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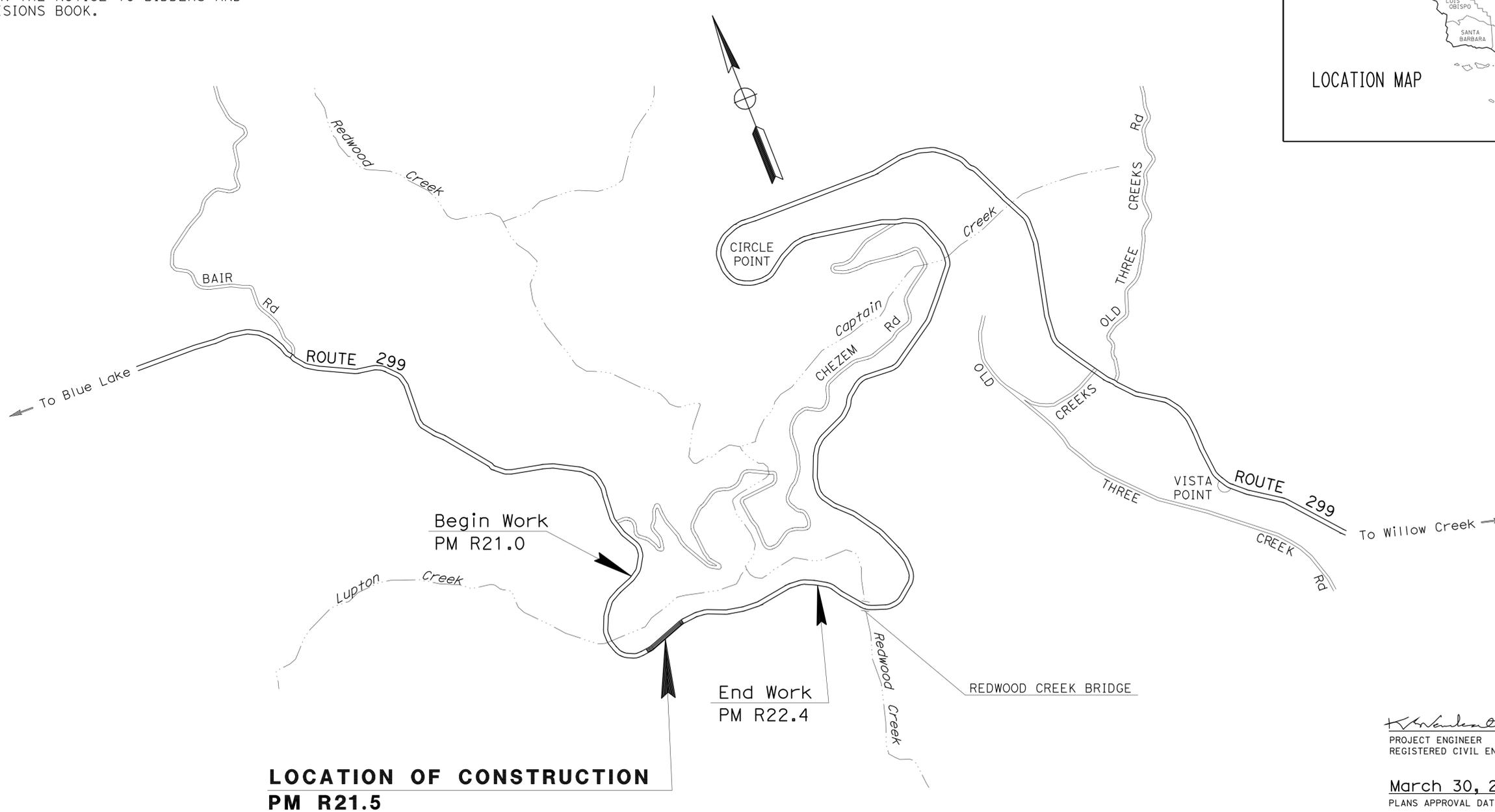
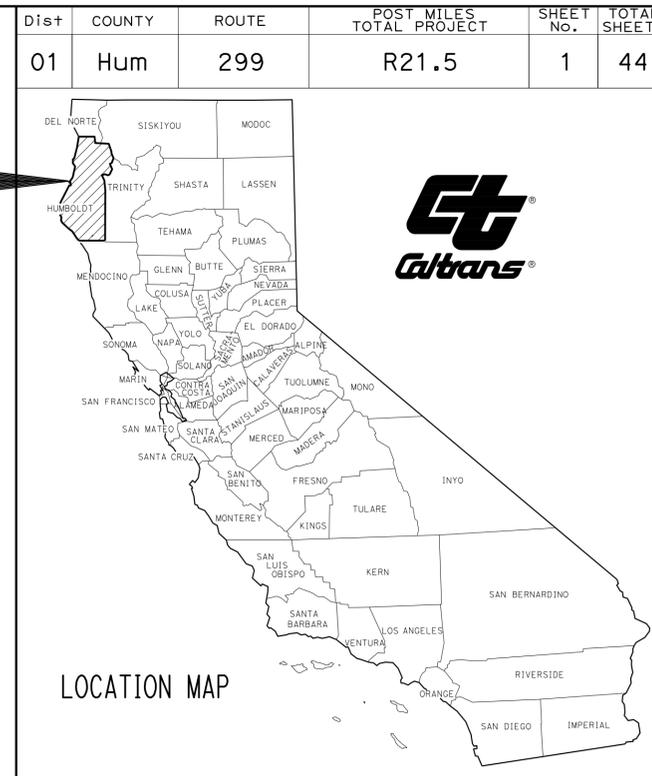
STRUCTURE PLANS

28-44	SIMSON CHRISTMAS PRARIE WALL Br No. 04E0019
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THE STANDARD PLANS LIST APPLICABLE TO THIS CONTRACT IS INCLUDED IN THE NOTICE TO BIDDERS AND SPECIAL PROVISIONS BOOK.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**PROJECT PLANS FOR CONSTRUCTION ON
STATE HIGHWAY**
IN HUMBOLDT COUNTY
ABOUT 16 MILES EAST OF BLUE LAKE
AT 0.8 MILE WEST OF REDWOOD CREEK BRIDGE

TO BE SUPPLEMENTED BY STANDARD PLANS DATED MAY 2006



**LOCATION OF CONSTRUCTION
PM R21.5**

NO SCALE

Kana Venkathan 2-19-09
PROJECT ENGINEER DATE
REGISTERED CIVIL ENGINEER

March 30, 2009
PLANS APPROVAL DATE

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CONTRACT No. **01-472104**

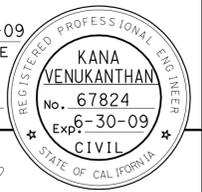
PROJECT MANAGER
FRANK DEMLING

DESIGN ENGINEER
KANA VENKANTHAN

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Hum	299	R21.5	2	44

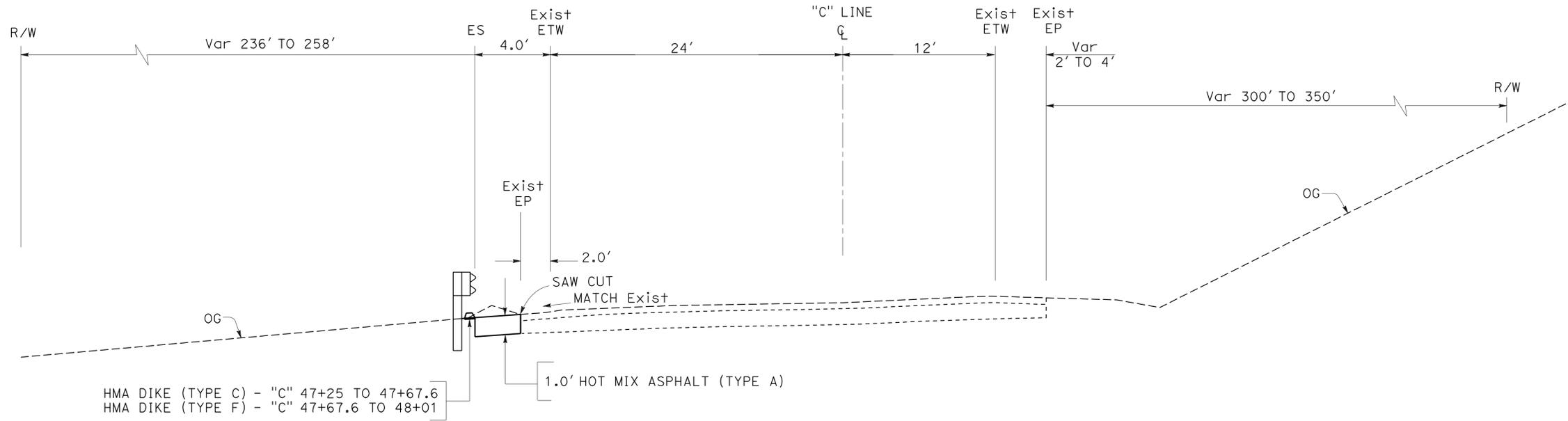
<i>Kana Venukanthan</i>	2-19-09
REGISTERED CIVIL ENGINEER	DATE
3-30-09	
PLANS APPROVAL DATE	

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NOTES:

1. DIMENSIONS OF THE PAVEMENT STRUCTURES (STRUCTURAL SECTION) ARE SUBJECT TO TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.
2. SUPERELEVATION AS SHOWN OR AS DIRECTED BY THE ENGINEER.
3. EXTEND TOP LAYER OF HMA LAYER PLACED ON THE SHOULDER UNDER DIKE WITH NO JOINT AT THE ES.



ROUTE 299
"C" 47+03 TO 48+01

TYPICAL CROSS SECTIONS
NO SCALE

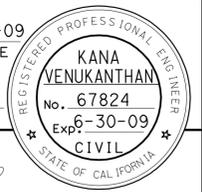
X-1

09:27 23-JUN-2009 frmikes I R: NPSE\01-472101\147210ca001.dgn
 STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 NORTH REGION
 OFFICE OF DESIGN, SOUTH
 DESIGN BRANCH 13
 OSCAR VASQUEZ
 FUNCTIONAL SUPERVISOR
 CHECKED BY
 CALCULATED-DESIGNED BY
 KANA VENUKANTHAN
 KANA VENUKANTHAN
 REVISED BY
 DATE REVISED

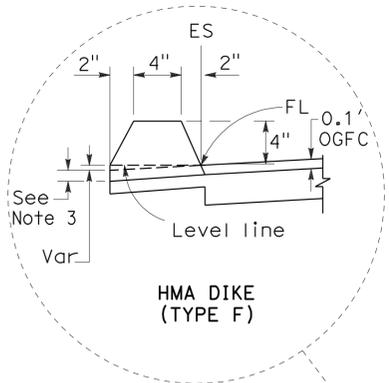
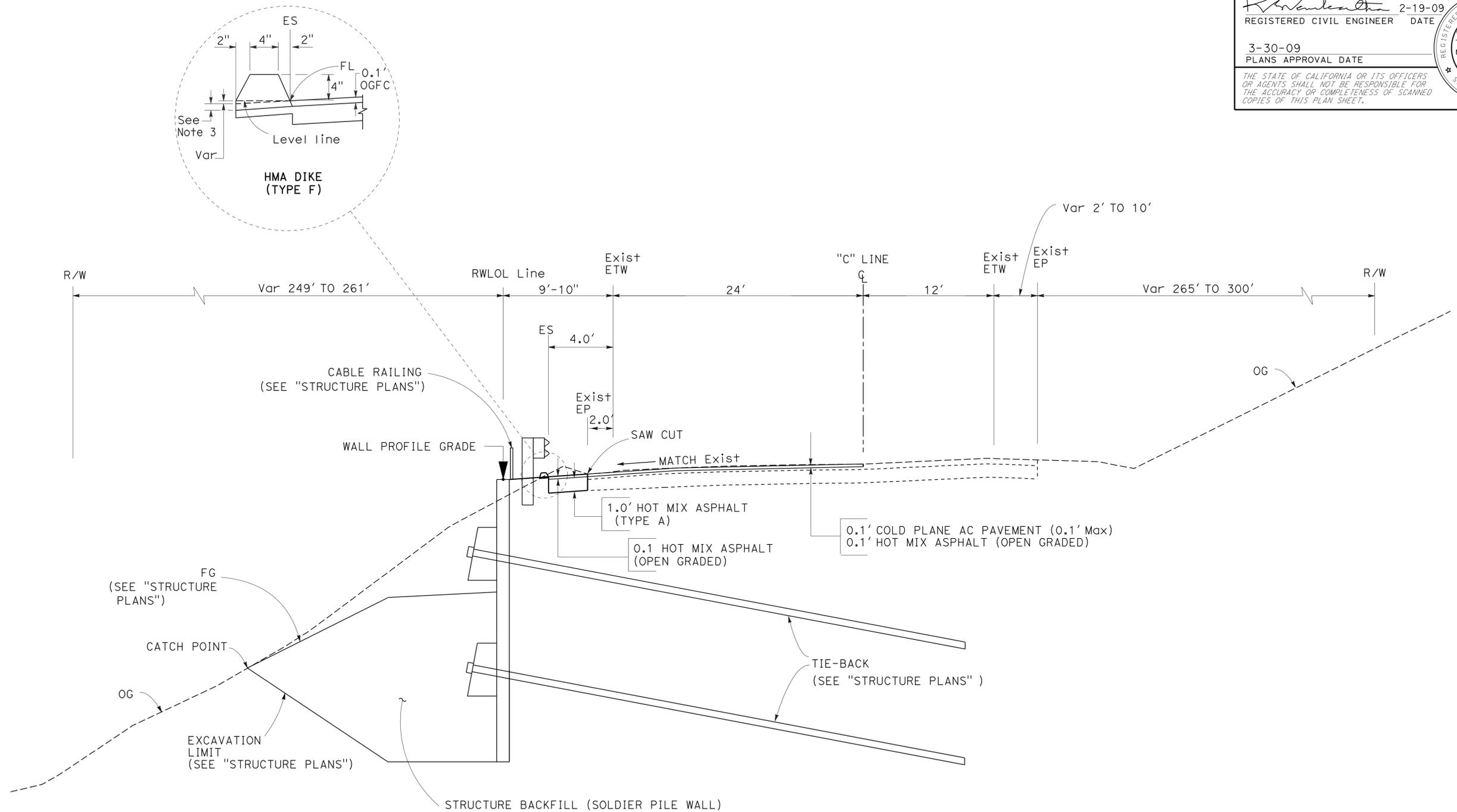
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Hum	299	R21.5	3	44

<i>Kana Venukanthan</i>	2-19-09
REGISTERED CIVIL ENGINEER	DATE
3-30-09	
PLANS APPROVAL DATE	

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STATE OF CALIFORNIA	DEPARTMENT OF TRANSPORTATION	
Caltrans	NORTH REGION	
	OFFICE OF DESIGN, SOUTH	
	DESIGN BRANCH 13	
FUNCTIONAL SUPERVISOR	OSCAR VASQUEZ	
CALCULATED-DESIGNED BY	CHECKED BY	
KANA VENUKANTHAN	KANA VENUKANTHAN	
REVISED BY	DATE REVISED	



ROUTE 299
STA 48+01 TO 50+06

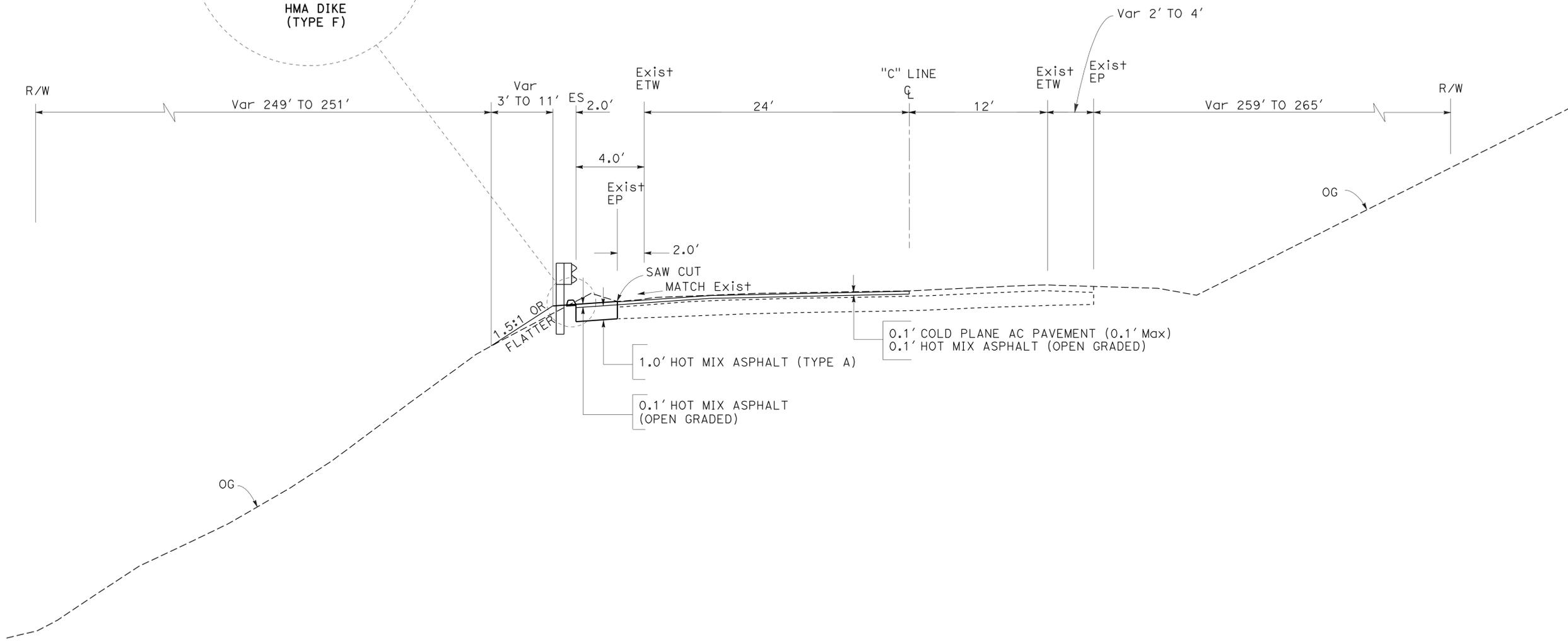
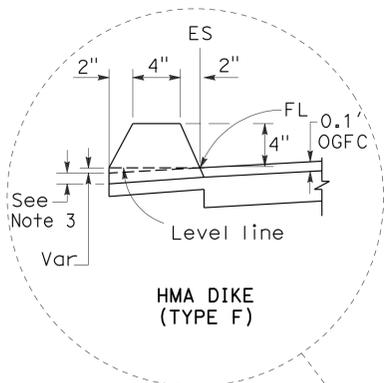
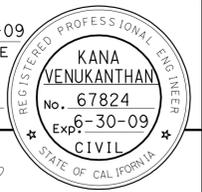
TYPICAL CROSS SECTIONS
NO SCALE

X-2

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Hum	299	R21.5	4	44

<i>Kana Venkathana</i>	2-19-09
REGISTERED CIVIL ENGINEER	DATE
3-30-09	
PLANS APPROVAL DATE	

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ROUTE 299
"C" 50+06 TO 50+30

TYPICAL CROSS SECTIONS
NO SCALE

X-3

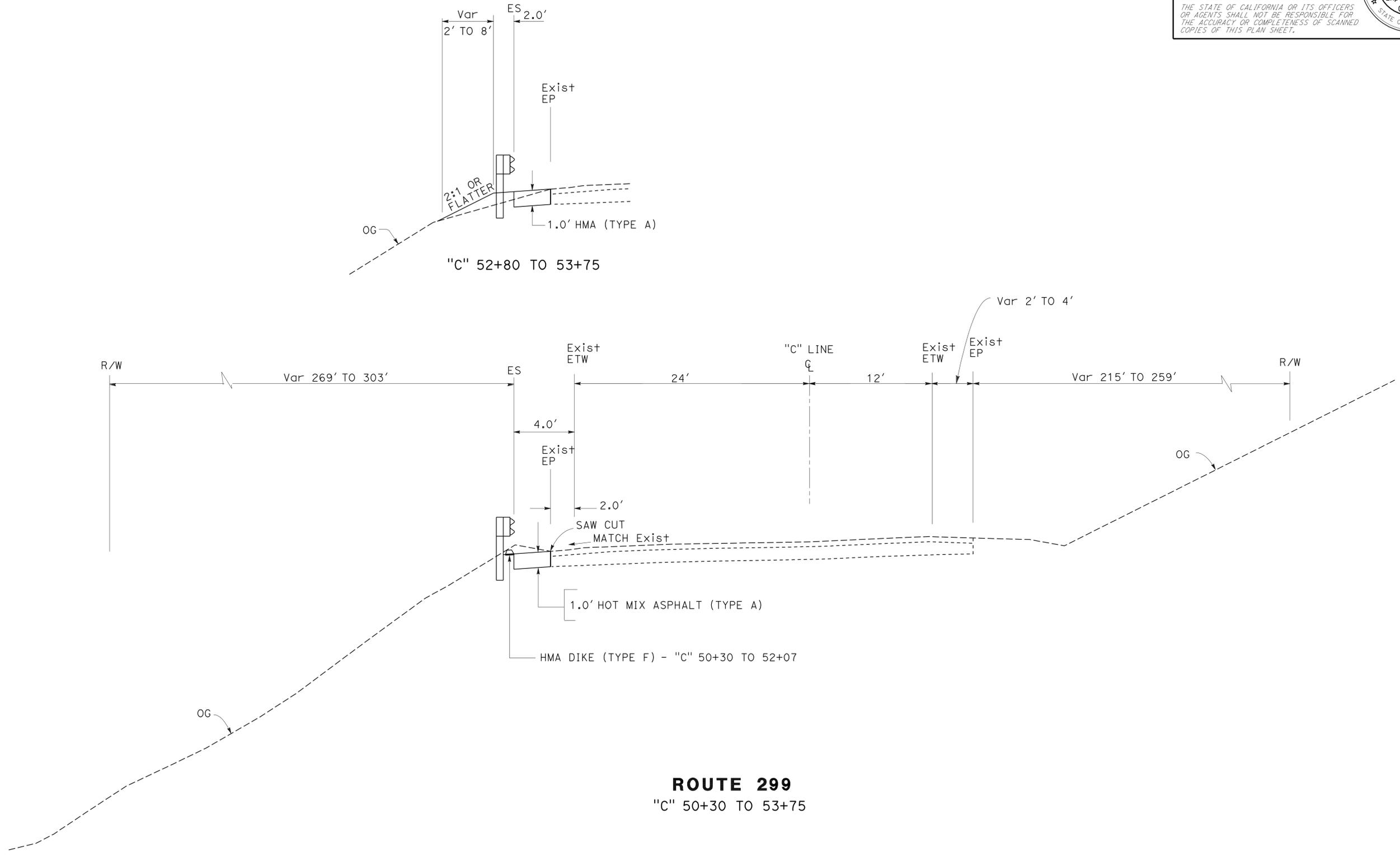
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STATE OF CALIFORNIA	DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	OSCAR VASQUEZ
Caltrans	NORTH REGION	CHECKED BY	KANA VENUKANTHAN
	OFFICE OF DESIGN, SOUTH	DESIGNED BY	KANA VENUKANTHAN
	DESIGN BRANCH 13	REVISOR	DATE
		REVISOR	DATE
		REVISOR	DATE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Hum	299	R21.5	5	44

KANA VENUKANTHAN 2-19-09
 REGISTERED CIVIL ENGINEER DATE
 3-30-09
 PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER
 KANA VENUKANTHAN
 No. 67824
 Exp. 6-30-09
 CIVIL



ROUTE 299
 "C" 50+30 TO 53+75

TYPICAL CROSS SECTIONS

NO SCALE

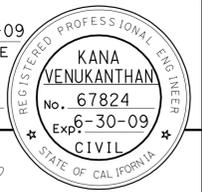
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STATE OF CALIFORNIA	DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	OSCAR VASQUEZ
North Region	OFFICE OF DESIGN, SOUTH	CHECKED BY	KANA VENUKANTHAN
DESIGN BRANCH 13		DESIGNED BY	KANA VENUKANTHAN
		REVISOR	DATE
		REVISOR	DATE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Hum	299	R21.5	6	44

<i>Kana Venkathan</i>	2-19-09
REGISTERED CIVIL ENGINEER	DATE
3-30-09	
PLANS APPROVAL DATE	

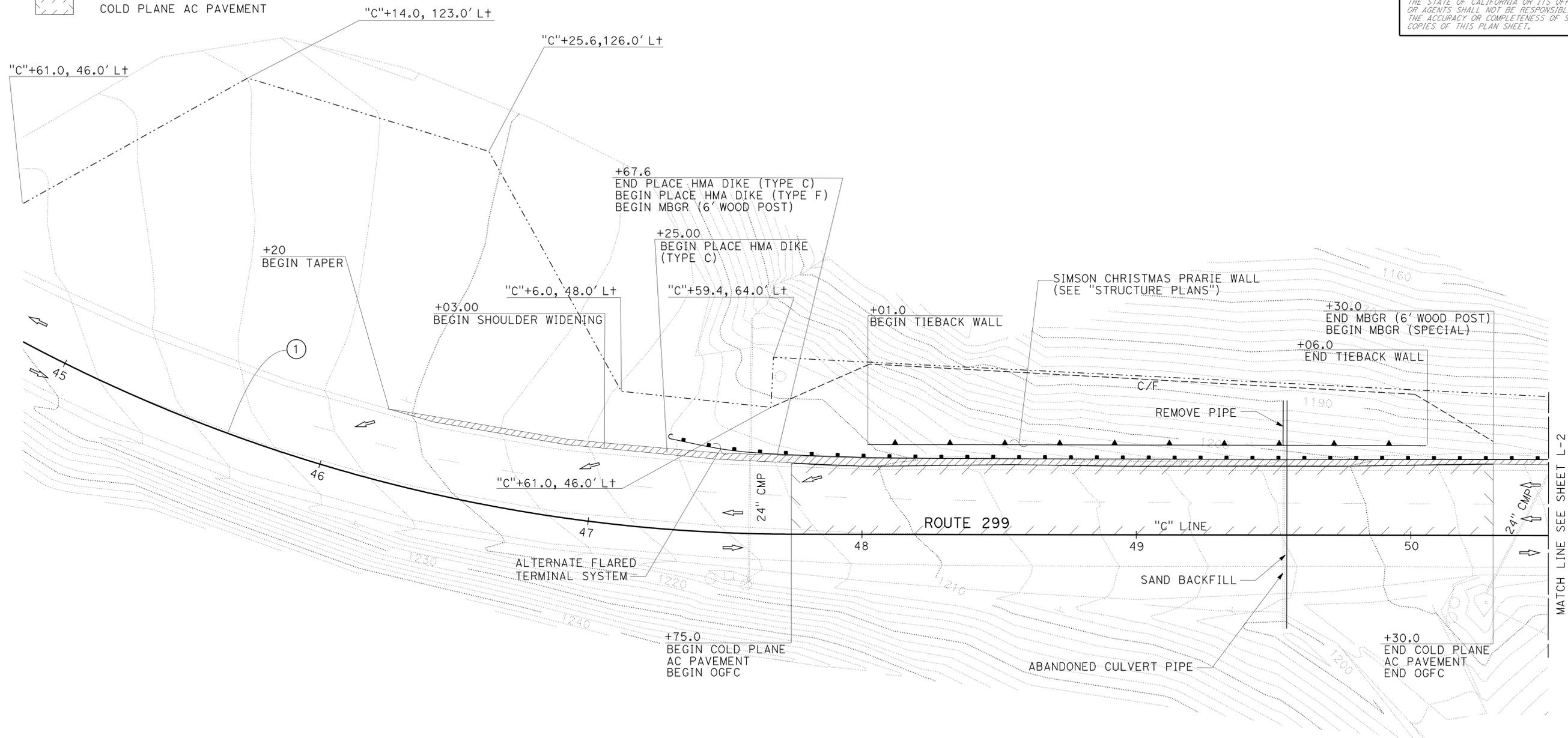
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ABBREVIATION:
 OGFC HOT MIX ASPHALT (OPEN GRADED)

NOTE:
 1. FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.

LEGEND:
 - - - - - TEMPORARY FENCE (TYPE ESA)
 [Hatched Box] SHOULDER WIDENING
 [Hatched Box] COLD PLANE AC PAVEMENT



CURVE DATA

No.	R	Δ	T	L
(1)	600.00'	142° 36' 02"	1772.65'	1493.31'

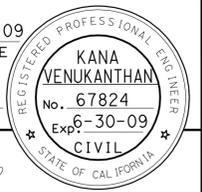
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 STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 NORTH REGION
 OFFICE OF DESIGN, SOUTH
 DESIGN BRANCH 13
 Et Caltrans®
 FUNCTIONAL SUPERVISOR OSCAR VASQUEZ
 CALCULATED/DESIGNED BY
 CHECKED BY
 KANA VENUKANTHAN
 KANA VENUKANTHAN
 REVISED BY
 DATE REVISED

LAYOUT
 SCALE: 1"=20'
L-1

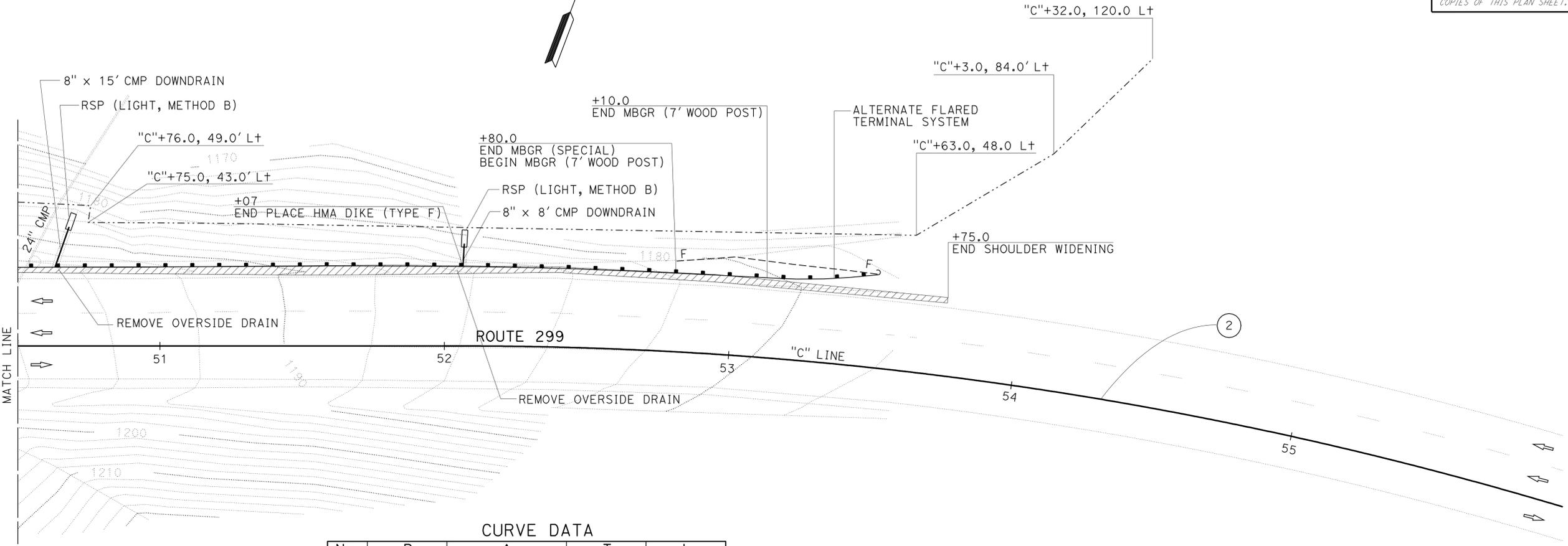
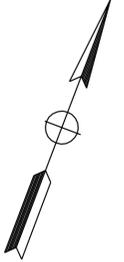
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Hum	299	R21.5	7	44

<i>Kana Venkathan</i>	2-19-09
REGISTERED CIVIL ENGINEER	DATE
3-30-09	
PLANS APPROVAL DATE	

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NOTE:
1. FOR COMPLETE RIGHT OF WAY AND ACCURATE ACCESS DATA, SEE RIGHT OF WAY RECORD MAPS AT DISTRICT OFFICE.



