

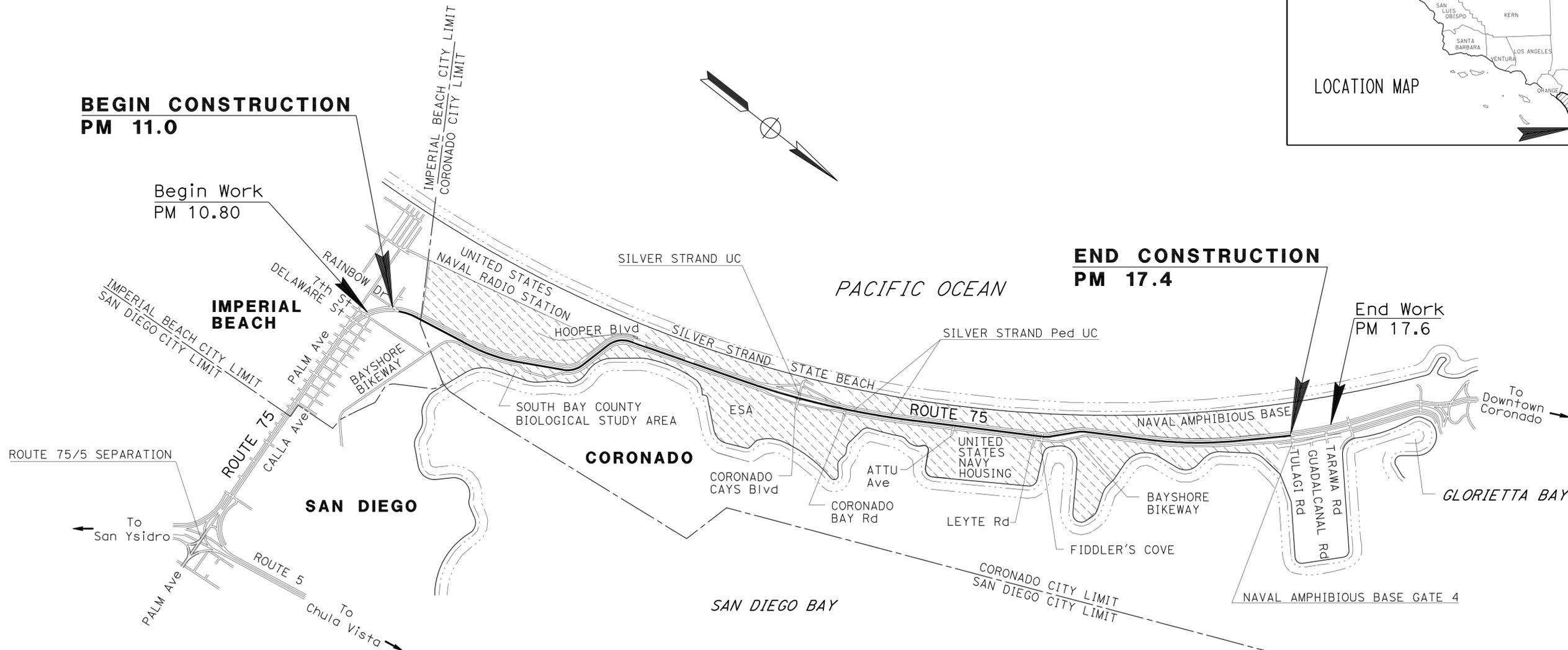
INDEX OF PLANS

SHEET NO.	DESCRIPTION
1	TITLE AND LOCATION MAP
2-3	TYPICAL CROSS SECTIONS
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9	UTILITY PLAN
10	CONSTRUCTION AREA SIGNS
11	TRAFFIC HANDLING PLAN
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THE STANDARD PLANS LIST APPLICABLE TO THIS CONTRACT IS INCLUDED IN THE NOTICE TO BIDDERS AND SPECIAL PROVISIONS BOOK.

STATE OF CALIFORNIA STP-P075(039)E  
**DEPARTMENT OF TRANSPORTATION**  
**PROJECT PLANS FOR CONSTRUCTION ON**  
**STATE HIGHWAY**  
**IN SAN DIEGO COUNTY**  
**IN IMPERIAL BEACH AND CORONADO**  
**FROM RAINBOW DRIVE**  
**TO THE NAVAL AMPHIBIOUS BASE GATE 4**

TO BE SUPPLEMENTED BY STANDARD PLANS DATED MAY 2006



**BEGIN CONSTRUCTION**  
PM 11.0

Begin Work  
PM 10.80

**END CONSTRUCTION**  
PM 17.4

End Work  
PM 17.6

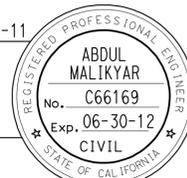
ESA ENVIRONMENTALLY SENSITIVE AREA

NO SCALE

PROJECT MANAGER  
BRUCE LAMBERT

DESIGN ENGINEER  
ABDUL MALKIYAR

*Abdul Malkiyar* 07-29-11  
 PROJECT ENGINEER DATE  
 REGISTERED CIVIL ENGINEER



August 1, 2011

PLANS APPROVAL DATE

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

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

CONTRACT No.	<b>11-262004</b>
PROJECT ID	<b>1100020186</b>

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	75	11.0/17.4	2	54

 REGISTERED CIVIL ENGINEER No. C66169 Exp. 06-30-12 CIVIL	07-29-11 DATE 08-01-11 PLANS APPROVAL DATE
--	---

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

**NOTES:**

- DIMENSIONS OF THE PAVEMENT STRUCTURES (STRUCTURAL SECTIONS) ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.
- FOG SEAL COAT SHALL BE APPLIED TO ALL HMA SURFACES EXCEPT TRAVELED WAYS.
- FOR EXACT LOCATION AND TYPE OF REMOVE AC DIKE AND PLACE HMA DIKE, SEE SUMMARY OF QUANTITIES SHEET.
- SEE SUMMARY OF QUANTITIES SHEET FOR LOCATION OF GRIND PCC PAVEMENT.
- SEE CONSTRUCTION DETAILS SHEET FOR ADDITIONAL WORK AT PM 15.71.
- SEE SUMMARY OF QUANTITIES FOR TURN LANE POST MILE LIMITS.

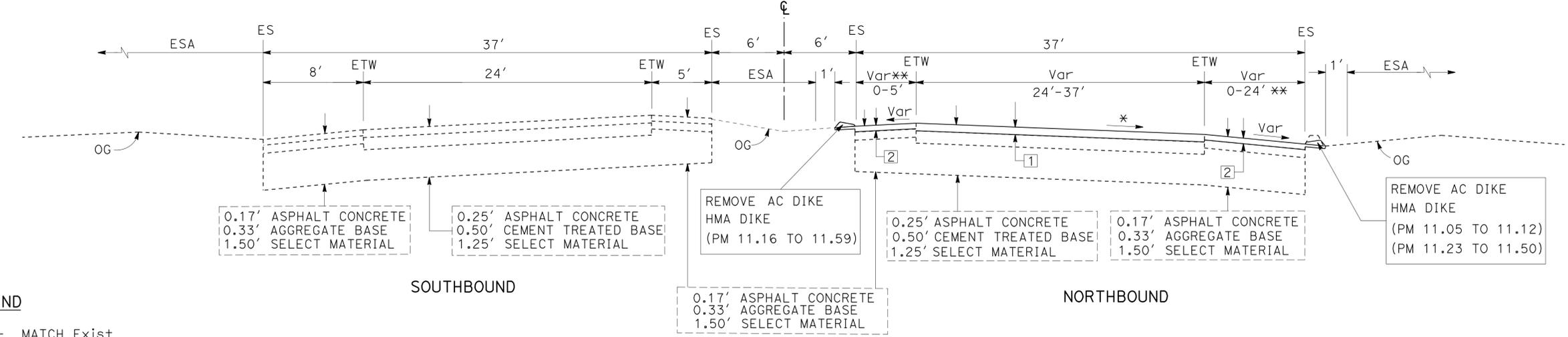
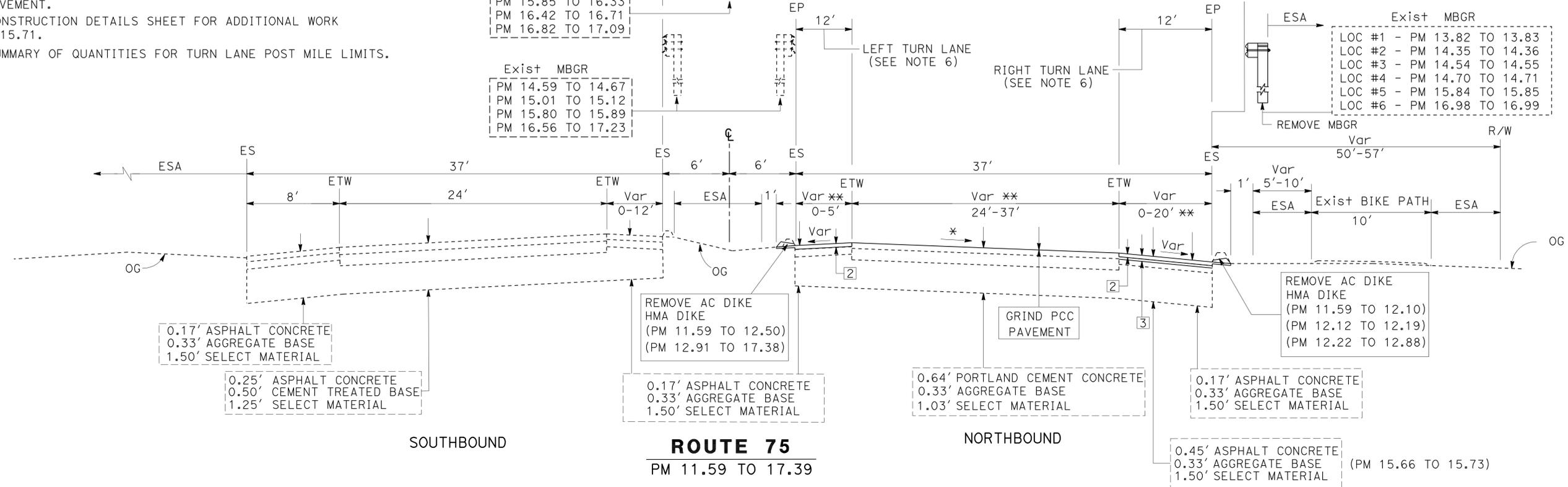
**DESIGN DESIGNATION (ROUTE 75)**

A) POSTMILE 11.00 TO 13.97	B) POSTMILE 13.97 TO 17.40
ADT (2009) 9,500	ADT (2009) 11,400
ADT (2019) 10,900	ADT (2019) 12,900
ADT (2030) 12,800	ADT (2030) 14,800
DHV 2,580	DHV 2,900
D 74%	D 72%
T 1.7%	T 1.7%

Exist DTBB	
PM 11.77 TO 11.86	
PM 12.17 TO 12.72	
PM 12.95 TO 13.18	
PM 13.31 TO 13.79	
PM 13.52 TO 13.65	
PM 14.45 TO 14.79	
PM 14.90 TO 15.30	
PM 15.57 TO 15.58	
PM 15.67 TO 15.74	
PM 15.85 TO 16.33	
PM 16.42 TO 16.71	
PM 16.82 TO 17.09	

Exist MBGR	
PM 14.59 TO 14.67	
PM 15.01 TO 15.12	
PM 15.80 TO 15.89	
PM 16.56 TO 17.23	



**LEGEND**

- \* - MATCH Exist
- \*\* - FOR EXACT WIDTHS SEE QUANTITY SHEETS
- ① - 0.25' RUBBERIZED HOT MIX ASPHALT- (GAP GRADED)
- ② - 0.17' RUBBERIZED HOT MIX ASPHALT- (GAP GRADED)
- ③ - 0.21' RUBBERIZED HOT MIX ASPHALT- (GAP GRADED) (PM 15.66 TO 15.73)
- RHMA - RUBBERIZED HOT MIX ASPHALT
- ESA - ENVIRONMENTALLY SENSITIVE AREA

**ROUTE 75**  
PM 11.00 TO 11.59

**TYPICAL CROSS SECTIONS**

NO SCALE

X-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
 SEAN D. HOANG  
 ABUL MALIKYAR  
 EDWARD HAJJ  
 DESIGN

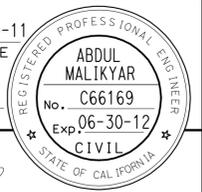
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11	SD	75	11.0/17.4	3	54

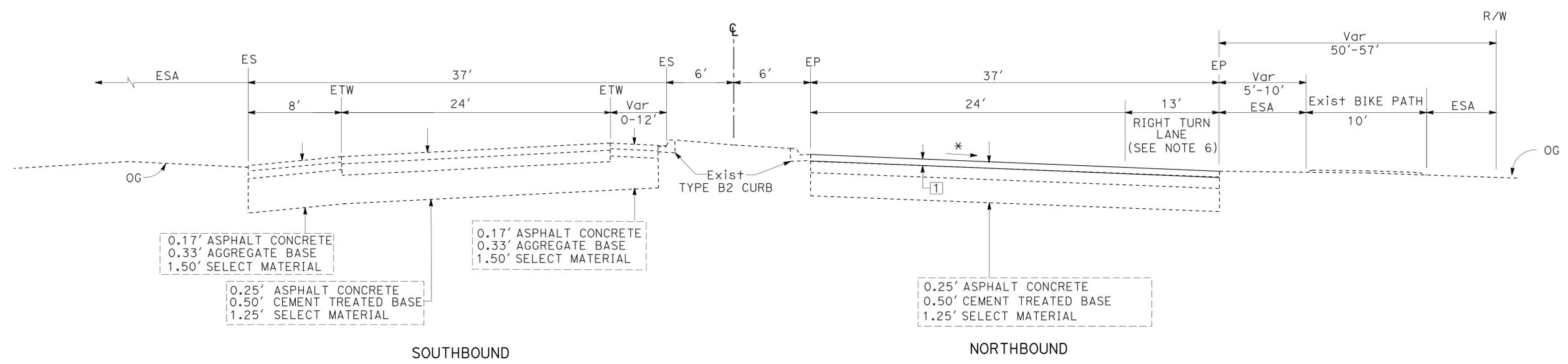
<i>Abdul Malikyar</i>	07-29-11
REGISTERED CIVIL ENGINEER	DATE
08-01-11	
PLANS APPROVAL DATE	

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



SEAN D. HOANG	REVISOR	DATE
ABDUL MALIKYAR	DESIGNER	
EDWARD HAJJ	CHECKER	
DESIGN		



**ROUTE 75**  
PM 17.39 TO 17.46

**TYPICAL CROSS SECTIONS**  
NO SCALE  
**X-2**

LAST REVISION    DATE PLOTTED => 30-SEP-2011    TIME PLOTTED => 15:59

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	75	11.0/17.4	4	54

<i>Abdul Malikyar</i>	07-29-11
REGISTERED CIVIL ENGINEER	DATE
08-01-11	
PLANS APPROVAL DATE	

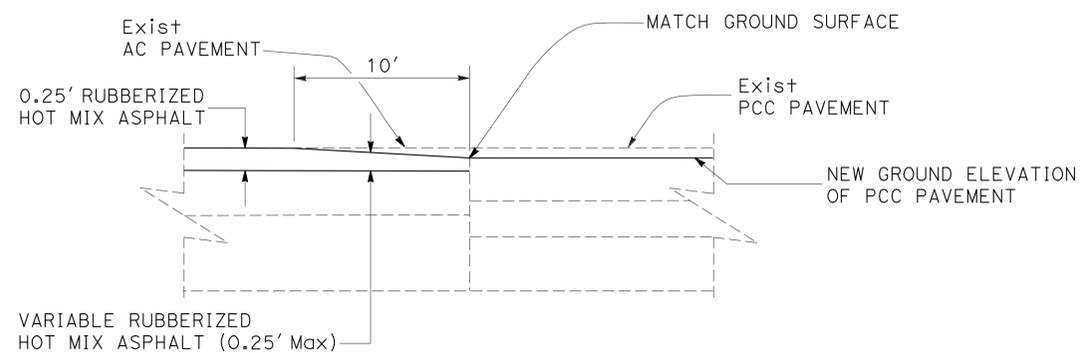
  

REGISTERED PROFESSIONAL ENGINEER
ABDUL MALIKYAR
No. C66169
Exp. 06-30-12
CIVIL

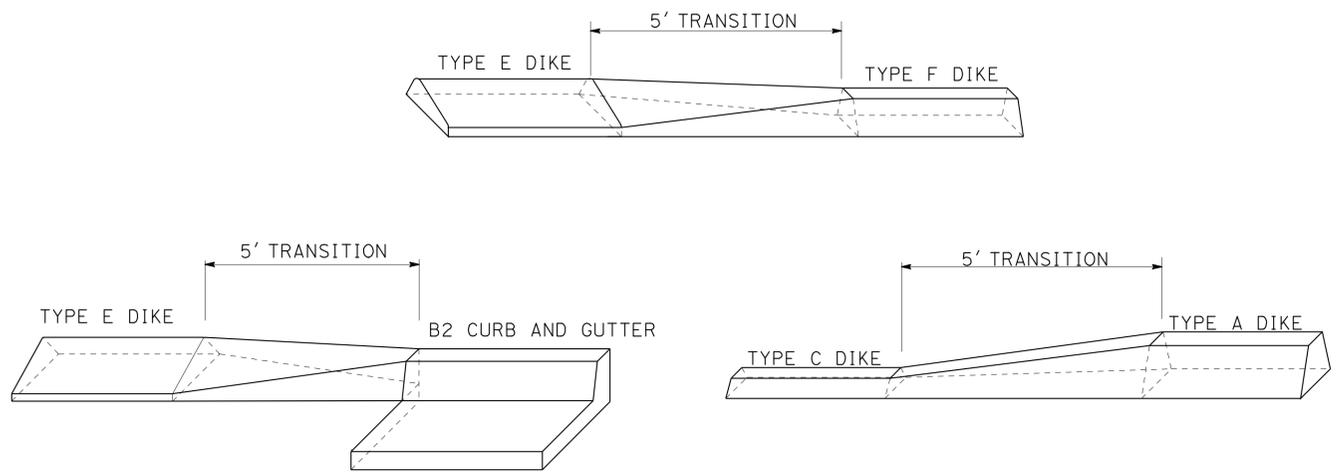
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

**NOTE:**

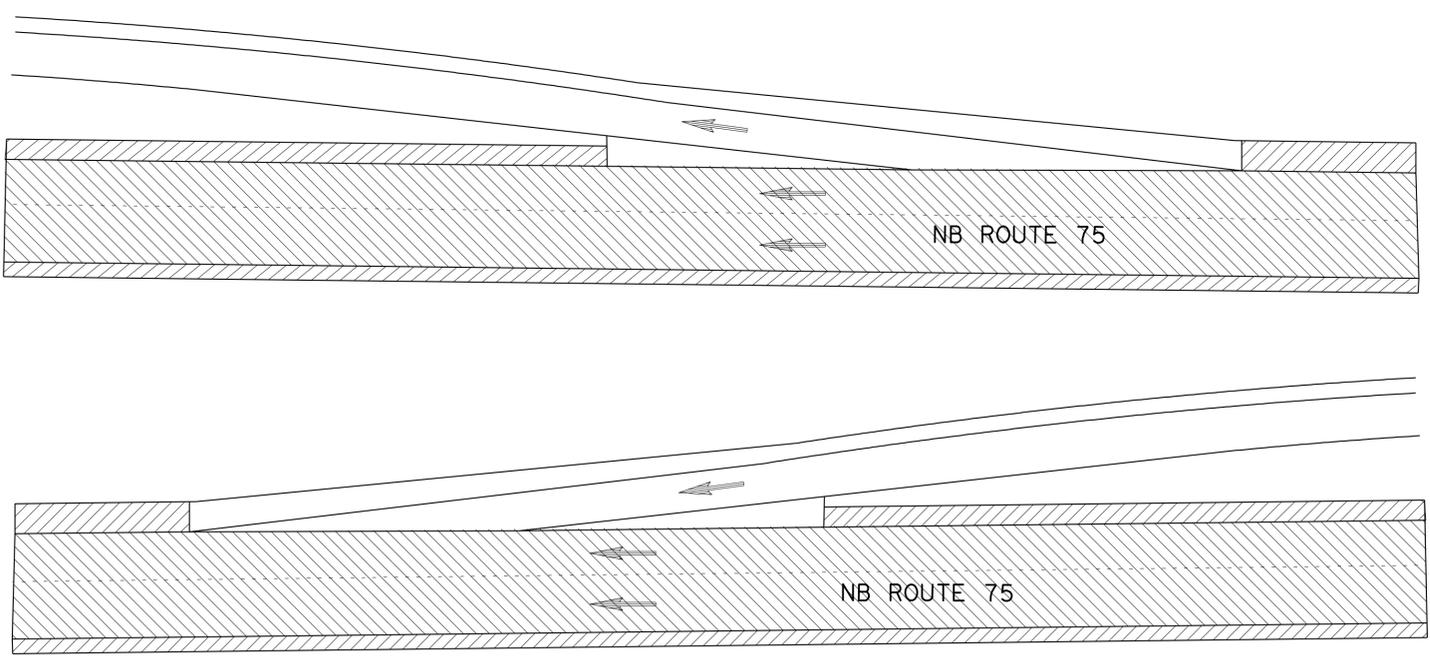
1. CONSTRUCT DIKE TRANSITIONS WITHIN THE LIMITS SHOWN ON THE PLANS FOR THE LOWER DIKE.



**TYPICAL CONFORM DETAIL AT AC TO PCC PAVEMENT**

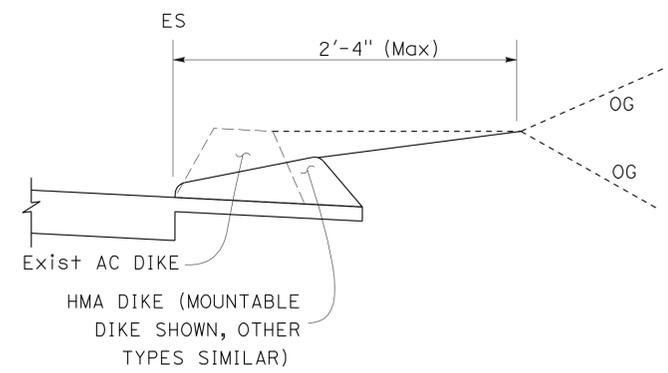


**CURB AND DIKE TRANSITIONS**



**LIMITS OF WORK FOR EXIT AND ENTRANCE AT BIRD SANCTUARY AREA**

- AC REPLACEMENT
- PCC GRIND



**DIKE DETAILS**

**CONSTRUCTION DETAILS**

NO SCALE

**C-1**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
<b>Caltrans</b>
DESIGN
FUNCTIONAL SUPERVISOR
EDWARD HAJJ
CALCULATED/DESIGNED BY
CHECKED BY
SEAN D. HOANG
ABDUL MALIKYAR
REVISED BY
DATE REVISED

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	75	11.0/17.4	5	54

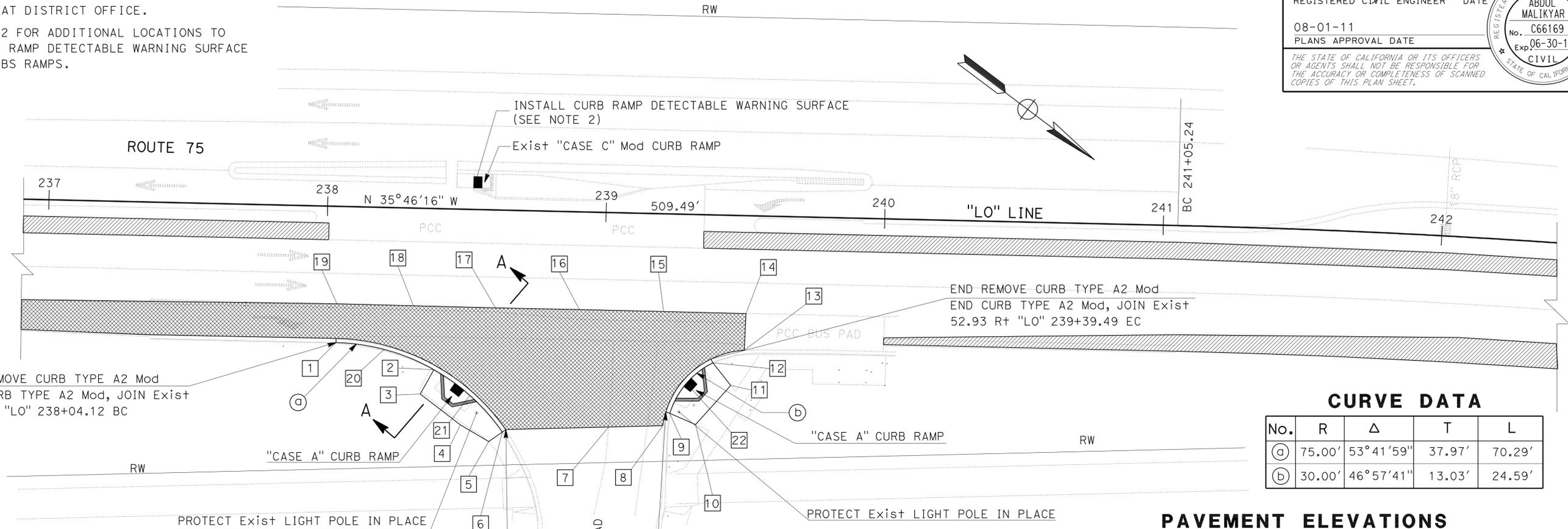
07-29-11  
 REGISTERED CIVIL ENGINEER DATE  
 08-01-11  
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
 ABDUL MALIKYAR  
 No. C66169  
 Exp. 06-30-12  
 CIVIL  
 STATE OF CALIFORNIA

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

**NOTES:**

- FOR ACCURATE RIGHT OF WAY AND ACCESS DATA, CONTACT RIGHT OF WAY ENGINEERING AT DISTRICT OFFICE.
- SEE SHEET Q-2 FOR ADDITIONAL LOCATIONS TO INSTALL CURB RAMP DETECTABLE WARNING SURFACE ON EXIST CURBS RAMPS.



**CURVE DATA**

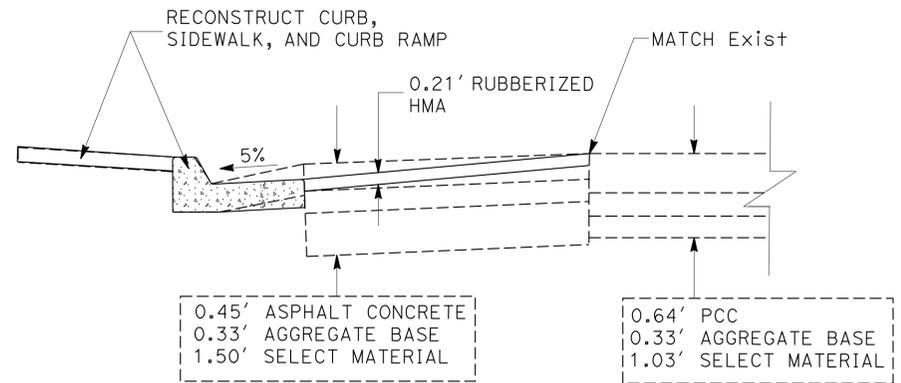
No.	R	Δ	T	L
Ⓐ	75.00'	53°41'59"	37.97'	70.29'
Ⓑ	30.00'	46°57'41"	13.03'	24.59'

**PAVEMENT ELEVATIONS**

No.	STATION	OFFSET (RIGHT)	FLOWLINE ELEVATION	NOTES
1	238+04.12 "LO"	48.77'	13.35	
2	238+39.50 "LO"	57.65'	13.285	
3	238+34.79 "LO"	66.46'	-	BACK OF SIDEWALK
4	238+49.43 "LO"	77.17'	-	BACK OF SIDEWALK
5	238+59.73 "LO"	82.93'	-	MATCH EXIST
6	238+64.56 "LO"	79.37'	13.24	
7	239+02.64 "LO"	76.74'	-	MATCH EXIST
8	239+22.05 "LO"	75.83'	-	MATCH EXIST
9	239+24.46 "LO"	71.32'	13.36	
10	239+33.80 "LO"	75.15'	-	MATCH EXIST
11	239+46.14 "LO"	60.89'	-	MATCH EXIST
12	239+39.49 "LO"	52.93'	13.465	
13	239+50.67 "LO"	48.02'	-	MATCH EXIST
14	239+50.98 "LO"	35.05'	-	MATCH EXIST
15	239+21.42 "LO"	34.97'	-	MATCH EXIST
16	238+91.18 "LO"	34.97'	-	MATCH EXIST
17	238+61.01 "LO"	35.02'	-	MATCH EXIST
18	238+31.59 "LO"	34.95'	-	MATCH EXIST
19	238+04.12 "LO"	34.88'	-	MATCH EXIST
20	238+21.53 "LO"	50.82'	13.32	
21	238+52.60 "LO"	66.55'	13.25	
22	239+30.13 "LO"	60.51'	13.41	

**LEYTE ROAD AT PM 15.71**

SCALE: 1'=20"



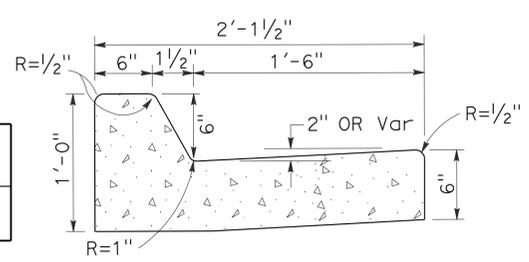
**SECTION A-A**

NO SCALE

TYPE	CUBIC YARDS PER LINEAR FOOT
A2 Mod	0.0497

**TYPE A2 Mod CURB**

NO SCALE



**LEGEND:**

- 0.17' RUBBERIZED HOT MIX ASPHALT-TYPE G
- 0.21' RUBBERIZED HOT MIX ASPHALT-TYPE G (PM 15.66 TO 15.73)

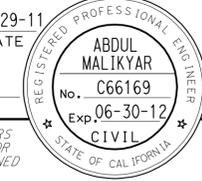
**CONSTRUCTION DETAILS**

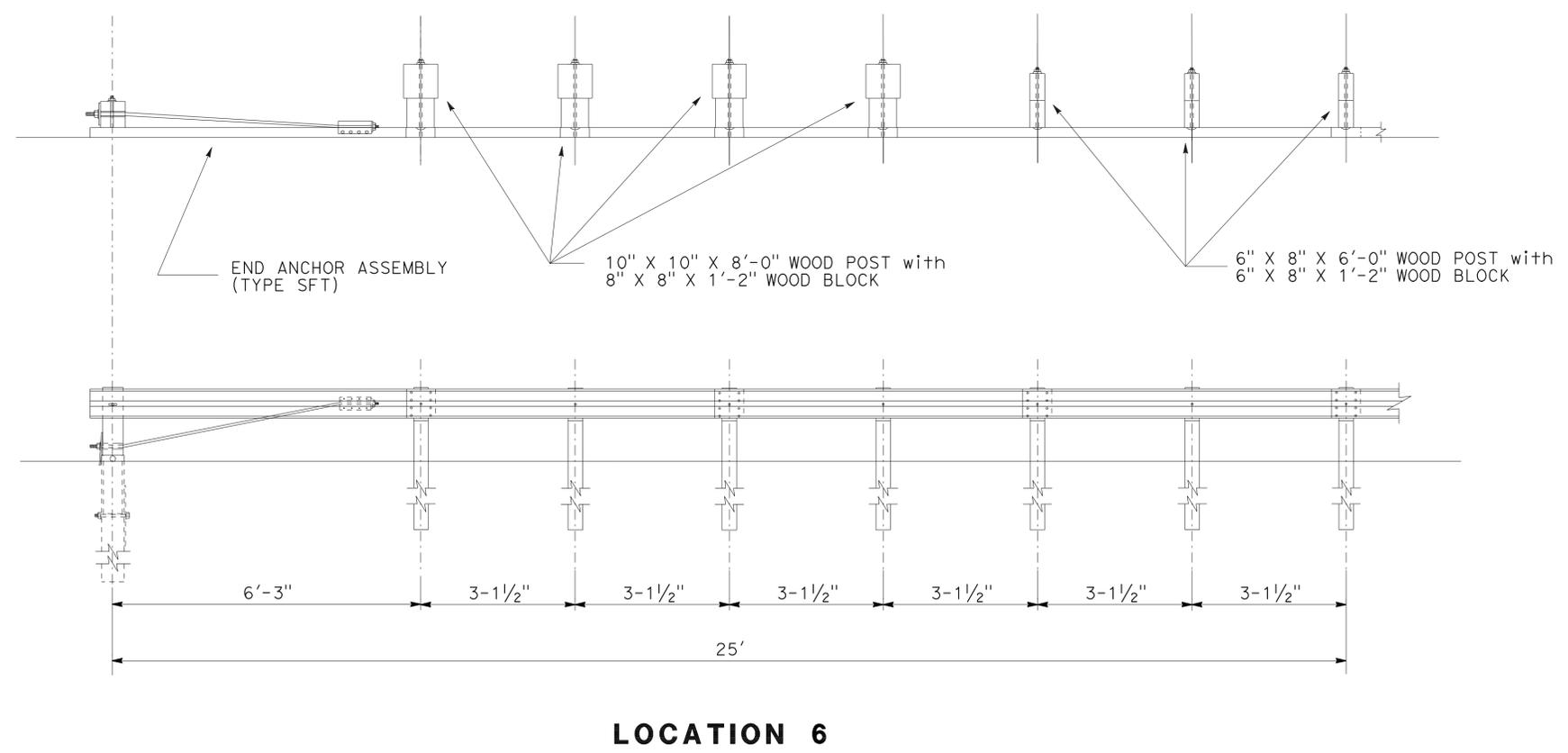
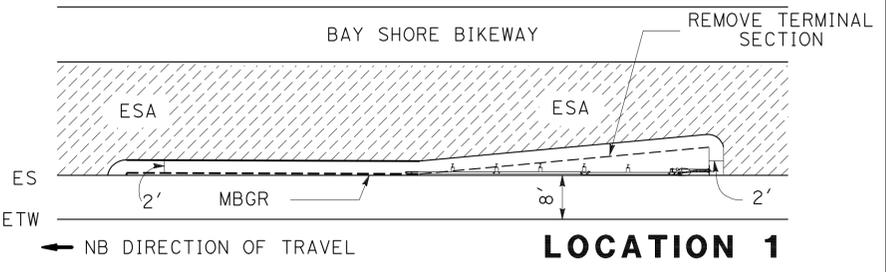
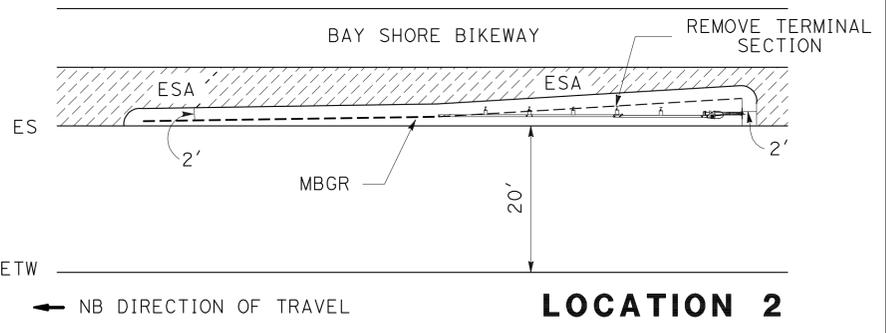
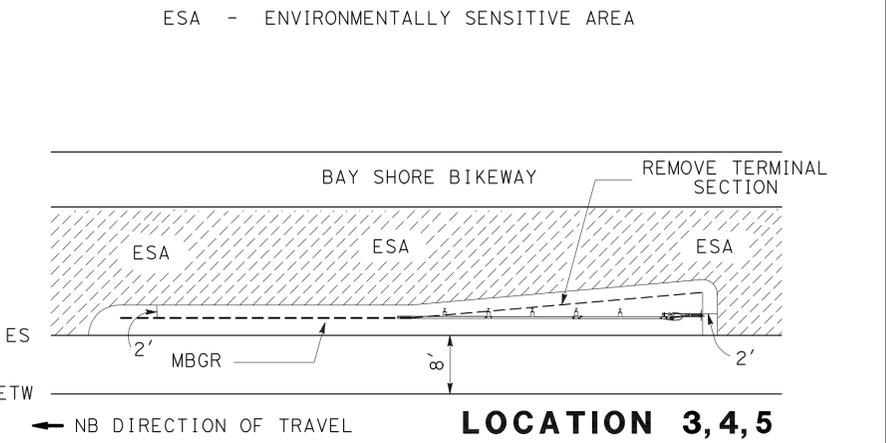
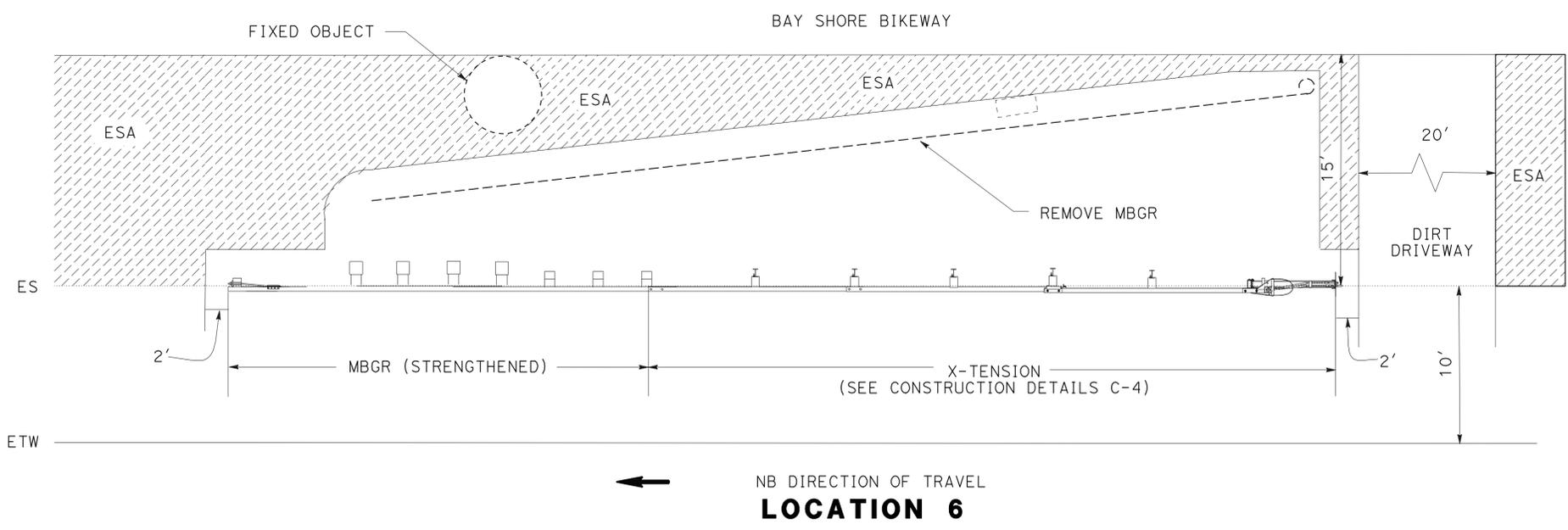
SCALE AS SHOWN

**C-2**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION DESIGN  
 SEAN D. HOANG  
 EDWARD HAJJ  
 REVISIONS: 09-07-11

LAST REVISION DATE PLOTTED => 30-SEP-2011  
 09-07-11 TIME PLOTTED => 15:59

Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	75	11.0/17.4	6	54
			07-29-11	DATE	
REGISTERED CIVIL ENGINEER			08-01-11 PLANS APPROVAL DATE		
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					
					



**UPGRADE METAL BEAM GUARDRAIL & END TREATMENTS  
ESA WORK LIMITS**

**CONSTRUCTION DETAILS  
NO SCALE  
C-3**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
 DESIGN  
 FUNCTIONAL SUPERVISOR: EDWARD HAJJ  
 CALCULATED/DESIGNED BY: [blank]  
 CHECKED BY: [blank]  
 OLIVER L. ASIS  
 REVISED BY: [blank]  
 DATE REVISED: [blank]  
 ABDUL MALIKYAR

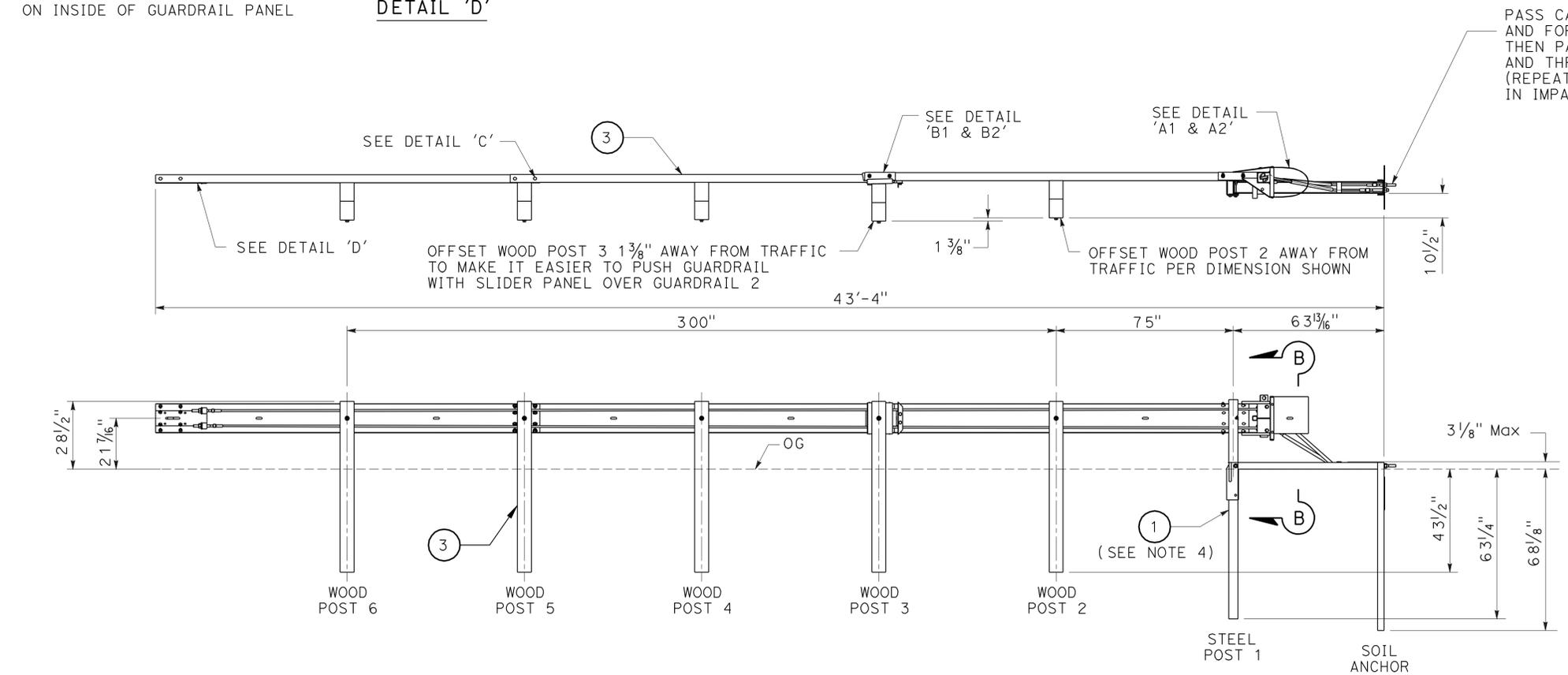
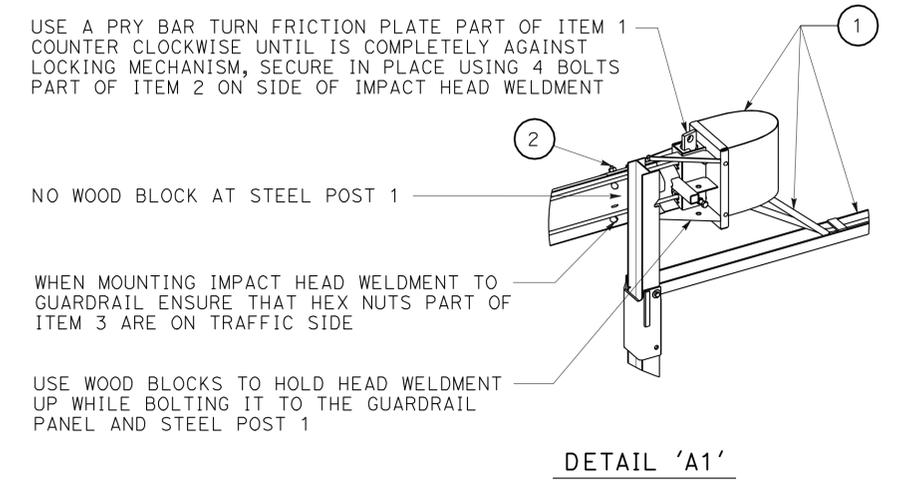
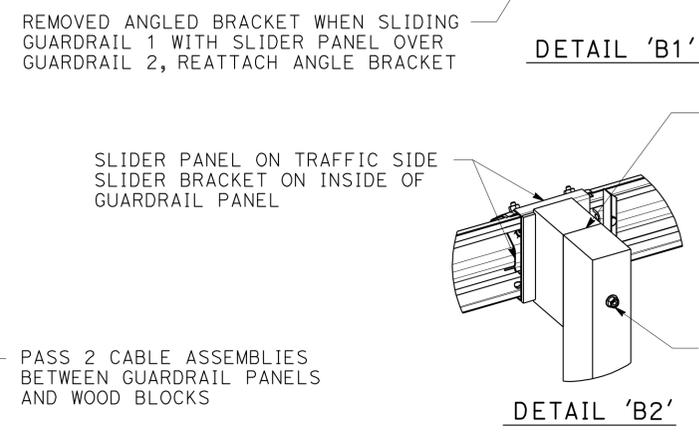
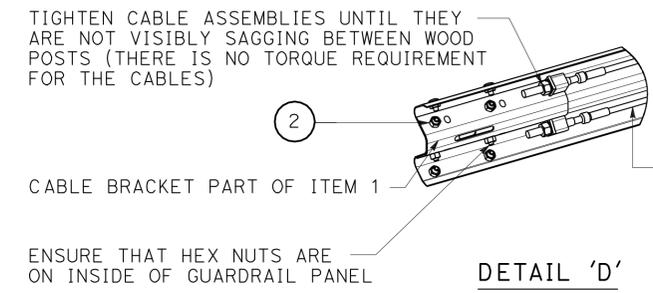
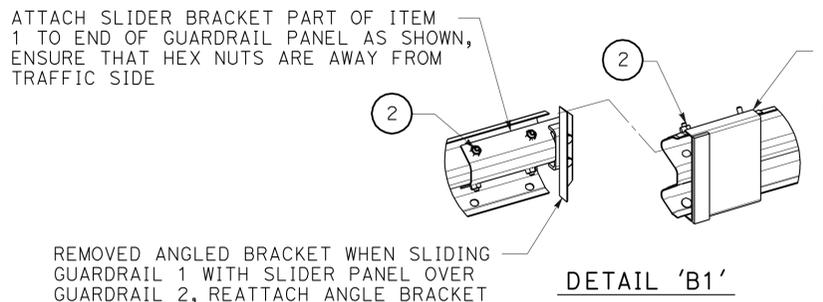
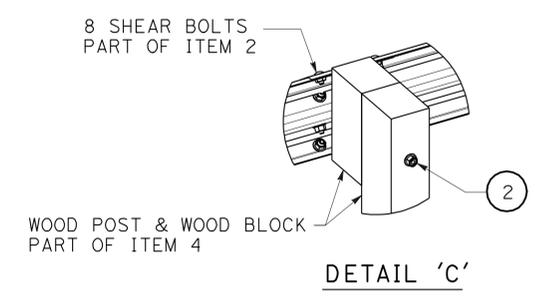
Dist	COUNTY	LOCATION CODE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	75	11.0/17.4	7	54
			07-29-11	DATE	
REGISTERED CIVIL ENGINEER			No. C66169 Exp. 06-30-12 CIVIL		
08-01-11 PLANS APPROVAL DATE			THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.		

