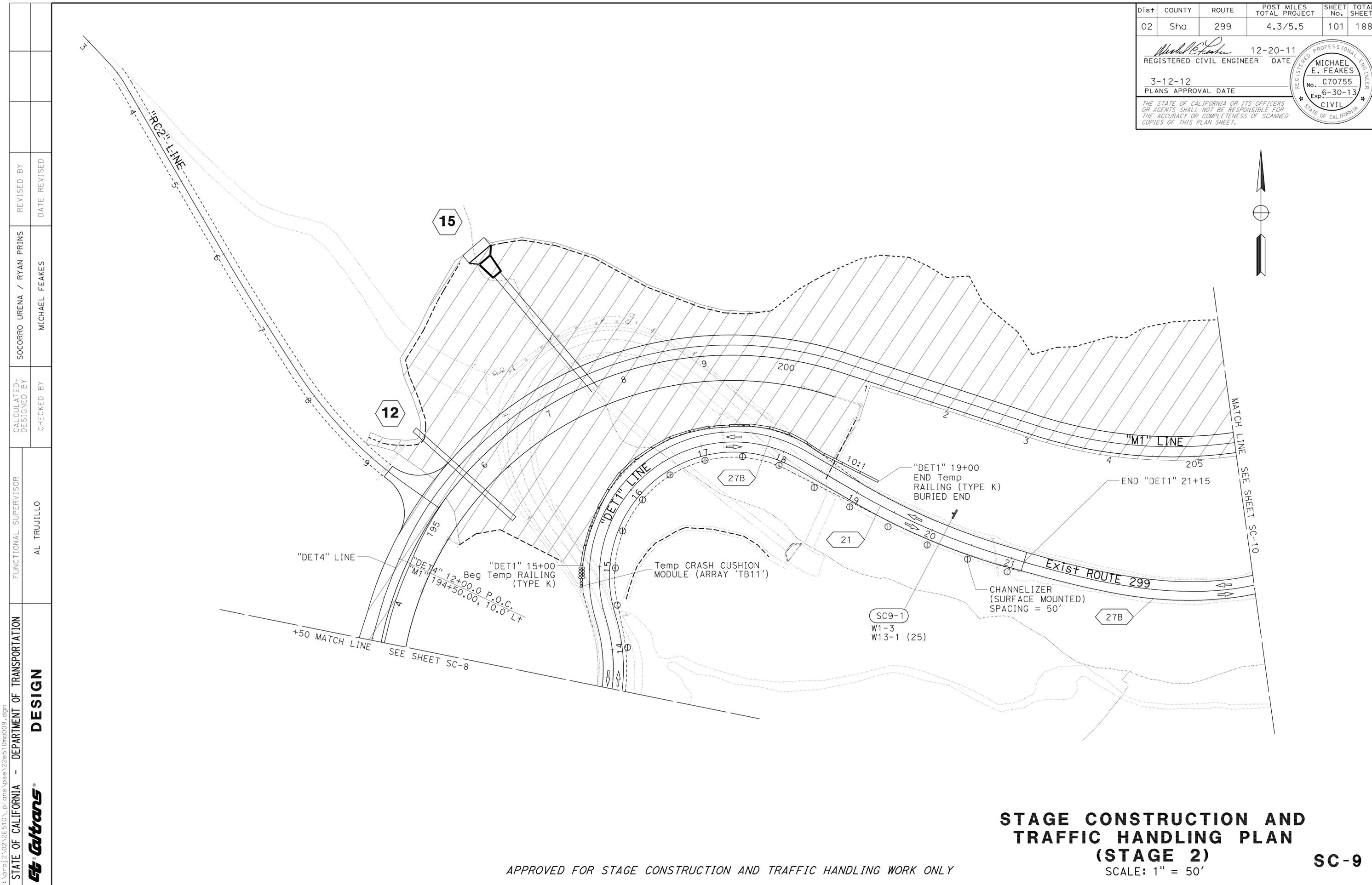
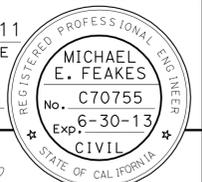


Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha	299	4.3/5.5	101	188
			12-20-11	DATE	
			3-12-12	PLANS APPROVAL DATE	
REGISTERED CIVIL ENGINEER No. C70755 Exp. 6-30-13 CIVIL					
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.					



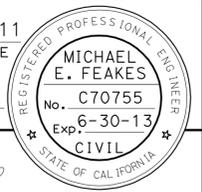
SOCORRO URENA / RYAN PRINS	REVISOR	DATE
	REVISOR	DATE
MICHAEL FEAKES	CHECKED BY	DATE
	CHECKED BY	DATE
AL TRUJILLO	FUNCTIONAL SUPERVISOR	
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION DESIGN		

STAGE CONSTRUCTION AND TRAFFIC HANDLING PLAN
(STAGE 2)
 SCALE: 1" = 50'
SC-9

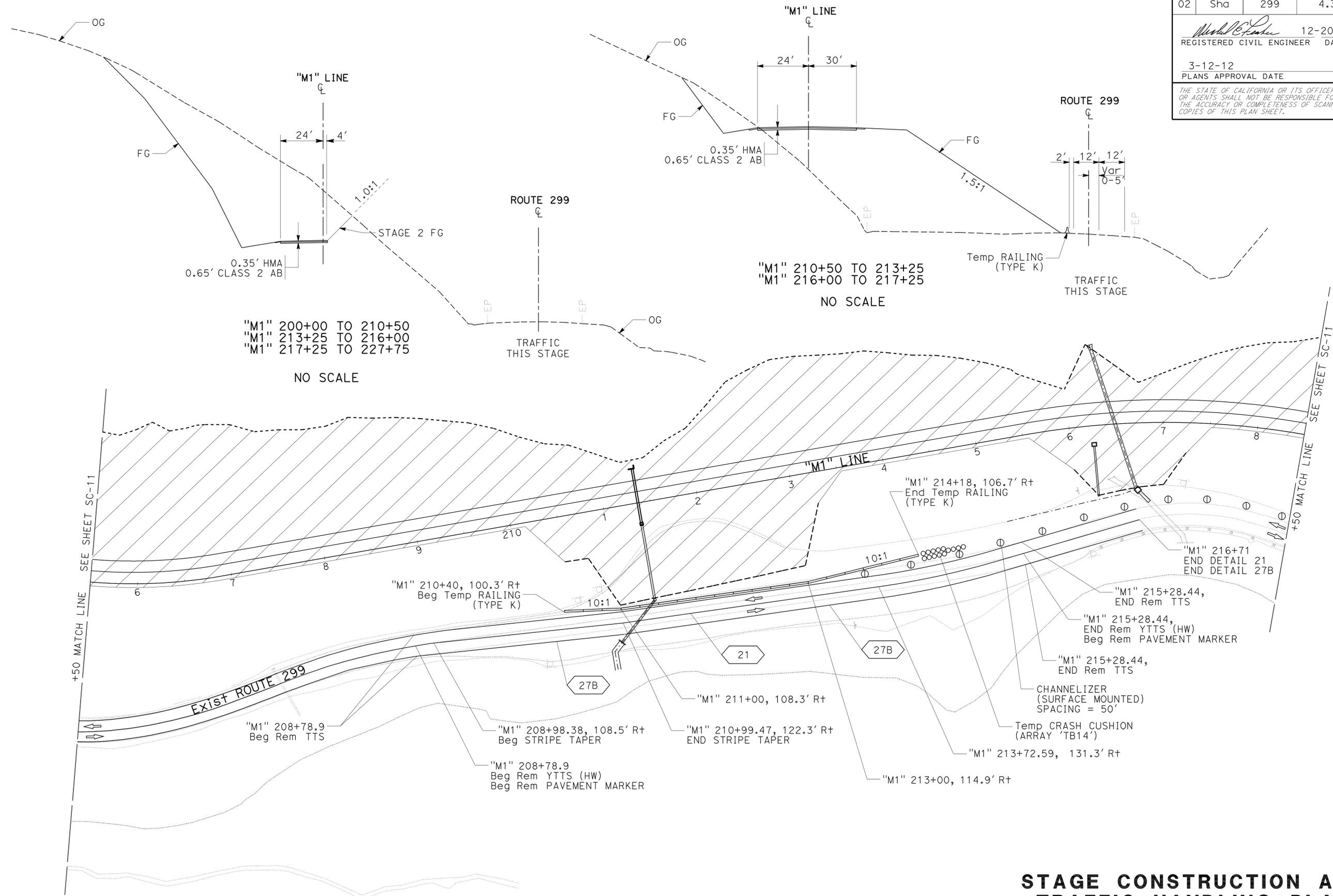
APPROVED FOR STAGE CONSTRUCTION AND TRAFFIC HANDLING WORK ONLY

LAST REVISION
 DATE PLOTTED => 14-MAR-2012
 12-20-11
 TIME PLOTTED => 09:32

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha	299	4.3/5.5	102	188
			12-20-11	DATE	
			3-12-12	PLANS APPROVAL DATE	
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.					



DESIGN	AL TRUJILLO	FUNCTIONAL SUPERVISOR	SOCORRO URENA / RYAN PRINS	REVISOR	DATE
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION					
CALTRANS					



STAGE CONSTRUCTION AND TRAFFIC HANDLING PLAN (STAGE 2)
SCALE: 1" = 50'

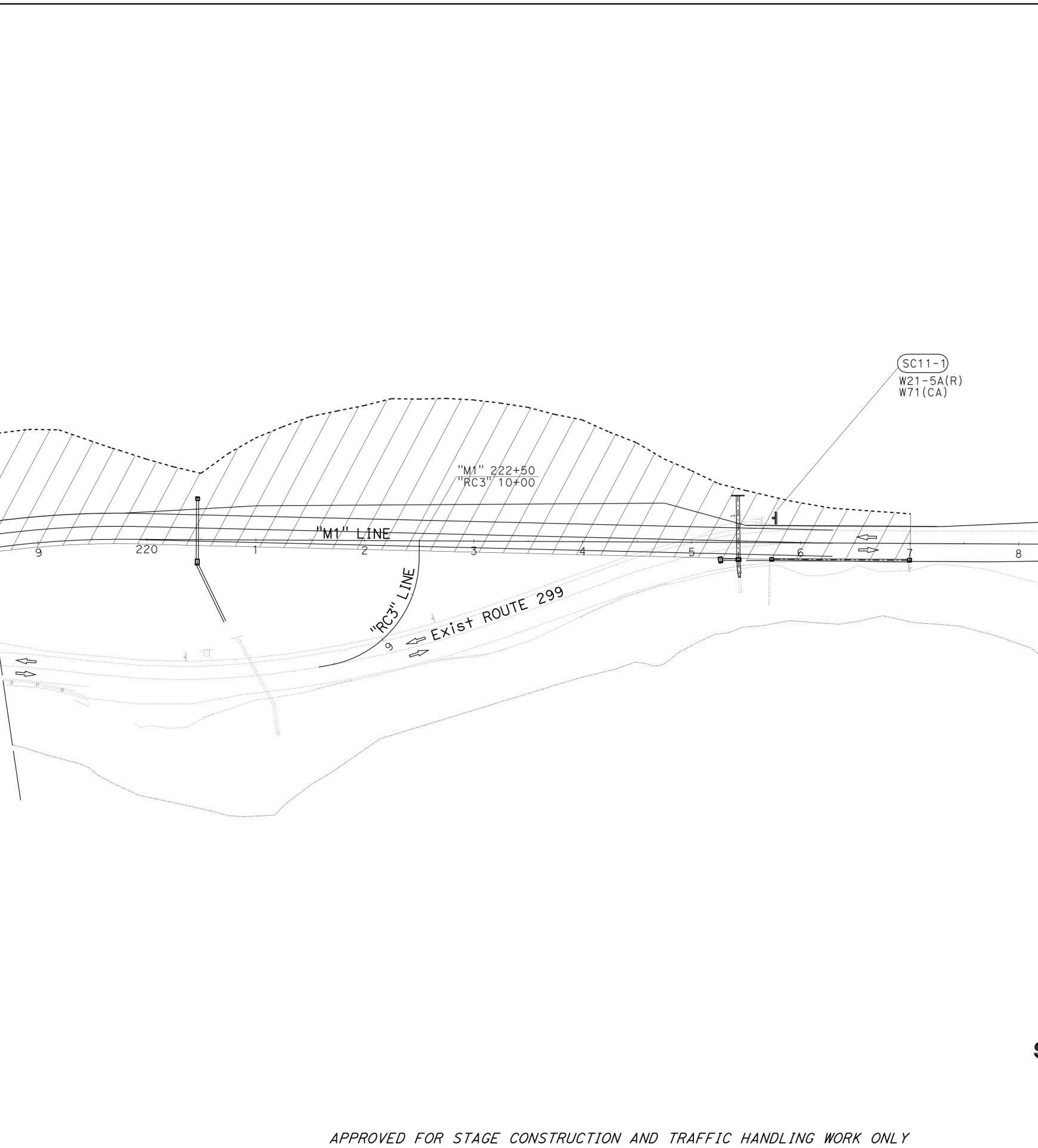
SC-10

APPROVED FOR STAGE CONSTRUCTION AND TRAFFIC HANDLING WORK ONLY

LAST REVISION DATE PLOTTED => 14-MAR-2012 TIME PLOTTED => 09:32

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans DESIGN

FUNCTIONAL SUPERVISOR	AL TRUJILLO
CALCULATED/DESIGNED BY	CHECKED BY
SOCORRO URENA / RYAN PRINS	MICHAEL FEAKES
REVISOR	DATE



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha	299	4.3/5.5	103	188

12-20-11
 REGISTERED CIVIL ENGINEER DATE
 3-12-12
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
 MICHAEL E. FEAKES
 No. C70755
 Exp. 6-30-13
 CIVIL
 STATE OF CALIFORNIA

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STAGE CONSTRUCTION AND TRAFFIC HANDLING PLAN (STAGE 2)

SCALE: 1" = 50'

SC-11

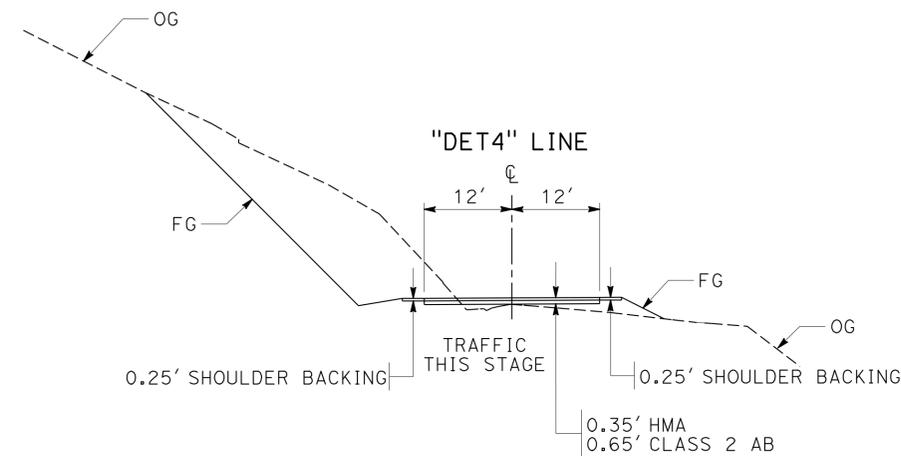
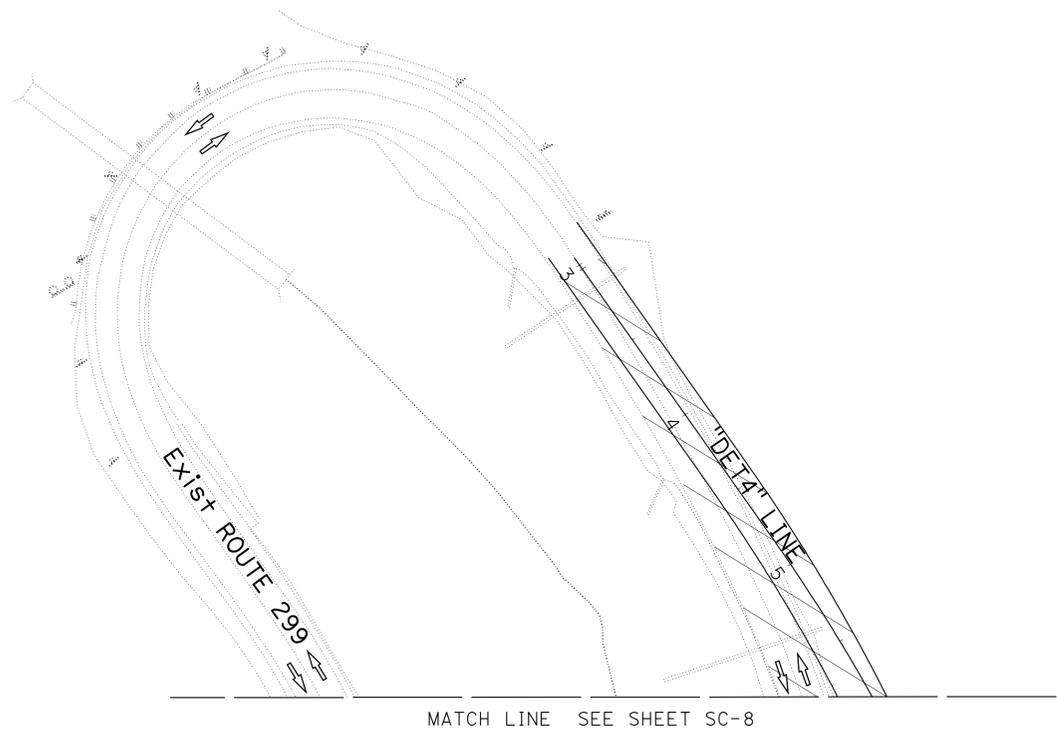
APPROVED FOR STAGE CONSTRUCTION AND TRAFFIC HANDLING WORK ONLY

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha	299	4.3/5.5	104	188

<i>Michael E. Feakes</i>	12-20-11
REGISTERED CIVIL ENGINEER	DATE
3-12-12	
PLANS APPROVAL DATE	

REGISTERED PROFESSIONAL ENGINEER
MICHAEL E. FEAKES
No. C70755
Exp. 6-30-13
CIVIL
STATE OF CALIFORNIA

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"DET4" 3+00 TO 8+36
NO SCALE

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 DESIGN
 FUNCTIONAL SUPERVISOR: AL TRUJILLO
 CALCULATED/DESIGNED BY: [blank] CHECKED BY: [blank]
 SOCORRO URENA / RYAN PRINS
 MICHAEL FEAKES
 REVISED BY: [blank] DATE REVISED: [blank]

APPROVED FOR STAGE CONSTRUCTION AND TRAFFIC HANDLING WORK ONLY

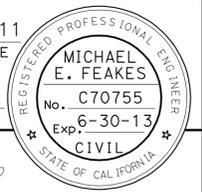
STAGE CONSTRUCTION AND TRAFFIC HANDLING PLAN (STAGE 2)

SCALE: 1" = 50'

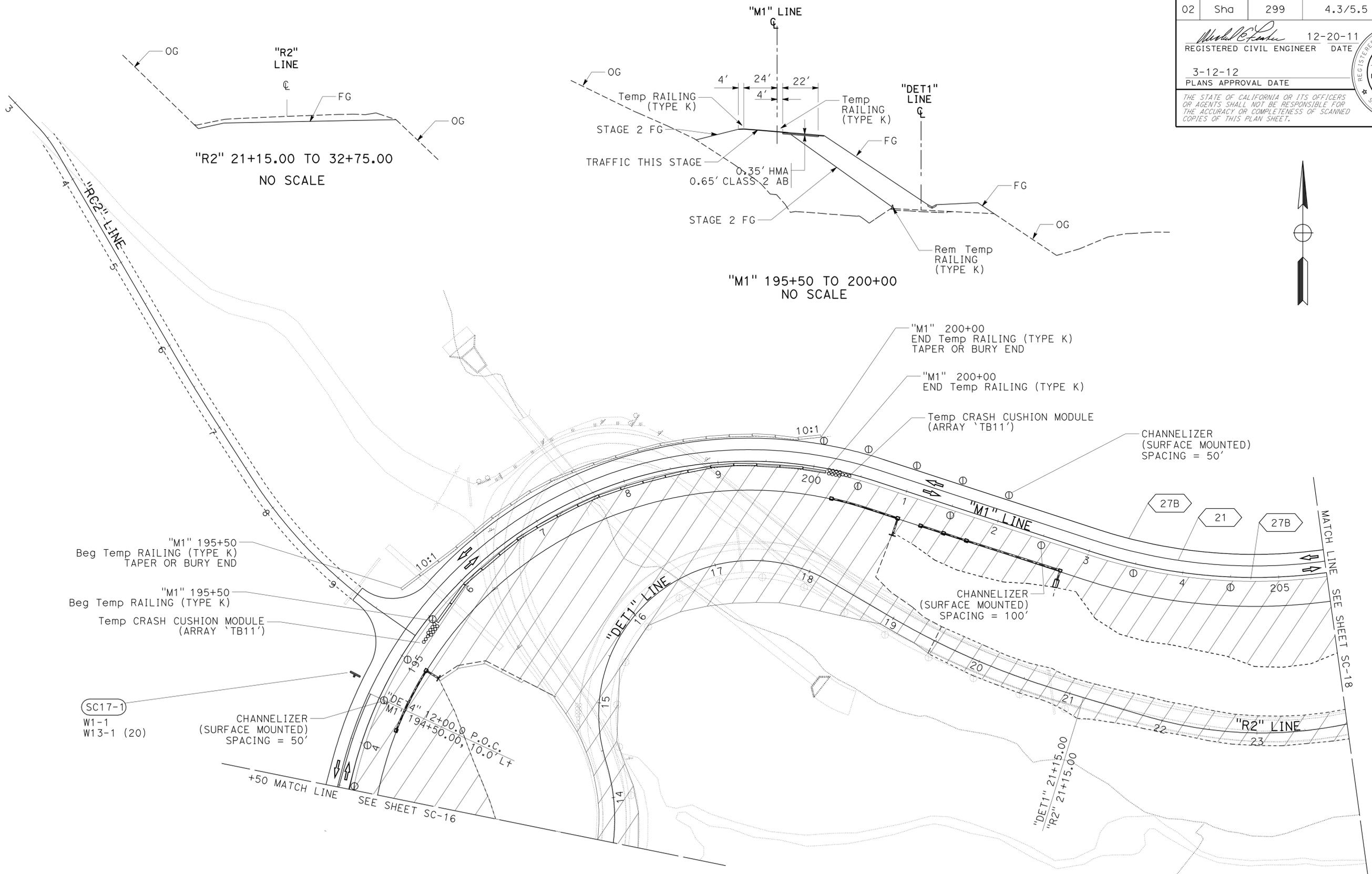
SC-12

LAST REVISION: 12-20-11
 DATE PLOTTED => 14-MAR-2012
 TIME PLOTTED => 09:33

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha	299	4.3/5.5	109	188
			12-20-11	DATE	
			3-12-12	PLANS APPROVAL DATE	
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.					



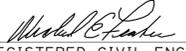
DESIGNED BY	REVISOR	DATE
SOCORRO URENA / RYAN PRINS	MICHAEL FEAKES	
CHECKED BY	DESIGNED BY	DATE
AL TRUJILLO	SOCORRO URENA / RYAN PRINS	
FUNCTIONAL SUPERVISOR	DESIGNED BY	DATE
AL TRUJILLO	SOCORRO URENA / RYAN PRINS	
DESIGN	DESIGNED BY	DATE
AL TRUJILLO	SOCORRO URENA / RYAN PRINS	

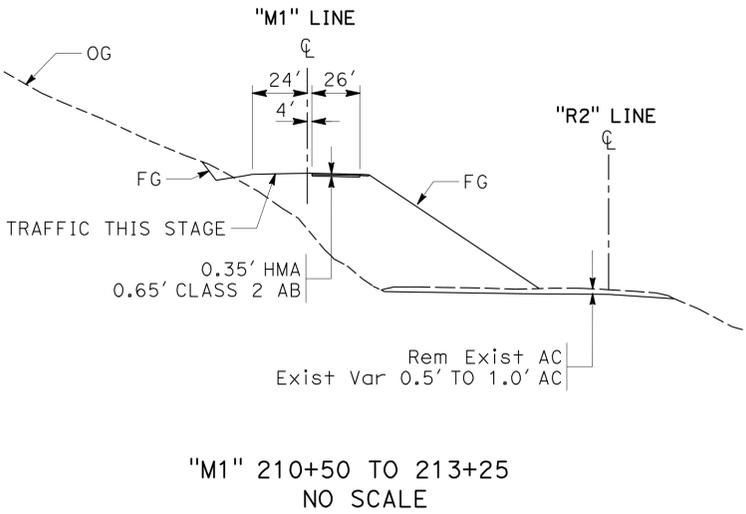
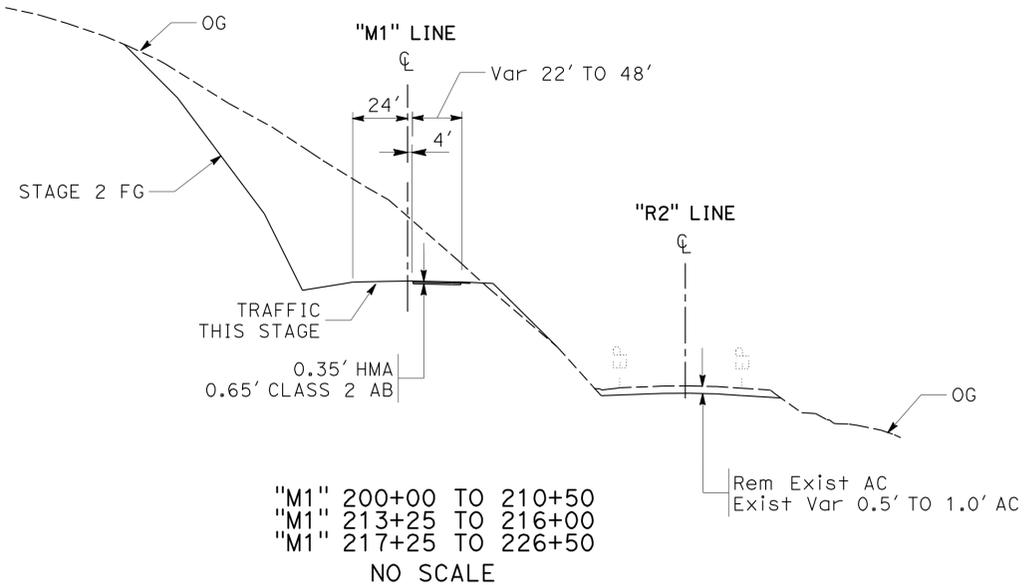
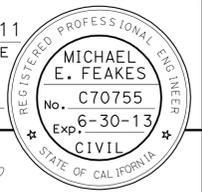


STAGE CONSTRUCTION AND TRAFFIC HANDLING PLAN (STAGE 3)
 SCALE: 1" = 50'
SC-17

APPROVED FOR STAGE CONSTRUCTION AND TRAFFIC HANDLING WORK ONLY

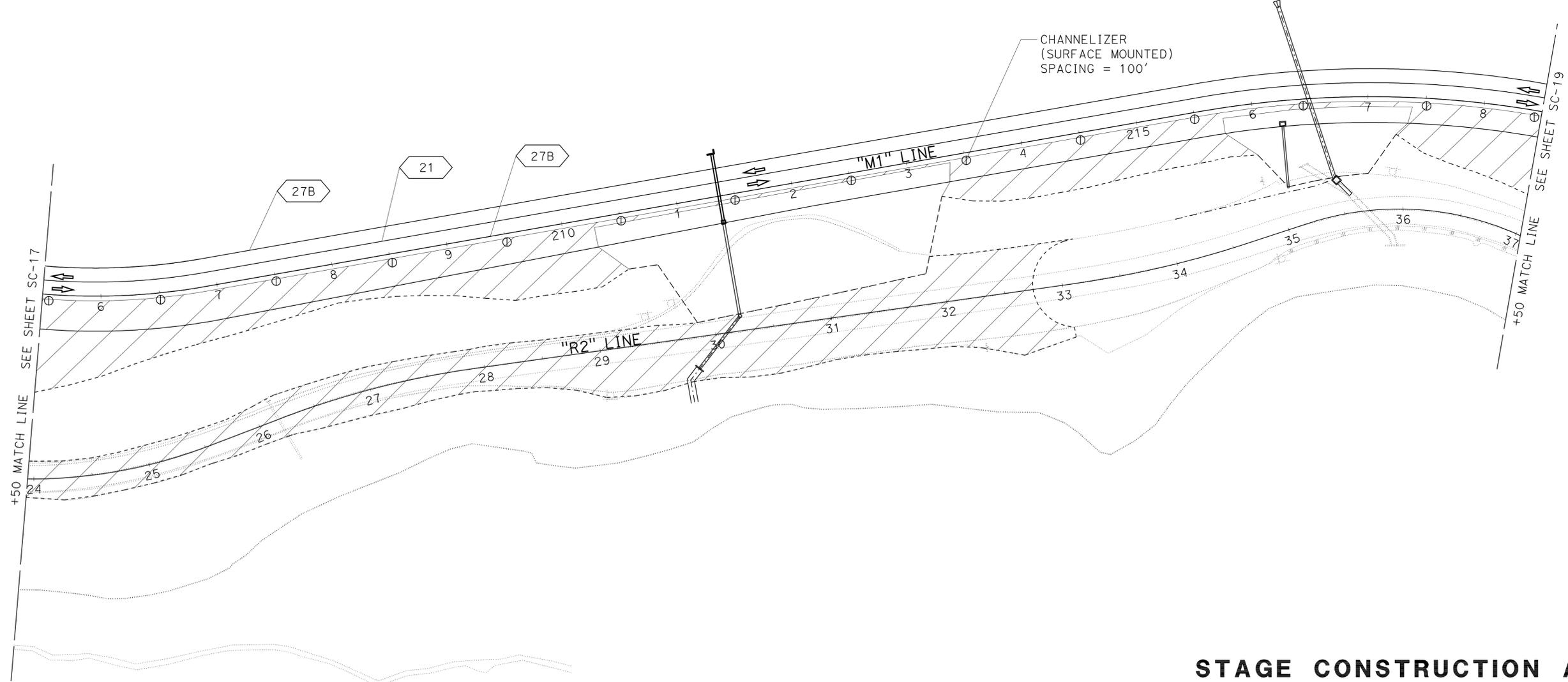
LAST REVISION DATE PLOTTED => 14-MAR-2012 TIME PLOTTED => 09:33

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha	299	4.3/5.5	110	188
			12-20-11	DATE	
REGISTERED CIVIL ENGINEER			PLANS APPROVAL DATE		
3-12-12			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>					



"M1" 200+00 TO 210+50
 "M1" 213+25 TO 216+00
 "M1" 217+25 TO 226+50
 NO SCALE

"M1" 210+50 TO 213+25
 NO SCALE



STAGE CONSTRUCTION AND TRAFFIC HANDLING PLAN (STAGE 3)

SCALE: 1" = 50'

SC-18

APPROVED FOR STAGE CONSTRUCTION AND TRAFFIC HANDLING WORK ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION 	FUNCTIONAL SUPERVISOR	AL TRUJILLO
	CALCULATED/DESIGNED BY	SOCORRO URENA / RYAN PRINS
	CHECKED BY	MICHAEL FEAKES
	REVISOR	DATE

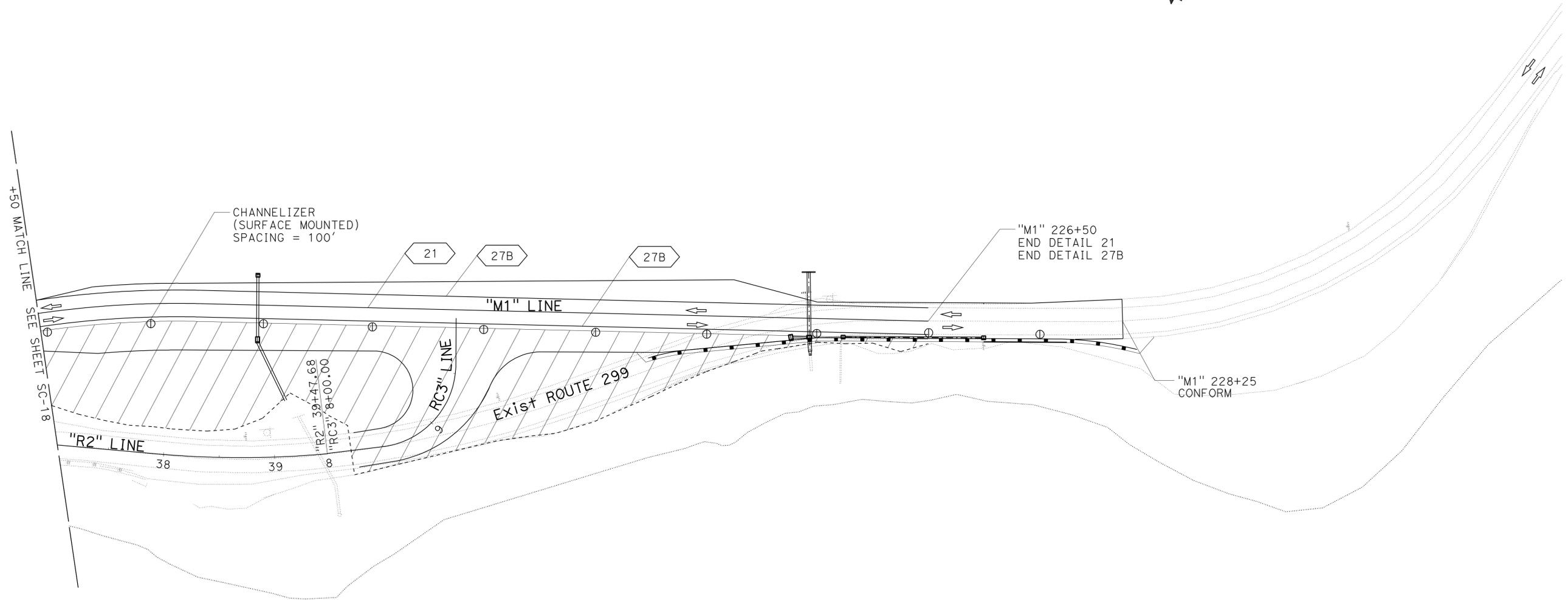
LAST REVISION DATE PLOTTED => 14-MAR-2012 TIME PLOTTED => 09:33

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha	299	4.3/5.5	111	188

Michael E. Feakes 12-20-11
 REGISTERED CIVIL ENGINEER DATE
 3-12-12
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
 MICHAEL E. FEAKES
 No. C70755
 Exp. 6-30-13
 CIVIL
 STATE OF CALIFORNIA

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



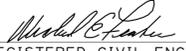
SOCORRO URENA / RYAN PRINS	REVISOR	DATE
	REVISOR	DATE
MICHAEL FEAKES	CHECKED BY	DATE
	CHECKED BY	DATE
AL TRUJILLO	FUNCTIONAL SUPERVISOR	
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION Caltrans DESIGN		

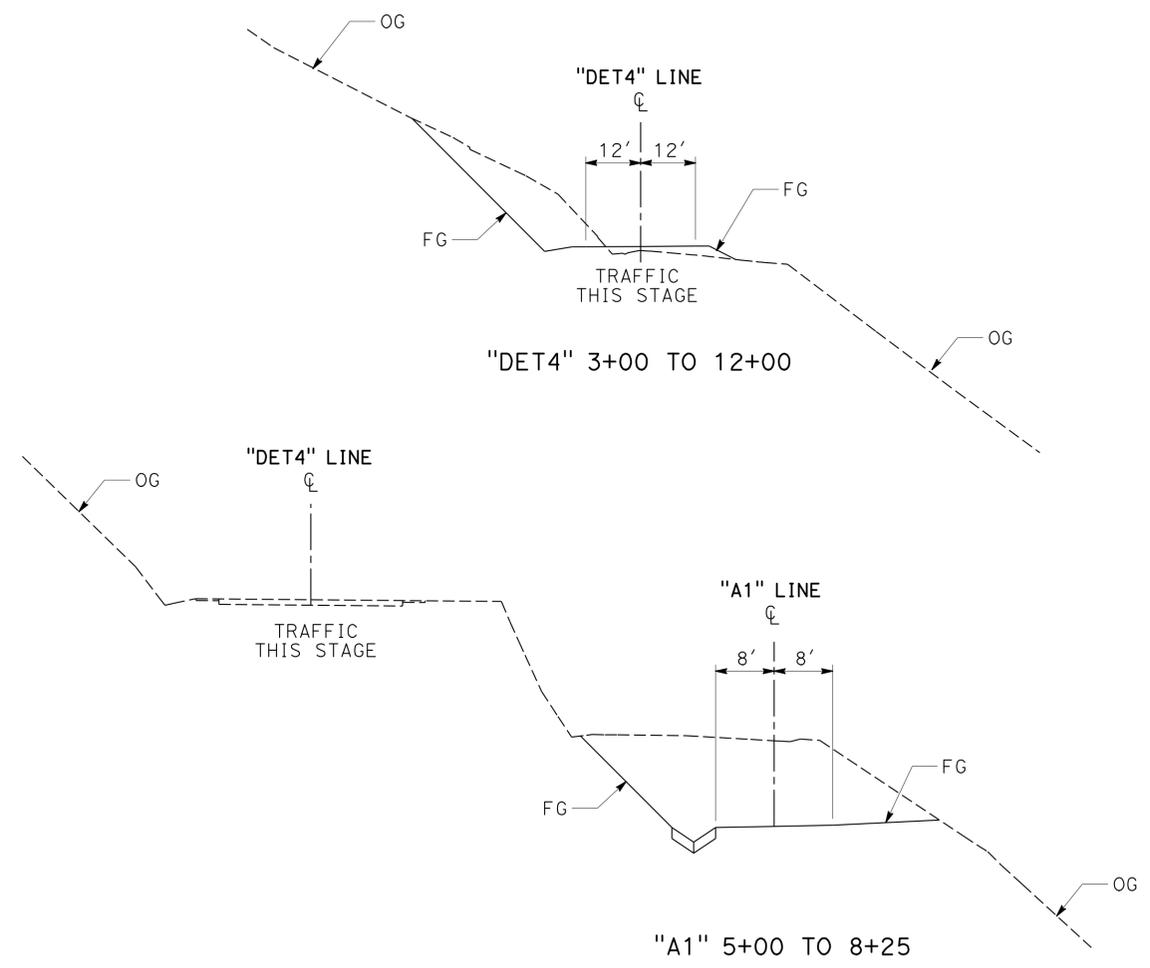
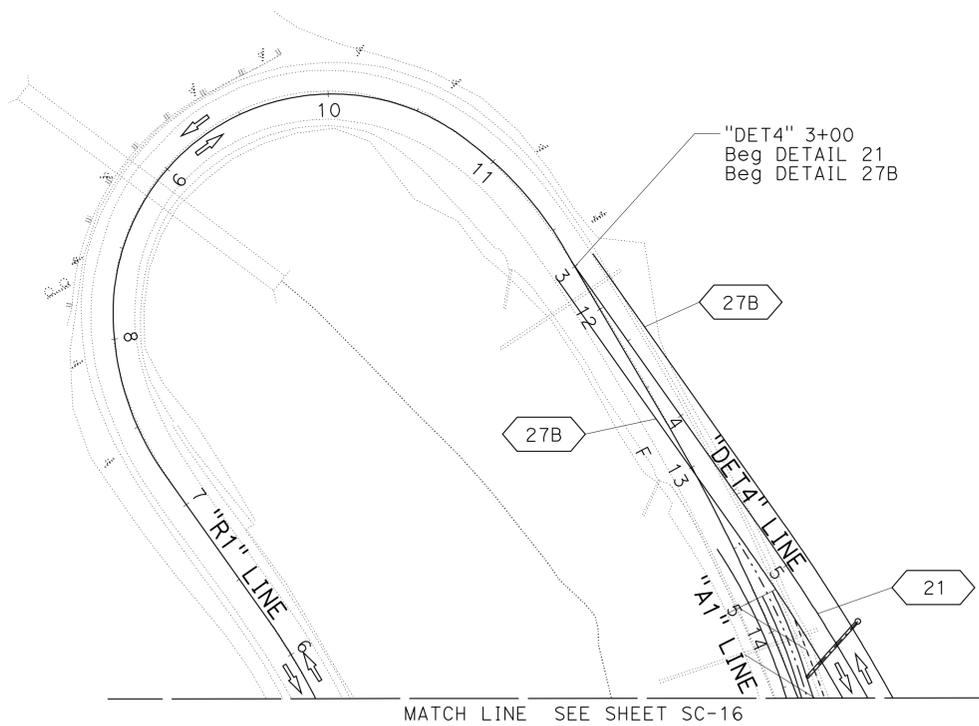
STAGE CONSTRUCTION AND TRAFFIC HANDLING PLAN (STAGE 3)

SCALE: 1" = 50'

SC-19

APPROVED FOR STAGE CONSTRUCTION AND TRAFFIC HANDLING WORK ONLY

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha	299	4.3/5.5	112	188
			12-20-11	DATE	
REGISTERED CIVIL ENGINEER					
3-12-12			PLANS APPROVAL DATE		
					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					



**STAGE CONSTRUCTION
AND TRAFFIC HANDLING PLAN
(STAGE 3)**

SCALE: 1" = 50'

SC-20

APPROVED FOR STAGE CONSTRUCTION AND TRAFFIC HANDLING WORK ONLY

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 DESIGN
 FUNCTIONAL SUPERVISOR: AL TRUJILLO
 CALCULATED/DESIGNED BY: [blank] CHECKED BY: [blank]
 SOCORRO URENA / RYAN PRINS
 MICHAEL FEAKES
 REVISED BY: [blank] DATE REVISED: [blank]

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 STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 DESIGN
 AL TRUJILLO
 FUNCTIONAL SUPERVISOR
 CALCULATED/DESIGNED BY
 CHECKED BY
 SOCORRO URENA / RYAN PRINS
 MICHAEL FEAKES
 REVISED BY
 DATE REVISED

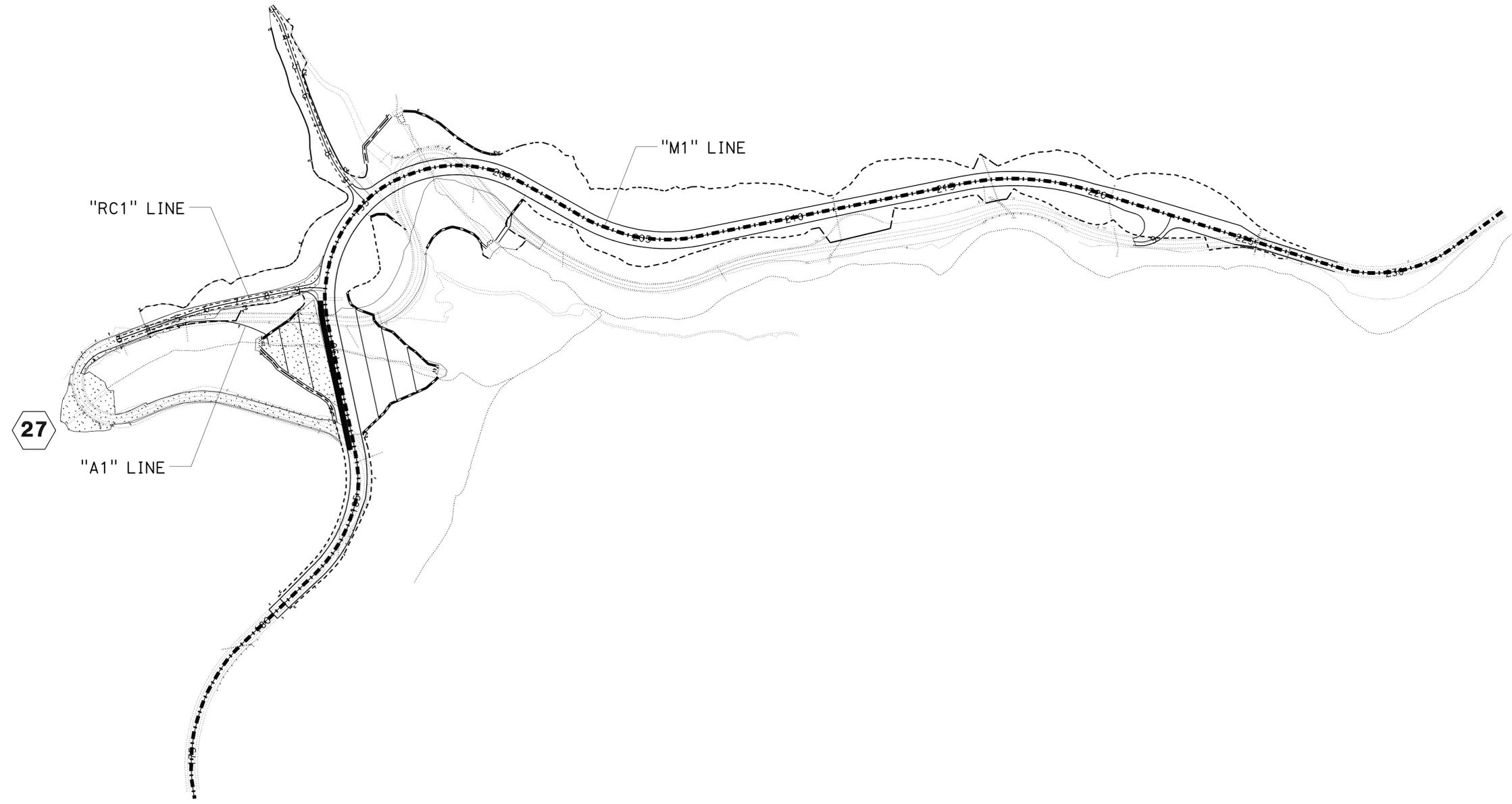
STAGE 4

1. COMPLETE "M1" LINE.
2. CONSTRUCT "RC1" LINE.
3. COMPLETE "A1" LINE.
4. REMOVE EXISTING ROADWAY AND DRAINAGE SYSTEM No. 27 CULVERT AS SHOWN ON THIS STAGE.
5. PLACE FINAL HMA LIFT AND FINISH ROADWAY

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha	299	4.3/5.5	113	188

12-20-11
 REGISTERED CIVIL ENGINEER DATE
 3-12-12
 PLANS APPROVAL DATE

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STAGE CONSTRUCTION AND TRAFFIC HANDLING PLAN (STAGE 4)

SCALE: 1" = 200'

SC-21

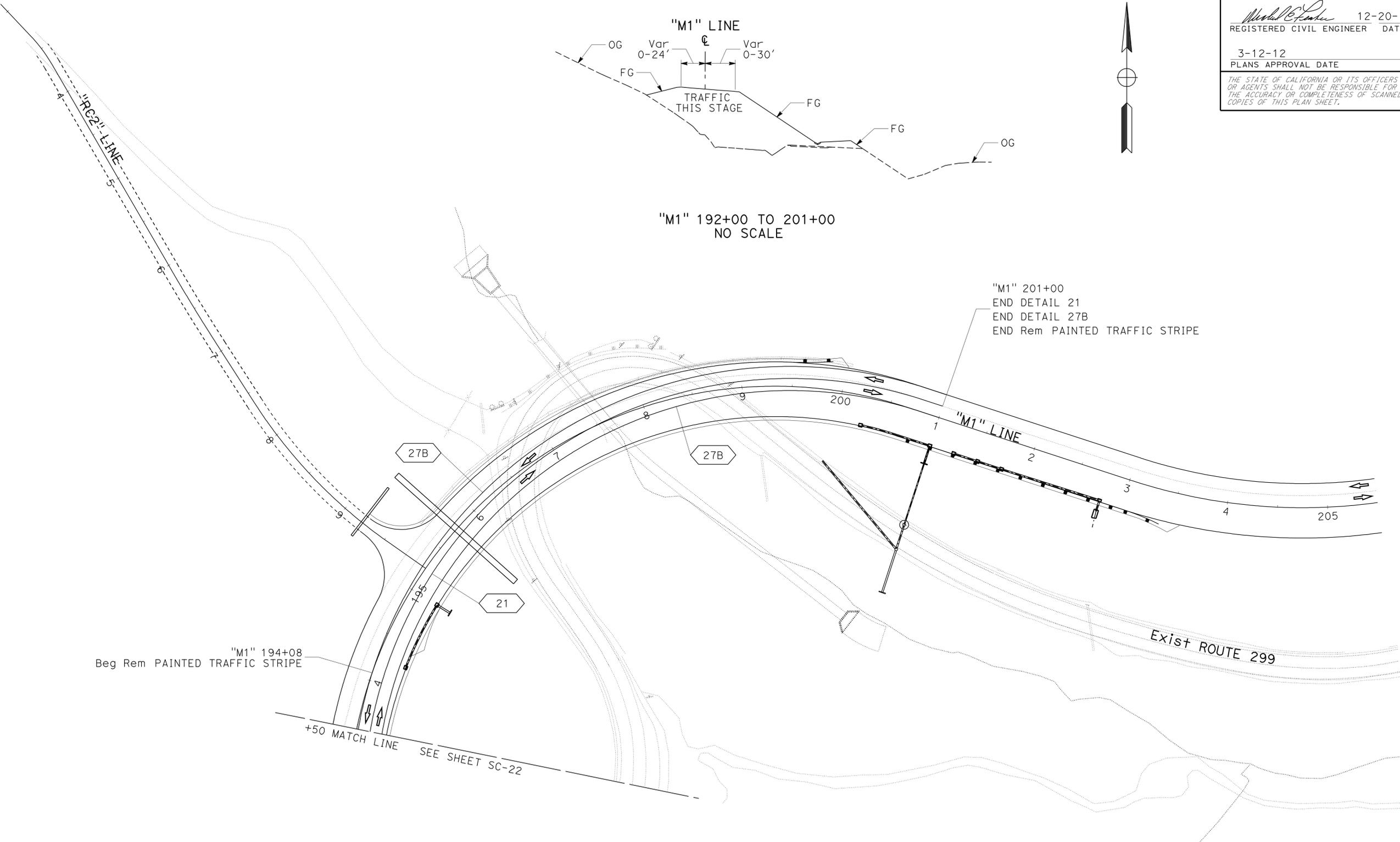
APPROVED FOR STAGE CONSTRUCTION AND TRAFFIC HANDLING WORK ONLY

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha	299	4.3/5.5	115	188

<i>Michael E. Feakes</i>	12-20-11
REGISTERED CIVIL ENGINEER	DATE
3-12-12	
PLANS APPROVAL DATE	

REGISTERED PROFESSIONAL ENGINEER
MICHAEL E. FEAKES
No. C70755
Exp. 6-30-13
CIVIL
STATE OF CALIFORNIA

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x	REVISOR	DATE
	REVISOR	DATE
x	DESIGNED BY	CHECKED BY
	DESIGNED BY	CHECKED BY
x	FUNCTIONAL SUPERVISOR	
	FUNCTIONAL SUPERVISOR	
x	DESIGNATION	
	DESIGNATION	

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 DESIGN

BORDER LAST REVISED 7/2/2010

USERNAME => s109858
 DGN FILE => 22e510ma023.dgn

APPROVED FOR STAGE CONSTRUCTION AND TRAFFIC HANDLING WORK ONLY



UNIT 0316

PROJECT NUMBER & PHASE

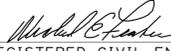
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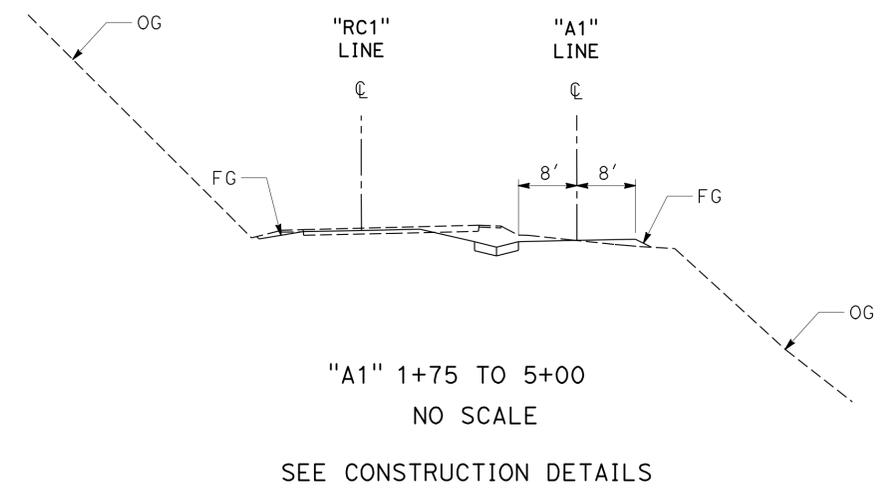
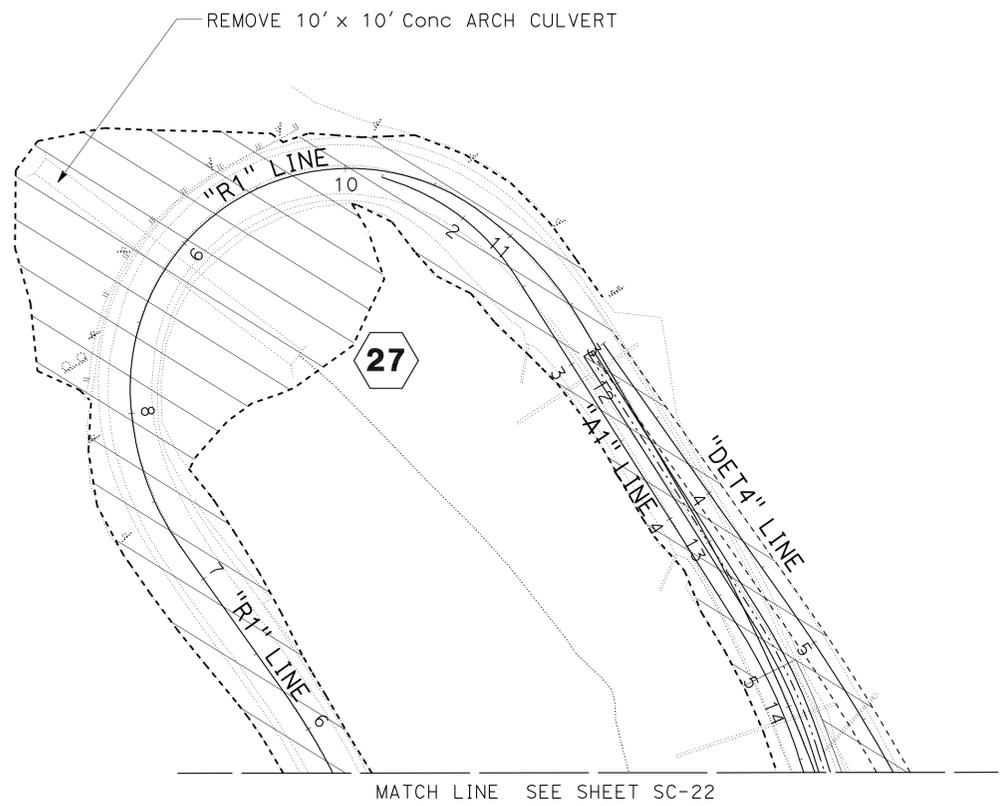
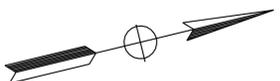
STAGE CONSTRUCTION AND TRAFFIC HANDLING PLAN (STAGE 4)

SCALE: 1" = 50'

SC-23

LAST REVISION DATE PLOTTED => 14-MAR-2012
 12-20-11 TIME PLOTTED => 09:34

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha	299	4.3/5.5	116	188
				12-20-11	
		REGISTERED CIVIL ENGINEER		DATE	
		3-12-12		PLANS APPROVAL DATE	
					
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x	REVISOR	REVISION
x	DESIGNED BY	CHECKED BY
	SOCORRO URENA / RYAN PRINS	MICHAEL FEAKES
x	FUNCTIONAL SUPERVISOR	
	AL TRUJILLO	
x	DATE	
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION 		
DESIGN		

STAGE CONSTRUCTION AND TRAFFIC HANDLING PLAN (STAGE 4)

SCALE: 1" = 50'

SC-24

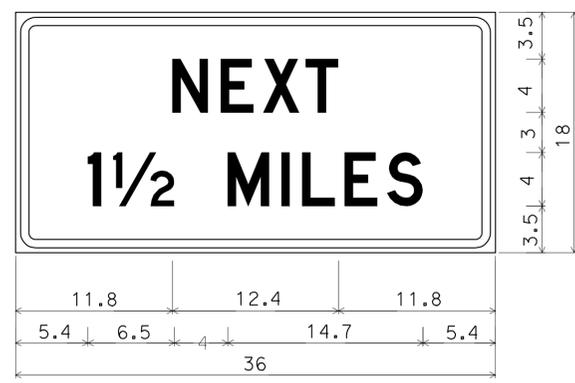
APPROVED FOR STAGE CONSTRUCTION AND TRAFFIC HANDLING WORK ONLY

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha	299	4.3/5.5	117	188

12-20-11
 REGISTERED CIVIL ENGINEER DATE
 3-12-12
 PLANS APPROVAL DATE

MICHAEL E. FEAKES
 No. C70755
 Exp. 6-30-13
 CIVIL

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1.5" RADIUS, 0.6" BORDER, 0.4" INDENT, BLACK ON ORANGE; [NEXT] D; [1 1/2 MILES] D;

W71(CA) SIGN DETAIL
ALL DIMENSIONS AE IN INCHES.

CHANNELIZERS

STAGE	SHEET	L+/R+	SURFACE MOUNTED	
			EA	
2	SC-8	R+	6	
	SC-9	R+	15	
	SC-10	L+	11	
3	SC-16	R+	10	
	SC-17	L+/R+	15	
	SC-18	R+	14	
	SC-19	R+	10	
4	SC-22	R+	10	
TOTAL			91	

TEMPORARY RAILING (TYPE K)

STAGE	STATION	L+/R+	Temp RAILING (TYPE K)		Temp CRASH CUSHION MODULE
			EA	EA	
2	"DET1" 15+00 TO 19+00	L+	460		
	"DET1" 15+00	L+		11	
	"M1" 210+40 TO 214+18	R+	380		
	"M1" 214+20	R+		14	
3	"M1" 195+50 TO 200+00	L+	480		
	"M1" 195+50 TO 200+00	R+	460		
	"M1" 195+50	R+		11	
	"M1" 200+00	R+		11	
4	"M1" 187+25 TO 192+20	L+	500		
	"M1" 187+15 TO 192+00	R+	480		
	"M1" 187+15	R+		14	
	"M1" 192+00	R+		11	
TOTAL			2760	72	

STAGING PAVEMENT DELINEATION QUANTITIES

STAGE	STATION	THERMOPLASTIC TRAFFIC STRIPE (SPRAYABLE)		TEMPORARY TRAFFIC STRIPE (PAINT)		REMOVE PAINTED TRAFFIC STRIPE	REMOVE THERMOPLASTIC TRAFFIC STRIPE	REMOVE YELLOW THERMOPLASTIC TRAFFIC STRIPE (HAZARDOUS WASTE)	REMOVE PAVEMENT MARKER
		DETAIL 21 LF	DETAIL 27B LF	DETAIL 21 LF	DETAIL 27B LF				
2	"M1" 208+78 TO "M1" 215+28						1302	651	56
	"DET1" 10+00 TO "M1" 216+71	2527	5054						
3	"DET4" 3+00 TO 12+00			900	1800				
	"M1" 194+50 TO 226+50			3200	6400				
4	"M1" 194+08 TO 201+00					2076			
	"M1" 180+50 TO 201+00			2050	4100				
SUBTOTAL		2527	5054	6150	12,300	2076	1302	651	56
TOTAL		7581*		18,450		2076	1302	651	56

* QUANTITY INCLUDED ON PDQ-1

CONSTRUCTION AREA SIGNS

SHEET No.	SIGN No.	SIGN CODE	PANEL SIZE (INCHES)	SIZE OF POSTS	SINGLE FACED	DOUBLE FACED	BACKGROUND		LEGEND		DESCRIPTION (REMARKS)
							(N)	(N)	(N)	(N)	
							SHEETING COLOR	RETROREFLECTIVE ASTM TYPE	SHEETING COLOR	RETROREFLECTIVE ASTM TYPE	
SC-8	SC8-1	W21-5B(R)	36 x 36	4" x 6"	x		ORANGE	III	BLACK	III	RIGHT SHOULDER CLOSED AHEAD
	SC8-2	W21-5A(R)	36 x 36	4" x 6"	x		ORANGE	III	BLACK	III	RIGHT SHOULDER CLOSED
		W71(CA)	36 x 18		x		ORANGE	III	BLACK	III	NEXT 1 1/2 MILES
SC8-3	W1-3 (LT)	36 x 36	4" x 6"	x		YELLOW	III	BLACK	III	CURVE SYMBOL	
	W13-1 (25)	30 x 30		x		YELLOW	III	BLACK	III	25 MPH	
SC-9	SC9-1	W1-3 (LT)	36 x 36	4" x 6"	x		YELLOW	III	BLACK	III	CURVE SYMBOL
		W13-1 (25)	30 x 30		x		YELLOW	III	BLACK	III	25 MPH
SC-11	SC11-1	W21-5A(R)	36 x 36	4" x 6"	x		ORANGE	III	BLACK	III	RIGHT SHOULDER CLOSED
		W71(CA)	36 x 18		x		ORANGE	III	BLACK	III	NEXT 1 1/2 MILES
SC-11	SC11-2	W21-5B(R)	36 x 36	4" x 6"	x		ORANGE	III	BLACK	III	RIGHT SHOULDER CLOSED AHEAD
		W1-1 (RT)	36 x 36		x		YELLOW	III	BLACK	III	CURVE SYMBOL
SC-17	SC17-1	W13-1 (20)	30 x 30	4" x 6"	x		YELLOW	III	BLACK	III	20 MPH

NOTE: ADDITIONAL CONSTRUCTION AREA SIGNS SHOWN ELSEWHERE.