CURVE DATA

No.	R	Δ	T	L
(2)	1350.00'	36°47'19"	448.94'	866.81'

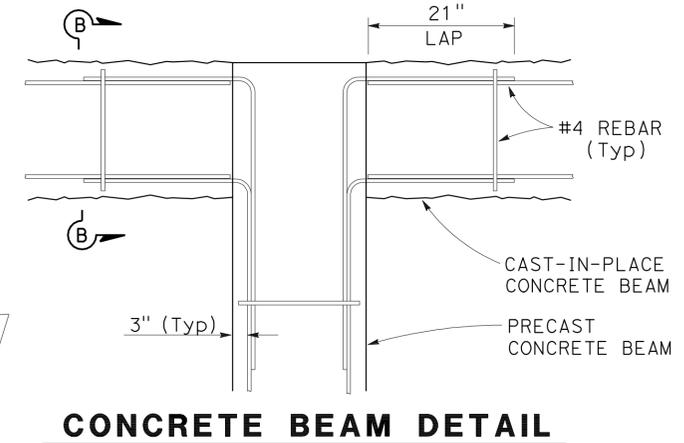
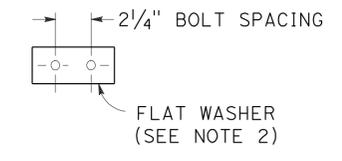
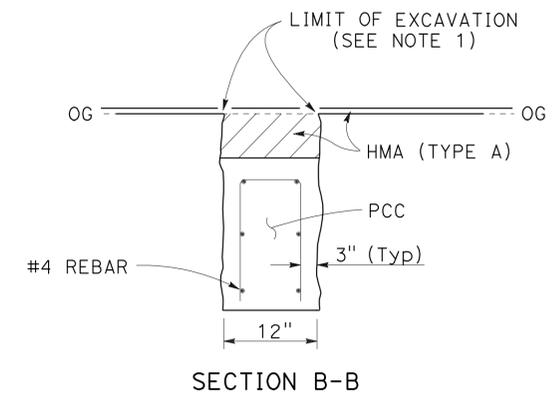
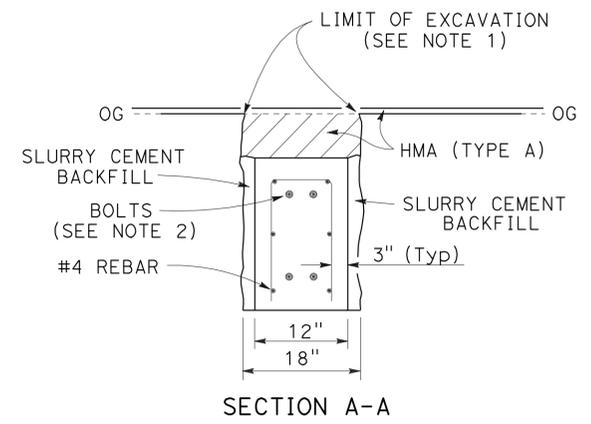
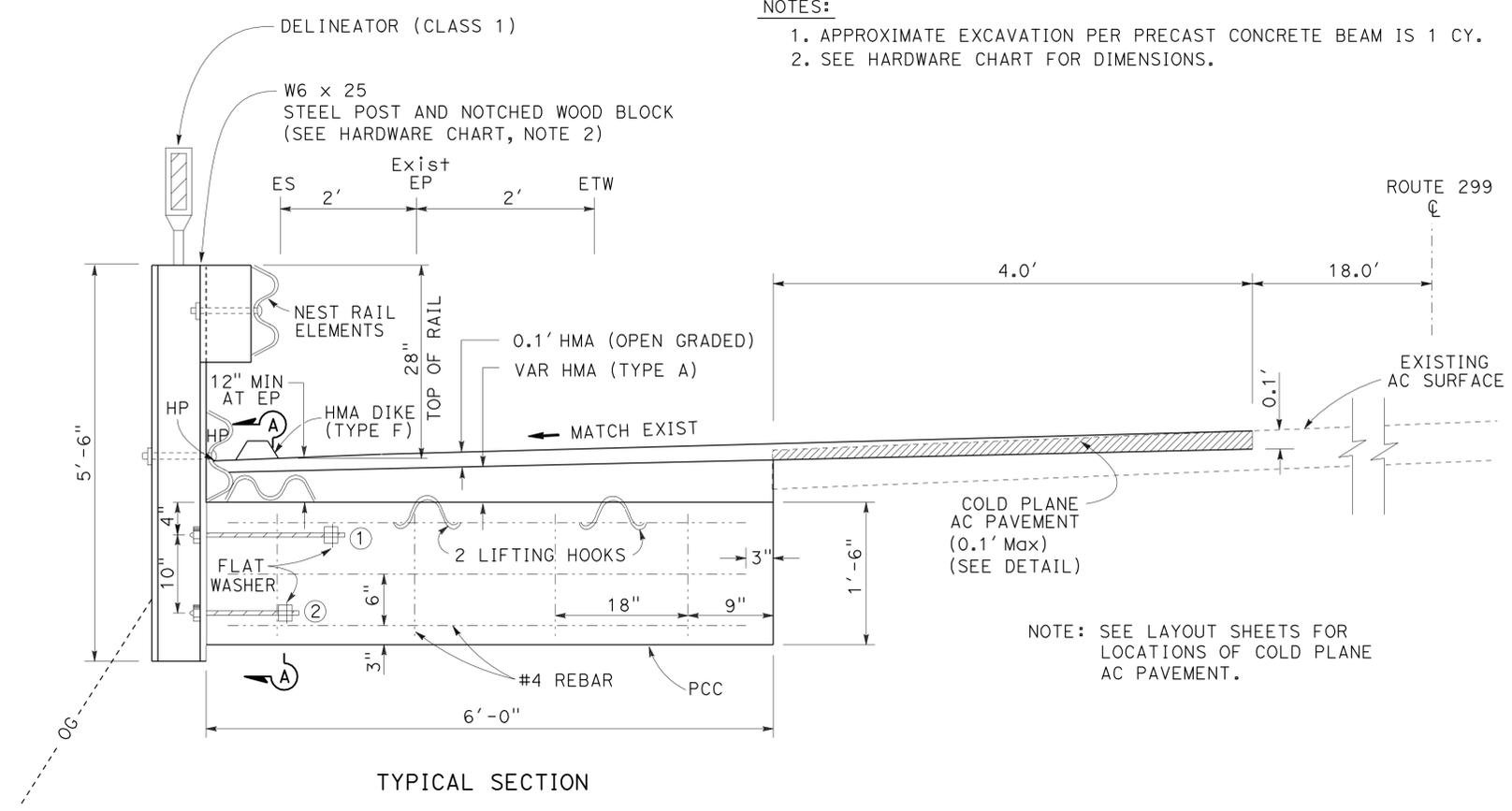
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 STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 NORTH REGION
 OFFICE OF DESIGN, SOUTH DESIGN BRANCH 13
 Et Caltrans
 FUNCTIONAL SUPERVISOR OSCAR VASQUEZ
 CALCULATED/DESIGNED BY CHECKED BY
 KANA VENUKANTHAN KANA VENUKANTHAN
 REVISED BY DATE REVISED
 KANA VENUKANTHAN
 x
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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Hum	299	R21.5	9	44

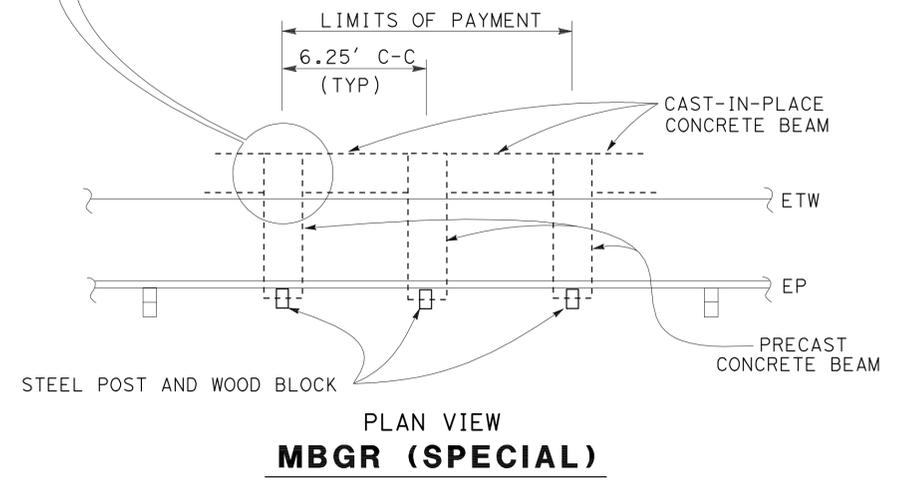
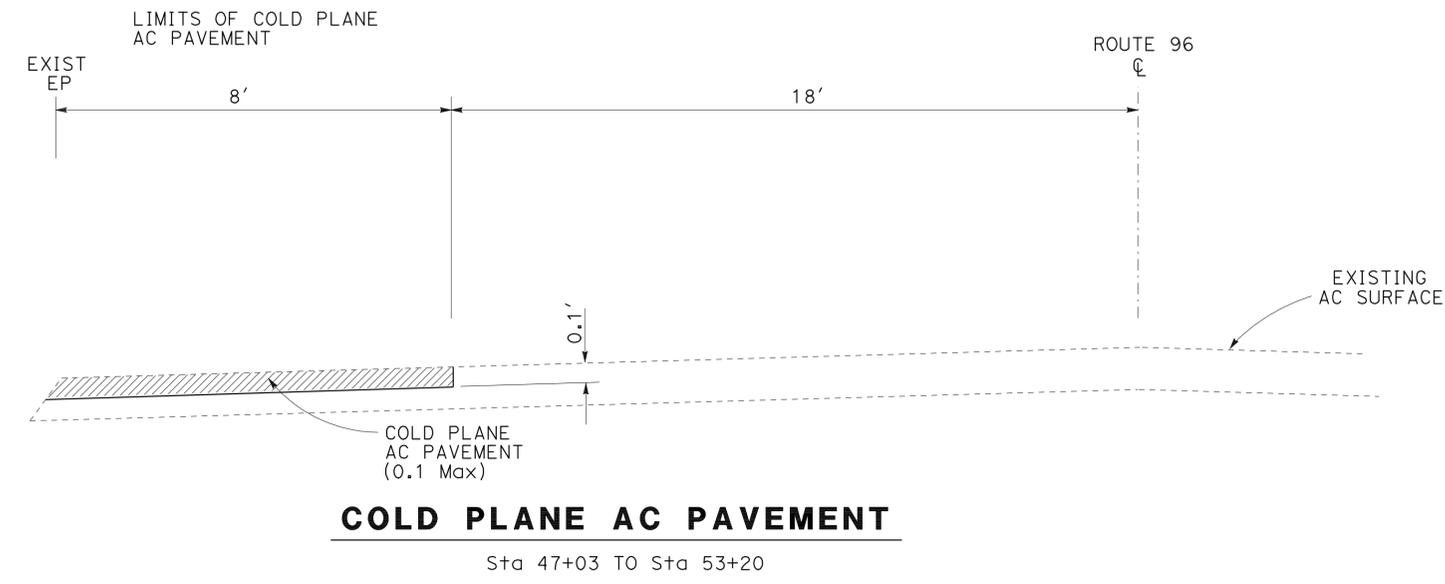
REGISTERED CIVIL ENGINEER DATE 2-19-09
 KANA VENUKANTHAN No. 67824 Exp. 3-30-09 CIVIL
 PLANS APPROVAL DATE 3-30-09
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NOTES:
 1. APPROXIMATE EXCAVATION PER PRECAST CONCRETE BEAM IS 1 CY.
 2. SEE HARDWARE CHART FOR DIMENSIONS.

LEGEND:
 = COLD PLANE AC PAVEMENT



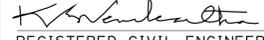
HARDWARE CHART FOR PRECAST CONCRETE BEAM					
CASE	STEEL POST	WOOD BLOCK	①	②	BOLT SPACING
PRECAST BEAM	W6 x 25	6" x 8" x 1'-2"	2 EA 3/4" DIA x 1'-6" HS BOLTS (THREADED BOTH ENDS) WITH 3 EA HEX NUTS AND 3" x 7" x 1/4" FLAT WASHER	2 EA 5/8" DIA x 1' HS BOLTS (THREADED BOTH ENDS) WITH 3 EA HEX NUTS AND 2" x 7" x 1/4" FLAT WASHER	2 1/4"

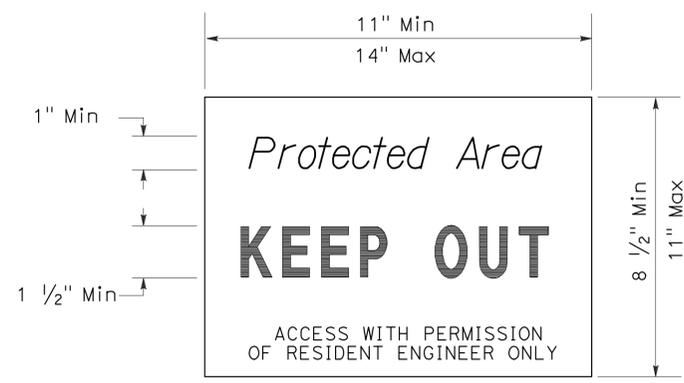


CONSTRUCTION DETAILS
 NO SCALE

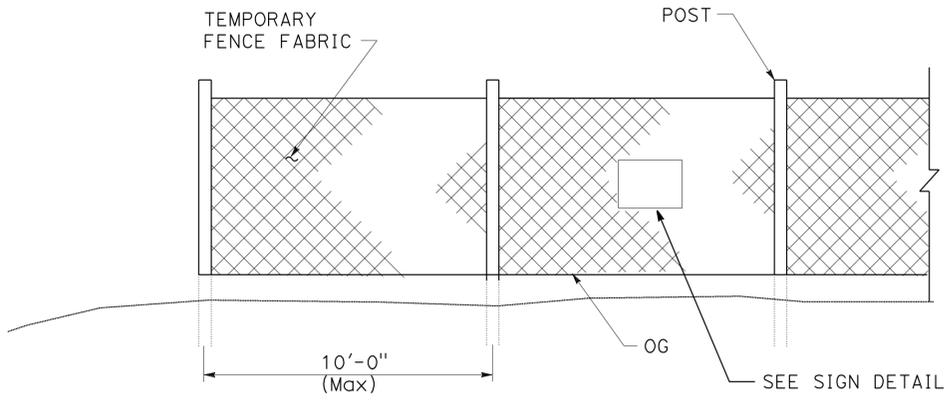
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 STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 NORTH REGION
 OFFICE OF DESIGN, SOUTH DESIGN BRANCH 13
 KANA VENUKANTHAN
 KANA VENUKANTHAN
 OSCAR VASQUEZ
 FUNCTIONAL SUPERVISOR
 REVISIONS: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION			
NORTH REGION			
OFFICE OF DESIGN, SOUTH DESIGN BRANCH 13			
FUNCTIONAL SUPERVISOR		OSCAR VASQUEZ	
CALCULATED-DESIGNED BY	CHECKED BY		
KANA VENUKANTHAN	KANA VENUKANTHAN		
REVISED BY	DATE REVISED		

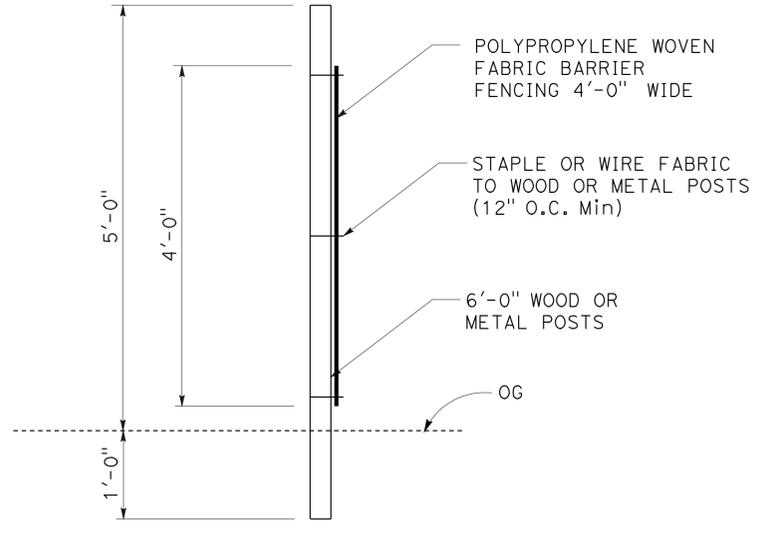
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Hum	299	R21.5	10	44
			2-19-09	DATE	
REGISTERED CIVIL ENGINEER					
3-30-09			PLANS APPROVAL DATE		
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SIGN DETAIL



TEMPORARY FENCE (TYPE ESA)



SECTION

TEMPORARY FENCE (TYPE ESA)

CONSTRUCTION DETAILS

NO SCALE

C-3

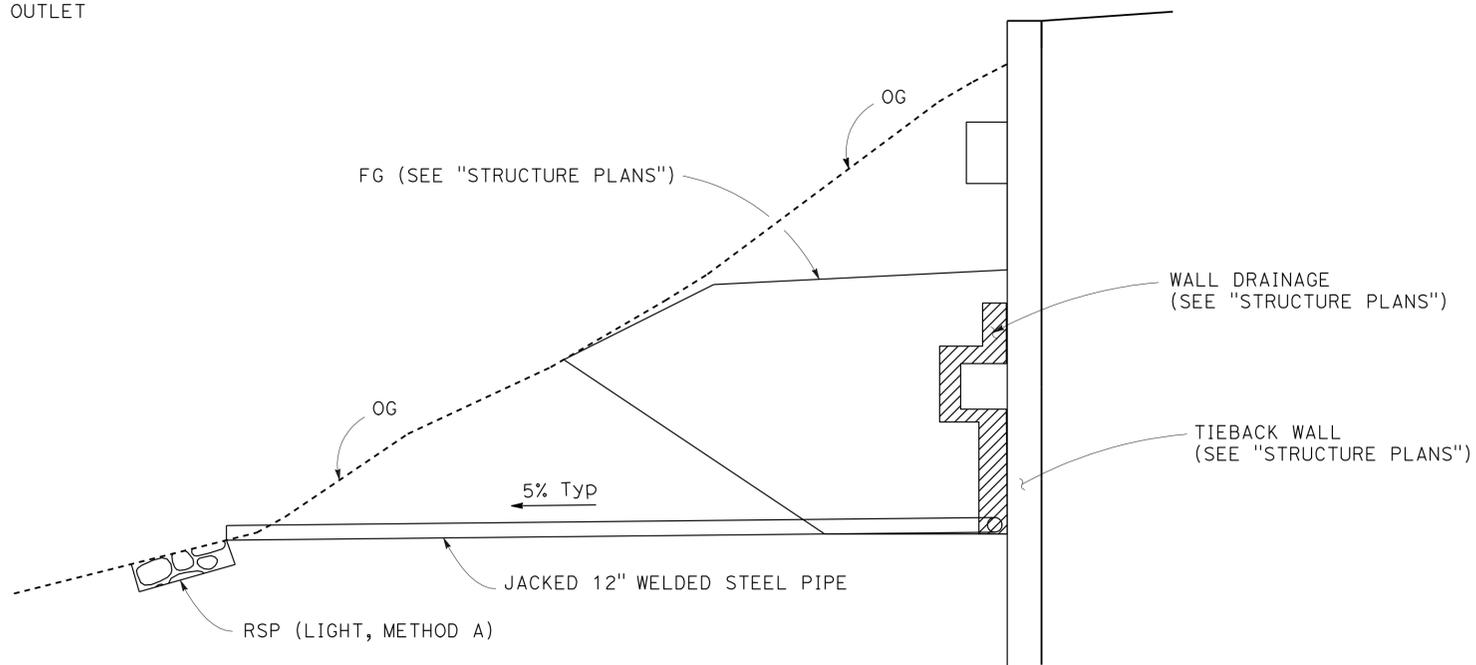
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01	Hum	299	R21.5	11	44

<i>Kana Venkath</i>	2-19-09
REGISTERED CIVIL ENGINEER	DATE
3-30-09	
PLANS APPROVAL DATE	

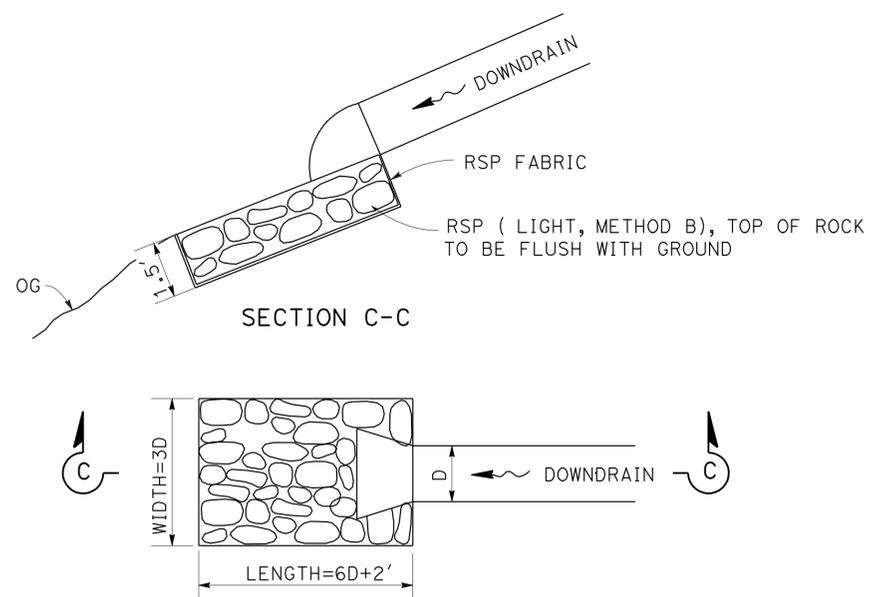
REGISTERED PROFESSIONAL ENGINEER
KANA VENUKANTHAN
 No. 67824
 Exp. 6-30-09
 CIVIL
 STATE OF CALIFORNIA

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NOTE: EXACT LOCATION OF RETAINING WALL, UNDERDRAIN OUTLET WILL BE DETERMINED BY THE ENGINEER.



OUTLET PIPE FOR WALL DRAIN

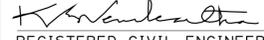


ROCK SLOPE PROTECTION AT DRAINAGE OUTLET

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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION			
NORTH REGION			
OFFICE OF DESIGN, SOUTH DESIGN BRANCH 13			
FUNCTIONAL SUPERVISOR		OSCAR VASQUEZ	
CALCULATED-DESIGNED BY	CHECKED BY		
KANA VENUKANTHAN	KANA VENUKANTHAN	REVISED BY	DATE REVISED



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Hum	299	R21.5	12	44

	
REGISTERED CIVIL ENGINEER	DATE 2-19-09
3-30-09 PLANS APPROVAL DATE	
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>	

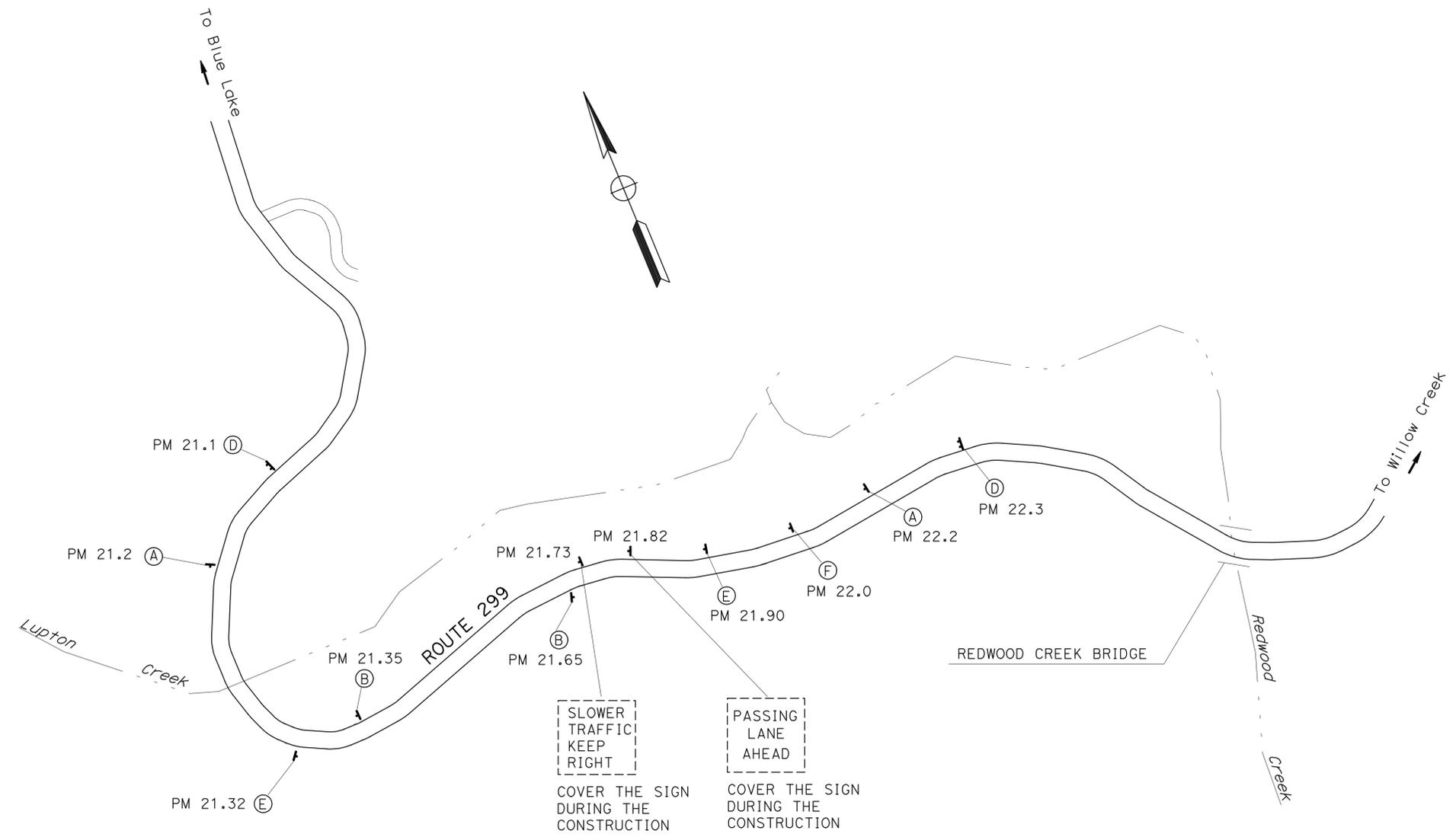
REGISTERED PROFESSIONAL ENGINEER
KANA VENUKANTHAN
 No. 67824
 Exp. 3-30-09
 CIVIL
STATE OF CALIFORNIA

STATIONARY MOUNTED CONSTRUCTION AREA SIGNS

SIGN No.	SIGN CODE	SIGN MESSAGE	PANEL SIZE (inch)	No. OF POST AND SIZE (inch)	No. OF SIGNS	COVER EXIST SIGN
Ⓐ	C18	ROAD CONSTRUCTION AHEAD	48 x 48	1 - 4 x 6	2	
	SP1	STORM REPAIR	30 x 24			
Ⓑ	C13	END CONSTRUCTION	48 x 18	1 - 4 x 4	2	
Ⓓ	C40	TRAFFIC FINES DOUBLED IN CONSTRUCTION ZONES	108 x 42	2 - 4 x 6	2	
Ⓔ	SP2	WATCH FOR BICYCLES	36 x 24	1 - 4 x 4	2	
Ⓕ	W15	ROAD NARROWS	36 x 36	1 - 4 x 6	1	
	C29	1000 FT	24 x 12			
	R56	SLOWER TRAFFIC KEEP RIGHT				1
	R68	PASSING LANE AHEAD				1



NOTE: EXACT SIGN LOCATION TO BE DETERMINED BY THE ENGINEER.



CONSTRUCTION AREA SIGNS

NO SCALE **CS-1**

THIS PLAN ACCURATE FOR CONSTRUCTION AREA SIGN WORK ONLY.

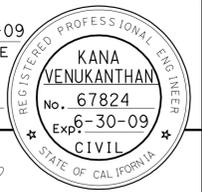
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 STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 NORTH REGION
 OFFICE OF DESIGN, SOUTH
 DESIGN BRANCH 13
 OSCAR VASQUEZ
 KANA VENUKANTHAN
 KANA VENUKANTHAN

LAST REVISION DATE PLOTTED => 23-JUN-2009
 00-00-00 TIME PLOTTED => 09:28

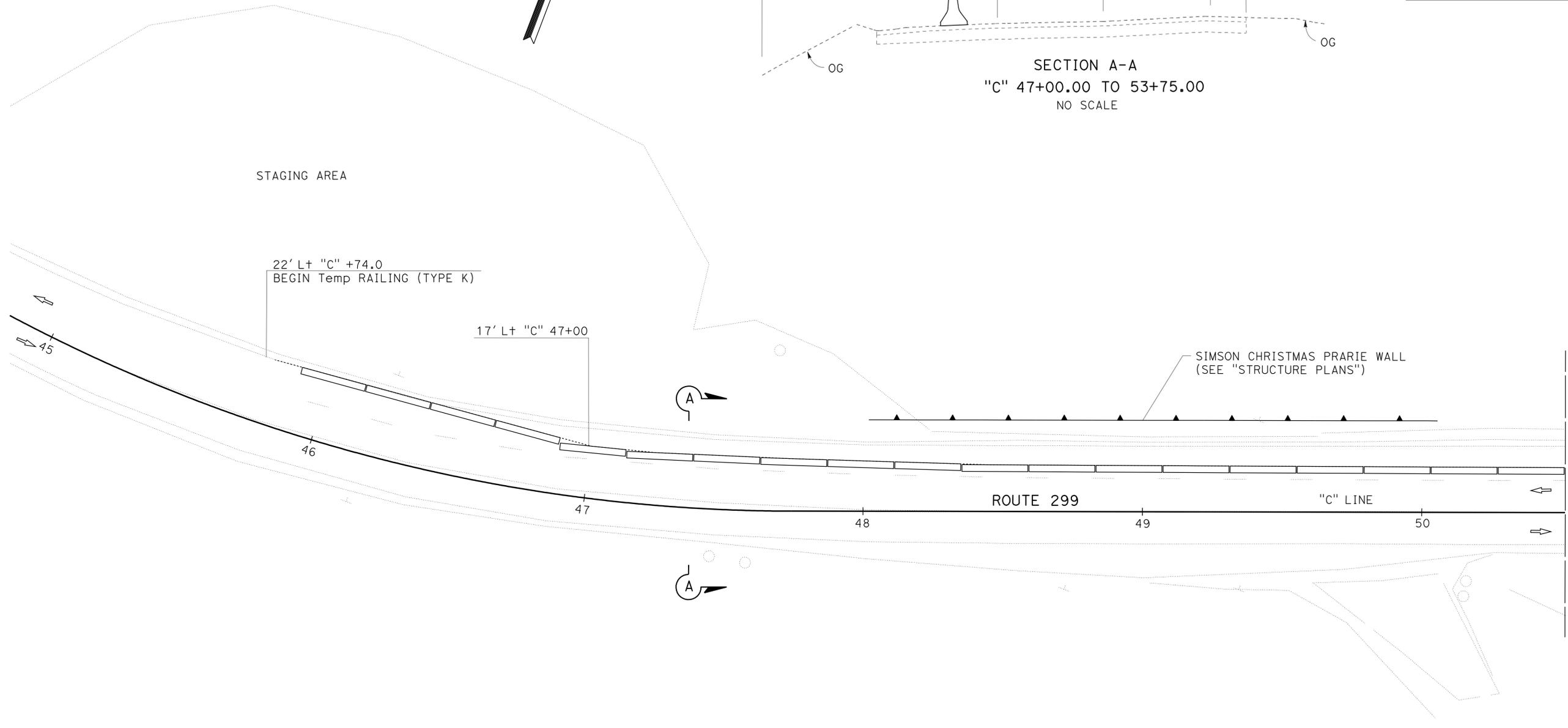
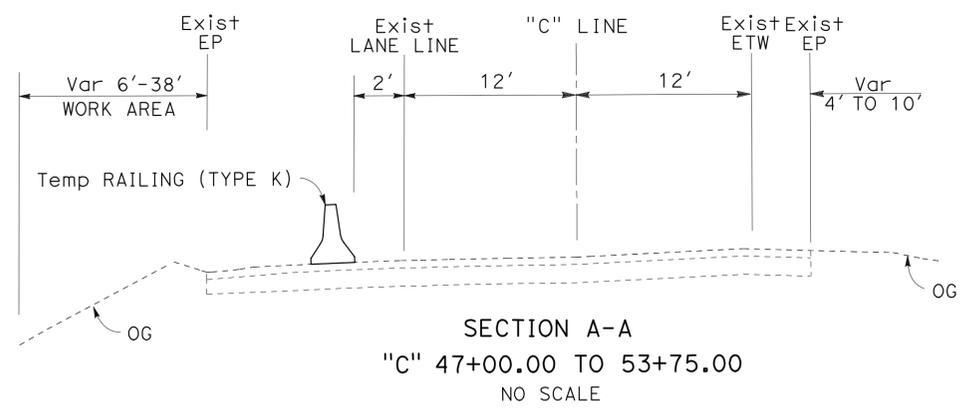
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Hum	299	R21.5	13	44

<i>Kana Venukanthan</i>	2-19-09
REGISTERED CIVIL ENGINEER	DATE
3-30-09	
PLANS APPROVAL DATE	

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- LEGEND:**
- DIRECTION OF TRAFFIC
 - CHANNELIZER (SURFACE MOUNTED)
 - Temp RAILING (TYPE K)



09:28 23-JUN-2009 frmikesl R:\NPSE\01-472101\147210md001.dgn
 STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 NORTH REGION
 OFFICE OF DESIGN, SOUTH
 DESIGN BRANCH 13
 KANA VENUKANTHAN
 KANA VENUKANTHAN
 OSCAR VASQUEZ
 FUNCTIONAL SUPERVISOR
 CALCULATED-DESIGNED BY
 CHECKED BY
 REVISED BY
 DATE REVISED

THIS PLAN ACCURATE FOR TRAFFIC HANDLING WORK ONLY.



