP NORTH OF BURBANK Blvd	4	4	12	1	5	58	55	56	2	3	4	6	7	8	9		
4	41.49	NB 405 MAIN LINE NORTH OF VICTORY Blvd	1	1	5	50	51	52	53	54									
5	41.49	NB 405 OFF RAMP NORTH OF VICTORY Blvd	2	2	2	31	62												
6	41.49	NB 405 ON RAMP NORTH OF VICTORY Blvd	4	4	12	1	5	58	55	56	2	3	4	6	7	8	9		
7	42.59	NB 405 MAIN LINE NORTH OF SHERMAN WAY	1	1	5	50	51	52	53	54									
8	42.59	NB 405 OFF RAMP SOUTH OF SHERMAN WAY	1	1	1	31													
9	42.59	NB 405 OFF RAMP NORTH OF SHERMAN WAY	2	2	3	31	61	62											
10	42.59	NB 405 ON RAMP NORTH OF SHERMAN WAY	4	4	12	1	5	57	55	56	2	3	4	6	7	8	9		
11	43.93	NB 405 MAIN LINE NORTH OF ROSCOE Blvd	1	1	5	50	51	52	53	54									
12	43.93	NB 405 OFF RAMP SOUTH OF ROSCOE Blvd	2	2	5	31	59	60	61	62									
13	43.93	NB 405 ON RAMP NORTH OF ROSCOE Blvd	4	4	12	1	5	58	55	56	2	3	4	6	7	8	9		
14	44.92	NB 405 OFF RAMP SOUTH OF NORDHOFF STREET	2	2	5	31	59	60	61	62									
15	44.92	NB 405 ON RAMP NORTH OF NORDHOFF STREET	4	4	12	1	5	58	55	56	2	3	4	6	7	8	9		
16	44.92	NB 405 MAIN LINE NORTH OF NORDHOFF STREET	1	1	5	50	51	52	53	54									
17	46.43	NB 405 MAIN LINE NORTH OF DEVONSHIRE STREET	1	1	5	50	51	52	53	54									
18	46.2	NB 405 MAIN LINE SOUTH OF DEVONSHIRE STREET	1	1	7	48	49	50	51	52	53	54							
19	46.44	NB 405 OFF RAMP SOUTH OF DEVONSHIRE STREET	2	2	3	31	61	62											
20	46.4	NB 405 ON RAMP NORTH OF DEVONSHIRE STREET	3	3	7	1	57	55	2	3	4	9							
21	46.4	NB 405 ON RAMP SOUTH OF DEVONSHIRE STREET	3	3	7	1	57	55	2	3	4	9							
22	47.2	NB 405 OFF RAMP SOUTH OF SAN FERNANDO MISSION Blvd	2	2	3	31	60	61											
23	47.94	NB 405 MAIN LINE NORTH OF RINALDI STREET	1	2	4	51	52	53	54										
24	47.94	NB 405 OFF RAMP SOUTH OF RINALDI STREET	2	2	3	31	61	62											
25	47.94	NB 405 ON RAMP NORTH OF RINALDI STREET	3	3	11	1	5	55	56	2	3	4	6	7	8	9			

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** TRAFFIC DESIGN  
 FUNCTIONAL SUPERVISOR: OSWALD ELIZONDO  
 CALCULATED/DESIGNED BY: OSWALD ELIZONDO  
 CHECKED BY:  
 YOUNG HONG  
 OSWALD ELIZONDO  
 REVISED BY: YOUNG HONG  
 DATE REVISED: OSWALD ELIZONDO

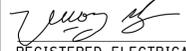
## INDUCTIVE LOOP DETECTOR

E-2

LAST REVISION DATE PLOTTED => 14-FEB-2013  
 07-30-12 TIME PLOTTED => 13:33

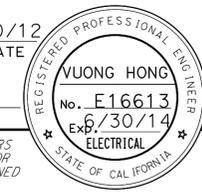


Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	405	39.4/48.6	133	179

 5/30/12  
 REGISTERED ELECTRICAL ENGINEER DATE

7-30-12  
 PLANS APPROVAL DATE

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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** TRAFFIC DESIGN  
 FUNCTIONAL SUPERVISOR  
 OSWALD ELIZONDO  
 CALCULATED-DESIGNED BY  
 CHECKED BY  
 OSWALD ELIZONDO  
 VUONG HONG  
 OSWALD ELIZONDO  
 REVISED BY  
 DATE REVISED

**SUMMARY OF INDUCTIVE LOOP DETECTORS (COUNT STATIONS)**

No.	PM	LOCATIONS	QUANTITY			LOOP LOCATIONS (SEE DETAILS SHEET E-1)				
			STUB- OUTS	PULL BOX	LOOPS					
55	39.98	NB 405 MAIN LINE SOUTH OF BURBANK Blvd	1	1	5	50	51	52	53	54
56	40.42	SB 405 MAIN LINE SOUTH OF BURBANK Blvd	1	1	5	41	42	43	44	45
57	40.9	NB 405 MAIN LINE SOUTH OF VICTORY	1	1	5	50	51	52	53	54
58	40.9	SB 405 MAIN LINE SOUTH OF VICTORY	1	1	5	41	42	43	44	45
59	41.9	NB 405 MAIN LINE SOUTH OF VANOWEN STREET	1	1	5	50	51	52	53	54
60	41.9	SB 405 MAIN LINE NORTH OF VANOWEN STREET	1	1	5	41	42	43	44	45
61	43.2	NB 405 MAIN LINE SOUTH OF ROSCOE Blvd	1	1	5	50	51	52	53	54
62	43.2	SB 405 MAIN LINE SOUTH OF ROSCOE Blvd	1	1	5	41	42	43	44	45

**INDUCTIVE LOOP DETECTOR**

LAST REVISION DATE PLOTTED => 14-FEB-2013  
 07-30-12 TIME PLOTTED => 13:33





Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	405	39.4/48.6	136	179

<i>Vuong Hong</i>	5/30/12
REGISTERED ELECTRICAL ENGINEER	DATE
7-30-12	
PLANS APPROVAL DATE	

REGISTERED PROFESSIONAL ENGINEER
<b>VUONG HONG</b>
No. E16613
Exp. 6/30/14
ELECTRICAL
STATE OF CALIFORNIA

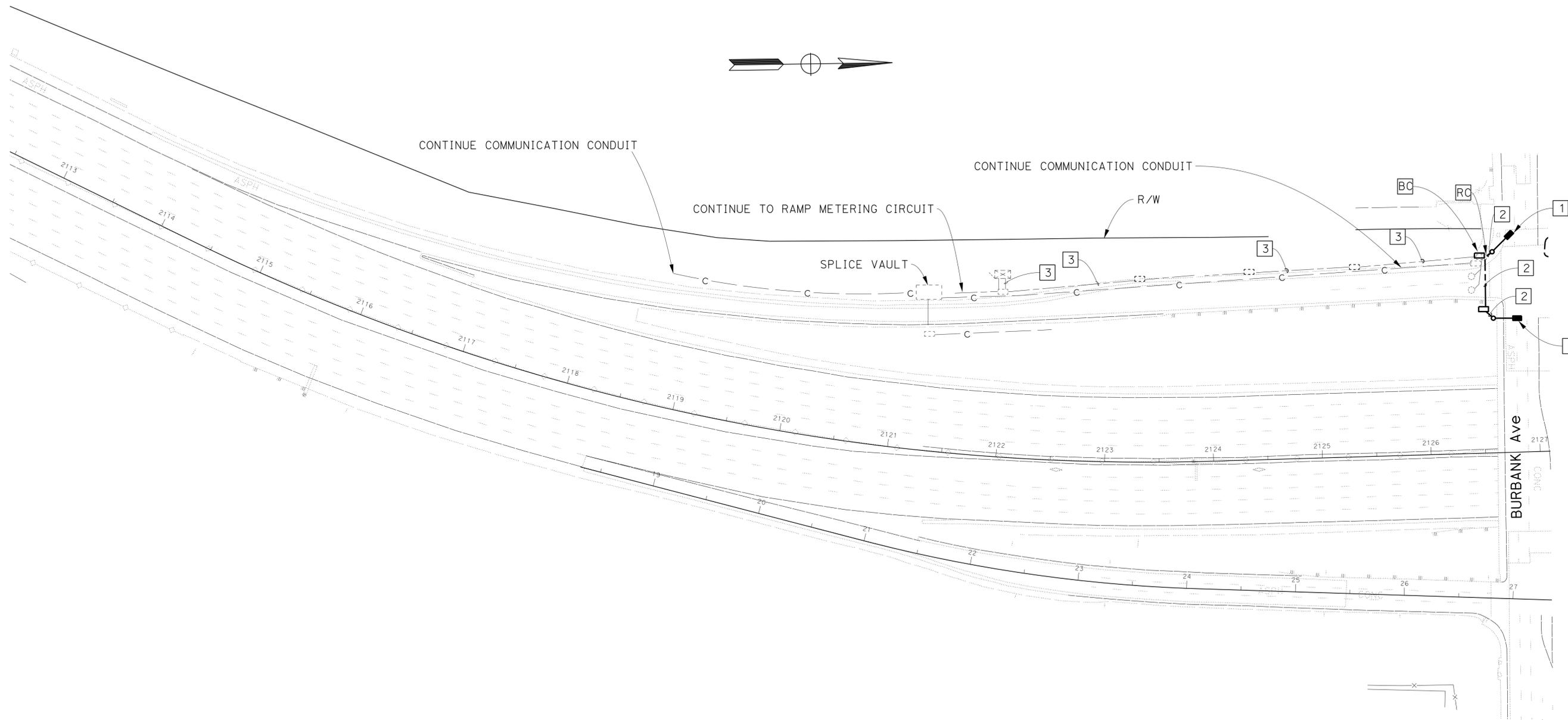
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**NOTE:**

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

**NOTES: (THIS SHEET)**

- 1 INSTALL POLE TYPE 1-A AND METER-ON SIGNAL HEAD.
- 2 INSTALL 2" C, 1#5 CSC, 1#8 (G).
- 3 EXISTING 2" C, 6P22 CABLE. ADD 1#5 CSC, 1#8 (G).



**MODIFY RAMP METERING SYSTEM**

SCALE 1" = 50'

APPROVED FOR ELECTRICAL WORK ONLY

**E-7**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	REVISOR	DATE
<b>Caltrans</b> TRAFFIC DESIGN	VUONG HONG	
FUNCTIONAL SUPERVISOR	CHECKED BY	
OSWALD ELIZONDO		
CALCULATED/DESIGNED BY	REVISOR	DATE
	VUONG HONG	

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	405	39.4/48.6	137	179

5/30/12  
 REGISTERED ELECTRICAL ENGINEER DATE  
 7-30-12  
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
 VUONG HONG  
 No. E16613  
 Exp. 6/30/14  
 ELECTRICAL  
 STATE OF CALIFORNIA

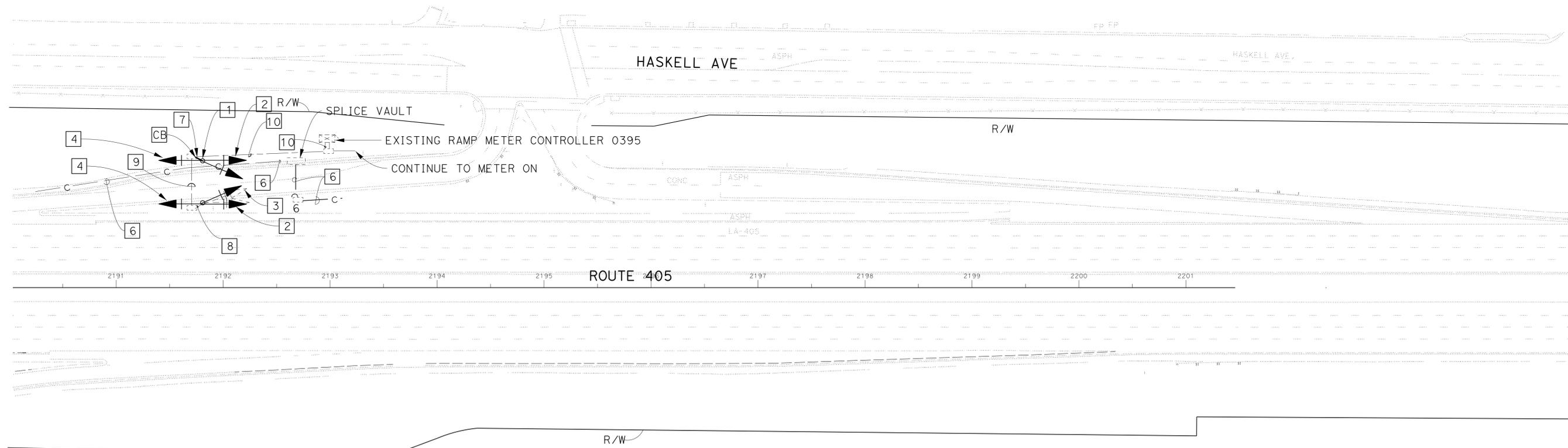
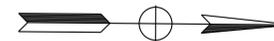
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 COPIES OF THIS PLAN SHEET.

**NOTES:**

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

**PROJECT NOTES:(THIS SHEET)**

- 1 RC TYPE 1-A FOUNDATION COMPLETE. INSTALL TYPE 1-A POLE IN NEW FOUNDATION AT THE EXACT SAME LOCATION.
- 2 INSTALL 2-3 SECTION HEAD WITH COMPLETE ASSEMBLY UPPER AND LOWER RAMP SIGNAL.
- 3 RC 3 AND 2 SECTION HEAD SIGNAL ASSEMBLIES.
- 4 INSTALL 1 RED SECTION HEAD SIGNAL FOR ENFORCEMENT.
- 6 COMMUNICATION CONDUIT AND FIBER OPTIC
- 7 INSTALL 2" C, 5 CSC, 1#8 (G).
- 8 2" C, 1#5 csc. ADD 1#5 CSC, 1#8 (G).
- 9 2" C, 1#5 csc, 5 dlc. ADD 1#5 CSC, 1#8 (G).
- 10 2" C, 1#5 csc, 9 dlc. ADD 1#5 CSC, 1#8 (G).



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** TRAFFIC DESIGN  
 FUNCTIONAL SUPERVISOR OSWALD ELIZONDO  
 CALCULATED/DESIGNED BY CHECKED BY  
 VUONG HONG VUONG HONG  
 REVISED BY DATE REVISED

**MODIFY RAMP METERING SYSTEM**  
SCALE 1" = 50'

APPROVED FOR ELECTRICAL WORK ONLY

**E-8**

LAST REVISION DATE PLOTTED => 14-FEB-2013  
 07-30-12 TIME PLOTTED => 13:33

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	405	39.4/48.6	138	179

<i>Vuong Hong</i>	5/30/12
REGISTERED ELECTRICAL ENGINEER	DATE
7-30-12	
PLANS APPROVAL DATE	

REGISTERED PROFESSIONAL ENGINEER
VUONG HONG
No. E16613
Exp. 6/30/14
ELECTRICAL
STATE OF CALIFORNIA

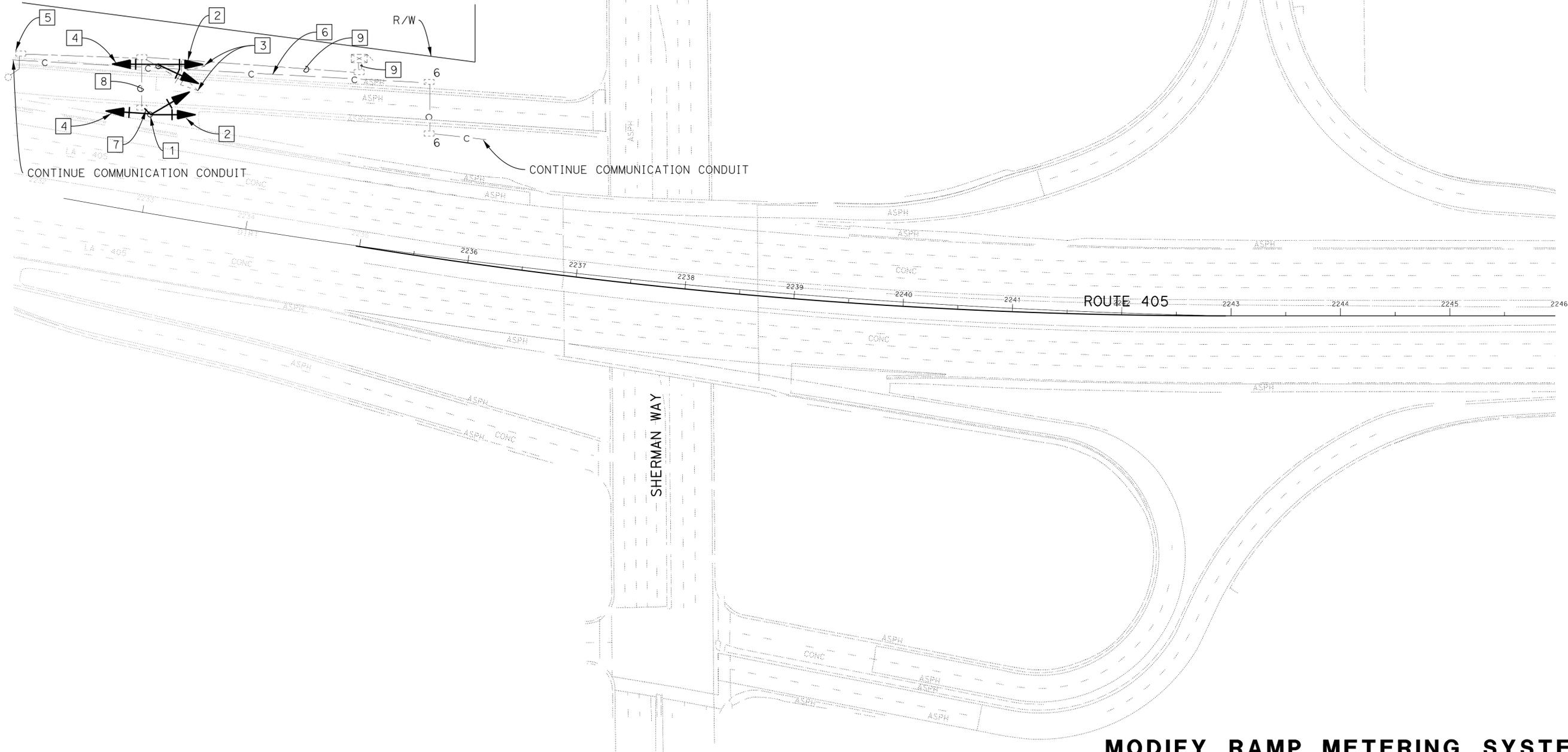
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**PROJECT NOTES: (THIS SHEET)**

**NOTE:**

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

- 1 RC TYPE 1-A FOUNDATION COMPLETE. INSTALL TYPE 1-A POLE IN NEW FOUNDATION AT THE EXACT SAME LOCATION.
- 2 INSTALL 2-3 SECTION HEAD WITH COMPLETE ASSEMBLY UPPER AND LOWER RAMP SIGNAL.
- 3 RC 3 AND 2 SECTION HEAD SIGNAL ASSEMBLIES.
- 4 INSTALL 1 RED SECTION HEAD SIGNAL FOR ENFORCEMENT.
- 5 RC PULL BOX COVER. INSTALL PULL BOX COVER.
- 6 EXISTING COMMUNICATION CONDUIT AND FIBER OPTIC.
- 7 INSTALL 2" C, 5 CSC, 1#8 (G)
- 8 2" C, 1#5 CSC, 6 dlc. ADD 1#5 CSC, 1#8 (G)
- 9 2" C, 1#5 CSC, 11 dlc. ADD 1# 5CSC, 1#8 (G)



**MODIFY RAMP METERING SYSTEM**

SCALE: 1" = 50'

APPROVED FOR ELECTRICAL WORK ONLY

**E-9**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED/DESIGNED BY	REVISOR
<b>Caltrans</b> TRAFFIC DESIGN	OSWALD ELIZONDO	CHECKED BY	OSWALD ELIZONDO
			DATE REVISED

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	405	39.4/48.6	139	179

5/30/12  
 REGISTERED ELECTRICAL ENGINEER DATE  
 7-30-12  
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
 VIJONG HONG  
 No. E16613  
 Exp. 6/30/14  
 ELECTRICAL  
 STATE OF CALIFORNIA

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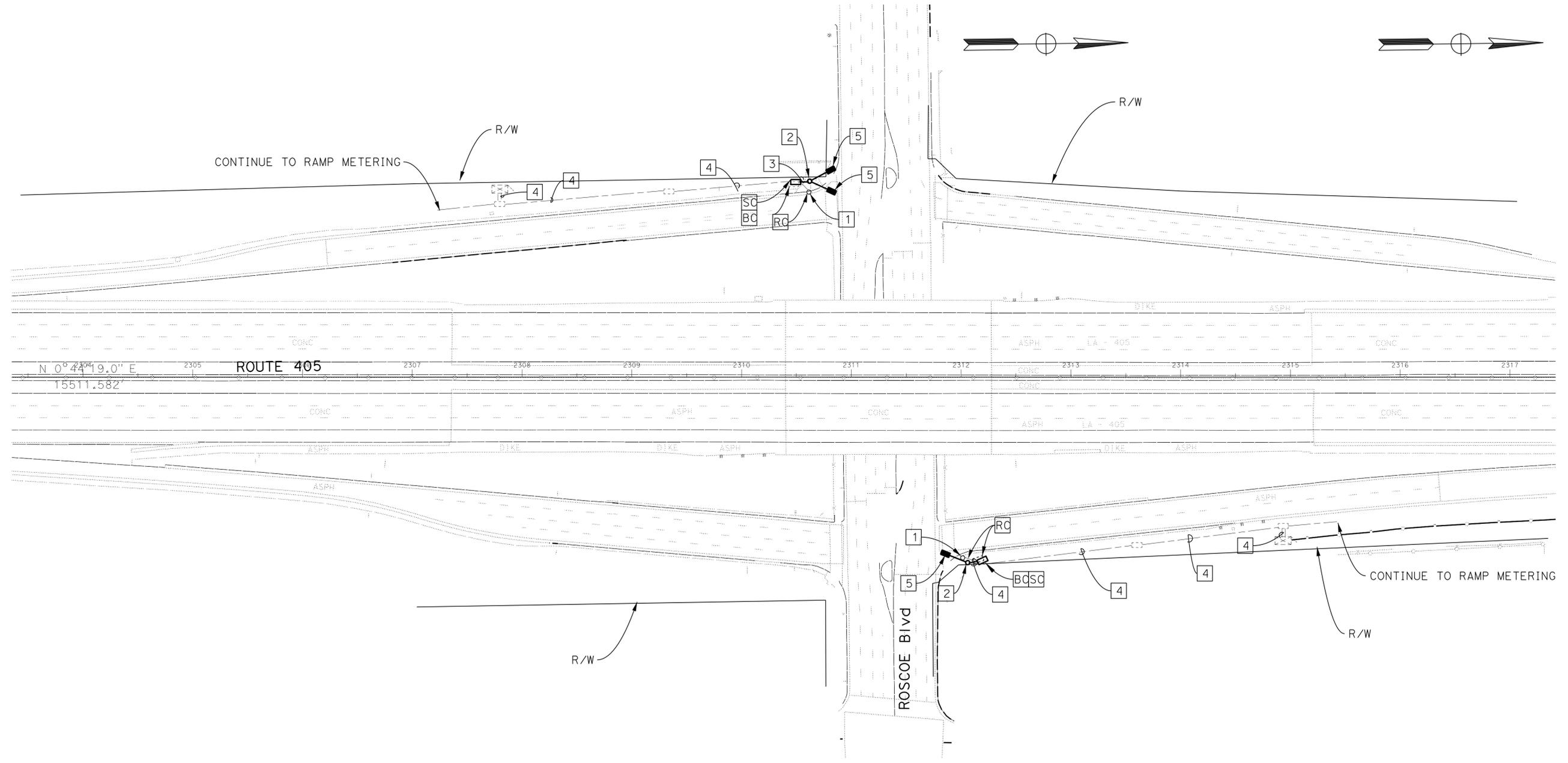
**NOTE:**

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

**NOTES (THIS SHEET)**

- 1 RC TYPE 1-A FOUNDATION
- 2 INSTALL POLE TYPE 1-A FOR METER-ON WITH FOUNDATION APPROXIMATELY 2 FEET BEHIND FROM OLD LOCATION FAR FROM THE CURB.
- 3 INSTALL 2"C, 1#5 CSC, 1#8 (G)
- 4 EXISTING 2"C, 2 dlc, 1#5 csc. ADD 1#5 CSC, 1#8 (G)
- 5 INSTALL METER-ON ON NEW POLE TYPE 1-A.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** TRAFFIC DESIGN  
 FUNCTIONAL SUPERVISOR OSWALD ELIZONDO  
 CALCULATED/DESIGNED BY CHECKED BY  
 VUONG HONG VUONG HONG  
 REVISED BY DATE REVISED



**MODIFY RAMP METERING SYSTEM**

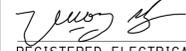
SCALE 1" = 50'

APPROVED FOR ELECTRICAL WORK ONLY

**E-10**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
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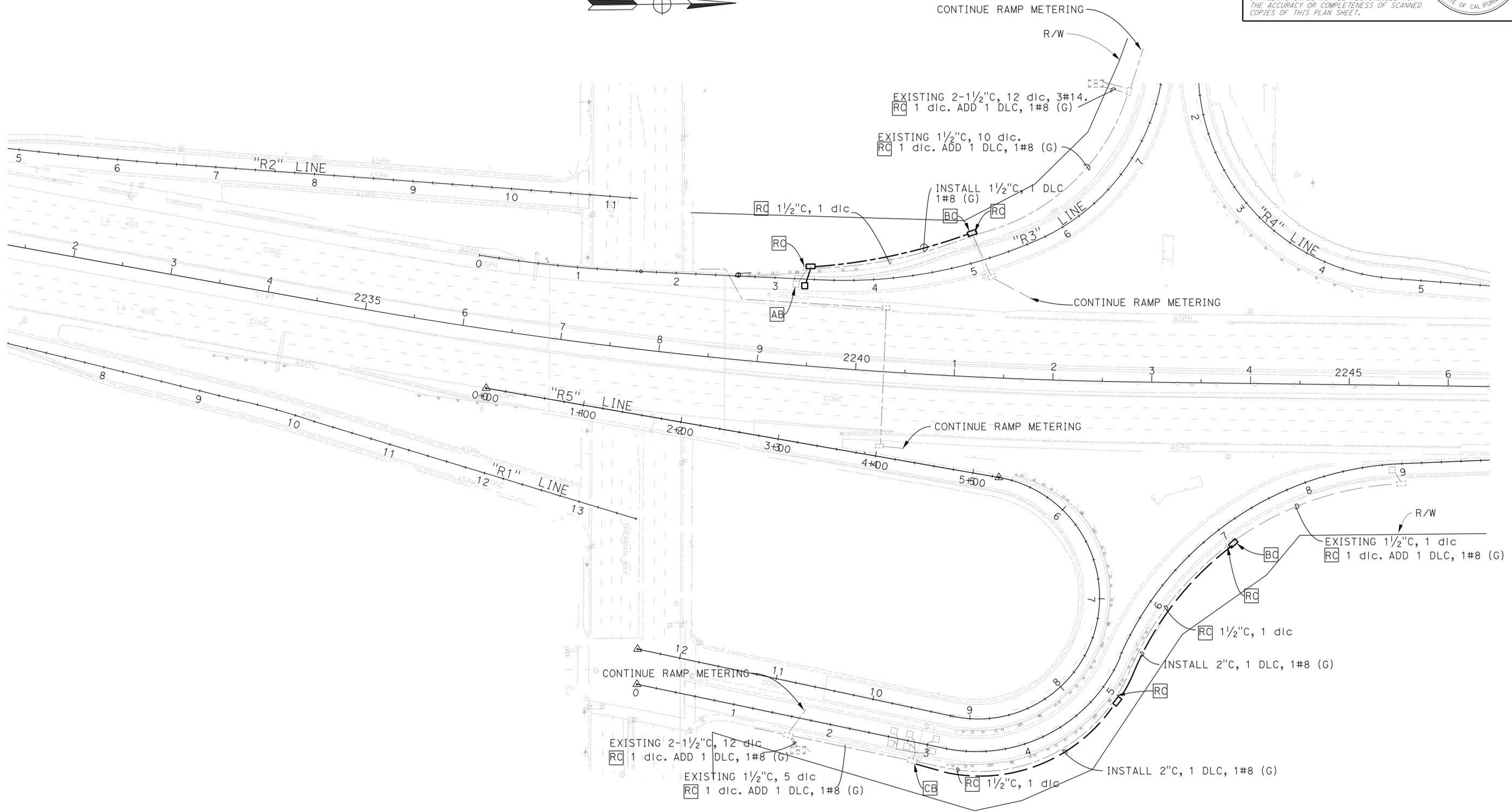
		5/30/12
REGISTERED ELECTRICAL ENGINEER	DATE	
7-30-12		
PLANS APPROVAL DATE		

REGISTERED PROFESSIONAL ENGINEER	
No. E16613	
Exp. 6/30/14	

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



**MODIFY RAMP METERING SYSTEM**  
SCALE 1" = 50'

APPROVED FOR ELECTRICAL WORK ONLY

E-11

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	REVISOR	DATE
<b>Caltrans</b> TRAFFIC DESIGN	OSWALD ELIZONDO	VUONG HONG	OSWALD ELIZONDO
	CHECKED BY	REVISOR	DATE
	OSWALD ELIZONDO	VUONG HONG	OSWALD ELIZONDO

LAST REVISION DATE PLOTTED => 14-FEB-2013 07:30-12 TIME PLOTTED => 13:33

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	405	39.4/48.6	141	179

<i>Vuong Hong</i>	5/30/12
REGISTERED ELECTRICAL ENGINEER	DATE
7-30-12	
PLANS APPROVAL DATE	

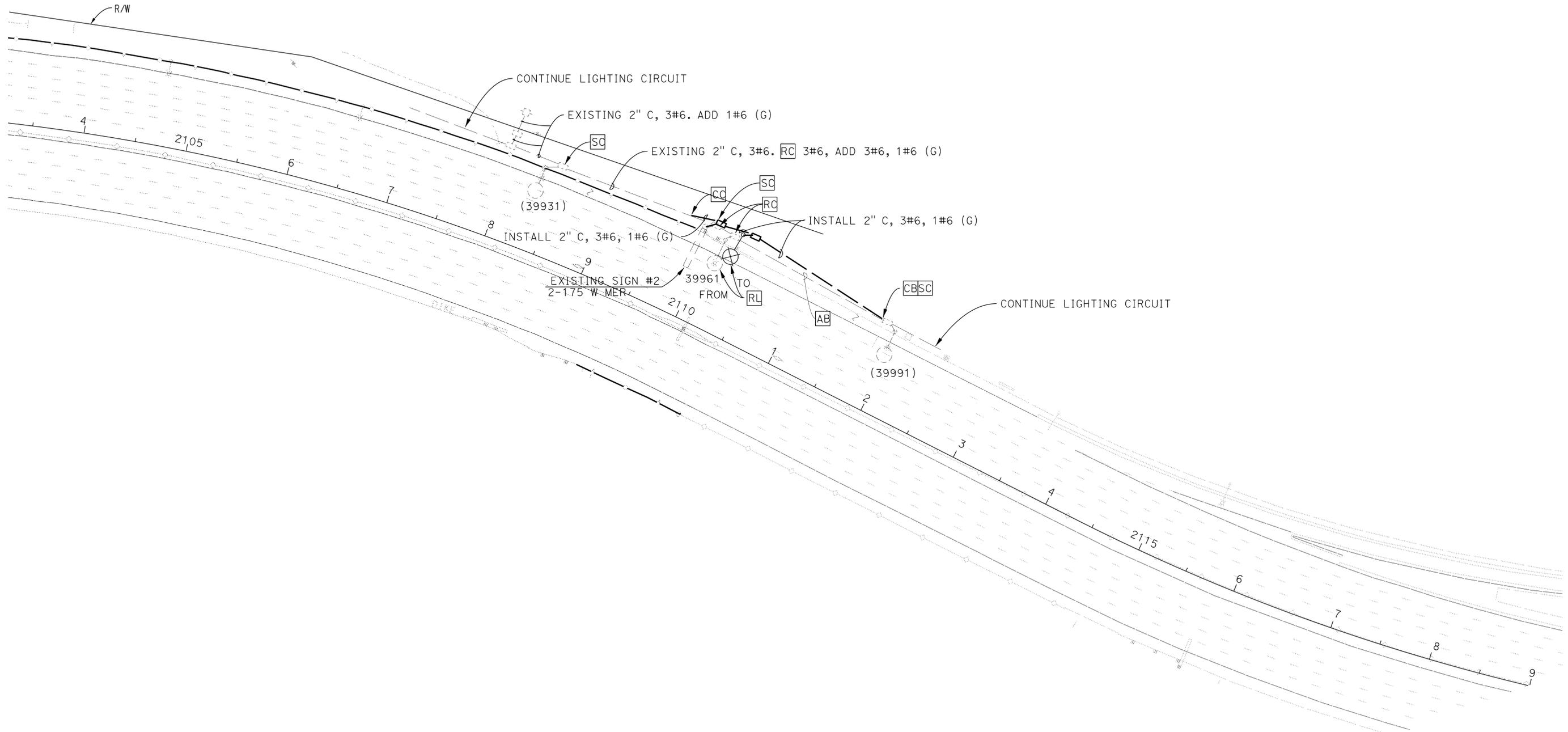
  

REGISTERED PROFESSIONAL ENGINEER
VUONG HONG
No. E16613
Exp. 6/30/14
ELECTRICAL
STATE OF CALIFORNIA

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.

**NOTE:**

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



**MODIFY LIGHTING AND SIGN ILLUMINATION**  
SCALE 1" = 50'

APPROVED FOR ELECTRICAL WORK ONLY

**E-12**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
<b>Caltrans</b> TRAFFIC DESIGN
FUNCTIONAL SUPERVISOR
OSWALD ELIZONDO
CALCULATED/DESIGNED BY
CHECKED BY
VUONG HONG
OSWALD ELIZONDO
REVISED BY
DATE REVISED

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	405	39.4/48.6	142	179

<i>Vuong Hong</i>	5/30/12
REGISTERED ELECTRICAL ENGINEER	DATE
7-30-12	
PLANS APPROVAL DATE	

REGISTERED PROFESSIONAL ENGINEER  
**VUONG HONG**  
 No. E16613  
 Exp. 8/30/14  
 ELECTRICAL  
 STATE OF CALIFORNIA

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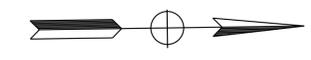
**NOTE:**  
FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

**NOTES: (SHEETS E-13 TO E-14)**

**LEGEND (SHEETS E-13 TO E-14)**

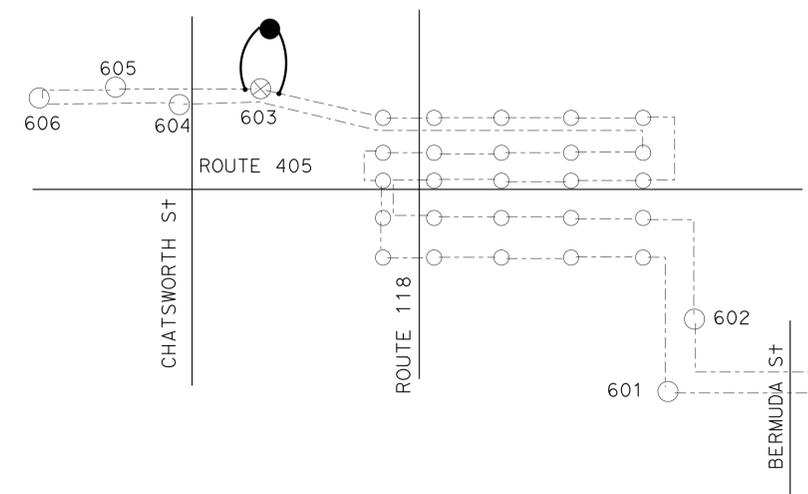
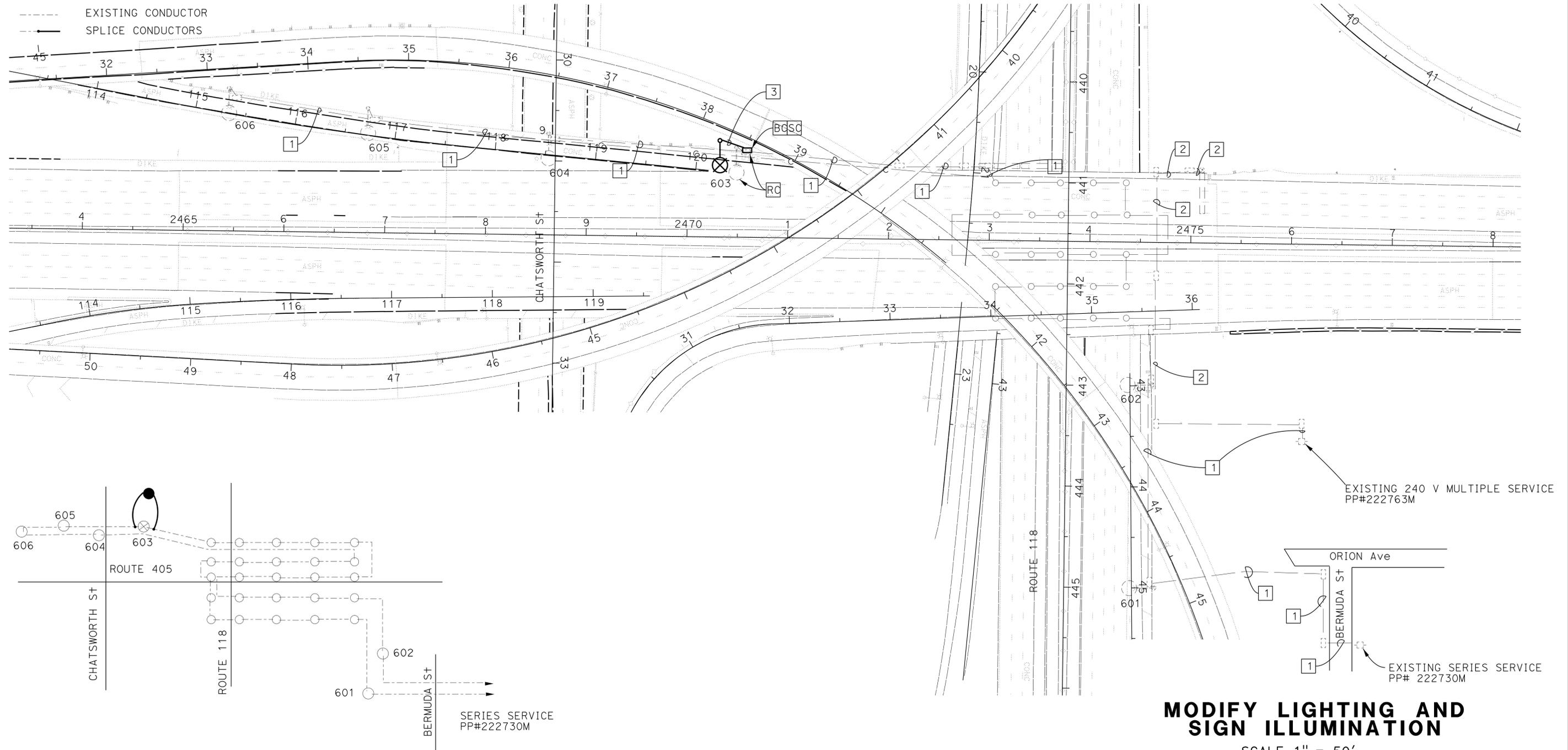
- EXISTING ELECTROLIER
- INSTALL TYPE 30 POLE WITH 235 W LED LUMINAIRE
- INSTALL 2"C, 2#8 (5 kV)
- 235 W LED LUMINAIRE
- EXISTING SOFFIT
- EXISTING 700 W mv TO BE REMOVED
- EXISTING 700 W mv
- EXISTING CONDUCTOR
- SPLICE CONDUCTORS

- 1 1 1/2"C, 2#8 (5 kV)
- 2 1 1/2"C, 2#8
- 3 2"C, 2#8 (5 kV)



**WARNING**

BEFORE STARTING WORK ON EXISTING SERIES LIGHTING CIRCUITS, THE CONTRACTOR MUST OBTAIN DAILY SAFETY CIRCUIT CLEARANCE FROM SERVING COMPANIES. DISCONNECT CIRCUITS AND PLACE "MEN AT WORK" SIGNS NEAR OPEN SWITCHES.



