Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SLO	41	20.7	1	57

ACHSSTP-S041(116)E

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

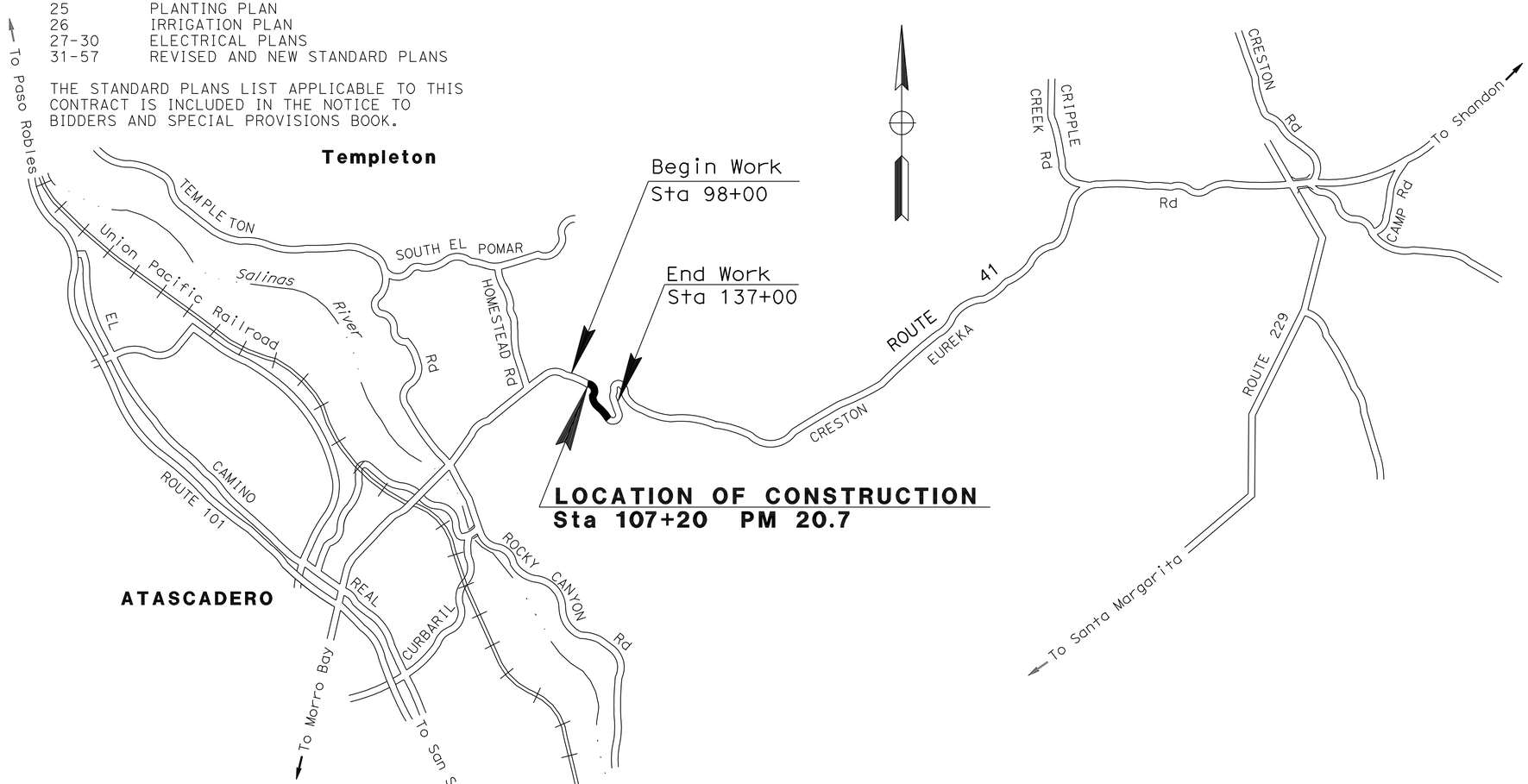
PROJECT PLANS FOR CONSTRUCTION ON
STATE HIGHWAY
IN SAN LUIS OBISPO COUNTY
NEAR ATASCADERO
AT 0.2 MILE EAST OF HOMESTEAD ROAD

TO BE SUPPLEMENTED BY STANDARD PLANS DATED MAY 2006

INDEX OF PLANS

SHEET No.	DESCRIPTION
1	TITLE AND LOCATION MAP
2-3	TYPICAL CROSS SECTIONS
4	LAYOUT
5	PROFILE AND SUPERELEVATION DIAGRAMS
6-9	CONSTRUCTION DETAILS
10-11	EROSION CONTROL PLAN, DETAILS AND QUANTITIES
12-14	DRAINAGE PLAN, PROFILES, DETAILS AND QUANTITIES
15	UTILITY PLAN, DETAILS AND QUANTITIES
16	CONSTRUCTION AREA SIGNS
17-19	STAGE CONSTRUCTION AND TRAFFIC HANDLING PLAN, DETAILS AND QUANTITIES
20-21	PAVEMENT DELINEATION AND SIGN PLAN, DETAILS AND QUANTITIES
22-23	SUMMARY OF QUANTITIES
24	PLANT LIST AND LANDSCAPE DETAILS
25	PLANTING PLAN
26	IRRIGATION PLAN
27-30	ELECTRICAL PLANS
31-57	REVISED AND NEW STANDARD PLANS

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



NO SCALE

LOCATION MAP

PROJECT MANAGER: AMY DONATELLO

DESIGN ENGINEER: S.M. WYATT

11-16-09
PROJECT ENGINEER
REGISTERED CIVIL ENGINEER
DATE

REGISTERED PROFESSIONAL ENGINEER
G.K. SCHNEIDER
No. 66985
Exp. 9/30/10
CIVIL
STATE OF CALIFORNIA

December 14, 2009
PLANS APPROVAL DATE

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

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

CONTRACT No. **05-0P7504**

LAST REVISION 11-16-09
DATE PLOTTED => 23-MAR-2010
TIME PLOTTED => 14:39

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SLO	41	20.7	2	57

REGISTERED CIVIL ENGINEER 11-16-09 DATE

12-14-09
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER G.K. SCHNEIDER No. 66985 Exp 9/30/10 CIVIL STATE OF CALIFORNIA

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

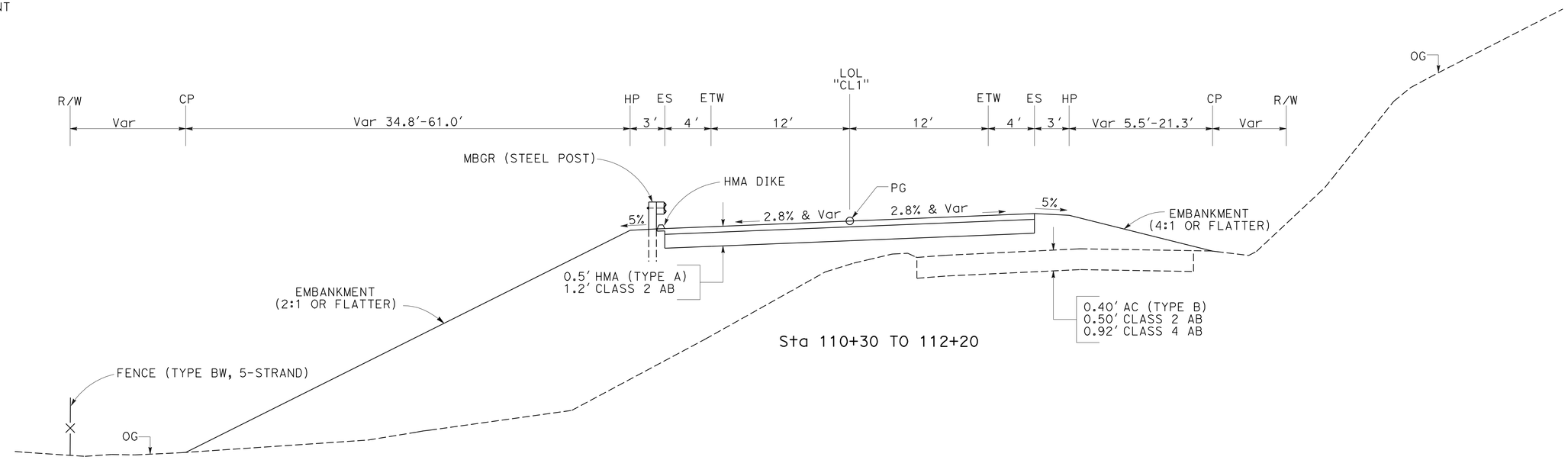
NOTES:
1. DIMENSIONS OF THE PAVEMENT STRUCTURAL SECTIONS ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.
2. SUPERELEVATIONS ARE SHOWN ON THE SUPERELEVATION DIAGRAMS.
3. EXACT LOCATIONS AND TYPES OF HMA DIKE ARE SHOWN ON THE LAYOUTS AND SUMMARY OF QUANTITIES SHEETS.

DESIGN DESIGNATION

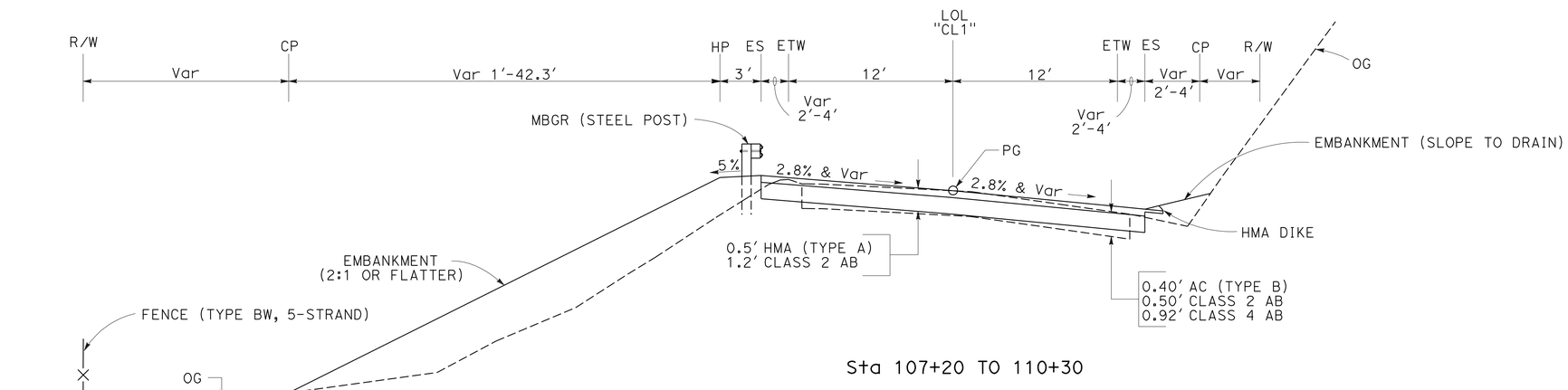
AADT (2008)	3,911	D	55%
AADT (2028)	9,320	T	3.6%
DHV	448	V	30 MPH
ESAL	2,131,657	TI	10

ABBREVIATIONS

CP = CATCH POINT



Sta 110+30 TO 112+20



Sta 107+20 TO 110+30

ROUTE 41

TYPICAL CROSS SECTIONS

NO SCALE

X-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
DESIGN

FUNCTIONAL SUPERVISOR: S.M. WYATT
CALCULATED-DESIGNED BY: G.K. SCHNEIDER
CHECKED BY: M.A. O'NEAL
REVISED BY
DATE REVISED

LAST REVISION 11-16-09
DATE PLOTTED => 21-DEC-2009
TIME PLOTTED => 10:11

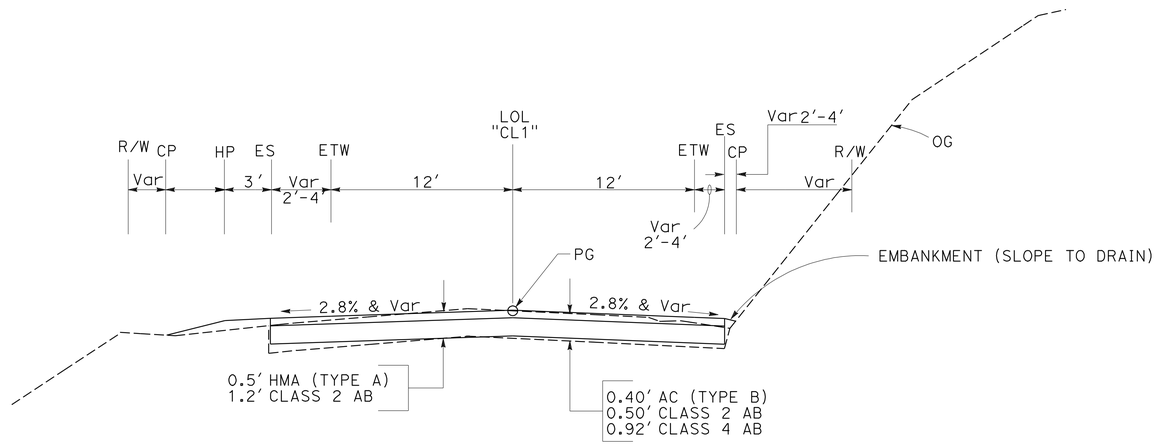
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SLO	41	20.7	3	57

REGISTERED CIVIL ENGINEER 11-16-09 DATE

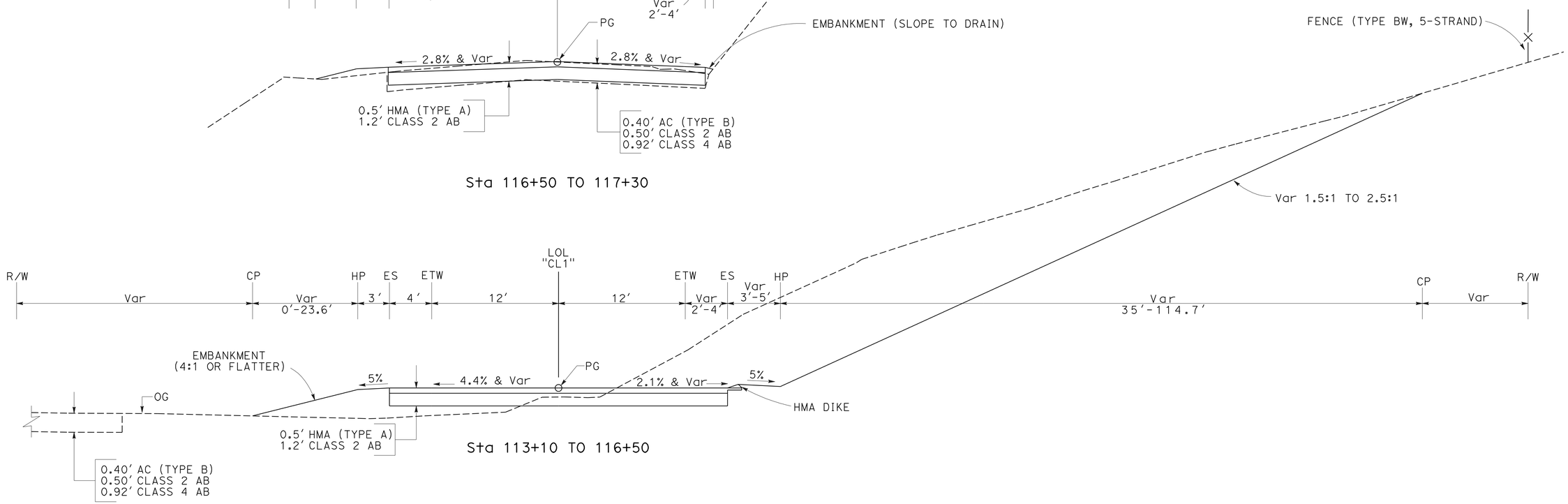
12-14-09
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER G.K. SCHNEIDER No. 66985 Exp 9/30/10 CIVIL STATE OF CALIFORNIA

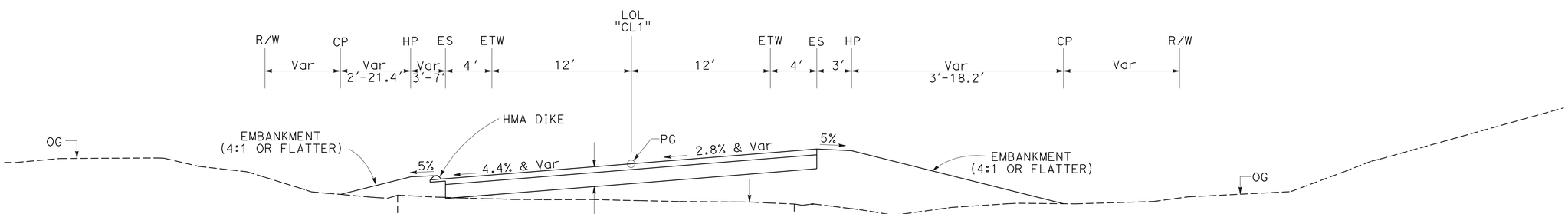
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



Sta 116+50 TO 117+30



Sta 113+10 TO 116+50



Sta 112+20 TO 113+10

ROUTE 41

TYPICAL CROSS SECTIONS

NO SCALE

X-2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans®
DESIGN

FUNCTIONAL SUPERVISOR: S.M. WYATT
CALCULATED-DESIGNED BY: G.K. SCHNEIDER
CHECKED BY: M.A. O'NEAL
REVISED BY
DATE REVISED

LAST REVISION 11-16-09
DATE PLOTTED => 21-DEC-2009
TIME PLOTTED => 10:11

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SLO	41	20.7	4	57

REGISTERED CIVIL ENGINEER 11-16-09 DATE

12-14-09
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER G.K. SCHNEIDER No. 66985 Exp 9/30/10 CIVIL STATE OF CALIFORNIA

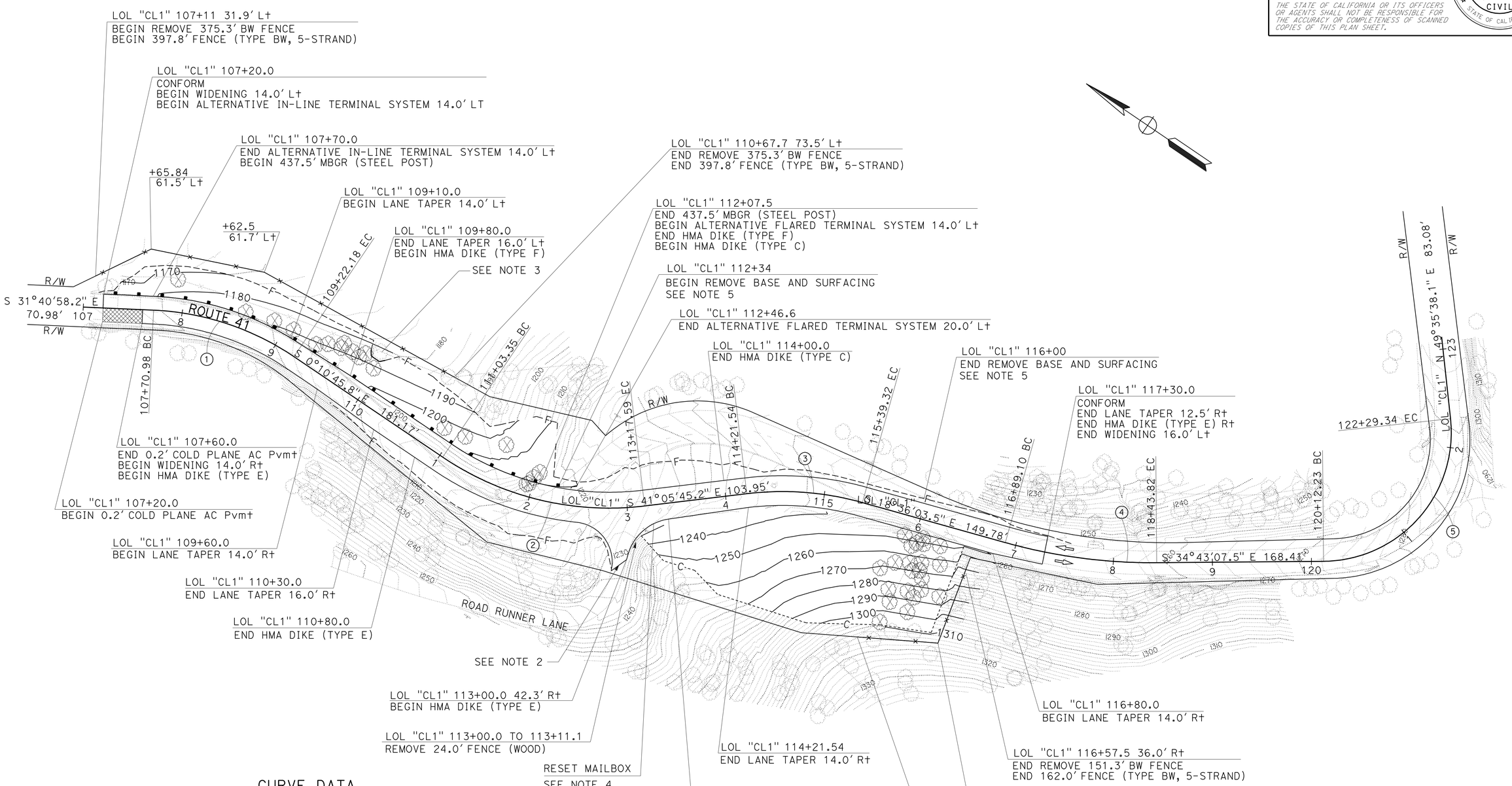
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

NOTES:
1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
2. SEE PLAN SHEET C-1 FOR DRIVEWAY DETAILS.
3. SEE PLAN SHEET C-3 FOR ESA FENCING.
4. SEE PLAN SHEET C-1 FOR RESET MAILBOX.
5. SEE PLAN SHEET C-2 FOR REMOVE BASE AND SURFACING DETAILS.

LEGEND

TREES TO BE REMOVED

COLD PLANE HMA Pvmt



CURVE DATA

No.	R	Δ	T	L	N	E
1	275.00'	31°30'12.39"	77.57'	151.21'	2381712.85	5779651.87
2	300.00'	40°54'59.45"	111.92'	214.24'	2381533.48	5780227.43
3	300.00'	22°29'41.44"	59.66'	117.78'	2381060.75	5779843.59
4	550.00'	16°7'4.17"	77.87'	154.72'	2381189.93	5780696.97
5	130.00'	95°41'14.90"	143.59'	217.11'	2380812.29	5780447.66

LAYOUT

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

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
DESIGN
FUNCTIONAL SUPERVISOR S.M. WYATT
CALCULATED-DESIGNED BY G.K. SCHNEIDER
CHECKED BY M.A. O'NEAL
REVISED BY
DATE REVISED

LAST REVISION 11-16-09
DATE PLOTTED => 21-DEC-2009
TIME PLOTTED => 10:11

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SLO	41	20.7	5	57

REGISTERED CIVIL ENGINEER 11-16-09 DATE

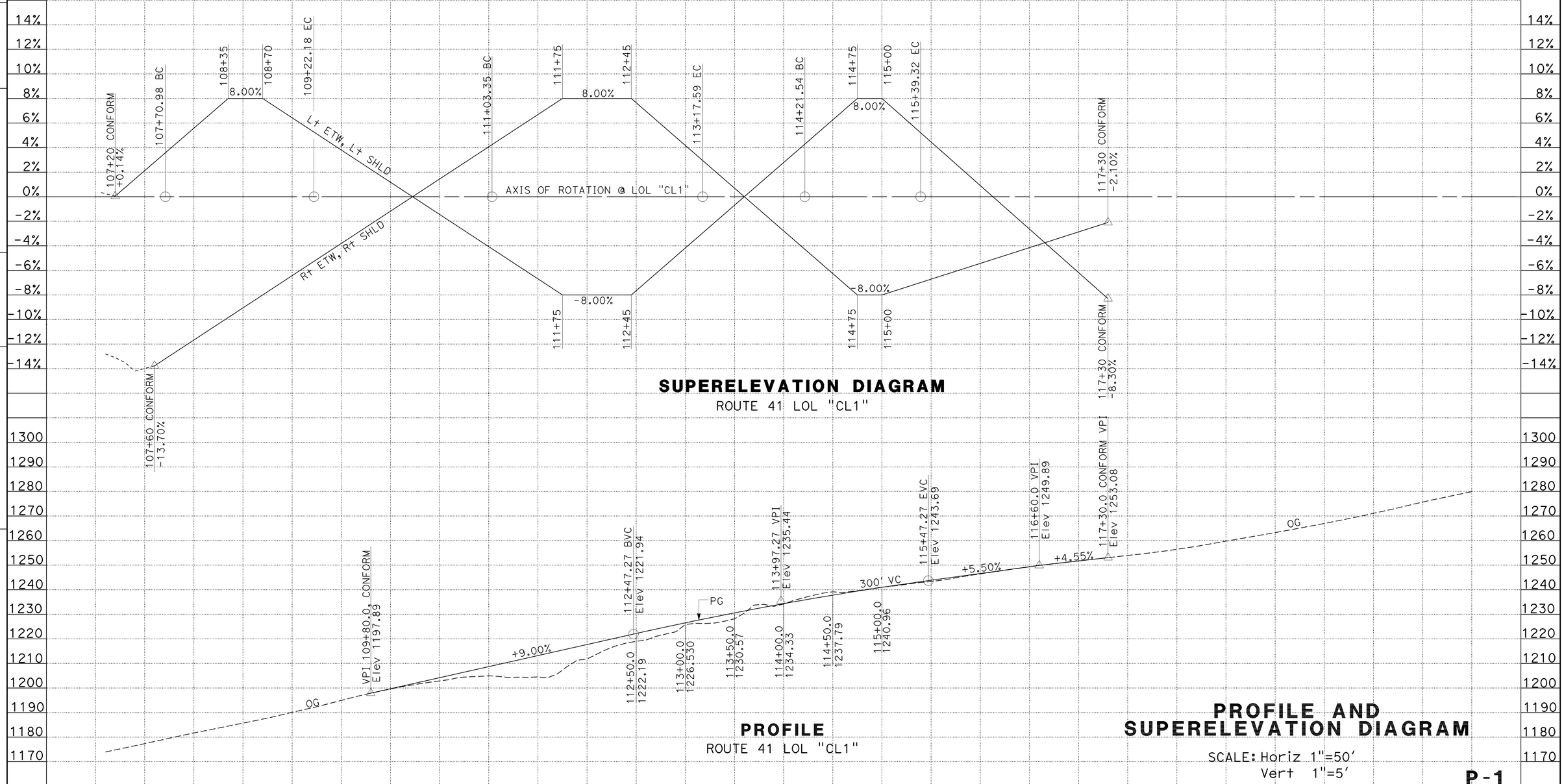
12-14-09
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER G.K. SCHNEIDER No. 66985 Exp 9/30/10 CIVIL STATE OF CALIFORNIA

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

NOTE:

SUPERELEVATION AS SHOWN OR AS DIRECTED BY ENGINEER.



Station.		107+00	108+00	109+00	110+00	111+00	112+00	113+00	114+00	115+00	116+00	117+00	118+00
CY	Exc		104.16	261.41	410.56	464.95	464.95	516.56	1411.98	2225.1	4718.71	6013.51	6076.66
	Emb		106.61	458.78	824.91	2089.16	4600.38	5343.69	5767.1	6065.93	6069.55	6077.38	6077.51

REVISED BY | DATE REVISED

G.K. SCHNEIDER | M.A. O'NEAL

CALCULATED-DESIGNED BY | CHECKED BY

FUNCTIONAL SUPERVISOR: S.M. WYATT

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DESIGN

Caltrans

LAST REVISION 11-16-09 | DATE PLOTTED => 21-DEC-2009 | TIME PLOTTED => 10:11

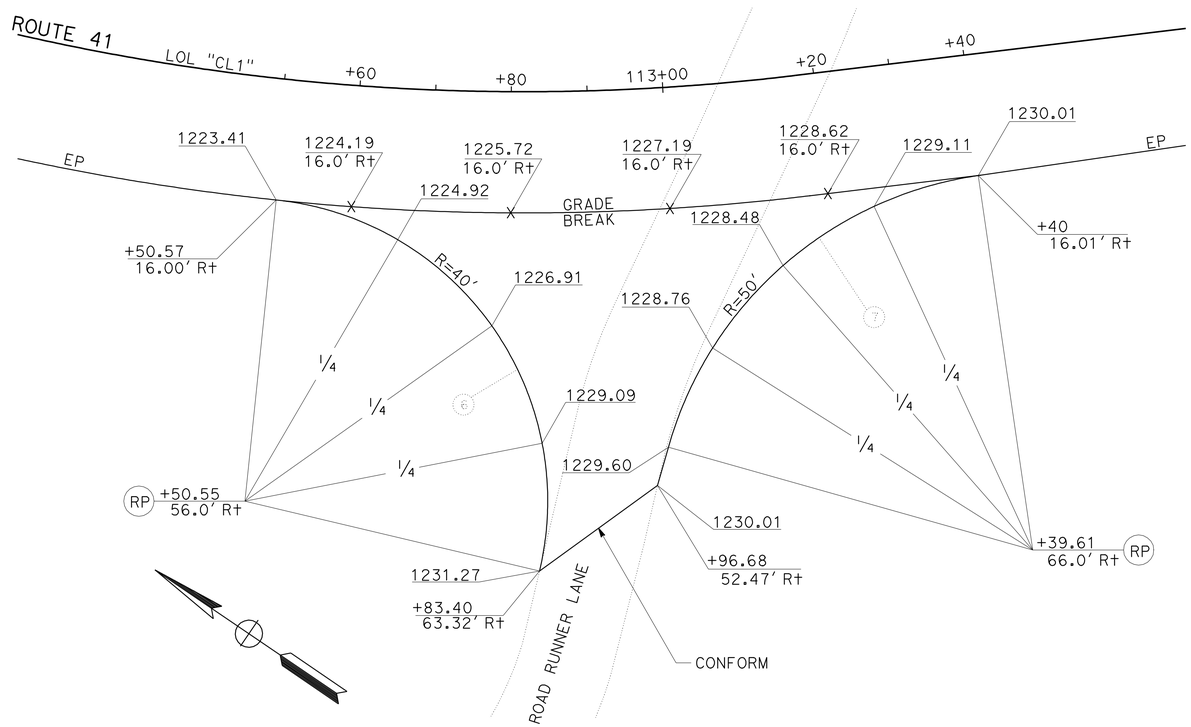
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SLO	41	20.7	6	57

REGISTERED CIVIL ENGINEER 11-16-09 DATE

12-14-09
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER G.K. SCHNEIDER No. 66985 Exp. 9/30/10 CIVIL STATE OF CALIFORNIA

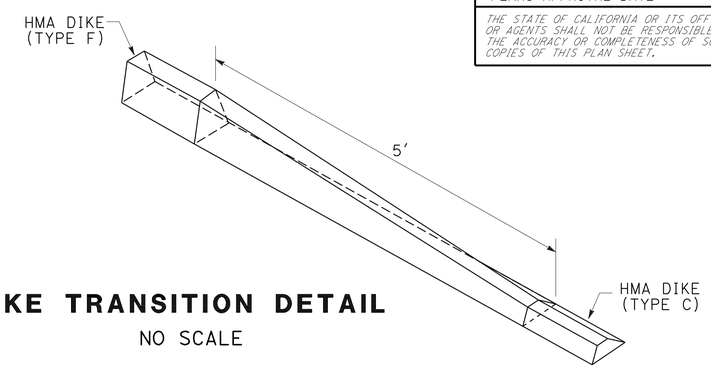
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



CURVE DATA

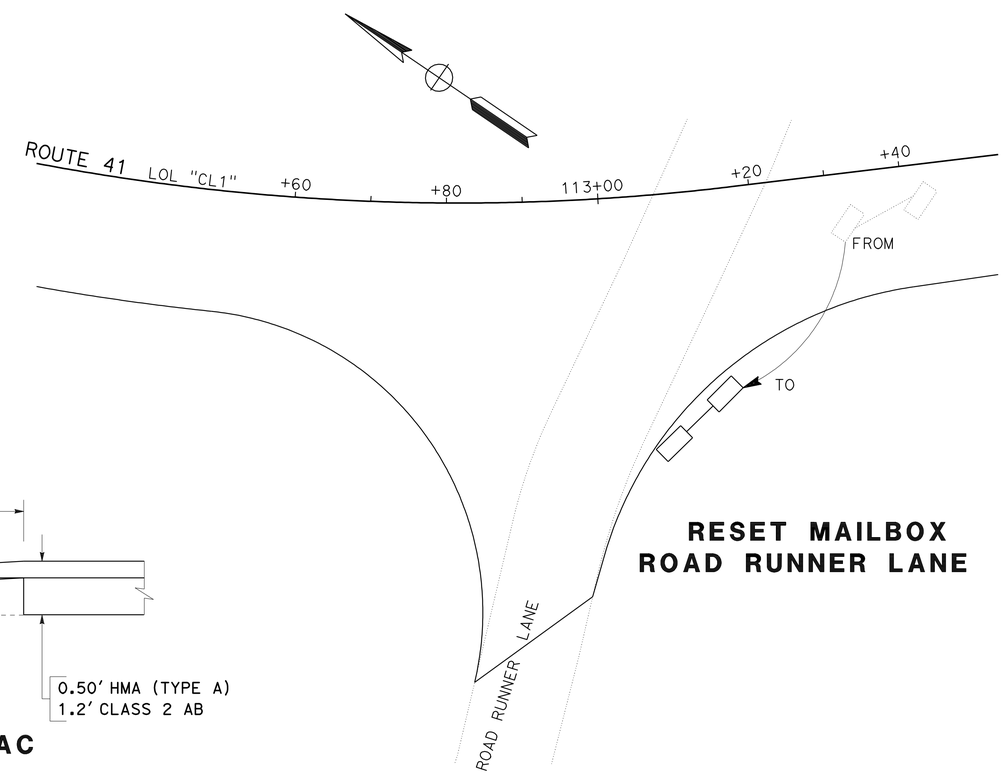
No.	R	Δ	T	L	N	E
6	40.00'	97°23'32"	45.52'	67.99'	2380896.91	5773237.22
7	50.00'	65°57'22"	32.44'	57.56'	2380890.44	5773341.28

ROAD RUNNER LANE INTERSECTION

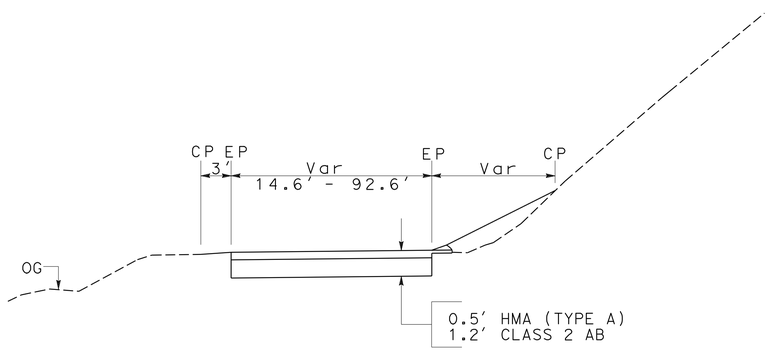


DIKE TRANSITION DETAIL

NO SCALE

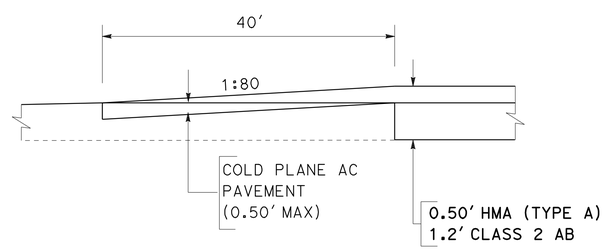


RESET MAILBOX ROAD RUNNER LANE



ROAD RUNNER LANE TYPICAL X-SECTION

NO SCALE



COLD PLANE AC PAVEMENT

NO SCALE

CONSTRUCTION DETAIL

SCALE: 1"=10'

C-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
DESIGN

FUNCTIONAL SUPERVISOR: S.M. WYATT
CALCULATED-DESIGNED BY: G.K. SCHNEIDER
CHECKED BY: M.A. O'NEAL
REVISED BY
DATE REVISED

LAST REVISION 11-16-09
DATE PLOTTED => 21-DEC-2009
TIME PLOTTED => 10:11

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SLO	41	20.7	7	57

REGISTERED CIVIL ENGINEER 11-16-09 DATE

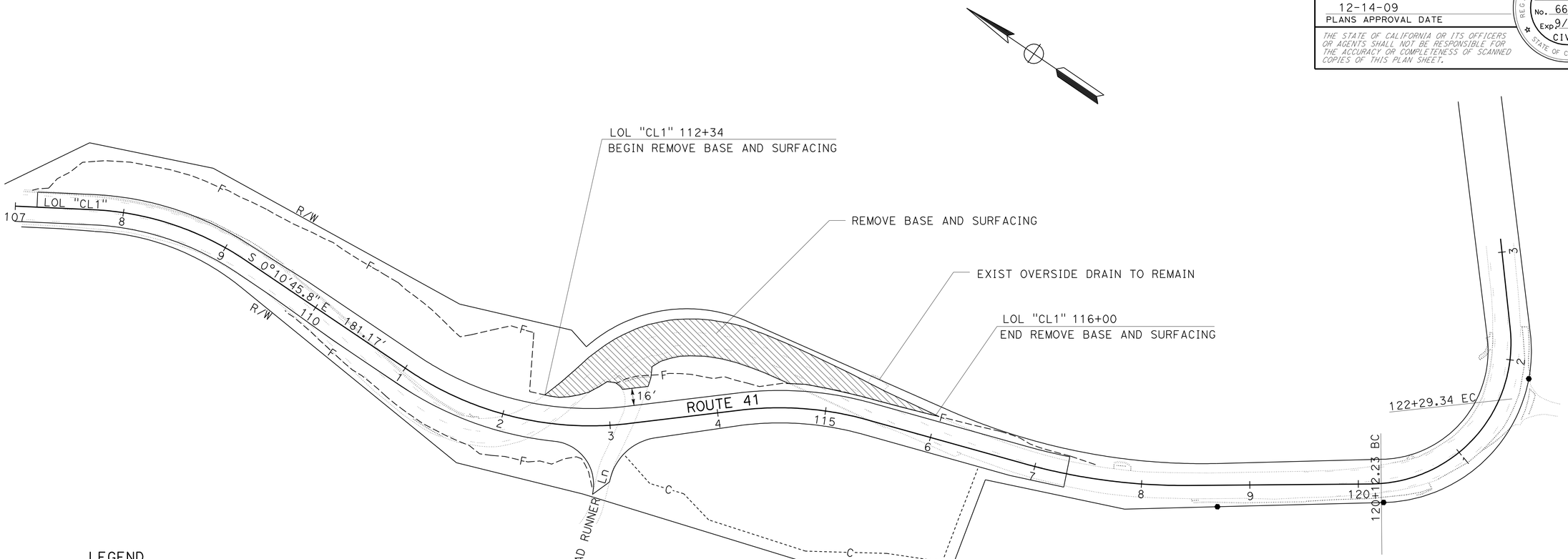
12-14-09
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER G.K. SCHNEIDER No. 66985 Exp. 9/30/10 CIVIL STATE OF CALIFORNIA

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

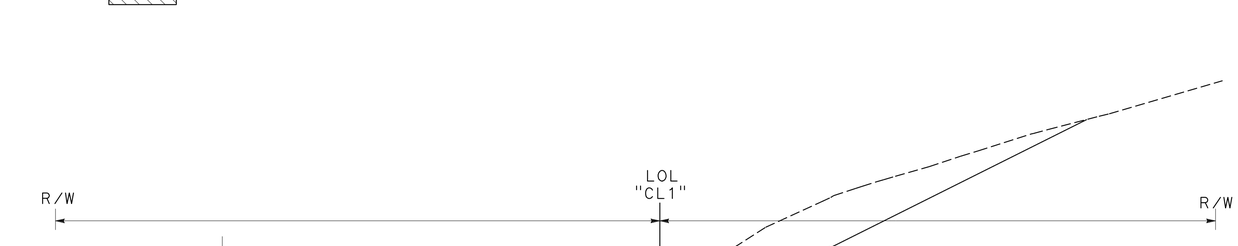
NOTE:

FOR COMPLETE RIGHT OF WAY DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.