USERNAME => frmikesl
DGN FILE => 147210md001.dgn

CU 03263 EA 472101

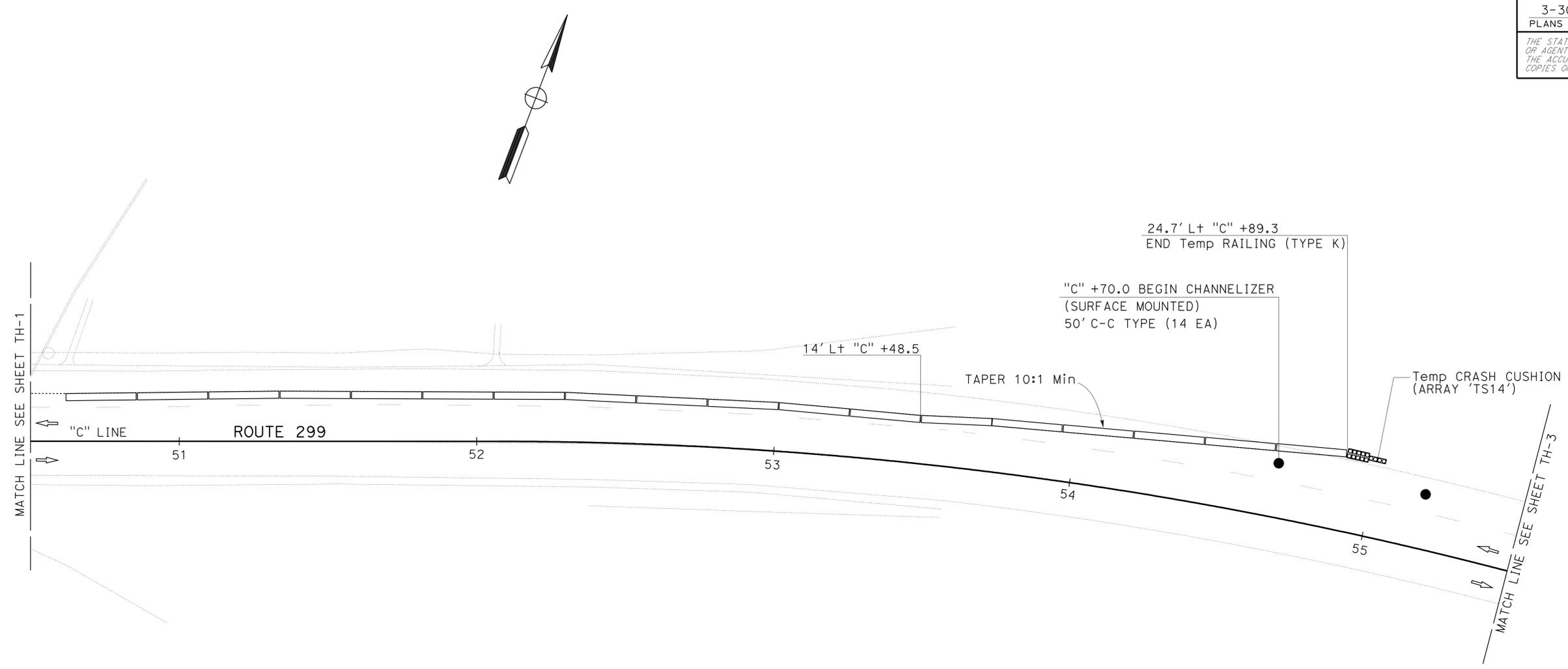
TRAFFIC HANDLING PLAN
SCALE: 1"=20'
TH-1

LAST REVISION | DATE PLOTTED => 23-JUN-2009
 00-00-00 | TIME PLOTTED => 09:28

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 STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 NORTH REGION
 OFFICE OF DESIGN, SOUTH
 DESIGN BRANCH 13
 Oscar Vasquez
 Functional Supervisor
 Oscar Vasquez
 Functional Supervisor
 Kana Venukanthan
 Calculated-Designed By
 Kana Venukanthan
 Checked By
 Kana Venukanthan
 Revised By
 Kana Venukanthan
 Date Revised

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Hum	299	R21.5	14	44

Kana Venukanthan 2-19-09
 REGISTERED CIVIL ENGINEER DATE
 3-30-09
 PLANS APPROVAL DATE
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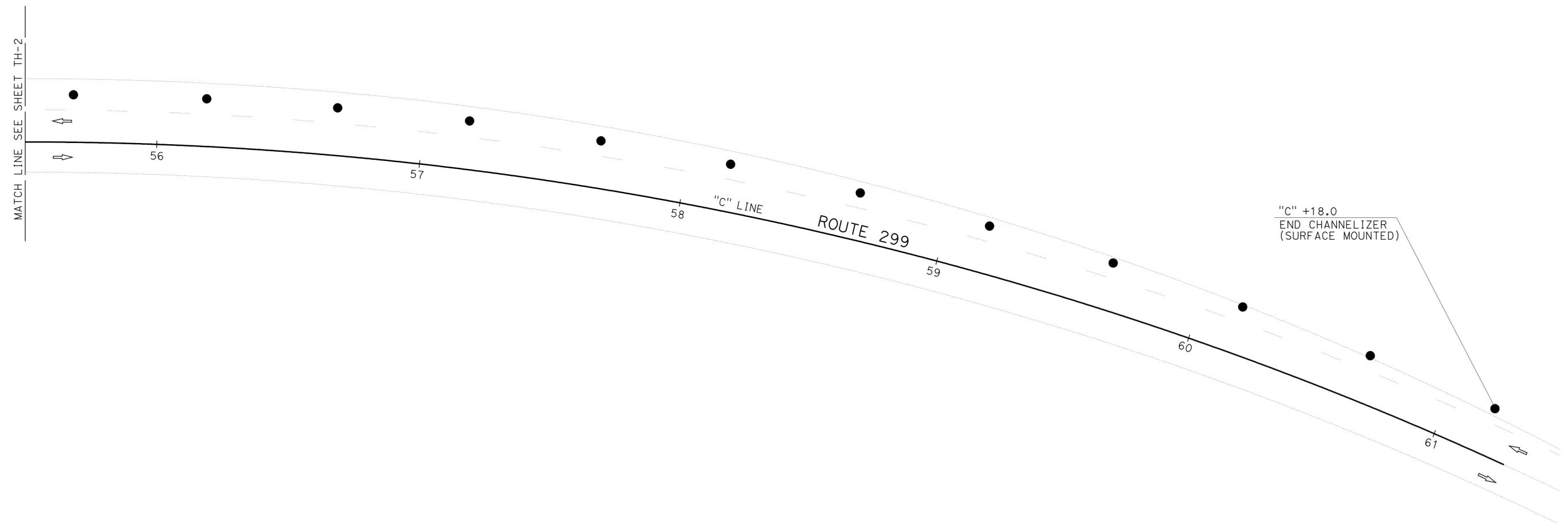


THIS PLAN ACCURATE FOR TRAFFIC HANDLING WORK ONLY.

TRAFFIC HANDLING PLAN
 SCALE: 1"=20'
TH-2

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Hum	299	R21.5	15	44
				2-19-09	DATE
		REGISTERED CIVIL ENGINEER			
		3-30-09		PLANS APPROVAL DATE	
					
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FUNCTIONAL SUPERVISOR	OSCAR VASQUEZ	CALCULATED-DESIGNED BY	KANA VENUKANTHAN
CHECKED BY	KANA VENUKANTHAN	REVISED BY	
		DATE REVISED	



TRAFFIC HANDLING PLAN
SCALE: 1"=20'
TH-3

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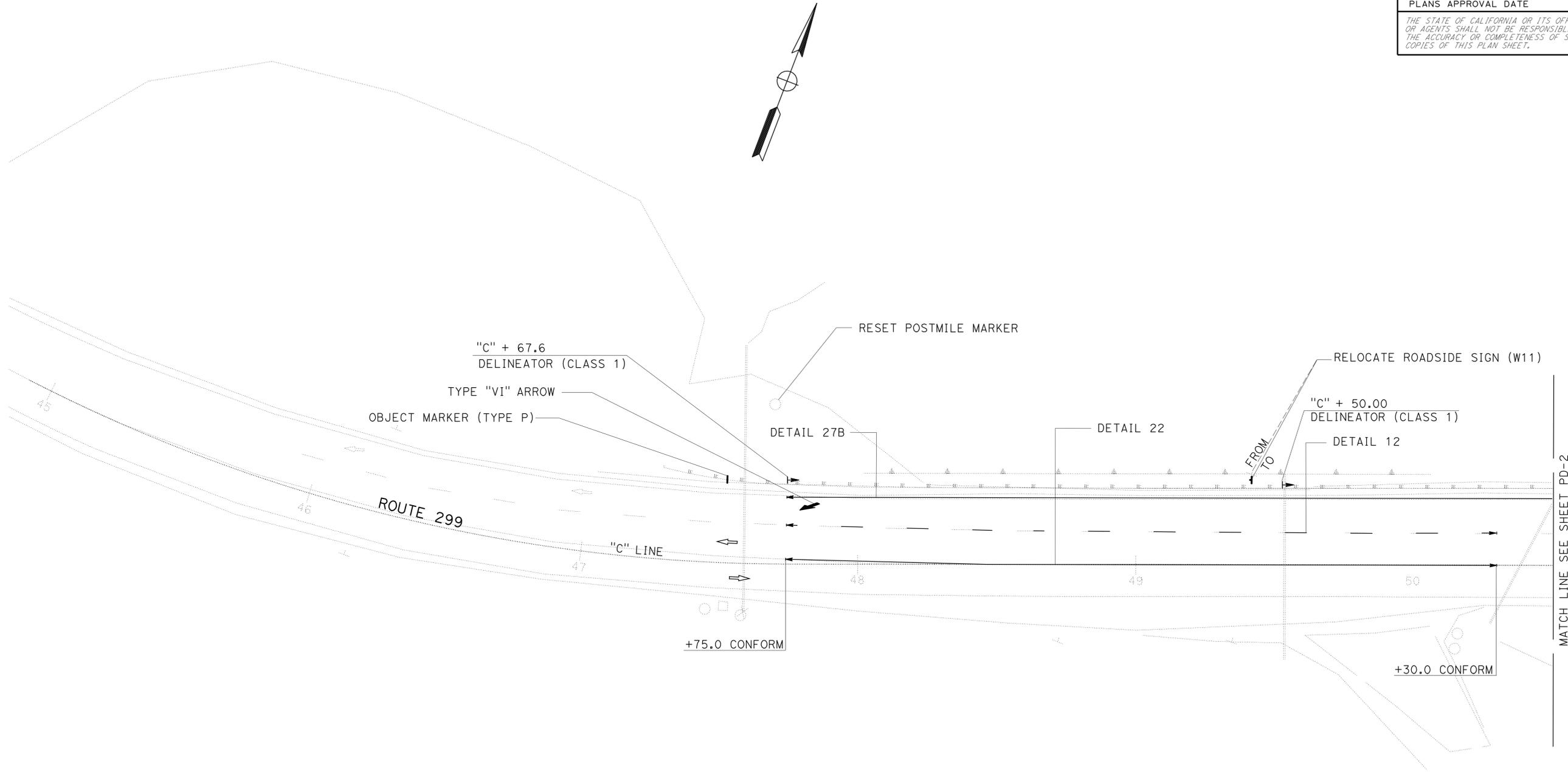
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Hum	299	R21.5	16	44

<i>Kana Venkathan</i>	2-19-09
REGISTERED CIVIL ENGINEER	DATE
3-30-09	
PLANS APPROVAL DATE	

REGISTERED PROFESSIONAL ENGINEER
KANA VENUKANTHAN
No. 67824
Exp. 3-30-09
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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION			
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OFFICE OF DESIGN, SOUTH DESIGN BRANCH 13			
FUNCTIONAL SUPERVISOR		OSCAR VASQUEZ	
CALCULATED-DESIGNED BY	CHECKED BY	KANA VENUKANTHAN	REVISOR BY
		KANA VENUKANTHAN	DATE REVISED



PAVEMENT DELINEATION AND SIGN PLAN

SCALE: 1"=20'

PD-1

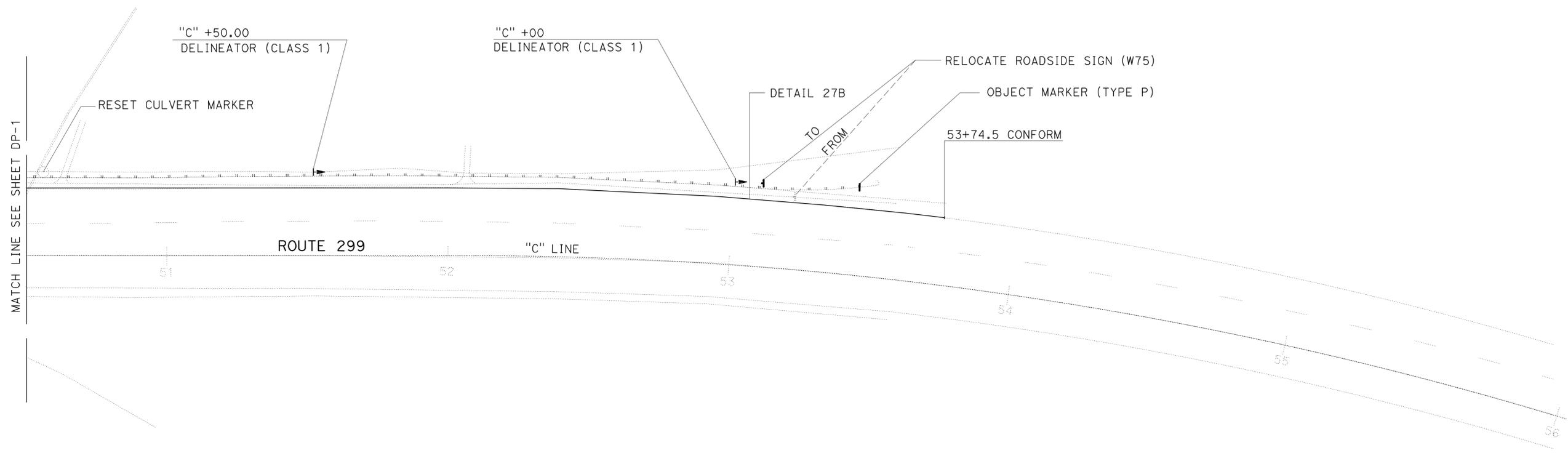
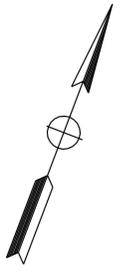
THIS PLAN ACCURATE FOR PAVEMENT DELINEATION AND SIGN WORK ONLY.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Hum	299	R21.5	17	44

<i>Kana Venkathan</i>	2-19-09
REGISTERED CIVIL ENGINEER	DATE
3-30-09	
PLANS APPROVAL DATE	

REGISTERED PROFESSIONAL ENGINEER
KANA VENUKANTHAN
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Exp. 6-30-09
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STATE OF CALIFORNIA

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NORTH REGION			
OFFICE OF DESIGN, SOUTH DESIGN BRANCH 13			
FUNCTIONAL SUPERVISOR		OSCAR VASQUEZ	
CALCULATED-DESIGNED BY	CHECKED BY	KANA VENUKANTHAN	KANA VENUKANTHAN
REVISOR	DATE	REVISOR	DATE

PAVEMENT DELINEATION AND SIGN PLAN
SCALE: 1"=20'

PD-2

THIS PLAN ACCURATE FOR PAVEMENT DELINEATION AND SIGN WORK ONLY.



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DGN FILE => 147210na002.dgn

CU 03263

EA 472101

BORDER LAST REVISED 4/11/2008

LAST REVISION | DATE PLOTTED => 23-JUN-2009
00-00-00 | TIME PLOTTED => 09:29

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Hum	299	R21.5	18	44

REGISTERED CIVIL ENGINEER DATE 2-19-09
 3-30-09
 PLANS APPROVAL DATE

KANA VENUKANTHAN
 No. 67824
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ROADWAY ITEMS

LOCATION	R+/L+	ROADWAY EXCAVATION	IMPORTED BORROW	TEMPORARY FENCE (TYPE ESA)	HOT MIX ASPHALT (TYPE A)	HOT MIX ASPHALT (OPEN GRADED)	TACK COAT	PAVING ASPHALT (BINDER, GEOSYNTHETIC INTERLAYER)	COLD PLANE AC PAVEMENT		REMOVE OVERSIDE DRAIN	8" CSP DOWNDRAIN (0.079" THICK)	ENTRANCE TAPER	8" ANCHOR ASSEMBLY	(N)	REMOVE PIPE	SAND BACKFILL	PLACE HMA DIKE (TYPE C)	PLACE HMA DIKE (TYPE F)	GEOSYNTHETIC PAVEMENT INTERLAYER	RSP (LIGHT, METHOD B)	RSP (LIGHT, METHOD A)	RSP FABRIC	JACKED 12" WELDED STEEL PIPE (0.250" THICK)	REMARKS	
		CY	CY	LF	TON	TON	TON	TON	0.1FT SQYD	0.15FT SQYD	EA	LF	LF	EA	LF	CY	LF	LF	SQYD	CY	CY	SQYD	LF			
"C" 46+20 TO 48+01	L+	8	25																							
"C" 48+01 TO 50+06	L+	16																								TIEBACK WALL
"C" 50+06 TO 53+75	L+	26	22																							
"C" 44+80 TO 54+33	L+			1025																						ESA FENCE
"C" 46+20 TO 53+75	L+				146															355						2' SHOULDER
"C" 47+75 TO 50+30	L+																									
"C" 46+20 TO 53+75	L+						0.6	0.6																		
"C" 50+30 TO 52+80	L+				29.9	24			167	168																MBGR SPECIAL
"C" 47+75 TO 50+30	L+					100			680																	WB LANES
"C" 50+63	L+										1	15	1	1							1		45			THE DOWNDRAIN
"C" 52+07	L+										1	8	1	1							1		45			THE DOWNDRAIN
"C" 47+25 TO 47+67.6	L+				0.5												43									HMA DIKE (TYPE C)
"C" 47+67.6 TO 52+07	L+				3.6														439							HMA DIKE (TYPE F)
"C" 48+45	L+																									WALL OUTLET DRAIN
"C" 49+38	L+																					1	45	25		WALL OUTLET DRAIN
"C" 49+53.4	L+														15	8.0						1	45	25		ABANDONED CULVERT
SUBTOTAL		50	47	1025	180.0	124	0.6	0.6	847	168	2	23	2	2	15	8.0	43	439	355	2	2	180	50			
TOTAL		50	47	1025	180.0	124	0.6	0.6	1015		2	23	2	2	15	8.0	43	439	355	2	2	180	50			

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

ROADSIDE SIGNS

STATION	LOCATION	SIGN CODE	RELOCATE ROADSIDE SIGN (ONE POST)	RESET MILEPOST MARKER	RESET CULVERT MARKER
			EA	EA	EA
"C" 49+41.55	LEFT	W11	1		
"C" 47+70.0	LEFT	G11-6		1	
"C" 50+55.90	LEFT				1
"C" 53+12	LEFT	W75	1		
TOTAL			2	1	1

NOTE: EXACT SIGN LOCATIONS TO BE DETERMINED BY THE ENGINEER.

TRAFFIC CONTROL DEVICES

STATION	TEMPORARY CRASH CUSHION MODULE	TEMPORARY RAILING (TYPE K)	CHANNELIZER (SURFACE MOUNTED)
	ARRAY "TS14"	LF	EA
"C" 45+74 TO 54+89.3		920	
"C" 54+89.3	14		
"C" 54+170.0 TO 61+18			14
TOTAL	14	920	14

SUMMARY OF QUANTITIES

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 STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 NORTH REGION
 OFFICE OF DESIGN, SOUTH DESIGN BRANCH 13
 KANA VENUKANTHAN
 KANA VENUKANTHAN
 OSCAR VASQUEZ
 REVISIONS: 01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

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 STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 NORTH REGION
 OFFICE OF DESIGN, SOUTH
 DESIGN BRANCH 13
 Oscar Vasquez
 Functional Supervisor
 Kana Venukanthan
 Kana Venukanthan
 Revised By
 Date Revised
 Calculated-Designed By
 Checked By

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
01	Hum	299	R21.5	19	44

Kana Venukanthan 2-19-09
 REGISTERED CIVIL ENGINEER DATE
 3-30-09
 PLANS APPROVAL DATE

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PAVEMENT DELINEATION ITEMS

STATION	DETAIL NUMBER OR PAVEMENT MARKING	THERMOPLASTIC TRAFFIC STRIPE		PAVEMENT MARKER		THERMOPLASTIC PAVEMENT MARKING
		4" SOLID YELLOW LF	4" SOLID WHITE LF	RETROREFLECTIVE- RECESSED		
				TYPE H EA	TYPE D EA	
47+75.00 TO 53+74.50	27B		600			42
47+75.00 TO 50+30.00	12		255	7		
47+75.00 TO 50+30.00	22	2x255			22	
SUBTOTAL		510	855	7	22	42
TOTAL		1365		29		42

METAL BEAM GUARD RAILING

LOCATION (STATION)	MBGR			ALTERNATE FLARED TERMINAL SYSTEM	OBJECT MARKER (TYPE P)	DELINEATOR (CLASS 1)	REMARKS
	6' WOOD POST	7' WOOD POST	SPECIAL				
	LF	LF	LF				
47+67.60 TO 50+30.00	262.4			EA	EA	EA	
50+30.00 TO 52+80.00			250	EA	EA	EA	
52+80.00 TO 53+10.00		30				EA	
TOTAL	262.4	30	250	2	2	4	

SUMMARY OF QUANTITIES

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Hum	299	R21.5	20	44

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

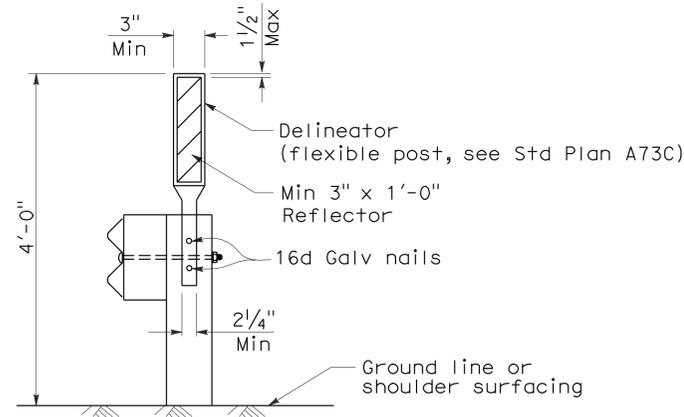
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REGISTERED PROFESSIONAL ENGINEER
Randell D. Hiatt
No. C50200
Exp. 6-30-09
CIVIL
STATE OF CALIFORNIA

To accompany plans dated 3-30-09

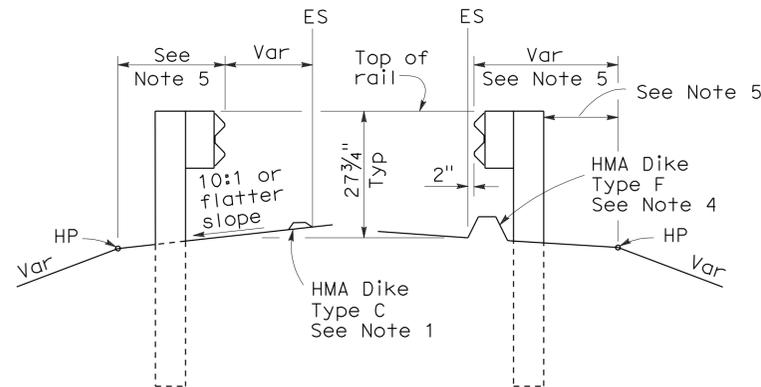
NOTES:

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

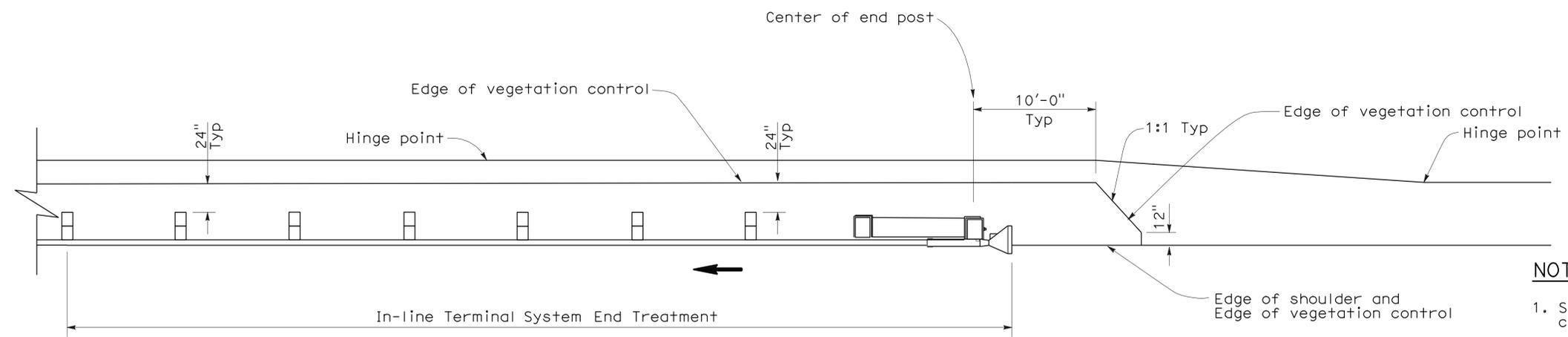
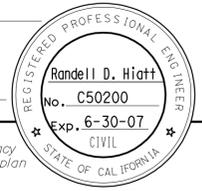
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Hum	299	R21.5	21	44

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

October 20, 2006
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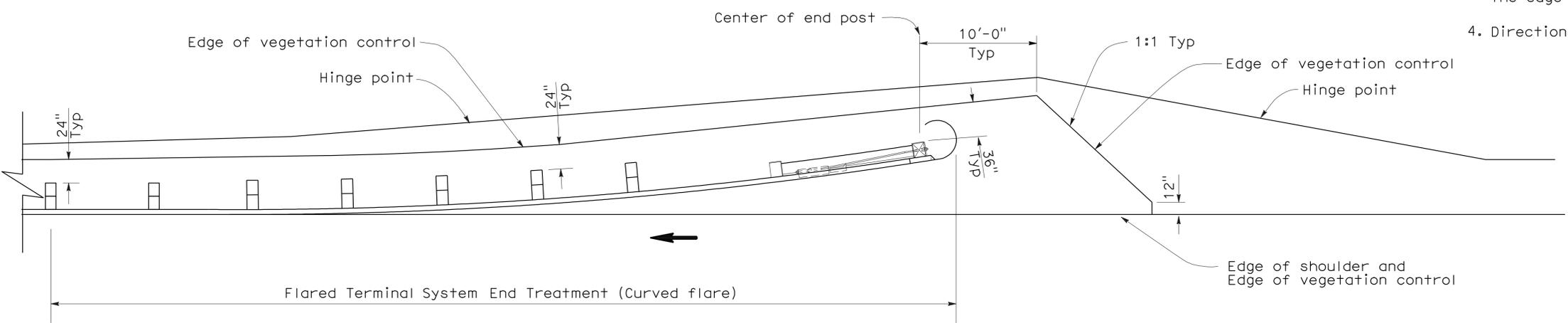
To accompany plans dated 3-30-09



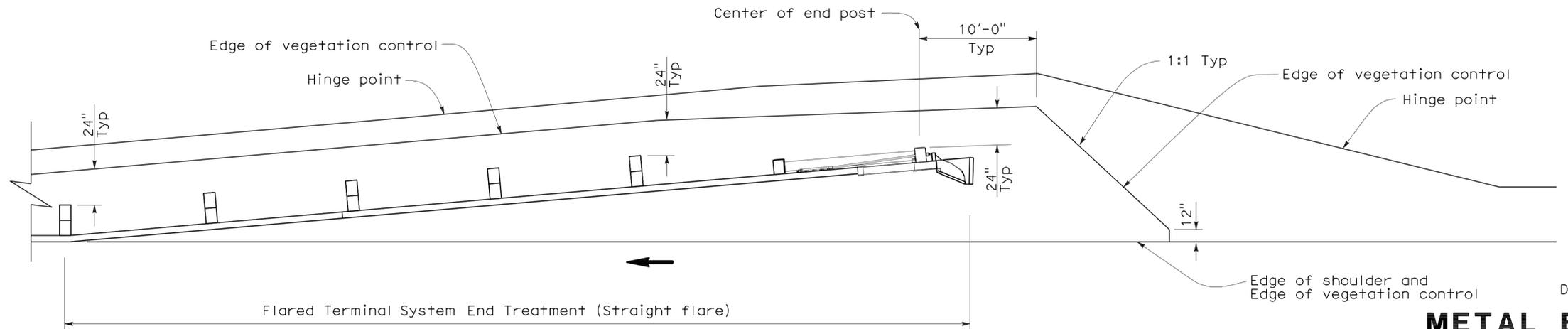
PLAN

NOTES:

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



PLAN



PLAN

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

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

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

2006 NEW STANDARD PLAN NSP A77C6

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Hum	299	R21.5	22	44

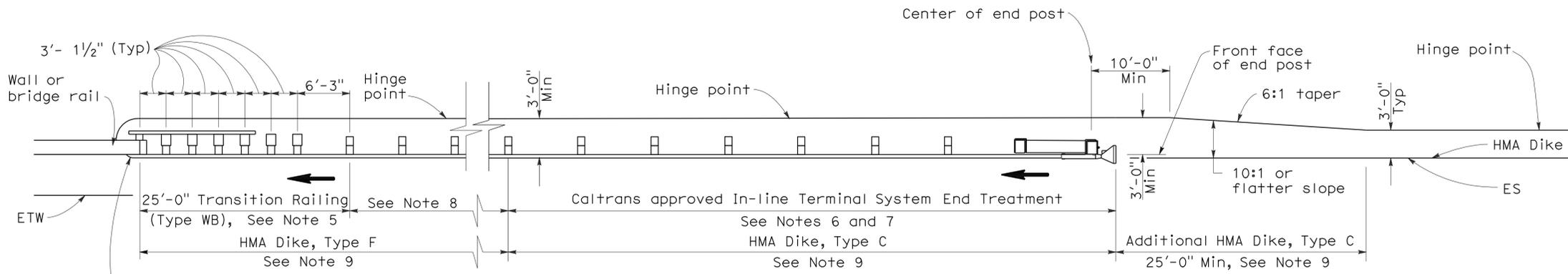
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

Randell D. Hiatt
REGISTERED PROFESSIONAL ENGINEER
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Exp. 6-30-09
CIVIL
STATE OF CALIFORNIA