**NOTES:**

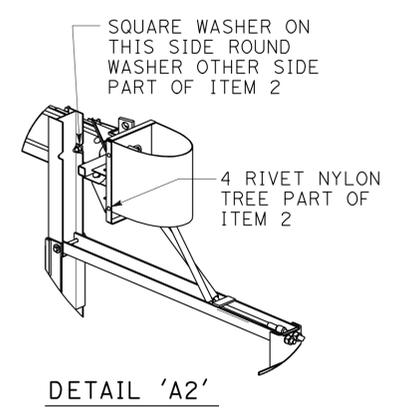
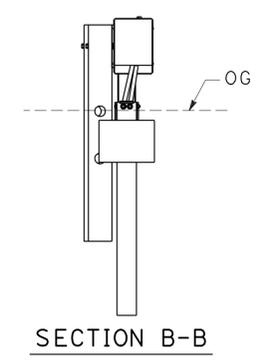
1. SEE MANUFACTURER PLANS FOR ADDITIONAL DETAILS AND DIMENSIONS NOT SHOWN ON PLANS.
2. SYSTEM TO BE INSTALLED PER MANUFACTURER SPECIFICATIONS.
3. ONLY TIGHTEN THE CABLE ASSEMBLIES USING THE NUTS AT THE CABLE BRACKET (SEE DETAIL 'D'). DO NOT TIGHTEN THE CABLES AT THE FRONT OF THE GROUND ANCHOR.
4. WHEN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

**LEGEND**

ITEM	DESCRIPTION
①	TERMINAL SYSTEM (TYPE X-TENSION) COMPONENT KIT
②	TERMINAL SYSTEM (TYPE X-TENSION) SYSTEM HARDWARE KIT
③	TERMINAL SYSTEM (TYPE X-TENSION) GUARDRAIL COMPONENT KIT 1



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



**TERMINAL SYSTEM (TYPE X-TENSION)**

**CONSTRUCTION DETAILS**

NO SCALE

**C-4**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
 DESIGN  
 FUNCTIONAL SUPERVISOR: EDWARD HAJJ  
 CALCULATED/DESIGNED BY: OLIVER L. ASIS  
 CHECKED BY: ABDUL MALIKYAR  
 REVISED BY: OLIVER L. ASIS  
 DATE REVISED:

LAST REVISION: 08-23-11  
 DATE PLOTTED => 30-SEP-2011  
 TIME PLOTTED => 16:00

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	75	11.0/17.4	8	54

<i>Abdul Malikyar</i>	07-29-11	
REGISTERED CIVIL ENGINEER	DATE	
08-01-11		
PLANS APPROVAL DATE		

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

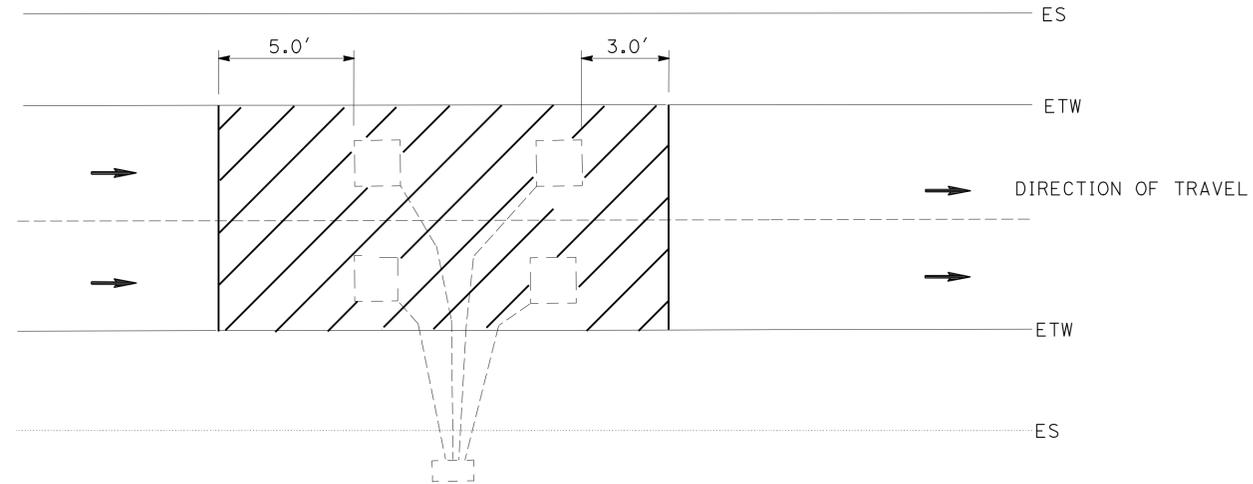
**NOTE:**



- NO JOINT SEAL WORK WITHIN THE HATCH AREA.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	DESIGN
<i>Caltrans</i>	
FUNCTIONAL SUPERVISOR	EDWARD HAJJ
CALCULATED/DESIGNED BY	CHECKED BY
OLIVER L. ASIS	ABDUL MALIKYAR
REVISED BY	DATE REVISED

Exist INDUCTIVE LOOP DETECTORS  
PROTECT IN PLACE (Typical)



**Exist INDUCTIVE LOOP DETECTORS**  
ROUTE 75 COUNT STATION No. 717, PM 16.70

**CONSTRUCTION DETAILS**  
**(TRAFFIC MONITORING SYSTEM, COUNT)**  
NO SCALE **C-5**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	75	11.0/17.4	9	54

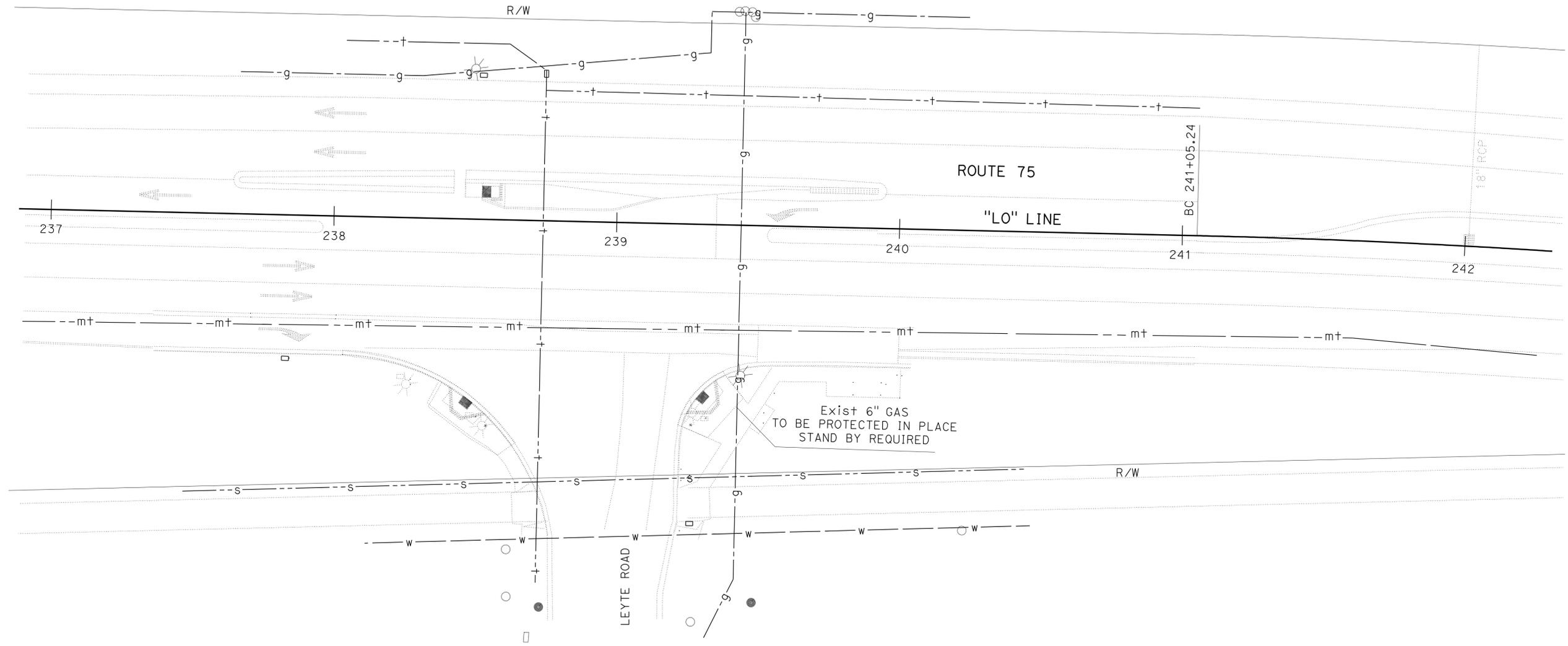
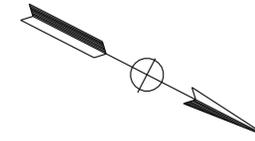
07-29-11  
 REGISTERED CIVIL ENGINEER DATE  
 08-01-11  
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
 ARTURO A. REYES  
 No. C75491  
 Exp. 06-30-12  
 CIVIL  
 STATE OF CALIFORNIA

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

**NOTE:**

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



**LEGEND:**

SYMBOL	EXISTING UTILITY	OWNER
— W —	WATER	CALIFORNIA AMERICAN WATER COMPANY
--- S ---	SEWER	CITY OF CORONADO
--- + ---	TELEPHONE	AT&T
— G —	NATURAL GAS	SAN DIEGO GAS & ELECTRIC (SDG&E)
--- mt ---	MILITARY TELEPHONE	UNITED STATES DEPARTMENT OF DEFENSE

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 DESIGN  
 FUNCTIONAL SUPERVISOR: ABU-BAKR AL-JAFRI  
 CALCULATED/DESIGNED BY: ARTURO REYES  
 CHECKED BY: ANH HOANG  
 REVISED BY: [ ]  
 DATE REVISED: [ ]

**UTILITY PLAN**  
SACLE: 1"=20' **U-1**

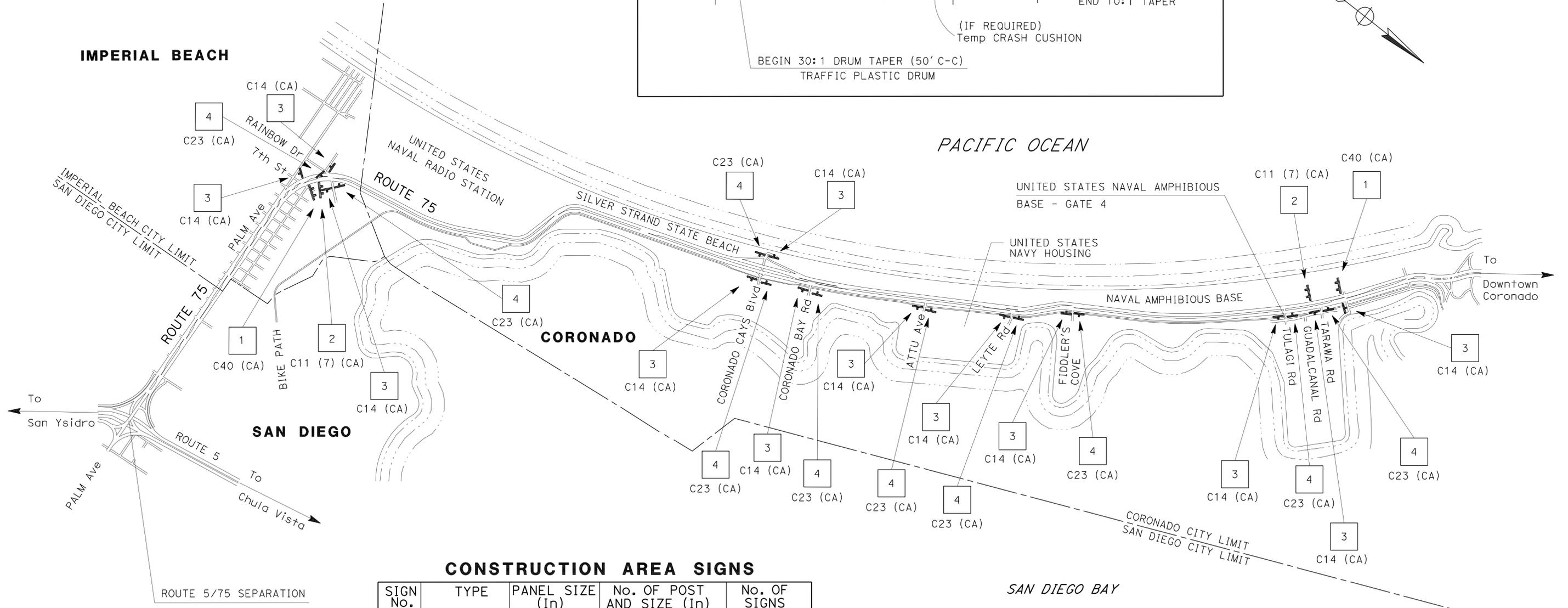
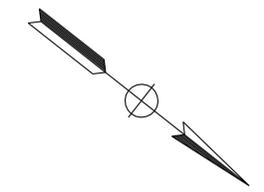
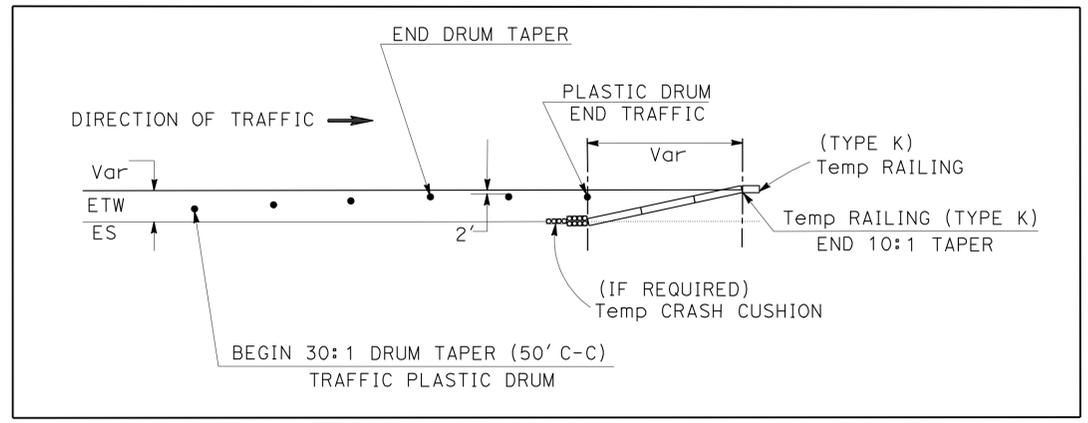
**NOTES:**

- EXACT LOCATION OF CONSTRUCTION AREA SIGNS WILL BE DETERMINED BY THE ENGINEER.
- FEDERAL MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) SIGN CODES ARE SHOWN UNLESS DESIGNATED BY (CA), INDICATING CALIFORNIA MUTCD.
- EXISTING UTILITIES ARE NOT SHOWN ON THESE PLAN SHEETS. THE CONTRACTOR SHALL VERIFY LOCATIONS OF EXISTING UTILITIES AND ADJUST THE FIELD LOCATION OF THE SIGN POSTS IN CONSULTATION WITH THE ENGINEER.

**LEGEND:**

XX = CONSTRUCTION AREA SIGN

**TYPICAL PLACEMENT OF TRAFFIC PLASTIC DRUM**



**CONSTRUCTION AREA SIGNS**

SIGN No.	TYPE	PANEL SIZE (In)	No. OF POST AND SIZE (In)	No. OF SIGNS
1	C40 (CA)	108 X 42	2-4 X 6 (S)	2
2	C11 (7) (CA)	60 X 36	2-4 X 6 (S)	2
3	C14 (CA)	48 X 24	1-4 X 4 (S)	12
4	C23 (CA)	48 X 48	1-4 X 6 (S)	10
TOTAL				26

(S) DENOTES STATIONARY MOUNTED SIGN

**CONSTRUCTION AREA SIGNS**  
NO SCALE  
**CS-1**

THIS PLAN ACCURATE FOR CONSTRUCTION AREA SIGN WORK ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
 Caltrans®  
 TRAFFIC DESIGN  
 FUNCTIONAL SUPERVISOR: CAMILLE ABOUFADEL  
 REVISIONS: REVISED BY: ROBERT EDEJER, DATE: [blank]; REVISED BY: SHAHIN ADIBI, DATE: [blank]  
 CALCULATED/DESIGNED BY: [blank]; CHECKED BY: [blank]

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	75	11.0/17.4	11	54

07-29-11  
 REGISTERED CIVIL ENGINEER DATE  
 08-01-11  
 PLANS APPROVAL DATE

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

REGISTERED PROFESSIONAL ENGINEER  
 ABDUL MALIKYAR  
 No. C66169  
 Exp. 06-30-12  
 CIVIL  
 STATE OF CALIFORNIA

### CONSTRUCTION AREA SIGNS

SIGN No.	CODE	PANEL SIZE (In)	No. OF POST AND SIZE (In)	No. OF SIGNS	REMARK
A	C30A (CA)	48 X 48	1-4 X 6 (S)	1	
B	SC22 (CA)	48 X 48	1-4 X 6 (S)	5	
C	M4-9C	30 X 24	1-4 X 4 (S)	6	
D	W11-1	24 X 24	1-4 X 6 (S)	1	ORANGE BACKGROUND
	W16-1	18 X 24	1-4 X 6 (S)	1	
E	M4-8A	24 X 18	1-4 X 4 (S)	1	
TOTAL				14	

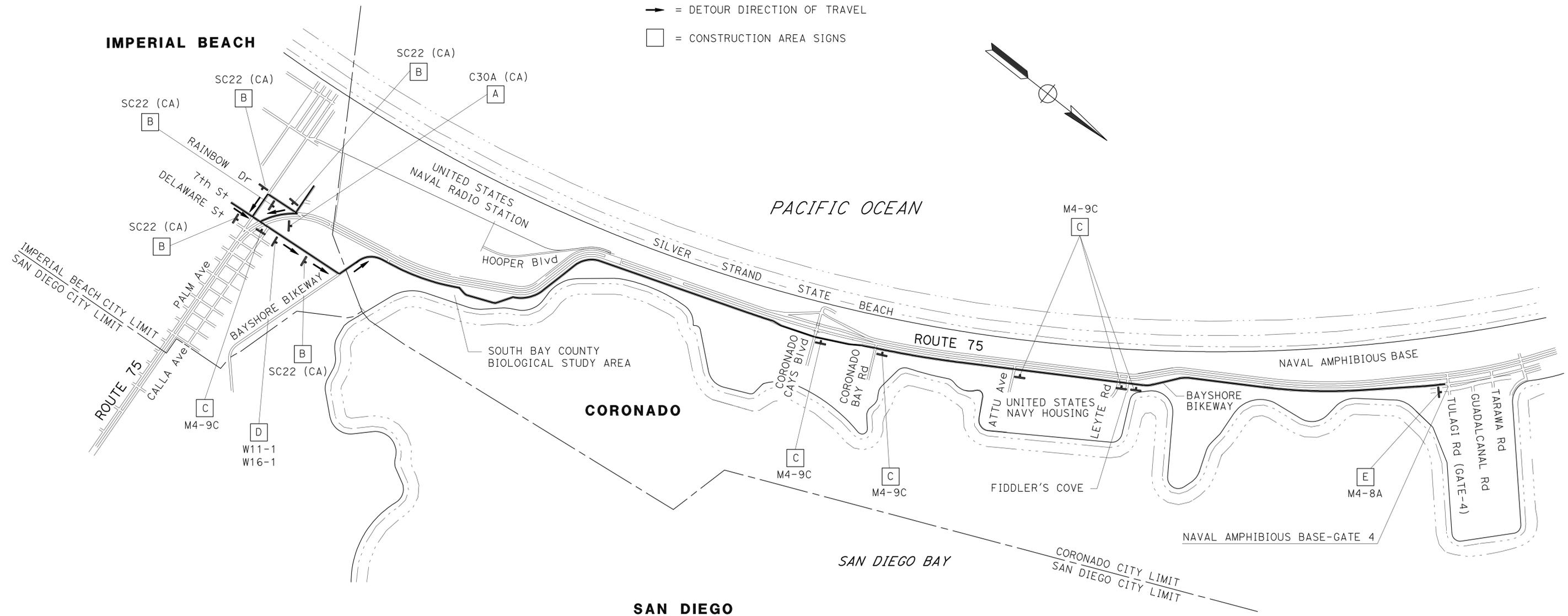
(S) DENOTES STATIONARY MOUNTED SIGN

### NOTES:

- EXACT LOCATION OF CONSTRUCTION AREA SIGNS WILL BE DETERMINED BY THE ENGINEER.
- FEDERAL MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) SIGN CODES ARE SHOWN UNLESS DESIGNATED BY (CA), INDICATING CALIFORNIA MUTCD.
- ROTATE ARROW ON SC22 (CA) AND M4-9C PANELS TO REFLECT DIRECTION OF DETOUR.
- EXISTING UTILITIES ARE NOT SHOWN ON THESE PLAN SHEETS. THE CONTRACTOR SHALL VERIFY LOCATIONS OF EXISTING UTILITIES AND ADJUST THE FIELD LOCATION OF THE SIGN POSTS IN CONSULTATION WITH THE ENGINEER.
- FOR ACCURATE RIGHT OF WAY AND ACCESS DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
- SEE CS SHEET FOR ADDITIONAL CONSTRUCTION AREA SIGNS

### LEGEND:

- = DETOUR DIRECTION OF TRAVEL
- = CONSTRUCTION AREA SIGNS



THIS PLAN ACCURATE FOR TRAFFIC HANDLING WORK ONLY

## TRAFFIC HANDLING PLAN (BIKE DETOUR) NO SCALE TH-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans**  
 DESIGN  
 FUNCTIONAL SUPERVISOR: EDWARD HAJJ  
 CALCULATED/DESIGNED BY: SEAN D. HOANG  
 CHECKED BY: ABDUL MALIKYAR  
 REVISED BY: \_\_\_\_\_ DATE REVISED: \_\_\_\_\_

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	75	11.0/17.4	12	54

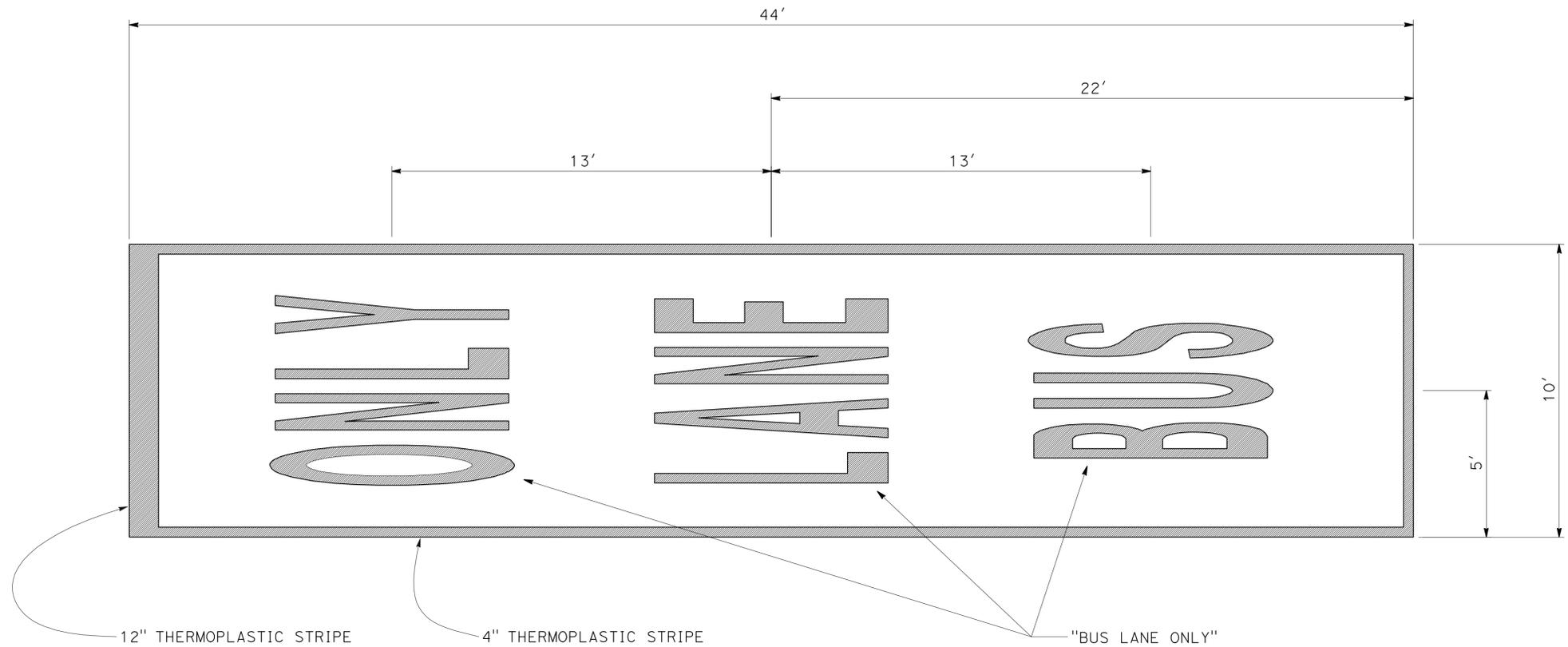
  

REGISTERED CIVIL ENGINEER	DATE
07-29-11	
PLANS APPROVAL DATE	
08-01-11	

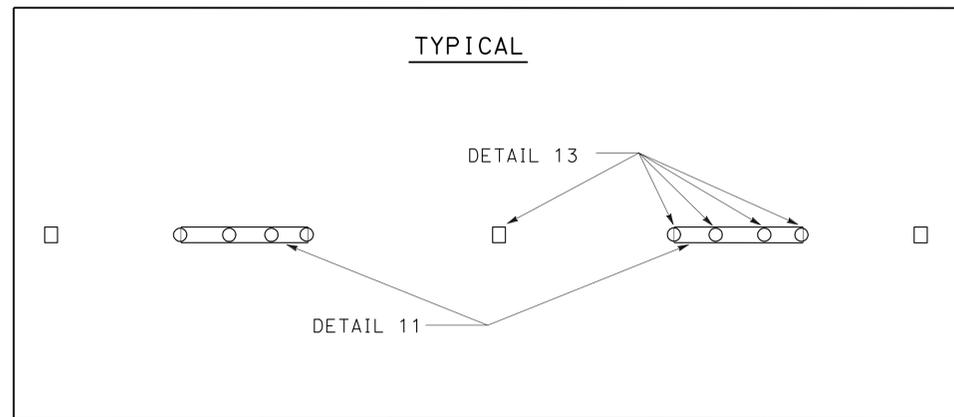
REGISTERED PROFESSIONAL ENGINEER
SHAHIN T. ADIBI
No. 54839
Exp. 06-30-12
CIVIL

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.

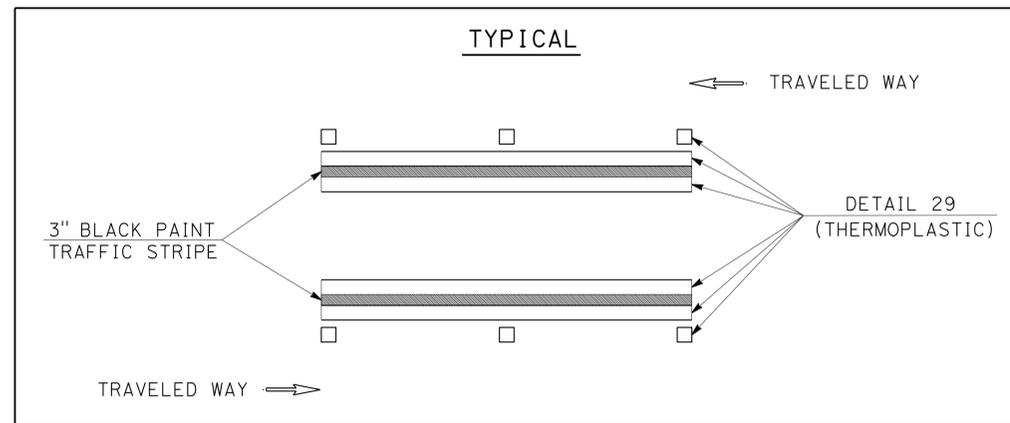


**BUS STOP DETAIL AT LEYTE INTERSECTION**

**DETAIL 11/13 COMBINATION**



**DETAIL 29 (Mod)**



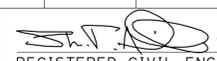
**PAVEMENT DELINEATION DETAILS**

NO SCALE

**PDD-1**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	REVISOR	DATE
<b>Caltrans</b>	CAMILLE ABOUFADEL	ROBERT EDEJER	
<b>TRAFFIC DESIGN</b>		SHAHIN ADIBI	
		CHECKED BY	
		DESIGNED BY	

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	75	11.0/17.4	13	54

 07-29-11  
 REGISTERED CIVIL ENGINEER DATE

08-01-11  
 PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER  
 SHAHIN T. ADIBI  
 No. 54839  
 Exp. 06-30-12  
 CIVIL

**NOTES:**

1. ALL PAVEMENT DELINEATION SHALL BE REPLACED IN KIND UNLESS INDICATED OTHERWISE.
2. ALL PAVEMENT DELINEATION SHALL BE REPLACED WITH THERMOPLASTIC TRAFFIC STRIPE.

**PAVEMENT MARKER AT IRRIGATION CROSSOVER LOCATIONS**

Rte 75	PM	NON-REFLECTIVE (EA) TYPE A	REMARKS
NB	14.07	2	INSIDE AND OUTSIDE SHOULDERS
	14.67	2	INSIDE AND OUTSIDE SHOULDERS
	15.03	2	INSIDE AND OUTSIDE SHOULDERS
	15.42	2	INSIDE AND OUTSIDE SHOULDERS
	15.89	2	INSIDE AND OUTSIDE SHOULDERS
	17.36	2	INSIDE AND OUTSIDE SHOULDERS
<b>TOTAL</b>		12 *	

\* SEE PAVEMENT MARKER SUMMARY FOR TOTAL.

ROUTE	DIRECTION	DESCRIPTION	POSTMILE	DETAIL	PAVEMENT MARKER SUMMARY			TRAFFIC STRIPE SUMMARY			REMARKS			
					NON-REFLECTIVE (EA) TYPE A WHITE	RETROREFLECTIVE (EA)		PAINT (LF) (1-COAT)	THERMOPLASTIC (LF)					
						TYPE D YELLOW	TYPE G CLEAR		TYPE H YELLOW	4" SOLID		8" SOLID	4" (BROKEN 36-12)	
75	NB	RAINBOW Dr INTERSECTION TO TULAGI Rd INTERSECTION	11.00 TO 17.40	11/13	2,816		705				33,792			
				25			705			33,792				
				27B						33,792				
		BIKE PATH PARKING	12.15	36			9				180			
				36A			3				50			
		HOOPER Blvd LEFT TURN	12.83	38			3				50			
				36			5				105			
		CORONADO CAYS Blvd INTERSECTION	14.00	38			19				425			
				38B			22				235			
				38			18				400			
		LEYTE Rd INTERSECTION	15.78	29 (Mod)		10				160*	320			L=80
				27B							98			SEE BUS STOP DETAIL
				38			5					96		
FIDDLER'S COVE INTERSECTION	16.05	38			4				74					
		TULAGI Rd INTERSECTION	17.40	38			12			260				
IRRIGATION CROSSOVER	VARIES			12										
<b>SUBTOTAL</b>					2,828	10	805	705	160*	68,002	1,875	33,792		
<b>TOTAL</b>					2,828		1,520		160*	68,002	1,875	33,792	* - BLACK PAINT	

**PAVEMENT DELINEATION QUANTITIES  
PDQ-1**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	75	11.0/17.4	14	54

07-29-11  
REGISTERED CIVIL ENGINEER DATE

08-01-11  
PLANS APPROVAL DATE

SHAHIN T. ADIBI  
No. 54839  
Exp. 06-30-12  
CIVIL

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### REMOVE PAVEMENT MARKER (N)

ROUTE	DIRECTION	DESCRIPTION	POSTMILE	DETAIL	PAVEMENT MARKER SUMMARY			
					NON-REFLECTIVE (EA) TYPE A WHITE	RETROREFLECTIVE (EA)		
						TYPE D YELLOW	TYPE G CLEAR	TYPE H YELLOW
75	NB	RAINBOW Dr INTERSECTION TO TULAGI Rd INTERSECTION	11.00 TO 17.40	11/13	2,816		705	
				25				705
		BIKE PATH PARKING	12.15	36				9
		HOOPER Blvd LEFT TURN	12.83	36A				3
				38				3
		CORONADO CAYS Blvd INTERSECTION	14.00	36				5
				38				19
				38B				22
		CORONADO BAY Rd INTERSECTION	14.30	38				18
		LEYTE Rd INTERSECTION	15.78	29		10		
		38				5		
FIDDLER'S COVE INTERSECTION	16.05	38				4		
TULAGI Rd INTERSECTION	17.40	38				12		

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

### THERMOPLASTIC PAVEMENT MARKING

ROUTE	DIRECTION	DESCRIPTION	POSTMILE	TYPE I-10'	TYPE III (R)	TYPE III (L)	TYPE V	12" LIMIT LINE	SIGNAL AHEAD	BUS	LANE ONLY	REMARKS		
				↑	↷	↶	↑	▬	SQFT	SQFT	SQFT		SQFT	SQFT
75	NB	BIKE PATH PARKING	12.15	28										
		HOOPER Blvd LEFT TURN	12.83											
		CORONADO CAYS Blvd INTERSECTION	14.00	14	84	126*	132	120						
		CORONADO BAY INTERSECTION	14.30		84		132	40						
		ATTU Ave INTERSECTION	15.18				66							
		LEYTE Rd INTERSECTION	15.78		42		132	332			20	24	22	SEE BUS STOP DETAIL
		FIDDLER'S COVE INTERSECTION	16.05			42	132							
		TULAGI Rd INTERSECTION	17.40		126		198	42	32	31				
SUBTOTAL				42	336	210	792	534	32	31	20	24	22	
TOTAL								2043						

\* REPLACE (1) EXISTING TYPE V ARROW WITH (1) TYPE III(L) ARROW TO HAVE A TOTAL OF (3) TYPE III(L) ARROW AND EVENLY SPACED AT LEFT TURN POCKET.

## PAVEMENT DELINEATION QUANTITIES PDQ-2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - TRAFFIC DESIGN

FUNCTIONAL SUPERVISOR: CAMILLE ABOUFADEL

REVISOR: ROBERT EDEJER, SHAHIN ADIBI

REVISIONS: REVISED BY, DATE REVISED

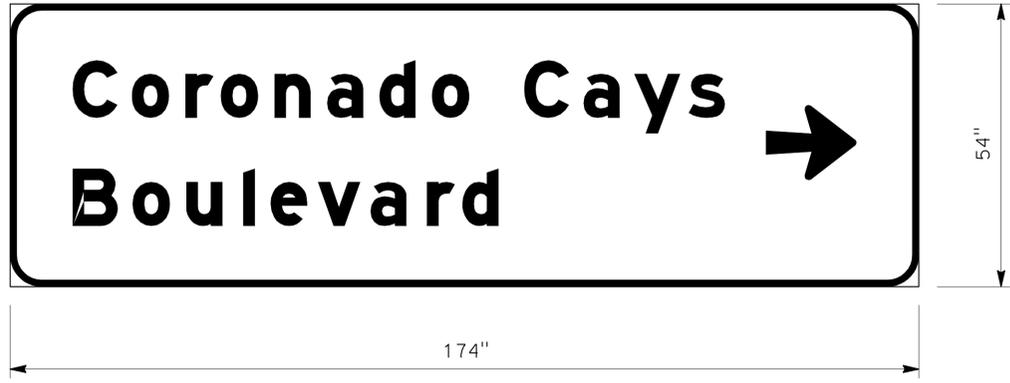
CALCULATED/DESIGNED BY, CHECKED BY

LAST REVISION DATE PLOTTED => 30-SEP-2011 08-23-11 TIME PLOTTED => 16:00

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** TRAFFIC DESIGN  
 FUNCTIONAL SUPERVISOR: CAMILLE ABOUFADEL  
 REVISIONS: x x x x x

NOTE: SEE SCQ SHEETS FOR ROADSIDE SIGN LOCATIONS.