LEGEND

REMOVE BASE AND SURFACING



REMOVE BASE AND SURFACING TYPICAL CROSS SECTION

Sta 112+34 TO 116+00

NO SCALE

CONSTRUCTION DETAIL

SCALE: 1"=50'

C-2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

DESIGN

FUNCTIONAL SUPERVISOR: S.M. WYATT

CALCULATED-DESIGNED BY: G.K. SCHNEIDER

CHECKED BY: M.A. O'NEAL

REVISED BY

DATE REVISED

LAST REVISION 11-16-09

DATE PLOTTED => 21-DEC-2009

TIME PLOTTED => 10:12

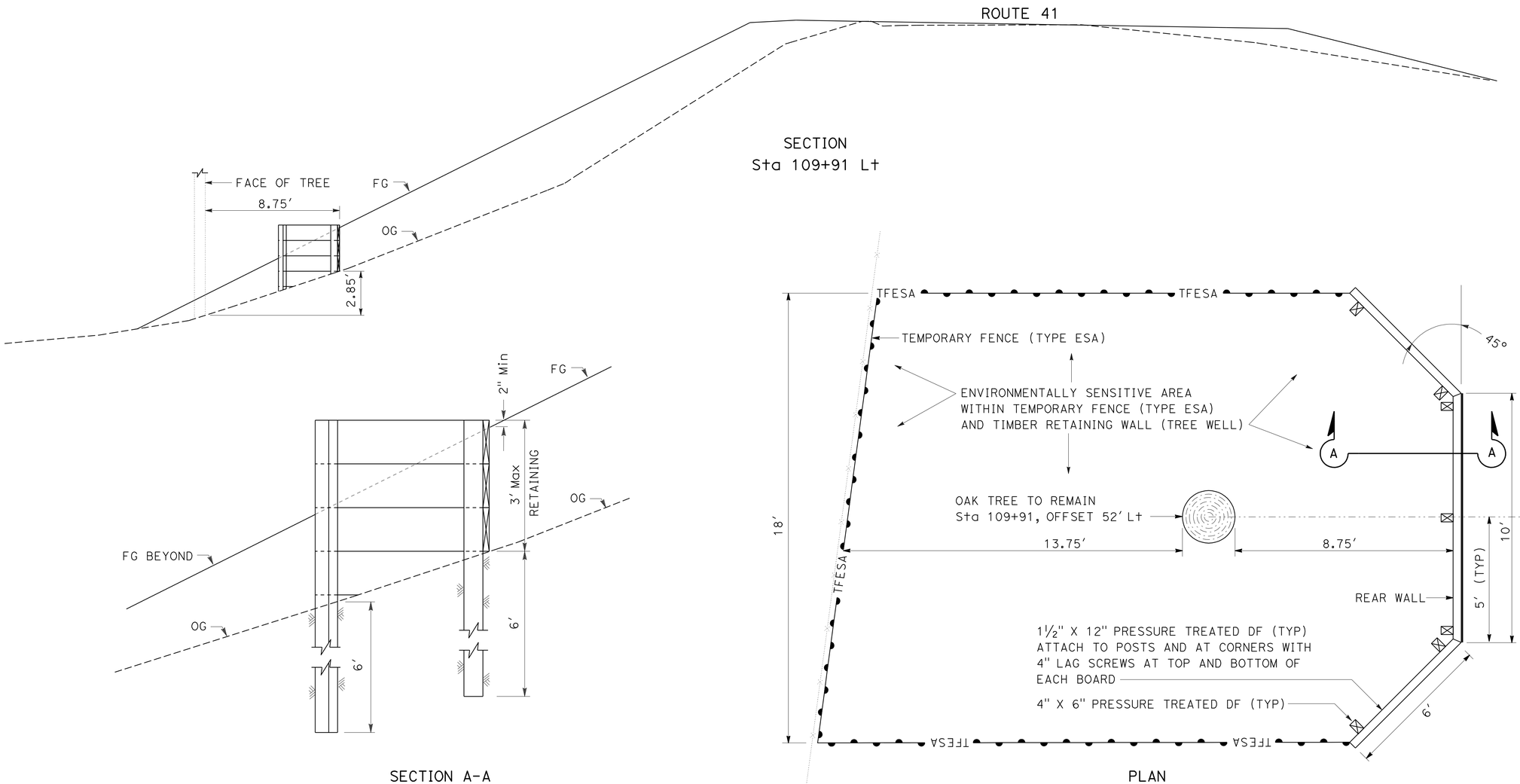
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SLO	41	20.7	8	57

Jo Jackson 11-16-09
LICENSED LANDSCAPE ARCHITECT

12-14-09
PLANS APPROVAL DATE

LICENSED LANDSCAPE ARCHITECT
Jo Jackson No. 3175
Jo Jackson
Expiration Date
6/30/10
Renewal Date
11/16/09
Date
STATE OF CALIFORNIA

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



TIMBER RETAINING WALL (TREE WELL)

CONSTRUCTION DETAILS

NO SCALE

C-3

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® LANDSCAPE ARCHITECTURE

SENIOR LANDSCAPE ARCHITECT: DENNIS REEVES

CALCULATED-DESIGNED BY: JO JACKSON
CHECKED BY: PATRICK BOLGER

REVISED BY
DATE REVISED

LAST REVISION 11-16-09
DATE PLOTTED => 21-DEC-2009
TIME PLOTTED => 10:12

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SLO	41	20.7	9	57

Jo Jackson 11-16-09
LICENSED LANDSCAPE ARCHITECT

12-14-09
PLANS APPROVAL DATE

LICENSED LANDSCAPE ARCHITECT
Jo Jackson No. 3176
Jo Jackson
06/30/10
Renewal Date
11/16/09
Date
STATE OF CALIFORNIA

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

NOTES:

1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
2. ALL TREE SPECIES ARE OAKS.

LEGEND

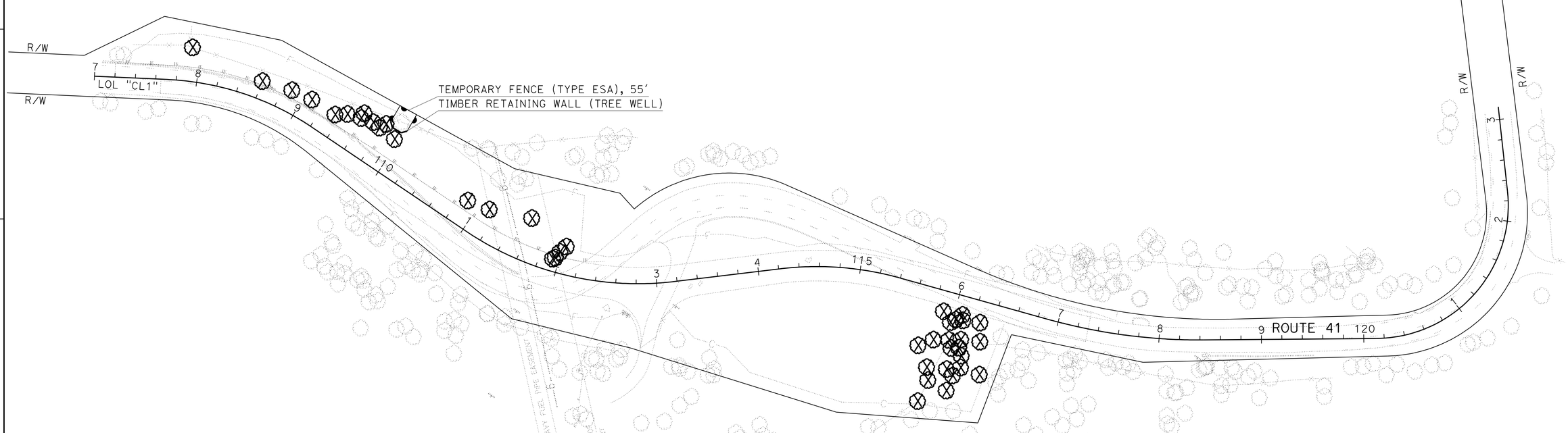
⊗ TREES TO BE REMOVED

TREES TO REMAIN

TREE REMOVAL (N)

LOCATION	DIAMETER (Ft)	LOCATION	DIAMETER (Ft)	LOCATION	DIAMETER (Ft)
"CL1" 107+92, 33'Lt	3.5	"CL1" 111+57, 42'Lt	2.0	"CL1" 116+06, 53'Rt	0.4
"CL1" 108+60, 17'Lt	1.2	"CL1" 111+93, 12'Lt	2.0	"CL1" 116+07, 74'Rt	0.4
"CL1" 108+88, 21'Lt	1.0	"CL1" 111+96, 14'Lt	2.0	"CL1" 116+08, 19'Rt	0.3
"CL1" 109+08, 23'Lt	0.5	"CL1" 111+98, 20'Lt	0.9	"CL1" 116+10, 23'Rt	0.3
"CL1" 109+34, 22' t	0.6	"CL1" 112+04, 27'Lt	0.8	"CL1" 116+12, 94'Rt	0.8
"CL1" 109+43, 30'Lt	1.0	"CL1" 115+74, 60'Rt	0.8	"CL1" 116+13, 43'Rt	0.8
"CL1" 109+56, 34'Lt	1.0	"CL1" 115+87, 49'Rt	2.0	"CL1" 116+13, 50'Rt	0.6
"CL1" 109+56, 40'Lt	1.0	"CL1" 115+88, 77'Rt	0.8	"CL1" 116+15, 78'Rt	0.8
"CL1" 109+69, 37'Lt	1.0	"CL1" 115+88, 112'Rt	0.8	"CL1" 116+18, 57'Rt	0.6
"CL1" 109+77, 37'Lt	1.0	"CL1" 115+89, 20'Rt	1.3	"CL1" 116+20, 68'Rt	1.0
"CL1" 109+81, 43'Lt	0.7	"CL1" 115+93, 89'Rt	0.8	"CL1" 116+26, 21'Rt	0.3
"CL1" 109+95, 35'Lt	3.5	"CL1" 115+97, 31'Rt	0.8	"CL1" 116+31, 39'Rt	2.3
"CL1" 110+88, 26'Lt	1.4	"CL1" 116+02, 46'Rt	1.2	"CL1" 116+39, 70'Rt	1.2
"CL1" 111+11, 30'Lt	1.7	"CL1" 116+03, 24'Rt	0.4		

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



CONSTRUCTION DETAILS

SCALE: 1" = 50'

C-4

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans LANDSCAPE ARCHITECTURE

SENIOR LANDSCAPE ARCHITECT: DENNIS REEVES

CALCULATED-DESIGNED BY: JO JACKSON
CHECKED BY: PATRICK BOLGER

REVISED BY | DATE REVISED

LAST REVISION 11-16-09
DATE PLOTTED => 21-DEC-2009
TIME PLOTTED => 10:12

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SLO	41	20.7	10	57

Jo Jackson 11-16-09
LICENSED LANDSCAPE ARCHITECT

12-14-09
PLANS APPROVAL DATE

LICENSED LANDSCAPE ARCHITECT
Jo Jackson No. 3174
Signature
06/30/10
Renewal Date
11/16/09
Date
STATE OF CALIFORNIA

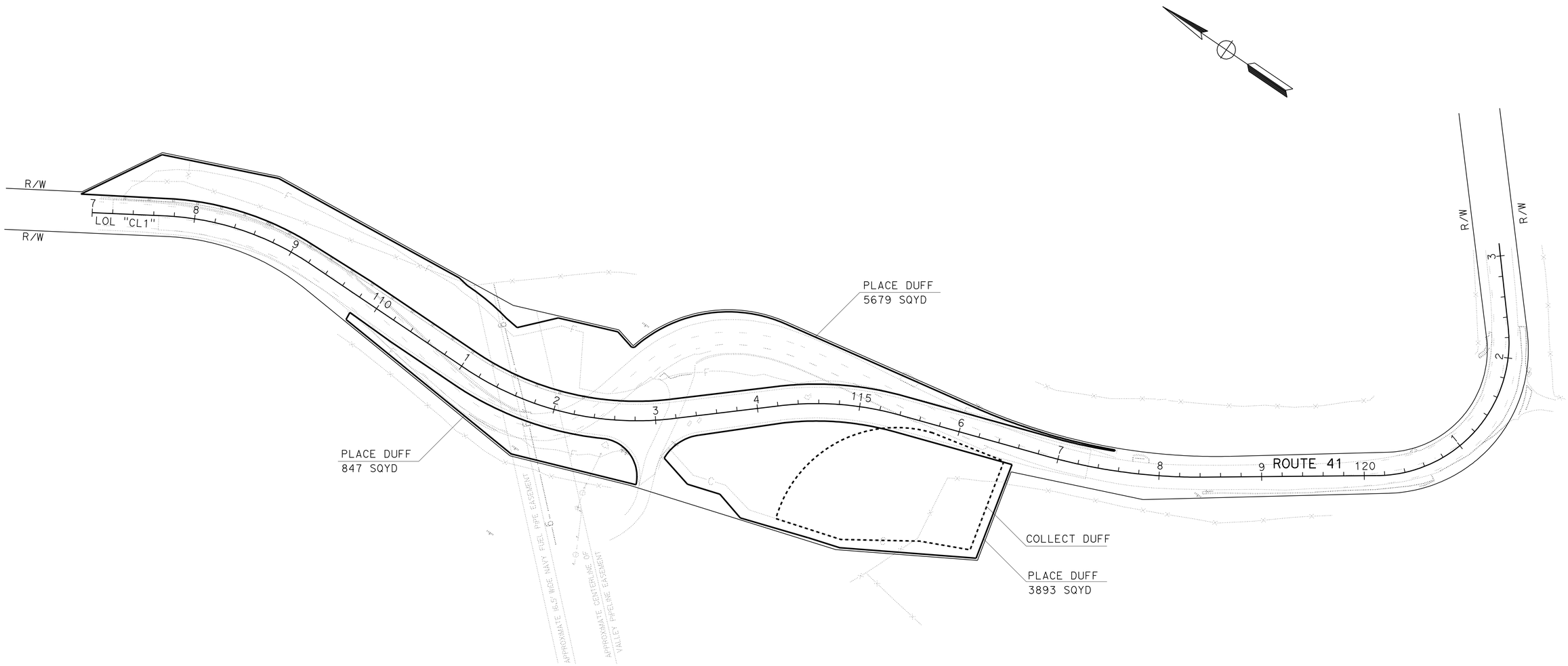
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

NOTE:

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

LEGEND

- - - - - - - COLLECT DUFF
——— PLACE DUFF



DUFF COLLECTION AND DUFF PLACEMENT

THIS PLAN ACCURATE FOR EROSION CONTROL WORK ONLY.

EROSION CONTROL PLAN

SCALE: 1" = 50'

EC-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans LANDSCAPE ARCHITECTURE

SENIOR LANDSCAPE ARCHITECT: DENNIS REEVES

CALCULATED-DESIGNED BY: JO JACKSON
CHECKED BY: PATRICK BOLGER

REVISED BY
DATE REVISED

LAST REVISION 11-16-09
DATE PLOTTED => 21-DEC-2009
TIME PLOTTED => 10:12

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SLO	41	20.7	11	57

Jo Jackson 11-16-09
LICENSED LANDSCAPE ARCHITECT

12-14-09
PLANS APPROVAL DATE

LICENSED LANDSCAPE ARCHITECT Jo Jackson No. 3175 Jo Jackson Expiration Date 06/30/10 Renewal Date 11/16/09 Date STATE OF CALIFORNIA

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

NOTE:

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

LEGEND

EROSION CONTROL (COMPOST BLANKET) ½" DEPTH
EROSION CONTROL (PUNCHED STRAW)

EROSION CONTROL (COMPOST BLANKET) ½" DEPTH
EROSION CONTROL (HYDROSEED)

RECP (JUTE MESH) SLOPES 2:1 AND STEEPER

EROSION CONTROL QUANTITIES

PLAN SHEET No.	LOCATION	COLLECT DUFF (N)	PLACE DUFF	EROSION CONTROL (COMPOST BLANKET)	EROSION CONTROL (PUNCHED STRAW)	EROSION CONTROL (HYDROSEED)	RECP (JUTE MESH)	FIBER ROLLS	SEED (N)	FIBER (N)	TACKIFIER (N)	STRAW (N)
		SQYD	SQYD	CY	SQFT	SQFT	SQFT	LF	LB	LB	LB	TON
EC-1	"CL1" 107+20 TO 117+60 LT	-	5679	76	51,112	-	-	2615	77	2340	117	2.3
AND	"CL1" 109+80 TO 112+90 RT	-	847	11	7617	-	-	-	12	350	81	.4
EC-2	"CL1" 113+00 TO 116+60 RT	2496	3893	52	-	35,042	20,484	2620	53	1600	17	-
	TOTAL		10,419	139	58,729	35,042	20,484	5235				

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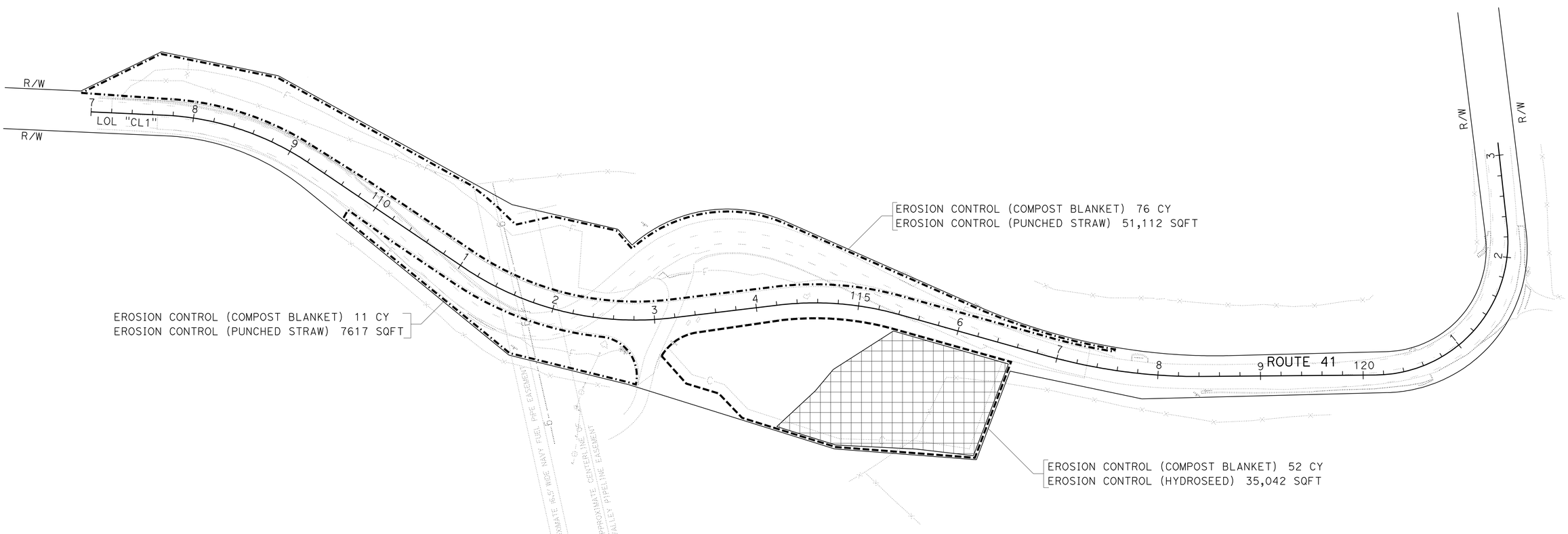


THIS PLAN ACCURATE FOR EROSION CONTROL WORK ONLY.

EROSION CONTROL PLAN AND QUANTITIES

SCALE: 1" = 50'

EC-2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® LANDSCAPE ARCHITECTURE

SENIOR LANDSCAPE ARCHITECT: DENNIS REEVES
CALCULATED-DESIGNED BY: JO JACKSON
CHECKED BY: PATRICK BOLGER
REVISED BY / DATE REVISED

LAST REVISION 11-16-09
DATE PLOTTED => 21-DEC-2009
TIME PLOTTED => 10:12

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SLO	41	20.7	12	57

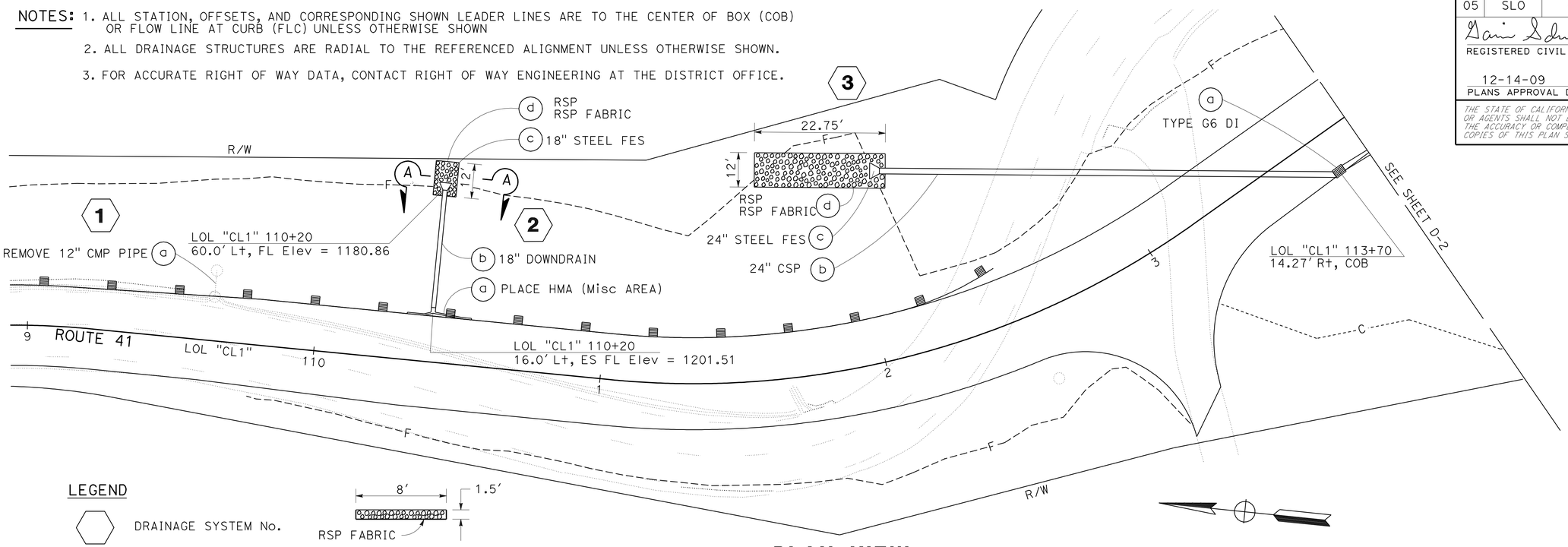
REGISTERED CIVIL ENGINEER 11-16-09 DATE

12-14-09
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER G.K. SCHNEIDER No. 66985 Exp 9/30/10 CIVIL STATE OF CALIFORNIA

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

NOTES:
1. ALL STATION, OFFSETS, AND CORRESPONDING SHOWN LEADER LINES ARE TO THE CENTER OF BOX (COB) OR FLOW LINE AT CURB (FLC) UNLESS OTHERWISE SHOWN
2. ALL DRAINAGE STRUCTURES ARE RADIAL TO THE REFERENCED ALIGNMENT UNLESS OTHERWISE SHOWN.
3. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



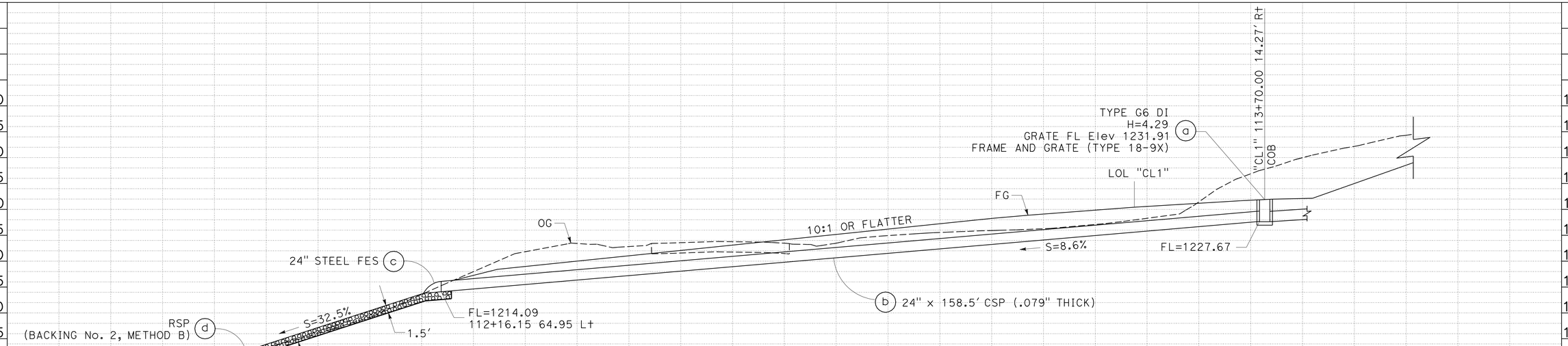
LEGEND

DRAINAGE SYSTEM No.

DRAINAGE UNIT No.

SECTION A-A
NO SCALE

PLAN VIEW
SCALE: 1" = 20'



DRAINAGE SYSTEM No. 3
LOL "CL1" 113+70.00

THIS PLAN ACCURATE FOR DRAINAGE WORK ONLY.

DRAINAGE PLAN AND PROFILE

SCALE: Horiz 1" = 10'
Vert 1" = 10'

D-1

STATION		TOTAL
CY	Exc	
	Emb	

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
DESIGN

FUNCTIONAL SUPERVISOR: S.M. WYATT
CALCULATED-DESIGNED BY: G.K. SCHNEIDER
CHECKED BY: M.A. O'NEAL
REVISED BY
DATE REVISED

LAST REVISION 11-16-09
DATE PLOTTED => 21-DEC-2009
TIME PLOTTED => 10:13

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SLO	41	20.7	13	57

REGISTERED CIVIL ENGINEER 11-16-09 DATE

12-14-09
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NOTE:

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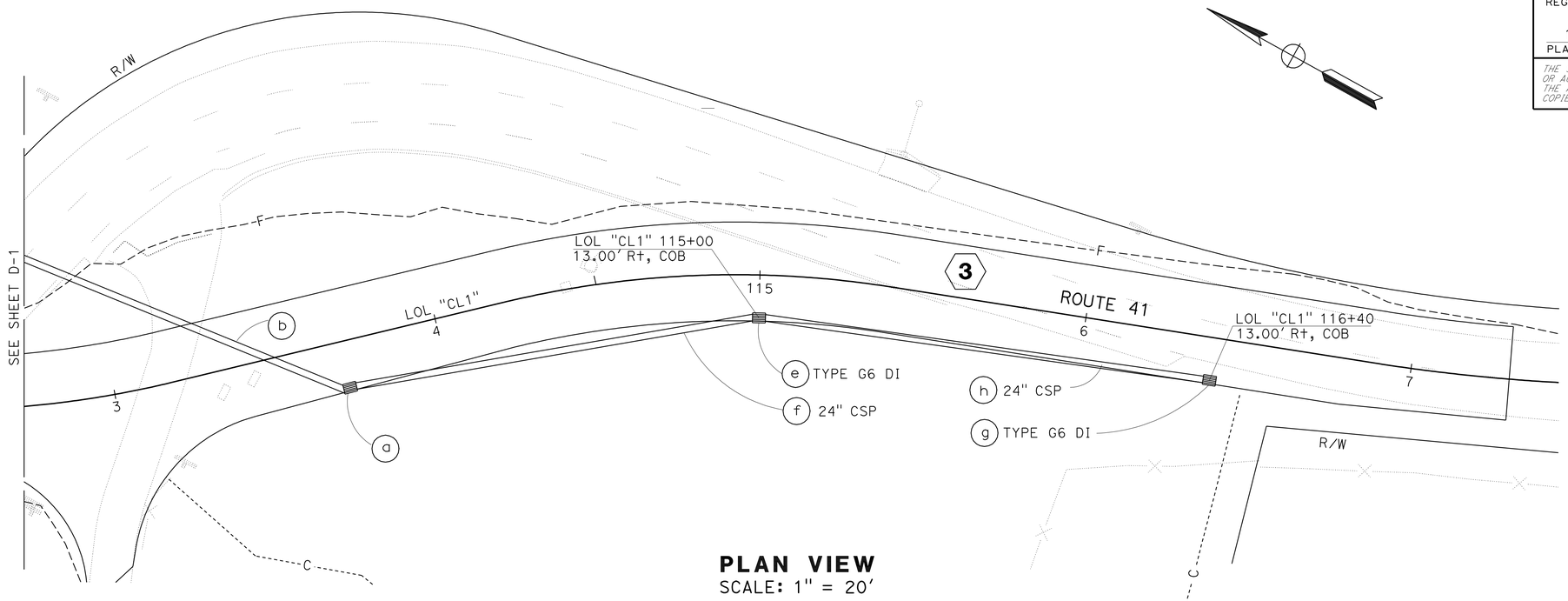
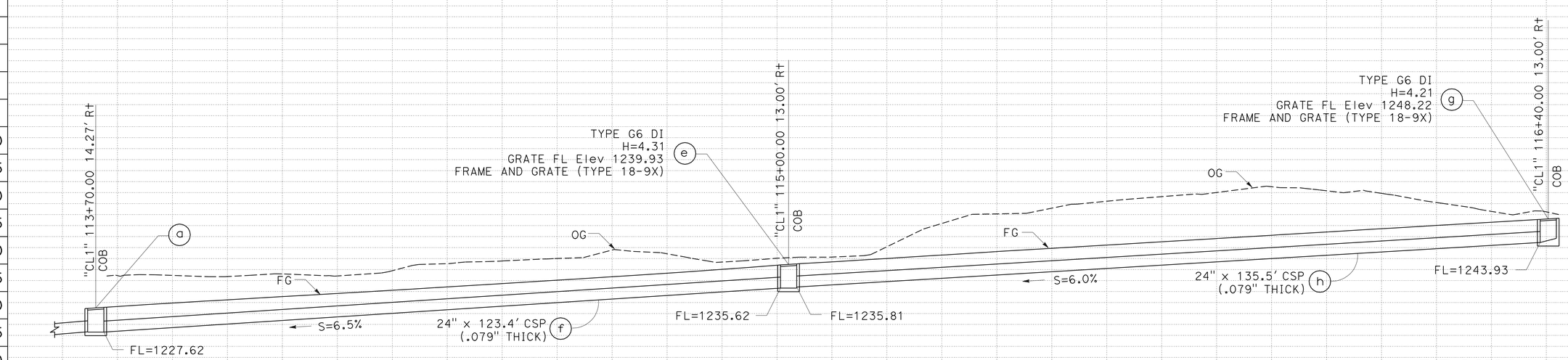


PLAN VIEW
SCALE: 1" = 20'



DRAINAGE SYSTEM No. 3

THIS PLAN ACCURATE FOR DRAINAGE WORK ONLY.

DRAINAGE PLAN AND PROFILE

SCALE: Horiz 1" = 10'
Vert 1" = 10'

D-2

STATION		TOTAL
CY	Exc	
	Emb	

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Caltrans
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LAST REVISION 11-16-09
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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SLO	41	20.7	14	57

REGISTERED CIVIL ENGINEER 11-16-09 DATE

12-14-09
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DRAINAGE QUANTITIES

DRAINAGE PLAN SHEET No.	DRAINAGE SYSTEM No. ⬡	DRAINAGE UNIT ◯	REMOVE CULVERT	PLACE HMA (Misc AREA)	(N) 18" TAPERED INLET	18" ENTRANCE TAPER	(N) 18" DD SLIP JOINT	18" CSP DOWNDRAIN (0.064" THICK)	18" ANCHOR ASSEMBLY	18" STEEL FES	(N) HEIGHT OF INLET "H"	MINOR Conc (MINOR STRUCTURE)	(N) FRAME AND GRATE (TYPE 18-9X)	MISCELLANEOUS IRON AND STEEL	24" CSP (.079" THICK)	24" STEEL FES	RSP RSP FABRIC	RSP RSP (BACKING No. 2, METHOD B)	DESCRIPTION	LOCATION	DRAINAGE UNIT ◯	DRAINAGE SYSTEM No. ⬡	DRAINAGE PLAN SHEET No.
			LF	SQYD	EA	EA	EA	LF	EA	EA	LF	CY	EA	LB	LF	EA	SQYD	CY					
D-1	1	a	9.1																REMOVE 12 INCH CMP	15.33 Lt "CL1" 109+63.92	a	1	D-1
D-1	2	a		4.8															PAVED GUTTER FLARE	16.00 Lt "CL1" 110+40.00	a	2	D-1
		b			1	1	1	41	1										18" CSP DOWNDRAIN		b		
		c								1											c		
		d															18.3	5.3			d		
D-1	3	a									4.29	1.35	1	187					TYPE G6-DI	14.27 Rt "CL1" 113+70.00	a	3	D-1
		b													158.5						b		
		c														1					c		
		d															42.9	15.2			d		
D-2		e									4.31	1.33	1	187					TYPE G6-DI	13.00 Rt "CL1" 115+00.00	e		D-2
		f													123.4						f		
D-2		g									4.21	1.31	1	187					TYPE G6-DI	13.00 Rt "CL1" 116+40.00	g		D-2
		h													135.5						h		
		TOTAL	9.1	4.8		1		41	1	1		3.99		561	417.4	1	61.2	20.5					

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

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Caltrans DESIGN

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REVISED BY
DATE REVISED

DRAINAGE QUANTITIES
DQ-1

LAST REVISION 11-16-09
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REGISTERED CIVIL ENGINEER 11-16-09 DATE

12-14-09
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER G.K. SCHNEIDER No. 66985 Exp. 9/30/10 CIVIL STATE OF CALIFORNIA

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NOTES: 1. FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.
2. UNLESS POTHOLED INFORMATION IS NOTED, EXACT LOCATION OF UTILITIES ARE UNKNOWN.

