

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	78	R17.0/R17.4	1	50



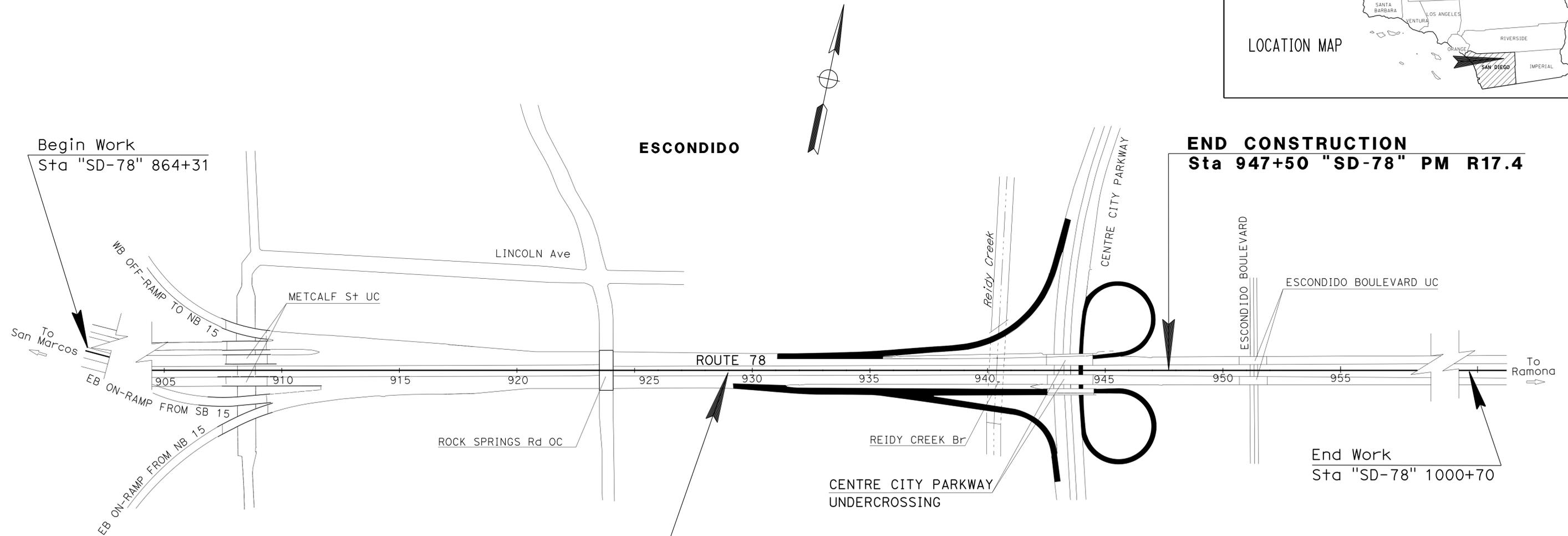
STATE OF CALIFORNIA  
**DEPARTMENT OF TRANSPORTATION**  
**PROJECT PLANS FOR CONSTRUCTION ON**  
**STATE HIGHWAY**  
**IN SAN DIEGO COUNTY**  
**IN ESCONDIDO FROM 0.3 MILE WEST TO 0.1 MILE EAST**  
**OF CENTRE CITY PARKWAY UNDERCROSSING**

**INDEX OF PLANS**

SHEET No.	DESCRIPTION
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4-5	LAYOUTS
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10	CONSTRUCTION AREA SIGNS
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TO BE SUPPLEMENTED BY STANDARD PLANS DATED 2010

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



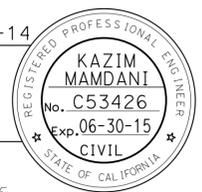
PROJECT MANAGER  
**KAZIM MAMDANI**  
 DESIGN ENGINEER  
**AJMAL ZULALI**

**BEGIN CONSTRUCTION**  
**Sta 929+96 "SD-78" PM R17.0**

**END CONSTRUCTION**  
**Sta 947+50 "SD-78" PM R17.4**

End Work  
**Sta "SD-78" 1000+70**

*K.A. MAMDANI* 02-10-14  
 PROJECT ENGINEER DATE  
 REGISTERED CIVIL ENGINEER



February 24, 2014  
 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."

NO SCALE

CONTRACT No.	<b>11-416404</b>
PROJECT ID	<b>1113000058</b>

DATE PLOTTED => 03-MAR-2014  
 TIME PLOTTED => 09:39  
 LAST REVISION: 02-26-14

**NOTES:**

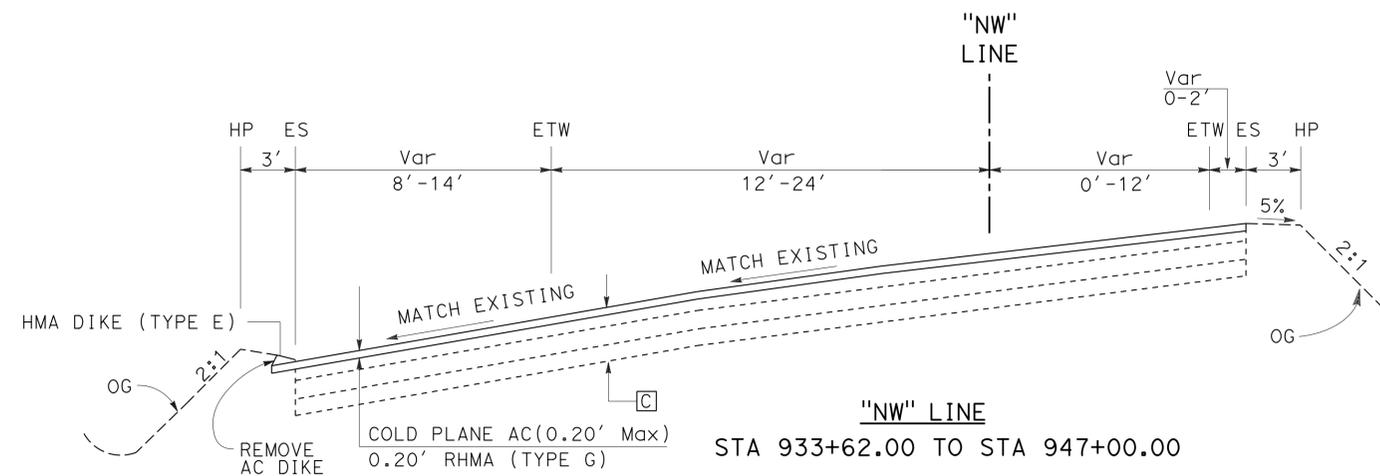
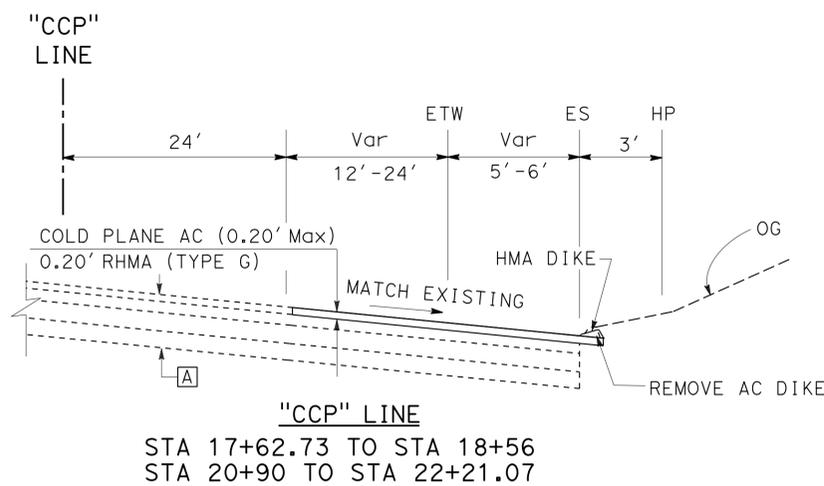
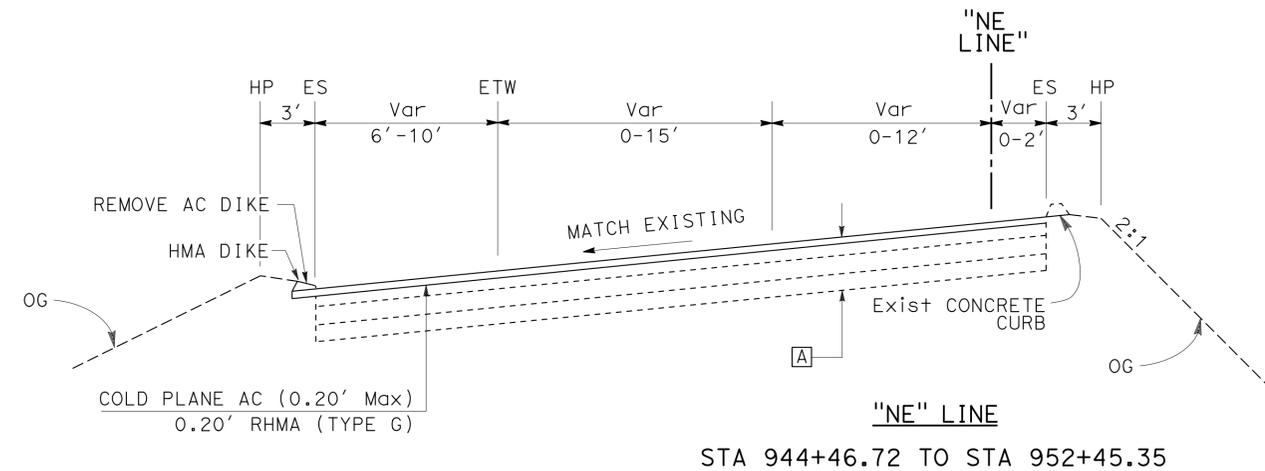
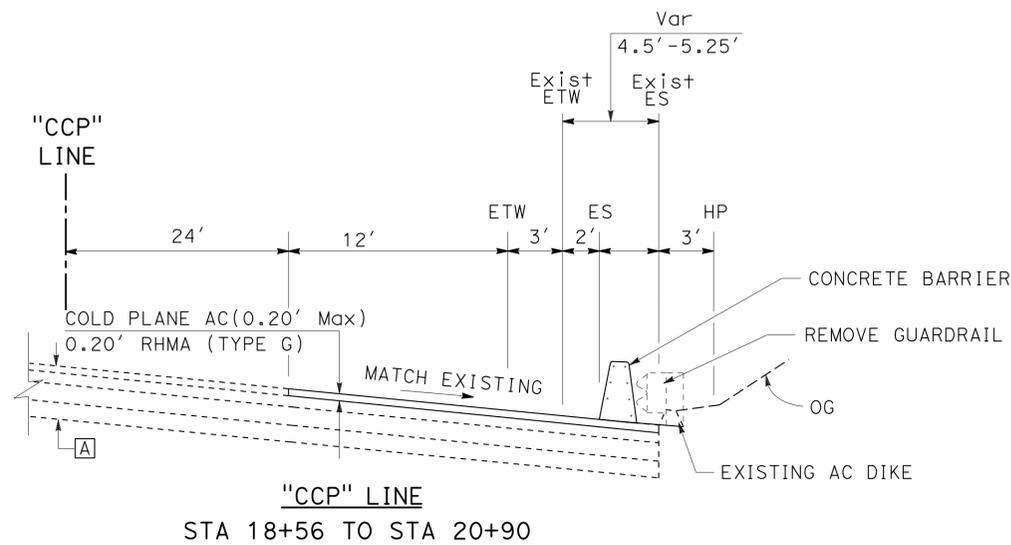
- DIMENSIONS OF THE PAVEMENT STRUCTURES (STRUCTURAL SECTIONS) ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.
- FOR DIKE, CONCRETE CURB & CONCRETE BARRIER LOCATIONS SEE LAYOUT SHEETS AND SUMMARY OF QUANTITY SHEETS.

DESIGN DESIGNATION					
LOCATION	ADT (2035)	DHV	D	T	V
ROUTE 78 WB	41,389	5,410	55.3%	5.3%	65 MPH
ROUTE 78 EB	33,503	5,410	55.3%	5.3%	65 MPH

PAVEMENT CLIMATE REGION  
SOUTH COAST

**EXISTING STRUCTURAL SECTION**

SECTION	AC (TYPE B)	AB	AS
A	0.50'	0.70'	1.00'
B	0.35'	0.70'	1.00'
C	0.40'	0.70'	1.00'



**TYPICAL CROSS SECTIONS**

NO SCALE

**X-1**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
PROJECT DEVELOPMENT  
FUNCTIONAL SUPERVISOR: KAZIM MAMDANI  
CALCULATED/DESIGNED BY: KAZIM MAMDANI  
CHECKED BY:  
REVISOR: AJMAL ZULALI  
DATE: 02-24-14  
REVISOR: KAZIM MAMDANI  
DATE: 02-24-14





Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	78	R17.0/R17.4	5	50

K.A. MAMDANI 02-10-14	
REGISTERED CIVIL ENGINEER	DATE
02-24-14	
PLANS APPROVAL DATE	

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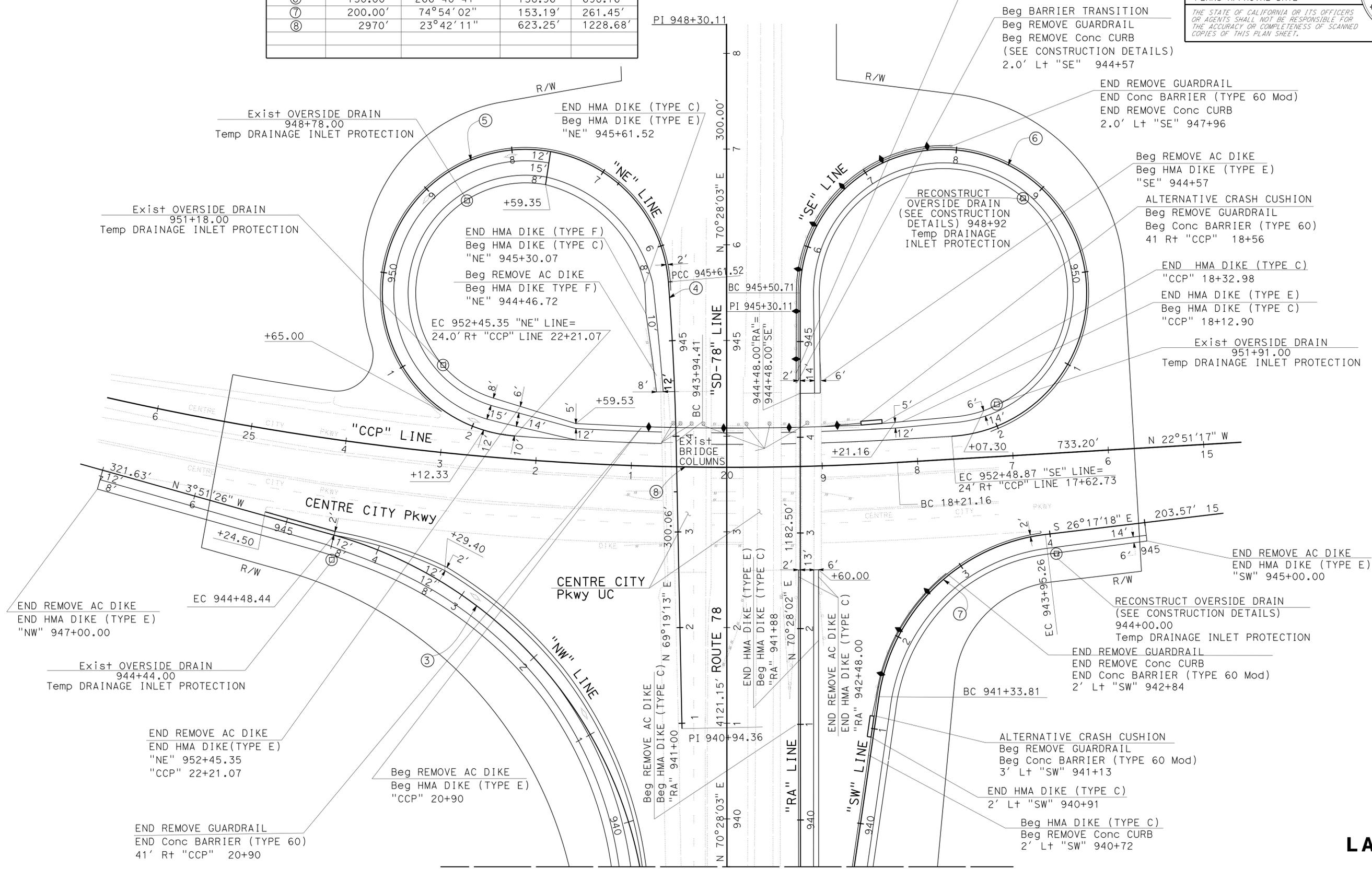
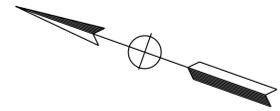


**NOTE:**  
 1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

**CURVE DATA**

No.	R	Δ	T	L
③	450.00'	69°59'13"	315.02'	549.67'
④	3000'	03°11'29"	83.57'	167.10'
⑤	150.00'	261°12'26"	174.98'	683.83'
⑥	150.00'	266°40'41"	158.96'	698.16'
⑦	200.00'	74°54'02"	153.19'	261.45'
⑧	2970'	23°42'11"	623.25'	1228.68'

**ESCONDIDO**



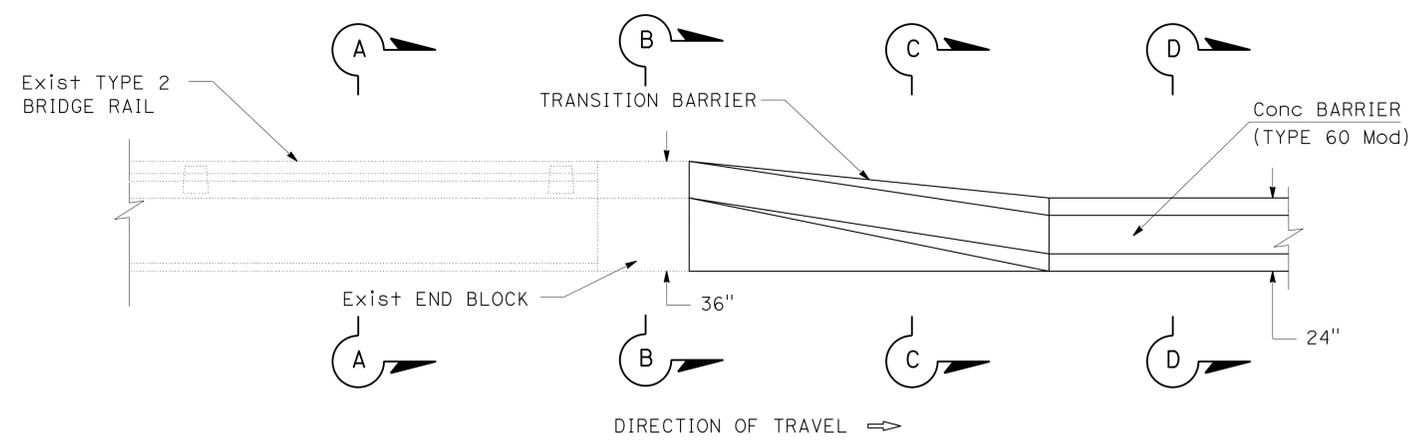
MATCH LINE (L-1)

SCALE: 1" = 50'

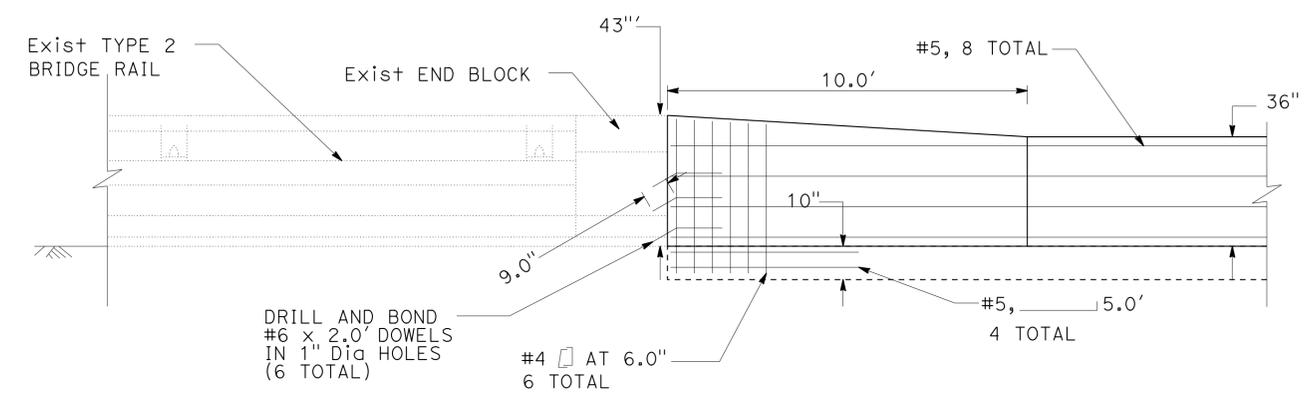
**LAYOUT L-2**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	REVISOR	DATE
<b>Caltrans</b> PROJECT DEVELOPMENT	KAZIM MAMDANI	AMMAL ZULALI	KAZIM MAMDANI
	KAZIM MAMDANI		
	CHECKED BY	DESIGNED BY	

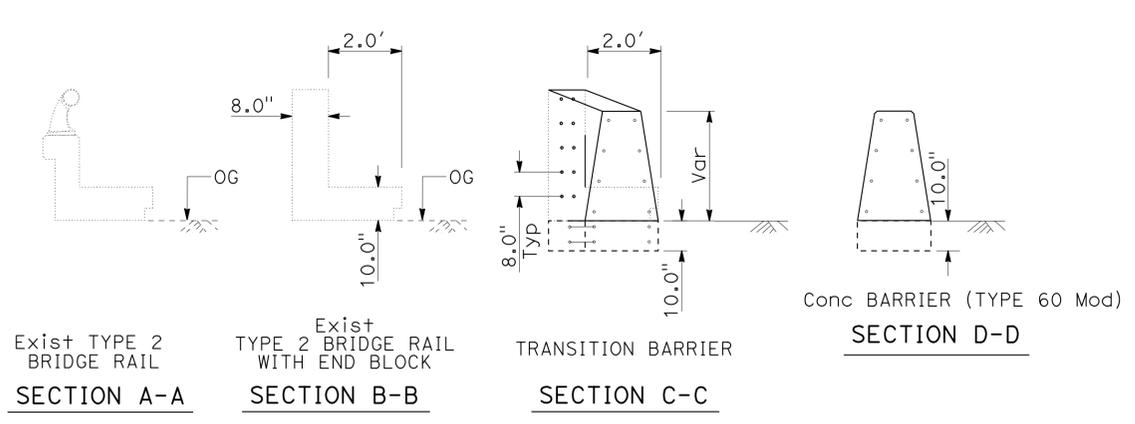
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	78	R17.0/R17.4	6	50
K.A. Mamdani			02-10-14	REGISTERED CIVIL ENGINEER DATE	
02-24-14			PLANS APPROVAL DATE		
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					



PLAN

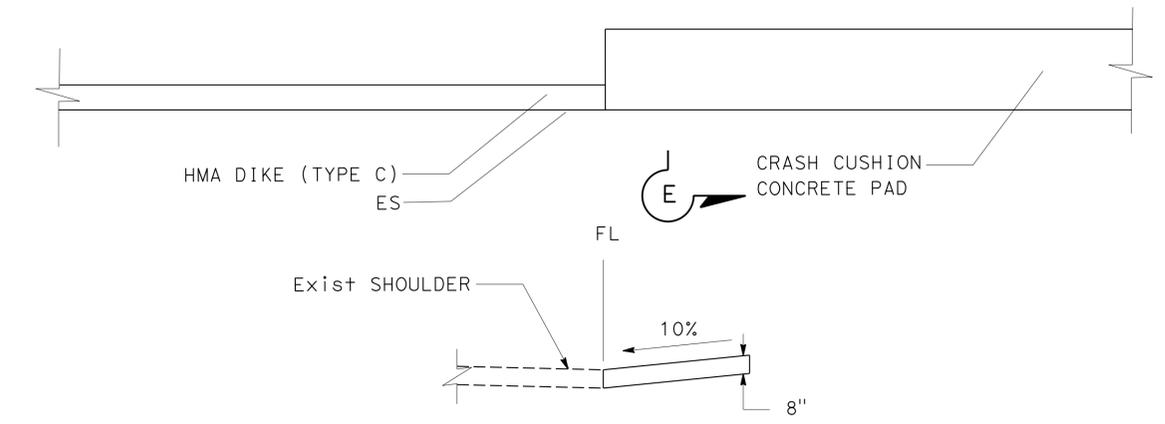


ELEVATION



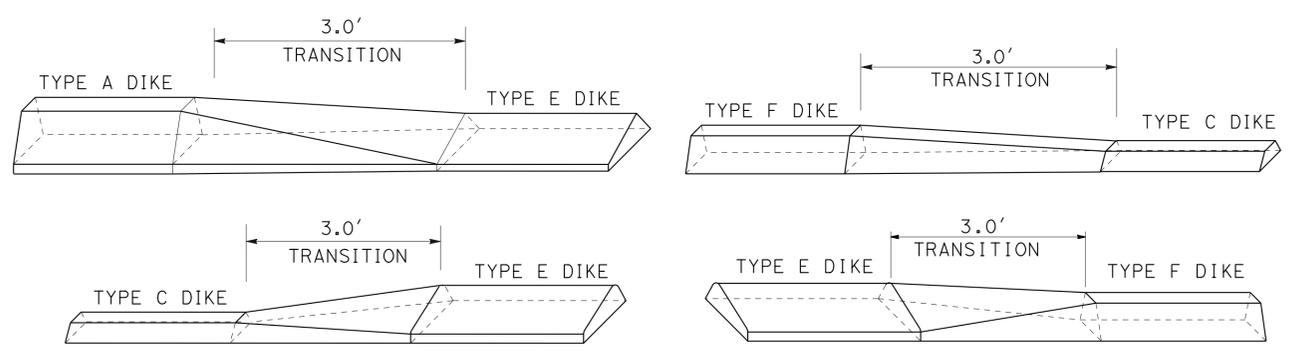
SECTION A-A      SECTION B-B      SECTION C-C      SECTION D-D

**TRANSITION Conc BARRIER TYPE 60 Mod TO TYPE 2 BRIDGE RAIL WITH END BLOCK**



SECTION E-E

**CONCRETE PAD FOR AIT CRASH CUSHION**



**DIKE TRANSITION**

**CONSTRUCTION DETAILS**

NO SCALE

C-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** PROJECT DEVELOPMENT  
 FUNCTIONAL SUPERVISOR: KAZIM MAMDANI  
 CALCULATED/DESIGNED BY: KAZIM MAMDANI  
 CHECKED BY: KAZIM MAMDANI  
 REVISED BY: KAZIM MAMDANI  
 DATE REVISED: 02-24-14

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	78	R17.0/R17.4	7	50

K.A. Mamdani		02-10-14
REGISTERED CIVIL ENGINEER		DATE
02-24-14		
PLANS APPROVAL DATE		

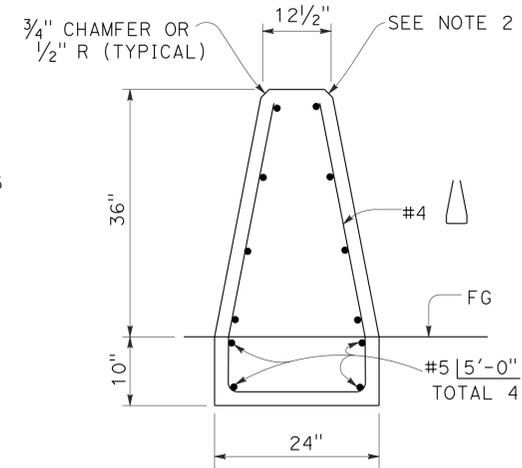
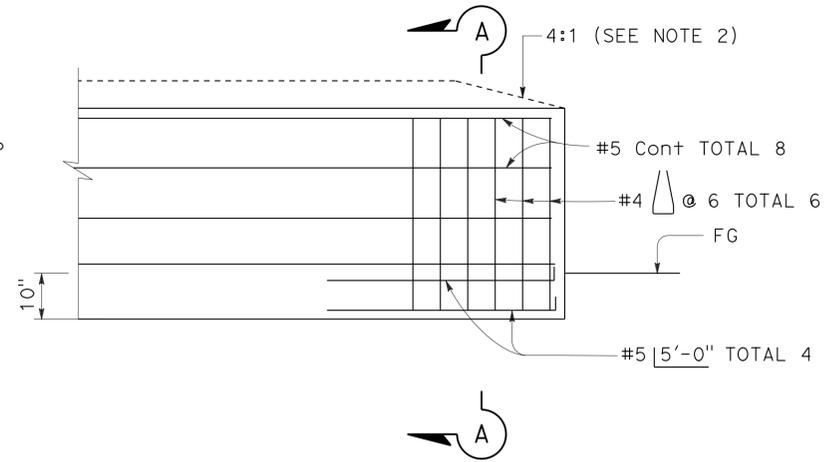
  

REGISTERED PROFESSIONAL ENGINEER
KAZIM MAMDANI
No. C53426
Exp. 6-30-15
CIVIL
STATE OF CALIFORNIA

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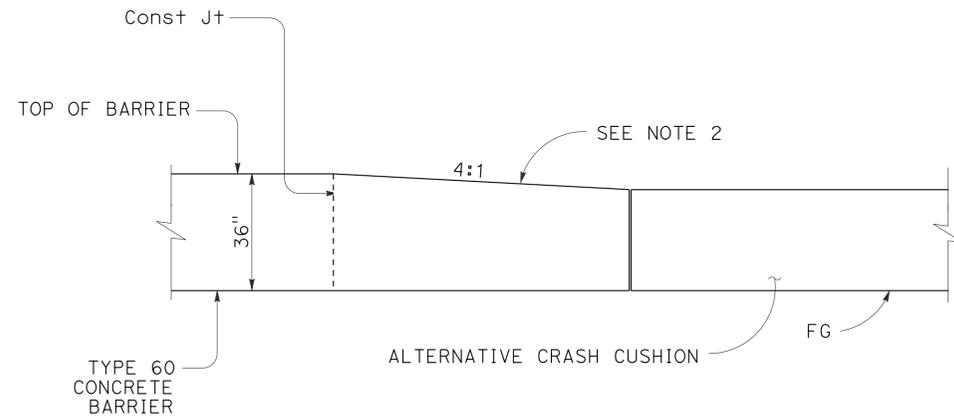
**NOTES:**

- FOOTING MONOLITHIC OR DOWELED WITH 2-#8 X 8" @ 2'-0".
- WHERE THE HEIGHT OF THE CONCRETE BARRIER EXCEEDS THE HEIGHT OF THE CRASH CUSHION BY MORE THAN 1" AT CONNECTION, TAPER THE TOP OF THE END OF THE CONCRETE BARRIER AT 4:1 TO MATCH THE TOP ELEVATION OF THE CRASH CUSHION.

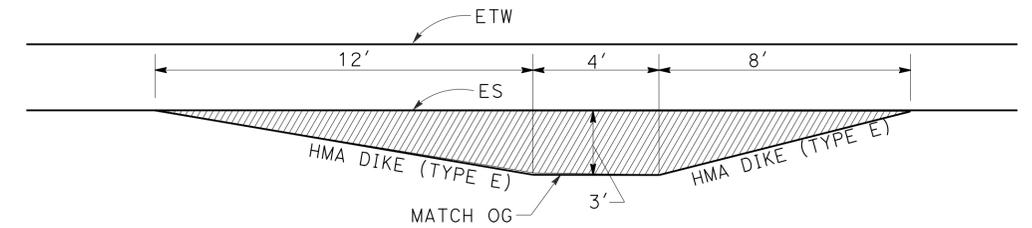


**SECTION A-A**

**CONCRETE BARRIER TYPE 60 Mod**



**ELEVATION**



**RECONSTRUCT OVERSIDE DRAIN**

**CONCRETE BARRIER TRANSITION TO ALTERNATIVE CRASH CUSHION**

0.25' HMA (MISCELLANEOUS AREA)

**CONSTRUCTION DETAILS**

NO SCALE

**C-2**



DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	78	R17.0/R17.4	9	50

George H. Mamaghani 02-10-14  
 REGISTERED CIVIL ENGINEER DATE

02-24-14  
 PLANS APPROVAL DATE

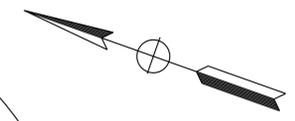
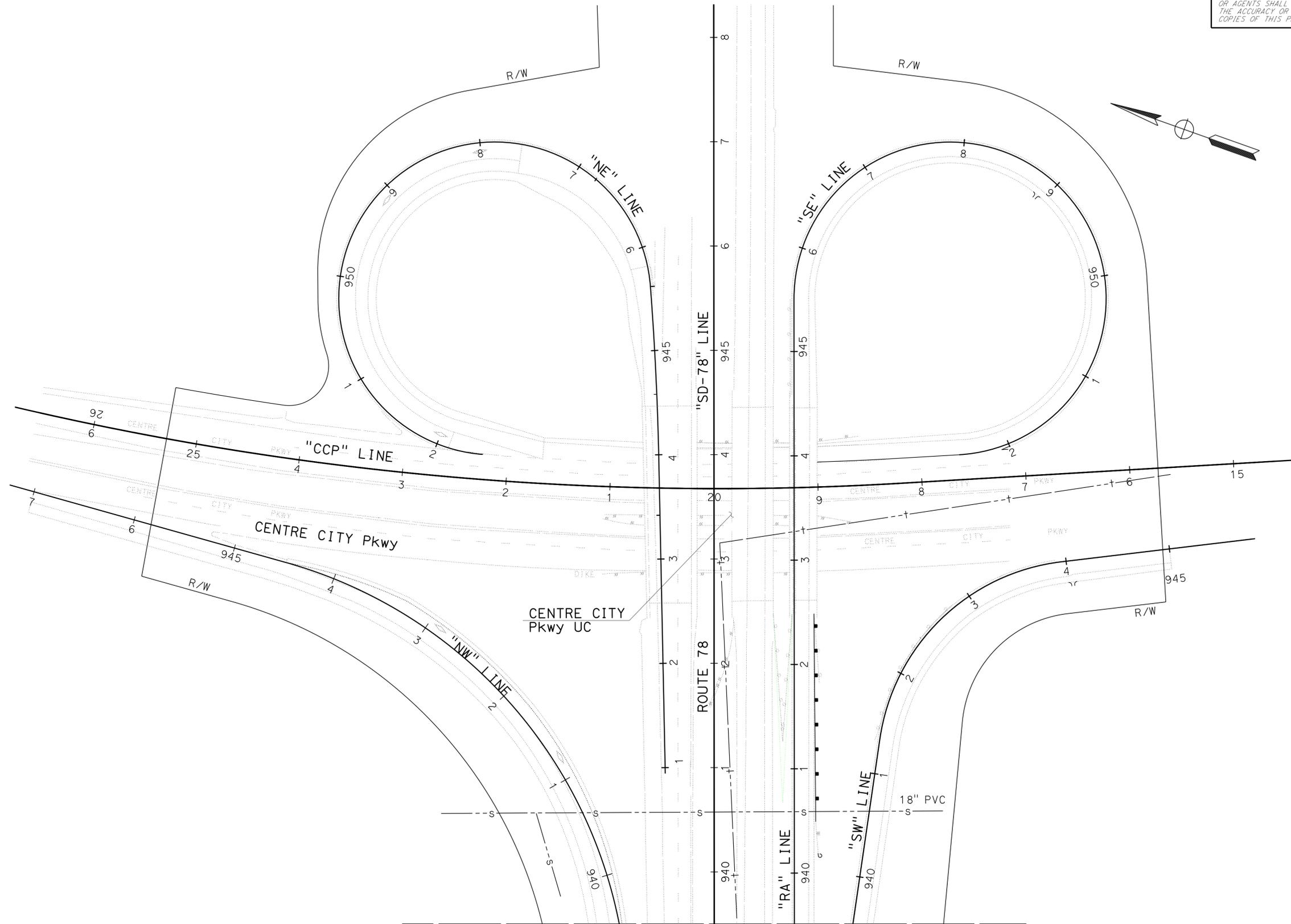
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**NOTES:**

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

**ESCONDIDO**



MATCH LINE (U-1)

SCALE: 1" = 50'

**UTILITY  
U-2**

APPROVED FOR UTILITY INFORMATION ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	DESIGN
Caltrans	
FUNCTIONAL SUPERVISOR	ABU-BAKR AL-JAFRI
CALCULATED-DESIGNED BY	CHECKED BY
GEORGE MAMAGHANI	SIMON TSE
REVISED BY	DATE REVISED

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	78	R17.0/R17.4	10	50

02-10-14  
REGISTERED CIVIL ENGINEER DATE

02-24-14  
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
No. 54839  
Exp. 06-30-14  
CIVIL  
STATE OF CALIFORNIA

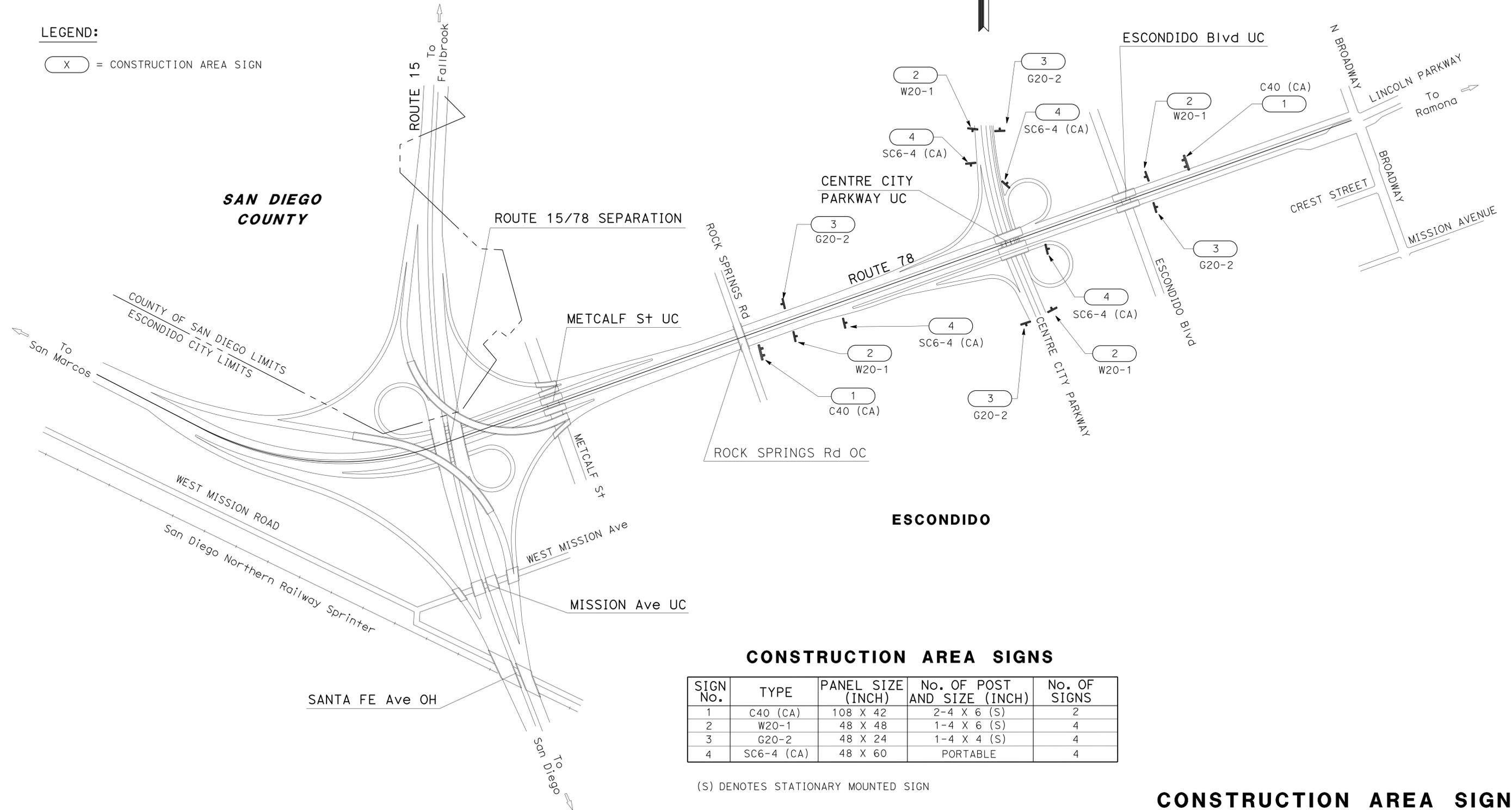
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**NOTES:**

1. EXACT LOCATION OF CONSTRUCTION AREA SIGNS WILL BE DETERMINED BY THE ENGINEER.
2. FEDERAL MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) SIGN CODES ARE SHOWN UNLESS DESIGNATED BY (CA), INDICATING CALIFORNIA SIGN SPECIFICATIONS ARE USED.
3. 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:**