SIGN #8  
 G8-22 (MOD) (CA)



LEGEND				ARROW	
LINE No.	U/L	Caps	Num	Deg	Length
1	10.67E(M)/8E(M)				
2				0	17
3	10.67E(M)/8E(M)				

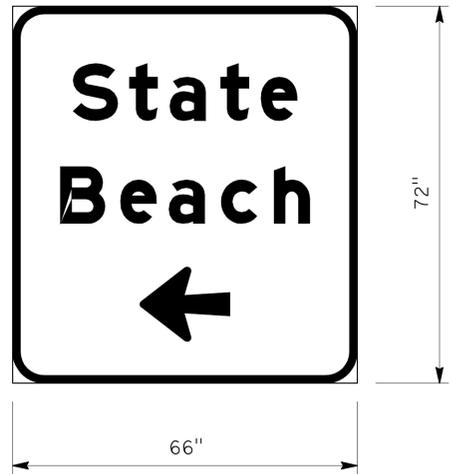
SIGN #9  
 G72 (MOD) (CA)

BROWN (RETRO REFLECTIVE TYPE III)  
 WITH WHITE REFLECTIVE LETTERING (TYPE III)



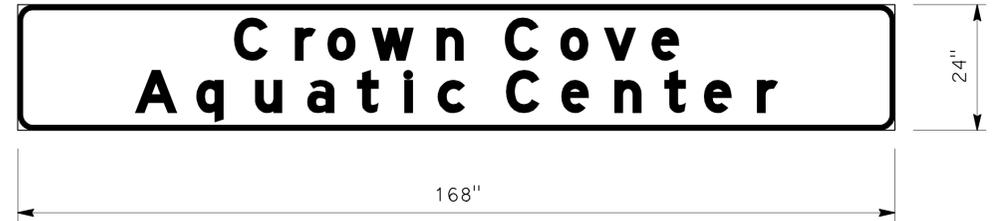
LEGEND				ARROW	
LINE No.	U/L	Caps	Num	Deg	Length
1	10.67E(M)/8E(M)				
2				180	17
3	10.67E(M)/8E(M)				

SIGN #15  
 G8-SPCL



LEGEND				ARROW	
LINE No.	U/L	Caps	Num	Deg	Length
1	10.67E(M)/8E(M)				
2	10.67E(M)/8E(M)				
3				180	17

SIGN #9  
 G-SPCL #1



LEGEND				ARROW	
LINE No.	U/L	Caps	Num	Deg	Length
1	10.67E(M)/8E(M)				
2	10.67E(M)/8E(M)				

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	75	11.0/17.4	15	54

REGISTERED CIVIL ENGINEER DATE 07-29-11  
 08-01-11 PLANS APPROVAL DATE  
 THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

REGISTERED PROFESSIONAL ENGINEER  
 SHAHIN T. ADIBI  
 No. 54839  
 Exp. 06-30-12  
 CIVIL  
 STATE OF CALIFORNIA

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

LAST REVISION DATE PLOTTED => 30-SEP-2011 08-23-11 TIME PLOTTED => 16:00

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	75	11.0/17.4	16	54

07-29-11  
REGISTERED CIVIL ENGINEER DATE

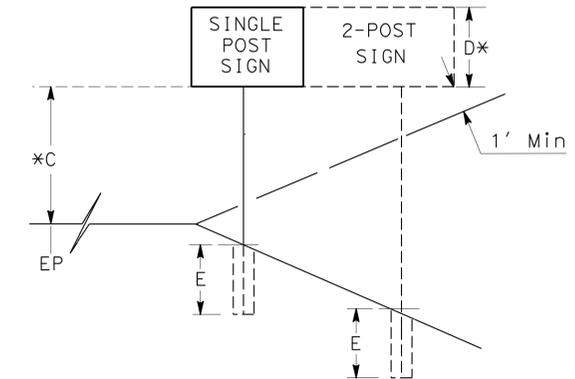
08-01-11  
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
**SHAHIN T. ADIBI**  
No. 54839  
Exp. 06-30-12  
CIVIL  
STATE OF CALIFORNIA

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### ROADSIDE SIGN QUANTITIES

SIGN No.	CODE	LOCATION	PANEL SIZE		D	C	E	Min POST LENGTH	POST SIZE				ROADSIDE SIGN		REMARKS	
			Horiz	Vert					4 x 4	4 x 6	6 x 6	6 x 8	ONE POST	TWO POST		
			INCHES	x INCHES												F+
NORTHBOUND																
1	R26A (CA)	PM 12.19	24	x 30									1		REPLACE R8-3A WITH R26A	
2	R5-1	PM 12.82	36	x 36									1			
	R5-1A	PM 12.82	36	x 21									1			
3	R6-1L	PM 12.82	48	x 16									1			
4	R6-1R	PM 12.82	54	x 18									1			
5	R5-1	PM 13.17	36	x 36									1			
	R5-1A	PM 13.17	36	x 21									1			
6	R5-1	PM 13.17	36	x 36									1			
	R5-1A	PM 13.17	36	x 21									1			
7	R26A (CA)	PM 12.19	24	x 30									1		REPLACE R8-3A WITH R26A	
8	G8-22 (MOD) (CA)	PM 13.8	174	x 54									1			
9	G72 (MOD) (CA)	PM 13.85	168	x 54									1			
	G-SPCL	PM 13.85													REMOVE PANEL	
	G-SPCL #1	PM 13.85	168	x 24									1			
10	R26A (CA)	PM 13.87	24	x 30									1		REPLACE R8-3A WITH R26A	
11	R26A (CA)	PM 13.95	24	x 30									1		REPLACE R8-3A WITH R26A	
12	R26A (CA)	PM 14.05	24	x 30									1		REPLACE R8-3A WITH R26A	
13	R5-1	PM 13.95	36	x 36									1			
	R5-1A	PM 13.95	36	x 21									1			
14	R3-1	PM 13.97	30	x 30									1		REPLACE R16B WITH R3-2	
15	G8-SPCL	PM 13.98	66	x 72									1			
SQ-1 TOTAL														20		



\*TO BOTTOM OF LOWER PANEL ON MULTIPLE SIGN INSTALLATIONS.

**NOTES:**

- CALIFORNIA SIGN QUANTITIES ARE DESIGNATED BY (CA) OTHERWISE FEDERAL (MUTCD) SIGN CODES ARE SHOWN.
- EXACT LOCATION OF SIGNS AND POSTS TO BE DETERMINED BY THE ENGINEER.
- MINIMUM POST LENGTHS WERE CALCULATED ASSUMING LEVEL GROUND SURFACE FROM THE EP. ENSURE "C" DIMENSIONS ARE MET. POST LENGTHS MAY VARY DUE TO SITE CONDITIONS.
- REFER TO "FURNISH ROADSIDE SIGN PANEL" CHART FOR FURTHER INFORMATION.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

**Caltrans** TRAFFIC DESIGN

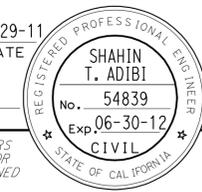
FUNCTIONAL SUPERVISOR: CAMILLE ABOUFADEL

REVISOR: DON LUONG, SHAHIN ADIBI

DESIGNER: CAMILLE ABOUFADEL

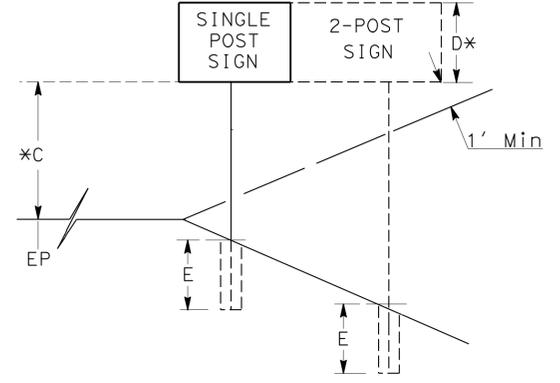
## SIGN QUANTITIES SQ-1

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	75	11.0/17.4	17	54


 07-29-11  
 REGISTERED CIVIL ENGINEER DATE  
 08-01-11  
 PLANS APPROVAL DATE  
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### ROADSIDE SIGN QUANTITIES

SIGN No.	CODE	LOCATION	PANEL SIZE		D	C	E	Min POST LENGTH	POST SIZE				ROADSIDE SIGN		INSTALL ROADSIDE SIGN PANEL ON EXISTING POST	INSTALL SIGN (STRAP & SADDLE BRACKET METHOD)	REMARKS
			Horiz	Vert					4 x 4	4 x 6	6 x 6	6 x 8	ONE POST	TWO POST			
			INCHES x INCHES						F†	F†	F†	F†	INCHES x INCHES				
NORTHBOUND																	
16	R26A (CA)	PM 14.07	24 x 30											1			REPLACE R8-3A WITH R26A
17	R5-1	PM 14.27	36 x 36											1			
	R5-1A	PM 14.27	36 x 21											1			
18	R9-3a	PM 14.29	18 x 18												1		
	R49 (CA)	PM 14.29															SEE ELECTRICAL PLAN FOR REMOVAL
19	R9-3a	PM 14.31	18 x 18												1		
	R49 (CA)	PM 14.31															SEE ELECTRICAL PLAN FOR REMOVAL
20	R4-7	PM 14.31	24 x 30											1			
21	R26A (CA)	PM 14.6	24 x 30											1			REPLACE R8-3A WITH R26A
22	R26A (CA)	PM 14.79	24 x 30											1			REPLACE R8-3A WITH R26A
23	R3-2	PM 15.13	30 x 30											1			
24	R5-1	PM 15.7	36 x 36											1			
	R5-1A	PM 15.7	36 x 21											1			
25	R9-3b (LT)	PM 15.7	18 x 12												1		
26	R9-3a	PM 15.72	18 x 18												1		
	R9-3b (LT)	PM 15.72	18 x 12												1		
27	R49 (CA)	PM 15.72															SEE ELECTRICAL PLAN FOR REMOVAL
	R9-3a	PM 15.72	18 x 18												1		
28	R9-3b (RT)	PM 15.72	18 x 12												1		
	R49 (CA)	PM 15.72															SEE ELECTRICAL PLAN FOR REMOVAL
SQ-2 TOTAL														10	7		
SQ-1 TOTAL														20			
TOTAL														30	7		



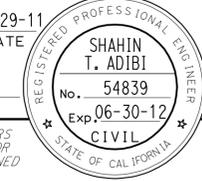
**NOTES:**

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2. EXACT LOCATION OF SIGNS AND POSTS TO BE DETERMINED BY THE ENGINEER.
3. MINIMUM POST LENGTHS WERE CALCULATED ASSUMING LEVEL GROUND SURFACE FROM THE EP. ENSURE "C" DIMENSIONS ARE MET. POST LENGTHS MAY VARY DUE TO SITE CONDITIONS.
4. REFER TO "FURNISH ROADSIDE SIGN PANEL" CHART FOR FURTHER INFORMATION.

## SIGN QUANTITIES SQ-2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
  
 TRAFFIC DESIGN  
 CAMILLE ABOUFADEL  
 FUNCTIONAL SUPERVISOR  
 CHECKED BY  
 DON LUONG  
 SHAHIN ADIBI  
 REVISOR BY  
 DATE REVISOR

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
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**NOTES:**

- GREEN-Grn, WHITE-Wht, BLACK-Blk, BLUE-Blu, YELLOW-Ylw, BROWN-Brn, RED-Red, ORANGE-Org, CREAM-Crm.
- REFER TO "ROADSIDE SIGN QUANTITIES" CHART FOR FURTHER INFORMATION.
- FEDERAL MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) SIGN CODES ARE SHOWN UNLESS DESIGNATED BY (CA), INDICATING CALIFORNIA MUTCD.

**FURNISH ROADSIDE SIGN PANEL**

SIGN No.	CODE	PANEL SIZE		BACKGROUND		LEGEND			SIGN PANEL				REMARKS		
		Horiz	Vert	SHEETING COLOR	RETRO-REFLECTIVE ASTM TYPE	SHEETING COLOR	REFLECTIVE ASTM TYPE	BLACK (NON-REFLECTIVE)	SINGLE SHEET ALUMINUM (SQFT)		LAMINATED (SQFT)			PROTECTIVE OVERLAY	
									UNFRAMED	FRAMED	TYPE B	TYPE H			
INCHES X INCHES								0.063"	0.080"	1"	2.5"	PREMIUM FILM			
	NORTHBOUND														
1	R26A (CA)	24 x 30		Wht	II	Red	II		5.00				X		
2	R5-1	36 x 36		Wht	VIII	Red/Wht	VIII		9.00				X		
	R5-1A	36 x 21		Wht	VIII	Wht	VIII		5.25				X		
3	R6-1L	48 x 16		Blk	IV	Blk/Wht	IV	X		5.33			X		
4	R6-1R	54 x 18		Blk	IV	Blk/Wht	IV	X		6.75			X		
5	R5-1	36 x 36		Wht	VIII	Red/Wht	VIII		9.00				X		
	R5-1A	36 x 21		Wht	VIII	Wht	VIII		5.25				X		
6	R5-1	36 x 36		Wht	VIII	Red/Wht	VIII		9.00				X		
	R5-1A	36 x 21		Wht	VIII	Wht	VIII		5.25				X		
7	R26A (CA)	24 x 30		Wht	II	Red	II		5.00				X		
8	G8-22 (MOD) (CA)	174 x 54		Grn	IV	Wht	IV				65.25		X		
9	G72 (MOD) (CA)	168 x 54		Brn	III	Wht	III				63.00		X		
	G-SPCL #1	168 x 24		Grn	IV	Wht	IV				28.00		X		
10	R26A (CA)	24 x 30		Wht	II	Red	II		5.00				X		
11	R26A (CA)	24 x 30		Wht	II	Red	II		5.00				X		
12	R26A (CA)	24 x 30		Wht	II	Red	II		5.00				X		
13	R5-1	36 x 36		Wht	VIII	Red/Wht	VIII		9.00				X		
	R5-1A	36 x 21		Wht	VIII	Wht	VIII		5.25				X		
14	R3-1	30 x 30		Wht	VIII	Blk/Red	VIII	X	6.25				X		
15	G8-SPCL	66 x 72		Grn	IV	Wht	IV				33.00		X		
<b>SQ-3 TOTAL</b>									88.25	12.08	33.00		156.25		

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
  
 TRAFFIC DESIGN  
 FUNCTIONAL SUPERVISOR: CAMILLE ABOUFADEL  
 CALCULATED/DESIGNED BY: DON LUONG  
 CHECKED BY: SHAHIN ADIBI  
 REVISED BY: DATE REVISION

**SIGN QUANTITIES**  
**SQ-3**

LAST REVISION: DATE PLOTTED => 30-SEP-2011  
 08-23-11 TIME PLOTTED => 16:01

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	75	11.0/17.4	19	54

07-29-11  
REGISTERED CIVIL ENGINEER DATE

08-01-11  
PLANS APPROVAL DATE

SHAHIN T. ADIBI  
No. 54839  
Exp. 06-30-12  
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:**

- GREEN-Grn, WHITE-Wht, BLACK-Blk, BLUE-Blu, YELLOW-Ylw, BROWN-Brn, RED-Red, ORANGE-Org, CREAM-Crm.
- REFER TO "ROADSIDE SIGN QUANTITIES" CHART FOR FURTHER INFORMATION.
- FEDERAL MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) SIGN CODES ARE SHOWN UNLESS DESIGNATED BY (CA), INDICATING CALIFORNIA MUTCD.

**FURNISH ROADSIDE SIGN PANEL**

SIGN No.	CODE	PANEL SIZE		BACKGROUND		LEGEND			SIGN PANEL				REMARKS	
		Horiz	Vert	SHEETING COLOR	RETRO-REFLECTIVE ASTM TYPE	SHEETING COLOR	REFLECTIVE ASTM TYPE	BLACK (NON-REFLECTIVE)	SINGLE SHEET ALUMINUM (SQFT)		LAMINATED (SQFT)			PROTECTIVE OVERLAY
									UNFRAMED	FRAMED	TYPE B	TYPE H		
INCHES X INCHES								0.063"	0.080"	1"	2.5"	PREMIUM FILM		
	NORTHBOUND													
16	R26A (CA)	24 x 30		Wht	II	Red	II		5.00				X	
17	R5-1	36 x 36		Wht	VIII	Red/Wht	VIII		9.00				X	
	R5-1A	36 x 21		Wht	VIII	Wht	VIII		5.25				X	
18	R9-3a	18 x 18		Wht	VIII	Blk/Red	VIII		2.25				X	
19	R9-3a	18 x 18		Wht	VIII	Blk/Red	VIII		2.25				X	
20	R4-7	24 x 30		Wht	IV	Blk	IV	X	5.00				X	
21	R26A (CA)	24 x 30		Wht	II	Red	II		5.00				X	
22	R26A (CA)	24 x 30		Wht	II	Red	II		5.00				X	
23	R3-2	30 x 30		Wht	VIII	Blk/Red	VIII	X	6.25				X	
24	R5-1	36 x 36		Wht	VIII	Red/Wht	VIII		9.00				X	
	R5-1A	36 x 21		Wht	VIII	Wht	VIII		5.25				X	
25	R9-3b (LT)	18 x 12		Wht	IV	Blk	IV		1.50				X	
26	R9-3a	18 x 18		Wht	VIII	Blk/Red	VIII		2.25				X	
	R9-3b (LT)	18 x 12		Wht	IV	Blk	IV	X	1.50				X	
27	R9-3a	18 x 18		Wht	VIII	Blk/Red	VIII		2.25				X	
	R9-3b (RT)	18 x 12		Wht	IV	Blk	IV	X	1.50				X	
28	M4-6	24 x 12		Blu	III	Wht	III		2.00				X	
SQ-4 TOTAL									70.25					
SQ-3 TOTAL									88.25	12.08	33.00		156.25	
TOTAL									158.50	12.08	33.00		156.25	

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** TRAFFIC DESIGN  
 FUNCTIONAL SUPERVISOR: CAMILLE ABOUFADEL  
 CALCULATED/DESIGNED BY: DON LUONG  
 CHECKED BY: SHAHIN ADIBI  
 REVISED BY: DATE REVISOR

**SIGN QUANTITIES**  
**SQ-4**

LAST REVISION DATE PLOTTED => 30-SEP-2011  
 08-23-11 TIME PLOTTED => 16:01



**NOTES:**

\* = SEE ROADWAY QUANTITIES TABLE FOR ITEM TOTAL.  
 (N) = NOT A SEPARATE PAY ITEM, FOR INFORMATION ONLY.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	75	11.0/17.4	21	54

07-29-11  
 REGISTERED CIVIL ENGINEER DATE

08-01-11  
 PLANS APPROVAL DATE

ABDUL MALIKYAR  
 No. C66169  
 Exp. 06-30-12  
 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.

**DIKE QUANTITIES**

LOCATION	BEGIN PM	END PM	SHOULDERS		REMOVE AC DIKE (N)	PLACE HMA DIKE	MINOR HMA	ASPHALTIC EMULSION (FOG SEAL COAT)	DIKE WIDTH (N)	RUBBERIZED HOT MIX ASPHALT (GAP GRADED)	DESCRIPTION	
			INSIDE	OUTSIDE	LF	LF	TON	TON	LF	TON	NEW DIKE	Exist DIKE
NB Rte 75	11.05	11.12		X	370	370	9.14	0.02	1.33	5.89	TYPE E	TYPE A
	11.23	11.50		X	1,426	1,426	35.22	0.09	1.33	22.69	TYPE E	TYPE A
	11.16	12.50	X		7,075	7,075	174.75	0.43	1.33	112.57	TYPE E	TYPE E
	11.59	12.10		X	2,693	2,693	66.52	0.16	1.33	42.85	TYPE E	TYPE E
	12.12	12.19		X	370	370	9.14	0.02	1.33	5.89	TYPE E	TYPE E
	12.22	12.88		X	3,485	3,485	86.08	0.21	1.33	55.45	TYPE E	TYPE E
	12.91	13.00	X		475	475	11.73	0.03	1.33	7.56	TYPE E	TYPE E
	13.09	13.18	X		475	475	11.73	0.03	1.33	7.56	TYPE E	TYPE E
	14.22	14.29	X		370	370	9.14	0.02	1.33	5.89	TYPE E	TYPE E
	14.36	14.44	X		422	422	10.42	0.03	1.33	6.71	TYPE E	TYPE E
	14.71	14.82	X		602	602	14.87	0.04	1.33	9.58	TYPE E	TYPE E
	15.74	15.79	X		238	238	5.88	0.01	1.33	3.79	TYPE E	TYPE E
	15.79	15.89	X		544	544	6.82	0.02	0.67	4.36	TYPE F	TYPE F
	15.89	15.98	X		459	459	3.31	0.01	0.50	2.75	TYPE C	TYPE C
	16.70	17.38	X		3,575	3,575	25.81	0.08	0.50	21.38	TYPE C	TYPE C
<b>TOTAL</b>						22,579	480.56	1.20 *		306.52 *		

**SEAL JOINT (EXISTING CONCRETE PAVEMENT)**

ROUTE	PM	LANE	LF
75	11.59-17.39	1-2	30,624
<b>TOTAL</b>			30,624

**CURB RAMP DETECTABLE WARNING SURFACE**

ROUTE	POST MILE	DIRECTION	SQFT	REMARKS
75	15.71	NB	12	AT LEYTE ROAD (SOUTHWEST CORNER)
75	14.00	NB	24	AT CORONADO CAYS Blvd (NORTHWEST AND NORTHEAST CORNERS)
<b>TOTAL</b>			36	

\*\*\* INSTALL CURB RAMP DETECTABLE WARNING SURFACE ON Exist CURB RAMPS.

**METAL BEAM GUARD RAILING**

ROUTE	LOCATION	POST MILE	DIRECTION	LAYOUT TYPE (N)	REMOVE METAL BEAM GUARD RAILING	REMOVE TERMINAL SECTION (N)	REMOVE CABLE ANCHOR ASSEMBLY (N)	METAL BEAM GUARD RAILING	TERMINAL SYSTEM (TYPE X-TENSION)	END ANCHOR ASSEMBLY (TYPE SFT)	GUARD RAILING DELINEATOR	REMARKS
					LF	EA	EA	LF	EA	EA	EA	
75	1	13.82	NB	16A		1	1		1	1	3	
	2	14.35	NB	16A		1	1		1	1	3	
	3	14.54	NB	16A		1	1		1	1	3	
	4	14.70	NB	16A		1	1		1	1	3	
	5	15.84	NB	16A		1	1		1	1	3	
	6	16.98	NB	16A	56.25	1	1	25.0	1	1	3	SEE SHEET C-3
<b>TOTAL</b>					56.25			25.0	6	6	18	

**MINOR CONCRETE (MISCELLANEOUS CONSTRUCTION)**

ROUTE	POST MILE	DIRECTION	CURB	SIDEWALK	CURB RAMP	REMARKS
			CY	CY	CY	
75	15.71	NB	4.82	4.86	1.93	AT LEYTE ROAD
<b>TOTAL</b>			11.61			

**REMOVE CONCRETE**

ROUTE	POST MILE	DIRECTION	CURB, SIDEWALK, AND CURB RAMP	REMARKS
			CY	
75	15.71	NB	11.61	AT LEYTE ROAD
<b>TOTAL</b>			11.61	

**SUMMARY OF QUANTITIES Q-2**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	75	11.0/17.4	22	54

*Mahendra R. Nirmal* 07-29-11  
 REGISTERED ELECTRICAL ENGINEER DATE  
 08-01-11  
 PLANS APPROVAL DATE

MAHENDRA R. NIRMAL  
 No. E 10689  
 Exp. 06-30-13  
 ELECTRICAL

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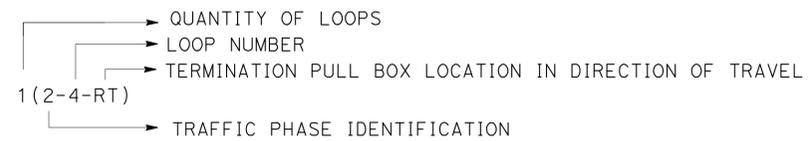
- LEGEND**
- CGA - CONTINUOUS GREEN ARROW
  - SIG PWR - SIGNAL POWER
  - N/C - NO CHANGES OR WORK
  - SDG&E - SAN DIEGO GAS & ELECTRIC
  - ▶ - RELOCATED EVD

**NOTES**

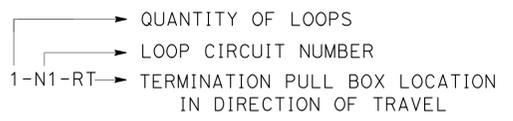
1 - SC TO Exist PULL BOX

**INDUCTIVE LOOP DETECTORS**

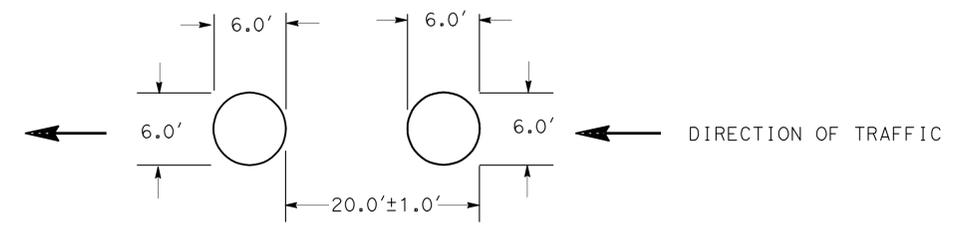
ROUTE	POST MILE	EXISTING FACILITIES	INTERSECTIONS OR RAMPS	DIRECTIONS	LOCATION AND QUANTITY OF LOOP DETECTORS (N) 1						INDUCTIVE LOOP DETECTORS (EA)	REMARKS	
					THROUGH LANES			LEFT TURN	RIGHT TURN	ADVANCE LOOPS			
					#1	#2	#3			#1			#2
75	11.085	P10.994	COUNT STATION AHEAD LEG RAINBOW DR. (IN THE SIGNAL CABINET)	NB	1-N1-LT	1-N2-RT					2	TYPE E LOOP DETECTORS	
75	17.345	ET105	BACK LEG OF GATE "4"/ TULAGI ROAD	NB	2(2-N6-RT)	2(2-N6-RT)			1(2-3-RT) 1(2-5-RT)	1(2-3-RT) 1(2-5-RT)	8	TYPE E LOOP DETECTORS SEE DETAIL "A" THIS SHEET	
<b>TOTAL</b>											10		



LOOP IDENTIFICATION TRAFFIC SIGNAL



LOOP IDENTIFICATION COUNT STATION



INDUCTIVE LOOP PLACEMENT DETAIL "A" (COUNT STATION/SPEED MONITORING)  
(PLACE IN CENTER OF LANE, TYPICAL)

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.

**INDUCTIVE LOOP DETECTOR**  
**E-1**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
 MAHENDRA R. NIRMAL  
 ENRIQUE P. BERNAL  
 CALCULATED/DESIGNED BY  
 CHECKED BY  
 FUNCTIONAL SUPERVISOR  
 DALE WILSON

LAST REVISION    DATE PLOTTED => 30-SEP-2011    TIME PLOTTED => 16:01

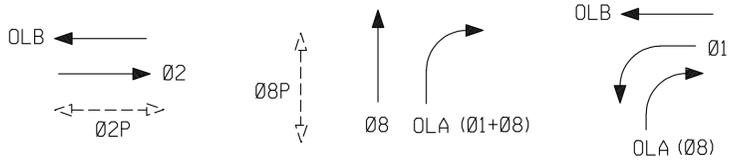
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	75	11.0/17.4	23	54

Mahendra R. Nirmal 07-29-11  
 REGISTERED ELECTRICAL ENGINEER DATE  
 No. E 10689  
 Exp. 06-30-13  
 ELECTRICAL  
 STATE OF CALIFORNIA

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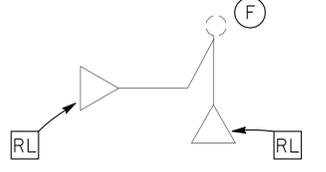
**CONDUIT NOTES:**

- 7 - Exist 2 1/2"C, 2#10 (fb), 2#10 (ltg), 5 dlc, 1 3CSC, 2 12CSC, 1 sic.
- 8 - Exist TWO 2"C, 1 12CSC, 2#10 (fb), 5 dlc, 1 sic.
- 9 - Exist TWO 1 1/2"C, 2#10 (fb), 5 dlc, 1 sic.
- 10 - Exist 2"C, 4 LOOP WIRES. RC 4 LOOP WIRES.
- 11 - Exist 1 1/2"C, 2#10 (fb), 2 dlc.
- N12C - Exist 1"C, 2 dlc.
- N13C - Exist 1 1/2"C, Exist CONDUCTORS (BUS SHELTER).
- N14C - Exist 1 1/2"C, 1 sic, 2#10 (fb).

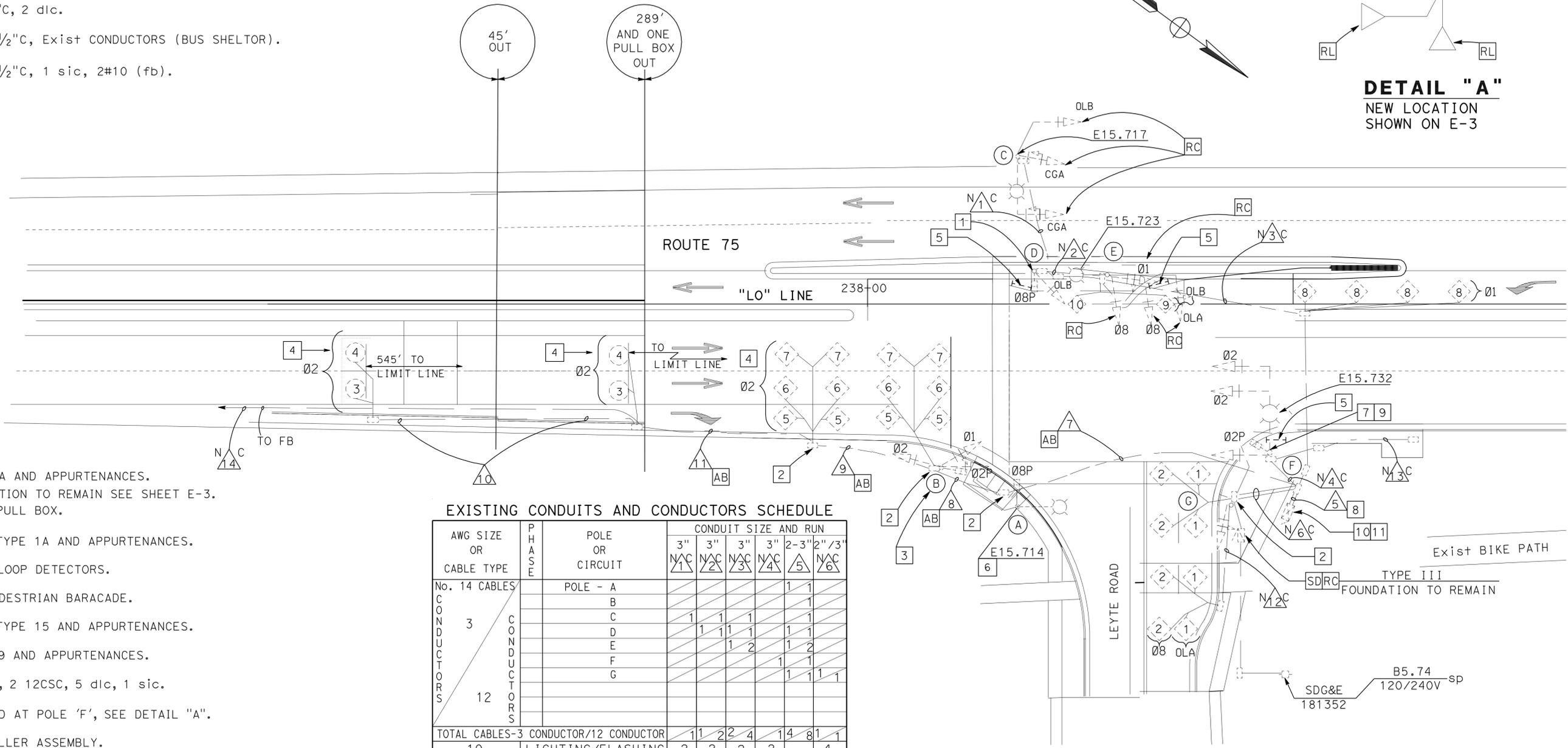


**EXISTING TRAFFIC PHASE DIAGRAM**

STEADY DEMAND SEQUENCE →



**DETAIL "A"**  
NEW LOCATION SHOWN ON E-3



**NOTES:**

- 1 - RC TYPE 1A AND APPURTENANCES. FOUNDATION TO REMAIN SEE SHEET E-3.
- 2 - RC Exist PULL BOX.
- 3 - RC Exist TYPE 1A AND APPURTENANCES.
- 4 - AB Exist LOOP DETECTORS.
- 5 - REMOVE PEDESTRIAN BARACADE.
- 6 - RC Exist TYPE 15 AND APPURTENANCES.
- 7 - RC TYPE 19 AND APPURTENANCES.
- 8 - RC 1 3CSC, 2 12CSC, 5 dlc, 1 sic.
- 9 - RL TWO EVD AT POLE 'F', SEE DETAIL "A".
- 10 - RC CONTROLLER ASSEMBLY. FOUNDATION TO REMAIN.
- 11 - RL DISCRIMINATOR MODULE.
- 12 - FOR ACCURATE RIGHT OF WAY AND ACCESS DATA, CONTACT RIGHT OF WAY ENGINEERING AT DISTRICT OFFICE.
- 13 - ALL SIGNAL STD, TO REMAIN UNLESS OTHERWISE NOTED.

**EXISTING CONDUITS AND CONDUCTORS SCHEDULE**

AWG SIZE OR CABLE TYPE	P H A S E	POLE OR CIRCUIT	CONDUIT SIZE AND RUN					
			3" N1C	3" N2C	3" N3C	3" N4C	2-3" N5C	2" N6C
No. 14 CABLES 3 12	C O N D U C T O R S	POLE - A					1	1
		B					1	1
		C	1	1	1		1	1
		D	1	1	1		1	1
		E			1	2	1	2
		F					1	1
		G					1	1
TOTAL CABLES-3 CONDUCTOR/12 CONDUCTOR			1	2	4	1	4	1
10		LIGHTING/FLASHING	2	2	2	2		4
6		SIG P15.7 PWR					2	2
14		PEU				3		3
TYPE B DLC		LOOP DETECTOR						
		O8					1	1
		O2						5
		O1						1
		OLA						1
EVC			1	1	2	2	3	
CONTROLLER - SIC								1
TOTAL CONDUCTORS/CABLES			4	6	12	8	28	13

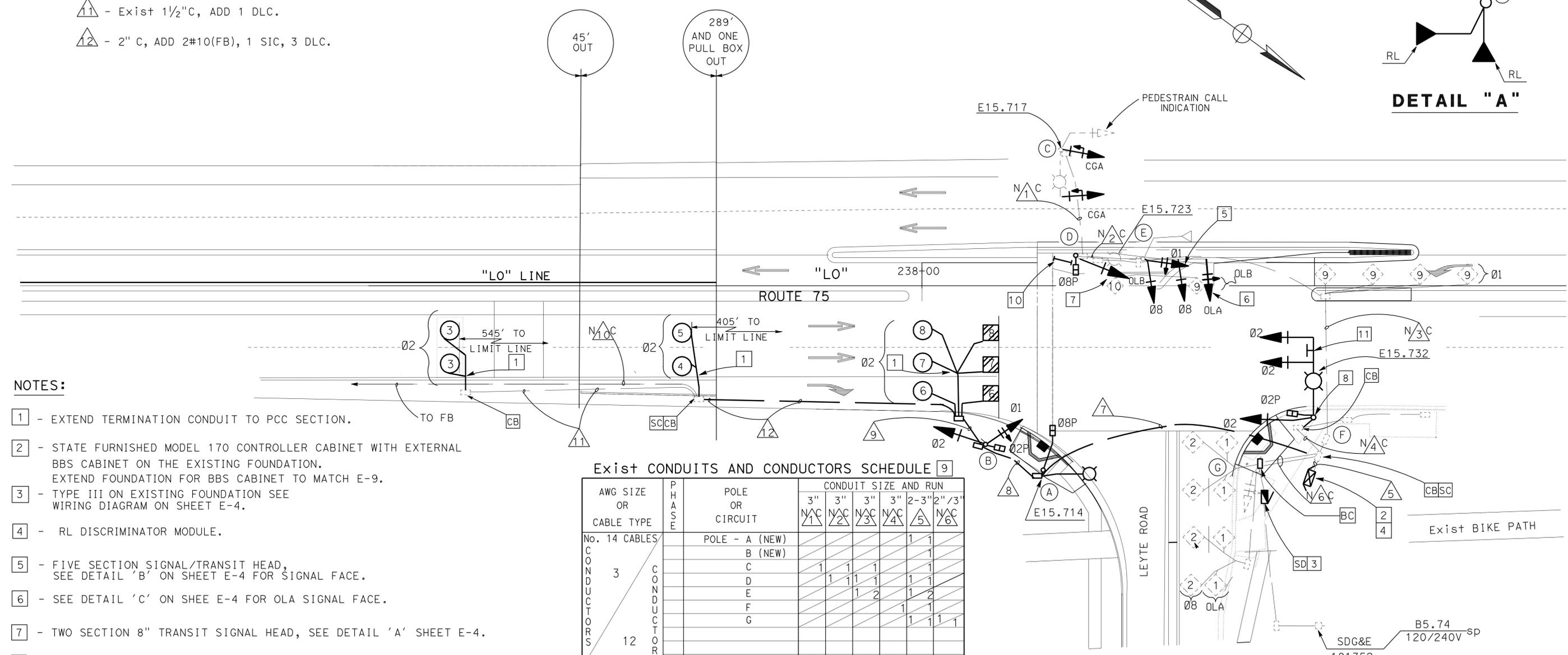
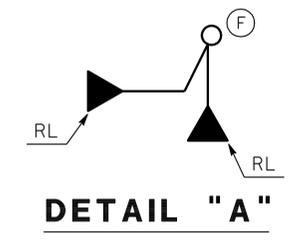
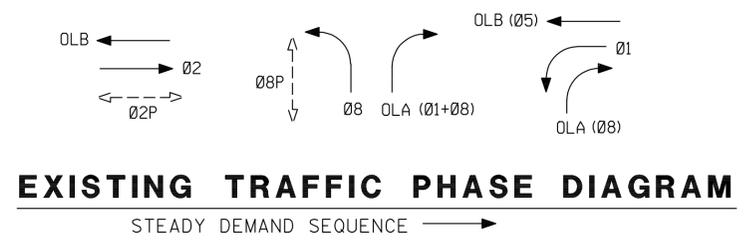
**ROUTE 75 AT LEYTE ROAD**  
SIGNAL NUMBER P15.726

**SIGNAL AND LIGHTING**  
EXISTING AND REMOVE (LOCATION 1)  
SCALE: 1"= 20'  
**E-2**

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
 MAHENDRA R. NIRMAL  
 ENRIQUE P. BERNAL  
 DALE WILSON  
 TRAFFIC ELECTRICAL

- CONDUIT NOTES:**
- 7 - 3" C, 2#10(FB), 2#10(LTG), 6 DLC, 1-3CSC, 2-12CSC, 1 SIC.
  - 8 - 3" C, 1-12CSC, 2#10(FB), 6 DLC, 1 SIC.
  - 9 - 3" C, 2#10(FB), 6 DLC, 1 SIC.
  - N10C - Exist 1 1/2" C, 2#10(fb), 1 sic.
  - 11 - Exist 1 1/2" C, ADD 1 DLC.
  - 12 - 2" C, ADD 2#10(FB), 1 SIC, 3 DLC.



- NOTES:**
- 1 - EXTEND TERMINATION CONDUIT TO PCC SECTION.
  - 2 - STATE FURNISHED MODEL 170 CONTROLLER CABINET WITH EXTERNAL BBS CABINET ON THE EXISTING FOUNDATION. EXTEND FOUNDATION FOR BBS CABINET TO MATCH E-9.
  - 3 - TYPE III ON EXISTING FOUNDATION SEE WIRING DIAGRAM ON SHEET E-4.
  - 4 - RL DISCRIMINATOR MODULE.
  - 5 - FIVE SECTION SIGNAL/TRANSIT HEAD, SEE DETAIL 'B' ON SHEET E-4 FOR SIGNAL FACE.
  - 6 - SEE DETAIL 'C' ON SHEET E-4 FOR OLA SIGNAL FACE.
  - 7 - TWO SECTION 8" TRANSIT SIGNAL HEAD, SEE DETAIL 'A' SHEET E-4.
  - 8 - RL TWO EVD AT POLE 'F' SEE DETAIL "A".
  - 9 - ALL CONDUIT AND CONDUCTORS EXISTING UNLESS OTHERWISE NOTED.
  - 10 - TYPE I PEDESTRIAN BARRICADE. NO SIGN PANEL.
  - 11 - DETAIL 'U', Std PLAN ES-7N.
  - 12 - FOR ACCURATE RIGHT OF WAY AND ACCESS DATA, CONTACT RIGHT OF WAY ENGINEERING AT DISTRICT OFFICE.
  - 13 - FOR PULL BOX DETAIL SEE SHEET E-8.