STAGE CONSTRUCTION QUANTITIES

SCQ-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION DESIGN
 AL TRUJILLO
 JEFF CARSON
 MICHAEL FEAKES
 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, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha	299	4.3/5.5	118	188

<i>Michael E. Feakes</i>	12-20-11
REGISTERED CIVIL ENGINEER	DATE
3-12-12	
PLANS APPROVAL DATE	

REGISTERED PROFESSIONAL ENGINEER	MICHAEL E. FEAKES
No. C70755	
Exp. 6-30-13	
CIVIL	

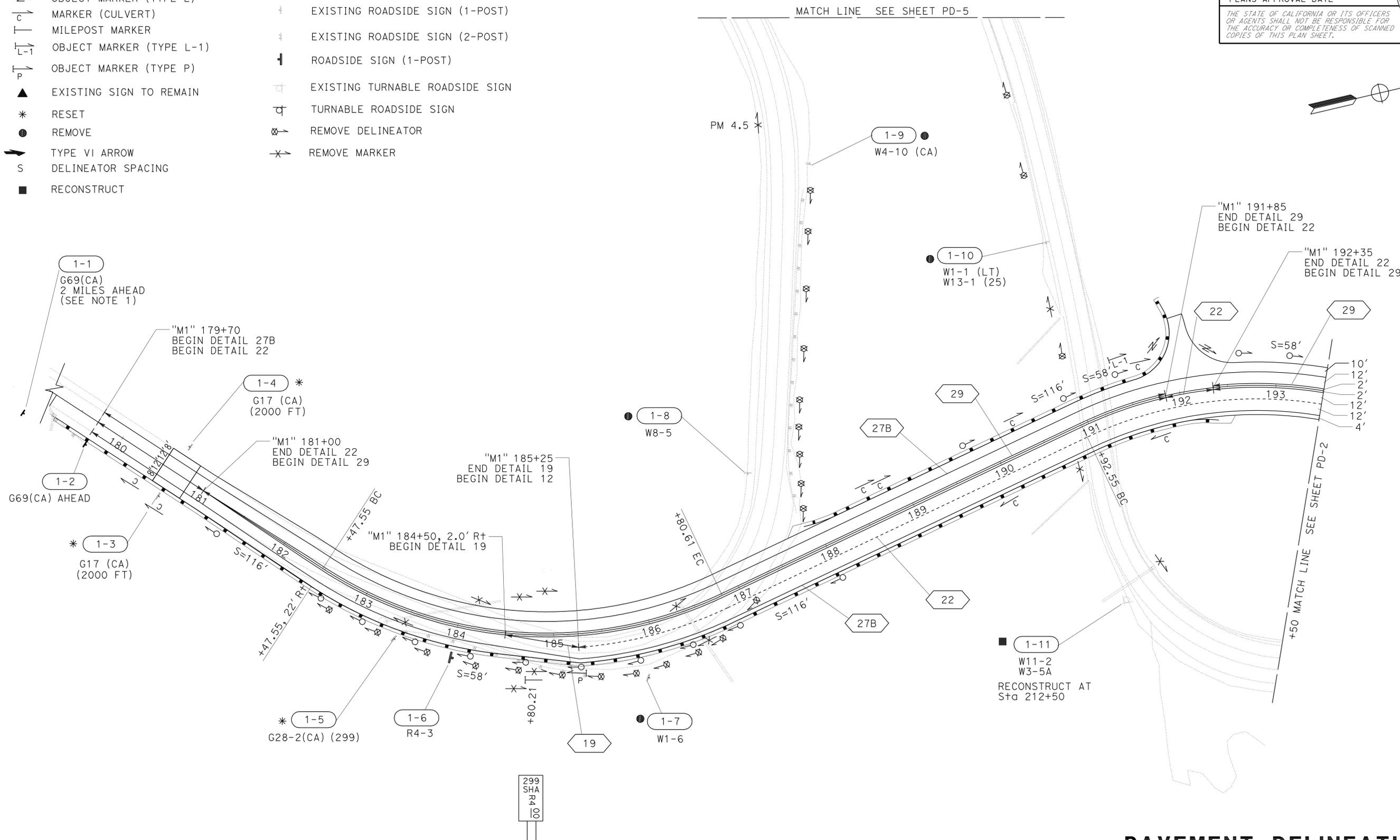
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

LEGEND:

- | | | | |
|-----|-------------------------------|-----|--|
| — | SINGLE STRIPE MARKER | ⊖-# | ROADSIDE SIGN |
| — — | STRIPE CHANGE LOCATION | # | PAVEMENT DELINEATION STRIPE DETAIL No. |
| ○ | DELINEATOR (CLASS 2) (TYPE E) | — | EXISTING ROADSIDE SIGN (1-POST) |
| ⊖ | OBJECT MARKER (TYPE L) | — | EXISTING ROADSIDE SIGN (2-POST) |
| ○ | MARKER (CULVERT) | — | ROADSIDE SIGN (1-POST) |
| — | MILEPOST MARKER | — | EXISTING TURNABLE ROADSIDE SIGN |
| — | OBJECT MARKER (TYPE L-1) | — | TURNABLE ROADSIDE SIGN |
| — | OBJECT MARKER (TYPE P) | ⊖ | REMOVE DELINEATOR |
| ▲ | EXISTING SIGN TO REMAIN | × | REMOVE MARKER |
| * | RESET | | |
| ● | REMOVE | | |
| ↖ | TYPE VI ARROW | | |
| S | DELINEATOR SPACING | | |
| ■ | RECONSTRUCT | | |

NOTE:

1. INSTALLED BY OTHERS.



PAVEMENT DELINEATION AND SIGN PLAN

SCALE: 1" = 50'

PD-1

APPROVED FOR PAVEMENT DELINEATION AND SIGN WORK ONLY

P:\proj\2\02\2E510\plans\pse\22e510na001.dgn
 STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 DESIGN
 FUNCTIONAL SUPERVISOR: AL TRUJILLO
 CHECKED BY: MICHAEL FEAKES
 CALCULATED/DESIGNED BY: SOCORRO URENA / RYAN PRINS
 REVISED BY: MICHAEL FEAKES
 DATE REVISIED:

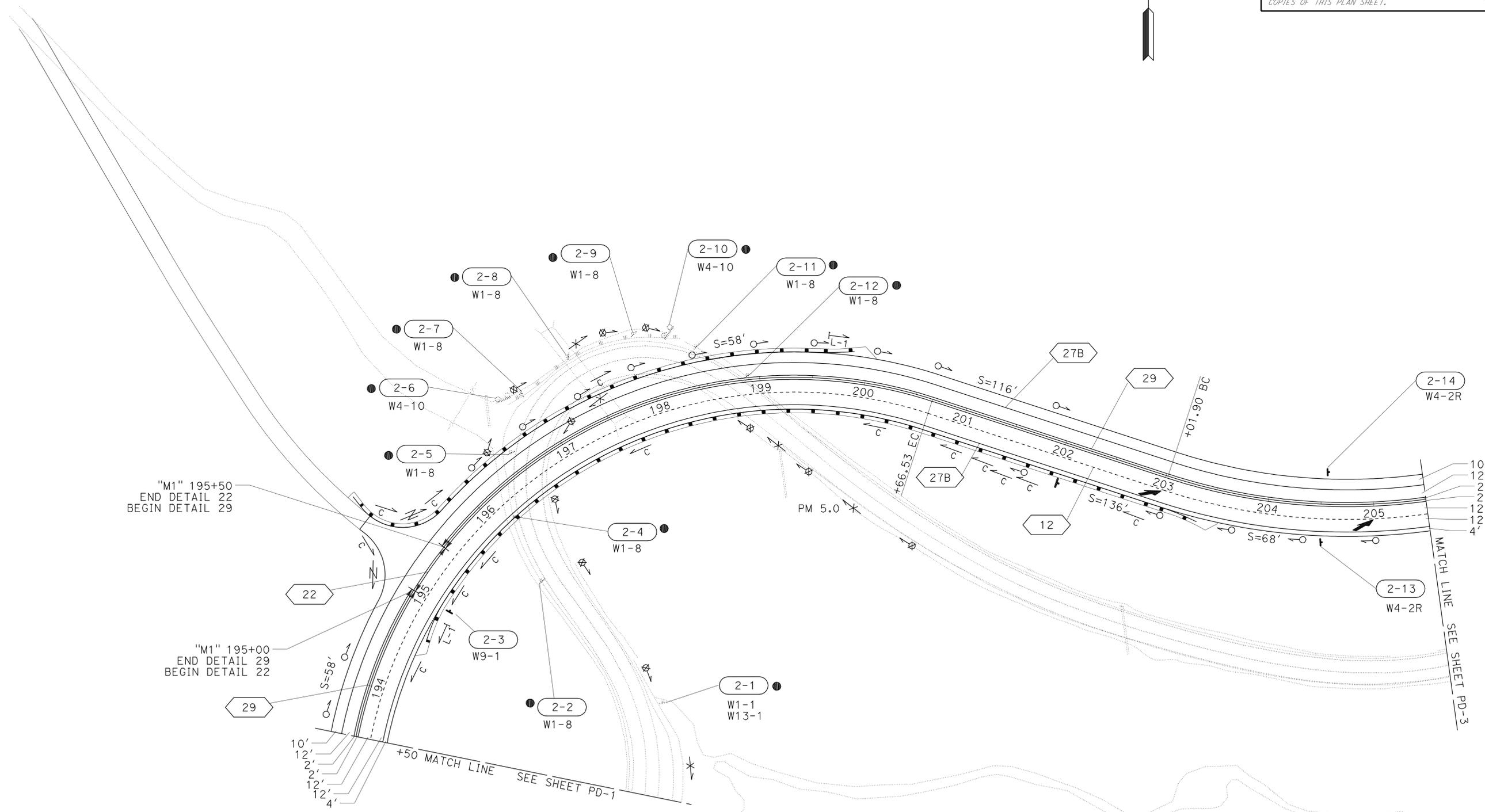
LAST REVISION: DATE PLOTTED => 14-MAR-2012
 TIME PLOTTED => 07:50

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha	299	4.3/5.5	119	188

<i>Michael E. Feakes</i>	12-20-11
REGISTERED CIVIL ENGINEER	DATE
3-12-12	
PLANS APPROVAL DATE	

REGISTERED PROFESSIONAL ENGINEER
MICHAEL E. FEAKES
No. C70755
Exp. 6-30-13
CIVIL

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SOCORRO URENA / RYAN PRINS	REVISOR	DATE
	REVISOR	DATE
MICHAEL FEAKES	CHECKED BY	
	CHECKED BY	
AL TRUJILLO	FUNCTIONAL SUPERVISOR	
DESIGN		
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION		

P:\proj2\02\2E510\plans\pse\22e510na002.dgn

BORDER LAST REVISED 7/2/2010

USERNAME => s114640
DGN FILE => 22e510na002.dgn

APPROVED FOR PAVEMENT DELINEATION AND SIGN WORK ONLY



UNIT 0316

PROJECT NUMBER & PHASE

0200002161

PAVEMENT DELINEATION AND SIGN PLAN

SCALE: 1" = 50'

PD-2

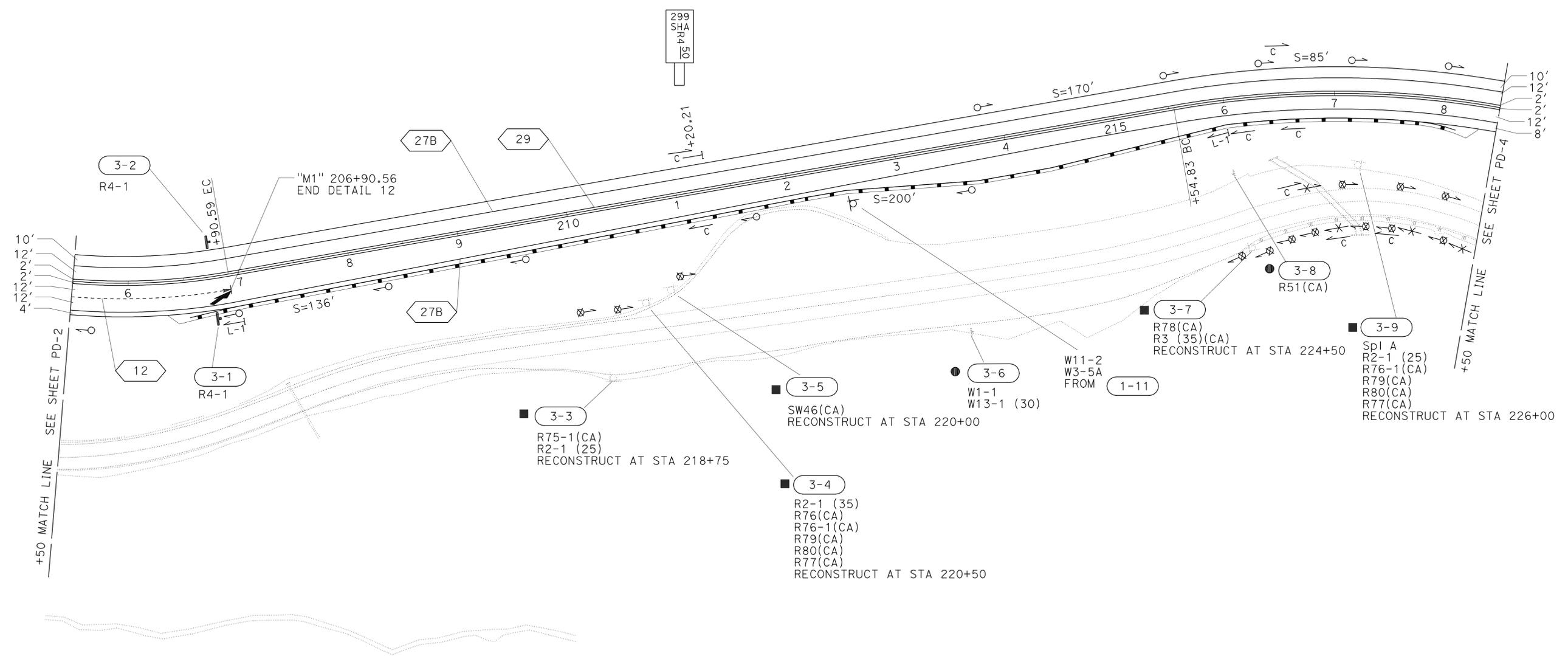
LAST REVISION DATE PLOTTED => 14-MAR-2012
12-20-11 TIME PLOTTED => 07:50

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha	299	4.3/5.5	120	188

<i>Michael E. Feakes</i>	12-20-11
REGISTERED CIVIL ENGINEER	DATE
3-12-12	
PLANS APPROVAL DATE	

REGISTERED PROFESSIONAL ENGINEER
MICHAEL E. FEAKES
No. C70755
Exp. 6-30-13
CIVIL
STATE OF CALIFORNIA

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 STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 DESIGN

FUNCTIONAL SUPERVISOR	AL TRUJILLO
CALCULATED/DESIGNED BY	SOCORRO URENA / RYAN PRINS
CHECKED BY	MICHAEL FEAKES
REVISOR	
REVISION	

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APPROVED FOR PAVEMENT DELINEATION AND SIGN WORK ONLY

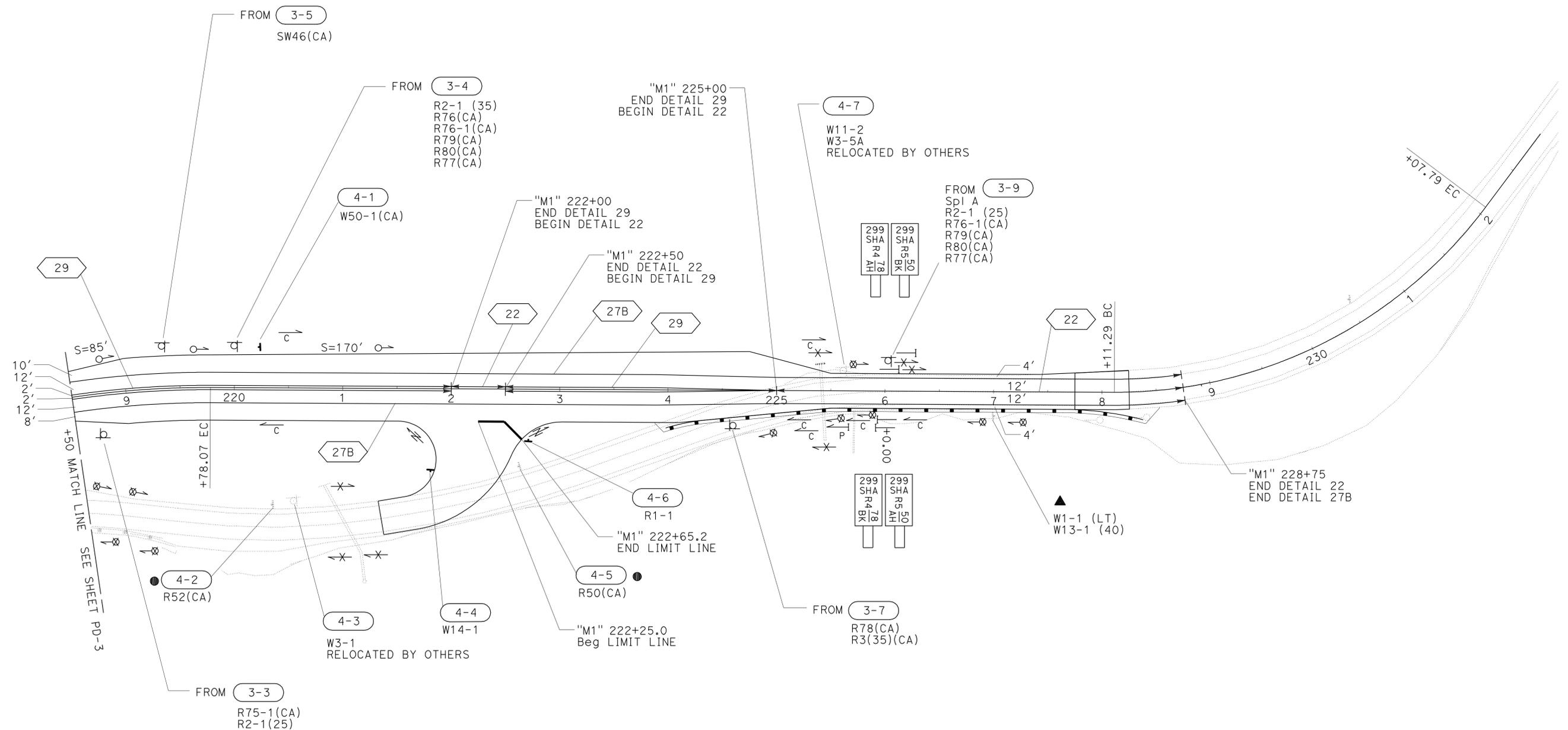
PAVEMENT DELINEATION AND SIGN PLAN
 SCALE: 1" = 50'
PD-3

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha	299	4.3/5.5	121	188

<i>Michael E. Feakes</i>	12-20-11
REGISTERED CIVIL ENGINEER	DATE
3-12-12	
PLANS APPROVAL DATE	

REGISTERED PROFESSIONAL ENGINEER
MICHAEL E. FEAKES
No. C70755
Exp. 6-30-13
CIVIL

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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 DESIGN
 FUNCTIONAL SUPERVISOR: AL TRUJILLO
 CALCULATED/DESIGNED BY: MICHAEL FEAKES
 CHECKED BY:
 SOCORRO URENA / RYAN PRINS
 REVISED BY: MICHAEL FEAKES
 DATE REVISED:

PAVEMENT DELINEATION AND SIGN PLAN
 SCALE: 1" = 50'
PD-4

APPROVED FOR PAVEMENT DELINEATION AND SIGN WORK ONLY

LAST REVISION DATE PLOTTED => 14-MAR-2012 TIME PLOTTED => 07:50

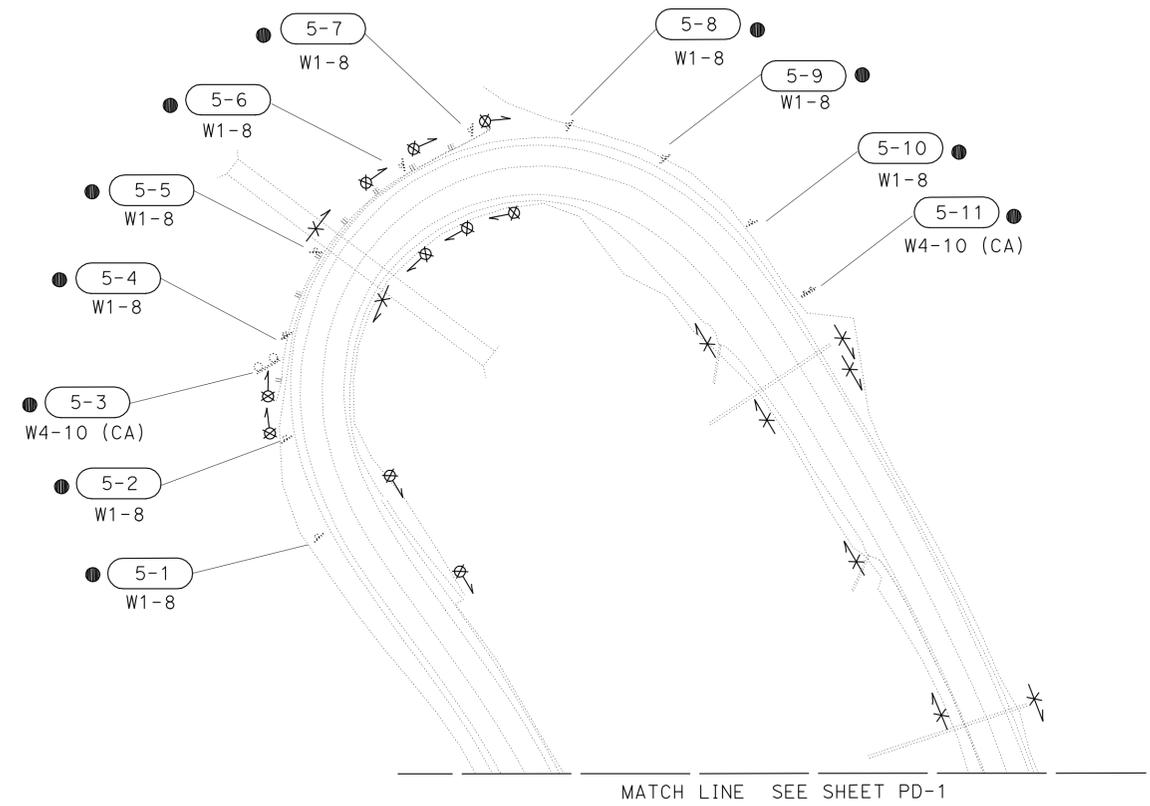
P:\proj2\02\2E510\plans\pse\22e510na005.dgn
 STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 DESIGN
 FUNCTIONAL SUPERVISOR: AL TRUJILLO
 CALCULATED/DESIGNED BY: SOCORRO URENA / RYAN PRINS
 CHECKED BY: MICHAEL FEAKES
 REVISED BY: MICHAEL FEAKES
 DATE REVISED:

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha	299	4.3/5.5	122	188

12-20-11
 REGISTERED CIVIL ENGINEER DATE
 3-12-12
 PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
MICHAEL E. FEAKES
 No. C70755
 Exp. 6-30-13
 CIVIL
 STATE OF CALIFORNIA

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PAVEMENT DELINEATION AND SIGN PLAN

SCALE: 1" = 50'

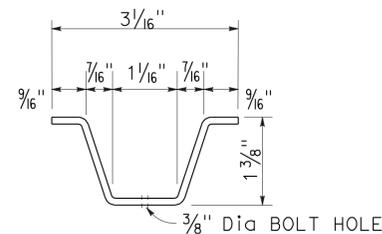
PD-5

APPROVED FOR PAVEMENT DELINEATION AND SIGN WORK ONLY

LAST REVISION: 12-20-11 DATE PLOTTED => 14-MAR-2012 TIME PLOTTED => 07:50

NOTES:

1. THE MARKER SHALL BE WHITE (NON-REFLECTIVE) TARGET PLATE WITH BLACK SERIES D NUMERALS AND LETTERS.
2. A POST MILE PREFIX, SUCH AS "R", SHALL APPLY ONLY WHEN DIRECTED BY THE ENGINEER.
3. "BK" (BACK), "AH" (AHEAD), OR A BLANK SPACE SHALL APPLY AS DIRECTED BY THE ENGINEER.
4. ALL INFORMATION SHALL BE IN ENGLISH UNITS (MILES).

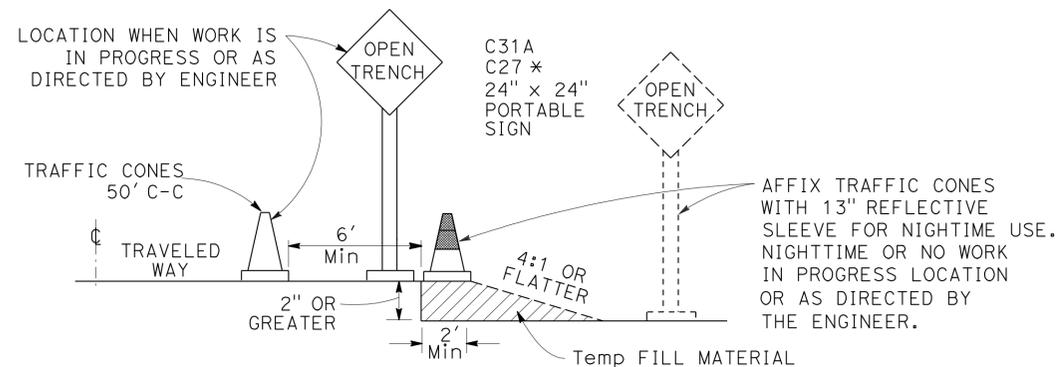


METAL MARKER POST SECTION

MILEPOST MARKER

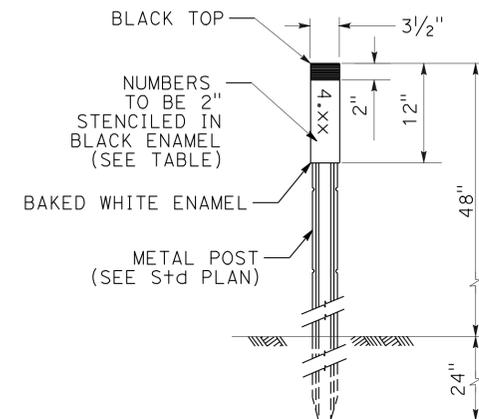
STATION	POST MILE	QUANTITY
"M1" 184+80.21	R4.0	1
"M1" 211+20.21	R4.5	1
"M1" 226+00.00	R4.78/R5.50	4

* QUANTITIES SHOWN ON PDQ-1



OPEN TRENCH SIGNING AND MARKING

* PLACE AT 250' INTERVALS THROUGH THE OPEN TRENCH AREA ALTERNATE C27 (OPEN TRENCH) AND C31A (NO SHOULDER) SIGNS

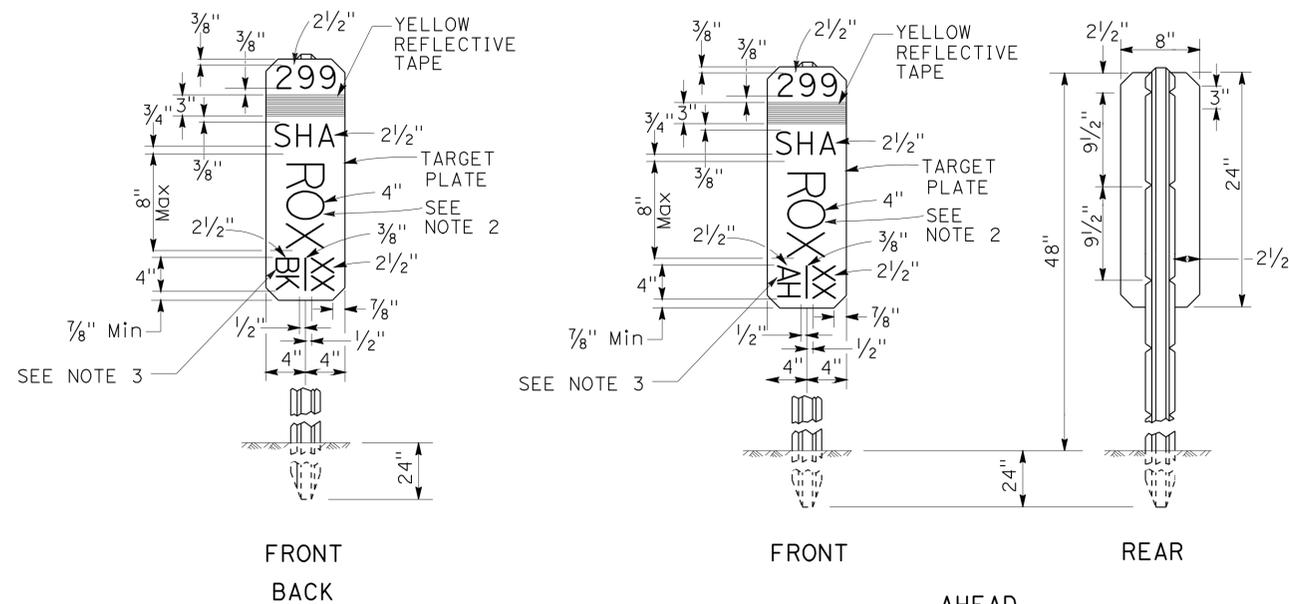


CULVERT MARKER

MARKER (CULVERT)

DRAINAGE SYSTEM	STATION	MARKER (CULVERT)	L+/R+	POSTMILES
1	"M1" 180+44	1	R+	R3.92
1	"M1" 180+75	1	R+	R3.92
4	"M1" 188+60	1	L+	R4.07
4	"M1" 188+70	1	L+	R4.07
5	"M1" 190+13	2	L+/R+	R4.10
7	"M1" 191+75	2	L+/R+	R4.13
10	"M1" 194+25	1	R+	R4.18
10	"M1" 195+00	1	R+	R4.19
11	"M1" 195+17	1	L+	R4.20
11	"M1" 195+38	1	L+	R4.20
12	"M1" 195+75	2	L+/R+	R4.21
15	"M1" 197+60	2	L+/R+	R4.24
17	"M1" 200+25	1	R+	R4.29
17	"M1" 201+00	1	R+	R4.31
18	"M1" 201+25	1	R+	R4.31
18	"M1" 201+50	1	R+	R4.32
18	"M1" 201+75	1	R+	R4.32
18	"M1" 202+77	1	R+	R4.34
19	"M1" 211+37	2	L+/R+	R4.50
20	"M1" 216+25	1	R+	R4.60
21	"M1" 216+30	2	L+/R+	R4.60
21	"M1" 216+60	1	R+	-
21	"M1" 217+00	1	R+	-
21	"M1" 217+60	1	R+	-
23	"M1" 220+50	2	L+/R+	R4.68
25	"M1" 225+25	1	R+	R4.77
25	"M1" 225+43	2	L+/R+	R4.77
26	"M1" 225+71	1	R+	R4.77
26	"M1" 226+25	1	R+	R4.79

* QUANTITIES SHOWN ON PDQ-1



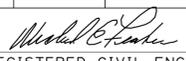
MILEPOST MARKER DETAIL

PAVEMENT DELINEATION AND SIGN DETAILS

NO SCALE

PDD-1

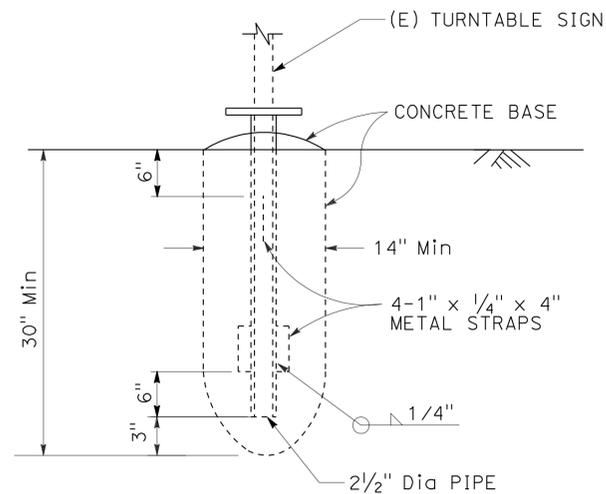
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 DESIGN
 AL TRUJILLO
 FUNCTIONAL SUPERVISOR
 CHECKED BY
 CALCULATED/DESIGNED BY
 MICHAEL FEAKES
 REVISOR
 DATE
 REVISIONS: 12-20-11, 3-12-12

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha	299	4.3/5.5	124	188
 REGISTERED CIVIL ENGINEER			12-20-11	DATE	
3-12-12 PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					

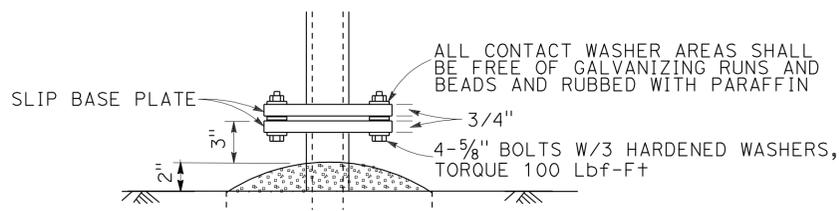


NOTE:

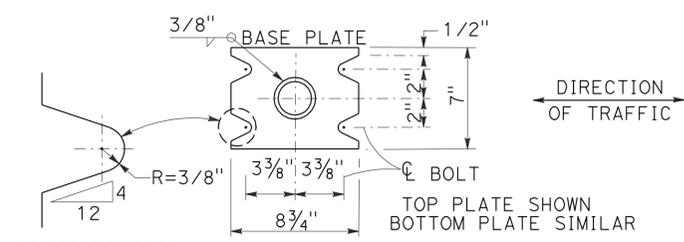
1. 2 1/2" Dia PIPE SHALL HAVE WALL THICKNESS OF 0.20".



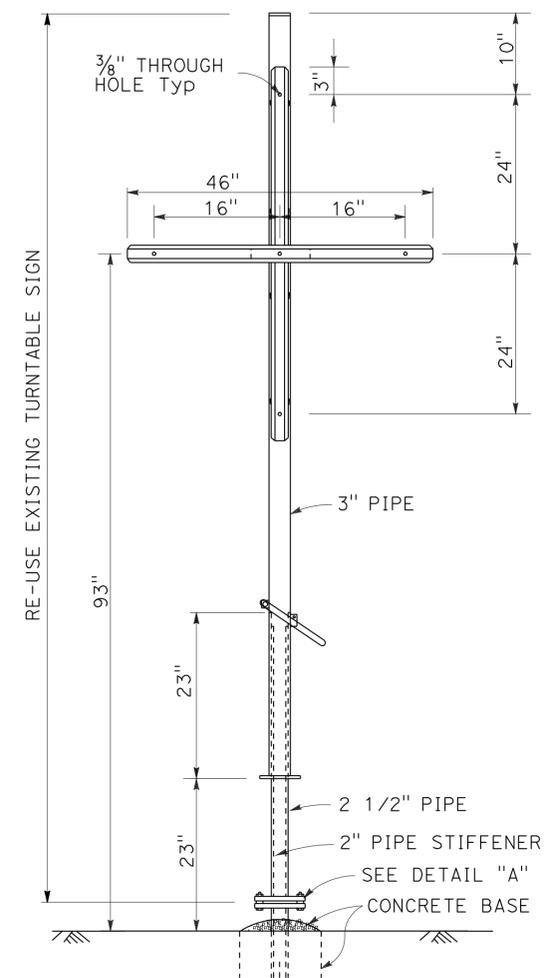
FOUNDATION DETAIL



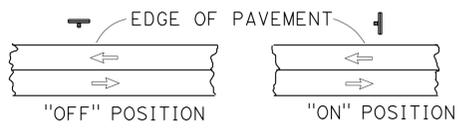
ELEVATION



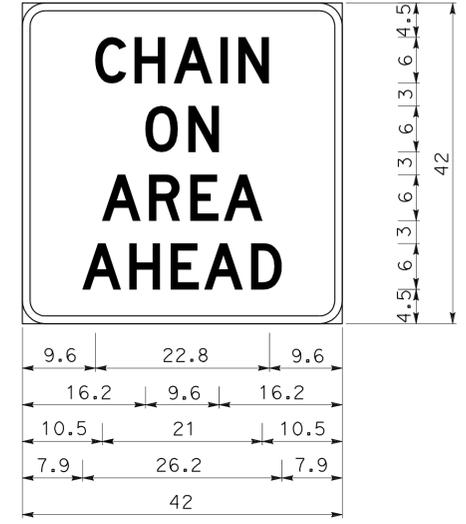
PLAN DETAIL A



MOUNTING DETAIL



POSITION OF SIGNS



3.0" RADIUS, 1.0" BORDER, WHITE ON BLACK;
 [CHAIN] D; [ON] D; [AREA] D;
 [AHEAD] D;

Sp1-A

SIGN No. 3-9

PAVEMENT DELINEATION AND SIGN DETAILS

NO SCALE

PDD-2

x

x

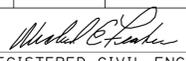
x

x

P:\proj\2\02\2E510\plans\pse\22e510nb002.dgn

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	DESIGN
FUNCTIONAL SUPERVISOR	AL TRUJILLO
CALCULATED/DESIGNED BY	CHECKED BY
JEFF CARSON	MICHAEL FEAKES
REVISOR	DATE
REVISOR	DATE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha	299	4.3/5.5	125	188

 12-20-11
 REGISTERED CIVIL ENGINEER DATE

3-12-12
 PLANS APPROVAL DATE

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THERMOPLASTIC PAVEMENT MARKING

SHEET No.	STATION	TYPE	EA	SQFT
PD-2	"M1" 203+00	TYPE VI ARROW	1	42
	"M1" 205+00	TYPE VI ARROW	1	42
PD-3	"M1" 207+00	TYPE VI ARROW	1	42
PD-4	"M1" 222+25.0 TO 222+65.2	LIMIT LINE	1	47
TOTAL				173

MARKERS AND DELINEATORS

SHEET No.	STATION	DELINEATOR (CLASS 2) TYPE E	MARKER (CULVERT)	MILEPOST MARKER	OBJECT MARKER (TYPE P)	OBJECT MARKER (TYPE L)	OBJECT MARKER (TYPE L-1)	REMOVE MARKER	REMOVE DELINEATOR
		EA	EA	EA	EA	EA	EA	EA	EA
PD-1	"M1" 179+70 TO 193+50	16	8	1	1	2	1	12	24
PD-2	"M1" 193+50 TO 205+50	17	14			2	2	5	11
PD-3	"M1" 205+50 TO 218+50	11	8	1			2	4	13
PD-4	"M1" 218+50 TO 227+00	3	7	4	1	2		7	10
PD-5	SEE PD-5 SHEET							9	10
TOTAL		47	37	6	2	6	5	37	68

PAVEMENT DELINEATION QUANTITIES

STATION	THERMOPLASTIC TRAFFIC STRIPE (SPRAYABLE)					PAVEMENT MARKER (RETROREFLECTIVE RECESSED)	
	DETAIL 12	DETAIL 19	DETAIL 22	DETAIL 27B	DETAIL 29	TYPE D	TYPE G
	LF	LF	LF	LF	LF	EA	EA
"M1" 179+70 TO 228+75				9810			
"M1" 179+70 TO 181+00			130			14	
"M1" 181+00 TO 191+85					2170	94	
"M1" 184+50 TO 185+25		78				3	4
"M1" 185+25 TO 206+90.56	2165						47
"M1" 191+85 TO 192+35			50			4	
"M1" 192+35 TO 195+00					530	26	
"M1" 195+00 TO 195+50			50			4	
"M1" 195+50 TO 222+00					5300	224	
"M1" 222+00 TO 222+50			50			4	
"M1" 222+50 TO 225+00					500	24	
"M1" 225+00 TO 228+75			375			34	
	2165	78	655	9810	8500	431	51
SUBTOTAL	21,208					482	
FROM STAGE CONSTRUCTION QUANTITIES	7,581						
TOTAL	28,789					482	

PAVEMENT DELINEATION AND SIGN QUANTITIES PDQ-1

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 STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 DESIGN
 AL TRUJILLO
 FUNCTIONAL SUPERVISOR
 MICHAEL FEAKES
 CHECKED BY
 JEFF CARSON
 CALCULATED/DESIGNED BY
 REVISOR BY
 DATE REVISOR

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha	299	4.3/5.5	126	188

12-20-11
 REGISTERED CIVIL ENGINEER DATE
 3-12-12
 PLANS APPROVAL DATE

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

NOTES:

1. (N) - NOT A SEPARATE PAY ITEM, FOR INFORMATION ONLY.
2. CALIFORNIA SIGN CODES ARE DESIGNATED BY (CA), OTHERWISE, FEDERAL SIGN CODES ARE SHOWN.
3. SPEED TO BE DETERMINED BY ENGINEER.

ROADSIDE SIGNS

SHEET No.	SIGN No.	SIGN CODE	(N) PANEL SIZE (INCHES)	FURNISH SINGLE SHEET ALUMINUM SIGN (0.063"-UNFRAMED)	(N) POST LENGTH	(N) POST EMBED	ROADSIDE SIGN				REMARKS	SIGN No.
				SQFT			EA	EA	EA	EA		
PD-1	1-1	G69 (CA) 2 MILES AHEAD	48 x 36	12.0							TO BE INSTALLED BY OTHERS	1-1
	1-2	G69 (CA) AHEAD	48 x 36	12.0	14	4.5	1				"PASSING LANE AHEAD"	1-2
	1-3	G17 (CA) (2000 FT)			12	3.5		1			"ELEVATION 2000 FT"	1-3
	1-4	G17 (CA) (2000 FT)			12	3.5		1			"ELEVATION 2000 FT"	1-4
	1-5	G28-2 (CA) (299)			12	3.5		1			CALIFORNIA 299 SYMBOL	1-5
	1-6	R4-3	36 x 48	12.0	14	4.5	1				"SLOWER TRAFFIC KEEP RIGHT"	1-6
	1-7	W1-6							1		ARROW SYMBOL	1-7
	1-8	W8-5							1		SLIPPERY WHEN WET SYMBOL	1-8
	1-9	W4-10 (CA)							1		20 MPH CURVE SYMBOL	1-9
	1-10	W1-1 (LT) W13-1 (25)								1	CURVE SYMBOL 25 MPH	1-10
	1-11	W11-2 W3-5A								1	PED SYMBOL 25 MPH SPEED ZONE	RECONSTRUCT AT 212+50 1-11
PD-2	2-1	W1-1 W13-1							1		CURVE SYMBOL 20 MPH	2-1
	2-2	W1-8							1		CHEVRON SYMBOL	2-2
	2-3	W9-1	36 x 36	9.0	14	4.5	1				"RIGHT LANE ENDS"	2-3
	2-4	W1-8							1		CHEVRON SYMBOL	2-4
	2-5	W1-8							1		CHEVRON SYMBOL	2-5
	2-6	W4-10							1		CHEVRON SYMBOL	2-6
	2-7	W1-8							1		CHEVRON SYMBOL	2-7
	2-8	W1-8							1		CHEVRON SYMBOL	2-8
	2-9	W1-8							1		CHEVRON SYMBOL	2-9
	2-10	W4-10							1		CHEVRON SYMBOL	2-10
	2-11	W1-8							1		CHEVRON SYMBOL	2-11
	2-12	W1-8							1		CHEVRON SYMBOL	2-12
	2-13	W4-2R	36 x 36	9.0	14	4.5	1				RIGHT LANE DROP SYMBOL	2-13
	2-14	W4-2R	36 x 36	9.0	14	4.5	1				RIGHT LANE DROP SYMBOL	2-14
SUBTOTAL THIS SHEET				63.0			5	3	15	1		

x
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 x
 x
 x

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 STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans DESIGN

PAVEMENT DELINEATION AND SIGN QUANTITIES PDQ-2

LAST REVISION DATE PLOTTED => 14-MAR-2012 12-20-11 TIME PLOTTED => 07:50

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha	299	4.3/5.5	127	188

<i>Michael E. Feakes</i>	12-20-11
REGISTERED CIVIL ENGINEER	DATE
3-12-12	
PLANS APPROVAL DATE	

REGISTERED PROFESSIONAL ENGINEER	MICHAEL E. FEAKES
No. C70755	Exp. 6-30-13
CIVIL	

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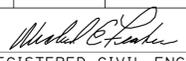
ROADSIDE SIGNS

SHEET No.	SIGN No.	SIGN CODE	(N) PANEL SIZE (INCHES)	FURNISH SINGLE SHEET ALUMINUM SIGN (0.063"-UNFRAMED)	(N) POST LENGTH	(N) POST EMBED	ROADSIDE SIGN	RESET ROADSIDE SIGN	REMOVE ROADSIDE SIGN	RECONSTRUCT TURNABLE ROADSIDE SIGN	REMARKS	SIGN No.	
				SQFT			LF						LF
PD-3	3-1	R4-1	24 X 30	5.0		3.5	1				"DO NOT PASS"	3-1	
	3-2	R4-1	24 X 30	5.0	12	3.5	1				"DO NOT PASS"	3-2	
	3-3	R75-1 (CA) R2-1 (25)								1	"CHAIN OFF AREA AHEAD" SPEED LIMIT 25	RECONSTRUCT AT 218+75	3-3
	3-4	R2-1 (35) R76 (CA) R76-1 (CA) R79 (CA) R80 (CA) R77 (CA)								1	"CHAINS REQUIRED" "ON SINGLE AXLE DRIVE VEHICLE WITH TRAILER" "AUTO AND PICKUPS SNOW TIRES OK/CARRY CHAINS" "4W DRIVE WITH SNOW TIRES OK/CARRY CHAINS" "NO EXCEPTIONS"	RELOCATE TO 220+50	3-4
	3-5	SW46 (CA)								1	WATCH FOR SNOW	RECONSTRUCT AT 220+00	3-5
	3-6	W1-1 W13-1							1		CURVE SYMBOL 30 MPH		3-6
	3-7	R78 (CA) R3 (35) (CA)								1	"END CHAIN CONTROL" END 35 SPEED LIMIT	RECONSTRUCT AT 224+50	3-7
	3-8	R51 (CA)								1	"TURNOUT"		3-8
	3-9	SPL A R2-1 (25) R76-1 (CA) R79 (CA) R80 (CA) R77 (CA)								1	"CHAIN ON AREA AHEAD" "SPEED LIMIT 25" "ON SINGLE AXLE DRIVE VEHICLE WITH TRAILER" "AUTO AND PICKUPS SNOW TIRES OK/CARRY CHAINS" "AUTO AND PICKUPS SNOW TIRES OK/CARRY CHAINS" "NO EXCEPTIONS"	RECONSTRUCT AT 226+00	3-9
PD-4	4-1	W50-1 (CA)	36 X 36	9.0	14	4.5	1				ROCKFALL AREA SYMBOL	4-1	
	4-2	R52 (CA)							1		"SLOWER TRAFFIC USE TURNOUT"	4-2	
	4-3	W3-1									"STOP AHEAD SYMBOL"	RELOCATED BY OTHERS	4-3
	4-4	W14-1	36 X 36	9.0	14	4.5	1				"DEAD END"	4-4	
	4-5	R50 (CA)							1		"TURNOUT 1/4 MILE"	4-5	
	4-6	R1-1	36 X 36	9.0	14	4.5	1				STOP SIGN	4-6	
	4-7	W11-2 W3-5A									PED SYMBOL 25 MPH SPEED ZONE AHEAD	RELOCATED BY OTHERS	4-7
SUBTOTALS THIS SHEET				37.0			5		4	5			

PAVEMENT DELINEATION AND SIGN QUANTITIES PDQ-3

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION DESIGN
 AL TRUJILLO
 JEFF CARSON
 MICHAEL FEAKES
 REVISOR BY DATE
 REVISOR BY DATE
 CALCULATED BY DESIGNED BY
 CHECKED BY
 FUNCTIONAL SUPERVISOR
 AL TRUJILLO
 DESIGN

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha	299	4.3/5.5	128	188

 12-20-11
 REGISTERED CIVIL ENGINEER DATE

3-12-12
 PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS
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x
x
x
x

REVISOR	REVISION
JEFF CARSON	
MICHAEL FEAKES	
CALCULATED-DESIGNED BY	CHECKED BY
AL TRUJILLO	
FUNCTIONAL SUPERVISOR	
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	
Caltrans	DESIGN

ROADSIDE SIGNS

SHEET No.	SIGN No.	SIGN CODE	(N) PANEL SIZE (INCHES)	FURNISH SINGLE SHEET ALUMINUM SIGN (0.063"-UNFRAMED)	(N) POST LENGTH	(N) POST EMBED	ROADSIDE SIGN				REMARKS	SIGN No.
							ONE POST 4" x 6"	RESET ROADSIDE SIGN	REMOVE ROADSIDE SIGN	RECONSTRUCT TURNABLE ROADSIDE SIGN		
				SQFT	LF	LF	EA	EA	EA	EA		
PD-5	5-1	W1-8								1	CHEVRON SYMBOL	5-1
	5-2	W1-8								1	CHEVRON SYMBOL	5-2
	5-3	W4-10 (CA)								1	20 MPH CURVE SYMBOL	5-3
	5-4	W1-8								1	CHEVRON SYMBOL	5-4
	5-5	W1-8								1	CHEVRON SYMBOL	5-5
	5-6	W1-8								1	CHEVRON SYMBOL	5-6
	5-7	W1-8								1	CHEVRON SYMBOL	5-7
	5-8	W1-8								1	CHEVRON SYMBOL	5-8
	5-9	W1-8								1	CHEVRON SYMBOL	5-9
	5-10	W1-8								1	CHEVRON SYMBOL	5-10
	5-11	W4-10 (CA)								1	20 MPH CURVE SYMBOL	5-11
SUBTOTAL THIS SHEET										11		
SUBTOTAL SHEET PD-2				63.00			5	3	15	1		
SUBTOTAL SHEET PD-3				37.00			5		4	5		
TOTAL				100.00			10	3	30	6		

**PAVEMENT DELINEATION
AND SIGN QUANTITIES
PDQ-4**

LAST REVISION
 DATE PLOTTED => 14-MAR-2012
 12-20-11
 TIME PLOTTED => 07:50

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha	299	4.3/5.5	130	188

12-20-11
 REGISTERED CIVIL ENGINEER DATE
 3-12-12
 PLANS APPROVAL DATE

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NOTE:

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ABBREVIATIONS:

CPACP COLD PLANE ASPHALT CONCRETE PAVEMENT
 ERS EARTH RETAINING STRUCTURE

SUMMARY OF QUANTITIES

STATION	L+/R+	ROADWAY EXCAVATION	(N)	CLASS 2 AGGREGATE BASE	HOT MIX ASPHALT	TACK COAT	SHOULDER BACKING	COLD PLANE ASPHALT CONCRETE PAVEMENT	MAINTENANCE GATE	CATTLE GATE	REMOVE FENCE	REMOVE GATE	EARTH RETAINING STRUCTURE (GUARD RAILING)	COMMENTS
		CY	CY											
"M1" 180+50.00 TO 180+83.50	L+/R+							149						CPACP
"M1" 179+20.00 TO 228+25.00	L+/R+	526,762	569,070	6287	10773	8								HMA (QC/QA PROCESS)
"M1" 180+83.50 TO 187+69.00	L+						69							SHOULDER BACKING
"M1" 192+58.40 TO 194+76.00	L+						22							SHOULDER BACKING
"M1" 196+25.71 TO 196+68.64	L+										30			REMOVE EXISTING FENCE
"M1" 196+30.10	L+											1		REMOVE EXISTING GATE
"M1" 196+43.00	L+											1		REMOVE EXISTING GATE
"M1" 200+006.00 TO 227+75.00	L+						281							SHOULDER BACKING
"M1" 203+57.90 TO 206+34.60	R+						28							SHOULDER BACKING
"M1" 218+13.00 TO 221+52.00	R+						34							SHOULDER BACKING
"M1" 223+02.00 TO 223+73.00	R+						7							SHOULDER BACKING
"M1" 227+00.00 TO 227+75.00	R+												150	ERS (GUARD RAILING)
"M1" 227+75 TO 228+25	L+/R+							199						CPACP
"DET1" 10+00 TO 21+15	L+/R+	10,800	24,799	820	1390	1	56							DETOUR 1
"DET4" 3+00 TO 10+25	L+/R+	21,275	260	640	696	1	50							DETOUR 4
"R1" 0+00 TO 8+00	L+/R+	680												RECLAIM EXISTING ROADWAY
"R1" 8+00 TO 10+00	L+/R+	22,300												"XBOX" EARTHWORK
"R1" 10+00 TO 18+55	L+/R+	250												RECLAIM EXISTING ROADWAY
"R2" 20+00 TO 32+50	L+/R+	2082	310											RECLAIM EXISTING ROADWAY
"M1" 192+14.50 TO 192+58.40	L+						9							SHOULDER BACKING, L+ CURVE RETURN
"RC1" 8+75.0	L+/R+								1					MAINTENANCE GATE
"RC1" 3+00.00 TO STA 9+75.83	L+/R+	422	225											
"M1" 194+76.00 TO 195+18.90	L+						8							SHOULDER BACKING, R+ CURVE RETURN
"RC2" 9+00	L+/R+									1				16' CATTLE GATE
"RC2" 3+50 TO 9+76	L+/R+	11,220	294	225										
"RC3" 8+50 TO 9+70	L+/R+	6361	162											L+ CURVE RETURN
"RC3" 8+50.00 TO "M1" 222+56.00	R+						21							SHOULDER BACKING, R+ CURVE RETURN
"RC3" 8+00 TO 8+50	L+/R+							187						CPACP
"A1" 1+50 TO 8+00	L+/R+	5442	220											
"M1" 180+50.00 TO 228+25.00							52.8							FROM HMA DIKE QUANTITIES
"M1" 180+50.00 TO 228+25.00							14.3							FROM DRAINAGE QUANTITIES
TOTAL		607,594	595,340	7972	12,926	10	585	535	1	1	30	2	150	

SUMMARY OF QUANTITIES Q-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION DESIGN
 AL TRUJILLO
 JEFF CARSON
 MICHAEL FEAKES
 CALIFORNIA REGISTERED CIVIL ENGINEER
 No. C70755
 Exp. 6-30-13

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 STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans DESIGN
 FUNCTIONAL SUPERVISOR AL TRUJILLO
 CALCULATED/DESIGNED BY CHECKED BY
 JEFF CARSON MICHAEL FEAKES
 REVISED BY DATE REVISED
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NOTE:

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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha	299	4.3/5.5	131	188

12-20-11
 REGISTERED CIVIL ENGINEER DATE
 3-12-12
 PLANS APPROVAL DATE

MICHAEL E. FEAKES
 No. C70755
 Exp. 6-30-13
 CIVIL
 STATE OF CALIFORNIA

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METAL BEAM GUARD RAILING

STATION	L+/Rt	REMOVE MBGR	MODIFIED METAL BEAM GUARD RAILING (STEEL POST)	SINGLE THRIE BEAM BARRIER (STEEL POST)	END ANCHOR ASSEMBLY (TYPE SFT)	INTERMEDIATE ANCHOR ASSEMBLY (Mod TYPE SFT)	A/I FLARED TERMINAL SYSTEM
		LF	LF	LF	EA	EA	EA
"M1" 179+20.00 TO 179+67.00	Rt	47					
"M1" 179+20.00 TO 192+00.00	Rt		1289				
"M1" 183+35.00 TO 185+50.00	Rt	221					
"M1" 187+85.00 TO 188+25.00	Lt						1
"M1" 187+87.00 TO 189+37.00	Lt	337					
"M1" 188+25.00 TO 191+99.80	Lt		427				
"M1" 189+22.89 TO 190+92.65	Lt	202					
"M1" 191+58.80	Lt					1	
"M1" 191+99.80	Lt				1		
"M1" 192+00.00 TO 192+37.50	Rt						1
"M1" 194+62.50 TO 195+00.00	Rt						1
"M1" 195+00.00 TO 203+01.90	Rt		762				
"M1" 195+36.85	Lt				1		
"M1" 195+36.85 TO 199+50.00	Lt		496				
"M1" 195+75.11	Lt					1	
"M1" 196+78.16 TO 198+34.41	Lt	182					
"M1" 199+50.00 TO 199+87.50	Lt						1
"M1" 203+01.90 TO 203+38.60	Rt						1
"M1" 206+53.10 TO 206+90.60	Rt						1
"M1" 206+90.60 TO 217+75.00	Rt		1080				
"M1" 217+75.00 TO 218+12.50	Rt						1
"M1" 223+97.94 TO 224+34.88	Rt						1
"M1" 224+34.88 TO 224+41.10	Rt						
"M1" 224+34.88 TO 228+36.53	Rt			404			
"M1" 228+36.53	Rt				1		
TOTAL		989	4054	404	3	2	8

PLACE HMA DIKE

STATION	L+/Rt	TYPE C	TYPE E	TYPE F
		LF	LF	LF
"M1" 179+20 TO 180+75	Rt			155
"M1" 187+85 TO 188+25	Lt	40		
"M1" 188+25 TO 188+90	Lt			65
"M1" 188+80 TO 192+00	Rt			320
"M1" 192+00 TO 194+37.5	Rt		221	
"M1" 194+37.5 TO 195+00	Rt	58		
"M1" 195+00 TO 201+90	Rt			650
"M1" 208+50 TO 217+75	Rt			920
"M1" 217+75 TO 218+38.55	Rt	62		
"M1" 218+38.55 TO 221+70.5	Rt		396	
"M1" 222+56 TO 223+72.95	Rt		129	
"M1" 223+72.95 TO 224+34.88	Rt	62		
"M1" 224+34.9 TO 226+75	Rt			241
TOTAL		222	746	2351

SUMMARY OF QUANTITIES
Q-2

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha	299	4.3/5.5	132	188

12-20-11
 REGISTERED CIVIL ENGINEER DATE
 3-12-12
 PLANS APPROVAL DATE

MICHAEL E. FEAKES
 No. C70755
 Exp. 6-30-13
 CIVIL

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TEMPORARY WATER POLLUTION CONTROL

STATION	Temp FIBER ROLL	Temp GRAVEL BAG BERM	Temp CHECK DAM	MOVE IN/MOVE OUT (TEMPORARY EROSION CONTROL)	Temp DRAINAGE INLET PROTECTION	Temp HYDRAULIC MULCH (POLYMER STABILIZED FIBER MATRIX)
"M1" 180+50 TO 228+25	LF	LF	LF	EA	EA	SQYD
	2600	1500	375	12	25	75,000
TOTAL	2600	1500	375	12	25	75,000

TEMPORARY FENCE (TYPE ESA)

STATION	L+/R+	Temp FENCE (TYPE ESA)
		LF
"M1" 188+09.06 TO 188+82.63	R+	80
"M1" 190+70.37 TO 191+08.70	L+	50
"M1" 196+54.24 TO 197+42.05	L+	155
"M1" 201+90.88 TO 202+06.42	R+	90
"M1" 210+57.35 TO 211+07.31	R+	50
"M1" 211+09.31 TO 211+59.09	L+	50
"M1" 216+00.22 TO 216+44.03	L+	50
"M1" 220+12.85 TO 220+61.69	L+	50
"M1" 225+15.50 TO 225+65.16	L+	50
"M1" 189+22.52 TO 189+76.68	L+	60
"M1" 190+38.11 TO 190+85.07	L+	50
"M1" 188+88 TO 203+61 (PERIMETER)	L+	953
"M1" 200+88 TO 201+94 (PERIMETER)	L+	255
TOTAL		1943

VEGETATION CONTROL (MINOR CONCRETE)

STATION	L+/R+	VEGETATION CONTROL (MINOR CONCRETE)
		SQYD
"M1" 179+20.0 TO 192+56.0	R+	532
"M1" 187+69.0 TO 191+96.4	L+	165
"M1" 194+44.0 TO 203+57.9	R+	339
"M1" 195+37.5 TO 200+06.0	L+	215
"M1" 206+34.6 TO 218+31.0	R+	490
"M1" 223+88.2 TO 228+51.5	R+	210
TOTAL		1951

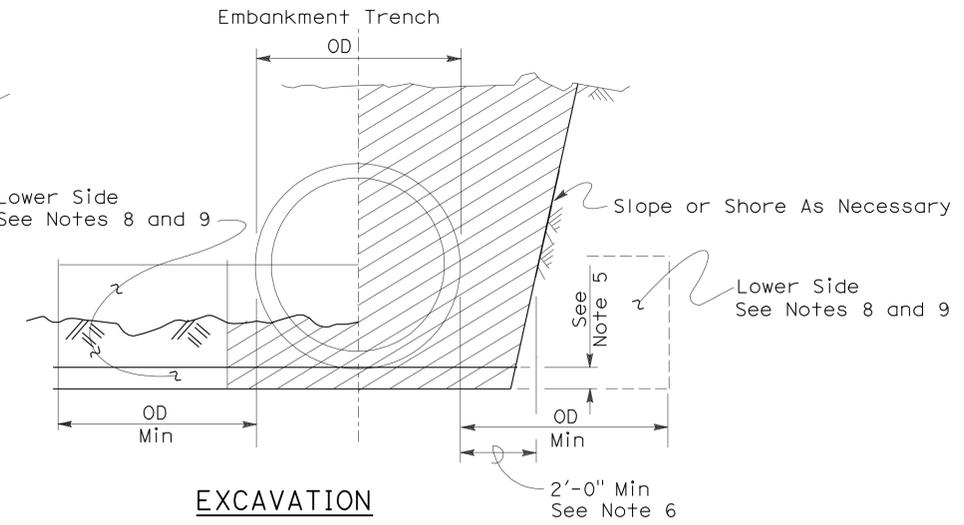
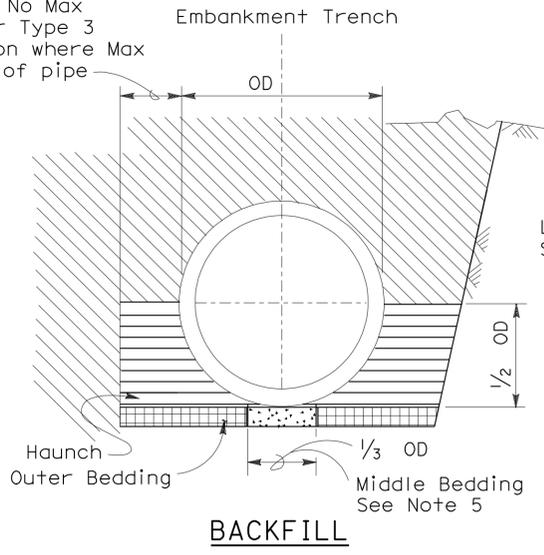
EROSION CONTROL

STATION	(N)	(N)	(N)	(N)	EROSION CONTROL (HYDROSEED)	EROSION CONTROL (BONDED FIBER MATRIX)	COMMENTS
	PURE LIVE SEED (EROSION CONTROL)	FIBER (EROSION CONTROL)	STABILIZING EMULSION (EROSION CONTROL)	COMMERCIAL FERTILIZER			
	LB	LB	LB	LB	ACRE	SQFT	
"M1" 181+00 TO 225+50	2290	85860	5724	1908	19.08		HYDROSEED
"M1" 191+35 TO 227+50	1050	17431		1307		379,820	BONDED FIBER MATRIX
TOTAL	3340	103,291	5724	3215	19.08	379,820	

SUMMARY OF QUANTITIES
Q-3

2006 REVISED STANDARD PLAN RSP A62DA

2'-0" Min; No Max except for Type 3 Installation where Max Equals OD of pipe



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

TYPE 1 INSTALLATION:

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

TYPE 2 INSTALLATION:

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

TYPE 3 INSTALLATION:

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

NOTES:

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

INSTALLATION TYPE 1

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

INSTALLATION TYPE 2

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

INSTALLATION TYPE 3

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**EXCAVATION AND BACKFILL
CONCRETE PIPE CULVERTS**

NO SCALE

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

REVISED STANDARD PLAN RSP A62DA

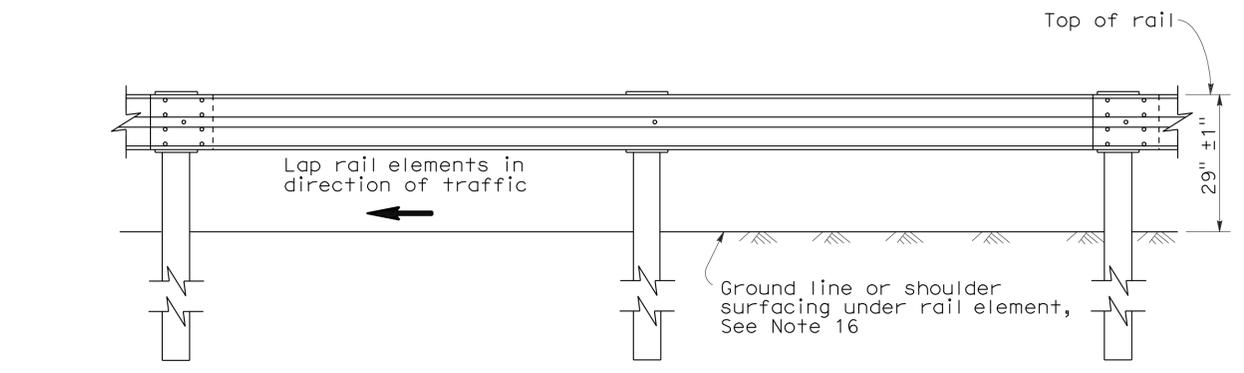
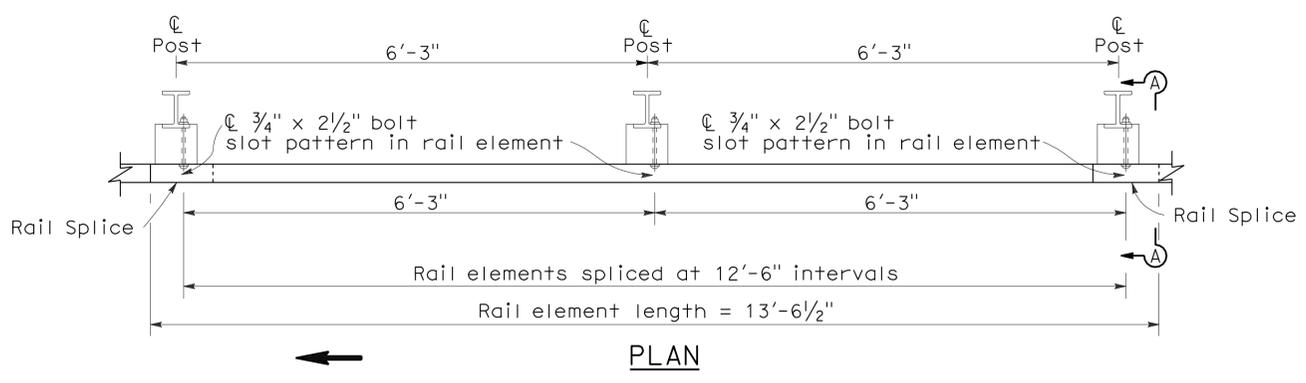
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha	299	4.3/5.5	134	188

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

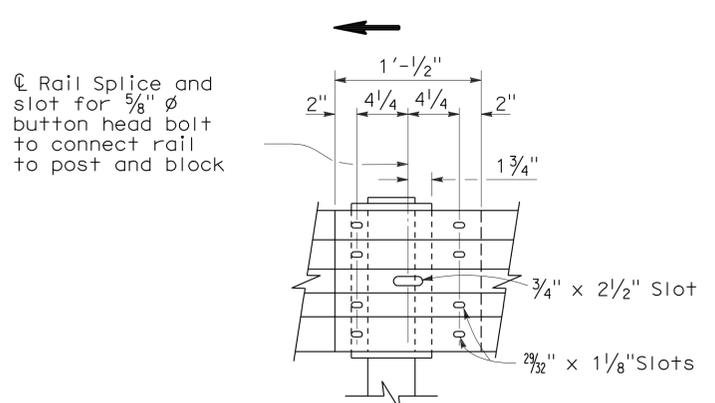
May 20, 2011
PLANS APPROVAL DATE

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To accompany plans dated 3-12-12

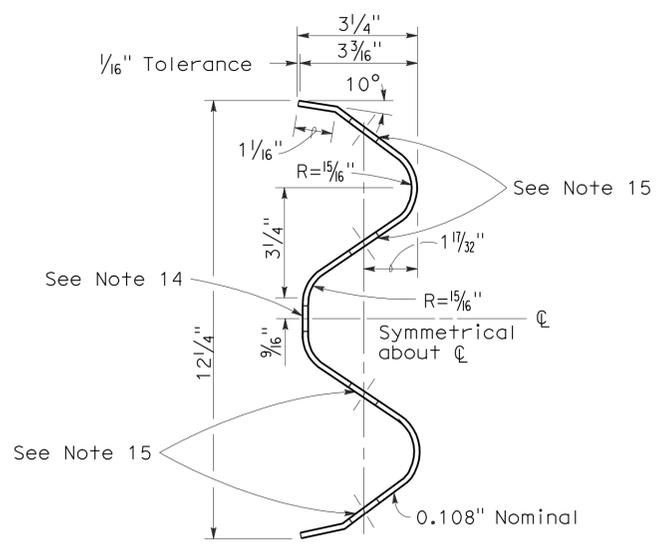


METAL BEAM GUARD RAILING WITH STEEL POSTS AND NOTCHED WOOD OR NOTCHED RECYCLED PLASTIC BLOCKS

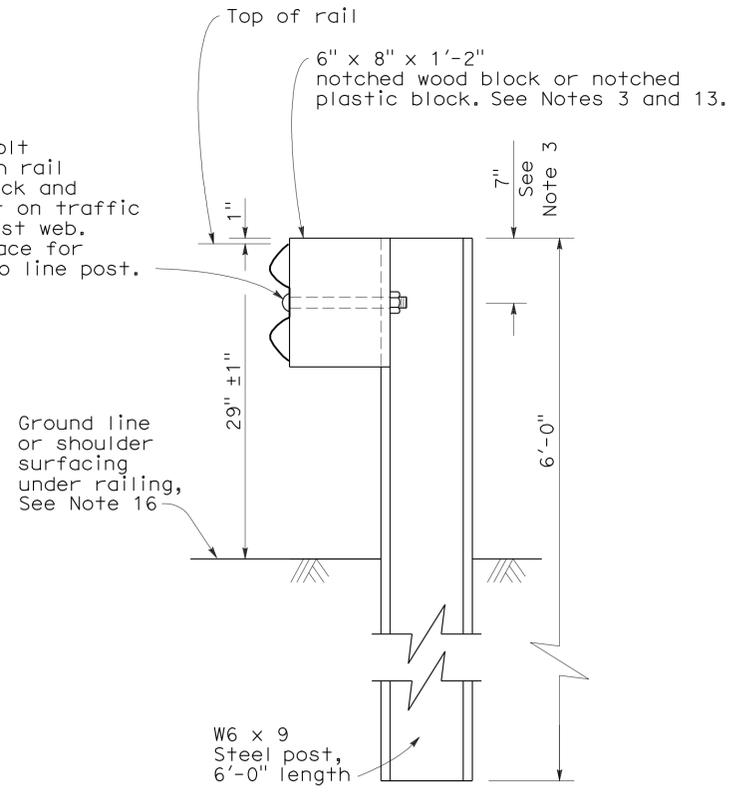


RAIL ELEMENT SPLICE DETAIL

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



SECTION THRU RAIL ELEMENT



SECTION A-A TYPICAL STEEL LINE POST INSTALLATION

See Note 4

NOTES:

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

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

REVISED STANDARD PLAN RSP A77A2

2006 REVISED STANDARD PLAN RSP A77A2

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha	299	4.3/5.5	135	188

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

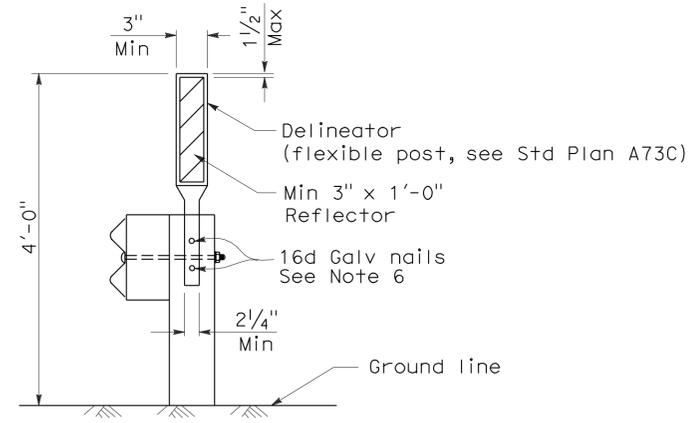
May 20, 2011
PLANS APPROVAL DATE

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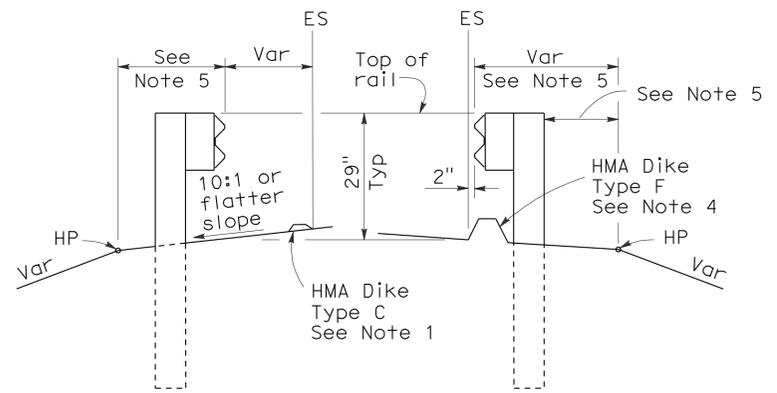
To accompany plans dated 3-12-12

NOTES:

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



GUARD RAILING DELINEATION
See Note 3



DIKE POSITIONING
See Note 1

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**METAL BEAM GUARD RAILING
TYPICAL RAILING DELINEATION
AND DIKE POSITIONING DETAILS**

NO SCALE

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

REVISED STANDARD PLAN RSP A77C4

2006 REVISED STANDARD PLAN RSP A77C4

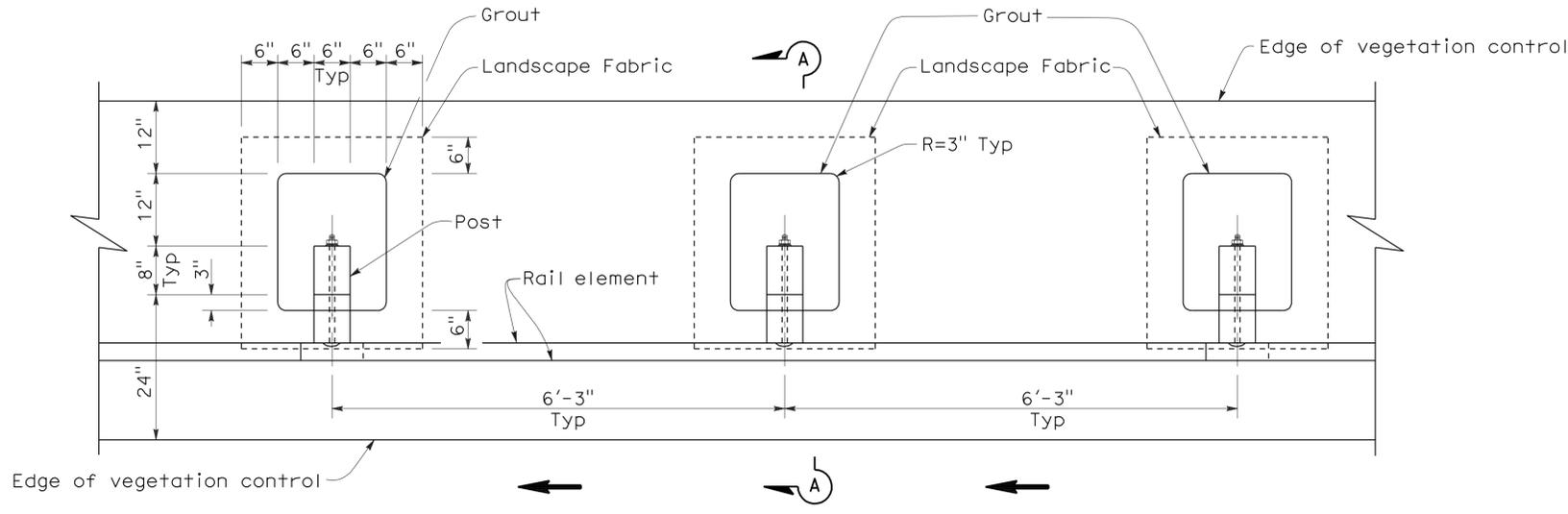
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
02	Sha	299	4.3/5.5	136	188

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

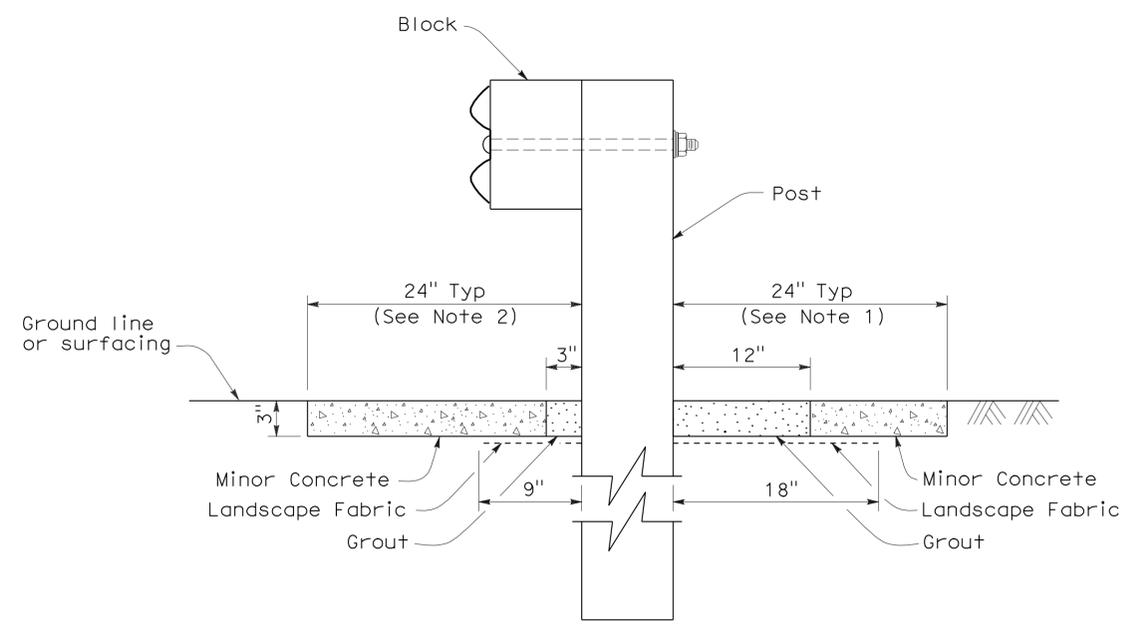
October 20, 2006
PLANS APPROVAL DATE

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To accompany plans dated 3-12-12



PLAN



SECTION A-A

NOTES:

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

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

2006 NEW STANDARD PLAN NSP A77C5

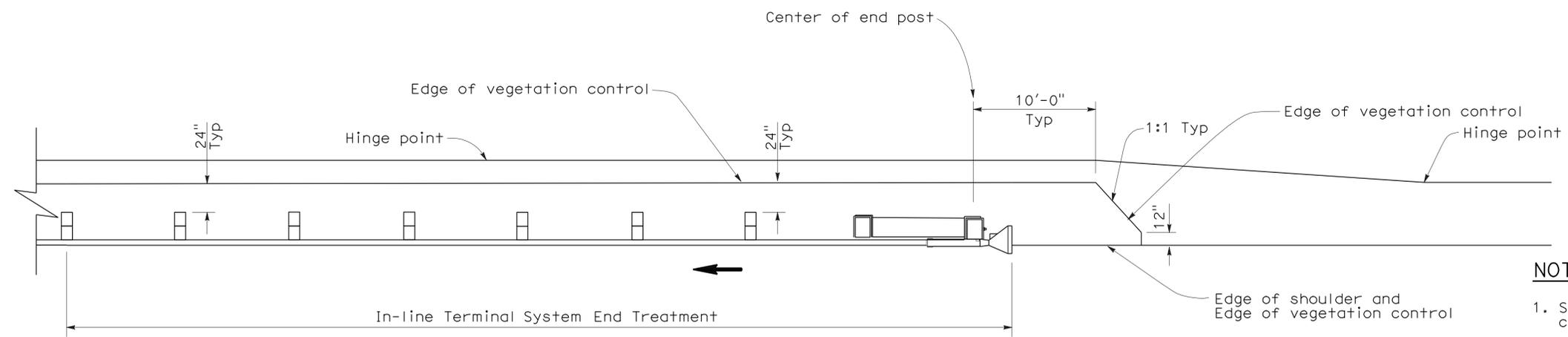
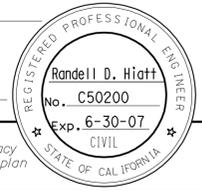
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
02	Sha	299	4.3/5.5	137	188

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

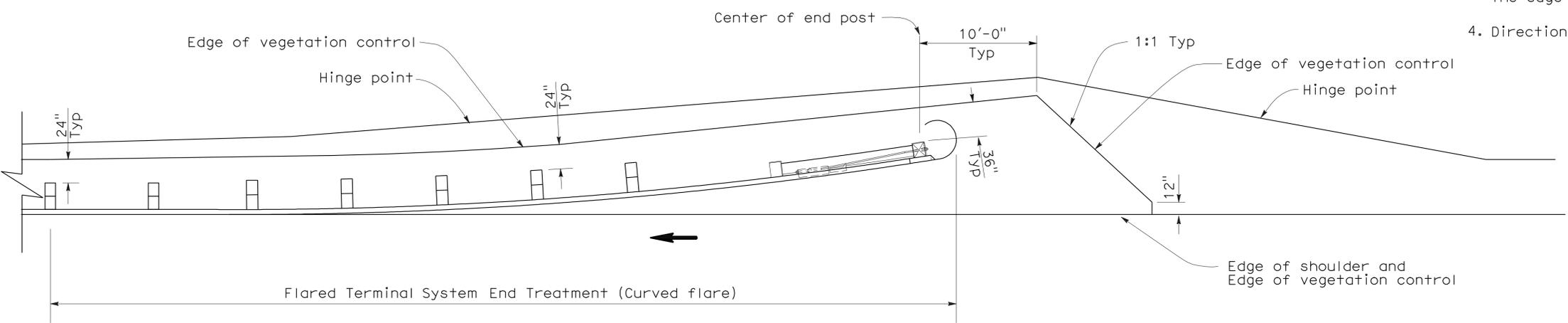
October 20, 2006
PLANS APPROVAL DATE

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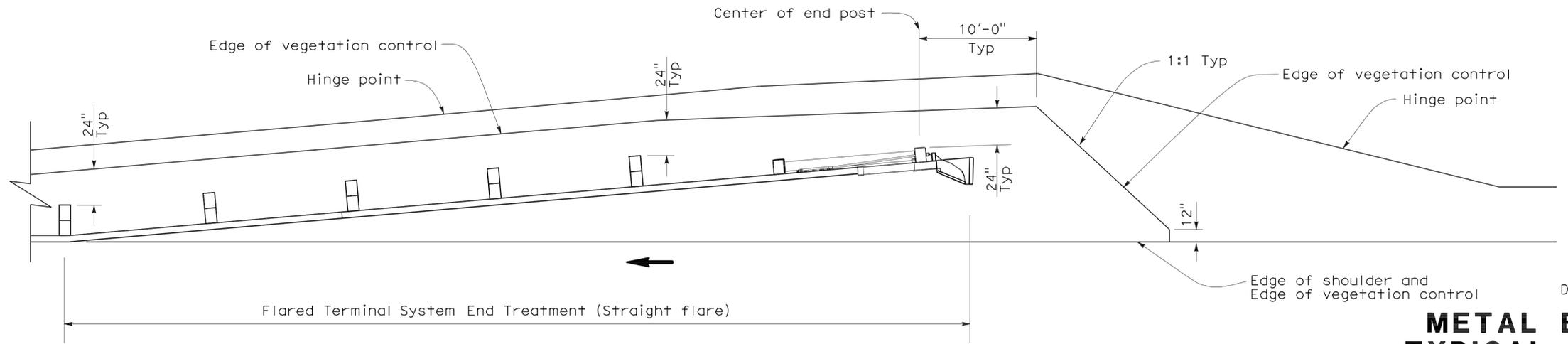
To accompany plans dated 3-12-12



PLAN



PLAN



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 ←.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

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

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

NEW STANDARD PLAN NSP A77C6

2006 NEW STANDARD PLAN NSP A77C6

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
02	Sha	299	4.3/5.5	138	188

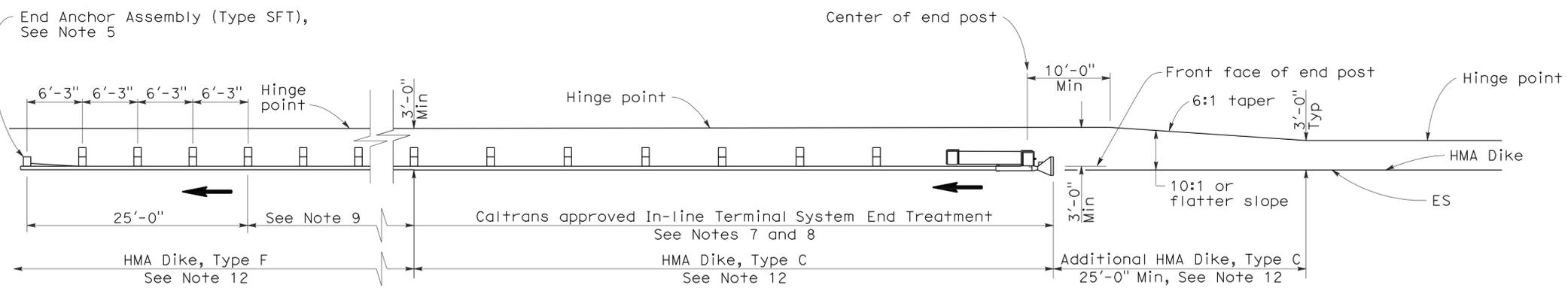
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

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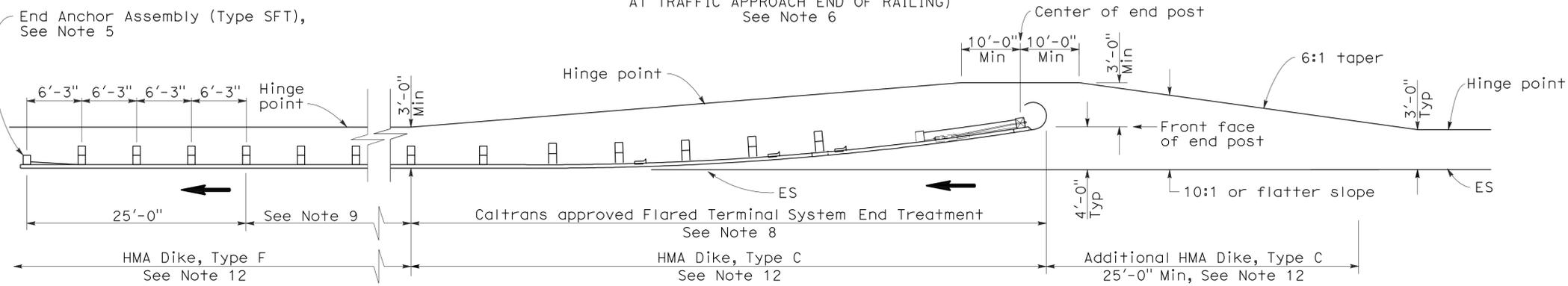
To accompany plans dated 3-12-12

2006 REVISED STANDARD PLAN RSP A77E1



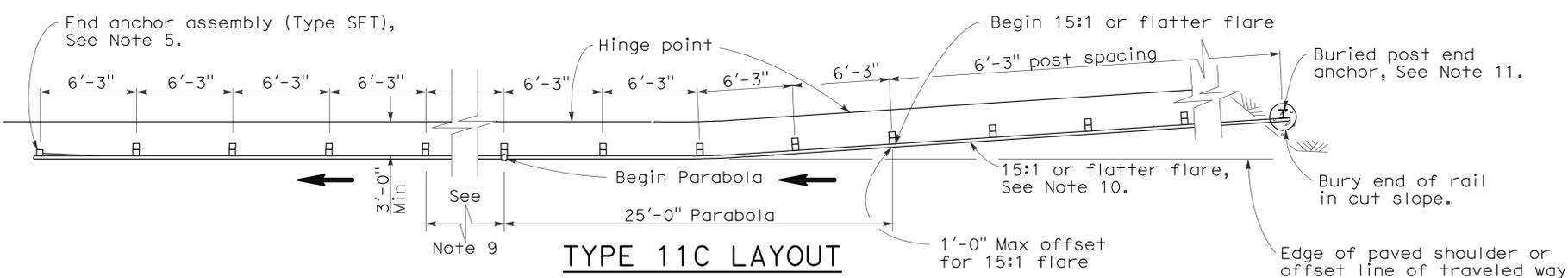
TYPE 11A LAYOUT

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



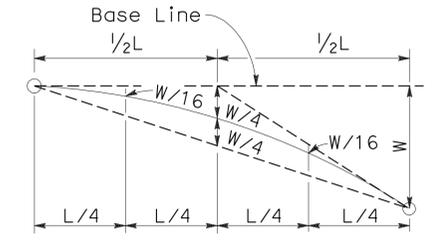
TYPE 11B LAYOUT

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

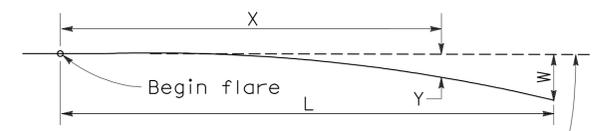


TYPE 11C LAYOUT

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



TYPICAL PARABOLIC LAYOUT

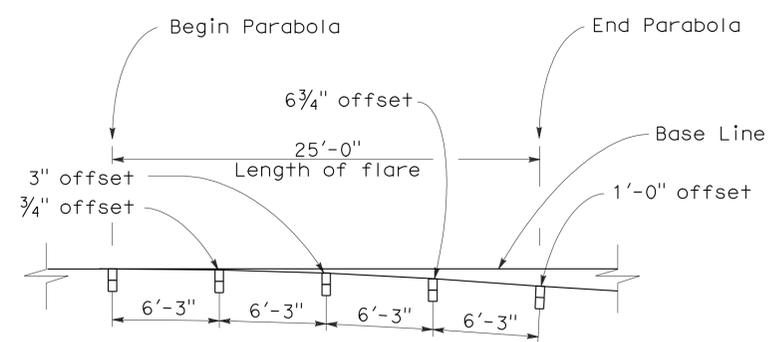


Base Line (Edge of paved shoulder or offset line of edge of traveled way)

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

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

PARABOLIC FLARE OFFSETS



TYPICAL FLARE OFFSETS FOR 1 FOOT MAX END OFFSET

NOTES:

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

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

REVISED STANDARD PLAN RSP A77E1

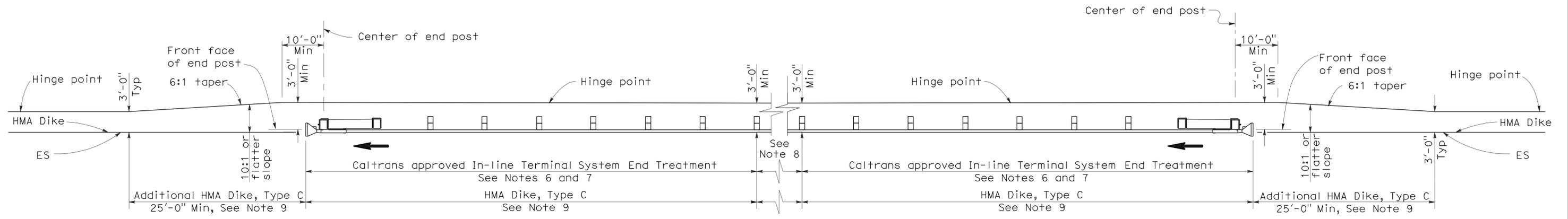
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
02	Sha	299	4.3/5.5	139	188

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

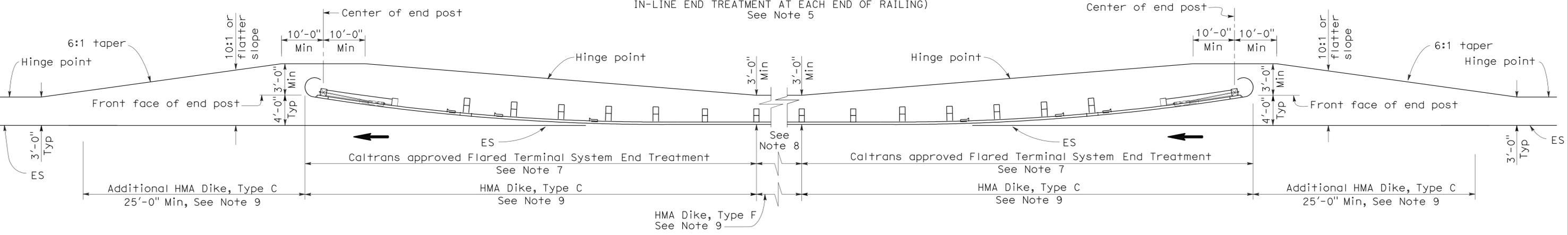
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To accompany plans dated 3-12-12



TYPE 11D LAYOUT

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



TYPE 11E LAYOUT

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

NOTES:

- 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 post with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
- Direction of adjacent traffic indicated by \rightarrow .
- Layout Types 11D through 11L, shown on the A77E Series of Revised Standard Plans, are typically used where guard railing is recommended to shield embankment slopes and a crashworthy end treatment is required for both directions of traffic.
- In-line Terminal System End Treatments are used where site conditions will not accommodate a flared end treatment.
- The type of terminal system end treatment to be used will be shown on the Project Plans.
- Dependent on site conditions (embankment height and side slope), construction of additional guard railing (length equal to multiples of 12'-6" with 6'-3" post spacing) may be advisable.
- Where placement of dike is required with guard railing installations, see Revised Standard Plan RSP A77C4 for dike positioning details.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**METAL BEAM GUARD RAILING
TYPICAL LAYOUTS FOR
EMBANKMENTS**

NO SCALE
RSP A77E2 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77E2
DATED MAY 1, 2006 - PAGE 49 OF THE STANDARD PLANS BOOK DATED MAY 2006.

2006 REVISED STANDARD PLAN RSP A77E2

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
02	Sha	299	4.3/5.5	140	188

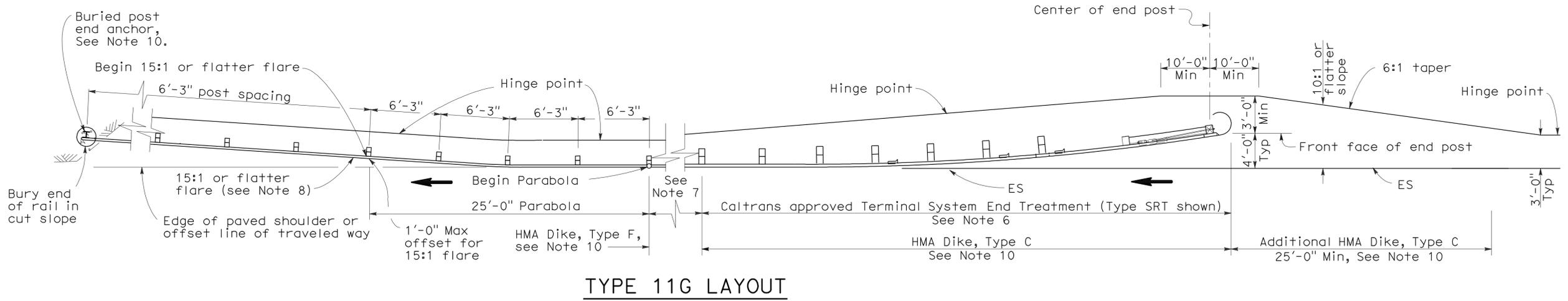
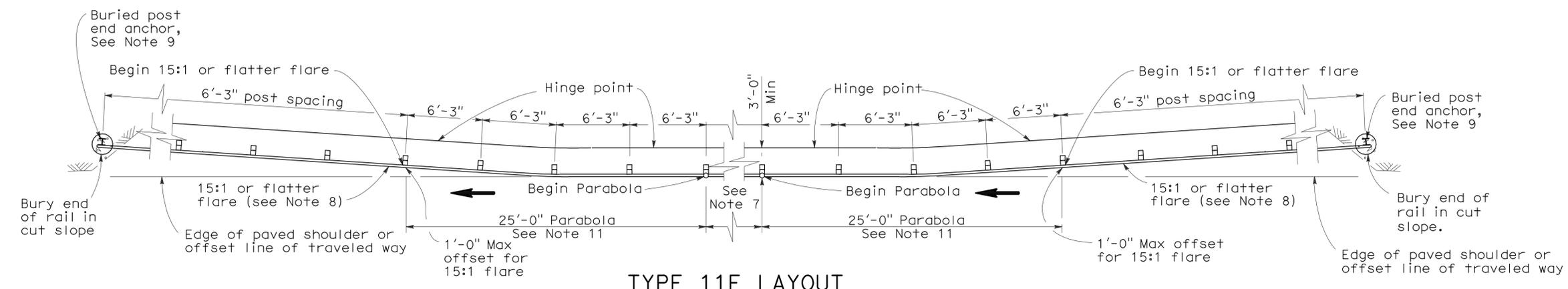
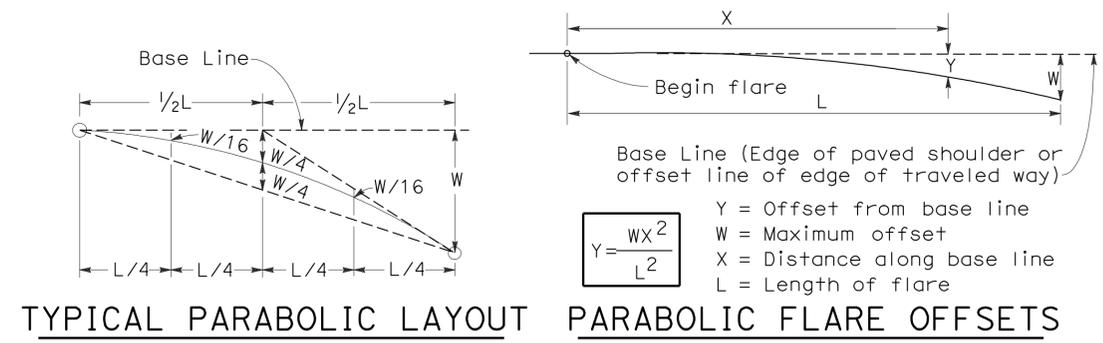
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

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 3-12-12



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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

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

REVISED STANDARD PLAN RSP A77E3

2006 REVISED STANDARD PLAN RSP A77E3

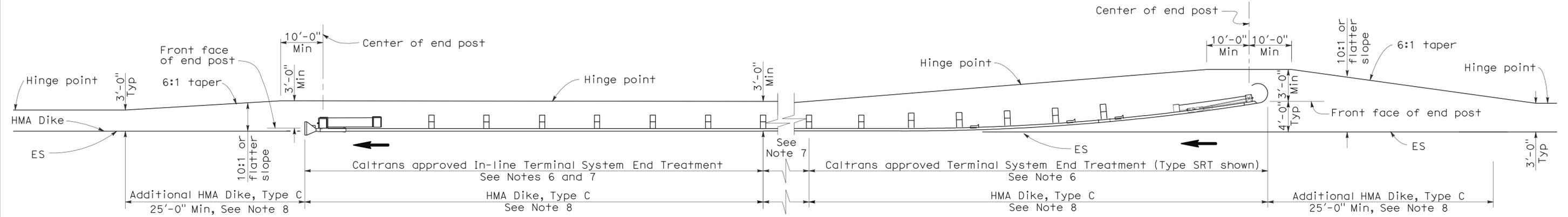
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
02	Sha	299	4.3/5.5	141	188

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

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To accompany plans dated 3-12-12



TYPE 11H LAYOUT

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

NOTES:

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**METAL BEAM GUARD RAILING
TYPICAL LAYOUTS FOR
EMBANKMENTS**
NO SCALE

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

REVISED STANDARD PLAN RSP A77E4

2006 REVISED STANDARD PLAN RSP A77E4

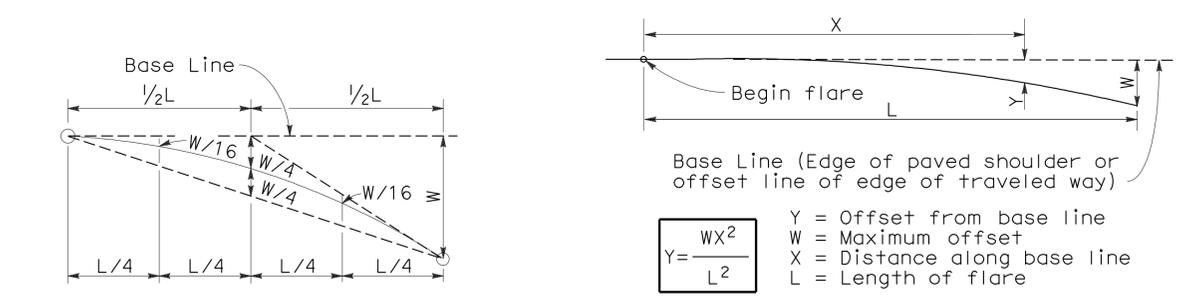
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
02	Sha	299	4.3/5.5	142	188

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

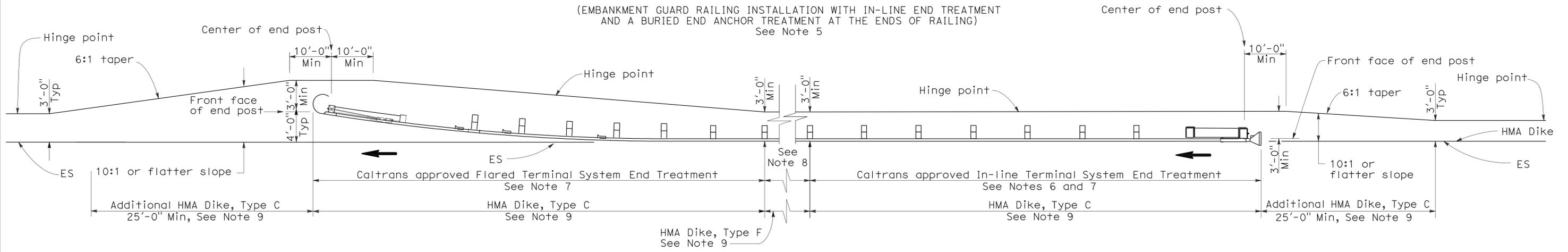
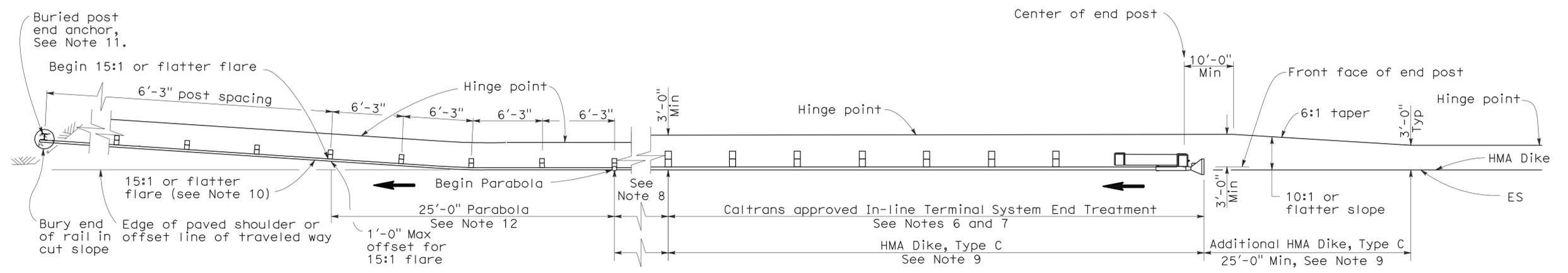
June 6, 2008
PLANS APPROVAL DATE

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Exp. 6-30-09
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To accompany plans dated 3-12-12



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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

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

2006 REVISED STANDARD PLAN RSP A77E5

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
02	Sha	299	4.3/5.5	143	188

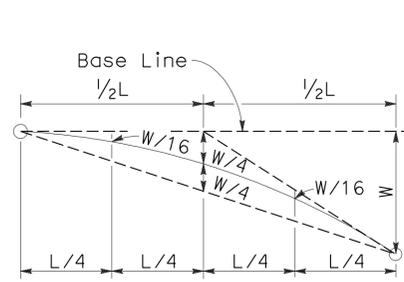
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

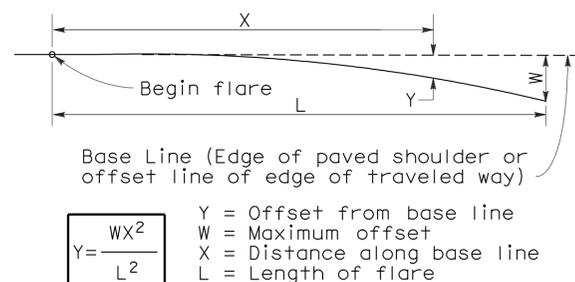
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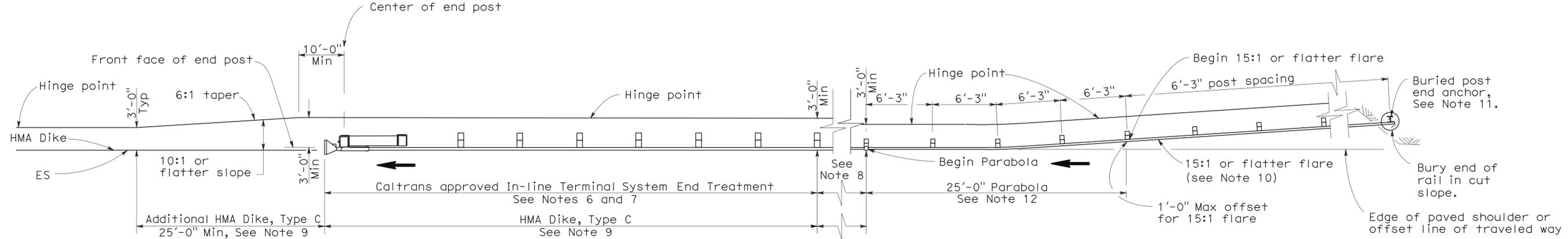
To accompany plans dated 3-12-12



TYPICAL PARABOLIC LAYOUT

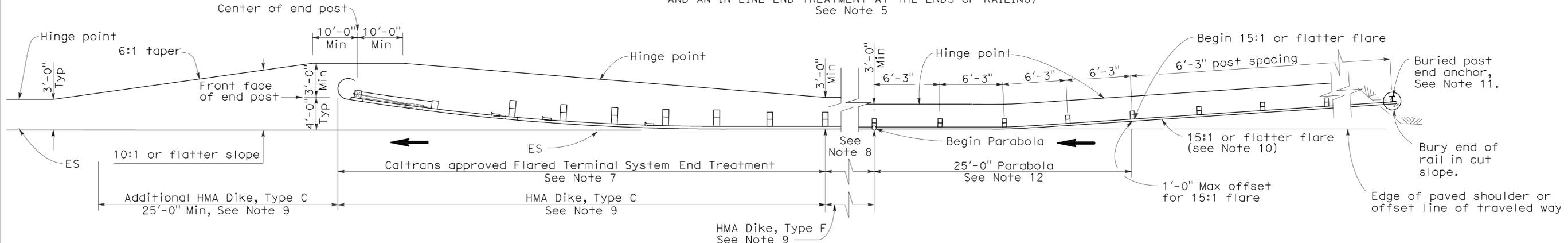


PARABOLIC FLARE OFFSETS



TYPE 11K LAYOUT

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



TYPE 11L LAYOUT

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

NOTES:

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

STATE OF CALIFORNIA
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**METAL BEAM GUARD RAILING
TYPICAL LAYOUTS FOR
EMBANKMENTS**

NO SCALE
RSP A77E6 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A77E6
DATED MAY 1, 2006 - PAGE 53 OF THE STANDARD PLANS BOOK DATED MAY 2006.

2006 REVISED STANDARD PLAN RSP A77E6

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha	299	4.3/5.5	144	188

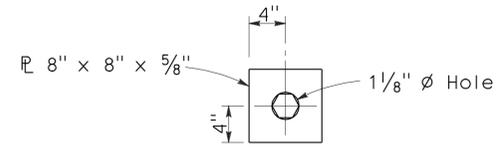
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

May 20, 2011
PLANS APPROVAL DATE

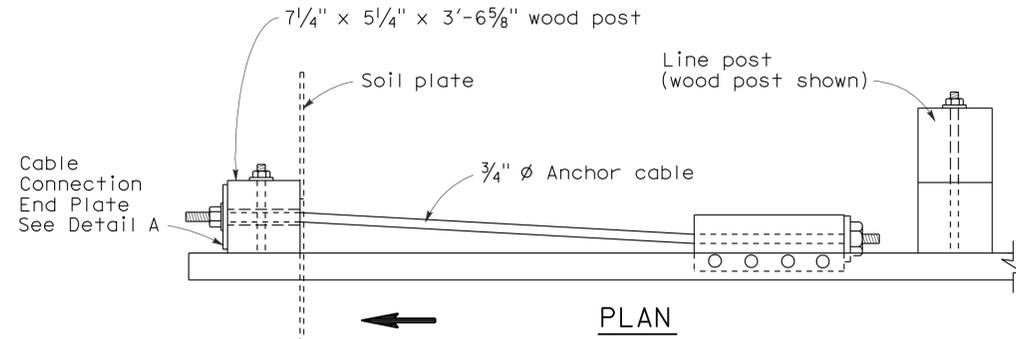
Randell D. Hiatt
No. C50200
Exp. 6-30-11
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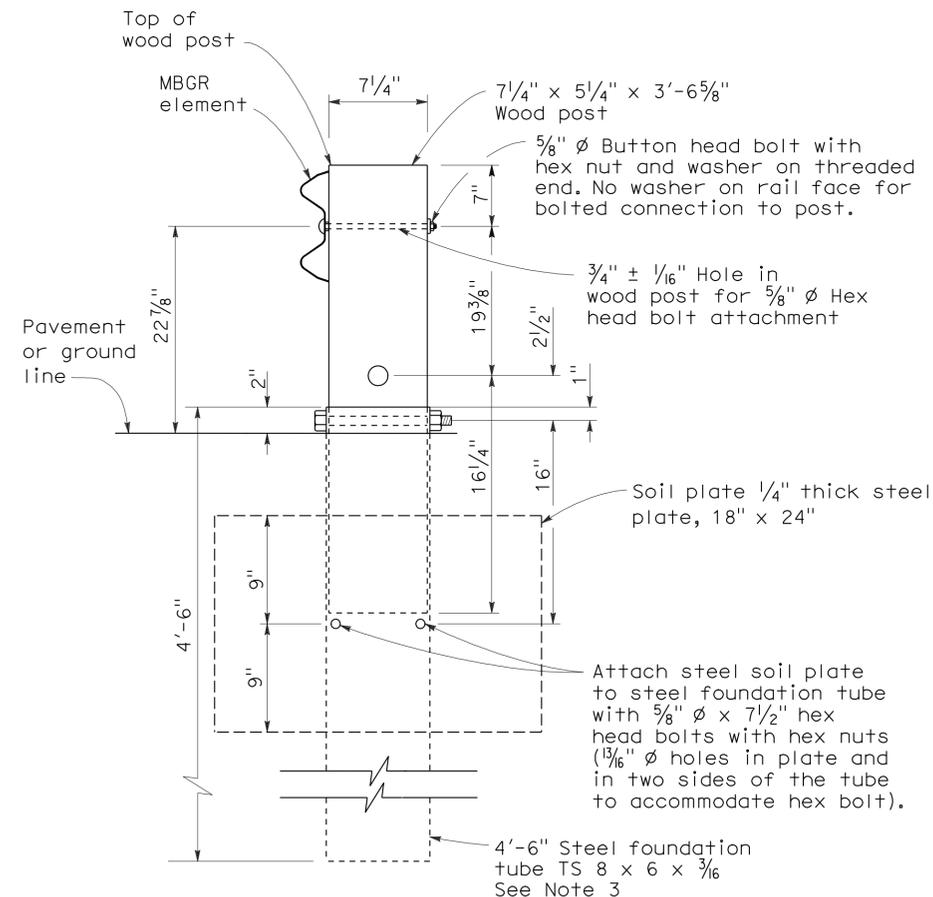
To accompany plans dated 3-12-12



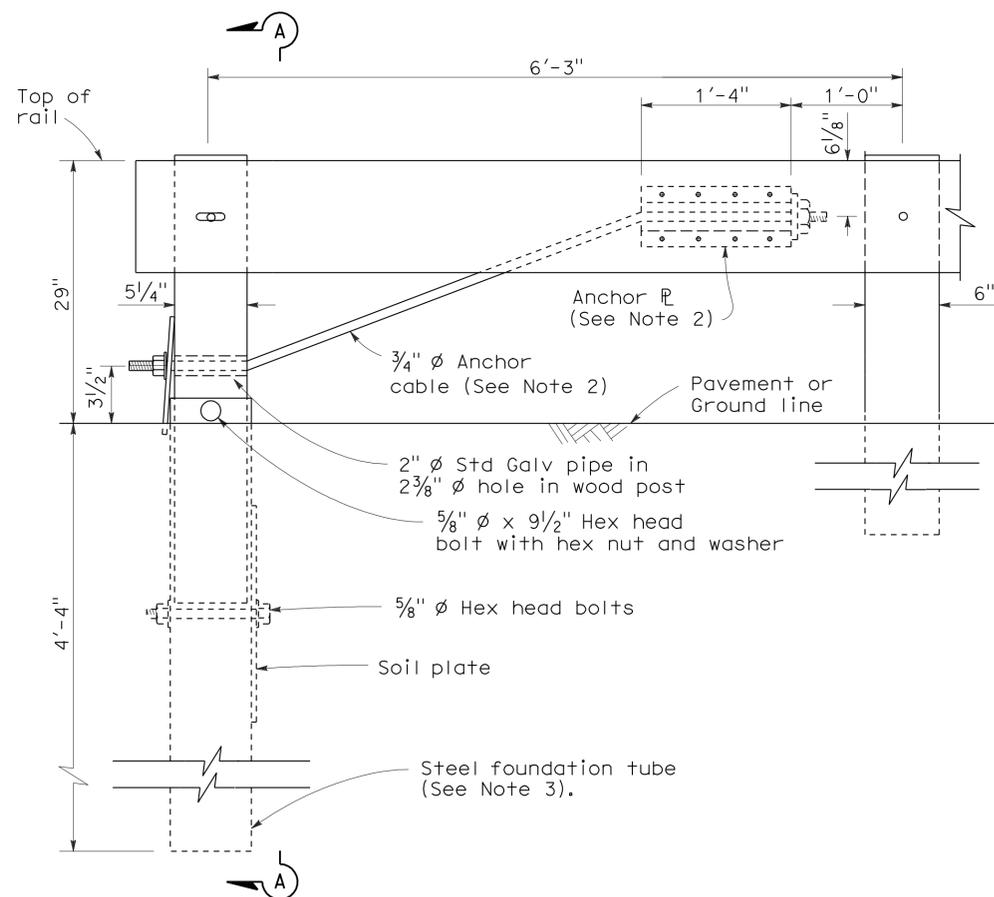
DETAIL A
CABLE CONNECTION
END PLATE



PLAN



SECTION A-A



ELEVATION
END ANCHOR
ASSEMBLY (TYPE SFT)

See Note 1

NOTES:

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

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METAL RAILING
END ANCHOR ASSEMBLY
(TYPE SFT)

NO SCALE

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

REVISED STANDARD PLAN RSP A77H1

2006 REVISED STANDARD PLAN RSP A77H1

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha	299	4.3/5.5	145	188

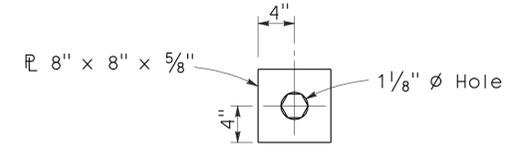
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

May 20, 2011
PLANS APPROVAL DATE

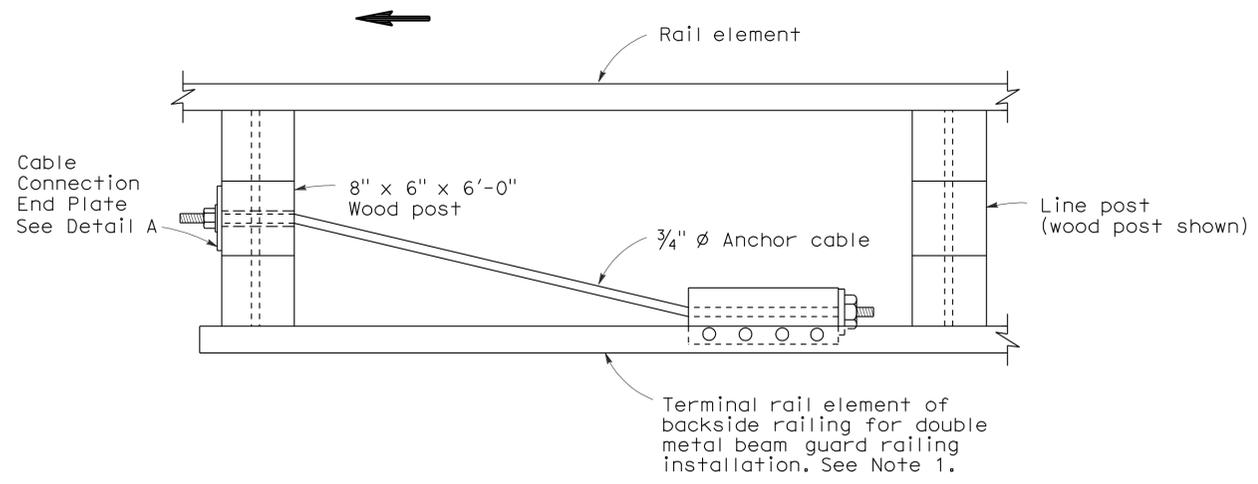
Randell D. Hiatt
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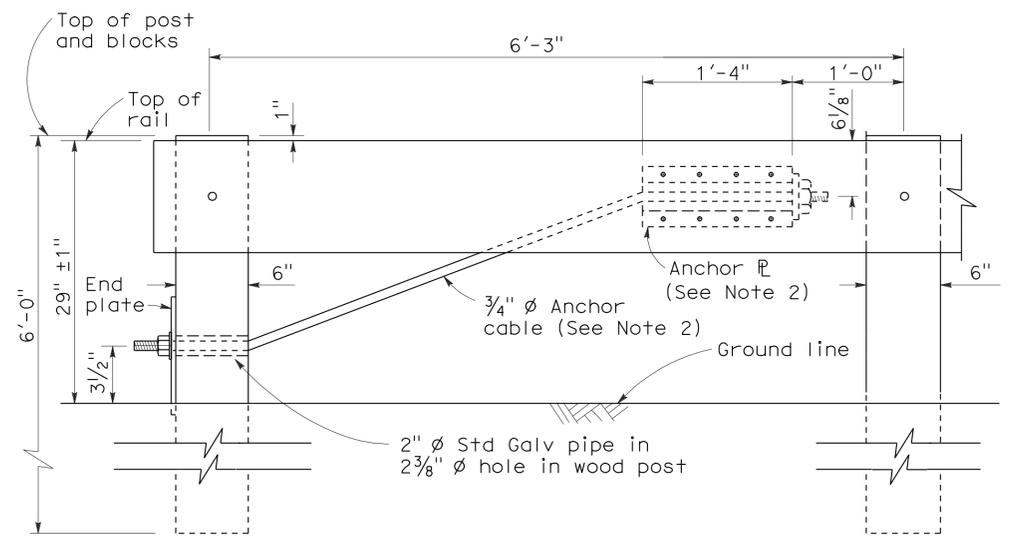
To accompany plans dated 3-12-12



DETAIL A
CABLE CONNECTION
END PLATE



PLAN



ELEVATION
RAIL TENSIONING
ASSEMBLY
See Note 1

NOTES:

1. See Standard Plan A77F3 and Standard Plan A77G1 for typical use of rail tensioning assembly.
2. For details of the anchor plate and 3/4 inch cable, see Standard Plan A77H3.
3. Direction of traffic indicated by →.

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METAL RAILING
RAIL TENSIONING ASSEMBLY

NO SCALE

RSP A77H2 DATED MAY 20, 2011 SUPERSEDES STANDARD PLAN A77H2
DATED MAY 1, 2006 - PAGE 68 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A77H2

2006 REVISED STANDARD PLAN RSP A77H2

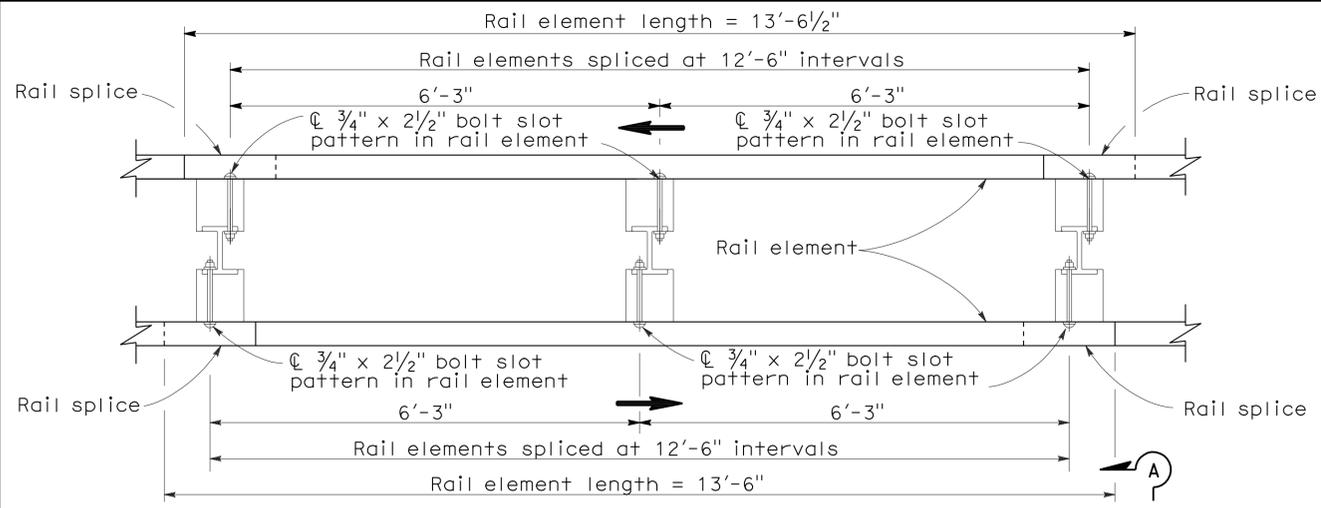
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
02	Sha	299	4.3/5.5	146	188

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

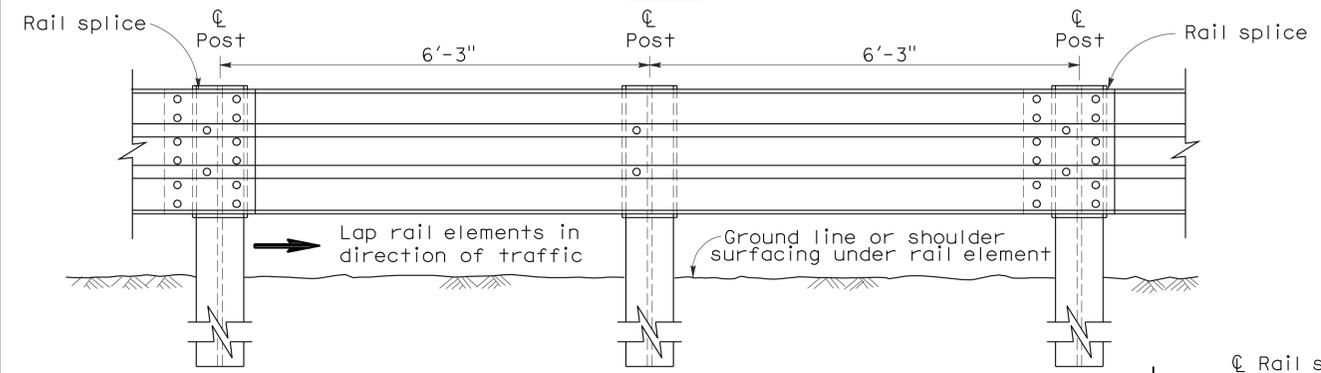
June 6, 2008
PLANS APPROVAL DATE

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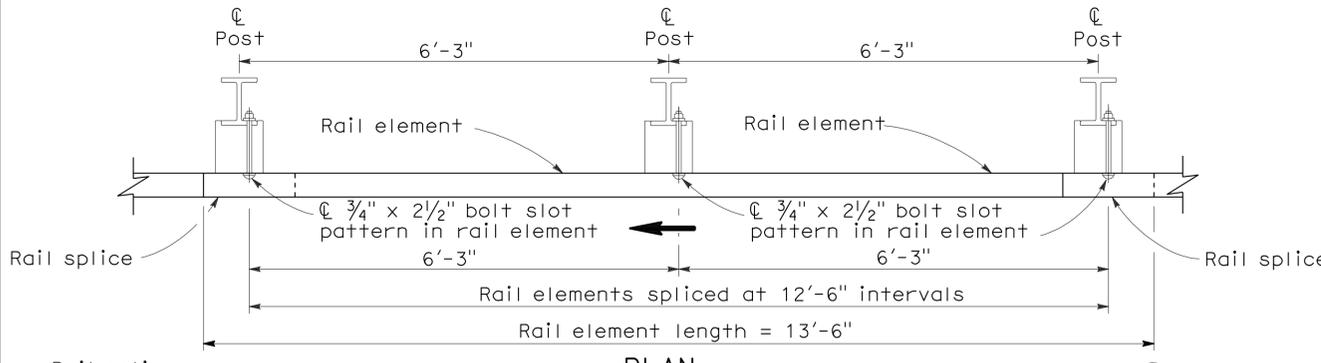
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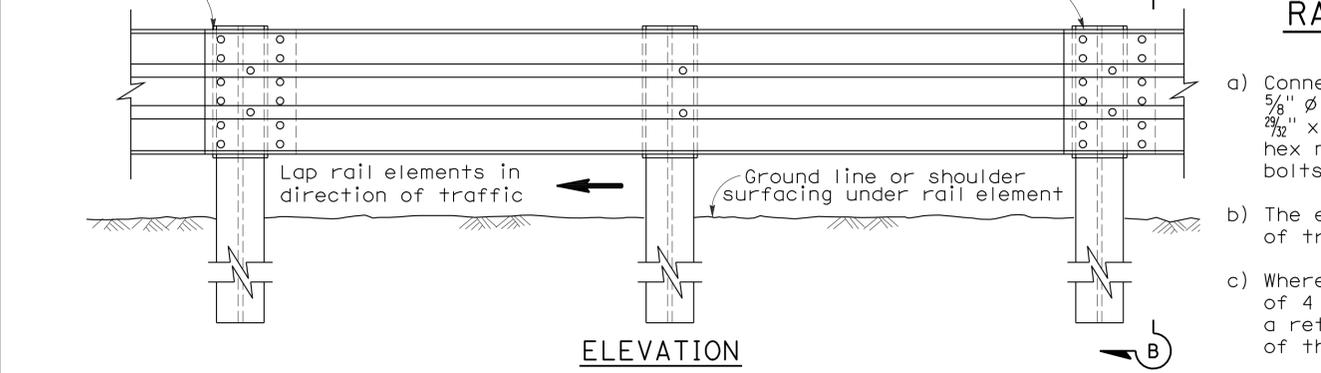
PLAN
DOUBLE THRIE BEAM BARRIER
(Steel post with notched wood or notched plastic blocks)
See Note 1



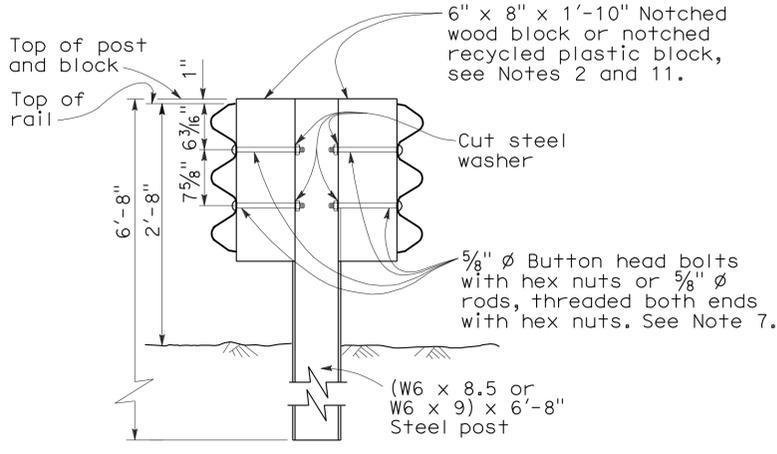
ELEVATION
DOUBLE THRIE BEAM BARRIER
(Steel post with notched wood or notched plastic blocks)
See Note 1



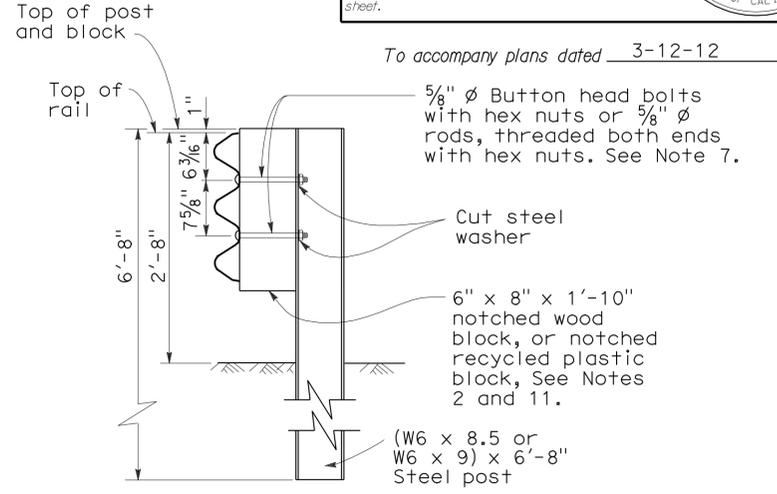
PLAN
SINGLE THRIE BEAM BARRIER
(Steel post with notched wood or notched plastic blocks)
See Note 1



ELEVATION
SINGLE THRIE BEAM BARRIER
(Steel post with notched wood or notched plastic blocks)
See Note 1

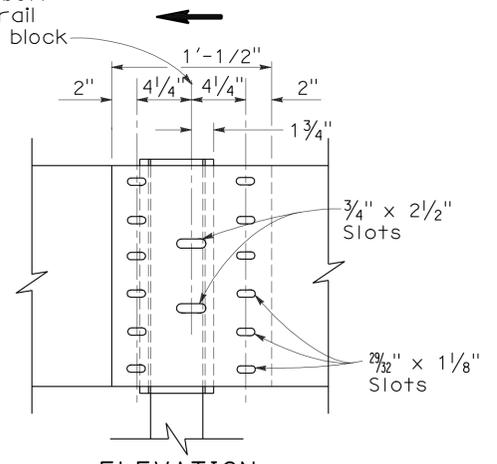


SECTION A-A
TYPICAL STEEL LINE POST INSTALLATION



SECTION B-B
TYPICAL STEEL LINE POST INSTALLATION

⊙ Rail splice and slots for 5/8" ⌀ button head bolt to connect rail to post and block



ELEVATION
RAIL ELEMENT SPLICE DETAIL

- Connect the overlapped ends of the thrie beam rail elements with 5/8" ⌀ x 1 1/8" button head oval shoulder bolts inserted into the 2 3/32" x 1 1/8" slots and bolted together with 5/8" ⌀ x 1 1/8" recessed hex nuts. Recess of hex nut points toward rail element. A total of 12 bolts and nuts are to be used at each rail splice connection.
- The ends of the rail elements are to be overlapped in the direction of traffic (see details).
- Where end cap is to be attached to the end of a rail element, a total of 4 of the above described splice bolts and nuts are to be used. Where a return cap is to be attached to the ends of rail elements, a total of 8 of the above described splice bolts and nuts are to be used.

NOTES:

- For details of the cross section of the thrie beam rail element and details for wood post with wood block installations, see Standard Plan A78A.
- For details of standard hardware, posts and blocks used to construct thrie beam barrier, see Revised Standard Plan RSP A78C1 and Standard Plan A78C2.
- Thrie beam barrier post spacing to be 6'-3" center to center, except as otherwise noted.
- Top of barrier rail to be 2'-8" above ground line or shoulder surfacing under the rail element.
- For barrier end treatments and barrier connections, see Standard Plans A78E1, A78E2 and A78E3, Revised Standard Plans RSPs A78F1 and A78F2, Standard Plan A78G and Revised Standard Plan RSP A78H.
- For connection to Concrete Barrier, see Revised Standard Plan RSP A78I.
- Attach rail element to block and steel post with 2 bolts or rods on approaching traffic side of block and post web. No washer on rail face for rod or bolted connections to line post.
- For details of thrie beam barrier on bridges, see Standard Plan A78D2. For details of thrie beam barrier at fixed objects, see Standard Plan A78D1.
- Direction of traffic indicated by →.
- Notched face of block faces steel post.

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

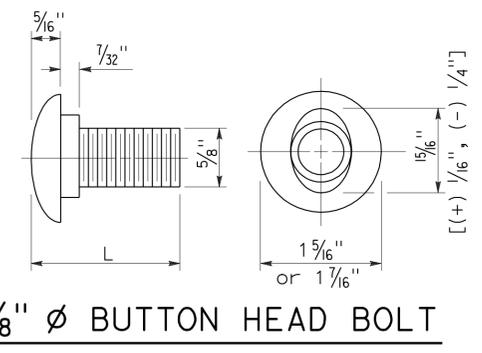
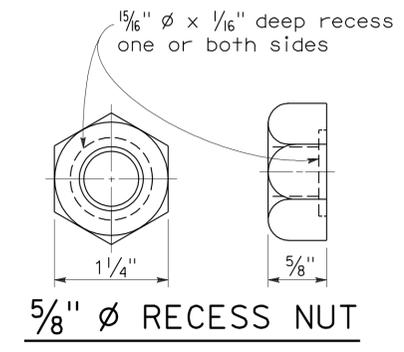
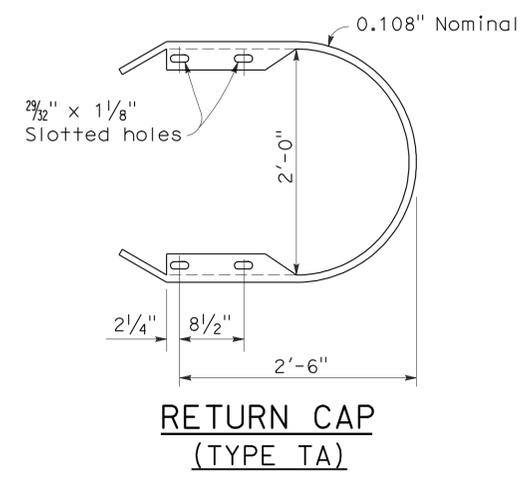
NO SCALE

RSP A78B DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A78B
DATED MAY 1, 2006 - PAGE 84 OF THE STANDARD PLANS BOOK DATED MAY 2006.

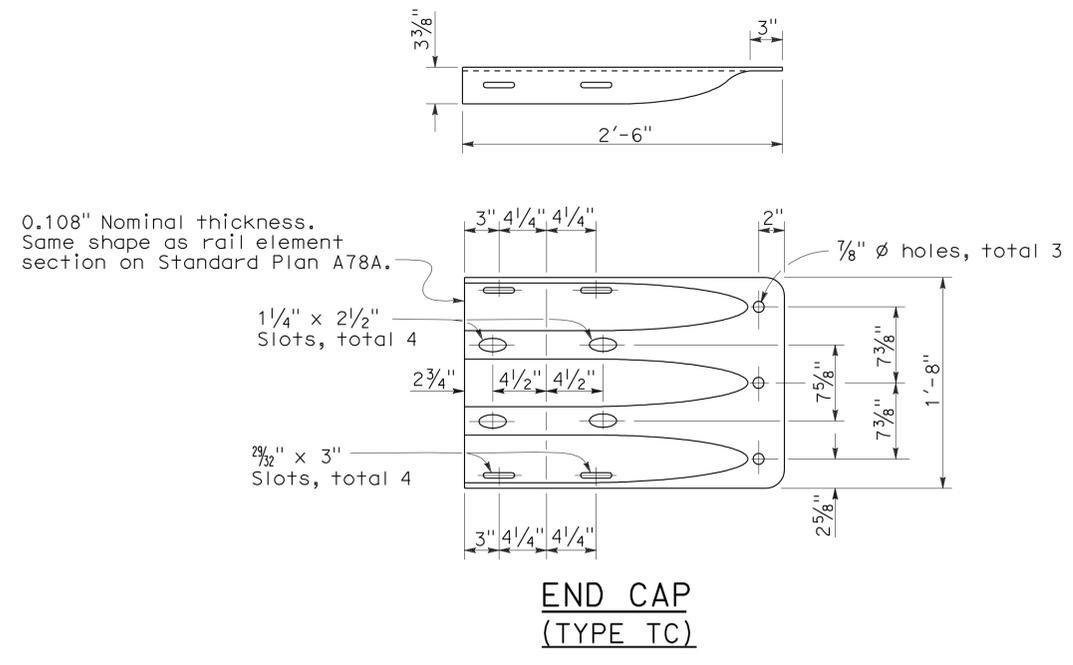
REVISED STANDARD PLAN RSP A78B

2006 REVISED STANDARD PLAN RSP A78B

To accompany plans dated 3-12-12



L	THREAD LENGTH
1 1/4"	full thread length
2"	full thread length
9/2"	4" Min thread length
18"	4" Min thread length



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**THRIE BEAM BARRIER
STANDARD HARDWARE DETAILS**

NO SCALE

RSP A78C1 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A78C1
DATED MAY 1, 2006 - PAGE 85 OF THE STANDARD PLANS BOOK DATED MAY 2006.