**MODIFY LIGHTING AND SIGN ILLUMINATION**

SCALE 1" = 50'

APPROVED FOR ELECTRICAL WORK ONLY

**E-13**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** TRAFFIC DESIGN  
 FUNCTIONAL SUPERVISOR: OSWALD ELIZONDO  
 CALCULATED/DESIGNED BY: OSWALD ELIZONDO  
 CHECKED BY: OSWALD ELIZONDO  
 REVISIONS: (None listed)  
 REVISOR: (None listed)  
 DATE: (None listed)

LAST REVISION: DATE PLOTTED => 14-FEB-2013  
 07-30-12 TIME PLOTTED => 13:33



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	405	39.4/48.6	144	179

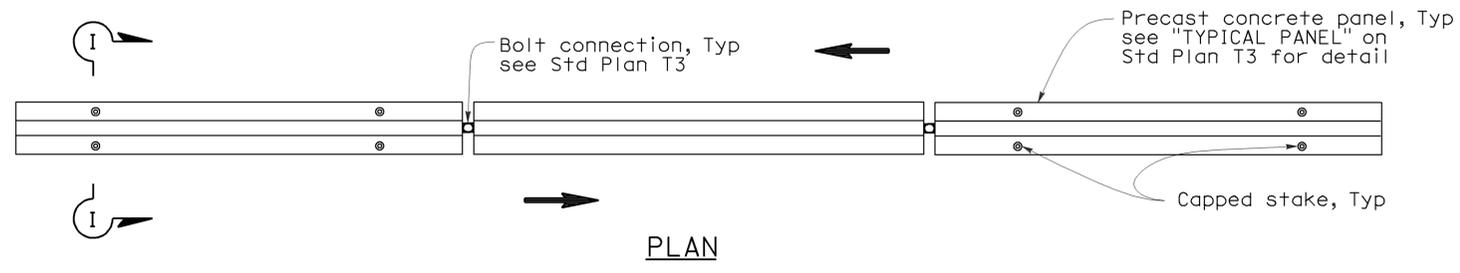
Randell D. Hiatt  
REGISTERED CIVIL ENGINEER

May 20, 2011  
PLANS APPROVAL DATE

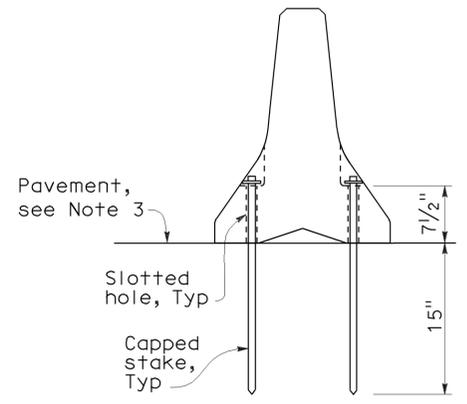
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REGISTERED PROFESSIONAL ENGINEER  
Randell D. Hiatt  
No. C50200  
Exp. 6-30-11  
CIVIL  
STATE OF CALIFORNIA

To accompany plans dated 7-30-12

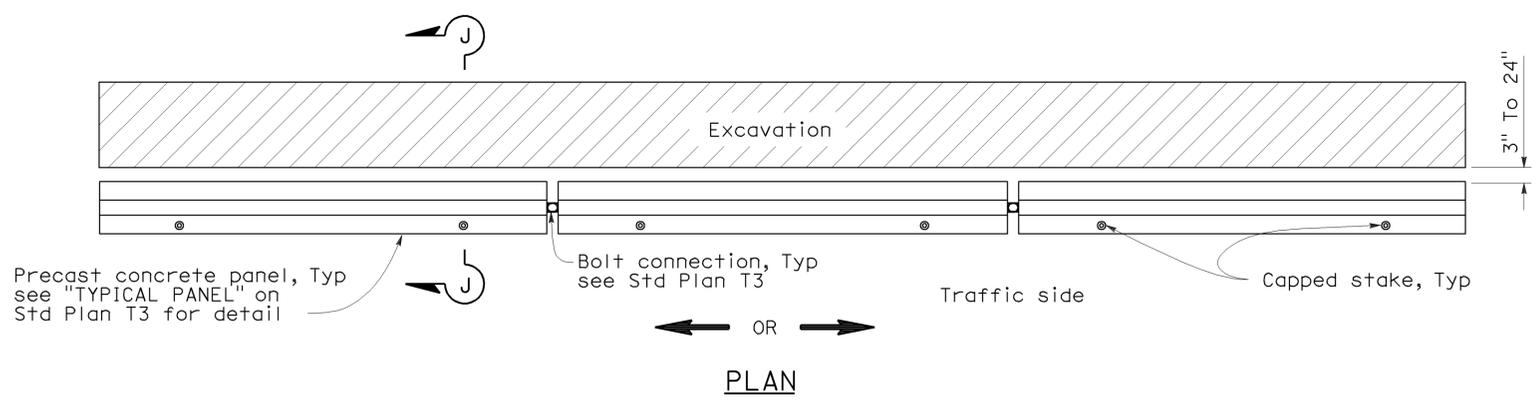


**RAILING STAKING CONFIGURATION FOR TWO-WAY TRAFFIC**  
See Note 1

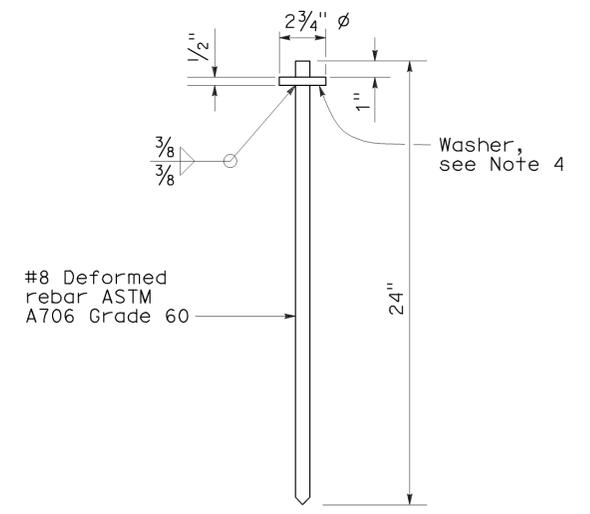
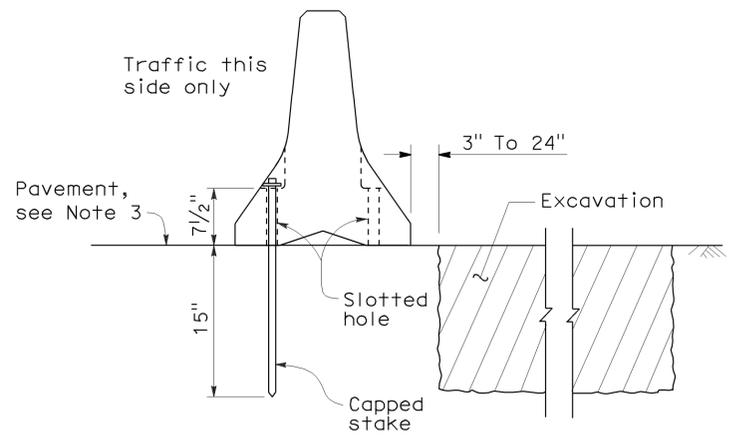


**NOTES:**

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



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



STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**TEMPORARY RAILING  
(TYPE K)**

NO SCALE

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

**NEW STANDARD PLAN NSP T3A**

2006 NEW STANDARD PLAN NSP T3A

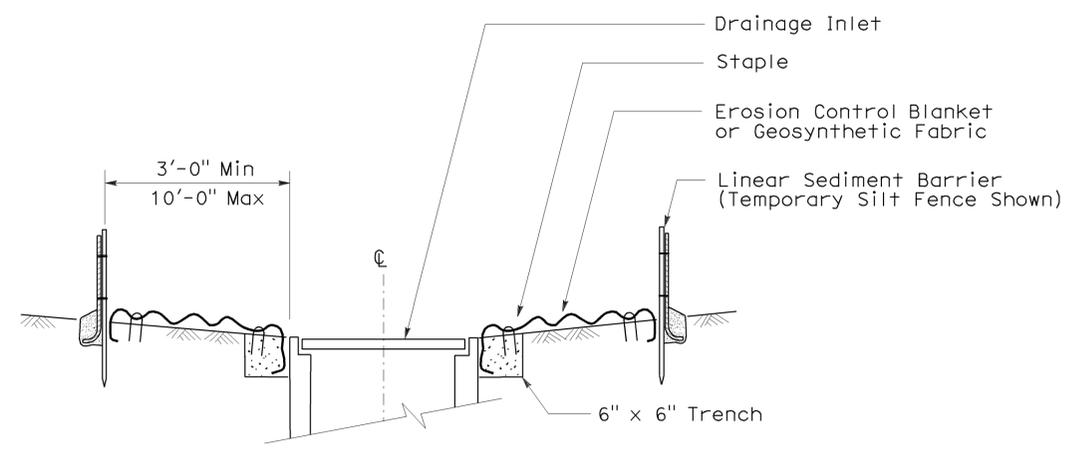
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	405	39.4/48.6	145	179

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

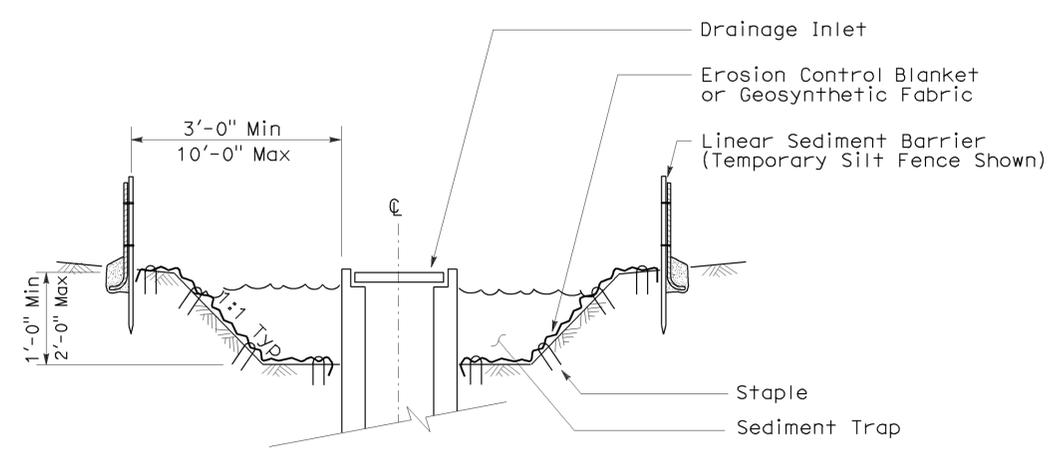


To accompany plans dated 7-30-12

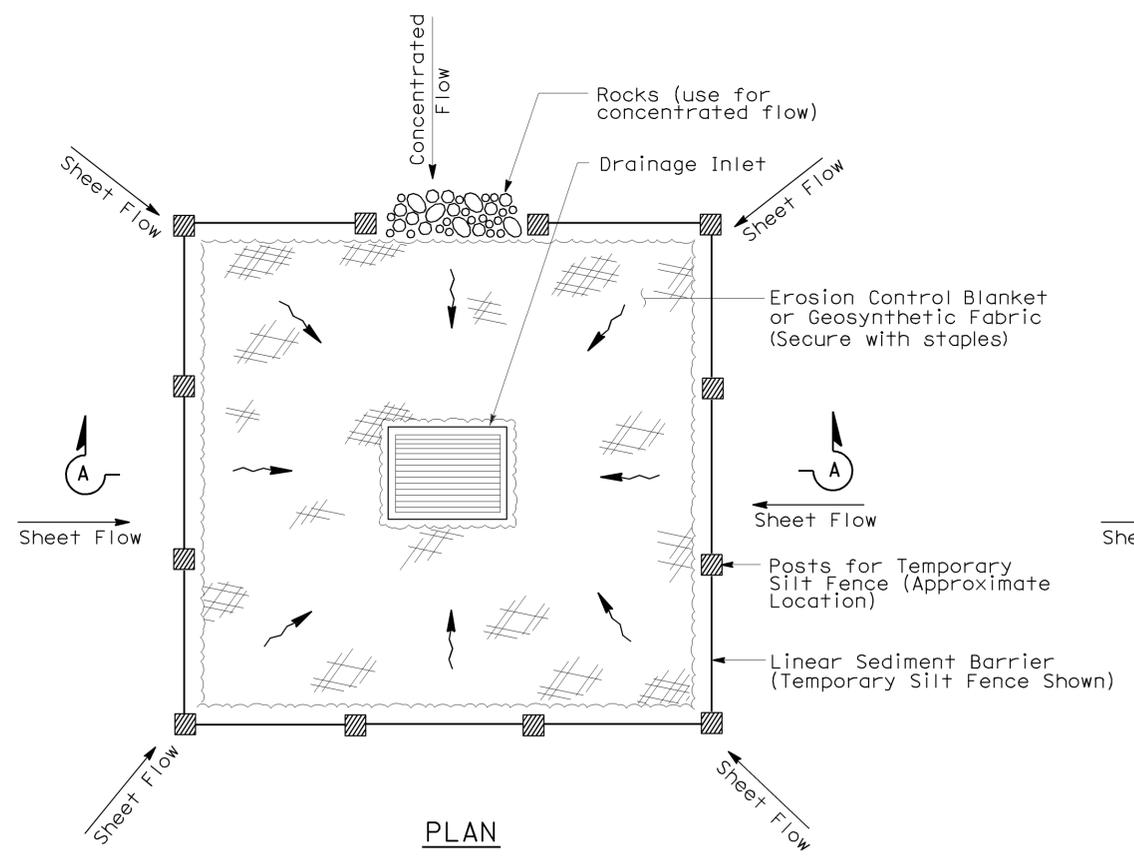
- NOTES:**
1. See Standard Plan T51 for Temporary Silt Fence.
  2. Dimensions may vary to fit field conditions.



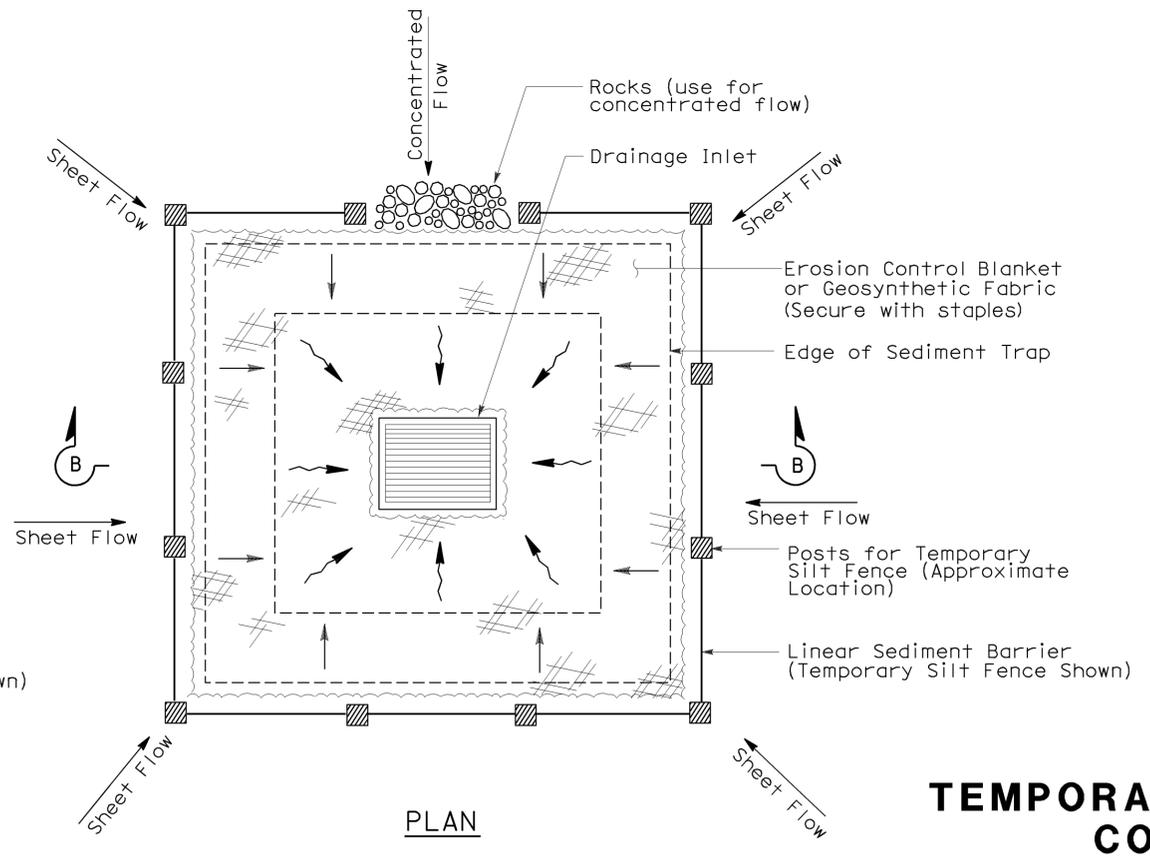
**SECTION A-A**



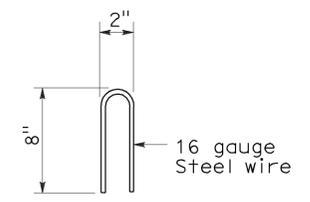
**SECTION B-B**



**TEMPORARY DRAINAGE INLET PROTECTION (TYPE 1)**



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



**STAPLE DETAIL**

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

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

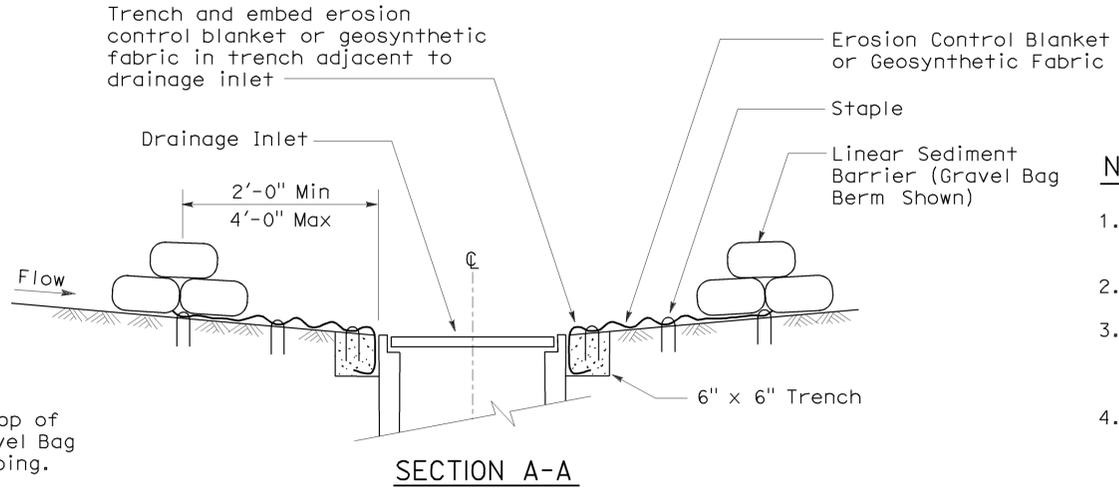
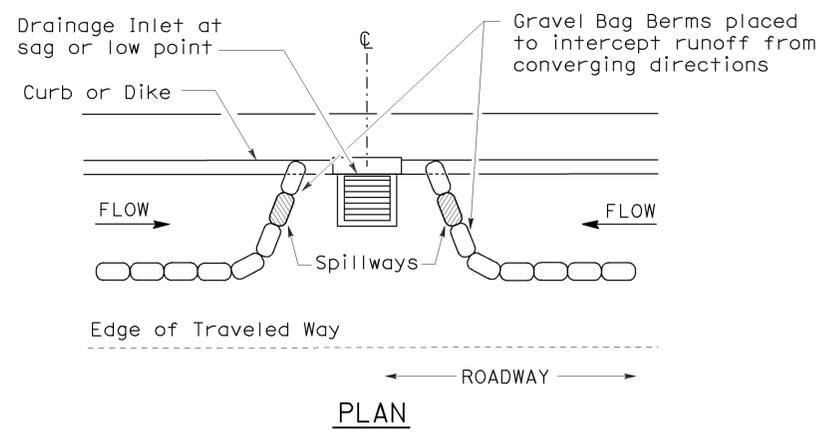
2006 NEW STANDARD PLAN NSP T61

2006 NEW STANDARD PLAN NSP T62

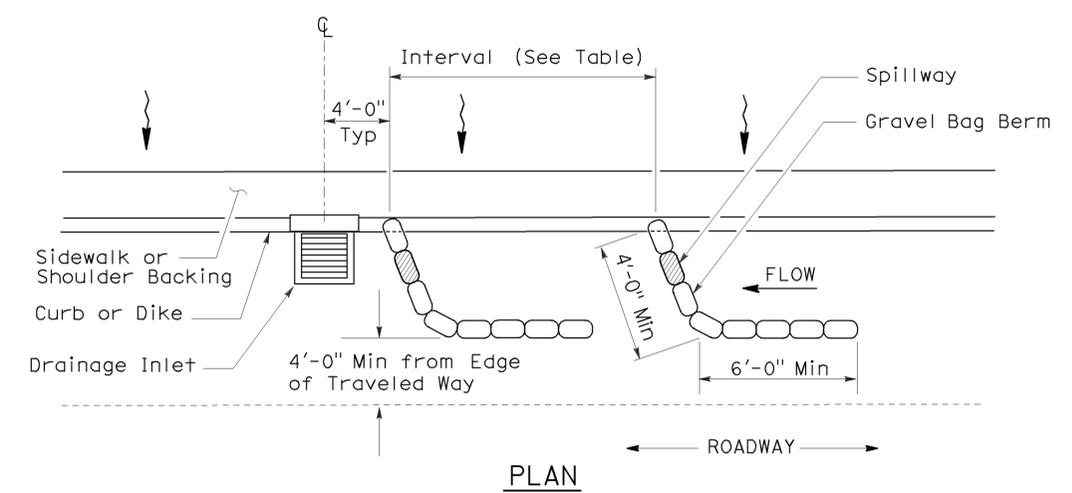
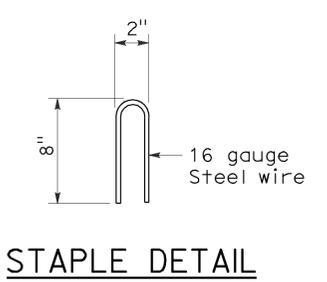
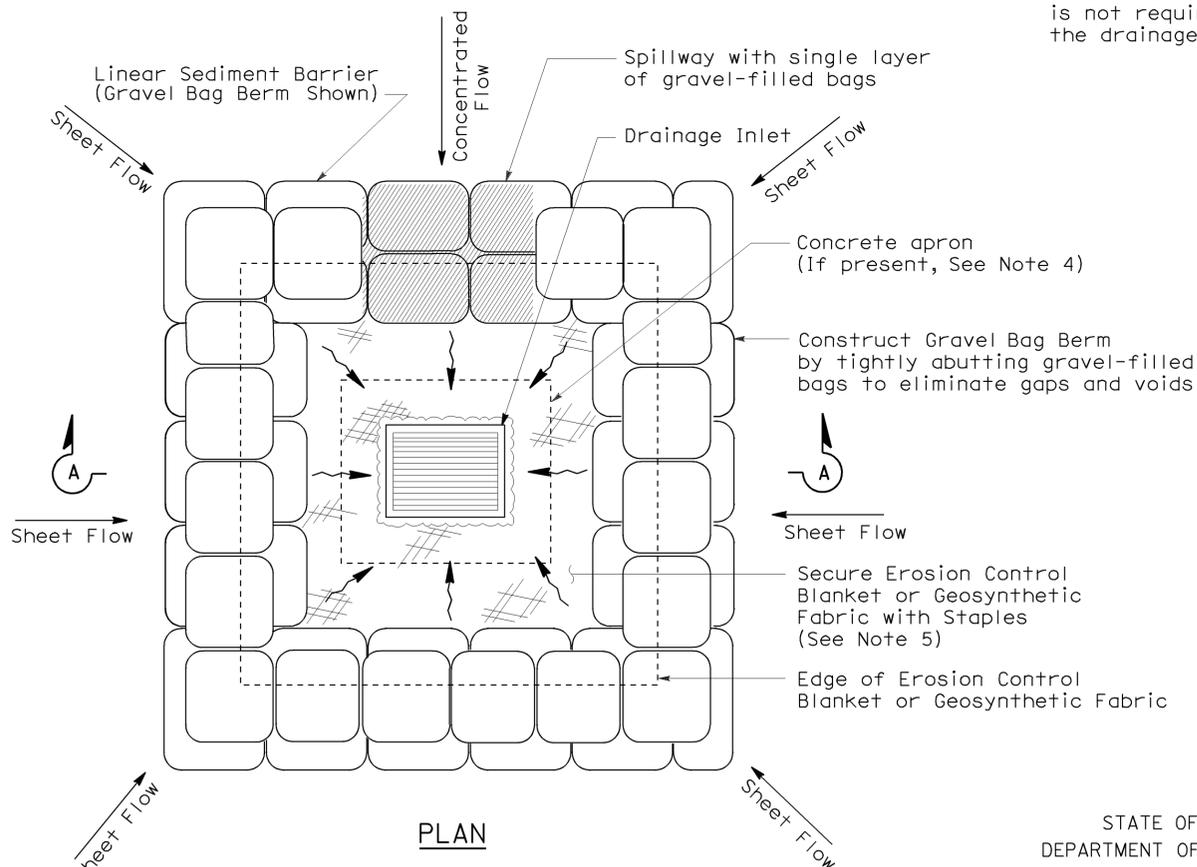
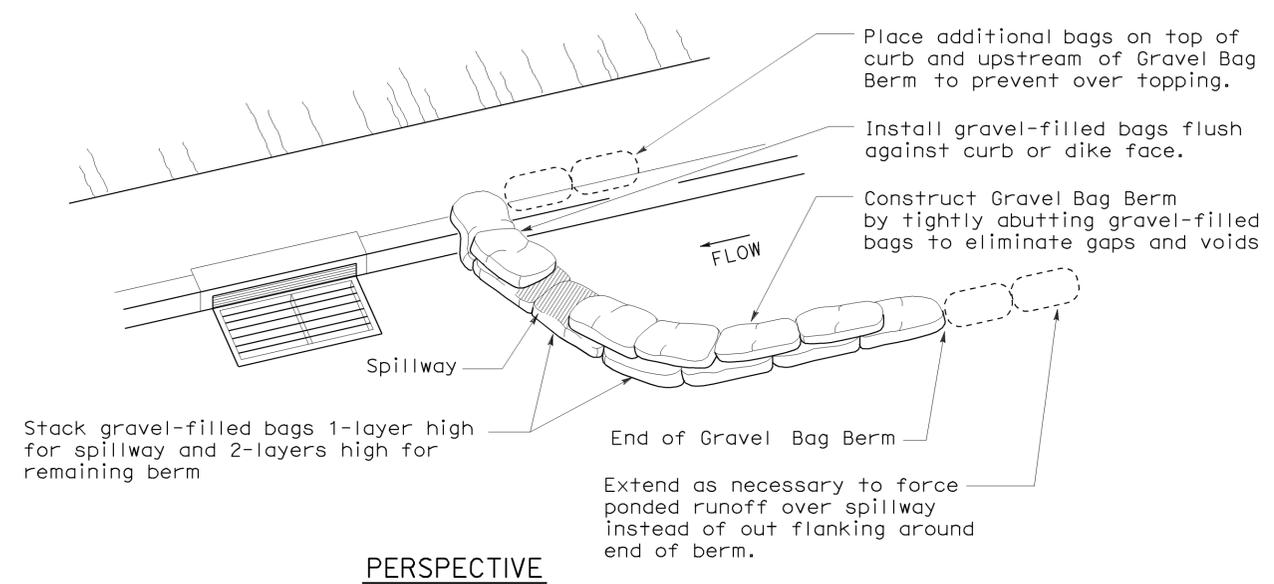
**GRAVEL BAG BERM (TYPE 3A) SPACING TABLE**

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

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



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



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

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

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

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

FLEXIBLE SEDIMENT BARRIER SPACING TABLE

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

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	405	39.4/48.6	147	179

Robert B. Schott  
LICENSED LANDSCAPE ARCHITECT

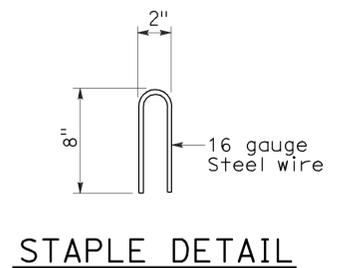
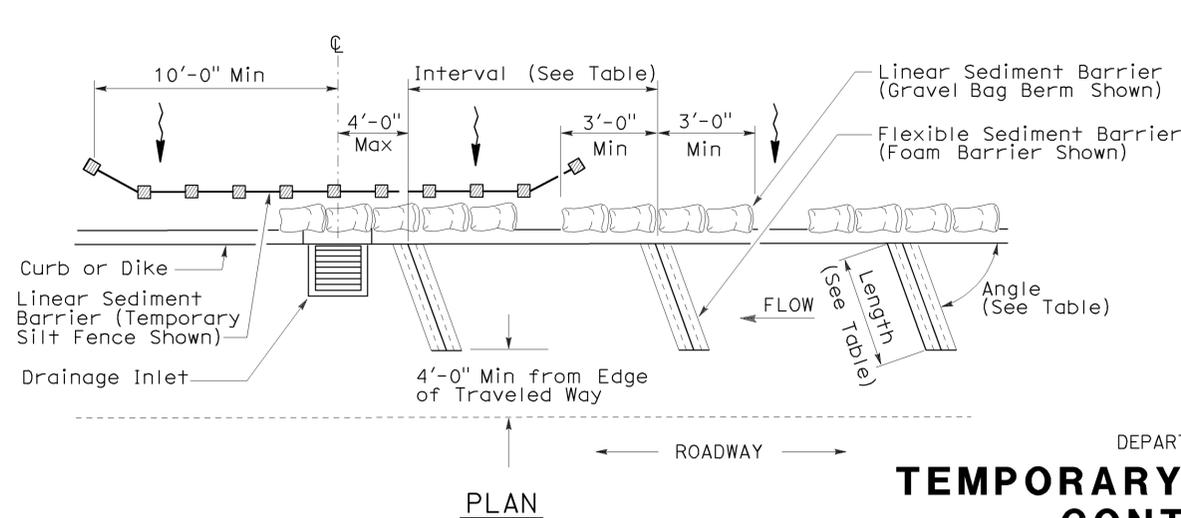
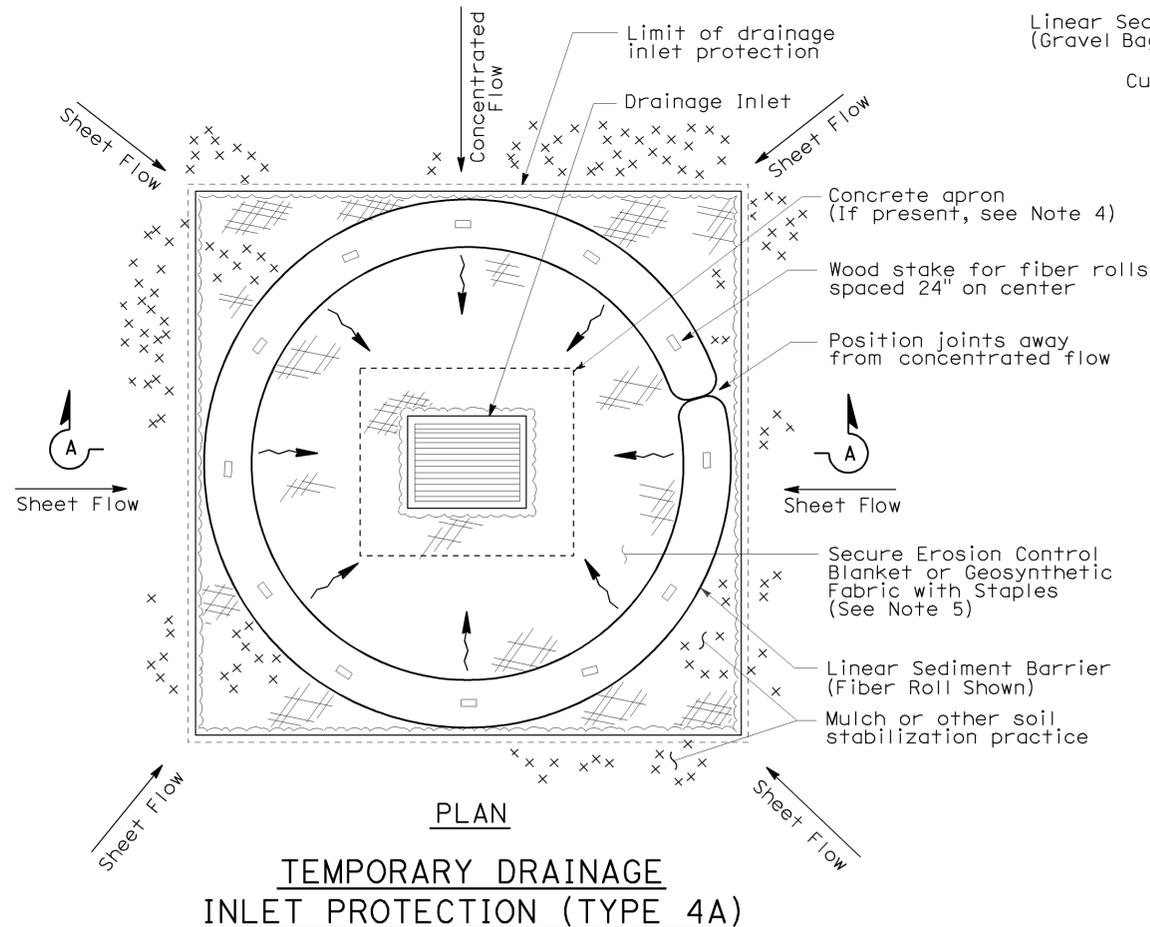
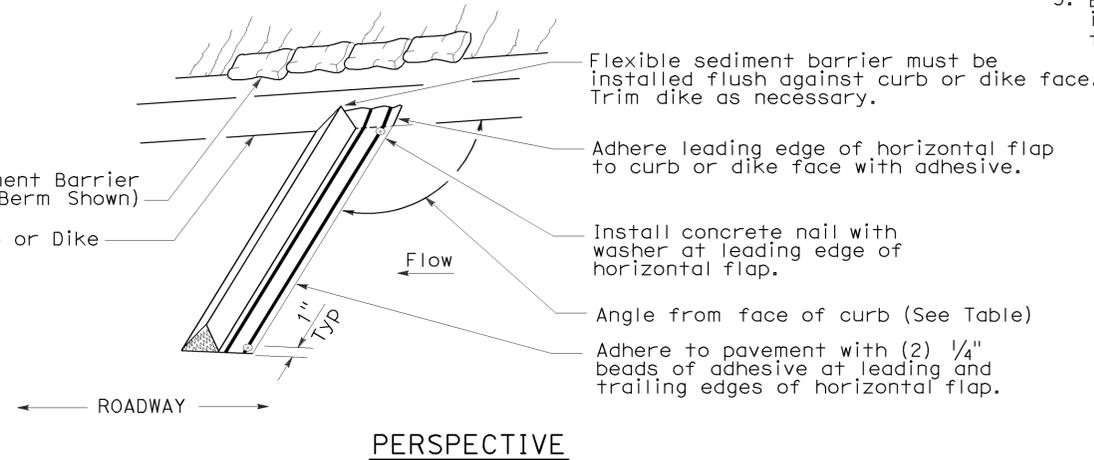
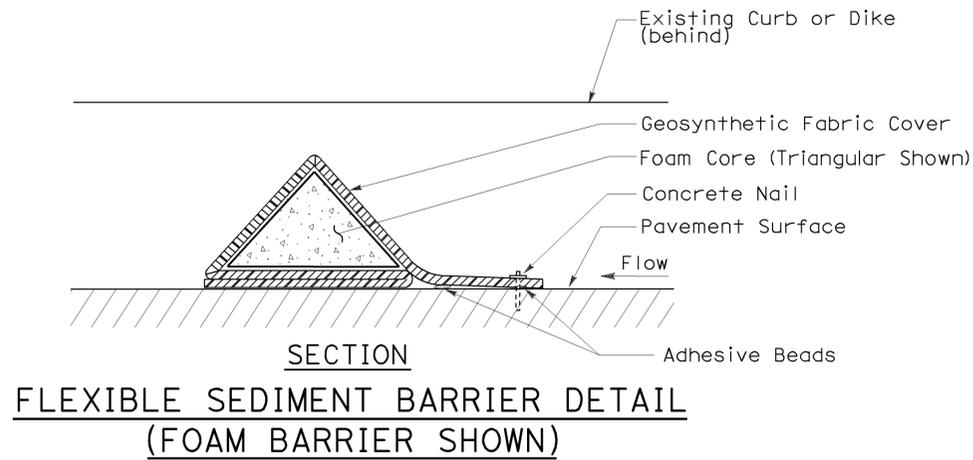
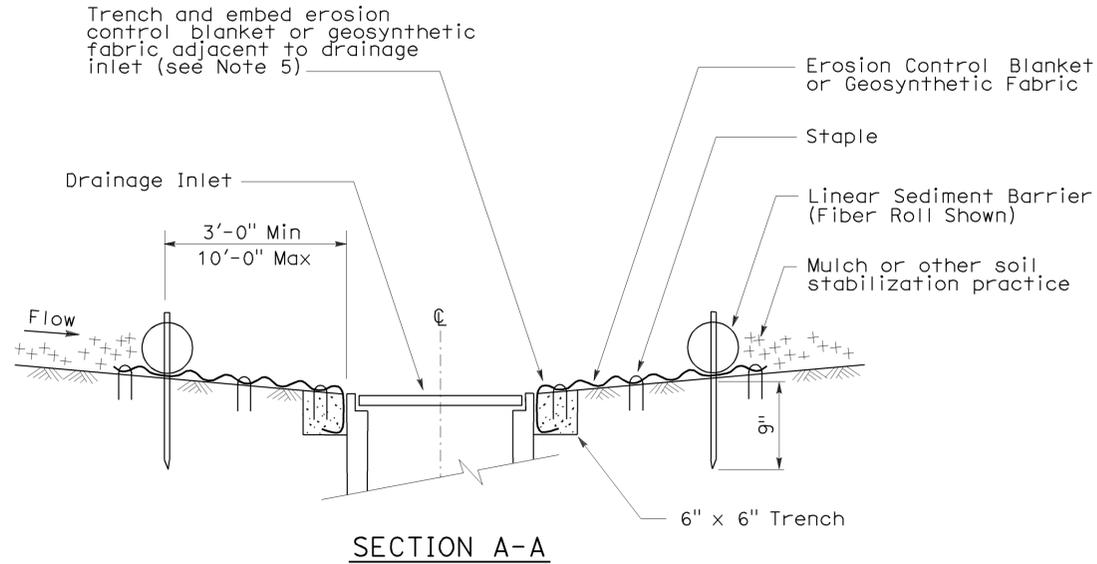
August 15, 2008  
PLANS APPROVAL DATE

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

To accompany plans dated 7-30-12

NOTES:

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



STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

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

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

**NEW STANDARD PLAN NSP T63**

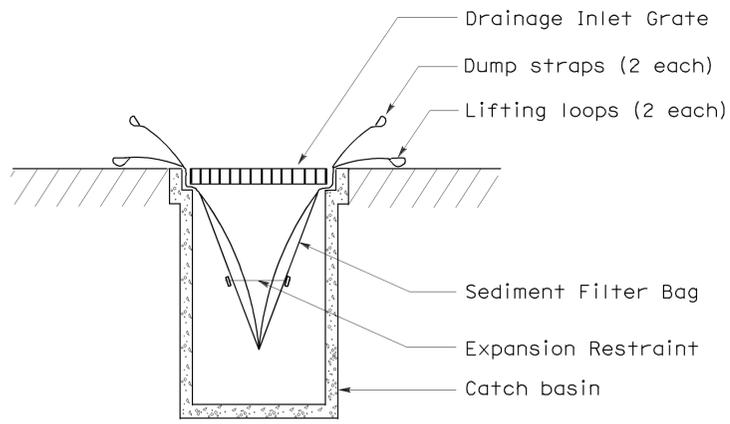
2006 NEW STANDARD PLAN NSP T63

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	405	39.4/48.6	148	179

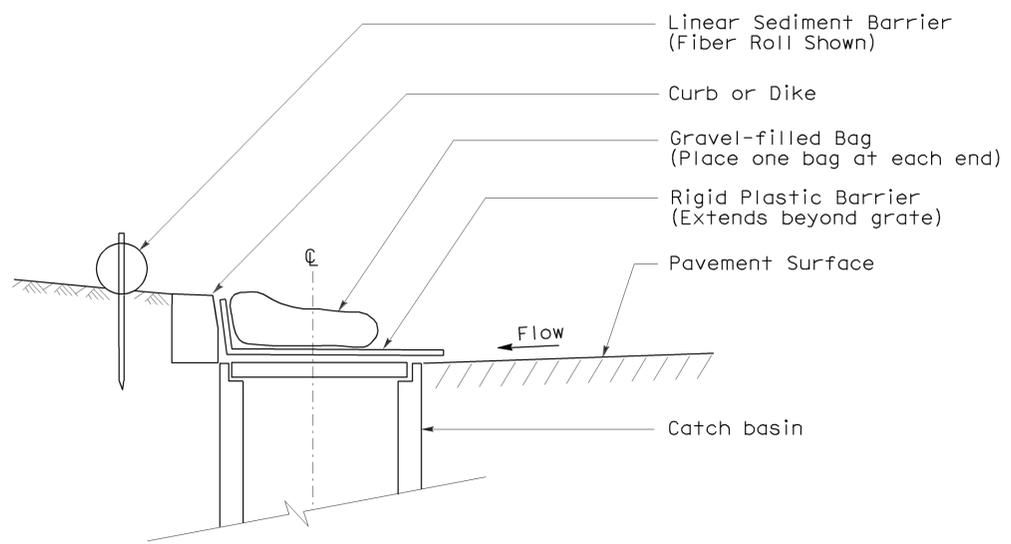
*Robert B. Schott*  
 LICENSED LANDSCAPE ARCHITECT  
 August 15, 2008  
 PLANS APPROVAL DATE  
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.