X = CONSTRUCTION AREA SIGN



**CONSTRUCTION AREA SIGNS**

SIGN No.	TYPE	PANEL SIZE (INCH)	No. OF POST AND SIZE (INCH)	No. OF SIGNS
1	C40 (CA)	108 X 42	2-4 X 6 (S)	2
2	W20-1	48 X 48	1-4 X 6 (S)	4
3	G20-2	48 X 24	1-4 X 4 (S)	4
4	SC6-4 (CA)	48 X 60	PORTABLE	4

(S) DENOTES STATIONARY MOUNTED SIGN

**CONSTRUCTION AREA SIGNS**

NO SCALE

**CS-1**

APPROVED FOR CONSTRUCTION AREA SIGN WORK ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
TRAFFIC DESIGN  
Caltrans

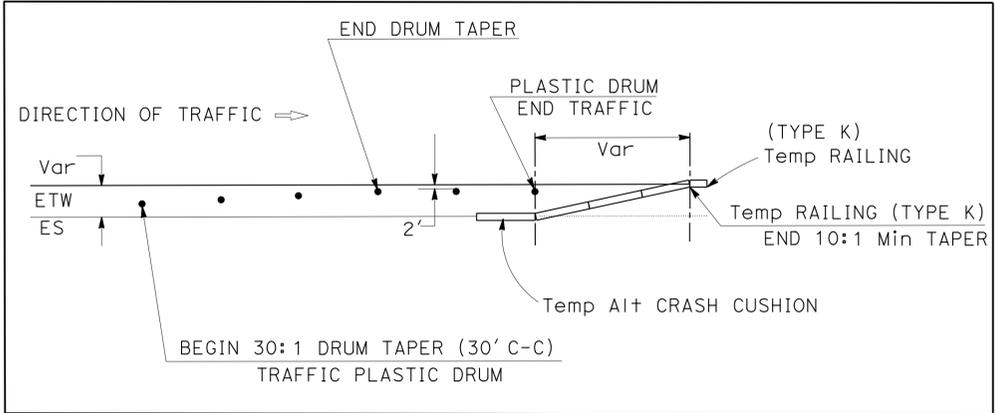
**NOTES:**

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

**TRAFFIC HANDLING QUANTITIES**

SHEET No.	SIDE	LINE/ STATION LIMITS	TEMPORARY RAILING (TYPE K)	ALTERNATIVE TEMPORARY CRASH CUSHION SYSTEM	TRAFFIC PLASTIC DRUM
			(LF)	(EA)	(EA)
TH-1 TO TH-2	L+	"SW" 941+33 TO "SW" 942+93	160	1	6
TH-2	L+	"SE" 944+90 TO "SE" 948+10	320	1	-
TH-2	R+	"CCP" 18+57 TO "CCP" 20+90	240	1	6
TOTAL			720	3	12

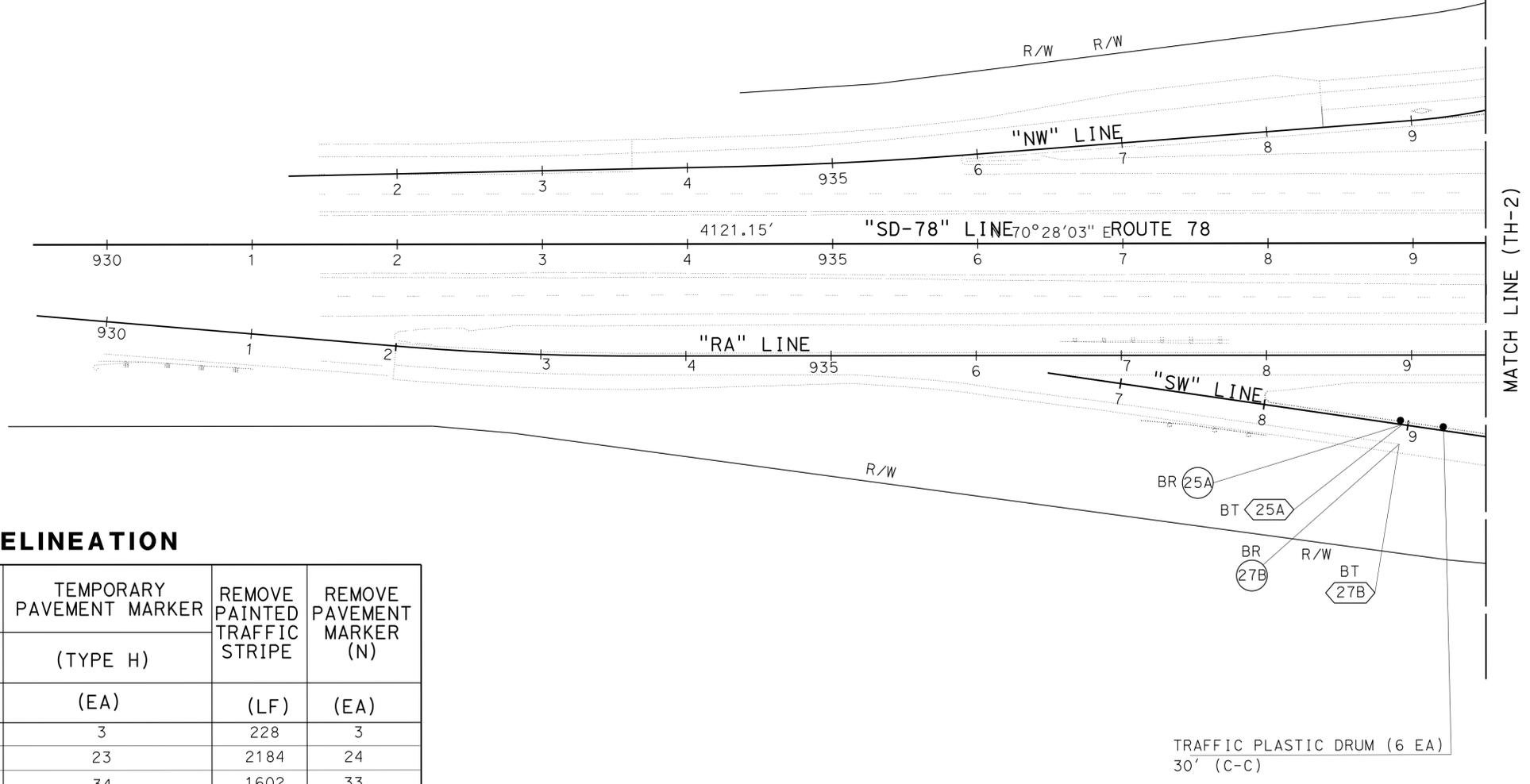
**TYPICAL PLACEMENT OF TRAFFIC PLASTIC DRUM**



**ESCONDIDO**

**LEGEND:**

- BR (XX) = BEGIN REMOVE PAVEMENT DELINEATION
- ER (XX) = END REMOVE PAVEMENT DELINEATION
- BT (XX) = BEGIN TEMPORARY PAVEMENT DELINEATION
- ET (XX) = END TEMPORARY PAVEMENT DELINEATION



**TEMPORARY PAVEMENT DELINEATION**

SHEET No.	LINE/ STATION LIMITS	TEMPORARY TRAFFIC STRIPE (PAINT)		TEMPORARY PAVEMENT MARKER	REMOVE PAINTED TRAFFIC STRIPE	REMOVE PAVEMENT MARKER (N)
		DETAIL 27B	DETAIL 25A	(TYPE H)	(LF)	(EA)
		(LF)	(LF)	(EA)	(LF)	(EA)
TH-1 TO TH-2	"SW" 938+97 TO "SW" 939+54	57	57	3	228	3
TH-1 TO TH-2	"SW" 939+54 TO "SW" 945+00	546	546	23	2184	24
TH-2	"SE" 944+48 TO "SE" 952+48 87	801	801	34	1602	33
TH-2	"CCP" 17+62.73 TO "CCP" 21+59.53	397	-	-	397	-
TOTAL		3,205	-	60	4,411	60

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

APPROVED FOR TRAFFIC HANDLING WORK ONLY

**TRAFFIC HANDLING PLAN**

SCALE: 1" = 50'

**TH-1**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	78	R17.0/R17.4	12	50

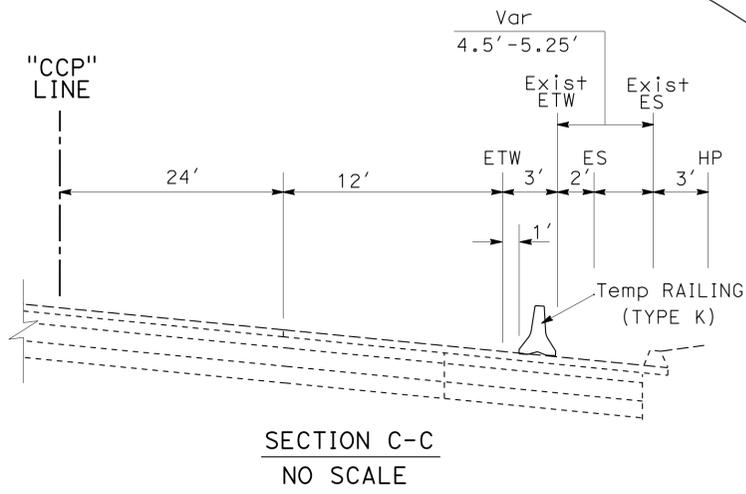
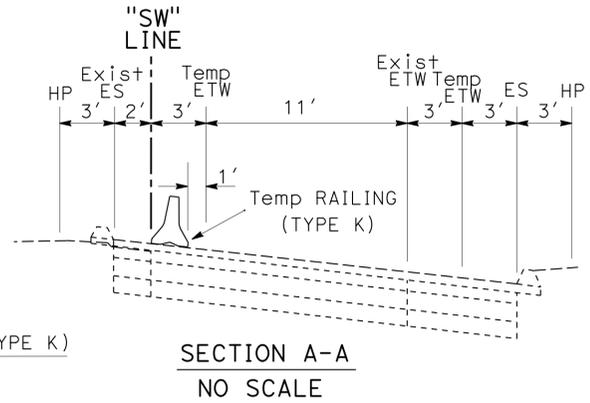
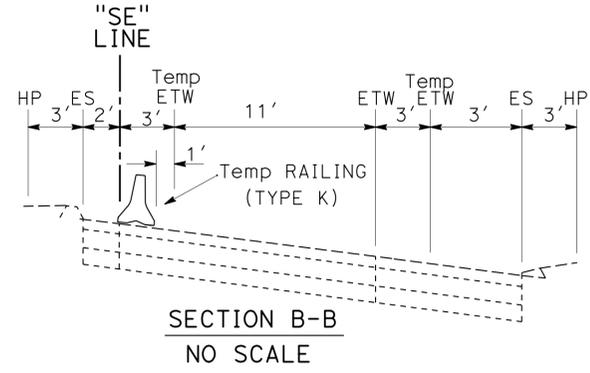
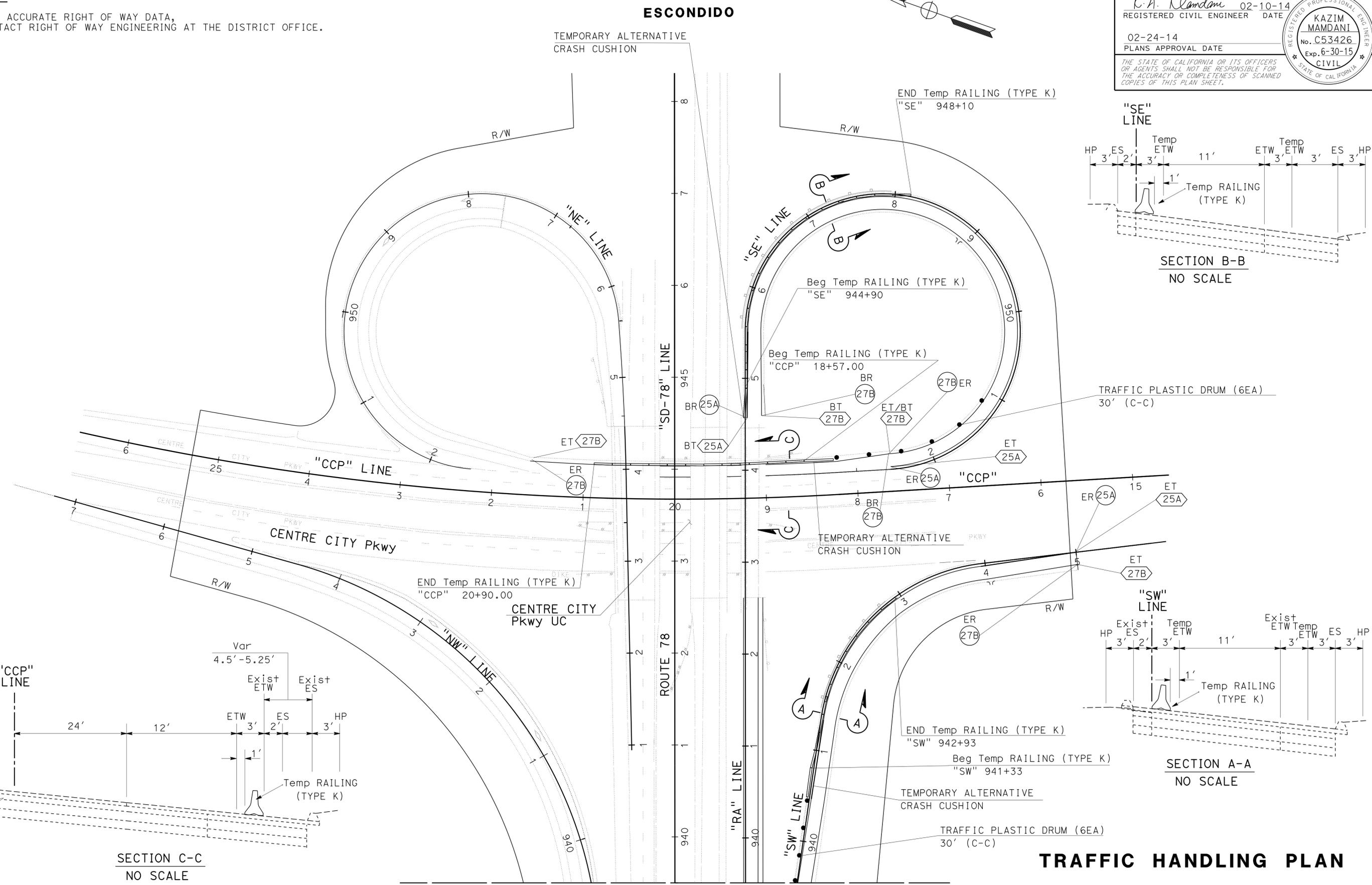
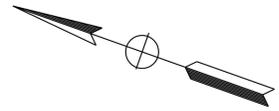
K.A. Mamdani 02-10-14	
REGISTERED CIVIL ENGINEER	DATE
02-24-14	
PLANS APPROVAL DATE	

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



**TRAFFIC HANDLING PLAN**

**TH-2**

SCALE: 1" = 50'

MATCH LINE (TH-1)  
 APPROVED FOR TRAFFIC HANDLING WORK ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** PROJECT DEVELOPMENT

FUNCTIONAL SUPERVISOR	KAZIM MAMDANI
CALCULATED/DESIGNED BY	CHECKED BY
REVISOR	DATE
REVISOR	DATE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	78	R17.0/R17.4	13	50

REGISTERED CIVIL ENGINEER	DATE	02-10-14
PLANS APPROVAL DATE		02-24-14

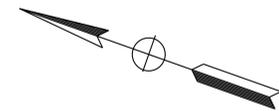
REGISTERED PROFESSIONAL ENGINEER	SHAHIN T. ADIBI
No.	54839
Exp.	06-30-14
CIVIL	

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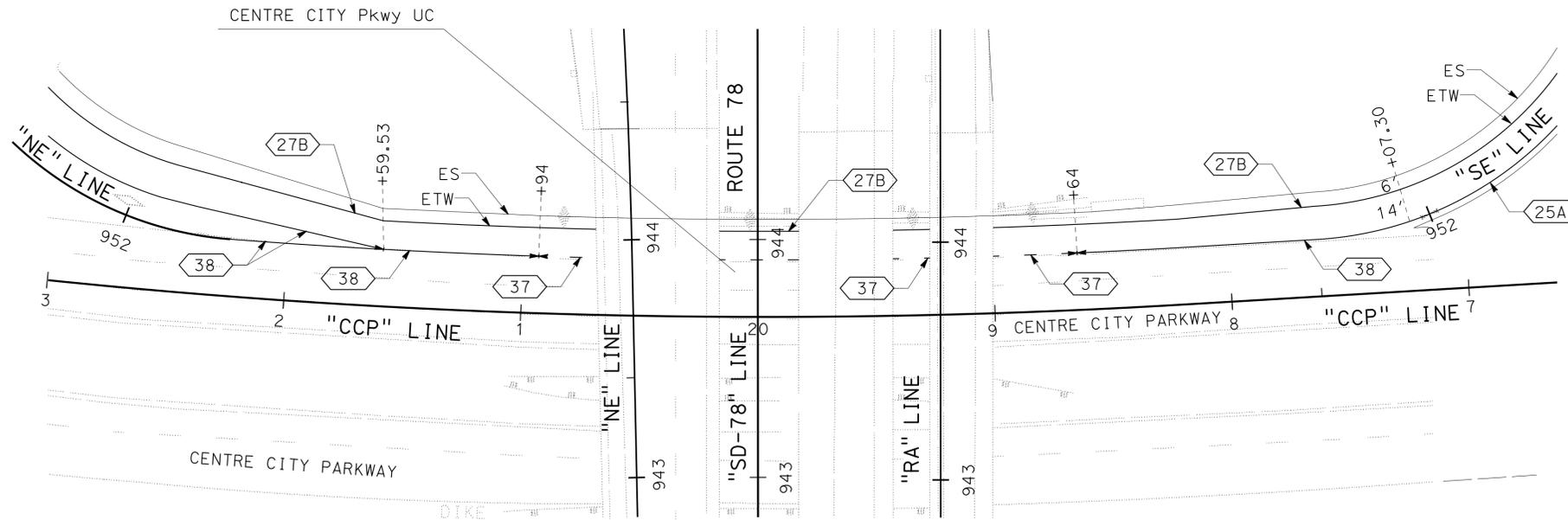
**NOTES:**

1. ALL PAVEMENT DELINEATION SHALL BE REPLACED IN-KIND UNLESS INDICATED OTHERWISE.

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



**ESCONDIDO**



**NB CENTRE CITY PARKWAY STRIPING**

**PAVEMENT DELINEATION PLAN**

**PD-1**

APPROVED FOR PAVEMENT DELINEATION WORK ONLY

SCALE: 1" = 75'

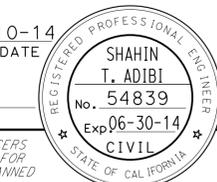


Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	78	R17.0/R17.4	14	50

 02-10-14  
 REGISTERED CIVIL ENGINEER DATE

02-24-14  
 PLANS APPROVAL DATE

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**NOTES:**

1. ALL PAVEMENT DELINEATION SHALL BE REPLACED IN KIND UNLESS INDICATED OTHERWISE.

**PAVEMENT DELINEATION QUANTITIES**

ROUTE	Dir	FROM STATION	TO STATION	LINE	DETAIL	PAVEMENT MARKER SUMMARY			TRAFFIC STRIPE SUMMARY			REMARKS	
						RETROREFLECTIVE (EA)			THERMOPLASTIC (LF) (ENHANCED WET NIGHT VISIBILITY)				
						TYPE C	TYPE G	TYPE H	4" SOLID	8" SOLID	8" BROKEN		
						RED/CLEAR	CLEAR	YELLOW			(12-3)		
78	EB	932+00	936+50	"RA"	27B				450				
78	EB	938+00	942+60	"RA"	27B				460				
78	EB	932+00	942+60	"RA"	25A			46	1,060				
78	EB	936+50	945+00	"SW"	27B				850				
78	EB	938+00	945+00	"SW"	25A			31	700				
78	EB	936+50	938+00	"SW"	36		15			300			
78	EB	944+48	952+48	"SE"	27B				800				
78	EB	944+48	952+00	"SE"	25A			33	752				
78	EB	952+00	952+48	"SE"	38		3			48			
78	EB/WB	17+62	22+21	"CCP"	27B				459				
78	EB/WB	17+62	18+64	"CCP"	38		6			102			
78	EB/WB	18+64	20+94	"CCP"	37	8	10				230		
78	EB/WB	20+94	22+21	"CCP"	38		7			127			
78	EB/WB	21+59	22+21	"CCP"	38		4			62			
78	WB	944+46	952+45	"NE"	27B				799				
78	WB	944+46	946+26	"NE"	38		9			180			
78	WB	946+26	951+50	"NE"	25A			23	524				
78	WB	951+50	952+20	"NE"	36		7			140			
78	WB	952+20	952+45	"NE"	38		3			25			
78	WB	947+60	952+45	"NE"	38		22			485			
78	WB	933+62	947+00	"NW"	27B				1,338				
78	WB	933+62	934+32	"NW"	37	6	1				70		
78	WB	934+32	937+15	"NW"	38		13			283			
78	WB	937+15	944+40	"NW"	25A			32	725				
78	WB	938+39	947+00	"NW"	38		37			861			
<b>SUBTOTAL</b>							14	137	165	8,917	2,613	300	
<b>TOTAL</b>								316		8,917	2,613	300	

**PAVEMENT DELINEATION QUANTITIES**  
**PDQ-1**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	78	R17.0/R17.4	15	50

02-10-14  
REGISTERED CIVIL ENGINEER DATE

02-24-14  
PLANS APPROVAL DATE

SHAHIN T. ADIBI  
No. 54839  
Exp. 06-30-14  
CIVIL

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

### THERMOPLASTIC CROSSWALK AND PAVEMENT MARKING (ENHANCED WET NIGHT VISIBILITY)

ROUTE	DIRECTION	LINE	TYPE I - 24' SQFT	DIAMOND SYMBOL SQFT	12" LIMIT LINE SQFT	REMARKS
78	WB	"NW"	31	33	24	SB CENTRE CITY PARKWAY ON-RAMP
78	WB	"NE"	31	44	27	NB CENTRE CITY PARKWAY ON-RAMP
SUBTOTAL			62	77	51	
TOTAL			190			

### REMOVE PAVEMENT MARKER (N)

Rte	DIRECTION	FROM STA	TO STA	LINE	DETAIL	RETROREFLECTIVE (EA)			REMARKS
						TYPE C RED/CLEAR	TYPE G CLEAR	TYPE H YELLOW	
78	EB	932+00	942+60	"RA"	25A			46	
78	EB	938+00	945+00	"SW"	25A			31	
78	EB	936+50	938+00	"SW"	36		15		
78	EB	944+48	952+00	"SE"	25A			33	
78	EB	952+00	952+48	"SE"	38		3		
78	EB/WB	17+62	18+64	"CCP"	38		6		
78	EB/WB	18+64	20+94	"CCP"	37	8	10		
78	EB/WB	20+94	22+21	"CCP"	38		7		
78	EB/WB	21+57	22+21	"CCP"	38		4		
78	WB	944+46	946+26	"NE"	38		9		
78	WB	946+26	951+50	"NE"	25A			23	
78	WB	951+50	952+20	"NE"	36		9		
78	WB	952+20	952+45	"NE"	38		7		
78	WB	947+60	952+45	"NE"	38		22		
78	WB	933+62	934+45	"NW"	37	6	2		
78	WB	934+45	937+25	"NW"	38		13		
78	WB	937+25	944+50	"NW"	25A			32	
78	WB	938+50	947+00	"NW"	38		37		
SUBTOTAL						14	138	165	
TOTAL						317			

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

## PAVEMENT DELINEATION QUANTITIES PDQ-2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
TRAFFIC DESIGN  
CALTRANS

REVISOR  
ROBERT EDEJER  
SHAHIN ADIBI

DESIGNER  
CALCULATED/DESIGNED BY  
CHECKED BY

SUPERVISOR  
FUNCTIONAL SUPERVISOR  
CAMILLE ABOUFADEL

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	78	R17.0/R17.4	16	50

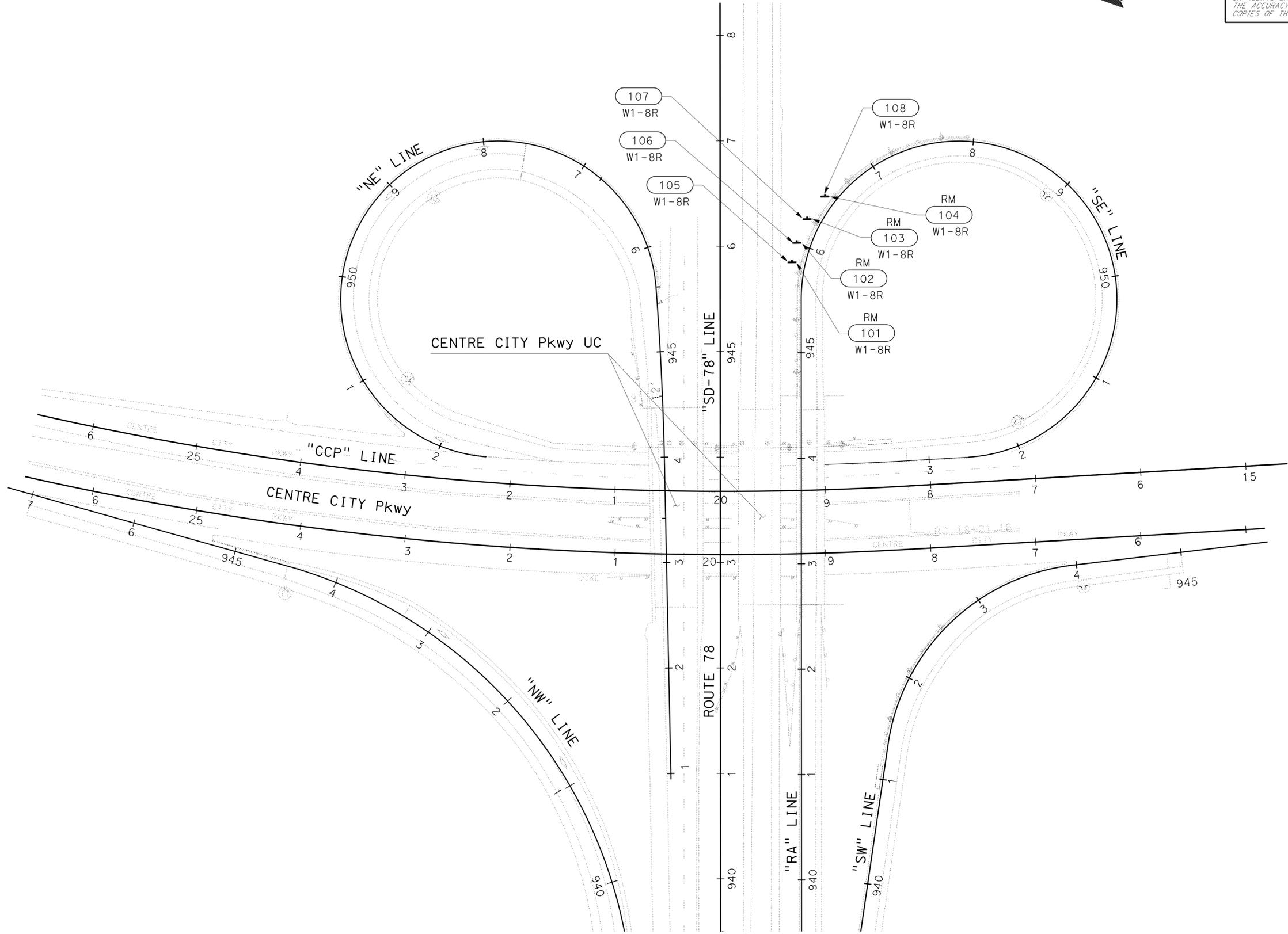
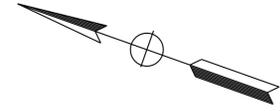
 02-10-14  
 REGISTERED CIVIL ENGINEER DATE  
 02-24-14  
 PLANS APPROVAL DATE  
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

REGISTERED PROFESSIONAL ENGINEER  
**SHAHIN T. ADIBI**  
 No. 54839  
 Exp. 06-30-14  
 CIVIL  
 STATE OF CALIFORNIA

**LEGEND:**

- RM
- XX REMOVE ROADSIDE SIGN

**ESCONDIDO**



**SIGN PLAN  
S-1**

SCALE: 1" = 50'

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

LAST REVISION DATE PLOTTED => 28-FEB-2014  
 02-27-14 TIME PLOTTED => 14:22

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	78	R17.0/R17.4	17	50

02-10-14  
REGISTERED CIVIL ENGINEER DATE

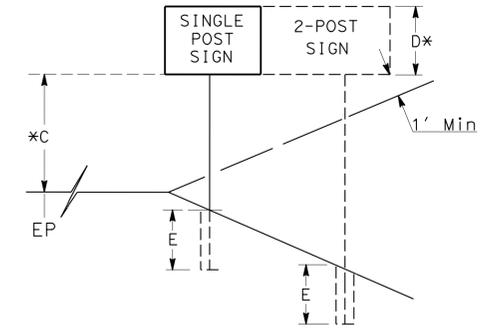
02-24-14  
PLANS APPROVAL DATE

SHAHIN T. ADIBI  
No. 54839  
Exp. 06-30-14  
CIVIL

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

**NOTES:**

- FEDERAL (MUTCD) SIGN CODES ARE SHOWN UNLESS DESIGNATED BY (CA) INDICATING STANDARD CALIFORNIA SIGN SPECIFICATIONS.
- MINIMUM POST LENGTHS WERE CALCULATED ASSUMING A LEVEL GROUND SURFACE FROM THE EP. ENSURE "C" DIMENSION IS MET. POST LENGTHS MAY VARY DUE TO SITE CONDITIONS.
- EXACT LOCATIONS OF SIGNS AND POSTS SHALL BE DETERMINED BY THE ENGINEER.
- REFER TO "FURNISH ROADSIDE SIGN PANEL" CHART FOR FURTHER INFORMATION.
- FY = FLUORESCENT YELLOW.



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

**ROADSIDE SIGN QUANTITIES**

SIGN No.	CODE	SHEET No.	PANEL SIZE (N)		D	C	E	Min POST LENGTH	POST SIZE (N)		ROADSIDE SIGN ONE-POST	REMOVE ROADSIDE SIGN	TREATED WOOD WASTE	REMARKS
			HORIZ	VERT					4 x 4					
			INCHES x INCHES						F†	F†				
101	W1-8R	S-1										1	46	L = 12' (ONE-POST)
102	W1-8R	S-1										1	46	L = 12' (ONE-POST)
103	W1-8R	S-1										1	46	L = 12' (ONE-POST)
104	W1-8R	S-1										1	46	L = 12' (ONE-POST)
105	W1-8R	S-1	24 x 30		2.5	6	3.5	12	x		1			
106	W1-8R	S-1	24 x 30		2.5	6	3.5	12	x		1			
107	W1-8R	S-1	24 x 30		2.5	6	3.5	12	x		1			
108	W1-8R	S-1	24 x 30		2.5	6	3.5	12	x		1			
<b>TOTAL</b>											4	4	184*	

\* - SEE "Q" SHEET FOR ADDITIONAL QUANTITIES.

**FURNISH ROADSIDE SIGN PANEL**

SIGN No.	CODE	SHEET No.	PANEL SIZE (N)		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)	PROTECTIVE OVERLAY	
			INCHES x INCHES									
105	W1-8R	S-1	24 x 30		FY	XI	BLACK		x	5.00	x	
106	W1-8R	S-1	24 x 30		FY	XI	BLACK		x	5.00	x	
107	W1-8R	S-1	24 x 30		FY	XI	BLACK		x	5.00	x	
108	W1-8R	S-1	24 x 30		FY	XI	BLACK		x	5.00	x	
<b>TOTAL</b>										20.00		

**SIGN QUANTITIES**  
**SQ-1**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION - TRAFFIC DESIGN  
 Camille Aboufadel  
 Functional Supervisor  
 Checked by  
 Robert Edejer  
 Shahin Adibi  
 Revised by  
 Date Revised

LAST REVISION DATE PLOTTED => 28-FEB-2014  
 02-27-14 TIME PLOTTED => 14:22

**PAVEMENT STRUCTURE QUANTITIES**

LINE	STATION		LENGTH	TRAVELED WAY WIDTH		SHOULDER WIDTH				COLD PLANE AC PAVEMENT	RHMA (GAP GRADED)	TACK COAT	ASPHALTIC EMULSION (FOG SEAL COAT)	REMARKS
				BEGIN	END	BEG LEFT	END LEFT	BEG R+	END R+					
	BEGIN	END	LF (N)	LF (N)	LF (N)	LF (N)	LF (N)	LF (N)	SQYD	TON	TON	TON		
"RA"	929+96.00	931+00.00	104	-	-	-	-	2.00	2.00	23.11	2.93	-	-	2' COLDPLANE AC
"RA"	932+00.00	933+68.21	168.21	12.00	12.00	2.00	2.00	8.00	8.00	411.18	52.08	0.06	0.03	
"RA"	933+68.21	935+14.91	146.70	12.00	12.00	2.00	2.00	8.00	6.00	342.30	43.36	0.05	0.02	
"RA"	935+14.91	936+49.32	134.41	12.00	27.00	2.00	2.00	6.00	6.00	410.70	52.02	0.06	0.02	
"RA"	936+49.32	938+04.00	154.68	13.00	13.00	2.00	2.00	0.00	25.00	472.63	59.87	0.07	0.04	
"RA"	938+04.00	942+60.00	456.00	13.00	13.00	2.00	2.00	6.00	6.00	1,064.00	134.77	0.16	0.06	
"SW"	936+49.32	938+00.00	150.68	14.00	14.00	0.00	0.00	6.00	6.00	334.84	42.41	0.05	0.02	
"SW"	938+00.00	943+95.26	595.26	14.00	14.00	2.00	2.00	6.00	6.00	1,455.08	184.31	0.23	0.08	
"SW"	943+95.26	945+00.00	104.74	14.00	14.00	2.00	0.00	6.00	6.00	244.39	30.96	0.04	0.01	
"SE"	944+48.00	952+07.30	759.30	14.00	14.00	2.00	2.00	6.00	6.00	1,856.07	235.10	0.29	0.11	
"SE"	952+07.30	952+48.87	41.57	14.00	13.20	0.00	0.00	6.00	6.00	90.53	11.47	0.01	0.00	
"NW"	933+62.00	935+92.31	230.31	12.00	15.70	8.00	8.00	0.00	0.00	559.14	70.82	0.09	0.03	
"NW"	935+92.31	937+10.00	117.69	15.70	19.70	8.00	14.00	2.00	2.00	401.45	50.85	0.06	0.03	
"NW"	937+10.00	938+09.06	99.06	19.70	23.00	14.00	14.00	2.00	2.00	411.10	52.07	0.06	0.03	
"NW"	938+09.06	938+39.00	29.94	23.00	24.00	14.00	8.00	2.00	2.00	121.42	15.38	0.02	0.01	
"NW"	938+39.00	943+29.40	490.40	24.00	24.00	8.00	8.00	2.00	2.00	1,852.62	234.67	0.29	0.09	
"NW"	943+29.40	944+48.44	119.04	24.00	12.00	8.00	8.00	2.00	2.00	370.35	46.91	0.06	0.02	
"NW"	944+48.44	945+24.50	76.06	12.00	12.00	8.00	8.00	2.00	2.00	185.92	23.55	0.03	0.01	
"NW"	945+24.50	947+00.00	175.50	12.00	12.00	8.00	8.00	0.00	0.00	390.00	49.40	0.06	0.02	
"NE"	944+46.72	945+30.07	83.35	12.00	15.20	8.00	10.00	0.00	0.00	209.30	26.51	0.03	0.01	
"NE"	945+30.07	945+61.52	31.45	15.20	16.50	10.00	8.00	2.00	2.00	93.83	11.88	0.01	0.01	
"NE"	945+61.52	947+59.35	197.83	16.50	27.00	8.00	8.00	2.00	2.00	697.90	88.40	0.11	0.03	
"NE"	947+59.35	951+65.00	405.65	27.00	27.00	8.00	8.00	2.00	2.00	1,667.67	211.24	0.26	0.07	
"NE"	951+65.00	952+45.35	80.35	27.00	24.00	8.00	6.00	2.00	0.00	299.08	37.88	0.05	0.01	
"CCP"	17+62.73	18+21.16	58.43	13.20	12.00	0.00	0.00	6.00	5.00	117.51	14.88	0.02	0.01	
"CCP"	18+21.16	21+59.53	338.37	12.00	12.00	0.00	0.00	5.00	5.00	639.14	80.96	0.10	0.03	
"CCP"	21+59.53	22+21.07	61.54	12.00	24.00	0.00	0.00	5.00	6.00	160.69	20.35	0.02	0.01	
<b>TOTAL</b>										14,881.95	1,885.03*	2.29	0.81	

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	78	R17.0/R17.4	18	50

*K.A. MAMDANI* 02-10-14  
 REGISTERED CIVIL ENGINEER DATE

02-24-14  
 PLANS APPROVAL DATE

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**KAZIM MAMDANI**  
 No. C53426  
 Exp. 6-30-15  
 CIVIL

**OVERSIDE DRAIN**

LINE	STATION	AREA (N)	MINOR HMA	PLACE HMA (MISC AREA)	ASPHALTIC EMULSION (FOG SEAL COAT)
		SQFT	TON	SQYD	TON
"SW"	944+00	42.00	0.78	4.67	0.01
"SE"	948+92	42.00	0.78	4.67	0.01
<b>TOTAL</b>			1.56*	9.34	0.02**

**DIKE QUANTITIES**

LOCATION		STATION				REMOVE AC DIKE	REMOVE CONCRETE CURB	PLACE HMA DIKE			RHMA (GAP GRADED) DIKE PAD	MINOR HMA	IMPORTED BORROW
R+	L+	LINE	BEGIN	LINE	END			LENGTH (LF)	LENGTH (LF)	LENGTH (LF)			
X		"RA"	929+96.00	"RA"	930+21.00	-	-	-	25.00	-	0.25	0.18	-
X		"RA"	930+34.00	"RA"	931+00.00	66.00	-	-	-	66.00	0.65	0.83	-
X		"SW"	932+00.00	"SW"	936+88.00	488.00	-	488.00	-	-	9.64	12.05	-
X		"SW"	936+88.00	"SW"	937+50.00	62.00	-	-	62.00	-	0.61	0.45	2.30
X		"SW"	937+50.00	"SW"	938+04.00	54.00	-	-	-	54.00	0.53	0.68	2.00
X		"SW"	938+04.00	"SW"	945+00.00	696.00	-	696.00	-	-	13.75	17.19	25.80
X	X	"SW"	940+72.00	"SW"	942+84.00	-	212.00	-	-	-	-	-	-
X		"RA"	932+00.00	"RA"	941+00.00	900.00	-	900.00	-	-	17.78	22.23	39.00
X		"RA"	941+00.00	"RA"	942+48.00	148.00	-	-	148.00	-	1.46	1.07	-
X		"RA"	938+04.00	"RA"	941+88.00	384.00	-	384.00	-	-	7.59	9.48	-
X		"RA"	941+88.00	"RA"	942+48.00	60.00	-	-	60.00	-	0.59	0.43	-
X	X	"SW"	940+72.00	"SW"	940+91.00	-	19.00	-	19.00	-	0.19	-	-
X		"SE"	944+57.00	"SE"	952+48.87	791.87	-	791.87	-	-	15.64	19.56	-
X	X	"SE"	944+57.00	"SE"	947+96.00	-	339.00	-	-	-	-	-	-
X		"NW"	934+65.00	"NW"	947+00.00	1235.00	-	1235.00	-	-	24.40	30.50	-
X		"NE"	944+46.72	"NE"	945+30.07	83.35	-	-	83.35	-	0.82	1.05	-
X		"NE"	945+30.07	"NE"	945+61.52	31.45	-	-	31.45	-	0.31	0.23	-
X	X	"NE"	945+61.52	"NE"	952+45.35	683.83	-	683.83	-	-	13.51	16.89	-
X		"CCP"	17+62.73	"CCP"	18+12.90	50.17	-	50.17	-	-	0.99	1.24	-
X		"CCP"	18+12.90	"CCP"	18+32.98	20.08	-	-	20.08	-	0.20	0.14	-
X		"CCP"	20+90.00	"CCP"	22+21.07	131.07	-	131.07	-	-	2.59	3.24	-
<b>SUBTOTAL</b>						5,884.82	570.00	5,359.94	365.53	203.35	111.50**	137.44	69.10

**TEMPORARY DRAINAGE INLET PROTECTION**

LINE	STATION	EACH
"RA"	930+21.00 R+	1
"SW"	944+00.00 R+	1
"SE"	948+92.00 R+	1
"SE"	951+91.00 R+	1
"NE"	948+78.00 L+	1
"NE"	951+18.00 L+	1
"NW"	934+65.00 L+	1
"NW"	944+44.00 L+	1
<b>TOTAL</b>		8

**SUMMARY OF QUANTITIES**

**Q-1**

(N) - NOT A SEPARATE PAY ITEM, FOR INFORMATION ONLY      \*\* SEE PAVEMENT STRUCTURE QUANTITIES TABLE FOR ADDITIONAL QUANTITIES

\* SEE DIKE QUANTITIES TABLE FOR ADDITIONAL QUANTITIES

LAST REVISION: DATE PLOTTED => 28-FEB-2014 TIME PLOTTED => 14:22

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	78	R17.0/R17.4	19	50

*K.A. MAMDANI* 02-10-14  
REGISTERED CIVIL ENGINEER DATE

02-24-14  
PLANS APPROVAL DATE

**KAZIM MAMDANI**  
No. C53426  
Exp. 6-30-15  
CIVIL

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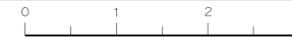
**MIDWEST GUARDRAIL SYSTEM AND CONCRETE BARRIER**

LINE	LAYOUT	LOCATION		STATION		REMOVE GUARD RAIL (LF)	MIDWEST GUARDRAIL SYSTEM (LF)	CONCRETE BARRIER (TYPE 60) (LF)	CONCRETE BARRIER (TYPE 60 MOD) (LF)	ALTERNATIVE FLARED TERMINAL SYSTEM (EA)	END ANCHOR ASSEMBLY (TYPE SFT) (EA)	TREATED WOOD WASTE (LB)	GUARD RAILING DELINEATOR (EA)	ALTERNATIVE CRASH CUSHION (EA)
		L+	R+	FROM	TO									
"RA"	16B		X	929+96.00	931+00.00	104.00	62.5	-	-	1	1	1365	12	-
"SW"	-	X		941+13.00	942+84.00	171.00	-	-	171.00	-	-	2244	-	1
"SE"	-	X		944+57.00	947+96.00	339.00	-	-	339.00	-	-	4633	-	-
"CCP"	-		X	18+56.00	20+90.00	234.00	-	209.00	-	-	-	3071	-	1
<b>TOTAL</b>						848	62.5	209.00	510.00	1	1	11,314	12	2

(N) - NOT A SEPARATE PAY ITEM, FOR INFORMATION ONLY  
DELINEATOR TO BE PLACED AT EVERY 12.5 FT MAXIMUM SPACING OF NEW MGS.