2006 REVISED STANDARD PLAN RSP A78C1

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
02	Sha	299	4.3/5.5	148	188

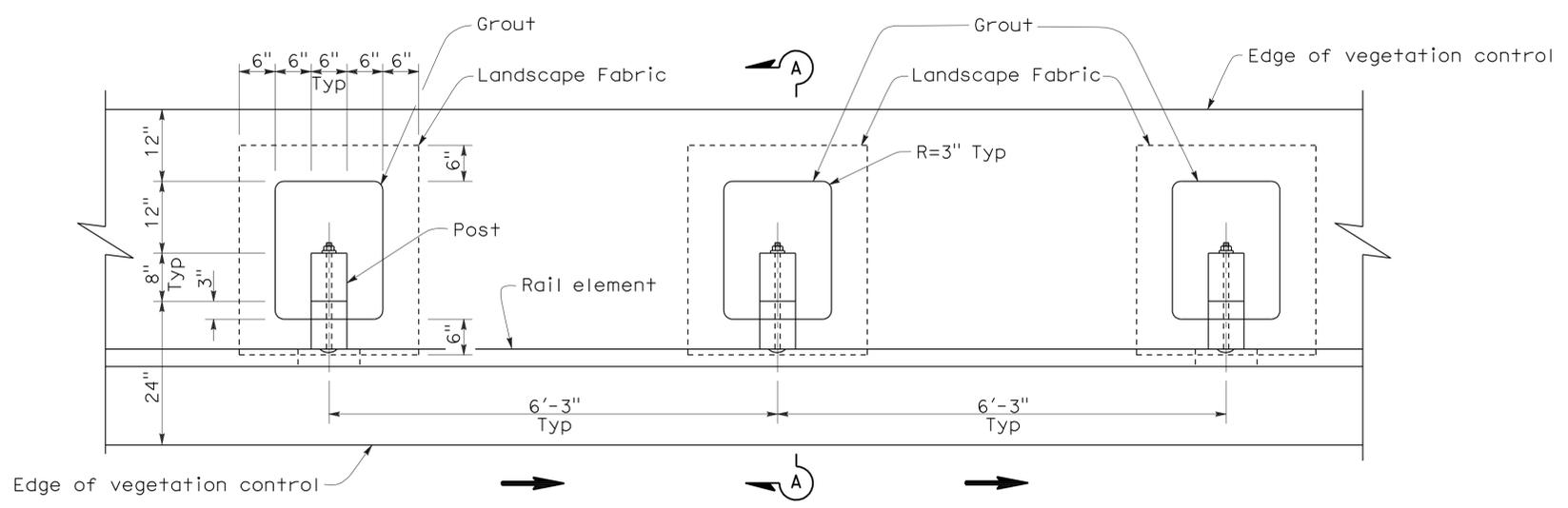
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

October 20, 2006
PLANS APPROVAL DATE

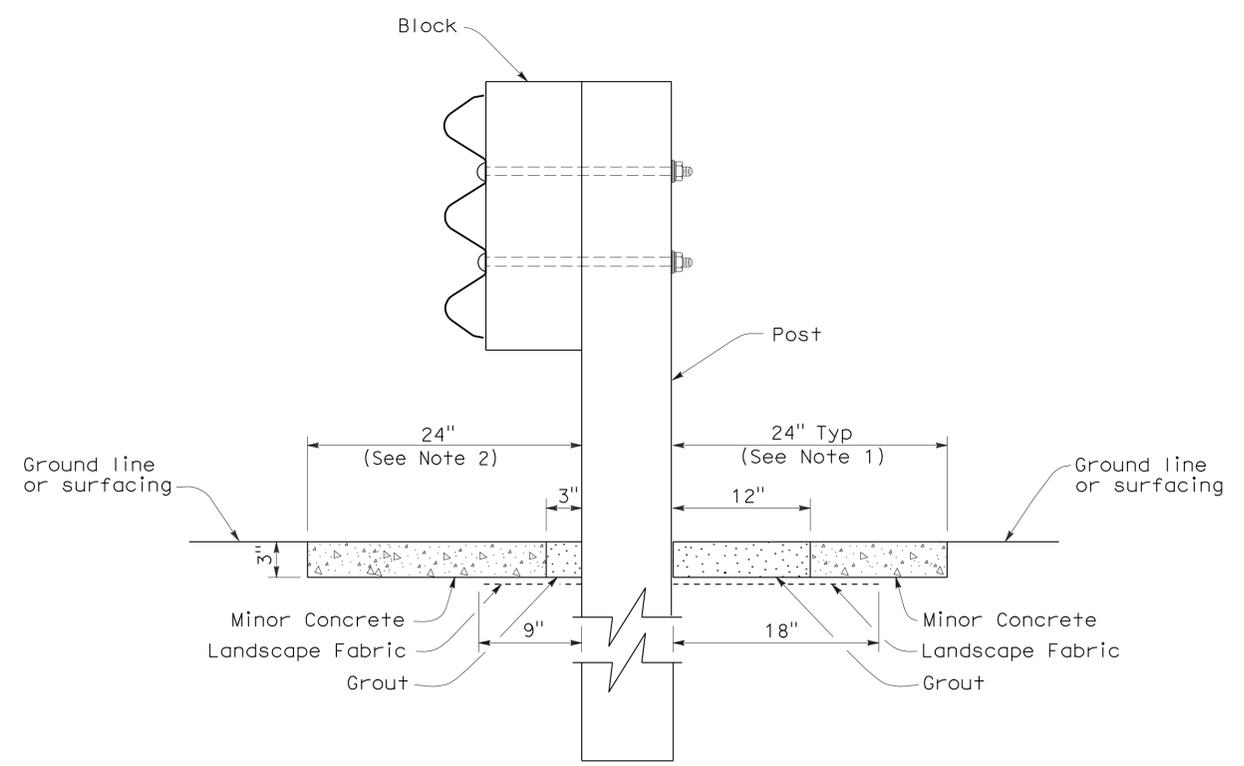
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No. C50200
Exp. 6-30-07
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STATE OF CALIFORNIA

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To accompany plans dated 3-12-12



PLAN



SECTION A-A

NOTES:

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

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**SINGLE THRIE BEAM BARRIER
TYPICAL VEGETATION CONTROL
STANDARD BARRIER RAILING SECTION**

NO SCALE
NSP A78C3 DATED OCTOBER 20, 2006 SUPPLEMENTS THE STANDARD
PLANS BOOK DATED MAY 2006.

NEW STANDARD PLAN NSP A78C3

2006 NEW STANDARD PLAN NSP A78C3

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
02	Sha	299	4.3/5.5	149	188

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

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No. C50200
Exp. 6-30-09
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STATE OF CALIFORNIA

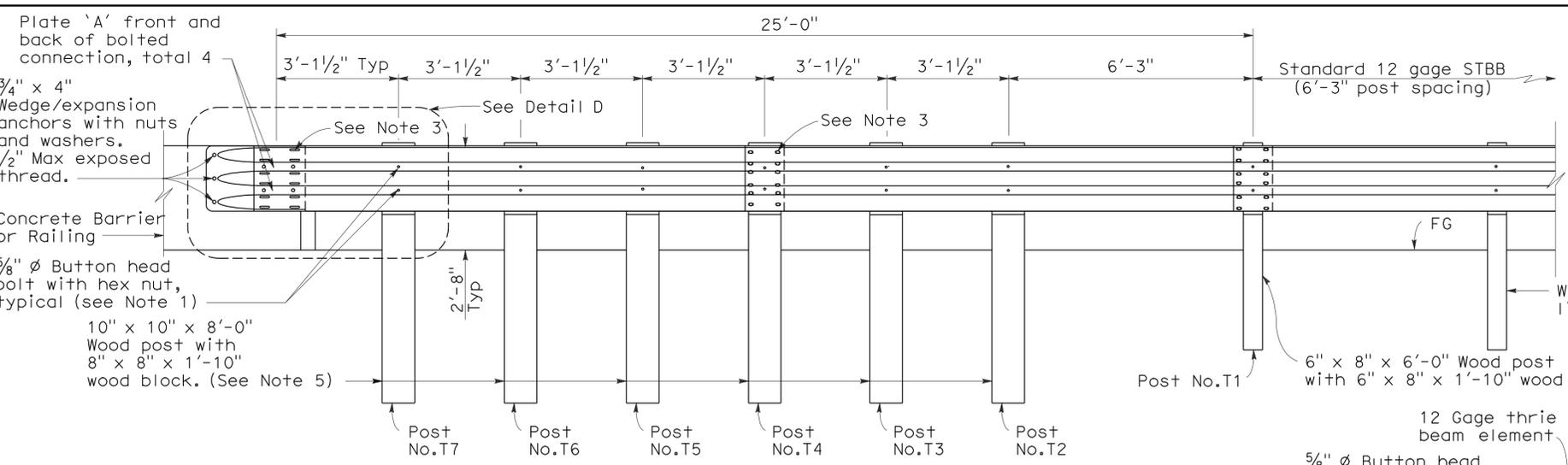
To accompany plans dated 3-12-12

LEGEND

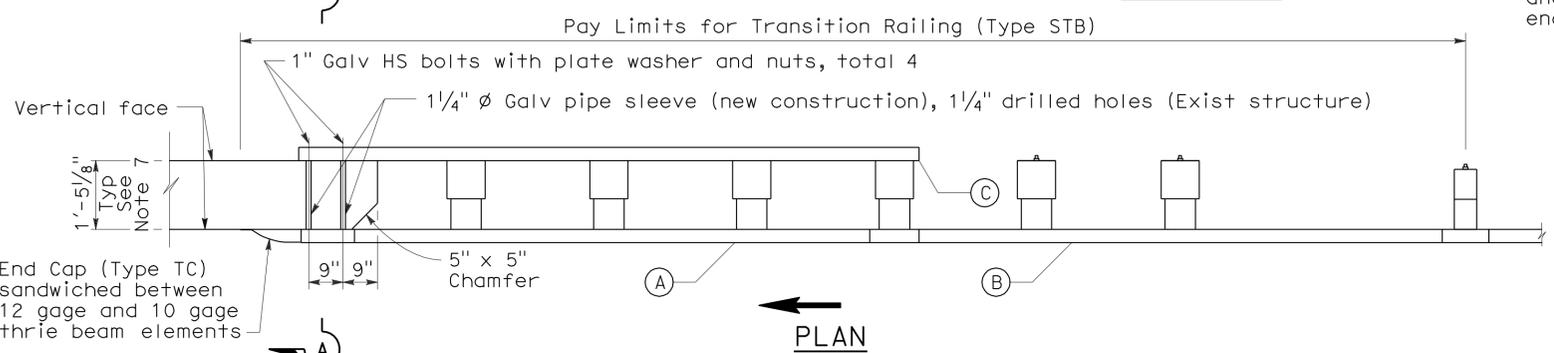
- (A) Nested thrie beam elements (one 12 gage element nested over one 10 gage element).
 - (B) One 10 gage thrie beam element.
 - (C) One 12 gage thrie beam element.
- 10 gage = 0.135" thick
12 gage = 0.108" thick

NOTES:

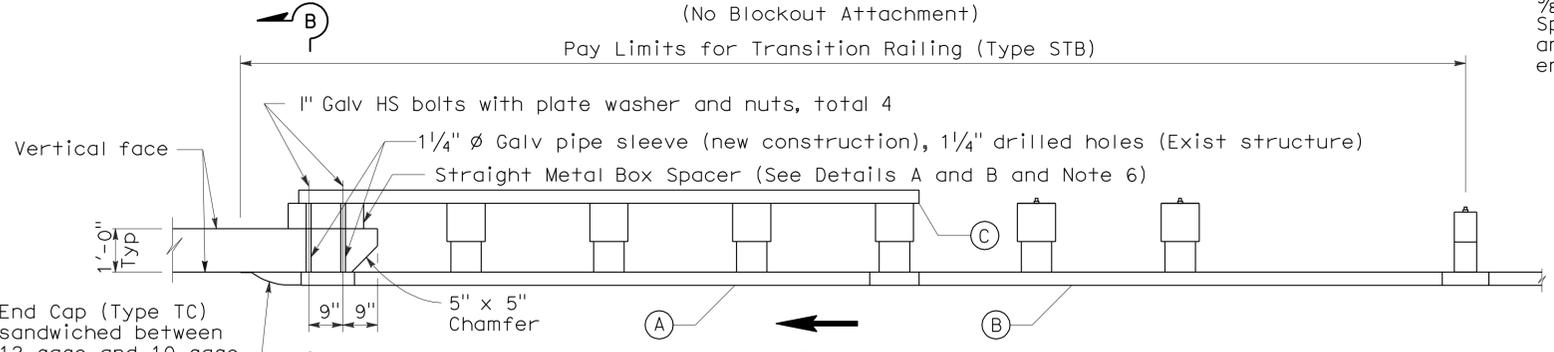
1. Use 5/8" ø Button head bolts and hex nuts for connection to posts. No washer on rail face for bolted connections to post.
2. The nested rail elements, end cap and single 10 gage thrie beam element, may be spliced together prior to bolting the elements to the wood post and concrete barrier or railing.
3. Exterior splice bolt holes for rail element splices at Post No.T4 and the connection to the concrete barrier or railing shall be the standard 3/2" x 1/8" slot size. Interior splice bolt holes at these locations may be increased up to 1/4" ø. Only the top 2 and the bottom 2 splice bolts with washers and nuts are required for rail splices at Post No.T4 and the connection to the concrete barrier or railing.
4. Direction of adjacent traffic indicated by ➡.
5. The top elevation of Post Nos.T2 through T7 shall not project more than 1" above the top elevation of the rail element.
6. The depth of the metal box spacer varies from the 5/8" to 1/2" and is dependent on the width of the concrete railing or wall. The combined dimension for the depth of the metal box spacer plus the width of railing or wall is typically 17/8". Where the space between the backside of the concrete railing or wall and the rear thrie beam element is less than 1/2" metal plates similar to Plate 'A' are to be used as spacers.
7. Where the width of the concrete railing or wall is greater than 17/8", wood blocks are to be used to fill the space created between the backside of Post No.4 through No.7 and the rear thrie beam element. These wood blocks shall be 8" in width and 1'-2" in length. The dimension between the front thrie beam element and the rear thrie beam element is to match the width of the concrete railing or wall.
8. For details of End Cap (Type TC), see Revised Standard Plan RSP A78C1.



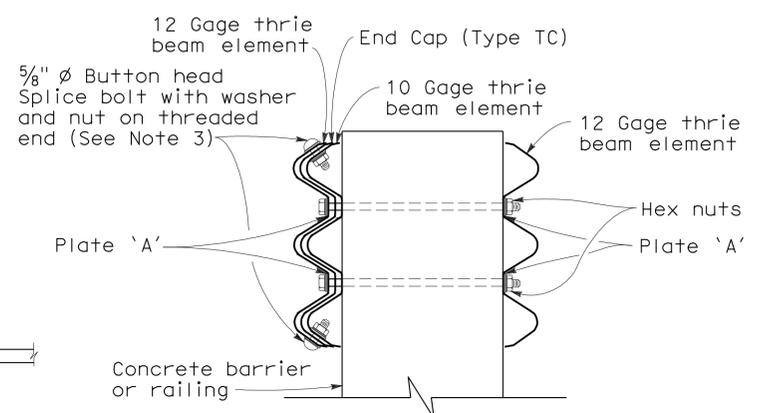
ELEVATION



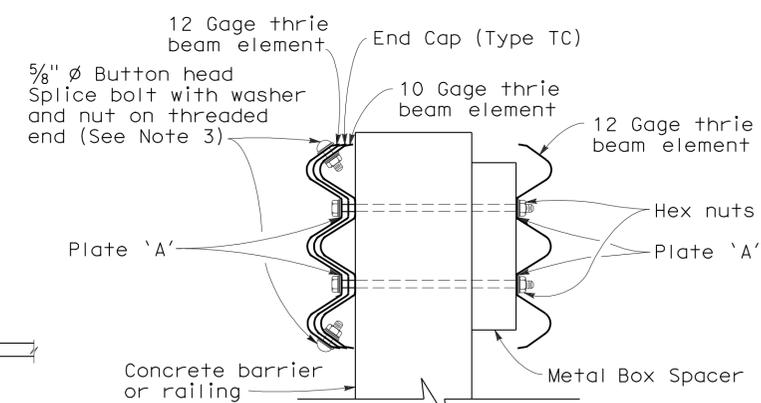
TRANSITION RAILING (TYPE STB)
(No Blockout Attachment)



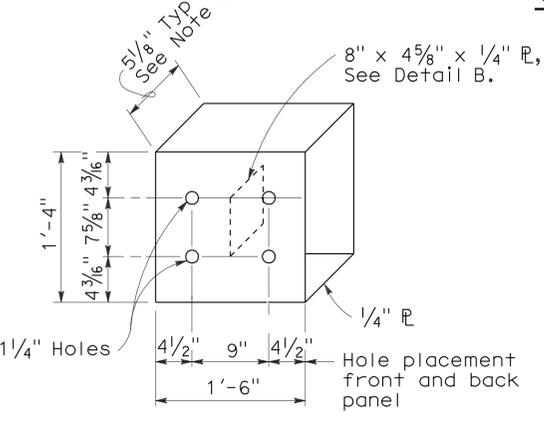
TRANSITION RAILING (TYPE STB)
(Blockout Attachment)



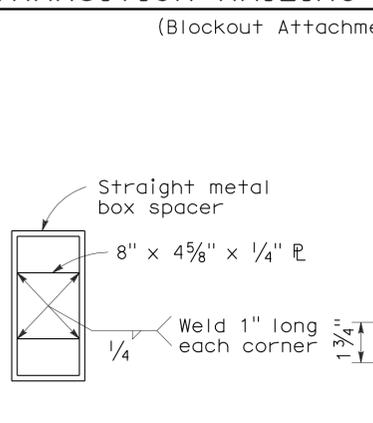
SECTION A-A



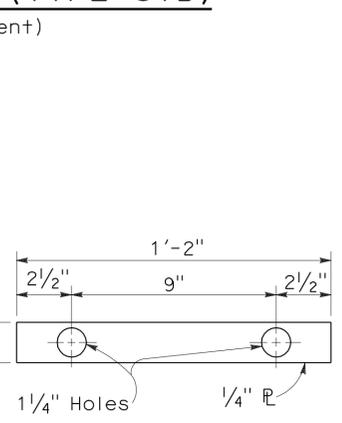
SECTION B-B



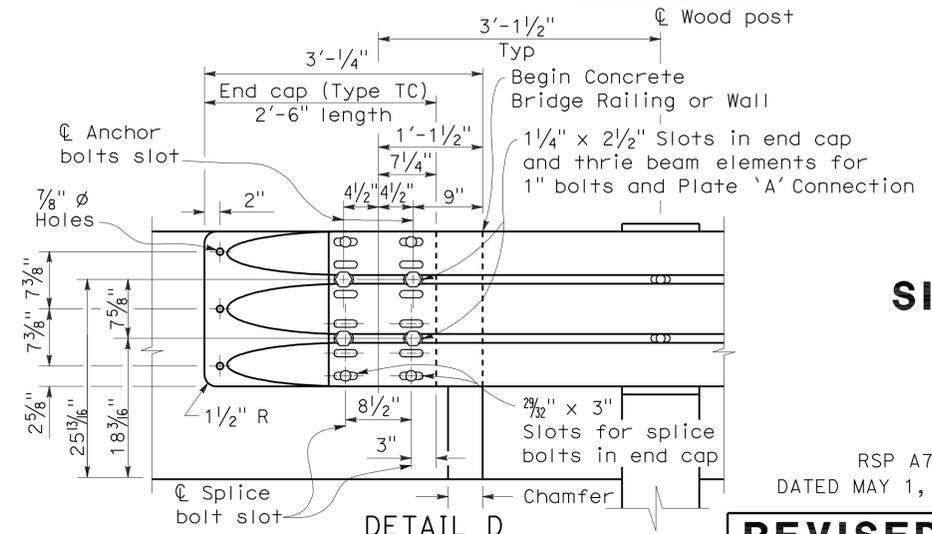
DETAIL A



DETAIL B



DETAIL C



DETAIL D

SINGLE THRIE BEAM BARRIER TRANSITION RAILING (TYPE STB)

NO SCALE

RSP A78J DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A78J DATED MAY 1, 2006 - PAGE 97 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A78J

2006 REVISED STANDARD PLAN RSP A78J

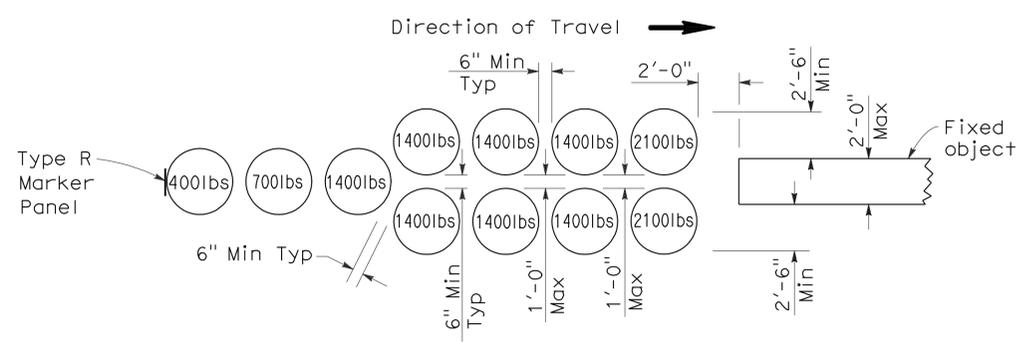
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
02	Sha	299	4.3/5.5	150	188

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

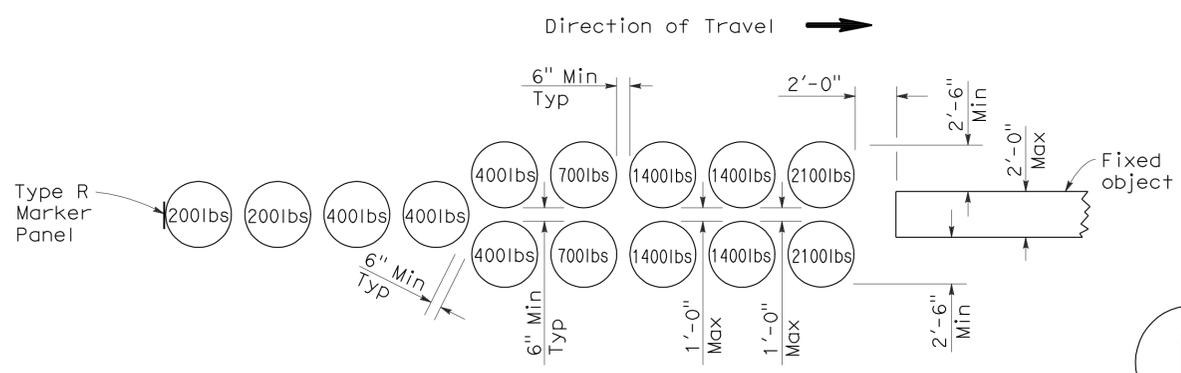
June 6, 2008
PLANS APPROVAL DATE

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

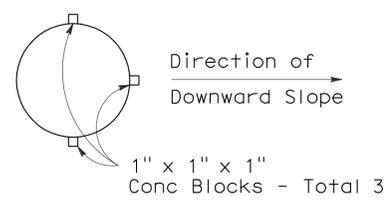
To accompany plans dated 3-12-12



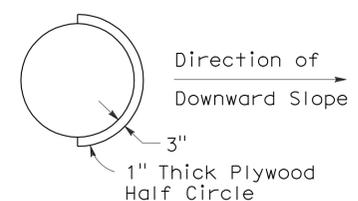
Direction of Travel →
ARRAY 'U11'
Approach speed less than 45 mph



Direction of Travel →
ARRAY 'U14'
Approach speed 45 mph or more

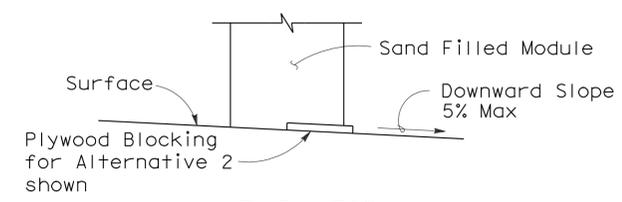


ALTERNATIVE 1

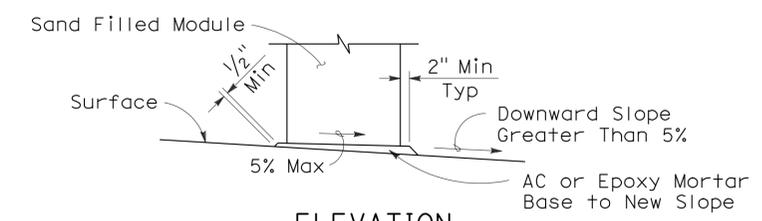


ALTERNATIVE 2

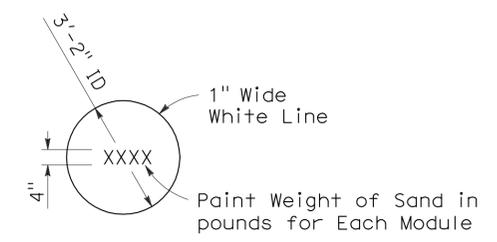
PLAN



ELEVATION
BRIDGE DECK MODULE BLOCKING DETAILS
(See Note 6)



ELEVATION
SLOPED SEAT DETAIL
(See Note 4)



PAINTING DETAIL
(See Note 5)

NOTES:

1. (xxx) Indicates module location and mass of sand in pounds for each module. Module spacing is based on the greater diameter of the modules.
2. All sand weights are nominal.
3. Each module is to contain amount of sand indicated, supported according to the manufacturer's instructions.
4. Modules shall be placed on asphalt concrete, epoxy mortar or concrete surface. Modules to be placed on surfacing with greater than 5% downward slope shall be seated as shown.
5. Mass of sand and outline of each module shall be painted on the surface at each module location.
6. Module blocking, epoxied to the deck surface, is required for all modules placed on bridge decks. Two acceptable alternatives are shown. Other alternatives recommended by the manufacturer and approved by the Engineer will be accepted.
7. Place the top of the Type R marker panel 1" below the module lid.
8. Approach speeds indicated conform to NCHRP Report criteria.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**CRASH CUSHION,
SAND FILLED
(UNIDIRECTIONAL)**

NO SCALE

RSP A81A DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A81A
DATED MAY 1, 2006 - PAGE 99 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A81A

2006 REVISED STANDARD PLAN RSP A81A

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
02	Sha	299	4.3/5.5	151	188

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

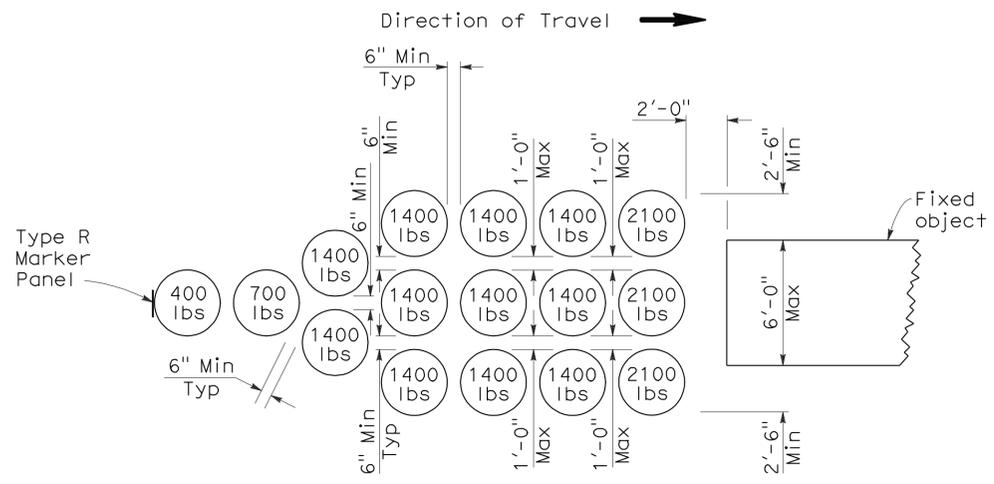
Randell D. Hiatt
No. C50200
Exp. 6-30-09
CIVIL
STATE OF CALIFORNIA

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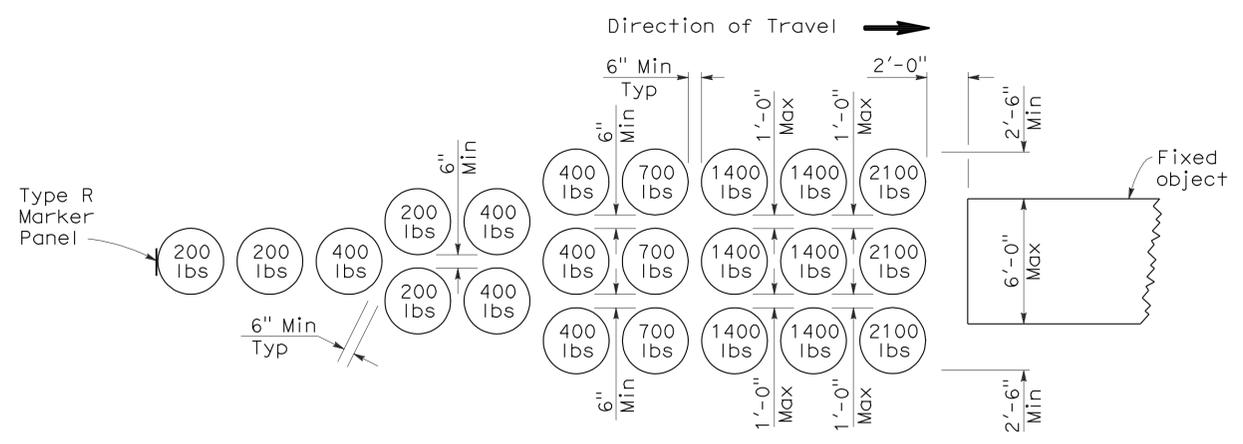
To accompany plans dated 3-12-12

NOTES:

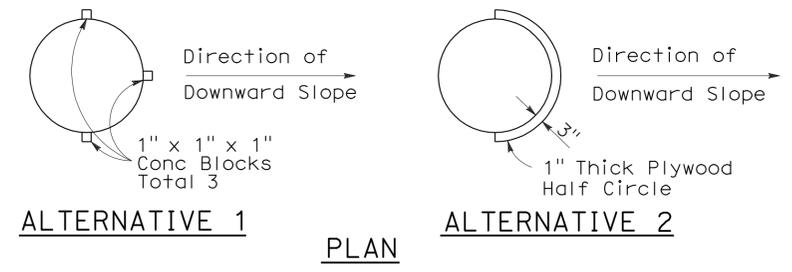
1. (XXX) Indicates module location and weight of sand in pounds for each module. Module spacing is based on the greater diameter of the modules.
2. All sand weights are nominal.
3. Each module is to contain amount of sand indicated, supported according to the manufacturer's instructions.
4. Modules shall be placed on asphalt concrete, epoxy mortar or concrete surface. Modules to be placed on surfacing with greater than 5% downward slope shall be seated as shown.
5. Mass of sand and outline of each module shall be painted on the surface at each module location.
6. Module blocking, epoxied to the deck surface, is required for all modules placed on bridge decks. Two acceptable alternatives are shown. Other alternatives recommended by the manufacturer and approved by the Engineer will be accepted.
7. Place the top of the Type R marker panel 1" below the module lid.
8. Approach speeds indicated conform to NCHRP Report criteria.



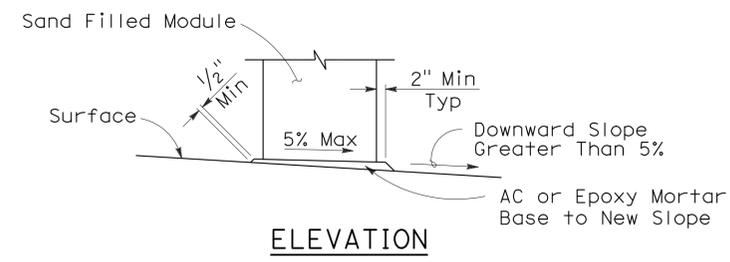
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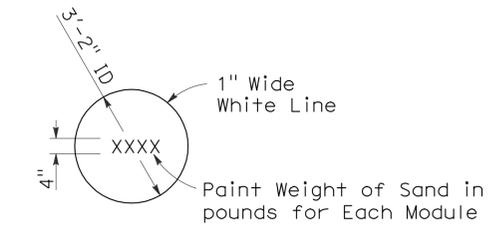
ARRAY 'U21'
Approach speed 45 mph or more



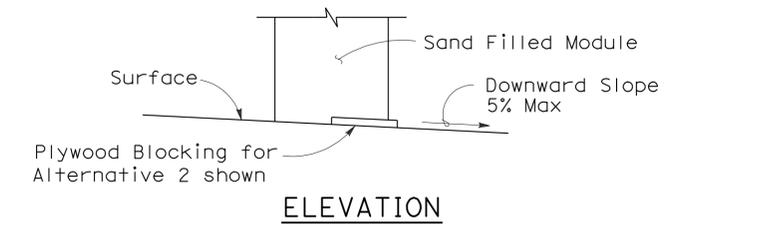
BRIDGE DECK MODULE BLOCKING DETAILS
(See Note 6)



SLOPED SEAT DETAIL
(See Note 4)



PAINTING DETAIL
(See Note 5)



ELEVATION

BRIDGE DECK MODULE BLOCKING DETAILS
(See Note 6)

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**CRASH CUSHION,
SAND FILLED
(UNIDIRECTIONAL)**
NO SCALE

RSP A81B DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A81B
DATED MAY 1, 2006 - PAGE 100 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP A81B

2006 REVISED STANDARD PLAN RSP A81B

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
02	Sha	299	4.3/5.5	152	188

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

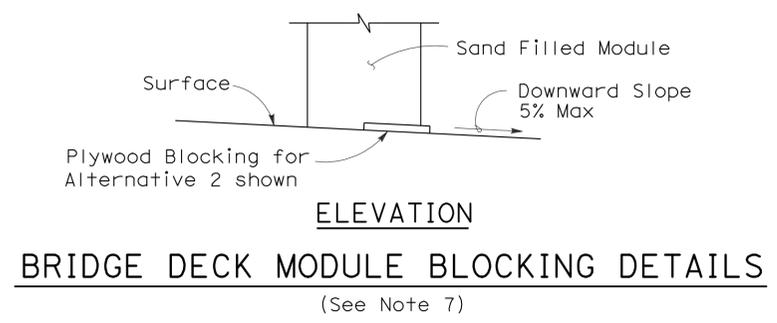
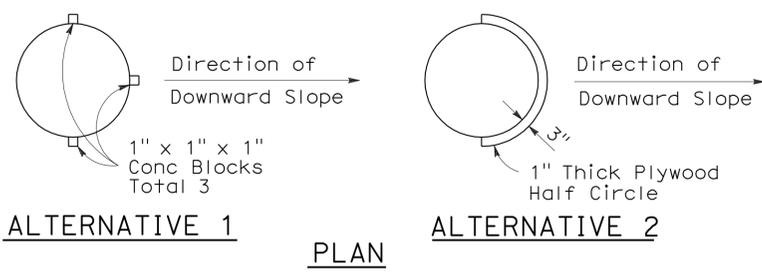
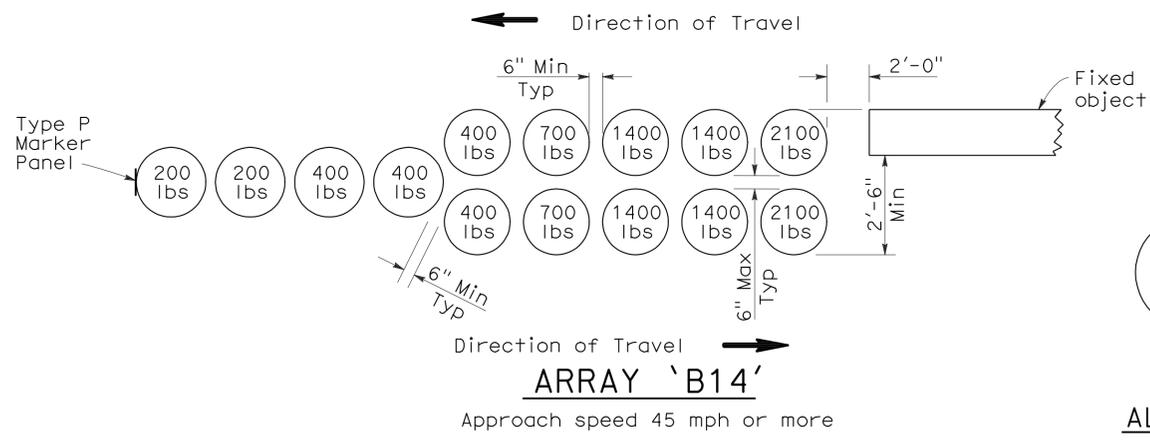
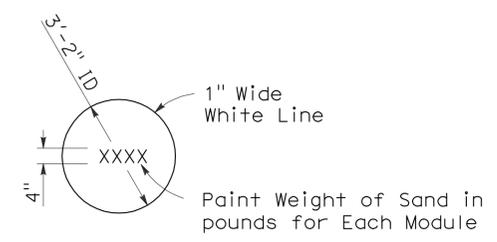
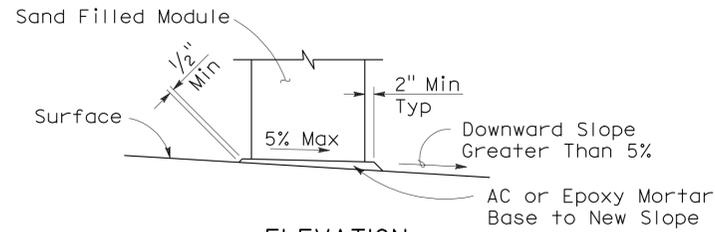
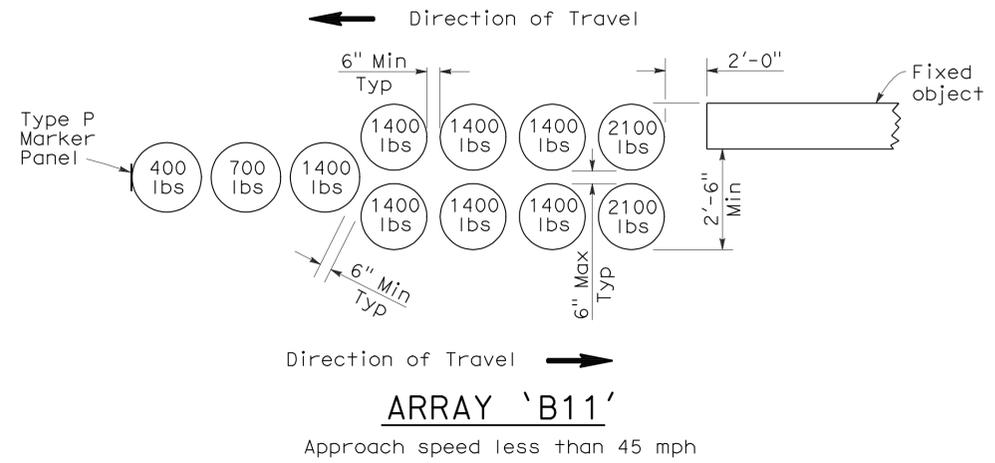
June 6, 2008
PLANS APPROVAL DATE

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

To accompany plans dated 3-12-12

2006 REVISED STANDARD PLAN RSP A81C



NOTES:

- (XXX) Indicates 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.
- Each module is to contain amount of sand indicated, supported according to the manufacturer's instructions.
- Bidirectional crash cushion arrays may be angled toward approaching traffic. Amount of angle not to exceed 10 degrees.
- Modules shall be placed on asphalt concrete, epoxy mortar or concrete surface. Modules to be placed on surfacing with greater than 5% downward slope shall be seated as shown.
- Mass of sand and outline of each module shall be painted on the surface at each module location.
- Module blocking, epoxied to the deck surface, is required for all modules placed on bridge decks. Two acceptable alternatives are shown. Other alternatives recommended by the manufacturer and approved by the Engineer will be accepted.
- Place the Type P marker panel so that the bottom of the panel is at the bottom of the module.
- Approach speeds indicated conform to NCHRP Report criteria.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**CRASH CUSHION,
SAND FILLED
(BIDIRECTIONAL)**

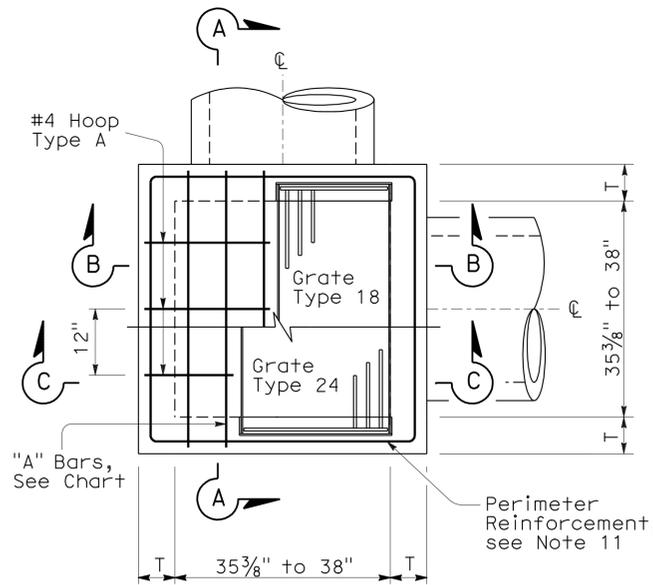
NO SCALE

RSP A81C DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN A81C
DATED MAY 1, 2006 - PAGE 101 OF THE STANDARD PLANS BOOK DATED MAY 2006.

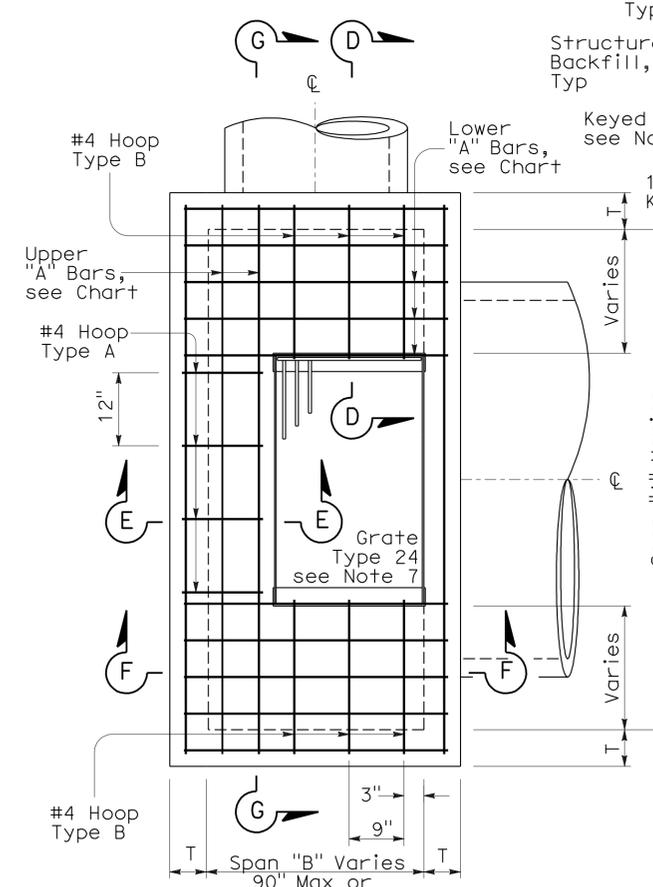
REVISED STANDARD PLAN RSP A81C

101

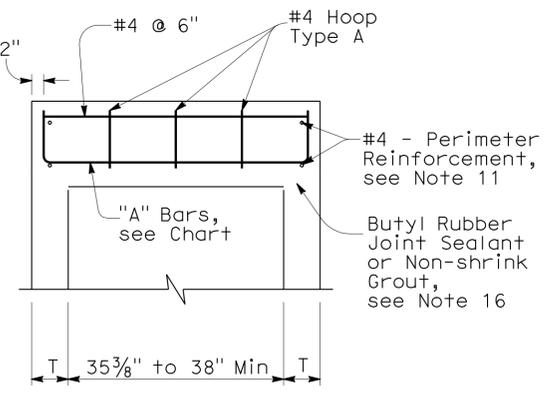
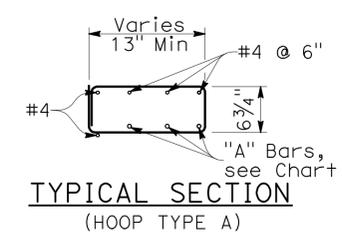
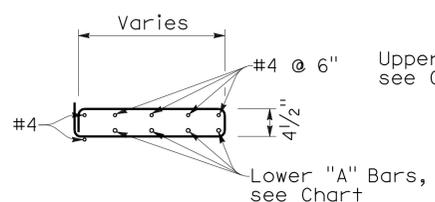
2006 NEW STANDARD PLAN NSP D73A



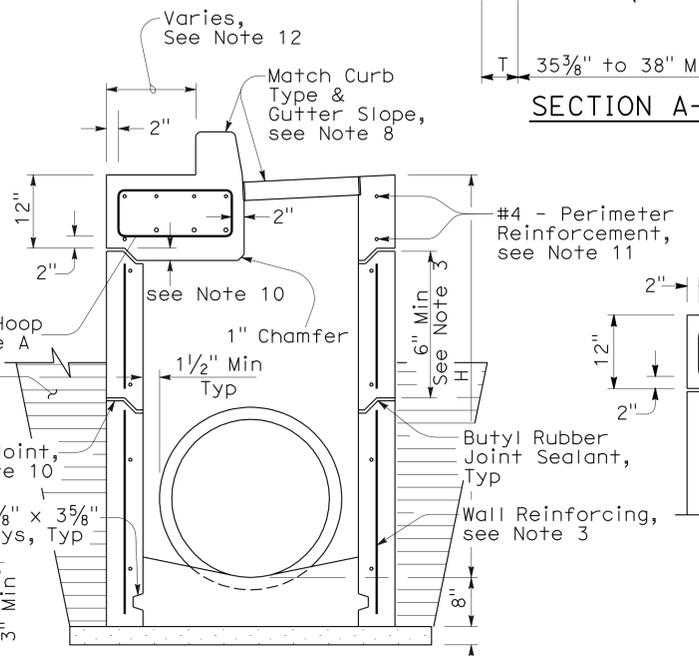
STANDARD TYPE G2 OR G4



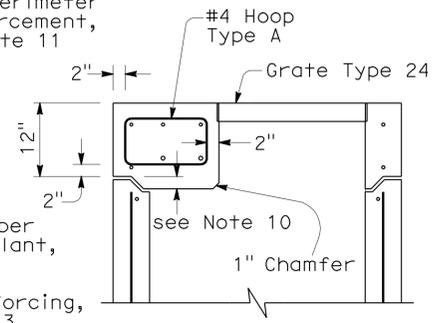
EXPANDED TYPE G2 OR G4
(Top Rebar Not Shown)



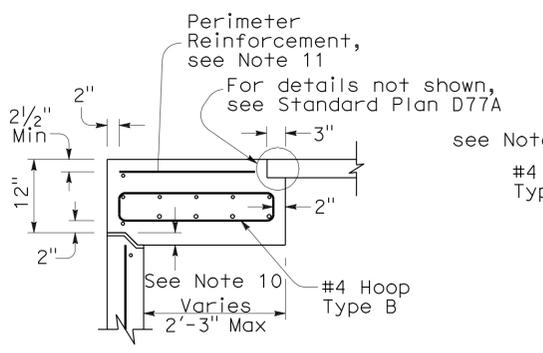
SECTION A-A



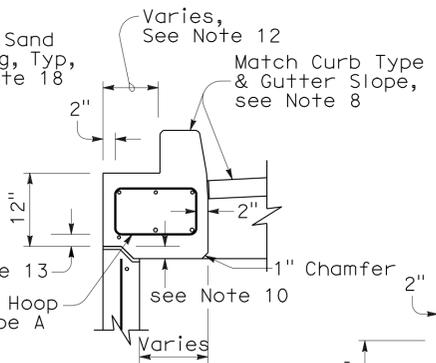
SECTION B-B
(with G4 Top)



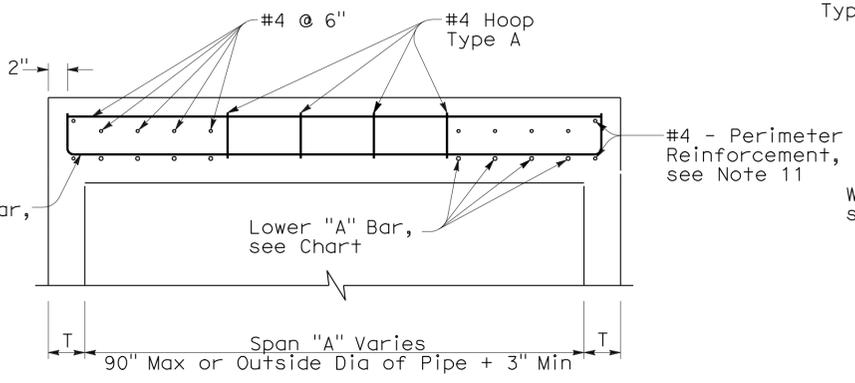
SECTION C-C
(with G2 Top)



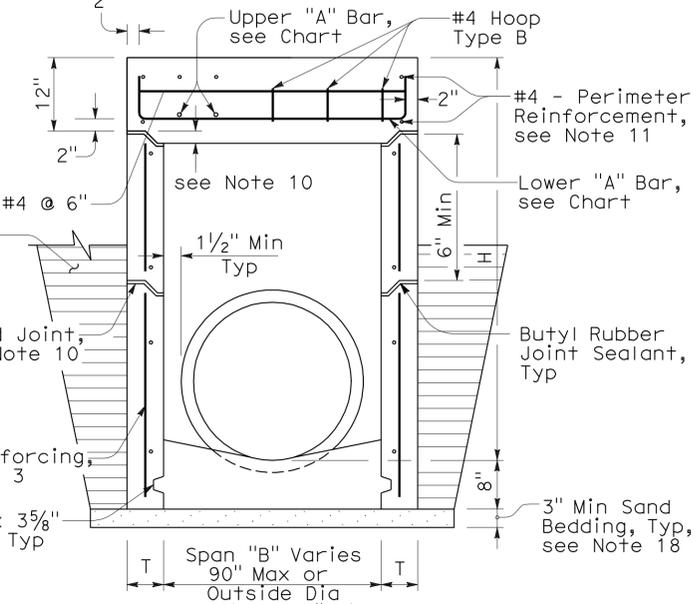
SECTION D-D



SECTION E-E
(with G4 Top)



SECTION G-G



SECTION F-F
(with G2 Top)

NOTES:

- "H" is the difference in elevation between the outlet pipe flow line and the normal gutter grade line undepressed.
- For "T" wall thickness: T=6" when "H" is 8' or less. T=8" when "H" is over 8'.
- Wall reinforcing not required when "H" is 8' or less, and the unsupported width or length is 6'-0" or less. Reinforce wall exceeding these limits with #4 bars @ 1'-6" ± centers placed 2" clear to the inside of inlet unless otherwise shown. Short independent wall sections or height adjustment rings 6" to 24" high must have a minimum of two #4 horizontal bars.
- Seal pre-cast inlets connection openings between wall and pipe with non-shrink grout or resilient connectors as specified in the Special Provisions.
- Steps - None required where "H" is less than 2'-6". Where "H" is 2'-6" or more, install steps with lowest rung 1'-0" above the floor and highest rung not more than 6" below bottom of lid. The distance between steps must not exceed 1'-0" and be uniform throughout the length of the wall. Place steps in the wall without an opening. Steps inserts may be substituted for the bar steps. Step inserts must comply with State Industrial Safety Requirements. See Standard Plan D74C for step details.
- Pipe(s) can be placed in any wall.
- Set inlet so that grate bars are parallel to direction of principal surface flow.
- Type G4 inlet can use Grate Type 18 or 24. Type G2 inlet uses Grate Type 24. See Revised Standard Plan RSP D77A and Standard Plan D77B for grate and frame details and weights of miscellaneous Iron and Steel.
- G4 inlet details are the same as the G2 with the addition of a curb and sloped grate that matches the adjacent curb and gutter depression. See Standard Plans D78A & D78B for gutter and inlet depression details. See Revised Standard Plan RSP A87A & Standard Plan A87B for Curb and Dike Details.
- Provide pre-cast inlets with separate top sections for final grade adjustment under Standard Specification Section 51-1.02. Provide keyed joints between the top and wall and multiple wall sections. Joint design may vary but must be 1" to 3" in depth.
- Perimeter reinforcement serves as a rigid frame to position and attach the required structural reinforcement and may be tack welded at outer corners when using ASTM A706 weldable bars.
- This dimension will vary with different grates, curbs types, box width and wall thickness.
- 2" unless inlet is expanded in the Span "A" direction, then clearance is 2" plus the diameter of the lower "A" bar.
- Place "A" Bars at an angle so hooked ends will maintain 2" clear coverage.
- Refer to Standard Plan D73, Table A for concrete quantities.
- Non-shrink grout can be used for upper most joint to facilitate final top grade adjustment.
- Slope inlet floors 4:1 towards the outlet pipe. Pre-cast inlets may have monolithic sloped floors, flat floors, or no floors in which case a sloped floor must be cast in the field. Inlet floors do not require reinforcing.
- Extend sand bedding under all structure backfill.

Span	"A" Bars	Required steel area per foot (in ² /ft)
Under 38" with Type 24 Grate	#5 @ 7" C-C 2-#5 Min	0.525
Under 38" with Type 18 Grate	#5 @ 7" C-C 3-#5 Min	0.525
38"-60"	#5 @ 6" C-C	0.621
61"-72"	#5 @ 5" C-C	0.744
73"-90"	#6 @ 6" C-C	0.811

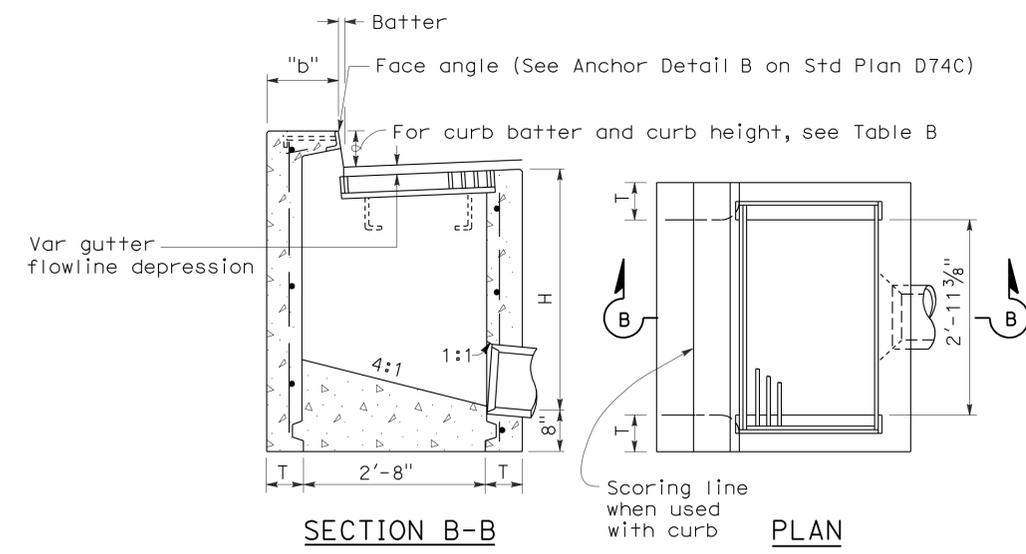
STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
DRAINAGE INLETS
(PRECAST)

NO SCALE

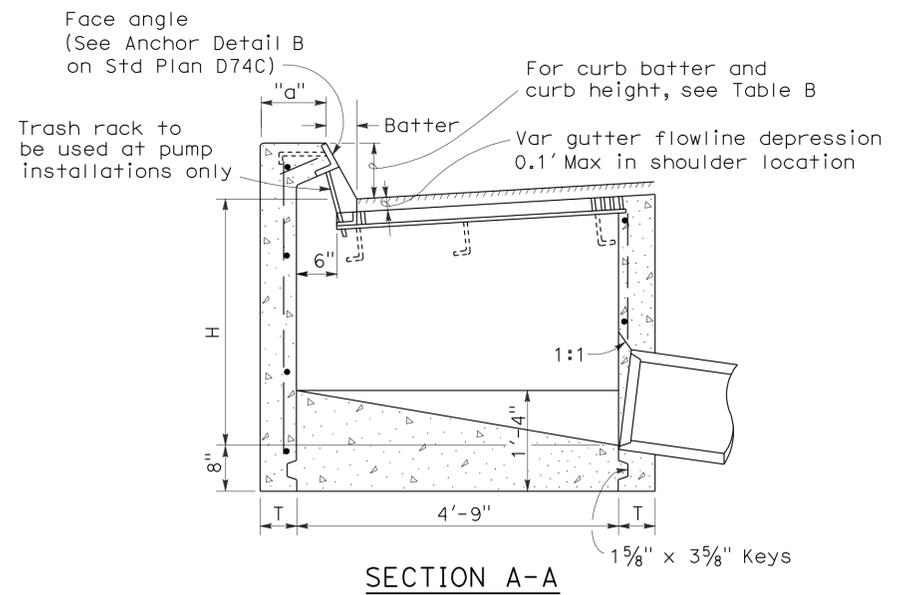
NSP D73A DATED JUNE 5, 2009 SUPPLEMENTS THE STANDARD PLANS BOOK DATED MAY 2006.

NEW STANDARD PLAN NSP D73A

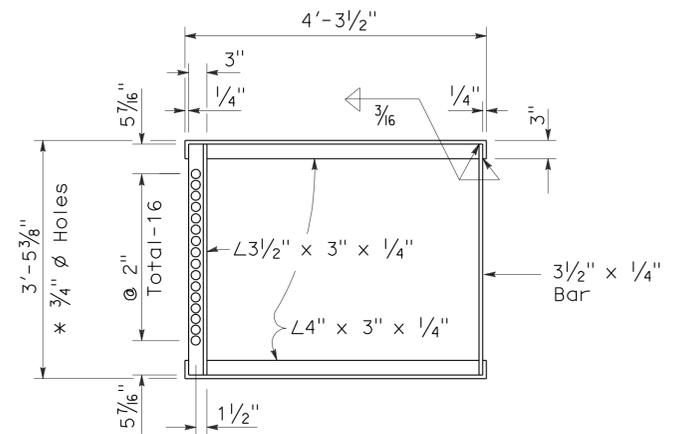
To accompany plans dated 3-12-12



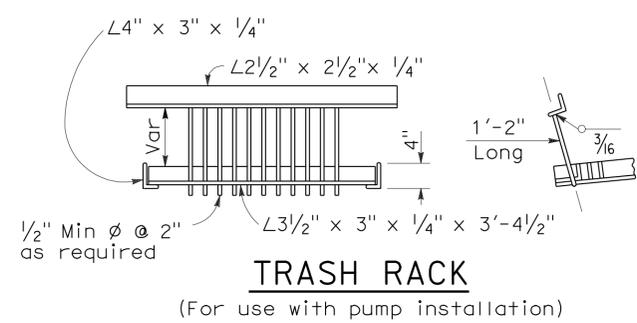
TYPE GO



SECTION A-A



GRATE FRAME FOR TYPE GDO INLET

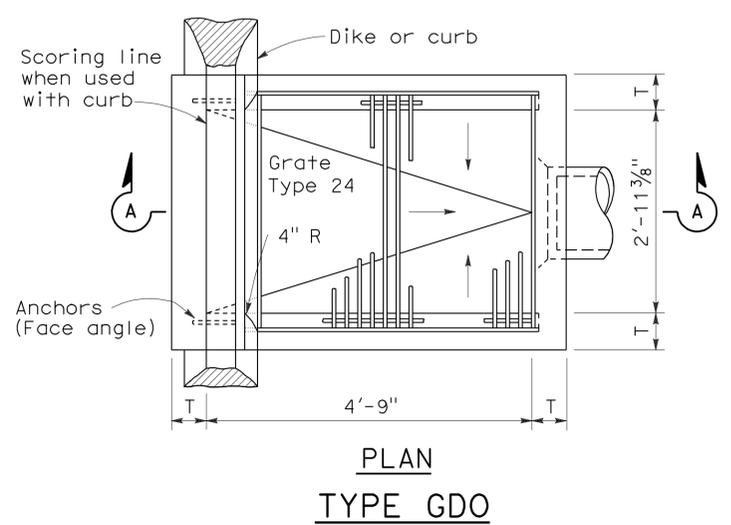


TRASH RACK

TABLE A
CONCRETE QUANTITIES

TYPE	H=3'-0" TO 8'-0" (T=6")		H=8'-1" TO 20'-0" (T=8")	
	H=3'-0" (CY)	ADDITIONAL PCC PER FOOT (CY)	H=8'-1" (CY)	ADDITIONAL PCC PER FOOT (CY)
GO	1.24	0.245	3.39	0.346
GDO	1.62	0.322	4.36	0.446

Table based on 8" floor slab, no deduction for pipe openings, and curb type giving highest quantity of concrete. No deductions or adjustments are to be made to these quantities because of pipe openings, different floor alternatives or different curb type.



PLAN TYPE GDO

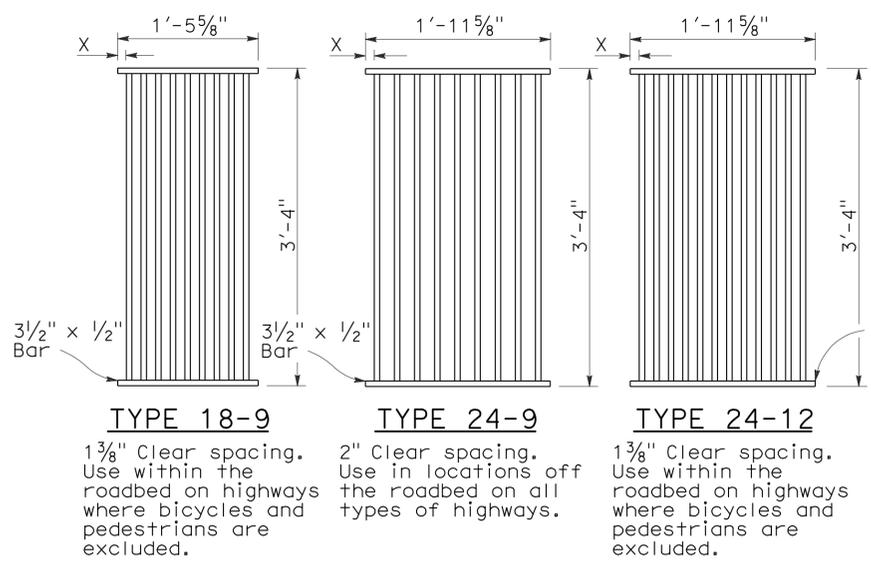
TABLE B

CURB TYPE	NORMAL CURB HEIGHT	CURB BATTER	"a" DIMENSION	"b" DIMENSION
A1-6	6"	1 1/2"	T+7 1/2"	T+6 1/2"
A1-8	8"	2"	T+7"	T+6"
B1-6	6"	4"	T+5"	T+4"
Type A Dike	6"	3"	T+6"	T+5"

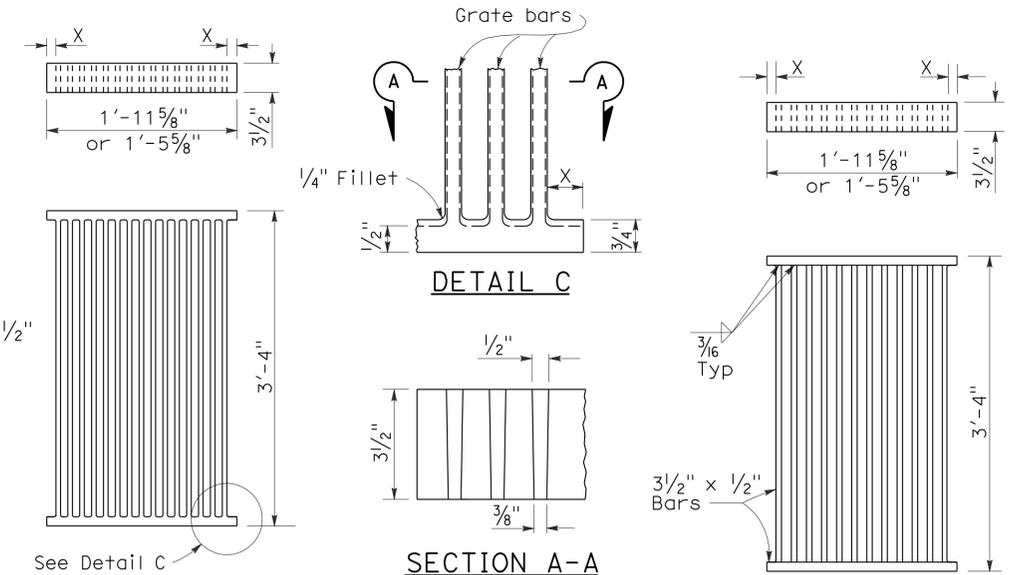
NOTES:

- "H" is the difference in elevation between the outlet pipe flow line and the normal gutter grade line undepressed.
- For "T" wall thickness, see Table A below.
- Wall reinforcing not required when "H" is 8'-0" or less and the unsupported width or length is 7'-0" or less. Walls exceeding these limits shall be reinforced with #4 @ 18"± centers placed 1/2" clear to inside of box unless otherwise shown.
- Inlet bottom reinforcing not required. See Standard Plan D74C for alternative reinforced bottom.
- Steps - None required where "H" is less than 2'-6". Where "H" is 2'-6" or more, install steps with lowest rung 1'-0" above the floor and highest rung not more than 6" below top of inlet. The distance between steps shall not exceed 1'-0" and shall be uniform throughout the length of the wall. Place steps in the wall without an opening. Step inserts may be substituted for the bar steps. Step Inserts shall comply with State Industrial Safety requirements. See Standard Plan D74C for step details.
- When shown on the project plans, place a 3/4" plain round protection bar horizontally across the length of the opening and bend back 4" into the inlet wall on each side.
- Pipe(s) can be placed in any wall.
- Curb section shall match adjacent curb.
- Basin floors shall have wood trowel finish and shall slope toward the outlet pipe as shown.
- Galvanizing - See Standard Specifications or Special Provisions.
- See Standard Plan D77A and D77B for grate and frame details and weights of miscellaneous iron and Steel.
- See Standard Plan D78A for gutter depression details.
- Full penetration butt welds may be substituted for the fillet welds on all anchors.
- Standard square, hexagon, round or equivalent headed anchors may be substituted for the right angle hooks on the anchors shown on this plan.
- Cast-in-place or precast alternative is optional with contractor. See Standard Specifications.
- Cast-in-place inlets to be formed around all pipes/stubs intersecting the inlet and concrete poured in one continuous operation. Precast inlets shall have mortared pipe connections conforming to details for Type GCP inlets on Standard Plan D75B. See Standard Specifications for mortar composition.