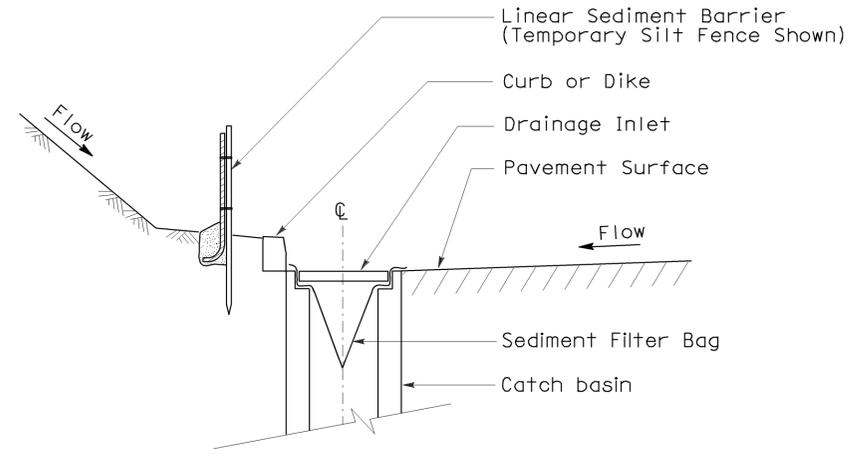
To accompany plans dated 7-30-12



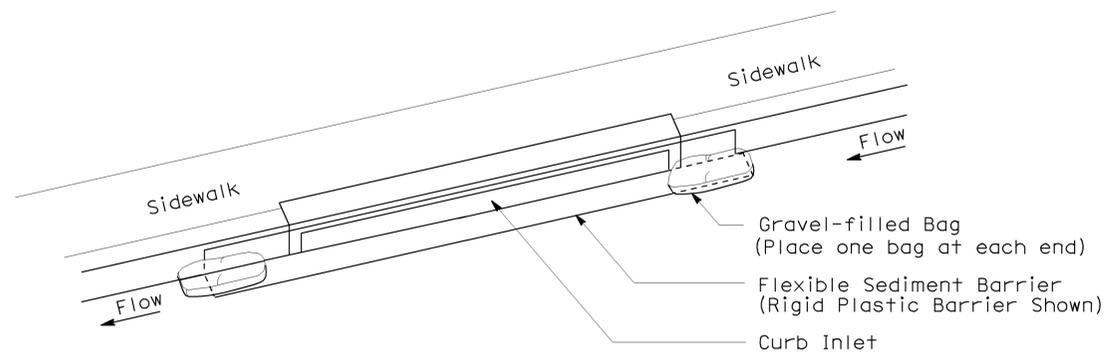
**SECTION B-B**  
**SEDIMENT FILTER BAG DETAIL**



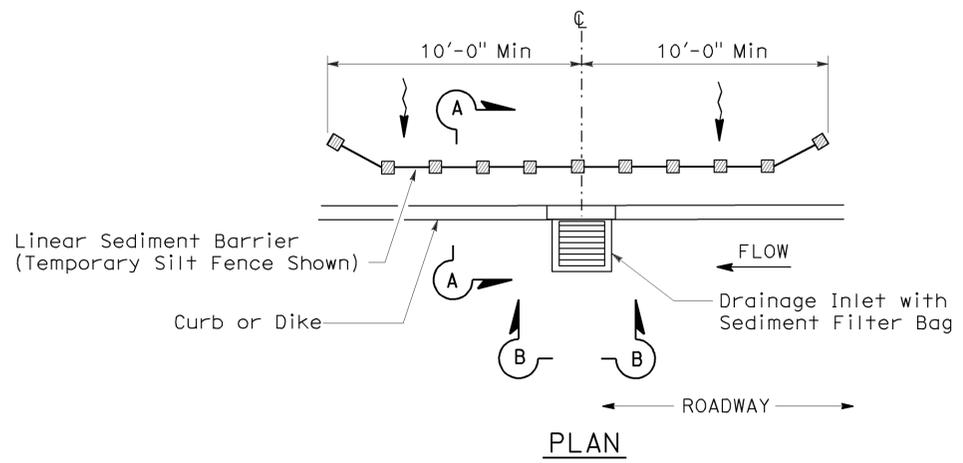
**SECTION**  
**TEMPORARY DRAINAGE INLET PROTECTION (TYPE 6A)**  
**(CATCH BASIN WITH GRATE)**



**SECTION A-A**



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



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

**NOTES:**

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

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

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

**NEW STANDARD PLAN NSP T64**

2006 NEW STANDARD PLAN NSP T64

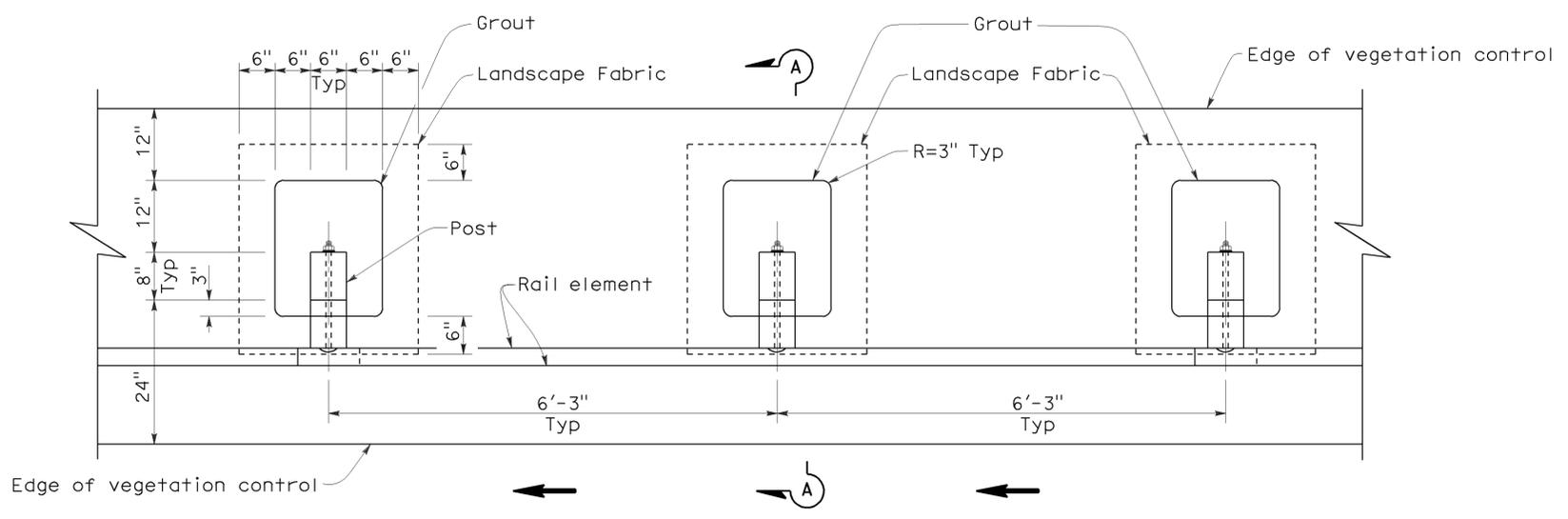
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	405	39.4/48.6	149	179

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

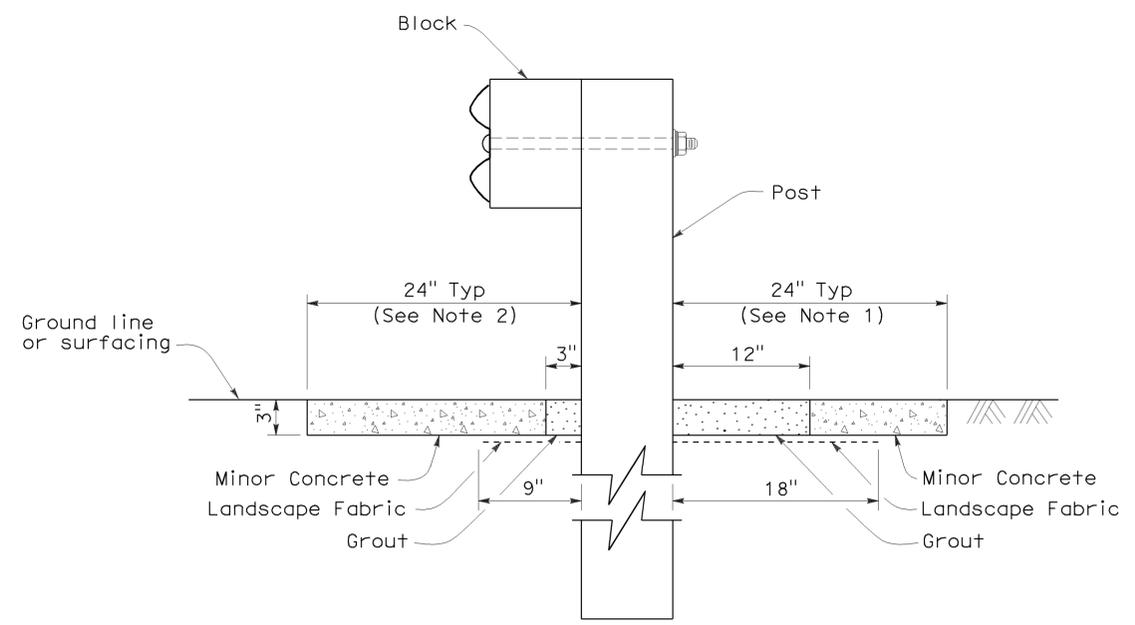
October 20, 2006  
PLANS APPROVAL DATE

*Randell D. Hiatt*  
No. C50200  
Exp. 6-30-07  
CIVIL  
STATE OF CALIFORNIA

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**PLAN**



**SECTION A-A**

**NOTES:**

1. Where the distance between back of post and hinge point is less than 24", vegetation control to be constructed flush with the back edge of the post.
2. Where dike is constructed under railing, construct vegetation control to back edge of dike. Where paved shoulder is constructed within 24" in front of the post, construct vegetation control to the edge of paved shoulder.
3. Direction of adjacent traffic indicated by ← .

To accompany plans dated 7-30-12

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**METAL BEAM GUARD RAILING  
TYPICAL VEGETATION CONTROL  
STANDARD RAILING SECTION**

NO SCALE

NSP A77C5 DATED OCTOBER 20, 2006 SUPPLEMENTS THE STANDARD PLANS BOOK DATED MAY 2006.

**NEW STANDARD PLAN NSP A77C5**

2006 NEW STANDARD PLAN NSP A77C5

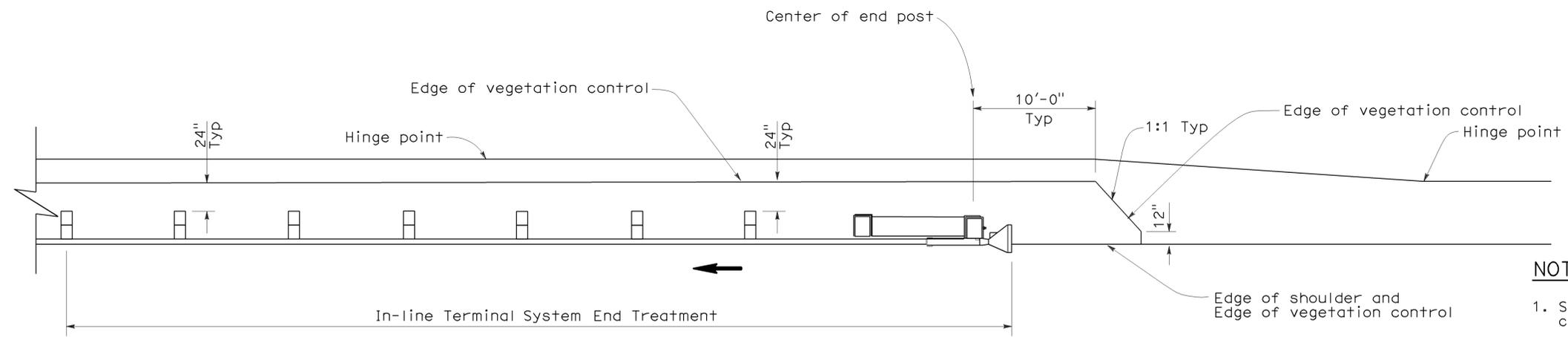
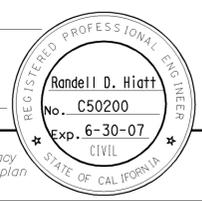
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	405	39.4/48.6	150	179

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

October 20, 2006  
PLANS APPROVAL DATE

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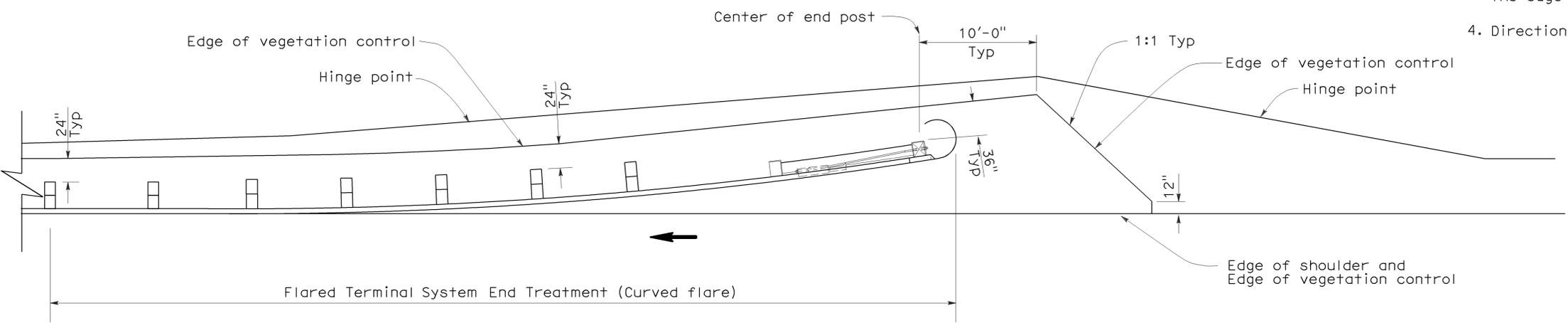
To accompany plans dated 7-30-12



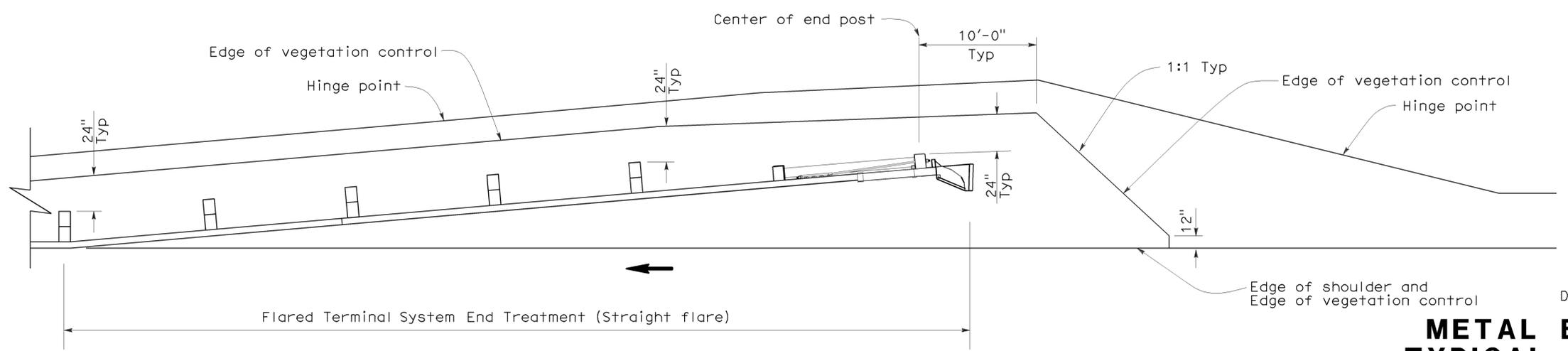
PLAN

**NOTES:**

1. See New Standard Plan NSP A77C5 for additional vegetation control details.
2. Where the distance between back of post and hinge point is less than 24", vegetation control to be constructed flush with the back edge of the post.
3. Where dike is constructed under railing, construct vegetation control to back edge of dike. Where paved shoulder is constructed within 24" in front of the post, construct vegetation control to the edge of paved shoulder.
4. Direction of adjacent traffic indicated by



PLAN



PLAN

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

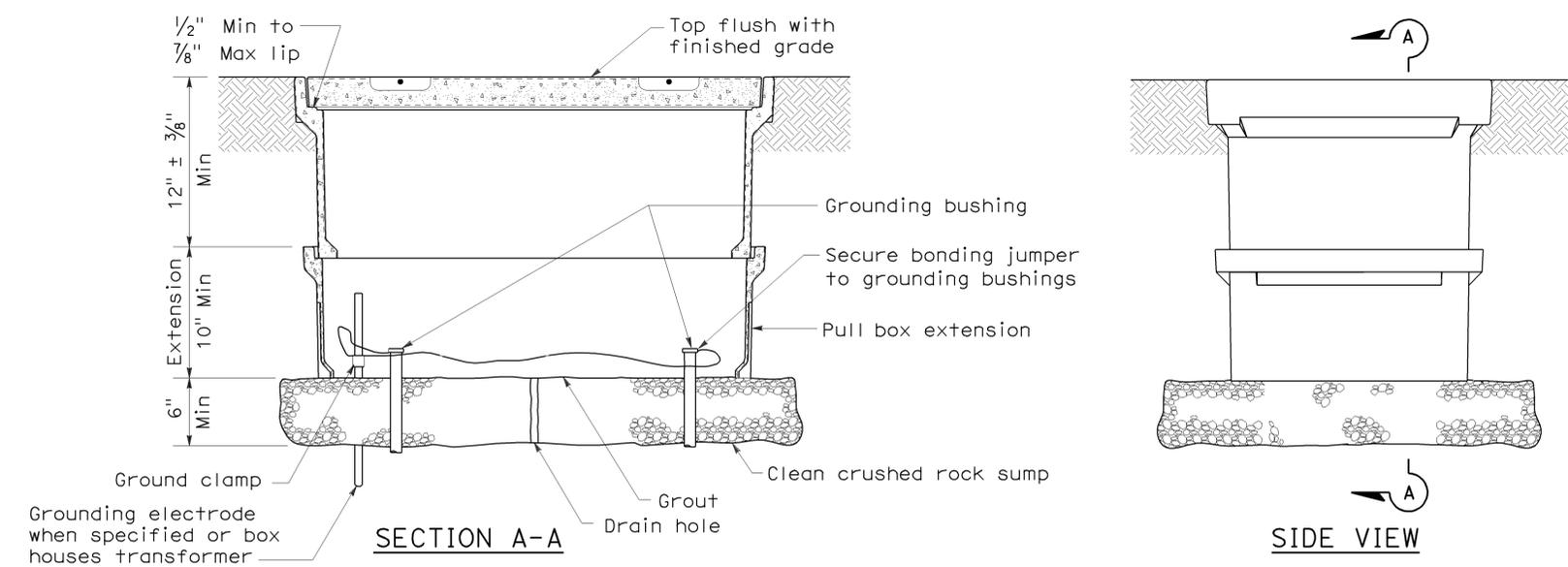
**METAL BEAM GUARD RAILING  
TYPICAL VEGETATION CONTROL  
FOR TERMINAL SYSTEM END TREATMENTS**

NO SCALE  
NSP A77C6 DATED OCTOBER 20, 2006 SUPPLEMENTS THE STANDARD  
PLANS BOOK DATED MAY 2006.

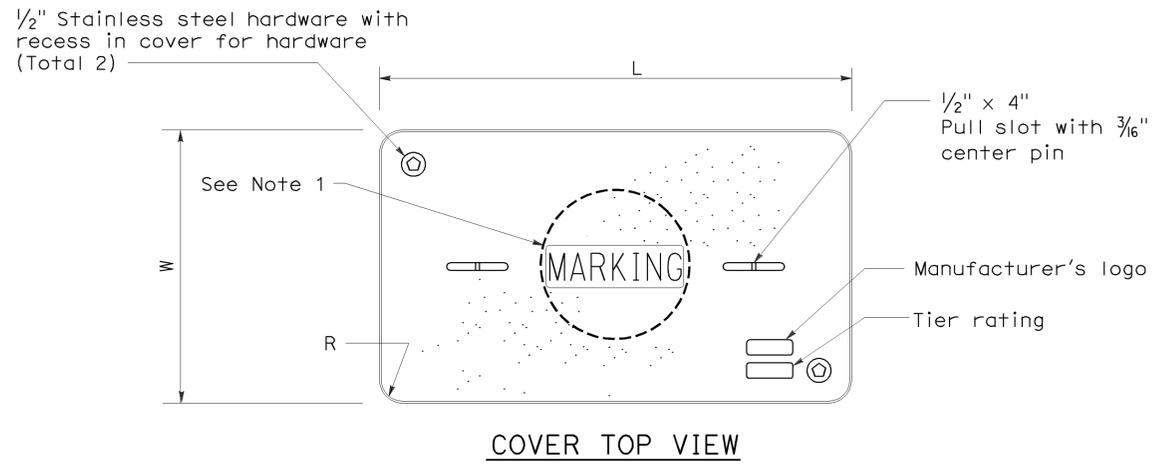
**NEW STANDARD PLAN NSP A77C6**

2006 NEW STANDARD PLAN NSP A77C6

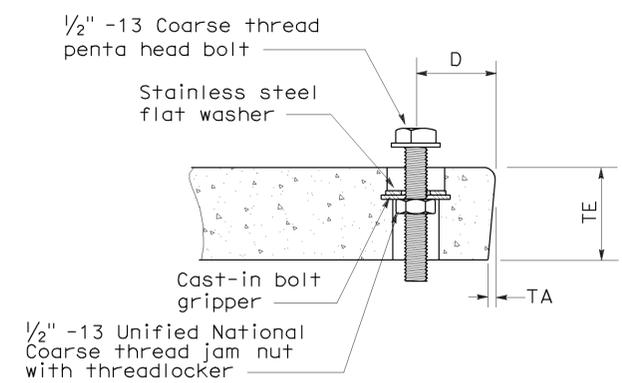
2006 NEW STANDARD PLAN NSP ES-8A



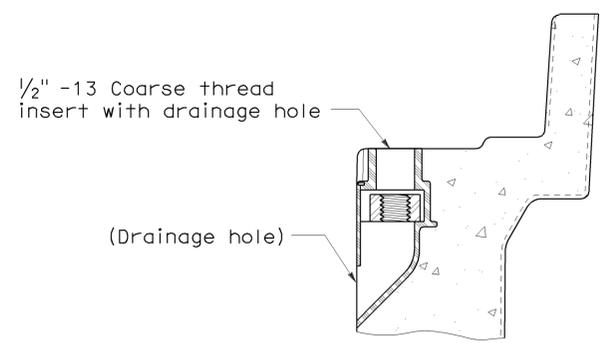
**INSTALLATION DETAILS**  
**DETAIL A**



**COVER TOP VIEW**



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



**TYPICAL THREADED INSERT**  
(Or similar)

**NOTES ON PULL BOXES:**

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

To accompany plans dated 7-30-12

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

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

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

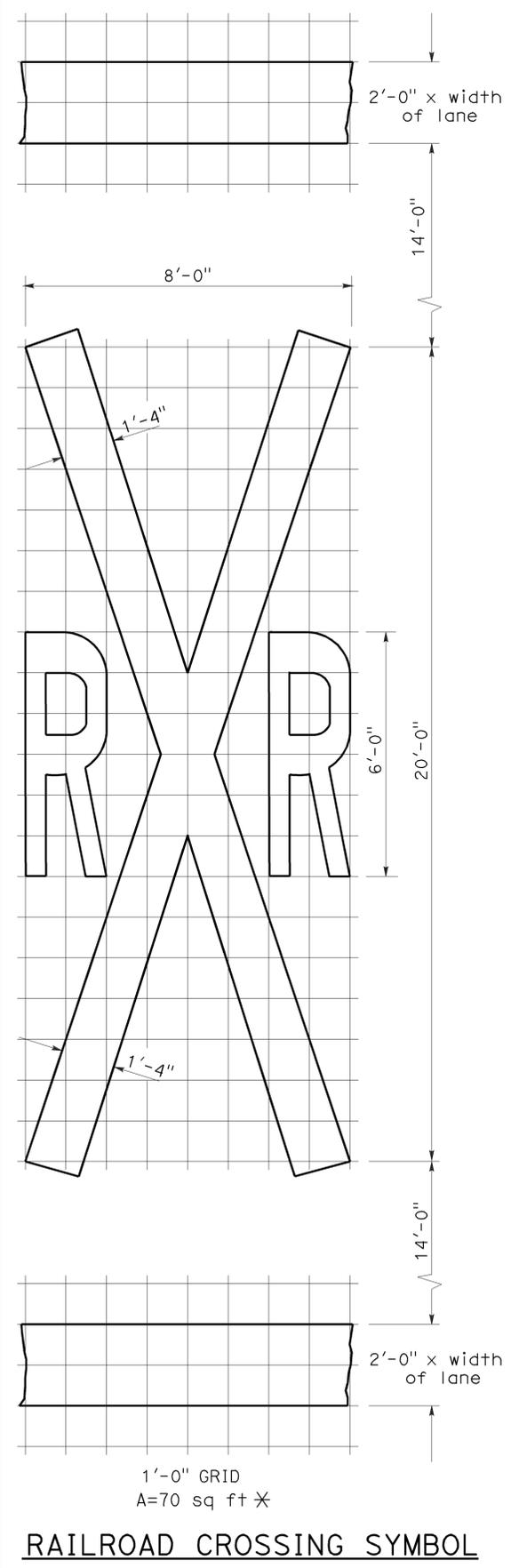
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	405	39.4/48.6	152	179

Donald E. Howe  
 REGISTERED CIVIL ENGINEER  
 June 6, 2008  
 PLANS APPROVAL DATE

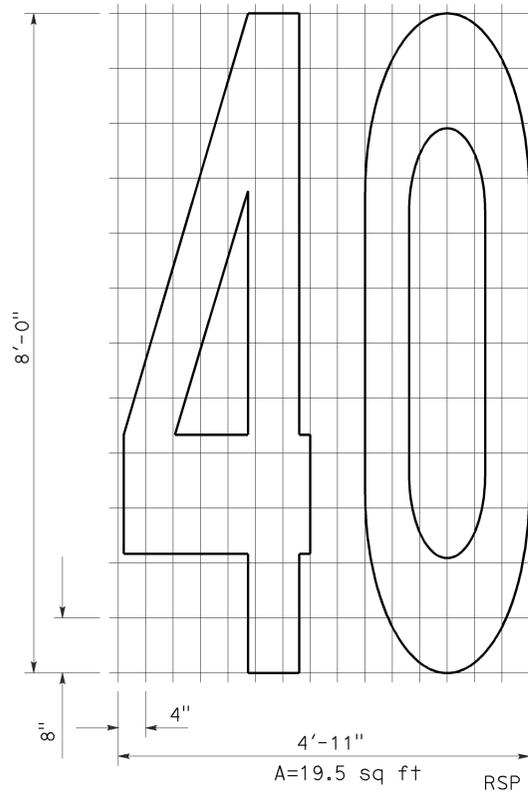
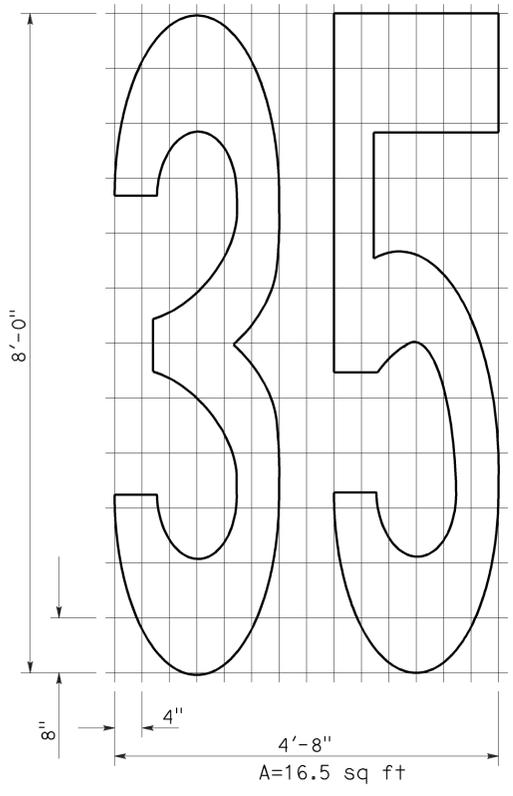
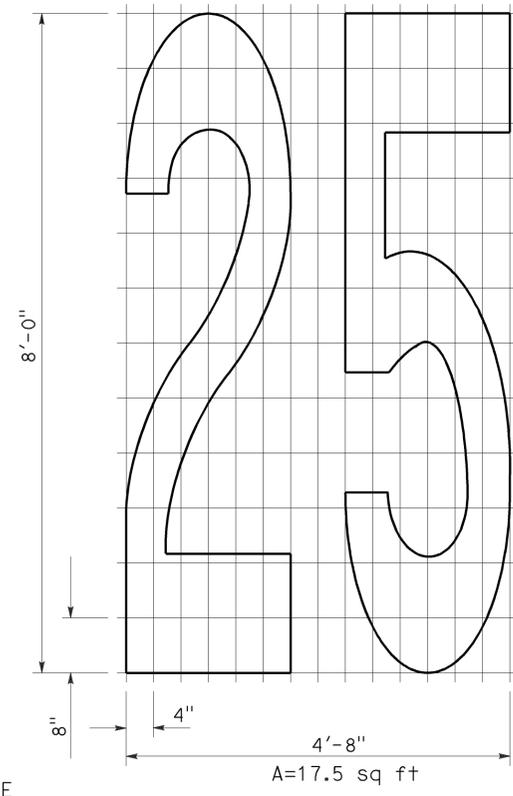
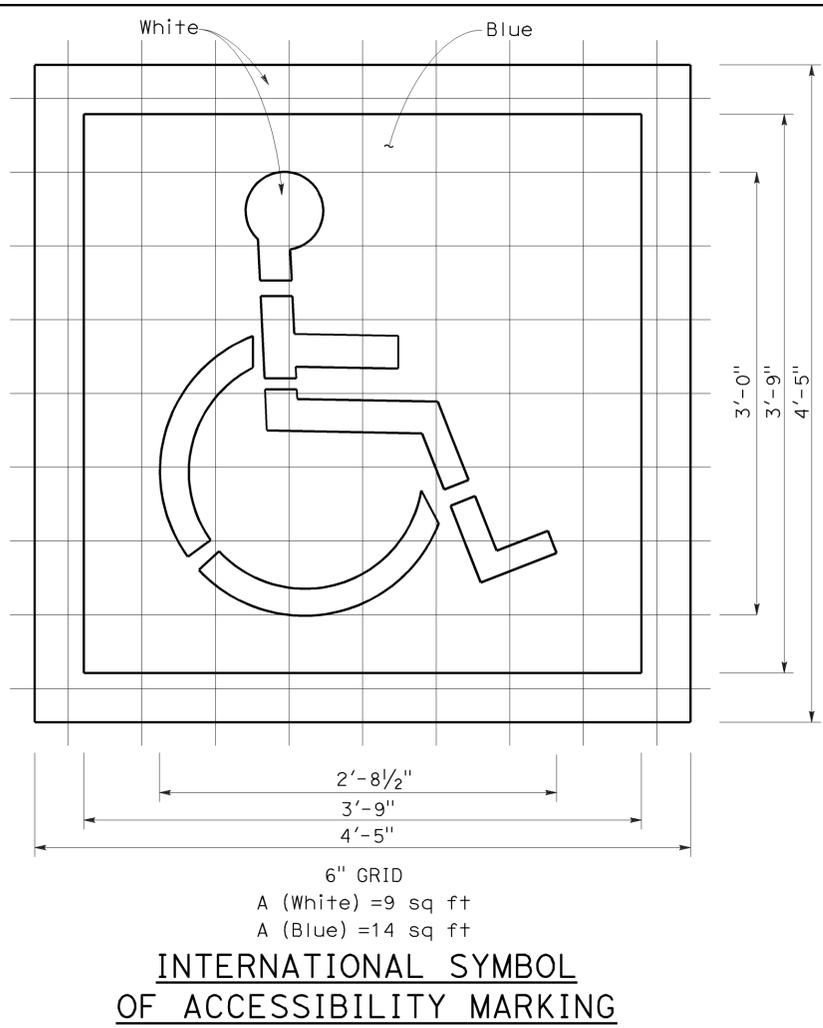
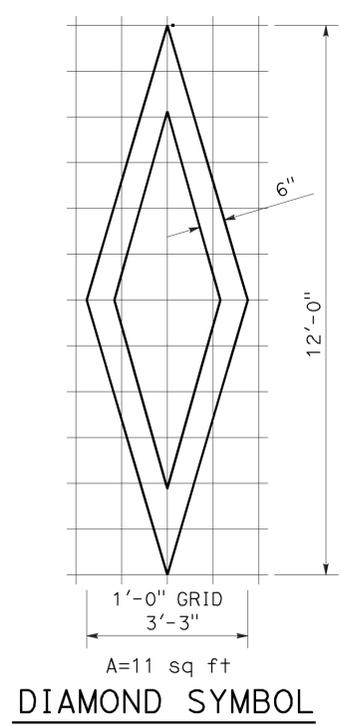
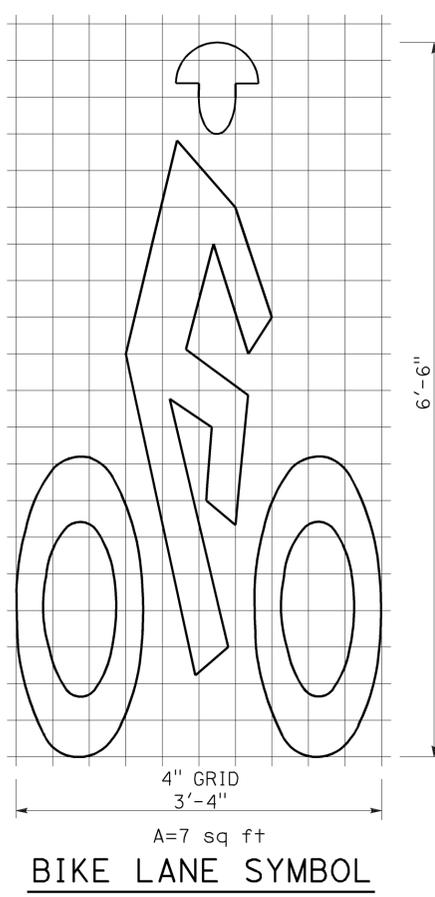
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REGISTERED PROFESSIONAL ENGINEER  
 Donald E. Howe  
 No. C46402  
 Exp. 3-31-09  
 CIVIL  
 STATE OF CALIFORNIA