**Exist CONDUITS AND CONDUCTORS SCHEDULE 9**

AWG SIZE OR CABLE TYPE	P H A S E	POLE OR CIRCUIT	CONDUIT SIZE AND RUN						
			3" N1C	3" N2C	3" N3C	3" N4C	2-3" N5C	2-3" N6C	
No. 14 CABLES 3 CONDUCTORS 12	C O N D U C T O R S	POLE - A (NEW)					1	1	
		B (NEW)					1	1	
		C	1	1	1	1	1	1	
		D	1	1	1	1	1	1	
		E		1	2	1	2		
		F					1	1	
		G					1	1	
TOTAL CABLES-3 CONDUCTOR/12 CONDUCTOR			1	2	4	1	4	8	1
10		LIGHTING/FLASHING	2	2	2	2		4	
6		SIG P15.7 PWR						2	2
14		PEU				3		3	
TYPE B DLC	C O N D U C T O R S	LOOP DETECTOR						1	1
		Ø8 (NEW)						6	
		Ø2						1	
		Ø1						1	1
		OLA			2		2		
EVC			1	1	2	2	3		
CONTROLLER - SIC (NEW)								1	
TOTAL CONDUCTORS/CABLES			4	6	12	8	29	13	

**ROUTE 75 AT LEYTE ROAD**  
SIGNAL NUMBER P15.726

**SIGNAL AND LIGHTING**  
SCALE: 1" = 20'  
**E-3**

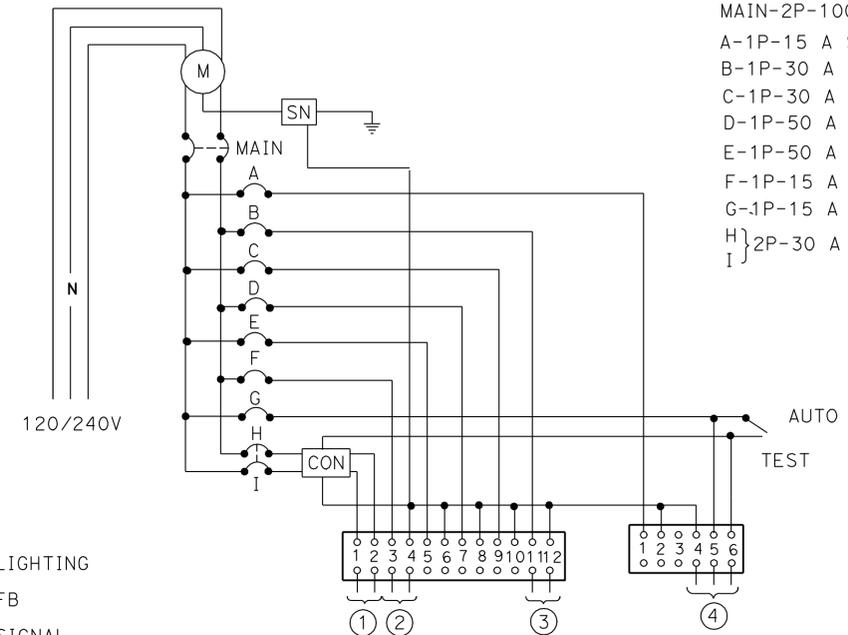
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
 MAHENDRA R. NIRMAL  
 ENRIQUE P. BERNAL  
 DALE WILSON  
 TRAFFIC ELECTRICAL

### POLE AND EQUIPMENT SCHEDULE

Loc	STANDARD		PLACEMENT DIMENSIONS		SIGNAL MOUNTING AND PLACEMENT				HPS LUMINAIRE	REMARKS
	TYPE	MASTARM SIG LUM	A FT	B FT	VEHICLE		PEDESTRIAN			
					POLE	MASTARM	SIGNAL	PPB		
(A)	TYPE 15TS	- 15'	1	5'	-	-	SP-1-T	← Ø8P ← Ø2P	310 W HPS	
(B)	1-A (10')	- -	22'	8'	TV-2-T	-	SP-1-T	-		
(C)	Exist 17-4-100	20' 15'	-	-	SV-1-T(NEW) SV-1(Exist)	MAS (NEW)	-	-	Exist 200 W hps	ALL SIGNAL FACES ARE ONE SECTION
(D)	1-A (10')	- -	-	-	TV-1-T	-	SP-1-T	← Ø8P		MOUNT ON EXISTING FOUNDATION
(E)	Exist 19-4-100	25' 6'	-	-	(NEW) SV-2-TD	(ALL NEW) OLA-MAS(5) Ø8-MAS	-	Exist	Exist 200 W hps	
(F)	19-4-100	30' 6'	ECR 0	2 1/2	SV-1-T	Ø2-MAS Ø2-MAS	SP-1-T	-	PEU 200 W HPS	
(G)	Exist 1-A (10')	- -	-	-	Exist TV-1-T	-	-	→ Ø2P Exist		

#### CIRCUIT BREAKERS

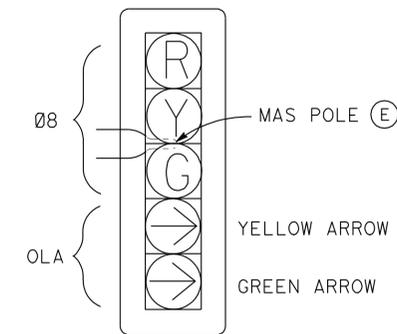
- MAIN-2P-100 A
- A-1P-15 A SPARE
- B-1P-30 A
- C-1P-30 A SPARE
- D-1P-50 A SPARE
- E-1P-50 A SPARE
- F-1P-15 A
- G-1P-15 A
- H } 2P-30 A
- I }



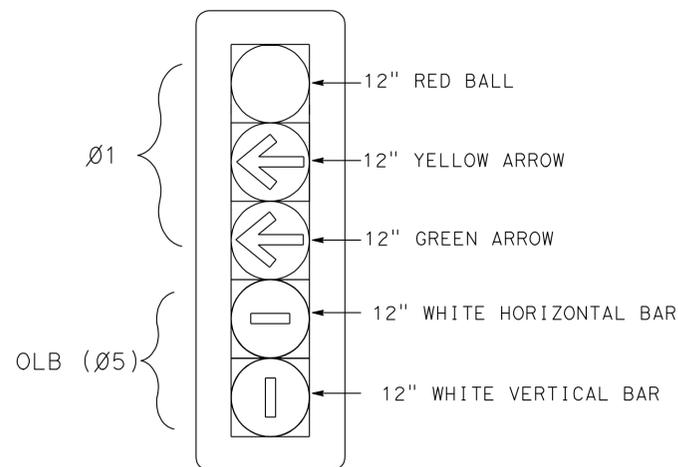
- ① - LIGHTING
- ② - FB
- ③ - SIGNAL
- ④ - PEU

#### SD WIRING DIAGRAM B 3.90 AND B5.74

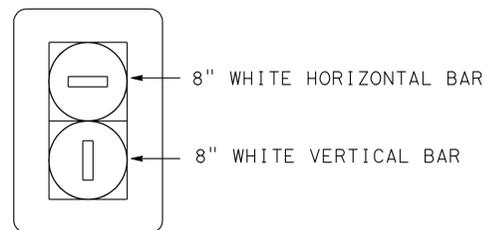
(TYPE III-BF SERVICE EQUIPMENT ENCLOSURE CABINET SEE ES-2C AND ES-2E)



DETAIL 'C'  
FIVE SECTION SIGNAL HEAD FOR POLES (E) OLA



DETAIL 'B'  
FIVE SECTION SIGNAL/TRANSIT HEAD POLE (E) (NO SCALE)



DETAIL 'A'  
TWO SECTION TRANSIT SIGNAL HEAD POLE (D) (NO SCALE)

#### NOTE:

- 1 - Sta 238+52.

### ROUTE 75 AT LAYTE ROAD

SIGNAL NUMBER P15.726

### SIGNAL AND LIGHTING (LOCATION 1)

NO SCALE

E-4



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	75	11.0/17.4	27	54

<i>Mahendra R. Nirmal</i> 07-29-11	
REGISTERED ELECTRICAL ENGINEER	DATE
08-01-11	
PLANS APPROVAL DATE	

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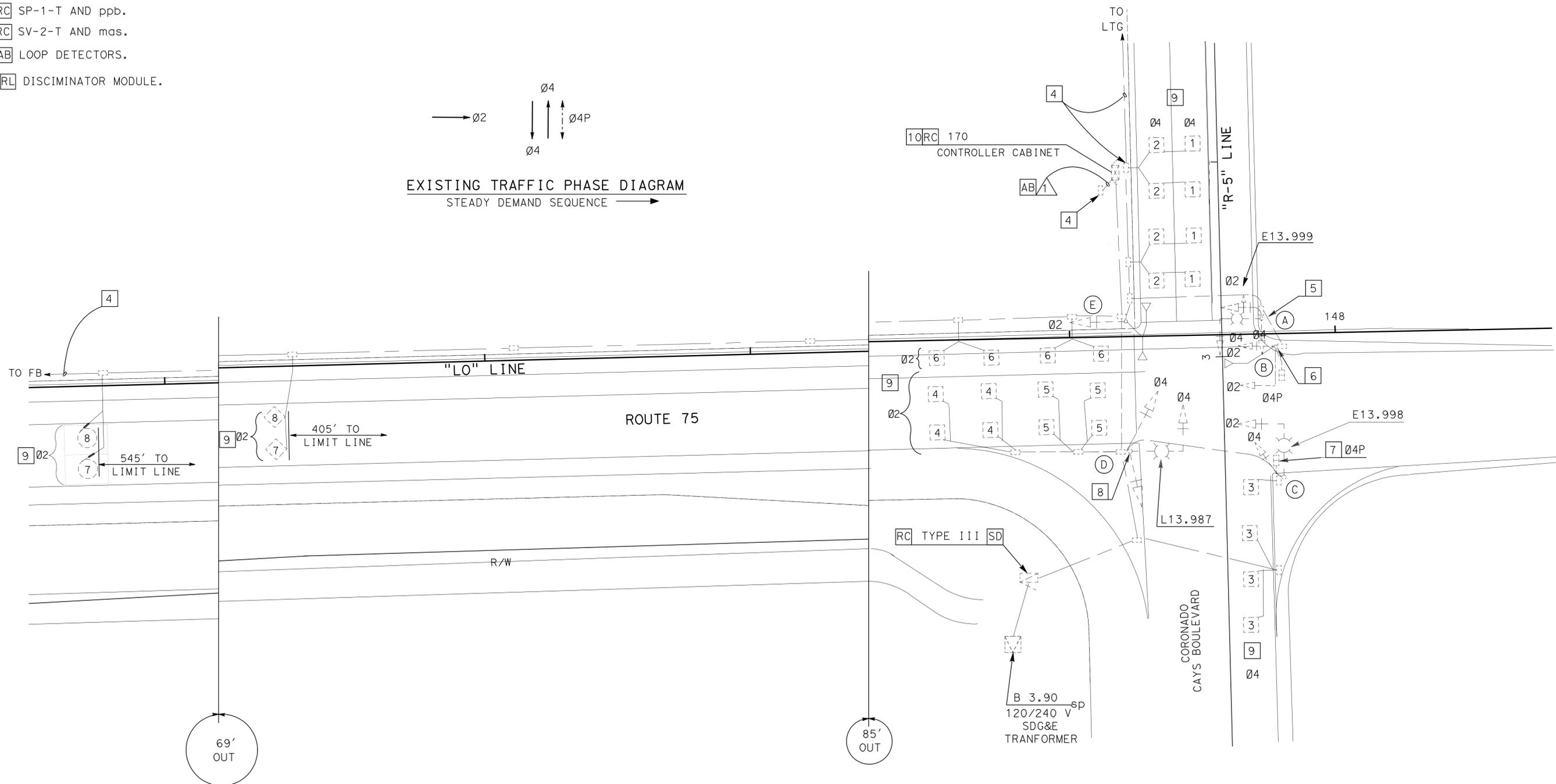
**NOTES:**

- 1 - ALL SIGNAL S+D, TO REMAIN UNLESS OTHERWISE NOTED.
- 2 - **AB** ALL CONDUIT AND **RC** PULL BOXS, UNLESS OTHERWISE NOTED.
- 3 - FOR ACCURATE RIGHT OF WAY AND ACCESS DATA, CONTACT RIGHT OF WAY ENGINEERING AT DISTRICT OFFICE.
- 4 - CONDUIT CONDUIT/PULL BOX TO REMAIN.
- 5 - **RC** SV-2-T AND mas.
- 6 - **RC** SV-1-T, mas, SP-1-T AND ppb.
- 7 - **RC** SP-1-T AND ppb.
- 8 - **RC** SV-2-T AND mas.
- 9 - **AB** LOOP DETECTORS.
- 10 - **RL** DISCRIMINATOR MODULE.

**CONDUIT NOTES:**

△ - 1 1/2" C, 2 sic.

RR 2 sic. (SEE SHEET E-7)



**ROUTE 75 AT CORONADO CAYS BOULEVARD**  
SIGNAL No. P13.999

**SIGNAL AND LIGHTING**  
EXISTING AND REMOVE (LOCATION 3)  
SCALE: 1:20'  
**E-6**

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.

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

FUNCTIONAL SUPERVISOR  
DALE WILSON

CALCULATED/DESIGNED BY  
CHECKED BY

MAHENDRA R. NIRMAL  
ENRIQUE P. BERNAL

REVISED BY  
DATE REVISED

# CONDUITS AND CONDUCTORS SCHEDULE

AWG SIZE OR CABLE TYPE	PHASE	POLE OR CIRCUIT	CONDUIT SIZE AND RUN							
			2"	3"	3"	3"	3"	3"	2-3"	
No. 14 CABLES CONDUCTORS 3	C CONDUCTORS 12	POLE - A	1	1			1	1	1	1
		B	1	1			1	1	1	1
		C			1	1	1	1	1	1
		D			1	1	1	1	1	1
		E					1	1	1	1
		F						1	1	1
TOTAL CABLES-3 CONDUCTOR/12 CONDUCTOR			1	2	1	1	2	5	2	5
8		SIG				2	2	2	2	
8		LIGHTING		2	2	2	2	2		
14		FB				2				
TYPE B DLC	Ø2	LOOP DETECTOR				1	5	5	5	
	Ø4					1	1	1	3	
EVC		CONTROLLER - SIC		1			3	3	3	
TOTAL CONDUCTORS/CABLES			2	6	5	11	20	22	18	

- 8 - 2"C, 4 DLC, 2#8(LTG), 2#8(FB).
- 9 - 2"C, 3 DLC, 2#8(LTG), 2#8(FB).
- 10 - 2"C, 1 DLC, 2#8(LTG), 2#8(FB).
- 11 - 1/2"C, 1-3CSC.
- 12 - 2"C, 2#8(SIG), 2#8(LTG), 2#8(FB), 3#14(PEU).
- 13 - 2"C, 2#8(LTG).

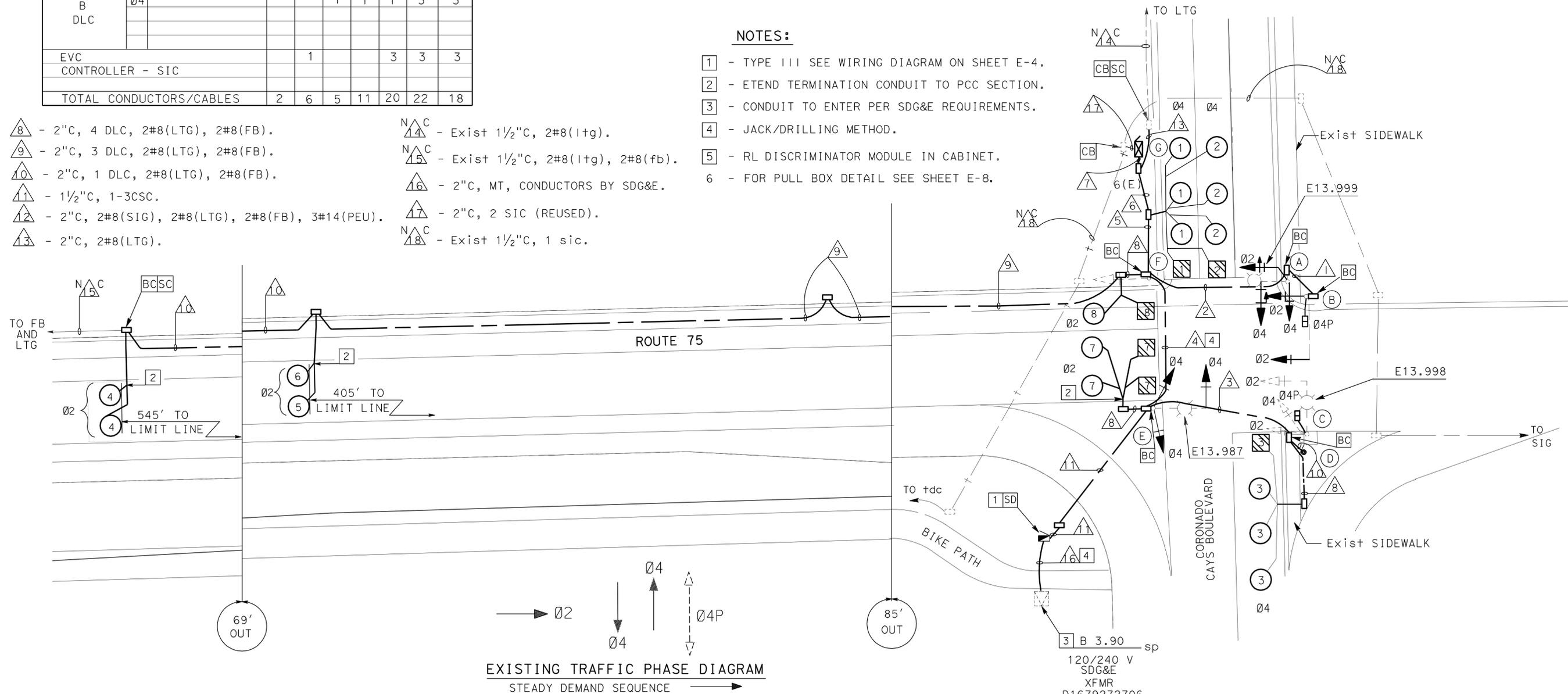
- N/C 14 - Exist 1/2"C, 2#8(ltg).
- N/C 15 - Exist 1/2"C, 2#8(ltg), 2#8(fb).
- 16 - 2"C, MT, CONDUCTORS BY SDG&E.
- 17 - 2"C, 2 SIC (REUSED).
- N/C 18 - Exist 1/2"C, 1 sic.

# POLE AND EQUIPMENT SCHEDULE

Loc	STANDARD		PLACEMENT DIMENSIONS		SIGNAL MOUNTING AND PLACEMENT				HPS LUMINAIRE	REMARKS		
	TYPE	SMA	LMA	A FT	B FT	VEHICLE		PEDESTRIAN				
						POLE	MASTARM	SIGNAL			PPB	
(A)	Exist 17	15'	12'	-	-	NEW SV-2-TB	NEW MAS	-	NEW Ø4P	Exist	Exist evd ON POLE	
(B)	Exist 16	12'		-	-	NEW SV-1-T	NEW MAS	NEW SP-1-T				
(C)	Exist 17	15'	12'	-	-	Exist SV-2-TD	Exist mas	NEW SP-1-T		Exist	-	
(D)	PPB POST	-	-	-4'	6'				Ø4P →		-	
(E)	Exist 17	18'	12'	-	-	NEW SV-2-TB	NEW MAS			Exist	NEW PEU	
(F)	Exist 1-A	-	-			Exist TV-1-T					Exist TWO evd ON TOP SIGNAL SECTION	
(G)	MODEL 170 CONTROLLER ASSEMBLY (TYPE 332 CABINET) WITH EXTERNAL BBS CABINET								5			SEE SHEET E-9 FOR FOUNDATION

### NOTES:

- 1 - TYPE III SEE WIRING DIAGRAM ON SHEET E-4.
- 2 - ETEND TERMINATION CONDUIT TO PCC SECTION.
- 3 - CONDUIT TO ENTER PER SDG&E REQUIREMENTS.
- 4 - JACK/DRILLING METHOD.
- 5 - RL DISCRIMINATOR MODULE IN CABINET.
- 6 - FOR PULL BOX DETAIL SEE SHEET E-8.



EXISTING TRAFFIC PHASE DIAGRAM  
STEADY DEMAND SEQUENCE

## ROUTE 75 AT CORONADO CAYS BOULEVARD

SIGNAL No. P13.999

## SIGNAL AND LIGHTING (LOCATION 3)

SCALE: 1:20'

E-7

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	75	11.0/17.4	28	54

Mahendra R. Nirmal 07-29-11  
REGISTERED ELECTRICAL ENGINEER  
08-01-11  
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
MAHENDRA R. NIRMAL  
No. E 10689  
Exp. 06-30-13  
ELECTRICAL  
STATE OF CALIFORNIA

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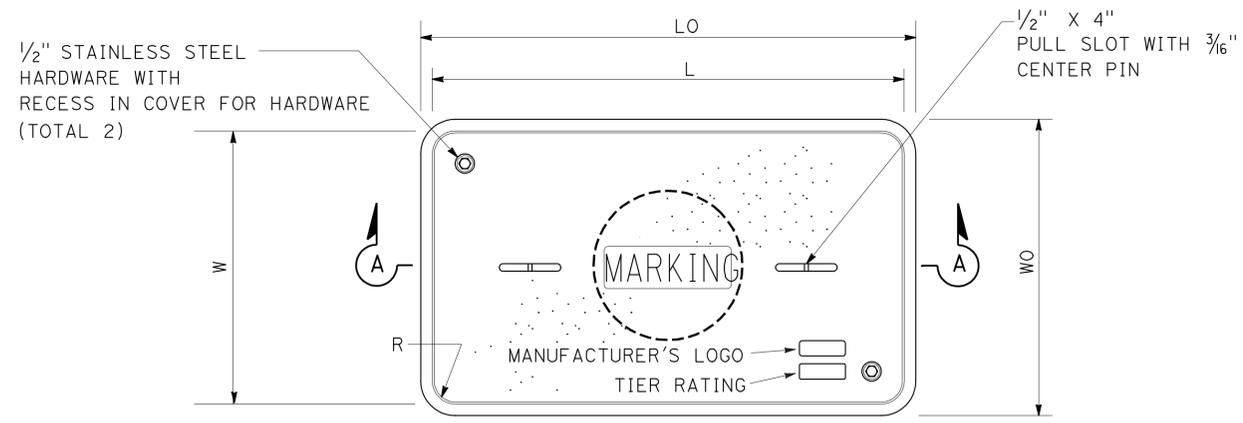
REVISOR: MAHENDRA R. NIRMAL, ENRIQUE P. BERNAL, DALE WILSON  
CALCULATED/DESIGNED BY: MAHENDRA R. NIRMAL, ENRIQUE P. BERNAL, DALE WILSON  
CHECKED BY: MAHENDRA R. NIRMAL, ENRIQUE P. BERNAL, DALE WILSON  
FUNCTIONAL SUPERVISOR: DALE WILSON  
DEPARTMENT OF TRANSPORTATION - TRAFFIC ELECTRICAL

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	75	11.0/17.4	29	54

MAHENDRA R. NIRMAL 07-29-11  
 REGISTERED ELECTRICAL ENGINEER DATE  
 08-01-11  
 PLANS APPROVAL DATE

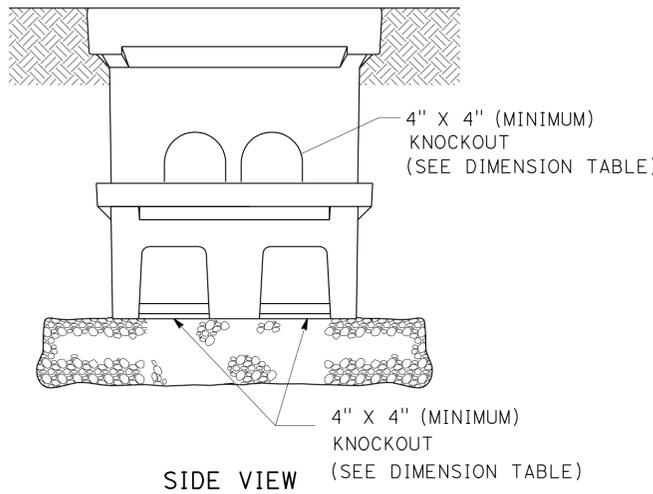
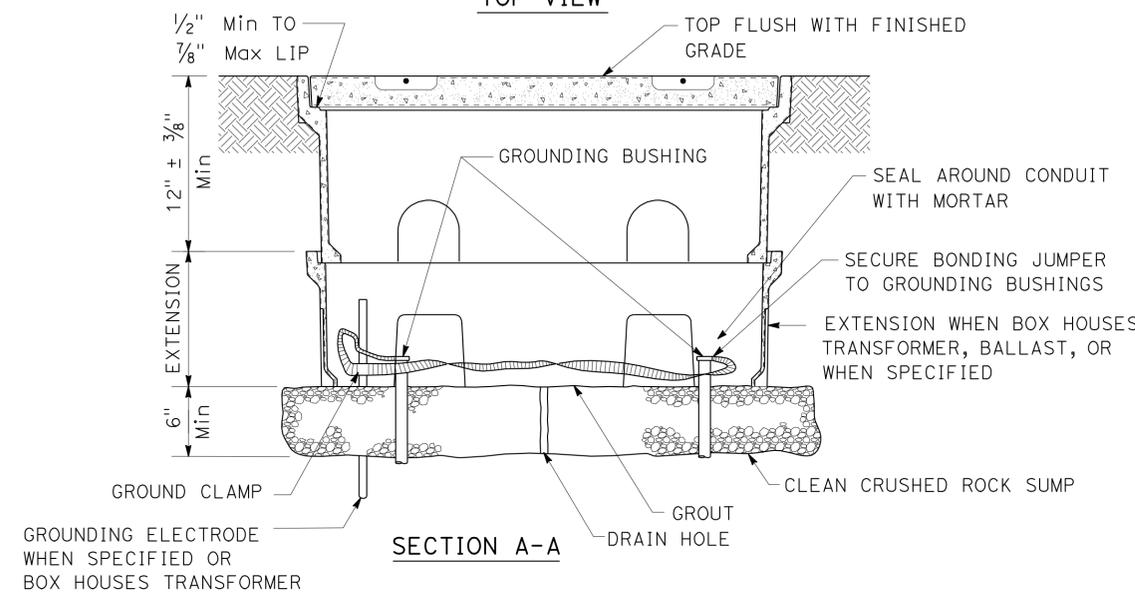
MAHENDRA R. NIRMAL  
 No. E 10689  
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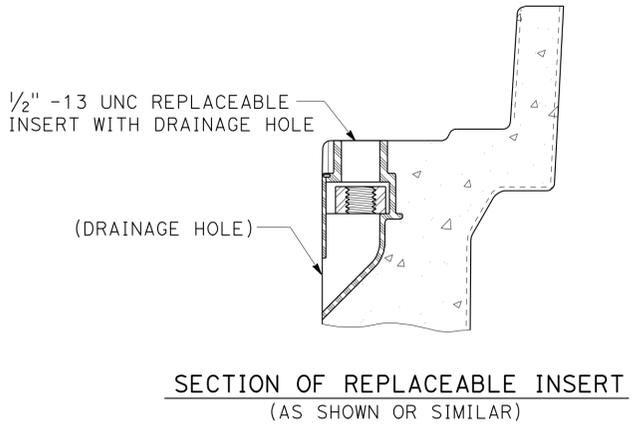
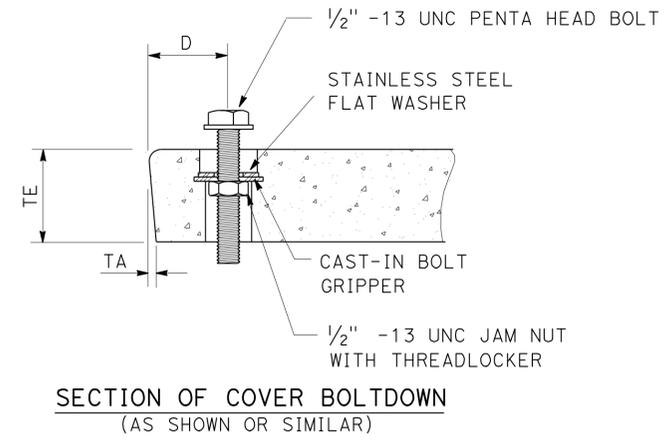
**LEGEND:**

UNC - UNIFIED NATIONAL COARSE THREAD  
 LO - LENGTH OUTSIDE  
 WO - WIDTH OUTSIDE  
 L - LENGTH (TOP OF COVER)  
 W - WIDTH (TOP OF COVER)  
 R - COVER CORNER RADIUS  
 D - COVER EDGE TO COVER BOLT CENTER DISTANCE  
 TE - COVER EDGE THICKNESS  
 TA - COVER EDGE TAPER



**PULL BOX INSTALLATION DETAILS**  
No. 5 & No. 6

- NOTES:**
- ALL NON-TRAFFIC RATED PULL BOXES AND COVERS, FOR IN GROUND AND IN SIDEWALK APPLICATIONS, MUST BE INDEPENDENTLY TESTED AND CERTIFIED AS COMPLYING WITH THE PROVISIONS OF ANSI/SCTE 77 2010 "SPECIFICATION FOR UNDERGROUND ENCLOSURE INTEGRITY." PULL BOXES MUST MEET THE TIER 22 APPLICATION. COVERS NOT INSTALLED IN SIDEWALKS MUST MEET THE TIER 22 APPLICATION. COVERS INSTALLED IN SIDEWALKS MUST MEET THE TIER 8 APPLICATION.
  - COVERS MUST BE SECURED WITH A CAPTIVE BOLT DESIGN USING 1/2-13 UNC LARGE PENTA-HEAD BOLTS. THE BOLTS AND WASHERS MUST BE STAINLESS STEEL.
  - THE CAPTIVE BOLT DESIGN MUST BE INDEPENDENTLY TESTED AND CERTIFIED AS CAPABLE OF WITHSTANDING A TORQUE OF 56 FT. LBS AND A MINIMUM PULL OUT STRENGTH OF 750 LBS. THE PULL OUT TEST MUST BE PERFORMED WITH THE COVER IN PLACE AND THE BOLTS TORQUED TO 56 FT.LBS. THE BOLTS, INSERTS, AND COVER MUST NOT BE DAMAGED WHEN TESTED UP TO THE MINIMUM PULL OUT STRENGTH.
  - MARKINGS, SHOWING THE TIER RATING, MUST BE LABELED OR STENCILED ON THE INSIDE AND OUTSIDE OF THE PULL BOX AND ON THE UNDERSIDE OF THE COVER.
  - THE TIER RATING MUST BE EMBOSSED ON THE TOP SURFACE OF THE COVER.
  - COVERS AND PULL BOXES MUST BE INTERCHANGEABLE WITH CALIFORNIA STANDARD MALE AND FEMALE GAGES. SEE STANDARD PLAN ES-8, NOTE 7. MINIMUM RADIUS OF TOP OUTSIDE EDGE IS 1/8".
  - PULL BOXES MUST NOT BE INSTALLED WITHIN THE BOUNDARIES OF NEW OR EXISTING CURB RAMPS OR DRIVEWAYS.
  - AN EXTENSION MAY BE SUBSTITUTED WITH A PULL BOX IF THE BOTTOM EDGE OF THE PULL BOX FITS INTO THE PULL BOX COVER OPENING. A PULL BOX AND EXTENSION MAY BE SUBSTITUTED WITH A PULL BOX OF EQUAL DEPTH. IF SUBSTITUTIONS ARE MADE, THE INSTALLED UNIT MUST MEET THE TIER 22 LOAD REQUIREMENTS.
  - SEE STANDARD PLAN ES-8, NOTES 3,4,6 AND 9 FOR OTHER REQUIREMENTS. THESE ADDRESS, BUT ARE NOT LIMITED TO: PLACEMENT, SURROUNDING GRADE, REQUIREMENTS IN UNPAVED AREAS, PULL BOX COVER MARKING, NOMINAL DIMENSIONS OF THE OPENING, AND THE LOCATION OF BOXES FOR ELECTROLIERS AND STANDARDS.



**DIMENSION TABLE**

PULL BOX	PULL BOX			COVER							PULL BOX KNOCKOUTS		EXTENSION KNOCKOUTS	
	Min DEPTH BOX (In)	Min DEPTH EXTENSION (In)	Max WEIGHT (LBS)	L (In)	W (In)	R (In)	TE (In)	TA (In)	D (In)	Max WEIGHT (LBS)	SIDE	END	SIDE	END
No. 5	12	10	55	23 3/4	13 3/4	1 3/8	2	1/8	1 3/4	60	2	1	2	1
No. 6	12	10	70	30 1/2	17 1/2	1 3/8	2	1/8	2	85	2	2	2	2

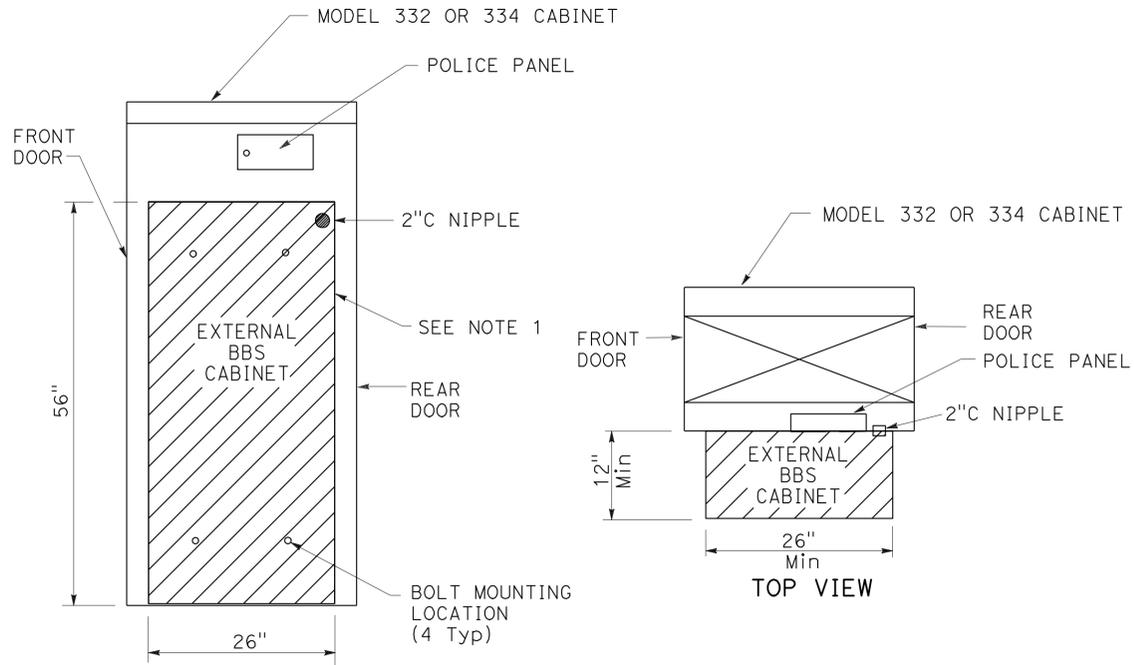
**ELECTRICAL SYSTEMS**  
(NON-TRAFFIC RATED PULL BOX)  
NO SCALE  
**E-8**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - TRAFFIC ELECTRICAL  
 MAHENDRA R. NIRMAL  
 ENRIQUE BERNAL  
 DALE WILSON

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	75	11.0/17.4	30	54

Mahendra R. Nirmal 07-29-11  
 REGISTERED ELECTRICAL ENGINEER DATE  
 No. E 10689  
 Exp. 06-30-13  
 PLANS APPROVAL DATE

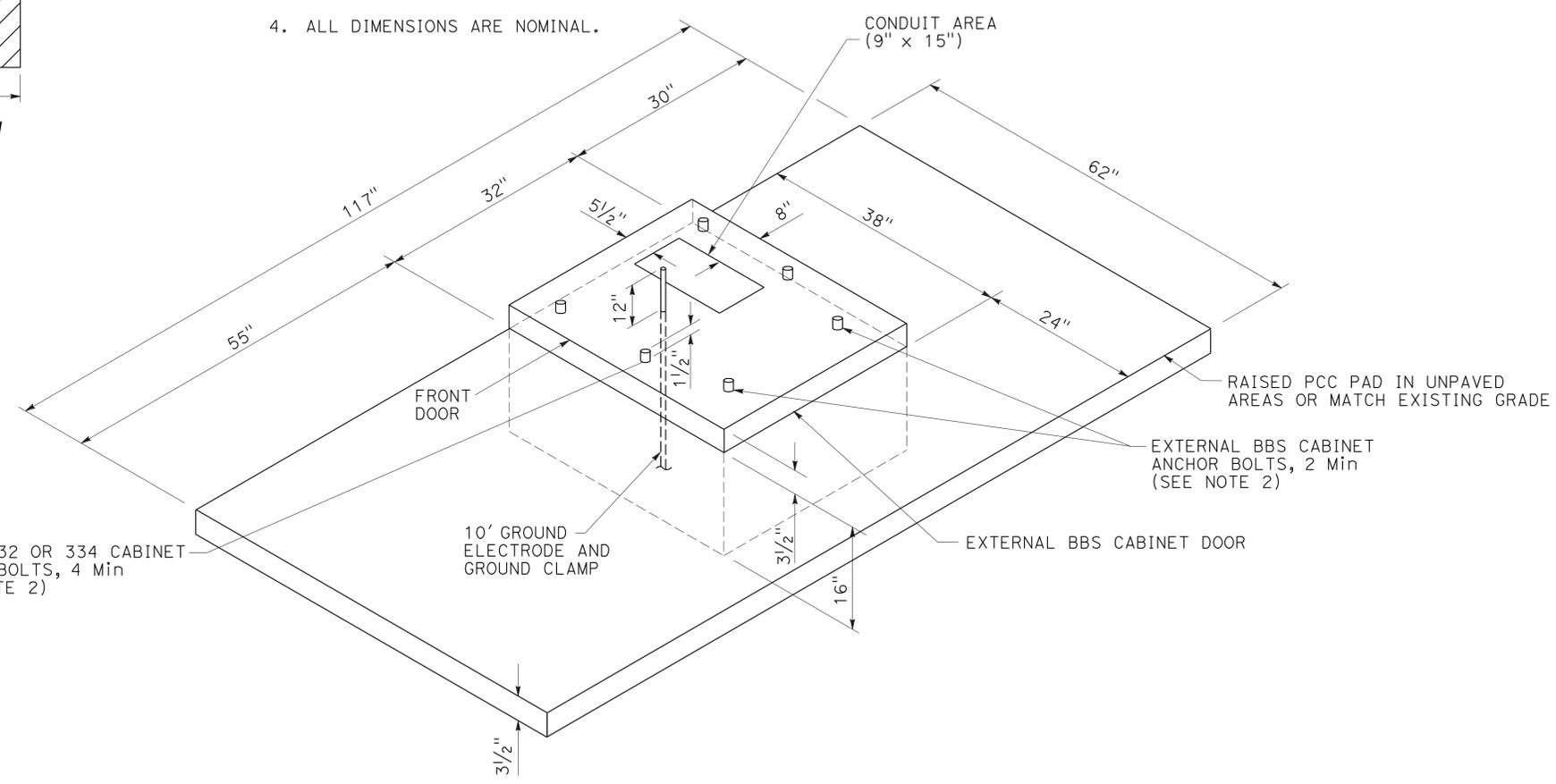
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**NOTE: (THIS SHEET ONLY)**

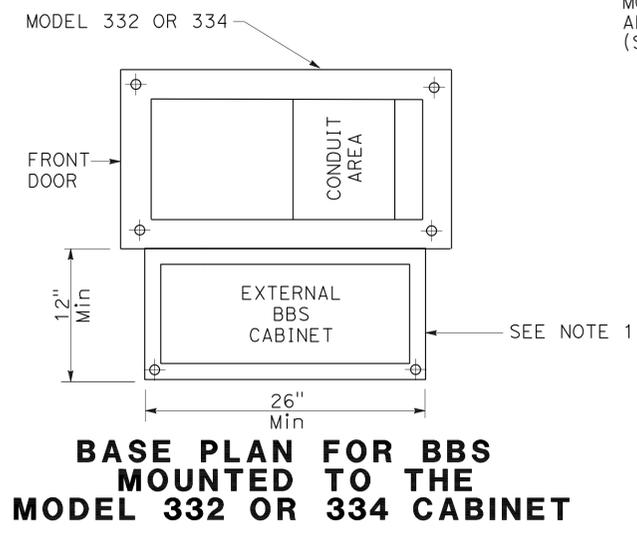
1. THE EXTERNAL BBS CABINET SHALL BE MOUNTED TO THE MODEL 332 OR 334 CABINET WITH FOUR 18-8 STAINLESS STEEL HEX HEAD, FULLY-THREADED, 3/8"-16 X 1" BOLTS; TWO WASHERS PER BOLT, DESIGNED FOR 3/8" BOLTS AND ARE 18-8 STAINLESS STEEL, 1" OUTSIDE DIAMETER, ROUND, AND FLAT; AND ONE K-LOCK NUT PER BOLT THAT IS 18-8 STAINLESS STEEL AND A HEX-NUT. THE ENGINEER WILL HAVE TO APPROVE THE BOLT MOUNTING LOCATION PRIOR TO INSTALLATION.
2. THE ANCHOR BOLTS SHALL BE 3/4" Dia X 15" WITH A 2"-90° BEND. THE CABINET MANUFACTURER'S SPECIFICATION SHALL DETERMINE THE LOCATION OF THE ANCHOR BOLTS IN THE FOUNDATION. THE ENGINEER WILL HAVE TO APPROVE THE ANCHOR BOLTS AND ITS LOCATION IN THE FOUNDATION PRIOR TO CONSTRUCTION.
3. THE CONTRACTOR SHALL VERIFY THE DIMENSIONS OF THE BBS CABINET PRIOR TO CONSTRUCTING THE FOUNDATION OF THE MODIFIED PORTION OF THE STD MODEL 332 AND 334 CABINET FOUNDATION. THE ENGINEER WILL HAVE TO APPROVE ANY NECESSARY DEVIATIONS PRIOR TO CONSTRUCTION.
4. ALL DIMENSIONS ARE NOMINAL.