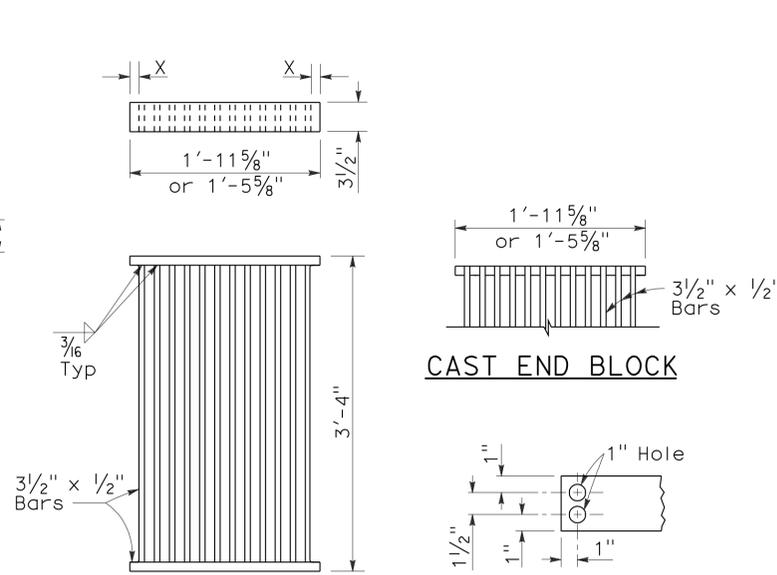
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
DRAINAGE INLETS
NO SCALE



RECTANGULAR GRATE DETAILS
(See table below)

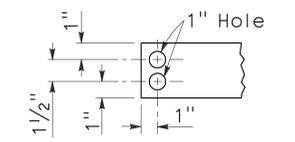


ALTERNATIVE CAST NODULAR IRON GRATE OR CAST STEEL GRATE

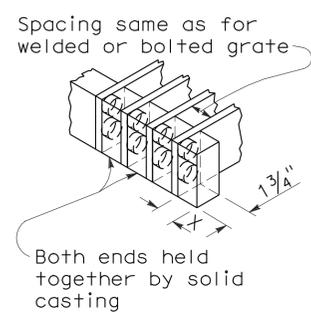


ALTERNATIVE WELDED GRATE

CAST END BLOCK



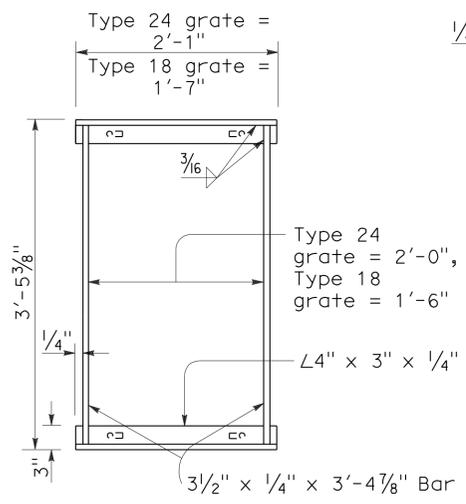
END OF BAR



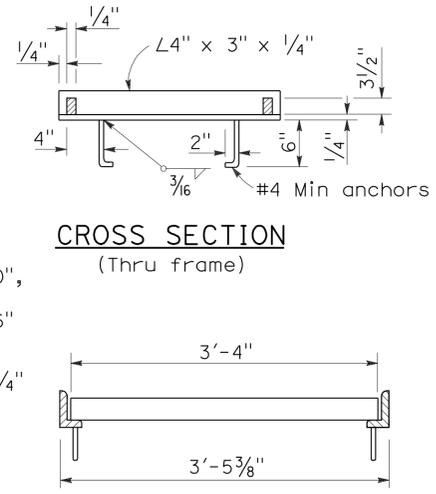
ALTERNATIVE CAST NODULAR IRON OR CAST STEEL END BLOCK GRATE

NOTES:

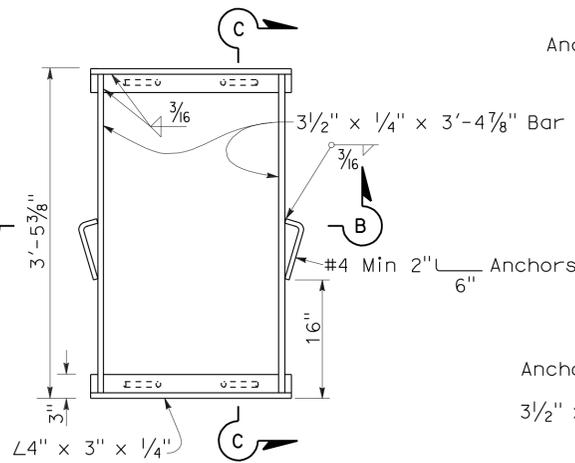
1. Grate type numbers refer to approximate width of grate in inches and number of bars, respectively.
2. Contractor has the option of using cast nodular iron, cast steel, welded, bolted, or cast end block grate.
3. See Special Provisions for requirements pertaining to galvanizing or asphalt dipping of grates and frames.
4. Rounded top of bars optional on all grates.
5. Pipe inlets with a grate shall be placed so that bars parallel direction of principle surface flow.
6. Full penetration butt welds may be substituted for the fillet welds on all anchors.
7. Standard square, hexagon, round or equivalent headed anchors may be substituted for the right angle hooks on the anchors shown on this plan.
8. Grate and frame weights are based on welded grates (weights of face angles, steps, protection bars, etc. are not included).



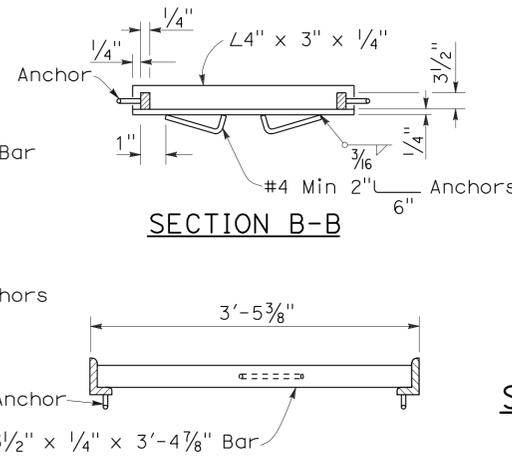
TYPICAL FRAME



CROSS SECTION (Thru frame)
LONGITUDINAL SECTION (Thru frame and grate)



TYPICAL FRAME



ALTERNATIVE ANCHOR FOR RECTANGULAR FRAME
(For details not shown, See Rectangular Frame Details)

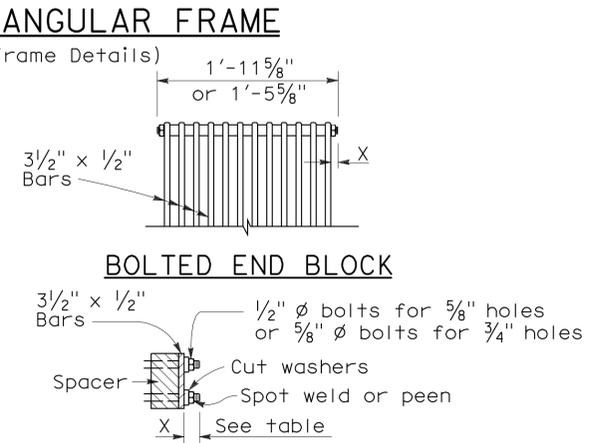
RECTANGULAR FRAME DETAILS
(For all rectangular grates)

GRATE BAR SPACING TABLE

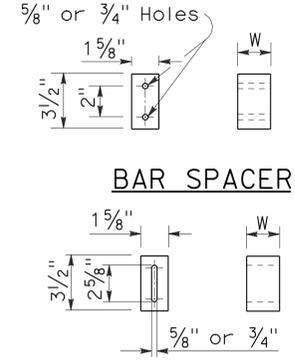
TYPE	NO. OF BARS	CLEAR BAR SPACING	X
18-9	9	1 3/8"	1 1/16"
24-9	9	2"	1 9/16"
24-12	12	1 3/8"	1 1/4"

INLET TYPE	COVER TYPE	WEIGHT LB
OS	PLATE	174
OL-7	PLATE	170
OL-10	PLATE	170
OL-14	PLATE	170
OL-21	PLATE	170
OCPI	PLATE	112
OCPI	REDWOOD	42
OMP	PLATE	177
OMPI	PLATE	177

INLET TYPE	GRATE TYPE	NO. OF GRATES	WEIGHT LB
GDO	24-12	2	634
GOL-7	24-12	1	326
GOL-10	24-12	1	326
G0,G1,G2,G3,G4 (TYPE 24)	24-9	1	263
	24-12	1	326
G4 (TYPE 18),G5,G6	18-9	1	249
GT1	18-9	2	498
GT2	18-9	2	498
GT3	24-12	2	652
GT4	24-12	2	652
TRASH RACK			22



BOLTING DETAIL
ALTERNATIVE BOLTED GRATE



BAR SPACER
ALTERNATIVE SPACER
W = 1 3/8" or 2"

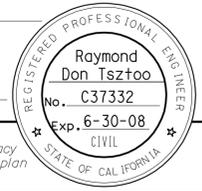
BASIS FOR MISC IRON & STEEL FINAL PAY WEIGHTS FOR DRAINAGE INLETS

(See General Notes, No 8)

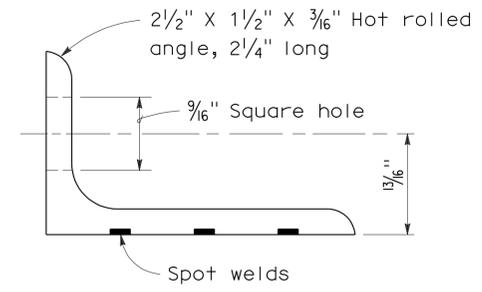
2006 REVISED STANDARD PLAN RSP D77A

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
02	Sha	299	4.3/5.5	156	188

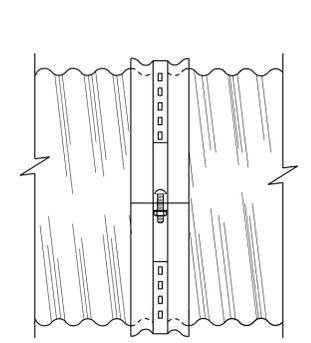
Raymond Don Tsztoo
 REGISTERED CIVIL ENGINEER
 June 6, 2008
 PLANS APPROVAL DATE
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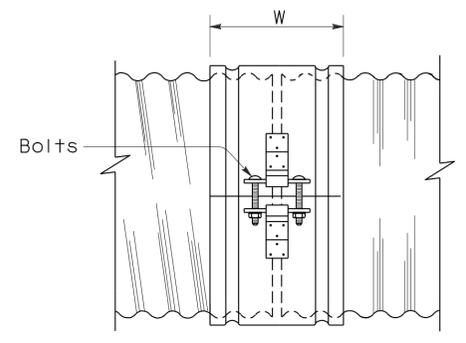
To accompany plans dated 3-12-12



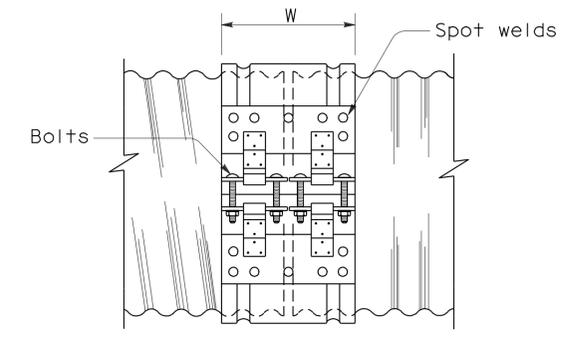
ANGLE



SIDE VIEW ANGLE



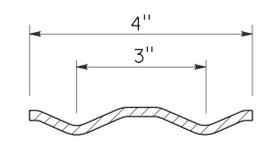
SIDE VIEW SINGLE BAR AND STRAP



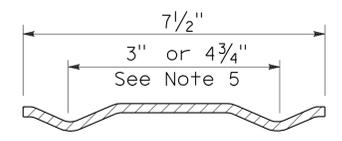
SIDE VIEW DOUBLE BAR AND STRAP

NOTES:

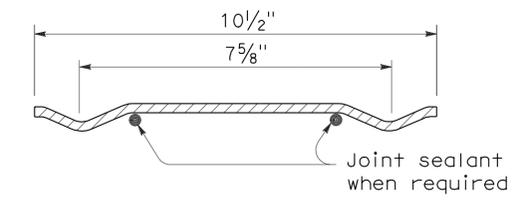
1. All ferrous metal coupling band connection hardware shall be galvanized or electroplated in accordance with the Standard Specifications.
2. Dimensions and thicknesses shown are minimum.
3. Spot welds shall develop minimum required strength of strap.
4. Fillet welds of equivalent strength may be substituted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



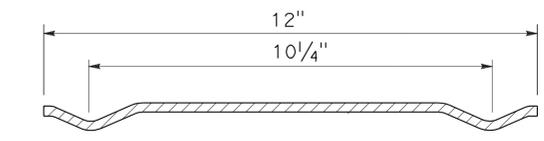
SECTION H-4 HUGGER BAND



SECTION H-7 HUGGER BAND



SECTION H-10 HUGGER BAND



SECTION H-12 HUGGER BAND

HUGGER COUPLING BANDS

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
**CORRUGATED METAL PIPE
 COUPLING DETAILS No. 4
 HUGGER COUPLING BANDS**

NO SCALE

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

REVISED STANDARD PLAN RSP D97D

2006 REVISED STANDARD PLAN RSP D97D

ANNULAR AND HELICAL PROFILE

COUPLING TYPE	PIPE CORRUGATION	PIPE SIZE	W OR A	PIPE WALL THICKNESS				BAR AND STRAP (CSP ONLY)				ANGLE							
				CSP		CAP		STRAP THICKNESS	BOLTS Dia	BAR Dia	BAR YIELD STRENGTH	DIMENSIONS		BOLTS (No.- Dia)		RIVETS ANGLE TO BAND		SPOT WELDS ANGLE TO BAND	
				CSP	CAP	CSP	CAP					CSP	CAP	CSP	CAP	CSP	CAP	CSP	
TWO PIECE INTEGRAL FLANGE	1 1/2' x 1/4"	6"-10"	7"	0.052"-0.079"	0.048"-0.060"	0.052"	0.060"							2-3/8"	2-3/8"				
				12"-18"	7"	0.052"-0.079"										2-1/2"			
				2 2/3' x 1/2"	12"-24"	7"	0.052"-0.079"	0.060"-0.105"	0.064"	0.060"							2-1/2"	2-1/2"	
UNIVERSAL	2 2/3' x 1/2"	THROUGH 36"	12"	0.052"-0.138"	0.060"-0.135"	0.052"	0.060"						2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	3-1/2"
		42"-60"	12"	0.052"-0.168"	0.075"-0.164"	0.052"	0.060"						2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	5-1/2"
		THROUGH 72"	12"	0.052"-0.168"	0.164"	0.052"	0.105"	0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	5-1/2"	
		78"-84"	16 1/4"	0.168"		0.079"		DOUBLE 0.079"	1/2"	7/8"	32 ksi								
ANNULAR	2 2/3' x 1/2"	THROUGH 36"	7"	0.064"-0.138"	0.060"-0.135"	0.052"	0.060"	0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"	2" x 2" x 3/16"	2-1/2"	2-1/2"	3-3/8"	3-3/8"	3-1/2"	
		42"-72"	12"	0.064"-0.168"	0.075"-0.164"	0.052"	0.105"	0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	5-1/2"	
		78"-84"	12"	0.168"		0.079"		0.109"	1/2"	7/8"	45 ksi	2" x 2" x 3/16"		3-1/2"		3-3/8"		5-1/2"	
		48"-90"	14"	0.064"-0.109"		0.052"		0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"		3-1/2"		3-3/8"		5-1/2"	
		96"-120"	14"	0.079"-0.109"		0.052"		0.109"	1/2"	7/8"	45 ksi	2" x 2" x 3/16"		3-1/2"		4-3/8"			
HELICAL	2 2/3' x 1/2"	THROUGH 36"	12"	0.052"-0.138"	0.060"-0.135"	0.052"	0.060"	0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	3-1/2"	
		42"-72"	12"	0.052"-0.168"	0.075"-0.164"	0.052"	0.060"	0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	5-1/2"	
		78"-84"	12"	0.168"		0.079"		0.109"	1/2"	7/8"	45 ksi	2" x 2" x 3/16"		3-1/2"		3-3/8"		5-1/2"	
		48"-90"	14"	0.064"-0.109"		0.052"		0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"		3-1/2"		3-3/8"		5-1/2"	
HUGGER	2 2/3' x 1/2"	THROUGH 36"	12"	0.052"-0.138"	0.060"-0.135"	0.052"	0.060"	0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	3-1/2"	
		42"-72"	12"	0.052"-0.168"	0.075"-0.164"	0.052"	0.060"	0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	5-1/2"	
		78"-84"	12"	0.168"		0.079"		0.109"	1/2"	7/8"	45 ksi	2" x 2" x 3/16"		3-1/2"		3-3/8"		5-1/2"	
		48"-90"	14"	0.064"-0.109"		0.052"		0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"		3-1/2"		3-3/8"		5-1/2"	
HUGGER	3" x 1"	96"-120"	14"	0.079"-0.109"		0.052"		0.109"	1/2"	7/8"	45 ksi	2" x 2" x 3/16"		3-1/2"		4-3/8"			
		42"-108"	14"		0.060"-0.135"		0.060"					2" x 2" x 3/16"		3-1/2"		3-3/8"			
		THROUGH 36"	12"	0.052"-0.138"	0.060"-0.135"	0.052"	0.060"	0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	3-1/2"	
		42"-72"	12"	0.052"-0.168"	0.075"-0.164"	0.052"	0.060"	0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	5-1/2"	
		78"-84"	12"	0.168"		0.079"		0.109"	1/2"	7/8"	45 ksi	2" x 2" x 3/16"		3-1/2"		3-3/8"		5-1/2"	
	2 2/3' x 1/2"	THROUGH 72"	10 1/2"	0.052"-0.168"		0.052"		0.079"	1/2"	7/8"	32 ksi	2 1/2" x 1 1/2" x 3/16"	2 1/2" x 1 1/2" x 3/16"	1-1/2"				3-1/2"	
		78"-84"	10 1/2"	0.168"		0.079"		0.109"	1/2"	7/8"	45 ksi	2 1/2" x 1 1/2" x 3/16"	2 1/2" x 1 1/2" x 3/16"	1-1/2"				3-1/2"	
		48"-90"	10 1/2"	0.064"-0.109"		0.052"		0.079"	1/2"	7/8"	32 ksi	2 1/2" x 1 1/2" x 3/16"	2 1/2" x 1 1/2" x 3/16"	1-1/2"				3-1/2"	
		96"-120"	10 1/2"	0.079"-0.109"		0.052"		0.109"	1/2"	7/8"	45 ksi	2 1/2" x 1 1/2" x 3/16"	2 1/2" x 1 1/2" x 3/16"	1-1/2"				3-1/2"	
		48"-66"	7 1/2"	0.064"-0.109"		0.064"		0.079"	1/2"	7/8"	32 ksi	2 1/2" x 1 1/2" x 3/16"	2 1/2" x 1 1/2" x 3/16"	1-1/2"				3-1/2"	
5" x 1"	72"-90"	7 1/2"	0.064"-0.079"		0.064"		0.079"	1/2"	7/8"	32 ksi	2 1/2" x 1 1/2" x 3/16"	2 1/2" x 1 1/2" x 3/16"	1-1/2"				3-1/2"		
	48"-90"	7 1/2"	0.064"-0.138"		0.064"		0.079"	1/2"	7/8"	32 ksi	2 1/2" x 1 1/2" x 3/16"	2 1/2" x 1 1/2" x 3/16"	1-1/2"				3-1/2"		
	48"-120"	12" SEE	0.064"-0.109"		0.064"		0.079"	1/2"	7/8"	32 ksi									
	48"-84"	12" NOTE	0.138"		0.064"		0.079"	1/2"	7/8"	32 ksi									
		90"-120"	12" 11	0.138"		0.064"		DOUBLE 0.079"	1/2"	7/8"	32 ksi								

SPIRAL RIB PROFILE

COUPLING TYPE	PIPE CORRUGATION	PIPE SIZE	W	PIPE WALL THICKNESS				BAR AND STRAP (SSRP ONLY)				ANGLE						
				SSRP		ASRP		STRAP THICKNESS	BOLTS Dia	BAR Dia	BAR YIELD STRENGTH	DIMENSIONS		BOLTS (No.- Dia)		RIVETS ANGLE TO BAND		SPOT WELDS ANGLE TO BAND
				SSRP	ASRP	SSRP	ASRP					SSRP	ASRP	SSRP	ASRP	SSRP		
ANNULAR	2 2/3' x 1/2" * REROLLED END	24"-36"	12"	0.064"-0.109"	0.060"-0.105"	0.052"	0.060"	0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	5-1/2"
		42"-60"	12"	0.064"-0.109"	0.075"-0.105"	0.052"	0.105"	0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	5-1/2"
		66"-72"	12"	0.064"-0.109"		0.052"		0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	5-1/2"
		78"-114"	12"	0.079"-0.109"		0.079"		0.109"	1/2"	7/8"	45 ksi	2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	5-1/2"
HUGGER	2 2/3' x 1/2" * REROLLED END	24"-72"	10 1/2"	0.064"-0.109"		0.052"		0.079"	1/2"	7/8"	32 ksi							
		78"-84"	10 1/2"	0.109"		0.079"		0.109"	1/2"	7/8"	45 ksi							

* See Note 14.

14. All profiles of Spiral Rib Pipe (3/4" x 3/4" ribs at 7 1/2" pitch and 3/4" x 1" ribs at 11 1/2" pitch in both steel and aluminum and 3/4" x 1" ribs at 8 1/2" pitch in steel only) shall be manufactured with rerolled ends. Corrugation profile of the rerolled ends shall be 2 2/3' x 1/2" annual corrugations with a minimum of two full corrugations at each end.

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**CORRUGATED METAL PIPE
COUPLING DETAILS No. 5
STANDARD JOINT**
NO SCALE

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

REVISED STANDARD PLAN RSP D97E

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
02	Sha	299	4.3/5.5	157	188

Raymond Don Tsztoo
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

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

2006 REVISED STANDARD PLAN RSP D97E

ANNULAR AND HELICAL PROFILE

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
02	Sha	299	4.3/5.5	158	188

Raymond Don Tsztou
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

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

COUPLING TYPE	PIPE CORRUGATION	PIPE SIZE	W OR A	PIPE WALL THICKNESS				BAR AND STRAP (CSP ONLY)				ANGLE							
				CSP		CAP		STRAP THICKNESS	BOLTS Dia	BAR Dia	BAR YIELD STRENGTH	DIMENSIONS		BOLTS (No. - Dia)		RIVETS ANGLE TO BAND		SPOT WELDS ANGLE TO BAND	
				CSP	CAP	CSP	CAP					CSP	CAP	CSP	CAP	CSP	CAP	CSP	
TWO PIECE INTEGRAL FLANGE	1 1/2" x 1/4"	6"-10"	7"	0.064"-0.079"	0.060"	0.064"	0.060"							2-3/8"	2-3/8"				
UNIVERSAL	2 2/3" x 1/2"	12"-24"	12"		0.060"-0.105"		0.060"								3-1/2"				
ANNULAR	2 2/3" x 1/2"	THROUGH 36"	12"	0.064"-0.138"	0.060"-0.135"	0.064"	0.060"	0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	5-1/2"	
		42"-60"	16 1/4"	0.064"-0.168"	0.060"-0.164"	0.064"	0.060"	DOUBLE 0.079"	1/2"	7/8"	32 ksi	2" x 2" x 1/4"	2" x 2" x 1/4"	4-1/2"	4-1/2"	5-3/8"	5-3/8"		
		42"-60"	12"	0.064"-0.079"		0.064"							2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	5-1/2"
		42"-60"	12"	0.109"-0.168"	0.135"-0.164"	0.064"	0.075"						2" x 2" x 1/4"	2" x 2" x 1/4"	3-1/2"	3-1/2"	5-3/8"	5-3/8"	
		66"-84"	24"	0.109"-0.168"		0.064"	0.105"						2" x 2" x 1/4"	2" x 2" x 1/4"	5-1/2"	5-1/2"	7-3/8"	7-3/8"	
		42"-54"	12"		0.060"-0.105"		0.060"						2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	
	3" x 1"	48"-60"	14"	0.064"-0.079"		0.064"							2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	5-1/2"
		48"-60"	14"	0.109"		0.064"							2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	5-3/8"	5-3/8"	
		66"-120"	25"	0.064"-0.109"		0.064"							2" x 2" x 3/16"	2" x 2" x 3/16"	5-1/2"	5-1/2"	9-3/8"	9-3/8"	
		42"-60"	14"		0.060"-0.105"		0.060"						2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	5-3/8"	5-3/8"	
		42"-60"	14"		0.135"		0.075"						2" x 2" x 1/4"	2" x 2" x 1/4"	3-1/2"	3-1/2"	5-3/8"	5-3/8"	
		66"-96"	25"		0.060"-0.135"		0.060"						2" x 2" x 1/4"	2" x 2" x 1/4"	5-1/2"	5-1/2"	7-3/8"	7-3/8"	
	HELICAL	2 2/3" x 1/2"	THROUGH 36"	12"	0.064"-0.138"	0.060"-0.135"	0.064"	0.060"					2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	5-1/2"
			42"-54"	12"		0.060"-0.105"		0.060"					2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	
42"-60"			12"	0.064"-0.079"		0.064"							2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	5-1/2"
42"-60"			12"	0.109"-0.168"	0.135"-0.164"	0.064"	0.075"						2" x 2" x 1/4"	2" x 2" x 1/4"	3-1/2"	3-1/2"	5-3/8"	5-3/8"	
66"-84"			24"	0.109"-0.168"		0.064"	0.105"						2" x 2" x 1/4"	2" x 2" x 1/4"	5-1/2"	5-1/2"	7-3/8"	7-3/8"	
3" x 1"		48"-60"	14"	0.064"-0.079"		0.064"							2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	5-1/2"
		48"-60"	14"	0.109"		0.064"							2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	5-3/8"	5-3/8"	
		66"-120"	25"	0.064"-0.109"		0.064"							2" x 2" x 3/16"	2" x 2" x 3/16"	5-1/2"	5-1/2"	9-3/8"	9-3/8"	
		42"-60"	14"		0.060"-0.105"		0.060"						2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	5-3/8"	5-3/8"	
		42"-60"	14"		0.135"		0.075"						2" x 2" x 1/4"	2" x 2" x 1/4"	3-1/2"	3-1/2"	5-3/8"	5-3/8"	
HUGGER	2 2/3" x 1/2" REROLLED END	THROUGH 48"	10 1/2"	0.109"		0.064"		0.079"	1/2"	7/8"	32 ksi								
		54"-66"	10 1/2"	0.109"		0.064"		DOUBLE 0.079"	1/2"	7/8"	32 ksi								
		THROUGH 54"	10 1/2"	0.064"-0.079"		0.064"		0.079"	1/2"	7/8"	32 ksi								
		THROUGH 60"	10 1/2"	0.138"		0.079"		DOUBLE 0.079"	1/2"	7/8"	32 ksi								
		66"-72"	10 1/2"	0.138"		0.109"		DOUBLE 0.079"	1/2"	7/8"	32 ksi								
	3" x 1" REROLLED END	THROUGH 72"	10 1/2"	0.168"		0.109"		DOUBLE 0.109"	1/2"	7/8"	45 ksi								
		48"-84"	10 1/2"	0.109"		0.079"		DOUBLE 0.079"	1/2"	7/8"	32 ksi								
		48"-90"	10 1/2"	0.064"-0.079"		0.064"		DOUBLE 0.079"	1/2"	7/8"	32 ksi								
		96"-102"	10 1/2"	0.079"		0.079"		DOUBLE 0.079"	1/2"	7/8"	32 ksi								
		90"-120"	10 1/2"	0.109"		0.109"		DOUBLE 0.109"	1/2"	7/8"	45 ksi								

To accompany plans dated 3-12-12

NOTES:

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

SPIRAL RIB PROFILE

COUPLING TYPE	PIPE CORRUGATION	PIPE SIZE	W	PIPE WALL THICKNESS				BAR AND STRAP (SSRP ONLY)				ANGLE						
				SSRP		ASRP		STRAP THICKNESS	BOLTS Dia	BAR Dia	BAR YIELD STRENGTH	DIMENSIONS		BOLTS (No.- Dia)		RIVETS ANGLE TO BAND		SPOT WELDS ANGLE TO BAND
				SSRP	ASRP	SSRP	ASRP					SSRP	ASRP	SSRP	ASRP	SSRP		
ANNULAR	2 2/3" x 1/2" * REROLLED END	24"-36"	12"	0.064"-0.109"	0.060"-0.105"	0.064"	0.060"	0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	5-1/2"
		42"-60"	12"	0.064"-0.079"	0.075"-0.105"	0.064"	0.075"	0.079"	1/2"	7/8"	32 ksi	2" x 2" x 3/16"	2" x 2" x 3/16"	3-1/2"	3-1/2"	3-3/8"	3-3/8"	5-1/2"
		42"-60"	12"	0.109"		0.064"		0.079"	1/2"	7/8"	32 ksi	2" x 2" x 1/4"		3-1/2"		5-3/8"		
		66"-84"	24"	0.109"		0.064"		0.079"	1/2"	7/8"	32 ksi	2" x 2" x 1/4"		5-1/2"		7-3/8"		
HUGGER	2 2/3" x 1/2" * REROLLED END	24"-54"	10 1/2"	0.064"-0.079"		0.064"		0.079"	1/2"	7/8"	32 ksi							
		24"-48"	10 1/2"	0.109"		0.064"		0.079"	1/2"	7/8"	32 ksi							
		54"-66"	10 1/2"	0.109"		0.064"		Double 0.079"	1/2"	7/8"	32 ksi							

* See Note 13.

13. All profiles of Spiral Rib Pipe (3/4" x 3/4" ribs at 7 1/2" pitch and 3/4" x 1" ribs at 11 1/2" pitch in both steel and aluminum and 3/4" x 1" ribs at 8 1/2" pitch in steel only) shall be manufactured with rerolled ends. Corrugation profile of the rerolled ends shall be 2 2/3" x 1/2" annual corrugations with a minimum of two full corrugations at each end.

CORRUGATED METAL PIPE COUPLING DETAILS No. 6 POSITIVE JOINT

NO SCALE

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

REVISED STANDARD PLAN RSP D97F

2006 REVISED STANDARD PLAN RSP D97F

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
02	Sha	299	4.3/5.5	159	188

Raymond Don Tsztso
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

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

ANNULAR AND HELICAL PROFILE

COUPLING TYPE	PIPE CORRUGATION	PIPE SIZE	W OR A	PIPE WALL THICKNESS				BAR AND STRAP (CSP ONLY)			ANGLE									
				CSP		CAP		STRAP THICKNESS	BOLTS Dia	BAR Dia	DIMENSIONS		BOLTS (No.- Dia)		RIVETS ANGLE TO BAND		SPOT WELDS ANGLE TO BAND			
				CSP	CAP	CSP	CAP				CSP	CAP	CSP	CAP	CSP	CAP	CSP			
TWO PIECE INTEGRAL FLANGE	1 1/2' x 1/4"	6"	7"	0.064"-0.168"		0.052"														
	1 1/2' x 1/4"	8"-10"	7"	0.064"-0.168"		0.060"-0.164"		0.064"	0.060"											
ANNULAR	2 2/3" x 1/2"	THROUGH 24"	12"	0.064"-0.168"		0.060"-0.164"		0.064"	0.060"											
HUGGER	2 2/3" x 1/2" REROLLED END	THROUGH 24"	10 1/2"	0.064"-0.168"		0.064"		0.079"	1/2"	7/8"										

- NOTES: To accompany plans dated 3-12-12
- All ferrous metal coupling band connection hardware shall be galvanized or electroplated in accordance with the Standard Specifications.
 - For helically corrugated coupling bands, the connection angles may be oriented parallel to the pipe axis, provided connecting holes are slotted lengthwise sufficiently to allow adjustment for the helix angle.
 - Tension strap may be connected to band with either spot welds or fillet welds that develop minimum required strength of strap.
 - Use 1 1/4" gage line dimension on attached angle leg for rivets and spot welds.
 - Band thickness shall not be less than:
 - 3 standard thicknesses lighter than the thickness of the pipe for Corrugated Steel Pipe.
 - 2 standard thicknesses lighter than the thickness of the pipe and in no case lighter than 0.060" for Corrugated Aluminum Pipe.
 - Dimensions, thicknesses and strengths shown are minimum.
 - For pipe arches use same width band as for round pipe of equal periphery.
 - Fillet welds of equivalent strenght may be substituted for spot welds or rivets.
 - Spot welds shall develop minimum required strength of strap.
 - Pipe with rerolled ends having at least two 2 2/3" x 1/2" annular corrugations at each end with or without an upturned flange may be connected with any of the annular coupling bands shown for pipe of the same diameter and wall thickness and having 2 2/3" x 1/2" corrugations.
 - For downdrain applications, two piece integral flange couplers shall have factory applied sleeve type rubber gaskets with a minimum length of 7" measured along the length of the pipe.

SPIRAL RIB PROFILE

COUPLING TYPE	PIPE CORRUGATION	PIPE SIZE	W	PIPE WALL THICKNESS				BAR AND STRAP (SSRP ONLY)			ANGLE									
				SSRP		ASRP		STRAP THICKNESS	BOLTS Dia	BAR Dia	DIMENSIONS		BOLTS (No.- Dia)		RIVETS ANGLE TO BAND		SPOT WELDS ANGLE TO BAND			
SSRP	ASRP	SSRP	ASRP	SSRP	ASRP	SSRP	ASRP				SSRP	ASRP	SSRP	ASRP	SSRP	ASRP	SSRP			
ANNULAR	2 2/3" x 1/2" * REROLLED END	24"	12"	0.064"-0.168"		0.060"-0.164"		0.064"	0.060"											
HUGGER	2 2/3" x 1/2" * REROLLED END	24"	10 1/2"	0.064"-0.168"		0.064"		0.079"	1/2"	7/8"										

* See Note 12.

12. All profiles of Spiral Rib Pipe (3/4" x 3/4" ribs at 7 1/2" pitch and 3/4" x 1" ribs at 11 1/2" pitch in both steel and aluminum and 3/4" x 1" ribs at 8 1/2" pitch in steel only) shall be manufactured with rerolled ends. Corrugation profile of the rerolled ends shall be 2 2/3" x 1/2" annual corrugations with a minimum of two full corrugations at each end.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**CORRUGATED METAL PIPE
COUPLING DETAILS No. 7
DOWNDRAIN**

NO SCALE

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

REVISED STANDARD PLAN RSP D97G

2006 REVISED STANDARD PLAN RSP D97G

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
02	Sha	299	4.3/5.5	160	188

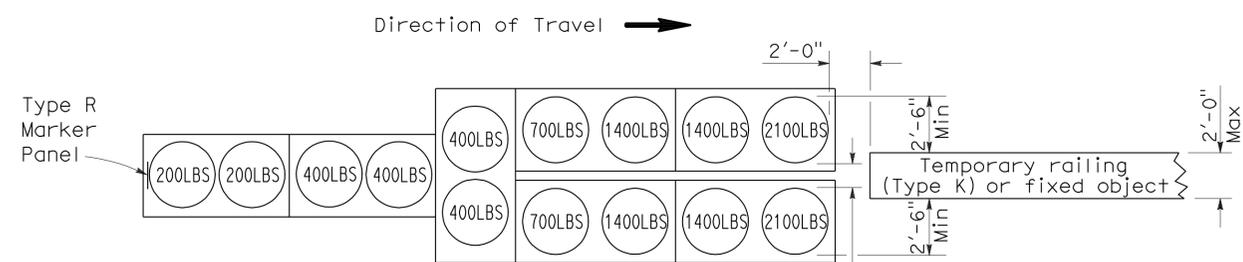
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

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

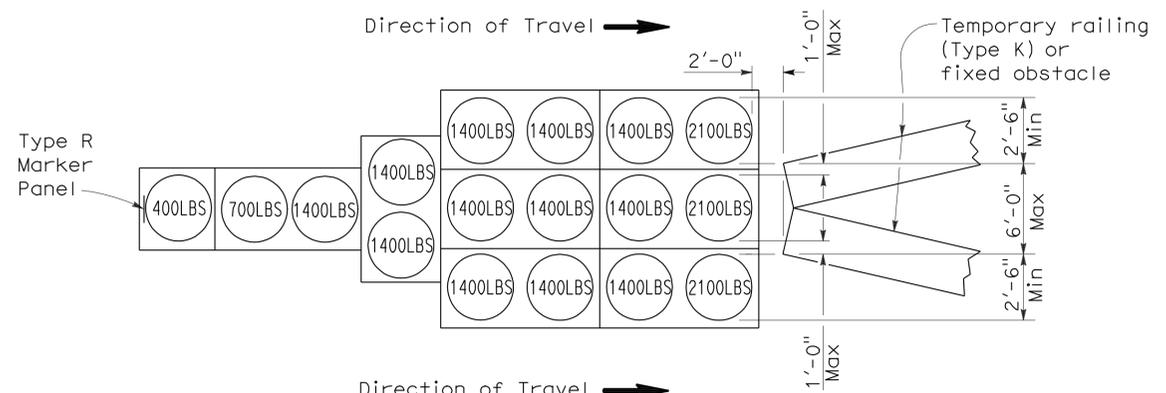
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To accompany plans dated 3-12-12



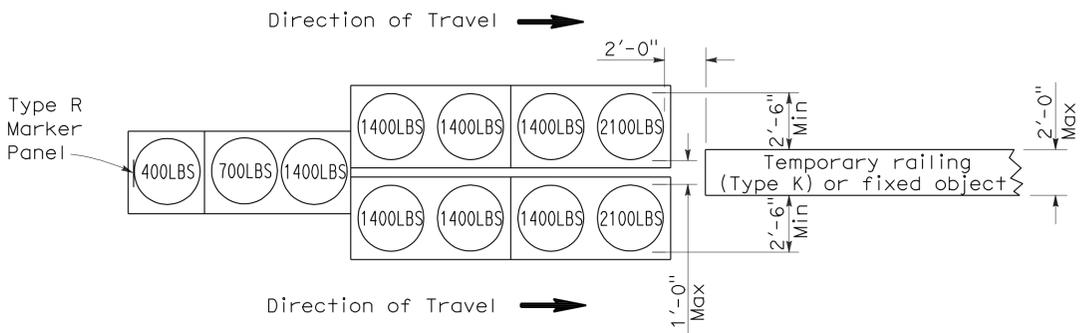
ARRAY 'TU14'

Approach speed 45 mph or more



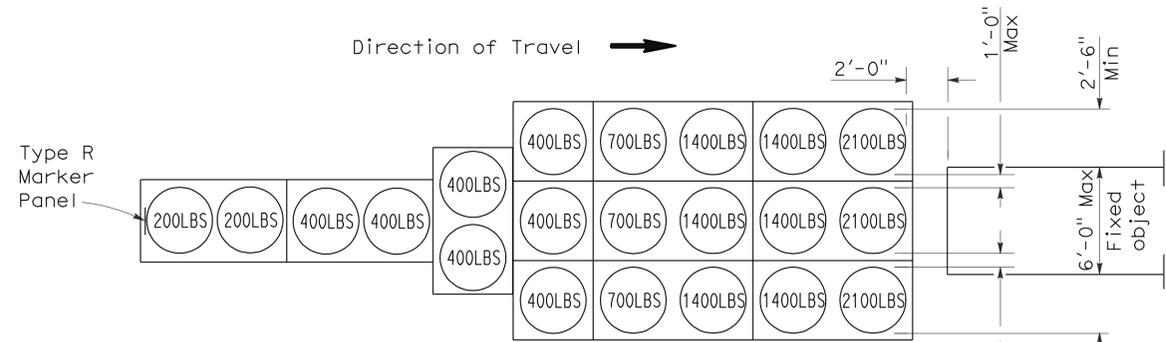
ARRAY 'TU17'

Approach speed less than 45 mph



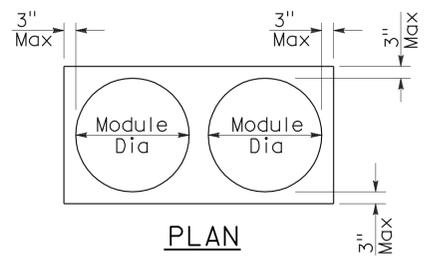
ARRAY 'TU11'

Approach speed less than 45 mph

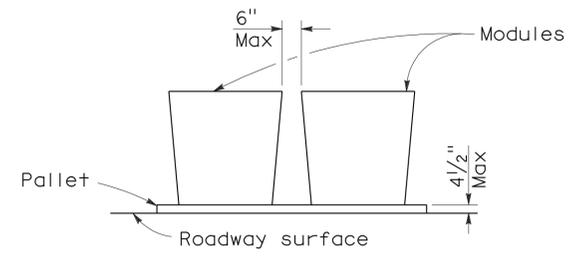


ARRAY 'TU21'

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

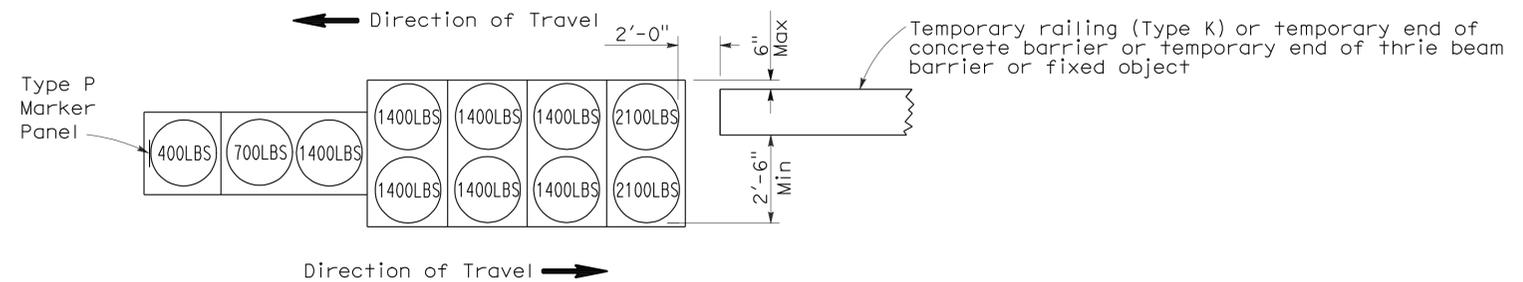
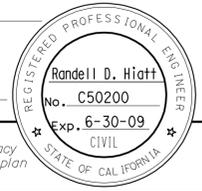
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
02	Sha	299	4.3/5.5	161	188

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

June 6, 2008
PLANS APPROVAL DATE

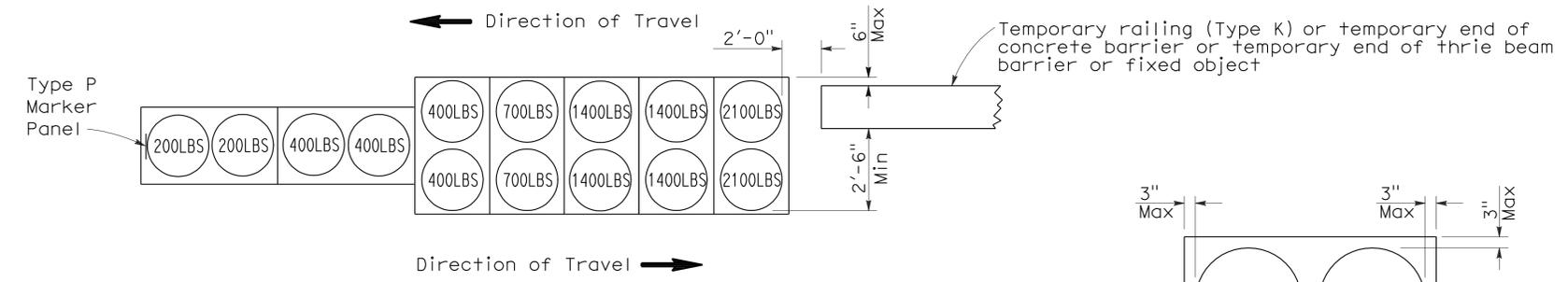
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To accompany plans dated 3-12-12



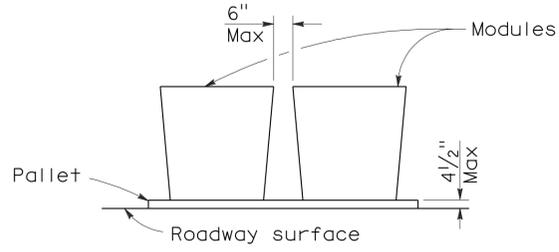
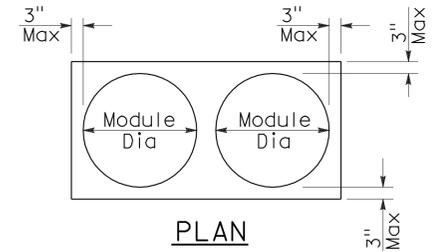
ARRAY 'TB11'

Approach speed less than 45 mph



ARRAY 'TB14'

Approach speed 45 mph or more



CRASH CUSHION PALLET DETAIL
See Note 7

NOTES:

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**TEMPORARY CRASH CUSHION,
SAND FILLED
(BIDIRECTIONAL)**

NO SCALE
RSP T1B DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN T1B
DATED MAY 1, 2006 - PAGE 212 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP T1B

2006 REVISED STANDARD PLAN RSP T1B

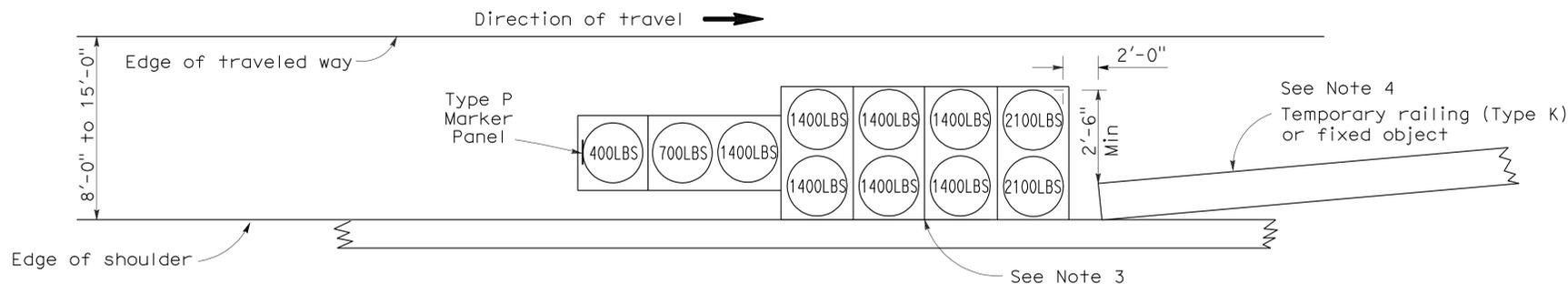
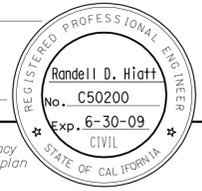
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
02	Sha	299	4.3/5.5	162	188

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

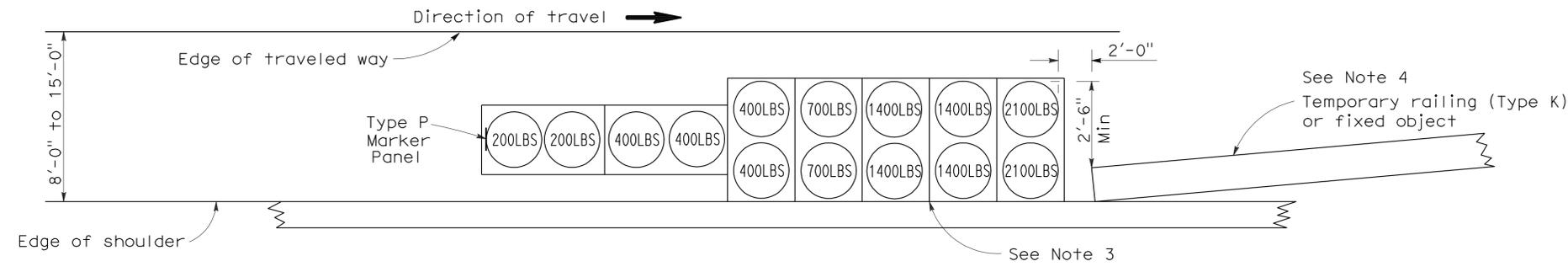
June 6, 2008
PLANS APPROVAL DATE

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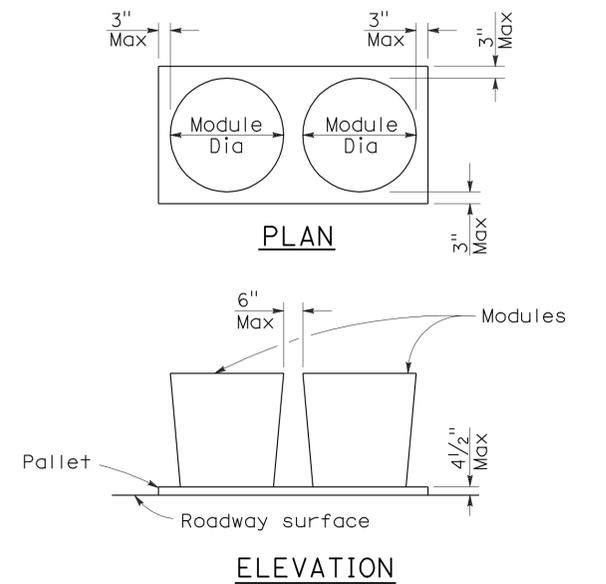
To accompany plans dated 3-12-12



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:

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

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

NO SCALE
RSP T2 DATED JUNE 6, 2008 SUPERSEDES STANDARD PLAN T2
DATED MAY 1, 2006 - PAGE 213 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP T2

2006 REVISED STANDARD PLAN RSP T2

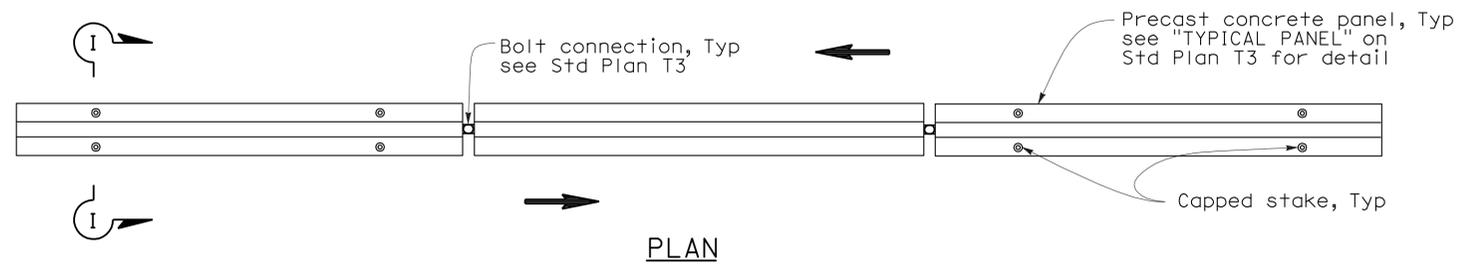
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha	299	4.3/5.5	163	188

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

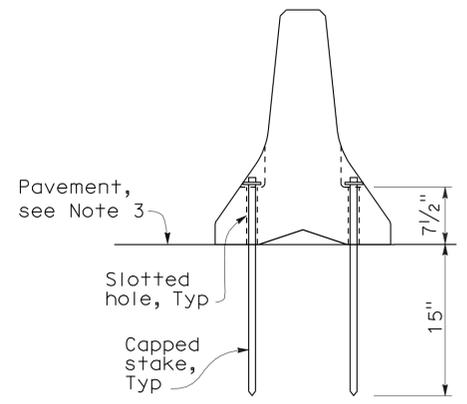
May 20, 2011
PLANS APPROVAL DATE

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

To accompany plans dated 3-12-12



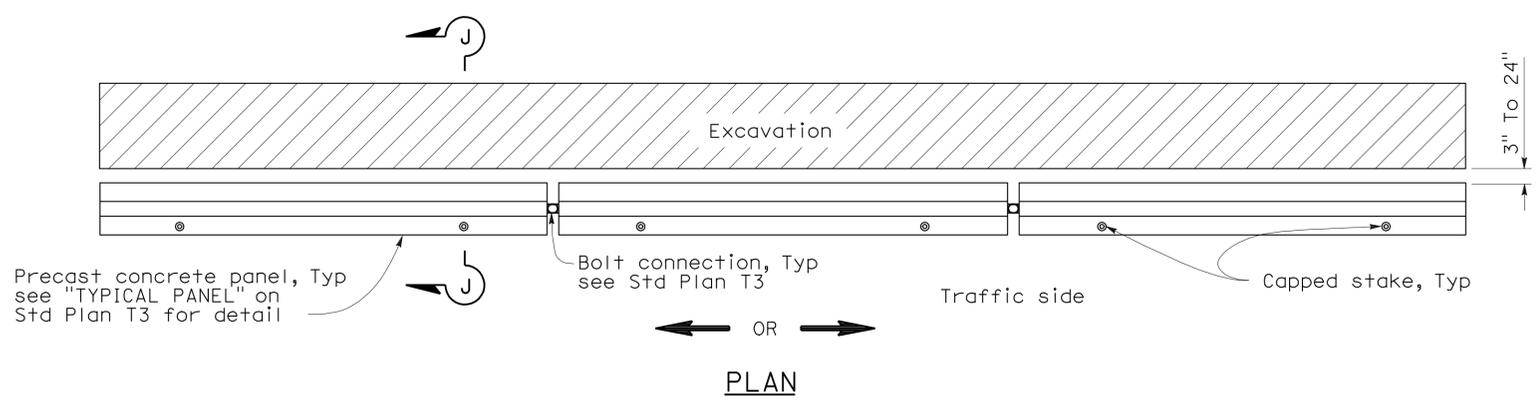
RAILING STAKING CONFIGURATION FOR TWO-WAY TRAFFIC
See Note 1



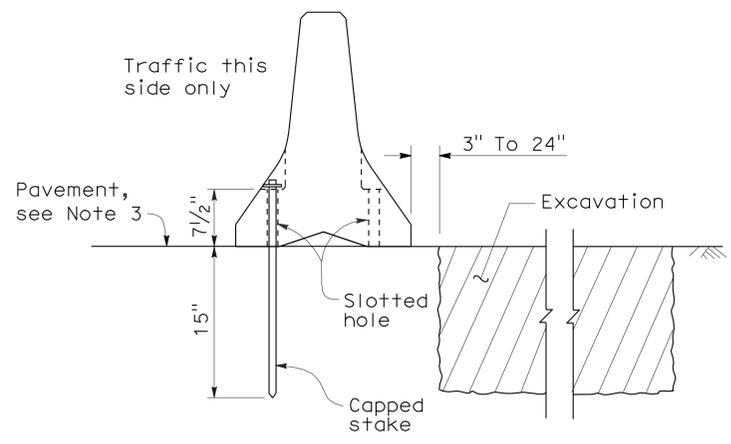
SECTION I-I

NOTES:

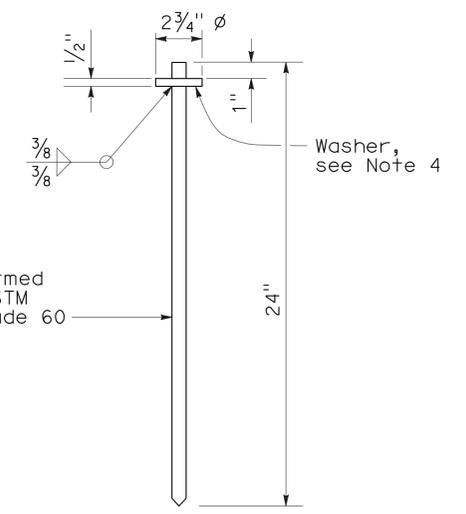
1. Where Type K Temporary Railing is placed as a temporary or long term barrier in two-way traffic on highways with less than 24" from the edge of traveled way, use four capped stakes per every other panel with end panels staked.
2. Where Type K Temporary Railing is placed 3" to 24" from the edge of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



RAILING STAKING CONFIGURATION ADJACENT TO AN EXCAVATION
See Note 2



SECTION J-J



CAPPED STAKE DETAIL

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**TEMPORARY RAILING
(TYPE K)**
NO SCALE

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

NEW STANDARD PLAN NSP T3A

2006 NEW STANDARD PLAN NSP T3A

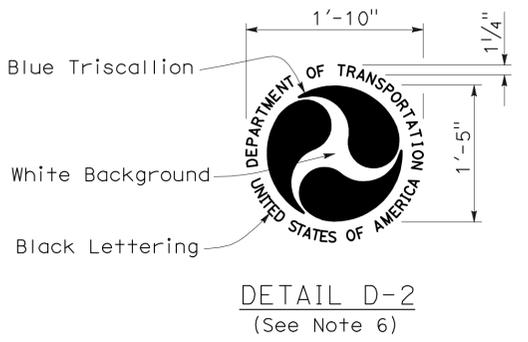
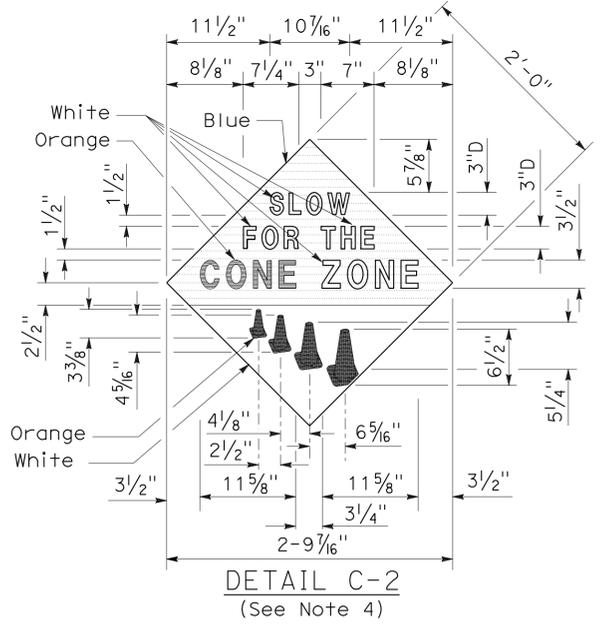
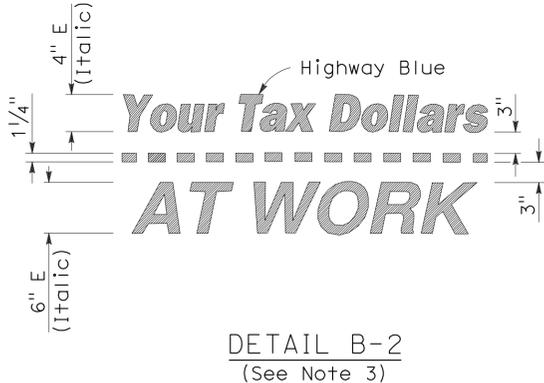
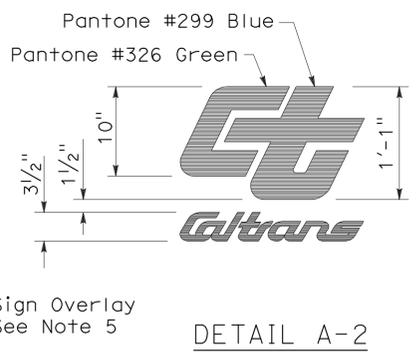
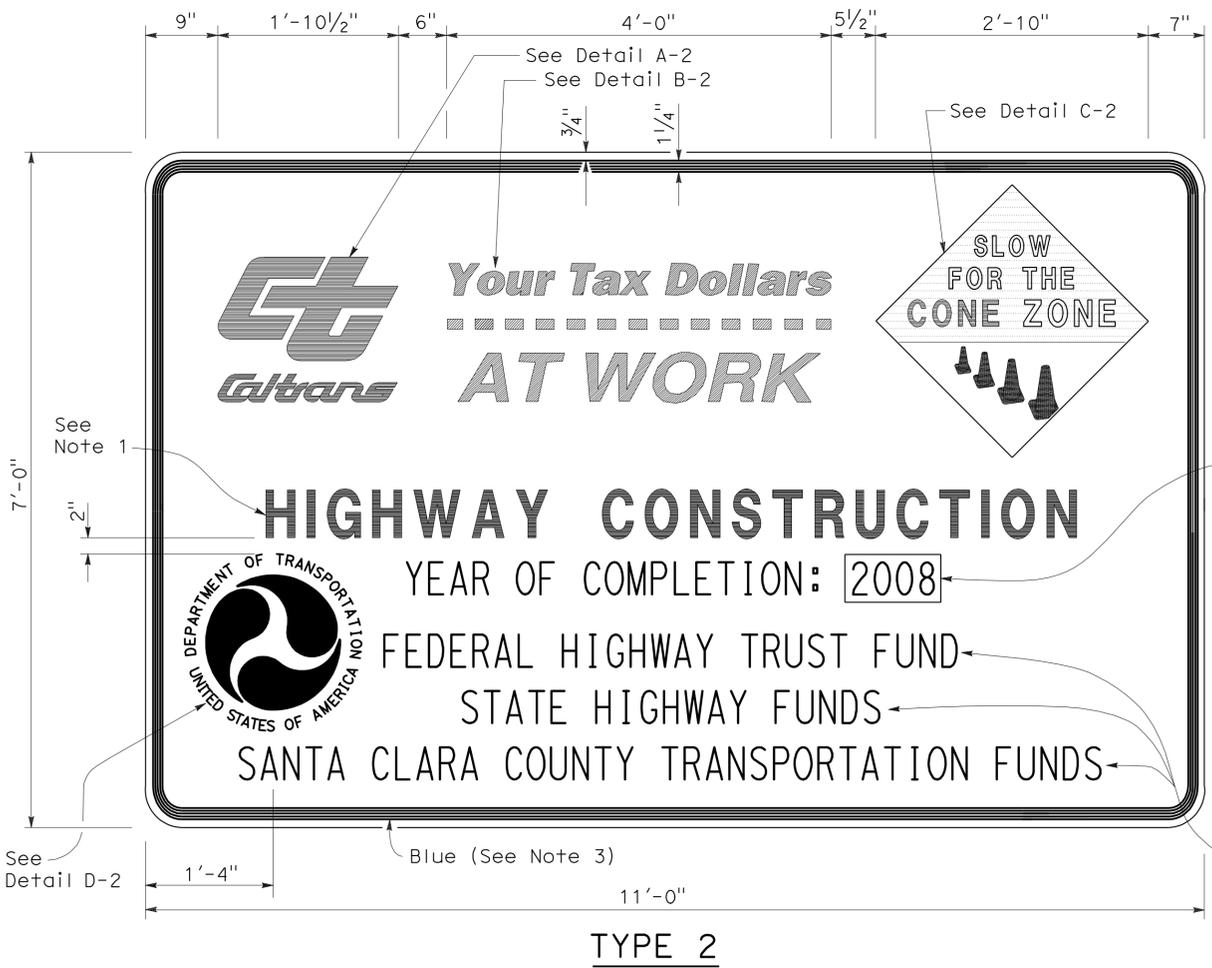
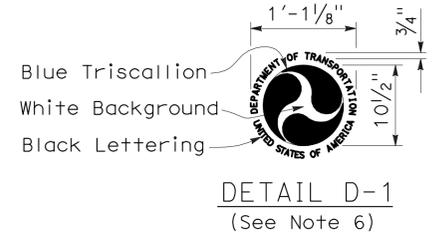
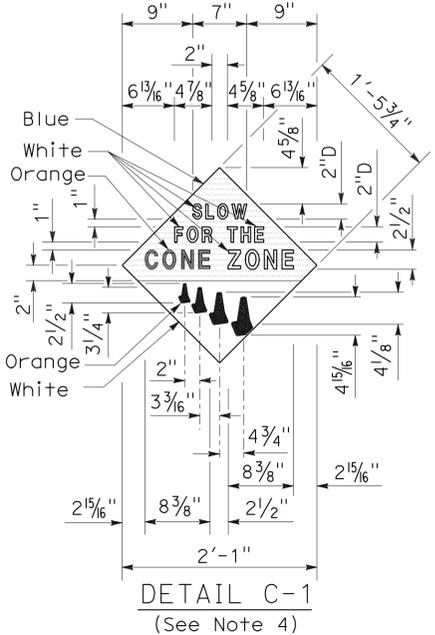
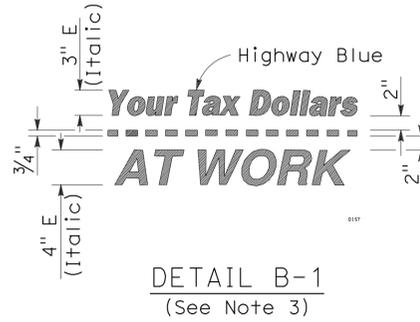
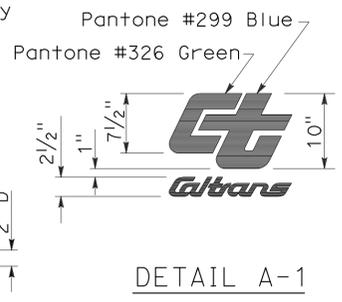
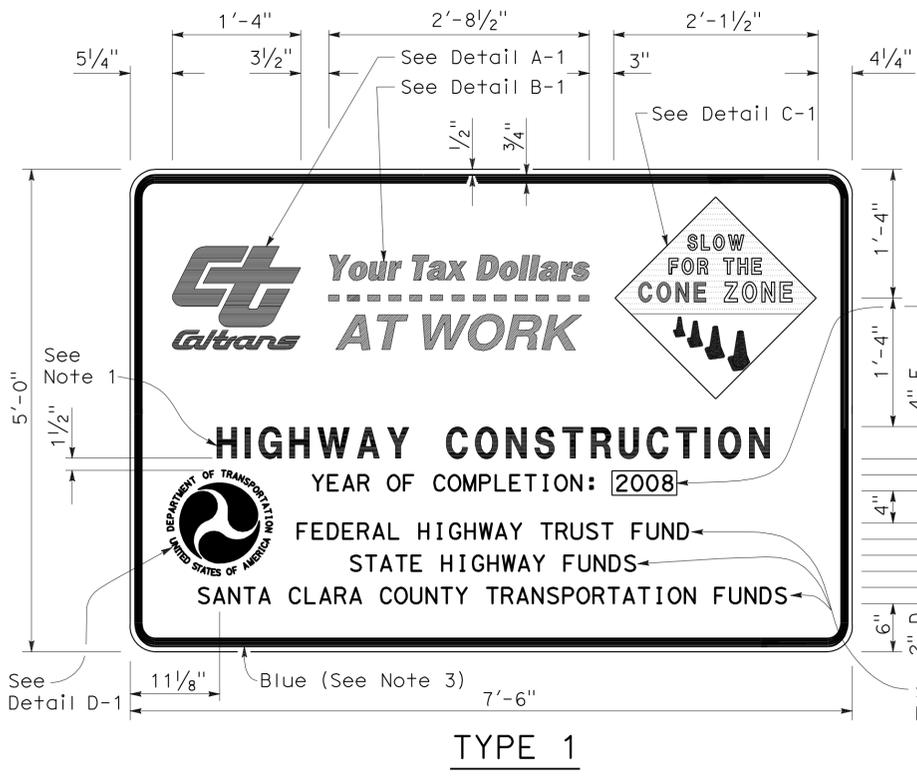
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
02	Sha	299	4.3/5.5	164	188