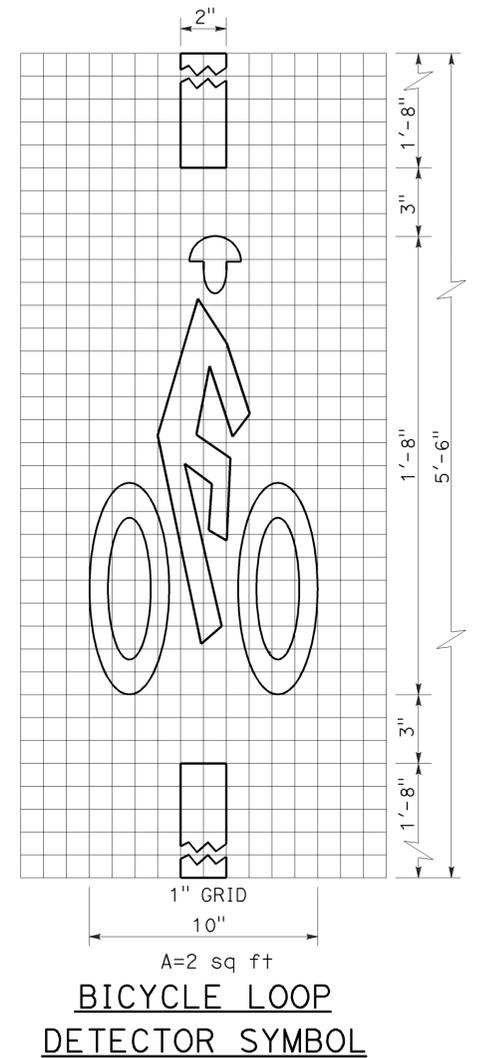
To accompany plans dated 7-30-12



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



**NUMERALS**



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

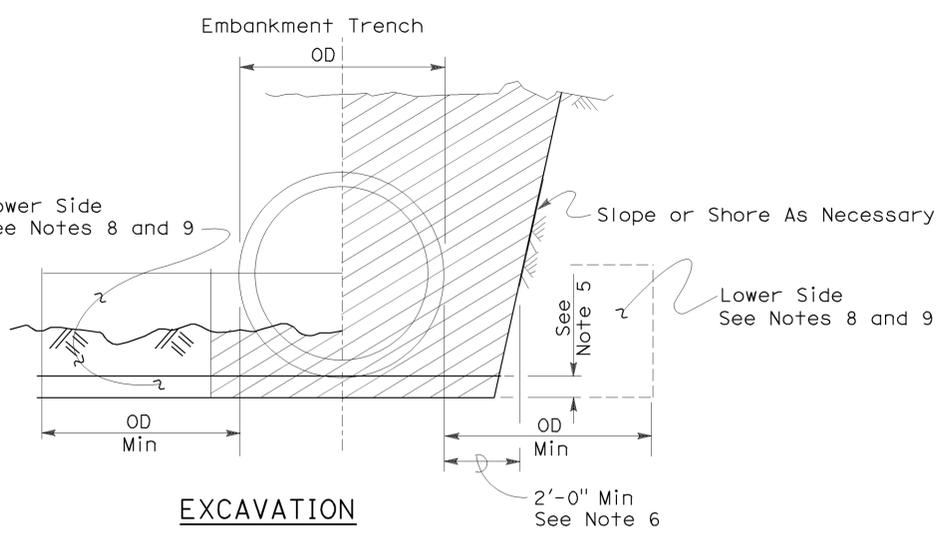
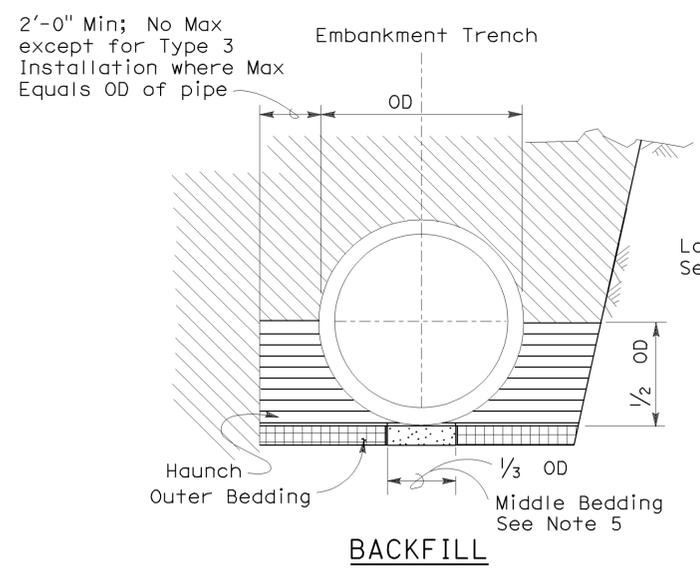
STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**PAVEMENT MARKINGS SYMBOLS AND NUMERALS**

NO SCALE

2006 REVISED STANDARD PLAN RSP A24C

To accompany plans dated 7-30-12



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

**TYPE 1 INSTALLATION:**

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

**TYPE 2 INSTALLATION:**

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

**TYPE 3 INSTALLATION:**

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

**NOTES:**

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

**INSTALLATION TYPE 1**

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

**INSTALLATION TYPE 2**

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

**INSTALLATION TYPE 3**

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

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**EXCAVATION AND BACKFILL  
CONCRETE PIPE CULVERTS**

NO SCALE

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

2006 REVISED STANDARD PLAN RSP A62DA

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	405	39.4/48.6	154	179

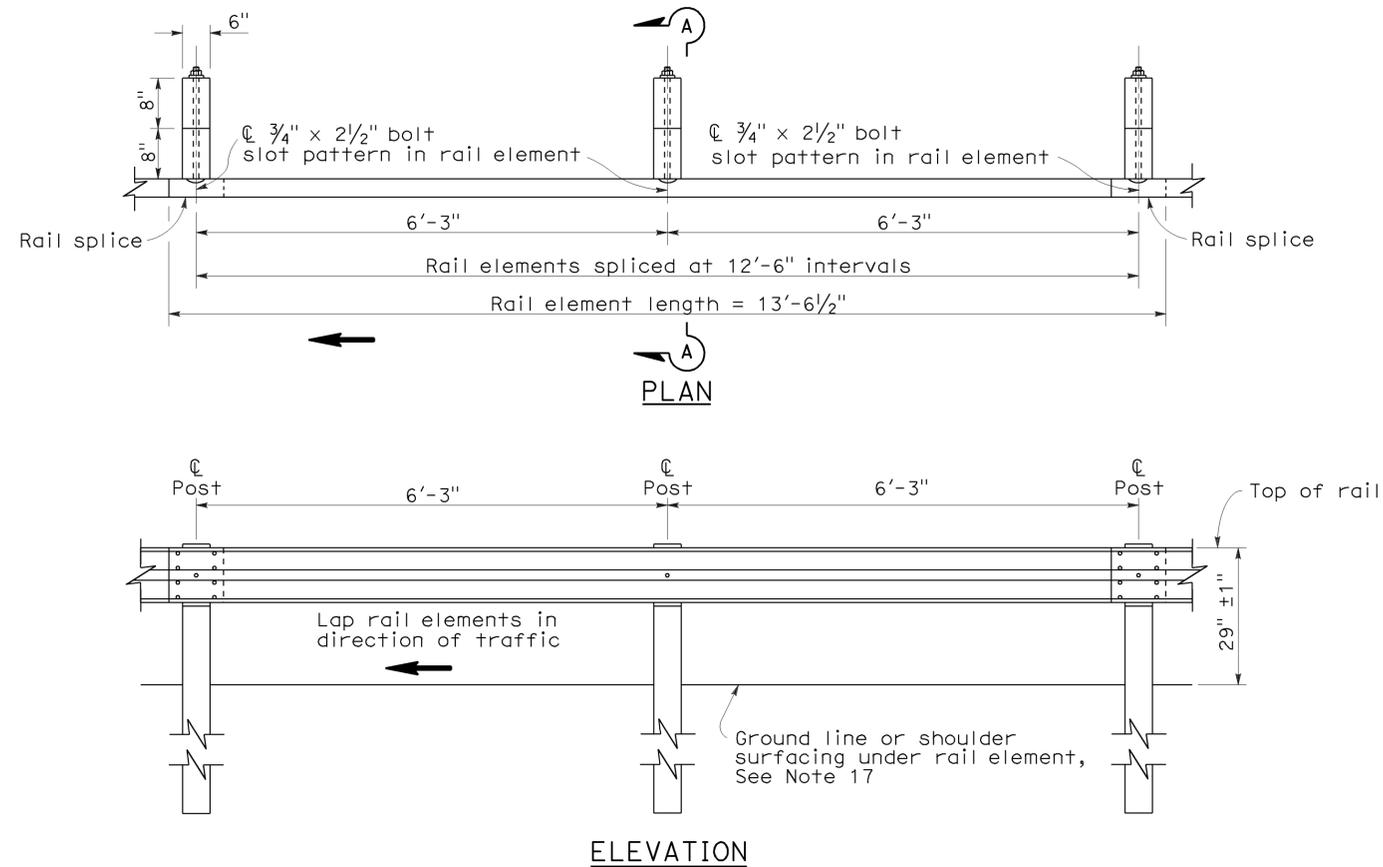
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

May 20, 2011  
PLANS APPROVAL DATE

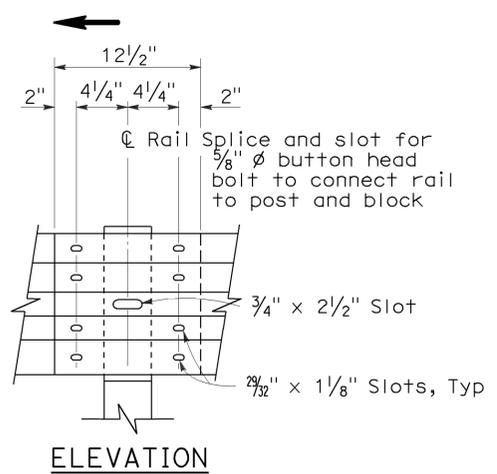
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To accompany plans dated 7-30-12

2006 REVISED STANDARD PLAN RSP A77A1

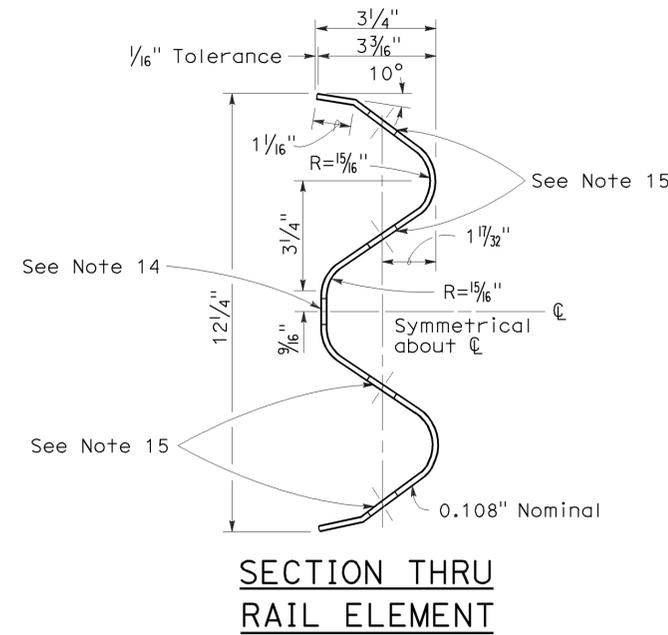


**METAL BEAM GUARD RAILING WITH WOOD POST AND BLOCKS**

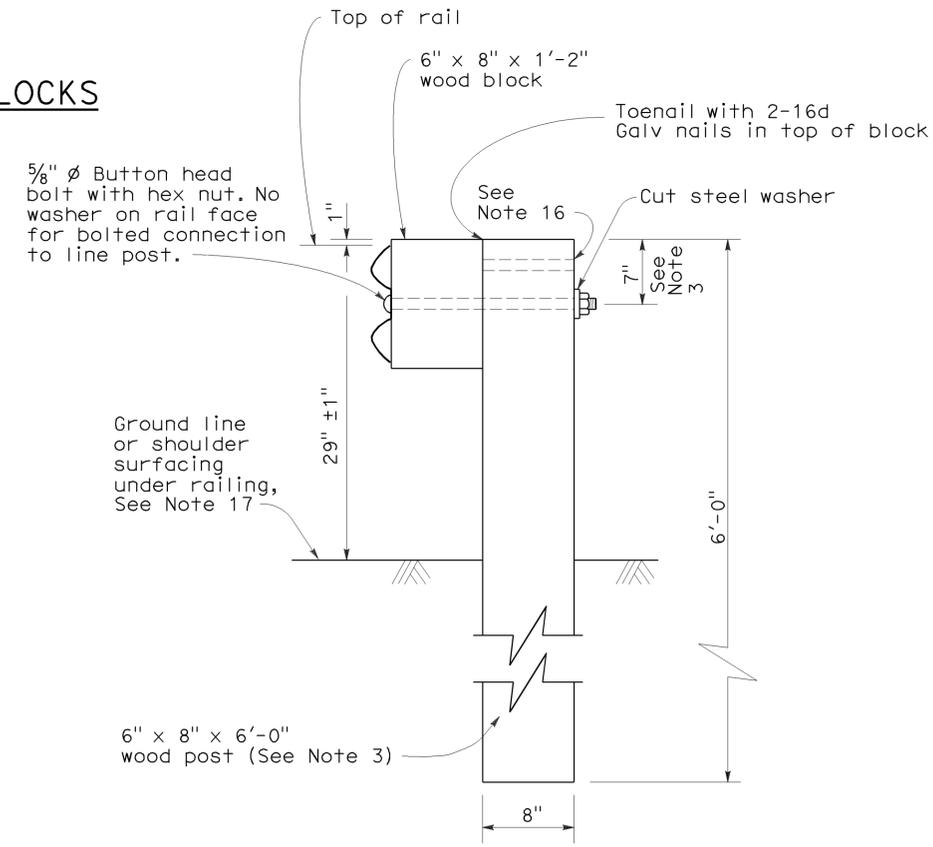


**RAIL ELEMENT SPLICE DETAIL**

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



**SECTION THRU RAIL ELEMENT**



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

See Note 4

**NOTES:**

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

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

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

**REVISED STANDARD PLAN RSP A77A1**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	405	39.4/48.6	155	179

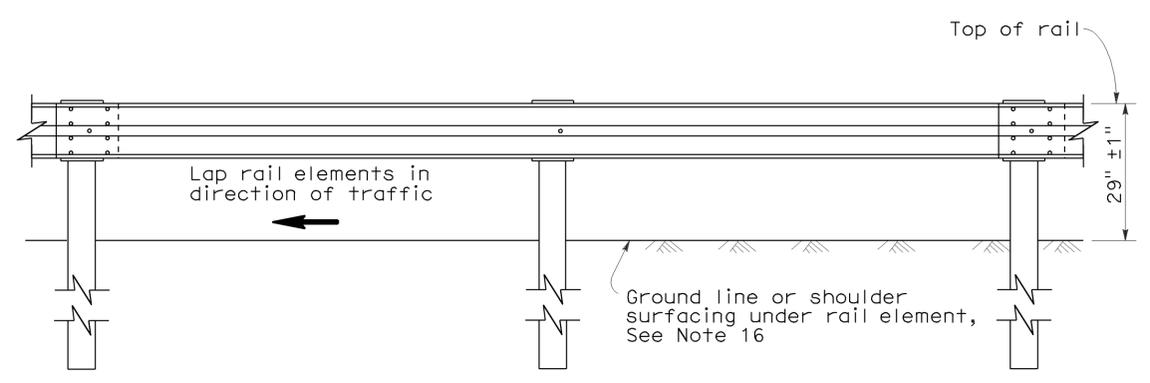
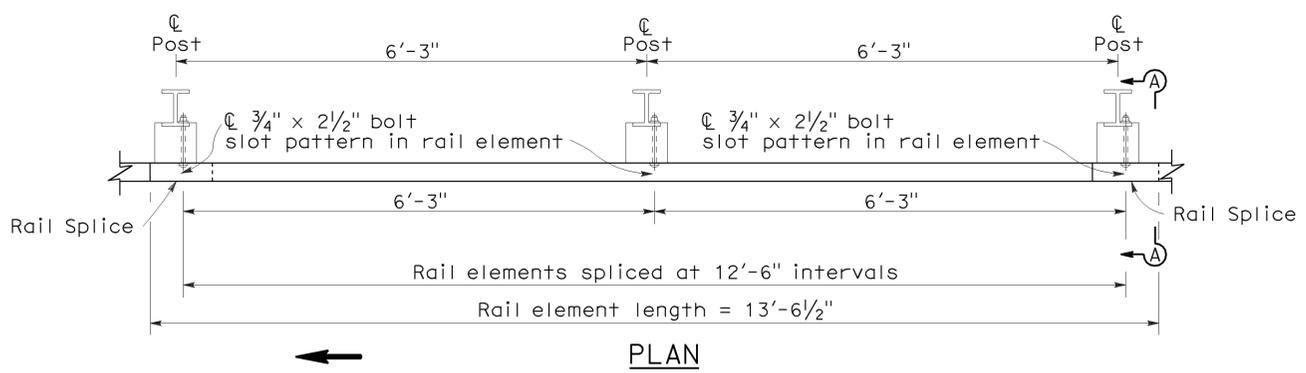
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

May 20, 2011  
PLANS APPROVAL DATE

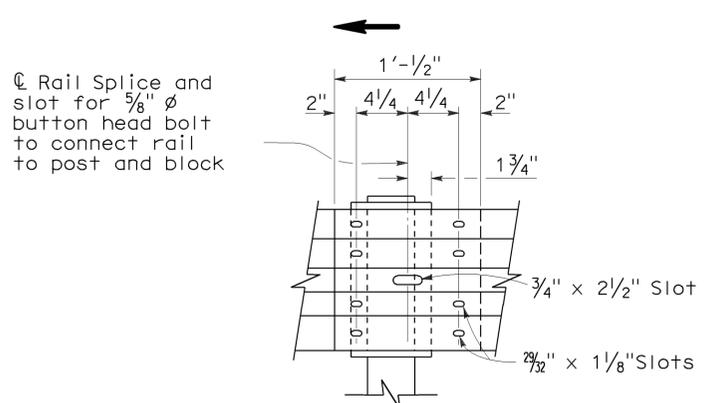
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To accompany plans dated 7-30-12

2006 REVISED STANDARD PLAN RSP A77A2



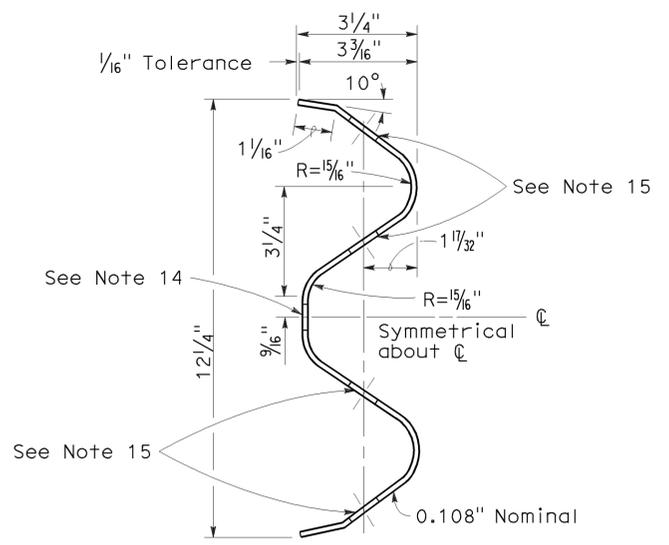
**METAL BEAM GUARD RAILING WITH STEEL POSTS AND NOTCHED WOOD OR NOTCHED RECYCLED PLASTIC BLOCKS**



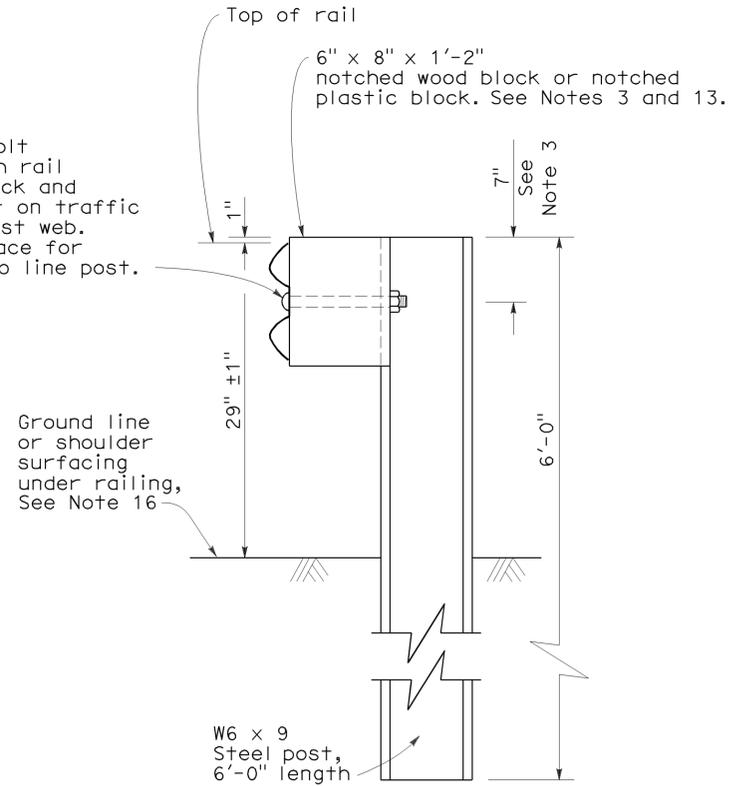
**ELEVATION  
RAIL ELEMENT SPLICE DETAIL**

- a) Connect the overlapped end of the rail elements with 5/8"  $\phi$  x 1 3/8" button head oval shoulder splice bolts inserted into the 2 7/32" x 1 1/8" slots and bolted together with 5/8"  $\phi$  recessed hex nuts. Recess of hex nut points toward rail element. A total of 8 bolts and nuts are to be used at each rail splice connection.
- b) The ends of the rail elements are to be overlapped in the direction of traffic (see details).
- c) Where end cap is to be attached to the end of a rail element, a total of 4 of the above described splice bolts and nuts are to be used.

5/8"  $\phi$  Button head bolt with hex nut. Attach rail element to wood block and steel post with bolt on traffic approach side of post web. No washer on rail face for bolted connection to line post.



**SECTION THRU  
RAIL ELEMENT**



**SECTION A-A  
TYPICAL STEEL LINE  
POST INSTALLATION**  
See Note 4

**NOTES:**

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

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

RSP A77A2 DATED MAY 20, 2011 SUPERSEDES STANDARD PLAN A77A2  
DATED MAY 1, 2006 - PAGE 42 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP A77A2**

To accompany plans dated 7-30-12

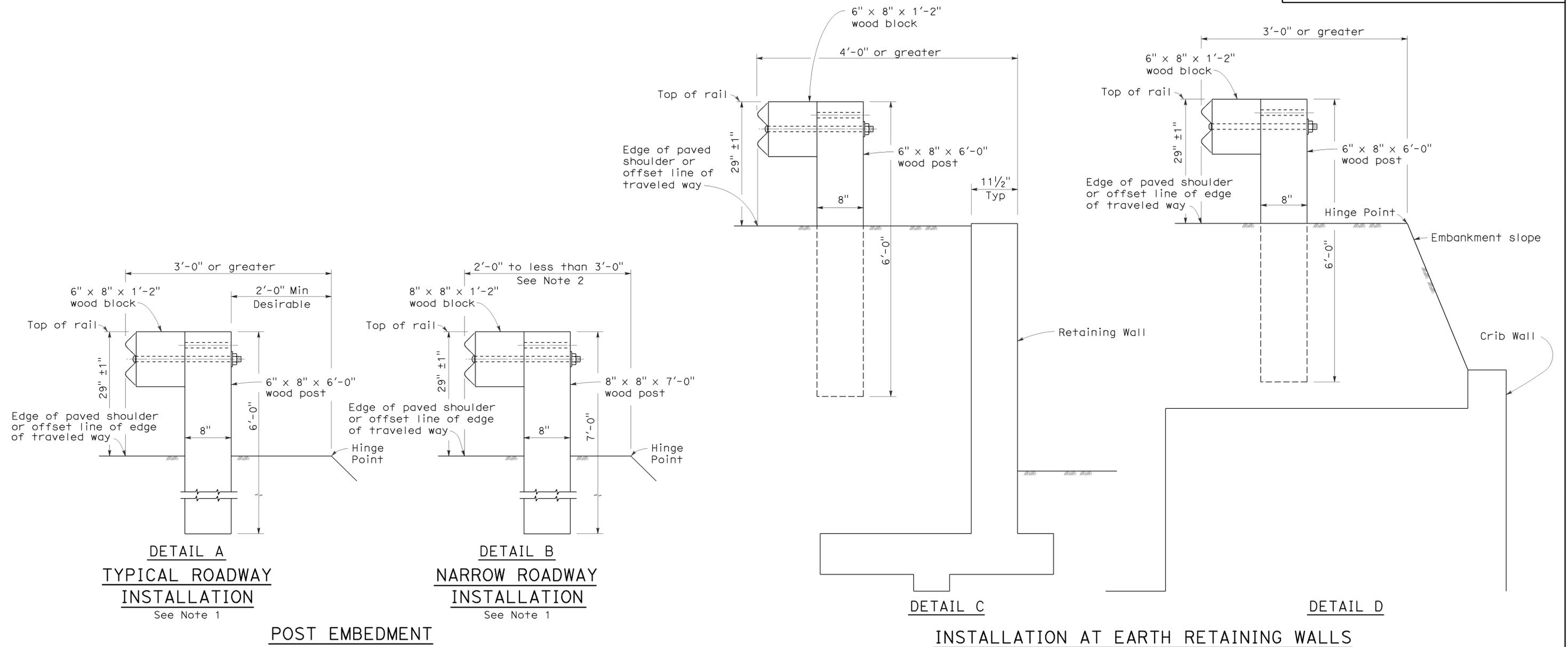
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	405	39.4/48.6	156	179

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

May 20, 2011  
PLANS APPROVAL DATE

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

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**NOTES:**

- These installation details also applicable to steel line post installations. For Detail A, C, and D, where steel line post installations are constructed, W6 x 9 steel post, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or notched recycled plastic blocks are to be used in place of the size of wood post and wood block shown. For Detail B, where steel line post installations are constructed, W6 x 9 steel post, 7'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or notched recycled plastic blocks are to be used in place of the size of wood post and wood block shown. For additional installation details, see Standard Plans A77A1 and A77A2.
- Where the distance between the face of the rail and the hinge point is less than 2'-0", see the Project Plans for special details.
- For dike positioning with guard railing installations, see Standard Plan A77C4.

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**METAL BEAM GUARD RAILING  
TYPICAL LINE POST  
EMBEDMENT AND  
HINGE POINT OFFSET DETAILS**

NO SCALE

RSP A77C3 DATED MAY 20, 2011 SUPERSEDES STANDARD PLAN A77C3  
DATED MAY 1, 2006 - PAGE 46 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP A77C3**

2006 REVISED STANDARD PLAN RSP A77C3

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	405	39.4/48.6	157	179

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

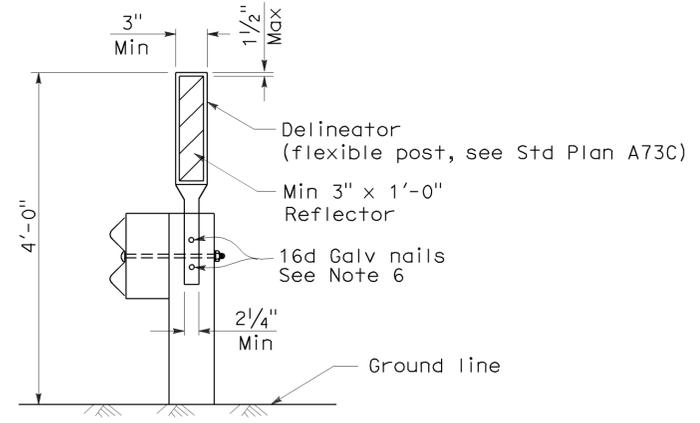
May 20, 2011  
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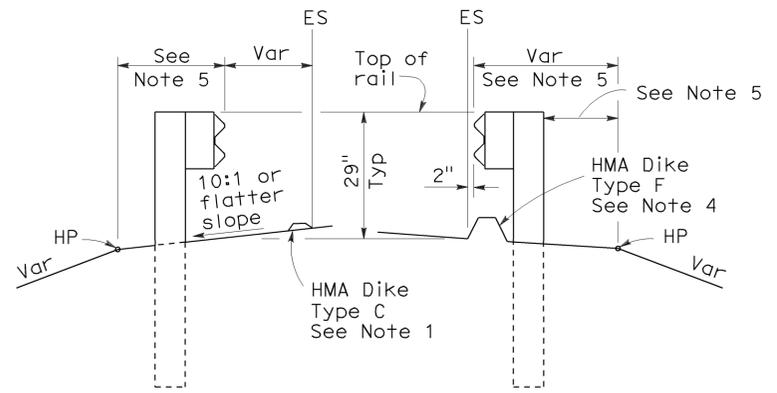
To accompany plans dated 7-30-12

**NOTES:**

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



**GUARD RAILING DELINEATION**  
See Note 3



**DIKE POSITIONING**  
See Note 1

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**METAL BEAM GUARD RAILING  
TYPICAL RAILING DELINEATION  
AND DIKE POSITIONING DETAILS**  
NO SCALE

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

**REVISED STANDARD PLAN RSP A77C4**

2006 REVISED STANDARD PLAN RSP A77C4

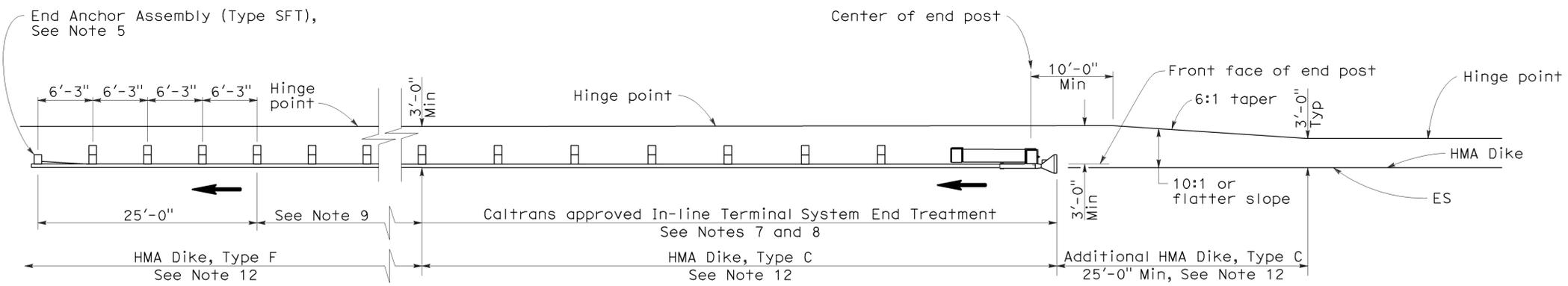
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	405	39.4/48.6	158	179

RANDALL D. HIATT  
 REGISTERED CIVIL ENGINEER  
 No. C50200  
 Exp. 6-30-09  
 CIVIL  
 STATE OF CALIFORNIA

June 6, 2008  
 PLANS APPROVAL DATE

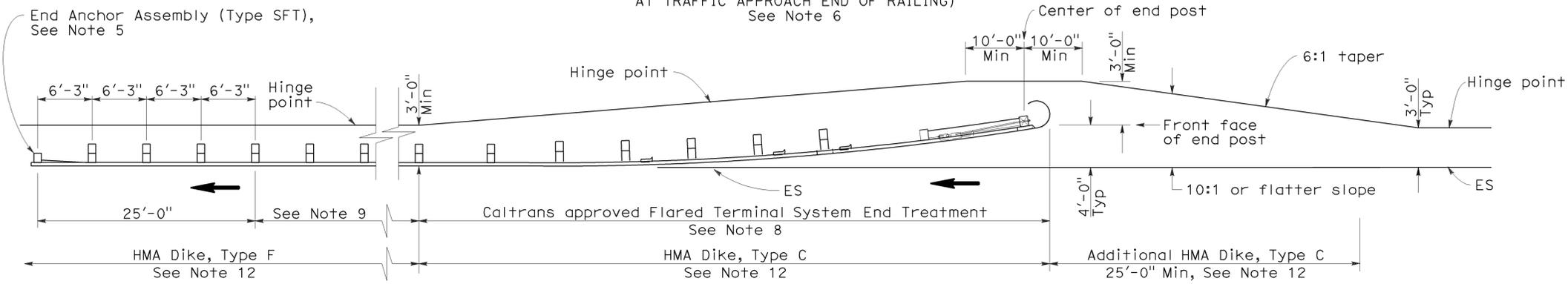
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To accompany plans dated 7-30-12



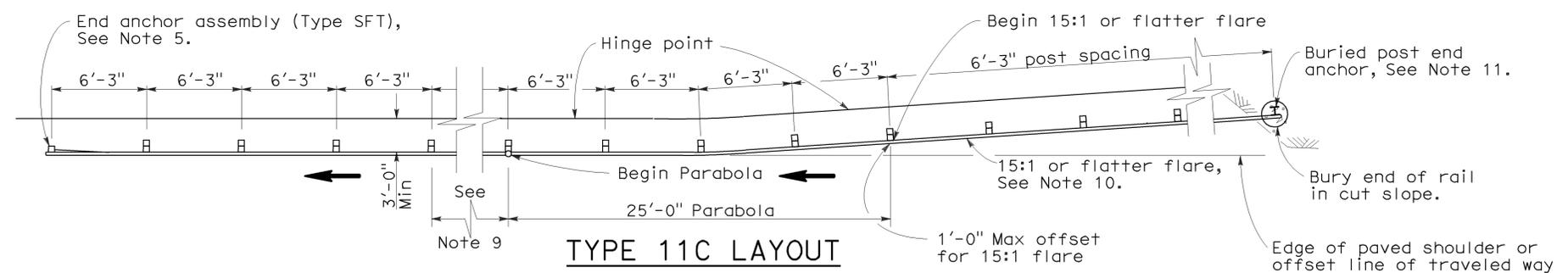
**TYPE 11A LAYOUT**

(EMBANKMENT GUARD INSTALLATION WITH IN-LINE END TREATMENT AT TRAFFIC APPROACH END OF RAILING)  
See Note 6



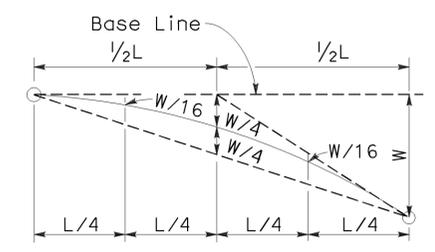
**TYPE 11B LAYOUT**

(EMBANKMENT GUARD RAILING INSTALLATION WITH FLARED END TREATMENT AT TRAFFIC APPROACH END OF RAILING)  
See Note 6

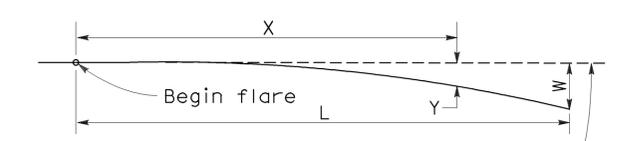


**TYPE 11C LAYOUT**

(EMBANKMENT GUARD RAILING INSTALLATION WITH BURIED END ANCHOR TREATMENT AT TRAFFIC APPROACH END OF RAILING)  
See Notes 6 and 12



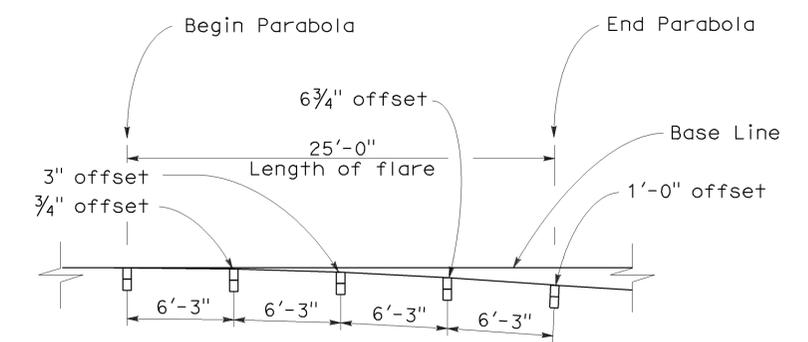
**TYPICAL PARABOLIC LAYOUT**



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**



**TYPICAL FLARE OFFSETS FOR 1 FOOT MAX END OFFSET**

**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 recycled plastic blocks may be used for 6" x 8" x 6'-0" wood post with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
- Direction of adjacent traffic indicated by  $\rightarrow$ .
- For End Anchor Assembly (Type SFT) details, see Standard Plan A77H1.
- Layout Types 11A, 11B or 11C are typically used where guard railing is recommended to shield embankment slopes and a crashworthy end treatment is required for only one direction of traffic.
- 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 and side slope), construction of additional guard railing (length equal to multiples of 12'-6" with 6'-3" post spacing) may be advisable.
- The 15:1 or flatter flare used with buried end anchors 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 11C Layout, see Standard Plan A77I2.
- Where placement of dike is required with guard railing installations, see Revised Standard Plan RSP A77C4 for dike positioning details.