**EXTERNAL BBS CABINET MOUNTED TO THE MODEL 332 OR 334 CABINET**



**MODIFIED MODEL 332 AND 334 CABINET FOUNDATION DETAIL FOR BATTERY BACKUP SYSTEM (BBS)**

(FOR DIMENSIONS AND DETAILS NOT SHOWN AND ADDITIONAL NOTES, SEE SHEET ES-3C OF THE STANDARD PLANS FOR MODEL 332 AND 334 CABINETS)



**BASE PLAN FOR BBS MOUNTED TO THE MODEL 332 OR 334 CABINET**

ROUTE 75 AT CORNADO BAY ROAD

**ELECTRICAL SYSTEMS (BBS FOUNDATION DETAILS)**  
NO SCALE **E-9**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
 MAHENDRA R. NIRMAL  
 ENRIQUE P. BERNAL  
 DALE WILSON  
 TRAFFIC ELECTRICAL

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	75	11.0/17.4	31	54

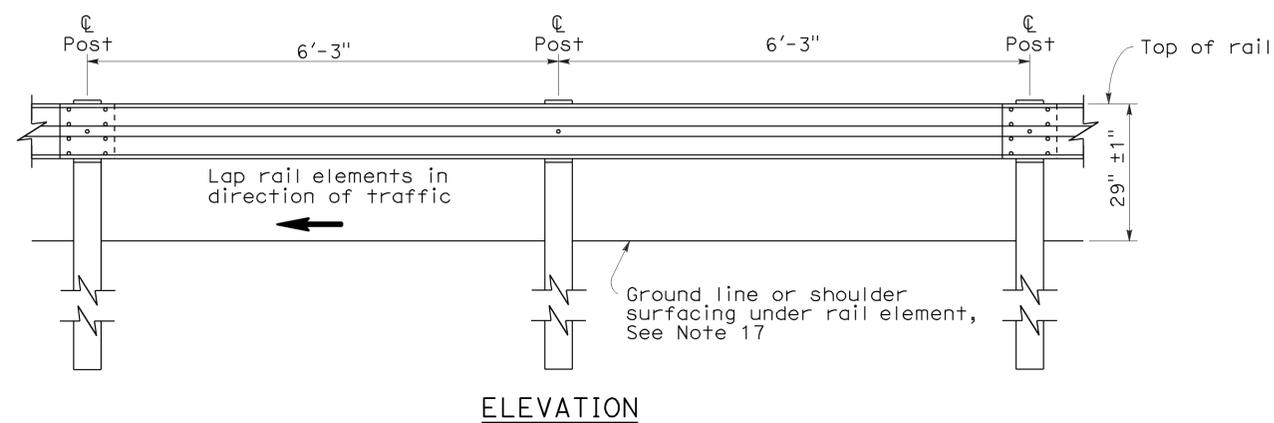
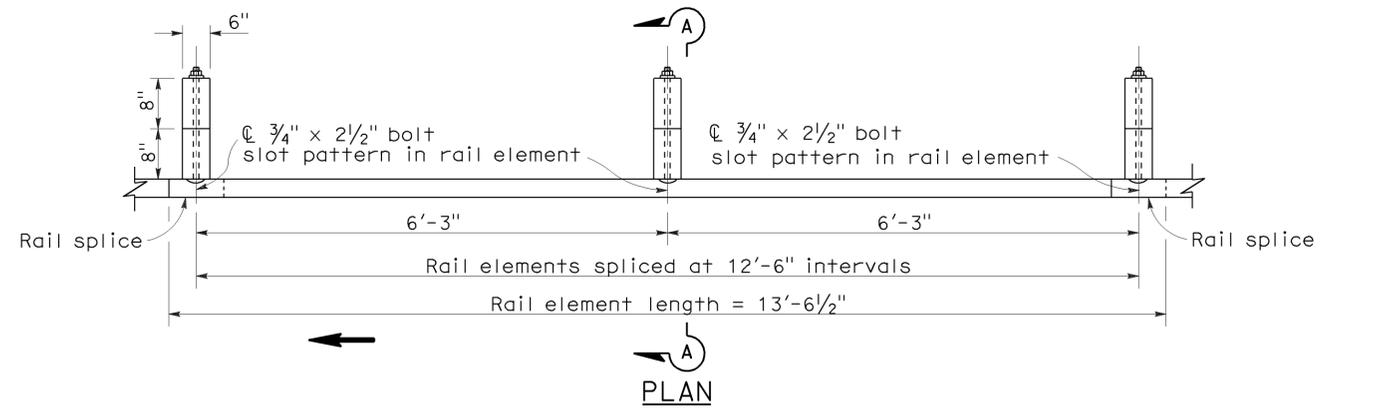
*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

May 20, 2011  
PLANS APPROVAL DATE

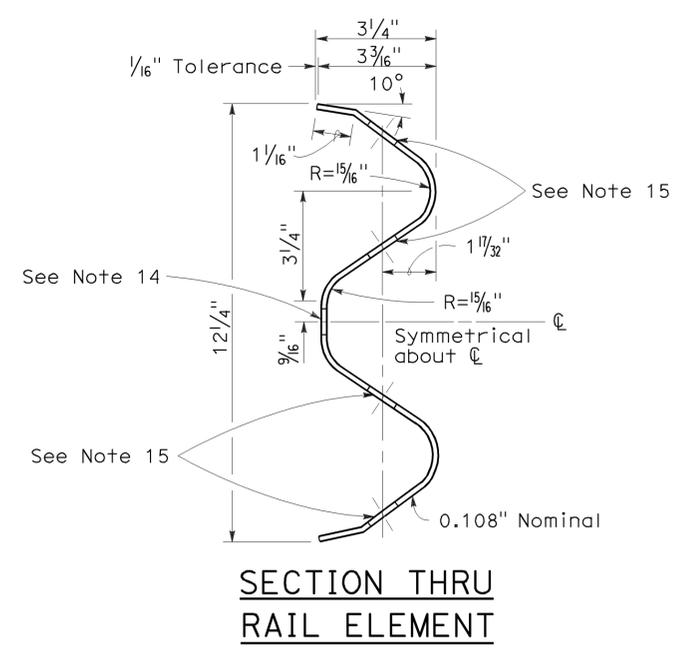
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To accompany plans dated 08-01-11

2006 REVISED STANDARD PLAN RSP A77A1

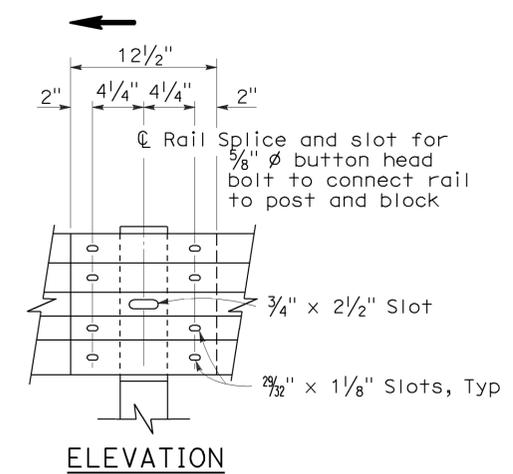


**METAL BEAM GUARD RAILING WITH WOOD POST AND BLOCKS**

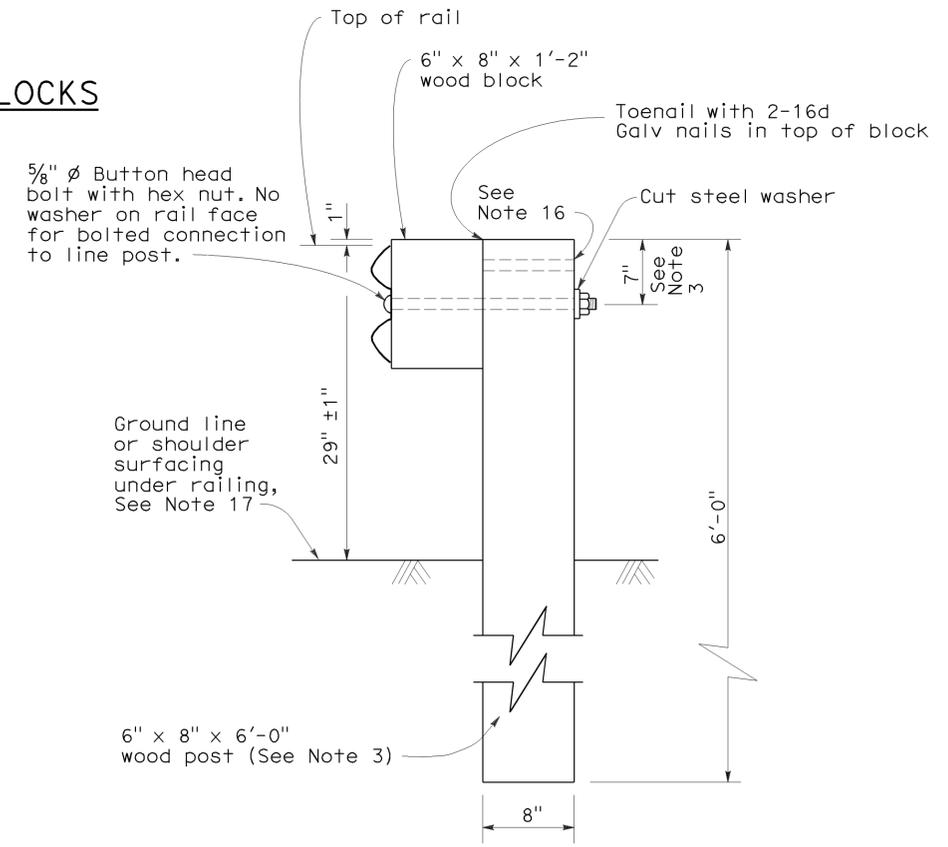


**NOTES:**

- 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 →.
- 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.



- 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.



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

NO SCALE

To accompany plans dated 08-01-11

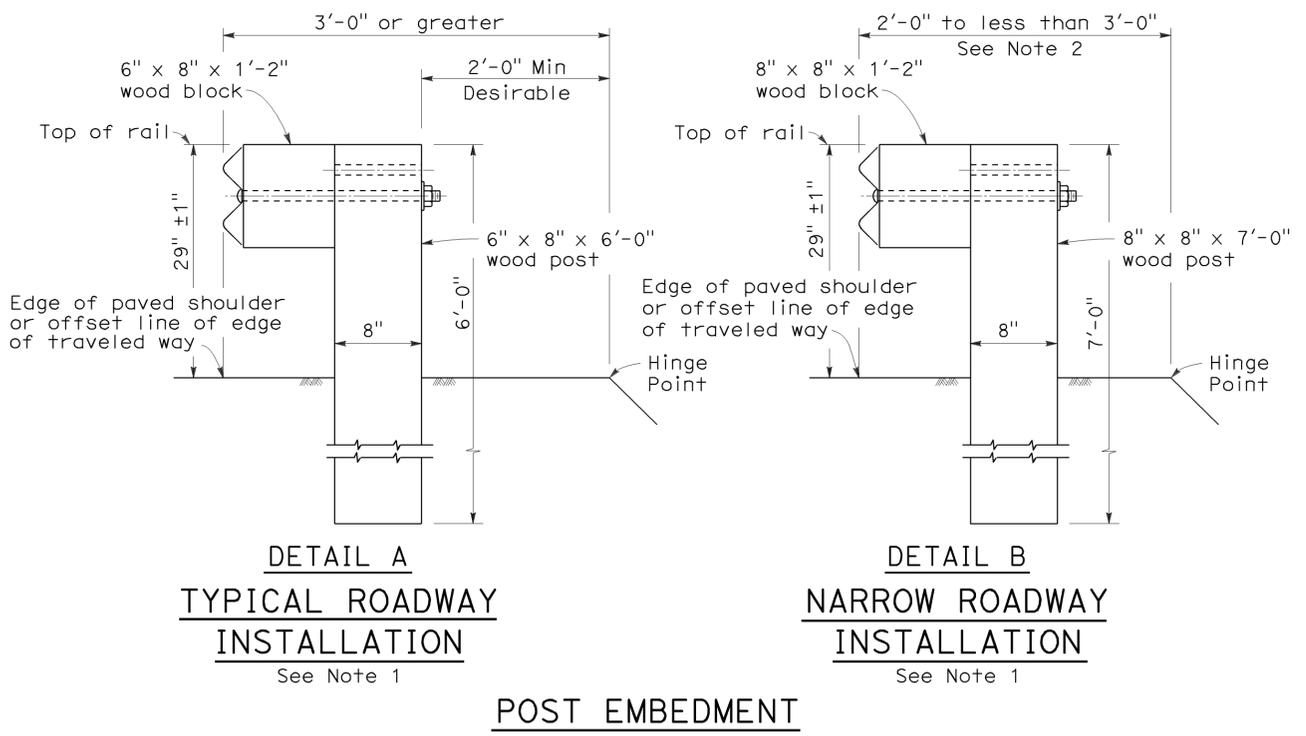
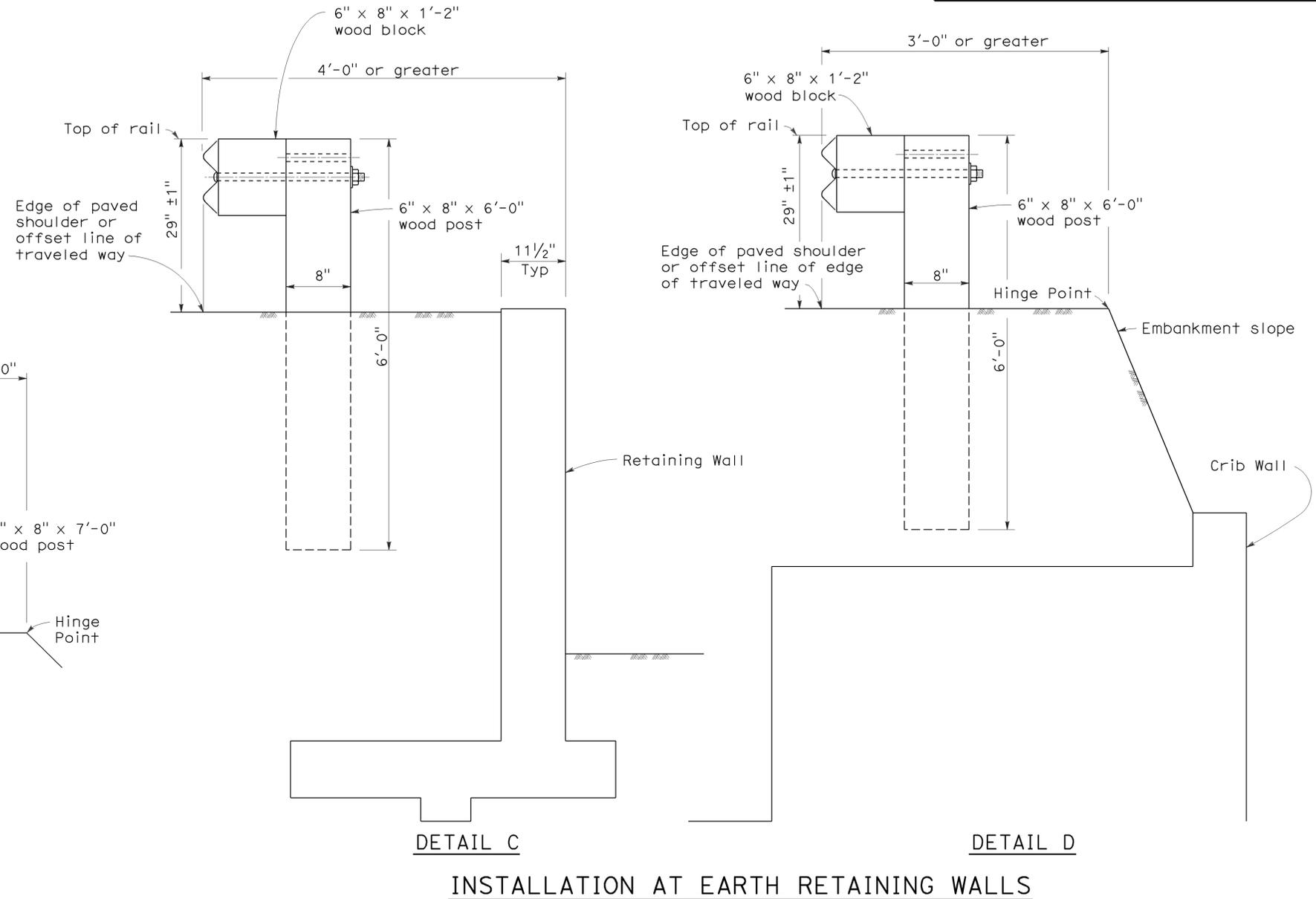
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	75	11.0/17.4	32	54

*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.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**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
11	SD	75	11.0/17.4	33	54

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

May 20, 2011  
PLANS APPROVAL DATE

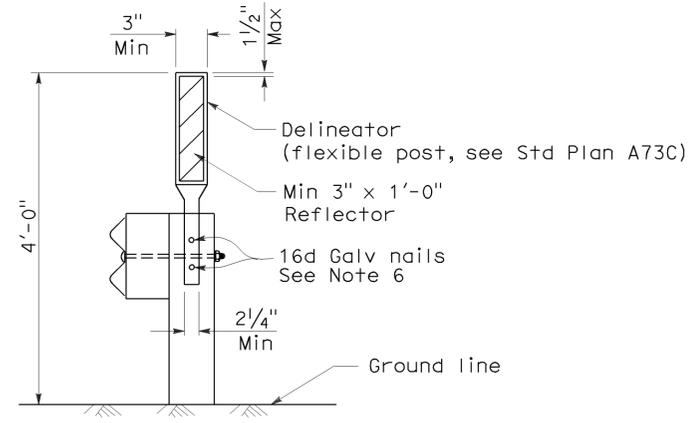
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REGISTERED PROFESSIONAL ENGINEER  
Randell D. Hiatt  
No. C50200  
Exp. 6-30-11  
CIVIL  
STATE OF CALIFORNIA

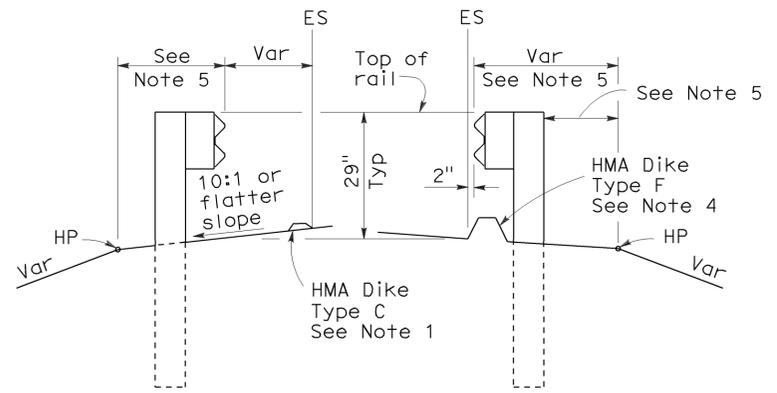
To accompany plans dated 08-01-11

**NOTES:**

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



**GUARD RAILING DELINEATION**  
See Note 3



**DIKE POSITIONING**  
See Note 1

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

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

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

**REVISED STANDARD PLAN RSP A77C4**

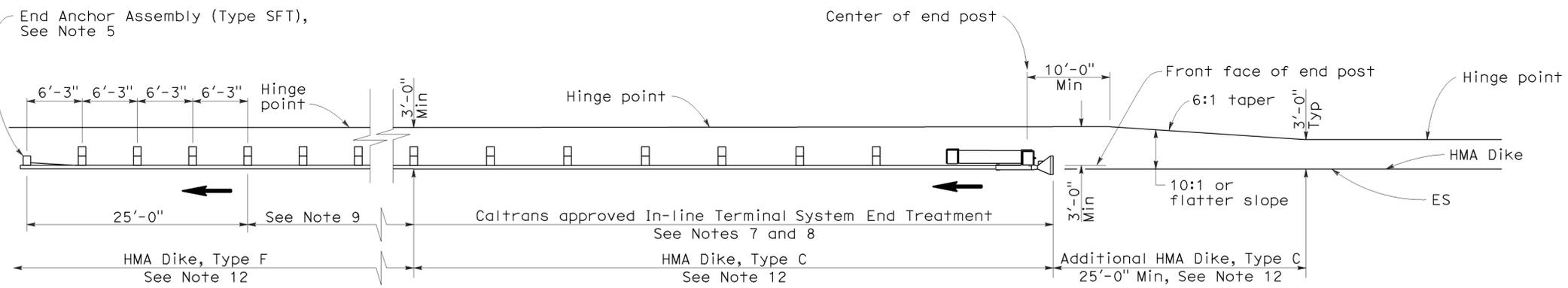
2006 REVISED STANDARD PLAN RSP A77C4

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
11	SD	75	11.0/17.4	34	54

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

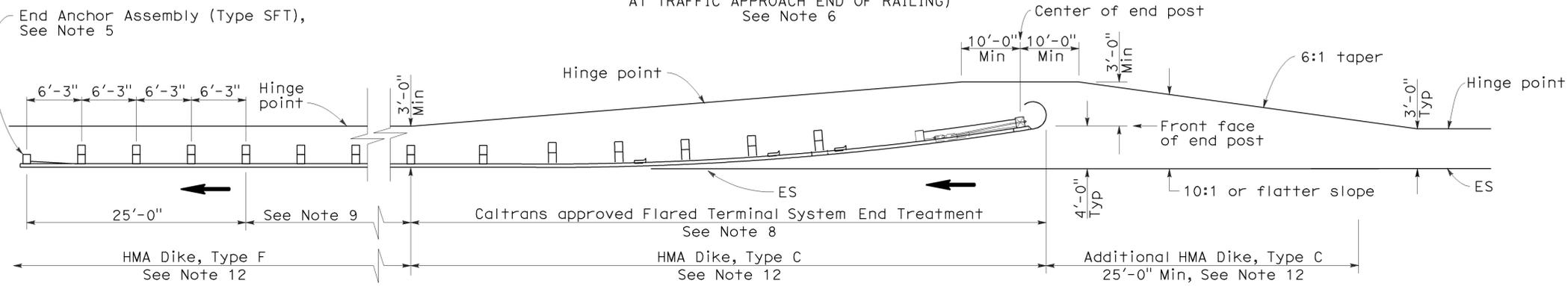
June 6, 2008  
 PLANS APPROVAL DATE

To accompany plans dated 08-01-11



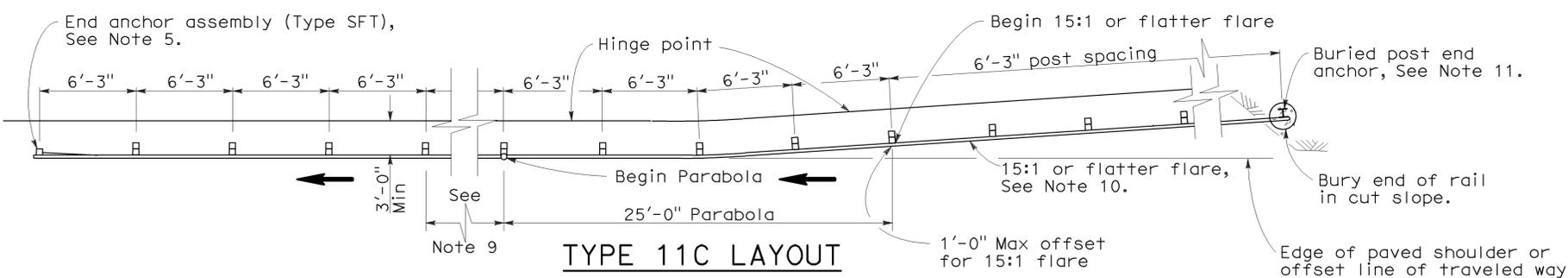
**TYPE 11A LAYOUT**

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



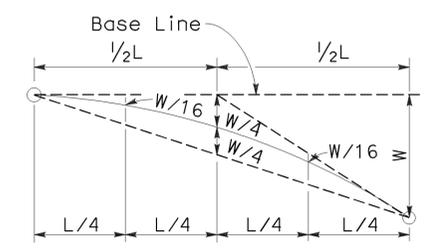
**TYPE 11B LAYOUT**

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

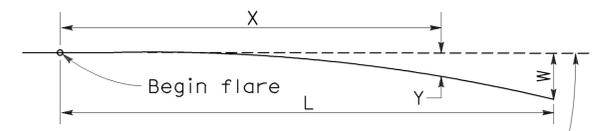


**TYPE 11C LAYOUT**

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



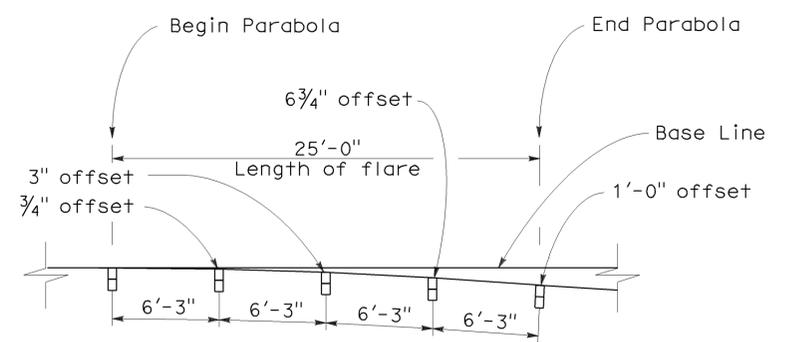
**TYPICAL PARABOLIC LAYOUT**



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.

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**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**

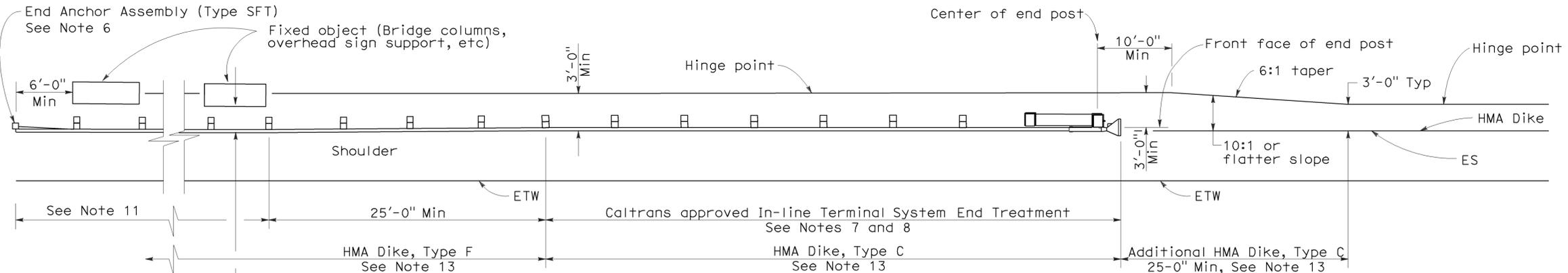
2006 REVISED STANDARD PLAN RSP A77E1

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
11	SD	75	11.0/17.4	35	54

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

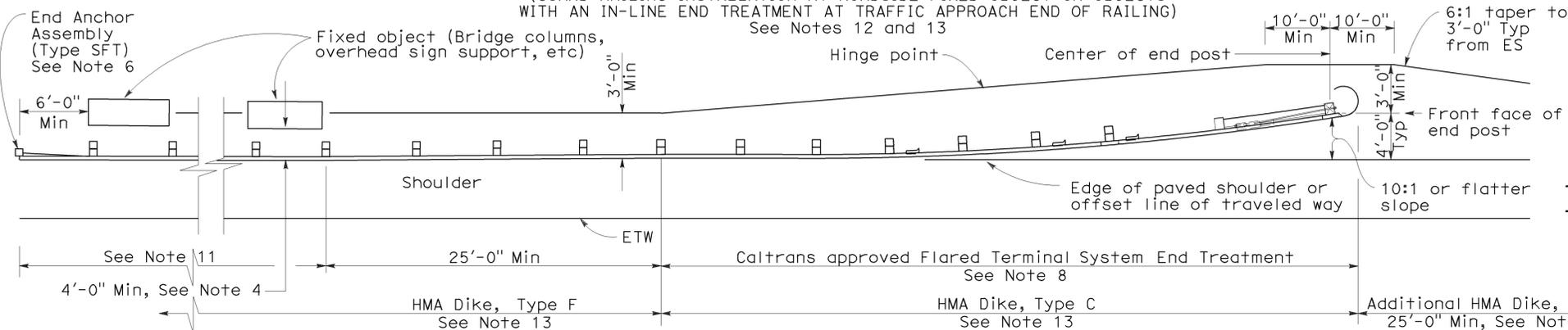
June 6, 2008  
 PLANS APPROVAL DATE

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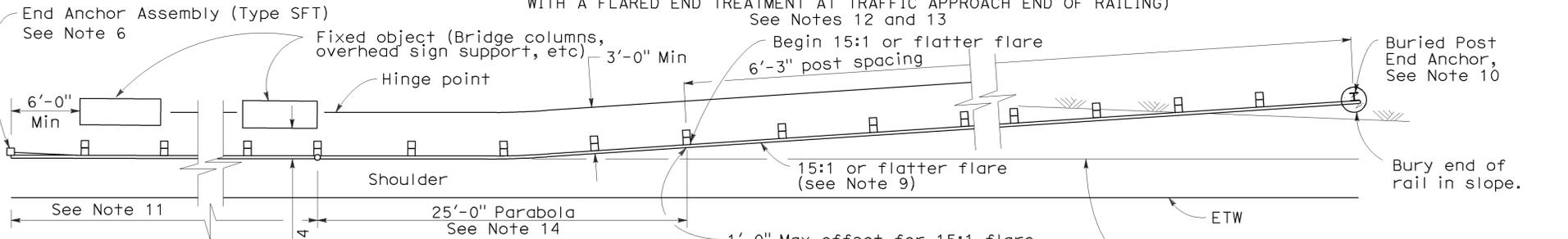
**TYPE 16A LAYOUT**

(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



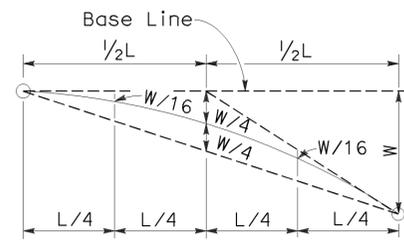
**TYPE 16B LAYOUT**

(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

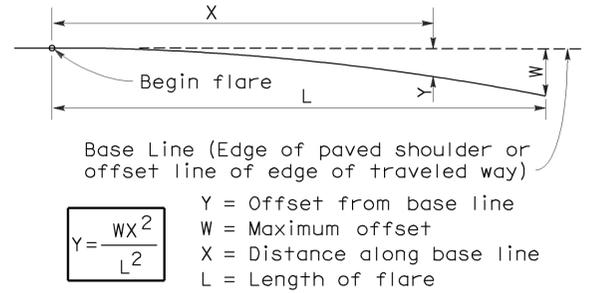


**TYPE 16C LAYOUT**

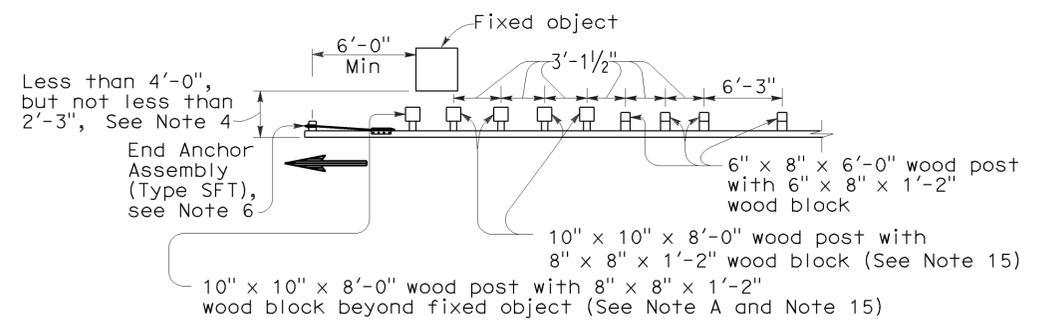
(GUARD RAILING INSTALLATION AT ROADSIDE FIXED OBJECT OR OBJECTS WITH A BURIED END ANCHOR TREATMENT AT TRAFFIC APPROACH END OF RAILING)  
See Notes 12 and 13



**TYPICAL PARABOLIC LAYOUT**



**PARABOLIC FLARE OFFSETS**



**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

**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 →.
- 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".

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

NO SCALE

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

**REVISED STANDARD PLAN RSP A77G3**

2006 REVISED STANDARD PLAN RSP A77G3

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	75	11.0/17.4	36	54

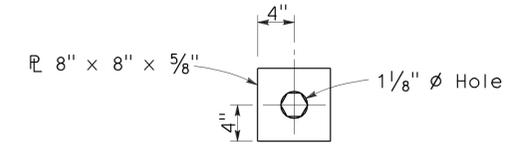
Randell D. Hiatt  
REGISTERED CIVIL ENGINEER

May 20, 2011  
PLANS APPROVAL DATE

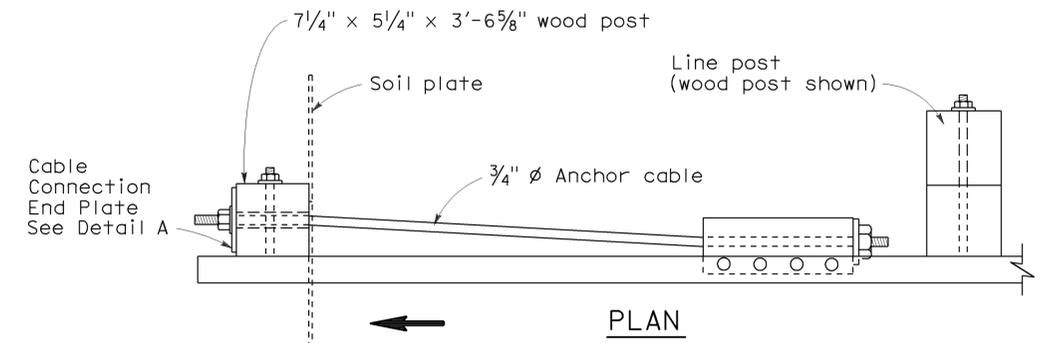
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REGISTERED PROFESSIONAL ENGINEER  
Randell D. Hiatt  
No. C50200  
Exp. 6-30-11  
CIVIL  
STATE OF CALIFORNIA

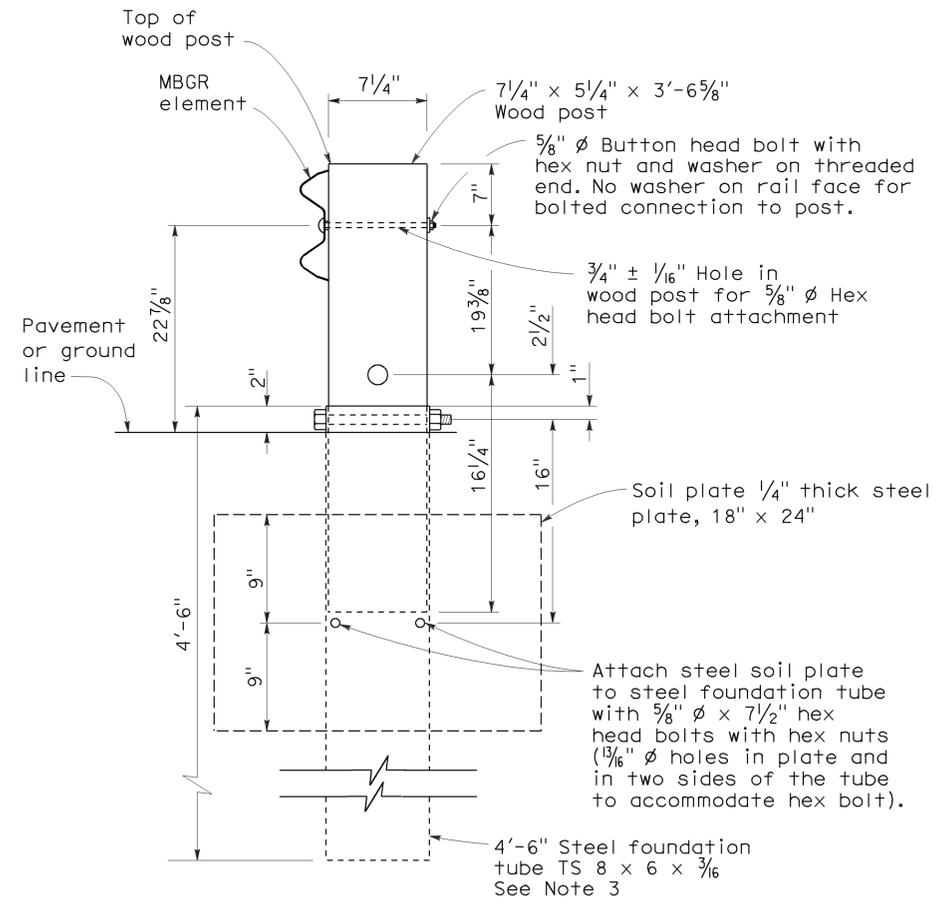
To accompany plans dated 08-01-11



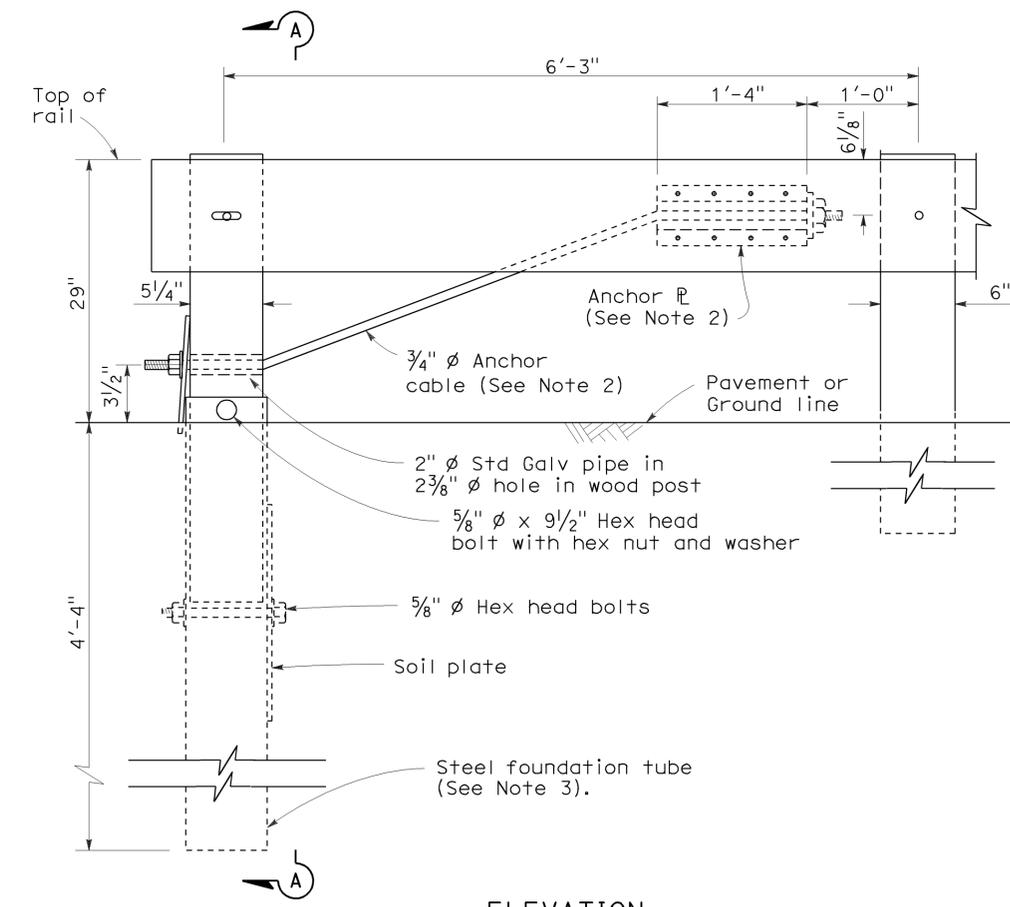
**DETAIL A**  
**CABLE CONNECTION**  
**END PLATE**



**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.

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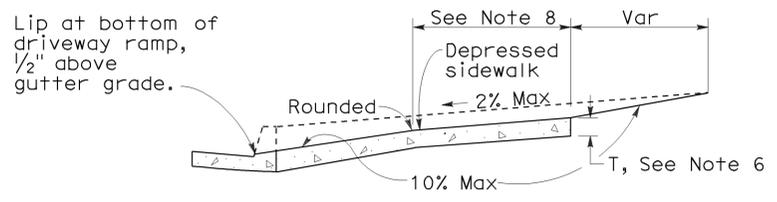
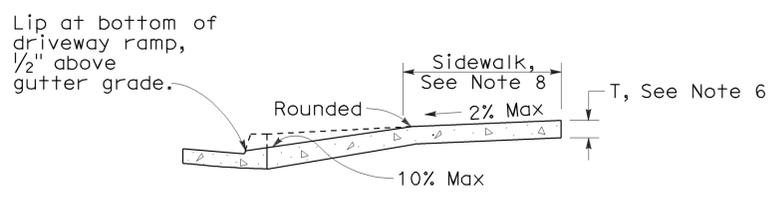
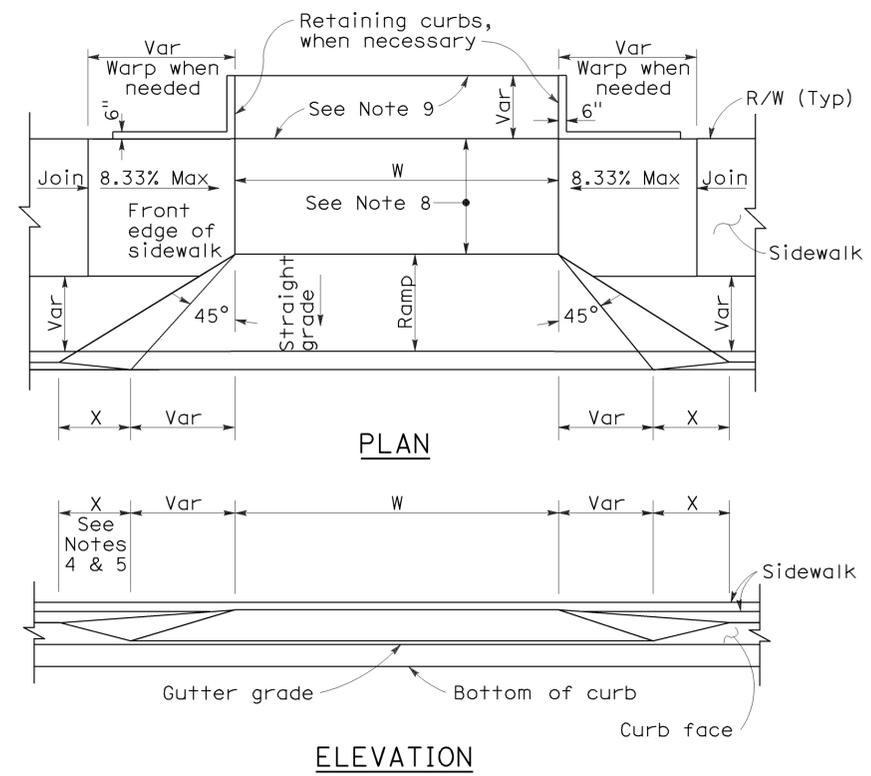
**METAL RAILING**  
**END ANCHOR ASSEMBLY**  
**(TYPE SFT)**

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



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

**CASE B**  
Driveway with depressed sidewalk

**SECTIONS**

**CURB QUANTITIES**

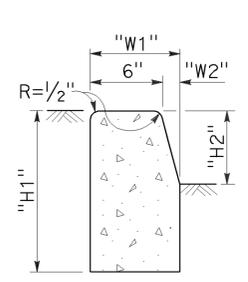
TYPE	CUBIC YARDS PER LINEAR FOOT
A1-6	0.02585
A1-8	0.03084
A2-6	0.05903
A2-8	0.06379
A3-6	0.01036
A3-8	0.01435
B1-4	0.02185
B1-6	0.02930
B2-4	0.05515
B2-6	0.06171
B3-4	0.00641
B3-6	0.01074
B4	0.05709
D-4	0.04083
D-6	0.06804
E	0.06661

**TABLE A**

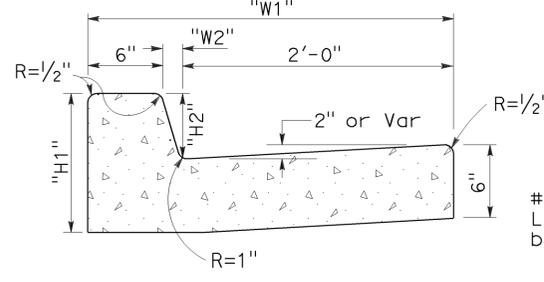
CURB TYPE	DIMENSIONS			
	"H1"	"H2"	"W1"	"W2"
A1-6	1'-2"	6"	7 1/2"	1 1/2"
A1-8	1'-4"	8"	8"	2"
A2-6	1'-0"	6"	2'-7 1/2"	1 1/2"
A2-8	1'-2"	8"	2'-8"	2"
A3-6	6"	5"	7 1/4"	1 1/4"
A3-8	8"	7"	7 3/4"	1 3/4"
B1-4	1'-0"	4"	7 1/2"	2 1/2"
B1-6	1'-2"	6"	9"	4"
B2-4	10"	4"	2'-7 1/2"	2 1/2"
B2-6	1'-0"	6"	2'-9"	4"
B3-4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

To accompany plans dated 08-01-11

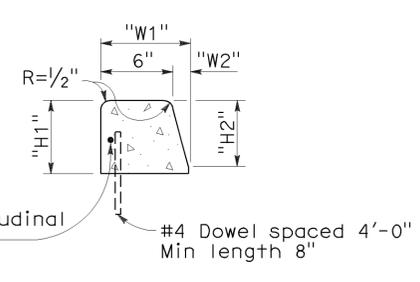
**DRIVEWAYS**



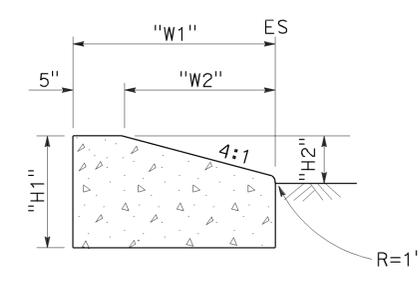
**TYPE A1 CURBS**  
See Table A



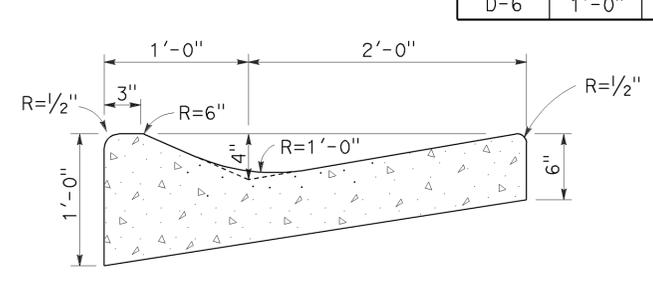
**TYPE A2 CURBS**  
See Table A



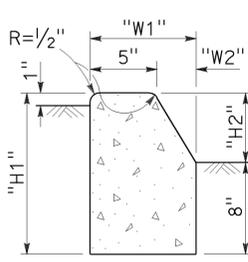
**TYPE A3 CURBS**  
Superimposed on existing pavement  
See Table A



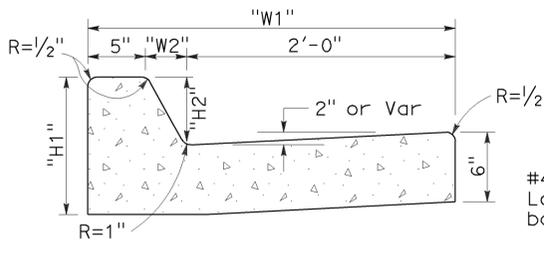
**TYPE D CURBS**  
See Table A



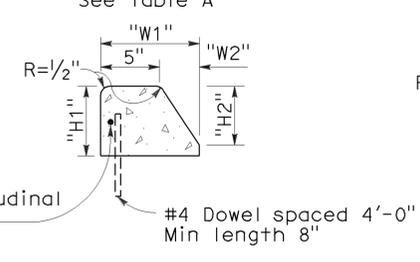
**TYPE E CURB**



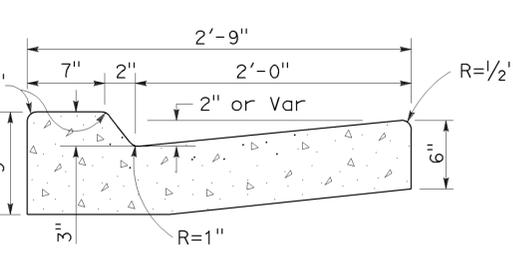
**TYPE B1 CURBS**  
See Table A



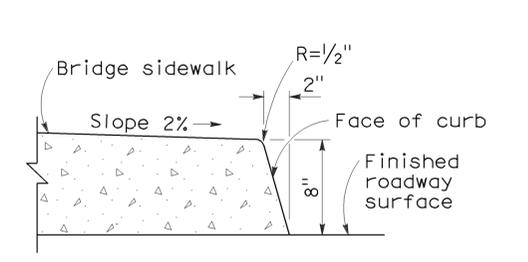
**TYPE B2 CURBS**  
See Table A



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



**TYPE B4 CURBS**



**TYPE H CURB**  
On Bridges

**CURBS**

**NOTES:**

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

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**CURBS AND DRIVEWAYS**

NO SCALE

RSP A87A DATED NOVEMBER 17, 2006 SUPERSEDES STANDARD PLAN A87A  
DATED MAY 1, 2006 - PAGE 113 OF THE STANDARD PLANS BOOK DATED MAY 2006.