LEGEND

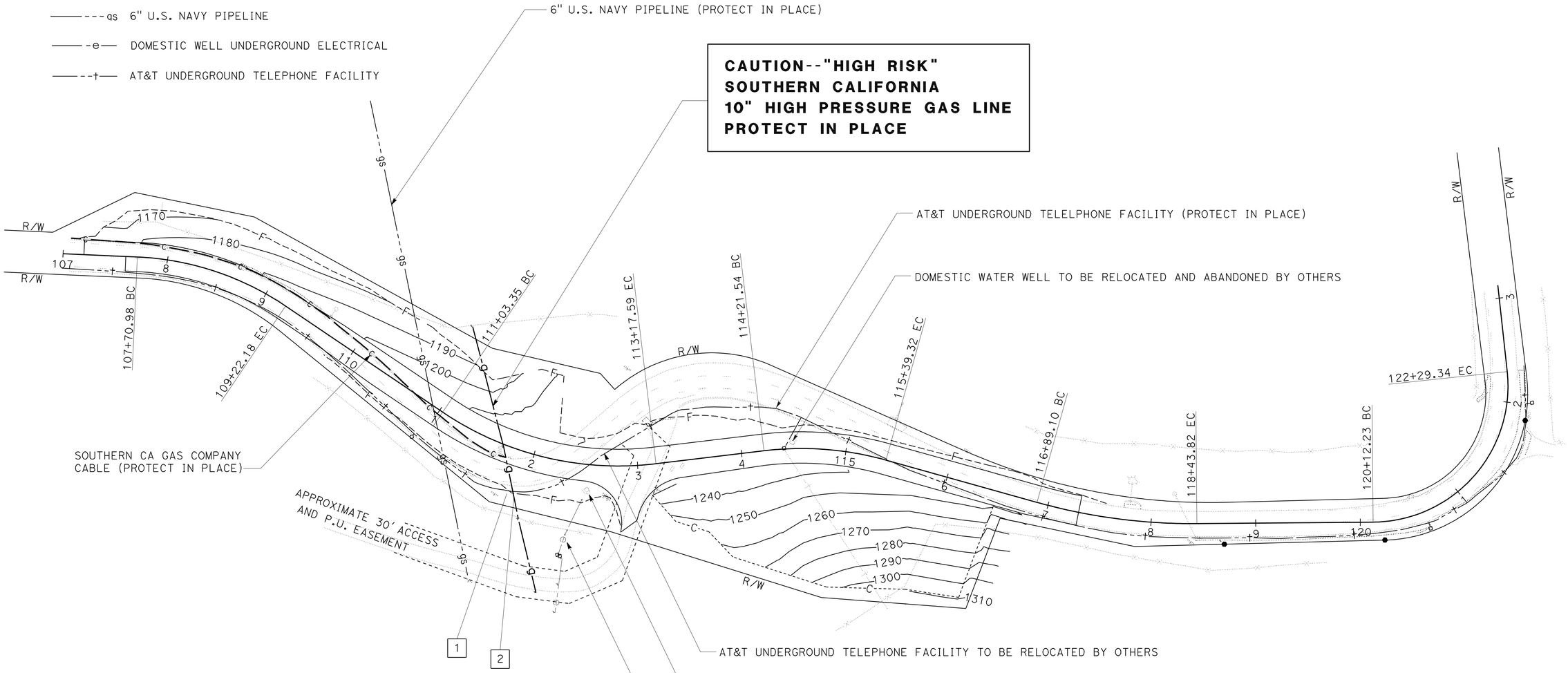
—c—— — SOUTHERN CA GAS COMPANY CABLE

——-g—— SOUTHERN CA GAS COMPANY(10 INCH HIGH PRESSURE GAS LINE)

——---as 6" U.S. NAVY PIPELINE

——-e—— DOMESTIC WELL UNDERGROUND ELECTRICAL

——--t—— AT&T UNDERGROUND TELEPHONE FACILITY



POTHOLE LOCATION TABLE

	UTILITY	LOCATION	UTILITY Elev	DEPTH FROM OG
1	AT&T	Sta 111+85 43.6' Rt	1210.3'	28"
2	SO CAL GAS	Sta 111+93 44.6' Rt	1210.7'	23"

THIS PLAN ACCURATE FOR UTILITY INFORMATION ONLY.

UTILITY PLAN

SCALE: 1" = 50' **U-1**

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
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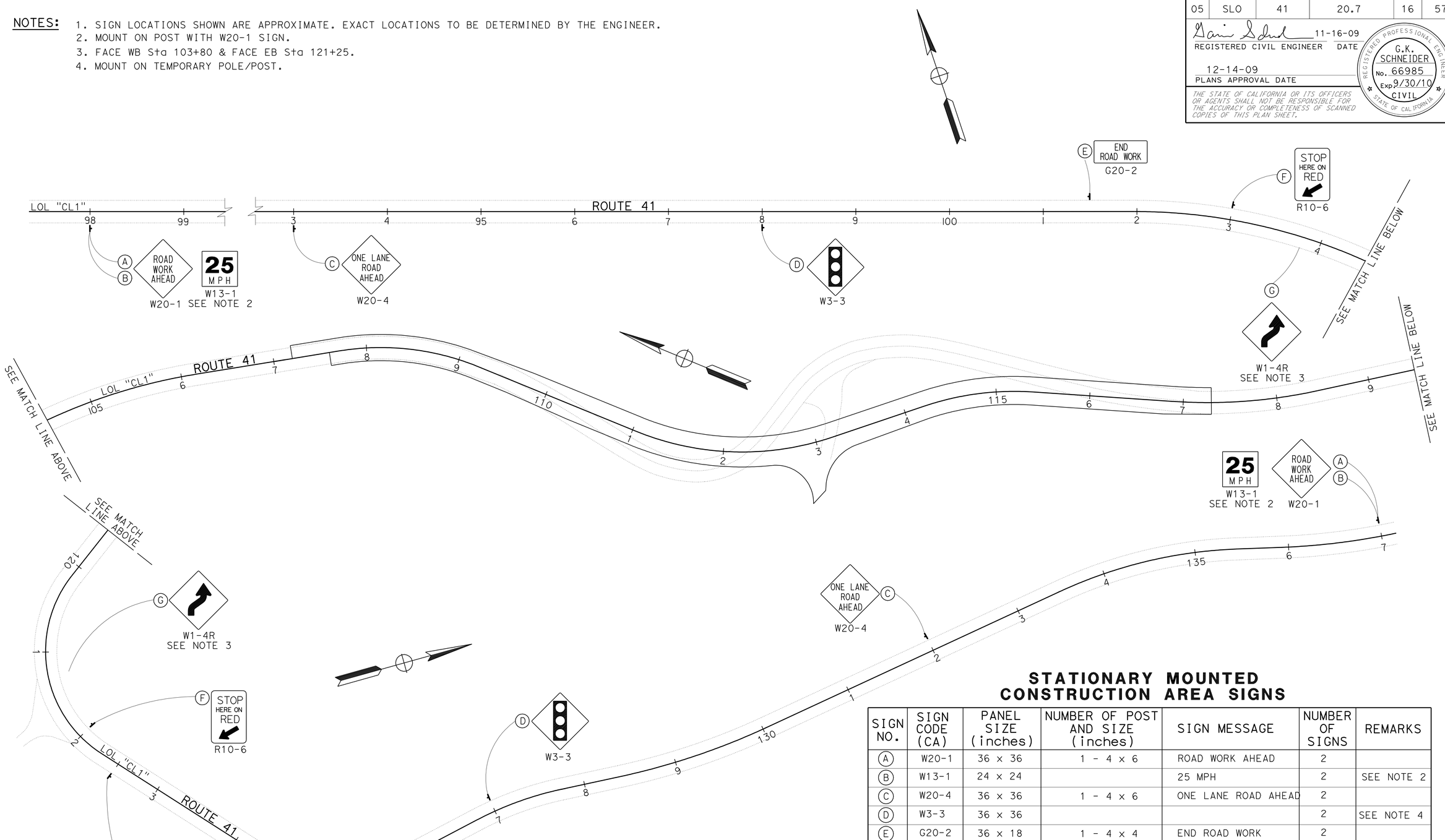
NOTES:
1. SIGN LOCATIONS SHOWN ARE APPROXIMATE. EXACT LOCATIONS TO BE DETERMINED BY THE ENGINEER.
2. MOUNT ON POST WITH W20-1 SIGN.
3. FACE WB Sta 103+80 & FACE EB Sta 121+25.
4. MOUNT ON TEMPORARY POLE/POST.



STATIONARY MOUNTED CONSTRUCTION AREA SIGNS

SIGN NO.	SIGN CODE (CA)	PANEL SIZE (inches)	NUMBER OF POST AND SIZE (inches)	SIGN MESSAGE	NUMBER OF SIGNS	REMARKS
A	W20-1	36 x 36	1 - 4 x 6	ROAD WORK AHEAD	2	
B	W13-1	24 x 24		25 MPH	2	SEE NOTE 2
C	W20-4	36 x 36	1 - 4 x 6	ONE LANE ROAD AHEAD	2	
D	W3-3	36 x 36			2	SEE NOTE 4
E	G20-2	36 x 18	1 - 4 x 4	END ROAD WORK	2	
F	R10-6	24 x 36	1 - 4 x 4	STOP HERE ON RED	2	
G	W1-4R	30 x 30	1 - 4 x 4		2	SEE NOTE 3

NOTE: ALL SIGN PANEL AND POST SIZES ARE IN INCHES.

THIS PLAN ACCURATE FOR CONSTRUCTION AREA SIGN WORK ONLY.

CONSTRUCTION AREA SIGNS

NO SCALE

CS-1

REVISED BY | DATE REVISED
G.K. SCHNEIDER | M.A. O'NEAL
CALCULATED-DESIGNED BY | CHECKED BY
FUNCTIONAL SUPERVISOR: S.M. WYATT
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
DESIGN

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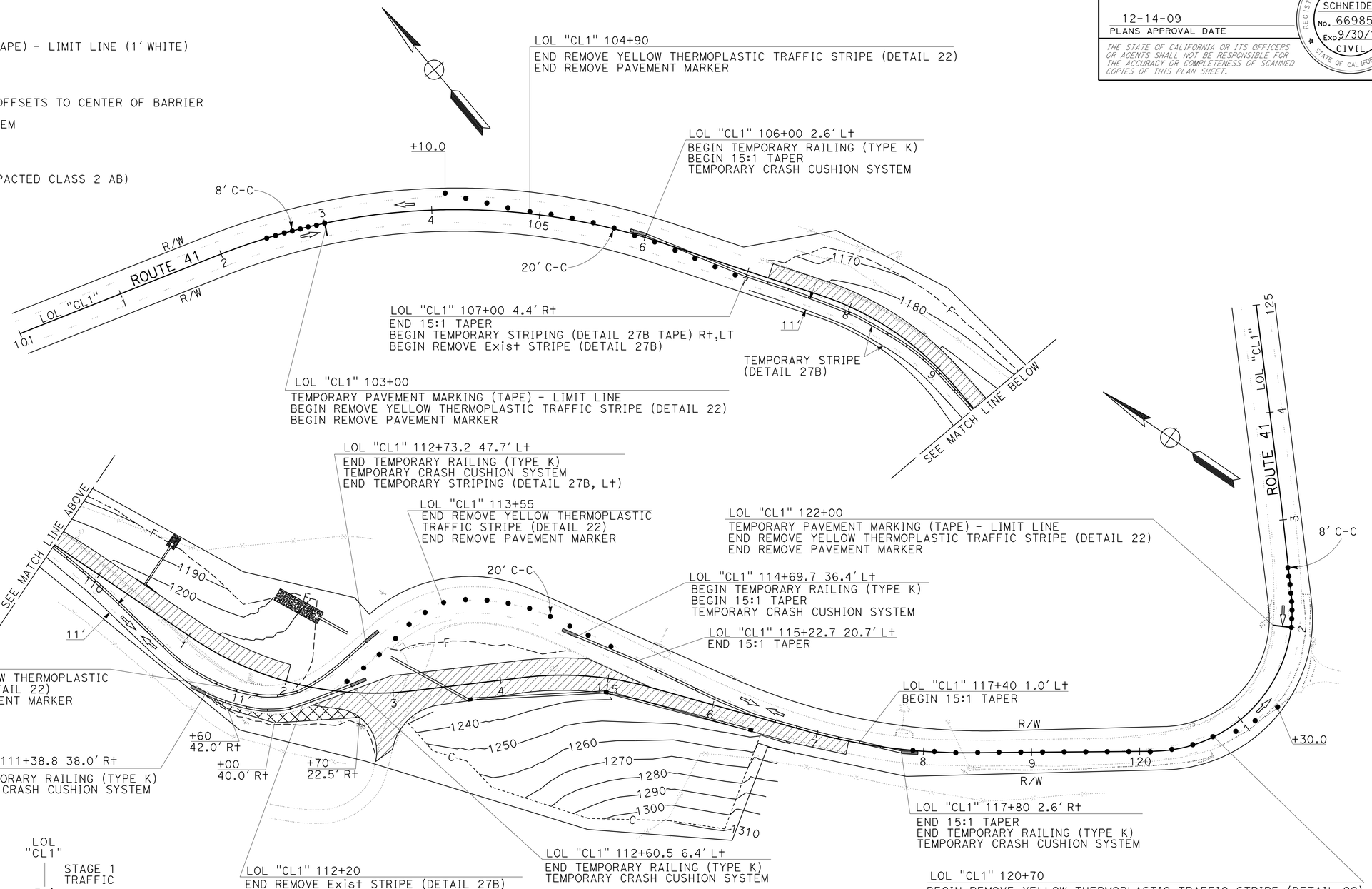
2. SEE ELECTRICAL PLAN FOR TEMPORARY SIGNAL SYSTEM.

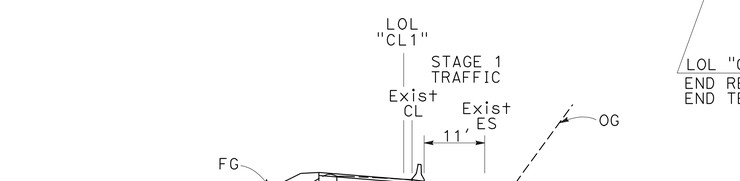
LEGEND

- TEMPORARY PAVEMENT MARKING (TAPE) - LIMIT LINE (1' WHITE)
- DIRECTION OF TRAVEL
- CHANNELIZER (SURFACE MOUNTED)
- TEMPORARY RAILING (TYPE K), OFFSETS TO CENTER OF BARRIER
- TEMPORARY CRASH CUSHION SYSTEM
- CONSTRUCTION THIS STAGE
- TEMPORARY DETOUR (80 CY COMPACTED CLASS 2 AB)

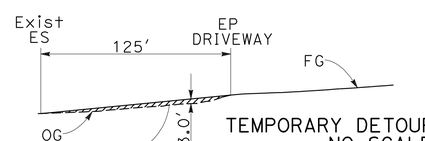
STAGE 1

1) CUT Sta 113+00 TO 116+50
2) FILL Sta 107+00 TO 112+00
3) DRAINAGE SYSTEMS 1-3
4) FINAL GRADE/PAVE THIS STAGE





TYPICAL CROSS SECTION
NO SCALE



TEMPORARY DETOUR PROFILE
NO SCALE

THIS PLAN ACCURATE FOR STAGE CONSTRUCTION AND TRAFFIC HANDLING WORK ONLY.

STAGE 1
STAGE CONSTRUCTION AND TRAFFIC HANDLING PLAN

SCALE: 1" = 50'

SC-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
DESIGN
FUNCTIONAL SUPERVISOR: S.M. WYATT
CALCULATED-DESIGNED BY: G.K. SCHNEIDER
CHECKED BY: M.A. O'NEAL
REVISED BY
DATE REVISED

LAST REVISION 11-16-09 DATE PLOTTED => 21-DEC-2009 TIME PLOTTED => 10:13

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05	SLO	41	20.7	18	57

REGISTERED CIVIL ENGINEER 11-16-09 DATE

12-14-09
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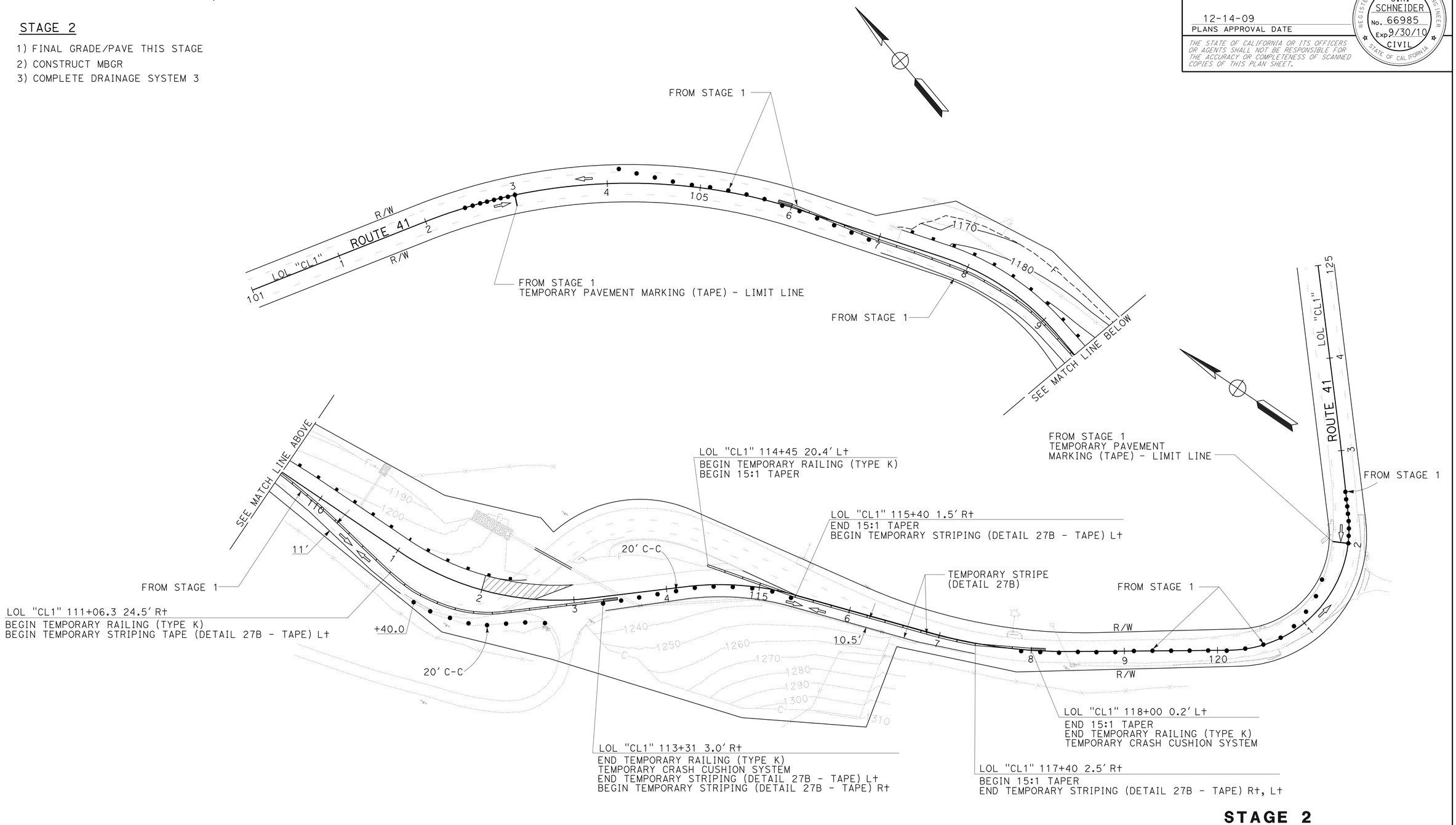
NOTE:

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

STAGE 2

1) FINAL GRADE/PAVE THIS STAGE
2) CONSTRUCT MBGR
3) COMPLETE DRAINAGE SYSTEM 3



THIS PLAN ACCURATE FOR STAGE CONSTRUCTION AND TRAFFIC HANDLING WORK ONLY.

STAGE 2
STAGE CONSTRUCTION AND TRAFFIC HANDLING PLAN

SCALE: 1" = 50'

SC-2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
DESIGN

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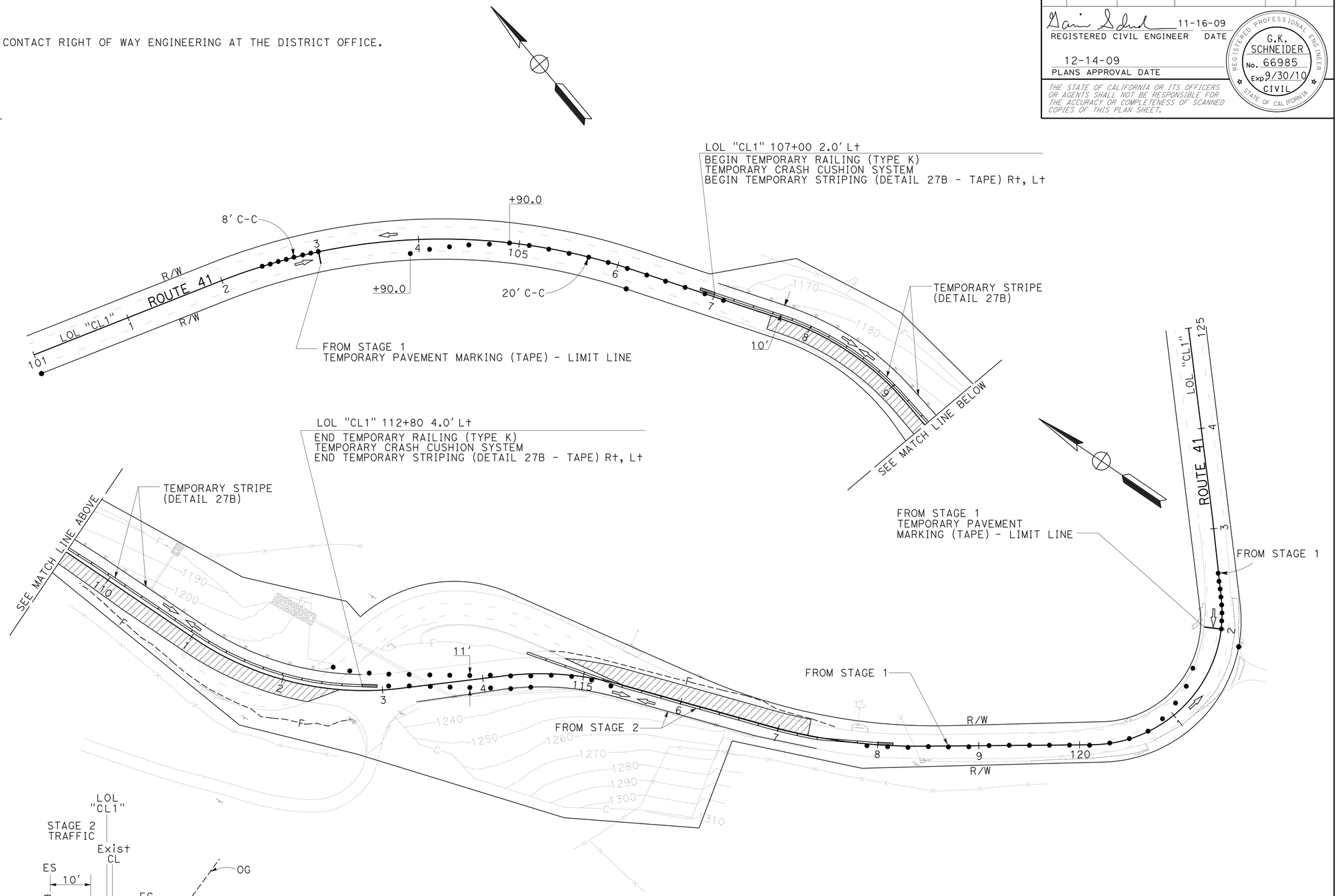
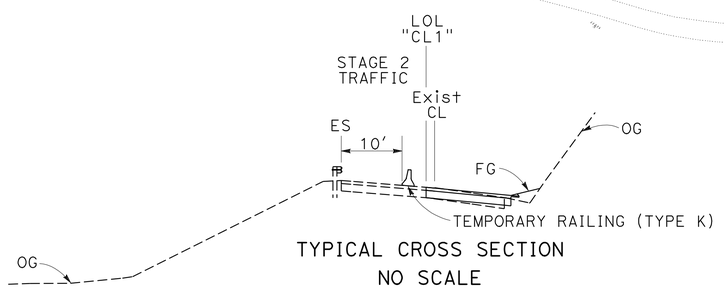
STAGE 3

1) SHIFT TRAFFIC TO NEW ALIGNMENT
2) FINAL GRADE/PAVE THIS STAGE





TYPICAL CROSS SECTION
NO SCALE

THIS PLAN ACCURATE FOR STAGE CONSTRUCTION AND TRAFFIC HANDLING WORK ONLY.

STAGE 2
STAGE CONSTRUCTION AND TRAFFIC HANDLING PLAN

SCALE: 1" = 50'

SC-3

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans®
DESIGN

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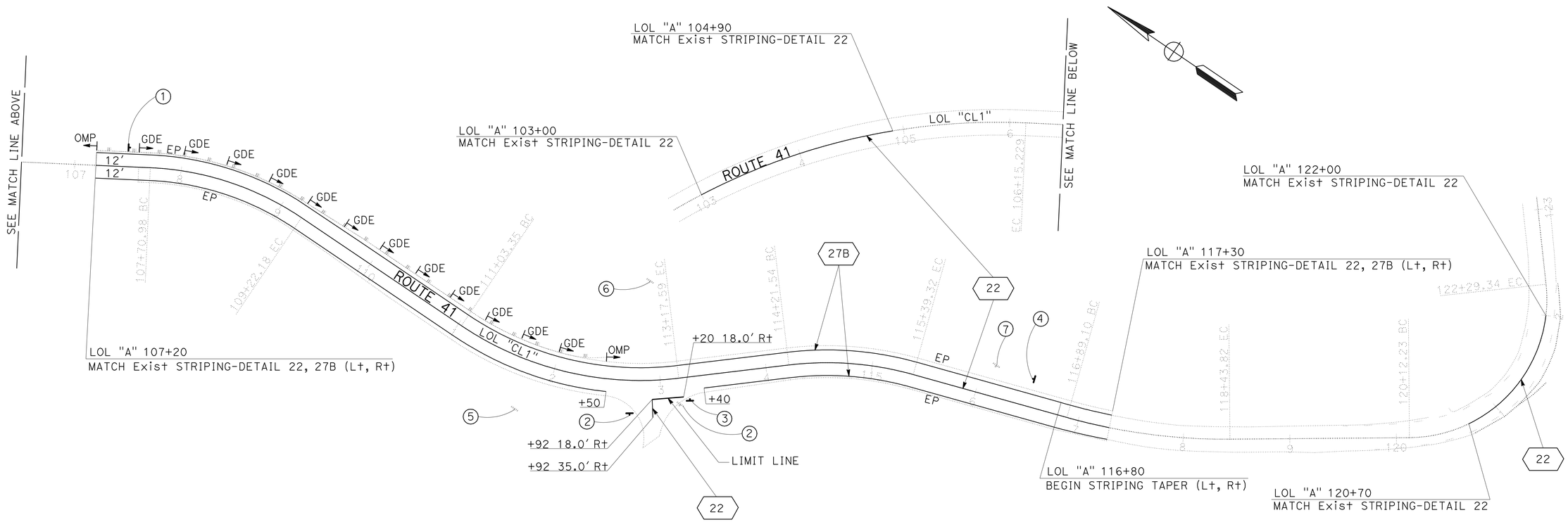
LEGEND

- XX — THERMOPLASTIC TRAFFIC STRIPE (SPRAYABLE)
- ROADSIDE SIGN
- GDE — GUARD RAILING DELINEATOR (TYPE E) 12 @ 40' SPACING C-C
- OMP — OBJECT MARKER (TYPE P)



THIS PLAN ACCURATE FOR PAVEMENT DELINEATION ONLY.

PAVEMENT DELINEATION AND SIGN PLAN

SCALE: 1" = 50'

PD-1

REVISED BY	DATE REVISED

CALCULATED-DESIGNED BY: G.K. SCHNEIDER
CHECKED BY: M.A. O'NEAL
FUNCTIONAL SUPERVISOR: S.M. WYATT

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ROADSIDE SIGNS

SIGN	LOCATION	SIGN CODE	FURNISH FORMED PANEL SIGN (ROADSIDE)	PANEL SIZE (N)	No. OF POST AND SIZE (N)	RESET ROADSIDE SIGN	REMOVE ROADSIDE SIGN	ROADSIDE SIGN (ONE POST)
			SQFT	IN X IN	IN X IN	EA	EA	EA
1	"CL1" 107+50	W1-4	6.25	30" X 30"	1- 4" X 4"			1
2	FROM "CL1" 113+16 TO "CL1" 112+75					1		
3	"CL1" 113+10	R1-1	6.25	30" X 30"	1- 4" X 4"			1
4	"CL1" 116+50	W1-4	6.25	30" X 30"	1- 4" X 4"			1
5	"CL1" 111+75						1	
6	"CL1" 113+00						1	
7	"CL1" 116+12						1	
		TOTAL	18.75		3- 4" X 4"	1	3	3

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

PAVEMENT DELINEATION QUANTITIES

LOCATION	THERMOPLASTIC TRAFFIC STRIPE (SPRAYABLE)		PAVEMENT MARKER (RETROREFLECTIVE)	THERMOPLASTIC PAVEMENT MARKING
	DETAIL	DETAIL	TYPE (D)	LIMIT LINE
	22	27B	DETAIL 22	LIMIT LINE (12" WHITE)
	LF		EA	SQFT
"CL1" 103+00 TO 104+90	190		20	
"CL1" 107+20 TO 117+30	1010	2020	86	
"CL1" 112+92 (18' TO 35' R+)	17			
"CL1" 112+92 TO 113+20				28
"CL1" 120+70 TO 122+00	130		14	
TOTAL	3367		120	28

DELINEATORS

LOCATION	GUARD RAILING DELINEATOR	OBJECT MARKER
	TYPE E	(TYPE P)
	EA	EA
"CL1" 107+40 TO 112+00	12	
"CL1" 107+20 (L+)		1
"CL1" 112+46.6 (L+)		1
TOTAL	12	2

PAVEMENT DELINEATION QUANTITIES

PDQ-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® DESIGN

FUNCTIONAL SUPERVISOR: S.M. WYATT
CALCULATED-DESIGNED BY: G.K. SCHNEIDER
CHECKED BY: M.A. O'NEAL
REVISED BY
DATE REVISED

LAST REVISION 11-16-09
DATE PLOTTED => 21-DEC-2009
TIME PLOTTED => 10:14

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SLO	41	20.7	22	57

REGISTERED CIVIL ENGINEER 11-16-09 DATE

12-14-09
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER G.K. SCHNEIDER No. 66985 Exp. 9/30/10 CIVIL STATE OF CALIFORNIA

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

ROADWORK

PLAN SHEET No.	LOCATION	CLASS 2 AB	HOT MIX ASPHALT (TYPE A)	TACK COAT	PLACE HMA DIKE (TYE C)	PLACE HMA DIKE (TYE E)	PLACE HMA DIKE (TYE F)	COLD PLANE AC PAVEMENT
		CY	TON	TON	LF	LF	LF	SQYD
L-1	"CL1" 107+60 TO 110+80 R+		8.4			320		
L-1	"CL1" 112+07.5 TO 114+00 L+		5		192.5			
L-1	"CL1" 113+00 TO 113+40 R+		1.6			64		
L-1	"CL1" 113+40 TO 117+30 R+		10.2			385		
L-1	"CL1" 109+80 TO 112+07.5 L+		3				223	
L-1	"CL1" 107+20 TO 117+30	1390	1172.5	4.4				
L-1	"CL1" 107+20 TO 107+60							63
D-1	DS #1		.5					
	TOTAL	1390	1201.2	4.4	192.5	769	223	63

EARTHWORK

PLAN SHEET No.	LOCATION	ROADWAY EXCAVATION	EMBANKMENT (N)	REMOVE BASE AND SURFACING
		CY	CY	CY
L-1	"CL1" 107+20 TO 117+30	6076.6	4947.5	
C-2	"CL1" 112+34 TO 116+00		1130	675
TOTAL		6076.6	6077.5	675

TRAFFIC HANDLING DEVICES

PLAN SHEET No.	CHANNELIZER (SURFACE MOUNTED)	TEMPORARY RAILING (TYPE K)	TEMPORARY CRASH CUSHION SYSTEM
	EA	LF	EA
SC-1	64	1160	6
SC-2	19	600	2
SC-3	23	580	2
TOTAL	106	2340	10

REMOVE PAVEMENT MARKERS AND STRIPING

PLAN SHEET No.	LOCATION	REMOVE PAVEMENT MARKER (N)	REMOVE THERMOPLASTIC TRAFFIC STRIPE	
		TYPE D	DETAIL 22	DETAIL 27B
		EA	LF	LF
SC-1	"CL1" 103+00 TO 104+90	20	380	
SC-1	"CL1" 107+00 TO 112+20			515
SC-1	"CL1" 111+50 TO 112+73.2 47.7' L+	16	310	
SC-1	"CL1" 120+70 TO 122+00	14	260	
TOTAL			1465	

TEMPORARY PAVEMENT DELINEATION

PLAN SHEET No.	TEMPORARY TRAFFIC STRIPE (TAPE)	TEMPORARY PAVEMENT MARKING (TAPE)
	DETAIL 27B	LIMIT LINE
	LF	SQFT
SC-1	1105	24
SC-2	907	
SC-3	1155	
TOTAL	3167	24

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

SUMMARY OF QUANTITIES

Q-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
DESIGN

FUNCTIONAL SUPERVISOR: S.M. WYATT
CALCULATED-DESIGNED BY: G.K. SCHNEIDER
CHECKED BY: M.A. O'NEAL
REVISED BY
DATE REVISED

LAST REVISION 11-16-09
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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SLO	41	20.7	23	57

REGISTERED CIVIL ENGINEER 11-16-09 DATE

12-14-09
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER G.K. SCHNEIDER No. 66985 Exp. 9/30/10 CIVIL STATE OF CALIFORNIA

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FENCE

PLAN SHEET No.	LOCATION	REMOVE FENCE (TYPE BW)	REMOVE WOOD FENCE	FENCE (TYPE BW, 5 STRAND, METAL POST)	TEMPORARY FENCE (TYPE ESA)
		LF	LF	LF	LF
L-1	"CL1" 107+11 TO 110+67.7 L+	375.3		397.8	
L-1	"CL1" 115+70.8 TO 116+57.5 R+	151.3		162	
L-1	"CL1" 113+00.0 TO 113+11.1 R+		24		
C-4	"CL1" 109+61.6 L+				55
TOTAL		526.6	24	559.8	55

METAL BEAM GUARD RAILING

PLAN SHEET No.	LOCATION	MBGR (STEEL POST)	ALTERNATIVE IN-LINE TERMINAL SYSTEM	ALTERNATIVE FLARED TERMINAL SYSTEM
		LF	EA	EA
L-1	"CL1" 107+70 TO 112+07.5	437.5		
L-1	"CL1" 107+20		1	
L-1	"CL1" 112+07.5			1
TOTAL		437.5	1	1

TEMPORARY BEST MANAGEMENT PRACTICE

LOCATION	TEMPORARY CONSTRUCTION ENTRANCE
	EA
"CL1" 107+20 TO 117+30	2

RESET MAILBOX

PLAN SHEET No.	LOCATION	EA
L-1	"CL1" 113+10 R+	1

SUMMARY OF QUANTITIES

Q-2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans DESIGN

FUNCTIONAL SUPERVISOR S.M. WYATT

CALCULATED-DESIGNED BY G.K. SCHNEIDER
CHECKED BY M.A. O'NEAL

REVISED BY
DATE REVISED

LAST REVISION 11-16-09
DATE PLOTTED => 21-DEC-2009
TIME PLOTTED => 10:15

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SLO	41	20.7	24	57

Jo Jackson 11-16-09
LICENSED LANDSCAPE ARCHITECT

12-14-09
PLANS APPROVAL DATE

LICENSED LANDSCAPE ARCHITECT
Name & License No.
Jo Jackson
Signature
06/30/10
Renewal Date
11/16/09
Date
STATE OF CALIFORNIA

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

NOTE:
UNDERLINED PORTIONS OF BOTANICAL NAME INDICATE ABBREVIATIONS USED ON PLANTING PLANS.