Greg W. Edwards
 REGISTERED CIVIL ENGINEER
 November 17, 2006
 PLANS APPROVAL DATE
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

To accompany plans dated 3-12-12

NOTES:

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



STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
CONSTRUCTION PROJECT FUNDING IDENTIFICATION SIGNS

NO SCALE

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

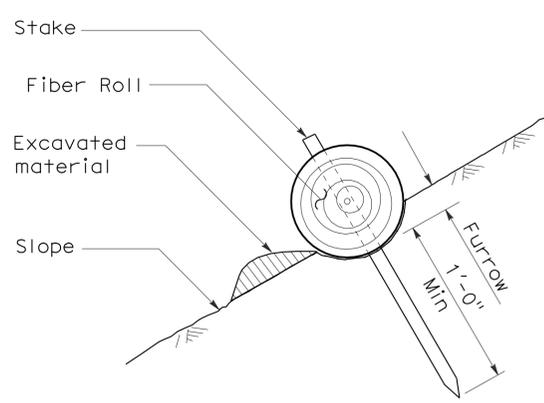
REVISED STANDARD PLAN RSP T7

2006 REVISED STANDARD PLAN RSP T7

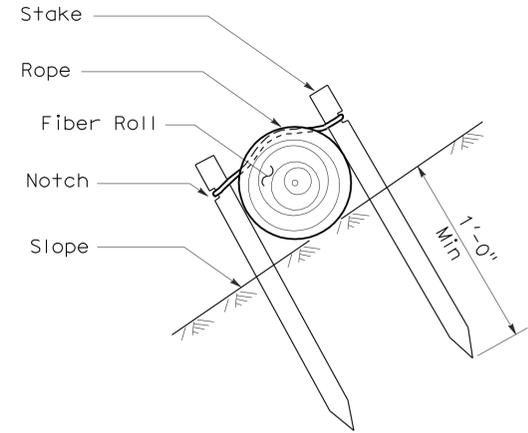
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
02	Sha	299	4.3/5.5	165	188

Robert B. Schott
 LICENSED LANDSCAPE ARCHITECT
 April 3, 2009
 PLANS APPROVAL DATE
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

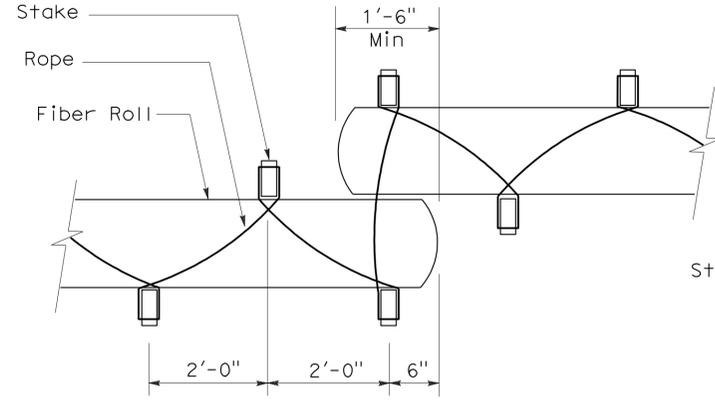
To accompany plans dated 3-12-12



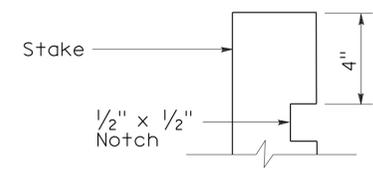
SECTION
TEMPORARY FIBER ROLL (TYPE 1)



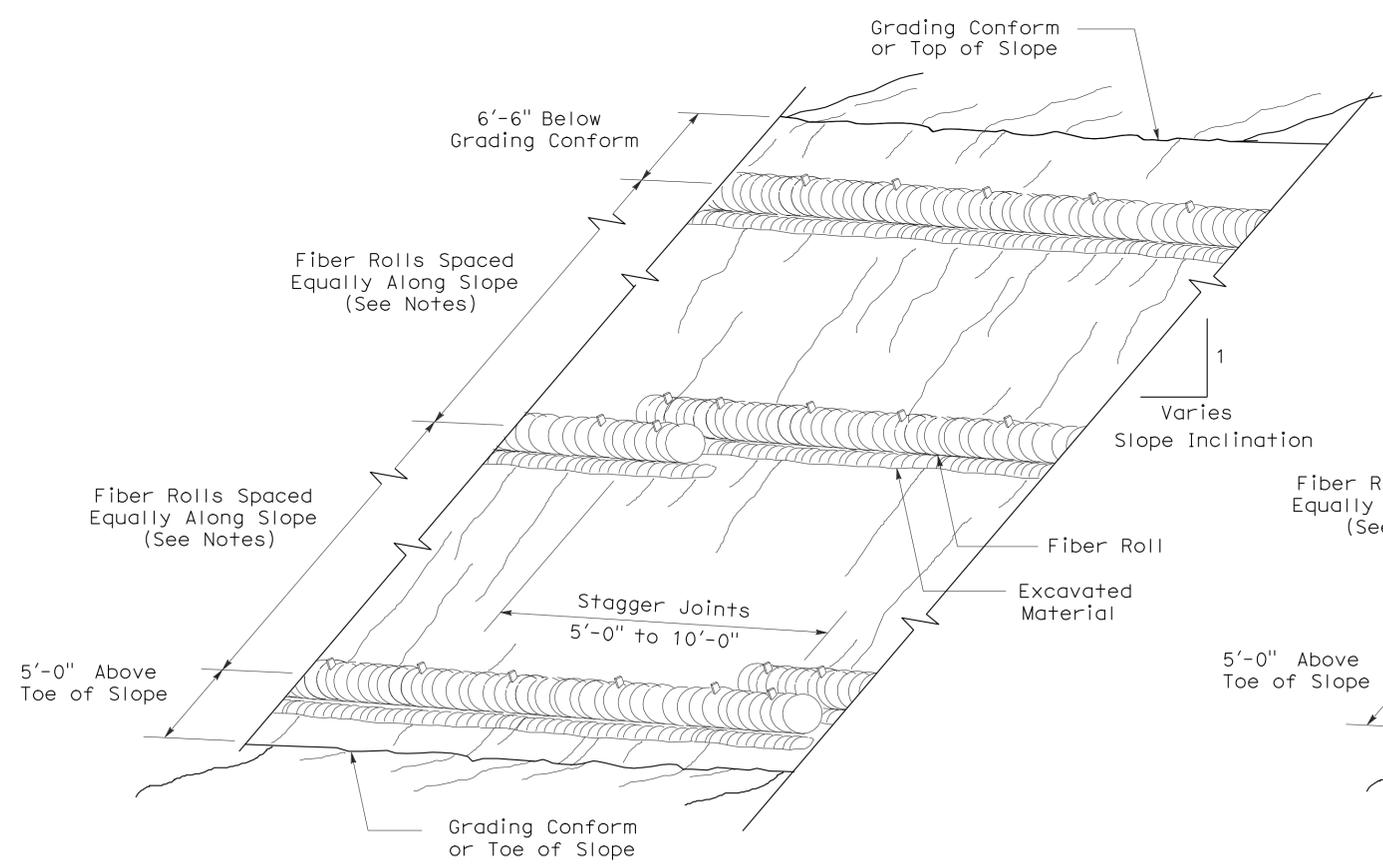
SECTION
TEMPORARY FIBER ROLL (TYPE 2)



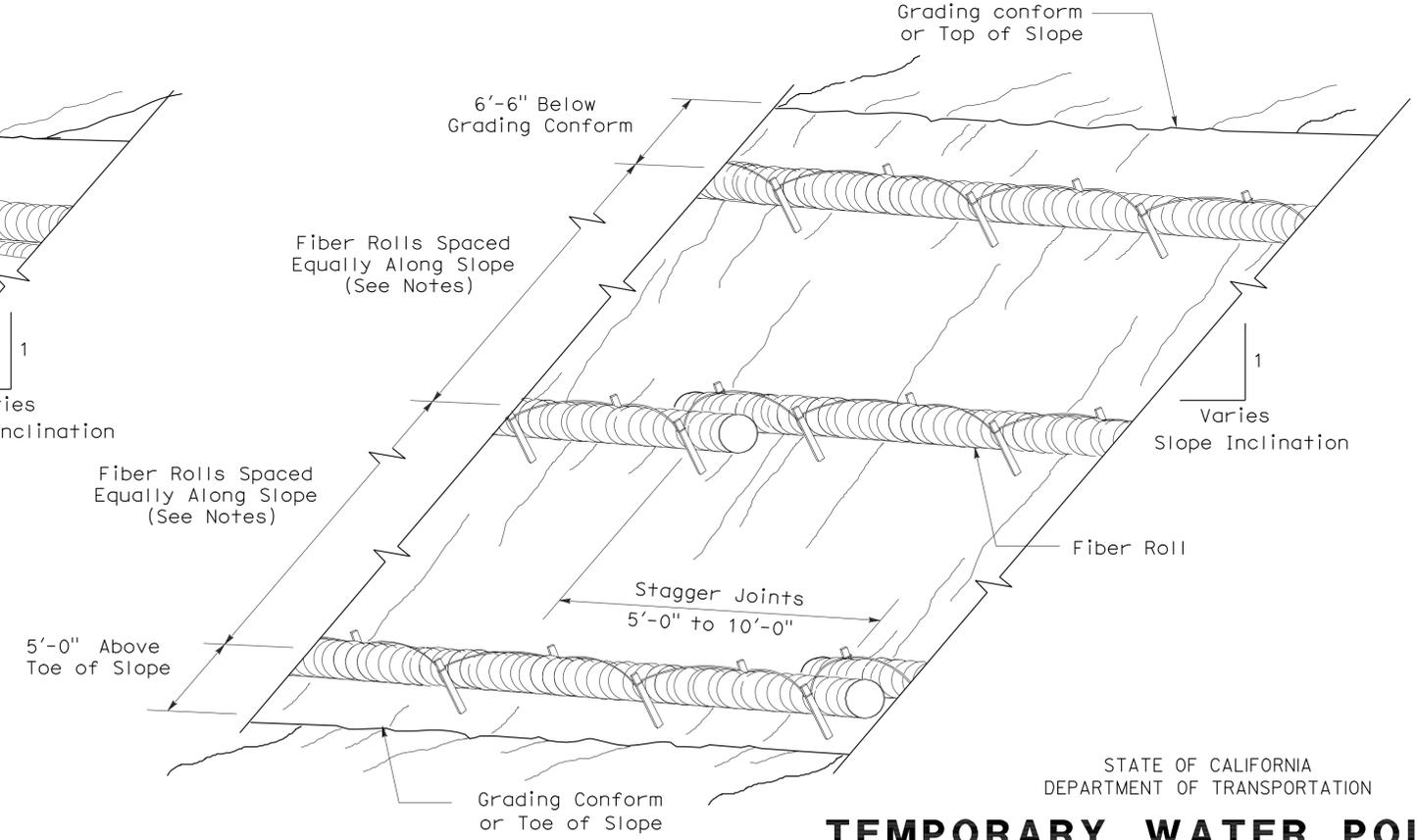
PLAN
ELEVATION
STAKE NOTCH DETAIL



- NOTES:**
1. Temporary fiber roll spacing varies depending upon slope inclination.
 2. Installations shown in the perspectives are for slope inclination of 10:1 and steeper.



PERSPECTIVE
TEMPORARY FIBER ROLL (TYPE 1)



PERSPECTIVE
TEMPORARY FIBER ROLL (TYPE 2)

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION

TEMPORARY WATER POLLUTION CONTROL DETAILS (TEMPORARY FIBER ROLL)

NO SCALE

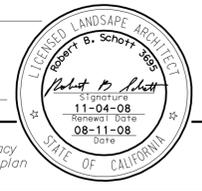
RSP T56 DATED APRIL 3, 2009 SUPERSEDES STANDARD PLAN T56 DATED MAY 1, 2006 - PAGE 232 OF THE STANDARD PLANS BOOK DATED MAY 2006.

REVISED STANDARD PLAN RSP T56

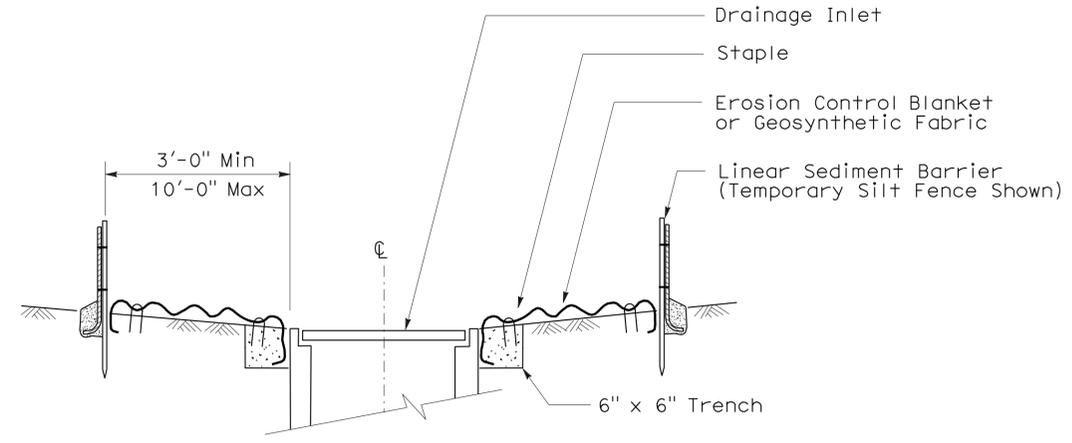
2006 REVISED STANDARD PLAN RSP T56

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
02	Sha	299	4.3/5.5	166	188

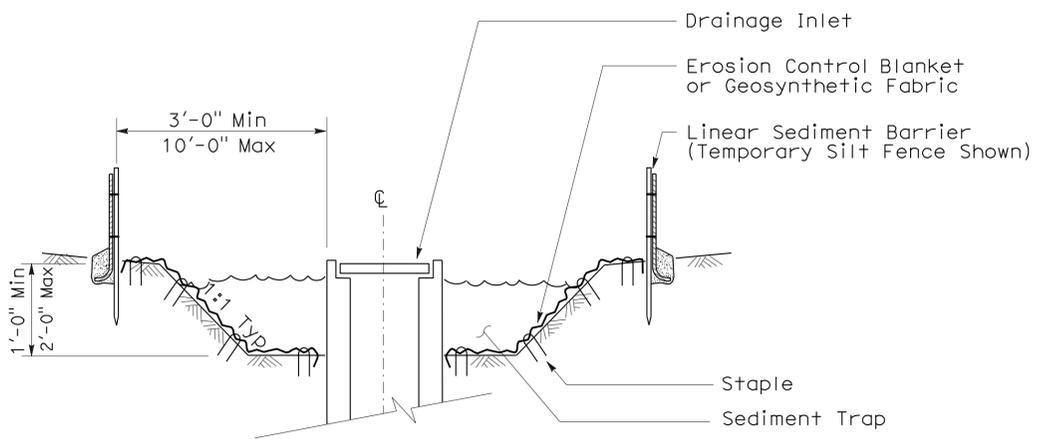
Robert B. Schott
 LICENSED LANDSCAPE ARCHITECT
 August 15, 2008
 PLANS Approval DATE
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.



To accompany plans dated 3-12-12

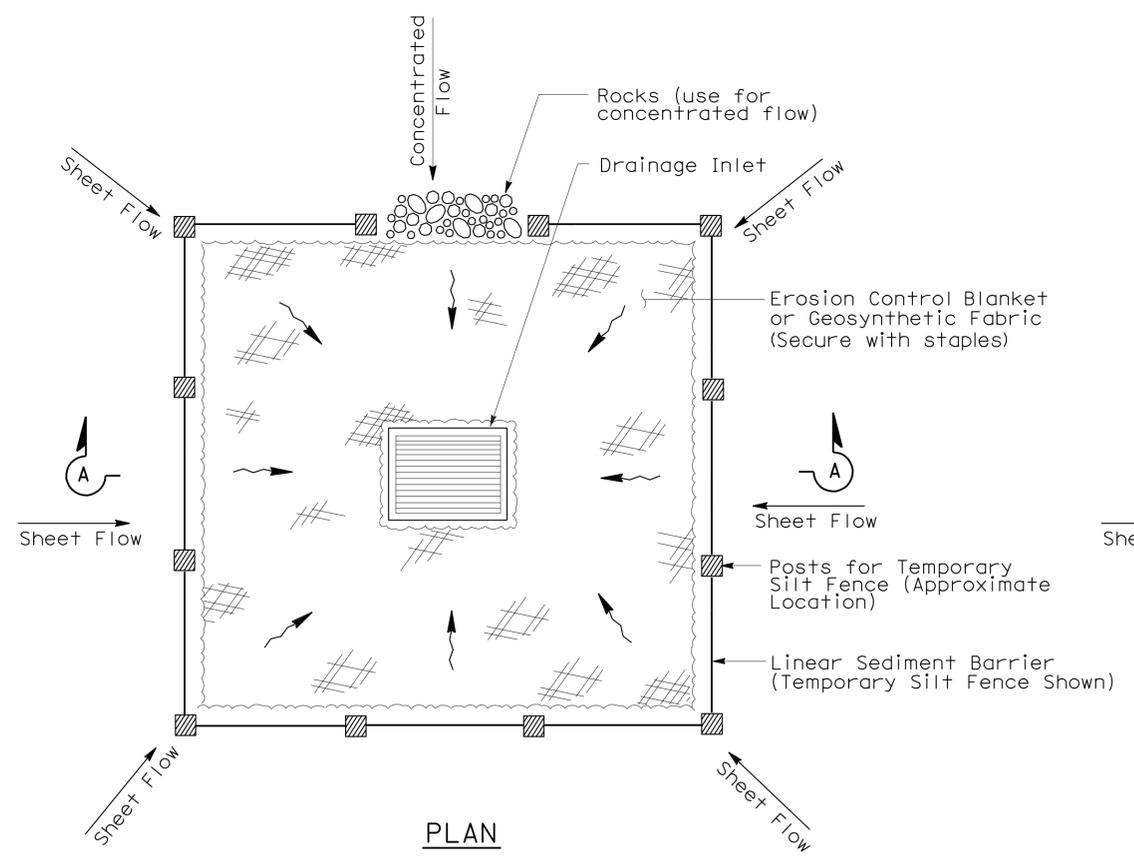


SECTION A-A

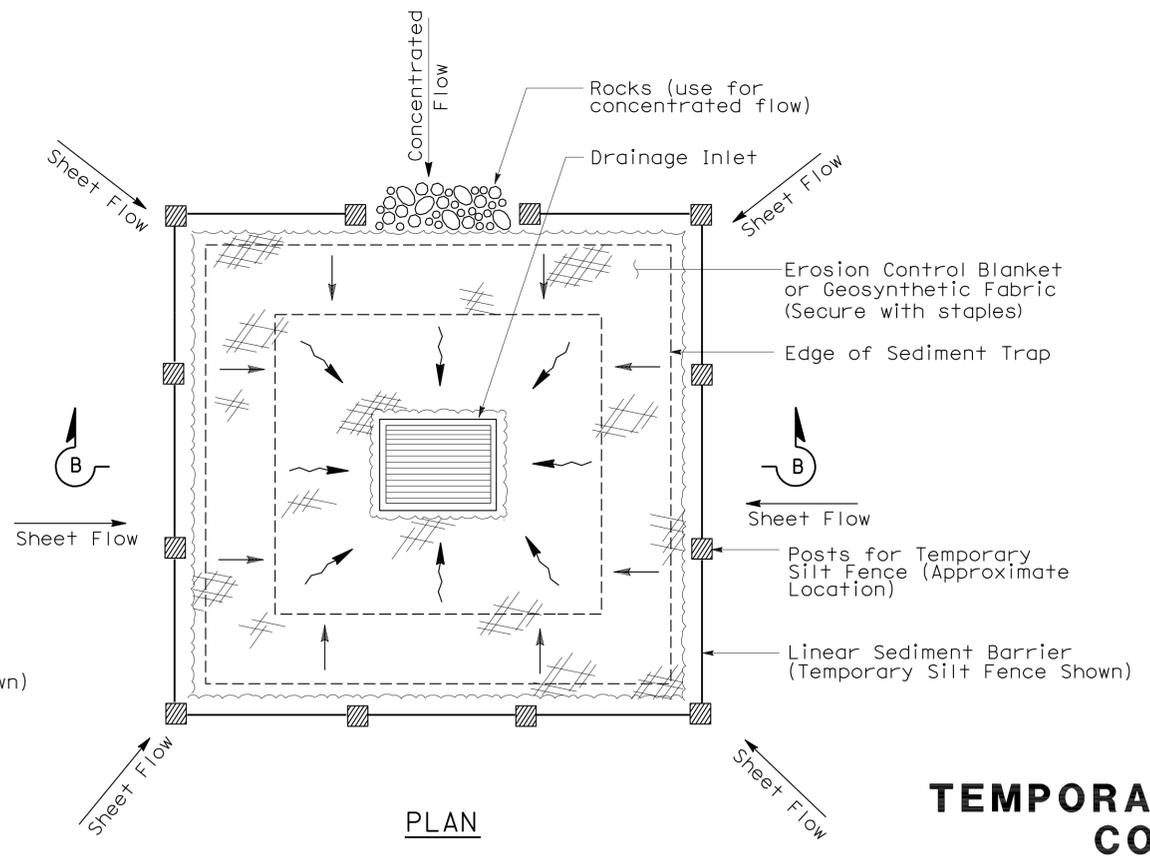


SECTION B-B

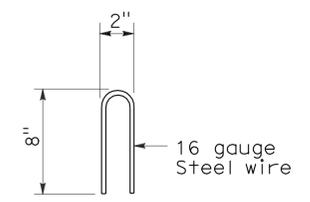
- NOTES:**
1. See Standard Plan T51 for Temporary Silt Fence.
 2. Dimensions may vary to fit field conditions.



TEMPORARY DRAINAGE INLET PROTECTION (TYPE 1)



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

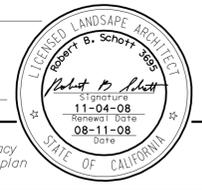


STAPLE DETAIL

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

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

2006 NEW STANDARD PLAN NSP T61

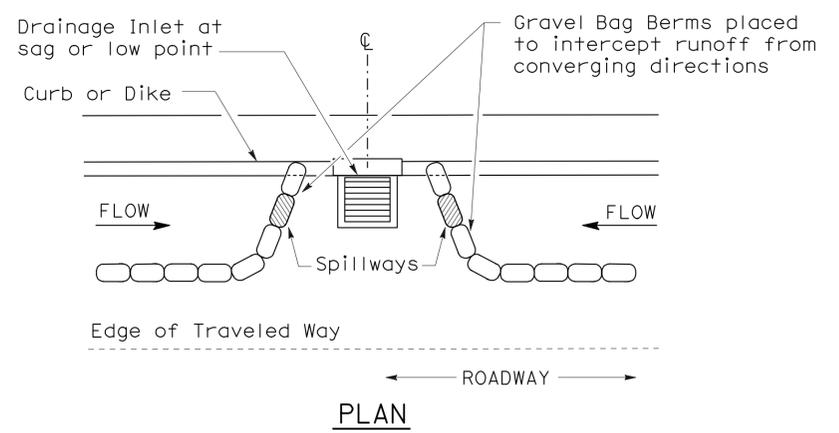


To accompany plans dated 3-12-12

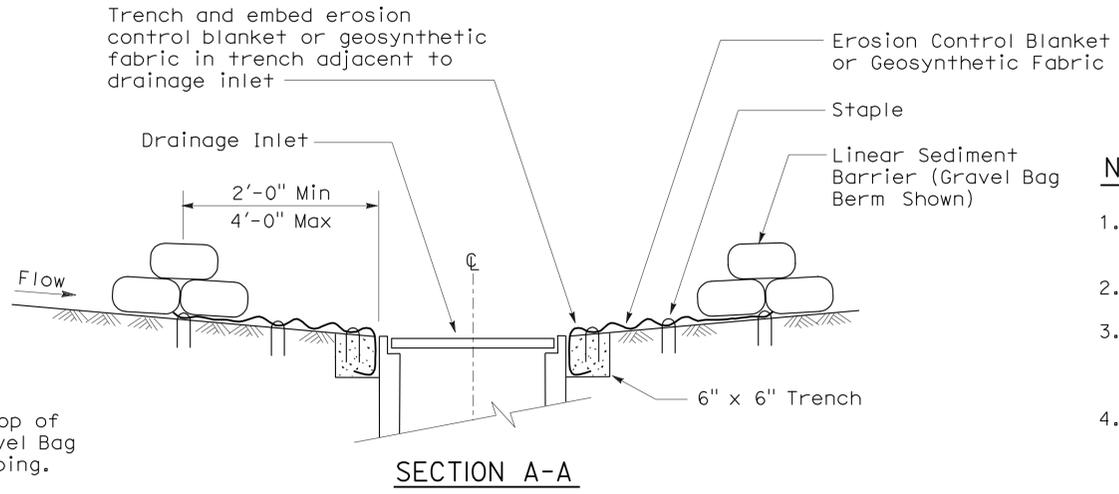
GRAVEL BAG BERM (TYPE 3A) SPACING TABLE

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

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



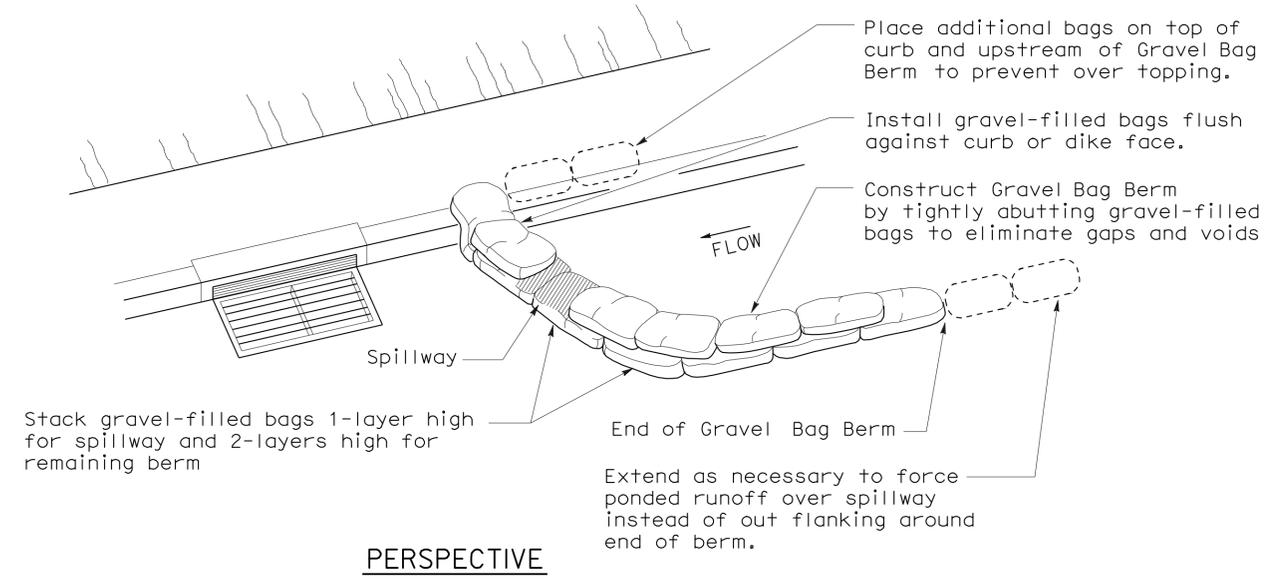
PLAN
CONFIGURATION FOR SAG POINT INLET (GRAVEL BAG BERM)



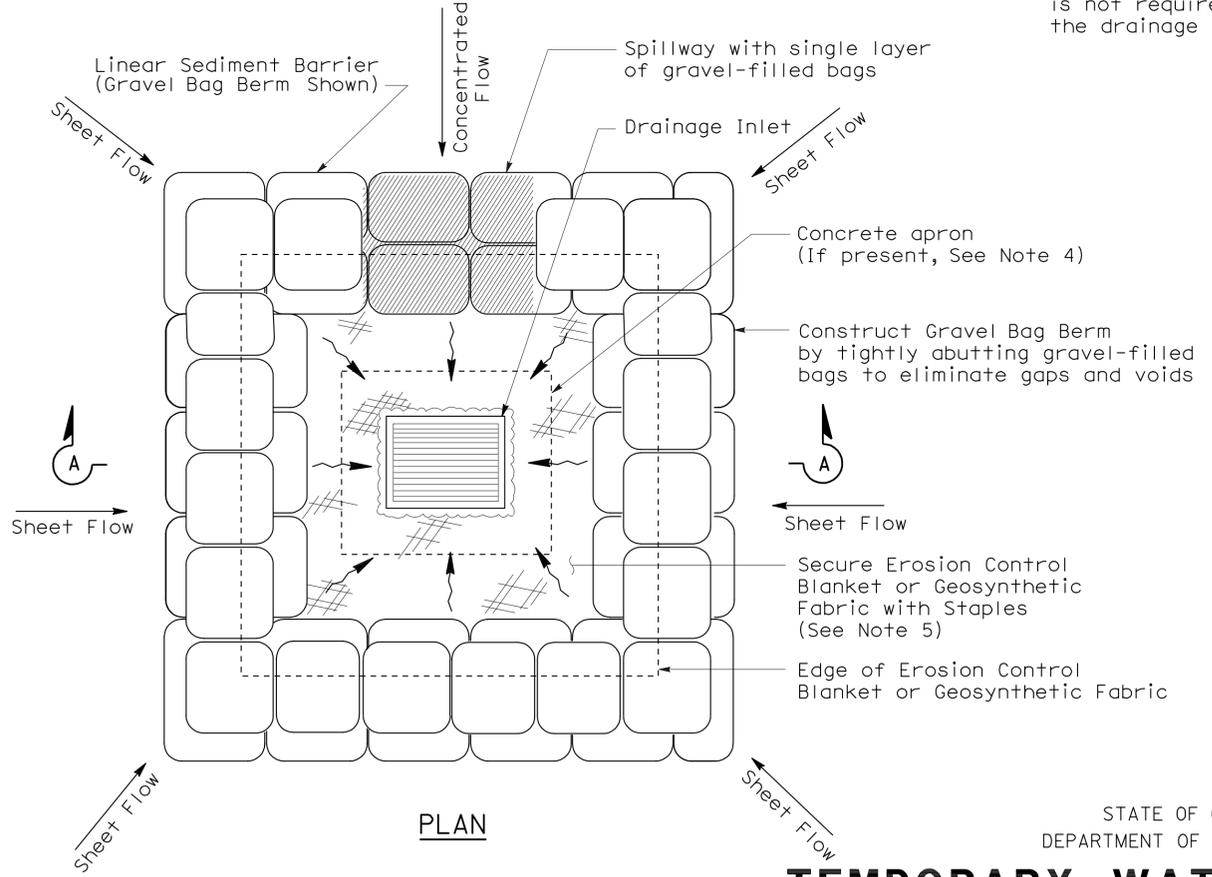
SECTION A-A

NOTES:

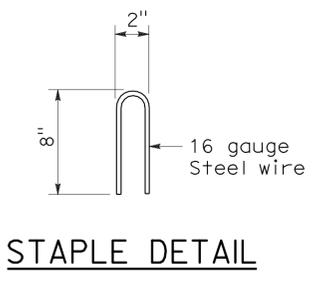
1. Place safety cones adjacent to drainage inlet protection.
2. Dimensions may vary to fit field conditions.
3. Install a minimum of 3 gravel bag berms upstream of each drainage inlet to be protected.
4. Position erosion control blanket or geosynthetic fabric at edge of concrete apron and secure in trench.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



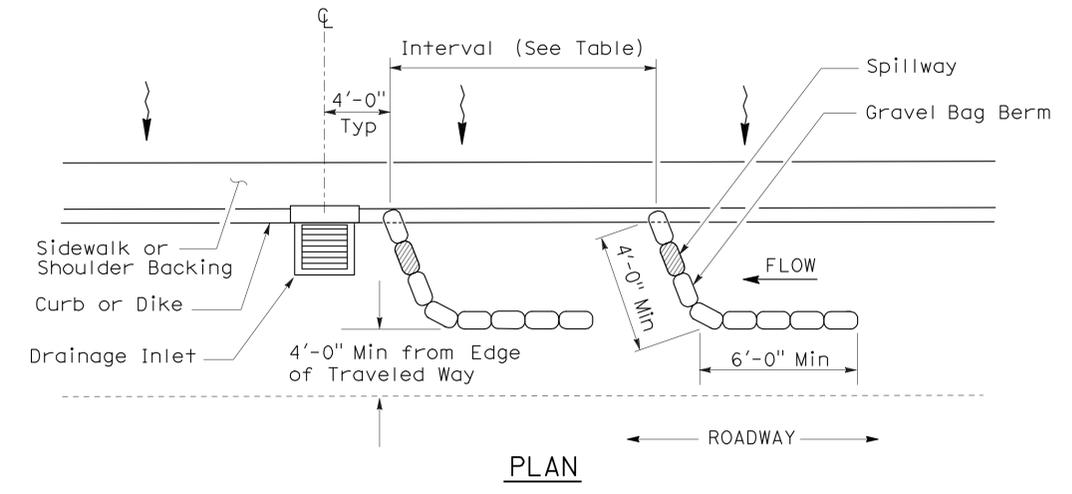
PERSPECTIVE



PLAN
TEMPORARY DRAINAGE INLET PROTECTION (TYPE 3B)



STAPLE DETAIL



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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
TEMPORARY WATER POLLUTION CONTROL DETAILS (TEMPORARY DRAINAGE INLET PROTECTION)

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

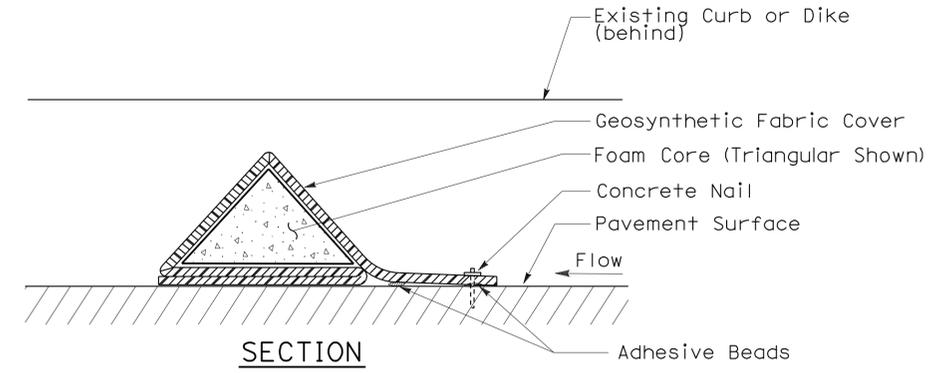
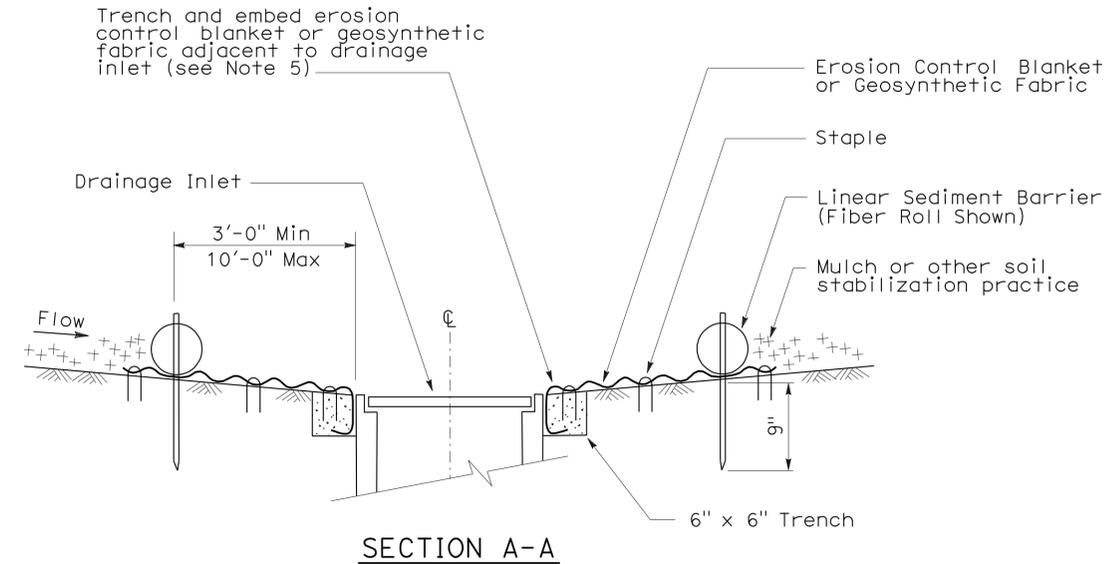
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
02	Sha	299	4.3/5.5	168	188

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

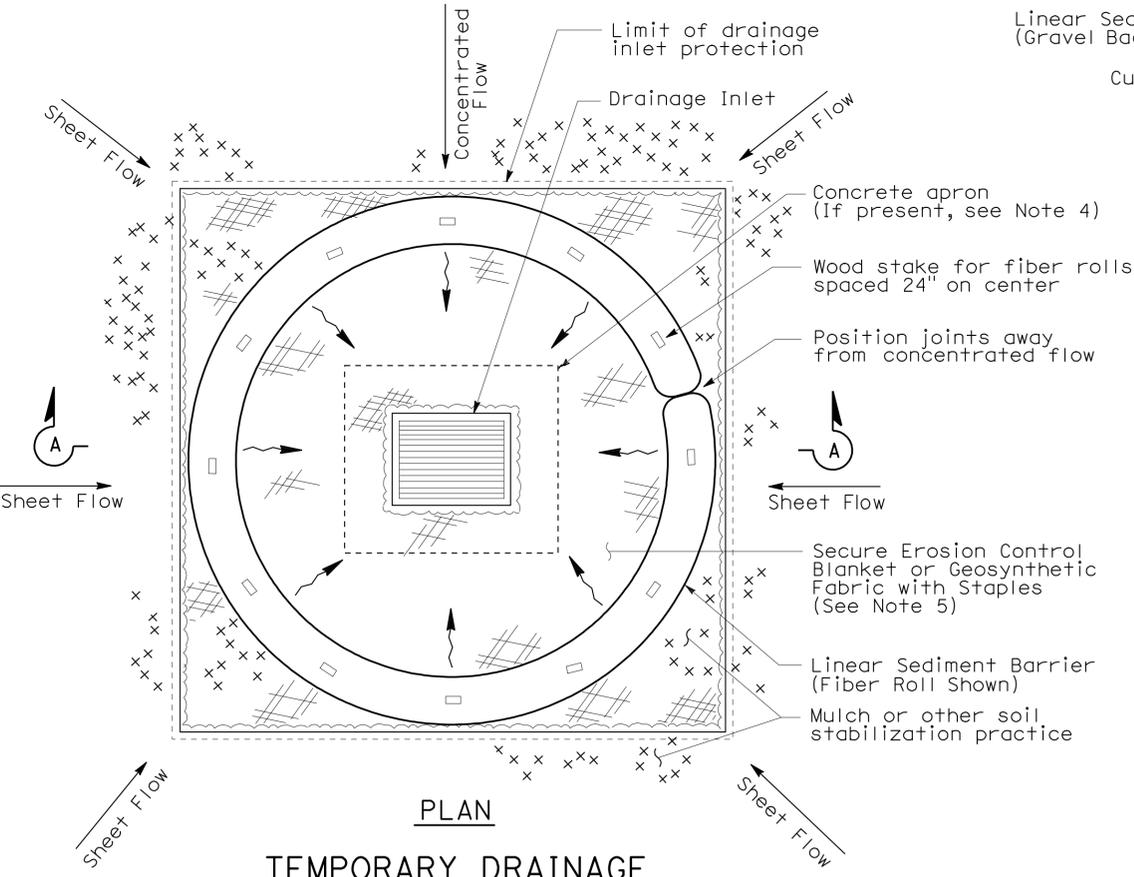
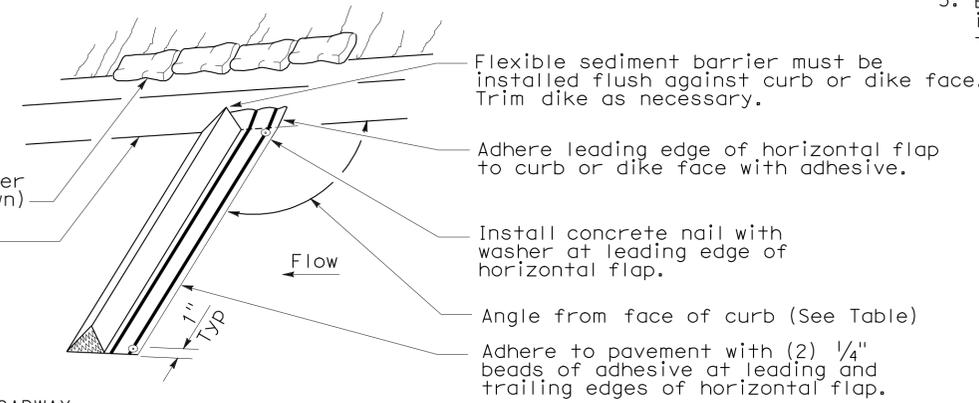
To accompany plans dated 3-12-12

FLEXIBLE SEDIMENT BARRIER SPACING TABLE

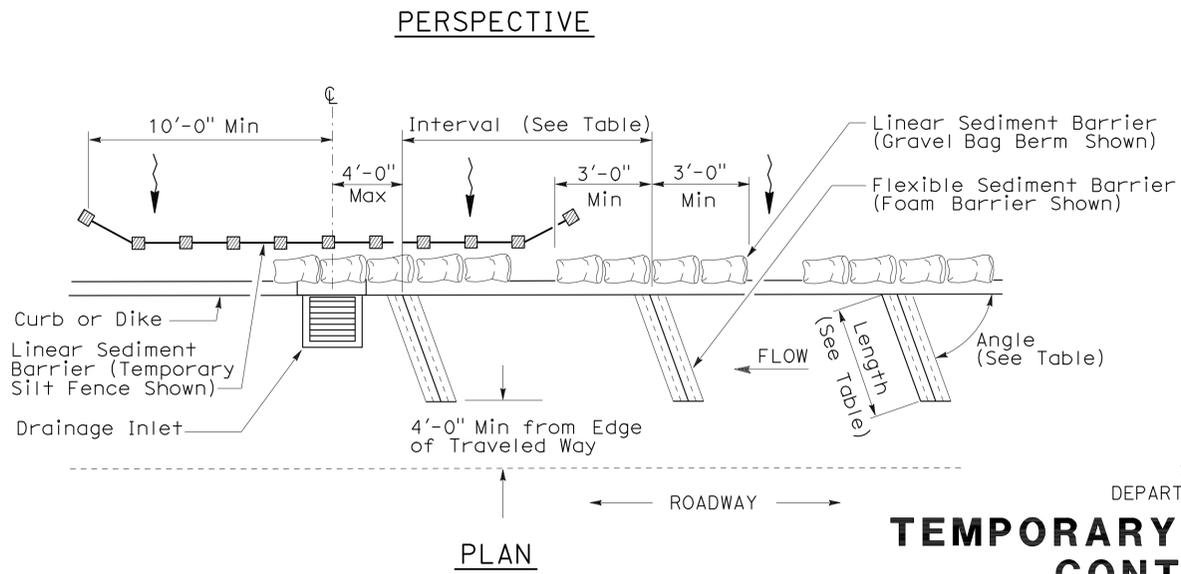
SLOPE OF ROADWAY (PERCENT)	0 to 0.9	1 to 1.9	2 to 2.9	3 to 4	5+
INTERVAL BETWEEN BARRIERS	50'	35'	30'	25'	20'
ANGLE FROM FACE OF CURB	70°	70°	70°	45°	45°
SUGGESTED BARRIER LENGTH	6'	6'	6'	6'	6'



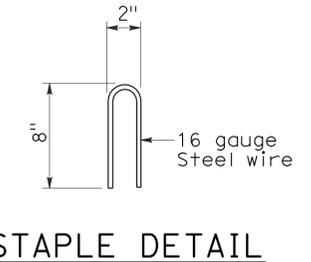
FLEXIBLE SEDIMENT BARRIER DETAIL (FOAM BARRIER SHOWN)



TEMPORARY DRAINAGE INLET PROTECTION (TYPE 4A)



TEMPORARY DRAINAGE INLET PROTECTION (TYPE 4B) FLEXIBLE SEDIMENT BARRIER



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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TEMPORARY WATER POLLUTION CONTROL DETAILS (TEMPORARY DRAINAGE INLET PROTECTION)

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

NEW STANDARD PLAN NSP T63

2006 NEW STANDARD PLAN NSP T63

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
02	Sha	299	4.3/5.5	169	188

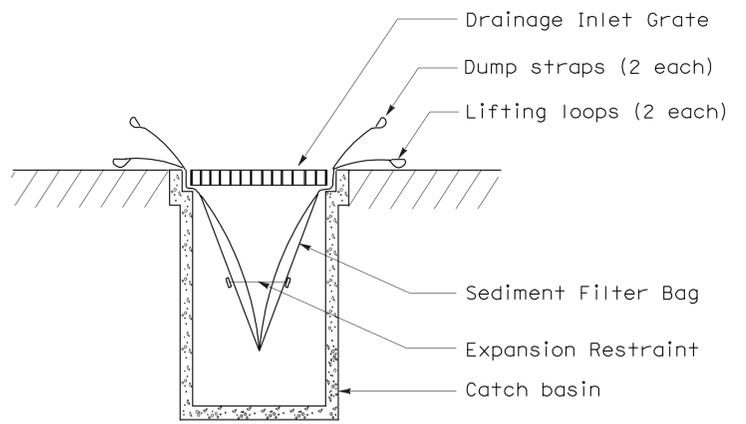
Robert B. Schott
 LICENSED LANDSCAPE ARCHITECT

August 15, 2008
 PLANS APPROVAL DATE

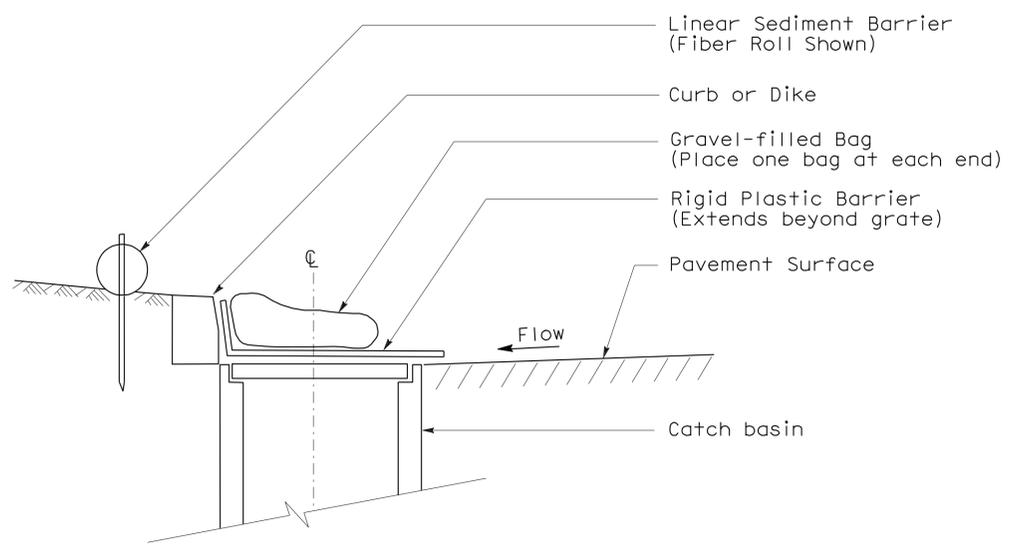
Robert B. Schott
 LICENSED LANDSCAPE ARCHITECT
 Signature
 11-04-08
 Renewal Date
 08-11-08
 Date

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

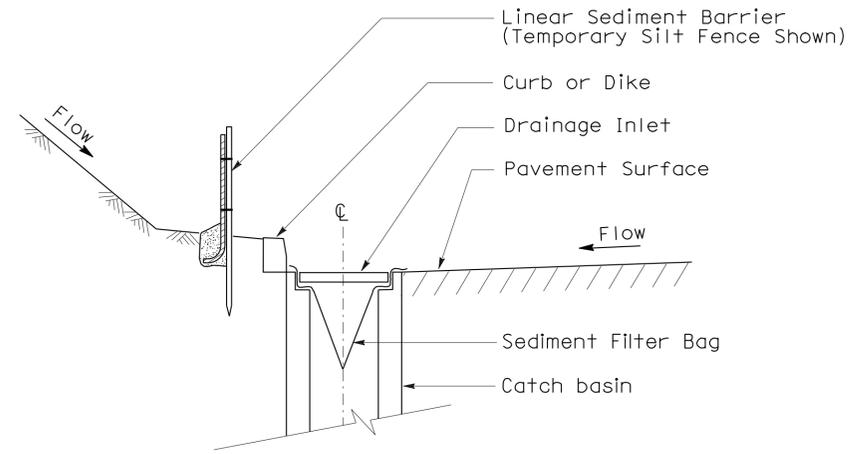
To accompany plans dated 3-12-12



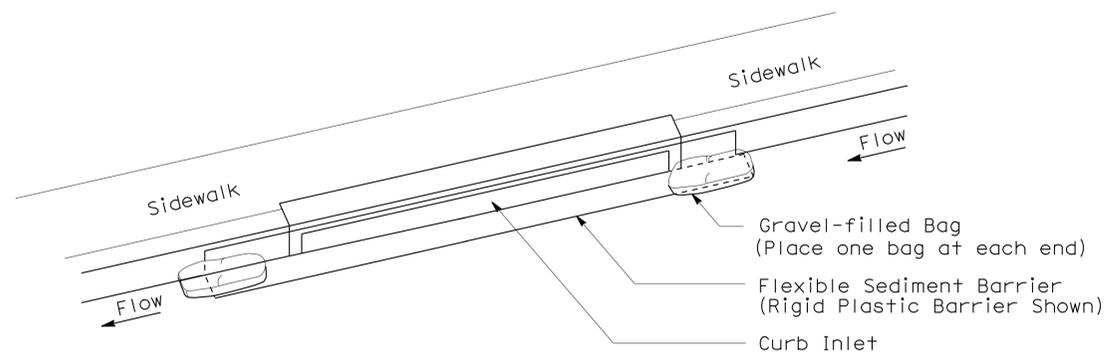
SECTION B-B
SEDIMENT FILTER BAG DETAIL



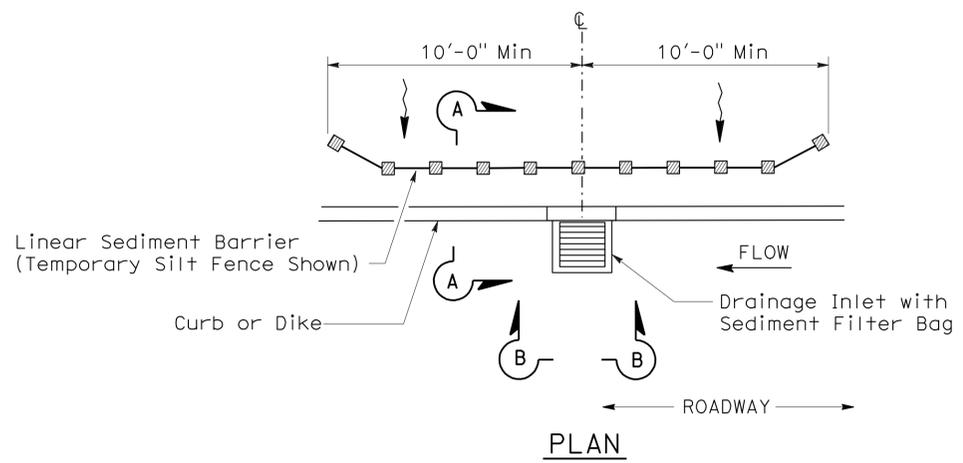
SECTION
TEMPORARY DRAINAGE
INLET PROTECTION (TYPE 6A)
(CATCH BASIN WITH GRATE)



SECTION A-A



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



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

NOTES:

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

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION

TEMPORARY WATER POLLUTION
CONTROL DETAILS
(TEMPORARY DRAINAGE
INLET PROTECTION)

NO SCALE

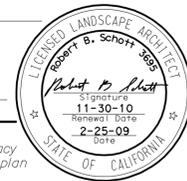
NSP T64 DATED AUGUST 15, 2008 SUPPLEMENTS
 THE STANDARD PLANS BOOK DATED MAY 2006.

NEW STANDARD PLAN NSP T64

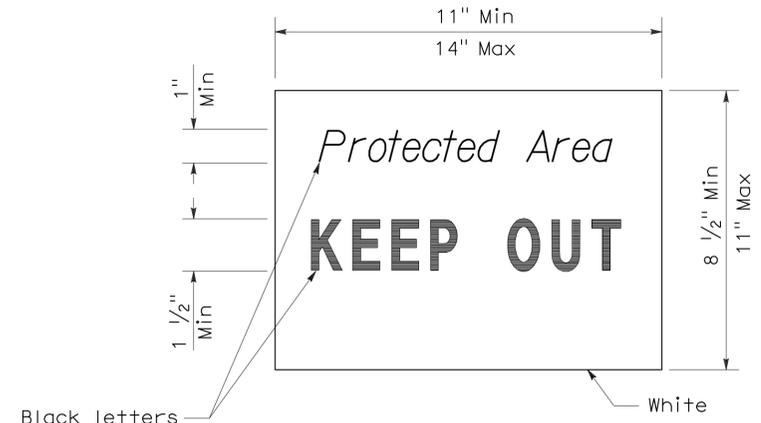
2006 NEW STANDARD PLAN NSP T64

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
02	Sha	299	4.3/5.5	170	188

Robert B. Schott
 LICENSED LANDSCAPE ARCHITECT
 April 3, 2009
 PLANS APPROVAL DATE
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.



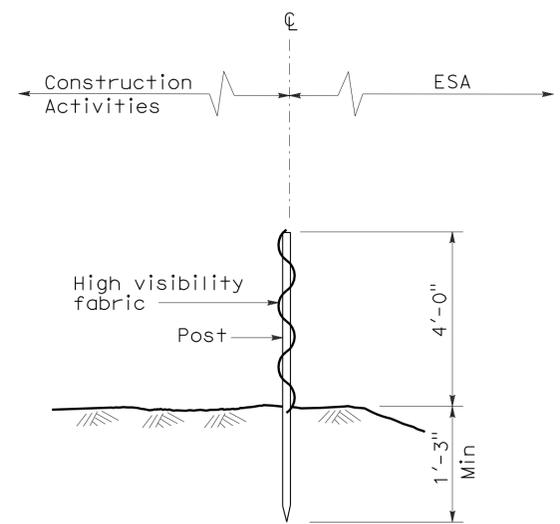
To accompany plans dated 3-12-12



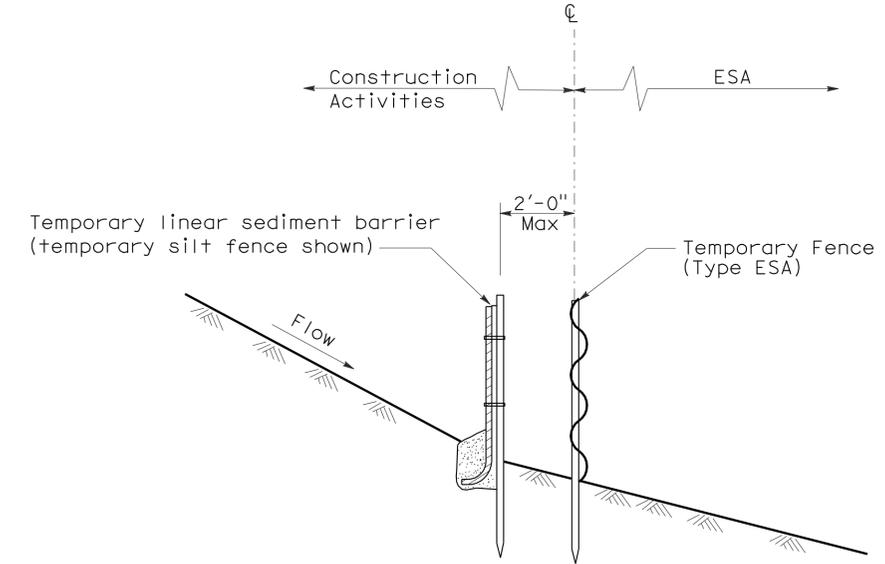
SIGN DETAIL

NOTE:

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

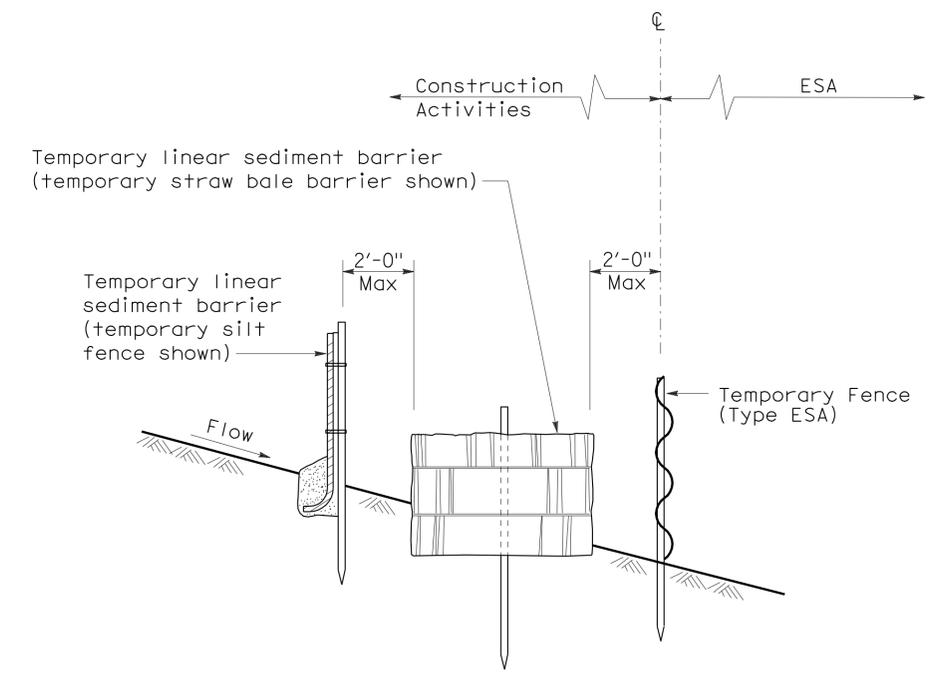


SECTION TEMPORARY FENCE (TYPE ESA)



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

(See Note 1)



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

(See Note 1)

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

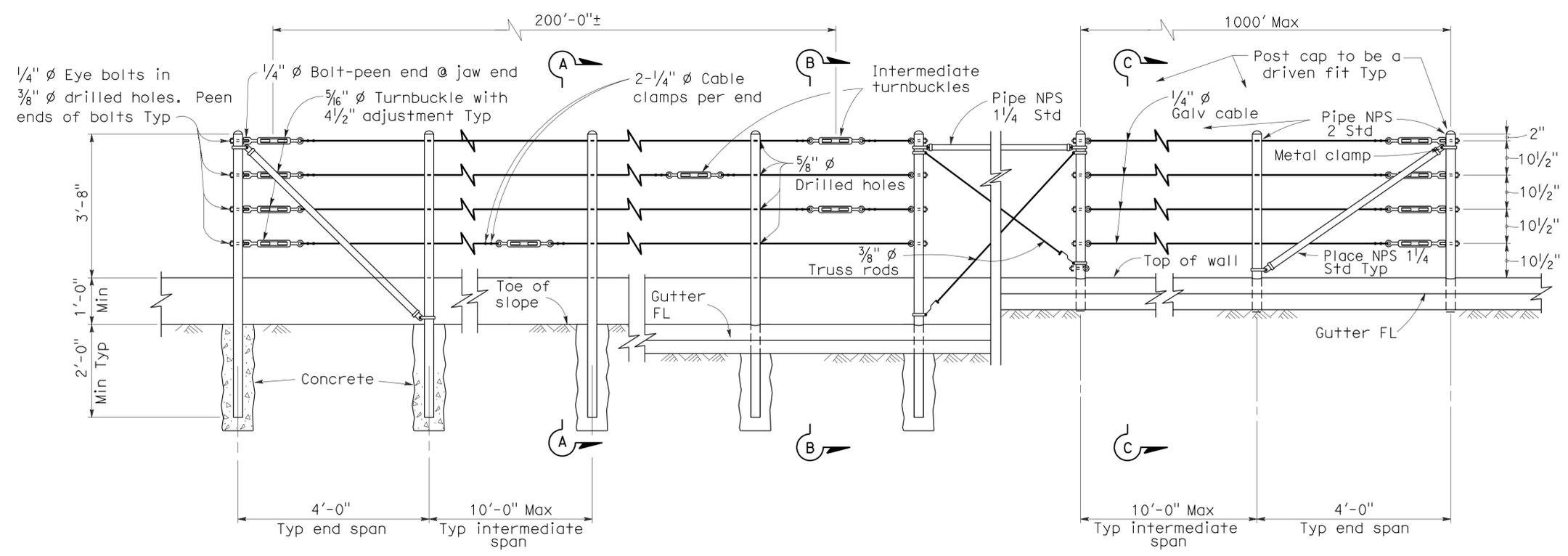
NSP T65 DATED APRIL 3, 2009 SUPPLEMENTS THE STANDARD PLANS BOOK DATED MAY 2006.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
02	Sha	299	4.3/5.5	171	188

REGISTERED CIVIL ENGINEER		
October 21, 2011		
PLANS APPROVAL DATE		

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

To accompany plans dated 3-12-12

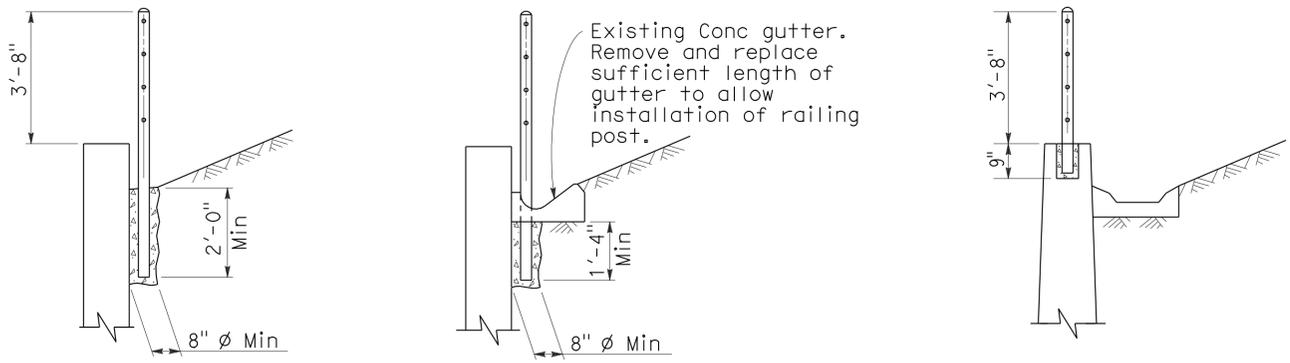


EXISTING WALL (WITHOUT GUTTER) Existing **RETAINING WALL (WITH GUTTER)** Existing **RETAINING WALL (WITH GUTTER)** New construction

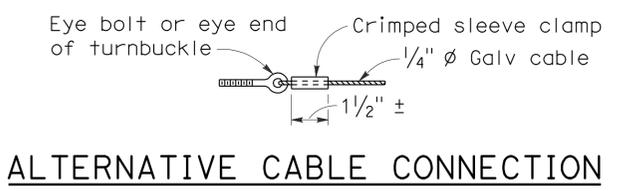
ELEVATION

NOTES:

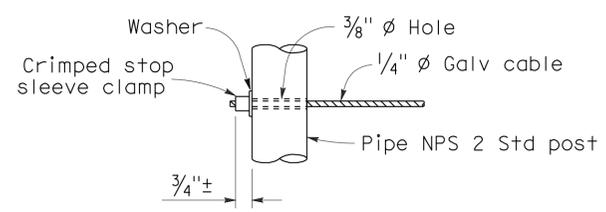
- Maximum distance between turnbuckles shall be 200'-0"±.
- Intermediate turnbuckles to be placed in adjacent spans.
- Cable shall not be spliced between intermediate turnbuckles and end posts.
- All posts, cable, and hardware to be galvanized.
- Posts to be vertical.
- Alignment of holes in posts may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



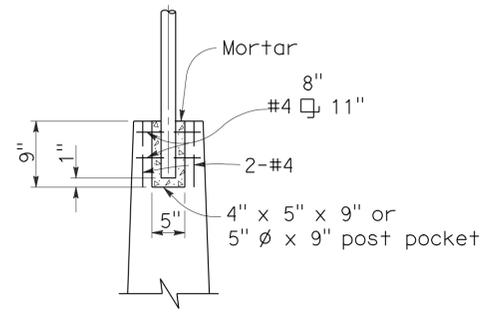
SECTION A-A Existing **SECTION B-B** Existing **SECTION C-C** New construction



ALTERNATIVE CABLE CONNECTION



ALTERNATIVE DEAD END ANCHORAGE



POST POCKET

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
CABLE RAILING

NO SCALE

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

REVISED STANDARD PLAN RSP B11-47

2006 REVISED STANDARD PLAN RSP B11-47

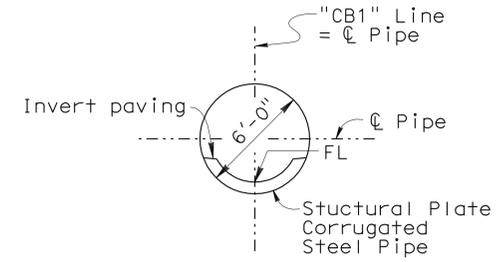
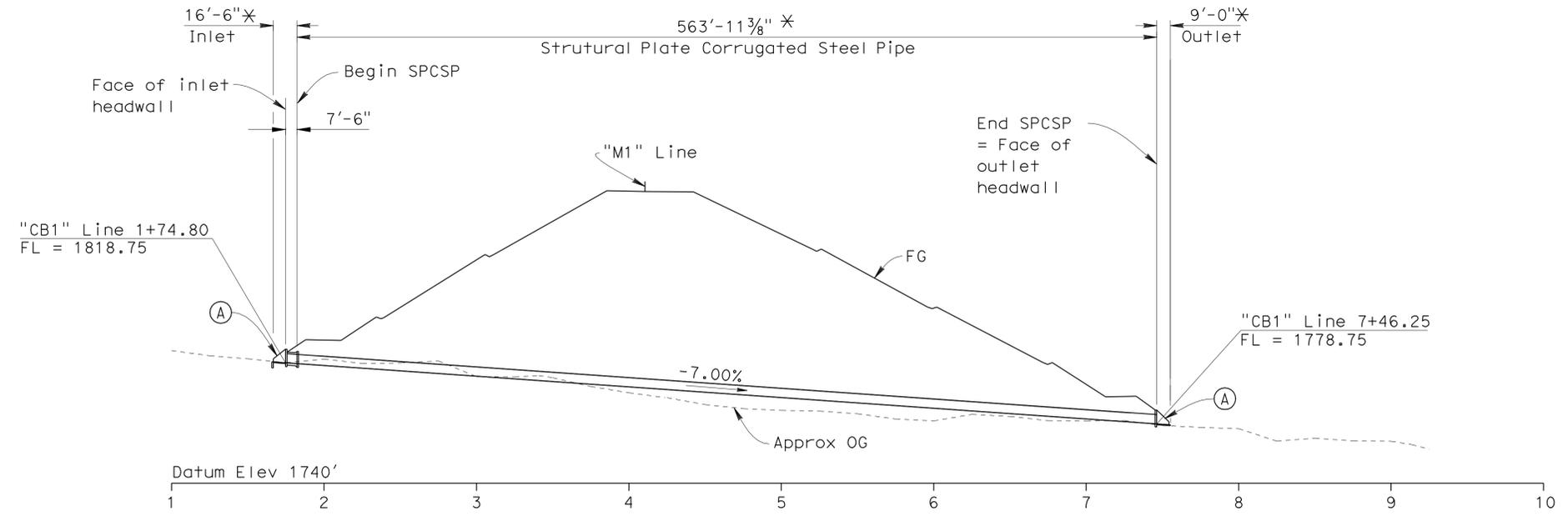
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha	299	4.3/5.5	172	188

Mande Kodsuntie
REGISTERED CIVIL ENGINEER DATE 11/29/11

3-12-12
PLANS APPROVAL DATE

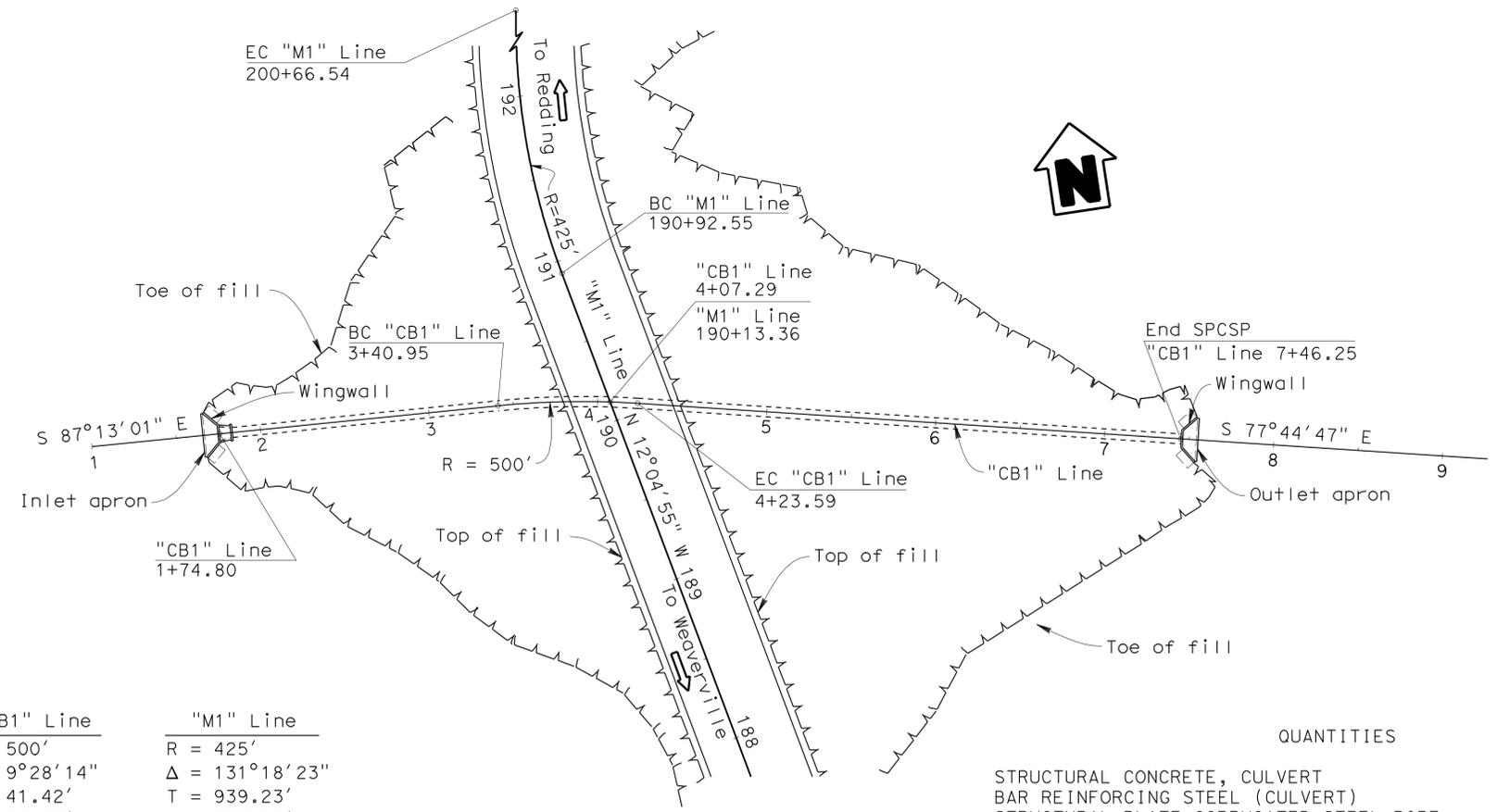
M. Kodsuntie
No. C56671
Exp. 6-30-13
CIVIL
STATE OF CALIFORNIA

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INDEX TO PLANS

Sheet No.	Title
1.	General Plan
2.	Foundation Plan No. 1
3.	Foundation Plan No. 2
4.	Typical Section
5.	Inlet Details No. 1
6.	Inlet Details No. 2
7.	Outlet Details
8.	Excavation and Backfill



"CB1" Line	"M1" Line
R = 500'	R = 425'
Δ = 9°28'14"	Δ = 131°18'23"
T = 41.42'	T = 939.23'
L = 82.65'	L = 973.99'

QUANTITIES

STRUCTURAL CONCRETE, CULVERT	129	CY
BAR REINFORCING STEEL (CULVERT)	10,580	LB
STRUCTURAL PLATE CORRUGATED STEEL PIPE	564	LF
CABLE RAILING	62	LF

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)
B0-3	BRIDGE DETAILS
RSP B11-47	CABLE RAILING
D88	CONSTRUCTION LOADS ON CULVERTS
D88A	STRUT DETAILS FOR STRUCTURAL STEEL PIPES, ARCHES, AND VEHICULAR UNDERCROSSING

- Notes:
- (A) Cable railing
 - 1. SPCSP = Structural Plate Corrugated Steel Pipe.
 - 2. For "General Notes" see "Typical Section" sheet.
 - ✕ Measured along "CB1" Line.