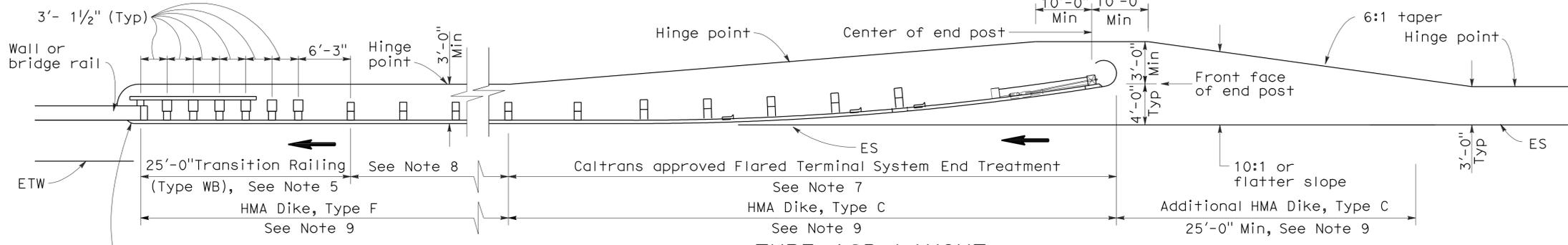
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To accompany plans dated 3-30-09



TYPE 12A LAYOUT

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



TYPE 12B LAYOUT

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

NOTES:

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

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

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**METAL BEAM GUARD RAILING
TYPICAL LAYOUTS FOR
STRUCTURE APPROACH**

NO SCALE

RSP A77F1 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77F1
DATED MAY 1, 2006 - PAGE 54 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A77F1

2006 REVISED STANDARD PLAN RSP A77F1

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Hum	299	R21.5	23	44

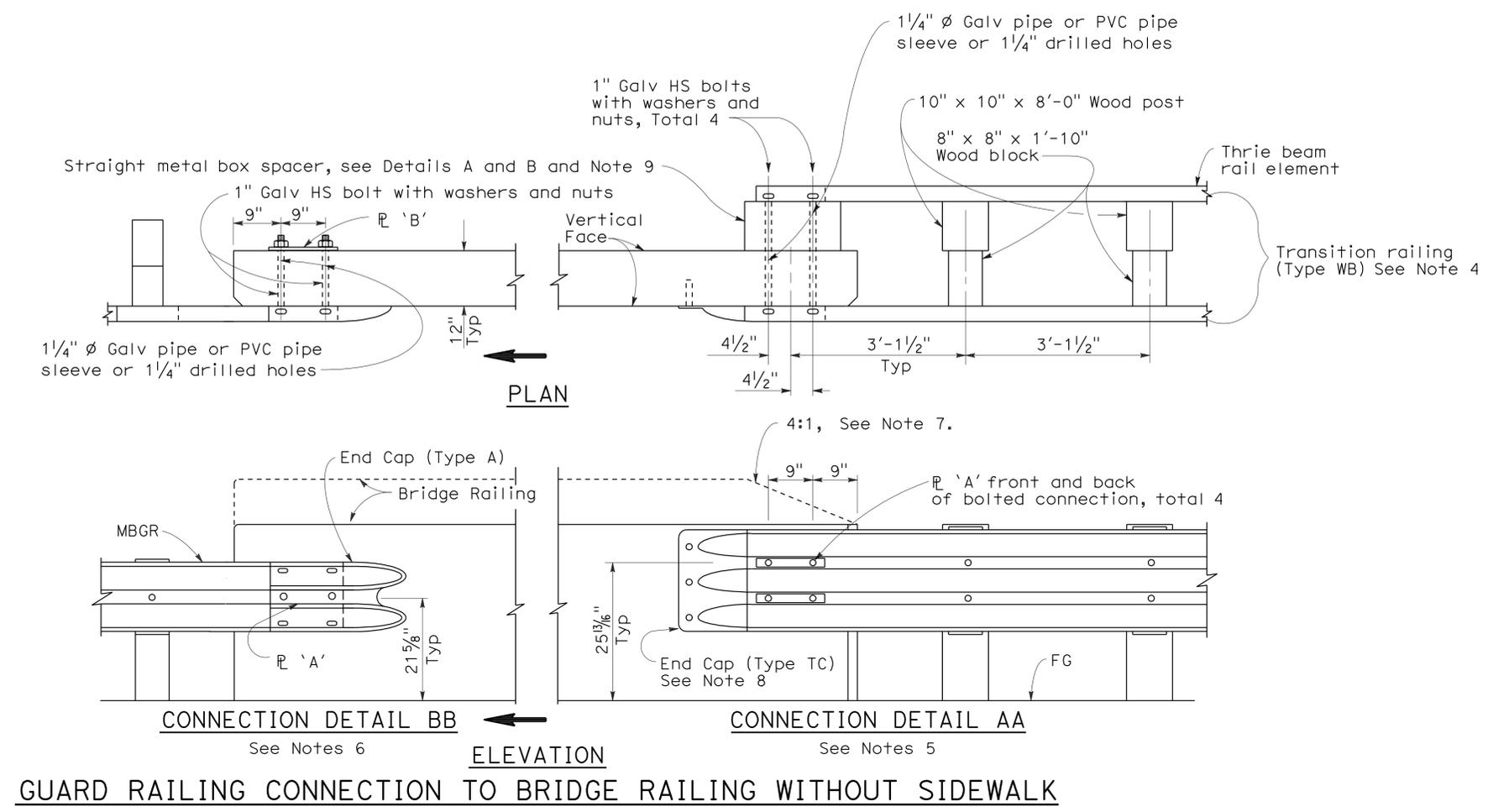
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June 6, 2008
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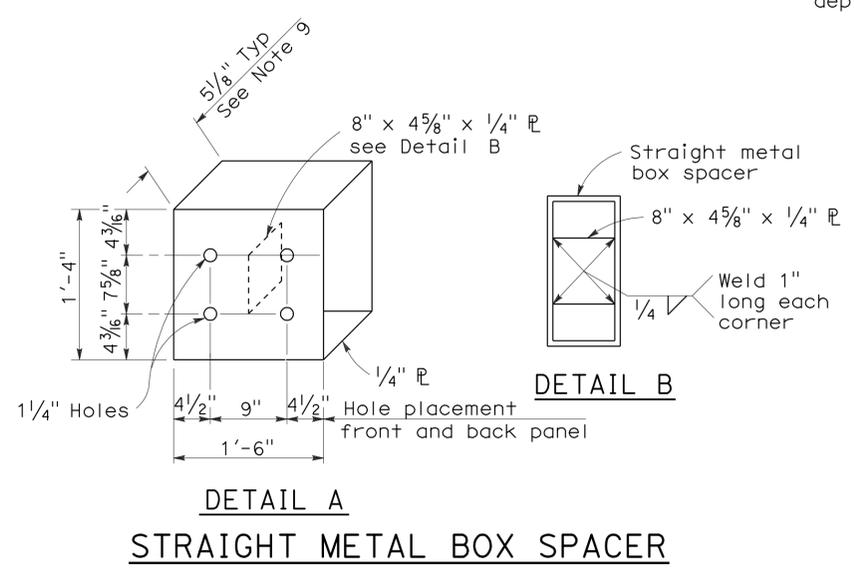
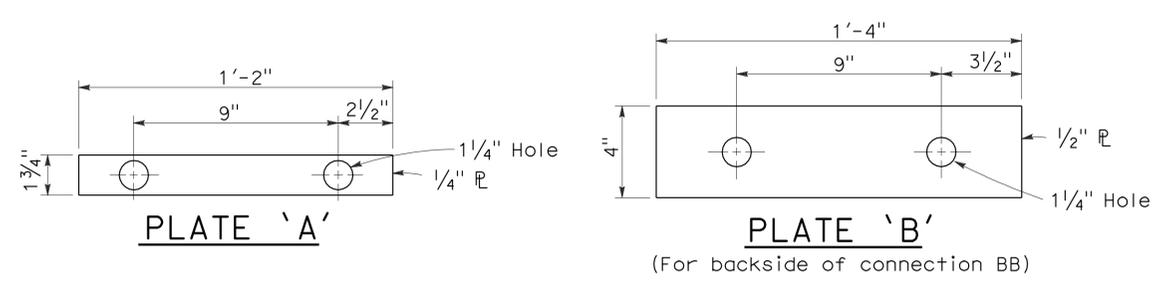
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No. C50200
Exp. 6-30-09
CIVIL
STATE OF CALIFORNIA

To accompany plans dated 3-30-09



NOTES:

1. See Revised Standard Plan RSP A77J2 for additional connection details to bridges without sidewalks.
2. Additional details of posts, blocks and hardware are shown on Standard Plan A77B1, A77C1 and A77C2.
3. Direction of adjacent traffic indicated by \rightarrow .
4. For additional details of Transition Railing (Type WB), see Standard Plan A77J4. Transition Railing (Type WB) transitions the 12 gage w-beam standard railing section of guard railing to a heavier gage nested thrie beam railing section which is connected to the concrete bridge railing.
5. For typical use of Connection Detail AA, see Layout Types 12A and 12B on Revised Standard Plan RSP A77F1, Layout Types 12C and 12D on Standard Plan A77F2, and Layout Type 12E on Revised Standard Plan RSP A77F3.
6. For typical use of Connection Detail BB, see Layout Type 12D (structure departure railing connection) on Standard Plan A77F2 and Layout Type 12DD on Standard Plan A77F5.
7. Where the height of the bridge railing exceeds the height of the thrie beam railing by more than 1" at Connection Detail AA, taper the top of the end of the bridge railing at 4:1 to match the top elevation of the thrie beam rail.
8. For details of End Cap (Type TC), see Standard Plan A77J4.
9. See Standard Plan A77J4 for additional details regarding depth dimension for straight metal box spacer.



STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

RSP A77J1 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77J1 DATED MAY 1, 2006 - PAGE 72 OF THE STANDARD PLANS BOOK DATED MAY 2006.

2006 REVISED STANDARD PLAN RSP A77J1

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Hum	299	R21.5	24	44

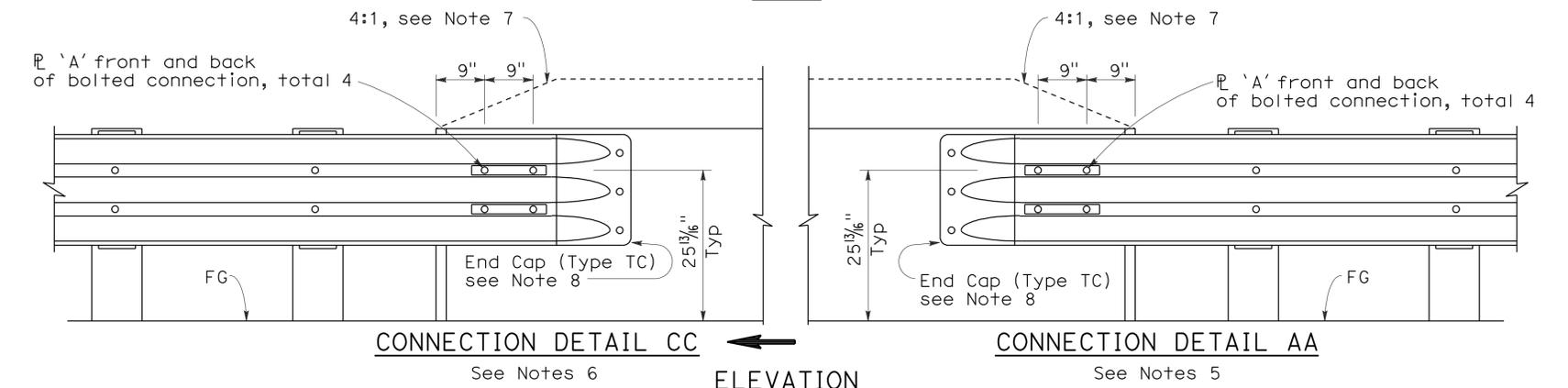
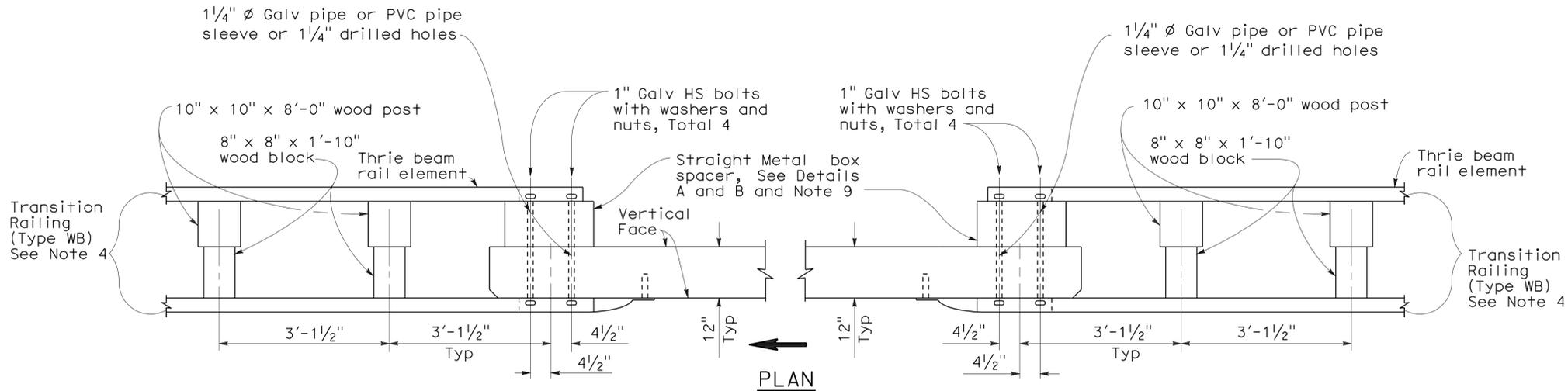
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
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STATE OF CALIFORNIA

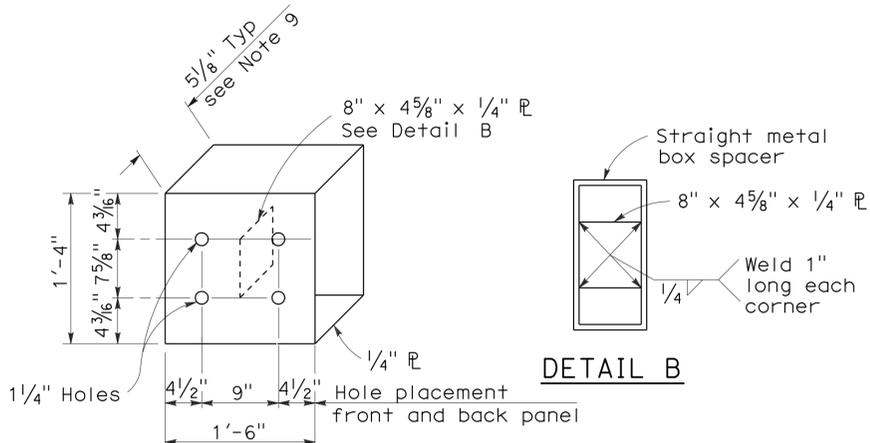
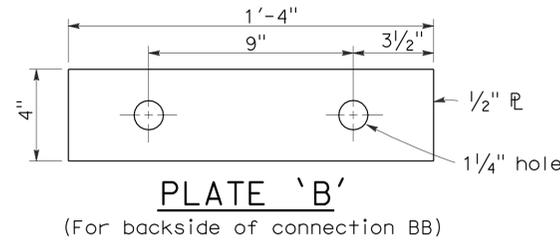
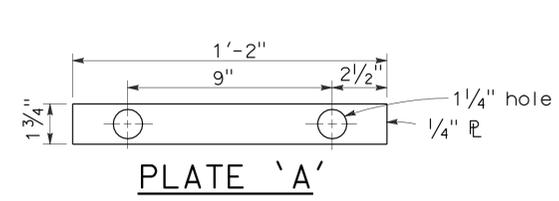
To accompany plans dated 3-30-09



GUARD RAILING CONNECTION TO BRIDGE RAILING WITHOUT SIDEWALK

NOTES:

1. See Revised Standard Plan RSP A77J1 for additional connection details to bridges without sidewalks.
2. Additional details of posts, blocks and hardware are shown on Standard Plan A77B1, A77C1 and A77C2.
3. Direction of adjacent traffic indicated by →.
4. For additional details of Transition Railing (Type WB), see Standard Plan A77J4. Transition Railing (Type WB) transitions the 12 gage w-beam standard railing section of guard railing to a heavier gage nested thrie beam railing section which is connected to the concrete bridge railing.
5. For typical use of Connection Detail AA, see Layout Types 12A and 12B on Revised Standard Plan RSP A77F1, Layout Types 12C and 12D on Standard Plan A77F2, and Layout Type 12E on Revised Standard Plan RSP A77F3.
6. For typical use of Connection Detail CC, see Layout Types 12AA and 12BB on Standard Plan A77F4 and Layout Type 12CC on Standard Plan A77F5.
7. Where the height of the bridge railing exceeds the height of the thrie beam railing by more than 1" at Connection Detail AA and connection Detail CC, taper the top of the end of the bridge railing at 4:1 to match the top elevation of the thrie beam railing.
8. For details of End Cap (Type TC), see Standard Plans A77J4.
9. See Standard Plans A77J4 for additional details regarding depth dimension for straight metal box spacer.



**DETAIL A
STRAIGHT METAL BOX SPACER**

**METAL BEAM GUARD RAILING
CONNECTIONS TO BRIDGE RAILINGS
WITHOUT SIDEWALKS DETAILS No.2**

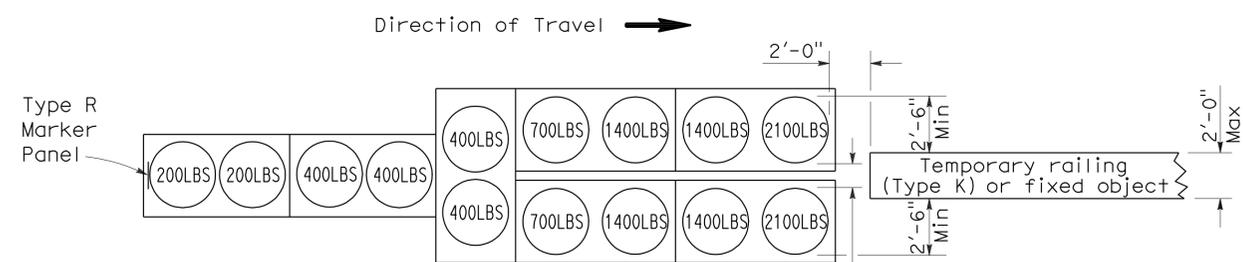
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

NO SCALE
RSP A77J2 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77J2
DATED MAY 1, 2006 - PAGE 73 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A77J2

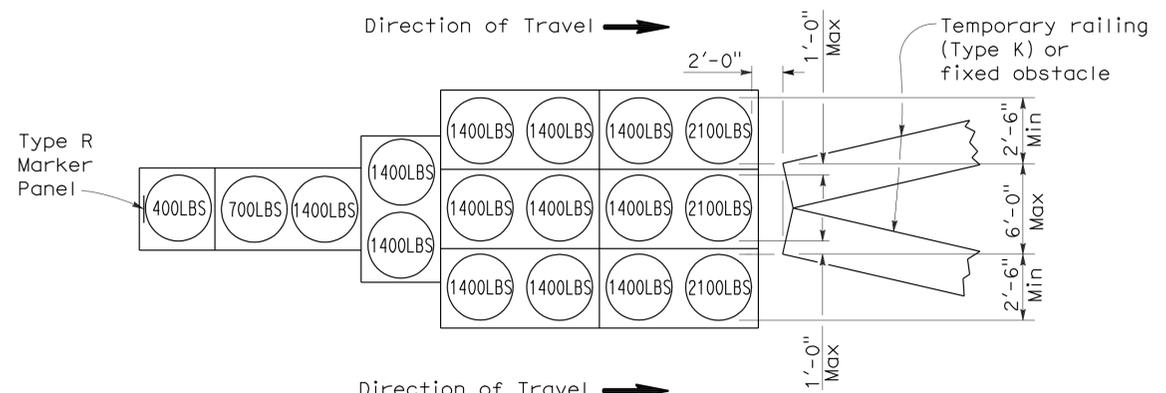
2006 REVISED STANDARD PLAN RSP A77J2

To accompany plans dated 3-30-09



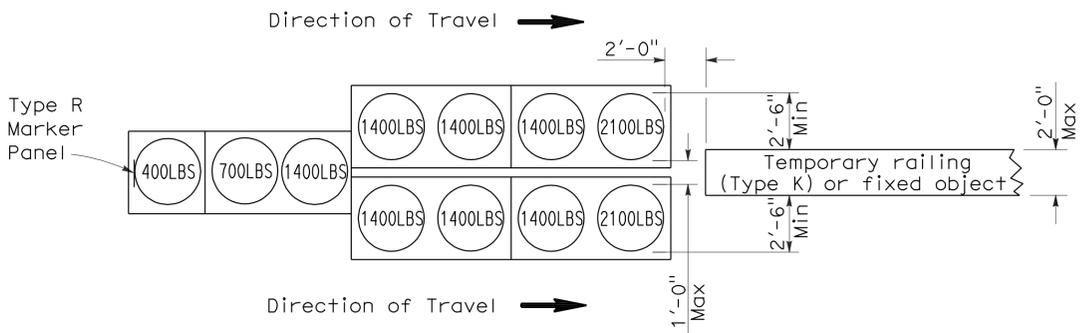
ARRAY 'TU14'

Approach speed 45 mph or more



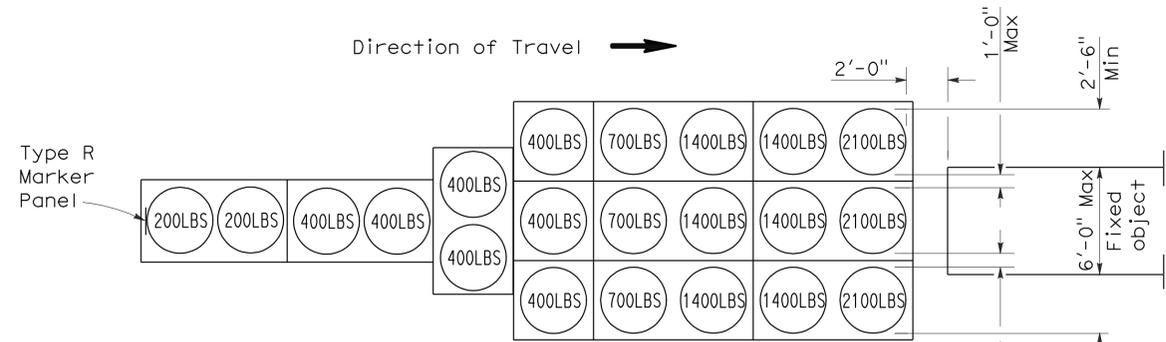
ARRAY 'TU17'

Approach speed less than 45 mph



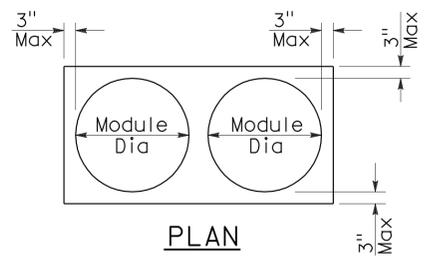
ARRAY 'TU11'

Approach speed less than 45 mph

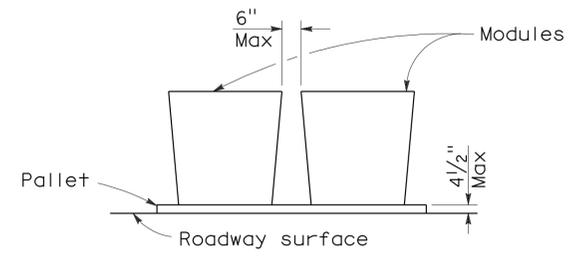


ARRAY 'TU21'

Approach speed 45 mph or more



PLAN



ELEVATION

CRASH CUSHION PALLET DETAIL

See Note 7

NOTES:

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

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

REVISED STANDARD PLAN RSP T1A

2006 REVISED STANDARD PLAN RSP T1A

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Hum	299	R21.5	26	44

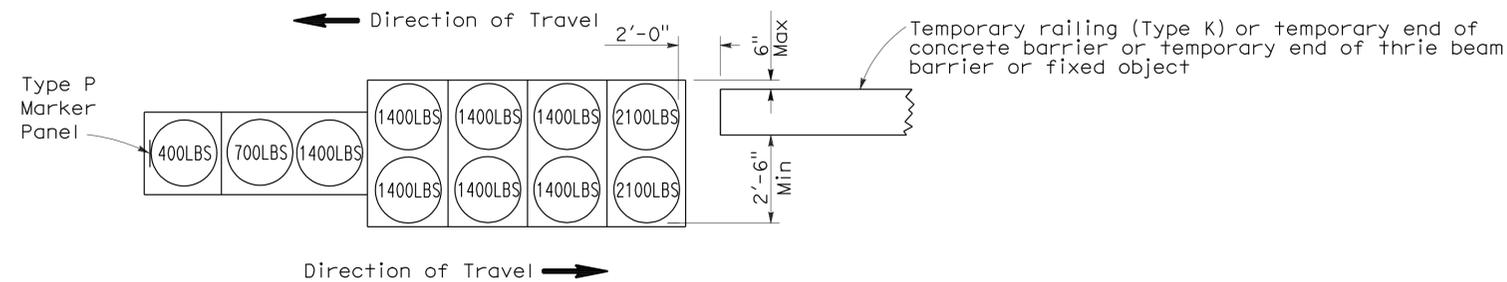
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

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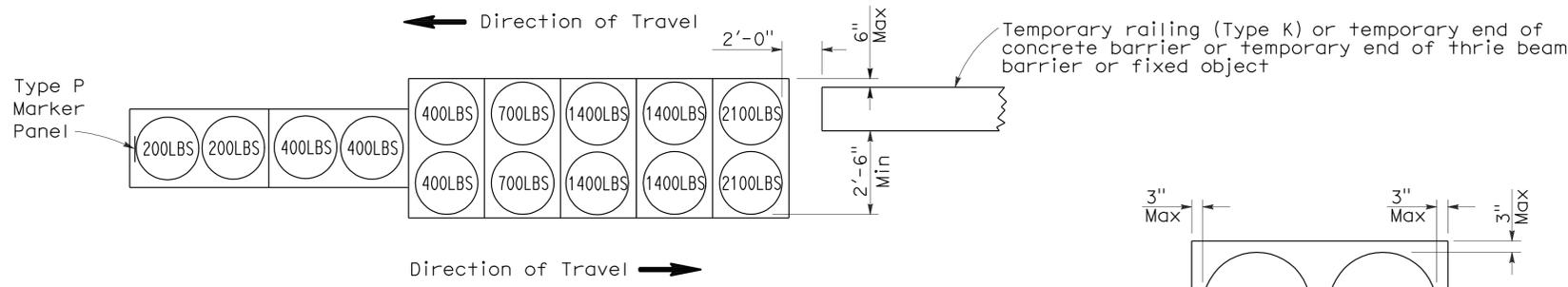
REGISTERED PROFESSIONAL ENGINEER
No. C50200
Exp. 6-30-09
CIVIL
STATE OF CALIFORNIA

To accompany plans dated 3-30-09



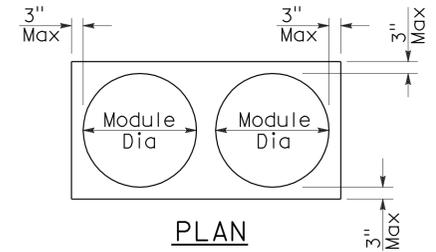
ARRAY 'TB11'

Approach speed less than 45 mph

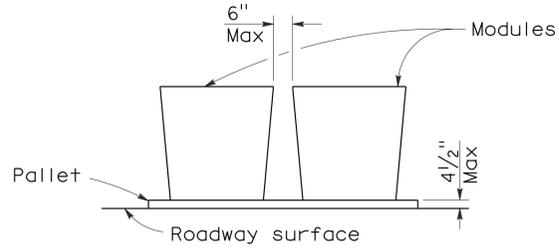


ARRAY 'TB14'

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

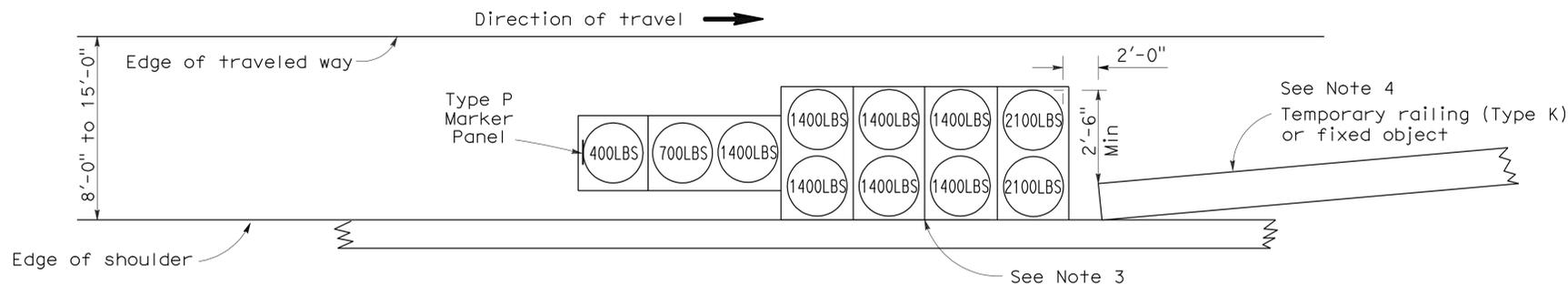
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
01	Hum	299	R21.5	27	44

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

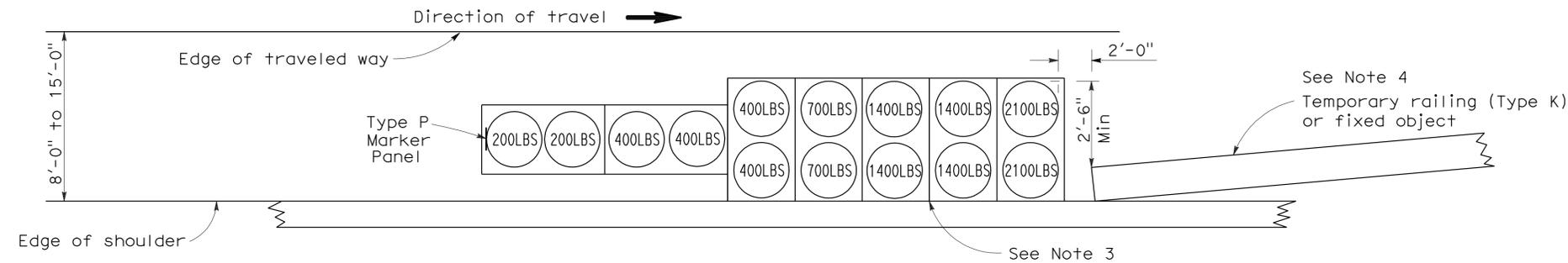
June 6, 2008
PLANS APPROVAL DATE

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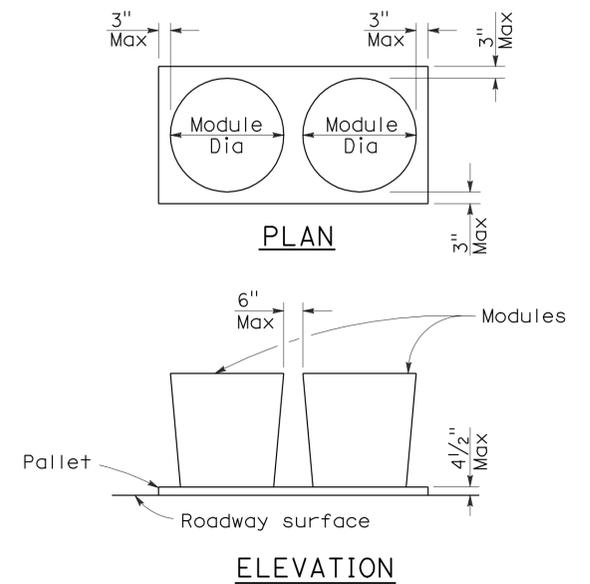
To accompany plans dated 3-30-09



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



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



CRASH CUSHION PALLET DETAIL
See Note 11

NOTES:

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**TEMPORARY CRASH CUSHION,
SAND FILLED
(SHOULDER INSTALLATIONS)**
NO SCALE