APPLICABLE WHEN CIRCLED:

1 - QUANTITIES SHOWN ARE "PER PLANT" UNLESS SHOWN AS SQFT OR SQYD APPLICATION RATES.
2 - SUFFICIENT TO RECEIVE ROOT BALL.
3 - DOES NOT APPLY TO MULCH AREAS.
4 - AS SHOWN ON PLANS.
5 - UNLESS OTHERWISE SHOWN ON PLANS.
6 - SEE DETAIL.
7 - SEE SPECIAL PROVISIONS.
8 - FOLIAGE AND ROOT PROTECTORS REQUIRED.
9 - PLANT SPACING VARIES BY 1' TO AVOID STRAIGHT ROWS.

PLANT LIST AND PLANTING SPECIFICATIONS

PLANT GROUP	PLANT No.	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	QUANTITY EACH	HOLE SIZE (INCH) Dia	HOLE SIZE (INCH) DEPTH	BASIN TYPE	IRON SULFATE	SOIL AMEND (CY) 1	COMMERCIAL FERTILIZER 1 PLANTING	COMMERCIAL FERTILIZER 1 PLT ESTB	BASIN MULCH (CY)	STAKING	PLANTING LIMITS MINIMUM DISTANCE (Ft) FROM TRVD WAY	Pvmt	FENCE	WALL	PAVED DITCH	EARTH DITCH	ON CENTER (Ft)	REMARKS
A	1	○	QUERCUS AGRIFOLIA	COAST LIVE OAK	No. 1	92	24	24	II	-	0.1	2 Pkt	-	0.04	-	30	-	10	-	10	10	10	TREE 8 9
	2	⊙	QUERCUS DOUGLASII	BLUE OAK	No. 1	220	24	24	II	-	0.1	2 Pkt	-	0.04	-	30	-	10	-	10	10	10	TREE 8 9

SPRINKLER SCHEDULE

SYMBOL	TYPE	DESCRIPTION	SPRAY PATTERN	OPERATING PRESSURE (PSI)	PRESSURE COMPENSATING	PLUS/MINUS 5% 2 DISCHARGE GALLONS PER MINUTE (GPM)	GALLONS PER HOUR (GPH)	RADIUS (Ft)	WIDTH x LENGTH (Ft)	MATERIAL	INLET CONNECTION (NPT INCH)	POSITIVE-LOCKING ADJ ARC STOP	BACKSPLASH PREVENTER	DIFFUSER PIN	DISTANCE CONTROL FLAP	ADJ DISCHARGE	TYPE	RISER MATERIAL PLASTIC	GALVANIZED	SIZE (IPS INCH)	HEIGHT (INCH)	FLOW SHUTOFF DEVICE	SWING JOINT (TYPE)	RISER SUPPORT	SPRINKLER PROTECTOR (TYPE)	REMARKS
-	D-1	EMITTER	-	30	X	-	2	-	-	PL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7 8

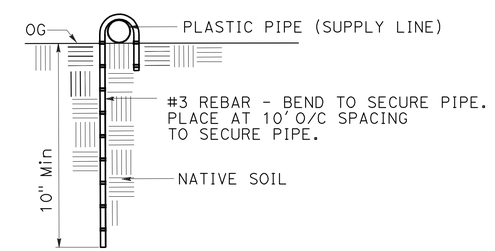
X IN BOX DENOTES REQUIREMENT

APPLICABLE WHEN CIRCLED BELOW:

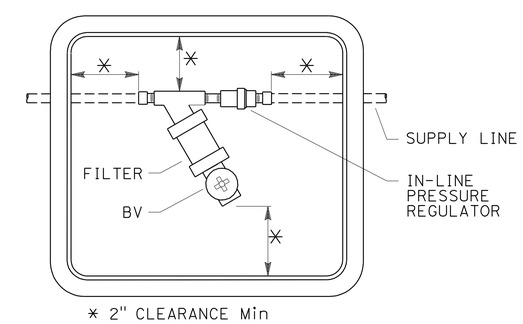
1 - SEE SPECIAL PROVISIONS.
2 - IF A PRESSURE COMPENSATING DEVICE IS SPECIFIED, THE DISCHARGE AND RADII SHOWN REFLECT ITS USE.
3 - ARC STOP SHALL BE FITTED WITH A NUT AND BOLT.
4 - VINYL-COATED CAST IRON HOUSING.
5 - SWING JOINTS REQUIRED ADJACENT TO SHOULDERS, CURBS, SIDEWALKS, AND DIKES.
6 - UNLESS OTHERWISE SHOWN ON PLANS.
7 - TWO EMITTERS PER PLANT INSTALLED WITHIN PLANTING BASINS.
8 - EMITTERS TO BE PLACED ON OPPOSITE SIDES OF PLANT ON UPHILL SIDE.

ABBREVIATIONS

F	FULL CIRCLE	Ft	FEET/FOOT
P	PART CIRCLE	GPM	GALLONS PER MINUTE
F/P	FULL/PART CIRCLE	GPH	GALLONS PER HOUR
Q	QUARTER CIRCLE	Adj	ADJUSTABLE
T	THIRD CIRCLE	PL	PLASTIC
H	HALF CIRCLE	B/B	BRASS/BRONZE
TT	TWO THIRD CIRCLE	B/PL	BRASS/PLASTIC
TQ	THREE QUARTER CIRCLE	B/B/PL	BRASS/BRONZE/PLASTIC
CST	CENTER STRIP	NPT	NATIONAL PIPE THREAD
SST	SIDE STRIP	IPS	IRON PIPE SIZE
EST	END STRIP	PSI	POUNDS PER SQUARE INCH



SECTION
PLASTIC PIPE ANCHOR



PLAN
FILTER ASSEMBLY UNIT

PLANT LIST AND LANDSCAPE DETAILS

NO SCALE

PL-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans LANDSCAPE ARCHITECTURE
SENIOR LANDSCAPE ARCHITECT: DENNIS REEVES
CALCULATED-DESIGNED BY: JO JACKSON
CHECKED BY: PATRICK BOLGER
REVISED BY
DATE REVISED

LAST REVISION 11-16-09
DATE PLOTTED => 21-DEC-2009
TIME PLOTTED => 10:15

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SLO	41	20.7	25	57

Jo Jackson 11-16-09
LICENSED LANDSCAPE ARCHITECT

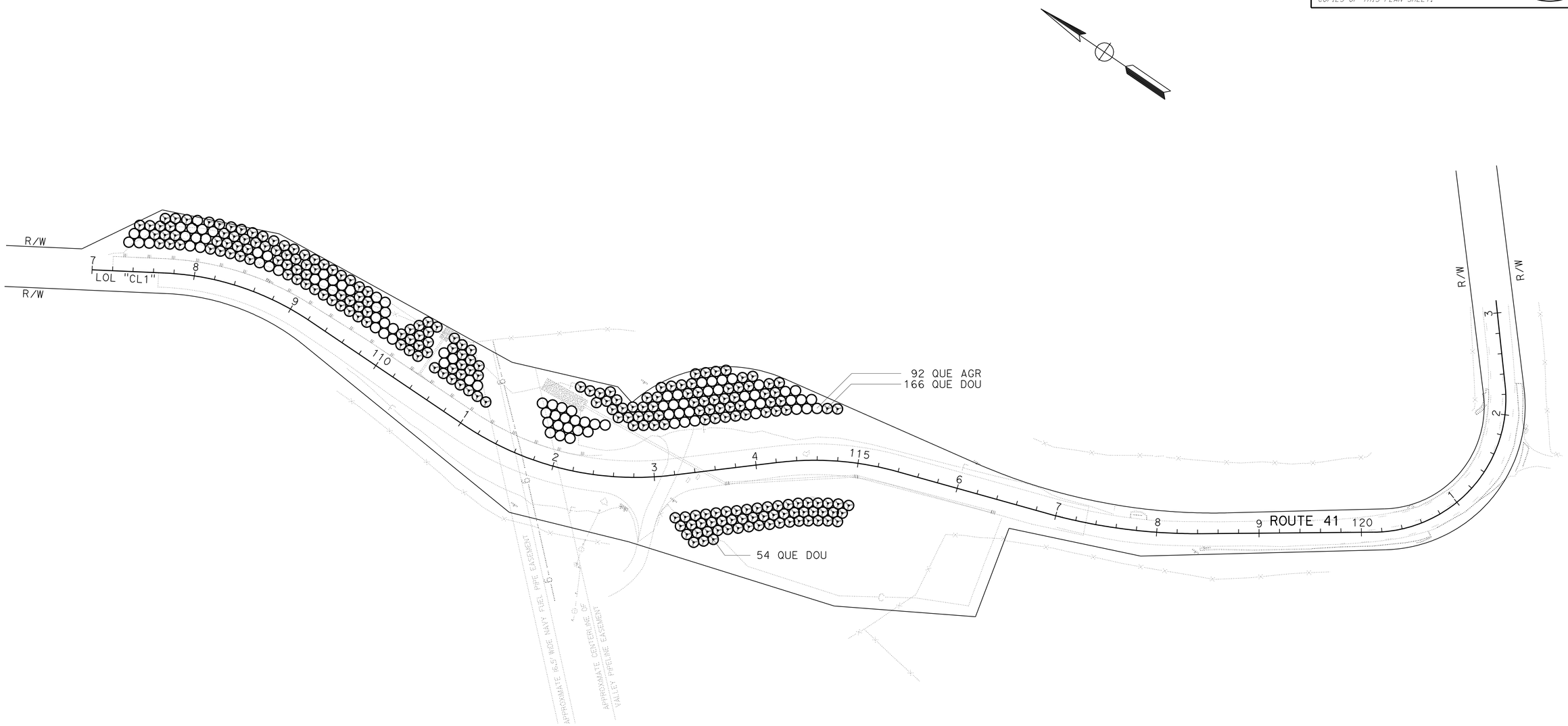
12-14-09
PLANS APPROVAL DATE

LICENSED LANDSCAPE ARCHITECT
Jo Jackson No. 5175
Signature
06/30/10
Renewal Date
11/16/09
Date
STATE OF CALIFORNIA

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

NOTE:

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



THIS PLAN ACCURATE FOR PLANTING WORK ONLY.

PLANTING PLAN

SCALE: 1" = 50'

PP-1

REVISED BY	JO JACKSON
DATE REVISED	PATRICK BOLGER
CALCULATED-DESIGNED BY	
CHECKED BY	
SENIOR LANDSCAPE ARCHITECT	DENNIS REEVES

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® LANDSCAPE ARCHITECTURE

LAST REVISION 11-16-09
DATE PLOTTED => 21-DEC-2009
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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SLO	41	20.7	26	57

Jo Jackson 11-16-09
LICENSED LANDSCAPE ARCHITECT

12-14-09
PLANS APPROVAL DATE

LICENSED LANDSCAPE ARCHITECT
Jo Jackson No. 3175
Jo Jackson
Expiration Date
06/30/10
Renewal Date
11/16/09
Date
STATE OF CALIFORNIA

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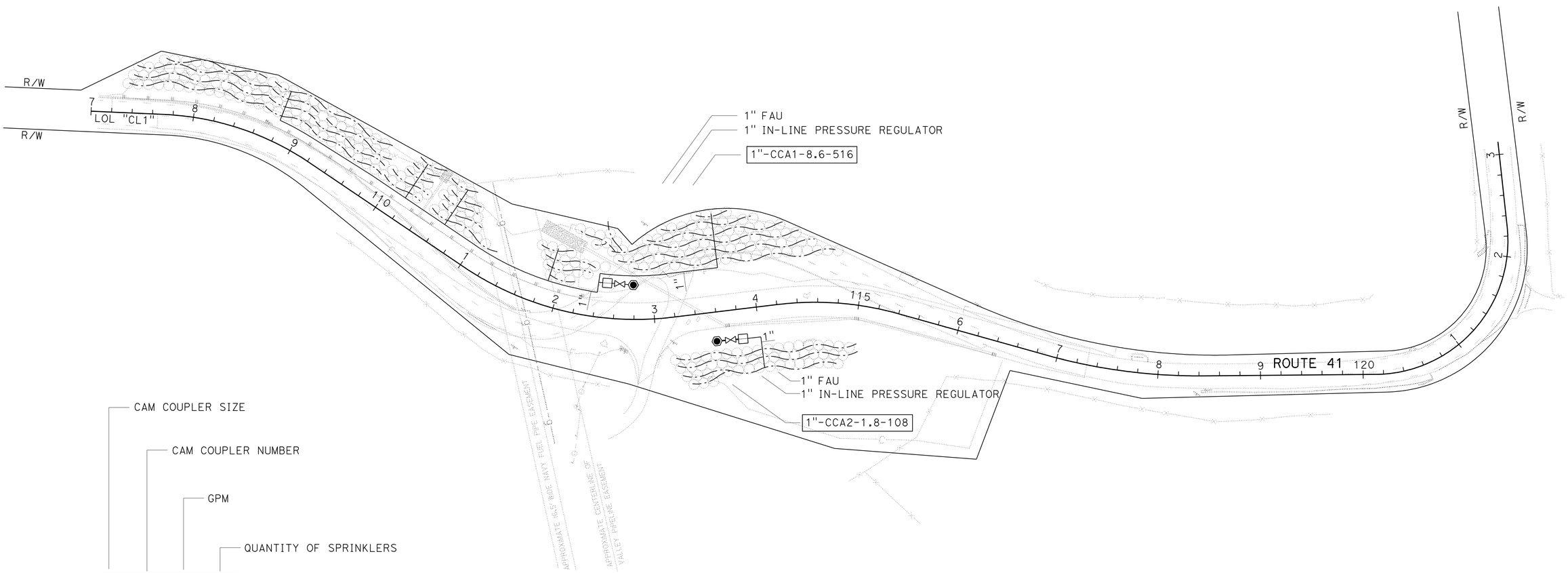

CAM COUPLER SIZE

CAM COUPLER NUMBER

GPM

QUANTITY OF SPRINKLERS

1"-CCA1-8.6-516

VALVE CODE

THIS PLAN ACCURATE FOR IRRIGATION WORK ONLY.

IRRIGATION PLAN

SCALE: 1" = 50'

IP-1

CALCULATED- DESIGNED BY	JO JACKSON
CHECKED BY	PATRICK BOLGER
SENIOR LANDSCAPE ARCHITECT	DENNIS REEVES
REVISED BY	
DATE REVISED	

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® LANDSCAPE ARCHITECTURE

LAST REVISION 11-16-09 | DATE PLOTTED => 21-DEC-2009 | TIME PLOTTED => 10:15

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SLO	41	20.7	27	57

Xavier Alfaro 11-16-09
REGISTERED ELECTRICAL ENGINEER DATE

12-14-09
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER XAVIER I. ALFARO No. E17488 Exp. 6-30-11 ELECTRICAL STATE OF CALIFORNIA

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

NOTES: (FOR SHEET E-1 AND E-2)

1. 120/240 V, 1Ø, 3-WIRE, SERVICE ENCLOSURE, WITH THE FOLLOWING CIRCUIT BREAKERS, SEE DETAIL "A" ON SHEET E-3.

AMPERES	VOLTS	POLES	NAME PLATE	METER	PHOTOELECTRIC CONTROL TYPE
100	240	2	MAIN BREAKER	YES	——
50	120	1	TRAFFIC SIGNAL	YES	——
15	120	1	FLASHING BEACON(EAST)	YES	——
15	120	1	FLASHING BEACON(WEST)	YES	——
15	120	1	SIGN LIGHTING	YES	——
15	240	2	HIGHWAY LIGHTING	YES	IV

2. STATE-FURNISHED MODEL 2070 CONTROLLER ASSEMBLY AND BATTERY BACKUP SYSTEM.
3. 40' WOOD POLE WITH TEMPORARY FLASHING BEACON INSTALLATION. SEE DETAIL "B" ON SHEET E-3.
4. 40' WOOD POLE WITH SIGNAL AND LIGHTING EQUIPMENT. SEE DETAIL "C" ON SHEET E-3.
5. 40' WOOD POLE WITH SIGNAL EQUIPMENT. SEE DETAIL "D" ON SHEET E-4.
6. 40' WOOD POLE, SEE DETAIL "E" ON SHEET E-4.
7. W3-3 SIGN ON WOOD POLE. SEE CONSTRUCTION AREA SIGNS PLANS FOR DETAILS.
8. SEE STAGE CONSTRUCTION AND TRAFFIC HANDLING PLANS FOR EXACT LOCATION OF LIMIT LINES.
9. W1-4R SIGN ON WOOD POLE. SEE CONSTRUCTION AREA SIGNS PLANS FOR DETAILS.
10. 40' WOOD POLE WITH LIGHTING EQUIPMENT. SEE DETAIL "F" ON SHEET E-4.
11. R10-6 SIGN ON WOOD POLE. SEE CONSTRUCTION AREA SIGNS PLANS FOR DETAILS.
12. REALIGN PHASE ONE SIGNAL HEAD FOR STAGE TWO CONSTRUCTION.
13. MESSENGER CABLE SHALL BE ½", 7 STRAND GALVANIZED.
14. ALL LOOP DETECTORS SHALL HAVE FIVE TURNS.
15. INSTALL GUY WIRES AS REQUIRED.
16. ALL PULL BOXES SHALL BE No. 3½ UNLESS OTHERWISE SPECIFIED.
17. REMOVE Ø1 SIGNAL HEAD AFTER STAGE 1 CONSTRUCTION.
18. INSTALL Ø1 PPB TO BE USED BY VEHICULAR TRAFFIC FOR STAGE 1 CONSTRUCTION.
19. REMOVE PPB FROM STAGE 1 CONSTRUCTION AND INSTALL Ø1 SIGNAL HEAD FOR PHASE 2 CONSTRUCTION
20. INSTALL Ø1 PPB TO BE USED BY VEHICULAR TRAFFIC FOR STAGE 2 CONSTRUCTION.

ABBREVIATIONS:

PG&E PACIFIC GAS AND ELECTRIC

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.

TEMPORARY SIGNAL SYSTEM

NO SCALE

E-1

REVISED BY | DATE REVISED
ANHHUY NGUYEN | XAVIER ALFARO
CALCULATED-DESIGNED BY | CHECKED BY
FUNCTIONAL SUPERVISOR: ALI BAKHDOUD
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans ELECTRICAL DESIGN

LAST REVISION 11-16-09 | DATE PLOTTED => 21-DEC-2009 | TIME PLOTTED => 10:15

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SLO	41	20.7	28	57

Xavier Alfaro 11-16-09
REGISTERED ELECTRICAL ENGINEER DATE

12-14-09
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER XAVIER I. ALFARO No. E17488 Exp. 6-30-11 ELECTRICAL STATE OF CALIFORNIA

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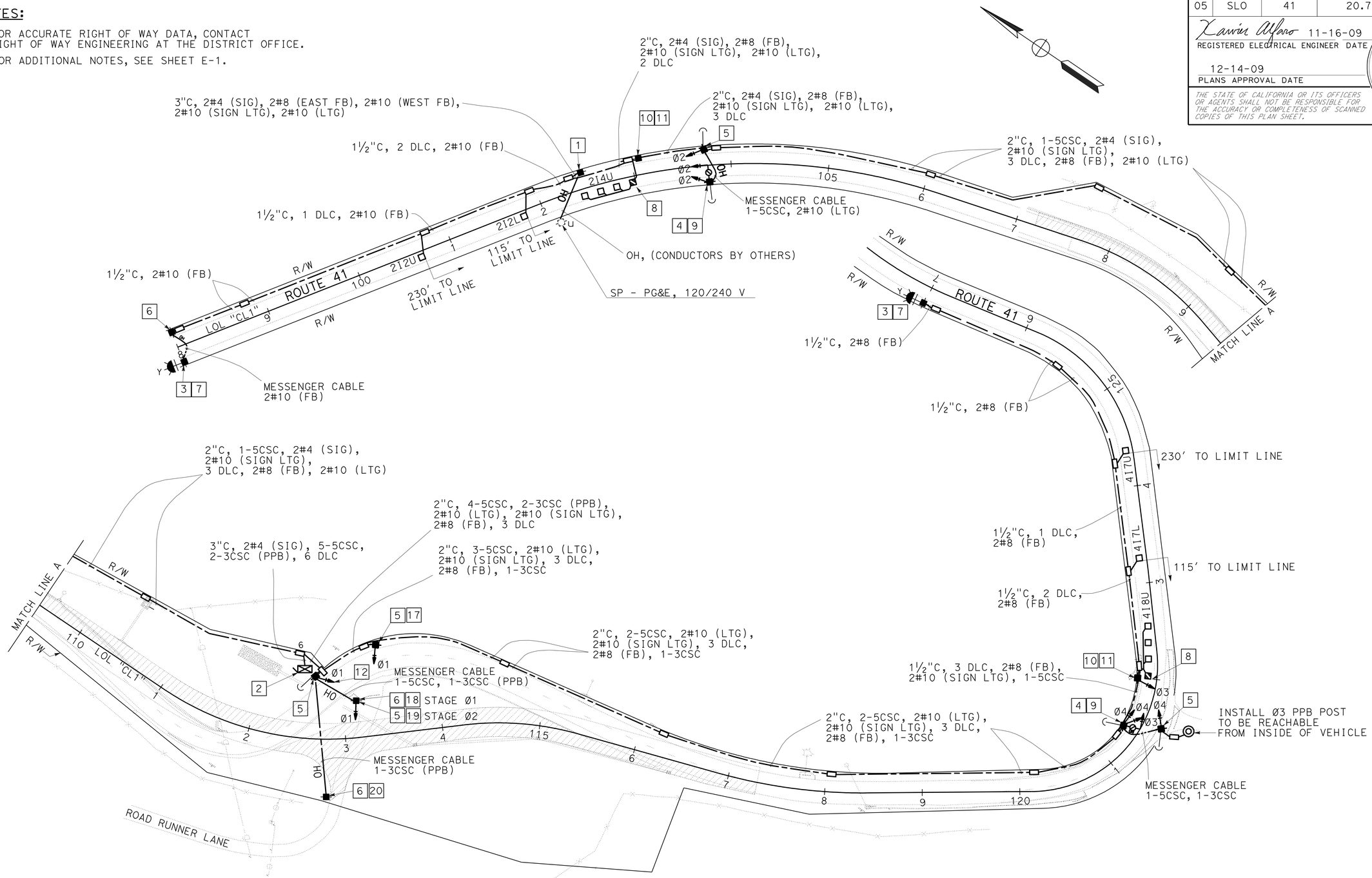
NOTES:

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



PHASE DIAGRAM
STEADY DEMAND SEQUENCE

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.

TEMPORARY SIGNAL SYSTEM
E-2

SCALE: 1" = 50'

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® ELECTRICAL DESIGN

FUNCTIONAL SUPERVISOR: ALI BAKHDOUD
CALCULATED-DESIGNED BY: ANHHUY NGUYEN
CHECKED BY: XAVIER ALFARO
REVISED BY
DATE REVISED

LAST REVISION 11-16-09
DATE PLOTTED => 21-DEC-2009
TIME PLOTTED => 10:15

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SLO	41	20.7	29	57

Xavier Alfaro 11-16-09
REGISTERED ELECTRICAL ENGINEER DATE

12-14-09
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER XAVIER I. ALFARO No. E17488 Exp. 6-30-11 ELECTRICAL STATE OF CALIFORNIA

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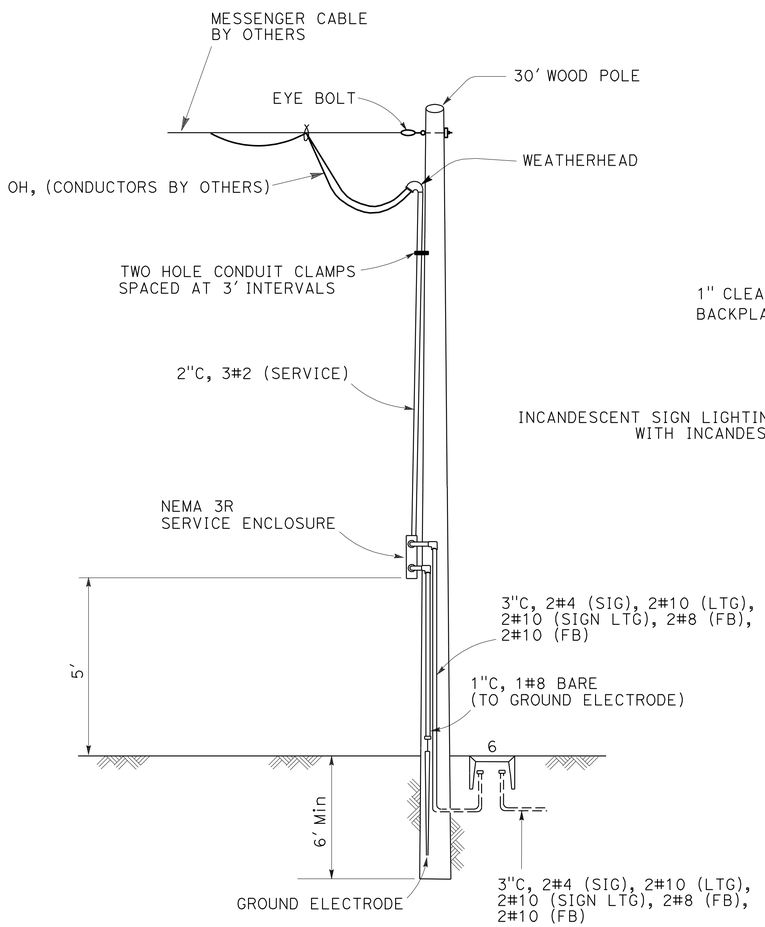
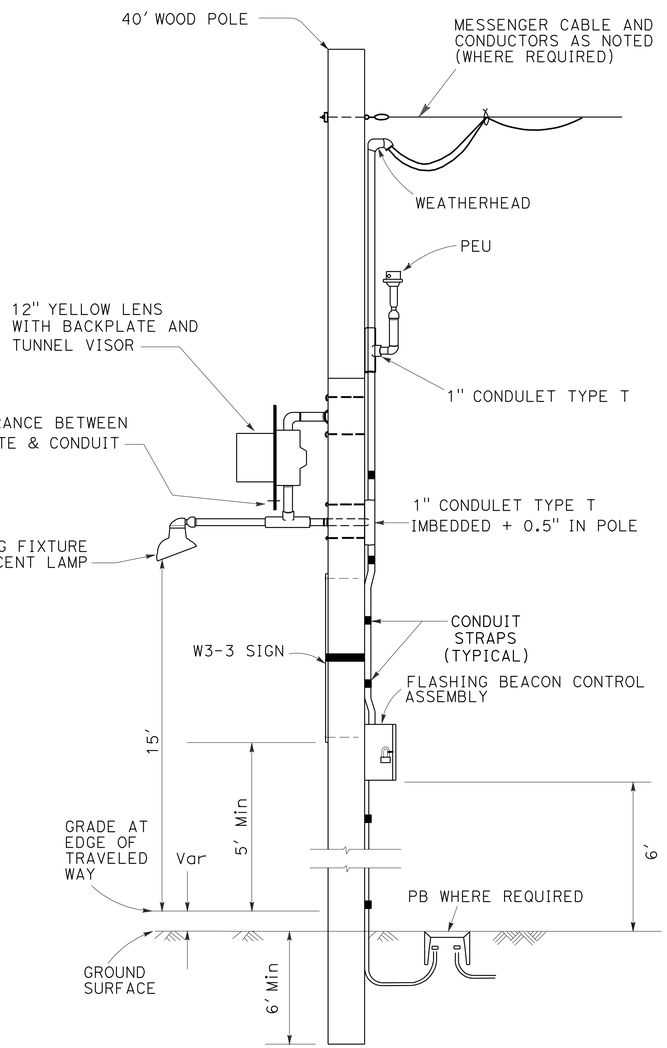
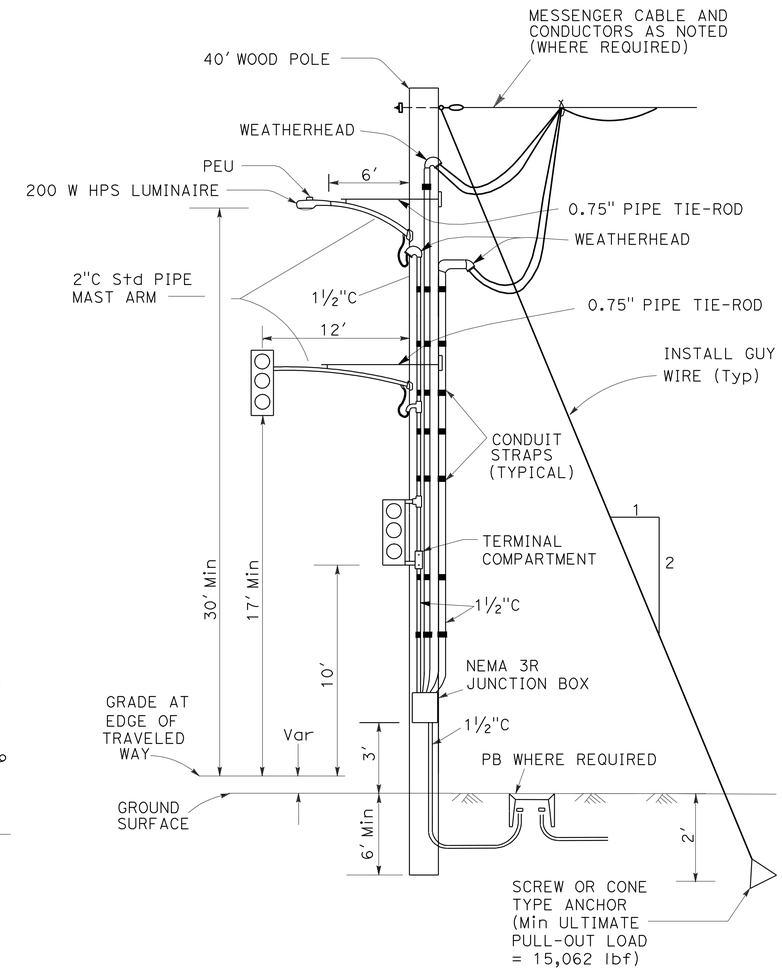


DETAIL A
TEMPORARY SERVICE INSTALLATION



DETAIL B
TEMPORARY FLASHING BEACON INSTALLATION



DETAIL C
TEMPORARY SIGNAL AND LIGHTING INSTALLATION

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.

TEMPORARY SIGNAL SYSTEM
E-3

NO SCALE

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® ELECTRICAL DESIGN

FUNCTIONAL SUPERVISOR: ALI BAKHDOUD
CALCULATED-DESIGNED BY: ANHHUY NGUYEN
CHECKED BY: XAVIER ALFARO
REVISED BY
DATE REVISED

LAST REVISION 11-16-09
DATE PLOTTED => 21-DEC-2009
TIME PLOTTED => 10:16

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
05	SLO	41	20.7	30	57

Xavier Alfaro 11-16-09
REGISTERED ELECTRICAL ENGINEER DATE

12-14-09
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER XAVIER I. ALFARO No. E17488 Exp. 6-30-11 ELECTRICAL STATE OF CALIFORNIA

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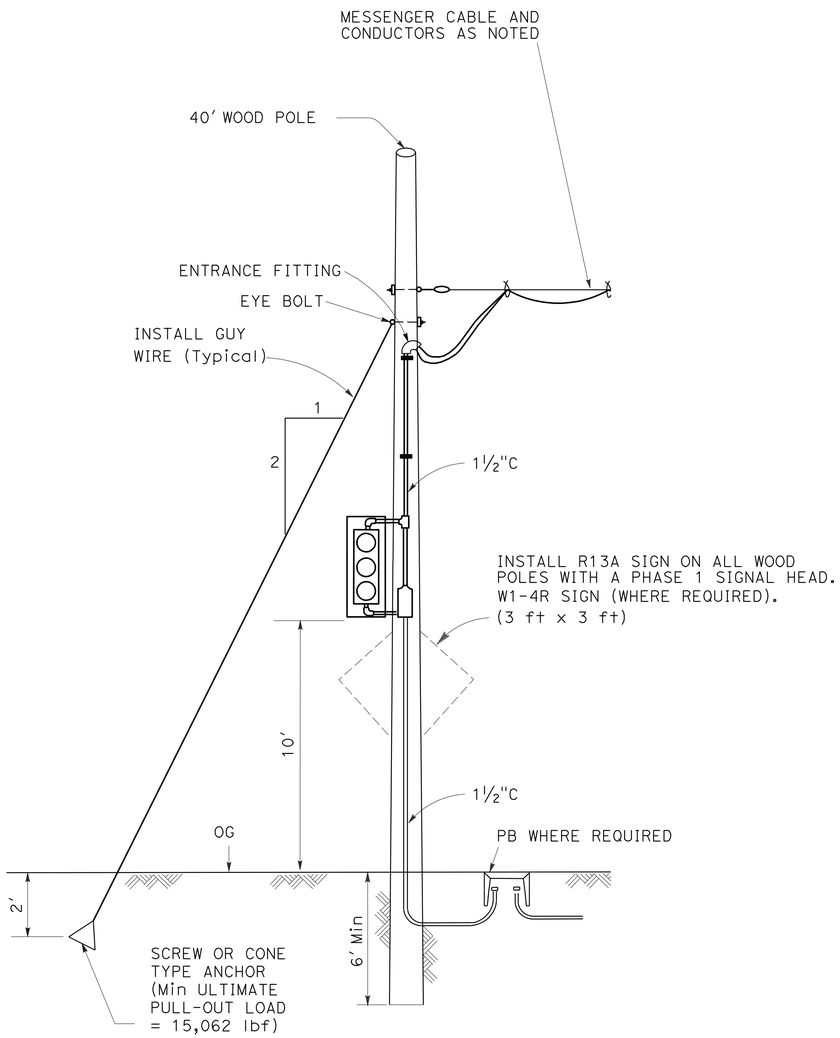
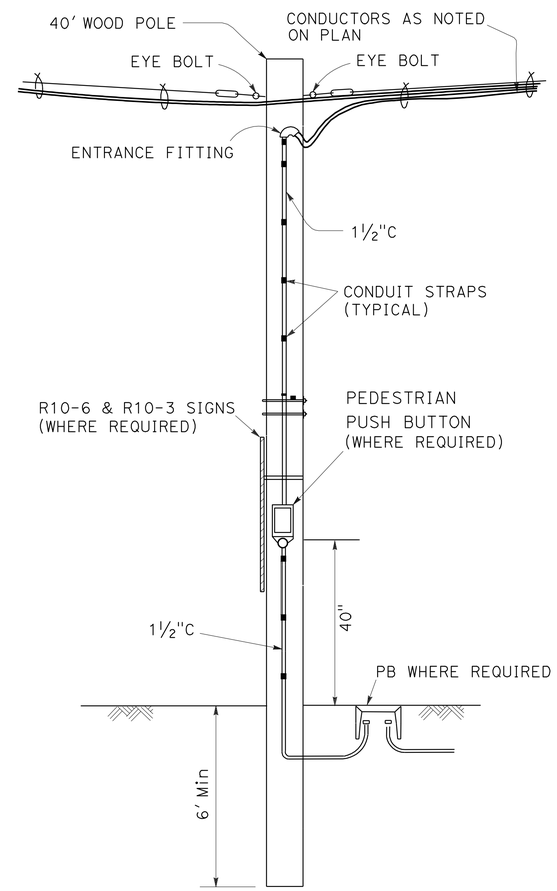
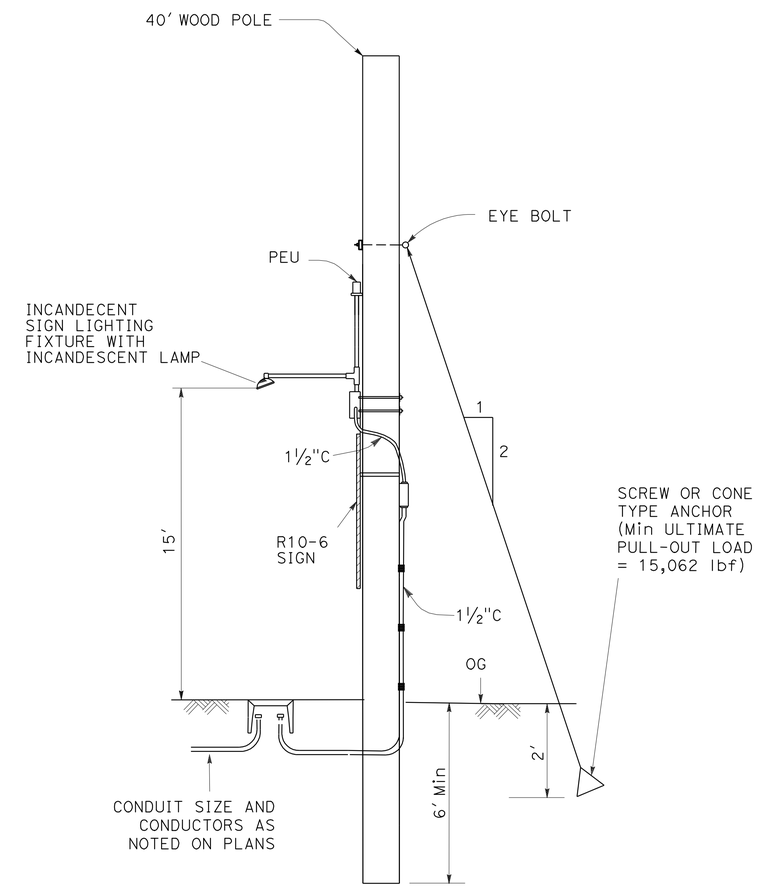


DETAIL D
TEMPORARY SIGNAL INSTALLATION



DETAIL E
TEMPORARY WOOD POLE INSTALLATION



DETAIL F
TEMPORARY INCANDESCENT SIGN INSTALLATION

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.