**SUMMARY OF QUANTITIES**  
**Q-2**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
**Caltrans** PROJECT DEVELOPMENT



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	78	R17.0/R17.4	20	50

<i>Danny D. McClure</i>	02-10-14
REGISTERED ELECTRICAL ENGINEER	DATE
02-24-14	
PLANS APPROVAL DATE	

REGISTERED PROFESSIONAL ENGINEER
DANNY D. McCLURE
No. 16074
Exp. 12-31-15
ELECTRICAL
STATE OF CALIFORNIA

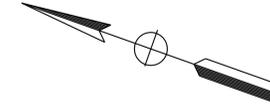
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**CONDUIT NOTES:**

- 1 - Exist 2"C, MT (CONDUCTORS BY SDG&E).
- 2 - Exist 2"C, 2#8 ltg, 4#6 rm, 3#14 peu.
- 3 - Exist 2"C, 2#8 ltg, 2#6 rm, 3#14 peu, 1 sic, 1 dlc.
- 4 - Exist 1 1/2"C, 2#8 ltg.
- 5 - Exist 2"C, 2#8 ltg, 2#6 rm, 1 sic.
- 6 - Exist 2"C, 2#8 ltg.
- 7 - 2"C, 2#8 LTG.

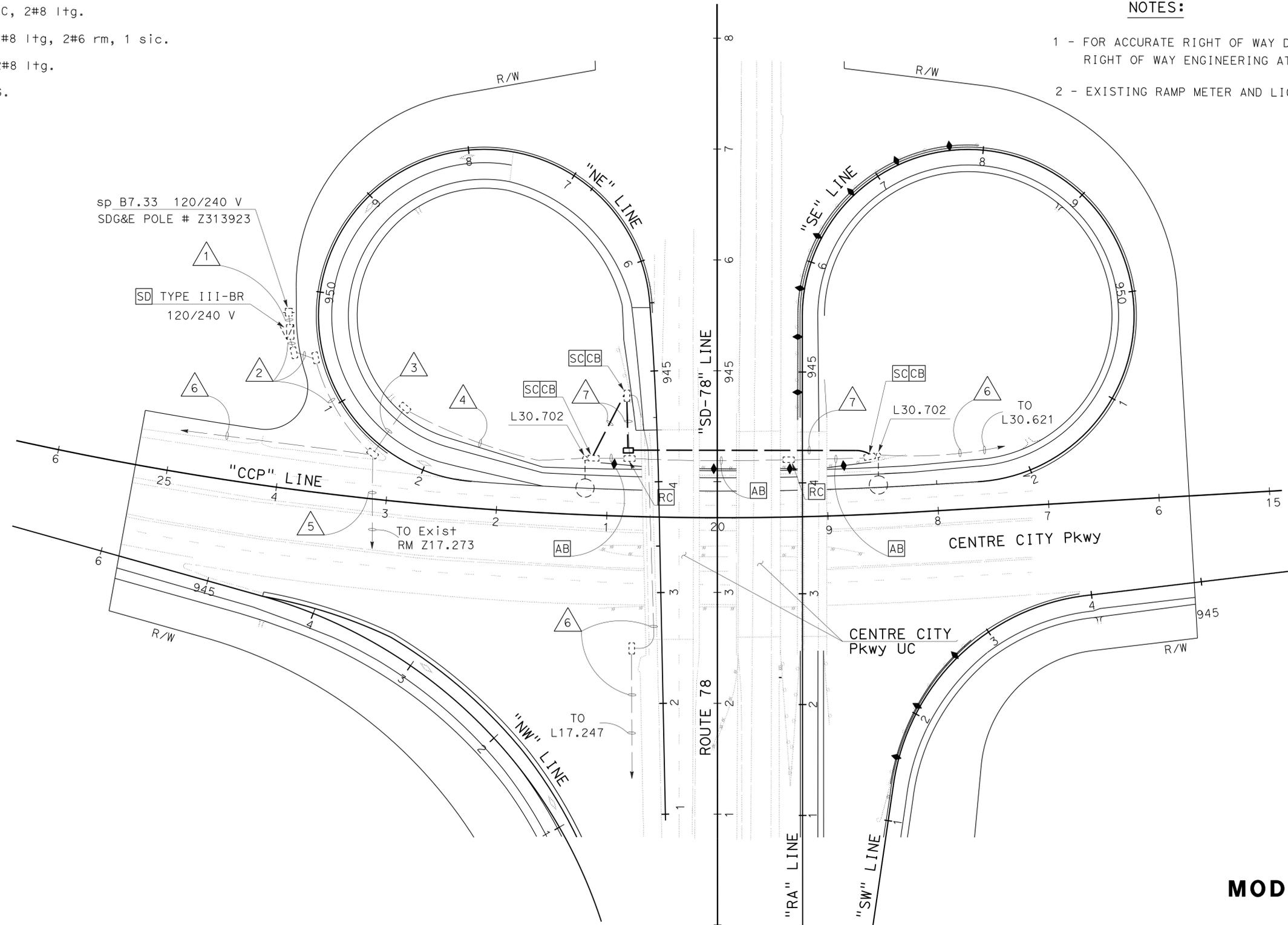
**LEGEND:**

SDG&E = SAN DIEGO GAS AND ELECTRIC COMPANY.



**NOTES:**

- 1 - FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
- 2 - EXISTING RAMP METER AND LIGHTING ARE PARTIALLY SHOWN.



APPROVED FOR ELECTRICAL WORK ONLY

SCALE: 1" = 50'

**MODIFY LIGHTING**

**E-1**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	RAJREET SINGH
<b>Caltrans</b> TRAFFIC ELECTRICAL	CALCULATED/DESIGNED BY	CHECKED BY
	ANTONIO A. RODRIGUEZ	DANNY McCLURE
	REVISOR BY	DATE REVISED

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	78	R17.0/R17.4	21	50

REGISTERED ELECTRICAL ENGINEER DATE 02-10-14  
 REGISTERED PROFESSIONAL ENGINEER  
 DANNY D. McCLURE  
 No. 16074  
 Exp. 12-31-15  
 ELECTRICAL  
 STATE OF CALIFORNIA

02-24-14  
 PLANS APPROVAL DATE

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

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

REVISED BY  
 DATE REVISED

ANTONIO RODRIGUEZ  
 DANNY McCLURE

CALCULATED-DESIGNED BY  
 CHECKED BY

FUNCTIONAL SUPERVISOR  
 RAJPREET SINGH

### INDUCTIVE LOOP DETECTOR

ROUTE	PM	INTERSECTION	FACILITY	LOCATION OF INDUCTIVE LOOP DETECTOR CENTERED IN LANE (N)						INDUCTIVE LOOP DETECTOR (EA)	
				DIRECTION	PASSAGE LOOPS		DEMAND LOOPS		QUEUE LOOPS		
					LANE #1	LANE #2	LANE #1	LANE #2	LANE #1		LANE #2
78	17.273	ROUTE 78/ CENTRE CITY PKWY	RAMP METER Z17.273	FROM CENTRE CITY PKWY SOUTH TO WB ROUTE 78	1(P-1-L+)	1(P-2-R+)	4(D-1-L+)	4(D-2-R+)	1(Q-1-L+)	1(Q-2-R+)	12
			RAMP METER Z17.335	FROM CENTRE CITY PKWY NORTH TO WB ROUTE 78	1(P-1-L+)	1(P-2-R+)	4(D-1-L+)	4(D-2-R+)	1(Q-1-L+)	1(Q-2-R+)	12
<b>TOTAL</b>										24	

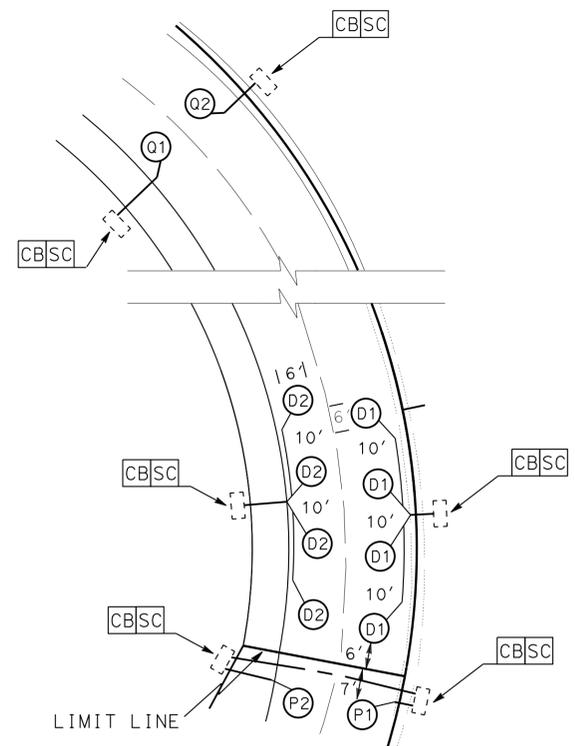
(N) = NOT A SEPARATE PAY ITEM, FOR INFORMATION ONLY.

**NOTE:**

QUANTITY OF LOOPS  
 IDENTIFICATION  
 LOOP NUMBER  
 TERMINATION PULL BOX LOCATION  
 IN DIRECTION OF TRAVEL

LOOP IDENTIFICATION: 1(P-1-R+)

P = PASSAGE  
 D = DEMAND  
 Q = QUEUE



ALL DIMENSIONS ARE TYPICAL.  
 ALL LOOPS SHALL BE CENTERED IN LANES.

**DETAIL 'A'**

### INDUCTIVE LOOP DETECTOR

NO SCALE

**E-2**

APPROVED FOR ELECTRICAL WORK ONLY

LAST REVISION DATE PLOTTED => 28-FEB-2014  
 02-27-14 TIME PLOTTED => 14:22

	<b>M</b>	
Maint	MAINTENANCE	
Max	MAXIMUM	
MB	METAL BEAM	
MBB	METAL BEAM BARRIER	
MBGR	METAL BEAM GUARD RAILING	
Med	MEDIAN	
MGS	MIDWEST GUARDRAIL SYSTEM	
MH	MANHOLE	
Min	MINIMUM	
Misc	MISCELLANEOUS	
Misc I & S	MISCELLANEOUS IRON AND STEEL	
Mkr	MARKER	
Mod	MODIFIED, MODIFY	
Mon	MONUMENT	
MP	METAL PLATE	
MPGR	METAL PLATE GUARD RAILING	
MR	MOVEMENT RATING	
MSE	MECHANICALLY STABILIZED EMBANKMENT	
Mt	MOUNTAIN, MOUNT	
MtI	MATERIAL	
MVP	MAINTENANCE VEHICLE PULLOUT	
	<b>N</b>	
N	NORTH	
NB	NORTHBOUND	
No.	NUMBER (MUST HAVE PERIOD)	
Nos.	NUMBERS (MUST HAVE PERIOD)	
NPS	NOMINAL PIPE SIZE	
NS	NEAR SIDE	
NSP	NEW STANDARD PLAN	
NTS	NOT TO SCALE	
	<b>O</b>	
Obir	OBLITERATE	
OC	OVERCROSSING	
OD	OUTSIDE DIAMETER	
OF	OUTSIDE FACE	
OG	ORIGINAL GROUND	
OGAC	OPEN GRADED ASPHALT CONCRETE	
OGFC	OPEN GRADED FRICTION COURSE	
OH	OVERHEAD	
OHWM	ORDINARY HIGH WATER MARK	
O-O	OUT TO OUT	
Opp	OPPOSITE	
OSD	OVERSIDE DRAIN	
	<b>P</b>	
p	PAGE	
PAP	PERFORATED ALUMINUM PIPE	
PB	PULL BOX	
PC	POINT OF CURVATURE, PRECAST	
PCC	POINT OF COMPOUND CURVE, PORTLAND CEMENT CONCRETE	
PCMS	PORTABLE CHANGEABLE MESSAGE SIGN	
PCP	PERFORATED CONCRETE PIPE, PRESTRESSED CONCRETE PIPE	
PCVC	POINT OF COMPOUND VERTICAL CURVE	
PEC	PERMIT TO ENTER AND CONSTRUCT	
Ped	PEDESTRIAN	
Ped OC	PEDESTRIAN OVERCROSSING	
Ped UC	PEDESTRIAN UNDERCROSSING	
Perm MtI	PERMEABLE MATERIAL	

	<b>P continued</b>	
PG	PROFILE GRADE	
PI	POINT OF INTERSECTION	
PJP	PARTIAL JOINT PENETRATION	
Pkwy	PARKWAY	
PL, PL	PLATE	
P/L	PROPERTY LINE	
PM	POST MILE, TIME FROM NOON TO MIDNIGHT	
PN	PAVING NOTCH	
POC	POINT OF HORIZONTAL CURVE	
POT	POINT OF TANGENT	
POVC	POINT OF VERTICAL CURVE	
PP	PIPE PILE, PLASTIC PIPE, POWER POLE	
PPL	PREFORMED PERMEABLE LINER	
PPP	PERFORATED PLASTIC PIPE	
PRC	POINT OF REVERSE CURVE	
PRF	PAVEMENT REINFORCING FABRIC	
PRVC	POINT OF REVERSE VERTICAL CURVE	
PS&E	PLANS, SPECIFICATIONS AND ESTIMATES	
PS, P/S	PRESTRESSED	
PSP	PERFORATED STEEL PIPE	
PT	POINT OF TANGENCY	
PVC	POLYVINYL CHLORIDE	
Pvmt	PAVEMENT	
	<b>Q</b>	
Qty	QUANTITY	
	<b>R</b>	
R	RADIUS	
R & D	REMOVE AND DISPOSE	
R & S	REMOVE AND SALVAGE	
R/C	RATE OF CHANGE	
RCA	REINFORCED CONCRETE ARCH	
RCB	REINFORCED CONCRETE BOX	
RCP	REINFORCED CONCRETE PIPE	
RCPA	REINFORCED CONCRETE PIPE ARCH	
Rd	ROAD	
Reinf	REINFORCED, REINFORCEMENT, REINFORCING	
Rel	RELOCATE	
Repl	REPLACEMENT	
Ret	RETAINING	
Rev	REVISED, REVISION	
Rdwy	ROADWAY	
RHMA	RUBBERIZED HOT MIX ASPHALT	
Riv	RIVER	
RM	ROAD-MIXED	
RP	RADIUS POINT, REFERENCE POINT	
RR	RAILROAD	
RSP	ROCK SLOPE PROTECTION, REVISED STANDARD PLAN	
Rt	RIGHT	
Rte	ROUTE	
RW	REDWOOD, RETAINING WALL	
R/W	RIGHT OF WAY	
Rwy	RAILWAY	

	<b>S</b>	
S	SOUTH, SUPPLEMENT	
SAE	STRUCTURE APPROACH EMBANKMENT	
Salv	SALVAGE	
SAPP	STRUCTURAL ALUMINUM PLATE PIPE	
SB	SOUTHBOUND	
SC	SAND CUSHION	
SCSP	SLOTTED CORRUGATED STEEL PIPE	
SD	STORM DRAIN	
Sec	SECOND, SECTION	
Sep	SEPARATION	
SG	SUBGRADE	
Shld	SHOULDER	
Sht	SHEET	
Sim	SIMILAR	
ℒ	STATION LINE	
SM	SELECTED MATERIAL	
Spec	SPECIAL, SPECIFICATIONS	
SPP	SLOTTED PLASTIC PIPE	
SS	SLOPE STAKE	
SSBM	STRAP AND SADDLE BRACKET METHOD	
SSD	STRUCTURAL SECTION DRAIN	
SSPA	STRUCTURAL STEEL PLATE ARCH	
SSPP	STRUCTURAL STEEL PLATE PIPE	
SSPPA	STRUCTURAL STEEL PLATE PIPE ARCH	
SSRP	STEEL SPIRAL RIB PIPE	
St	STREET	
Sta	STATION	
STBB	SINGLE THRIE BEAM BARRIER	
Std	STANDARD	
Str	STRUCTURE	
Surf	SURFACING	
SW	SIDEWALK, SOUND WALL	
Swr	SEWER	
Sym	SYMMETRICAL	
S4S	SURFACE 4 SIDES	
	<b>T</b>	
T	SEMI-TANGENT	
Tan	TANGENT	
TBB	THRIE BEAM BARRIER	
Tbr	TIMBER	
TC	TOP OF CURB	
TCB	TRAFFIC CONTROL BOX	
TCE	TEMPORARY CONSTRUCTION EASEMENT	
TeI	TELEPHONE	
Temp	TEMPORARY	
TG	TOP OF GRADE	
Tot	TOTAL	
TP	TELEPHONE POLE	
TPB	TREATED PERMEABLE BASE	
TPM	TREATED PERMEABLE MATERIAL	
Trans	TRANSITION	

	<b>T continued</b>	
TS	TRANSVERSE, TRAFFIC SIGNAL, TUBULAR STEEL	
Typ	TYPICAL	<b>U</b>
UC	UNDERCROSSING	
UD	UNDERDRAIN	
UG	UNDERGROUND	
UON	UNLESS OTHERWISE NOTED	
UP	UNDERPASS	<b>V</b>
V	VALVE, DESIGN SPEED	
Var	VARIABLE, VARIES	
VC	VERTICAL CURVE	
VCP	VITRIFIED CLAY PIPE	
Vert	VERTICAL	
Via	VIADUCT	
Vol	VOLUME	<b>W</b>
W	WEST, WIDTH	
WB	WESTBOUND	
WH	WEEP HOLE	
WM	WIRE MESH	
WS	WATER SURFACE	
WSP	WELDED STEEL PIPE	
Wt	WEIGHT	
WV	WATER VALVE	
WW	WINGWALL	
WWLOL	WINGWALL LAYOUT LINE	<b>X</b>
X Sec	CROSS SECTION	
Xing	CROSSING	<b>Y</b>
Yr	YEAR	
Yrs	YEARS	

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	78	R17.0/R17.4	22	50

*Grace M. Tsushima*  
REGISTERED CIVIL ENGINEER

July 19, 2013  
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER  
 Grace M. Tsushima  
 No. C49814  
 Exp. 9-30-14  
 CIVIL  
 STATE OF CALIFORNIA

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TO ACCOMPANY PLANS DATED 02-24-14

**UNIT OF MEASUREMENT SYMBOLS:**  
Some of the symbols used in the project plan quantity tables and in the Bid Item List are:

**TABLE A**

SYMBOL USED	DEFINITIONS
ACRE	ACRE
CF	CUBIC FOOT
CY	CUBIC YARD
EA	EACH
GAL	GALLON
LB	POUND
LF	LINEAR FOOT
SQFT	SQUARE FOOT
SQYD	SQUARE YARD
STA	100 FEET
TAB	TABLET
TON	2,000 POUNDS

Some of the symbols used in the plans other than in the project plan quantity tables are:

**TABLE B**

SYMBOL USED	DEFINITIONS
ksi	KIPS PER SQUARE INCH
ksf	KIPS PER SQUARE FOOT
psi	POUNDS PER SQUARE INCH
psf	POUNDS PER SQUARE FOOT
lb/ft <sup>3</sup> , pcf	POUNDS PER CUBIC FOOT
tsf	TONS PER SQUARE FOOT
mph, MPH *	MILES PER HOUR
∅	NOMINAL DIAMETER
oz	OUNCE
lb	POUND
kíp	1,000 POUNDS
cal	CALORIE
ft	FOOT OR FEET
gal	GALLON

\* For use on a sign panel only

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**ABBREVIATIONS  
(SHEET 2 OF 2)**

NO SCALE

RSP A10B DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN A10B  
DATED MAY 20, 2011 - PAGE 2 OF THE STANDARD PLANS BOOK DATED 2010.

2010 REVISED STANDARD PLAN RSP A10B

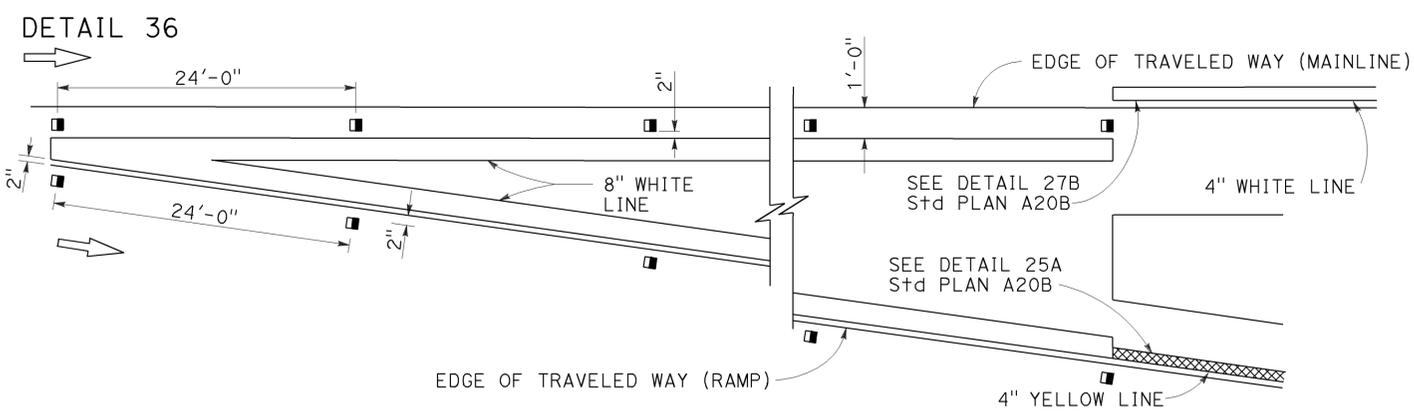
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	78	R17.0/R17.4	23	50

REGISTERED CIVIL ENGINEER  
 Roberta L. McLaughlin  
 No. C40375  
 Exp. 3-31-15  
 CIVIL  
 STATE OF CALIFORNIA

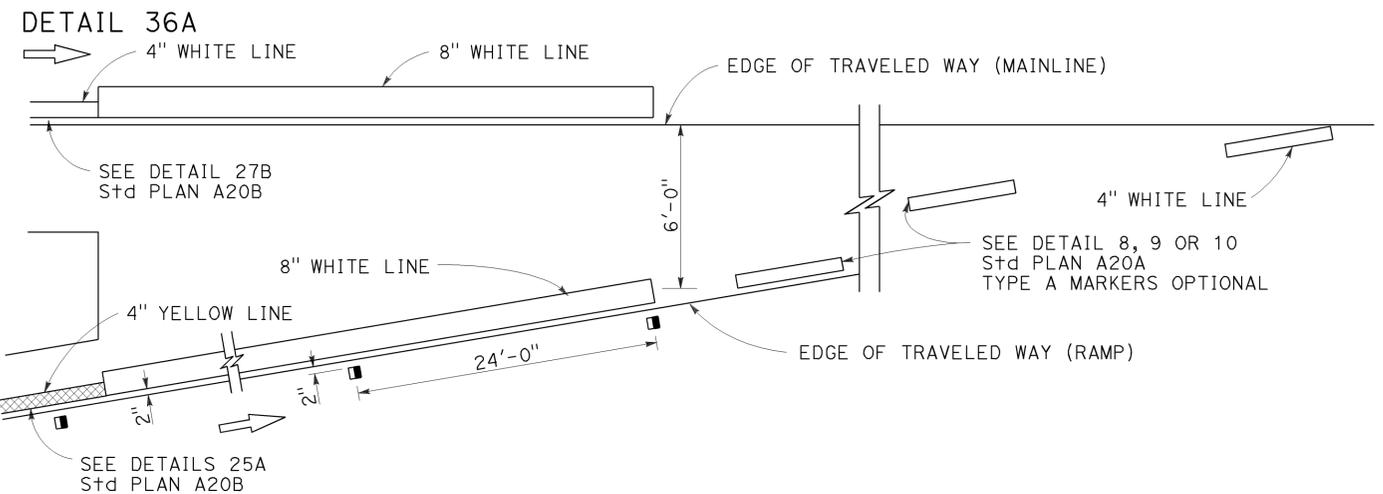
July 19, 2013  
 PLANS APPROVAL DATE

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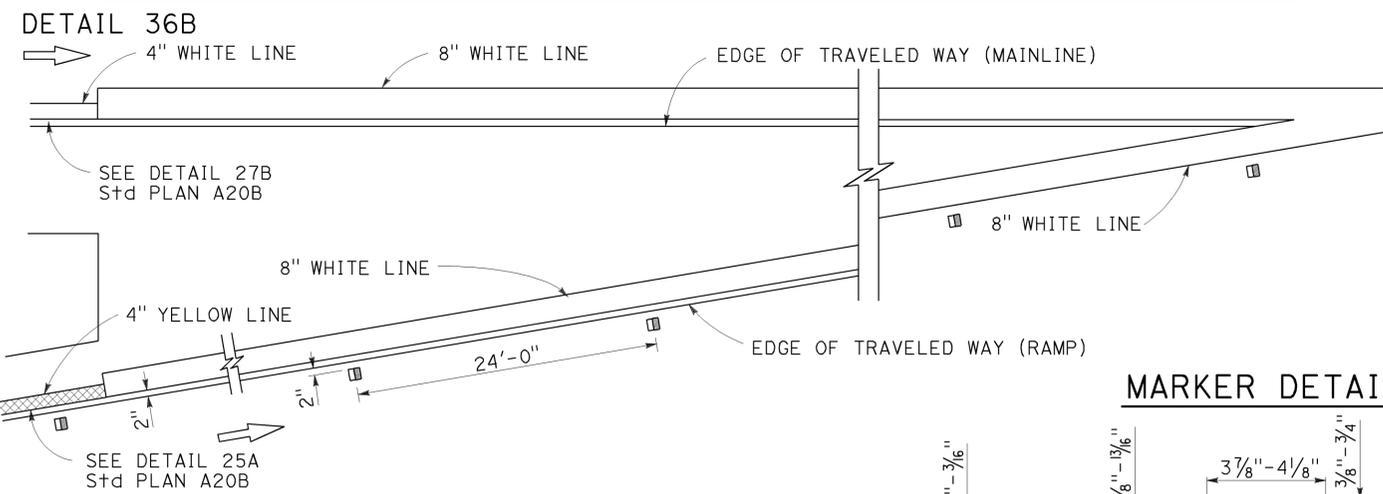
### EXIT RAMP NEUTRAL AREA (GORE) TREATMENT



### ENTRANCE RAMP NEUTRAL AREA (MERGE) TREATMENT

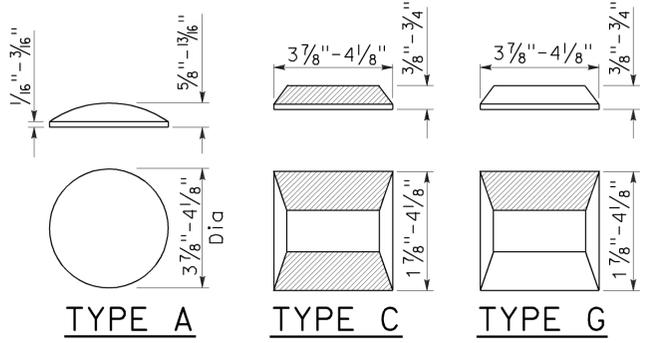


### ENTRANCE RAMP NEUTRAL AREA (ACCELERATION LANE) TREATMENT

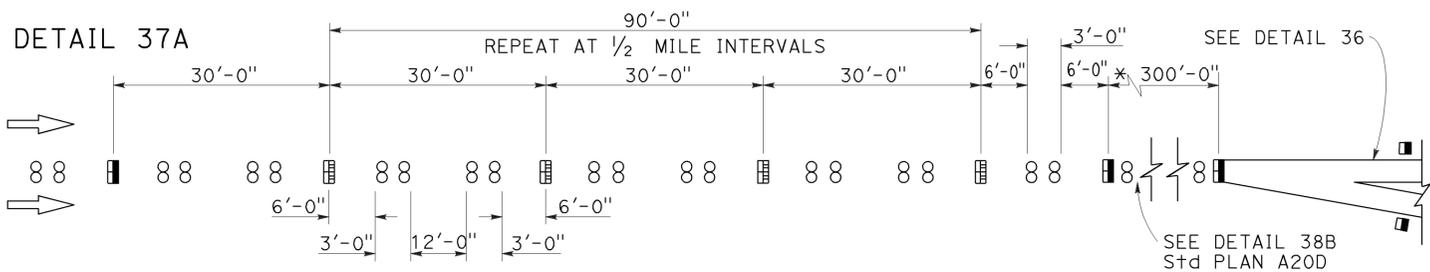
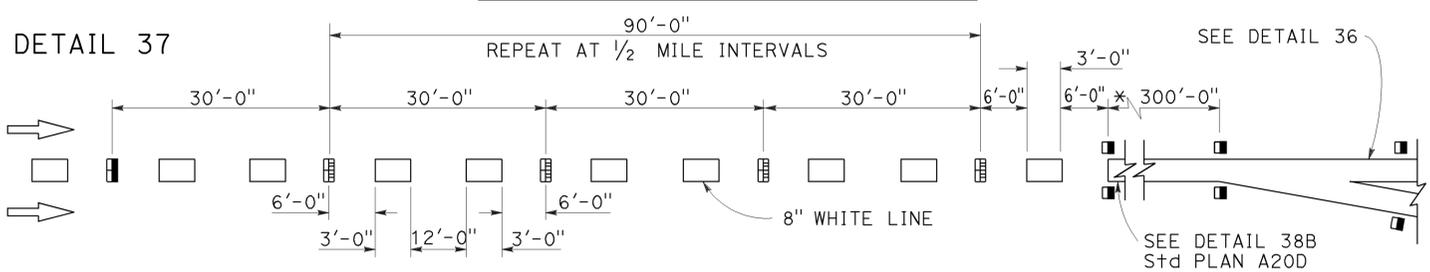


### MARKER DETAILS

- LEGEND:**
- MARKERS
- TYPE A WHITE NON-REFLECTIVE
  - ◻ TYPE C RED-CLEAR RETROREFLECTIVE
  - TYPE G ONE-WAY CLEAR RETROREFLECTIVE

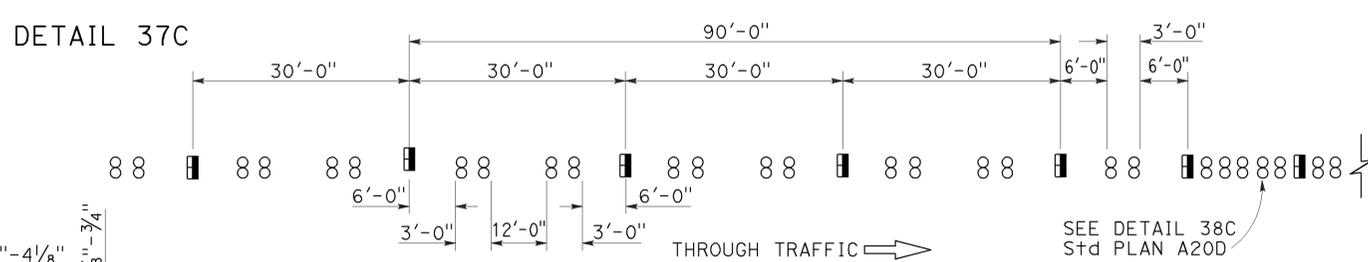
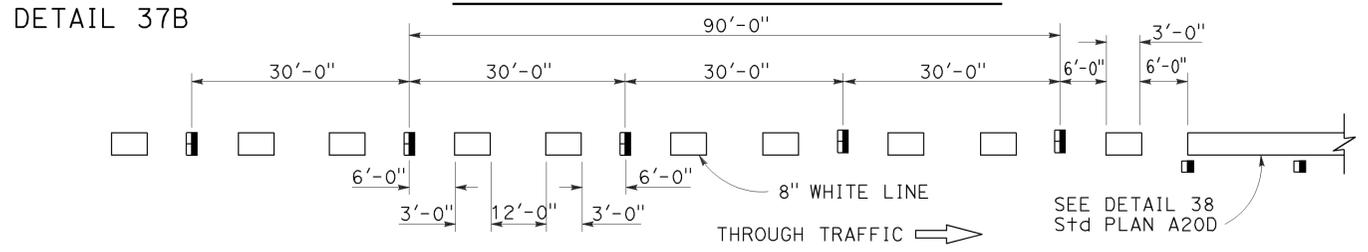


### LANE DROP AT EXIT RAMPS



\* The solid channelizing line shown may be omitted on short auxiliary lanes where weaving length is critical.

### LANE DROP AT INTERSECTIONS



STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

## PAVEMENT MARKERS AND TRAFFIC LINE TYPICAL DETAILS

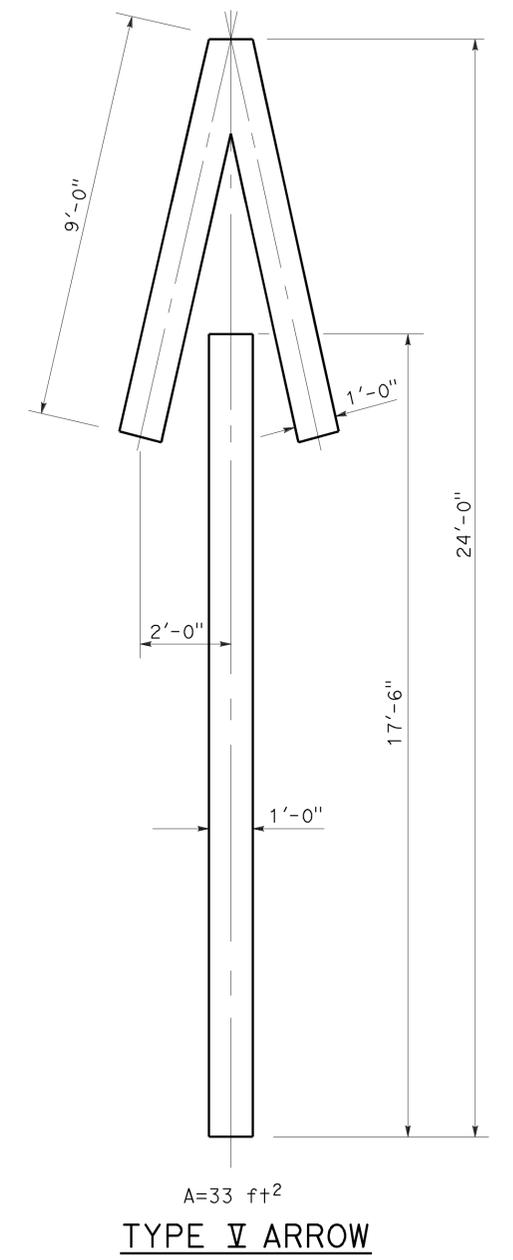
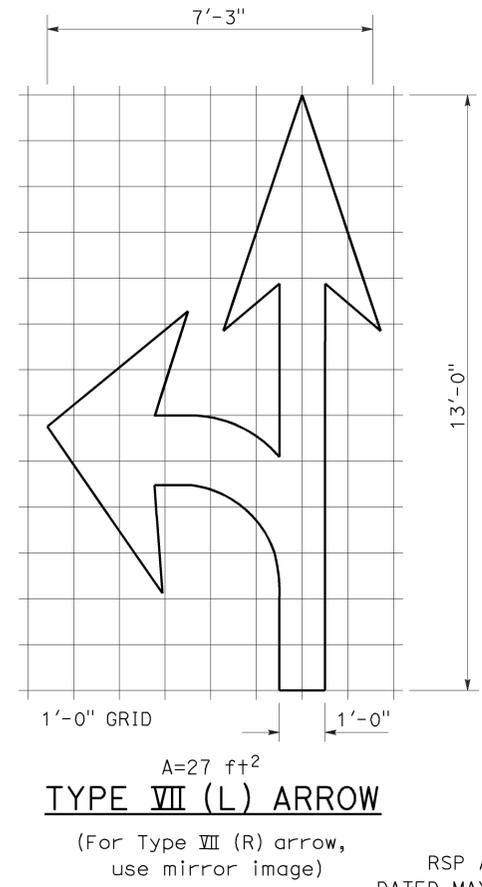
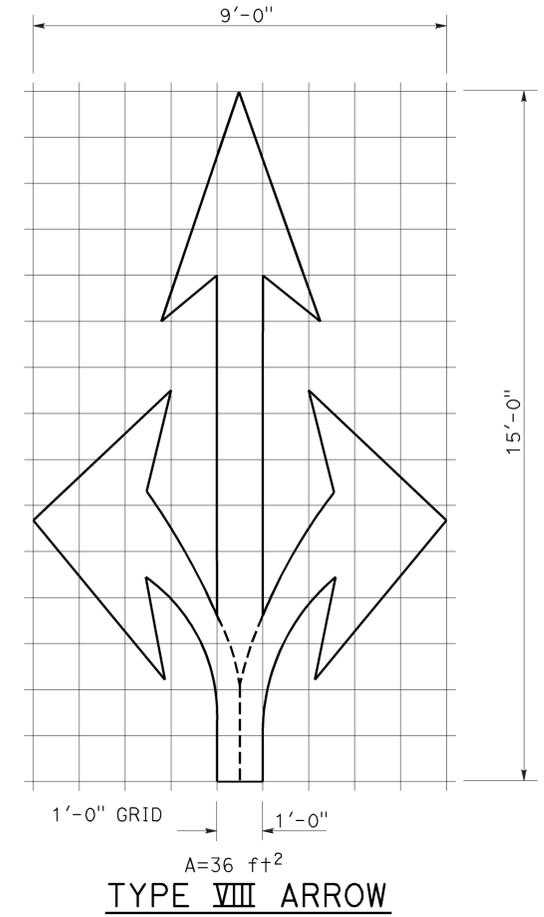
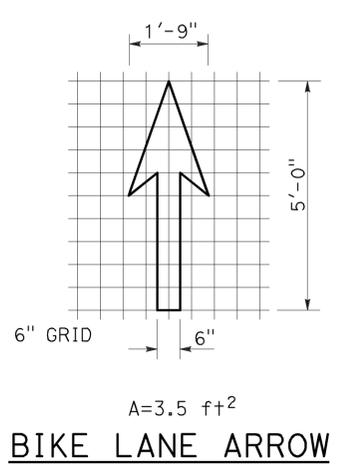
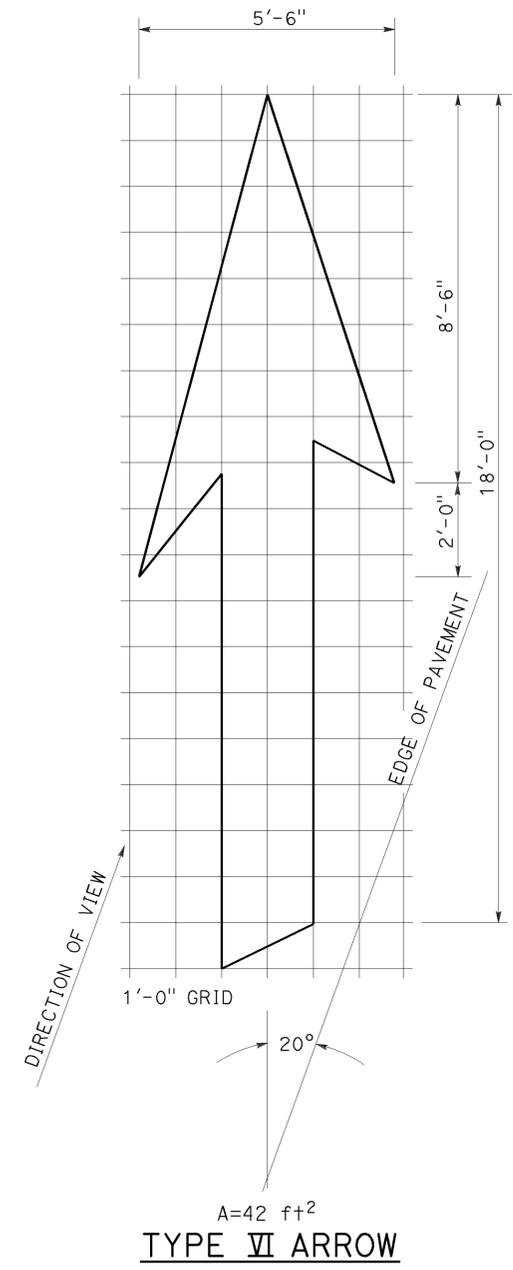
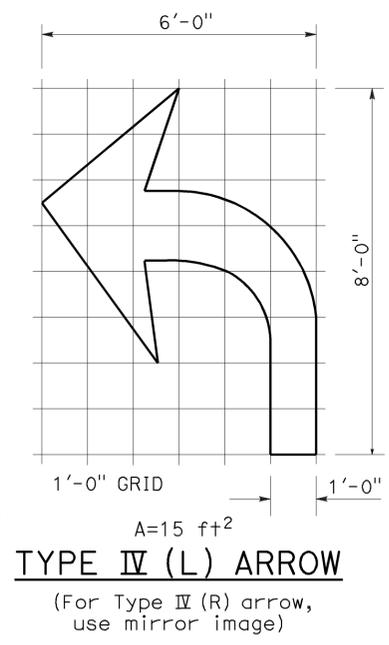
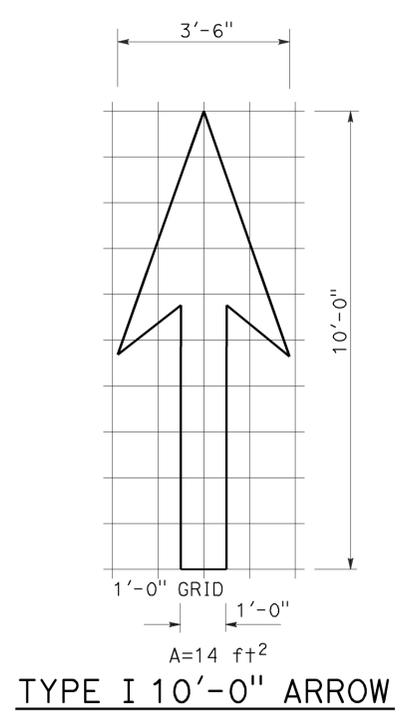
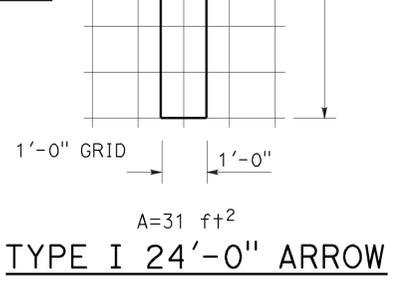
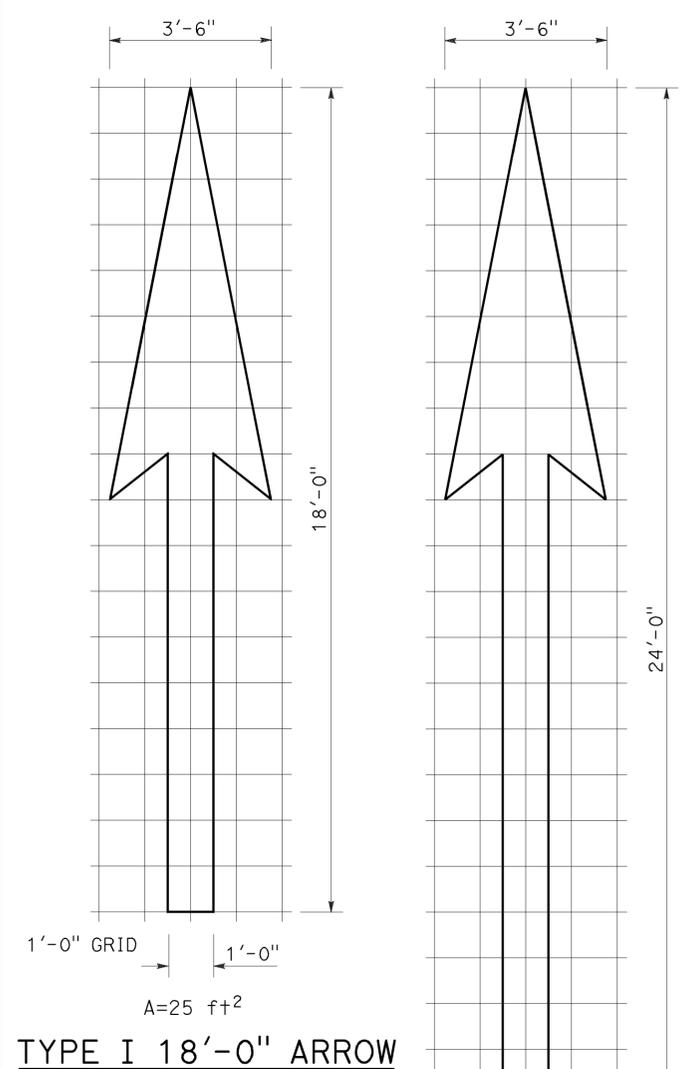
NO SCALE

RSP A20C DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN A20C DATED MAY 20, 2011 - PAGE 11 OF THE STANDARD PLANS BOOK DATED 2010.