X DESIGN ENGINEER	DESIGN	BY M. Kodsuntie	CHECKED H. Fang	LOAD & RESISTANCE FACTOR DESIGN	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 5	BRIDGE NO.	WATER GULCH CULVERT GENERAL PLAN		
	DETAILS	BY G. M. Souza/T. Cotton	CHECKED H. Fang	LAYOUT			BY M. Kodsuntie		CHECKED H. Fang	R4.1
	QUANTITIES	BY M. Kodsuntie	CHECKED GS / BP	SPECIFICATIONS			BY S. Nelapatla		CHECKED E. Castillo	PLANS AND SPECS COMPARED

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

PROJECT NUMBER & PHASE: 02000002161 CONTRACT NO.: 02-2E5101

REVISION DATES: 11-29-11, 06-22-11, 08-31-11

SHEET 1 OF 8

STRUCTURES DESIGN GENERAL PLAN SHEET (ENGLISH) (REV.09-01-10)

FILE => x01water_gulch_gpset.dgn

CURVE DATA

No.	R	Δ	T	L
(A)	425.00	131°18'23"	939.23	973.99
(B)	500.00	09°28'14"	41.42	82.65

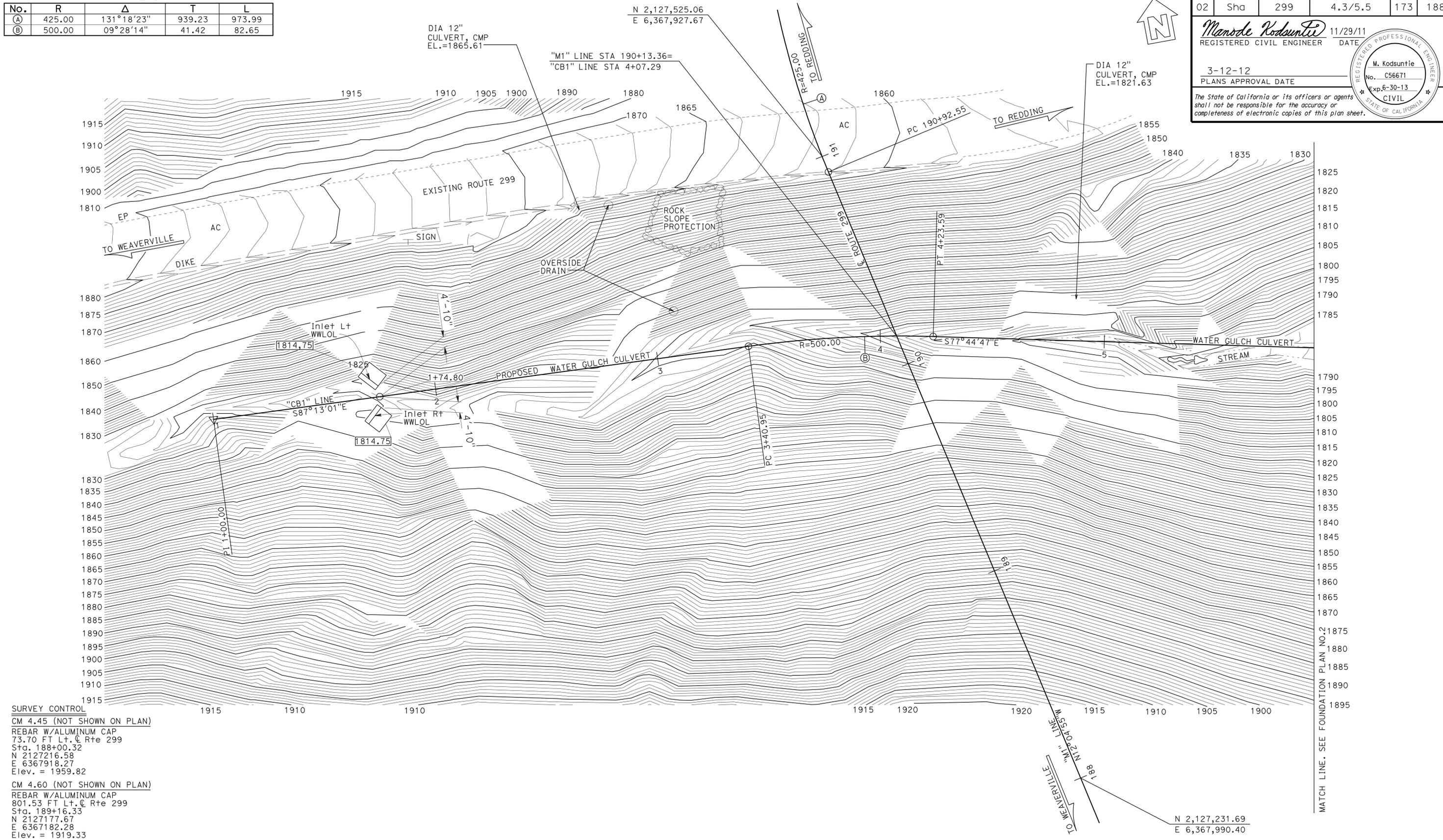
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha	299	4.3/5.5	173	188

Mansde Kodsuntie 11/29/11
 REGISTERED CIVIL ENGINEER DATE

3-12-12
 PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER
 M. Kodsuntie
 No. C56671
 Exp. 6-30-13
 CIVIL
 STATE OF CALIFORNIA



SURVEY CONTROL
 CM 4.45 (NOT SHOWN ON PLAN)
 REBAR W/ALUMINUM CAP
 73.70 FT Lt. @ Rte 299
 Sta. 188+00.32
 N 2127216.58
 E 6367918.27
 Elev. = 1959.82

CM 4.60 (NOT SHOWN ON PLAN)
 REBAR W/ALUMINUM CAP
 801.53 FT Lt. @ Rte 299
 Sta. 189+16.33
 N 2127177.67
 E 6367182.28
 Elev. = 1919.33

MATCH LINE. SEE FOUNDATION PLAN NO. 2

PRELIMINARY INVESTIGATION SECTION			
SCALE	VERT. DATUM NAVD88	PHOTOGRAMMETRY AS OF: X	
1"=20'	HORIZ. DATUM AD83(92)(1991.35)	SURVEYED	BY District 10/2010
ALIGNMENT TIES	Dist. Traverse Sheet	DRAFTED	BY T. Zolnikov 10/2010
		CHECKED	BY J. Borden 10/2010
		CHECKED	BY S. Sou 10/2010

DESIGN	BY M. KODSUNTIE	CHECKED	H. FANG
DETAILS	BY TONY COTTON / GMS	CHECKED	H. FANG
QUANTITIES	BY M. KODSUNTIE	CHECKED	GS / BP

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
 STRUCTURE DESIGN
DESIGN BRANCH 5

BRIDGE NO.	R4.1
POST MILE	R4.1

**WATER GULCH CULVERT
 FOUNDATION PLAN NO. 1**

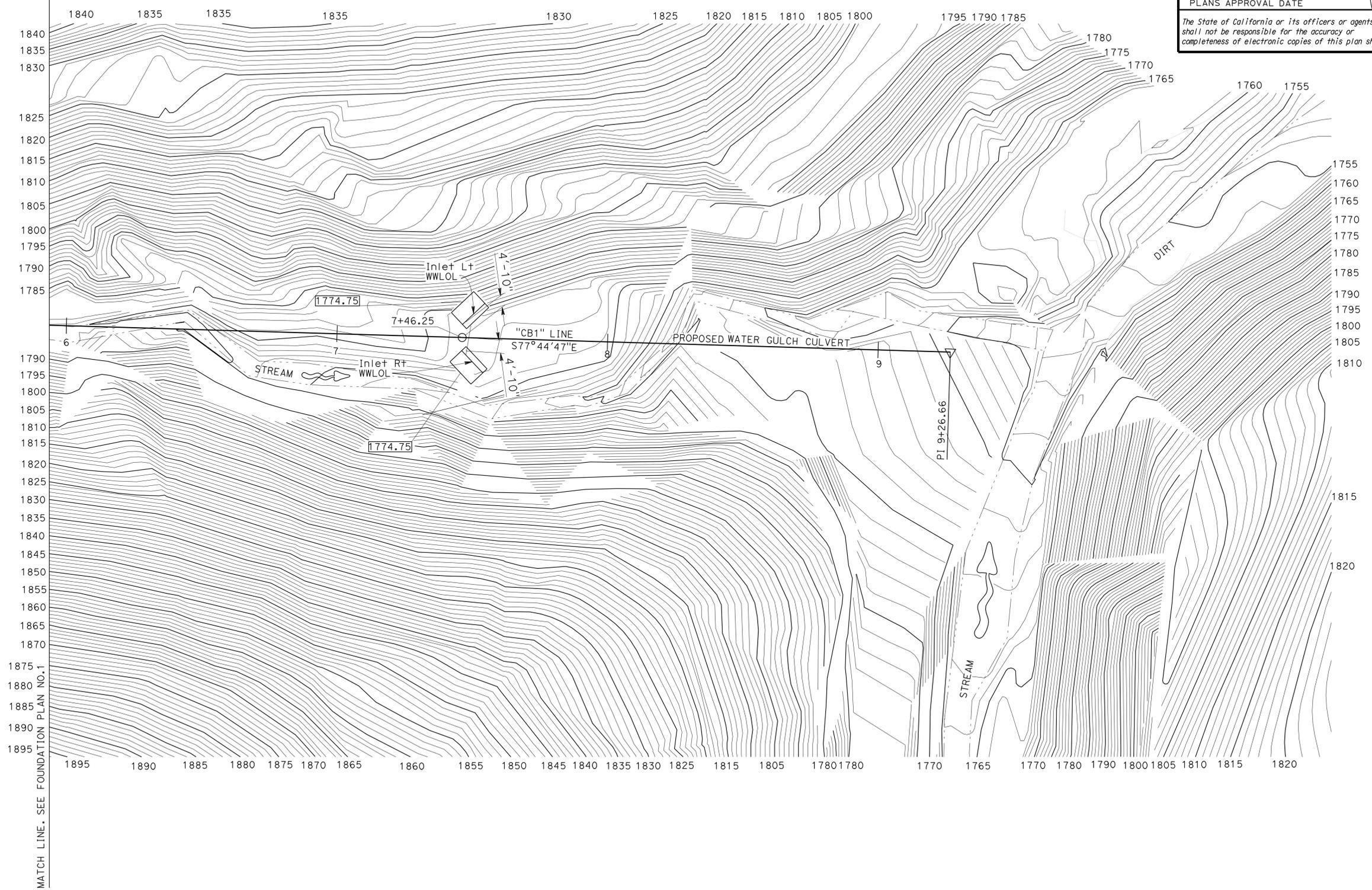
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha	299	4.3/5.5	174	188

M. Kodsuntie 11/29/11
REGISTERED CIVIL ENGINEER DATE

3-12-12
PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER
M. Kodsuntie
No. C56671
Exp. 6-30-13
CIVIL
STATE OF CALIFORNIA



MATCH LINE. SEE FOUNDATION PLAN NO.1

PRELIMINARY INVESTIGATION SECTION			
SCALE	VERT. DATUM NAVD88	PHOTOGRAMMETRY AS OF: X	
1"=20'	HORZ. DATUM NAD83(92)(1991.35)	SURVEYED BY	J. Borden 10/2010
ALIGNMENT TIES	Dist. Traverse Sheet	DRAFTED BY	T. Zolnikov 10/2010
CHECKED	J. Borden	CHECKED	S. Sou 10/2010

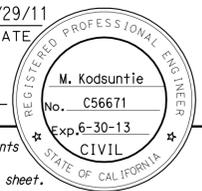
DESIGN	BY M. KODSUNTIE	CHECKED	H. FANG
DETAILS	BY TONY COTTON / GMS	CHECKED	H. FANG
QUANTITIES	BY M. KODSUNTIE	CHECKED	GS / BP

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 5

BRIDGE NO.	R4.1
POST MILE	R4.1

WATER GULCH CULVERT
FOUNDATION PLAN NO. 2

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha	299	4.3/5.5	175	188
M. Kodsuntie REGISTERED CIVIL ENGINEER			11/29/11 DATE		
3-12-12 PLANS APPROVAL DATE					
<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>					

GENERAL NOTES LOAD AND RESISTANCE FACTOR DESIGN

DESIGN:

AASHTO LRFD Bridge Design Specifications, 4th edition and the Caltrans Amendments, preface dated December 2008

EARTH LOADING:

Structural plate corrugated Steel Pipe culvert and inlet structure design based on earth pressure for two conditions:

140 lb/ft³ vertical, 42 lb/ft³ horizontal.

140 lb/ft³ vertical, 140 lb/ft³ horizontal.

WINGWALL DESIGN:

For determination of lateral earth pressure

$y = 120 \text{ lb/ft}^3$

$\phi = 33^\circ$

Maximum wingwall toe pressure = 3.2 ksf

CONCRETE:

$f_y = 60 \text{ ksi}$

$f'_c = 4 \text{ ksi}$

$n = 8$

STRUCTURAL STEEL:

Structural Plate Corrugated Steel Pipe: ASTM A 761
Steel Structure Plate - Cross Section Properties:

Corrugations = 6"x2"

Thickness = 0.318 in

Area = 4.671 in²

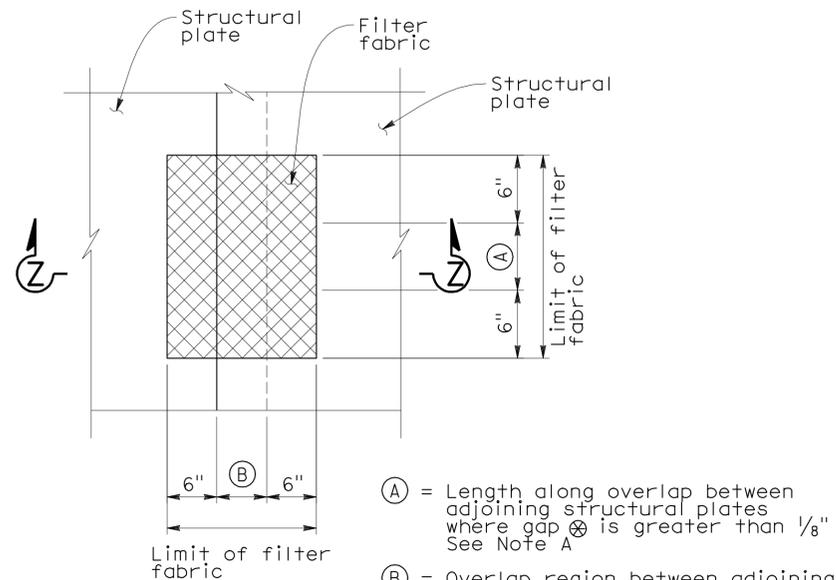
$r = 0.698 \text{ in}$

$I = 190 \times 10^{-3} \text{ in}^4/\text{in}$

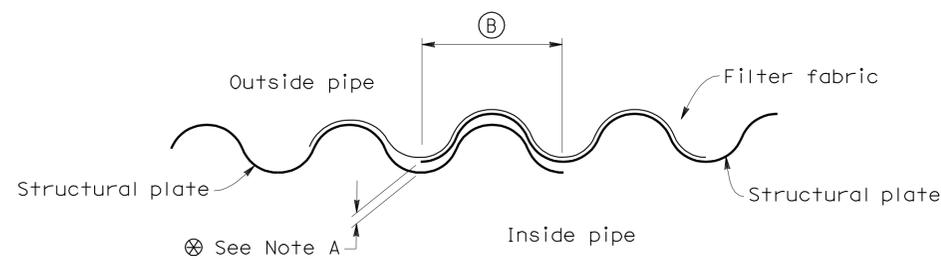
CONSTRUCTION LOADS:

See Standard Plan D88

MAXIMUM OVERFILL = 125'-0"



PLAN

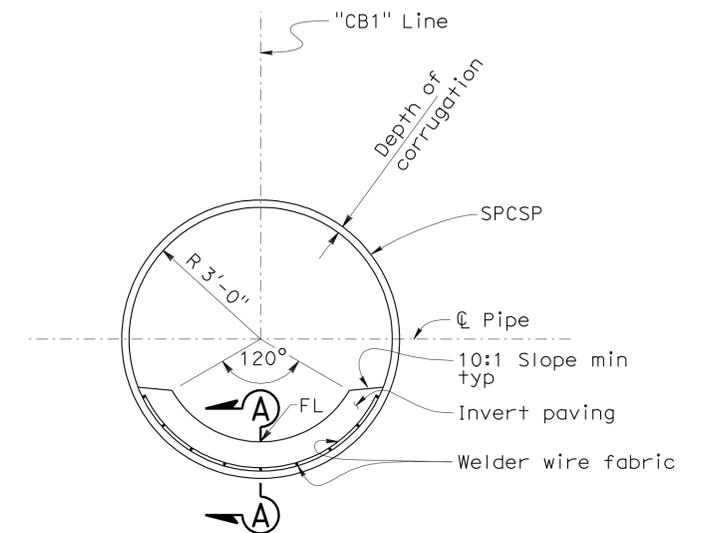


SECTION Z-Z

SPCSP JOINT DETAIL

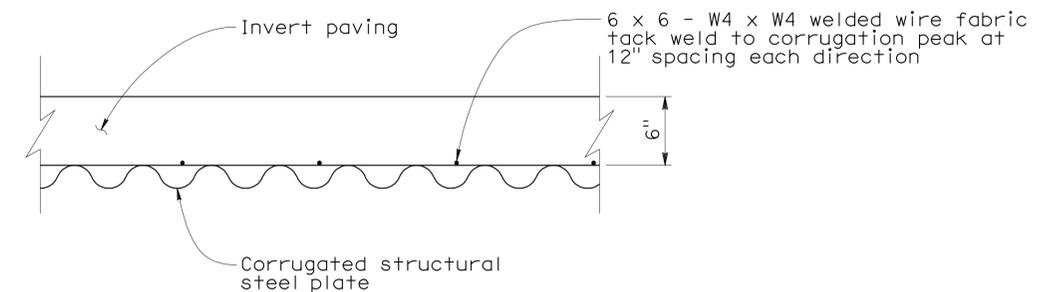
No Scale

Note A:
Where the gap between adjoining structural plates is greater than 1/8", filter fabric shall be placed on the outside surface of pipe as shown.



TYPICAL SECTION

1/2" = 1'-0"



SECTION A-A

1/2" = 1'-0"

DESIGN	BY M. KODSUNTIE	CHECKED H. FANG
DETAILS	BY TONY COTTON / GMS	CHECKED H. FANG
QUANTITIES	BY M. KODSUNTIE	CHECKED GS / BP

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 5

BRIDGE NO.	R4.1
POST MILE	R4.1

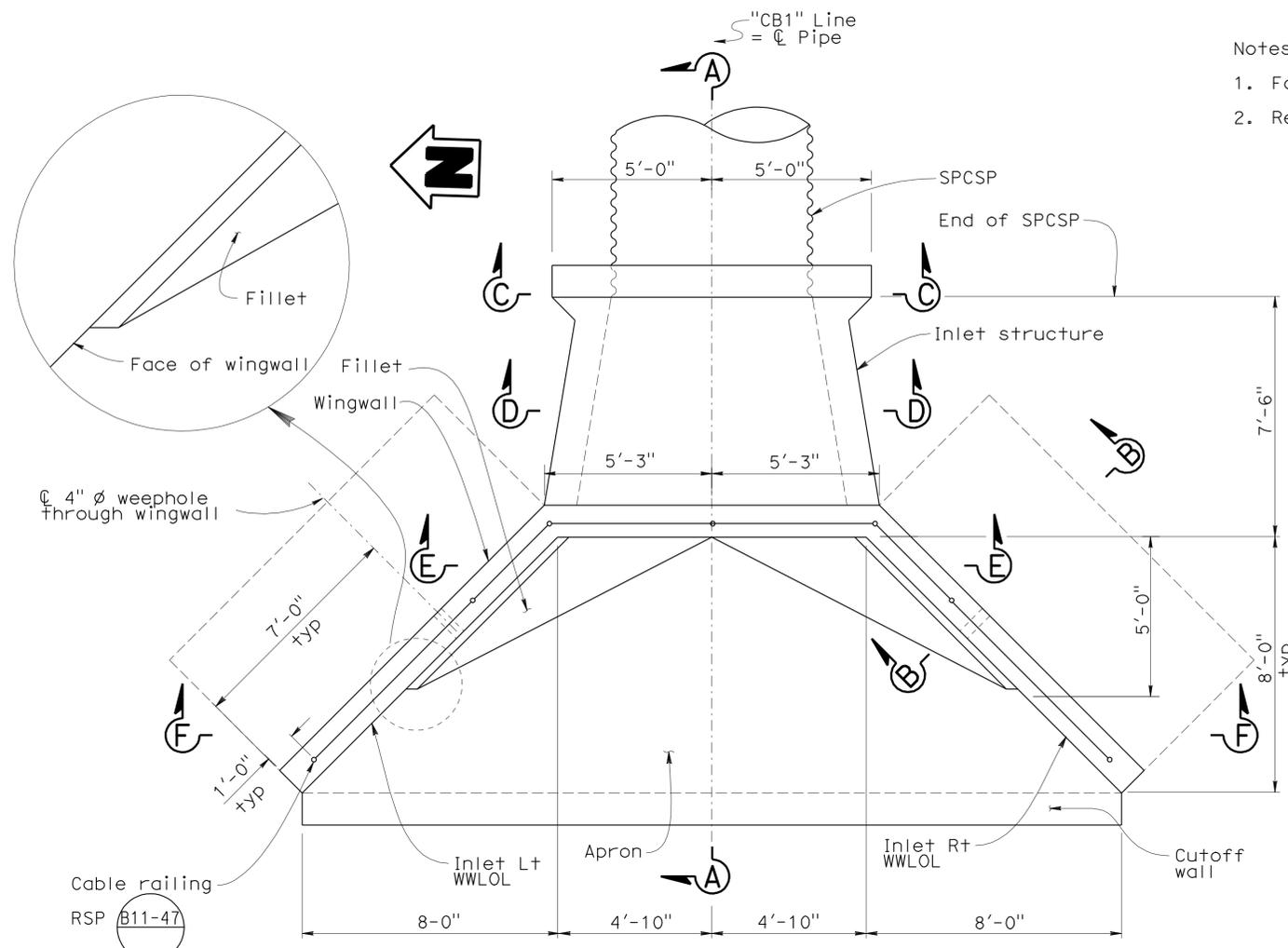
WATER GULCH CULVERT
TYPICAL SECTION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha	299	4.3/5.5	176	188

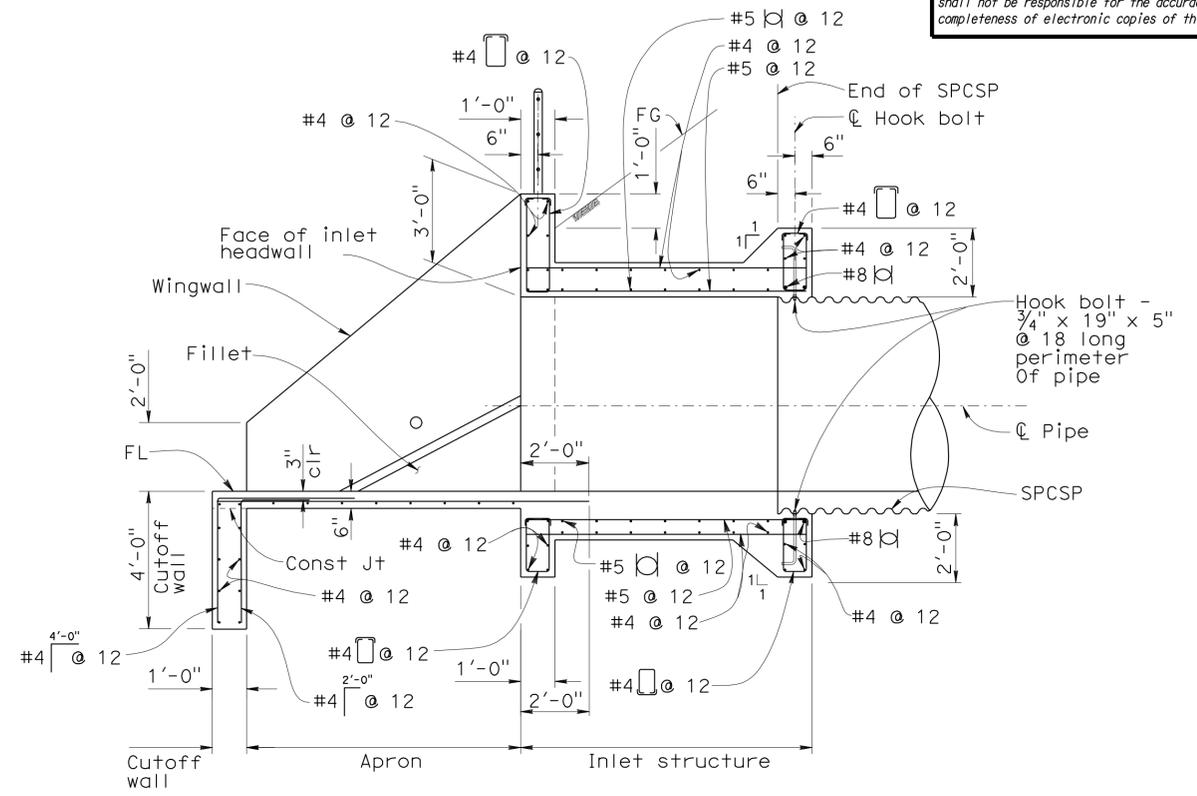
<i>Mamode Kodsuntie</i>		11/29/11
REGISTERED CIVIL ENGINEER	DATE	
3-12-12		
PLANS APPROVAL DATE		
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REGISTERED PROFESSIONAL ENGINEER
 M. Kodsuntie
 No. C56671
 Exp. 6-30-13
 CIVIL
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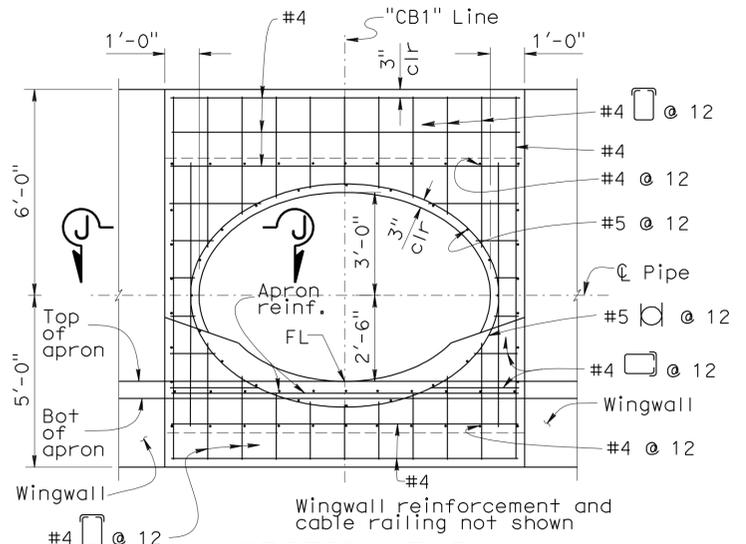
- Notes:
- For Sections B-B & F-F, see "Inlet Details No. 2" sheet.
 - Reinforcement symmetrical about "CB1" Line.



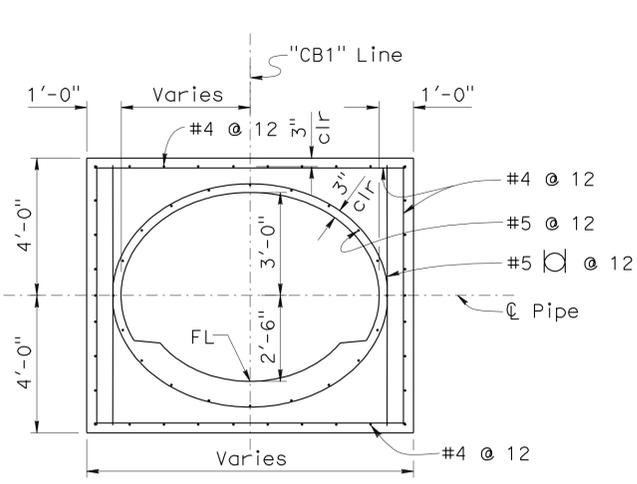
INLET-PLAN
 $\frac{3}{8}'' = 1'-0''$



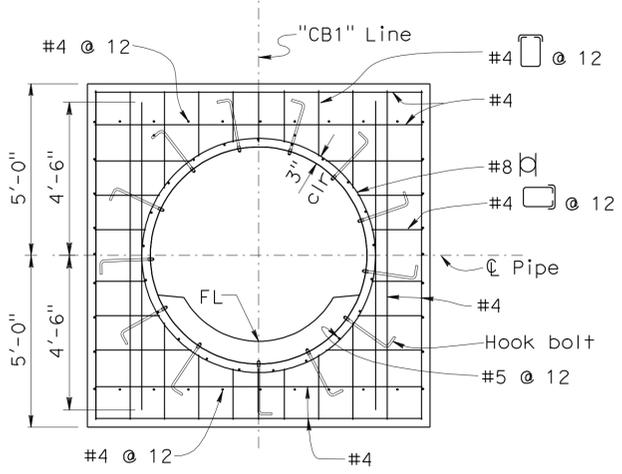
SECTION A-A
 $\frac{3}{8}'' = 1'-0''$



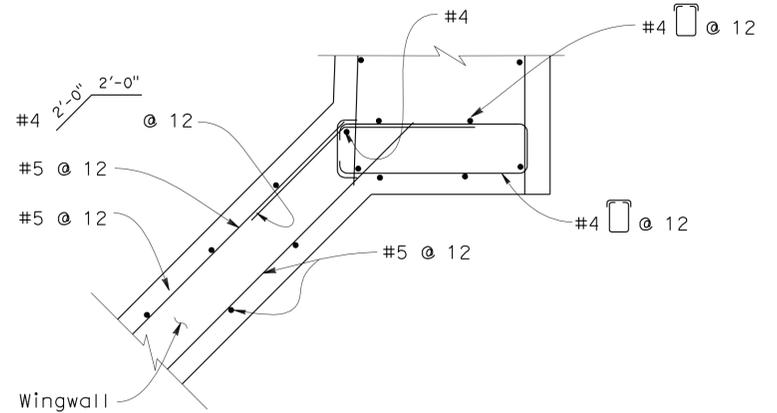
SECTION E-E
 $\frac{3}{8}'' = 1'-0''$



SECTION D-D
 $\frac{3}{8}'' = 1'-0''$



SECTION C-C
 $\frac{3}{8}'' = 1'-0''$



SECTION J-J
 $1'' = 1'-0''$

DESIGN	BY M. KODSUNTIE	CHECKED H. FANG
DETAILS	BY TONY COTTON / GMS	CHECKED H. FANG
QUANTITIES	BY M. KODSUNTIE	CHECKED GS / BP

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
 STRUCTURE DESIGN
 DESIGN BRANCH 5

BRIDGE NO.	R4.1
POST MILE	R4.1

WATER GULCH CULVERT
 INTLET DETAILS NO. 1

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha	299	4.3/5.5	177	188

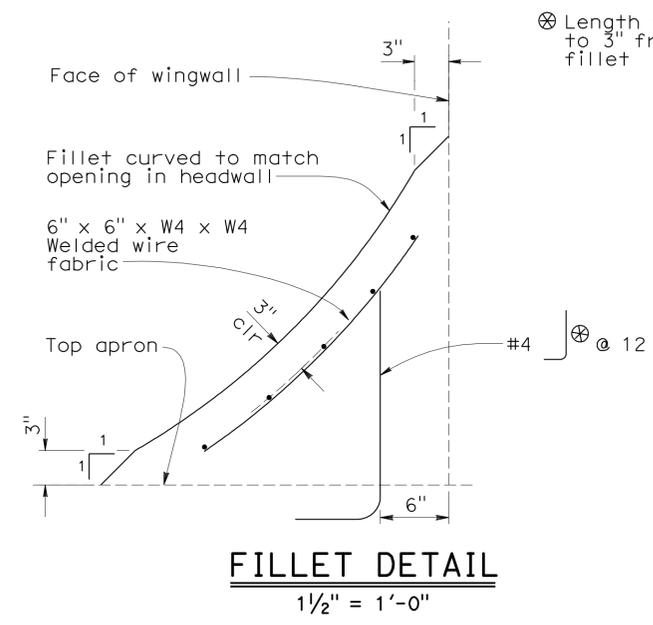
Mande Kodsuntie 11/29/11
REGISTERED CIVIL ENGINEER DATE

3-12-12
PLANS APPROVAL DATE

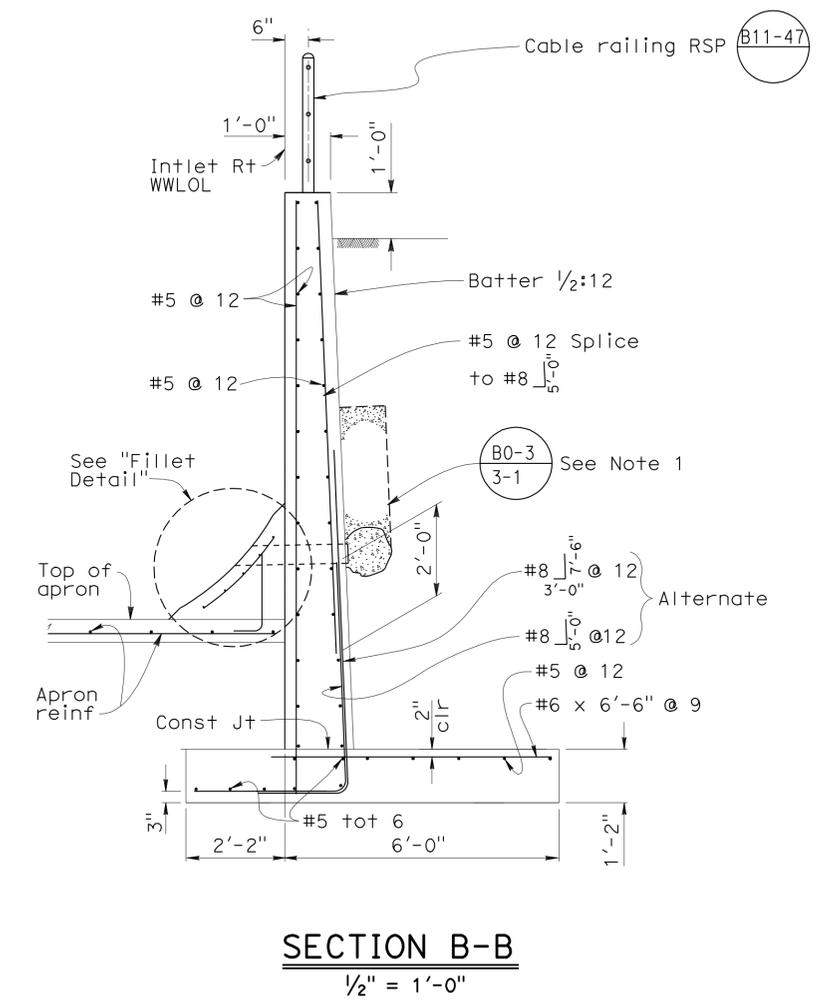
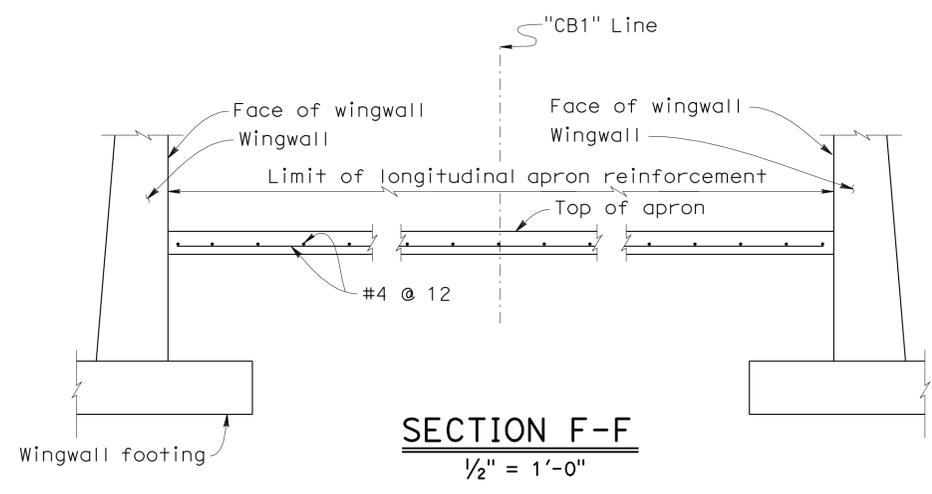
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REGISTERED PROFESSIONAL ENGINEER
M. Kodsuntie
No. C56671
Exp. 6-30-13
CIVIL
STATE OF CALIFORNIA

- Notes:
1. Install 4"Ø weephole 2'-0" above top of apron.
 2. For location of Section B-B and F-F see "Inlet Details No. 1" sheet.



⊗ Length varies, extended to 3" from surface of fillet



Note:
Inlet Rt WW shown,
Inlet Lt WW similar

DESIGN	BY M. KODSUNTIE	CHECKED H. FANG
DETAILS	BY TONY COTTON / GMS	CHECKED H. FANG
QUANTITIES	BY M. KODSUNTIE	CHECKED GS / BP

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 5

BRIDGE NO.	R4.1
POST MILE	R4.1

WATER GULCH CULVERT
INLET DETAILS NO. 2

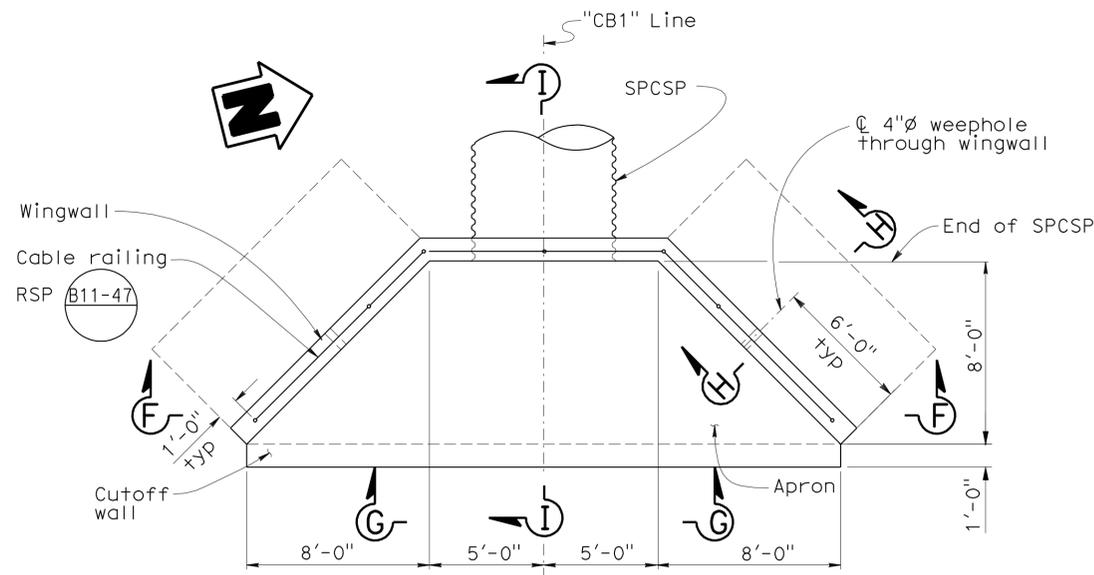
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha	299	4.3/5.5	178	188

Manode Kodsuntie 11/29/11
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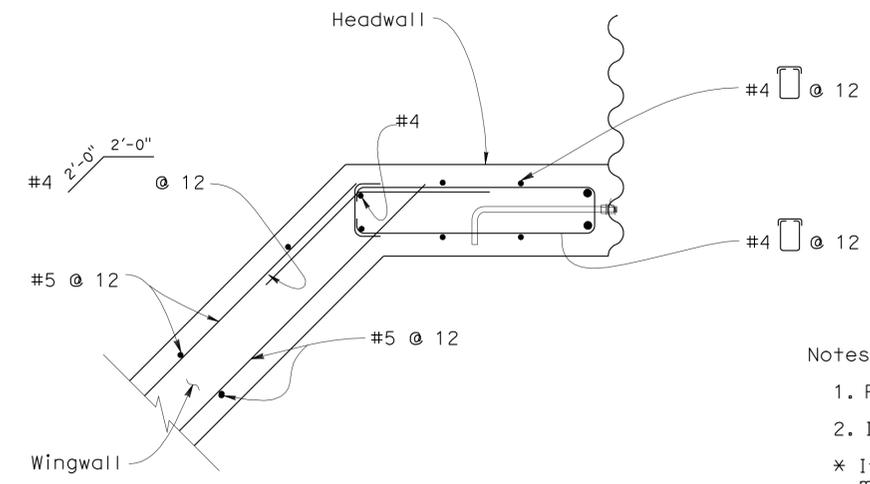
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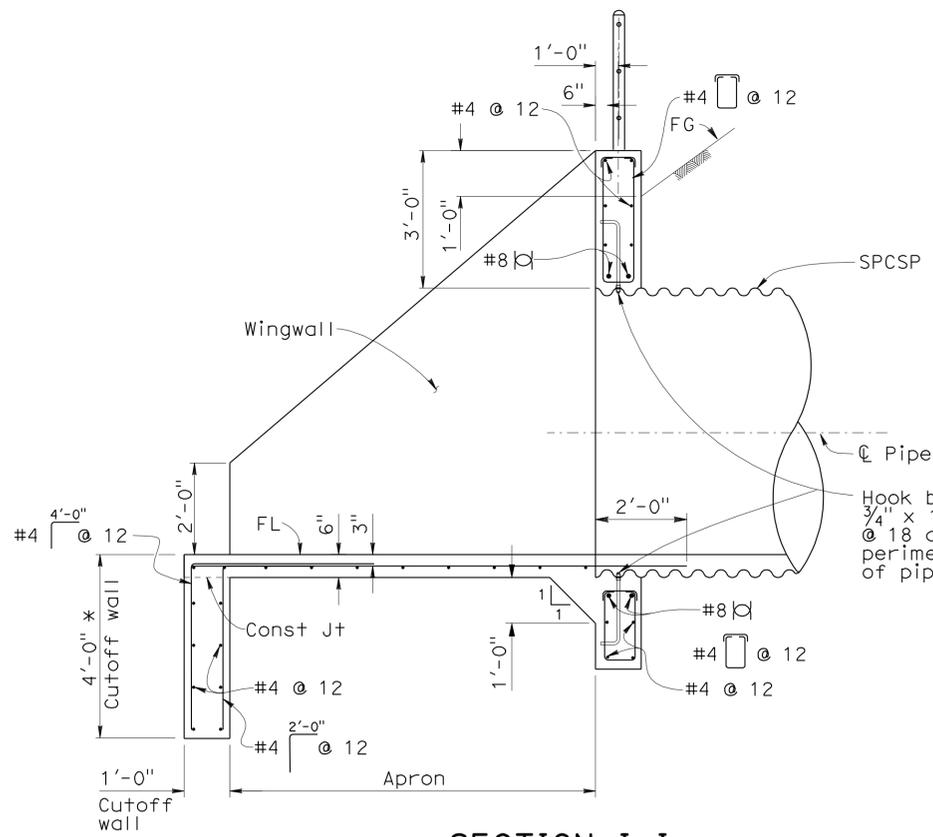


OUTLET PLAN
 1/4" = 1'-0"

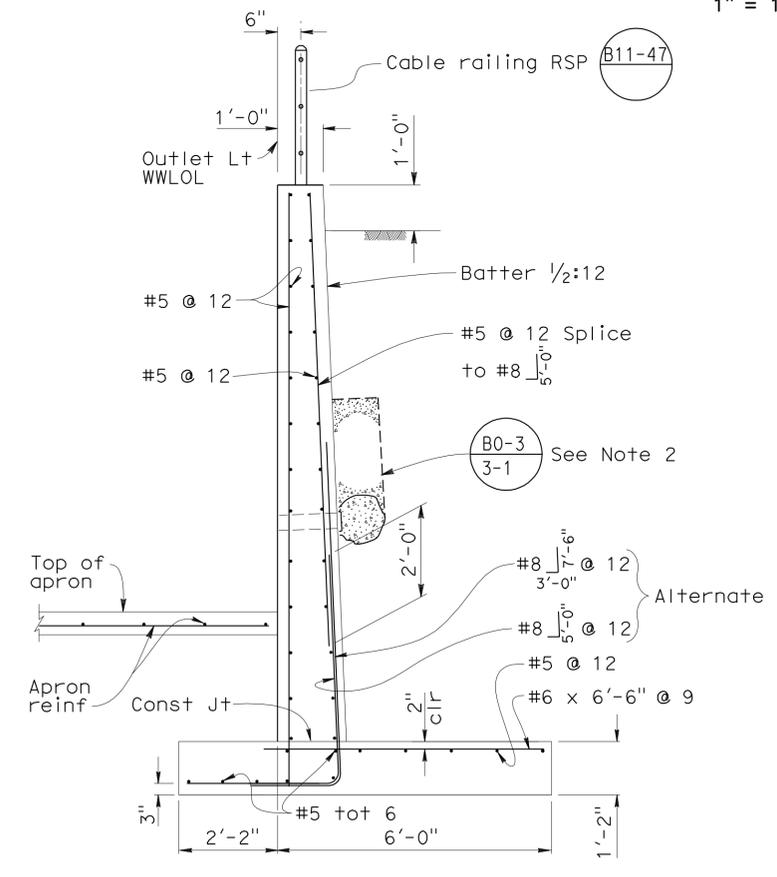


SECTION K-K
 1" = 1'-0"

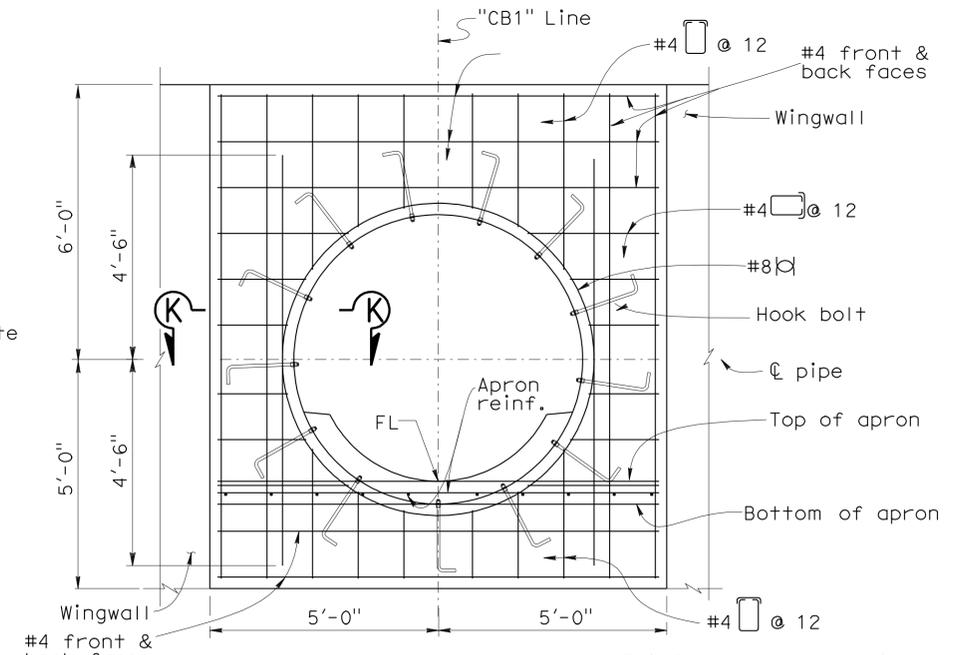
- Notes:
- For Section F-F, see "Inlet Details No. 2" sheet.
 - Install 4" ø weep hole 2'-0" above top of apron.
- * If top of rock is within 4'-0" of E, cutoff wall may be shortened as approved by the Engineer.



SECTION I-I
 1/2" = 1'-0"



SECTION H-H
 Note: 1/2" = 1'-0"
 Inlet Lt WW shown, Inlet Rt WW similar



VIEW G-G
 1/2" = 1'-0"
 Reinforcement symmetrical about "CB1" Line
 Cable railing not shown

DESIGN	BY M. KODSUNTIE	CHECKED H. FANG
DETAILS	BY TONY COTTON / GMS	CHECKED H. FANG
QUANTITIES	BY M. KODSUNTIE	CHECKED GS / BP

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
 STRUCTURE DESIGN
 DESIGN BRANCH 5

BRIDGE NO.	R4.1
POST MILE	R4.1

WATER GULCH CULVERT
OUTLET DETAILS

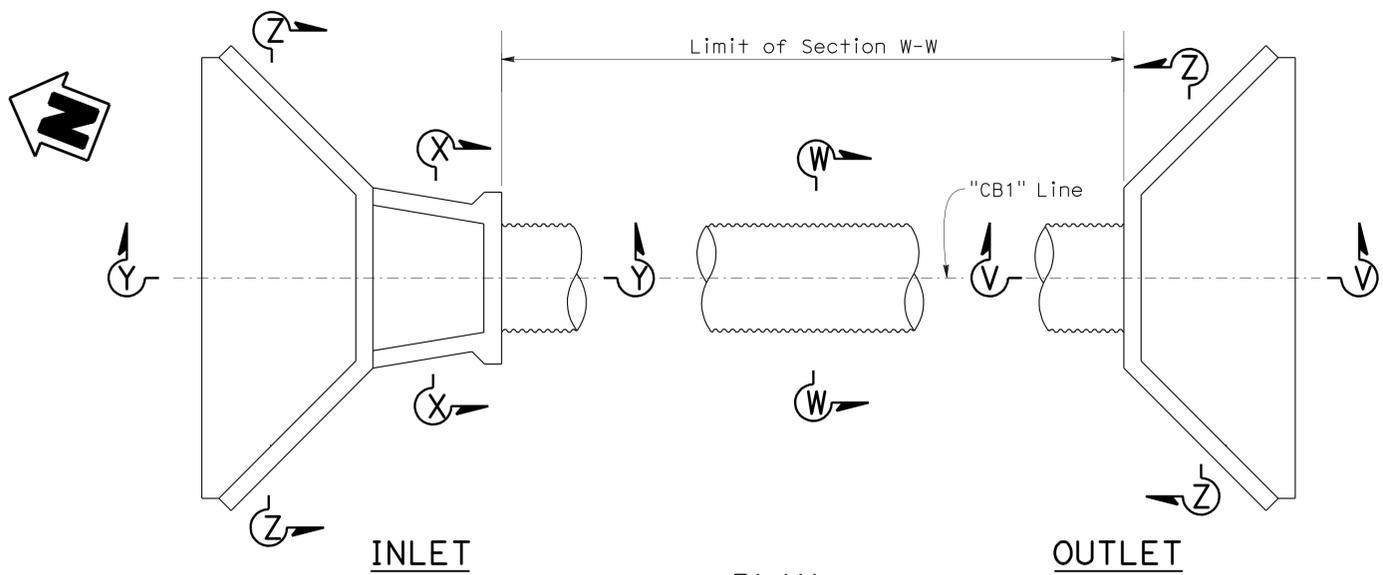
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha	299	4.3/5.5	179	188

Mande Kodsuntie 11/29/11
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3-12-12
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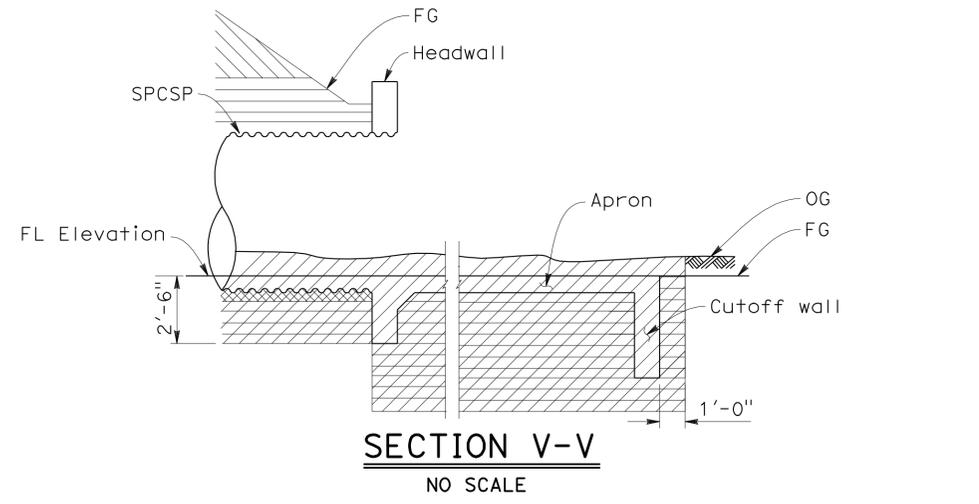
REGISTERED PROFESSIONAL ENGINEER
 M. Kodsuntie
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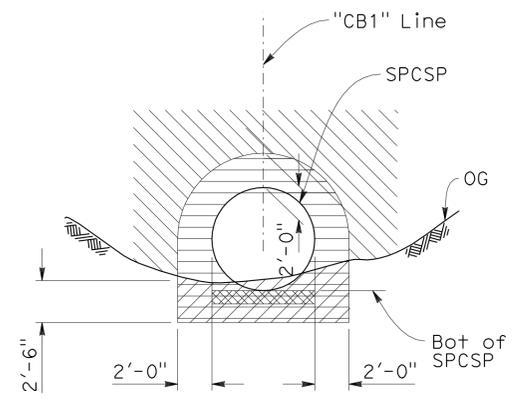
PLAN
NO SCALE

Note:
 If top of bedrock is within 2'-0" of bottom of wingwall footing, depth of excavation shall be adjusted in the field as directed by the Engineer.