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**METAL BEAM GUARD RAILING  
TYPICAL LAYOUTS FOR  
EMBANKMENTS**

NO SCALE

RSP A77E1 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77E1  
DATED MAY 1, 2006 - PAGE 48 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP A77E1**

2006 REVISED STANDARD PLAN RSP A77E1

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	405	39.4/48.6	159	179

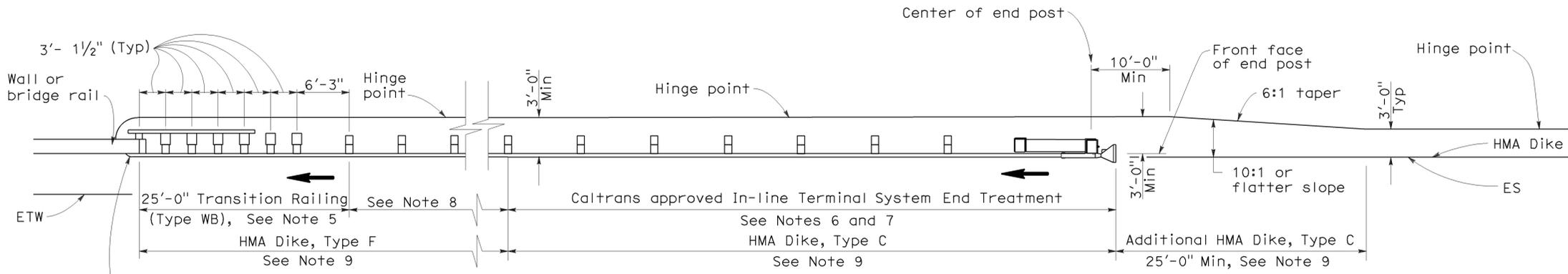
Randell D. Hiatt  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

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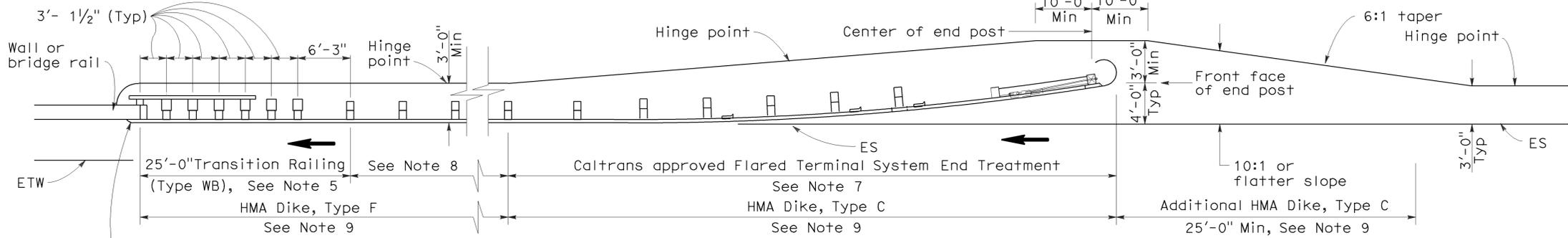
To accompany plans dated 7-30-12

2006 REVISED STANDARD PLAN RSP A77F1



**TYPE 12A LAYOUT**

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



**TYPE 12B LAYOUT**

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

**NOTES:**

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

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

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

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**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**

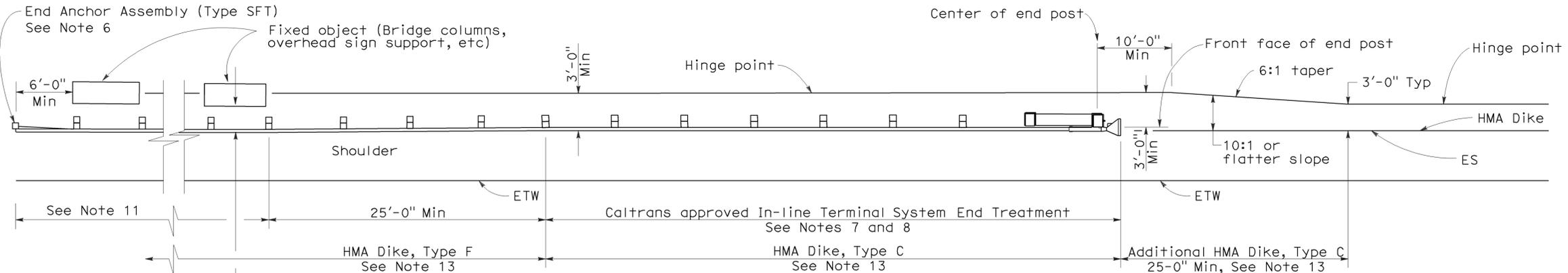
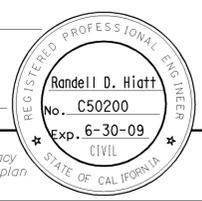
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	405	39.4/48.6	160	179

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

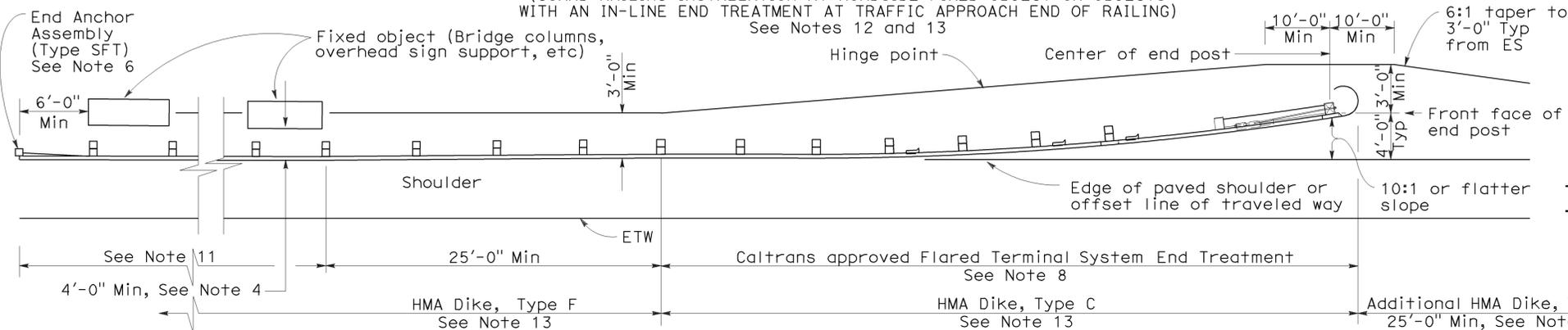
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To accompany plans dated 7-30-12



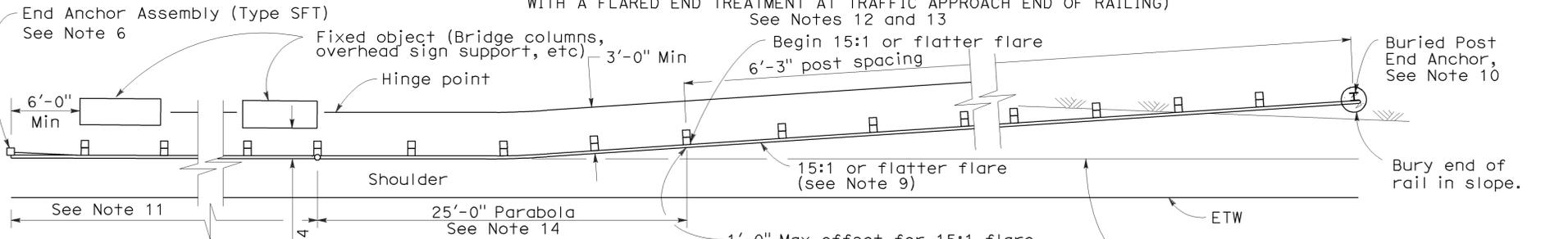
**TYPE 16A LAYOUT**

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



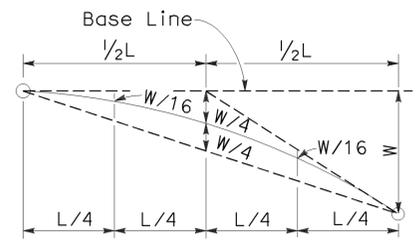
**TYPE 16B LAYOUT**

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

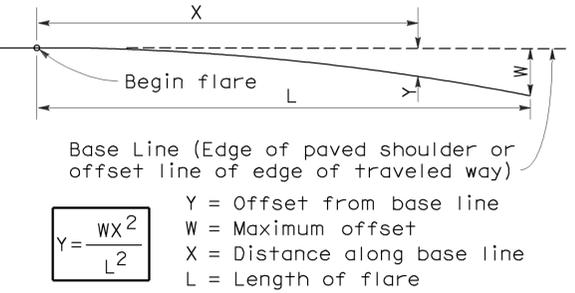


**TYPE 16C LAYOUT**

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



**TYPICAL PARABOLIC LAYOUT**

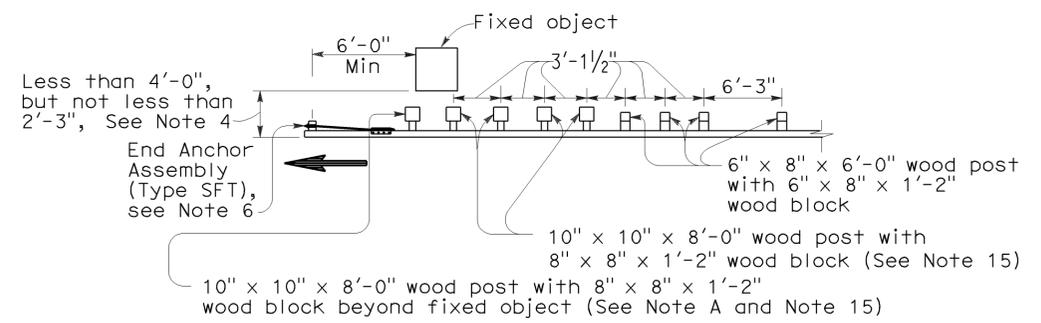


**PARABOLIC FLARE OFFSETS**

Y = Offset from base line  
W = Maximum offset  
X = Distance along base line  
L = Length of flare

**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

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**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
07	LA	405	39.4/48.6	161	179

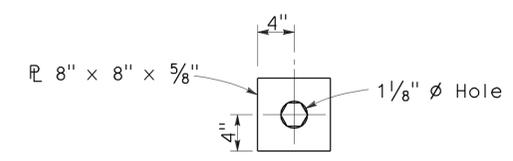
Randell D. Hiatt  
REGISTERED CIVIL ENGINEER

May 20, 2011  
PLANS APPROVAL DATE

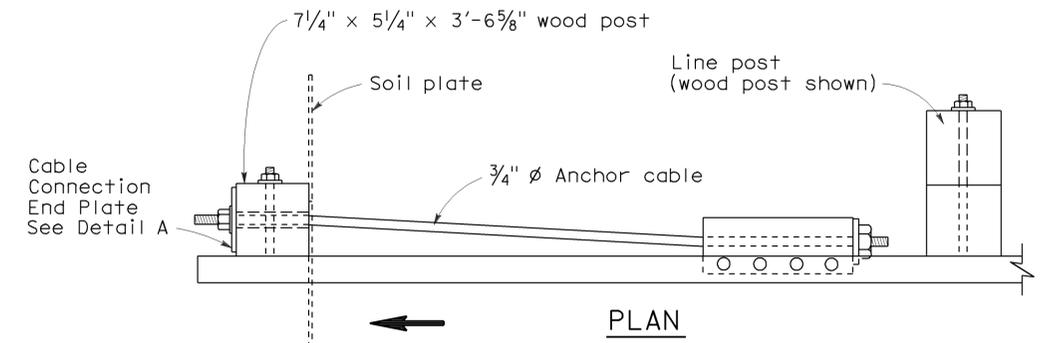
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REGISTERED PROFESSIONAL ENGINEER  
Randell D. Hiatt  
No. C50200  
Exp. 6-30-11  
CIVIL  
STATE OF CALIFORNIA

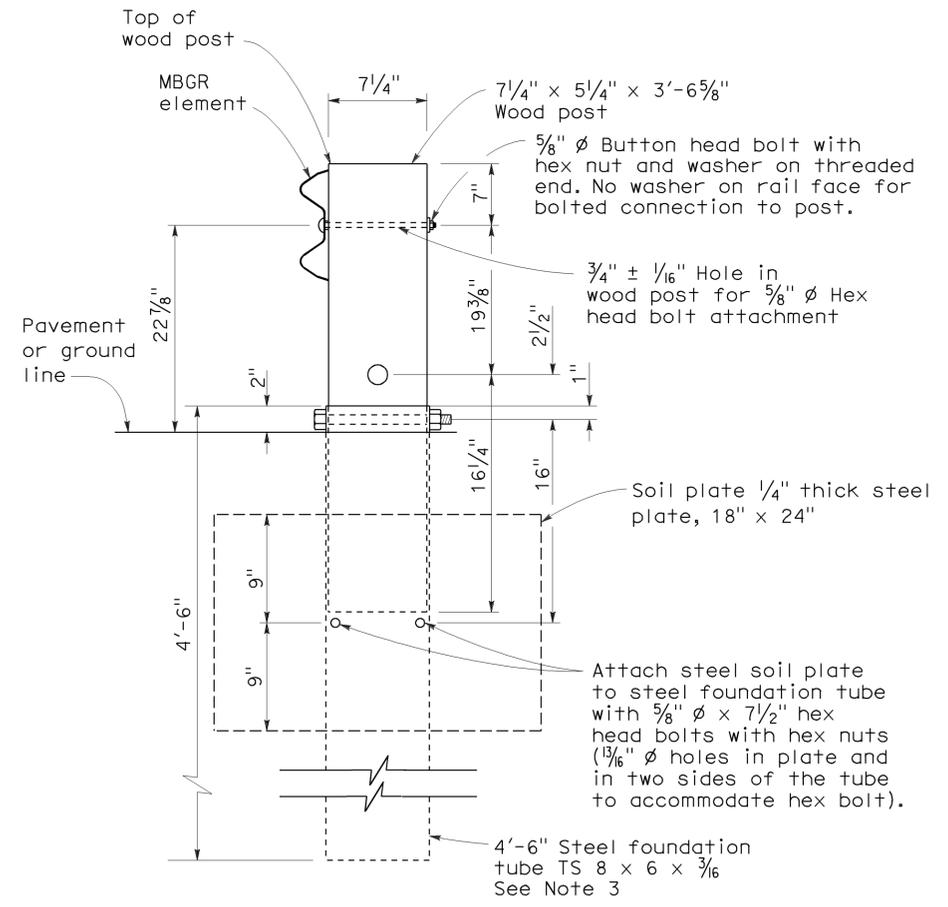
To accompany plans dated 7-30-12



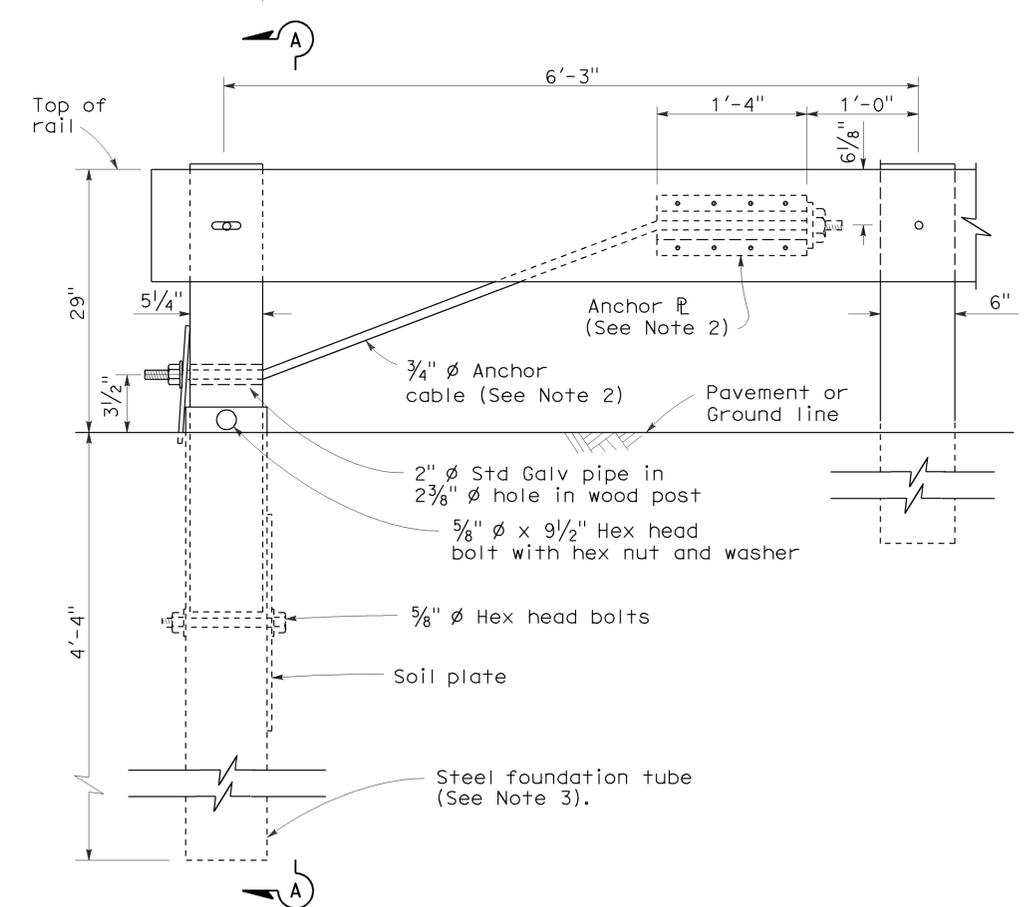
**DETAIL A**  
**CABLE CONNECTION**  
**END PLATE**



**PLAN**



**SECTION A-A**



**ELEVATION**  
**END ANCHOR**  
**ASSEMBLY (TYPE SFT)**  
See Note 1

**NOTES:**

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

STATE OF CALIFORNIA  
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**METAL RAILING**  
**END ANCHOR ASSEMBLY**  
**(TYPE SFT)**

NO SCALE

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

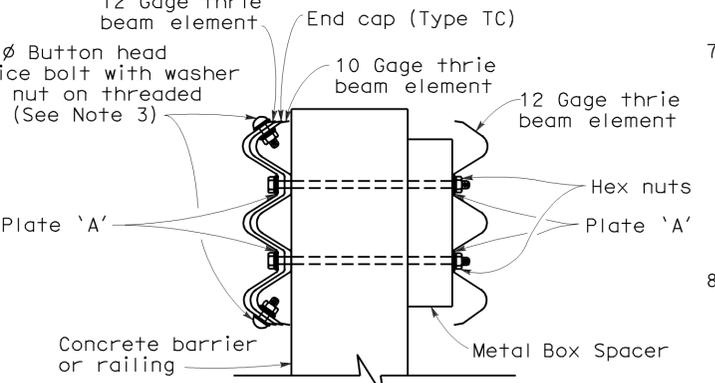
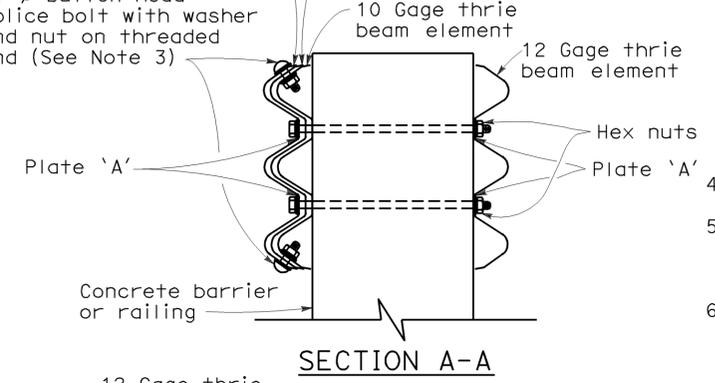
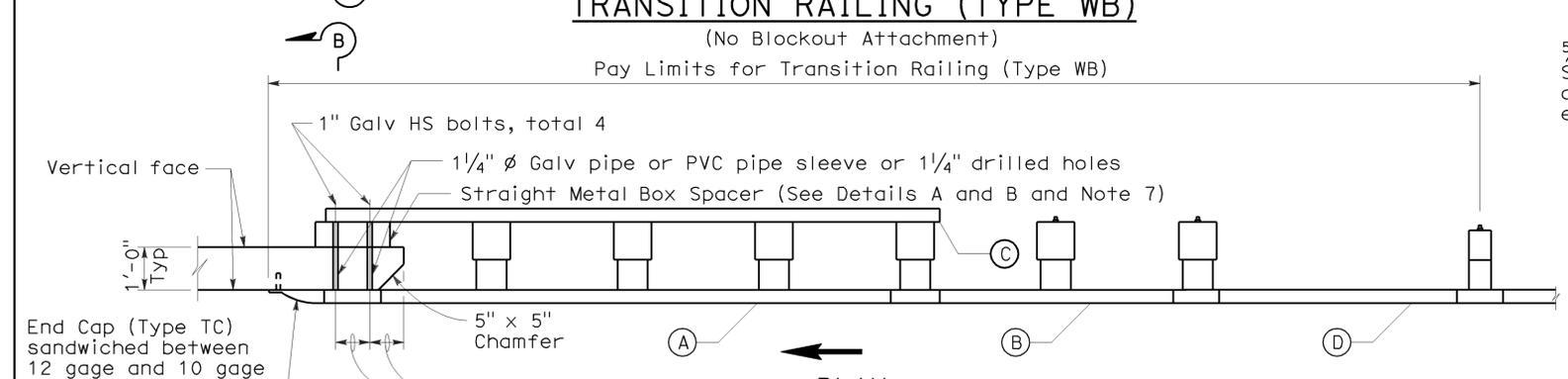
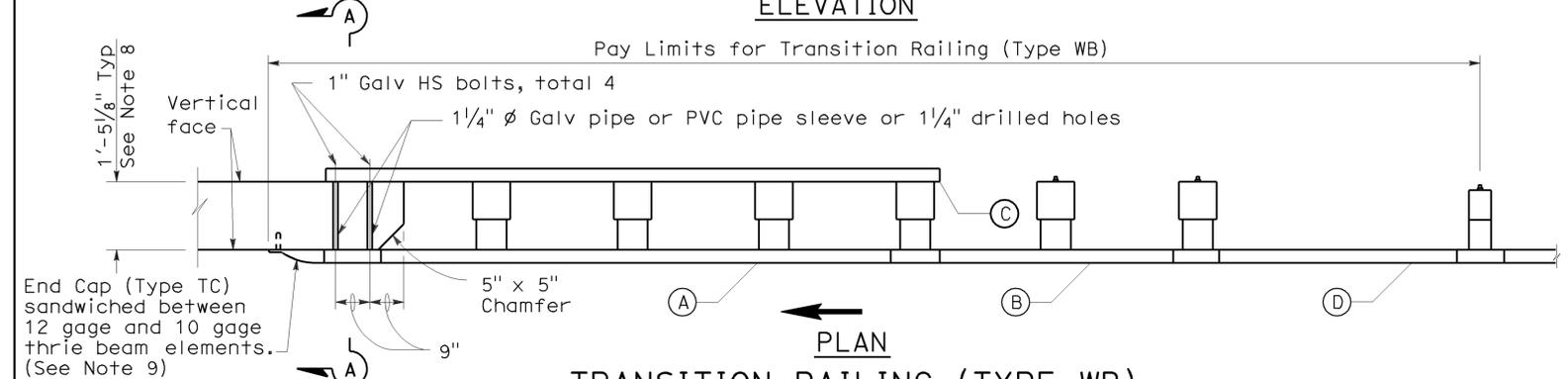
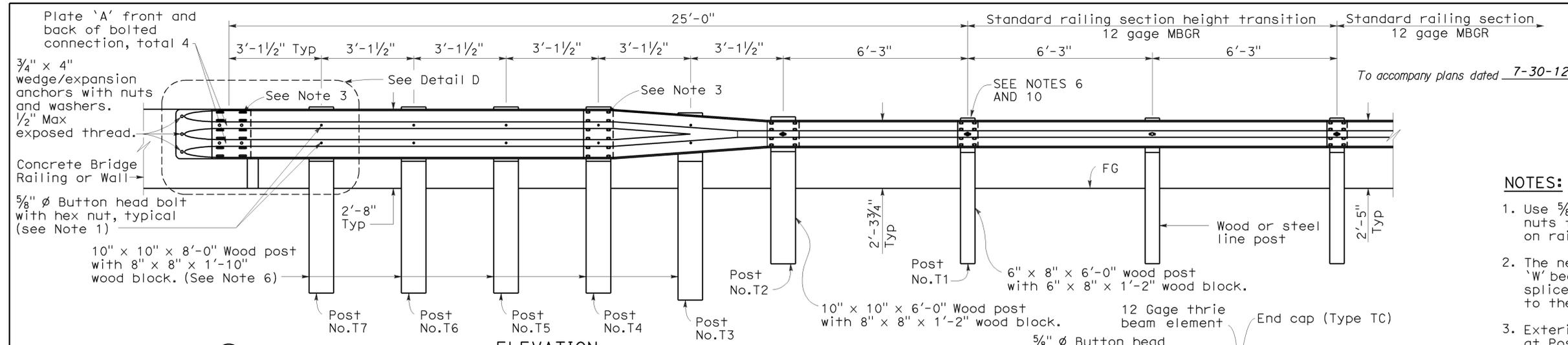
**REVISED STANDARD PLAN RSP A77H1**

2006 REVISED STANDARD PLAN RSP A77H1

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	405	39.4/48.6	162	179

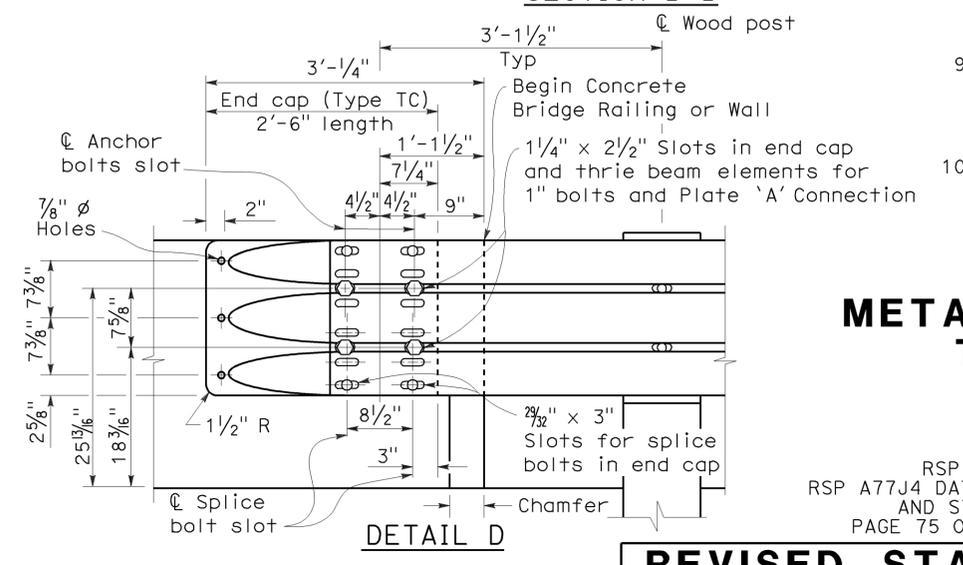
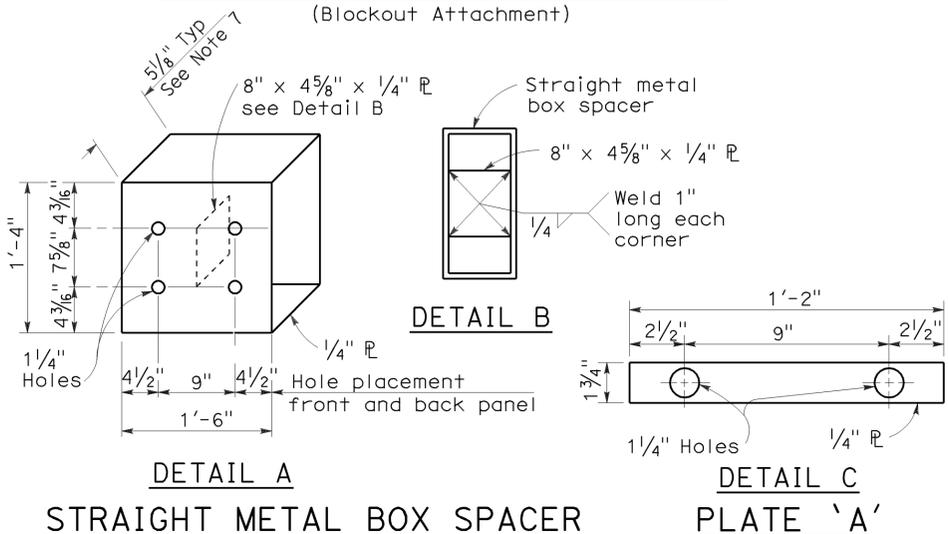
RANDALL D. HIATT  
 REGISTERED CIVIL ENGINEER  
 No. C50200  
 Exp. 6-30-11  
 STATE OF CALIFORNIA

May 20, 2011  
 PLANS APPROVAL DATE  
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- NOTES:**
- Use 5/8" ø Button head bolts and hex nuts for connections to posts. No washer on rail face for bolted connections to post.
  - 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.
  - 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 7/32" x 1/8" slot size. Interior splice bolt holes at these locations may be increased up to 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.
  - Direction of adjacent traffic indicated by →.
  - The top elevation of Posts No. T2 through No. T7 shall not project more than 1" above the top elevation of the rail element.
  - Typically, the railing connected to Transition Railing (Type WB) will be either standard railing section of metal beam guard railing with height transition ratio of 120:1 or an approved Caltrans end treatment attached to Post No. T1.
  - The depth of the metal box spacer varies from the 5/8" 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 7/8". 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.
  - Where the width of the concrete railing or wall is greater than 17 7/8", wood blocks are to be used to fill the space created between the backside of Posts No. T4 through No. T7 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.
  - 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.
  - Conform standard railing section height to 2'-3 3/4" at Post No. T1 using height transition ratio of 120:1.

- 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



STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**METAL BEAM GUARD RAILING  
 TRANSITION RAILING  
 (TYPE WB)**  
 NO SCALE  
 RSP A77J4 DATED MAY 20, 2011 SUPERSEDES  
 RSP A77J4 DATED JUNE 5, 2009, 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**

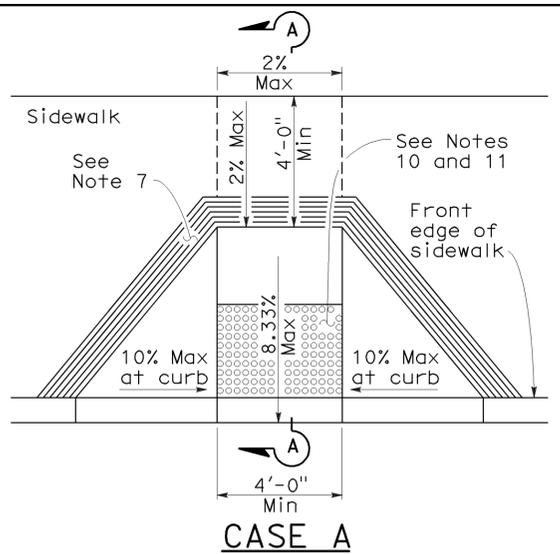
2006 REVISED STANDARD PLAN RSP A77J4

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	405	39.4/48.6	163	179

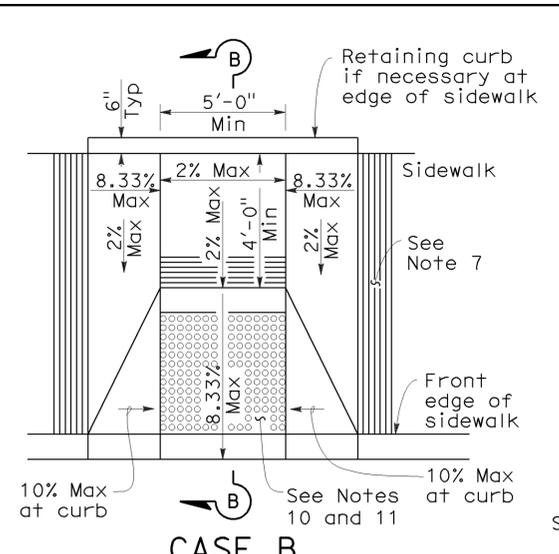
H. David Cordova  
 REGISTERED CIVIL ENGINEER  
 No. C41957  
 Exp. 3-31-08  
 STATE OF CALIFORNIA

September 1, 2006  
 PLANS APPROVAL DATE

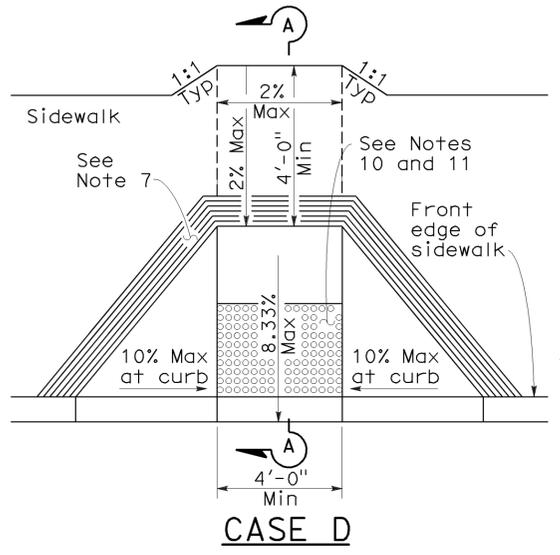
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.