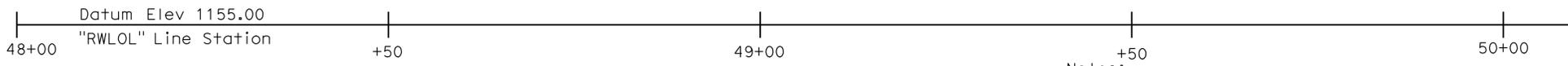
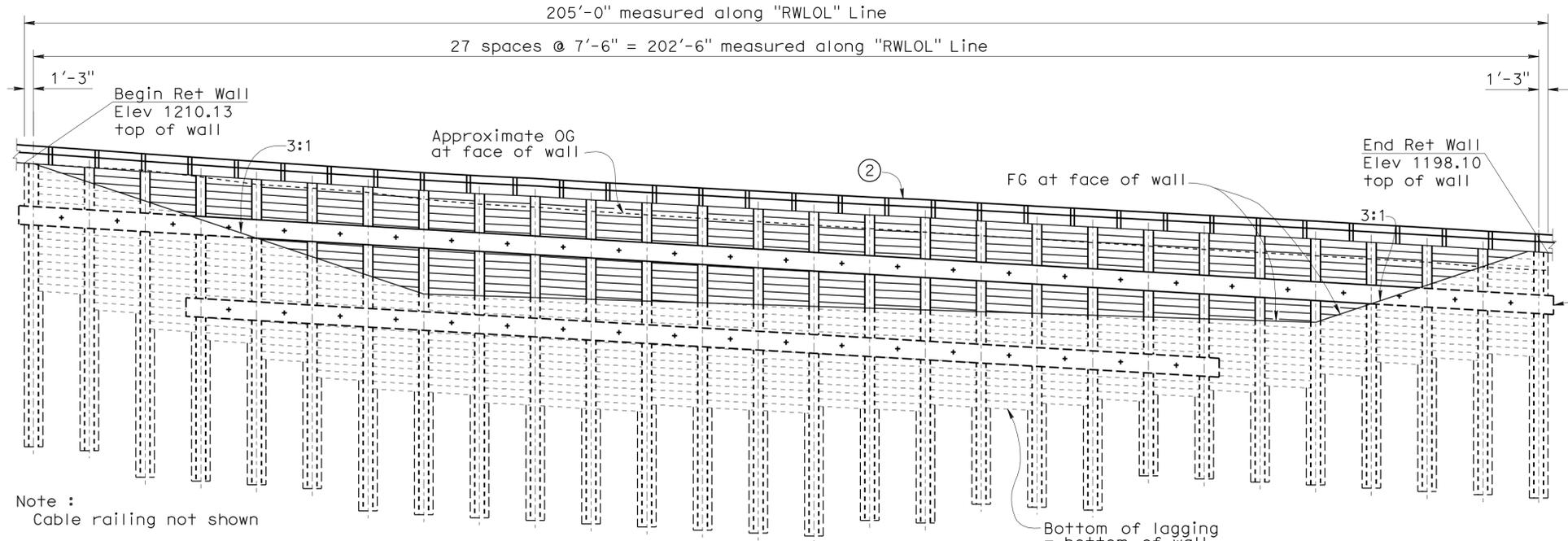
RSP T2 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN T2
DATED MAY 1, 2006 - PAGE 213 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP T2

2006 REVISED STANDARD PLAN RSP T2

213

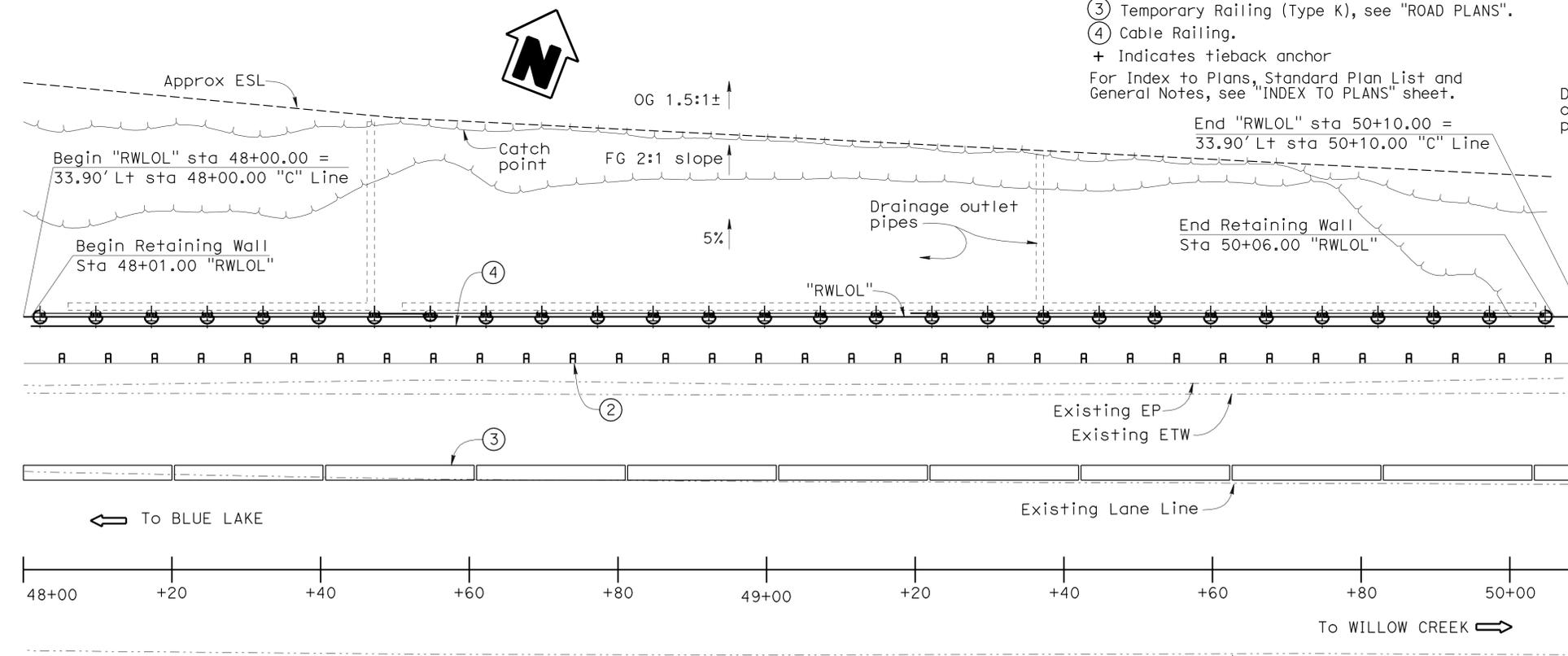
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Hum	299	R21.5	28	44
			12-29-08	REGISTERED CIVIL ENGINEER DATE	
			3-30-09	PLANS APPROVAL DATE	
			REGISTERED PROFESSIONAL ENGINEER Shandan Wendy Hou No. 71037 Exp. 6/30/2009 CIVIL STATE OF CALIFORNIA		
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MIRRORED ELEVATION

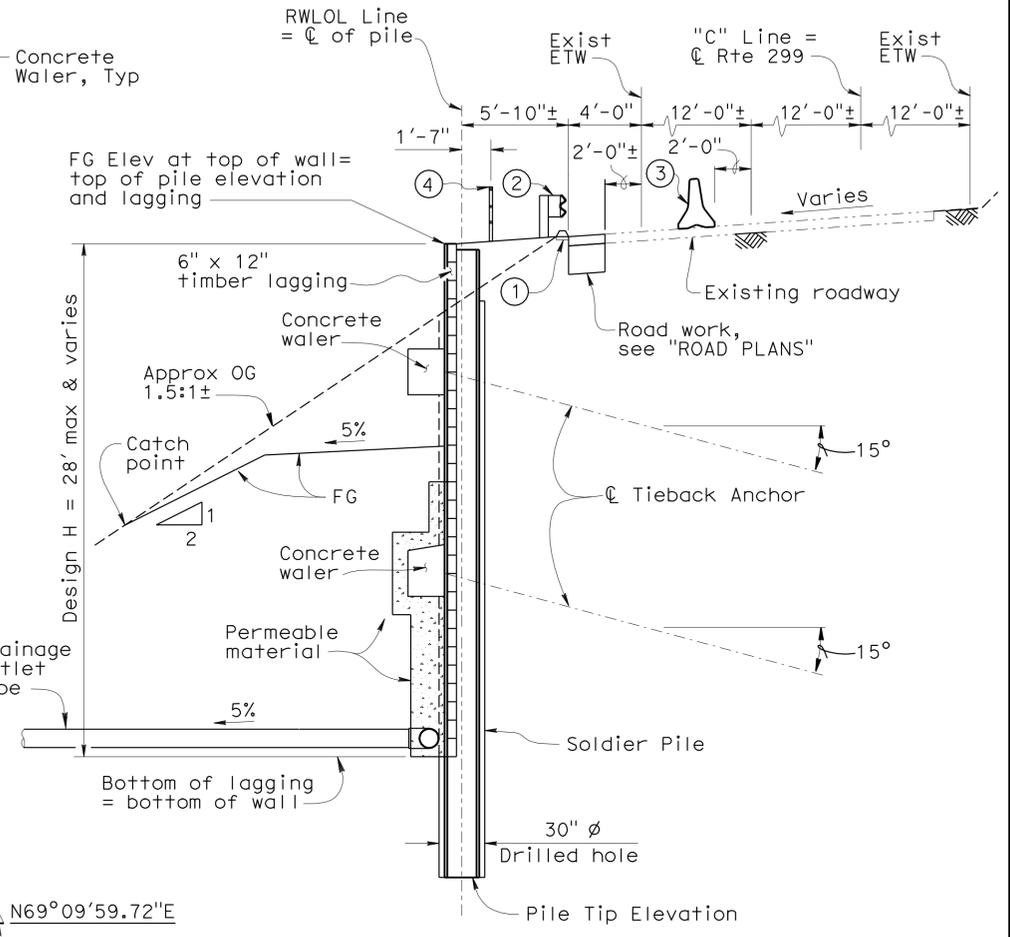
1" = 10'

- Notes:
- ① Minor Concrete paving and AC Dike, see "ROAD PLANS".
 - ② MBGR, see "ROAD PLANS".
 - ③ Temporary Railing (Type K), see "ROAD PLANS".
 - ④ Cable Railing.
 - + Indicates tieback anchor
- For Index to Plans, Standard Plan List and General Notes, see "INDEX TO PLANS" sheet.



PLAN

1" = 10'



TYPICAL SECTION

1" = 5'

QUANTITIES

STRUCTURE EXCAVATION (SOLDIER PILE WALL)	2,200	CY
STRUCTURE BACKFILL (SOLDIER PILE WALL)	1,500	CY
CLASS 2 CONCRETE BACKFILL	76	CY
LEAN CONCRETE BACKFILL	100	CY
STEEL SOLDIER PILE (W 14 X 159)	1,092	LF
30" DRILLED HOLE	1,005	LF
TIEBACK ANCHOR	45	EA
STRUCTURAL CONCRETE, RETAINING WALL	66	CY
BAR REINFORCING STEEL (RETAINING WALL)	30,100	LB
TIMBER LAGGING	26	MFBM
CLEAN AND PAINT STEEL SOLDIER PILING	LUMP	SUM
PERMEABLE MATERIAL, CLASS 1	145	CY
CABLE RAILING	205	LF

 DESIGN ENGINEER	DESIGN	BY Wendy Hou	CHECKED Mike Forrestal	Service Load Design	Live Loading: 2 ft Level Surcharge
	DETAILS	BY Gerald Dickerson	CHECKED Mike Forrestal	LAYOUT	BY Wendy Hou
	QUANTITIES	BY J. Jung/R. Deo	CHECKED S. Talukder/D. Desai	SPECIFICATIONS	BY Vaikunthan Renganathan

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 7

BRIDGE NO. 04E0019
POST MILE 21.5

SIMSON CHRISTMAS PRARIE WALL
GENERAL PLAN

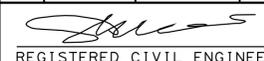
CU 01
EA 472101

REVISION DATES

10-07-08	10-16-08	11-12-08	11-14-08	11-21-08	12-9-08	12-13-08
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SHEET 1 OF 17

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Hum	299	R21.5	29	44

 12-29-08
 REGISTERED CIVIL ENGINEER DATE

3-30-09
 PLANS APPROVAL DATE

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INDEX TO PLANS

Sheet No.	Title
1	GENERAL PLAN
2	INDEX TO PLANS
3	FOUNDATION PLAN
4	RETAINING WALL LAYOUT NO. 1
5	RETAINING WALL LAYOUT NO. 2
6	TYPICAL SECTION NO. 1
7	TYPICAL SECTION NO. 2
8	PILE AND LAGGING DETAILS
9	WALER AND WALL DETAILS
10	TIEBACK DETAILS
11	DRAINAGE DETAILS
12	EXCAVATION AND BACKFILL DETAILS
13	LOG OF TEST BORINGS 1 OF 5
14	LOG OF TEST BORINGS 2 OF 5
15	LOG OF TEST BORINGS 3 OF 5
16	LOG OF TEST BORINGS 4 OF 5
17	LOG OF TEST BORINGS 5 OF 5

GENERAL NOTES WORKING STRESS DESIGN

DESIGN: BRIDGE DESIGN SPECIFICATIONS - April 2000 (LFD)
(1996 Sixteenth Edition AASHTO with Interims and Revisions by CALTRANS)

SOIL PARAMETERS: (For determination of design lateral earth pressure on wall).

1st layer (silty and clayed sand with gravel) : $\phi = 29^\circ$ $\gamma = 120$ pcf , $K_a = 0.35$
 2nd layer (schist) : $\phi = 30^\circ$ $\gamma = 150$ pcf , $K_a = 0.29$

LIVE LOADING: Surcharge - 240.0 psf (2'-0" earth)

STRUCTURAL TIMBER: Treated Douglas Fir
Grade - No. 1 or better
Timber shall be full sawn

STRUCTURAL STEEL: Steel Soldier Piles ASTM Designation A709/A709M,
Grade 50 or A572/A572M, Grade 50
 $f_y = 50,000$ psi
 $f_s = 27,500$ psi

PRESTRESSING STEEL: Tiebacks
strands - ASTM designation : A416 (grade 270)
T = Design force per Tieback
 f_{pu} = Minimum tensile strength of prestressing steel
 $A_s(\min)$ = Minimum cross sectional are of prestressing steel in Tieback tendon. (in²)

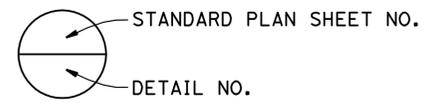
$$A_s(\min) = \frac{1.5 T}{0.75 f_{pu}}$$

T = See "RETAINING WALL LAYOUT" sheets.

REINFORCED CONCRETE: $F_y = 60$ ksi $f'_c = 4000$ psi $n = 8$
 $F_s = 24$ ksi $f'_{ci} = 3500$ psi
 $f_c = 1600$ psi

STANDARD PLANS DATED MAY 2006

A10A	ACRONYMS AND ABBREVIATIONS (A-L)
A10B	ACRONYMS AND ABBREVIATIONS (M-Z)
A10C	SYMBOLS (SHEET 1 OF 2)
A10D	SYMBOLS (SHEET 2 OF 2)
A77C4	METAL BEAM GUARD RAILING -TYPICAL RAILING DELINEATION AND DIKE POSITIONING DETAILS
A87B	ASPHALT CONCRETE DIKES
T3	TEMPORARY RAILING (TYPE K)
B11-47	Cable Railing



STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)	DESIGN	BY Wendy Hou	CHECKED Mike Forreстал	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 7	BRIDGE NO.	SIMSON CHRISTMAS PRARIE WALL INDEX TO PLANS	
	DETAILS	BY Gerald Dickerson	CHECKED Mike Forreстал			04E0019		
	QUANTITIES	BY J. Jung / R. Deo	CHECKED S. Talukder / D. Desai			POST MILE 21.5		
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS				0 1 2 3	CU 01 EA 472101	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES	SHEET 2 OF 17

FILE => 01-472101-b-1tp.dgn

USERNAME => hrmikes DATE PLOTTED => 23-JUN-2009 TIME PLOTTED => 09:31

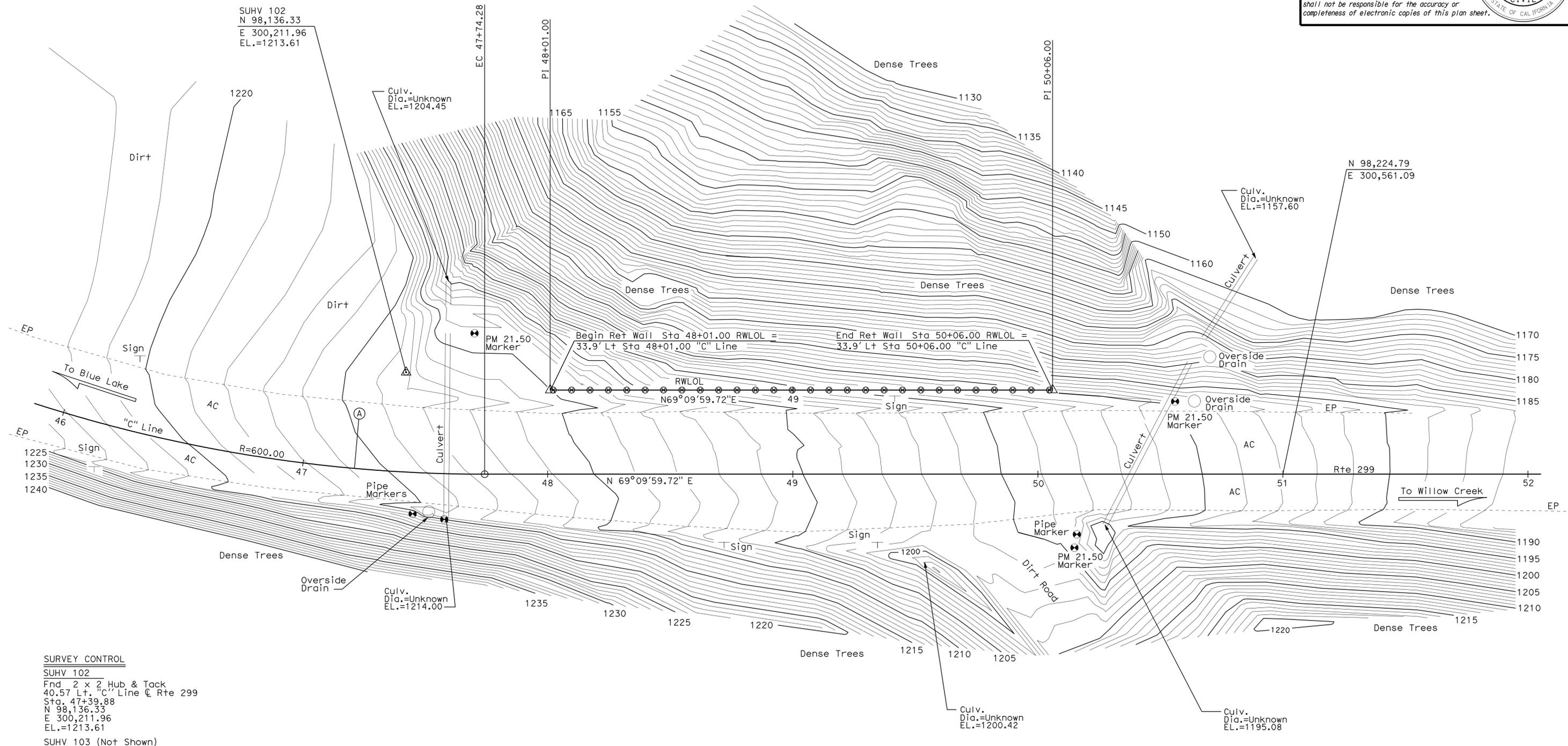
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DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Hum	299	R21.5	30	44

12-29-08
 REGISTERED CIVIL ENGINEER DATE
 3-30-09
 PLANS APPROVAL DATE
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Shandon Wendy Hou
 No. 71037
 Exp. 6/30/2009
 CIVIL
 STATE OF CALIFORNIA



SURVEY CONTROL

SUHV 102
 Fnd 2 x 2 Hub & Tack
 40.57 Lt. "C" Line @ Rte 299
 Sta. 47+39.88
 N 98,136.33
 E 300,211.96
 EL.=1213.61
 SUHV 103 (Not Shown)
 Fnd 2 x 2 Hub & Tack
 140.40 Ft. N62°59'54"E
 From Sta 52+96.80 "C" Line @ Rte 299
 N 98,358.53
 E 300,870.12
 EL.=1173.81

Notes :
 ⊗ - Indicates soldier pile.

PRELIMINARY INVESTIGATION SECTION				DESIGN BY Wendy Hou CHECKED Mike Forrestal	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 7	BRIDGE NO. 04E0019	SIMSON CHRISTMAS PRARIE WALL FOUNDATION PLAN
SCALE VERT. DATUM Arbitrary 1"=20' HORZ. DATUM Arbitrary	PHOTOGRAMMETRY AS OF: X SURVEYED BY District CHECKED BY Tim Mason 09/2008	DETAILS BY Gerald Dickerson CHECKED Mike Forrestal	POST MILE 21.50					
ALIGNMENT TIES Dist. Traverse Sheet DRAFTED BY Sharon Zheng 09/2008 CHECKED BY T. Zolinikova 09/2008	QUANTITIES BY J. Jung / R. Deo CHECKED S. Talukder / D. Desai	FILE => 01-472101-e-fp101.dgn	REVISION DATES 9/22/08 11-21-08					
STRUCTURES FOUNDATION PLAN SHEET (ENGLISH) (REV. 10/25/05) ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3						CU 01 EA 472101	DISREGARD PRINTS BEARING EARLIER REVISION DATES	SHEET 3 OF 17

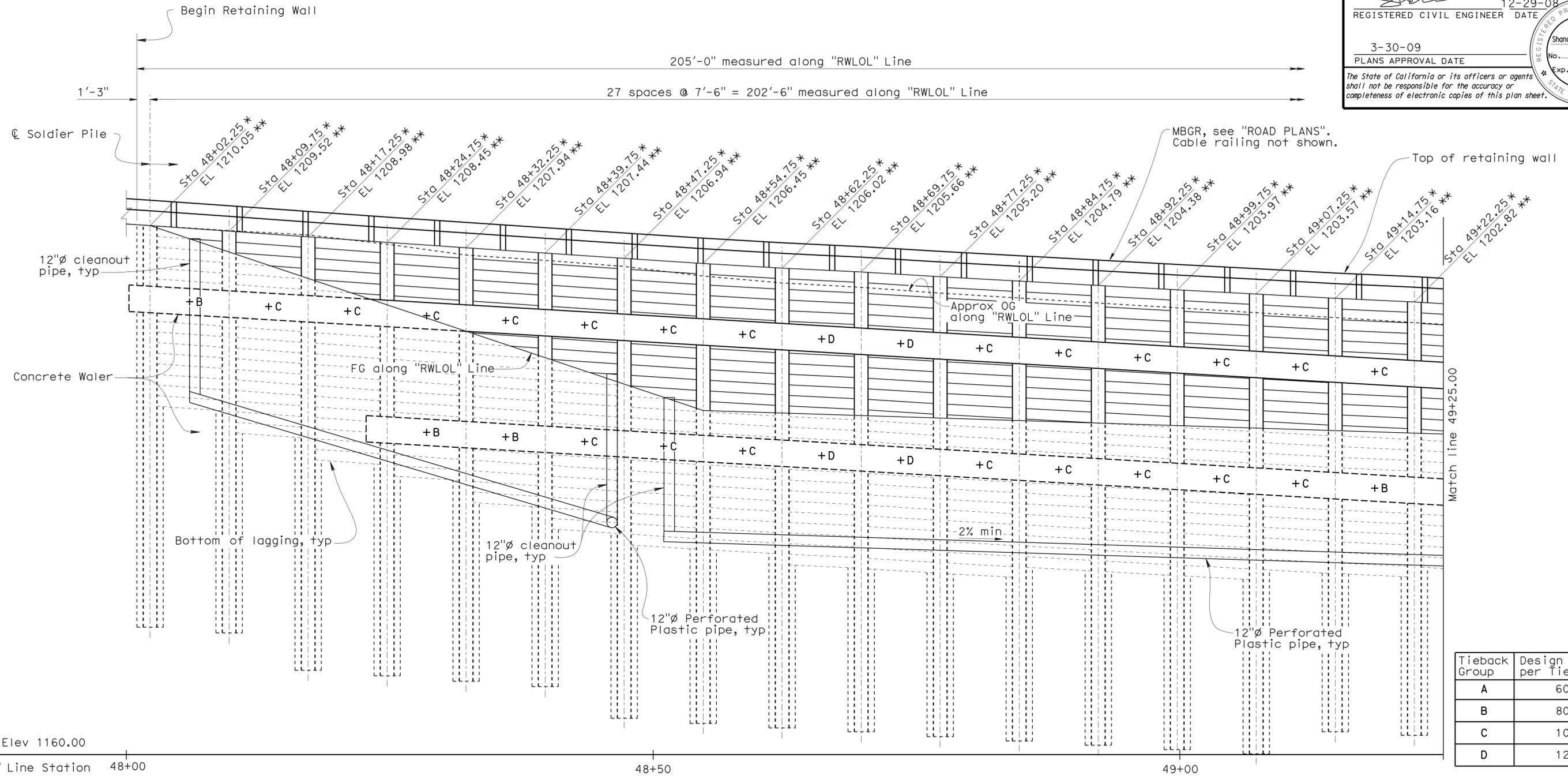
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Hum	299	R21.5	31	44

12-29-08
REGISTERED CIVIL ENGINEER DATE

3-30-09
PLANS APPROVAL DATE

Shandon Wendy Hou
No. 71037
Exp. 6/30/2009
CIVIL
STATE OF CALIFORNIA

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Datum Elev 1160.00

"RWLOL" Line Station 48+00 48+50 49+00

Tieback Group	Design Force per Tieback (T)
A	60k
B	80k
C	100k
D	120k

Pile No.	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16	P17
Pile Tip Elev.	1172.05	1171.52	1167.98	1167.45	1166.94	1166.44	1163.44	1162.95	1162.52	1162.16	1161.70	1161.29	1160.88	1160.47	1160.07	1162.16	1161.82
FG along "RWLOL" Line	1210.05	1207.55	1205.05	1202.55	1200.05	1197.55	1195.05	1192.55	1192.28	1192.00	1191.73	1191.46	1191.18	1190.91	1190.64	1190.36	1190.09
Lagging Panel	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	L13	L14	L15	L16	L17
No. Lagging Members	17	19	21	22	24	26	27	27	28	28	28	27	27	27	26	26	25

- Notes:
- * - Indicates station on "RWLOL" Line.
 - ** - Indicates top of retaining wall elevation.
 - + - Indicates tieback location.

MIRRORED ELEVATION

1" = 5'

DESIGN	BY Wendy Hou	CHECKED Mike Forrestral
DETAILS	BY Gerald Dickerson	CHECKED Mike Forrestral
QUANTITIES	BY J. Jung / R. Deo	CHECKED S. Talukder / D. Desai

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 7

BRIDGE NO.	04E0019
POST MILE	21.5

SIMSON CHRISTMAS PRARIE WALL
RETAINING WALL LAYOUT NO. 1

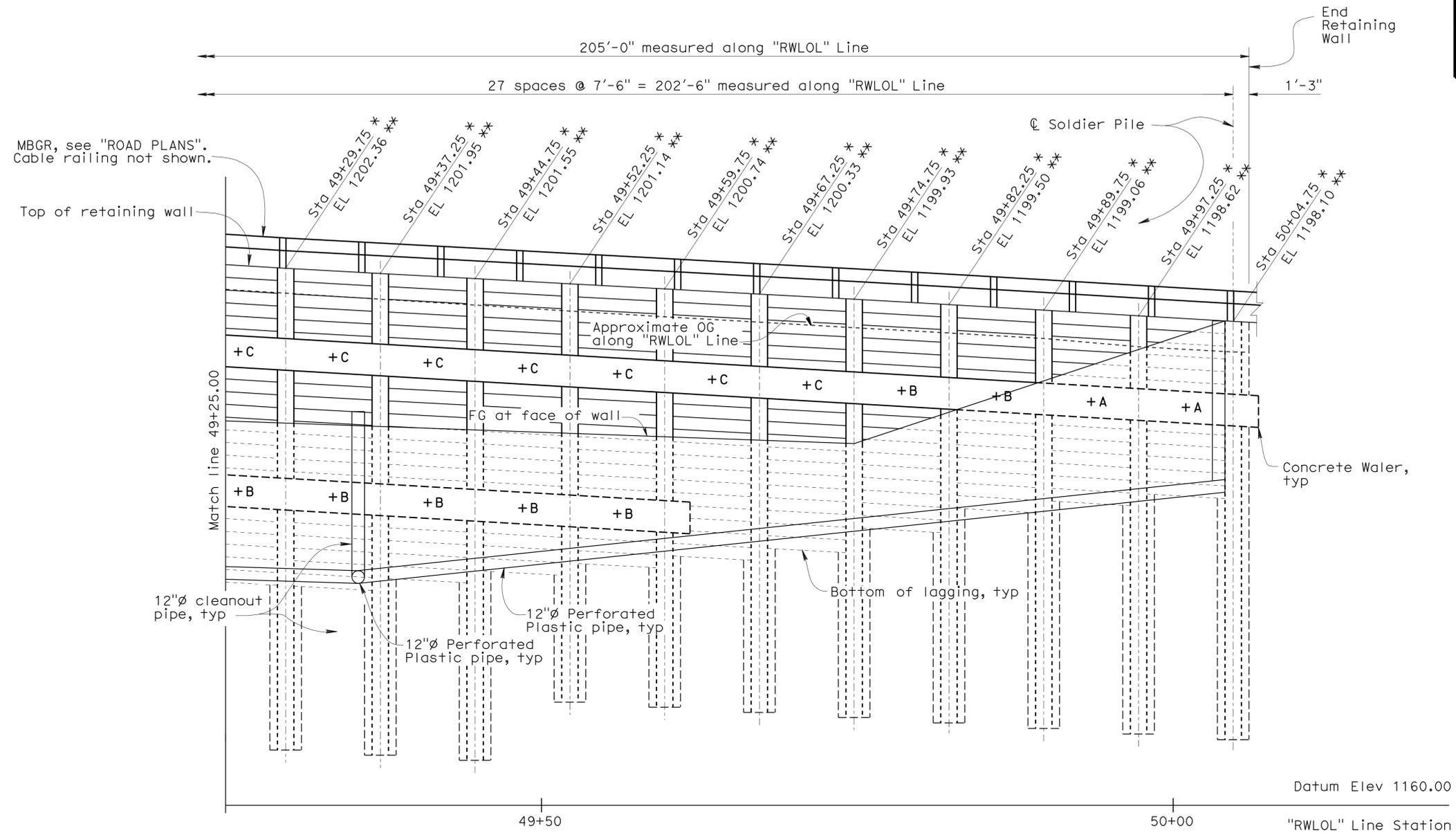
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DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Hum	299	R21.5	32	44

12-29-08
 REGISTERED CIVIL ENGINEER DATE
 3-30-09
 PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER
 Shandon Wendy Hou
 No. 71037
 Exp. 6/30/2009
 CIVIL
 STATE OF CALIFORNIA



Tieback Group	Design Force per Tieback (T)
A	60k
B	80k
C	100k
D	120k

P18	P19	P20	P21	P22	P23	P24	P25	P26	P27	P28	Pile No.
1164.36	1163.95	1163.55	1168.14	1167.74	1167.33	1166.93	1166.50	1166.06	1165.62	1165.18	Pile Tip Elev.
1189.82	1189.55	1189.27	1189.00	1188.73	1188.45	1188.18	1190.68	1193.18	1195.68	1198.18	FG along "RWL0L" Line
L18	L19	L20	L21	L22	L23	L24	L25	L26	L27	Lagging Panel	
25	24	23	22	21	20	18	16	15	14	No. Lagging Members	

- Notes:
- * - Indicates station on "RWL0L" Line.
 - ** - Indicates top of retaining wall elevation.
 - + - Indicates tieback location.