## REVISED STANDARD PLAN RSP A20C

2010 REVISED STANDARD PLAN RSP A20C

TO ACCOMPANY PLANS DATED 02-24-14



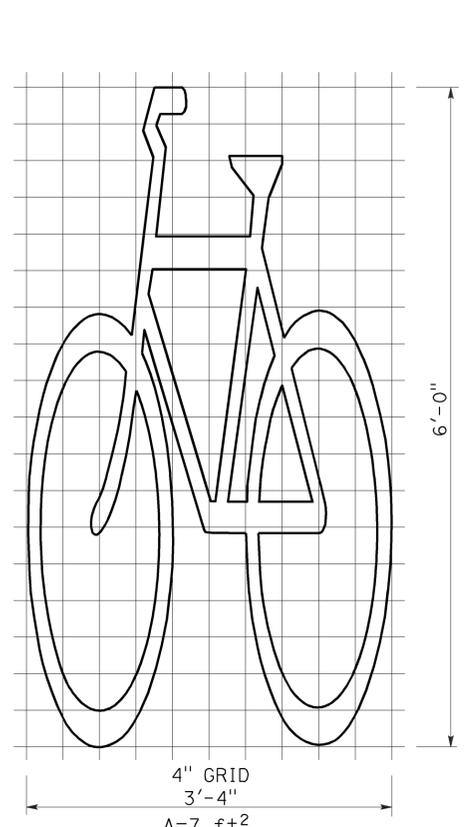
**NOTE:**  
 Minor variations in dimensions may be accepted by the Engineer.

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**PAVEMENT MARKINGS  
 ARROWS**  
 NO SCALE

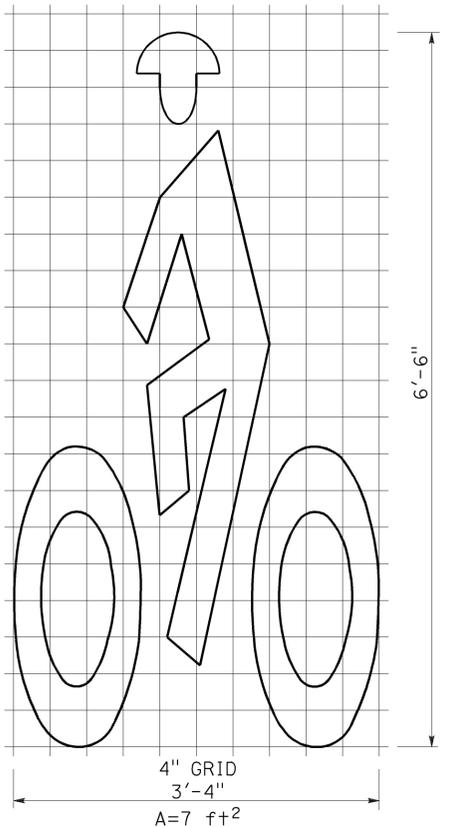
RSP A24A DATED APRIL 20, 2012 SUPERSEDES STANDARD PLAN A24A DATED MAY 20, 2011 - PAGE 13 OF THE STANDARD PLANS BOOK DATED 2010.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	78	R17.0/R17.4	25	50

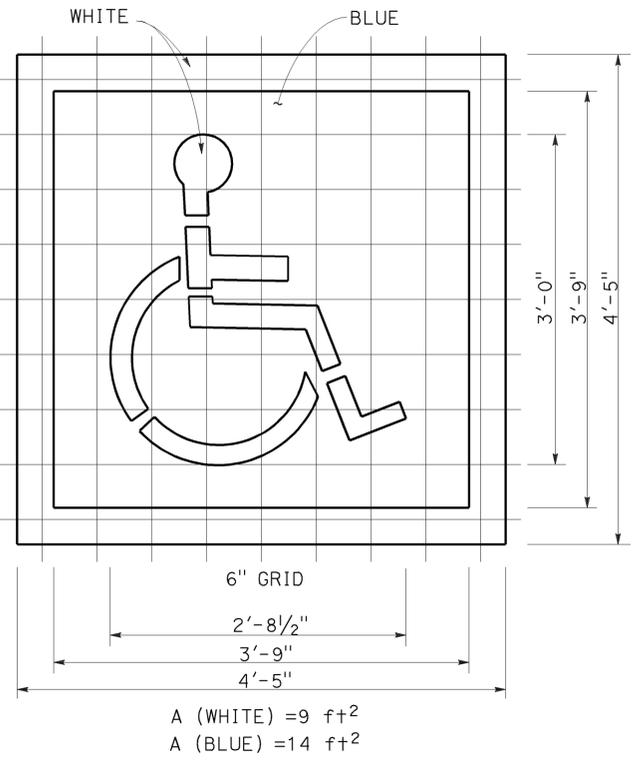
Robert L. McLaughlin  
 REGISTERED CIVIL ENGINEER  
 October 19, 2012  
 PLANS APPROVAL DATE  
 THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



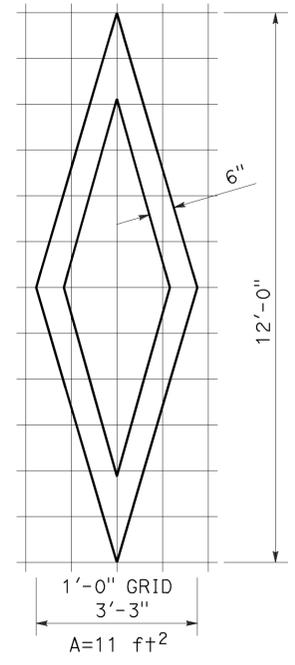
**BIKE LANE SYMBOL  
WITHOUT PERSON**



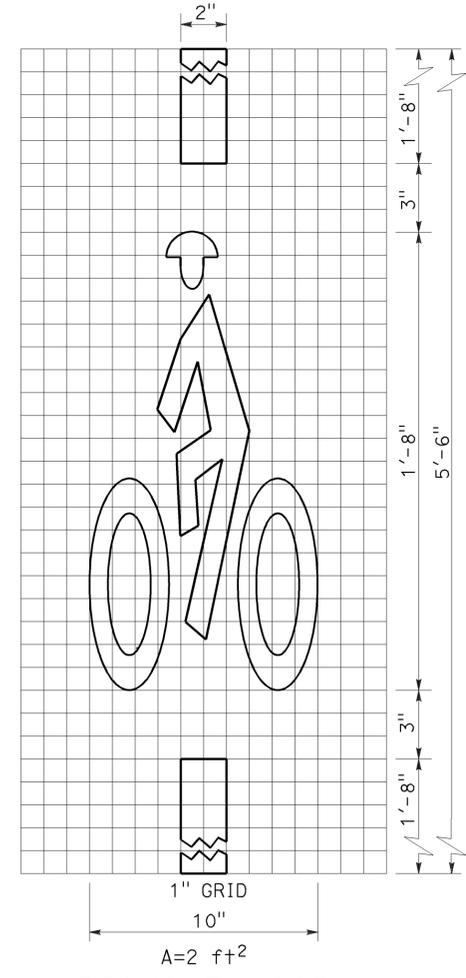
**BIKE LANE SYMBOL  
WITH PERSON**



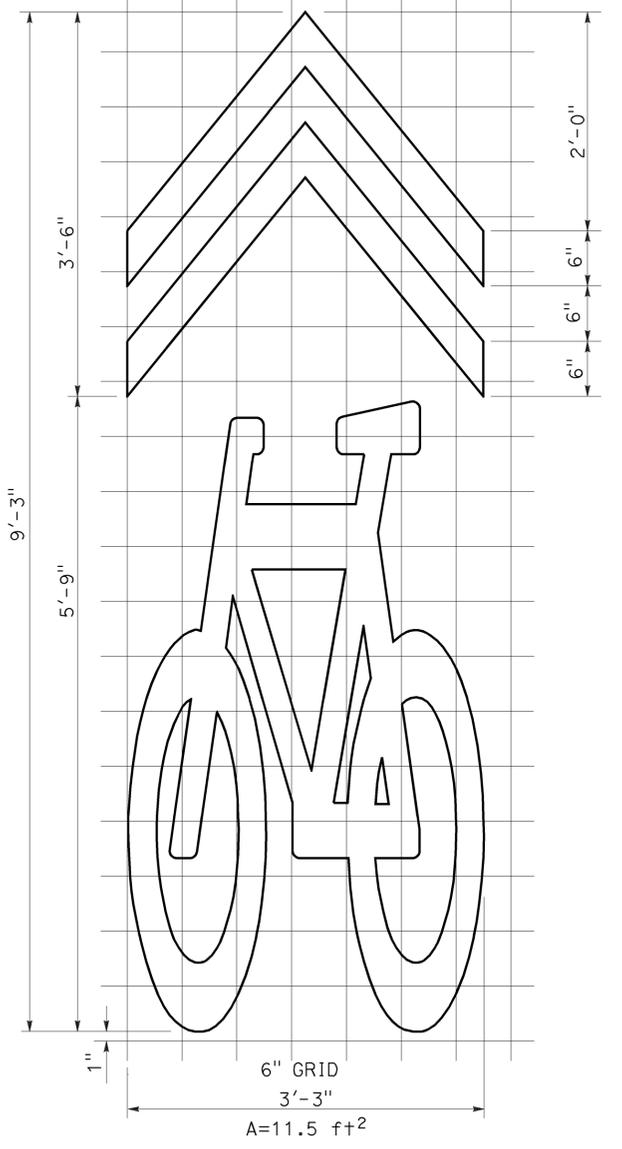
**INTERNATIONAL SYMBOL  
OF ACCESSIBILITY (ISA) MARKING**



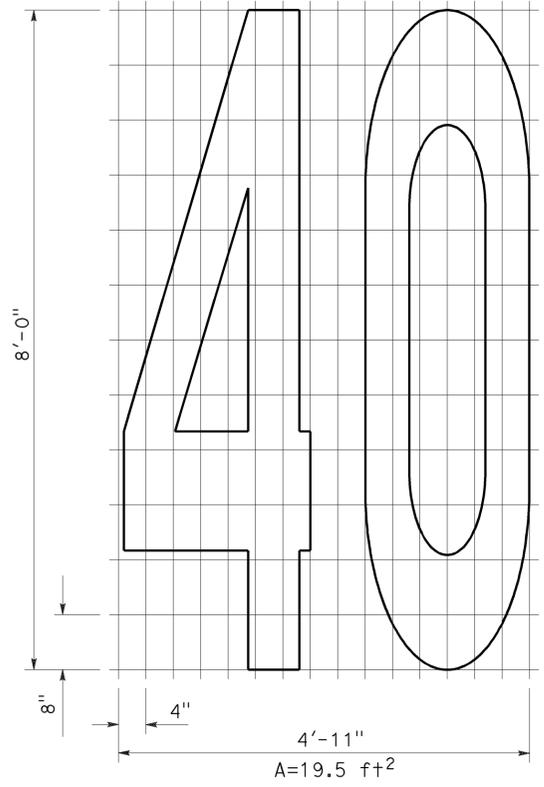
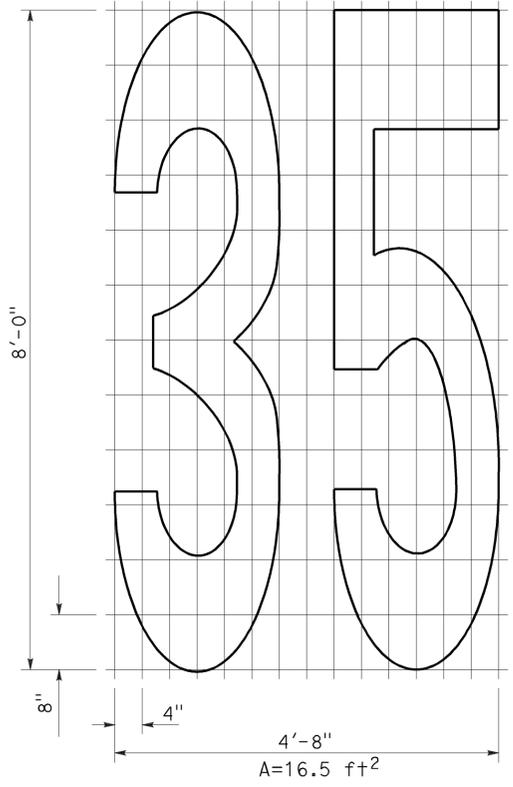
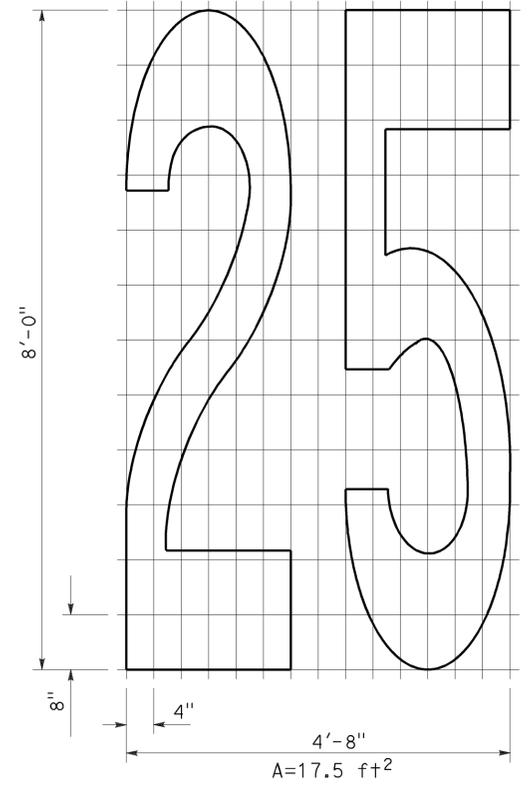
**DIAMOND SYMBOL**



**BICYCLE LOOP  
DETECTOR SYMBOL**



**SHARED ROADWAY BICYCLE MARKING**



**NUMERALS**

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

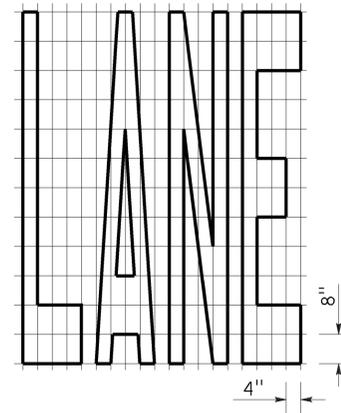
RSP A24C DATED OCTOBER 19, 2012 SUPERSEDES STANDARD PLAN A24C DATED MAY 20, 2011 - PAGE 15 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A24C**

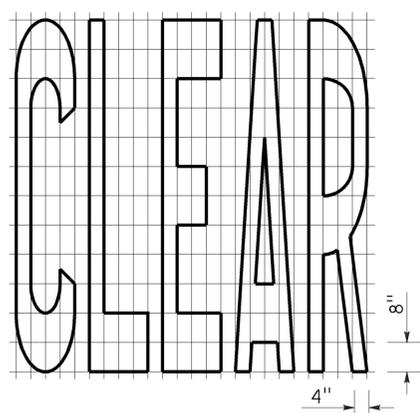
**2010 REVISED STANDARD PLAN RSP A24C**

TO ACCOMPANY PLANS DATED 02-24-14

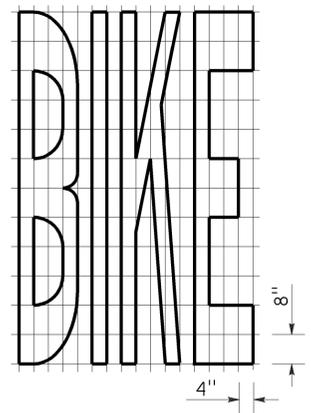
2010 REVISED STANDARD PLAN RSP A24E



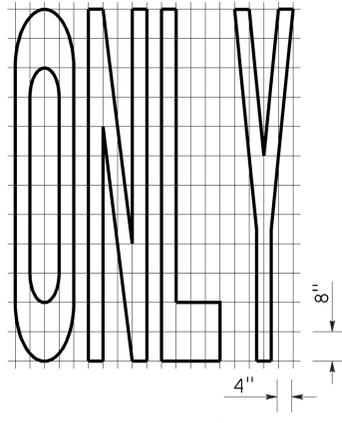
A=24 ft<sup>2</sup>



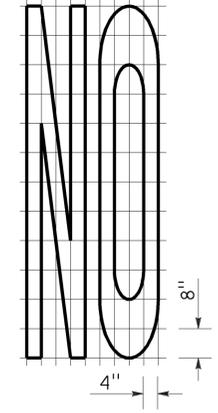
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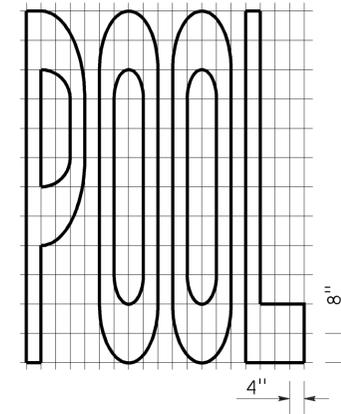
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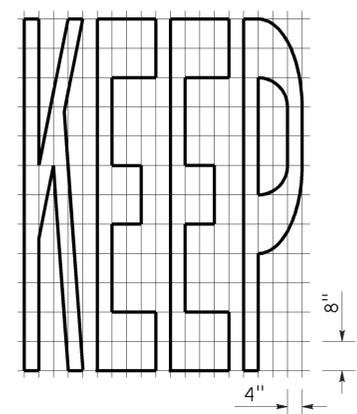
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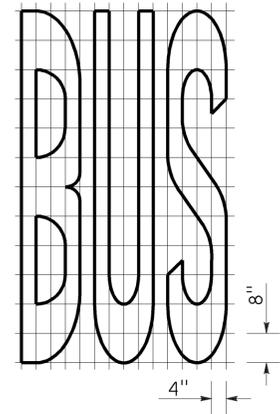
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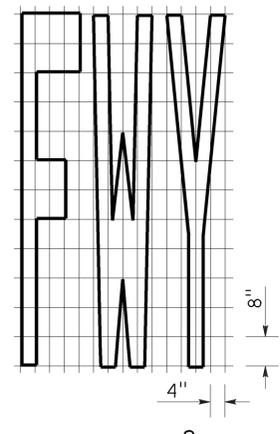
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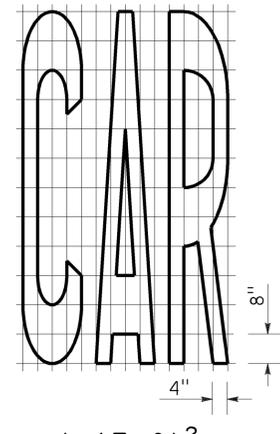
A=24 ft<sup>2</sup>



A=20 ft<sup>2</sup>

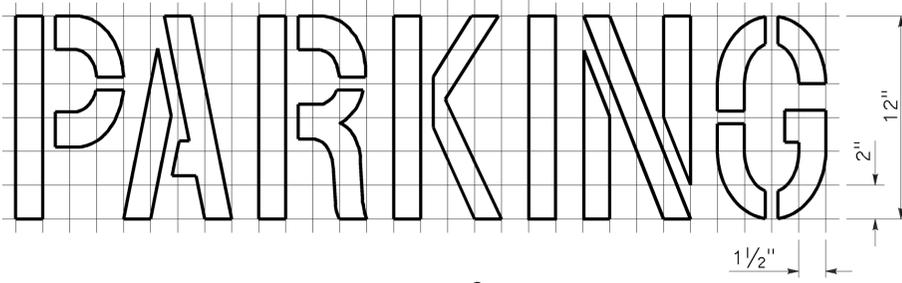
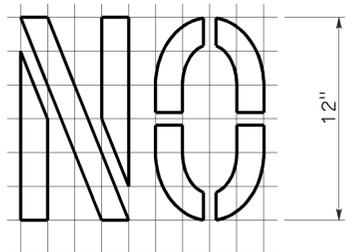


A=16 ft<sup>2</sup>

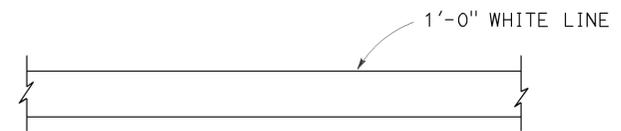


A=17 ft<sup>2</sup>

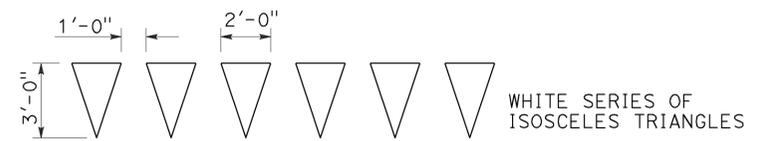
WORD MARKINGS			
ITEM	ft <sup>2</sup>	ITEM	ft <sup>2</sup>
LANE	24	NO	14
POOL	23	BIKE	21
CAR	17	BUS	20
CLEAR	27	ONLY	22
KEEP	24	FWY	16



A=2 ft<sup>2</sup>  
See Notes 6 and 7



LIMIT LINE (STOP LINE)



↑  
DIRECTION OF TRAVEL  
YIELD LINE

**NOTES:**

1. If a message consists of more than one word, it should read "UP", i.e., the first word should be nearest the driver.
2. The space between words should be at least four times the height of the characters for low speed roads, but not more than ten times the height of the characters. The space may be reduced appropriately where there is limited space because of local conditions.
3. Minor variations in dimensions may be accepted by the Engineer.
4. Portions of a letter, number or symbol may be separated by connecting segments not to exceed 2" in width.
5. The words "NO PARKING" pavement marking is to be used for parking facilities. For typical locations of markings, see Standard Plans A90A and A90B.
6. The words "NO PARKING", shall be painted in white letters no less than 1'-0" high on a contrasting background and located so that it is visible to traffic enforcement officials.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**PAVEMENT MARKINGS  
WORDS, LIMIT AND YIELD LINES**

NO SCALE

RSP A24E DATED JULY 20, 2012 SUPERSEDES STANDARD PLAN A24E  
DATED MAY 20, 2011 - PAGE 17 OF THE STANDARD PLANS BOOK DATED 2010.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	78	R17.0/R17.4	27	50

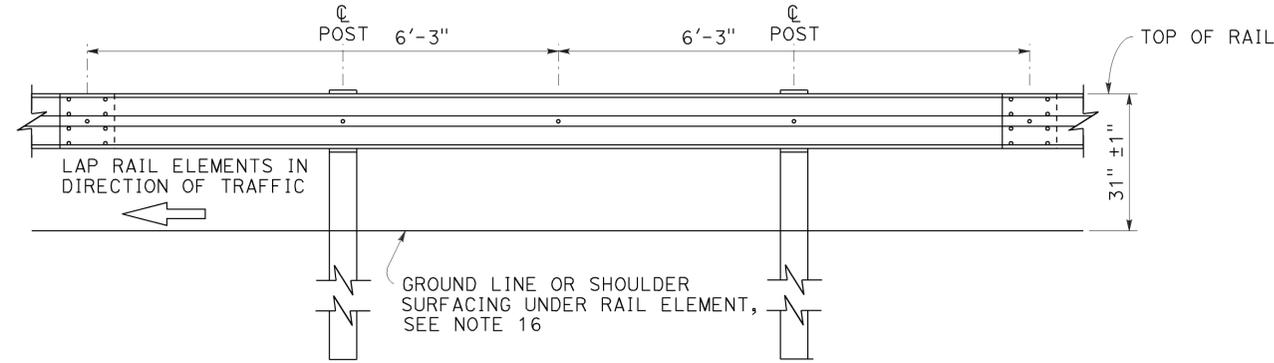
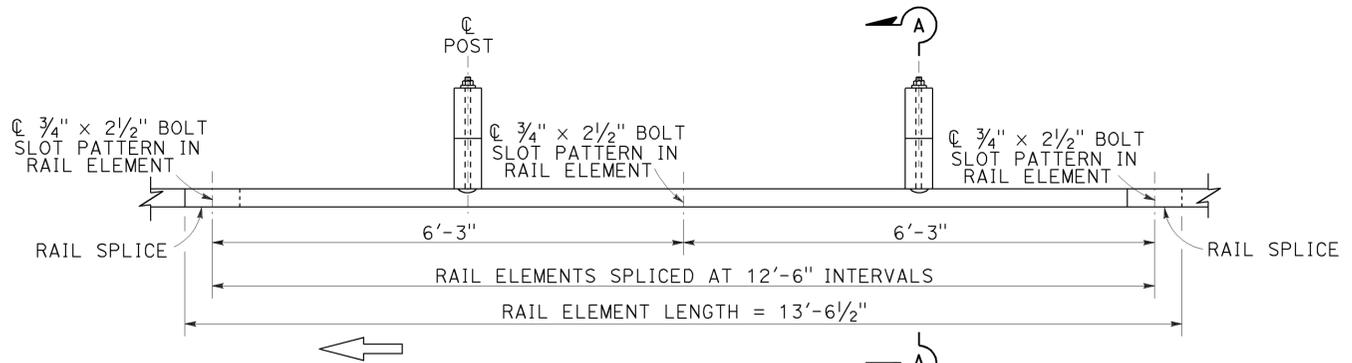
**Randell D. Hiatt**  
REGISTERED CIVIL ENGINEER

July 19, 2013  
PLANS APPROVAL DATE

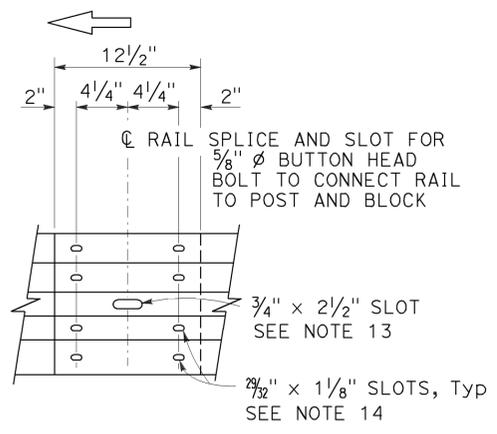
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REGISTERED PROFESSIONAL ENGINEER  
No. C50200  
Exp. 6-30-15  
CIVIL  
STATE OF CALIFORNIA

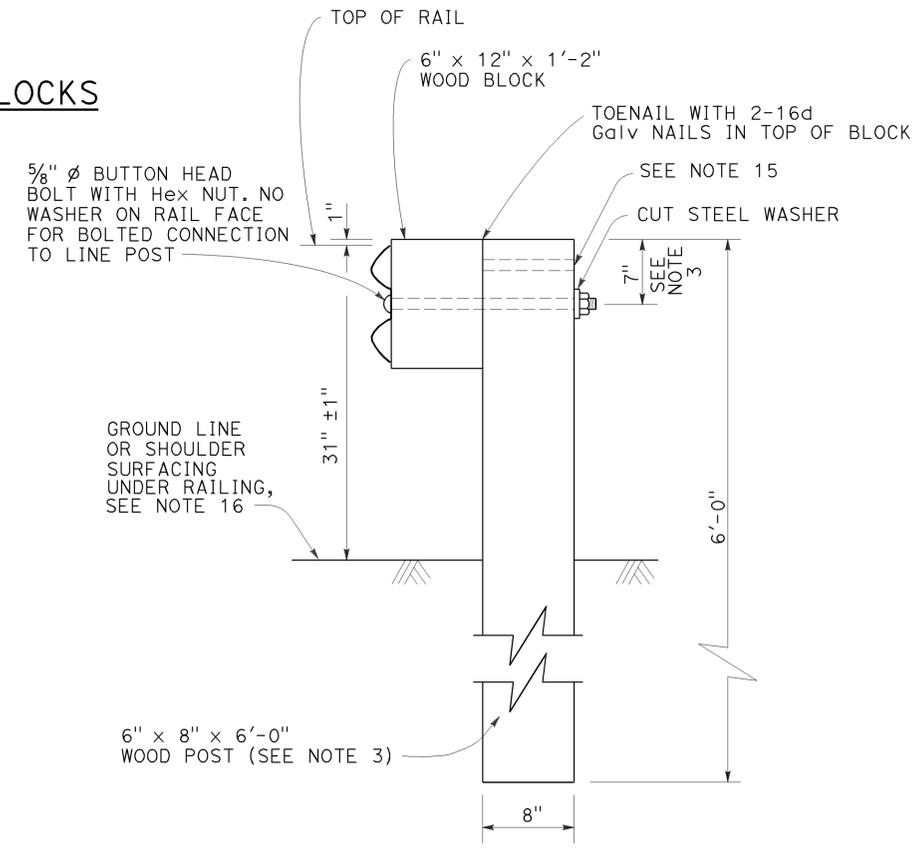
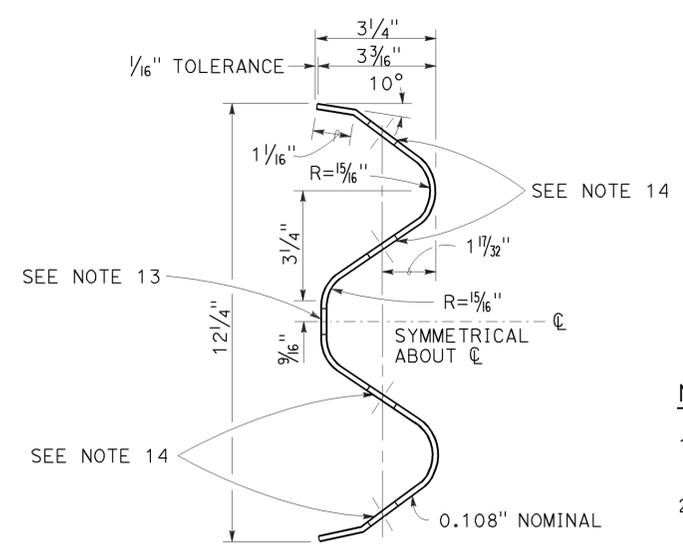
TO ACCOMPANY PLANS DATED 02-24-14



**MIDWEST GUARDRAIL SYSTEM WITH WOOD POST AND BLOCKS**



- Connect the over lapped end of the rail elements with 5/8" Ø 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" Ø recessed hex nuts. Recess of hex nut points toward rail element. A total of 8 bolts and nuts are to be used at each rail splice connection.
- The ends of the rail elements are to be overlapped in the direction of traffic (see details).
- Where end cap is to be attached to the end of a rail element, a total of 4 of the above described splice bolts and nuts are to be used.