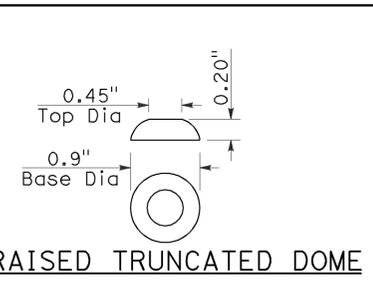
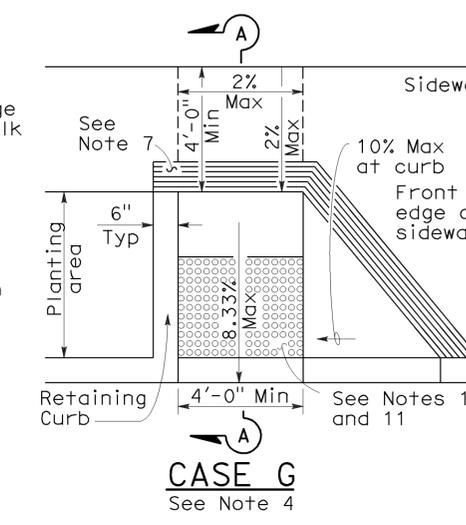
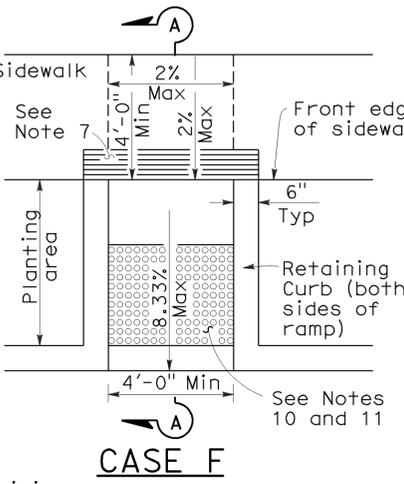
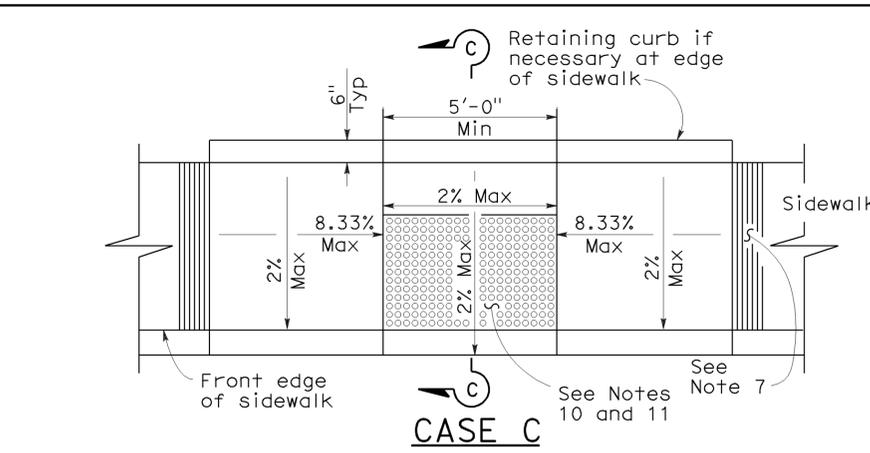
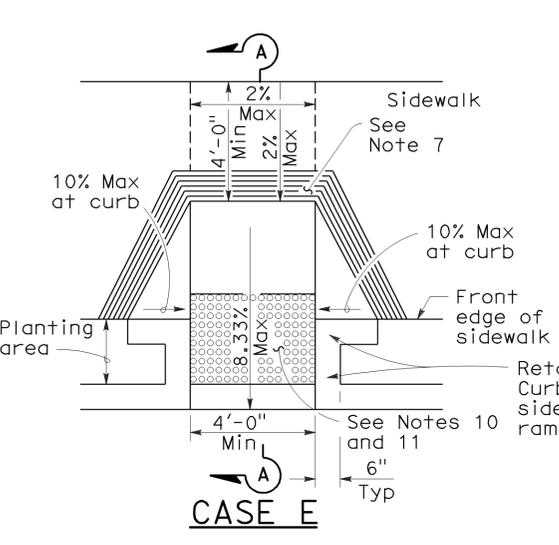
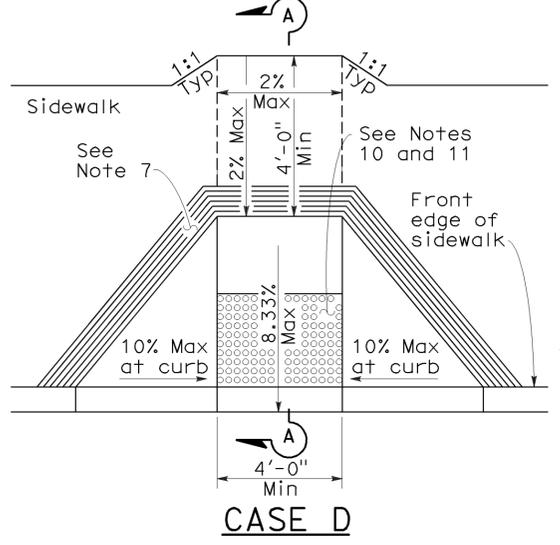
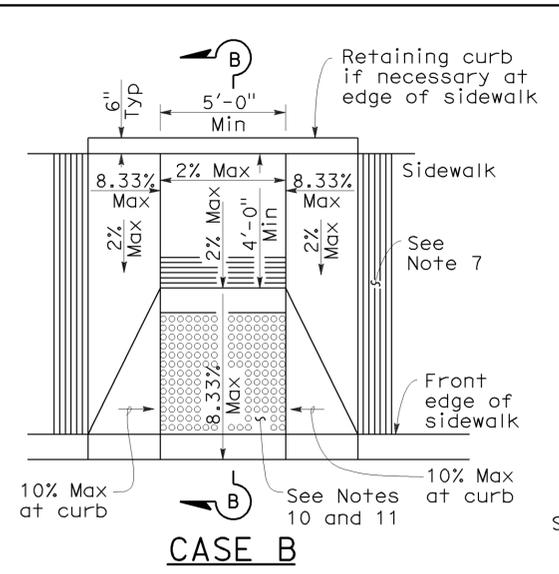
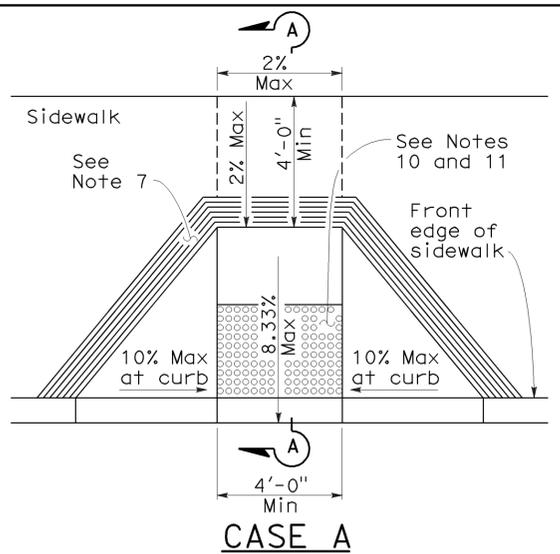
**REVISED STANDARD PLAN RSP A87A**

2006 REVISED STANDARD PLAN RSP A87A

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
11	SD	75	11.0/17.4	38	54

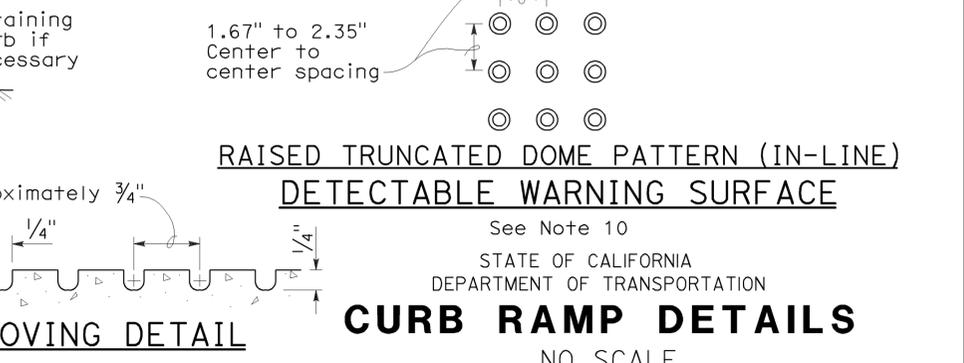
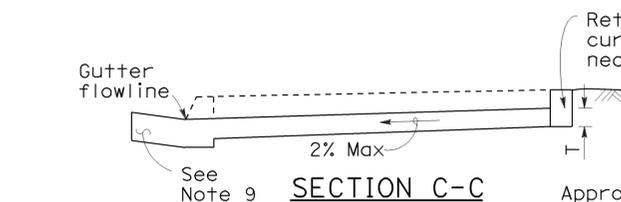
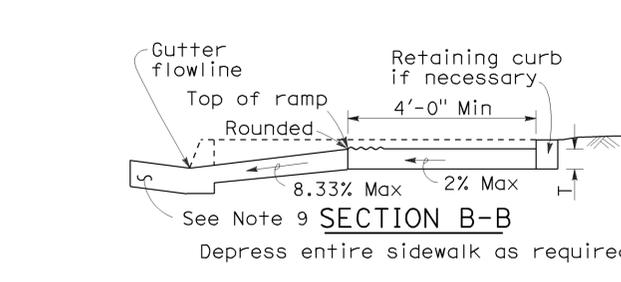
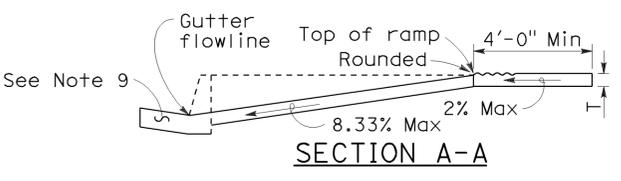
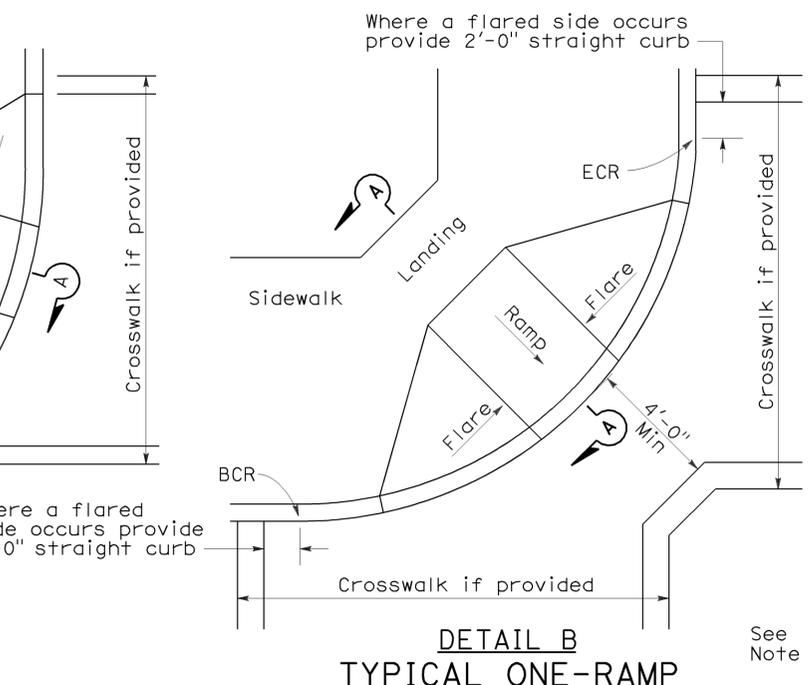
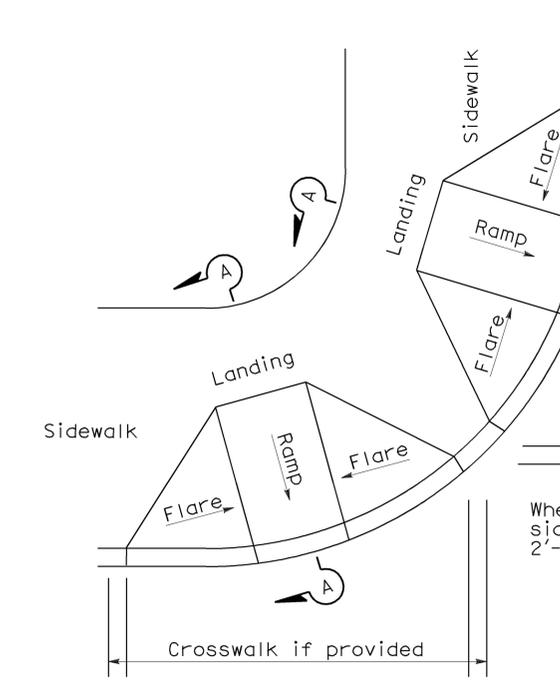
*H. David Cordova*  
 REGISTERED CIVIL ENGINEER  
 September 1, 2006  
 PLANS APPROVAL DATE  
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REGISTERED PROFESSIONAL ENGINEER
Hector David Cordova
No. C41957
Exp. 3-31-08
CIVIL
STATE OF CALIFORNIA



**NOTES:**

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



**TYPICAL TWO-RAMP CORNER INSTALLATION**  
See Note 1

**TYPICAL ONE-RAMP CORNER INSTALLATION**  
See Notes 1 and 3

**RETROFIT DETAIL**  
Existing curb and sidewalk

**CURB RAMP DETAILS**  
NO SCALE

RSP A88A DATED SEPTEMBER 1, 2006 SUPERSEDES STANDARD PLAN A88A DATED MAY 1, 2006 - PAGE 115 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP A88A**

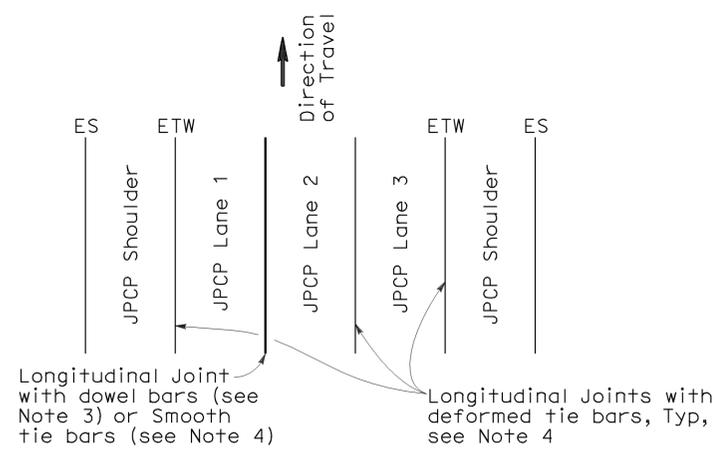
2006 REVISED STANDARD PLAN RSP A88A

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
11	SD	75	11.0/17.4	39	54

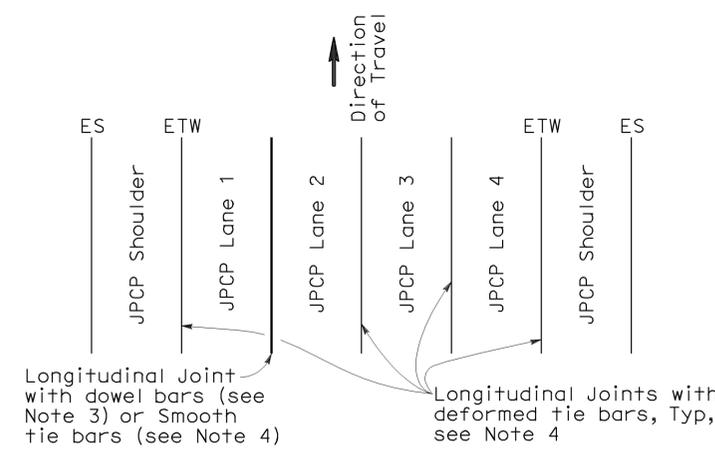
William K. Farnbach  
 REGISTERED CIVIL ENGINEER  
 June 5, 2009  
 PLANS APPROVAL DATE

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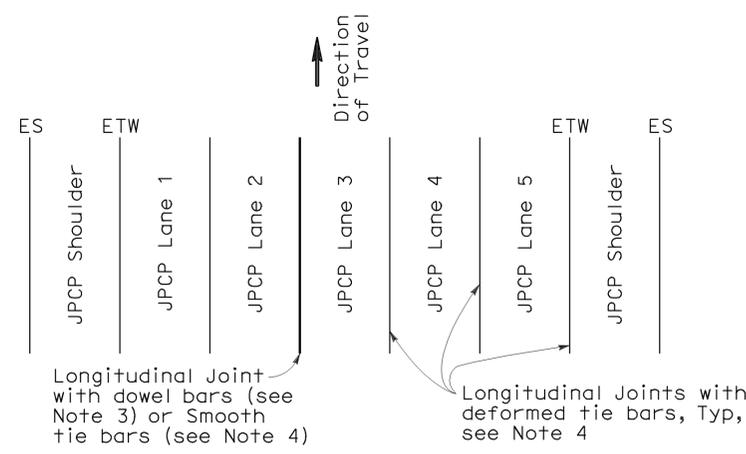
To accompany plans dated 08-01-11



**3 LANES WITH TIED CONCRETE SHOULDERS**  
PLAN

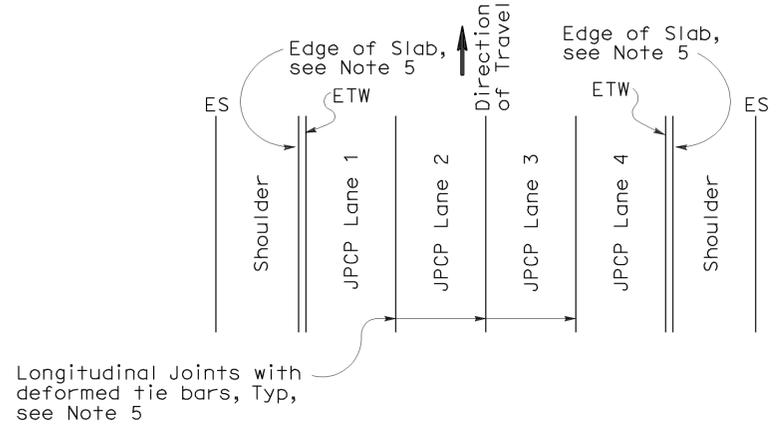


**4 LANES WITH TIED CONCRETE SHOULDERS**  
PLAN

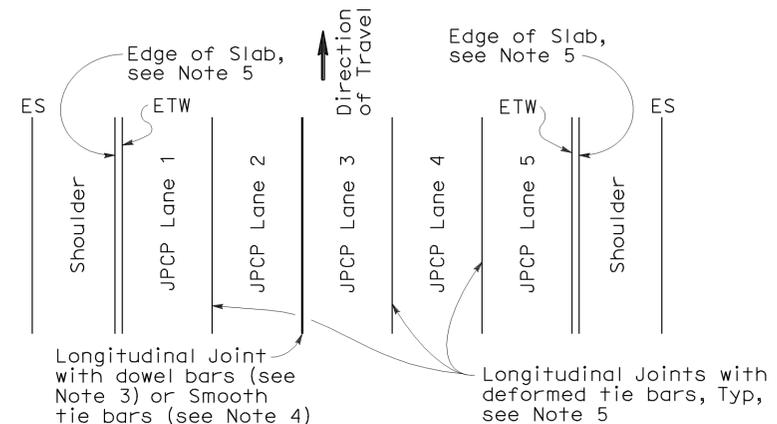


**5 LANES WITH TIED CONCRETE SHOULDERS**  
PLAN

- NOTES:**
- Where Lean Concrete Base is not used as base material, the joint filler material used for the longitudinal isolation joint shall only extend to the bottom of the new concrete slab. See Detail A.
  - Use  $\frac{5}{8}'' \pm \frac{1}{16}''$  dimension for silicone sealant.
  - See Revised Standard Plan RSP P10 for longitudinal joint with dowel bars.
  - See Revised Standard Plan RSP P1.
  - See Revised Standard Plan RSP P2.

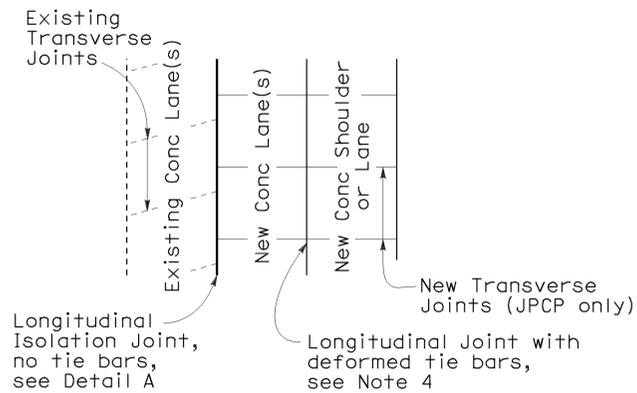


**4 LANES OR LESS WITH WIDENED SLAB**  
PLAN



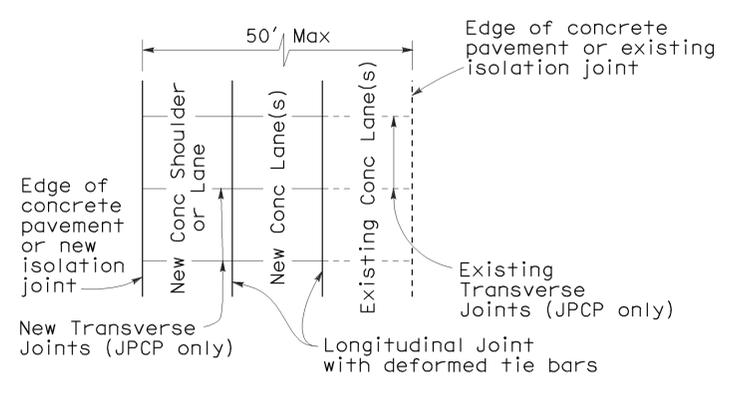
**5 LANES WITH WIDENED SLAB**  
PLAN

**NEW CONSTRUCTION**  
Location of Longitudinal Joints  
(For JPCP)



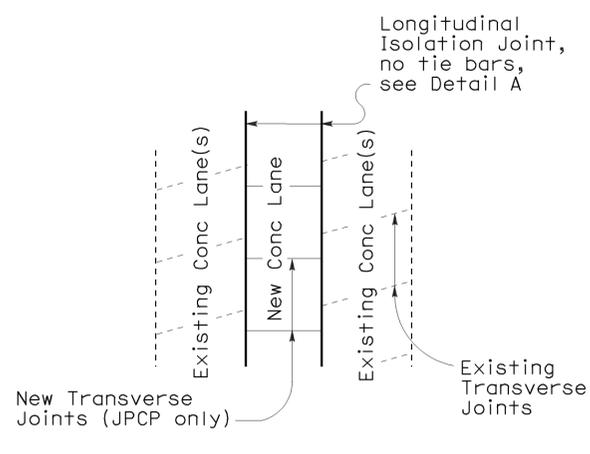
**CASE 1**  
PLAN

Transverse Joints do not align between new and existing



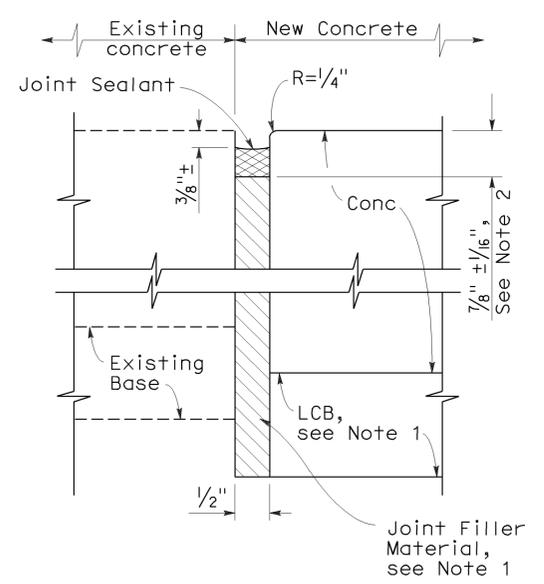
**CASE 2**  
PLAN

Transverse Joints align between new and existing



**CASE 3 (INTERIOR LANE REPLACEMENT)**  
PLAN

Transverse Joints do not align between new and existing



**DETAIL A**  
**ISOLATION JOINT**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**CONCRETE PAVEMENT-  
LANE SCHEMATICS  
AND ISOLATION JOINT DETAIL**

NO SCALE

**LANE/SHOULDER ADDITION OR RECONSTRUCTION**  
(For JPCP and CRCP)

RSP P18 DATED JUNE 5, 2009 SUPERSEDES RSP P18 DATED MAY 15, 2009, RSP P18 DATED NOVEMBER 17, 2006 AND STANDARD PLAN P18 DATED MAY 1, 2006 - PAGE 127 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP P18**

2006 REVISED STANDARD PLAN RSP P18

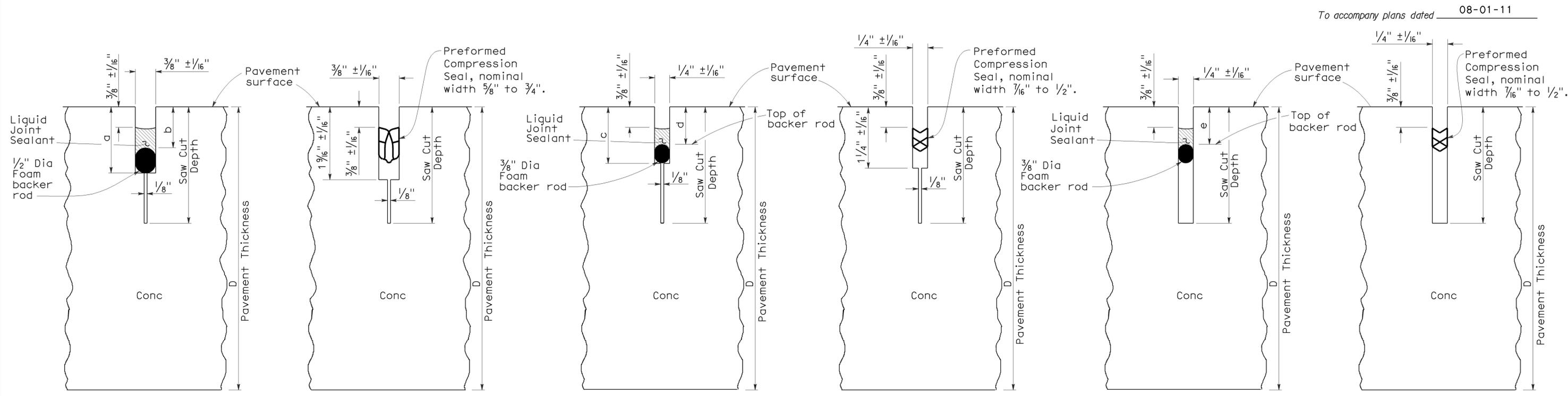
**NOTE:**

1. Tie bars, dowel bars, and reinforcement are not shown in joint seal details, see Revised Standard Plans RSP P1, RSP P3, RSP P10, RSP P35, RSP P45, or RSP P46 as applicable.

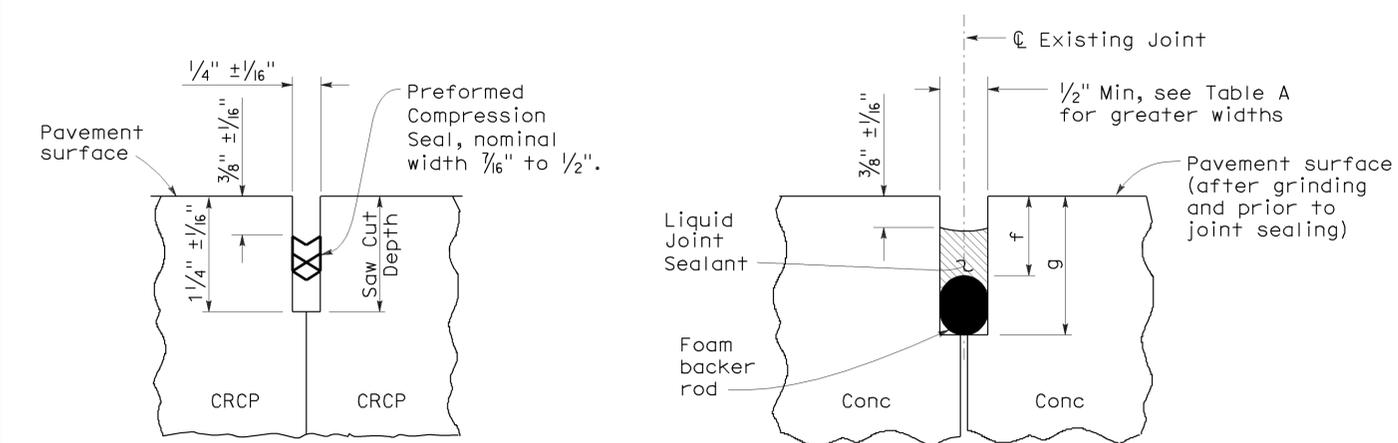
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
11	SD	75	11.0/17.4	40	54

*William K. Farnbach*  
 REGISTERED CIVIL ENGINEER  
 May 15, 2009  
 PLANS APPROVAL DATE

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**LIQUID SEALANT**      **COMPRESSION SEAL**      **LIQUID SEALANT**      **COMPRESSION SEAL**      **LIQUID SEALANT**      **COMPRESSION SEAL**  
**TYPE A1**      **TYPE A2**      **TYPE B**  
 Transverse Contraction Joints      Longitudinal Contraction Joints      Longitudinal or Transverse Contraction Joint



**COMPRESSION SEAL**      **LIQUID SEALANT**  
**TYPE C**      **TYPE R**  
 Transverse and Longitudinal Construction Joints (For CRCP)      Retrofit Transverse and Longitudinal Joints

**LIQUID SEALANT RESERVOIR DEPTH**

LIQUID SEALANT MATERIAL	3/8" Joint Width Type A1		1/4" Joint Width Type A2		1/4" Joint Width Type B
	DIMENSION		DIMENSION		DIMENSION
	a	b	c	d	e
SILICONE	1" ± 1/16"	5/8" ± 1/16"	15/16" ± 1/16"	9/16" ± 1/16"	9/16" ± 1/16"
ASPHALT RUBBER	1 3/16" ± 1/16"	3/4" ± 1/16"	1 1/16" ± 1/16"	11/16" ± 1/16"	11/16" ± 1/16"

**TABLE A (TYPE R JOINT)**

Sawn Joint Width	Backer Rod Diameter ± 1/16"	DIMENSION "f"	DIMENSION "g"
1"	1 5/16"	7/8"	2 1/4"
7/8"	1 3/16"	13/16"	2"
3/4"	1"	3/4"	1 3/4"
5/8"	7/8"	11/16"	1 1/2"
1/2"	11/16"	5/8"	1 1/4"

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**CONCRETE PAVEMENT-JOINT DETAILS**  
 NO SCALE

RSP P20 DATED MAY 15, 2009 SUPERSEDES STANDARD PLAN P20  
 DATED MAY 1, 2006 - PAGE 128 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP P20**

128

2006 REVISED STANDARD PLAN RSP P20

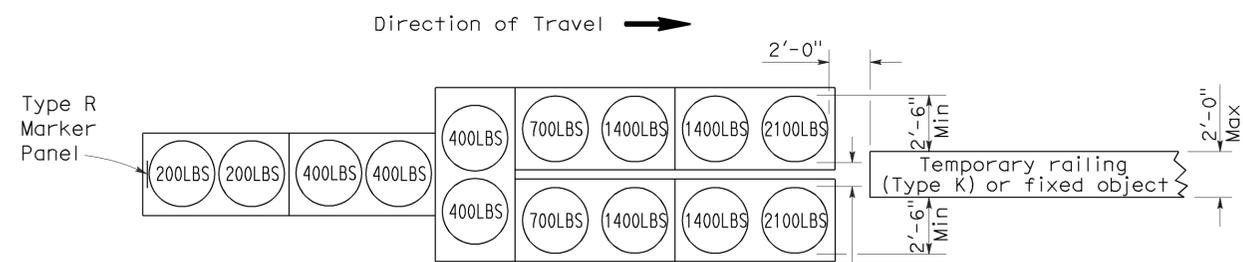
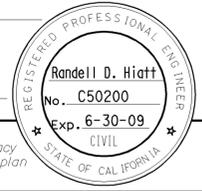
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
11	SD	75	11.0/17.4	41	54

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

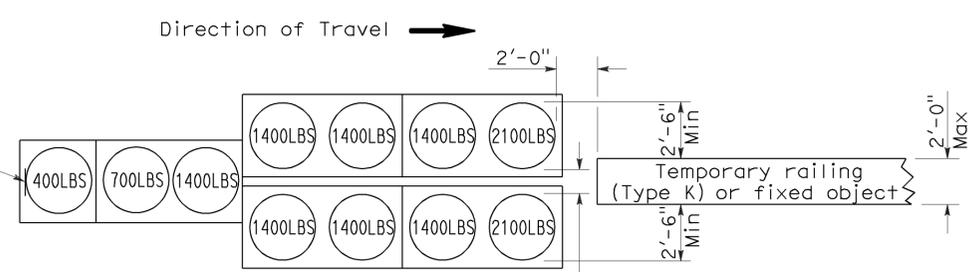
*The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.*

To accompany plans dated 08-01-11



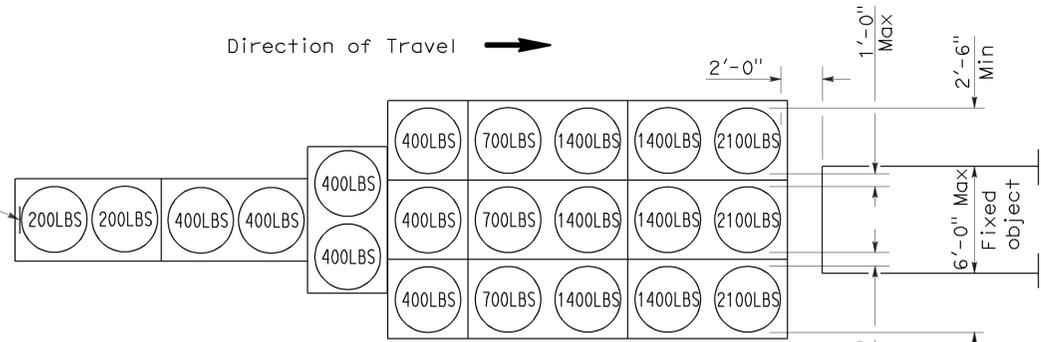
**ARRAY 'TU14'**

Approach speed 45 mph or more



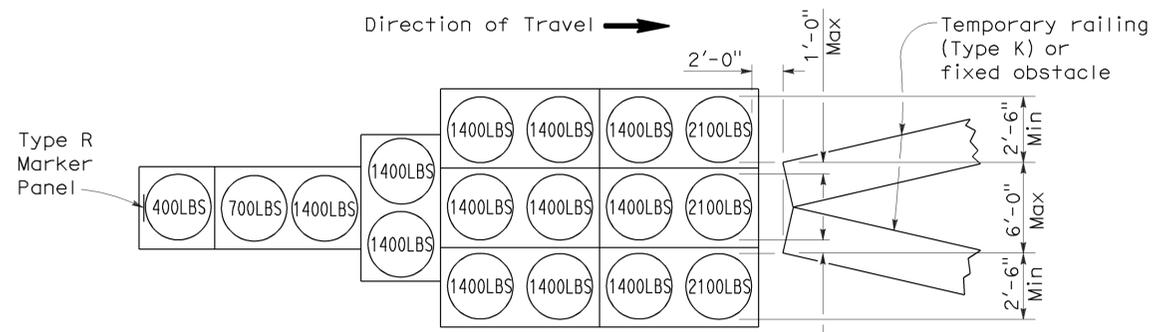
**ARRAY 'TU11'**

Approach speed less than 45 mph



**ARRAY 'TU21'**

Approach speed 45 mph or more

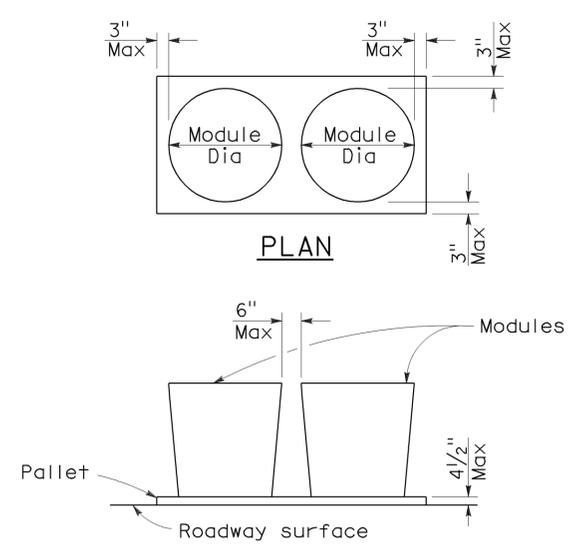


**ARRAY 'TU17'**

Approach speed less than 45 mph

**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.



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

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
11	SD	75	11.0/17.4	42	54

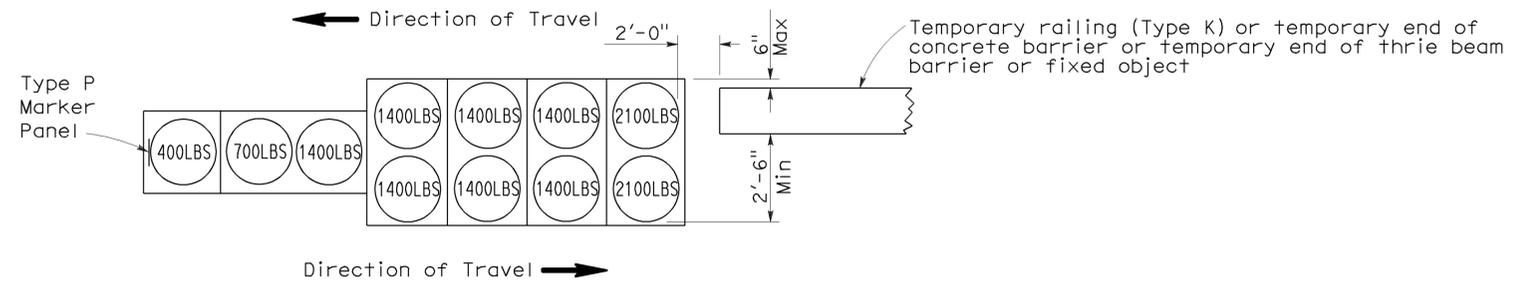
Randell D. Hiatt  
REGISTERED CIVIL ENGINEER