TEMPORARY SIGNAL SYSTEM
E-4

NO SCALE

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans® ELECTRICAL DESIGN

FUNCTIONAL SUPERVISOR: ALI BAKHDOUD
CALCULATED-DESIGNED BY: ANHHUY NGUYEN
CHECKED BY: XAVIER ALFARO
REVISED BY
DATE REVISED

LAST REVISION 11-16-09 | DATE PLOTTED => 21-DEC-2009 | TIME PLOTTED => 10:16

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SLO	41	20.7	31	57

REGISTERED CIVIL ENGINEER

November 17, 2006
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Dallas Forester No. C37765 Exp. 12-31-06 CIVIL STATE OF CALIFORNIA

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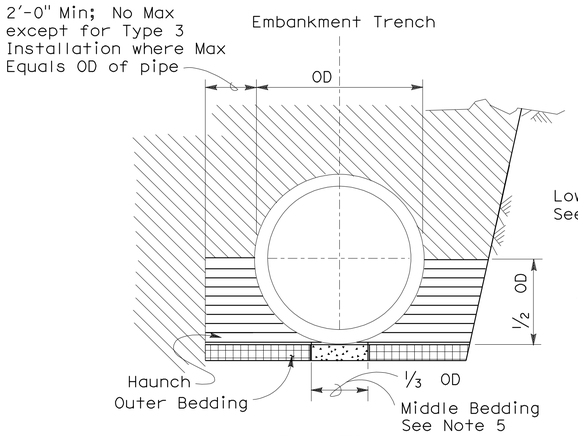
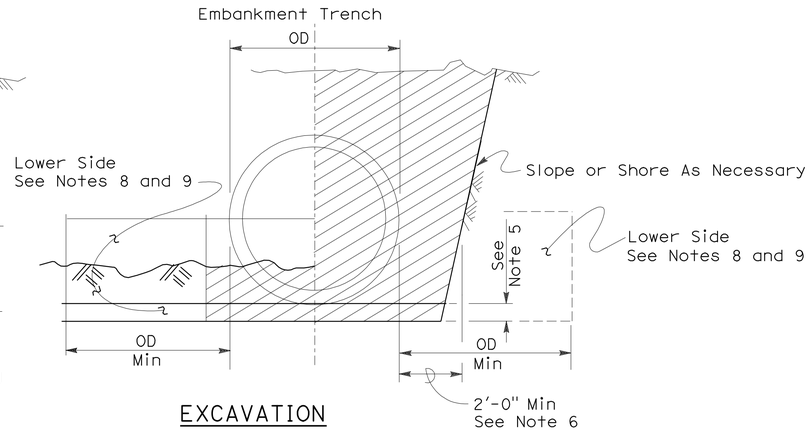
To accompany plans dated 12-14-09



BACKFILL



EXCAVATION

Roadway Embankment

Structure Backfill (Culvert) See Note 6

Structure Backfill (Culvert) See Note 6

Loose Backfill

Excavation Structure (Culvert)

TYPE 1 INSTALLATION:

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

TYPE 2 INSTALLATION:

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

TYPE 3 INSTALLATION:

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

NOTES:

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

INSTALLATION TYPE 1

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

INSTALLATION TYPE 2

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

INSTALLATION TYPE 3

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

EXCAVATION AND BACKFILL CONCRETE PIPE CULVERTS

NO SCALE

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

REVISED STANDARD PLAN RSP A62DA

2006 REVISED STANDARD PLAN RSP A62DA

10-26-06

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SLO	41	20.7	32	57

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

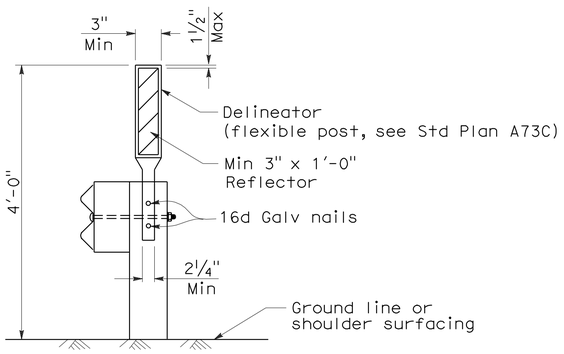
REGISTERED PROFESSIONAL ENGINEER
Randell D. Hiatt
No. C50200
Exp. 6-30-09
CIVIL
STATE OF CALIFORNIA

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

To accompany plans dated 12-14-09

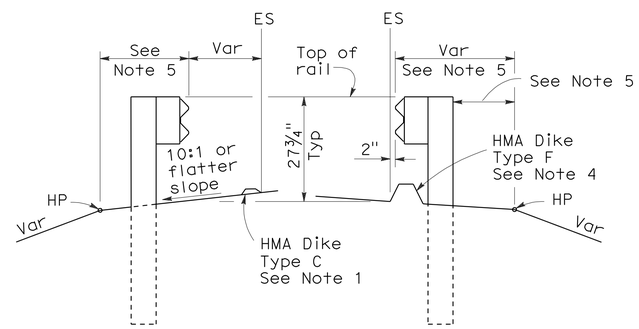
NOTES:

1. When necessary to place dike in front of face of guard railing, only Type C dike may be used. For dike details, see Standard Plan A87B.
2. For standard railing post embedment, see Standard Plans A77C3.
3. Guard railing delineation to be used where shown on the Project Plans.
4. When dike or curb is placed under guard railing, the maximum height of the dike or curb shall be 4". Mountable dike should not be used. For dike and curb details, see Revised Standard Plans RSP A87A and Standard Plan A87B.
5. For details of typical distance between the face of rail and hinge point, see Standard Plan A77C3.



GUARD RAILING DELINEATION

See Note 3



DIKE POSITIONING

See Note 1

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

METAL BEAM GUARD RAILING TYPICAL RAILING DELINEATION AND DIKE POSITIONING DETAILS

NO SCALE

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

REVISED STANDARD PLAN RSP A77C4

2006 REVISED STANDARD PLAN RSP A77C4

12-10-07

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SLO	41	20.7	33	57

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

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

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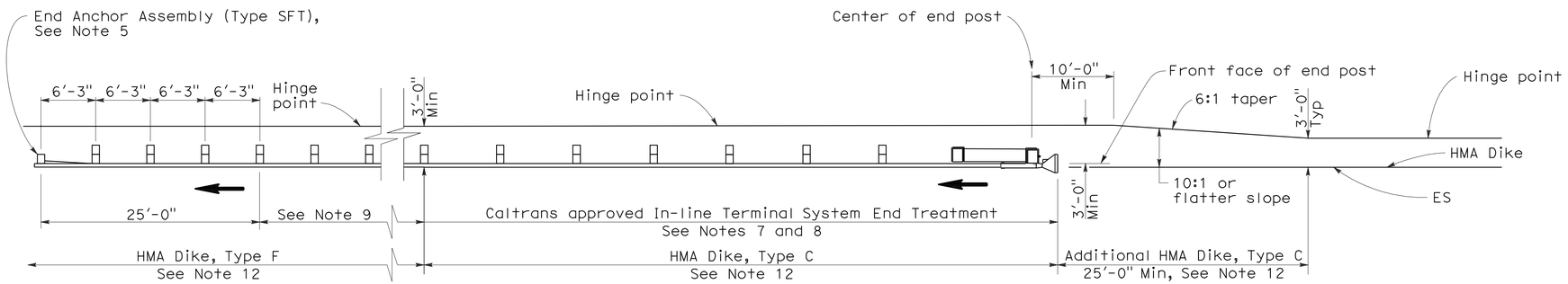
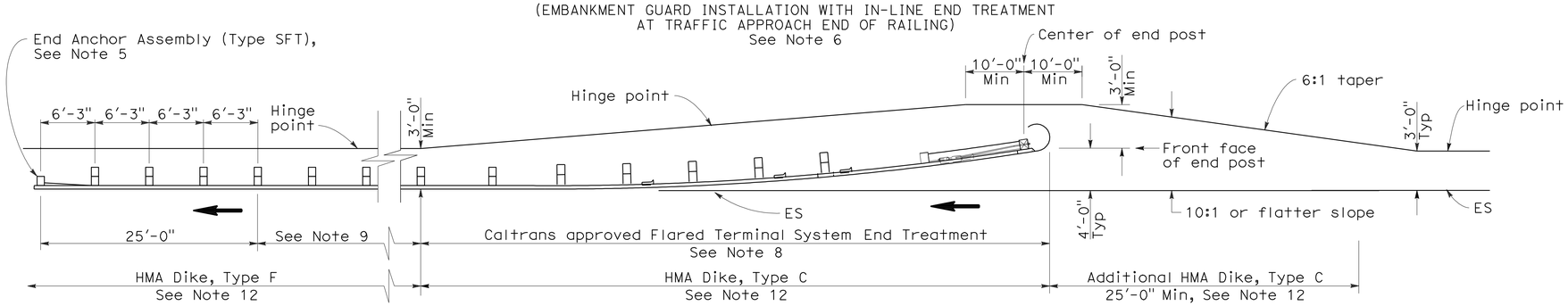
To accompany plans dated 12-14-09



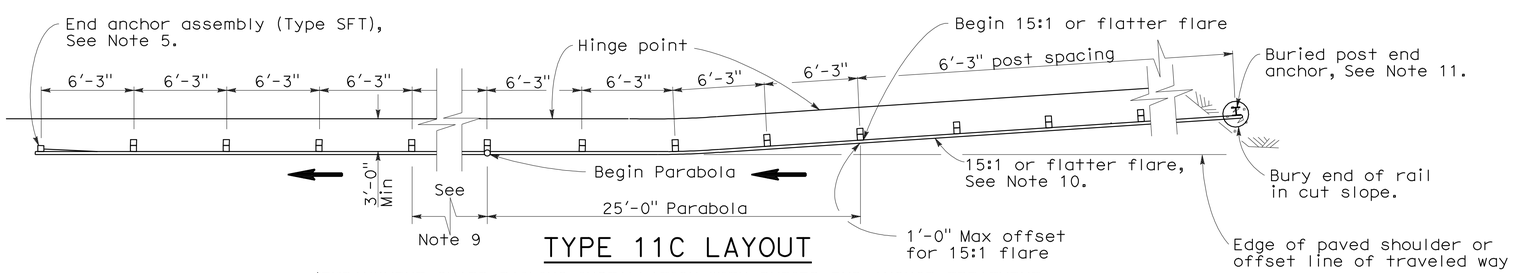
TYPE 11A LAYOUT

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



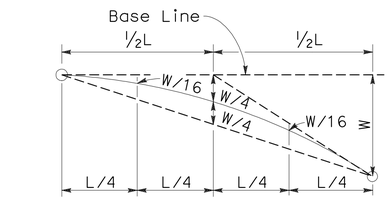
TYPE 11B LAYOUT

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

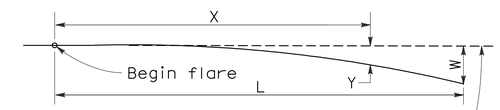


TYPE 11C LAYOUT

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



TYPICAL PARABOLIC LAYOUT

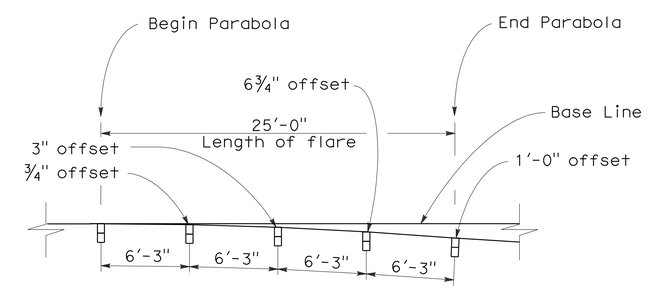


Base Line (Edge of paved shoulder or offset line of edge of traveled way)

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

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

PARABOLIC FLARE OFFSETS



TYPICAL FLARE OFFSETS FOR 1 FOOT MAX END OFFSET

NOTES:

1. Line post, blocks and hardware to be used are shown on Standard Plans A77A1, A77A2, A77B1, A77C1, and A77C2.
2. Guard rail post spacing to be 6'-3" center to center, except as otherwise noted.
3. Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks. W6 x 9 steel posts, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or recycled plastic blocks may be used for 6" x 8" x 6'-0" wood post with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
4. Direction of adjacent traffic indicated by ⟶.
5. For End Anchor Assembly (Type SFT) details, see Standard Plan A77H1.
6. Layout Types 11A, 11B or 11C are typically used where guard railing is recommended to shield embankment slopes and a crashworthy end treatment is required for only one direction of traffic.
7. In-line Terminal System End Treatments are used where site conditions will not accommodate a flared end treatment.
8. The type of terminal system end treatment to be used will be shown on the Project Plans.
9. Dependent on site conditions (embankment height and side slope), construction of additional guard railing (length equal to multiples of 12'-6" with 6'-3" post spacing) may be advisable.
10. The 15:1 or flatter flare used with buried end anchors is based on the edge of the paved shoulder or offset line of edge of the traveled way. The length of guard railing within the 15:1 or flatter flare is based on site conditions and should be a length equal to multiples of 12'-6".
11. For details of the buried post end anchor used with Type 11C Layout, see Standard Plan A77I2.
12. Where placement of dike is required with guard railing installations, see Revised Standard Plan RSP A77C4 for dike positioning details.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

METAL BEAM GUARD RAILING TYPICAL LAYOUTS FOR EMBANKMENTS

NO SCALE

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

REVISED STANDARD PLAN RSP A77E1

2006 REVISED STANDARD PLAN RSP A77E1

12-10-07

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SLO	41	20.7	34	57

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

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

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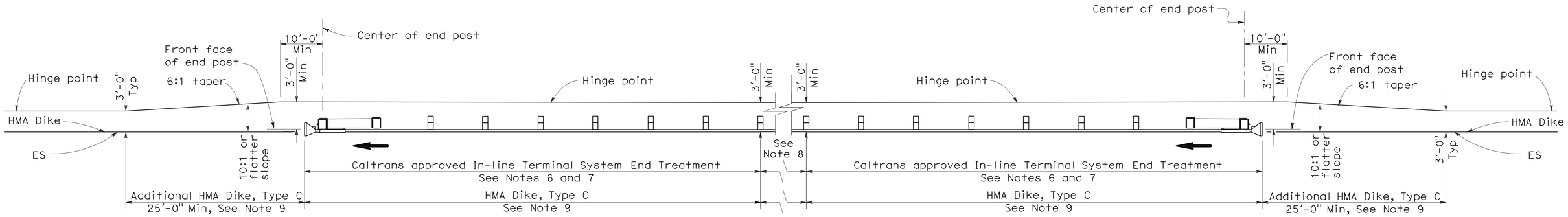
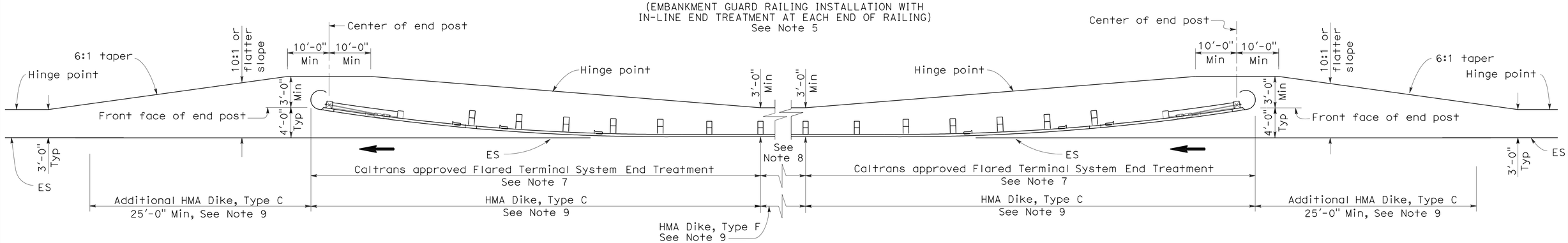
To accompany plans dated 12-14-09



TYPE 11D LAYOUT

(EMBANKMENT GUARD RAILING INSTALLATION WITH IN-LINE END TREATMENT AT EACH END OF RAILING)
See Note 5



TYPE 11E LAYOUT

(EMBANKMENT GUARD RAILING INSTALLATION WITH FLARED END TREATMENT AT EACH END OF RAILING)
See Note 5

NOTES:

1. Line post, blocks and hardware to be used are shown on Standard Plans A77A1, A77A2, A77B1, A77C1 and A77C2.
2. Guard rail post spacing to be 6'-3" center to center, except as otherwise noted.
3. Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks. W6 x 9 steel posts, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or plastic blocks may be used for 6" x 8" x 6'-0" wood post with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
4. Direction of adjacent traffic indicated by ⟶.
5. Layout Types 11D through 11L, shown on the A77E Series of Revised Standard Plans, are typically used where guard railing is recommended to shield embankment slopes and a crashworthy end treatment is required for both directions of traffic.
6. In-line Terminal System End Treatments are used where site conditions will not accommodate a flared end treatment.
7. The type of terminal system end treatment to be used will be shown on the Project Plans.
8. Dependent on site conditions (embankment height and side slope), construction of additional guard railing (length equal to multiples of 12'-6" with 6'-3" post spacing) may be advisable.
9. Where placement of dike is required with guard railing installations, see Revised Standard Plan RSP A77C4 for dike positioning details.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

METAL BEAM GUARD RAILING TYPICAL LAYOUTS FOR EMBANKMENTS

NO SCALE

RSP A77E2 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77E2
DATED MAY 1, 2006 - PAGE 49 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A77E2

2006 REVISED STANDARD PLAN RSP A77E2

12-10-07

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SLO	41	20.7	35	57

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

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

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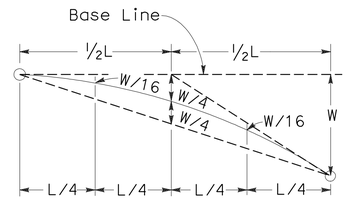
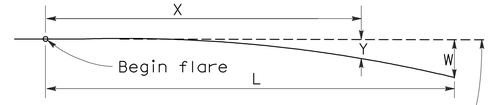
To accompany plans dated 12-14-09



TYPICAL PARABOLIC LAYOUT

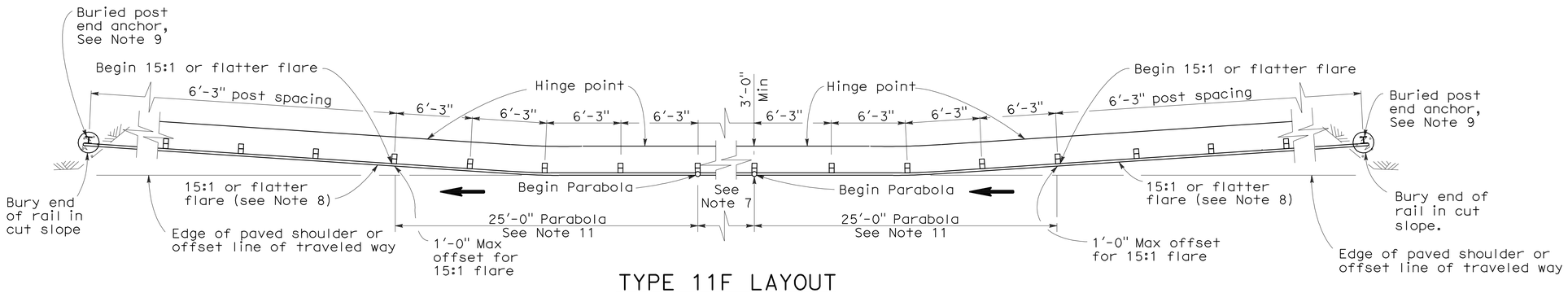


Base Line (Edge of paved shoulder or offset line of edge of traveled way)

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

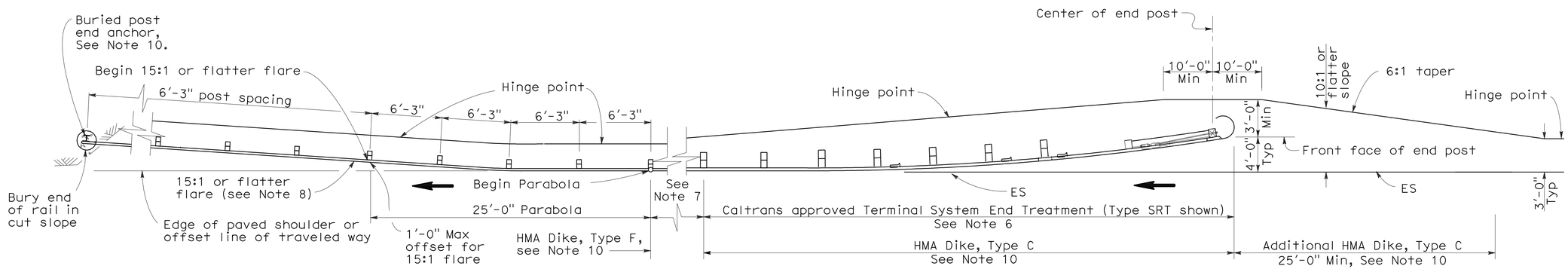
Y = Offset from base line
W = Maximum offset
X = Distance along base line
L = Length of flare

PARABOLIC FLARE OFFSETS



TYPE 11F LAYOUT

(EMBANKMENT GUARD RAILING INSTALLATION WITH A BURIED END ANCHOR TREATMENT AT EACH END OF RAILING)
See Notes 5 and 10



TYPE 11G LAYOUT

(EMBANKMENT GUARD RAILING INSTALLATION WITH FLARED END TREATMENT AND A BURIED END ANCHOR TREATMENT AT THE ENDS OF RAILING)
See Notes 5 and 10

NOTES:

1. Line post, blocks and hardware to be used are shown on Standard Plans A77A1, A77A2, A77B1, A77C1 and A77C2.
2. Guard rail post spacing to be 6'-3" center to center, except as otherwise noted.
3. Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks. W6 x 9 steel posts, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or plastic blocks may be used for 6" x 8" x 6'-0" wood post with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
4. Direction of adjacent traffic indicated by ⟶.
5. Layout Types 11D through 11L, shown on the A77E Series of Revised Standard Plans, are typically used where guard railing is recommended to shield embankment slopes and a crashworthy end treatment is required for both directions of traffic.
6. The type of terminal system end treatment to be used will be shown on the Project Plans.
7. Dependent on site conditions (embankment height and side slope), construction of additional guard railing (length equal to multiples of 12'-6" with 6'-3" post spacing) may be advisable.
8. The 15:1 or flatter flare used with buried end anchors is based on the edge of the paved shoulder or offset line of edge of the traveled way. The length of guard railing within the 15:1 or flatter flare is based on site conditions and should be a length equal to multiples of 12'-6".
9. For details of the buried post end anchor used with Type 11F and 11G Layouts, see Standard Plan A77I2.
10. Where placement of dike is required with guard railing installations, see Revised Standard Plan RSP A77C4 for dike positioning details.
11. For typical flare offsets for 25'-0" length parabola with maximum offset of 1'-0", see Revised Standard Plan RSP A77E1.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

METAL BEAM GUARD RAILING TYPICAL LAYOUTS FOR EMBANKMENTS

NO SCALE

RSP A77E3 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77E3 DATED MAY 1, 2006 - PAGE 50 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A77E3

2006 REVISED STANDARD PLAN RSP A77E3

12-10-07

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SLO	41	20.7	36	57

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

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

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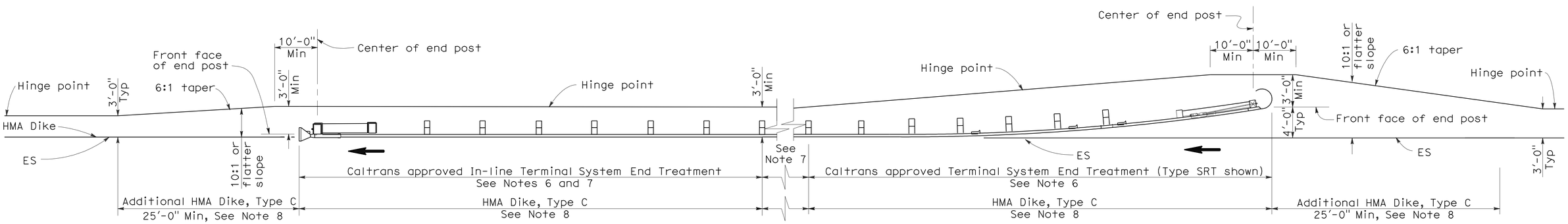
To accompany plans dated 12-14-09



TYPE 11H LAYOUT

(EMBANKMENT GUARD RAILING INSTALLATION WITH FLARED END TREATMENT
AND AN IN-LINE TREATMENT AT THE ENDS OF RAILING)
See Notes 5 and 8

NOTES:

1. Line post, blocks and hardware to be used are shown on Standard Plans A77A1, A77A2, A77B1, A77C1 and A77C2.
2. Guard rail post spacing to be 6'-3" center to center, except as otherwise noted.
3. Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks. W6 x 9 steel posts, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or plastic blocks may be used for 6" x 8" x 6'-0" wood post with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
4. Direction of adjacent traffic indicated by ➡.
5. Layout Types 11D through 11L, shown on the A77E Series of Revised Standard Plans, are typically used where guard railing is recommended to shield embankment slopes and a crashworthy end treatment is required for both directions of traffic.
6. The type of terminal system end treatment to be used will be shown on the Project Plans.
7. Dependent on site conditions (embankment height and side slope), construction of additional guard railing (length equal to multiples of 12'-6" with 6'-3" post spacing) may be advisable.
8. Where placement of dike is required with guard railing installations, see Revised Standard Plan RSP A77C4 for dike positioning details.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

METAL BEAM GUARD RAILING TYPICAL LAYOUTS FOR EMBANKMENTS

NO SCALE

RSP A77E4 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77E4
DATED MAY 1, 2006 - PAGE 51 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A77E4

2006 REVISED STANDARD PLAN RSP A77E4

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SLO	41	20.7	37	57

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

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

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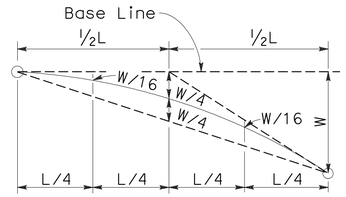
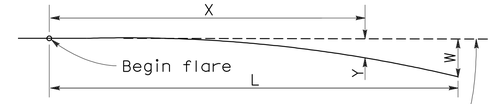


TYPICAL PARABOLIC LAYOUT

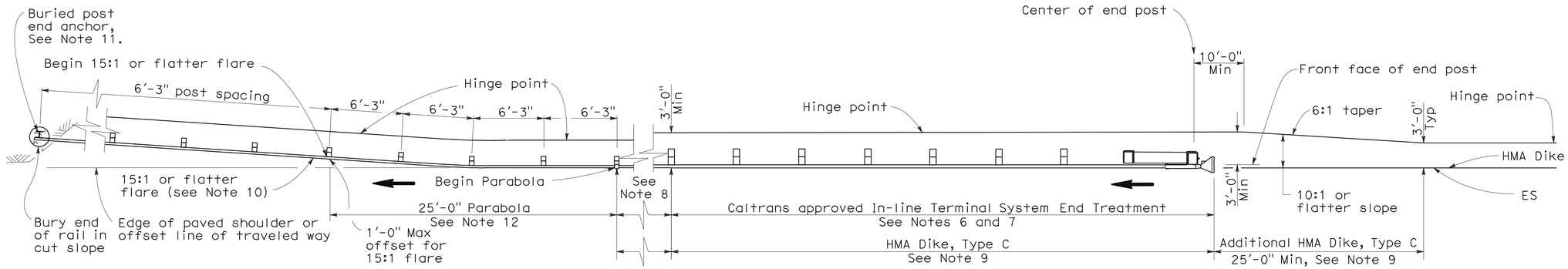


Base Line (Edge of paved shoulder or offset line of edge of traveled way)

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

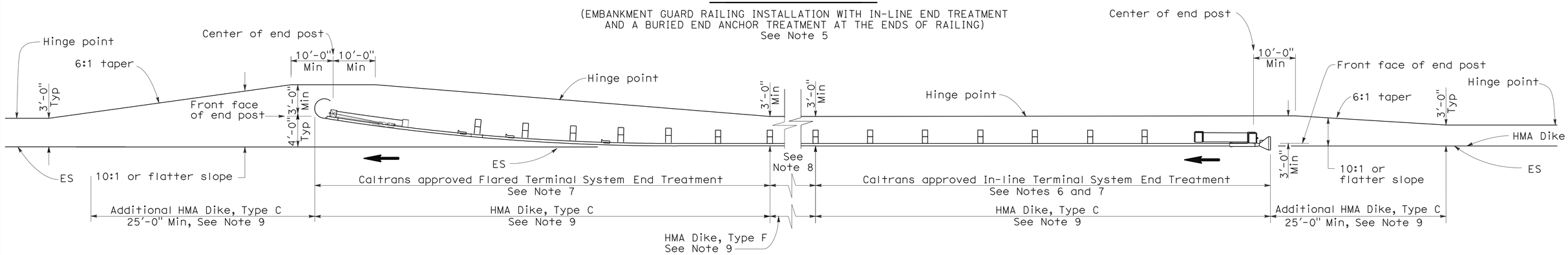
Y = Offset from base line
W = Maximum offset
X = Distance along base line
L = Length of flare

PARABOLIC FLARE OFFSETS



TYPE 11I LAYOUT

(EMBANKMENT GUARD RAILING INSTALLATION WITH IN-LINE END TREATMENT AND A BURIED END ANCHOR TREATMENT AT THE ENDS OF RAILING)
See Note 5



TYPE 11J LAYOUT

(EMBANKMENT GUARD RAILING INSTALLATION WITH IN-LINE END TREATMENT AND FLARED END TREATMENT AT THE ENDS OF RAILING)
See Note 5

NOTES:

1. Line post, blocks and hardware to be used are shown on Standard Plans A77A1, A77A2, A77B1, A77C1 and A77C2.
2. Guard rail post spacing to be 6'-3" center to center, except as otherwise noted.
3. Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks. W6 x 9 steel posts, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or plastic blocks may be used for 6" x 8" x 6'-0" wood post with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
4. Direction of adjacent traffic indicated by ⟶.
5. Layout Types 11D through 11L, shown on the A77E Series of Revised Standard Plans, are typically used where guard railing is recommended to shield embamkment slopes and a crashworthy end treatment is required for both directions of traffic.
6. In-line Terminal System End Treatments are used where site conditions will not accommodate a flared end treatment.
7. The type of terminal system end treatment to be used will be shown on the Project Plans.
8. Dependent on site conditions (embankment height and side slope), construction of additional guard railing (length equal to multiples of 12'-6" with 6'-3" post spacing) may be advisable.
9. Where placement of dike is required with guard railing installations, see Revised Standard Plan RSP A77C4 for dike positioning details.
10. The 15:1 or flatter flare used with buried end anchors is based on the edge of the paved shoulder or offset line of edge of the traveled way. The length of guard railing within the 15:1 or flatter flare is based on site conditions and should be a length equal to multiples of 12'-6".
11. For details of the buried post end anchor used with Type 11I Layout, see Standard Plan A77I2.
12. For typical flare offsets for 25'-0" length parabola with maximum offset of 1'-0", see Revised Standard Plan RSP A77E1.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

METAL BEAM GUARD RAILING TYPICAL LAYOUTS FOR EMBANKMENTS

NO SCALE

RSP A77E5 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77E5 DATED MAY 1, 2006 - PAGE 52 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A77E5

2006 REVISED STANDARD PLAN RSP A77E5

12-10-07

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SLO	41	20.7	38	57

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

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

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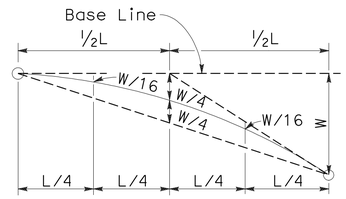
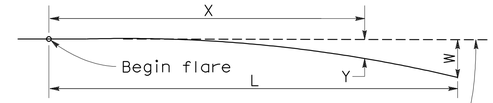
To accompany plans dated 12-14-09



TYPICAL PARABOLIC LAYOUT

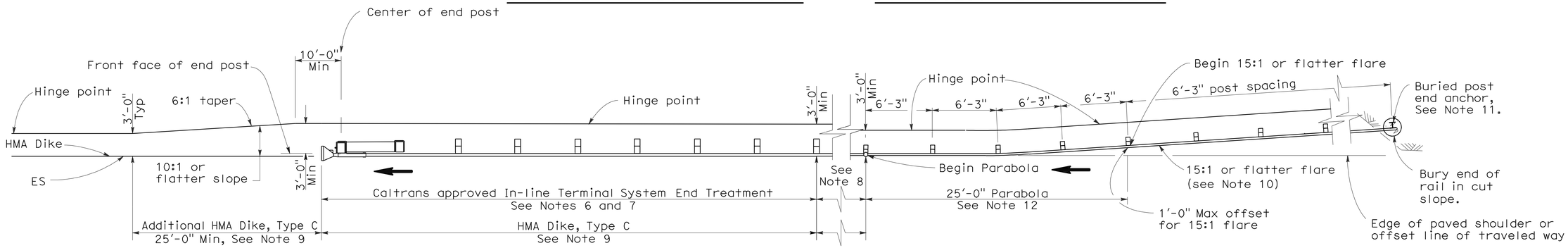


Base Line (Edge of paved shoulder or offset line of edge of traveled way)

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

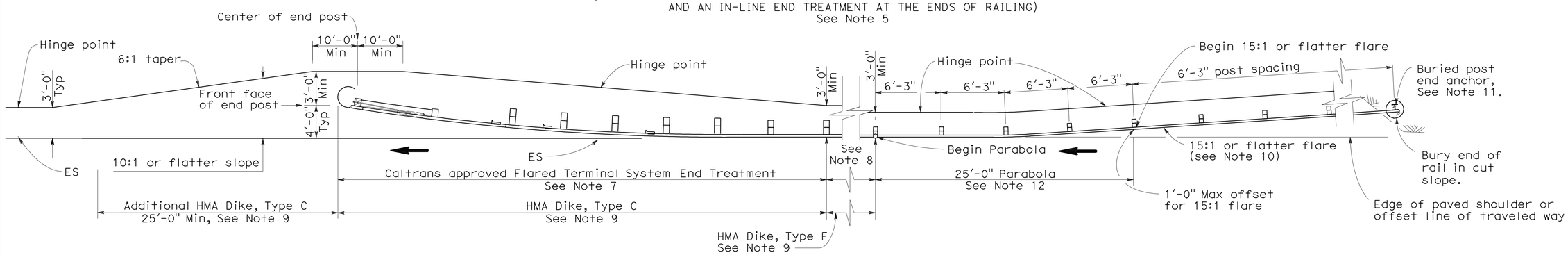
Y = Offset from base line
W = Maximum offset
X = Distance along base line
L = Length of flare

PARABOLIC FLARE OFFSETS



TYPE 11K LAYOUT

(EMBANKMENT GUARD RAILING INSTALLATION WITH A BURIED END ANCHOR TREATMENT AND AN IN-LINE END TREATMENT AT THE ENDS OF RAILING)
See Note 5



TYPE 11L LAYOUT

(EMBANKMENT GUARD RAILING INSTALLATION WITH A BURIED END ANCHOR TREATMENT AND A FLARED END TREATMENT AT THE ENDS OF RAILING)
See Note 5

NOTES:

1. Line post, blocks and hardware to be used are shown on Standard Plans A77A1, A77A2, A77B1, A77C1 and A77C2.
2. Guard rail post spacing to be 6'-3" center to center, except as otherwise noted.
3. Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks. W6 x 9 steel posts, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or plastic blocks may be used for 6" x 8" x 6'-0" wood post with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
4. Direction of adjacent traffic indicated by ⟶.
5. Layout Types 11D through 11L, shown on the A77E Series of Revised Standard Plans, are typically used where guard railing is recommended to shield embamkment slopes and a crashworthy end treatment is required for both directions of traffic.
6. In-line Terminal System End Treatments are used where site conditions will not accommodate a flared end treatment.
7. The type of terminal system end treatment to be used will be shown on the Project Plans.
8. Dependent on site conditions (embankment height and side slope), construction of additional guard railing (length equal to multiples of 12'-6" with 6'-3" post spacing) may be advisable.
9. Where placement of dike is required with guard railing installations, see Revised Standard Plan RSP A77C4 for dike positioning details.
10. The 15:1 or flatter flare used with buried end anchors is based on the edge of the paved shoulder or offset line of edge of the traveled way. The length of guard railing within the 15:1 or flatter flare is based on site conditions and should be a length equal to multiples of 12'-6".
11. For details of the buried post end anchor used with Type 11K and 11L Layouts, see Standard Plan A77I2.
12. For typical flare offsets for 25'-0" length parabola with maximum offset of 1'-0", see Revised Standard Plan RSP A77E1.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

METAL BEAM GUARD RAILING TYPICAL LAYOUTS FOR EMBANKMENTS

NO SCALE

RSP A77E6 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77E6
DATED MAY 1, 2006 - PAGE 53 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A77E6

2006 REVISED STANDARD PLAN RSP A77E6

12-10-07

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SLO	41	20.7	39	57

Raymond Don Tsztoo
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
Raymond Don Tsztoo
No. C37332
Exp. 6-30-08
CIVIL
STATE OF CALIFORNIA

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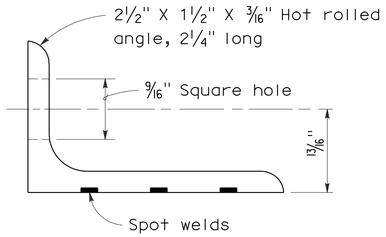
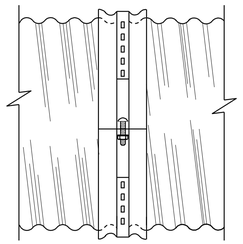
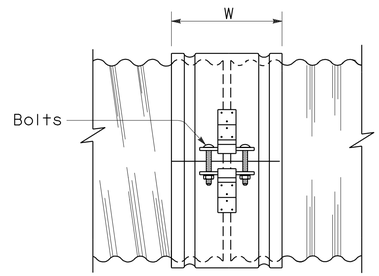
To accompany plans dated 12-14-09



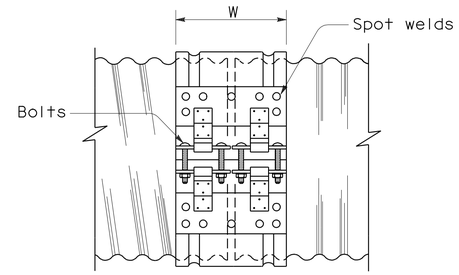
ANGLE



SIDE VIEW
ANGLE



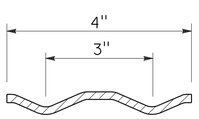
SIDE VIEW
SINGLE BAR AND STRAP



SIDE VIEW
DOUBLE BAR AND STRAP

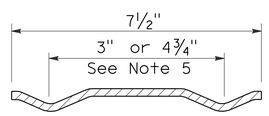
NOTES:

1. All ferrous metal coupling band connection hardware shall be galvanized or electroplated in accordance with the Standard Specifications.
2. Dimensions and thicknesses shown are minimum.
3. Spot welds shall develop minimum required strength of strap.
4. Fillet welds of equivalent strength may be substituted for spot welds or rivets.
5. Dimension depends upon whether end condition is lips up or lips down.