SECTION A-A  
TYPICAL WOOD LINE POST INSTALLATION  
See Note 4

**NOTES:**

- For details of steel post installations, see Revised Standard Plan RSP A77L2.
- For details of standard hardware used to construct MGS, see Revised Standard Plan RSP A77M1.
- For details of wood posts and wood blocks used to construct MGS, see Revised Standard Plan RSP A77N1.
- For additional installation details, see Revised Standard Plan RSP A77N3.
- MGS post spacing to be 6'-3" center to center, except as otherwise noted.
- For MGS typical layouts, see the A77P, A77Q and A77R Series of Standard Plans.
- If railing is connected to terminal system end treatment, use 31" height terminal system end treatment.
- For MGS end anchor details, see Revised Standard Plans RSP A77S1 and RSP A77T2.
- For details of MGS transition to bridge railing, see Revised Standard Plan RSP A77U4.
- For additional details of MGS connection to bridge railing, see Revised Standard Plans RSP A77U1, RSP A77U2 and RSP A77V1.
- For MGS connection details to abutments and walls, see Revised Standard Plan RSP A77U3.
- For typical MGS delineation and dike positioning details, see Revised Standard Plan RSP A77N4.
- 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 Revised Standard Plan RSP A77N1.
- Install posts in soil.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**MIDWEST GUARDRAIL SYSTEM  
STANDARD RAILING SECTION  
(WOOD POST WITH  
WOOD BLOCK)**

NO SCALE

RSP A77L1 DATED JULY 19, 2013 SUPPLEMENTS STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A77L1**

2010 REVISED STANDARD PLAN RSP A77L1

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	78	R17.0/R17.4	28	50

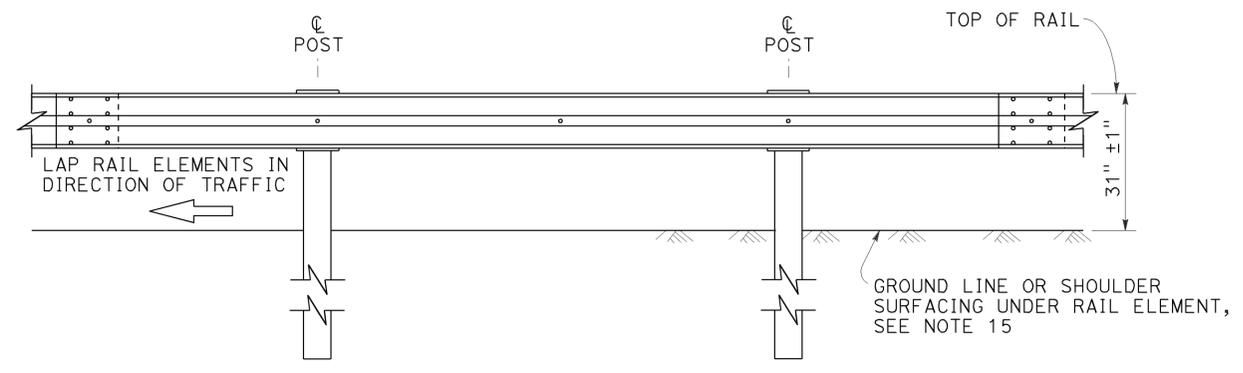
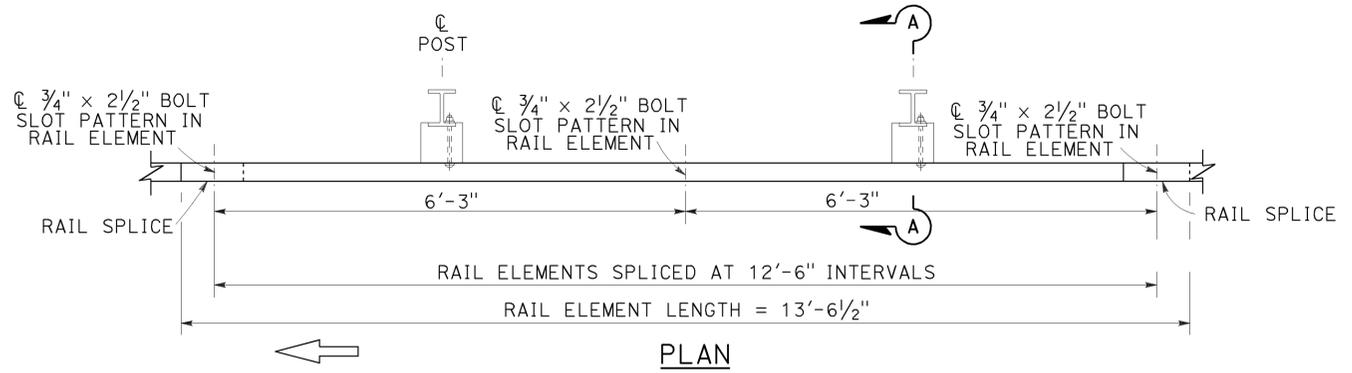
**Randell D. Hiatt**  
REGISTERED CIVIL ENGINEER

July 19, 2013  
PLANS APPROVAL DATE

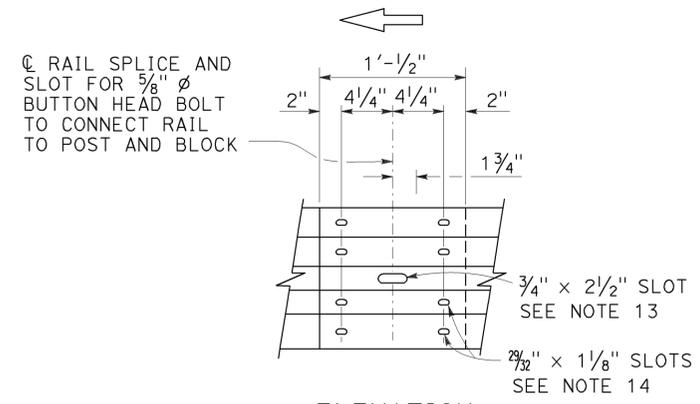
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No. C50200  
Exp. 6-30-15  
CIVIL  
STATE OF CALIFORNIA

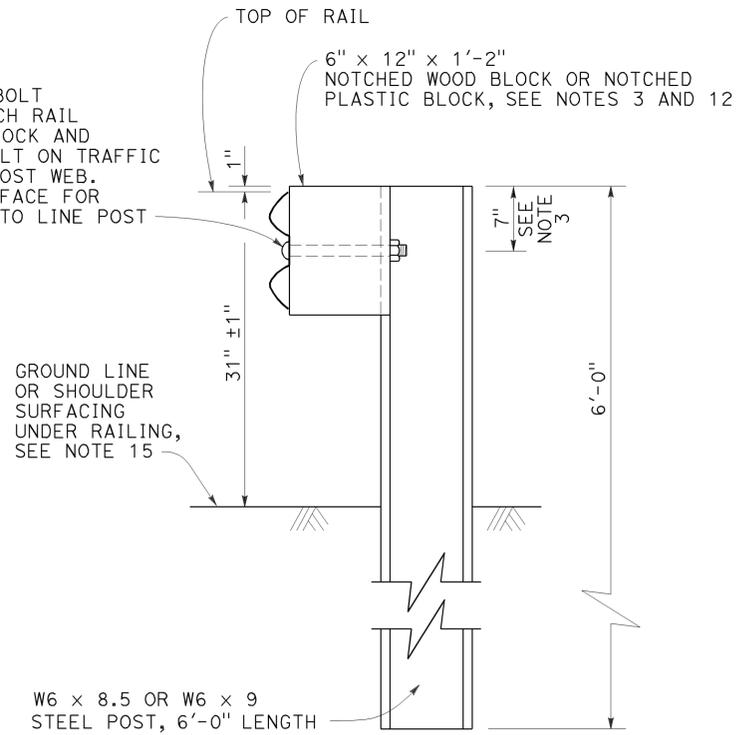
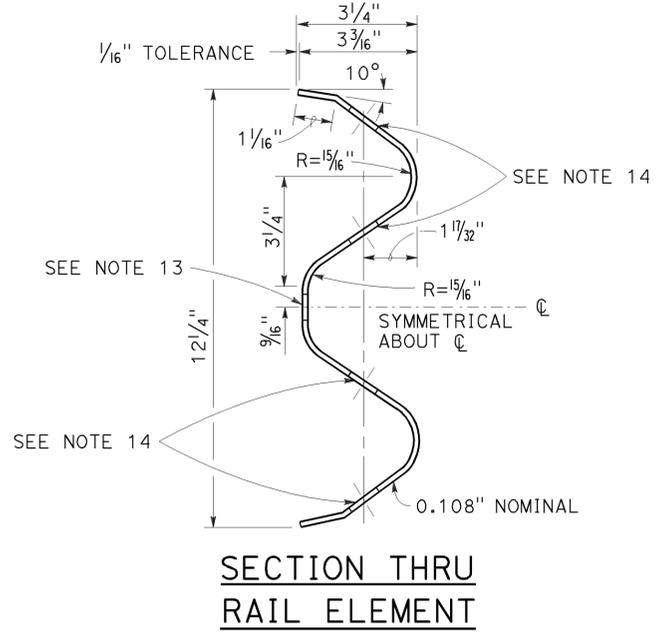
TO ACCOMPANY PLANS DATED 02-24-14



**MIDWEST GUARDRAIL SYSTEM WITH STEEL POSTS AND NOTCHED WOOD OR NOTCHED RECYCLED PLASTIC BLOCKS**



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



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

**NOTES:**

- For details of wood post installations, see Revised Standard Plan RSP A77L1.
- For details of standard hardware used to construct MGS, see Revised Standard Plan RSP A77M1.
- For details of steel posts and notched wood blocks used to construct MGS, see Revised Standard Plan RSP A77N2.
- For additional installation details, see Revised Standard Plan RSP A77N3.
- MGS post spacing to be 6'-3" center to center, except as otherwise noted.
- For MGS typical layouts, see the A77P, A77Q and A77R Series of Standard Plans.
- If railing is connected to terminal system end treatment, use 31" height terminal system end treatment.
- For MGS end anchor details, see Revised Standard Plans RSP A77S1 and RSP A77T2.
- For details of MGS transition to bridge railing, see Revised Standard Plan RSP A77U4.
- For additional details of MGS connection to bridge railings, see Revised Standard Plans RSP A77U1, RSP A77U2 and RSP A77V1.
- For dike positioning and MGS delineation details, see Revised Standard Plan RSP A77N4.
- Notched face of block faces steel post.
- Slotted hole for bolted connection of rail element to block and post. See "Section Thru Rail Element".
- Slotted holes for splice bolts to overlap ends of rail element. See "Section Thru Rail Element".
- Install posts in soil.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**MIDWEST GUARDRAIL SYSTEM STANDARD RAILING SECTION (STEEL POST WITH NOTCHED WOOD OR NOTCHED RECYCLED PLASTIC BLOCK)**

NO SCALE

RSP A77L2 DATED JULY 19, 2013 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A77L2**

2010 REVISED STANDARD PLAN RSP A77L2

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	78	R17.0/R17.4	29	50

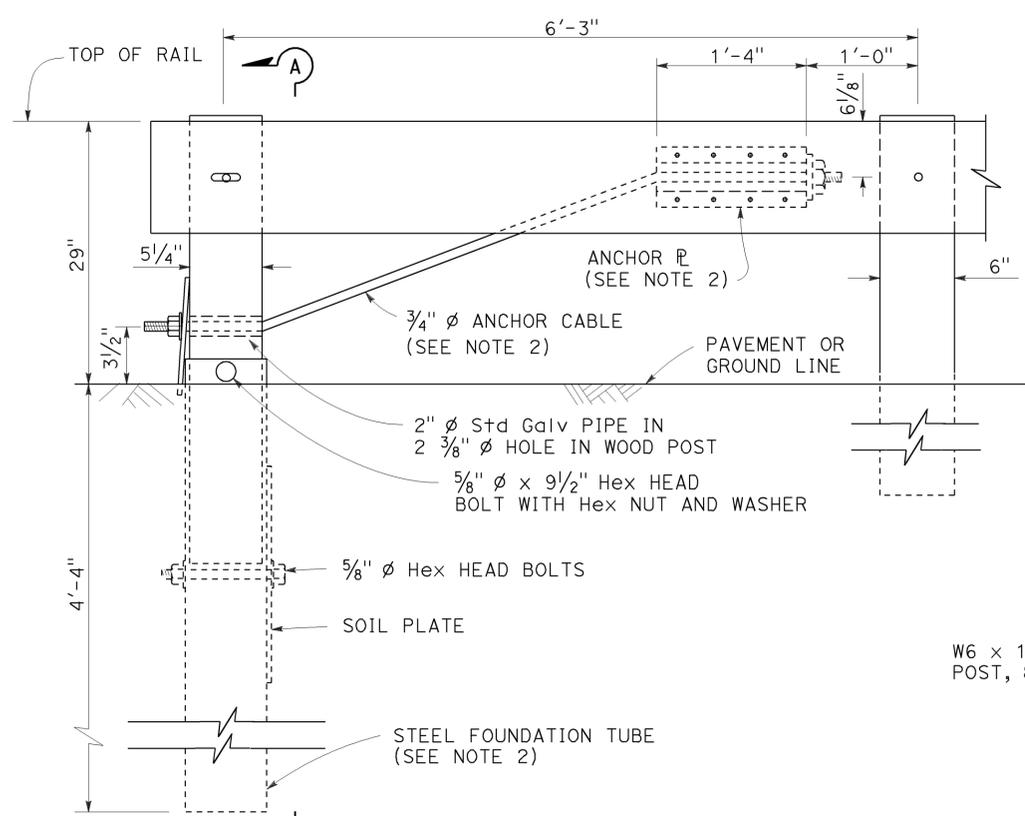
**Randell D. Hiatt**  
REGISTERED CIVIL ENGINEER

July 19, 2013  
PLANS APPROVAL DATE

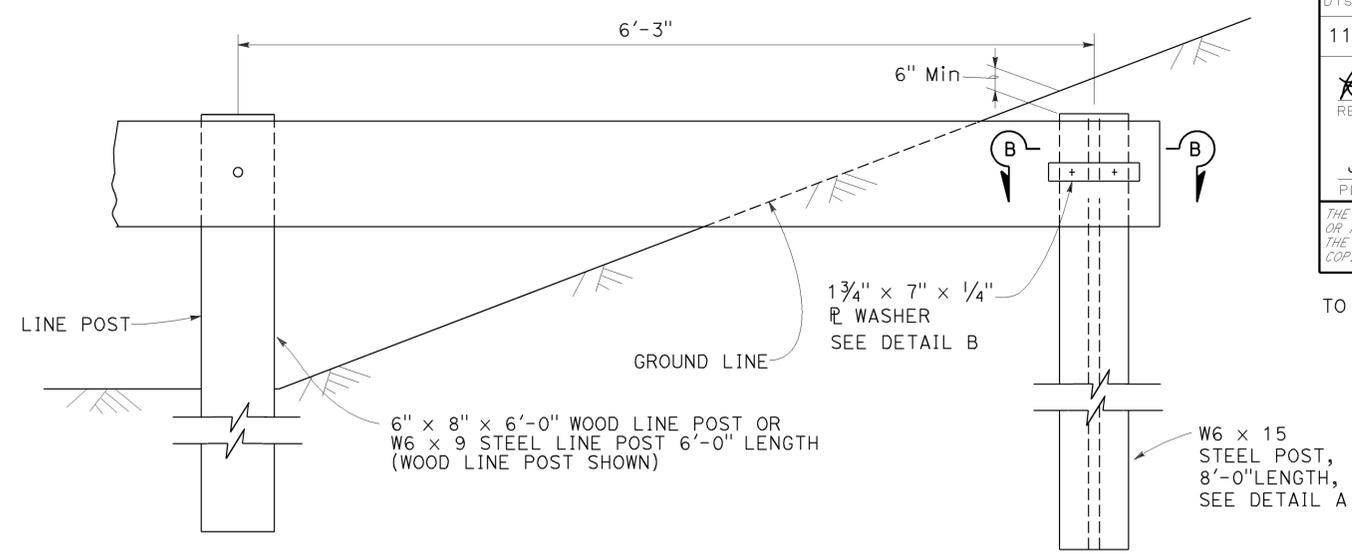
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TO ACCOMPANY PLANS DATED 02-24-14

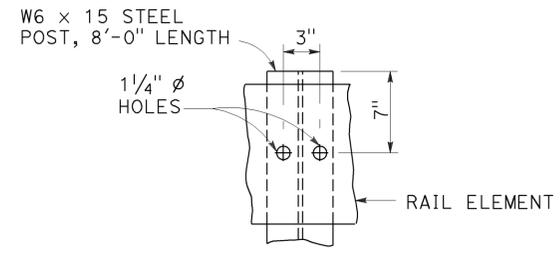
REGISTERED PROFESSIONAL ENGINEER  
Randell D. Hiatt  
No. C50200  
Exp. 6-30-15  
CIVIL  
STATE OF CALIFORNIA



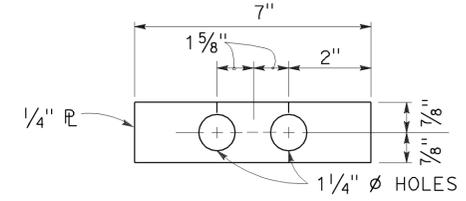
**ELEVATION  
END ANCHOR  
ASSEMBLY (TYPE SFT)**



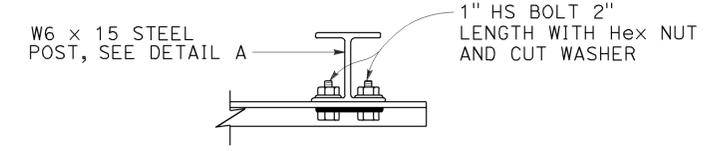
**BURIED POST END ANCHOR**



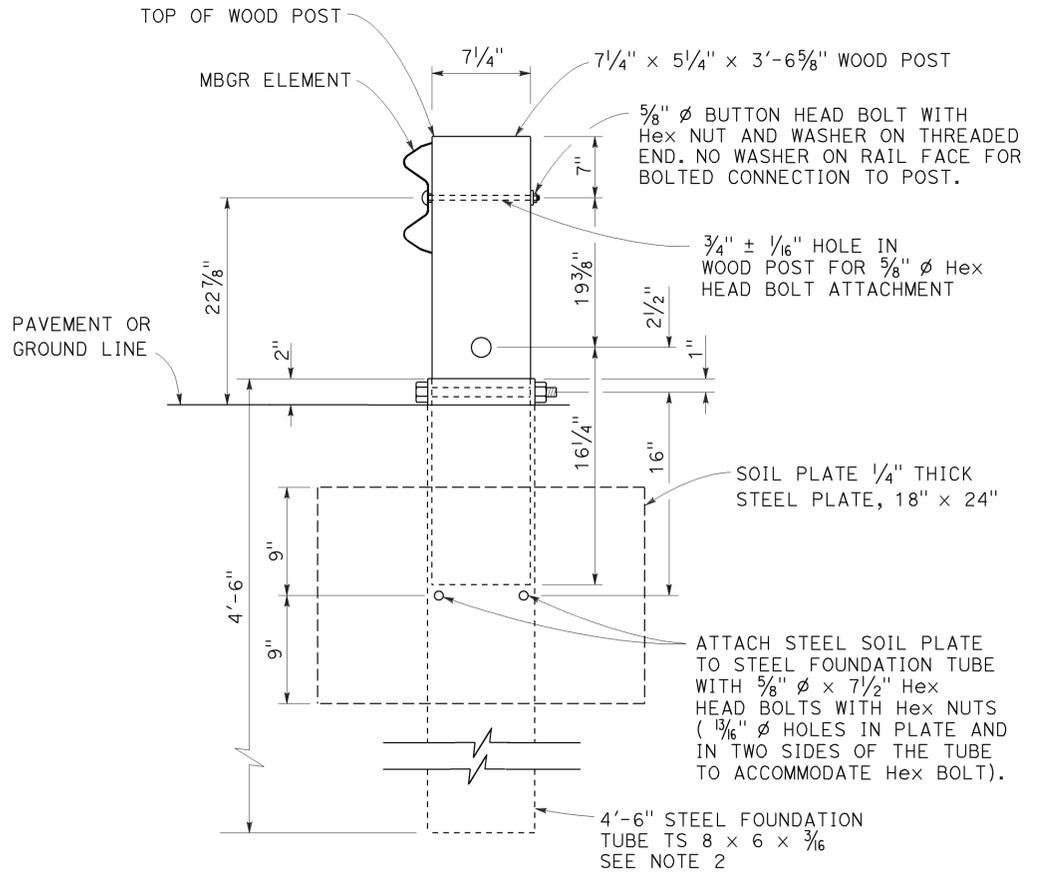
**DETAIL A**



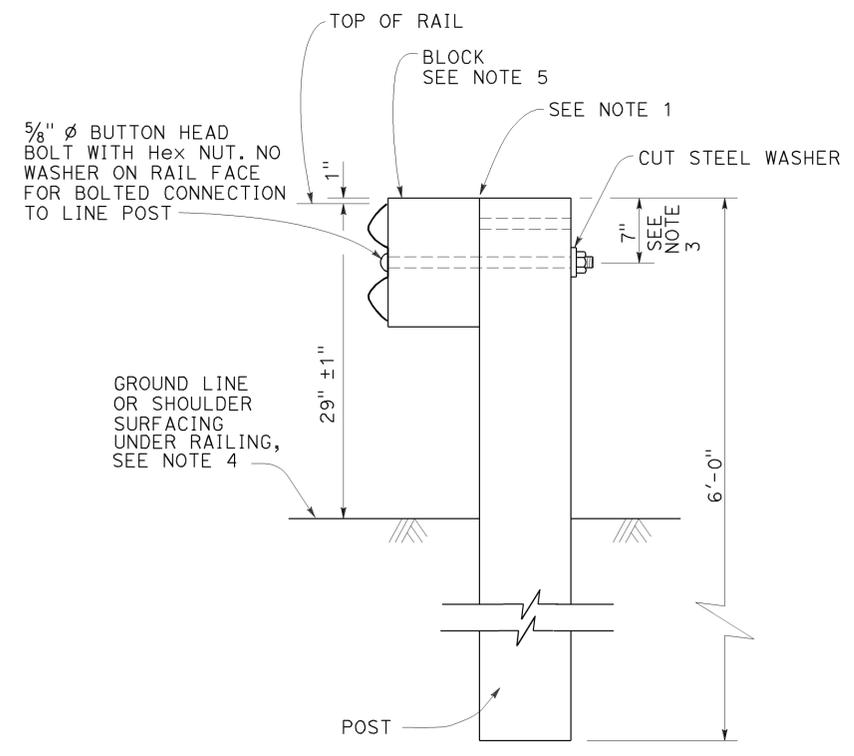
**DETAIL B**



**SECTION B-B**



**SECTION A-A**



**TYPICAL LINE  
POST INSTALLATION**

**NOTES:**

1. For wood post and wood block, toenail with 2-16d Galv nails in top of block. For steel post and notched wood or plastic block, notched face of block faces steel post.
2. 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" ø 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.
3. To connect railing to 27" 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.
4. Install posts in soil.
5. See Revised Standard Plans RSP A77N1 and RSP A77N2 for details.
6. Holes excavation in the slope to construct the buried post end anchor shall be backfilled with selected earth, placed in layers approximately 1'-0" thick. Each layer shall be moistened and thoroughly compacted.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**METAL BEAM GUARD RAILING  
RECONSTRUCT INSTALLATION**

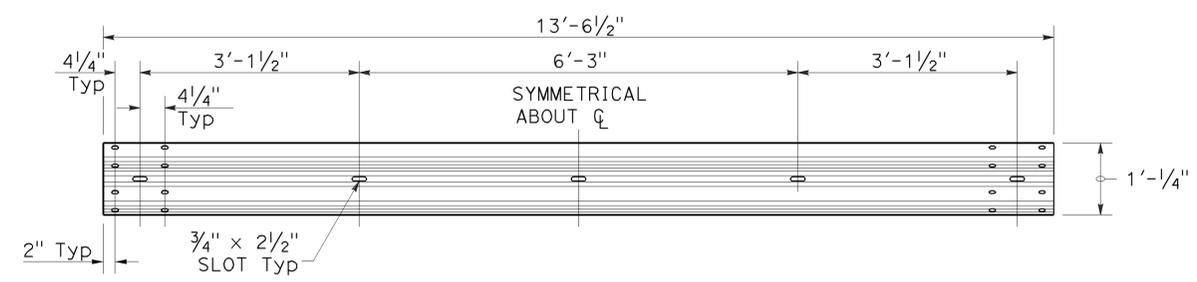
NO SCALE

RSP A77L3 DATED JULY 19, 2013 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A77L3**

2010 REVISED STANDARD PLAN RSP A77L3

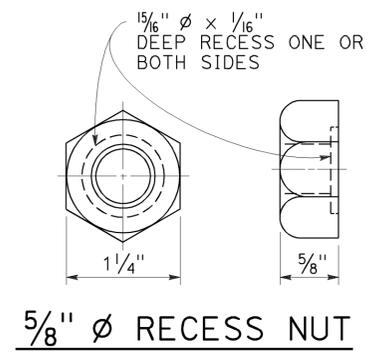
TO ACCOMPANY PLANS DATED 02-24-14



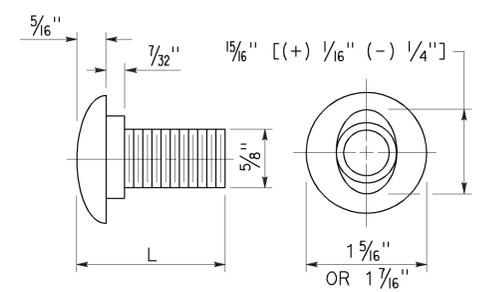
**TYPICAL RAIL ELEMENT**

**NOTE:**

- Slotted holes for splice bolts to overlap ends of rail element.



**5/8" Ø RECESS NUT**

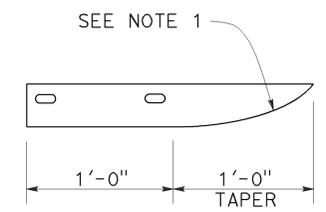


**5/8" Ø BUTTON HEAD BOLT**

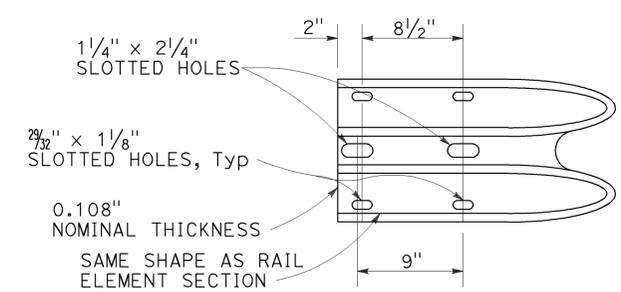
**BUTTON HEAD BOLT**

L	THREAD LENGTH
1 3/8"	FULL THREAD LENGTH
2"	FULL THREAD LENGTH
10"	4" Min THREAD LENGTH
18"	4" Min THREAD LENGTH
20"	4" Min THREAD LENGTH
22"	4" Min THREAD LENGTH
26"	4" Min THREAD LENGTH
36"	4" Min THREAD LENGTH
** 2 3/4"	2" Min THREAD LENGTH
** 19"	4" Min THREAD LENGTH

\*\* For nested rail applications.



**PLAN**



**ELEVATION  
END CAP  
(TYPE A)**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**MIDWEST GUARDRAIL SYSTEM  
STANDARD HARDWARE**

NO SCALE

RSP A77M1 DATED JULY 19, 2013 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A77M1**

2010 REVISED STANDARD PLAN RSP A77M1

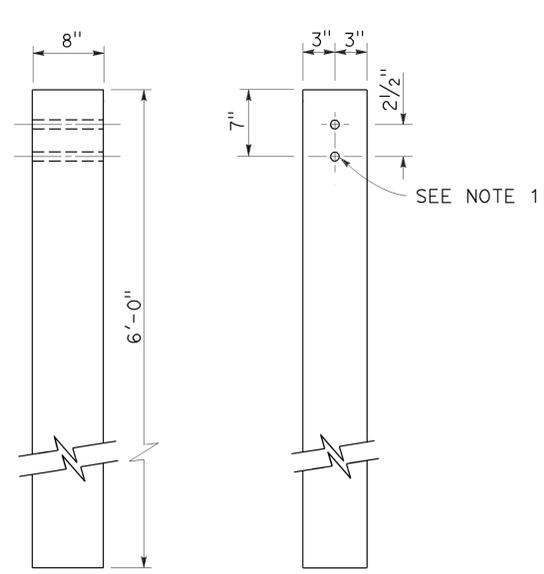
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	78	R17.0/R17.4	31	50

**Randell D. Hiatt**  
REGISTERED CIVIL ENGINEER

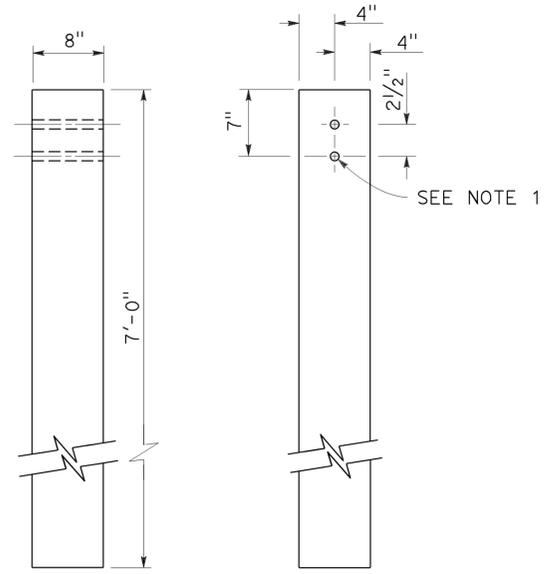
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PLANS APPROVAL DATE

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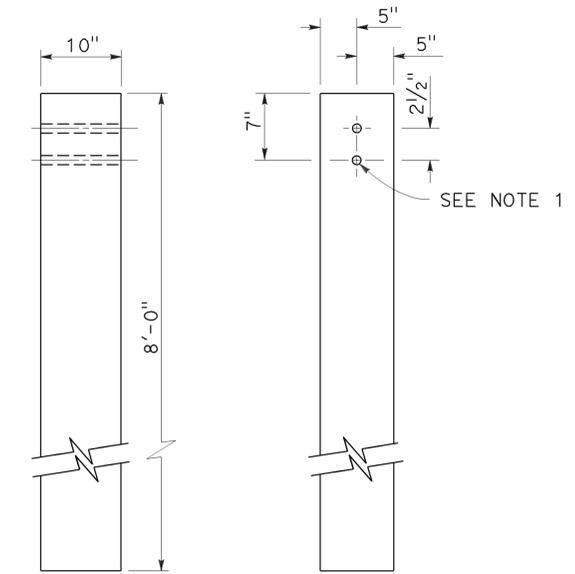
TO ACCOMPANY PLANS DATED 02-24-14



SIDE      FRONT  
**6" x 8" WOOD POST**  
See Note 3



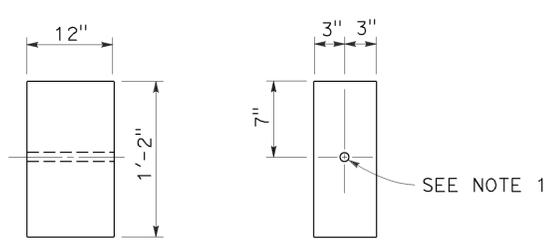
SIDE      FRONT  
**8" x 8" WOOD POST**  
See Note 4



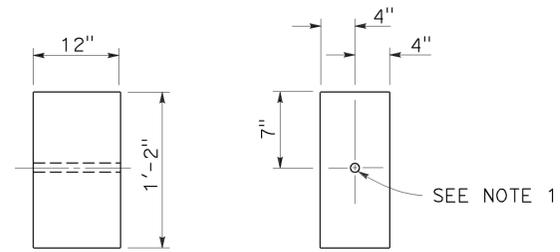
SIDE      FRONT  
**10" x 10" WOOD POST**  
See Note 5

**NOTES:**

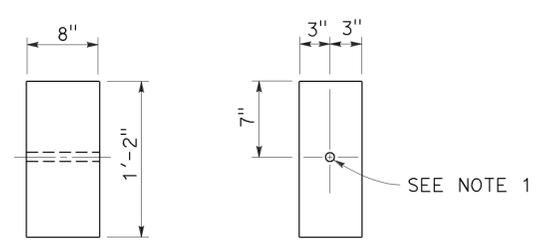
1. All holes in wood posts and blocks shall be 3/4" Dia ± 1/16".
2. Dimensions shown for wood post are nominal.
3. This post and block combination used for standard line post sections of MGS.
4. This post and 8" x 12" block combination used for line post sections of MGS on narrow roadways.
5. This post and 8" x 12" block combination is typically used where strengthened line post sections of MGS are warranted to shield fixed objects.
6. See Revised Standard Plan RSP A77L3 for use of 6" x 8" and 8" x 8" wood blocks.



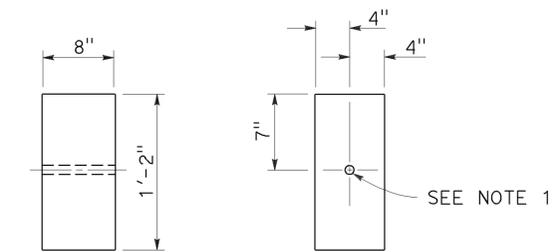
SIDE      FRONT  
**6" x 12" WOOD BLOCK**  
See Note 3



SIDE      FRONT  
**8" x 12" WOOD BLOCK**



SIDE      FRONT  
**6" x 8" WOOD BLOCK**  
Only for use with metal beam guard rail see Note 6



SIDE      FRONT  
**8" x 8" WOOD BLOCK**  
Only for use with metal beam guard rail see Note 6

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**MIDWEST GUARDRAIL SYSTEM  
WOOD POST AND  
WOOD BLOCK DETAILS**

NO SCALE

RSP A77N1 DATED JULY 19, 2013 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A77N1**

2010 REVISED STANDARD PLAN RSP A77N1

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	78	R17.0/R17.4	32	50

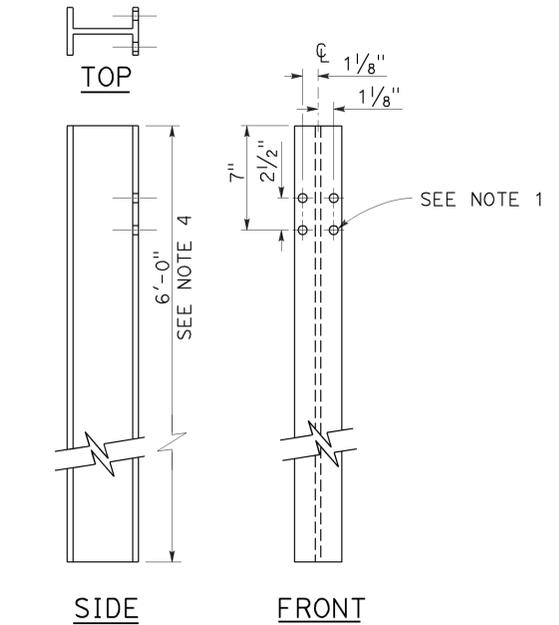
**Randell D. Hiatt**  
REGISTERED CIVIL ENGINEER

July 19, 2013  
PLANS APPROVAL DATE

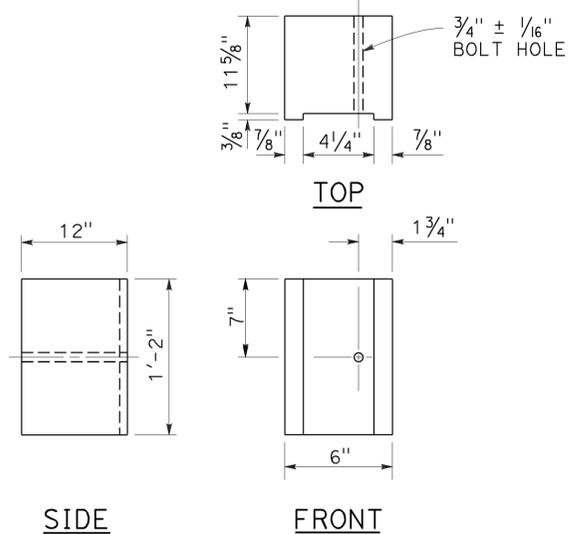
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STATE OF CALIFORNIA

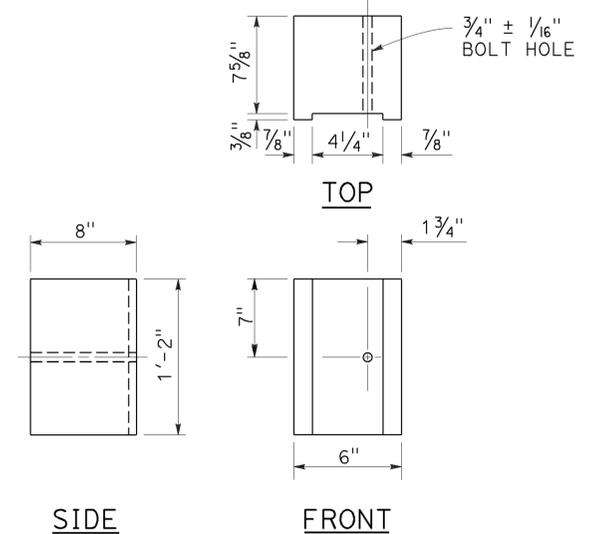
TO ACCOMPANY PLANS DATED 02-24-14



**W6 x 9 OR W6 x 8.5**  
**STEEL POST**  
See Note 4



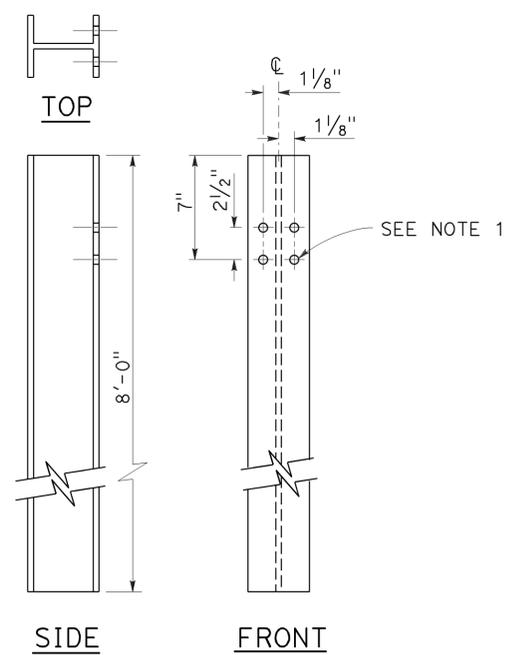
**6" x 12"**  
**NOTCHED WOOD BLOCK**  
See Notes 2 and 3



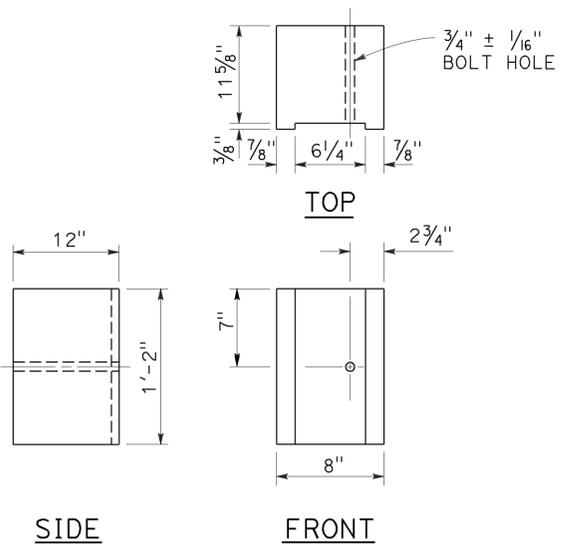
**6" x 8"**  
**NOTCHED WOOD BLOCK**  
Only for use with metal beam guard railing. See Note 5

**NOTES:**

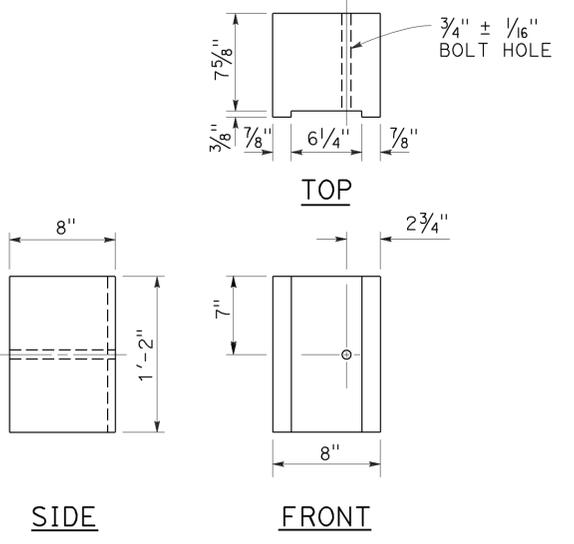
1. All holes in steel post shall be 13/16" Dia maximum.
2. Dimensions shown for wood block are nominal.
3. Notched face of block faces steel post.
4. 6'-0" length posts to be used for typical roadway installation. 7'-0" length posts to be used for narrow roadway installation. See Revised Standard Plan RSP A77N3.
5. See Revised Standard Plan RSP A77L3 for use of 6" x 8" and 8" x 8" notched wood blocks.
6. This post and 8" x 12" block combination to be used for line post sections of MGS on narrow roadways and where strengthened line post sections of MGS are warranted to shield fixed objects.