June 6, 2008  
PLANS APPROVAL DATE

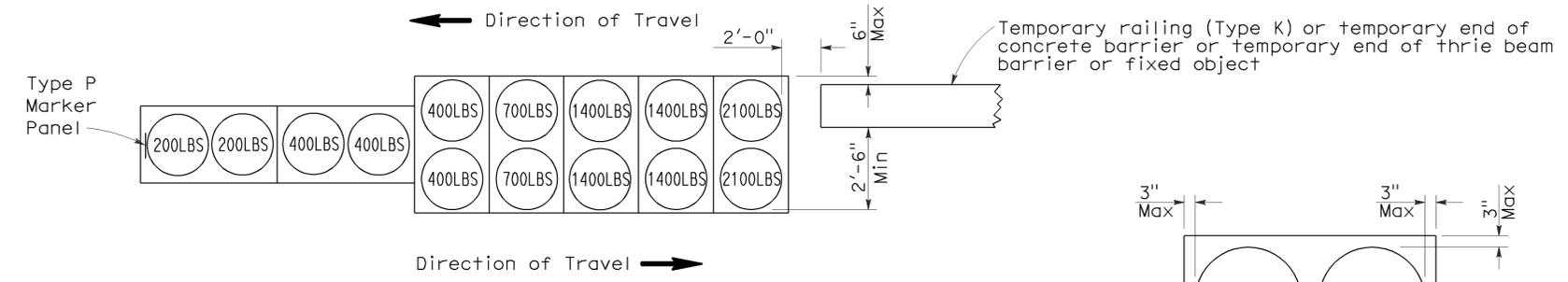
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REGISTERED PROFESSIONAL ENGINEER  
Randell D. Hiatt  
No. C50200  
Exp. 6-30-09  
CIVIL  
STATE OF CALIFORNIA

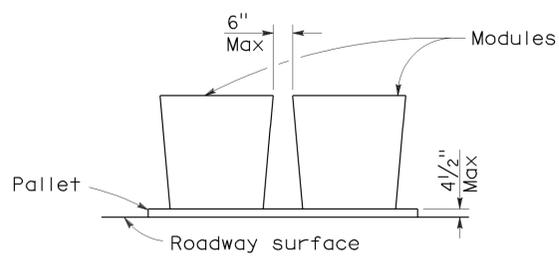
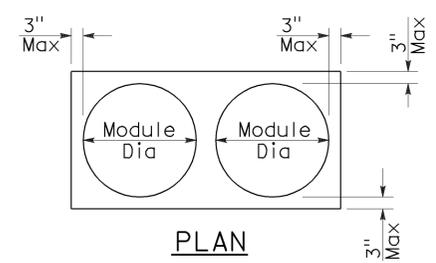
To accompany plans dated 08-01-11



**ARRAY 'TB11'**  
Approach speed less than 45 mph



**ARRAY 'TB14'**  
Approach speed 45 mph or more



**CRASH CUSHION PALLET DETAIL**  
See Note 7

**NOTES:**

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

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

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

**REVISED STANDARD PLAN RSP T1B**

2006 REVISED STANDARD PLAN RSP T1B

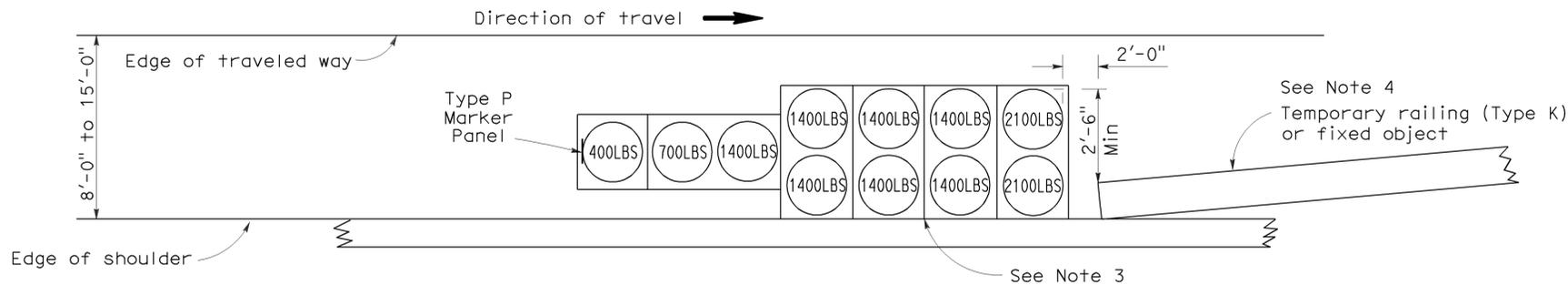
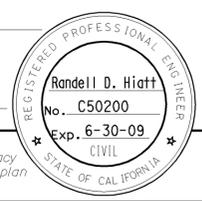
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
11	SD	75	11.0/17.4	43	54

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

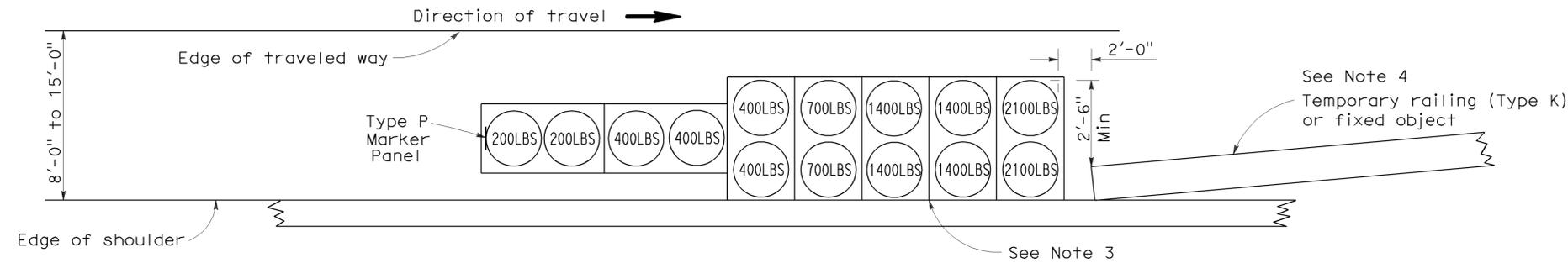
June 6, 2008  
PLANS APPROVAL DATE

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To accompany plans dated 08-01-11



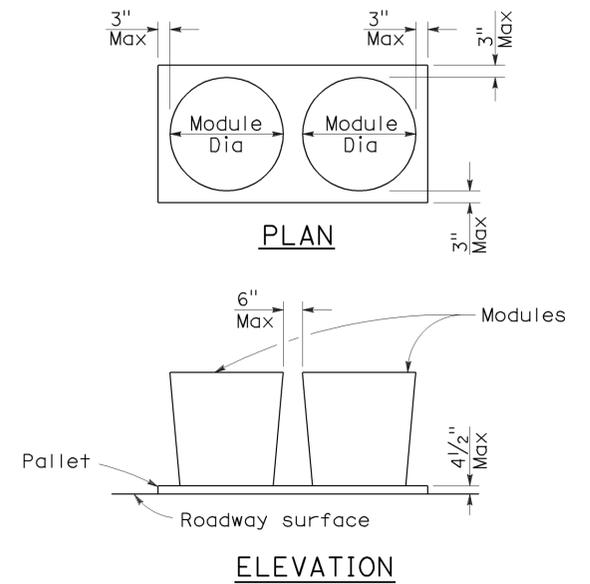
**ARRAY 'TS11'**  
Approach speed less than 45 mph  
See Note 9



**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

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	75	11.0/17.4	44	54

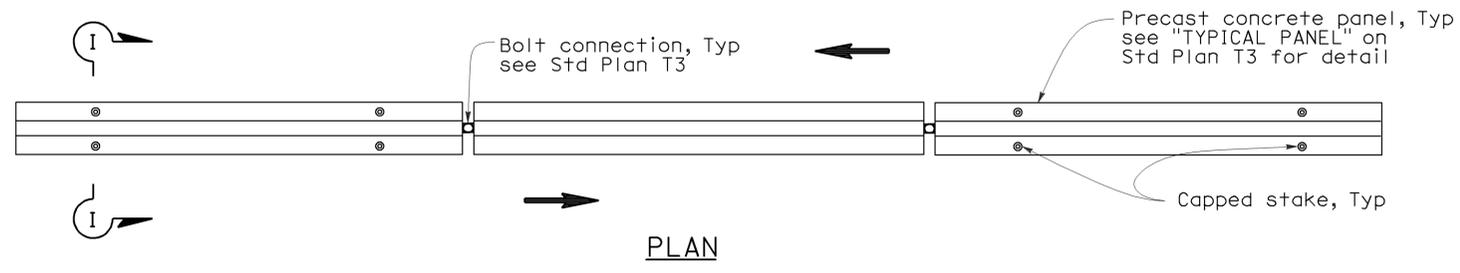
Randell D. Hiatt  
REGISTERED CIVIL ENGINEER

May 20, 2011  
PLANS APPROVAL DATE

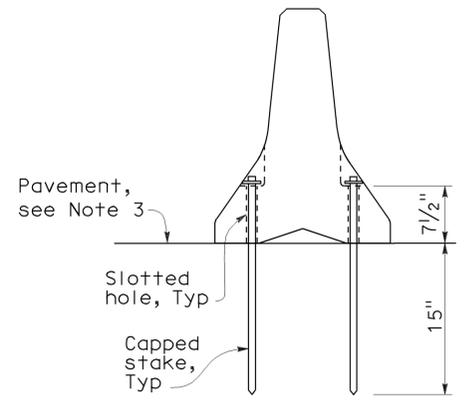
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REGISTERED PROFESSIONAL ENGINEER  
Randell D. Hiatt  
No. C50200  
Exp. 6-30-11  
CIVIL  
STATE OF CALIFORNIA

To accompany plans dated 08-01-11

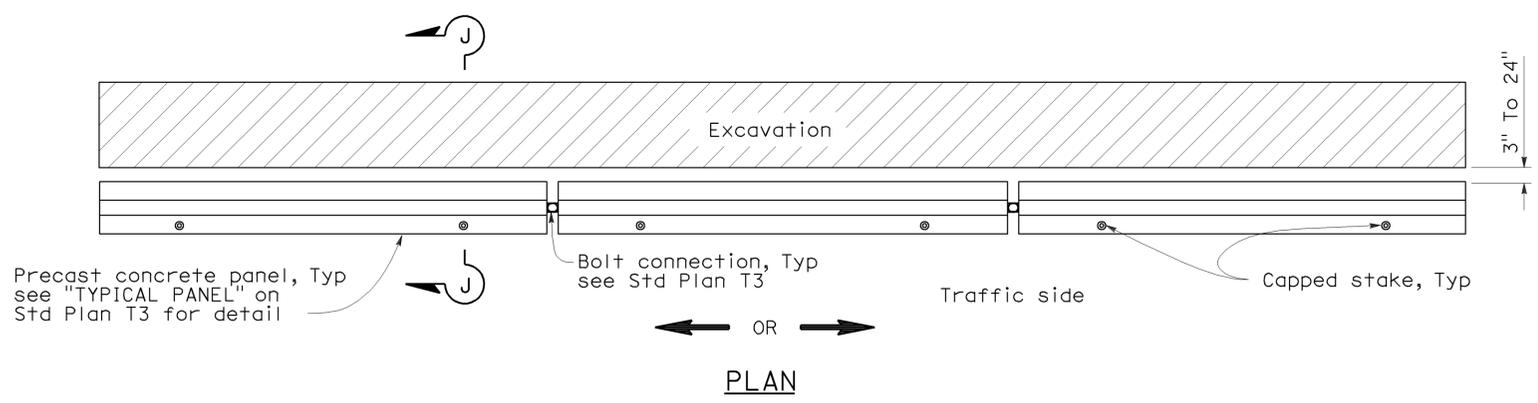


**RAILING STAKING CONFIGURATION FOR TWO-WAY TRAFFIC**  
See Note 1

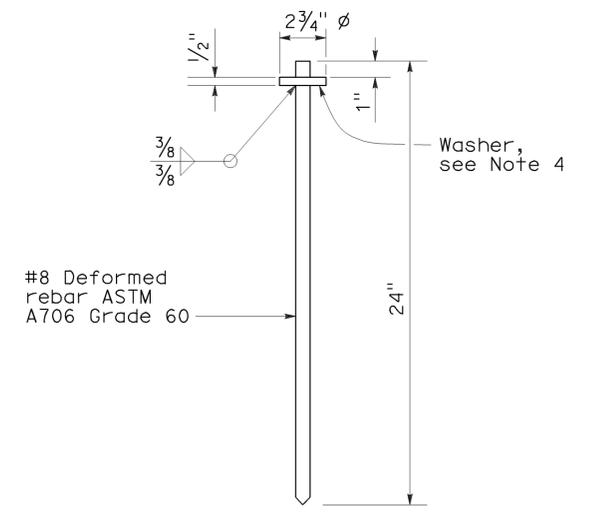
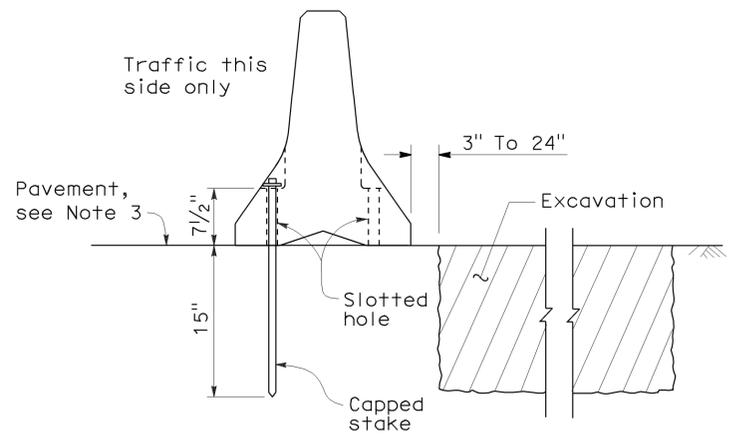


**NOTES:**

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.

2006 NEW STANDARD PLAN NSP T3A

# ELECTROLIERS

STANDARD TYPES	Symbol	Description
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

PROPOSED	EXISTING	Description
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	Mast arm mounting vehicle signal faces, side attachment - 4 signal section
MAS-4C	mas-4C	Mast arm mounting vehicle signal faces, side attachment - 4 signal section
MAS-5A	mas-5A	Mast arm mounting vehicle signal faces, side attachment - 5 signal section
MAS-5B	mas-5B	Mast arm mounting vehicle signal faces, side attachment - 5 signal section
MC	mc	Mercury contactor
M/M	m/m	Multiple to multiple transformer
MT	mt	Conduit with pull wire or rope only
MTG	mtg	Mounting
N	N	Mercury vapor lighting fixture
NC	NC	Neutral (Grounded Conductor)
NO	NO	Normally closed
PB	pb	Normally open
PEC	pec	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	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
11	SD	75	11.0/17.4	45	54

*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 08-01-11

## 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  
DEPARTMENT OF TRANSPORTATION

## ELECTRICAL SYSTEMS (SYMBOLS AND ABBREVIATIONS)

NO SCALE

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

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

2006 REVISED STANDARD PLAN RSP ES-1A

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
11	SD	75	11.0/17.4	46	54

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

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

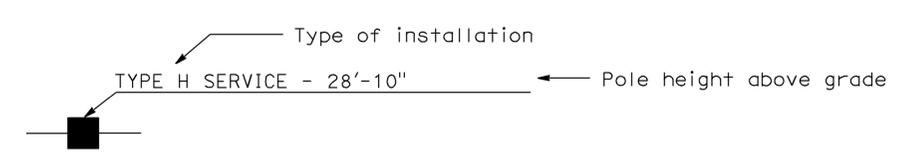
### SIGNAL EQUIPMENT

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

### SERVICE EQUIPMENT

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

### POLE-MOUNTED SERVICE DESIGNATION



### ILLUMINATED OVERHEAD SIGN

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

### SIGNAL EQUIPMENT Cont

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

### NOTES:

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

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

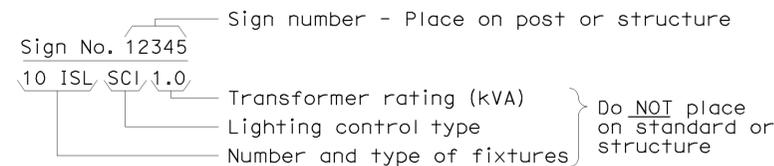
RSP ES-1B DATED OCTOBER 5, 2007 SUPERCEDES STANDARD PLAN ES-1B  
 DATED MAY 1, 2006 - PAGE 401 OF THE STANDARD PLANS BOOK DATED MAY 2006.

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

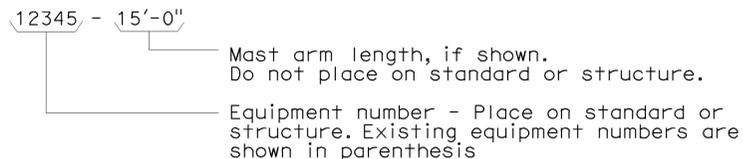
2006 REVISED STANDARD PLAN RSP ES-1B

### EQUIPMENT IDENTIFICATION

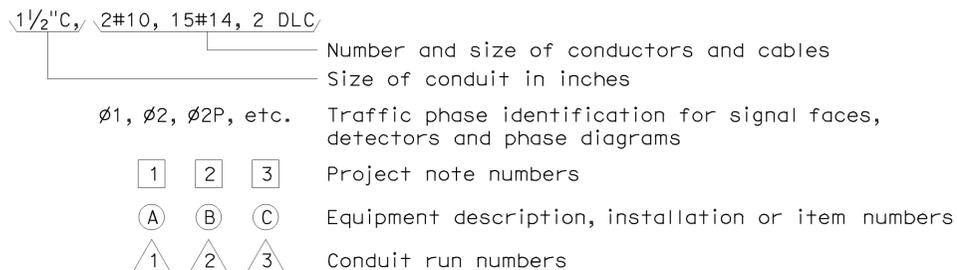
#### ILLUMINATED SIGN IDENTIFICATION NUMBER:



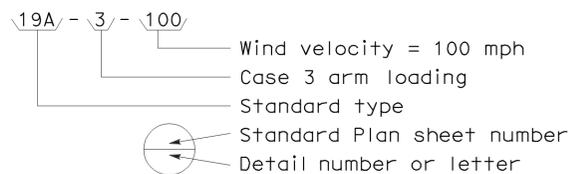
#### ELECTROLIER OR EQUIPMENT IDENTIFICATION NUMBER:



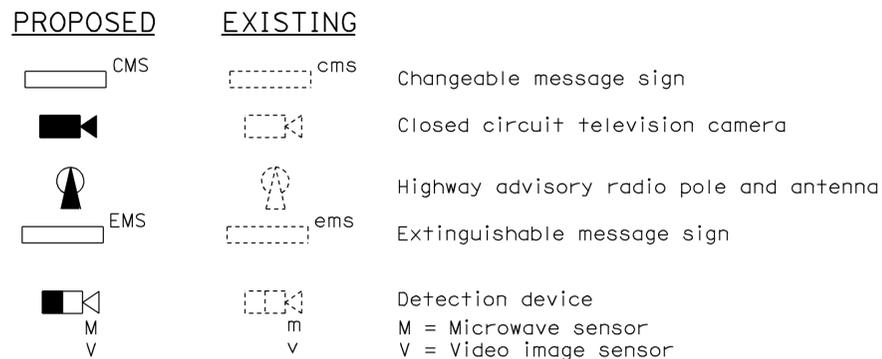
#### CONDUIT AND CONDUCTOR IDENTIFICATION:



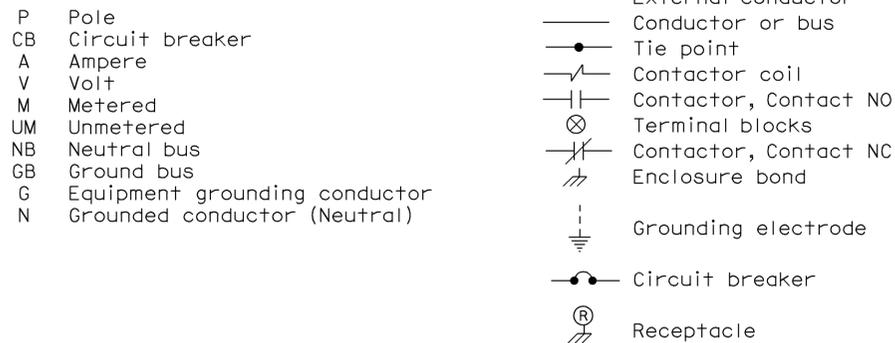
#### SIGNAL AND LIGHTING STANDARD (TYPICAL DESIGNATION):



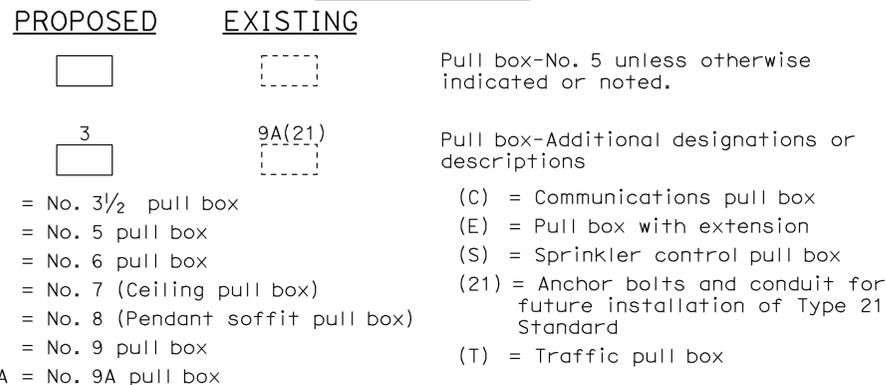
### MISCELLANEOUS EQUIPMENT



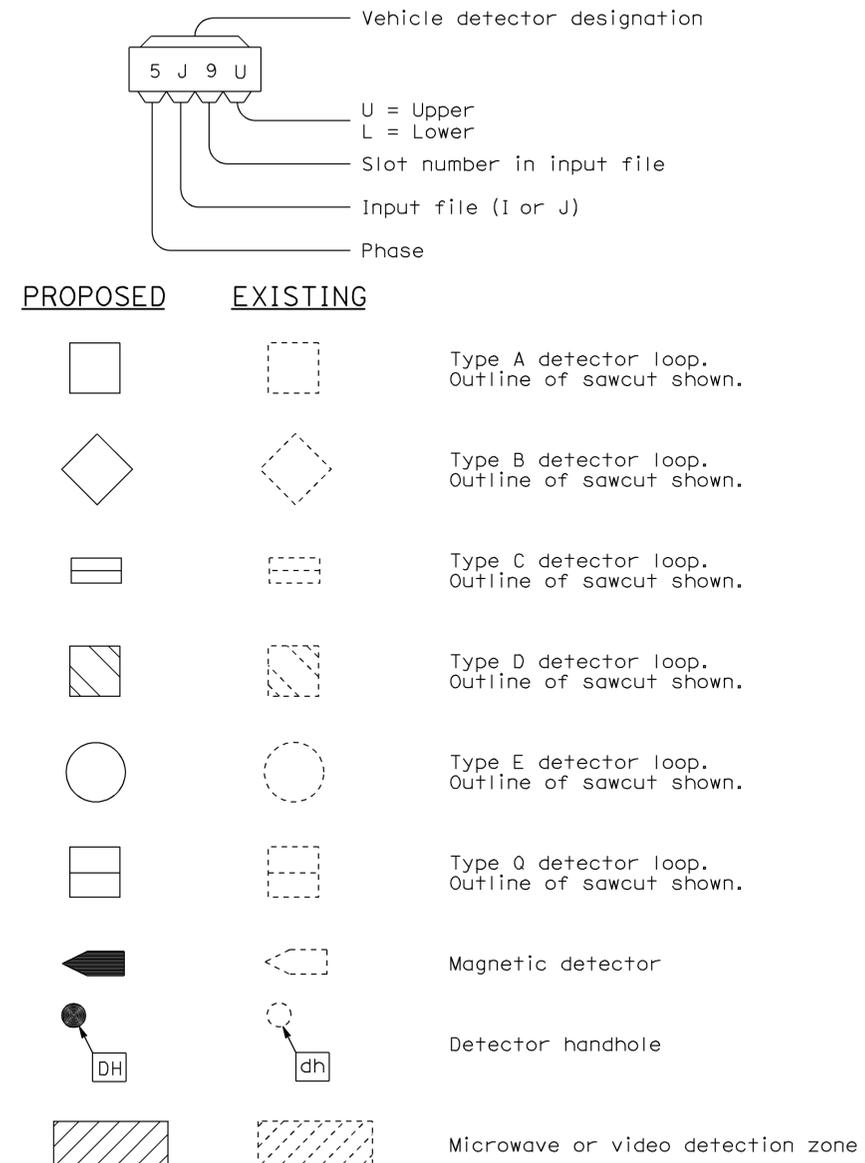
### WIRING DIAGRAM LEGEND



### 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
11	SD	75	11.0/17.4	48	54

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

October 5, 2007  
 PLANS APPROVAL DATE

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

1. Service equipment enclosure and metering equipment shall meet the requirements of the service utility. The meter area shall have a sealable, lockable, weathertight cover that can be removed without the use of tools.
2. Service equipment enclosures shall be factory wired and conform to NEMA standards.
3. Dimensions of service equipment enclosures shall meet the requirements of the service utility.
4. The dead front panels on Type III service equipment enclosures shall have a continuous stainless steel or aluminum piano hinge. The panel in front of the breakers shall be secured with a latch or captive screws. No live parts shall be mounted on the dead front panel.
5. The exterior door shall have provisions for padlocking. The padlock hole shall be a minimum diameter of  $\frac{7}{16}$ ".
6. Enclosures housing transformers of more than one kVA shall have effective screened ventilation louver of not less than 50 square inches. Screen shall be stainless steel No. 304, with a No. 10 size mesh. Framed screen shall be secured with at least four bolts.
7. Fasteners on the exterior of the enclosure shall be vandal-resistant and shall not be removable from the exterior. Exterior screws, nuts, bolts and washers shall be stainless steel.
8. Landing lugs for incoming service conductors shall be compatible with either copper or aluminum conductors sized to suit the conductors shown on the plan. Landing lugs shall be copper or tin-plated aluminum. Neutral bus shall be rated for 125 A and be suitable for copper or aluminum conductors unless otherwise specified. The terminal shall include but not be limited to:
  - a) Incoming terminals (landing lugs)
  - b) Neutral lugs
  - c) Solid neutral terminal strip
9. At least 6 standard single pole circuit breaker spaces,  $\frac{3}{4}$ " nominal, shall be provided for branch circuits. Circuit breaker interiors shall be copper. Interiors of enclosure shall accept plug-in or cable-in/cable-out circuit breakers.
10. Control wiring shall be 600 V, 14 stranded machine tool wire. Where subject to flexing, 19 strand wire shall be used.
11. Main bus shall be rated for 125 A and shall be tin-plated copper.
12. A plastic laminated wiring diagram shall be provided with brass mounting eyelets and attached to the inside of the enclosure and the wiring diagram shall be affixed to the interior with a UL or ETL approved method.
13. An engraved phenolic nameplate on the dead front panel indicating the function of each circuit or device shall be installed with stainless steel rivets or stainless steel screws:
  - a) Adjacent to the breaker or device with character size a minimum of  $\frac{1}{8}$ ".
  - b) At the top of the exterior door panel indicating State system number, voltage level and number of phases with character size a minimum of  $\frac{3}{16}$ ".
14. The plan shows the approximate location of devices within the enclosure. Components may be rearranged, however, the "working" clearances within the service equipment enclosure shall be maintained.
15. In unpaved areas a raised portland cement concrete pad 2'-0" x 4" x width of foundation shall be constructed in front of new service equipment enclosure installation. Pad shall be set to elevation of foundation.
16. Foundation shall extend 2" minimum beyond edge of service equipment enclosure.
17. Internal bus, where shown, is typical only. Alternative design of proposed service equipment enclosure shall be submitted to the Engineer for approval.
18. Plug-in circuit breakers may be mounted in the vertical or horizontal position. Cable-in/cable-out circuit breakers shall be mounted in the vertical position.
19. Type III-AF and Type III-BF service equipment enclosures shall have the meter viewing windows located on the front side of the service equipment enclosures.
20. Type III-AR and Type III-BR service equipment enclosures shall be similarly constructed as Type III-AF and Type III-BF respectively, except the meter viewing windows shall be located on the back side of the service equipment enclosures.
21. Minimum clearance shall be required for front and back of service equipment enclosure per National Electrical Code, Article 110.26, "Spaces About Electric Equipment (600 Volts, Nominal, or Less)."

To accompany plans dated 08-01-11

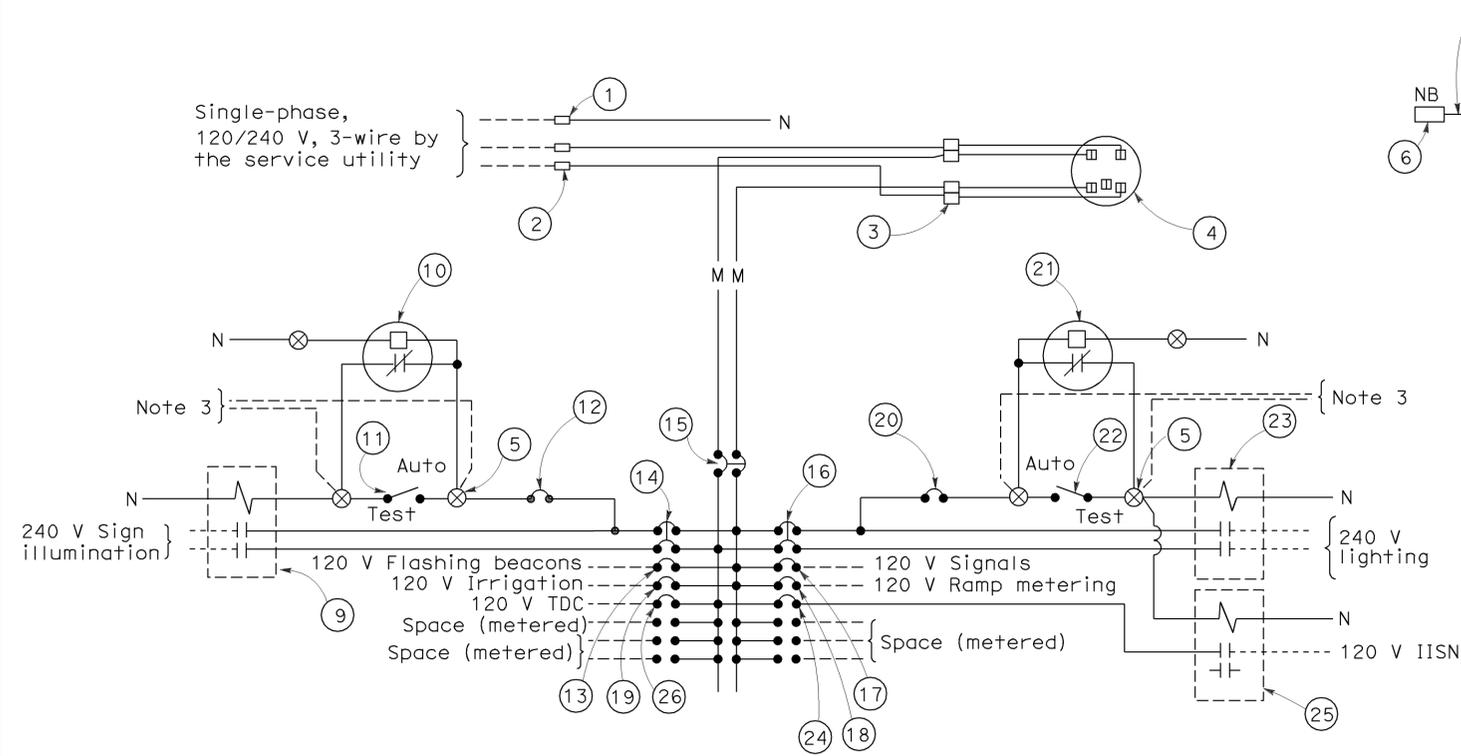
STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS  
 (SERVICE EQUIPMENT NOTES  
 TYPE III SERIES)**

NO SCALE

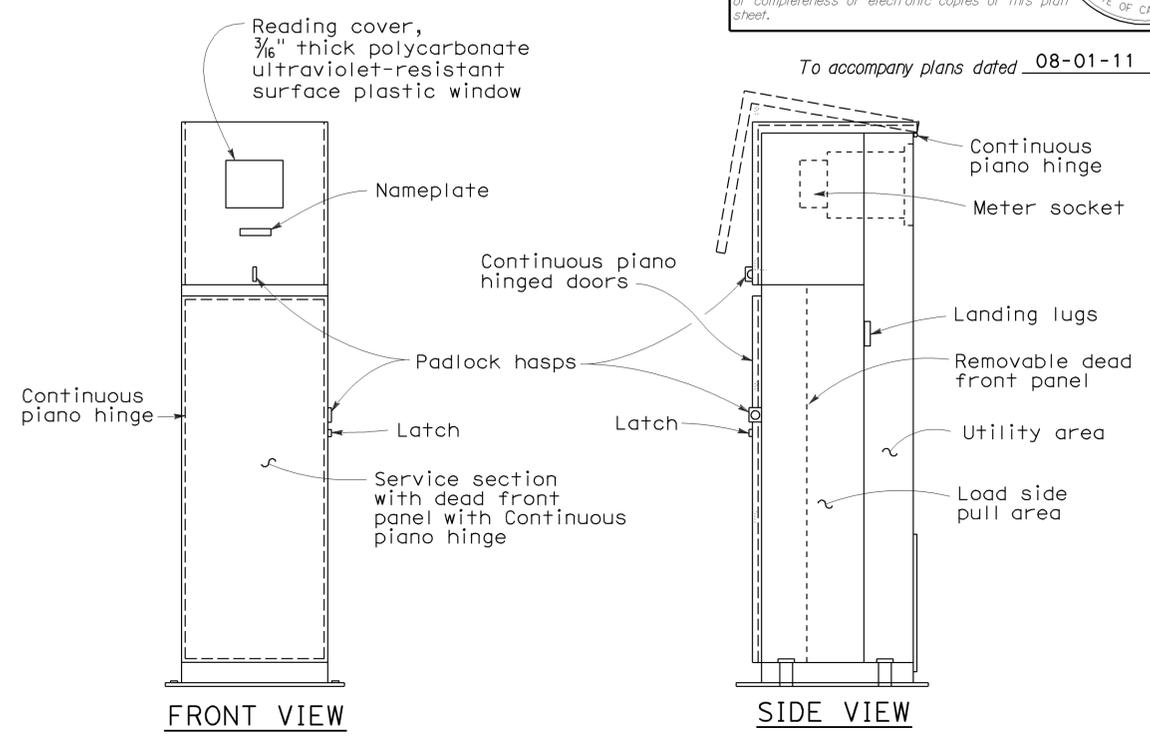
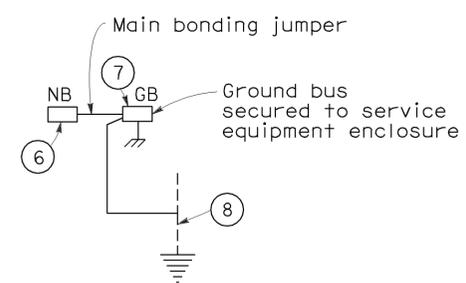
RSP ES-2C DATED OCTOBER 5, 2007 SUPERCEDES STANDARD PLAN ES-2C  
 DATED MAY 1, 2006 - PAGE 405 OF THE STANDARD PLANS BOOK DATED MAY 2006.

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

2006 REVISED STANDARD PLAN RSP ES-2C



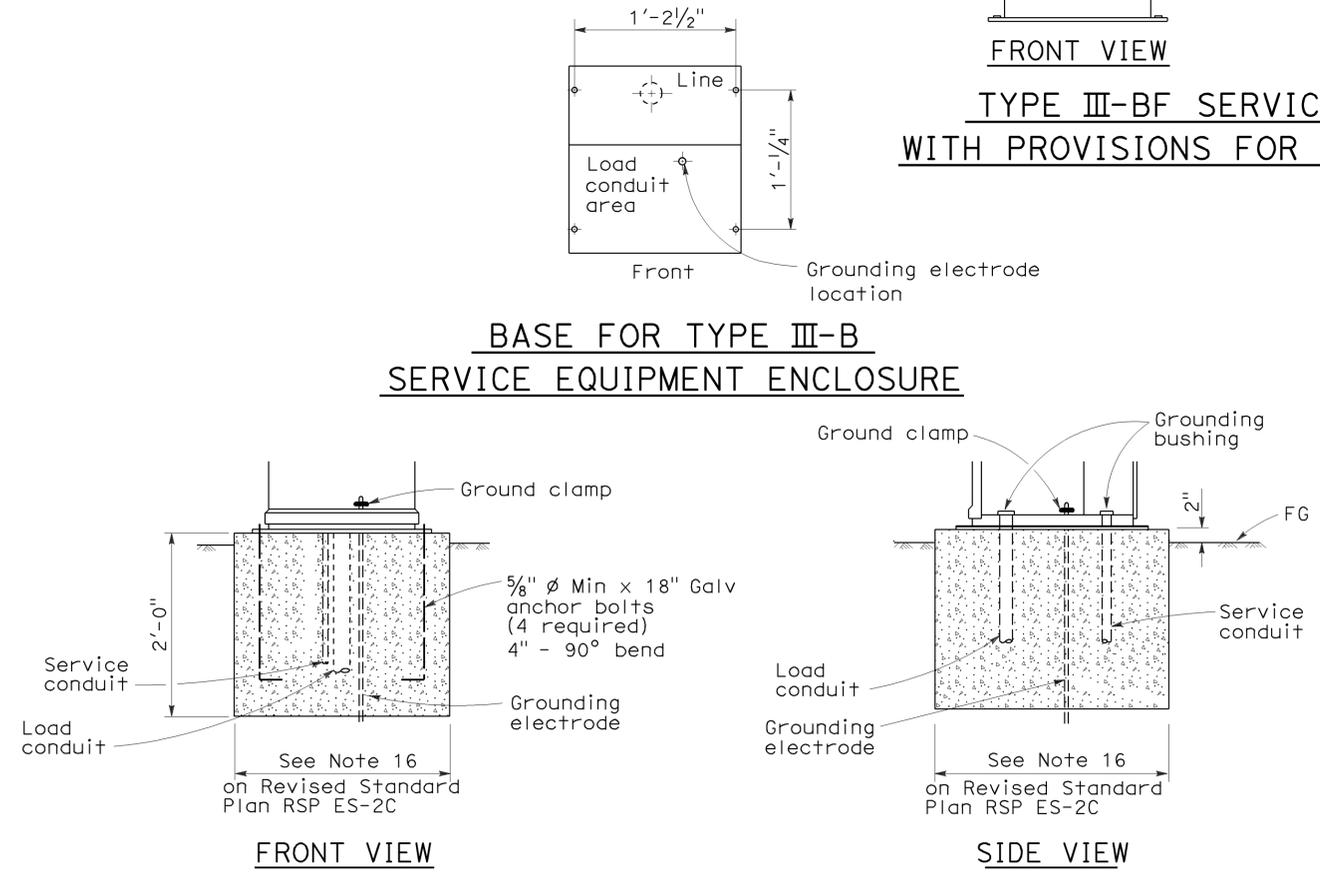
**120/240 V SERVICE WIRING DIAGRAM (TYPICAL)**



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

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

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



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

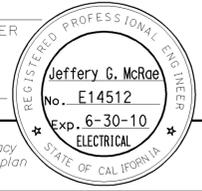
- NOTES: (FOR SERVICE EQUIPMENT ENCLOSURE)**
- Voltage ratings of service equipment shall conform to the service voltages indicated on the plans.
  - Unless otherwise indicated on the plans, service equipment items shall be provided for each service equipment enclosure as shown.
  - Connect to remote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

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

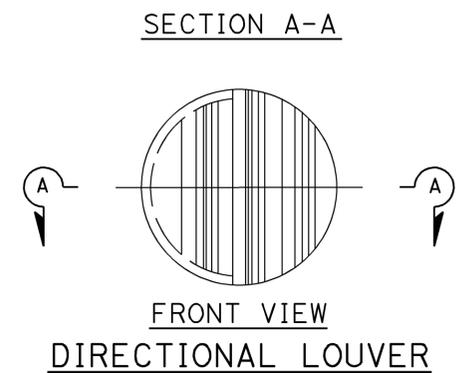
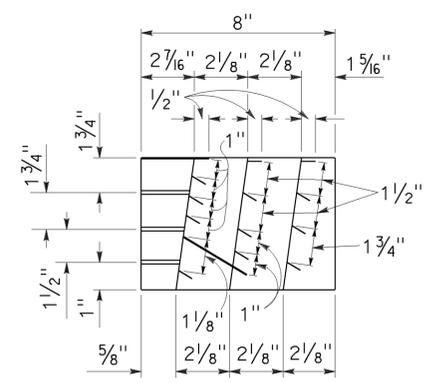
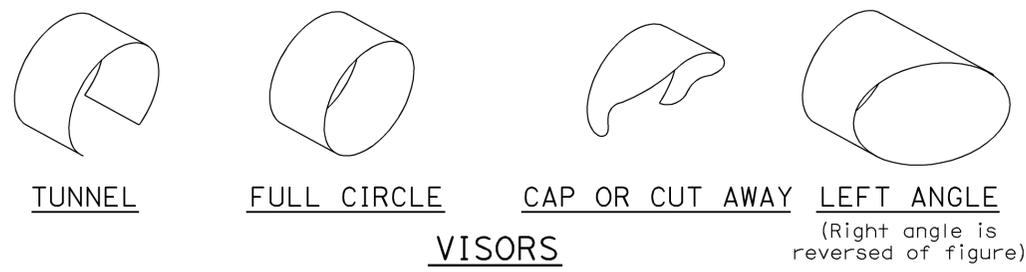
RSP ES-2E DATED OCTOBER 5, 2007 SUPERCEDES STANDARD PLAN ES-2E  
 DATED MAY 1, 2006 - PAGE 407 OF THE STANDARD PLANS BOOK DATED MAY 2006.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
11	SD	75	11.0/17.4	50	54

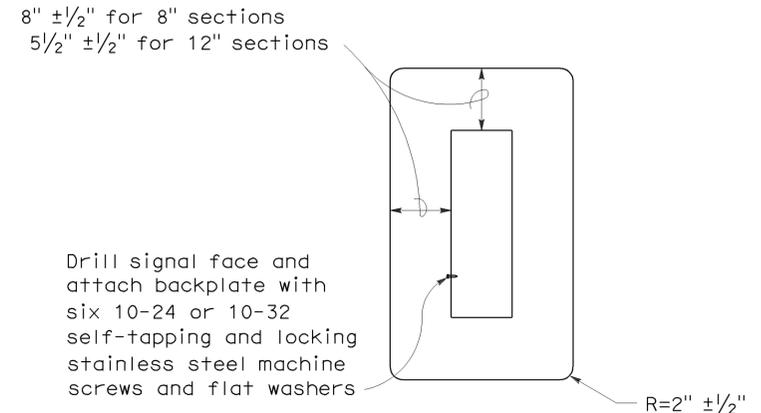
Jeffrey G. McRae  
 REGISTERED ELECTRICAL ENGINEER  
 June 6, 2008  
 PLANS APPROVAL DATE  
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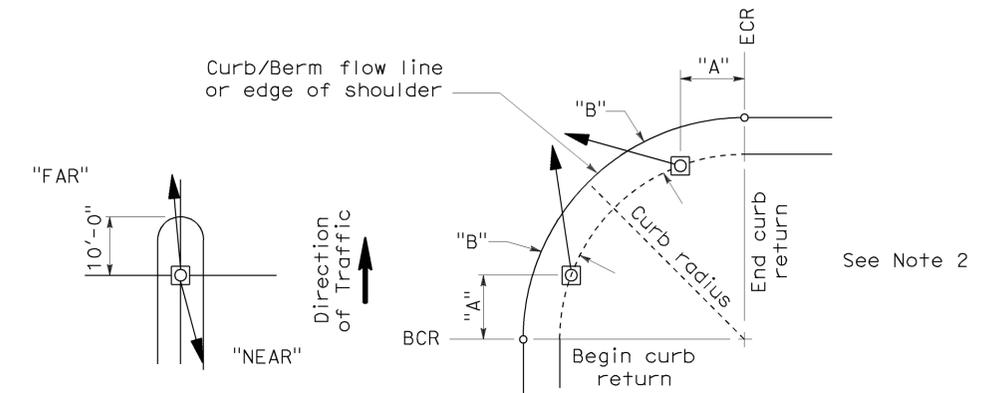
To accompany plans dated 08-01-11



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

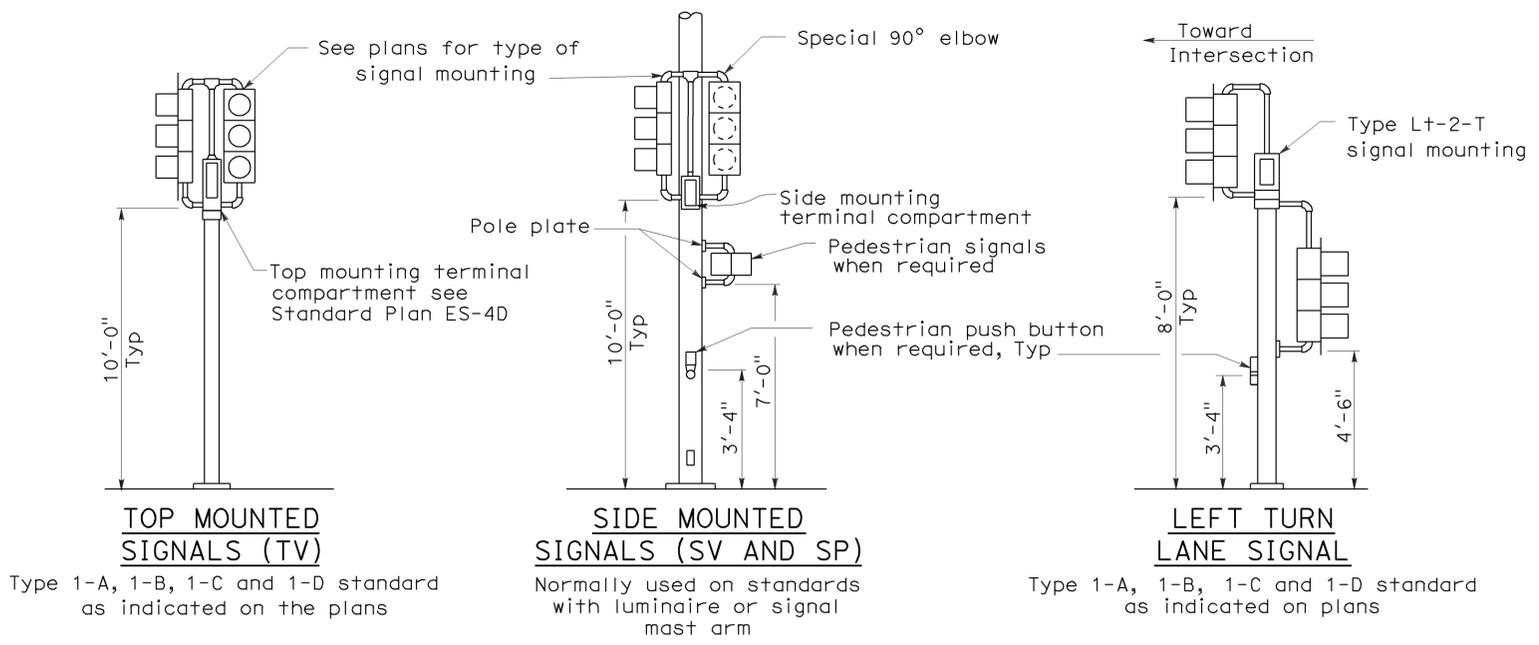


8" AND 12" SECTIONS  
 BACKPLATE  
 1/16" minimum thickness  
 3001-14 aluminum, or plastic when specified

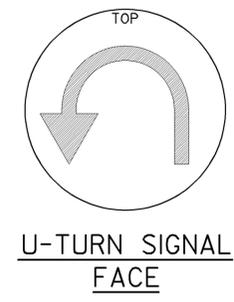


- NOTES:
1. Typical signal pole placement unless dimensioned on plans.
  2. For "A" and "B" dimensions, see Pole Schedule, or as directed by the Engineer.