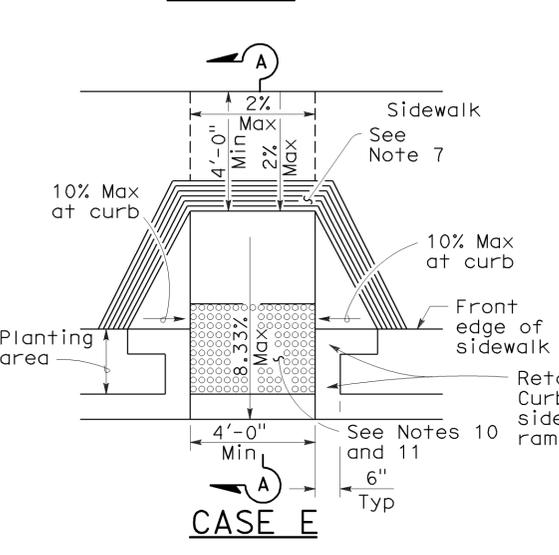
**CASE A**



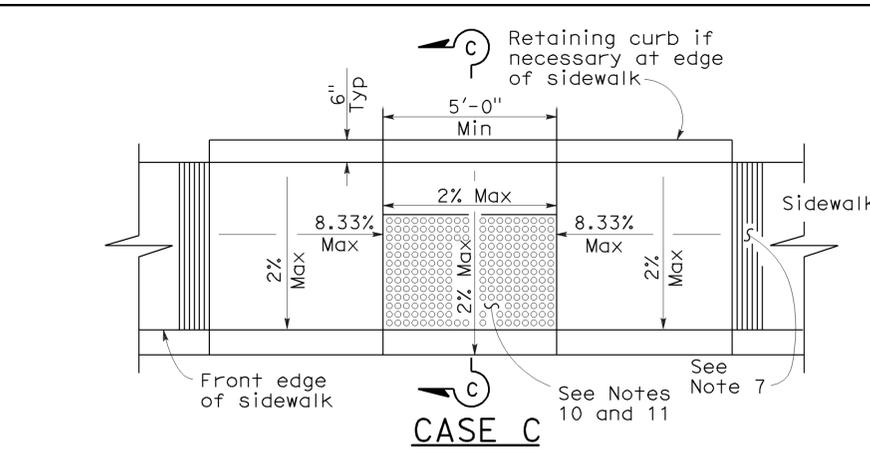
**CASE B**



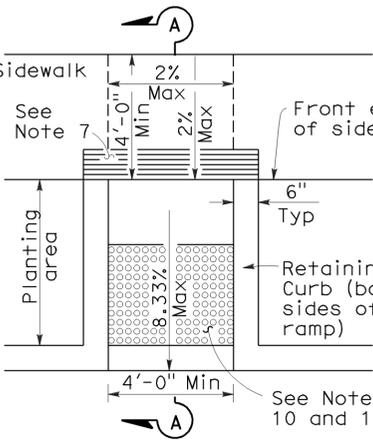
**CASE D**



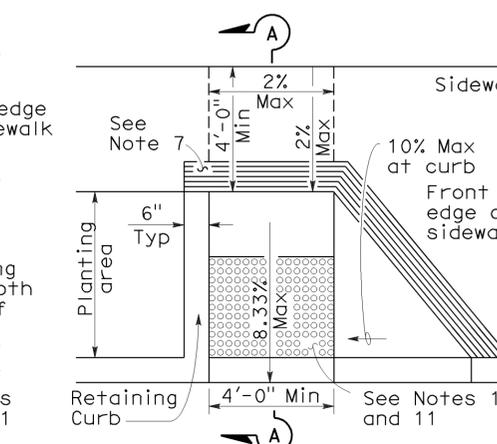
**CASE E**



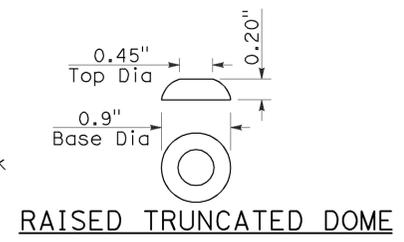
**CASE C**



**CASE F**



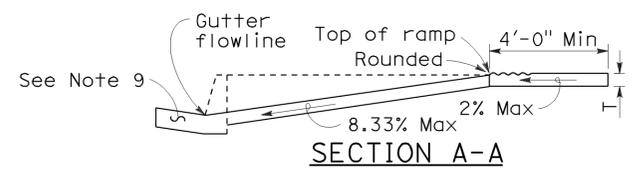
**CASE G**



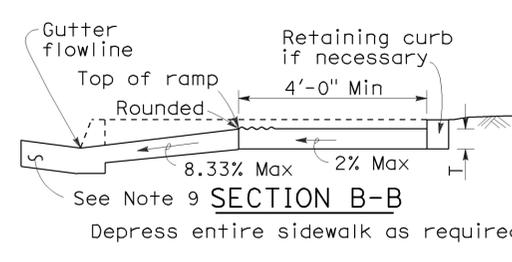
**RAISED TRUNCATED DOME**

**NOTES:**

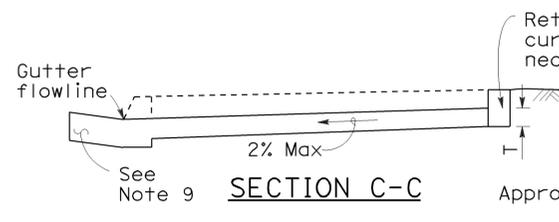
- As site conditions dictate, Case A through Case G curb ramps may be used for corner installations similar to those shown in Detail A and Detail B. The case of curb ramps used in Detail A do not have to be the same. Case A through Case G curb ramps also may be used at mid block locations, as site conditions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



**SECTION A-A**



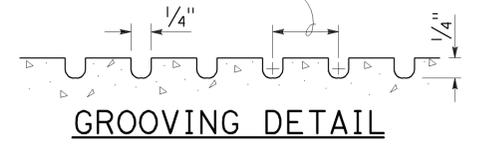
**SECTION B-B**



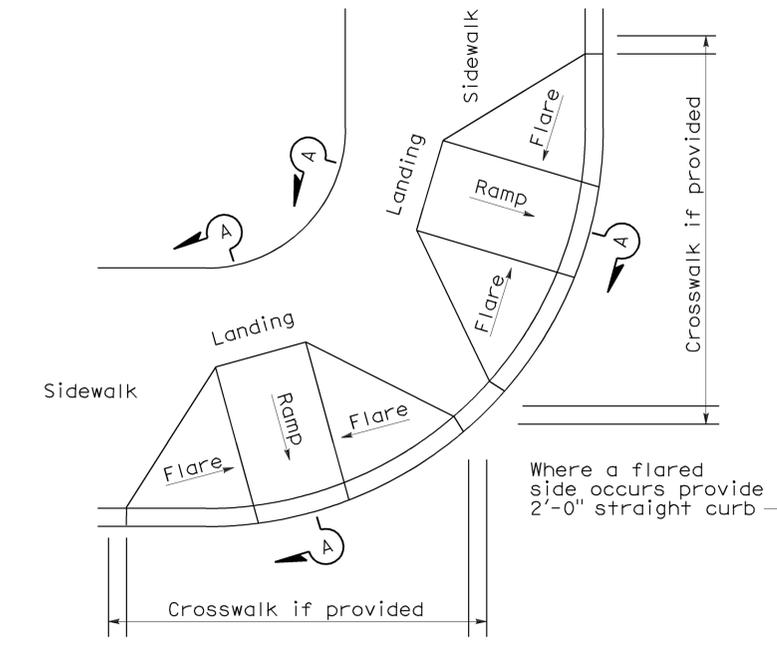
**SECTION C-C**



**RAISED TRUNCATED DOME PATTERN (IN-LINE) DETECTABLE WARNING SURFACE**

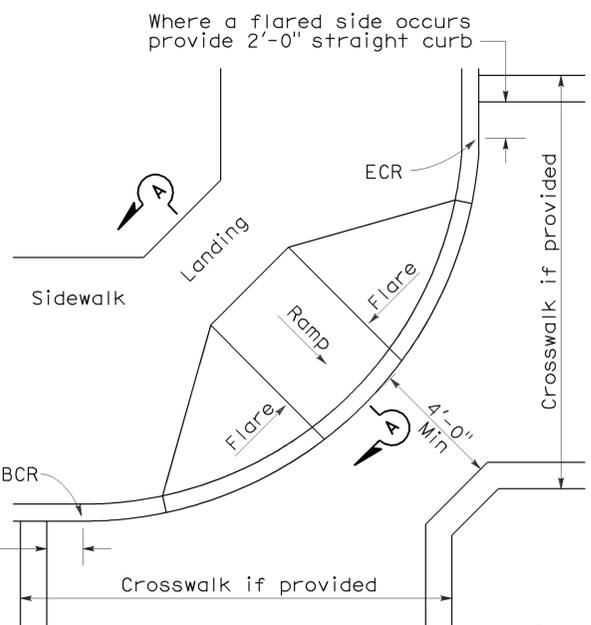


**GROOVING DETAIL**



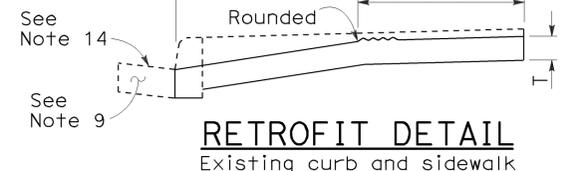
**DETAIL A**

**TYPICAL TWO-RAMP CORNER INSTALLATION**



**DETAIL B TYPICAL ONE-RAMP CORNER INSTALLATION**

See Notes 1 and 3



**RETROFIT DETAIL**

Existing curb and sidewalk

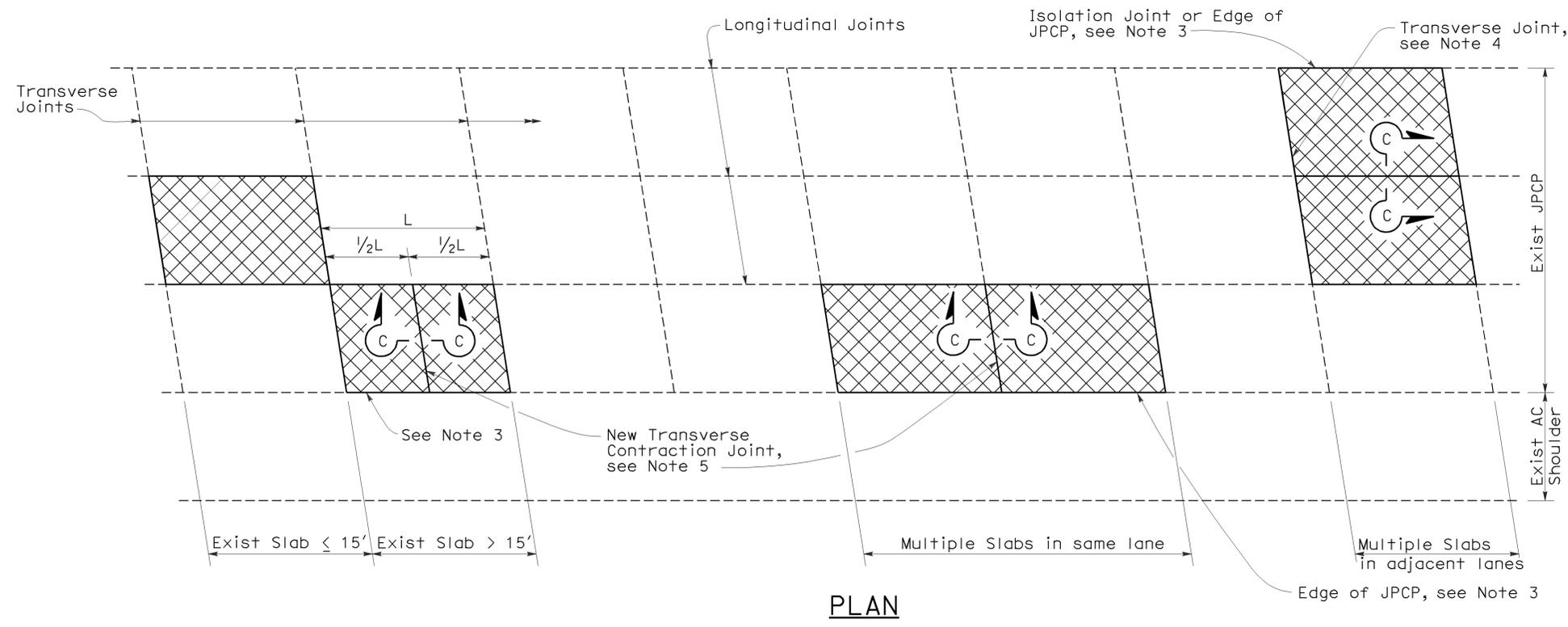
2006 REVISED STANDARD PLAN RSP A88A

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	405	39.4/48.6	164	179

William K. Farnbach  
 REGISTERED CIVIL ENGINEER  
 April 20, 2012  
 PLANS APPROVAL DATE  
 The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

REGISTERED PROFESSIONAL ENGINEER  
 William K. Farnbach  
 No. C49042  
 Exp. 9-30-12  
 CIVIL  
 STATE OF CALIFORNIA

To accompany plans dated 7-30-12

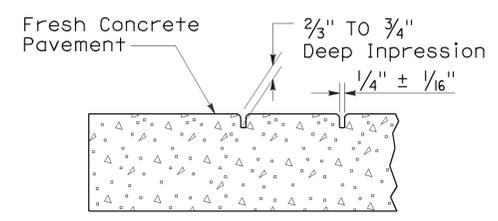
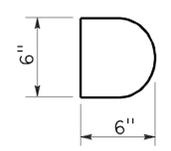
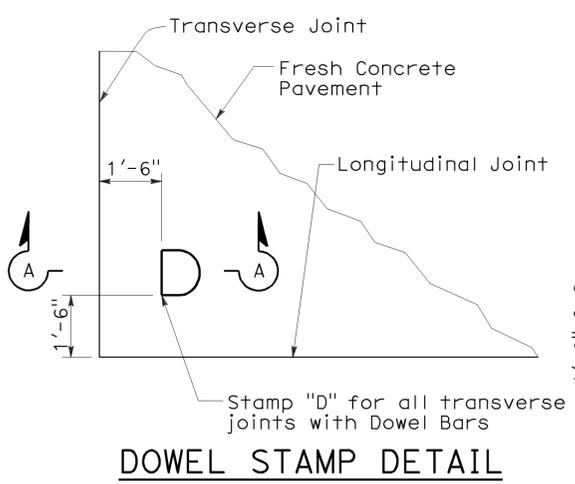


**PLAN**

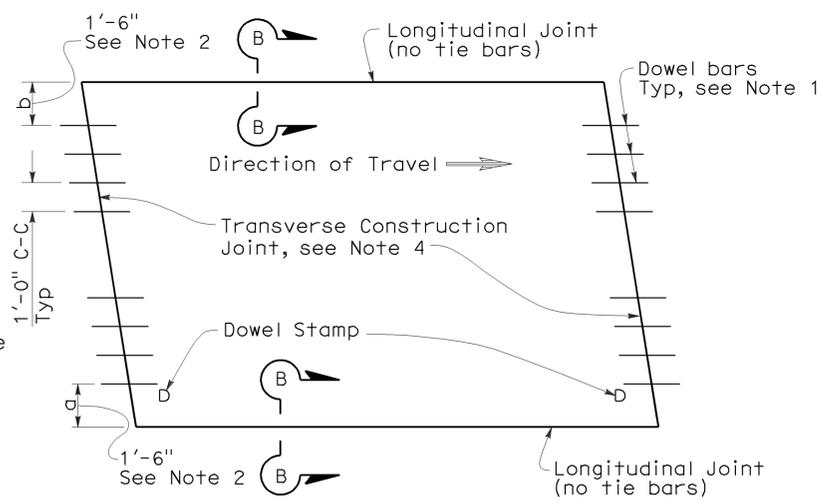
**NOTES:**

- For details not shown, see Revised Standard Plan RSP P10.
- Where the existing outer shoulder pavement is asphalt concrete pavement, the "a" dimension shall be 1'-0" and the "b" dimension shall be 2'-0".
- Side forms shall be used where edge of pavement is adjacent to asphalt concrete.
- For detail, see Transverse Construction Joint for existing concrete pavement detail on Revised Standard Plan RSP P10.
- Transverse joint to match skew of existing joint. Omit dowel bars.

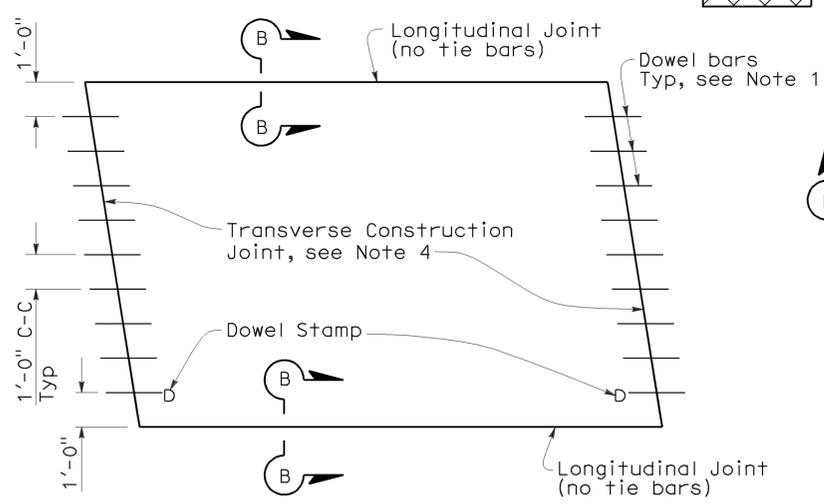
**LEGEND**



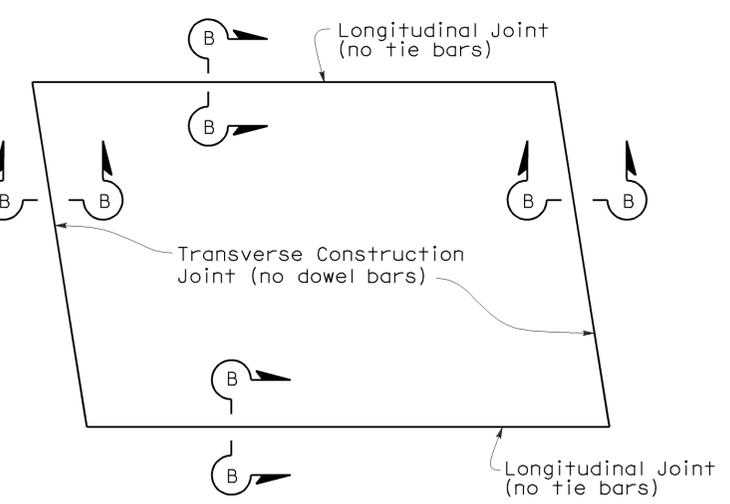
**SECTION A-A**



**TYPE I**  
Traffic lane lines match longitudinal joints

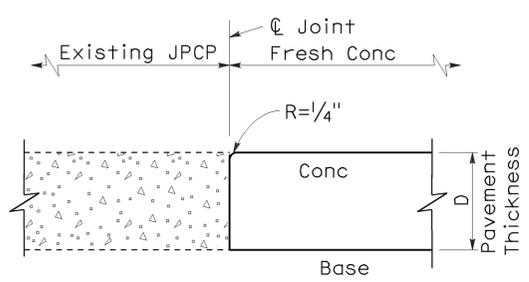


**TYPE II**  
Traffic lane lines do not match longitudinal joints

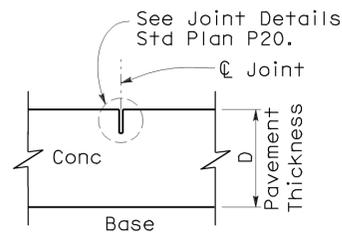


**TYPE III**  
For short term repairs < 5 yrs design life or for slab replacements with a cracking and seating operation

**SLAB LAYOUT**



**SECTION B-B**



**SECTION C-C**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**JOINED PLAIN CONCRETE PAVEMENT - INDIVIDUAL SLAB REPLACEMENT**  
NO SCALE

RSP P8 DATED APRIL 20, 2012 SUPERSEDES RSP P8 DATED MAY 15, 2009, RSP P8 DATED SEPTEMBER 1, 2006 AND STANDARD PLAN P8 DATED MAY 1, 2006 - PAGE 123 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP P8**

2006 REVISED STANDARD PLAN RSP P8

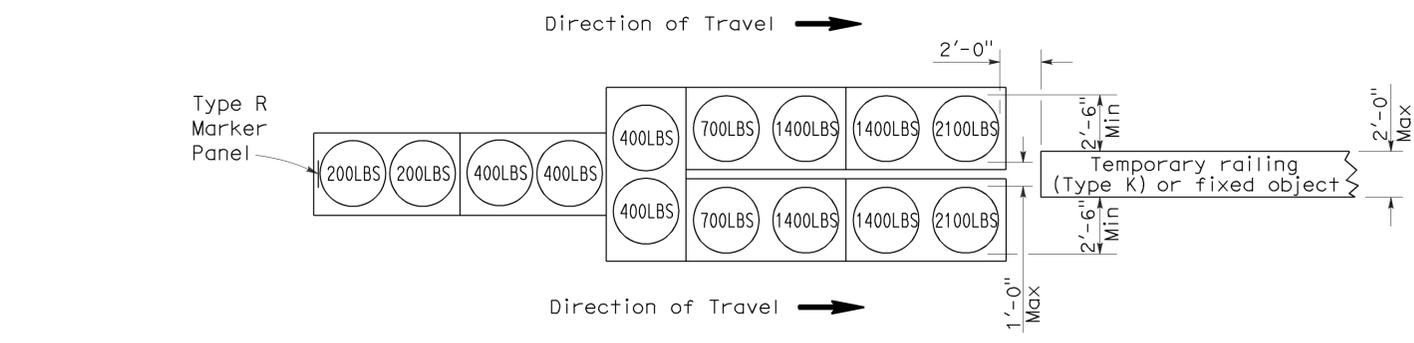
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	405	39.4/48.6	165	179

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

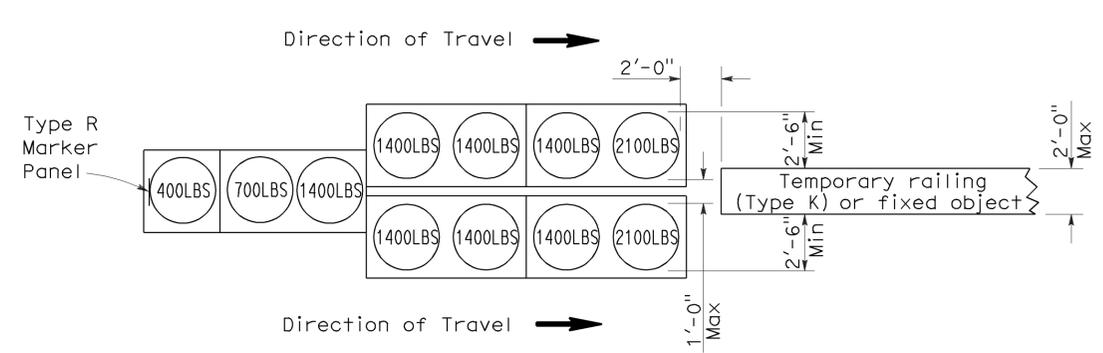
*The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.*

To accompany plans dated 7-30-12



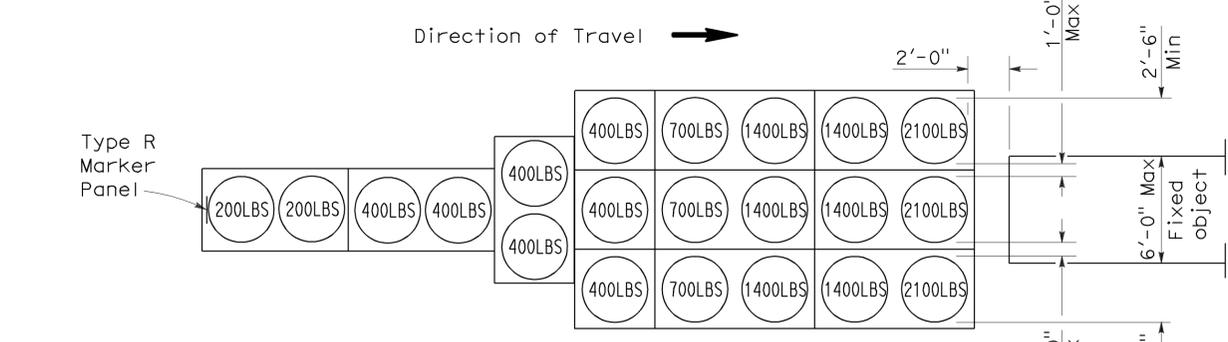
**ARRAY 'TU14'**

Approach speed 45 mph or more



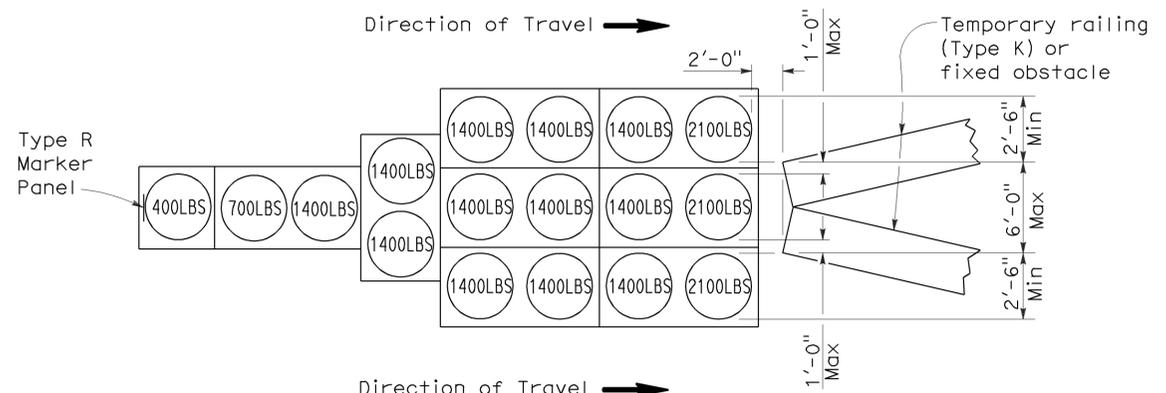
**ARRAY 'TU11'**

Approach speed less than 45 mph



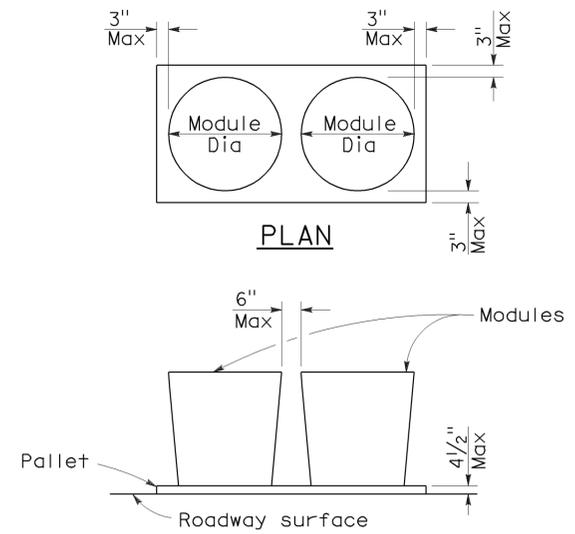
**ARRAY 'TU21'**

Approach speed 45 mph or more



**ARRAY 'TU17'**

Approach speed less than 45 mph



**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**

2006 REVISED STANDARD PLAN RSP T1A

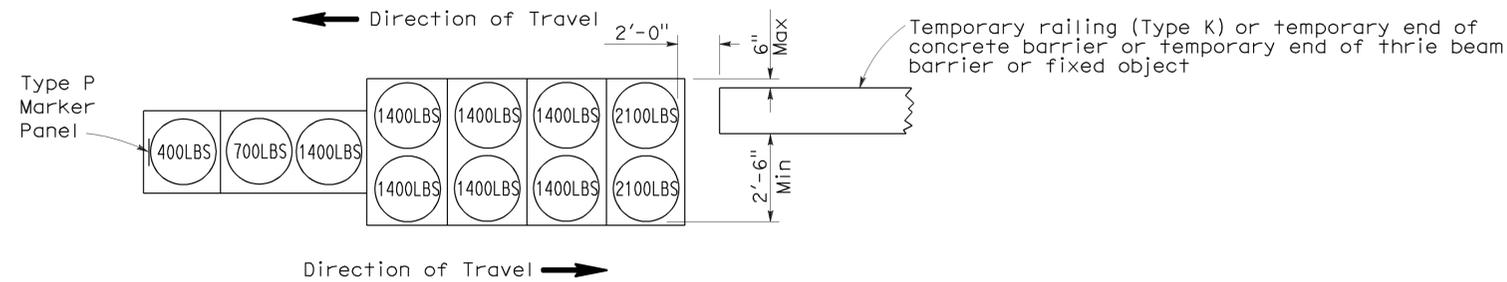
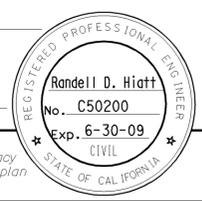
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	405	39.4/48.6	166	179

Randell D. Hiatt  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

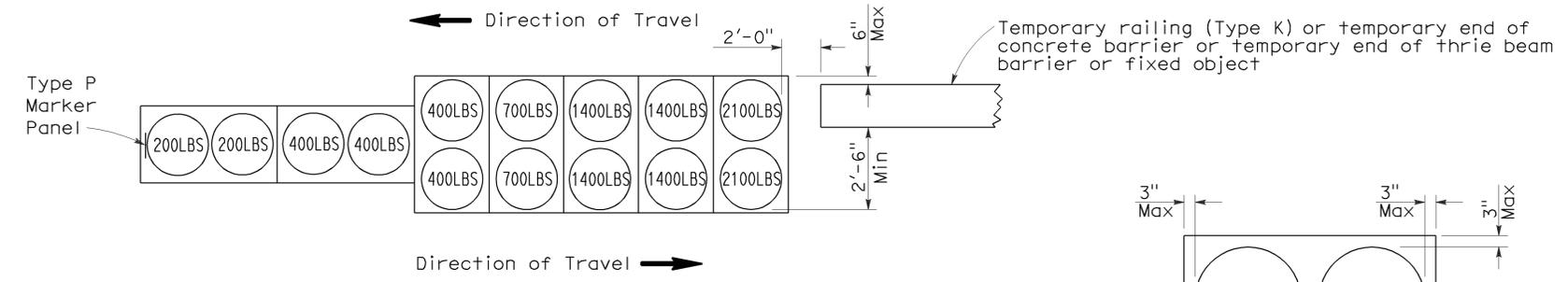
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

To accompany plans dated 7-30-12



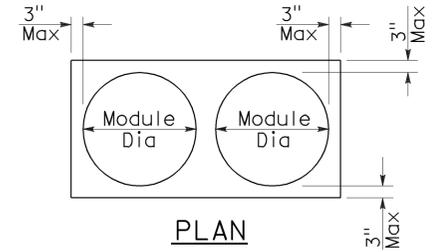
**ARRAY 'TB11'**

Approach speed less than 45 mph

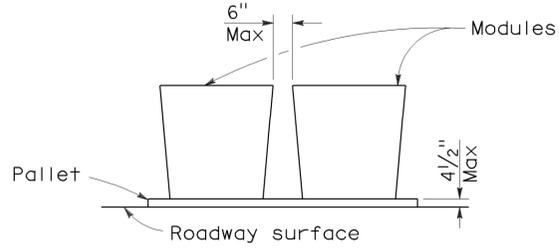


**ARRAY 'TB14'**

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 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

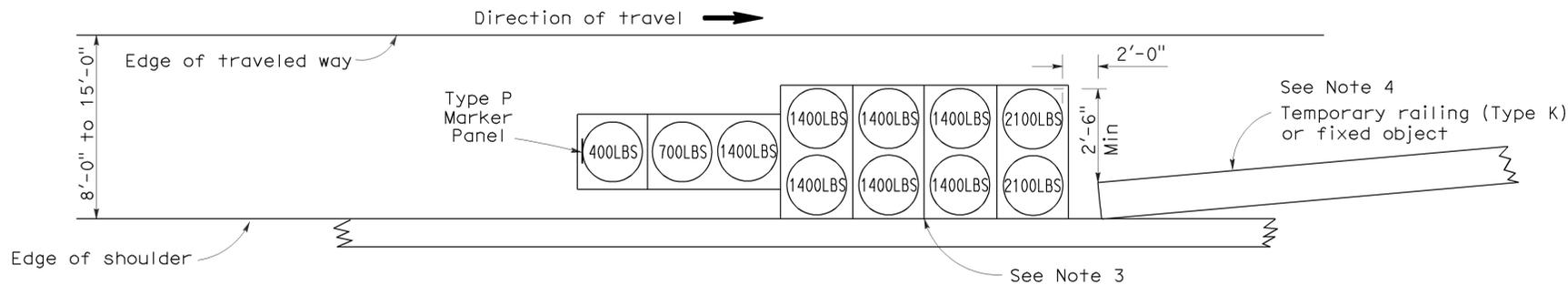
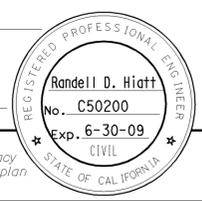
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	405	39.4/48.6	167	179

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

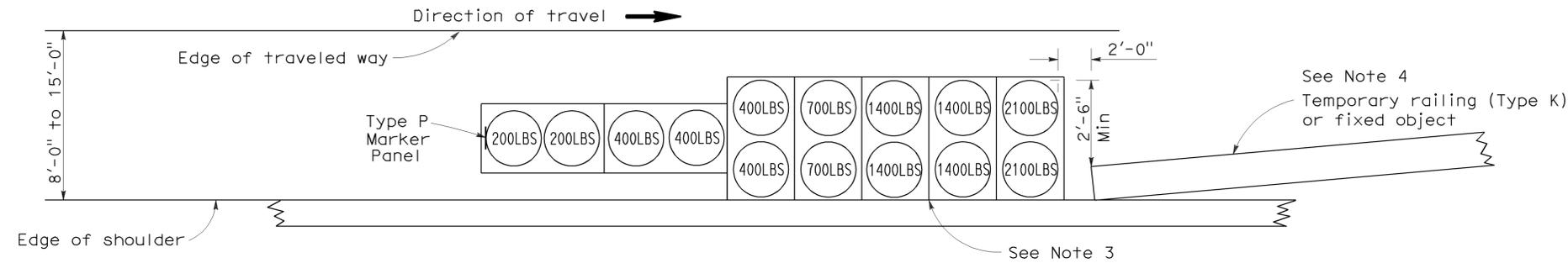
June 6, 2008  
PLANS APPROVAL DATE

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

To accompany plans dated 7-30-12



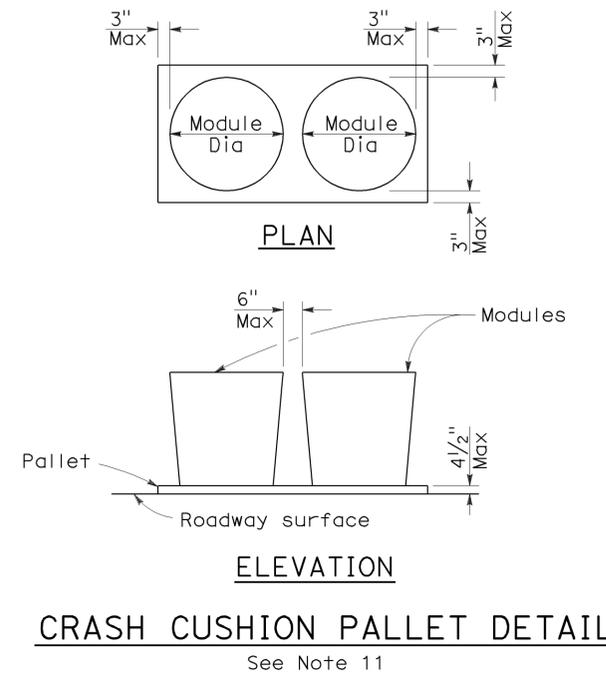
**ARRAY 'TS11'**  
Approach speed less than 45 mph  
See Note 9



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

**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.



**CRASH CUSHION PALLET DETAIL**  
See Note 11

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

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

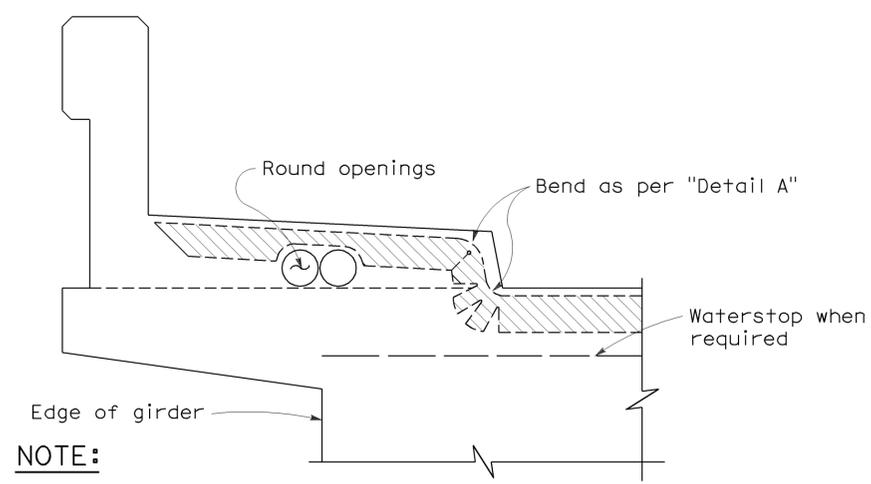
NO SCALE

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**

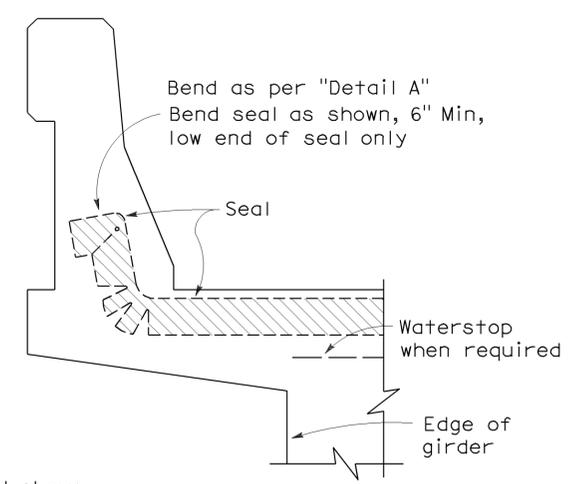
2006 REVISED STANDARD PLAN RSP T2



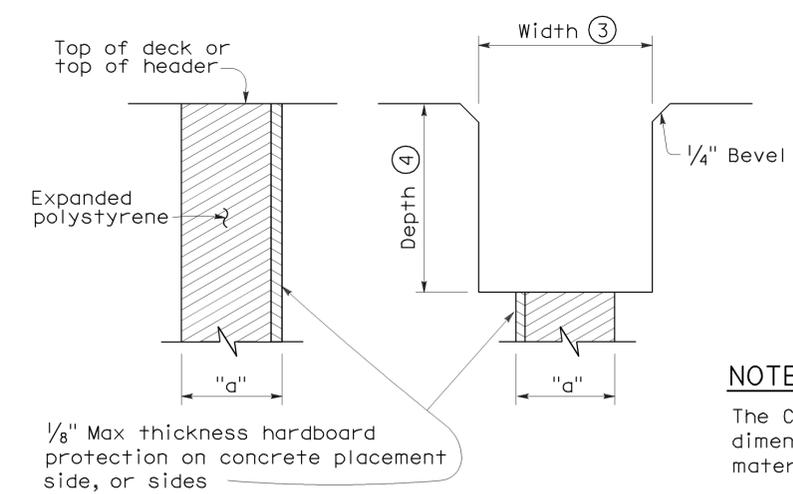


**NOTE:**  
 Type "B" seal shown. Type "A" seals to conform to the general path of seal shown, cuts for bending not required. Bend Type "A" seals 3" up into curb or barrier rail on only the low end of the seal.