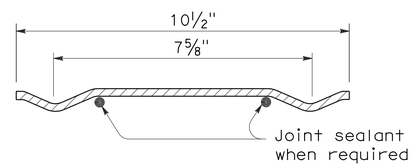
SECTION

H-4 HUGGER BAND



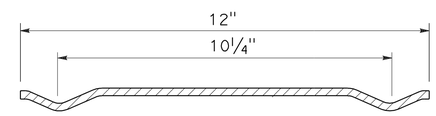
SECTION

H-7 HUGGER BAND



SECTION

H-10 HUGGER BAND



SECTION

H-12 HUGGER BAND

HUGGER COUPLING BANDS

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

CORRUGATED METAL PIPE COUPLING DETAILS No. 4 HUGGER COUPLING BANDS

NO SCALE

RSP D97D DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN D97D
DATED MAY 1, 2006 - PAGE 186 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP D97D

2006 REVISED STANDARD PLAN RSP D97D

3-24-08

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SLO	41	20.7	40	57

Raymond Don Tsztoo
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Raymond Don Tsztoo No. C37332 Exp. 6-30-08 CIVIL STATE OF CALIFORNIA

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ANNULAR AND HELICAL PROFILE

COUPLING TYPE	PIPE CORRUGATION	PIPE SIZE	W OR A	PIPE WALL THICKNESS CSP	PIPE WALL THICKNESS CAP	BAND THICKNESS CSP	BAND THICKNESS CAP	BAR AND STRAP (CSP ONLY) STRAP THICKNESS	BOLTS Dia	BAR Dia	BAR YIELD STRENGTH	ANGLE DIMENSIONS CSP	ANGLE DIMENSIONS CAP	BOLTS (No.- Dia) CSP	BOLTS (No.- Dia) CAP	RIVETS ANGLE TO BAND CSP	RIVETS ANGLE TO BAND CAP	SPOT WELDS ANGLE TO BAND CSP
TWO PIECE INTEGRAL FLANGE	1½′ × ¼"	6"-10"	7"	0.052"-0.079"	0.048"-0.060"	0.052"	0.060"							2-⅜"	2-⅜"			
		12"-18"	7"	0.052"-0.079"		0.064"								2-½"				
	2⅔" × ½"	12"-24"	7"	0.052"-0.079"	0.060"-0.105"	0.064"	0.060"							2-½"	2-½"			
UNIVERSAL	2⅔" × ½"	THROUGH 36"	12"	0.052"-0.138"	0.060"-0.135"	0.052"	0.060"					2" × 2" × 3/16"	2" × 2" × 3/16"	3-½"	3-½"	3-⅜"	3-⅜"	3-½"
		42"-60"	12"	0.052"-0.168"	0.075"-0.164"	0.052"	0.060"					2" × 2" × 3/16"	2" × 2" × 3/16"	3-½"	3-½"	3-⅜"	3-⅜"	5-½"
		THROUGH 72"	12"	0.052"-0.168"	0.164"	0.052"	0.105"	0.079"	½"	⅞"	32 ksi	2" × 2" × 3/16"	2" × 2" × 3/16"	3-½"	3-½"	3-⅜"	3-⅜"	5-½"
		78"-84"	16¼"	0.168"		0.079"		DOUBLE 0.079"	½"	⅞"	32 ksi							
ANNULAR	2⅔" × ½"	THROUGH 36"	7"	0.064"-0.138"	0.060"-0.135"	0.052"	0.060"	0.079"	½"	⅞"	32 ksi	2" × 2" × 3/16"	2" × 2" × 3/16"	2-½"	2-½"	3-⅜"	3-⅜"	3-½"
		42"-72"	12"	0.064"-0.168"	0.075"-0.164"	0.052"	0.105"	0.079"	½"	⅞"	32 ksi	2" × 2" × 3/16"	2" × 2" × 3/16"	3-½"	3-½"	3-⅜"	3-⅜"	5-½"
		78"-84"	12"	0.168"		0.079"		0.109"	½"	⅞"	45 ksi	2" × 2" × 3/16"		3-½"		3-⅜"		5-½"
	3" × 1"	48"-90"	14"	0.064"-0.109"		0.052"		0.079"	½"	⅞"	32 ksi	2" × 2" × 3/16"		3-½"		3-⅜"		5-½"
		96"-120"	14"	0.079"-0.109"		0.052"		0.109"	½"	⅞"	45 ksi	2" × 2" × 3/16"		3-½"		4-⅜"		
		42"-108"	14"		0.060"-0.135"		0.060"						2" × 2" × 3/16"		3-½"		3-⅜"	
HELICAL	2⅔" × ½"	THROUGH 36"	12"	0.052"-0.138"	0.060"-0.135"	0.052"	0.060"	0.079"	½"	⅞"	32 ksi	2" × 2" × 3/16"	2" × 2" × 3/16"	3-½"	3-½"	3-⅜"	3-⅜"	3-½"
		42"-72"	12"	0.052"-0.168"	0.075"-0.164"	0.052"	0.060"	0.079"	½"	⅞"	32 ksi	2" × 2" × 3/16"	2" × 2" × 3/16"	3-½"	3-½"	3-⅜"	3-⅜"	5-½"
		78"-84"	12"	0.168"		0.079"		0.109"	½"	⅞"	45 ksi	2" × 2" × 3/16"		3-½"		3-⅜"		5-½"
	3" × 1"	48"-90"	14"	0.064"-0.109"		0.052"		0.079"	½"	⅞"	32 ksi	2" × 2" × 3/16"		3-½"		3-⅜"		5-½"
		96"-120"	14"	0.079"-0.109"		0.052"		0.109"	½"	⅞"	45 ksi	2" × 2" × 3/16"		3-½"		4-⅜"		
		42"-108"	14"		0.060"-0.135"		0.060"						2" × 2" × 3/16"		3-½"		3-⅜"	
HUGGER	2⅔" × ½" REROLLED END	12"-54"	4"	0.052"-0.109"		0.052"						2½" × 1½" × 3/16"	2½" × 1½" × 3/16"	1-½"				3-½"
		60"-66"	4"	0.109"		0.064"						2½" × 1½" × 3/16"	2½" × 1½" × 3/16"	1-½"				3-½"
		36"-48"	4"	0.138"		0.064"						2½" × 1½" × 3/16"	2½" × 1½" × 3/16"	1-½"				3-½"
		THROUGH 72"	10½"	0.052"-0.168"		0.052"		0.079"	½"	⅞"	32 ksi							
		78"-84"	10½"	0.168"		0.079"		0.109"	½"	⅞"	45 ksi							
	3" × 1" REROLLED END	48"-90"	10½"	0.064"-0.109"		0.052"		0.079"	½"	⅞"	32 ksi							
		96"-120"	10½"	0.079"-0.109"		0.052"		0.109"	½"	⅞"	45 ksi							
	5" × 1" REROLLED END	48"-66"	7½"	0.064"-0.109"		0.064"		0.079"	½"	⅞"	32 ksi	2½" × 1½" × 3/16"	2½" × 1½" × 3/16"	1-½"				3-½"
		72"-90"	7½"	0.064"-0.079"		0.064"		0.079"	½"	⅞"	32 ksi	2½" × 1½" × 3/16"	2½" × 1½" × 3/16"	1-½"				3-½"
		48"-90"	7½"	0.064"-0.138"		0.064"		0.079"	½"	⅞"	32 ksi							
		48"-120"	12" SEE	0.064"-0.109"		0.064"		0.079"	½"	⅞"	32 ksi							
		48"-84"	12" NOTE	0.138"		0.064"		0.079"	½"	⅞"	32 ksi							
		90"-120"	12" 11	0.138"		0.064"		DOUBLE 0.079"	½"	⅞"	32 ksi							

SPIRAL RIB PROFILE

COUPLING TYPE	PIPE CORRUGATION	PIPE SIZE	W	PIPE WALL THICKNESS SSRP	PIPE WALL THICKNESS ASRP	BAND THICKNESS SSRP	BAND THICKNESS ASRP	BAR AND STRAP (SSRP ONLY) STRAP THICKNESS	BOLTS Dia	BAR Dia	BAR YIELD STRENGTH	ANGLE DIMENSIONS SSRP	ANGLE DIMENSIONS ASRP	BOLTS (No.- Dia) SSRP	BOLTS (No.- Dia) ASRP	RIVETS ANGLE TO BAND SSRP	RIVETS ANGLE TO BAND ASRP	SPOT WELDS ANGLE TO BAND SSRP
ANNULAR	2⅔" × ½" * REROLLED END	24"-36"	12"	0.064"-0.109"	0.060"-0.105"	0.052"	0.060"	0.079"	½"	⅞"	32 ksi	2" × 2" × 3/16"	2" × 2" × 3/16"	3-½"	3-½"	3-⅜"	3-⅜"	5-½"
		42"-60"	12"	0.064"-0.109"	0.075"-0.105"	0.052"	0.105"	0.079"	½"	⅞"	32 ksi	2" × 2" × 3/16"	2" × 2" × 3/16"	3-½"	3-½"	3-⅜"	3-⅜"	5-½"
		66"-72"	12"	0.064"-0.109"		0.052"		0.079"	½"	⅞"	32 ksi	2" × 2" × 3/16"	2" × 2" × 3/16"	3-½"	3-½"	3-⅜"	3-⅜"	5-½"
		78"-114"	12"	0.079"-0.109"		0.079"		0.109"	½"	⅞"	45 ksi	2" × 2" × 3/16"	2" × 2" × 3/16"	3-½"	3-½"	3-⅜"	3-⅜"	5-½"
HUGGER	2⅔" × ½" * REROLLED END	24"-72"	10½"	0.064"-0.109"		0.052"		0.079"	½"	⅞"	32 ksi							
		78"-84"	10½"	0.109"		0.079"		0.109"	½"	⅞"	45 ksi							

* See Note 14.

14. All profiles of Spiral Rib Pipe (¾" × ¾" ribs at 7½" pitch and ¾" × 1" ribs at 11½" pitch in both steel and aluminum and ¾" × 1" ribs at 8½" pitch in steel only) shall be manufactured with rerolled ends. Corrugation profile of the rerolled ends shall be 2⅔" × ½" annual corrugations with a minimum of two full corrugations at each end.

NOTES:

To accompany plans dated 12-14-09

1. All ferrous metal coupling band connection hardware shall be galvanized or electro-plated in accordance with the Standard Specifications.
2. For helically corrugated coupling bands, the connection angles may be oriented parallel to the pipe axis, provided connecting holes are slotted lengthwise sufficiently to allow adjustment for the helix angle.
3. Tension strap may be connected to band with either spot welds or fillet welds that develop minimum required strength of strap.
4. Use 1¼" gage line dimension on attached angle leg for rivets and spot welds.
5. Band thickness shall not be less than:
   a. 3 standard thicknesses lighter than the thickness of the pipe for Corrugated Steel Pipe.
   b. 2 standard thicknesses lighter than the thickness of the pipe and in no case lighter than 0.060" for Corrugated Aluminum Pipe.
6. Dimensions, thicknesses and strengths shown are minimum.
7. For pipe arches use same width band as for round pipe of equal periphery.
8. Fillet welds of equivalent strenght may be substituted for spot welds or rivets.
9. Spot welds shall develop minimum required strength of strap.
10. Pipe with rerolled ends having at least two 2⅔" × ½" annular corrugations at each end with or without an upturned flange may be connected with any of the annular coupling bands shown for pipe of the same diameter and wall thickness and having 2⅔" × ½" corrugations.
11. In the case of H-12 huggerbands, two piece bands are required for diameters through 96" and three piece bands are required for diameters 102" through 120".
12. Two piece bands are required for pipes greater than 42" diameter.
13. The 2¼" × 2" × 0.109" thick galvanized die-formed angle connector may be used in lieu of the 2" × 2" × 3/16" angle connector for standard joints only on pipes through 72" diameter.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

CORRUGATED METAL PIPE COUPLING DETAILS No. 5 STANDARD JOINT

NO SCALE

RSP D97E DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN D97E DATED MAY 1, 2006 - PAGE 187 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP D97E

2006 REVISED STANDARD PLAN RSP D97E

4-2-08

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SLO	41	20.7	41	57

Raymond Don Tsztoo
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER Raymond Don Tsztoo No. C37332 Exp. 6-30-08 CIVIL STATE OF CALIFORNIA

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

To accompany plans dated 12-14-09

ANNULAR AND HELICAL PROFILE

COUPLING TYPE	PIPE CORRUGATION	PIPE SIZE	W OR A	PIPE WALL THICKNESS CSP	PIPE WALL THICKNESS CAP	BAND THICKNESS CSP	BAND THICKNESS CAP	BAR AND STRAP (CSP ONLY) STRAP THICKNESS	BOLTS Dia	BAR Dia	BAR YIELD STRENGTH	ANGLE DIMENSIONS CSP	ANGLE DIMENSIONS CAP	BOLTS (No. - Dia) CSP	BOLTS (No. - Dia) CAP	RIVETS ANGLE TO BAND CSP	RIVETS ANGLE TO BAND CAP	SPOT WELDS ANGLE TO BAND CSP
TWO PIECE INTEGRAL FLANGE	1½" × ¼"	6"-10"	7"	0.064"-0.079"	0.060"	0.064"	0.060"							2-⅜"	2-⅜"			
	2⅔" × ½"	12"-24"	12"		0.060"-0.105"		0.060"								3-½"			
UNIVERSAL	2⅔" × ½"	THROUGH 36"	12"	0.064"-0.138"	0.060"-0.135"	0.064"	0.060"	0.079"	½"	⅞"	32 ksi	2" × 2" × 3/16"	2" × 2" × 3/16"	3-½"	3-½"	3-⅜"	3-⅜"	5-½"
		42"-60"	16¼"	0.064"-0.168"	0.060"-0.164"	0.064"	0.060"	DOUBLE 0.079"	½"	⅞"	32 ksi	2" × 2" × ¼"	2" × 2" × ¼"	4-½"	4-½"	5-⅜"	5-⅜"	
ANNULAR	2⅔" × ½"	THROUGH 36"	12"	0.064"-0.138"	0.060"-0.135"	0.064"	0.060"					2" × 2" × 3/16"	2" × 2" × 3/16"	3-½"	3-½"	3-⅜"	3-⅜"	5-½"
		42"-60"	12"	0.064"-0.079"		0.064"						2" × 2" × 3/16"		3-½"		3-⅜"		5-½"
		42"-60"	12"	0.109"-0.168"	0.135"-0.164"	0.064"	0.075"					2" × 2" × ¼"	2" × 2" × ¼"	3-½"	3-½"	5-⅜"	5-⅜"	
		66"-72"	24"		0.164"		0.105"						2" × 2" × ¼"		5-½"		5-½"	
		66"-84"	24"	0.109"-0.168"		0.064"						2" × 2" × ¼"		5-½"		7-⅜"		
		42"-54"	12"		0.060"-0.105"		0.060"						2" × 2" × 3/16"		3-½"		3-⅜"	
	3" × 1"	48"-60"	14"	0.064"-0.079"		0.064"						2" × 2" × 3/16"		3-½"		3-⅜"		5-½"
		48"-60"	14"	0.109"		0.064"						2" × 2" × 3/16"		3-½"		5-⅜"		
		66"-120"	25"	0.064"-0.109"		0.064"						2" × 2" × 3/16"		5-½"		9-⅜"		
		42"-60"	14"		0.060"-0.105"		0.060"						2" × 2" × 3/16"		3-½"		5-⅜"	
		42"-60"	14"		0.135"		0.075"						2" × 2" × ¼"		3-½"		5-⅜"	
		66"-96"	25"		0.060"-0.135"		0.060"						2" × 2" × ¼"		5-½"		7-⅜"	
		96"-108"	25"		0.135"		0.075"						2" × 2" × ¼"		5-½"		7-⅜"	
HELICAL	2⅔" × ½"	THROUGH 36"	12"	0.064"-0.138"	0.060"-0.135"	0.064"	0.060"					2" × 2" × 3/16"	2" × 2" × 3/16"	3-½"	3-½"	3-⅜"	3-⅜"	5-½"
		42"-54"	12"		0.060"-0.105"		0.060"						2" × 2" × 3/16"		3-½"		3-⅜"	
		42"-60"	12"	0.064"-0.079"		0.064"						2" × 2" × 3/16"		3-½"		3-⅜"		5-½"
		42"-60"	12"	0.109"-0.168"	0.135"-0.164"	0.064"	0.075"					2" × 2" × ¼"	2" × 2" × ¼"	3-½"	3-½"	5-⅜"	5-⅜"	
		66'-84"	24"	0.109"-0.168"		0.064"						2" × 2" × ¼"		5-½"		7-⅜"		
		66"-72"	24"		0.164"		0.105"						2" × 2" × ¼"		5-½"		5-⅜"	
	3" × 1"	48"-60"	14"	0.064"-0.079"		0.064"						2" × 2" × 3/16"		3-½"		3-⅜"		5-½"
		48"-60"	14"	0.109"		0.064"						2" × 2" × 3/16"		3-½"		5-⅜"		
		66"-120"	25"	0.064"-0.109"		0.064"						2" × 2" × 3/16"		5-½"		9-⅜"		
		42"-60"	14"		0.060"-0.105"		0.060"						2" × 2" × 3/16"		3-½"		5-⅜"	
		42"-60"	14"		0.135"		0.075"						2" × 2" × ¼"		3-½"		5-⅜"	
		66"-96"	25"		0.060"-0.135"		0.060"						2" × 2" × ¼"		5-½"		7-⅜"	
		96"-108"	25"		0.135"		0.075"						2" × 2" × ¼"		5-½"		7-⅜"	
HUGGER	2⅔" × ½" REROLLED END	THROUGH 48"	10½"	0.109"		0.064"		0.079"	½"	⅞"	32 ksi							
		54"- 66"	10½"	0.109"		0.064"		DOUBLE 0.079"	½"	⅞"	32 ksi							
		THROUGH 54"	10½"	0.064"-0.079"		0.064"		0.079"	½"	⅞"	32 ksi							
		THROUGH 60"	10½"	0.138"		0.079"		DOUBLE 0.079"	½"	⅞"	32 ksi							
		66"-72"	10½"	0.138"		0.109"		DOUBLE 0.079"	½"	⅞"	32 ksi							
		THROUGH 72"	10½"	0.168"		0.109"		DOUBLE 0.109"	½"	⅞"	45 ksi							
	3" × 1" REROLLED END	48"-84"	10½"	0.109"		0.079"		DOUBLE 0.079"	½"	⅞"	32 ksi							
		48"-90"	10½"	0.064"-0.079"		0.064"		DOUBLE 0.079"	½"	⅞"	32 ksi							
		96"-102"	10½"	0.079"		0.079"		DOUBLE 0.079"	½"	⅞"	32 ksi							
		90"-120"	10½"	0.109"		0.109"		DOUBLE 0.109"	½"	⅞"	45 ksi							

SPIRAL RIB PROFILE

COUPLING TYPE	PIPE CORRUGATION	PIPE SIZE	W	PIPE WALL THICKNESS SSRP	PIPE WALL THICKNESS ASRP	BAND THICKNESS SSRP	BAND THICKNESS ASRP	BAR AND STRAP (SSRP ONLY) STRAP THICKNESS	BOLTS Dia	BAR Dia	BAR YIELD STRENGTH	ANGLE DIMENSIONS SSRP	ANGLE DIMENSIONS ASRP	BOLTS (No.- Dia) SSRP	BOLTS (No.- Dia) ASRP	RIVETS ANGLE TO BAND SSRP	RIVETS ANGLE TO BAND ASRP	SPOT WELDS ANGLE TO BAND SSRP
ANNULAR	2⅔" × ½" * REROLLED END	24"-36"	12"	0.064"-0.109"	0.060"-0.105"	0.064"	0.060"	0.079"	½"	⅞"	32 ksi	2" × 2" × 3/16"	2" × 2" × 3/16"	3-½"	3-½"	3-⅜"	3-⅜"	5-½"
		42"-60"	12"	0.064"-0.079"	0.075"-0.105"	0.064"	0.075"	0.079"	½"	⅞"	32 ksi	2" × 2" × 3/16"	2" × 2" × 3/16"	3-½"	3-½"	3-⅜"	3-⅜"	5-½"
		42"-60"	12"	0.109"		0.064"		0.079"	½"	⅞"	32 ksi	2" × 2" × ¼"		3-½"		5-⅜"		
		66"-84"	24"	0.109"		0.064"		0.079"	½"	⅞"	32 ksi	2" × 2" × ¼"		5-½"		7-⅜"		
HUGGER	2⅔" × ½" * REROLLED END	24"-54"	10½"	0.064"-0.079"		0.064"		0.079"	½"	⅞"	32 ksi							
		24"-48"	10½"	0.109"		0.064"		0.079"	½"	⅞"	32 ksi							
		54"-66"	10½"	0.109"		0.064"		Double 0.079"	½"	⅞"	32 ksi							

* See Note 13.

NOTES:

1. All ferrous metal coupling band connection hardware shall be galvanized or electro-plated in accordance with the Standard Specifications.
2. For helically corrugated coupling bands, the connection angles may be oriented parallel to the pipe axis, provided connecting holes are slotted lengthwise sufficiently to allow adjustment for the helix angle.
3. Tension strap may be connected to band with either spot welds or fillet welds that develop minimum required strength of strap.
4. Use 1¼" gage line dimension on attached angle leg for rivets and spot welds.
5. Band thickness shall not be less than:
   a. 3 standard thicknesses lighter than the thickness of the pipe for Corrugated Steel Pipe.
   b. 2 standard thicknesses lighter than the thickness of the pipe and in no case lighter than 0.060" for Corrugated Aluminum Pipe.
6. Dimensions, thicknesses and strengths shown are minimum.
7. For pipe arches use same width band as for round pipe of equal periphery.
8. Fillet welds of equivalent strength may be substituted for spot welds or rivets.
9. Spot welds shall develop minimum required strength of strap.
10. Pipe with rerolled ends having at least two 2⅔" × ½" annular corrugations at each end with or without an upturned flange may be connected with any of the annular coupling bands shown for pipe of the same diameter and wall thickness and having 2⅔" × ½" corrugations.
11. In the case of H-12 huggerbands, two piece bands are required for diameters through 96" and three piece bands are required for diameters 102" through 120".
12. Two piece bands are required for pipes greater than 42" diameter.
13. All profiles of Spiral Rib Pipe (¾" × ¾" ribs at 7½" pitch and ¾" × 1" ribs at 11½" pitch in both steel and aluminum and ¾" × 1" ribs at 8½" pitch in steel only) shall be manufactured with rerolled ends. Corrugation profile of the rerolled ends shall be 2⅔" × ½" annual corrugations with a minimum of two full corrugations at each end.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

CORRUGATED METAL PIPE COUPLING DETAILS No. 6 POSITIVE JOINT

NO SCALE

RSP D97F DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN D97F
DATED MAY 1, 2006 - PAGE 188 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP D97F

2006 REVISED STANDARD PLAN RSP D97F

4-2-08

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SLO	41	20.7	42	57

Raymond Don Tsztoo
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
Raymond Don Tsztoo
No. C37332
Exp. 6-30-08
CIVIL
STATE OF CALIFORNIA

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

To accompany plans dated 12-14-09

ANNULAR AND HELICAL PROFILE

COUPLING TYPE	PIPE CORRUGATION	PIPE SIZE	W OR A	PIPE WALL THICKNESS		BAND THICKNESS		BAR AND STRAP (CSP ONLY)			ANGLE						
											DIMENSIONS		BOLTS (No.- Dia)		RIVETS ANGLE TO BAND		SPOT WELDS ANGLE TO BAND
				CSP	CAP	CSP	CAP	STRAP THICKNESS	BOLTS Dia	BAR Dia	CSP	CAP	CSP	CAP	CSP	CAP	CSP
TWO PIECE INTEGRAL FLANGE	1½′ × ¼"	6"	7"	0.064"-0.168"		0.052"							3-⅜"				
	1½′ × ¼"	8"-10"	7"	0.064"-0.168"	0.060"-0.164"	0.064"	0.060"						3-⅜"	3-⅜"			
ANNULAR	2⅔" × ½"	THROUGH 24"	12"	0.064"-0.168"	0.060"-0.164"	0.064"	0.060"				2" × 2" × 3/16"	2" × 2" × 3/16"	3-½"	3-½"	3-⅜"	3-⅜"	3-½"
HUGGER	2⅔" × ½" REROLLED END	THROUGH 24"	10½"	0.064"-0.168"		0.064"		0.079"	½"	⅞"							

SPIRAL RIB PROFILE

COUPLING TYPE	PIPE CORRUGATION	PIPE SIZE	W	PIPE WALL THICKNESS		BAND THICKNESS		BAR AND STRAP (SSRP ONLY)			ANGLE						
											DIMENSIONS		BOLTS (No.- Dia)		RIVETS ANGLE TO BAND		SPOT WELDS ANGLE TO BAND
				SSRP	ASRP	SSRP	ASRP	STRAP THICKNESS	BOLTS Dia	BAR Dia	SSRP	ASRP	SSRP	ASRP	SSRP	ASRP	SSRP
ANNULAR	2⅔" × ½" * REROLLED END	24"	12"	0.064"-0.168"	0.060"-0.164"	0.064"	0.060"				2" × 2" × 3/16"	2" × 2" × 3/16"	3-½"	3-½"	3-⅜"	3-⅜"	3-½"
HUGGER	2⅔" × ½" * REROLLED END	24"	10½"	0.064"-0.168"		0.064"		0.079"	½"	⅞"							

* See Note 12.

NOTES:

1. All ferrous metal coupling band connection hardware shall be galvanized or electro-plated in accordance with the Standard Specifications.
2. For helically corrugated coupling bands, the connection angles may be oriented parallel to the pipe axis, provided connecting holes are slotted lengthwise sufficiently to allow adjustment for the helix angle.
3. Tension strap may be connected to band with either spot welds or fillet welds that develop minimum required strength of strap.
4. Use 1¼" gage line dimension on attached angle leg for rivets and spot welds.
5. Band thickness shall not be less than:
   a. 3 standard thicknesses lighter than the thickness of the pipe for Corrugated Steel Pipe.
   b. 2 standard thicknesses lighter than the thickness of the pipe and in no case lighter than 0.060" for Corrugated Aluminum Pipe.
6. Dimensions, thicknesses and strengths shown are minimum.
7. For pipe arches use same width band as for round pipe of equal periphery.
8. Fillet welds of equivalent strenght may be substituted for spot welds or rivets.
9. Spot welds shall develop minimum required strength of strap.
10. Pipe with rerolled ends having at least two 2⅔" × ½" annular corrugations at each end with or without an upturned flange may be connected with any of the annular coupling bands shown for pipe of the same diameter and wall thickness and having 2⅔" × ½" corrugations.
11. For downdrain applications, two piece integral flange couplers shall have factory applied sleeve type rubber gaskets with a minimum length of 7" measured along the length of the pipe.
12. All profiles of Spiral Rib Pipe (¾" × ¾" ribs at 7½" pitch and ¾" × 1" ribs at 11½" pitch in both steel and aluminum and ¾" × 1" ribs at 8½" pitch in steel only) shall be manufactured with rerolled ends. Corrugation profile of the rerolled ends shall be 2⅔" × ½" annual corrugations with a minimum of two full corrugations at each end.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

CORRUGATED METAL PIPE COUPLING DETAILS No. 7 DOWNDRAIN

NO SCALE

RSP D97G DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN D97G
DATED MAY 1, 2006 - PAGE 189 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP D97G

2006 REVISED STANDARD PLAN RSP D97G

4-4-08

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SLO	41	20.7	43	57

LICENSED LANDSCAPE ARCHITECT

June 5, 2009
PLANS APPROVAL DATE

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

LICENSED LANDSCAPE ARCHITECT — Gregory A. Balzer — 2576 — 10 (renewal) 2-28-11 — 5-14-09 (date) — STATE OF CALIFORNIA

To accompany plans dated 12-14-09

A

AB	aggregate base
ABS	acrylonitrile-butadiene-styrene
AC	asphalt concrete
Adj	adjacent/adjustable
AIC	auxiliary irrigation controller
Alt	alternative
AMEND	amendment
ARV	air release valve
AUTO	automatic
AUX	auxiliary
AVB	atmospheric vacuum breaker

B

B&B	balled and burlapped
B/B	brass/bronze
B/B/PL	brass/bronze/plastic
B/PL	brass/plastic
BFM	bonded fiber matrix
Bit Ctd	bituminous coated
BP	booster pump
BPA	backflow preventer assembly
BPAE	backflow preventer assembly in enclosure
BPE	backflow preventer enclosure
BV	ball valve

C

CAP	corrugated aluminum pipe
CARV	combination air release valve
CCA	cam coupler assembly
CEC	controller enclosure cabinet
CHDPE	corrugated high density polyethylene
CL	chain link
CNC	control and neutral conductors
Conc	concrete
Cond	conduit
CSP	corrugated steel pipe
CST	center strip
CV	check valve

D

Dia	diameter
DIP	ductile iron pipe
DN	diameter nominal

E

EA	each
Elect	electric/electrical
Elev	elevation
ENCL	enclosure
EP	edge of pavement
ES	edge of shoulder
EST	end strip
ESTB	establishment
ETW	edge of traveled way

F

F	full circle
F/P	full/part circle
FAU	filter assembly unit
FCV	flow control valve
FERT	fertilizer
FG	finished grade
FIPT	female iron pipe thread
FIS	fertilizer injector system
FL	flow line
FM	flow monitor
FS	flow sensor
Ft	foot/feet
FV	flush valve

G

GAL	Gallon(s)
Galv	galvanized
GARV	garden valve
GPH	gallons per hour
GPM	gallons per minute
GSP	galvanized steel pipe
GV	gate valve

H

H	half circle
HB	hose bib
HDPE	high density polyethylene
HP	horsepower/hinge point
HPL	high pressure line
Hwy	highway

I

IC	irrigation controller
ICC	irrigation controller(s) in controller enclosure cabinet
ID	inside diameter
In	inches
IFS	irrigation filtration system
IPS	iron pipe size
IPT	iron pipe thread
Irr	irrigation

L

L	length
LF	linear foot

M

Max	maximum
MBGR	metal beam guard railing
MCV	manual control valve
MIC	master irrigation controller
Min	minimum
MIPT	male iron pipe thread
Misc	miscellaneous
Mtl	material
MVP	maintenance vehicle pullout

N

NCN	no common name
NL	nozzle line
No.	number
NPT	national pipe thread

O

O/C	on center
OD	outside diameter
Oz	ounce

P

P	part circle
PB	pull box
PCC	portland cement concrete
PE	polyethylene
Pkt	packet
PL	plastic
PLT	plant/planting
PLT ESTB	plant establishment
PM	post mile
PR	pressure rated
PRLV	pressure relief valve
PSFM	polymer stabilized fiber matrix
PSI	pounds per square inch
PRV	pressure reducing valve
PVC	polyvinyl chloride
Pvmt	pavement

Q

Q	quarter circle
QCV	quick coupling valve

R

R	radius
RCP	reinforced concrete pipe
RCV	remote control valve
RCVM	remote control valve (master)
RCVMF	remote control valve (master) w/ flow meter
RCW	recycled/reclaimed water
RECP	rolled erosion control product
REQ	required
R/W	right of way

S

S	slip
SCC	sprinkler control conduit
SCH	schedule
SF	state-furnished
Shld	shoulder
SQFT	square foot/feet
SQYD	square yard(s)
SST	side strip
Sta	station
Std	standard
SW	sidewalk/sound wall

T

T	third circle/thread
TLS	truck loading standpipe
TQ	three quarter circle
TRM	turf reinforcement mat
TRVD	traveled
TT	two third circle
Typ	typical

U

UG	underground

V

VAU	valve assembly unit

W

W	width
W/	with
WM	water meter
WS	wye strainer
WSP	welded steel pipe
WWM	welded wire mesh

NOTE:

FOR ADDITIONAL ABBREVIATIONS, SEE STANDARD PLANS A10A AND A10B.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

PLANTING AND IRRIGATION ABBREVIATIONS

NO SCALE

RSP H1 DATED JUNE 5, 2009 SUPERSEDES STANDARD PLAN H1
DATED MAY 1, 2006 - PAGE 201 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP H1