SIGNAL STANDARD PLACEMENT DIMENSIONS AND EQUIPMENT LOCATIONS



TYPICAL SIGNAL INSTALLATIONS



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**

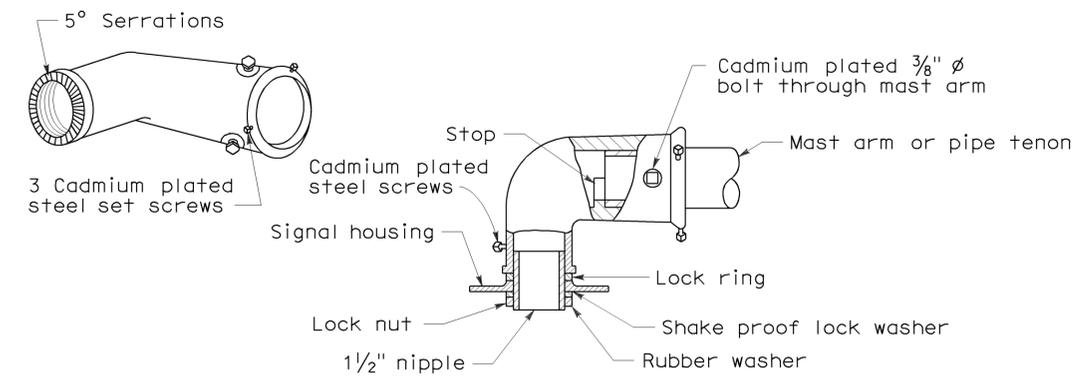
2006 REVISED STANDARD PLAN RSP ES-4C

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
11	SD	75	11.0/17.4	51	54

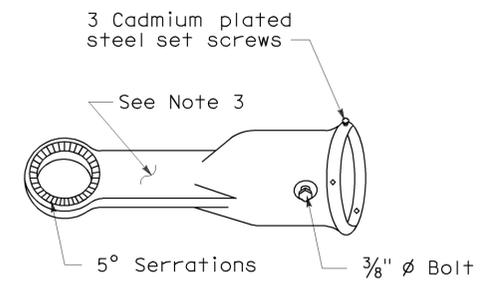
Jeffrey B. McRae  
 REGISTERED ELECTRICAL ENGINEER  
 June 6, 2008  
 PLANS APPROVAL DATE  
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REGISTERED PROFESSIONAL ENGINEER  
 Jeffrey G. McRae  
 No. E14512  
 Exp. 6-30-10  
 ELECTRICAL  
 STATE OF CALIFORNIA

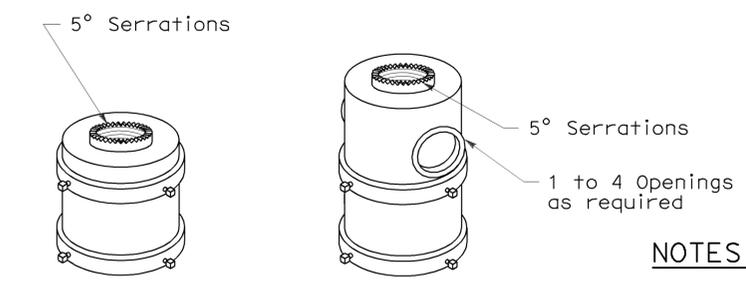
To accompany plans dated 08-01-11



**MAST ARM MOUNTING - TYPE "MAT"**  
For 2 NPS pipe, see Note 1.



**MAST ARM MOUNTING - TYPE "MAS"**  
For 2 NPS pipe. See Note 1.

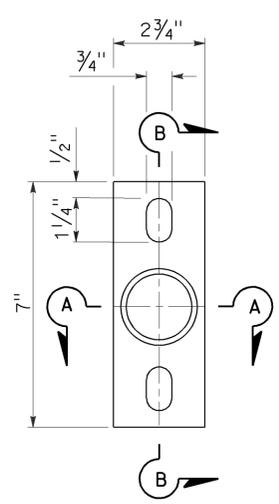


For one mounting For multiple mountings  
**TOP MOUNTINGS**  
For 4 NPS pipe, see Note 2.

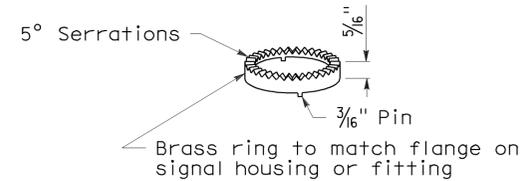
**NOTES:**

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

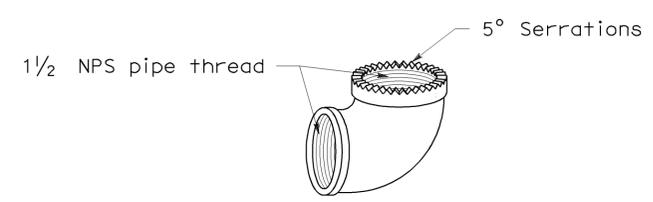
**SIGNAL SLIP FITTERS**



**POLE PLATE**  
For side mountings

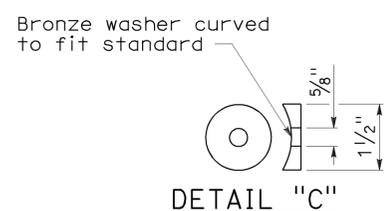


**LOCK RING**  
Use where locking ring is not integral with signal housing or fitting.

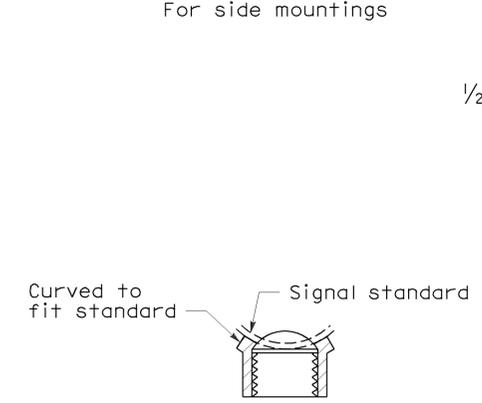


**SPECIAL 90° ELBOW**  
One for each signal head, except those with special slip fitter mounting

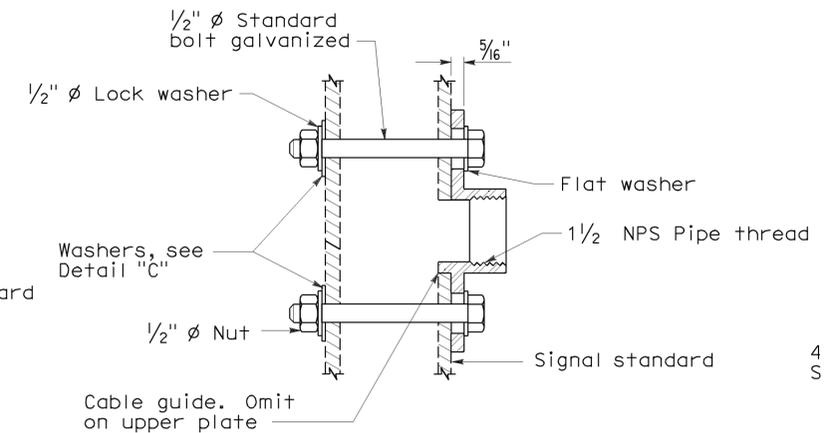
**MISCELLANEOUS MOUNTING HARDWARE**



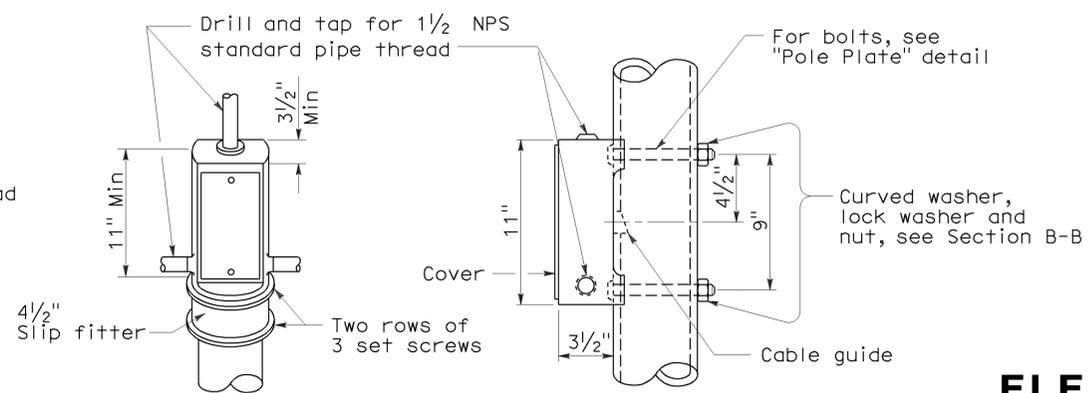
**DETAIL "C"**



**SECTION A-A**



**SECTION B-B**



**TOP MOUNTING**  
**SIDE MOUNTING**  
**TERMINAL COMPARTMENTS**

**ELECTRICAL SYSTEMS (SIGNAL HEADS AND MOUNTINGS)**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

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

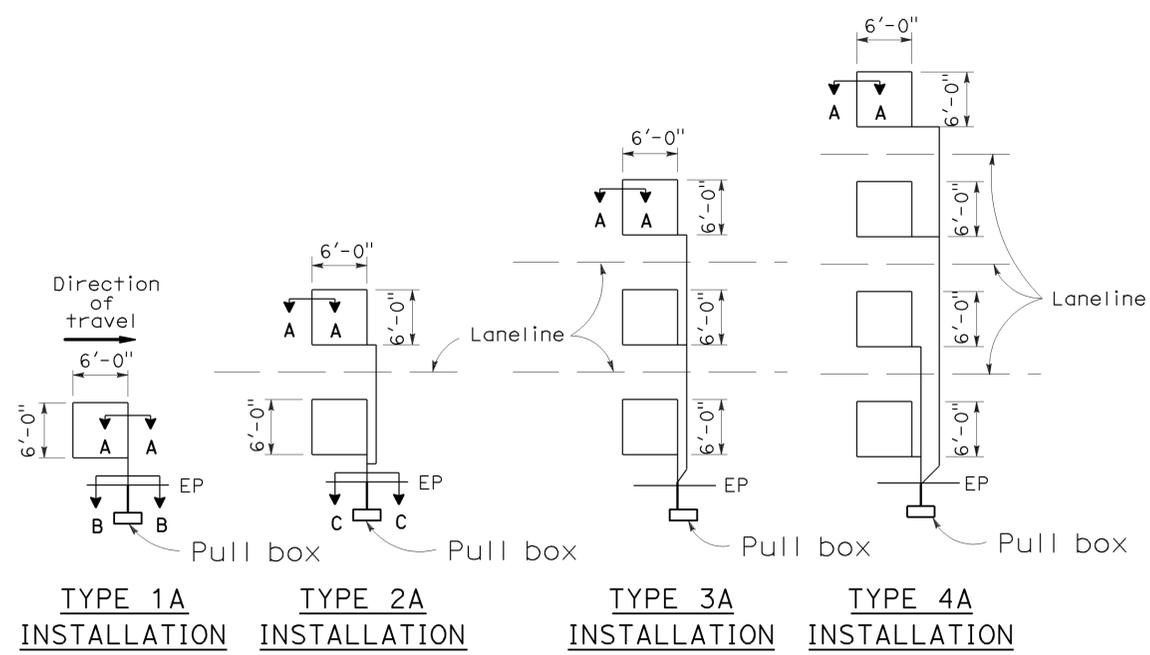
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
11	SD	75	11.0/17.4	52	54

*Jeffrey G. McRae*  
 REGISTERED ELECTRICAL ENGINEER  
 October 5, 2007  
 PLANS APPROVAL DATE  
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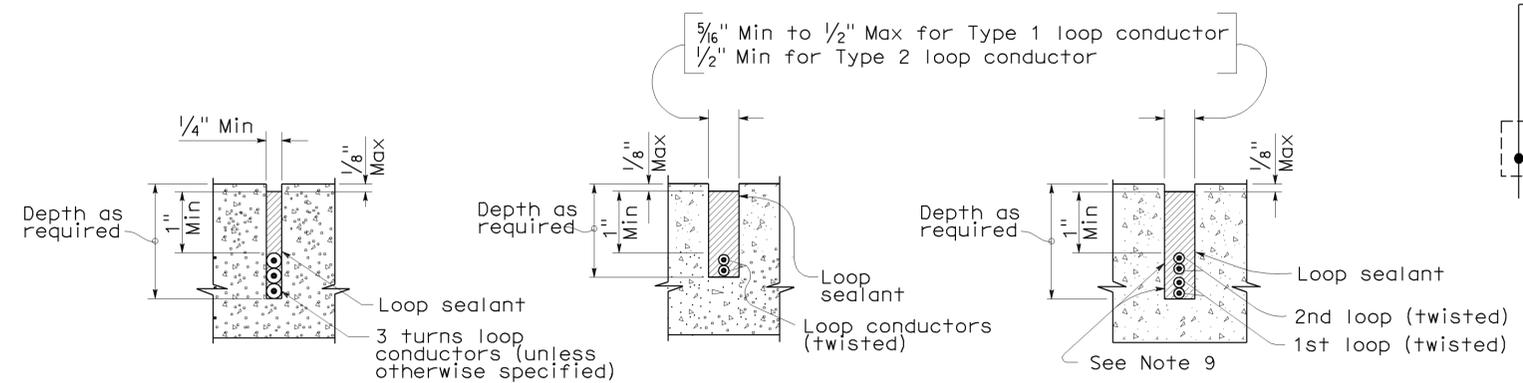
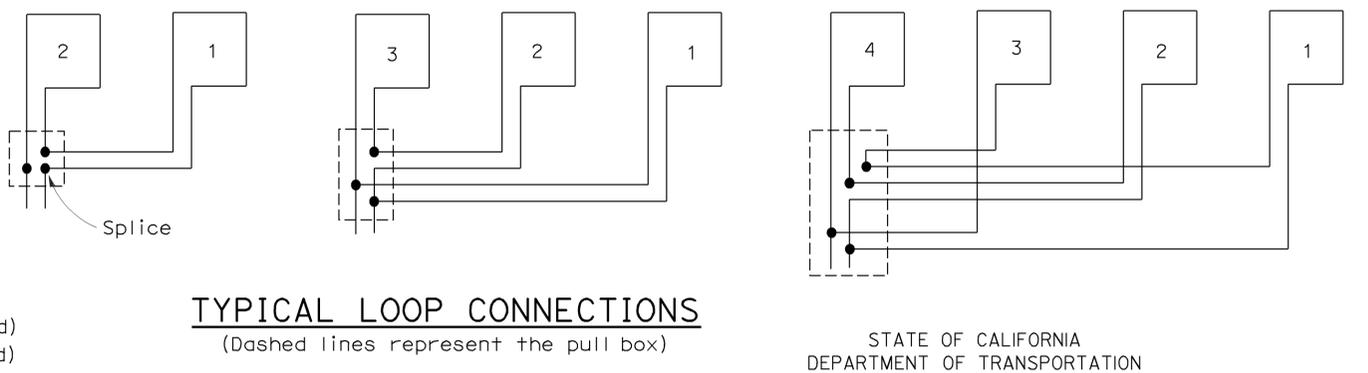
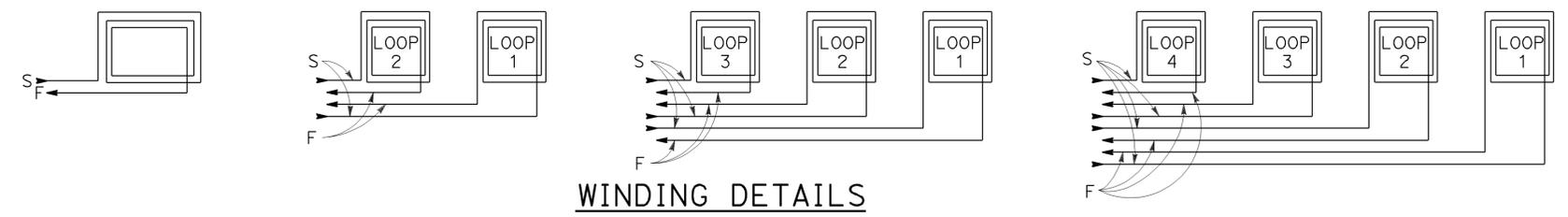
To accompany plans dated 08-01-11

## LOOP INSTALLATION PROCEDURE

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



- 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)



## 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**

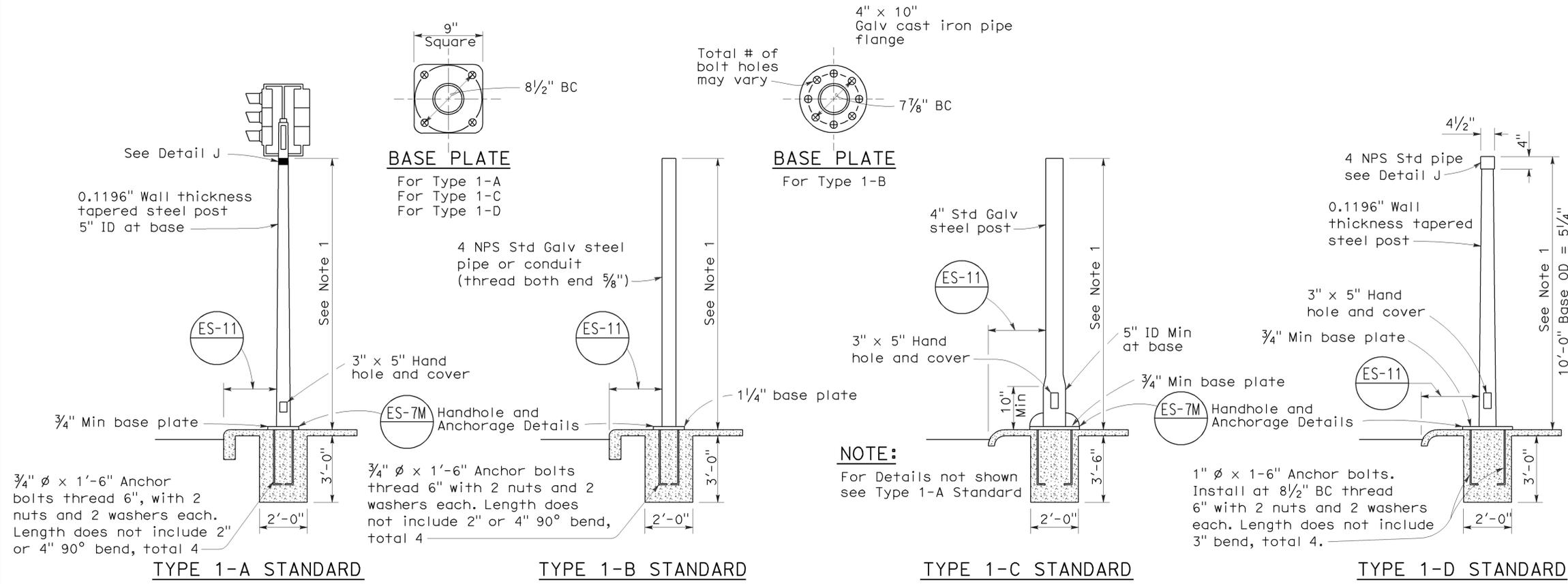
2006 REVISED STANDARD PLAN RSP ES-5A

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
11	SD	75	11.0/17.4	53	54

Stanley P. Johnson  
 REGISTERED CIVIL ENGINEER  
 October 5, 2007  
 PLANS APPROVAL DATE  
 The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

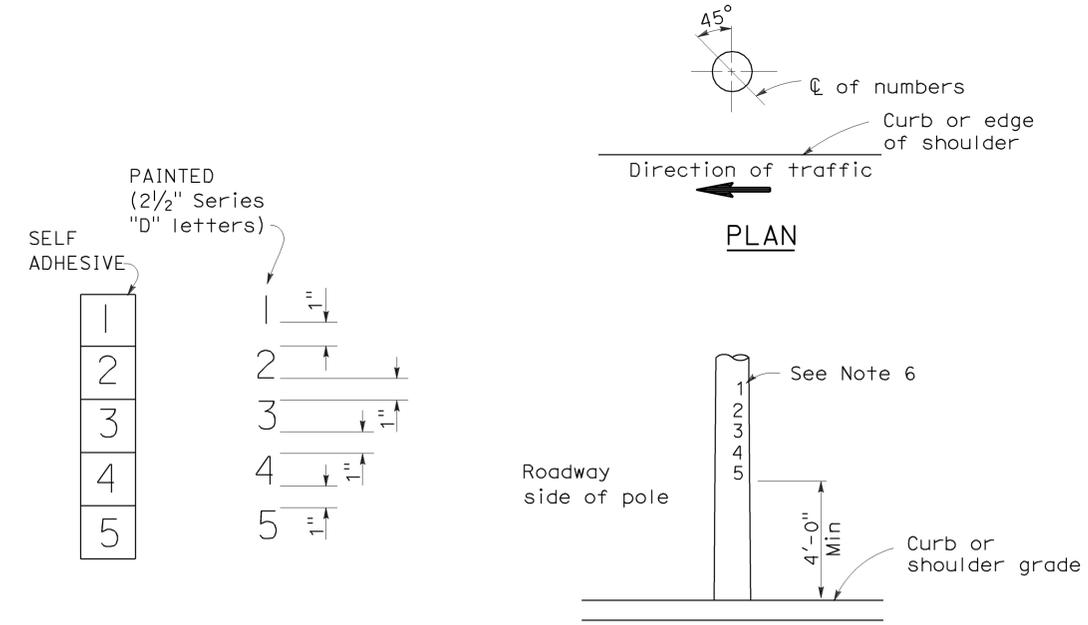
REGISTERED PROFESSIONAL ENGINEER  
 Stanley P. Johnson  
 No. C57793  
 Exp. 3-31-08  
 CIVIL  
 STATE OF CALIFORNIA

To accompany plans dated 08-01-11

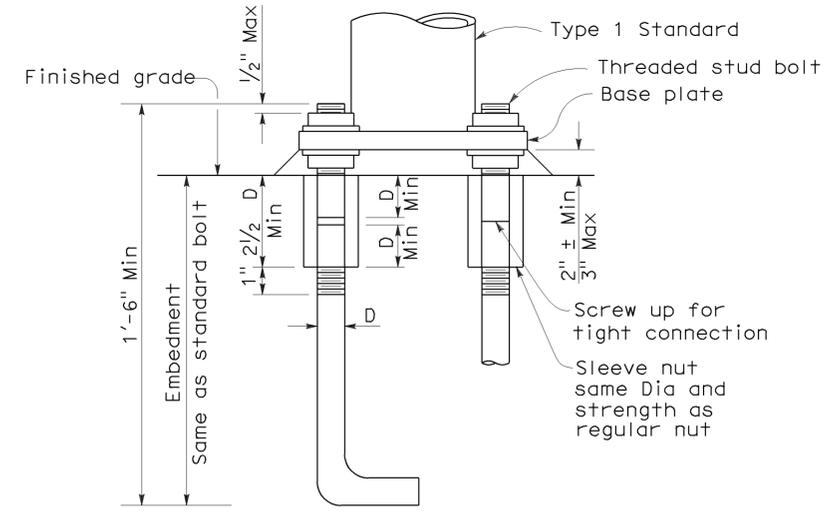


- NOTES:**
- Standards shall be 10'-0" ± 2" for vehicle signals and 7'-0" ± 2" for pedestrian signals unless otherwise noted on plans.
  - Top of standards shall be 4 1/2" OD.
  - Conduits shall extend 2" maximum above finished surface of foundation and for Types 1-A, 1-C and 1-D shall be sloped toward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

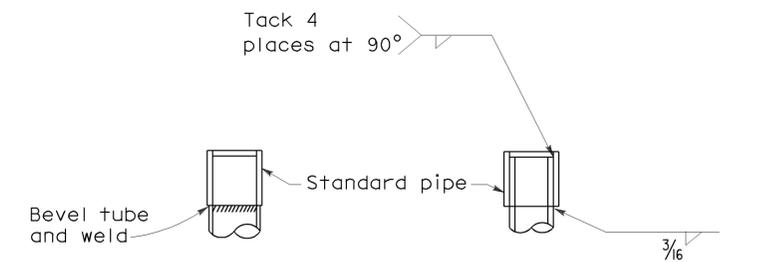


**LOCATION OF EQUIPMENT NUMBERS ON STANDARDS AND POSTS**



**ANCHOR BOLTS WITH SLEEVE NUTS**

Sleeve nuts to be used only when shown or specified on Project Plans  
 D = Diameter of anchor bolt



**DETAIL J**  
 Tube may be inserted into pipe or butted as required

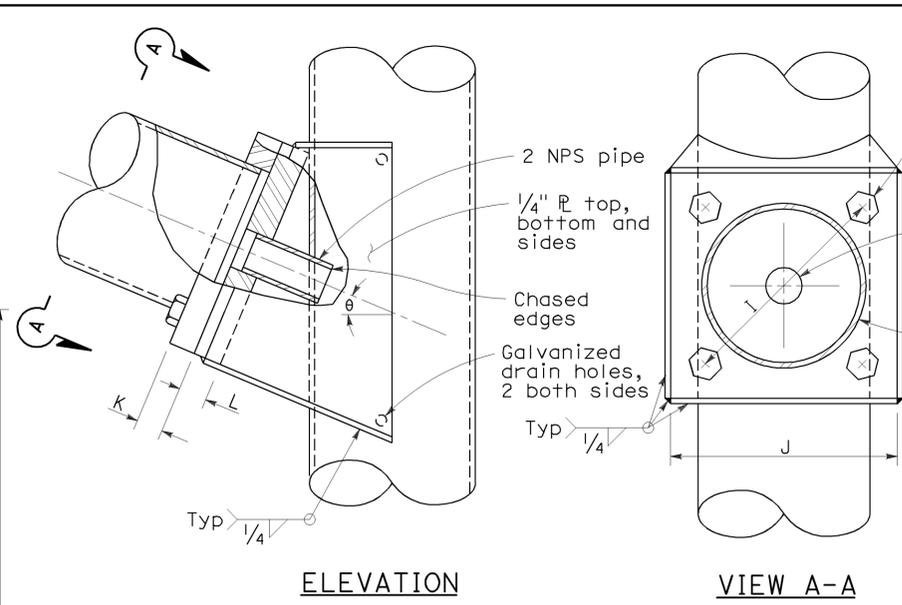
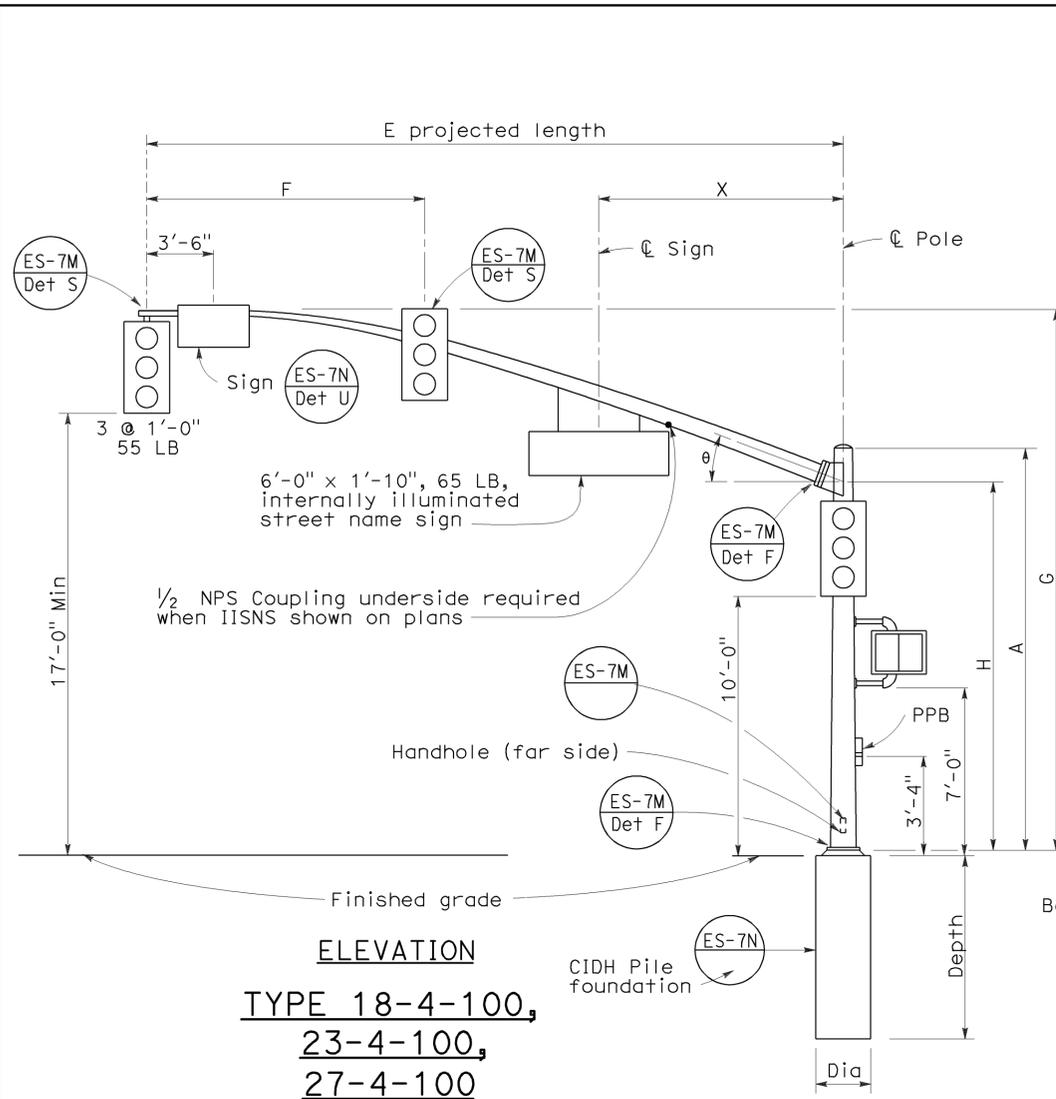
STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS (SIGNAL AND LIGHTING STANDARD TYPE 1 STANDARD AND EQUIPMENT NUMBERING)**

NO SCALE

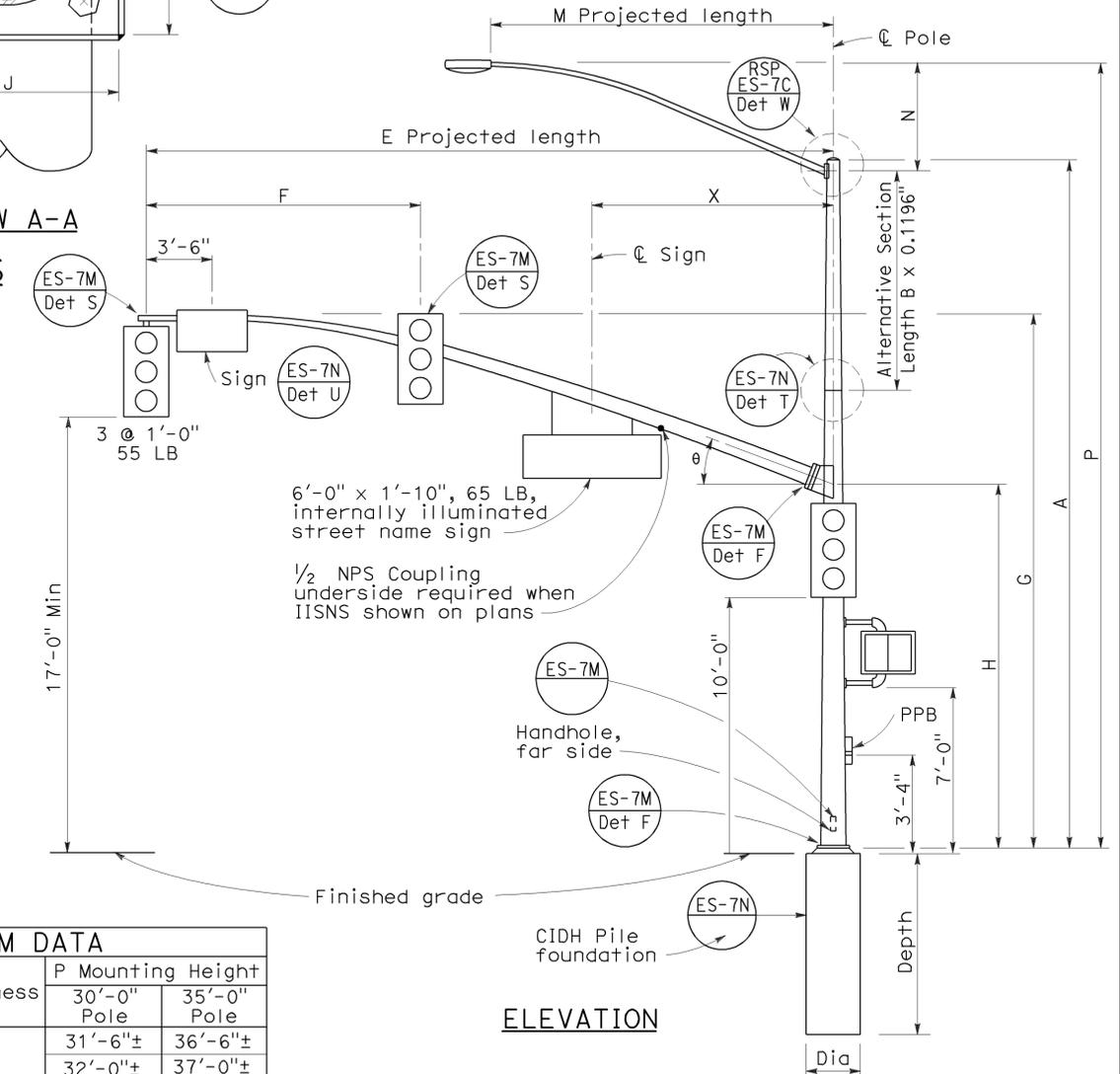
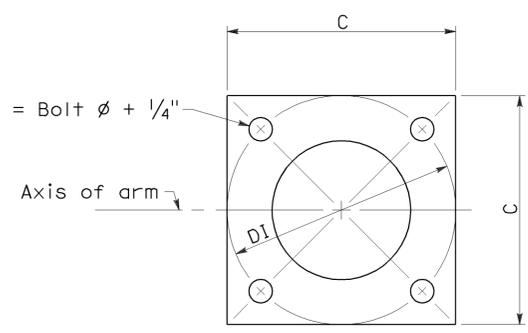
RSP ES-7B DATED OCTOBER 5, 2007 SUPERCEDES STANDARD PLAN ES-7B DATED MAY 1, 2006 - PAGE 438 OF THE STANDARD PLANS BOOK DATED MAY 2006.

**REVISED STANDARD PLAN RSP ES-7B**

2006 REVISED STANDARD PLAN RSP ES-7B



**SIGNAL ARM CONNECTION DETAILS**



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

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

Pole Type	Load Case	Wind Velocity mph	A Height		Min OD	Thickness	Alternative Section				
			Base	Top			B Length	Bottom	Top		
18-4-100	4	100	17'-0"	12"	12"	0.2391"	None	9 3/8"	8"		
19-4-100			30'-0"				10'-0"			8"	
19A-4-100			35'-0"				15'-0'				7 5/16"
23-4-100			17'-0"				None				9"
24-4-100			30'-0"				10'-0"				8"
24A-4-100			35'-0"	15'-0"	7 5/16"						
26-4-100			30'-0"	12 1/2"	0.3125"	10'-0"	9 3/4"	8 3/8"			
26A-4-100			35'-0"			15'-0"			7 5/16"		
27-4-100			17'-0"			None			9 3/4"		

C	D1 Bolt Circle	Thickness	Anchor Bolts		Luminaire Arm	Signal Arm	CIDH PILE FOUNDATION			
			Size	Size			Dia	Depth	Reinforced	
1'-6"	1'-6"	1 1/2"	2" $\phi$ x 42" x 6"	None	None	25'-0", 30'-0"	3'-0"	9'-0"	Yes	
										6'-15' 12'-0"
										6'-15' 15'-0"
										None
										6'-15' 12'-0"
										6'-15' 15'-0"
										6'-15' 12'-0"
										6'-15' 15'-0"
										None
										None

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS**  
**(SIGNAL AND LIGHTING STANDARD**  
**CASE 4 ARM LOADING**  
**WIND VELOCITY=100 MPH**  
**ARM LENGTHS 25' TO 45')**  
 NO SCALE  
 RSP ES-7F DATED OCTOBER 5, 2007 SUPERCEDES RSP ES-7F DATED NOVEMBER 17, 2006 AND STANDARD PLAN ES-7F DATED MAY 1, 2006 - PAGE 442 OF THE STANDARD PLANS BOOK DATED MAY 2006.

2006 REVISED STANDARD PLAN RSP ES-7F