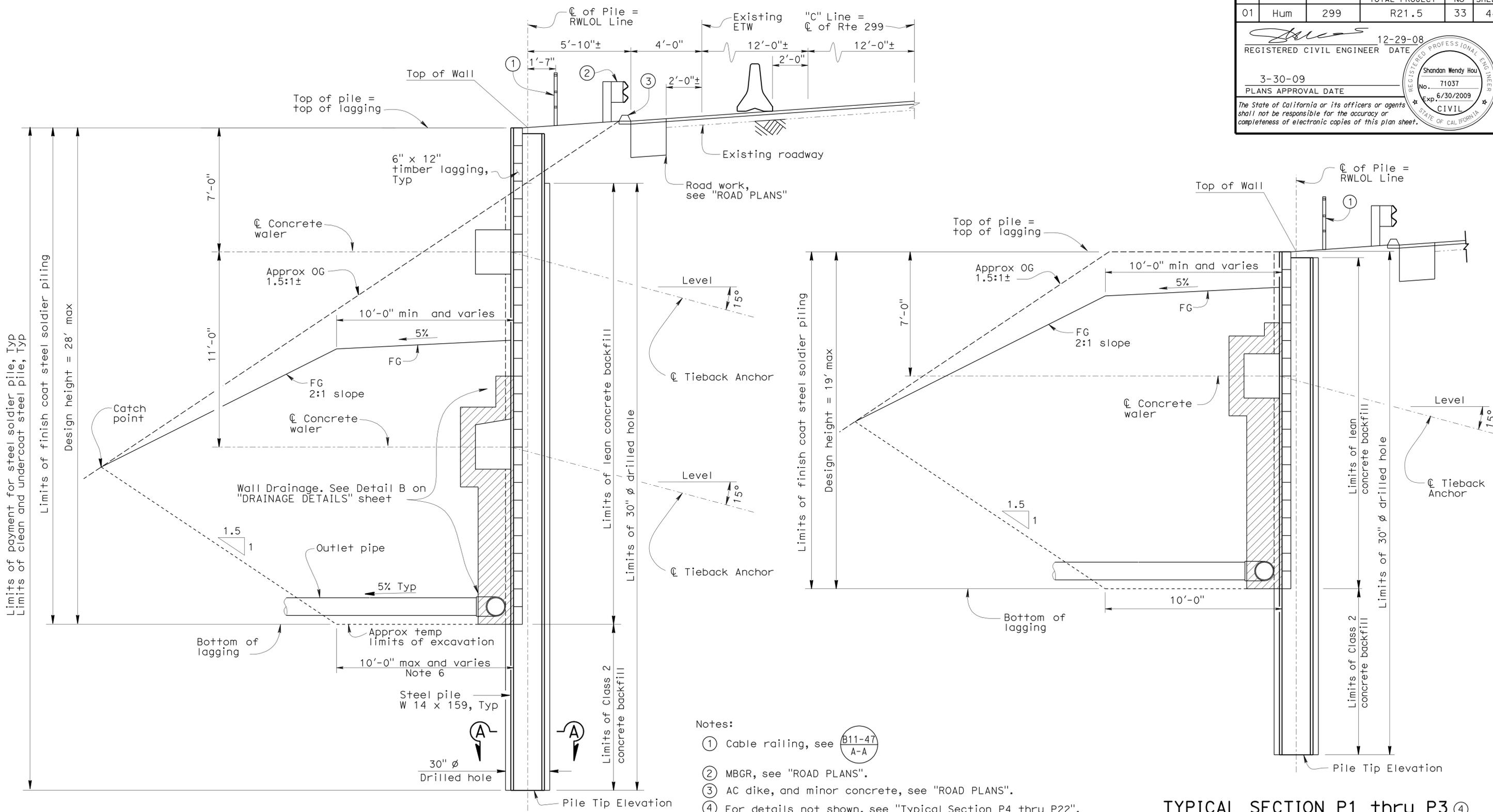
MIRRORED ELEVATION
1" = 5'

DESIGN BY Wendy Hou CHECKED Mike Forrestal DETAILS BY Gerald Dickerson CHECKED Mike Forrestal QUANTITIES BY J. Jung / R. Deo CHECKED S. Talukder / D. Desai	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 7	BRIDGE NO. 04E0019	SIMSON CHRISTMAS PRARIE WALL RETAINING WALL LAYOUT NO. 2
			POST MILE 21.5	
			DISREGARD PRINTS BEARING EARLIER REVISION DATES REVISION DATES: 10-16-08, 11-5-08, 11-12-08, 11-14-08, 11-21-08, 11-29-08, 12-9-08, 12-13-08, 12-28-08	
STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05) ORIGINAL SCALE IN INCHES FOR REDUCED PLANS: 0 1 2 3	CU 01 EA 472101	FILE => 01-472101-g-sp02.dgn	SHEET 5 OF 17	

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Hum	299	R21.5	33	44

12-29-08
 REGISTERED CIVIL ENGINEER DATE
 3-30-09
 PLANS APPROVAL DATE
 The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

REGISTERED PROFESSIONAL ENGINEER
 Shandon Wendy Hou
 No. 71037
 Exp. 6/30/2009
 CIVIL
 STATE OF CALIFORNIA



TYPICAL SECTION P4 thru P22

3/8"=1'-0"

TYPICAL SECTION P1 thru P3 ④

3/8"=1'-0"

Notes:

- ① Cable railing, see B11-47 A-A
- ② MBGR, see "ROAD PLANS".
- ③ AC dike, and minor concrete, see "ROAD PLANS".
- ④ For details not shown, see "Typical Section P4 thru P22".
- ⑤ For Section A-A, see "PILE AND LAGGING DETAILS" sheet.
- ⑥ Reduce dimension as required to ensure catch point is inside ESL.

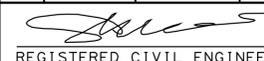
Indicates permeable material class 1.

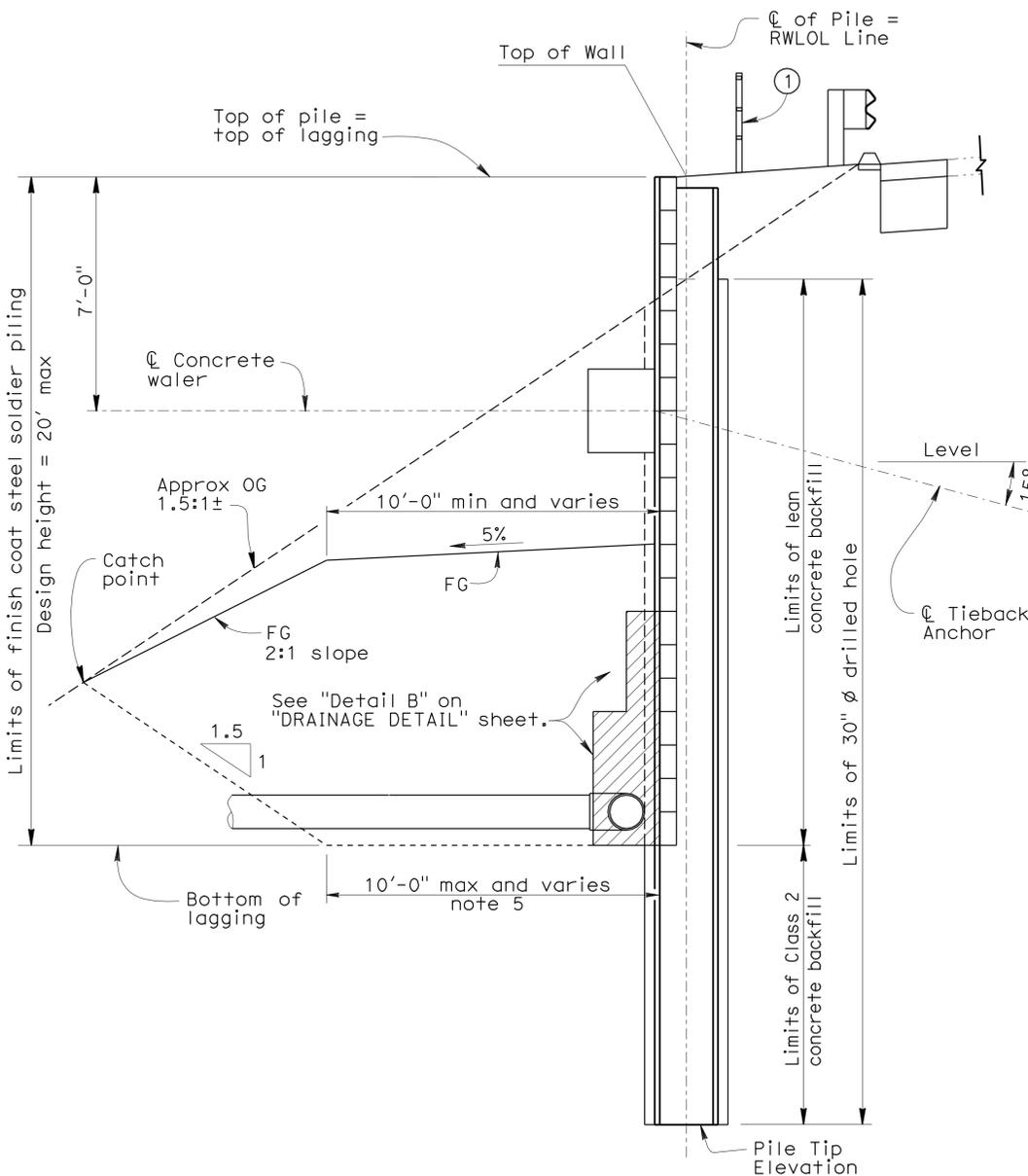
DESIGN	BY	Wendy Hou	CHECKED	Mike Forrestral	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 7	BRIDGE NO.	04E0019	SIMSON CHRISTMAS PRARIE WALL TYPICAL SECTION NO. 1	
	DETAILS	BY	Gerald Dickerson	CHECKED			Mike Forrestral	POST MILE		21.5
	QUANTITIES	BY	J. Jung / R. Deo	CHECKED			S. Talukder / D. Desai			

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05) ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3 CU 01 EA 472101 DISREGARD PRINTS BEARING EARLIER REVISION DATES

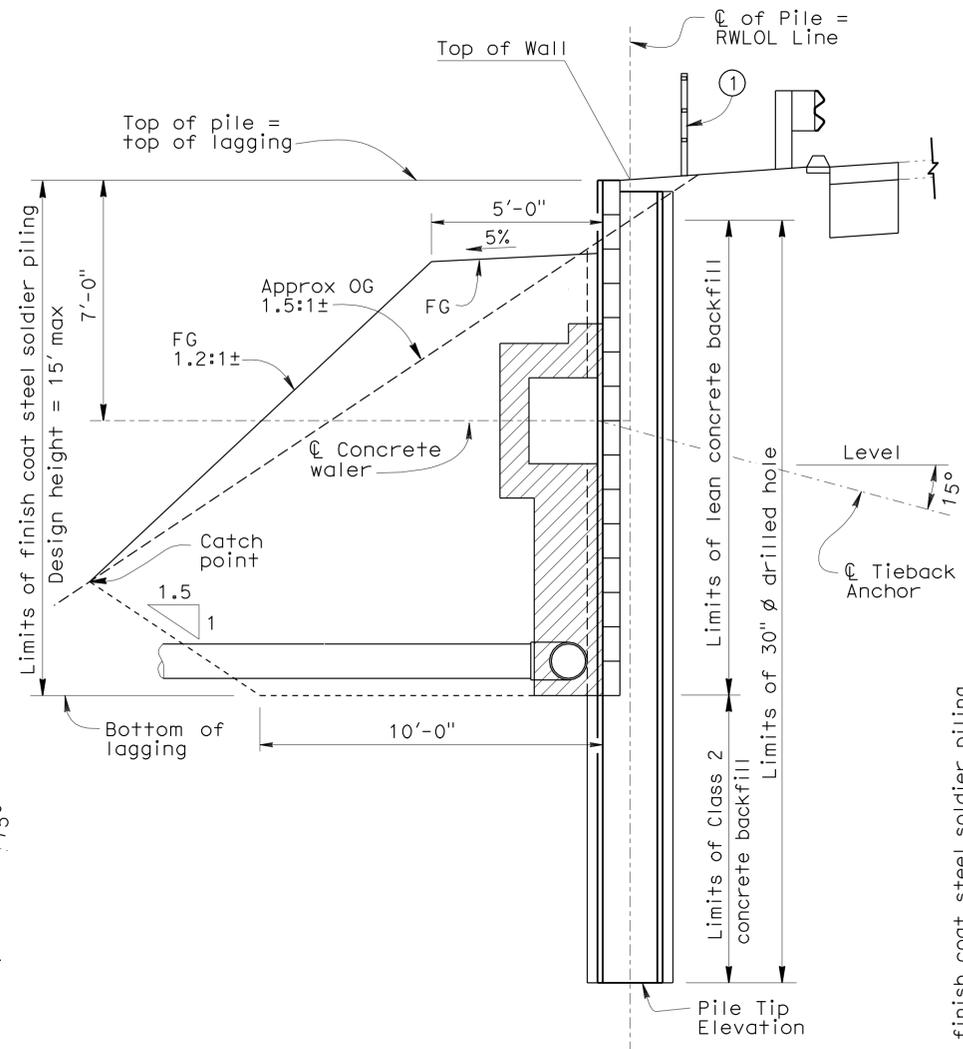
REVISION DATES	10-15-08	10-16-08	11-13-08	11-14-08	11-21-08	12-9-08	12-18-08			
SHEET	6								OF	17

FILE => 01-472101-k-ts01.dgn

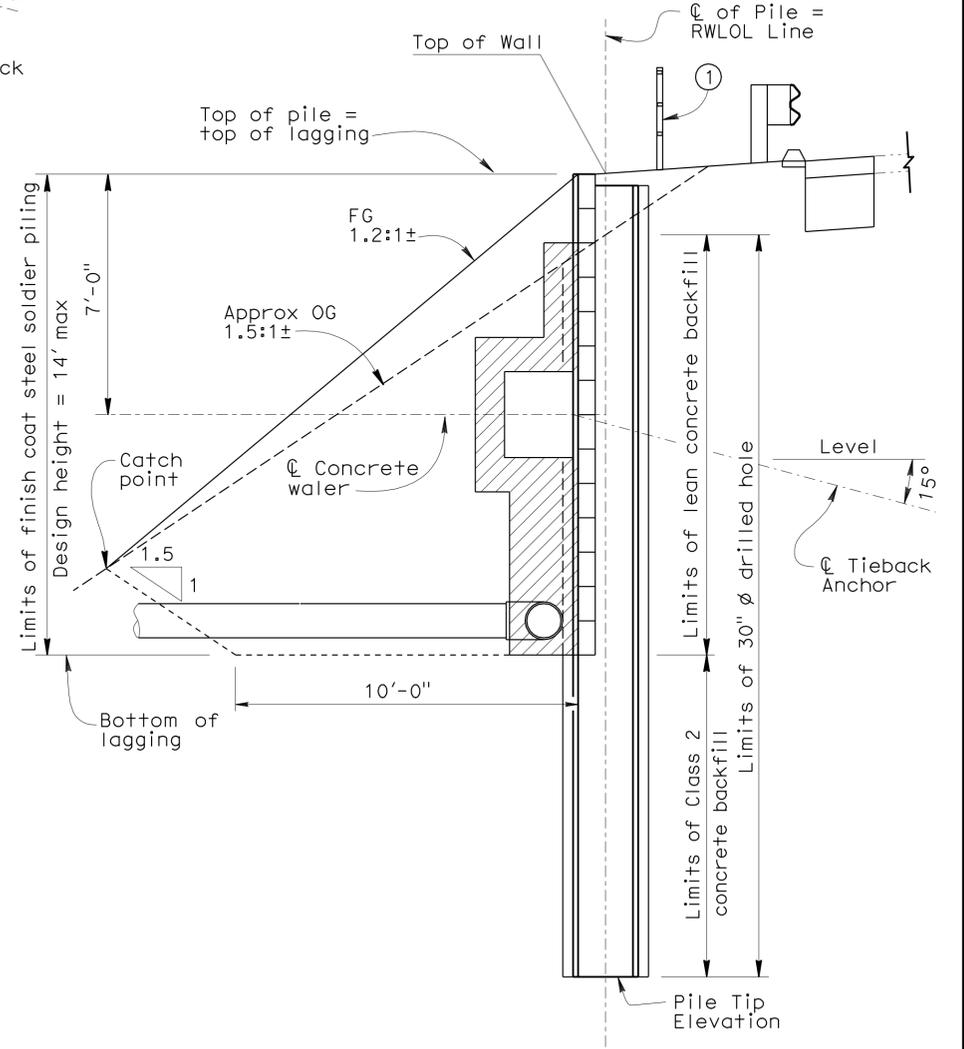
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Hum	299	R21.5	34	44
 REGISTERED CIVIL ENGINEER DATE 12-29-08					
PLANS APPROVAL DATE 3-30-09 <small>The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.</small>					



TYPICAL SECTION P23 thru P24 ④
 $\frac{3}{8}''=1'-0''$



TYPICAL SECTION P25 thru P27 ④
 $\frac{3}{8}''=1'-0''$



TYPICAL SECTION P28 ④
 $\frac{3}{8}''=1'-0''$

- Notes:
- ① Cable railing, see 
 - ② MBGR, see "ROAD PLANS".
 - ③ AC dike, and minor concrete, see "ROAD PLANS".
 - ④ For details not shown, see "Typical Section P4 thru P22" on 'TYPICAL SECTION NO. 1' sheet.
 - ⑤ Reduce dimensions as required to ensure catch point is inside ESL.
-  Indicates permeable material class 1.

DESIGN	BY Wendy Hou	CHECKED Mike Forrestal
DETAILS	BY Gerald Dickerson	CHECKED Mike Forrestal
QUANTITIES	BY J. Jung / R. Deo	CHECKED S. Talukder / D. Desai

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
 STRUCTURE DESIGN
 DESIGN BRANCH 7

BRIDGE NO.	04E0019
POST MILE	21.5

SIMSON CHRISTMAS PRARIE WALL
 TYPICAL SECTION NO. 2

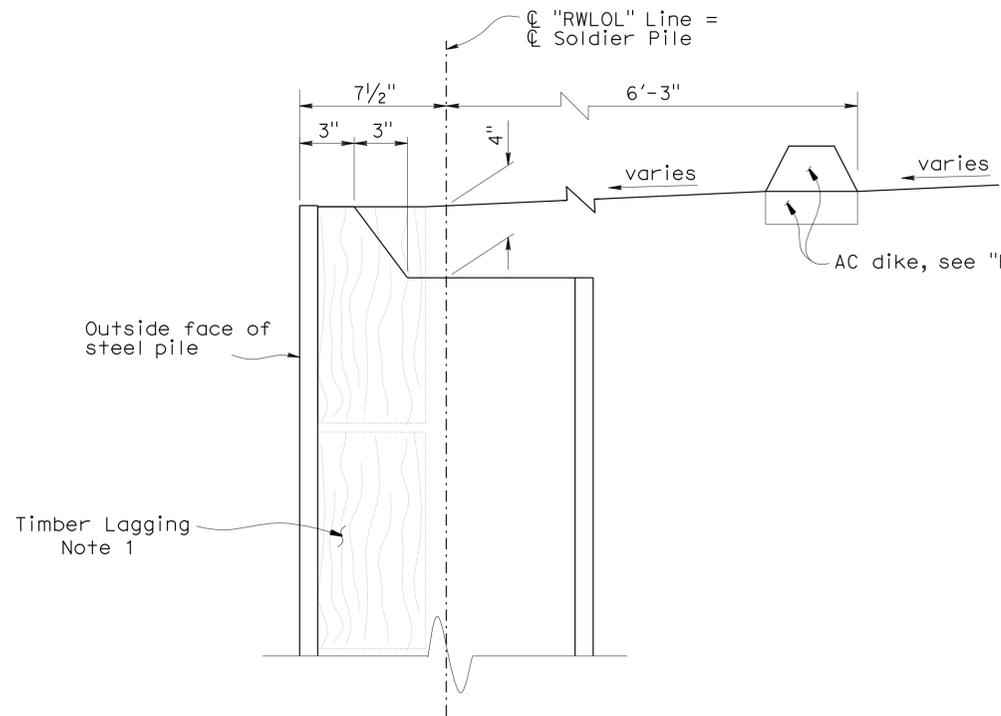
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01	Hum	299	R21.5	35	44

12-29-08
REGISTERED CIVIL ENGINEER DATE

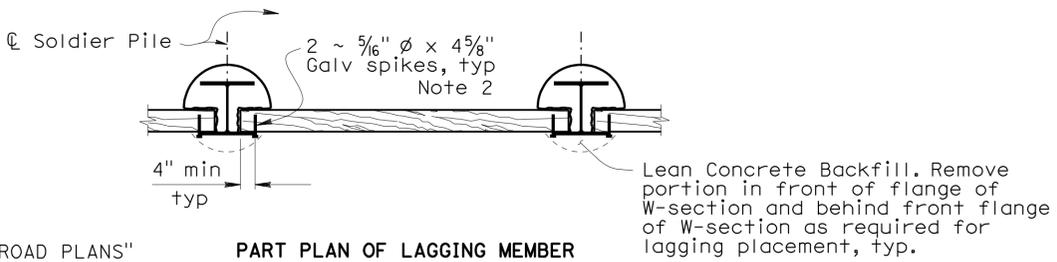
3-30-09
PLANS APPROVAL DATE

Shandon Wendy Hou
No. 71037
Exp. 6/30/2009
CIVIL
STATE OF CALIFORNIA

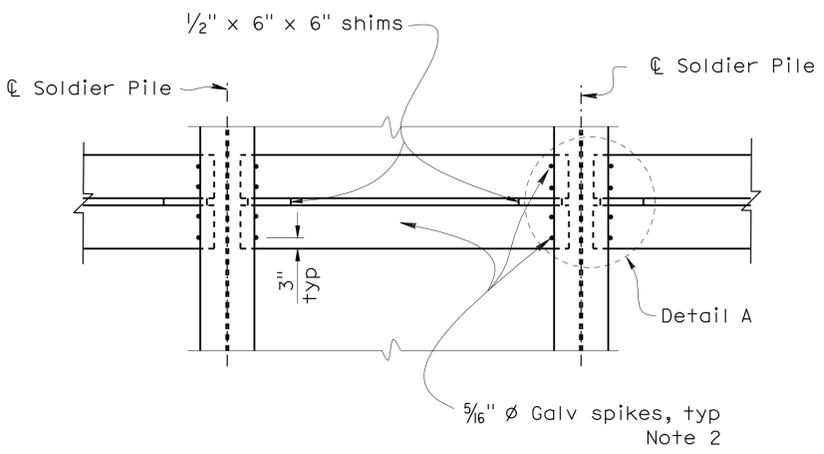
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.



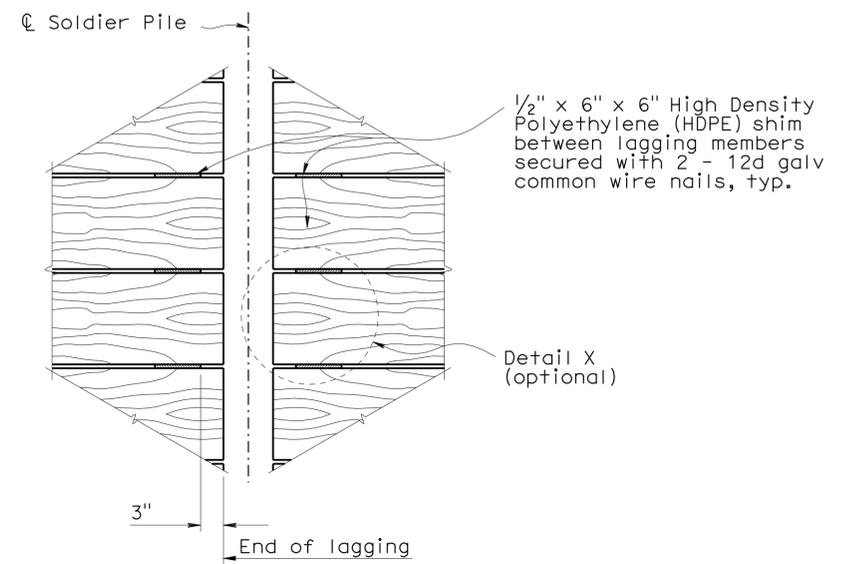
TOP OF PILE DETAIL
No scale



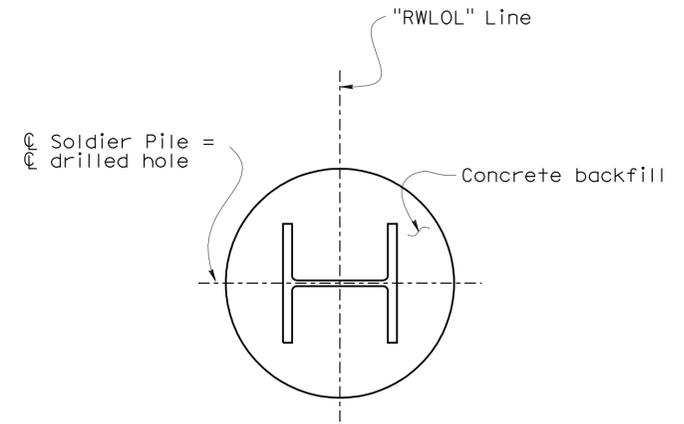
PART PLAN OF LAGGING MEMBER



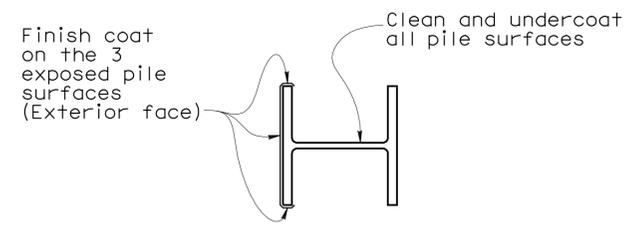
PART ELEVATION
LAGGING DETAILS
No Scale



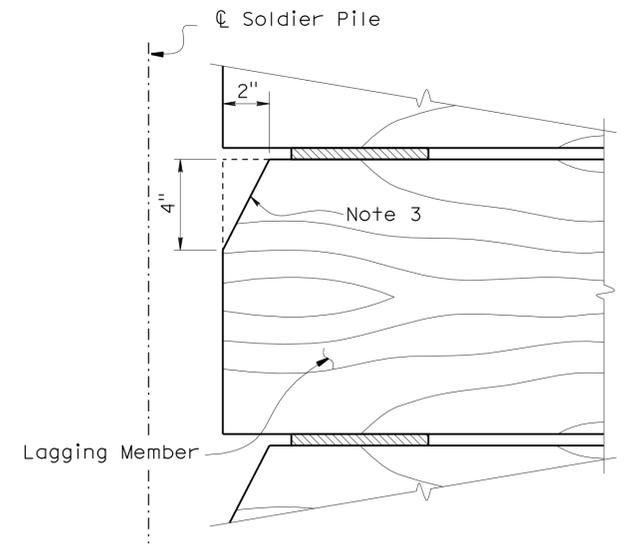
DETAIL A
1" = 1'-0"



SECTION A-A Note 4
1" = 1'-0"



LIMITS OF CLEAN & PAINT STEEL SOLDIER PILE
1" = 1'-0"



DETAIL X
3" = 1'-0"

- Notes:
1. Place lagging members parallel to the top of wall.
 2. Spikes shall not be bent.
 3. Diagonally opposite corners of lagging may be clipped to facilitate lagging placement.
 4. For Location of Section A-A see "TYPICAL SECTION NO. 1" sheet.

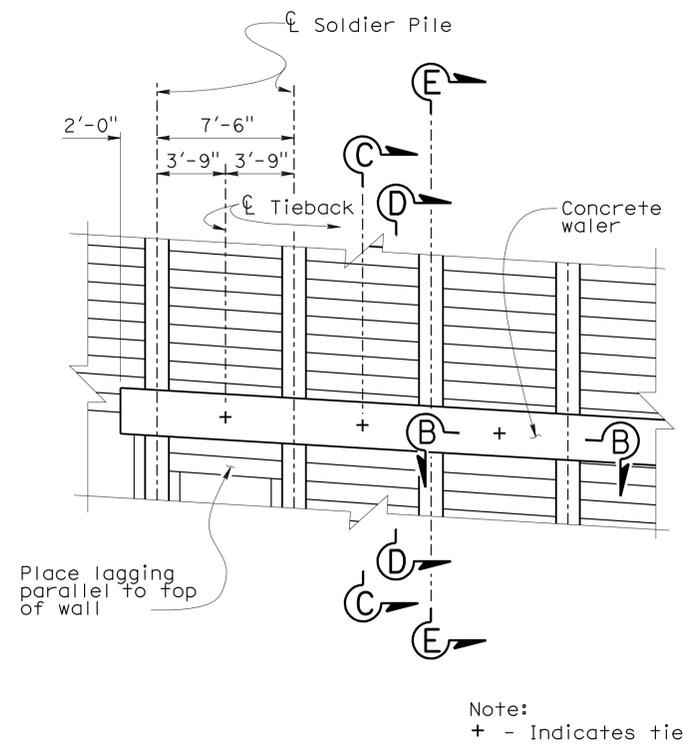
DESIGN	BY Wendy Hou	CHECKED Mike Forrestal
DETAILS	BY Gerald Dickerson	CHECKED Mike Forrestal
QUANTITIES	BY J. Jung / R. Deo	CHECKED S. Talukder / D. Desai

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

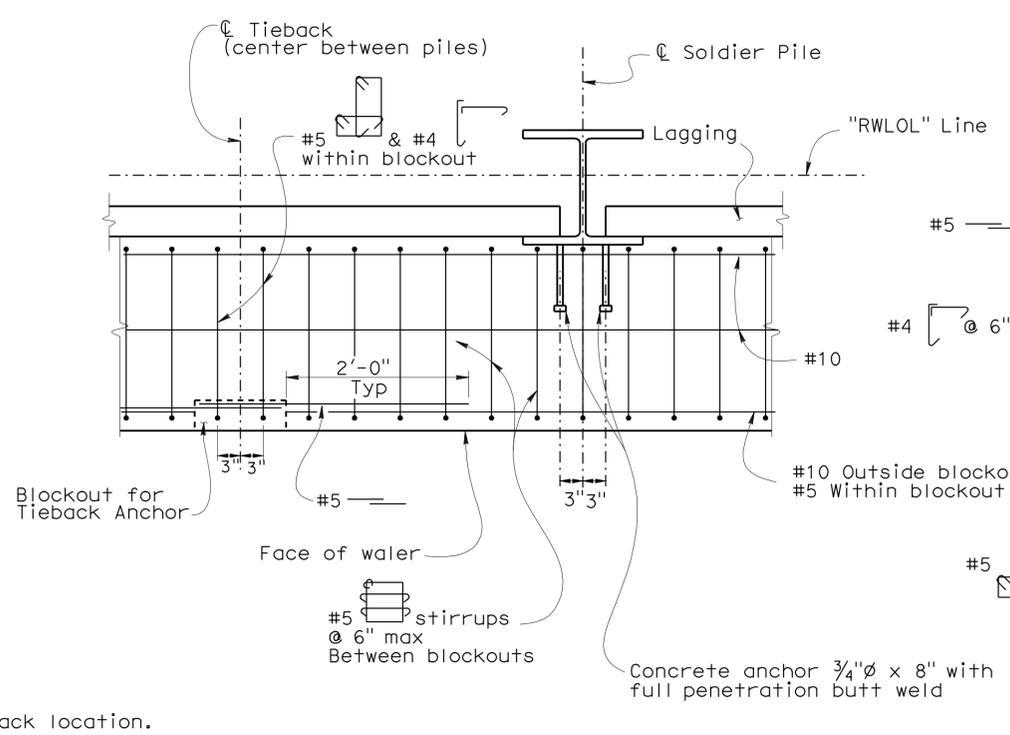
DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 7