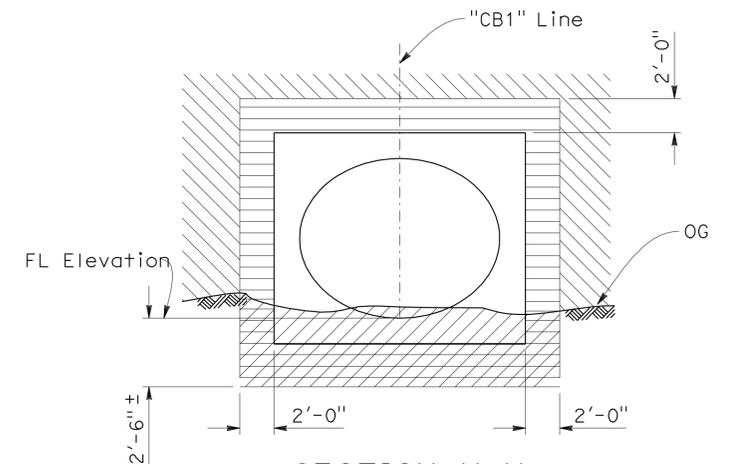
- LEGEND:
- SPCSP = Structural Plate Corrugate Steel Pipe
 - Structure Excavation (Culvert)
 - Structure Backfill (Culvert) 95% Relative Compaction
 - Roadway Embankment
 - SPCSP bedding material, 4" thick 85% Compaction (Light compaction)



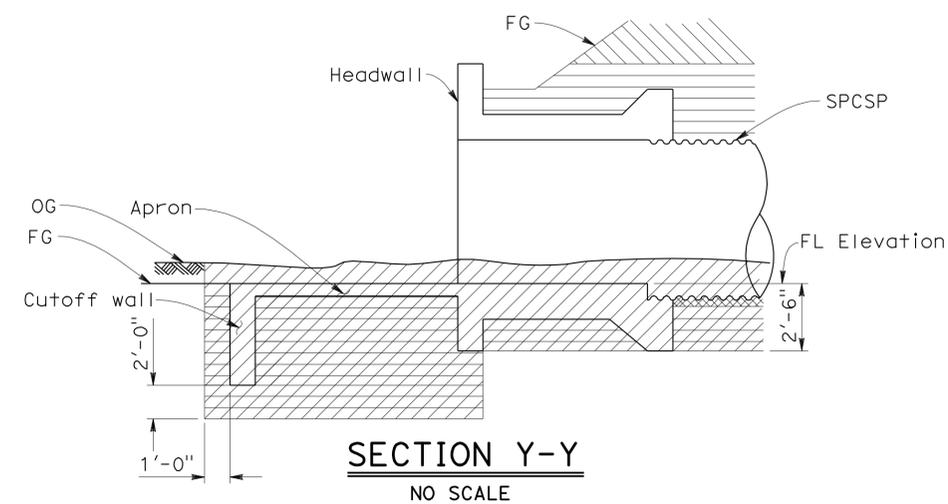
SECTION V-V
NO SCALE



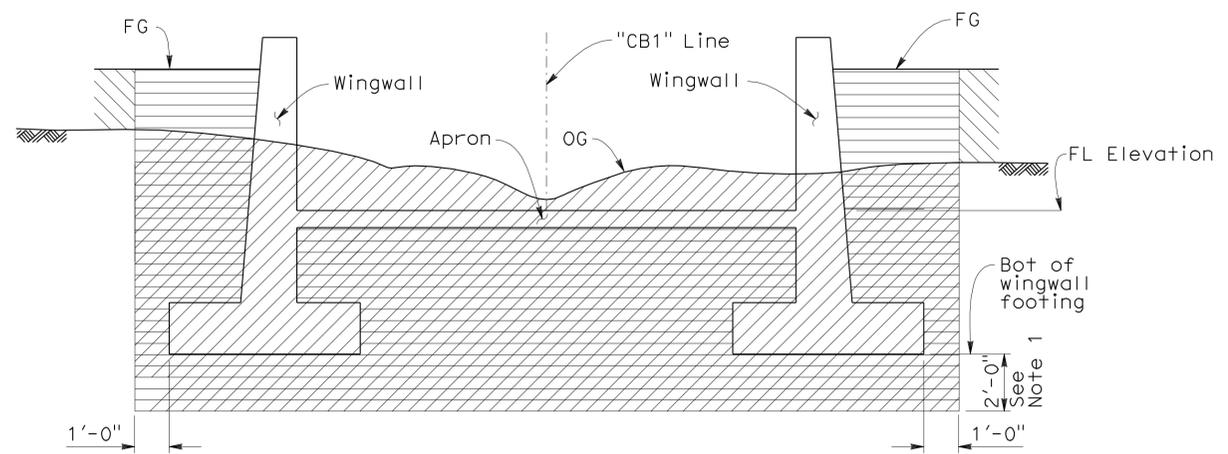
SECTION W-W
NO SCALE



SECTION X-X
NO SCALE



SECTION Y-Y
NO SCALE



SECTION Z-Z
NO SCALE

DESIGN	BY M. KODSUNTIE	CHECKED H. FANG
DETAILS	BY TONY COTTON / GMS	CHECKED H. FANG
QUANTITIES	BY M. KODSUNTIE	CHECKED GS / BP

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
 STRUCTURE DESIGN
 DESIGN BRANCH 5

BRIDGE NO.	R4.1
POST MILE	R4.1

**WATER GULCH CULVERT
 EXCAVATION AND BACKFILL**

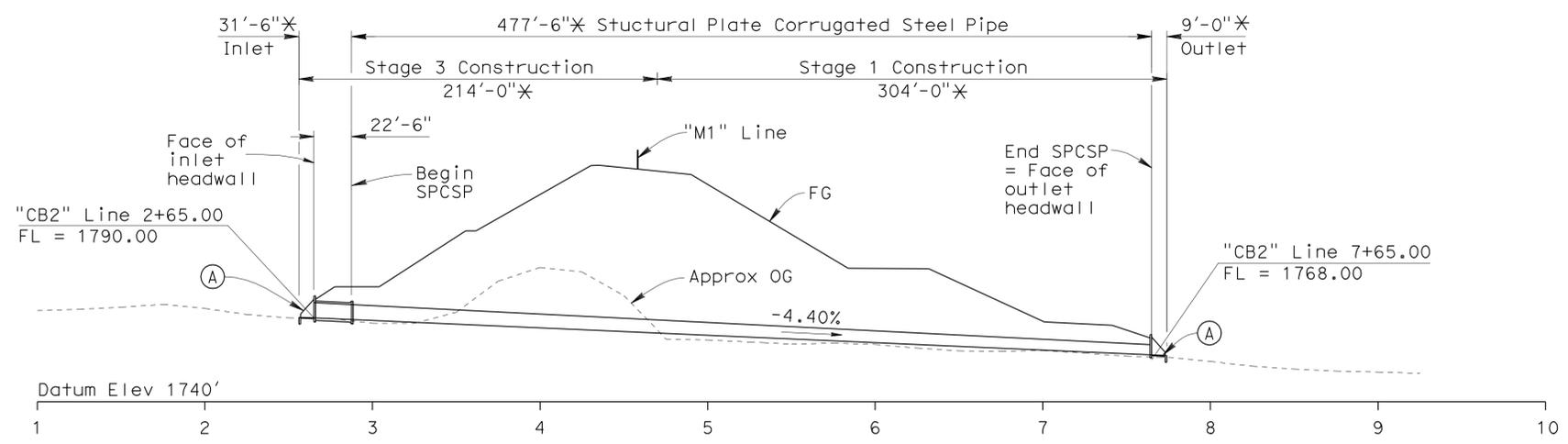
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha	299	4.3/5.5	180	188

Mansode Kodsuntie 11/29/11
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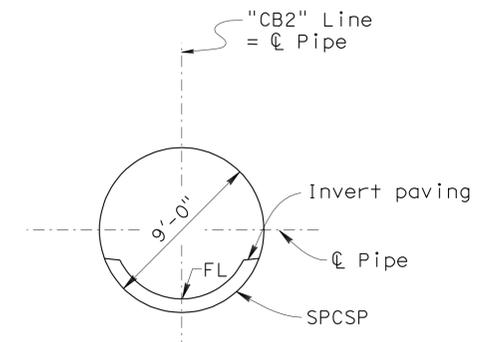
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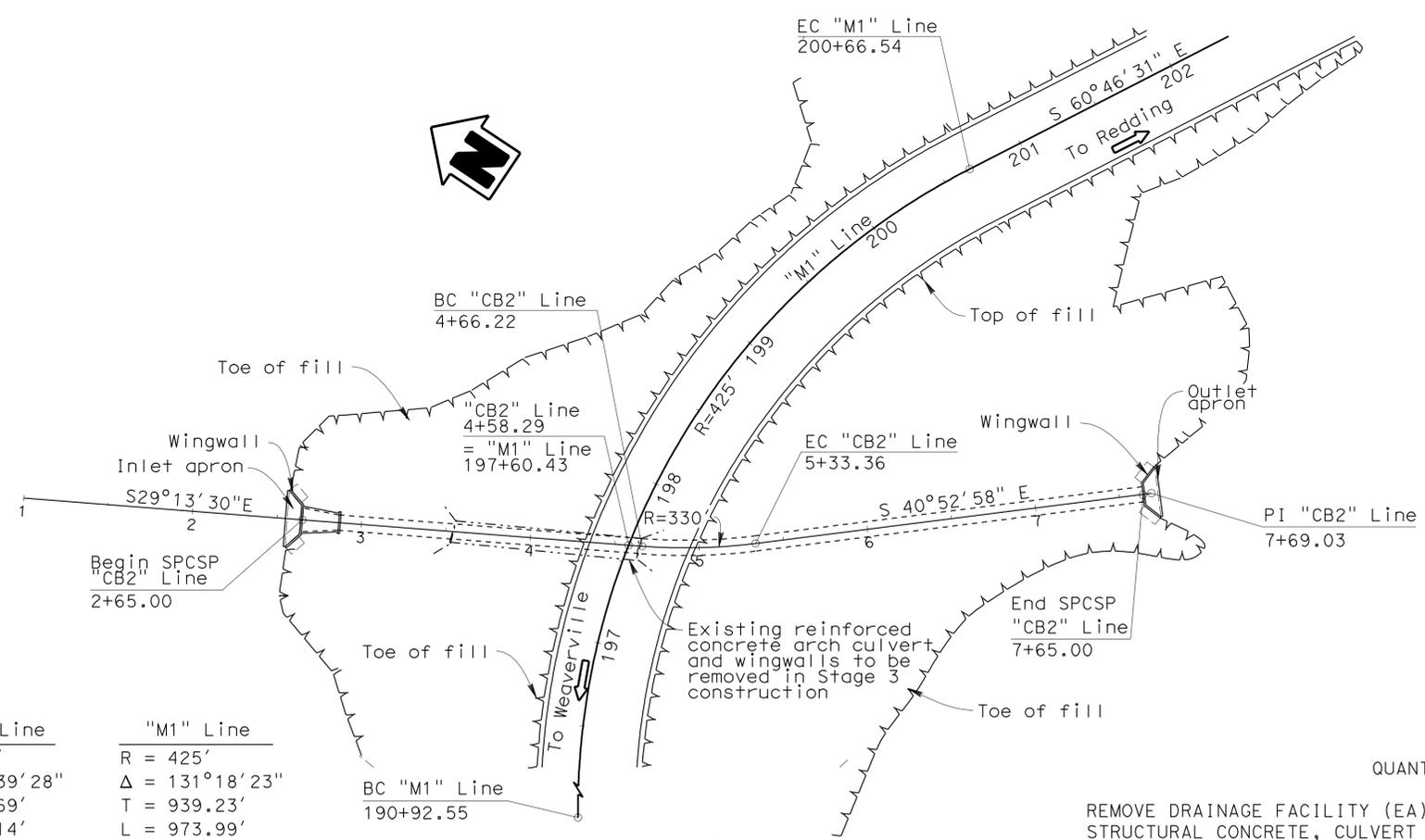
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DEVELOPED ELEVATION
1" = 50'



TYPICAL SECTION
1" = 5'



PLAN
1" = 50'

"CB2" Line	"M1" Line
R = 330'	R = 425'
$\Delta = 11^\circ 39' 28''$	$\Delta = 131^\circ 18' 23''$
T = 33.69'	T = 939.23'
L = 67.14'	L = 973.99'

QUANTITIES

REMOVE DRAINAGE FACILITY (EA)	1	EA
STRUCTURAL CONCRETE, CULVERT	217	CY
BAR REINFORCING STEEL (CULVERT)	15,220	LB
STRUCTURAL PLATE CORRUGATED STEEL PIPE	477.5	LF
CABLE RAILING	73	LF

INDEX TO PLANS

Sheet No.	Title
1.	General Plan
2.	Foundation Plan No. 1
3.	Foundation Plan No. 2
4.	Typical Section
5.	Inlet Details No. 1
6.	Inlet Details No. 2
7.	Inlet Details No. 3
8.	Outlet Details
9.	Excavation and Backfill

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)
B0-3	BRIDGE DETAILS
RSP B11-47	CABLE RAILING
D88	CONSTRUCTION LOADS ON CULVERTS
D88A	STRUT DETAILS FOR STRUCTURAL STEEL PIPES, ARCHES, AND VEHICULAR UNDERCROSSING

Notes:

- (A) Cable railing
- 1. SPCSP = Structural Plate Corrugated Steel Pipe.
- 2. For "General Notes" see "Typical Section" sheet.
- * Measured along "CB2" Line.
- Indicates existing structure.

X
DESIGN ENGINEER

DESIGN	BY M. Kodsuntie	CHECKED H. Fang	LOAD & RESISTANCE FACTOR DESIGN
DETAILS	BY G. M. Souza/T. Cotton	CHECKED H. Fang	LAYOUT
QUANTITIES	BY M. Kodsuntie	CHECKED GS / BP	SPECIFICATIONS
			BY S. Nalapattla

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 5

BRIDGE NO.	R4.25
POST MILE	R4.25

**TRAIL GULCH CULVERT
GENERAL PLAN**

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha	299	4.3/5.5	182	188

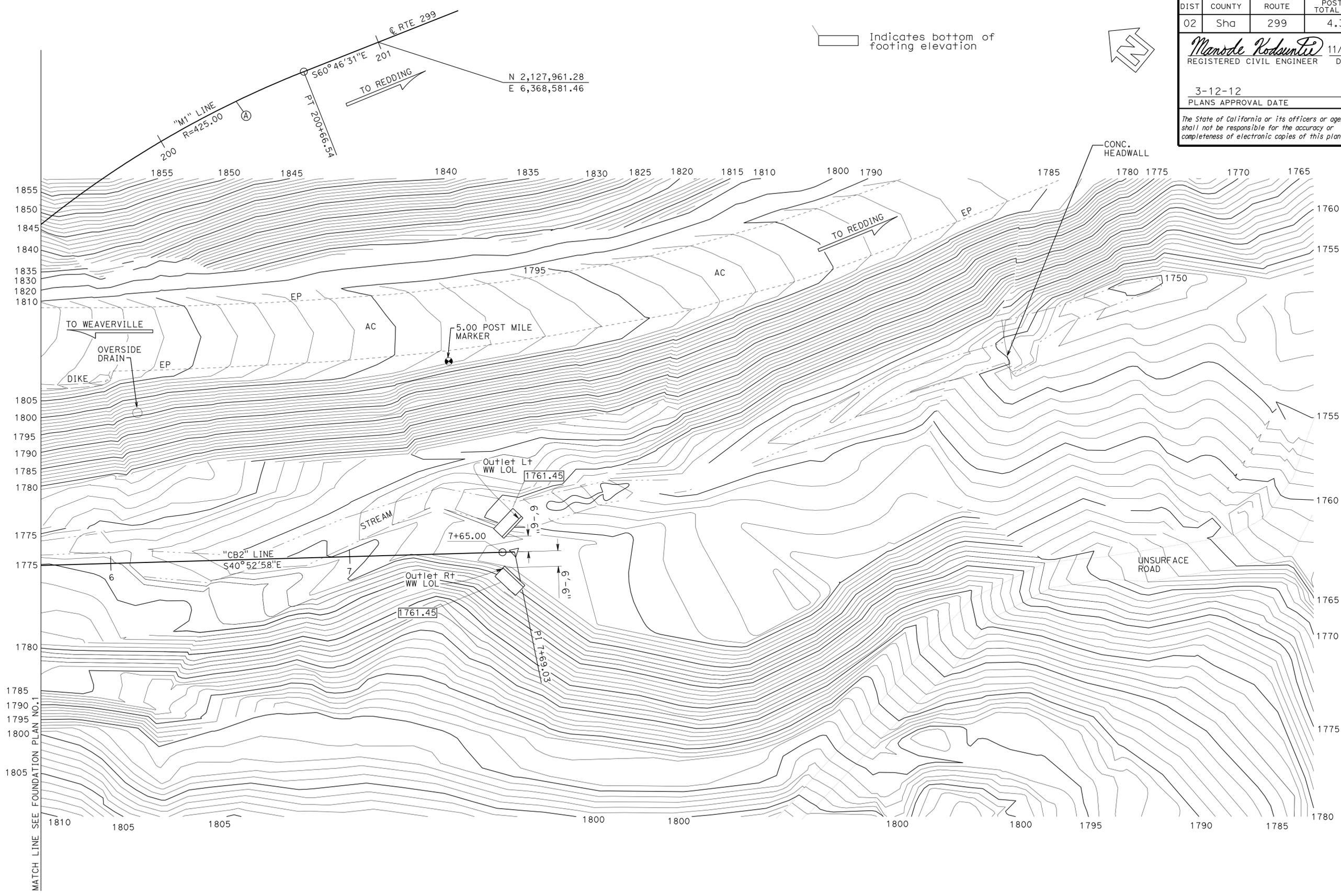
Mande Kodsuntie 11/29/11
 REGISTERED CIVIL ENGINEER DATE

3-12-12
 PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER
 M. Kodsuntie
 No. C56671
 Exp. 6-30-13
 CIVIL
 STATE OF CALIFORNIA

Indicates bottom of footing elevation



MATCH LINE SEE FOUNDATION PLAN NO.1

PRELIMINARY INVESTIGATION SECTION			
SCALE	VERT. DATUM NAVD88	PHOTOGRAMMETRY AS OF: X	
1"=20'	HORZ. DATUM NAD83(92)(1991.35)	SURVEYED	BY District
ALIGNMENT TIES	Dist. Traverse Sheet	DRAFTED	BY T. Zolnikov 10/2010
CHECKED	BY J. Borden 10/2010	CHECKED	BY S. Sou 10/2010

DESIGN	BY M. Kodsuntie	CHECKED	H. Fang
DETAILS	BY Tony Cotton / GMS	CHECKED	H. Fang
QUANTITIES	BY M. Kodsuntie	CHECKED	GS / BP

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
 STRUCTURE DESIGN
 DESIGN BRANCH 5

TRAIL GULCH CULVERT
 FOUNDATION PLAN NO. 2

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha	299	4.3/5.5	183	188
Mansde Kodsuntie REGISTERED CIVIL ENGINEER		11/29/11 DATE			
3-12-12 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.		

GENERAL NOTES LOAD AND RESISTANCE FACTOR DESIGN

DESIGN:

AASHTO LRFD Bridge Design Specifications, 4th edition and the Caltrans Amendments, preface dated December 2008

EARTH LOADING:

Structural Plate Corrugated Steel Pipe culvert and inlet structure design based on earth pressure for two conditions:
 140 LB/CF vertical, 42 LB/CF horizontal.
 140 LB/CF vertical, 140 LB/CF horizontal.

WINGWALL DESIGN:

For determination of lateral earth pressure
 $\gamma = 120 \text{ lb/ft}^3$
 $\phi = 33^\circ$
 Maximum wingwall toe pressure = 3.9 ksf

CONCRETE:

$f_y = 60 \text{ ksi}$
 $f'_c = 4 \text{ ksi}$
 $n = 8$

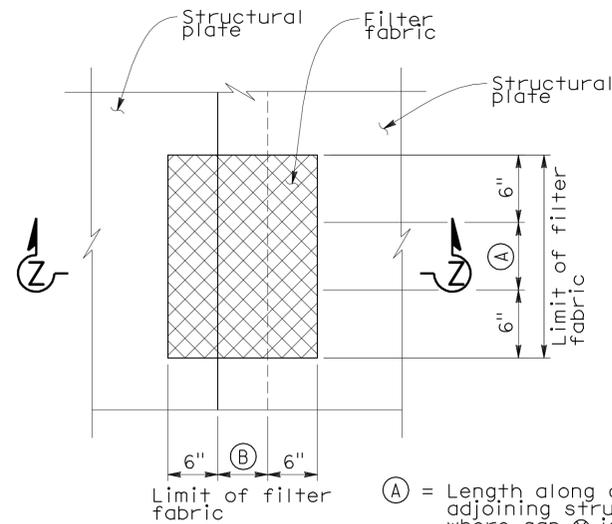
STRUCTURAL STEEL:

Structural Plate Corrugated Steel Pipe: ASTM A 761
 Steel Structure Plate - Cross Section Properties:
 Corrugations = 6"x2"
 Thickness = 0.318 in
 Area = 4.671 in²
 $r = 0.698 \text{ in}$
 $I = 190 \times 10^{-3} \text{ in}^4/\text{in}$

CONSTRUCTION LOADS:

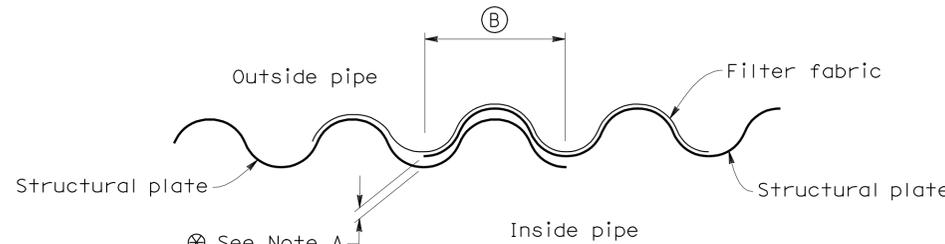
See Standard Plan D88

MAXIMUM OVERFILL = 91'-0"



- (A) = Length along overlap between adjoining structural plates where gap \otimes is greater than $1/8"$ See Note A
- (B) = Overlap region between adjoining structural plates

PLAN

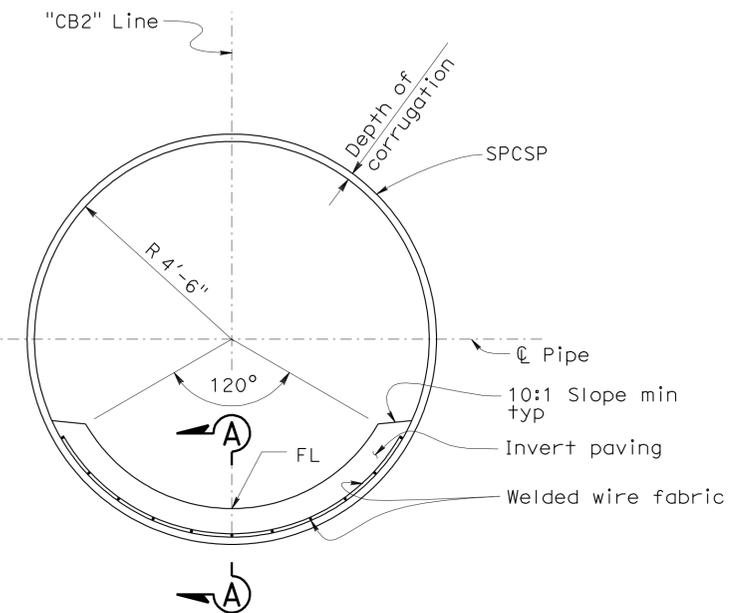


Note A:
 Where the gap between adjoining structural plates is greater than $1/8"$, filter fabric shall be placed on the outside surface of pipe as shown.

SECTION Z-Z

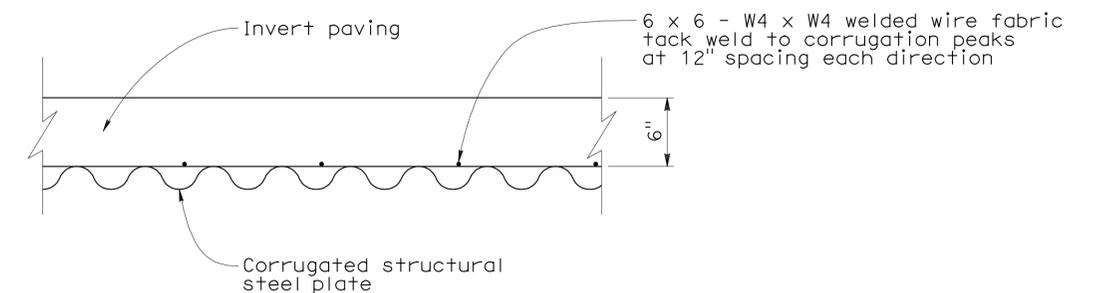
SPCSP JOINT DETAIL

No Scale



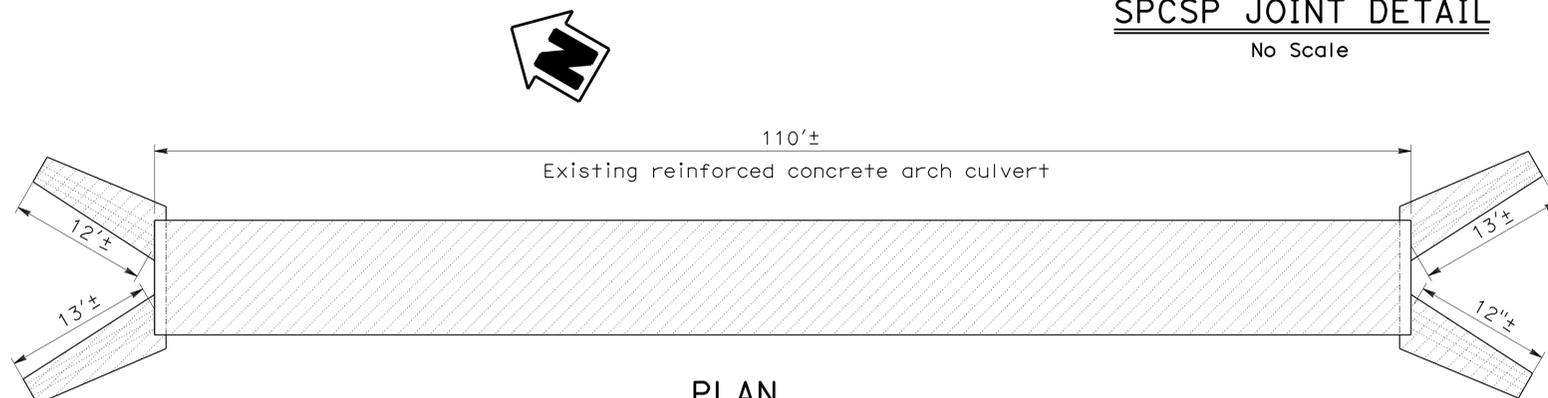
TYPICAL SECTION

$1/2" = 1'-0"$



SECTION A-A

$1/2" = 1'-0"$



PLAN

CULVERT REMOVAL

NO SCALE

Indicates existing reinforced concrete arch culvert and wingwalls to be removed

DESIGN	BY M. Kodsuntie	CHECKED H. Fang
DETAILS	BY Tony Cotton / GMS	CHECKED H. Fang
QUANTITIES	BY M. Kodsuntie	CHECKED GS / BP

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
 STRUCTURE DESIGN
DESIGN BRANCH 5

BRIDGE NO.	R4.25
POST MILE	R4.25

TRAIL GULCH CULVERT TYPICAL SECTION

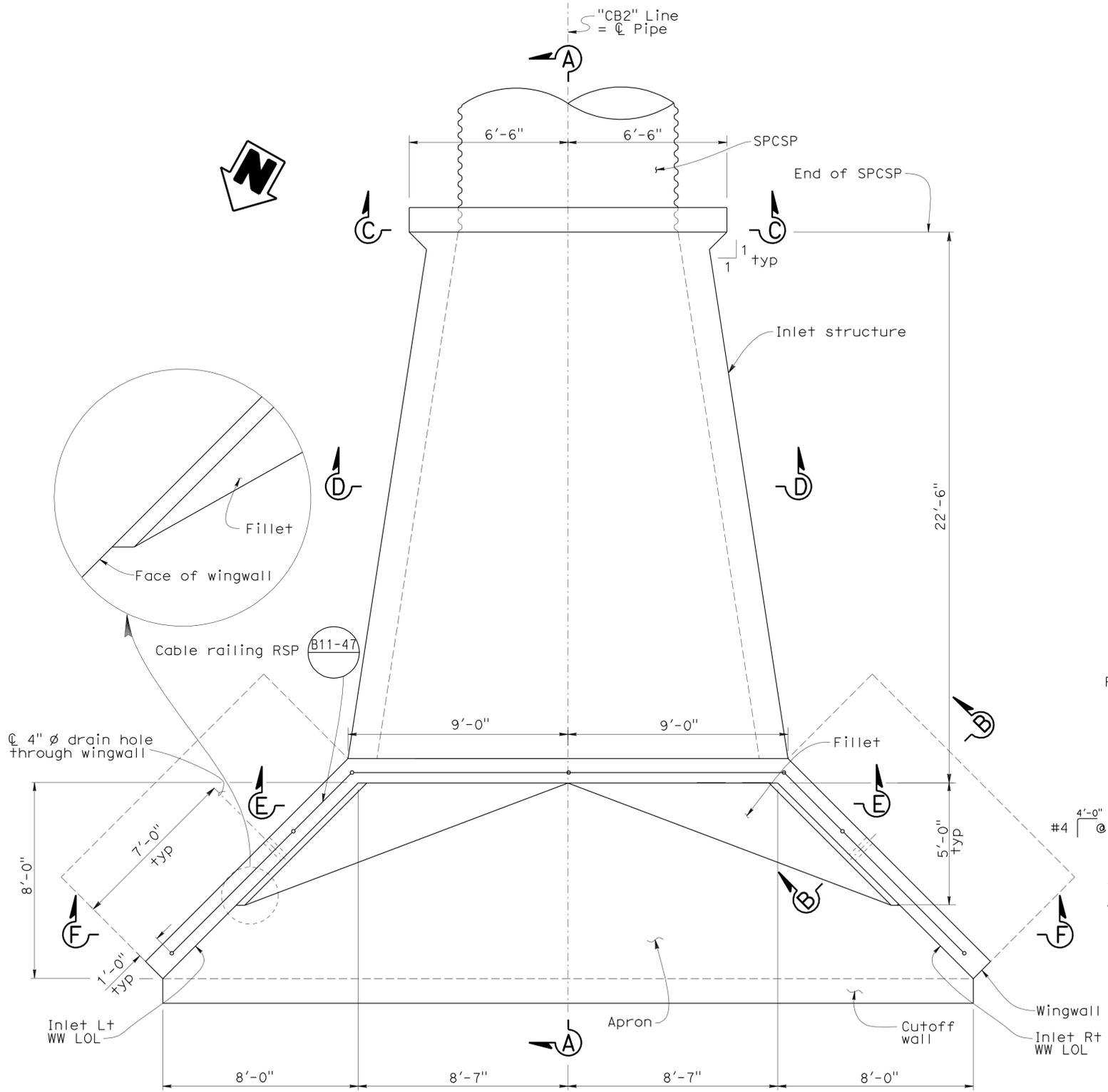
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha	299	4.3/5.5	184	188

Mansde Kodsuntie 11/29/11
 REGISTERED CIVIL ENGINEER DATE

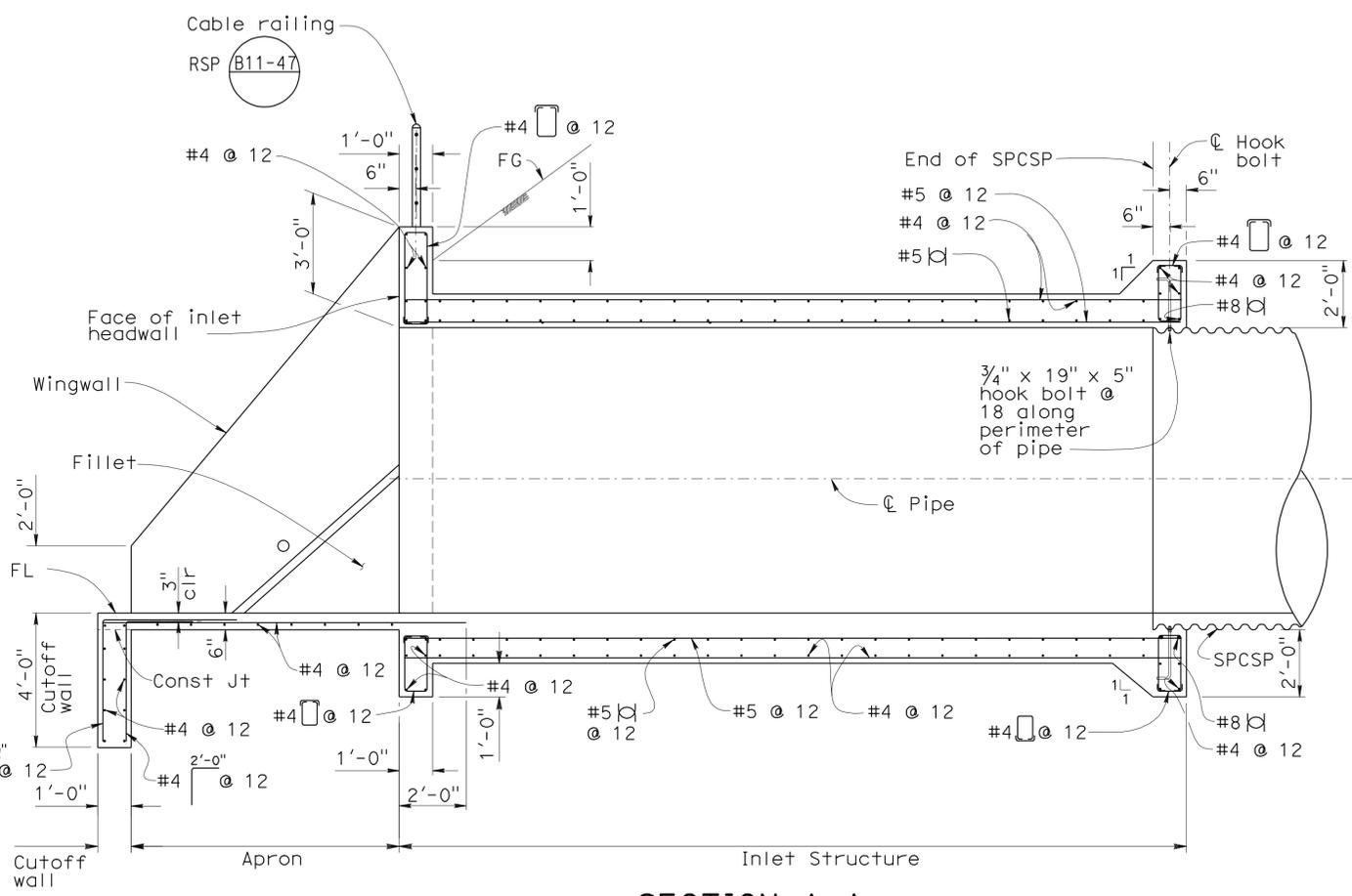
3-12-12
 PLANS APPROVAL DATE

M. Kodsuntie
 No. C56671
 Exp. 6-30-13
 CIVIL

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INLET-PLAN
 $\frac{3}{8}'' = 1'-0''$



SECTION A-A
 $\frac{3}{8}'' = 1'-0''$

Note:
 For Sections B-B & F-F, see "Inlet Details No. 3" sheet, for Sections C-C, D-D, & E-E see "Inlet Details No. 2" sheet.

DESIGN	BY M. Kodsuntie	CHECKED H. Fang
DETAILS	BY Tony Cotton / GMS	CHECKED H. Fang
QUANTITIES	BY M. Kodsuntie	CHECKED GS / BP

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
 STRUCTURE DESIGN
DESIGN BRANCH 5

BRIDGE NO.	R4.25
POST MILE	R4.25

TRAIL GULCH CULVERT
INTLET DETAILS NO. 1

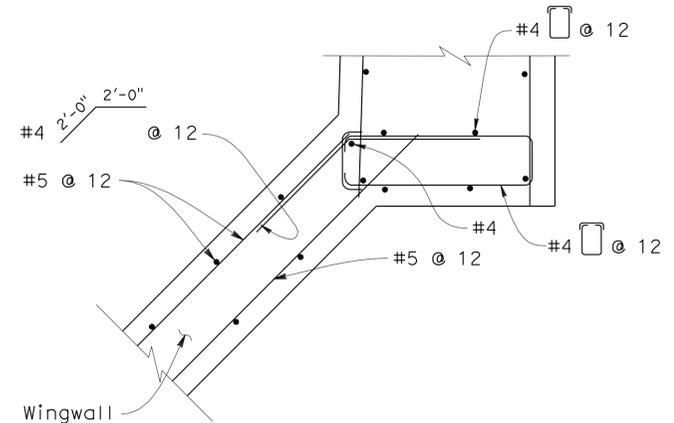
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha	299	4.3/5.5	185	188

Mande Kodsuntie 11/29/11
REGISTERED CIVIL ENGINEER DATE

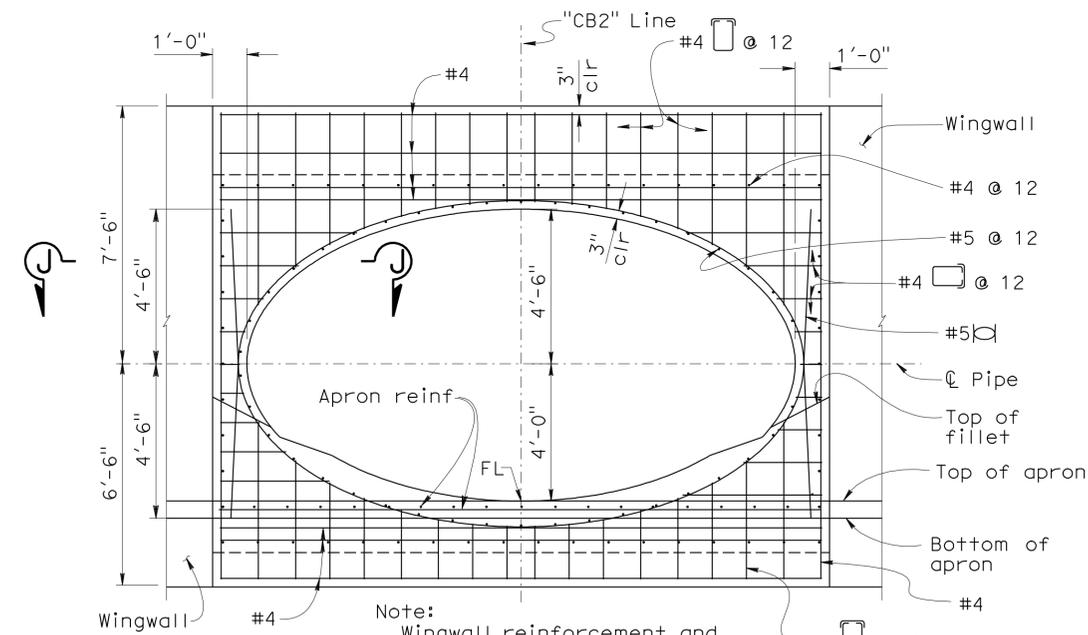
3-12-12
PLANS APPROVAL DATE

M. Kodsuntie
No. C56671
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STATE OF CALIFORNIA

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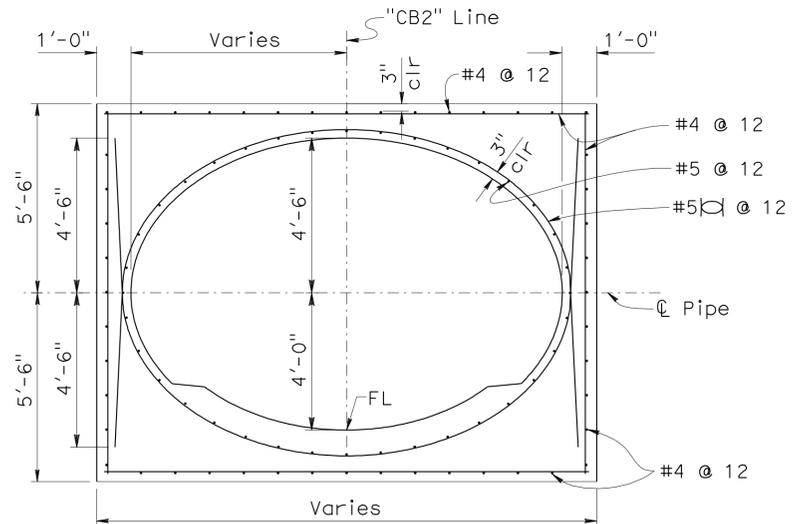


SECTION J-J
1" = 1'-0"



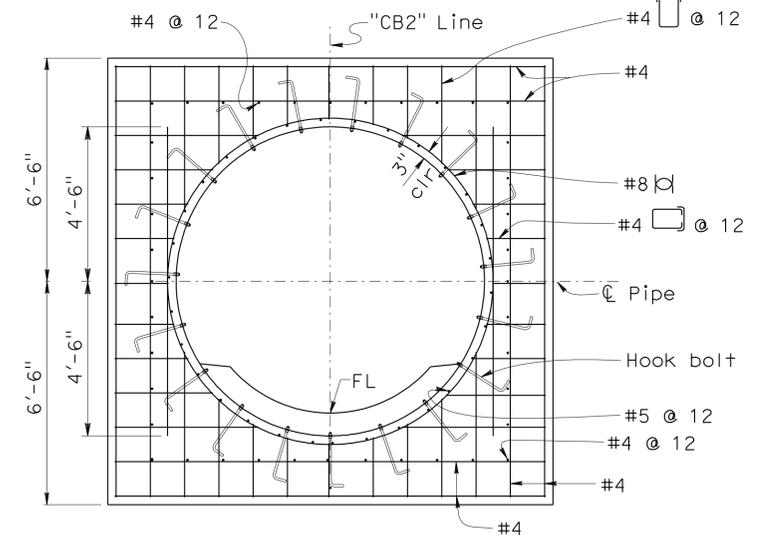
Note:
Wingwall reinforcement and cable railing not shown
Reinforcement symmetrical about "CB2" Line

SECTION E-E
3/8" = 1'-0"



Reinforcement symmetrical about \varnothing Pipe and "CB2" Line

SECTION D-D
3/8" = 1'-0"



Reinforcement symmetrical about \varnothing Pipe and "CB2" Line

SECTION C-C
3/8" = 1'-0"

Note
For location of Sections C-C, D-D, and E-E, see "Inlet Detail Details No. 1" sheet.

DESIGN	BY M. Kodsuntie	CHECKED H. Fang
DETAILS	BY Tony Cotton / GMS	CHECKED H. Fang
QUANTITIES	BY M. Kodsuntie	CHECKED GS / BP

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 5

BRIDGE NO.	R4.25
POST MILE	R4.25

TRAIL GULCH CULVERT
INTLET DETAILS NO. 2

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha	299	4.3/5.5	186	188

M. Kodsuntie 11/29/11
REGISTERED CIVIL ENGINEER DATE

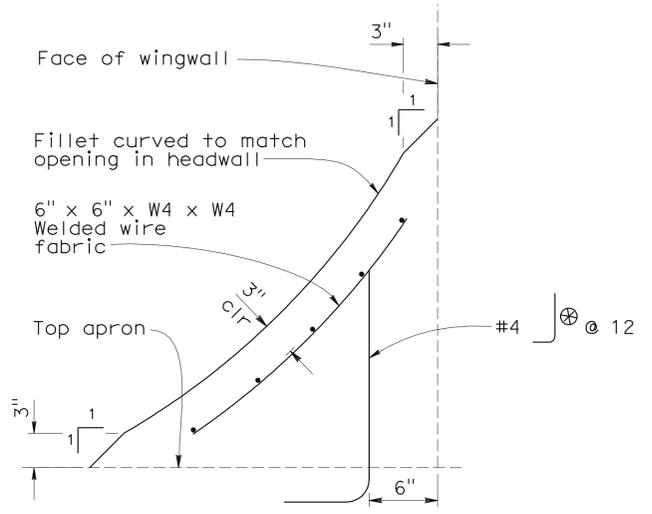
3-12-12
PLANS APPROVAL DATE

M. Kodsuntie
No. C56671
Exp. 6-30-13
CIVIL
STATE OF CALIFORNIA

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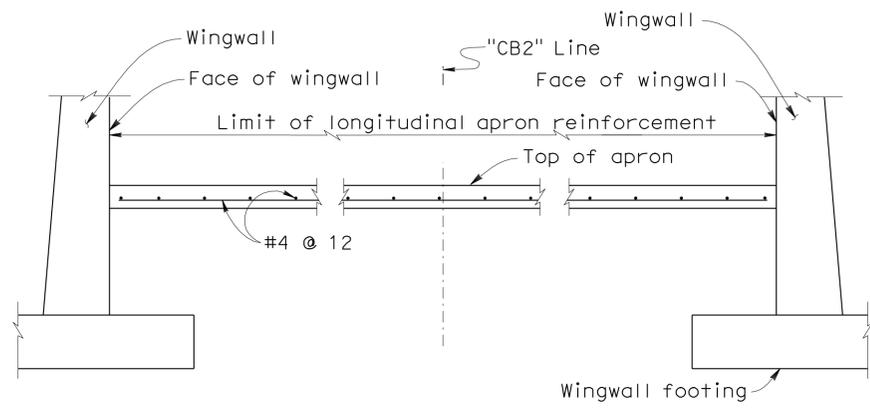
Notes:

- For location of Sections B-B and F-F, see "Inlet Detail No. 1" sheet.
- Install 4" ϕ weephole 2'-0" above top of apron.

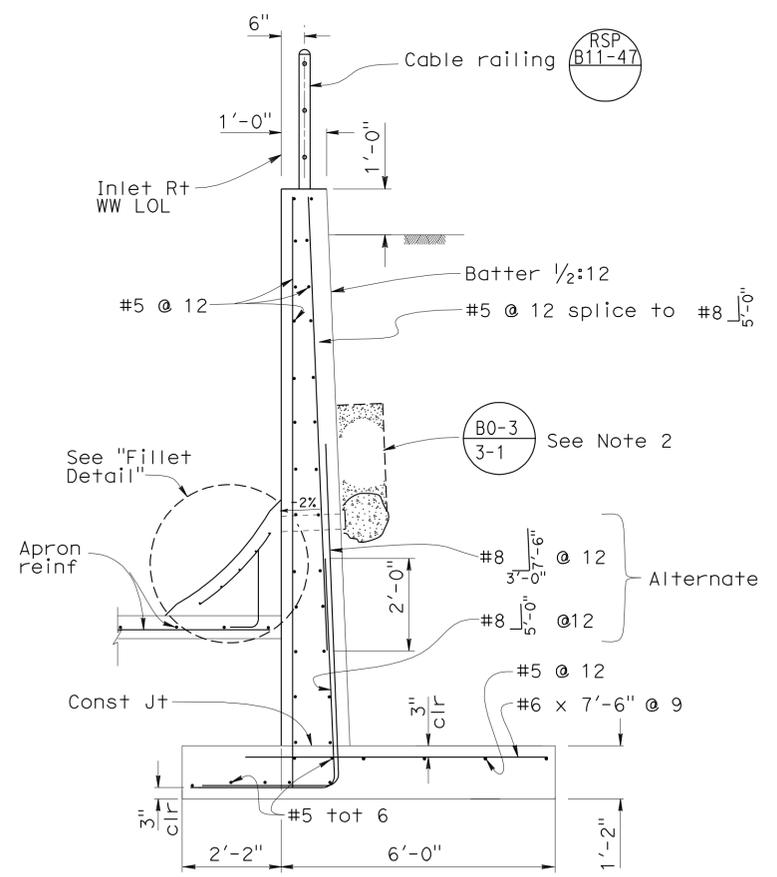


FILLET DETAIL
1/2" = 1'-0"

⊗ Length varies, extended to 3" from surface of fillet



SECTION F-F
1/2" = 1'-0"



SECTION B-B
1/2" = 1'-0"

Note:
Inlet Rt WW shown,
Inlet Lt WW similar

DESIGN	BY M. Kodsuntie	CHECKED H. Fang
DETAILS	BY Tony Cotton / GMS	CHECKED H. Fang
QUANTITIES	BY M. Kodsuntie	CHECKED GS / BP

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 5

BRIDGE NO.	R4.25
POST MILE	R4.25

**TRAIL GULCH CULVERT
INTLET DETAILS NO. 3**

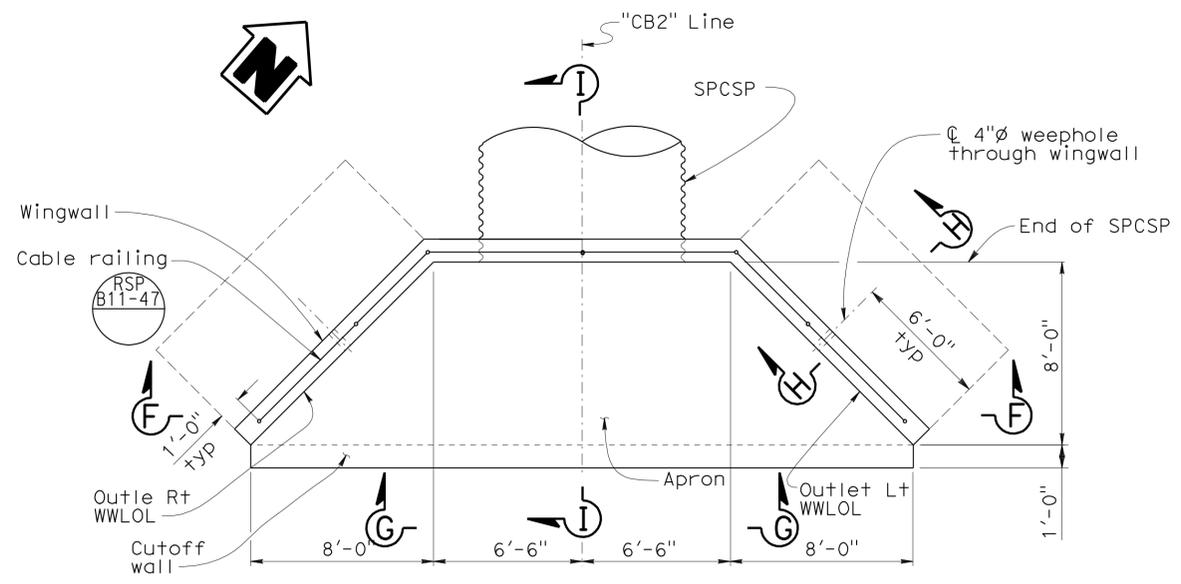
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha	299	4.3/5.5	187	188

Manode Kodsuntie 11/29/11
 REGISTERED CIVIL ENGINEER DATE

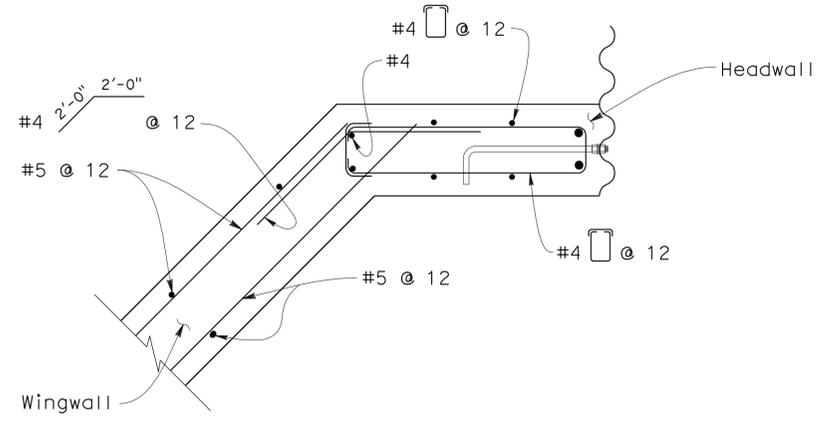
3-12-12
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M. Kodsuntie
 No. C56671
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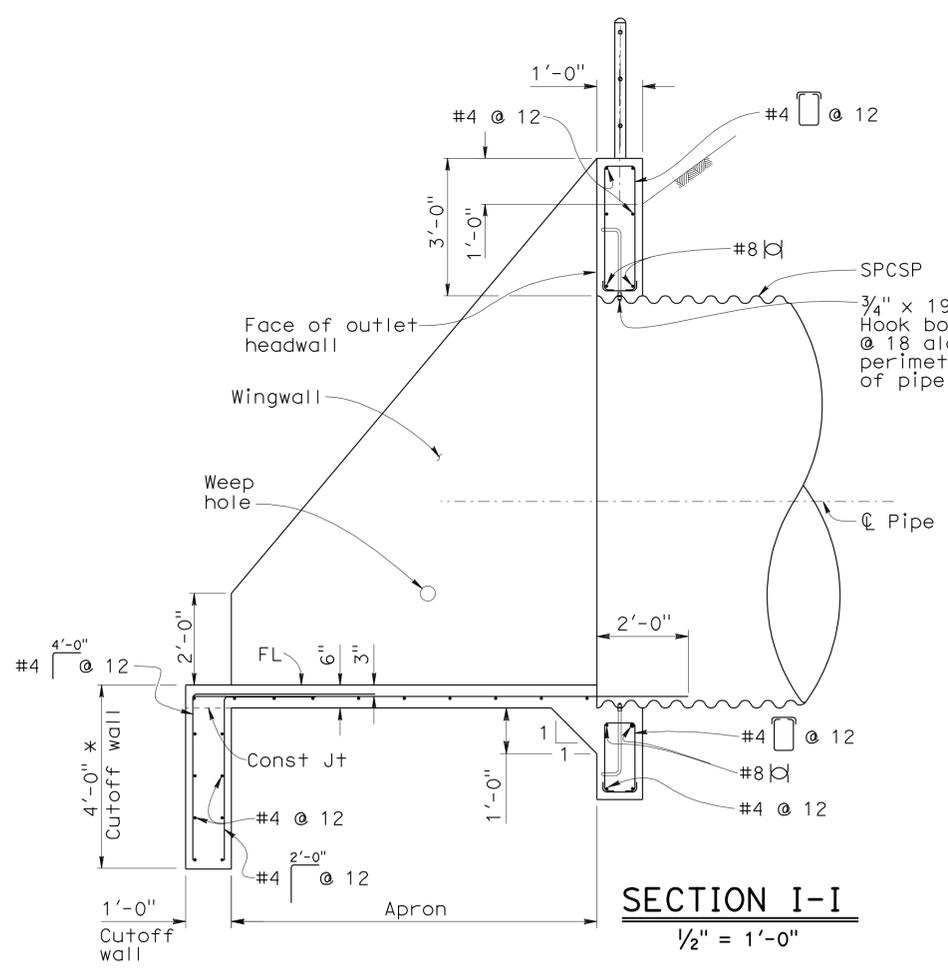


OUTLET PLAN
 1/4" = 1'-0"

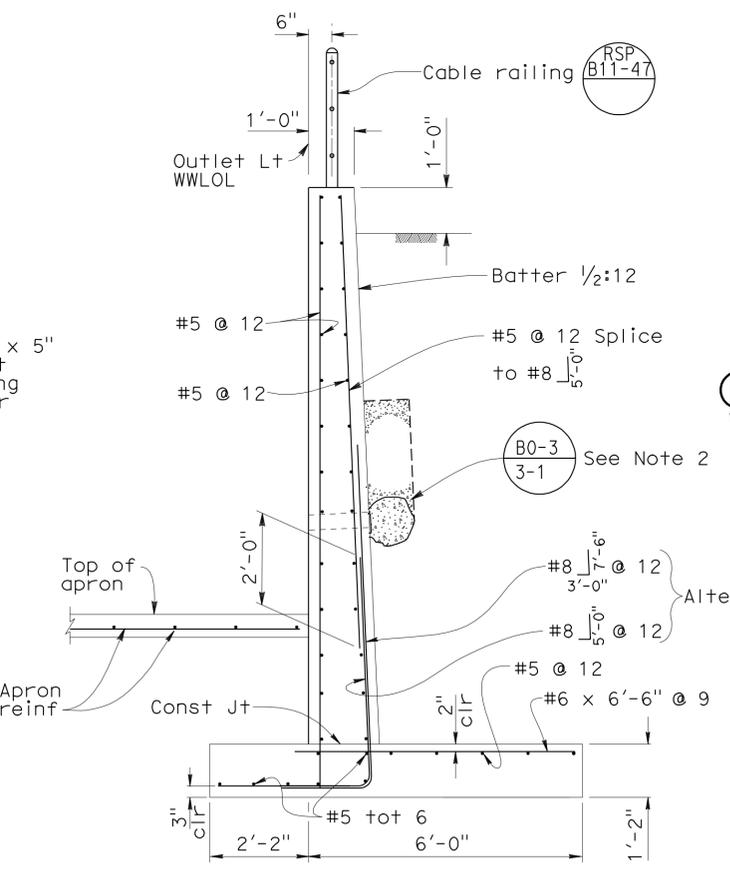


SECTION K-K
 1" = 1'-0"

- Notes:
- For Section F-F, see "Inlet Details No. 3" sheet.
 - Install 4" ϕ weephole 2'-0" above top of apron.
- * If top of rock is within 4'-0" of \bar{E} , cutoff wall may be shortened as approved by the Engineer.

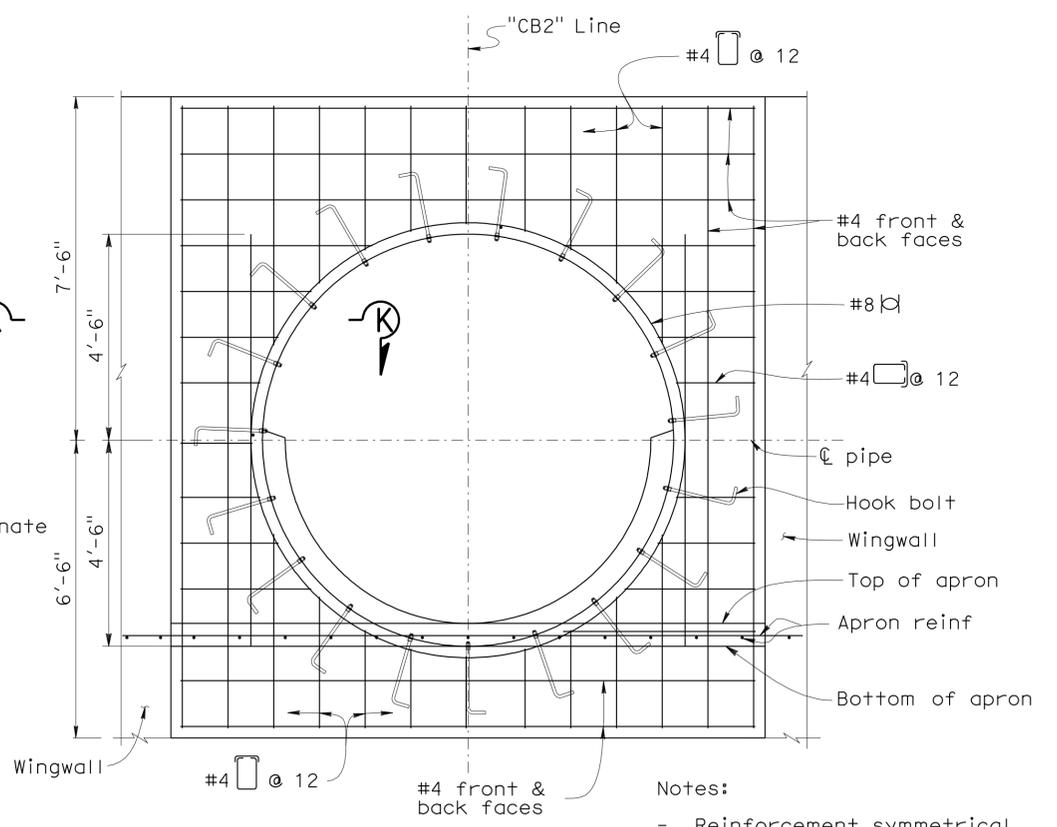


SECTION I-I
 1/2" = 1'-0"



SECTION H-H
 1/2" = 1'-0"

Note:
 Outlet Rt WW shown,
 Outlet Lt WW similar



VIEW G-G
 1/2" = 1'-0"

- Notes:
- Reinforcement symmetrical about "CB2" Line.
 - Cable railing not shown.

DESIGN	BY	M. Kodsuntie	CHECKED	H. Fang	STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	DIVISION OF ENGINEERING SERVICES STRUCTURE DESIGN DESIGN BRANCH 5	BRIDGE NO.	R4.25	TRAIL GULCH CULVERT OUTLET DETAILS	
	DETAILS	BY	Tony Cotton / GMS	CHECKED			H. Fang	POST MILE		R4.25
	QUANTITIES	BY	M. Kodsuntie	CHECKED			GS / BP			

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REV. 09-01-10)

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS

UNIT: 3590 PROJECT NUMBER & PHASE: 0200000216

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES	SHEET	OF
06-13-11 06-27-11 11-03-11 11-29-11	8	9

FILE => y08trail_gulch_outdt.dgn

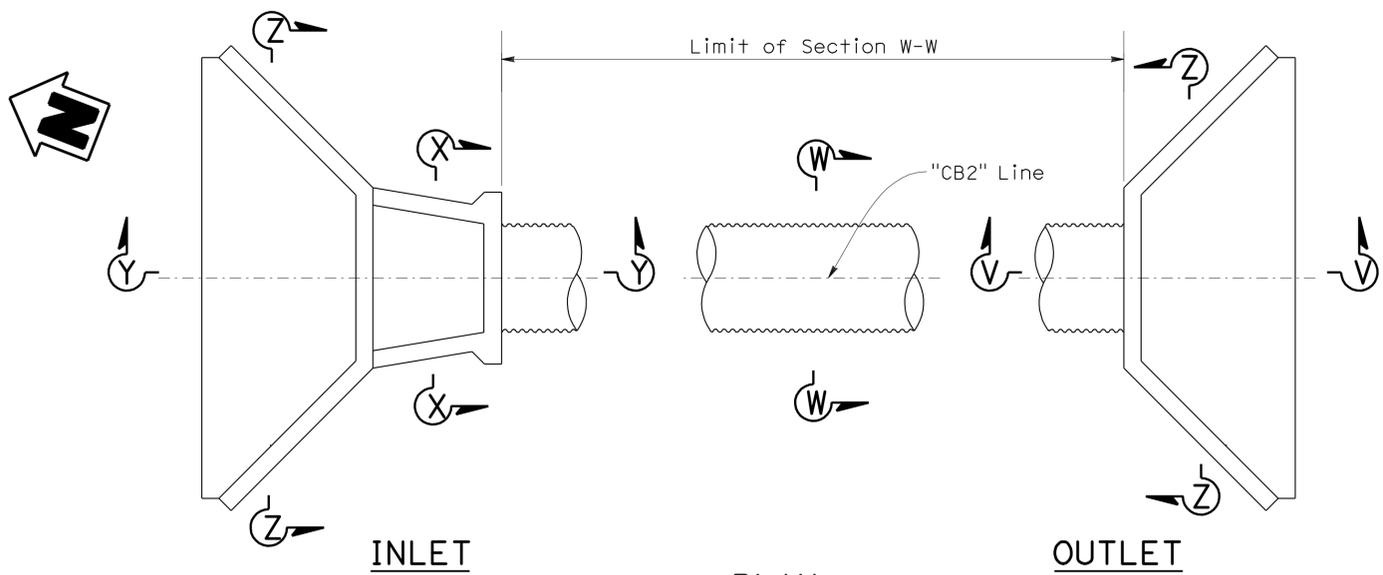
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
02	Sha	299	4.3/5.5	188	188

Mansde Kodsuntie 11/29/11
REGISTERED CIVIL ENGINEER DATE

3-12-12
PLANS APPROVAL DATE

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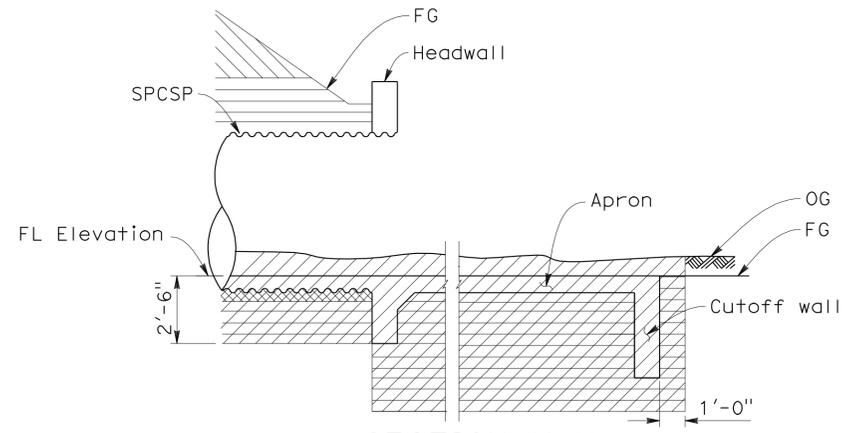
REGISTERED PROFESSIONAL ENGINEER
M. Kodsuntie
No. C56671
Exp. 6-30-13
CIVIL
STATE OF CALIFORNIA



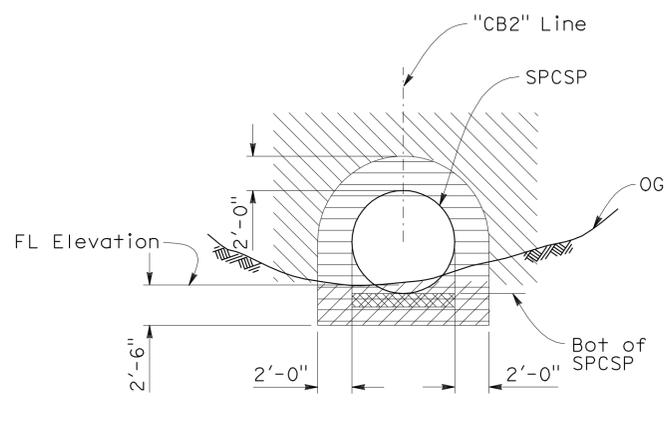
PLAN
NO SCALE

Note:
1. If top of bedrock is within 2'-0" of bottom of wingwall footing, depth of excavation shall be adjusted in the field as directed by the Engineer.

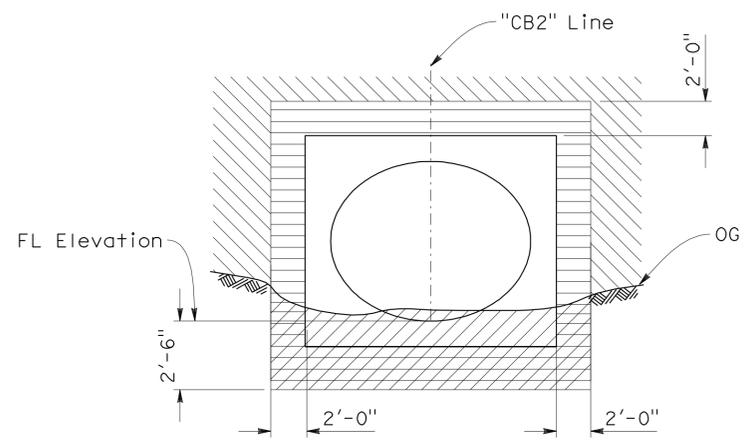
- LEGEND:
- SPCSP = Structural Plate Corrugate Steel Pipe
 - Structure Excavation (Culvert)
 - Structure Backfill (Culvert) 95% Relative Compaction
 - Roadway Embankment
 - SPCSP bedding material, 4" thick, 85% Compaction (Light compaction)



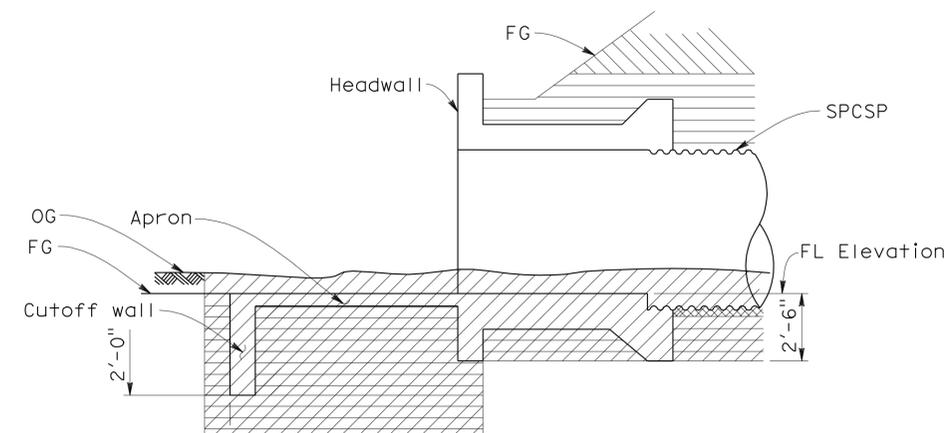
SECTION V-V
NO SCALE



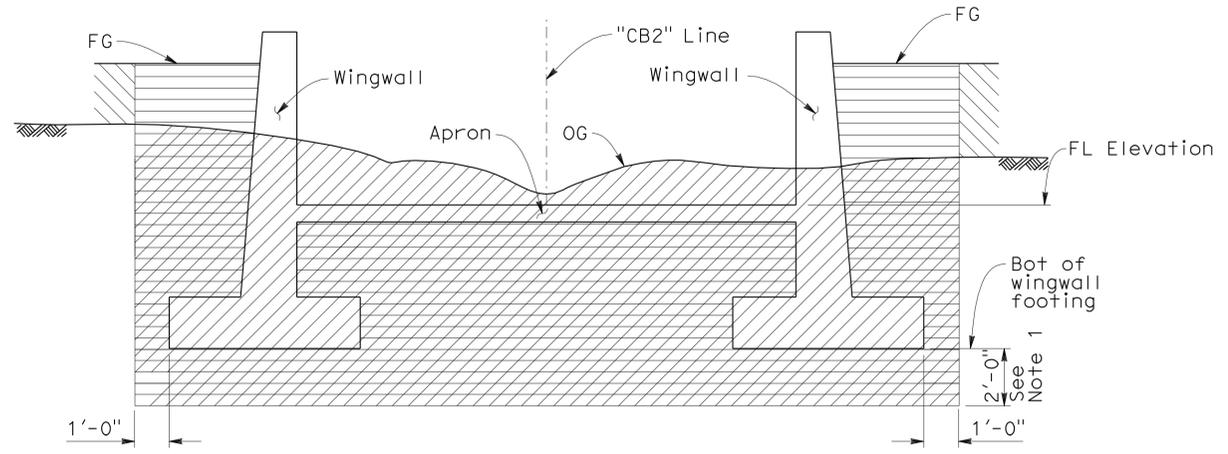
SECTION W-W
NO SCALE



SECTION X-X
NO SCALE



SECTION Y-Y
NO SCALE



SECTION Z-Z
NO SCALE

DESIGN	BY M. Kodsuntie	CHECKED H. Fang
DETAILS	BY Tony Cotton / GMS	CHECKED H. Fang
QUANTITIES	BY M. Kodsuntie	CHECKED GS / BP

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 5

BRIDGE NO.	R4.25
POST MILE	R4.25

**TRAIL GULCH CULVERT
EXCAVATION AND BACKFILL**