**CONCRETE BARRIER AND SIDEWALK**



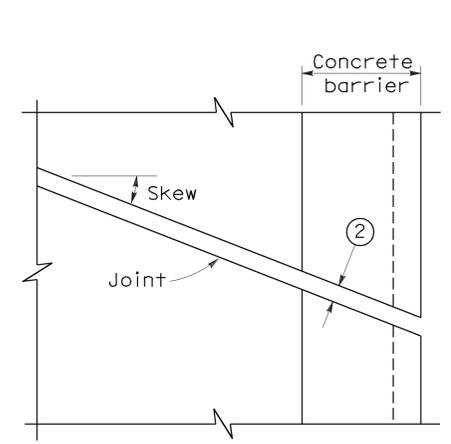
**CONCRETE BARRIER**



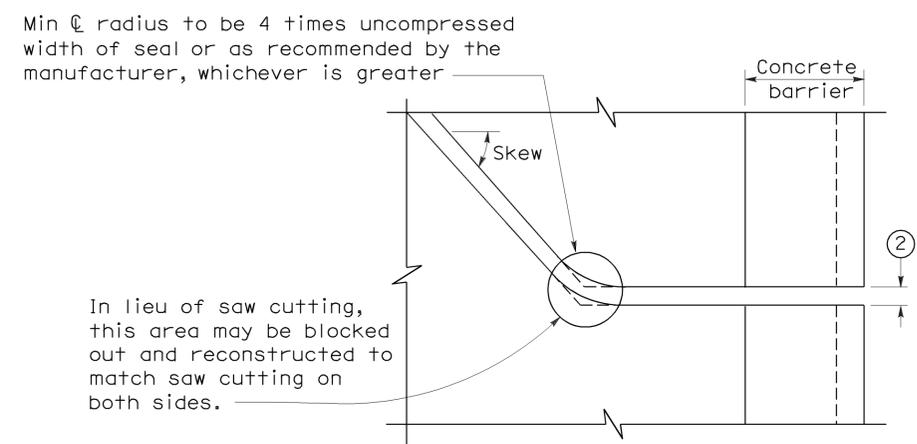
**FORMING DETAIL SAWCUT DETAIL**

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

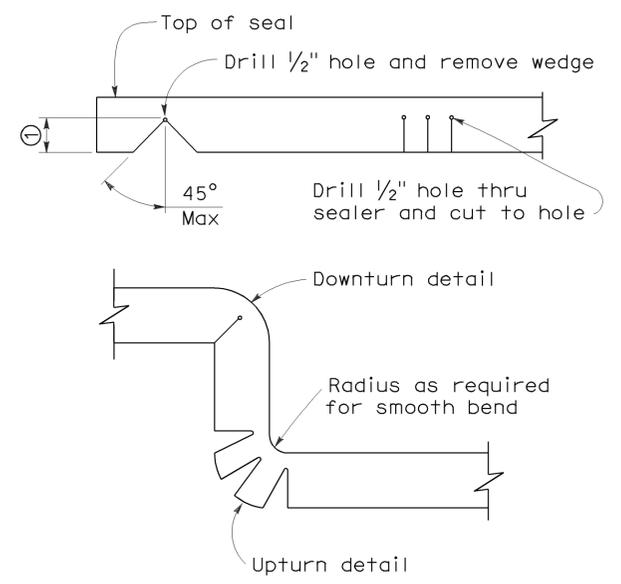
**JOINT SEALS DETAILS**



**PLAN OF JOINT (SKEW  $\leq 20^\circ$ )**



**PLAN OF JOINT (SKEW  $> 20^\circ$ )**



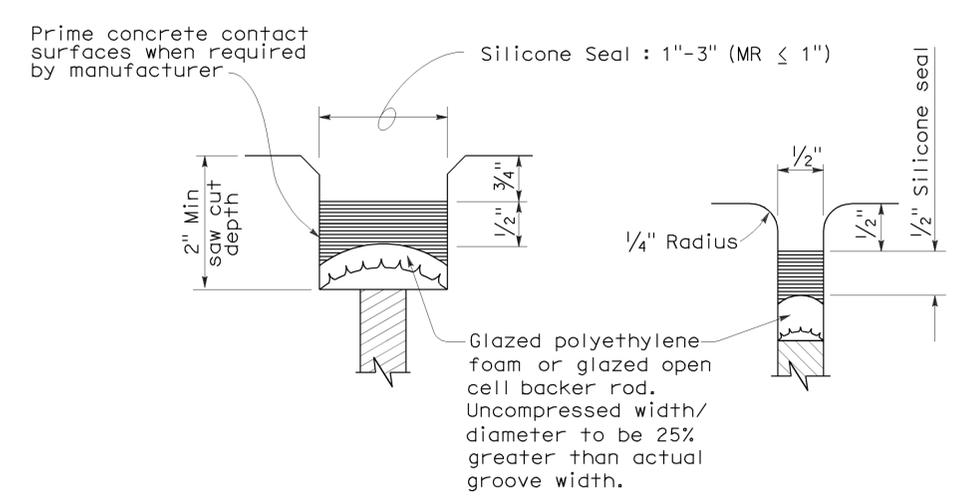
**DETAIL A**

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

**DIMENSIONS "a" OF JOINT REQUIRED**

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

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

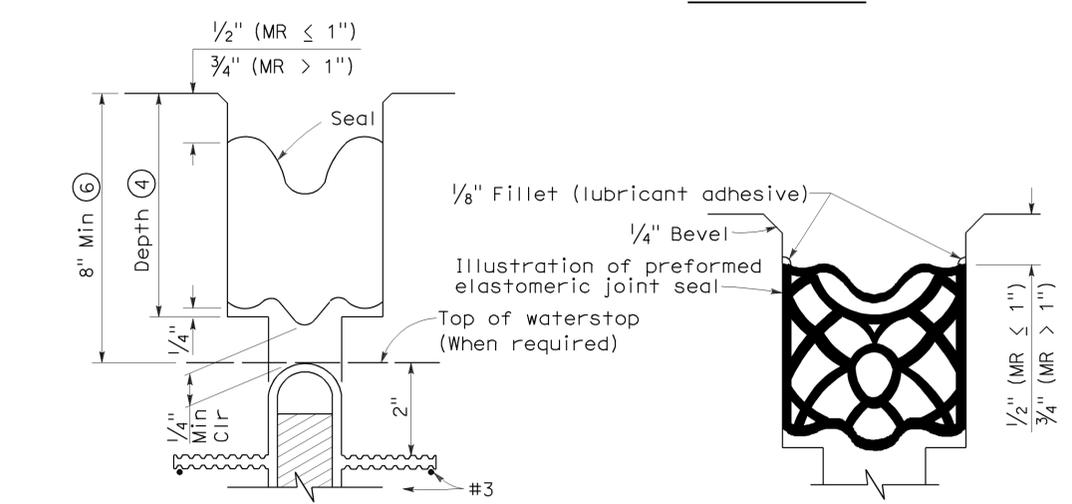


**TYPE A SEAL**

Movement rating : Silicone = 1" Max

**TYPE AL SEAL**

Longitudinal joints only



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

**TYPE B SEAL**

Movement Rating  $\leq 2"$

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

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	405	39.4/48.6	170	179

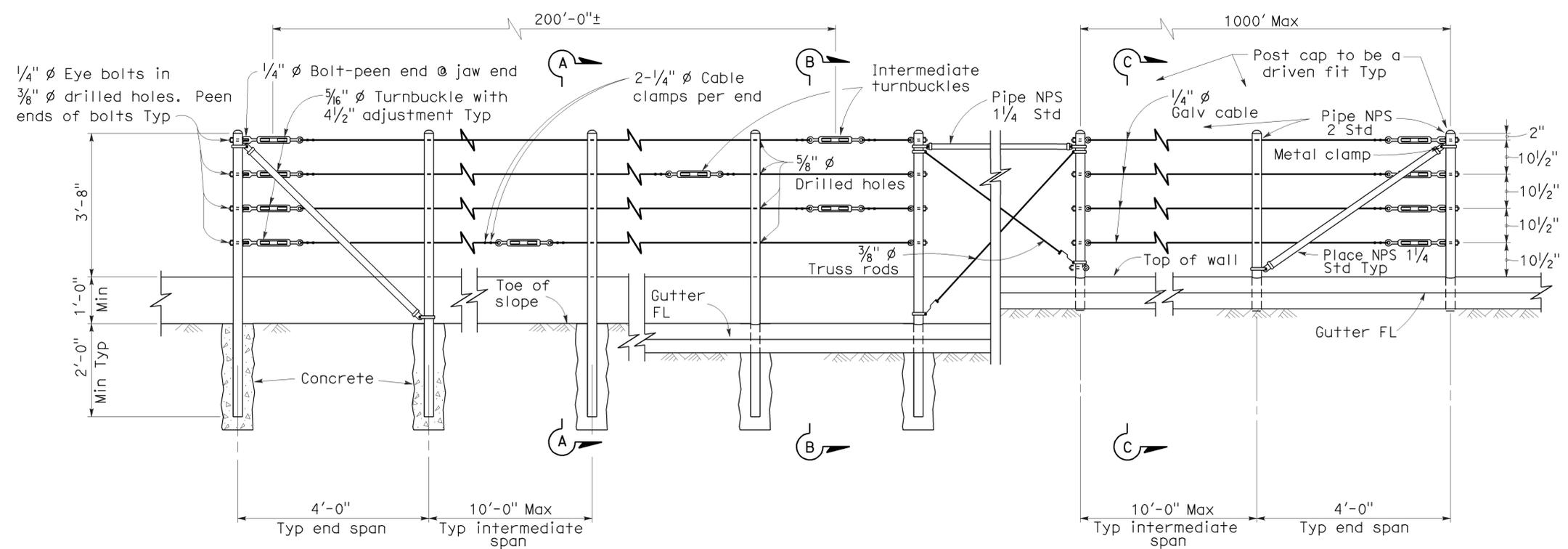
REGISTERED CIVIL ENGINEER

October 21, 2011  
PLANS APPROVAL DATE

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To accompany plans dated 7-30-12

REGISTERED PROFESSIONAL ENGINEER  
Tillet Satter  
No. C42892  
Exp. 3-31-12  
CIVIL  
STATE OF CALIFORNIA

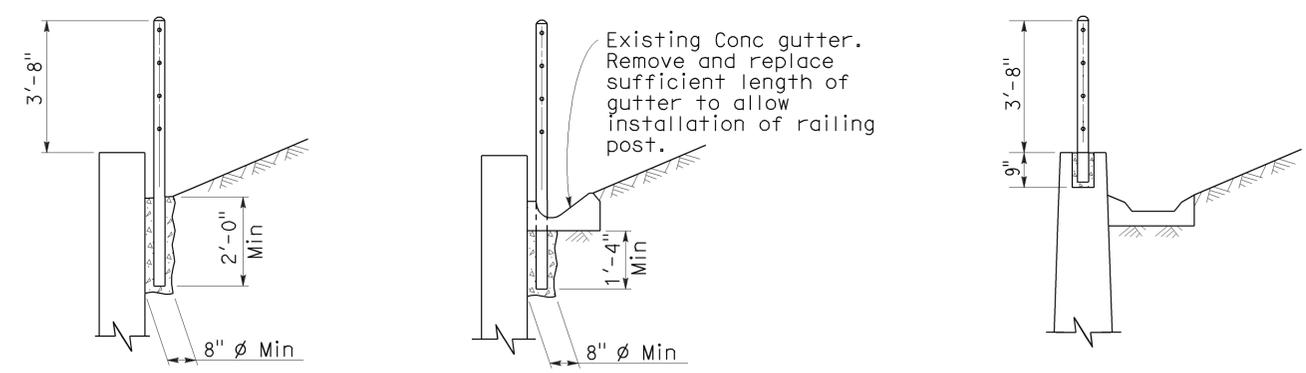


**EXISTING WALL (WITHOUT GUTTER)** Existing  
**RETAINING WALL (WITH GUTTER)** Existing  
**RETAINING WALL (WITH GUTTER)** New construction

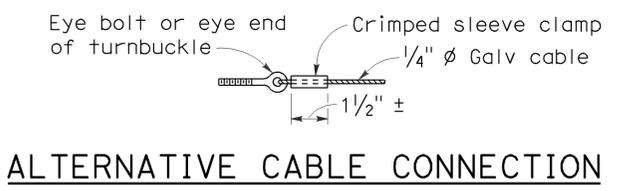
**ELEVATION**

**NOTES:**

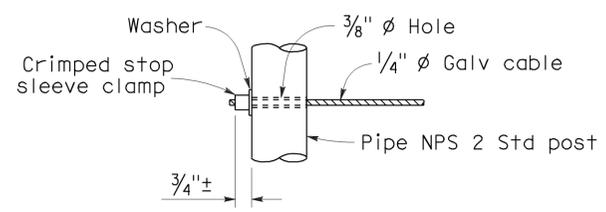
- Maximum distance between turnbuckles shall be 200'-0"±.
- Intermediate turnbuckles to be placed in adjacent spans.
- Cable shall not be spliced between intermediate turnbuckles and end posts.
- All posts, cable, and hardware to be galvanized.
- Posts to be vertical.
- Alignment of holes in posts may vary to conform to slope of top of retaining wall.
- The Contractor shall verify all dependent dimensions in the field before ordering or fabricating any material.
- Alternative details may be submitted by the Contractor for approval by the Engineer.
- Line posts shall be braced horizontally and trussed diagonally in both directions at intervals not to exceed 1000'.
- Post pockets to be centered in top of wall.
- Typical end spans, braced in both directions, shall be constructed at changes in line where the angle of deflection is 15° or more.
- Provide thimbles at all cable loops.



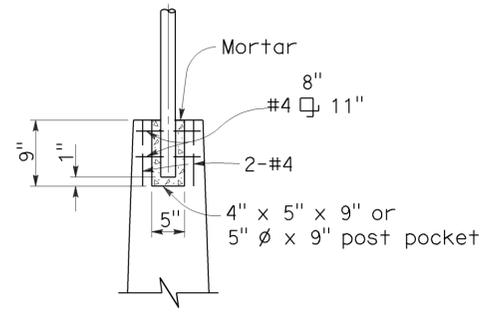
**SECTION A-A** Existing  
**SECTION B-B** Existing  
**SECTION C-C** New construction



**ALTERNATIVE CABLE CONNECTION**



**ALTERNATIVE DEAD END ANCHORAGE**



**POST POCKET**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**CABLE RAILING**

NO SCALE

RSP B11-47 DATED OCTOBER 21, 2011 SUPERSEDES STANDARD PLAN B11-47  
DATED MAY 1, 2006 - PAGE 268 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP B11-47**

2006 REVISED STANDARD PLAN RSP B11-47

# ELECTROLIERS

STANDARD TYPES		
15, 15D		High mast light pole
15 STRUCTURE		Double Arm lighting standard
21, 21D STRUCTURE		Existing electrolier
30		Electrolier foundation (Future installation)
31		
32		
35		
36-20A		

**NOTES:**

- Luminaires shall be 310 W HPS when installed on Type 21, 21D, 30, 31, 32, 35 and 36-20A Standards, unless otherwise specified. Luminaires shall be 200 W HPS when installed on other type standards or poles, unless otherwise specified.
- Luminaires shall be the cutoff type, ANSI Type III medium cutoff lighting distribution, unless otherwise specified.
- Variations noted adjacent to symbol on project plans.

- Electrolier (see project notes or project plans)
- Luminaire on wood pole

## 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
07	LA	405	39.4/48.6	171	179

*Jeffrey G. McRae*  
REGISTERED ELECTRICAL ENGINEER

October 5, 2007  
PLANS APPROVAL DATE

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

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To accompany plans dated 7-30-12

## SOFFIT AND WALL MOUNTED LUMINAIRES

- Pendant, 70 W HPS unless otherwise specified.
- Flush, 70 W HPS unless otherwise specified.
- Wall surface, 70 W HPS unless otherwise specified.
- Existing soffit or wall luminaire to remain unmodified.
- Existing soffit or wall luminaire to be modified as specified.

### NOTE:

Arrow indicates "street side" of luminaire.

STATE OF CALIFORNIA  
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## 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
07	LA	405	39.4/48.6	172	179

*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

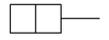
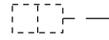
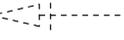
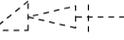
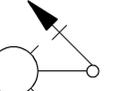
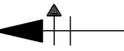
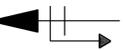
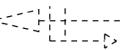
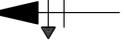
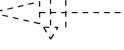
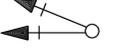
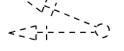
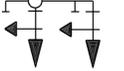
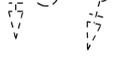
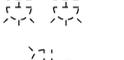
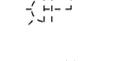
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To accompany plans dated 7-30-12

### 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
		Type 33 Standard, Left-turn vehicle signal face and sign
		Standard with luminaire and signal mast arms and attached vehicle signal faces
		Cantilever flashing beacon, Type 9 Frame, with a sign unless otherwise specified or indicated
		Type 15-FBS Standard with two vehicle signal face sections with lens, backplate and visor with a sign
		Flashing beacon. One vehicle signal face section with lens, backplate and visor. "R" indicates red indication, "Y" indicates yellow indication
		Controller assembly. Door indicates front of cabinet

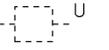
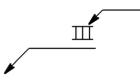
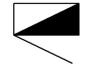
### SIGNAL EQUIPMENT Cont

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

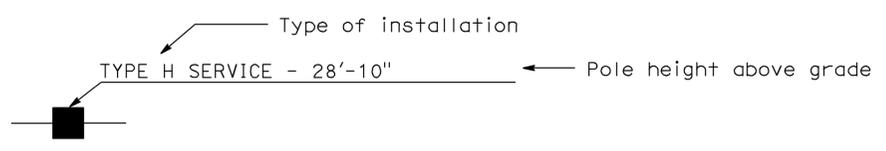
### NOTES:

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

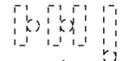
### SERVICE EQUIPMENT

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

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS  
(SYMBOLS AND ABBREVIATIONS)**

NO SCALE

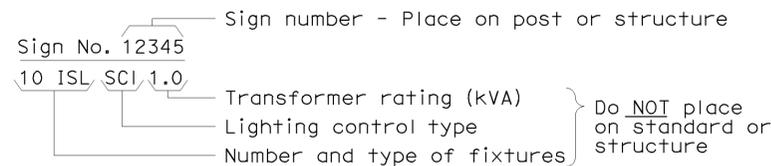
RSP ES-1B DATED OCTOBER 5, 2007 SUPERCEDES STANDARD PLAN ES-1B  
DATED MAY 1, 2006 - PAGE 401 OF THE STANDARD PLANS BOOK DATED MAY 2006.

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

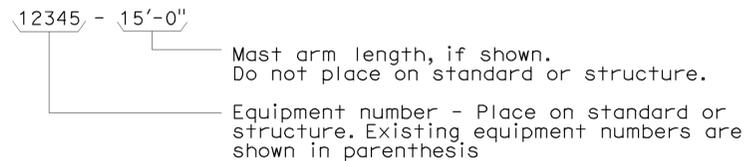
2006 REVISED STANDARD PLAN RSP ES-1B

### EQUIPMENT IDENTIFICATION

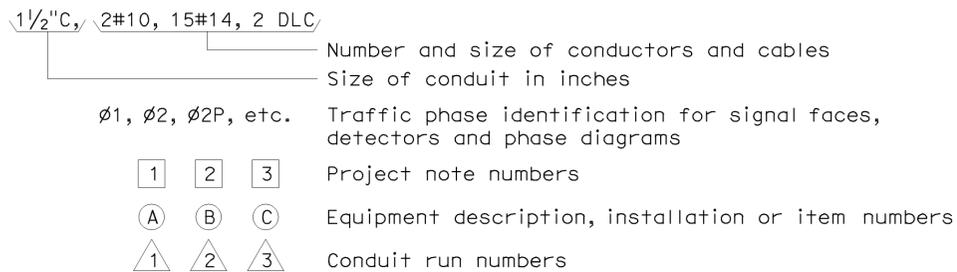
#### ILLUMINATED SIGN IDENTIFICATION NUMBER:



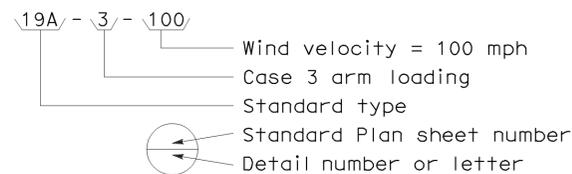
#### ELECTROLIER OR EQUIPMENT IDENTIFICATION NUMBER:



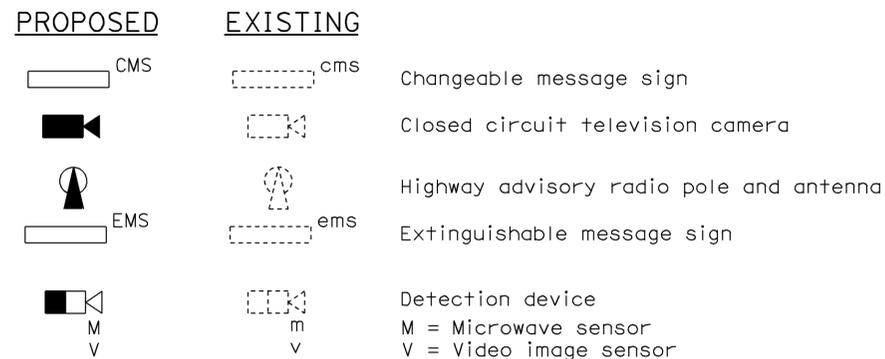
#### CONDUIT AND CONDUCTOR IDENTIFICATION:



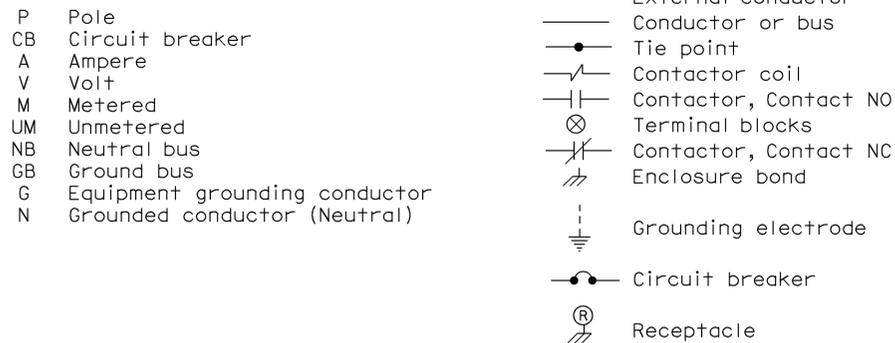
#### SIGNAL AND LIGHTING STANDARD (TYPICAL DESIGNATION):



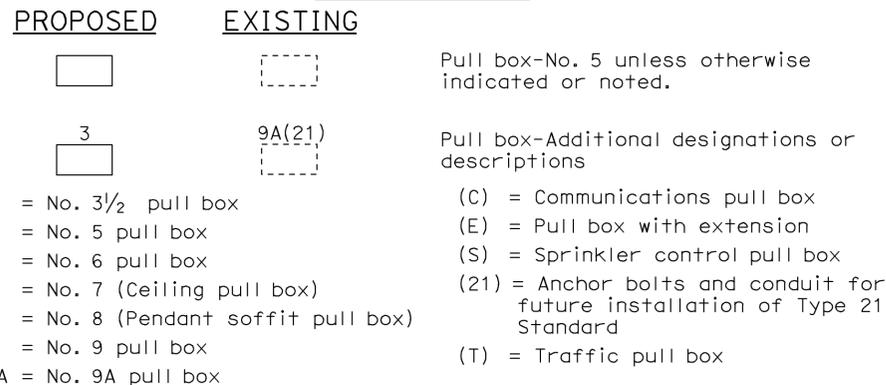
### MISCELLANEOUS EQUIPMENT



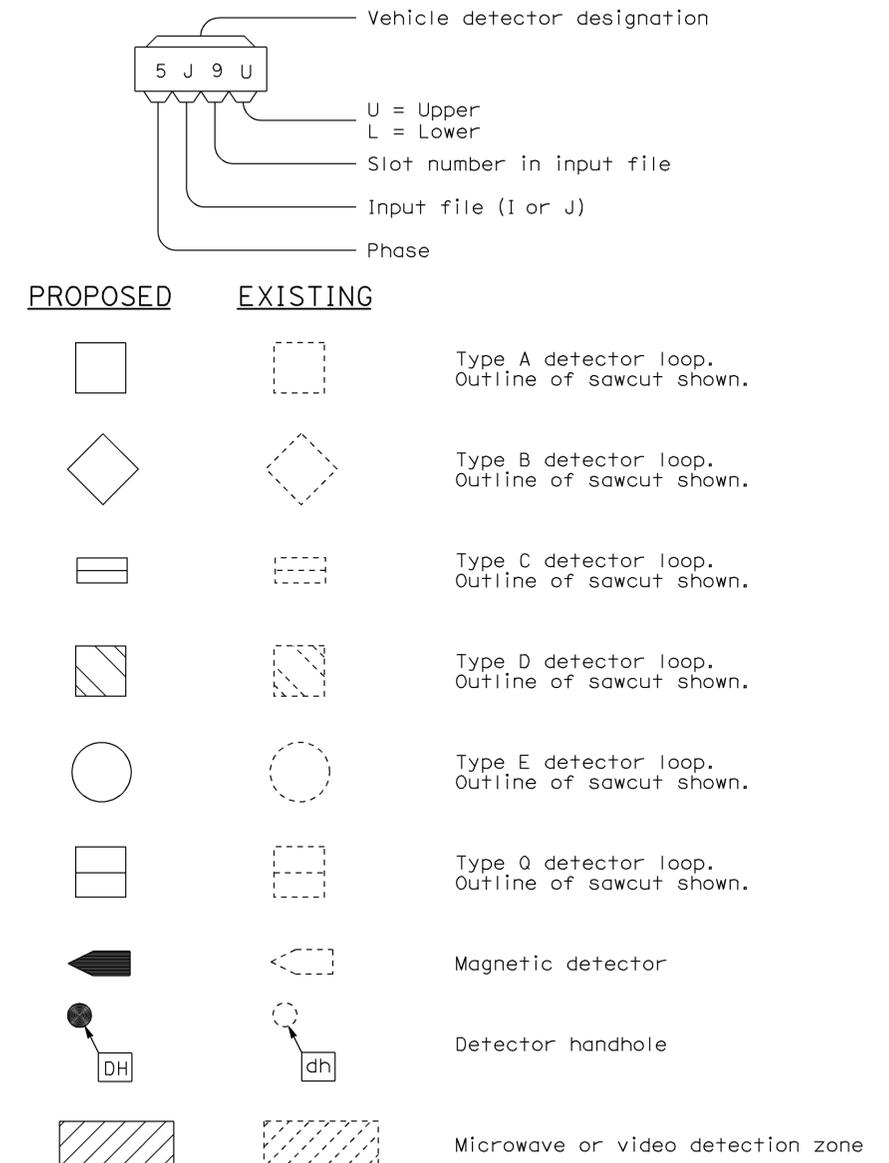
### WIRING DIAGRAM LEGEND



### PULL BOXES



### VEHICLE DETECTORS



STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION

## ELECTRICAL SYSTEMS (SYMBOLS AND ABBREVIATIONS)

NO SCALE

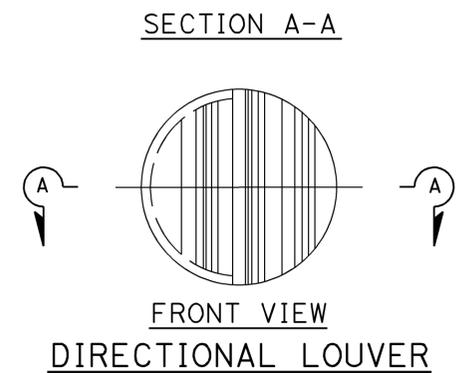
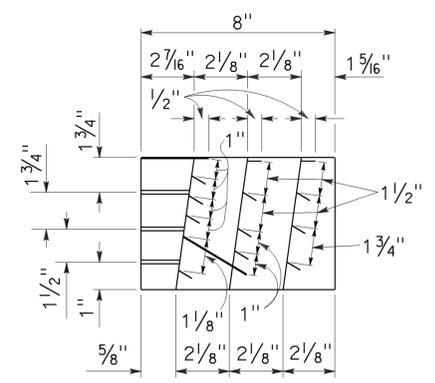
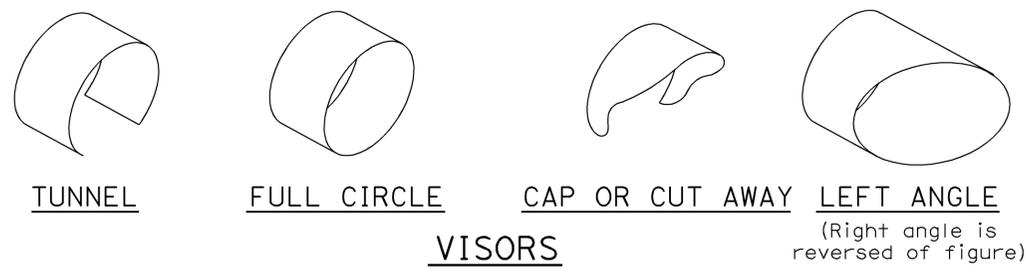
RSP ES-1C DATED OCTOBER 5, 2007 SUPERCEDES STANDARD PLAN ES-1C  
 DATED MAY 1, 2006 - PAGE 402 OF THE STANDARD PLANS BOOK DATED MAY 2006.

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

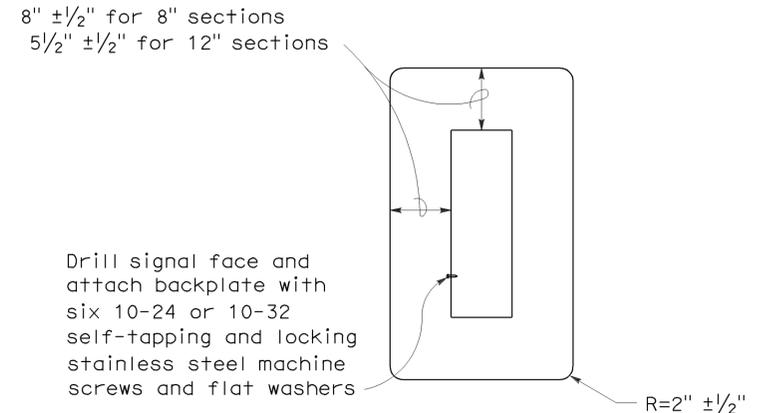
2006 REVISED STANDARD PLAN RSP ES-1C

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	405	39.4/48.6	174	179

Jeffrey B. McRae  
 REGISTERED ELECTRICAL ENGINEER  
 June 6, 2008  
 PLANS APPROVAL DATE  
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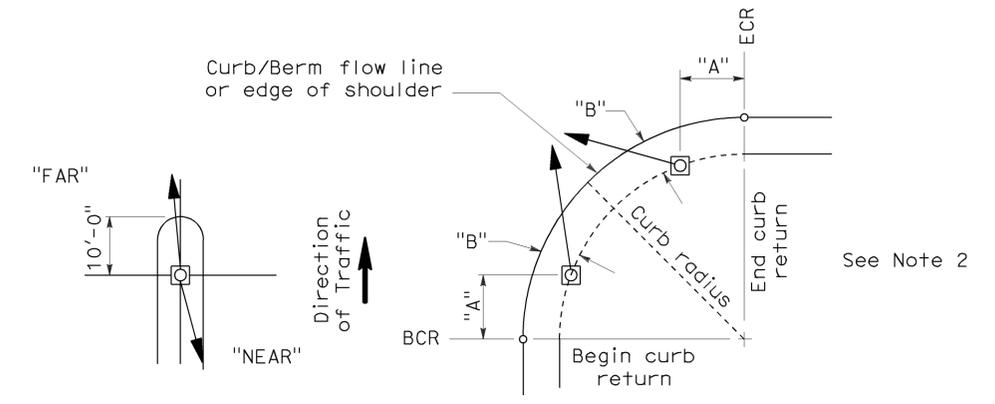


Directional louvers shall be oriented as directed by the Engineer and secured in place with one plated brass machine screw and nut.



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

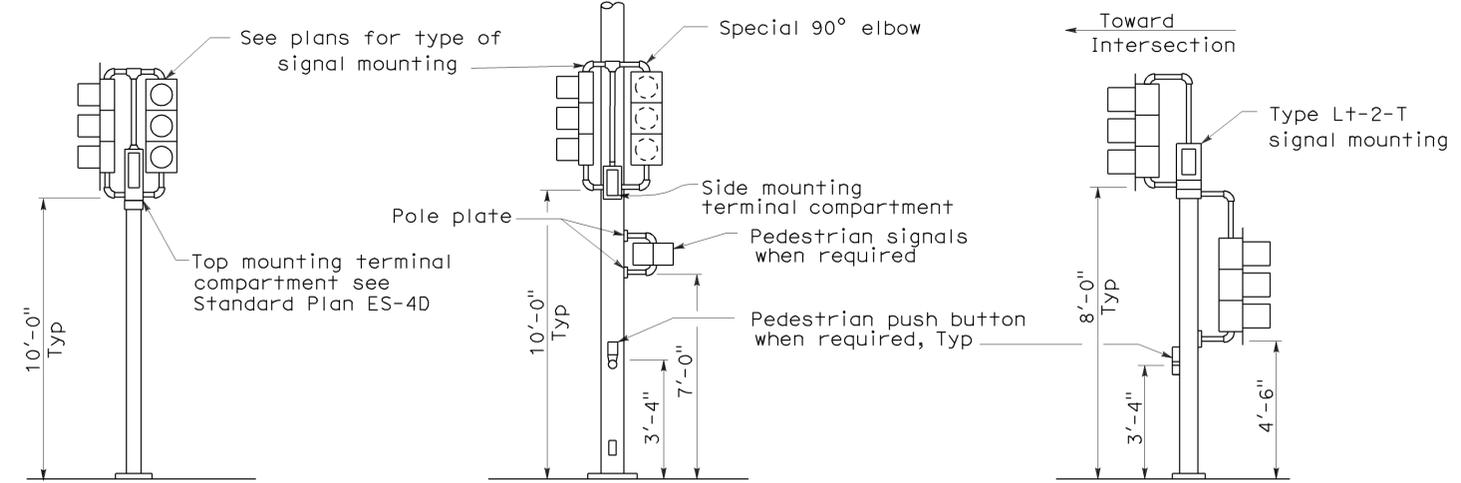
Drill signal face and attach backplate with six 10-24 or 10-32 self-tapping and locking stainless steel machine screws and flat washers



**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.

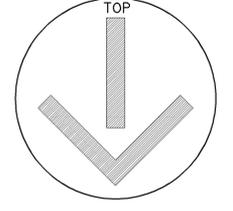
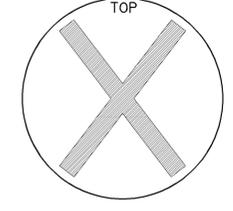
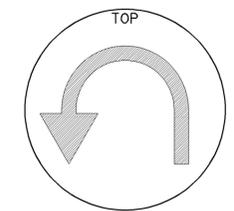
**SIGNAL STANDARD PLACEMENT DIMENSIONS AND EQUIPMENT LOCATIONS**



**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



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**

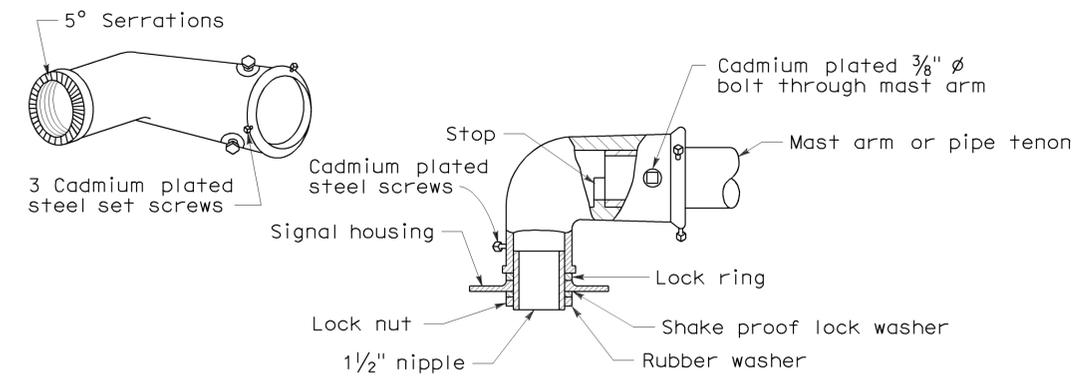
2006 REVISED STANDARD PLAN RSP ES-4C

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	405	39.4/48.6	175	179

Jeffrey B. McRae  
 REGISTERED ELECTRICAL ENGINEER  
 June 6, 2008  
 PLANS APPROVAL DATE  
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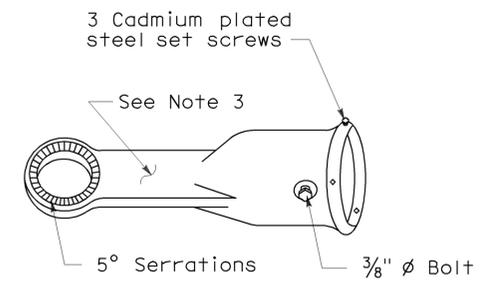
REGISTERED PROFESSIONAL ENGINEER  
 Jeffrey G. McRae  
 No. E14512  
 Exp. 6-30-10  
 ELECTRICAL  
 STATE OF CALIFORNIA

To accompany plans dated 7-30-12



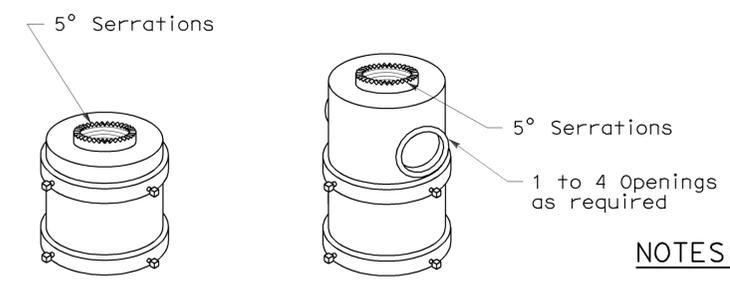
**MAST ARM MOUNTING - TYPE "MAT"**

For 2 NPS pipe, see Note 1.



**MAST ARM MOUNTING - TYPE "MAS"**

For 2 NPS pipe. See Note 1.



For one mounting For multiple mountings

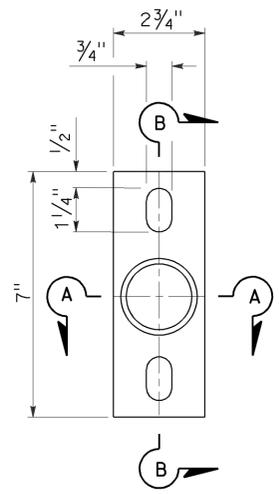
**TOP MOUNTINGS**

For 4 NPS pipe, see Note 2.

**NOTES:**

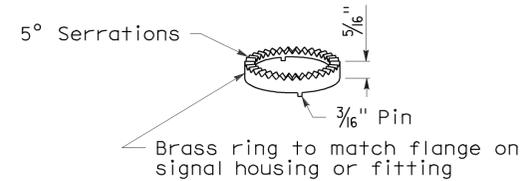
- After mast arm signal has been plumbed and secured, drill 7/16" hole through mast arm tenon in line with slip fitter hole. Place a cadmium plated 3/8" ø galvanized bolt with washer under bolt head through hole and secure with washer, nut, and locknut. Seal openings between mast arm mountings and mast 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".

**SIGNAL SLIP FITTERS**



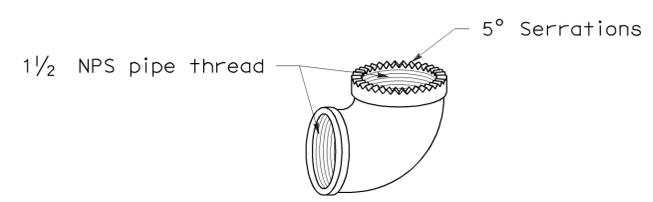
**POLE PLATE**

For side mountings



**LOCK RING**

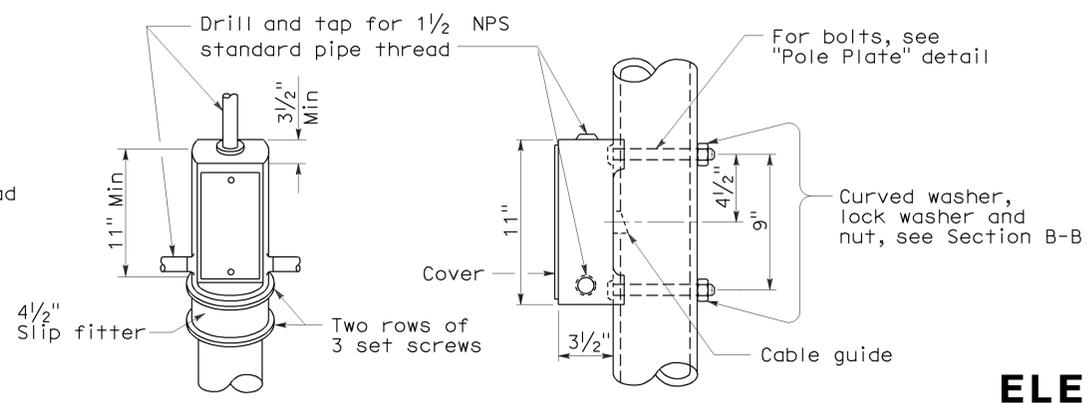
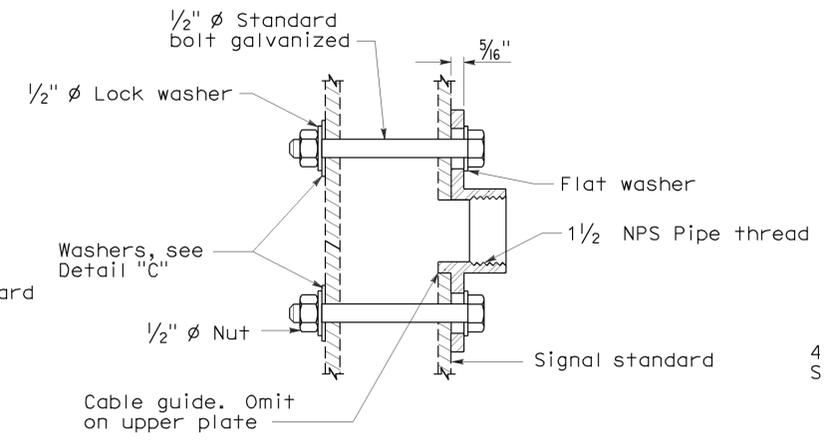
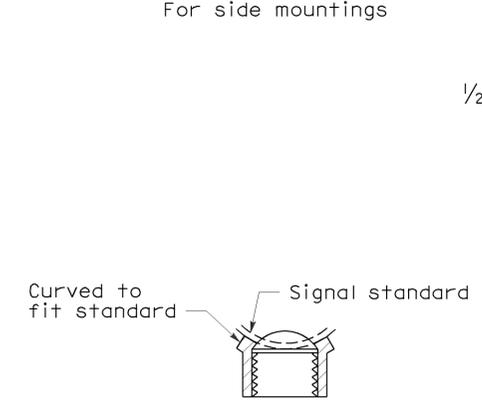
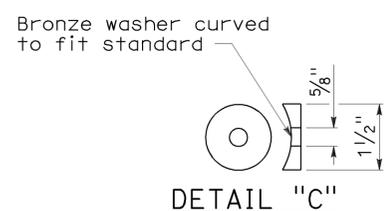
Use where locking ring is not integral with signal housing or fitting.