BRIDGE NO.	04E0019	SIMSON CHRISTMAS PRARIE WALL PILE AND LAGGING DETAILS
POST MILE	21.5	

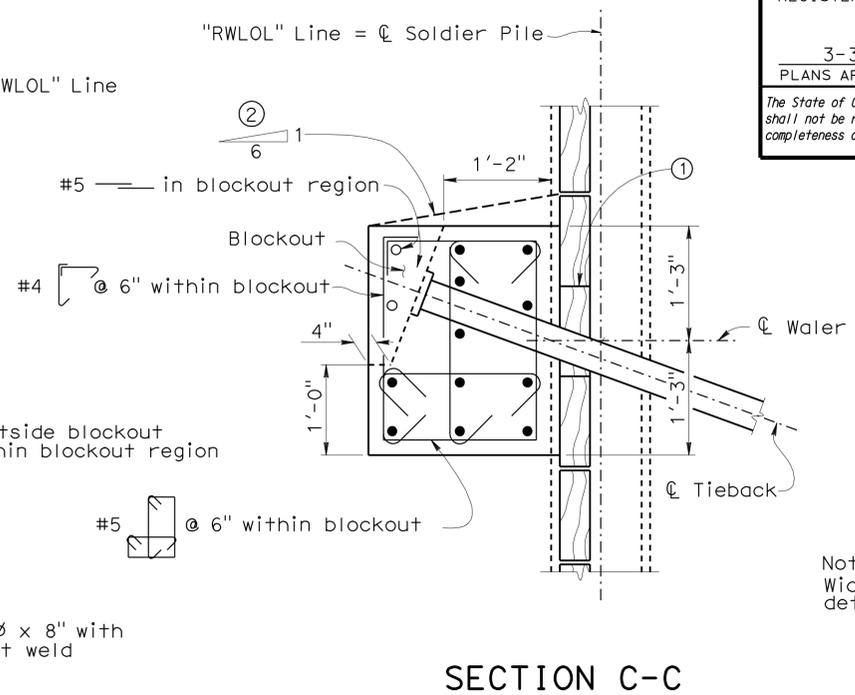
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Hum	299	R21.5	36	44
			12-29-08	REGISTERED CIVIL ENGINEER DATE	
			3-30-09	PLANS APPROVAL DATE	
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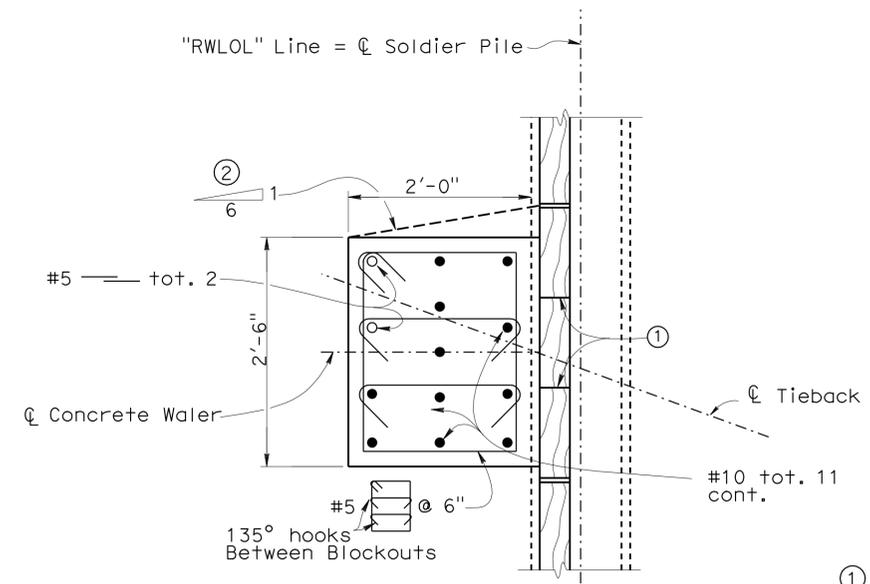
MIRRORED WALL PART ELEVATION
No scale



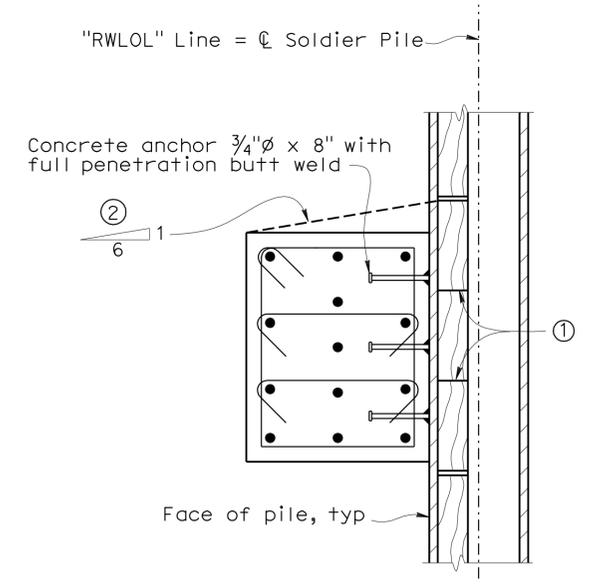
SECTION B-B
1"=1'-0"



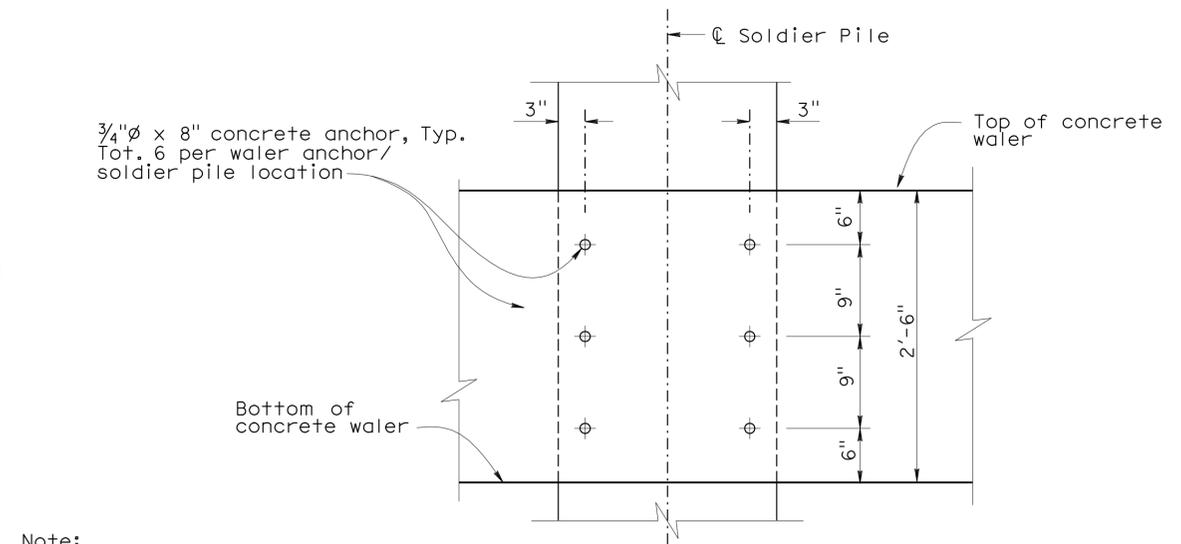
SECTION C-C
1"=1'-0"



SECTION D-D
1"=1'-0"



SECTION E-E
1"=1'-0"



CONCRETE ANCHOR PLACEMENT
No Scale

- ① Omit gap between lagging members joints behind concrete waler.
- ② Slope top of lower waler.

Note:
For details not shown, see "Section D-D".

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)	DESIGN	BY Wendy Hou	CHECKED Mike Forrestral	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 7	BRIDGE NO.	04E0019	SIMSON CHRISTMAS PRARIE WALL WALER AND WALL DETAILS
	DETAILS	BY Gerald Dickerson	CHECKED Mike Forrestral			POST MILE	21.5	
	QUANTITIES	BY J. Jung / R. Deo	CHECKED S. Talukder / D. Desai			CU 01 EA 472101	DISREGARD PRINTS BEARING EARLIER REVISION DATES	

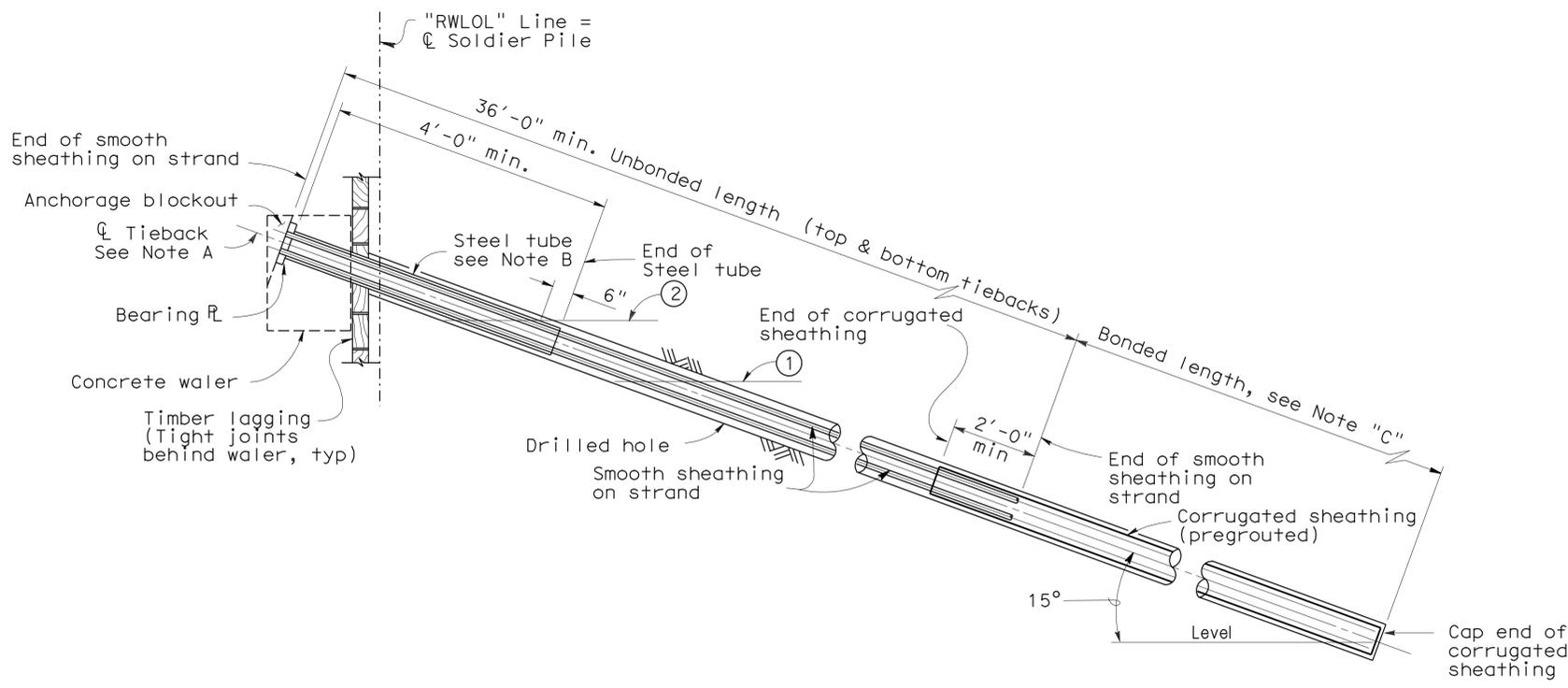
USERNAME => fhmikes DATE PLOTTED => 23-JUN-2009 TIME PLOTTED => 09:33

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Hum	299	R21.5	37	44

12-29-08	
REGISTERED CIVIL ENGINEER	DATE
3-30-09	
PLANS APPROVAL DATE	

Shandan Wendy Hou	
No.	71037
Exp.	6/30/2009
CIVIL	
STATE OF CALIFORNIA	

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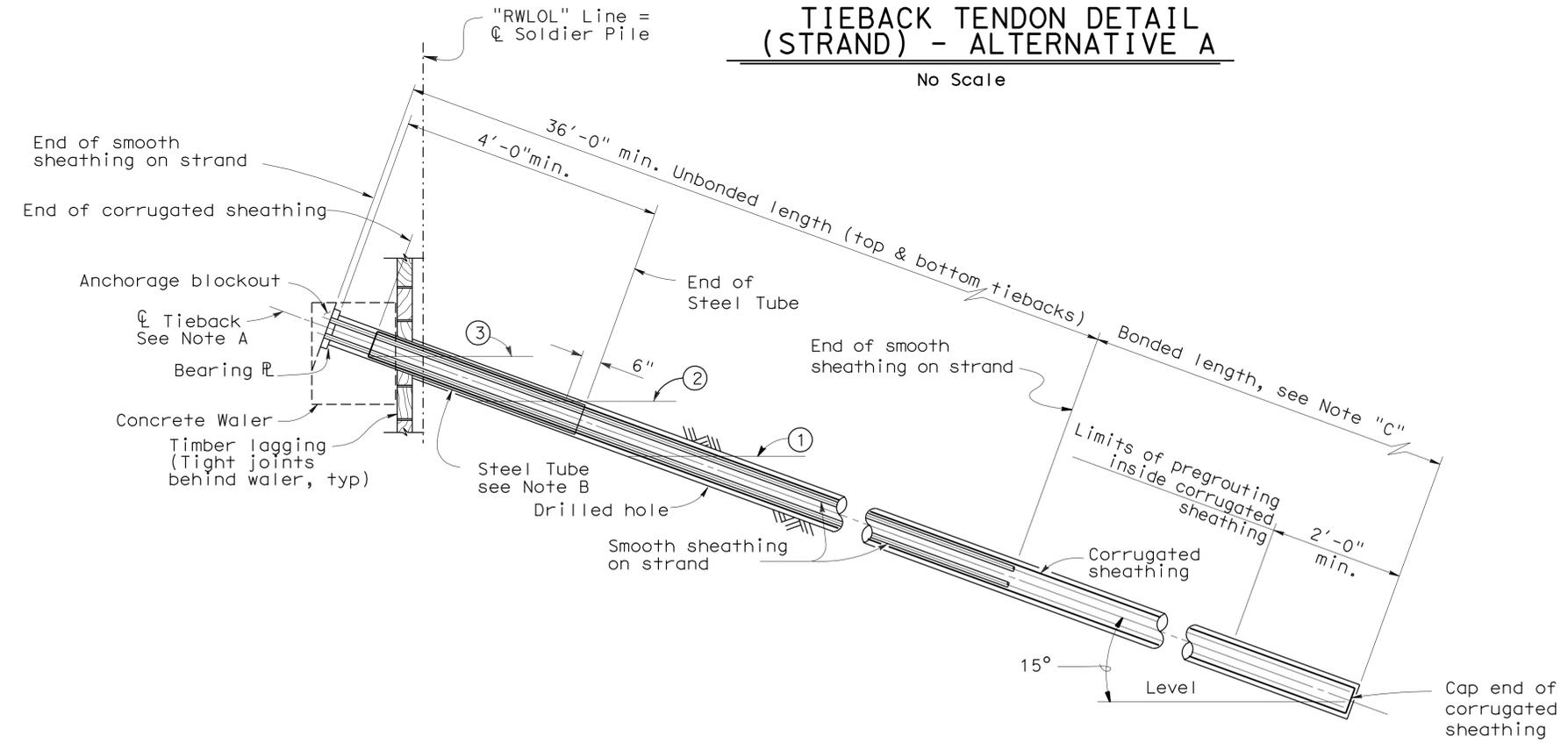


Notes:

- ① Level of initial grouting
 - ② Level of secondary grouting
 - ③ Level of initial grout inside corrugated sheathing
- A 1" min concrete cover over tieback anchorage and tendon.
- B Steel tube shall be 3/16" minimum thickness and welded to bearing plate. For Alternative B, inside diameter of steel tube shall be 1" greater than outside diameter of corrugated sheathing. Galvanize anchorage assembly after fabrication.
- C Bonded length shall be determined by the Contractor.
- D Extend unbonded length 5'-0" minimum into rock material.

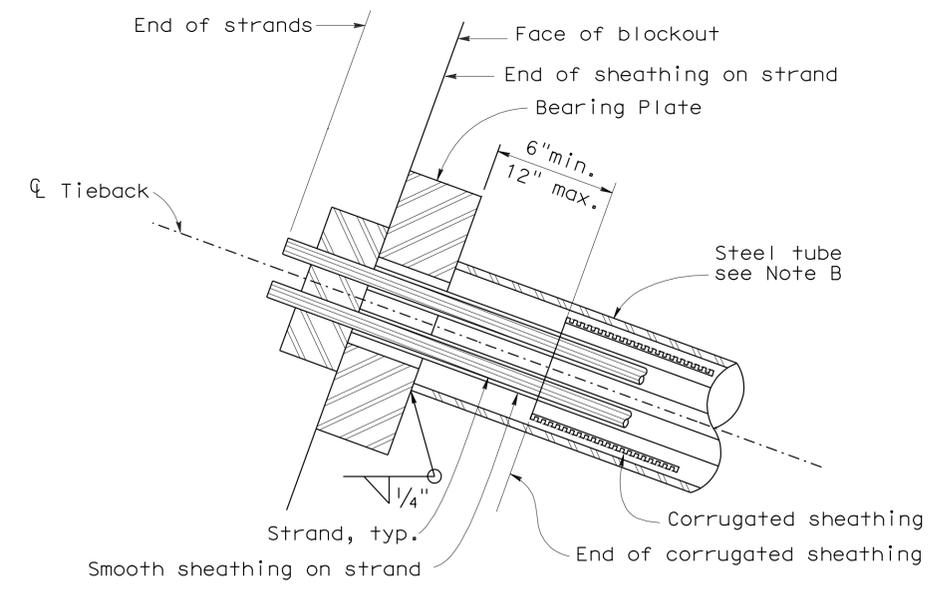
TIEBACK TENDON DETAIL (STRAND) - ALTERNATIVE A

No Scale



TIEBACK TENDON DETAIL (STRAND) - ALTERNATIVE B

No Scale



Note:

Alternative B shown, Alternative A similar.

ANCHORAGE ASSEMBLY DETAIL

No scale

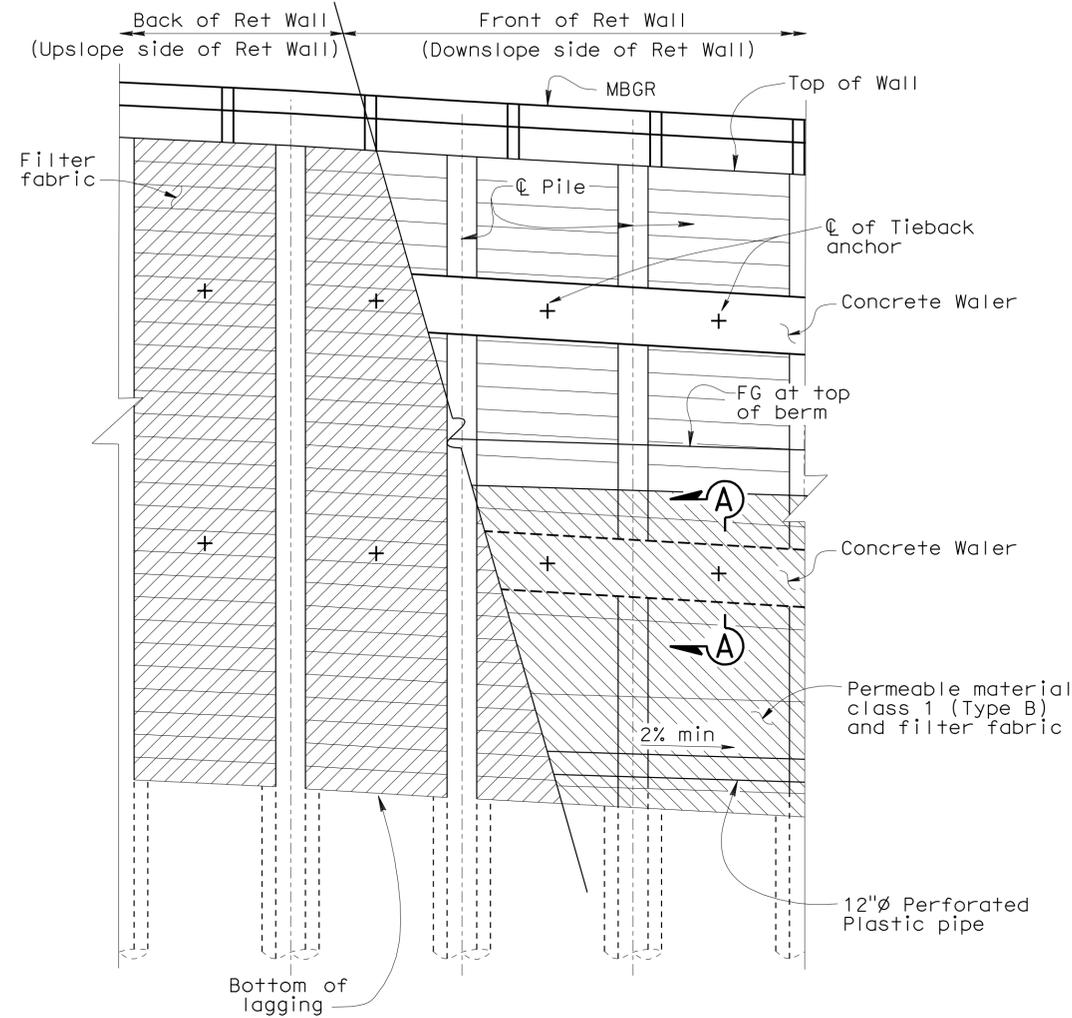
STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 10/25/05)	DESIGN	BY Wendy Hou	CHECKED Mike Forrester	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 7	BRIDGE NO.	04E0019	SIMSON CHRISTMAS PRARIE WALL TIEBACK DETAILS
	DETAILS	BY Gerald Dickerson	CHECKED Mike Forrester			POST MILE	21.5	
	QUANTITIES	BY J. Jung / R. Deo	CHECKED S. Talukder / D. Desai			CU 01 EA 472101	DISREGARD PRINTS BEARING EARLIER REVISION DATES	

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	0	1	2	3
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REVISION DATES									
SHEET	10	OF	17						

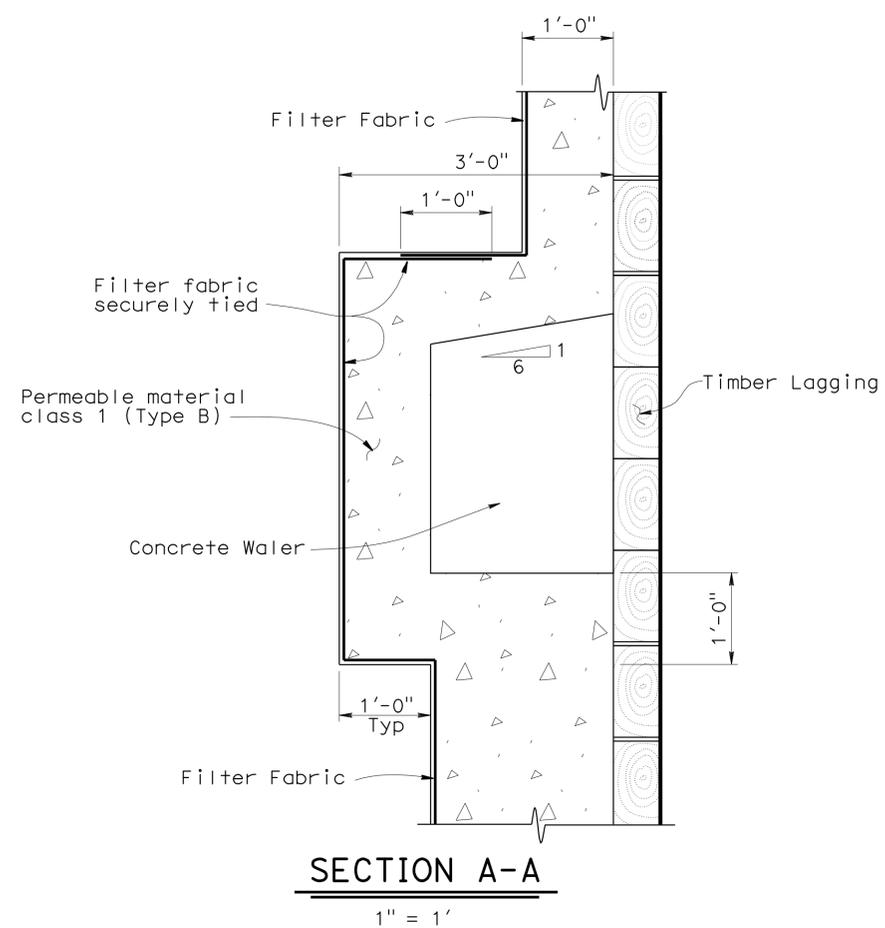
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DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Hum	299	R21.5	38	44
				12-29-08 REGISTERED CIVIL ENGINEER DATE 3-30-09 PLANS APPROVAL DATE	
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.					

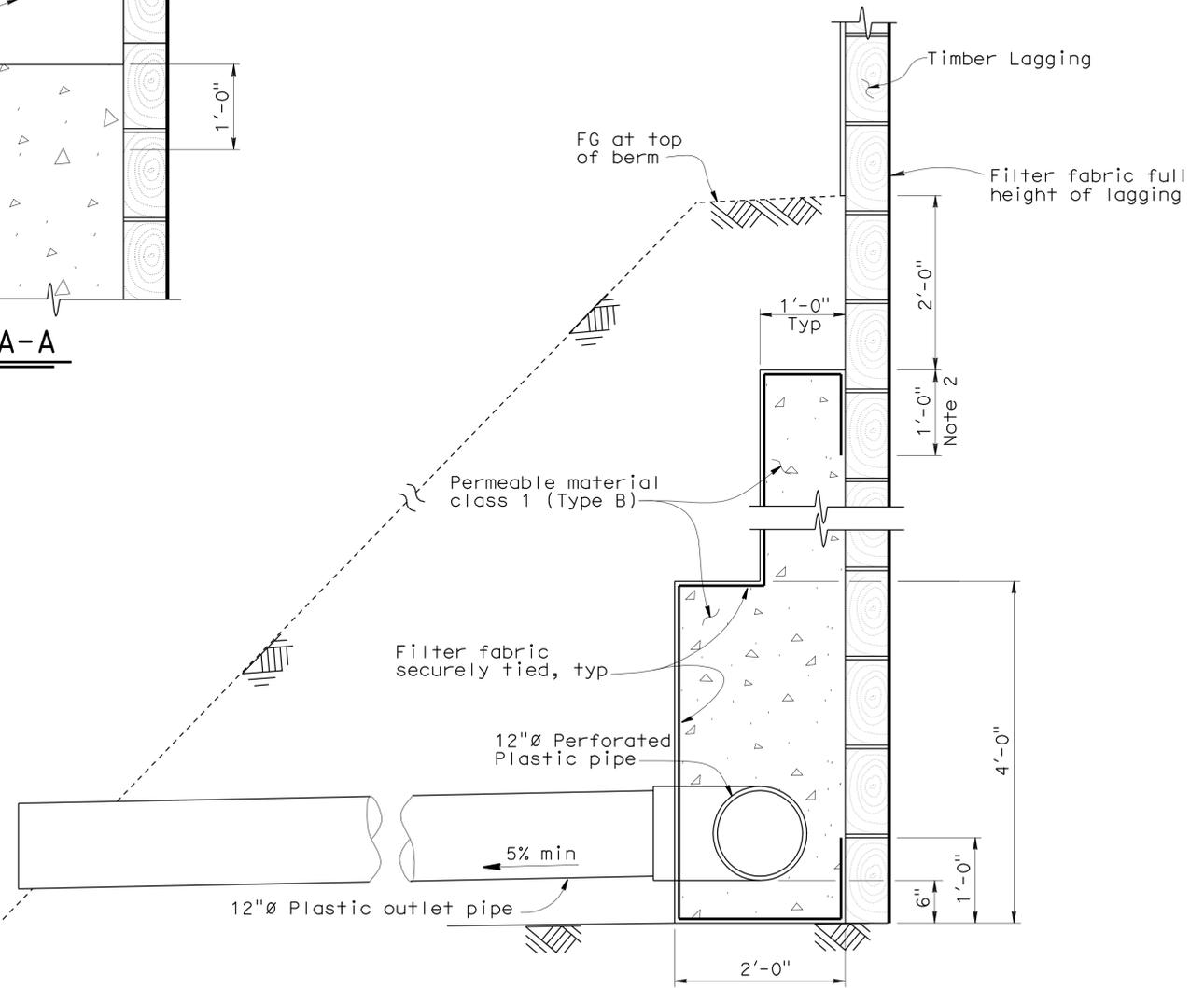


MIRRORED PART WALL ELEVATION
 1/4" = 1'

- Notes:
- For location of Detail B, see "TYPICAL SECTION NO. 1" sheet.
 - Wrap filter fabric around top and lap by 12" min.