**W6 x 15**  
**STEEL POST**  
See Note 6



**8" x 12"**  
**NOTCHED WOOD BLOCK**  
See Notes 2 and 3



**8" x 8"**  
**NOTCHED WOOD BLOCK**  
Only for use with metal beam guard railing. See Note 5

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**MIDWEST GUARDRAIL SYSTEM**  
**STEEL POST AND**  
**NOTCHED WOOD BLOCK DETAILS**

NO SCALE

RSP A77N2 DATED JULY 19, 2013 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A77N2**

2010 REVISED STANDARD PLAN RSP A77N2

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	78	R17.0/R17.4	33	50

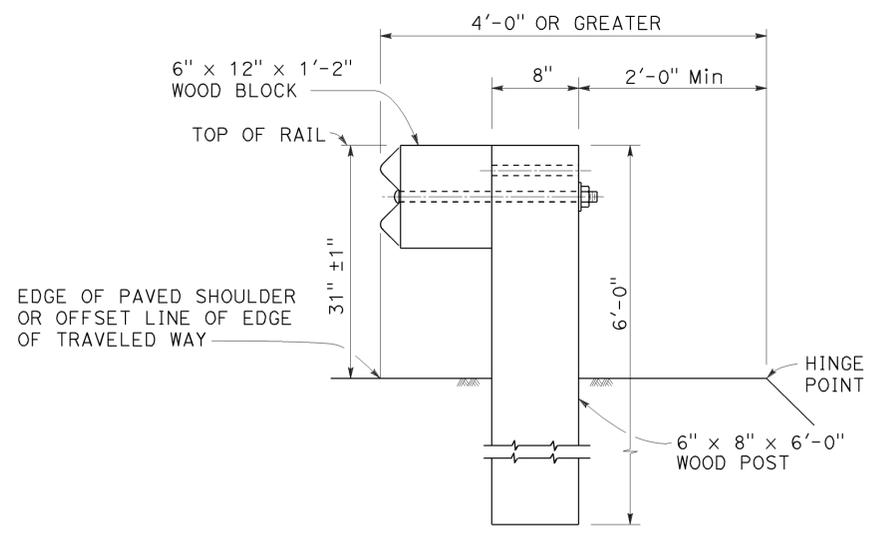
**Randell D. Hiatt**  
REGISTERED CIVIL ENGINEER

July 19, 2013  
PLANS APPROVAL DATE

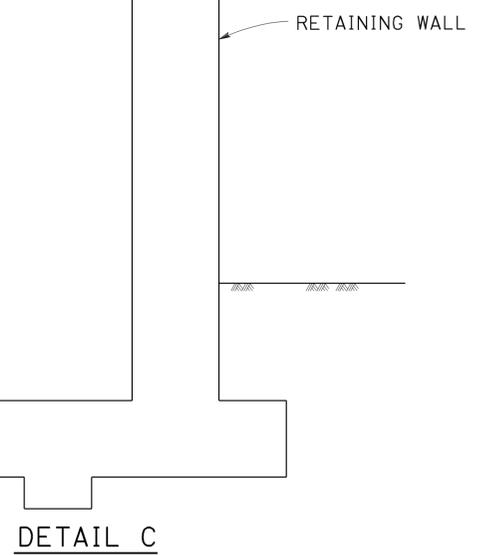
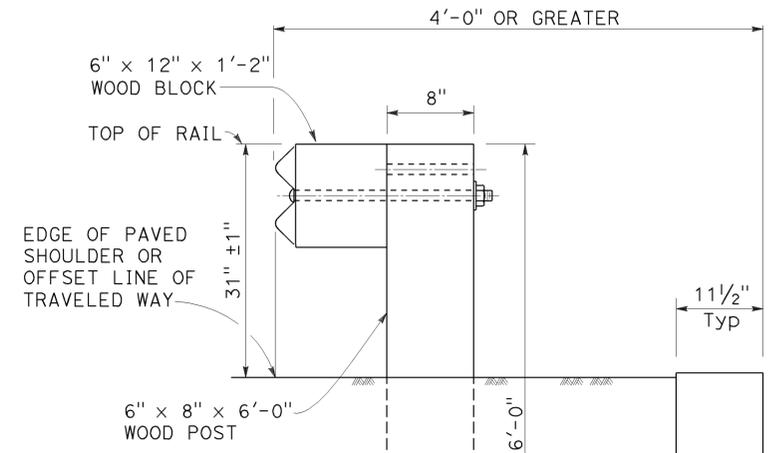
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Exp. 6-30-15  
CIVIL  
STATE OF CALIFORNIA

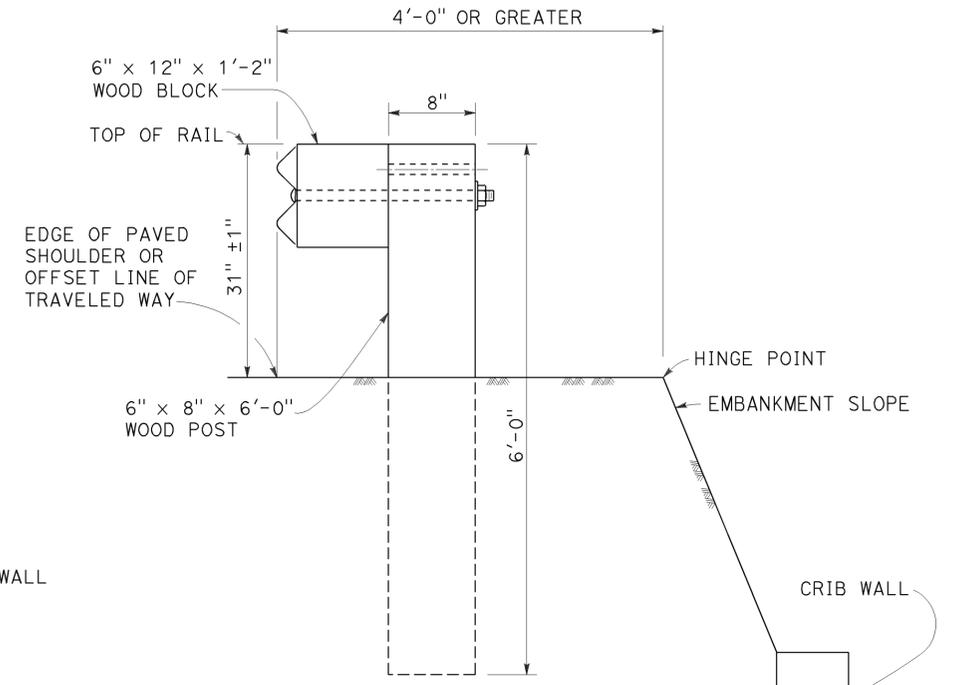
TO ACCOMPANY PLANS DATED 02-24-14



**DETAIL A**  
**TYPICAL ROADWAY**  
**INSTALLATION**  
See Note 1



**DETAIL B**  
**NARROW ROADWAY**  
**INSTALLATION**  
See Note 1



**INSTALLATION AT EARTH RETAINING WALLS**

**DETAIL D**

**POST EMBEDMENT**

**NOTES:**

1. 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 8.5 or W6 x 9 steel post, 6'-0" in length, with 6" x 12" 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, or W6 x 15 steel post, 8'-0" in length, with 8" x 12" 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 Revised Standard Plan RSP A77L1 and RSP A77L2.
2. Where the distance between the face of the rail and the hinge point is less than 2'-6", see the Project Plans for special details.
3. For dike positioning with MGS installations, see Revised Standard Plan RSP A77N4.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**MIDWEST GUARDRAIL SYSTEM**  
**TYPICAL LINE POST**  
**EMBEDMENT AND**  
**HINGE POINT OFFSET DETAILS**

NO SCALE

RSP A77N3 DATED JULY 19, 2013 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A77N3**

2010 REVISED STANDARD PLAN RSP A77N3

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	78	R17.0/R17.4	34	50

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

July 19, 2013  
PLANS APPROVAL DATE

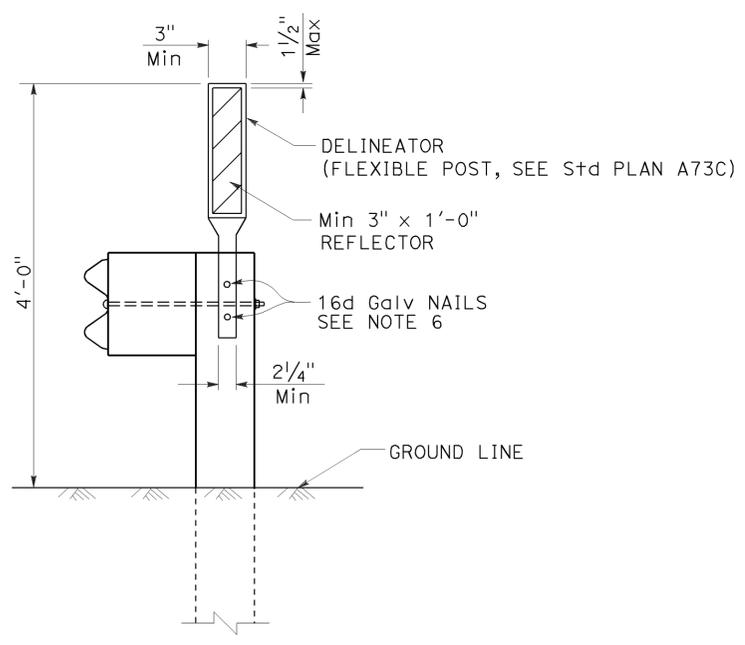
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REGISTERED PROFESSIONAL ENGINEER  
*Randell D. Hiatt*  
No. C50200  
Exp. 6-30-15  
CIVIL  
STATE OF CALIFORNIA

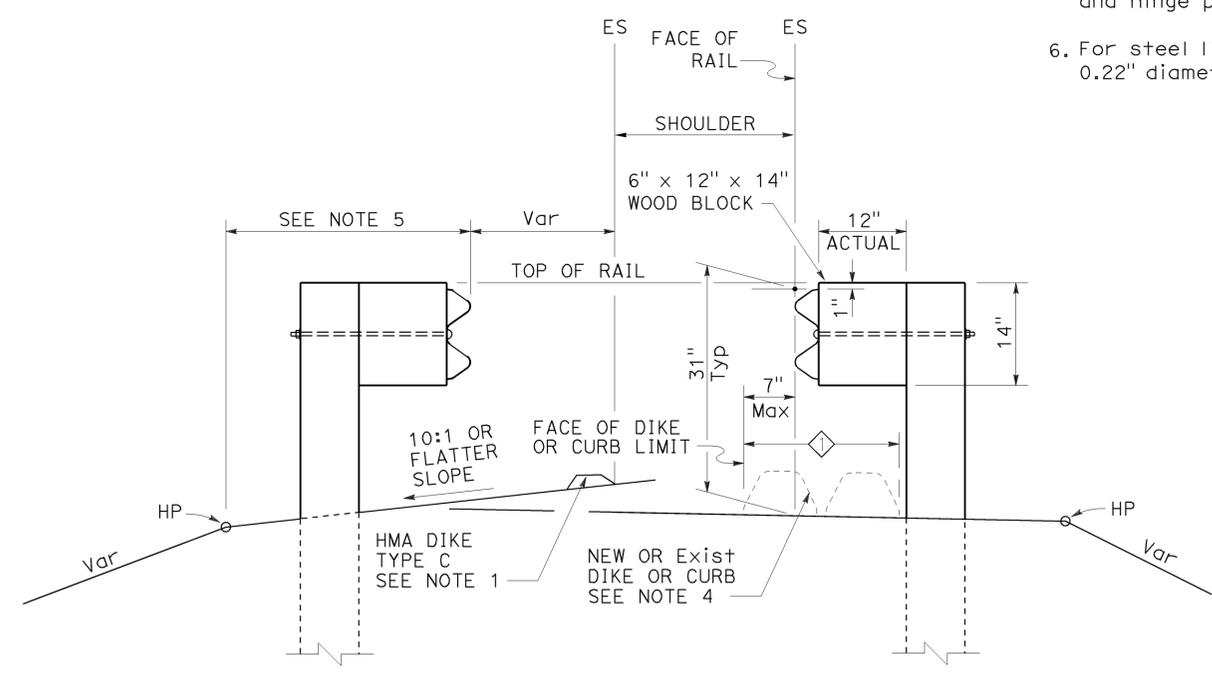
TO ACCOMPANY PLANS DATED 02-24-14

**NOTES:**

1. When necessary to place dike more than 7" in front of face of MGS, only Type C dike may be used. For dike details, see Revised Standard Plan RSP A87B.
2. For standard railing post embedment, see Revised Standard Plan RSP A77N3.
3. MGS delineation to be used where shown on the Project Plans.
4. When dike or curb is placed under MGS, the maximum height of the dike or curb shall be 6". Mountable dike should not be used. For dike and curb details, see Revised Standard Plans RSP A87A and RSP A87B.
5. For details of typical distance between the face of rail and hinge point, see Revised Standard Plan RSP A77N3.
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.



**MGS DELINEATION**  
See Note 3



**DIKE POSITIONING**  
See Note 1

◇ PERMISSIBLE DIKE OR CURB PLACEMENT AREA

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**MIDWEST GUARDRAIL SYSTEM  
TYPICAL RAILING DELINEATION  
AND DIKE POSITIONING DETAILS**  
NO SCALE

RSP A77N4 DATED JULY 19, 2013 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A77N4**

2010 REVISED STANDARD PLAN RSP A77N4

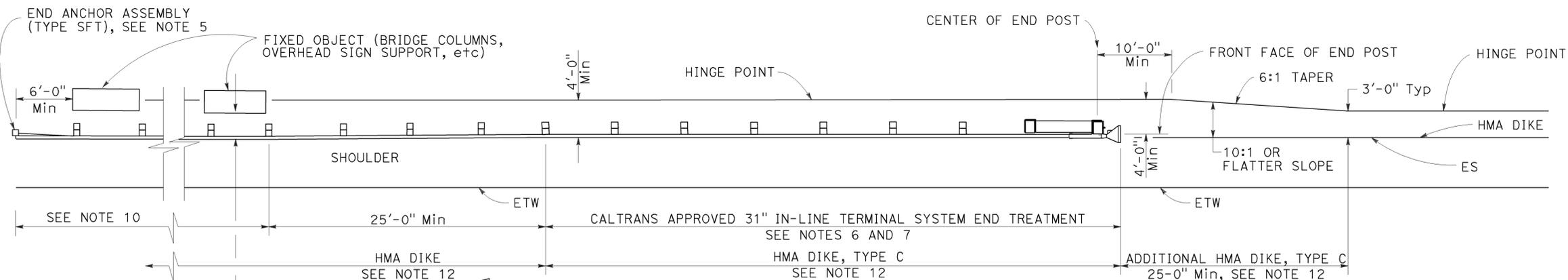
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	78	R17.0/R17.4	35	50

**Randell D. Hiatt**  
REGISTERED CIVIL ENGINEER

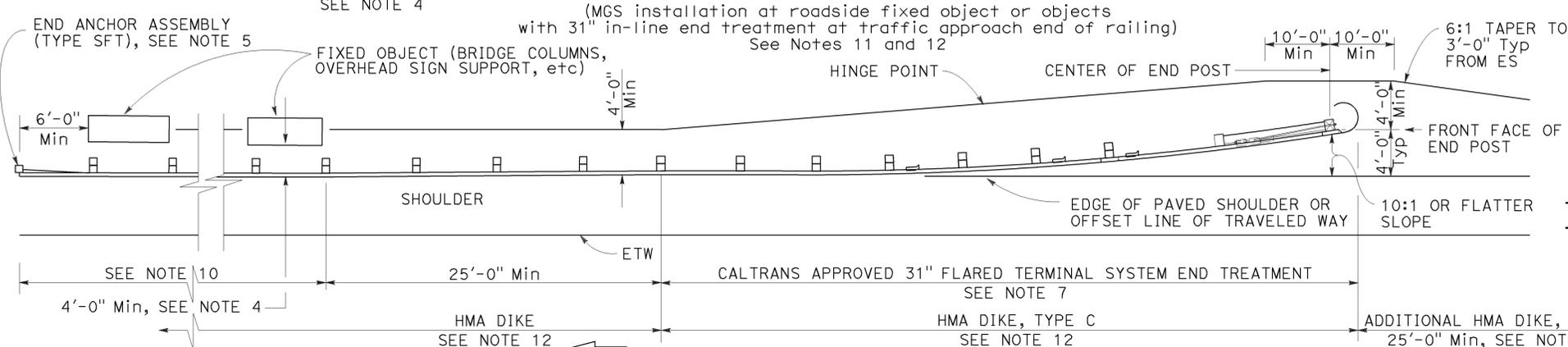
July 19, 2013  
PLANS APPROVAL DATE

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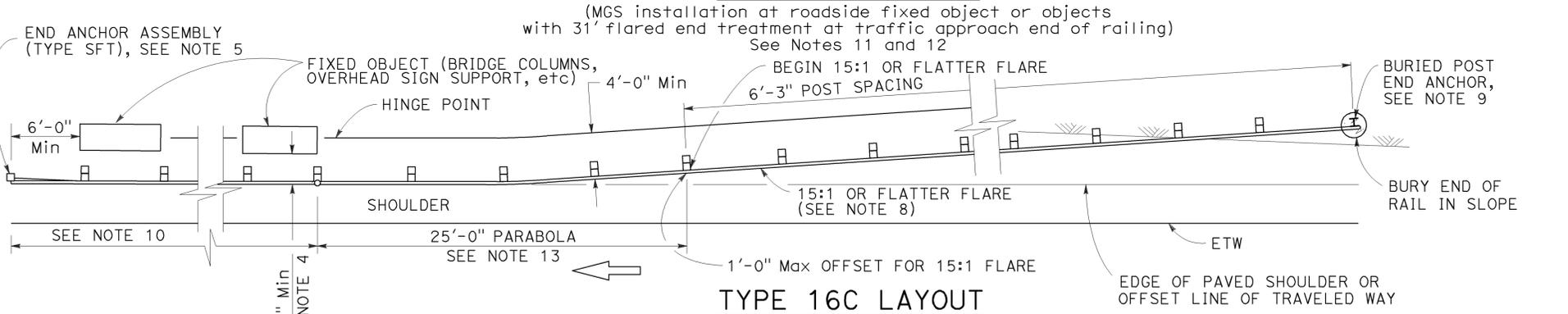
NO. C50200  
Exp. 6-30-15  
CIVIL  
STATE OF CALIFORNIA



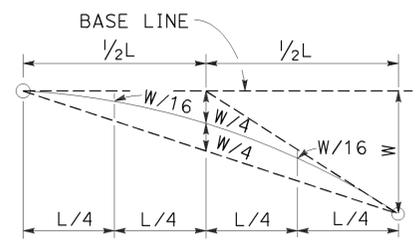
**TYPE 16A LAYOUT**



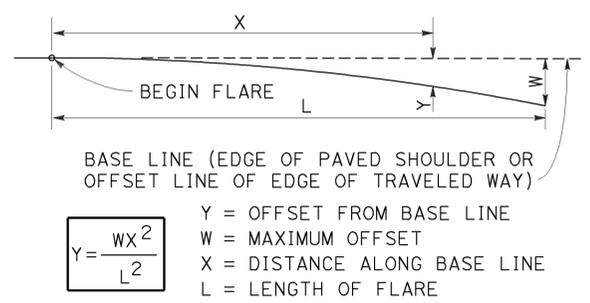
**TYPE 16B LAYOUT**



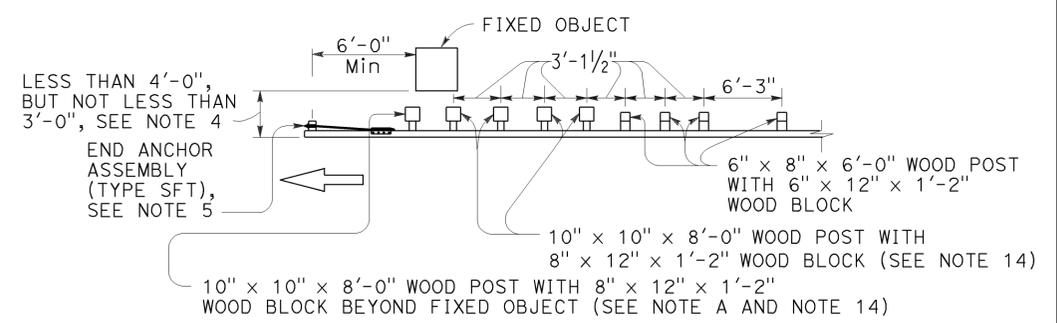
**TYPE 16C LAYOUT**



**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 12" x 1'-2" wood blocks at 3'-1/2" center to center spacing are to be used between fixed objects.

**STRENGTHENED MIDWEST GUARDRAIL SYSTEM SECTIONS FOR FIXED OBJECT**

**NOTES:**

- Line post, blocks and hardware to be used are shown on Revised Standard Plans RSP A77L1, RSP A77L2, RSP A77M1, RSP A77N1 and RSP A77N2.
- MGS 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 12" x 1'-2" wood blocks. W6 x 8.5 or W6 x 9 steel posts, 6'-0" in length, with 6" x 12" 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 12" 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 MGS sections with post spacing of 6'-3". Construct MGS as shown in the detail "Strengthened Midwest Guardrail System Sections for Fixed Object" 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 3'-0". Where the clearance is less than 3'-0", a concrete wall or barrier should be constructed to shield the fixed object(s).
- For End Anchor Assembly (Type SFT) details, see Revised Standard Plan RSP A77S1.
- 31" in-line terminal system end treatments are used where site conditions will not accommodate a 31" flared end treatment.
- The type of 31" 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 MGS 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 Revised Standard Plan RSP A77T2.
- As site conditions dictate, construct additional MGS to shield fixed object(s). Additional MGS 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 MGS is recommended to shield roadside fixed object(s) and a crashworthy 31" end treatment is required for only one direction of traffic.
- Where placement of dike is required with MGS, see Revised Standard Plan RSP A77N4 for dike positioning details.
- For typical flare offsets for 25'-0" length parabola with maximum offset of 1'-0", see Revised Standard Plan RSP A77P1.
- W6 x 15 steel post, 8'-0" in length, with 8" x 12" 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 12" x 1'-2" wood block shown in the detail "Strengthened Midwest Guardrail System Sections for Fixed Object".

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**MIDWEST GUARDRAIL SYSTEM  
TYPICAL LAYOUTS FOR  
ROADSIDE FIXED OBJECTS**

NO SCALE

RSP A77R3 DATED JULY 19, 2013 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A77R3**

2010 REVISED STANDARD PLAN RSP A77R3

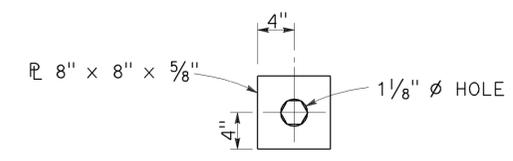
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	78	R17.0/R17.4	36	50

**Randell D. Hiatt**  
REGISTERED CIVIL ENGINEER

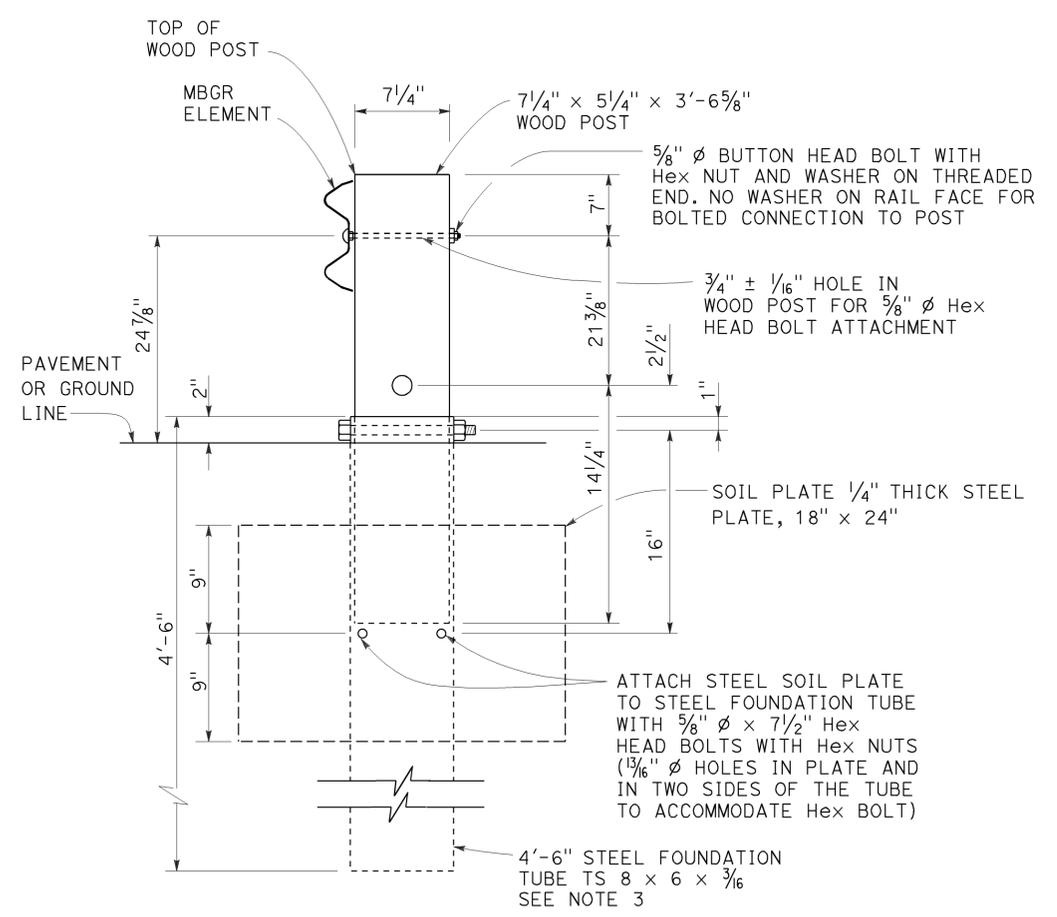
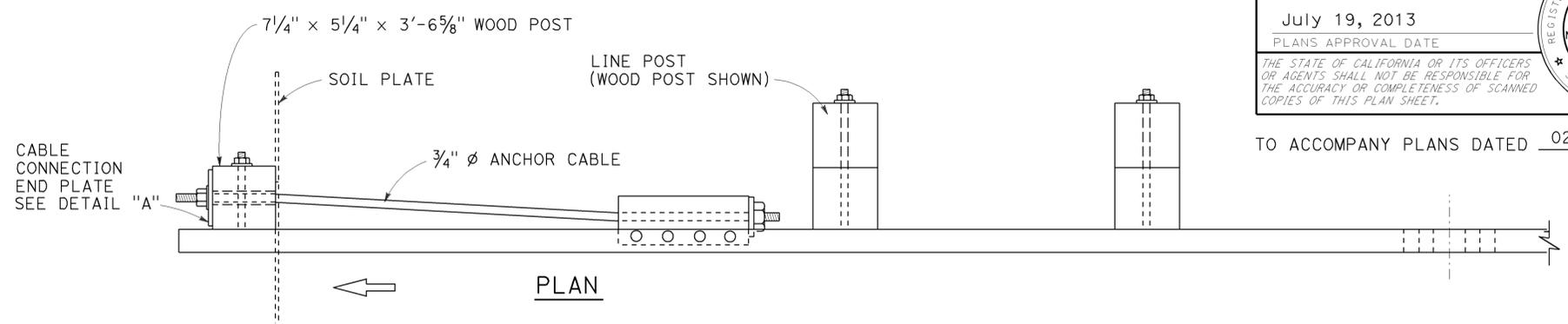
July 19, 2013  
PLANS APPROVAL DATE

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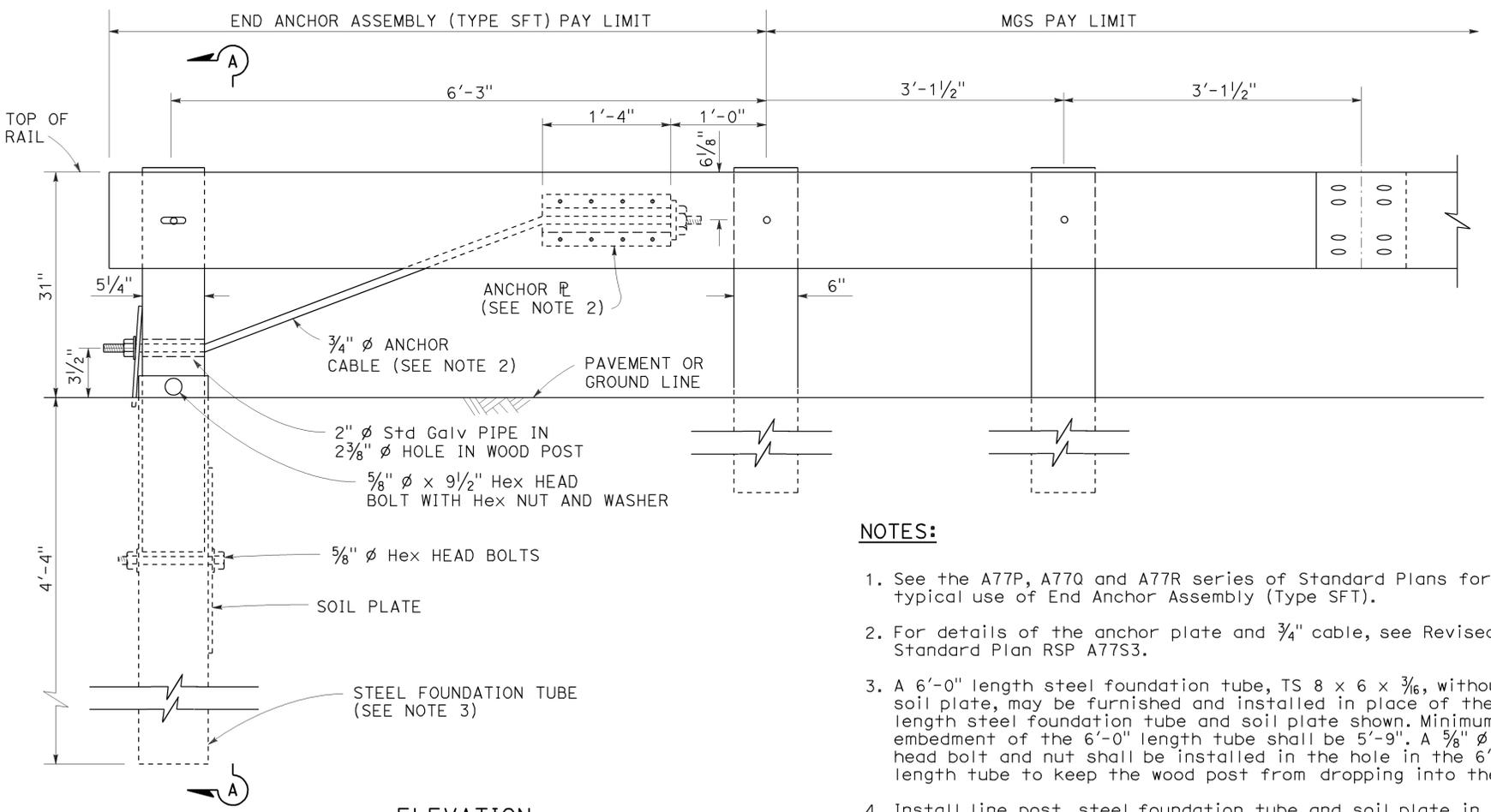
TO ACCOMPANY PLANS DATED 02-24-14



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



**SECTION A-A**



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

**NOTES:**

1. See the A77P, A77Q and A77R 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 Revised Standard Plan RSP A77S3.
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. Install line post, steel foundation tube and soil plate in soil.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**MIDWEST GUARDRAIL SYSTEM**  
**END ANCHOR ASSEMBLY**  
**(TYPE SFT)**

NO SCALE

RSP A77S1 DATED JULY 19, 2013 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A77S1**

**2010 REVISED STANDARD PLAN RSP A77S1**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	78	R17.0/R17.4	37	50

*Randell D. Hiatt*  
REGISTERED CIVIL ENGINEER

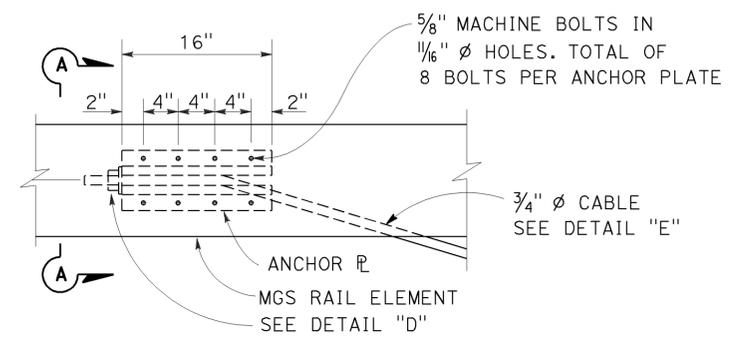
July 19, 2013  
PLANS APPROVAL DATE

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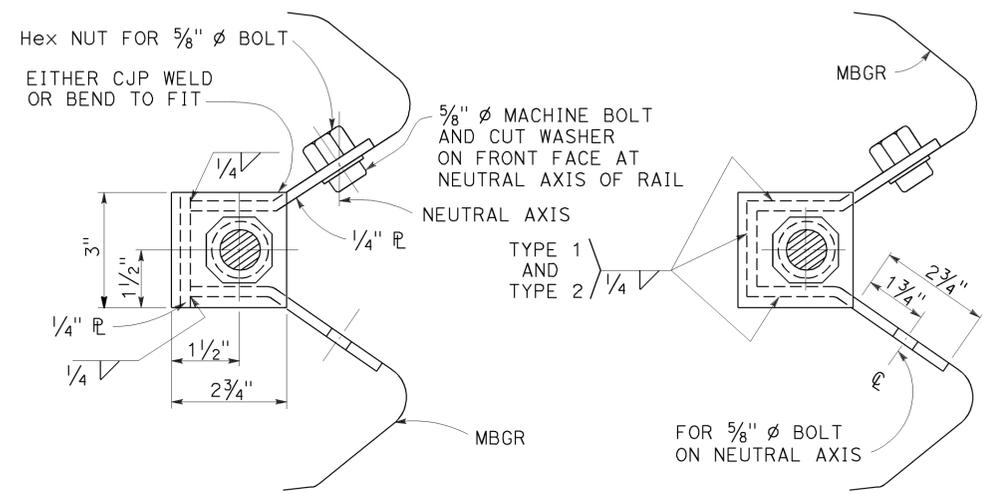
REGISTERED PROFESSIONAL ENGINEER  
Randell D. Hiatt  
No. C50200  
Exp. 6-30-15  
CIVIL  
STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED 02-24-14

**NOTE:**  
See Revised Standard Plans RSP A77S1, RSP A77S2 and RSP A77T1 for typical use of anchor cable and anchor plate.

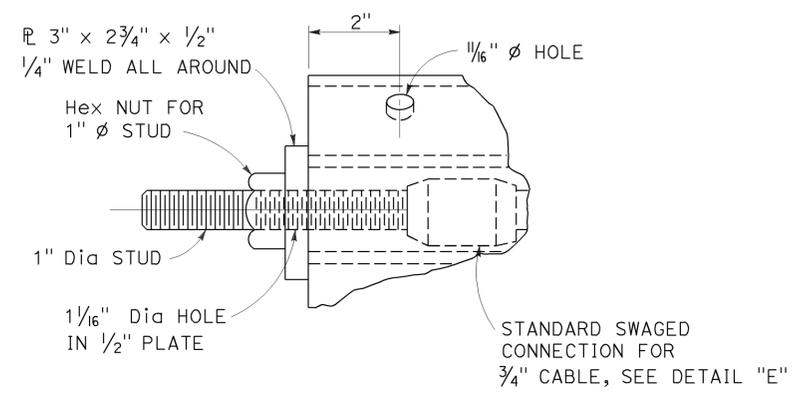


**ANCHOR PLATE DETAIL**  
(MGS shown, TBB similar)

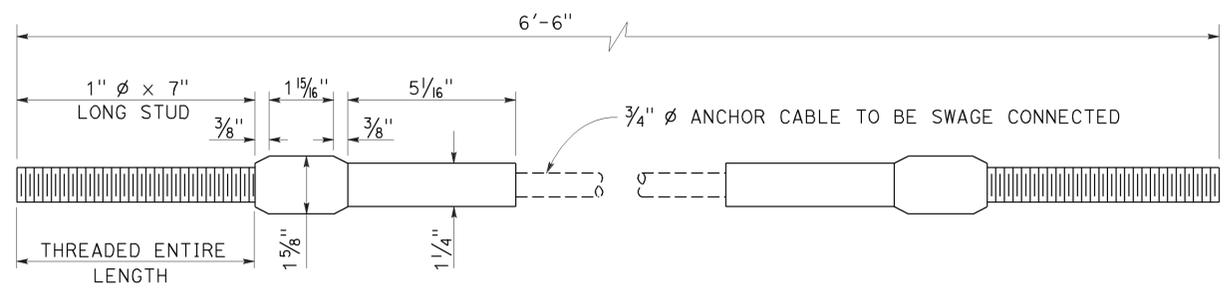


**NOTE:**  
Dimensioning applies to both types.

**SECTION A-A (ALTERNATIVE TYPE 1)**      **SECTION A-A (ALTERNATIVE TYPE 2)**



**DETAIL "D"**



**ANCHOR CABLE WITH SWAGED FITTING AND STUD**  
**DETAIL "E"**

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**METAL RAILING ANCHOR CABLE AND ANCHOR PLATE DETAILS**

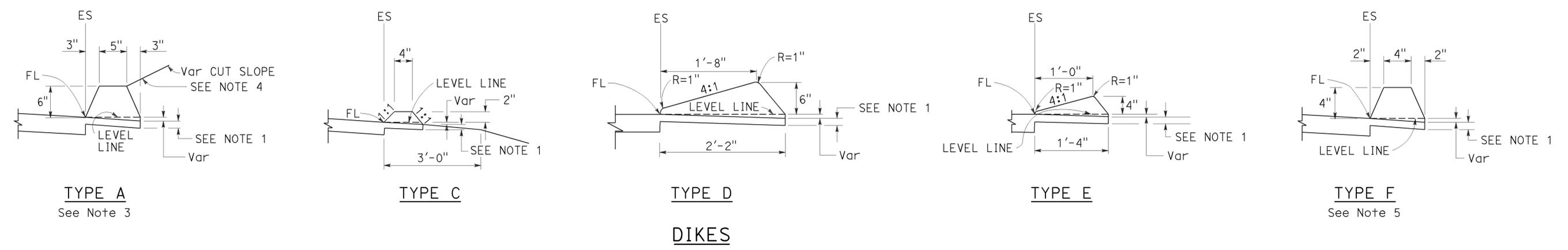
NO SCALE

RSP A77S3 DATED JULY 19, 2013 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP A77S3**

2010 REVISED STANDARD PLAN RSP A77S3

TO ACCOMPANY PLANS DATED 02-24-14



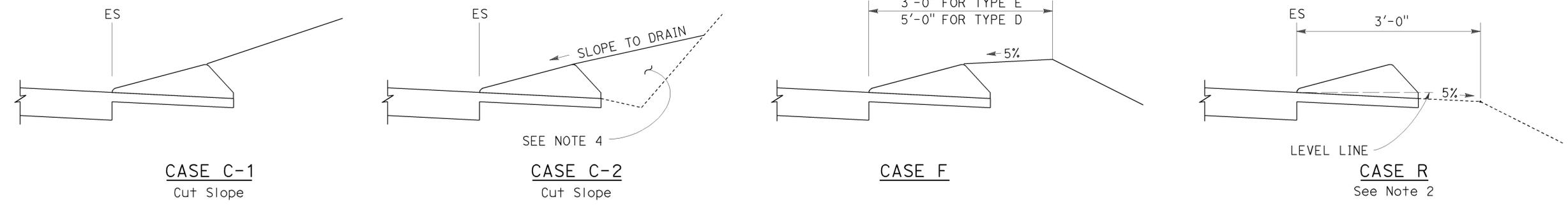
**TYPE A**  
See Note 3

**TYPE C**

**TYPE D**

**TYPE E**

**TYPE F**  
See Note 5



**CASE C-1**  
Cut Slope

**CASE C-2**  
Cut Slope

**CASE F**

**CASE R**  
See Note 2

**NOTES:**

1. For HMA shoulders only, extend top layer of HMA placed on the shoulder under dike with no joint at the ES. For projects with OGFC shoulders, do not extend OGFC under dike. See project plans for modified dike detail.
2. Case R applies to retrofit only projects where restrictive conditions do not provide enough width for Case F backfill.
3. Type A dike only to be used where restrictive slope conditions do not provide enough width to use Type D or Type E dike.
4. Fill and compact with excavated material to top of dike.
5. Use Type F dike, where dike is required with guard railing installations. See Revised Standard Plan RSP A77N4 for dike positioning details.

**DIKE QUANTITIES**

TYPE	CUBIC YARDS PER LINEAR FOOT
A	0.0135
C	0.0038
D	0.0293
E	0.0130
F	0.0066

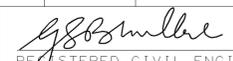
Quantities based on 5% cross slope.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**HOT MIX ASPHALT DIKES**  
NO SCALE

RSP A87B DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN A87B  
DATED MAY 20, 2011 - PAGE 120 OF THE STANDARD PLANS BOOK DATED 2010.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	78	R17.0/R17.4	39	50

  
 REGISTERED CIVIL ENGINEER  
 July 19, 2013  
 PLANS APPROVAL DATE



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TO ACCOMPANY PLANS DATED 02-24-14

TABLE 1

TAPER LENGTH CRITERIA AND CHANNELIZING DEVICE SPACING							
SPEED (S)	MINIMUM TAPER LENGTH * FOR WIDTH OF OFFSET 12 FEET (W)				MAXIMUM CHANNELIZING DEVICE SPACING		
	TANGENT 2L	MERGING L	SHIFTING L/2	SHOULDER L/3	X	Y	Z **
					TAPER	TANGENT	CONFLICT
mph	ft	ft	ft	ft	ft	ft	ft
20	160	80	40	27	20	40	10
25	250	125	63	42	25	50	12
30	360	180	90	60	30	60	15
35	490	245	123	82	35	70	17
40	640	320	160	107	40	80	20
45	1080	540	270	180	45	90	22
50	1200	600	300	200	50	100	25
55	1320	660	330	220	55	110	27
60	1440	720	360	240	60	120	30
65	1560	780	390	260	65	130	32
70	1680	840	420	280	70	140	35

\* - For other offsets, use the following merging taper length formula for L:  
 For speed of 40 mph or less,  $L = WS^2/60$   
 For speed of 45 mph or more,  $L = WS$

Where: L = Taper length in feet  
 W = Width of offset in feet  
 S = Posted speed limit, off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed in mph

\*\* - Use for taper and tangent sections where there are no pavement markings or where there is a conflict between existing pavement markings and channelizers (CA).

TABLE 2

LONGITUDINAL BUFFER SPACE AND FLAGGER STATION SPACING				
SPEED *	Min D **	DOWNGRADE Min D ***		
		-3%	-6%	-9%
		ft	ft	ft
20	115	116	120	126
25	155	158	165	173
30	200	205	215	227
35	250	257	271	287
40	305	315	333	354
45	360	378	400	427
50	425	446	474	507
55	495	520	553	593
60	570	598	638	686
65	645	682	728	785
70	730	771	825	891

\* - Speed is posted speed limit, off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed in mph  
 \*\* - Longitudinal buffer space or flagger station spacing  
 \*\*\* - Use on sustained downgrade steeper than -3 percent and longer than 1 mile.

TABLE 3

ADVANCE WARNING SIGN SPACING			
ROAD TYPE	DISTANCE BETWEEN SIGNS *		
	A	B	C
	ft	ft	ft
URBAN - 25 mph OR LESS	100	100	100
URBAN - MORE THAN 25 mph TO 40 mph	250	250	250
URBAN - MORE THAN 40 mph	350	350	350
RURAL	500	500	500
EXPRESSWAY / FREEWAY	1000	1500	2640

\* - The distances are approximate, are intended for guidance purposes only, and should be applied with engineering judgment. These distances should be adjusted by the Engineer for field conditions, if necessary, by increasing or decreasing the recommended distances.

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**TRAFFIC CONTROL SYSTEM TABLES  
 FOR LANE AND RAMP CLOSURES**  
 NO SCALE

RSP T9 DATED JULY 19, 2013 SUPERSEDES RSP T9 DATED APRIL 19, 2013 THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP T9**

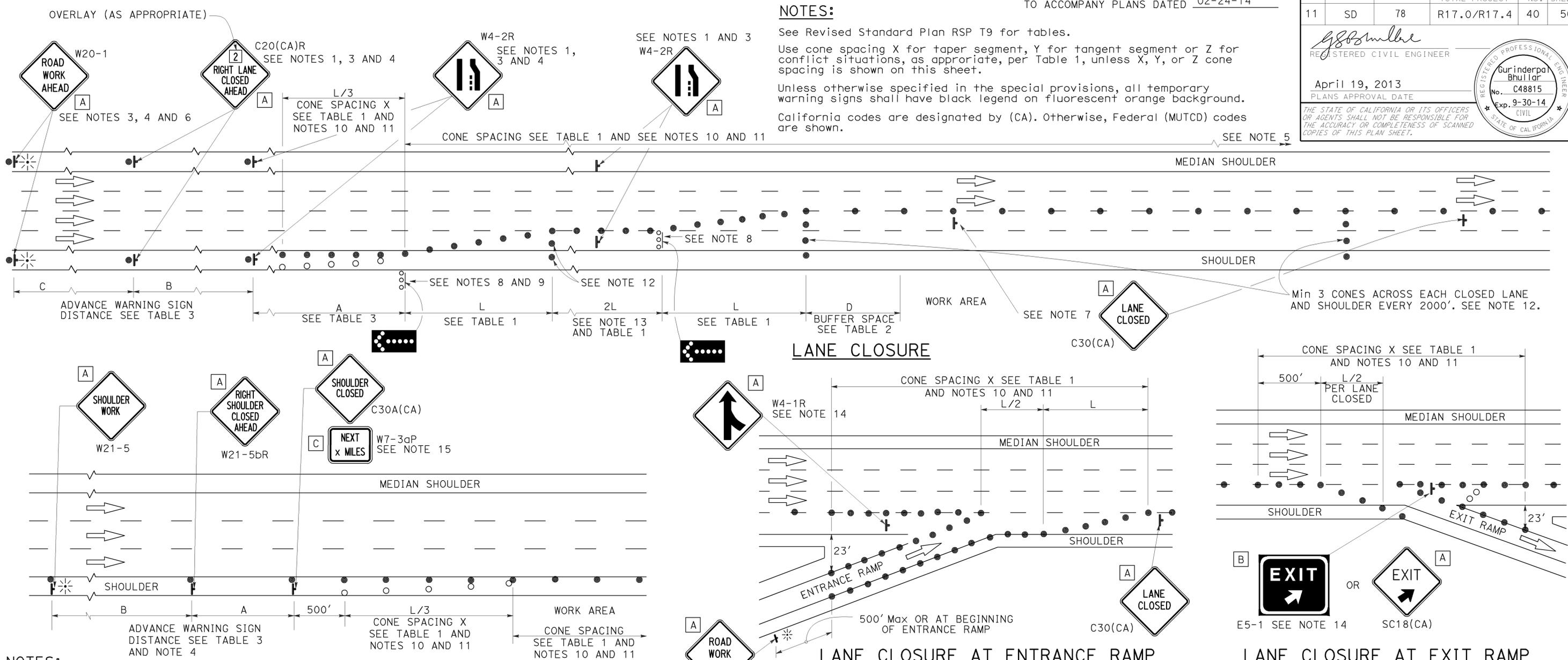
2010 REVISED STANDARD PLAN RSP T9

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	78	R17.0/R17.4	40	50

REGISTERED CIVIL ENGINEER  
 April 19, 2013  
 PLANS APPROVAL DATE

Gurinderpal Bhullar  
 No. C48815  
 Exp. 9-30-14  
 CIVIL ENGINEER  
 STATE OF CALIFORNIA

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- NOTES:**
1. Median lane closures shall conform to the details as shown except that C20(CA)L and W4-2L signs shall be used.
  2. At least one person shall be assigned to provide full time maintenance of traffic control devices for lane closures.
  3. Duplicate sign installations are not required:
    - a) On opposite shoulder if at least one-half of the available lanes remain open to traffic.
    - b) In the median if the width of the median shoulder is less than 8' and the outside lanes are to be closed.
  4. Each advance warning sign on each side of the roadway shall be equipped with at least two flags for daytime closure. Each flag shall be at least 16" x 16" in size and shall be orange or fluorescent red-orange in color. Flashing beacons shall be placed at the locations indicated for lane closure during hours of darkness.
  5. A G20-2 "END ROAD WORK" sign, with minimum size of 48" x 24" as appropriate, shall be placed at the end of the lane closure unless the end of work area is obvious or ends within a larger project's limits.

- NOTES:**
6. If the W20-1 sign would follow within 2000' of a stationary W20-1 or G20-1 "ROAD WORK NEXT x MILES", use a C20(CA)L and W4-2L signs shall be used.
  7. Place a C30(CA) sign every 2000' throughout length of lane closure.
  8. One flashing arrow sign for each lane closed. The flashing arrow signs shall be Type I.
  9. A minimum 1500' of sight distance shall be provided where possible for vehicles approaching the first flashing arrow sign. Lane closures shall not begin at top of crest vertical curve or on a horizontal curve.
  10. All cones used for lane closures during the hours of darkness shall be fitted with retroreflective bands (or sleeves) as specified in the specifications.
  11. Portable delineators, placed at one-half the spacing indicated for traffic cones may be used instead of cones for daytime closures only.

- NOTES:**
12. Unless otherwise specified in the special provisions, a minimum of 3 cones shall be placed transversely across each closed lane and shoulder at each location where a taper across a traffic lane ends and every 2000' as shown on the "Lane Closure" detail. Two Type II barricades may be used instead of the 3 cones. The transverse alignment of the cones or barricades on the closed shoulder may be shifted from the transverse alignment to provide access to the work.
  13. Unless otherwise specified in the special provisions, the 2L tangent shown along lane lines shall be used between the L tapers required for each closed traffic lane.
  14. Unless otherwise specified in the special provisions, the E5-1 or SC18(CA) and W4-1 signs shall be used as shown.
  15. A W7-3aP "NEXT x MILES" plaque must be used if the shoulder closure extends beyond the distance that can be perceived by road users.

**LEGEND**

- TRAFFIC CONE
- TRAFFIC CONE (OPTIONAL TAPER)
- † TEMPORARY TRAFFIC CONTROL SIGN
- ⬢ FLASHING ARROW SIGN (FAS)
- ⬢ FAS SUPPORT OR TRAILER
- ☼ PORTABLE FLASHING BEACON

**SIGN PANEL SIZE (Min)**

A	48" x 48"
B	72" x 60"
C	36" x 30"

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION

**TRAFFIC CONTROL SYSTEM  
 FOR LANE CLOSURE ON  
 FREEWAYS AND EXPRESSWAYS**

NO SCALE

RSP T10 DATED APRIL 19, 2013 SUPERSEDES STANDARD PLAN T10 DATED MAY 20, 2011 - PAGE 237 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP T10**

2010 REVISED STANDARD PLAN RSP T10

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	78	R17.0/R17.4	41	50

REGISTERED CIVIL ENGINEER  
 Gurinderpal Bhullar  
 No. C48815  
 Exp. 9-30-14  
 CIVIL  
 STATE OF CALIFORNIA

April 19, 2013  
 PLANS APPROVAL DATE

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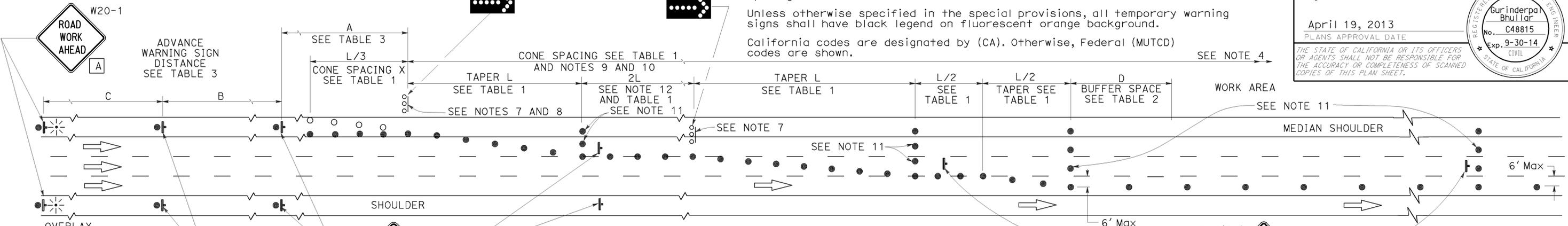
**NOTES:** See Revised Standard Plan RSP T9 for tables.

Use cone spacing X for taper segment, Y for tangent segment or Z for conflict situations, as appropriate, per Table 1, unless X, Y, or Z cone spacing is shown on this sheet.

Unless otherwise specified in the special provisions, all temporary warning signs shall have black legend on fluorescent orange background.

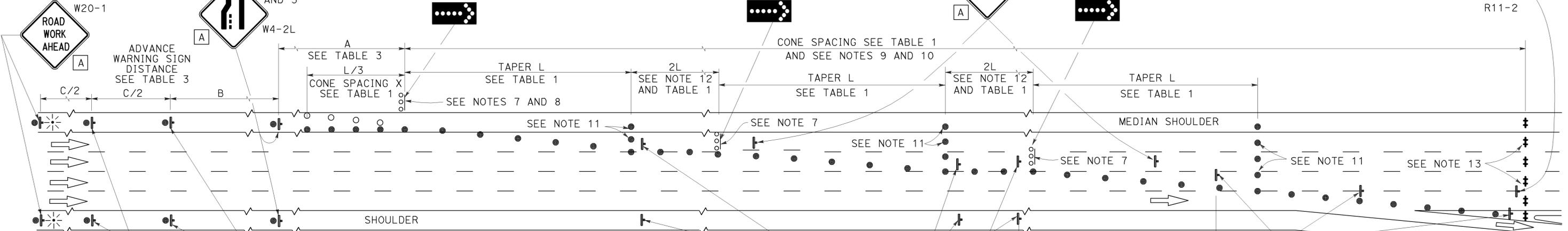
California codes are designated by (CA). Otherwise, Federal (MUTCD) codes are shown.

SEE NOTES 3 AND 5



**LANE CLOSURE WITH PARTIAL SHOULDER USE**

SEE NOTES 3 AND 5



**COMPLETE CLOSURE**

**NOTES:**

- Lane closures on the right side using partial median shoulder as a traffic lane shall conform to the details as shown except that C20(CA)R and W4-2R signs shall be used.
- At least one person shall be assigned to provide full time maintenance of traffic control devices for lane closures.
- Each advance warning sign on each side of the roadway shall be equipped with at least two flags for daytime closure. Each flag shall be at least 16" X 16" in size and shall be orange or fluorescent red-orange in color. Flashing beacons shall be placed at the locations indicated for lane closure during hours of darkness.
- A G20-2 "END ROAD WORK" sign, with minimum size of 48" x 24" as appropriate, shall be placed at the end of the lane closure unless the end of work area is obvious or ends within a larger project's limits.
- If the W20-1 sign would follow within 2000' of a stationary W20-1 or G20-1 "ROAD WORK NEXT \_\_\_ MILES", use a C20(CA) sign for the first advance warning sign.
- Place a C30(CA) sign every 2000' throughout length of lane closure.
- One flashing arrow sign for each lane closed. The flashing arrow signs shall be Type I.
- A minimum 1500' of sight distance shall be provided where possible for vehicles approaching the first flashing arrow sign. Lane closures shall not begin at the top of crest vertical curve or on a horizontal curve.
- All cones used for lane closures during the hours of darkness shall be fitted with retroreflective bands (or sleeves) as specified in the specifications.
- Portable delineators, placed at one-half the spacing indicated for traffic cones, may be used instead of cones for daytime closures only.
- Unless otherwise specified in the special provisions, a minimum of 3 cones shall be placed transversely across each closed lane and shoulder at each location where a taper across a traffic lane ends and every 2000' as shown on the "Lane Closure With Partial Shoulder Use" detail. Two Type II barricades may be used instead of the 3 cones. The transverse alignment of the cones or barricades on the closed shoulder may be shifted from the transverse alignment to provide access to the work.
- Unless otherwise specified in the special provisions, the 2L tangent shown along lane lines shall be used between the L tapers required for each closed traffic lane.
- A minimum of Two Type II or III barricades shall be placed across each closed lane and shoulder at the location shown and every 2000' within the complete closure area. Within the complete closure area, the transverse alignment of the barricades on the closed shoulder may be shifted from the transverse alignment to provide access to the work.
- When specified in the special provisions, a W20-2 "DETOUR AHEAD" sign is to be used in place of the W20-3 "FREEWAY CLOSED AHEAD" sign.

**SIGN PANEL SIZE (Min)**

- A 48" x 48"
- B 48" x 18"
- C 48" x 30"

**LEGEND**

- TRAFFIC CONE
- TRAFFIC CONE (OPTIONAL TAPER)
- † TEMPORARY TRAFFIC CONTROL SIGN
- FLASHING ARROW SIGN (FAS)
- FAS SUPPORT OR TRAILER
- ⚡ PORTABLE FLASHING BEACON

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION

**TRAFFIC CONTROL SYSTEM  
 FOR LANE CLOSURES ON  
 FREEWAYS AND EXPRESSWAYS**

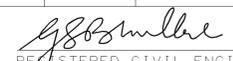
NO SCALE

RSP T10A DATED APRIL 19, 2013 SUPERSEDES STANDARD PLAN T10A DATED MAY 20, 2011 - PAGE 238 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP T10A**

2010 REVISED STANDARD PLAN RSP T10A

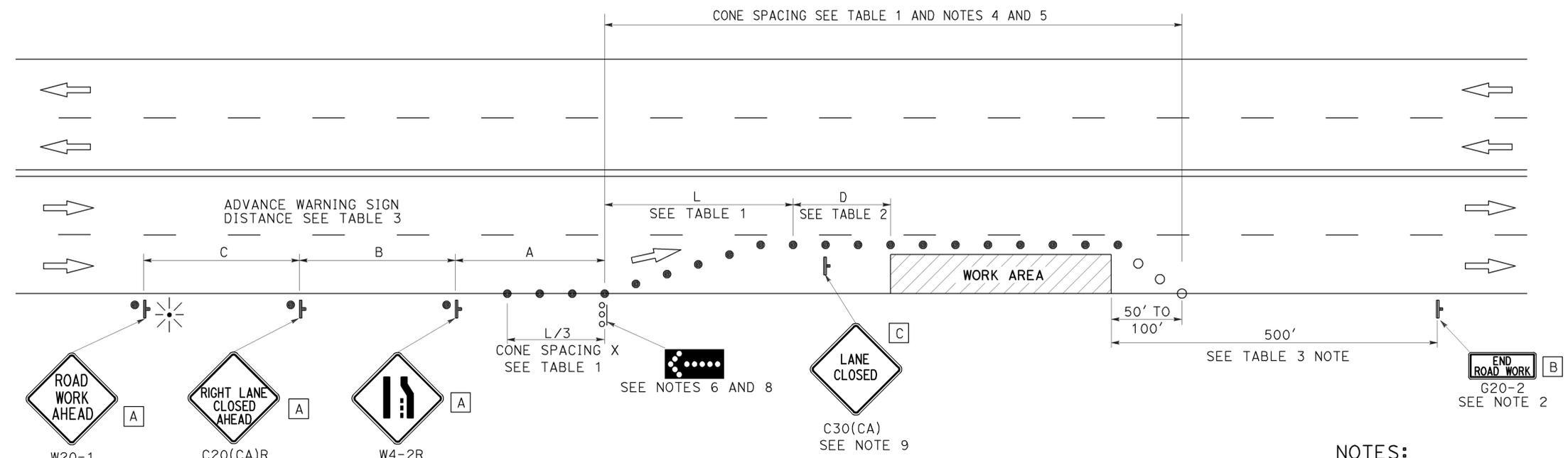
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	78	R17.0/R17.4	42	50

  
 REGISTERED CIVIL ENGINEER  
 April 19, 2013  
 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.

TO ACCOMPANY PLANS DATED 02-24-14



**TYPICAL LANE CLOSURE**

**NOTES:**

See Revised Standard Plan RSP T9 for tables.

Use cone spacing X for taper segment, Y for tangent segment or Z for conflict situations, as appropriate, per Table 1, unless X, Y, or Z cone spacing is shown on this sheet.

Unless otherwise specified in the special provisions, all temporary warning signs shall have black legend on fluorescent orange background.

California codes are designated by (CA). Otherwise, Federal (MUTCD) codes are shown.

**NOTES:**

- Each advance warning sign shall be equipped with at least two flags for daytime closure. Each flag shall be at least 16" x 16" in size and shall be orange or fluorescent red-orange in color. Flashing beacons shall be placed at the locations indicated for lane closure during hours of darkness.
- A G20-2 "END ROAD WORK" sign, as appropriate, shall be placed at the end of the lane closure unless the end of work area is obvious, or ends within a larger project's limits.
- If the W20-1 sign would follow within 2000' of a stationary W20-1 or G20-1 "ROAD WORK NEXT \_\_\_\_\_ MILES", use a C20(CA) sign for the first advance warning sign.
- All cones used for lane closures during the hours of darkness shall be fitted with retroreflective bands (or sleeves) as specified in the specifications.
- Portable delineators, placed at one-half the spacing indicated for traffic cones, may be used instead of cones for daytime closures only.
- Flashing arrow sign shall be either Type I or Type II.
- For approach speeds over 50 mph, use the "Traffic Control System for Lane Closure On Freeways And Expressways" plan for lane closure details and requirements.
- A minimum 1500' of sight distance shall be provided where possible for vehicles approaching the first flashing arrow sign. Lane closures shall not begin at the top of crest vertical curve or on a horizontal curve.
- Place a C30(CA) sign every 2000' throughout length of lane closure.
- Median lane closures shall conform to the details as shown except that C20(CA)L and W4-2L signs shall be used.
- At least one person shall be assigned to provide full time maintenance of traffic control devices for lane closure unless, otherwise directed by the Engineer.

**LEGEND**

-  TRAFFIC CONE
-  TRAFFIC CONE (OPTIONAL TAPER)
-  TEMPORARY TRAFFIC CONTROL SIGN
-  FLASHING ARROW SIGN (FAS)
-  FAS SUPPORT OR TRAILER
-  PORTABLE FLASHING BEACON

**SIGN PANEL SIZE (Min)**

- A** 48" x 48"
- B** 36" x 18"
- C** 30" x 30"

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**TRAFFIC CONTROL SYSTEM  
FOR LANE CLOSURE ON  
MULTILANE CONVENTIONAL  
HIGHWAYS**

NO SCALE

RSP T11 DATED APRIL 19, 2013 SUPERSEDES STANDARD PLAN T11  
DATED MAY 20, 2011 - PAGE 239 OF THE STANDARD PLANS BOOK DATED 2010.

**REVISED STANDARD PLAN RSP T11**

2010 REVISED STANDARD PLAN RSP T11

# TYPICAL RAMP CLOSURES

## SIGN PANEL SIZE (Min)

- A 48" x 48"
- B 48" x 30"
- C 36" x 36"
- D 48" x 36"

## LEGEND

- TRAFFIC CONE
- † TEMPORARY TRAFFIC CONTROL SIGN
- ‡ BARRICADES
- ⚡ PORTABLE FLASHING BEACON

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	78	R17.0/R17.4	43	50

*G. S. Miller*  
 REGISTERED CIVIL ENGINEER  
 April 19, 2013  
 PLANS APPROVAL DATE

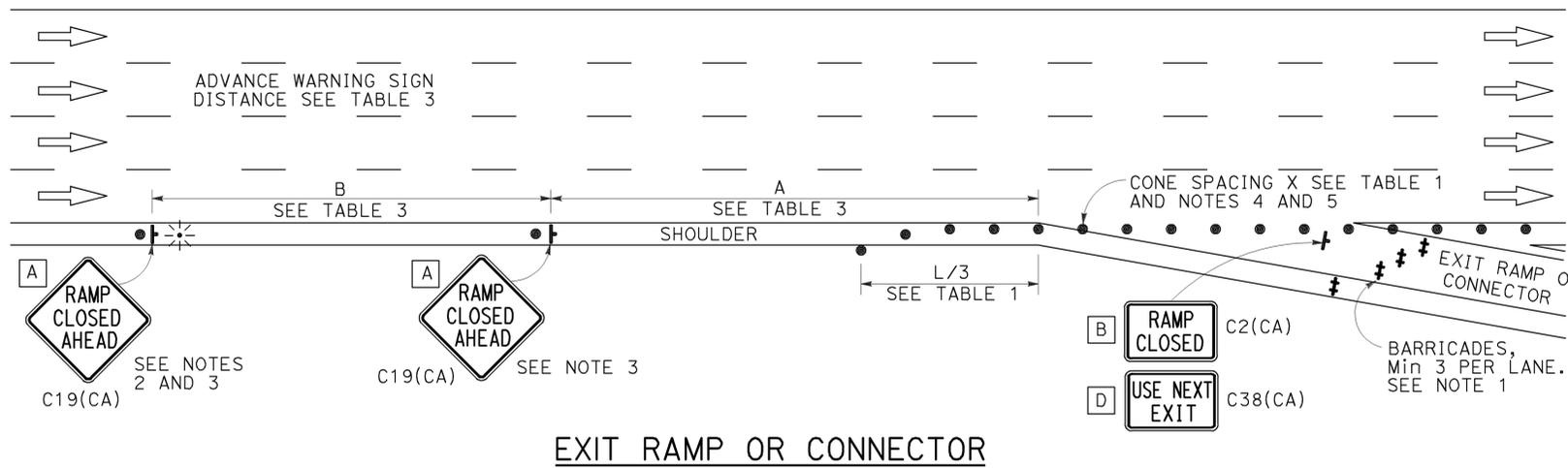
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

REGISTERED PROFESSIONAL ENGINEER  
 Gurinderpal Bhullar  
 No. C48815  
 Exp. 9-30-14  
 CIVIL  
 STATE OF CALIFORNIA

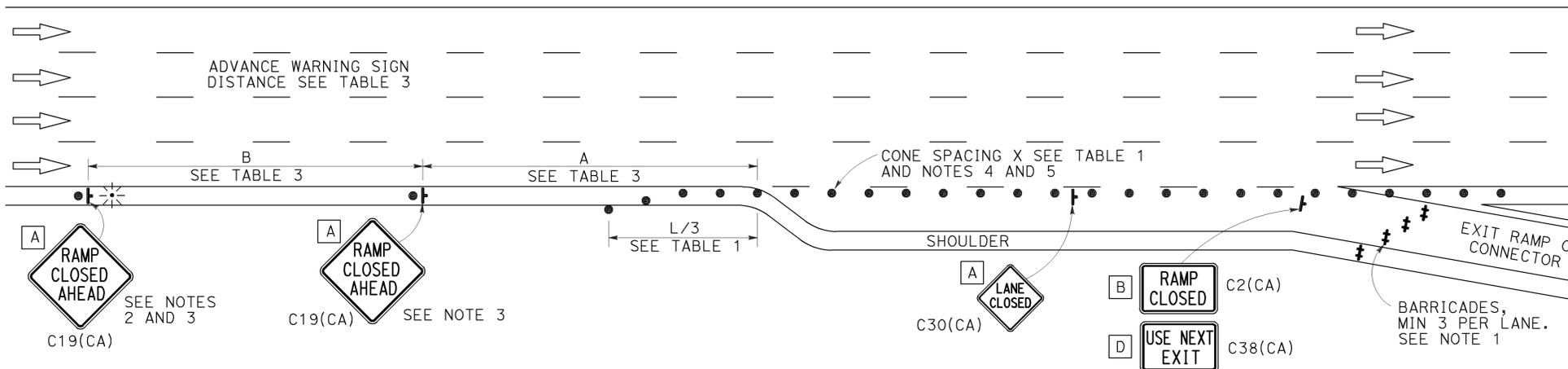
TO ACCOMPANY PLANS DATED 02-24-14

## NOTES:

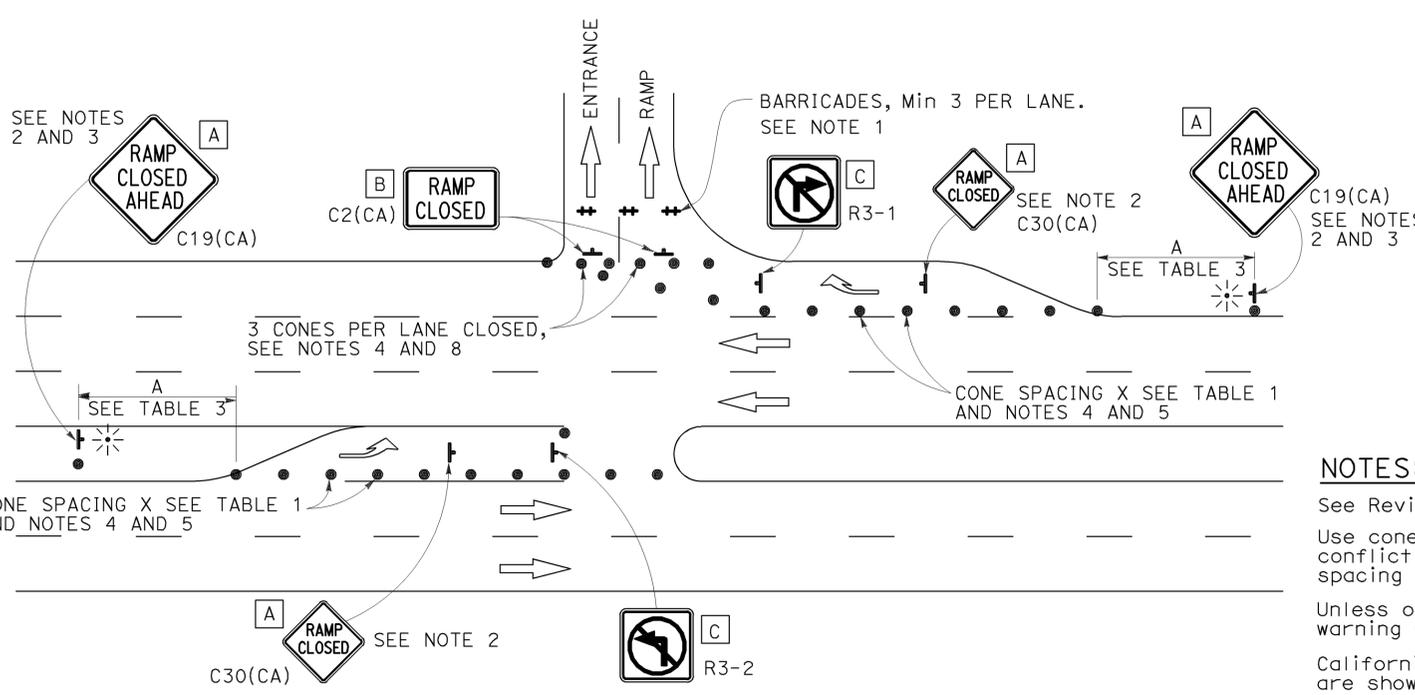
- Barricades shall be Type I, II, or III for closures lasting one week or less and Type III for closures lasting longer than one week.
- In addition to placing the C19(CA) "RAMP CLOSED AHEAD" and C30(CA) "RAMP CLOSED" signs, black on orange overlay plates with the word "CLOSED" may be mounted, as directed by the Engineer, on all guide signs that refer to the closed ramp. The letter size on the overlay shall be the same as the guide sign.
- Each advance C19(CA) "RAMP CLOSED AHEAD" sign shall be equipped with at least two flags for daytime closure. Each flag shall be at least 16" x 16" in size and shall be orange or fluorescent red-orange in color. A flashing beacon shall be placed on top of the first C19(CA) sign during hours of darkness.
- All cones used for ramp closures during the hours of darkness shall be fitted with retroreflective bands (or sleeves) as specified in the specifications.
- Portable delineators, placed at one-half the spacing indicated for traffic cones, may be used instead of cones for daytime ramp closures only.
- At least one person shall be assigned to provide full time maintenance of traffic control devices, unless otherwise directed by the Engineer.
- The existing "EXIT" signs shall be covered during ramp closures.
- A minimum of 3 cones shall be placed transversely across each closed lane and shoulder.



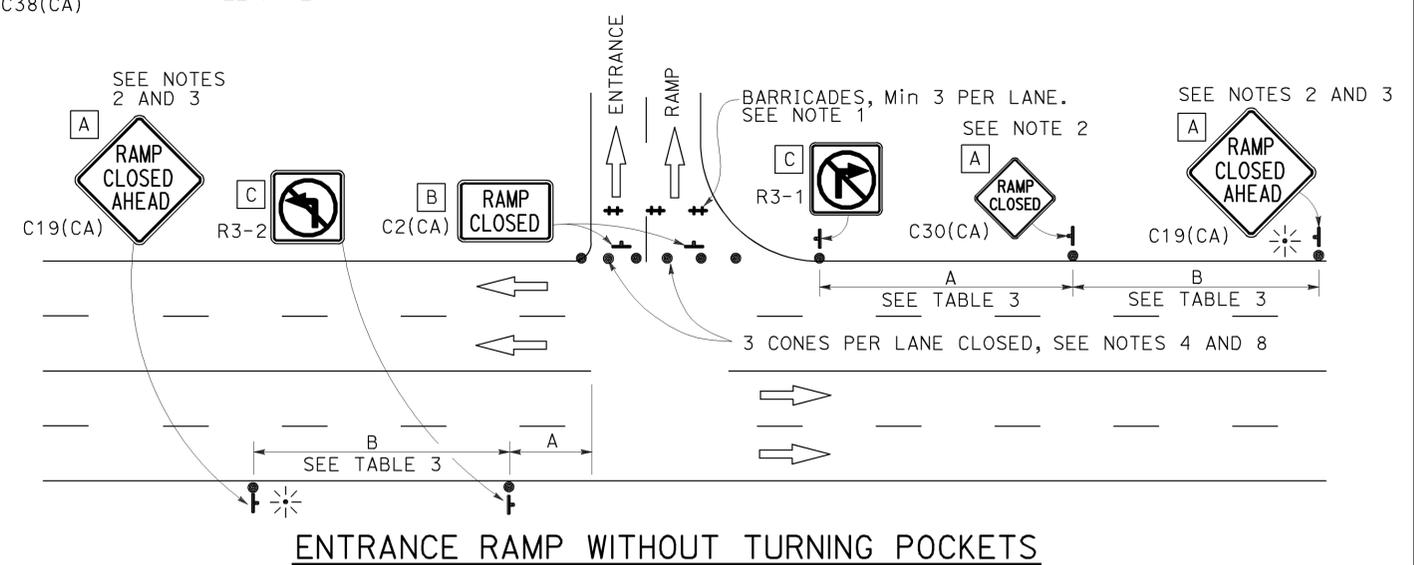
EXIT RAMP OR CONNECTOR



EXIT RAMP OR CONNECTOR WITH ADDITIONAL LANE



ENTRANCE RAMP WITH TURNING POCKETS



ENTRANCE RAMP WITHOUT TURNING POCKETS

## NOTES:

- See Revised Standard Plan RSP T9 for tables.
- Use cone spacing X for taper segment, Y for tangent segment or Z for conflict situations, as appropriate, per Table 1, unless X, Y, or Z cone spacing is shown on this sheet.
- Unless otherwise specified in the special provisions, all temporary warning signs shall have black legend on fluorescent orange background.
- California codes are designated by (CA). Otherwise, Federal (MUTCD) codes are shown.

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
**TRAFFIC CONTROL SYSTEM  
 FOR RAMP CLOSURE**  
 NO SCALE

RSP T14 DATED APRIL 19, 2013 SUPERSEDES STANDARD PLAN T14  
 DATED MAY 20, 2011 - PAGE 242 OF THE STANDARD PLANS BOOK DATED 2010.  
**REVISED STANDARD PLAN RSP T14**

2010 REVISED STANDARD PLAN RSP T14

**LEGEND:**

<b>AB</b>	ABANDON. IF APPLIED TO CONDUIT, REMOVE CONDUCTORS
<b>BC</b>	INSTALL PULL BOX IN EXISTING CONDUIT RUN
<b>BP</b>	PEDESTRIAN BARRICADE, TYPE AS INDICATED ON PLAN
<b>CB</b>	INSTALL CONDUIT INTO EXISTING PULL BOX
<b>CC</b>	CONNECT NEW AND EXISTING CONDUIT. REMOVE EXISTING CONDUCTORS AND INSTALL CONDUCTORS AS INDICATED
<b>CF</b>	CONDUIT TO REMAIN FOR FUTURE USE. REMOVE CONDUCTORS. INSTALL PULL TAPE
<b>DH</b>	DETECTOR HANDHOLE
<b>FA</b>	FOUNDATION TO BE ABANDONED
<b>IS</b>	INSTALL SIGN ON SIGNAL MAST ARM
<b>NS</b>	NO SLIP BASE ON STANDARD
<b>PEC</b>	PHOTOELECTRIC CONTROL
<b>PEU</b>	PHOTOELECTRIC UNIT
<b>RC</b>	EQUIPMENT OR MATERIAL TO BE REMOVED AND BECOME THE PROPERTY OF THE CONTRACTOR
<b>RE</b>	REMOVE ELECTROLIER, FUSES AND BALLAST. TAPE ENDS OF CONDUCTORS
<b>RL</b>	RELOCATE EQUIPMENT
<b>RR</b>	REMOVE AND REUSE EQUIPMENT
<b>RS</b>	REMOVE AND SALVAGE EQUIPMENT
<b>SC</b>	SPLICE NEW TO EXISTING CONDUCTORS
<b>SD</b>	SERVICE DISCONNECT
<b>TSP</b>	TELEPHONE SERVICE POINT

**ABBREVIATIONS**

APS	ACCESSIBLE PEDESTRIAN SIGNAL	M/M	MULTIPLE TO MULTIPLE TRANSFORMER
BBS	BATTERY BACKUP SYSTEM	Mtg	MOUNTING
BC	BOLT CIRCLE	MV	MERCURY VAPOR LIGHTING FIXTURE
BPB	BICYCLE PUSH BUTTON	MVDS	MICROWAVE VEHICLE DETECTION SYSTEM
C	CONDUIT	N	NEUTRAL (GROUNDED CONDUCTOR)
CB	CIRCUIT BREAKER	NB	NEUTRAL BUS
CCTV	CLOSED CIRCUIT TELEVISION	NC	NORMALLY CLOSE
Ck+	CIRCUIT	NO	NORMALLY OPEN
CMS	CHANGEABLE MESSAGE SIGN	P	CIRCUIT BREAKER'S POLE
Ctid	CALTRANS IDENTIFICATION	PB	PULL BOX
Comm	COMMUNICATION	PBA	PUSH BUTTON ASSEMBLY
DLC	LOOP DETECTOR LEAD-IN CABLE	PEC	PHOTOELECTRIC CONTROL
EMS	EXTINGUISHABLE MESSAGE SIGN	Ped	PEDESTRIAN
EVUC	EMERGENCY VEHICLE UNIT CABLE	PEU	PHOTOELECTRIC UNIT
EVUD	EMERGENCY VEHICLE UNIT DETECTOR	PT	CONDUIT WITH PULL TAPE
FB	FLASHING BEACON	RE	RELOCATED EQUIPMENT
FBCA	FLASHING BEACON CONTROL ASSEMBLY	RM	RAMP METERING
FBS	FLASHING BEACON WITH SLIP BASE	RWIS	ROADSIDE WEATHER INFORMATION SYSTEM
FO	FIBER OPTIC	SB	SLIP BASE
G	EQUIPMENT GROUNDING CONDUCTOR	SIC	SIGNAL INTERCONNECT CABLE
GB	GROUND BUS	Sig	SIGNAL
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	SMA	SIGNAL MAST ARM
HAR	HIGHWAY ADVISORY RADIO	SNS	STREET NAME SIGN
Hex	HEXAGONAL	SP	SERVICE POINT
HPS	HIGH PRESSURE SODIUM	TDC	TELEPHONE DEMARCATION CABINET
IISNS	INTERNALLY ILLUMINATED STREET NAME SIGN	TMS	TRAFFIC MONITORING STATION
ISL	INDUCTION SIGN LIGHTING	TOS	TRAFFIC OPERATIONS SYSTEM
LED	LIGHT EMITTING DIODE	Veh	VEHICLE
LMA	LUMINAIRE MAST ARM	VIVDS	VIDEO IMAGE VEHICLE DETECTION SYSTEM
LPS	LOW PRESSURE SODIUM	WIM	WEIGH-IN-MOTION
Ltg	LIGHTING	Xfmr	TRANSFORMER
Lum	LUMINAIRE		
M	METERED		
MAT	MAST ARM MOUNTING TOP ATTACHMENT		
MAS	MAST ARM MOUNTING SIDE ATTACHMENT		

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	78	R17.0/R17.4	44	50

*Theresa Gabriel*  
REGISTERED ELECTRICAL ENGINEER

July 19, 2013  
PLANS APPROVAL DATE

Theresa  
Aziz Gabriel  
No. E15129  
Exp. 6-30-14  
ELECTRICAL  
STATE OF CALIFORNIA

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TO ACCOMPANY PLANS DATED 02-24-14

**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.

COMMONLY USED SYMBOLS FOR UNITED STATES CUSTOMARY UNITS OF MEASUREMENT:

SYMBOL USED	DEFINITIONS
$\Omega$	OHMS
min	MINUTE
s	SECOND
bps	BITS PER SECOND
Bps	BYTES PER SECOND
A	AMPERE
V	VOLT
V(dc)	VOLT (DIRECT CURRENT)
V(ac)	VOLT (ALTERNATING CURRENT)
FC	FOOT - CANDLE
W	WATTS
VA	VOLT-AMPERE
M	MEGA
k	KILO
m	MILLI
$\mu$	MICRO
P	PICO
HZ	HERTZ

**MISCELLANEOUS ELECTROLIERS**

NEW	EXISTING	
		LUMINAIRE ON WOOD POLE
		NON-STANDARD ELECTROLIER (SEE PROJECT NOTES OR PROJECT PLANS)
		CITY ELECTROLIER
		ELECTROLIER FOUNDATION (FUTURE INSTALLATION)

- NOTES:**
- HPS luminaires shall be 310 W HPS when installed on Type 21, 21D, 30, 31 and 32 Standards, unless otherwise specified. HPS luminaires shall be 200 W when installed on other type standards or poles, unless otherwise specified.
  - LED luminaires shall be 235 W when installed on Type 21, 21D, 30, 31 and 32 Standards, unless otherwise specified. LED luminaires shall be 165 W 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.

**STANDARD ELECTROLIER**

NEW	EXISTING	STANDARD TYPE
		15
		15D
		15 STRUCTURE
		15D STRUCTURE
		21
		21D
		21 STRUCTURE
		21D STRUCTURE
		30
		31
		32

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS  
(LEGEND AND ABBREVIATIONS)**

NO SCALE

RSP ES-1A DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN ES-1A DATED MAY 20, 2011 - PAGE 425 OF THE STANDARD PLANS BOOK DATED 2010.

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

2010 REVISED STANDARD PLAN RSP ES-1A

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	78	R17.0/R17.4	45	50

*Theresa Gabriel*  
REGISTERED ELECTRICAL ENGINEER

July 19, 2013  
PLANS APPROVAL DATE

Theresa Aziz Gabriel  
No. E15129  
Exp. 6-30-14  
ELECTRICAL  
STATE OF CALIFORNIA

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TO ACCOMPANY PLANS DATED 02-24-14

**CONDUIT**

**SIGNAL EQUIPMENT**

NEW	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 ATTACHED TO THE STRUCTURE OR SERVICE POLE

NEW	EXISTING	
		PEDESTRIAN SIGNAL HEAD "C" INDICATES COUNTDOWN PEDESTRIAN HEAD
		PUSH BUTTON ASSEMBLY POST
		PEDESTRIAN BARRICADE
		VEHICLE SIGNAL HEAD (WITH BACKPLATE AND 3-SECTIONS: RED, YELLOW AND GREEN)
		VEHICLE SIGNAL HEAD WITH ANGLE VISOR
		MODIFICATIONS OF BASIC SYMBOL: "L" INDICATES ALL NON-ARROW SECTIONS LOUVERED "LG" INDICATES LOUVERED GREEN SECTION ONLY "PV" INDICATES ALL 12" SECTIONS PROGRAMMED VISIBILITY "8" INDICATES ALL 8" SECTIONS (ONLY WHEN SPECIFIED)

**SIGNAL EQUIPMENT Cont**

NEW	EXISTING	
		GUARD POST
		TYPE 1 STANDARD WITH RAMP METERING SIGN
		OPTICAL DETECTOR FOR THE EMERGENCY VEHICLE DETECTION SYSTEM

**SERVICE EQUIPMENT**

NEW	EXISTING	
---OH---	---oh---	OVERHEAD LINES
		WOOD POLE, "U" INDICATES UTILITY OWNED
		POLE GUY WITH ANCHOR
		UTILITY TRANSFORMER - GROUND MOUNTED
		SERVICE EQUIPMENT ENCLOSURE TYPE. DOOR INDICATES FRONT OF ENCLOSURE
		TELEPHONE DEMARCATION CABINET

NEW	EXISTING	
		VEHICLE SIGNAL HEAD CONSISTING OF RED, YELLOW AND GREEN LEFT ARROW SECTIONS
		VEHICLE SIGNAL HEAD CONSISTING OF RED AND YELLOW SECTIONS WITH AN UP GREEN ARROW SECTION
		VEHICLE SIGNAL HEAD (5 SECTION) CONSISTING OF RED, YELLOW AND GREEN SECTIONS WITH YELLOW AND GREEN RIGHT ARROW SECTIONS
		TYPE 15TS STANDARD WITH VEHICLE SIGNAL HEAD AND LUMINAIRE
		TYPE 21TS STANDARD WITH VEHICLE SIGNAL HEAD AND LUMINAIRE
		STANDARD WITH LUMINAIRE AND SIGNAL MAST ARMS AND ATTACHED VEHICLE SIGNAL HEADS
		TYPE 1 STANDARD WITH ATTACHED VEHICLE SIGNAL HEADS
		STANDARD WITH A SIGNAL MAST ARM, ATTACHED VEHICLE SIGNAL HEADS AND INTERNALLY ILLUMINATED STREET NAME SIGN
		CONTROLLER ASSEMBLY. DOOR INDICATES FRONT OF CABINET

**NOTES:**

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

**POLE-MOUNTED SERVICE DESIGNATION**

	TYPE H SERVICE, 28'-10"	TYPE OF INSTALLATION AND POLE HEIGHT ABOVE GRADE
--	-------------------------	--

**FLASHING BEACON**

NEW	EXISTING	
		FLASHING BEACON (ONE VEHICLE SIGNAL HEAD WITH BACKPLATE AND VISOR) "R" INDICATES RED INDICATION, "Y" INDICATES YELLOW INDICATION
		FLASHING BEACON WITH TYPE 15-FBS STANDARD AND A SIGN.
		FLASHING BEACON WITH TYPES 9, 9A OR 9B SIGN UNLESS OTHERWISE SPECIFIED OR INDICATED

**ILLUMINATED OVERHEAD SIGN**

NEW	EXISTING	
		SINGLE POST, SINGLE ILLUMINATED SIGN, BALANCED BUTTERFLY
		SINGLE POST, DOUBLE ILLUMINATED SIGN, BALANCED BUTTERFLY
		SINGLE POST, SINGLE ILLUMINATED SIGN, FULL CANTILEVER
		DOUBLE POST, SINGLE ILLUMINATED SIGN
		SINGLE ILLUMINATED SIGN MOUNTED ON STRUCTURE
		DOUBLE POST, SINGLE ILLUMINATED SIGN WITH ELECTROLIER

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

NO SCALE

RSP ES-1B DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN ES-1B DATED MAY 20, 2011 - PAGE 426 OF THE STANDARD PLANS BOOK DATED 2010.

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

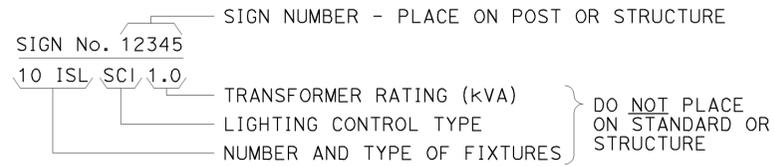
2010 REVISED STANDARD PLAN RSP ES-1B



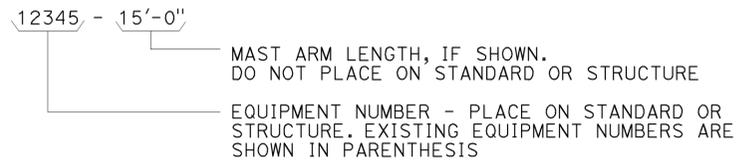
TO ACCOMPANY PLANS DATED 02-24-14

### EQUIPMENT IDENTIFICATION

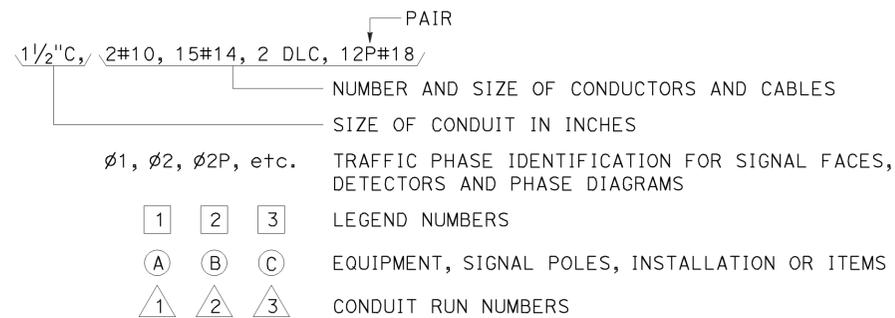
#### ILLUMINATED SIGN IDENTIFICATION NUMBER:



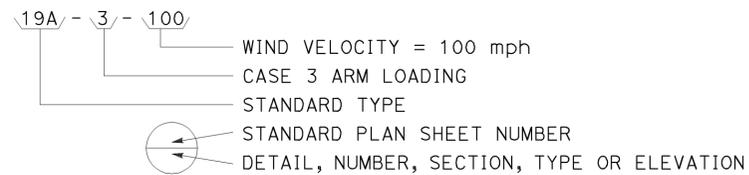
#### ELECTROLIER OR EQUIPMENT IDENTIFICATION NUMBER:



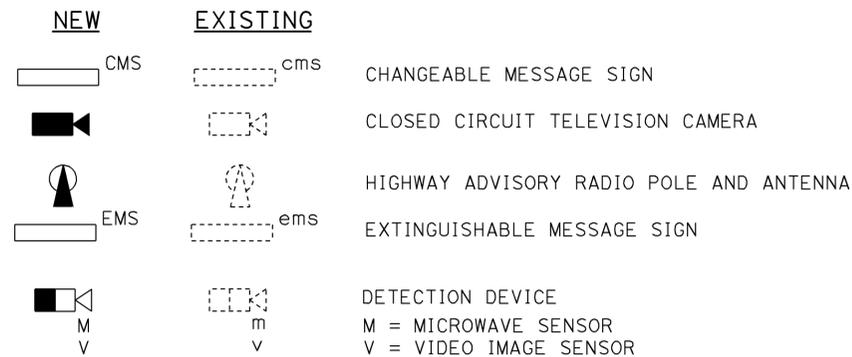
#### CONDUIT AND CONDUCTOR IDENTIFICATION:



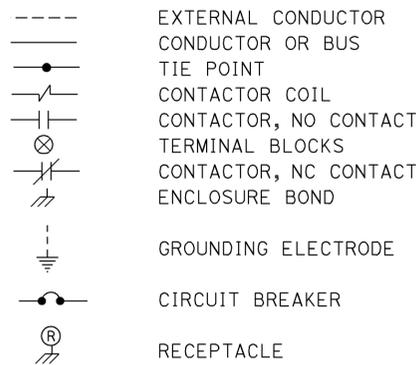
#### SIGNAL AND LIGHTING STANDARD (TYPICAL DESIGNATION):



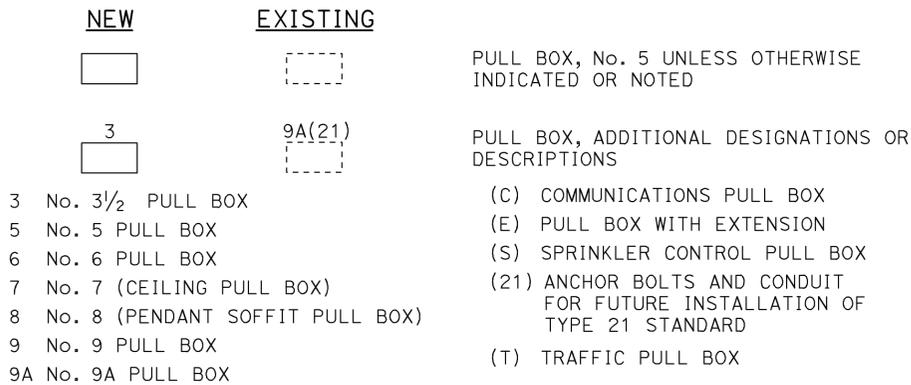
### MISCELLANEOUS EQUIPMENT



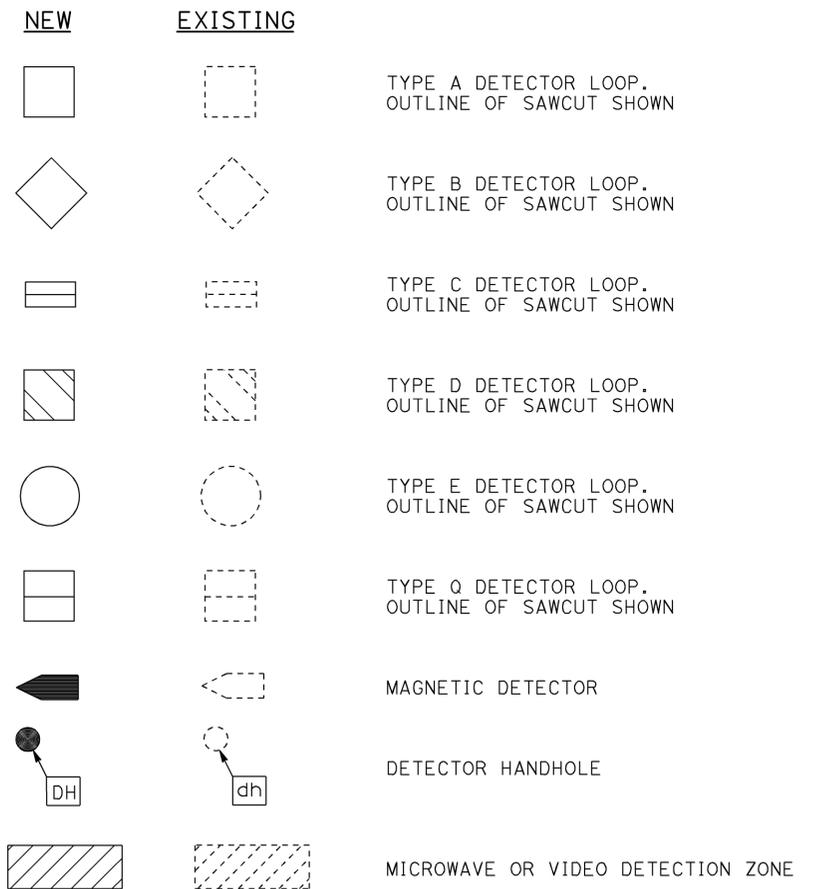
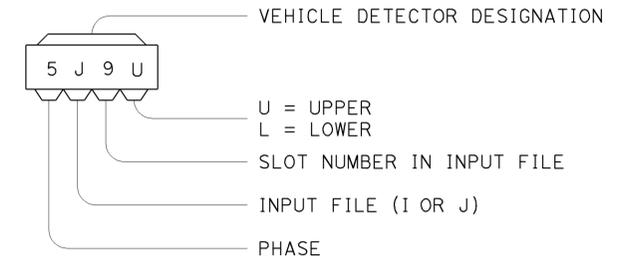
### WIRING DIAGRAM LEGEND



### PULL BOXES



### VEHICLE DETECTORS



STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION

## ELECTRICAL SYSTEMS (LEGEND AND ABBREVIATIONS)

NO SCALE

RSP ES-1C DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN ES-1C DATED MAY 20, 2011 - PAGE 427 OF THE STANDARD PLANS BOOK DATED 2010.

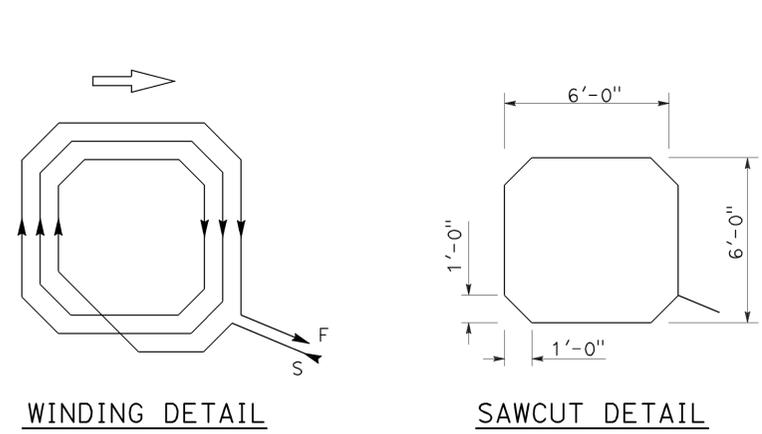
2010 REVISED STANDARD PLAN RSP ES-1C

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	78	R17.0/R17.4	47	50

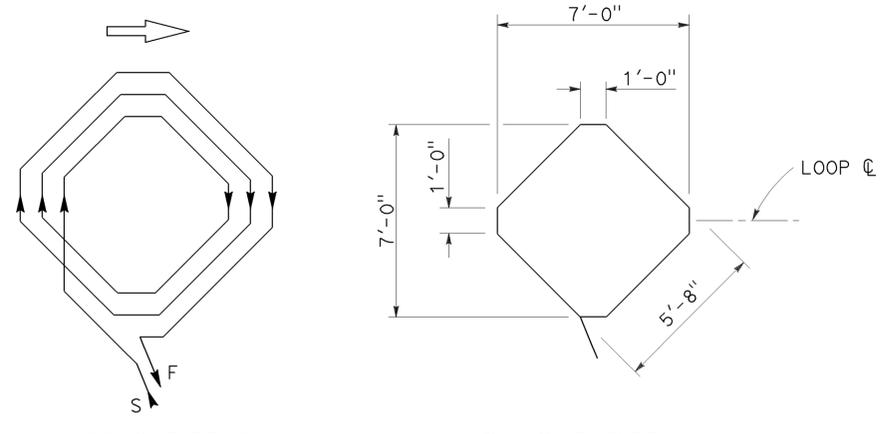
*Theresa Gabriel*  
 REGISTERED ELECTRICAL ENGINEER  
 July 19, 2013  
 PLANS APPROVAL DATE  
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TO ACCOMPANY PLANS DATED 02-24-14

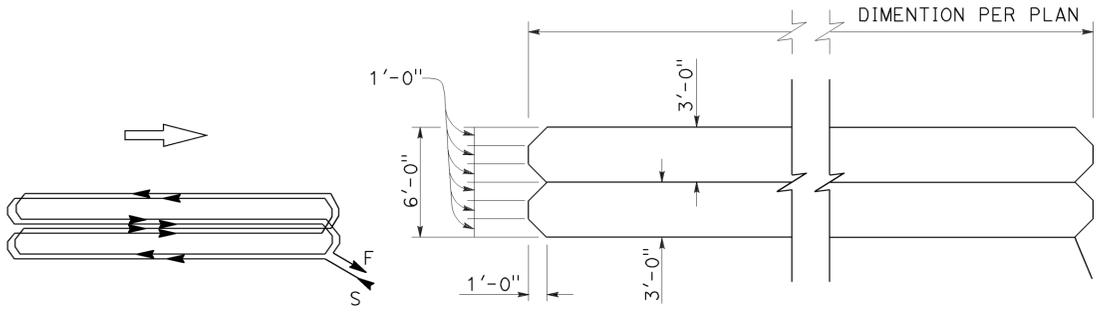
2010 REVISED STANDARD PLAN RSP ES-5B



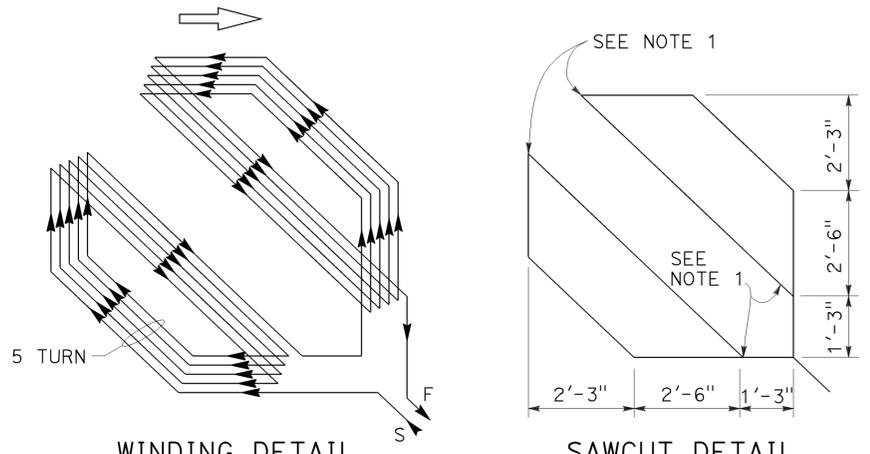
WINDING DETAIL      SAWCUT DETAIL  
TYPE A LOOP DETECTOR CONFIGURATION



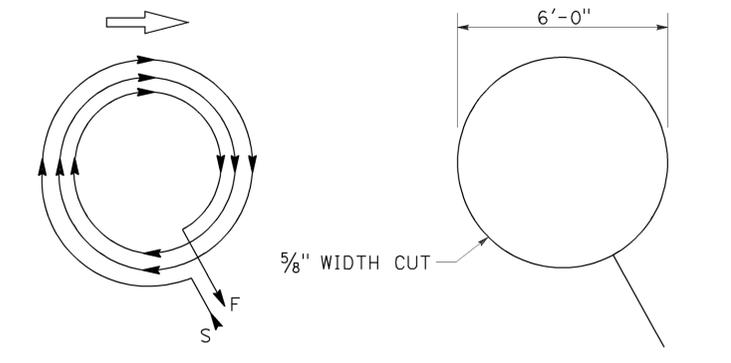
WINDING DETAIL      SAWCUT DETAIL  
TYPE B LOOP DETECTOR CONFIGURATION



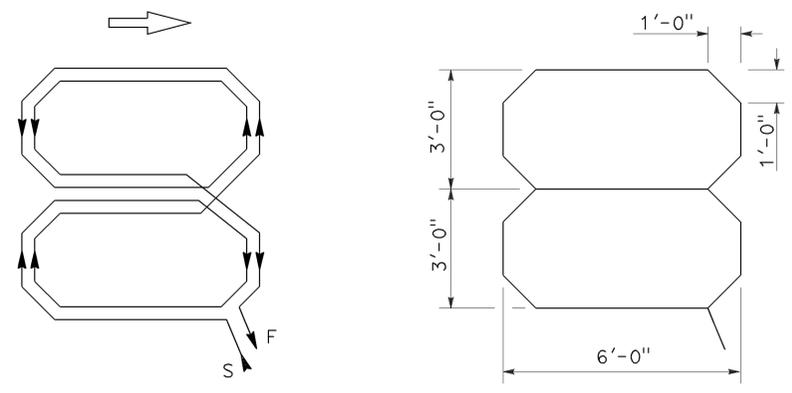
WINDING DETAIL      SAWCUT DETAIL  
TYPE C LOOP DETECTOR CONFIGURATION



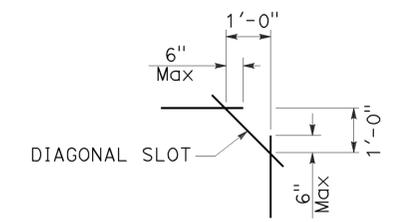
WINDING DETAIL      SAWCUT DETAIL  
TYPE D LOOP DETECTOR CONFIGURATION



WINDING DETAIL      SAWCUT DETAIL  
TYPE E LOOP DETECTOR CONFIGURATION



WINDING DETAIL      SAWCUT DETAIL  
TYPE Q LOOP DETECTOR CONFIGURATION



PLAN VIEW OF  
 DIAGONAL SLOT  
 AT CORNERS

- NOTES:**
1. Round corners of acute angle sawcuts to prevent damage to conductors.
  2. Typical distance separating loops from edge to edge is 10' for Type A, B, D and E installation in single lane.

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

RSP ES-5B DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN ES-5B  
 DATED MAY 20, 2011 - PAGE 449 OF THE STANDARD PLANS BOOK DATED 2010.

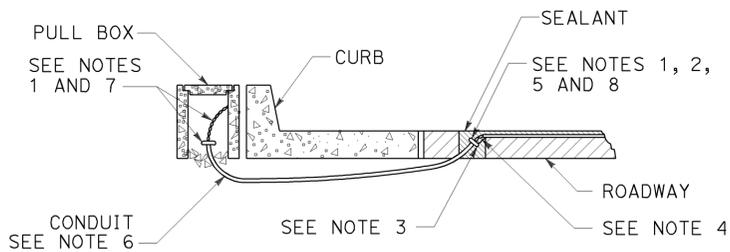
**REVISED STANDARD PLAN RSP ES-5B**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	78	R17.0/R17.4	48	50

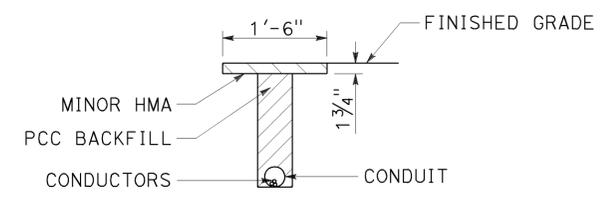
Theresa Gabriel  
 REGISTERED ELECTRICAL ENGINEER  
 July 19, 2013  
 PLANS APPROVAL DATE  
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

REGISTERED PROFESSIONAL ENGINEER  
 Theresa Aziz Gabriel  
 No. E15129  
 Exp. 6-30-14  
 ELECTRICAL  
 STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED 02-24-14

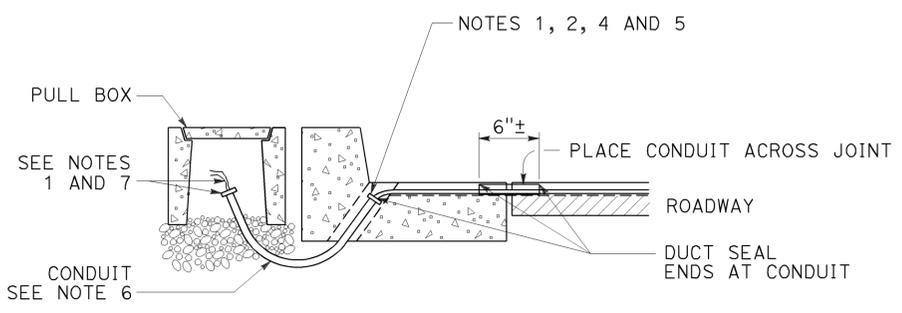


**TYPE A**  
**CURB TERMINATION DETAIL**

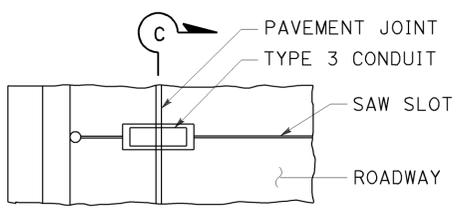


**"T" TRENCH**  
**DETAIL T**

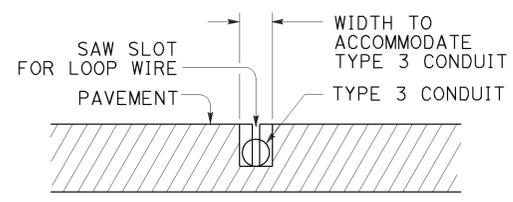
5/16" x 1 1/2" SCREW (BRASS, STAINLESS STEEL OR OTHER NON-CORRODING MATERIAL)



**CROSS SECTION**

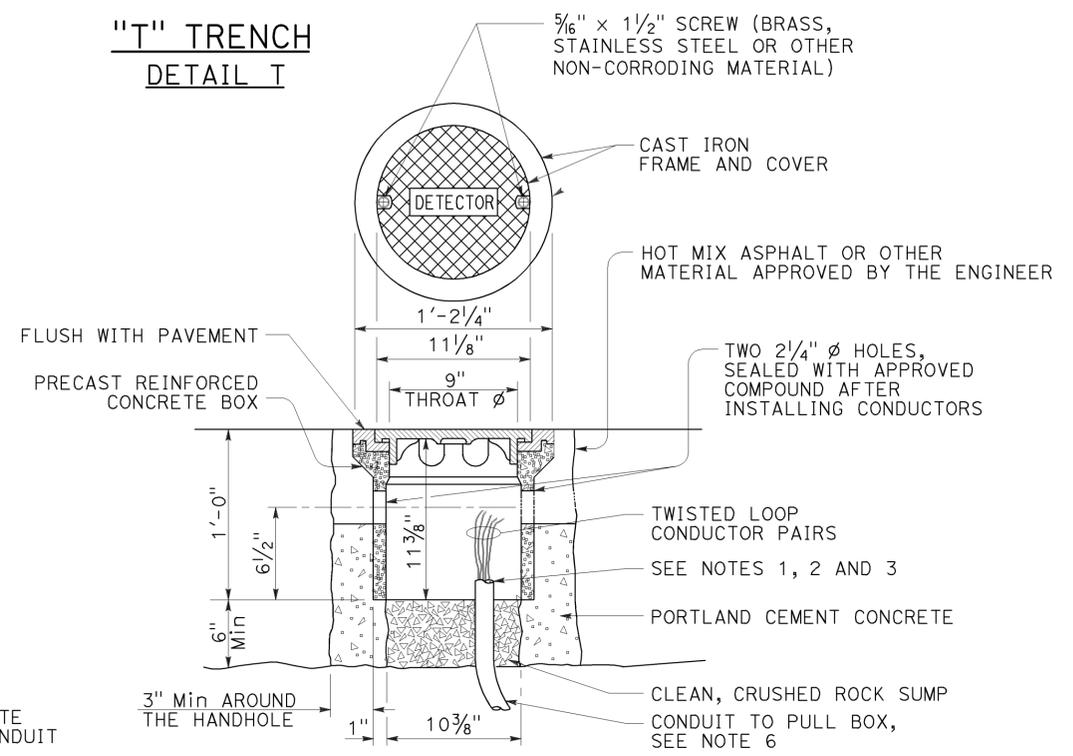


**PLAN VIEW**

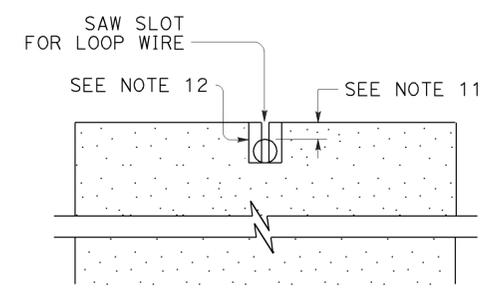


**SECTION C-C**

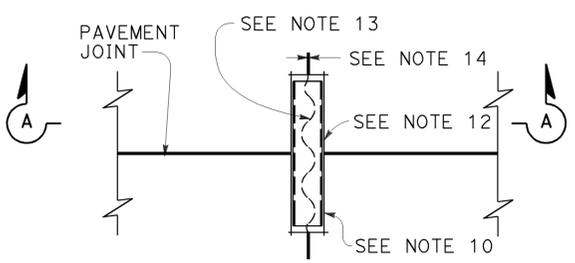
**TYPE B**  
**CURB TERMINATION DETAIL**



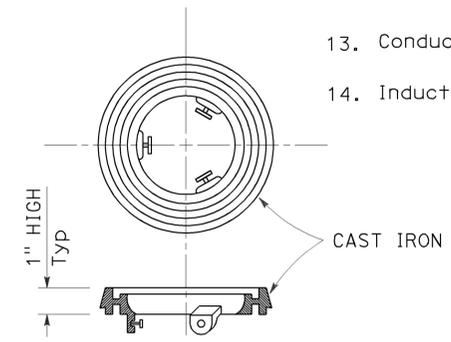
**DETECTOR HANDHOLE DETAIL**



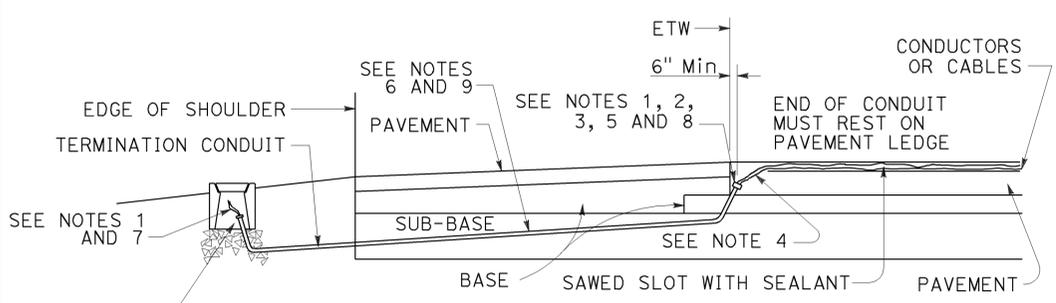
**SECTION A-A**



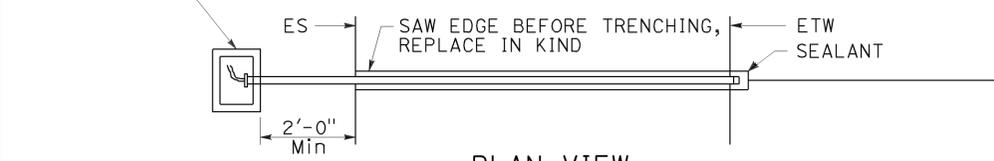
**PLAN VIEW**  
**TYPICAL LOOP LEAD-IN DETAIL**  
**AT PAVEMENT JOINT**



**LOCKING GRADE RING**



**CROSS SECTION**



**PLAN VIEW**  
**SHOULDER TERMINATION DETAILS**

**NOTES:**

- Bushing shall be used at end of conduit.
- Tape detector conductors or cables 3" each side of bushings.
- Install duct seal compound to each end of termination conduit before installing sealant.
- Round all sharp edges where detector conductors or cables have to pass.
- End of conduit shall be 3/8" below roadway surface.
- Conduit size      Loop conductors  
 1"C minimum      1 to 2 pairs  
 1 1/2"C minimum      3 to 4 pairs  
 2"C minimum      5 or more pairs
- Splice detector conductors or cables to detector lead-in-cable.
- Location of detector handhole when shown on plans.
- When the shoulder and traveled way are paved with the same material and there is no joint between them, the conduit shall extend only 2'-0" into the shoulder pavement.
- 3/4"C, Type 3 conduit 6" long minimum, plug both ends with duct compound to keep out sealant.
- 1/2" Minimum between top of conduit and pavement surface.
- Sawcut shall not exceed 1" in width and 1/8" longer than conduit to be installed.
- Conductors with 1/2" minimum slack inside conduit.
- Inductive loop detector saw slot.

STATE OF CALIFORNIA  
DEPARTMENT OF TRANSPORTATION  
**ELECTRICAL SYSTEMS**  
**(CURB TERMINATION**  
**AND HANDHOLE)**  
NO SCALE

RSP ES-5D DATED JULY 19, 2013 SUPERSEDES STANDARD PLAN ES-5D DATED MAY 20, 2011 - PAGE 451 OF THE STANDARD PLANS BOOK DATED 2010.

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

2010 REVISED STANDARD PLAN RSP ES-5D

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
11	SD	78	R17.0/R17.4	49	50

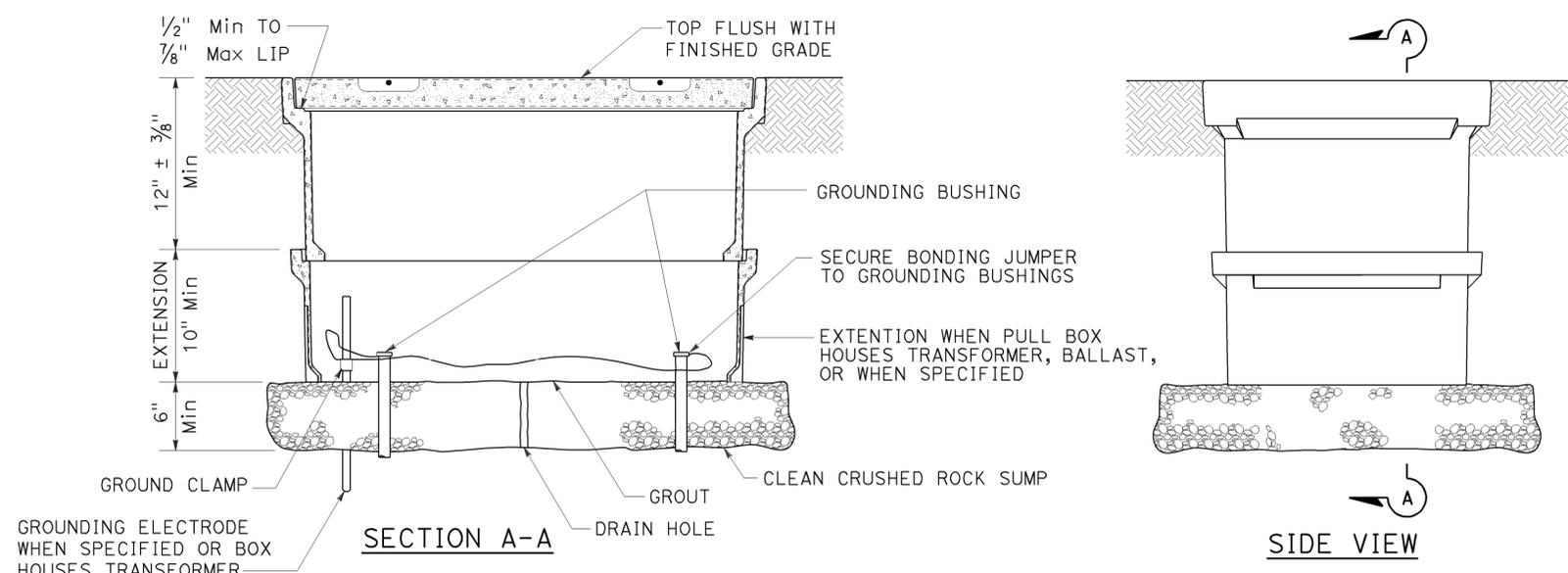
Theresa Gabriel  
REGISTERED ELECTRICAL ENGINEER

July 19, 2013  
PLANS APPROVAL DATE

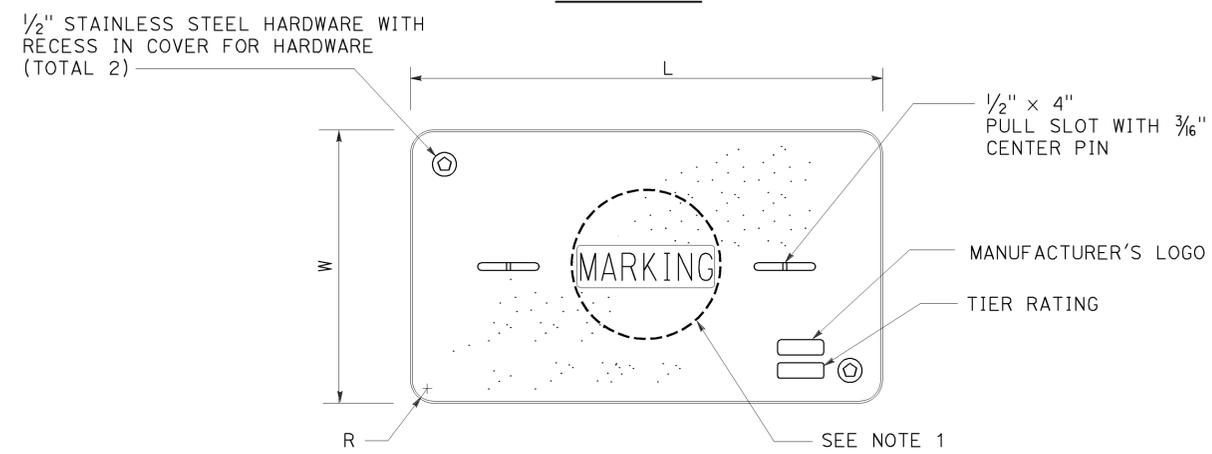
Theresa Aziz Gabriel  
No. E15129  
Exp. 6-30-14  
ELECTRICAL  
STATE OF CALIFORNIA

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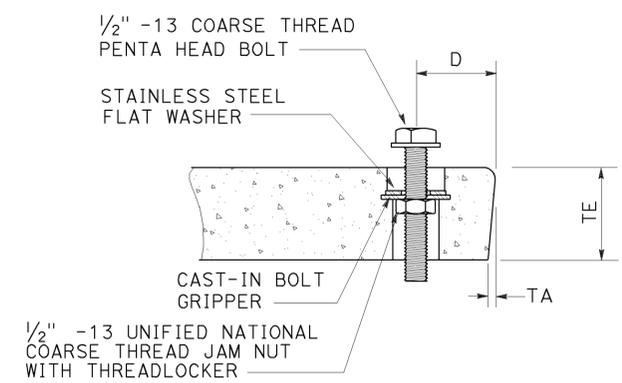
TO ACCOMPANY PLANS DATED 02-24-14



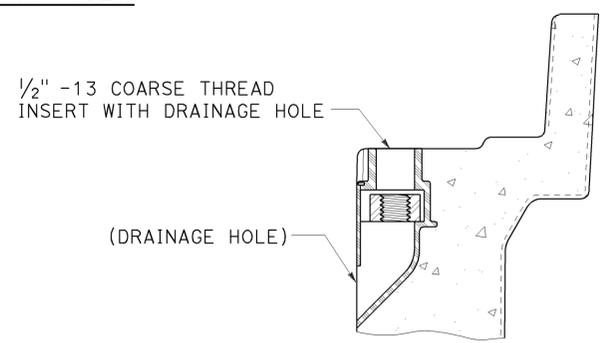
**INSTALLATION DETAILS**  
**DETAIL A**



**COVER TOP VIEW**



**TYPICAL COVER CAPTIVE BOLT**  
**OR SIMILAR**



**TYPICAL THREADED INSERT**  
**OR SIMILAR**

**NOTES:**

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

DIMENSION TABLE										
PULL BOX	PULL BOX			COVER						
	MINIMUM DEPTH BOX	MINIMUM DEPTH EXTENSION	MAXIMUM WEIGHT	L	W	R	TE	TA	D	MAXIMUM WEIGHT
No. 3 1/2	12"	N/A	40 lb	1' - 3 3/8"	10 1/8"	1 3/8"	2"	1/8"	1 3/4"	30 lb
No. 5	12"	10"	55 lb	1' - 11 1/4"	1' - 1 3/4"	1 3/8"	2"	1/8"	1 3/4"	60 lb
No. 6	12"	10"	70 lb	2' - 6 1/2"	1' - 5 1/2"	1 3/8"	2"	1/8"	2"	85 lb

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

RSP ES-8A DATED JULY 19, 2013 SUPERSEDES RSP ES-8A DATED JANUARY 20, 2012 THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

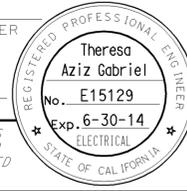
**REVISED STANDARD PLAN RSP ES-8A**

2010 REVISED STANDARD PLAN RSP ES-8A

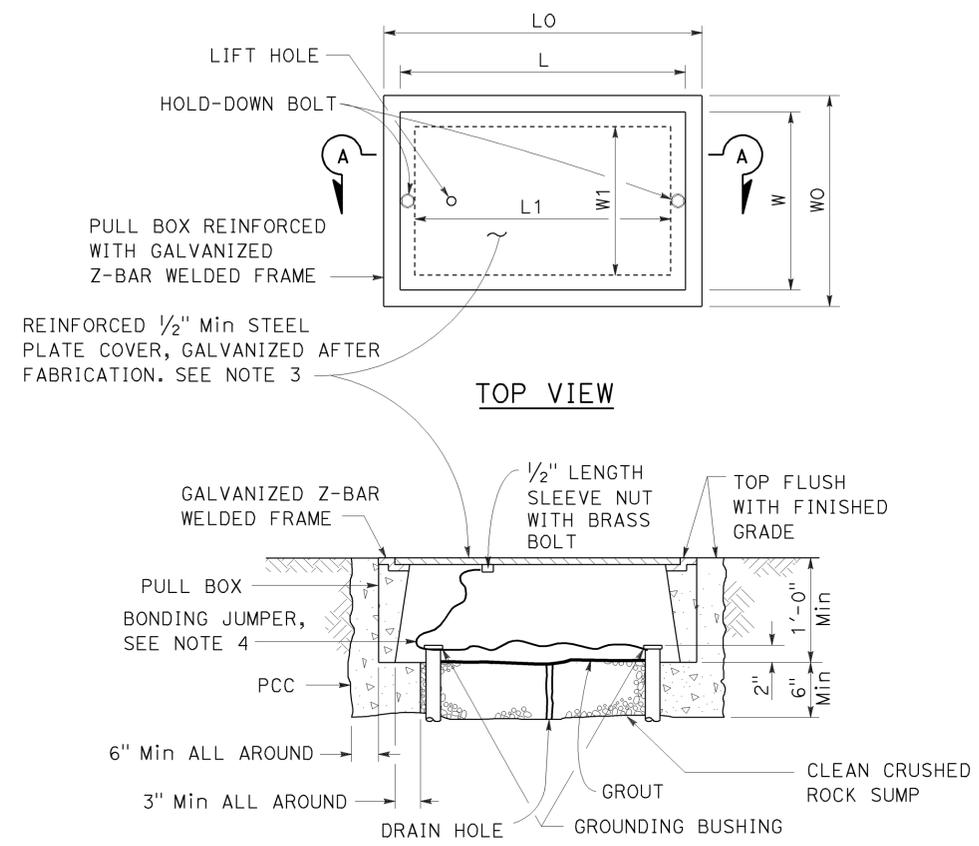
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
11	SD	78	R17.0/R17.4	50	50

*Theresa Gabriel*  
 REGISTERED ELECTRICAL ENGINEER  
 July 19, 2013  
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TO ACCOMPANY PLANS DATED 02-24-14



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

**NOTES:**

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

PULL BOX	PULL BOX						COVER				
	MINIMUM * THICKNESS	MINIMUM DEPTH BOX AND EXTENSION	W0	L0	L1	W1	L **	W **	R	EDGE THICKNESS	EDGE TAPER
No. 3 1/2(T)	1 1/2"	1'-0"	1'-5"± 1"	1'-8 3/8"±	1'-2 1/2"±	10 5/8"± 1"	1'-8"±	1'-1 3/4"±	0"	1/2"	NONE
No. 5(T)	1 3/4"	1'-0"	1'-11 1/2"± 1"	2'-5 1/2"±	1'-7"±	1'-1"± 1"	2'-3"±	1'-4"±	0"	1/2"	NONE
No. 6(T)	2"	1'-0"	2'-6"± 1"	2'-11 1/2"±	1'-11 1/2"±	1'-5"± 1"	2'-9"±	1'-8"±	0"	1/2"	NONE

\* EXCLUDING CONDUIT WEB      \*\* TOP DIMENSION

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

RSP ES-8B DATED JULY 19, 2013 SUPERSEDES RSP ES-8B DATED JANUARY 20, 2012 THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2010.

2010 REVISED STANDARD PLAN RSP ES-8B