2006 REVISED STANDARD PLAN RSP H1

5-28-09

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SLO	41	20.7	44	57

LICENSED LANDSCAPE ARCHITECT

June 5, 2009
PLANS APPROVAL DATE

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

LICENSED LANDSCAPE ARCHITECT — Gregory A. Bolzer — 2576 — 10 expiration date — 2-28-11 renewal date — 5-14-09 date — STATE OF CALIFORNIA

To accompany plans dated 12-14-09

EXISTING	PROPOSED	ITEM DESCRIPTION
		WATER METER (WM)
		BACKFLOW PREVENTER ASSEMBLY (BPA)
		BACKFLOW PREVENTER ASSEMBLY IN ENCLOSURE (BPAE)
		BACKFLOW PREVENTER ENCLOSURE (BPE)
		BOOSTER PUMP (BP)
		TRUCK LOADING STANDPIPE (TLS)
FS	FS	FLOW SENSOR (FS)
X	X	MASTER IRRIGATION CONTROLLER (MIC)
		AUXILIARY IRRIGATION CONTROLLER (AIC)
		IRRIGATION CONTROLLER (IC)/ IRRIGATION CONTROLLER (IC) (BATTERY) IRRIGATION CONTROLLER (IC) (SOLAR)
		IRRIGATION CONTROLLER(S) IN CONTROLLER ENCLOSURE CABINET (ICC)
		CONTROL AND NEUTRAL CONDUCTORS (CNC)
SCC	SCC	SPRINKLER CONTROL CONDUIT (SCC)
		IRRIGATION CROSSOVER
		EXTEND IRRIGATION CROSSOVER
		IRRIGATION SLEEVE
dip	DIP	DUCTILE IRON PIPE (SUPPLY LINE) (MAIN) (DIP)
		GALVANIZED STEEL PIPE (SUPPLY LINE) (MAIN) (GSP)
		GALVANIZED STEEL PIPE (SUPPLY LINE) (LATERAL) (GSP)
		PLASTIC PIPE (PR 200) (SUPPLY LINE) (MAIN)
		PLASTIC PIPE (PR 200) (SUPPLY LINE) (LATERAL)
		PLASTIC PIPE (IRRIGATION LINE)
		REMOTE CONTROL VALVE (RCV) REMOTE CONTROL VALVE (MASTER) (RCVM) REMOTE CONTROL VALVE (MASTER) W/FLOW METER (RCVMF)
		MANUAL CONTROL VALVE (MCV)
		VALVE ASSEMBLY UNIT (VAU)
		WYE STRAINER (WS)
		FILTER ASSEMBLY UNIT (FAU)
		GATE VALVE (GV)
		BALL VALVE (BV)

EXISTING	PROPOSED	ITEM DESCRIPTION
		QUICK COUPLING VALVE (QCV)
		CAM COUPLER ASSEMBLY (CCA)
		PRESSURE REDUCING VALVE (PRV)
		PRESSURE RELIEF VALVE (PRLV)
		FLOW CONTROL VALVE (FCV)
		COMBINATION AIR RELEASE VALVE (CARV)
		CHECK VALVE (CV)
		FLUSH VALVE (FV)
		NOZZLE LINE W/TURNING UNION
		IRRIGATION SYSTEM
		IRRIGATION SYSTEM TO BE REMOVED
		CHAIN LINK GATE
		QUICK COUPLING VALVE W/SPRINKLER PROTECTOR
3	3	SPRINKLER W/SPRINKLER PROTECTOR
	C	CONNECT TO EXISTING SYSTEM
		CAP
		CAP EXISTING

VALVE CODE

RCV SIZE
IRRIGATION CONTROLLER
CONTROLLER STATION
VALVE IN PARALLEL (IF APPLICABLE)
GPM
QUANTITY OF SPRINKLERS (WHEN SHOWN)

* 2½"-A-2b-40 -60

MCV SIZE
VALVE NUMBER
GPM
QUANTITY OF TYPE SPRINKLERS (WHEN SHOWN)

* 2"-3-30 -50

* VALVE CODES FOR EXISTING VALVES ARE SHOWN IN A DASHED ENCLOSURE.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

PLANTING AND IRRIGATION SYMBOLS

NO SCALE

RSP H2 DATED JUNE 5, 2009 SUPERSEDES RSP H2 DATED MARCH 7, 2008 AND STANDARD PLAN H2 DATED MAY 1, 2006 - PAGE 202 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP H2

2006 REVISED STANDARD PLAN RSP H2

5-11-09

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SLO	41	20.7	45	57

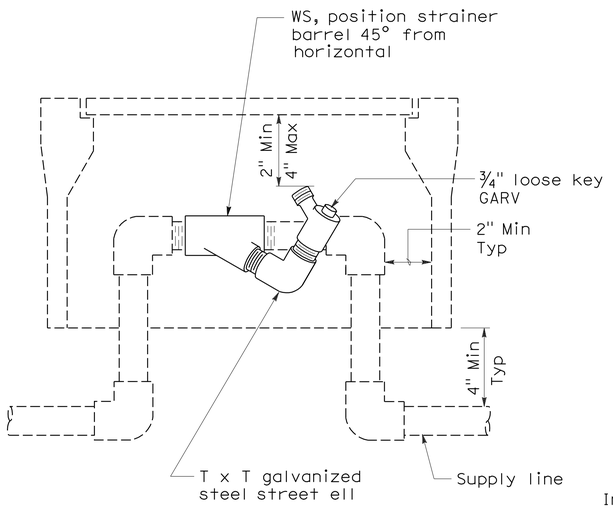
LICENSED LANDSCAPE ARCHITECT

June 5, 2009
PLANS APPROVAL DATE

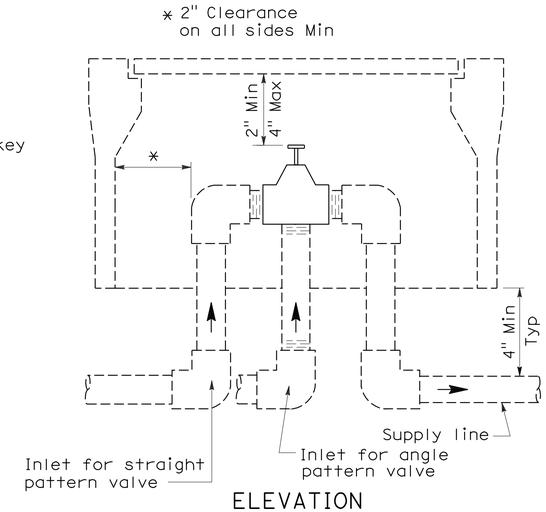
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

LICENSED LANDSCAPE ARCHITECT — Gregory A. Balzer — 2576 — STATE OF CALIFORNIA
10-28-10 approval date
2-28-11 renewal date
5-14-09 date

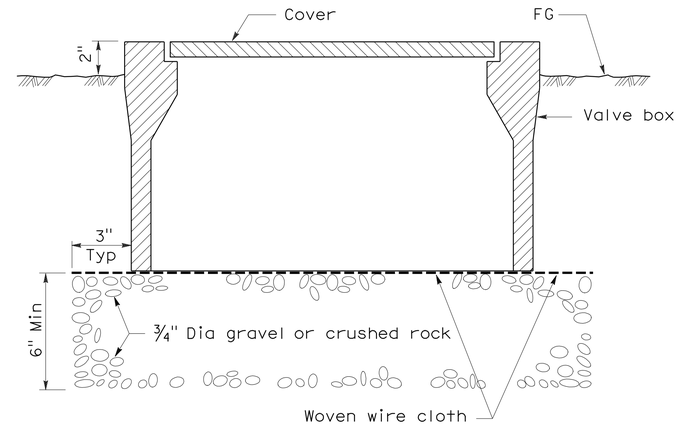
To accompany plans dated 12-14-09



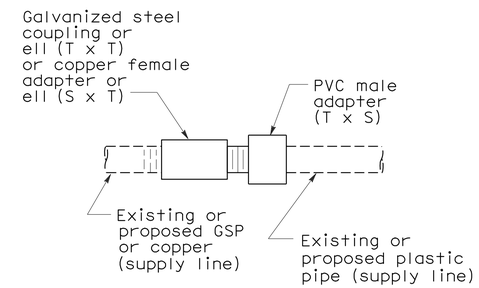
ELEVATION
WYE STRAINER



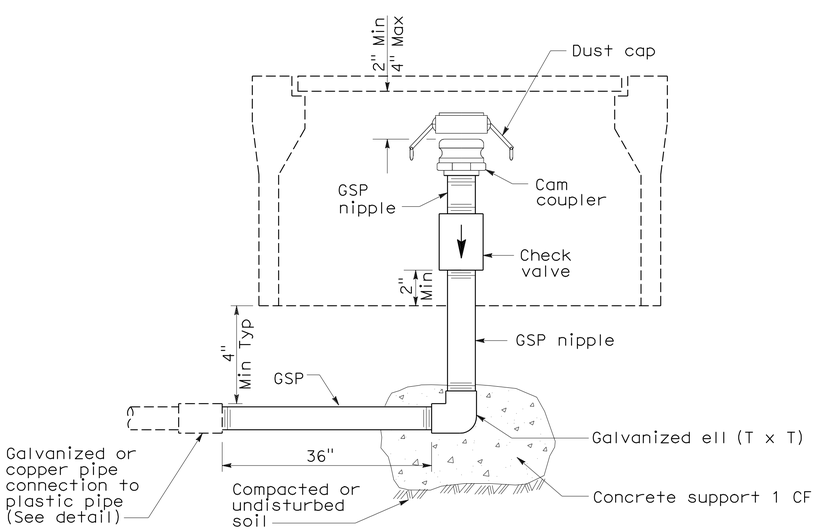
ELEVATION
VALVE



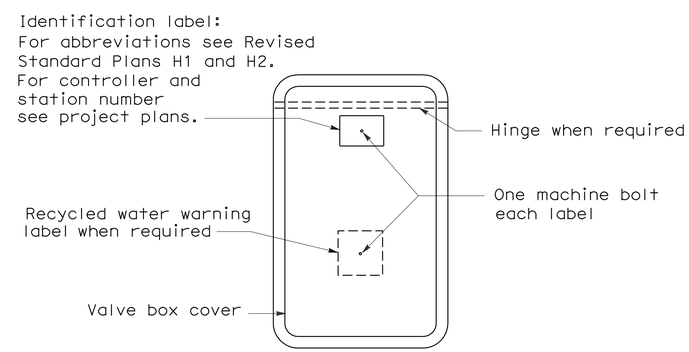
SECTION
VALVE BOX



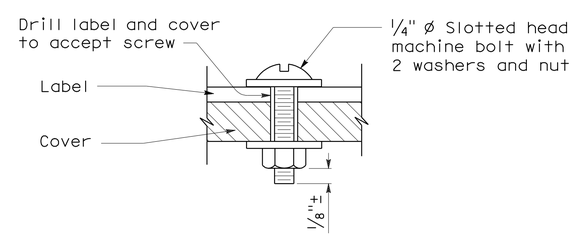
PLAN
GALVANIZED OR COPPER PIPE CONNECTION TO PLASTIC PIPE



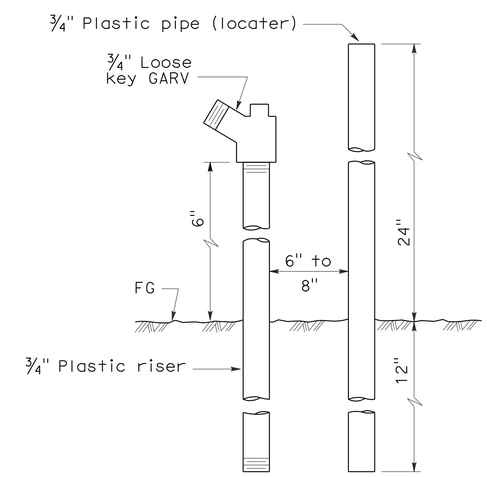
ELEVATION
CAM COUPLER ASSEMBLY



PLAN



SECTION
VALVE BOX IDENTIFICATION



ELEVATION
FLUSH VALVE

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

PLANTING AND IRRIGATION DETAILS

NO SCALE

RSP H7 DATED JUNE 5, 2009 SUPERSEDES STANDARD PLAN H7
DATED MAY 1, 2006 - PAGE 207 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP H7

2006 REVISED STANDARD PLAN RSP H7

5-28-09

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SLO	41	20.7	46	57

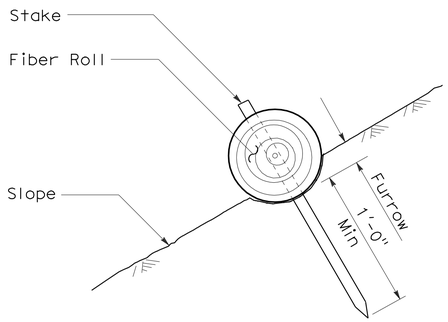
LICENSED LANDSCAPE ARCHITECT

April 3, 2009
PLANS APPROVAL DATE

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

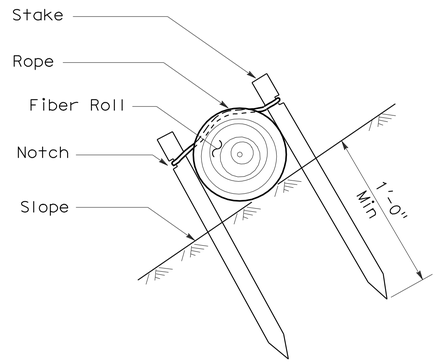
LICENSED LANDSCAPE ARCHITECT — Gregory A. Balzer — 6-10 Expiration — 02-28-11 Renewal date — 03-04-09 Date — STATE OF CALIFORNIA

To accompany plans dated 12-14-09

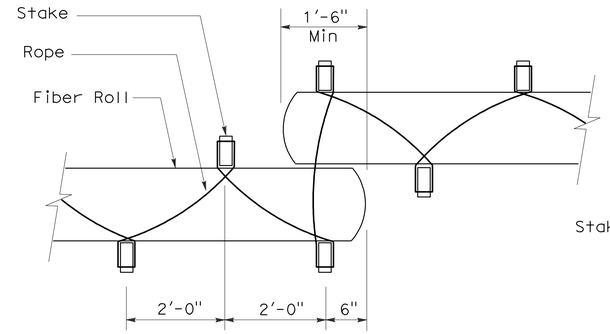


SECTION

FIBER ROLL (TYPE 1)

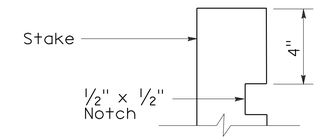


SECTION



PLAN

FIBER ROLL (TYPE 2)

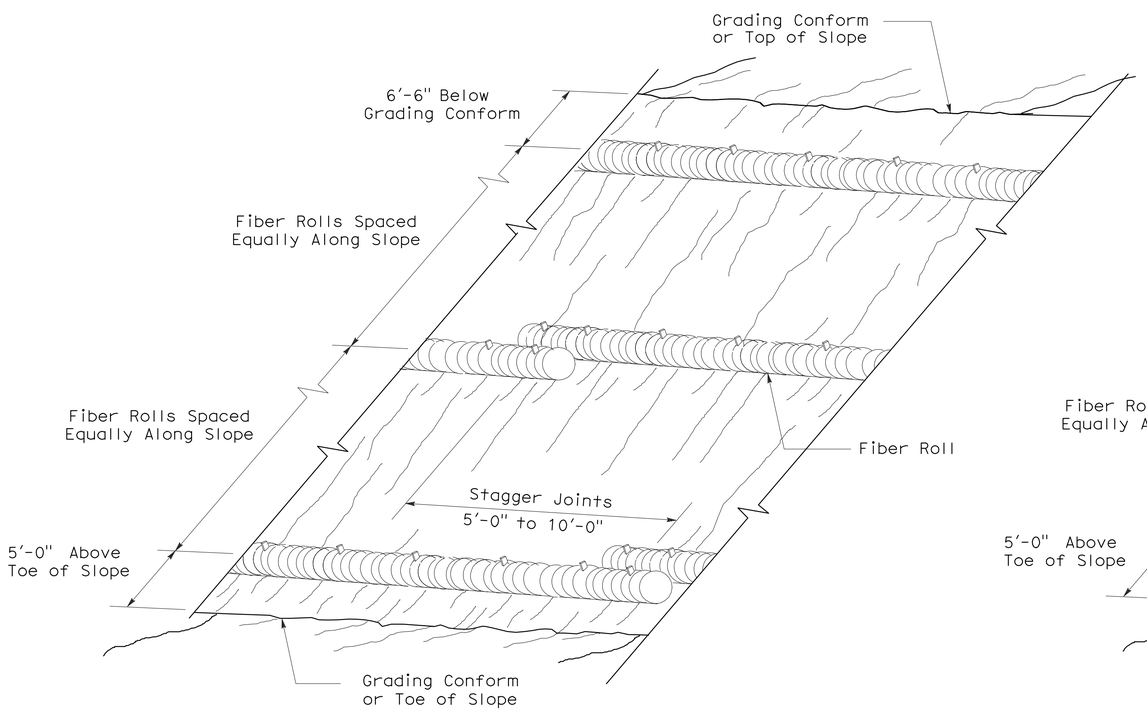


ELEVATION

STAKE NOTCH DETAIL

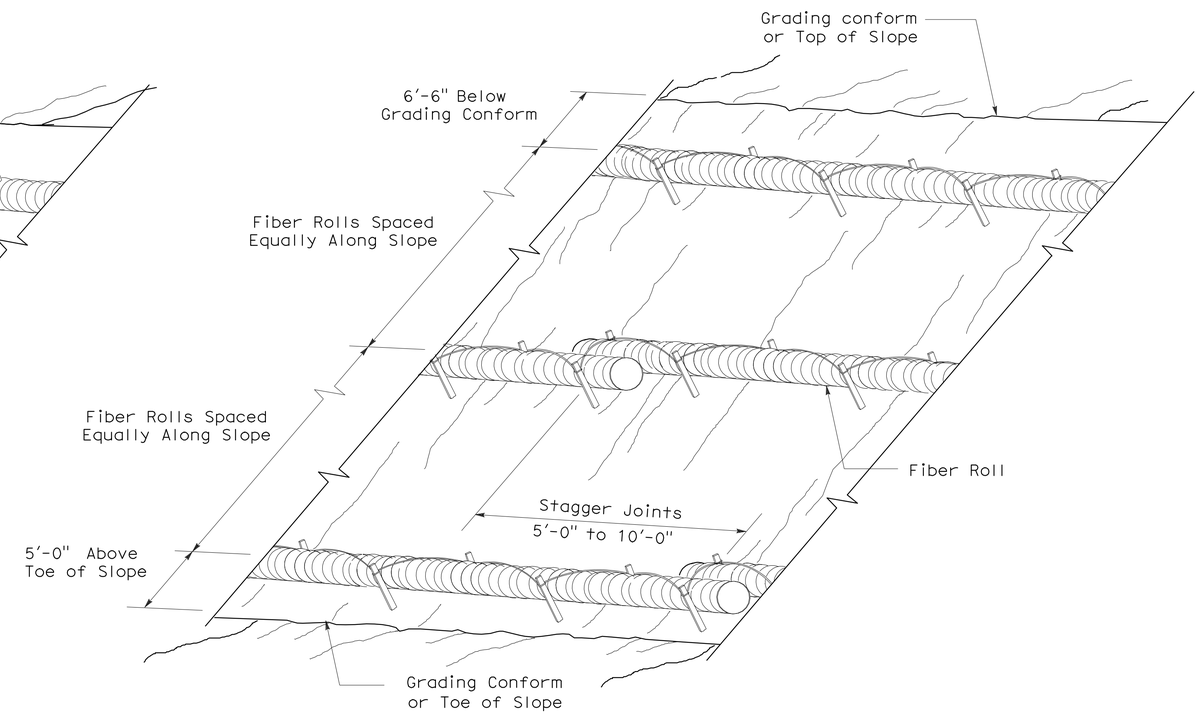
NOTES:

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



PERSPECTIVE

FIBER ROLL (TYPE 1)



PERSPECTIVE

FIBER ROLL (TYPE 2)

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

EROSION CONTROL DETAILS (FIBER ROLL)

NO SCALE

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

REVISED NEW STANDARD PLAN RNSP H51

2006 REVISED NEW STANDARD PLAN RNSP H51

3-4-09

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SLO	41	20.7	47	57

Gregory A. Balzer
LICENSED LANDSCAPE ARCHITECT

June 5, 2009
PLANS APPROVAL DATE

LICENSED LANDSCAPE ARCHITECT — Gregory A. Balzer — No. 2498 — Expiration Date 2-28-11 — Renewal Date 5-14-09 — Date — STATE OF CALIFORNIA

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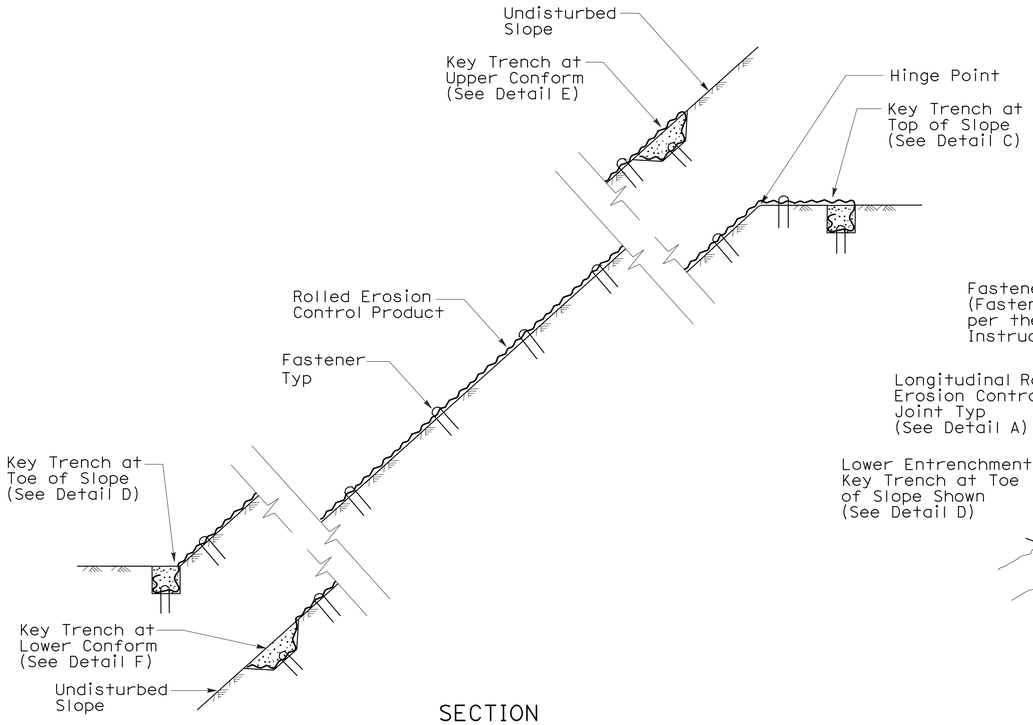
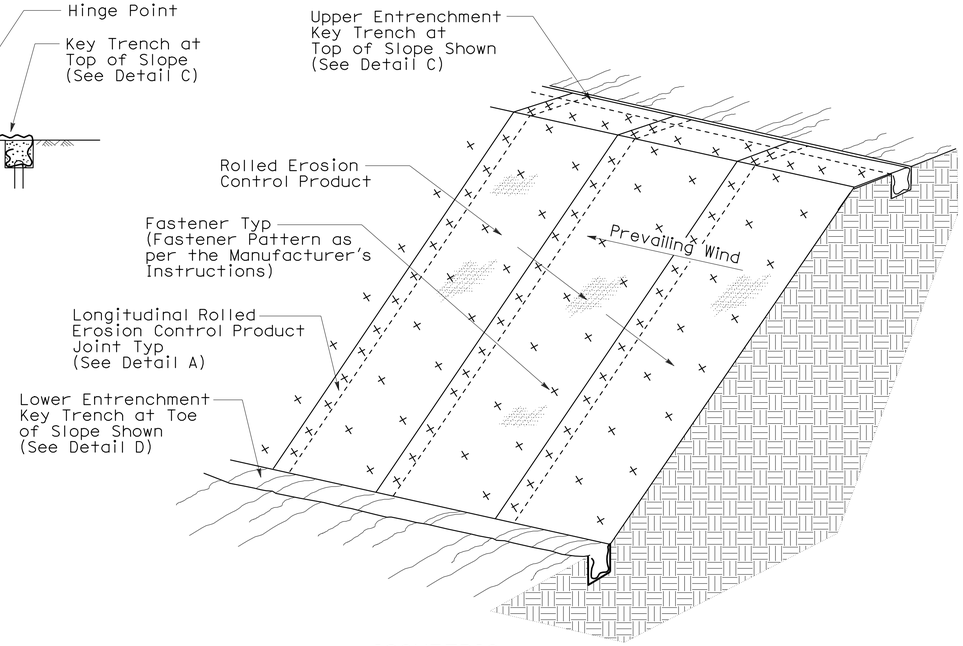
To accompany plans dated 12-14-09



SECTION

ROLLED EROSION CONTROL PRODUCT ON SLOPE WITH VARIOUS KEY ENTRENCHMENTS

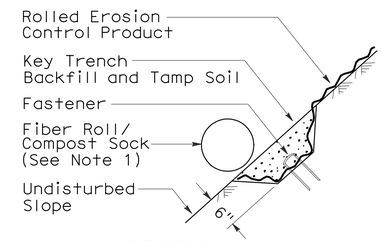


ISOMETRIC

ROLLED EROSION CONTROL PRODUCT ON SLOPE

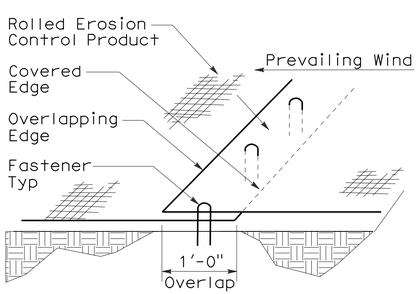
NOTE:

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



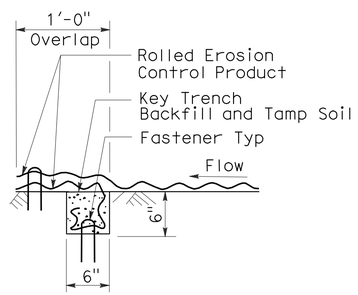
SECTION

DETAIL F
KEY TRENCH AT LOWER CONFORM



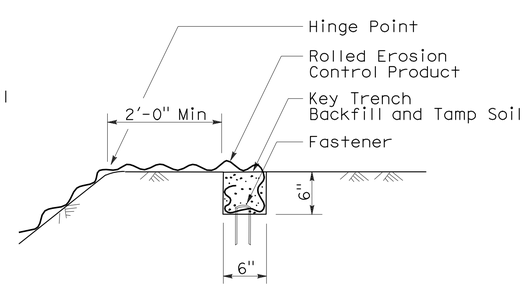
PERSPECTIVE

DETAIL A
LONGITUDINAL ROLLED EROSION CONTROL PRODUCT JOINT



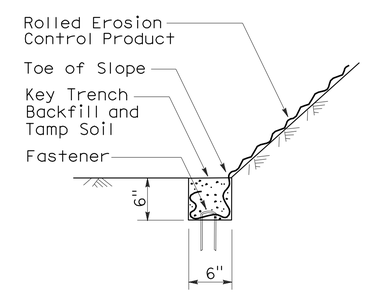
SECTION

DETAIL B
TRANSVERSE ROLLED EROSION CONTROL PRODUCT JOINT



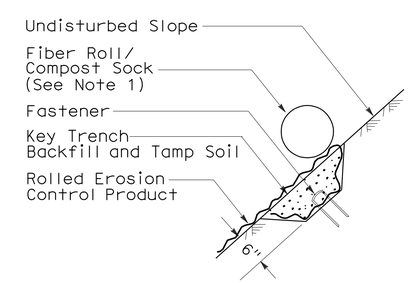
SECTION

DETAIL C
KEY TRENCH AT TOP OF SLOPE



SECTION

DETAIL D
KEY TRENCH AT TOE OF SLOPE



SECTION

DETAIL E
KEY TRENCH AT UPPER CONFORM

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

ROLLED EROSION CONTROL PRODUCT

NO SCALE

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

NEW STANDARD PLAN NSP H53

2006 NEW STANDARD PLAN NSP H53

3-4-09

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SLO	41	20.7	48	57

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

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

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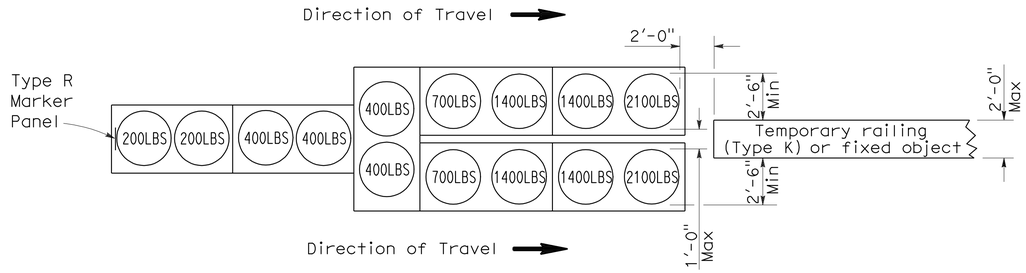
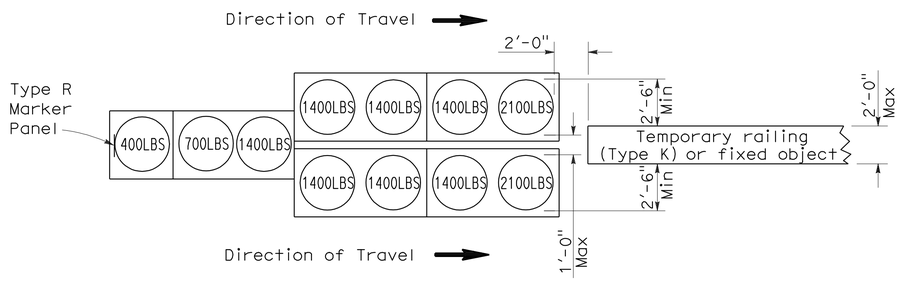
To accompany plans dated 12-14-09



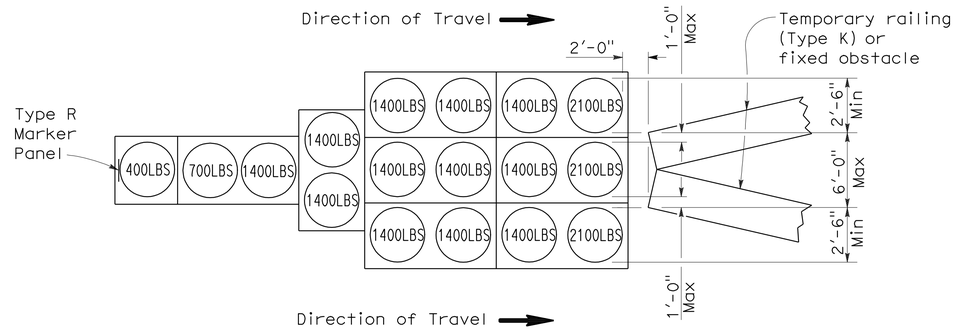
ARRAY 'TU14'

Approach speed 45 mph or more



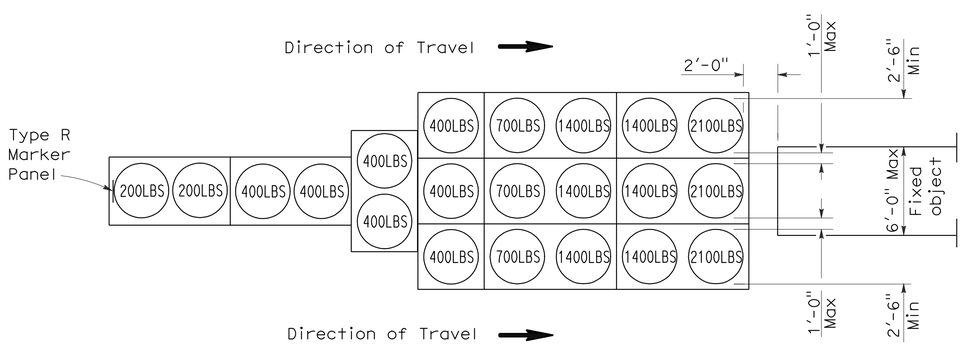
ARRAY 'TU11'

Approach speed less than 45 mph



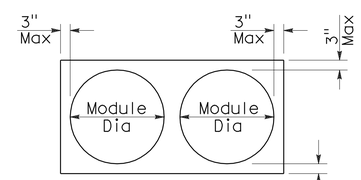
ARRAY 'TU17'

Approach speed less than 45 mph

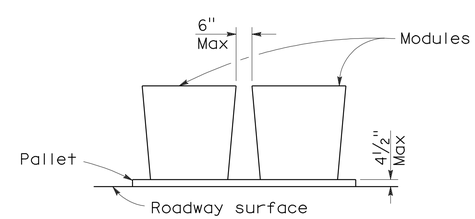


ARRAY 'TU21'

Approach speed 45 mph or more



PLAN



ELEVATION

CRASH CUSHION PALLET DETAIL

See Note 7

NOTES:

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TEMPORARY CRASH CUSHION, SAND FILLED (UNIDIRECTIONAL)

NO SCALE

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

REVISED STANDARD PLAN RSP T1A

2006 REVISED STANDARD PLAN RSP T1A

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SLO	41	20.7	49	57

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

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

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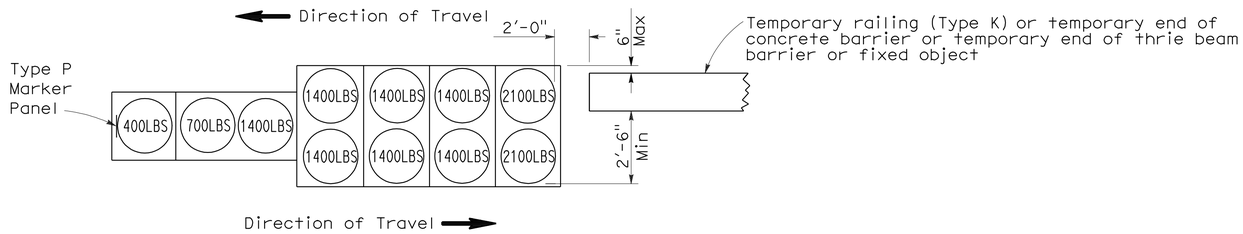
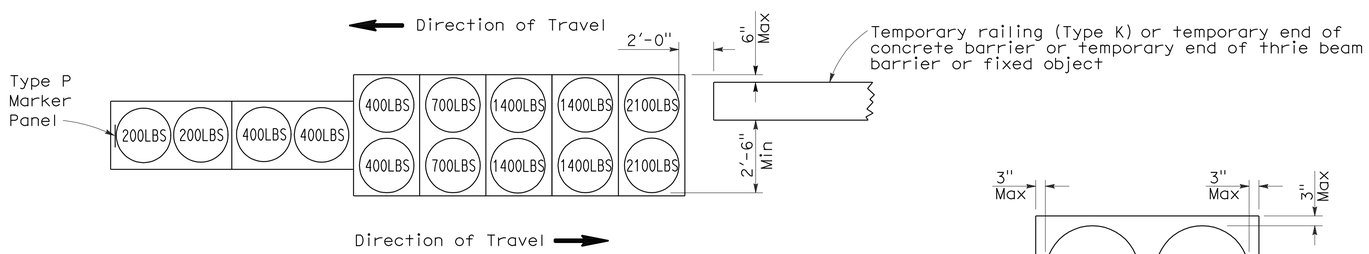
To accompany plans dated 12-14-09



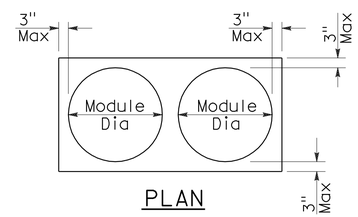
ARRAY 'TB11'

Approach speed less than 45 mph

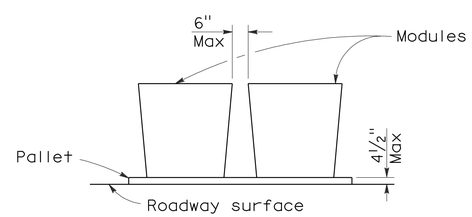


ARRAY 'TB14'

Approach speed 45 mph or more



PLAN



ELEVATION

CRASH CUSHION PALLET DETAIL

See Note 7

NOTES:

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TEMPORARY CRASH CUSHION, SAND FILLED (BIDIRECTIONAL)

NO SCALE

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

REVISED STANDARD PLAN RSP T1B

2006 REVISED STANDARD PLAN RSP T1B

5-15-08

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SLO	41	20.7	50	57

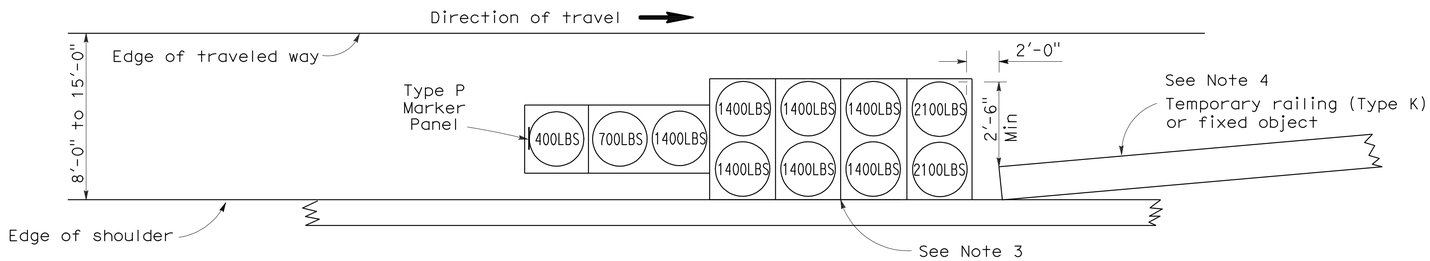
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

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

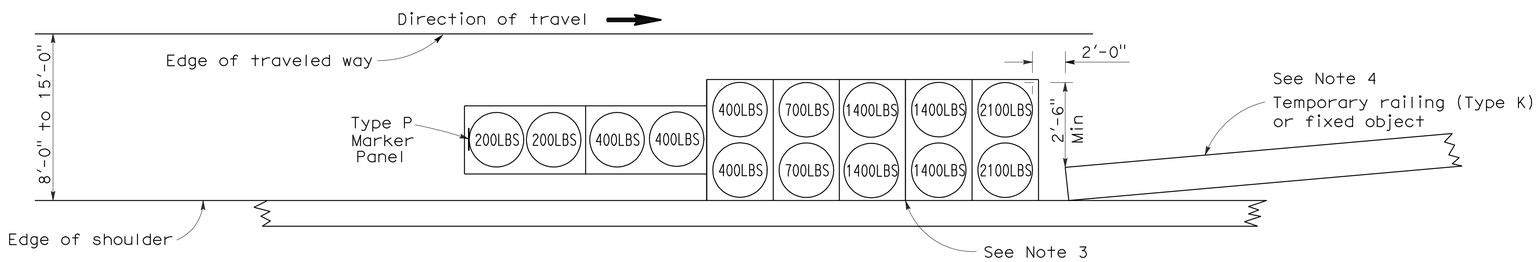
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

To accompany plans dated 12-14-09



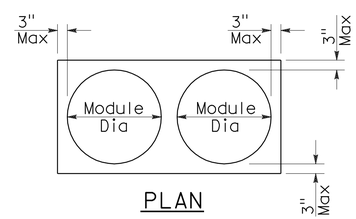
ARRAY 'TS11'

Approach speed less than 45 mph
See Note 9

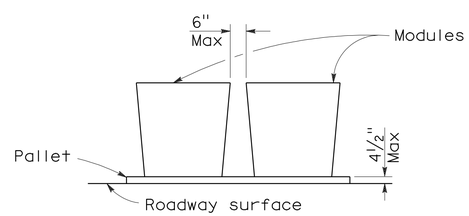


ARRAY 'TS14'

Approach speed 45 mph or more
See Note 9



PLAN



ELEVATION

CRASH CUSHION PALLET DETAIL

See Note 11

NOTES:

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TEMPORARY CRASH CUSHION, SAND FILLED (SHOULDER INSTALLATIONS)

NO SCALE

RSP T2 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN T2
DATED MAY 1, 2006 - PAGE 213 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP T2

2006 REVISED STANDARD PLAN RSP T2

5-15-08

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SLO	41	20.7	51	57

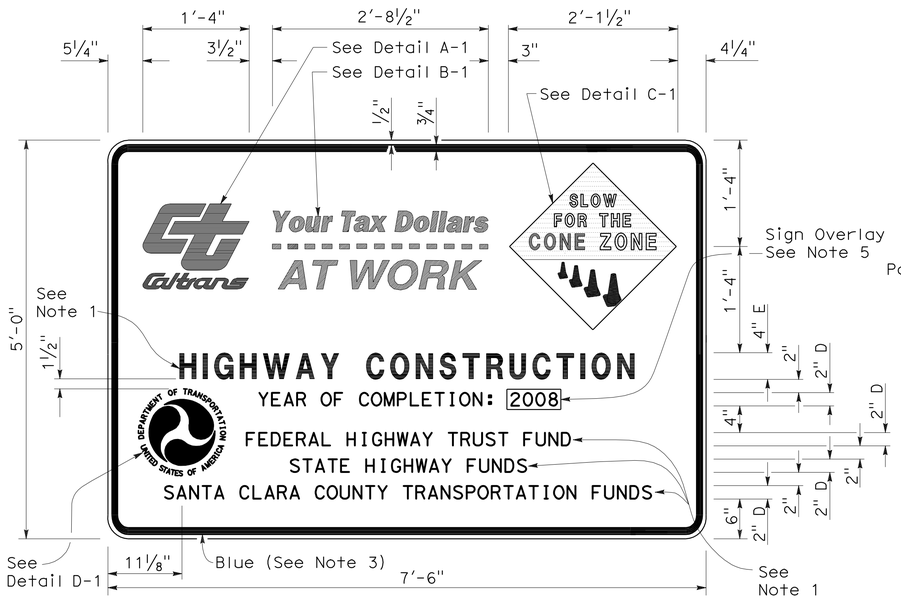
REGISTERED CIVIL ENGINEER

November 17, 2006
PLANS APPROVAL DATE

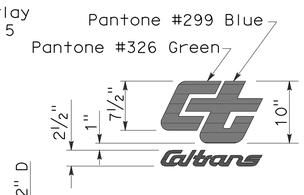
REGISTERED PROFESSIONAL ENGINEER
Greg W. Edwards
No. C36386
Exp. 6-30-08
CIVIL
STATE OF CALIFORNIA

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

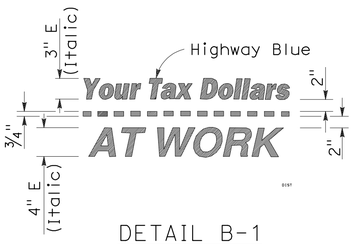
To accompany plans dated 12-14-09



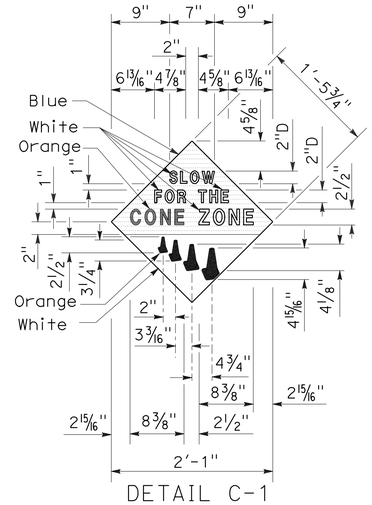
TYPE 1



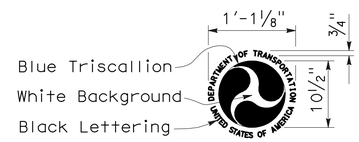
DETAIL A-1



DETAIL B-1
(See Note 3)



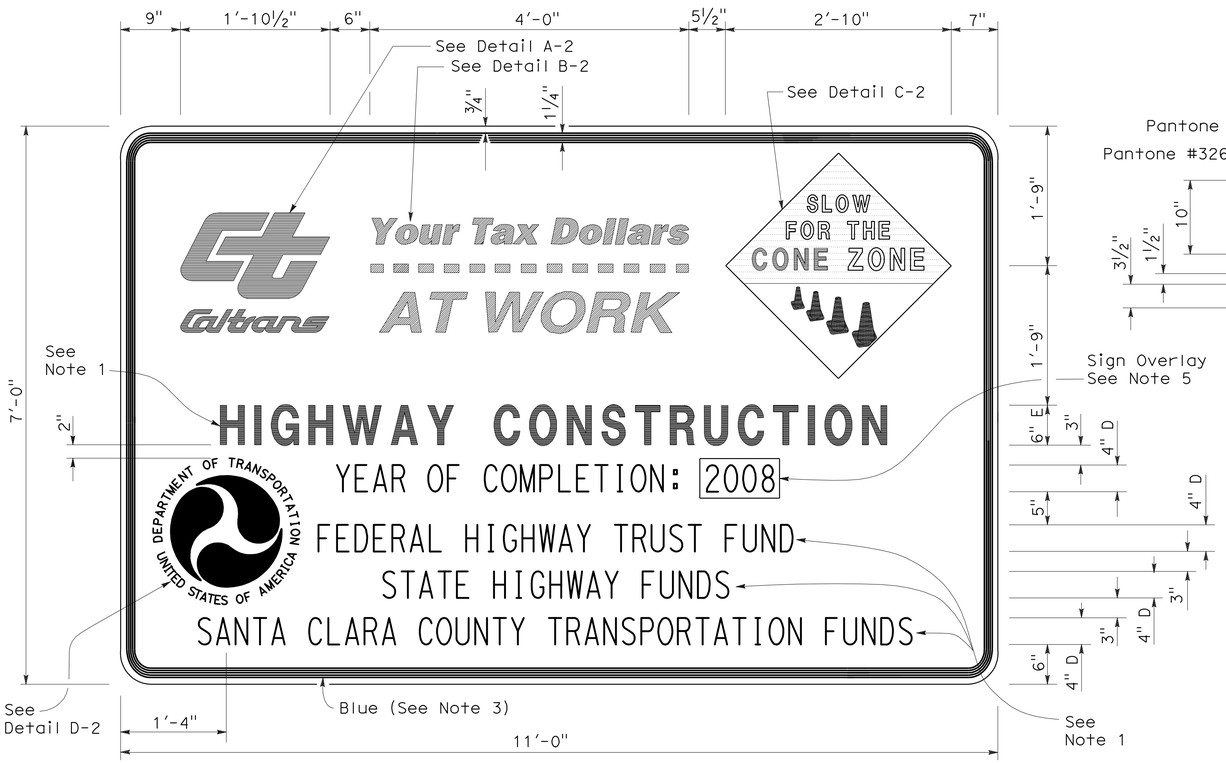
DETAIL C-1
(See Note 4)



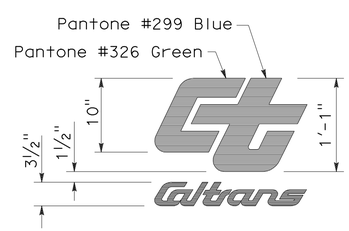
DETAIL D-1
(See Note 6)

NOTES:

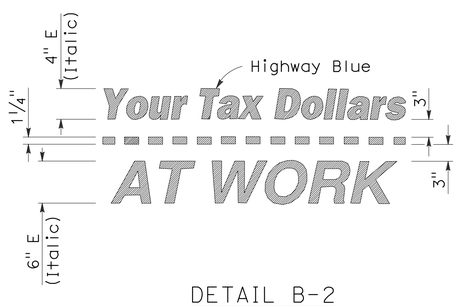
1. The sign messages shown for type of project and fund types are examples only. See the Special Provisions for the applicable type of project and fund type messages to be used.
2. Except as otherwise shown, the legend of sign shall be black on a white background (non-reflective).
3. The border of the signs and details "B-1" and "B-2" shall be blue (non-reflective).
4. The diamond in details "C-1" and "C-2" shall be blue for the background of message, " SLOW FOR THE CONE ZONE", and white background for the orange cones. The color and type of font for the "SLOW FOR THE CONE ZONE" message shall be: "SLOW" white D; "FOR THE" white D; "CONE" orange Arial font; "ZONE" white Arial font.
5. Year of completion of project construction shown on the overlay is an example only. See the Special Provisions.
6. Use when the Project involves Federal Highway Trust Fund.



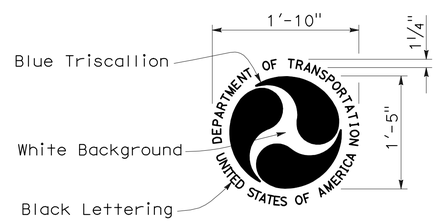
TYPE 2



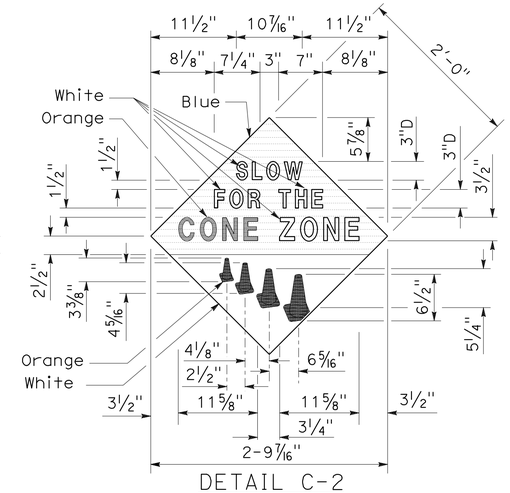
DETAIL A-2



DETAIL B-2
(See Note 3)



DETAIL D-2
(See Note 6)



DETAIL C-2
(See Note 4)

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

CONSTRUCTION PROJECT FUNDING IDENTIFICATION SIGNS

NO SCALE

RSP T7 DATED NOVEMBER 17, 2006 SUPERSEDES STANDARD PLAN T7
DATED MAY 1, 2006 - PAGE 217 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP T7

2006 REVISED STANDARD PLAN RSP T7

9-7-06

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SLO	41	20.7	52	57

LICENSED LANDSCAPE ARCHITECT

April 3, 2009
PLANS APPROVAL DATE

LICENSED LANDSCAPE ARCHITECT — Robert B. Schott — Signature — 11-30-10 Renewal Date — 2-25-09 Date — STATE OF CALIFORNIA

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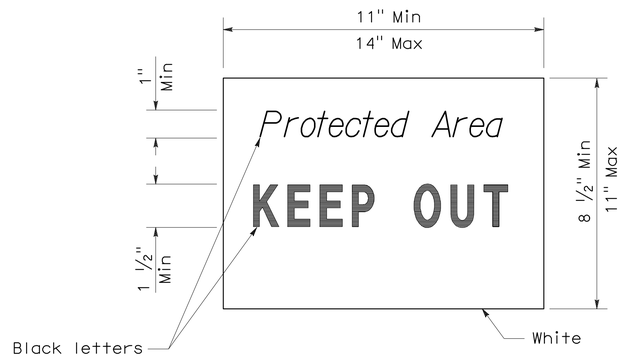
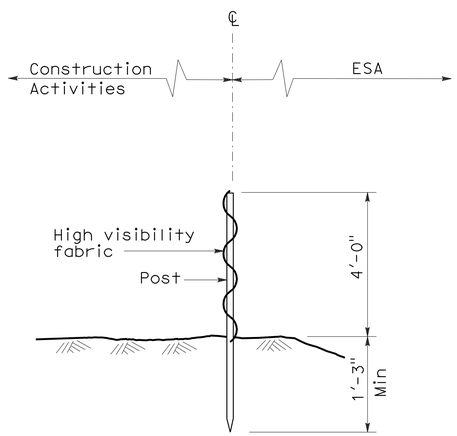
To accompany plans dated 12-14-09



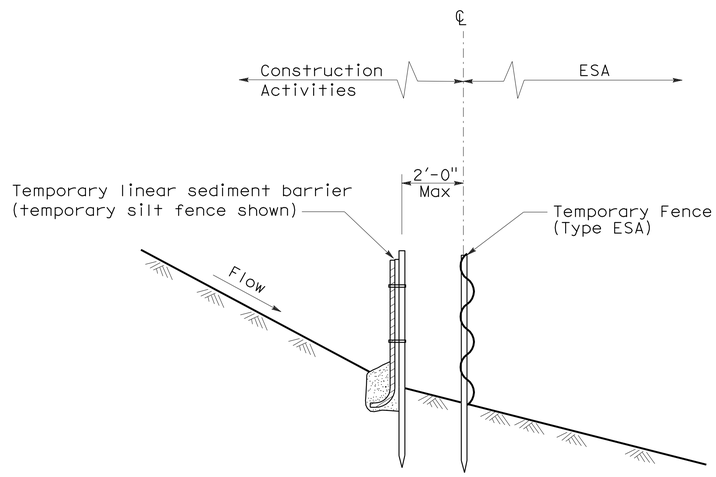
SIGN DETAIL

NOTE:

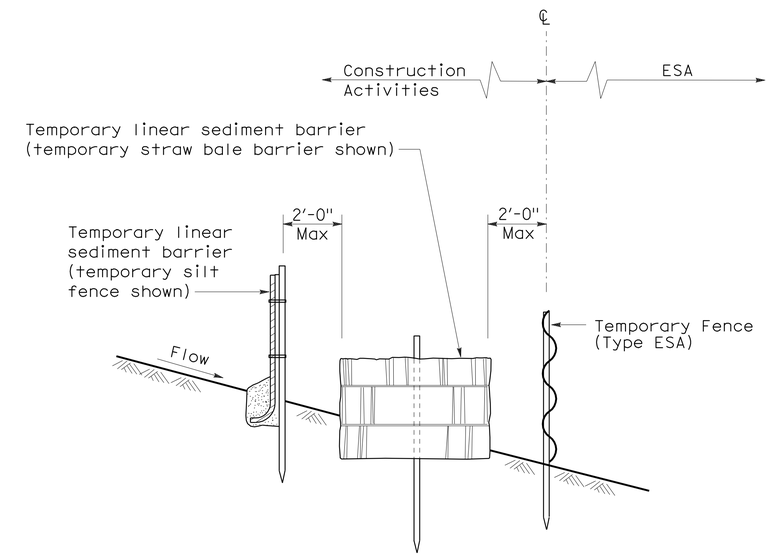
1. Temporary silt fence and temporary straw bale barrier shown for reference purposes only.



SECTION
TEMPORARY FENCE (TYPE ESA)



SECTION
PLACEMENT DETAIL
FOR TEMPORARY LINEAR SEDIMENT BARRIER
USED WITH TEMPORARY
FENCE (TYPE ESA)
(See Note 1)



SECTION
PLACEMENT DETAIL
FOR TEMPORARY SILT FENCE
AND TEMPORARY STRAW BALE BARRIER
USED WITH TEMPORARY FENCE (TYPE ESA)
(See Note 1)

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TEMPORARY WATER POLLUTION CONTROL DETAILS [TEMPORARY FENCE (TYPE ESA)]

NO SCALE

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

NEW STANDARD PLAN NSP T65

2006 NEW STANDARD PLAN NSP T65

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SLO	41	20.7	53	57

REGISTERED ELECTRICAL ENGINEER

October 5, 2007
PLANS APPROVAL DATE

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

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

To accompany plans dated 12-14-09

ELECTROLIERS

STANDARD TYPES
15, 15D
15 STRUCTURE
21, 21D STRUCTURE
30
31
32
35
36-20A

High mast light pole

Double Arm lighting standard

Existing electrolier

Electrolier foundation (Future installation)

NOTES:

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

Electrolier (see project notes or project plans)

Luminaire on wood pole

STANDARD NOTES:

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

ABBREVIATIONS AND EQUIPMENT DESIGNATIONS

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

SOFFIT AND WALL MOUNTED LUMINAIRES

Pendant, 70 W HPS unless otherwise specified.

Flush, 70 W HPS unless otherwise specified.

Wall surface, 70 W HPS unless otherwise specified.

Existing soffit or wall luminaire to remain unmodified.

Existing soffit or wall luminaire to be modified as specified.

NOTE:

Arrow indicates "street side" of luminaire.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

ELECTRICAL SYSTEMS (SYMBOLS AND ABBREVIATIONS)

NO SCALE

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

REVISED STANDARD PLAN RSP ES-1A

2006 REVISED STANDARD PLAN RSP ES-1A

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SLO	41	20.7	54	57

REGISTERED ELECTRICAL ENGINEER

October 5, 2007
PLANS APPROVAL DATE

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

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To accompany plans dated 12-14-09

CONDUIT

PROPOSED	EXISTING	
		Lighting Conduit, unless otherwise indicated or noted
		Traffic signal conduit
C	c	Communication conduit
T	t	Telephone conduit
F	f	Fire alarm conduit
FO	fo	Fiber optic conduit
		Conduit termination (RSP ES-9A C)
R	r	Conduit riser in/on structure or service pole

SERVICE EQUIPMENT

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

POLE-MOUNTED SERVICE DESIGNATION

Type of installation

TYPE H SERVICE - 28'-10" ← Pole height above grade

ILLUMINATED OVERHEAD SIGN

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

SIGNAL EQUIPMENT

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

SIGNAL EQUIPMENT Cont

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

NOTES:

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

ELECTRICAL SYSTEMS (SYMBOLS AND ABBREVIATIONS)

NO SCALE

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

REVISED STANDARD PLAN RSP ES-1B

2006 REVISED STANDARD PLAN RSP ES-1B

7-10-07

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SLO	41	20.7	55	57

REGISTERED ELECTRICAL ENGINEER

October 5, 2007
PLANS APPROVAL DATE

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

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

To accompany plans dated 12-14-09

EQUIPMENT IDENTIFICATION

ILLUMINATED SIGN IDENTIFICATION NUMBER:

Sign No. 12345 — Sign number - Place on post or structure

10 ISL SCI 1.0

- 1.0 — Transformer rating (kVA)
- SCI — Lighting control type
- ISL — Number and type of fixtures

Do NOT place on standard or structure

ELECTROLIER OR EQUIPMENT IDENTIFICATION NUMBER:

12345 - 15'-0"

- 15'-0" — Mast arm length, if shown. Do not place on standard or structure.
- 12345 — Equipment number - Place on standard or structure. Existing equipment numbers are shown in parenthesis

CONDUIT AND CONDUCTOR IDENTIFICATION:

1½"C, 2#10, 15#14, 2 DLC

- 2#10, 15#14, 2 DLC — Number and size of conductors and cables
- 1½"C — Size of conduit in inches

Ø1, Ø2, Ø2P, etc.	Traffic phase identification for signal faces, detectors and phase diagrams
1 2 3	Project note numbers
A B C	Equipment description, installation or item numbers
1 2 3	Conduit run numbers

SIGNAL AND LIGHTING STANDARD (TYPICAL DESIGNATION):

19A - 3 - 100

- 100 — Wind velocity = 100 mph
- 3 — Case 3 arm loading
- 19A — Standard type
- Standard Plan sheet number
- Detail number or letter

MISCELLANEOUS EQUIPMENT

PROPOSED	EXISTING	
CMS	cms	Changeable message sign
		Closed circuit television camera
		Highway advisory radio pole and antenna
EMS	ems	Extinguishable message sign
M V	m v	Detection device M = Microwave sensor V = Video image sensor

WIRING DIAGRAM LEGEND

P	Pole
CB	Circuit breaker
A	Ampere
V	Volt
M	Metered
UM	Unmetered
NB	Neutral bus
GB	Ground bus
G	Equipment grounding conductor
N	Grounded conductor (Neutral)

- External conductor
- Conductor or bus
- Tie point
- Contactor coil
- Contactor, Contact NO
- Terminal blocks
- Contactor, Contact NC
- Enclosure bond
- Grounding electrode
- Circuit breaker
- Receptacle

PULL BOXES

PROPOSED	EXISTING	
		Pull box-No. 5 unless otherwise indicated or noted.
3	9A(21)	Pull box-Additional designations or descriptions

3 = No. 3½ pull box
5 = No. 5 pull box
6 = No. 6 pull box
7 = No. 7 (Ceiling pull box)
8 = No. 8 (Pendant soffit pull box)
9 = No. 9 pull box
9A = No. 9A pull box

(C) = Communications pull box
(E) = Pull box with extension
(S) = Sprinkler control pull box
(21) = Anchor bolts and conduit for future installation of Type 21 Standard
(T) = Traffic pull box

VEHICLE DETECTORS

5 J 9 U

- U = Upper
- L = Lower
- Slot number in input file
- Input file (I or J)
- Phase

PROPOSED	EXISTING	
		Type A detector loop. Outline of sawcut shown.
		Type B detector loop. Outline of sawcut shown.
		Type C detector loop. Outline of sawcut shown.
		Type D detector loop. Outline of sawcut shown.
		Type E detector loop. Outline of sawcut shown.
		Type Q detector loop. Outline of sawcut shown.
		Magnetic detector
DH	dh	Detector handhole
		Microwave or video detection zone

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

ELECTRICAL SYSTEMS (SYMBOLS AND ABBREVIATIONS)

NO SCALE

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

REVISED STANDARD PLAN RSP ES-1C

2006 REVISED STANDARD PLAN RSP ES-1C

7-10-07

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SLO	41	20.7	56	57

REGISTERED ELECTRICAL ENGINEER

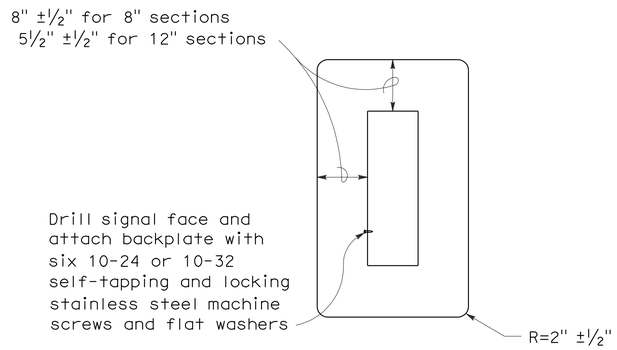
June 6, 2008
PLANS APPROVAL DATE

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

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

To accompany plans dated 12-14-09

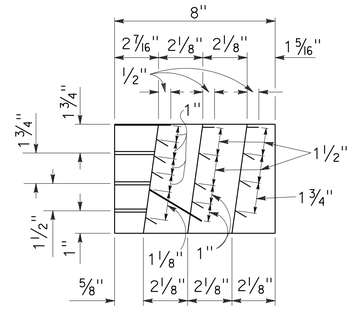
VISORS



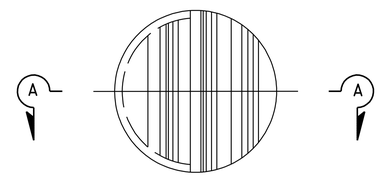
8" AND 12" SECTIONS

BACKPLATE

1/16" minimum thickness
3001-14 aluminum, or plastic when specified



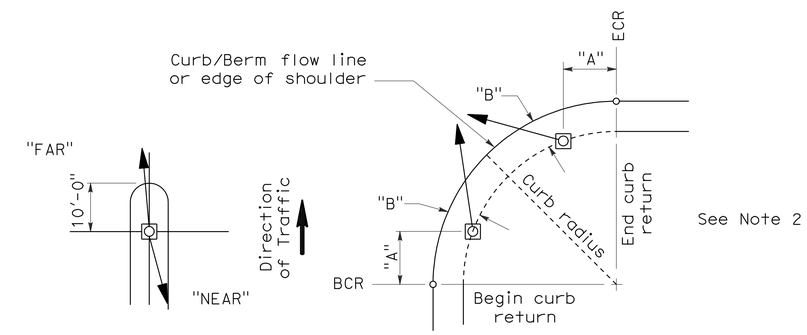
SECTION A-A



FRONT VIEW

DIRECTIONAL LOUVER

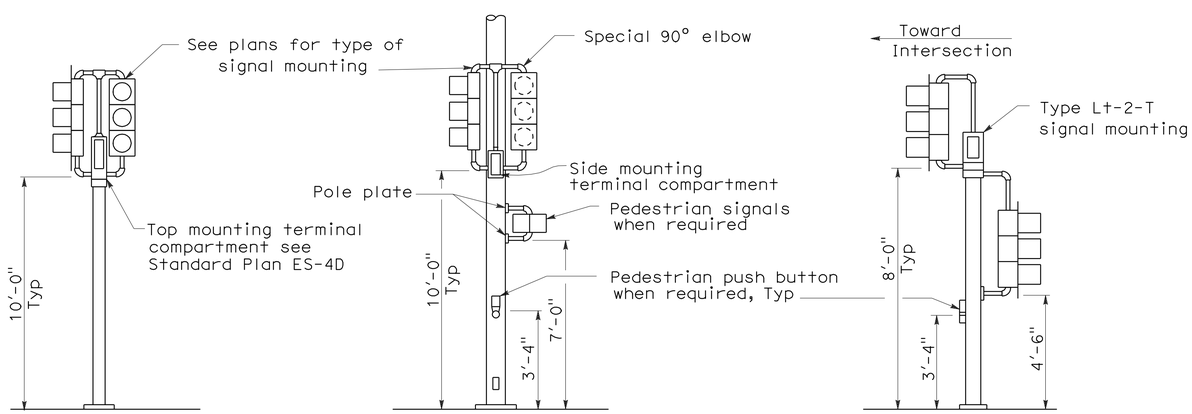
Directional louvers shall be oriented as directed by the Engineer and secured in place with one plated brass machine screw and nut.



NOTES:

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

SIGNAL STANDARD PLACEMENT DIMENSIONS AND EQUIPMENT LOCATIONS



TOP MOUNTED SIGNALS (TV)

Type 1-A, 1-B, 1-C and 1-D standard as indicated on the plans

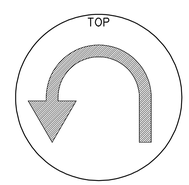
SIDE MOUNTED SIGNALS (SV AND SP)

Normally used on standards with luminaire or signal mast arm

LEFT TURN LANE SIGNAL

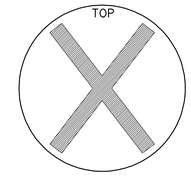
Type 1-A, 1-B, 1-C and 1-D standard as indicated on plans

TYPICAL SIGNAL INSTALLATIONS

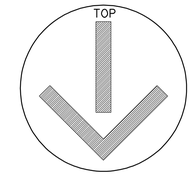


U-TURN SIGNAL FACE

BICYCLE SIGNAL FACE



LANE CONTROL SIGNAL FACE



LANE CONTROL SIGNAL FACE

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

ELECTRICAL SYSTEMS (SIGNAL HEADS AND MOUNTINGS)

NO SCALE

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

REVISED STANDARD PLAN RSP ES-4C

2006 REVISED STANDARD PLAN RSP ES-4C

5-19-08

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
05	SLO	41	20.7	57	57

REGISTERED ELECTRICAL ENGINEER

October 5, 2007
PLANS APPROVAL DATE

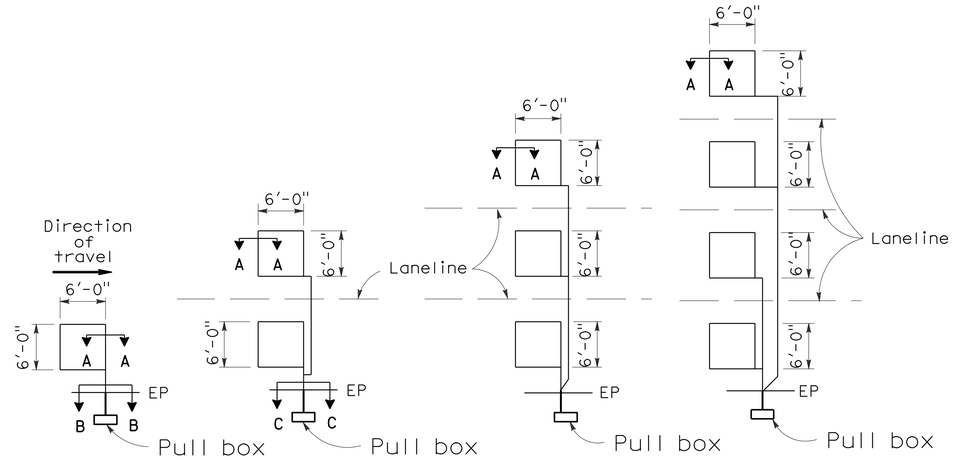
REGISTERED PROFESSIONAL ENGINEER Jeffery G. McRae No. E14512 Exp. 6-30-08 ELECTRICAL STATE OF CALIFORNIA

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

To accompany plans dated 12-14-09

LOOP INSTALLATION PROCEDURE

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

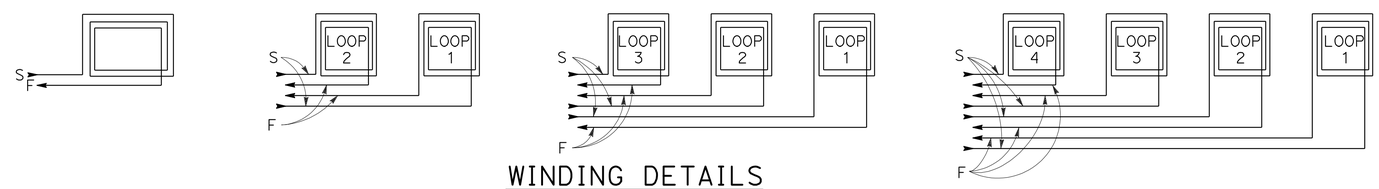


TYPE 1A INSTALLATION | TYPE 2A INSTALLATION | TYPE 3A INSTALLATION | TYPE 4A INSTALLATION

SAWCUT DETAILS

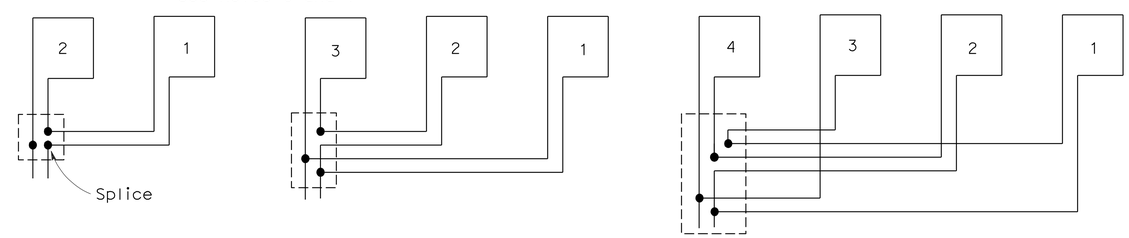
(Type A loop detector configurations illustrated)

1. 1A thru 4A = 1 Type A loop configuration in each lane.
2. 1B thru 4B = 1 Type B loop configuration in each lane.
3. 1C = 1 Type C loop configuration entering lanes as required.
4. 1D thru 4D = 1 Type D loop configuration in each lane.
5. 1E thru 4E = 1 Type E loop configuration in each lane.
6. 1Q thru 4Q = 1 Type Q loop configuration in each lane. (Use Type A, B, C, D, E or Q loop detector configurations only when specified or shown on plans)



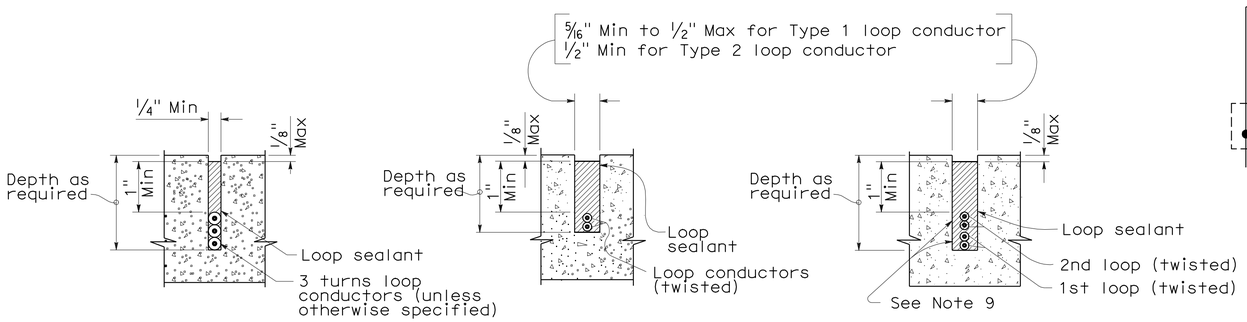
WINDING DETAILS

See Notes 6 and 7



TYPICAL LOOP CONNECTIONS

(Dashed lines represent the pull box)



SECTION A-A | SECTION B-B | SECTION C-C

SLOT DETAILS - TYPE 1 AND TYPE 2 LOOP CONDUCTOR

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

ELECTRICAL SYSTEMS (DETECTORS)

NO SCALE

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

REVISED STANDARD PLAN RSP ES-5A

2006 REVISED STANDARD PLAN RSP ES-5A

8-17-07