SECTION A-A
 1" = 1'



DETAIL B
 1" = 1'

DESIGN	BY Wendy Hou	CHECKED Mike Forrestral
DETAILS	BY Gerald Dickerson	CHECKED Mike Forrestral
QUANTITIES	BY J. Jung / R. Deo	CHECKED S. Talukder / D. Desai

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
 STRUCTURE DESIGN
DESIGN BRANCH 7

BRIDGE NO.	04E0019
POST MILE	21.5

SIMSON CHRISTMAS PRARIE WALL
DRAINAGE DETAILS

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Hum	299	R21.5	39	44

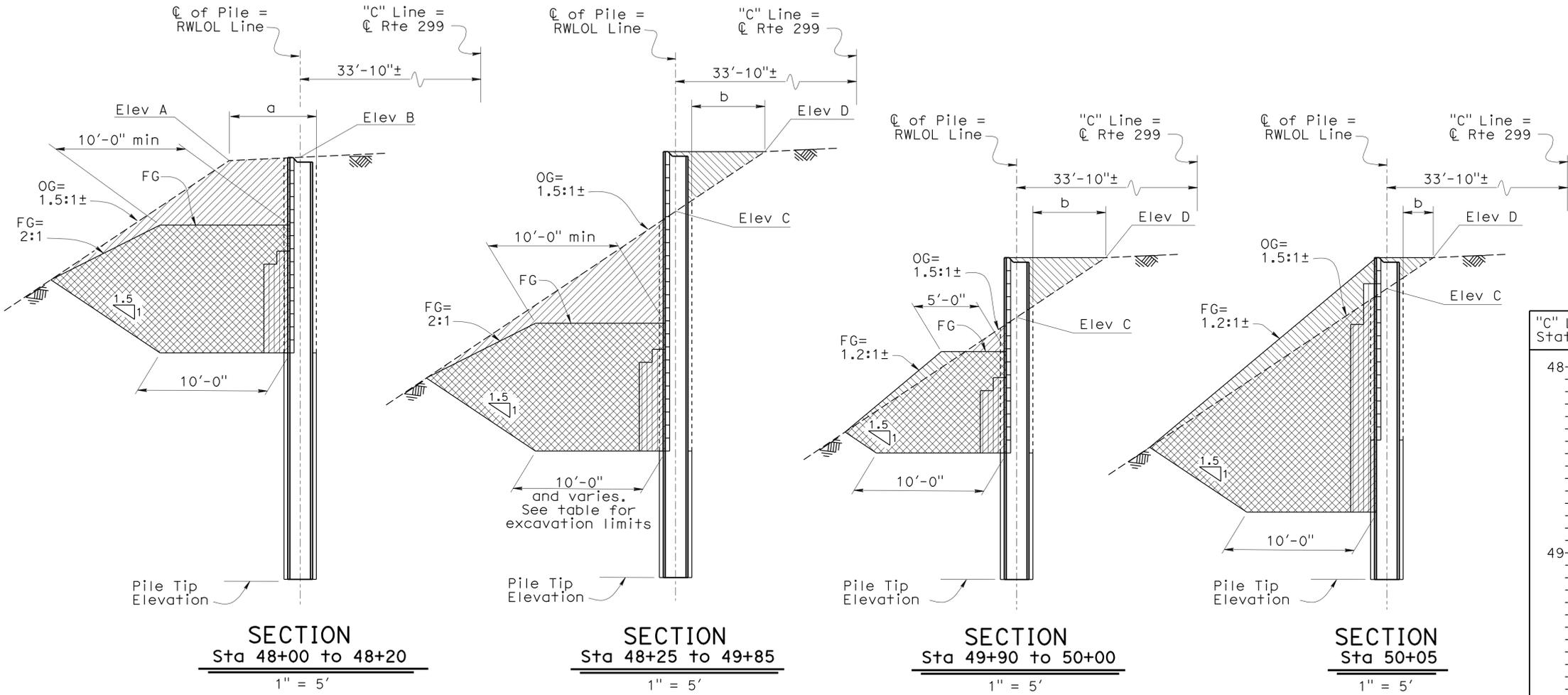
12-29-08
REGISTERED CIVIL ENGINEER DATE

3-30-09
PLANS APPROVAL DATE

Shandon Wendy Hou
No. 71037
Exp. 6/30/2009
CIVIL
STATE OF CALIFORNIA

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"C" Line Station	RW LOL Station	Approx Elev (ft)		a (ft)
		Elev A	Elev B	
48+00	48+00	1209.13	1210.11	15.1
+05	+05	1209.07	1209.78	11.2
+10	+10	1206.75	1209.45	7.3
+15	+15	1206.46	1209.15	3.4
+20	+20	1205.96	1208.78	0.0



"C" Line Station	RW LOL Station	Approx Elev (ft)		b (ft)	Excavation Limit (ft)
		Elev C	Elev D		
48+25	48+25	1207.96	1208.49	1.0	10.0
+30	+30	1207.06	1208.20	2.0	10.0
+35	+35	1206.59	1207.87	2.0	10.0
+40	+40	1206.27	1207.54	2.0	10.0
+45	+45	1205.94	1207.22	2.0	10.0
+50	+50	1205.35	1206.90	2.1	10.0
+55	+55	1204.69	1206.63	2.9	10.0
+60	+60	1204.17	1206.35	3.0	10.0
+65	+65	1203.85	1206.09	3.1	10.0
+70	+70	1203.55	1205.82	3.3	10.0
+75	+75	1203.24	1205.55	3.4	9.0
+80	+80	1202.92	1205.29	3.4	8.0
+85	+85	1202.63	1205.02	3.7	8.0
+90	+90	1202.33	1204.76	3.8	8.0
+95	+95	1202.02	1204.50	4.0	7.5
49+00	49+00	1201.67	1204.23	4.1	7.0
+05	+05	1201.36	1203.96	4.2	6.5
+10	+10	1201.04	1203.68	4.2	6.0
+15	+15	1200.73	1203.40	4.2	5.5
+20	+20	1200.40	1203.12	4.2	5.0
+25	+25	1200.08	1202.85	4.2	7.0
+30	+30	1199.76	1202.57	4.3	7.0
+35	+35	1199.44	1202.30	4.4	7.0
+40	+40	1199.13	1202.02	4.4	7.0
+45	+45	1198.81	1201.74	4.4	8.0
+50	+50	1198.49	1201.46	4.3	8.0
+55	+55	1198.22	1201.18	4.3	9.0
+60	+60	1197.91	1200.90	4.3	9.0
+65	+65	1197.62	1200.63	4.5	9.0
+70	+70	1197.33	1200.35	4.5	10.0
+75	+75	1197.04	1200.07	4.5	10.0
+80	+80	1196.75	1199.77	4.5	10.0
+85	+85	1196.46	1199.46	4.5	10.0
+90	+90	1196.17	1199.16	4.5	10.0
+95	+95	1195.86	1198.86	4.5	10.0
50+00	50+00	1195.27	1198.55	4.5	10.0
+05	+05	1195.00	1198.25	4.4	10.0

- Legend
- Structure Excavation (Soldier Pile Wall)
 - Structure Backfill (Soldier Pile Wall)
 - Permeable material, class 1

DESIGN	BY Wendy Hou	CHECKED Mike Forrestral
DETAILS	BY Gerald Dickerson	CHECKED Mike Forrestral
QUANTITIES	BY J. Jung / R. Deo	CHECKED S. Talukder / D. Desai

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 7

BRIDGE NO. 04E0019
POST MILE 21.5

SIMSON CHRISTMAS PRARIE WALL
EXCAVATION AND BACKFILL DETAILS

CU 01
EA 472101

REVISION DATES: 10-15-08, 11-14-08, 11-24-08, 12-10-08, 12-13-08, 12-28-08

SHEET 12 OF 17

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Hum	299	R21.5	40	44

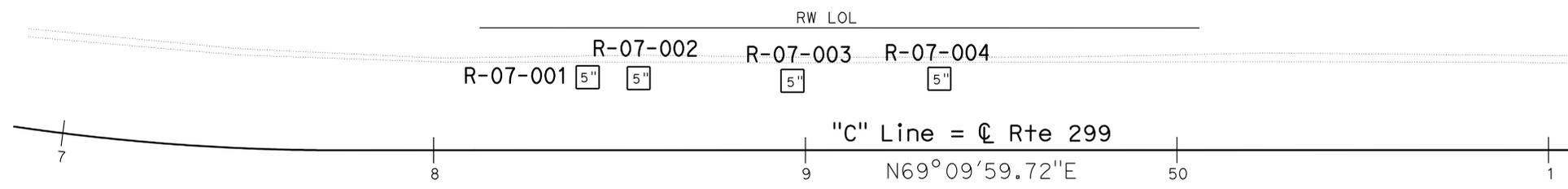
Down McGuire 9-22-08
 CERTIFIED ENGINEERING GEOLOGIST

3-30-09
 PLANS APPROVAL DATE

Down McGuire
 No. 2280
 Exp. 04-20-10
 CERTIFIED ENGINEERING GEOLOGIST
 STATE OF CALIFORNIA

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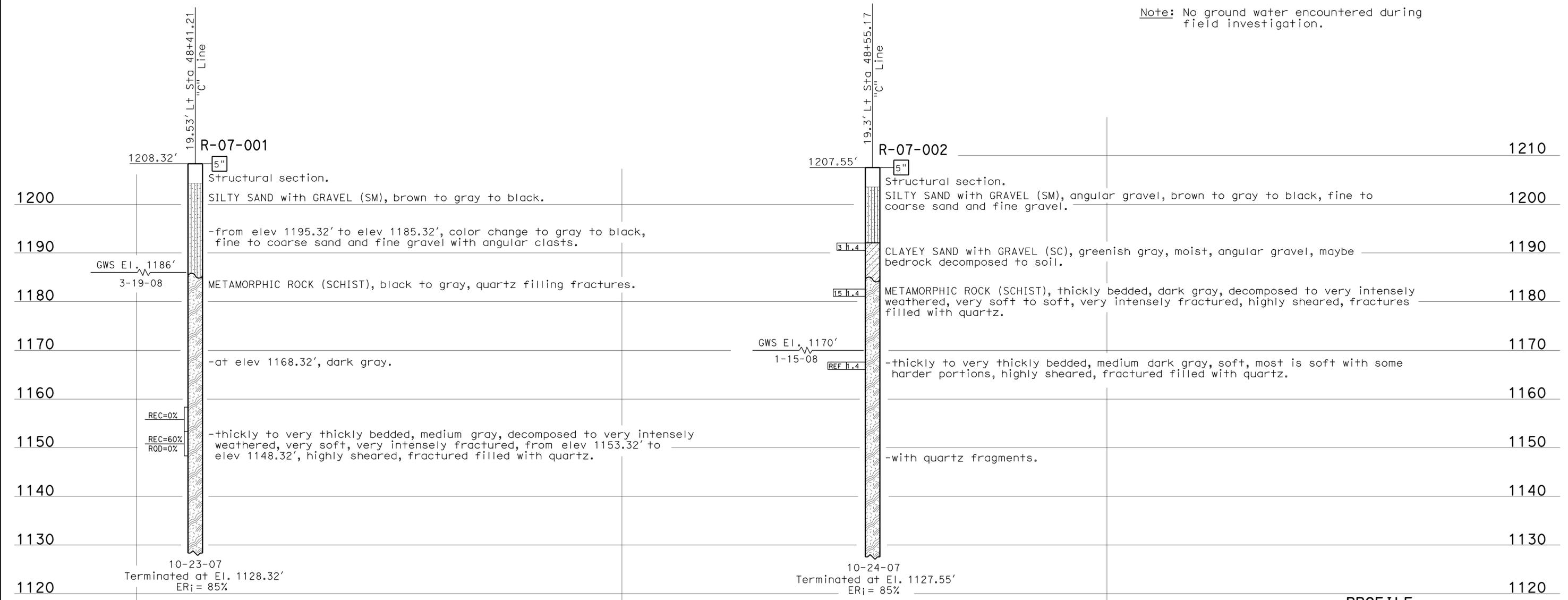
This LOTB sheet was prepared in accordance with the Caltrans Soil & Rock Logging, Classification, & Presentation Manual (June 2007).



BENCH MARK
 SUHV 102 = 123.610'
 SUHV 103 = 1,173.810'

PLAN
 1" = 20'

Note: No ground water encountered during field investigation.



PROFILE
 HOR. 1"=1'
 VER. 1"=10'

ENGINEERING SERVICES		GEOTECHNICAL SERVICES		STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH	BRIDGE NO. 04E0019	SIMSON CHRISTMAS PRARIE WALL
FUNCTIONAL SUPERVISOR NAME: C. Narwold	DRAWN BY: F. Nguyen 04/08	FIELD INVESTIGATION BY: D. Vann	POST MILES 21.5			LOG OF TEST BORINGS 1 OF 5	
065 CIVIL LOG OF TEST BORINGS SHEET				ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	CU 01 EA 472101	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES
				0 1 2 3	FILE => 01-472101-z-lfb01.dgn	06-17-08 06-18-08 09-12-08 09-28-08 10-16-08	SHEET 13 OF 17

USERNAME => fhmikes DATE PLOTTED => 23-JUN-2009 TIME PLOTTED => 09:34

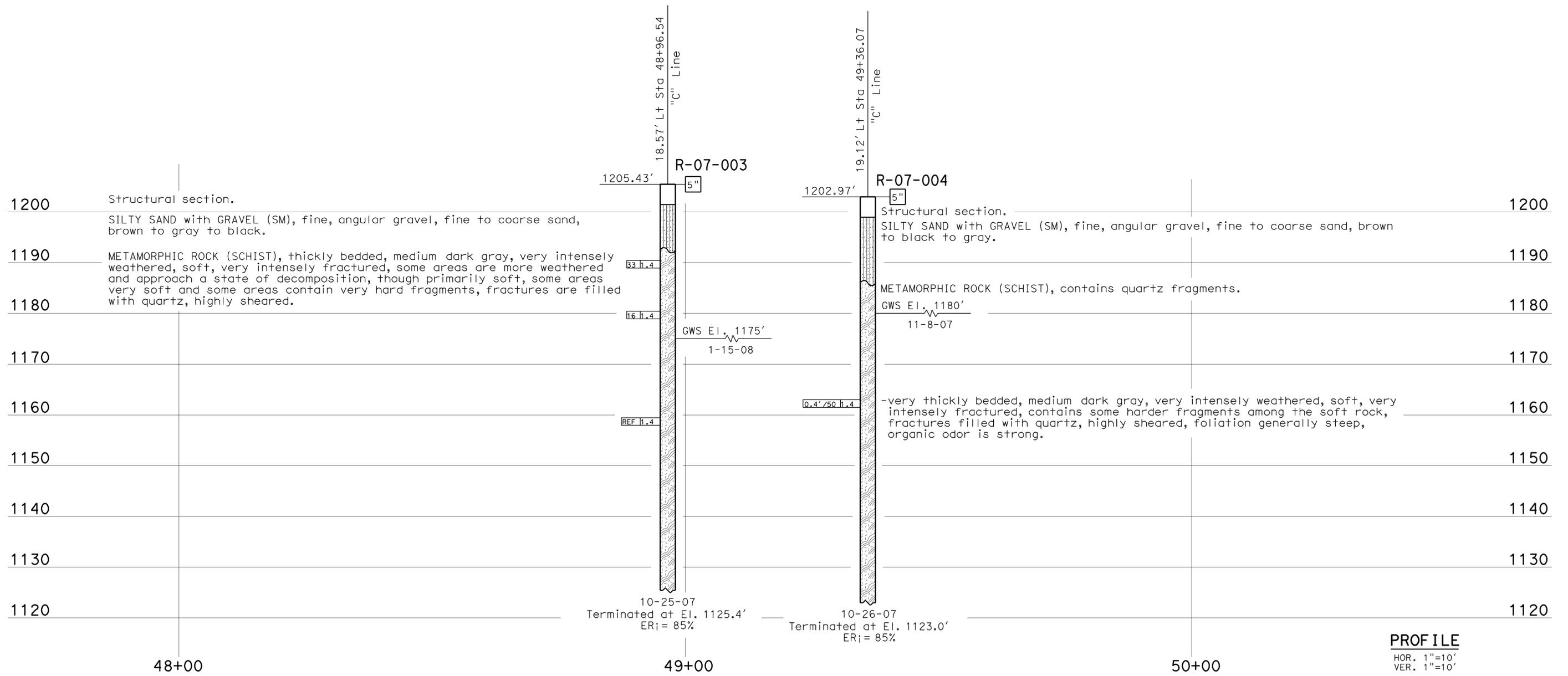
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Hum	299	R21.5	41	44

Dawn McGuire 9-22-08
 CERTIFIED ENGINEERING GEOLOGIST
 3-30-09
 PLANS APPROVAL DATE

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FOR PLAN VIEW, SEE
 "LOG OF TEST BORINGS 1 OF 5"

This LOTB sheet was prepared in accordance with the Caltrans Soil & Rock Logging, Classification, & Presentation Manual (June 2007).



PROFILE
 HOR. 1"=10'
 VER. 1"=10'

ENGINEERING SERVICES		GEOTECHNICAL SERVICES		STATE OF CALIFORNIA		DIVISION OF ENGINEERING SERVICES		BRIDGE NO.		SIMSON CHRISTMAS PRARIE WALL	
FUNCTIONAL SUPERVISOR		DRAWN BY: F. Nguyen 04/08		DEPARTMENT OF TRANSPORTATION		STRUCTURE DESIGN		04E0019		LOG OF TEST BORINGS 2 OF 5	
NAME: C. Narwold		CHECKED BY: D. McGuire		D. Vann		DESIGN BRANCH		POST MILES			
								21.5			
065 CIVIL LOG OF TEST BORINGS SHEET		ORIGINAL SCALE IN INCHES FOR REDUCED PLANS		CU 01 EA 472101		DISREGARD PRINTS BEARING EARLIER REVISION DATES		REVISION DATES		SHEET 14 OF 17	
								06-17-08 06-18-08 09-18-08 09-22-08			

USERNAME => fhmikes DATE PLOTTED => 23-JUN-2009 TIME PLOTTED => 09:34

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Hum	299	R21.5	42	44

Dawn McGuire 9-22-08
 CERTIFIED ENGINEERING GEOLOGIST

3-30-09
 PLANS APPROVAL DATE

Dawn McGuire
 No. 2280
 Exp. 04-20-10
 CERTIFIED ENGINEERING GEOLOGIST
 STATE OF CALIFORNIA

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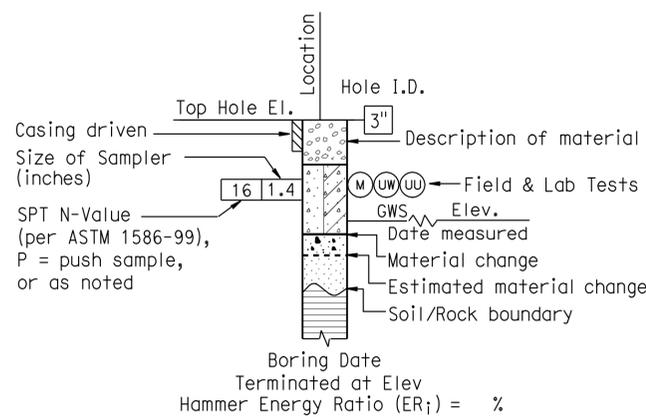
CEMENTATION	
Description	Criteria
Weak	Crumbles or breaks with handling or little finger pressure.
Moderate	Crumbles or breaks with considerable finger pressure.
Strong	Will not crumble or break with finger pressure.

CONSISTENCY OF COHESIVE SOILS				
Description	Unconfined Compressive Strength (tsf)	Pocket Penetrometer Measurement (tsf)	Torvane Measurement (tsf)	Field Approximation
Very Soft	< 0.25	< 0.25	< 0.12	Easily penetrated several inches by fist
Soft	0.25 to 0.50	0.25 to 0.50	0.12 to 0.25	Easily penetrated several inches by thumb
Medium Stiff	0.50 to 1.0	0.50 to 1.0	0.25 to 0.50	Penetrated several inches by thumb with moderate effort
Stiff	1 to 2	1 to 2	0.50 to 1.0	Readily indented by thumb but penetrated only with great effort
Very Stiff	2 to 4	2 to 4	1.0 to 2.0	Readily indented by thumbnail
Hard	> 4.0	> 4.0	> 2.0	Indented by thumbnail with difficulty

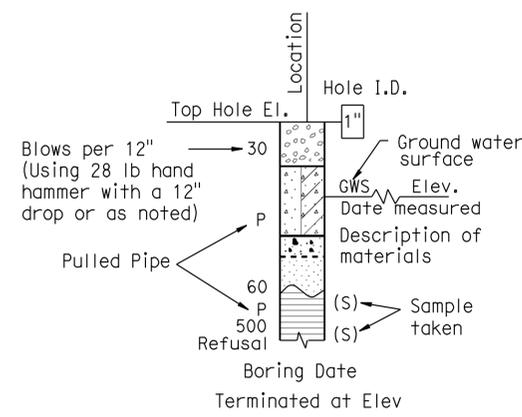
BOREHOLE IDENTIFICATION		
Symbol	Hole Type	Description
	A	Auger Boring
	R	Rotary drilled boring
	P	Rotary percussion boring (air)
	R	Rotary drilled diamond core
	HD	Hand driven (1-inch soil tube)
	HA	Hand Auger
	D	Dynamic Cone Penetration Boring
	CPT	Cone Penetration Test (ASTM D 5778-95)
	O	Other

Note: Size in inches.

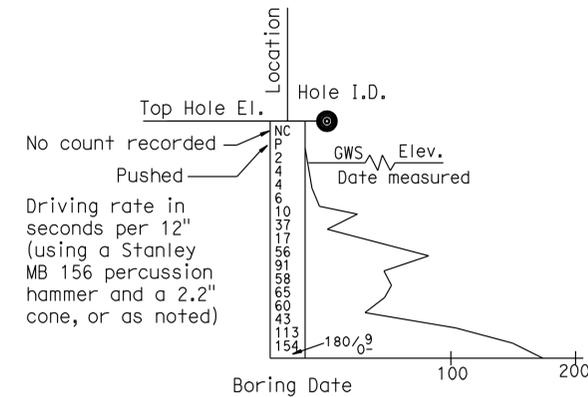
PLASTICITY OF FINE-GRAINED SOILS	
Description	Criteria
Nonplastic	A 1/8-inch thread cannot be rolled at any water content.
Low	The thread can barely be rolled and the lump cannot be formed when drier than the plastic limit.
Medium	The thread is easy to roll and not much time is required to reach the plastic limit. The thread cannot be rerolled after reaching the plastic limit. The lump crumbles when drier than the plastic limit.
High	It takes considerable time rolling and kneading to reach the plastic limit. The thread can be rerolled several times after reaching the plastic limit. The lump can be formed without crumbling when drier than the plastic limit.



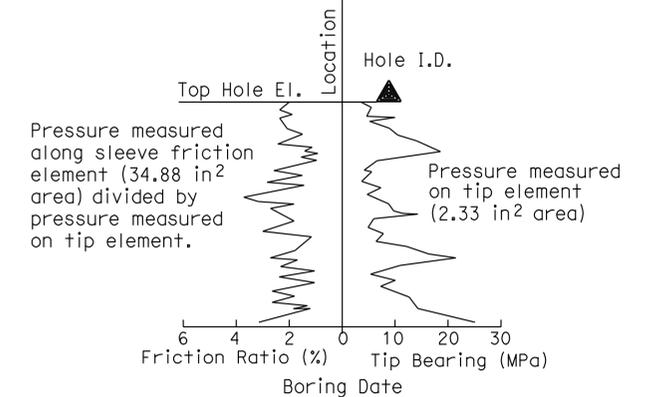
ROTARY BORING



HAND BORING



DYNAMIC CONE PENETRATION BORING



CONE PENETRATION TEST (CPT) SOUNDING

ENGINEERING SERVICES	GEOTECHNICAL SERVICES	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH	BRIDGE NO. 04E0019	SIMSON CHRISTMAS PRARIE WALL LOG OF TEST BORINGS 3 OF 5
	PREPARED BY: F. Nguyen 04/08			POST MILE 21.5	
GS LOTB SOIL LEGEND	ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	CU 01 EA 472101	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES	SHEET 15 OF 17

FILE => 01-472101-z-l+tb03.dgn

USERNAME => hrmkgs DATE PLOTTED => 23-JUN-2009 TIME PLOTTED => 09:35

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Hum	299	R21.5	43	44

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GROUP SYMBOLS AND NAMES			
Graphic/Symbol	Group Names	Graphic/Symbol	Group Names
	Well-graded GRAVEL		Lean CLAY
	Well-graded GRAVEL with SAND		Lean CLAY with SAND
	Poorly graded GRAVEL		Lean CLAY with GRAVEL
	Poorly graded GRAVEL with SAND		SANDY lean CLAY
	Well-graded GRAVEL with SILT		SANDY lean CLAY with GRAVEL
	Well-graded GRAVEL with SILT and SAND		GRAVELLY lean CLAY
	Well-graded GRAVEL with CLAY (or SILTY CLAY)		GRAVELLY lean CLAY with SAND
	Well-graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		SILTY CLAY
	Poorly graded GRAVEL with SILT		SILTY CLAY with SAND
	Poorly graded GRAVEL with SILT and SAND		SILTY CLAY with GRAVEL
	Poorly graded GRAVEL with CLAY (or SILTY CLAY)		SANDY SILTY CLAY
	Poorly graded GRAVEL with CLAY and SAND (or SILTY CLAY and SAND)		SANDY SILTY CLAY with GRAVEL
	SILTY GRAVEL		GRAVELLY SILTY CLAY
	SILTY GRAVEL with SAND		GRAVELLY SILTY CLAY with SAND
	CLAYEY GRAVEL		SILT
	CLAYEY GRAVEL with SAND		SILT with SAND
	SILTY, CLAYEY GRAVEL		SILT with GRAVEL
	SILTY, CLAYEY GRAVEL with SAND		SANDY SILT
	Well-graded SAND		SANDY SILT with GRAVEL
	Well-graded SAND with GRAVEL		GRAVELLY SILT
	Poorly graded SAND		GRAVELLY SILT with SAND
	Poorly graded SAND with GRAVEL		Fat CLAY
	Well-graded SAND with SILT		Fat CLAY with SAND
	Well-graded SAND with SILT and GRAVEL		Fat CLAY with GRAVEL
	Well-graded SAND with CLAY (or SILTY CLAY)		SANDY fat CLAY
	Well-graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)		SANDY fat CLAY with GRAVEL
	Poorly graded SAND with SILT		GRAVELLY fat CLAY
	Poorly graded SAND with SILT and GRAVEL		GRAVELLY fat CLAY with SAND
	Poorly graded SAND with CLAY (or SILTY CLAY)		Elastic SILT
	Poorly graded SAND with CLAY and GRAVEL (or SILTY CLAY and GRAVEL)		Elastic SILT with SAND
	SILTY SAND		Elastic SILT with GRAVEL
	SILTY SAND with GRAVEL		SANDY elastic SILT
	CLAYEY SAND		SANDY elastic SILT with GRAVEL
	CLAYEY SAND with GRAVEL		GRAVELLY elastic SILT
	SILTY, CLAYEY SAND		GRAVELLY elastic SILT with SAND
	SILTY, CLAYEY SAND with GRAVEL		ORGANIC fat CLAY
	PEAT		ORGANIC fat CLAY with SAND
	COBBLES		ORGANIC fat CLAY with GRAVEL
	COBBLES and BOULDERS		SANDY ORGANIC fat CLAY
	BOULDERS		SANDY ORGANIC fat CLAY with GRAVEL
			GRAVELLY ORGANIC fat CLAY
			GRAVELLY ORGANIC fat CLAY with SAND
			ORGANIC elastic SILT
			ORGANIC elastic SILT with SAND
			ORGANIC elastic SILT with GRAVEL
			SANDY ORGANIC elastic SILT
			SANDY ORGANIC elastic SILT with GRAVEL
			GRAVELLY ORGANIC elastic SILT
			GRAVELLY ORGANIC elastic SILT with SAND
			ORGANIC SOIL
			ORGANIC SOIL with SAND
			ORGANIC SOIL with GRAVEL
			SANDY ORGANIC SOIL
			SANDY ORGANIC SOIL with GRAVEL
			GRAVELLY ORGANIC SOIL
			GRAVELLY ORGANIC SOIL with SAND

FIELD AND LABORATORY TESTING	
(C)	Consolidation (ASTM D 2435)
(CL)	Collapse Potential (ASTM D 5333)
(CP)	Compaction Curve (CTM 216)
(CR)	Corrosivity Testing (CTM 643, CTM 422, CTM 417)
(CU)	Consolidated Undrained Triaxial (ASTM D 4767)
(DS)	Direct Shear (ASTM D 3080)
(EI)	Expansion Index (ASTM D 4829)
(M)	Moisture Content (ASTM D 2216)
(OC)	Organic Content-% (ASTM D 2974)
(P)	Permeability (CTM 220)
(PA)	Particle Size Analysis (ASTM D 422)
(PI)	Plasticity Index (AASHTO T 90) Liquid Limit (AASHTO T 89)
(PL)	Point Load Index (ASTM D 5731)
(PM)	Pressure Meter
(PP)	Pocket Penetrometer
(R)	R-Value (CTM 301)
(SE)	Sand Equivalent (CTM 217)
(SG)	Specific Gravity (AASHTO T 100)
(SL)	Shrinkage Limit (ASTM D 427)
(SW)	Swell Potential (ASTM D 4546)
(TV)	Pocket Torvane
(UC)	Unconfined Compression-Soil (ASTM D 2166)
(UU)	Unconfined Compression-Rock (ASTM D 2938)
(UU)	Unconsolidated Undrained Triaxial (ASTM D 2850)
(UW)	Unit Weight (ASTM D 4767)
(VS)	Vane Shear (AASHTO T 223)

APPARENT DENSITY OF COHESIONLESS SOILS	
Description	SPT N ₆₀ (Blows / 12 inches)
Very loose	0 - 4
Loose	5 - 10
Medium Dense	11 - 30
Dense	31 - 50
Very Dense	> 50

MOISTURE	
Description	Criteria
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, usually soil is below water table

PERCENT OR PROPORTION OF SOILS	
Description	Criteria
Trace	Particles are present but estimated to be less than 5%
Few	5 to 10%
Little	15 to 25%
Some	30 to 45%
Mostly	50 to 100%

PARTICLE SIZE		
Description	Size	
Boulder	> 12"	
Cobble	3" to 12"	
Gravel	Coarse	3/4" to 3"
	Fine	No. 4 to 3/4"
Sand	Coarse	No. 10 to No. 4
	Medium	No. 40 to No. 10
	Fine	No. 200 to No. 40

ENGINEERING SERVICES	GEOTECHNICAL SERVICES	STATE OF CALIFORNIA	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN	BRIDGE NO.	SIMSON CHRISTMAS PRARIE WALL
				04E0019	
	PREPARED BY: F. Nguyen 04/08	DEPARTMENT OF TRANSPORTATION	DESIGN BRANCH	POST MILE	LOG OF TEST BORINGS 4 OF 5
				21.5	
GS LOTB SOIL LEGEND	ORIGINAL SCALE IN INCHES FOR REDUCED PLANS	CU 01 EA 472101	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES	SHEET 16 OF 17

FILE => 01-472101-z-1fb04.dgn

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No	TOTAL SHEETS
01	Hum	299	R21.5	44	44

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PERCENT CORE RECOVERY (REC) & ROCK QUALITY DESIGNATION (RQD)

$$REC = \frac{\sum \text{Length of the recovered core pieces (inches)}}{\text{Total length of core run (inches)}} \times 100\%$$

$$RQD = \frac{\sum \text{Length of intact core pieces} \geq 4''}{\text{Total length of core run (inches)}} \times 100\%$$

RELATIVE STRENGTH OF INTACT ROCK

Term	Uniaxial Compressive Strength (PSI)
Extremely Strong	> 30,000
Very Strong	14,500 - 30,000
Strong	7,000 - 14,500
Medium Strong	3,500 - 7,000
Weak	700 - 3,500
Very Weak	150 - 700
Extremely Weak	< 150

BEDDING SPACING

Description	Thickness / Spacing
Massive	Greater than 10 ft
Very thickly bedded	3 to 10 ft
Thickly bedded	1 to 3 ft
Moderately bedded	3-5/8" to 1 ft
Thinly bedded	1-1/4" to 3-5/8"
Very thinly bedded	3/8" to 1-1/4"
Laminated	Less than 3/8"

LEGEND OF ROCK MATERIALS

- IGNEOUS ROCK
- SEDIMENTARY ROCK
- METAMORPHIC ROCK

ROCK HARDNESS

Description	Criteria
Extremely Hard	Specimen cannot be scratched with a pocket knife or sharp pick; can only be chipped with repeated heavy hammer blows.
Very Hard	Specimen cannot be scratched with a pocket knife or sharp pick. Breaks with repeated heavy hammer blows.
Hard	Specimen can be scratched with a pocket knife or sharp pick with difficulty (heavy pressure). Heavy hammer blows required to break specimen.
Moderately Hard	Specimen can be scratched with pocket knife or sharp pick with light or moderate pressure. Core breaks with moderate hammer pressure.
Moderately Soft	Specimen can be grooved 1/6" deep with a pocket knife or sharp pick with moderate or heavy pressure. Breaks with light hammer blow or heavy manual pressure.
Soft	Specimen can be grooved or gouged easily by a pocket knife or sharp pick with light pressure, can be scratched with fingernail. Breaks with light to moderate manual pressure.
Very Soft	Specimen can be readily indented, grooved or gouged with fingernail, or carved with a pocket knife. Breaks with light manual pressure.

WEATHERING DESCRIPTORS FOR INTACT ROCK

Description	Diagnostic features					General Characteristics
	Chemical Weathering-Discoloration and/or oxidation		Mechanical Weathering-Grain boundary conditions (disaggregation) primarily for granitics and some coarse-grained sediments	Texture and Solutioning		
	Body of Rock	Fracture Surfaces		Texture	Solutioning	
Fresh	No discoloration, not oxidized.	No discoloration or oxidation.	No separation, intact (tight).	No change.	No solutioning.	Hammer rings when crystalline rocks are struck.
Slightly Weathered	Discoloration or oxidation is limited to surface of, or short distance from, fractures; some feldspar crystals are dull.	Minor to complete discoloration or oxidation of most surfaces.	No visible separation, intact (tight).	Preserved.	Minor leaching of some soluble minerals may be noted.	Hammer rings when crystalline rocks are struck. Body of rock not weakened.
Moderately Weathered	Discoloration or oxidation extends from fractures usually throughout; Fe-Mg minerals are "rusty," feldspar crystals are "cloudy."	All fracture surfaces are discolored or oxidized.	Partial separation of boundaries visible.	Generally preserved.	Soluble minerals may be mostly leached.	Hammer does not ring when rock is struck. Body of rock is slightly weakened.
Intensely Weathered	Discoloration or oxidation throughout; all feldspars and Fe-Mg minerals are altered to clay to some extent; or chemical alteration produces in-situ disaggregation, see grain boundary conditions.	All fracture surfaces are discolored or oxidized, surfaces friable.	Partial separation, rock is friable; in semiarid conditions granitics are disaggregated.	Texture altered by chemical disintegration (hydration, argillation).	Leaching of soluble minerals may be complete.	Dull sound when struck with hammer, usually can be broken with moderate to heavy manual pressure or by light hammer blow without reference to planes of weakness such as incipient or hairline fractures, or veinlets. Rock is significantly weakened.
Decomposed	Discolored or oxidized throughout, but resistant minerals such as quartz may be unaltered; all feldspars and Fe-Mg minerals are completely altered to clay.		Complete separation of grain boundaries (disaggregated).	Resembles a soil, partial or complete remnant rock structure may be preserved; leaching of soluble minerals usually complete.		Can be granulated by hand. Resistant minerals such as quartz may be present as "stringers" or "dikes."

Combination descriptors (such as "slightly weathered to fresh") are permissible where equal distribution of both weathering characteristics is present over significant intervals or where characteristics present are "in between" the diagnostic feature. However, combination descriptors should not be used where significant, identifiable zones can be delineated. Only two adjacent descriptors may be combined. "Very intensely weathered" is the combination descriptor for "intensely weathered to decomposed."

FRACTURE DENSITY

Description	Observed Fracture Density
Unfractured	No fractures.
Very slightly fractured	Lengths greater than 3 feet.
Slightly fractured	Lengths from 1 to 3 feet with few lengths less than 1 foot or greater than 3 feet.
Moderately fractured	Lengths mostly in 4" to 1 foot range with most lengths about 8"
Intensely fractured	Lengths average from 1 to 4" with scattered fragmented intervals with lengths less than 4"
Very intensely fractured	Mostly chips and fragments with a few scattered short core lengths.

Combination descriptors (such as "Very intensely to intensely fractured") are used where equal distribution of both fracture density characteristics is present over a significant interval or exposure, or where characteristics are "in between" the descriptor definitions. Only two adjacent descriptors may be combined.