**SPECIAL 90° ELBOW**

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

**MISCELLANEOUS MOUNTING HARDWARE**



**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**

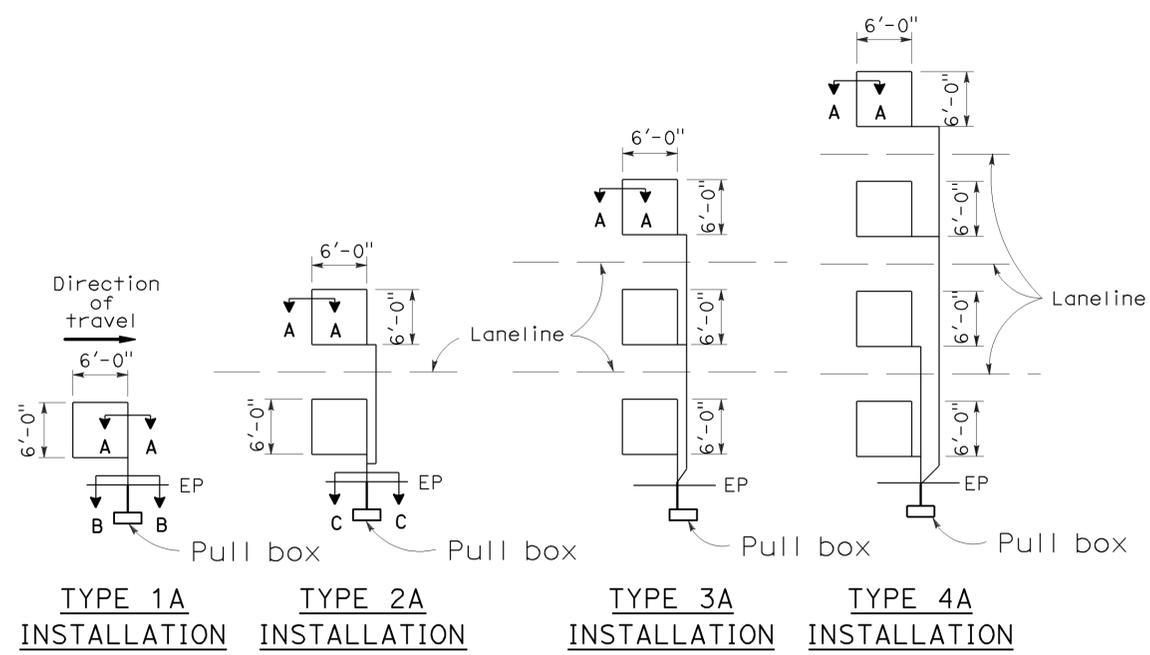
2006 REVISED STANDARD PLAN RSP ES-4D

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	405	39.4/48.6	176	179

Jeffrey G. McRae  
 REGISTERED ELECTRICAL ENGINEER  
 October 5, 2007  
 PLANS APPROVAL DATE  
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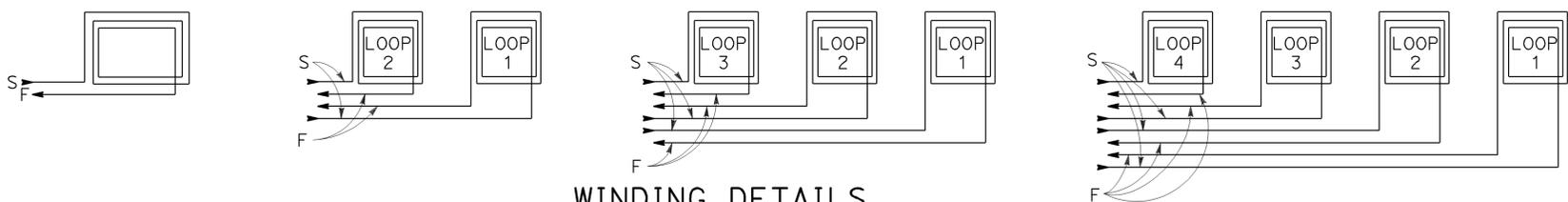
# LOOP INSTALLATION PROCEDURE

- 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.

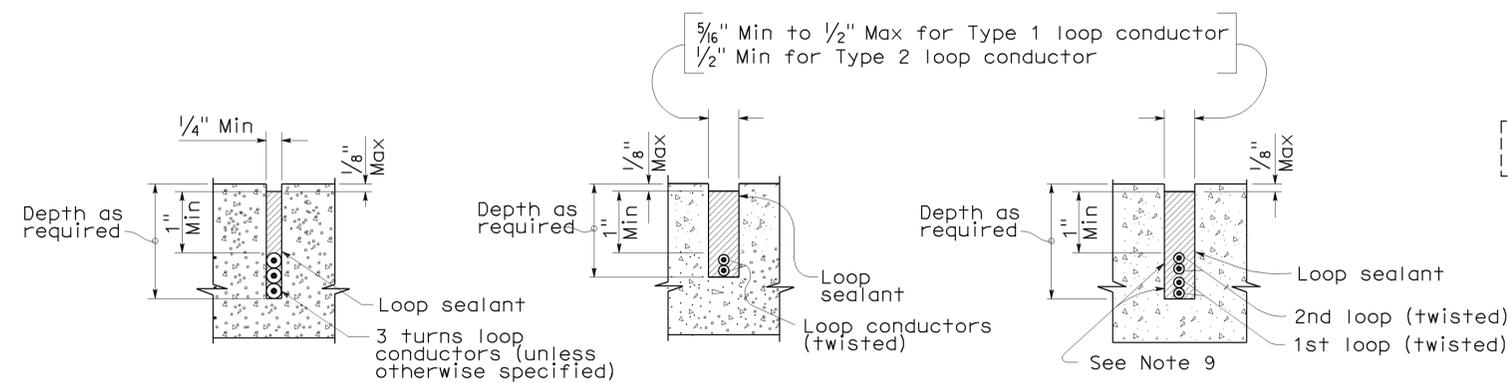
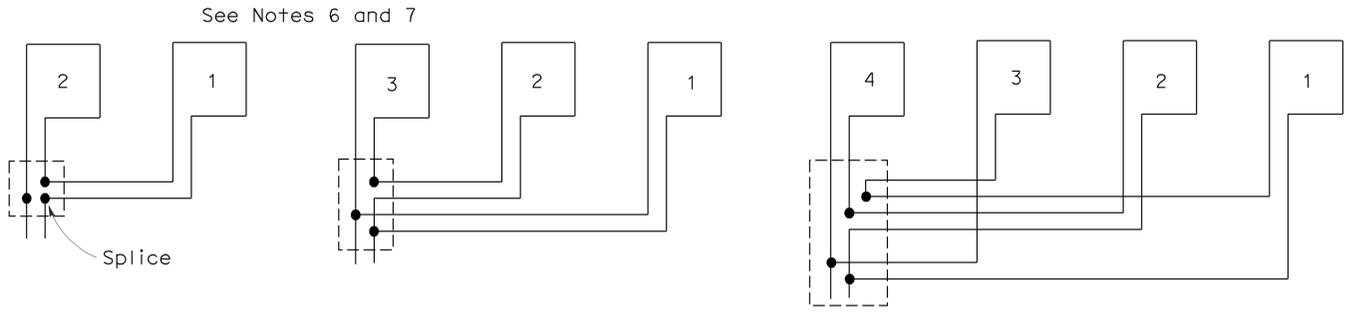


## SAWCUT DETAILS

- (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)



## TYPICAL LOOP CONNECTIONS



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.

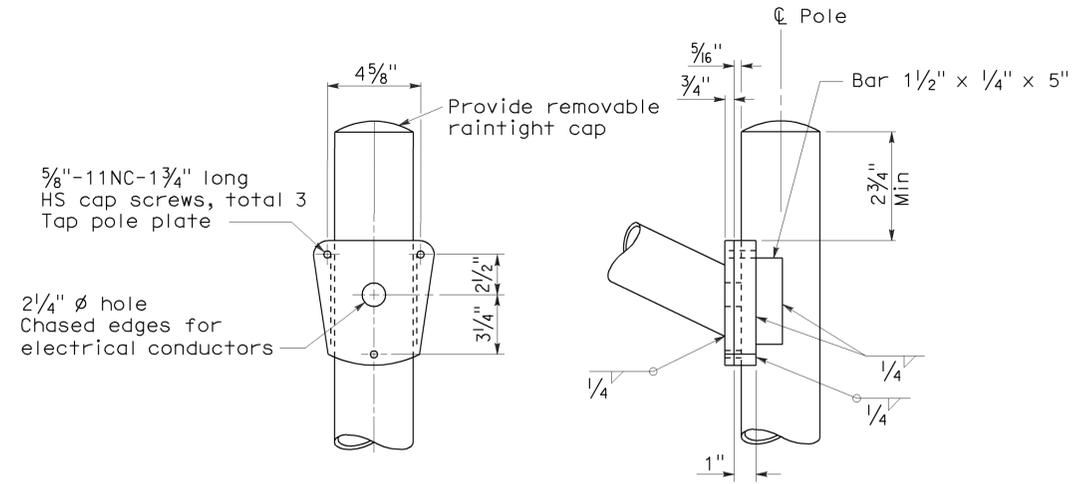
**REVISED STANDARD PLAN RSP ES-5A**

2006 REVISED STANDARD PLAN RSP ES-5A

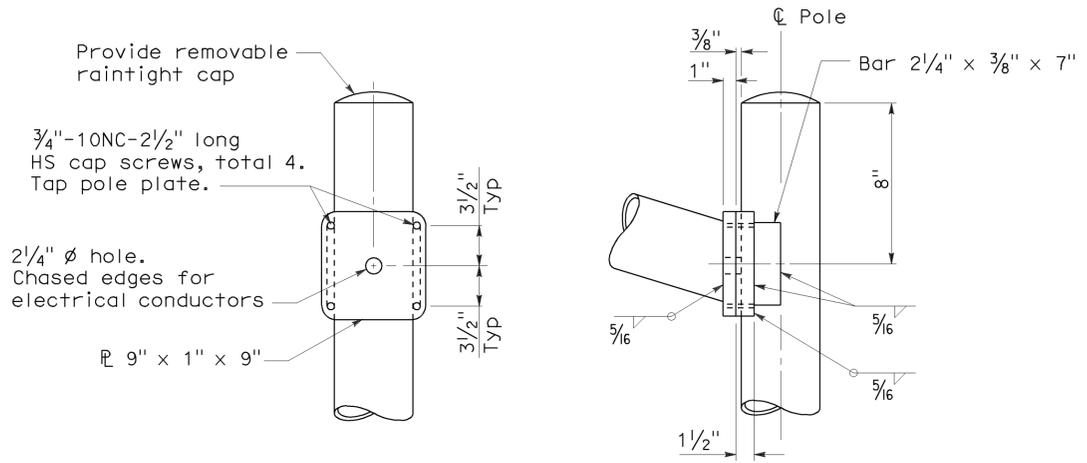
**LUMINAIRE ARM DATA**

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"±

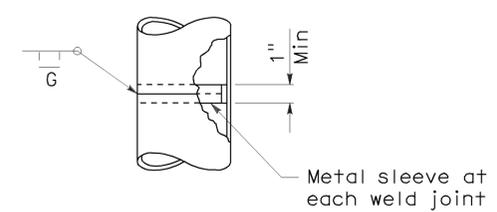
\* Type 30 - arm length 6'-0" - 15'-0" maximum  
 \*\* Type 31 - arm lengths 20'-0"



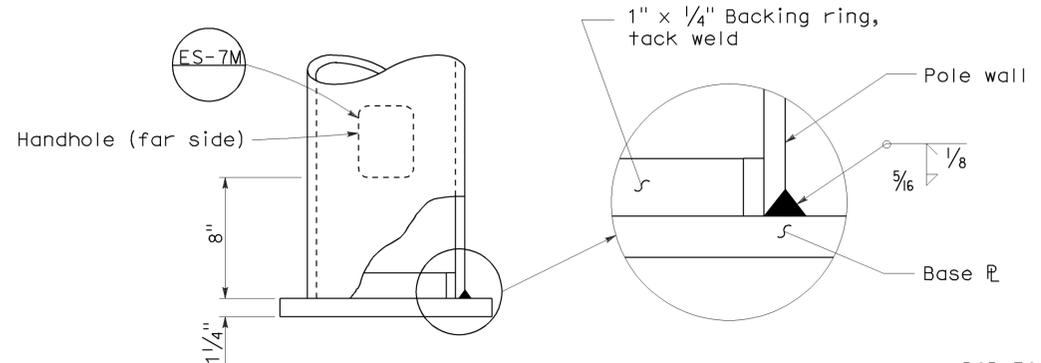
**DETAIL A - TYPE 30**



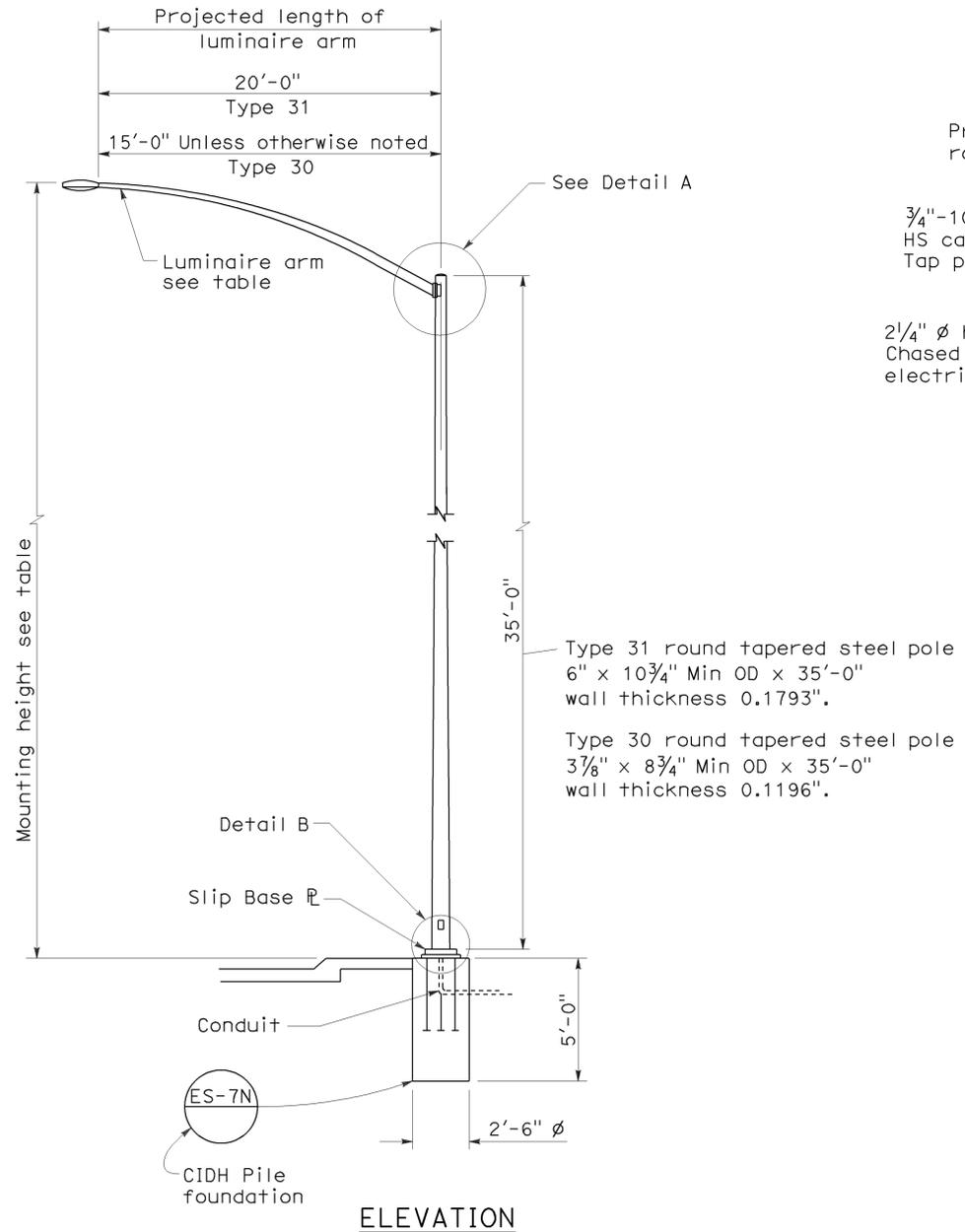
**DETAIL A - TYPE 31**



**POLE SPLICE**



**DETAIL B**



**ELEVATION**

**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.

To accompany plans dated 7-30-12

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**

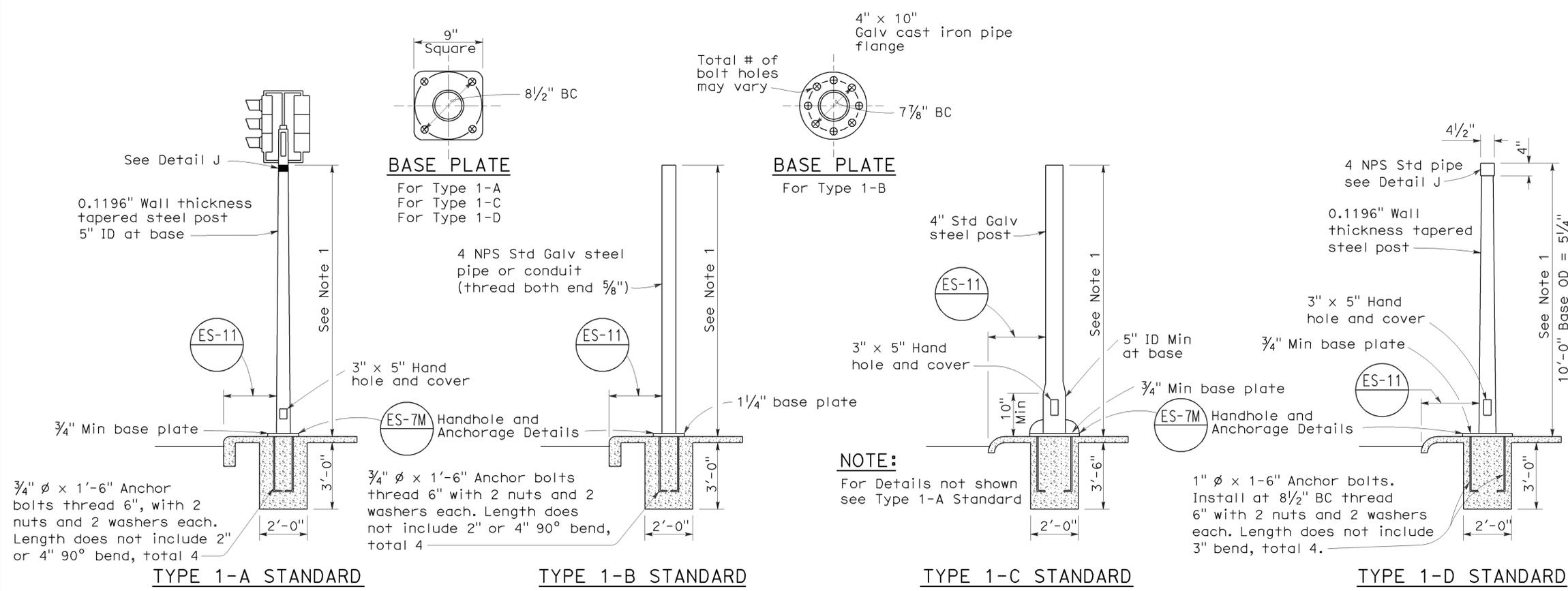
2006 REVISED STANDARD PLAN RSP ES-6E

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
07	LA	405	39.4/48.6	178	179

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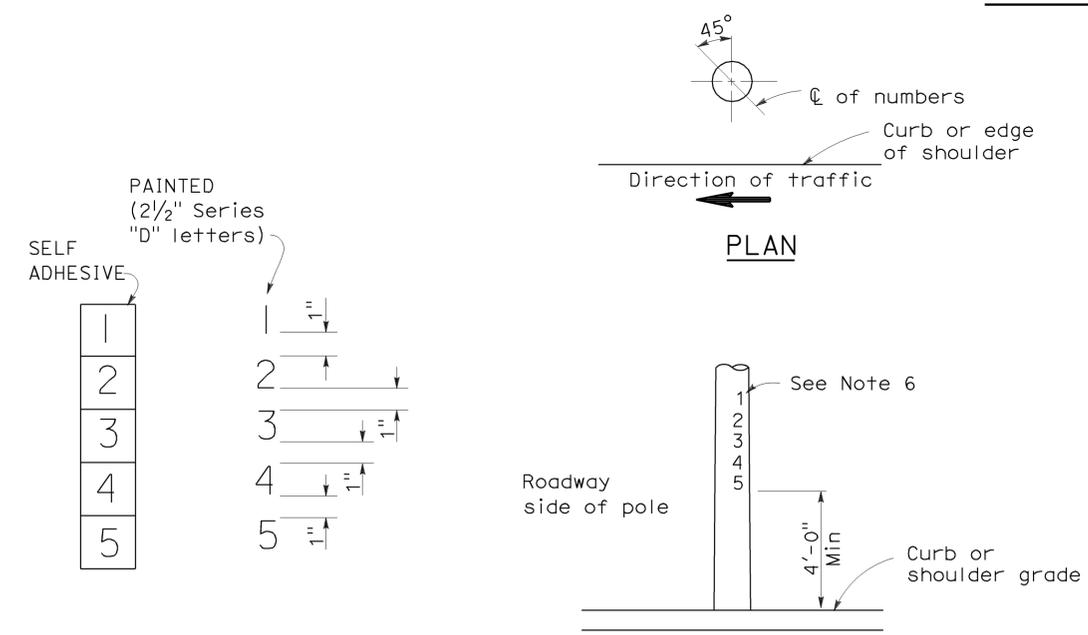
Stanley P. Johnson  
 REGISTERED PROFESSIONAL ENGINEER  
 No. C57793  
 Exp. 3-31-08  
 CIVIL  
 STATE OF CALIFORNIA

To accompany plans dated 7-30-12

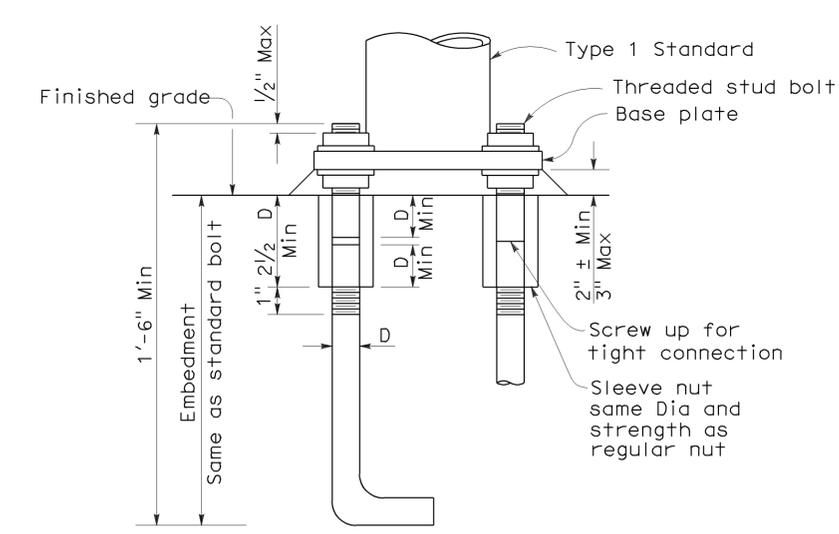


- NOTES:**
- Standards shall be 10'-0" ± 2" for vehicle signals and 7'-0" ± 2" for pedestrian signals unless otherwise noted on plans.
  - Top of standards shall be 4 1/2" OD.
  - Conduits shall extend 2" maximum above finished surface of foundation and for Types 1-A, 1-C and 1-D shall be sloped toward 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**

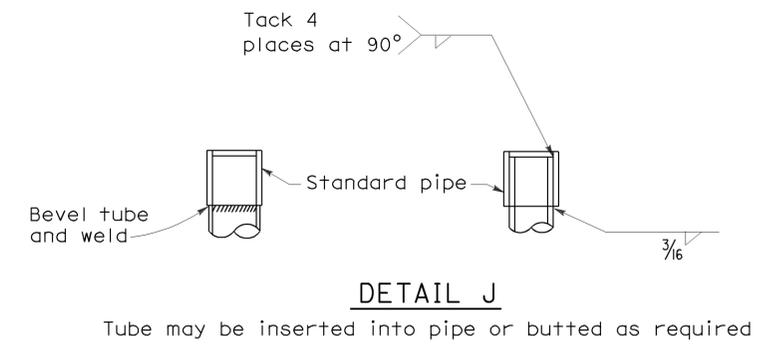


**LOCATION OF EQUIPMENT NUMBERS ON STANDARDS AND POSTS**



Sleeve nuts to be used only when shown or specified on Project Plans

D = Diameter of anchor bolt



STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

2006 REVISED STANDARD PLAN RSP ES-7B

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
07	LA	405	39.4/48.6	179	179

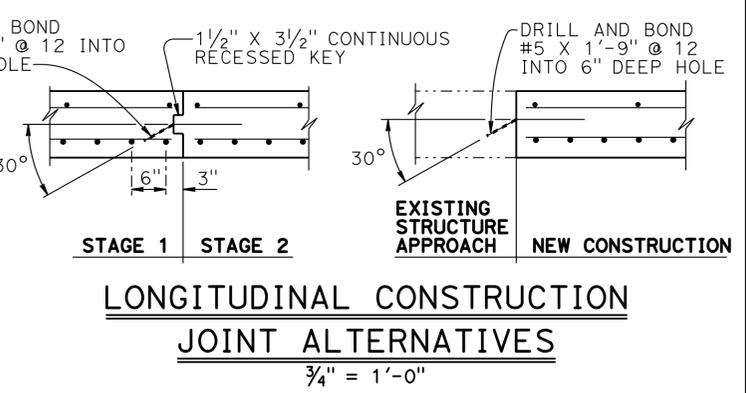
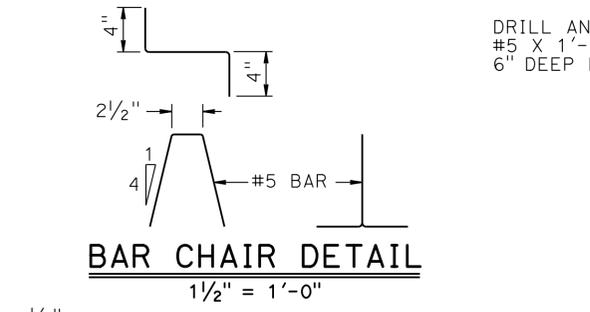
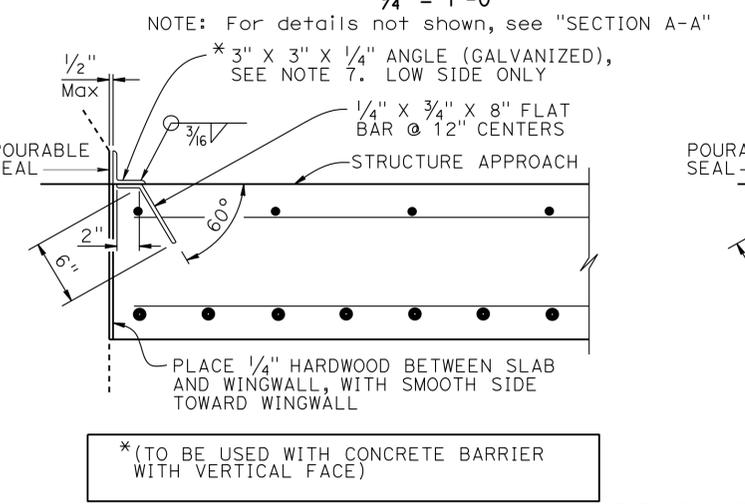
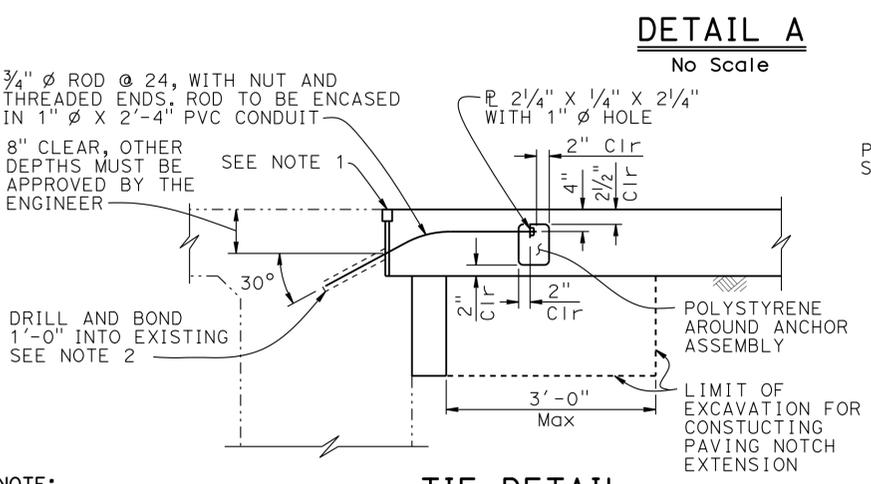
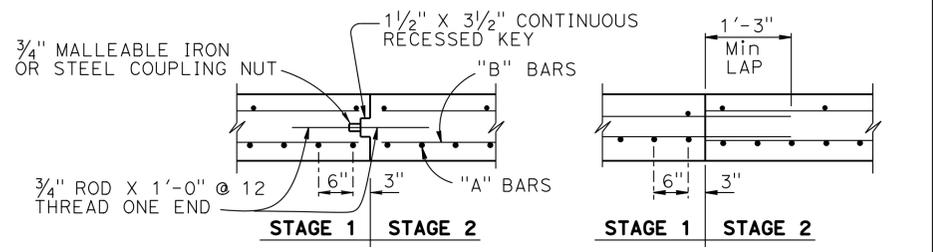
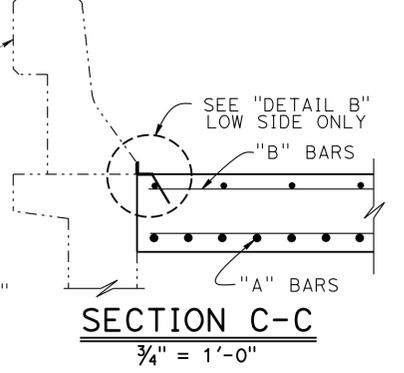
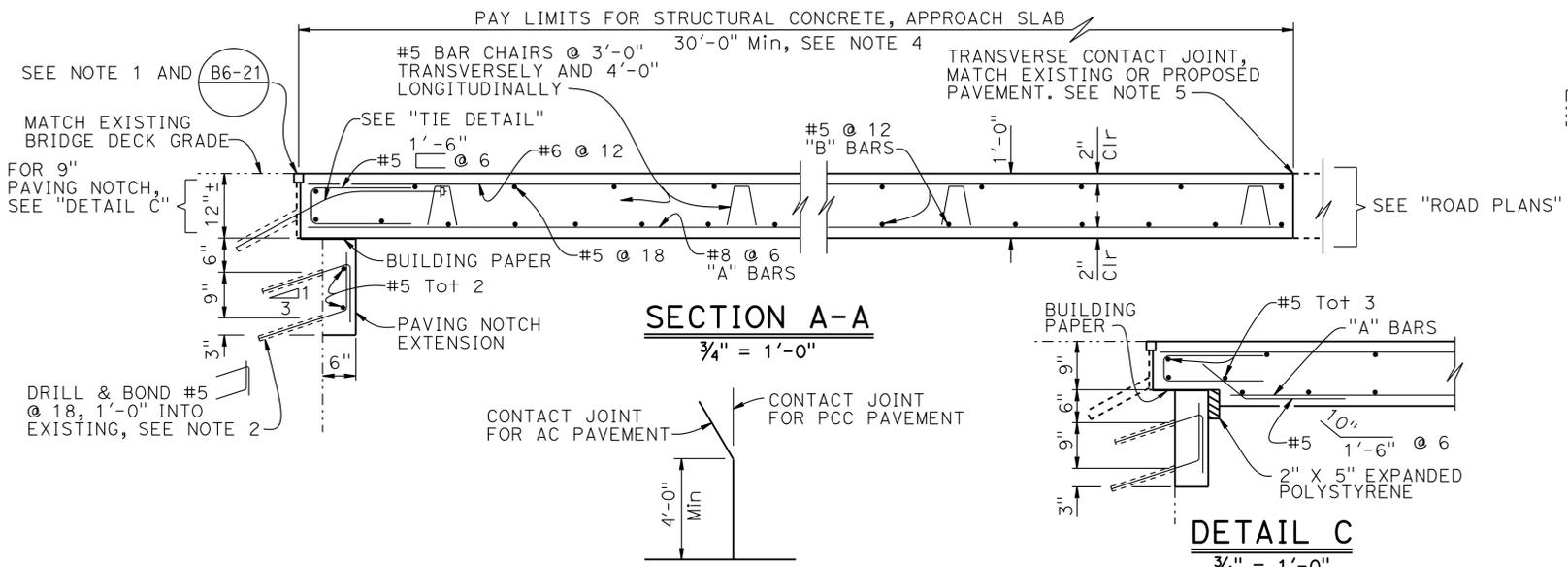
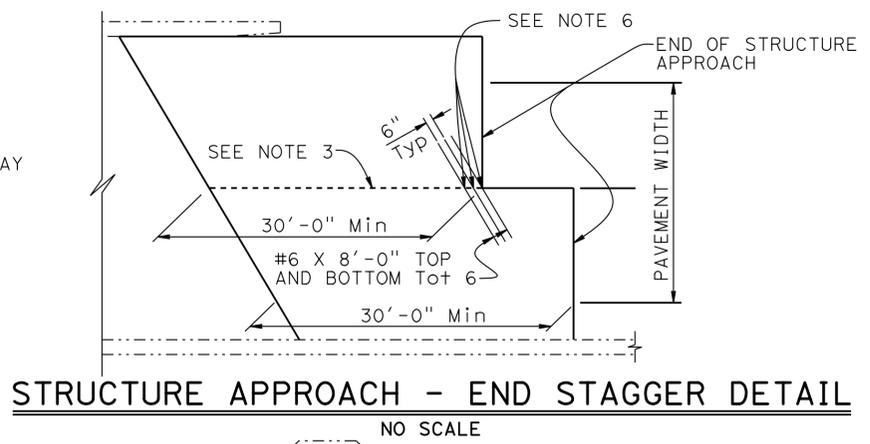
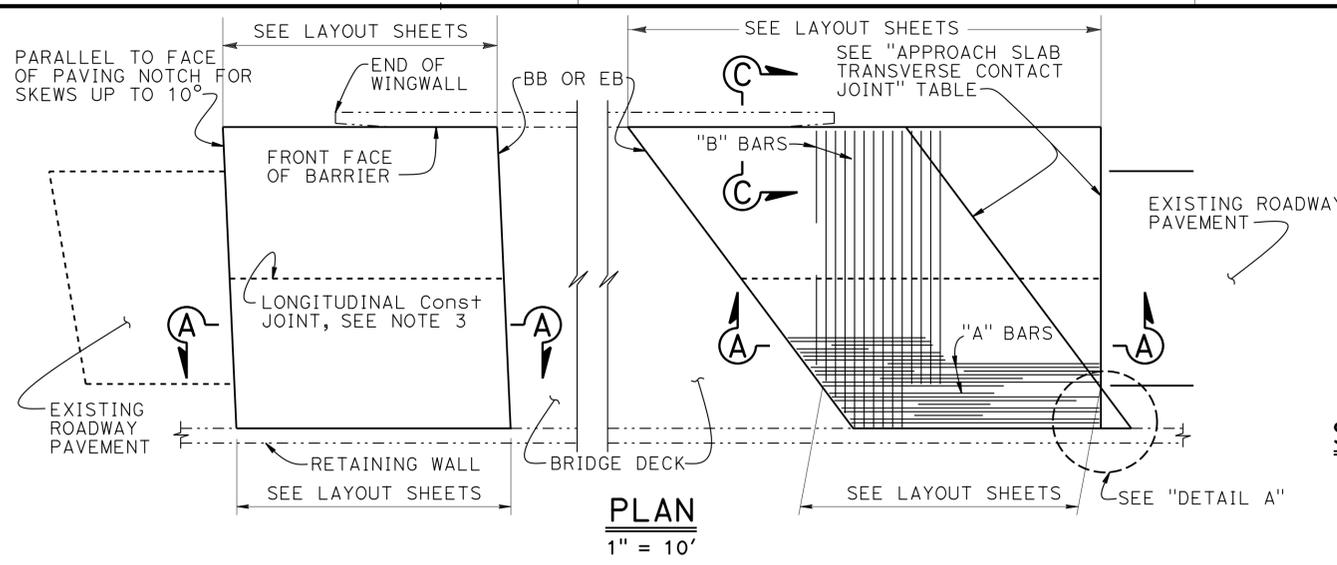
  

REGISTERED CIVIL ENGINEER	DATE
Andrew K. Nguyen	5-30-12
PLANS APPROVAL DATE	
	7-30-12

REGISTERED PROFESSIONAL ENGINEER	STATE OF CALIFORNIA
ANDREW K. NGUYEN	No. C62828
Exp. 6-30-14	CIVIL

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

STANDARD DRAWING	FILE NO. <b>xs3-150</b>	APPROVAL DATE July 2011
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BRIDGE NO.	X
POST MILE	X

STATE OF CALIFORNIA	DIVISION OF ENGINEERING SERVICES
DEPARTMENT OF TRANSPORTATION	UNIT: 1965
	PROJECT NUMBER & PHASE: 07120000741

REVISED STANDARD DRAWING	BRIDGE NO. X	POST MILE X	SHEET 1	OF 1
<b>STRUCTURE APPROACH TYPE R(30D)</b>	CONTRACT NO.: 252001	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES	