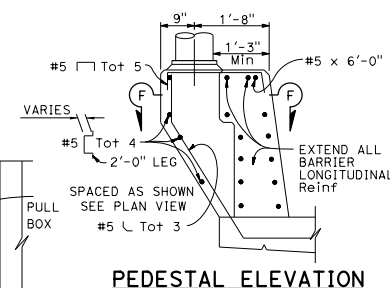
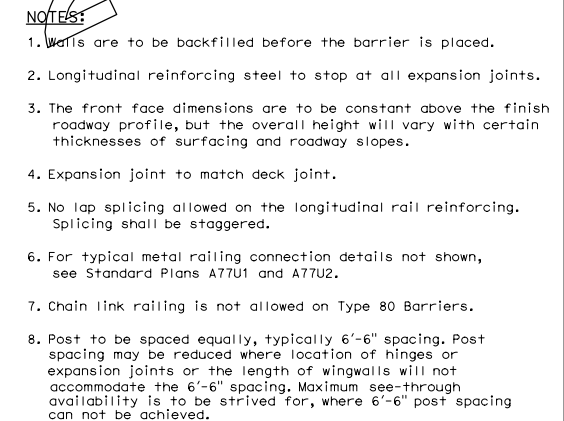


- NOTES:**
1. Walls are to be backfilled before barrier is placed.
 2. Clearance to reinforcing steel in barrier to be 1".
Note: No lap or additional reinforcement to stop at all expansion joints.
 3. Dimensions may vary with roadway cross slope and with certain thickness of surfacing. See Project Plans.
 4. For typical metal railing connection details not shown, see Standard Plans AT77U and AT77U2.
 5. See Standard Plans ES-9A, ES-9B, ES-9C, ES-9D and ES-9E for electrical details. The maximum number of conduits in the barrier is limited to two 2" conduits along with one 3" conduit. When a 3" conduit is used, it is restricted to the base of the barrier.
 6. For electrolier mounting details, See Standard Plans ES-6A and ES-6B.
 7. Minimum concrete edge distance, to the reinforcing shown, shall be maintained. Edge distance may be adjusted to accommodate increase in concrete cover for architectural treatment.
 8. Taper the top of the end of the bridge railing at 4:1 to match the top elevation of the thrie beam rail element.



STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
CONCRETE BARRIER
TYPE 742
NO SCALE

B11-57



STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**CONCRETE BARRIER
TYPE 80
(SHEET 1 OF 2)**

NO SCALE

B11-60

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER

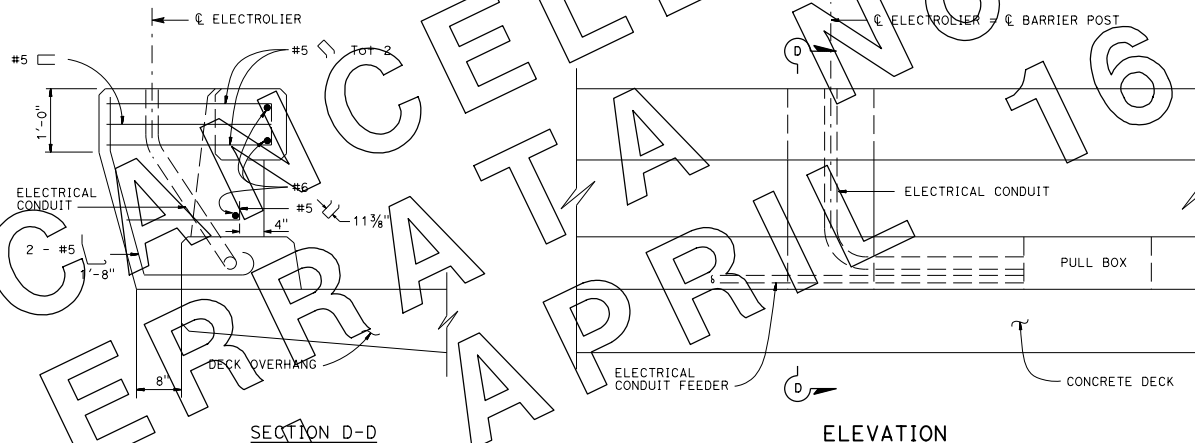
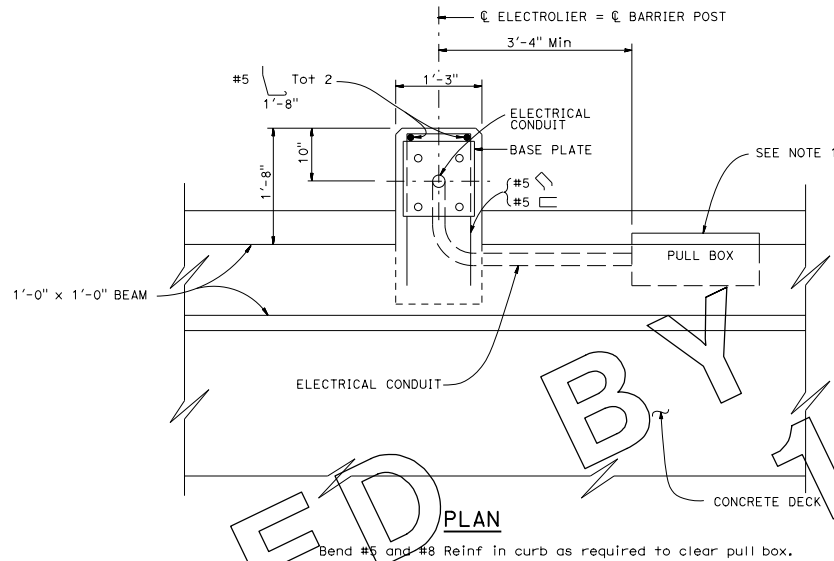
April 17, 2020

PLANS APPROVAL DATE

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COPIES OF THIS PLAN SHEET.

REGISTERED PROFESSIONAL ENGINEER
Tilgert Satter
No. C42892
Exp. 3-31-22
CIVIL
STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED _____



BARRIER MODIFICATION FOR ELECTROLIER

See Note 4

ELECTROLIER NOTES:

1. See Project Plans for electrolier and pull box locations.
2. For electrical details, see Standard Plans ES-9A and ES-9B, and Revised Standard Plans RSP ES-9C, RSP ES-9D, and RSP ES-9E.
3. This barrier is designed to accommodate only two 1/2" electrical conduit for electroliers on the structure. Any transporting of larger conduit is restricted to within the structure.
4. Only the additional reinforcing for the electrolier pedestal is shown. For other typical reinforcing for Type 80 Barrier, see Standard Plan B11-60.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**CONCRETE BARRIER
TYPE 80
(SHEET 2 of 2)**

NO SCALE

RSP B11-61 DATED APRIL 17, 2020 SUPERSEDES STANDARD PLAN B11-61
DATED MAY 31, 2018 - PAGE 368 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP B11-61

2018 REVISED STANDARD PLAN RSP B11-61

LEGEND:

10" x 6" x 1'-0"
FILLER BLOCK ALIGNED AGAINST HEADER.

10" x 6" STRETCHERS

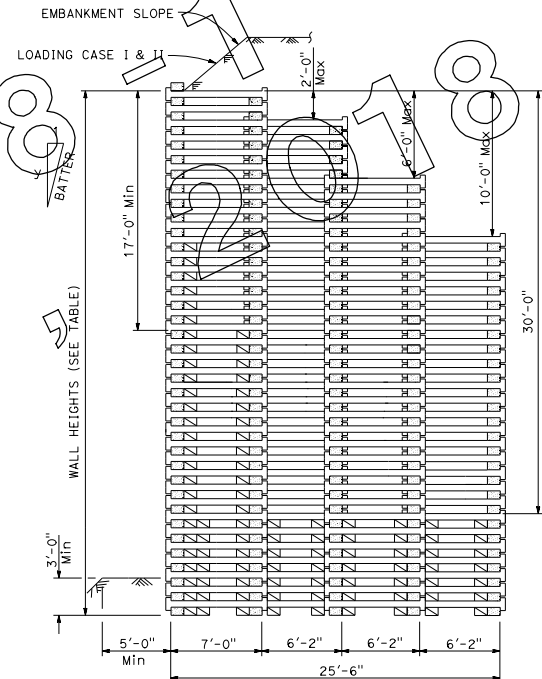
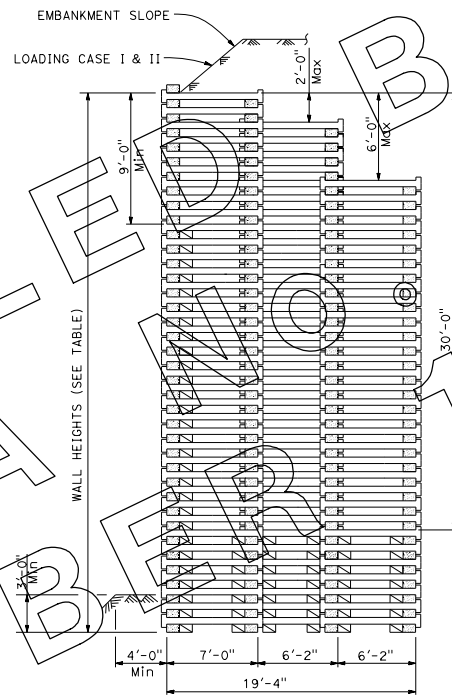
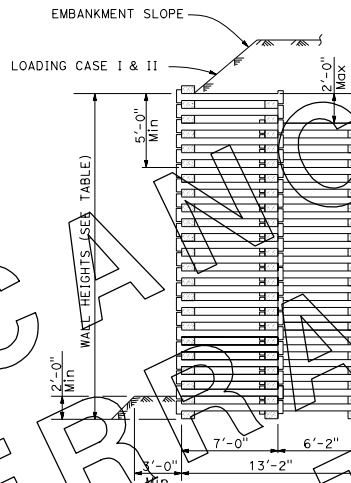
LC1 = LOADING CASE I

LC2 = LOADING CASE II

y = 4 AND 6 FOR BATTERED
FOR TYPES A, B, AND C

MAXIMUM WALL HEIGHTS

BATTER	TYPE A		TYPE B		TYPE C	
	LC1	LC2	LC1	LC2	LC1	LC2
VERTICAL	24'-0"	11'-0"	27'-0"	20'-0"	31'-0"	27'-0"
1:6	31'-0"	13'-0"	36'-0"	23'-0"	36'-0"	33'-0"
1:4	33'-0"	15'-0"	36'-0"	25'-0"	36'-0"	36'-0"



STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

REINFORCED CONCRETE CRIB WALL TYPES A, B AND C

NO SCALE

C7A

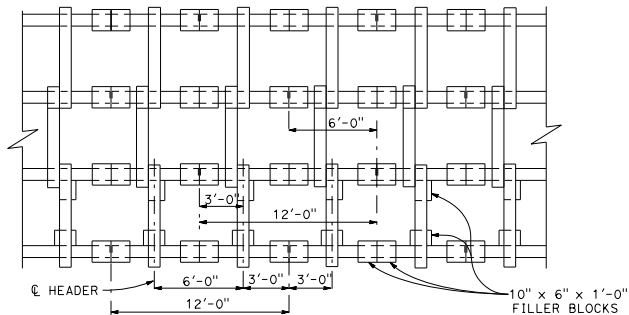
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

Kathryn Gravelle
REGISTERED CIVIL ENGINEER

May 31, 2018
PLANS APPROVAL DATE

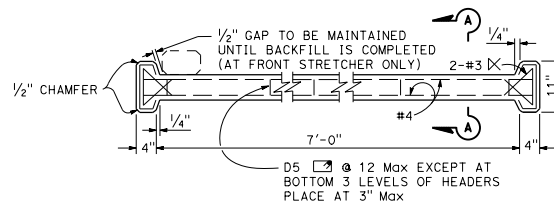
No. C55599
EXP. 12-31-18
CIVIL
STATE OF CALIFORNIA

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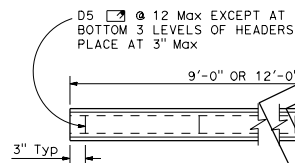


PARTIAL PLAN AT BASE

Type "B" shown, others similar

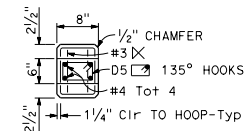


ELEVATION

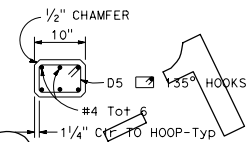


ELEVATION

HEADER DETAIL



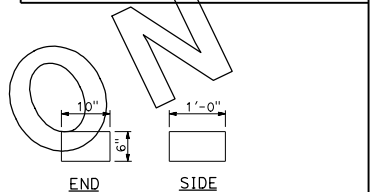
SECTION A-A



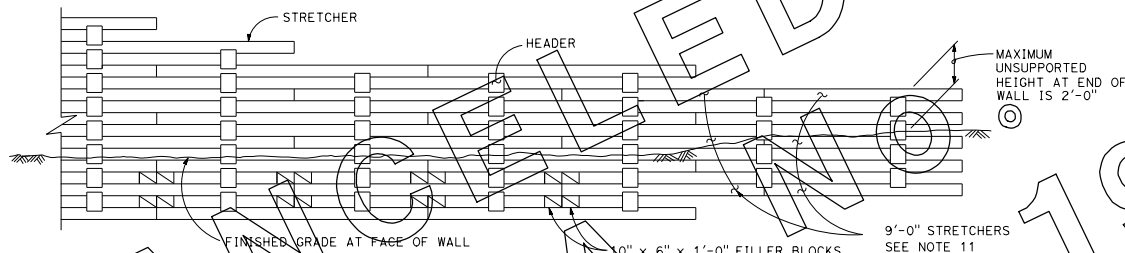
SECTION B-B

STRETCHER DETAIL

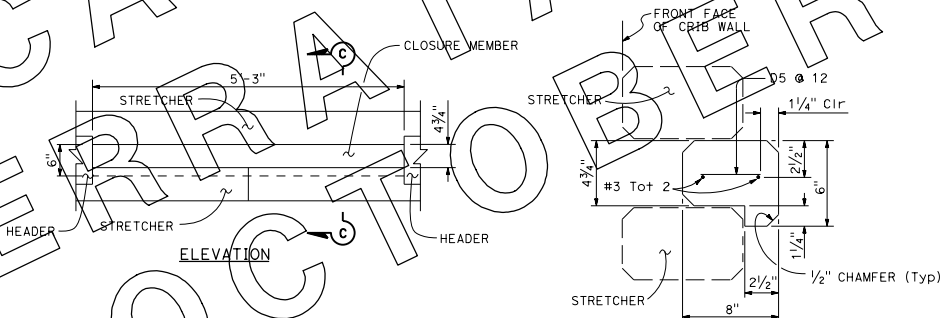
DIST	COUNTY	ROUTE	POST MILES	SHEET TOTAL
			TOTAL PROJECT	NO. SHEETS
Kathryn Gravelle REGISTERED CIVIL ENGINEER No. C55599 May 31, 2018 PLANS APPROVAL DATE THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.				
PROFESSIONAL ENGINEER Kathryn Gravelle No. C55599 Exp. 12-31-18 CIVIL STATE OF CALIFORNIA				



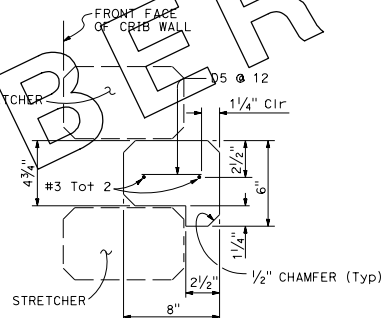
FILLER BLOCK DETAIL



PARTIAL ELEVATION



FRONT FACE CLOSURE MEMBER



SECTION C-C

NOTES:

- Design: AASHTO LRFD Bridge Design Specifications, 4th edition with the California Amendments.
- Reinforced Concrete: $f'_c = 60$ ksi
 $f_y = 36$ ksi
- Soil Parameters: $\phi = 34^\circ$
 $\delta = 25.5^\circ$
 $\lambda = 120$ pcf
 $A = 0.2g$
Lateral earth pressure determined by Coulomb's theory.
- Concrete to concrete bearing surfaces shall be finished to a smooth plane. The gap between bearing surfaces shall not exceed $1/8$ inch. Where a gap of $1/16$ inch to $1/8$ inch exists, a $1/16$ inch pad of asphalt felt or sheet neoprene shall be placed between the bearing surfaces. For wall Types B and C, a $1/16$ inch asphalt felt pad or sheet neoprene shall be placed between all concrete bearing surfaces below the 29'-10" level.
- All members may be manufactured to dimensions $1/8$ inch greater in thickness and stretchers $1/2$ inch less in length.
- Where an opening is specified in the face of a wall, special length stretchers and additional headers may be required.
- For non-tangent wall alignment, special length stretchers may be required.
- For non-tangent wall alignment and at locations where filler blocks are required, special length front face closure members may be required.
- The thickness of the lowest step for each wall type shall not be less than the dimension shown on these plans.
- Use "Front Face Closure Member" only when specified on project plans or in the Special Provisions.
- All stretchers are 12'-0" except as noted.
- Place 2 filler blocks midspan between stretchers in the bottom 2 levels of walls 9' high and higher.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**REINFORCED CONCRETE CRIB WALL
TYPES A, B, AND C
HEADER AND STRETCHER DETAILS**

NO SCALE

C7B

TYPE	CASE	BEARING (ksf) AND B' (ft)	VERTICAL WALL HEIGHT																																			
			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'				
A	I	qu	1.4	1.6	1.8	2.0	2.1	2.4	2.6	2.9	3.2	3.5	3.8	4.1	4.4	4.8	5.2	5.6	6.1	6.6	7.1	7.7]																
		B'	13.2	13.2	13.2	13.2	13.1	12.9	12.7	12.4	12.1	11.9	11.6	11.4	11.1	10.8	10.5	10.2	9.9	9.6	9.3	9.0																
	II	qu	1.8	1.9	2.1	2.3	2.5	2.7	2.9]																													
		B'	13.2	13.2	13.2	13.2	13.2	13.2	13.1																													
B	I	qu					2.2	2.4	2.5	2.7	2.9	3.2	3.4	3.6	3.9	4.1	4.4	4.7	5.0	5.3	5.6	5.9	6.3	6.6	7.0]													
		B'	19.3	19.3	19.3	19.3	19.3	19.2	19.0	18.8	18.6	18.4	18.2	18.0	17.8	17.6	17.4	17.2	16.9	16.7	16.5	16.2																
	II	qu					3.0	3.1	3.3	3.5	3.6	3.9	4.1	4.3	4.5	4.8	5.1	5.5]																				
		B'					19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.1	18.8	18.4																			
C	I	qu																4.6	4.9	5.2	5.4	5.7	6.0	6.3	6.6	6.9	7.2	7.5]										
		B'														25.2	25.1	25.0	24.8	24.7	24.5	24.4	24.2	24.0	23.9	23.7	23.5	23.3	23.1	22.9								
	II	qu														5.0	5.2	5.4	5.6	5.8	6.0	6.2	6.5	6.8	7.2	7.5]												
		B'														25.5	25.5	25.5	25.5	25.5	25.5	25.4	25.4	25.4	24.8	24.5												

TYPE	CASE	BEARING (ksf) AND B' (ft)	1:6 BATTERED WALL HEIGHT																																			
			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'				
A	I	qu	1.4	1.5	1.7	1.9	2.1	2.3	2.4	2.6	2.8	3.0	3.2	3.4	3.6	3.8	4.1	4.3	4.6	4.9	5.2	5.5	5.8	6.1	6.4	6.8	7.1	7.6	8.2									
		B'	13.2	13.2	13.2	13.2	13.2	13.2	13.2	13.2	13.2	13.2	13.2	13.2	13.2	13.0	12.9	12.8	12.6	12.5	12.3	12.1	11.9	11.8	11.6	11.4	11.2	10.2	7.8									
	II	qu	1.8	1.9	2.1	2.2	2.4	2.6	2.8	3.0	3.2																											
		B'	13.2	13.2	13.2	13.2	13.2	13.2	13.2	13.2	13.2																											
B	I	qu					2.0	2.2	2.4	2.6	2.7	2.9	3.1	3.3	3.5	3.7	3.9	4.1	4.3	4.5	4.7	4.9	5.2	5.4	5.6	5.8	6.0	6.2	6.5	6.8	7.0	7.3	7.6	7.8				
		B'	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.2	19.0	18.9	18.8	18.7	18.5				
	II	qu					2.9	3.0	3.2	3.3	3.5	3.7	3.9	4.1	4.3	4.5	4.7	4.9	5.2	5.4	5.6																	
		B'					19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3																
C	I	qu													3.4	3.6	3.8	4.0	4.2	4.4	4.6	4.8	5.1	5.3	5.5	5.7	5.9	6.2	6.4	6.6	6.9	7.1	7.3	7.5				
		B'														25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5				
	II	qu														4.7	4.9	5.1	5.3	5.5	5.7	5.9	6.1	6.3	6.6	6.8	7.0	7.3	7.5	7.7	8.0	8.3						
		B'															25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.4	25.3					

TYPE	CASE	BEARING (ksf) AND B' (ft)	1:4 BATTERED WALL HEIGHT																																			
			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'				
A	I	qu	1.8	1.5	1.6	1.9	2.0	2.2	2.4	2.6	2.8	3.0	3.1	3.3	3.5	3.7	3.9	4.1	4.3	4.5	4.7	4.9	5.1	5.3	5.5	5.7	5.9	6.2	6.5	6.7	7.0							
		B'	13.2	13.2	13.2	13.2	13.2	13.2	13.2	13.2	13.2	13.2	13.2	13.2	13.2	13.2	13.2	13.2	13.2	13.2	13.2	13.2	13.2	13.2	13.2	13.2	13.1	13.0	12.9	12.8	12.7							
	II	qu	1.9	1.9	2.1	2.2	2.4	2.6	2.8	3.0	3.2	3.4	3.6																									
		B'	13.2	13.2	13.2	13.2	13.2	13.2	13.2	13.2	13.2	13.2	13.2																									
	B	I	qu					2.0	2.1	2.3	2.5	2.7	2.8	3.0	3.2	3.4	3.6	3.8	4.0	4.2	4.4	4.6	4.8	5.0	5.2	5.4	5.6	5.8	6.0	6.2	6.4	6.6	6.9	7.1	7.3			
			B'					19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3			
C	II	qu					2.8	2.9	3.1	3.3	3.4	3.6	3.8	4.0	4.2	4.4	4.6	4.8	5.0	5.2	5.4	5.6	5.9															
		B'					19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3	19.3																
	I	qu													3.8	3.5	3.7	3.9	4.1	4.3	4.5	4.7	4.9	5.1	5.3	5.6	5.8	6.0	6.2	6.4	6.6	6.9	7.1	7.3				
		B'													25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5				
	II	qu													4.5	4.7	4.9	5.1	5.3	5.5	5.7	5.9	6.1	6.3	6.5	6.8	7.0	7.2	7.4	7.7	7.9	8.1	8.4	8.6				
		B'													25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5			

DESIGN FOOTNOTE:

1. Nominal soil bearing resistance, design lateral loads, settlement and overall slope stability shall be determined by analysis based on a foundation site investigation. Walls shall not be founded on unimproved original ground with nominal bearing resistance less than 3 ksf.

LEGEND:

- B' - EFFECTIVE FOOTING WIDTH (ft)
qu - GROSS FACTORED BEARING STRESS (ksf)
] - INDICATES MAXIMUM ALLOWABLE WALL HEIGHT FOR PARTICULAR WALL TYPE AND PARTICULAR LOADING CASE.
y = 4 AND 6 FOR BATTERED

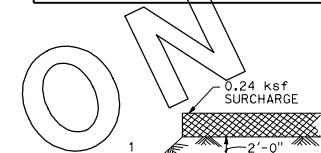
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Kathryn Gravelle
REGISTERED/CIVIL ENGINEER

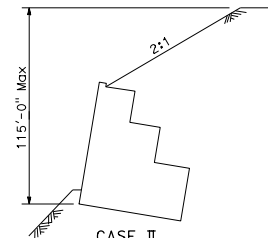
May 31, 2018
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REGISTERED PROFESSIONAL ENGINEER
Kathryn Gravelle
No. C55599
Exp. 12-31-18
CIVIL
STATE OF CALIFORNIA



CASE I



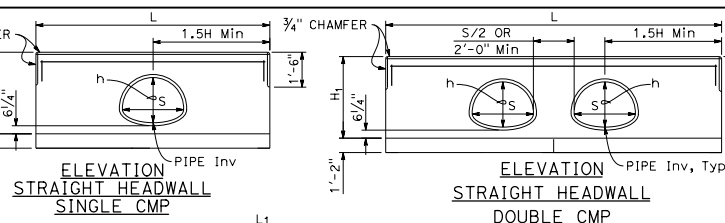
CASE II

DETAIL OF
DESIGN LOADING CASES

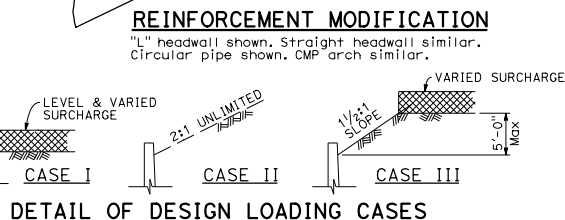
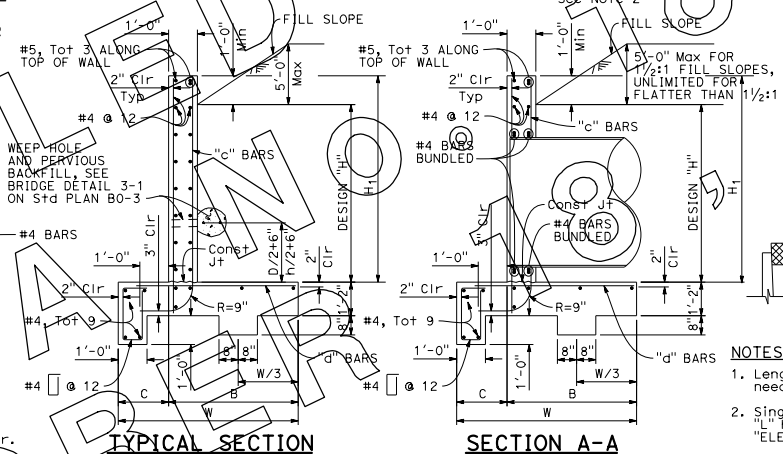
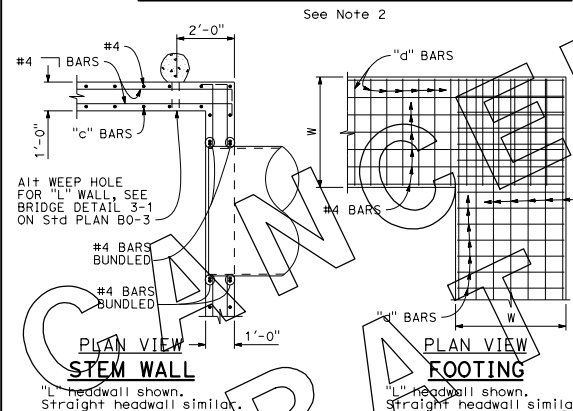
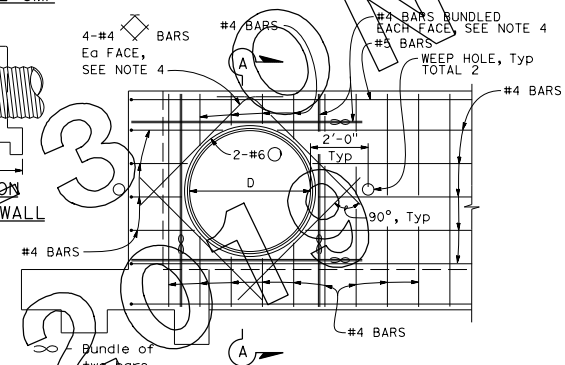
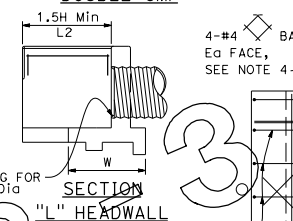
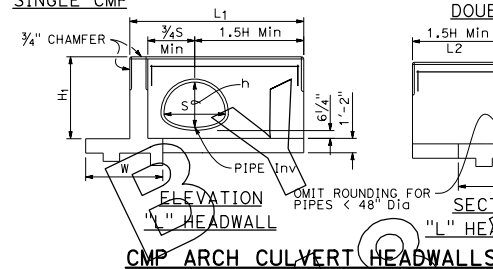
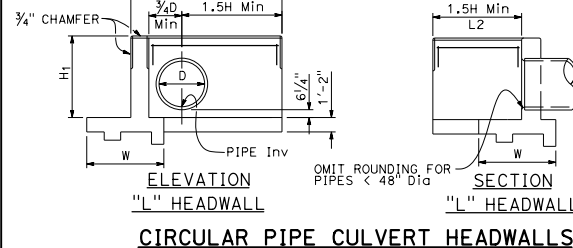
REINFORCED CONCRETE CRIB WALL FOUNDATION PRESSURE

NO SCALE

C7C



H	CIRCULAR PIPE SIZE D	ARCH SIZE $S \times h$
2'-8"	12"	—
2'-11"	15"	21" \times 15"
3'-2"	18"	24" \times 18"
3'-5"	21"	28" \times 20"
3'-8"	24"	35" \times 24"
3'-11"	27"	—
4'-2"	30"	42" \times 29"
4'-5"	33"	49" \times 33"
4'-8"	36"	—
4'-11"	39"	57" \times 38"
5'-2"	42"	64" \times 43"
5'-5"	45"	—
5'-8"	48"	71" \times 47"
5'-11"	51"	—
6'-2"	54"	—



	H	2'-8"	2'-11"	3'-2"	3'-5"	3'-8"	3'-11"	4'-2"	4'-5"	4'-8"	4'-11"	5'-2"	5'-5"	5'-8"	5'-11"	6'-2"
W	C	4'-4"	4'-7"	4'-9"	4'-10"	5'-0"	5'-3"	5'-5"	5'-8"	5'-11"	6'-0"	6'-3"	6'-5"	6'-8"	6'-11"	6'-2"
C	B	3'-2"	3'-2"	1'-2"	1'-2"	1'-3"	1'-3"	1'-3"	1'-4"	1'-4"	1'-4"	1'-5"	1'-5"	1'-6"	1'-6"	1'-9"
B	B	3'-5"	3'-7"	3'-8"	3'-9"	3'-10"	3'-11"	4'-0"	4'-11"	4'-2"	4'-3"	4'-3"	4'-4"	4'-4"	4'-6"	4'-6"
"C" BARS	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	#5 @ 12
"B" BARS	#4 @ 12	#4 @ 8	#4 @ 8	#4 @ 8	#4 @ 8	#4 @ 8	#5 @ 12	#5 @ 12	#5 @ 12	#5 @ 8	#5 @ 8	#5 @ 8	#5 @ 8	#5 @ 8	#6 @ 8	#6 @ 8
* Conc CY/LF	0.404	0.412	0.415	0.423	0.426	0.430	0.433	0.440	0.444	0.448	0.451	0.455	0.462	0.466	0.477	
* Reinf LA/LF	23	24	25	25	25	26	27	27	28	28	29	29	30	31	32	
**CASE I	Str (q'o, B)	0.79, 4.66	0.83, 4.57	0.88, 4.58	0.89, 4.33	0.93, 4.74	0.93, 4.75	1.02, 4.75	1.02, 4.92	1.07, 4.93	1.11, 4.94	1.12, 4.98	1.16, 4.99	1.17, 5.16	1.21, 5.18	1.15, 5.15
	Str (q'o, B)	1.48, 1.75	1.53, 1.80	1.65, 1.76	1.64, 1.88	1.76, 1.85	1.89, 1.83	2.02, 1.80	1.97, 1.95	2.08, 1.94	2.20, 1.93	2.28, 1.92	2.39, 1.92	2.31, 2.08	2.41, 2.09	2.17, 2.41
	Extr (q'o, B)	0.65, 4.76	0.68, 4.72	0.72, 4.79	0.74, 4.44	0.78, 4.46	0.82, 4.47	0.86, 4.47	0.87, 4.63	0.92, 4.63	0.96, 4.64	0.98, 4.69	1.03, 4.69	1.04, 4.84	1.09, 4.84	1.05, 5.18
**CASE II	Str (q'o, B)	0.71, 4.52	0.74, 4.67	0.78, 4.73	0.81, 4.90	0.85, 4.95	0.59, 5.00	0.63, 5.04	0.65, 5.21	0.70, 5.26	0.74, 5.30	0.77, 5.31	0.81, 5.40	0.85, 5.58	0.88, 5.61	0.86, 5.96
	Str (q'o, B)	1.65, 1.80	1.68, 1.83	1.71, 1.89	1.79, 1.79	1.79, 1.83	1.79, 1.83	1.83, 1.83	1.83, 1.83	1.83, 1.83	1.83, 1.83	1.83, 1.83	1.83, 1.83	1.83, 1.83	1.83, 1.83	1.83, 1.83
	Extr (q'o, B)	0.90, 3.94	1.03, 4.01	1.11, 4.01	1.15, 4.15	1.19, 4.15	1.26, 4.15	1.33, 4.14	1.37, 4.18	1.46, 4.31	1.52, 4.31	1.56, 4.31	1.58, 4.31	1.61, 4.31	1.62, 4.31	1.62, 4.31
**CASE III	Str (q'o, B)	0.81, 4.53	0.84, 4.73	0.88, 4.76	0.90, 4.91	0.94, 4.91	0.79, 4.94	0.83, 4.93	0.85, 5.08	1.17, 4.03	1.23, 4.03	1.27, 4.06	1.34, 4.02	1.36, 4.15	1.41, 4.11	1.36, 4.45
	Str (q'o, B)	0.99, 4.22	1.04, 4.37	1.10, 4.69	1.13, 4.83	1.19, 4.82	1.25, 4.83	1.32, 4.82	1.35, 4.95	2.02, 2.66	2.16, 2.62	2.25, 2.59	2.44, 2.48	2.49, 2.54	2.70, 2.44	2.50, 2.72
	Extr (q'o, B)	0.80, 3.88	0.95, 3.93	1.01, 3.91	1.04, 4.02	1.11, 3.97	1.18, 3.92	1.25, 3.90	1.28, 4.40	1.35, 3.94	1.43, 3.92	1.51, 3.54	1.55, 3.87	1.58, 3.97	1.67, 3.91	1.60, 4.22

* Quantities include 1'-0" extension above the design "H" limit.
 ** q'o = net bearing stress (ksf), B' = effective footing width (ft)
 Ser - service limit
 Str - strength limit
 Extr - extreme event

REINFORCED CONCRETE HEADWALL
Quantities do not include added diagonals
and do not consider pipe occupancy.

NOTE: Reinforced Concrete: $f_y = 60,000$ psi
 $f'_c = 3,600$ psi
 Earth Density: 120 pcf
 Equivalent Fluid Pressure: 36 pcf

PIPE CULVERT HEADWALLS STRAIGHT AND "L"

D89

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL NO. SHEETS

H.R.F.
 REGISTERED ELECTRICAL ENGINEER
 May 31, 2018
 PLANS APPROVAL DATE
 THE STATE OF CALIFORNIA OR ITS OFFICERS
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Hamid
 Zolfaghari
 No. E15636
 Exp. 12-31-19
 ELECTRICAL
 STATE OF CALIFORNIA

NOTES:

1. The plan shows the approximate location of devices within the enclosure. Components may be rearranged, however, the "working" clearances within the service equipment enclosure shall be maintained.
2. In unpaved areas a raised portland cement concrete pad 2'-0" x 4" x 4" width of foundation shall be constructed in front of new service equipment enclosure installation. Pad shall be set to elevation of foundation.
3. Plug-in circuit breakers may be mounted in the vertical or horizontal position. Cable-in/cable-out circuit breakers shall be mounted in the vertical position.
4. Type III-AF and Type III-BF service equipment enclosures shall have the meter viewing windows located on the front side of the service equipment enclosures.
5. Type III-AR and Type III-BR service equipment enclosure shall be similarly constructed as Type III-AF and Type III-BF respectively, except the meter viewing windows shall be located on the back side of the service equipment enclosures.

CANCELLED BY
 ERRATA NO. 19
 OCTOBER 18, 2018

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

NO SCALE

ES-2C

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

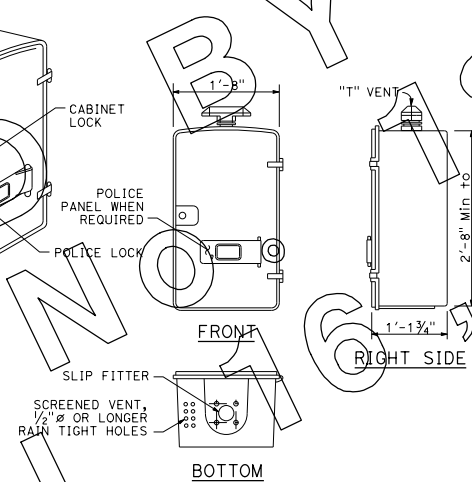
H.R.F.
 REGISTERED ELECTRICAL ENGINEER
 October 19, 2018
 PLANS APPROVAL DATE
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Hamid
 Zolfaghari
 No. E15636
 Exp. 12-31-19
 ELECTRICAL
 STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED _____

NOTES:

1. Cabinet dimensions are nominal.
2. Cabinet fan may be installed at an alternate location near the top of the cabinet when approved by the Engineer.



TYPE G CABINET

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS
(CONTROLLER CABINET
DETAILS)**

NO SCALE

RSP ES-3A DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN ES-3A
DATED MAY 31, 2018 - PAGE 485 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP ES-3A

2018 REVISED STANDARD PLAN RSP ES-3A

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

H.R.F.

REGISTERED ELECTRICAL ENGINEER

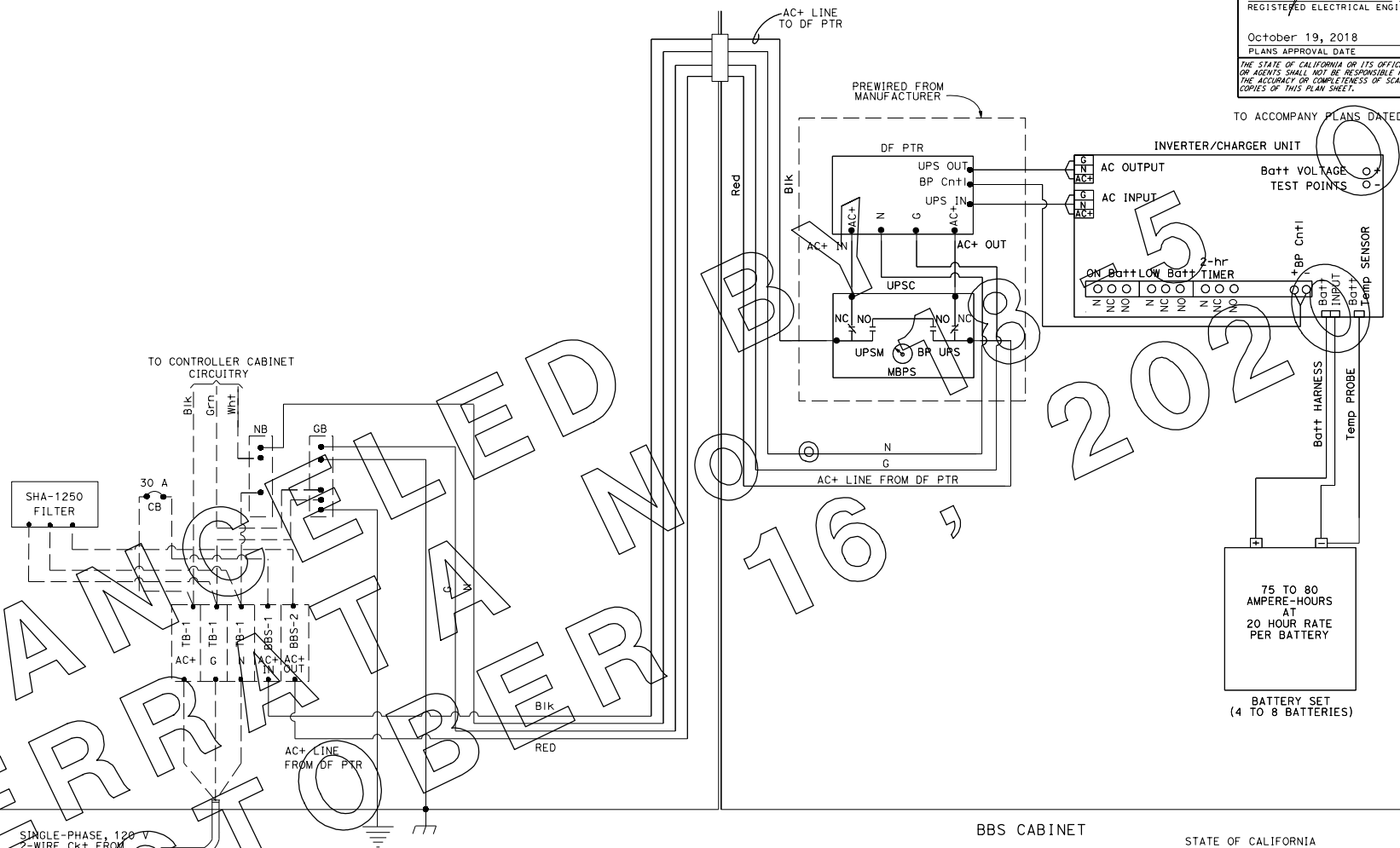
October 19, 2018

PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS
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COPIES OF THIS PLAN SHEET.

Professional Engineer Seal: Hamid Yazdghani, E15636, 12-31-19, State of California

TO ACCOMPANY PLANS DATED



BBS CABINET

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

ELECTRICAL SYSTEMS (ELECTRONICS ASSEMBLY CONNECTION DIAGRAM, WITH BYPASS CONTROL LINE)

NO SCALE

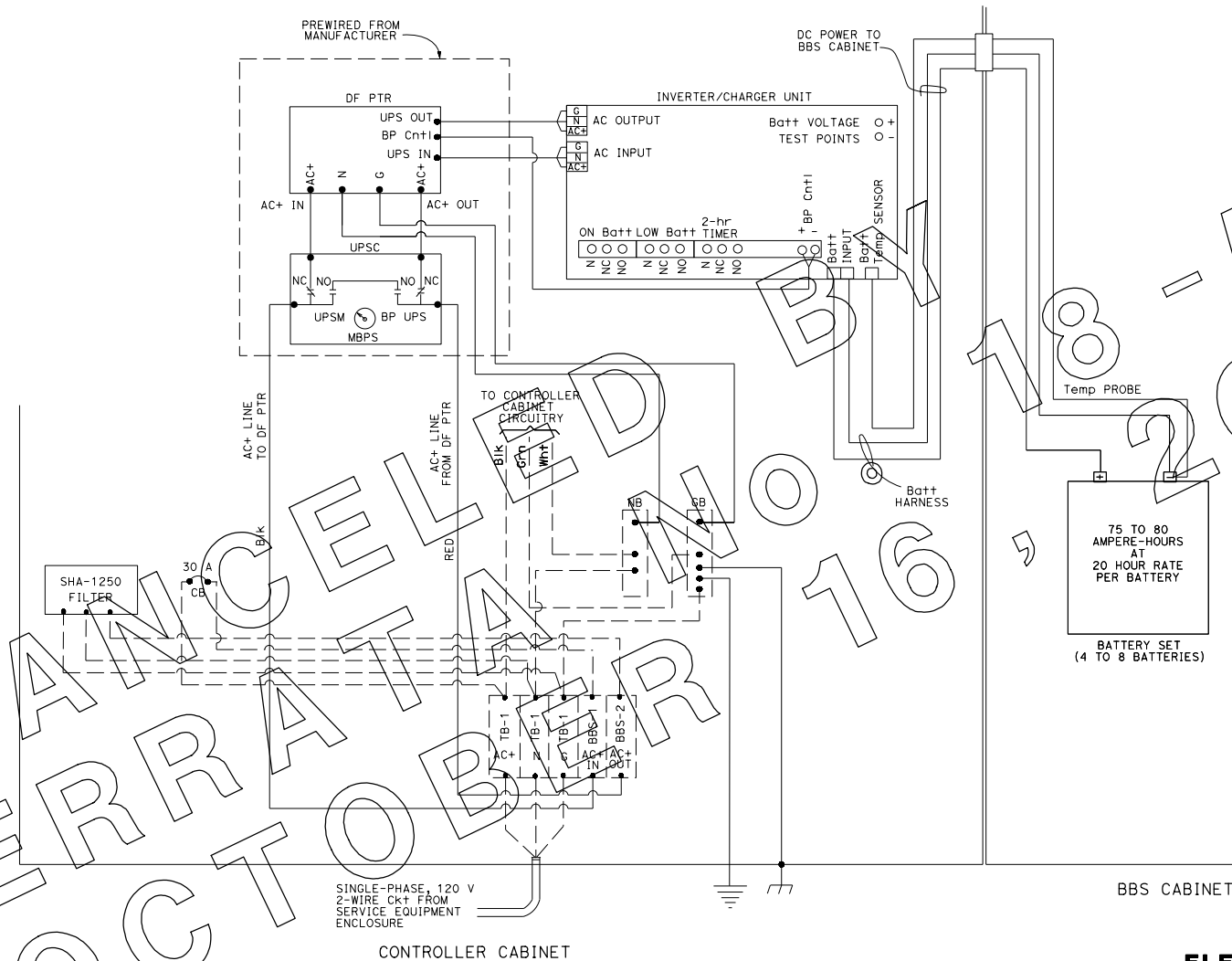
RSP ES-3I DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN ES-3I
DATED MAY 31, 2018 - PAGE 495 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP ES-3I

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL NO. SHEETS

H.R.F.
 REGISTERED ELECTRICAL ENGINEER
 May 31, 2018
 PLANS APPROVAL DATE
 THE STATE OF CALIFORNIA OR ITS OFFICERS
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REGISTERED PROFESSIONAL ENGINEER
 Hamid Zolfaghari
 No. E15636
 EXPIRATION DATE 12-31-19
 STATE OF CALIFORNIA

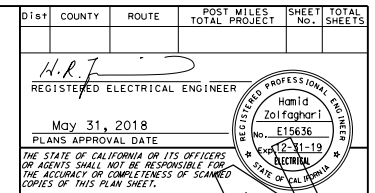


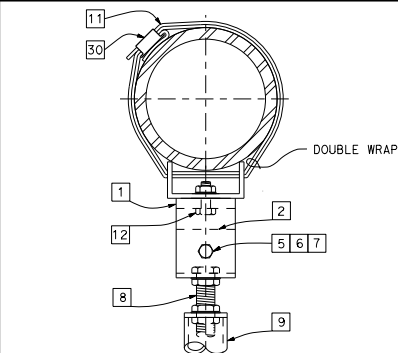
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS
(ELECTRONICS ASSEMBLY CONNECTION
DIAGRAM, WITH BYPASS CONTROL LINE)**

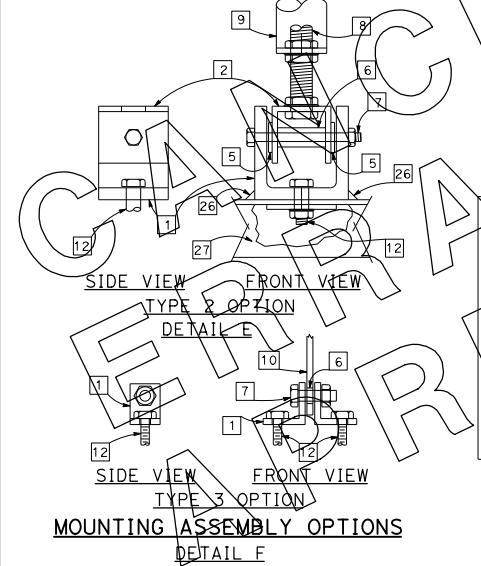
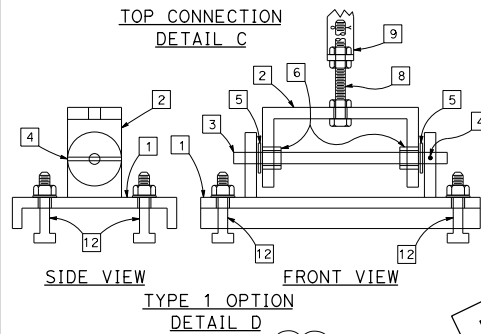
NO SCALE

ES-3J

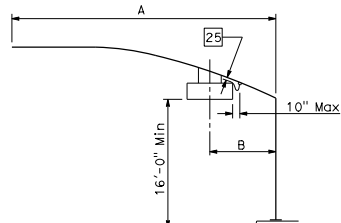
**ES-3L**



TOP CONNECTION
DETAIL C

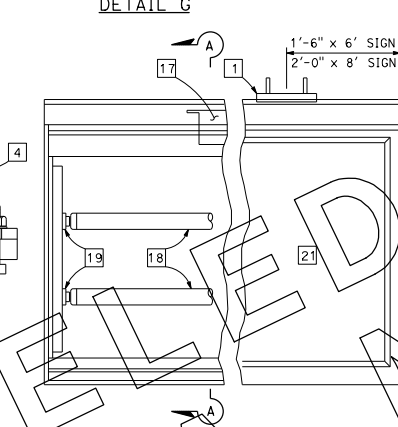


MOUNTING ASSEMBLY OPTIONS
DETAIL F

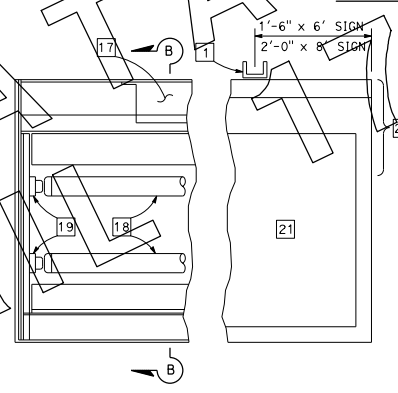


SIGN PLACEMENT
DETAIL G

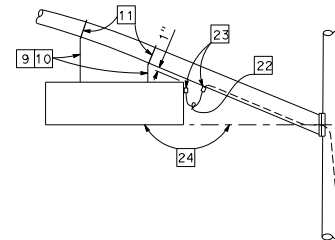
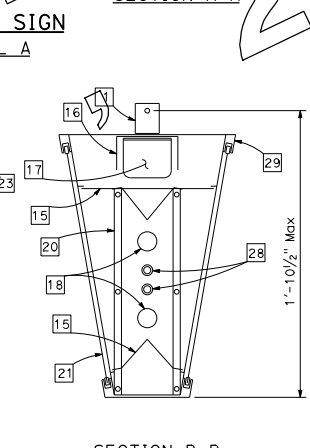
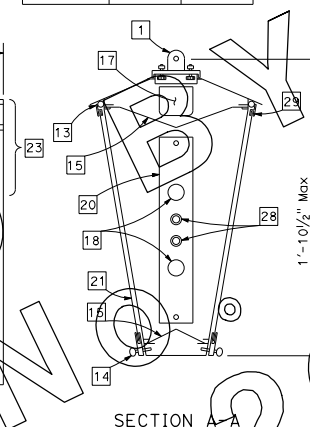
SIGN PLACEMENT		
A	B	
PROJECTED LENGTH	6'-0" SIGN	8'-0" SIGN
20'-0"	7'-10"	8'-10"
25'-0"	9'-2"	10'-2"
30'-0"	9'-6"	10'-6"
35'-0"	10'-6"	11'-6"
40'-0"		
45'-0"		
50'-0"	12'-6"	13'-6"
55'-0"		
60'-0"		
65'-0"		



DETAIL A-1
TYPE A SIGN
DETAIL A



DETAIL B-1
TYPE B SIGN
DETAIL B



SIGN MOUNTING
DETAIL H

LEGEND:

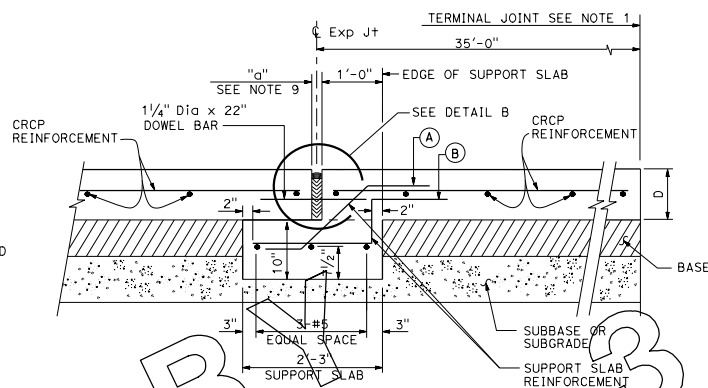
- 1 LOWER MOUNTING ASSEMBLY WITH GASKET.
- 2 UPPER MOUNTING ASSEMBLY.
- 3 ROD, 1/2" ϕ STAINLESS STEEL.
- 4 LOCKING PIN, STEEL.
- 5 FLAT WASHER, STAINLESS STEEL.
- 6 BUSHING, BRONZE.
- 7 BOLT, 1/4" ϕ STAINLESS STEEL, WITH SELF-LOCKING NUT.
- 8 BOLT, 1/2" ϕ STAINLESS STEEL, WITH THREE NUTS, AND COTTER KEY. LENGTH AS REQUIRED FOR PROPER MOUNTING OF SIGN.
- 9 BRACKET, 1/4" x 1 1/2" MINIMUM LENGTH VARIABLE.
- 10 BRACKET, 2-PIECE ADJUSTABLE. 1/4" x 1 1/2" MINIMUM. TWO 1/2" ϕ HEXAGON HEAD BOLTS WITH NUTS AND LOCKWASHERS.
- 11 3/4" x 0.020" MINIMUM ROUNDED EDGE STAINLESS STEEL STRAP WITH 2" LONG BEND UNDER BUCKLE. IF ATTACHING TO A MULTISIDED SECTION BEND UNDER SECTION SHALL BE LONG ENOUGH TO CONTACT AT LEAST 3 CORNERS.
- 12 MOUNTING BOLT, 1/4" ϕ MINIMUM, WITH NUT AND LOCKWASHER, OR SELF-LOCKING NUT AND COTTER KEY.
- 13 CONTINUOUS HINGE.
- 14 THUMB SCREW, 5/8" ϕ MINIMUM TWO PER SIDE ON 4'-0" CENTERS.
- 15 REFLECTOR, 0.040" MINIMUM THICKNESS.
- 16 ALUMINUM STIFFENER.
- 17 FLUORESCENT BALLAST (2 REQUIRED).
- 18 LAMP, F72T12CW FOR 6'-0" SIGN F96T12CW FOR 8'-0" SIGN
- 19 LAMP HOLDER.
- 20 LAMP HOLDER TURRET.
- 21 SIGN PANEL, 1'-3" MINIMUM HEIGHT. MESSAGE IS SHOWN ELSEWHERE.
- 22 CORD, 16/3 TYPE SJT. CONTINUOUS FROM SIGN TERMINAL BLOCK TO SIGNAL HEAD MOUNTING TERMINAL COMPARTMENT. FORM A 1'-0" DRIP LOOP BETWEEN SIGN AND SIGNAL MAST ARM.
- 23 CORD CONNECTOR, 90° ANGLE CONNECTOR AT THE SIGN LOCATED IN UPPER 1/3 OF THE SIGN AND STRAIGHT CONNECTOR AT THE SIGNAL MAST ARM. DRILL AND TAP BOTTOM OF THE SIGNAL MAST ARM.
- 24 ADJUST FXTURE LEVEL NO LOWER THAN CENTER OF SIGNAL MAST ARM CONNECTION.
- 25 APPROXIMATE CLEARANCE, 1".
- 26 1/4" FILLET WELD, 1/4" LONG.
- 27 SIGN FRAME.
- 28 FUSE HOLDER AND FUSE.
- 29 CLOSE CELL NEOPRENE GASKET (CONTINUOUS).
- 30 STAINLESS STEEL STRAP BUCKLE.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

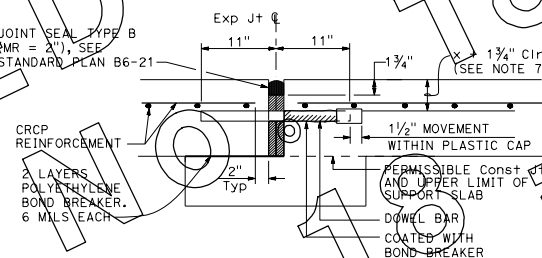
**ELECTRICAL SYSTEMS
(INTERNALLY ILLUMINATED
STREET NAME SIGN)**

NO SCALE

ES-7P



EXPANSION JOINT TYPE AN



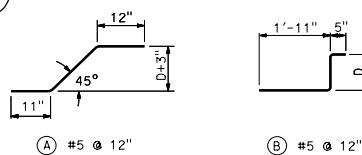
DETAIL B

NOTES:

1. For the locations of the terminal joints, expansion joints and pavement anchors, see project plans.
2. The CRCP shall continue across the pavement anchor and expansion joints as shown.
3. Details of reinforcement, tie bars, and longitudinal joints (and if necessary, transverse construction joints) are shown on Standard Plans P4 and P16.
4. Transverse construction joints are not allowed within 20'-0" of the pavement anchor.
5. When placing pipe through concrete barrier, use 4" unslotted plastic pipe wrapped completely with $\frac{3}{8}$ " polystyrene.
6. See Standard Plan P51 for details not shown.
7. See Standard Plan P4 for "x".
8. Place the 4" Slotted Plastic Pipe on the high side of the longitudinal grade.
9. See Standard Plan B6-21 for "a".

ABBREVIATION:

D = Thickness of CRCP



REINFORCEMENT DETAIL

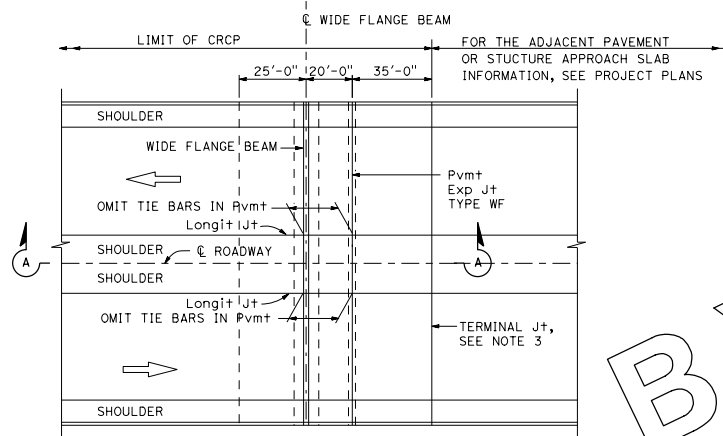
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**CONTINUOUSLY REINFORCED
CONCRETE PAVEMENT-
EXPANSION JOINT AND ANCHOR DETAILS**

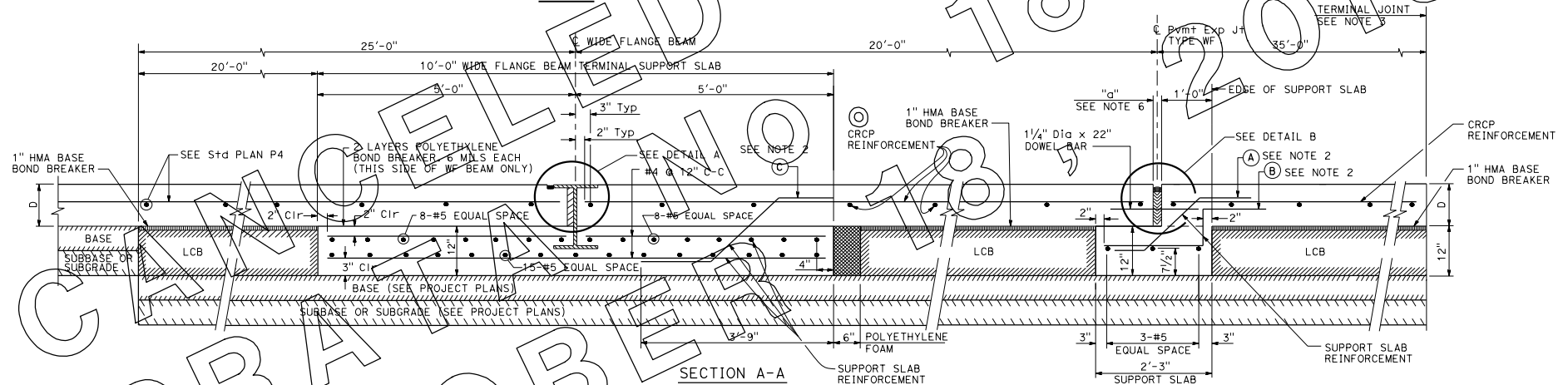
NO SCALE

P31B

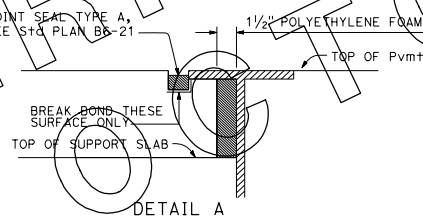
1-29-1



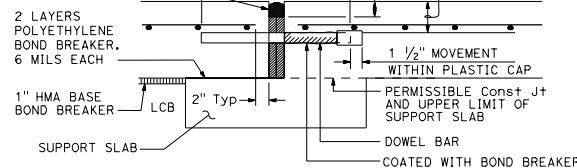
PLAN



SECTION A-A

JOINT SEAL TYPE A,
SEE STD PLAN B6-21

DETAIL A

JOINT SEAL TYPE B
MR = 2",
SEE STD PLAN B6-21

DETAIL B

For layout, tolerances, and other details not shown see Std Plan P10.

NOTES:

1. For additional details on reinforcement member quantities of the wide flange beam terminal and Pavement Expansion Joint Type WF, see Standard Plan P32B.
2. For reinforcement (A), (B), and (C) Details, see Standard Plan P32B.
3. For the Pavement Terminal Joint Details, see Standard Plan P31A. For Pavement Terminal Joint Type, see Project Plans.
4. See Standard Plan P4 for "a".
5. D = Thickness of CRCP
6. See Standard Plan B6-21 for "a".

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
Dulce Rufino Delmon REGISTERED CIVIL ENGINEER May 31, 2018 PLANS APPROVAL DATE THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.					
REGISTERED PROFESSIONAL ENGINEER Dulce Rufino Delmon No. 081459 Exp. 9-30-19 CIVIL STATE OF CALIFORNIA					

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**CONTINUOUSLY REINFORCED
CONCRETE PAVEMENT -
WIDE FLANGE BEAM TERMINALS**

NO SCALE

P32A

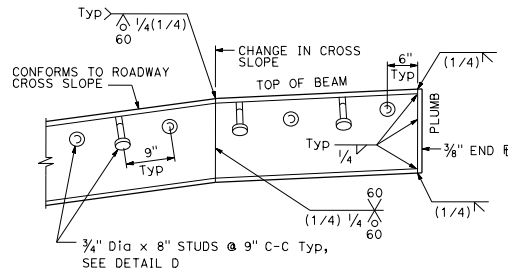
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL SHEETS

Dulce Rufino Delmon
REGISTERED CIVIL ENGINEER

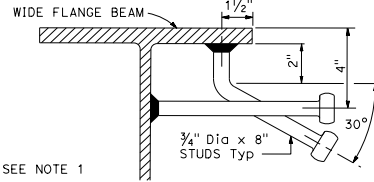
May 31, 2018
PLANS APPROVAL DATE

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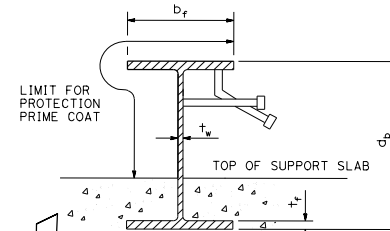
REGISTERED PROFESSIONAL ENGINEER
Dulce Rufino Delmon
No. C81459
Exp. 9-30-19
CIVIL
STATE OF CALIFORNIA



WIDE FLANGE DETAIL



DETAIL D



WIDE FLANGE PAINTING DETAIL

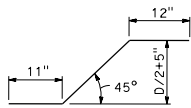
See "TABLE OF BEAM SIZES"

NOTES

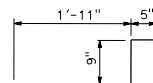
1. Weld $\frac{3}{8}$ " plate to each end of wide flange beam at pavement edges only. End plate covers the entire wide flange beam.
2. Extend polyethylene foam to the sides and edges of the front part of the plate.

LEGEND:

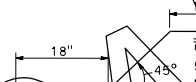
- b_f - FLANGE WIDTH
- t_f - FLANGE THICKNESS
- t_w - WEB THICKNESS
- d_b - BEAM DEPTH
- D1 - PAVEMENT THICKNESSES
- D2 - PAVEMENT THICKNESSES



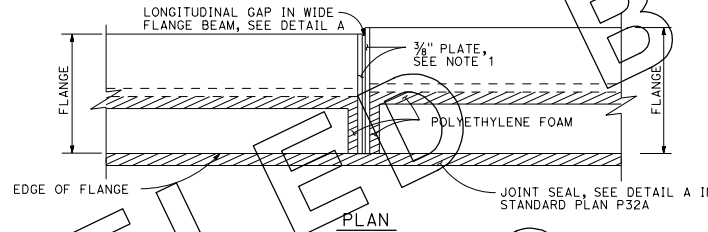
A #5 @ 12"



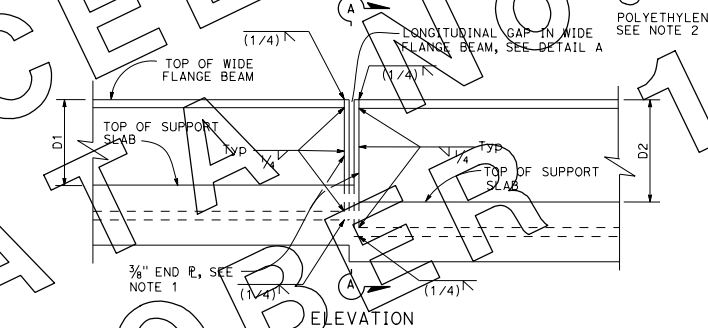
B #5 @ 12"



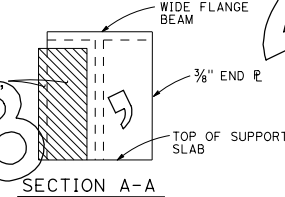
C #4 @ 12"



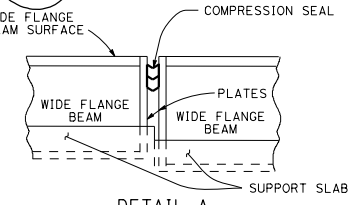
PLAN



ELEVATION



SECTION A-A



DETAIL A

CONCRETE AND STEEL QUANTITIES

ITEM	PAVEMENT THICKNESS							
	.75'	.80'	.85'	.90'	.95'	1.00'	1.05'	1.10'
WIDE FLANGE BEAM	CONCRETE	4.8 CY	4.8 CY	4.8 CY	4.8 CY	4.8 CY	4.8 CY	4.8 CY
TERMINAL SLAB	REINFORCING STEEL	552.0 LBS	552.2 LBS	552.4 LBS	552.6 LBS	552.8 LBS	553.0 LBS	553.3 LBS
Exp JOINT TYPE	CONCRETE	1.1 CY	1.1 CY	1.1 CY	1.1 CY	1.1 CY	1.1 CY	1.1 CY
WIDE FLANGE	REINFORCING STEEL	99.9 LBS	99.9 LBS	100.2 LBS	100.5 LBS	100.8 LBS	101.1 LBS	101.6 LBS
SUPPORT SLAB	STEEL BEAM	43.0 LBS/LF	69.51 LBS/LF	90.51 LBS/LF	90.51 LBS/LF	98.51 LBS/LF	98.51 LBS/LF	98.51 LBS/LF
	(WEIGHT OF WIDE FLANGE	+2 PLATES @	+2 PLATES @	+2 PLATES @	+2 PLATES @	+2 PLATES @	+2 PLATES @	+2 PLATES @
	BEAM AND STUDS)	14.9 LBS EA	14.9 LBS EA	18.5 LBS EA	18.5 LBS EA	22.0 LBS EA	22.0 LBS EA	22.0 LBS EA

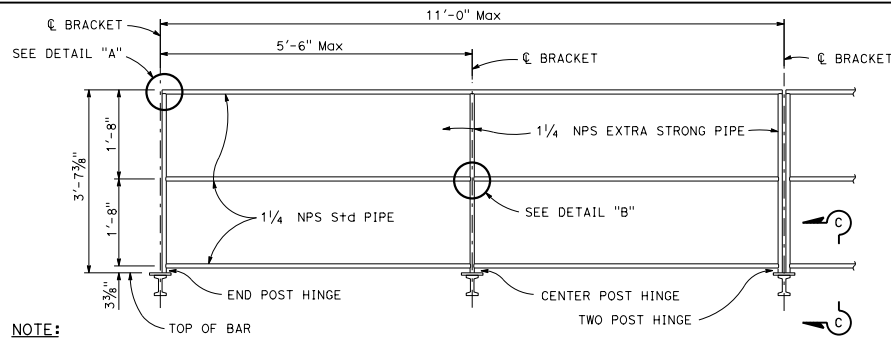
TABLE OF BEAM SIZES					
PAVEMENT THICKNESS	WIDE FLANGE BEAM DESIGNATION	d_b	b_f	t_f	t_w
.75'	W14 x 43	13.70"	8.00"	0.53"	0.31"
.80'	W14 x 68	14.04"	10.04"	0.72"	0.42"
.85'	W16 x 89	16.75"	10.37"	0.88"	0.53"
.90'	W16 x 89	16.75"	10.37"	0.88"	0.53"
.95'	W18 x 97	18.59"	11.15"	0.87"	0.54"
1.00'	W18 x 97	18.59"	11.15"	0.87"	0.54"
1.05'	W18 x 97	18.59"	11.15"	0.87"	0.54"
1.10'	W18 x 97	18.59"	11.15"	0.87"	0.54"

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**CONTINUOUSLY REINFORCED
CONCRETE PAVEMENT
WIDE FLANGE BEAM TERMINALS**

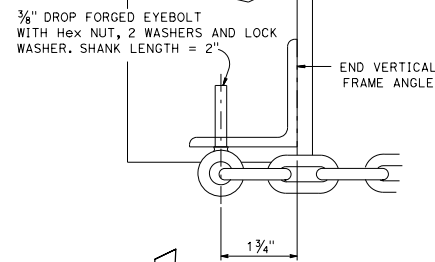
NO SCALE

P32B



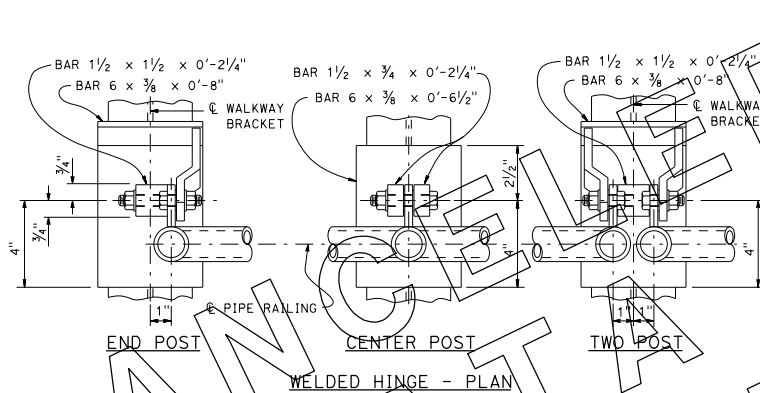
NOTE:
Chain assembly behind
(see detail this page)

SAFETY RAILING ELEVATION



NOTE:
See Standard Plans
S101 and S108 and S109
for walkway bracket specing.

SECTION D-D



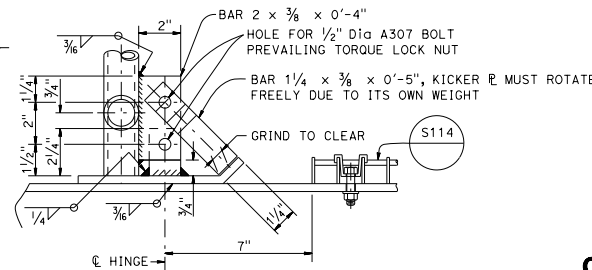
7/16" Dia HOLE FOR
3/8" Dia Hex HEAD
A307 BOLT WITH NUT
FLAT AND LOCK WASHERS
(Typ), Tot 4 PER BRACKET

END POST:
BAR 5 x 3/8 x 0'-8 5/8"
CENTER POST:
BAR 5 x 3/8 x 0'-7 3/8"

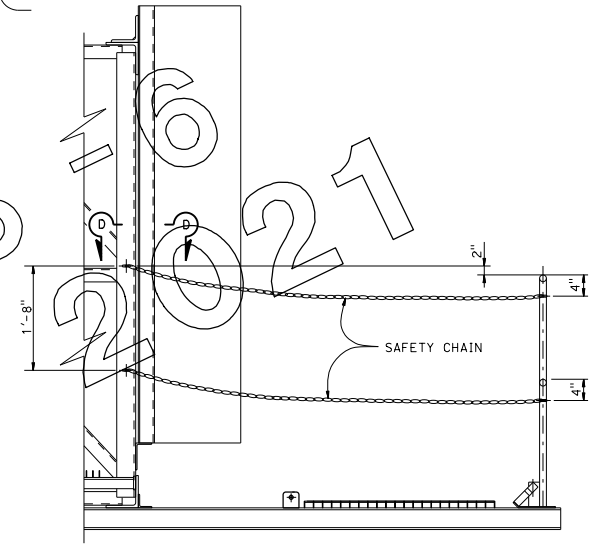
**TYPICAL BOLTED (ALTERNATIVE)
HINGED CONNECTION**



NOTE:
Alternative venting methods may be
used if approved by the Engineer.



**SECTION C-C
ELEVATION VIEW**



CHAIN ASSEMBLY

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**OVERHEAD SIGN-TRUSS
SINGLE POST TYPE
WALKWAY SAFETY
RAILING DETAILS
CHANGEABLE MESSAGE SIGNS
MODEL 500 AND 510**

NO SCALE

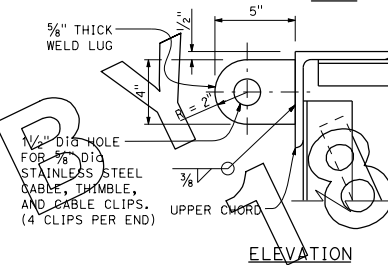
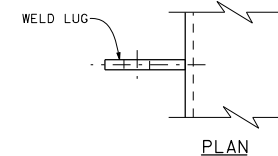
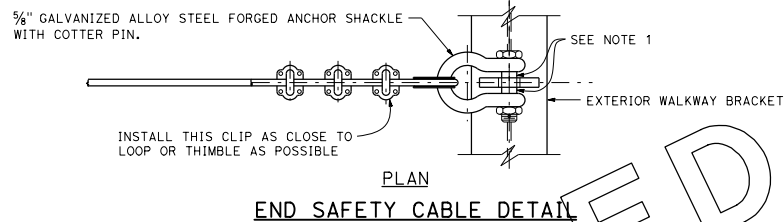
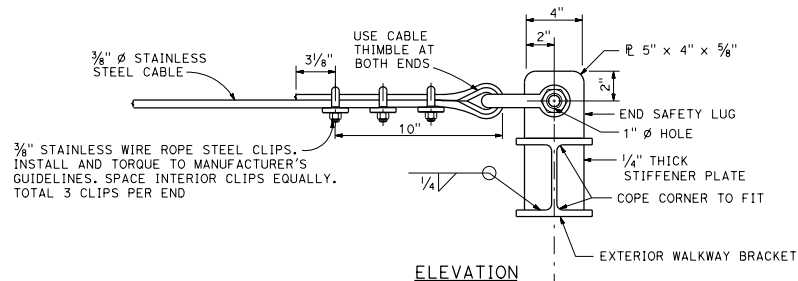
S140

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER
Stanley P. Johnson
No. C57795
Exp. 3-31-20
CIVIL
STATE OF CALIFORNIA

May 31, 2018
PLANS APPROVAL DATE
THE STATE OF CALIFORNIA OR ITS OFFICERS
OR AGENTS SHALL NOT BE RESPONSIBLE FOR
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COPIES OF THIS PLAN SHEET.

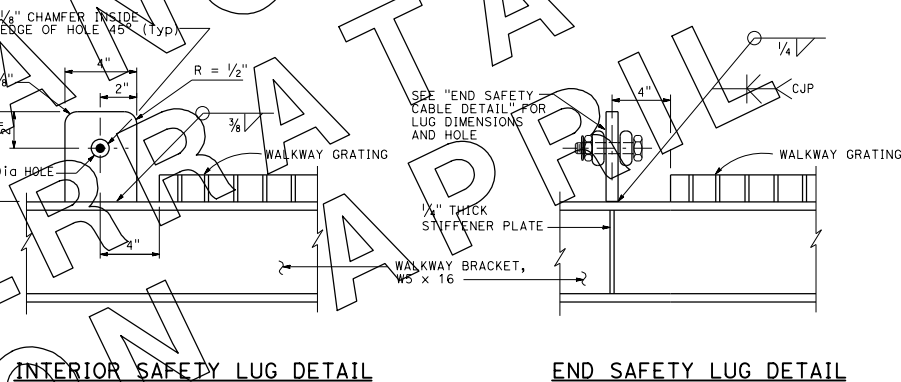
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
<p>Stanley P. Johnson REGISTERED CIVIL ENGINEER</p> <p>May 31, 2018 PLANS APPROVAL DATE</p> <p>Stanley P. Johnson No. C57795 Exp. 3-31-20 CIVIL STATE OF CALIFORNIA</p> <p>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</p>					



NOTE: Backside weld lug shall be installed only for projects requiring backside walkways.

NOTES:

1. Place an equal amount of washers on each side to align cable with end lug without restricting shackle bolt rotation or contacting cable.
2. For walkway grating details, see Standard Plan S114.



STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**OVERHEAD SIGN-TRUSS
SINGLE POST TYPE
SAFETY CABLE
ANCHORAGE DETAILS
CHANGEABLE MESSAGE SIGNS
MODEL 500 AND 510**

NO SCALE

S141

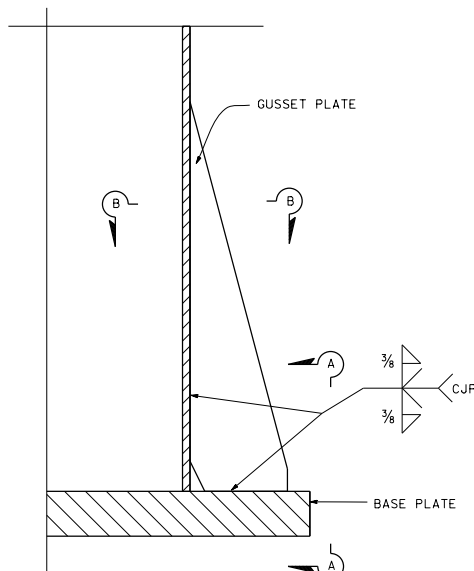
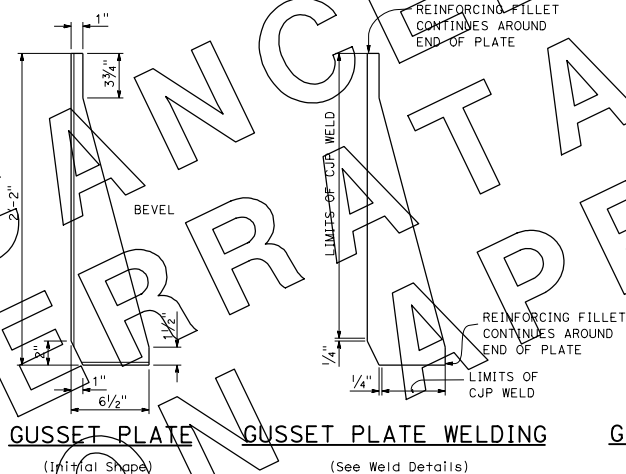
NOTES:

1. All gussets to be same height.
2. Provide a smooth transition from gusset plate to tube.

LEGEND:

NEW 

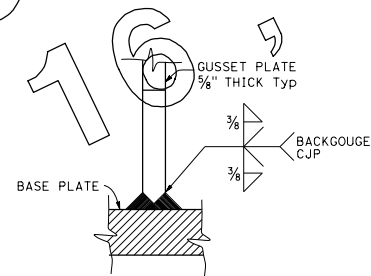
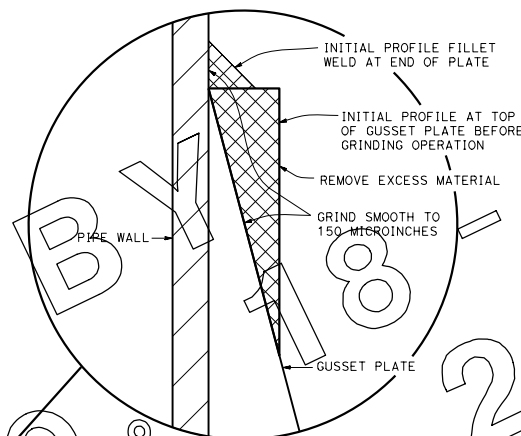
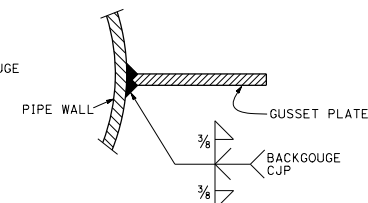
REMOVAL 

**WELD DETAILS****GUSSET PLATE**

(Initial Shape)

GUSSET PLATE WELDING

(See Weld Details)

GUSSET PLATE GRINDING**SECTION A-A****SECTION B-B**

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**OVERHEAD SIGN-TRUSS
SINGLE POST TYPE
GUSSET PLATE DETAILS
CHANGEABLE MESSAGE SIGNS
MODEL 500 AND 510**

NO SCALE

S142

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

Stanley P. Johnson
REGISTERED CIVIL ENGINEER

May 31, 2018
PLANS APPROVAL DATE

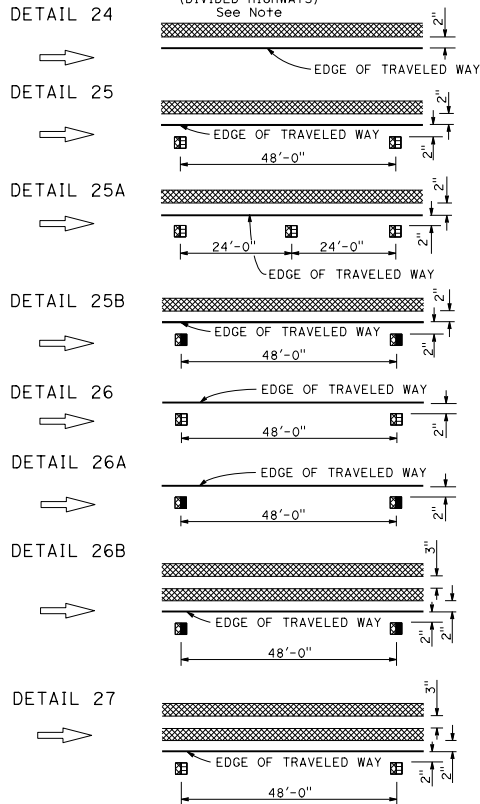
No. C57795
Exp. 3-31-20
CIVIL

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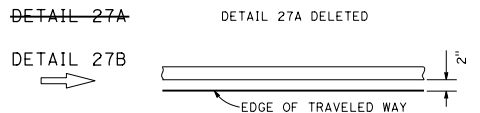
REGISTERED PROFESSIONAL ENGINEER
Stanley P. Johnson
No. C57795
Exp. 3-31-20
CIVIL
STATE OF CALIFORNIA

LEFT EDGE LINES

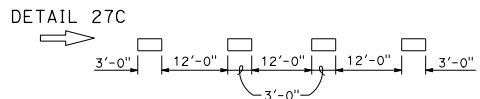
(DIVIDED HIGHWAYS)
See Note



RIGHT EDGE LINES

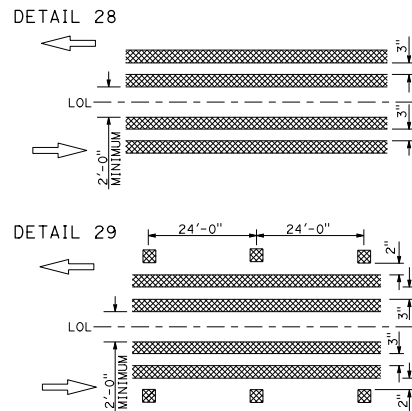


RIGHT EDGE LINE EXTENSION THROUGH INTERSECTIONS



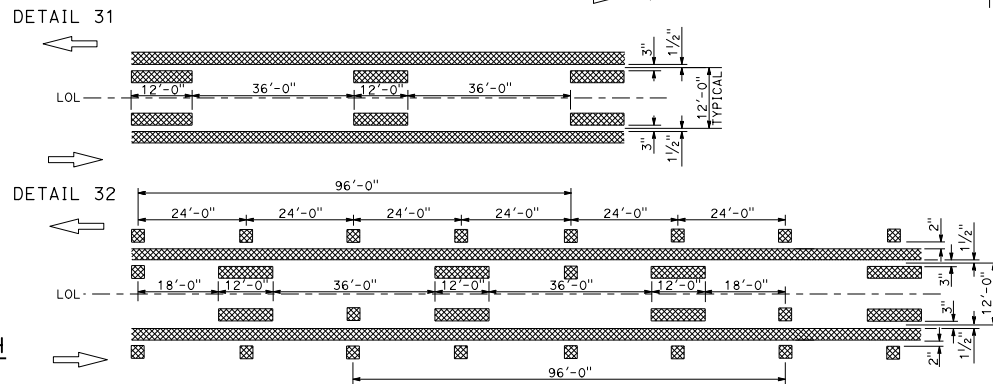
LEFT EDGE LINES NOTE:
On freeways use traffic stripe details with Type RY markers.

MEDIAN ISLANDS



DETAIL 30 DELETED

TWO-WAY LEFT TURN LANES



DETAIL 33 DELETED

LEGEND

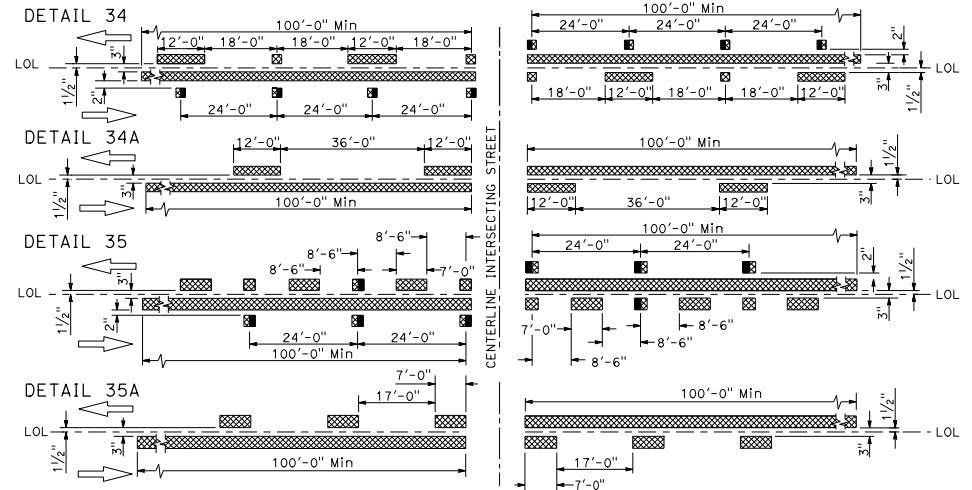
MARKERS

- TYPE D TWO-WAY YELLOW RETROREFLECTIVE
- TYPE H ONE-WAY YELLOW RETROREFLECTIVE
- TYPE RY RED-YELLOW RETROREFLECTIVE

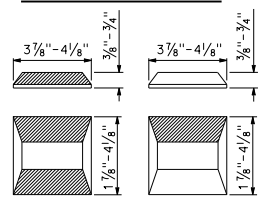
LINES

- 6" WHITE
- 6" YELLOW

INTERSECTION TREATMENTS



MARKER DETAILS



TYPE RY AND TYPE D

RETROREFLECTIVE FACE

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

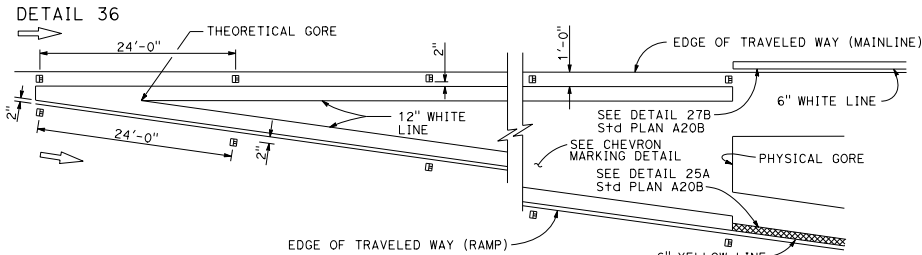
PAVEMENT MARKERS AND TRAFFIC LINES TYPICAL DETAILS
NO SCALE

RSP A20B DATED APRIL 19, 2019 SUPERSEDES STANDARD PLAN A20B
DATED MAY 31, 2018 - PAGE 13 OF THE STANDARD PLANS BOOK DATED 2018.

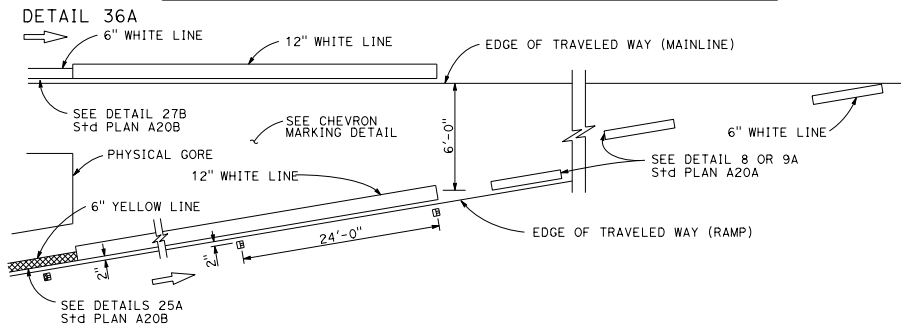
REVISED STANDARD PLAN RSP A20B

2018 REVISED STANDARD PLAN RSP A20B

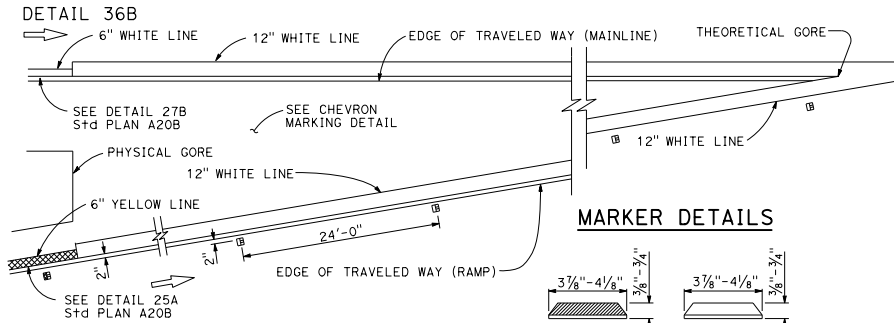
EXIT RAMP NEUTRAL AREA (GORE) TREATMENT



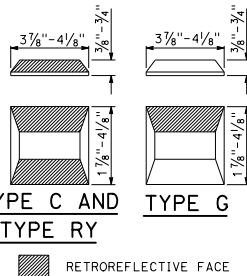
ENTRANCE RAMP NEUTRAL AREA (MERGE) TREATMENT



ENTRANCE RAMP NEUTRAL AREA (ACCELERATION LANE) TREATMENT



MARKER DETAILS



LEGEND:

- MARKERS**
- TYPE C RED-CLEAR RETROREFLECTIVE
 - TYPE G ONE-WAY CLEAR RETROREFLECTIVE
 - TYPE RY RED-YELLOW RETROREFLECTIVE

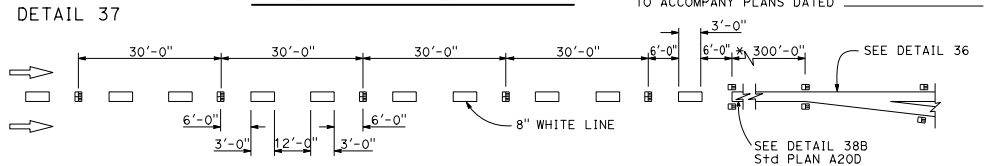
NOTES:

Install a minimum of 1 chevron in the gore area. If at least 1 chevron will not fit into the gore area, do not install chevrons.

Terminate chevron markings at physical gore.

Gore area chevron pavement markings shown. For Exit and Entrance Ramp channelizing lines details, see Details 36, 36A, and 36B.

LANE DROP AT EXIT RAMP

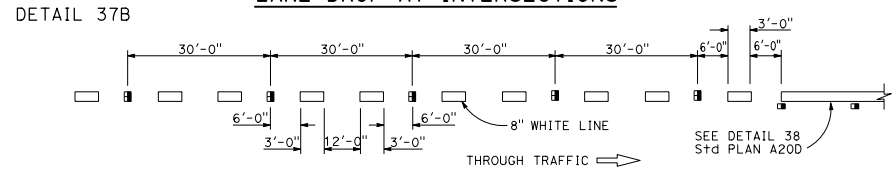


* The solid channelizing line shown may be omitted on short auxiliary lanes where weaving length is critical.

~~DETAIL 37A~~

DETAIL 37A DELETED

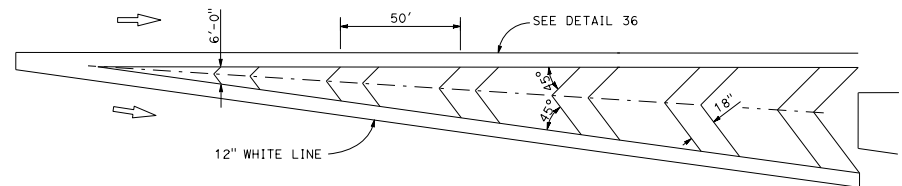
LANE DROP AT INTERSECTIONS



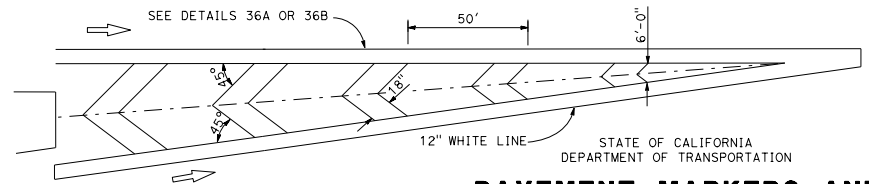
~~DETAIL 37C~~

DETAIL 37C DELETED

CHEVRON PAVEMENT MARKINGS AT EXIT RAMP GORE AREA



CHEVRON PAVEMENT MARKINGS AT ENTRANCE RAMP GORE AREA



PAVEMENT MARKERS AND TRAFFIC LINES TYPICAL DETAILS NO SCALE

RSP A20C DATED APRIL 17, 2020 SUPERSEDES RSP A20C DATED OCTOBER 19, 2018 AND STANDARD PLAN A20C DATED MAY 31, 2018 - PAGE 14 OF THE STANDARD PLANS BOOK DATED 2018.

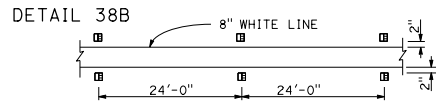
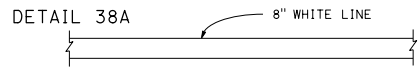
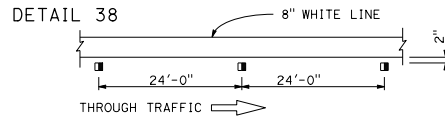
REVISED STANDARD PLAN RSP A20C

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

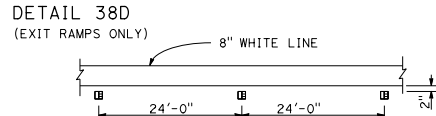
Atifa Farouk
 REGISTERED CIVIL ENGINEER
 No. C80402
 Exp. 3-31-21
 CIVIL
 STATE OF CALIFORNIA

April 17, 2020
 PLANS APPROVAL DATE
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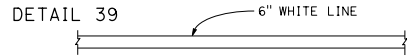
CHANNELIZING LINE



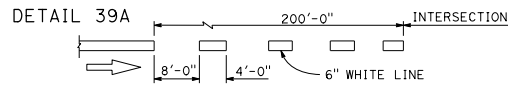
DETAIL 38C DELETED



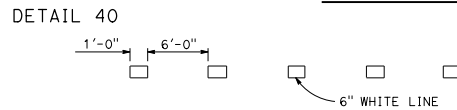
BIKE LANE LINE



INTERSECTION LINE BIKE LANE

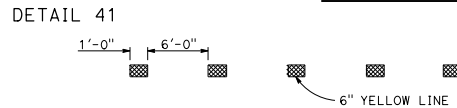


LANE LINE EXTENSIONS THROUGH INTERSECTIONS



DETAIL 40A DELETED

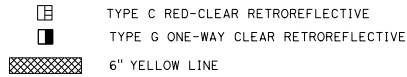
CENTER LINE EXTENSIONS THROUGH INTERSECTIONS



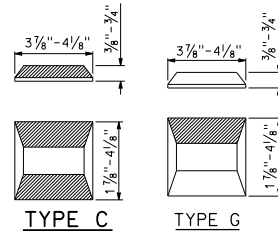
DETAIL 41A DELETED

LEGEND

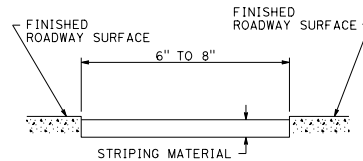
MARKERS



MARKER DETAILS



RETROREFLECTIVE FACE



DETAIL FOR RECESSED TRAFFIC STRIPE

See Notes A and B.

RECESSED NOTES:

- See typical traffic line details for pavement marking patterns.
- See standard specifications for recess depth and recess striping material thickness.

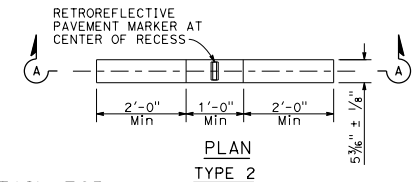
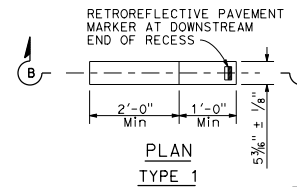
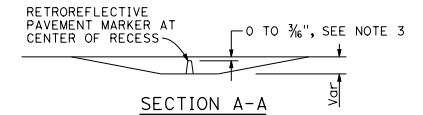
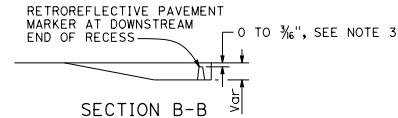
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL SHEETS

October 19, 2018
PLANS APPROVAL DATE

Atifa Ferouz
REGISTERED CIVIL ENGINEER
No. C80402
EXP. 3-31-19
CIVIL

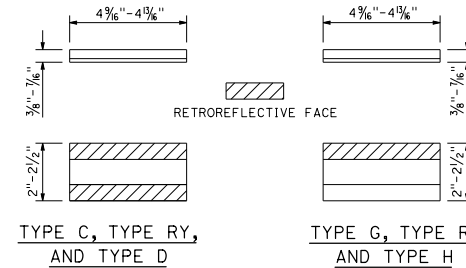
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TO ACCOMPANY PLANS DATED



RECESS DETAIL FOR RETROREFLECTIVE PAVEMENT MARKER

See Note 4



RECESSED MARKER NOTES:

- See typical traffic line details for marker patterns to be used with recessed pavement markers.
- The retroreflective pavement markers shown for recessed installations are not to be used for non-recessed installations.
- The top of pavement markers installed in recesses shall be 0 to 3/8" below the pavement surface.
- Use Type 1 recess for pavement markers with one-way retroreflective face. Use Type 2 recess for pavement markers with two-way retroreflective face.

RETROREFLECTIVE PAVEMENT MARKER FOR RECESSED INSTALLATION

See Notes 1 and 2.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKERS AND TRAFFIC LINES TYPICAL DETAILS

NO SCALE

RSP A200 DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN A200
DATED MAY 31, 2018 - PAGE 15 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP A200

2018 REVISED STANDARD PLAN RSP A200

NOTE:

1. See Standard Plans A20A, A20B, A20C, A20D, and A20F for pavement markers and traffic lines typical details.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

Atifa Ferouz
REGISTERED CIVIL ENGINEER

April 19, 2019
PLANS APPROVAL DATE

Atifa Ferouz
No. C80402
Exp. 3-31-21
CIVIL

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COPIES OF THIS PLAN SHEET.

TO ACCOMPANY PLANS DATED _____



TYPICAL LANE LINE OR RIGHT EDGE LINE CONTRAST DETAIL

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**PAVEMENT MARKERS
AND TRAFFIC LINES**

TYPICAL DETAIL FOR CONTRAST STRIPING

NO SCALE

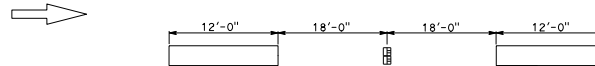
RSP A20E DATED APRIL 19, 2019 SUPERSEDES STANDARD PLAN A20E
DATED MAY 31, 2018 - PAGE 16 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP A20E

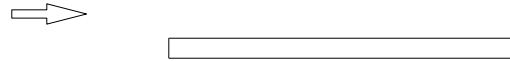
2018 REVISED STANDARD PLAN RSP A20E

PREFERENTIAL LANE LINES

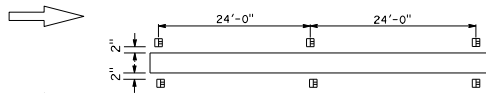
DETAIL 42



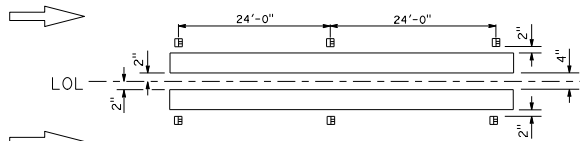
DETAIL 43



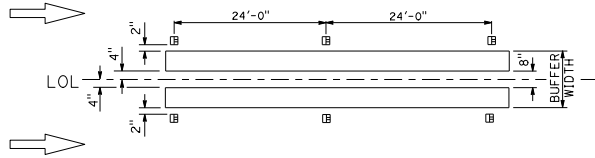
DETAIL 43A



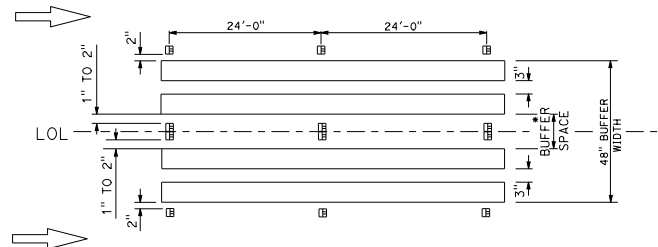
DETAIL 44A



DETAIL 44B



DETAIL 45



* If buffer space is wider than 4 feet use chevron markings.

LEGEND

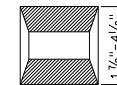
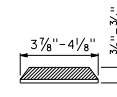
MARKERS

TYPE C RED-CLEAR RETROREFLECTIVE

LINES

8" WHITE LINE

MARKER DETAILS



TYPE C

RETROREFLECTIVE FACE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

Atifa Ferrouz
REGISTERED CIVIL ENGINEER

April 19, 2019
PLANS APPROVAL DATE

Atifa Ferrouz
No. C80402
Exp. 3-31-21
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.

TO ACCOMPANY PLANS DATED _____

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION PAVEMENT MARKERS AND TRAFFIC LINES TYPICAL DETAILS

NO SCALE

RSP A20F DATED APRIL 19, 2019 SUPERSEDES RSP A20F
DATED OCTOBER 19, 2018 THAT SUPPLEMENTS TO THE STANDARD PLANS BOOK DATED 2018.

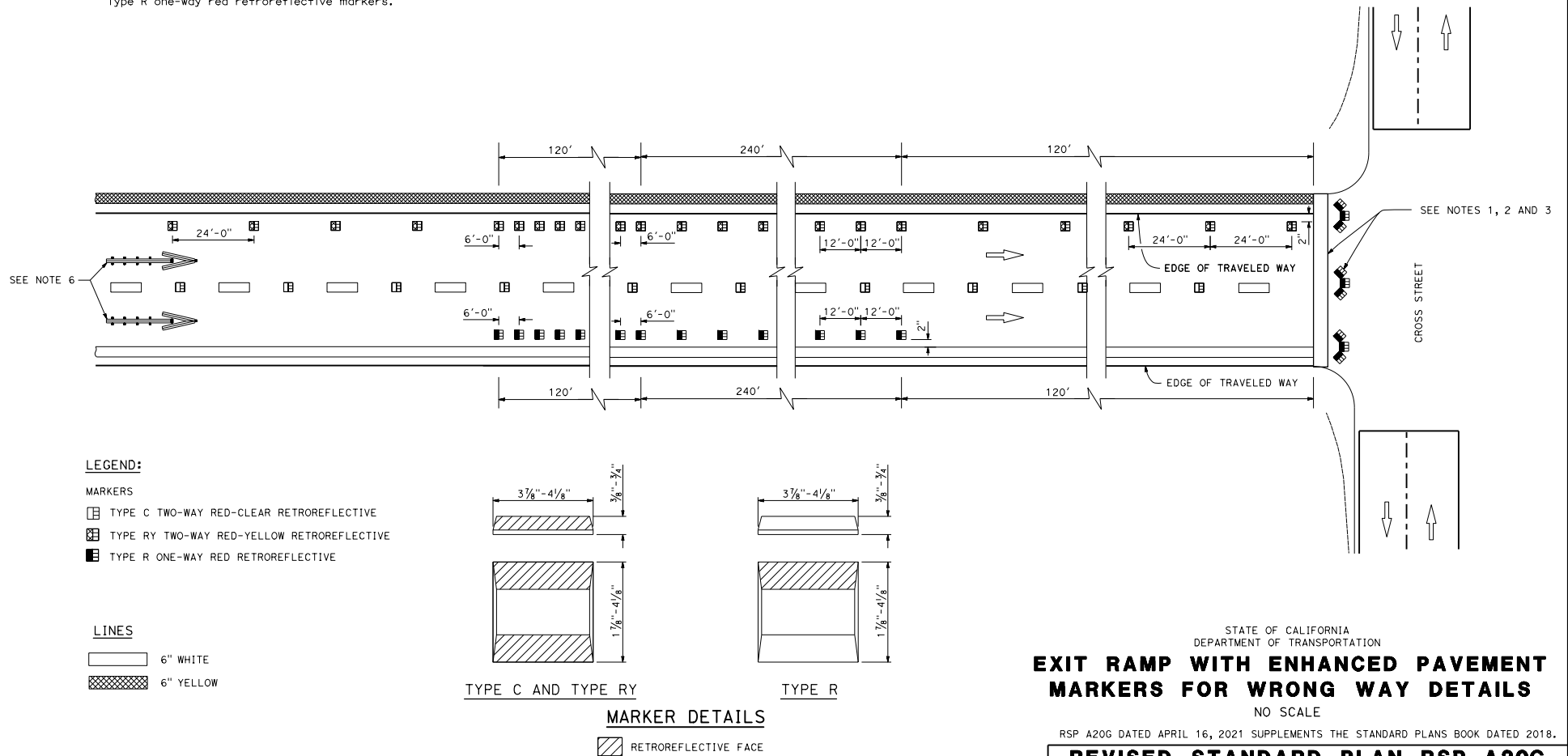
REVISED STANDARD PLAN RSP A20F

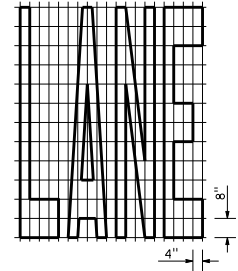
NOTES:

1. May be a limit line or crosswalk.
2. See standard plan A24F and Revised Standard Plan RSP A24G for crosswalk and pavement marker details.
3. Place Type R one-way red retroreflective markers on outermost limit line or crosswalk line with red facing the intersection.
4. The distances and marker spacings may be adjusted based on site specific conditions or exit ramp geometry.
5. The layout shown is a typical detail of an exit ramp, see Figure 3B-24 of the CA MUTCD for exit ramp configuration and arrow placement and spacing.
6. See Revised Standard Plan RSP A24G for Type V arrow detail with Type R one-way red retroreflective markers.

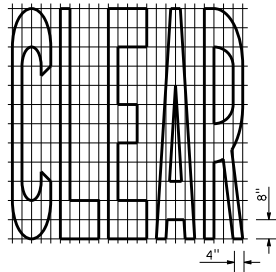
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
<p><i>Atifa Ferouz</i> REGISTERED CIVIL ENGINEER</p> <p>April 16, 2021 PLANS APPROVAL DATE</p> <p>Atifa Ferouz No. C80402 EXP. 3-31-23 CIVIL STATE OF CALIFORNIA</p> <p>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</p>					

TO ACCOMPANY PLANS DATED _____

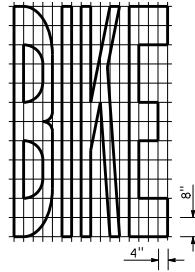




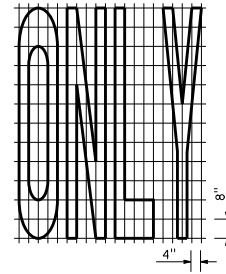
A=24 f+2



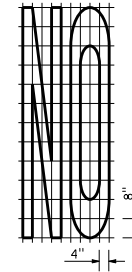
A=27 f+2



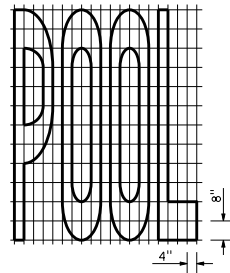
A=21 f+2



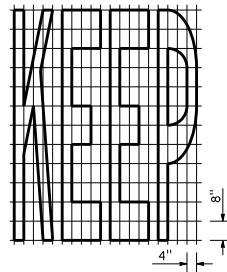
A=22 f+2



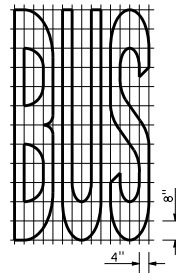
A=14 f+2



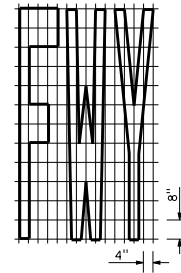
A=23 f+2



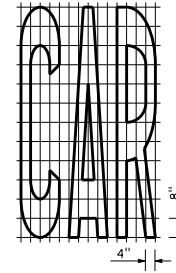
A=24 f+2



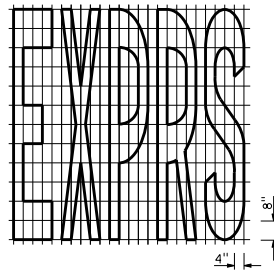
A=20 f+2



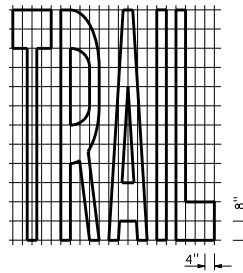
A=16 f+2



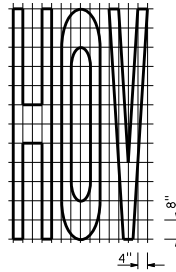
A=17 f+2



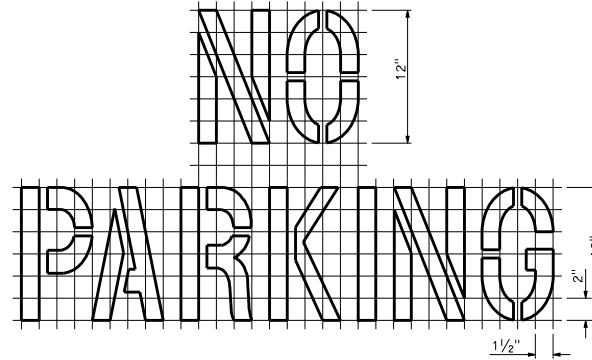
A=30 f+2



A=23 f+2



A=18 f+2



A=2 f+2

See Notes 5 and 6

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL NO. SHEETS

Atifa Ferrouz
REGISTERED CIVIL ENGINEER

October 19, 2018
PLANS APPROVAL DATE

Atifa Ferrouz
No. C80402
EXP. 3-31-19
CIVIL
STATE OF CALIFORNIA

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COPIES OF THIS PLAN SHEET.

TO ACCOMPANY PLANS DATED _____

WORD MARKINGS			
ITEM	f+2	ITEM	f+2
LANE	24	NO	14
POOL	23	BIKE	21
CAR	17	BUS	20
CLEAR	27	ONLY	22
KEEP	24	FWY	16
HOV	18	EXPRS	30
TRAIL	23		

NOTES:

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

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKINGS WORDS

NO SCALE

RSP A24E DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN A24E
DATED MAY 31, 2018 - PAGE 21 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP A24E

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
<p><i>Atifa Ferouz</i> REGISTERED CIVIL ENGINEER</p> <p>April 16, 2021 PLANS APPROVAL DATE</p> <p>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.</p>					
<p>Atifa Ferouz REGISTERED PROFESSIONAL ENGINEER No. C80402 Exp. 3-31-23 CIVIL STATE OF CALIFORNIA</p>					

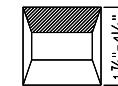
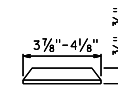
TO ACCOMPANY PLANS DATED _____

LEGEND:

MARKERS

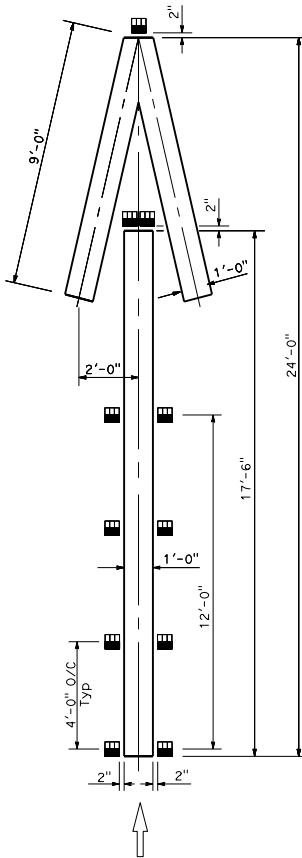
■ TYPE R ONE-WAY RED RETROREFLECTIVE

MARKER DETAILS



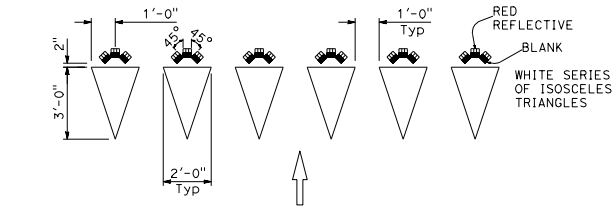
TYPE R

■ RETROREFLECTIVE FACE ON BACKSIDE

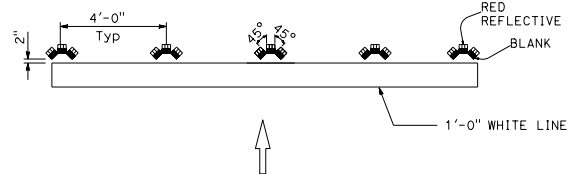


A=33 ft²

TYPE V ARROW AT EXIT RAMP



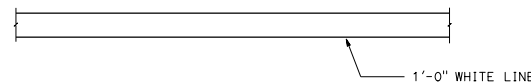
YIELD LINE AT EXIT RAMP



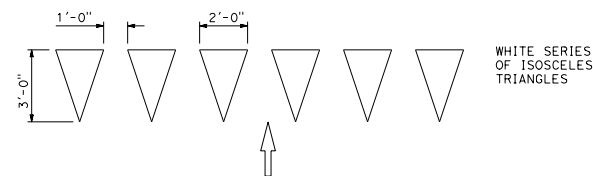
LIMIT LINE (STOP LINE) AT EXIT RAMP

NOTE:

1. If there is crosswalk at the end of the exit ramp, place Type R markers in front of the first line for wrong way vehicle that travels up the ramp with the red reflective side facing the intersection.



LIMIT LINE (STOP LINE)



YIELD LINE

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

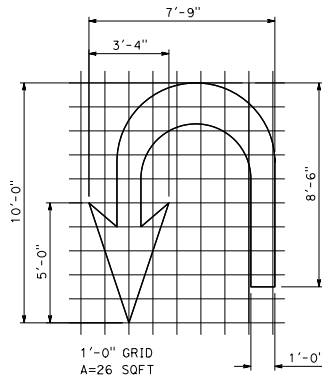
PAVEMENT MARKINGS YIELD LINES, LIMIT LINES, AND WRONG WAY DETAILS

NO SCALE

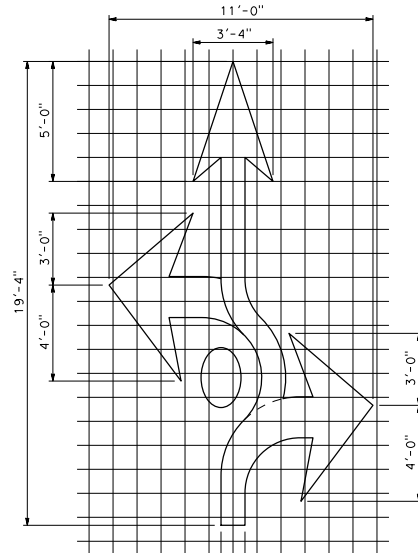
RSP A24G DATED APRIL 16, 2021 SUPERSEDES RSP A24G
DATED OCTOBER 19, 2018 THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP A24G

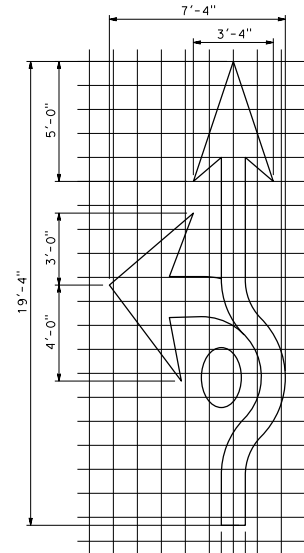
2018 REVISED STANDARD PLAN RSP A24G



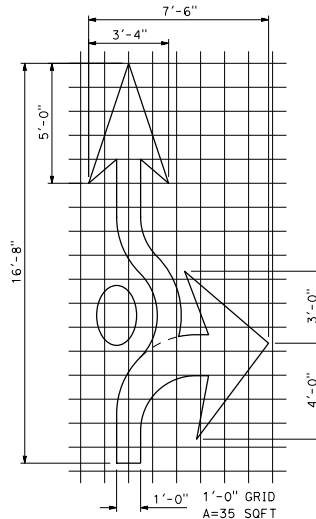
TYPE IX ARROW
U-TURN ARROW



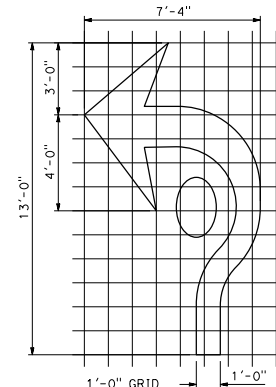
TYPE FH I ARROW



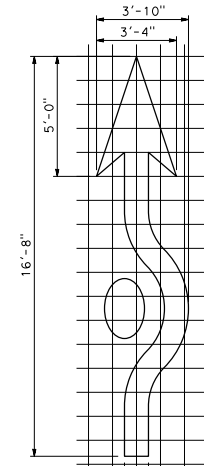
TYPE FH II ARROW



TYPE FH III ARROW
OPTIONAL LANE USE CIRCULAR ARROWS



TYPE FH IV ARROW



TYPE FH V ARROW
MANDATORY LANE USE CIRCULAR ARROWS

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
<p><i>Atifa Ferouzi</i> REGISTERED CIVIL ENGINEER</p> <p>April 16, 2021 PLANS APPROVAL DATE</p> <p>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.</p>					
<p>Atifa Ferouzi No. C80402 Exp. 3-31-23 CIVIL STATE OF CALIFORNIA</p>					

TO ACCOMPANY PLANS DATED _____

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
PAVEMENT MARKING ARROWS
NO SCALE

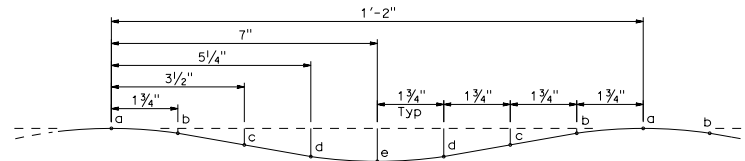
RSP A24H DATED APRIL 16, 2021 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP A24H

2018 REVISED STANDARD PLAN RSP A24H

NOTES:

1. For shoulder, edge line, and center line rumble strip details, see Standard Plans A40B, A40C, and A40D.
2. See Project Plans and Standard Plan A20A and Revised Standard Plan RSP A20B for pavement markers and traffic lines typical details.



**ELEVATIONS
SECTION A-A**

LOCATION	SHOULDER DEPTH INCHES
a	0
b	1/16
c	3/32
d	3/16
e	5/16

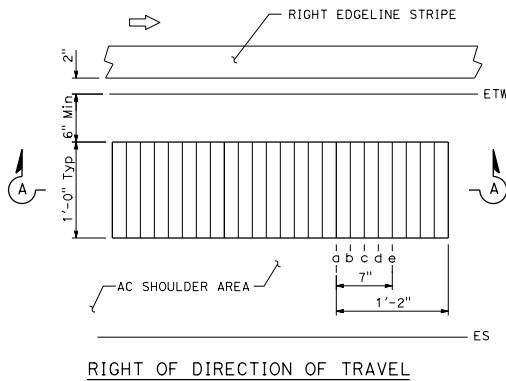
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL NO. SHEETS

October 16, 2020
PLANS APPROVAL DATE

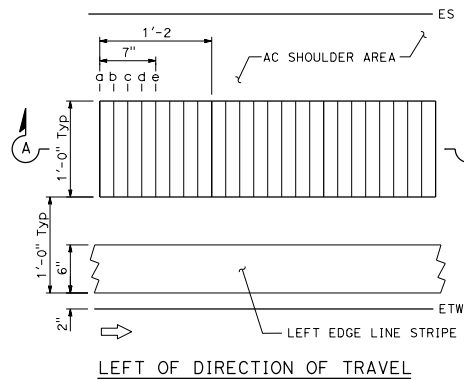
Atifa Ferrouz
REGISTERED CIVIL ENGINEER
No. C80402
Exp. 3-31-21
CIVIL

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TO ACCOMPANY PLANS DATED _____

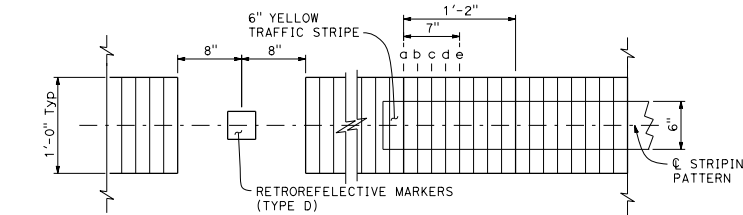


RIGHT OF DIRECTION OF TRAVEL

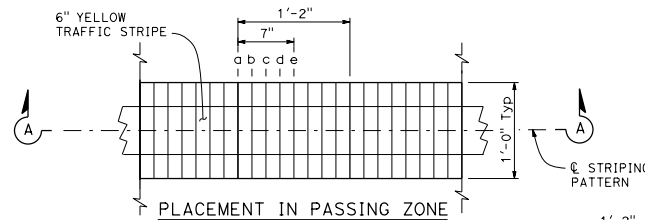


LEFT OF DIRECTION OF TRAVEL

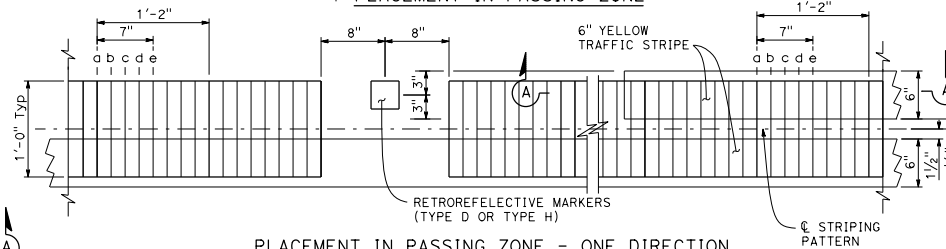
**PLAN
TYPICAL SHOULDER PLACEMENT**



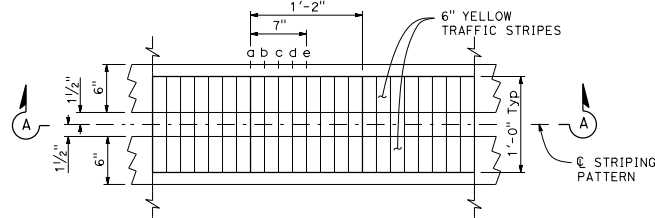
PLACEMENT IN PASSING ZONE - WITH RETROREFLECTIVE MARKERS



PLACEMENT IN PASSING ZONE

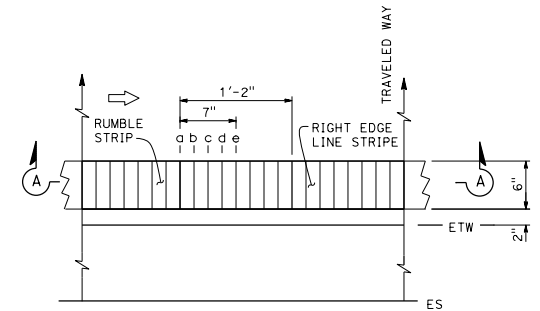


PLACEMENT IN PASSING ZONE - ONE DIRECTION

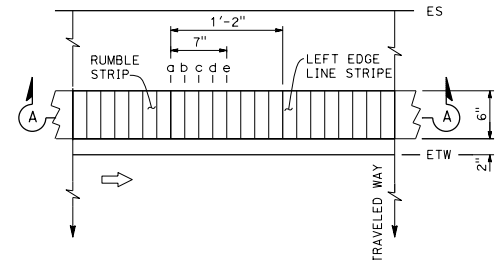


PLACEMENT IN NO PASSING ZONE

**PLAN
TYPICAL CENTERLINE PLACEMENT**



RIGHT OF DIRECTION OF TRAVEL



LEFT OF DIRECTION OF TRAVEL

**PLAN
TYPICAL EDGE LINE PLACEMENT**

**SINUSOIDAL RUMBLE STRIP DETAILS
GROUND-IN INDENTATIONS**

NO SCALE

RSP A40G DATED OCTOBER 16, 2020 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP A40G

2018 REVISED STANDARD PLAN RSP A40G

NOTE:

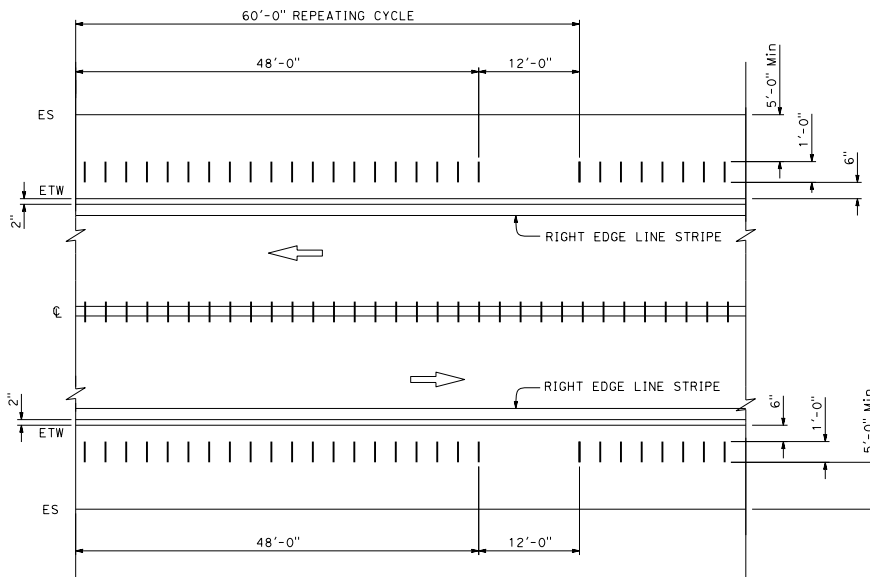
For shoulder, edge line and center line rumble strip details, see Standard Plans A40B, A40C and A40D.

LEGEND:

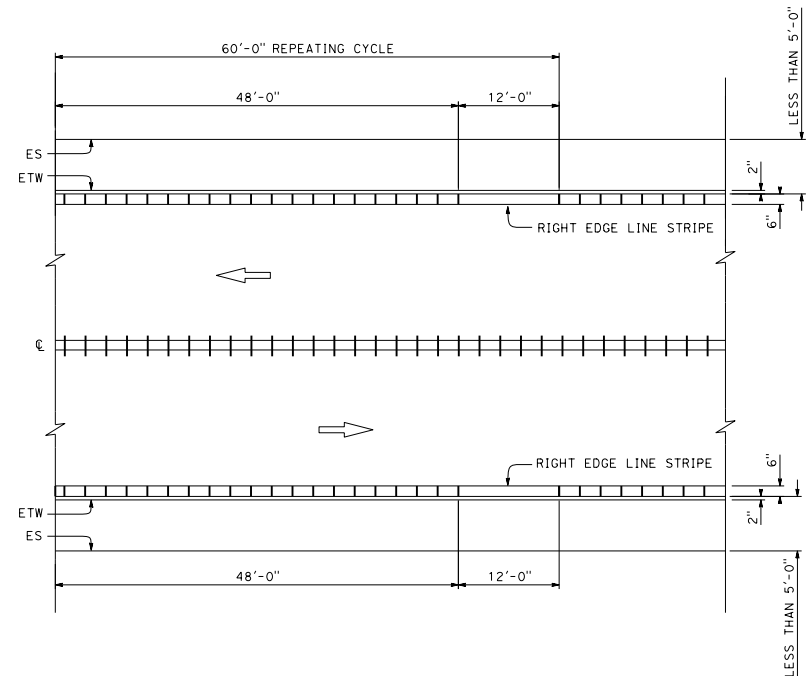
||||| RUMBLE STRIPS (GROUND-IN)

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
<p><i>Atifa Ferouzi</i> REGISTERED CIVIL ENGINEER</p> <p>April 16, 2021 PLANS APPROVAL DATE</p> <p>No. C80402 EXP. 3-31-23 CIVIL</p> <p>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.</p>					

TO ACCOMPANY PLANS DATED _____



**SHOULDER RUMBLE STRIPS WITH GAPS FOR BICYCLE
WHERE BICYCLES ARE PERMITTED AND CLEAR
SHOULDER WIDTH IS 5 FEET OR GREATER**



**EDGE LINE RUMBLE STRIPS WITH GAPS FOR BICYCLE
WHERE BICYCLES ARE PERMITTED AND CLEAR
SHOULDER WIDTH IS LESS THAN 5 FEET**

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

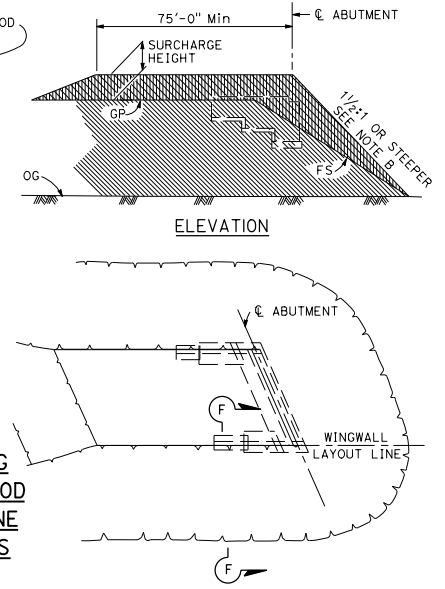
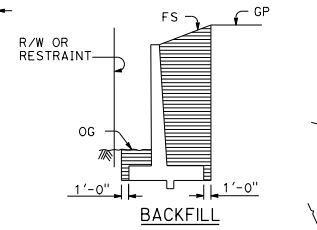
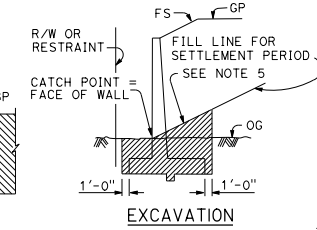
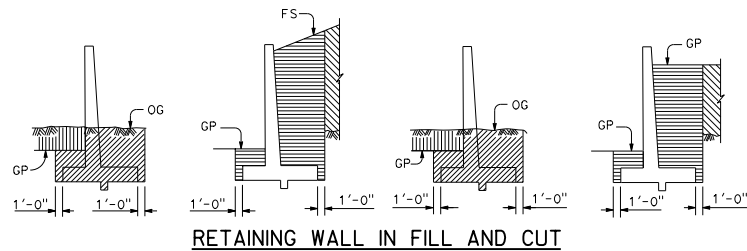
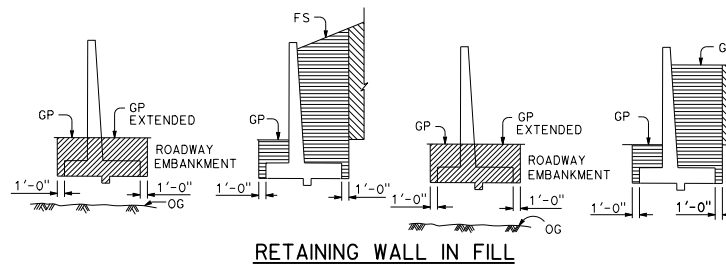
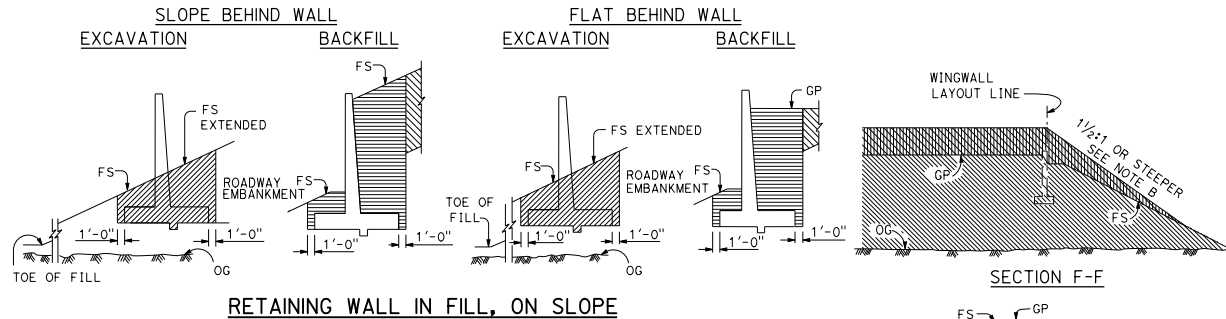
**RUMBLE STRIP PLACEMENT
WITH GAPS FOR BICYCLES**

NO SCALE

RSP A40H DATED APRIL 16, 2021 SUPERSEDES RSP A40H
DATED OCTOBER 16, 2020 THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.

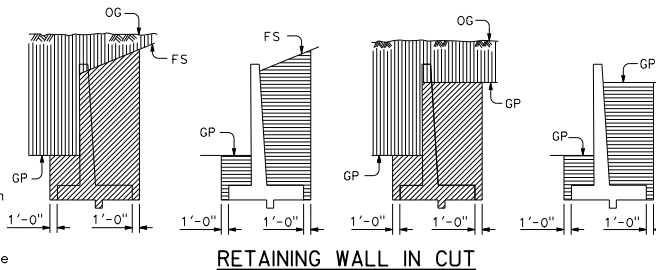
REVISED STANDARD PLAN RSP A40H

2018 REVISED STANDARD PLAN RSP A40H



NOTES:

- Roadway embankment is not delineated on excavation drawings for clarity.
- Embankment, if any, must be in place before structure excavation is made.
- If no roadway or ditch excavation or embankment is involved at the wall, structure excavation will be measured from the original ground.
- When an embankment settlement period is required, the upper limits of structure excavation are raised to conform to the elevation of the embankment after the settlement period or, when an embankment surcharge is used to the finished surface and grading plane elevations.
- Embankment slopes to be as steep as material permits. Slope assumed to be 1:1 for purposes of quantity calculations.



- LEGEND**
- STRUCTURE EXCAVATION
 - STRUCTURE BACKFILL
 - ROADWAY EXCAVATION
 - ROADWAY EMBANKMENT
 - BRIDGE EMBANKMENT SURCHARGE

LIMITS OF PAYMENT FOR EXCAVATION AND BACKFILL BRIDGE SURCHARGE AND WALL

NO SCALE

RSP A62B DATED OCTOBER 15, 2021 SUPERSEDES STANDARD PLAN A62B DATED MAY 31, 2018 - PAGE 29 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP A62B

2018 REVISED STANDARD PLAN RSP A62B

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL SHEETS

October 15, 2021
PLANS APPROVAL DATE

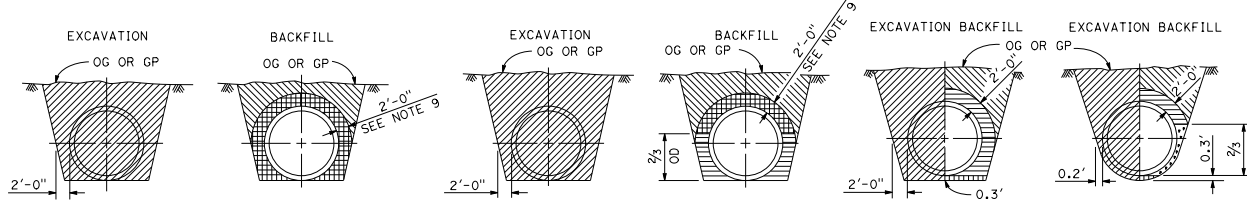
TO ACCOMPANY PLANS DATED _____

SURCHARGE NOTES:

A. Bridge embankment surcharges to be placed at locations and to the heights listed in the special provisions.

B. Surcharge slopes to be as steep as stability of material permits.

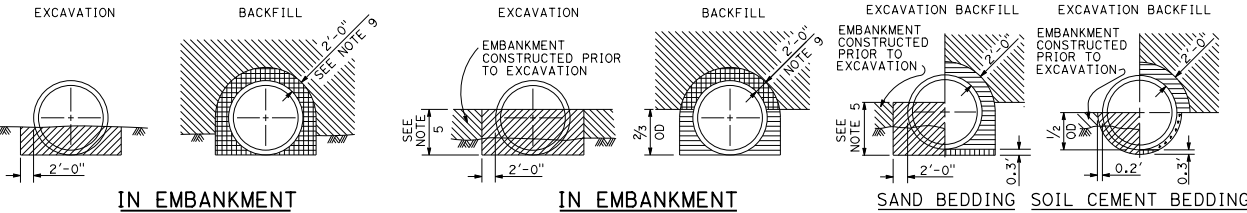




IN TRENCH

IN TRENCH

**SAND BEDDING SOIL CEMENT BEDDING
IN TRENCH**



IN EMBANKMENT

IN EMBANKMENT

**SAND BEDDING SOIL CEMENT BEDDING
IN EMBANKMENT**

MINIMUM ALLOWABLE CLASSES OF RCP FOR METHOD 1

COVER	MINIMUM CLASS AND D-LOAD
5.9'	CLASS II 10000
6.0' - 7.9'	CLASS III 13500
8.0' - 9.9'	CLASS III SPECIAL 17000
10.0' - 11.9'	CLASS IV 20000
12.0' - 13.9'	CLASS IV SPECIAL 25000
14.0' - 16.9'	CLASS V 30000
17.0' - 20.0'	CLASS V SPECIAL 36000

See Notes 6 and 9

METHOD 1

MINIMUM ALLOWABLE CLASSES OF RCP FOR METHOD 2

COVER	MINIMUM CLASS AND D-LOAD
15.9'	CLASS II 10000
16.0' - 19.9'	CLASS III 13500
20.0' - 24.9'	CLASS III SPECIAL 17000
25.0' - 27.9'	CLASS IV 20000
28.0' - 34.9'	CLASS IV SPECIAL 25000
35.0' - 41.9'	CLASS V 30000
42.0' - 50.0'	CLASS V SPECIAL 36000

See Notes 8 and 9

METHOD 2

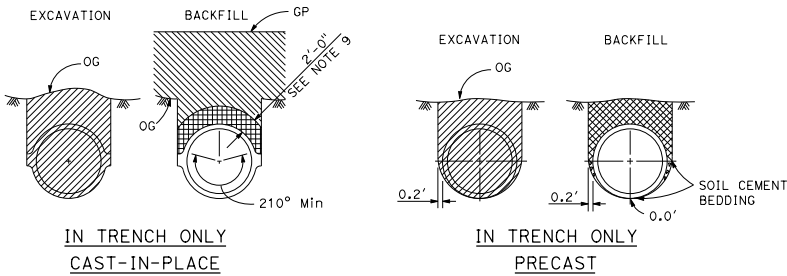
REINFORCED CONCRETE PIPE

See Notes 1, 2, 7 and 10

MINIMUM ALLOWABLE CLASSES OF RCP FOR METHOD 3

COVER	MINIMUM CLASS AND D-LOAD
25.9'	Class II 10000
26.0' - 31.9'	Class III 13500
32.0' - 37.9'	Class III Special 17000
38.0' - 44.9'	Class IV 20000
45.0' - 55.9'	Class IV Special 25000
56.0' - 67.9'	Class V 30000
68.0' - 80.0'	Class V Special 36000

METHOD 3



**IN TRENCH ONLY
CAST-IN-PLACE**

**IN TRENCH ONLY
PRECAST**

NON-REINFORCED CONCRETE PIPE

See Notes 7 and 11

LEGEND

- STRUCTURE EXCAVATION (CULVERT)
- STRUCTURE BACKFILL (CULVERT)
95% RELATIVE COMPACTION
- STRUCTURE BACKFILL (CULVERT)
90% RELATIVE COMPACTION
- LOOSE BACKFILL
- SAND BEDDING
- SOIL CEMENT BEDDING
- ROADWAY EMBANKMENT
- OD = OUTSIDE DIAMETER FOR CIRCULAR PIPES AND
MAXIMUM VERTICAL DIMENSION FOR OTHER SHAPES
- ID = INSIDE DIAMETER FOR CIRCULAR PIPES AND
MINIMUM VERTICAL DIMENSION FOR OTHER SHAPES

NOTES:

- Unless otherwise shown on the plans or specified in the special provisions, the Contractor shall have the option of selecting the class of RCP and the method of backfill to be used, provided the height of cover does not exceed the value shown for the RCP selected.
Example:
2'-0" RCP culvert with maximum cover of 19'-0" the options are:
a) Class V Special or stronger with Method 1.
b) Class III or stronger with Method 2.
c) Class II or stronger with Method 3.
Cover is defined as the maximum vertical distance from top of pipe to finished grade within the length of any given culvert.
- The class of RCP, method of backfill and bedding 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 structures (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.
- Slope or shore excavation sides as necessary.
- Embankment height prior to excavation for installation of all classes of RCP under Methods 2 and 3A shall be as follows:
Pipe sizes 1'-0" to 3'-6", ID = 2'-6"
Pipe sizes 4'-0" to 7'-0", ID = 2 1/2' OD
Pipe sizes larger than 7'-0", ID = 5'-0"
- The maximum size for all classes of RCP placed under Method 1 is 6'-6" ID.
- Non-reinforced precast pipe sizes 1'-0" or smaller may also be placed under Methods 1, 2 or 3.
- Oval or arch shaped RCP shall be placed under Method 2 only.
- Embankment compaction requirements govern over the 90% relative compaction backfill requirement within 2'-6" of finished grade.
- Backfill shall be placed full width of excavation except where dimensions are shown for backfill width or thickness. Dimensions shown are minimums.
- Where the precast non-reinforced concrete pipe is used as a substitute for the cast-in-place pipe, both the wall thickness and the concrete strength shall be at least as great as that specified for the cast-in-place pipe.
The fill height allowed shall not exceed that shown for the cast-in-place pipe.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER
October 15, 2021
PLANS APPROVAL DATE
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Carl M. Duan
No. C59976
Exp. 6-30-22
CIVIL
STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED _____

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**EXCAVATION AND BACKFILL
CONCRETE PIPE CULVERTS**
NO SCALE

RSP A62D DATED OCTOBER 15, 2021 SUPERSEDES STANDARD PLAN A62D
DATED MAY 31, 2018 - PAGE 31 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP A62D

DESIGN NOTES:

Design: AASHTO LRFD Bridge Design Specifications,
8th edition with California Amendments.
INDIRECT DESIGN METHOD

Soil: w Fe = 162 pcf Installation Type 1
w Fe = 168 pcf Installation Types 2 & 3
w = Unit weight of soil (pcf)
Fe = Soil-structure interaction factor

INSTALLATION TYPE 1:

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 No. 200 sieve size shall be 12.

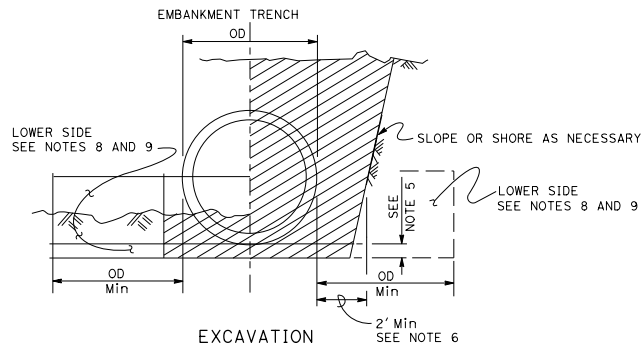
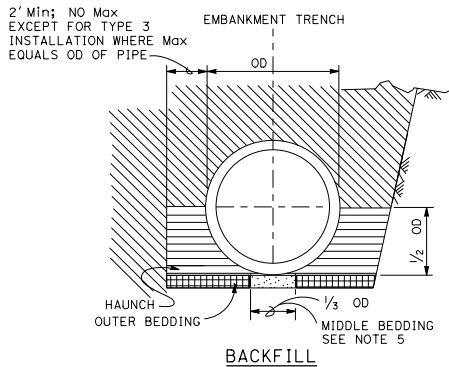
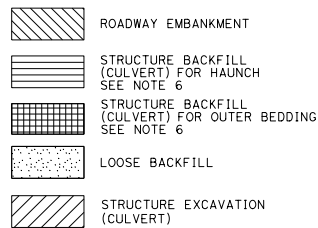
INSTALLATION TYPE 2:

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.

INSTALLATION TYPE 3:

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. In addition, the minimum sand equivalent in these areas shall be 25.

LEGEND:



INSTALLATION TYPE 1

MINIMUM CLASS AND D-LOAD	COVER	
	60" Dia AND SMALLER	OVER 60" Dia TO 120" Dia Max
CLASS II 1000D	14.9'	12.9'
CLASS III 1350D	15.0' - 21.3'	13.0' - 18.9'
CLASS III SPECIAL 1700D	22.0' - 26.8'	19.0' - 24.9'
CLASS IV 2000D	28.0' - 31.5'	25.0' - 29.9'
CLASS IV SPECIAL 2500D	33.0' - 37.8'	30.0' - 38.9'
CLASS V 3000D	42.0' - 47.5'	39.0' - 46.9'
CLASS V SPECIAL 3600D	50.0' - 57.3'	47.0' - 58.0'

INSTALLATION TYPE 2

MINIMUM CLASS AND D-LOAD	COVER	
	60" Dia AND SMALLER	OVER 60" Dia TO 120" Dia Max
CLASS II 1000D	11.9'	9.9'
CLASS III 1350D	12.0' - 15.9'	10.0' - 14.9'
CLASS III SPECIAL 1700D	16.0' - 20.5'	15.0' - 19.9'
CLASS IV 2000D	21.0' - 24.3'	20.0' - 23.9'
CLASS IV SPECIAL 2500D	25.0' - 30.3'	24.0' - 30.9'
CLASS V 3000D	32.0' - 36.3'	31.0' - 37.9'
CLASS V SPECIAL 3600D	38.0' - 43.8'	38.0' - 46.0'

INSTALLATION TYPE 3

MINIMUM CLASS AND D-LOAD	COVER	
	60" Dia AND SMALLER	OVER 60" Dia TO 120" Dia Max
CLASS II 1000D	8.9'	5.9'
CLASS III 1350D	9.0' - 11.9'	6.0' - 10.9'
CLASS III SPECIAL 1700D	12.0' - 15.9'	11.0' - 13.9'
CLASS IV 2000D	16.0' - 18.9'	14.0' - 17.9'
CLASS IV SPECIAL 2500D	19.0' - 23.3'	18.0' - 22.9'
CLASS V 3000D	25.0' - 28.3'	23.0' - 28.9'
CLASS V SPECIAL 3600D	30.0' - 34.3'	29.0' - 35.0'

NOTES:

- Unless otherwise shown on the plans or specified in the special provisions, 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 24'-0" the options are:
a) Class III Special or stronger with Installation Type 1.
b) Class IV or stronger with Installation Type 2.
c) Class V 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.
- Bedding depth: 1/4 OD Min, not less than 3" for soil foundation; 1/2 OD Min, not less 6" for rock foundation.
- 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 1/4 OD, but not less than 3". Where slurry cement backfill is used, clear distance to trench wall may be reduced as set forth in the Standard Specifications.
- Backfill shall be placed full width of excavation except where dimensions are shown for backfill width or thickness. Dimensions shown are minimum.
- Lower side shall meet the requirement of AASHTO-CA BDS for Standard Installations. Otherwise it shall be considered unsuitable as set forth in 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.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL No. SHEETS

REGISTERED CIVIL ENGINEER
October 15, 2021
PLANS APPROVAL DATE
No. C59976
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CIVIL
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TO ACCOMPANY PLANS DATED _____

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION EXCAVATION AND BACKFILL CONCRETE PIPE CULVERTS INDIRECT DESIGN METHOD

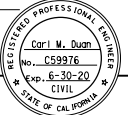
NO SCALE

RSP A62DA DATED OCTOBER 15, 2021 SUPERSEDES STANDARD PLAN A62DA DATED MAY 31, 2018 - PAGE 32 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP A62DA







2018 REVISED STANDARD PLAN RSP A62DA

Dist	COUNTY	ROUTE	POST MILES	SHEET TOTAL
			TOTAL PROJECT	NO. SHEETS


 REGISTERED CIVIL ENGINEER
 October 19, 2018
 PLANS APPROVAL DATE
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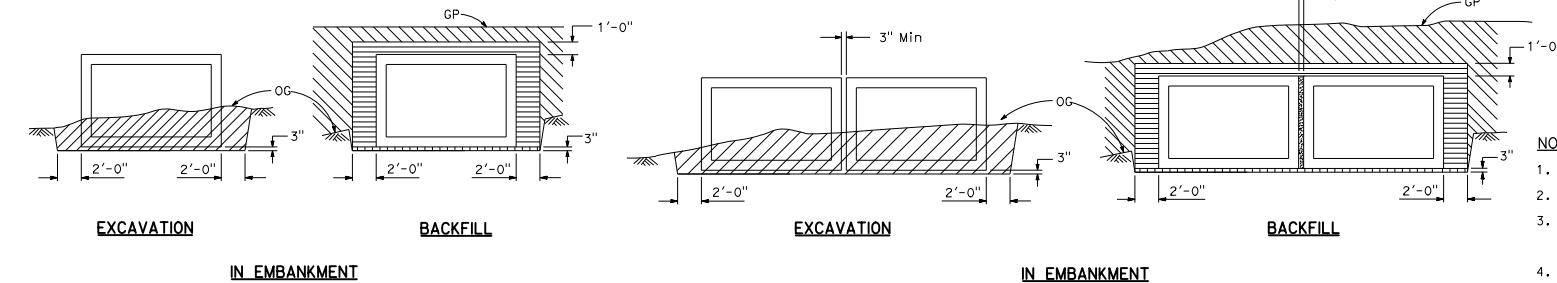
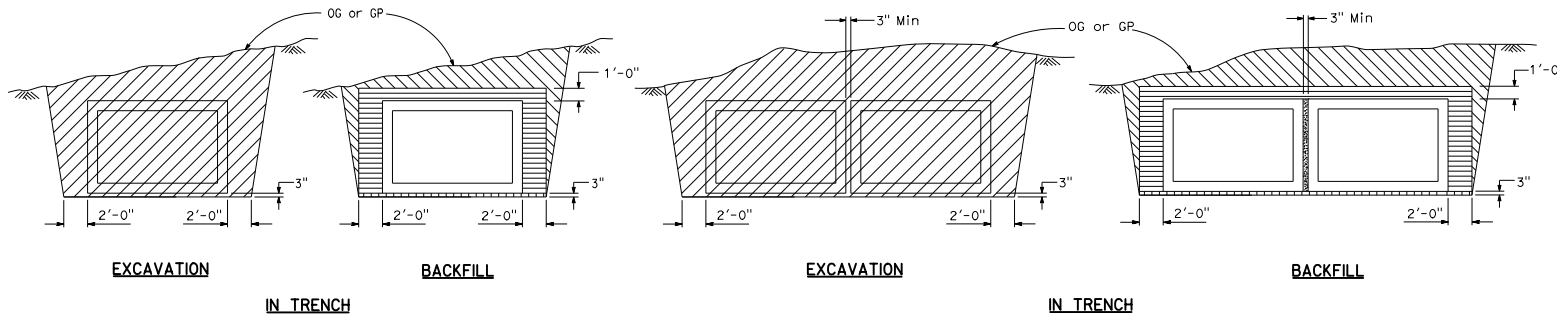
TO ACCOMPANY PLANS DATED _____

LEGEND:

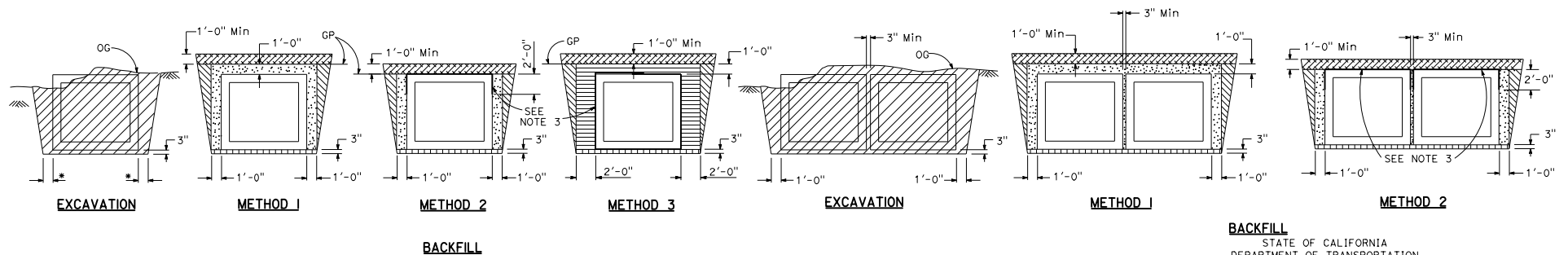
-  STRUCTURE EXCAVATION (CULVERT)
-  STRUCTURE BACKFILL (CULVERT) 95% RELATIVE COMPACTION
-  ROADWAY EMBANKMENT
-  SLURRY CEMENT BACKFILL
-  SAND BEDDING (CULVERT)
-  ROADWAY PAVEMENT STRUCTURE

NOTES:

1. Slope or shore excavation sides as necessary.
2. Dimensions shown are minimum.
3. Method 2 and 3 for single or multiple boxes requires an approved external sealing band. See Revised Standard Plan RSP D83A.
4. Construction of Roadway Pavement Structure in Method 2 or Method 3 shall not disturb the external sealing band installation.



FILL HEIGHT GREATER THAN 2'-0"



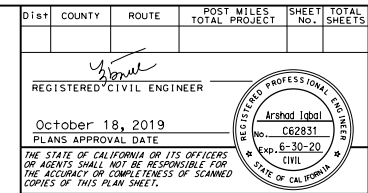
* 1'-0" Where Method 1 or 2 Backfill is used.
2'-0" Where Method 3 Backfill is used.

FILL HEIGHT 2'-0" OR LESS

EXCAVATION AND BACKFILL PRECAST REINFORCED CONCRETE BOX CULVERT
NO SCALE

RSP A62G DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN A62G
DATED MAY 31, 2018 - PAGE 35 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP A62G



Technical drawing of the TBMP BEGIN B I O S W L RIV W 010 R133.046 sign. The drawing shows the front and back views of the sign.

Front View:

- Overall height: 30"
- Overall width: 8"
- Text: TBMP BEGIN B I O S W L RIV W 010 R133.046
- Dimensions for mounting holes (from top edge):
 - 3/4" (to first hole)
 - 1 1/2" (between first and second hole)
 - 3/4" (between second and third hole)
 - 2" (between third and fourth hole)
 - 1 1/2" (between fourth and fifth hole)
 - 3/4" (between fifth and sixth hole)
 - 1 1/4" (between sixth and seventh hole)
 - 3/4" (between seventh and eighth hole)
 - 1 1/4" (between eighth and ninth hole)
 - 3/4" (between ninth and tenth hole)
- Dimensions for mounting holes (from bottom edge):
 - 3/4" (to first hole)
 - 1 1/4" (between first and second hole)
 - 3/4" (between second and third hole)
 - 1 1/2" (between third and fourth hole)
 - 3/4" (between fourth and fifth hole)
 - 1 1/2" (between fifth and sixth hole)
 - 3/4" (between sixth and seventh hole)
 - 1 1/4" (between seventh and eighth hole)
 - 3/4" (between eighth and ninth hole)
 - 1 1/4" (between ninth and tenth hole)
 - 3/4" (between tenth and eleventh hole)
- Dimensions for mounting holes (from left edge):
 - 4" (to first hole)
 - 4" (to second hole)

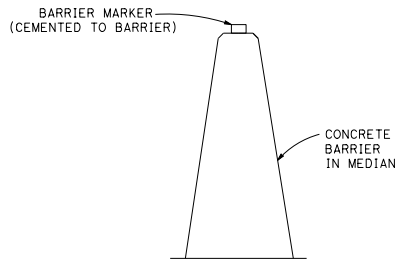
Back View:

- Overall height: 48"
- Overall width: 8"
- Dimensions for mounting holes (from top edge):
 - 2 1/2" (to first hole)
 - 9 1/2" (between first and second hole)
 - 30" (between second and third hole)
 - 9 1/2" (between third and fourth hole)
 - 2 1/2" (between fourth and fifth hole)
- Dimensions for mounting holes (from bottom edge):
 - 24" (to first hole)
- Dimensions for mounting holes (from left edge):
 - 4" (to first hole)
 - 4" (to second hole)
- Mounting details:
 - 1" CHAMFER Type
 - METAL POST

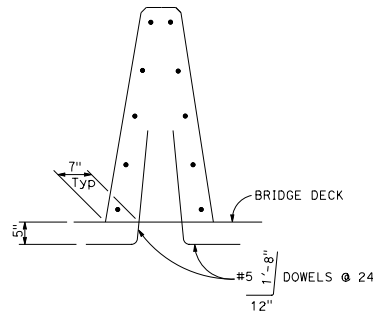
RSP A73B DATED OCTOBER 18, 2019 SUPERSEDES RSP A73B
DATED OCTOBER 19, 2018 AND STANDARD PLAN A73B
MAY 31, 2018 - PAGE 39 OF THE STANDARD PLANS BOOK DATED 2018.

N-1(CA). Yellow retroreflective.
N-2(CA). Red retroreflective.
N-3(CA). Orange retroreflective.

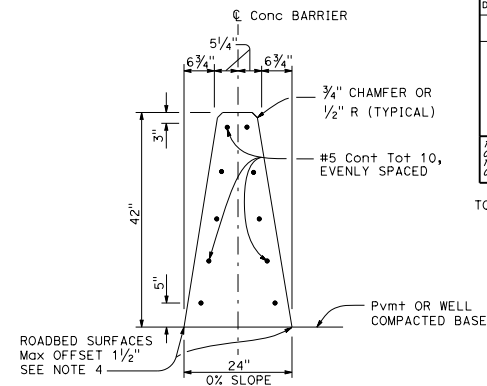
METAL POST DETAIL



CONCRETE BARRIER TYPE 60M DELINEATION
See Note 5



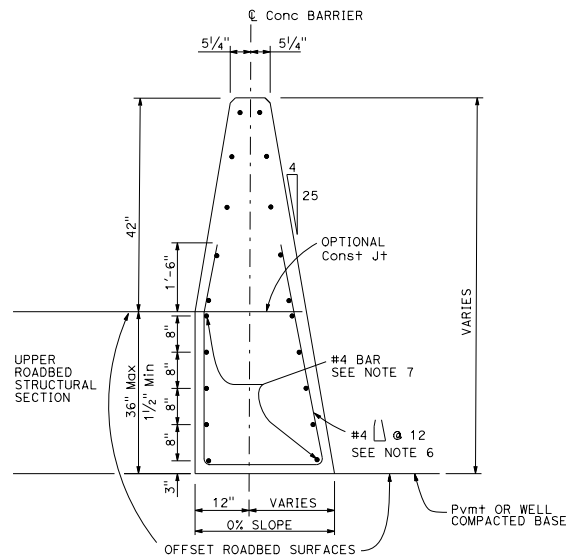
CONCRETE BARRIER TYPE 60MA
Details similar to Type 60M except as noted.



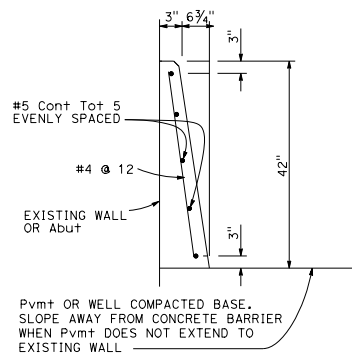
CONCRETE BARRIER TYPE 60M

NOTES:

1. See Standard Plan A76B for details of Concrete Barrier Type 60M end anchors, connection to structures and transitions to Concrete Barrier Type 50 and Concrete Barrier Type 60MS.
2. See Standard Plan A76C for Concrete Barrier Type 60M transitions at bridge column and sign pedestals.
3. Where glare screen is required on Concrete Barrier Type 60M, use Concrete Barrier Type 60MG.
4. Where roadbed offset is greater than 1 1/2", see Concrete Barrier Type 60MC.
5. See Project Plans for barrier delineation locations.
6. Reinforcing stirrup not required for roadbed offsets less than 1'-0".
7. For roadbed surfaces offset greater than 1 1/2" and less than or equal to 3", no reinforcement required. For roadbed surfaces offset greater than 3" and less than or equal to 8", use two #4 Reinf at 3" above the lower roadbed surface. For roadbed surfaces offset greater than 8" and less than or equal to 12", use two #4 Reinf at 3" above the lower roadbed surface and two #4 Reinf at 8" above the lower roadbed surface. For roadbed surfaces offset greater than 12" and less than or equal to 36", use two #4 Reinf at 3" above the lower roadbed surface and two #4 Reinf at every 8" increment vertical spacing above the first two #4 Reinf.
8. For weep hole alignment and drainage details not shown, see Standard Plans B0-3 and B3-5.



CONCRETE BARRIER TYPE 60MC
Details similar to Type 60M except as noted.
Use concrete barrier end anchor when necessary.
36" roadbed surfaces offset shown.



CONCRETE BARRIER TYPE 60MD
See Note 8

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

Mark Ballentine
REGISTERED CIVIL ENGINEER

April 16, 2021
PLANS APPROVAL DATE

No. C64101
Exp. 09-30-22
CIVIL
STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED _____

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

CONCRETE BARRIER TYPE 60M

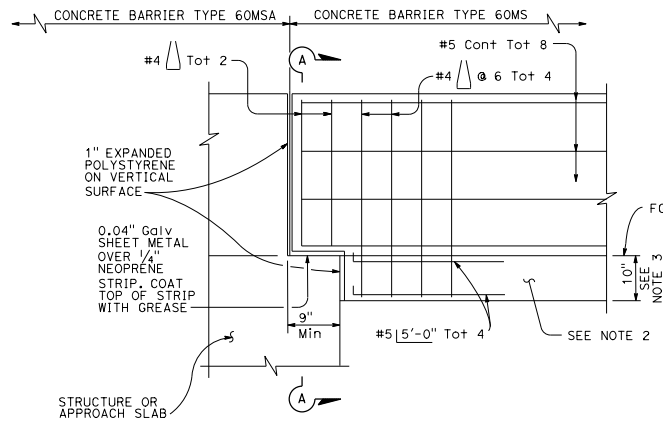
NO SCALE

RSP A76A DATED APRIL 16, 2021 SUPERSEDES STANDARD PLAN A76A
DATED MAY 31, 2018 - PAGE 42 OF THE STANDARD PLANS BOOK DATED 2018.

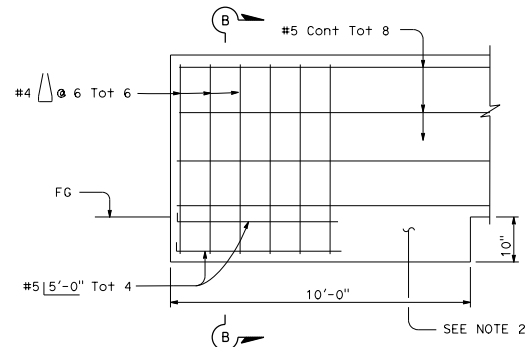
REVISED STANDARD PLAN RSP A76A

NOTES:

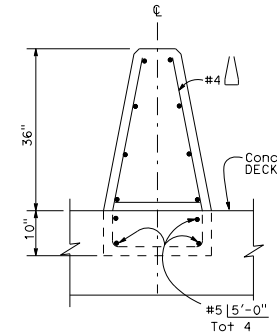
1. See Standard Plan A76G for Concrete Barrier Type 60MS and Type 60MSA.
2. Footing monolithic or doweled with 2-#8 x 8" @ 2'-0". The footing is required at concrete barrier ends and at interruptions in concrete barrier.
3. 10' concrete barrier footing extends 10' back from structure.
4. See Standard Plan A78I for transition to Thrie Beam Barrier.



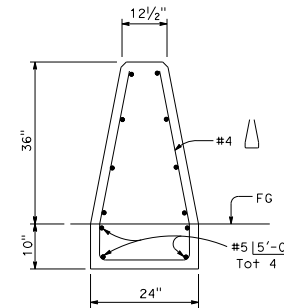
**CONCRETE BARRIER TYPE 60MS
CONNECTION TO STRUCTURE**



**CONCRETE BARRIER TYPE 60MS
END ANCHORAGE**



SECTION A-A



SECTION B-B

DIS+	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

October 16, 2020
PLANS APPROVAL DATE

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Exp. 6-30-21
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STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED _____

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
CONCRETE BARRIER TYPE 60MS

NO SCALE

RSP A76H DATED OCTOBER 16, 2020 SUPERSEDES STANDARD PLAN A76H
DATED MAY 31, 2018 - PAGE 52 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP A76H

2018 REVISED STANDARD PLAN RSP A76H

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

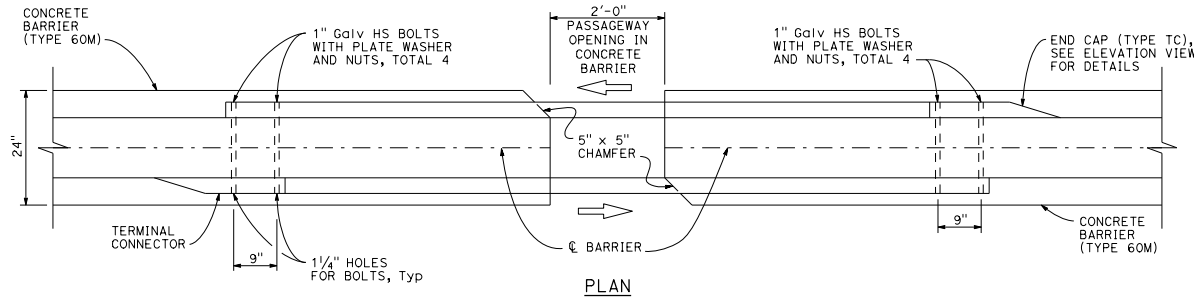
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

October 18, 2019
PLANS APPROVAL DATE

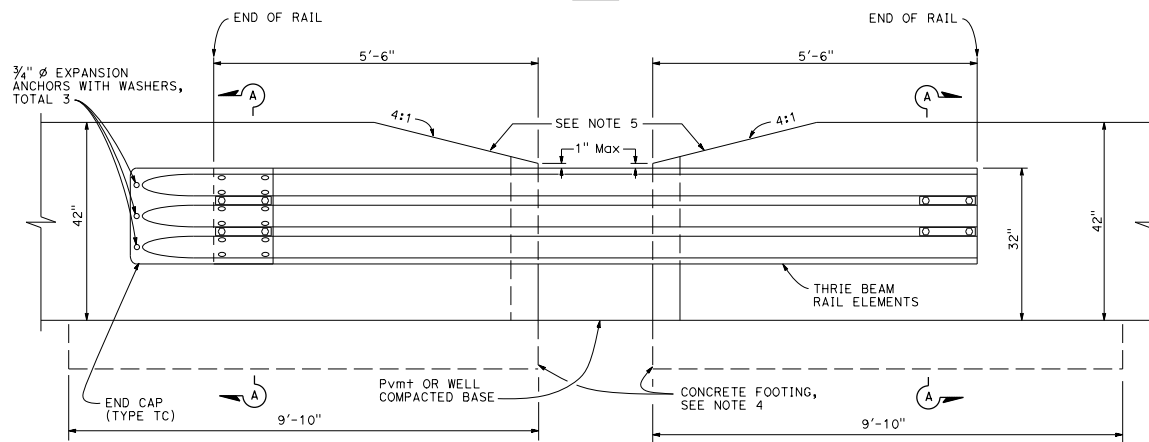
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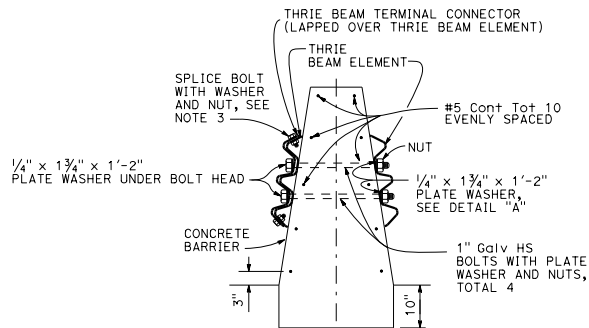
TO ACCOMPANY PLANS DATED _____



PLAN

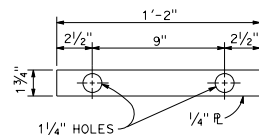


ELEVATION



SECTION A-A

See Notes 4 and 6



DETAIL "A"

1/4" PLATE WASHER

NOTES:

1. Type MM Passageway typically used for crossing of medium size animals.
2. For details of the thrie beam element and hardware, see the A78 series of the Standard Plans. For details of the Concrete Barrier Type 60, see the A76 series of the Standard Plans.
3. The end cap, and the thrie beam element, may be spliced together prior to bolting the elements to the concrete barrier. All 8 splice bolts to connect the end cap to the rail element are not required. The 2 top and the 2 bottom splice bolts with washers and nuts shall be used.
4. Barrier end anchorage shall be constructed as shown in Section A-A of this plan or as shown on Standard Plan A76B.
5. Taper the top of the end of the concrete barrier at 4:1 to match the top elevation of the thrie beam rail element.
6. For details not shown, see Standard Plan A76A.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**CONCRETE BARRIER
WILDLIFE PASSAGEWAY
(TYPE MM)**

NO SCALE

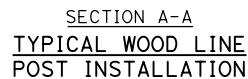
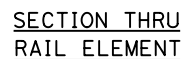
RSP A76K DATED OCTOBER 18, 2019 SUPERSEDES STANDARD PLAN A76K
DATED MAY 31, 2018 - PAGE 55 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP A76K

2018 REVISED STANDARD PLAN RSP A76K



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



See Note 4

TO ACCOMPANY PLANS DATED

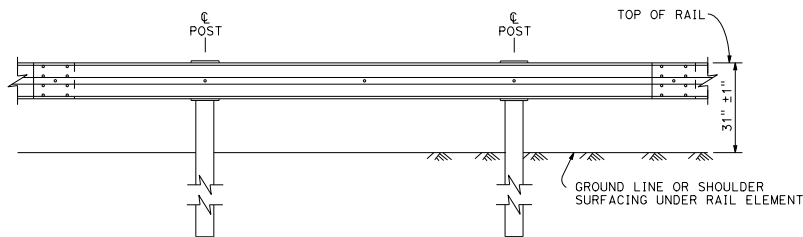
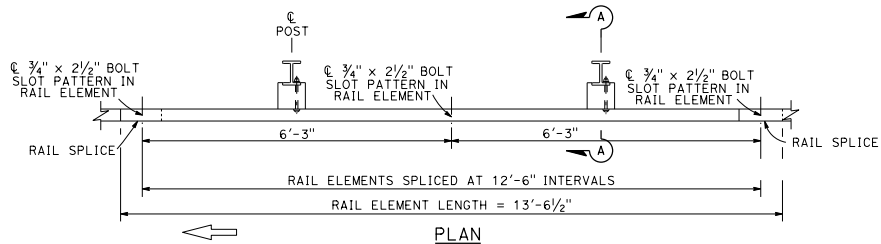
1. For details of steel post installations, see Revised Standard Plan RSP A77L2.
2. For details of standard hardware used to construct MGS, see Revised Standard Plan RSP A77M1.
3. For details of wood posts and wood blocks used to construct MGS, see Standard Plan A77N1.
4. For additional installation details, see Standard Plan A77N3.
5. MGS post spacing to be 6'-3" center to center, except as otherwise noted.
6. For MGS typical layouts, see the A77P, A77Q and A77R Series of Standard Plans.
7. If railing is connected to terminal system end treatment, use 31" height terminal system end treatment.
8. For MGS end anchor details, see Standard Plans A77S1 and A77T2.
9. For details of MGS transition to bridge railing, see Revised Standard Plan RSP A77U4.
10. For additional details of MGS connection to bridge railing, see Standard Plans A77U1, A77U2 and A77V1.
11. For MGS connection details to abutments and walls, see Standard Plan A77U3.
12. For typical MGS delineation and dike positioning details, see Revised Standard Plan RSP A77N4.
13. Slotted hole for bolted connection of rail element to block and post.
14. Slotted holes for splice bolts to overlap ends of rail element.
15. Additional hole in uppermost portion of line post is for potential future adjustments of railing height. See Standard Plan A77N1.
16. 6" x 12" x 1'-2" block must be used with 6" dike.
17. Install posts in soil.

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

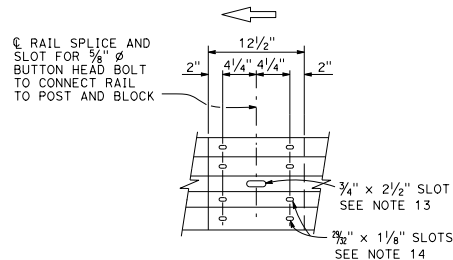
NO SCALE

RSP A77L1 DATED OCTOBER 16, 2020 SUPERSEDES RSP A77L1 DATED APRIL 19, 2019 AND
STANDARD PLAN A77L1 DATED MAY 31, 2018 - PAGE 57 OF THE STANDARD PLANS BOOK DATED 2018.

REVISÉD STANDARD PLAN RSP A77L1

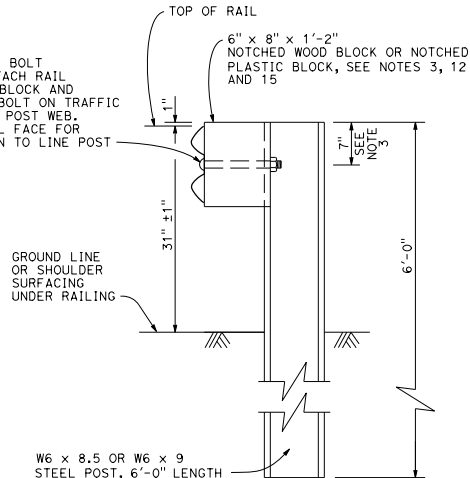


MIDWEST GUARDRAIL SYSTEM WITH STEEL POSTS AND NOTCHED WOOD OR NOTCHED RECYCLED PLASTIC BLOCKS

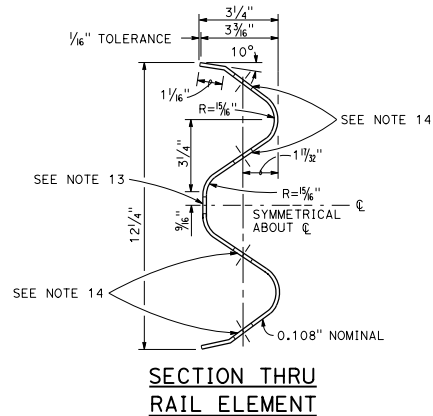


- Connect the overlapped end of the rail elements with $\frac{3}{8}$ " ϕ x $\frac{1}{4}$ " button head oval shoulder splice bolts inserted into the $\frac{3}{8}$ " x $\frac{1}{8}$ " slots and bolted together with $\frac{3}{8}$ " ϕ recessed hex nuts. Recess of hex nut points toward rail element. A total 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.

$\frac{3}{8}$ " ϕ BUTTON HEAD BOLT WITH HEX NUT. ATTACH RAIL ELEMENT TO WOOD BLOCK AND STEEL POST WITH BOLT ON TRAFFIC APPROACH SIDE OF POST WEB. NO WASHER ON RAIL FACE FOR BOLTED CONNECTION TO LINE POST.



See Note 4



NOTES:

- For details of wood post installations, see Revised Standard Plan RSP A77L1.
- For details of standard hardware used to construct MGS, see Revised Standard Plan RSP A77M1.
- For details of steel posts and notched wood blocks used to construct MGS, see Standard Plan A77N2.
- For additional installation details, see Standard Plan A77N3.
- MGS post spacing to be 6'-3" center to center, except as otherwise noted.
- For MGS typical layouts, see the A77P, A77Q and A77R Series of Standard Plans.
- If railing is connected to terminal system end treatment, use 31" height terminal system end treatment.
- For MGS end anchor details, see Standard Plans A77S1 and A77T2.
- For details of MGS transition to bridge railing, see Revised Standard Plan RSP A77U4.
- For additional details of MGS connection to bridge railings, see Standard Plans A77U1, A77U2 and A77V1.
- For dike positioning and MGS delineation details, see Revised Standard Plan RSP A77N4.
- Notched face of block faces steel post.
- Slotted hole for bolted connection of rail element to block and post.
- Slotted holes for splice bolts to overlap ends of rail element.
- 6" x 12" x 1'-2" block must be used with 6" dike.
- Install posts in soil.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

RSP A77L2 DATED OCTOBER 16, 2020 SUPERSEDES RSP A77L2 DATED OCTOBER 18, 2019;
RSP A77L2 DATED APRIL 19, 2019 AND STANDARD PLAN A77L2 DATED MAY 31, 2018 - PAGE 58
OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP A77L2

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

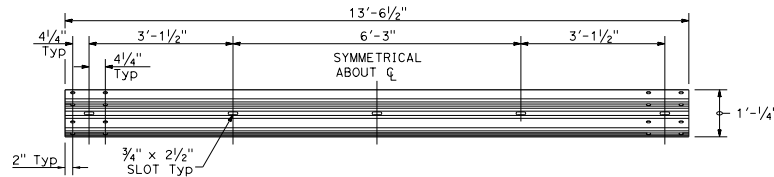
October 16, 2020
PLANS APPROVAL DATE

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2018 REVISED STANDARD PLAN RSP A77L2

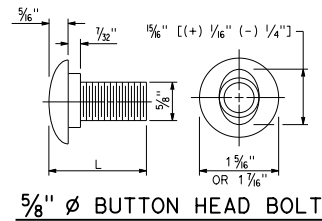
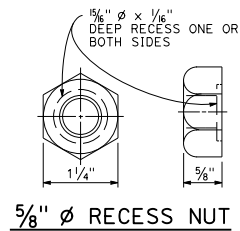
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
<p><i>Randell D. Hiatt</i> REGISTERED CIVIL ENGINEER</p> <p>October 16, 2020 PLANS APPROVAL DATE</p> <p>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</p>					
<p>TO ACCOMPANY PLANS DATED _____</p>					



TYPICAL RAIL ELEMENT

NOTE:

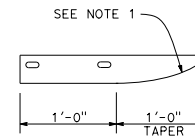
1. Slotted holes for splice bolts to overlap ends of rail element.



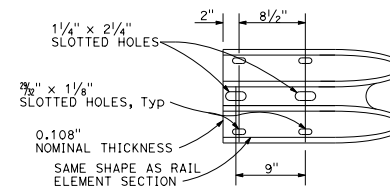
BUTTON HEAD BOLT

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

** For nested rail applications.



PLAN



**ELEVATION
END CAP
(TYPE A)**

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**MIDWEST GUARDRAIL SYSTEM
STANDARD HARDWARE**

NO SCALE

RSP A77M1 DATED OCTOBER 16, 2020 SUPERSEDES STANDARD PLAN A77M1
DATED MAY 31, 2018 - PAGE 60 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP A77M1

2018 REVISED STANDARD PLAN RSP A77M1

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

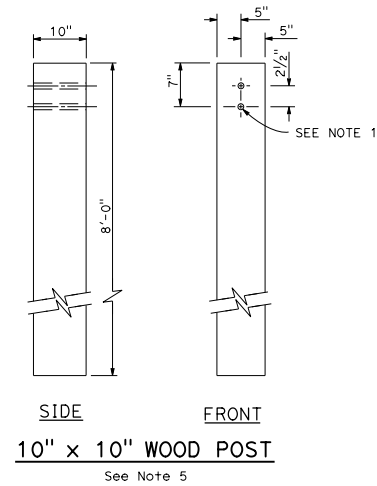
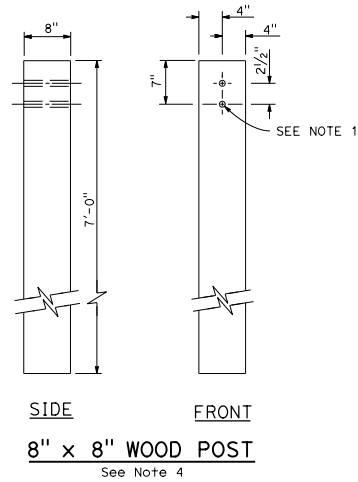
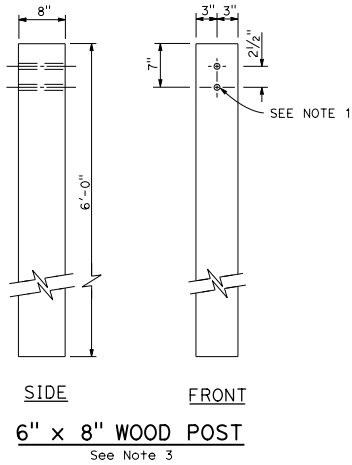
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

October 18, 2019
PLANS APPROVAL DATE

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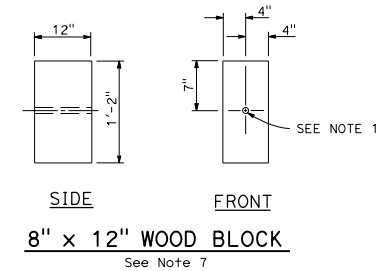
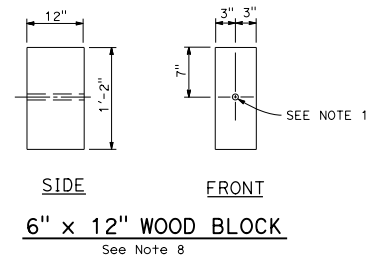
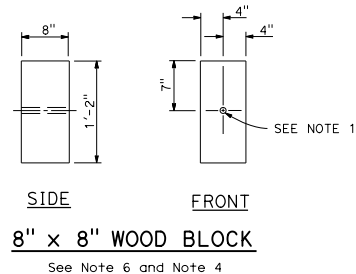
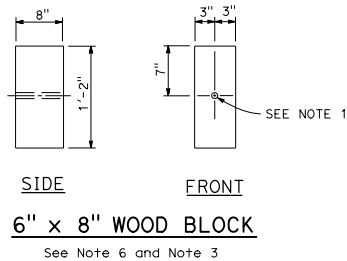
REGISTERED PROFESSIONAL ENGINEER
No. C50200
Exp. 6-30-21
CIVIL
STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED _____



NOTES:

1. All holes in wood posts and blocks shall be $\frac{3}{4}$ " Dia $\pm \frac{1}{16}$ ".
2. Dimensions shown for wood post are nominal.
3. This post and block combination used for standard line post sections of MGS.
4. This post and 8" x 8" block combination used for line post sections of MGS on narrow roadways.
5. This post and 8" x 8" block combination is typically used where strengthened line post sections of MGS are warranted to shield fixed objects.
6. See Standard Plan A77L3 for use of 6" x 8" and 8" x 8" wood blocks.
7. To be used with 8" x 8" x 7'-0" wood post if installed with 6" height dike.
8. To be used with 6" x 8" x 6'-0" wood post if installed with 6" height dike.



STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

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

NO SCALE

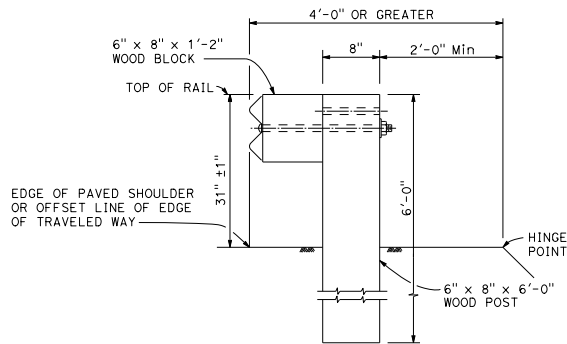
RSP A77N1 DATED OCTOBER 18, 2019 SUPERSEDES STANDARD PLAN A77N1
DATED MAY 31, 2018 - PAGE 61 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP A77N1

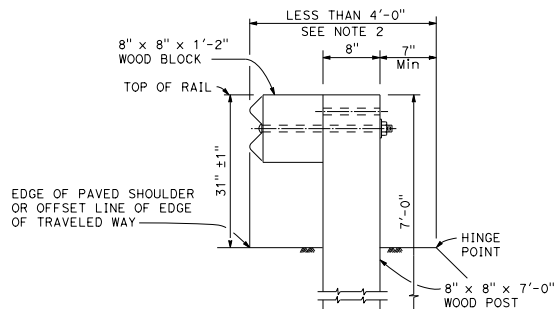
2018 REVISED STANDARD PLAN RSP A77N1

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
Randell D. Hiatt REGISTERED CIVIL ENGINEER October 19, 2018 PLANS APPROVAL DATE No. C50200 Exp. 6-30-19 CIVIL STATE OF CALIFORNIA					
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TO ACCOMPANY PLANS DATED _____

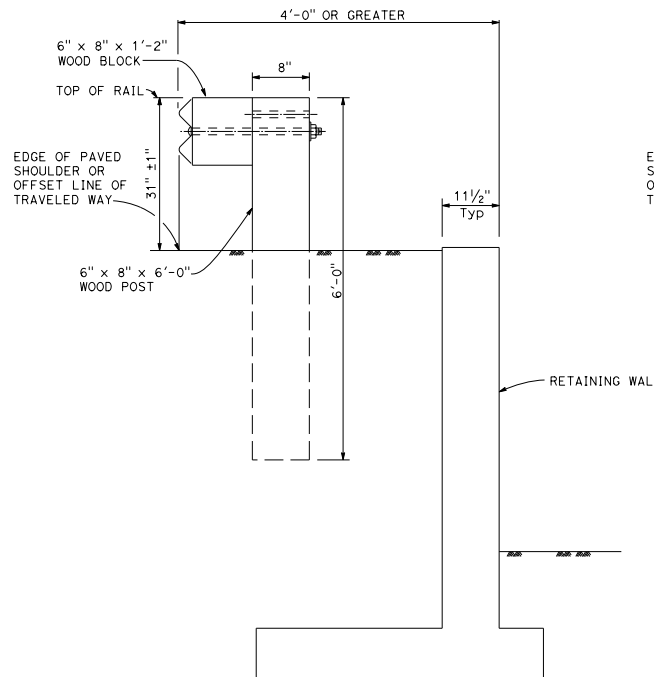


DETAIL A
TYPICAL ROADWAY
INSTALLATION
See Note 1



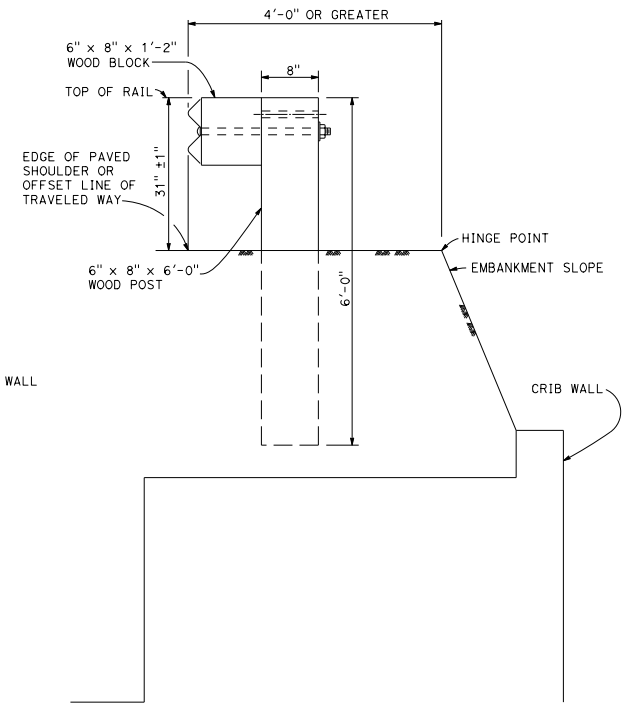
DETAIL B
NARROW ROADWAY
INSTALLATION
See Note 1

POST EMBEDMENT



DETAIL C

INSTALLATION AT EARTH RETAINING WALLS



DETAIL D

NOTES:

- These installation details also applicable to steel line post installations. For Detail A, C, and D, where steel line post installations are constructed, W6 x 8.5 or W6 x 9 steel post, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or notched recycled plastic blocks are to be used in place of the size of wood post and wood block shown. For Detail B, where steel line post installations are constructed, W6 x 8.5 or W6 x 9 steel post, 8'-0" in length, with 8" x 8" x 1'-2" notched wood blocks or notched recycled plastic blocks are to be used in place of the size of wood post and wood block shown. For additional installation details, see Standard Plans A77L1 and A77L2.
- Where the distance between the back of the post and the hinge point is less than 7", see the Project Plans for special details.
- For dike positioning with MGS installations, see Standard Plan A77N4.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

MIDWEST GUARDRAIL SYSTEM
TYPICAL LINE POST
EMBEDMENT AND
HINGE POINT OFFSET DETAILS
NO SCALE

RSP A77N3 DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN A77N3
DATED MAY 31, 2018 - PAGE 63 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP A77N3

2018 REVISED STANDARD PLAN RSP A77N3

TO ACCOMPANY PLANS DATED

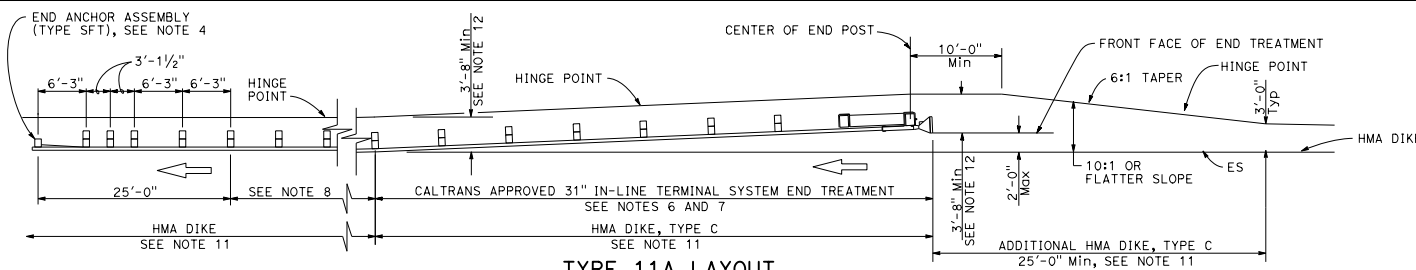
1. When necessary to place dike more than 7" in front of face of MGS, only Type C dike may be used. For dike details, see Standard Plan A87B.
2. For standard railing post embedment, see Standard Plan A77N3.
3. MGS delineation to be used where shown on the Project Plans.
4. When dike or curb is placed under MGS, the maximum height of the dike or curb shall be 6". Mountable dike should not be used. For dike and curb details, see Standard Plans A87A and A87B.
5. For details of typical distance between the face of rail and hinge point, see Standard Plan A77N3.
6. For steel line posts, use $\frac{1}{4}$ " - 20 self-tapping screws in 0.22" diameter holes or $\frac{1}{4}$ " bolts in $\frac{3}{8}$ " diameter holes.
7. 8" block can be used with 4" or lower dike, or no dike. 12" block can be used with 6" or lower dike, or no dike.



STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

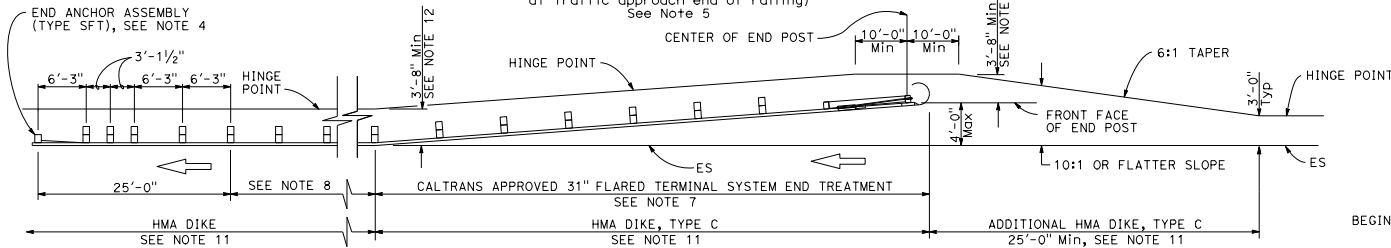
NO SCALE

REVISED STANDARD PLAN RSP A77N4



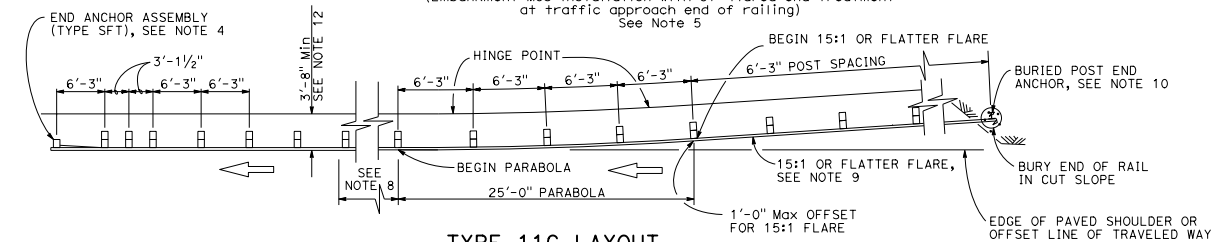
TYPE 11A LAYOUT

(Embankment MGS installation with 31" in-line end treatment at traffic approach end of railing)
See Note 5



TYPE 11B LAYOUT

(Embankment MGS installation with 31" flared end treatment at traffic approach end of railing)
See Note 5



TYPE 11C LAYOUT

(Embankment MGS installation with buried end anchor treatment at traffic approach end of railing)
See Notes 5 and 11

NOTES:

- Line post, blocks and hardware to be used are shown on Revised Standard Plans RSP A77L1, RSP A77L2, RSP A77N1, Standard Plans A77N2 and A77M1.
- MGS post spacing to be 6'-3" center to center, except as otherwise noted.
- Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks, W6 x 8.5 or 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.
- For End Anchor Assembly (Type SFT) details, see Standard Plan A77S1.
- Layout Types 11A, 11B or 11C are typically used where MGS is recommended to shield embankment slopes and a crashworthy end treatment is required for only one direction of traffic.
- 31" in-line terminal system end treatments are used where site conditions will not accommodate a flared end treatment.
- The type of 31" 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 MGS (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 MGS within the 15:1 or flatter flare is based on site conditions and should be a length equal to multiples of 12'-6".
- For details of the buried post end anchor used with Type 11C Layout, see Standard Plan A77T2.
- Where placement of dike is required with MGS installations, see Standard Plan A77N4 for dike positioning details.
- Use this offset for 8-inch block. For 12-inch block, use 4'-0" Min offset.

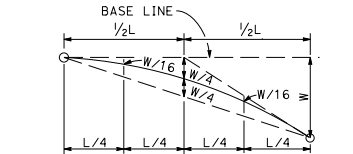
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL SHEETS

Randell D. Hiatt
REGISTERED CIVIL ENGINEER
No. C50200
Exp. 6-30-21
CIVIL
STATE OF CALIFORNIA

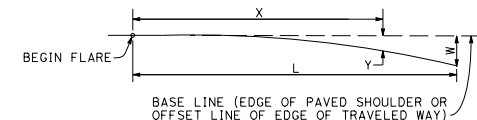
October 18, 2019
PLANS APPROVAL DATE

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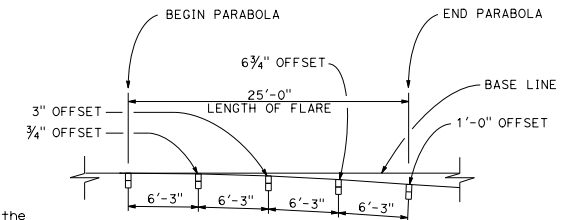
TYPICAL PARABOLIC LAYOUT



BASE LINE (EDGE OF PAVED SHOULDER OR OFFSET LINE OF EDGE OF TRAVELED WAY)

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**

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**MIDWEST GUARDRAIL SYSTEM
TYPICAL LAYOUTS FOR
EMBANKMENTS**

NO SCALE

RSP A77P1 DATED OCTOBER 18, 2019 SUPERSEDES STANDARD PLAN A77P1
DATED MAY 31, 2018 - PAGE 80 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP A77P1

2018 REVISED STANDARD PLAN RSP A77P1

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

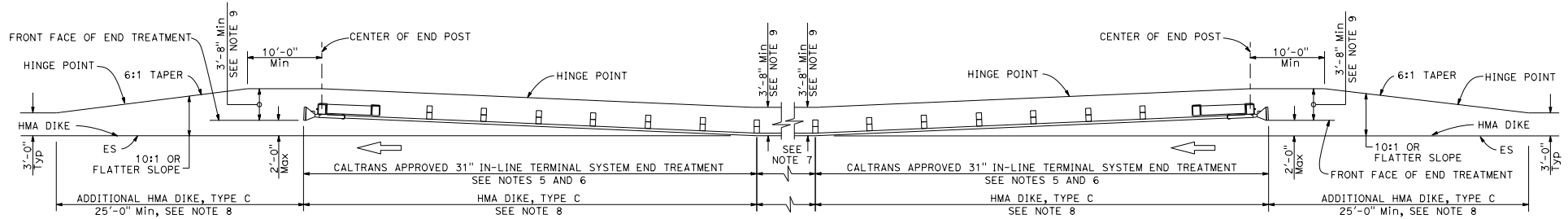
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

April 17, 2020
PLANS APPROVAL DATE

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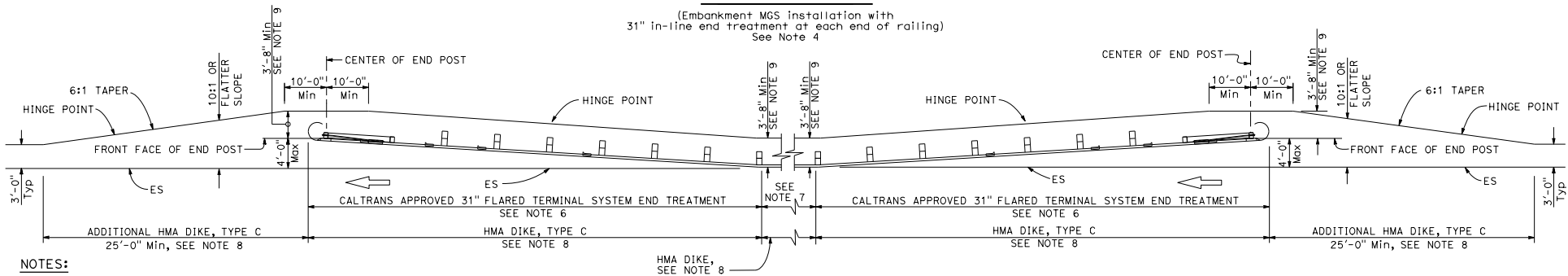
REGISTERED PROFESSIONAL ENGINEER
No. C50200
Exp. 6-30-21
CIVIL
STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED _____



TYPE 11D LAYOUT

(Embankment MGS installation with
31" in-line end treatment at each end of railing)
See Note 4



TYPE 11E LAYOUT

(Embankment MGS installation with
31" flared end treatment at each end of railing)
See Note 4

NOTES:

- Line post, blocks and hardware to be used are shown on Revised Standard Plans RSP A77L1, RSP A77L2, RSP A77N1, Standard Plans A77N2 and A77M1.
- MGS post spacing to be 6'-3" center to center, except as otherwise noted.
- Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks. W6 x 8.5 or 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.
- Layout Types 11D through 11L, shown on the A77P Series of Standard Plans, are typically used where MGS is recommended to shield embankment slopes and a crashworthy 31" end treatment is required for both directions of traffic.
- 31" in-line terminal system end treatments are used where site conditions will not accommodate a flared end treatment.
- The type of 31" 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 MGS (length equal to multiples of 12'-6" with 6'-3" post spacing) may be advisable.
- Where placement of dike is required with MGS installations, see Standard Plan A77N4 for dike positioning details.
- Use this offset for 8-inch block. For 12-inch block, use 4'-0" Min offset.

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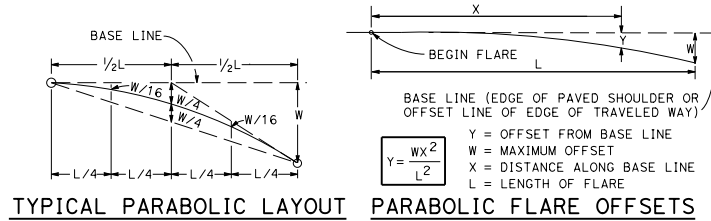
**MIDWEST GUARDRAIL SYSTEM
TYPICAL LAYOUTS FOR
EMBANKMENTS**

NO SCALE

RSP A77P2 DATED APRIL 17, 2020 SUPERSEDES RSP A77P2 DATED OCTOBER 18, 2019 AND
STANDARD PLAN A77P2 DATED MAY 31, 2018 - PAGE 81 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP A77P2

2018 REVISED STANDARD PLAN RSP A77P2



Dist	COUNTY	ROUTE	POST MILES	SHEET TOTAL
			TOTAL PROJECT	NO. SHEETS

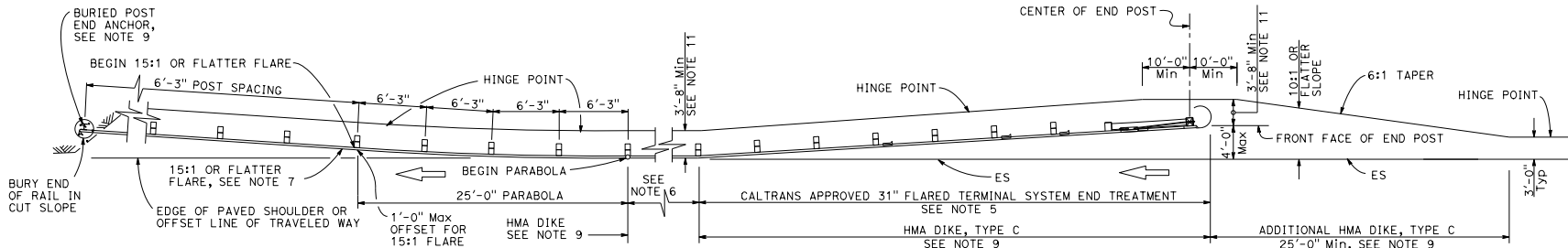
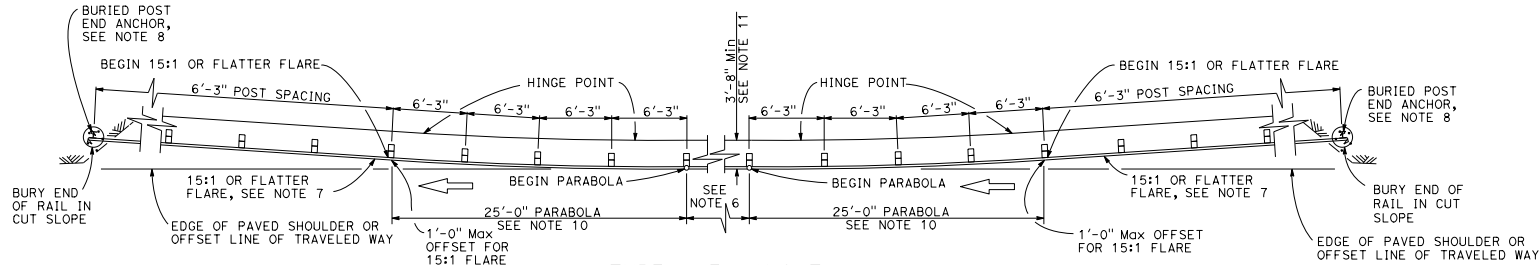
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

October 18, 2019
PLANS APPROVAL DATE

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TO ACCOMPANY PLANS DATED _____

2018 REVISED STANDARD PLAN RSP A77P3



NOTES:

1. Line post, blocks and hardware to be used are shown on Revised Standard Plans RSP A77L1, RSP A77L2, RSP A77N1, Standard Plans A77N2 and A77M1.
2. MGS 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 8.5 or 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. Layout Types 11D through 11L, shown on the A77P Series of Standard Plans, are typically used where MGS is recommended to shield embankment slopes and a crashworthy 31" end treatment is required for both directions of traffic.
5. The type of 31" terminal system end treatment to be used will be shown on the Project Plans.
6. Dependent on site conditions (embankment height and side slope), construction of additional MGS (length equal to multiples of 12'-6" with 6'-3" post spacing) may be advisable.
7. 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 MGS within the 15:1 or flatter flare is based on site conditions and should be a length equal to multiples of 12'-6".
8. For details of the buried post end anchor used with Type 11F and 11G Layouts, see Standard Plan A77I2.
9. Where placement of dike is required with MGS installations, see Standard Plan A77N4 for dike positioning details.
10. For typical flare offsets for 25'-0" length parabola with maximum offset of 1'-0", see Revised Standard Plan RSP A77P1.
11. Use this offset for 8-inch block. For 12-inch block, use 4'-0" Min offset.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

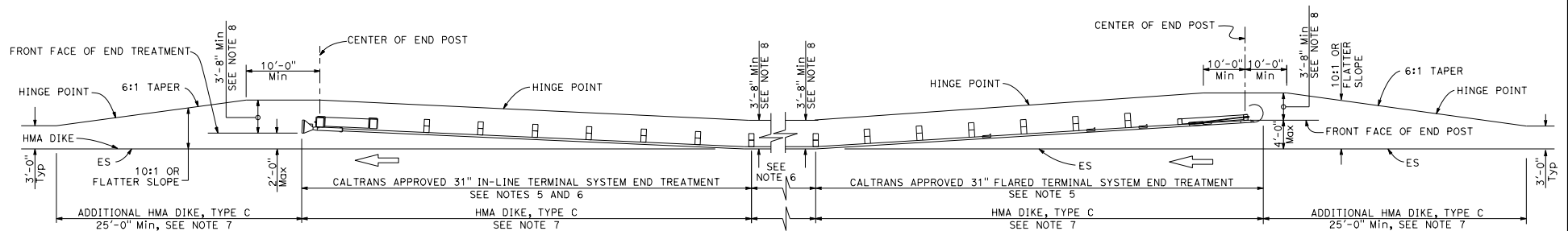
**MIDWEST GUARDRAIL SYSTEM
TYPICAL LAYOUTS FOR
EMBANKMENTS**

NO SCALE

RSP A77P3 DATED OCTOBER 18, 2019 SUPERSEDES STANDARD PLAN A77P3
DATED MAY 31, 2018 - PAGE 82 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP A77P3

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
<p><i>Randell D. Hiatt</i> REGISTERED CIVIL ENGINEER</p> <p>October 18, 2019 PLANS APPROVAL DATE</p> <p>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.</p>					
<p>TO ACCOMPANY PLANS DATED _____</p>					



TYPE 11H LAYOUT

(Embankment MGS installation with 31" flared end treatment
and 31" in-line end treatment at the ends of railing)
See Notes 4 and 7

NOTES:

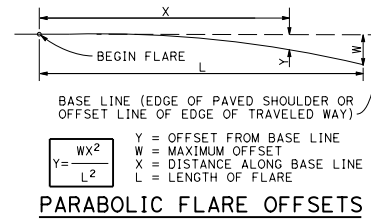
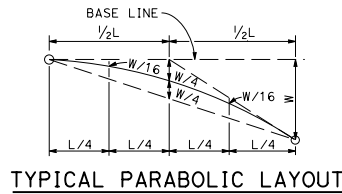
- Line post, blocks and hardware to be used are shown on Revised Standard Plans RSP A77L1, RSP A77L2, RSP A77N1, Standard Plans A77N2 and A77M1.
- MGS post spacing to be 6'-3" center to center, except as otherwise noted.
- Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks. W6 x 8.5 or 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.
- Layout Types 11D through 11L, shown on the A77P Series of Standard Plans, are typically used where MGS is recommended to shield embankment slopes and a crashworthy 31" end treatment is required for both directions of traffic.
- The type of 31" 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 MGS (length equal to multiples of 12'-6" with 6'-3" post spacing) may be advisable.
- Where placement of dike is required with MGS installations, see Standard Plan A77N4 for dike positioning details.
- Use this offset for 8-inch block. For 12-inch block, use 4'-0" Min offset.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**MIDWEST GUARDRAIL SYSTEM
TYPICAL LAYOUTS FOR
EMBANKMENTS**
NO SCALE

RSP A77P4 DATED OCTOBER 18, 2019 SUPERSEDES STANDARD PLAN A77P4
DATED MAY 31, 2018 - PAGE 83 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP A77P4

2018 REVISED STANDARD PLAN RSP A77P4



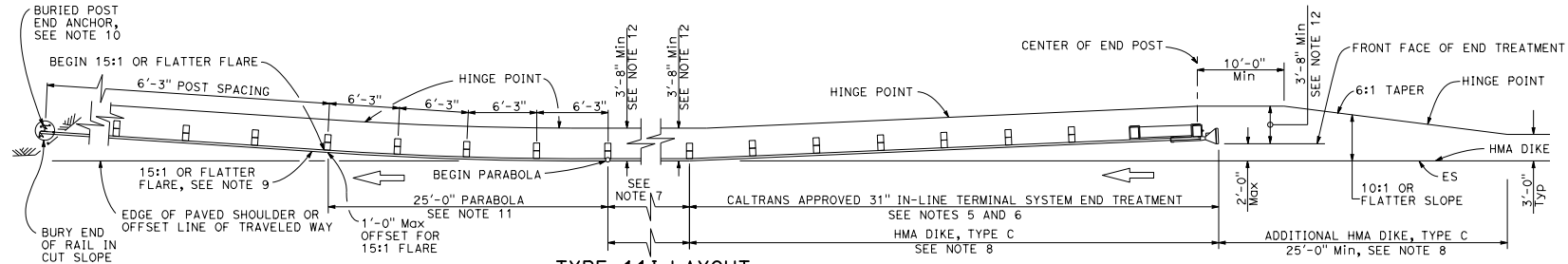
Dist	COUNTY	ROUTE	POST MILES	SHEET TOTAL
			TOTAL PROJECT	NO. SHEETS

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

April 17, 2020
PLANS APPROVAL DATE

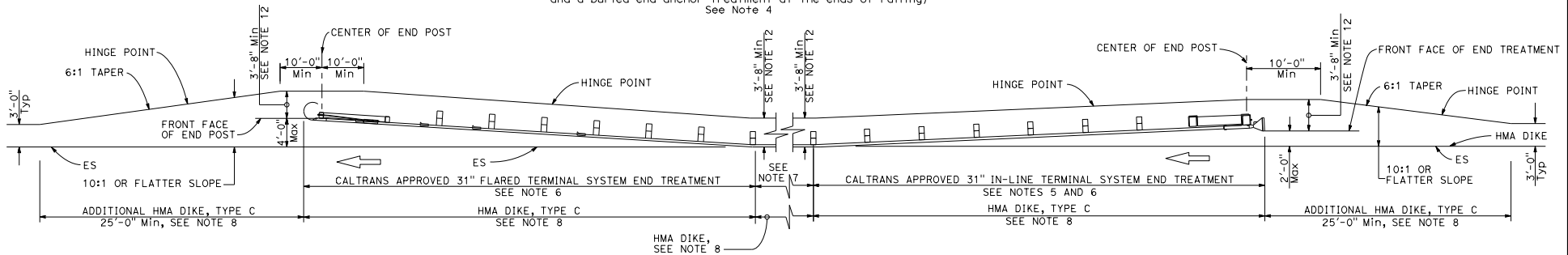
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REGISTERED PROFESSIONAL ENGINEER
No. C50200
Exp. 6-30-21
CIVIL
STATE OF CALIFORNIA



TYPE 11I LAYOUT

(Embankment MGS installation with 31" in-line end treatment and a buried end anchor treatment at the ends of railing)
See Note 4



TYPE 11J LAYOUT

(Embankment MGS installation with 31" in-line end treatment and 31" flared end treatment at the ends of railing)
See Note 4

NOTES:

- Line post, blocks and hardware to be used are shown on Revised Standard Plans RSP A77L1, RSP A77L2, RSP A77N1, Standard Plans A77N2 and A77M1.
- MGS post spacing to be 6'-3" center to center, except as otherwise noted.
- Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks, W6 x 8.5 or 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.
- Layout Types 11D through 11L, shown on the A77P Series of Standard Plans, are typically used where MGS is recommended to shield embankment slopes and a crashworthy 31" end treatment is required for both directions of traffic.
- 31" in-line terminal system end treatments are used where site conditions will not accommodate a 31" flared end treatment.
- The type of 31" terminal system end treatment to be used will be shown on the Project Plans.

- Dependent on site conditions (embankment height and side slope), construction of additional MGS (length equal to multiples of 12'-6" with 6'-3" post spacing) may be advisable.
- Where placement of dike is required with MGS installations, see Standard Plan A77N4 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 MGS within the 15:1 or flatter flare is based on site conditions and should be a length equal to multiples of 12'-6".
- For details of the buried post end anchor used with Type 11I Layout, see Standard Plan A77T2.
- For typical flare offsets for 25'-0" length parabola with maximum offset of 1'-0", see Revised Standard Plan RSP A77P1.
- Use this offset for 8-inch block. For 12-inch block, use 4'-0" Min offset.

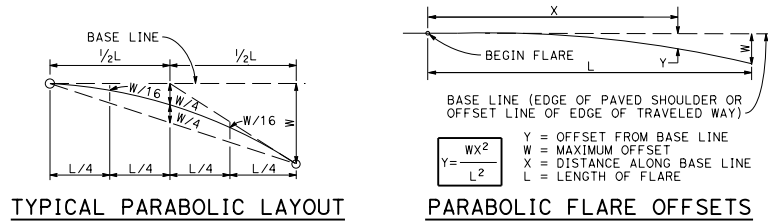
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**MIDWEST GUARDRAIL SYSTEM
TYPICAL LAYOUTS FOR
EMBANKMENTS**

NO SCALE

RSP A77P5 DATED APRIL 17, 2020 SUPERSEDES RSP A77P5 DATED OCTOBER 18, 2019 AND STANDARD PLAN A77P5 DATED MAY 31, 2018 - PAGE 84 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP A77P5



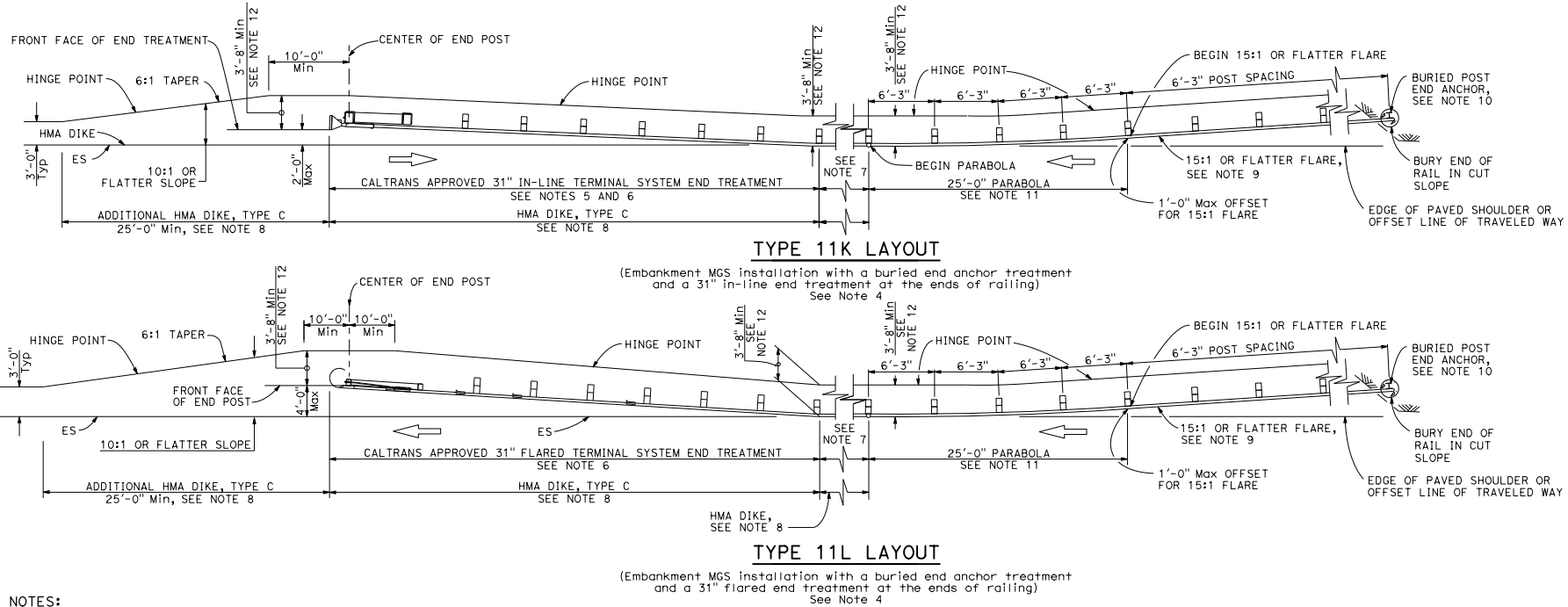
Dist	COUNTY	ROUTE	POST MILES	SHEET TOTAL
			TOTAL PROJECT	NO. SHEETS

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

April 17, 2020
PLANS APPROVAL DATE

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TO ACCOMPANY PLANS DATED _____



NOTES:

- Line post, blocks and hardware to be used are shown on Revised Standard Plans RSP A77L1, RSP A77L2, RSP A77N1, Standard Plans A77N2 and A77M1.
- MGS post spacing to be 6'-3" center to center, except as otherwise noted.
- Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks, W6 x 8.5 or 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.
- Layout Types 11D through 11L, shown on the A77P Series of Standard Plans, are typically used where MGS is recommended to shield embankment slopes, and a crashworthy 31" end treatment is required for both directions of traffic.
- 31" in-line terminal system end treatments are used where site conditions will not accommodate a 31" flared end treatment.
- The type of 31" terminal system end treatment to be used will be shown on the Project Plans.
- Dependent on site conditions (embankment height and side slope), construction of additional MGS (length equal to multiples of 12'-6" with 6'-3" post spacing) may be advisable.
- Where placement of dike is required with MGS installations, see Standard Plan A77N4 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 MGS within the 15:1 or flatter flare is based on site conditions and should be a length equal to multiples of 12'-6".
- For details of the buried post end anchor used with Type 11K and 11L Layouts, see Standard Plan A77T2.
- For typical flare offsets for 25'-0" length parabola with maximum offset of 1'-0", see Revised Standard Plan RSP A77P1.
- Use this offset for 8" block. For 12" block, use 4'-0" Min offset.

STATE OF CALIFORNIA
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MIDWEST GUARDRAIL SYSTEM TYPICAL LAYOUTS FOR EMBANKMENTS

NO SCALE

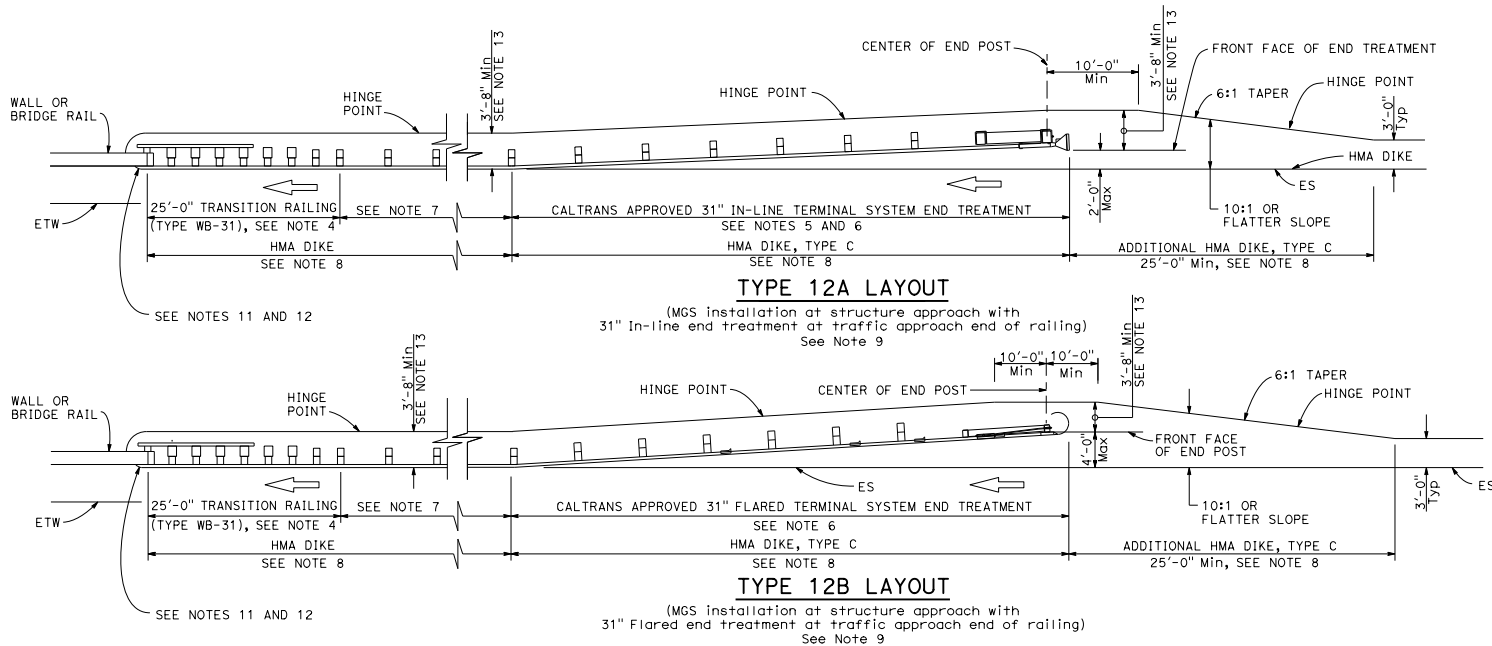
RSP A77P6 DATED APRIL 17, 2020 SUPERSEDES RSP A77P6 DATED OCTOBER 18, 2019 AND STANDARD PLAN A77P6 DATED MAY 31, 2018 - PAGE 85 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP A77P6

2018 REVISED STANDARD PLAN RSP A77P6

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
Randell D. Hiatt REGISTERED CIVIL ENGINEER October 18, 2019 PLANS APPROVAL DATE No. C50200 Exp. 6-30-21 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.					

TO ACCOMPANY PLANS DATED _____



NOTES:

- Line post, blocks and hardware to be used are shown on Revised Standard Plans RSP A77L1, RSP A77L2, RSP A77N1, Standard Plans A77N2 and A77M1.
- MGS post spacing to be 6'-3" center to center, except as otherwise noted.
- Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks. W6 x 8.5 or W6 x 9 steel posts, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or plastic blocks may be used for 6" x 8" x 6'-0" wood posts with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
- For Transition Railing (Type WB-31) details for Types 12A and 12B Layouts, see Standard Plan A77U4.
- 31" in-line terminal system end treatments are used where site conditions will not accommodate a 31" flared end treatment.
- The type of 31" terminal system end treatment to be used will be shown on the Project Plans.
- Dependent on site conditions (embankment height, side slopes, or other fixed objects), it may be advisable to construct additional guard railing (a length equal to multiples of 12'-6" with 6'-3" post spacing) between the transition railing and end treatment. A 12.5 degree angle of departure can be drawn on the Project Plans from the edge of traveled way through the outer most point of the fixed object to determine the additional length of railing needed.
- Where placement of dike is required with guard railing installations, see Standard Plan A77N4 for dike positioning details.
- Type 12A or Type 12B Layouts are typically used:
 - To the right of approaching traffic, at the end of a structure, on two-lane conventional highway where the roadbed width across the structure is less than 40 feet.
 - To the left of approaching traffic, at the end of a structure, on two-lane conventional highway where the roadbed width across the structure is less than 40 feet.
 - To the right of approaching traffic at the end of each structure on multilane freeways or expressways with separate adjacent or parallel bridges.
 - To the right of approaching traffic at the end of the structure on multilane freeways or expressways with decked median on the bridge.
- See Standard Plan A77Q3 for typical layout used left of approaching traffic at the ends of each structure on multilane freeways or expressways with separate adjacent or parallel bridges.
- For additional details of typical connections to bridge rail, see Connection Detail AA on Standard Plans A77U1 and A77U2 and Connection Detail FF on Standard Plans A77V1 and A77V2.
- For additional details of a typical connection to walls or abutments, see Standard Plan A77U3.
- Use this offset for 8" block. For 12" block, use 4'-0" Min offset.

STATE OF CALIFORNIA
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MIDWEST GUARDRAIL SYSTEM TYPICAL LAYOUTS FOR STRUCTURE APPROACH

NO SCALE

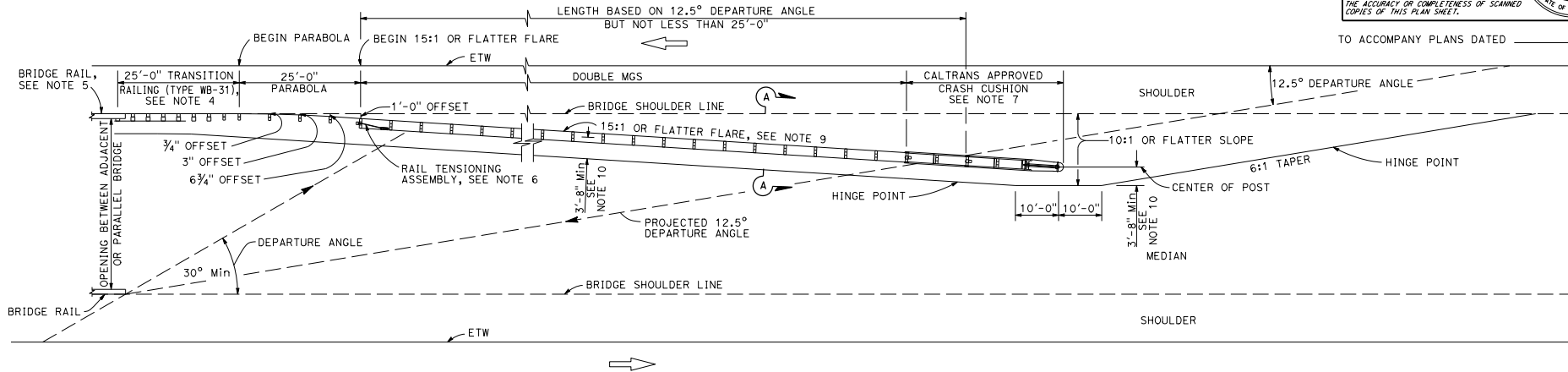
RSP A77Q1 DATED OCTOBER 18, 2019 SUPERSEDES STANDARD PLAN A77Q1
DATED MAY 31, 2018 - PAGE 86 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP A77Q1

2018 REVISED STANDARD PLAN RSP A77Q1

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
<p><i>Randell D. Hiatt</i> REGISTERED CIVIL ENGINEER</p> <p>October 18, 2019 PLANS APPROVAL DATE</p> <p>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.</p>					

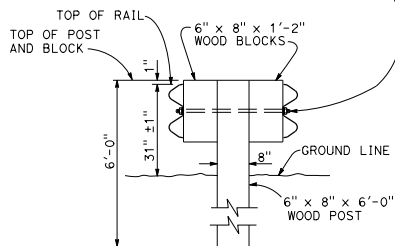
TO ACCOMPANY PLANS DATED _____



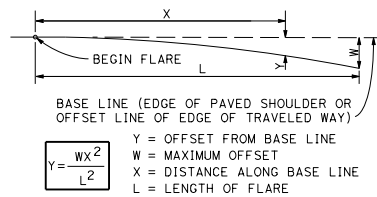
TYPE 12E LAYOUT

See Note 9

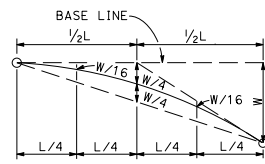
5/8" Ø BUTTON HEAD BOLT WITH HEX NUT OR
5/8" Ø ROD, THREADED BOTH ENDS, WITH
HEX NUTS. 1/2" MAX EXPOSED THREADS
AFTER HEX NUT(S) TIGHTENED. NO WASHER ON
RAIL FACES FOR BOLTED CONNECTION TO LINE POST



SECTION A-A
TYPICAL DOUBLE MIDWEST
GUARDRAIL SYSTEM



PARABOLIC FLARE OFFSETS



TYPICAL PARABOLIC LAYOUT

NOTES:

- Line post, blocks and hardware to be used are shown on Standard Plans A77L1, A77L2, A77N1, A77N2, and A77M1.
- MGS post spacing to be 6'-3" center to center, except as otherwise noted.
- Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks. W6 x 8.5 or W6 x 9 steel posts, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or notched recycled plastic blocks may be used for 6" x 8" x 6'-0" wood line posts with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
- For Transition Railing (Type WB-31) details, see Standard Plan A77U4.
- For additional details of a typical connection to bridge rail, see Connection Detail AA on Standard Plan A77U1.
- For Rail Tensioning Assembly details, see Standard Plan A77S2.
- The type of Crash Cushion to be used will be shown on the Project Plans.
- Type 12E Layout is typically used left of approaching traffic at the end of each structure on multilane freeways or expressways where a median type barrier is not constructed between separated roadbeds.
- The 15:1 or flatter flare is measured off of the edge of traveled way.
- Use this offset for 8" block. For 12" block, use 4'-0" Min offset.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**MIDWEST GUARDRAIL SYSTEM
TYPICAL LAYOUTS FOR
STRUCTURE APPROACH**

NO SCALE

RSP A77Q3 DATED OCTOBER 18, 2019 SUPERSEDES STANDARD PLAN A77Q3
DATED MAY 31, 2018 - PAGE 88 OF THE STANDARD PLANS BOOK DATED 2018.

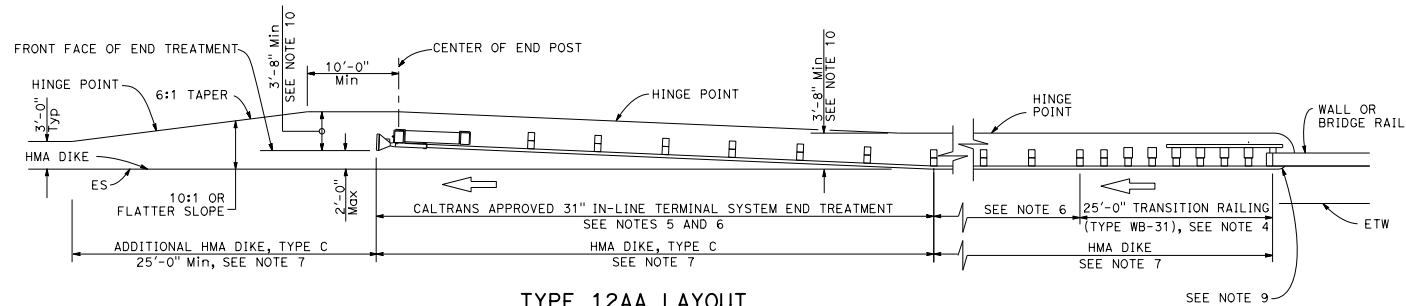
REVISED STANDARD PLAN RSP A77Q3

2018 REVISED STANDARD PLAN RSP A77Q3

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
<p><i>Randell D. Hiatt</i> REGISTERED CIVIL ENGINEER</p> <p>October 18, 2019 PLANS APPROVAL DATE</p> <p>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.</p>					

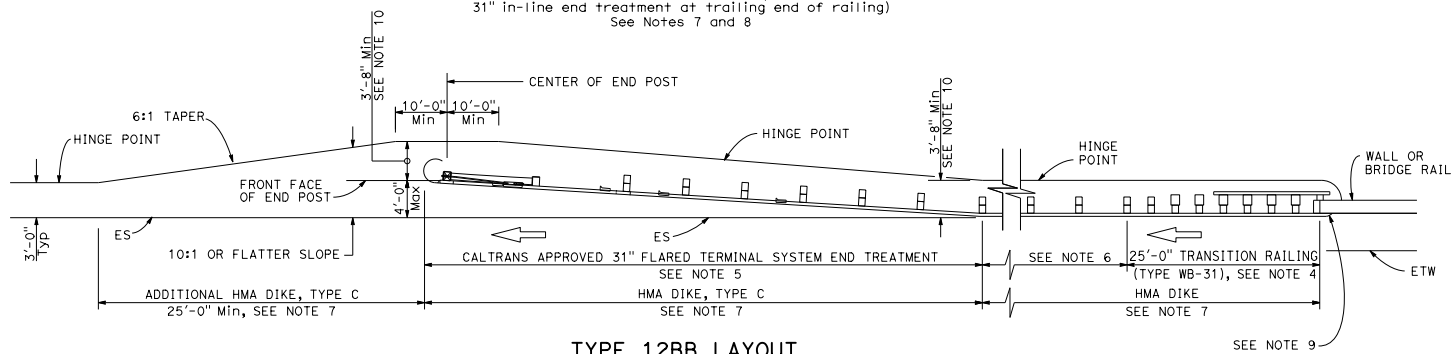
TO ACCOMPANY PLANS DATED _____

2018 REVISED STANDARD PLAN RSP A77Q4



TYPE 12AA LAYOUT

(MGS installation at structure departure with
31" in-line end treatment at trailing end of railing)
See Notes 7 and 8



TYPE 12BB LAYOUT

(MGS installation at structure departure with
31" in-line end treatment at trailing end of railing)
See Notes 7 and 8

NOTES:

- Line post, blocks and hardware to be used are shown on Revised Standard Plans RSP A77L1, RSP A77L2, RSP A77N1, Standard Plans A77N2 and A77M1.
- MGS post spacing to be 6'-3" center to center, except as otherwise noted.
- Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks, W6 x 8.5 or W6 x 9 steel posts, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or notched recycled plastic blocks may be used for 6" x 8" x 6'-0" wood posts with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
- For Transition Railing (Type WB-31) details for Types 12AA and 12BB Layouts, see Revised Standard Plan RSP A77U4.
- The type of 31" terminal system to be used will be shown on the Project Plans.
- Dependent on site conditions (embankment height, side slopes, other fixed objects), it may be advisable to construct additional MGS (a length equal to multiples of 12'-6" with 6'-3" post spacing) between the transition railing and 31" end treatments.
- Where placement of dike is required with MGS installations, see Revised Standard Plan RSP A77N4 for dike positioning details.
- Type 12AA or Type 12BB Layouts are typically used to the right of traffic departing a structure on two-way conventional highways where the roadbed width across the structure is less than 40 feet.
- For additional details of typical connections to bridge rail, see Connection Detail CC on Standard Plan A77U2 and Connection Detail HH on Standard Plan A77V2.
- Use this offset for 8" block. For 12" block, use 4'-0" Min offset.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**MIDWEST GUARDRAIL SYSTEM
TYPICAL LAYOUTS FOR
STRUCTURE DEPARTURE**

NO SCALE

RSP A77Q4 DATED OCTOBER 18, 2019 SUPERSEDES RSP A77Q4 DATED APRIL 19, 2019 AND
STANDARD PLAN A77Q4 DATED MAY 31, 2018 - PAGE 89 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP A77Q4

6-19-19

NOTES:

- Line post, blocks and hardware to be used are shown on Revised Standard Plans RSP A77L1, RSP A77L2, RSP A77N1, Standard Plans A77N2 and A77M1.
- MGS post spacing to be 6'-3" center to center, except as otherwise noted.
- Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks. W6 x 8.5 or W6 x 9 steel posts, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or notched recycled plastic blocks may be used for 6" x 8" x 6'-0" wood line posts with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
- A 4'-0" minimum clearance is required between the face of the railing and the face of a fixed object located directly behind MGS section with post spacing of 6'-3". Construct MGS as shown in the detail "Strengthened Midwest Guardrail System Sections for Fixed Object" on this plan, where the clearance between the back of post and the face of a fixed object is less than 3'-0", but not less than 1'-0". Where the clearance is less than 1'-0", a concrete wall or barrier should be constructed to shield the fixed object(s).

- For End Anchor Assembly (Type SFT) details, see Standard Plan A77S1.
- Type of crash cushion to be used will be shown on the Project Plans.
- Type 15A layout is typically used on multilane freeways or expressways to shield fixed objects in the area between separated one-way roadbeds.
- For typical flare offsets for 25'-0" length parabola with maximum offset of 1'-0", see Standard Plan A77P1.
- The 15:1 or flatter flare is measured off of the edge of the traveled way.
- W6 x 8.5 or W6 x 9 steel post, 8'-0" in length, with 8" x 8" x 1'-2" notched wood block or notched recycled plastic block may be used in place of the 10" x 10" x 8'-0" wood post with 8" x 8" x 1'-2" wood block shown in the detail "Strengthened Midwest Guardrail System Sections for Fixed Object".
- Do not bolt rail to block. Only bolt block to post.

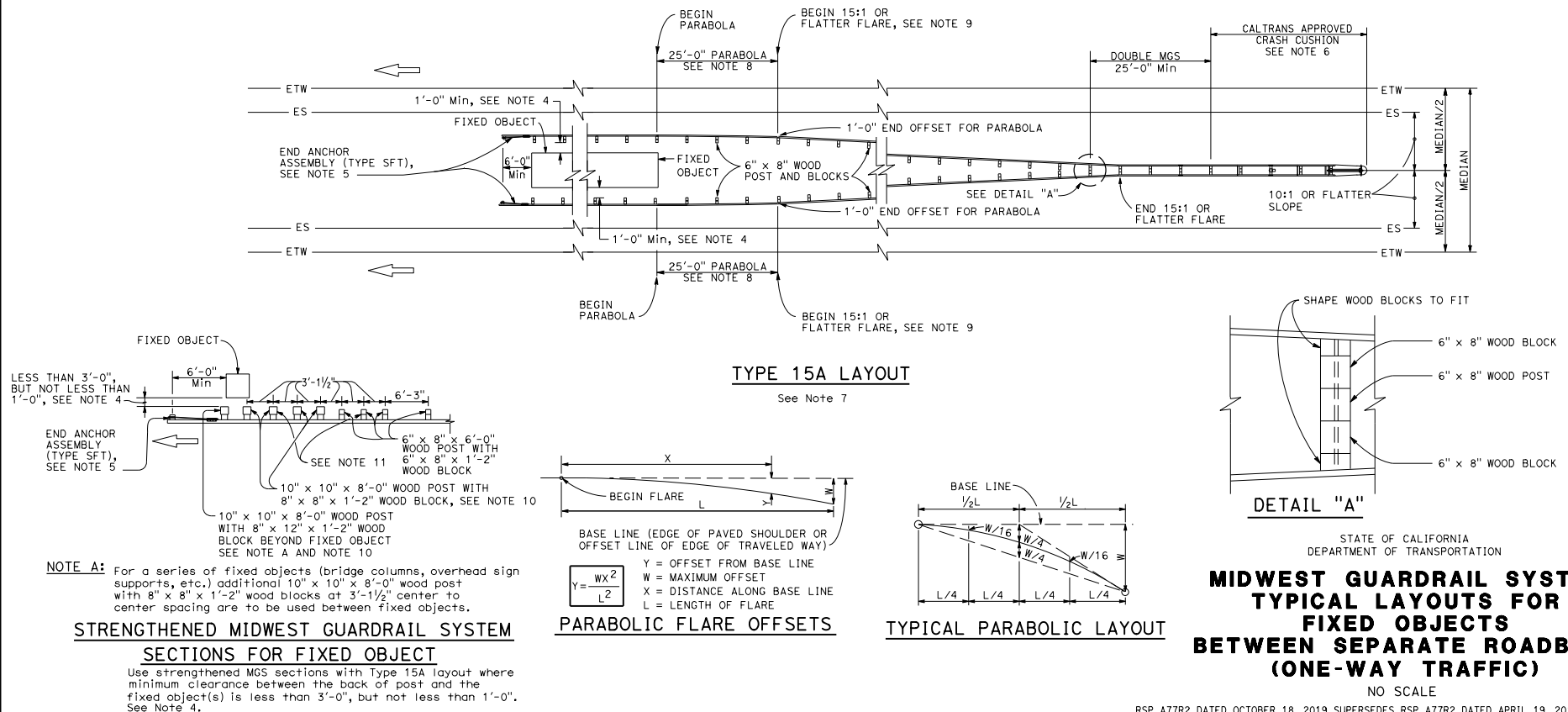
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

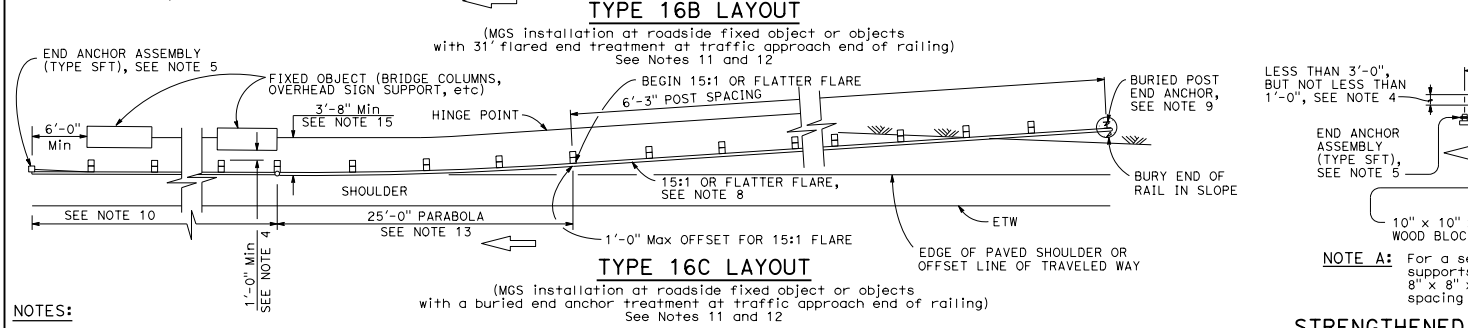
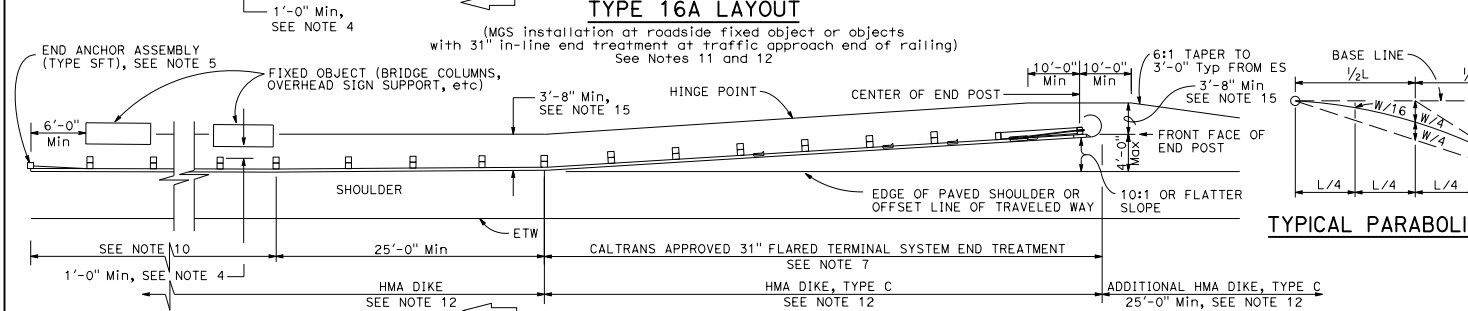
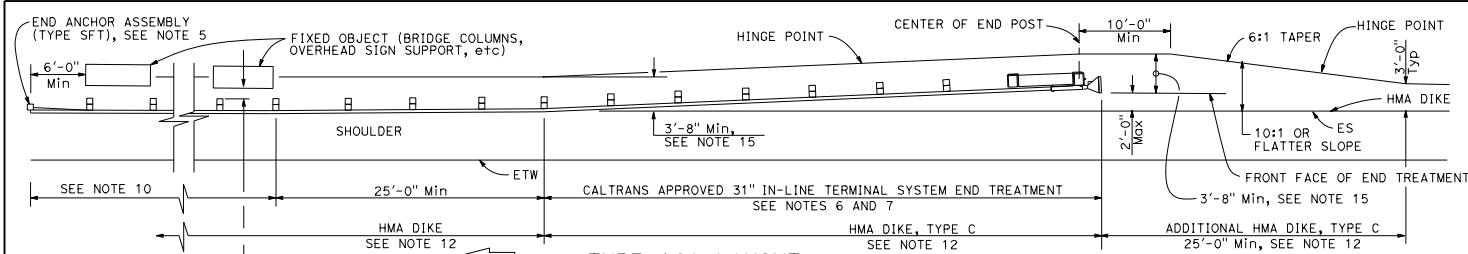
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

October 18, 2019
PLANS APPROVAL DATE

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TO ACCOMPANY PLANS DATED _____





NOTES:

1. Line post, blocks and hardware to be used are shown on Revised Standard Plans RSP A77L1, RSP A77L2, RSP A77N1, Standard Plans A77N2 and A77M1.
2. MGS 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" notched wood blocks or notched recycled plastic blocks may be used for 6" x 8" x 6'-0" wood line posts with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
4. A 4'-0" minimum clearance is required between the face of the railing and the face of a fixed object located directly behind MGS sections with post spacing of 6'-3". Construct MGS as shown in the detail "Strengthened Midwest Guardrail System Sections for Fixed Object" on this plan, where the clearance between the back of post and the face of a fixed object is less than 3'-0", but not less than 1'-0". Where the clearance is less than 1'-0", a concrete wall or barrier should be constructed to shield the fixed object(s).
5. For End Anchor Assembly (Type SFT) details, see Standard Plan A77S1.
6. 31" in-line terminal system and treatments are used where site conditions will not accommodate a 31" flared end treatment.
7. The type of 31" terminal system to be used will be shown on the Project Plans.
8. The 15:1 or flatter flare used with Type 16C Layout is based on the edge of the paved shoulder or offset line of edge of the traveled way. The length of MGS within the 15:1 or flatter flare is based on site conditions and should be a length equal to multiples of 12'-6".

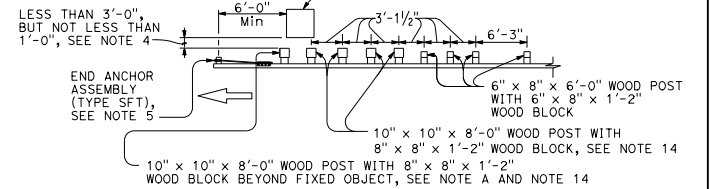
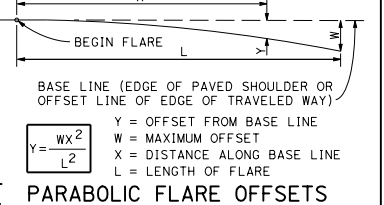
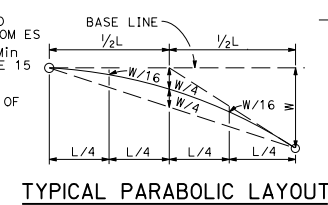
9. For details of the Buried Post End Anchor used with Type 16C Layout, see Standard Plan A77T2.
10. As site conditions dictate, construct additional MGS to shield fixed object(s). Additional MGS length equal to multiples of 12'-6". Post spacing at 6'-3" except as specified in Note 4.
11. Layout Types 16A, 16B or 16C are typically used where MGS is recommended to shield roadside fixed object(s) and a crashworthy 31" end treatment is required for only one direction of traffic.
12. Where placement of dike is required with MGS, see Standard Plan A77N4 for dike positioning details.
13. Offset of 1'-0", see Revised Standard Plan RSP A77P1.
14. W6 x 8.5 or W6 x 9 steel post, 8'-0" in length, with 8" x 8" x 1'-2" notched wood block or notched recycled plastic block may be used in place of the 10" x 10" x 8'-0" wood post with 8" x 8" x 1'-2" wood block shown in the detail "Strengthened Midwest Guardrail System Sections for Fixed Object".
15. Use this offset for 8" block. For 12" block use minimum 4'-0" offset.

Dist	COUNTY	ROUTE	POST MILES	SHEET TOTAL
			TOTAL PROJECT	NO. SHEETS

Randell D. Hiatt
REGISTERED CIVIL ENGINEER
No. C50200
Exp. 6-30-21
CIVIL
STATE OF CALIFORNIA

October 18, 2019
PLANS APPROVAL DATE
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TO ACCOMPANY PLANS DATED _____



NOTE A: For a series of fixed objects (bridge columns, overhead sign supports, etc.) additional 10" x 10" x 8'-0" wood post with 8" x 8" x 1'-2" wood blocks at 3'-1/2" center to center spacing are to be used between fixed objects.

STRENGTHENED MIDWEST GUARDRAIL SYSTEM SECTIONS FOR FIXED OBJECT

Use strengthened MGS sections with Types 16A, 16B or 16C layouts where minimum clearance between the back of post and the fixed object(s) is less than 3'-0", but not less than 1'-0". See Note 4.

STATE OF CALIFORNIA
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MIDWEST GUARDRAIL SYSTEM TYPICAL LAYOUTS FOR ROADSIDE FIXED OBJECTS

NO SCALE

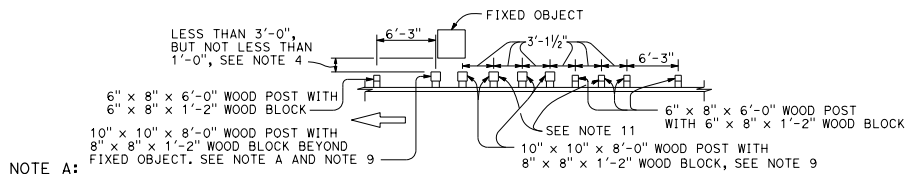
RSP A77R3 DATED OCTOBER 18, 2019 SUPERSEDES RSP A77R3 DATED APRIL 19, 2019 AND STANDARD PLAN A77R3 DATED MAY 31, 2018 - PAGE 93 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP A77R3

2018 REVISED STANDARD PLAN RSP A77R3

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
<p><i>Randell D. Hiatt</i> REGISTERED CIVIL ENGINEER</p> <p>October 18, 2019 PLANS APPROVAL DATE</p> <p>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.</p>					

TO ACCOMPANY PLANS DATED _____

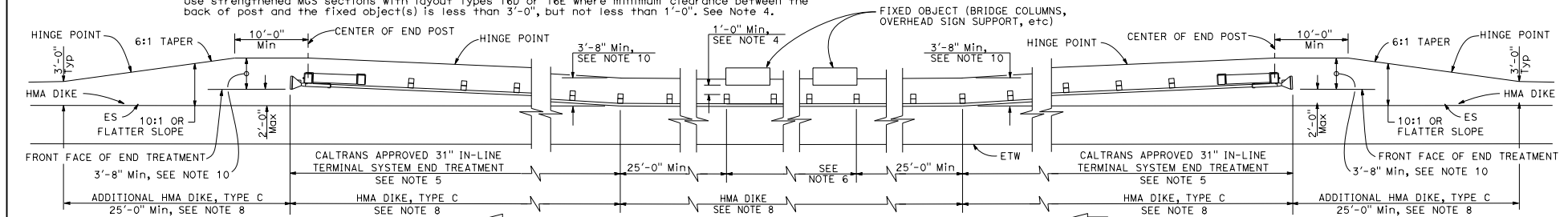


NOTE A:

For a series of fixed objects (bridge columns, overhead sign supports, etc.) additional 10' x 10' x 8'-0" wood post with 8' x 8' x 1'-2" wood blocks at 3'-1 1/2" center to center spacing are to be used between fixed object(s).

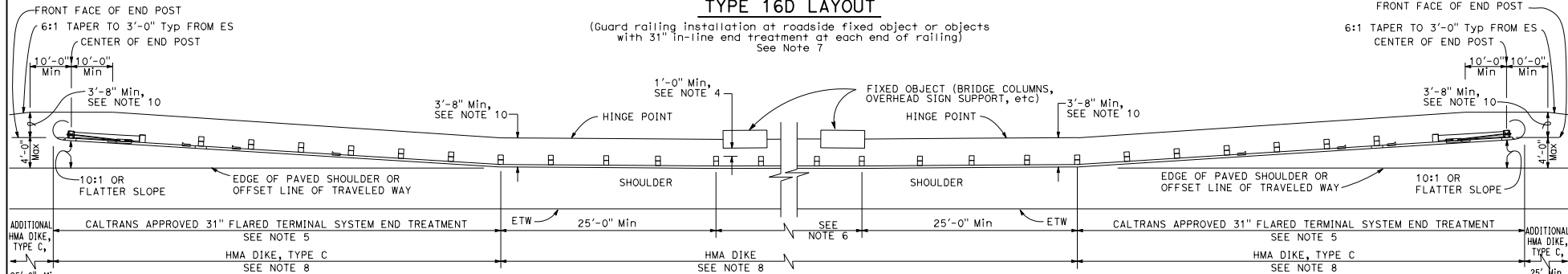
**STRENGTHENED MIDWEST GUARDRAIL SYSTEM SECTIONS
FOR FIXED OBJECT**

Use strengthened MGS sections with layout Types 16D or 16E where minimum clearance between the back of post and the fixed object(s) is less than 3'-0", but not less than 1'-0". See Note 4.



TYPE 16D LAYOUT

(Guard railing installation at roadside fixed object or objects with 31" in-line end treatment at each end of railing)
See Note 7



TYPE 16E LAYOUT

(MGS installation at roadside fixed object or objects with 31" in-line end treatment at each end of railing)
See Note 7

NOTES:

- Line post, blocks and hardware to be used are shown on Revised Standard Plans RSP A77L1, RSP A77L2, RSP A77N1, Standard Plans A77N2 and A77M1.
- MGS post spacing to be 6'-3" center to center, except as otherwise noted.
- Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks. W6 x 8.5 or W6 x 9 steel posts, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or notched recycled plastic blocks may be used for 6" x 8" x 6'-0" wood line posts with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
- A 4'-0" minimum clearance is required between the face of the railing and the face of a fixed object located directly behind MGS sections with post spacing at 6'-3". Construct MGS as shown in the detail "Strengthened Midwest Guardrail System Sections for Fixed Object" on this plan, where the clearance between the back of post and the face of a fixed object is less than 3'-0", but not less than 1'-0". Where the clearance is less than 1'-0", a concrete wall or barrier should be constructed to shield the fixed object(s).
- The type of 31" terminal system to be used will be shown on the Project Plans.

- As site conditions dictate, construct additional MGS to shield fixed object(s). Additional MGS length equal to multiples of 12'-6". Post spacing at 6'-3", except as specified in Note 4.
- Layout Types 16D through 16L, shown on the A77R Series of Standard Plans, are typically used where MGS is recommended to shield roadside fixed object(s) and a crashworthy 31" end treatment is required for both directions of traffic.
- Where placement of dike is required with MGS, see Revised Standard Plan RSP A77N4 for dike positioning details.
- W6 x 8.5 or W6 x 9 steel post, 8'-0" in length, with 8" x 8" x 1'-2" notched wood block or notched recycled plastic block may be used in place of the 10' x 10' x 8'-0" wood post with 8' x 8' x 1'-2" wood block shown in the detail "Strengthened Midwest Guardrail System Sections for Fixed Object".

- Use this offset for 8" block. For 12" block use minimum 4'-0" offset.
- Do not bolt rail to block. Only bolt block to post.

STATE OF CALIFORNIA
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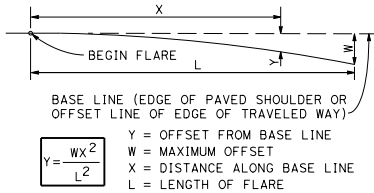
**MIDWEST GUARDRAIL SYSTEM
TYPICAL LAYOUTS FOR
ROADSIDE FIXED OBJECTS**

NO SCALE

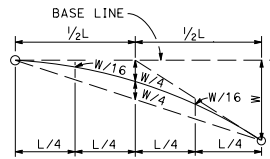
RSP A77R4 DATED OCTOBER 18, 2019 SUPERSEDES RSP A77R4 DATED APRIL 19, 2019 AND
STANDARD PLAN A77R4 DATED MAY 31, 2018 - PAGE 94 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP A77R4

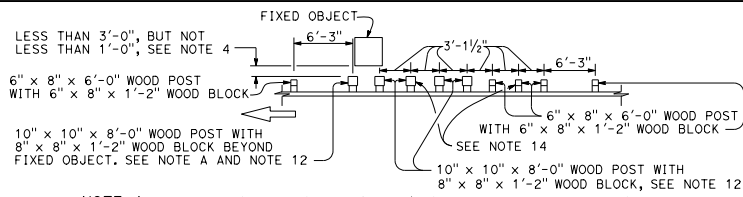
2018 REVISED STANDARD PLAN RSP A77R4



PARABOLIC FLARE OFFSETS



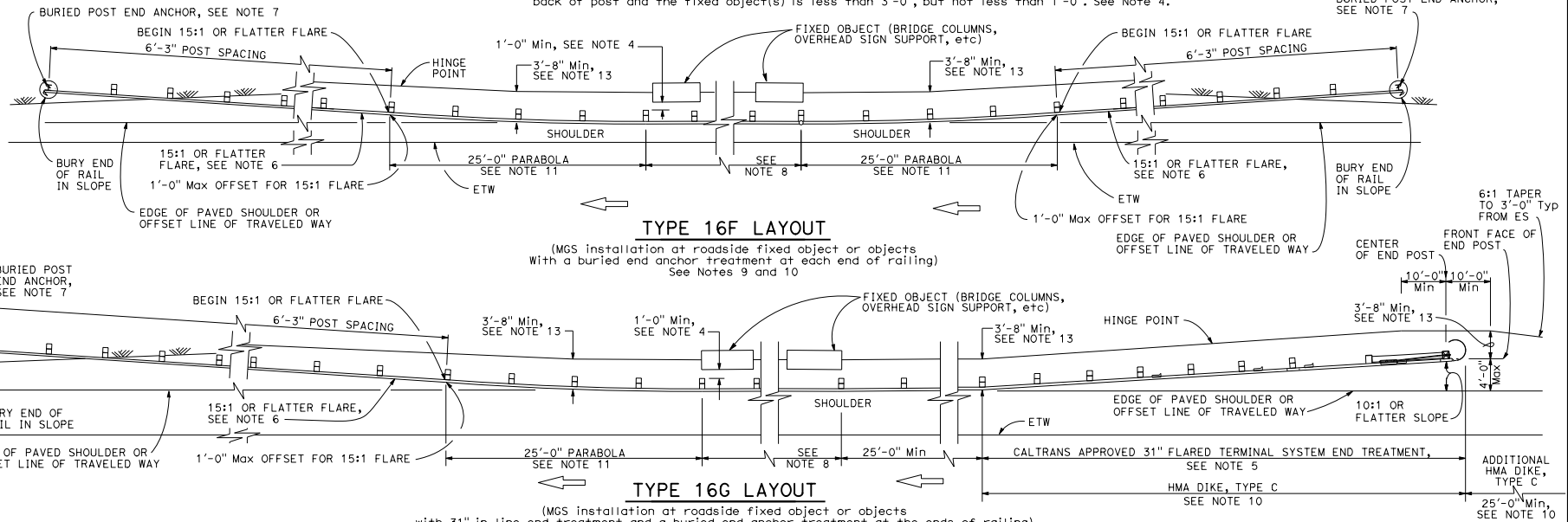
TYPICAL PARABOLIC LAYOUT



NOTE A: For a series of fixed objects (bridge columns, overhead sign supports, etc) additional 10' x 10' x 8'-0" wood post with 8' x 8' x 1'-2" wood blocks at 3'-1/2" center to center spacing are to be used between fixed object(s).

STRENGTHENED MIDWEST GUARDRAIL SYSTEM SECTIONS FOR FIXED OBJECT

Use strengthened MGS sections with layout Types 16F or 16G where minimum clearance between the back of post and the fixed object(s) is less than 3'-0", but not less than 1'-0". See Note 4.



NOTES:

- Line post, blocks and hardware to be used are shown on Revised Standard Plans RSP A77L1, RSP A77L2, RSP A77N1, Standard Plans A77N2 and A77M1.
- MGS post spacing to be 6'-3" center to center, except as otherwise noted.
- Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks. W6 x 8.5 or W6 x 9 steel posts, 8'-0" in length, with 8" x 8" x 1'-2" notched wood blocks or notched recycled plastic blocks may be used for 6" x 8" x 6'-0" wood posts with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
- A 4'-0" minimum clearance is required between the face of the railing and the face of a fixed object located directly behind MGS sections with post spacing at 6'-3". Construct MGS as shown in the detail "Strengthened Midwest Guardrail System Sections for Fixed Objects" on this plan, where the clearance between the back of post and the face of a fixed object is less than 3'-0", but not less than 1'-0". Where the clearance is less than 1'-0", a concrete wall or barrier should be constructed to shield the fixed object(s).
- The type of 31" terminal system to be used will be shown on the Project Plans.

- The 15:1 or flatter flare for the buried post anchor is based on the edge of the paved shoulder or offset line of edge of the traveled way. The length of MGS within the 15:1 or flatter flare is based on site conditions and should be a length equal to multiples of 12'-6".
- For details of the Buried Post End Anchor, see Standard Plan A77T2.
- As site conditions dictate, construct additional MGS to shield fixed object(s). Additional MGS length equal to multiples of 12'-6". Post spacing at 6'-3", except as specified in Note 4.
- Layout Types 16D through 16L, shown on the A77R Series of Standard Plans, are typically used on highways where MGS is recommended to shield roadside fixed object(s) and a crashworthy 31" end treatment is required for both directions of traffic.
- Where placement of dike is required with MGS, see Revised Standard Plan RSP A77N4 for dike positioning details.
- For typical flare offsets for 25'-0" length parabola with maximum offset of 1'-0", see Revised Standard Plan RSP A77P1.

- W6 x 8.5 or W6 x 9 steel post, 8'-0" in length, with 8" x 8" x 1'-2" notched wood block or notched recycled plastic block may be used in place of the 10" x 10" x 8'-0" wood post with 8" x 8" x 1'-2" wood block shown in the detail "Strengthened Midwest Guardrail System Sections for Fixed Object".
- Use this offset for 8" block. For 12" block use minimum 4'-0" offset.
- Do not bolt rail to block. Only bolt block to post.

MIDWEST GUARDRAIL SYSTEM TYPICAL LAYOUTS FOR ROADSIDE FIXED OBJECTS

NO SCALE

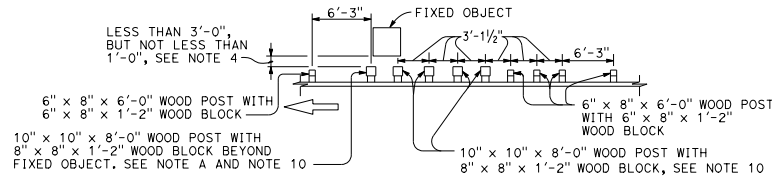
RSP A77R5 DATED OCTOBER 18, 2019 SUPERSEDES RSP A77R5 DATED APRIL 19, 2019 AND STANDARD PLAN A77R5 DATED MAY 31, 2018 - PAGE 95 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP A77R5

Dist	COUNTY	ROUTE	POST MILES	SHEET TOTAL
			TOTAL PROJECT	NO. SHEETS
<p><i>Randell D. Hiatt</i> REGISTERED CIVIL ENGINEER</p> <p>October 18, 2019 PLANS APPROVAL DATE</p> <p>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.</p>				
<p>TO ACCOMPANY PLANS DATED _____</p>				

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
<p><i>Randell D. Hiatt</i> REGISTERED CIVIL ENGINEER</p> <p>October 18, 2019 PLANS APPROVAL DATE</p> <p>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.</p>					

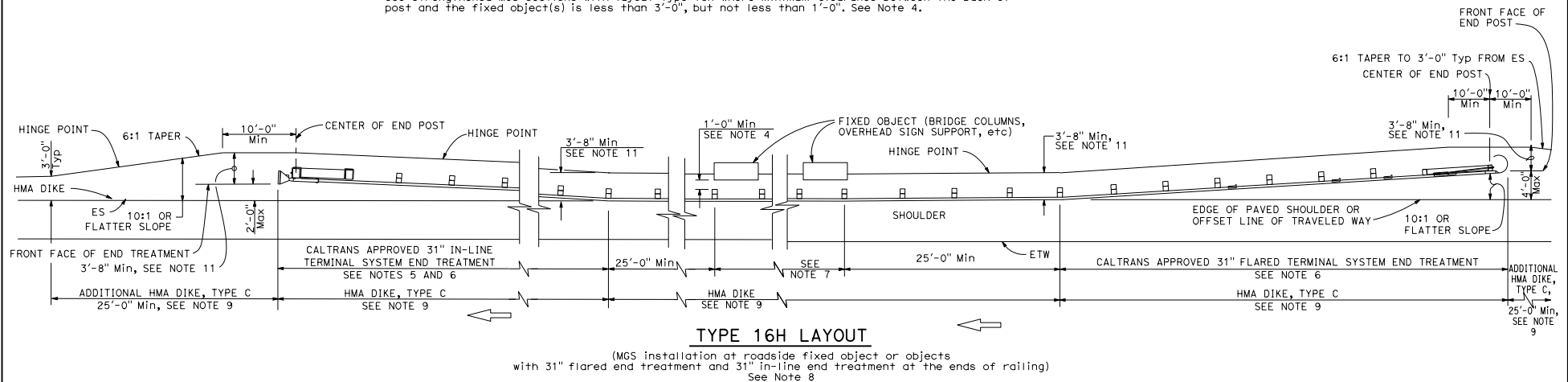
TO ACCOMPANY PLANS DATED _____



NOTE A: For a series of fixed objects (bridge columns, overhead sign supports, etc.) additional 10" x 10" x 8'-0" wood post with 8" x 8" x 1'-2" wood blocks at 3'-1/2" center to center spacing are to be used between fixed object(s).

STRENGTHENED MIDWEST GUARDRAIL SYSTEM SECTIONS FOR FIXED OBJECT

Use strengthened MGS sections with layout Type 16H where minimum clearance between the back of post and the fixed object(s) is less than 3'-0", but not less than 1'-0". See Note 4.



NOTES:

- Line post, blocks and hardware to be used are shown on Revised Standard Plans RSP A77L1, RSP A77L2, RSP A77N1, Standard Plans A77N2 and A77M1.
- MGS post spacing to be 6'-3" center to center, except as otherwise noted.
- Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks. W6 x 8.5 or W6 x 9 steel posts, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or notched recycled plastic blocks may be used for 6" x 8" x 6'-0" wood posts with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
- A 4'-0" minimum clearance is required between the face of the railing and the face of a fixed object located directly behind MGS sections with post spacing at 6'-3". Construct MGS as shown in the detail "Strengthened Midwest Guardrail System Sections for Fixed Objects" on this plan, where the clearance between the back of post and the face of a fixed object is less than 3'-0", but not less than 1'-0". Where the clearance is less than 1'-0", a concrete wall or barrier should be constructed to shield the fixed object(s).
- 31" in-line terminal system end treatments are used where site conditions will not accommodate a 31" flared end treatment.

- The type of 31" terminal system to be used will be shown on the Project Plans.
- As site conditions dictate, construct additional MGS to shield fixed object(s). Additional MGS length equal to multiples of 12'-6". Post spacing at 6'-3", except as specified in Note 4.
- Layout Types 16D through 16L, shown on the A77R Series of Standard Plans, typically used where MGS is recommended to shield roadside fixed object(s) and a crashworthy 31" end treatment is required for both directions of traffic.
- Where placement of dike is required with MGS, see Standard Plan A77N4 for dike positioning details.
- W6 x 8.5 or W6 x 9 steel post, 8'-0" in length, with 8" x 8" x 1'-2" notched wood block or notched recycled plastic block may be used in place of the 10" x 10" x 8'-0" wood post with 8" x 8" x 1'-2" wood block shown in the detail "Strengthened Midwest Guardrail System Sections for Fixed Object".
- Use this offset for 8" block. For 12" block use minimum 4'-0" offset.

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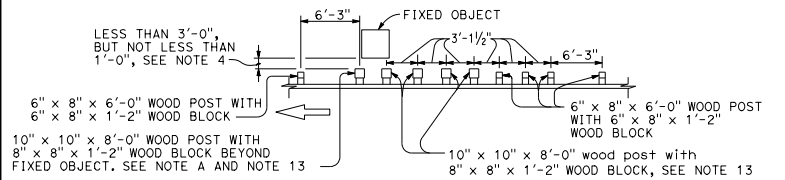
MIDWEST GUARDRAIL SYSTEM TYPICAL LAYOUTS FOR ROADSIDE FIXED OBJECTS

NO SCALE

RSP A77R6 DATED OCTOBER 18, 2019 SUPERSEDES RSP A77R6 DATED APRIL 19, 2019 AND
STANDARD PLAN A77R6 DATED MAY 31, 2018 - PAGE 96 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP A77R6

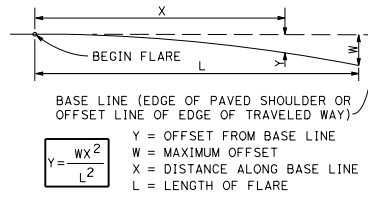
2018 REVISED STANDARD PLAN RSP A77R6



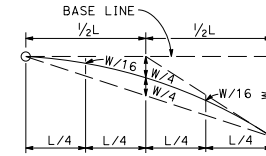
NOTE A: For a series of fixed objects (bridge columns, overhead sign supports, etc.) additional 10" x 10" x 8'-0" wood post with 8" x 8" x 1'-2" wood blocks at 3'-1/2" center to center spacing are to be used between fixed object(s).

STRENGTHENED MIDWEST GUARDRAIL SYSTEM SECTIONS FOR FIXED OBJECT

Use strengthened MGS sections with layout Types 16I or 16J Layouts where minimum clearance between the back of post and the fixed object(s) is less than 3'-0", but not less than 1'-0". See Note 4.



PARABOLIC FLARE OFFSETS



TYPICAL PARABOLIC LAYOUT

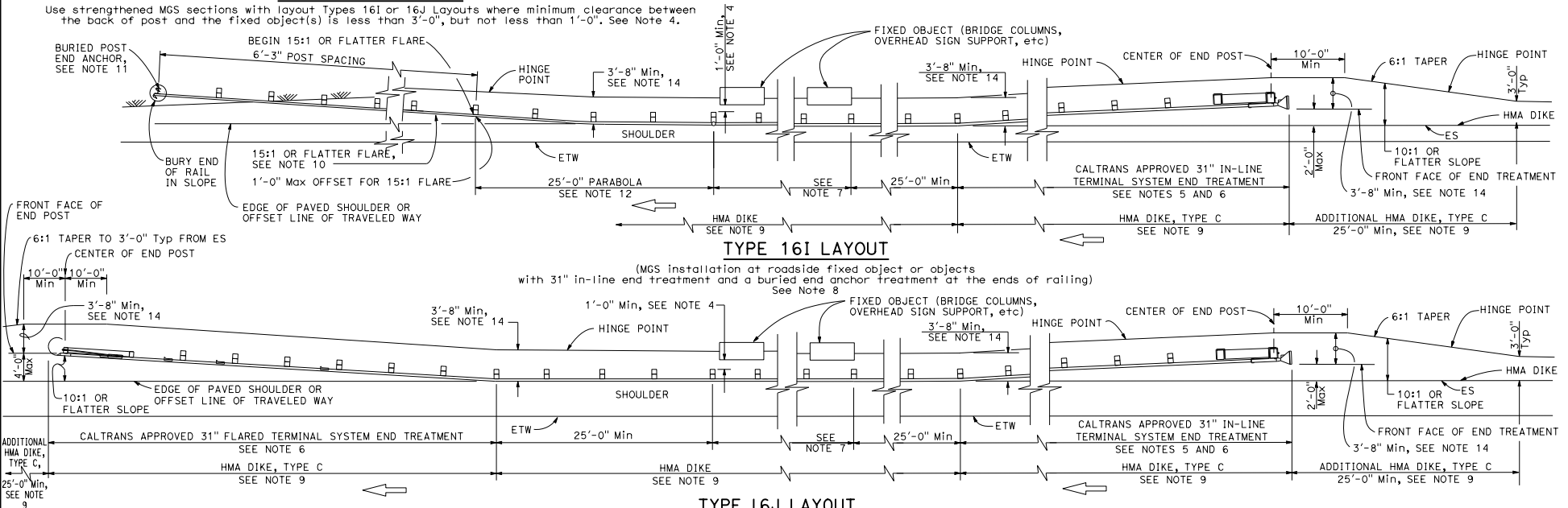
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL SHEETS

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

October 18, 2019
PLANS APPROVAL DATE

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TO ACCOMPANY PLANS DATED _____



NOTES:

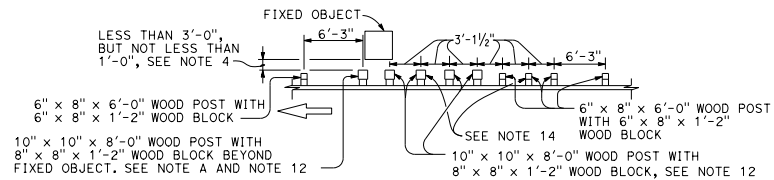
- Line post, blocks and hardware to be used are shown on Revised Standard Plans RSP A77L1, RSP A77L2, RSP A77N1, Standard Plans A77N2 and A77M1.
- MGS post spacing to be 6'-3" center to center, except as otherwise noted.
- Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks, W6 x 8.5 or W6 x 9 steel posts, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or notched recycled plastic blocks may be used for 6" x 8" x 6'-0" wood posts with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
- A 4'-0" minimum clearance is required between the face of the railing and the face of a fixed object located directly behind MGS sections with post spacing at 6'-3". Construct MGS as shown in the detail "Strengthened Midwest Guardrail System Sections for Fixed Objects" on this plan, where the clearance between the back of post and the face of a fixed object is less than 3'-0", but not less than 1'-0". Where the clearance is less than 1'-0", a concrete wall or barrier should be constructed to shield the fixed object(s).
- 31" in-line terminal system end treatments are used where site conditions will not accommodate a 31" flared end treatment.

- The type of 31" terminal system to be used will be shown on the Project Plans.
- As site conditions dictate, construct additional MGS to shield fixed object(s). Additional MGS length equal to multiples of 12'-6". Post spacing at 6'-3", except as specified in Note 4.
- Layout Types 16D through 16L, shown on the A77R Series of Standard Plans, are typically used where MGS is recommended to shield roadside fixed object(s) and a crashworthy 31" end treatment is required for both directions of traffic.
- Where placement of dike is required with guard railing, see Standard Plan A77N4 for dike positioning details.
- The 15:1 or flatter flare for the buried post anchor is based on the edge of the paved shoulder or offset line of edge of the traveled way. The length of MGS within the 15:1 or flatter flare is based on site conditions and should be a length equal to multiples of 12'-6".
- For details of Buried Post End Anchor, see Standard Plan A77T2.

- For typical flare offsets for 25'-0" length parabola with maximum offset of 1'-0", see Revised Standard Plan RSP A77P1.
- W6 x 8.5 or W6 x 9 steel post, 8'-0" in length, with 8" x 8" x 1'-2" notched wood block or notched recycled plastic block may be used in place of the 10" x 10" x 8'-0" wood post with 8" x 8" x 1'-2" wood block shown in the detail "Strengthened Midwest Guardrail System Sections for Fixed Object".
- Use this offset for 8" block. For 12" block use minimum 4'-0" offset.

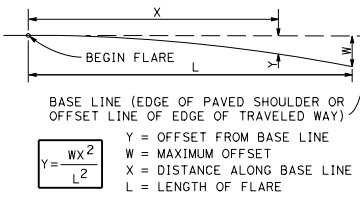
MIDWEST GUARDRAIL SYSTEM TYPICAL LAYOUTS FOR ROADSIDE FIXED OBJECTS

NO SCALE
RSP A77R7 DATED OCTOBER 18, 2019 SUPERSEDES RSP A77R7 DATED APRIL 19, 2019 AND STANDARD PLAN A77T2 DATED MAY 31, 2018 - PAGE 97 OF THE STANDARD PLANS BOOK DATED 2018.
REVISED STANDARD PLAN RSP A77R7

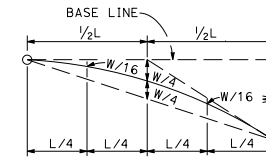


STRENGTHENED MIDWEST GUARDRAIL SYSTEM SECTIONS FOR FIXED OBJECT

Use strengthened MGS sections with layout Types 16K or 16L layouts where minimum clearance between the back of post and the fixed object(s) is less than 3'-0", but not less than 1'-0". See Note 4.



PARABOLIC FLARE OFFSETS



TYPICAL PARABOLIC LAYOUT

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL SHEETS

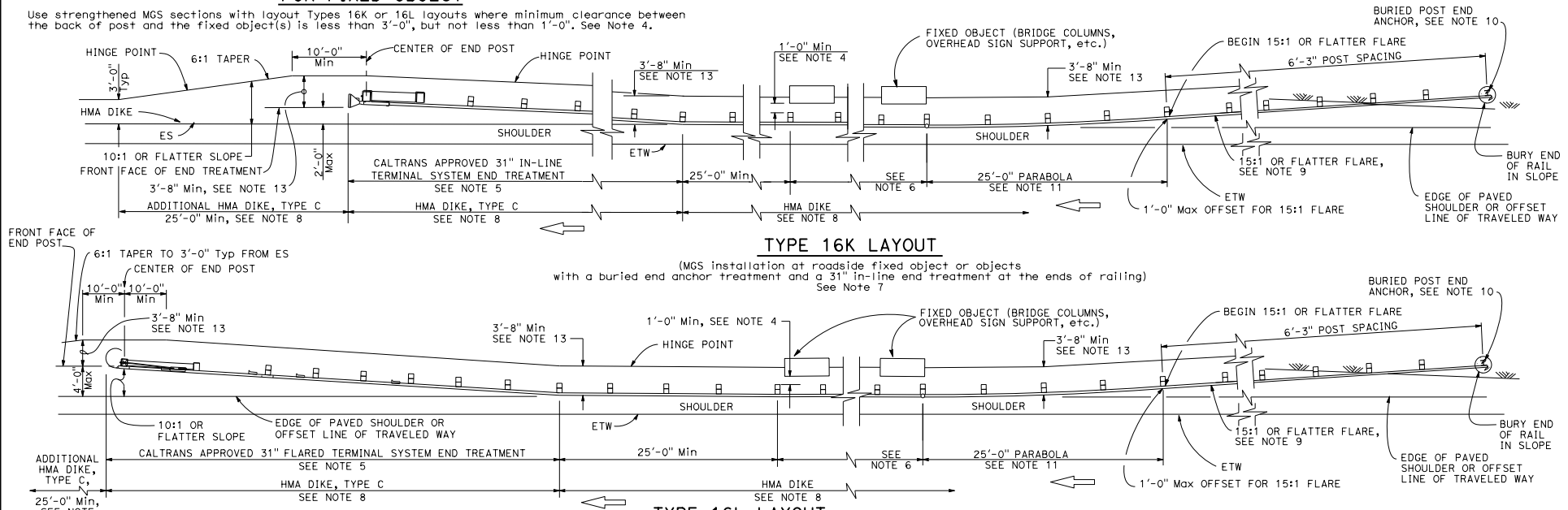
Randell D. Hiatt
REGISTERED CIVIL ENGINEER

October 18, 2019
PLANS APPROVAL DATE

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TO ACCOMPANY PLANS DATED _____

Professional Engineer Seal:
Randell D. Hiatt
No. C50200
Exp. 6-30-21
CIVIL
STATE OF CALIFORNIA



NOTES:

- Line post, blocks and hardware to be used are shown on Revised Standard Plans RSP A77L1, RSP A77L2, RSP A77N1, Standard Plans A77N2 and A77M1.
- MGS post spacing to be 6'-3" center to center, except as otherwise noted.
- Except as noted, line posts are 6" x 8" x 6'-0" wood with 6" x 8" x 1'-2" wood blocks. W6 x 8.5 or W6 x 9 steel posts, 6'-0" in length, with 6" x 8" x 1'-2" notched wood blocks or notched recycled plastic blocks may be used for 6" x 8" x 6'-0" wood posts with 6" x 8" x 1'-2" wood blocks where applicable and when specified.
- A 4'-0" minimum clearance is required between the face of the railing and the face of a fixed object located directly behind MGS sections with post spacing at 6'-3". Construct MGS as shown in the detail "Strengthened Midwest Guardrail System Sections for Fixed Objects" on this plan, where the clearance between the back of post and the face of a fixed object is less than 3'-0", but not less than 1'-0". Where the clearance is less than 1'-0", a concrete wall or barrier should be constructed to shield the fixed object(s).
- The type of 31" terminal system to be used will be shown on the Project Plans.

- As site conditions dictate, construct additional MGS to shield fixed object(s). Additional MGS length equal to multiples of 12'-6". Post spacing at 6'-3", except as specified in Note 4.
- Layout Types 16D through 16L, shown on the A77R Series of Standard Plans are typically used where MGS is recommended to shield roadside fixed object(s) and a crashworthy 31" end treatment is required for both directions of traffic.
- Where placement of dike is required with MGS, see Revised Standard Plan RSP A77N4 for dike positioning details.
- The 15:1 or flatter flare for the buried post anchor is based on the edge of the paved shoulder or offset line of edge of the traveled way. The length of MGS within the 15:1 or flatter flare is based on site conditions and should be a length equal to multiples of 12'-6".
- For details of Buried Post End Anchor, see Standard Plan A77T2.
- For typical flare offsets for 25'-0" length parabola with maximum offset of 1'-0", see Revised Standard Plan RSP A77P1.

- W6 x 8.5 or W6 x 9 steel post, 8'-0" in length, with 8" x 8" x 1'-2" notched wood block or notched recycled plastic block may be used in place of the 10" x 10" x 8'-0" wood post with 8" x 8" x 1'-2" wood block shown in the detail "Strengthened Midwest Guardrail System Sections for Fixed Object".
- Use this offset for 8" block. For 12" block use minimum 4'-0" offset.
- Do not bolt rail to block. Only bolt block to post.

MIDWEST GUARDRAIL SYSTEM TYPICAL LAYOUTS FOR ROADSIDE FIXED OBJECTS

NO SCALE

RSP A77R8 DATED OCTOBER 18, 2019 SUPERSEDES RSP A77R8 DATED APRIL 19, 2019 AND STANDARD PLAN A77R8 DATED MAY 31, 2018 - PAGE 98 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP A77R8

2018 REVISED STANDARD PLAN RSP A77R8

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

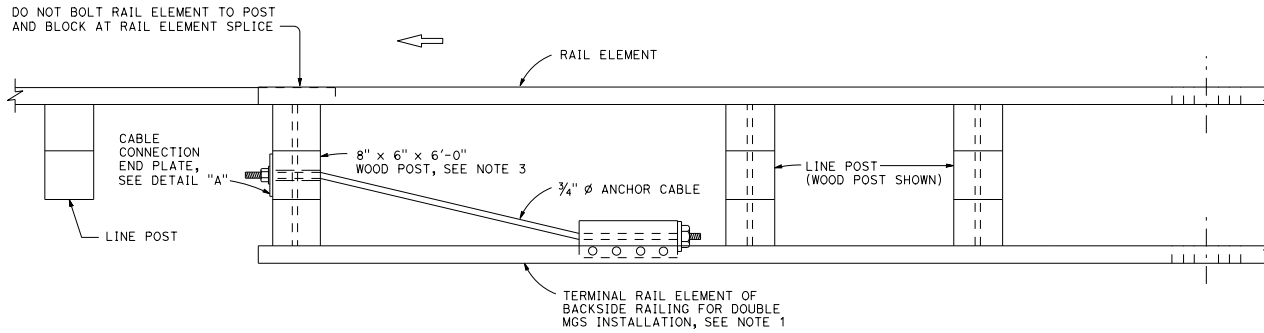
Mark Ballentine
REGISTERED CIVIL ENGINEER

April 16, 2021
PLANS APPROVAL DATE

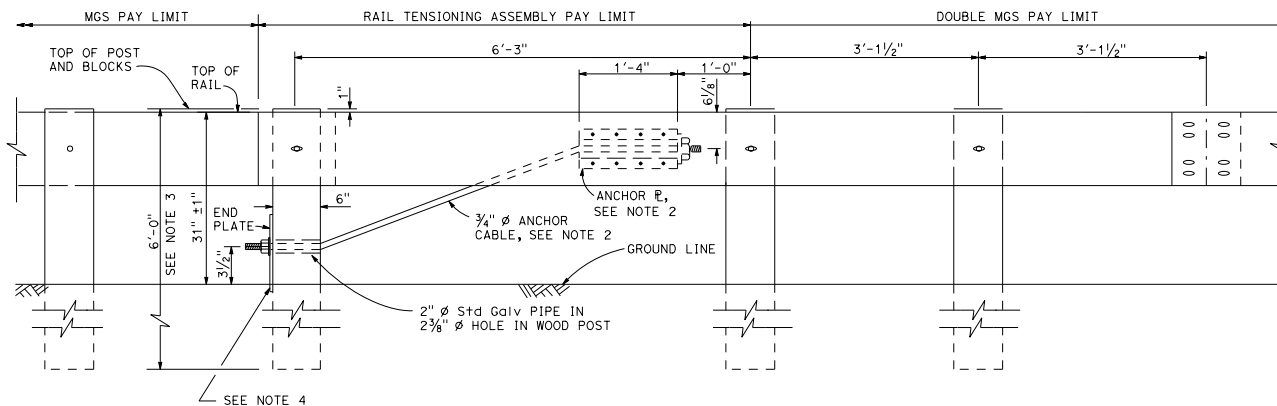
No. C64101
Exp. 09-30-22
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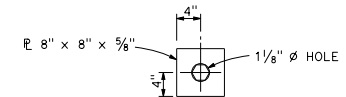
TO ACCOMPANY PLANS DATED _____



PLAN



ELEVATION
RAIL TENSIONING
ASSEMBLY
See Note 1



DETAIL "A"
CABLE CONNECTION
END PLATE

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

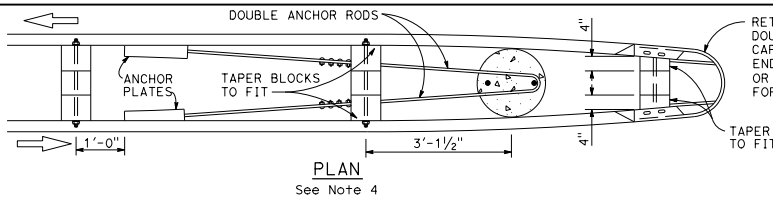
**MIDWEST GUARDRAIL SYSTEM
RAIL TENSIONING ASSEMBLY**

NO SCALE

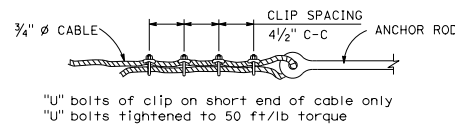
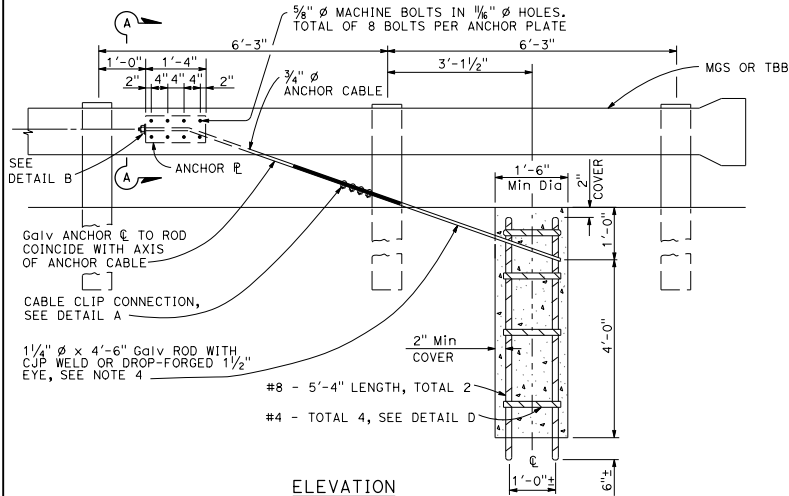
RSP A77S2 DATED APRIL 16, 2021 SUPERSEDES STANDARD PLAN A77S2
DATED MAY 31, 2018 - PAGE 100 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP A77S2

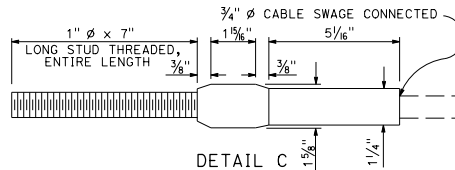
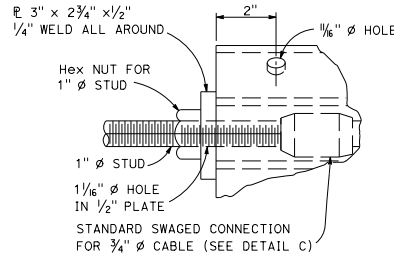
2018 REVISED STANDARD PLAN RSP A77S2



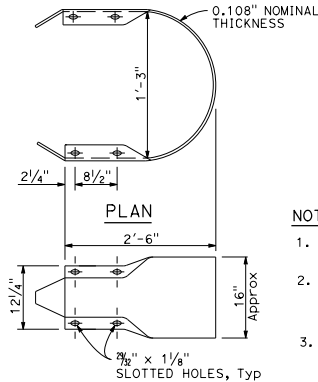
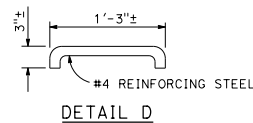
RETURN CAP (TYPE TA) FOR DOUBLE THRIE BEAM OR RETURN CAP (TYPE A) FOR DOUBLE MGS.
END CAP (TYPE A) FOR SINGLE MGS OR END CAP (TYPE TC) FOR SINGLE THRIE BEAM



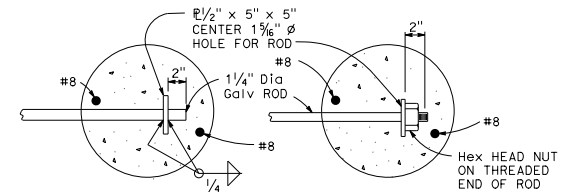
"U" bolts of clip on short end of cable only
"U" bolts tightened to 50 ft/lb torque



ANCHOR CABLE WITH SWAGED FITTING AND STUD



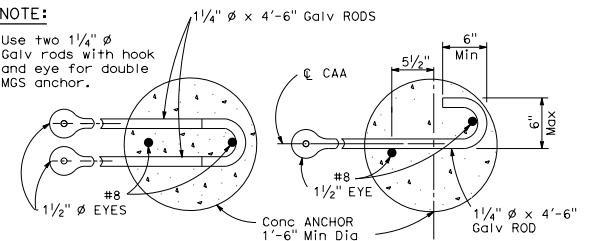
RETURN CAP (TYPE A)



(Not to be used for double anchors)

NOTE:

Use two 1 1/4" ϕ Galv rods with hook and eye for double MGS anchor.



DOUBLE ANCHOR ANCHOR RODS

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

METAL RAILING END ANCHOR ASSEMBLY (TYPE CA)
NO SCALE

RSP A77T1 DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN A77T1
DATED MAY 31, 2018 - PAGE 102 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP A77T1

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

Randell D. Hiatt
REGISTERED CIVIL ENGINEER
No. C50200
EXP. 6-30-19
CIVIL
STATE OF CALIFORNIA

October 19, 2018
PLANS APPROVAL DATE

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TO ACCOMPANY PLANS DATED _____

NOTES:

- For typical use of this type of end anchor, see Standard Plan A78E2.
- Anchor cable to be parallel to railing for straight runs of rail. Anchor cable may have angle point at anchor plate if railing is curved.
- Anchor rod hooks to be in contact with anchor reinforcement when concrete is placed. Wire ties may be used to position anchor rods.
- Single sided railing installations require only one anchor plate, anchor rod and anchor cable. Single sided railing will not have a rail element or blockouts on backside of line posts as shown in the plan view.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

Mark Ballentine
REGISTERED CIVIL ENGINEER

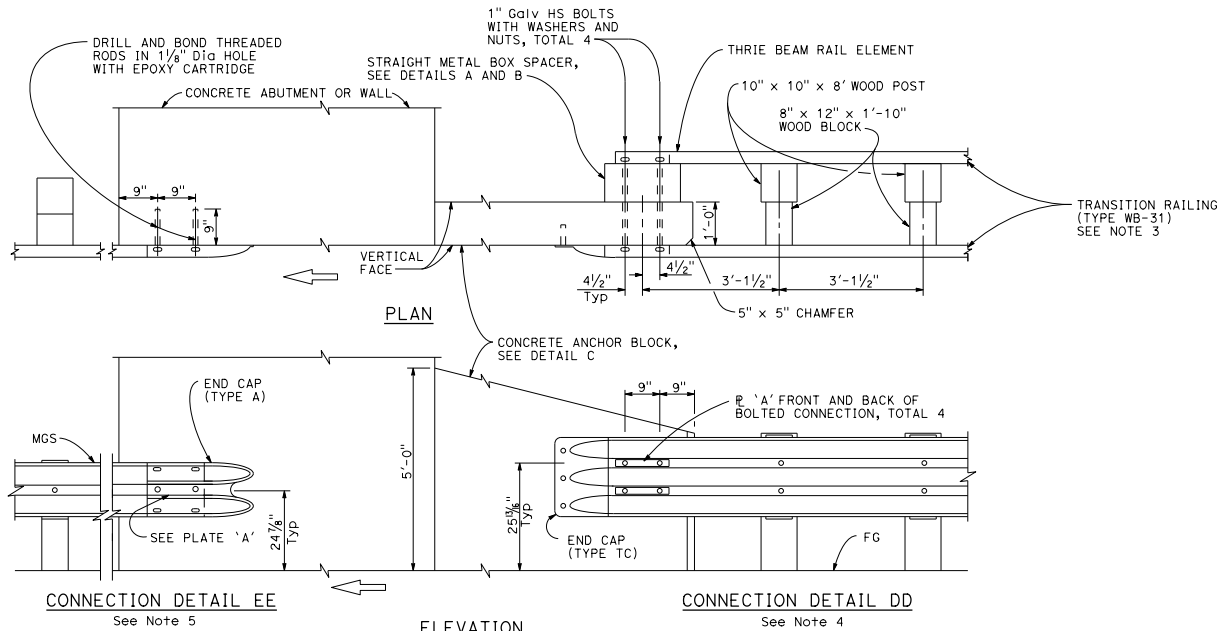
April 16, 2021
PLANS APPROVAL DATE

Mark Ballentine
No. C64101
Exp. 09-30-22
CIVIL
STATE OF CALIFORNIA

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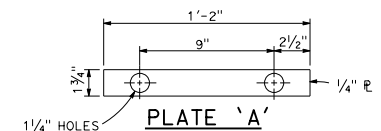
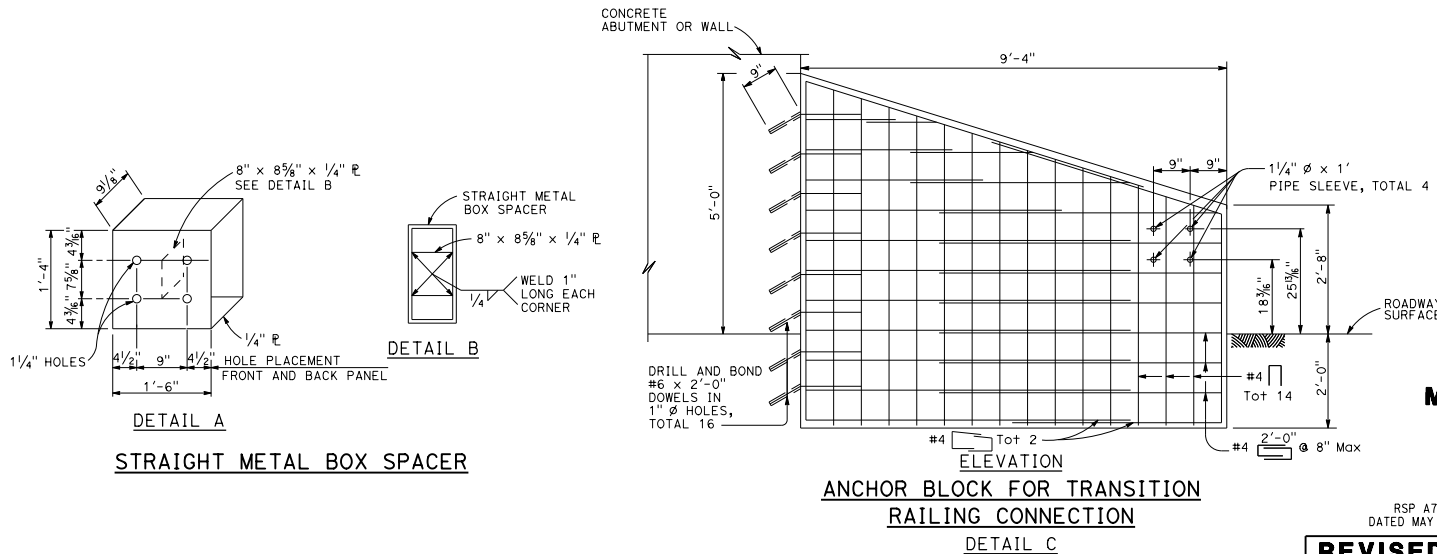
TO ACCOMPANY PLANS DATED _____

2018 REVISED STANDARD PLAN RSP A77U3



NOTES:

- These connection details apply to abutments and walls.
- Additional details of posts, blocks and hardware are shown on Revised Standard Plans RSP A77M1 and RSP A77N1 and Standard Plan A77N2.
- For additional details of Transition Railing (Type WB-31), see Revised Standard Plan RSP A77U4. Transition Railing (Type WB-31) transitions the 12 gauge MGS railing section to a heavier gauge nested thirle beam railing section which is connected to the concrete anchor block.
- For typical use of Connection Details DD, see Layout Types 12A and 12B on Revised Standard Plan RSP A7701 and Layout Types 12C and 12D on Standard Plan A7702.
- For typical use of Connection Detail EE, see Layout Type 12D on Standard Plan A7702 and Layout Type 12DD on Standard Plan A7705.



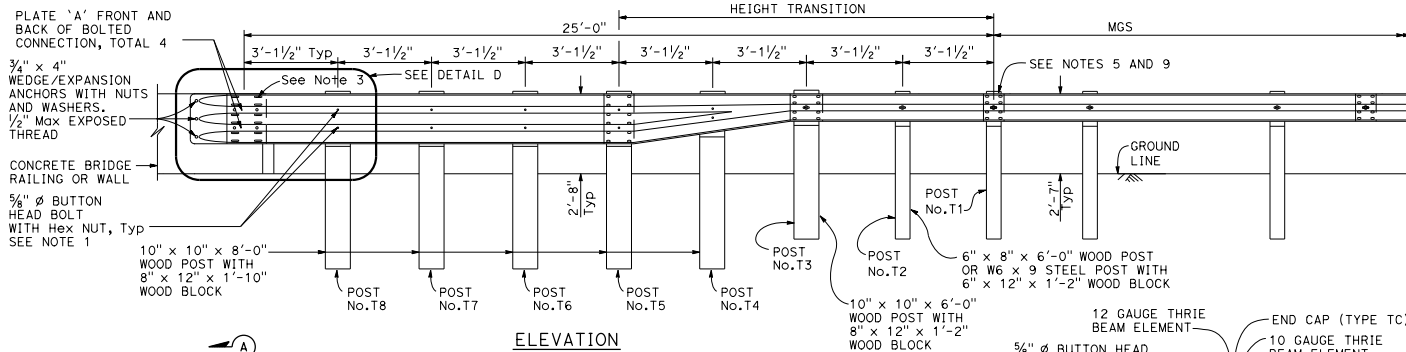
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**MIDWEST GUARDRAIL SYSTEM
CONNECTIONS TO
ABUTMENTS AND WALLS**

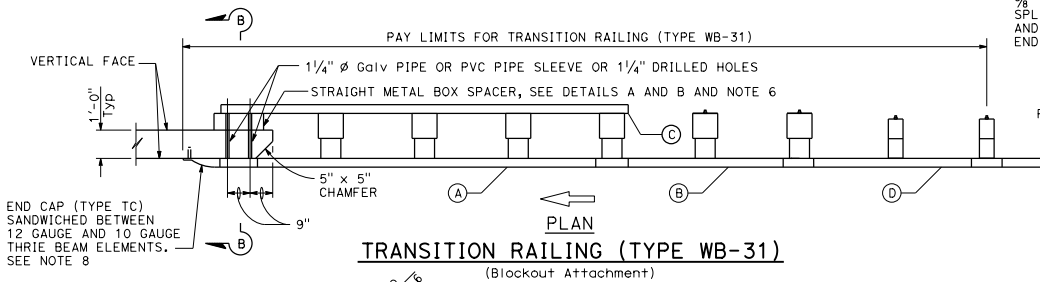
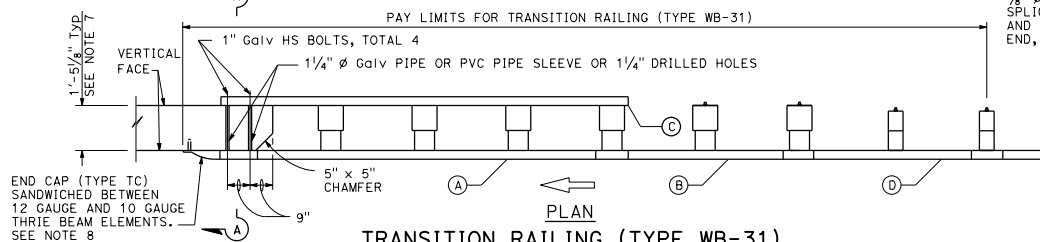
NO SCALE

RSP A77U3 DATED APRIL 16, 2021 SUPERSEDES STANDARD PLAN A77U3
DATED MAY 31, 2018 - PAGE 106 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP A77U3

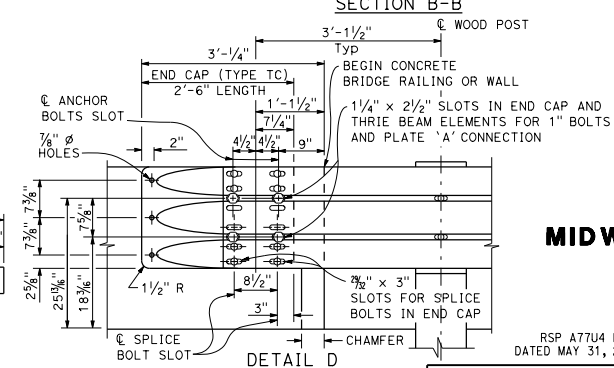
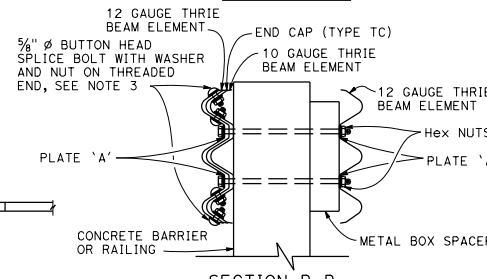
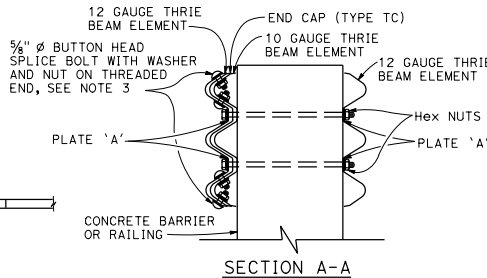
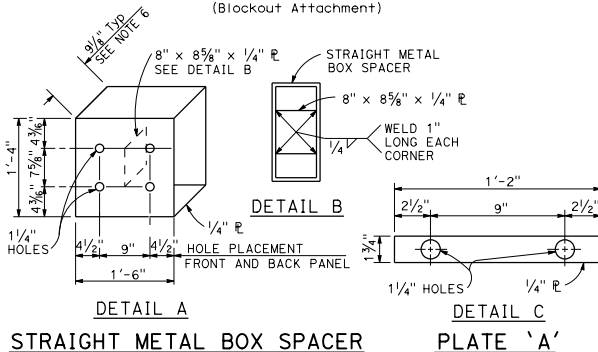


ELEVATION



LEGEND:

- (A) NESTED THRIE BEAM ELEMENTS (ONE 12 GAUGE ELEMENT NESTED OVER ONE 10 GAUGE ELEMENT).
- (B) ONE ASYMMETRICAL 10 GAUGE "W" BEAM TO THRIE BEAM ELEMENT.
- (C) ONE 12 GAUGE THRIE BEAM ELEMENT.
- (D) ONE 10 GAUGE "W" BEAM RAIL ELEMENT (7'-3 1/2" LENGTH)
10 GAUGE = 0.138" THICK
12 GAUGE = 0.108" THICK



DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
<p>Randell D. Hiatt REGISTERED CIVIL ENGINEER April 19, 2019 PLANS APPROVAL DATE No. C50200 EXP. 6-30-19 CIVIL STATE OF CALIFORNIA</p>					

NOTES:

TO ACCOMPANY PLANS DATED

- Use 5/8" Ø Button head bolts and hex nuts for connections to posts. No washer on rail face for bolted connections to post.
- The nested rail elements, end cap, and "W" beam to thrie beam element may be spliced together prior to bolting the elements to the wood post and concrete barrier or railing.
- Exterior splice bolt holes for rail element splices at Post No. T5 and the connection to the concrete barrier or railing shall be the standard 3/4" x 1 1/8" slot size. Interior splice bolt holes at these locations may be increased up to 1 1/4" Ø. Only the top 4 and the bottom 4 splice bolts with washers and nuts are required for rail splices at Post No. T5 and the connection to the concrete barrier or railing.
- The top elevation of Posts No. T2 through No. T7 shall not project more than 1" above the top elevation of the rail element.
- Typically, the railing connected to Transition Railing (Type WB-31) will be either standard railing section of MGS with height transition ratio of 150:1 or a Caltrans approved 31" end treatment attached to Post No. T1.
- The depth of the metal box spacer varies from the 9/8" to 1 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 21 1/8". Where the space between the backside of the concrete railing or wall and the rear thrie beam element is less than 1 1/2", metal plates similar to Plate 'A' are to be used as spacers.
- Where the width of the concrete railing or wall is greater than 1 1/8", wood blocks are to be used to fill the space created between the backside of Posts No. T5 through No. T8 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.
- End cap may be installed over 12 gauge and 10 gauge thrie beam elements where transition railing is installed on the departure end of bridge railing.
- Conform standard railing section height to 31" at Post No. T1 using height transition ratio of 150:1. MGS tolerance at post No. T1 is ± 1".

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

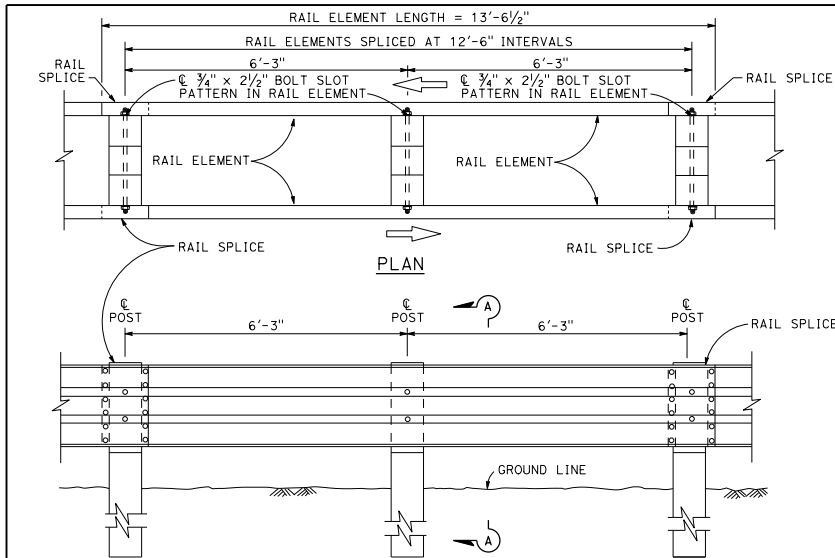
**MIDWEST GUARDRAIL SYSTEM
TRANSITION RAILING
(TYPE WB-31)**

NO SCALE

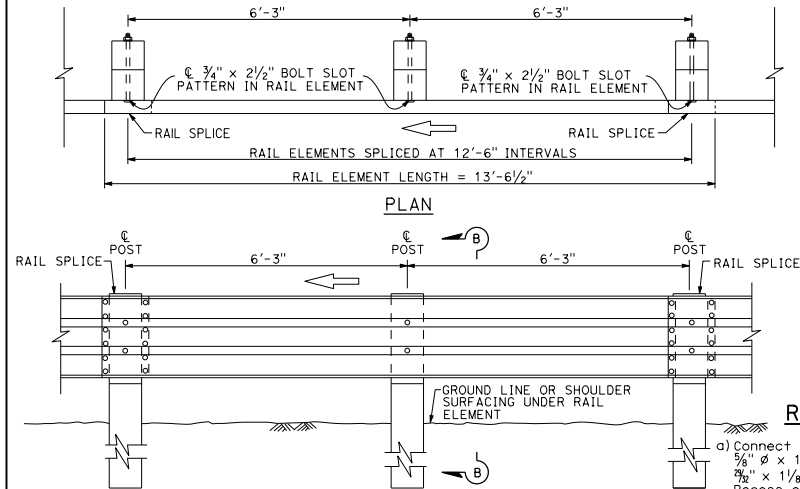
RSP A77U4 DATED APRIL 19, 2019 SUPERSEDES STANDARD PLAN A77U4
DATED MAY 31, 2018 - PAGE 107 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP A77U4

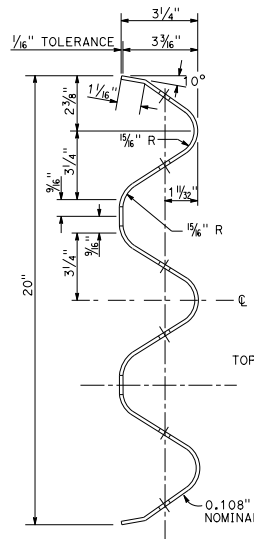
2018 REVISED STANDARD PLAN RSP A77U4



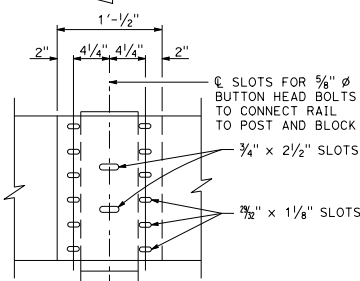
DOUBLE THRIE BEAM BARRIER
(Wood post and blocks)
See Note 1



SINGLE THRIE BEAM BARRIER
(Wood post and blocks)
See Note 1

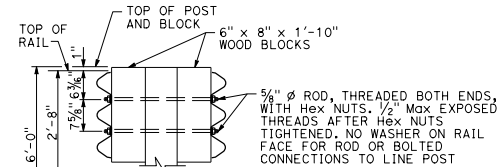


**SECTION THRU
RAIL ELEMENT**

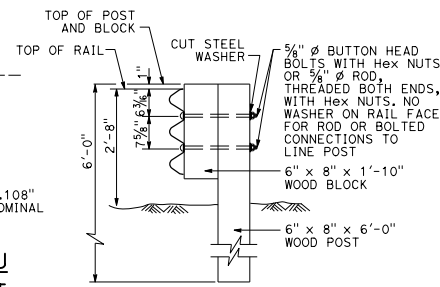


**ELEVATION
RAIL ELEMENT SPLICE DETAIL**

- Connect the overlapped ends of the thrie beam rail elements with $\frac{5}{8}$ " ϕ x $\frac{1}{4}$ " button head oval shoulder bolts inserted into the $\frac{7}{8}$ " x $\frac{1}{4}$ " slots and bolted together with $\frac{5}{8}$ " ϕ 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.

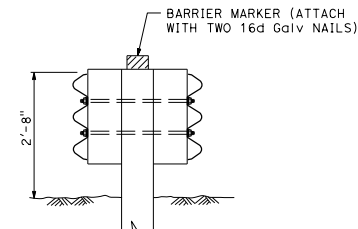


**SECTION A-A
TYPICAL WOOD LINE
POST INSTALLATION**



Where bolts are used, install so that the threaded end of the bolts and nuts are placed away from traffic side of rail.

**SECTION B-B
TYPICAL WOOD LINE
POST INSTALLATION**



**THRIE BEAM BARRIER
DELINEATION**

See Note 8

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL NO. SHEETS

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

April 19, 2019
PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER
No. C50200
Exp. 6-30-19
CIVIL
STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED _____

NOTES:

- For details of steel post thrie beam barrier, see Standard Plan A78B.
- For details of standard hardware, posts and blocks used to construct thrie beam barrier, see Standard Plan A78C1 and 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 A78E3 and A78G, and Standard Plans A78E1, A78E2, A77Q1, A77Q2 and A78H.
- For connection to Concrete Barrier (Type 60M), see Standard Plans A78I.
- For details of thrie beam barrier on bridge see Standard Plan A78D2. For details of thrie beam barrier at fixed object, see Standard Plan A78D1.
- See Project Plans for barrier delineation locations.
- Install posts in soil.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**THRIE BEAM BARRIER
STANDARD BARRIER RAILING
SECTION (WOOD POST
WITH WOOD BLOCK)**

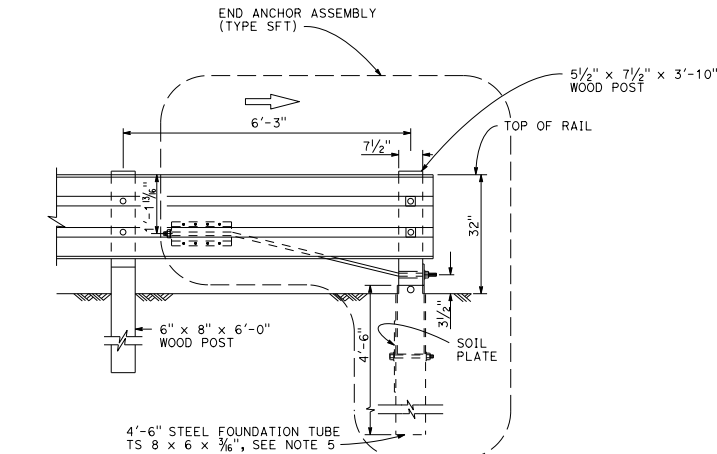
NO SCALE

RSP A78A DATED APRIL 19, 2019 SUPERSEDES STANDARD PLAN A78A
DATED MAY 31, 2018 - PAGE 111 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP A78A

2018 REVISED STANDARD PLAN RSP A78A





**END ANCHOR FOR TRAFFIC DEPARTURE END
OF SINGLE THRIE BEAM BARRIER**

(For one-way roadways)
See Note 1

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

Randell D. Hiatt
REGISTERED CIVIL ENGINEER

October 19, 2018
PLANS APPROVAL DATE

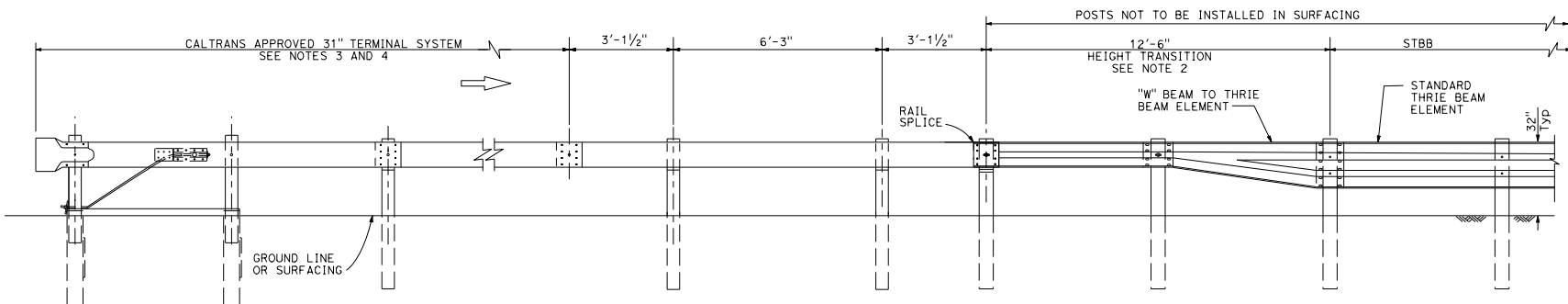
No. C50200
EXP. 6-30-19
CIVIL

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TO ACCOMPANY PLANS DATED _____

NOTES:

- For additional details of End Anchor Assembly (Type SFT), see Standard Plan A77S1.
- The "W" beam to thrie beam section is only required where the terminal system connection to the thrie beam barrier is a "W" beam rail.
- The type of terminal system to be used will be shown on the Project Plans.
- A Caltrans approved crash cushion should be used in place of a terminal system end treatment where the backside of the railing would be exposed to traffic.
- A 6'-0" length steel foundation tube, TS 8 x 6 x 3/8, 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 3/8" ϕ 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.



**ELEVATION
END TREATMENT FOR TRAFFIC APPROACH END
OF SINGLE THRIE BEAM BARRIER**

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

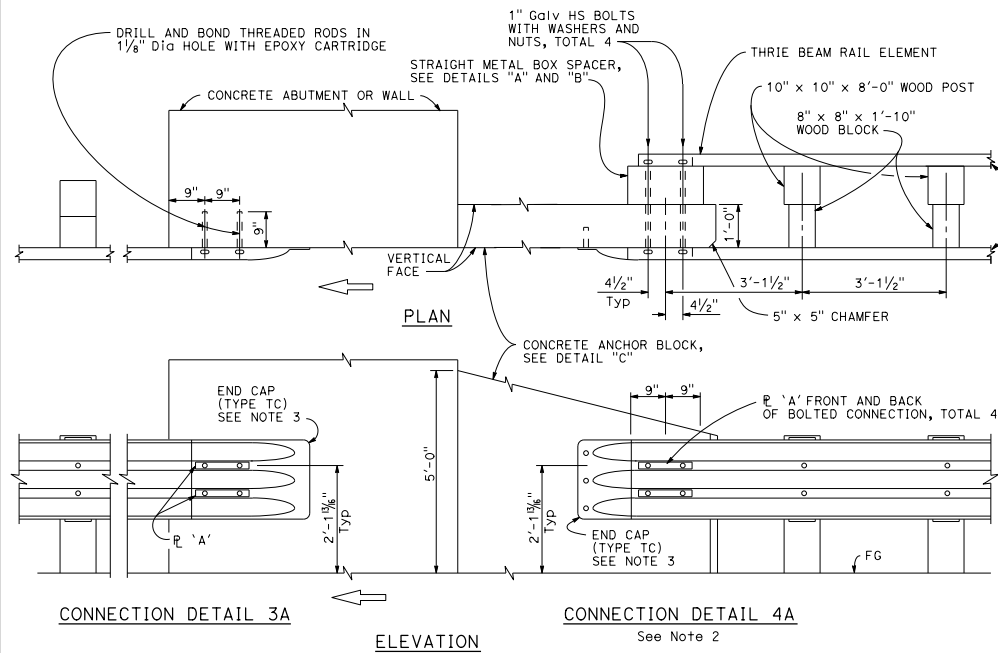
**SINGLE THRIE BEAM BARRIER
END ANCHOR ASSEMBLY AND
TERMINAL SYSTEM
END TREATMENT**

NO SCALE

RSP A78E1 DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN A78E1
DATED MAY 31, 2018 - PAGE 125 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP A78E1

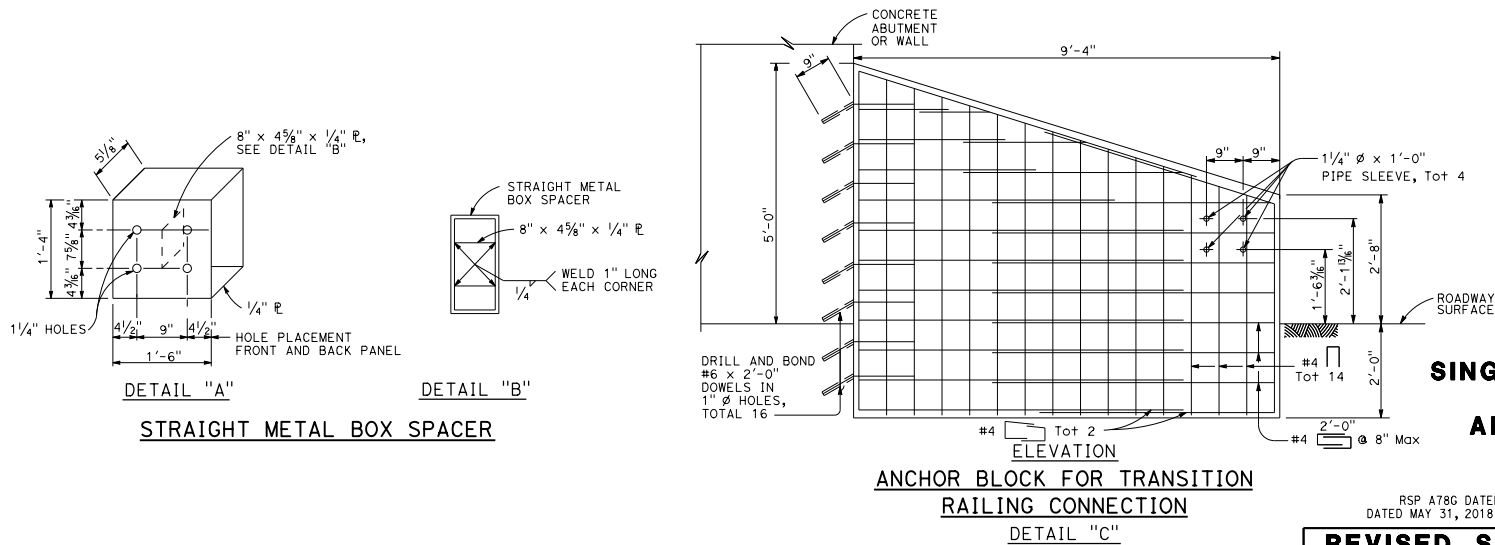
2018 REVISED STANDARD PLAN RSP A78E1



NOTES:

1. These connection details apply to concrete abutments and walls. For additional connections details, see Project Plans.
2. For additional details of Transition Railing (Type STB), see Standard Plan A78J. Transition Railing (Type STB) transitions the standard 12 gauge single thrie beam barrier to a heavier gauge single thrie beam railing section then to a heavier gauge nested double thrie beam barrier section which then is connected to the concrete anchor block.
3. For details of End Cap (Type TC), see Standard Plan A78C1.

SINGLE THRIE BEAM BARRIER CONNECTION TO ABUTMENT OR WALL



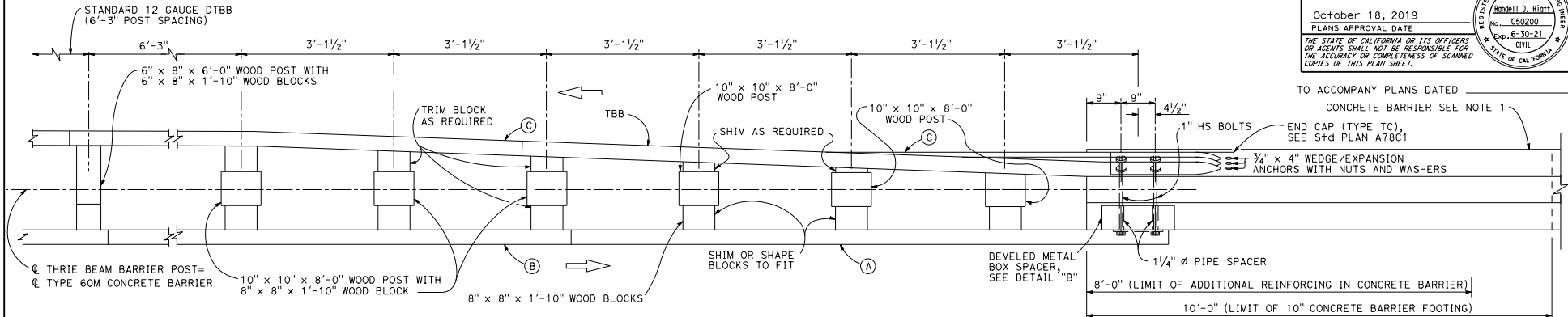
RSP A78G DATED APRIL 16, 2021 SUPERSEDES STANDARD PLAN A78G
DATED MAY 31, 2018 - PAGE 130 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP A78G

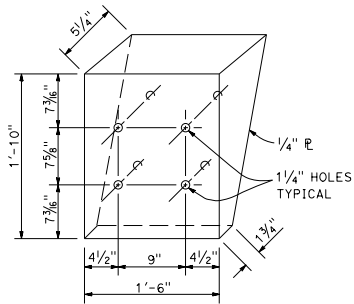
2018 REVISED STANDARD PLAN RSP A78G

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
<p>Randell D. Hiatt REGISTERED CIVIL ENGINEER</p> <p>October 18, 2019 PLANS APPROVAL DATE</p> <p>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.</p>					

TO ACCOMPANY PLANS DATED _____
CONCRETE BARRIER SEE NOTE 1

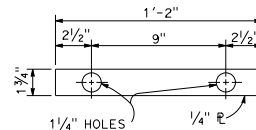


PLAN

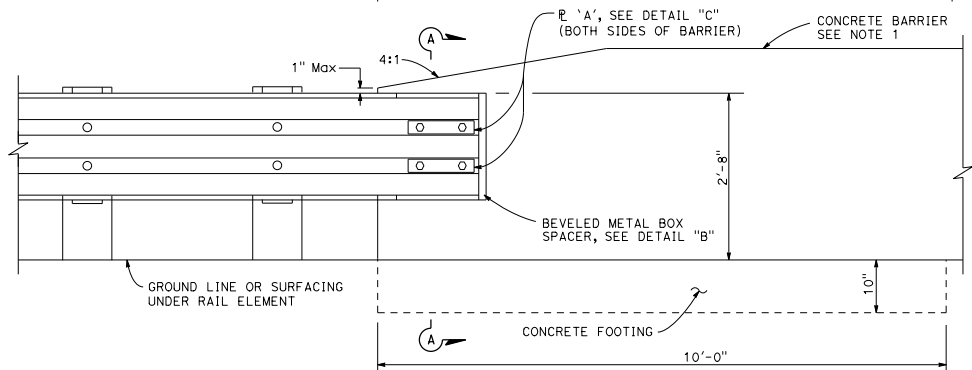


DETAIL "B"

Beveled metal box spacer
See Note 3



DETAIL "C"
PLATE "A"



ELEVATION

NOTES:

- For details of Concrete Barrier Type 60M, see Standard Plan A76A. Thrie beam barrier connections to Concrete Barrier Type 60MS and Type 60MG are similar to details shown on this plan.
- For additional thrie beam barrier details, see Standard Plans A78A, A78B, A78C1, and A78C2.
- Where beveled metal box spacer is installed, place 1/4" Ø x 3/4" and 1/4" Ø x 2" pipe spacers on 1" HS bolts passing through interior of box.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**DOUBLE THRIE BEAM BARRIER
CONNECTION TO CONCRETE
BARRIER**

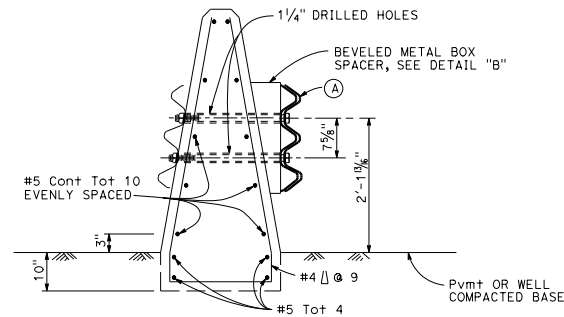
NO SCALE

RSP A781 DATED OCTOBER 18, 2019 SUPERSEDES STANDARD PLAN A781
DATED MAY 31, 2018 - PAGE 132 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP A781

LEGEND

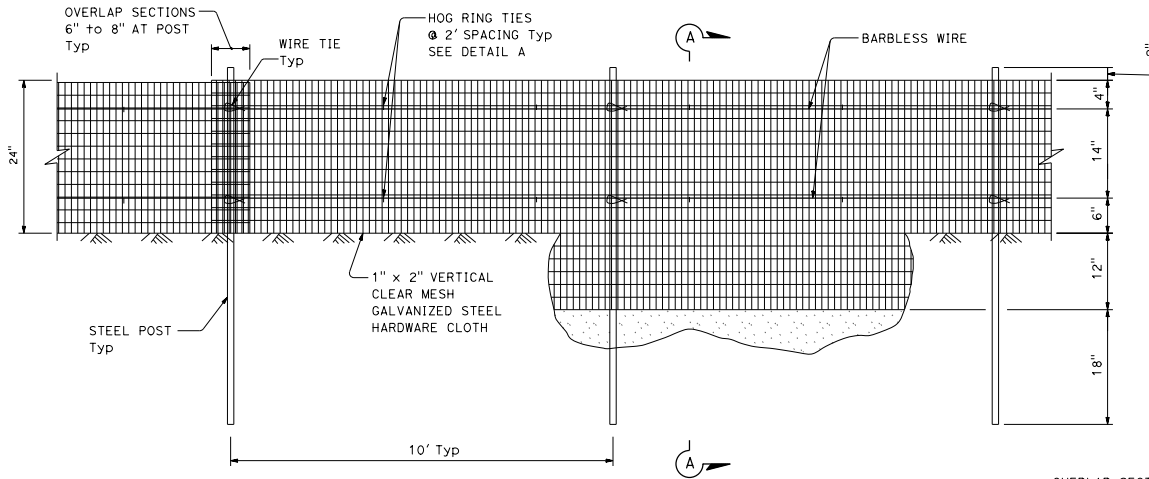
- (A) NESTED THRIE BEAM ELEMENTS
(ONE 12 GAUGE ELEMENT NESTED
OVER ONE 10 GAUGE ELEMENT).
 - (B) ONE 10 GAUGE THRIE BEAM
ELEMENT.
 - (C) ONE 12 GAUGE THRIE BEAM
ELEMENT.
- 10 GAUGE = 0.135" THICK
12 GAUGE = 0.108" THICK



SECTION A-A

(Type 60M Concrete Barrier shown)

2018 REVISED STANDARD PLAN RSP A781



FRONT VIEW

LEGEND:



Desert Tortoise Habitat

NOTE:

- Exact locations for desert tortoise fence are shown on the plans.

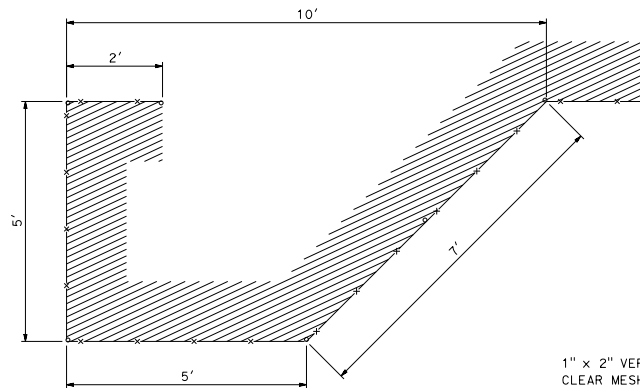
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL No. SHEETS

REGISTERED CIVIL ENGINEER
M. Reza Valizadeh
No. C51902
Exp. 6-30-20
CIVIL
STATE OF CALIFORNIA

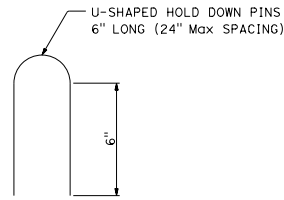
October 19, 2018
PLANS APPROVAL DATE

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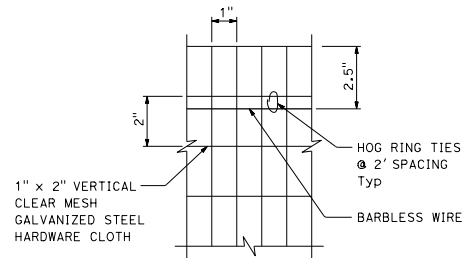
TO ACCOMPANY PLANS DATED _____



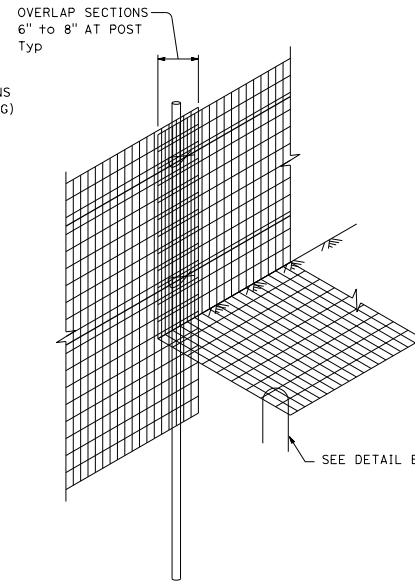
REDIRECTIONAL CONFIGURATION PLAN VIEW



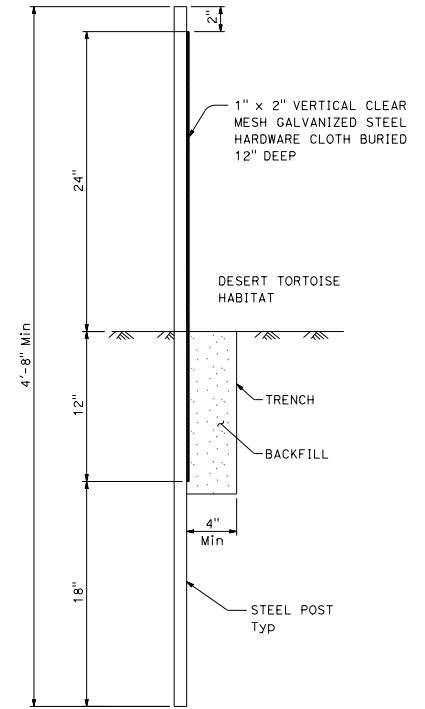
DETAIL B



DETAIL A



FENCE TRANSITION FOR
BEDROCK OR CALICHE SUBSTRATE



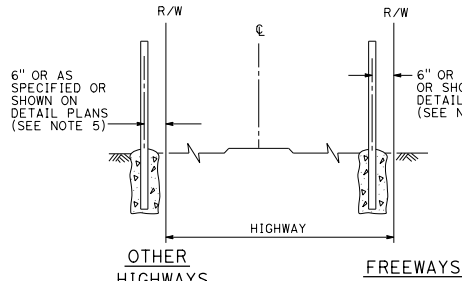
SECTION A-A

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
DESERT TORTOISE FENCE
NO SCALE

RSP A84B DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN A84B
DATED MAY 31, 2018 - PAGE 139 OF THE STANDARD PLANS BOOK DATED 2018.

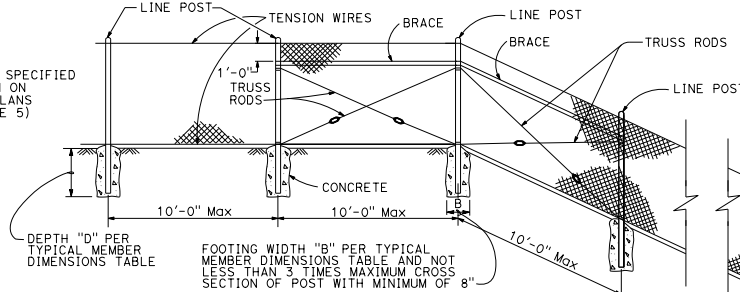
REVISED STANDARD PLAN RSP A84B

2018 REVISED STANDARD PLAN RSP A84B

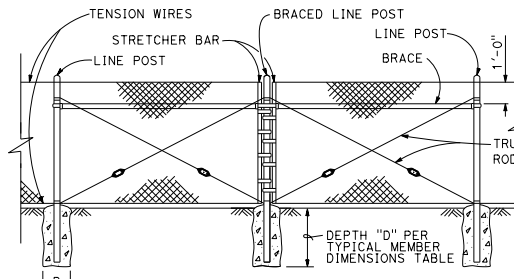


OTHER HIGHWAYS
FREEWAYS

FENCE LOCATION

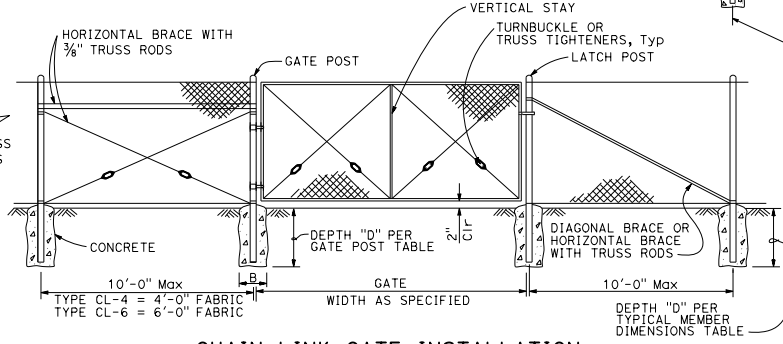


CHAIN LINK FENCE ON SHARP BREAK IN GRADE



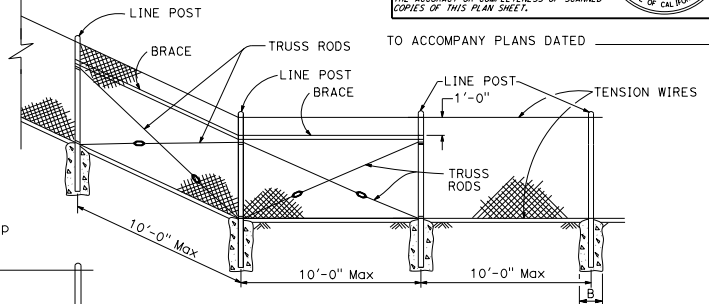
BRACED LINE POST INSTALLATION

Braced line post at intervals not exceeding 1000'



CHAIN LINK GATE INSTALLATION

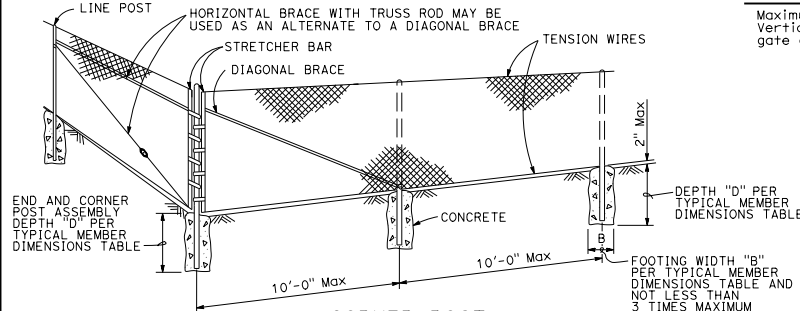
Maximum Gate Width is 12'-0"
Vertical Stay is required in middle of gate greater than 8'-0" in width.



GATE POST

FENCE HEIGHT (Max)	SLATTED	B (in)	D (ft)	ROUND PIPE		
				ROUND OD PIPE	GROUP 1A WEIGHT (lb/ft)	GROUP 1C WEIGHT (lb/ft)
5'-0"	NO	12"	2'-6"	3.50"	7.58	5.71
6'-0"	NO	12"	2'-6"	3.50"	7.58	5.71
8'-0"	NO	12"	3'-0"	3.50"	7.58	5.71
10'-0"	NO	14"	3'-6"	3.50"	7.58	5.71
5'-0"	YES	12"	3'-0"	4.00"	9.12	6.56
6'-0"	YES	14"	3'-6"	4.50"	10.80	-
8'-0"	YES	18"	3'-6"	5.56"	14.60	-
10'-0"	YES	20"	4'-0"	6.63"	19.00	-

Above post dimensions and weights are minimums.
Larger sizes may be used upon approval.



CORNER POST

NOTES:

- The table to the right shows minimum sized posts and braces complying with the specifications. Larger or heavier post and brace sizes may be used upon approval.
- Sections shown in the tables must also comply with the strength requirements and other provisions of the specifications.
- Other sections which comply with the strength requirements and other provisions of the specifications may be used upon approval.
- Options exercised shall be uniform on any one project.
- Offset to be 2'-0" at monument locations, measured at right angles to R/W lines. Taper to achieve offset to be at least 20'-0" long.
- See Standard Plan A85B for Brace, Stretcher Bar, and Truss Tightener Details.

TYPICAL MEMBER DIMENSIONS (See Notes)

FENCE HEIGHT (Max)	SLATTED	B (in)	D (ft)	LINE POSTS				BRACES			
				ROUND PIPE		ROLL FORMED		ROUND PIPE		ROLL FORMED	
				ROUND OD PIPE	WEIGHT (lb/ft)	GROUP 1A WEIGHT (lb/ft)	GROUP 1C WEIGHT (lb/ft)	ROUND OD PIPE	WEIGHT (lb/ft)	GROUP 1A WEIGHT (lb/ft)	GROUP 1C WEIGHT (lb/ft)
						SECTION				SECTION	
5'-0"	NO	8"	2'-6"	1.90"	2.72	2.28	1.875" x 1.625"	1.85	1.90"	2.72	2.28
6'-0"	NO	10"	2'-6"	2.38"	3.66	3.12	1.875" x 1.625"	2.40	2.38"	3.66	3.12
8'-0"	NO	12"	3'-0"	2.88"	5.80	4.64	3.250" x 2.500"	4.50	2.38"	3.66	3.12
10'-0"	NO	14"	3'-6"	3.50"	7.58	5.71	3.250" x 2.500"	4.50	2.88"	5.80	4.64
5'-0"	YES	12"	3'-0"	4.00"	9.12	6.56	N/A	-	2.38"	3.66	3.12
6'-0"	YES	14"	3'-0"	4.50"	10.80	-	N/A	-	2.38"	3.66	3.12
8'-0"	YES	18"	3'-6"	5.56"	14.60	-	N/A	-	2.38"	3.66	3.12
10'-0"	YES	20"	4'-0"	6.63"	19.00	-	N/A	-	2.88"	5.80	4.64

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

CHAIN LINK FENCE

NO SCALE

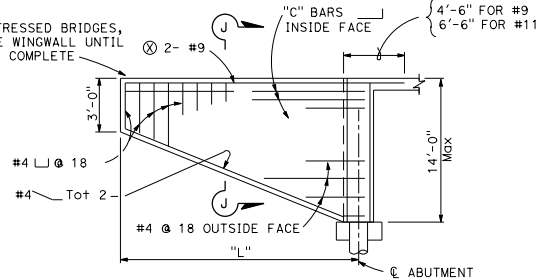
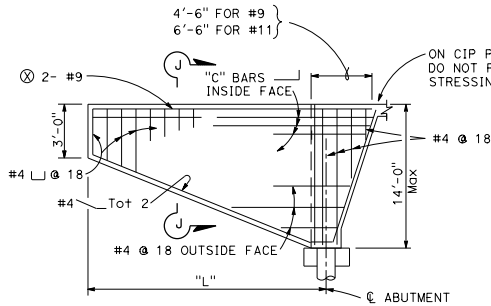
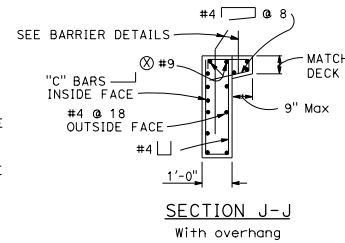
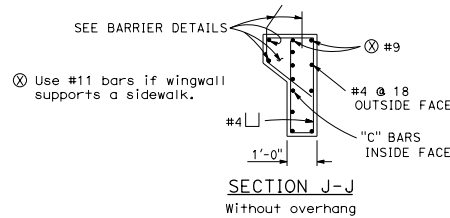
RSP A85 DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN A85
DATED MAY 31, 2018 - PAGE 140 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP A85

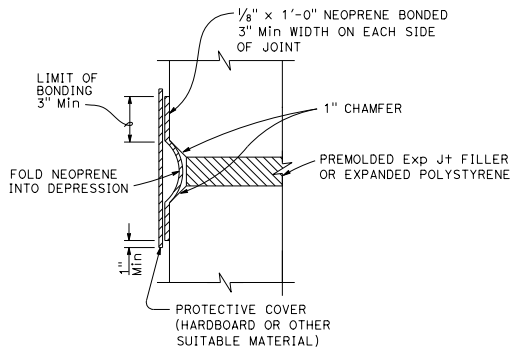
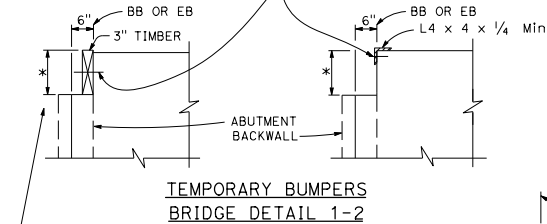
BRIDGE DESIGNATIONS AND ABBREVIATIONS

See Standard Plans A3A, A3B, and A3C for additional or standard abbreviations

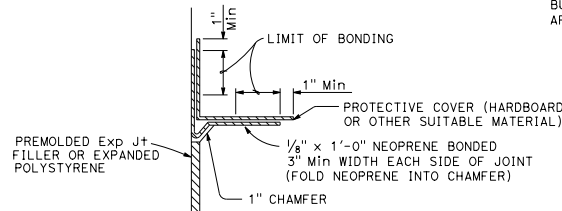
- J Outer, outer left bridge
- K Outer left bridge
- S Outer right bridge
- T Outer, outer right bridge
- RWLOL Retaining Wall Layout Line
- WWLOL Wingwall Layout Line



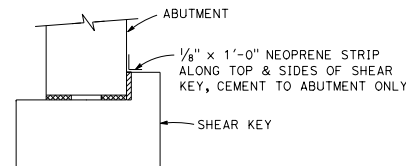
* Depth of paving notch or dimension to abutment backwall construction joint. Varies, see abutment details.



When used on CIP prestressed bridges, do not apply waterstop until stressing is complete.



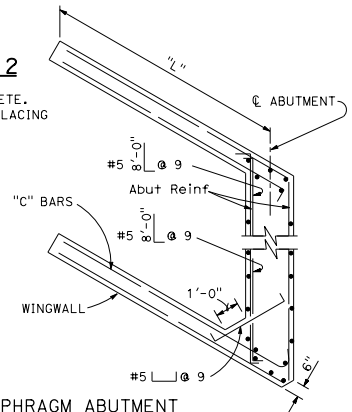
When used on CIP prestressed bridges, do not apply waterstop until stressing is complete.



CORNER DETAIL
FOR SKEW 20° AND LESS

"L"	"C" BARS
12'-0"	#5 @ 9"
14'-0"	#6 @ 9"
16'-0"	#7 @ 9"
18'-0"	#8 @ 9"
20'-0"	#9 @ 9"

CORNER DETAIL
FOR SKEW OVER 20°



STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
BRIDGE DETAILS
NO SCALE

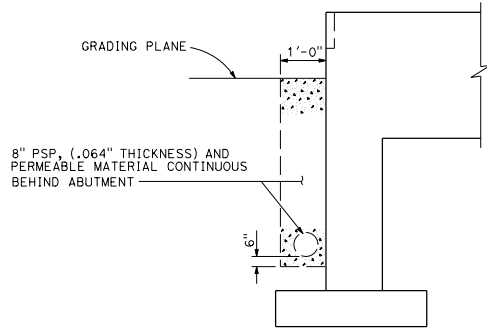
RSP D83B DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN D83B
DATED MAY 31, 2018 - PAGE 318 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP B0-1

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

Peter W. Norbo
REGISTERED CIVIL ENGINEER
October 19, 2018
PLANS APPROVAL DATE
No. C57519
Exp. 12-31-19
CIVIL
STATE OF CALIFORNIA

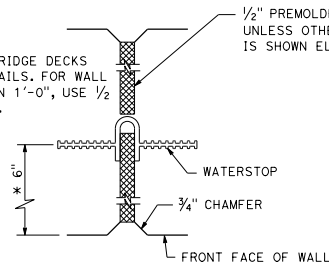
TO ACCOMPANY PLANS DATED _____



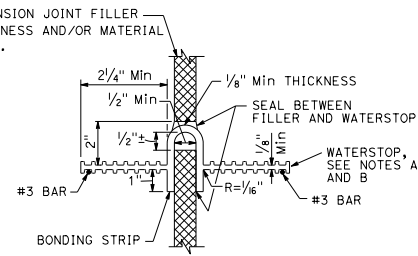
BRIDGE DETAIL 3-5

8" PSP AND PERMEABLE MATERIAL

* FOR PLACEMENT IN BRIDGE DECKS
SEE JOINT SEAL DETAILS. FOR WALL
THICKNESS LESS THAN 1'-0", USE 1/2
THE WALL THICKNESS.



BRIDGE DETAIL 3-4
WALL EXPANSION JOINT

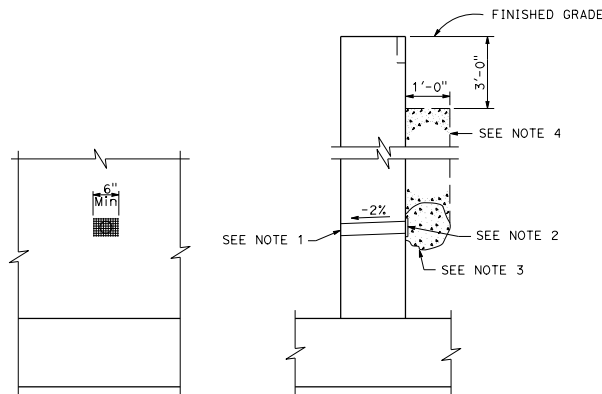


BRIDGE DETAIL 3-6
WATERSTOP

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
<p><i>Gary Wong</i> REGISTERED CIVIL ENGINEER</p> <p>October 15, 2021 PLANS APPROVAL DATE</p> <p>THE STATE OF CALIFORNIA ON ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</p>					
<p>TO ACCOMPANY PLANS DATED _____</p>					

NOTES:

- A. Holes will be permitted in the outer 1/2" of the web for wire, rings, etc. Tie web to #3 reinforcing bars @ 12 maximum intervals to support the waterstop in proper position during concrete placement. Alternative detail may be submitted for approval of the Engineer.
- B. Waterstop to have 5 or more pairs of raised ribs to provide 0.1 square inch minimum rib cross-section area on each half of the waterstop.

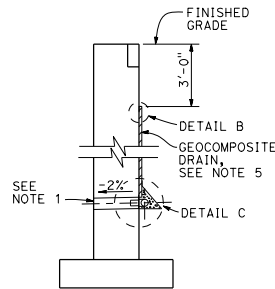


ELEVATION

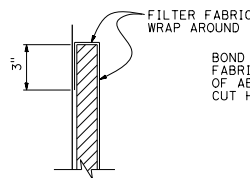
SECTION

BRIDGE DETAIL 3-1

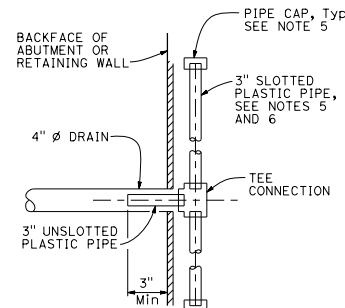
WEEP HOLE, PERVIOUS BACKFILL AND GEOCOMPOSITE DRAIN



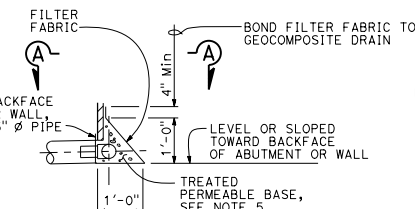
WALL SECTION



DETAIL B

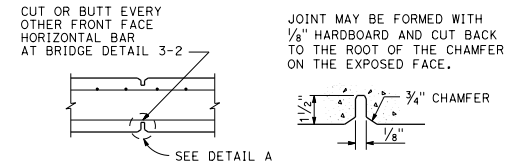


SECTION A-A

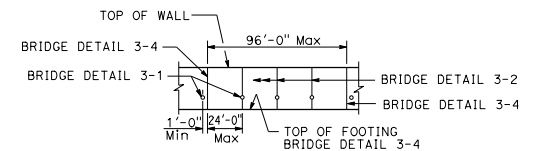


DETAIL C

BRIDGE DETAIL 3-7



SECTION
BRIDGE DETAIL 3-2
WEAKENED PLANES



BRIDGE DETAIL 3-3
**WALL EXPANSION JOINTS
AND WEAKENED PLANES**

NOTES:

- 4" ϕ Drains at intermediate sag points and 25'-0" maximum center to center. For walls adjacent to sidewalks or curbs, provide 4" plastic pipe under the sidewalk to discharge thru curb face. Exposed wall drains shall be located 3'± above finished grade.
- 6" square aluminum or galvanized steel wire 1/4" mesh hardware cloth, minimum wire diameter 0.025". Anchor firmly to backface.
- One cubic foot pervious backfill material in a nonwoven filter fabric, securely tied.
- Pervious backfill material continuous behind retaining wall or abutment.
- Geocomposite drain, treated permeable base and 3" ϕ slotted plastic pipe continuous behind retaining wall or abutment. Cap ends of pipe. Provide "Tee" connection at each 4" ϕ drain.
- Connect the low end of plastic pipe to the main outlet pipe as applicable.

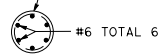
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
BRIDGE DETAILS
NO SCALE

RSP BO-3 DATED OCTOBER 15, 2021 SUPERSEDES STANDARD PLAN BO-3
DATED MAY 31, 2018 - PAGE 319 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP BO-3

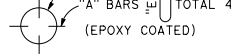
2018 REVISED STANDARD PLAN RSP BO-3

CLASS 90 = PP14 x 0.375
CLASS 140 = PP14 x 0.438



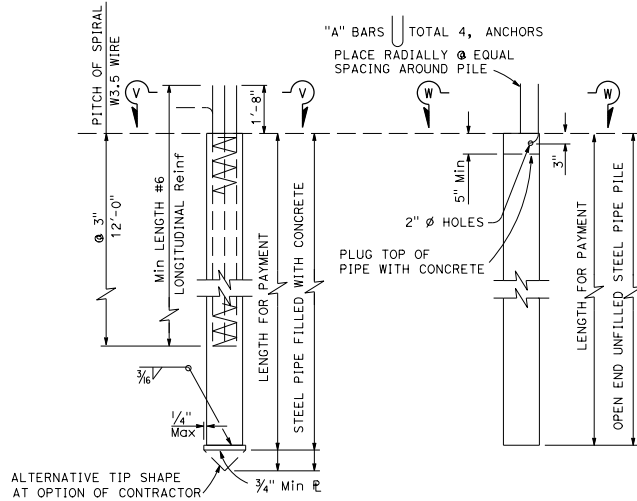
SECTION V-V

CLASS 90 = PP14 x 0.375
CLASS 140 = PP14 x 0.438

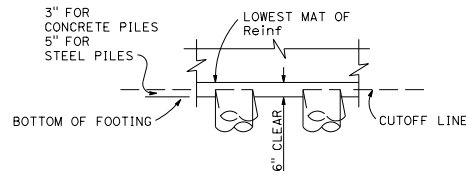


SECTION W-W

PP = Steel pipe pile



ALTERNATIVE "V"

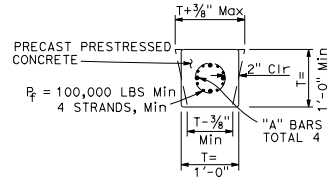


ALTERNATIVE "W"

PILE EMBEDMENT

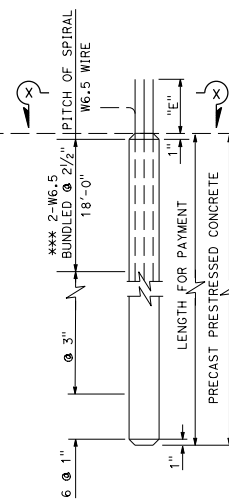
	REQUIRED NOMINAL RESISTANCE (TENSION) *	
	60 kips OR LESS	GREATER THAN 60 kips
"A" BARS	#6	#8
"E" DIMENSION	1'-8"	2'-8"

* See Pile Data Table on the Project Plans for Nominal Resistance (Tension) Requirements



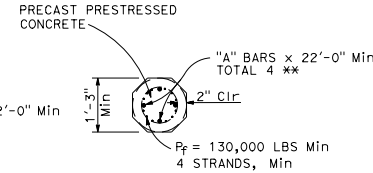
SECTION X-X

** To be in place when pile is cast

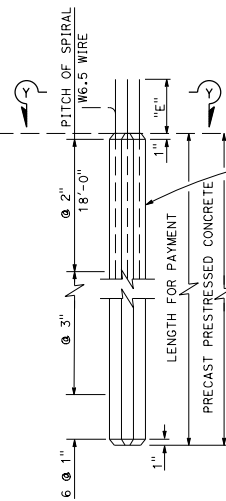


ALTERNATIVE "X"

*** W11.0 at 2" may be substituted



SECTION Y-Y



ALTERNATIVE "Y"

NOTES:

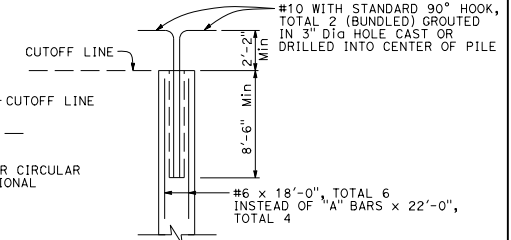
- Details are the same for both Class 90 and Class 140 piles unless noted otherwise.
- At the Contractor's option, alternative steel pipe with at least the diameter and wall thickness shown on these plans may be used. The diameter shall not exceed 1'-6".
- Pile reinforcement and steel pile anchor bars extending into a footing shall be hooked as required to provide clearance to top of footing. Piles shall be extended only with details shown on the Project Plans.
- 2" clearance to spiral reinforcement shall be maintained if section used is larger than the minimum section shown.
- Maximum cutoff length at the top of the Alternative "X" and Alternative "Y" Piles is 10'-0".
- For longitudinal reinforcement and prestressing for anchor piles and load test piles, see "Load Test Pile Details (2)", Standard Plan B2-10.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL SHEETS

REGISTERED CIVIL ENGINEER
October 19, 2018
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.

Amir M. Malek
No. C62397
Exp. 9-30-19
CIVIL
STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED



ALTERNATIVE PILE ANCHOR FOR PRESTRESSED PILES

DESIGN NOTES

PRECAST PRESTRESSED PILES

P_p = Prestressing force (after losses) If section used is larger than the minimum section shown, then " P_p " shall provide 700 psi minimum.
Concrete Strength: f'_c @ 28 days= 6,000 psi (Alternative "X")
5,000 psi (Alternative "Y")
 f'_c @ transfer= 4,000 psi

REINFORCED CONCRETE

f'_c = 4,000 psi
 f_y = 60,000 psi

STEEL PIPE PILE

F_y (Minimum yield strength) = 45,000 psi
 F_u (Minimum tensile strength) = 66,000 psi

DESIGN CAPACITY

Class 90

Compression = 90 kip (Service state)
= 180 kip (Nominal axial structural resistance)
Tension = 36 kip (Service state)
= 90 kip (Nominal axial structural resistance)

Class 140

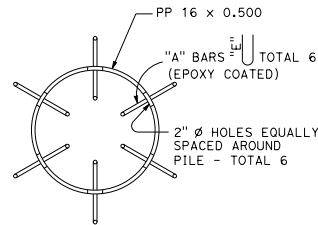
Compression = 140 kip (Service state)
= 280 kip (Nominal axial structural resistance)
Tension = 56 kip (Service state)
= 140 kip (Nominal axial structural resistance)

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

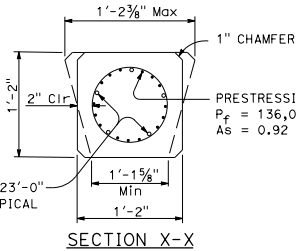
PILE DETAILS CLASS 90 AND CLASS 140 NO SCALE

RSP B2-5 DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN B2-5
DATED MAY 31, 2018 - PAGE 323 OF THE STANDARD PLANS BOOK DATED 2018.

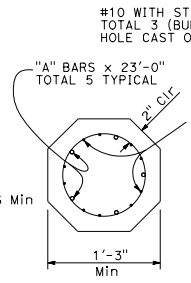
REVISED STANDARD PLAN RSP B2-5



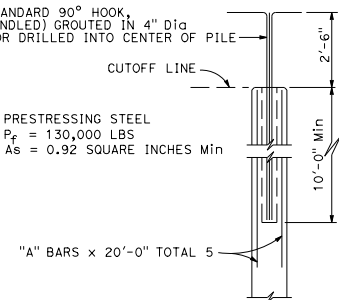
SECTION W-W
PP = Steel pipe pile



SECTION X-X



SECTION Y-Y



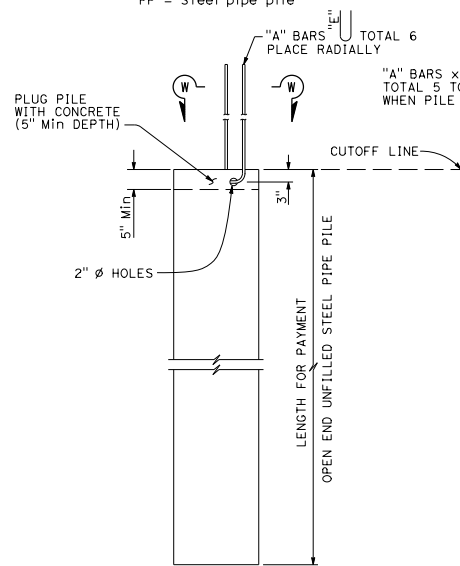
ALTERNATIVE PILE ANCHOR FOR PRESTRESSED PILE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL SHEETS

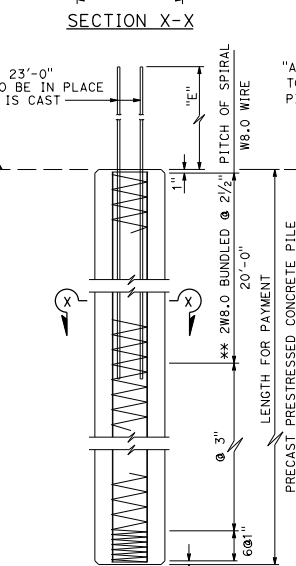
REGISTERED CIVIL ENGINEER
October 19, 2018
PLANS APPROVAL DATE
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

Amir M. Malek
No. C62397
Exp. 9-30-19
CIVIL
STATE OF CALIFORNIA

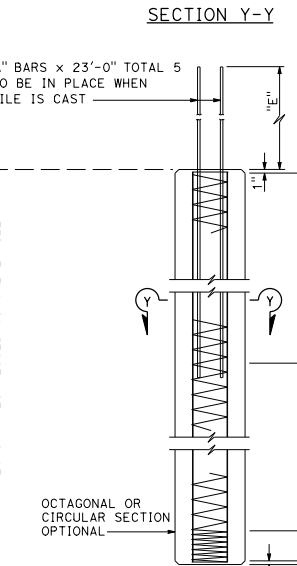
TO ACCOMPANY PLANS DATED _____



ALTERNATIVE "W"



ALTERNATIVE "X"



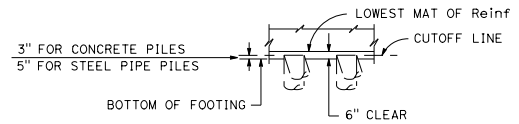
ALTERNATIVE "Y"

NOTES:

- Pile reinforcement extending into footing shall be hooked as required to provide clearance to top of footing. Piles shall be extended only with details shown on the Project Plans.
- At the Contractor's option, alternative steel pipe with at least the diameter and wall thickness shown on these plans may be used. The diameter shall not exceed 1'-6".
- Maximum cut-off length at the top of the Alternative "X" and Alternative "Y" piles is 10'-0".
- 2" clearance to spiral reinforcement shall be maintained if section used is larger than the minimum section shown.

	REQUIRED NOMINAL RESISTANCE (TENSION) *	
	75 kips OR LESS	GREATER THAN 75 kips
"A" BARS	#6	#8
"E" DIMENSION	1'-8"	2'-8"

* See Pile Data Table on the Project Plans for Nominal Resistance (Tension) Requirements



DESIGN NOTES:

DESIGN CAPACITY

- Compression = 200 kip (Service state)
- = 400 kip (Nominal axial structural resistance)
- Tension = 80 kip (Service state)
- = 200 kip (Nominal axial structural resistance)

REINFORCED CONCRETE

- $f'_c = 4,000$ psi
- $f_y = 60,000$ psi

PRECAST PRESTRESSED PILES

- P_f = Prestress Force (After losses)
- Concrete Strength f'_c @ 28 days = 7,000 psi
- f'_c @ transfer = 4,000 psi

STEEL PIPE PILE

- F_y (minimum yield strength) = 45,000 psi
- F_u (minimum tensile strength) = 66,000 psi

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

PILE DETAILS CLASS 200

NO SCALE

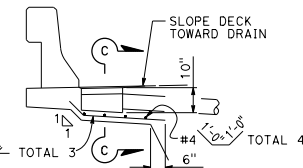
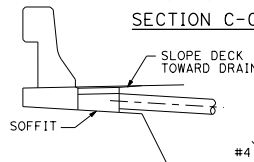
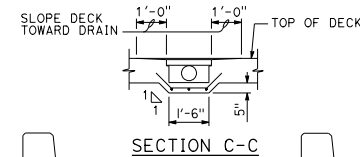
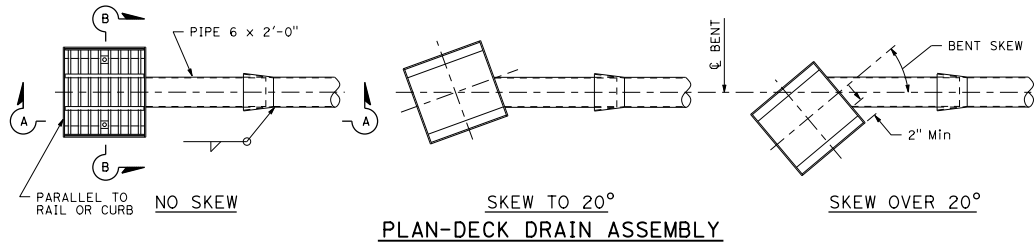
RSP B2-8 DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN B2-8
DATED MAY 31, 2018 - PAGE 324 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP B2-8

2018 REVISED STANDARD PLAN RSP B2-8

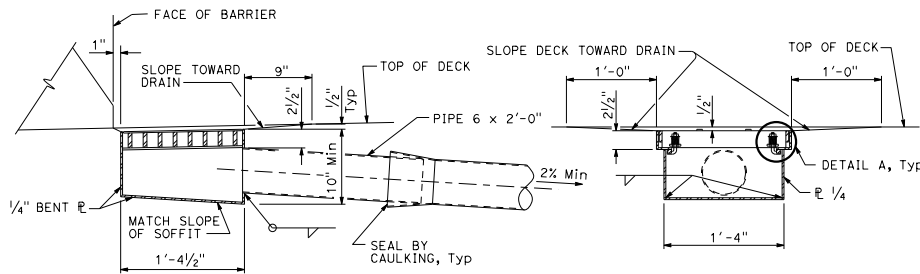
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL No. SHEETS
<p>October 18, 2019 PLANS APPROVAL DATE</p> <p>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</p>				
<p>REGISTERED CIVIL ENGINEER</p> <p>C.J. Sims No. C46471 Exp. 6-30-21 CIVIL STATE OF CALIFORNIA</p>				

TO ACCOMPANY PLANS DATED _____



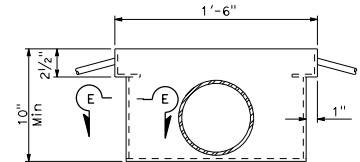
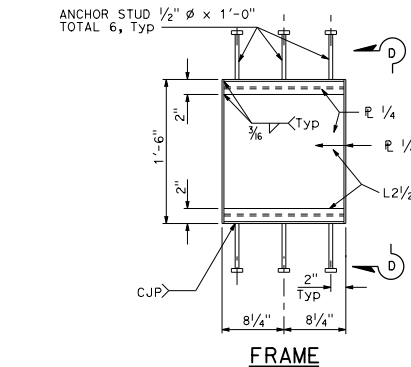
DETAIL 7-9
DRAIN FLUSH
WITH OVERHANG
ELEVATION-DECK DRAIN LOCATIONS

DETAIL 7-10
DRAIN WITH
HAUNCHED OVERHANG

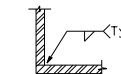


SECTION A-A
DECK DRAIN ASSEMBLY DETAIL

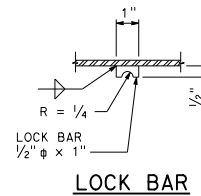
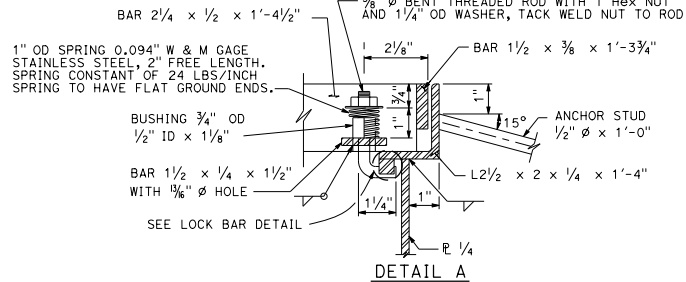
SECTION B-B



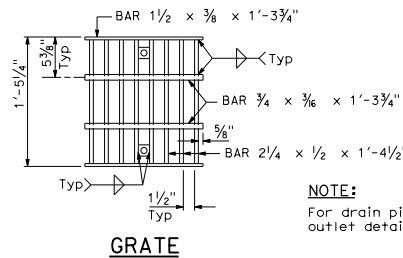
VIEW D-D



SECTION E-E



LOCK BAR



NOTE:
For drain pipe alignment, sleeve connection, drain outlet details and notes, see Standard Plan B7-6.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

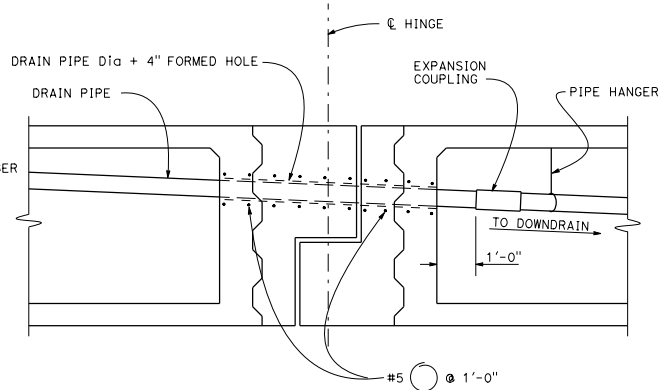
DECK DRAIN
TYPE D-3

NO SCALE

RSP B7-7 DATED OCTOBER 18, 2019 SUPERSEDES STANDARD PLAN B7-7
DATED MAY 31, 2018 - PAGE 347 OF THE STANDARD PLANS BOOK DATED 2018.

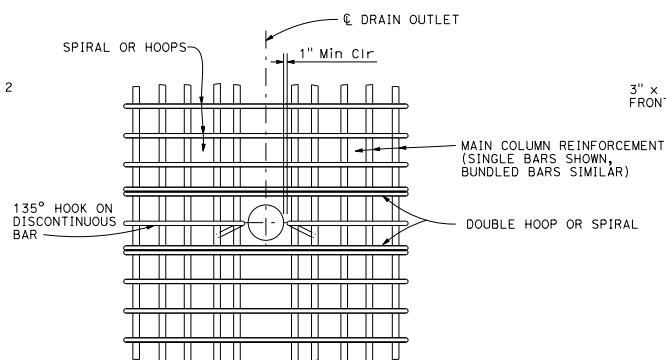
REVISED STANDARD PLAN RSP B7-7

2018 REVISED STANDARD PLAN RSP B7-7



DECK DRAIN PIPE DETAIL

1. Pipe casing OD = Drain pipe Dia + 4"
(1/4" Min wall thickness)
2. Unless otherwise shown on Project Plans, casing shall extend to the greater of 5'-0" beyond the end of approach slab or 20'-0" beyond the back of abutment.



Adjust spacing of main column reinforcement to clear drain outlet.

SMOOTH FINISH

CONCRETE BARRIER RAILING

SECTION

ELEVATION A-A

SCUPPER DETAIL

3" x 1'-0" OPENING IN FRONT FACE OF BARRIER

4" *

1'-1" *

* At exterior face of barrier

* At exterior face of barrier

* At exterior face of barrier

1. For "a" dimension and pipe diameter, see Project Plans.
2. Expansion coupling with 4 bolts shown.
Coupling with a greater number of bolts allowed.
3. Adjust dimension to suit coupler end ring bolt circle.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

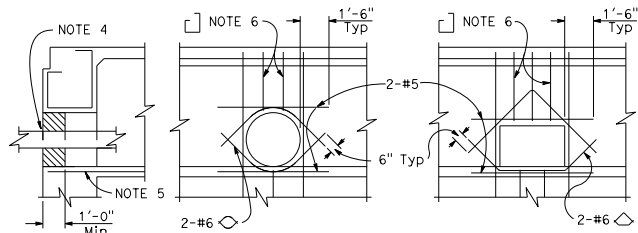
DECK DRAINAGE DETAILS

NO SCALE

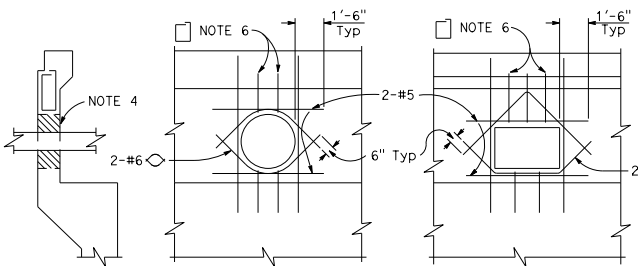
RSP B7-8 DATED OCTOBER 18, 2019 SUPERSEDES STANDARD PLAN B7-8
DATED MAY 31, 2018 - PAGE 348 OF THE STANDARD PLANS BOOK DATED 2018.

7-11-19

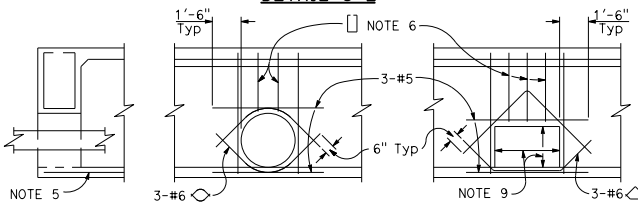
ABUTMENT DIAPHRAGMS



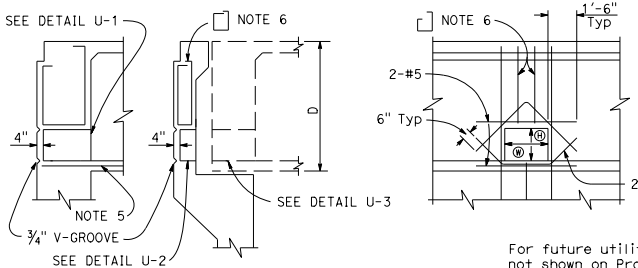
DETAIL U-1



DETAIL U-2



DETAIL U-3

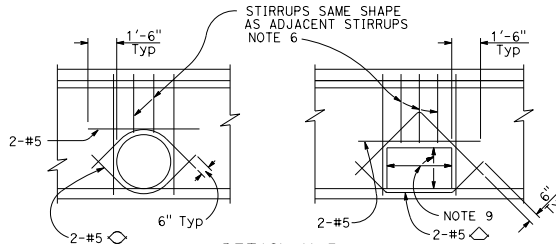


DETAIL U-4
(FOR FUTURE UTILITY OPENING)

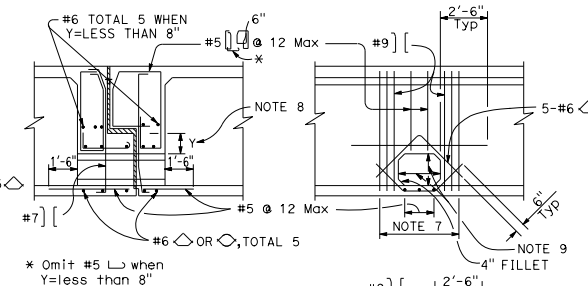
For future utility opening dimensions not shown on Project Plans use:

- (H) = $\frac{1}{3}$ D or 1'-6" minimum, whichever is greater.
(W) = $\frac{1}{3}$ D or 2'-0" minimum, whichever is greater.

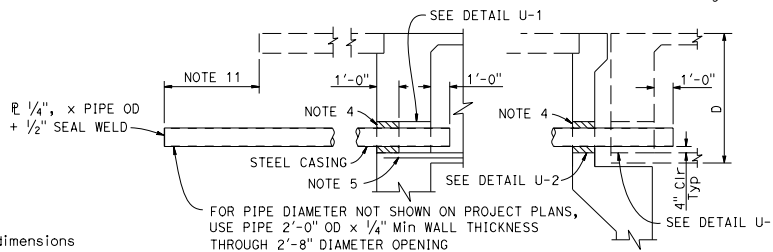
INTERMEDIATE DIAPHRAGMS AND HINGES



DETAIL U-5
AT INTERMEDIATE DIAPHRAGM



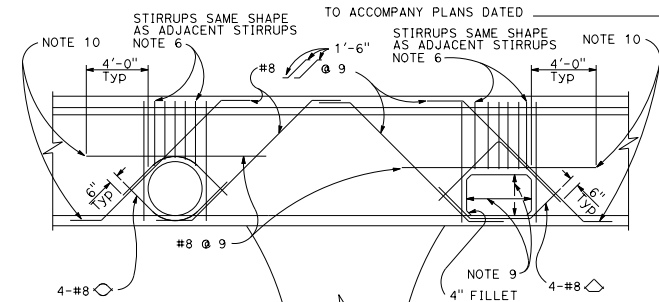
DETAIL U-6
AT HINGE



DETAIL U-8

(FOR FUTURE UTILITY PROVISIONS UNDER APPROACH SLAB)

BENT CAPS



DETAIL U-7
NEAR OR BETWEEN COLUMNS

NOTES:

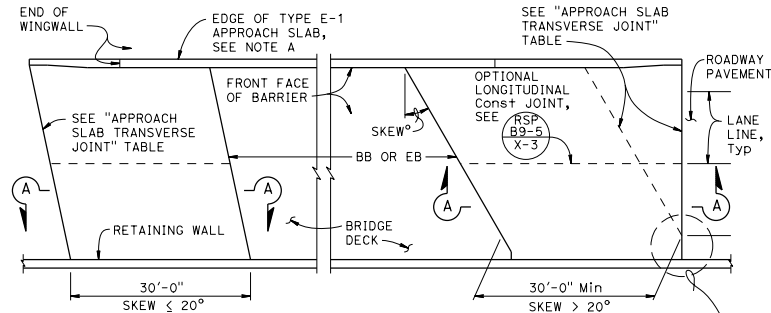
- The exact location, elevation, size, and direction of openings shall be in accordance with the Project Plans and as directed by the Engineer.
- Girders not shown. See Project Plans.
- All reinforcement detailed to be placed in addition to reinforcement shown on Project Plans.
- Seal utilities at abutments with concrete or mortar, after tightly wrapping utility with 2 layers of 15 LBS building paper. If structure is prestressed, seal to be placed after stressing is completed.
- Main reinforcement to clear opening.
- Reinforcement to be same bar size and $\frac{2}{3}$ the spacing of adjacent reinforcement shown on Project Plans.
- Replace each set of 2-#9 bars cut off by opening. Place $\frac{1}{2}$ on each side of opening.
- When "Y" is less than 8", extend top of opening to bottom of bearing seat elevation.
- For future utility opening dimensions, see Project Plans and Detail U-4.
- When there is insufficient space to place reinforcement as shown, hook reinforcement into exterior girder.
- Unless otherwise shown on Project Plans, casing shall extend to the greater of 5'-0" beyond the end of the approach slab, 5'-0" beyond the end of the adjacent wingwall, 20'-0" beyond the back of the abutment, or to the State right-of-way limit.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**UTILITY OPENING
BOX GIRDER**
NO SCALE

RSP B7-10 DATED APRIL 19, 2019 SUPERSEDES STANDARD PLAN B7-10
DATED MAY 31, 2018 - PAGE 349 OF THE STANDARD PLANS BOOK DATED 2018.

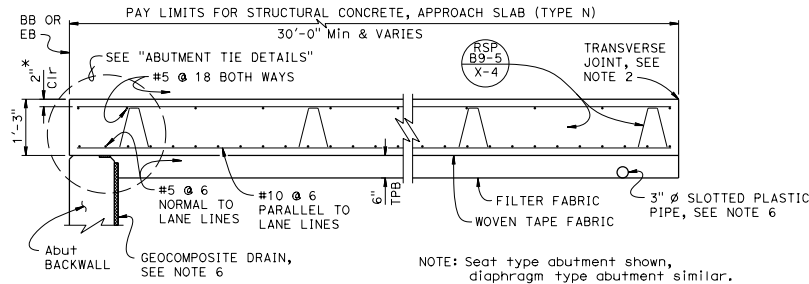
REVISED STANDARD PLAN RSP B7-10

2018 REVISED STANDARD PLAN RSP B7-10

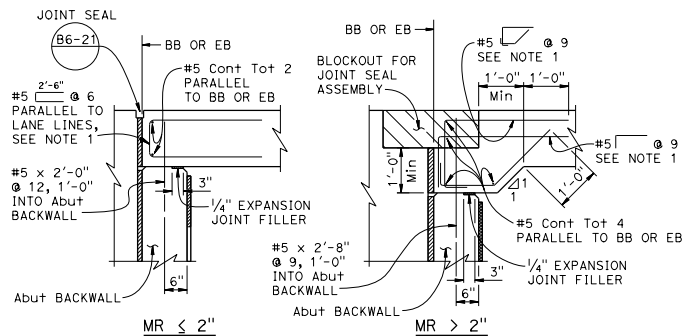


NOTE A:
Type E-1 Approach Slab shown, see RSP B9-5 X-2 for Type E-2 details.

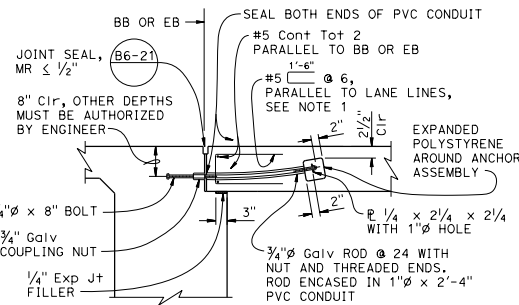
PLAN



SECTION A-A



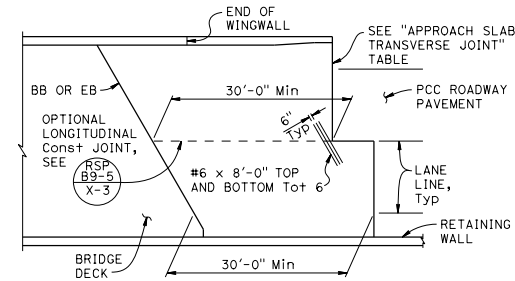
SEAT TYPE ABUTMENT



DIAPHRAGM TYPE ABUTMENT

ABUTMENT TIE DETAILS

APPROACH SLAB TRANSVERSE JOINT		
APPROACH SKEW, x	WITH HMA ROADWAY PAVEMENT	WITH PCC ROADWAY PAVEMENT
$x < 20^\circ$	PARALLEL TO BB OR EB	PARALLEL TO BB OR EB
$20^\circ < x < 45^\circ$	PARALLEL TO BB OR EB	STAGGER AT LANE LINES 24' TO 36' APART, SEE "END STAGGER DETAIL"
$x > 45^\circ$	PARALLEL TO BB OR EB	STAGGER AT EACH LANE LINE, SEE "END STAGGER DETAIL"



END STAGGER DETAIL

LEGEND:

* - All approach slab reinforcement shall be epoxy coated and minimum top mat cover $2\frac{1}{2}$ " in Freeze-Thaw Area.

NOTES:

- For $MR \leq 2"$, adjust reinforcement to clear sawcut for sealed joint. For $MR > 2"$, reinforcement must be normal to BB or EB and spaced to avoid joint seal assembly anchorage.
- Transverse Joint must be a minimum of 5'-0" from an existing or constructed weakened plane joint in approach PCC roadway pavement.
- Place dowels into the adjacent PCC pavement along the Transverse Joint, refer to Standard Plans P10 and P30.
- At the Contractor's option, approach slab transverse reinforcement may be placed parallel to BB or EB. Spacing of transverse reinforcement is measured along roadway.
- For details not shown, refer to Revised Standard Plan RSP B9-5.
- For structure approach drainage details, refer to Standard Plan B9-6.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

STRUCTURE APPROACH TYPE N (30)

NO SCALE

RSP B9-1 DATED OCTOBER 15, 2021 SUPERSEDES STANDARD PLAN B9-1
DATED MAY 31, 2018 - PAGE 352 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP B9-1

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

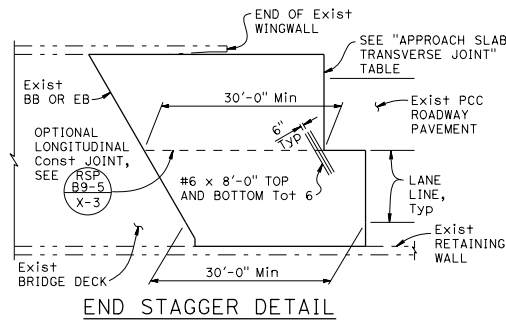
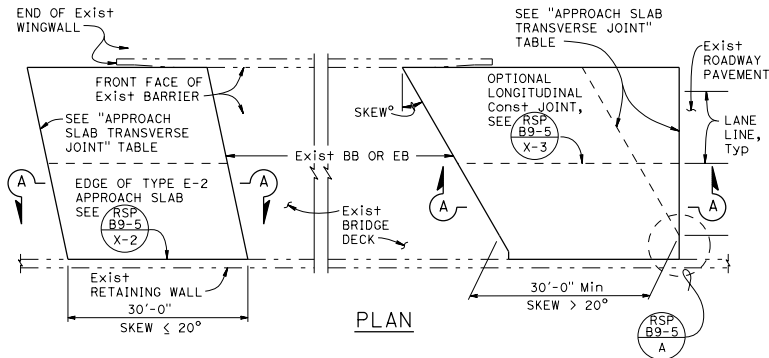
REGISTERED CIVIL ENGINEER

October 15, 2021
PLANS APPROVAL DATE

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TO ACCOMPANY PLANS DATED _____

Daniel Sessions
No. 77723
Exp. 6-30-23
CIVIL
STATE OF CALIFORNIA



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL SHEETS

REGISTERED CIVIL ENGINEER

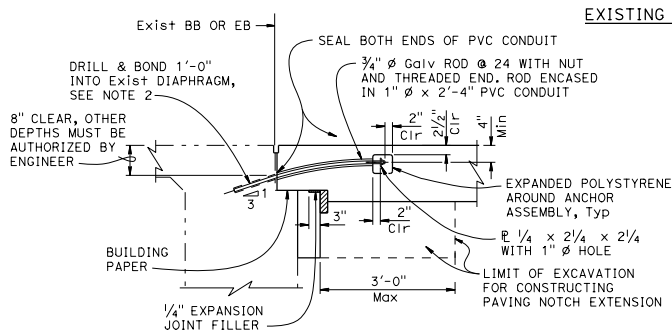
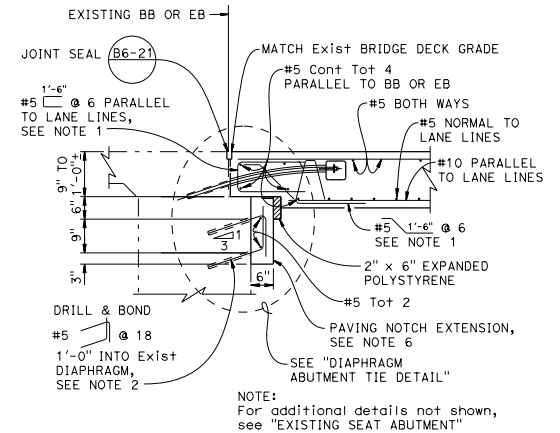
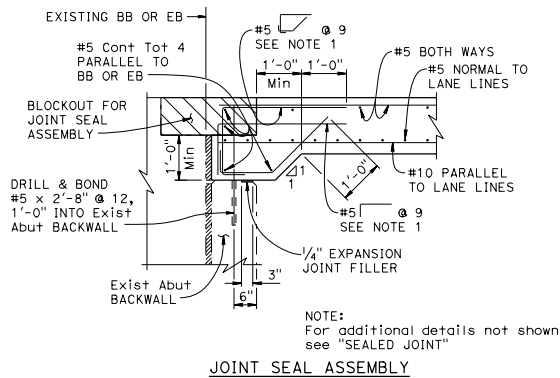
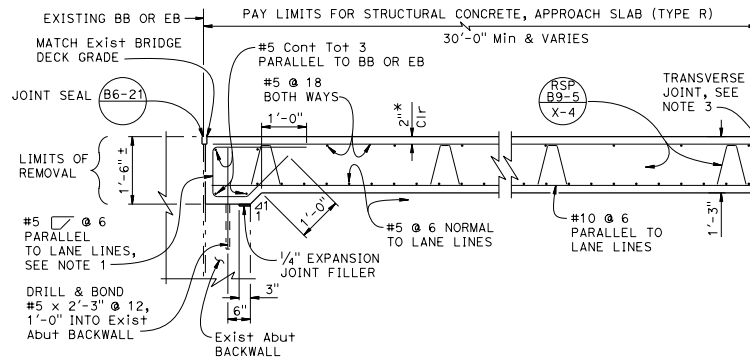
October 15, 2021

PLANS APPROVAL DATE

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TO ACCOMPANY PLANS DATED

APPROACH SLAB TRANSVERSE JOINT		
APPROACH SKEW, x	WITH HMA ROADWAY PAVEMENT	WITH PCC ROADWAY PAVEMENT
x < 20°	PARALLEL TO BB OR EB	PARALLEL TO BB OR EB
20° < x < 45°	PARALLEL TO BB OR EB	STAGGER AT LANE LINES 24' TO 36' APART, SEE "END STAGGER DETAIL"
x > 45°	PARALLEL TO BB OR EB	STAGGER AT EACH LANE LINE, SEE "END STAGGER DETAIL"



EXISTING SEAT ABUTMENT

SECTION A-A

NOTES:

- For MR ≤ 2", adjust reinforcement to clear sawcut for sealed joint. For MR > 2", reinforcement must be normal to BB or EB and spaced to avoid joint seal assembly anchorage.
- Space reinforcement and abutment ties to avoid existing prestressing anchorages and other reinforcement in abutment, as needed.
- Transverse Joint must be a minimum of 5'-0" from an existing or constructed weakened plane joint in approach PCC roadway pavement.
- Place dowels into the adjacent PCC pavement along the Transverse Joint, refer to Standard Plans P10 and P30.
- At the Contractor's option, approach slab transverse reinforcement may be placed parallel to BB or EB. Spacing of transverse reinforcement is measured along CL roadway.
- Paving notch extension is required if existing diaphragm paving notch is < 6".
- For details not shown, refer to Revised Standard Plan RSP B9-5.

LEGEND:

--- Indicates Existing Structure

* - All approach slab reinforcement shall be epoxy coated and top mat cover 2 1/2" clear in Freeze-Thaw Area.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

STRUCTURE APPROACH TYPE R (30)

NO SCALE

RSP B9-2 DATED OCTOBER 15, 2021 SUPERSEDES RSP B9-2 DATED APRIL 19, 2019 AND STANDARD PLAN B9-2 DATED MAY 31, 2018 - PAGE 353 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP B9-2

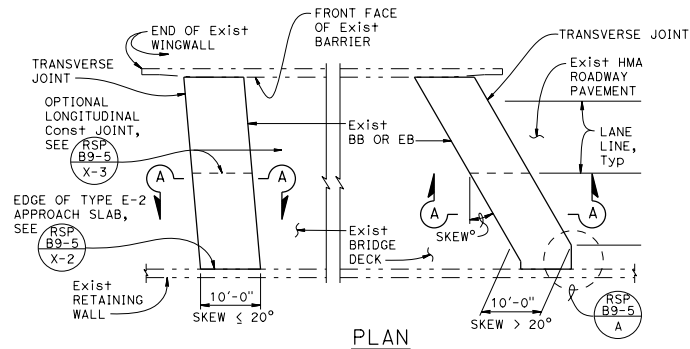
LEGEND:

--- Indicates Existing Structure

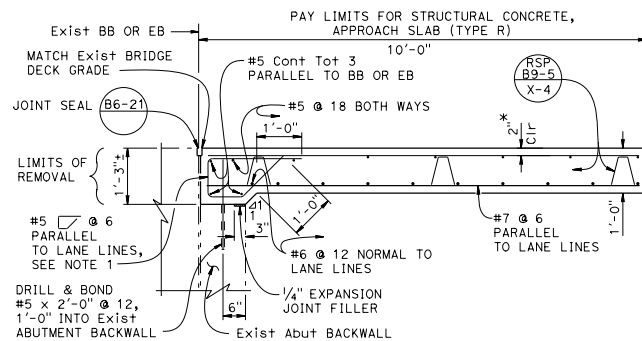
* - All approach slab reinforcement shall be epoxy coated and top mat cover $2\frac{1}{2}$ " clear in Freeze-Thaw Area.

NOTES:

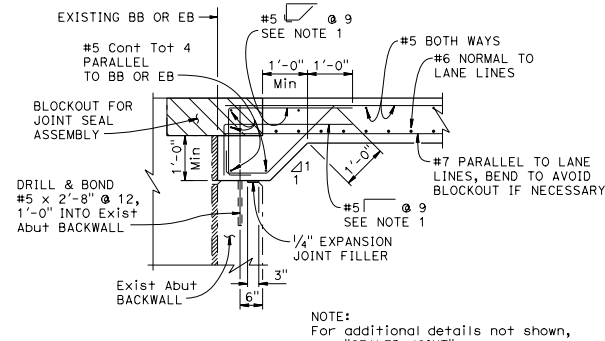
1. For $MR \leq 2'$, adjust reinforcement to clear sawcut for sealed joint. For $MR > 2'$, reinforcement must be normal to BB or EB and spaced to avoid joint seal assembly anchorage.
2. Space reinforcement and abutment ties to avoid existing prestressing anchorages and other reinforcement in abutment, as needed.
3. Place dowels into the adjacent PCC pavement along the Transverse Joint, refer to Standard Plans P10 and P30.
4. At the Contractor's option, approach slab transverse reinforcement may be placed parallel to BB or EB. Spacing of transverse reinforcement is measured along ℓ roadway.
5. Paving notch extension is required if existing diaphragm paving notch is $< 6"$.
6. For details not shown, refer to Revised Standard Plan RSP B9-5.



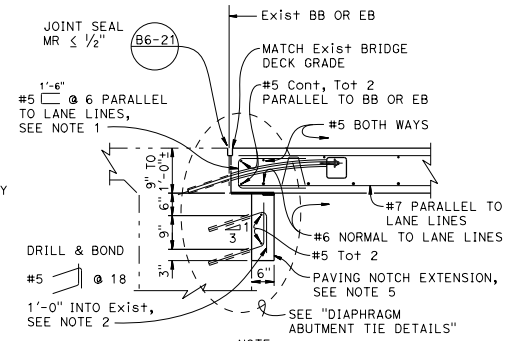
PLAN



SEALED JOINT



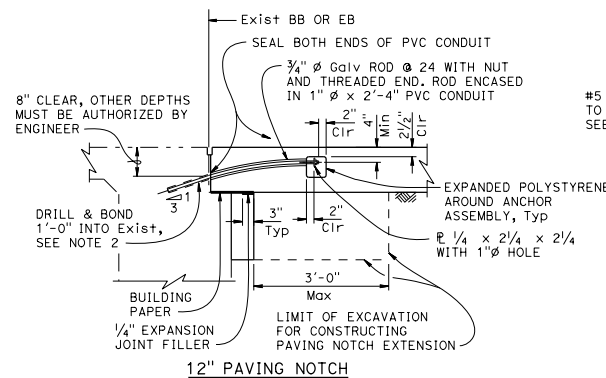
JOINT SEAL ASSEMBLY



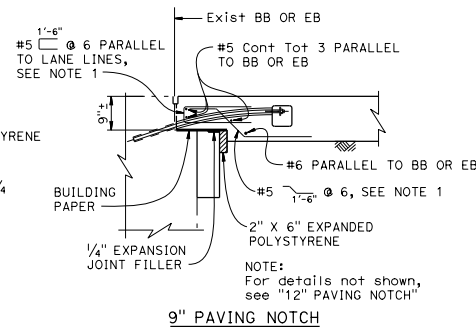
EXISTING DIAPHRAGM ABUTMENT

EXISTING SEAT ABUTMENT

SECTION A-A



DIAPHRAGM ABUTMENT TIE DETAILS



9" PAVING NOTCH

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**STRUCTURE APPROACH
TYPE R (10)**
NO SCALE

RSP B9-3 DATED OCTOBER 15, 2021 SUPERSEDES STANDARD PLAN B9-3
DATED MAY 31, 2018 - PAGE 354 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP B9-3

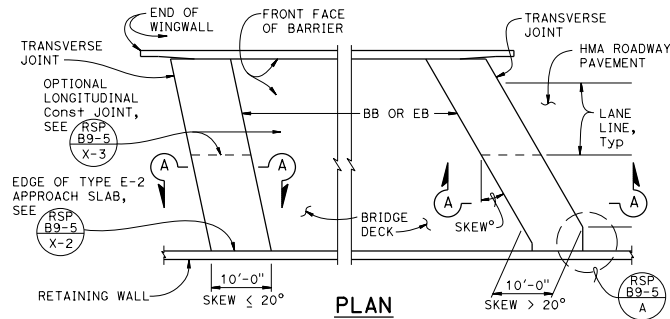
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER

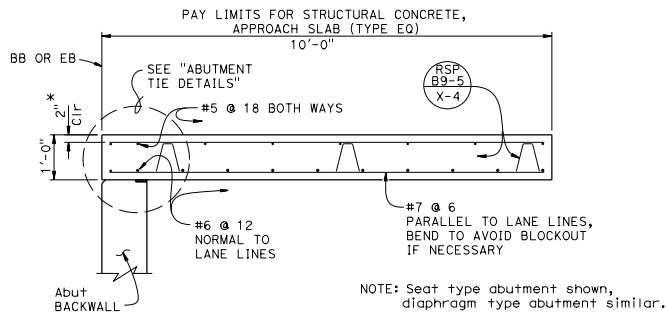
October 15, 2021
PLANS APPROVAL DATE

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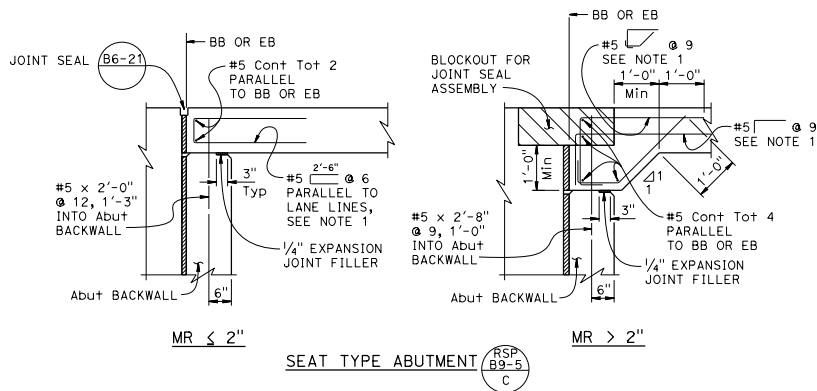
TO ACCOMPANY PLANS DATED _____



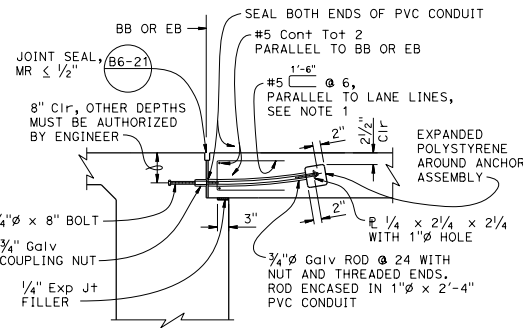
PLAN



SECTION A-A



ABUTMENT TIE DETAILS



DIAPHRAGM TYPE ABUTMENT

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
<p>REGISTERED CIVIL ENGINEER</p> <p>October 15, 2021</p> <p>PLANS APPROVAL DATE</p> <p>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.</p>					

TO ACCOMPANY PLANS DATED _____

LEGEND:

* - All approach slab reinforcement shall be epoxy coated and minimum top mat cover 2 1/2" in Freeze-Thaw Area.

NOTES:

1. For $MR \leq 2''$, adjust reinforcement to clear sawcut for sealed joint. For $MR > 2''$, reinforcement must be normal to BB or EB and spaced to avoid joint seal assembly anchorage.
2. Place dowels into the adjacent PCC pavement along the Transverse Joint, refer to Standard Plans P10 and P30.
3. At the Contractor's option, approach slab transverse reinforcement may be placed parallel to BB or EB. Spacing of transverse reinforcement is measured along \perp roadway.
4. For details not shown, refer to Revised Standard Plan RSP B9-5.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**STRUCTURE APPROACH
TYPE EQ (10)**
NO SCALE

RSP B9-4 DATED OCTOBER 15, 2021 SUPERSEDES STANDARD PLAN B9-4
DATED MAY 31, 2018 - PAGE 355 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP B9-4

2018 REVISED STANDARD PLAN RSP B9-4

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL SHEETS

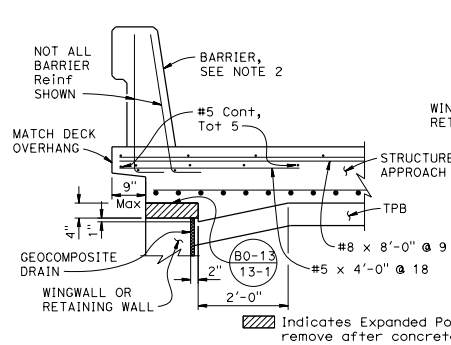
REGISTERED CIVIL ENGINEER

October 15, 2021

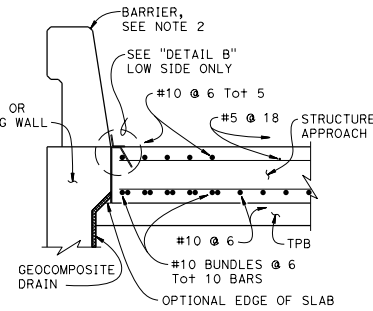
PLANS APPROVAL DATE

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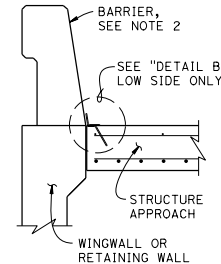
TO ACCOMPANY PLANS DATED _____



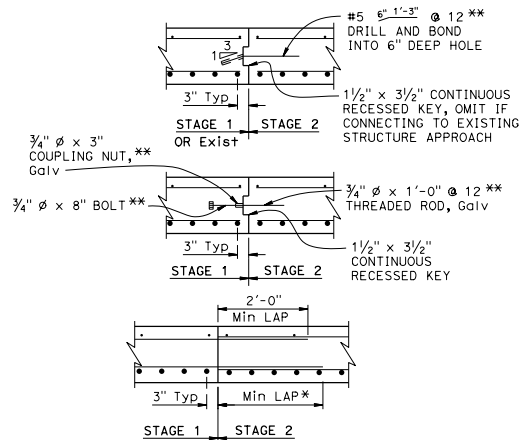
DETAIL X-1
TYPE E-1



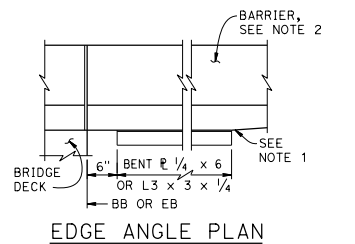
DETAIL X-2
TYPE E-2



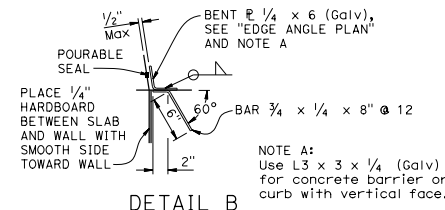
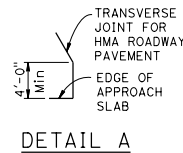
DETAIL X-2
TYPE R (10) AND EQ



DETAIL X-3
LONGITUDINAL CONSTRUCTION
JOINT ALTERNATIVES



DETAIL X-4
BAR CHAIR DETAIL

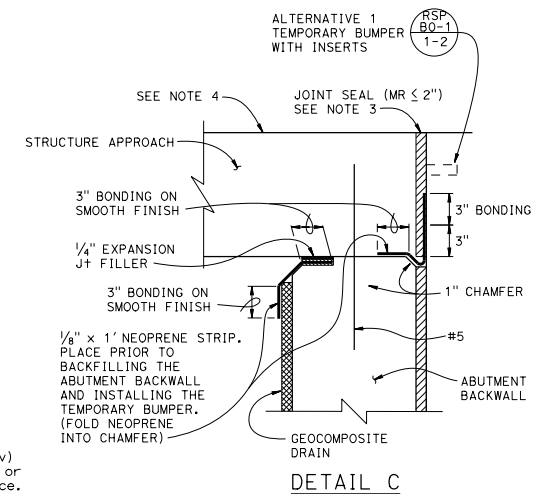


NOTES:

1. End the plate or edge angle at beginning of barrier transition, end of wingwall or end of structure approach as applicable.
2. Solid concrete barrier shown, details similar for all concrete and standard post-beam barriers.
3. Joint protection details shown for MR ≤ 2". Details similar when joint seal assembly is required.
4. Polyester concrete shall be placed across approach slab to match bridge deck protection in Freeze-Thaw Area.

DESIGN NOTES

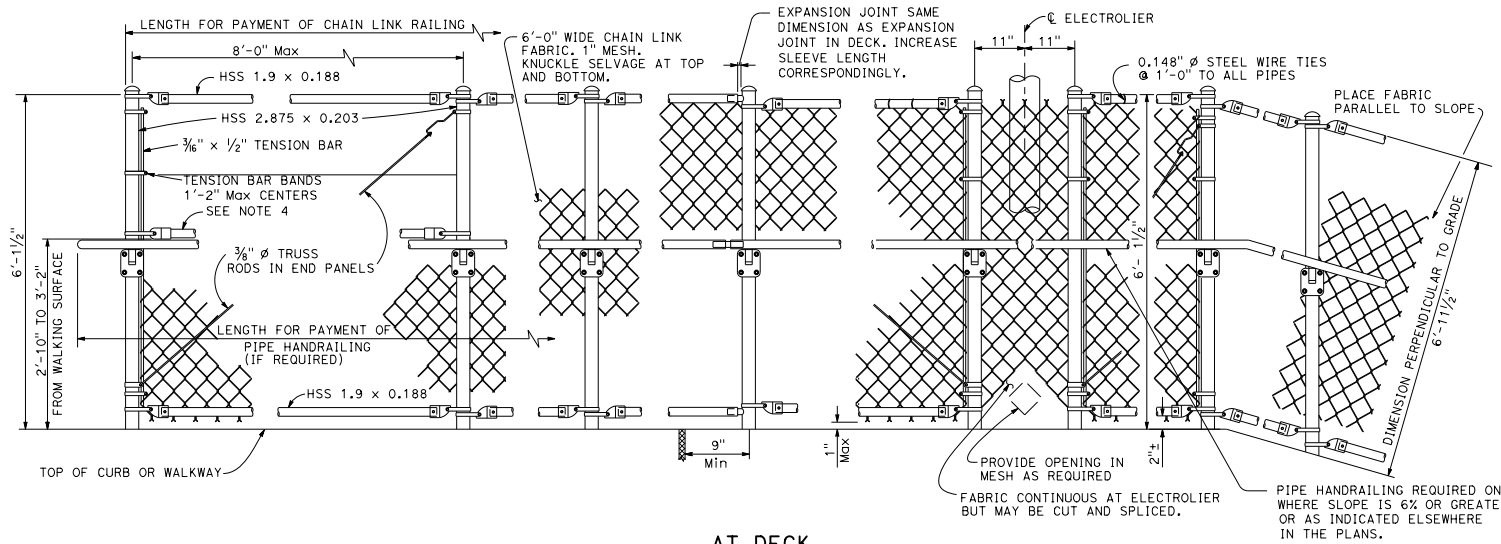
- DESIGN: AASHTO LRFD Bridge Design Specifications, 2012 Edition with Caltrans Amendments, preface dated January 2014
- LIMIT STATES: Service I, Strength I & II, Extreme II and Fatigue I (Y_{FAT} = 1.0)
- DEAD LOAD: Includes 35 psf for future wearing surface
- LIVE LOAD: HL93 and permit design load
Equivalent strip width method: W₁ = 12 ft
Slab span: L₁ = 24.5 ft (30 ft Approach Slab)
Slab span: L₁ = 7.83 ft (10 ft Approach Slab)
- REINFORCED CONCRETE:
f_y = 60 ksi
f_c = 3.6 ksi
n = 8



STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**STRUCTURE APPROACH
SLAB DETAILS**
NO SCALE

RSP B9-5 DATED OCTOBER 15, 2021 SUPERSEDES STANDARD PLAN B9-5
DATED MAY 31, 2018 - PAGE 356 OF THE STANDARD PLANS BOOK DATED 2018.

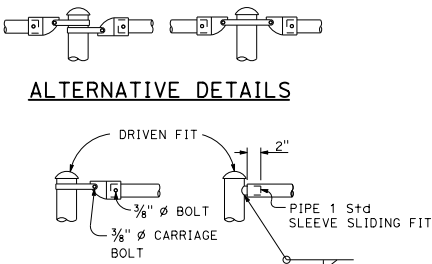
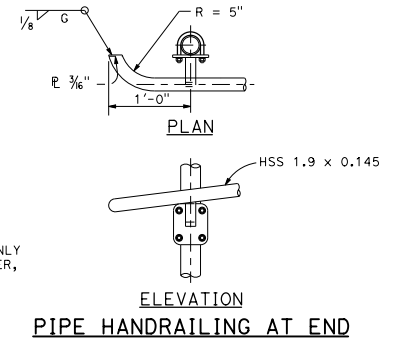
REVISED STANDARD PLAN RSP B9-5



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL NO. SHEETS

REGISTERED CIVIL ENGINEER
October 16, 2020
PLANS APPROVAL DATE:
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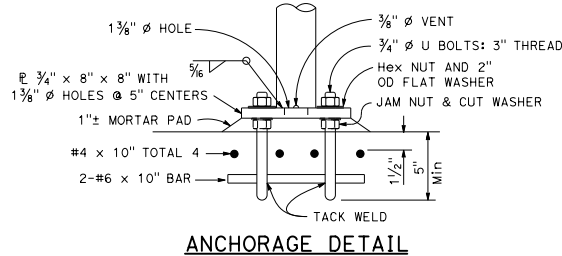
TO ACCOMPANY PLANS DATED _____



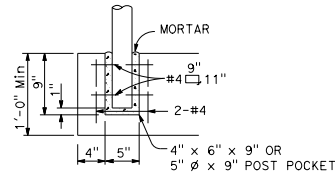
TYPICAL CONNECTION DETAILS

NOTES:

1. Peen all bolt threads.
2. Railing shall conform to horizontal and vertical alignment. Posts shall be vertical. Top and bottom pipes shall be bent if radius is 148'-0" or less; may be on 8'-0" chords if radius is over 148'-0".
3. When railing is on slope, 6'-0" chain link fabric shall be placed parallel to slope.
4. Additional HSS 1.9 x 0.188 required when radius is less than 150'-0".



ANCHORAGE DETAIL



ALTERNATIVE ANCHORAGE DETAIL

May be used when thickness of concrete is 1'-0" or more.

DESIGN NOTES

DESIGN:

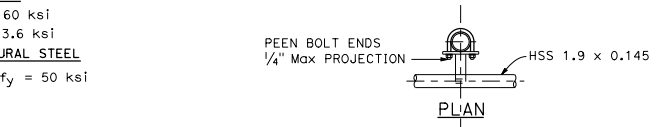
AASHTO LRFD Bridge Design Specifications 8th Edition 2017
with California Amendments April 2019

CONCRETE:

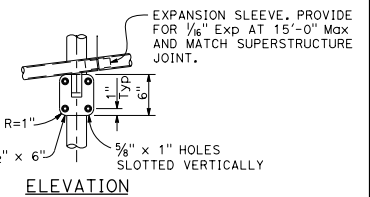
$f_y = 60$ ksi
 $f'_c = 3.6$ ksi

STRUCTURAL STEEL

HSS: $f_y = 50$ ksi



SIDE VIEW PIPE HANDRAILING BRACKET

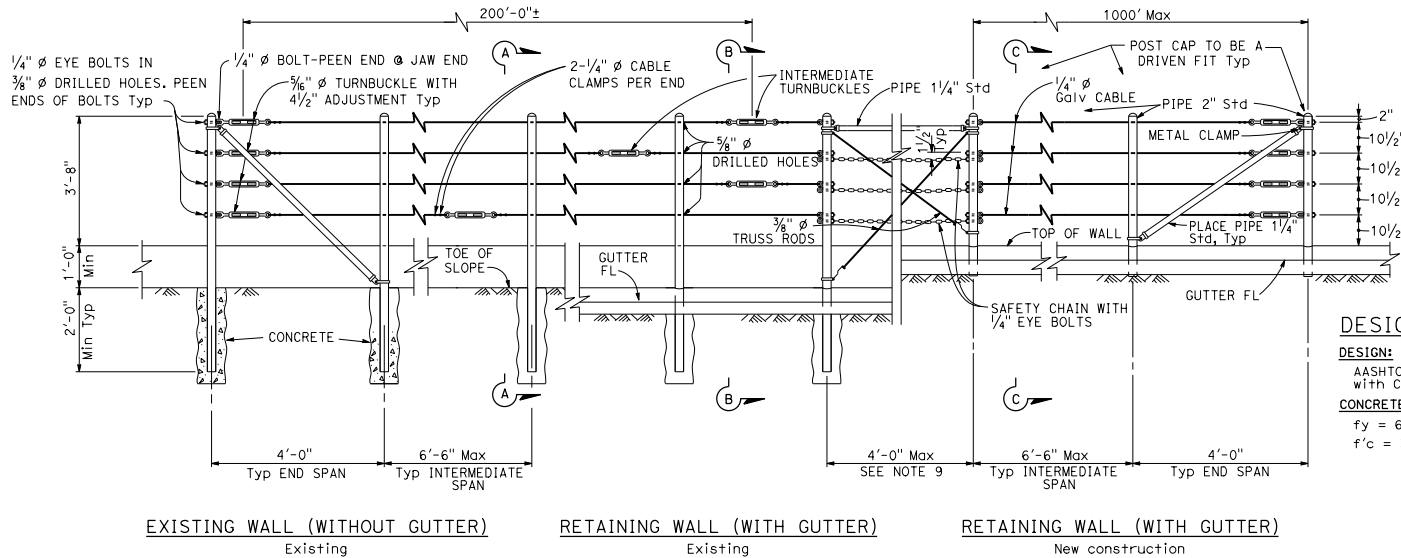


ELEVATION

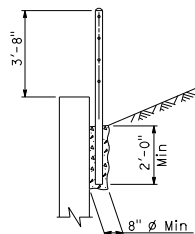
CHAIN LINK RAILING NO SCALE

RSP B11-7 DATED OCTOBER 16, 2020 SUPERSEDES STANDARD PLAN B11-7
DATED MAY 31, 2018 - PAGE 358 OF THE STANDARD PLANS BOOK DATED 2018.

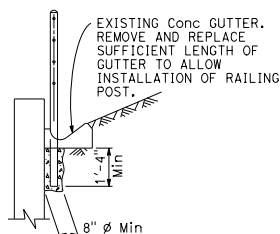
REVISED STANDARD PLAN RSP B11-7



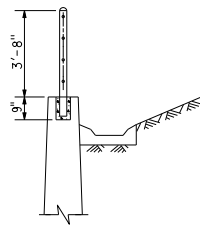
ELEVATION



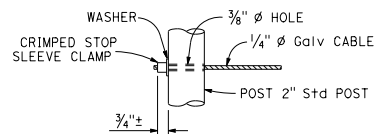
SECTION A-A
Existing



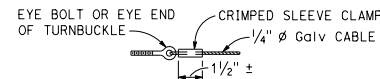
SECTION B-B
Existing



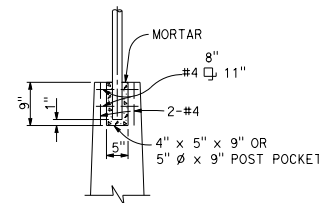
SECTION C-C
New construction



ALTERNATIVE DEAD END ANCHORAGE



ALTERNATIVE CABLE CONNECTION



POST POCKET

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.
- 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.
- 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.
- Shall not be used for pedestrian walkways.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER

October 16, 2020
PLANS APPROVAL DATE

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

TO ACCOMPANY PLANS DATED _____

Professional Engineer Seal: Tiliat Sattar, No. C42892, Exp. 3-31-22, CIVIL, STATE OF CALIFORNIA

DESIGN NOTES

DESIGN:

AASHTO LRFD Bridge Design Specifications 8th Edition 2017
with California Amendments April 2019

CONCRETE:

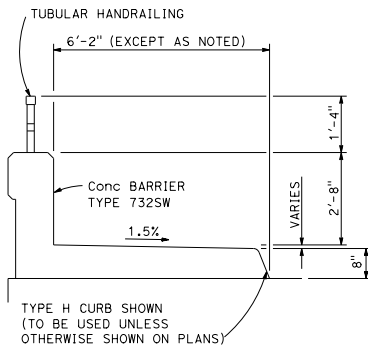
$f_y = 60$ ksi
 $f'_c = 3.6$ ksi

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
CABLE RAILING
NO SCALE

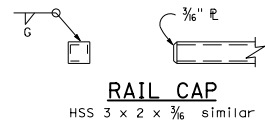
RSP B11-47 DATED OCTOBER 16, 2020 SUPERSEDES STANDARD PLAN B11-47
DATED MAY 31, 2018 - PAGE 359 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP B11-47

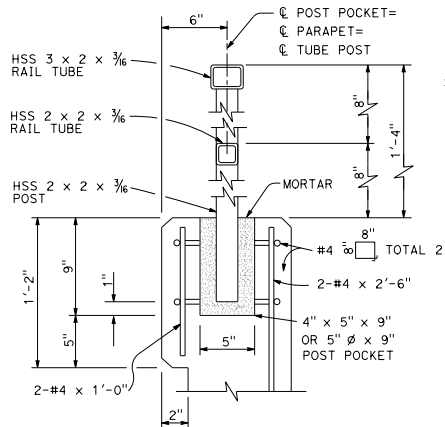
2018 REVISED STANDARD PLAN RSP B11-47



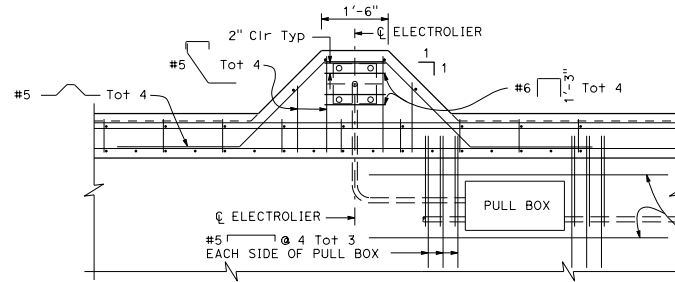
TYPICAL SECTION



TUBE-WELDED SPLICE

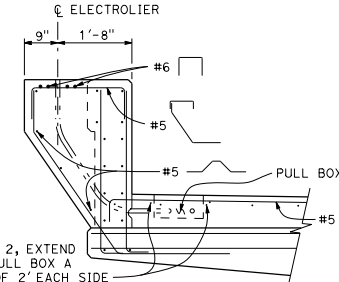


POST ANCHORAGE DETAILS

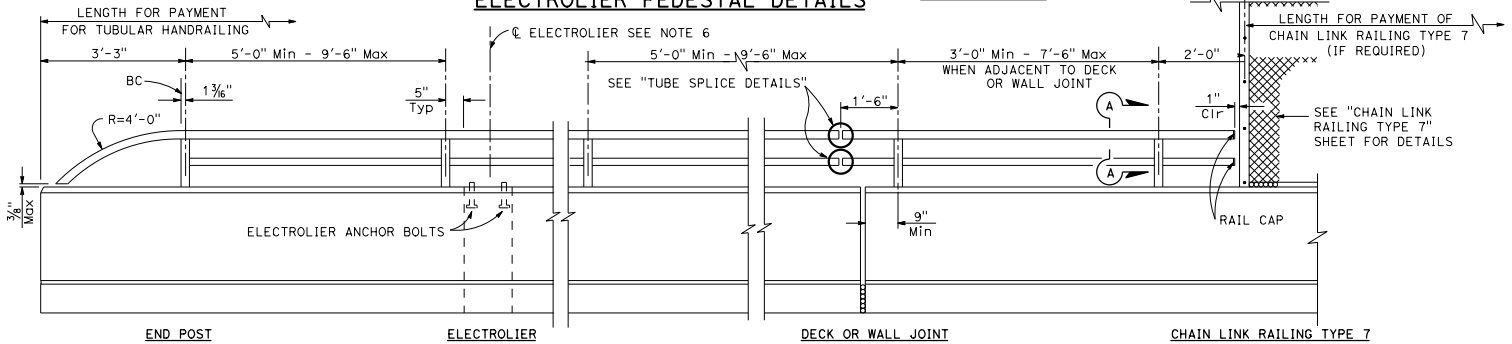


PLAN

ELECTROLIER PEDESTAL DETAILS



SECTION B-B

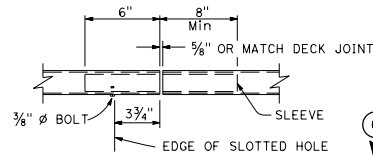


END POST

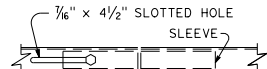
ELECTROLIER

DECK OR WALL JOINT

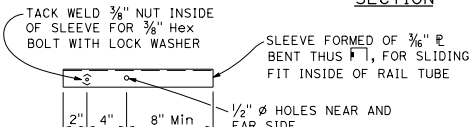
CHAIN LINK RAILING TYPE 7



VIEW G-G



VIEW H-H



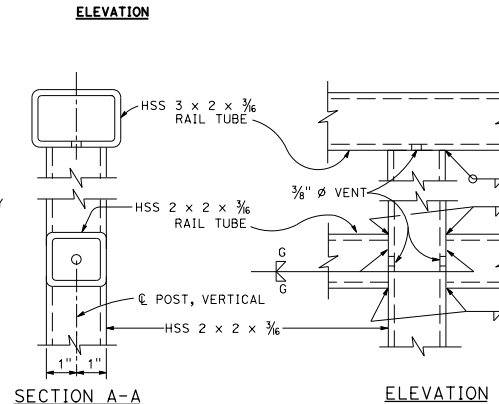
SLEEVE

TUBE SPLICE DETAILS

HSS 3 x 2 x 3/8 similar

SECTION

NOTES:
3/4" Nut tack welded to sleeve may be replaced by drilled and tapped hole in sleeve.



SECTION A-A

RAIL CONNECTION DETAILS

ELEVATION

DESIGN NOTE:
AASHTO LRFD Bridge Design Specifications 8th Edition 2017 with California Amendments April 2019

NOTES:

1. Post shall be normal to railing.
2. Rail tubes shall be shop bent or fabricated to fit horizontal curve when radius is less than 950'.
3. Tube splices shall be located in the tubes spanning deck or wall joints. Increase joint width in tubes to match expansion joint width and increase sleeve length correspondingly.
4. Top rail tube shall be continuous over not less than two posts except a short post spacing is permitted near deck or wall joints, electroliers, or other rail discontinuities as noted.
5. For details and reinforcement not shown see Standard Plan B11-58.
6. For electrolier mounting details, see Revised Standard Plan RSP ES-6A and Standard Plan ES-6B.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TUBULAR HANDRAILING

NO SCALE

RSP B11-51 DATED OCTOBER 16, 2020 SUPERSEDES RSP B11-51 DATED OCTOBER 18, 2019 AND STANDARD PLAN B11-51 DATED MAY 31, 2018 - PAGE 360 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP B11-51

2018 REVISED STANDARD PLAN RSP B11-51



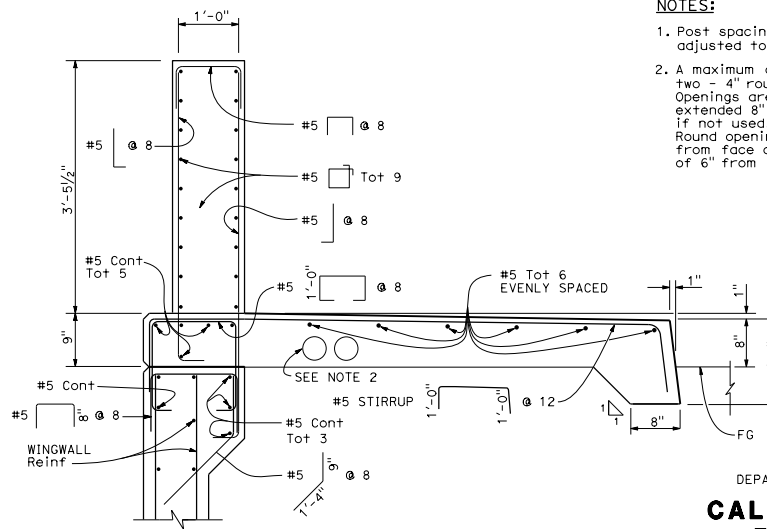
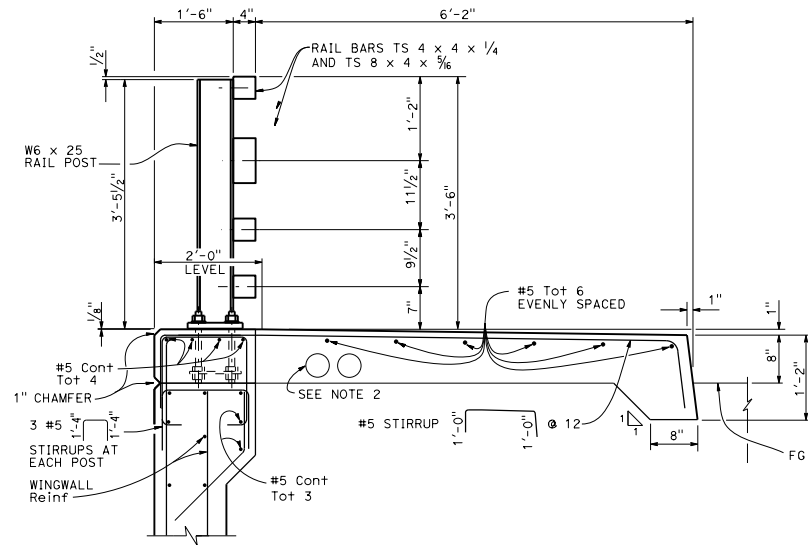
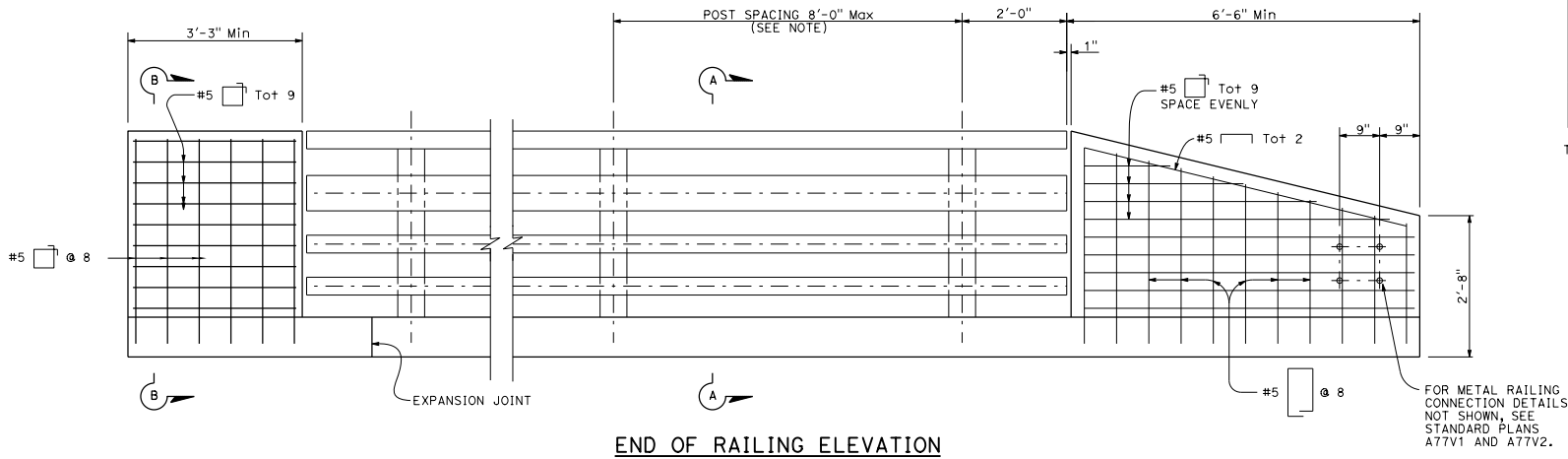
REvised STANDARD PLAN RSP B11-52

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL No. SHEETS

REGISTERED CIVIL ENGINEER
October 18, 2019
PLANS APPROVAL DATE
No. C42892
EXP. 3-31-20
Tilgert Satter
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.

TO ACCOMPANY PLANS DATED _____



NOTES:

1. Post spacing and/or end block length to be adjusted to fit bridge length or wingwall length.
2. A maximum of six - 4" and a minimum of two - 4" round openings for future utilities. Openings are to be sealed at ends and extended 8" minimum past end of sidewalk. If not used, Duct Forms are to be tied down. Round openings are to be a minimum of 1'-6" from face of sidewalk curb and a minimum of 6" from face of rail.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**CALIFORNIA ST-40
BRIDGE RAIL
(SHEET 2 OF 2)**
NO SCALE

RSP B11-67 DATED OCTOBER 18, 2019 SUPERSEDES STANDARD PLAN B11-67
DATED MAY 31, 2018 - PAGE 374 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP B11-67

2018 REVISED STANDARD PLAN RSP B11-67

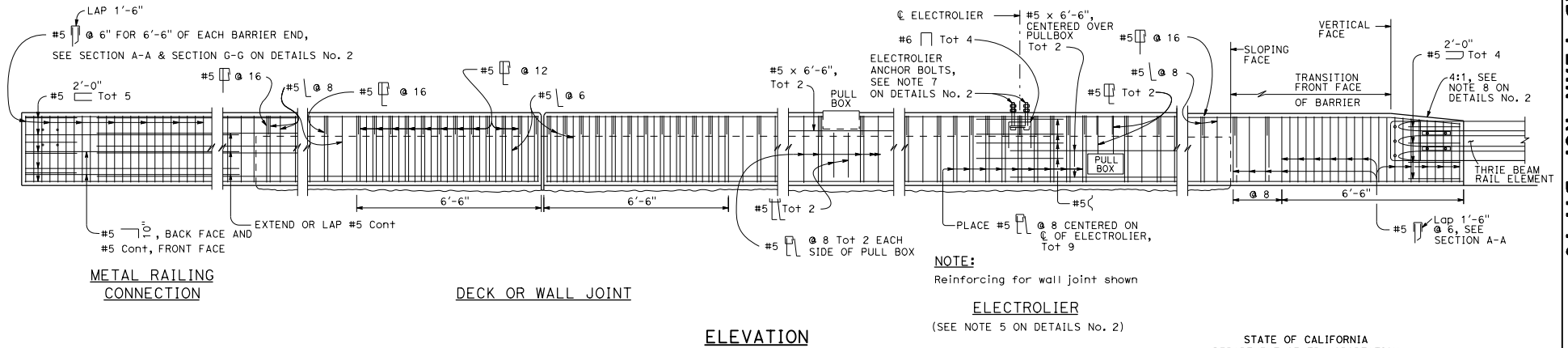
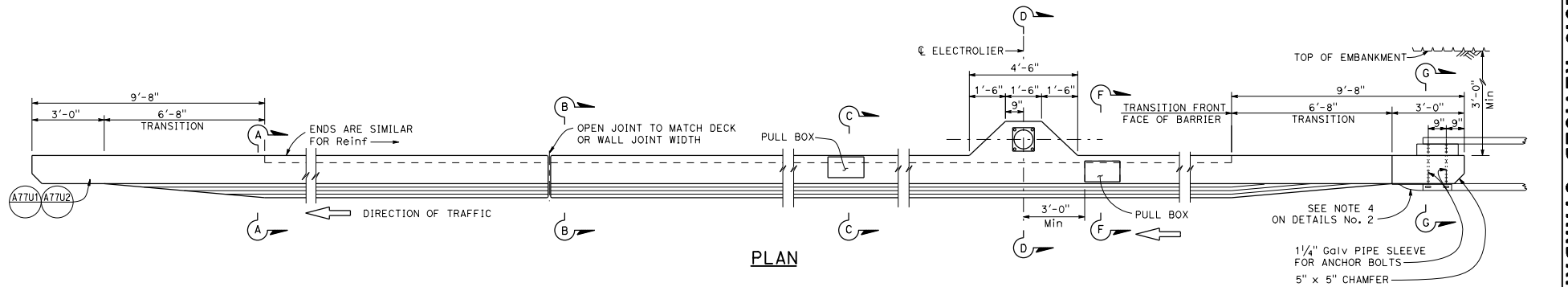
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL NO. SHEETS

REGISTERED CIVIL ENGINEER
Tilgert Satter
No. C42892
EXP. 3-31-20
CIVIL
STATE OF CALIFORNIA

October 18, 2019
PLANS APPROVAL DATE

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THE ACCURACY OR COMPLETENESS OF SCANNED
COPIES OF THIS PLAN SHEET.

TO ACCOMPANY PLANS DATED _____



STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**CONCRETE BARRIER TYPE 836
DETAILS No. 1**

NO SCALE

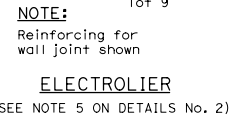
RSP B11-79 DATED OCTOBER 18, 2019 SUPERSEDES RSP B11-79
DATED OCTOBER 19, 2018 THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP B11-79

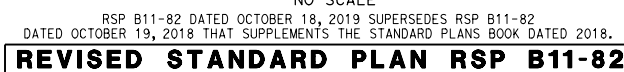
2018 REVISED STANDARD PLAN RSP B11-79

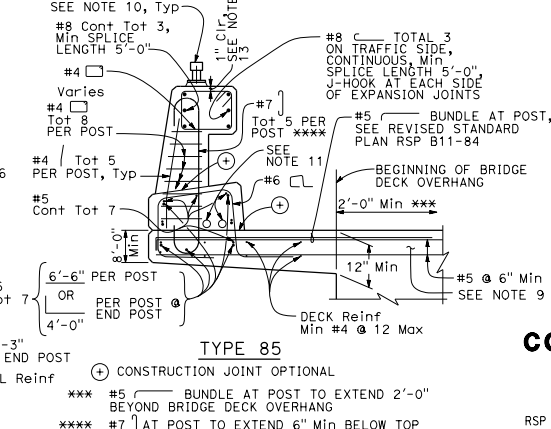
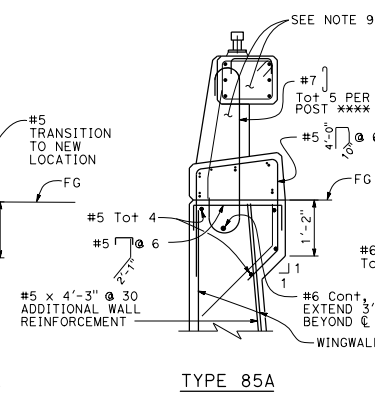
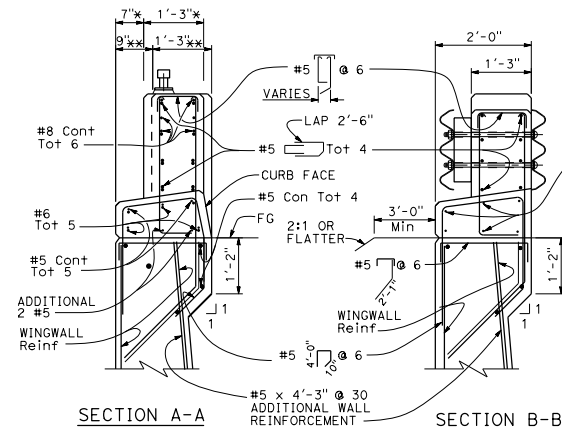
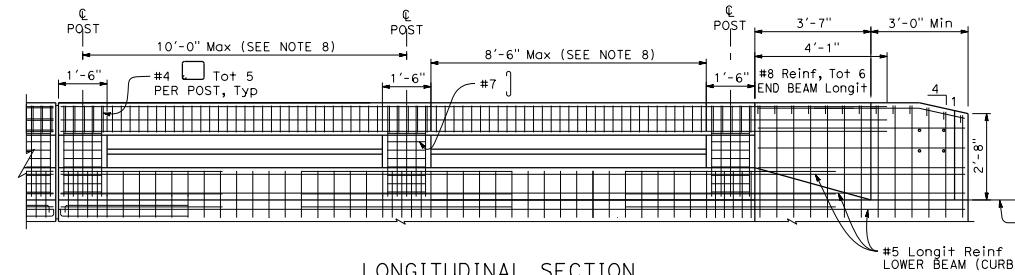
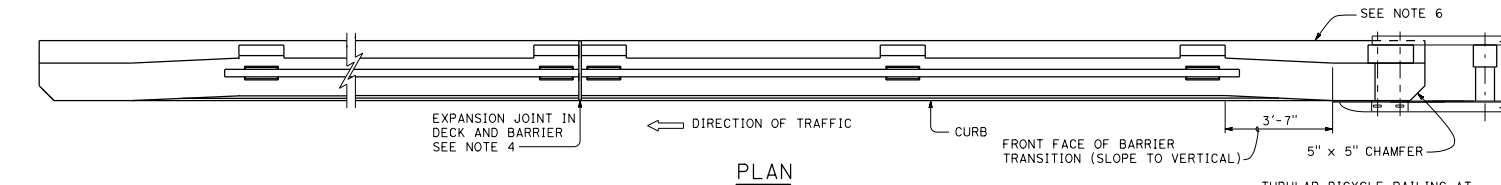
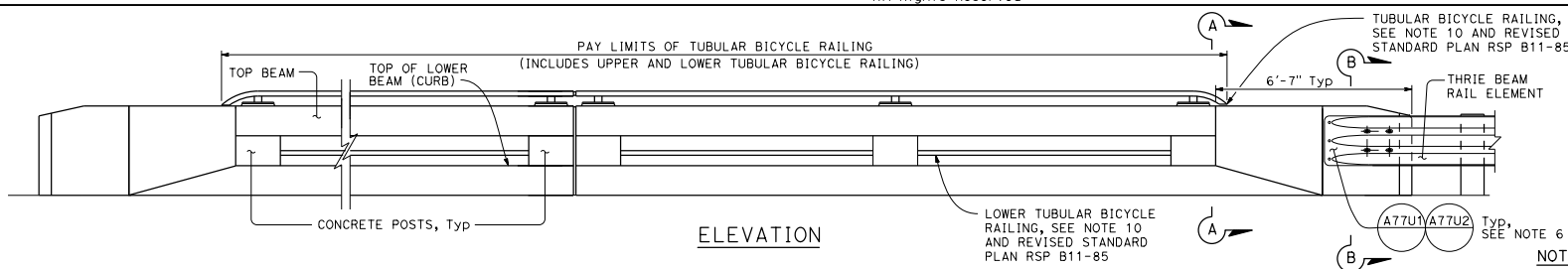


TO ACCOMPANY PLANS DATED _____



REVISED STANDARD PLAN RSP B11-81





* BEGIN BARRIER TRANSITION
** END BARRIER TRANSITION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL NO. SHEETS

Gregory J. Koberg
REGISTERED CIVIL ENGINEER

October 15, 2021
PLANS APPROVAL DATE

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

TO ACCOMPANY PLANS DATED _____

NOTES:

1. Walls are to be backfilled before the barrier is placed.
2. Longitudinal reinforcing steel to stop at all expansion joints.
3. The front face dimensions are to be constant above the finish roadway profile, but the overall height will vary with certain thicknesses of surfacing and roadway slopes.
4. Expansion joint to match deck joint.
5. No lap splicing allowed on the longitudinal rail reinforcing. Splicing shall be staggered.
6. For typical metal railing connection details not shown, see Standard Plans A77U1 and A77U2.
7. Chain link railing is not allowed on Type 85 Barriers.
8. Post to be spaced equally, typically 10'-0" spacing. Post spacing may be reduced where location of expansion joints or the length of wingwalls will not accommodate the 10'-0" spacing. Maximum see-through availability is to be strived for, where 10'-0" post spacing can not be achieved.
9. For additional reinforcement details, see Revised Standard Plan RSP B11-84.
10. Tubular bicycle railing to extend to where level bench elevation along exterior face of wing wall is within 1'-0" of roadway shoulder FG.
11. The maximum number of conduits is limited to two 1 1/2" Dia and must be placed in front half of the lower beam/curb. See also Standard Plan B14-3 CONDUIT IN BRIDGE RAILING DETAIL.
12. For reinforcement not shown, see other details.
13. 1" clearance, typical for bridge rail except for 2" clearance at traffic face and back side of lower beam (curb).

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

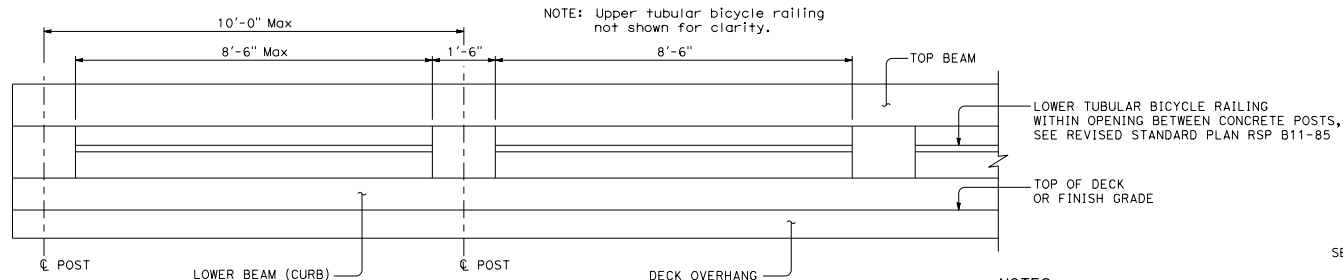
**CONCRETE BARRIER TYPE 85
DETAILS No. 1**

NO SCALE

RSP B11-83 DATED OCTOBER 15, 2021 SUPERSEDES RSP B11-83
DATED APRIL 16, 2021 THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP B11-83

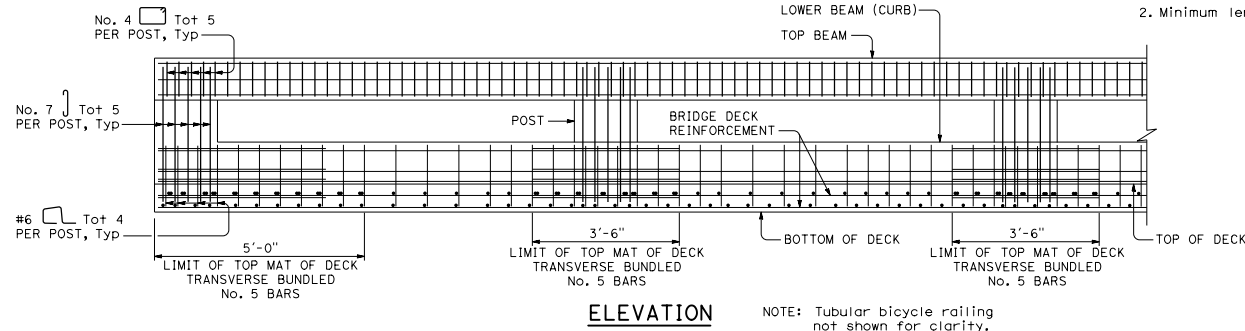
2018 REVISED STANDARD PLAN RSP B11-83



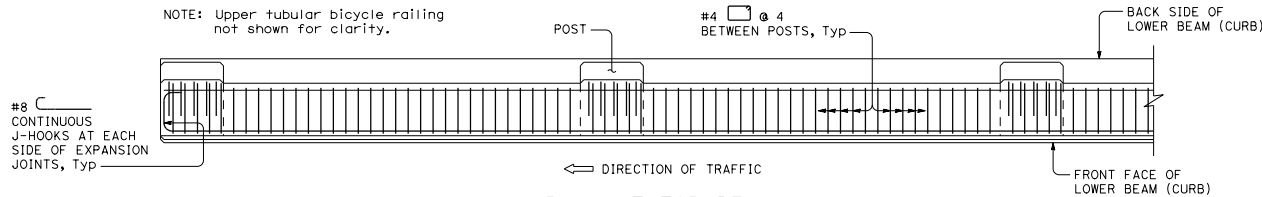
ELEVATION

NOTES:

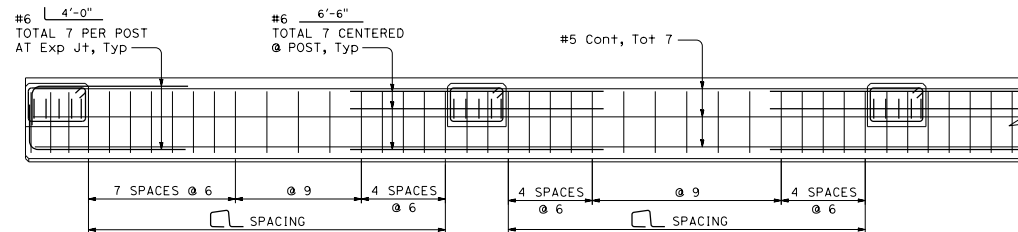
1. Tubular bicycle railing optional for Type 85B.
2. Minimum length of Type 85B is 40'-0".



ELEVATION



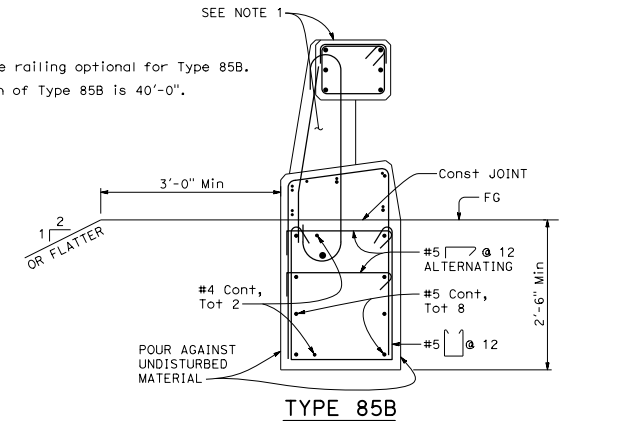
PLAN AT TOP BEAM



PLAN AT LOWER BEAM (CURB)

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL SHEETS
<p>Gregory J. Rodriguez REGISTERED CIVIL ENGINEER</p> <p>October 15, 2021 PLANS APPROVAL DATE</p> <p>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.</p>				

TO ACCOMPANY PLANS DATED _____



- * Dimension must be 1'-0" above
top of Bridge Deck or FG
(including overlay). Increase
lower beam (curb) height by
2" Max to match overlay depth.
- ** Dimension determined by bridge
cross-slope and whether or
not there is an overlay.

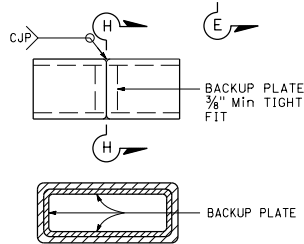
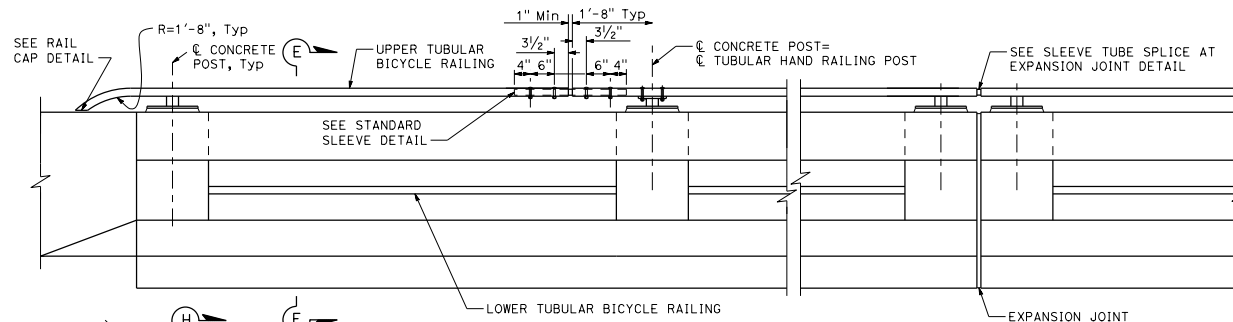
TYPICAL SECTION

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**CONCRETE BARRIER TYPE 85
DETAILS No. 2**

NO SCALE

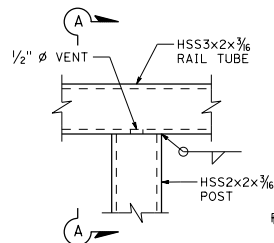
RSP B11-84 DATED OCTOBER 15, 2021 SUPERSEDES RSP B11-84
DATED APRIL 16, 2021 THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP B11-84

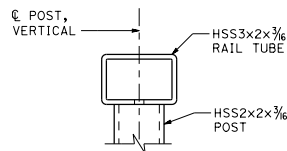


SECTION H-H

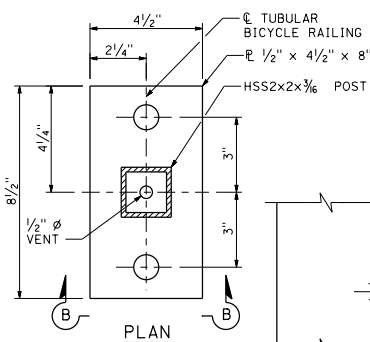
**ALTERNATIVE TUBE
WELDED STANDARD SPLICE**
NOTE: FOR SPLICES NOT AT EXPANSION JOINTS



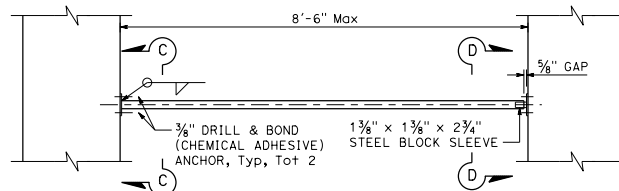
ELEVATION



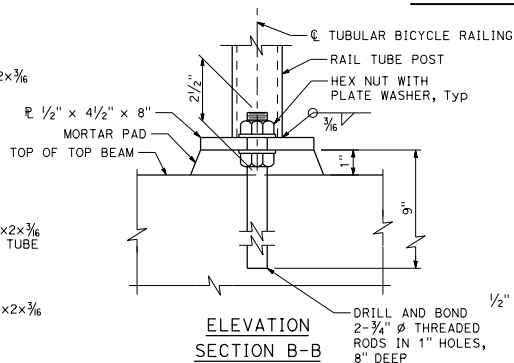
SECTION A-A



PLAN

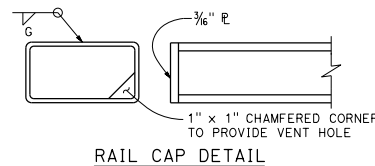


LOWER TUBULAR BICYCLE RAILING DETAIL

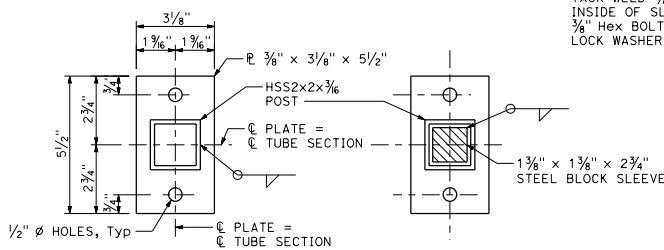


ELEVATION
SECTION B-B

TUBULAR BICYCLE RAILING DETAILS



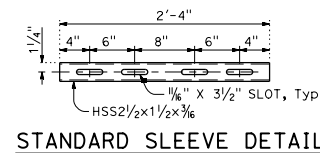
RAIL CAP DETAIL



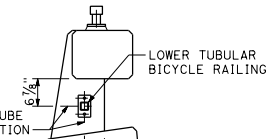
SECTION C-C

SEE SECTION C-C FOR DETAILS NOT SHOWN

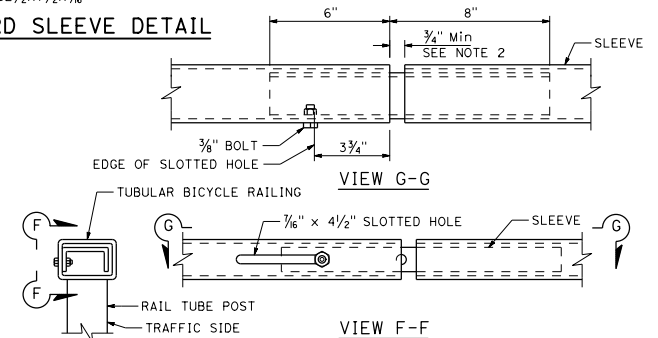
SECTION D-D



STANDARD SLEEVE DETAIL



SECTION E-E



ELEVATION

TACK WELD 3/8" NUT
INSIDE OF SLEEVE FOR
3/8" Hex BOLT WITH
LOCK WASHER, SEE NOTE 4

SLEEVE TUBE SPLICE
AT EXPANSION JOINT DETAIL

1/2" Ø HOLES
NEAR AND FAR SIDE
SLEEVE FORMED OF 3/8" Ø
BENT THUS [] FOR SLIDING
FIT INSIDE OF RAIL TUBE

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

Registered Civil Engineer
 October 15, 2021
 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.

Gregory J. Rodriguez
 No. C40814
 Exp. 3-31-23
 CIVIL
 STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED _____

NOTES:

1. Tubular bicycle railing posts shall be normal to railing.
2. Tube splices shall be located in the tubes spanning deck or wall joints. Increase joint width in tubes to match expansion joint width and increase sleeve length accordingly.
3. Upper tubular bicycle railing shall be continuous over not less than two posts.

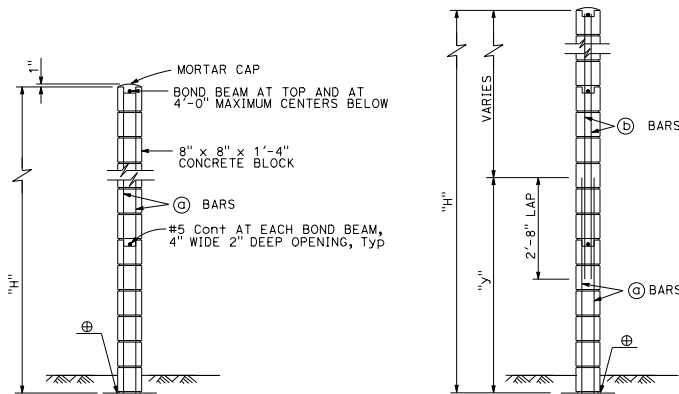
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**CONCRETE BARRIER TYPE 85
DETAILS No. 3**

NO SCALE

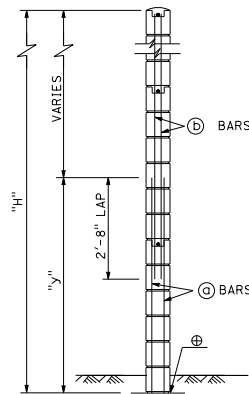
RSP B11-85 DATED OCTOBER 15, 2021 SUPERSEDES RSP B11-85
DATED APRIL 16, 2021 THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP B11-85

2018 REVISED STANDARD PLAN RSP B11-85



H=6'-0" THRU H=10'-0"

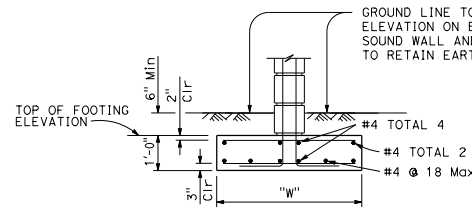


H=12'-0" THRU H=16'-0"

For details not shown, see H=6'-0" thru H=10'-0".

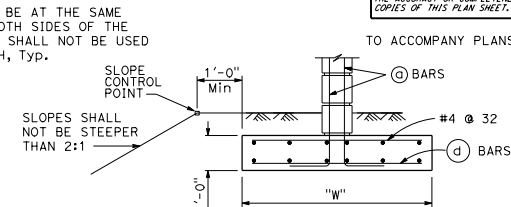
TYPICAL SECTION

⊕ Full mortar bed at bottom of wall



CASE 1

For details not shown, see Case 2.
Level ground ($\pm 10\%$) on both sides of the sound wall.



CASE 2

For details not shown, see Case 1.
Level ground ($\pm 10\%$) on the traffic side of the sound wall and sloping ground on the opposite side.

SPREAD FOOTING SECTION

TRENCH FOOTING						
MAXIMUM H	CASE 1			CASE 2		Ⓢ BARS @ 1'-4" Max
	$\phi = 25$ Min	$\phi = 30$ Min	$\phi = 35$ Min	$\phi = 30$ Min	$\phi = 35$ Min	
	D	D	D	D	D	
6'-0"	5'-3"	4'-3"	3'-9"	7'-9"	5'-0"	#4
8'-0"	6'-0"	5'-0"	4'-6"	8'-9"	6'-0"	#4
10'-0"	6'-9"	5'-9"	5'-0"	10'-0"	6'-9"	#4
12'-0"	7'-9"	6'-6"	5'-6"	11'-0"	7'-9"	#5
14'-0"	8'-6"	7'-3"	6'-0"	11'-9"	8'-6"	#5
16'-0"	9'-3"	7'-9"	6'-6"	12'-9"	9'-3"	#6

Case 1 - Level ground ($\pm 10\%$) on both sides of the sound wall.
Case 2 - Level ground ($\pm 10\%$) on one side of the sound wall and sloping ground on opposite side.

SOUND WALL REINFORCEMENT TABLE			
MAXIMUM H	Ⓢ BARS @ 1'-4" Max	Ⓢ BARS @ 1'-4" Max	"y"
6'-0"	#4	—	—
8'-0"	#4	—	—
10'-0"	#4	—	—
12'-0"	#5	#4	6'-0"
14'-0"	#6	#4	8'-0"
16'-0"	#6	#4	10'-0"

NOTES:

- For type of block and joint finish, see other sheets.
- When blocks are laid in stacked bond, ladder type, galvanized joint reinforcement shall be provided. A minimum of 2-9 gauge wires continuous at 4'-0" maximum to be used. Locate reinforcement in joints that are at the approximate midpoint between bond beams.
- Horizontal joints shall be tooled concave or weathered. Vertical joints shall be tooled concave or raked.
- For intermediate wall heights that are between the "H's" given, use the tabular information for the next higher "H".
- Bundle additional Ⓢ bars with typical Ⓢ bars.
- If wall is placed behind traffic barriers, clear distance from face of barrier to face of wall shall exceed 4'-0". Wall is not designed for impact loading.
- Ultimate spread footing factored bearing pressure demand, $q_u = 1.25 \text{ ksf}$, $B' = W/3$ Where B' is the effective footing width (ft).

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

SOUND WALL MASONRY BLOCK ON FOOTING DETAILS (1)

NO SCALE

RSP B15-1 DATED OCTOBER 15, 2021 SUPERSEDES RSP B15-1 DATED APRIL 17, 2020 AND
STANDARD PLAN B15-1 DATED MAY 31, 2018 - PAGE 390 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP B15-1

DESIGN NOTES

DESIGN:
AASHTO LRFD Bridge Design Specifications,
8th Edition 2017 with California Amendment,
Preface date April 2019
TMS 402-16
2019 California Building Code

DESIGN WIND LOAD:
36.5 psf

DESIGN SEISMIC LOAD:
0.57 Dead Load

REINFORCED CONCRETE AND
CONCRETE MASONRY:

$f_y = 60$ ksi
 $f'_c = 3.6$ ksi
 $f_m = 2000$ psi *

* Provide materials to achieve
the net compressive strength
of concrete masonry unit equal
or greater than the specified f_m .

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER

October 15, 2021

PLANS APPROVAL DATE:

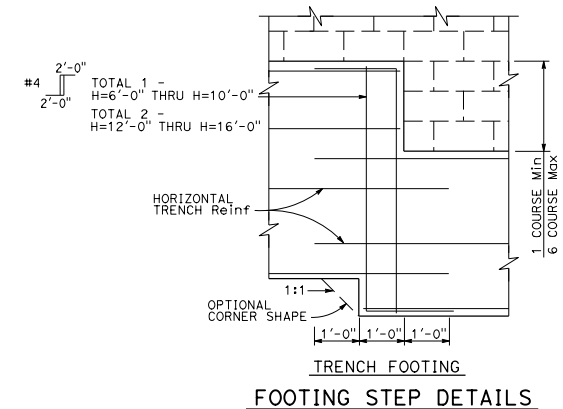
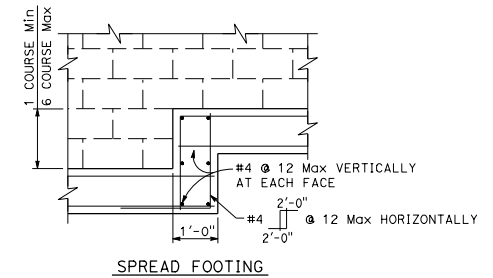
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REGISTERED PROFESSIONAL ENGINEER
ANAN MALAK
No. C73369
Exp. 12-31-22
CIVIL
STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED _____

NOTE:

- For details not shown, see
Revised Standard Plan RSP B15-1.



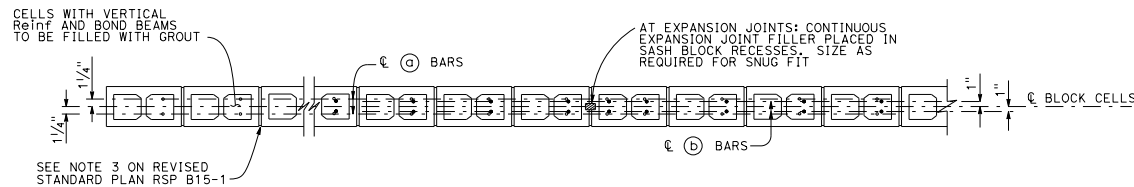
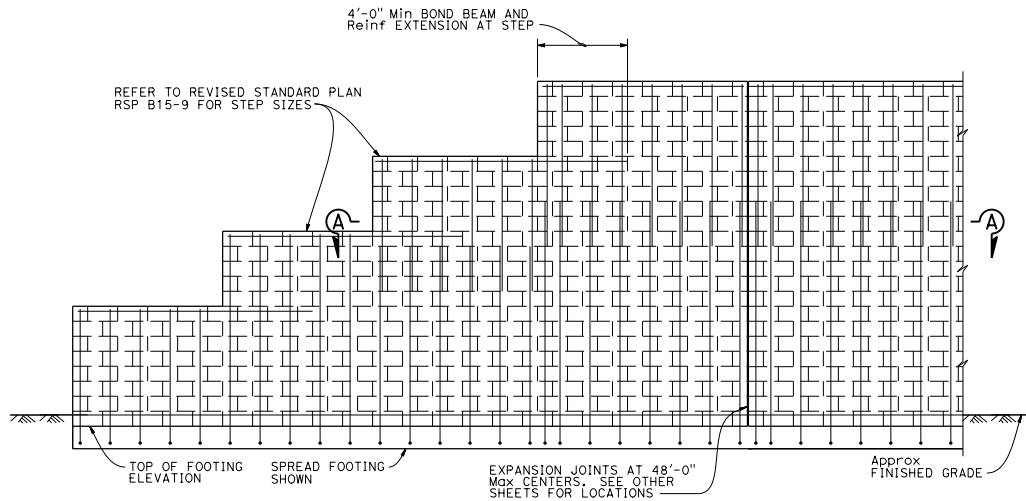
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

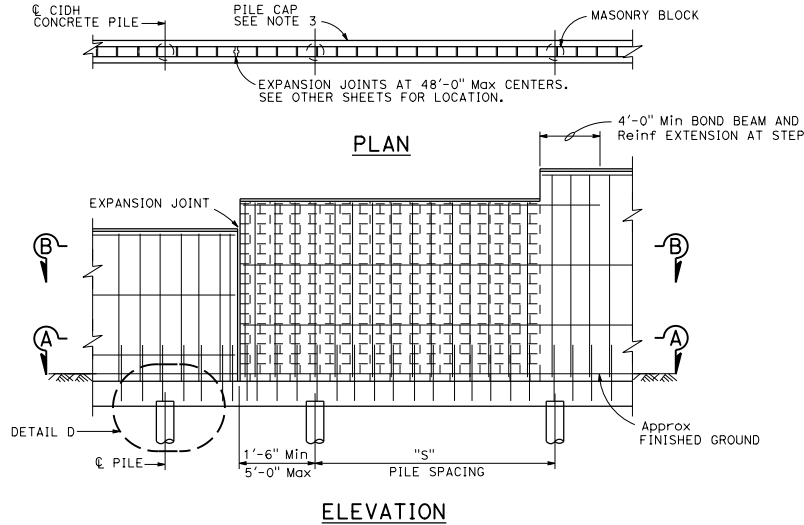
SOUND WALL MASONRY BLOCK ON FOOTING DETAILS (2)

NO SCALE

RSP B15-2 DATED OCTOBER 15, 2021 SUPERSEDES RSP B15-2 DATED APRIL 17, 2020 AND
STANDARD PLAN B15-2 DATED MAY 31, 2018 - PAGE 391 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP B15-2





SOUND WALL REINFORCEMENT TABLE

MAXIMUM H	(a) BARS @ 1'-4" Max	(b) BARS @ 1'-4" Max	"y"
6'-0"	#4		
8'-0"	#4		
10'-0"	#4		
12'-0"	#5	#4	6'-0"
14'-0"	#6	#4	8'-0"
16'-0"	#6	#4	10'-0"

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL SHEETS

REGISTERED CIVIL ENGINEER

October 15, 2021

PLANS APPROVAL DATE:

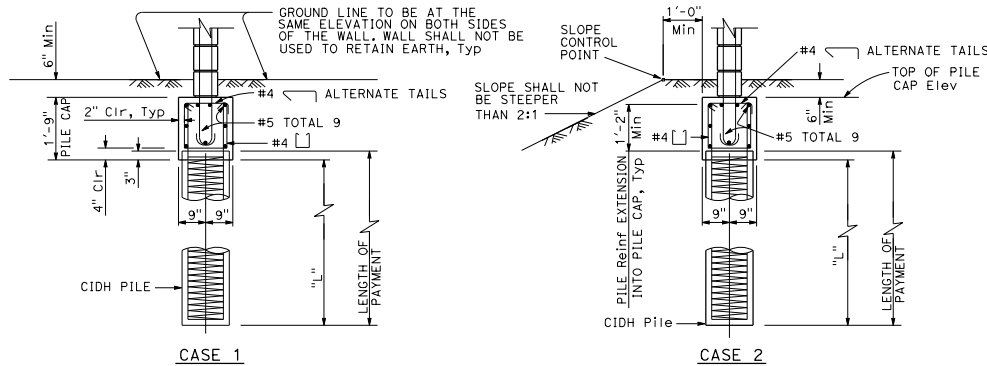
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REGISTERED PROFESSIONAL ENGINEER
AIMAN MALAK
No. C73369
Exp. 12-31-22
CIVIL
STATE OF CALIFORNIA

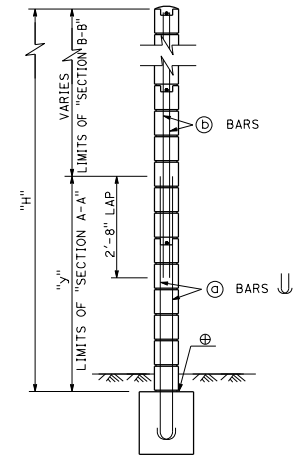
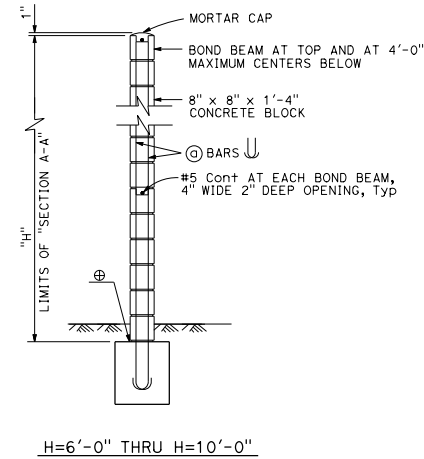
TO ACCOMPANY PLANS DATED _____

NOTES:

1. For Detail D, see Revised Standard Plan RSP B15-5.
2. For sections and details not shown, see Revised Standard Plans RSP B15-4 and RSP B15-5.
3. See Revised Standard Plan RSP B15-9 for other details.



PILE CAP SECTION



TYPICAL SECTION

⊕ Full mortar bed at bottom of wall.

H=6'-0" THRU H=10'-0"
H=12'-0" THRU H=16'-0"
For details not shown, see H=6'-0" thru H=10'-0".

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**SOUND WALL
MASONRY BLOCK ON PILE CAP
DETAILS (1)**

NO SCALE

RSP B15-3 DATED OCTOBER 15, 2021 SUPERSEDES RSP B15-3 DATED APRIL 17, 2020 AND
STANDARD PLAN B15-3 DATED MAY 31, 2018 - PAGE 392 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP B15-3

2018 REVISED STANDARD PLAN RSP B15-3

GENERAL NOTES:

1. For type of block and joint finish, see other sheets.
2. When blocks are laid in stacked bond, ladder type, galvanized joint reinforcement shall be provided. A minimum of 2-9 gauge wires continuous at 4'-0" maximum to be used. Locate reinforcement in joints that are at the approximate midpoint between bond beams.
3. Horizontal joints shall be tooled concave or weathered. Vertical joints shall be tooled concave or raked.
4. For intermediate wall heights that are between the "H's" given, use the tabular information for the next higher "H".
5. If wall is placed behind traffic barriers, clear distance from face of barrier to face of wall shall exceed 4'-0". Wall is not designed for impact loading.

DESIGN NOTES

DESIGN:
AASHTO LRFD Bridge Design Specifications,
8th Edition 2017 with California Amendment,
Preface date April 2019
TMS 402-16
2019 California Building Code

DESIGN WIND LOAD:
36.5 psf

DESIGN SEISMIC LOAD:
0.57 Dead Load

REINFORCED CONCRETE &
CONCRETE MASONRY:

$f_y = 60$ ksi
 $f'_c = 3.6$ ksi
 $f'_m = 2000$ psi *

* Provide materials to achieve the net compressive strength of concrete masonry unit equal or greater than the specified f'_m .

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL SHEETS

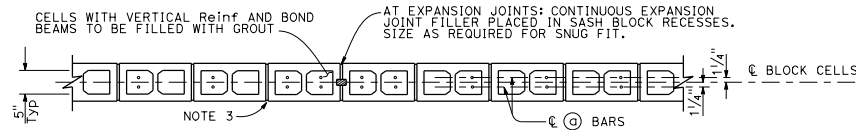
REGISTERED CIVIL ENGINEER

October 15, 2021
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REGISTERED PROFESSIONAL ENGINEER
AIDAN MALAK
No. C73369
Exp. 12-31-22
CIVIL
STATE OF CALIFORNIA

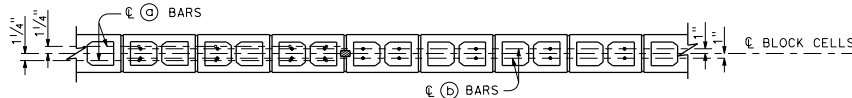
TO ACCOMPANY PLANS DATED _____



SECTION A-A

For details not shown, see other sections.

H=6'-0" THRU H=10'-0"



SECTION A-A

For details not shown, see other sections.

H=12'-0" THRU H=16'-0"

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

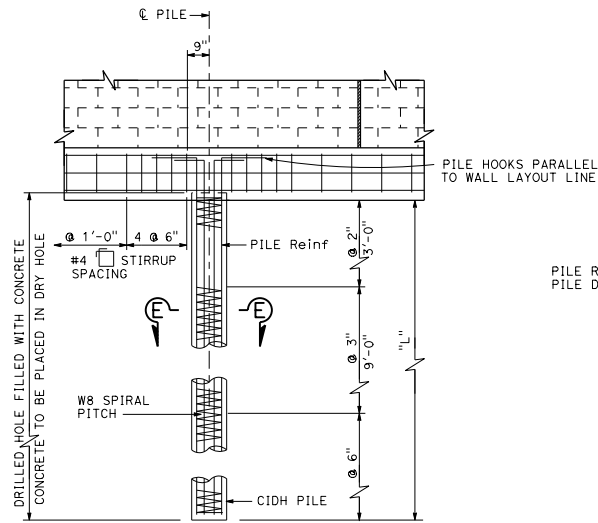
SOUND WALL MASONRY BLOCK ON PILE CAP DETAILS (2)

NO SCALE

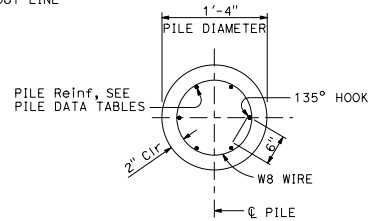
RSP B15-4 DATED OCTOBER 15, 2021 SUPERSEDES RSP B15-4 DATED APRIL 17, 2020 AND
STANDARD PLAN B15-4 DATED MAY 31, 2018 - PAGE 393 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP B15-4

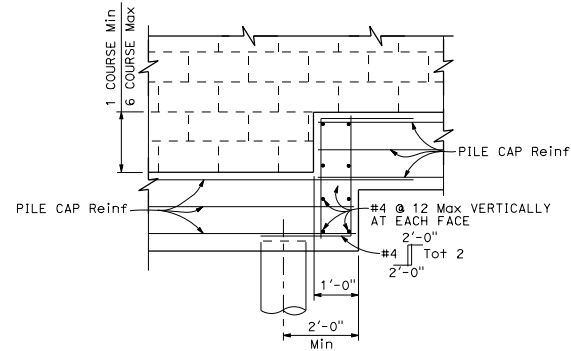
2018 REVISED STANDARD PLAN RSP B15-4



DETAIL D



SECTION E-E



PILE CAP STEP DETAIL

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER

October 15, 2021

PLANS APPROVAL DATE:

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TO ACCOMPANY PLANS DATED _____

NOTE:

- For details not shown, see Revised Standard Plans RSP B15-3 and RSP B15-4.

CASE 1 : PILE DATA TABLE										
MAXIMUM H	ø = 25 Min			ø = 30 Min			ø = 35 Min			MAXIMUM H
	S	L	PILE Reinf	S	L	PILE Reinf	S	L	PILE Reinf	
6'-0"	16'-0"	9'-6"	#6 Tot 6	16'-0"	7'-6"	#6 Tot 6	16'-0"	6'-0"	#6 Tot 6	6'-0"
8'-0"	16'-0"	10'-6"	#6 Tot 7	16'-0"	8'-6"	#6 Tot 7	16'-0"	7'-0"	#6 Tot 7	8'-0"
10'-0"	16'-0"	11'-6"	#7 Tot 6	16'-0"	9'-6"	#7 Tot 6	16'-0"	8'-0"	#7 Tot 6	10'-0"
12'-0"	15'-0"	12'-6"	#8 Tot 7	16'-0"	10'-6"	#8 Tot 7	16'-0"	8'-6"	#8 Tot 7	12'-0"
14'-0"	13'-0"	13'-0"	#8 Tot 7	14'-0"	11'-0"	#8 Tot 7	14'-0"	9'-0"	#8 Tot 7	14'-0"
16'-0"	12'-0"	13'-6"	#8 Tot 7	13'-0"	11'-6"	#8 Tot 7	13'-0"	9'-6"	#8 Tot 7	16'-0"

Case 1 - Level ground (±10%) on both sides of the sound wall.

CASE 2 : PILE DATA TABLE							
MAXIMUM H	ø = 30 Min			ø = 35 Min			MAXIMUM H
	S	L	PILE Reinf	S	L	PILE Reinf	
6'-0"	16'-0"	13'-0"	#8 Tot 7	16'-0"	9'-6"	#6 Tot 7	6'-0"
8'-0"	16'-0"	15'-0"	#8 Tot 7	16'-0"	10'-6"	#7 Tot 6	8'-0"
10'-0"	15'-0"	16'-0"	#8 Tot 7	16'-0"	12'-0"	#7 Tot 7	10'-0"
12'-0"	12'-0"	16'-0"	#8 Tot 7	15'-0"	13'-6"	#8 Tot 7	12'-0"
14'-0"	10'-0"	16'-0"	#8 Tot 7	12'-0"	13'-6"	#8 Tot 7	14'-0"
16'-0"	8'-0"	16'-0"	#8 Tot 7	11'-0"	14'-0"	#8 Tot 7	16'-0"

Case 2 - Level ground (±10%) on traffic side of the sound wall and sloping ground on opposite side.

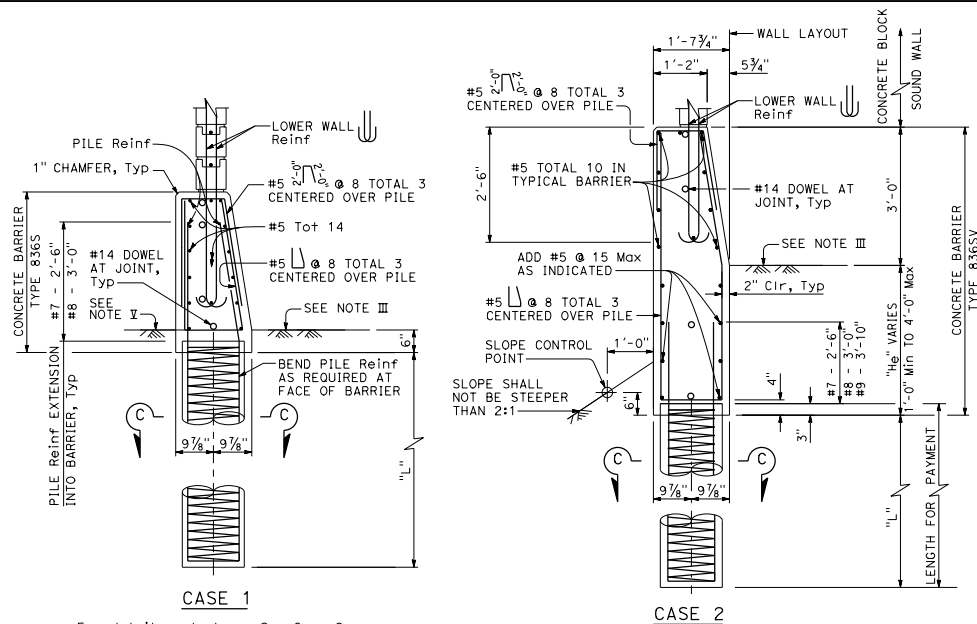
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**SOUND WALL
MASONRY BLOCK ON PILE CAP
DETAILS (3)**

NO SCALE

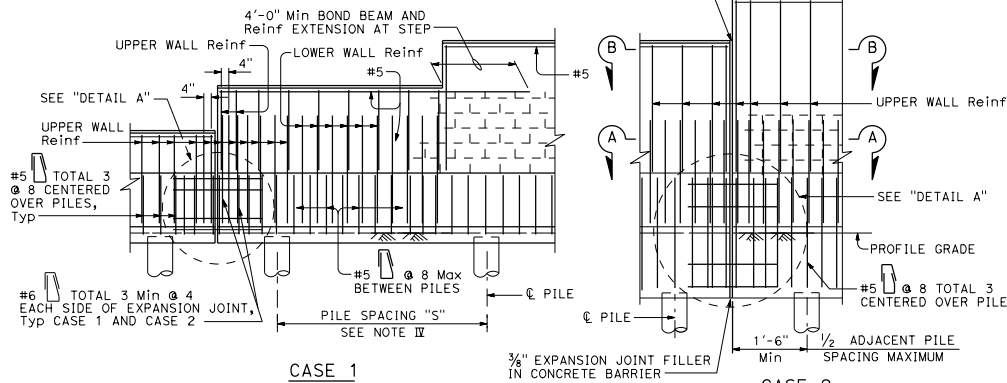
RSP B15-5 DATED OCTOBER 15, 2021 SUPERSEDES RSP B15-5 DATED APRIL 17, 2020 AND
STANDARD PLAN B15-5 DATED MAY 31, 2018 - PAGE 394 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP B15-5

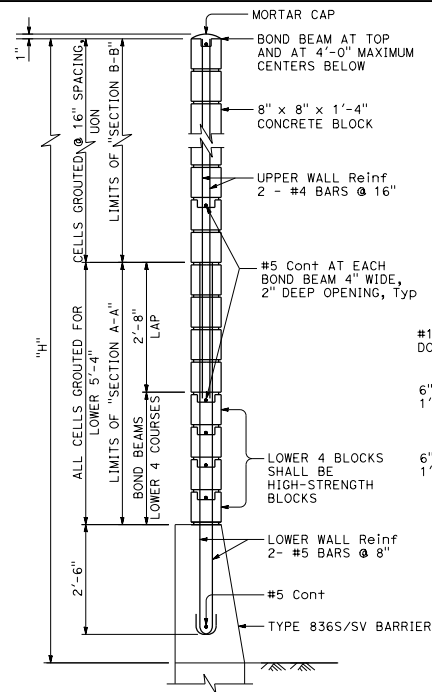


BARRIER SECTIONS

EXPANSION JOINTS AT 96'-0" Max & 24'-0" Min CENTERS IN CONCRETE BARRIER. EXPANSION JOINTS AT 48'-0" Max & 24'-0" Min CENTERS IN MASONRY BLOCK WALL, SEE OTHER SHEETS FOR LOCATIONS



PARTIAL ELEVATIONS



TYPICAL SECTION

See Revised Standard Plan RSP B15-8 for pile details.

NOTES I THROUGH VII:

- Details shown are primarily to conform design of sound walls to Type 836S and Type 836SV Concrete Barriers.
- For details and sections not shown, see Revised Standard Plans RSP B15-7 and RSP B15-8.
- Slope ground at traffic side of barrier to drain. Maximum slope $\pm 10\%$. See Note 3 on Revised Standard Plan RSP B11-80.
- Pile spacing may be varied, but shall not exceed the tabular values. See Revised Standard Plan RSP B15-8.
- For Case 1 - ground line to be at the same elevation on both sides of the barrier. Barrier shall not be used to retain earth.
- See Revised Standard Plan RSP B15-9 for other details.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL SHEETS

REGISTERED CIVIL ENGINEER
October 15, 2021
PLANS APPROVAL DATE:
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TO ACCOMPANY PLANS DATED _____

ENCLOSE PORTION OF #14 BAR AND WRAP AROUND #14 BAR WITH 2 LAYERS OF BUILDING PAPER

DETAIL A

NOTES A THROUGH G:

- For type of block, type of block bond, and joint finish, see other sheets.
- When blocks are laid in stacked bond, ladder type, galvanized joint reinforcement shall be provided. A minimum of 2-9 gauge wires continuous at 4'-0" maximum to be used. Locate reinforcement in joints that are at the approximate midpoint between bond beams.
- Horizontal joints shall be tooled concave or weathered. Vertical joints shall be tooled concave or raked.
- For intermediate wall heights (H), or barrier depths (He), that are between the values given, use the tabular information for the next higher (H) or (He).
- Refer to Revised Standard Plan RSP B15-7 for masonry strength.
- For wall heights = 7'-8", the upper wall reinforcement may be omitted.
- Minimum wall height shall be 7'-8". Maximum wall height shall be 16'-4".

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

SOUND WALL MASONRY BLOCK ON TYPE 836S/SV BARRIER DETAILS (1)

NO SCALE

RSP B15-6 DATED OCTOBER 15, 2021 SUPERSEDES RSP B15-6 DATED APRIL 17, 2020 AND STANDARD PLAN B15-6 DATED MAY 31, 2018 - PAGE 395 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP B15-6

DESIGN NOTES

DESIGN:
AASHTO LRFD Bridge Design Specifications,
8th Edition 2017 with California Amendment,
Preface date April 2019
TMS 402-16
2019 California Building Code

DESIGN WIND LOAD:
36.5 psf

DESIGN SEISMIC LOAD:
0.57 Dead Load

DESIGN IMPACT LOAD:
TL-3

DESIGN LIVE LOAD SURCHARGE:
240 psf surcharge on level ground surface

REINFORCED CONCRETE AND CONCRETE MASONRY:

$f_y = 60$ ksi

$f'_c = 3.6$ ksi

$f_m = 2000$ psi *

$f'_m = 2500$ psi for high-strength blocks only *

* Provide materials to achieve the net compressive strength of concrete masonry unit equal or greater than the specified f'_m .

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL NO. SHEETS

REGISTERED CIVIL ENGINEER

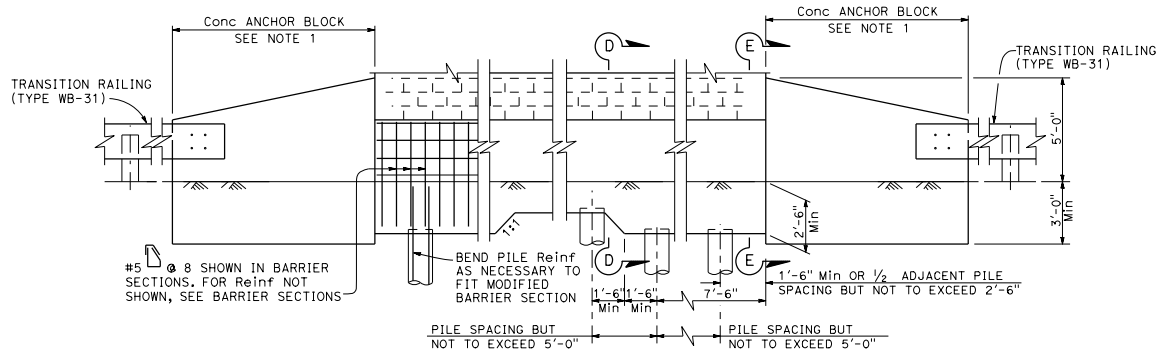
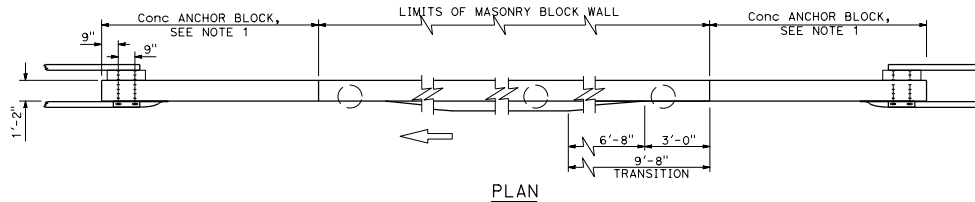
October 15, 2021

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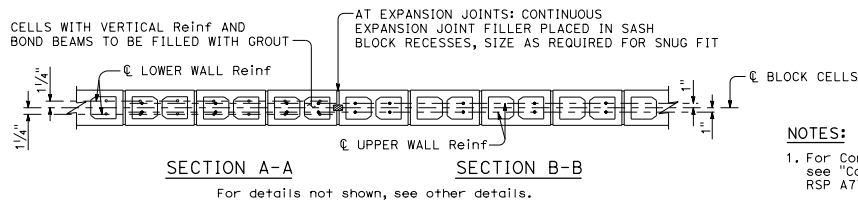
REGISTERED PROFESSIONAL ENGINEER
No. C73369
Exp. 12-31-22
CIVIL
STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED _____



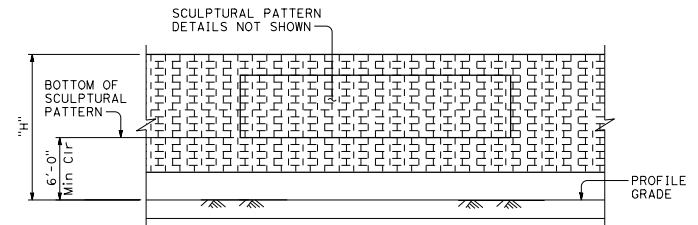
ELEVATION MIDWEST GUARDRAIL SYSTEM ANCHORAGE

For details not shown, see Revised Standard Plans RSP B11-79 and RSP B11-80.

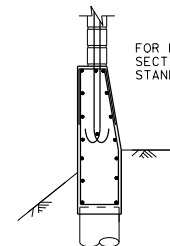


NOTES:

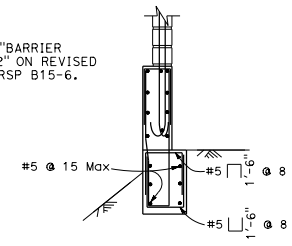
- For Concrete Anchor Block and connection details, see "Connection Detail DD" on Revised Standard Plan RSP A77U3.
- At this location, Pile Reinforcement shall be taken from Revised Standard Plan RSP B15-8.



CLEARANCE DETAIL



SECTION D-D



SECTION E-E

FOR Reinf, SEE "BARRIER SECTIONS CASE 2" ON REVISED STANDARD PLAN RSP B15-6.

#5 @ 15 Max
#5 @ 8
#5 @ 8

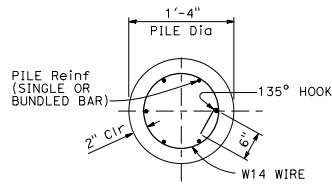
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

SOUND WALL MASONRY BLOCK ON TYPE 836S/SV BARRIER DETAILS (2)

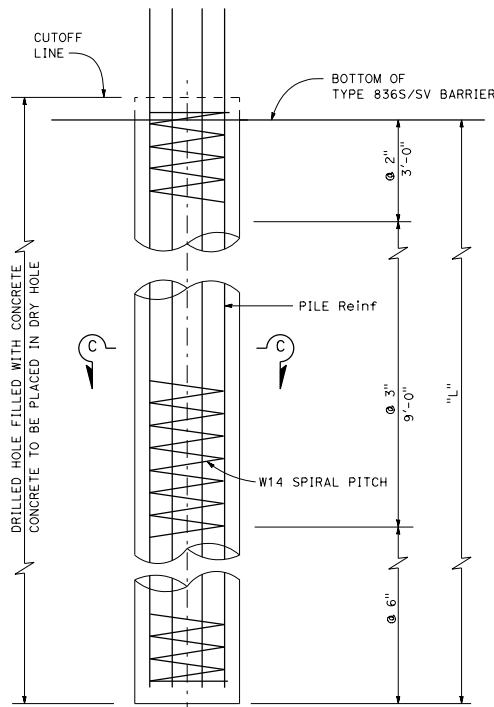
NO SCALE

RSP B15-7 DATED OCTOBER 15, 2021 SUPERSEDES RSP B15-7 DATED APRIL 17, 2020 AND STANDARD PLAN B15-7 DATED MAY 31, 2018 - PAGE 396 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP B15-7



SECTION C-C



ELEVATION

CASE 1: PILE DATA TABLE								
MAXIMUM H	$\phi = 25$ Min			$\phi = 30$ Min			$\phi = 35$ Min	
	S	L	PILE Reinf	S	L	PILE Reinf	S	L
8'-4"	10'-0"	16'-0"	#7 Tot 7	10'-0"	10'-0"	#7 Tot 7	10'-0"	8'-0"
10'-4"	10'-0"	16'-0"	#7 Tot 7	10'-0"	10'-0"	#7 Tot 7	10'-0"	8'-0"
12'-4"	10'-0"	16'-0"	#7 Tot 7	10'-0"	10'-0"	#7 Tot 7	10'-0"	8'-6"
14'-4"	10'-0"	16'-0"	#7 Tot 7	10'-0"	10'-6"	#7 Tot 7	10'-0"	9'-0"
16'-4"	10'-0"	16'-0"	#8 Tot 7	10'-0"	11'-6"	#8 Tot 7	10'-0"	9'-6"

CASE 2: PILE DATA TABLE							
H_e	MAXIMUM H	$\phi = 30$ Min			$\phi = 35$ Min		
		S	L	PILE Reinf	S	L	PILE Reinf
1'-0"	8'-4"	10'-0"	16'-0"	#7 Tot 7	10'-0"	11'-6"	#7 Tot 7
	10'-4"	9'-7"	16'-0"	#7 Tot 7	10'-0"	12'-6"	#7 Tot 7
	12'-4"	8'-4"	16'-0"	#7 Tot 7	10'-0"	13'-0"	#8 Tot 7
	14'-4"	7'-1"	16'-0"	#7 Tot 7	10'-0"	14'-0"	#8 Tot 7
	16'-4"	6'-3"	16'-0"	#7 Tot 7	10'-0"	14'-6"	#8 Tot 7
2'-0"	8'-4"	8'-4"	16'-0"	#7 Tot 7	10'-0"	13'-0"	#7 Tot 7
	10'-4"	7'-6"	16'-0"	#7 Tot 7	10'-0"	13'-6"	#8 Tot 7
	12'-4"	6'-3"	16'-0"	#7 Tot 7	10'-0"	14'-6"	#8 Tot 7
	14'-4"	5'-10"	16'-0"	#7 Tot 7	10'-0"	15'-0"	**#8 Tot 10
	16'-4"	5'-0"	16'-0"	#7 Tot 7	9'-7"	15'-6"	**#8 Tot 10
3'-0"	8'-4"	6'-3"	16'-0"	#7 Tot 7	10'-0"	14'-6"	#8 Tot 7
	10'-4"	5'-5"	16'-0"	#7 Tot 7	10'-0"	15'-0"	**#8 Tot 10
	12'-4"	5'-0"	16'-0"	#7 Tot 7	10'-0"	15'-6"	**#8 Tot 10
	14'-4"	4'-7"	16'-0"	#7 Tot 7	9'-7"	16'-0"	**#8 Tot 10
	16'-4"	4'-2"	16'-0"	#7 Tot 7	8'-4"	16'-0"	**#8 Tot 10
4'-0"	8'-4"	4'-7"	16'-0"	#7 Tot 7	10'-0"	16'-0"	#9 Tot 6
	10'-4"	4'-2"	16'-0"	#7 Tot 7	9'-2"	16'-0"	**#8 Tot 10
	12'-4"	3'-9"	16'-0"	#7 Tot 7	8'-4"	16'-0"	**#8 Tot 10
	14'-4"	3'-4"	16'-3"	#7 Tot 7	7'-11"	16'-0"	**#8 Tot 10
	16'-4"	3'-4"	16'-6"	#7 Tot 7	7'-1"	16'-0"	**#8 Tot 10

** Indicates bundled bars (bundle of two bars)

NOTE:

- For details not shown, see Revised Standard Plans RSP B15-6 and RSP B15-7.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL NO. SHEETS

REGISTERED CIVIL ENGINEER

October 15, 2021
PLANS APPROVAL DATE:

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REGISTERED PROFESSIONAL ENGINEER
AIMAN MALAK
No. C73369
Exp. 12-31-22
CIVIL
STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED _____

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

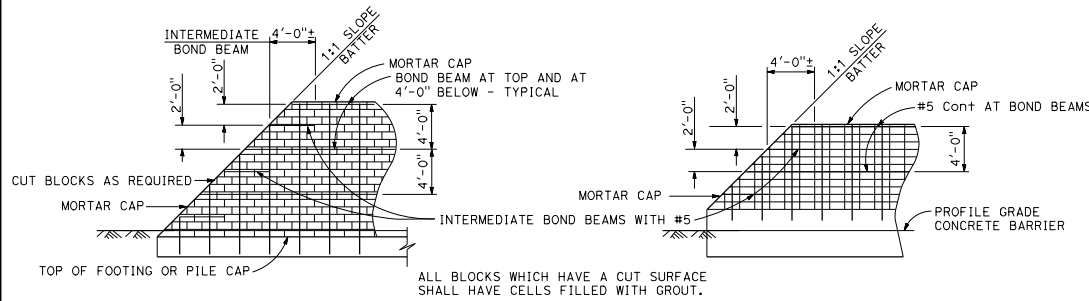
**SOUND WALL MASONRY BLOCK
ON TYPE 836S/SV BARRIER
DETAILS (3)**

NO SCALE

RSP B15-8 DATED OCTOBER 15, 2021 SUPERSEDES RSP B15-8 DATED APRIL 17, 2020 AND
STANDARD PLAN B15-8 DATED MAY 31, 2018 - PAGE 397 OF THE STANDARD PLANS BOOK DATED 2018.

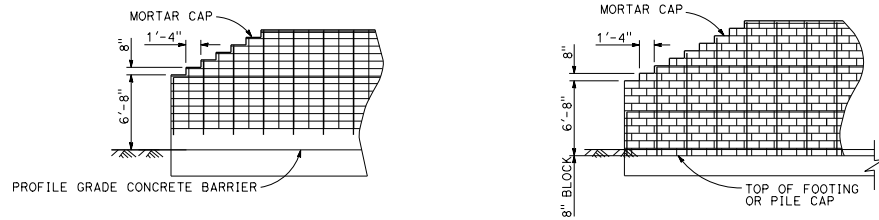
REVISED STANDARD PLAN RSP B15-8

2018 REVISED STANDARD PLAN RSP B15-8

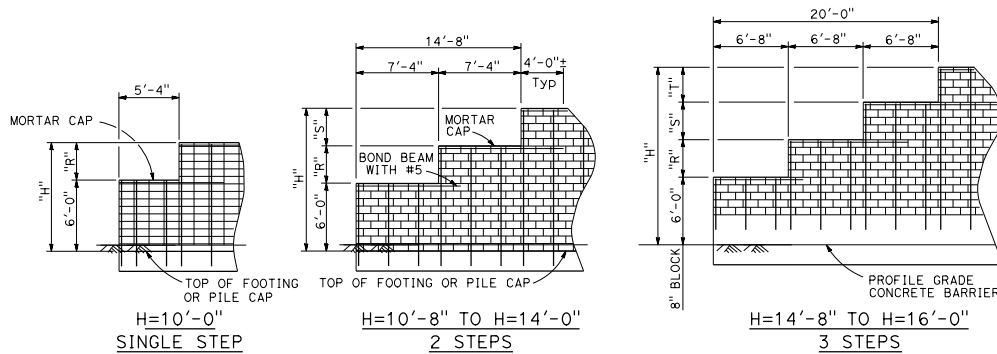


TYPE I

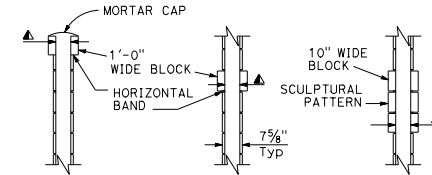
Slope batter shall not be flatter than 1:1.



TYPE II

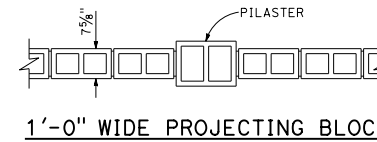


TYPE III

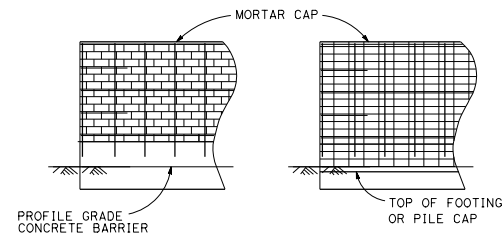


ARCHITECTURAL ALTERNATIVES

▲ Cell width to match 8" block.



1'-0" WIDE PROJECTING BLOCK



TYPE IV

END OF WALL DETAILS

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL SHEETS

REGISTERED CIVIL ENGINEER

April 17, 2020
PLANS APPROVAL DATE

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

TO ACCOMPANY PLANS DATED _____

REGISTERED PROFESSIONAL ENGINEER
Tilgert Satter
No. C42892
Exp. 3-31-22
CIVIL
STATE OF CALIFORNIA

NOTES:

- 1'-0" wide block not allowed within 6'-0" of profile grade.
- For structural details, see other sheets.
- Type III not permitted for sound walls with "H" less than 10'-0".
- The end of the wall details may be used with any of the standard supporting foundations for masonry block. The foundations shown for the different types are for the purpose of illustration only.

8" x 8" x 16" BLOCK

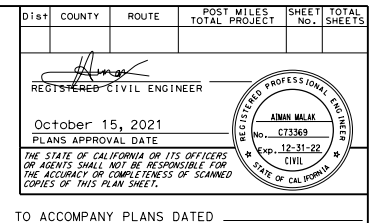
H	R	S	T
10'-0"	4'-0"	—	—
10'-8"	2'-8"	2'-0"	—
11'-4"	2'-8"	2'-8"	—
12'-0"	3'-4"	2'-8"	—
12'-8"	3'-4"	3'-4"	—
13'-4"	4'-0"	3'-4"	—
14'-0"	4'-0"	4'-0"	—
14'-8"	3'-4"	2'-8"	2'-8"
15'-4"	3'-4"	3'-4"	2'-8"
16'-0"	3'-4"	3'-4"	3'-4"

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**SOUND WALL
MASONRY BLOCK
MISCELLANEOUS DETAILS**

NO SCALE

RSP B15-9 DATED APRIL 17, 2020 SUPERSEDES STANDARD PLAN B15-9
DATED MAY 31, 2018 - PAGE 398 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP B15-9



- REVISED STANDARD PLAN RSP B15-10

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

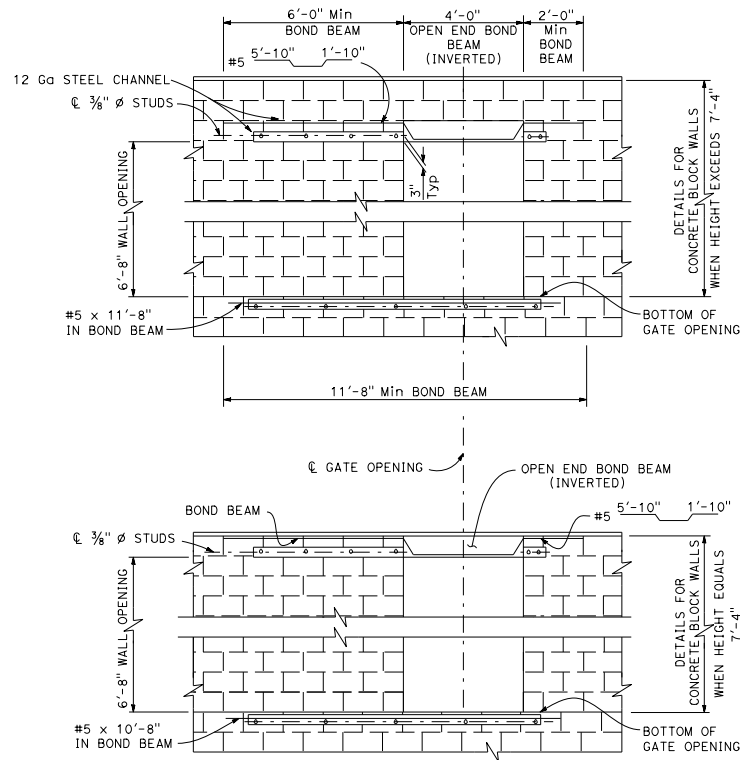
REGISTERED CIVIL ENGINEER

April 17, 2020
PLANS APPROVAL DATE

No. C42892
EXP. 3-31-22
CIVIL

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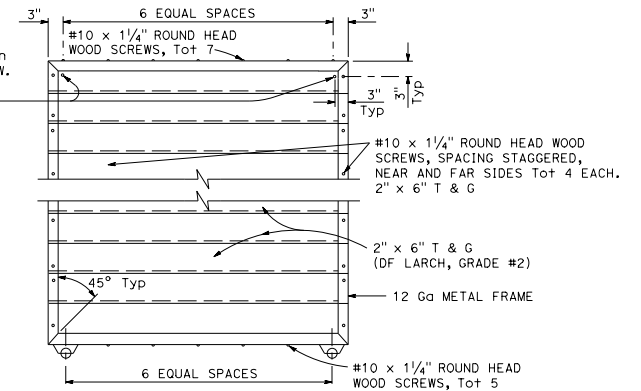
TO ACCOMPANY PLANS DATED _____



PARTIAL ELEVATION (BACK)

For details not shown, see above.

2-NYLON FINISHING WASHERS 1/2" Dia Min MOUNTED WITH COUNTER SUNK WOOD SCREW. WASHER THICKNESS AS REQUIRED TO PROVIDE SNUG BUT NOT BINDING FIT



ELEVATION - METAL FRAME

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**SOUND WALL MASONRY BLOCK
ON FOOTING OR PILE CAP
5'-0" ACCESS GATE
DETAILS (2)**

NO SCALE

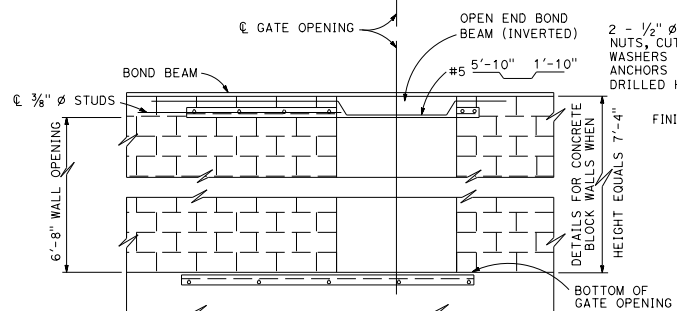
RSP B15-11 DATED APRIL 17, 2020 SUPERSEDES STANDARD PLAN B15-11
DATED MAY 31, 2018 - PAGE 400 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP B15-11

2018 REVISED STANDARD PLAN RSP B15-11

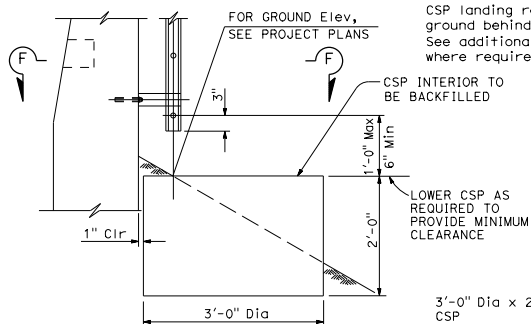


TO ACCOMPANY PLANS DATED



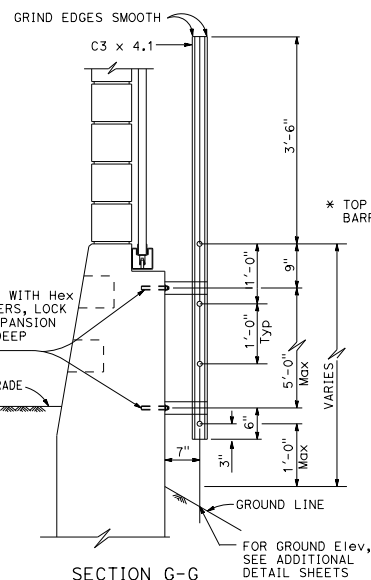
For details not shown, see above.

CSP landing required when slope of ground behind barrier is steeper than 8:1. See additional detail sheets for location where required.

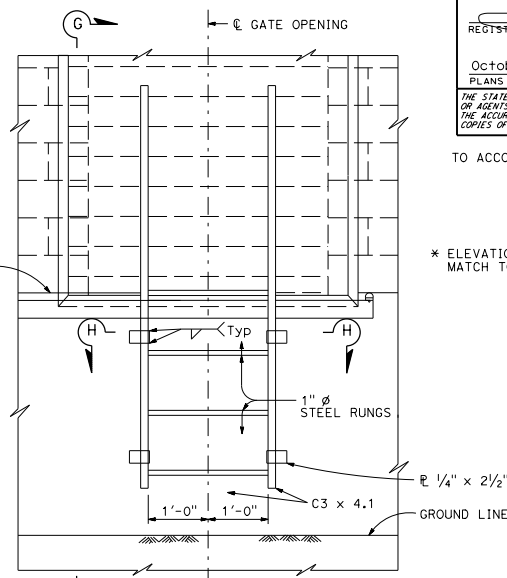


Technical drawing of a gate opening in a concrete wall. The drawing shows a circular gate opening with a diameter of 2'-0" x 1/16". The gate is supported by two vertical posts, each 7" high. The posts are spaced 1'-0" apart. The gate is made of #10 WOOD. The gate opening is labeled "GATE OPENING".

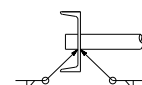
SECTION F-F



SECTION G-G



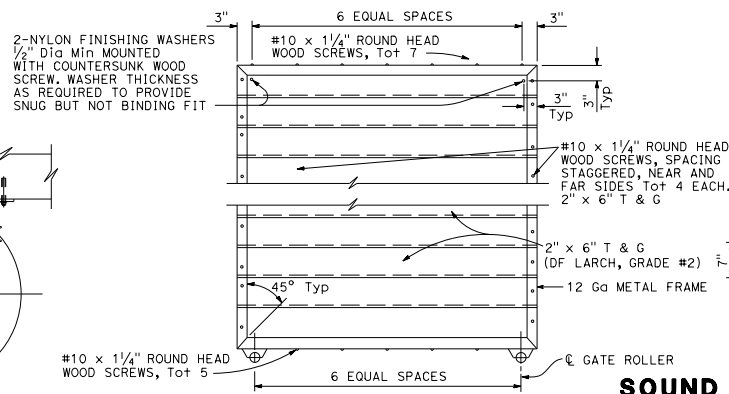
ELEVATION (BACK)



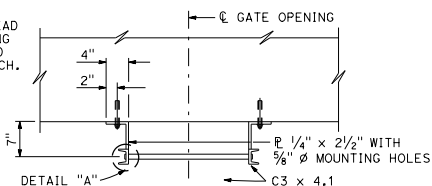
DETAIL "A"

TO ACCOMPANY PLANS DATED

* ELEVATION OF CENTERLINE OF TOP RUNG TO
MATCH TOP OF CONCRETE BARRIER ELEVATION



ELEVATION - METAL FRAME



SECTION H-H

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

NO SCALE

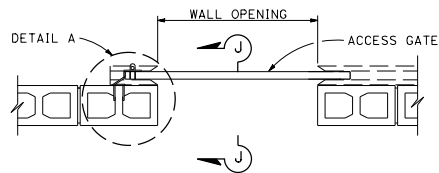
RSP B15-13 DATED OCTOBER 15, 2021 SUPERSEDES RSP B15-13 DATED APRIL 17, 2020 AND
STANDARD PLAN B15-13 DATED MAY 31, 2018 - PAGE 402 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP B15-13

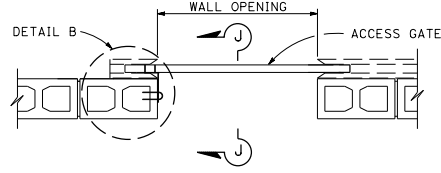
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER
April 17, 2020
PLANS APPROVAL DATE
No. C42892
EXP. 3-31-22
CIVIL
THE STATE OF CALIFORNIA OR ITS OFFICERS
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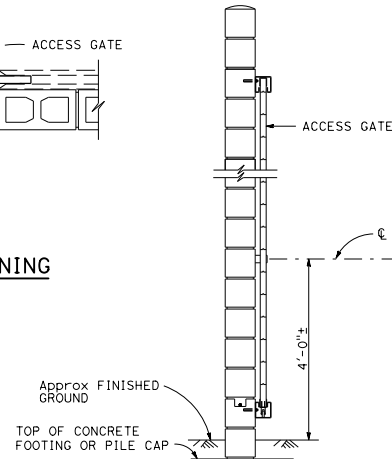
TO ACCOMPANY PLANS DATED _____



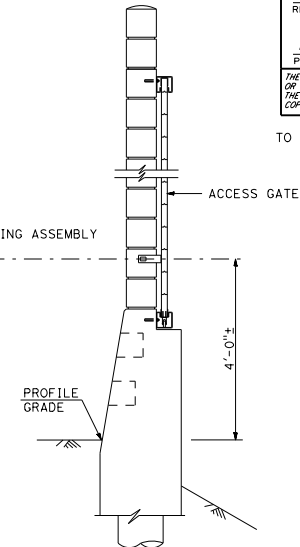
PLAN
LOCK ON
GATE SIDE OF WALL



PLAN
LOCK ON
INSIDE OF WALL OPENING



MASONRY ON FOOTING
OR PILE CAP



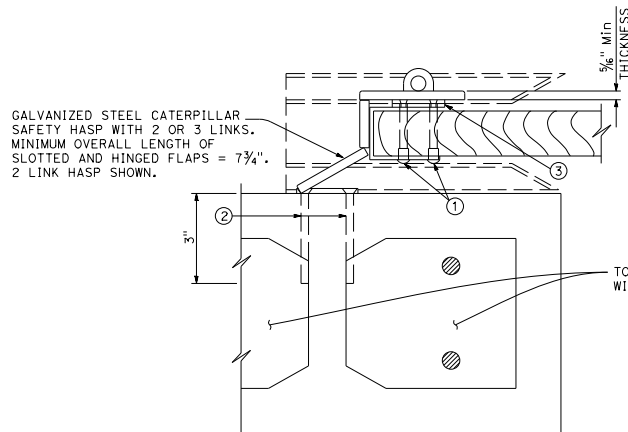
MASONRY ON BARRIER

SECTION J-J

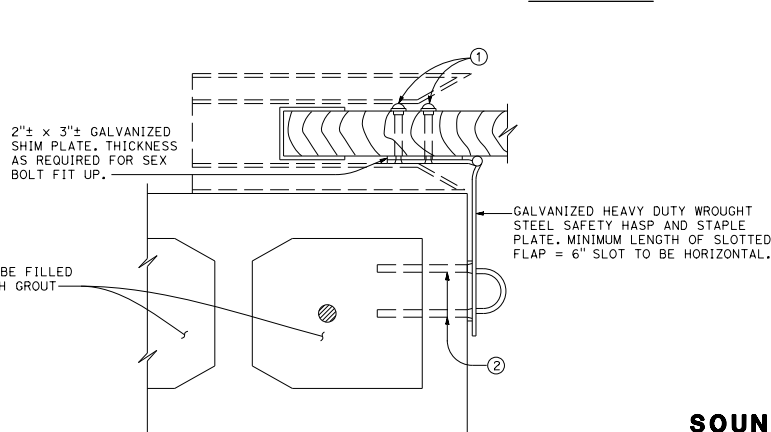
NOTES:

1. Masonry anchors to be installed after the grout in the block cells has attained specified strength.
2. The Contractor may submit alternative gate locking assemblies for approval by the Engineer.
3. See other sheets for gate details.

- ① 4 - SEX BOLTS WITH 1/4" - 20 FLAT HEAD CORROSION RESISTANT MACHINE SCREWS.
- ② 4 - 1/4" ϕ x 3" LONG FLAT HEAD SLEEVE TYPE CORROSION RESISTANT MASONRY ANCHORS.
- ③ GALVANIZED SHIM PLATE. SIZE AS REQUIRED TO MATCH HASP STAPLE PLATE. THICKNESS AS REQUIRED FOR SEX BOLT FIT UP.



DETAIL A



DETAIL B

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**SOUND WALL MASONRY BLOCK
ACCESS GATE LOCKING DETAILS**
NO SCALE

RSP B15-14 DATED APRIL 17, 2020 SUPERSEDES STANDARD PLAN B15-14
DATED MAY 31, 2018 - PAGE 403 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP B15-14

2018 REVISED STANDARD PLAN RSP B15-14

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL NO. SHEETS

REGISTERED CIVIL ENGINEER

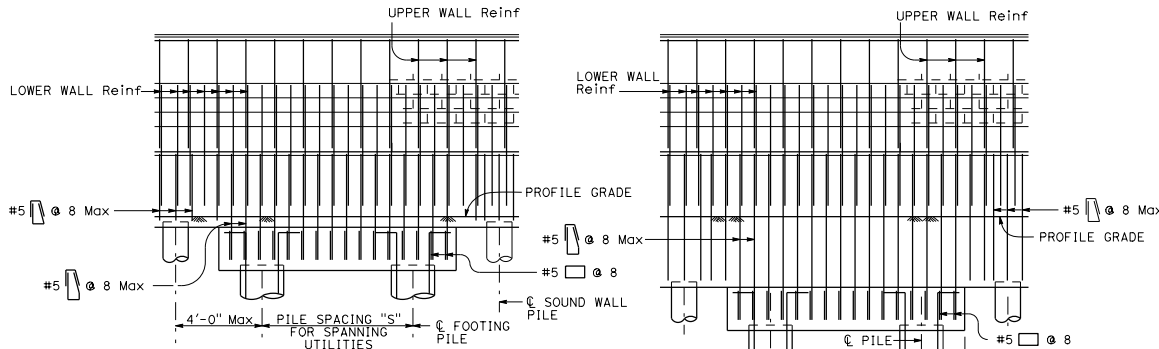
October 15, 2021

PLANS APPROVAL DATE:

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COPIES OF THIS PLAN SHEET.

REGISTERED PROFESSIONAL ENGINEER
ANAN MALAK
No. C73369
Exp. 12-31-22
CIVIL
STATE OF CALIFORNIA

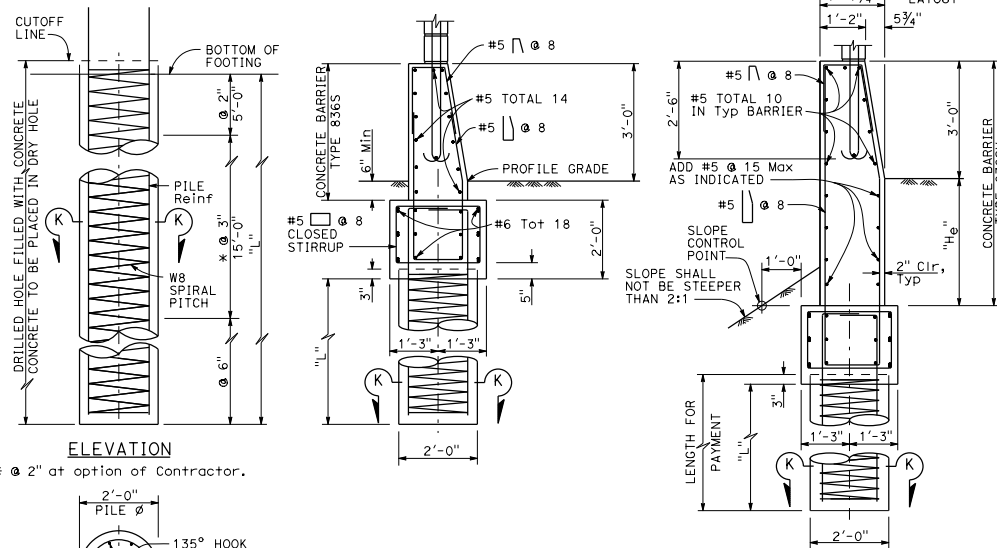
TO ACCOMPANY PLANS DATED _____



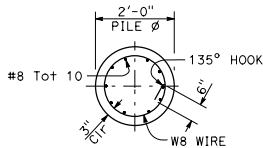
CASE 1
For details not shown, see Case 2.
See Note 1

CASE 2
For details not shown, see Case 1.
See Note 1

PART ELEVATIONS



* @ 2" at option of Contractor.



SECTION K-K

CASE 1

Level ground $\pm 10\%$ on both sides of barrier.
For details not shown, see Case 2.

CASE 2

Level ground $\pm 10\%$ at the traffic side of barrier
and sloping ground on the opposite side.
For details not shown, see Case 1.

BARRIER SECTIONS

DESIGN NOTES:

DESIGN

AASHTO LRFD Bridge Design Specifications,
8th Edition 2017 with California Amendment,
Preface date April 2019
TM5 402-16
2019 California Building Code

DESIGN WIND LOAD **DESIGN SEISMIC LOAD** **DESIGN IMPACT LOAD**
36.5 psf 0.57 Dead load TL-3

DESIGN LIVE LOAD SURCHARGE

240 psf surcharge on level ground surface

REINFORCED CONCRETE & CONCRETE MASONRY

$f'_c = 3.6$ ksi
 $f_y = 60$ ksi
 $f'_m = 2000$ psi *
 $f'_m = 2500$ psi for high-strength blocks only *

* Provide materials to achieve the net compressive strength
of concrete masonry unit equal or greater than the specified f'_m .

CASE 1 : PILE DATA TABLE						
MAXIMUM H	$\phi = 25$		$\phi = 30$		$\phi = 35$	
	S	L	S	L	S	L
8'-4"	16'-0"	13'-6"	16'-0"	10'-0"	16'-0"	8'-0"
10'-4"	16'-0"	14'-0"	16'-0"	10'-6"	16'-0"	8'-6"
12'-4"	16'-0"	14'-6"	16'-0"	11'-0"	16'-0"	8'-6"
14'-4"	16'-0"	15'-0"	16'-0"	11'-6"	16'-0"	9'-0"
16'-4"	16'-0"	15'-6"	16'-0"	12'-0"	16'-0"	9'-6"

CASE 2 : PILE DATA TABLE						
H _e	H	$\phi = 30$ Min		$\phi = 35$ Min		H
		S	L	S	L	
1'-0"	8'-4"	16'-0"	18'-0"	16'-0"	13'-6"	8'-4"
	10'-4"	16'-0"	19'-0"	16'-0"	14'-6"	10'-4"
	12'-4"	16'-0"	19'-6"	16'-0"	15'-6"	12'-4"
	14'-4"	16'-0"	20'-6"	16'-0"	16'-6"	14'-4"
	16'-4"	16'-0"	21'-6"	16'-0"	17'-6"	16'-4"
2'-0"	8'-4"	16'-0"	20'-0"	16'-0"	15'-0"	8'-4"
	10'-4"	16'-0"	20'-6"	16'-0"	16'-0"	10'-4"
	12'-4"	16'-0"	21'-6"	16'-0"	17'-0"	12'-4"
	14'-4"	16'-0"	22'-6"	16'-0"	18'-0"	14'-4"
	16'-4"	16'-0"	22'-6"	16'-0"	18'-6"	16'-4"
3'-0"	8'-4"	16'-0"	22'-0"	16'-0"	16'-6"	8'-4"
	10'-4"	15'-6"	22'-6"	16'-0"	17'-6"	10'-4"
	12'-4"	14'-0"	22'-6"	16'-0"	18'-6"	12'-4"
	14'-4"	13'-0"	22'-6"	15'-6"	19'-0"	14'-4"
	16'-4"	12'-0"	22'-6"	14'-0"	19'-0"	16'-4"
4'-0"	8'-4"	12'-3"	22'-6"	15'-3"	18'-0"	8'-4"
	10'-4"	11'-6"	22'-6"	14'-3"	18'-6"	10'-4"
	12'-4"	10'-9"	22'-6"	13'-3"	18'-6"	12'-4"
	14'-4"	10'-0"	22'-6"	12'-3"	18'-6"	14'-4"
	16'-4"	9'-6"	22'-6"	11'-3"	19'-0"	16'-4"

NOTE:

1. For wall reinforcement details,
see Revised Standard Plan RSP B15-6.

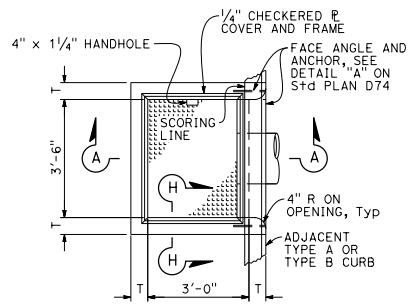
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

SOUND WALL MASONRY BLOCK ON TYPE 836S/SV BARRIER ON PILE FOOTING FOR SPANNING UTILITIES

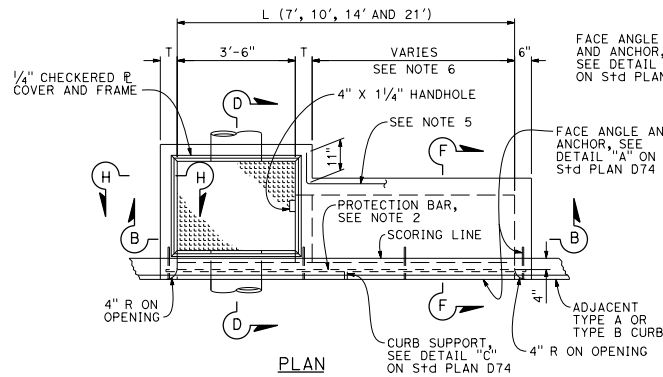
NO SCALE

RSP B15-15 DATED OCTOBER 15, 2021 SUPERSEDES RSP B15-15 DATED APRIL 17, 2020 AND
STANDARD PLAN B15-15 DATED MAY 31, 2018 - PAGE 404 OF THE STANDARD PLANS BOOK DATED 2018.

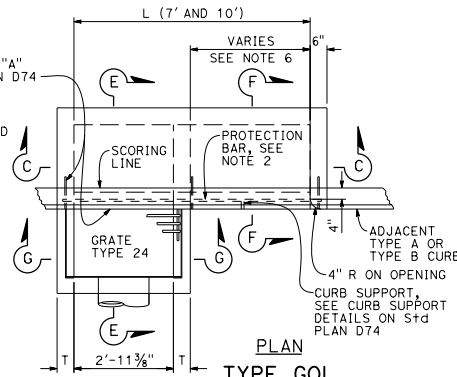
REVISED STANDARD PLAN RSP B15-15



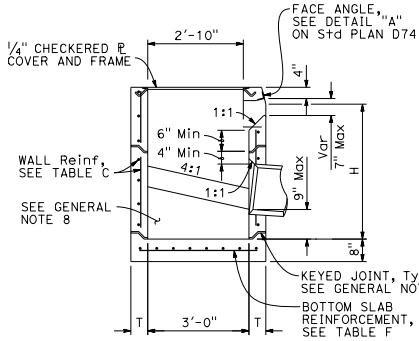
PLAN
TYPE OS



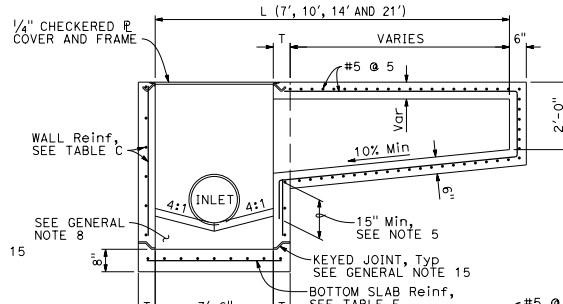
PLAN
TYPE OL



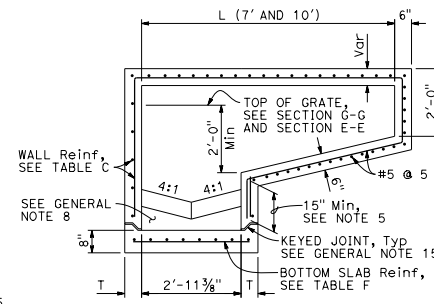
PLAN
TYPE GOL



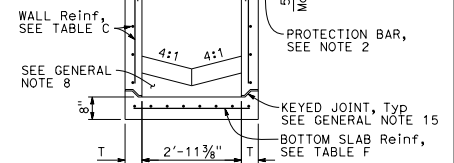
SECTION A-A



SECTION B-B



SECTION C-C



SECTION G-G

NOTES:

1. See Standard Plan D73F for General Notes and additional details. See Standard Plan D73G for tables, wall thickness "T" and quantities.
2. 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.
3. Complete joint penetration butt welds may be substituted for the fillet welds on all anchors.
4. Standard square, hexagon, round or equivalent headed anchors may be substituted for the right angle hooks on the anchors shown on this plan.
5. Extend all horizontal bars from inlet extensions into adjacent concrete elements of main inlet box a minimum of 15". Where shown, bend horizontal bars into box. If necessary rotate bars to maintain 2" clear coverage.
6. Height of curb opening will vary with the type of curb and the depth of the local depression.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

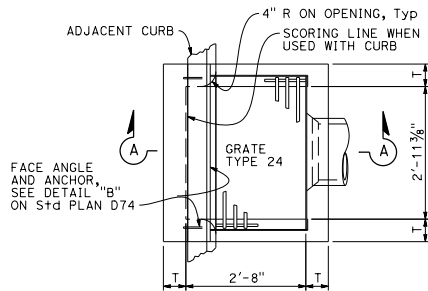
**PRECAST
DRAINAGE INLETS
TYPES OS, OL AND GOL**

NO SCALE

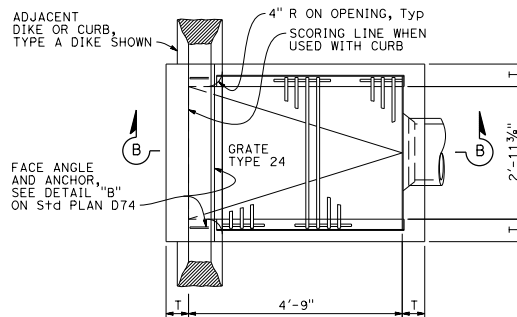
RSP D73A DATED APRIL 19, 2019 SUPERSEDES STANDARD PLAN D73A
DATED MAY 31, 2018 - PAGE 202 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP D73A

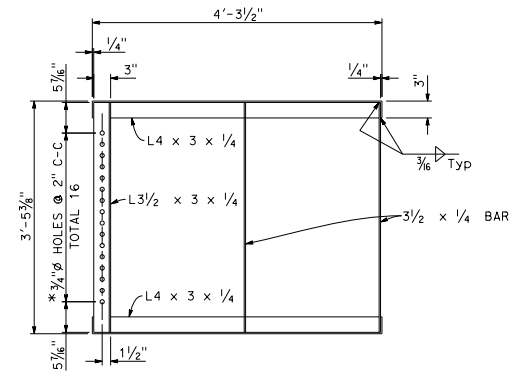
2018 REVISED STANDARD PLAN RSP D73A



PLAN
TYPE GO

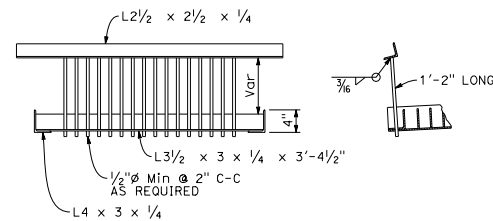


PLAN
TYPE GDO



GRATE FRAME FOR TYPE GDO INLET

* HOLES REQUIRED ONLY WITH TRASH RACK



TRASH RACK

FOR USE WITH PUMP INSTALLATION

NOTES:

1. See Standard Plan D73F for General Notes and additional details. See Standard Plan D73G for tables, wall thickness "T" and quantities.
2. Where 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.
3. Complete joint penetration butt welds may be substituted for the fillet welds on all anchors.
4. Standard square, hexagon, round or equivalent headed anchors may be substituted for the right angle hooks on the anchors shown on this plan.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**PRECAST
DRAINAGE INLETS
TYPES GO AND GDO**

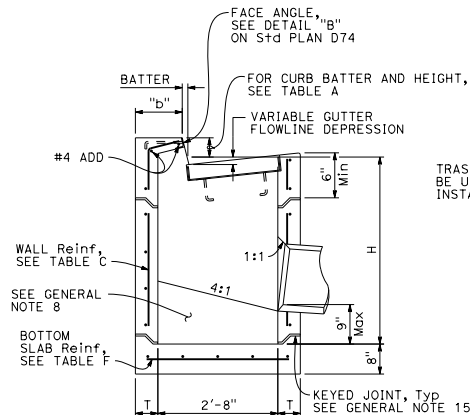
NO SCALE

RSP D73E DATED APRIL 19, 2019 SUPERSEDES STANDARD PLAN D73E
DATED MAY 31, 2018 - PAGE 206 OF THE STANDARD PLANS BOOK DATED 2018.

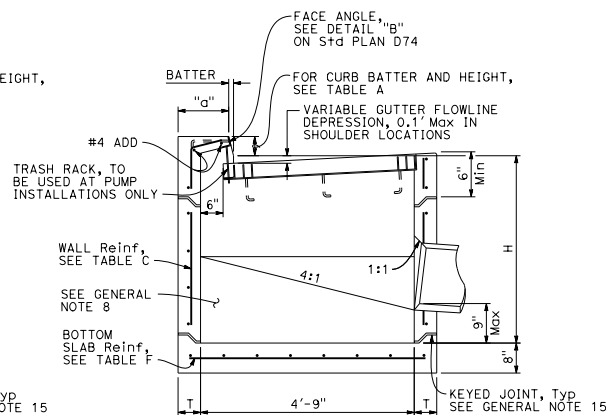
REVISED STANDARD PLAN RSP D73E

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"

Height of curb opening will vary with the type of curb and the depth of the local depression.



SECTION A-A




SECTION B-B

WALL A																											
ID	t	MINIMUM COVER TO 10'-0" Max COVER									20'-0" Max COVER									40'-0" Max COVER				40'-0" Max COVER			
		METHOD 1			METHOD 2			METHOD 3A			METHOD 1			METHOD 2			METHOD 3A			METHOD 3A		METHOD 3B					
		A _{sl}	A _{so}	A _{se}	A _{sl}	A _{so}	A _{se}	A _{sl}	A _{so}	A _{se}	A _{sl}	A _{so}	A _{se}	A _{sl}	A _{so}	A _{se}	A _{sl}	A _{so}	A _{se}	A _{sl}	A _{so}	A _{sl}	A _{so}				
24"	2 1/2"	0.23	-	0.21	0.16	-	0.16	0.14	-	0.14	0.25	-	0.27	0.17	-	0.18	0.14	-	0.14	0.25	0.20	0.24	0.16				
30"	2 3/4"	0.29	-	0.27	0.21	-	0.20	0.18	-	0.17	0.40	0.20	0.41	0.25	-	0.23	0.19	-	0.18	0.37	0.25	0.31	0.22				
36"	3"	0.28	0.16	0.31	0.22	0.15	0.22	0.19	0.13	0.20	-	-	-	0.29	0.19	0.29	0.21	0.14	0.23	0.47	0.32	0.37	0.27				
42"	3 1/2"	0.32	0.20	0.36	0.21	0.15	0.22	0.19	0.13	0.21	-	-	-	0.33	0.21	0.33	0.24	0.15	0.27	0.53	0.40	0.42	0.29				
48"	4"	0.44	0.26	0.48	0.20	0.16	0.23	0.20	0.14	0.22	-	-	-	0.37	0.23	0.37	0.28	0.19	0.30	-	-	0.47	0.31				
54"	4 1/2"	0.53	0.31	0.58	0.20	0.16	0.24	0.21	0.14	0.23	-	-	-	0.41	0.25	0.42	0.30	0.23	0.32	-	-	0.57	0.34				
60"	5"	0.59	0.34	0.61	0.22	0.17	0.25	0.22	0.15	0.25	-	-	-	0.46	0.27	0.46	0.32	0.26	0.34	-	-	0.63	0.37				
66"	5 1/2"	0.66	0.39	0.68	0.24	0.17	0.27	0.23	0.16	0.27	-	-	-	0.51	0.29	0.52	0.33	0.27	0.35	-	-	0.65	0.39				
72"	6"	0.68	0.45	0.70	0.26	0.18	0.28	0.24	0.17	0.28	-	-	-	0.56	0.31	0.57	0.34	0.28	0.37	-	-	0.68	0.42				
78"	6 1/2"	0.72	0.50	0.74	0.28	0.19	0.29	0.25	0.17	0.30	-	-	-	0.61	0.34	0.62	0.35	0.28	0.38	-	-	0.74	0.45				
84"	7"	0.74	0.56	0.76	0.30	0.20	0.31	0.27	0.18	0.31	-	-	-	0.67	0.36	0.68	0.37	0.29	0.39	-	-	-	-				
90"	7 1/2"	0.76	0.65	0.78	0.33	0.21	0.34	0.29	0.19	0.32	-	-	-	0.73	0.39	0.74	0.40	0.30	0.41	-	-	-	-				
96"	8"	0.78	0.66	0.81	0.35	0.23	0.36	0.32	0.19	0.33	-	-	-	0.79	0.41	0.80	0.42	0.31	0.43	-	-	-	-				
102"	8 1/2"	0.80	0.68	0.84	0.38	0.24	0.39	0.36	0.20	0.38	-	-	-	0.85	0.44	0.86	0.45	0.32	0.46	-	-	-	-				
108"	9"	0.83	0.70	0.87	0.41	0.26	0.42	0.38	0.21	0.42	-	-	-	-	-	0.48	0.34	0.49	-	-	-	-					
114"	9 1/2"	0.86	0.72	0.90	0.44	0.28	0.47	0.40	0.24	0.47	-	-	-	-	-	0.51	0.36	0.52	-	-	-	-					
120"	10"	0.89	0.74	0.93	0.53	0.34	0.54	0.44	0.27	0.52	-	-	-	-	-	0.54	0.38	0.56	-	-	-	-					

WALL AA					
ID	t	40'-0" Max COVER			
		METHOD 3B		METHOD 3B	
84"	7"	A _{sl}	A _{so}	A _{sl}	A _{so}
90"	7 1/2"	0.75	0.46	0.81	0.49
96"	8"	0.87	0.52	0.87	0.52
102"	8 1/2"	0.93	0.55	0.93	0.55
108"	9 1/2"	0.94	0.56	0.94	0.56
114"	10 1/2"	0.96	0.57	0.96	0.57
120"	11"	1.02	0.60	1.02	0.60

WALL BB					
ID	t	80'-0" Max COVER			
		METHOD 3B		METHOD 3B	
24"	5 3/4"	A _{sl}	A _{so}	A _{sl}	A _{so}
30"	6"	0.31	0.18	0.33	0.22
36"	6 1/2"	0.39	0.36	0.39	0.36
42"	7 1/2"	0.48	0.45	0.48	0.45
48"	8 1/2"	0.57	0.55	0.57	0.55
54"	10"	0.61	0.58	0.61	0.58
60"	11"	0.63	0.61	0.63	0.61
66"	11 1/2"	0.65	0.63	0.65	0.63
72"	12 1/2"	0.73	0.71	0.73	0.71
78"	13 1/2"	0.80	0.78	0.80	0.78
84"	14 3/4"	0.83	0.81	0.83	0.81
90"	16"	0.86	0.84	0.86	0.84
96"	17 1/4"	0.90	0.88	0.90	0.88

DIS*	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
 REGISTERED CIVIL ENGINEER					
October 15, 2021 PLANS APPROVAL DATE					
No. C59976 Exp. 6-30-22 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.					

TO ACCOMPANY PLANS DATED _____

		WALL B																					
ID	+	MINIMUM COVER TO 10'-0" Max COVER						20'-0" Max COVER						40'-0" Max COVER				40'-0" Max COVER					
		METHOD 1		METHOD 2		METHOD 3A		METHOD 1		METHOD 2		METHOD 3A		METHOD 3A		METHOD 3B		METHOD 3B					
		A _{sl}	A _{so}	A _{seo}	A _{sl}	A _{so}	A _{seo}	A _{sl}	A _{so}	A _{seo}	A _{sl}	A _{so}	A _{seo}	A _{sl}	A _{so}	A _{seo}	A _{sl}	A _{so}	A _{seo}	A _{sl}	A _{so}		
24"	3"	0.18	-	0.16	0.14	-	0.12	0.12	-	0.11	0.22	-	0.25	0.15	-	0.14	0.12	-	0.11	0.21	0.18	0.12	
30"	3 1/2"	0.27	-	0.19	0.17	-	0.14	0.15	-	0.15	0.30	-	0.27	0.21	-	0.17	0.18	-	0.12	0.25	0.20	0.29	0.14
36"	4"	0.24	0.14	0.26	0.15	0.09	0.17	0.13	0.08	0.13	0.28	0.15	0.29	0.20	0.12	0.20	0.15	0.09	0.15	0.29	0.23	0.30	0.17
42"	4 1/2"	0.28	0.17	0.31	0.16	0.09	0.18	0.14	0.08	0.14	0.35	0.18	0.36	0.23	0.14	0.24	0.17	0.11	0.17	0.34	0.25	0.32	0.21
48"	5"	0.33	0.19	0.38	0.17	0.10	0.19	0.15	0.09	0.16	0.43	0.22	0.44	0.27	0.16	0.27	0.19	0.13	0.20	0.38	0.32	0.35	0.24
54"	5 1/2"	0.40	0.24	0.44	0.18	0.10	0.20	0.16	0.10	0.17	0.51	0.27	0.52	0.30	0.19	0.31	0.22	0.14	0.22	0.40	0.43	0.42	0.27
60"	6"	0.47	0.28	0.53	0.20	0.11	0.21	0.18	0.10	0.18	0.60	0.31	0.61	0.34	0.21	0.34	0.25	0.16	0.25	-	-	0.50	0.35
66"	6 1/2"	0.56	0.33	0.62	0.21	0.13	0.22	0.20	0.12	0.18	-	-	-	0.37	0.23	0.38	0.27	0.18	0.28	-	-	0.58	0.38
72"	7"	0.61	0.38	0.64	0.23	0.14	0.23	0.21	0.12	0.19	-	-	-	0.41	0.26	0.42	0.30	0.20	0.30	-	-	0.59	0.45
78"	7 1/2"	0.65	0.45	0.67	0.25	0.15	0.26	0.22	0.12	0.22	-	-	-	0.46	0.28	0.47	0.32	0.22	0.33	-	-	0.60	0.50
84"	8"	0.67	0.50	0.69	0.28	0.17	0.28	0.23	0.13	0.26	-	-	-	0.52	0.31	-	0.35	0.24	0.36	-	-	-	-
90"	8 1/2"	0.69	0.52	0.71	0.30	0.18	0.31	0.25	0.16	0.30	-	-	-	0.59	0.33	-	0.38	0.26	0.39	-	-	-	-
96"	9"	0.71	0.57	0.73	0.33	0.20	0.34	0.29	0.17	0.34	-	-	-	0.65	0.36	-	0.41	0.28	0.42	-	-	-	-
102"	9 1/2"	0.75	0.68	0.75	0.35	0.22	0.38	0.36	0.20	0.38	-	-	-	0.72	0.39	-	0.44	0.30	0.45	-	-	-	-
108"	10"	0.76	0.69	0.77	0.38	0.23	0.43	0.38	0.22	0.43	-	-	-	0.79	0.42	-	0.47	0.32	0.48	-	-	-	-
114"	10 1/2"	0.78	0.70	0.79	0.41	0.25	0.48	0.41	0.24	0.48	-	-	-	-	-	-	0.50	0.34	-	-	-	-	-
120"	11"	0.80	0.72	0.82	0.49	0.30	0.53	0.45	0.27	0.53	-	-	-	-	-	-	0.53	0.36	-	-	-	-	-

		WALL X															
ID	+	Min COVER TO 10'-0" Max COVER						20'-0" Max COVER						30'-0" Max COVER			
		METHOD 3A		METHOD 3B		METHOD 3A		METHOD 3B		METHOD 3A		METHOD 3B		METHOD 3A		METHOD 3B	
		A _{sl}	A _{so}	A _{sl}	A _{so}	A _{sl}	A _{so}	A _{sl}	A _{so}	A _{sl}	A _{so}	A _{sl}	A _{so}	A _{sl}	A _{so}	A _{sl}	A _{so}
24"	1 1/2"	0.19	-	0.19	0.18	-	0.18	0.19	-	0.19	0.18	-	0.18	0.22	0.17	0.18	0.15
30"	2 1/8"	0.23	-	0.21	0.22	-	0.20	0.23	-	0.21	0.22	-	0.20	0.23	0.19	0.20	0.17
36"	2 3/8"	0.23	0.17	0.25	0.21	0.16	0.22	0.23	0.17	0.23	0.21	0.16	0.22	0.25	0.21	0.21	0.18
42"	2 3/4"	0.26	0.19	0.27	0.24	0.18	0.25	0.26	0.19	0.26	0.24	0.18	0.25	0.35	0.27	0.26	0.24
48"	2 7/8"	0.28	0.21	0.28	0.26	0.20	0.27	0.28	0.21	0.28	0.26	0.20	0.27	0.43	0.33	0.30	0.28
54"	3 1/4"	0.29	0.22	0.31	0.27	0.20	0.29	0.29	0.21	0.30	0.27	0.20	0.29	0.47	0.34	0.32	0.29
60"	3 1/2"	0.30	0.23	0.32	0.28	0.21	0.31	0.30	0.24	0.30	0.27	0.21	0.29	0.56	0.42	0.40	0.33
66"	3 3/4"	0.31	0.24	0.34	0.29	0.21	0.33	0.36	0.27	0.37	0.28	0.24	0.30	0.66	0.50	0.48	0.39
72"	4 1/4"	0.33	0.24	0.36	0.31	0.22	0.35	0.37	0.27	0.37	0.30	0.24	0.32	0.68	0.52	0.48	0.40
78"	4 3/4"	0.34	0.25	0.38	0.32	0.23	0.37	0.37	0.27	0.38	0.32	0.24	0.33	0.70	0.53	0.49	0.41
84"	5 1/4"	0.36	0.25	0.39	0.33	0.24	0.38	0.38	0.28	0.39	0.33	0.24	0.36	0.71	0.55	0.50	0.41
90"	5 3/4"	0.37	0.26	0.40	0.34	0.24	0.39	0.39	0.30	0.40	0.34	0.26	0.37	0.73	0.57	0.52	0.42
96"	6"	0.38	0.27	0.42	0.36	0.25	0.40	0.43	0.31	0.44	0.36	0.28	0.38	0.77	0.58	0.55	0.42
102"	6 1/2"	0.40	0.29	0.43	0.38	0.26	0.42	0.48	0.34	0.49	0.38	0.30	0.39	0.84	0.60	0.62	0.43
108"	7"	0.41	0.29	0.45	0.40	0.26	0.44	0.53	0.36	0.54	0.39	0.32	0.41	-	-	0.68	0.46
114"	7 1/2"	0.42	0.30	0.47	0.41	0.27	0.45	0.57	0.38	0.58	0.42	0.34	0.45	-	-	0.75	0.50
120"	8"	0.43	0.31	0.50	0.43	0.27	0.50	0.62	0.41	0.64	0.45	0.36	0.50	-	-	0.81	0.53

WALL B																
ID	+	MINIMUM COVER TO 10'-0" Max COVER									20'-0" Max COVER					
		INSTALLATION TYPE 1			INSTALLATION TYPE 2			INSTALLATION TYPE 3			INSTALLATION TYPE 1			INSTALLATION TYPE 2		
		A _{sl}	A _{so}	A _{se}	A _{sl}	A _{so}	A _{se}	A _{sl}	A _{so}	A _{se}	A _{sl}	A _{so}	A _{se}	A _{sl}	A _{so}	A _{se}
24"	3"	0.17	-	0.16	0.19	-	0.17	0.21	-	0.19	0.17	-	0.16	0.19	-	0.17
30"	3 1/2"	0.21	-	0.17	0.22	-	0.18	0.25	-	0.21	0.21	-	0.17	0.22	-	0.18
36"	4"	0.17	0.09	0.18	0.18	0.10	0.19	0.21	0.11	0.22	0.17	0.09	0.18	0.21	0.11	0.22
42"	4 1/2"	0.18	0.09	0.19	0.21	0.12	0.23	0.22	0.12	0.23	0.19	0.10	0.19	0.25	0.14	0.26
48"	5"	0.19	0.10	0.20	0.24	0.14	0.27	0.23	0.13	0.24	0.22	0.12	0.23	0.29	0.16	0.31
54"	5 1/2"	0.20	0.11	0.22	0.29	0.17	0.32	0.24	0.14	0.25	0.25	0.14	0.28	0.33	0.20	0.37
60"	6"	0.21	0.12	0.23	0.34	0.20	0.38	0.25	0.15	0.27	0.29	0.17	0.32	0.40	0.23	0.44
66"	6 1/2"	0.21	0.13	0.24	0.41	0.24	0.45	0.32	0.19	0.35	0.36	0.22	0.40	0.48	0.28	0.53
72"	7"	0.22	0.14	0.25	0.49	0.29	0.54	0.37	0.22	0.41	0.43	0.25	0.47	0.57	0.34	0.63
78"	7 1/2"	0.23	0.15	0.26	0.57	0.34	0.63	0.42	0.25	0.47	0.50	0.30	0.55	0.66	0.39	0.66
84"	8"	0.26	0.16	0.31	0.64	0.38	0.69	0.48	0.29	0.54	0.57	0.34	0.63	0.69	0.45	-
90"	8 1/2"	0.34	0.21	0.38	0.69	0.41	0.72	0.54	0.33	0.61	0.63	0.37	0.70	0.72	0.51	-
96"	9"	0.39	0.24	0.44	0.70	0.45	0.74	0.61	0.36	0.68	0.70	0.41	0.74	-	-	-
102"	9 1/2"	0.48	0.29	0.49	0.72	0.54	0.76	0.73	0.44	0.74	0.75	0.50	0.78	-	-	-
108"	10"	0.57	0.30	0.55	0.75	0.65	0.79	0.76	0.53	0.80	0.77	0.60	0.80	-	-	-
114"	10 1/2"	0.66	0.31	0.60	0.78	0.76	0.81	0.80	0.62	0.83	0.79	0.69	0.82	-	-	-
120"	11"	0.75	0.31	0.66	0.81	0.86	0.83	0.84	0.72	0.86	0.81	0.79	0.84	-	-	-

WALL BB					
ID	+	40'-0" Max COVER			
		INSTALLATION TYPE 1			
		A _{sl}	A _{so}		
f' _c = 6 ksi	24"	3"	0.22	0.13	
	30"	3 1/2"	0.27	0.14	
	36"	4"	0.33	0.17	
	42"	4 1/2"	0.42	0.22	
	48"	5"	0.52	0.27	
	54"	5 1/2"	0.54	0.29	
	60"	6"	0.57	0.34	
	66"	7 1/4"	0.60	0.38	
	72"	8 1/2"	0.62	0.40	
	78"	9 1/2"	0.64	0.42	
f' _c = 7 ksi	84"	10 1/4"	0.65	0.43	
	90"	10 1/2"	0.66	0.44	
	96"	10 3/4"	0.79	0.46	
	102"	11 3/4"	0.80	0.48	
	108"	12 1/4"	0.88	0.53	
	114"	13 1/4"	0.90	0.55	
	120"	14"	0.93	0.56	


WALL CC					
f'c = 6 ksi	ID	+	80'-0" Max COVER		
			INSTALLATION TYPE 1		
			A _{sl}	A _{so}	
f'c = 7 ksi	24"	6 1/2"	0.21	0.19	
	30"	7 1/2"	0.35	0.30	
	36"	8 1/2"	0.45	0.42	
	42"	10 1/4"	0.49	0.45	
	48"	10 1/2"	0.52	0.49	
	54"	11 1/2"	0.60	0.58	
	60"	12 3/4"	0.65	0.63	
	66"	14 1/4"	0.68	0.67	
	72"	16 1/2"	0.70	0.68	
	78"	18"	0.73	0.72	
	84"	19 1/2"	0.76	0.75	
	90"	20 3/4"	0.80	0.79	
96"	22 1/2"	0.82	0.81		

WALL C																
ID	+	MINIMUM COVER TO 10'-0" Max COVER									20'-0" Max COVER					
		INSTALLATION TYPE 1			INSTALLATION TYPE 2			INSTALLATION TYPE 3			INSTALLATION TYPE 1			INSTALLATION TYPE 2		
		A _{sl}	A _{so}	A _{se}	A _{sl}	A _{so}	A _{se}	A _{sl}	A _{so}	A _{se}	A _{sl}	A _{so}	A _{se}	A _{sl}	A _{so}	A _{se}
24"	3 3/4"	0.15	-	0.12	0.15	-	0.13	0.18	-	0.14	0.15	-	0.12	0.15	-	0.13
30"	4 1/4"	0.18	-	0.14	0.19	-	0.14	0.21	-	0.16	0.18	-	0.14	0.19	-	0.14
36"	4 3/4"	0.14	0.07	0.14	0.15	0.08	0.16	0.17	0.09	0.17	0.14	0.07	0.14	0.18	0.09	0.18
42"	5 1/4"	0.15	0.07	0.16	0.16	0.09	0.17	0.18	0.10	0.20	0.16	0.08	0.16	0.21	0.11	0.22
48"	5 3/4"	0.16	0.07	0.17	0.19	0.10	0.21	0.19	0.11	0.21	0.19	0.10	0.19	0.25	0.13	0.25
54"	6 1/4"	0.17	0.08	0.18	0.21	0.12	0.23	0.20	0.12	0.22	0.22	0.11	0.22	0.28	0.15	0.29
60"	6 3/4"	0.18	0.09	0.19	0.24	0.15	0.27	0.22	0.15	0.24	0.25	0.14	0.26	0.32	0.18	0.33
66"	7 1/4"	0.22	0.11	0.20	0.31	0.19	0.34	0.25	0.16	0.28	0.28	0.17	0.31	0.37	0.23	-
72"	7 3/4"	0.24	0.15	0.26	0.36	0.21	0.40	0.31	0.19	0.34	0.34	0.20	0.37	0.44	0.26	-
78"	8 1/4"	0.28	0.18	0.31	0.42	0.24	0.47	0.36	0.22	0.41	0.40	0.23	0.44	0.51	0.30	-
84"	8 3/4"	0.32	0.18	0.35	0.50	0.30	0.56	0.43	0.25	0.47	0.47	0.28	0.52	0.62	0.37	-
90"	9 1/4"	0.38	0.23	0.41	0.59	0.35	0.66	0.51	0.30	0.56	0.56	0.33	0.62	0.65	0.44	-
96"	9 3/4"	0.42	0.25	0.47	0.65	0.42	0.68	0.59	0.35	0.65	0.64	0.40	0.65	0.68	0.51	-
102"	10 1/4"	0.44	0.27	0.54	0.67	0.50	0.70	0.68	0.40	0.71	0.67	0.47	0.69	-	-	-
108"	10 3/4"	0.46	0.28	0.60	0.69	0.59	0.72	0.71	0.50	0.73	0.69	0.55	-	-	-	-
114"	11 1/4"	0.47	0.31	0.67	0.71	0.68	0.74	0.73	0.59	0.75	0.71	0.64	-	-	-	-
120"	11 3/4"	0.49	0.35	0.73	0.73	0.77	0.76	0.75	0.59	0.77	0.73	0.73	-	-	-	-

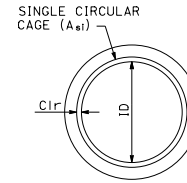
WALL X							
ID	+	10'-0" Max COVER			20'-0" Max COVER		
		INSTALLATION TYPE 1			INSTALLATION TYPE 1		
		A _{sl}	A _{so}	A _{se}	A _{sl}	A _{so}	A _{se}
24"	2"	0.25	0.16	0.25	0.25	0.16	0.25
30"	2 1/2"	0.26	0.16	0.26	0.26	0.16	0.26
36"	2 3/4"	0.31	0.20	0.32	0.31	0.20	0.32
42"	3"	0.32	0.21	0.34	0.41	0.25	0.44
48"	3 1/2"	0.33	0.22	0.35	0.46	0.27	0.51
54"	3 3/4"	0.34	0.24	0.36	0.54	0.28	0.55
60"	4 1/4"	0.35	0.26	0.38	0.56	0.29	0.57
66"	4 3/4"	0.36	0.27	0.40	0.59	0.31	0.60
72"	5 1/4"	0.38	0.28	0.42	0.62	0.32	0.63
78"	5 3/4"	0.39	0.28	0.43	0.66	0.34	0.67
84"	6 1/4"	0.41	0.29	0.44	0.70	0.36	0.71
90"	7"	0.42	0.31	0.46	0.71	0.37	0.73
96"	7 1/2"	0.44	0.32	0.48	0.72	0.38	0.74
102"	8"	0.45	0.32	0.50	0.77	0.40	0.79
108"	8 1/2"	0.47	0.33	0.51	0.82	0.43	-
114"	9 1/4"	0.49	0.34	0.52	0.85	0.44	-
120"	9 3/4"	0.50	0.35	0.54	0.87	0.45	-

NOTES:

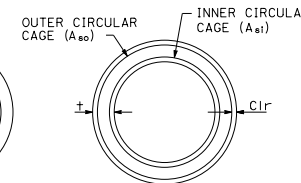
- For details of the method of excavation, backfill and bedding (Installation Type 1, Installation Type 2, etc.), see Revised Standard Plan RSP A62DA.
- The tables for minimum allowable classes and D-loads of RCP on Revised Standard Plan RSP A62DA shall not apply to direct design RCP.
- Notes 3 and 7 on Revised Standard Plan RSP A62DA shall apply to direct design RCP.
- Throughout the length of any given culvert, the direct design selected by the Contractor shall be the same, including the method of excavation, backfill and bedding.
- For single circular cage reinforcement, minimum clearance shall be 40% of the wall thickness (t). For elliptical and double circular cage reinforcement where the wall thickness (t) is less than 2 1/2", the minimum clearance (Clr) for reinforcement shall be 3/4", and where the wall thickness (t) is 2 1/2" or more, the minimum clearance (Clr) for reinforcement shall be 1".
- Minimum cover measured at the Edge of Traveled Way (ETW) shall be 2'-0" to top of HMA or existing AC pavement and 1'-0" to bottom of rigid pavement.
- Cover greater than the table maximum requires a special design.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL SHEETS
				
October 15, 2021				
PLANS APPROVAL DATE				
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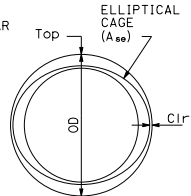
TO ACCOMPANY PLANS DATED _____



SINGLE



DOUBLE



ELLIPTICAL

CAGE REINFORCEMENT

- + = Pipe barrel wall thickness, inches
 A_{sl} = Inner cage reinforcement, or single circular cage reinforcement, square inches/LF
 A_{so} = Outer cage reinforcement, square inches/LF
 A_{se} = Elliptical single cage reinforcement, square inches/LF
 Clr = Design clearance, inches (see Note 5)

DESIGN NOTES:

- Design: AASHTO LRFD Bridge Design Specifications, 8th edition with California Amendments, DIRECT DESIGN METHOD
 Earth Loading: Hegger Soil Pressure Distribution
 $\gamma = 140$ pcf
 VAF & HAF modification factor = 0.86
 Unit Stresses: (Used in Design Tables)
 $f_y = 65$ ksi
 $f'_c =$ See Tables
 The RCP as shown on this sheet is not intended to be used in a corrosive environment. A special design may be required.

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
**PRECAST REINFORCED
 CONCRETE PIPE
 DIRECT DESIGN METHOD**
 NO SCALE

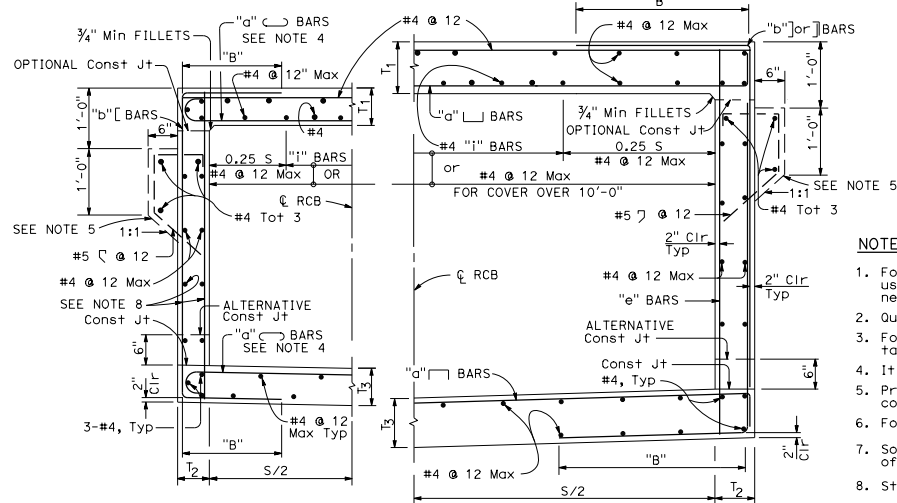
RSP D79A DATED OCTOBER 15, 2021 SUPERSEDES STANDARD PLAN D79A
 DATED MAY 31, 2018 - PAGE 220 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP D79A

		SPAN, S				4'				5'				6'				7'				8'			
		HEIGHT, H				2'	3'	4'		2'	3'	4'	5'	3'	4'	5'	6'	3'	4'	5'	6'	7'	8'		
Conc	MAXIMUM EARTH COVER	10'	20'	10'	20'	10'	20'	10'	20'	10'	20'	10'	20'	10'	20'	10'	20'	10'	20'	10'	20'	10'	20'		
	ROOF T ₁	7 1/2"	7"	8"	7"	8"	7"	8"	8"	8"	7"	8"	8"	8"	9"	8 1/2"	9"	8"	9"	11"	9"	11"	9"		
	WALLS T ₂	6"	6"	6"	6"	7"	6"	7"	6"	6 1/2"	6 1/2"	7"	7 1/2"	7"	9"	7"	7"	7 1/2"	7 1/2"	9"	8 1/2"	10 1/2"	9"		
	INVERT T ₃	7"	7"	7"	7 1/2"	7"	7 1/2"	8"	7 1/2"	8"	7 1/2"	9"	7 1/2"	9 1/2"	8"	10"	8"	10 1/2"	8"	10"	8"	11 1/2"	8"		
Reinf	"a"	SIZE BAR	#5	#5	#5	#4	#5	#5	#5	#5	#5	#5	#5	#5	#5	#5	#5	#5	#5	#5	#5	#5	#5		
		SPACING	6"	5"	6"	5"	5"	5 1/2"	4 1/2"	5"	4 1/2"	5"	5"	5"	5"	5"	4 1/2"	4 1/2"	4 1/2"	5"	4 1/2"	5"	4 1/2"		
	"b"	SIZE BAR	#4	#5	#4	#5	#5	#5	#5	#5	#5	#5	#5	#5	#5	#5	#5	#5	#5	#5	#5	#5	#5		
		SPACING	5 1/2"	6"	6"	6"	6"	4 1/2"	5"	4 1/2"	6"	5 1/2"	6"	5 1/2"	5 1/2"	4 1/2"	6"	5"	5"	5"	5"	4 1/2"	5"		
	"e"	SIZE BAR	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4		
		SPACING	13 1/2"	13 1/2"	13 1/2"	13 1/2"	9"	7"	13 1/2"	13 1/2"	12"	11"	6 1/2"	7 1/2"	12 1/2"	12 1/2"	12"	11"	9"	8 1/2"	6 1/2"	6"	13 1/2"		
	DIMENSION "B" ft-inch		2-4	2-0	2-4	2-1	5-7	2-6	2-6	2-1	2-7	2-4	2-9	2-8	2-9	2-10	2-9	2-3	2-9	2-4	3-0	2-11	3-4		
	QUANTITIES	CONCRETE	CF/LF	8.0	7.8	9.3	9.0	11.1	10.9	9.8	10.0	11.1	11.4	12.4	13.9	13.8	17.0	13.1	14.8	14.5	17.1	15.9	19.7		
REINFORCEMENT		LB/LF	79	84	84	96	104	127	107	110	112	114	123	128	154	140	126	147	132	139	159	153			
** SOIL PRESSURE (ksf), Ser		2.4	3.5	2.4	3.5	2.4	3.5	2.1	3.5	2.1	3.5	2.1	3.6	2.1	3.6	1.9	3.6	1.9	3.6	2.0	3.7	1.9			
		** SOIL PRESSURE (ksf), Str	3.9	4.5	3.0	4.5	3.9	4.6	3.3	4.5	3.3	4.5	3.3	4.6	3.4	4.7	2.9	4.6	2.9	4.6	3.0	4.7			

SPAN, S		10'				12'				14'			
HEIGHT, H		5'	6'	7'		5'	6'	7'	8'	5'	6'	7'	8'
Conc	MAXIMUM EARTH COVER	10'	20'	10'	20'	10'	20'	10'	20'	10'	20'	10'	20'
	ROOF T ₁	10"	15"	9 1/2"	14"	9 1/2"	13 1/2"	9 1/2"	14"	10"	15"	10"	15"
	WALLS T ₂	8 1/2"	10"	8 1/2"	11 1/2"	10"	12 1/2"	11 1/2"	14"	12"	15"	10"	12 1/2"
Reinf	INVERT T ₃	10"	15"	10"	15"	10"	15"	10"	15"	10"	15"	10"	15"
	"a" SIZE BAR	#6	#7	#6	#7	#6	#7	#6	#7	#6	#7	#6	#7
	SPACING	4 1/2"	5"	4 1/2"	5"	5"	5"	4 1/2"	5"	4 1/2"	5"	4 1/2"	5"
Reinf	"b" SIZE BAR	#5	#5	#6	#6	#6	#6	#5	#5	#6	#6	#6	#6
	SPACING	4 1/2"	4 1/2"	5"	4 1/2"	5"	4 1/2"	4 1/2"	5"	4 1/2"	4 1/2"	4 1/2"	5"
	"e" SIZE BAR	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4
Reinf	SPACING	9 1/2"	7 1/2"	8 1/2"	6"	7 1/2"	5 1/2"	6"	5"	6 1/2"	6"	5"	6 1/2"
	DIMENSION "B" ft-inch	3-10	3-10	3-9	3-4	3-10	3-9	3-4	3-10	3-9	3-4	3-10	3-9
	QUANTITIES	CONCRETE CF/LF	26.1	37.5	27.1	40.3	30.6	43.3	34.7	49.0	38.0	55.8	43.4
Reinf	REINFORCEMENT LB/LF	251	284	285	318	307	338	375	313	418	375	425	404
	** SOIL PRESSURE (ksf), Ser	2.0	3.7	2.0	3.7	2.0	3.8	2.0	3.8	2.1	3.9	2.1	3.9
	** SOIL PRESSURE (ksf), Str	2.5	4.8	2.5	4.8	2.6	4.9	2.6	4.9	2.7	5.1	3.0	4.9

** SEE NOTE 7



TYPICAL SECTION
SPANS 4' THRU 8'

TYPICAL SECTION
SPANS 10' THRU 14'

NOTES:

- For boxes with span or height less than any of those shown in table, use next greater size box concrete dimensions and reinforcement. Make necessary changes in bar lengths and quantities.
- Quantities are approximate and for design purposes only.
- For boxes with span or height or cover greater than those shown in tables, a special design is required.
- It is permissible to eliminate the 180° hooks on every other bar.
- Provide paving notch when top is exposed and when pavement is concrete, and adjust quantities.
- For design and details not shown, see Revised Standard Plan RSP D82.
- Soil pressures shown are factored per AASHTO LRFD and include soil weight of fill over box, self weight of box and live load where applicable.
- Stagger rebars for wall thickness less than 8".

Dist#	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

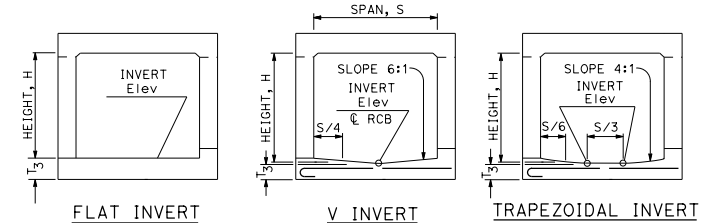
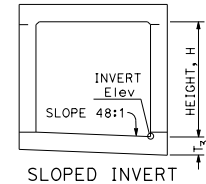
October 15, 2021
PLANS APPROVAL DATE

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REGISTERED CIVIL ENGINEER
No. C59976
Exp. 6-30-22
CIVIL
STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED

"1" BARS, FOR EARTH COVERS UP TO AND INCLUDING 10'-0"		SPAN	4'	5'	6'	7'	8'	10'	12'	14'
NUMBER		7	8	9	10	11	12	15	20	3.8



ALTERNATIVE INVERTS

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION CAST-IN-PLACE REINFORCED CONCRETE SINGLE BOX CULVERT

NO SCALE

RSP D80 DATED OCTOBER 15, 2021 SUPERSEDES STANDARD PLAN D80.
DATED MAY 31, 2018 - PAGE 221 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP D80

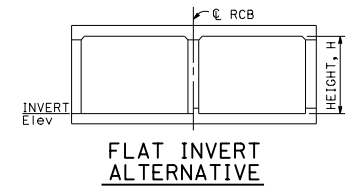
		SPAN, S																																																								
		HEIGHT, H										5'										6'										7'										8'																
		2'	3'	4'	5'	2'	3'	4'	5'	2'	3'	4'	5'	2'	3'	4'	5'	2'	3'	4'	5'	2'	3'	4'	5'	2'	3'	4'	5'	2'	3'	4'	5'	2'	3'	4'	5'	2'	3'	4'	5'	2'	3'	4'	5'													
Conc	MAXIMUM EARTH COVER	T ₁	8"	8 1/2"	8"	8 1/2"	8"	8 1/2"	8"	8 1/2"	8"	8 1/2"	8"	8 1/2"	8"	8 1/2"	8"	8 1/2"	8"	8 1/2"	8"	8 1/2"	8"	8 1/2"	8"	8 1/2"	8"	8 1/2"	8"	8 1/2"	8"	8 1/2"	8"	8 1/2"	8"	8 1/2"	8"	8 1/2"	8"	8 1/2"	8"	8 1/2"	8"	8 1/2"	8"	8 1/2"	8"	8 1/2"										
	WALLS	T ₂	6"	6 1/2"	6"	6 1/2"	6"	6 1/2"	6"	6 1/2"	6"	6 1/2"	6"	6 1/2"	6"	6 1/2"	6"	6 1/2"	6"	6 1/2"	6"	6 1/2"	6"	6 1/2"	6"	6 1/2"	6"	6 1/2"	6"	6 1/2"	6"	6 1/2"	6"	6 1/2"	6"	6 1/2"	6"	6 1/2"	6"	6 1/2"	6"	6 1/2"	6"	6 1/2"	6"	6 1/2"	6"	6 1/2"										
	INVERT	T ₃	7"	9 1/2"	7"	9 1/2"	7"	9 1/2"	7"	9 1/2"	7"	9 1/2"	7"	9 1/2"	7"	9 1/2"	7"	9 1/2"	7"	9 1/2"	7"	9 1/2"	7"	9 1/2"	7"	9 1/2"	7"	9 1/2"	7"	9 1/2"	7"	9 1/2"	7"	9 1/2"	7"	9 1/2"	7"	9 1/2"	7"	9 1/2"	7"	9 1/2"	7"	9 1/2"	7"	9 1/2"	7"	9 1/2"										
	"a"	SIZE BAR	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4							
REINFORCEMENT	"a"	SPACING	5"	5 1/2"	5"	5 1/2"	5"	5 1/2"	5"	5 1/2"	5"	5 1/2"	5"	5 1/2"	5"	5 1/2"	5"	5 1/2"	5"	5 1/2"	5"	5 1/2"	5"	5 1/2"	5"	5 1/2"	5"	5 1/2"	5"	5 1/2"	5"	5 1/2"	5"	5 1/2"	5"	5 1/2"	5"	5 1/2"	5"	5 1/2"	5"	5 1/2"	5"	5 1/2"	5"	5 1/2"	5"	5 1/2"	5"	5 1/2"	5"	5 1/2"						
	"b"	SIZE BAR	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4							
	"b"	SPACING	5 1/2"	6"	5 1/2"	6"	5 1/2"	6"	5 1/2"	6"	5 1/2"	6"	5 1/2"	6"	5 1/2"	6"	5 1/2"	6"	5 1/2"	6"	5 1/2"	6"	5 1/2"	6"	5 1/2"	6"	5 1/2"	6"	5 1/2"	6"	5 1/2"	6"	5 1/2"	6"	5 1/2"	6"	5 1/2"	6"	5 1/2"	6"	5 1/2"	6"	5 1/2"	6"	5 1/2"	6"	5 1/2"	6"	5 1/2"	6"	5 1/2"	6"	5 1/2"					
	"c"	SIZE BAR	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4							
	"c"	SPACING	13 1/2"	13 1/2"	12 1/2"	9 1/2"	9 1/2"	13 1/2"	13 1/2"	11"	11"	10"	8 1/2"	8"	13 1/2"	11"	12 1/2"	9 1/2"	9"	7 1/2"	7"	6 1/2"	3 1/2"	11"	11"	10"	10 1/2"	8"	8"	6 1/2"	6"	5 1/2"	13"	10"	11"	8"	9"	6"	7"	5 1/2"	5 1/2"	5"	5 1/2"	5 1/2"	5"	5 1/2"	5 1/2"	5"	5 1/2"	5 1/2"	5"	5 1/2"						
	"d"	SIZE BAR	#5	#5	#5	#6	#6	#6	#6	#6	#6	#6	#6	#6	#6	#6	#6	#6	#6	#6	#6	#6	#6	#6	#6	#6	#6	#6	#6	#6	#6	#6	#6	#6	#6	#6	#6	#6	#6	#6	#6	#6	#6	#6	#6	#6	#6	#6	#6	#6	#6							
	"d"	SPACING	4 1/2"	4 1/2"	5"	5"	4 1/2"	4 1/2"	5"	4 1/2"	5"	5"	5"	5"	5"	4 1/2"	5"	4 1/2"	5"	5"	5"	5"	5"	5"	5"	5"	5"	5"	5"	5"	5"	5"	5"	5"	5"	5"	5"	5"	5"	5"	5"	5"	5"	5"	5"	5"	5"	5"	5"	5"	5"	5"	5"	5"	5"			
	"e"	SIZE BAR	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4	#4				
	"e"	SPACING	6"	13 1/2"	7 1/2"	13 1/2"	8"	13 1/2"	6"	13 1/2"	6"	13 1/2"	6"	13 1/2"	6"	13 1/2"	6"	13 1/2"	6"	13 1/2"	6"	13 1/2"	6"	13 1/2"	6"	13 1/2"	6"	13 1/2"	6"	13 1/2"	6"	13 1/2"	6"	13 1/2"	6"	13 1/2"	6"	13 1/2"	6"	13 1/2"	6"	13 1/2"	6"	13 1/2"	6"	13 1/2"	6"	13 1/2"	6"	13 1/2"	6"	13 1/2"	6"	13 1/2"	6"	13 1/2"	6"	13 1/2"
	QUANTITIES	DIM "B" ft+inch	2-8	2-6	2-8	2-7	2-10	2-8	2-10	2-9	2-10	2-12	2-11	2-10	3-1	3-1	3-1	3-2	3-2	3-3	3-3	3-4	3-4	3-5	3-10	3-5	3-10	4-0	3-11	4-0	3-10	3-10	4-2	3-10	4-1	4-3	4-2	4-4	4-2	4-5	4-5	4-6	4-5	4-7	4-6	4-5	4-7	4-6	4-5	4-7	4-6	4-5						
DIM "Bm" ft+inch		2-5	2-10	2-9	2-10	2-10	2-12	2-11	3-0	2-11	3-1	3-1	3-1	3-2	3-2	3-3	3-3	3-4	3-4	3-4	3-4	3-5	3-10	3-5	3-10	4-0	3-11	4-0	3-10	3-10	4-2	3-10	4-1	4-3	4-2	4-4	4-2	4-5	4-5	4-6	4-5	4-7	4-6	4-5	4-7	4-6	4-5	4-7	4-6	4-5								
QUANTITIES	CONCRETE CF /LF	14.9	17.5	16.7	19.5	18.8	22.1	17.4	23.4	19.2	25.8	22.7	28.0	25.0	31.6	22.9	33.3	24.9	35.5	27.7	39.8	30.6	43.3	28.8	41.4	30.6	44.3	32.4	47.3	35.4	50.8	38.7	57.6	36.4	52.7	38.3	56.4	41.4	61.3	44.7	66.1	49.2	72.3	66.1	49.2	72.3	66.1	49.2	72.3	66.1	49.2	72.3						
	REINFORCEMENT LB/LF	145	131	157	156	205	158	212	169	221	182	224	196	261	215	268	209	287	232	333	244	362	297	327	264	333	276	355	311	377	338	406	348	373	339	388	367	399	395	429	414	509	414	509	414	509	414	509	414	509	414	509	414	509				
QUANTITIES	** SOIL PRESSURE (ksf), Ser	1.8	3.5	1.9	3.5	1.9	3.5	2.1	3.5	2.2	3.5	2.2	3.6	2.2	3.6	2.2	3.6	2.2	3.6	2.2	3.6	2.2	3.6	2.2	3.6	2.2	3.6	2.2	3.6	2.2	3.6	2.2	3.6	2.2	3.6	2.2	3.6	2.2	3.6	2.2	3.6	2.2	3.6	2.2	3.6	2.2	3.6	2.2	3.6	2.2	3.6	2.2	3.6					
	** SOIL PRESSURE (ksf), Str	2.9	4.4	2.9	4.5	2.9	4.5	2.9	4.5	2.9	4.5	2.9	4.5	2.9	4.5	2.9	4.5	2.9	4.5	2.9	4.5	2.9	4.5	2.9	4.5	2.9	4.5	2.9	4.5	2.9	4.5	2.9	4.5	2.9	4.5	2.9	4.5	2.9	4.5	2.9	4.5	2.9	4.5	2.9	4.5	2.9	4.5	2.9	4.5	2.9	4.5	2.9	4.5	2.9	4.5			

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL SHEETS

October 15, 2021
PLANS APPROVAL DATE

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

TO ACCOMPANY PLANS DATED _____



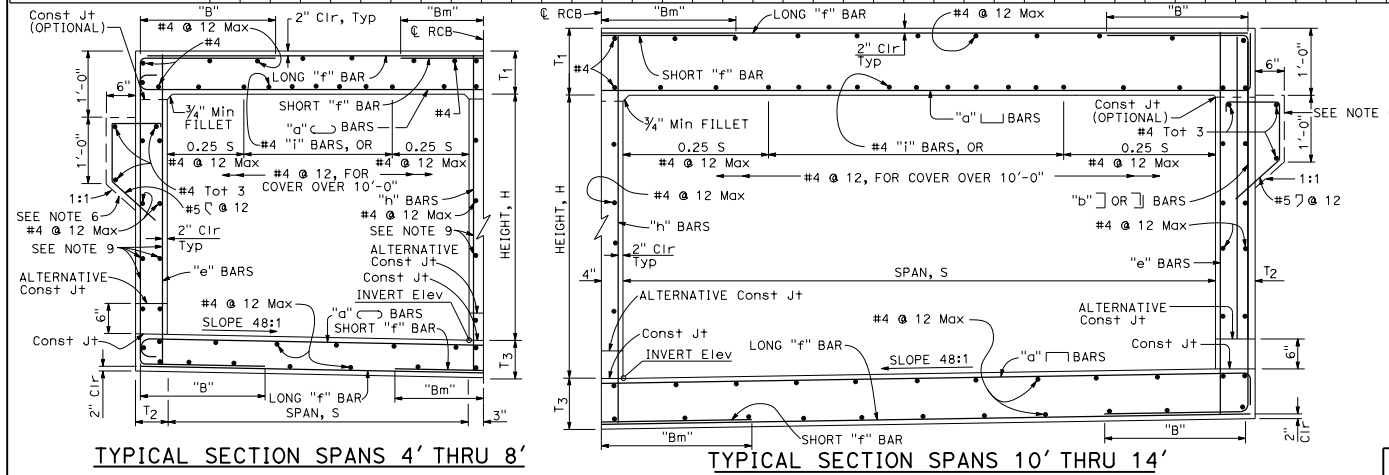
"I" BARS, FOR EARTH COVERS UP TO AND INCLUDING 10'-0"	SPAN	4'	5'	6'	7'	8'	10'	12'	14'
NUMBER		5	6	8	10	13	14	16	19

* SEE NOTE 5
** SEE NOTE 8

- NOTES:
- For boxes with span or height less than any of those shown in table, use next greater size box concrete dimensions and reinforcement. Make necessary changes in bar lengths and quantities.
 - For boxes with span or height or cover greater than those shown in tables, a special design is required.
 - Quantities are approximate and for design purposes only.
 - It is permissible to eliminate the 180° hooks on every other "e" bar.
 - Spacing shown is between long and short "f" bars.
 - Provide paving notch when top is exposed and when pavement is concrete, and adjust quantities.
 - For design and details not shown, see Revised Standard Plan RSP D82.
 - Soil pressures shown are factored per AASHTO LRFD and include soil weight of fill over box, self weight of box and live load where applicable.
 - Stagger rebars for wall thickness less than 8".

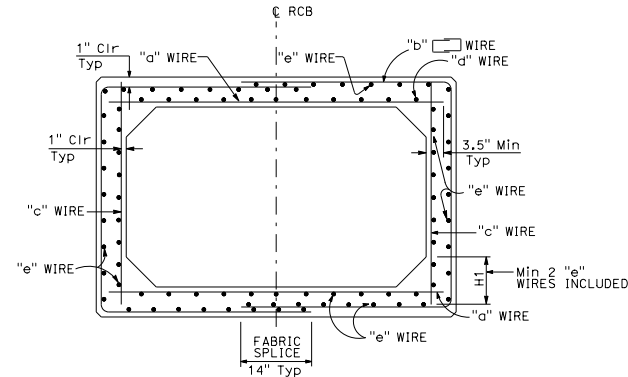
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**CAST-IN-PLACE
REINFORCED CONCRETE
DOUBLE BOX CULVERT**

NO SCALE
RSP D81 DATED OCTOBER 15, 2021 SUPERSEDES STANDARD PLAN D81
DATED MAY 31, 2018 - PAGE 222 OF THE STANDARD PLANS BOOK DATED 2018.
REVISED STANDARD PLAN RSP D81

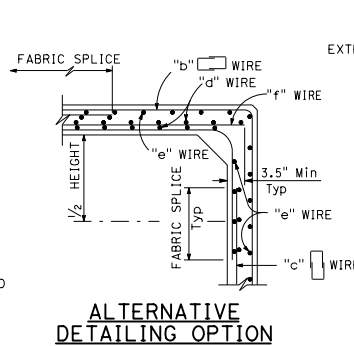


TO ACCOMPANY PLANS DATED _____

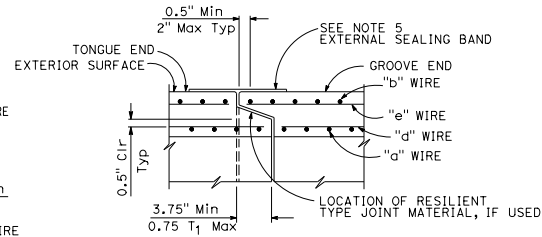
7-1-21



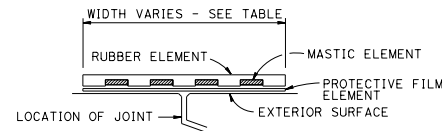
TYPICAL SECTION - SPANS 4'-0" THRU 12'-0"



ALTERNATIVE
DETAILING OPTION



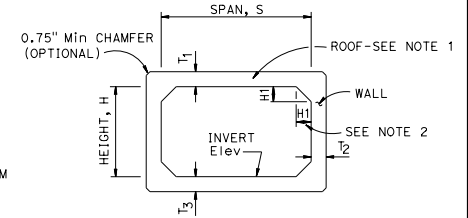
END JOINT DETAIL



EXTERNAL SEALING BAND SCHEMATIC

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL SHEETS
 REGISTERED CIVIL ENGINEER October 19, 2018 PLANS APPROVAL DATE THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.				

TO ACCOMPANY PLANS DATED _____



SCHEMATIC

TABLE	
SPAN	EXTERNAL SEALING BAND WIDTH, Min
4'-6'	9"
7'-8'	11"
10'-12'	13"

SPAN, S		4'		5'		6'		7'		8'		9'		10'		11'		12'	
HEIGHT, H		10'	20'	10'	20'	10'	20'	10'	20'	10'	20'	10'	20'	10'	20'	10'	20'	10'	20'
CONCRETE (INCH)	MAXIMUM EARTH COVER	T1	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"
	ROOF	T1	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"
	SIDE WALL	T2	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"
MINIMUM WELDED WIRE FABRIC (Inch ² /ft)	INVERT	T3	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"	6"
	"a"		.33	.47	.34	.49	.34	.50	.40	.62	.41	.62	.42	.64	.43	.64	.44	.67	.45
	"b"		.23	.28	.23	.25	.21	.23	.26	.36	.24	.36	.24	.33	.24	.30	.28	.44	.27
	"c"		.11	.11	.11	.12	.18	.24	.11	.11	.11	.11	.13	.23	.24	.34	.11	.11	.12
	"d"		.16	.11	.16	.11	.16	.11	.17	.11	.18	.11	.18	.11	.18	.11	.18	.11	.18
	"e"		.11	.11	.11	.11	.11	.11	.11	.11	.11	.11	.11	.11	.11	.11	.11	.11	.11
* QUANTITY	Conc	CY/LF	.31	.34	.38	.41	.44	.48	.51	.56	.60	.64	.68	.73	.78	.83			
	Reinf	LB/LF	35	41	45	51	58	62	69	74	80	87	93	100	107	114	121	128	135
	** SOIL PRESSURE (ksf)		2.3	4.4	2.4	4.5	2.4	4.5	3.1	4.4	3.1	4.5	3.2	4.5	2.7	4.5	2.8	4.6	2.8

SPAN, S		8'		10'		12'		14'		16'		18'		20'		22'		24'	
HEIGHT, H		10'	20'	10'	20'	10'	20'	10'	20'	10'	20'	10'	20'	10'	20'	10'	20'	10'	20'
CONCRETE (INCH)	MAXIMUM EARTH COVER	T1	8.5"	8.5"	8.5"	8.5"	8.5"	8.5"	8.5"	8.5"	8.5"	8.5"	8.5"	8.5"	8.5"	8.5"	8.5"	8.5"	8.5"
	ROOF	T1	8.5"	8.5"	8.5"	8.5"	8.5"	8.5"	8.5"	8.5"	8.5"	8.5"	8.5"	8.5"	8.5"	8.5"	8.5"	8.5"	8.5"
	SIDE WALL	T2	8.5"	8.5"	8.5"	8.5"	8.5"	8.5"	8.5"	8.5"	8.5"	8.5"	8.5"	8.5"	8.5"	8.5"	8.5"	8.5"	8.5"
MINIMUM WELDED WIRE FABRIC (Inch ² /ft)	INVERT	T3	8.5"	8.5"	8.5"	8.5"	8.5"	8.5"	8.5"	8.5"	8.5"	8.5"	8.5"	8.5"	8.5"	8.5"	8.5"	8.5"	8.5"
	"a"		.55	.87	.56	.90	.57	.92	.58	.93	.58	.94	.66	1.07	.67	1.10	.69	1.13	.70
	"b"		.37	.59	.35	.55	.33	.52	.33	.52	.36	.57	.45	.74	.43	.70	.41	.67	.40
	"c"		.11	.11	.11	.11	.20	.31	.31	.42	.38	.62	.11	.11	.11	.11	.22	.31	.36
	"d"		.19	.11	.19	.11	.20	.11	.20	.11	.20	.11	.20	.11	.20	.11	.21	.11	.21
	"e"		.11	.11	.11	.11	.11	.11	.11	.11	.11	.11	.11	.11	.11	.11	.11	.11	.11
* QUANTITY	Conc	CY/LF	.78	.83	.88	.94	.99	1.10	1.17	1.23	1.29	1.35	1.41	1.56	1.63	1.70	1.78	1.85	1.93
	Reinf	LB/LF	93	129	97	133	105	148	117	161	131	189	133	191	138	196	148	212	191
	** SOIL PRESSURE (ksf)		2.5	4.6	2.5	4.6	2.5	4.6	2.5	4.6	3.8	4.6	3.8	4.7	3.8	4.7	4.6	4.7	3.9

* See Note 3

** See Note 6

- NOTES:**
- The inside and outside surfaces of the RCB roof shall be marked "TOP".
 - H1 minimum shall equal the wall thickness. H1 maximum shall be 8" for spans through 8' and 14" for spans over 8'.
 - Quantities are approximate and for design purposes only.
 - For design and details not shown see Revised Standard Plan RSP D83B.
 - For external sealing band applications see Revised Standard Plan RSP A62C.
 - Soil pressures shown are factored per AASHTO LRFD and include soil weight of fill over box, self weight of box and live load where applicable.
 - If earth cover is less than 2', the concrete cover for the reinforcement at the top of top slab shall be 2" T1 in the Table shall have an additional 1" and quantities shall be revised accordingly in this case.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

PRECAST REINFORCED CONCRETE BOX CULVERT

NO SCALE

RSP D83A DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN D83A
DATED MAY 31, 2018 - PAGE 224 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP D83A

2018 REVISED STANDARD PLAN RSP D83A

DESIGN NOTES:

Specifications:

AASHTO LRFD Bridge Design Specifications,
6th Edition with California Amendments.

Earth load:

Earth pressures for two conditions:
140 pcf Vert, 36 pcf Horiz
140 pcf Vert, 120 pcf Horiz

Unit stresses:

$f'_c = 5.0$ ksi
 $f_y = 65.0$ ksi for weld wire fabric
 $n = 7$

Shear:

Based on
 $V_c = (2.14\sqrt{f'_c} + 4600 \frac{A_s V_u d_e}{b d_e}) b d_e \leq 4.0\sqrt{f'_c} b d_e$ (Pounds)
 V_c shall not be less than $3.00\sqrt{f'_c} b d_e$
for frame members and $2.5\sqrt{f'_c} b d_e$
for simply supported members.

Exclusion:

Axial loading on the members has
not been considered.

GENERAL NOTES:

Designation:

Standard single or multiple precast box culverts are shown on the plans
as span times height with maximum cover over roof thus: 8' x 5' RCB
with 10'-0" or double 10' x 5' RCB with 20'-0", followed by alternatives.

Alternatives:

Single cell:

Standard dimensions of AASHTO Material Specification 'M259' or 'M273'.

Multiple cell:

Constructed by placing single cells adjacent to each other. Inlet
and outlet ends of culvert will be rounded unless square ends are
designated. Parapet will be shown unless designated in plans. Such
designation may be different for inlet and outlet ends.

Limitations:

Where the overfill is less than 12", Precast RCB culverts are
not to be used. Precast RCB culverts are not to be used in siphon
or pressurized installations unless appropriate "watertight"
jointing is provided.

Special reinforcement coverage:

Precast RCB culvert standard plans are not to be used in a
corrosive environment or where there is a severe abrasive flow
condition or freeze-thaw locations.

Special design:

Required for culvert with different conditions, loads or design bearing
pressures greater than those given on these plans. Required
for culverts where end details need higher skew angles,
higher parapets or barrier sections.

CONSTRUCTION NOTES:

Cutoff walls:

4'-0" Cutoff walls are to be provided at inlet and/or
outlet unless channel is lined and unless otherwise
shown. These walls are to be extended if scour
conditions warrant. See Standard Plans D84,
D85 and D86A.

Wingwalls:

Wingwalls shall be cast-in-place and shall conform to
standard plan details for box culvert wingwalls. See
Standard Plans D84, D85 and D86A.

Earthwork:

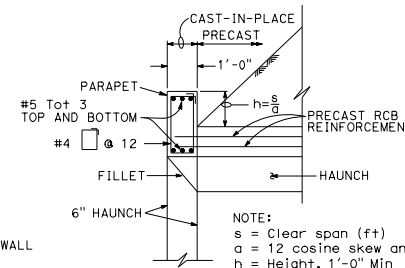
See Revised Standard Plan RSP A62G.

Construction loads:

Strutting may be required near temporary ends. For
construction loads on culverts, See Standard Plan D88.

SPAN	PARAPET "P" BARS		
	0° TO 15°	16° TO 30°	31° TO 45°
4'-0"	#5	#5	#5
5'-0"	#5	#5	#6
6'-0"	#6	#6	#6
7'-0"	#7	#7	#7
8'-0"	#7	#7	#8
10'-0"	#8	#8	#9
12'-0"	#9	#9	#10

BARRIER PARAPET REINFORCEMENT



SECTION A-A
(Standard Height Parapet)

TYPICAL CULVERT END DETAILS

For wall and invert reinforcement not shown, See "End Elevation" detail.

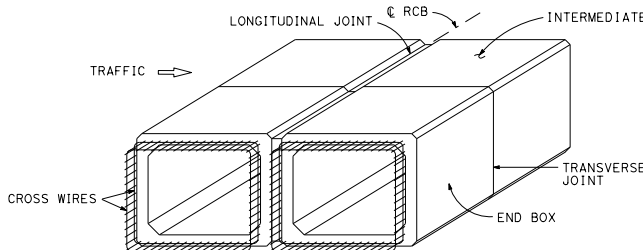
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

PRECAST REINFORCED CONCRETE BOX CULVERT MISCELLANEOUS DETAILS

RSP D83B DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN D83B
DATED MAY 31, 2018 - PAGE 225 OF THE STANDARD PLANS BOOK DATED 2018.

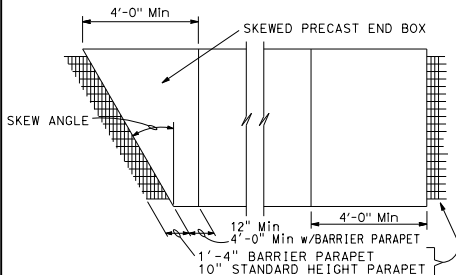
NO SCALE

REVISED STANDARD PLAN RSP D83B



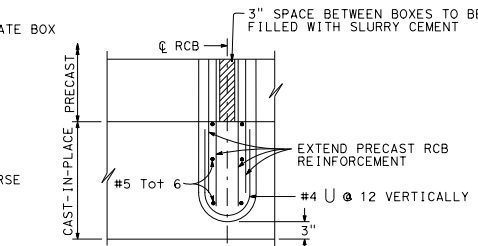
PRECAST RCB TERMINOLOGY

NOTE: Inner and outer reinforcement to be exposed as required to
tie to cast-in-place construction. A minimum of two cross
wires shall be exposed on all sides.

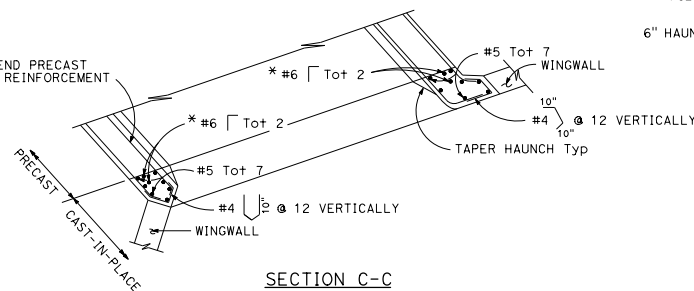


PARTIAL PLAN VIEW

For illustrative purposes only.
For correct skew direction see plans.

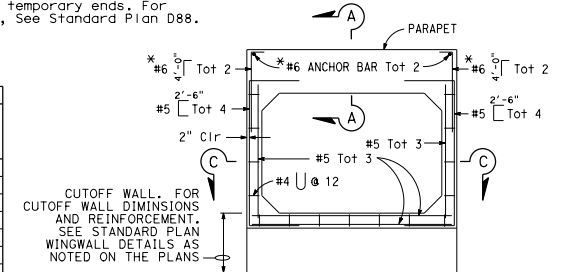


PARTIAL PLAN INTERIOR WALL MULTICELL CULVERT



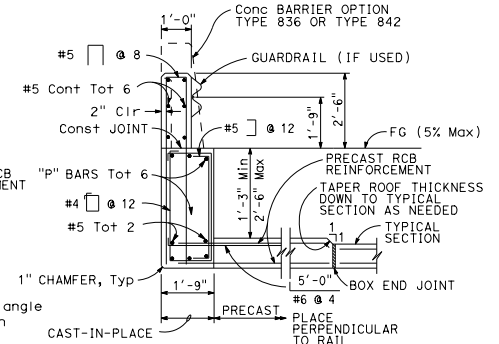
SECTION C-C

* Reinforcing required for barrier
parapet application only.



CAST-IN-PLACE END ELEVATION

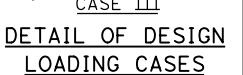
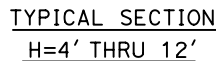
* Reinforcing required for barrier
parapet application only.



SECTION A-A
(Barrier Parapet)



REINFORCED CONCRETE WINGWALLS



** Soil bearing pressure shown in the table is the equivalent uniform pressure per AASHTO LRFD - 11.6.3.2 #4 @ 12"

WHERE DESIGN "H" EXCEEDS 9'-0" OR LENGTH OF WINGWALL EXCEEDS 1.5 "H", PLACE 1/2" Exp JOINT FILLER AT JUNCTION OF BOX AND WALL.

BO-1 1-4

NEOPRENE STRIP

6'-0"

6'-1"

8'-0"

5'-0"

8'-0"

8'-0"

10'-0"

10'-0"

16'-1"

7'-1"

6'-9.95"

9'-9.43"

9'-10.91"

CUTOFF WALL 4'-0" MAY BE VARIED BY ENGINEER TO SUIT CONDITIONS IN THE FIELD

TYPE "A"

END ELEVATION

INSIDE GROUND LINE

PARAPET

"L"

3'-0" Min

3'-0" Min

2'-0" Min

5'-0" Max

1'-6"

2-#4

1'-0"

WINGWALL "H"

SLOPE VARIES 1 1/2:1 OR FLATTER

MATCH GROUND LINE

2:1 UNLIMITED

CASE I

CASE II

VARIED SURCHARGE

1 1/2:1 SLOPE

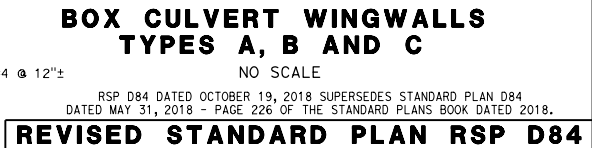
5'-0" Max

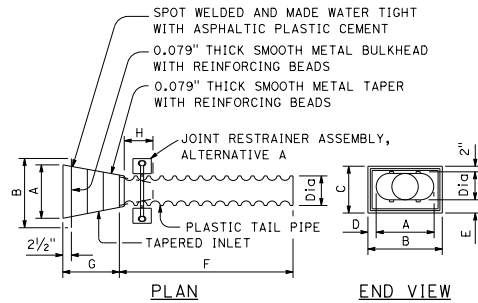
CASE III

DETAIL OF DESIGN

FOR FOOTING STEP DIMENSIONS AND REINFORCEMENT, SEE "FOOTING STEP" ON S+D PLAN B3-5.

TYPE "B"





ENTRANCE TAPER - TYPE 1

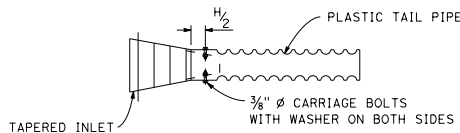
PLASTIC PIPE DIMENSIONS AS TABULATED BELOW.

P	10"	15"	18"	21"	27"	Di	Min	M	N
Q	8"	12"	15"	18"	24"	8"	10'-0"	1'-6"	8"
						12"	15'-0"	1'-8"	1'-0"
						15"	25'-0"	2'-0"	1'-3"
						18"	30'-0"	2'-6"	1'-4"
						24"	40'-0"	3'-0"	1'-6"

TAPER JOINTS MAY BE WELDED OR RIVETED.
DIMENSIONS TO BE AS TABULATED BELOW.

Di	A	B	C	D	E	F	G	H
8"	1'-4"	2'-1 1/2"	1'-3"	4 3/4"	5"	6'-0"	2'-0"	1'-0"
12"	1'-6"	2'-1 1/2"	1'-7"	3 3/4"	5"	6'-0"	2'-0"	1'-0"
15"	1'-9"	2'-6"	1'-11"	4 1/2"	6"	6'-0"	2'-0"	1'-2"
18"	2'-0"	2'-10"	2'-3"	5"	7"	6'-0"	2'-0"	1'-4"
24"	2'-10"	3'-10"	2'-11"	6"	9"	4'-0"	4'-0"	1'-6"

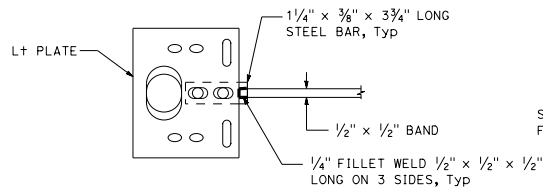
ENTRANCE TAPER - TYPE 1



PLAN

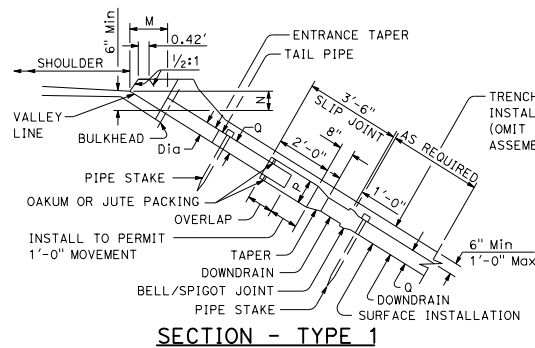
Alternative tail pipe to entrance pipe connection

DETAIL "A"
(See Note 5)



DETAIL 2

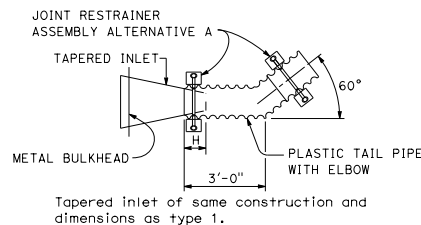
APPLIES TO BOTH L & R PLATE



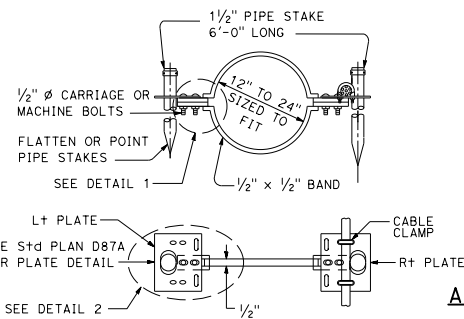
SECTION - TYPE 1

NOTES:

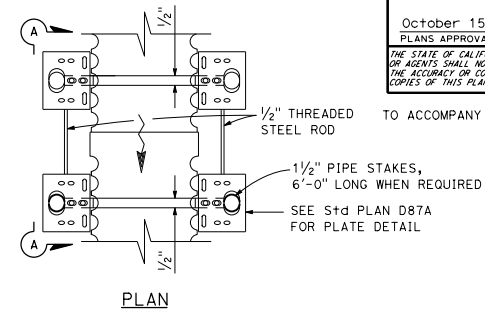
1. Cable or slip joint to be used when specified.
2. Slip joint to be omitted when completely buried.



ENTRANCE TAPER - TYPE 2



PLASTIC PIPE JOINT RESTRAINER ASSEMBLY
Alternative A

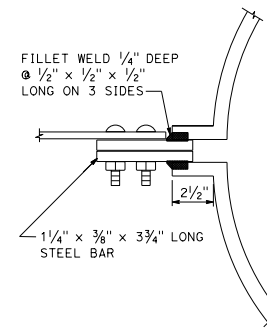


SECTION A-A PLASTIC PIPE JOINT RESTRAINER ASSEMBLY

Alternative B

NOTES:

1. See Standard Plan D87A for details of entrance taper placement at dike.
2. Pipe stakes to be used with joint restrainer when specified.
3. Entrance taper "H" dimension is length of insertion of metal taper into plastic pipe.
4. For cable anchorage system details, see Standard Plan D87C.
5. At contractors option, tail pipe and tapered inlet may be supplied from manufacturer as a pre-connected unit as shown in Detail "A".



DETAIL 1

APPLIES TO BOTH L & R PLATE

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

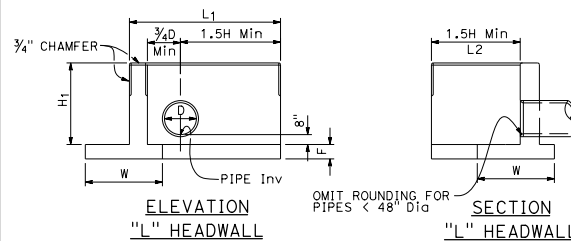
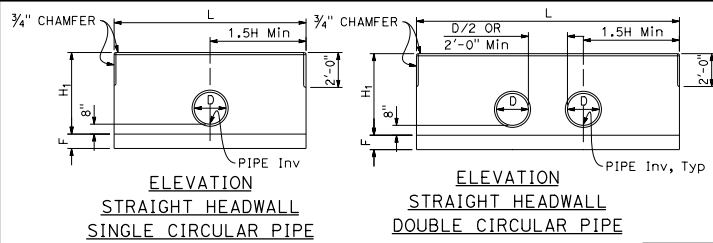
PLASTIC PIPE DOWNDRAIN DETAILS

NO SCALE

RSP D87B DATED OCTOBER 15, 2021 SUPERSEDES STANDARD PLAN D87B
DATED MAY 31, 2018 - PAGE 232 OF THE STANDARD PLANS BOOK DATED 2018.

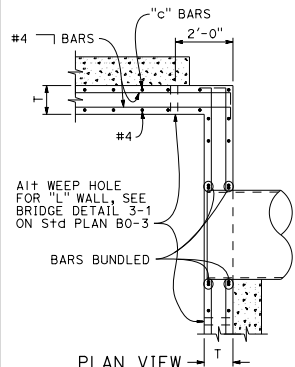
REVISED STANDARD PLAN RSP D87B

2018 REVISED STANDARD PLAN RSP D87B

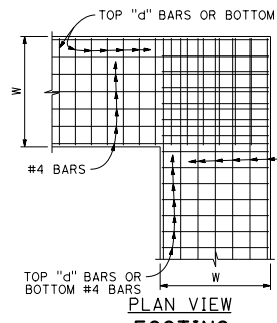


CIRCULAR PIPE CULVERT HEADWALLS

SEE NOTE 2

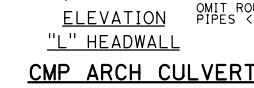
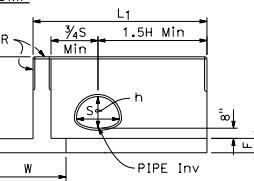
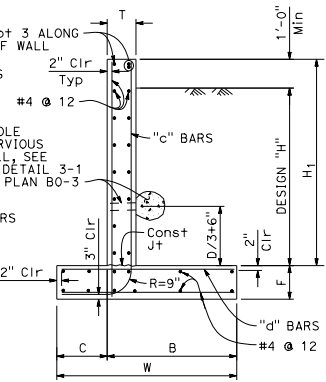


"L" headwall shown.
Straight headwall similar.



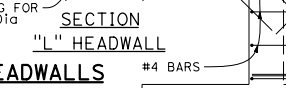
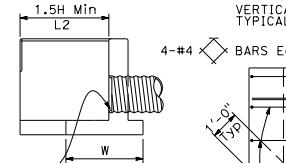
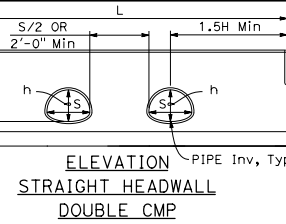
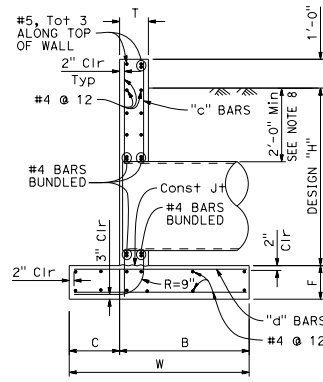
"L" headwall shown.
Straight headwall similar.

H (Min)	CIRCULAR PIPE SIZE D	CMP ARCH SIZE S x h
3'-11"	12"	-
4'-2"	15"	21" x 15"
4'-5"	18"	24" x 18"
4'-8"	21"	28" x 20"
4'-11"	24"	35" x 24"
5'-2"	27"	-
5'-5"	30"	42" x 29"
5'-8"	33"	49" x 33"
5'-11"	36"	-
6'-2"	39"	57" x 38"
6'-5"	42"	64" x 43"
6'-8"	45"	-
6'-11"	48"	71" x 47"



CMP ARCH CULVERT HEADWALLS

SEE NOTE 2



SEE NOTE 2

DIS+ COUNTY ROUTE POST MILES TOTAL PROJECT SHEET TOTAL NO. SHEETS

October 18, 2019

PLANS APPROVAL DATE

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

REGISTERED CIVIL ENGINEER

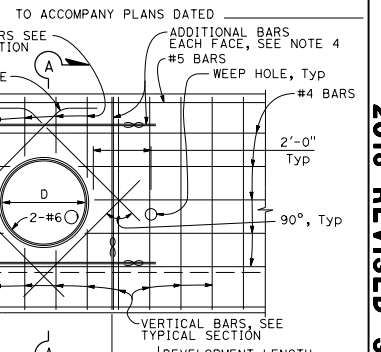
Carl M. Dunn

No. C59976

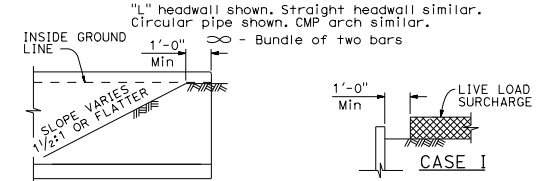
Exp. 6-30-20

CIVIL

STATE OF CALIFORNIA



DETAIL OF DESIGN LOADING CASES



- Length of wall from center of pipe to end of wall is 1.5H Min. The ends of headwall need to be embedded into the slope by one foot.
- Single circular pipe or single CMP shown for "L" headwall. For double pipe in "L" headwall, see "ELEVATION STRAIGHT HEADWALL DOUBLE CIRCULAR PIPE" or "ELEVATION STRAIGHT HEADWALL DOUBLE CMP" detail for additional information.
- Cable railing to be installed on top of headwall when shown on Project Plans. See Standard Plan B11-47 for cable railing details.
- Adjacent to each side of the opening, place additional reinforcement equivalent to half the interrupted main reinforcement.
- Quantities are approximate and for design purposes only. No deduction is made for pipe or arch occupancy.
- Provide necessary erosion protection in front of wall.
- If precast construction is used, the design standard shall be equal to or exceed that shown here, and the bottom of footing must be roughened.
- Minimum earth cover of two feet at ETW of the roadway without cap protection to pipe.

PIPE CULVERT HEADWALLS STRAIGHT AND "L"

STATE OF CALIFORNIA

DEPARTMENT OF TRANSPORTATION

NO SCALE

RSP D89A DATED OCTOBER 18, 2019 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP D89A

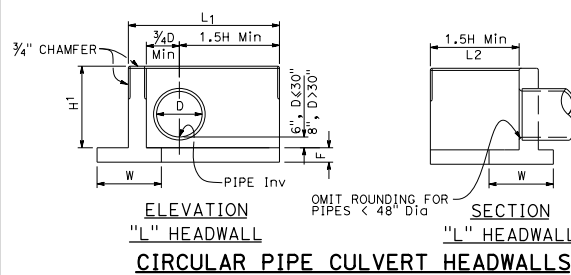
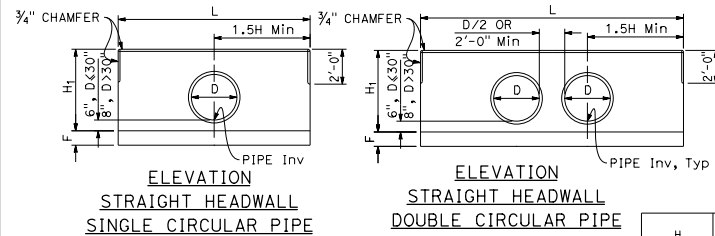
H	3'-11"	4'-2"	4'-5"	4'-8"	4'-11"	5'-2"	5'-5"	5'-8"	5'-11"	6'-2"	6'-5"	6'-8"	6'-11"
T	10"	10"	10"	10"	10"	10"	10"	10"	10"	10"	10"	10"	10"
W	4'-10"	4'-10"	5'-0"	5'-4"	5'-4"	5'-4"	5'-4"	5'-4"	5'-4"	5'-4"	5'-6"	5'-9"	6'-0"
C	1'-0"	1'-0"	1'-0"	1'-4"	1'-4"	1'-4"	1'-4"	1'-4"	1'-4"	1'-4"	1'-6"	1'-6"	1'-6"
B	3'-10"	3'-10"	4'-0"	4'-0"	4'-0"	4'-0"	4'-0"	4'-0"	4'-0"	4'-0"	4'-3"	4'-3"	4'-6"
F	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-2"	1'-2"	1'-2"	1'-2"
"c" BARS	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	#5 @ 12	#5 @ 12	#5 @ 9	#5 @ 9
"d" BARS	#5 @ 12	#5 @ 12	#5 @ 12	#5 @ 8	#5 @ 8	#5 @ 8	#5 @ 8	#6 @ 8	#6 @ 8	#6 @ 8	#6 @ 6	#6 @ 6	#6 @ 6
* Conc CY/LF	0.33	0.34	0.35	0.37	0.38	0.39	0.40	0.40	0.41	0.50	0.51	0.53	0.55
* Reinf LB/LF	32	32	33	37	38	39	39	43	47	48	53	58	60
**CASE 1 Ser (q'o, B')	0.87, 4.68	0.88, 4.69	0.88, 4.75	0.89, 4.80	0.90, 4.95	0.92, 5.09	0.95, 5.00	0.96, 4.90	1.05, 4.80	1.10, 4.67	1.12, 4.70	1.14, 5.05	1.15, 5.32
**CASE 1 Str (q'o, B')	1.45, 4.60	1.49, 4.65	1.50, 4.71	1.52, 4.78	1.53, 4.81	1.55, 4.99	1.62, 4.50	2.10, 3.15	2.20, 2.50	2.38, 1.63	2.15, 1.65	2.10, 2.20	2.04, 2.41

* Quantities include 1'-0" extension above the design "H" limit.
q'o = net bearing stress (ksf), B' = effective footing width (ft)
Ser = service limit
Str = strength limit

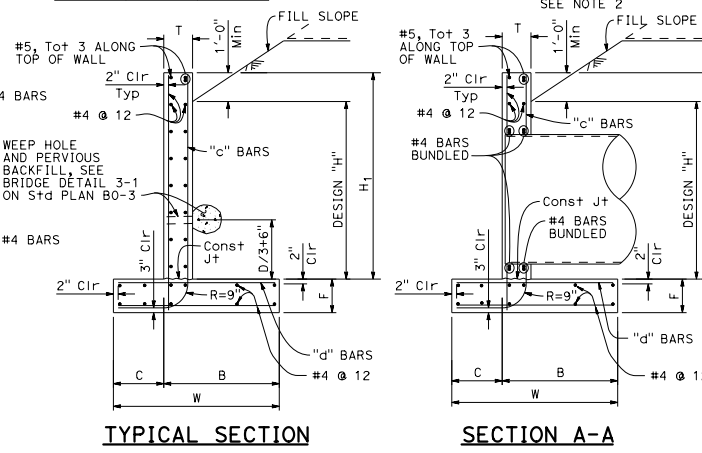
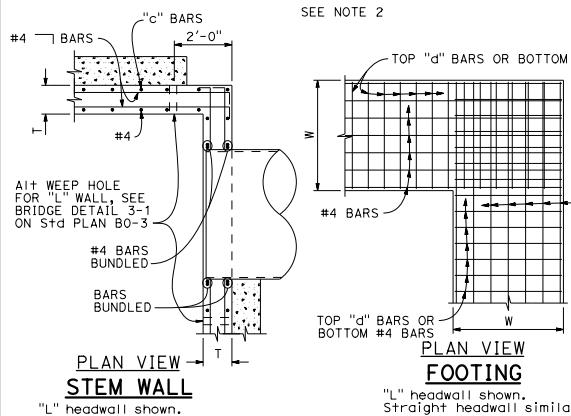
REINFORCED CONCRETE HEADWALL

Quantities do not include added diagonals and do not consider pipe occupancy.

NOTE: Reinforced Concrete: $f_y = 60,000$ psi
 $f'_c = 3,600$ psi
Earth Density: 120 pcf
Equivalent Fluid Pressure: 36 pcf



H	CIRCULAR PIPE SIZE D	CMP ARCH SIZE S x h
2'-8"	12"	-
2'-11"	15"	21" x 15"
3'-2"	18"	24" x 18"
3'-5"	21"	28" x 20"
3'-8"	24"	35" x 24"
3'-11"	27"	-
4'-2"	30"	42" x 29"
4'-8"	33"	49" x 33"
4'-11"	36"	-
5'-2"	39"	57" x 38"
5'-5"	42"	64" x 43"
5'-8"	45"	-
5'-11"	48"	71" x 47"
6'-2"	51"	-
6'-5"	54"	-

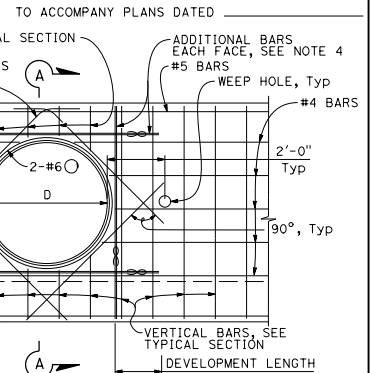


H	2'-8"	2'-11"	3'-2"	3'-5"	3'-8"	3'-11"	4'-2"	4'-8"	4'-11"	5'-2"	5'-5"	5'-8"	5'-11"	6'-2"	6'-5"
T	10"	10"	10"	10"	10"	10"	10"	10"	10"	10"	10"	10"	10"	10"	10"
W	2'-3"	2'-3"	2'-3"	2'-6"	2'-6"	2'-6"	3'-0"	3'-0"	3'-3"	3'-9"	4'-0"	4'-2"	4'-2"	4'-6"	4'-9"
C	6"	6"	6"	6"	6"	6"	9"	9"	9"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"	1'-3"
B	1'-9"	1'-9"	1'-9"	2'-0"	2'-0"	2'-0"	2'-3"	2'-3"	2'-3"	2'-9"	3'-0"	3'-2"	3'-2"	3'-6"	3'-6"
"c" BARS	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	#5 @ 12	#5 @ 12	#5 @ 12	#5 @ 12	#5 @ 12	#5 @ 12	#5 @ 9	#5 @ 9	#5 @ 9
"d" BARS	#4 @ 12	#4 @ 12	#4 @ 12	#4 @ 12	#5 @ 12	#5 @ 12	#5 @ 12	#5 @ 9	#5 @ 9	#5 @ 9	#5 @ 9	#5 @ 9	#5 @ 9	#5 @ 9	#5 @ 9
* Conc. CY/LF	0.20	0.20	0.21	0.23	0.24	0.26	0.29	0.30	0.32	0.35	0.37	0.39	0.44	0.46	0.48
* Reinf. LB/LF	19	20	21	22	24	24	27	32	33	36	38	39	43	47	49
**CASE II	Ser (q _o , B')	0.41, 1.85	0.48, 1.89	0.55, 1.91	0.60, 1.95	0.62, 2.08	0.62, 2.20	0.63, 2.44	0.67, 2.61	0.71, 2.72	0.75, 2.87	0.80, 2.93	0.84, 3.10	0.88, 3.20	0.91, 3.44
	Str (q _o , B')	1.07, 1.80	1.12, 1.83	1.20, 1.85	1.32, 1.89	1.34, 2.05	1.36, 2.19	1.39, 2.36	1.45, 2.48	1.50, 2.64	1.55, 2.77	1.62, 2.91	1.69, 3.16	1.72, 3.23	1.79, 3.33
**CASE III	Ser (q _o , B')	0.56, 2.05	0.62, 2.08	0.70, 2.10	0.75, 2.12	0.81, 2.20	0.83, 2.38	0.85, 2.49	0.91, 2.60	0.94, 2.75	0.97, 2.81	1.02, 2.91	1.09, 3.05	1.12, 3.12	1.18, 3.23
	Str (q _o , B')	0.91, 2.01	0.98, 2.05	1.06, 2.04	1.19, 2.06	1.22, 2.28	1.30, 2.34	1.36, 2.40	1.41, 2.51	1.49, 2.59	1.55, 2.68	1.65, 2.76	1.71, 2.90	1.79, 3.03	1.85, 3.07

REINFORCED CONCRETE HEADWALL
Quantities do not include added diagonals and do not consider pipe occupancy.

NOTE: Reinforced Concrete: $f_y = 60,000$ psi
 $f'_c = 3,600$ psi
Earth Density: 120 pcf
Equivalent Fluid Pressure: 36 pcf

Dist	COUNTY	ROUTE	POST MILES	SHEET TOTAL
			TOTAL PROJECT	NO. SHEETS
<p>October 18, 2019 PLANS APPROVAL DATE</p> <p>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.</p>				



- DETAIL OF DESIGN LOADING CASES**
- NOTES:**
- Length of wall from ϕ pipe to end of wall is 1.5H Min. The ends of headwall need to be embedded into the slope by one foot.
 - Single circular pipe or single CMP shown for "L" headwall. For double pipe in "L" headwall, see "ELEVATION STRAIGHT HEADWALL DOUBLE CIRCULAR PIPE" or "ELEVATION STRAIGHT HEADWALL DOUBLE CMP" detail for additional information.
 - Cable railing to be installed on top of headwall when shown on Project Plans. See Standard Plan B11-47 for cable railing details.
 - Adjacent to each side of the opening, place additional reinforcement equivalent to half the interrupted main reinforcement.
 - Quantities are approximate and for design purposes only. No deduction is made for pipe or arch occupancy.
 - Provide necessary erosion protection in front of wall.
 - If precast construction is used, the design standard shall be equal to or exceed that shown here, and the bottom of footing must be roughened.

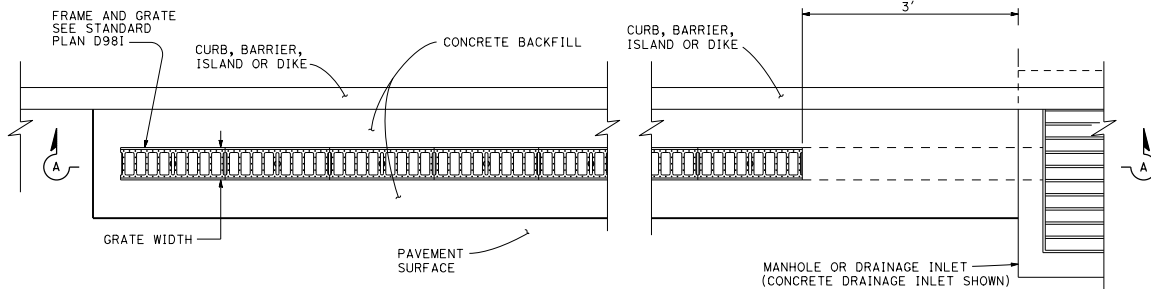
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
PIPE CULVERT HEADWALLS
STRAIGHT AND "L"
NO SCALE

RSP D89B DATED OCTOBER 18, 2019 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.
REVISED STANDARD PLAN RSP D89B

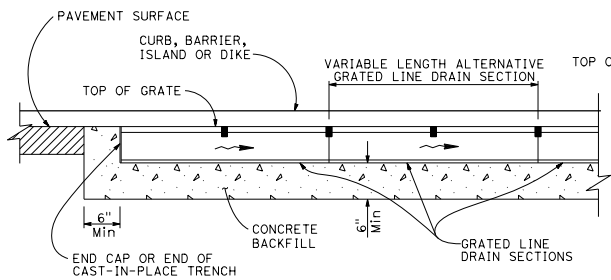
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER
Bruce D. Swanger
April 16, 2021
PLANS APPROVAL DATE
THE STATE OF CALIFORNIA OR ITS OFFICERS
OR AGENTS SHALL NOT BE RESPONSIBLE FOR
THE ACCURACY OR COMPLETENESS OF SCANNED
COPIES OF THIS PLAN SHEET.

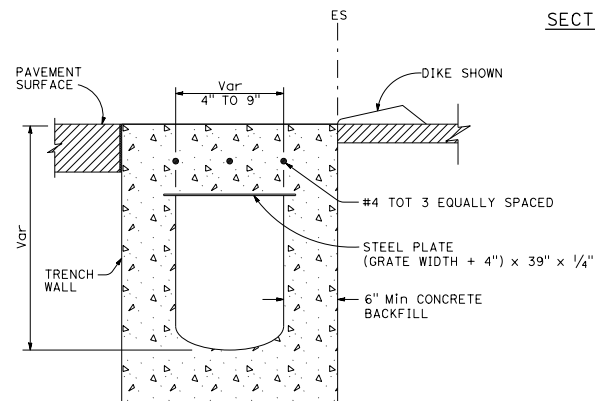
REGISTERED PROFESSIONAL ENGINEER
No. C61257
Exp. 6-30-21
CIVIL
STATE OF CALIFORNIA



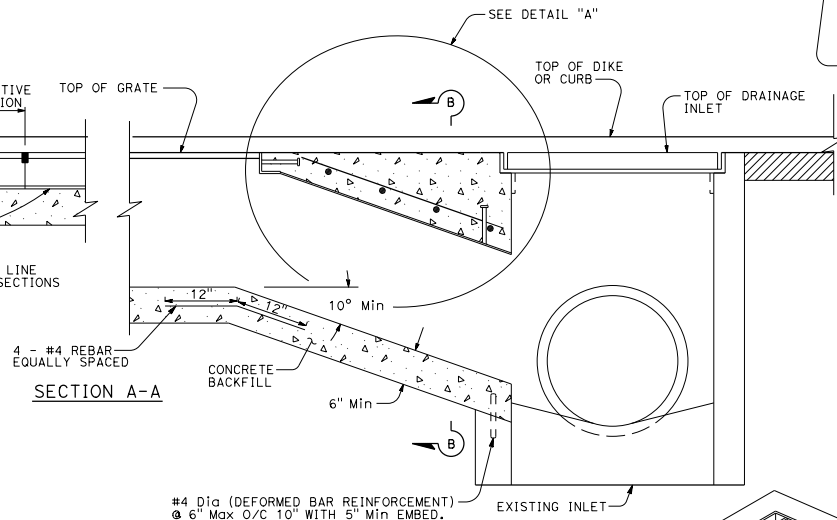
GRADED LINE DRAIN PLAN



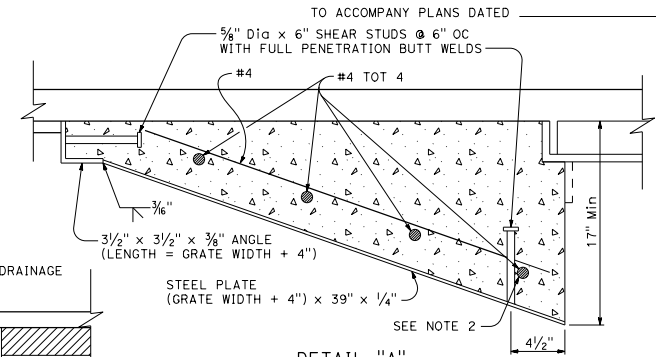
SECTION A-A



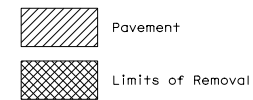
SECTION B-B



PARTIAL REMOVAL OF EXISTING DROP INLET



LEGEND:



NOTES:

1. Preserve existing rebar during removal of side wall to tie to trench drain reinforcement. Install additional rebar to facilitate connection to drop inlet and replace damaged existing rebar. Doweling perpendicular to side wall in lieu of connecting to existing rebar is not permitted.
2. Drill rebar ends 3" into existing concrete, overlap and connect with double barrel mechanical coupler.

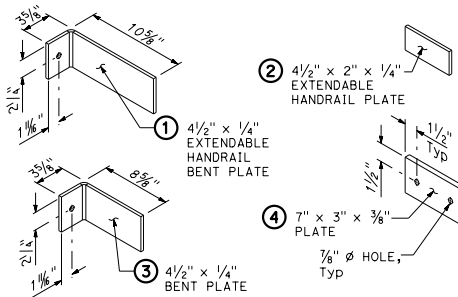
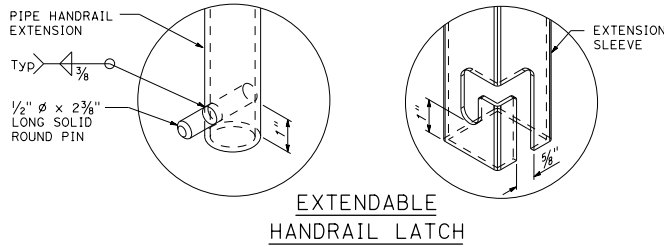
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**GRADED LINE DRAIN
DETAILS No. 4 - CONNECTION
TO EXISTING DRAINAGE
STRUCTURE**

NO SCALE
RSP D98J DATED APRIL 16, 2021 SUPERSEDES STANDARD PLAN D98J
DATED MAY 31, 2018 - PAGE 262 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP D98J

2018 REVISED STANDARD PLAN RSP D98J

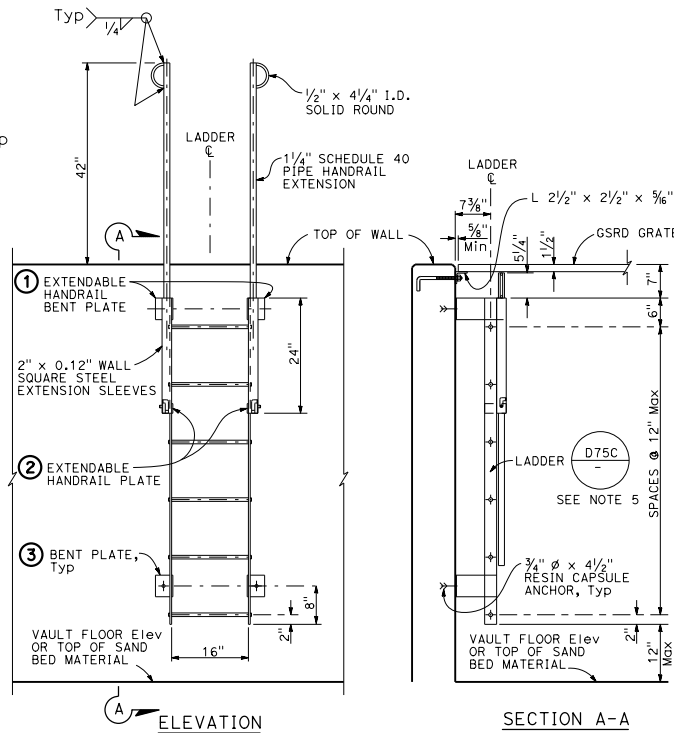
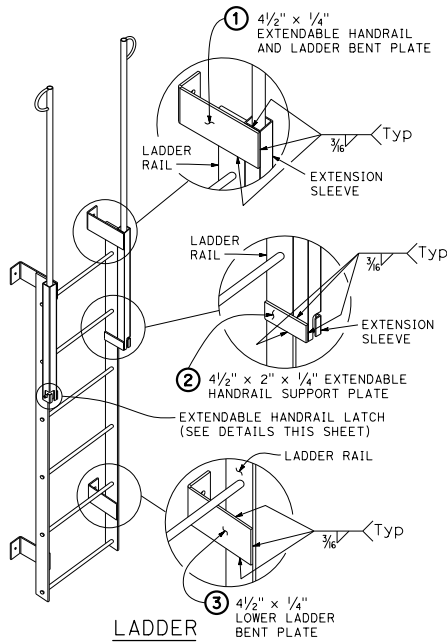
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL NO. SHEETS
<p>REGISTERED CIVIL ENGINEER</p> <p>April 16, 2021</p> <p>PLANS APPROVAL DATE</p> <p>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</p> <p>BRUCE D. SWANER No. C61257 Exp. 6-30-21 CIVIL STATE OF CALIFORNIA</p>				



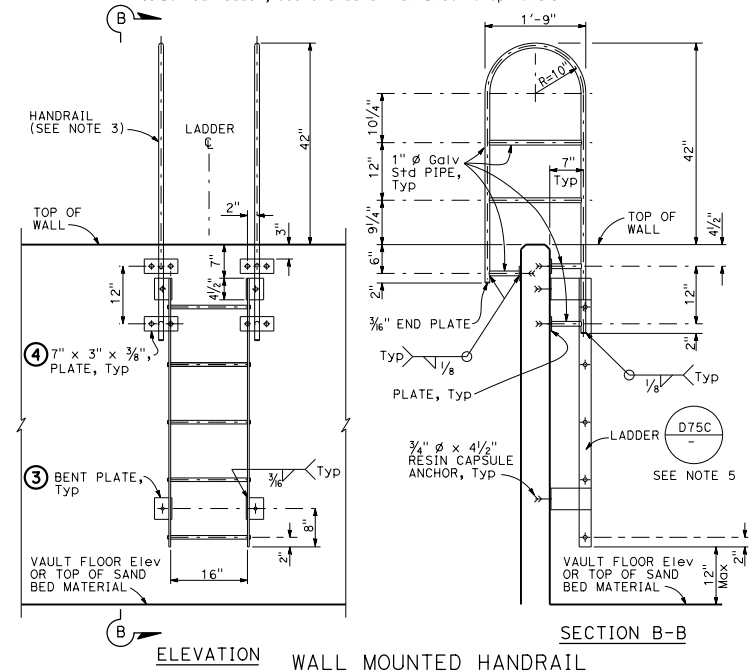
BRACKET DETAILS

NOTES (THIS SHEET ONLY):

1. Rungs must be skid resistant. TO ACCOMPANY PLANS DATED _____
2. Use wall mounted handrails for vault depths between 4'-0" and 6'-6". For deeper vaults use extendable handrails detail. Vault depth is distance between top of wall and either top of floor slab or top of filter media material (use which ever distance is less). Ladders must not extend into filter media material.
3. No handrail required for Linear Radial GSRD 4'-0" depth, due to grate conflict.
4. At ladder locations provide a ladder on the outside of the wall if landing area finished grade elevations is 24" or greater from the top of wall elevation. use Standard Plan D75C.
5. Bolted ladder, see Standard Plan D75C is optional.



EXTENDABLE HANDRAIL



STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
LADDER DETAILS
NO SCALE

RSP D118 DATED APRIL 16, 2021 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP D118

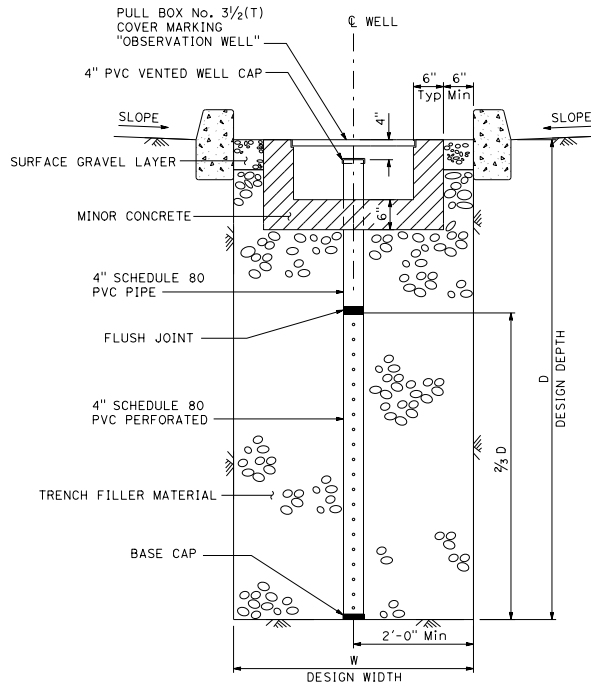
2018 REVISED STANDARD PLAN RSP D118

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL No. SHEETS
<p><i>Karen E. M. Bamfield</i> REGISTERED CIVIL ENGINEER</p> <p>October 15, 2021 PLANS APPROVAL DATE</p> <p>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.</p>				
<p>REGISTERED PROFESSIONAL ENGINEER Karen E. M. Bamfield No. C71121 Exp 6-30-23 CIVIL STATE OF CALIFORNIA</p>				

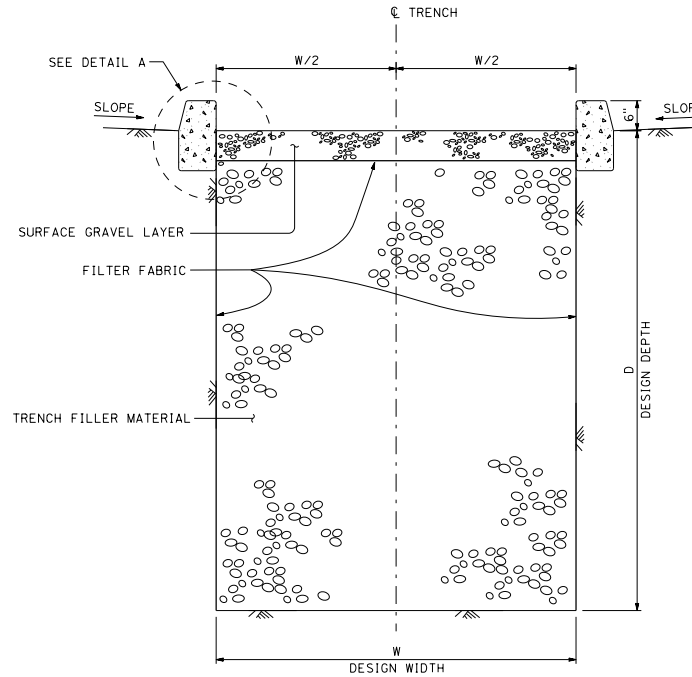
TO ACCOMPANY PLANS DATED _____

NOTES:

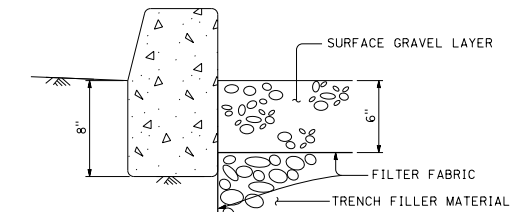
1. Filter fabric shall be placed between trench filler material and surface gravel layer and along the sides of the infiltration trench.
2. Place concrete curb at the locations shown on the plans. See Standard Plan A87A for details not shown.
3. The exact location of curb openings shall be determined by the Engineer in the field.
4. Centerline of observation well to be placed a minimum of 1'-6" from edge of trench.
5. The plastic protection well cover shall be flush with top of the surface gravel layer.



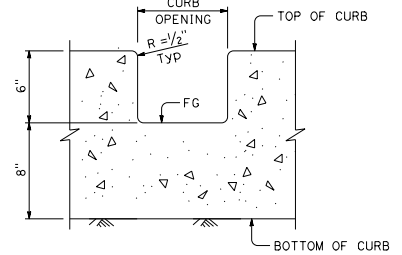
**SECTION
OBSERVATION WELL**



**SECTION
INFILTRATION TRENCH**



**DETAIL A
See Note 2**



**CURB OPENING DETAIL
See Note 3**

MODIFIED TYPE A1-6 CURB

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
DRAINAGE DETAILS
NO SCALE

RSP D131 DATED OCTOBER 15, 2021 SUPERSEDES RSP D131
DATED APRIL 16, 2021 THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP D131

2018 REVISED STANDARD PLAN RSP D131

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER

April 16, 2021
PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER
Bruce D. Swanger
No. C61257
Exp. 6-30-21
CIVIL
STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED _____

GENERAL NOTES

Designation:
Types of Gross Solids Removal Devices (GSRDs) are Linear Radial (LR) and Inclined Screen. The Linear Radial has either a standard or high velocity configuration noted as Linear Radial or Linear Radial (HV). All GSRD BMP Detail Drawings are applicable for velocities up to 20 fps.

Special Reinforcement Coverage:
GSRD BMP Detail Drawings are not to be used in a corrosive environment or where there is a severe abrasive flow condition or in freeze-thaw locations.

Special Design:
Required for ground water conditions above bottom of GSRD, surcharge loads exceeding HS20 truck load, design bearing pressures or sizes greater than those on this plan.

Traffic Loading:
No traffic load is allowed over GSRDs. As determined by the Engineer, barriers or MBGR shall be provided between GSRDs and traffic lanes.

INCLINED SCREEN DESIGN FLOW CHART			
GSRD TYPE	TOTAL SCREEN LENGTH "c"	FLOW RATE (cfs)	DEBRIS AREA (acres)
A	3'-4"	5.83	2.21
B	5'-0"	8.74	3.31
C	6'-8"	11.65	4.41
D	8'-4"	14.57	5.52
E	10'-0"	17.48	6.63
F	11'-8"	20.39	7.74

NOTE:

1. The total screen length "c" is shown on Revised Standard Plans RSP D139B, RSP D139F1, and RSP D139G1.

DESIGN NOTES

Specifications:
Design:
Bridge Design Specification April 2000 (LFD)
(1996 AASHTO) with interims and revisions by Caltrans

Wall (LFD) : $1.5 D + 1.5 E + 1.5 D + W$
Footing (LFD): $1.5 D + 1.5 E$

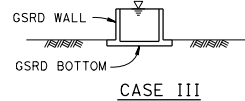
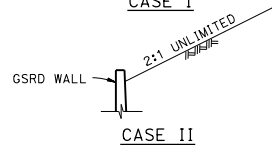
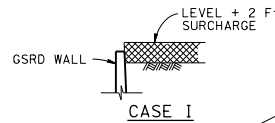
Where D = Dead Load
 E = Earth Load

Capacity reduction factor is included.

Earth Load: 125 lb/ft vertical, Water Load: 62.4 lb/ft horizontal,

Equivalent Fluid Pressure =
100 lb/ft horizontal (Case I).

Earth pressure for 2:1 unlimited slope determined from Rankine's formula with $\phi = 33^\circ 42'$ (Case II).



DETAIL OF DESIGN LOADING CASES

CASE I Level + 2'-0" surcharge, GSRD empty
CASE II 2:1 Unlimited slope, GSRD empty
CASE III GSRD full of water, no soil pressure

Grating (LL) Load :
0.5 psi

Unit Stresses:
 $f_c = 4.0$ ksi
 $f_y = 60$ ksi (bar reinforcing)

Design Soil Bearing Pressure (Service Load) = 20 psi

ABBREVIATIONS

cfs CUBIC FEET PER SECOND
EWT&B EACH WAY TOP AND BOTTOM
fps FEET PER SECOND
GSRD GROSS SOLIDS REMOVAL DEVICE
LL LIVE LOAD
FRP FIBERGLASS REINFORCED PLASTIC

LEGEND

DESIGN WATER DEPTH
STANDARD PLAN SHEET No.
DETAIL No.

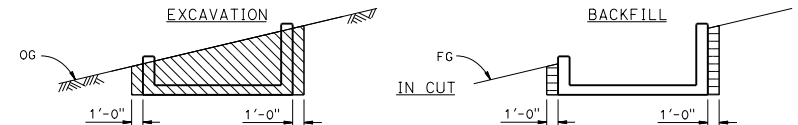
NOTES

Expansion joints:
Inverts - No expansion joints permitted.
Walls - Place $\frac{1}{2}$ " expansion joint filler vertically at 26'-0" centers with strip water stop (B0-1 1-3).

Construction Joints:
Construction joints may be permitted if normal (or radial) to ϕ of GSRD.

Backfill:
See Standard Specifications, except the difference in backfill will not exceed 4 ft between side walls and will not exceed the lesser of wall height "H" or 4 ft between inlet and outlet walls.

Earthwork:
Excavation and Backfill with Cut and Exposed conditions:



INCLINED SCREEN

LEGEND

STRUCTURE EXCAVATION
STRUCTURE BACKFILL
90% RELATIVE COMPACTION

NOTES

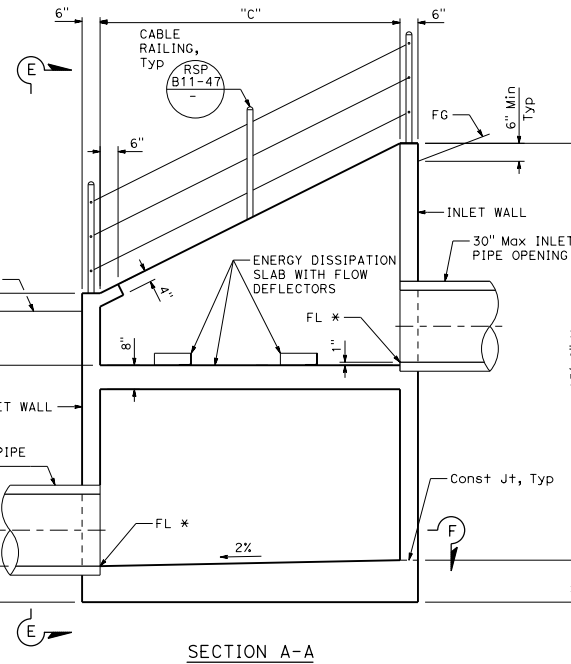
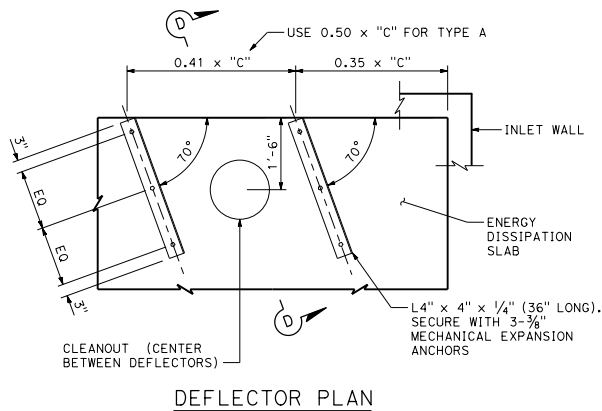
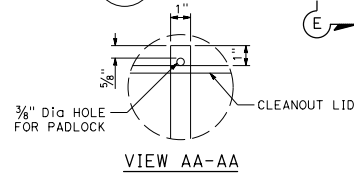
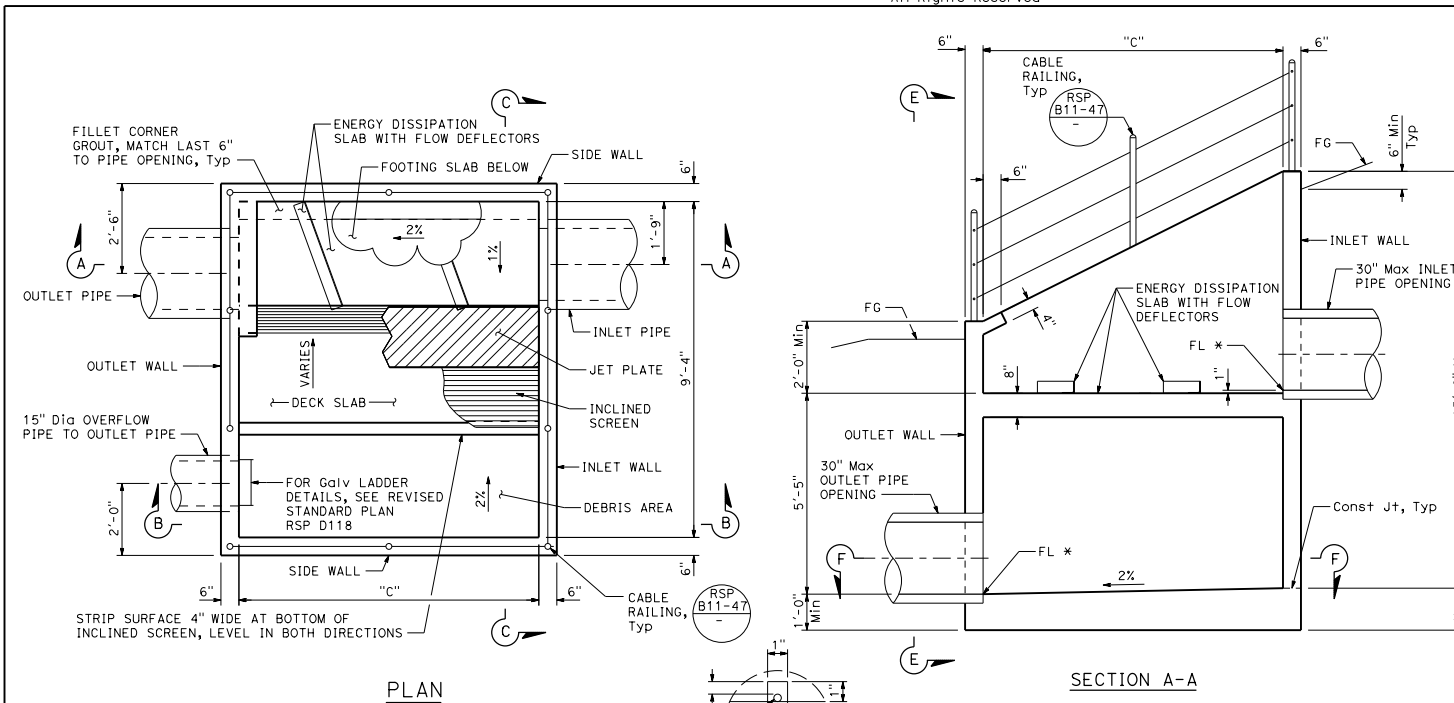
1. Slope or shore excavation sides as necessary.
2. Dimensions shown are minimum.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**GROSS SOLIDS REMOVAL DEVICE
INCLINED SCREEN LEGEND**
NO SCALE

RSP D139A DATED APRIL 16, 2021 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.

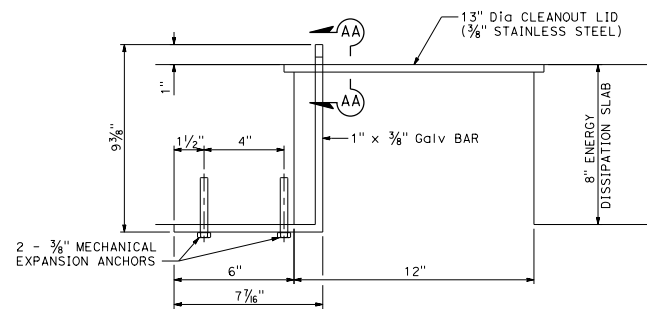
REVISED STANDARD PLAN RSP D139A

2018 REVISED STANDARD PLAN RSP D139A



* FOR FL ELEVATIONS, SEE "DRAINAGE PROFILES".

JET PLATE NOT SHOWN FOR CLARITY,
SEE REVISED STANDARD PLAN RSP D139D.



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL NO. SHEETS

REGISTERED CIVIL ENGINEER

April 16, 2021
PLANS APPROVAL DATE

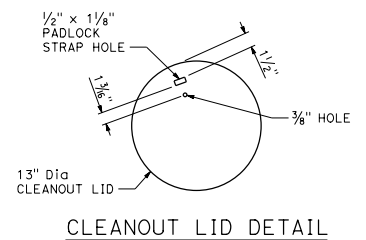
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BRUCE D. SWANGER
No. C61257
Exp. 6-30-21
CIVIL
STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED _____

NOTES (THIS SHEET ONLY):

1. See "Drainage Plans" for additional details.
2. Inlet and outlet pipe opening sizes are shown on "Drainage Plans". The overflow and outlet piping must be connected via standard elbows and tees.
3. For Sections B-B and C-C, see Revised Standard Plans RSP D139F1 and RSP D139G1.
4. For reinforcing details which include Sections A-A, B-B, C-C and F-F, see Revised Standard Plan RSP D139D.
5. For inlet and outlet pipe details not shown, see Revised Standard Plan RSP D139C.
6. For View E-E, see Revised Standard Plan RSP D139C.

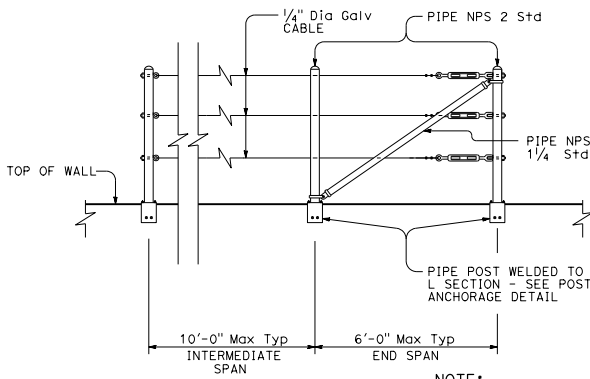


STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**GROSS SOLIDS REMOVAL DEVICE
INCLINED SCREEN LAYOUT**
NO SCALE

RSP D139B DATED APRIL 16, 2021 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.

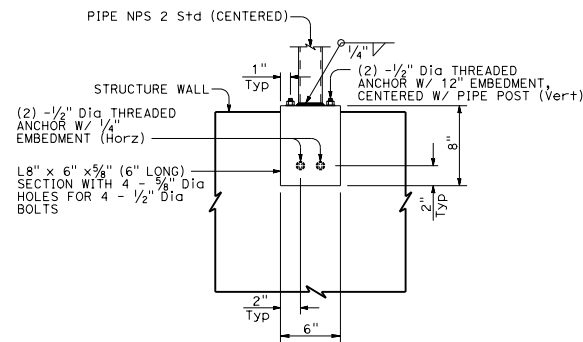
REVISED STANDARD PLAN RSP D139B

2018 REVISED STANDARD PLAN RSP D139B

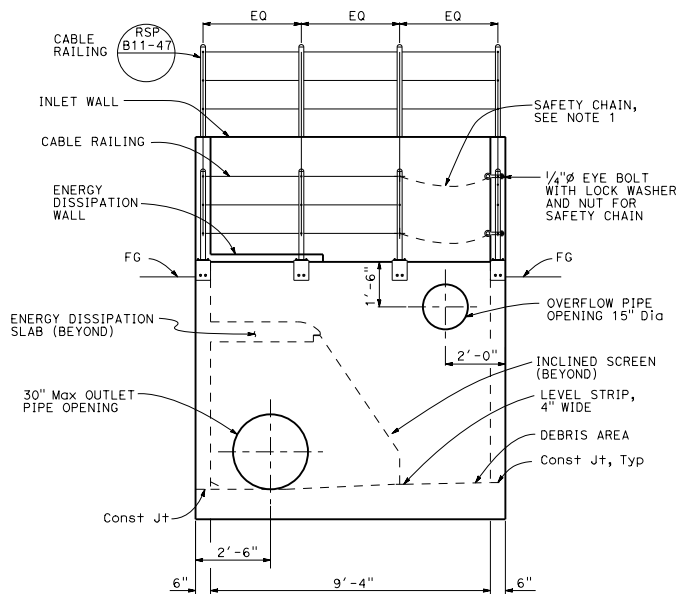


CABLE RAILING

NOTE:
REFER TO REVISED STANDARD PLAN
RSP B11-47 FOR ADDITIONAL
INFORMATION.

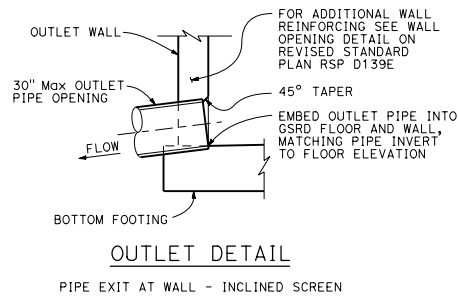


POST ANCHORAGE

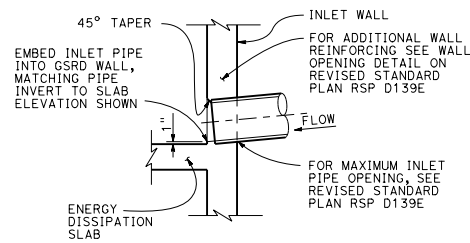


VIEW E-E

NOTE:
JET PLATE AND FLOW DEFLECTORS NOT SHOWN FOR CLARITY.



OUTLET DETAIL



INLET DETAIL

PIPE ENTRANCE AT WALL

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
<p>REGISTERED CIVIL ENGINEER</p> <p>April 16, 2021</p> <p>PLANS APPROVAL DATE</p> <p>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.</p>					

TO ACCOMPANY PLANS DATED _____

NOTE:

1. Safety chain must be 1/4" galvanized steel coil chain, approximately 12 links per foot. Length must be minimum which allows lock-up of safety railing. Minimum of two safety chains per safety railing. Material must be grade 43 high test chain ASTM A413.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**GROSS SOLIDS REMOVAL DEVICE
INCLINED SCREEN DETAILS No. 1**
NO SCALE

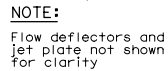
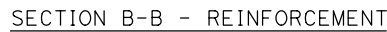
RSP D139C DATED APRIL 16, 2021 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP D139C

2018 REVISED STANDARD PLAN RSP D139C

TO ACCOMPANY PLANS DATED _____

NOTES:



SECTION C-C - REINFORCEMENT



ENT

JET END SUPPORTS ATTACH WITH 1/4" MECHANICAL EXPANSION ANCHOR, Typ, SEE NOTE 3

SEE NOTE 3

1'-6"

ENERGY DISSIPATION SLAB

4 1/2"

9"

9"

9"

4 1/2"

6"

Inclined Screen

1/8"

1/4"

PERIMETER SUPPORT SEE NOTE 3

INTERIOR SUPPORT SEE NOTE 3

3/8" JET PLATE

JET END SUPPORT, USE SAME SIZE SUPPORT AS JET PLATE PERIMETER SUPPORT, SEE NOTE 3

SECTION G-G

JET PLATE DETAIL

LEVEL

ONS

STATE OF CALIFORNIA

SECTION G-G

RSP D139D DATED APRIL 16, 2021 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP D139D

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

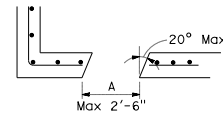
REGISTERED CIVIL ENGINEER

April 16, 2021
PLANS APPROVAL DATE

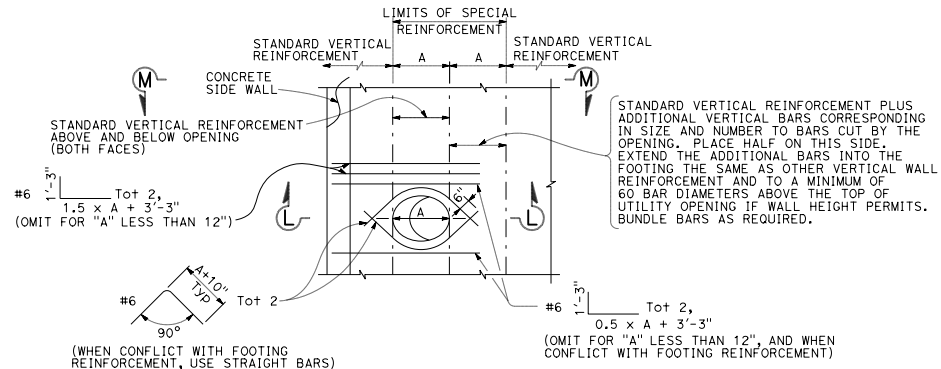
THE STATE OF CALIFORNIA OR ITS OFFICERS
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REGISTERED PROFESSIONAL ENGINEER
Bruce D. Swanger
No. C61257
Exp. 6-30-21
CIVIL
STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED _____

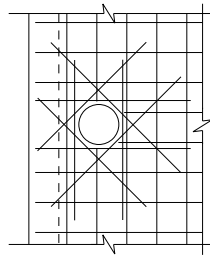


SECTION L-L



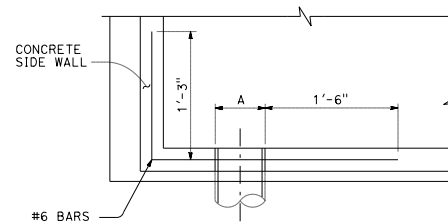
WALL OPENING

To be used at inlet and outlet pipe locations



ENERGY DISSIPATION SLAB

To be used at cleanout
(Place 8 - #5 as shown top and bottom. Extend
bars 1'-3" past the opening or use 6" hook
if development length is not available.)



SECTION M-M

(Only specified horizontal bars are shown)

NOTE:

In all opening locations, horizontal reinforcement
to be standard except as shown. All reinforcement
to clear opening by 2" minimum.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**GROSS SOLIDS REMOVAL DEVICE
INCLINED SCREEN DETAILS No. 3
WALL OPENING DETAILS**

NO SCALE

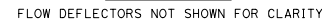
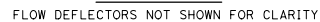
RSP D139E DATED APRIL 16, 2021 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP D139E

2018 REVISED STANDARD PLAN RSP D139E

TO ACCOMPANY PLANS DATED _____

- 2018 REVISED STANDARD PLAN RSP D139F1**



RSP D139F1 DATED APRIL 16, 2021 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.

2-29-20

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL SHEETS

REGISTERED CIVIL ENGINEER

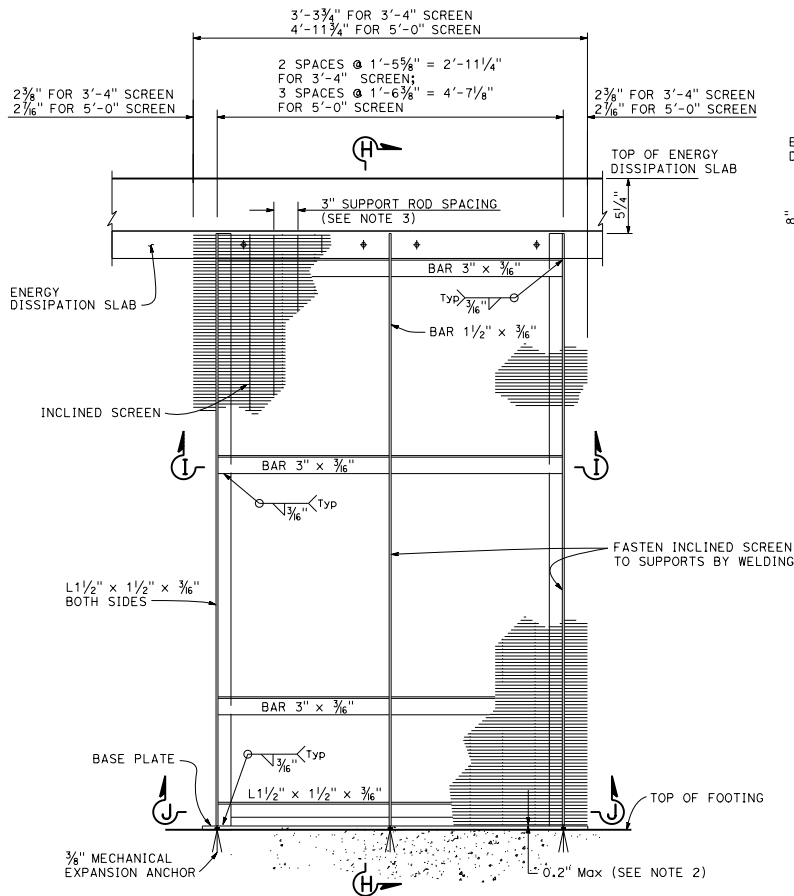
April 16, 2021

PLANS APPROVAL DATE

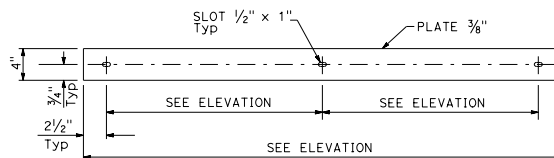
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TO ACCOMPANY PLANS DATED _____

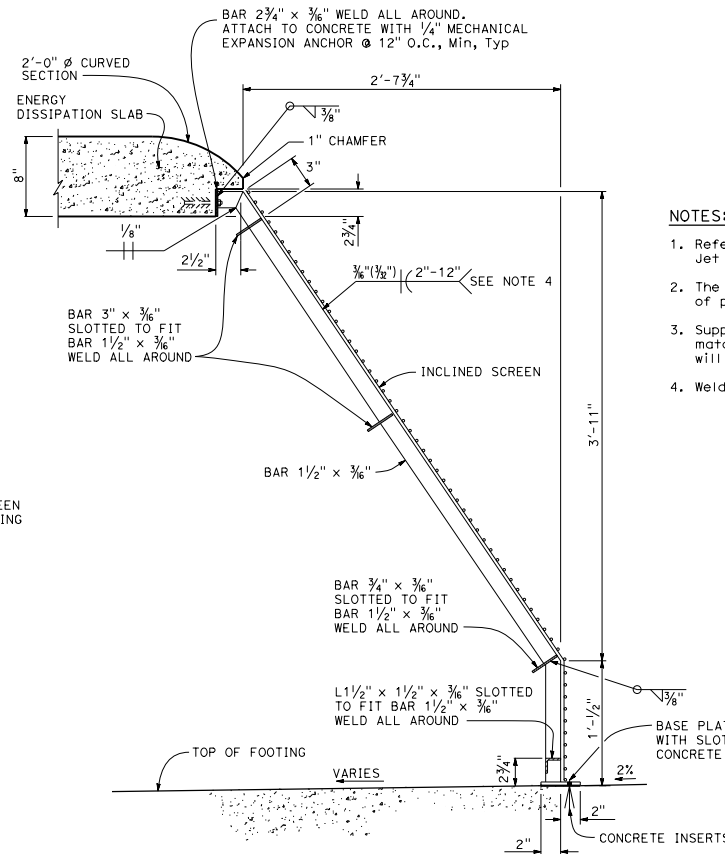
BRUCE D. SWANGER
No. C61257
Exp. 6-30-21
CIVIL
STATE OF CALIFORNIA



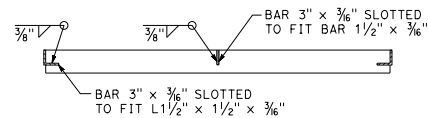
ELEVATION



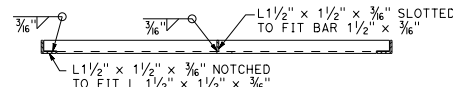
BASE PLATE



SECTION H-H



SECTION I-I



SECTION J-J

NOTES:

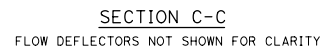
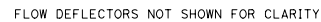
1. Reference Revised Standard Plan RSP D139D for Jet and Deflectors.
2. The dimension shown is the distance between top of plate and bottom of wire.
3. Support rod diameter equals 3/8". Align rods to match vertical angle supports. Screen manufacturer will weld support rods to wedge wire.
4. Weld support rods to metal frame (all around).

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**GROSS SOLIDS REMOVAL DEVICE
INCLINED SCREEN DETAILS No. 5
WEDGE-WIRE SCREEN**
NO SCALE

RSP D139F2 DATED APRIL 16, 2021 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP D139F2

2018 REVISED STANDARD PLAN RSP D139F2



1. See "Drainage Plans" for additional details.
2. For Section B-B and Section C-C locations, see Revised Standard Plan RSP D139B.
3. Inlet and outlet piping opening sizes are shown on the "Drainage Plans." The overflow and outlet piping shall be connected via standard elbows and tees.
4. For inlet and outlet pipe details not shown, see "Drainage Plans".

DIST	COUNTY	ROUTE	POST MILES	SHEET	TOTAL
			TOTAL PROJECT	No.	SHEETS

[Signature]
REGISTERED CIVIL ENGINEER

April 16, 2021
PLANS APPROVAL DATE

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BRUCE D. SWANGER
No. C61257
EXP. 6-30-21
CIVIL
STATE OF CALIFORNIA

NO SCALE

RSP D139G1 DATED APRIL 16, 2021 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP D139G1

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL NO. SHEETS

REGISTERED CIVIL ENGINEER

April 16, 2021

PLANS APPROVAL DATE

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BRUCE D. SWANGER
No. C61257
Exp. 6-30-21
CIVIL
STATE OF CALIFORNIA

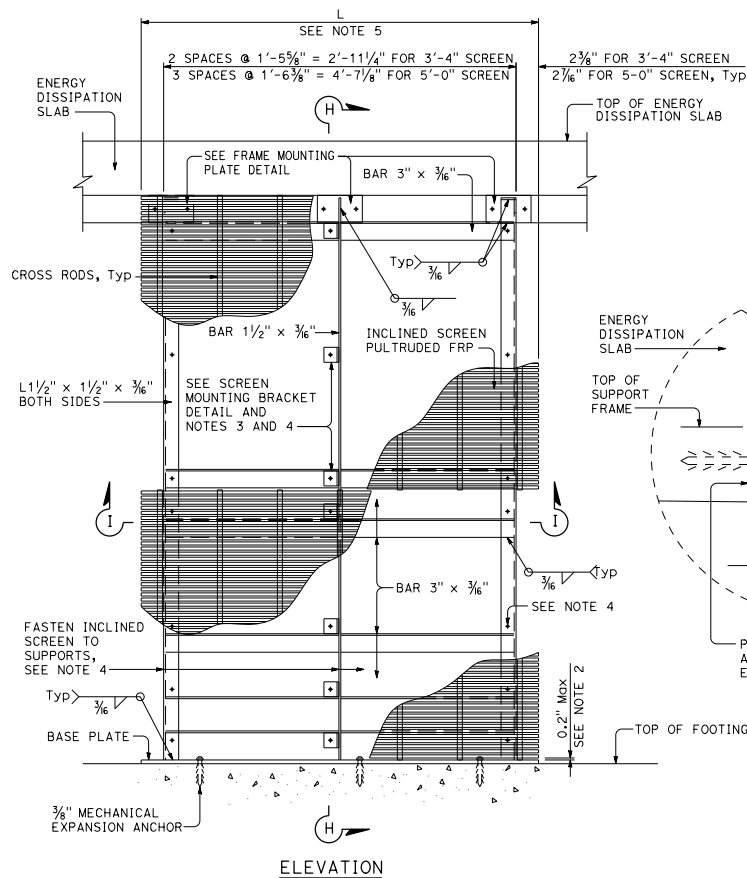
TO ACCOMPANY PLANS DATED _____

NOTES:

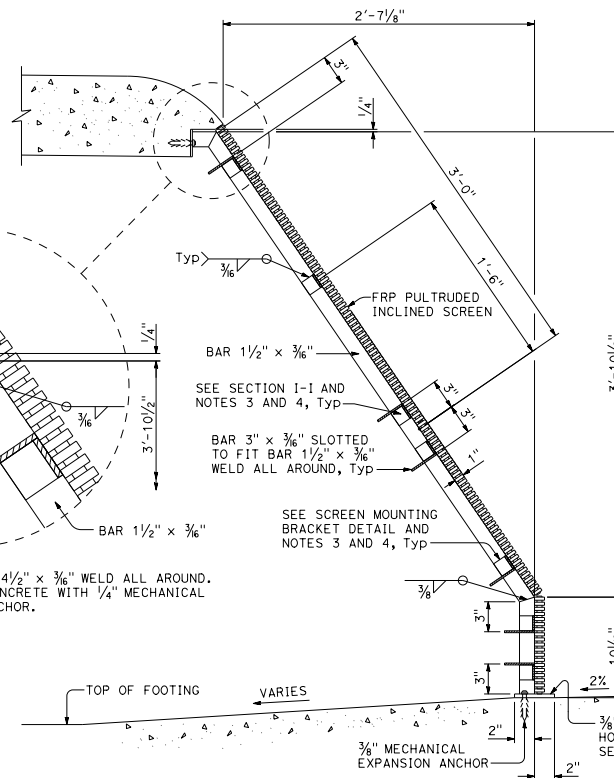
- Reference Revised Standard Plan RSP D139D for Jet and Deflectors.
- The dimension shown is the distance between top of plate and bottom of screen.
- Weld $1\frac{1}{2}" \times 1\frac{1}{2}" \times \frac{3}{16}"$ to metal frame.
- Mount screen to metal frame using stainless steel tamper proof bolt/clip assembly. Field locate and drill $\frac{1}{4}"$ ϕ hole in the support beam and screen mounting bracket to install the hold down clip assembly. Use a minimum of 9 clip assemblies for top 3' width FRP screen. Use 6 clip assemblies for FRP screens that are less than 3'. Adjust screen mounting bracket locations as needed. Place bracket in between tie rods.
- Pultruded FRP screen length is:

TYPE	L (ft)
A	3'-3 $\frac{3}{4}"$
B	4'-11 $\frac{1}{2}"$
C	6'-7 $\frac{3}{4}"$
D	8'-3 $\frac{3}{4}"$
E	9'-11 $\frac{3}{4}"$
F	11'-7 $\frac{3}{4}"$

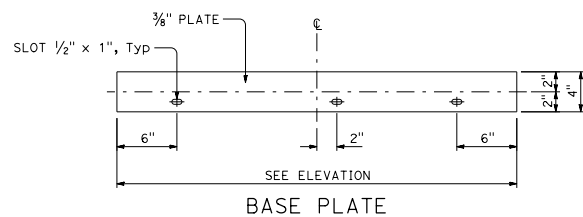
- Use silicone at all edges of screen and concrete where gap is > 0.2".



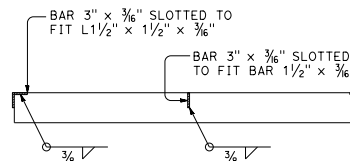
ELEVATION



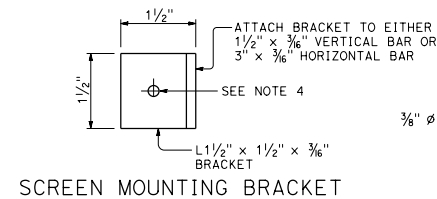
SECTION H-H



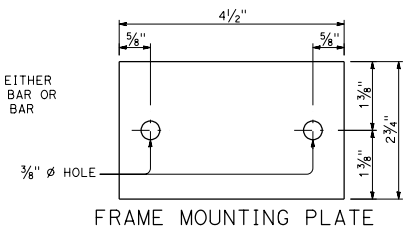
BASE PLATE



SECTION I-I



SCREEN MOUNTING BRACKET



FRAME MOUNTING PLATE

**GROSS SOLIDS REMOVAL DEVICE
INCLINED SCREEN DETAILS No. 7
PULTRUDED FRP SCREEN
NO SCALE**

RSP D139G2 DATED APRIL 16, 2021 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP D139G2

2018 REVISED STANDARD PLAN RSP D139G2

GENERAL NOTES

Designation:

Types of Gross Solids Removal Devices (GSRDs) are Linear Radial (LR) and Inclined Screen. The Linear Radial has either a standard or high velocity configuration noted as Linear Radial or Linear Radial (HV). All GSRD BMP Detail Drawings are applicable for velocities up to 20 fps.

Special Reinforcement Coverage:

GSRD BMP Detail Drawings are not to be used in a corrosive environment or where there is a severe abrasive flow condition or in freeze-thaw locations.

Special Design:

Required for ground water conditions above bottom of GSRD, surcharge loads exceeding HS20 truck load, design bearing pressures or sizes greater than those on this plan.

Traffic Loading:

No traffic load is allowed over GSRDs. As determined by the Engineer, barriers or MBGR shall be provided between GSRDs and traffic lanes.

LINEAR RADIAL DESIGN CHART						
GSRD TYPE	TOTAL SCREENED PIPE LENGTH "TS"	FLOW RATE (cfs)	DEBRIS AREA (acres)	INSIDE LENGTH "L"	HIGH VELOCITY INSIDE LENGTH "LHV" *	No. OF INTERMEDIATE SCREENED PIPES
LR-1	5'-6"	3.54	0.79	11'-11"	14'-3 $\frac{3}{4}$ "	0
LR-2	10'-6"	7.07	1.58	16'-11"	19'-3 $\frac{3}{4}$ "	1
LR-3	15'-6"	10.96	2.25	21'-11"	24'-3 $\frac{3}{4}$ "	2
LR-4	20'-6"	14.49	3.16	26'-11"	29'-3 $\frac{3}{4}$ "	3
LR-5	25'-6"	18.38	3.95	31'-11"	34'-3 $\frac{3}{4}$ "	4
LR-6	30'-6"	21.91	4.74	36'-11"	39'-3 $\frac{3}{4}$ "	5

* High velocity is achieved when inlet Velocity exceeds 8.2 fps.

NOTES:

- The total screened pipe length "TS" is the sum of the end screened and intermediate screened pipes. For dimension "TS" and location of end screened pipe and intermediate screened pipes, see Revised Standard Plan RSP D140B.
- Example of Linear Radial nomenclature is LR-1 (6'-0"); for high velocity type LR(HV)-3 (3'-0"). The wall height is the number represented in the parentheses.
- The inside length "L" is shown on Revised Standard Plan RSP D140B, see plan view. Likewise, the inside length "LHV" is shown on Revised Standard Plan RSP D140G, see plan view.

DESIGN NOTES

Specifications:

Design:

Bridge Design Specification April 2000 (LFD)
(1996 AASHTO) with interims and revisions by Caltrans

Wall (LFD) : 1.5 D + 1.5 E and 1.5 D + W

Footing (LFD) : 1.5 D + 1.5 E

Where: D = Dead Load

E = Earth Load

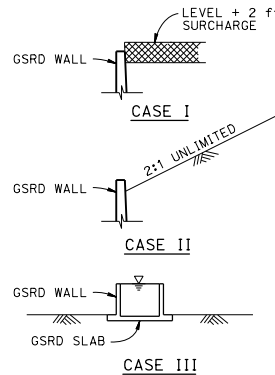
Capacity reduction factor is included.

Earth Load:
125 lb/ft³ vertical,

Water Load:
62.4 lb/ft³ horizontal,

Equivalent Fluid Pressure =
100 lb/ft³ horizontal (Case I).

Earth pressure for 2:1 unlimited slope determined from Rankine's formula with $\phi = 33^\circ 42'$ (Case II).



DETAIL OF DESIGN LOADING CASES

CASE I Level + 2'-0" surcharge, GSRD empty

CASE II 2:1 Unlimited slope, GSRD empty

CASE III GSRD full of water, no soil pressure

Grating (LL) Load :
0.5 psi

Unit Stresses:

$f'_c = 3.6$ ksi

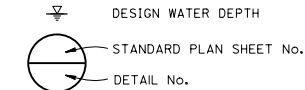
$f_y = 60$ ksi (bar reinforcing)

Design Soil Bearing Pressure (Service Load) = 20 psi

ABBREVIATIONS

cfs CUBIC FEET PER SECOND
fps FEET PER SECOND
GSRD GROSS SOLIDS REMOVAL DEVICE
HV HIGH VELOCITY
LL LIVE LOAD
LR LINEAR RADIAL

LEGEND



NOTES:

Expansion Joints:

Inverts - No expansion joints shall be permitted.

Walls - Place 1/2" expansion joint filler vertically at 26'-0" centers with strip water stop (B0-1 1-3).

Construction Joints:

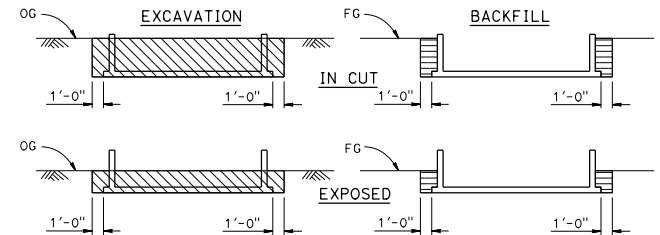
Construction joints may be permitted if normal (or radial) to ϕ of GSRD.

Backfill:

See Standard Specifications, except the difference in backfill shall not exceed 4 ft between side walls and shall not exceed the lesser of wall height "H" or 4 ft between inlet and outlet walls.

Earthwork:

Excavation and Backfill with Cut and Exposed conditions:



LINEAR RADIAL

LEGEND

STRUCTURE EXCAVATION
STRUCTURE BACKFILL
90% RELATIVE COMPACTION

NOTES:

- Slope or shore excavation sides as necessary.
- Dimensions shown are minimum.

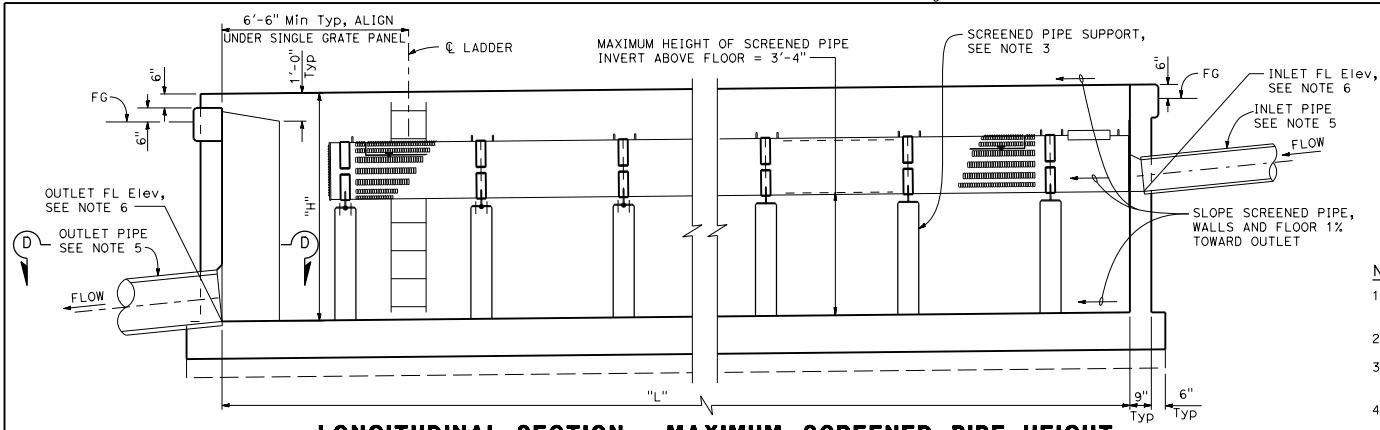
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

GROSS SOLIDS REMOVAL DEVICE LINEAR RADIAL LEGEND

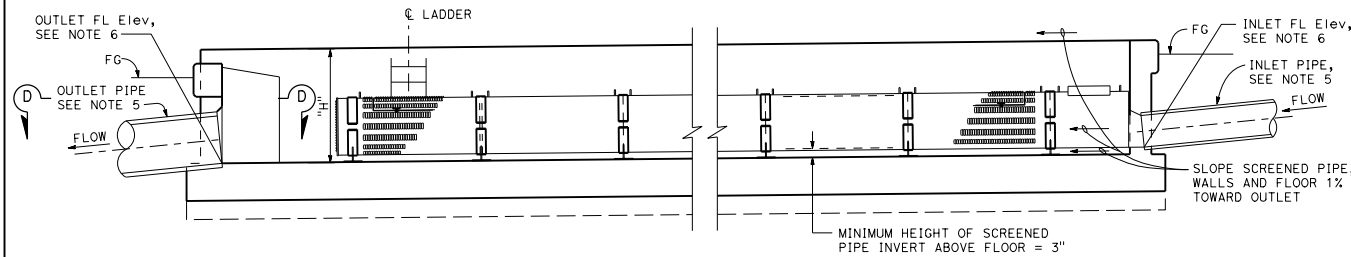
NO SCALE

RSP D140A DATED APRIL 16, 2021 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.

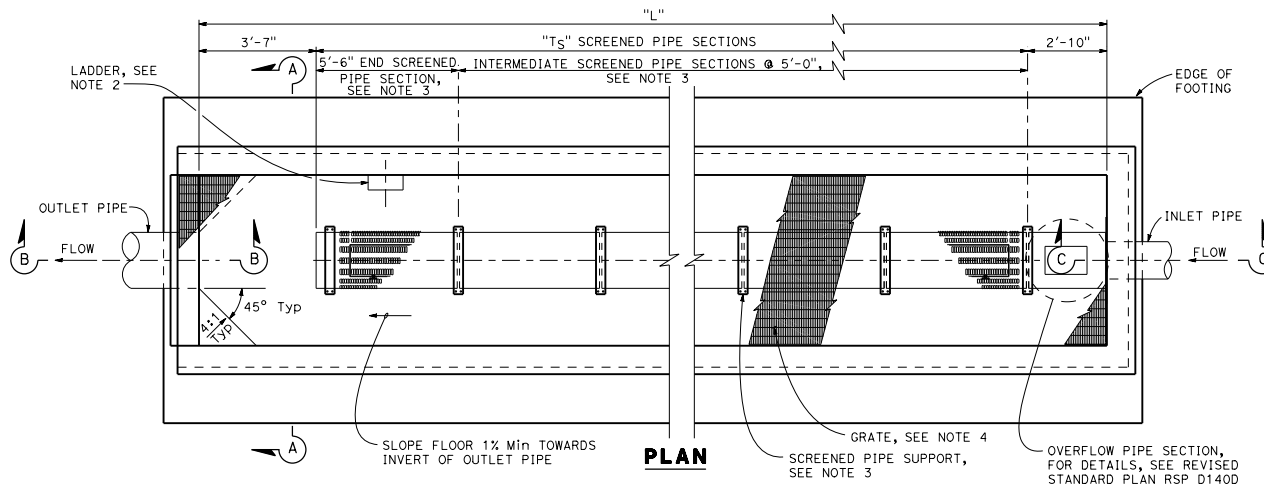
REVISED STANDARD PLAN RSP D140A



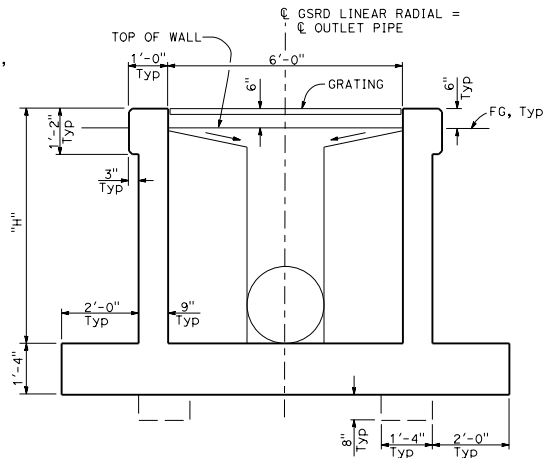
LONGITUDINAL SECTION - MAXIMUM SCREENED PIPE HEIGHT



LONGITUDINAL SECTION - MINIMUM SCREENED PIPE HEIGHT



PLAN



TYPICAL SECTION

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**GROSS SOLIDS REMOVAL DEVICE
LINEAR RADIAL LAYOUT**
NO SCALE

RSP D140B DATED APRIL 16, 2021 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP D140B

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL SHEETS

REGISTERED CIVIL ENGINEER
Bruce D. Swanger
April 16, 2021
PLANS APPROVAL DATE
No. C61257
EXP. 6-30-21
CIVIL
STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED _____

NOTES (THIS SHEET ONLY):

- For Sections A-A, B-B, C-C and D-D, see Revised Standard Plan RSP D140C.
- For ladder details, see Revised Standard Plan RSP D118.
- For end and intermediate screened pipe details, see Revised Standard Plan RSP D140E.
- For grate details, see Revised Standard Plan RSP D140F.
- For layout of inlet and outlet pipes, see "Drainage Plans".
- For FL elevation of inlet and outlet pipes, see "Drainage Profiles".
- For dimension "L", "Ts" and other design data, see Revised Standard Plan RSP D140A.
- For dimension "H", see Revised Standard Plan RSP D140C.

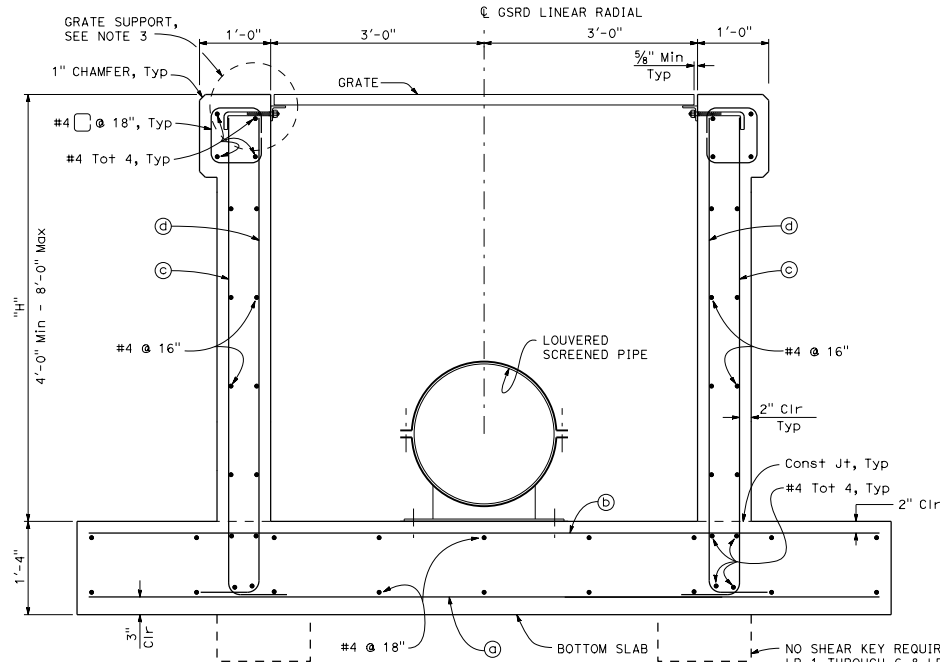
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER
Bruce D. Swanger
April 16, 2021
PLANS APPROVAL DATE
No. C61257
Exp. 6-30-21
CIVIL
STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED _____

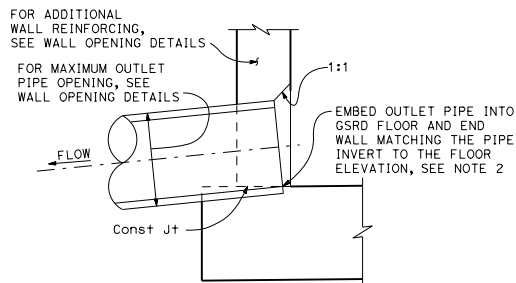
NOTES (THIS SHEET ONLY):

- For location of sections A-A, B-B, C-C and D-D, see Revised Standard Plan RSP D140C.
- For invert elevation differential between inlet and outlet, see "Drainage Profiles" sheets.
- For grate support detail, see Revised Standard Plan RSP D140F.

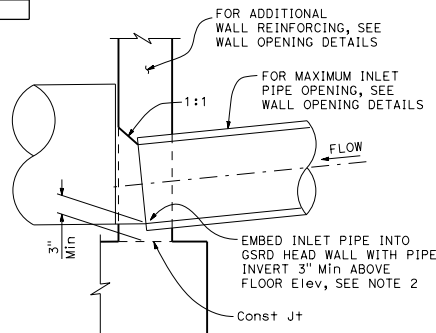


SECTION A-A

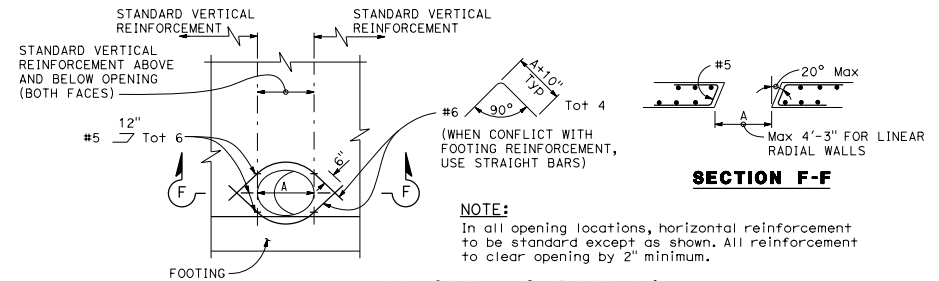
Design "H"	4'-0"	6'-0"	8'-0"
(a) BARS	#4 @ 18"	#5 @ 12"	#5 @ 8"
(b) BARS	#4 @ 18"	#4 @ 18"	#5 @ 16"
(c) BARS	#5 @ 14"	#5 @ 9"	#5 @ 4"
(d) BARS	#5 @ 14"	#5 @ 14"	#5 @ 12"



SECTION B-B

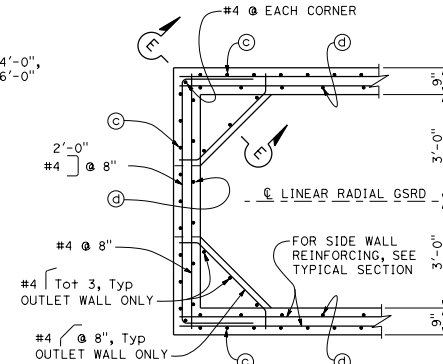


SECTION C-C



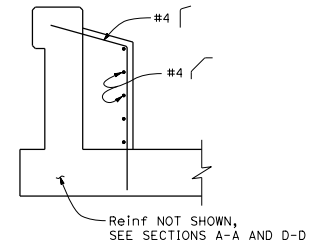
WALL OPENING DETAILS

To be used at Linear Radial inlet and outlet pipe locations



SECTION D-D

NOTE:
Outlet wall shown, inlet wall similar.



SECTION E-E

Outlet end only

GROSS SOLIDS REMOVAL DEVICE LINEAR RADIAL DETAILS NO SCALE

RSP D140C DATED APRIL 16, 2021 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP D140C

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER

April 16, 2021
PLANS APPROVAL DATE

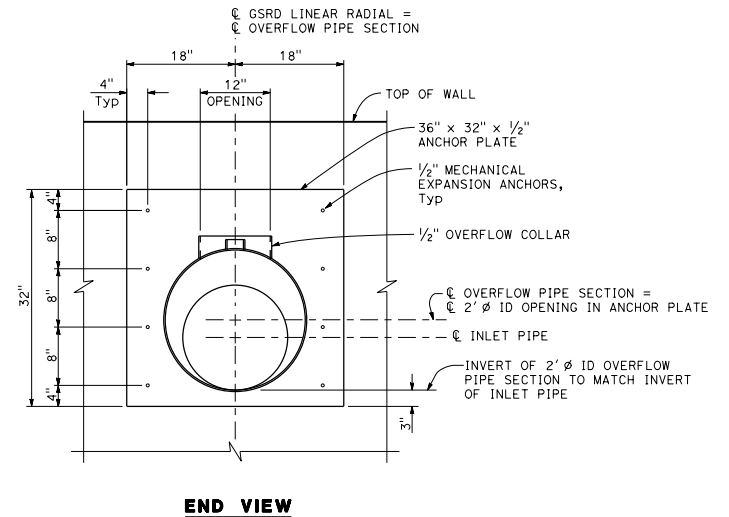
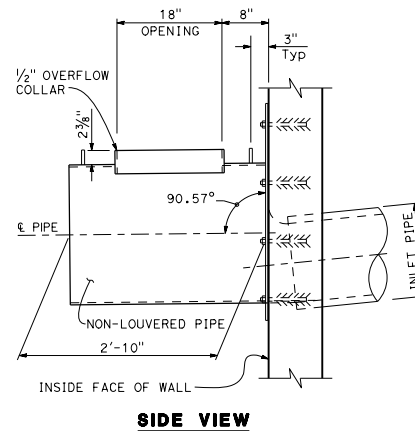
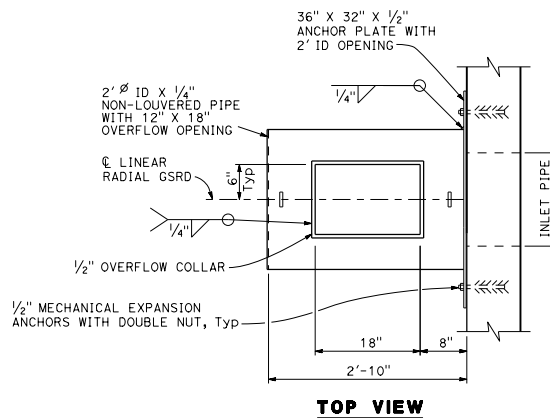
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REGISTERED PROFESSIONAL ENGINEER
Bruce D. Swanger
No. C61257
Exp. 6-30-21
CIVIL
STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED _____

NOTE (THIS SHEET ONLY):

1. All metal components of screen pipe including connections to concrete must be stainless steel.



OVERFLOW PIPE AND ANCHOR PLATE DETAILS

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

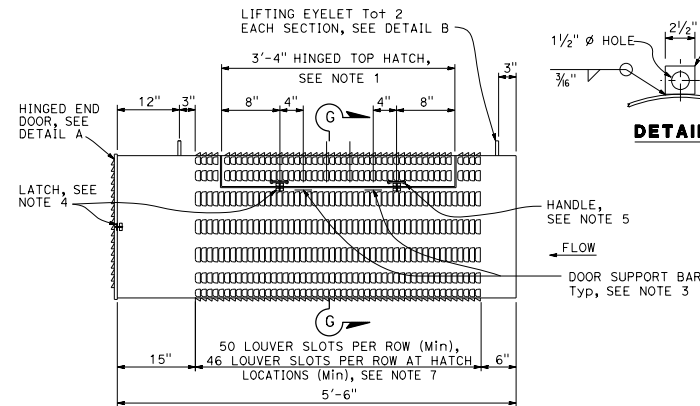
**GROSS SOLIDS REMOVAL DEVICE
LINEAR RADIAL OVERFLOW PIPE DETAILS**

NO SCALE

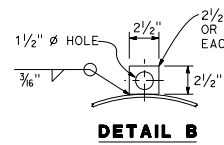
RSP D140D DATED APRIL 16, 2021 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP D140D

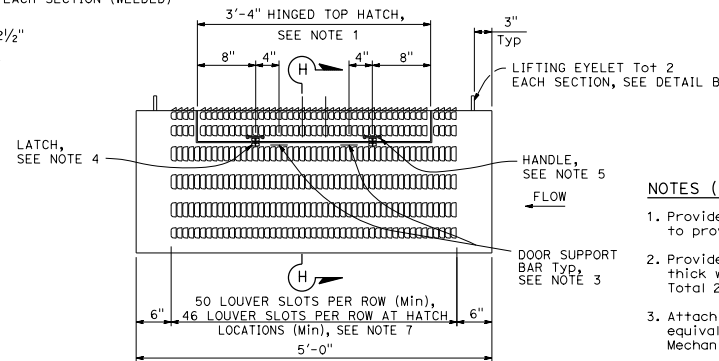
2018 REVISED STANDARD PLAN RSP D140D



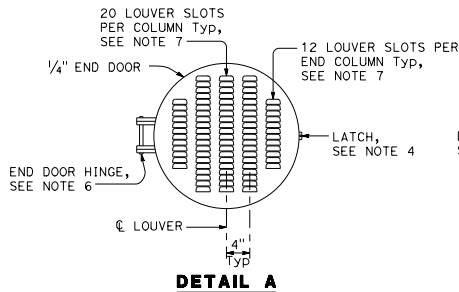
END SCREENED PIPE



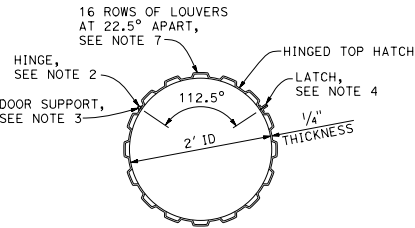
DETAIL B



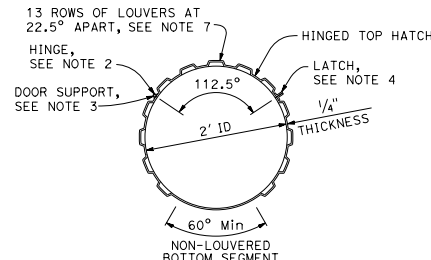
INTERMEDIATE SCREENED PIPE



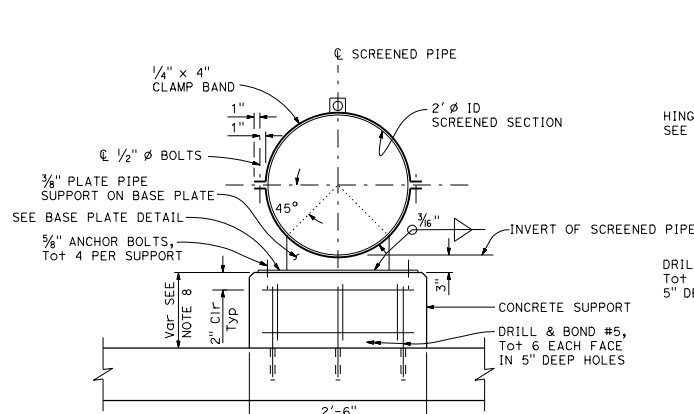
DETAIL A



SECTION G-G

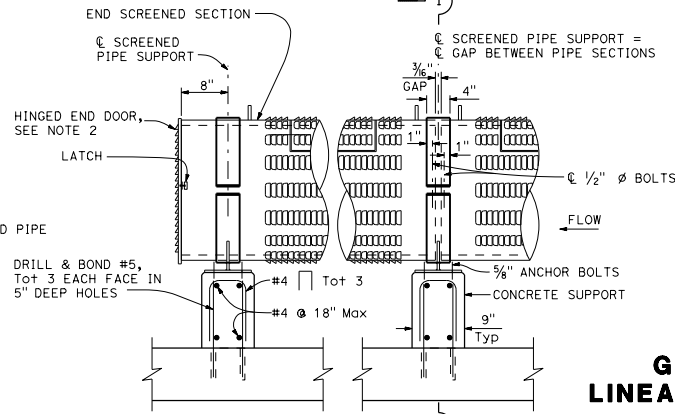


SECTION H-H

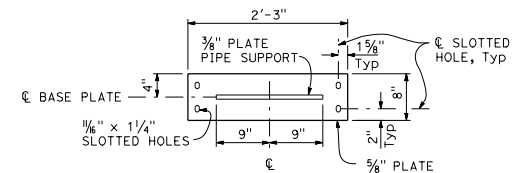


SECTION I-I

SCREENED PIPE SUPPORT



SIDE VIEW



BASE PLATE DETAIL

NOTES (THIS SHEET ONLY):

1. Provide 1" x 3/8" stainless steel bar at all cut edges to provide a seat and support for all doors when closed.
2. Provide stainless steel 1/4" thick heavy duty hinges 4" x 4" thick with 3/8" Dia pin. Use fillet weld at cover and frame. Total 2 each door, evenly spaced.
3. Attach 2 - 1" x 1" x 3" stainless steel bars (or fabricator equivalent design) to support doors when in an open position. Mechanical stops can be welded on hinges.
4. Provide latch. Latch must have threaded U-bolt for adjustment. Latch to have 3/8" total adjustability and 1 1/2" drawing movement and be rated at 360 LB.
5. Provide stainless steel handles at locations indicated.
6. End door to be secured to end screen with 3/8" Dia x 10" continuous bolt with lock nut through flat bars.
7. The aperture size of each louver slot must be 3/8" wide x 2 1/2" long. Louver slot apertures must meet the following requirements:

Width:	% of Total
0.189" - 0.200"	90
0.181" - 0.200"	95
0.169" - 0.200"	100

Length:	% of Total
2.250" - 2.750"	90
2.000" - 3.000"	100
8. If inlet invert height above floor is at the minimum 3 inch height, use anchor bolts to mount the pipe support base plate to the floor. Otherwise, construct concrete support.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**GROSS SOLIDS REMOVAL DEVICE
LINEAR RADIAL SCREENED PIPE DETAILS**

NO SCALE

RSP D140E DATED APRIL 16, 2021 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP D140E

2018 REVISED STANDARD PLAN RSP D140E

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

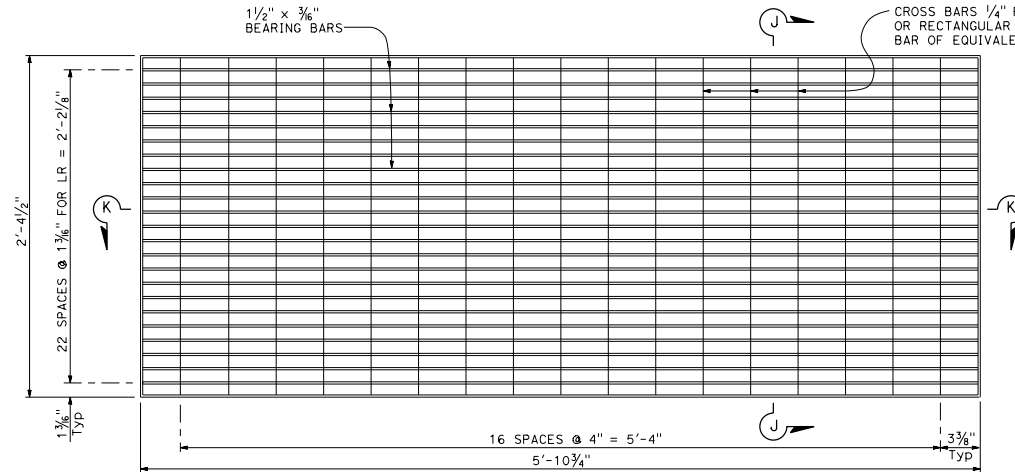
REGISTERED CIVIL ENGINEER
Bruce D. Swanger
April 16, 2021
PLANS APPROVAL DATE
No. C61257
EXP. 6-30-21
CIVIL
STATE OF CALIFORNIA

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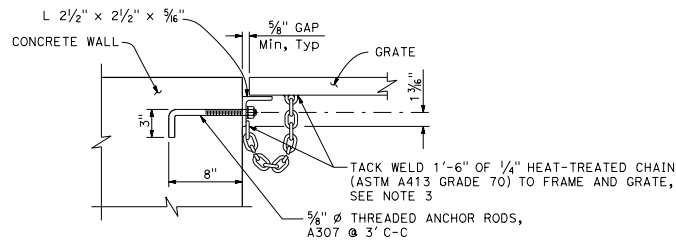
TO ACCOMPANY PLANS DATED _____

NOTES (THIS SHEET ONLY):

- Gap between grate panels is 1".
- All metal components of grating including connections to wall must be galvanized.
- Attach "heat-treated chain" per grate on wall opposite of service ladder, see "Grate Support Detail" this sheet.

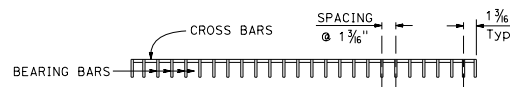


GRATE PANEL

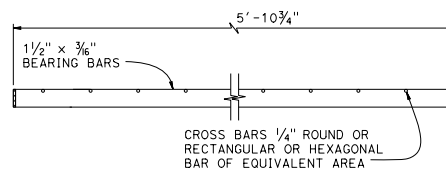


GRATE SUPPORT

No. OF INTERMEDIATE SCREENED PIPES	LR No. OF GRATES	LR(HV) No. OF GRATES
0	5	6
1	7	8
2	9	10
3	11	12
4	13	14
5	15	16

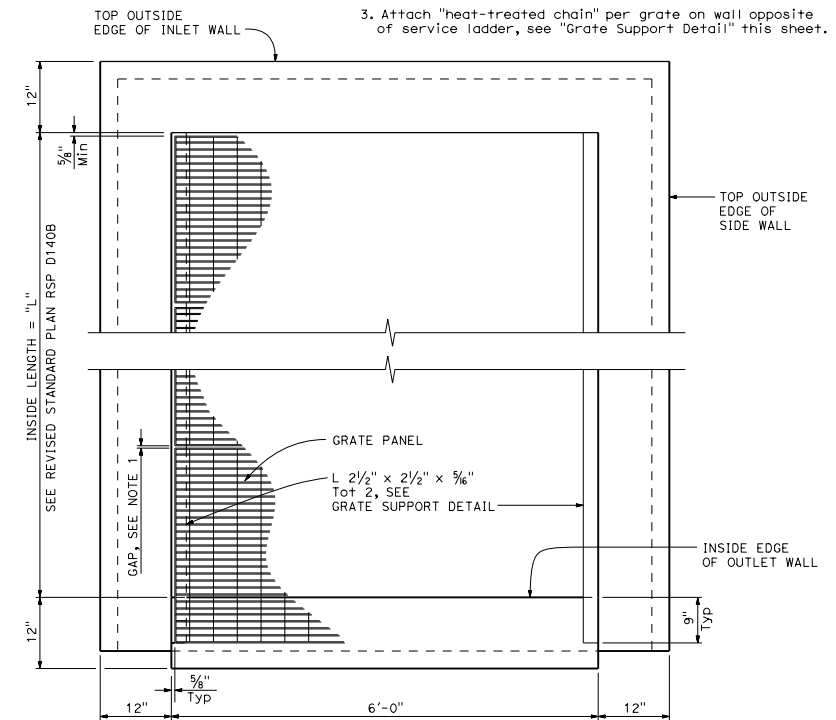


SECTION J-J



SECTION K-K

NOTE: CROSS BARS MAYBE FILLET WELDED, RESISTANCE WELDED OR ELECTROFORGED TO BEARING BARS.



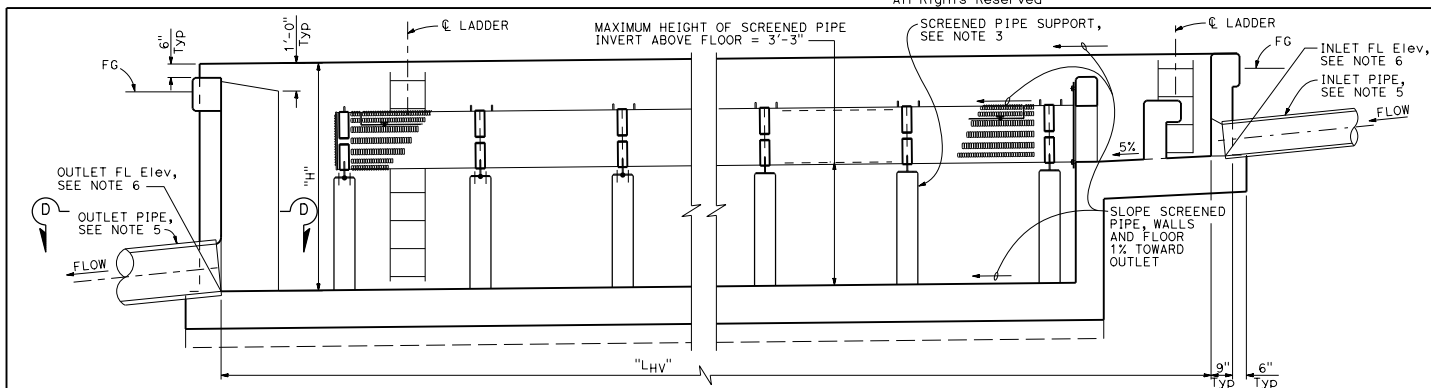
GRATE LAYOUT

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**GROSS SOLIDS REMOVAL DEVICE
LINEAR RADIAL GRATE PANEL DETAILS**
NO SCALE

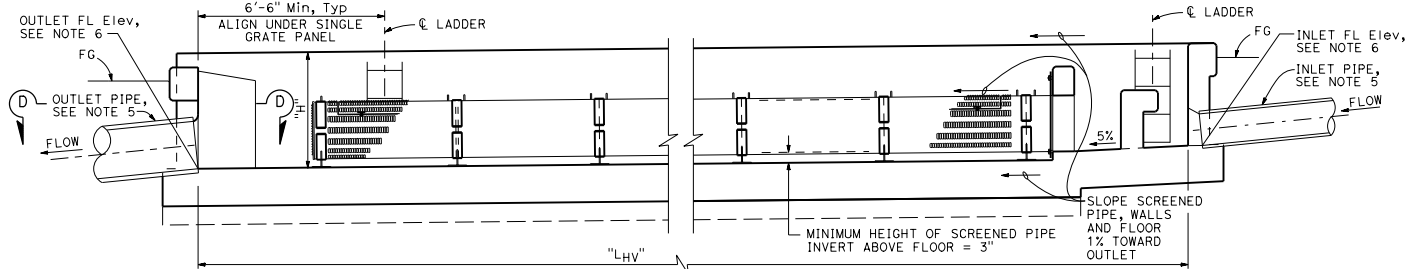
RSP D140F DATED APRIL 16, 2021 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP D140F

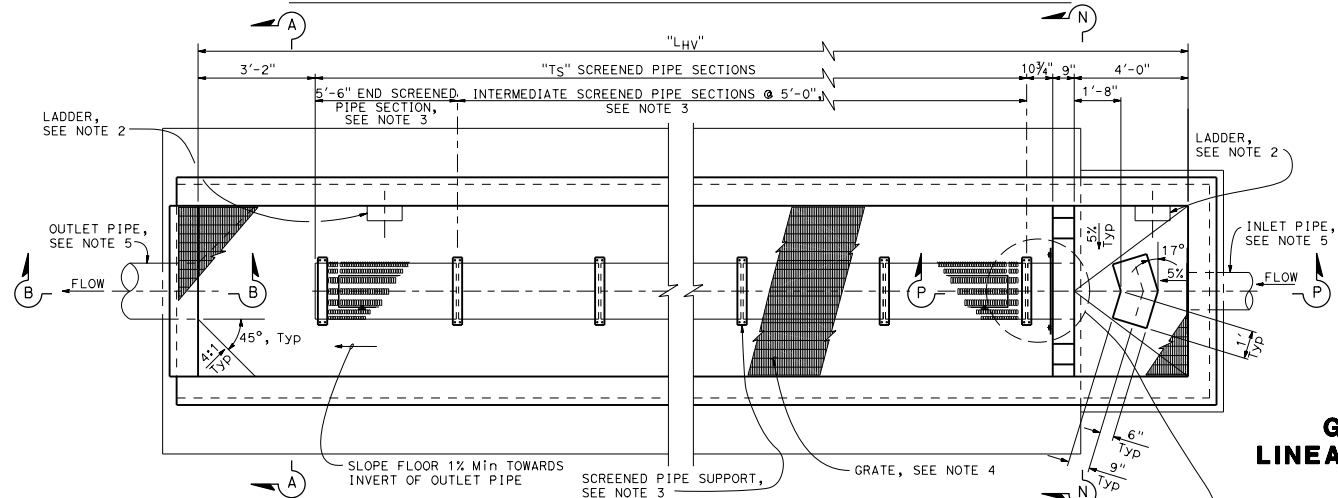
2018 REVISED STANDARD PLAN RSP D140F



LONGITUDINAL SECTION - MAXIMUM SCREENED PIPE HEIGHT

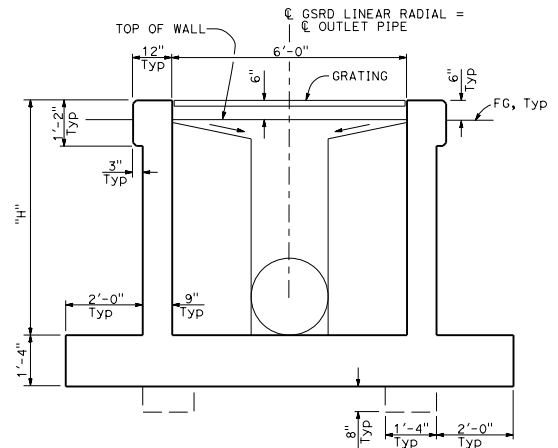


LONGITUDINAL SECTION - MINIMUM SCREENED PIPE HEIGHT



PLAN

BEGIN PIPE SECTION, FOR DETAILS,
SEE REVISED STANDARD PLAN RSP D140H



TYPICAL SECTION

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**GROSS SOLIDS REMOVAL DEVICE
LINEAR RADIAL (HIGH VELOCITY) LAYOUT**
NO SCALE

RSP D140G DATED APRIL 16, 2021 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP D140G

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL NO. SHEETS
<p>REGISTERED CIVIL ENGINEER</p> <p>April 16, 2021</p> <p>PLANS APPROVAL DATE</p> <p>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.</p>				

TO ACCOMPANY PLANS DATED _____

NOTES (THIS SHEET ONLY):

- For Section A-A, B-B, and D-D, see Revised Standard Plan RSP D140C.
- For ladder details, see Revised Standard Plan RSP D118.
- For end and intermediate screened pipe details, see Revised Standard Plan RSP D140E.
- For grate details, see Revised Standard Plan RSP D140F.
- For layout of inlet and outlet pipes, see "Drainage Plans".
- For FL elevations of inlet and outlet pipes, see "Drainage Profiles".
- For dimension "LHV", "Ts" and other design data, see Design Chart on Revised Standard Plan RSP D140A.
- For dimension "H", see Revised Standard Plan RSP D140C.
- For Sections N-N and P-P, see Revised Standard Plan RSP D140H.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL No. SHEETS

REGISTERED CIVIL ENGINEER

April 16, 2021
PLANS APPROVAL DATE

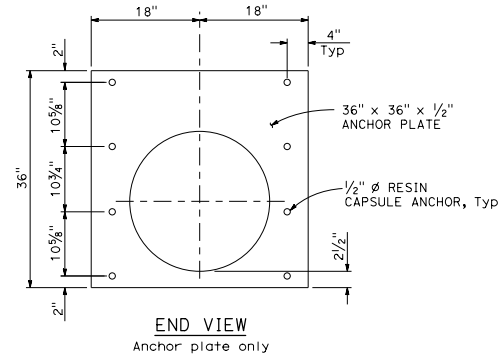
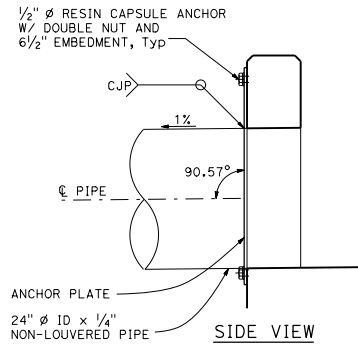
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Bruce D. Swanger
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Exp. 6-30-21
CIVIL
STATE OF CALIFORNIA

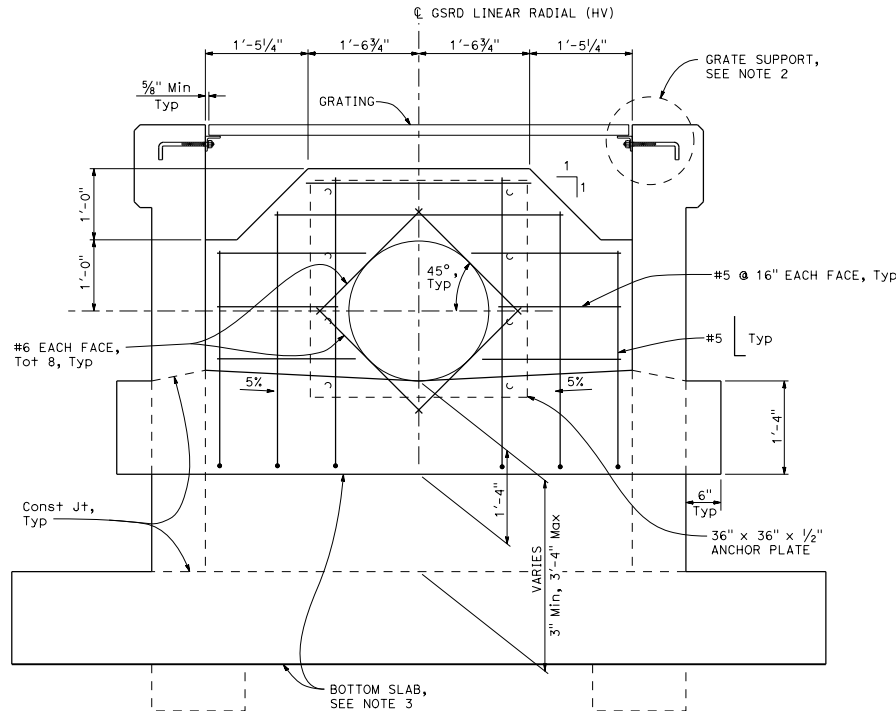
TO ACCOMPANY PLANS DATED _____

NOTES:

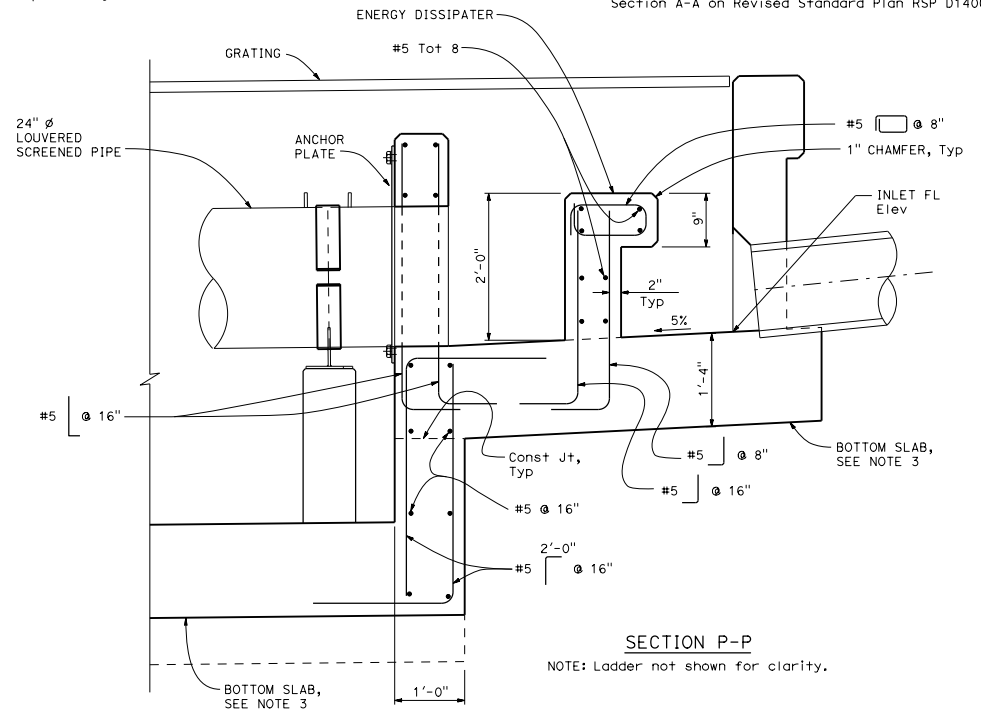
1. For location of Sections N-N and P-P, see Revised Standard Plan RSP D140G.
2. For Grate Support Details, see Revised Standard Plan RSP D140F.
3. For bottom slab details not shown, see Section A-A on Revised Standard Plan RSP D140C.



ANCHOR PLATE DETAILS



SECTION N-N



SECTION P-P

NOTE: Ladder not shown for clarity.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**GROSS SOLIDS REMOVAL DEVICE
LINEAR RADIAL (HIGH VELOCITY) DETAILS**
NO SCALE

RSP D140H DATED APRIL 16, 2021 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP D140H

2018 REVISED STANDARD PLAN RSP D140H

ANNOTATION

SYMBOL	DESCRIPTION
	ABANDON. IF APPLIED TO CONDUIT, REMOVE CONDUCTORS
	INSTALL PULL BOX IN EXISTING CONDUIT RUN
	PEDESTRIAN BARRICADE, TYPE AS INDICATED ON PLAN
	INSTALL CONDUIT INTO EXISTING PULL BOX
	CONNECT NEW AND EXISTING CONDUIT. REMOVE EXISTING CONDUCTORS AND INSTALL CONDUCTORS AS INDICATED
	CONDUIT TO REMAIN FOR FUTURE USE. REMOVE CONDUCTORS. INSTALL PULL TAPE
	DETECTOR HANDHOLE
	FOUNDATION TO BE ABANDONED
	INSTALL SIGN ON SIGNAL MAST ARM
	NO SLIP BASE ON STANDARD
	PHOTOELECTRIC CONTROL
	PHOTOELECTRIC UNIT
	EQUIPMENT OR MATERIAL TO BE REMOVED AND BECOME THE PROPERTY OF THE CONTRACTOR
	RELOCATE EQUIPMENT
	REMOVE AND REUSE EQUIPMENT
	REMOVE AND SALVAGE EQUIPMENT
	SPLICE NEW TO EXISTING CONDUCTORS
	SERVICE DISCONNECT
	TELEPHONE SERVICE POINT

SOFFIT AND WALL-MOUNTED LUMINAIRES

SYMBOL	DESCRIPTION
	PENDANT SOFFIT LUMINAIRE
	FLUSH-MOUNTED SOFFIT LUMINAIRE
	WALL-MOUNTED LUMINAIRE
	EXISTING SOFFIT OR WALL-MOUNTED LUMINAIRE TO REMAIN UNMODIFIED
	EXISTING SOFFIT OR WALL-MOUNTED LUMINAIRE TO BE MODIFIED AS SPECIFIED

NOTE:

Arrow indicates "street side" of luminaire.

STANDARD

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

MISCELLANEOUS ELECTROLIERS

NEW	EXISTING	DESCRIPTION
		LUMINAIRE ON WOOD POLE
		NON-STANDARD ELECTROLIER (SEE PROJECT LEGEND)
		CITY ELECTROLIER
		ELECTROLIER FOUNDATION (FUTURE INSTALLATION)

NOTE:

- Luminaires shall be Roadway 2 when installed on Type 21, 21D, 30, 31 and 32 Standards, unless otherwise specified. Luminaires shall be Roadway 1 when installed on other type standards or poles, unless otherwise specified.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
October 15, 2021 PLANS APPROVAL DATE					
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TO ACCOMPANY PLANS DATED _____

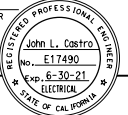
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

ELECTRICAL SYSTEMS (LEGEND)

NO SCALE



RSP ES-1A DATED OCTOBER 15, 2021 SUPERSEDES RSP ES-1A DATED OCTOBER 19, 2018 AND
STANDARD PLAN ES-1 DATED MAY 31, 2018 - PAGE 475 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP ES-1A











Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
					
REGISTERED ELECTRICAL ENGINEER					
April 17, 2020					
PLANS APPROVAL DATE					
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.					

TO ACCOMPANY PLANS DATED _____


CONDUIT

NEW	EXISTING	DESCRIPTION
---	---	LIGHTING CONDUIT, UNLESS OTHERWISE INDICATED OR NOTED
----	----	TRAFFIC SIGNAL CONDUIT
---C---	---c---	COMMUNICATION CONDUIT
---T---	---t---	TELEPHONE CONDUIT
---F---	---f---	FIRE ALARM CONDUIT
---FO---	---fo---	FIBER OPTIC CONDUIT
---	---	CONDUIT TERMINATION
		CONDUIT RISER ATTACHED TO THE STRUCTURE OR SERVICE POLE







SERVICE EQUIPMENT

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





























POLE-MOUNTED SERVICE DESIGNATION

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

FLASHING BEACON

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















SIGNAL EQUIPMENT

NEW	EXISTING	DESCRIPTION
		PEDESTRIAN SIGNAL HEAD
		PUSH BUTTON ASSEMBLY POST
		PEDESTRIAN BARRICADE
		VEHICLE SIGNAL HEAD CONSISTING OF RED, YELLOW, AND GREEN SECTIONS
		VEHICLE SIGNAL HEAD WITH ANGLE VISOR
		MODIFICATIONS OF BASIC SYMBOL: "L" INDICATES ALL NON-ARROW SECTIONS LOUVERED "LG" INDICATES LOUVERED GREEN SECTION ONLY "PV" INDICATES ALL 12" SECTIONS PROGRAMMED VISIBILITY "8" INDICATES ALL 8" SECTIONS (ONLY WHEN SPECIFIED) "PHBF" INDICATES TYPE MAS-3A FOR PEDESTRIAN HYBRID BEACON FACE
		VEHICLE SIGNAL HEAD CONSISTING OF RED, YELLOW, AND GREEN LEFT ARROW SECTIONS
		VEHICLE SIGNAL HEAD CONSISTING OF RED AND YELLOW SECTIONS WITH AN UP GREEN ARROW SECTION
		VEHICLE SIGNAL HEAD (5 SECTION) CONSISTING OF RED, YELLOW, AND GREEN SECTIONS WITH YELLOW AND GREEN RIGHT ARROW SECTIONS
		TYPE 15TS STANDARD WITH VEHICLE SIGNAL HEAD, PEDESTRIAN SIGNAL HEAD, AND LUMINAIRE
		TYPE 21TS STANDARD WITH VEHICLE SIGNAL HEAD, PEDESTRIAN SIGNAL HEAD, AND LUMINAIRE
		STANDARD WITH LUMINAIRE AND SIGNAL MAST ARMS AND ATTACHED VEHICLE SIGNAL HEADS
		TYPE 1 STANDARD WITH ATTACHED VEHICLE SIGNAL HEADS
		STANDARD WITH A SIGNAL MAST ARM, ATTACHED VEHICLE SIGNAL HEADS AND STREET NAME SIGN

NOTES:

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

OVERHEAD SIGN

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

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

RSP ES-1B DATED APRIL 17, 2020 SUPERSEDES RSP ES-1B DATED OCTOBER 19, 2018 AND
STANDARD PLAN ES-1B DATED MAY 31, 2018 - PAGE 476 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP ES-1B

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED ELECTRICAL ENGINEER

April 17, 2020
PLANS APPROVAL DATE

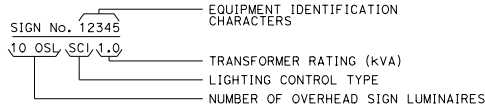
John L. Castro
No. E17490
Exp. 6-30-21
ELECTRICAL
STATE OF CALIFORNIA

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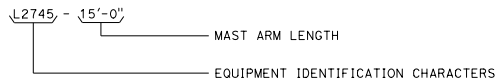
TO ACCOMPANY PLANS DATED _____

EQUIPMENT DESIGNATION

SIGN:



LIGHTING STANDARD, SIGNAL AND LIGHTING STANDARD:



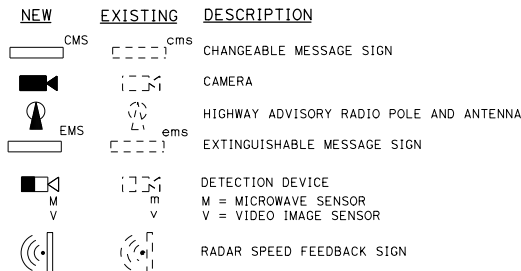
SOFFIT:



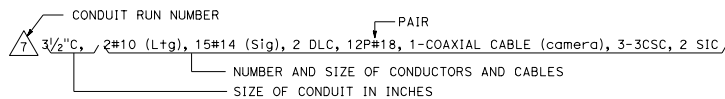
NOTE:

EXISTING EQUIPMENT IDENTIFICATION
CHARACTERS ARE SHOWN IN PARENTHESIS

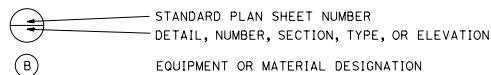
MISCELLANEOUS EQUIPMENT



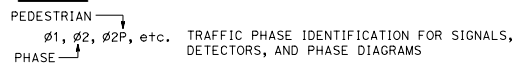
CONDUIT AND CONDUCTORS



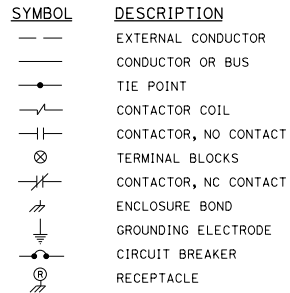
DETAILS



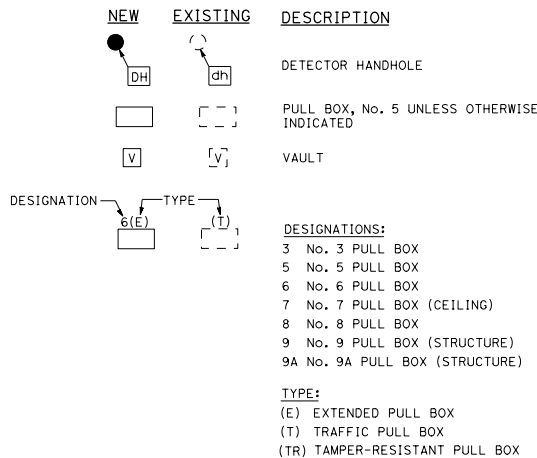
PHASE



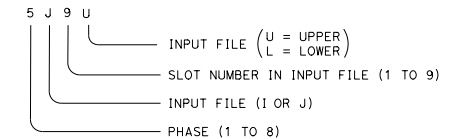
WIRING COMPONENTS



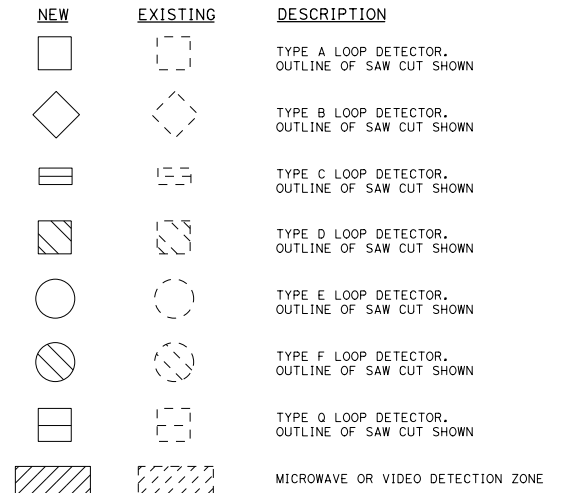
HANDHOLES, PULL BOXES, AND VAULTS



VEHICLE DETECTOR DESIGNATION



DETECTORS



STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

ELECTRICAL SYSTEMS (LEGEND)

NO SCALE

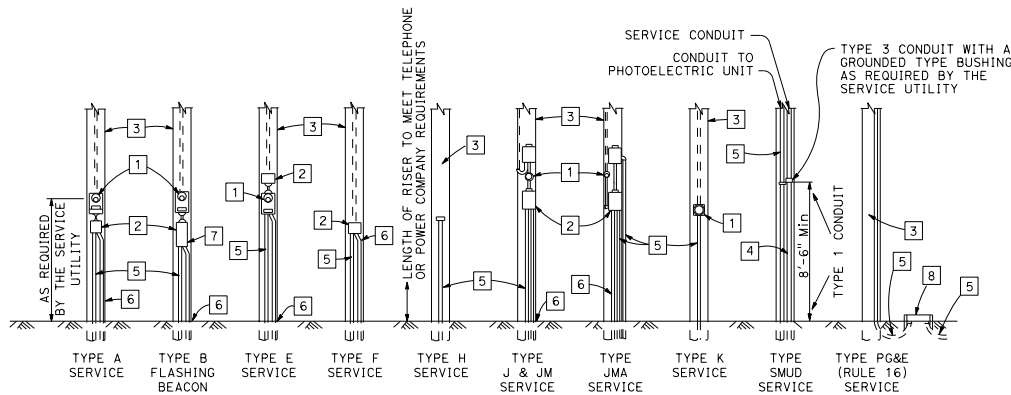
RSP ES-1C DATED APRIL 17, 2020 SUPERSEDES RSP ES-1C DATED OCTOBER 18, 2019
AND RSP ES-1C DATED OCTOBER 19, 2018 AND STANDARD PLAN ES-1C
DATED MAY 31, 2018 - PAGE 477 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP ES-1C

2018 REVISED STANDARD PLAN RSP ES-1C

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
<p><i>H.R.F.</i> REGISTERED ELECTRICAL ENGINEER</p> <p>October 19, 2018 PLANS APPROVAL DATE</p> <p>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.</p>					

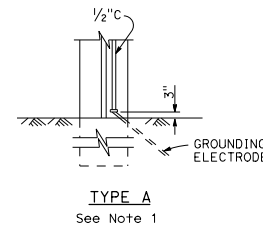
TO ACCOMPANY PLANS DATED _____



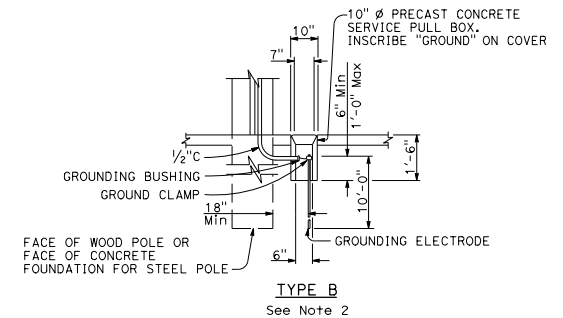
POLE MOUNTED SERVICE INSTALLATIONS

LEGEND:

- | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>1 METER SOCKET.</p> <p>2 SERVICE ENCLOSURE WITH A MINIMUM 60 A RATED MAIN CIRCUIT BREAKER, UNLESS OTHERWISE SHOWN.</p> <p>3 A. UTILITY OWNED POLE. THE SERVICE UTILITY WILL FURNISH AND INSTALL REQUIRED SERVICE RISER, PEU WITH CONDUCTORS AND OTHER EQUIPMENT AS NEEDED.</p> <p>B. STATE OWNED POLE. THE CONTRACTOR SHALL FURNISH AND INSTALL REQUIRED SERVICE RISER AND EQUIPMENT.</p> | <p>4 2" C. SERVICE CONDUIT MUST HAVE A GROUNDED TYPE BUSHING INSTALLED AT UPPER END OF THE METALLIC POLE RISER CONDUIT. A GROUNDING CONDUCTOR MUST BE ATTACHED TO THE BUSHING, CARRIED THROUGH THE CONDUIT RUN AND ATTACHED TO THE SERVICE EQUIPMENT ENCLOSURE'S GROUNDING ELECTRODE.</p> <p>5 CONDUIT, LENGTH AND SIZE AS REQUIRED.</p> <p>6 1/2" C, 1#6. SEE SERVICE GROUNDING.</p> <p>7 FLASHING BEACON CONTROL ASSEMBLY.</p> <p>8 SERVICE PULL BOX, No. 5 UNLESS OTHERWISE NOTED, FURNISHED AND INSTALLED BY THE CONTRACTOR. SERVICE UTILITY SHALL DETERMINE THE EXACT LOCATION.</p> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|



SERVICE GROUNDING



NOTES:

- Ground clamp and required fittings must be accessible. Conduit must extend to protect grounding electrode conductor from mechanical damage.
- Use where service utility requires 18" clearance between grounding electrode and the pole or service equipment enclosure. Installation shown is for sidewalk or paved areas. In unpaved areas, omit special service pull box and locate ground clamp above ground or locate ground clamp in nearest pull box.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

ELECTRICAL SYSTEMS (SERVICE EQUIPMENT)

NO SCALE

RSP ES-2A DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN ES-2A
DATED MAY 31, 2018 - PAGE 478 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP ES-2A

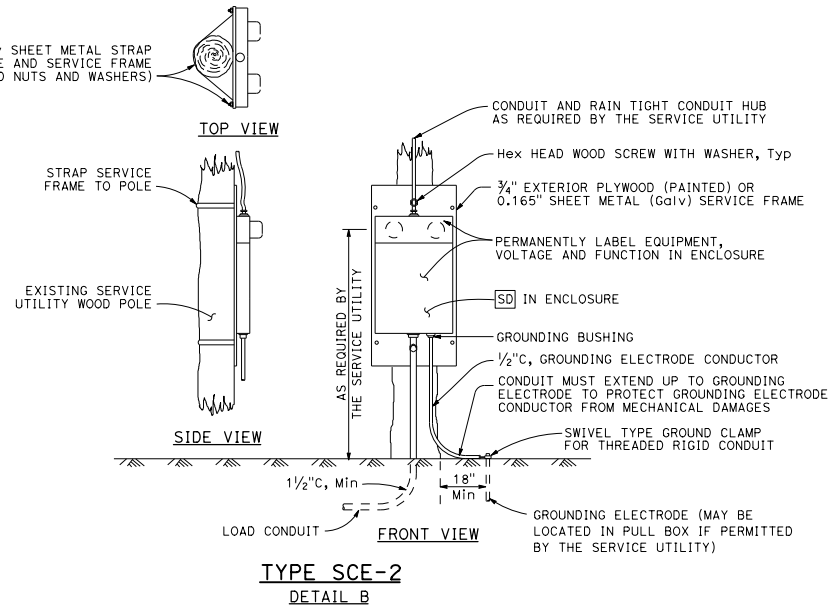
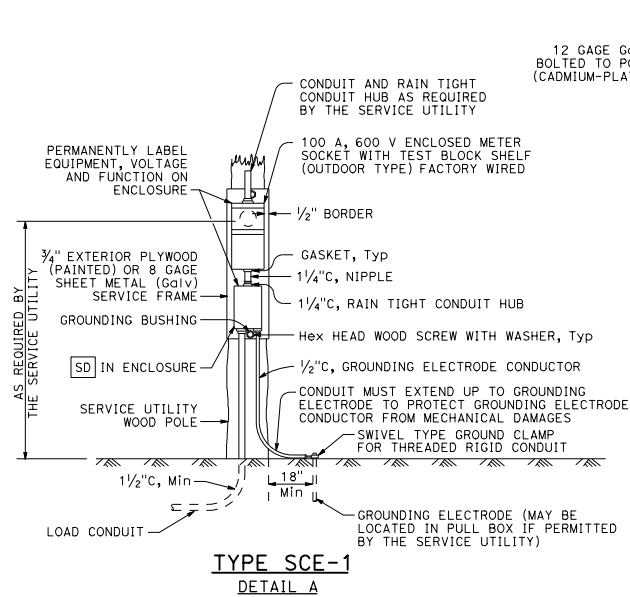
2018 REVISED STANDARD PLAN RSP ES-2A

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

H.R.F.
 REGISTERED ELECTRICAL ENGINEER
 October 19, 2018
 PLANS APPROVAL DATE
 THE STATE OF CALIFORNIA OR ITS OFFICERS
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 COPIES OF THIS PLAN SHEET.

Hamid
 Zolfaghari
 No. E15636
 Exp. 12-31-19
 REGISTERED PROFESSIONAL ENGINEER
 ELECTRICAL
 STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED _____



STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

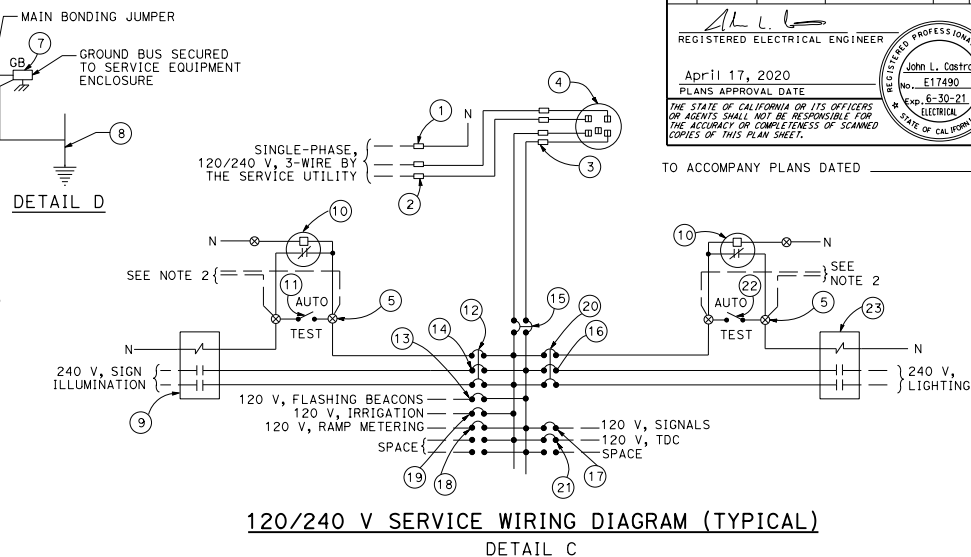
ELECTRICAL SYSTEMS (SERVICE EQUIPMENT)

NO SCALE

RSP ES-2B DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN ES-2B
DATED MAY 31, 2018 - PAGE 479 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP ES-2B

2018 REVISED STANDARD PLAN RSP ES-2B



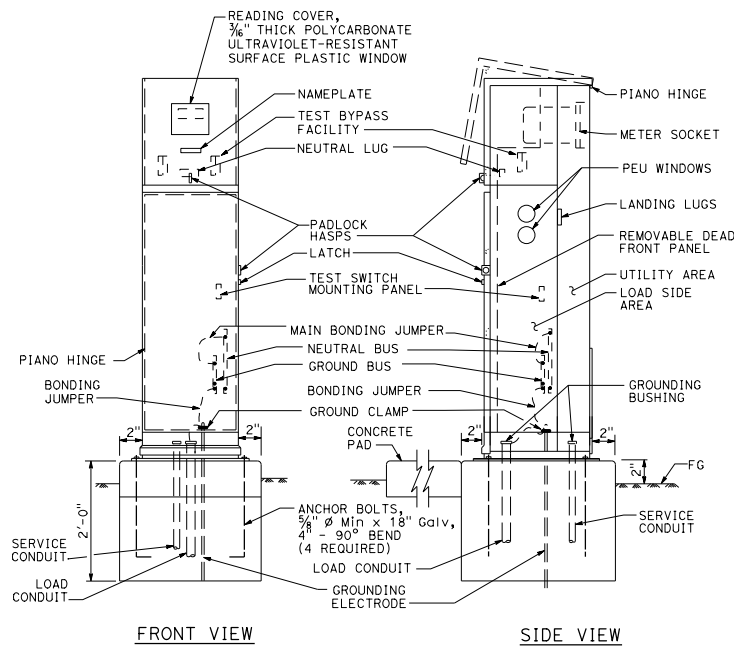
TYPE III-A SERVICE EQUIPMENT ENCLOSURE LEGEND (120/240 V)					
ITEM	COMPONENT	NAMEPLATE DESCRIPTION	ITEM	COMPONENT	NAMEPLATE DESCRIPTION
①	NEUTRAL LUG		⑬	15 A, 120 V, 1P, CB	FLASHING BEACON
②	LANDING LUG		⑭	30 A, 240 V, 2P, CB	SIGN ILLUMINATION
③	TEST BYPASS FACILITY		⑮	100 A, 240 V, 2P, CB	MAIN BREAKER
④	METER SOCKET AND SUPPORT		⑯	30 A, 240 V, 2P, CB	LIGHTING
⑤	TERMINAL BLOCKS		⑰	50 A, 120 V, 1P, CB	SIGNALS
⑥	NEUTRAL BUS		⑱	30 A, 120 V, 1P, CB	RAMP METERING
⑦	GROUND BUS		⑲	20 A, 120 V, 1P, CB	IRRIGATION
⑧	GROUNDING ELECTRODE		⑳	15 A, 120 V, 1P, CB	LIGHTING CONTROL
⑨	30 A, 2P, NO CONTACTOR	SIGN ILLUMINATION	㉑	20 A, 120 V, 1P, CB	TELEPHONE DEMARCATION CABINE
⑩	PHOTOELECTRIC UNIT (NOTE 4)	PEU	㉒	15 A, 1P, TEST SWITCH	LIGHTING TEST SWITCH
⑪	15 A, 1P, TEST SWITCH	SIGN ILLUMINATION TEST SWITCH	㉓	60 A, 2P, NO CONTACTOR	LIGHTING
⑫	15 A, 120 V, 1P, CB	SIGN ILLUMINATION CONTROL			

1. Unless otherwise indicated on the plans, service equipment items shall be provided for each service equipment enclosure as shown.
2. Connect to remote test switch mounted on lighting standards, sign post, or structure when required.
3. Items ① and ⑥ shall be isolated from the service equipment enclosure.
4. Type I photoelectric control shall be used unless otherwise indicated on the plans.
5. Item ⑫ and ⑭ shall be ganged operated CB.
6. The plan shows the approximate location of devices within the enclosure. Components may be rearranged, however, the "working" clearances within the service equipment enclosure shall be maintained.

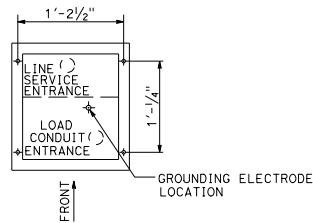
NO SCALE

RSP ES-2D DATED APRIL 17, 2020 SUPERSEDES RSP ES-2D DATED OCTOBER 19, 2018 AND
STANDARD PLAN ES-2D DATED MAY 31, 2018 - PAGE 481 OF THE STANDARD PLANS BOOK DATED 2018.

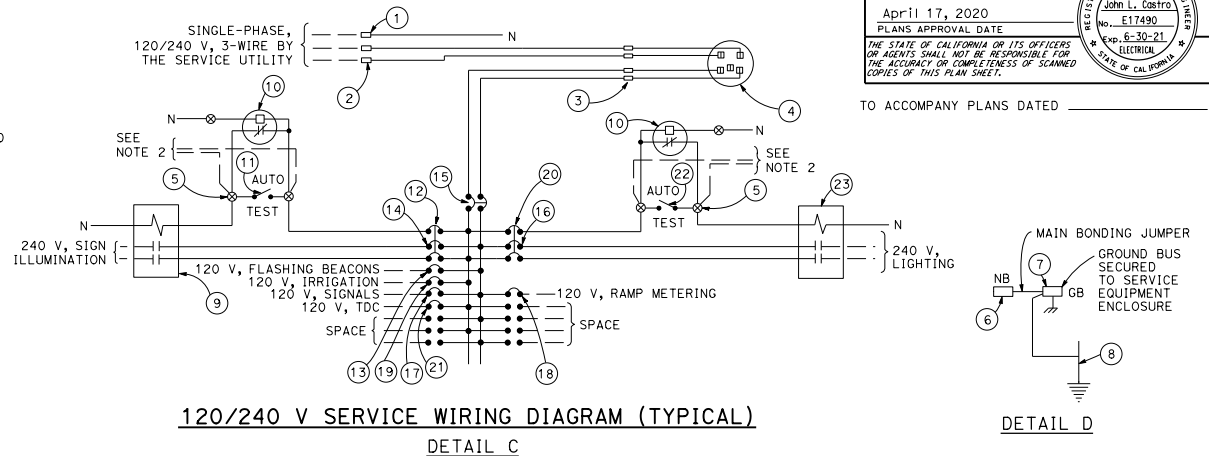
REVISÉD STANDARD PLAN RSP ES-2D



TYPE III-BF SERVICE EQUIPMENT ENCLOSURE (TYPICAL)
DETAIL A



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



120/240 V SERVICE WIRING DIAGRAM (TYPICAL)
DETAIL C

TYPE III-B SERVICE EQUIPMENT ENCLOSURE LEGEND (120/240 V)

ITEM	COMPONENT	NAMEPLATE DESCRIPTION	ITEM	COMPONENT	NAMEPLATE DESCRIPTION
①	NEUTRAL LUG		⑬	15 A, 120 V, 1P, CB	FLASHING BEACON
②	LANDING LUG		⑭	30 A, 240 V, 2P, CB	SIGN ILLUMINATION
③	TEST BYPASS FACILITY		⑮	100 A, 240 V, 2P, CB	MAIN BREAKER
④	METER SOCKET AND SUPPORT		⑯	30 A, 240 V, 2P, CB	LIGHTING
⑤	TERMINAL BLOCKS		⑰	50 A, 120 V, 1P, CB	SIGNALS
⑥	NEUTRAL BUS		⑱	30 A, 120 V, 1P, CB	RAMP METERING
⑦	GROUND BUS		⑲	20 A, 120 V, 1P, CB	IRRIGATION
⑧	GROUNDING ELECTRODE		⑳	15 A, 120 V, 1P, CB	LIGHTING CONTROL
⑨	30 A, 2P, NO CONTACTOR	SIGN ILLUMINATION	㉑	20 A, 120 V, 1P, CB	TELEPHONE DEMARCATION CABINET
⑩	PHOTOELECTRIC UNIT (NOTE 4)	PEU	㉒	15 A, 1P, TEST SWITCH	LIGHTING TEST SWITCH
⑪	15 A, 1P, TEST SWITCH	SIGN ILLUMINATION TEST SWITCH	㉓	60 A, 2P, NO CONTACTOR	LIGHTING
⑫	15 A, 120 V, 1P, CB	SIGN ILLUMINATION CONTROL			

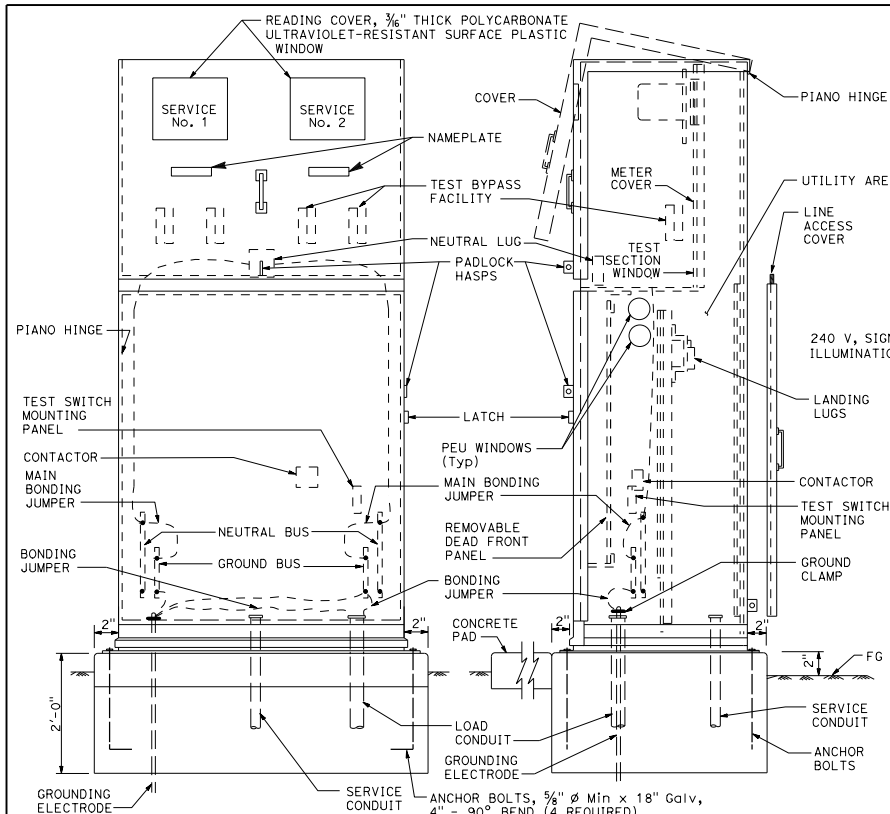
NOTES:

- Unless otherwise indicated on the plans, service equipment items shall be provided for each service equipment enclosure as shown.
- Connect to remote test switch mounted on lighting standards, sign post, or structure when required.
- Items ① and ⑥ shall be isolated from the service equipment enclosure.
- Type I photoelectric control shall be used unless otherwise indicated on the plans.
- Item ⑫ and ㉓ shall be ganged operated CB.
- The plan shows the approximate location of devices within the enclosure. Components may be rearranged, however, the "working" clearances within the service equipment enclosure shall be maintained.

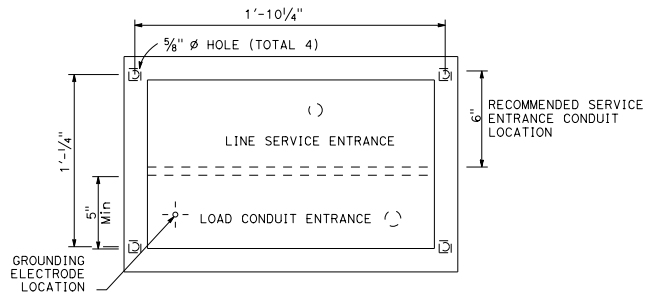
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**ELECTRICAL SYSTEMS
(SERVICE EQUIPMENT ENCLOSURE AND
TYPICAL WIRING DIAGRAM,
TYPE III-B SERIES)**
NO SCALE

RSP ES-2E DATED APRIL 17, 2020 SUPERSEDES RSP ES-2E DATED OCTOBER 19, 2018 AND
STANDARD PLAN ES-2E DATED MAY 31, 2018 - PAGE 482 OF THE STANDARD PLANS BOOK DATED 2018.

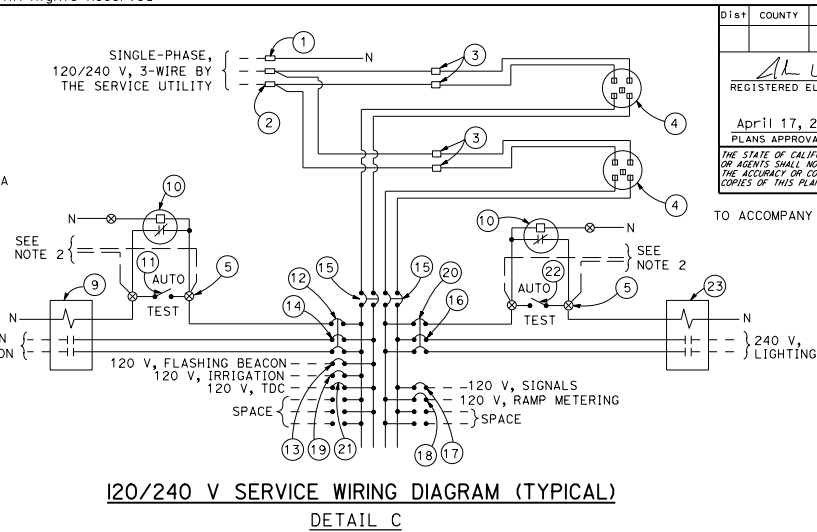
REVISED STANDARD PLAN RSP ES-2E



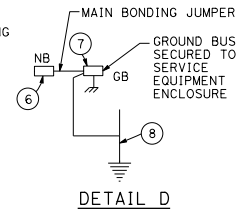
FRONT VIEW
SIDE VIEW
TYPE III-CF SERVICE EQUIPMENT ENCLOSURE (TYPICAL)
DETAIL A



BASE FOR TYPE III-C SERVICE EQUIPMENT ENCLOSURE
DETAIL B



120/240 V SERVICE WIRING DIAGRAM (TYPICAL)
DETAIL C



DETAIL D

TYPE III-C SERVICE EQUIPMENT ENCLOSURE LEGEND (120/240 V)

ITEM	COMPONENT	NAMEPLATE DESCRIPTION	ITEM	COMPONENT	NAMEPLATE DESCRIPTION
1	NEUTRAL LUG		13	15 A, 120 V, 1P, CB	FLASHING BEACON
2	LANDING LUG		14	30 A, 240 V, 2P, CB	SIGN ILLUMINATION
3	TEST BYPASS FACILITY		15	100 A, 240 V, 2P, CB	MAIN BREAKER
4	METER SOCKET AND SUPPORT		16	30 A, 240 V, 2P, CB	LIGHTING
5	TERMINAL BLOCKS		17	50 A, 120 V, 1P, CB	SIGNALS
6	NEUTRAL BUS		18	30 A, 120 V, 1P, CB	RAMP METERING
7	GROUND BUS		19	20 A, 120 V, 1P, CB	IRRIGATION
8	GROUNDING ELECTRODE		20	15 A, 120 V, 1P, CB	LIGHTING CONTROL
9	30 A, 2P, NO CONTACTOR	SIGN ILLUMINATION	21	20 A, 120 V, 1P, CB	TELEPHONE DEMARCATION CABINET
10	PHOTOELECTRIC UNIT (NOTE 4)	PEU	22	15 A, 1P, TEST SWITCH	LIGHTING TEST SWITCH
11	15 A, 1P, TEST SWITCH	SIGN ILLUMINATION TEST SWITCH	23	60 A, 2P, NO CONTACTOR	LIGHTING
12	15 A, 120 V, 1P, CB	SIGN ILLUMINATION CONTROL			

NOTES:

- Unless otherwise indicated on the plans, service equipment items shall be provided for each service equipment enclosure as shown.
- Connect to remote test switch mounted on lighting standards, sign post, or structure when required.
- Items 1 and 6 shall be isolated from the service equipment enclosure.
- Type I photoelectric control shall be used unless otherwise indicated on the plans.
- Item 12 and 20 shall be ganged operated CB.
- The plan shows the approximate location of devices within the enclosure. Components may be rearranged, however, the "working" clearances within the service equipment enclosure shall be maintained.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS
(SERVICE EQUIPMENT ENCLOSURE AND
TYPICAL WIRING DIAGRAM,
TYPE III-C SERIES)**

NO SCALE

RSP ES-2F DATED APRIL 17, 2020 SUPERSEDES RSP ES-2F DATED OCTOBER 19, 2018 AND
STANDARD PLAN ES-2F DATED MAY 31, 2018 - PAGE 483 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP ES-2F



1. Cabinet shall be installed with the back toward the nearest lane of traffic.
2. In unpaved areas, a raised portland cement concrete pad shall be constructed in front of each controller cabinet. The pad shall be 3'-0" x 4' thick x width of foundation.
3. A 1" drain shall be provided through the foundation of a cabinet. Drain pipe shall be screened.
4. Cabinet shelves shall be adjustable for vertical spacing and shall be removable.
5. Controller units, plug-mounted equipment, shelf-mounted equipment and wall-mounted equipment shall be located to permit safe and easy removal or replacement without removing any other piece of equipment.
6. Where telephone interconnect is required, a minimum of 5" clear vertical space shall be provided inside the cabinet for the equipment.
7. Telephone interconnect conductors shall be enclosed in a ¾" or larger conduit through the foundation. Type 4 conduit shall be used to separate telephone and power conductors in cabinets or pedestals.
8. Anchor bolts for cabinet shall be ¾" ϕ x 1'-6" with a 2" - 90° bend.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEET

John L. Castro

REGISTERED ELECTRICAL ENGINEER

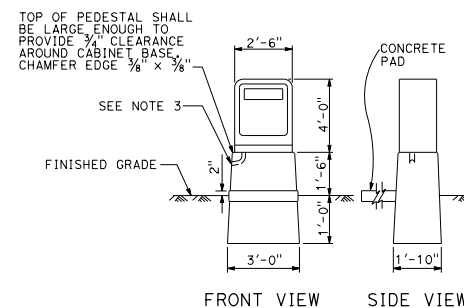
April 16, 2021

PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER
John L. Castro
No. E17490
Exp. 6-30-21
ELECTRICAL
STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED



PEDESTAL FOUNDATION
FOR MODEL 336LS CABINET
DETAIL A

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

ELECTRICAL SYSTEMS
(CONTROLLER CABINET ADAPTER,
FOUNDATIONS, AND PAD DETAILS)

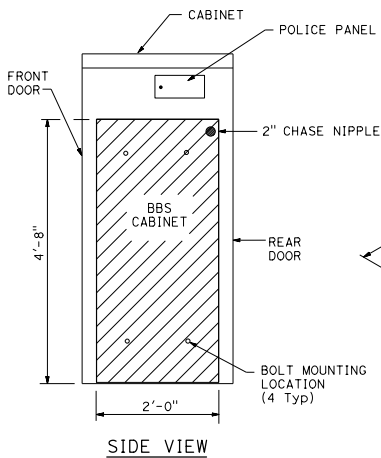
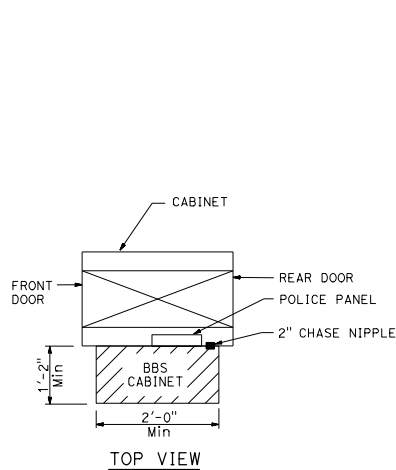
NO SCALE

RSP ES-3B DATED APRIL 16, 2021 SUPERSEDES RSP ES-3B DATED OCTOBER 19, 2018 AND
STANDARD PLAN ES-3B DATED MAY 31, 2018 - PAGE 486 OF THE STANDARD PLANS BOOK DATED 2018.

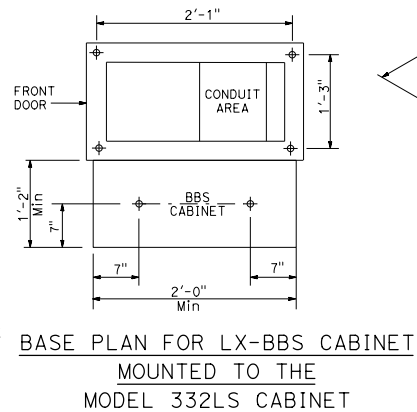
REVISÉD STANDARD PLAN RSP ES-3B

NOTES:

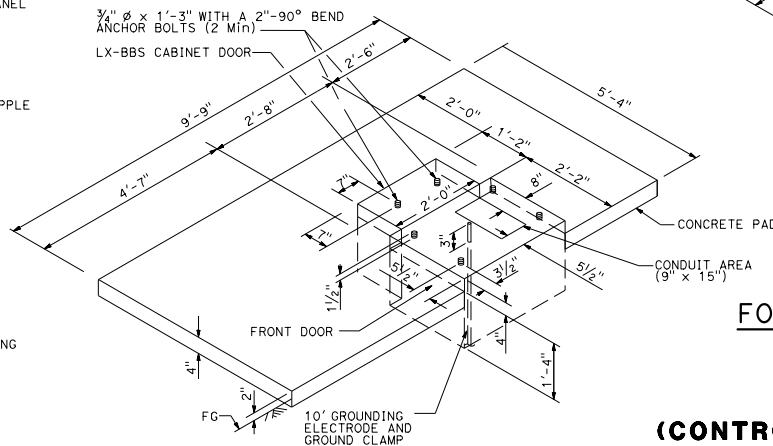
1. Where telephone interconnect is required, a minimum of 5" clear vertical space shall be provided inside the cabinet for the equipment.
2. Telephone interconnect conductors shall be enclosed in a 3/4" or larger conduit through the foundation. Type 4 conduit shall be used to separate telephone and power conductors in cabinets.



**LX-BBS CABINET
MOUNTED TO THE
MODEL 332LS CABINET**

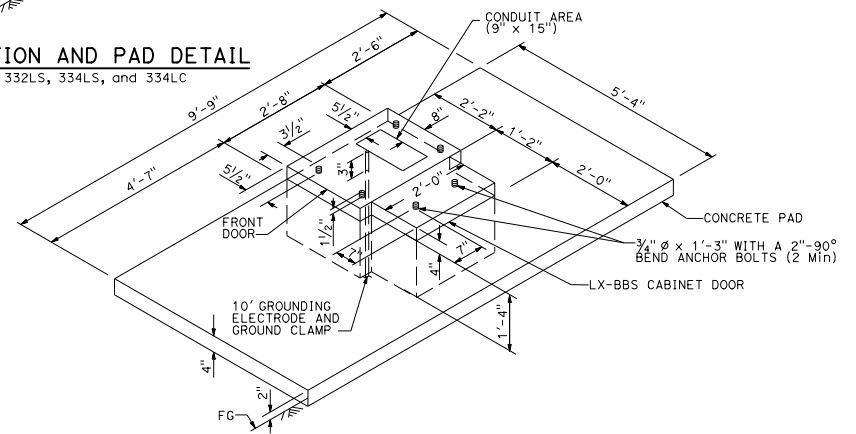


(FOR DIMENSIONS AND DETAILS NOT SHOWN, SEE
CABINET HOUSING DETAILS OF THE TRANSPORTATION
ELECTRICAL EQUIPMENT SPECIFICATION (TEES))



FOUNDATION AND PAD DETAIL

Model 332LS, 334LS, and 334LC



MODEL 332LS CABINET FOUNDATION DETAIL WITH LX-BATTERY BACKUP SYSTEM

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**ELECTRICAL SYSTEMS
(CONTROLLER CABINET FOUNDATION AND PAD DETAILS)**

NO SCALE

RSP ES-3C DATED APRIL 16, 2021 SUPERSEDES RSP ES-3C DATED OCTOBER 16, 2020
AND RSP ES-3C DATED OCTOBER 19, 2018 AND
STANDARD PLAN ES-3C DATED MAY 31, 2018 - PAGE 487 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP ES-3C

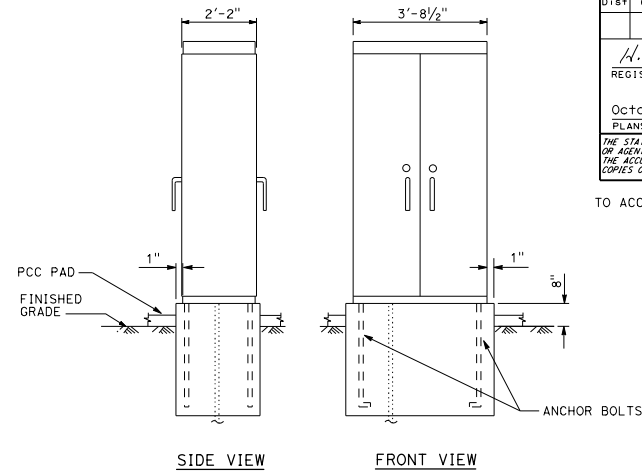
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED ELECTRICAL ENGINEER
April 16, 2021
PLANS APPROVAL DATE
THE STATE OF CALIFORNIA OR ITS OFFICERS
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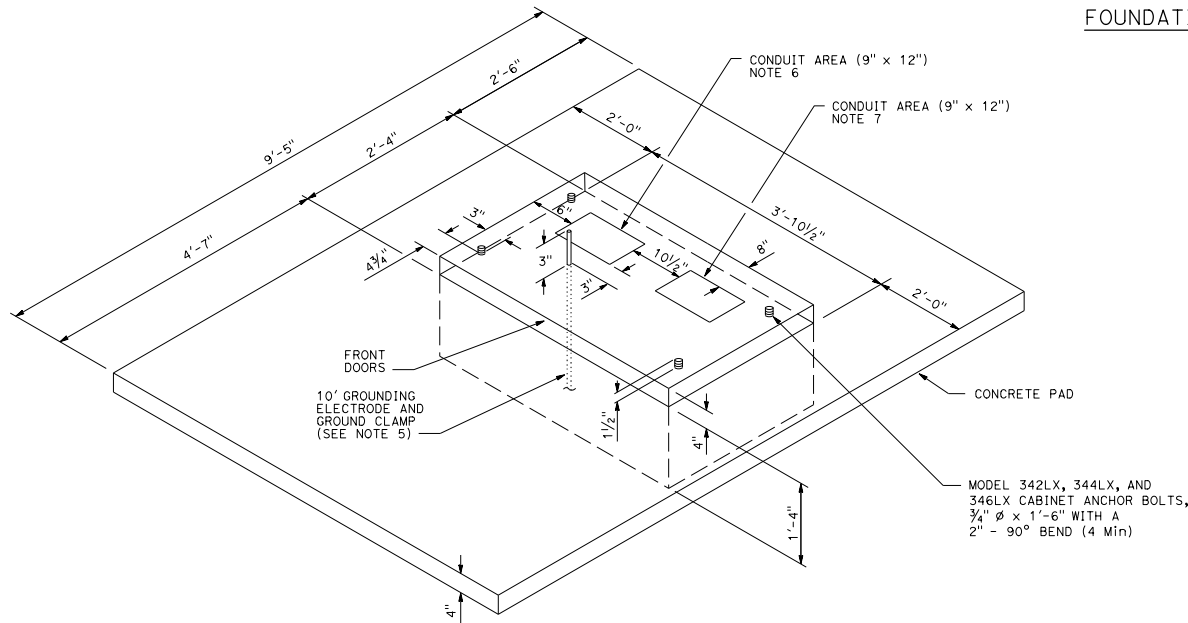
TO ACCOMPANY PLANS DATED _____

NOTES:

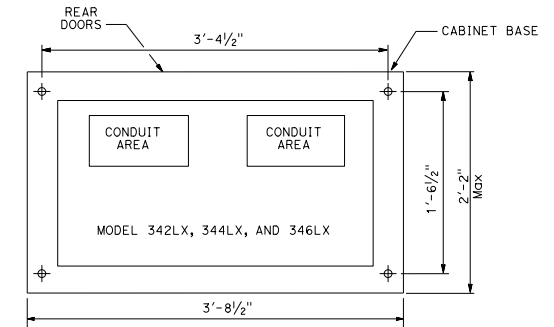
1. Where telephone interconnect is required, a minimum of 5" clear vertical space shall be provided inside the cabinet for the equipment.
2. Telephone interconnect conductors shall be enclosed in a $\frac{3}{4}$ " or larger conduit through the foundation. Type 4 conduit shall be used to separate telephone and power conductors in cabinets.
3. Dimensions are nominal.
4. For Model 342LX, 344LX, and 346LX cabinets details, see "Transportation Electrical Equipment Specifications".
5. Grounding electrode shall be placed 3 inches in front of the service conduit area.
6. Conduit area, to 120 V Service.
7. Conduit area for the controller side of cabinet.



FOUNDATION FOR TYPE LX CABINET
DETAIL A



FOUNDATION AND PAD DETAIL
Model 342LX, 344LX, and 346LX
DETAIL B



BASE PLAN FOR THE MODEL
342LX, 344LX, AND 346LX CABINET

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**ELECTRICAL SYSTEMS
(CONTROLLER CABINET
FOUNDATION AND PAD DETAILS)**

NO SCALE

RSP ES-3C1 DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN ES-3C1
DATED MAY 31, 2018 - PAGE 488 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP ES-3C1

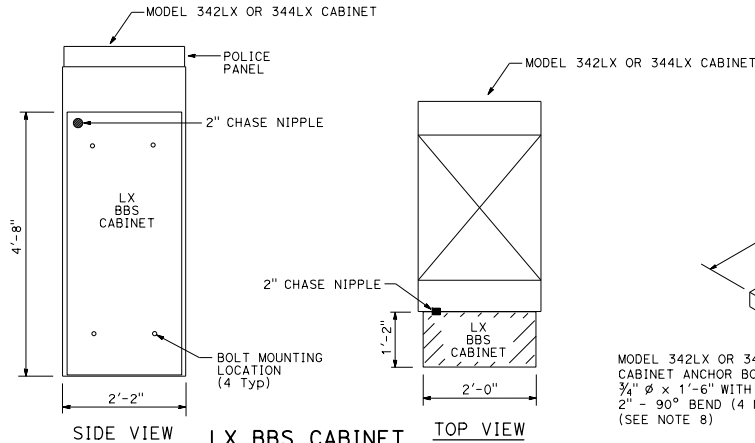
2018 REVISED STANDARD PLAN RSP ES-3C1

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

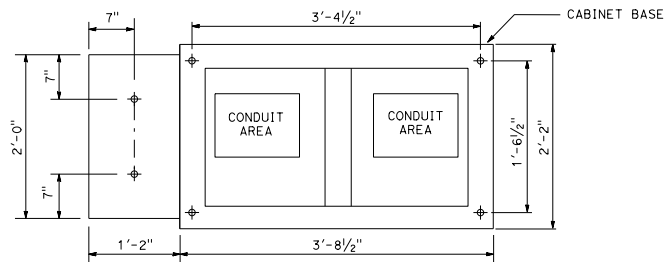
REGISTERED ELECTRICAL ENGINEER
October 16, 2020
PLANS APPROVAL DATE
THE STATE OF CALIFORNIA OR ITS OFFICERS
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John L. Castro
No. E17490
EXP. 6-30-21
ELECTRICAL
STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED _____



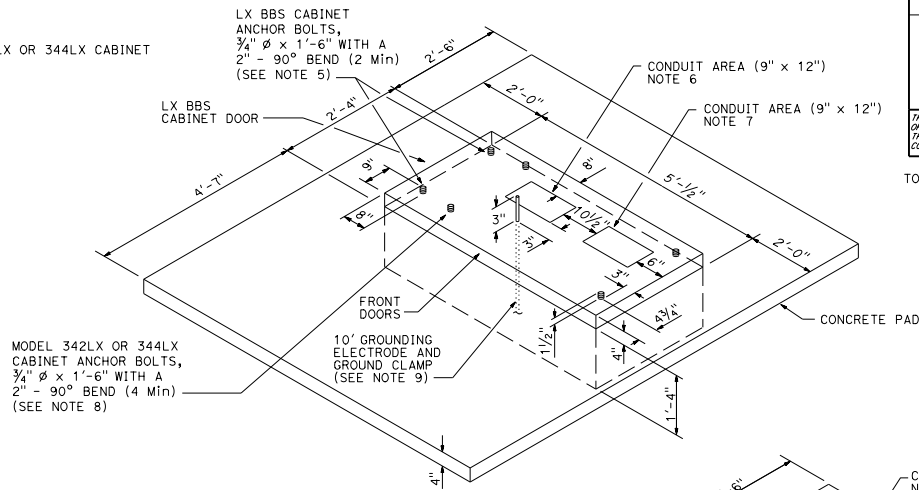
**LX BBS CABINET
MOUNTED TO THE
MODEL 342LX OR 344LX CABINETS**



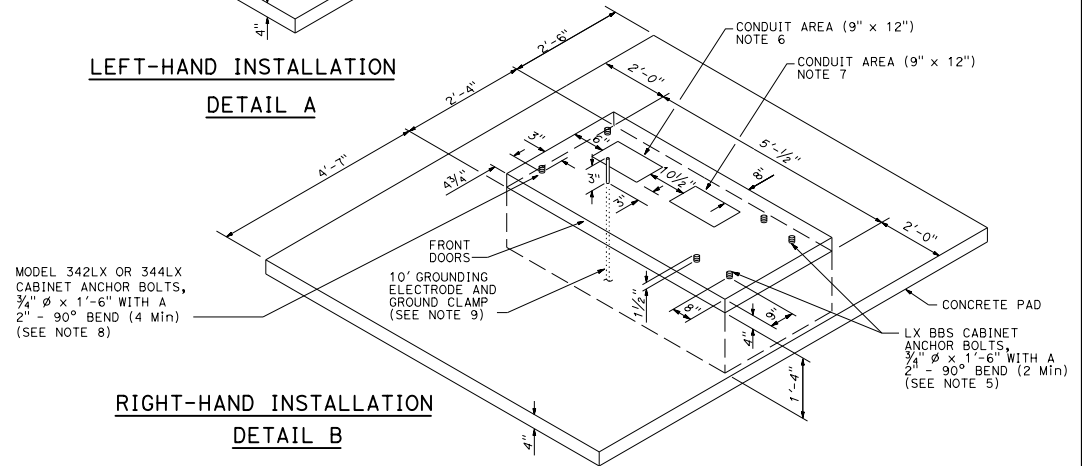
**BASE PLAN FOR MODEL
342LX OR 344LX CABINETS**

NOTES:

- Where telephone interconnect is required, a minimum of 5" clear vertical space shall be provided inside the cabinet for the equipment.
- Telephone interconnect conductors shall be enclosed in a 3/4" or larger conduit through the foundation. Type 4 conduit shall be used to separate telephone and power conductors in cabinets.
- The LX BBS cabinet shall be mounted to the Model 342LX or 344LX cabinet with four 18-8 stainless steel hex head, fully-threaded, 3/8"-16 x 1" bolts; two washers per bolt, designed for 3/8" bolts and are 18-8 stainless steel, 1" outside diameter, round, and flat; and one K-Lock nut per bolt that is 18-8 stainless steel and a hex-nut.
- All dimensions are nominal.
- The dimensions of the BBS cabinet shall be verified prior to constructing the foundation of the Model 342LX or 344LX cabinet foundation.
- Conduit area, to 120 V Service.
- Conduit area for the controller side of cabinet.
- For Type LX cabinets details, see "Transportation Electrical Equipment Specifications".
- Grounding electrode shall be placed 3 inches in front of the service conduit area.



**LEFT-HAND INSTALLATION
DETAIL A**



**RIGHT-HAND INSTALLATION
DETAIL B**

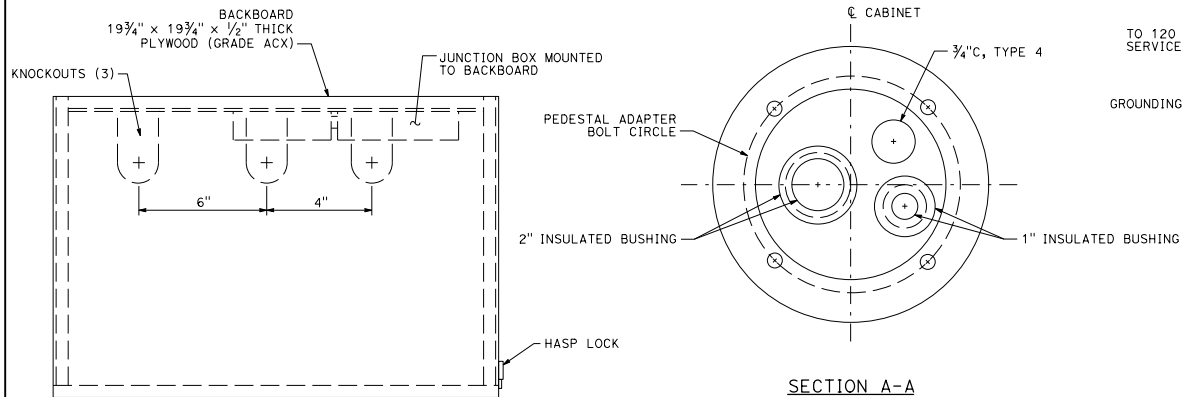
**MODEL 342LX OR 344LX CABINET
FOUNDATION DETAIL WITH BATTERY BACKUP SYSTEM**

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**ELECTRICAL SYSTEMS
(CONTROLLER CABINET
FOUNDATION DETAILS)**
NO SCALE

RSP ES-3C2 DATED OCTOBER 16, 2020 SUPERSEDES RSP ES-3C2 DATED OCTOBER 19, 2018 AND
STANDARD PLAN ES-3C2 DATED MAY 31, 2018 - PAGE 489 OF THE STANDARD PLANS BOOK DATED 2018.

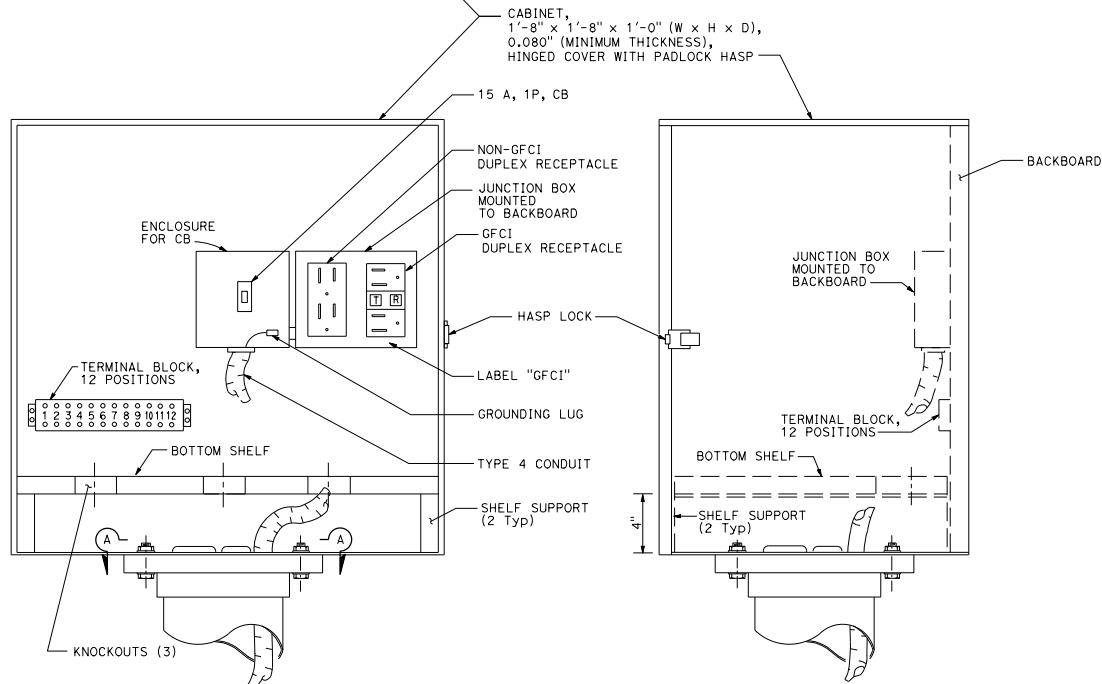
REVISED STANDARD PLAN RSP ES-3C2

2018 REVISED STANDARD PLAN RSP ES-3C2



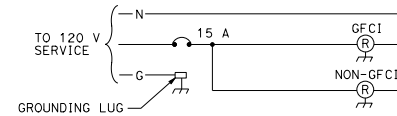
TOP
DETAIL C

SECTION A-A



FRONT
DETAIL A

RIGHT SIDE
DETAIL B



WIRING DIAGRAM
DETAIL D

NOTES:

1. Dimensions are nominal.
2. The steel pedestal, base plate, and bolt circle for the telephone demarcation cabinet shall be the same as that shown for a Type 1-C Standard. The steel pedestal shall be 2'-1" to 2'-6" in length. Anchor bolts shall be 3/4" ϕ x 1'-6" with a 2" - 90° bend. Four bolts required per cabinet.
3. Telephone interconnect conductors shall be enclosed in a 3/4" or larger conduit through the foundation. Type 4 conduit shall be used to separate telephone and power conductors in the cabinet and pedestal.
4. Mount cabinet on Type G cabinet pedestal and foundation (see Revised Standard Plan RSP ES-3B).

TO ACCOMPANY PLANS DATED _____

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
<p><i>H.R.F.</i> REGISTERED ELECTRICAL ENGINEER</p> <p>October 19, 2018 PLANS APPROVAL DATE</p> <p>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.</p>					

Hamid Zolfaghari
No. E15636
Exp. 12-31-19
REGISTERED PROFESSIONAL ELECTRICAL ENGINEER
STATE OF CALIFORNIA

FASTENER SCHEDULE

BACKBOARD	4 - 3/4" (LENGTH) WOOD SCREWS
2 SHELF SUPPORTS	4 - 3/4" (LENGTH) WOOD SCREWS
JUNCTION BOX	4 - 1/2" (LENGTH) WOOD SCREWS
TERMINAL BLOCK	4 - 3/4" (LENGTH) WOOD SCREWS

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**ELECTRICAL SYSTEMS
(TELEPHONE DEMARCATION
CABINET, TYPE A)**

NO SCALE

RSP ES-3D DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN ES-3D
DATED MAY 31, 2018 - PAGE 490 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP ES-3D

2018 REVISED STANDARD PLAN RSP ES-3D

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

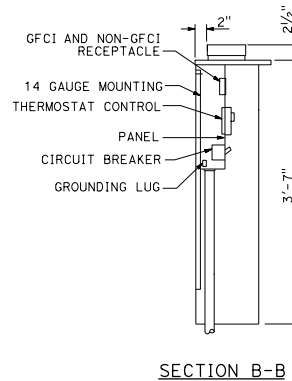
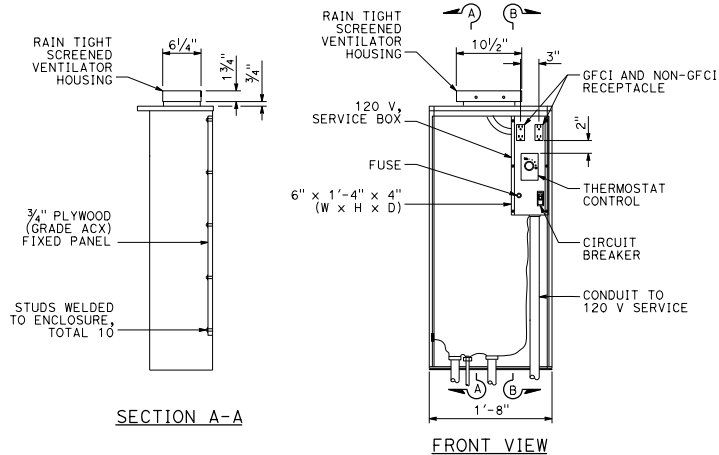
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October 19, 2018
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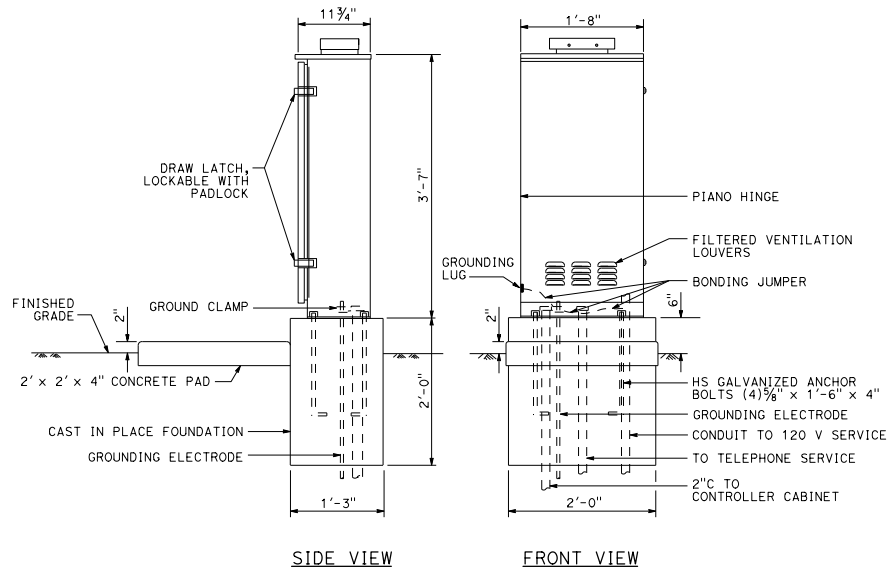
REGISTERED PROFESSIONAL ENGINEER
Hamid Zolfaghari
No. E15636
Exp. 12-31-19
ELECTRICAL
STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED _____

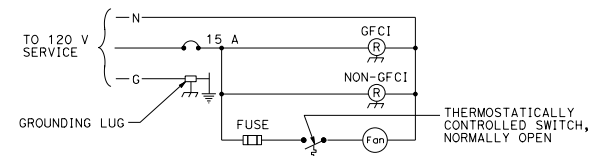
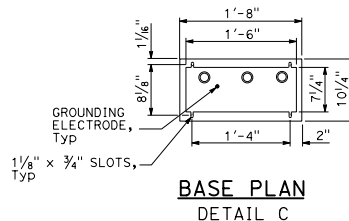
NOTE:
1. Dimensions are nominal.



**INTERIOR
DETAIL A**



**EXTERIOR
DETAIL B**



**WIRING DIAGRAM
DETAIL D**

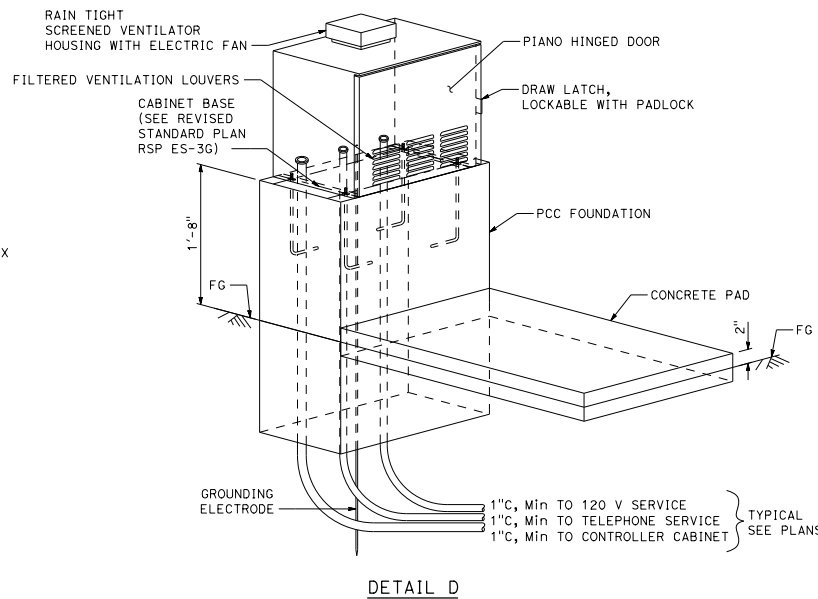
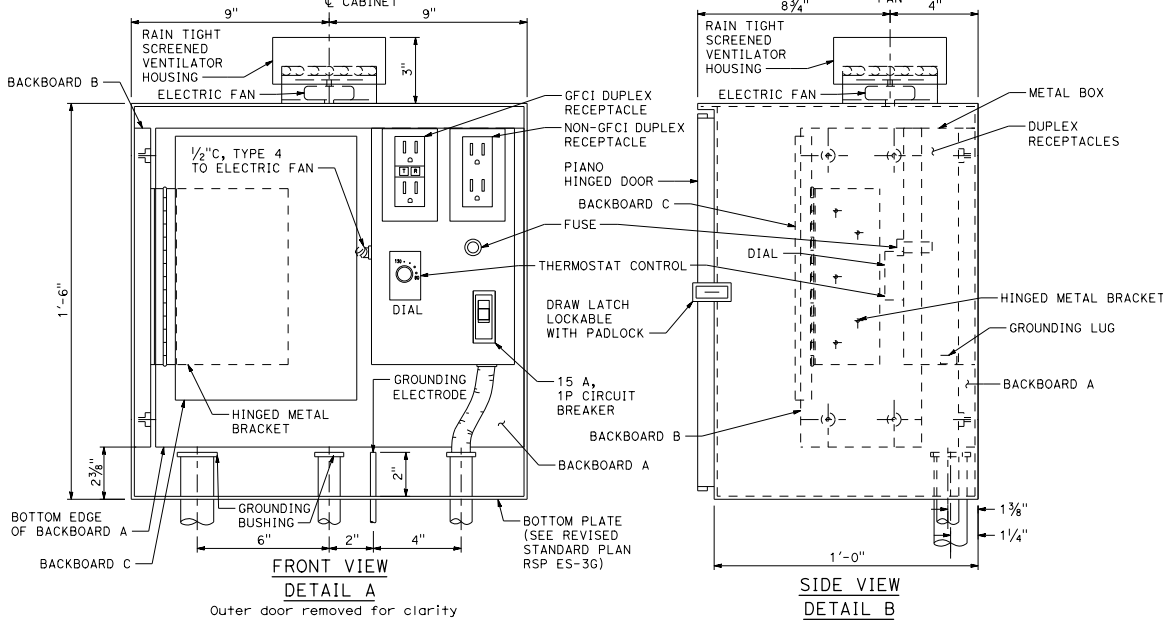
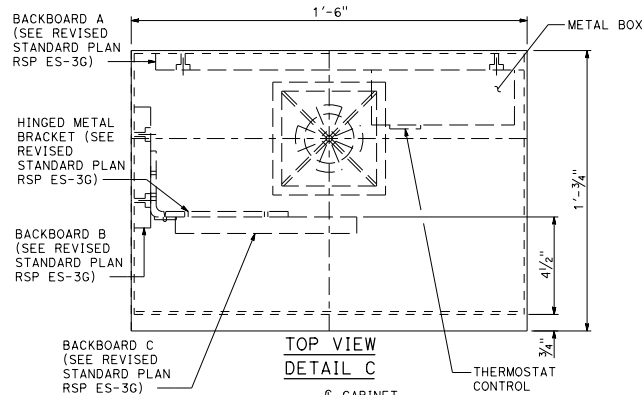
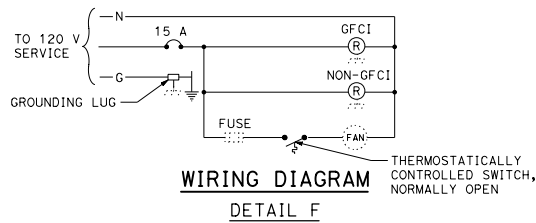
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**ELECTRICAL SYSTEMS
(TELEPHONE DEMARCATION
CABINET, TYPE B)**

NO SCALE

RSP ES-3E DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN ES-3E
DATED MAY 31, 2018 - PAGE 491 OF THE STANDARD PLANS BOOK DATED 2018.

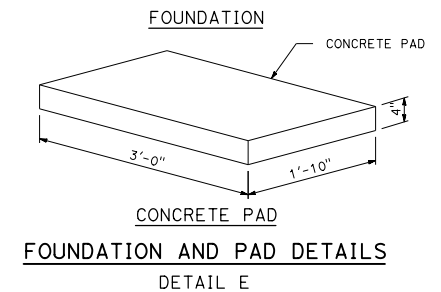
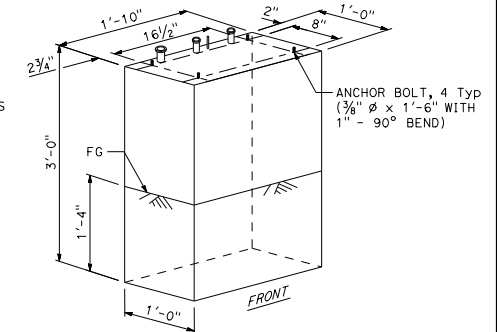
REVISED STANDARD PLAN RSP ES-3E

2018 REVISED STANDARD PLAN RSP ES-3E



NOTES:

- Dimensions are nominal.
- Hardware for fastening of mounting boards:
 - Fasten backboard A and backboard B to telephone demarcation cabinet with $\frac{3}{16}$ " ϕ x $\frac{3}{4}$ " stainless steel carriage bolts (8 required).
 - Fasten hinged metal bracket to backboard B and backboard C to hinged metal bracket with No. 10 x $\frac{3}{4}$ " wood screws (9 required).



STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
ELECTRICAL SYSTEMS
(TELEPHONE DEMARCATION CABINET, TYPE C)
NO SCALE

RSP ES-3F DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN ES-3F
DATED MAY 31, 2018 - PAGE 492 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP ES-3F

2018 REVISED STANDARD PLAN RSP ES-3F

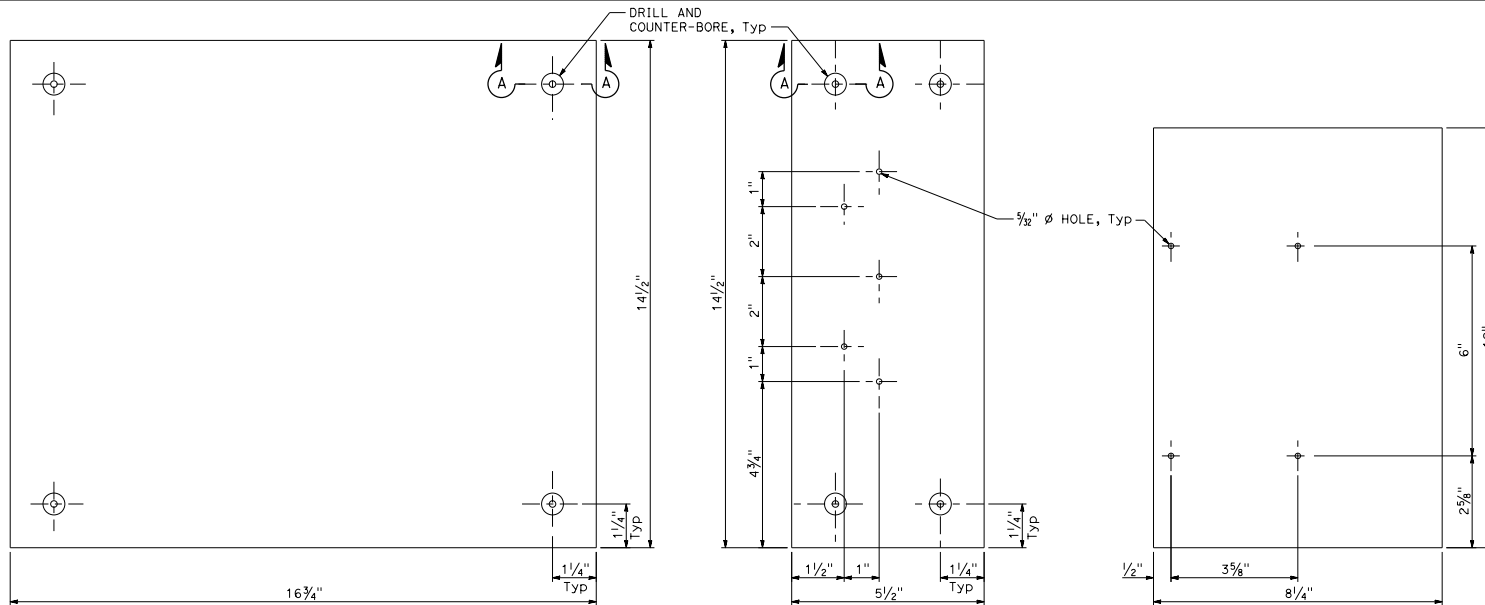
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

H.R.F.
REGISTERED ELECTRICAL ENGINEER
October 19, 2018
PLANS APPROVAL DATE
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Hamid
Zolfaghari
No. E15636
Exp. 12-31-19
REGISTERED PROFESSIONAL ENGINEER
ELECTRICAL
STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED _____

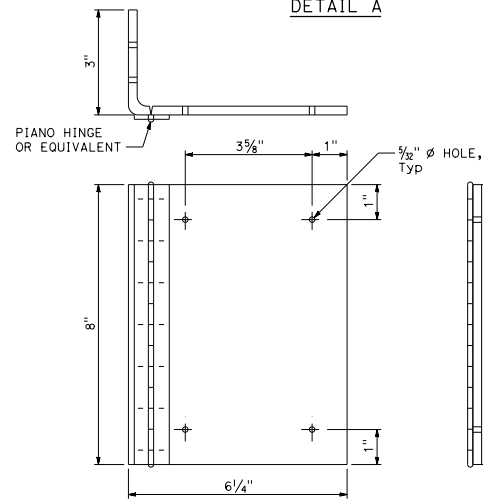
NOTE:
1. Base mounting frame shall be constructed with 0.134" galvanized steel.



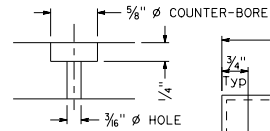
BACKBOARD A
DETAIL A

BACKBOARD B
DETAIL B

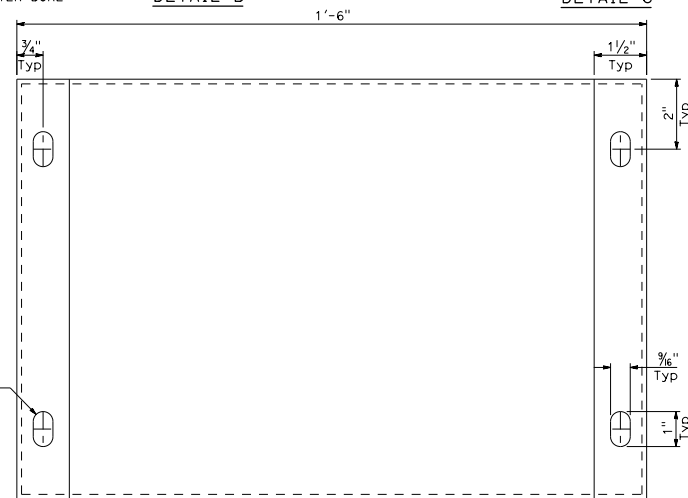
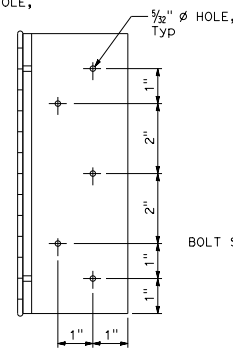
BACKBOARD C
DETAIL C



HINGED METAL BRACKET
DETAIL D



SECTION A-A



CABINET BASE
DETAIL E

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
ELECTRICAL SYSTEMS
(TELEPHONE DEMARCATION
CABINET, TYPE C DETAILS)

NO SCALE

RSP ES-3G DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN ES-3G
DATED MAY 31, 2018 - PAGE 493 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP ES-3G

2018 REVISED STANDARD PLAN RSP ES-3G

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

H.R.F.
REGISTERED ELECTRICAL ENGINEER

October 19, 2018
PLANS APPROVAL DATE

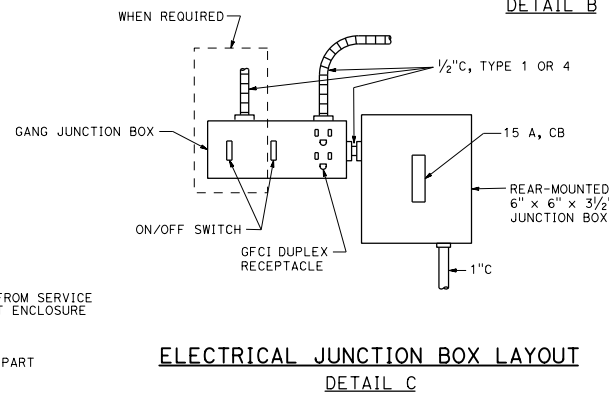
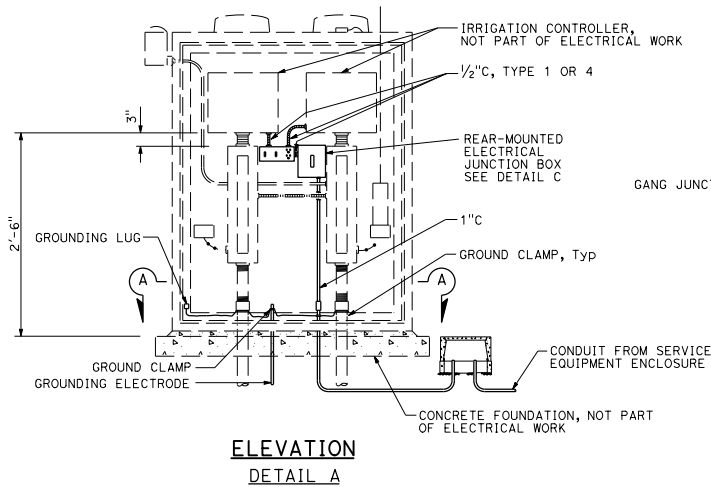
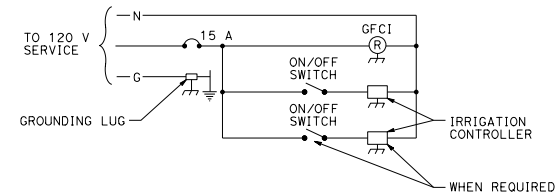
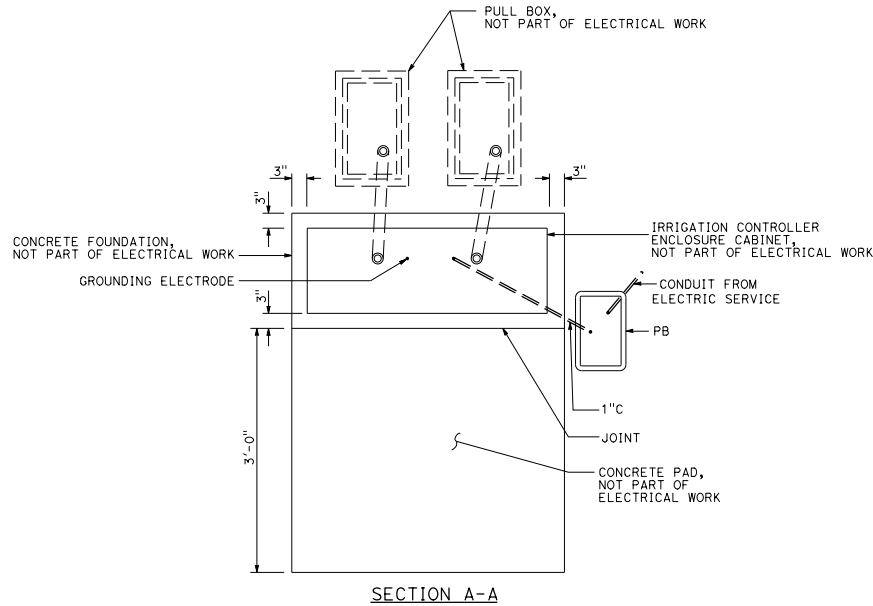
Hamid Zolfaghari
No. E15636
Exp. 12-31-19
ELECTRICAL
STATE OF CALIFORNIA

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

TO ACCOMPANY PLANS DATED _____

NOTES:

1. See Standard Plan H10 for other details.
2. Underground electrical work done prior to foundation installation.



STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS
(IRRIGATION CONTROLLER
ENCLOSURE CABINET)**

NO SCALE

RSP ES-3H DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN ES-3H
DATED MAY 31, 2018 - PAGE 494 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP ES-3H

2018 REVISED STANDARD PLAN RSP ES-3H

NOTES:

1. Install connections when BBS is equipped with this option.
2. Install and connect harness for BBS or GT-BBS.

ABBREVIATIONS:

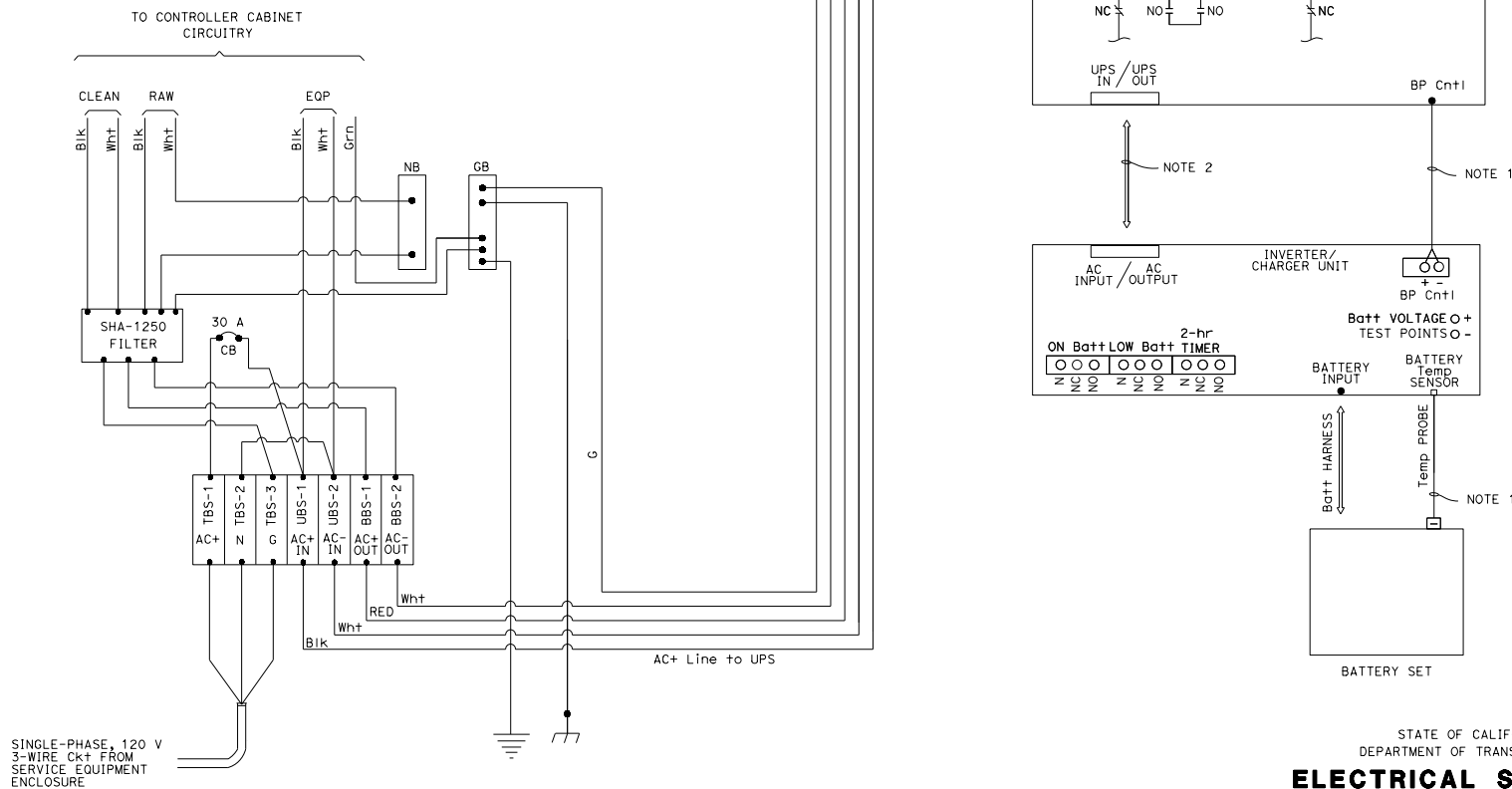
TBS: Terminal Block Service
UBS: Utility to BBS
EOP: Equipment Circuit
GT: Green Technology

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED ELECTRICAL ENGINEER
April 16, 2021
PLANS APPROVAL DATE
John L. Castro
No. E17490
EXP. 6-30-21
ELECTRICAL
STATE OF CALIFORNIA

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TO ACCOMPANY PLANS DATED _____



STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**ELECTRICAL SYSTEMS
(ELECTRONICS ASSEMBLY CONNECTION DIAGRAM)
(BATTERY BACKUP SYSTEM)**
NO SCALE

RSP ES-3K DATED APRIL 16, 2021 SUPERSEDES RSP ES-3K DATED OCTOBER 16, 2020 AND
STANDARD PLAN ES-3K DATED MAY 31, 2018 - PAGE 497 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP ES-3K

2018 REVISED STANDARD PLAN RSP ES-3K

DIS	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED ELECTRICAL ENGINEER

October 15, 2021
PLANS APPROVAL DATE

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COPIES OF THIS PLAN SHEET.

John L. Castro
No. E17490
Exp. 6-30-23
ELECTRICAL
STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED _____

PLAN VIEW OF OTHER
SIDE MOUNTINGS

ABBREVIATIONS:

- SV SIDE MOUNTED SIGNAL HEADS
T TERMINAL COMPARTMENT
TV TOP MOUNTED SIGNAL HEADS
1, 2, 3, 4 NUMBER OF SIGNAL FACES
A, B, C, D CONFIGURATION OF SIGNALS

NOTES:

- Mountings shall be oriented to provide maximum horizontal clearance to adjacent roadway.
- See Revised Standard Plans RSP ES-4D and RSP ES-4E for attachment fitting details.

PLAN VIEW OF
TOP MOUNTINGS

SIDE MOUNTINGS

TOP MOUNTINGS


STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**ELECTRICAL SYSTEMS
(SIGNAL HEAD MOUNTING)**
NO SCALE

RSP ES-4A DATED OCTOBER 15, 2021 SUPERSEDES RSP ES-4A DATED APRIL 17, 2020
AND RSP ES-4A DATED OCTOBER 19, 2018 AND STANDARD PLAN ES-4A
DATED MAY 31, 2018 - PAGE 499 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP ES-4A

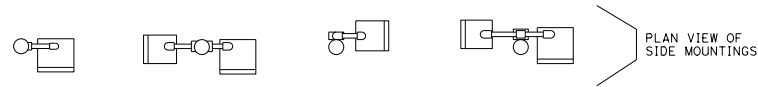
2018 REVISED STANDARD PLAN RSP ES-4A

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

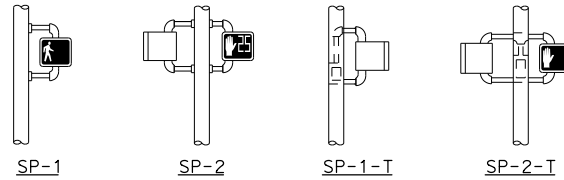

 REGISTERED ELECTRICAL ENGINEER
 October 19, 2018
 PLANS APPROVAL DATE
 THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

Hamid Zolfaghari
 No. E15636
 Exp. 12-31-19
 REGISTERED PROFESSIONAL ENGINEER
 ELECTRICAL
 STATE OF CALIFORNIA

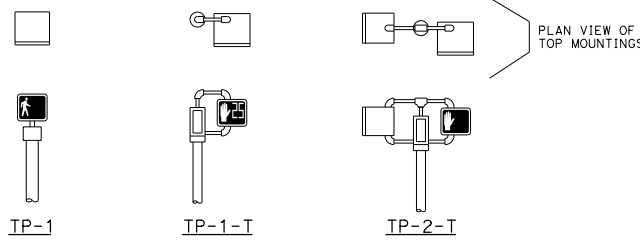
TO ACCOMPANY PLANS DATED _____



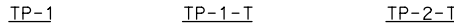
PLAN VIEW OF
SIDE MOUNTINGS



SIDE MOUNTINGS



PLAN VIEW OF
TOP MOUNTINGS



TOP MOUNTINGS

PEDESTRIAN SIGNAL HEAD MOUNTINGS

DETAIL A



PERSON WALKING INTERVAL



FLASHING UPRAISED HAND INTERVAL



STEADY UPRAISED HAND INTERVAL

LED COUNTDOWN PEDESTRIAN SIGNAL FACE MODULE

DETAIL B

NOTES:

1. Mounting shall be oriented to provide maximum horizontal clearance to adjacent roadway.
2. See Revised Standard Plan RSP ES-4D for attachment fittings details.

ABBREVIATIONS:

- 1, 2 NUMBER OF SIGNAL FACES
 SP SIDE MOUNTED PEDESTRIAN SIGNAL
 T TERMINAL COMPARTMENT
 TP TOP MOUNTED PEDESTRIAN SIGNAL

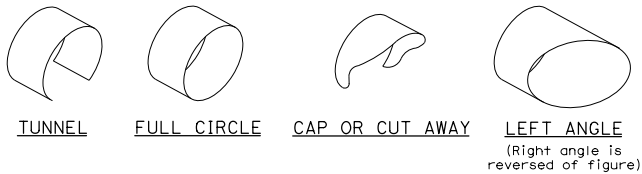
STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
**ELECTRICAL SYSTEMS
 (PEDESTRIAN SIGNAL HEADS)**

NO SCALE

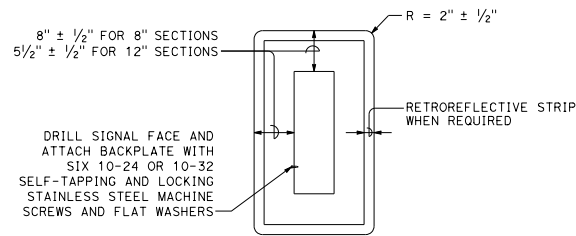
RSP ES-4B DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN ES-4B
 DATED MAY 31, 2018 - PAGE 500 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP ES-4B

2018 REVISED STANDARD PLAN RSP ES-4B

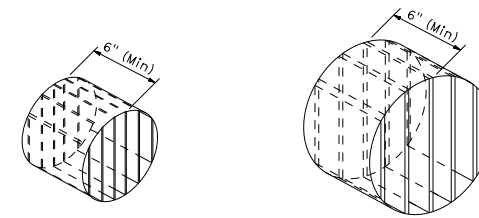


VISORS

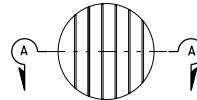


8" AND 12" SECTIONS

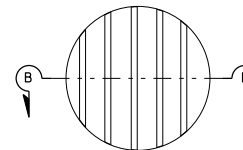
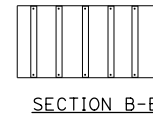
BACKPLATE



ISOMETRIC VIEW



ISOMETRIC VIEW



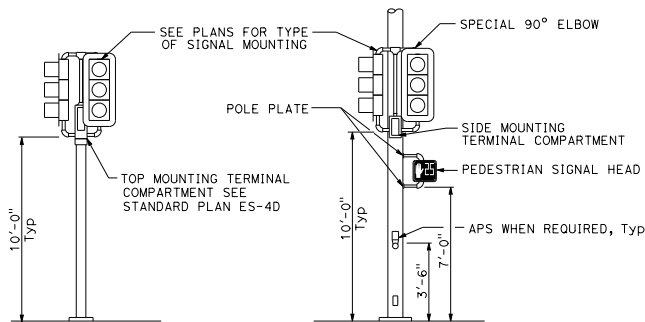
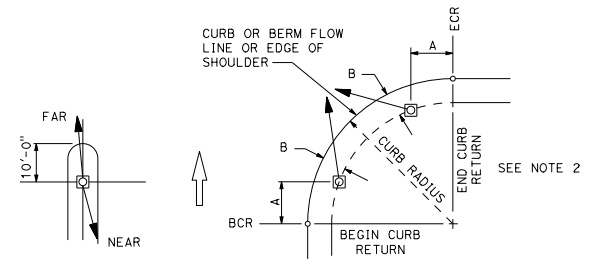
DIRECTIONAL LOUVER

Directional louvers shall be oriented and secured in place with one plated brass machine screw and nut.

NOTES:

1. Typical signal pole placement unless dimensioned on plans.
2. For A and B dimensions, see Pole Schedule.

SIGNAL STANDARD PLACEMENT DIMENSIONS AND EQUIPMENT LOCATIONS

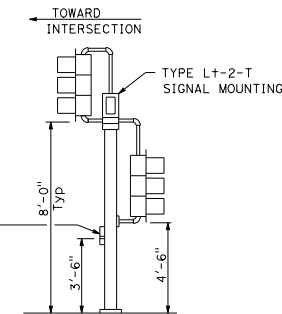


TOP MOUNTED SIGNALS (TV)

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

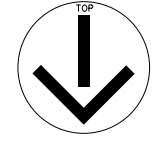
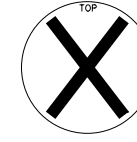
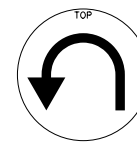
SIDE MOUNTED SIGNALS (SV AND SP)

Normally used on standards with luminaire or signal mast arm



LEFT TURN LANE SIGNAL

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



SIGNAL FACES

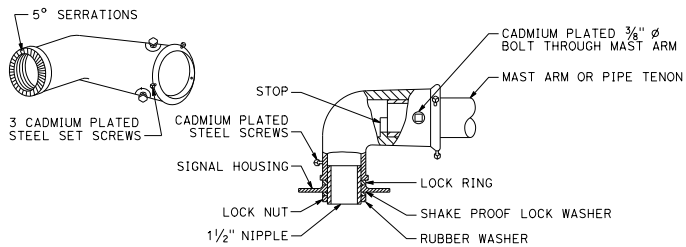
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

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

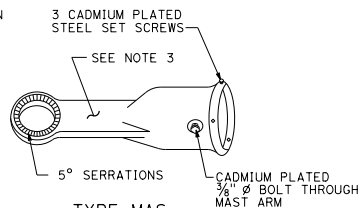
NO SCALE

RSP ES-4C DATED APRIL 17, 2020 SUPERSEDES STANDARD PLAN ES-4C.
DATED MAY 31, 2018 - PAGE 501 OF THE STANDARD PLANS BOOK DATED 2018.

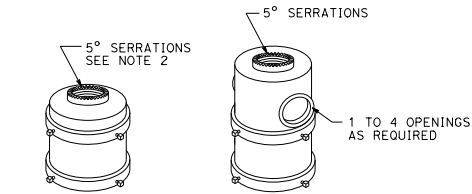
REVISED STANDARD PLAN RSP ES-4C



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



TYPE MAS
MAST ARM MOUNTING
For 2 NPS pipe, see Note 1.

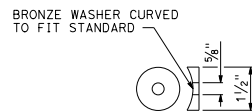


FOR ONE MOUNTING FOR MULTIPLE MOUNTINGS

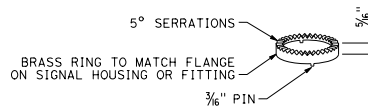
TOP MOUNTINGS
For 4 NPS pipe, see Note 2.

NOTES:

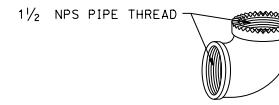
1. After mast arm signal has been plumbed and secured, drill $\frac{1}{8}$ " hole through mast arm tenon in line with slip fitter hole. Place a cadmium plated $\frac{3}{8}$ " ϕ galvanized bolt with washer under bolt head through hole and secure with washer, nut, and locknut. Seal openings between mast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



DETAIL C

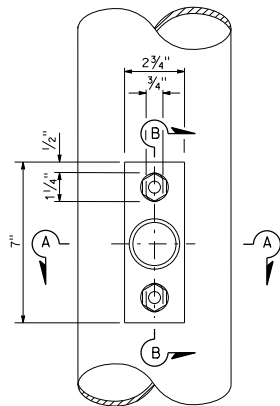


LOCK RING
Use where locking ring is not integral
With signal housing or fitting.

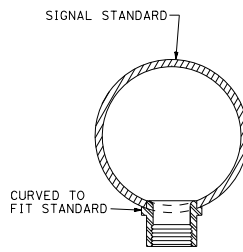


SPECIAL 90° ELBOW
One for each signal head, except those
With special slip fitter mounting

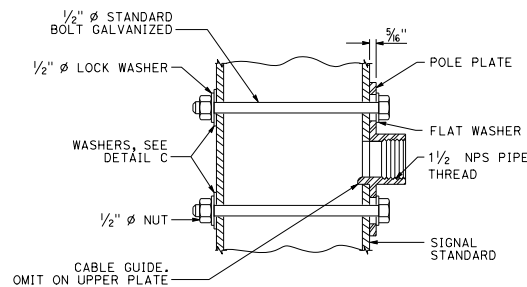
MISCELLANEOUS MOUNTING HARDWARE



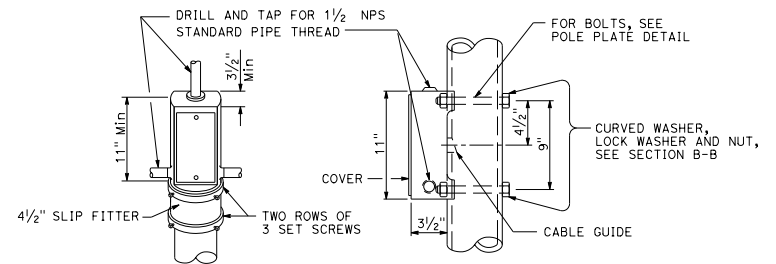
TOP VIEW



SECTION A-A



SECTION B-B



TOP MOUNTING

SIDE MOUNTING

TERMINAL COMPARTMENT

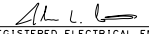
**POLE PLATE FOR SIDE MOUNTED SIGNAL HEAD
WITHOUT TERMINAL COMPARTMENT**

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**ELECTRICAL SYSTEMS
(SIGNAL HEAD MOUNTING)**
NO SCALE

RSP ES-4D DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN ES-4D
DATED MAY 31, 2018 - PAGE 502 OF THE STANDARD PLANS BOOK DATED 2018.

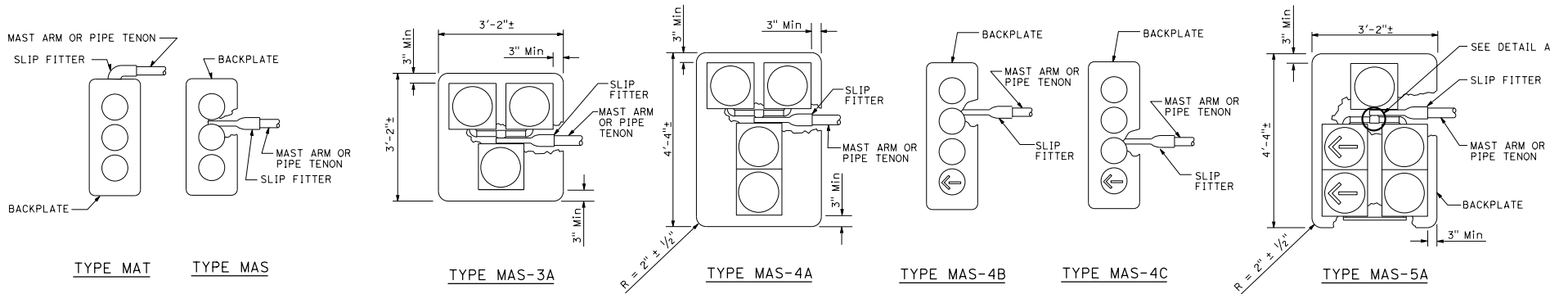
REVISED STANDARD PLAN RSP ES-4D

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL NO. SHEETS

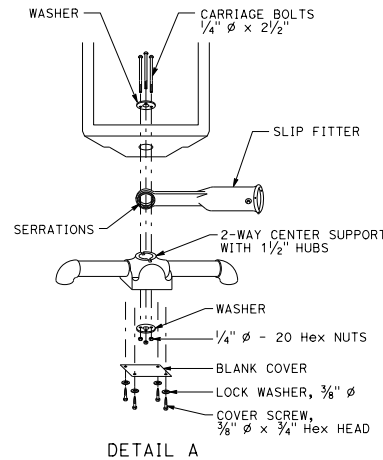
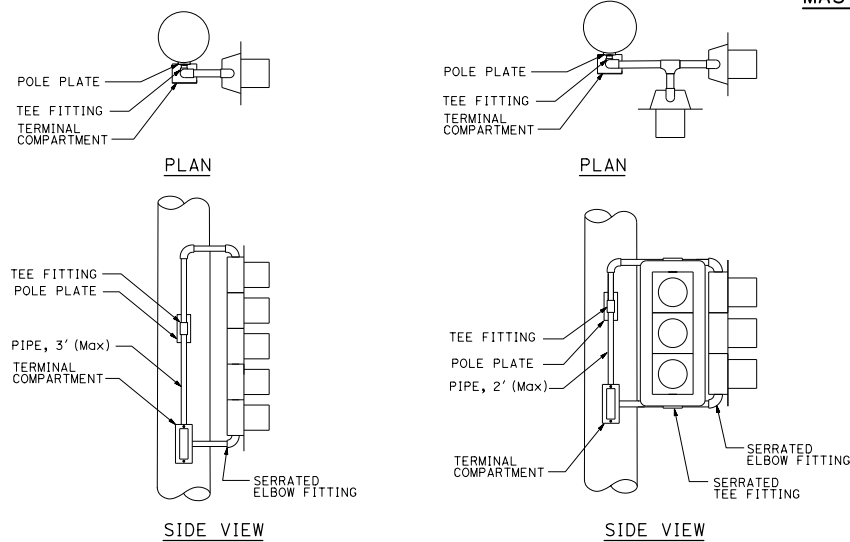

 REGISTERED ELECTRICAL ENGINEER
 No. E17490
 April 17, 2020
 PLANS APPROVAL DATE
 THE STATE OF CALIFORNIA OR ITS OFFICERS
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 THE ACCURACY OR COMPLETENESS OF SCANNED
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REGISTERED PROFESSIONAL ENGINEER
 John L. Castro
 No. E17490
 Exp. 6-30-21
 ELECTRICAL
 STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED _____



MAST ARM MOUNTINGS



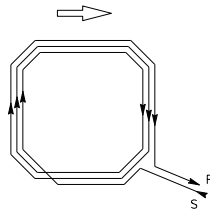
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**ELECTRICAL SYSTEMS
(SIGNAL HEADS AND
OPTICAL DETECTOR MOUNTING)**

NO SCALE

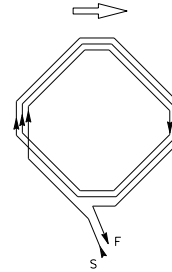
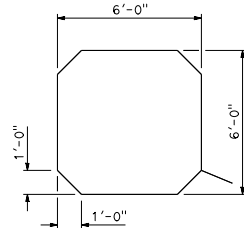
RSP ES-4E DATED APRIL 17, 2020 SUPERSEDES RSP ES-4E DATED OCTOBER 19, 2018 AND
STANDARD PLAN ES-4E DATED MAY 31, 2018 - PAGE 503 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP ES-4E

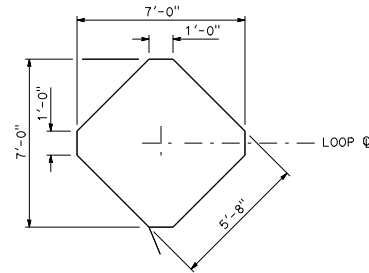
2018 REVISED STANDARD PLAN RSP ES-4E



WINDING DETAIL
TYPE A LOOP DETECTOR CONFIGURATION



WINDING DETAIL
TYPE B LOOP DETECTOR CONFIGURATION

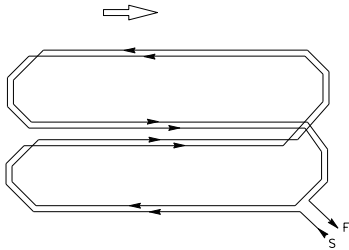


DIST	COUNTY	ROUTE	POST MILES	SHEET TOTAL
			TOTAL PROJECT	NO. SHEETS
H.R.F. REGISTERED ELECTRICAL ENGINEER October 19, 2018 PLANS APPROVAL DATE THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.			Hamid Zolfaghari No. E15636 Exp. 12-31-19 ELECTRICAL STATE OF CALIFORNIA	

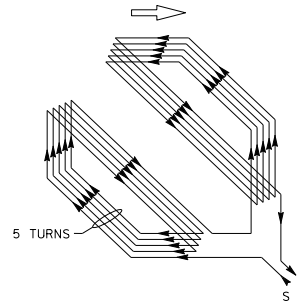
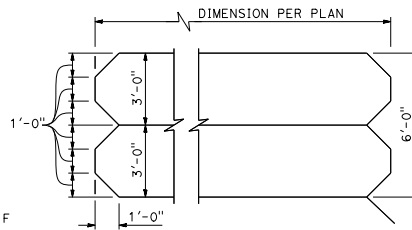
TO ACCOMPANY PLANS DATED _____

NOTES:

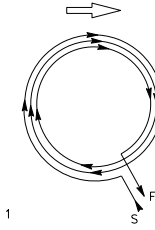
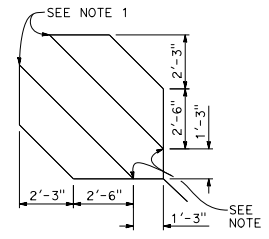
1. Round corners of acute angle saw cuts to prevent damage to conductors.
2. Typical distance separating loops from edge to edge is 10' for Type A, B, D, E, and F installation in single lane.
3. Use Type D and F loops for limit line detection and bicycle lanes.



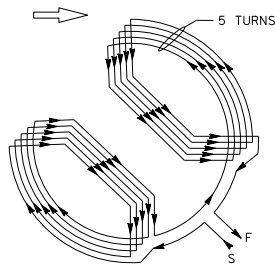
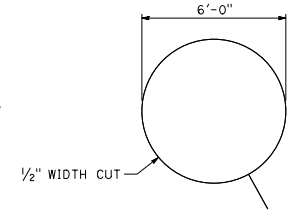
WINDING DETAIL
TYPE C LOOP DETECTOR CONFIGURATION



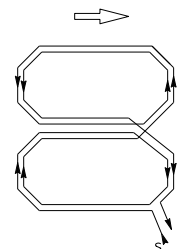
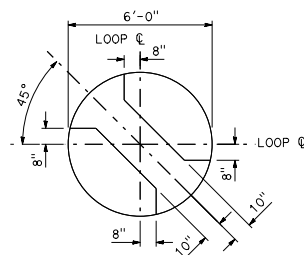
WINDING DETAIL
TYPE D LOOP DETECTOR CONFIGURATION



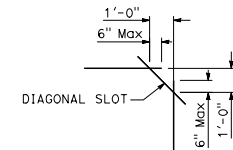
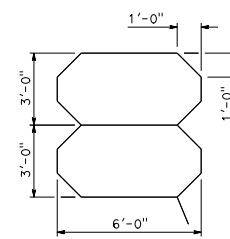
WINDING DETAIL
TYPE E LOOP DETECTOR CONFIGURATION



WINDING DETAIL
TYPE F LOOP DETECTOR CONFIGURATION



WINDING DETAIL
TYPE Q LOOP DETECTOR CONFIGURATION



PLAN VIEW OF
DIAGONAL SLOT
AT CORNERS

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS
(DETECTORS)**

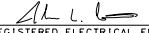
NO SCALE

RSP ES-5B DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN ES-5B
DATED MAY 31, 2018- PAGE 505 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP ES-5B

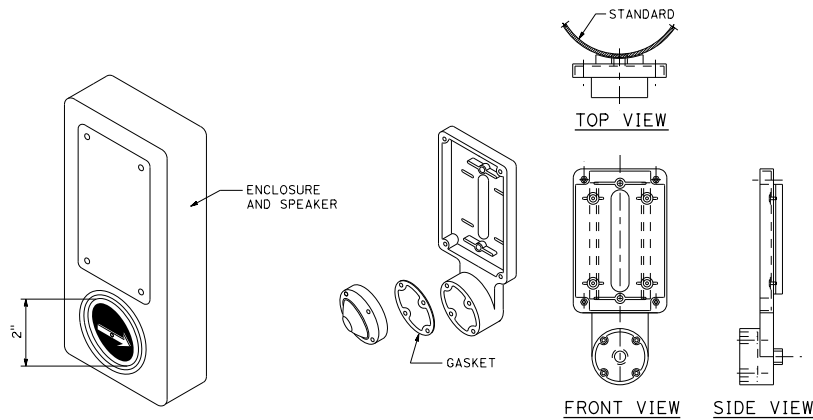
2018 REVISED STANDARD PLAN RSP ES-5B

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS


 REGISTERED ELECTRICAL ENGINEER
 October 15, 2021
 PLANS APPROVAL DATE
 No. E17490
 Exp. 6-30-23
 ELECTRICAL
 STATE OF CALIFORNIA

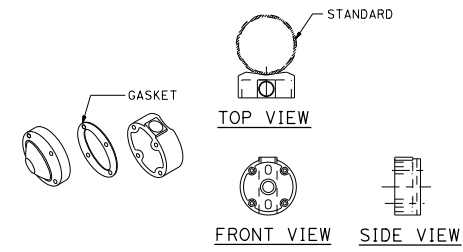
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 THE ACCURACY OR COMPLETENESS OF SCANNED
 COPIES OF THIS PLAN SHEET.

TO ACCOMPANY PLANS DATED _____



ACCESSIBLE PEDESTRIAN SIGNAL
DETAIL A

TYPE B PUSH BUTTON ASSEMBLY
DETAIL B



TYPE C PUSH BUTTON ASSEMBLY
DETAIL C

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
ELECTRICAL SYSTEMS
(ACCESSIBLE PEDESTRIAN SIGNAL
AND PUSH BUTTON ASSEMBLIES)
 NO SCALE

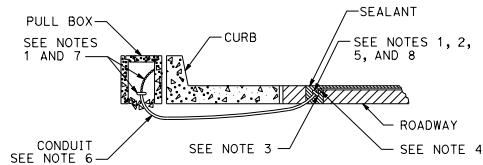
RSP ES-5C DATED OCTOBER 15, 2021 SUPERSEDES STANDARD PLAN ES-5C
 DATED MAY 31, 2018 - PAGE 506 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP ES-5C

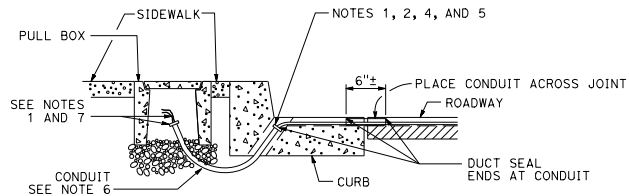
2018 REVISED STANDARD PLAN RSP ES-5C

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL No. SHEETS
<p>REGISTERED ELECTRICAL ENGINEER</p> <p>October 19, 2018</p> <p>PLANS APPROVAL DATE</p> <p>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.</p>				

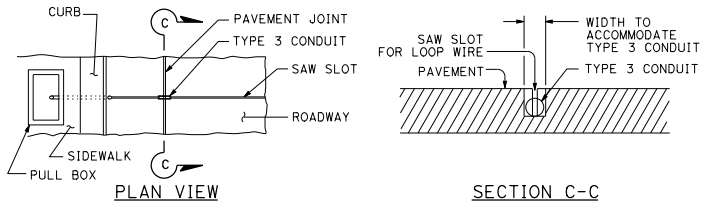
TO ACCOMPANY PLANS DATED _____



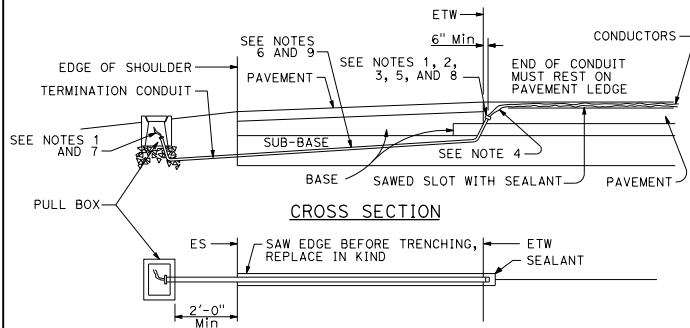
TYPE A
CURB TERMINATION DETAIL



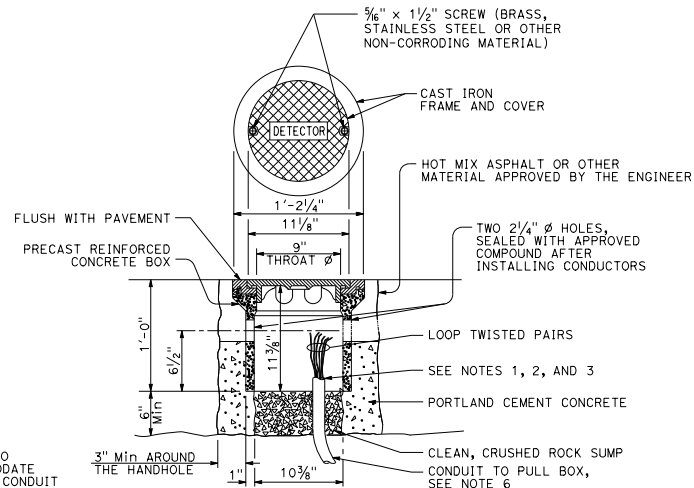
CROSS SECTION



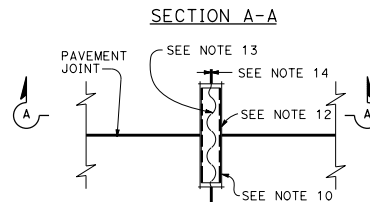
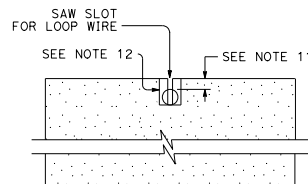
TYPE B
CURB TERMINATION DETAIL



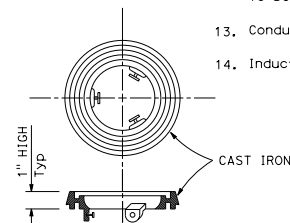
SHOULDER TERMINATION DETAILS



DETECTOR HANDHOLE DETAIL



TYPICAL LOOP LEAD-IN DETAIL
AT PAVEMENT JOINT



LOCKING GRADE RING

NOTES:

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

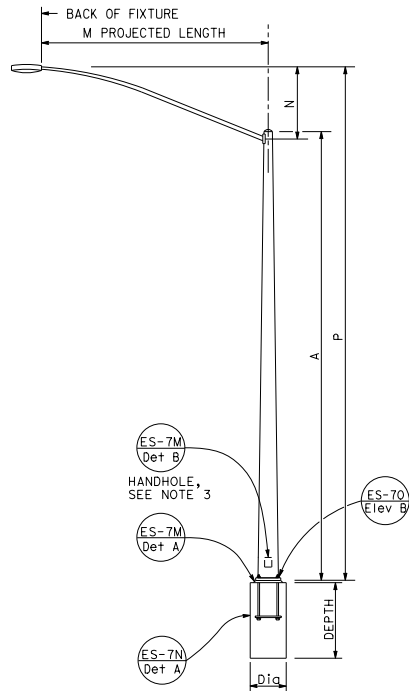
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**ELECTRICAL SYSTEMS
(CURB AND SHOULDER TERMINATION,
TRENCH, AND HANDHOLE DETAILS)**

NO SCALE

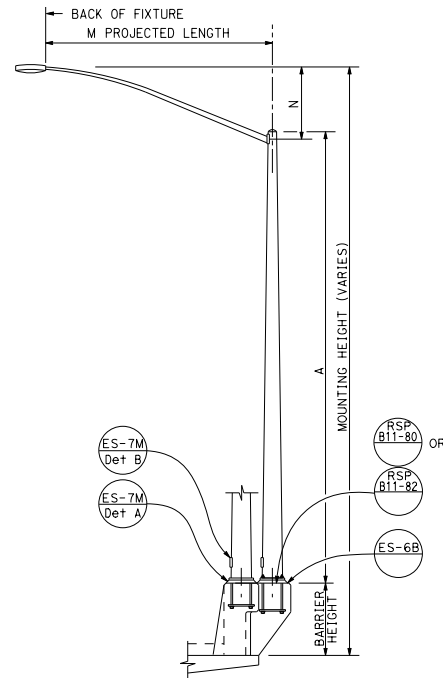
RSP ES-5D DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN ES-5D
DATED MAY 31, 2018 - PAGE 507 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP ES-5D

2018 REVISED STANDARD PLAN RSP ES-5D



TYPE 15 AND TYPE 21
ELEVATION A



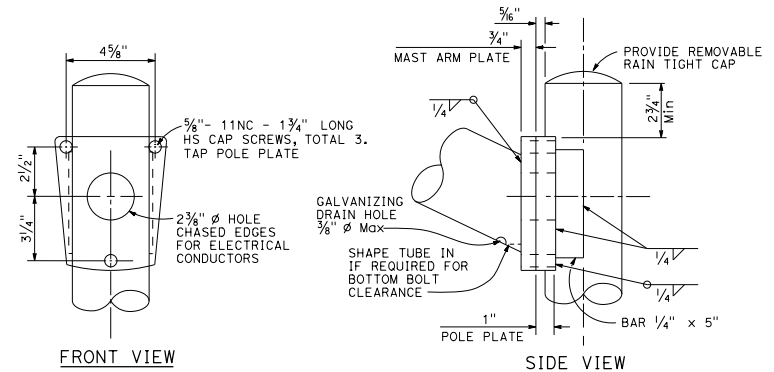
TYPE 15 AND TYPE 21 BARRIER RAIL MOUNTED
ELEVATION B

POLE TYPE	POLE DATA				BASE PLATE DATA				CIDH PILE FOUNDATION	
	A HEIGHT	Min OD	WALL THICKNESS		C	BC = BOLT CIRCLE	THICKNESS	ANCHOR BOLT SIZE	Dia	DEPTH
15	30'-0"	8"	3 1/8"	0.1196"	1'-0"	1'-0"	1 1/2"	1" ϕ x 36" *	2'-6"	6'-0"
21	35'-0"	8 5/8"	3 3/8"	0.1793"			2"	1 1/4" ϕ x 36" *		7'-0"

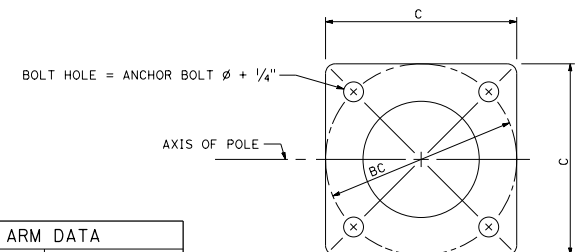
* FOR BARRIER RAIL BOLTS, SEE STANDARD PLAN ES-6B.

NOTES:

1. Indicates mast arm length to be used unless otherwise noted on the plans.
2. For Type 15-SB, use Type 15 standard with Type 30 slip base plate details, see Standard Plan ES-6F.
3. Handhole shall be located on the downstream side of traffic.
4. For additional notes and details, see Standard Plans ES-7M and ES-7N.



LUMINAIRE MAST ARM CONNECTION
DETAIL R



BASE PLATE
DETAIL A

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

ELECTRICAL SYSTEMS
(LIGHTING STANDARD,
TYPES 15 AND 21)

NO SCALE

RSP ES-6A DATED OCTOBER 18, 2019 SUPERSEDES STANDARD PLAN ES-6A
DATED MAY 31, 2018 - PAGE 508 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP ES-6A

2018 REVISED STANDARD PLAN RSP ES-6A

LUMINAIRE MAST ARM DATA			
M PROJECTED LENGTH	N RISE	Min OD AT POLE	NOMINAL THICKNESS
15'-0"	4'-9"±	4 1/2"	0.1196"
20'-0"	2'-6"±	5"	0.1793"

POLE DATA				
POLE EXTENSION TYPE	HEIGHT "H"	Min OD		THICKNESS
		BASE	TOP	
5	5'-0"	6½"	5⅞"	0.1793"
10	10'-0"	7¼"		

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

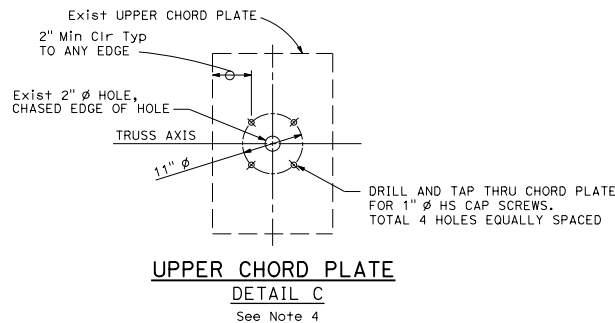
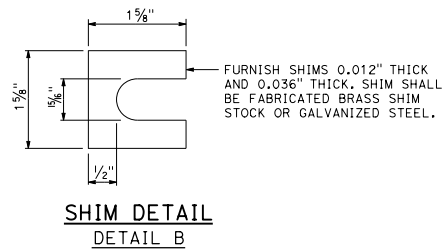
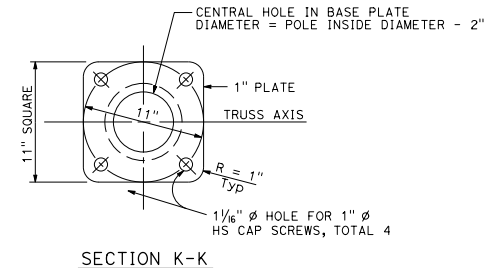
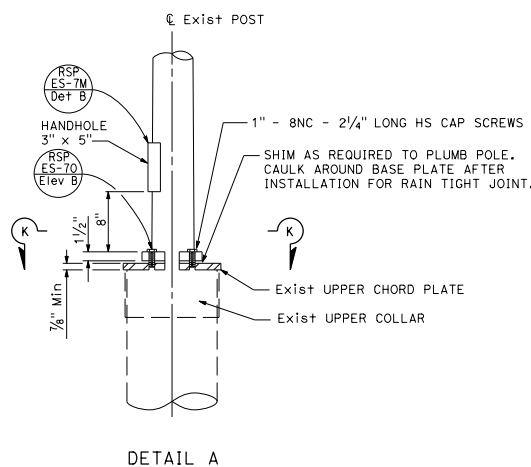
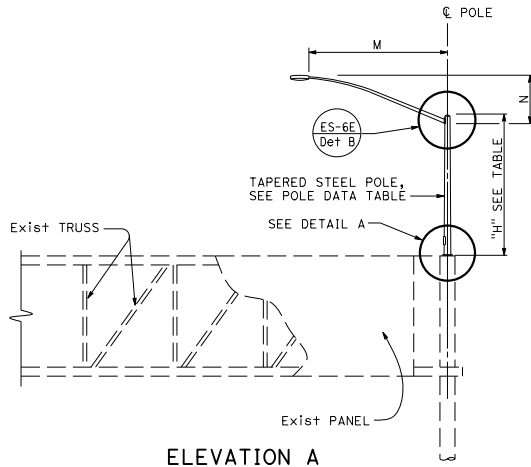
Stanley P. Johnson
 REGISTERED CIVIL ENGINEER
 April 16, 2021
 PLANS APPROVAL DATE
 No. C57795
 THE STATE OF CALIFORNIA OR ITS OFFICERS
 OR AGENTS SHALL NOT BE RESPONSIBLE FOR
 THE ACCURACY OR COMPLETENESS OF SCANNED
 COPIES OF THIS PLAN SHEET.

Stanley P. Johnson
 REGISTERED PROFESSIONAL ENGINEER
 No. C57795
 Exp. 3-31-22
 CIVIL
 STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED _____

NOTES:

- The Contractor shall verify all controlling field dimensions before ordering or fabricating any material.
- Bolt hole locations may vary at the discretion of the Engineer.
- For Wind Loading see Revised Standard Plan RSP ES-7M.
- See Standard Plans S13 and S113.
- Materials (Structural Steel):
 - fy = 55,000 psi tapered steel tube (pole)
 - fy = 50,000 psi unless otherwise noted



STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
**ELECTRICAL SYSTEMS
 (LIGHTING STANDARD,
 TYPES 5 AND 10,
 OVERHEAD SIGN MOUNTED)**
 NO SCALE

RSP ES-6C DATED APRIL 16, 2021 SUPERSEDES RSP ES-6C DATED OCTOBER 19, 2018 AND
 STANDARD PLAN ES-6C DATED MAY 31, 2018 - PAGE 510 OF THE STANDARD PLANS BOOK DATED 2018.

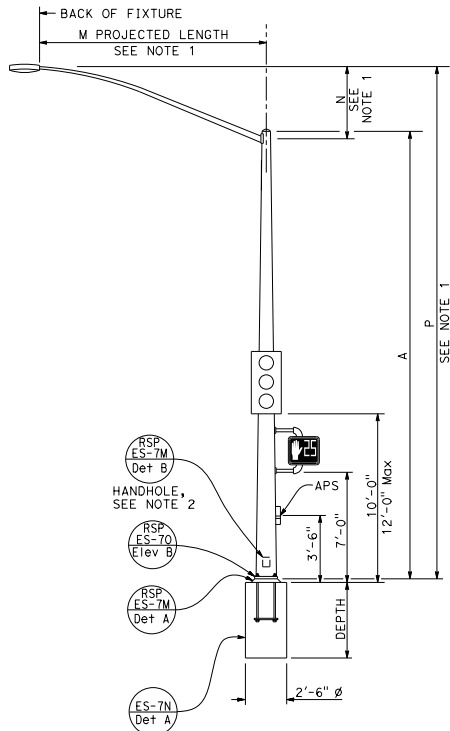
REVISED STANDARD PLAN RSP ES-6C

2018 REVISED STANDARD PLAN RSP ES-6C

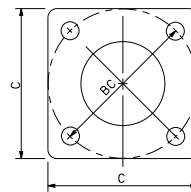


NOTES:

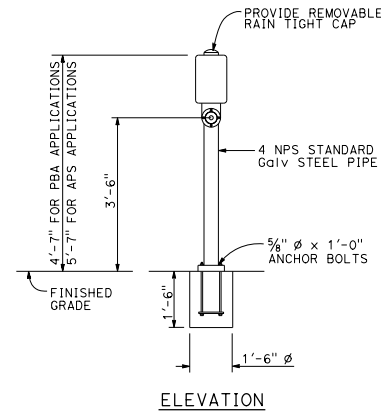
1. For additional notes, details and data for Type 15TS and Type 21TS Standards, see Standard Plan ES-6A.
2. Handhole shall be located on the downstream side of traffic.



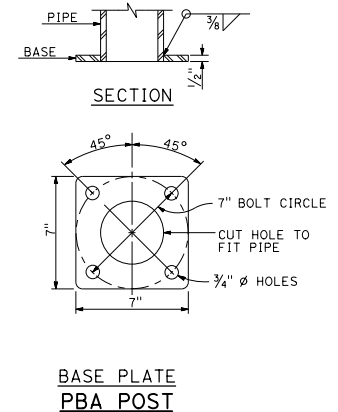
TYPE 15TS AND 21TS STANDARD
ELEVATION A
(See Note 1)



BASE PLATE
TYPE 15TS AND 21TS
DETAIL A



PUSH BUTTON ASSEMBLY POST
DETAIL B



POLE TYPE	POLE DATA			BASE PLATE DATA				CIDH
	A HEIGHT	Min OD	WALL THICKNESS	C	BC = BOLT CIRCLE	THICKNESS	ANCHOR BOLT SIZE	
15TS	30'-0"	8"	3 1/8"	0.1793"	1'-1 1/2"	1'-0"	2"	7'-6"
21TS	35'-0"	9 3/8"	3 3/8"	0.1793"	1'-3"	1'-2"	1 1/2" Ø x 42"	8'-6"

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
ELECTRICAL SYSTEMS
(SIGNAL AND LIGHTING STANDARD, TYPE TS,
AND PUSH BUTTON ASSEMBLY POST)

NO SCALE

RSP ES-7A DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN ES-7A
DATED MAY 31, 2018 - PAGE 515 OF THE STANDARD PLANS BOOK DATED 2018.

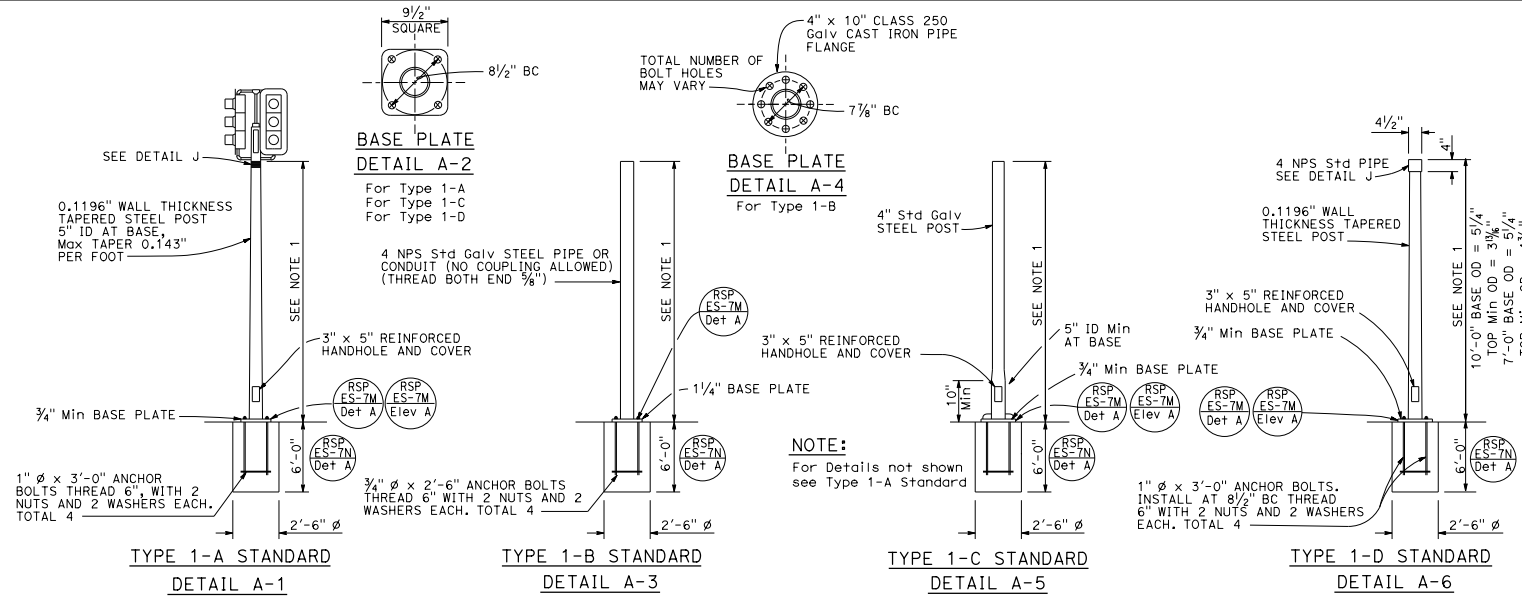
REVISED STANDARD PLAN RSP ES-7A

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

October 19, 2018
PLANS APPROVAL DATE

REGISTERED CIVIL ENGINEER
Stanley P. Johnson
No. C67793
EXP. 3-31-20
CIVIL
STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED _____



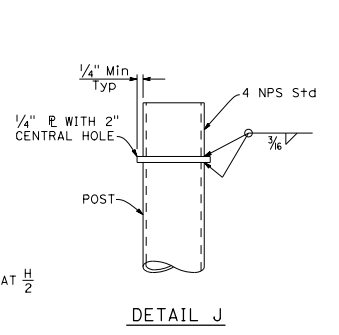
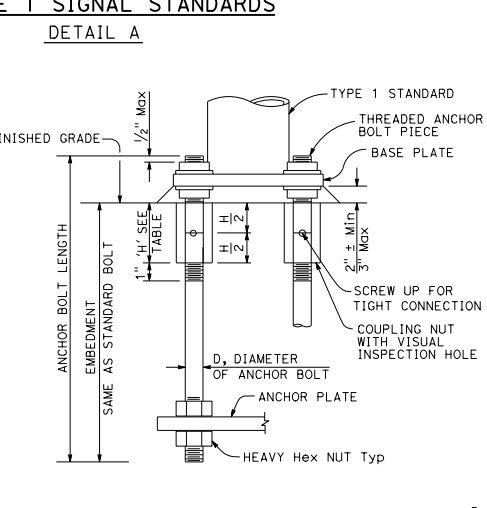
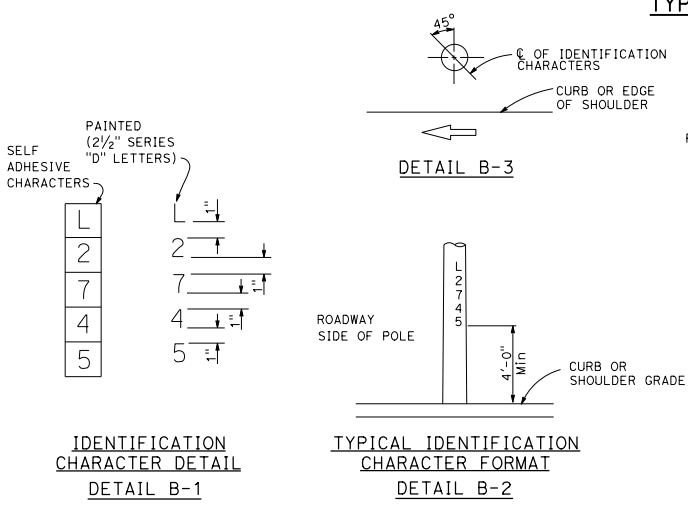
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL SHEETS

October 15, 2021
PLANS APPROVAL DATE

Stanley P. Johnson
REGISTERED CIVIL ENGINEER
No. C57795
Exp. 3-31-22
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.

- TO ACCOMPANY PLANS DATED _____
- NOTES:**
- Standards shall be 12'-0"±2" for flashing beacons, 10'-0"±2" for vehicle signals, and 7'-0"±2" for pedestrian signals unless shorter pole is noted on project plans.
 - Top of standards shall be 4" OD.
 - Conduits shall extend 2" maximum above finished surface of foundation and for Types 1-A, 1-C and 1-D shall be sloped toward handhole.
 - Coupling nuts to be used only when shown or specified on project plans.



COUPLING NUT TABLE	
BOLT DIAMETER	NUT TABLE THICKNESS 'H'
3/4"	2 1/4"
1"	3"

LOCATION OF EQUIPMENT IDENTIFICATION CHARACTERS ON STANDARDS AND POSTS
DETAIL B

ANCHOR BOLTS WITH COUPLING NUTS
DETAIL C
See Note 4

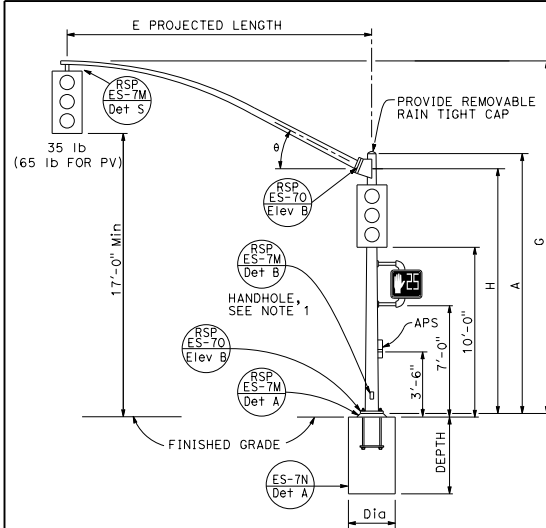
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS
(SIGNAL AND LIGHTING STANDARD, TYPE 1
AND EQUIPMENT IDENTIFICATION CHARACTERS)**

NO SCALE

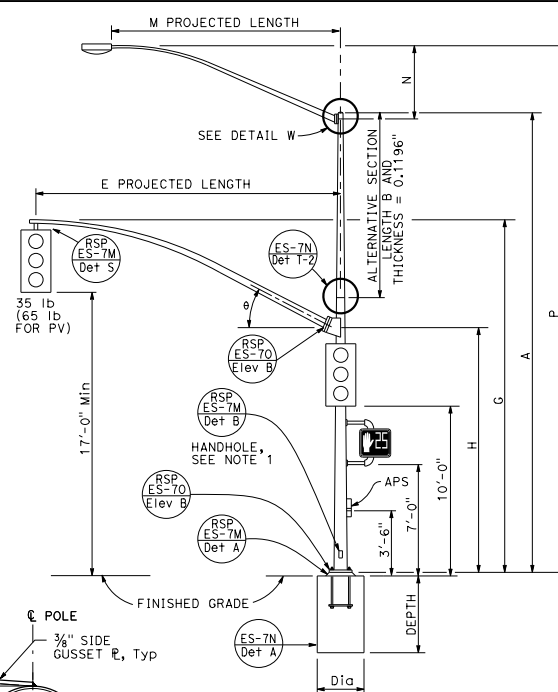
RSP ES-7B DATED OCTOBER 15, 2021 SUPERSEDES RSP ES-7B DATED OCTOBER 19, 2018 AND STANDARD PLAN ES-7B DATED MAY 31, 2018 - PAGE 516 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP ES-7B



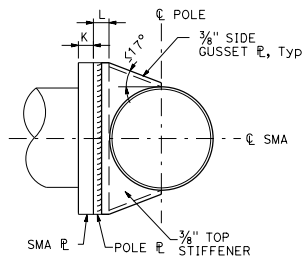
TYPE 16-1-100, 18-1-100

ELEVATION A

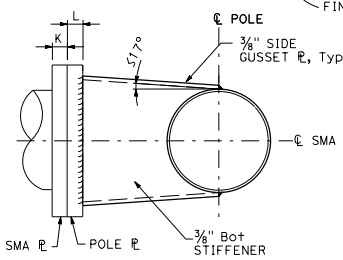


TYPE 19-1-100, 19A-1-100

ELEVATION B



SECTION B-B



SECTION C-C

SIGNAL MAST ARM DATA

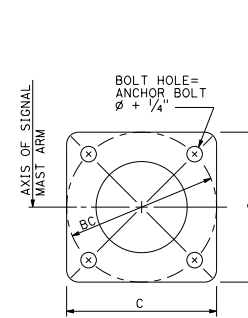
E PROJECTED LENGTH	G MOUNTING HEIGHT	H	Min OD AT POLE	THICKNESS	I BOLT CIRCLE	HS CAP SCREWS	J PLATE SIZE	K MAST ARM P THICKNESS	L POLE P THICKNESS	θ
15'-0"	21'-8"±	17'-6"	7 3/8"	0.1793"	12"	1 1/4"-7NC-3"	1'-1"	1 1/4"	1 1/2"	23°
20'-0"	21'-8"±	17'-6"	8"							
25'-0"	22'-8"±	16'-0"	9"							
30'-0"	23'-0"±	16'-0"	10"							

LUMINAIRE MAST ARM DATA

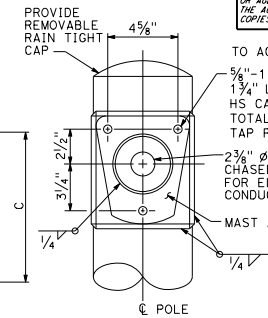
M PROJECTED LENGTH	N RISE	Min OD AT POLE	THICKNESS	P MOUNTING HEIGHT
6'-0"	2'-0"±	3 1/4"	0.1196"	30'-0" POLE
8'-0"	2'-6"±	3 1/2"		31'-6"±
10'-0"	3'-3"±	3 3/8"		32'-0"±
12'-0"	4'-3"±	3 7/8"		32'-9"±
15'-0"	4'-9"±	4 1/4"		33'-9"±
				34'-3"±

NOTES:

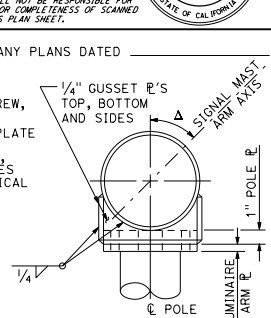
- Handhole shall be located on the downstream side of traffic.
- Δ = Luminaire mast arm skew -90° or +90° default 0°



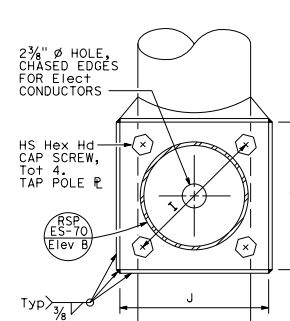
DETAIL D
BASE PLATE



DETAIL W-1
LUMINAIRE MAST ARM CONNECTION

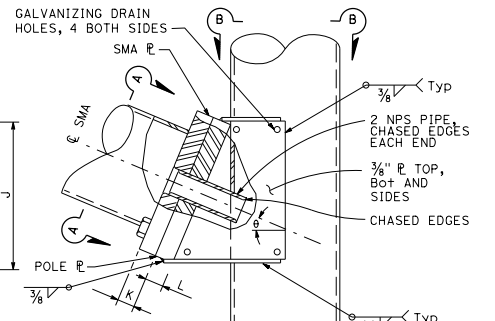


DETAIL W-2
LUMINAIRE MAST ARM CONNECTION



SECTION A-A

SIGNAL MAST ARM CONNECTION



ELEVATION

DETAIL A

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

ELECTRICAL SYSTEMS (SIGNAL AND LIGHTING STANDARD, CASE 1 SIGNAL MAST ARM LOADING, WIND VELOCITY = 100 MPH AND SIGNAL MAST ARM LENGTHS 15' TO 30')

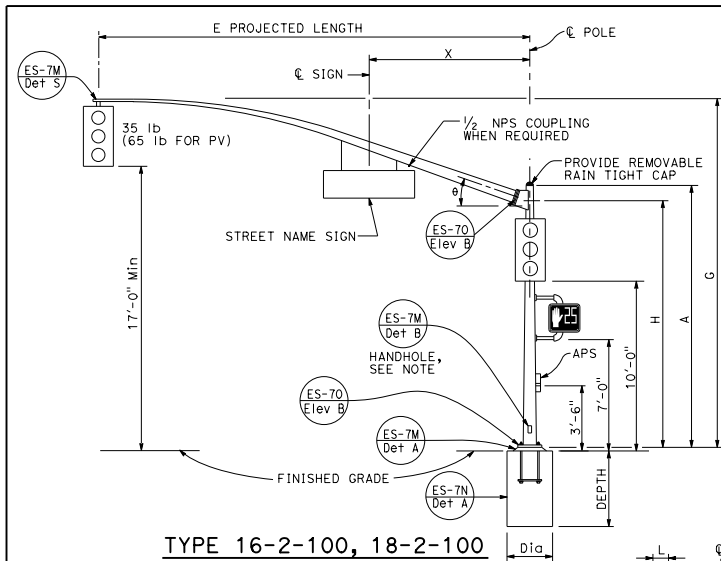
NO SCALE

RSP ES-7C DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN ES-7C DATED MAY 31, 2018 - PAGE 517 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP ES-7C

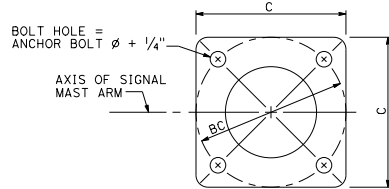
INDICATES MAST ARM LENGTH TO BE USED UNLESS OTHERWISE NOTED ON PLANS.

POLE TYPE	LOAD CASE	WIND VELOCITY (mph)	POLE DATA							BASE PLATE DATA				LUMINAIRE MAST ARM	SIGNAL MAST ARM	CIDH PILE FOUNDATION	
			A HEIGHT	Min OD		THICKNESS	ALTERNATIVE SECTION B LENGTH			C	BC BOLT CIRCLE	THICKNESS	ANCHOR BOLT SIZE			Dia	DEPTH
				BASE	TOP		BOTTOM	TOP	9"								
16-1-100	1	100	18'-6"	12"	9 3/8"	None			1'-6"	1'-4"	2"	1 3/4"Ø x 42"	NONE	15'-0", [20'-0"]	3'-0"	9'-0"	
18-1-100			17'-0"	12"	9 3/8"	None			1'-6"	1'-4"	2"	NONE					
19-1-100			30'-0"	14"	9 3/4"	10'-0"	9 3/4"	1'-10"	1'-8"	2 1/2"	2"Ø x 42"	6'-15", [12'-0"]	25'-0", [30'-0"]	3'-6"	10'-0"		
19A-1-100			35'-0"	14"	9"	15'-0"	11 1/8" 9"	1'-10"	1'-8"	2 1/2"		6'-15", [15'-0"]					

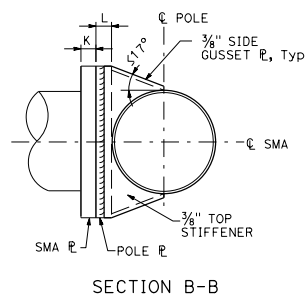


TYPE 16-2-100, 18-2-100

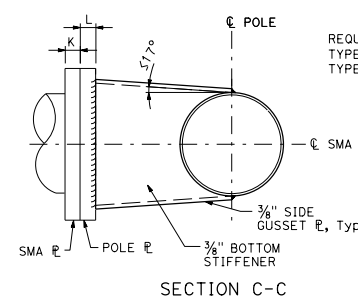
ELEVATION A



BASE PLATE
DETAIL B



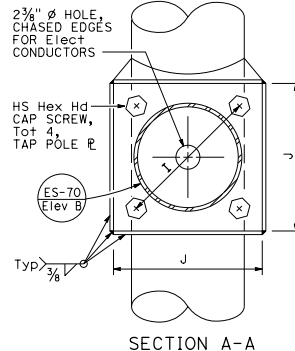
SECTION B-B



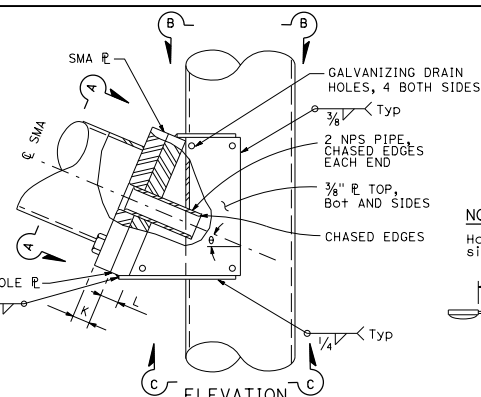
SECTION C-C

SIGNAL MAST ARM CONNECTION

DETAIL A



SECTION A-A



REQUIRED FOR
TYPE 17-2-100
TYPE 17A-2-100

TYPE 17-2-100, 17A-2-100,
19-2-100, 19A-2-100

ELEVATION B

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS
(SIGNAL AND LIGHTING STANDARD,
WIND VELOCITY=100 MPH AND SIGNAL
MAST ARM LENGTHS 15' TO 30')**
NO SCALE

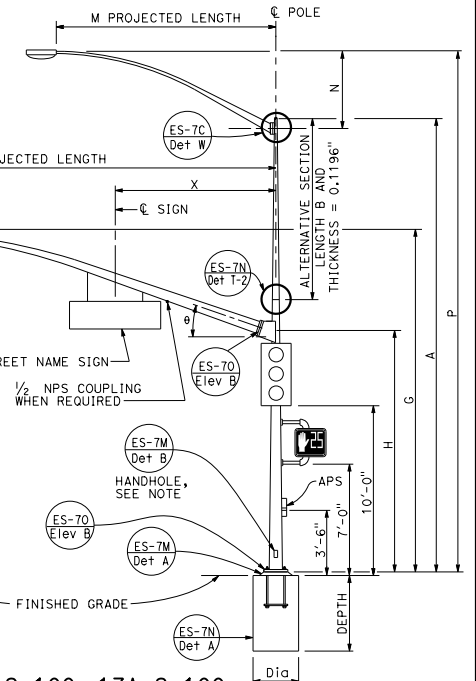
RSP ES-7D DATED APRIL 17, 2020 SUPERSEDES STANDARD PLAN ES-7D.
DATED MAY 31, 2018 - PAGE 518 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP ES-7D

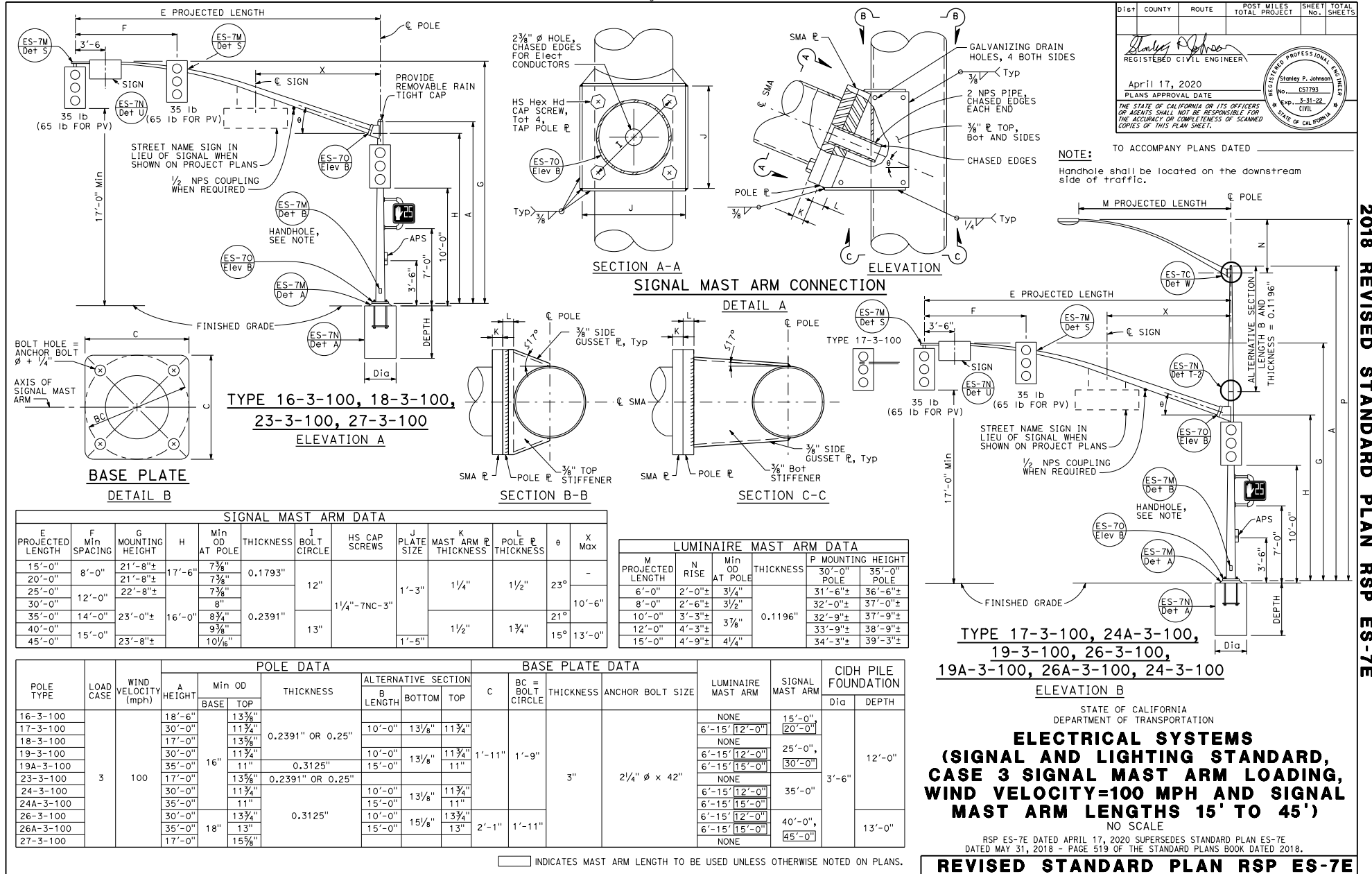
INDICATES MAST ARM LENGTH TO BE USED UNLESS OTHERWISE NOTED ON PLANS.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL NO. SHEETS
<p>Stanley P. Johnson REGISTERED CIVIL ENGINEER No. C67793 EXP. 3-31-22 CIVIL STATE OF CALIFORNIA</p>				
<p>April 17, 2020 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.</p>				

NOTE: TO ACCOMPANY PLANS DATED
Handhole shall be located on the downstream
side of traffic.

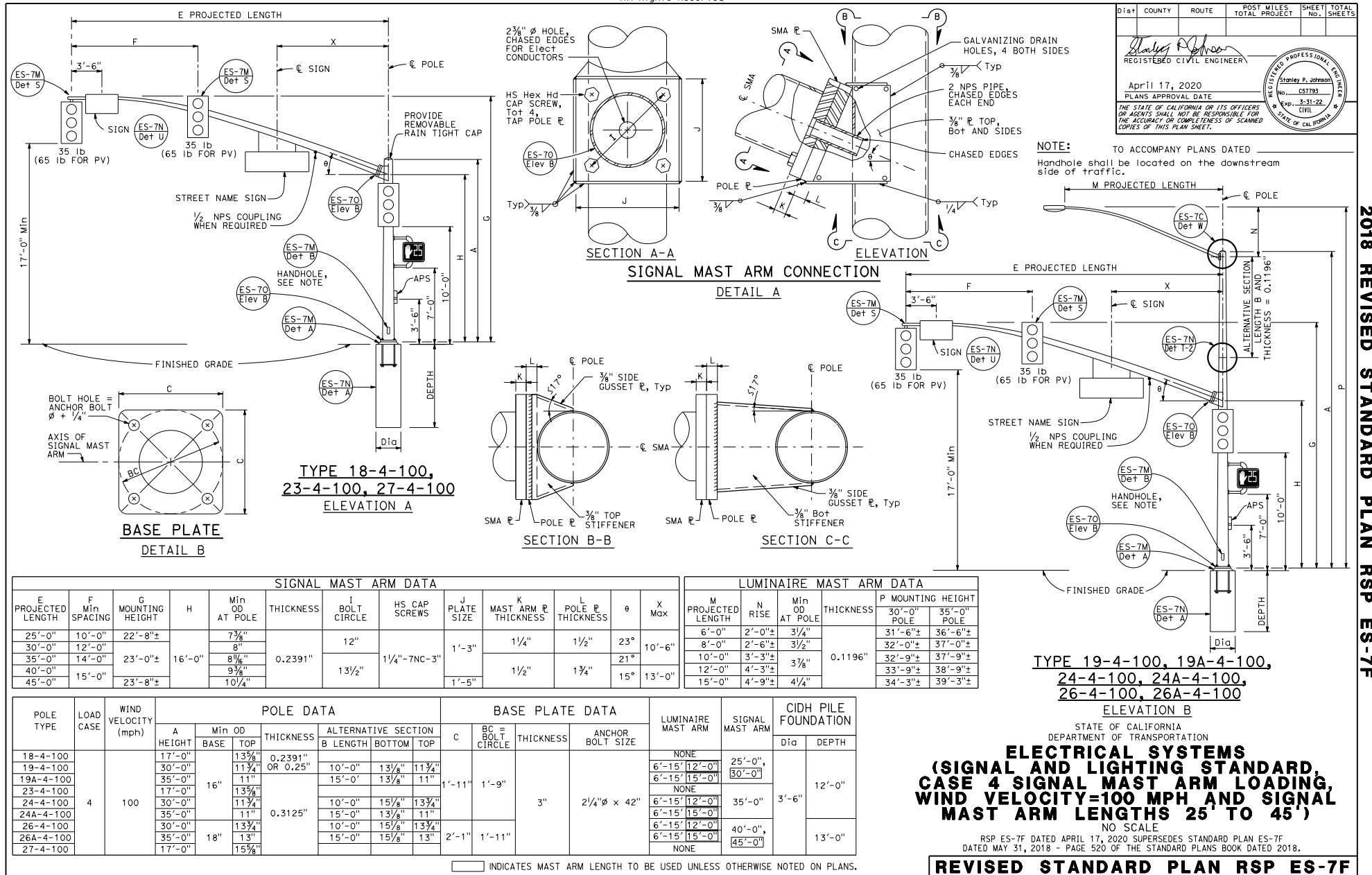


2018 REVISED STANDARD PLAN RSP ES-7D



REVISED STANDARD PLAN RSP ES-7E

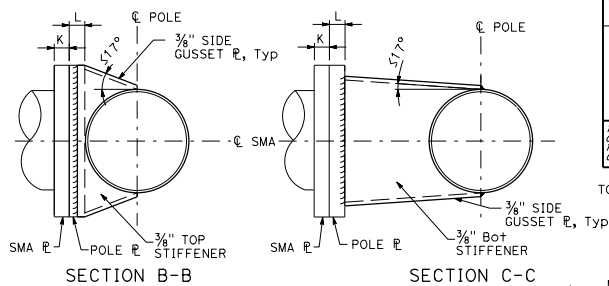
2018 REVISED STANDARD PLAN RSP ES-7E



INDICATES MAST ARM LENGTH TO BE USED UNLESS OTHERWISE NOTED ON PLANS.

REVISED STANDARD PLAN RSP ES-7F

2018 REVISED STANDARD PLAN RSP ES-7F



TO ACCOMPANY PLANS DATED _____

Type NOTE:
Handhole shall be located on the downstream side of traffic.

SECTION B-B

SECTION C-C

SECTION B-B

SECTION C-C

LUMINAIRE MAST ARM DATA

M PROJECTED LENGTH	N RISE	Min OD AT POLE	THICKNESS	P MOUNTING HEIGHT	
				30'-0" POLE	35'-0" POLE
6'-0"	2'-0"±	3/4"	0.1196"	31'-6"±	36'-6"±
8'-0"	2'-6"±	3/2"		32'-0"±	37'-0"±
10'-0"	3'-3"±	3 7/8"		32'-9"±	37'-9"±
12'-0"	4'-3"±	3 7/8"		33'-9"±	38'-9"±
15'-0"	4'-9"±	4 1/4"		34'-3"±	39'-3"±

TYPE 29-5-100, 29A-5-100

SECTION B-B Details:

- M PROJECTED LENGTH
- N RISE
- E PROJECTED LENGTH
- F
- 12'-0" Min
- 3'-6"
- 35 lb (65 lb FOR PV)
- SIGN
- ES-7M Det U
- 35 lb (65 lb FOR PV)
- ES-7M Det S
- 35 lb (65 lb FOR PV)
- ES-7M Det S
- 17'-0" Min
- FG

SECTION C-C Details:

- M PROJECTED LENGTH
- CL POLE
- N
- ES-7C Det W
- ALTERNATIVE SECTION LENGTH B AND THICKNESS = 0.1793"
- 7'-6" TO 9'-6"
- 1/2 NPS COUPLING WHEN REQUIRED
- CL SIGN
- X
- θ
- 0 SECTION Min
- STREET NAME SIGN
- ES-7M Det T-2
- ES-7C Elev B
- HANDHOLE, SEE NOTE
- ES-7M Det B
- ES-7C Elev B
- ES-7M Det A
- FG
- ES-7M Det A
- APPS
- 10'-0"
- 7'-0"
- 3'-6"
- DEPTH
- Dia

POLE TYPE	LOAD CASE	WIND VELOCITY (mph)	POLE DATA						BASE PLATE DATA				LUMINAIRE MAST ARM	SIGNAL MAST ARM	CIDH PILE FOUNDATION		
			A HEIGHT	Min OD		THICKNESS	ALTERNATIVE SECTION			C	BC = BOLT CIRCLE	THICKNESS			ANCHOR BOLT SIZE	Dia	DEPTH
				BASE	TOP		B LENGTH	BOTTOM	TOP								
28-5-100	5	100	17'-0"	22"	0.375"	19 1/8"	17 1/2"	2'-6"	2'-4"	3"	2 1/4"Ø x 42"	NONE	50'-0" [55'-0"]	4'-0"	14'-0"		
29-5-100			30'-0"	17 1/2"		10'-0"	17 1/2"										
29A-5-100			35'-0"	17"		15'-0"	17"										

TYPE 29-5-100, 29A-5-100

ELEVATION B

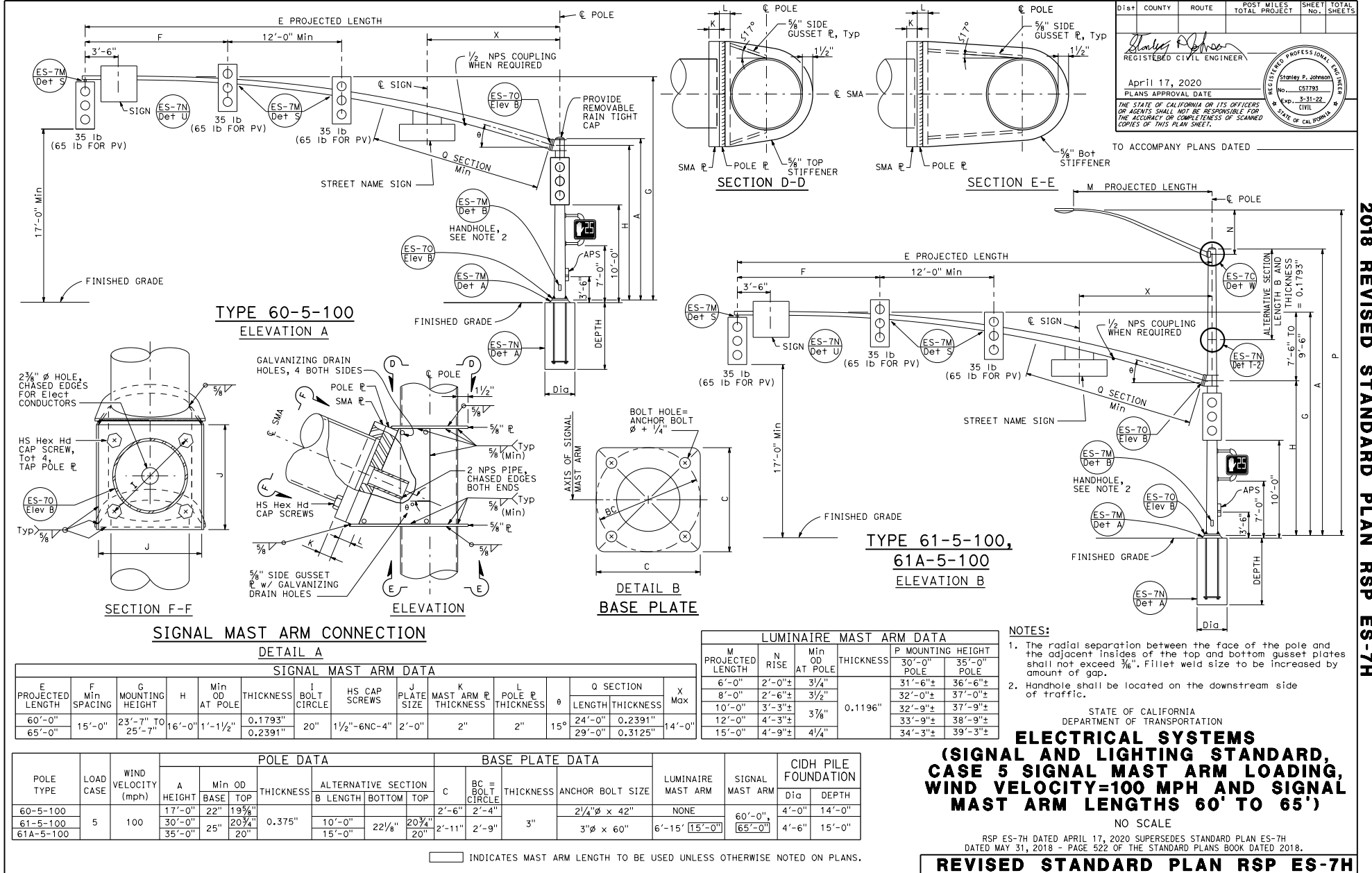
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS
(SIGNAL AND LIGHTING STANDARD,
CASE 5 SIGNAL MAST ARM LOADING,
WIND VELOCITY=100 MPH AND SIGNAL
MAST ARM LENGTHS 50' TO 55')**

NO SCALE

RSP ES-7G DATED APRIL 17, 2020 SUPERSEDES STANDARD PLAN ES-7G
DATED MAY 31, 1988 - PAGE 521 OF THE STANDARD PLANS BOOK DATED 1988.

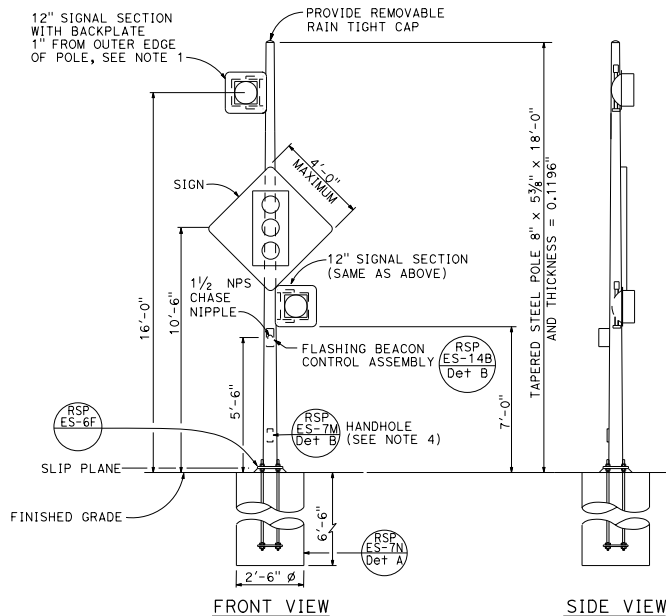
REVISED STANDARD PLAN RSP ES-7G



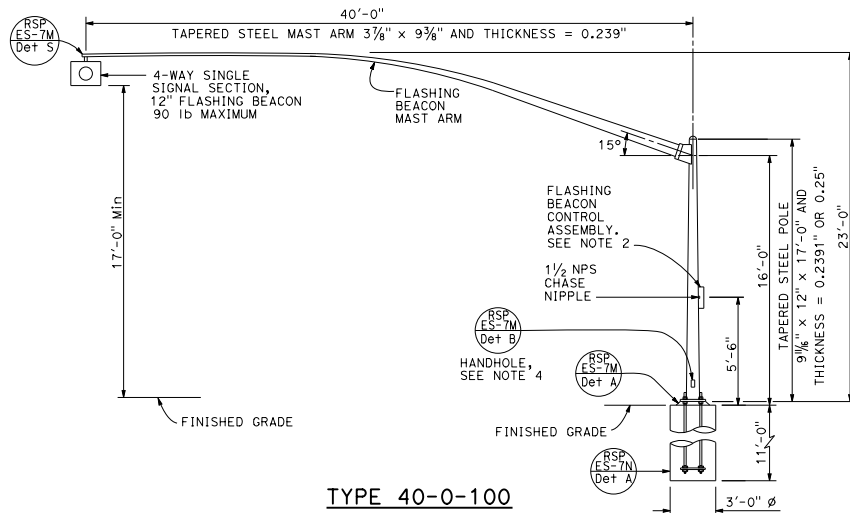
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

October 15, 2021
PLANS APPROVAL DATE: _____
No. C67793
Stanley P. Johnson
REGISTERED CIVIL ENGINEER
EXP. 3-31-22
CIVIL
STATE OF CALIFORNIA

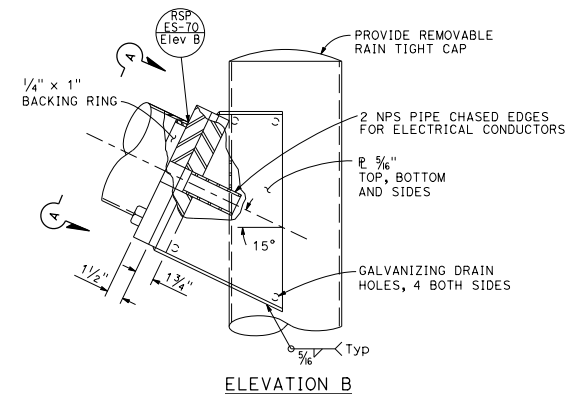
TO ACCOMPANY PLANS DATED _____



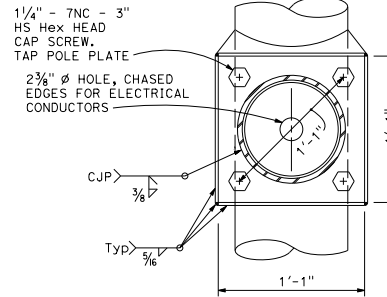
TYPE 15-FBS
FLASHING BEACON WITH SLIP BASE INSTALLATION
DETAIL A



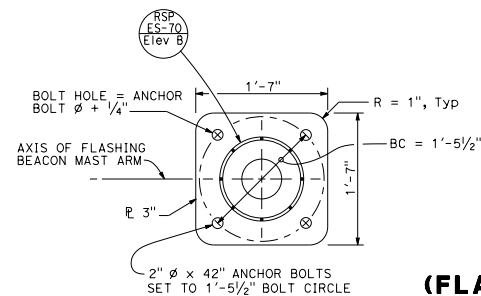
TYPE 40-0-100
ELEVATION A



ELEVATION B



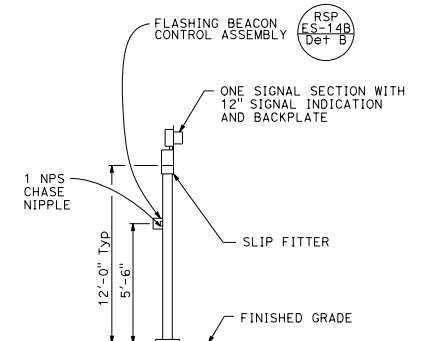
VIEW A-A
FLASHING BEACON MAST ARM
CONNECTION DETAIL
DETAIL B



BASE PLATE
DETAIL C

NOTE:

1. See Revised Standard Plans RSP ES-4A and RSP ES-4D for attachment fitting details.



TYPE 1
FLASHING BEACON INSTALLATION
DETAIL D

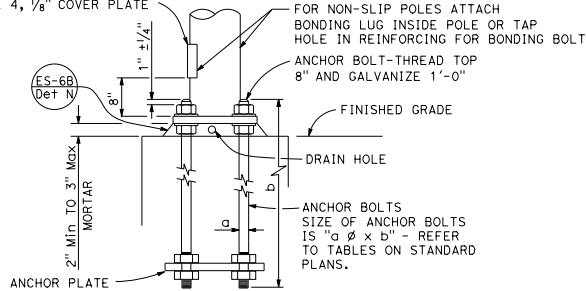
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
ELECTRICAL SYSTEMS
(FLASHING BEACON ON A TYPE 1,
TYPE 15-FBS, AND TYPE 40 STANDARD)
NO SCALE

RSP ES-7J DATED OCTOBER 15, 2021 SUPERSEDES RSP ES-7J DATED OCTOBER 19, 2018 AND
STANDARD PLAN ES-7J DATED MAY 31, 2018 - PAGE 523 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP ES-7J

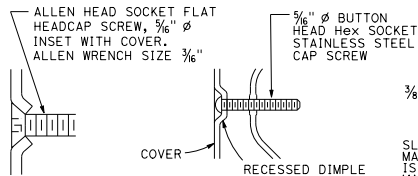
2018 REVISED STANDARD PLAN RSP ES-7J

4" x 6 1/2" ROUNDED RECTANGLE HANDHOLE REINFORCED
WITH RING WELDED TO OUTSIDE OF POLE.
SEE NOTE 4, 1/8" COVER PLATE



HANDHOLE AND ANCHORAGE

DETAIL A



TYPICAL DETAIL

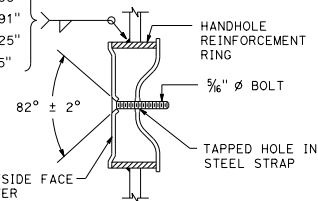
DETAIL B-1

ALTERNATIVE DETAIL

DETAIL B-2

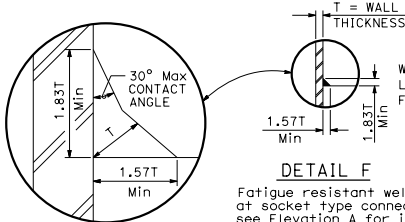
WELD SIZE THICKNESS

3/16"	0.1196"
1/4"	0.1793"
5/16"	0.2391"
3/8"	0.3125"
7/16"	0.375"



TAMPER RESISTANT HANDHOLE COVER

DETAIL B



DETAIL F

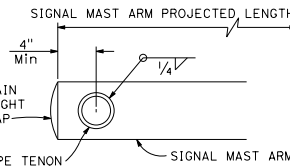
Fatigue resistant weld at socket type connection see Elevation A for inner weld

IDENTIFICATION NUMBER

1. Attach a stamped metal tag with pole's identification number above the handhole. 1/4" high number, minimum.
2. Attach a stamped metal tag with mast arm's identification number to the bottom of the signal mast arm near the pole plate. 1/4" high number, minimum.

Type Load case (Use SL for special load case) Design wind velocity (mph) Signal mast arm length (ft) Standard plan year Only for poles or mast arms using Detail F Only for poles or mast arms using RSP ES-70

SAMPLE IDENTIFICATION NUMBER



SECTION A-A

PIPE TENONS

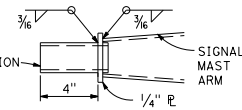
DETAIL S

WELD SIZE	WALL THICKNESS
1/8"	0.1196"
3/16"	0.1793"
1/4"	0.2391"

2 NPS PIPE, CHASED FOR WIRE PROTECTION SEE NOTE 2

TIP TENON

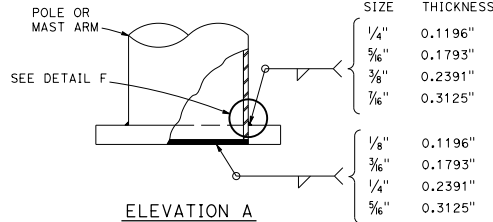
DETAIL TS



TIP TENON

DETAIL TL

This detail supersedes Detail S when so designated



NOTES:

1. Provide a Hex nut, leveling nut and 2 washers for each bolt.
2. Luminaire mast arms shall be round, tapered steel tubes, taper of 0.1375" to 0.143-inch per foot with an end section 2 3/8" OD for mounting hardware. Extensions of 2 NPS Standard pipe and 7' long may be used at the option of the manufacturer. When low pressure sodium luminaires are required, the extension shall be 1'-3".
3. Signal mast arms shall be round, tapered steel tubes, maximum taper 0.143-inch per foot.
4. Handhole reinforcement ring shall be 1/4" x 2" for 0.1196" to 0.2391" thick poles, 3/8" x 2" for 0.3125" to 0.375" thick poles.
5. Handholes shall be located on the downstream side of traffic.
6. Detail F, fatigue resistant weld, is required at socket welded signal mast arm plate and pole base plate.
7. Cap screws shall be tightened by the turn-of-nut method 1/3 turn from a snug tight condition. No washer will be required.
8. Outside diameter, wall thickness, and corresponding section properties of poles and mast arms as shown in the Standard Plans are minimums. Unless otherwise specified, alternative sections shall require approval by the Engineer.
9. Design: AASHTO Standard Specifications for Structural Support for Highway Signs, Luminaires, and Traffic Signals, 6th Edition. Basic Wind Speed = 100 mph (3 seconds gust). Yearly Mean Wind Velocity = 15.6 mph.
10. Materials (Structural steel):
fy = 55,000 psi (tapered steel tube and anchor bolts)
fy = 50,000 psi (unless otherwise noted)
11. Materials (Reinforced concrete):
f'c = 3,625 psi
fy = 60,000 psi

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

ELECTRICAL SYSTEMS (SIGNAL AND LIGHTING STANDARD, DETAIL No. 1)

NO SCALE

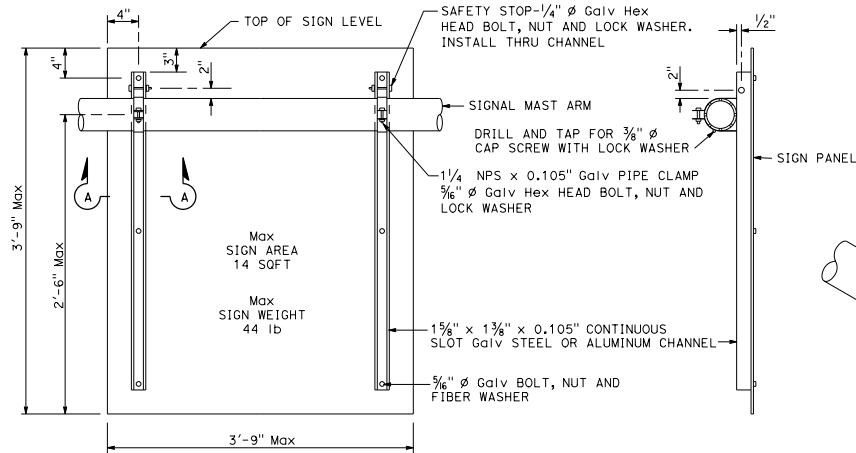
RSP ES-7M DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN ES-7M
DATED MAY 31, 2018 - PAGE 526 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP ES-7M

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
October 19, 2018					
PLANS APPROVAL DATE					
No. C57795					
EXP. 3-31-20					
CIVIL					
STATE OF CALIFORNIA					

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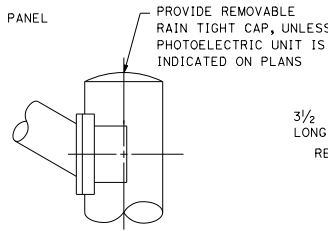
TO ACCOMPANY PLANS DATED _____



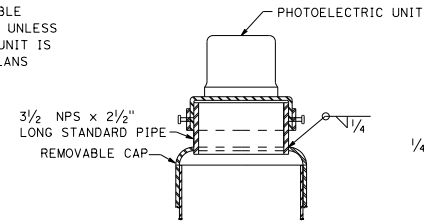
REAR VIEW

SIDE VIEW

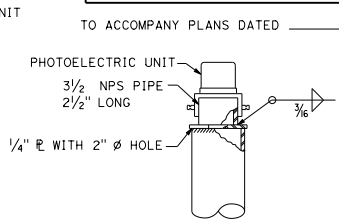
SIGN MOUNTING DETAILS
DETAIL U



STANDARD TOP
DETAIL B-1

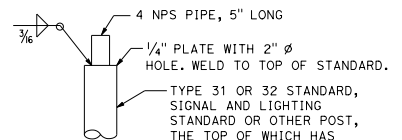


MOUNTING ADAPTER FOR
PHOTOELECTRIC UNIT
DETAIL B-2

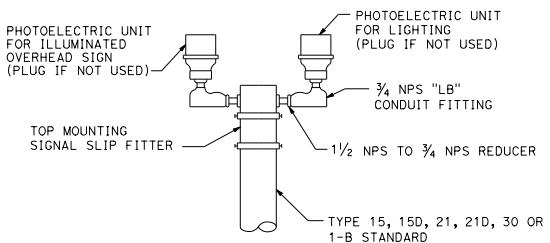


ALTERNATIVE
MOUNTING ADAPTER
DETAIL B-3

POLE TOP DETAILS
DETAIL B



DETAIL C-1



DETAIL C-2

DUAL PHOTOELECTRIC UNIT MOUNTING DETAIL

DETAIL C

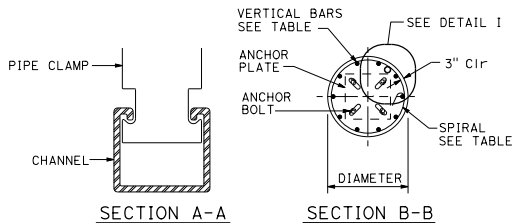
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

ELECTRICAL SYSTEMS
(SIGNAL AND LIGHTING STANDARD,
DETAIL No. 2)

NO SCALE

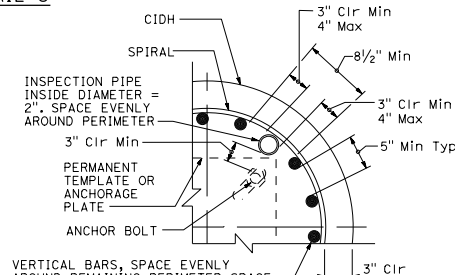
RSP ES-7N DATED APRIL 16, 2021 SUPERSEDES STANDARD PLAN ES-7N
DATED MAY 31, 2018 - PAGE 527 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP ES-7N



SECTION A-A

SECTION B-B

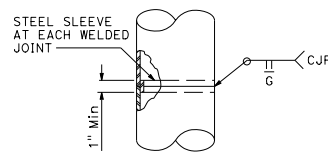


INSPECTION PIPE PLACEMENT

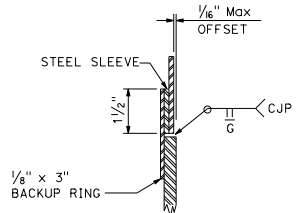
DETAIL I

CIDH REINFORCING AND INSPECTION PIPE SCHEDULE			
CIDH DIAMETER	VERTICAL BARS	SPIRAL	INSPECTION PIPE
2 ft	8-#5		2
2.5 ft	10-#6	#4 AT 6	4 *
3 ft	12-#7		4
3.5 ft	14-#8	#5 AT 6	4
4 ft	18-#9	2-#4 AT 7	5
4.5 ft	18-#9	2-#5 AT 7	5
5 ft	22-#10	2-#5 AT 7	6
6 ft	26-#11	2-#6 AT 7	7

* FOR SLIP BASE VERSIONS WITH 3 ANCHOR BOLTS USE 3 INSPECTION PIPES.



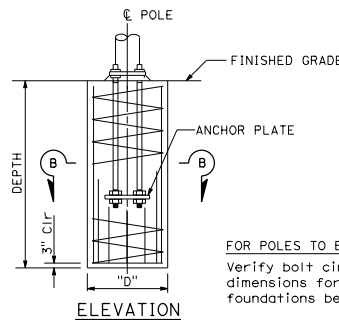
FOR UNIFORM PIPE THICKNESS
DETAIL T-1



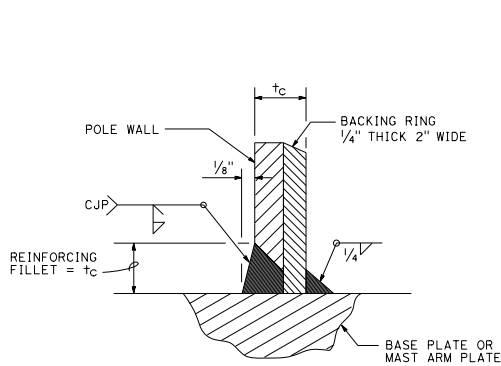
AT PIPE THICKNESS CHANGE
DETAIL T-2

POLE SPLICES
DETAIL T

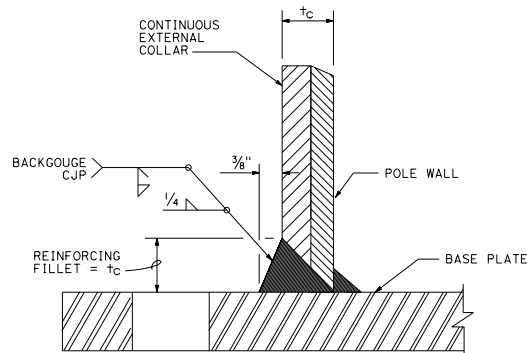
CAST-IN-DRILLED-HOLE PILE FOUNDATION,
REINFORCED PILE
DETAIL A



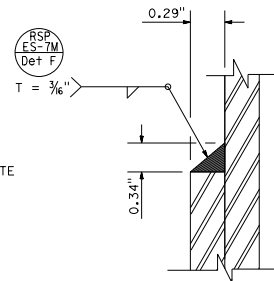
FOR POLES TO BE INSTALLED ON EXISTING FOUNDATION:
Verify bolt circles, anchor bolt sizes and dependent dimensions for poles to be installed on existing foundations before fabricating the poles.



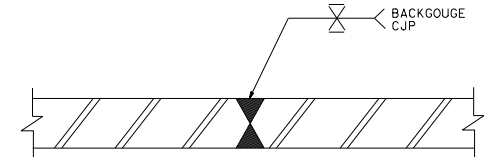
DETAIL B



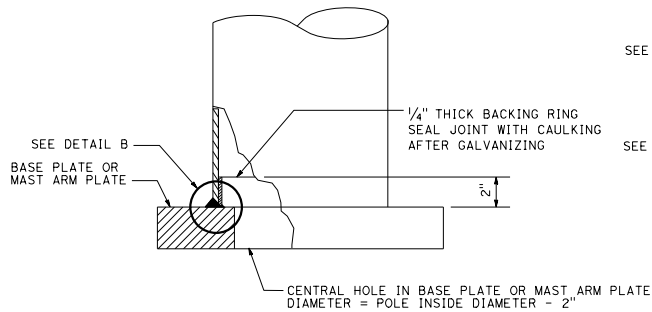
DETAIL C1



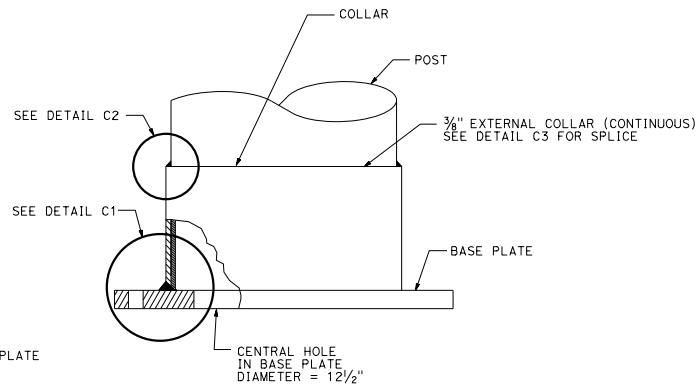
DETAIL C2



DETAIL C3

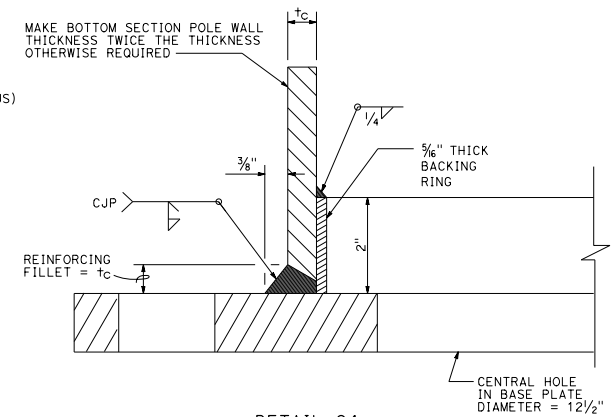


ELEVATION B



ELEVATION C

For alternative base, see Detail C4



DETAIL C4

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS
(SIGNAL AND LIGHTING STANDARD,
DETAIL No. 3)**

NO SCALE

RSP ES-70 DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN ES-70
DATED MAY 31, 2018 - PAGE 528 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP ES-70

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

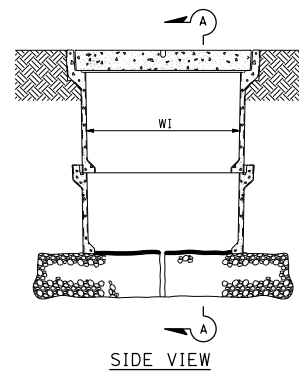
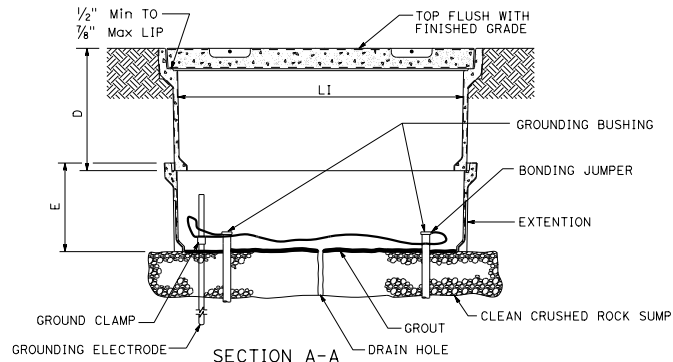
October 19, 2018
PLANS APPROVAL DATE

Stanley P. Johnson
REGISTERED CIVIL ENGINEER
No. C57795
Exp. 3-31-20
CIVIL
STATE OF CALIFORNIA

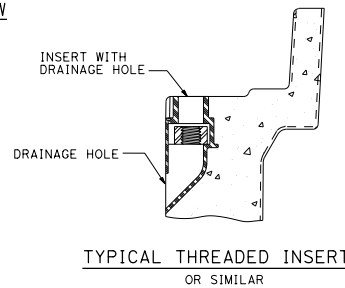
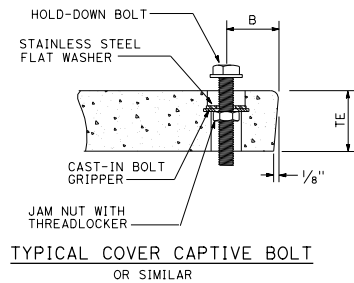
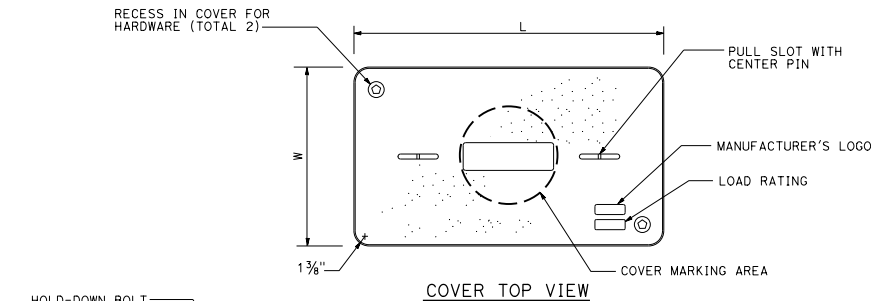
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COPIES OF THIS PLAN SHEET.

TO ACCOMPANY PLANS DATED _____

2018 REVISED STANDARD PLAN RSP ES-70



**INSTALLATION DETAILS
DETAIL A**



NOMINAL DIMENSIONS TABLE

PULL BOX TYPE	PULL BOX					COVER				
	MINIMUM DEPTH BOX (D)	MINIMUM DEPTH EXTENSION (E)	MAXIMUM WEIGHT	LI Min	WI Min	TE	B	L	W	MAXIMUM WEIGHT
No. 3 1/2	12"	N/A	40 lb	1' - 2 3/8"	9"	1 5/8" - 1 3/4"	1 3/4"	1' - 3 1/4" - 1' - 3 3/8"	10" - 10 1/8"	30 lb
No. 5	12"	10"	65 lb	1' - 8"	11"	2"	1 3/4"	1' - 11 1/4"	1' - 1 3/4"	60 lb
No. 6	12"	10"	70 lb	2' - 4 1/4"	1' - 3 1/4"	2"	2"	2' - 6 1/2"	1' - 5 1/2"	95 lb

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL SHEETS

REGISTERED ELECTRICAL ENGINEER
October 18, 2019
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.

Hamid Zolfaghari
No. E15636
Exp. 12-31-19
ELECTRICAL
STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED _____

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**ELECTRICAL SYSTEMS
(NON-TRAFFIC PULL BOX)**

NO SCALE

RSP ES-8A DATED OCTOBER 18, 2019 SUPERSEDES STANDARD PLAN ES-8A
DATED MAY 31, 2018 - PAGE 532 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP ES-8A

2018 REVISED STANDARD PLAN RSP ES-8A

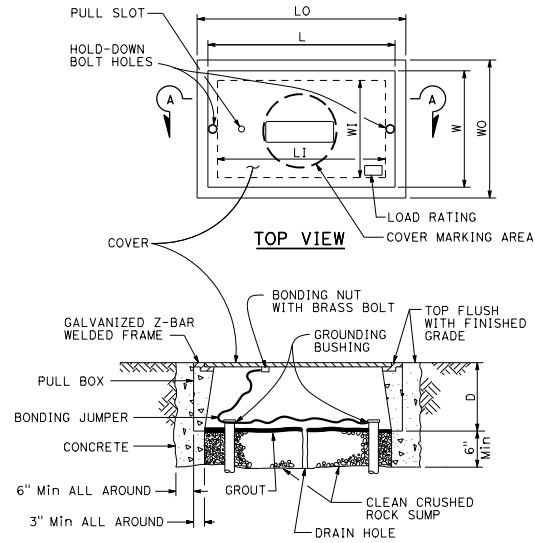
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED ELECTRICAL ENGINEER
October 18, 2019
PLANS APPROVAL DATE

Hamid Zolfaghari
No. E15636
EXP. 12-31-19
ELECTRICAL
STATE OF CALIFORNIA

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

TO ACCOMPANY PLANS DATED _____



SECTION A-A

No. 3½(T), No. 5(T), AND No. 6(T)
TRAFFIC PULL BOX

NOMINAL DIMENSIONS TABLE								
PULL BOX						COVER		
PULL BOX TYPE	MINIMUM THICKNESS	MINIMUM DEPTH D	LO	LI	WO	WI	L	W
No. 3½(T)	1½"	1'-0"	1'-10" - 1'-11"	1'-5" - 1'-6½"	1'-3" - 1'-4"	10" - 1'-0"	1'-8" - 1'-8½"	1'-1" - 1'-2"
No. 5(T)	1¾"	1'-0"	2'-5" - 2'-6"	2'-0" - 2'-1"	1'-6" - 1'-7"	1'-1" - 1'-2"	2'-3" - 2'-3½"	1'-4" - 1'-4½"
No. 6(T)	2"	1'-0"	2'-11" - 3'-1"	2'-6" - 2'-7"	1'-10" - 2'-0"	1'-5" - 1'-6"	2'-9" - 2'-9½"	1'-8" - 1'-8½"

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

RSP ES-8B DATED OCTOBER 18, 2019 SUPERSEDES STANDARD PLAN ES-8B
DATED MAY 31, 2018 - PAGE 533 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP ES-8B

2018 REVISED STANDARD PLAN RSP ES-8B

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

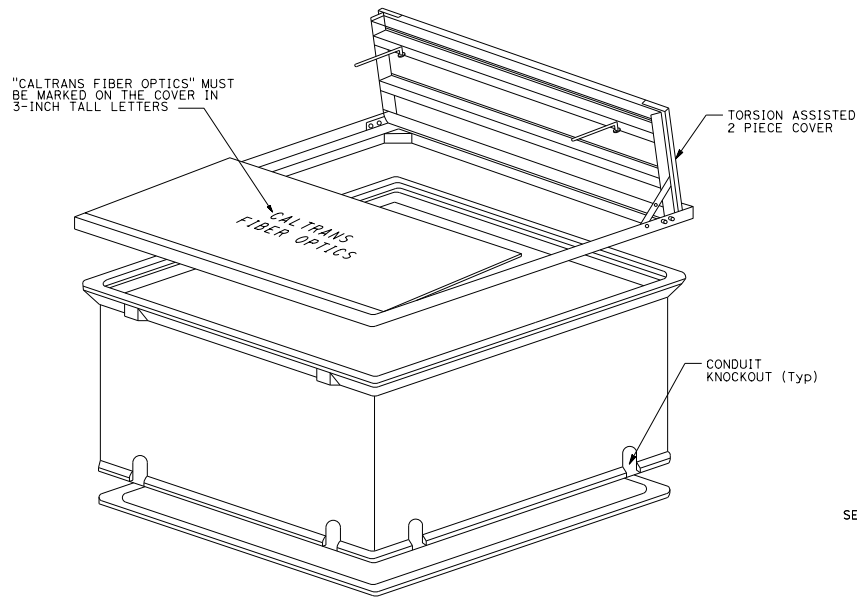
H.R.F.
REGISTERED ELECTRICAL ENGINEER

April 19, 2019
PLANS APPROVAL DATE

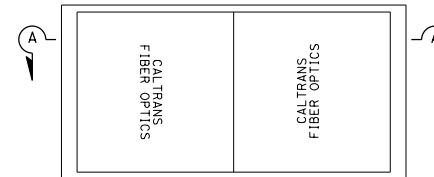
REGISTERED PROFESSIONAL ENGINEER
Hamid Zolfaghari
No. E15636
Exp. 12-31-19
ELECTRICAL
STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS
OR AGENTS SHALL NOT BE RESPONSIBLE FOR
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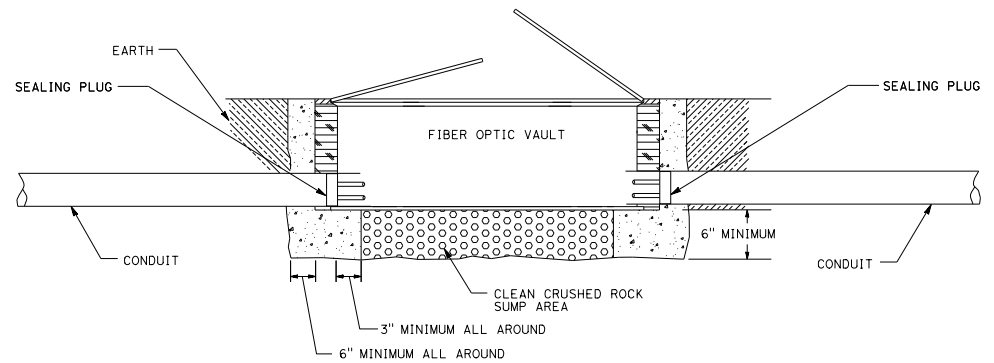
TO ACCOMPANY PLANS DATED _____



VAULT-ISOMETRIC VIEW



TOP VIEW



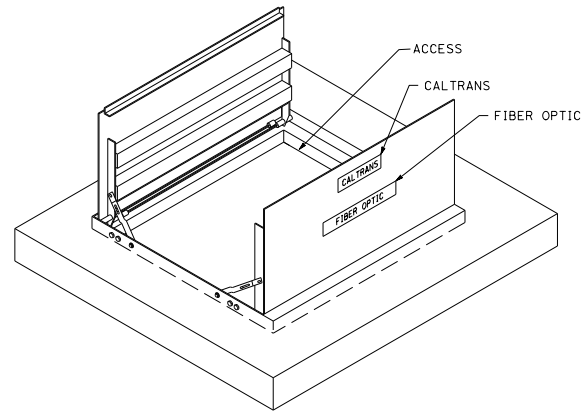
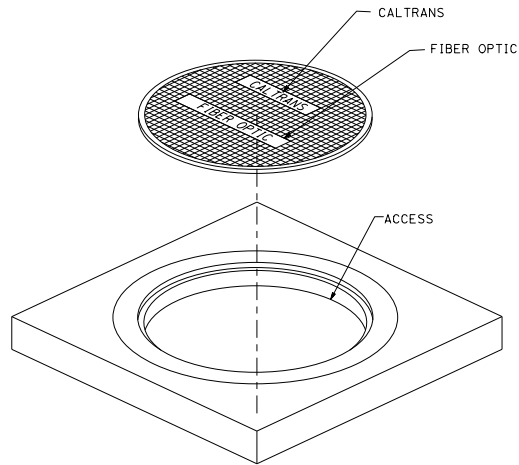
SECTION A-A

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

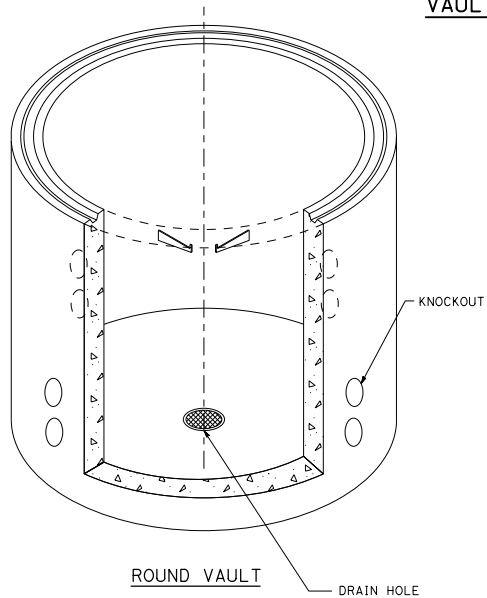
RSP ES-8C DATED APRIL 19, 2019 SUPERSEDES RSP ES-8C DATED OCTOBER 19, 2018 AND
STANDARD PLAN ES-8C DATED MAY 31, 2018 - PAGE 534 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP ES-8C

2018 REVISED STANDARD PLAN RSP ES-8C



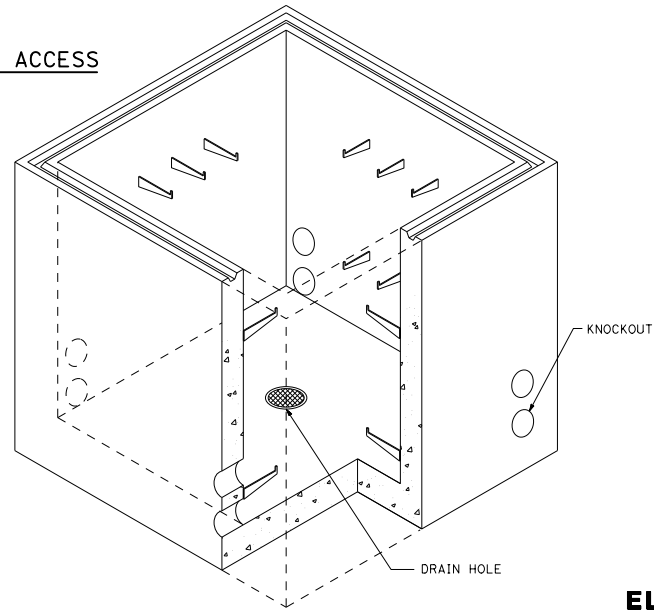
VAULT COVER AND ACCESS



ROUND VAULT

DRAIN HOLE

VAULT BODY



BOX VAULT

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED ELECTRICAL ENGINEER
 April 16, 2021
 PLANS APPROVAL DATE
 THE STATE OF CALIFORNIA OR ITS OFFICERS
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John L. Castro
 No. E17490
 EXP. 6-30-21
 ELECTRICAL
 STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED _____

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

RSP ES-8D DATED APRIL 16, 2021 SUPERSEDES REVISED STANDARD PLAN RSP ES-8D
 DATED OCTOBER 19, 2018 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.

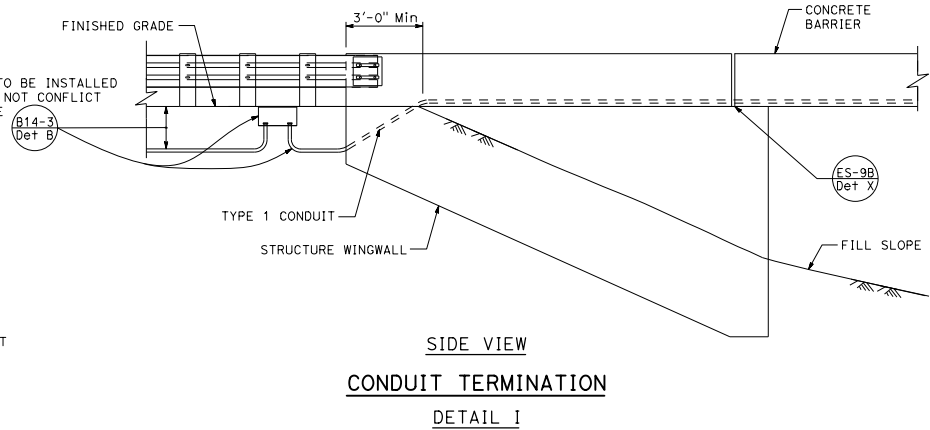
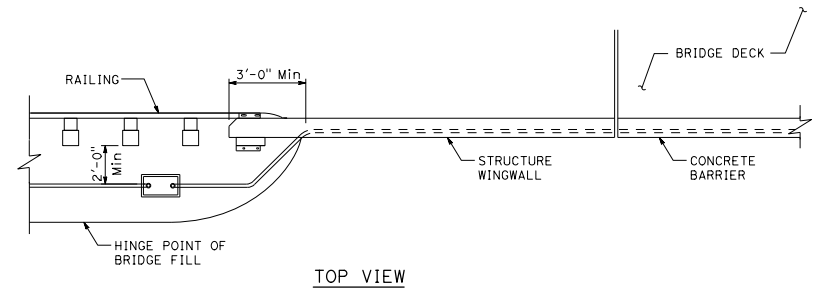
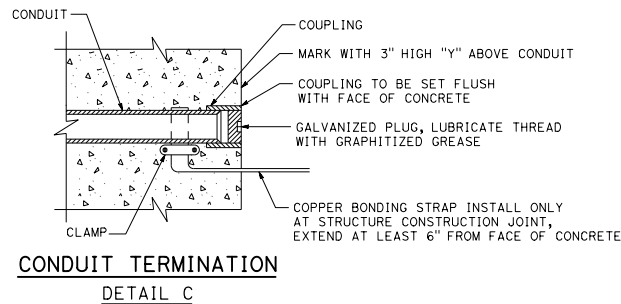
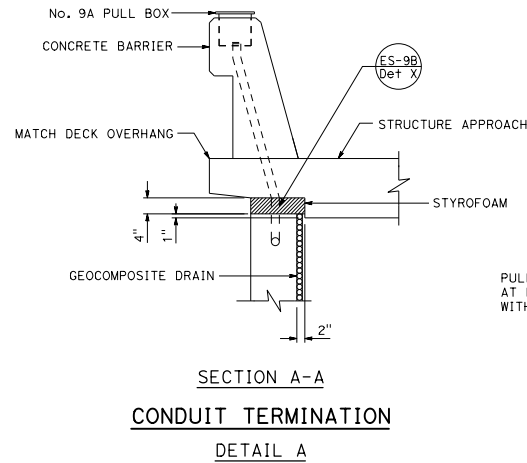
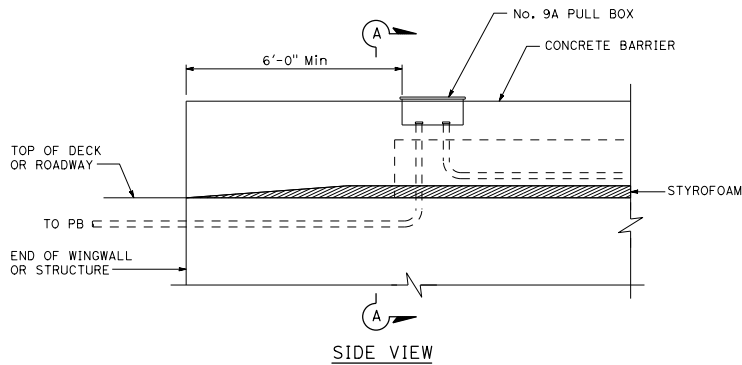
REVISED STANDARD PLAN RSP ES-8D

2018 REVISED STANDARD PLAN RSP ES-8D

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED ELECTRICAL ENGINEER
October 16, 2020
PLANS APPROVAL DATE
No. E17490
EXP. 6-30-21
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THE ACCURACY OR COMPLETENESS OF SCANNED
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TO ACCOMPANY PLANS DATED _____



STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
ELECTRICAL SYSTEMS
(STRUCTURE PULL BOX INSTALLATIONS)
NO SCALE
RSP ES-9A DATED OCTOBER 16, 2020 SUPERSEDES STANDARD PLAN ES-9A
DATED MAY 31, 2018 - PAGE 535 OF THE STANDARD PLANS BOOK DATED 2018.
REVISED STANDARD PLAN RSP ES-9A

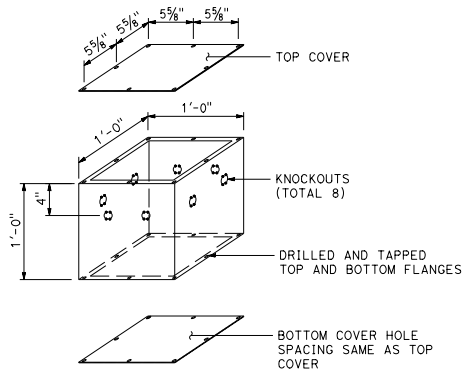
2018 REVISED STANDARD PLAN RSP ES-9A

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

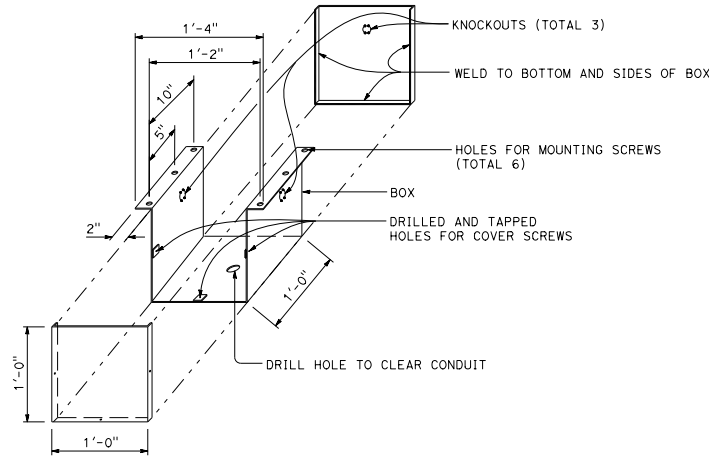
REGISTERED ELECTRICAL ENGINEER
October 16, 2020
PLANS APPROVAL DATE
THE STATE OF CALIFORNIA OR ITS OFFICERS
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THE ACCURACY OR COMPLETENESS OF SCANNED
COPIES OF THIS PLAN SHEET.

John L. Castro
No. E17490
EXP. 6-30-21
ELECTRICAL
STATE OF CALIFORNIA

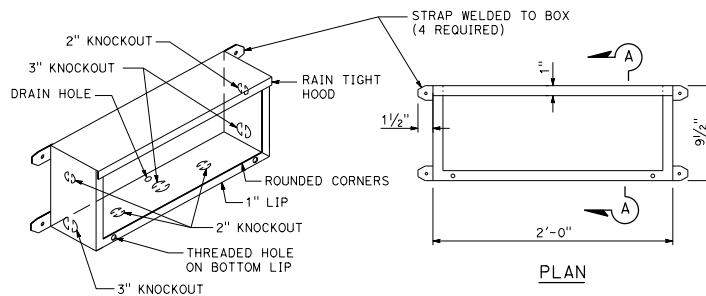
TO ACCOMPANY PLANS DATED _____



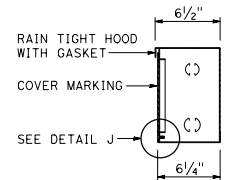
No. 7 PULL BOX



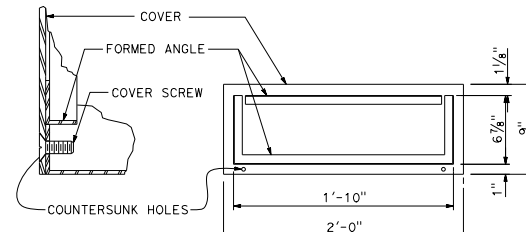
No. 8 PULL BOX



PLAN



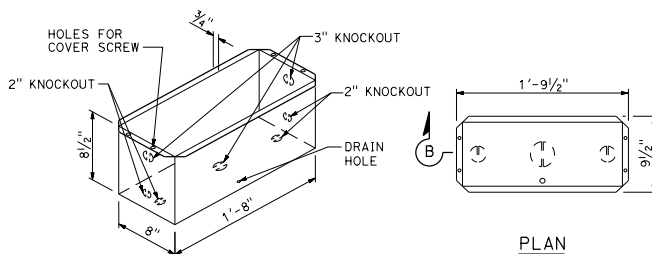
SECTION A-A



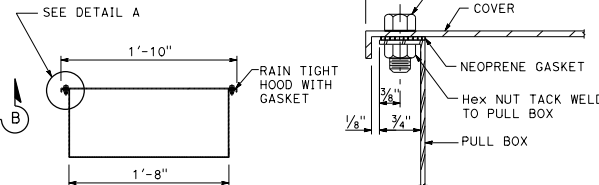
DETAIL J

COVER DETAIL

No. 9 PULL BOX

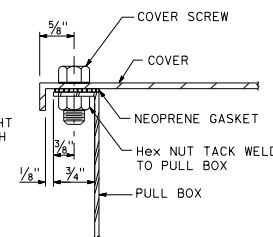


PLAN

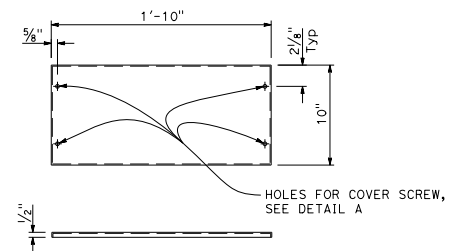


SECTION B-B

No. 9A PULL BOX



DETAIL A



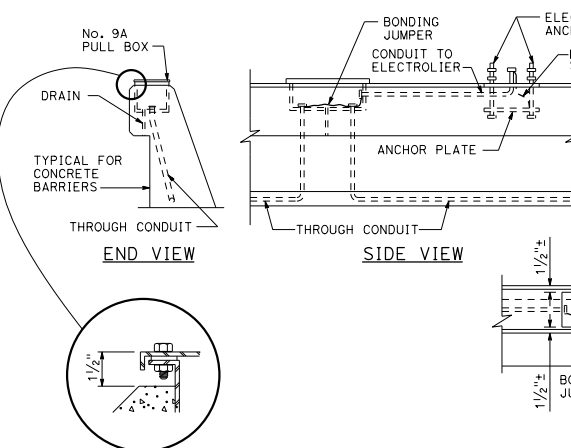
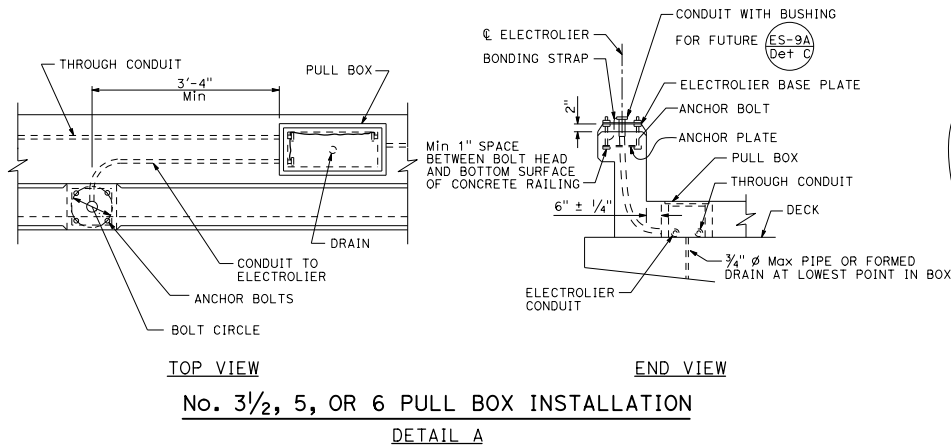
COVER DETAIL

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

RSP ES-9C DATED OCTOBER 16, 2020 SUPERSEDES RSP ES-9C DATED OCTOBER 18, 2019 AND
STANDARD PLAN ES-9C DATED MAY 31, 2018 - PAGE 537 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP ES-9C

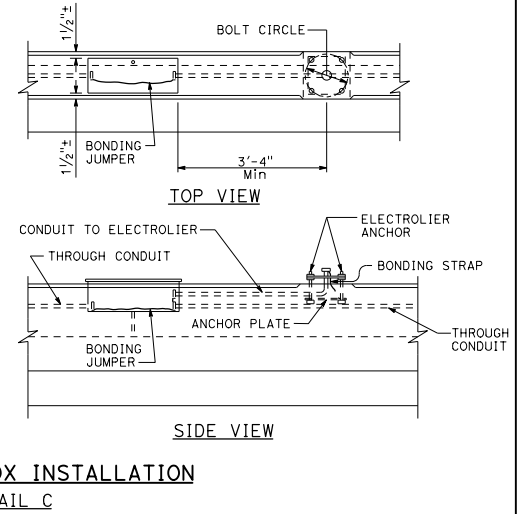
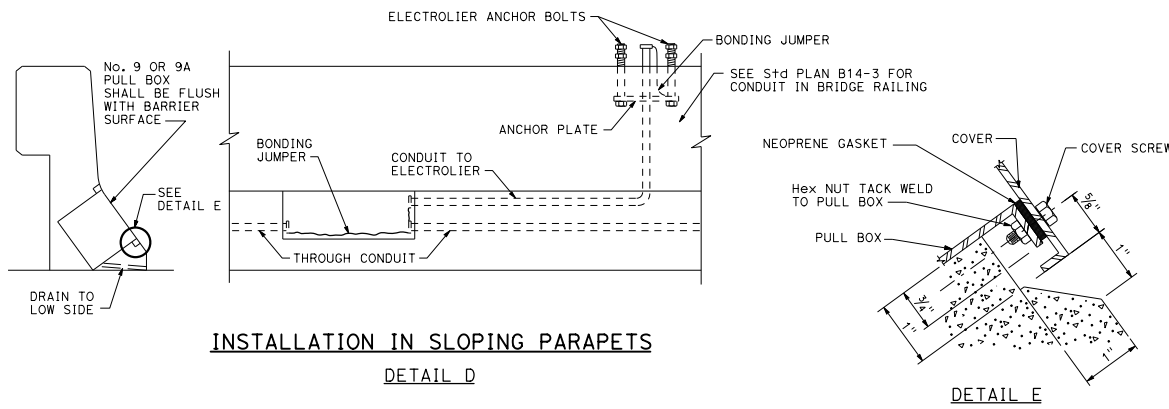
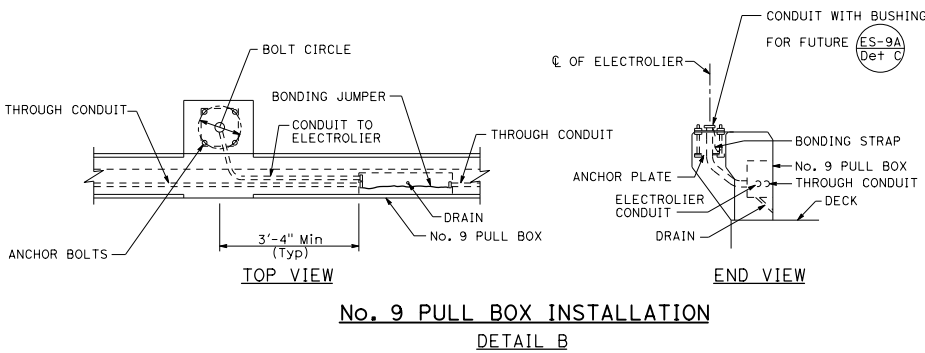
2018 REVISED STANDARD PLAN RSP ES-9C



DIST	COUNTY	ROUTE	POST MILES	SHEET	TOTAL SHEETS

REGISTERED ELECTRICAL ENGINEER
October 18, 2019
PLANS APPROVAL DATE
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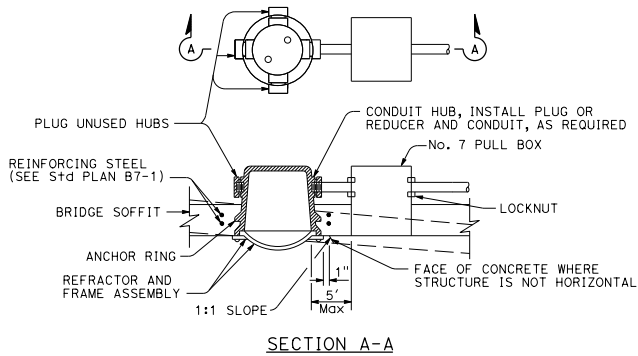
TO ACCOMPANY PLANS DATED _____



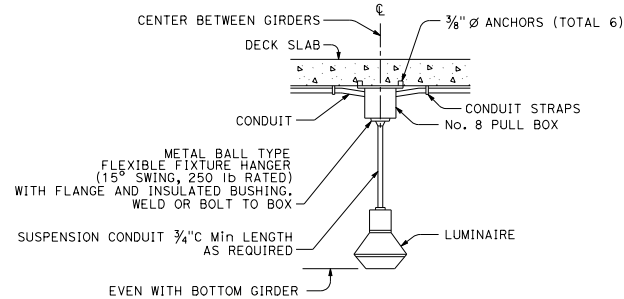
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**ELECTRICAL SYSTEMS
(STRUCTURE PULL BOX
INSTALLATIONS)**
NO SCALE

RSP ES-9D DATED OCTOBER 18, 2019 SUPERSEDES RSP ES-9D DATED OCTOBER 19, 2018 AND
STANDARD PLAN ES-9D DATED MAY 31, 2018 - PAGE 538 OF THE STANDARD PLANS BOOK DATED 2018.

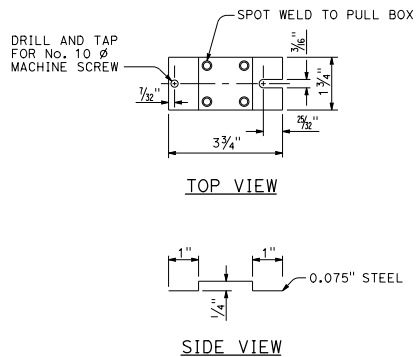
REVISED STANDARD PLAN RSP ES-9D



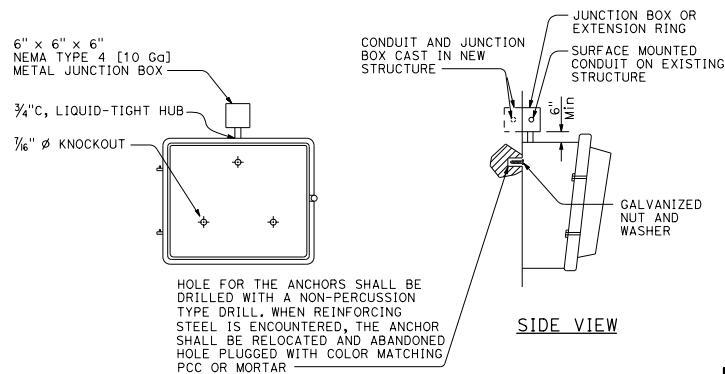
FLUSH-MOUNTED SOFFIT LUMINAIRE INSTALLATION
DETAIL F



PENDANT SOFFIT LUMINAIRE INSTALLATION
DETAIL P



TERMINAL BLOCK
MOUNTING BRACKET
DETAIL T



WALL-MOUNTED LUMINAIRE INSTALLATION
DETAIL W

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED ELECTRICAL ENGINEER
H.R.F.
April 19, 2019
PLANS APPROVAL DATE
Hamid Zolfaghari
No. E15636
EXP. 12-31-19
ELECTRICAL
STATE OF CALIFORNIA
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TO ACCOMPANY PLANS DATED _____

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
ELECTRICAL SYSTEMS
(FLUSH-MOUNTED SOFFIT,
PENDANT SOFFIT
AND WALL-MOUNTED LUMINAIRE
STRUCTURE INSTALLATIONS)

NO SCALE

RSP ES-9E DATED APRIL 19, 2019 SUPERSEDES RSP ES-9E DATED OCTOBER 19, 2018 AND
STANDARD PLAN ES-9E DATED MAY 31, 2018 - PAGE 539 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP ES-9E

2018 REVISED STANDARD PLAN RSP ES-9E

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

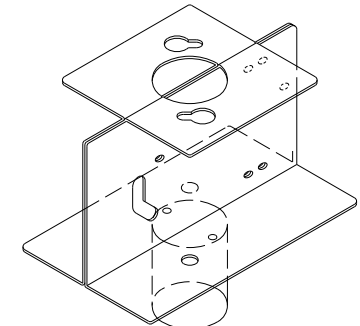
H.R.F.
REGISTERED ELECTRICAL ENGINEER

October 19, 2018
PLANS APPROVAL DATE

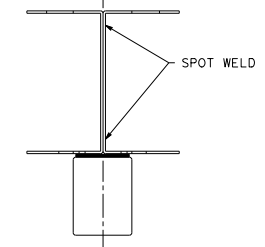
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Hamid Zolfaghari
No. E15636
EXP. 12-31-19
ELECTRICAL
STATE OF CALIFORNIA

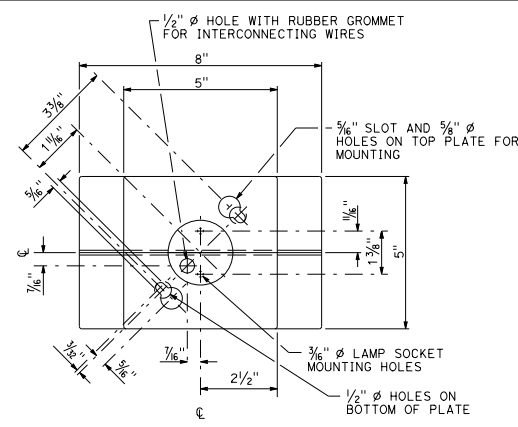
TO ACCOMPANY PLANS DATED _____



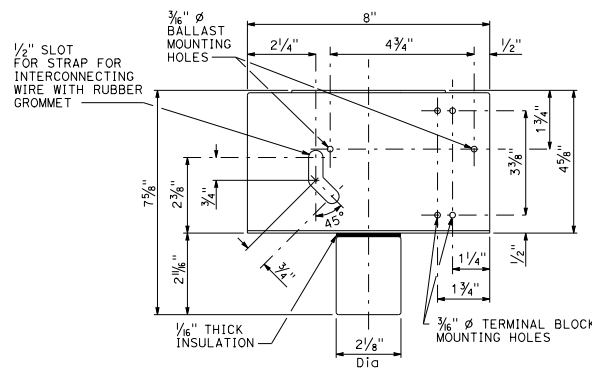
PREFORM TWO SHEETS 1/16" MILD STEEL AS SHOWN, SPOTWELD TOGETHER IN EACH CORNER WITH FOUR SPOTWELDS.



SIDE VIEW

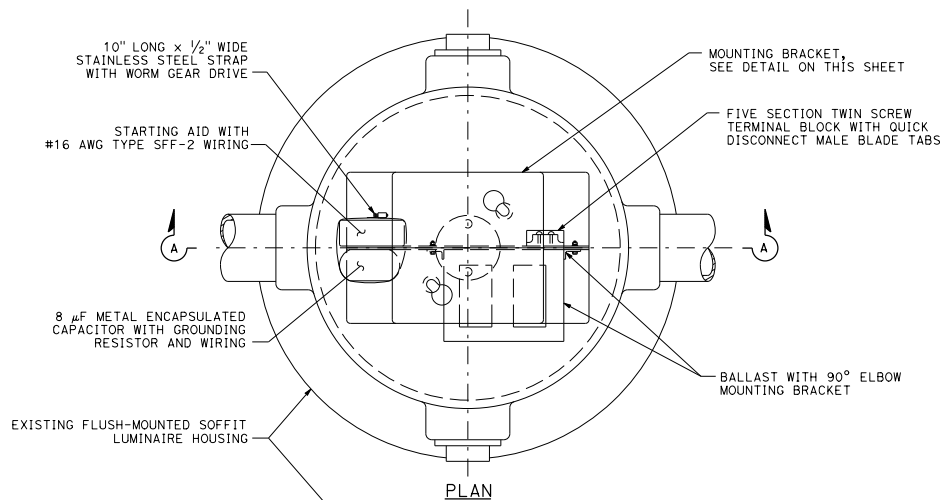


TOP VIEW

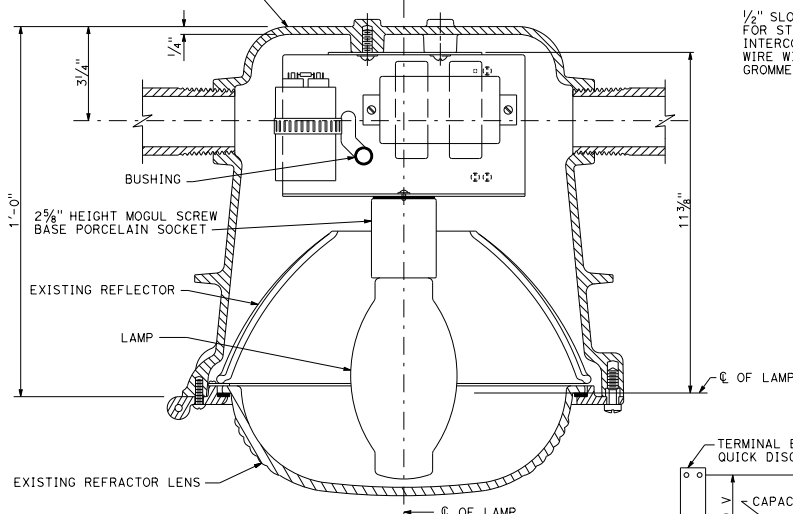


FRONT VIEW

MOUNTING BRACKET DETAILS

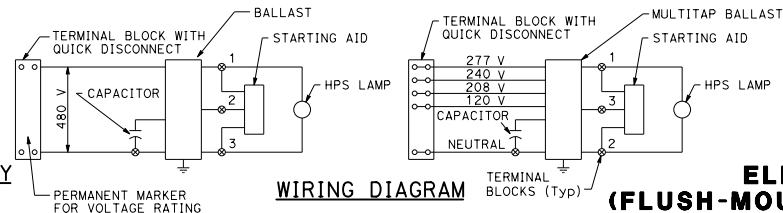


PLAN



SECTION A-A

FLUSH-MOUNTED SOFFIT LUMINAIRE ASSEMBLY



WIRING DIAGRAM

NOTE:
1. Use No. 8 ϕ machine screws, lockwashers and nuts for mounting ballast and terminal strips.

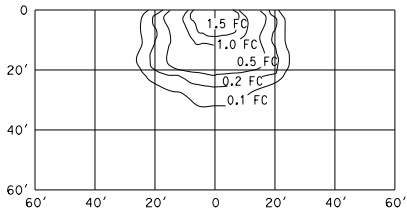
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**ELECTRICAL SYSTEMS
(FLUSH-MOUNTED SOFFIT LUMINAIRE
DETAILS)**

NO SCALE

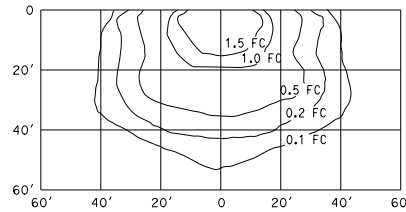
RSP ES-9F DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN ES-9F
DATED MAY 31, 2018 - PAGE 540 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP ES-9F

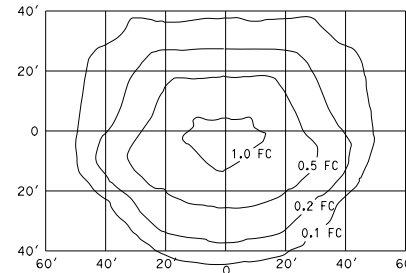
2018 REVISED STANDARD PLAN RSP ES-9F



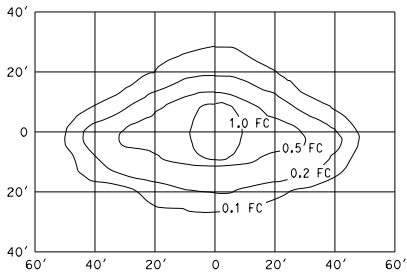
WALL-MOUNTED
15' Mounting Height
ANSI Designation S62
Lamp operated at 5,800 lm
70 W (Max)



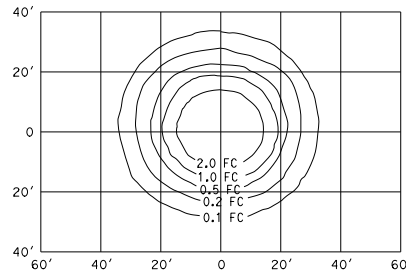
WALL-MOUNTED
15' Mounting Height
ANSI Designation S54
Lamp operated at 9,500 lm
100 W (Max)



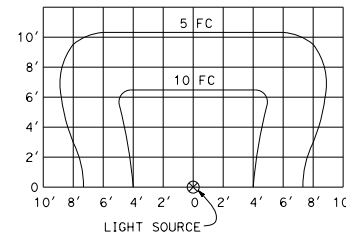
FLUSH-MOUNTED SOFFIT
17' Mounting Height
ANSI Designation S62
Lamp operated at 5,800 lm
70 W (Max)



**PENDANT SOFFIT
TYPE III SHORT**
17' Mounting Height
ANSI Designation S62
Lamp operated at 5,800 lm
70 W (Max)



PENDANT SOFFIT
17' Mounting Height
ANSI Designation S62
Lamp operated at 5,800 lm
70 W (Max)



OVERHEAD SIGN LUMINAIRE
60 W (Max)

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED ELECTRICAL ENGINEER
October 16, 2020
PLANS APPROVAL DATE
THE STATE OF CALIFORNIA OR ITS OFFICERS
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John L. Castro
No. E17490
EXP. 6-30-21
ELECTRICAL
STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED _____

NOTE:
Curves represent the minimum
maintained illuminance (FC).

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS
(ISOFOOTCANDLE CURVES)**

NO SCALE

RSP ES-10B DATED OCTOBER 16, 2020 SUPERSEDES RSP ES-10B DATED APRIL 19, 2019 AND
RSP ES-10B DATED OCTOBER 19, 2018 AND STANDARD PLAN ES-10B
DATED MAY 31, 2018 - PAGE 542 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP ES-10B

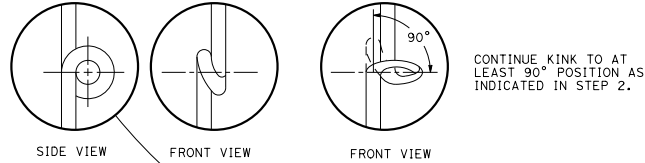
2018 REVISED STANDARD PLAN RSP ES-10B

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

H.R.F.
 REGISTERED ELECTRICAL ENGINEER
 October 19, 2018
 PLANS APPROVAL DATE
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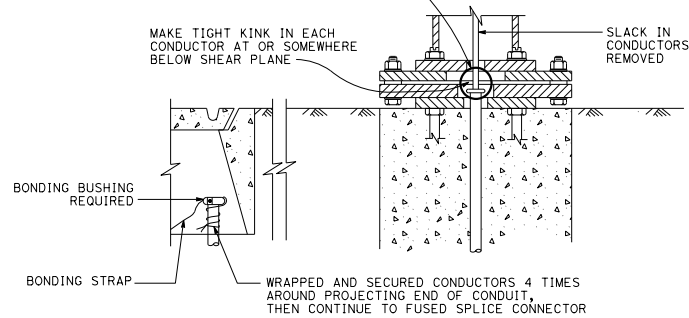
Hamid
 Zolfaghari
 No. E15636
 Exp. 12-31-19
 ELECTRICAL
 STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED _____

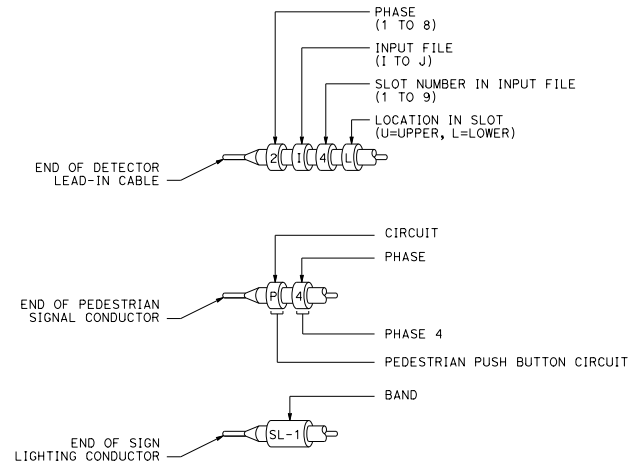


STEP 1

STEP 2



KINKING DETAIL FOR
 SLIP BASE STANDARDS
 DETAIL A



TYPICAL BANDING DETAILS
 DETAIL B

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
**ELECTRICAL SYSTEMS
 (KINKING AND BANDING DETAIL)**

NO SCALE

RSP ES-13B DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN ES-13B
 DATED MAY 31, 2018 - PAGE 545 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP ES-13B

2018 REVISED STANDARD PLAN RSP ES-13B

NOTES:

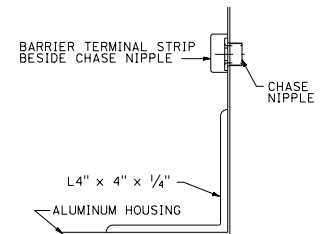
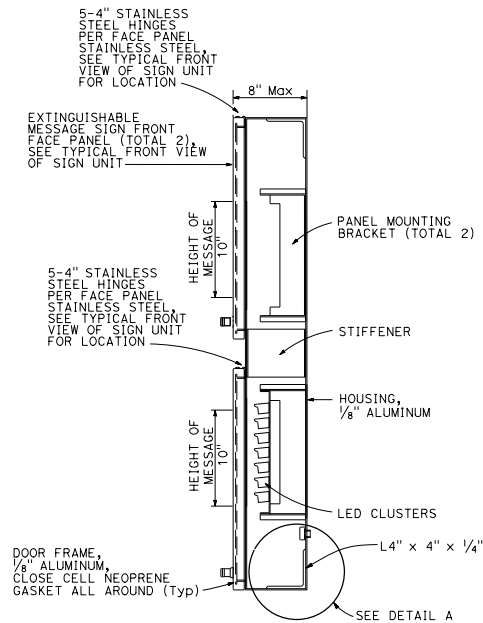
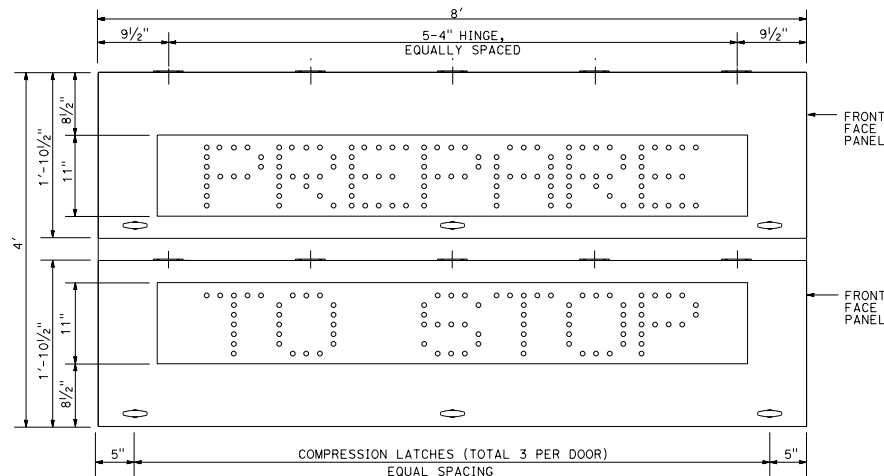
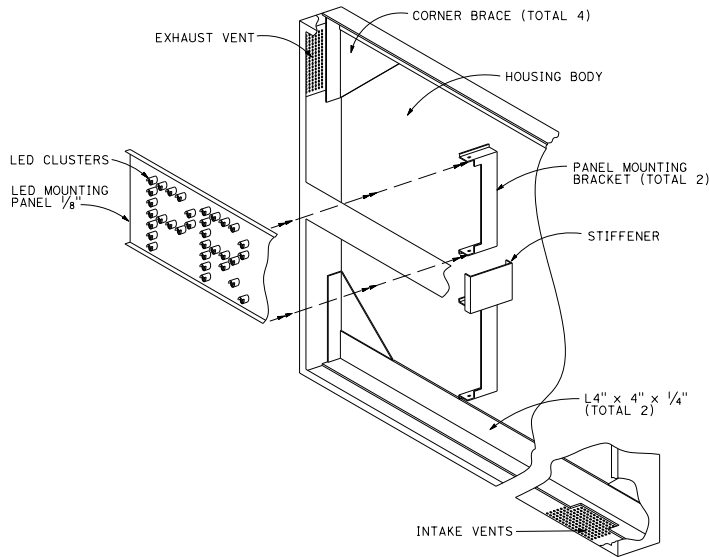
1. Sheet metal shall be $\frac{1}{8}$ ".
2. Welds shall be continuous.
3. Powder coat all internal and external surfaces black.
4. The door frame shall utilize two gas spring lift arms and two latching devices to maintain an open position.
5. See Wiring Notes and Symbols on Revised Standard Plan RSP ES-14B, Detail A.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED ELECTRICAL ENGINEER
H. R. F.
October 19, 2018
PLANS APPROVAL DATE
Hamid Zolfaghari
No. E15636
Exp. 12-31-19
ELECTRICAL
THE STATE OF CALIFORNIA OR ITS OFFICERS
OR AGENTS SHALL NOT BE RESPONSIBLE FOR
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TO ACCOMPANY PLANS DATED _____

2018 REVISED STANDARD PLAN RSP ES-14A



STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**ELECTRICAL SYSTEMS
(EXTINGUISHABLE MESSAGE SIGN
10" LETTERS)**

NO SCALE

RSP ES-14A DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN ES-14A
DATED MAY 31, 2018 - PAGE 546 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP ES-14A

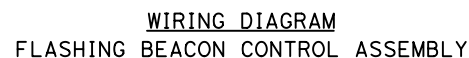
TO ACCOMPANY PLANS DATED

PIN	CIRCUIT	PIN	CIRCUIT
7	LOAD	10	NEUTRAL
8	LOAD	11	LINE
9	CHASSIS GROUND	12	NOT USED

PIN	CIRCUIT	PIN	CIRCUIT
7	LOAD	10	NEUTRAL
8	LOAD	11	LINE
9	CHASSIS GROUND	12	NOT USED

8		
10		
12		

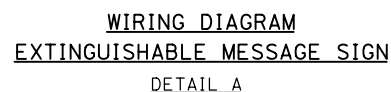
CONNECTOR SOCKET



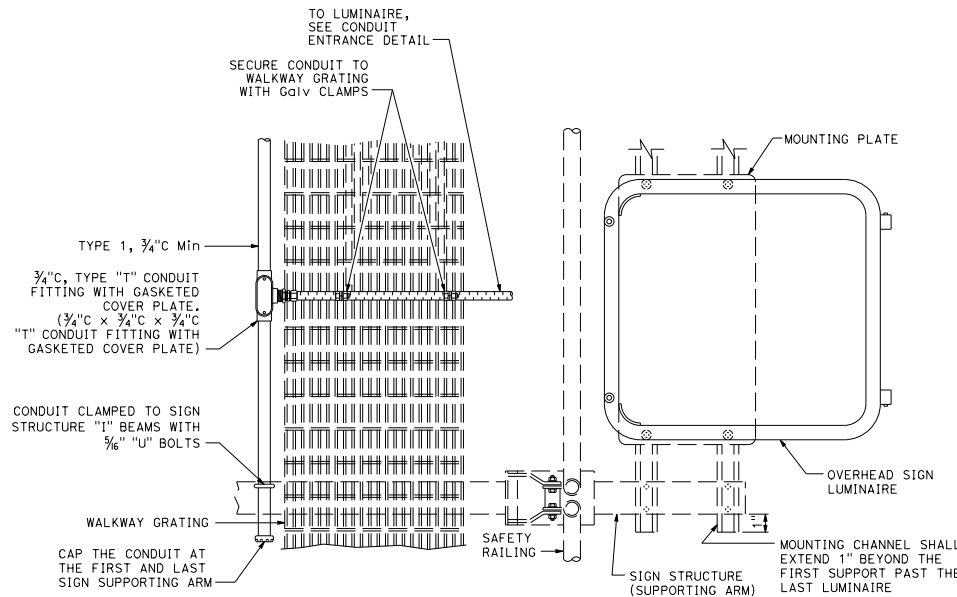
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

NO SCALE

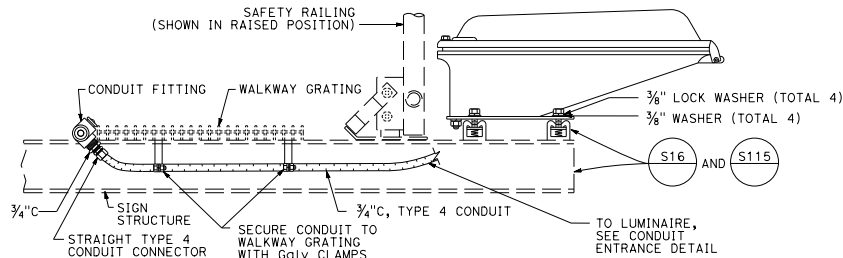
REVISÉD STANDARD PLAN RSP ES-14B



LENGTH OF SIGN PANEL	NUMBER OF OVERHEAD SIGN LUMINAIRE (EACH)	OVERHEAD SIGN LUMINAIRE SPACING SEE NOTES
5'-0"	1	2'-6"
6'-0"		3'-0"
7'-0"		3'-6"
8'-0"		4'-0"
9'-0"		4'-6"
10'-0"		5'-0"
11'-0"		5'-6"
12'-0"		6'-0"
13'-0"		6'-6"
14'-0"		7'-0"
15'-0"		7'-6"
16'-0"		8'-0"
17'-0"		4'-3":8'-6"
18'-0"		4'-6":9'-0"
19'-0"		4'-9":9'-6"
20'-0"	2	5'-0":10'-0"
21'-0"		5'-3":10'-6"
22'-0"		5'-6":11'-0"
23'-0"		5'-9":11'-6"
24'-0"		6'-0":12'-0"
25'-0"		6'-3":12'-6"
26'-0"		6'-6":13'-0"
27'-0"		6'-9":13'-6"
28'-0"		7'-0":14'-0"
29'-0"		7'-3":14'-6"
30'-0"		7'-6":15'-0"
31'-0"		7'-9":15'-6"
32'-0"		8'-0":16'-0"
33'-0"	3	5'-6":11'-0"
34'-0"		5'-8":11'-4"
35'-0"		5'-10":11'-8"
36'-0"		6'-0":12'-0"
37'-0"		6'-2":12'-4"
38'-0"		6'-4":12'-8"
39'-0"		6'-6":13'-0"
40'-0"		6'-8":13'-4"
41'-0"		6'-10":13'-8"
42'-0"		7'-0":14'-0"
43'-0"		7'-2":14'-4"
44'-0"		7'-4":14'-8"
45'-0"		7'-6":15'-0"
46'-0"		7'-8":15'-4"
47'-0"		7'-10":15'-8"
48'-0"	4	8'-0":16'-0"
49'-0"		6'-11/2":12'-3"
50'-0"		6'-3":12'-6"
51'-0"		6'-4/2":12'-9"
52'-0"		6'-6":13'-0"
53'-0"		6'-7/2":13'-3"
54'-0"		6'-9":13'-6"
55'-0"		6'-10/2":13'-9"
56'-0"		7'-0":14'-0"
57'-0"		7'-1/2":14'-3"
58'-0"		7'-3":14'-6"
59'-0"		7'-4/2":14'-9"
60'-0"		7'-6":15'-0"
61'-0"		7'-7/2":15'-3"
62'-0"		7'-9":15'-6"
63'-0"		7'-10/2":15'-9"
64'-0"		8'-0":16'-0"



TOP VIEW



SIDE VIEW

OVERHEAD SIGN LUMINAIRE MOUNTING DETAIL (TYPICAL)

ALL BOLTS, NUTS, WASHERS AND OTHER HARDWARE SHALL BE SAE GRADE 5 AND CADMIUM-PLATED.

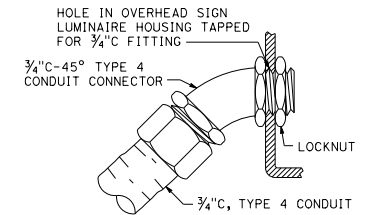
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL SHEETS

REGISTERED ELECTRICAL ENGINEER
April 16, 2021
PLANS APPROVAL DATE
No. E17490
EXP. 6-30-21
John L. Castro
ELECTRICAL
STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED _____

NOTES:

1. The first number listed is the dimension from the edge of the sign panel to the center of the end-most sign luminaire. The second number listed is the dimension between centers of successive sign luminaire.
2. Where adjacent sign panels are spaced 1'-0" or less the combination of these panels (and spaces) shall be considered a single panel.
3. Physical configuration and mounting details may vary from what is shown.



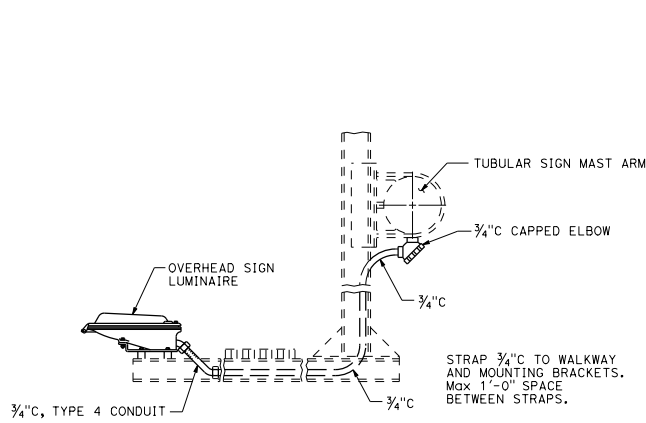
CONDUIT ENTRANCE DETAIL

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
ELECTRICAL SYSTEMS
(SIGN ILLUMINATION EQUIPMENT)
NO SCALE

RSP ES-15A DATED APRIL 16, 2021 SUPERSEDES RSP ES-15A DATED OCTOBER 19, 2018 AND STANDARD PLAN ES-15A DATED MAY 31, 2018 - PAGE 549 OF THE STANDARD PLANS BOOK DATED 2018.

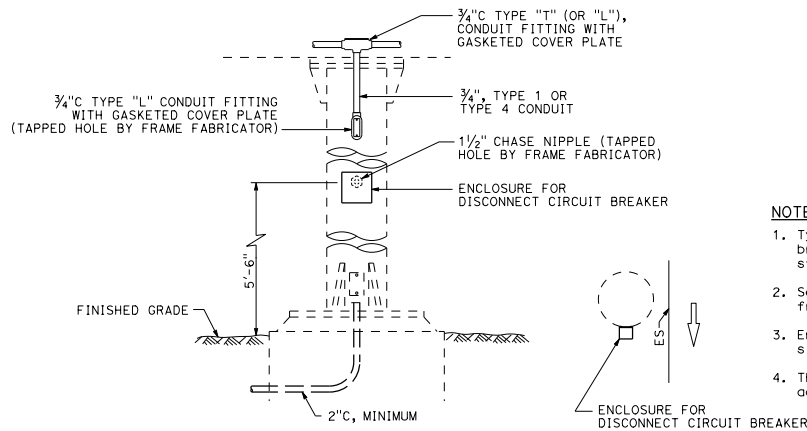
REVISED STANDARD PLAN RSP ES-15A

2018 REVISED STANDARD PLAN RSP ES-15A



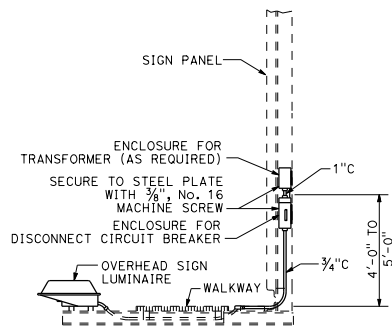
**TYPICAL SIGN ILLUMINATION EQUIPMENT
INSTALLATION FOR OVERHEAD SIGNS TUBULAR**

DETAIL A

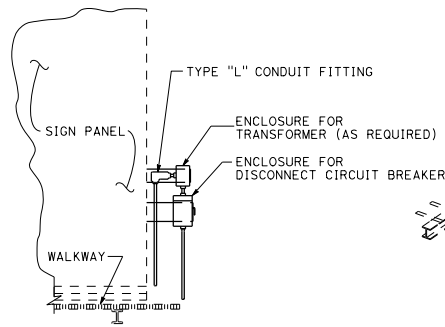


**TYPICAL SIGN ILLUMINATION EQUIPMENT
INSTALLATION FOR OVERHEAD SIGNS ROUND POST**

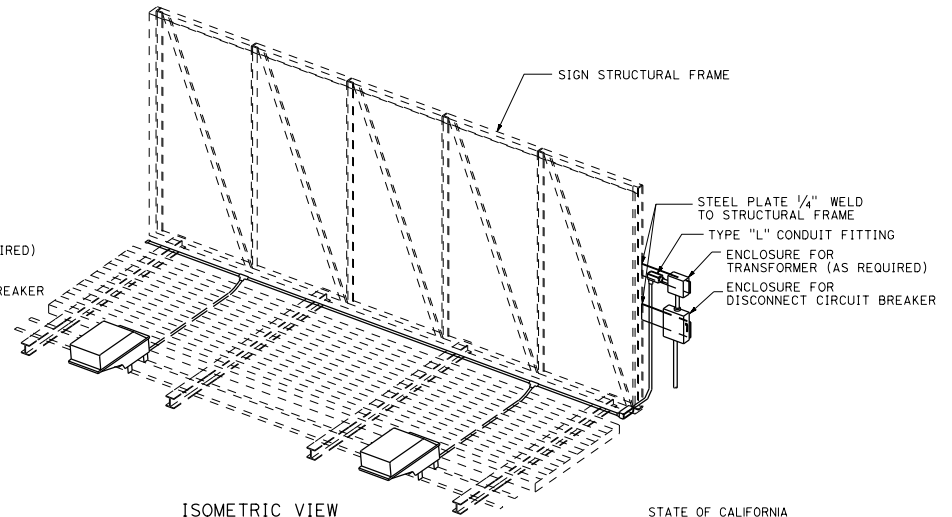
DETAIL B



SIDE VIEW



FRONT VIEW



ISOMETRIC VIEW

**TYPICAL SIGN ILLUMINATION EQUIPMENT
INSTALLATION FOR OVERHEAD SIGNS
BRIDGE MOUNTED**

DETAIL C

See Note 4

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED ELECTRICAL ENGINEER

April 16, 2021

PLANS APPROVAL DATE

John L. Castro
No. E17490
Exp. 6-30-21
ELECTRICAL
STATE OF CALIFORNIA

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

NOTES:

1. Type 4 conduit shall be secured to the nearest walkway bracket using one-hole galvanized malleable iron or steel straps and brass machine screws tapped into the bracket.
2. See Overhead Signs Standard Plans for overhead signs and frame juncture details for photoelectric unit installation.
3. Enclosures and straps shall be secured by 3/8" maximum size screws.
4. The contactor and test switch enclosures shall be readily accessible from the sign walkway.

TO ACCOMPANY PLANS DATED _____

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**ELECTRICAL SYSTEMS
(SIGN ILLUMINATION EQUIPMENT)**

NO SCALE

RSP ES-15C DATED APRIL 16, 2021 SUPERSEDES RSP ES-15C DATED OCTOBER 19, 2018 AND
STANDARD PLAN ES-15C DATED MAY 31, 2018 - PAGE 550 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP ES-15C

NOTE:

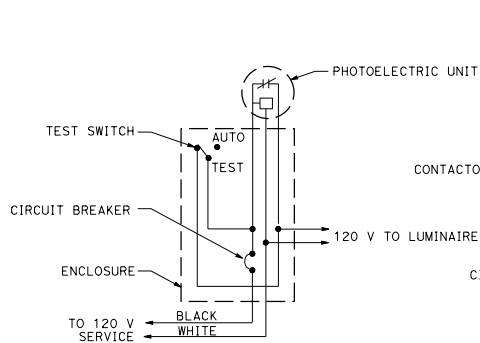
1. Type SC1A, SC2A, SC3A controls are similar to Types SC1, SC2 and SC3 controls respectively except test switch and wiring are not required.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED ELECTRICAL ENGINEER
H. R. F.
October 19, 2018
PLANS APPROVAL DATE
Hamid Zolfaghari
No. E15636
Exp. 12-31-19
ELECTRICAL
STATE OF CALIFORNIA

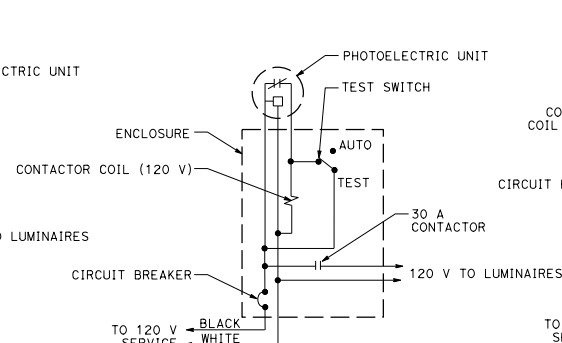
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

TO ACCOMPANY PLANS DATED _____



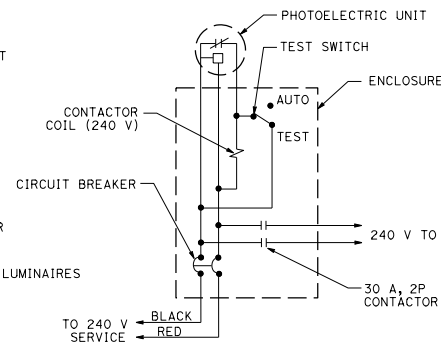
TYPE LC1 CONTROL

For 120 V unswitched circuit with no more than 1000 W load.



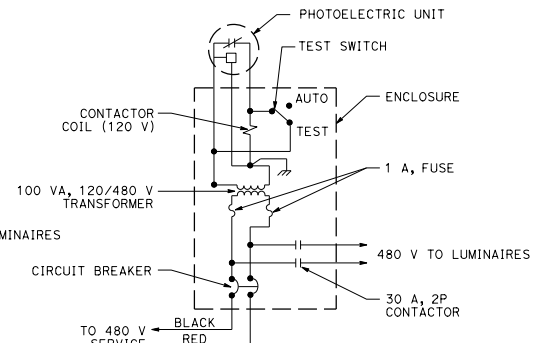
TYPE LC2 CONTROL

For 120 V unswitched circuit



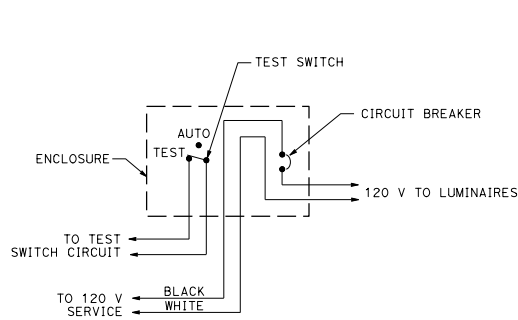
TYPE LC3 CONTROL

For 240 V unswitched circuits



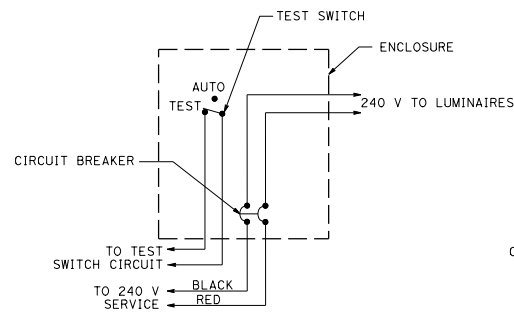
TYPE LC4 CONTROL

For 480 V unswitched circuits



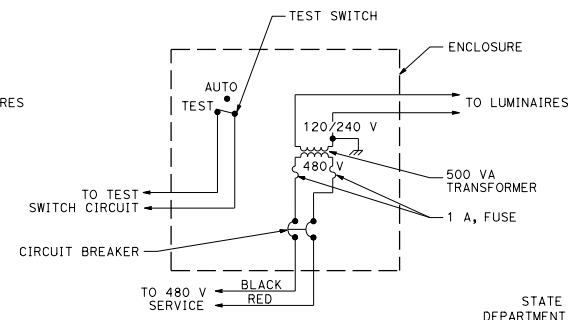
TYPE SC1 CONTROL

For 120 V switched circuit, see Note 1 for Type SC1A



TYPE SC2 CONTROL

For 240 V switched circuit, see Note 1 for Type SC2A



TYPE SC3 CONTROL

For 480 V switched sign circuit, see Note 1 for Type SC3A

**ELECTRICAL SYSTEMS
(LIGHTING AND SIGN
ILLUMINATION CONTROL)**

NO SCALE

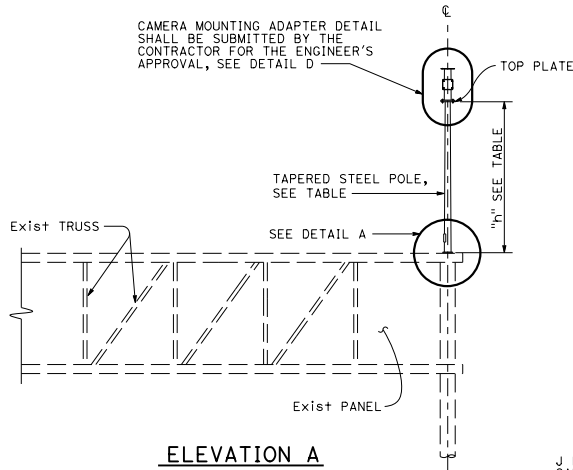
RSP ES-15D DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN ES-15D
DATED MAY 31, 2018 - PAGE 551 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP ES-15D

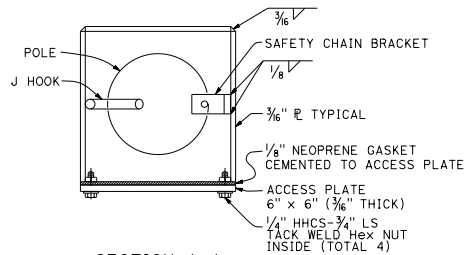
2018 REVISED STANDARD PLAN RSP ES-15D

POLE EXTENSION TYPE	POLE DATA				HANDHOLE SIZE
	HEIGHT "h"	Min OD		THICKNESS	
		BASE	TOP		
CAMERA POLE 5	5'	4 3/8"	3 3/4"	0.1793"	3" x 5"
CAMERA POLE 10	10'	5 1/4"			
CAMERA POLE 15	15'	5 5/8"			

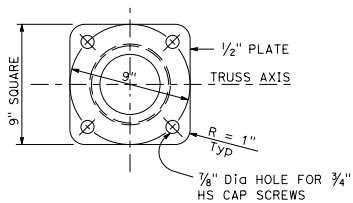
CAMERA MOUNTING ADAPTER
SHALL BE SUBMITTED BY THE
CONTRACTOR FOR THE ENGINEER'S
APPROVAL, SEE DETAIL D



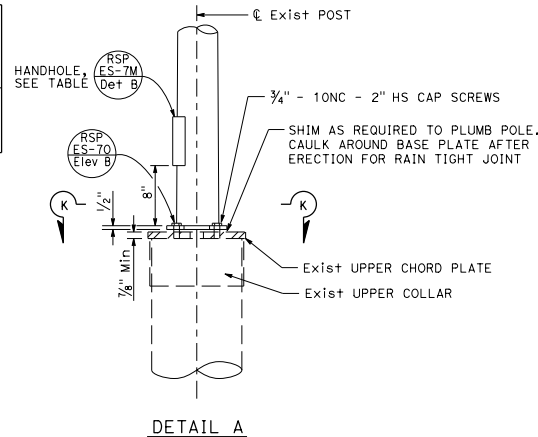
ELEVATION A



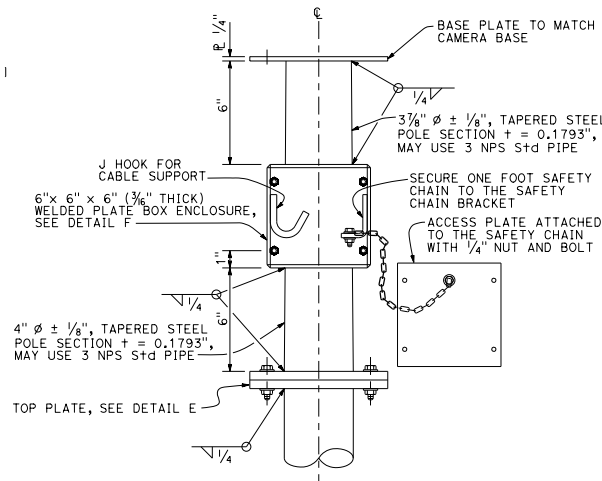
SECTION A-A



SECTION K-K



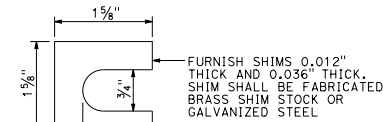
DETAIL A



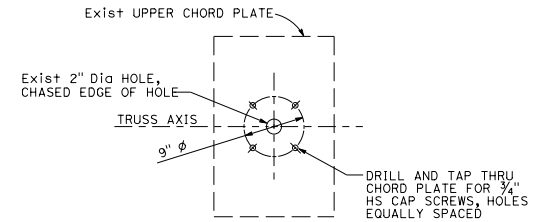
**CAMERA MOUNTING ADAPTER
DETAIL D**

NOTES:

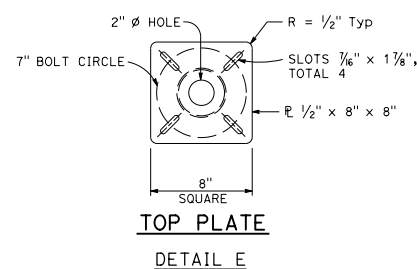
1. Verify controlling field dimensions before ordering or fabricating any material.
2. Bolt hole locations may vary at the discretion of the Engineer.
3. See Std Plan S13.
4. For wind loading see Revised Standard Plan RSP ES-7M.
5. Materials (Structural Steel):
 - a. fy = 55,000 psi (tapered steel tube)
 - b. fy = 50,000 psi (unless otherwise noted)



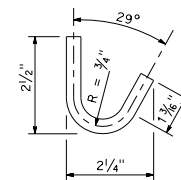
**SHIM
DETAIL B**



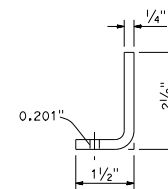
**UPPER CHORD PLATE
DETAIL C**
See Note 3



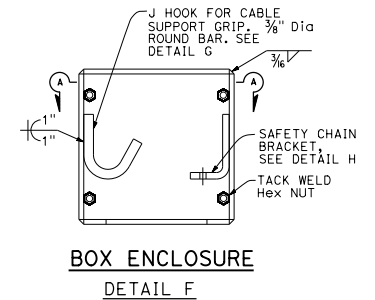
**TOP PLATE
DETAIL E**



**J HOOK
DETAIL G**



**SAFETY CHAIN BRACKET
DETAIL H**



**BOX ENCLOSURE
DETAIL F**

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL No. SHEETS

Registered Civil Engineer
 October 19, 2018
 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.

Stanley P. Johnson
 No. C67793
 Exp. 3-31-20
 CIVIL
 STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED _____

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
**ELECTRICAL SYSTEMS
 (CAMERA POLE 5' TO 15'
 OVERHEAD SIGN MOUNTED)**


NO SCALE

RSP ES-16A DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN ES-16A
 DATED MAY 31, 2018 - PAGE 552 OF THE STANDARD PLANS BOOK DATED 2018.

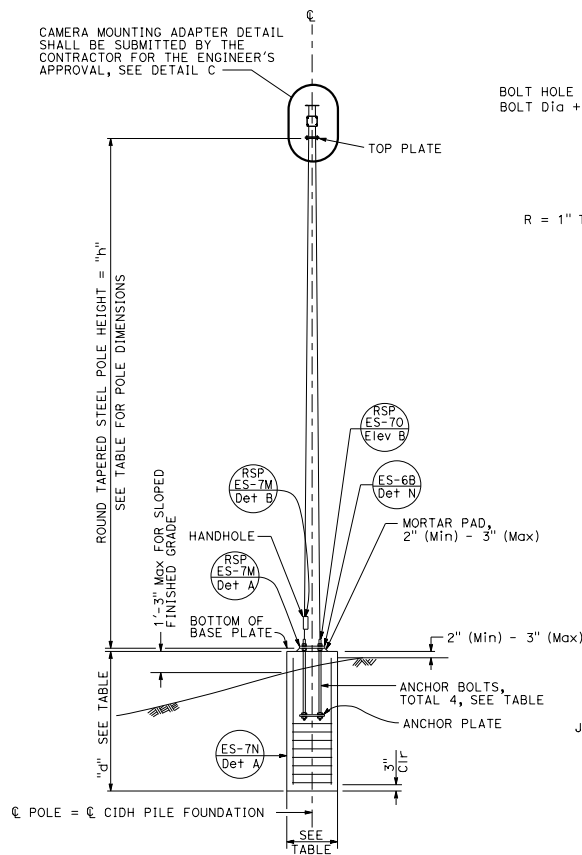
REVISED STANDARD PLAN RSP ES-16A

2018 REVISED STANDARD PLAN RSP ES-16A

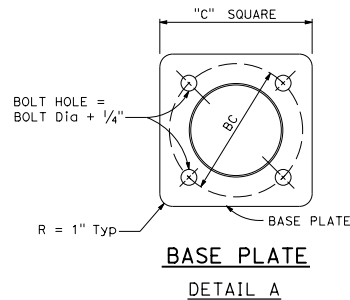
POLE TYPE	HEIGHT "h"	POLE DATA		THICKNESS	BASE PLATE DATA				CIDH	
		Min OD	THICKNESS		"c"	THICKNESS	ANCHOR BOLT SIZE	BC = BOLT CIRCLE	Dia	"d"
CAMERA POLE 25	25'	7 3/8"	3 3/4"	0.1793"	1'-1"	1"	1 1/2" ϕ x 36"	1 1/2"	2'-6"	7'-0"
CAMERA POLE 30	30'	8"			1'-1 1/2"			1'-0"		7'-6"
CAMERA POLE 35	35'	8 5/8"			1'-2"			1'-1"		8'-0"
CAMERA POLE 40	40'	9 3/8"			1'-3"			1'-1 1/2"		8'-6"
CAMERA POLE 45	45'	10"						1'-2"		

Dist	COUNTY	ROUTE	POST MILES	SHEET TOTAL
			TOTAL PROJECT	No. SHEETS
 REGISTERED CIVIL ENGINEER No. C57393 October 19, 2018 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.				
EXP. 3-31-20 CIVIL STATE OF CALIFORNIA				

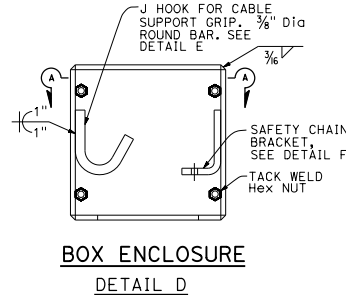
TO ACCOMPANY PLANS DATED _____



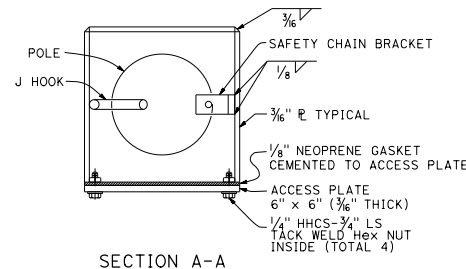
ELEVATION A



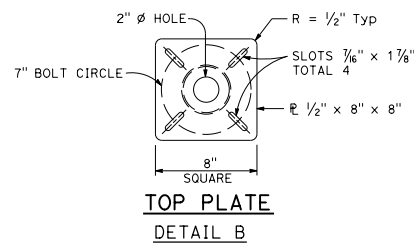
**BASE PLATE
DETAIL A**



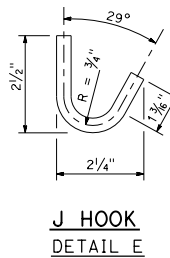
**BOX ENCLOSURE
DETAIL D**



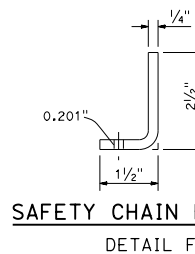
SECTION A-A



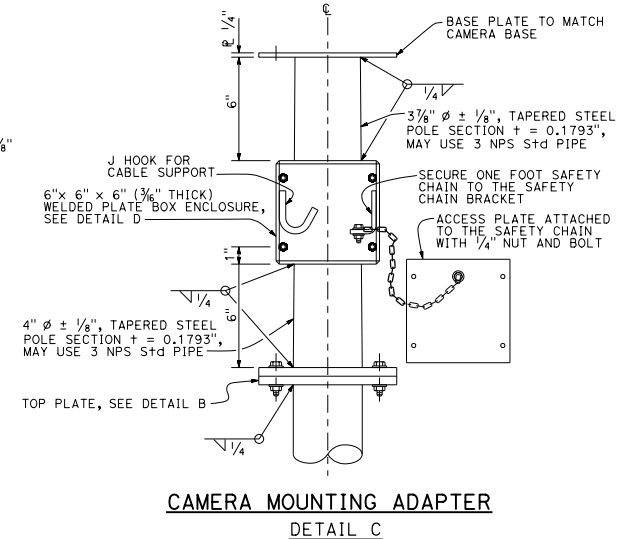
**TOP PLATE
DETAIL B**



**J HOOK
DETAIL E**



**SAFETY CHAIN BRACKET
DETAIL F**



**CAMERA MOUNTING ADAPTER
DETAIL C**

NOTES:

1. Verify controlling field dimensions before ordering or fabricating any material.
2. During pole installation, the post shall be raked as necessary with the use of leveling nuts to provide a plumb pole axis.
3. For wind loading see Revised Standard Plan RSP ES-7M.
4. Materials (Structural Steel):
a. fy = 55,000 psi (tapered steel tube and anchor bolts)
b. fy = 50,000 psi (unless otherwise noted)
5. Materials (Reinforced Concrete):
a. f'c = 3,625 psi
b. fy = 60,000 psi

**ELECTRICAL SYSTEMS
(CAMERA POLE 25' TO 45')**

NO SCALE

RSP ES-16B DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN ES-16B
DATED MAY 31, 2018 - PAGE 553 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP ES-16B

2018 REVISED STANDARD PLAN RSP ES-16B

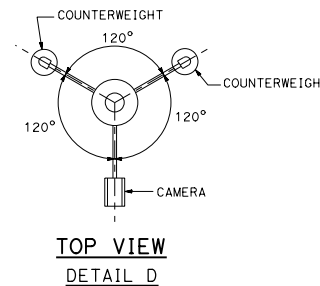
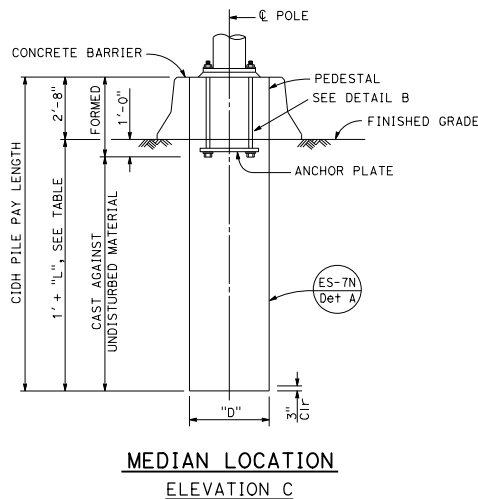
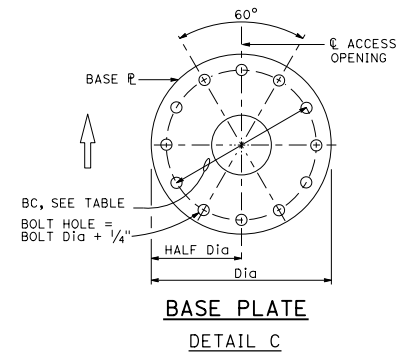
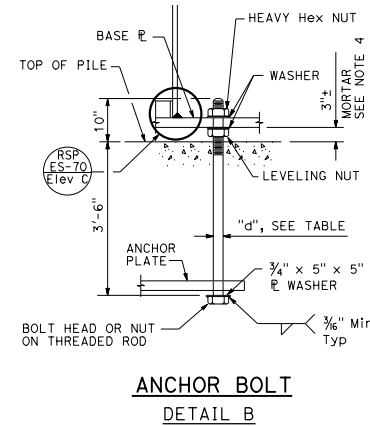
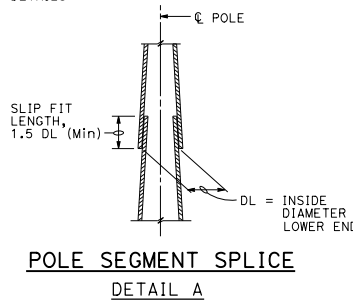
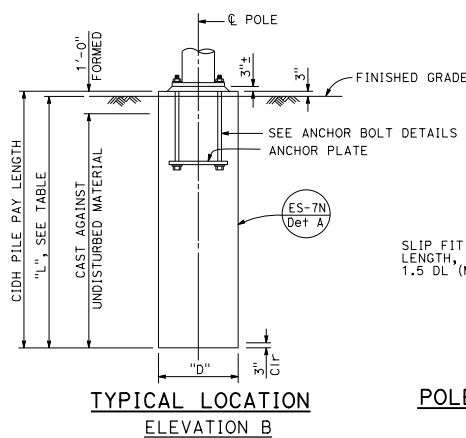
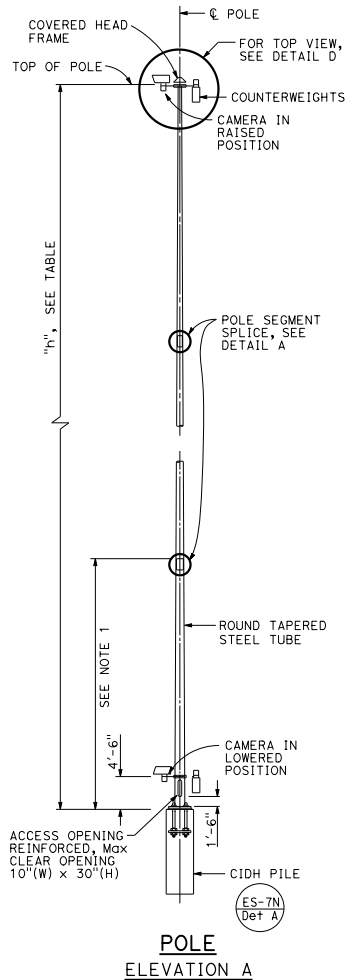
POLE TYPE	POLE DATA					BASE PLATE DATA					CIDH PILE DATA	
	HEIGHT "h"	Min OD		THICKNESS BOTTOM SEGMENT (Min 25' LONG)	Min THICKNESS UPPER SEGMENT(S)	Dia	THICKNESS	ANCHOR BOLT SIZE		BC = BOLT CIRCLE	"D"	"L"
		BASE	TOP					TOTAL	"d"			
HM CAMERA POLE 50	50'	18"	10 ⁷ / ₈ "	0.3125"	0.1875"	32"	2"	12	2 ¹ / ₄ "	25"	3'-6"	13'-0"
HM CAMERA POLE 60	60'		9 ¹ / ₂ "			36"				3"	29"	4'-0"
HM CAMERA POLE 70	70'	22"	12"	0.375"	0.25"	39"	3"		30"		4'-6"	
HM CAMERA POLE 80	80'	22"	11 ⁵ / ₈ "			46"			37"	6'-0"	15'-0"	
HM CAMERA POLE 90	90'	25"	17 ¹ / ₈ "									

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

Registered/Civil Engineer
 Stanley P. Johnson
 No. C57795
 October 19, 2018
 PLANS APPROVAL DATE
 THE STATE OF CALIFORNIA OR ITS OFFICERS
 OR AGENTS SHALL NOT BE RESPONSIBLE FOR
 THE ACCURACY OR COMPLETENESS OF SCANNED
 COPIES OF THIS PLAN SHEET.

REGISTERED PROFESSIONAL ENGINEER
 Stanley P. Johnson
 No. C57795
 Exp. 3-31-20
 CIVIL
 STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED _____



NOTES:

- Pole details shall suit the lowering device and this foundation plan. Pole details shall be submitted to the Engineer for approval.
- Access opening shall be located on the downstream side of traffic unless otherwise determined by the Engineer.
- Foundation design is based on a 3-second wind gust of 100 mph.
- For central void and drain holes in mortar, see Standard Plan ES-6B detail N.
- For wind loading see Revised Standard Plan RSP ES-7M.
- Materials (Structural Steel):
 $f_y = 55,000$ psi (tapered steel tube)
 $f_y = 50,000$ psi (unless otherwise noted)

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
ELECTRICAL SYSTEMS
(HIGH MAST CAMERA POLE 50' TO 90')
 NO SCALE

RSP ES-16C DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN ES-16C
 DATED MAY 31, 2018 - PAGE 554 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP ES-16C

2018 REVISED STANDARD PLAN RSP ES-16C

WHEN A CAMERA IS REQUIRED,
THE CAMERA MOUNTING ADAPTER DETAIL
SHALL BE SUBMITTED BY THE
CONTRACTOR FOR THE ENGINEER'S
APPROVAL, SEE

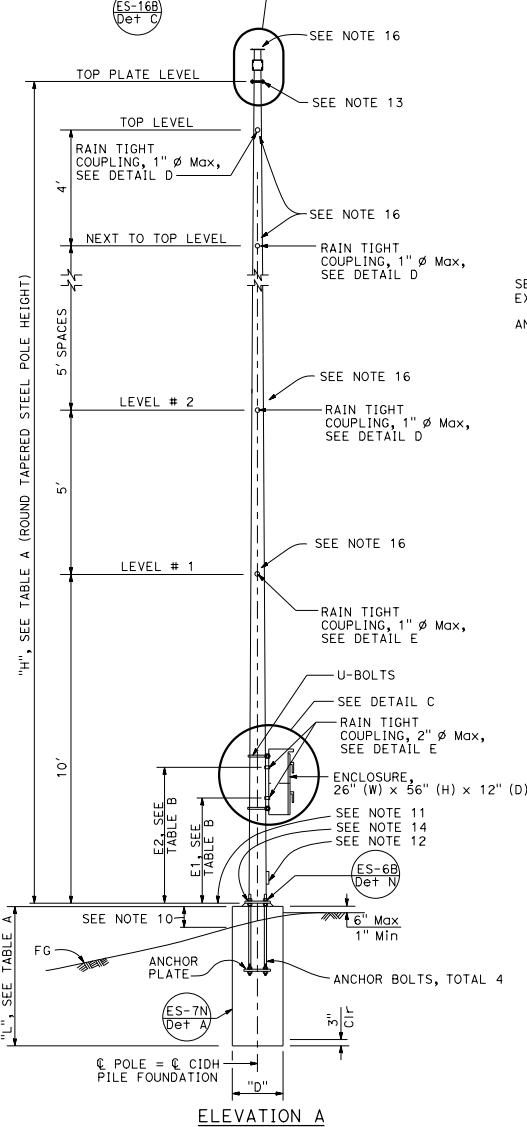


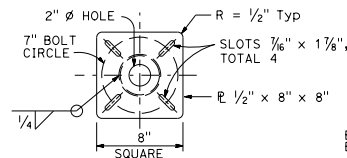
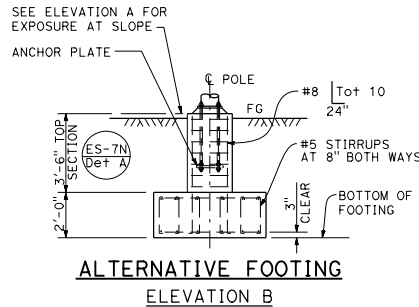
TABLE A										
POLE TYPE	POLE DATA			BASE PLATE DATA				CIDH PILE DATA		
	HEIGHT "H"	Min OD		THICKNESS	"C"	THICKNESS	ANCHOR BOLTS SIZE	BC = BOLT CIRCLE	"D"	"L"
		BASE	TOP							LEVEL GROUND
VDS 30	30'	8"	3 3/8"	0.1793"	1'-1 1/2"	1 1/2" ø x 3'-0"	1'-0"	2'-6"	6'-0"	8'-0"
VDS 35	35'	8 3/4"	3 3/8"	0.1793"	2"		1'-0"	9'-0"	7'-0"	9'-0"
VDS 40	40'	12"	5 5/8"	0.1793"			1'-6"	1'-4"	3'-0"	9'-0"

POLE TYPE	COUPLING	
	E1(Max)	E2(Max)
VDS 30		
VDS 35	3'-6"	4'-9"
VDS 40		

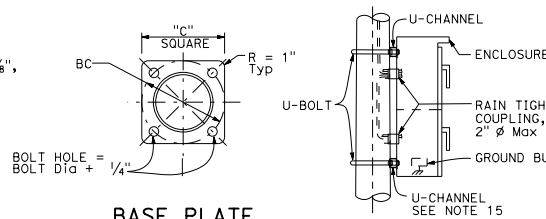
SPREAD FOOTING		
GROUND	FOOTING SIZE (LENGTH x WIDTH x DEPTH)	REINFORCEMENT TOP & BOTTOM
LEVEL	8'-6" x 8'-6" x 2'-0"	12 - #5 EW
UP TO 2:1	10'-0" x 10'-0" x 2'-0"	15 - #5 EW

LOCATION	MAXIMUM TOTAL EPA PER LEVEL (SQUARE FEET)	MAXIMUM TOTAL WEIGHT (lb)
LEVEL #1	14	200
LEVEL #2		
LEVEL #3		
LEVEL #4 (VDS 35 AND VDS 40 ONLY)	2.5	50
LEVEL #5 (VDS 40 ONLY)		
NEXT TO TOP LEVEL		
ON TOP PLATE LEVEL **		

* MAXIMUM HORIZONTAL EXTENT BEYOND POLE FACE IS 4 FEET.
** MAXIMUM EXTENT ABOVE TOP PLATE IS 3 FEET.
*** 14 IF LEVEL #1 IS ZERO.

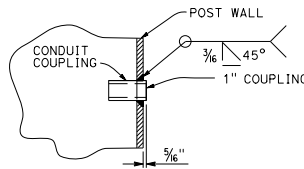


TOP PLATE
DETAIL A

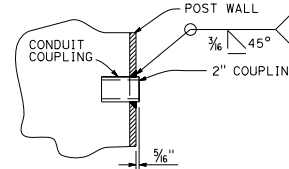


BASE PLATE
DETAIL B

DETAIL C



1" COUPLING
DETAIL D






2" COUPLING
DETAIL E

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL No. SHEETS

October 19, 2018
PLANS APPROVAL DATE
Stanley P. Johnson
No. C57793
EXP. 3-31-20
CIVIL
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OR AGENTS SHALL NOT BE RESPONSIBLE FOR
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COPIES OF THIS PLAN SHEET.

NOTES:

TO ACCOMPANY PLANS DATED

- All steel shall be galvanized after fabrication.
- The foundation shall be treated as level ground condition if the slope inclination is flatter than 4 : 1 (Horizontal : Vertical)
- For devices mounted and mounting heights, see TABLE B.
- For wind loading see Revised Standard Plan RSP ES-7M.
- Materials (Structural Steel):
 - fy = 55,000 psi (tapered steel tube)
 - fy = 50,000 psi (unless otherwise noted)
- Anchor bolts: fy = 55,000 psi
- Materials (Reinforced Concrete):
 - f'c = 3,600 psi
 - fy = 60,000 psi
- Verify all controlling field dimension before ordering of fabricating any material.
- When no barriers are used, the enclosure shall be located on the downstream side and perpendicular to the roadway.
- 1'-3" (Max) for sloped finished grade.
- Bottom of base plate.
- Handhole.  
- Top plate. Install a blank flange on the top plate when camera is not used.
- 
- U-channel with bracket.
- Use the manufacturer's Effective Projected Area (EPA) for attachments. Assign attachments to nearest level and sum each level, see Table D for limitations.

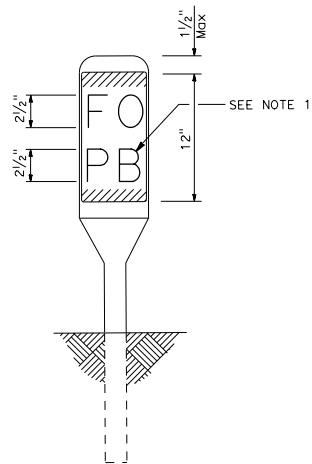
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

ELECTRICAL SYSTEMS (VEHICLE DETECTION SYSTEM POLE 30' TO 40')

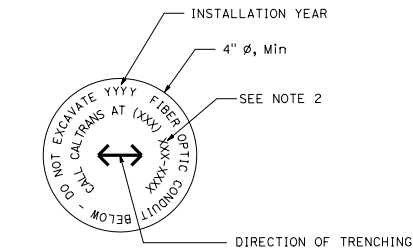
NO SCALE

RSP ES-16D DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN ES-16D
DATED MAY 31, 2018 - PAGE 555 OF THE STANDARD PLANS BOOK DATED 2018.

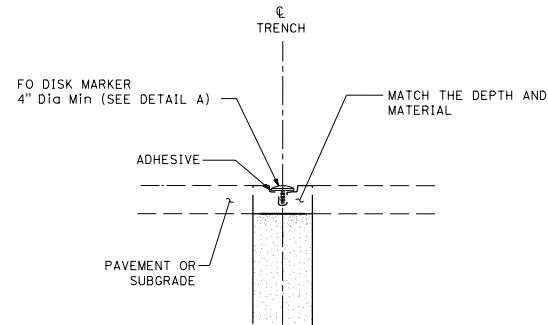
REVISED STANDARD PLAN RSP ES-16D



FIBER OPTIC MARKER
FOR VAULTS AND PULL BOXES



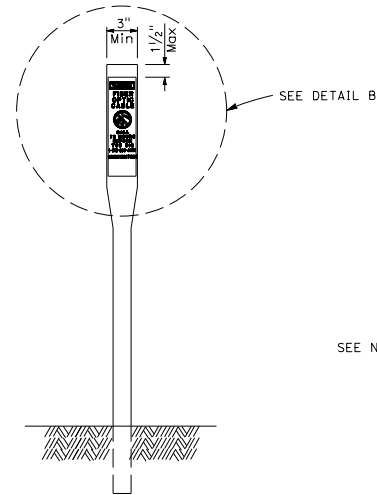
DISK MARKER ETCHING
DETAIL A



FIBER OPTIC MARKER
FOR PAVED AREAS

NOTES:

1. "PB" for Pull Box or "VT" for Vault.
2. Telephone number as specified.
3. 1" black text.
4. 1/2" black text.



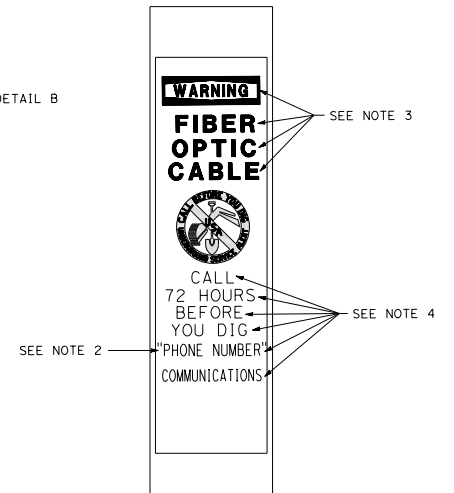
FIBER OPTIC MARKER
FOR UNPAVED AREAS

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED ELECTRICAL ENGINEER
October 19, 2018
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.

Hamid Zolfaghari
No. E15636
Exp. 12-31-19
ELECTRICAL
STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED _____



DETAIL B

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**ELECTRICAL SYSTEMS
(FIBER OPTIC MARKER DETAILS)**
NO SCALE

RSP ES-17A DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN ES-17A
DATED MAY 31, 2018 - PAGE 556 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP ES-17A

2018 REVISED STANDARD PLAN RSP ES-17A

LEGEND

- Wood Pole
No Attachments
- Wood Pole with
Attachments
- Overhead Bundle

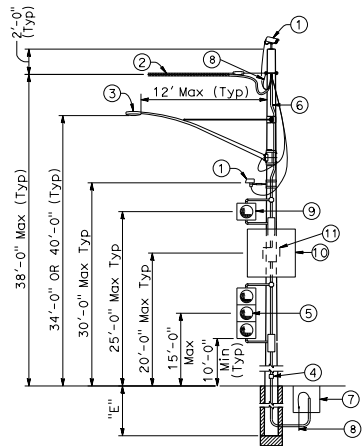
POLE SELECTION TABLE

		CASE 1N				CASE 2N				CASE 3N				CASE 4N				CASE 5N
		MAXIMUM d _p																N/A
OVERHEAD BUNDLE HORIZONTAL SPAN (Max)	50'	MINIMUM POLE CLASS	H-1	H-2	H-2	H-2	4	3	2	1	H-2	H-2	H-3	H-3	H-4	H-4	H-4	H-5
	100'	POLE EMBEDMENT (E)	11'				10'				11'				12'			
	150'	MINIMUM POLE CLASS	H-2	H-3	H-4	H-5	1	H-1	H-2	H-3	H-4	H-5	H-5	H-6	H-5	H-5	H-5	H-6
	200'	POLE EMBEDMENT (E)	12'				11'				12'				12'			
	250'	MINIMUM POLE CLASS	H-4	H-5	H-6		H-1	H-2	H-3	H-5	H-6			H-6				
	300'	POLE EMBEDMENT (E)	12'				12'				12'				12'			
		MINIMUM POLE CLASS	H-5	H-6			H-2	H-3	H-5									
		POLE EMBEDMENT (E)	12'				12'											

- ① Camera or vehicle detection system
- ② Overhead bundle consisting of a 3/8" Ø messenger wire, overhead conductors, and flashing wire
- ③ Luminaire with mast arm
- ④ Pedestrian push button or accessible push button
- ⑤ Signal face with 3 indications or single sheet sign panel (10 SOFT Max)
- ⑥ Riser with weather head as required
- ⑦ Pull box as required
- ⑧ Grounding as required
- ⑨ Single flashing beacon or single sheet sign panel (4 SOFT Max)
- ⑩ Single sheet sign panel (4' x 4' Max) or signal face with 3 indications
- ⑪ Flashing beacon control assembly
- ⑫ Enclosure, 26"(W) x 56"(H) x 12"(D) Max dimensions. Max weight including batteries, 450 lbs
- ⑬ 25' SOFT Max total photovoltaic panels mounted as shown as required
- ⑭ 2-12" flashing beacons

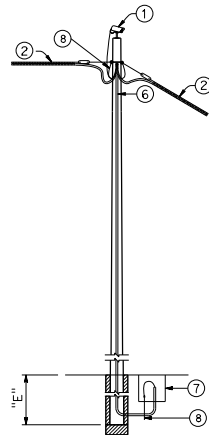
NOTES:

1. In addition to other restrictions on maximum horizontal span, this horizontal span must not exceed 100'.
2. Cases 1N, 3N and 4N may substitute the attachments shown in Case 5N if the photovoltaic panel is not included.
3. For Case 1N without an overhead bundle (item ②) use minimum pole class H-1 with E=11'.

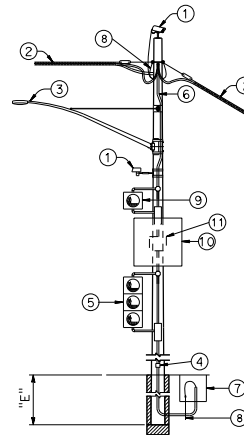


CASE 1N
POLE AT DEAD END
WITH ATTACHMENTS

See Note 2

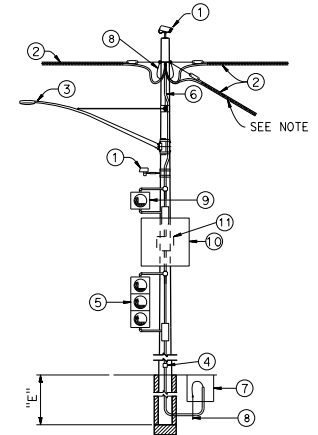


CASE 2N
POLE AT TANGENT
WITHOUT ATTACHMENTS



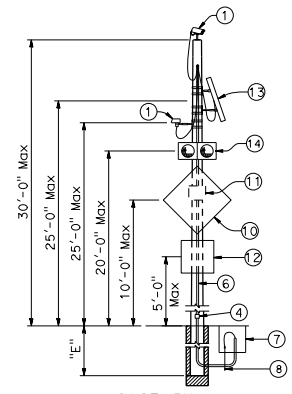
CASE 3N
POLE AT TANGENT OR CORNER
WITH ATTACHMENTS

See Note 2



CASE 4N
POLE AT JUNCTION
WITH ATTACHMENTS

See Note 2



CASE 5N
POLE WITHOUT OVERHEAD BUNDLE
WITH ATTACHMENTS

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TEMPORARY WOOD POLES NON-GUYED - NO SIGNALS ON SPANS

NO SCALE

RSP ES-188 DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN ES-188
DATED MAY 31, 2018 - PAGE 558 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP ES-188

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER
 No. C67793
 Exp. 3-31-20
 CIVIL
 STATE OF CALIFORNIA

October 19, 2018
PLANS APPROVAL DATE

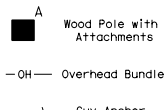
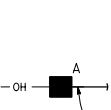
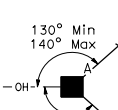
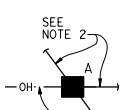
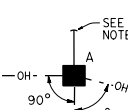
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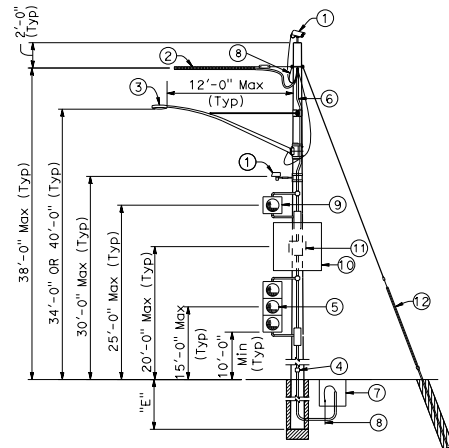
TO ACCOMPANY PLANS DATED _____

LEGEND

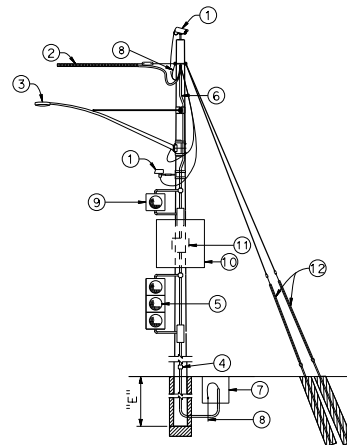
- A Wood Pole with Attachments
- OH— Overhead Bundle
- Guy Anchor

POLE SELECTION TABLE

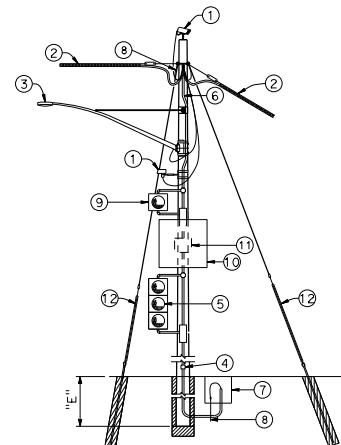
																						
		CASE 1G				CASE 2G				CASE 3G				CASE 4G								
		MAXIMUM d _p				1"	1.5"	2.0"	2.5"	1"	1.5"	2.0"	2.5"	1"	1.5"	2.0"	2.5"	1"	1.5"	2.0"	2.5"	
OVERHEAD BUNDLE HORIZONTAL SPAN (Max)	50'	MINIMUM POLE CLASS	H-1	H-1	H-2	H-2	1	1	1	1	1	1	1	H-1	H-2	H-2	H-3	H-3				
		POLE EMBEDMENT (E)	10'				9'				9'				11'							
	100'	MINIMUM POLE CLASS	H-2	H-2	H-3	H-4	1	H-1	H-1	H-1	1	H-1	H-2	H-2	H-3	H-3	H-4	H-4				
		POLE EMBEDMENT (E)	11'				9'				9'				12'							
	150'	MINIMUM POLE CLASS	H-3	H-3	H-4	H-5	H-1	H-1	H-2	H-2	H-2	H-3	H-3	H-3	H-4	H-5	H-5	H-6				
		POLE EMBEDMENT (E)	11'				9'				9'				12'							
	200'	MINIMUM POLE CLASS	H-4	H-4	H-5	H-6	H-1	H-2	H-3	H-3	H-3	H-3	H-4	H-4	H-5	H-6						
		POLE EMBEDMENT (E)	11'				9'				9'				12'							



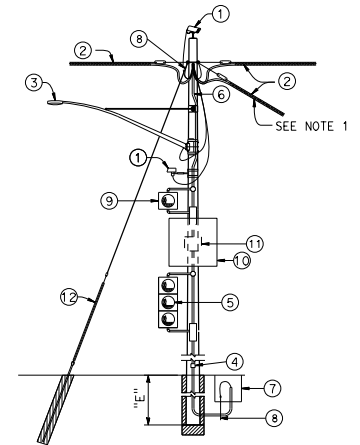
CASE 1G
POLE AT DEAD END
WITH ATTACHMENTS



CASE 2G
POLE AT DEAD END
WITH ATTACHMENTS



CASE 3G
POLE AT CORNER
WITH ATTACHMENTS



CASE 4G
POLE AT JUNCTION
WITH ATTACHMENTS

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TEMPORARY WOOD POLES GUYED - NO SIGNALS ON SPANS

NO SCALE

RSP ES-18C DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN ES-18C
DATED MAY 31, 2018 - PAGE 559 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP ES-18C

- ① Camera or vehicle detection system
- ② Overhead bundle consisting of a 3/4" Ø messenger wire, overhead conductors, and lashing wire
- ③ Luminaire with mast arm
- ④ Pedestrian push button or accessible push button
- ⑤ Signal face with 3 indications or single sheet sign panel (10 SQFT Max)
- ⑥ Riser with weather head as required
- ⑦ Pull box as required
- ⑧ Grounding as required
- ⑨ Single flashing beacon or single sheet sign panel (4 SQFT Max)
- ⑩ Single sheet sign panel (4' x 4' Max) or signal face with 3 indications
- ⑪ Flashing beacon control assembly
- ⑫ 1/2" Ø guy wire with white guy marker and strain insulator (for anchorage see "TEMPORARY WOOD POLES-DETAILS No. 2" sheet)

NOTES:

1. In addition to other restrictions on maximum horizontal span, this horizontal span must not exceed 100'.
2. Guy wire in line with opposing span ± 5°.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

October 19, 2018
PLANS APPROVAL DATE

Stanley P. Johnson
REGISTERED CIVIL ENGINEER
No. C67793
EXP. 3-31-20
CIVIL

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TO ACCOMPANY PLANS DATED _____

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL NO. SHEETS

October 19, 2018
PLANS APPROVAL DATE

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

TO ACCOMPANY PLANS DATED

- ① Camera or vehicle detection system
- ② Overhead bundle consisting of $\frac{3}{8}$ " ϕ messenger wire and overhead conductors and lashing wire
- ③ Luminaire with mast arm
- ④ Pedestrian push button or accessible push button
- ⑤ Signal face with 3 indications or single sheet sign panel (10 SOFT Max)
- ⑥ Riser with weather head as required
- ⑦ Pull box as required
- ⑧ Grounding as required
- ⑨ $\frac{3}{8}$ " ϕ tether wire
- ⑩ $\frac{1}{2}$ " ϕ guy wire with white guy marker and strain insulator. For anchorage see "TEMPORARY WOOD POLES-DETAILS No. 2" sheet
- ⑪ Pedestrian signal head

LEGEND

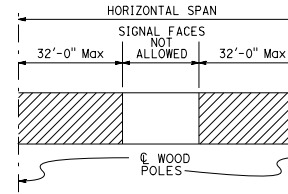
- A Wood Pole with Attachments
- TS- Overhead Bundle with Signal Faces (See Note 2)
- OH- Overhead Bundle
- Guy Anchor

POLE SELECTION TABLE

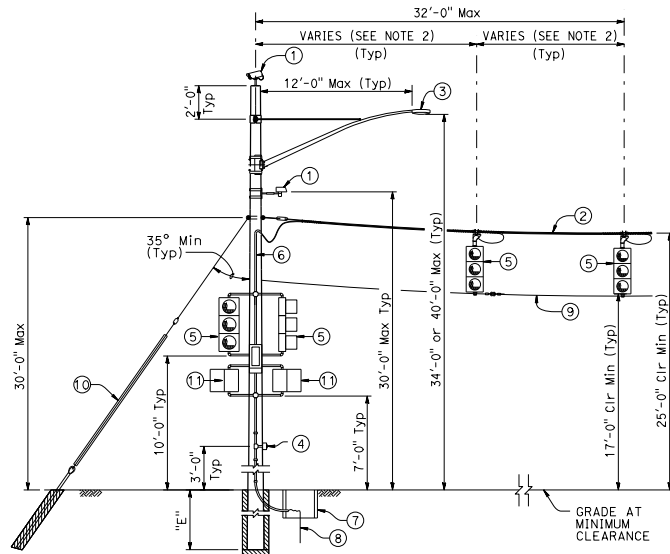
OVERHEAD BUNDLE HORIZONTAL SPAN Max	MAXIMUM dp	CASE 1GT			CASE 2GT			CASE 3GT		
		1"	1.5"	2.0"	1"	1.5"	2.0"	1"	1.5"	2.0"
50'	MINIMUM POLE CLASS	H-2	H-3	H-3	H-2	H-2	H-2	H-3	H-4	H-4
	POLE EMBEDMENT (E)	10'			10'			11'		
100'	MINIMUM POLE CLASS	H-3	H-3	H-4	H-2	H-3	H-3	H-4	H-4	H-5
	POLE EMBEDMENT (E)	11'			10'			11'		
150'	MINIMUM POLE CLASS	H-3	H-4	H-4	H-2	H-3	H-4	H-4	H-5	H-5
	POLE EMBEDMENT (E)	11'			10'			11'		

NOTES:

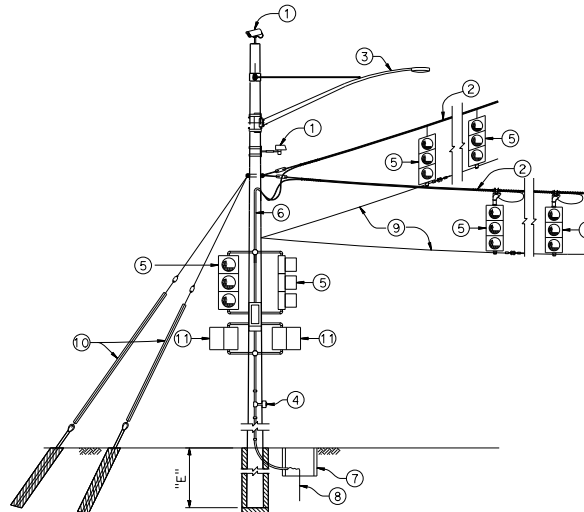
1. In addition to other restrictions on maximum horizontal span, this horizontal span must not exceed 100'.
2. Maximum of 2 SIGNAL FACES per span within the hatched regions indicated by "LOCATION OF SIGNAL FACES".
3. Guy wire in line with opposing span $\pm 5^\circ$.



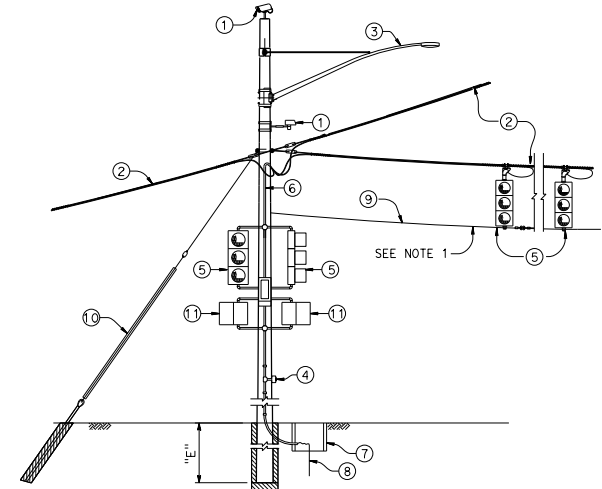
LOCATION OF SIGNAL FACES



CASE 1GT
POLE AT DEAD END
WITH ATTACHMENTS



CASE 2GT
POLE AT CORNER
WITH ATTACHMENTS



CASE 3GT
POLE AT JUNCTION WITH ATTACHMENTS

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION TEMPORARY WOOD POLES GUYED - WITH SIGNAL FACES ON SPANS

NO SCALE
RSP ES-180 DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN ES-180
DATED MAY 31, 2018 - PAGE 560 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP ES-180

2018 REVISED STANDARD PLAN RSP ES-180

LEGEND

- A
Wood Pole with Attachments
- TS — Overhead Bundle with Signal Faces (See Note 1)

POLE SELECTION TABLE

Wood Pole with Attachments

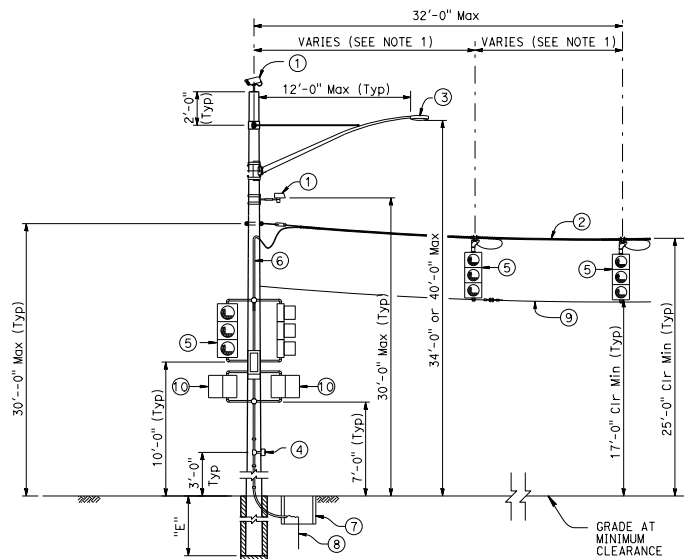
Overhead Bundle with Signal Faces (See Note 1)

Wood Pole with Attachments

Overhead Bundle with Signal Faces (See Note 1)

		CASE 1NT			
OVERHEAD BUNDLE HORIZONTAL SPAN (Max)	75'	MAXIMUM d _p	1"	1.5"	2.0"
		MINIMUM POLE CLASS	H-5	H-6	H-6
		POLE EMBEDMENT (E)	13'		

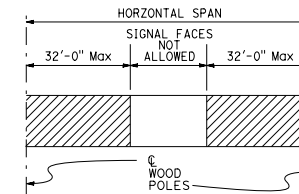
- ① Camera or vehicle detection system
- ② Overhead bundle consisting of a 3/8" Ø messenger wire and overhead conductors and lashing wire
- ③ Luminaire with mast arm
- ④ Pedestrian push button or accessible push button
- ⑤ Signal face with 3 indications or single sheet sign panel (10 SQFT Max)
- ⑥ Riser with weather head as required
- ⑦ Pull box as required
- ⑧ Grounding as required
- ⑨ 3/8" Ø tether wire
- ⑩ Pedestrian signal head



CASE 1NT
POLE AT DEAD END
WITH ATTACHMENTS

NOTE:

1. Maximum of 2 SIGNAL FACES per span within the hatched regions indicated by "LOCATION OF SIGNAL FACES".



LOCATION OF SIGNAL FACES

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TEMPORARY WOOD POLES
NON-GUYED-WITH SIGNAL FACES ON SPAN

NO SCALE

RSP ES-18E DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN ES-18E
DATED MAY 31, 2018 - PAGE 561 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP ES-18E

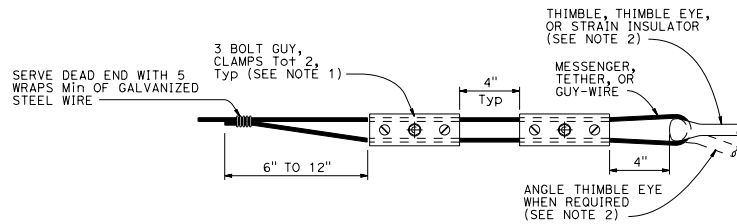
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL No. SHEETS

October 19, 2018
PLANS APPROVAL DATE

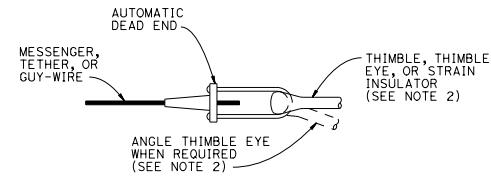
Stanley P. Johnson
REGISTERED CIVIL ENGINEER
No. C67793
EXP. 3-31-20
CIVIL
STATE OF CALIFORNIA

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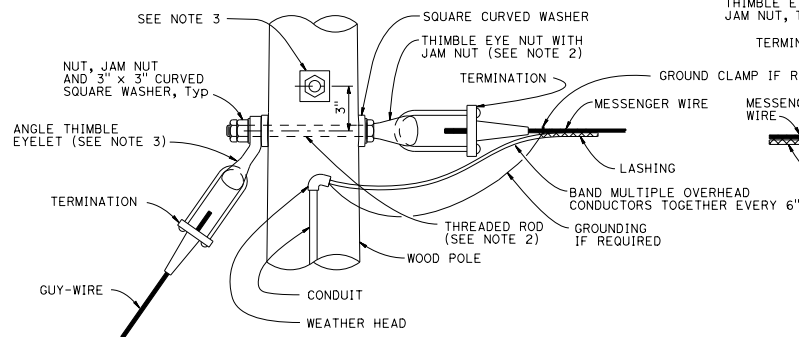
TO ACCOMPANY PLANS DATED _____



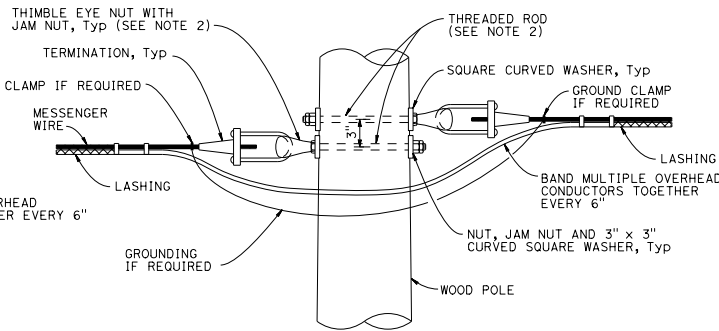
**ALTERNATIVE TERMINATION OF
MESSENGER WIRES USING GUY CLAMPS**



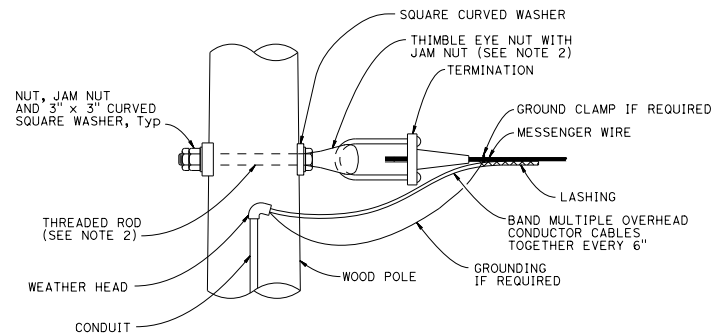
TERMINATION OF WIRES USING AUTOMATIC DEAD END



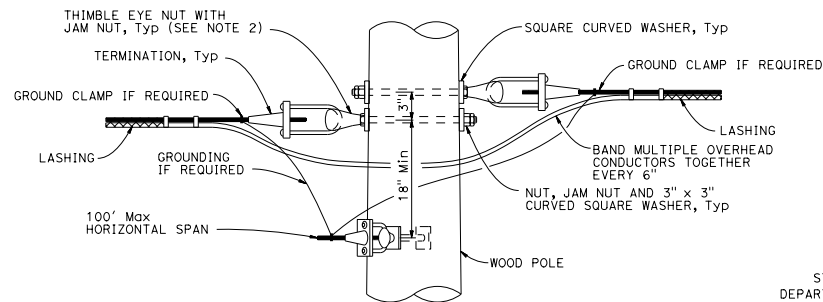
POLE AT DEAD END WITH GUY-WIRE CONNECTION



POLE AT TANGENT OR CORNER CONNECTION



POLE AT DEAD END CONNECTION



POLE AT JUNCTION CONNECTION

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL No. SHEETS

REGISTERED CIVIL ENGINEER

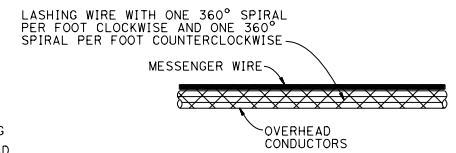
October 19, 2018

PLANS APPROVAL DATE

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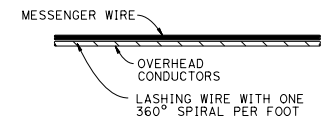
Stanley P. Johnson
No. C67793
EXP. 3-31-20
CIVIL
STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED _____



DOUBLE LASHING DETAIL

USE IF d_p IS GREATER THAN $1\frac{1}{2}$ "



TYPICAL LASHING DETAIL

USE IF d_p IS $1\frac{1}{2}$ " OR LESS

NOTES:

1. For guy wires use 3 clamps.
2. Use $\frac{5}{8}$ " ϕ except $\frac{3}{4}$ " ϕ at guyed wires
3. Install additional angle thimble eyelet at poles with two guy wires.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**TEMPORARY WOOD POLES
DETAILS No. 1**

NO SCALE

9RSP ES-19A DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN ES-19A
DATED MAY 31, 2018 - PAGE 562 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP ES-19A

2018 REVISED STANDARD PLAN RSP ES-19A

NOTES:

1. Luminaire mast arms must be in compliance with Standard Plan ES-6D with noted modifications.
2. Verify pole dimensions at tie-rod attachment height. Fabricate 9" flat bar with "L" dimension to maintain an open gap between flanges in finished installation.
3. Not all screw heads and bolt heads are shown for clarity.
4. Mast arm not shown for clarity.

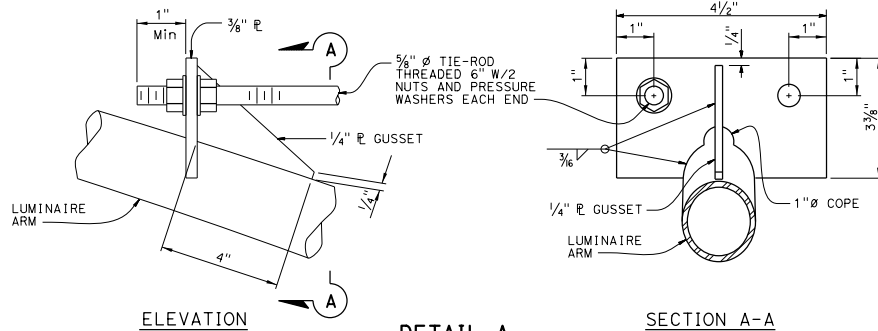
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL SHEETS

October 19, 2018
PLANS APPROVAL DATE

Stanley P. Johnson
No. C51793
Exp. 3-31-20
CIVIL
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA

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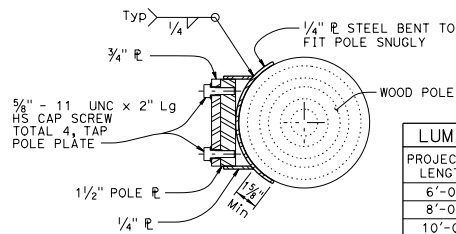
TO ACCOMPANY PLANS DATED _____



ELEVATION

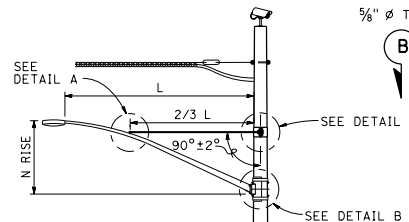
**DETAIL A
TIE-ROD AT LUMINAIRE ARM**

SECTION A-A

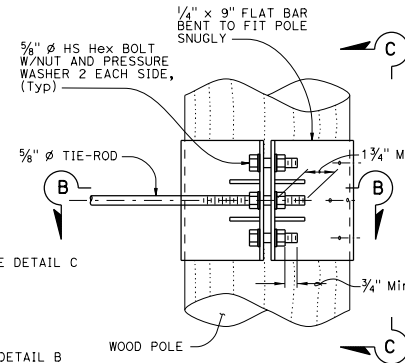


SECTION E-E

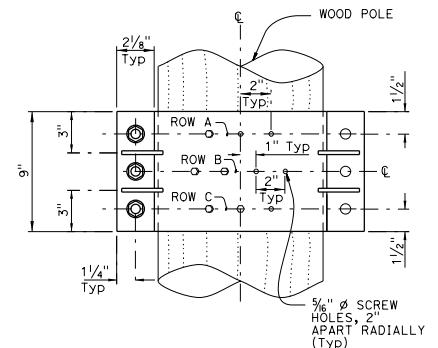
PROJECTED LENGTH	N RISE	MIN OD AT POLE	NOMINAL THICKNESS
6'-0"	2'-0"±	3/4"	0.1196"
8'-0"	2'-6"±	3/2"	
10'-0"	3'-3"±	3/2"	
12'-0"	4'-3"±	3/2"	



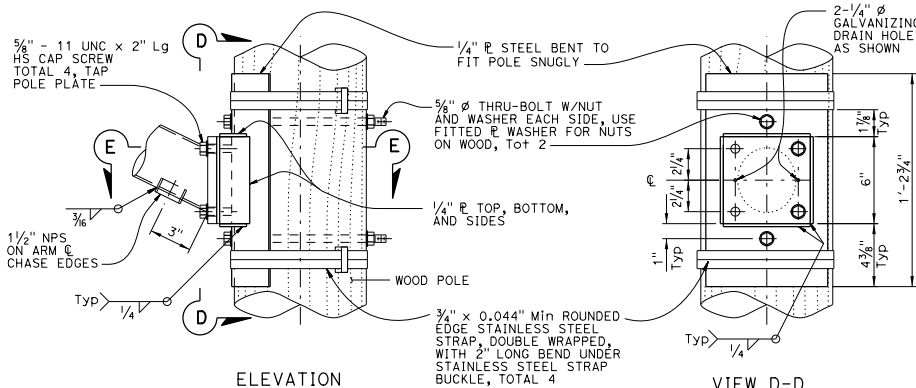
LUMINAIRE MAST ARM



ELEVATION



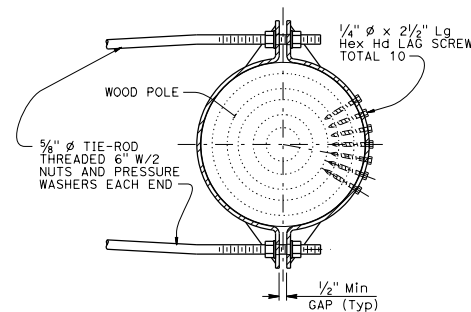
VIEW C-C



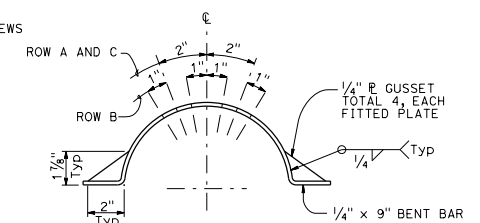
ELEVATION

**DETAIL B
ARM CONNECTION DETAILS**

VIEW D-D



SECTION B-B



**DETAIL C
TIE-ROD AT POLE**

**LAG SCREW AND
GUSSET PLATE LAYOUT**


STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**TEMPORARY WOOD POLES
DETAILS No. 3**
NO SCALE

9RSP ES-19C DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN ES-19C
DATED MAY 31, 2018 - PAGE 564 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP ES-19C

2018 REVISED STANDARD PLAN RSP ES-19C

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

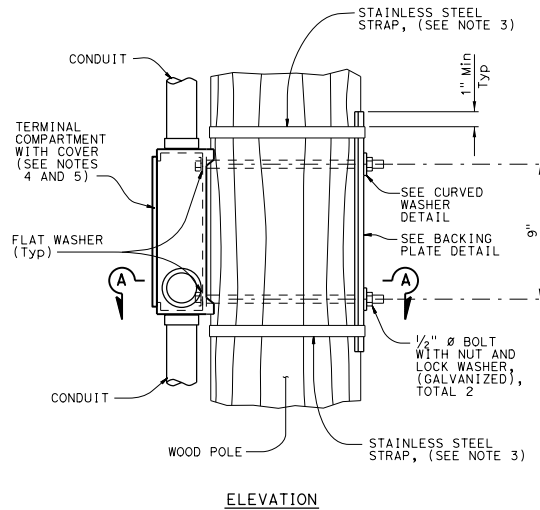

 REGISTERED CIVIL ENGINEER
 October 19, 2018
 PLANS APPROVAL DATE
 No. C67793
 Exp. 3-31-20
 CIVIL
 STATE OF CALIFORNIA

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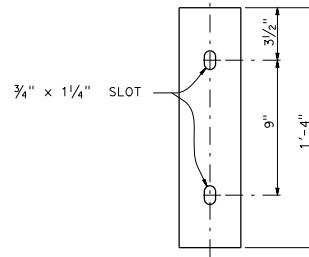
TO ACCOMPANY PLANS DATED _____

NOTES:

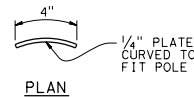
1. Verify pole dimensions at terminal compartment for fabrication of backing plate and curved washer.
2. Backing plate to be galvanized after fabrication.
3. $\frac{3}{4}$ " x 0.044" minimum, rounded edge stainless steel straps, double wrapped with 2" long bend under stainless steel strap buckle.
4. For miscellaneous details for signal mounting not shown see Revised Standard Plan RSP ES-4D.
5. If the terminal compartment has a cable entry guide on the rear face, remove the cable entry guide to a level that will not interfere with the wood post. Close any unused cable entry locations with raintight cap.



ELEVATION

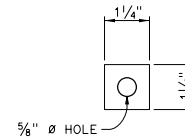


ELEVATION

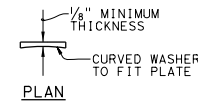


PLAN

BACKING PLATE
DETAIL

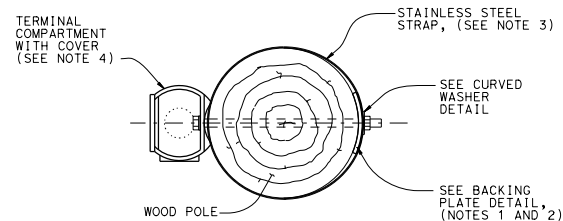


ELEVATION



PLAN

CURVED WASHER
DETAIL



SECTION A-A

SIDE MOUNTING
TERMINAL COMPARTMENT

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**TEMPORARY WOOD POLES
DETAILS No. 4**

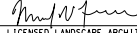
NO SCALE


RSP ES-19D DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN ES-19D
DATED MAY 31, 2018 - PAGE 565 OF THE STANDARD PLANS BOOK DATED 2018.

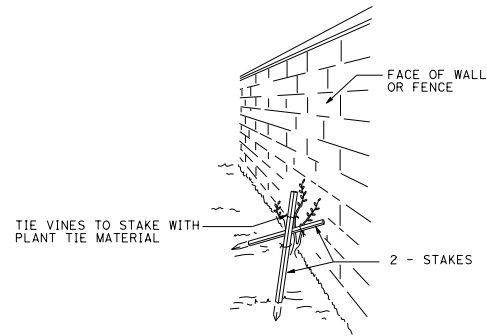
REVISED STANDARD PLAN RSP ES-19D

2018 REVISED STANDARD PLAN RSP ES-19D

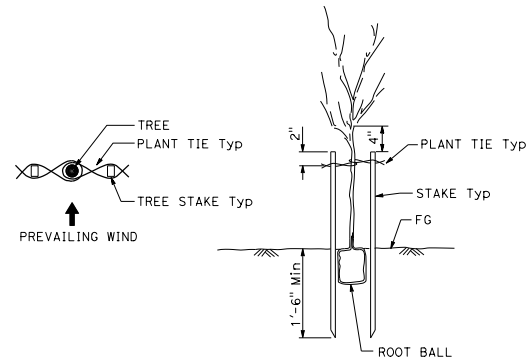
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS


 LICENSED LANDSCAPE ARCHITECT
 October 15, 2021
 PLANS APPROVAL DATE:
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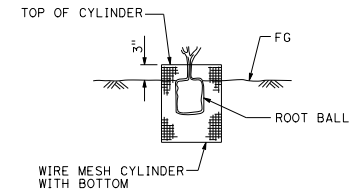

 TO ACCOMPANY PLANS DATED _____



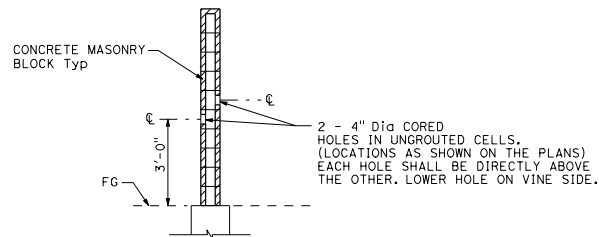
**PERSPECTIVE
VINE STAKING**



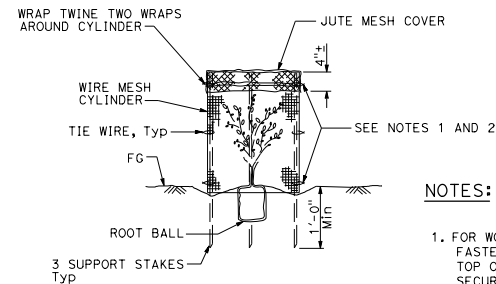
TREE STAKING



**SECTION
ROOT PROTECTOR**



**SECTION
CORE HOLE (VINE)**



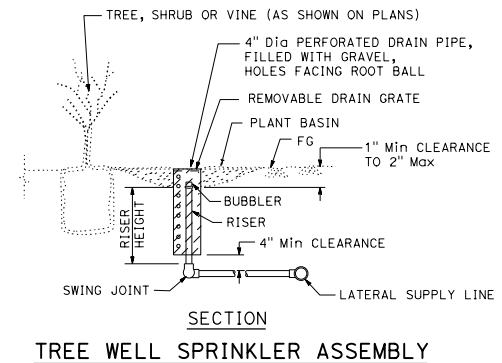
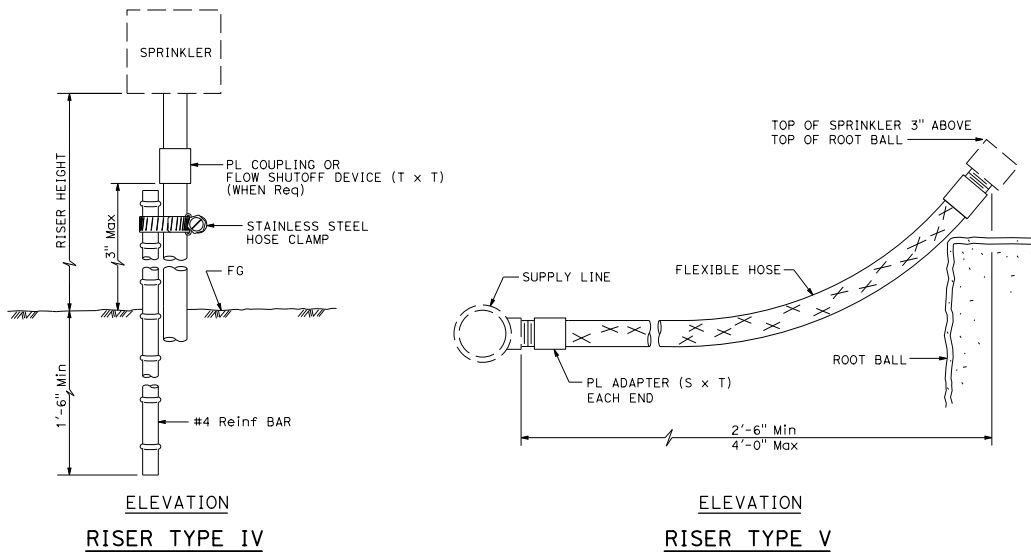
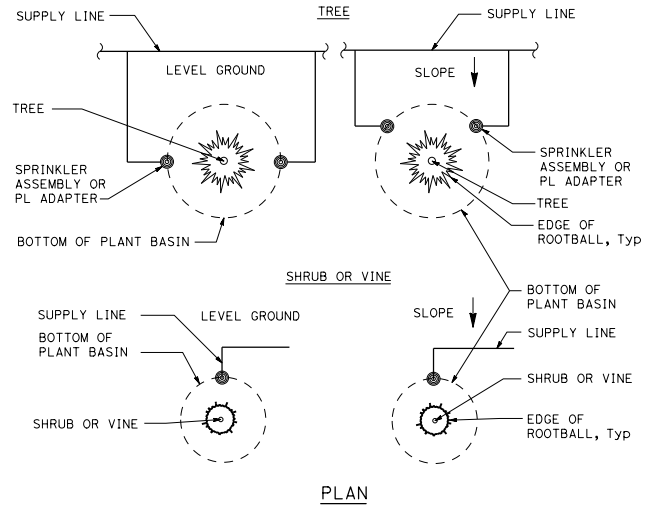
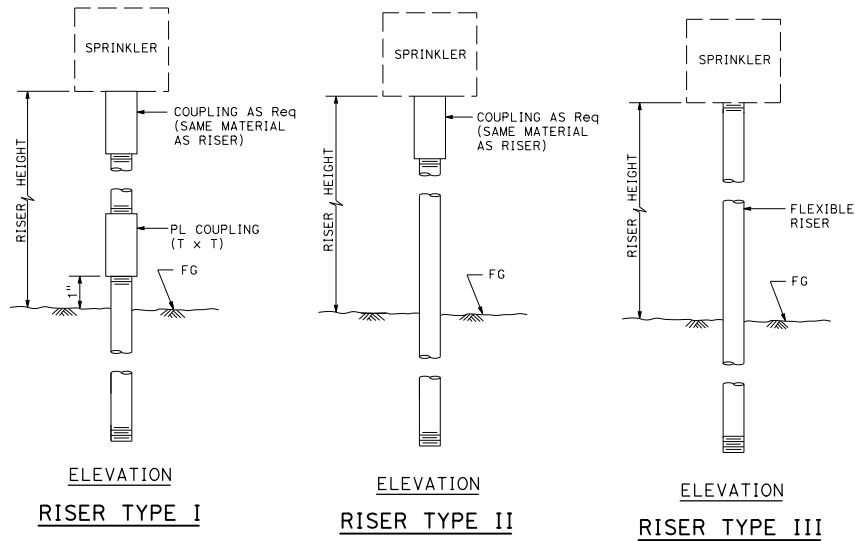
**SECTION
FOLIAGE PROTECTOR**

NOTES:

1. FOR WOOD SUPPORT STAKES:
FASTEN WOOD SCREWS 2" FROM TOP OF STAKE AND 1" ABOVE FG.
SECURE WIRE MESH TO STAKE WITH SCREWS AND TIE WIRE.
2. FOR REBAR SUPPORT STAKES:
SECURE WIRE MESH TO STAKE WITH WIRE.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
LANDSCAPE DETAILS
NO SCALE

RSP H3 DATED OCTOBER 15, 2021 SUPERSEDES STANDARD PLAN H3
DATED MAY 31, 2018 - PAGE 268 OF THE STANDARD PLANS BOOK DATED 2018.
REVISED STANDARD PLAN RSP H3



STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**LANDSCAPE DETAILS
(SPRINKLER ASSEMBLY)**
NO SCALE

RSP H4 DATED APRIL 19, 2019 SUPERSEDES STANDARD PLAN H4
DATED MAY 31, 2018 - PAGE 269 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP H4

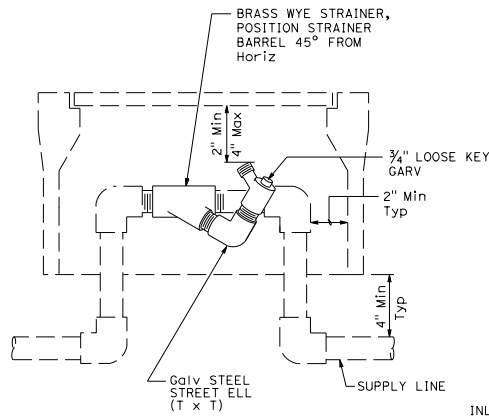
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL NO. SHEETS

LICENSED LANDSCAPE ARCHITECT
APRIL 19, 2019
PLANS APPROVAL DATE
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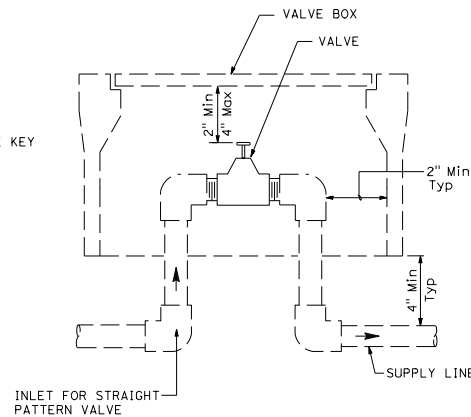
TO ACCOMPANY PLANS DATED _____

NOTES:

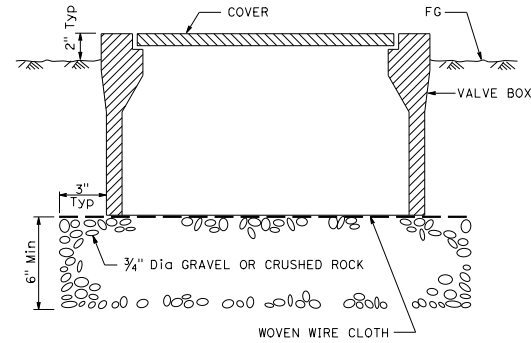
1. See Project Plans for type and quantity of sprinklers.
2. Refer to plant legend and Standard Plan H2 for plant basin dimensions.



ELEVATION
WYE STRAINER ASSEMBLY



ELEVATION
VALVE

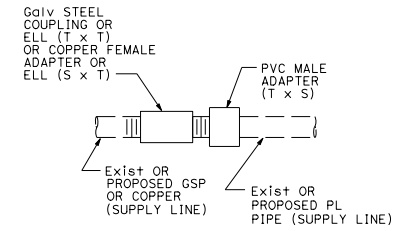


SECTION
VALVE BOX

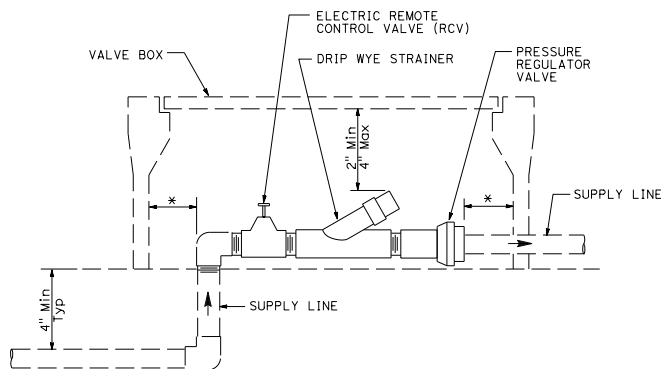
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL NO. SHEETS

Licensed Landscape Architect
April 19, 2019
PLANS APPROVAL DATE
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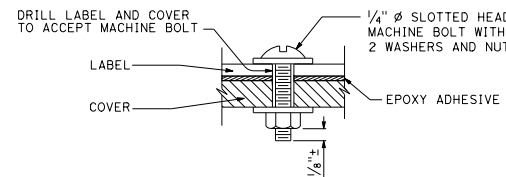
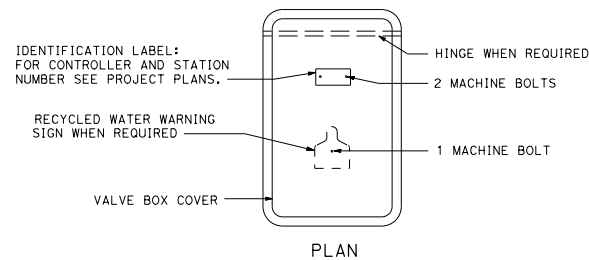
TO ACCOMPANY PLANS DATED _____



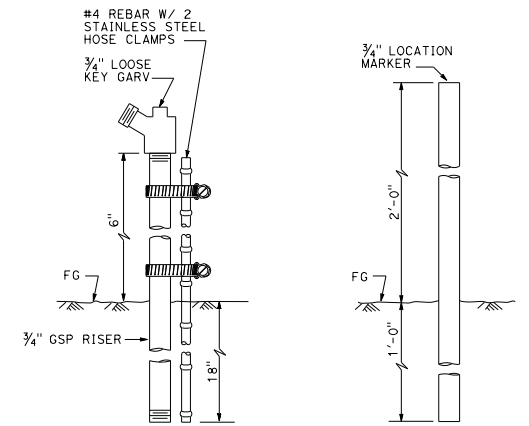
**GALVANIZED OR COPPER PIPE
CONNECTION TO PLASTIC PIPE**



ELEVATION
DRIP VALVE ASSEMBLY



SECTION
VALVE BOX IDENTIFICATION



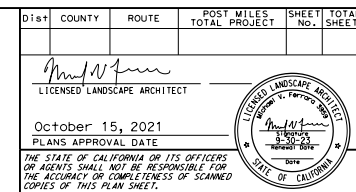
ELEVATION
GARDEN VALVE ASSEMBLY
ELEVATION
LOCATION MARKER

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
LANDSCAPE DETAILS
NO SCALE

RSP H6 DATED APRIL 19, 2019 SUPERSEDES STANDARD PLAN H6
DATED MAY 31, 2018 - PAGE 271 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP H6

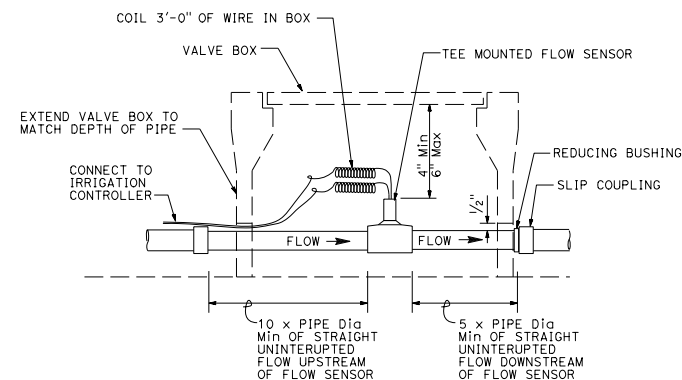
2018 REVISED STANDARD PLAN RSP H6



NOTES:

1. Wye strainer and fittings must be the same size as the backflow preventer shown on the plans.
2. Wye strainer must be located and fitted in accordance with local water ordinance.
3. Backflow preventer assembly manifold pipe must be the same pipe as the supply line (main) pipe to be installed from the water meter to the backflow preventer assembly.
4. All metal in contact with soil and Portland Cement Concrete must be wrapped with 2" wide plastic backed adhesive polyethylene tape 20 mil thick with 1/2" overlap.
5. The connector must be located 6 to 9 inches away from the edge of PCC pad.

IN ONE PIECE ENCLOSURE



SECTION
FLOW SENSOR

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

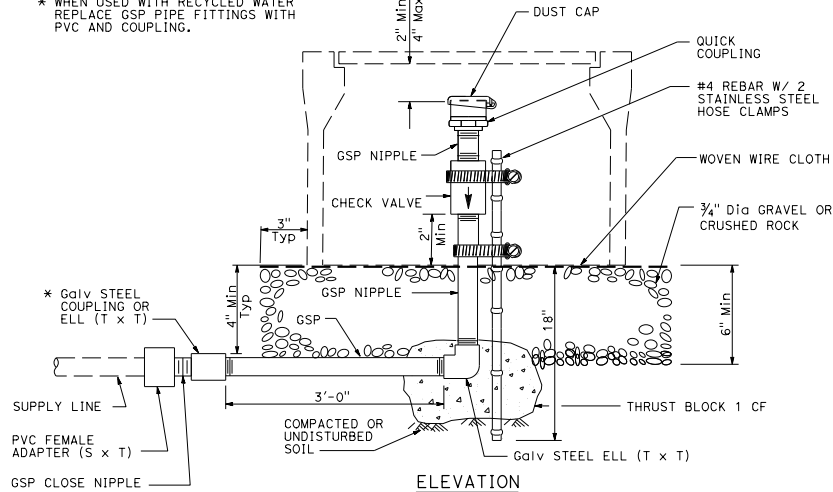
LANDSCAPE DETAILS

NO SCALE

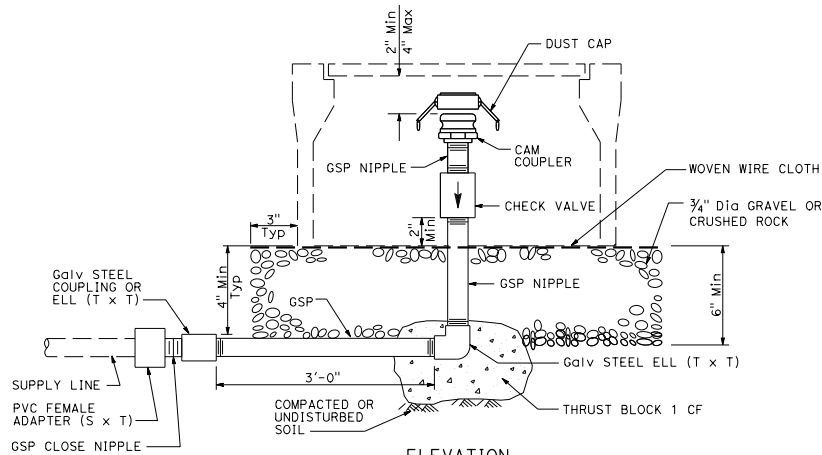
RSP H7 DATED OCTOBER 15, 2021 SUPERSEDES RSP H7 DATED APRIL 16, 2021 AND
STANDARD PLAN H7 DATED MAY 31, 2018 - PAGE 272 OF THE STANDARD PLANS BOOK DATED 2018.

REVISÉD STANDARD PLAN RSP H7

* WHEN USED WITH RECYCLED WATER
REPLACE GSP PIPE FITTINGS WITH
PVC AND COUPLING.



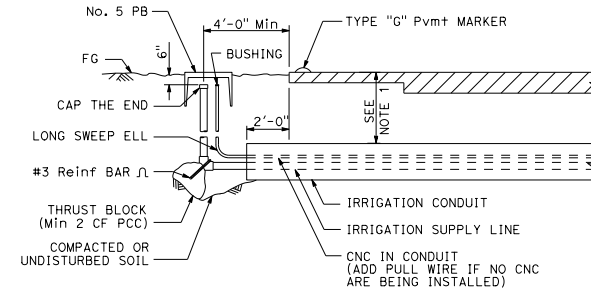
ELEVATION
QUICK COUPLING VALVE



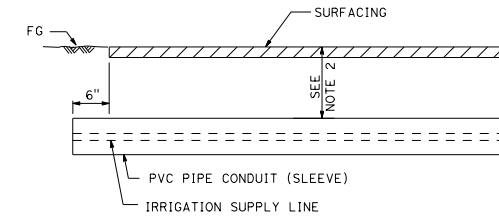
ELEVATION
CAM COUPLER ASSEMBLY

NOTES:

1. 40" - 50"
2. 12" downstream of RCV
18" upstream of RCV



SECTION
IRRIGATION CONDUIT
UNDER TRAVELED WAY



SECTION
PVC PIPE CONDUIT (SLEEVE)
UNDER SIDEWALKS, DRIVEWAYS PAVEMENT, SLOPE PAVING, PAVED DITCHES AND PATHS

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL NO. SHEETS

LICENSED LANDSCAPE ARCHITECT

April 19, 2019
PLANS APPROVAL DATE

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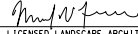

TO ACCOMPANY PLANS DATED _____

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
LANDSCAPE DETAILS
NO SCALE

RSP H8 DATED APRIL 19, 2019 SUPERSEDES STANDARD PLAN H8
DATED MAY 31, 2018 - PAGE 273 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP H8

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

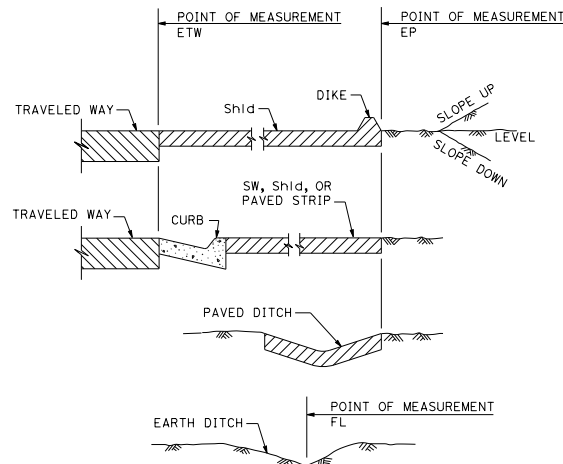

 LICENSED LANDSCAPE ARCHITECT
 October 16, 2020
 PLANS APPROVAL DATE


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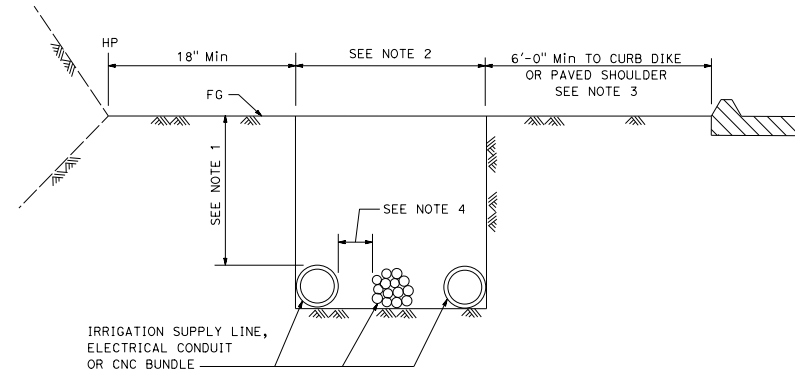
TO ACCOMPANY PLANS DATED _____

NOTES:

1. 12" downstream of RCV
18" upstream of RCV
2. Width sufficient to allow snaking of pipe and CNC bundles without stacking.
3. 1 ft minimum to back of sidewalk.
4. 2" Min or Dia of largest pipe in trench.



**SECTION
POINTS OF MEASUREMENT**



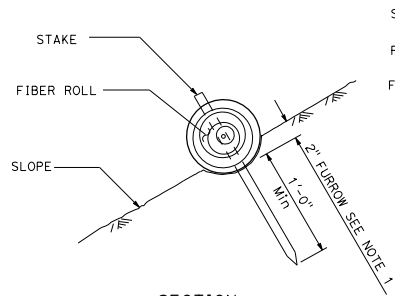
**SECTION
IRRIGATION TRENCH DETAIL**

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
LANDSCAPE DETAILS
NO SCALE

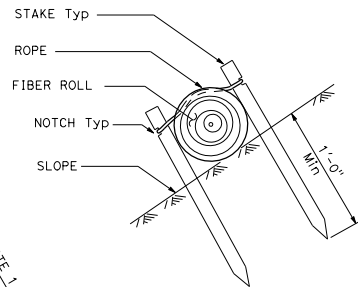
RSP H9 DATED OCTOBER 16, 2020 SUPERSEDES STANDARD PLAN H9
DATED MAY 31, 2018 - PAGE 274 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP H9

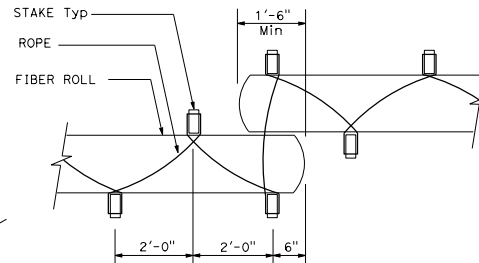
2018 REVISED STANDARD PLAN RSP H9



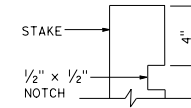
SECTION
FIBER ROLL (TYPE 1)



SECTION
FIBER ROLL (TYPE 2)



PLAN



ELEVATION

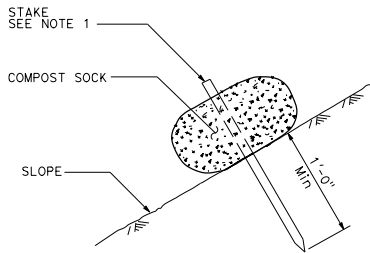
STAKE NOTCH DETAIL

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL NO. SHEETS

LICENSED LANDSCAPE ARCHITECT
October 18, 2019
PLANS APPROVAL DATE
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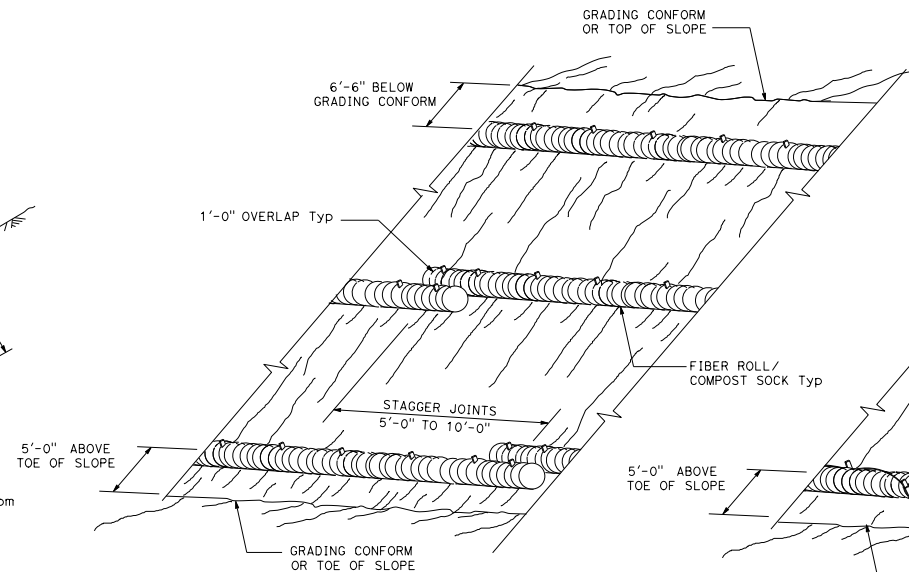
TO ACCOMPANY PLANS DATED _____

NOTE:
1. Installations shown in the perspectives are for
slope inclination of 10:1 (Horiz:Vert) and steeper.

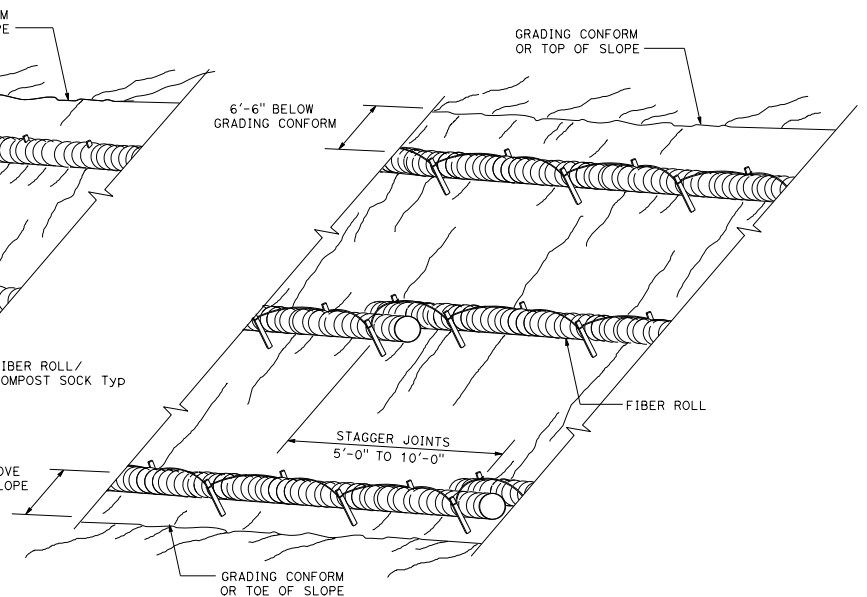


SECTION
COMPOST SOCK

NOTE:
1. May install stake adjacent to bottom
edge of compost sock.



PERSPECTIVE
**FIBER ROLL (TYPE 1)
COMPOST SOCK**



PERSPECTIVE
FIBER ROLL (TYPE 2)

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**EROSION CONTROL DETAILS
FIBER ROLL AND COMPOST SOCK**
NO SCALE

RSP H51 DATED OCTOBER 18, 2019 SUPERSEDES STANDARD PLAN H51
DATED MAY 31, 2018 - PAGE 276 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP H51

2018 REVISED STANDARD PLAN RSP H51

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

Dulce Rufino Feldman
REGISTERED CIVIL ENGINEER

October 18, 2019
PLANS APPROVAL DATE

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OR AGENTS SHALL NOT BE RESPONSIBLE FOR
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TO ACCOMPANY PLANS DATED _____

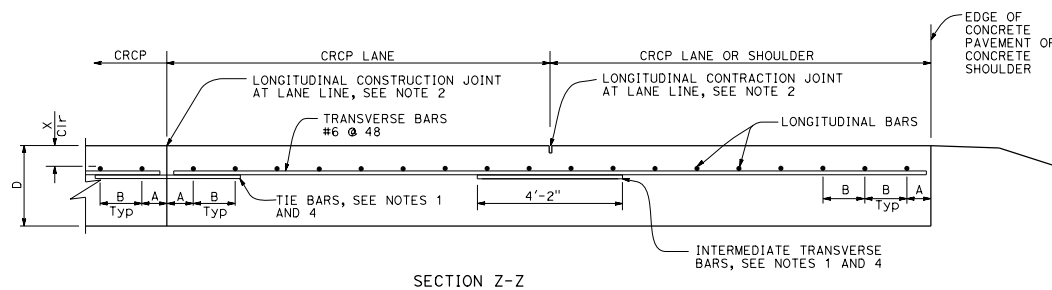
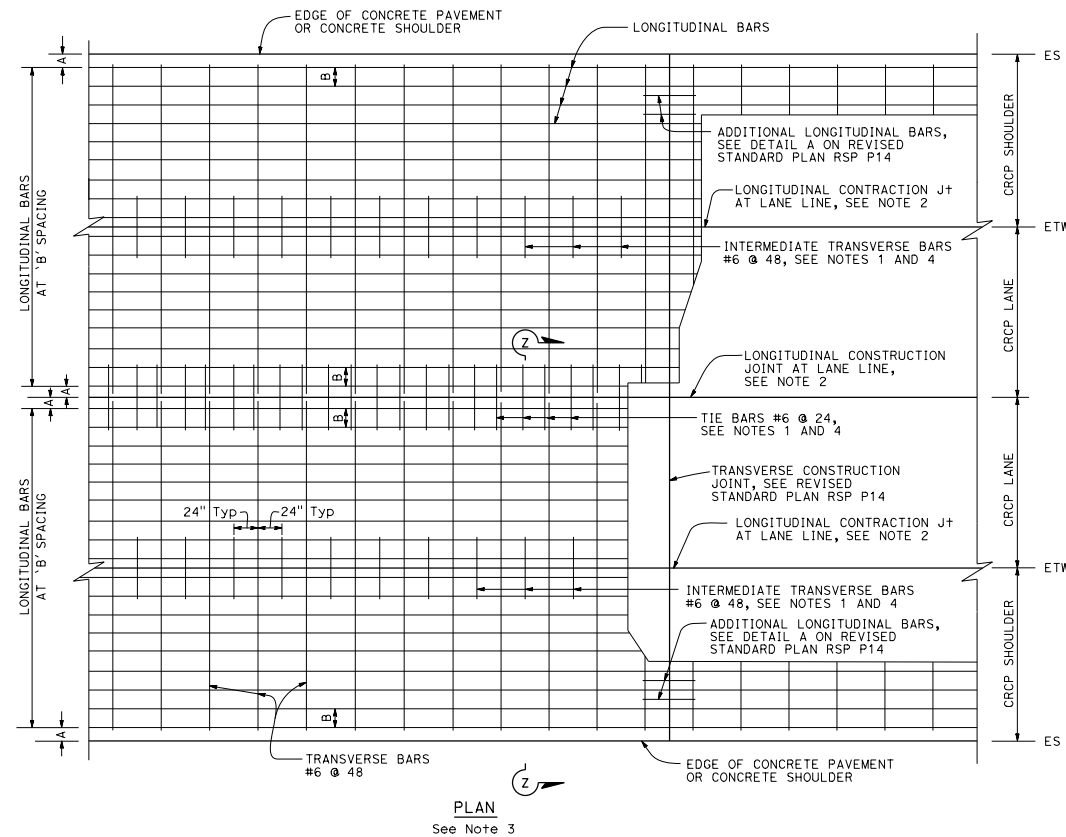


TABLE No. 1 LONGITUDINAL BAR REINFORCEMENT					
SLAB THICKNESS AND BAR SIZE		FIRST SPACING AT EDGE OR JOINT	REGULAR BARS	ADDITIONAL BARS AT TRANSVERSE CONSTRUCTION JOINT	Cir
D	BAR SIZE	SPACING A	SPACING B	SPACING 2 x B	X
.75'	#6	3" TO 4"	7.0"	14"	4"
.80'	#6	3" TO 4"	6.5"	13"	4"
.85'	#6	3" TO 4"	6.0"	12"	4"
.90'	#6	3" TO 4"	5.5"	11"	4"
.95'	#6	3" TO 4"	5.25"	10.5"	4"
1.00'	#6	3" TO 4"	5.0"	10"	5"
1.05'	#7	3" TO 4"	6.5"	13"	5"
1.10'	#7	3" TO 4"	6.25"	12.5"	5.5"

NOTES:

1. Place tie bars and intermediate transverse bars parallel to and in the same plane as transverse bars.
2. For longitudinal contraction and construction joint details, see Standard Plan P16.
3. For curved lane layout see Standard Plan P16.
4. For tie bar and intermediate transverse bar details, see Standard Plan P16.

ABBREVIATION:

D = Thickness of CRCP

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**CONTINUOUSLY REINFORCED
CONCRETE PAVEMENT**

NO SCALE

RSP P4 DATED OCTOBER 18, 2019 SUPERSEDES STANDARD PLAN P4
DATED MAY 31, 2018 - PAGE 158 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP P4

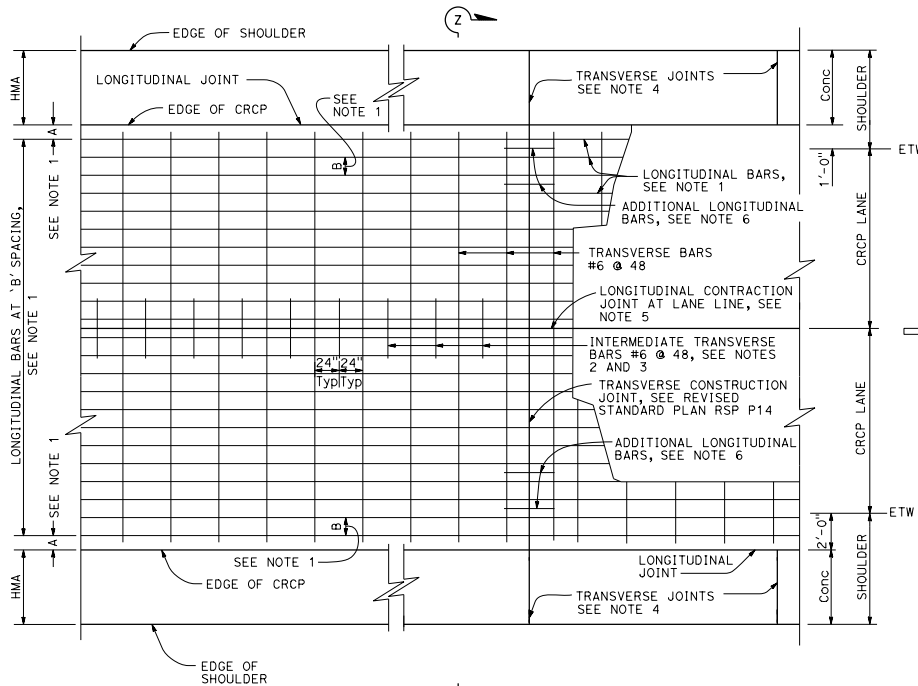
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

Dulce Rufino Feldman
REGISTERED CIVIL ENGINEER

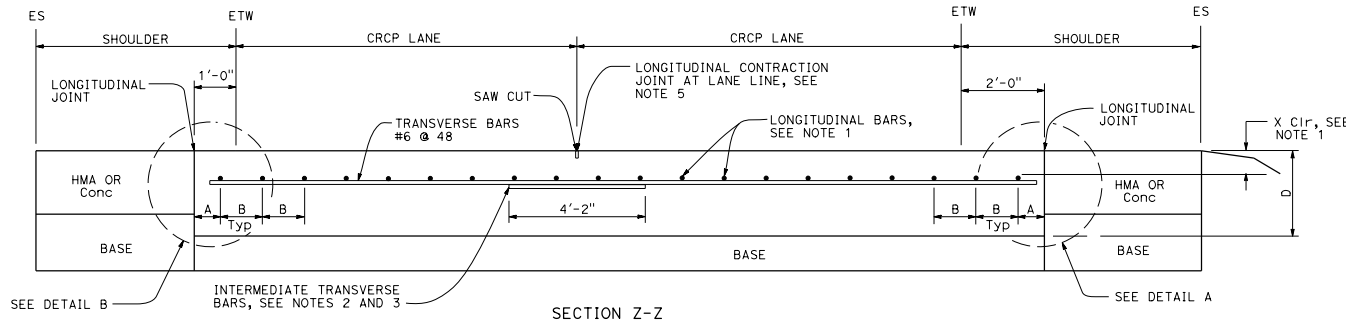
October 18, 2019
PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER
Dulce Rufino Feldman
No. C81459
Exp. 9-30-21
CIVIL
STATE OF CALIFORNIA



PLAN
See Note 7



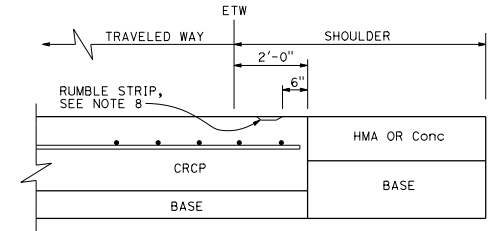
SECTION Z-Z

NOTES:

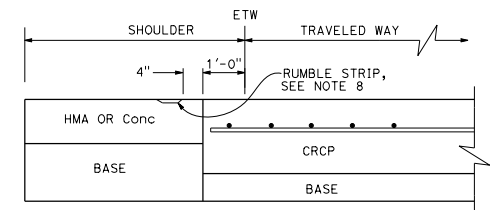
1. For longitudinal bar size, spacing and clearances, see Revised Standard Plan RSP P4.
2. For tie bar and intermediate transverse bar details, see Standard Plan P16.
3. Place intermediate transverse bars parallel to and in the same plane as transverse bars.
4. Construct transverse joints at right angle to the longitudinal joints in adjacent CRCP. Space joints at no less than 10' intervals and no more than 14' intervals. Match location of JPCP transverse joint with CRCP transverse construction joint or expansion joint. Omit dowel bars.
5. For longitudinal contraction joint details, see Standard Plan P16.
6. For additional longitudinal bars detail, see Detail A on Revised Standard Plan RSP P14.
7. For longitudinal construction joint plan layout not shown, see Revised Standard Plan RSP P4. For tie bar details at longitudinal construction joint, see Standard Plan P16.
8. For limits of rumble strips, see Project Plans.

ABBREVIATION:

D = Thickness of CRCP



DETAIL A



DETAIL B

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**CONTINUOUSLY REINFORCED
CONCRETE PAVEMENT
(WIDENED LANE)**

NO SCALE

RSP P5A DATED OCTOBER 18, 2019 SUPERSEDES STANDARD PLAN P5A
DATED MAY 31, 2018 - PAGE 159 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP P5A

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
<p><i>Dulce Rufino Feldman</i> REGISTERED CIVIL ENGINEER</p> <p>October 18, 2019 PLANS APPROVAL DATE</p> <p>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.</p>					

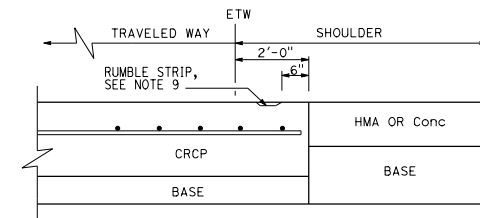
TO ACCOMPANY PLANS DATED _____

NOTES:

- For longitudinal bar size, spacing and clearances, see Revised Standard Plan RSP P4.
- For tie bar and intermediate transverse bar details, see Standard Plan P16.
- Place intermediate transverse bars parallel to and in the same plane as transverse bars.
- Construct transverse joints at right angle to the longitudinal joints in adjacent CRCP. Space joints at no less than 10' intervals and no more than 14' intervals. Match location of JPCP transverse joint with CRCP transverse construction joint or expansion joint. Omit dowel bars.
- For longitudinal contraction joint details, see Standard Plan P16.
- Do not construct longitudinal contraction joint when edge of new CRCP is less than 3'-3" from lane line.
- For additional longitudinal bars detail, see Detail A on Revised Standard Plan RSP P14.
- For longitudinal construction joint plan layout not shown, see Revised Standard Plan RSP P4. For tie bar details at longitudinal construction joint, see Standard Plan P16.
- For limits of rumble strips, see Project Plans.

ABBREVIATION:

D = Thickness of CRCP



DETAIL A

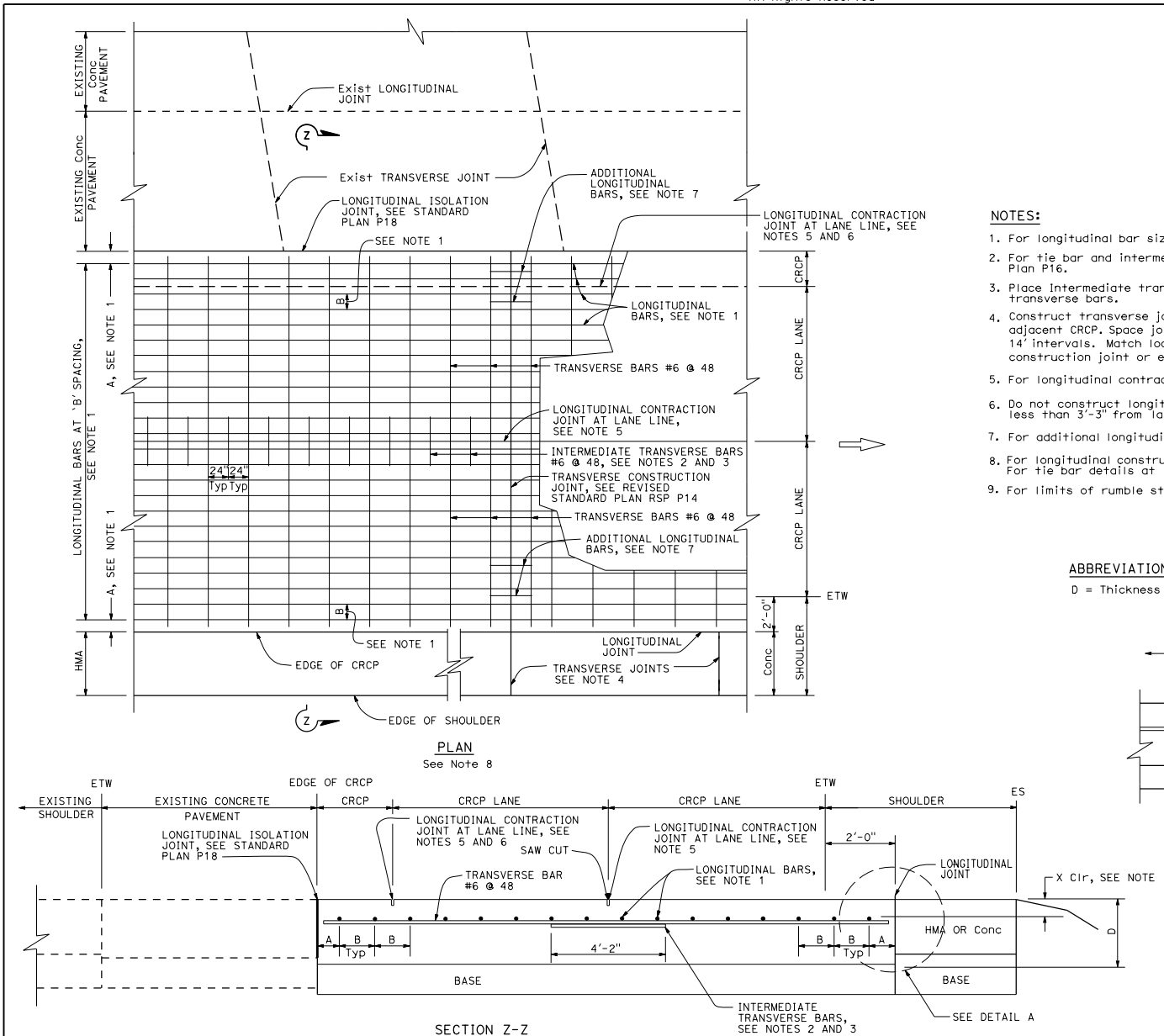
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

CONTINUOUSLY REINFORCED CONCRETE PAVEMENT (WIDENED LANE) LANE AND SHOULDER ADDITION OR REPLACEMENT

NO SCALE

RSP P5B DATED OCTOBER 18, 2019 SUPERSEDES STANDARD PLAN P5B
DATED MAY 31, 2018 - PAGE 160 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP P5B



NOTES:

1. For transverse and longitudinal bar sizes, spacing and clearances, see Table 1 on Revised Standard Plan RSP P4.
2. For tie bars in longitudinal construction joint, see Standard Plan P16.
3. Place additional longitudinal bars parallel to and in the same plane as the longitudinal bars.
4. Place additional longitudinal bars symmetrically about longitudinal construction joint.

ABBREVIATION

D = Thickness of CRCP

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

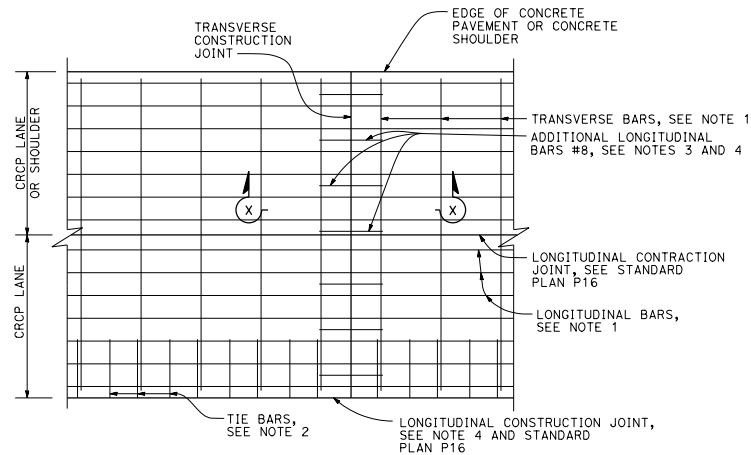
Dulce Rufino Feldman
REGISTERED CIVIL ENGINEER

October 18, 2019
PLANS APPROVAL DATE

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OR AGENTS SHALL NOT BE RESPONSIBLE FOR
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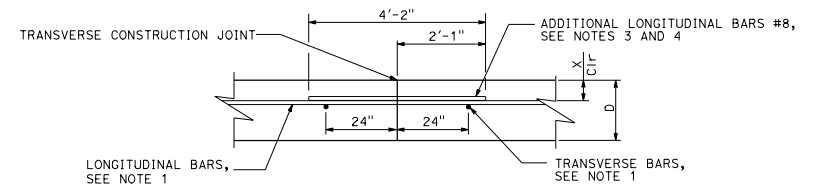
REGISTERED PROFESSIONAL ENGINEER
Dulce Rufino Feldman
No. C81459
EXP. 9-30-21
CIVIL
STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED _____



DETAIL A

Additional longitudinal bars at
transverse construction joint



SECTION X-X
TRANSVERSE CONSTRUCTION JOINT

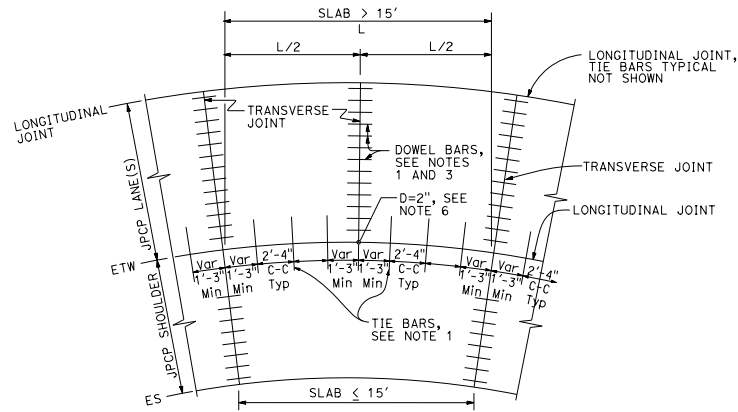
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**CONTINUOUSLY REINFORCED
CONCRETE PAVEMENT
TRANSVERSE CONSTRUCTION JOINT**

NO SCALE

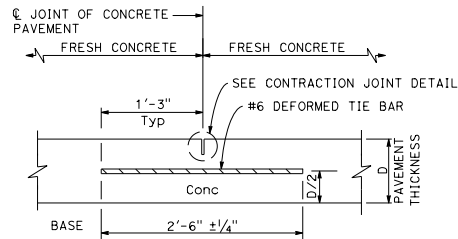
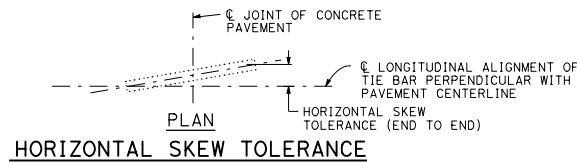
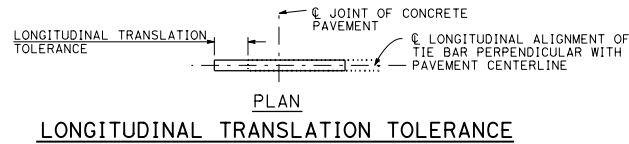
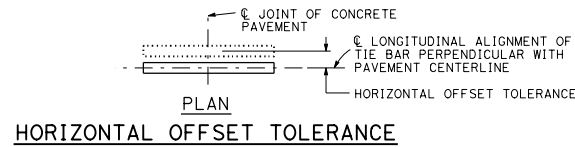
RSP P14 DATED OCTOBER 18, 2019 SUPERSEDES STANDARD PLAN P14
DATED MAY 31, 2018 - PAGE 167 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP P14

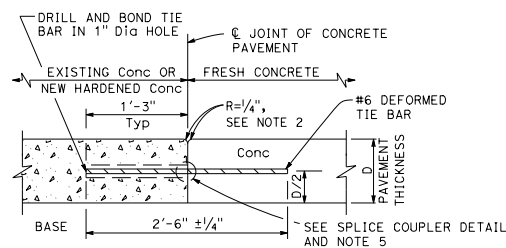
2018 REVISED STANDARD PLAN RSP P14



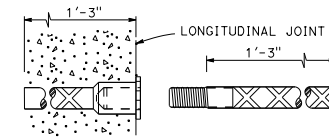
TIE BAR LAYOUT IN CURVED LANES



LONGITUDINAL CONTRACTION JOINT



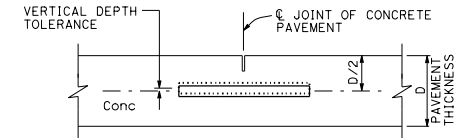
LONGITUDINAL CONSTRUCTION JOINT



ALTERNATIVE SPLICE COUPLER

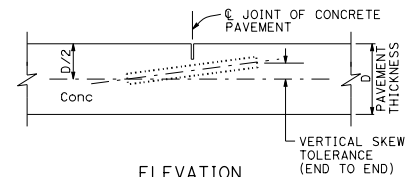
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
<p><i>Dulce Rufino Delmon</i> REGISTERED CIVIL ENGINEER</p> <p>October 18, 2019 PLANS APPROVAL DATE</p> <p>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</p>					

TO ACCOMPANY PLANS DATED _____



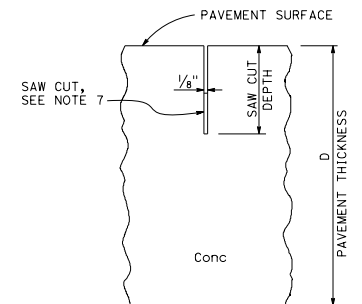
ELEVATION

VERTICAL DEPTH TOLERANCE



ELEVATION

VERTICAL SKEW TOLERANCE



CONTRACTION JOINT DETAIL

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**CONCRETE PAVEMENT-
TIE BAR
DETAILS**

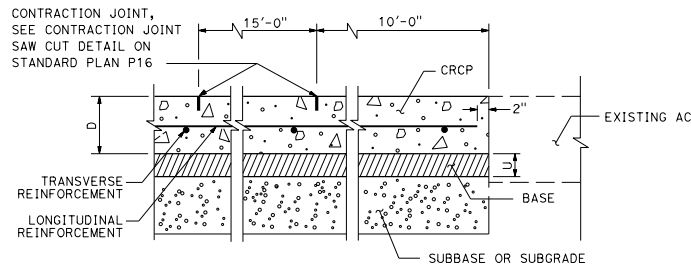
NO SCALE

RSP P15 DATED OCTOBER 18, 2019 SUPERSEDES STANDARD PLAN P15
DATED MAY 31, 2018 - PAGE 168 OF THE STANDARD PLANS BOOK DATED 2018.

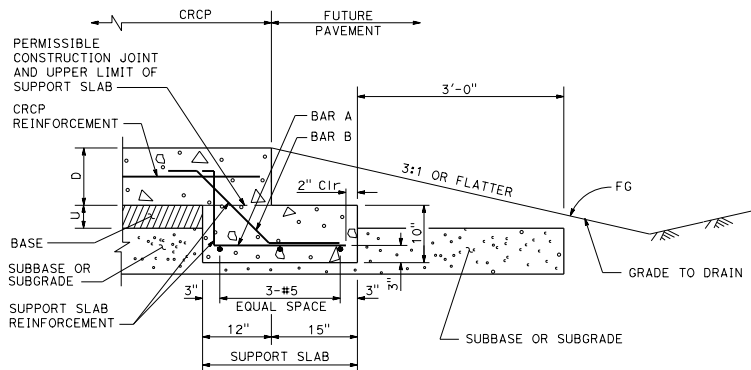
REVISED STANDARD PLAN RSP P15

NOTES:

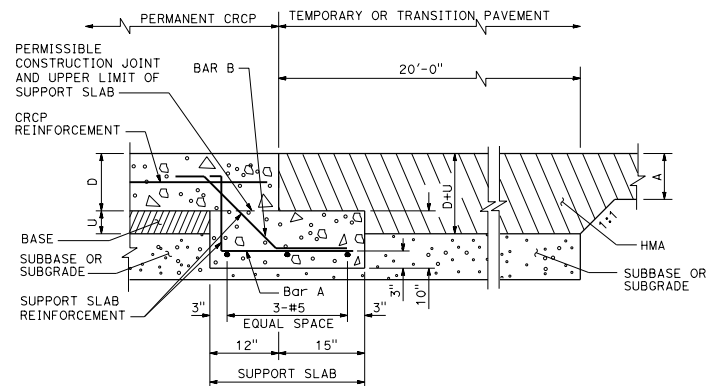
1. See Standard Plan P1 for typical dowel bar and tie bar placement and locations.
2. Where new pavement is placed against existing concrete pavement, rounding the corner is not required.
3. For dowel bar sizes, See Standard Plan P10.
4. Tie bar details apply to inside widenings.
5. Use either drill and bond or splice couplers.
6. Full depth drilled hole. Fill hole with filler material.
7. The bottom of the saw cut must be at least 0.5" clear of any dowel bar, tie bar and bar reinforcement.



TERMINAL JOINT TYPE A
(For Existing AC)



TERMINAL JOINT TYPE B
(For Future Pavement)



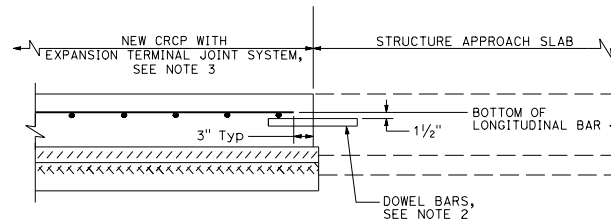
TERMINAL JOINT TYPE C
(For Temporary HMA Pavement)

NOTES:

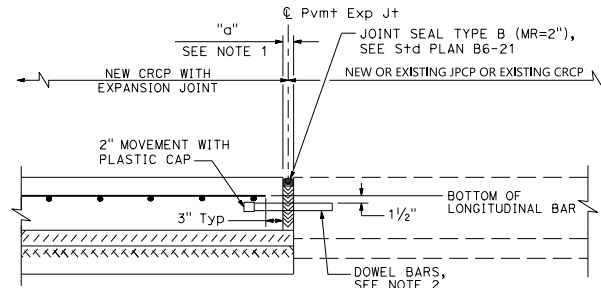
1. See Standard Plan B6-21 for "a".
2. For layout, tolerances, and other details not shown, see Standard Plan P10.
3. See Revised Standard RSP P32.

ABBREVIATIONS

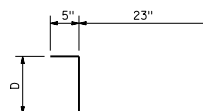
D = Thickness of CRCP
A = Depth of HMA as shown on Project Plans
U = Thickness of Base



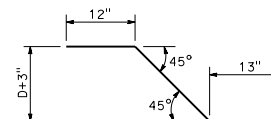
TERMINAL JOINT TYPE F
(For Structure Approach Slabs)



TERMINAL JOINT TYPE G
(For New or Existing JPCP or Existing CRCP)



BAR "A" (#5)
AT 12" C-C



BAR "B" (#5)
AT 12" C-C

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**CONTINUOUSLY REINFORCED
CONCRETE PAVEMENT
TERMINAL JOINT DETAILS**
NO SCALE

RSP P31A DATED APRIL 17, 2020 SUPERSEDES RSP P31A DATED OCTOBER 18, 2019 AND
STANDARD PLAN P31A DATED MAY 31, 2018 - PAGE 174 OF THE STANDARD PLANS BOOK DATED 2018.

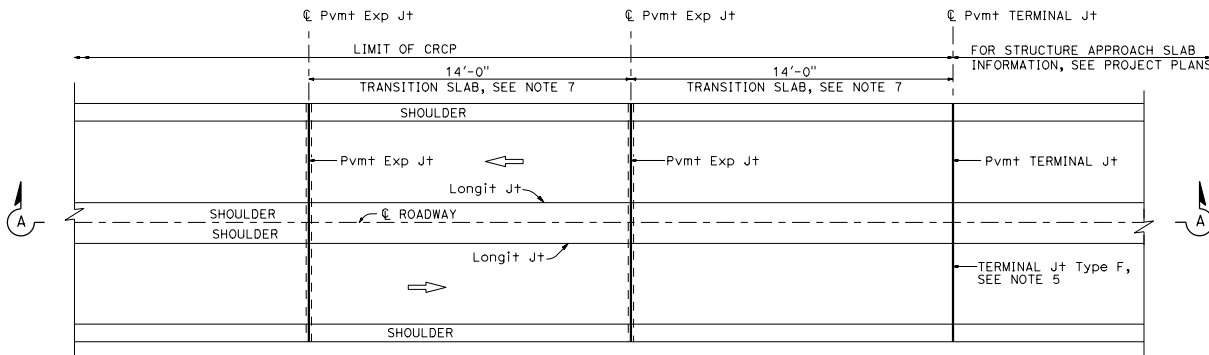
REVISED STANDARD PLAN RSP P31A

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
<p><i>Dulce Rufino Feldman</i> REGISTERED CIVIL ENGINEER</p> <p>April 17, 2020 PLANS APPROVAL DATE</p> <p>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.</p>					

TO ACCOMPANY PLANS DATED _____

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
<p><i>Dulce Rufino Feldman</i> REGISTERED CIVIL ENGINEER</p> <p>April 17, 2020 PLANS APPROVAL DATE</p> <p>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.</p>					

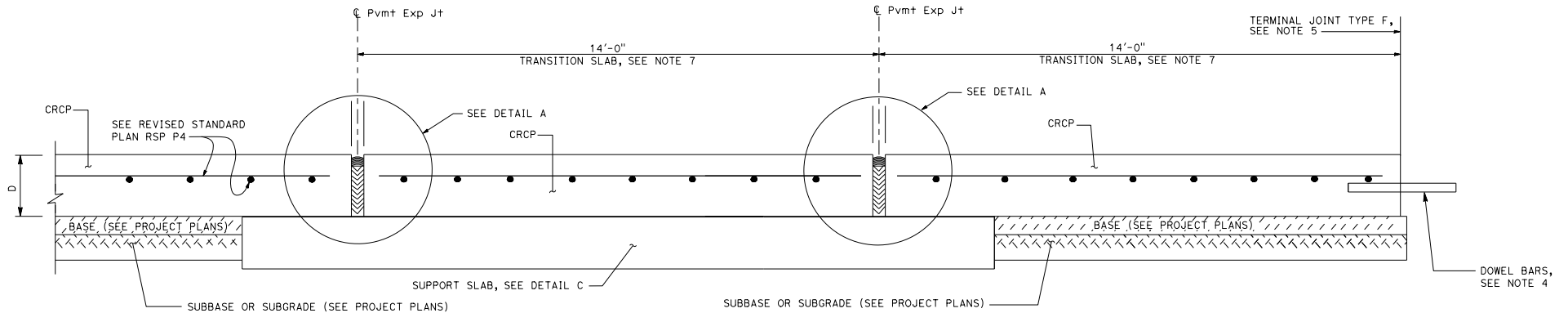
TO ACCOMPANY PLANS DATED _____



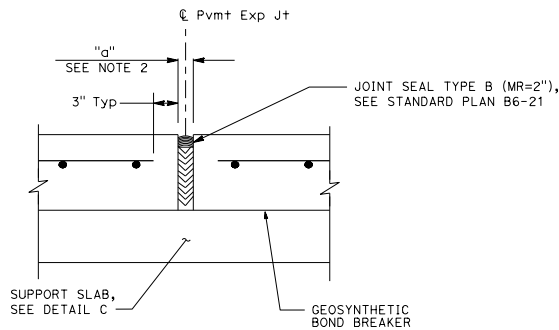
PLAN

NOTES:

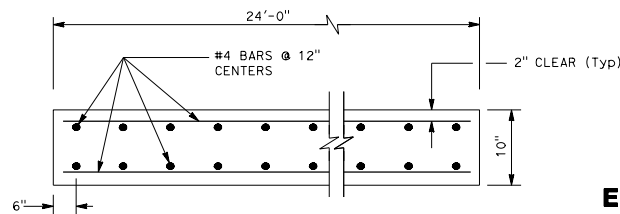
1. D = Thickness of CRCP (See Project Plans).
2. See Standard Plan B6-21 for "a".
3. Extend support slab 2'-0" beyond the outside edges of CRCP.
4. For layout, tolerances, and other details not shown, see Standard Plan P10.
5. For the Pavement Terminal Joint Type F Detail, See Revised Standard Plan RSP P31A.
6. No bar splices allowed within 14'-0" of expansion joints.
7. No bar splices allowed in transition slabs.



SECTION A-A



DETAIL A



DETAIL C

Support slab, see Note 3

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

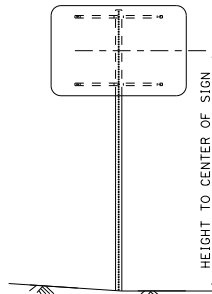
**CONTINUOUSLY REINFORCED
CONCRETE PAVEMENT -
EXPANSION TERMINAL JOINT SYSTEM**

NO SCALE

RSP P32 DATED APRIL 17, 2020 SUPERSEDES RSP P32 DATED OCTOBER 18, 2019 THAT
SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.

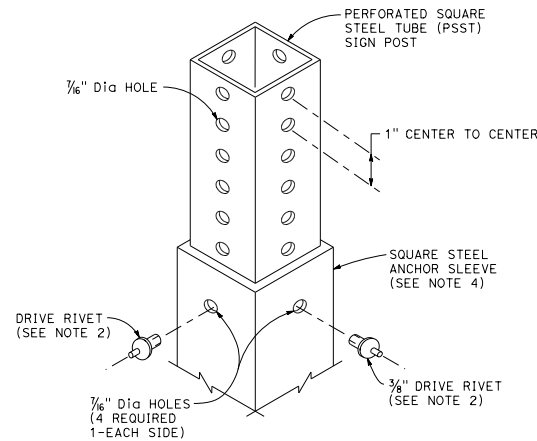
REVISED STANDARD PLAN RSP P32

2018 REVISED STANDARD PLAN RSP P32



SINGLE POST INSTALLATION

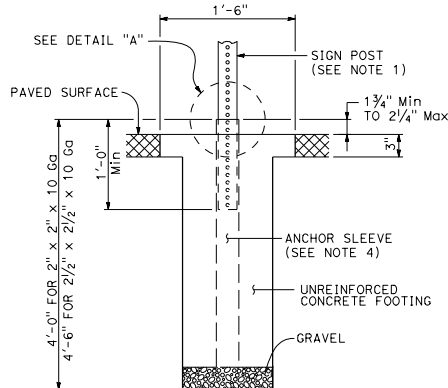
POST SIZE	Max AREA (SQUARE FEET) OF SIGN								SLEEVE SIZE
2" x 2" x 12 Ga	10.8	8.9	7.6	6.6	5.9	5.3	4.8	2 1/4" x 2 1/4" x 10 Ga	
2 1/2" x 2 1/2" x 10 Ga	20	18	16	14	12	11	10	2 3/4" x 2 3/4" x 10 Ga	
HEIGHT TO CENTER OF SIGN SINGLE POST GROUND SIGNS 100 MPH WIND SPEED	5'-0"	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	-	



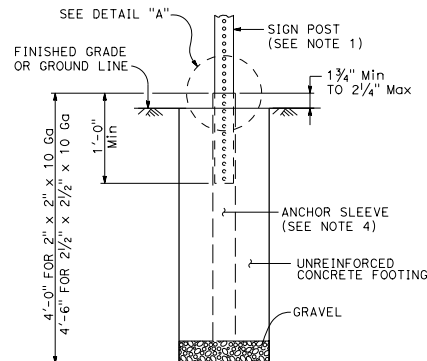
DETAIL "A"

NOTES:

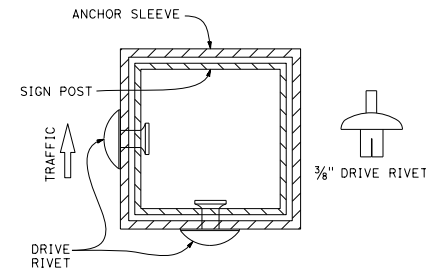
1. The sign post shall have 7/16" diameter perforations 1" on center on all four sides for the full length.
2. Use two drive rivets to fasten assembled sign and sign post into anchor sleeve. Install drive rivets or fastener alternative into the sides facing traffic.
3. All steel sign posts and anchor sleeves shall be galvanized.
4. All anchor sleeves shall be embedded in PCC.
5. For details not shown, see Standard Plans RS1 and RS2.
6. Steel post: $f_y = 60$ ksi



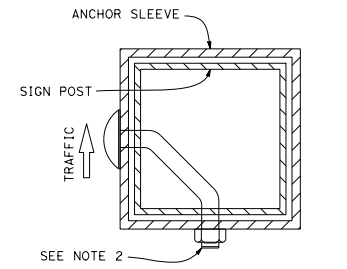
**ANCHOR SLEEVE IN
PAVED SURFACE**



**ANCHOR SLEEVE IN
UNPAVED SURFACE**



FASTENER



FASTENER ALTERNATIVE

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**ROADSIDE SIGN
PSST POST
TYPICAL INSTALLATION
DETAILS No. 1**
NO SCALE

RSP RS5 DATED APRIL 16, 2021 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP RS5

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

Stanley P. Johnson
REGISTERED CIVIL ENGINEER

April 16, 2021
PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS
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COPIES OF THIS PLAN SHEET.

Stanley P. Johnson
No. C67793
Exp. 3-31-22
CIVIL
STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED _____

NOTES:

1. Balanced single post installations of single sheet aluminum panel signs require back braces when 2'-10" or more in length.
2. Wood block spacers are not required for signs mounted on metal posts.
3. Attach rectangular sign panel to sign post with bolts at the top and bottom. Center may be attached with either bolt or $\frac{3}{8}$ " drive rivets.
4. Attach diamond sign panel to sign post with bolt at center. Top and bottom may be attached with either bolts or $\frac{3}{8}$ " drive rivets.
5. For details not shown, see Standard Plans RS1 and RS2.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

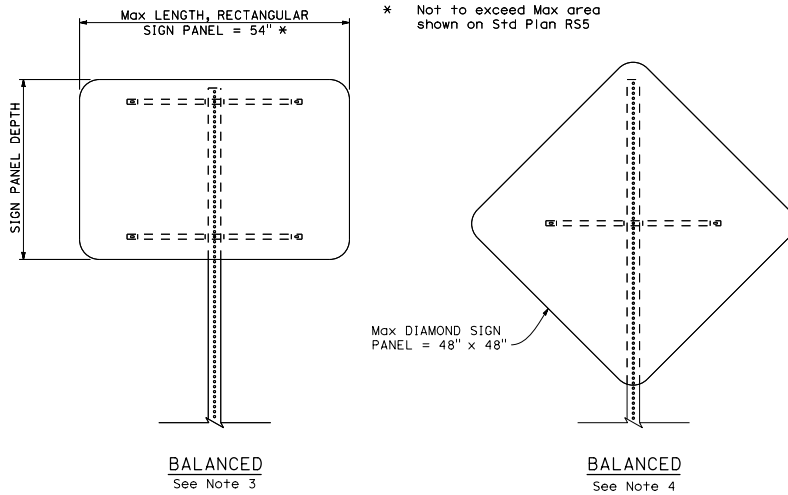
Stanley P. Johnson
REGISTERED CIVIL ENGINEER

April 16, 2021
PLANS APPROVAL DATE

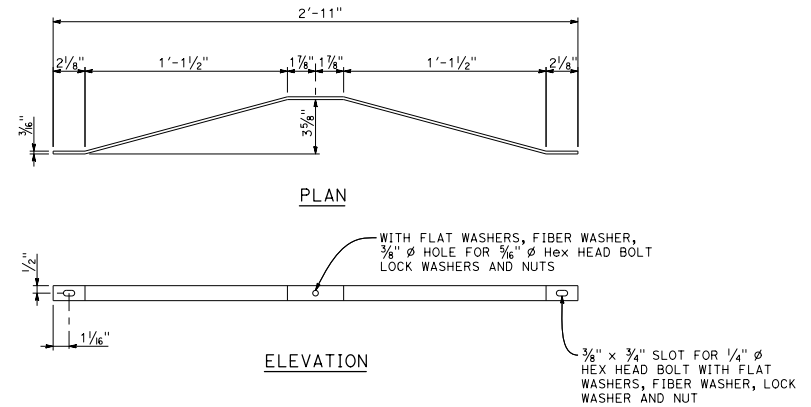
Stanley P. Johnson
No. C67785
EXP. 3-31-22
CIVIL
STATE OF CALIFORNIA

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TO ACCOMPANY PLANS DATED _____

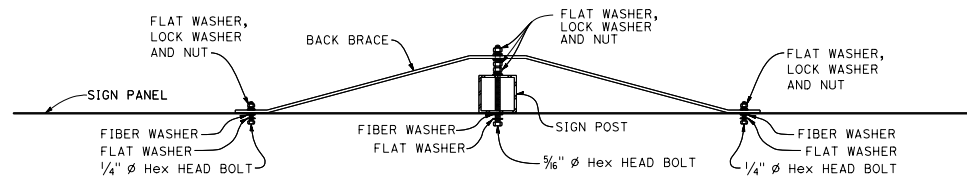


SINGLE POST INSTALLATION



BACK BRACE DETAIL

See note 1



BACK BRACE MOUNTING DETAIL

See Note 1

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**ROADSIDE SIGN
PSST POST
TYPICAL INSTALLATION
DETAILS No. 2**

NO SCALE

RSP RS6 DATED APRIL 16, 2021 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP RS6

2018 REVISED STANDARD PLAN RSP RS6

INSTRUCTIONS TO FABRICATOR

PROJECT PLANS SHOW:

1. Sign structure location.
2. Length of structure frame.
3. Panel size and locations on structure.
4. Walkway length for two post signs.
5. Post type and height to bottom of frame.
6. Base plate elevation.
7. Footing elevation or location of pile foundation.
8. Photoelectric unit location if required.

REFER TO THE FOLLOWING STANDARD PLANS FOR DETAILS NOT SHOWN ON PROJECT PLANS:

Sheet No. SHEET NAME

- | | |
|------|---------------------------------------------------------------------------------|
| S1 | Overhead Signs-Truss, Instructions and Examples |
| S2 | Overhead Signs-Truss, Single Post Type, Post Types II to III |
| S3 | Overhead Signs-Truss, Single Post Type, Base Plate and Anchorage Details |
| S4 | Overhead Signs-Truss, Single Post Type, Structural Frame Members Details No. 1 |
| S5 | Overhead Signs-Truss, Single Post Type, Structural Frame Members Details No. 2 |
| S6 | Overhead Signs-Truss, Gusset Plate Details |
| S8 | Overhead Signs-Truss, Single Post Type, Round Pedestal Pile Foundation |
| S9 | Overhead Signs-Truss, Two Post Type, Post Types I-S through VII-S |
| S10 | Overhead Signs-Truss, Two Post Type, Base Plate and Anchorage Details |
| S11 | Overhead Signs-Truss, Two Post Type, Structural Frame Members |
| S12 | Overhead Signs-Truss, Structural Frame Details |
| S13 | Overhead Signs-Truss, Frame Junction Details |
| S15 | Overhead Signs-Truss, Two Post Type, Round Pedestal Pile Foundation |
| S16 | Overhead Signs, Walkway Details No. 1 |
| S17 | Overhead Signs, Walkway Details No. 2 |
| S17A | Overhead Signs, Walkway Details No. 3 |
| S18 | Overhead Signs, Walkway Safety Railing Details |
| S19 | Overhead Signs-Truss, Sign Mounting Details, Laminated Panel-Type A |
| S20 | Overhead Signs, Steel Frames, Removable Sign Panel Frames |
| S21 | Overhead Signs, Removable Sign Panel Frames, Mounting Details |
| S22 | Overhead Signs-Truss, Removable Sign Panel Frames, 9'-2" and 10'-0" Sign Panels |

WALKWAY BRACKETS:

Space all walkway brackets maintaining uniform spacing where possible. Maximum spacing shall not exceed 5'-6".

OVERHEAD SIGN LUMINAIRE MOUNTING CHANNELS:

Where distance from walkway bracket to end of sign panel exceeds 1'-4", extend overhead sign luminaire mounting channels to next walkway bracket. See Example No. 2.

WALKWAY AND SAFETY RAILING:

Walkway to be continuous for entire length of frame for single post signs. For two post signs, see Project Plans. Safety railing to protect entire walkway, but continuous for no more than 11'-0" in one unit.

GENERAL NOTES:

LOADING:

WIND LOADING:

Normal to face of sign: 40.3 psf on 100% Truss surface area (i.e. 100% panel coverage).

Transverse to face of sign: 20% of normal force.

WALKWAY LOADING:

Dead load +500 LB concentrated live load.

UNIT STRESSES:

STRUCTURAL STEEL: $f_y = 36,000$ psi

REINFORCED CONCRETE: $f_y = 60,000$ psi

$f'_c = 3,600$ psi

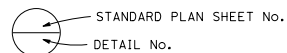
FOOTING SOIL PRESSURE: 2.5 ksf (spread footing)

MINIMUM CLEARANCE

Vertical roadway clearance 18'-0" (bottom of walkway system)

WELDING:

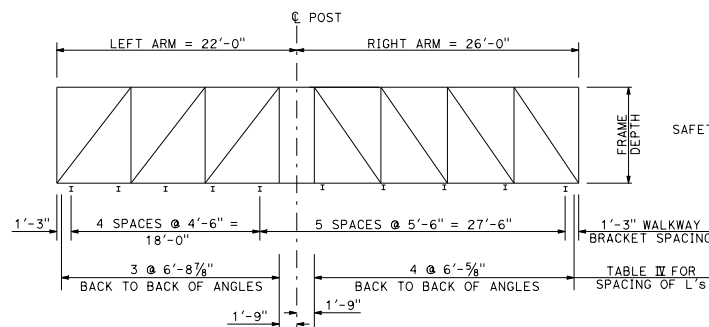
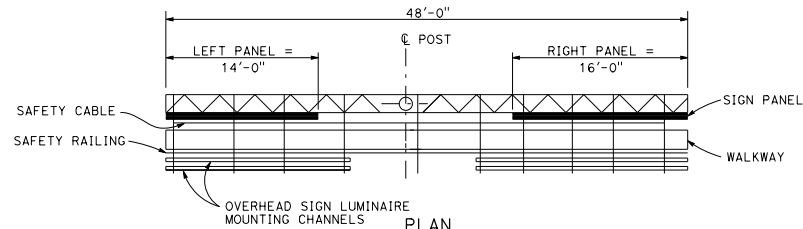
All welding continuous unless otherwise noted on the plans.



NOTES:

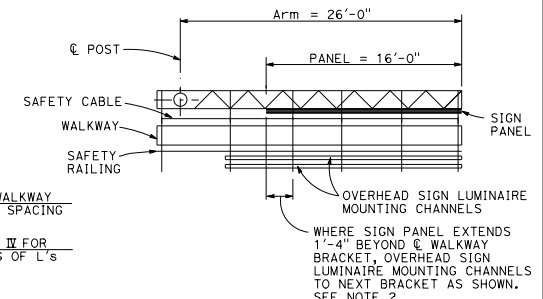
1. Signs are shown and dimensioned looking in the direction of traffic. Double faced signs are shown and dimensioned looking ahead along stationing.

2. Mandatory dimension limit.



UNBALANCED SINGLE POST TYPE

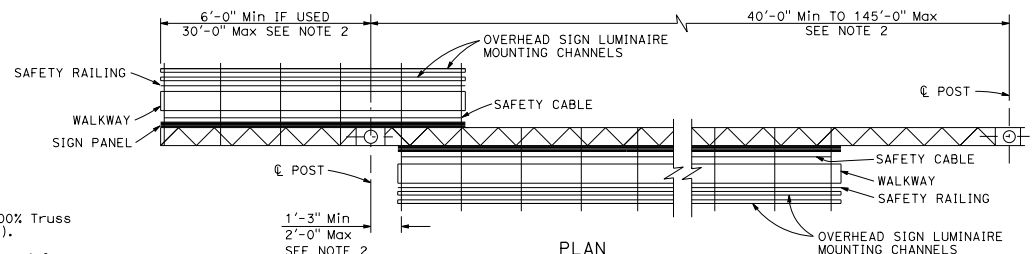
Example No. 1



PLAN

CANTILEVER SINGLE POST TYPE

Example No. 2



PLAN

TWO POST TYPE WITH CANTILEVER

(PART DOUBLE-FACED)

Example No. 3

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

OVERHEAD SIGNS-TRUSS INSTRUCTIONS AND EXAMPLES

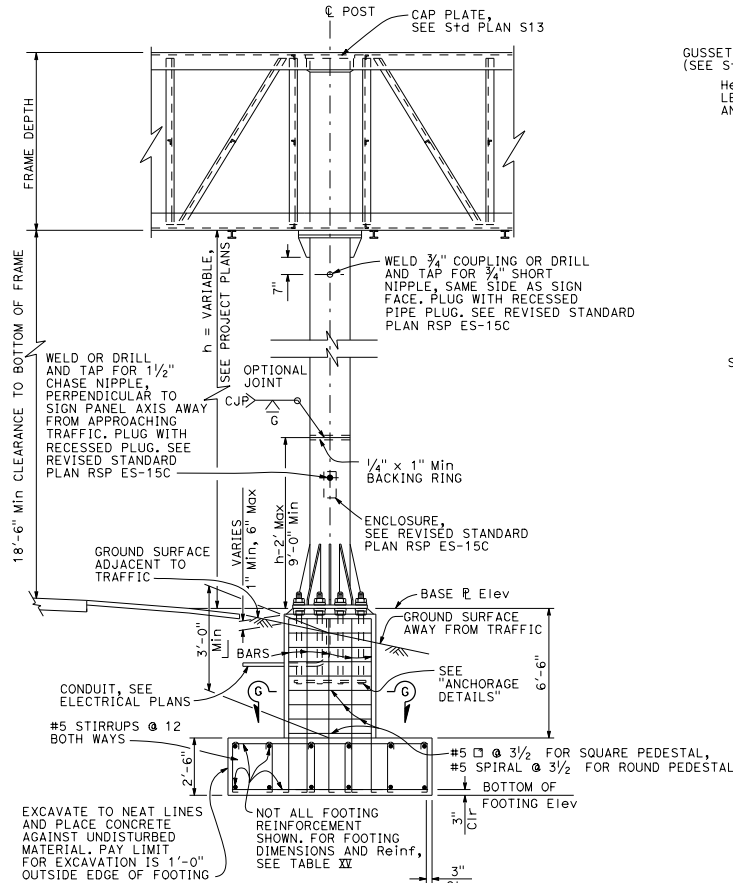
NO SCALE

RSP S1 DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN S1
DATED MAY 31, 2018 - PAGE 409 OF THE STANDARD PLANS BOOK DATED 2018.

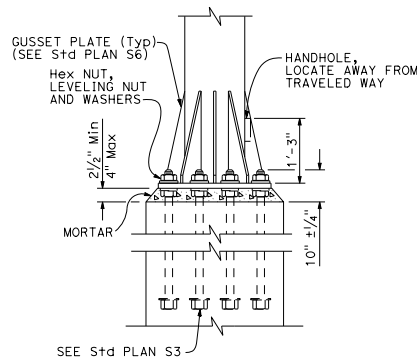
REVISED STANDARD PLAN RSP S1

TABLE XV

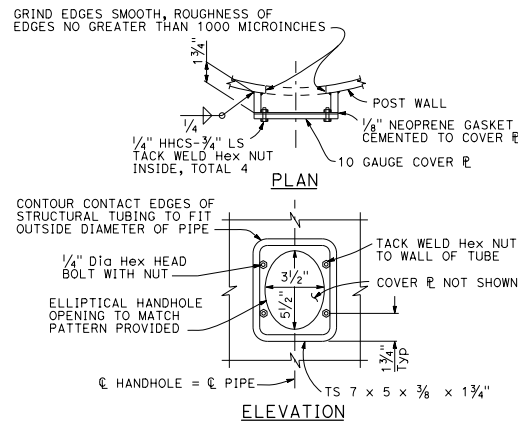
POST TYPE	PIPE	CAP PLATE SIZE FOR CHORD L's 5 x 5	CAP PLATE SIZE FOR CHORD L's 6 x 6	ROUND PEDESTAL					SQUARE PEDESTAL					(SEE NOTE 2)	SPREAD FOOTING						
				PEDESTAL SIZE Dia	VERTICAL EQUALLY SPACED TOTAL	J-BARS BAR SIZE	SPIRAL BAR SIZE	PITCH	PEDESTAL SIZE SQUARE	VERTICAL EQUALLY SPACED TOTAL	J-BARS # OF BARS EA FACE	HOOP BAR SIZE	SPACING		REINFORCEMENT						
															TOP	BOTTOM	TOP	BOTTOM	FOOTING STIRRUP		
II	14	1/2"	2'-0" x 2'-0" x 1"	2'-2" x 2'-2" x 1"	5'-3"	16	#10	#5	3 1/2"	5'-3"	16	#10	5	#5	3 1/2"	12'-0" x 14'-0" x 2'-6"	14-#6	14-#7	13-#9	13-#9	#5 @ 12"
III	16		2'-2" x 2'-2" x 1"	2'-4" x 2'-4" x 1"												12'-0" x 14'-0" x 2'-6"	15-#6	15-#7			
IV	18		2'-4" x 2'-4" x 1"	2'-6" x 2'-6" x 1"												12'-0" x 14'-0" x 2'-6"	15-#6	15-#7			
V	20		2'-6" x 2'-6" x 1"	2'-8" x 2'-8" x 1"												13'-0" x 14'-0" x 2'-6"	15-#6	15-#7	14-#9	14-#9	
VI	24		2'-10" x 2'-10" x 1"	3'-0" x 3'-0" x 1"	5'-9"		#11			5'-9"		#11				13'-0" x 16'-0" x 2'-6"	17-#7	17-#7		14-#11	
VII	24	3/4"														13'-0" x 17'-0" x 2'-6"	18-#7	18-#7			
VIII	24	3/32"														13'-0" x 18'-0" x 2'-6"	19-#7	19-#7			
IX	24	3/32"														13'-0" x 18'-0" x 2'-6"	19-#7	19-#7			



ELEVATION
See Note 5



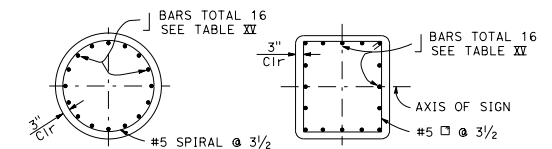
ELEVATION
ANCHORAGE DETAILS



TYPICAL DETAILS OF
HANDHOLE AND COVER

NOTES:

- For "General Notes", see Revised Standard Plan RSP S1.
- Longer side of footing (longitudinal) shall be normal to axis of sign.
- Backfill shall be in place prior to erection of post.
- Thread upper 10" of anchor bolts and galvanize upper 1'-0".
- Spread footing with square pedestal foundation shown, use Pile Foundation when shown on the Project Plans. For pile foundation details, see Standard Plan S8.
- Anchor plates may be retained with hexagon nut or formed head as alternatives to details shown.
- On single post sign structures, the post shall be raked out of plumb, with the use of the leveling nuts to make the bottom of the sign frame level.
- At final position of post all top and bottom nuts shall be tightened against base plate.
- When foundation is located on a steep slope with exposed face of concrete adjacent to traffic, see "Detail C" on Standard Plan S8, as applicable.
- Slope protection required when indicated on the Project Plans.



SECTION G-G
ROUND PEDESTAL SQUARE PEDESTAL

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**OVERHEAD SIGNS-TRUSS
SINGLE POST TYPE
POST TYPES II THROUGH IX**
NO SCALE

RSP S2 DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN S2
DATED MAY 31, 2018 - PAGE 410 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP S2

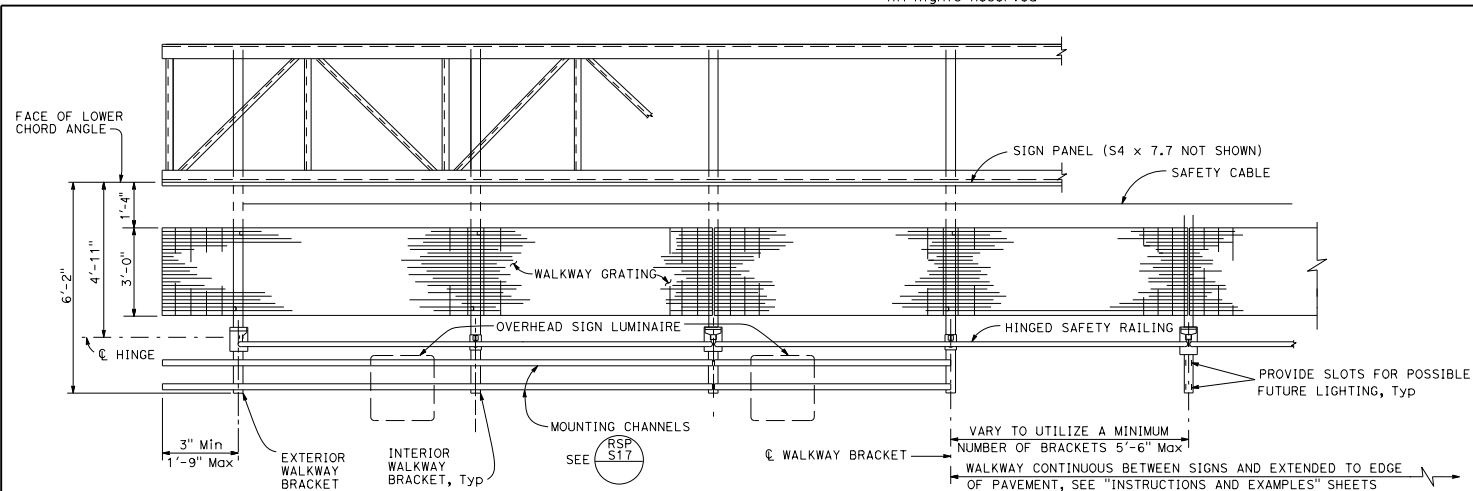
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL SHEETS

REGISTERED CIVIL ENGINEER

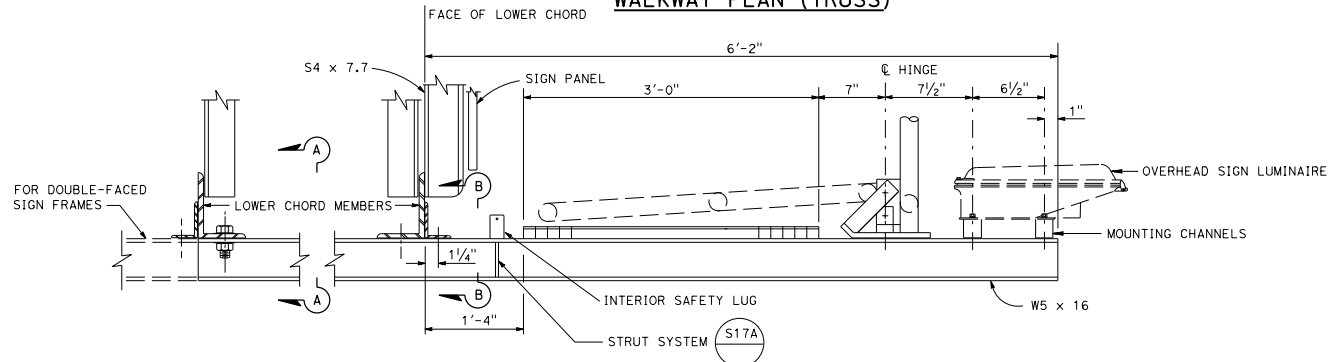
October 19, 2018
PLANS APPROVAL DATE

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

TO ACCOMPANY PLANS DATED _____

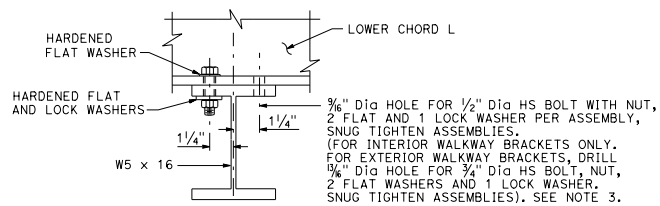


WALKWAY PLAN (TRUSS)

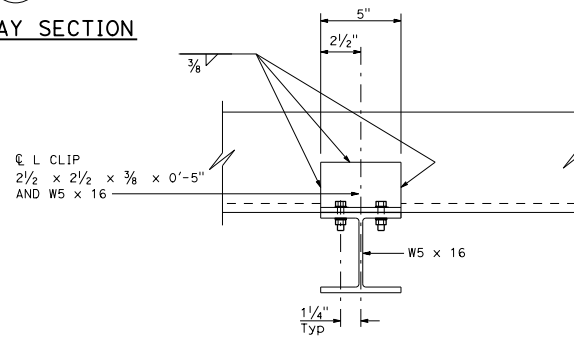


TYPICAL WALKWAY SECTION

TRUSS



SECTION A-A



SECTION B-B

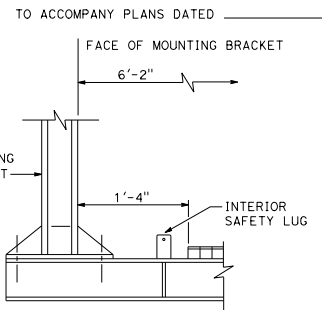
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER

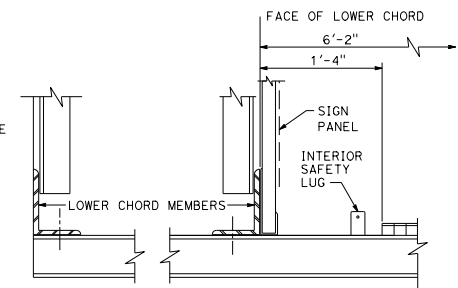
October 19, 2018
PLANS APPROVAL DATE

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TO ACCOMPANY PLANS DATED _____



TUBULAR AND BRIDGE MOUNTED



**BOX BEAM
CLOSED TRUSS**

NOTES:

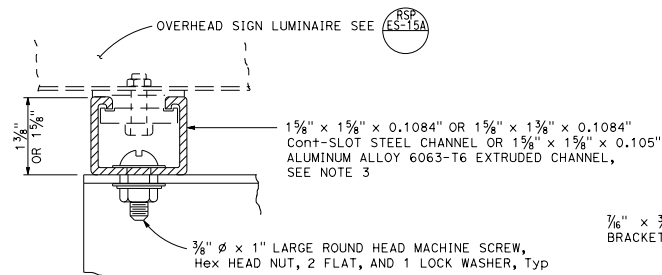
1. For spacing of overhead sign luminaire, see Revised Standard Plan RSP ES-15A.
2. For safety lug details, see Revised Standard Plan RSP S17.
3. For double faced sign frames with double walkways, use a total 8 bolt assemblies per bracket.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**OVERHEAD SIGNS
WALKWAY DETAILS No. 1**
NO SCALE

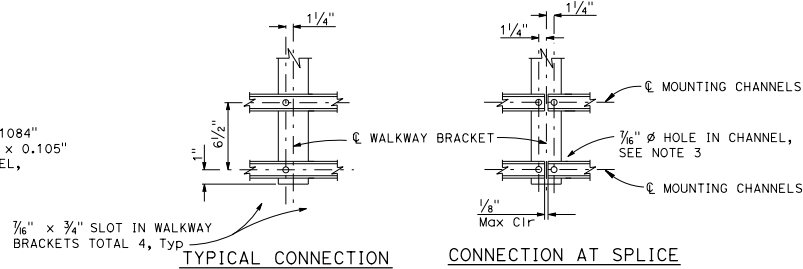
RSP S16 DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN S16
DATED MAY 31, 2018 - PAGE 422 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP S16

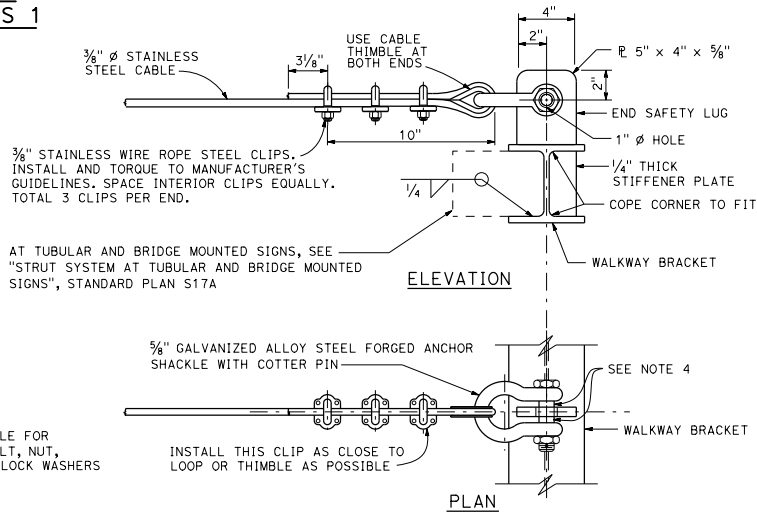
2018 REVISED STANDARD PLAN RSP S16



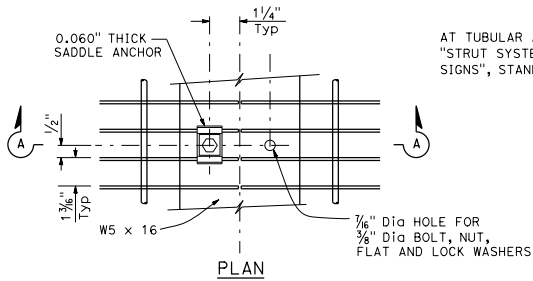
**OVERHEAD SIGN LUMINAIRE
MOUNTING CHANNEL DETAILS 1**



OVERHEAD SIGN LUMINAIRE MOUNTING CHANNEL DETAILS 2

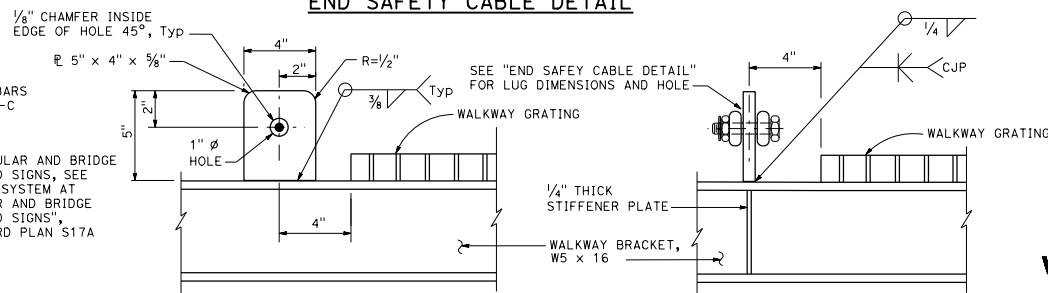


END SAFETY CABLE DETAIL



SECTION A-A

WALKWAY GRATING DETAILS
Shown at splice



INTERIOR SAFETY LUG DETAIL
(At every walkway bracket between
exterior walkway brackets)

END SAFETY LUG DETAIL
(At exterior walkway brackets)

NOTES:

1. Welded type grating shall have 1/4" x 1/8" bearing bars at 1 1/2" centers with 1/4" diameter (or equal) cross bars at 4" centers. If mechanical lock grating is used, it shall be equal in strength to the welded type. Alternate hold-down clips may be submitted for approval.
2. Walkway grating and overhead sign luminaire mounting channels to be continuous (no splices) over as many walkway brackets as practical and consistent with fabrication, ease of handling and assembly.
3. Contractor may substitute 1 5/8" x 1 5/8" x .1084" cont-slot steel channel with pre-punched slots not larger than 1/2" x 3". Slots shall be at bottom of channel and shall be parallel to channel. Slots shall be spaced not closer than 4" center to center.
4. Place an equal amount of washers on each side to align cable with end lug without restricting shackle bolt rotation or contacting cable.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL No. SHEETS
<p>October 19, 2018 PLANS APPROVAL DATE</p> <p>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.</p>				

TO ACCOMPANY PLANS DATED _____

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**OVERHEAD SIGNS
WALKWAY DETAILS No. 2**
NO SCALE

RSP S17 DATED OCTOBER 19, 2018 SUPERSEDES STANDARD PLAN S17
DATED MAY 31, 2018 - PAGE 423 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP S17

2018 REVISED STANDARD PLAN RSP S17

INSTRUCTIONS TO FABRICATOR

PROJECT PLANS SHOW:

1. Sign structure location.
2. Length of structure frame.
3. Panel size and locations on structure.
4. Walkway length for two post signs.
5. Post type and height to bottom of frame.
6. Base plate elevation.
7. Pedestal height and shape, if applicable.
8. Location of pile foundation.
9. Photoelectric unit location if required.

REFER TO THE FOLLOWING REVISED STANDARD PLANS FOR
DETAILS NOT SHOWN ON PROJECT PLANS:

SHEET No. SHEET NAME

RSP S100 Overhead Signs-Versatile Truss, One and Two Post Type

ONE POST TYPE SHEETS

RSP S101 Overhead Signs-Versatile Truss, One Post Type, Truss Layout
RSP S102 Overhead Signs-Versatile Truss, One Post Type, Steel Post Type and Truss Member Table
RSP S103 Overhead Signs-Versatile Truss, One Post Type, Steel Post Base Plate and Anchorage Details
RSP S104 Overhead Signs-Versatile Truss, One Post Type, CIDH Pile Foundation Details
RSP S105 Overhead Signs-Versatile Truss, One Post Type, Concrete Pedestal with CIDH Pile Foundation Details

TWO POST TYPE SHEETS

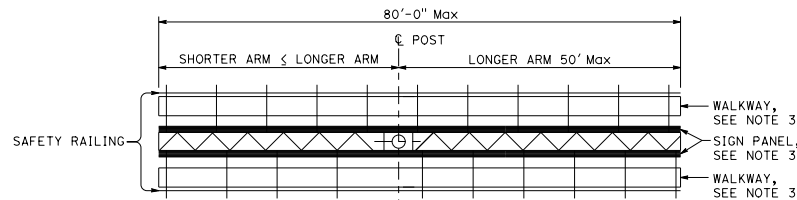
RSP S106 Overhead Signs-Versatile Truss, Two Post Type, Truss Layout
RSP S107 Overhead Signs-Versatile Truss, Two Post Type, Steel Post Type and Truss Member Table
RSP S108 Overhead Signs-Versatile Truss, Two Post Type, Steel Post Base Plate and Anchorage Details
RSP S109 Overhead Signs-Versatile Truss, Two Post Type, CIDH Pile Foundation Details
RSP S110 Overhead Signs-Versatile Truss, Two Post Type, Concrete Pedestal with CIDH Pile Foundation Details

COMMON ELEMENTS SHEETS

RSP S111 Overhead Signs-Versatile Truss, Truss Connection Details
RSP S112 Overhead Signs-Versatile Truss, Chord Splice Details
RSP S113 Overhead Signs-Versatile Truss, Truss To Steel Post Connection Details
RSP S114 Overhead Signs-Versatile Truss, CIDH Pile Foundation with Inspection Pipes
RSP S115 Overhead Signs-Versatile Truss, Walkway Details No. 1
RSP S116 Overhead Signs-Versatile Truss, Walkway Details No. 2
RSP S117 Overhead Signs-Versatile Truss, Walkway Details No. 3
RSP S118 Overhead Signs-Versatile Truss, Walkway Safety Railing Details
RSP S119 Overhead Signs-Versatile Truss, Sign Mounting Details Laminated Panel-Type A
RSP S120 Overhead Signs-Versatile Truss, Removable Sign Panel Frames Details No. 1
RSP S121 Overhead Signs-Versatile Truss, Removable Sign Panel Frames Details No. 2
RSP S122 Overhead Signs-Versatile Truss, Exit Plaque Mounting Details
RSP S123 Overhead Signs-Versatile Truss, CMS Mounting Details
RSP S124 Overhead Signs-Versatile Truss, EMS and Flashing Beacon Details

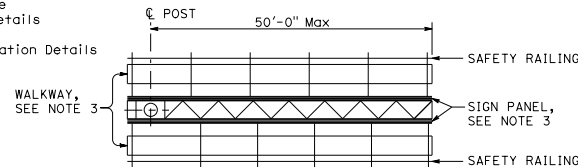
NOTES:

1. Signs are shown and dimensioned looking in the direction of traffic. Double faced signs are shown and dimensioned looking ahead along stationing.
2. For Two Post Type, Maximum cantilever length \leq Main Span length/3.
3. For cantilever lengths \leq 40'-0", sign panels and walkways may be placed on both sides of truss. For cantilever lengths $>$ 40'-0" and \leq 50'-0", sign panels and walkways may only be placed on one side of truss.
4. A single Changeable Message Sign (CMS) 500, 700, or 710 may be placed anywhere on the truss. CMS and static sign panels may be placed on the same truss.
5. Refer to Revised Standard Plan RSP S123 for CMS mounting details.
6. Place walkway and safety railing on truss only when called out on the project plans. When required, walkway to be continuous for entire length of frame for one post signs. For two post signs, see Project Plans. Safety railing to run the entire length of walkway.
7. Thread locking nuts or locking washers shall be used for all connections, unless noted otherwise.
8. All high strength (HS) bolts are to be snug tightened unless otherwise noted on the plans.
9. All welds are continuous unless otherwise noted on the plans.



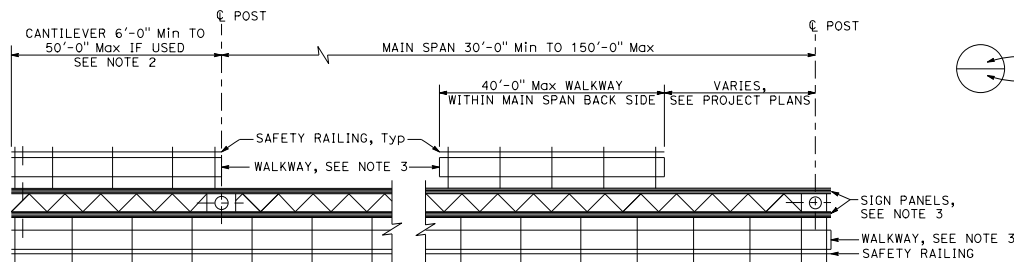
PLAN

UNBALANCED ONE POST TYPE MAXIMUM COVERAGE



PLAN

CANTILEVER ONE POST TYPE MAXIMUM COVERAGE



PLAN

TWO POST TYPE WITH CANTILEVER MAXIMUM COVERAGE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER

April 16, 2021
PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS
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STATE OF CALIFORNIA
REGISTERED PROFESSIONAL ENGINEER
No. C63959
Exp. 9-30-22
CIVIL

TO ACCOMPANY PLANS DATED _____

DESIGN NOTES:

WIND LOADING:

Wind loading per AASHTO Standard Specifications for
Structural Supports for Highway Signs, Luminares,
and Traffic Signals, 6th Edition, 2013 with 2015
interim revisions.

Design wind speed (V) = 100 mph
Importance factor (Ir) = 1.0
Velocity conversion factor (Cv) = 1.0
Height and exposure factor (Kz) = 1.18
Gust effect factor (G) = 1.14

WALKWAY LOADING:

Dead load plus 500 lb concentrated live load.

CMS LOADING:

CMS 500 maximum weight = 2400 lb
CMS 700 maximum weight = 2400 lb
CMS 710 maximum weight = 2000 lb

MATERIALS & UNIT STRESSES:

Structural Steel: fy = 50 ksi
Steel Posts: Dia \leq 24" fy = 35 ksi
Dia $>$ 24" fy = 50 ksi
Base Plates: fy = 50 ksi
Anchor Bolts: fy = 55 ksi
Reinforced Concrete: fy = 60 ksi
fc = 4 ksi

SOIL PARAMETERS FOR CIDH FOUNDATION:

Minimum Soil Shear Strength: 1.5 ksf (cohesive soils)
Minimum Soil Friction Angle: 30° (non-cohesive soils)
Minimum Unit weight of soil: 120 pcf (non-cohesive soils)

MINIMUM CLEARANCE:

Vertical roadway clearance 18'-6" (bottom of frame/
sign/CMS/walkway)

STANDARD PLAN SHEET No.
DETAIL No.

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION OVERHEAD SIGNS-VERSATILE TRUSS ONE AND TWO POST TYPE

NO SCALE

RSP S100 DATED APRIL 16, 2021 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP S100

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL NO. SHEETS
<p>April 16, 2021 PLANS APPROVAL DATE</p> <p>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.</p>				

TO ACCOMPANY PLANS DATED _____

REGISTERED CIVIL ENGINEER

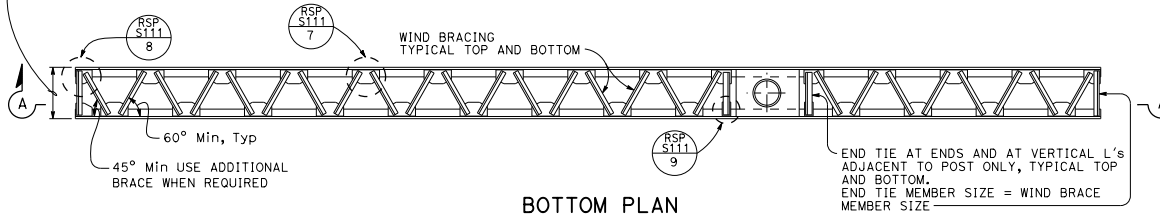
April 16, 2021
PLANS APPROVAL DATE

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TO ACCOMPANY PLANS DATED _____

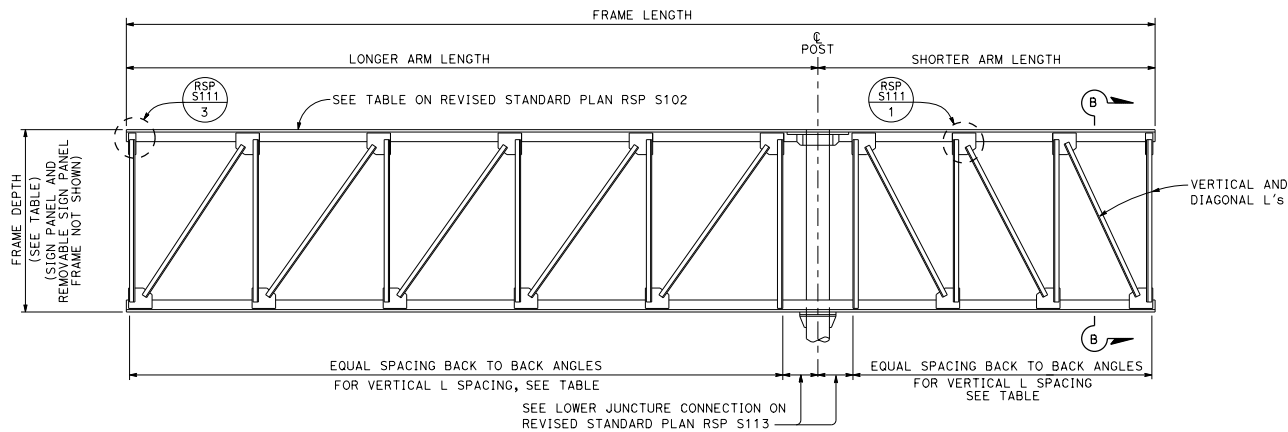
2018 REVISED STANDARD PLAN RSP S101

FRAME WIDTH, SEE REVISED STANDARD PLAN RSP S102
FOR "FRAME WIDTH SCHEMATIC"



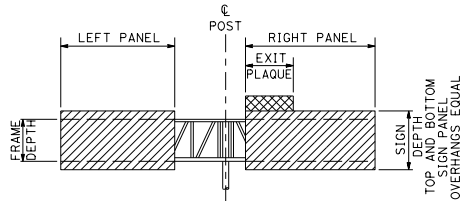
BOTTOM PLAN

Vertical, diagonal and interior L
members not shown. Walkway not shown.



SECTION A-A

Walkway and wind bracing not shown



SIGN AND EXIT PLAQUE PLACEMENT

NOTE:
Equal sign panel overhangs apply to sign panels only.
The exit plaque is mounted above sign panels and the
walkway is mounted below the sign panels, when used.

NOTES:

- For connection of frame to post, see Revised Standard Plan RSP S113.
- For walkway details, see Revised Standard Plans RSP S115, RSP S116, and RSP S117.
- For walkway length, see Revised Standard Plan RSP S100.
- Minimum length of frame varies by frame depth, see Revised Standard Plan RSP S102.
- For interior members, refer to "Typical Section B-B" on Revised Standard Plan RSP S111.
- A single exit plaque may be placed above the sign, at any location on the truss. Maximum exit plaque length = 16'-0". Maximum exit plaque depth = 5'-0".
- See Revised Standard Plan RSP S122 for Exit Plaque Mounting Details.

LEGEND:

- SIGN PANEL
- EXIT PLAQUE

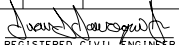

TRUSS FRAME DEPTH AND VERTICAL ANGLE SPACING TABLE		
MAXIMUM SIGN PANEL DEPTH	FRAME DEPTH	MAXIMUM VERTICAL L SPACING
80"	60"	45"
180"	72"	54"
240"	120"	90"

OVERHEAD SIGNS-VERSATILE TRUSS ONE POST TYPE TRUSS LAYOUT

NO SCALE

RSP S101 DATED APRIL 16, 2021 SUPERSEDES STANDARD PLAN S101
DATED MAY 31, 2018 - PAGE 456 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP S101

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
 REGISTERED CIVIL ENGINEER					
April 16, 2021 PLANS APPROVAL DATE					
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TO ACCOMPANY PLANS DATED _____

TRUSS MEMBER TABLE

SIGN PANEL DEPTH ≤ 80"										
LONGER ARM LENGTH L	FRAME DEPTH	ANGLE MEMBER SIZE AND MINIMUM OVERLAP LENGTH TO GUSSET PLATE								
		CHORD	VERTICAL	L _v	DIAGONAL	L _d	WIND BRACE	L _w	INTERIOR	L _i
10'-0" ≤ L ≤ 20'-0"	60"	L4 x 4 x 3/8	L3 x 2 x 3/8	3	L2 1/2 x 2 1/2 x 1/4	3	L2 1/2 x 2 1/2 x 1/4	3	L2 1/2 x 2 1/2 x 1/4	3
20'-0" < L ≤ 30'-0"	60"	L5 x 5 x 1/2	L3 x 2 x 1/2	3	L3 x 3 x 3/8	4	L2 1/2 x 2 1/2 x 1/4	3	L2 1/2 x 2 1/2 x 1/4	3
30'-0" < L ≤ 40'-0"	60"	L5 x 5 x 1/2	L5 x 3 1/2 x 1/2	3	L4 x 4 x 1/2	4	L2 1/2 x 2 1/2 x 1/4	4	L2 1/2 x 2 1/2 x 1/4	3
40'-0" < L ≤ 50'-0"	60"	L5 x 5 x 1/2	L5 x 5 x 1/2	4	L5 x 5 x 1/2	4	L3 x 3 x 5/8	4	L2 1/2 x 2 1/2 x 1/4	3

80" < SIGN PANEL DEPTH ≤ 180"										
LONGER ARM LENGTH L	FRAME DEPTH	ANGLE MEMBER SIZE AND MINIMUM OVERLAP LENGTH TO GUSSET PLATE								
		CHORD	VERTICAL	L _v	DIAGONAL	L _d	WIND BRACE	L _w	INTERIOR	L _i
15'-0" ≤ L ≤ 20'-0"	72"	L5 x 5 x 1/2	L3 x 2 x 3/8	4	L3 x 3 x 3/8	4	L2 1/2 x 2 1/2 x 1/4	4	L2 1/2 x 2 1/2 x 1/4	3
20'-0" < L ≤ 30'-0"	72"	L5 x 5 x 1/2	L3 x 3 x 3/8	3	L4 x 4 x 1/2	4	L2 1/2 x 2 1/2 x 3/8	4	L2 1/2 x 2 1/2 x 1/4	3
30'-0" < L ≤ 40'-0"	72"	L6 x 6 x 5/8	L5 x 3 x 1/2	3	L4 x 4 x 1/2	5	L3 x 3 x 3/8	5	L3 x 3 x 5/8	3
40'-0" < L ≤ 50'-0"	72"	L6 x 6 x 3/4	L5 x 3 1/2 x 3/4	3	L5 x 5 x 1/2	5	L4 x 3 x 3/8	5	L3 x 3 x 5/8	3

180" < SIGN PANEL DEPTH ≤ 240"										
LONGER ARM LENGTH L	FRAME DEPTH	ANGLE MEMBER SIZE AND MINIMUM OVERLAP LENGTH TO GUSSET PLATE								
		CHORD	VERTICAL	L _v	DIAGONAL	L _d	WIND BRACE	L _w	INTERIOR	L _i
20'-0"	120"	L6 x 6 x 5/8	L3 x 3 x 3/8	4	L5 x 5 x 1/2	3	L2 1/2 x 2 1/2 x 1/4	3	L2 1/2 x 2 1/2 x 1/4	3
20'-0" < L ≤ 30'-0"	120"	L6 x 6 x 5/8	L4 x 4 x 3/8	4	L5 x 5 x 1/2	4	L3 x 3 x 3/8	5	L3 x 3 x 5/8	3
30'-0" < L ≤ 40'-0"	120"	L6 x 6 x 1	L5 x 3 x 1/2	3	L5 x 5 x 1/2	4	L3 x 3 x 3/8	5	L3 x 3 x 5/8	3
40'-0" < L ≤ 50'-0"	120"	L6 x 6 x 1	L5 x 3 x 1/2	3	L5 x 5 x 1/2	5	L4 x 3 x 3/8	5	L3 x 3 x 5/8	3

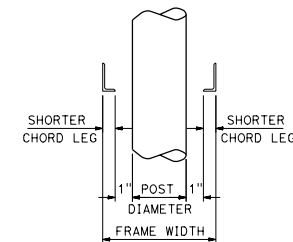
Note: All table dimensions are given in inches, unless otherwise noted.

POST SELECTION TABLE

SIGN PANEL DEPTH D	LONGER ARM LENGTH L	POST TYPE BY POST CLEAR HEIGHT			
		≤ 16 ft	≤ 20 ft	≤ 24 ft	≤ 28 ft
D ≤ 80"	20'-0"	1A	1A	1A	1B
	20'-0" < L ≤ 30'-0"	1B	1B	1D	1D
	30'-0" < L ≤ 40'-0"	1C	1D	1D	1F
	40'-0" < L ≤ 50'-0"	1F	1F	1F	1F
80" < D ≤ 100"	20'-0"	1A	1A	1B	1C
	20'-0" < L ≤ 30'-0"	1B	1D	1D	1E
	30'-0" < L ≤ 40'-0"	1D	1D	1F	1F
	40'-0" < L ≤ 50'-0"	1F	1F	1F	1F
100" < D ≤ 120"	20'-0"	1A	1B	1C	1C
	20'-0" < L ≤ 30'-0"	1C	1D	1E	1F
	30'-0" < L ≤ 40'-0"	1D	1F	1F	1F
	40'-0" < L ≤ 50'-0"	1F	1F	1F	1F
120" < D ≤ 150"	20'-0"	1B	1C	1D	1D
	20'-0" < L ≤ 30'-0"	1D	1E	1F	1F
	30'-0" < L ≤ 40'-0"	1F	1F	1F	1G
	40'-0" < L ≤ 50'-0"	1F	1F	1G	1G
150" < D ≤ 180"	20'-0"	1B	1C	1D	1D
	20'-0" < L ≤ 30'-0"	1E	1F	1F	1F
	30'-0" < L ≤ 40'-0"	1F	1G	1G	1G
	40'-0" < L ≤ 50'-0"	1F	1G	1G	1G
180" < D ≤ 210"	20'-0"	1D	1D	1E	1F
	20'-0" < L ≤ 30'-0"	1F	1F	1G	1G
	30'-0" < L ≤ 40'-0"	1G	1G	1G	1G
	40'-0" < L ≤ 50'-0"	1G	1G	1G	1H
210" < D ≤ 240"	20'-0"	1D	1E	1F	1F
	20'-0" < L ≤ 30'-0"	1F	1G	1G	1G
	30'-0" < L ≤ 40'-0"	1G	1G	1G	1H
	40'-0" < L ≤ 50'-0"	1H	1H	1H	1H

POST TYPE TABLE

POST TYPE	DIAMETER	Min NOMINAL THICKNESS
1A	16"	1.218"
1B	18"	1.156"
1C	20"	1.031"
1D	22"	1.125"
1E	24"	0.969"
1F	30"	0.625"
1G	30"	1"
1H	36"	1"



FRAME WIDTH SCHEMATIC

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DEPARTMENT OF TRANSPORTATION

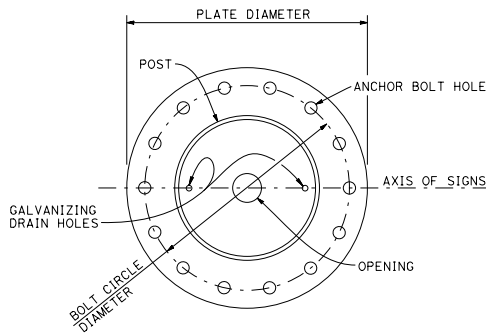
OVERHEAD SIGNS-VERSATILE TRUSS ONE POST TYPE STEEL POST TYPE AND TRUSS MEMBER TABLE

NO SCALE

RSP S102 DATED APRIL 16, 2021 SUPERSEDES STANDARD PLAN S102
DATED MAY 31, 2018 - PAGE 457 OF THE STANDARD PLANS BOOK DATED 2018.

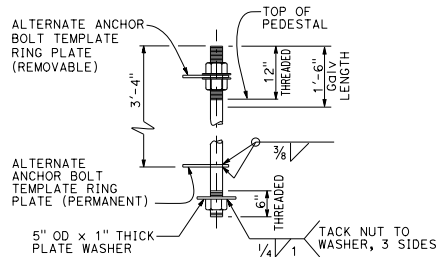
REVISED STANDARD PLAN RSP S102

2018 REVISED STANDARD PLAN RSP S102



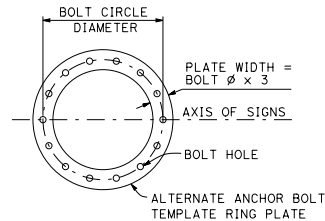
BASE PLATE DETAILS SINGLE POST TYPE

14 bolt base plate depicted. Others similar.



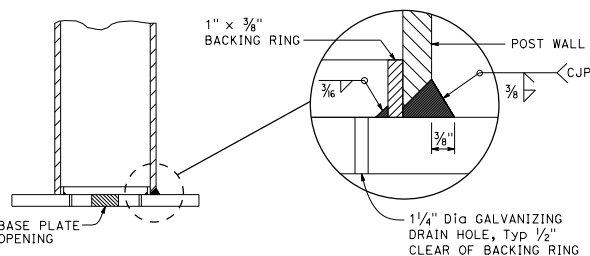
ALTERNATE ANCHOR BOLT TEMPLATE ASSEMBLY

NOTE: One bolt shown only. Other bolts same configuration around ring plate.



ALTERNATE ANCHOR BOLT TEMPLATE

14 bolt template depicted. Others similar.
NOTE: Permanent plate thickness = $\frac{3}{4}$ "
Removable plate thickness = $\frac{1}{2}$ "



POST TO BASE PLATE CONNECTION DETAIL

POST TYPE	BASE PLATE			ANCHOR BOLTS			
	PLATE THICKNESS	PLATE DIAMETER	OPENING DIAMETER	NUMBER OF BOLTS	BOLT DIAMETER	BOLT LENGTH	BOLT HOLE DIAMETER
1A	3 1/2"	2'-7"	5"	14	1 3/4"	5'-0"	2"
1B	3 1/2"	2'-10"	6"	14	2"	5'-0"	2 1/4"
1C	3"	3'-0"	6"	16	2"	5'-0"	2 1/4"
1D	3 1/2"	3'-2"	7"	16	2"	5'-0"	2 1/4"
1E	3"	3'-6"	7 1/2"	18	2"	5'-0"	2 1/4"
1F	3"	4'-0"	9"	20	2"	5'-0"	2 1/4"
1G	3 1/2"	4'-2"	9"	20	2 1/2"	5'-0"	2 3/4"
1H	3 1/2"	4'-8"	11"	24	2 1/2"	5'-0"	2 3/4"

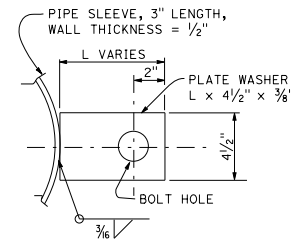
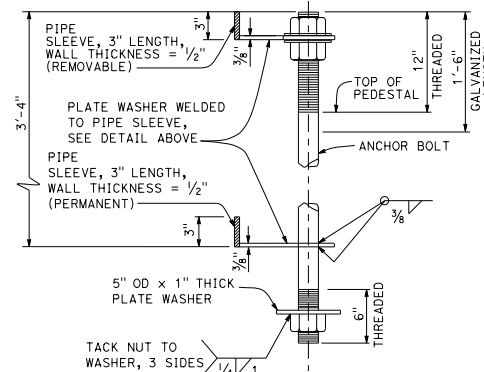
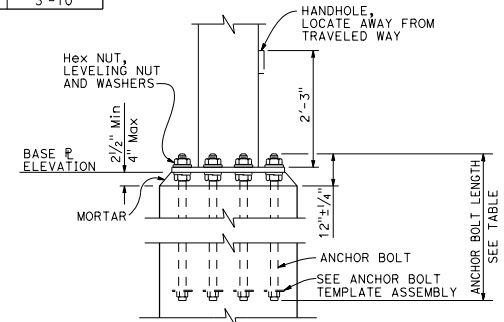


PLATE WASHER DETAIL

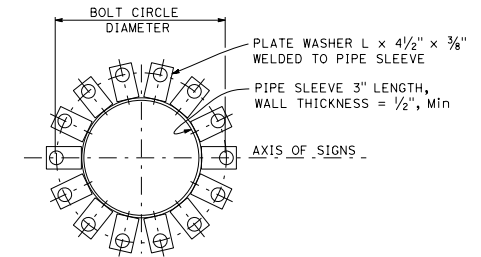


ANCHOR BOLT TEMPLATE ASSEMBLY

NOTE: One bolt shown only. Other bolts same configuration around pipe sleeve.



POST AND ANCHORAGE DETAIL



ANCHOR BOLT TEMPLATE

14 bolt template depicted. Others similar.
NOTE: Template to match base plate anchor bolt pattern.
Pipe sleeve diameter same as post type diameter

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OVERHEAD SIGNS-VERSATILE TRUSS ONE POST TYPE STEEL POST BASE PLATE AND ANCHORAGE DETAILS

NO SCALE

RSP S103 DATED APRIL 16, 2021 SUPERSEDES STANDARD PLAN S103
DATED MAY 31, 2018 - PAGE 458 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP S103

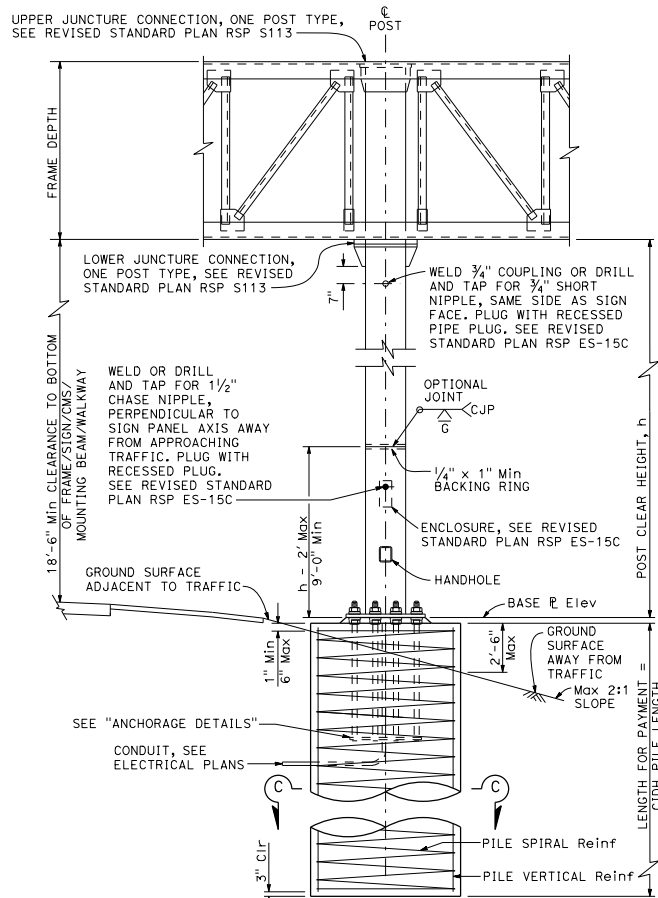
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER

April 16, 2021
PLANS APPROVAL DATE

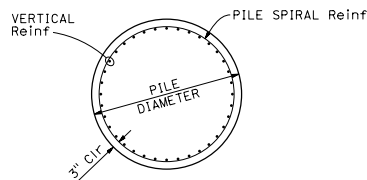
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TO ACCOMPANY PLANS DATED _____



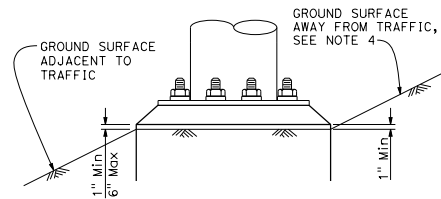
ELEVATION

CIDH in fill-slope depicted

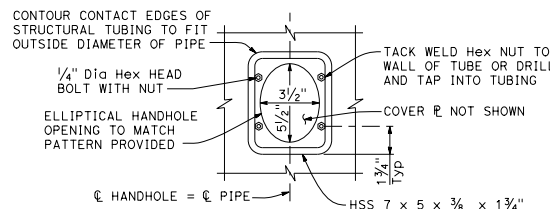
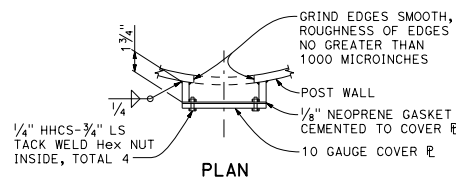


SECTION C-C

See Note 10



CIDH IN CUT-SLOPE



ELEVATION

TYPICAL DETAILS OF HANDHOLE AND COVER

NOTES:

- For "ANCHORAGE DETAILS", see Revised Standard Plan RSP S103.
- For "Base R Elevation", see Project Plans.
- Prior to erection of the post, backfill which is equivalent to the surrounding material shall be in place.
- Slope stabilization required when indicated on the Project Plans.
- For drain holes and central void in mortar, see Standard Plan ES-6B Detail N.
- Refer to Revised Standard Plan RSP S102 for "Post Type Table".
- Use pedestal with CIDH pile foundation when shown on the Project Plans. See Revised Standard Plan RSP S105.
- On single post sign structures, the post shall be raked out of plumb, with the use of the leveling nuts to make the bottom of the sign frame level.
- At final position of post all top and bottom nuts shall be tightened against base plate.
- For CIDH pile foundation with inspection pipes, see Revised Standard Plan RSP S114.
- Maximum electrical conduit diameter is 3".

CIDH CONCRETE PILE TABLE

POST TYPE	DIAMETER	VERTICAL BAR SIZE	TOTAL NUMBER OF VERTICAL BARS	SPIRAL BAR SIZE	SPIRAL PITCH	MINIMUM CIDH PILE LENGTH
1A	5'-0"	#10	30	#6	5"	22'-0"
1B	5'-0"	#10	30	#6	5"	22'-0"
1C	5'-0"	#10	30	#6	5"	22'-0"
1D	5'-0"	#10	30	#6	5"	22'-0"
1E	5'-0"	#10	32	#6	5"	24'-0"
1F	5'-0"	#10	36	#6	5"	27'-0"
1G	5'-0"	#10	36	#6	4"	30'-0"
1H	5'-6"	#10	40	#6	4"	32'-0"

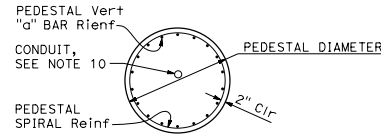
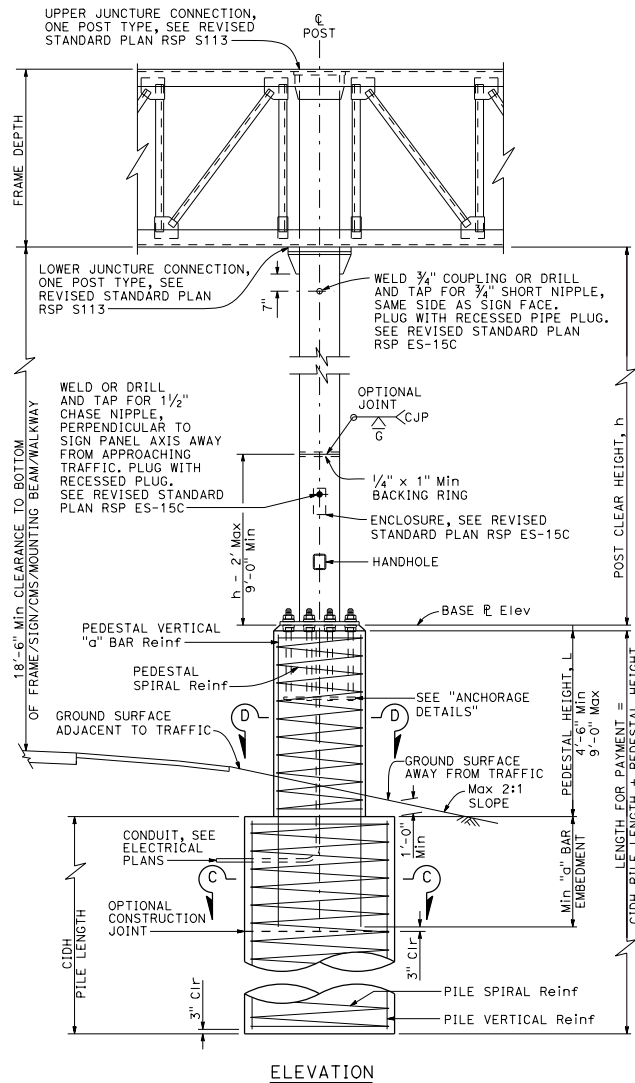
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

OVERHEAD SIGNS-VERSATILE TRUSS ONE POST TYPE CIDH PILE FOUNDATION DETAILS

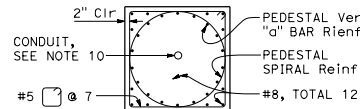
NO SCALE

RSP S104 DATED APRIL 16, 2021 SUPERSEDES STANDARD PLAN S104
DATED MAY 31, 2018 - PAGE 459 OF THE STANDARD PLANS BOOK DATED 2018.

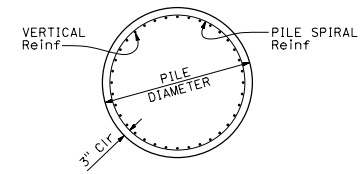
REVISED STANDARD PLAN RSP S104



SECTION D-D
ROUND PEDESTAL



SECTION D-D
SQUARE PEDESTAL



SECTION C-C
See Note 9

CONCRETE PEDESTAL AND CIDH CONCRETE PILE TABLE

POST TYPE	CONCRETE PEDESTAL							CIDH CONCRETE PILE					
	ROUND PEDESTAL DIAMETER	SQUARE PEDESTAL SIDES LENGTH	VERTICAL "a" BAR SIZE	NUMBER OF VERTICAL BARS	SPIRAL BAR SIZE	SPIRAL PITCH	Min "a" BAR EMBEDMENT	DIAMETER	VERTICAL BAR SIZE	TOTAL NUMBER OF VERTICAL BARS	SPIRAL BAR SIZE	SPIRAL PITCH	MINIMUM CIDH PILE LENGTH
1A	3'-6"	3'-6"	#8	18	#5	3½"	54"	5'-0"	#10	30	#6	5"	20'-0"
1B	3'-8"	3'-8"	#8	20	#5	3½"	54"	5'-0"	#10	30	#6	5"	20'-0"
1C	3'-10"	3'-10"	#9	18	#5	3½"	72"	5'-0"	#10	30	#6	5"	20'-0"
1D	4'-0"	4'-0"	#9	22	#5	3½"	72"	5'-0"	#10	30	#6	5"	20'-0"
1E	4'-4"	4'-4"	#9	24	#5	3½"	72"	5'-0"	#10	32	#6	5"	22'-0"

STATE OF CALIFORNIA
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**OVERHEAD SIGNS-VERSATILE TRUSS
ONE POST TYPE
CONCRETE PEDESTAL WITH
CIDH PILE FOUNDATION DETAILS**

NO SCALE

RSP S105 DATED APRIL 16, 2021 SUPERSEDES STANDARD PLAN S105
DATED MAY 31, 2018 - PAGE 460 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP S105

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL SHEETS

REGISTERED CIVIL ENGINEER

April 16, 2021
PLANS APPROVAL DATE

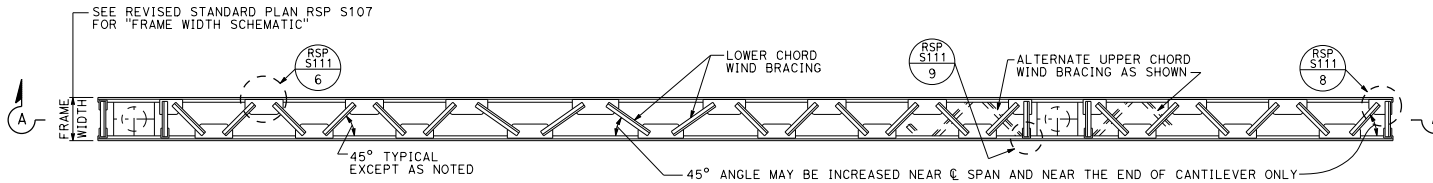
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TO ACCOMPANY PLANS DATED _____

2018 REVISED STANDARD PLAN RSP S105

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL No. SHEETS
<p>REGISTERED CIVIL ENGINEER</p> <p>April 16, 2021</p> <p>PLANS APPROVAL DATE</p> <p>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.</p>				

TO ACCOMPANY PLANS DATED _____



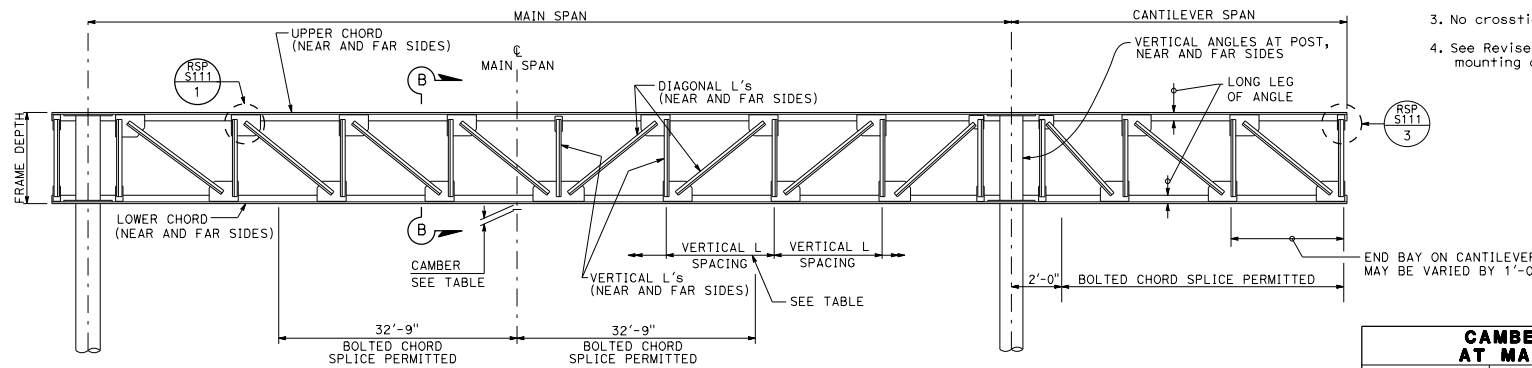
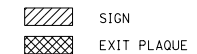
BOTTOM PLAN

Vertical, diagonal and interior L members not shown, walkway not shown

NOTES:

1. Frame widths shown are nominal. These widths may be varied by $1/4"$ to standardize fabrication methods.
2. For Section B-B, see Revised Standard Plan RSP S111.
3. No crossties on diagonals.
4. See Revised Standard Plan RSP S122 for exit plaque mounting details.

LEGEND:



SECTION A-A

Walkway and wind bracing not shown

CAMBER FOR FABRICATION AT MAIN SPAN CENTERLINE

SPAN	FRAME DEPTH	CAMBER	FRAME DEPTH	CAMBER	FRAME DEPTH	CAMBER
30'-0" TO 60'-0"	60"	1 1/2"	72"	1 1/4"	120"	1"
61'-0" TO 105'-0"	60"	3 1/2"	72"	3"	120"	2"
106'-0" TO 150'-0"	60"	8"	72"	6 1/4"	120"	3 1/2"

Camber to approximate parabola.
Camber of cantilever arm = $1/2"$ for arms greater than 10'-0".

TRUSS FRAME DEPTH AND VERTICAL ANGLE SPACING TABLE

MAXIMUM SIGN PANEL DEPTH	FRAME DEPTH	MAXIMUM VERTICAL L SPACING
80"	60"	45"
180"	72"	54"
240"	120"	90"

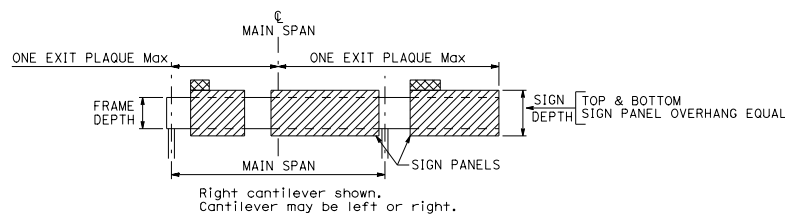
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OVERHEAD SIGNS-VERSATILE TRUSS TWO POST TYPE TRUSS LAYOUT

NO SCALE

RSP S106 DATED APRIL 16, 2021 SUPERSEDES STANDARD PLAN S106
DATED MAY 31, 2018 - PAGE 461 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP S106



SIGN AND EXIT PLAQUE PLACEMENT

NOTE: Equal sign panel overhangs apply to sign panels only.
The exit plaque is mounted above the sign panels and the walkway is mounted below the sign panels, when used.

POST SELECTION TABLE

SIGN PANEL DEPTH D	MAIN SPAN LENGTH L	POST TYPE BY POST CLEAR HEIGHT			
		≤ 16 ft	≤ 20 ft	≤ 24 ft	≤ 28 ft
D ≤ 80"	30'-0"	2A	2A	2A	2B
	30'-0" < L ≤ 45'-0"	2A	2B	2C	2D
	45'-0" < L ≤ 60'-0"	2C	2C	2E	2E
	60'-0" < L ≤ 75'-0"	2D	2E	2E	2E
	75'-0" < L ≤ 90'-0"	2E	2E	2E	2E
	90'-0" < L ≤ 105'-0"	2E	2E	2E	2F
	105'-0" < L ≤ 120'-0"	2E	2E	2F	2F
	120'-0" < L ≤ 135'-0"	2E	2F	2F	2G
	135'-0" < L ≤ 150'-0"	2F	2F	2G	2G
	150'-0" < L ≤ 165'-0"	2A	2A	2B	2C
80" < D ≤ 100"	30'-0"	2A	2A	2B	2C
	30'-0" < L ≤ 45'-0"	2B	2C	2D	2E
	45'-0" < L ≤ 60'-0"	2C	2E	2E	2E
	60'-0" < L ≤ 75'-0"	2E	2E	2E	2E
	75'-0" < L ≤ 90'-0"	2E	2E	2F	2F
	90'-0" < L ≤ 105'-0"	2E	2F	2F	2G
	105'-0" < L ≤ 120'-0"	2E	2F	2G	2G
	120'-0" < L ≤ 135'-0"	2F	2F	2G	2G
	135'-0" < L ≤ 150'-0"	2F	2G	2G	2H
	150'-0" < L ≤ 165'-0"	2A	2B	2C	2D
100" < D ≤ 120"	30'-0"	2A	2B	2C	2D
	30'-0" < L ≤ 45'-0"	2C	2D	2E	2E
	45'-0" < L ≤ 60'-0"	2E	2E	2E	2E
	60'-0" < L ≤ 75'-0"	2E	2E	2E	2F
	75'-0" < L ≤ 90'-0"	2E	2E	2F	2F
	90'-0" < L ≤ 105'-0"	2E	2F	2G	2G
	105'-0" < L ≤ 120'-0"	2F	2F	2G	2G
	120'-0" < L ≤ 135'-0"	2F	2G	2G	2H
	135'-0" < L ≤ 150'-0"	2G	2G	2H	2H
	150'-0" < L ≤ 165'-0"	2B	2C	2D	2E
120" < D ≤ 150"	30'-0"	2D	2E	2E	2E
	30'-0" < L ≤ 45'-0"	2E	2E	2E	2F
	45'-0" < L ≤ 60'-0"	2E	2E	2F	2F
	60'-0" < L ≤ 75'-0"	2E	2F	2F	2G
	75'-0" < L ≤ 90'-0"	2F	2F	2G	2G
	90'-0" < L ≤ 105'-0"	2F	2G	2G	2H
	105'-0" < L ≤ 120'-0"	2F	2G	2H	2H
	120'-0" < L ≤ 135'-0"	2G	2H	2H	2H
	135'-0" < L ≤ 150'-0"	2G	2H	2H	2H
	150'-0" < L ≤ 165'-0"	2C	2D	2E	2E
150" < D ≤ 180"	30'-0"	2E	2E	2E	2E
	30'-0" < L ≤ 45'-0"	2E	2E	2F	2F
	45'-0" < L ≤ 60'-0"	2E	2E	2F	2F
	60'-0" < L ≤ 75'-0"	2E	2F	2G	2G
	75'-0" < L ≤ 90'-0"	2F	2G	2G	2H
	90'-0" < L ≤ 105'-0"	2G	2G	2H	2H
	105'-0" < L ≤ 120'-0"	2G	2H	2H	2H
	120'-0" < L ≤ 135'-0"	2H	2H	2H	2H
	135'-0" < L ≤ 150'-0"	2H	2H	2H	2H
	150'-0" < L ≤ 165'-0"	2D	2E	2E	2E
180" < D ≤ 210"	30'-0"	2E	2E	2F	2F
	30'-0" < L ≤ 45'-0"	2E	2E	2F	2F
	45'-0" < L ≤ 60'-0"	2F	2F	2G	2G
	60'-0" < L ≤ 75'-0"	2F	2G	2G	2H
	75'-0" < L ≤ 90'-0"	2G	2G	2H	2H
	90'-0" < L ≤ 105'-0"	2H	2H	2H	2H
	105'-0" < L ≤ 120'-0"	2H	2H	2H	2H
	120'-0" < L ≤ 135'-0"	2H	2H	2H	2H
	135'-0" < L ≤ 150'-0"	2H	2H	2H	2H
	150'-0" < L ≤ 165'-0"	2E	2E	2E	2E
210" < D ≤ 240"	30'-0"	2E	2F	2F	2G
	30'-0" < L ≤ 45'-0"	2E	2F	2G	2G
	45'-0" < L ≤ 60'-0"	2F	2F	2G	2G
	60'-0" < L ≤ 75'-0"	2G	2G	2H	2H
	75'-0" < L ≤ 90'-0"	2G	2H	2H	2H
	90'-0" < L ≤ 105'-0"	2H	2H	2H	2H
	105'-0" < L ≤ 120'-0"	2H	2H	2H	2H
	120'-0" < L ≤ 135'-0"	2H	2H	2H	2H
	135'-0" < L ≤ 150'-0"	2H	2H	2H	2H
	150'-0" < L ≤ 165'-0"	2H	2H	2H	-

TRUSS MEMBER TABLE

SIGN PANEL DEPTH ≤ 80"									
MAIN SPAN LENGTH L	FRAME DEPTH	ANGLE MEMBER SIZE AND MINIMUM OVERLAP LENGTH TO GUSSET PLATE							
		CHORD	VERTICAL	Lv	DIAGONAL	Ld	WIND BRACE	Lw	INTERIOR
30'-0"	60"	L4 x 4 x 3/8	L3 x 3 x 3/8	3	L3 x 3 x 3/8	3	L2 1/2 x 2 1/2 x 1/4	3	L2 1/2 x 2 1/2 x 1/4
30'-0" < L ≤ 45'-0"	60"	L4 x 4 x 3/8	L3 x 3 x 3/8	3	L3 x 3 x 3/8	4	L2 1/2 x 2 1/2 x 1/4	3	L2 1/2 x 2 1/2 x 1/4
45'-0" < L ≤ 60'-0"	60"	L4 x 4 x 1/2	L3 x 2 x 3/8	3	L3 x 3 x 3/8	4	L2 1/2 x 2 1/2 x 1/4	3	L2 1/2 x 2 1/2 x 1/4
60'-0" < L ≤ 75'-0"	60"	L4 x 4 x 1/2	L3 x 2 x 3/8	3	L4 x 3 x 3/8	4	L2 1/2 x 2 1/2 x 1/4	4	L2 1/2 x 2 1/2 x 1/4
75'-0" < L ≤ 90'-0"	60"	L5 x 5 x 1/2	L4 x 4 x 1/2	3	L4 x 4 x 1/2	4	L3 x 3 x 3/8	4	L2 1/2 x 2 1/2 x 1/4
90'-0" < L ≤ 105'-0"	60"	L5 x 5 x 3/8	L5 x 3 x 1/2	3	L5 x 3 x 1/2	4	L3 x 3 x 3/8	4	L2 1/2 x 2 1/2 x 1/4
105'-0" < L ≤ 120'-0"	60"	L6 x 6 x 3/8	L5 x 3 1/2 x 1/2	3	L5 x 3 x 1/2	4	L3 x 3 x 3/8	4	L2 1/2 x 2 1/2 x 1/4
120'-0" < L ≤ 135'-0"	60"	L6 x 6 x 3/4	L5 x 3 1/2 x 3/4	3	L5 x 5 x 1/2	5	L3 x 3 x 3/8	4	L2 1/2 x 2 1/2 x 1/4
135'-0" < L ≤ 150'-0"	60"	L8 x 6 x 3/8	L5 x 5 x 3/8	4	L5 x 5 x 1/2	6	L3 1/2 x 3 1/2 x 3/8	5	L2 1/2 x 2 1/2 x 1/4
80" < SIGN PANEL DEPTH ≤ 180"									
MAIN SPAN LENGTH L	FRAME DEPTH	ANGLE MEMBER SIZE AND MINIMUM OVERLAP LENGTH TO GUSSET PLATE							
		CHORD	VERTICAL	Lv	DIAGONAL	Ld	WIND BRACE	Lw	INTERIOR
30'-0"	72"	L4 x 4 x 3/4	L3 x 3 x 3/8	3	L3 x 3 x 3/8	3	L2 1/2 x 2 1/2 x 1/4	3	L2 1/2 x 2 1/2 x 1/4
30'-0" < L ≤ 45'-0"	72"	L4 x 4 x 3/4	L3 x 3 x 3/8	3	L4 x 4 x 3/8	4	L2 1/2 x 2 1/2 x 3/8	3	L2 1/2 x 2 1/2 x 1/4
45'-0" < L ≤ 60'-0"	72"	L5 x 5 x 3/8	L3 x 3 x 3/8	3	L4 x 4 x 3/8	4	L3 x 3 x 3/8	5	L2 1/2 x 2 1/2 x 1/4
60'-0" < L ≤ 75'-0"	72"	L5 x 5 x 3/4	L3 x 3 x 3/8	3	L4 x 4 x 3/8	5	L3 x 2 1/2 x 3/8	5	L2 1/2 x 2 1/2 x 1/4
75'-0" < L ≤ 90'-0"	72"	L6 x 6 x 3/8	L4 x 4 x 1/2	3	L4 x 4 x 1/2	5	L4 x 3 x 3/8	5	L2 1/2 x 2 1/2 x 1/4
90'-0" < L ≤ 105'-0"	72"	L6 x 6 x 3/4	L5 x 3 x 1/2	3	L5 x 5 x 1/2	5	L4 x 4 x 3/8	6	L3 x 3 x 3/8
105'-0" < L ≤ 120'-0"	72"	L6 x 6 x 1	L5 x 3 x 1/2	3	L5 x 5 x 1/2	5	L4 x 4 x 3/8	6	L3 x 3 x 3/8
120'-0" < L ≤ 135'-0"	72"	L8 x 6 x 1	L6 x 6 x 3/8	4	L5 x 5 x 3/8	5	L4 x 4 x 1/2	6	L3 x 3 x 3/8
135'-0" < L ≤ 150'-0"	72"	L8 x 8 x 1	L6 x 6 x 3/8	4	L6 x 6 x 3/8	5	L4 x 4 x 1/2	6	L3 x 3 x 3/8
180" < SIGN PANEL DEPTH ≤ 240"									
MAIN SPAN LENGTH L	FRAME DEPTH	ANGLE MEMBER SIZE AND MINIMUM OVERLAP LENGTH TO GUSSET PLATE							
		CHORD	VERTICAL	Lv	DIAGONAL	Ld	WIND BRACE	Lw	INTERIOR
30'-0"	120"	L5 x 5 x 3/8	L3 x 3 x 3/8	3	L5 x 5 x 1/2	3	L2 1/2 x 2 1/2 x 1/4	3	L3 x 3 x 3/8
30'-0" < L ≤ 45'-0"	120"	L6 x 6 x 3/8	L3 x 3 x 3/8	3	L5 x 5 x 1/2	3	L2 1/2 x 2 1/2 x 3/8	3	L3 x 3 x 3/8
45'-0" < L ≤ 60'-0"	120"	L6 x 6 x 3/8	L3 x 3 x 3/8	3	L5 x 5 x 1/2	3	L3 x 2 1/2 x 3/8	4	L3 x 3 x 3/8
60'-0" < L ≤ 75'-0"	120"	L6 x 6 x 3/8	L3 x 3 x 3/8	3	L5 x 5 x 1/2	4	L3 x 3 x 1/2	4	L3 x 3 x 3/8
75'-0" < L ≤ 90'-0"	120"	L6 x 6 x 3/8	L4 x 4 x 1/2	3	L5 x 5 x 1/2	5	L4 x 4 x 3/8	6	L3 x 3 x 3/8
90'-0" < L ≤ 105'-0"	120"	L6 x 6 x 1	L5 x 3 x 1/2	3	L5 x 5 x 1/2	5	L4 x 4 x 1/2	6	L3 x 3 x 3/8
105'-0" < L ≤ 120'-0"	120"	L6 x 6 x 1	L5 x 3 x 1/2	3	L5 x 5 x 1/2	5	L4 x 4 x 1/2	6	L3 x 3 x 3/8
120'-0" < L ≤ 135'-0"	120"	L8 x 8 x 3/4	L5 x 3 x 1/2	3	L5 x 5 x 3/8	5	L5 x 5 x 1/2	6	L3 x 3 x 3/8
135'-0" < L ≤ 150'-0"	120"	L8 x 8 x 3/8	L5 x 3 1/2 x 3/4	3	L5 x 5 x 3/8	5	L5 x 5 x 1/2	6	L3 x 3 x 3/8

POST TYPE TABLE

POST TYPE	DIAMETER	Min NOMINAL THICKNESS	SPLIT
2A	16"	1.218"	N/A
2B	18"	1.156"	N/A
2C	20"	1.031"	N/A
2D	22"	1.125"	N/A
2E	24"	0.969"	N/A
2F	30"	0.625"	12"
2G	30"	1"	12"
2H	36"	1"	12"

NOTES:

- If a cantilever span is added, the same member sizes and weld lengths shall be used on the main and cantilever spans. Refer to Revised Standard Plan RSP S100 for rules on span lengths.
- Post clear height is measured to underside of bottom truss chord.
- Refer to Revised Standard Plan RSP S111 for connection details.
- Minimum overlap lengths to Gusset Plates (Lv, Ld, Lw, and Li) are in inches.

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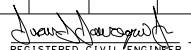
OVERHEAD SIGNS-VERSATILE TRUSS TWO POST TYPE STEEL POST TYPE AND TRUSS MEMBER TABLE

NO SCALE

RSP S107 DATED APRIL 16, 2021 SUPERSEDES STANDARD PLAN S107
DATED MAY 31, 2018 - PAGE 462 OF THE STANDARD PLANS BOOK DATED 2018.

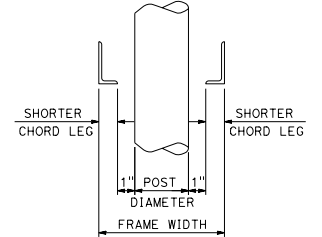
REVISED STANDARD PLAN RSP S107

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS


 REGISTERED CIVIL ENGINEER
 No. C63939
 Exp. 9-30-22
 CIVIL
 STATE OF CALIFORNIA

April 16, 2021
 PLANS APPROVAL DATE
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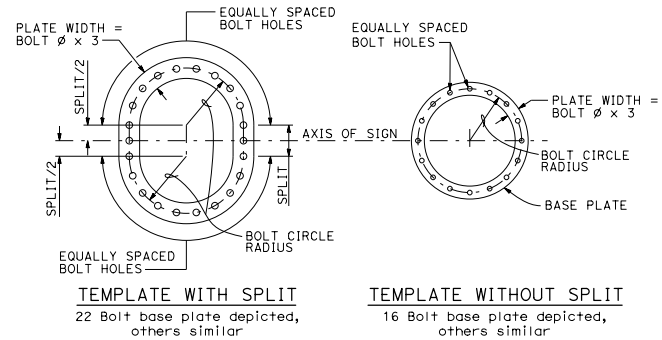


FRAME WIDTH SCHEMATIC

BASE PLATE AND ANCHOR BOLT DIMENSIONS

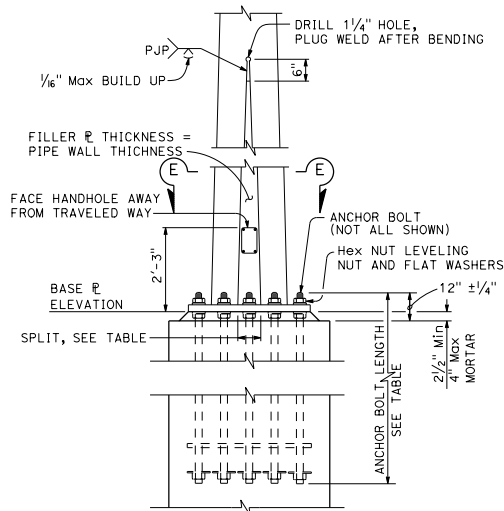
POST TYPE	BASE PLATE			ANCHOR BOLTS					
	PLATE THICKNESS	PLATE RADIUS	SPLIT	OPENING RADIUS	NUMBER OF BOLTS	BOLT DIAMETER	BOLT LENGTH	BOLT HOLE DIAMETER	BOLT CIRCLE RADIUS
2A	3/2"	1'-3"	N/A	2 1/2"	14	1 1/2"	5'-0"	1 3/4"	1'-0"
2B	3/2"	1'-4 1/2"	N/A	3"	14	1 3/4"	5'-0"	2"	1'-1"
2C	3"	1'-5 1/2"	N/A	3"	16	1 3/4"	5'-0"	2"	1'-2"
2D	3/2"	1'-6 1/2"	N/A	3 1/2"	16	1 3/4"	5'-0"	2"	1'-3"
2E	3"	1'-9"	N/A	3 3/4"	18	2"	5'-0"	2 1/4"	1'-5"
2F	3"	2'-0"	12"	4 1/2"	22	2"	5'-0"	2 1/4"	1'-8"
2G	3/2"	2'-0"	12"	4 1/2"	22	2"	5'-0"	2 1/4"	1'-8"
2H	3/2"	2'-4"	12"	5 1/2"	24	2 1/2"	5'-0"	2 3/4"	1'-11"

Notes:
Thread locking nuts not required for anchor bolts.

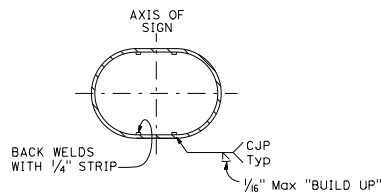


ANCHOR BOLT TEMPLATE

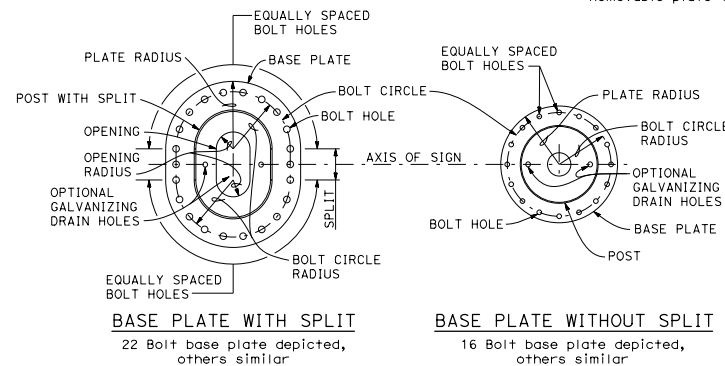
Note: Permanent plate thickness = 3/4",
Removable plate thickness = 1/2"



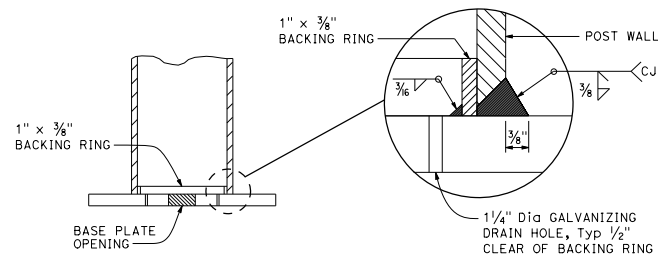
POST AND ANCHORAGE DETAIL



SECTION E-E



BASE PLATE DETAILS



POST TO BASE PLATE CONNECTION DETAIL

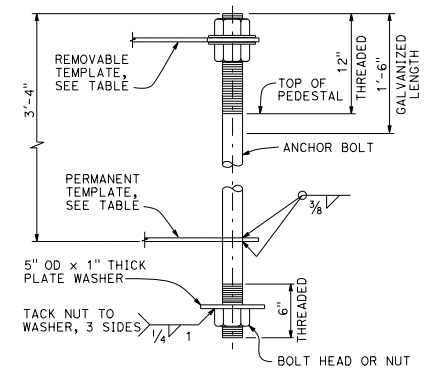
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL SHEETS

REGISTERED CIVIL ENGINEER

April 16, 2021
PLANS APPROVAL DATE

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TO ACCOMPANY PLANS DATED _____



ANCHOR BOLT TEMPLATE ASSEMBLY

Note: One bolt shown only. Other bolts same configuration around pipe sleeve. Template to match base plate anchor bolt pattern.

OVERHEAD SIGNS-VERSATILE TRUSS TWO POST TYPE STEEL POST BASE PLATE AND ANCHORAGE DETAILS

NO SCALE

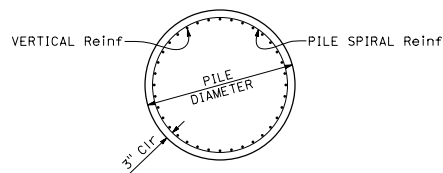
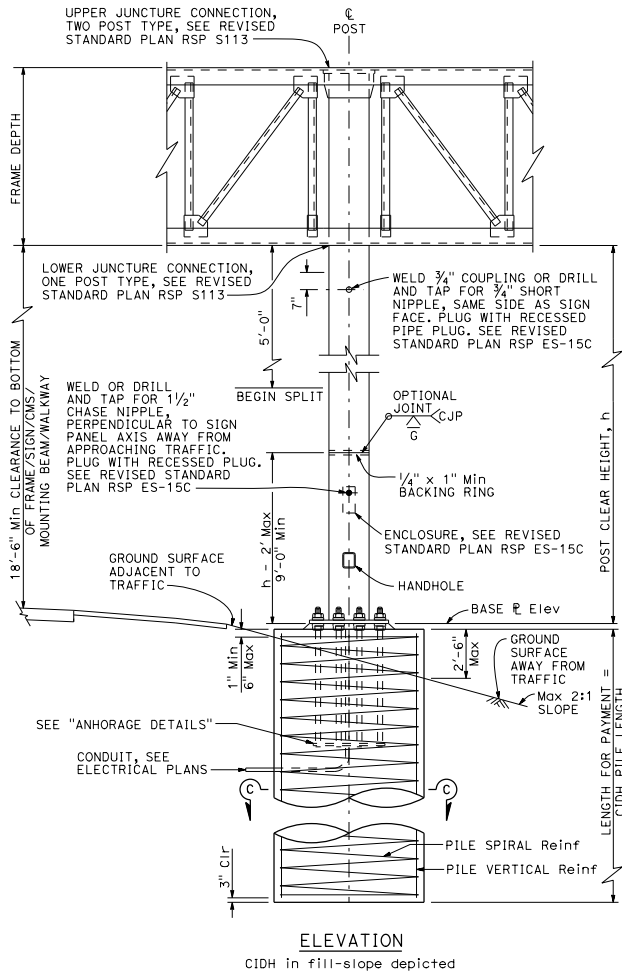
RSP S108 DATED APRIL 16, 2021 SUPERSEDES STANDARD PLAN S108
DATED MAY 31, 2018 - PAGE 463 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP S108

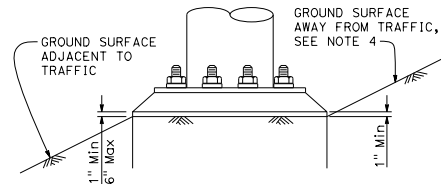
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL NO. SHEETS
<p>April 16, 2021 PLANS APPROVAL DATE</p> <p>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</p>				

TO ACCOMPANY PLANS DATED _____

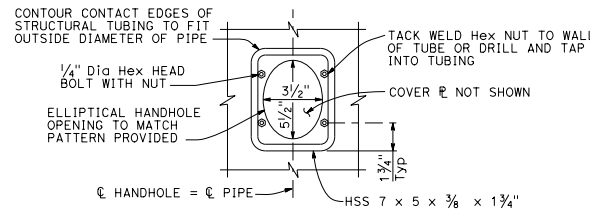
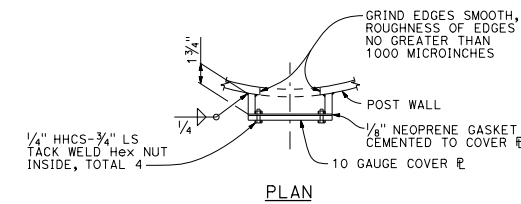
2018 REVISED STANDARD PLAN RSP S109



SECTION C-C
See Note 10



CIDH IN CUT-SLOPE



TYPICAL DETAILS OF HANDHOLE AND COVER

NOTES:

- For "ANCHORAGE DETAILS", see Revised Standard Plan RSP S108.
- For "Base E Elevation", see Project Plans.
- Prior to erection of the post, backfill which is equivalent to the surrounding material shall be in place.
- Slope stabilization required when indicated on the Project Plan.
- For drain holes and central void in mortar, see Standard Plans ES-6B detail N.
- Refer to Revised Standard Plan RSP S107 for "Post Type Table".
- Use Pedestal with CIDH pile foundation when shown on the Project Plans. See Revised Standard Plan RSP S110.
- On single post sign structures, the post shall be raked out of plumb, with the use of the leveling nuts to make the bottom of the sign frame level.
- At final position of post all top and bottom nuts shall be tightened against base plate.
- For CIDH Pile Foundation with Inspection Pipes, see Revised Standard Plan RSP S114.
- Maximum electrical conduit diameter is 3".

CIDH CONCRETE PILE TABLE

POST TYPE	DIAMETER	VERTICAL BAR SIZE	TOTAL NUMBER OF VERTICAL BARS	SPIRAL BAR SIZE	SPIRAL PITCH	MINIMUM CIDH PILE LENGTH
2A	5'-0"	#10	30	#6	5"	22'-0"
2B	5'-0"	#10	30	#6	5"	22'-0"
2C	5'-0"	#10	30	#6	5"	22'-0"
2D	5'-0"	#10	30	#6	5"	22'-0"
2E	5'-0"	#10	32	#6	5"	24'-0"
2F	6'-0"	#10	36	#6	5"	25'-0"
2G	6'-0"	#10	36	#6	4"	29'-0"
2H	6'-6"	#10	40	#6	4"	36'-0"

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OVERHEAD SIGNS-VERSATILE TRUSS
TWO POST TYPE
CIDH PILE FOUNDATION DETAILS
NO SCALE

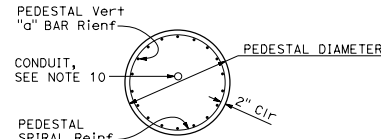
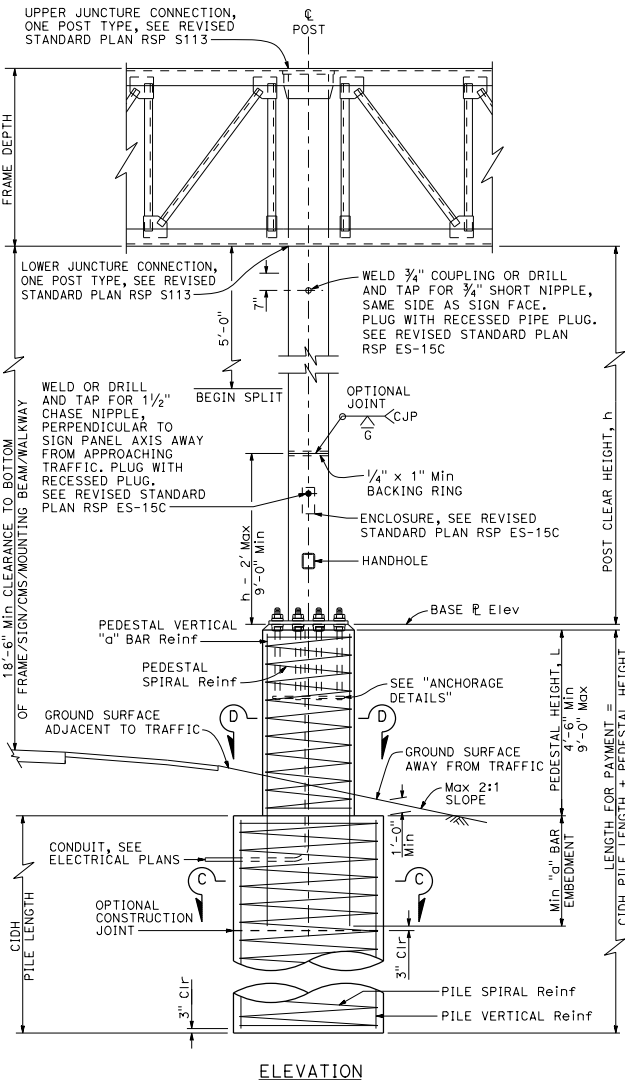
RSP S109 DATED APRIL 16, 2021 SUPERSEDES STANDARD PLAN S109
DATED MAY 31, 2018 - PAGE 464 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP S109

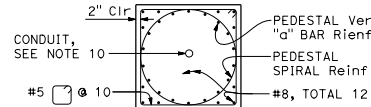
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL NO. SHEETS
<p>April 16, 2021 PLANS APPROVAL DATE</p> <p>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</p>				

TO ACCOMPANY PLANS DATED _____

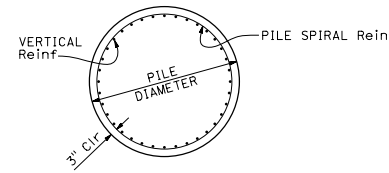
2018 REVISED STANDARD PLAN RSP S110



SECTION D-D
ROUND PEDESTAL



SECTION D-D
SQUARE PEDESTAL



SECTION C-C
See Note 9

NOTES:

1. For "ANCHORAGE DETAILS", see Revised Standard Plan RSP S108.
2. For "Base Elevation", see Project Plans.
3. Prior to erection of the post, backfill which is equivalent to the surrounding material shall be in place.
4. For "PEDESTAL HEIGHT" and "PEDESTAL SHAPE", see Project Plans.
5. Refer to Revised Standard Plan RSP S109 for CIDH pile foundation details when a pedestal is not indicated in the Project Plans.
6. Refer to Revised Standard Plan RSP S109 for additional details and notes not shown on this sheet.
7. For drain holes and central void in mortar, see Standard Plan ES-68 Detail N.
8. Refer to Revised Standard Plan RSP S107 for "Post Type Table".
9. For CIDH Pile Foundation with Inspection Pipes, see Revised Standard Plan RSP S114.
10. Maximum electrical conduit diameter is 3".

CONCRETE PEDESTAL AND CIDH CONCRETE PILE TABLE

POST TYPE	CONCRETE PEDESTAL							CIDH CONCRETE PILE					
	ROUND PEDESTAL DIAMETER	SQUARE PEDESTAL SIDES LENGTH	VERTICAL "a" BAR SIZE	NUMBER OF VERTICAL "a" BARS	SPIRAL BAR SIZE	SPIRAL PITCH	Min "a" BAR EMBEDMENT	DIAMETER	VERTICAL BAR SIZE	TOTAL NUMBER OF VERTICAL BARS	SPIRAL BAR SIZE	SPIRAL PITCH	MINIMUM CIDH PILE LENGTH
2A	3'-6"	3'-6"	#8	18	#5	5"	54"	5'-0"	#10	30	#6	5"	20'-0"
2B	3'-8"	3'-8"	#8	20	#5	5"	54"	5'-0"	#10	30	#6	5"	20'-0"
2C	3'-10"	3'-10"	#9	22	#5	5"	72"	5'-0"	#10	30	#6	5"	20'-0"
2D	4'-0"	4'-0"	#9	24	#5	5"	72"	5'-0"	#10	30	#6	5"	20'-0"
2E	4'-4"	4'-4"	#9	22	#5	5"	72"	5'-0"	#10	32	#6	5"	22'-0"

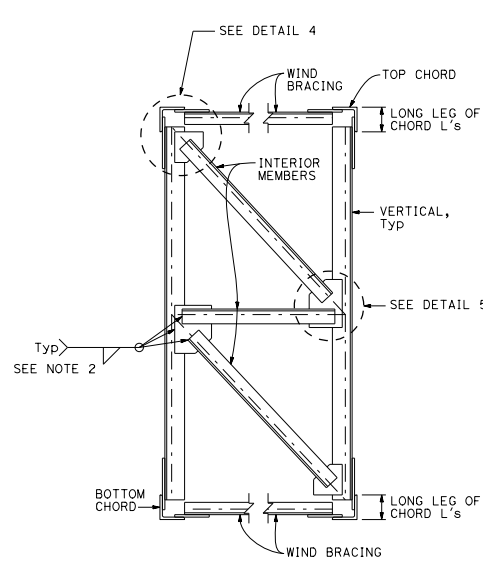
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**OVERHEAD SIGNS-VERSATILE TRUSS
TWO POST TYPE
CONCRETE PEDESTAL WITH
CIDH PILE FOUNDATION DETAILS**

NO SCALE

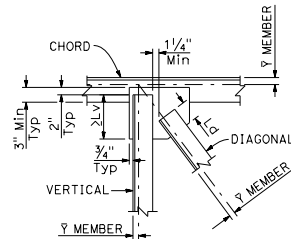
RSP S110 DATED APRIL 16, 2021 SUPERSEDES STANDARD PLAN S110
DATED MAY 31, 2018 - PAGE 465 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP S110

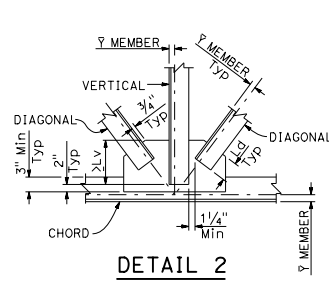


TYPICAL SECTION B-B

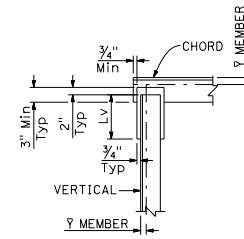
Diagonal members not shown, see
Revised Standard Plans RSP S101 and RSP S106



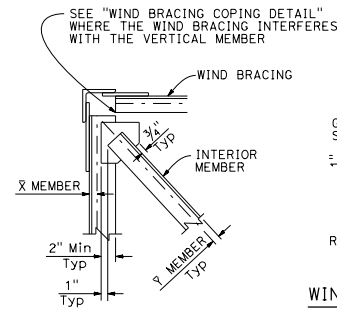
DETAIL 1



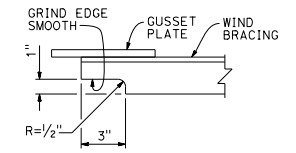
DETAIL 2



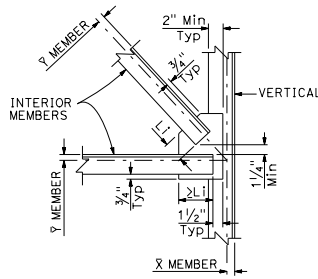
DETAIL 3



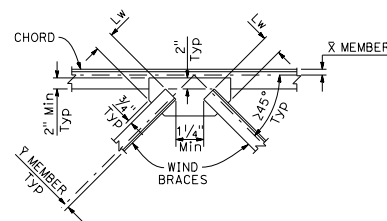
DETAIL 4



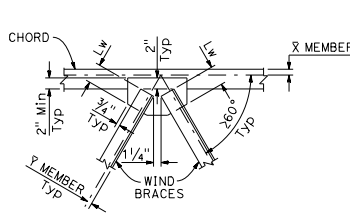
WIND BRACING COPING DETAIL



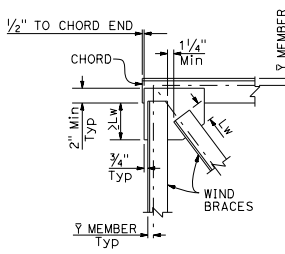
DETAIL 5



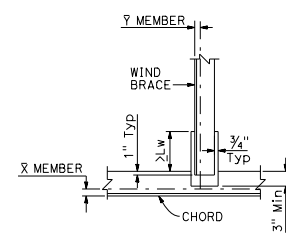
DETAIL 6



DETAIL 7



DETAIL 8

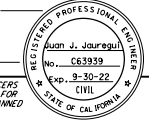


DETAIL 9

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL NO. SHEETS
<p>April 16, 2021 PLANS APPROVAL DATE</p> <p>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.</p>				

TO ACCOMPANY PLANS DATED _____

REGISTERED CIVIL ENGINEER



NOTES:

1. Lv, Ld, Lw and Li indicate minimum overlap lengths for member to gusset plates. Refer to Revised Standard Plans RSP S102 and RSP S107 for values.
2. Unless otherwise noted, connections between members and gusset plates are fillet welds around all edges. See "Weld Table" for fillet weld size.
3. Gusset plate thickness = 5/8".
4. Gusset plate dimensions vary based on connecting member sizes and the orientation of their centroids.
5. All connection details are typical and may be mirrored depending on the connection location.

ABBREVIATIONS:

- \bar{X} = Distance to centroid of L along the short leg
 \bar{Y} = Distance to centroid of L along the long leg

WELD TABLE	
THICKNESS OF ANGLE	WELD SIZE
1/4"	3/16"
5/16"	3/16"
3/8"	1/4"
1/2"	3/8"
5/8"	1/2"
≥ 3/4"	3/4"

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**OVERHEAD SIGNS-VERSATILE TRUSS
TRUSS CONNECTION DETAILS**

NO SCALE

RSP S111 DATED APRIL 16, 2021 SUPERSEDES STANDARD PLAN S111
DATED MAY 31, 2018 - PAGE 466 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP S111

2018 REVISED STANDARD PLAN RSP S111

**TABLE 1
BOLTED CHORD SPLICE**

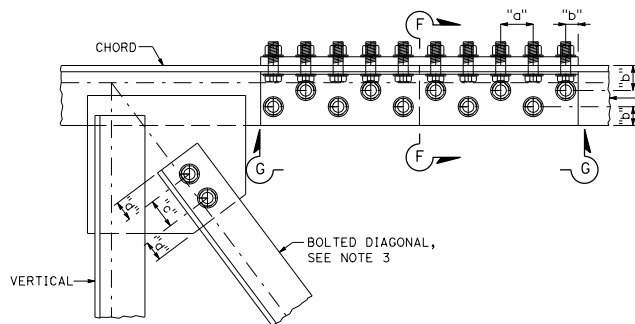
CHORD THICKNESS	NOMINAL BOLT DIAMETER	"a" Min	"b" Min
3/8"	3/4"	2 1/4"	1"
1/2"	7/8"	2 5/8"	1 1/8"
5/8"	1"	3"	1 1/4"
3/4"	1 1/4"	3 3/4"	1 5/8"
7/8"	1 1/2"	4 1/2"	1 7/8"
1"	1 1/2"	4 1/2"	1 7/8"

**TABLE 2
BOLTED WIND BRACE AT CHORD SPLICE**

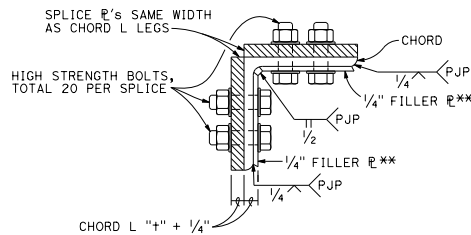
CHORD THICKNESS	BOLTED WIND BRACE	
	BOLTED LEG Min WIDTH	Min THICKNESS
3/8"	2 1/2"	5/8"
1/2"	3"	5/8"
5/8"	3"	3/8"
3/4"	3"	1/2"
7/8"	3 1/2"	1/2"
1"	3 1/2"	1/2"

**TABLE 3
BOLTED MEMBER TO GUSSET PLATE**

MEMBER THICKNESS	NOMINAL BOLT DIAMETER	"c" Min	"d" Min
5/8"	5/8"	1 1/8"	7/8"
3/8"	3/4"	2 1/4"	1"
1/2"	7/8"	2 5/8"	1 1/8"
5/8"	1"	3"	1 1/4"
3/4"	1 1/4"	3 3/4"	1 5/8"

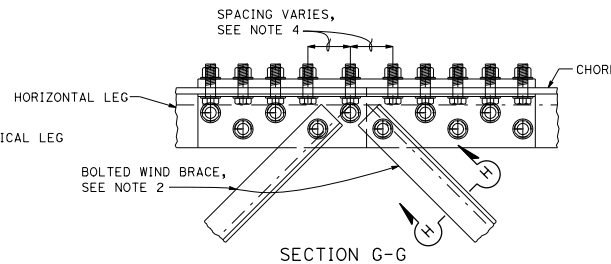


BOLTED CHORD SPLICE
Wind bracing not shown

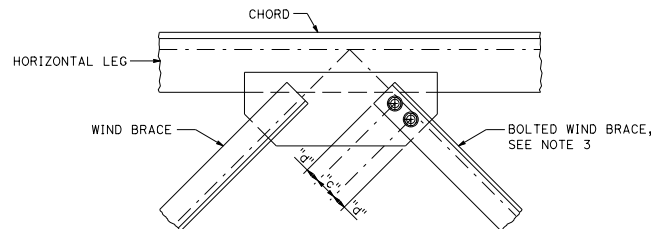


SECTION F-F

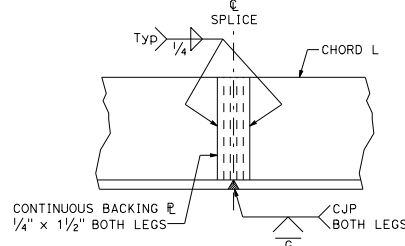
** 5/8" Filler \bar{r} at 3/4" thick chord angle
** 3/8" Filler \bar{r} at 7/8" and 1" thick chord angle



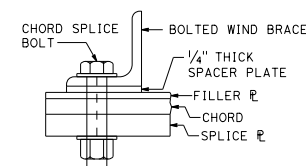
BOLTED WIND BRACE AT BOLTED CHORD SPLICE



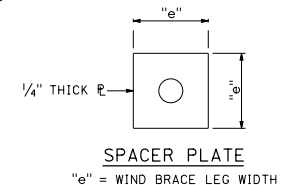
BOLTED WIND BRACE AT GUSSET PLATES



WELDED CHORD SPLICE



SECTION H-H



SPACER PLATE

"e" = WIND BRACE LEG WIDTH

NOTES:

- All bolt connections for the chord splice and gusset plate connections are fully tensioned.
- See "Truss Member Table" on Revised Standard Plans RSP S102 and RSP S107 for the size of bolted wind brace angle. The bolted wind brace leg width and thickness shall be increased if necessary in order to meet the minimum dimensions on "Table 2".
- See "Table 3" for nominal bolt diameter and spacing for bolted members to gusset plate.
- The bolt spacing for the bolted chord splice may be increased up to 1" in order to accommodate the bolted wind brace. The unbolted leg of the wind brace may be trimmed in order to avoid conflicts with the chord splice bolts, see "Wind Bracing Coping Detail" on Revised Standard Plan RSP S111.
- See Revised Standard Plan RSP S111 for details not shown.

SPLICE NOTES:

Location of Splices:
The splice shall be located so as not to interfere with the gusset plate connections for the vertical and diagonal Ls. For two post type, see also RSP S106.

Filler \bar{r} :

The filler plates welded to the angle legs on the inside shall be welded before drilling the bolt holes. The filler plates shall be the same length as the splice plates. The filler plates are not necessary on the single post signs if the splice is located over 1/3 of the cantilever length from the post. Alternative splice details may be used if approved by the Engineer.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**OVERHEAD SIGNS-VERSATILE TRUSS
CHORD SPLICE DETAILS**

NO SCALE

RSP S112 DATED APRIL 16, 2021 SUPERSEDES STANDARD PLAN S112
DATED MAY 31, 2018 - PAGE 467 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP S112

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL SHEETS

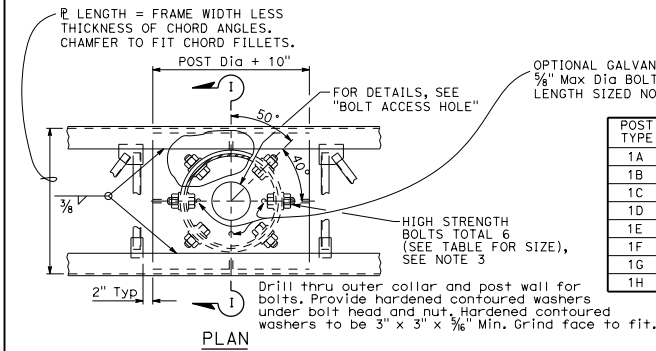
REGISTERED CIVIL ENGINEER

April 16, 2021
PLANS APPROVAL DATE

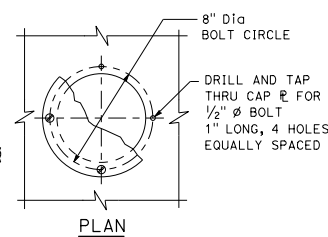
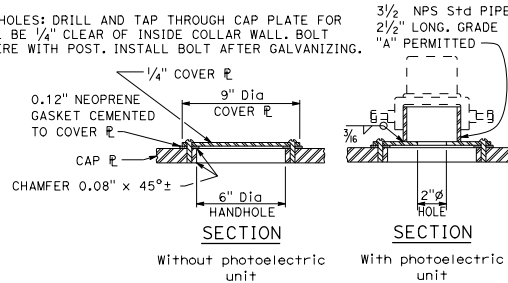
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EXP. 9-30-22
CIVIL
STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED _____



POST TYPE	BOLT SIZE
1A	1"
1B	1"
1C	1 1/8"
1D	1 1/8"
1E	1 1/4"
1F	1 1/2"
1G	1 1/2"
1H	1 1/2"



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL NO. SHEETS

REGISTERED CIVIL ENGINEER

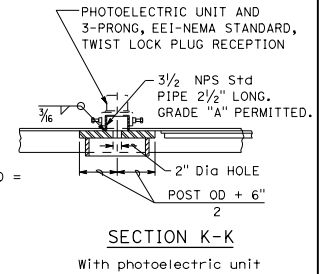
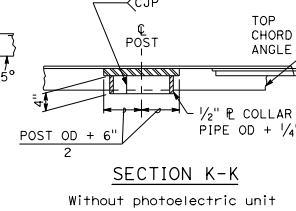
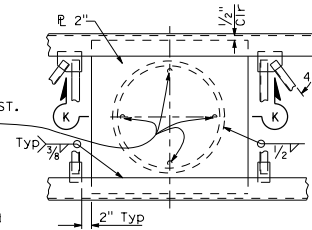
April 16, 2021

PLANS APPROVAL DATE

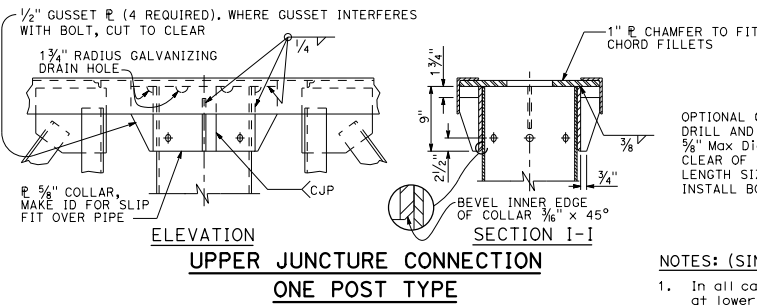
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TO ACCOMPANY PLANS DATED

BOLT-ACCESS HOLE ONE POST TYPE

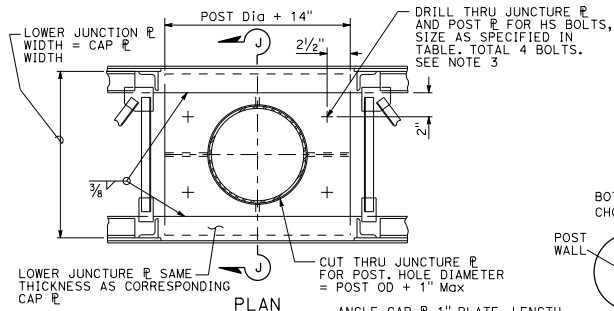


UPPER JUNCTURE CONNECTION TWO POST TYPE

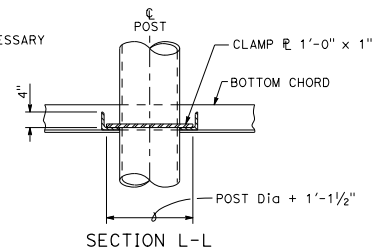
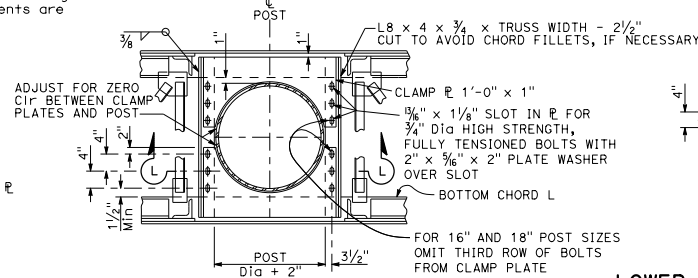


NOTES: (SINGLE POST TYPE)

- In all cases, truss shall be supported at lower juncture connection. Bearing surface shall be finished true.
- Post to truss connections shall be fitted in shop.
- High strength bolts shall be snug tighten. Torque requirements are waived.



LOWER JUNCTURE CONNECTION ONE POST TYPE



LOWER JUNCTURE CONNECTION TWO POST TYPE

OVERHEAD SIGNS-VERSATILE TRUSS TRUSS TO STEEL POST CONNECTION DETAILS

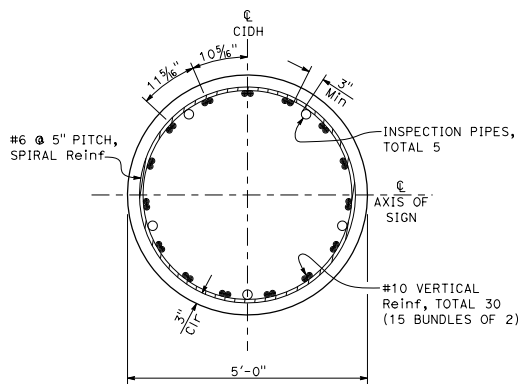
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

NO SCALE

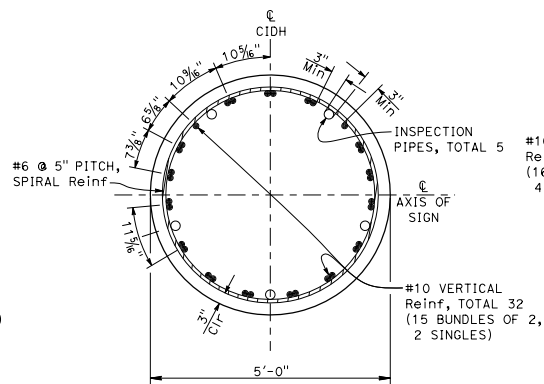
RSP S113 DATED APRIL 16, 2021 SUPERSEDES STANDARD PLAN S113
DATED MAY 31, 2018 - PAGE 468 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP S113

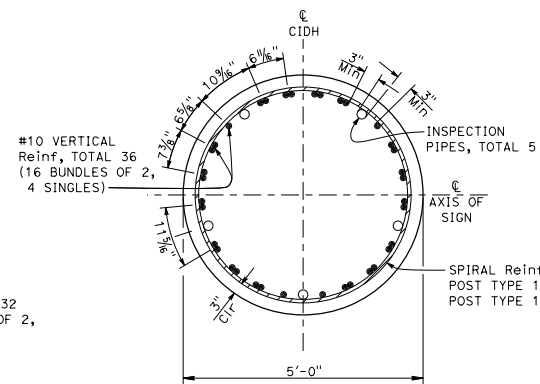
2018 REVISED STANDARD PLAN RSP S113



**POST TYPES 1A, 1B, 1C, 1D,
2A, 2B, 2C AND 2D**



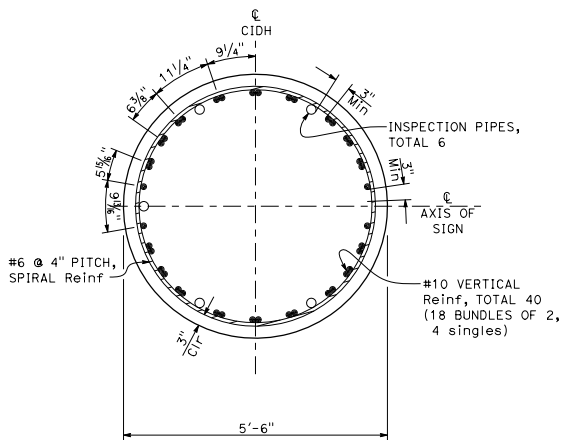
POST TYPES 1E AND 2E



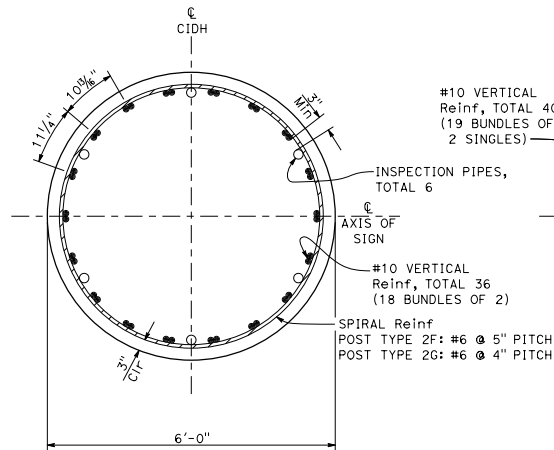
POST TYPES 1F AND 1G

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
<p>April 16, 2021 PLANS APPROVAL DATE</p> <p>REGISTERED CIVIL ENGINEER No. C63939 Exp. 9-30-22 CIVIL STATE OF CALIFORNIA</p> <p>TO ACCOMPANY PLANS DATED _____</p>					

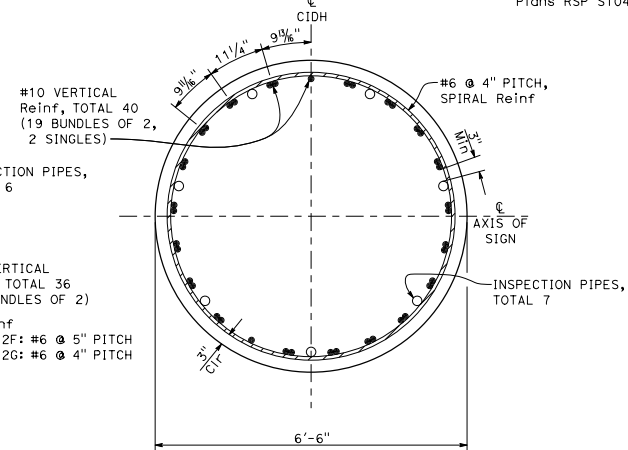
NOTE:
1. For details not shown, see Revised Standard Plans RSP S104, RSP S105, RSP S109 and RSP S110.



POST TYPE 1H



POST TYPES 2F AND 2G



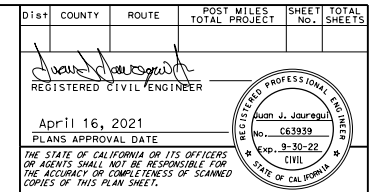
POST TYPE 2H

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**OVERHEAD SIGNS-VERSATILE TRUSS
CIDH PILE FOUNDATION WITH
INSPECTION PIPES**

NO SCALE

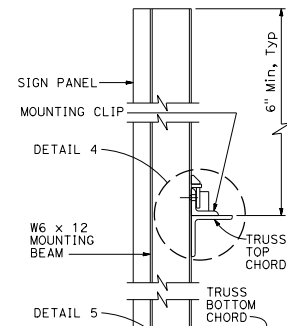
RSP S114 DATED APRIL 16, 2021 SUPERSEDES STANDARD PLAN S114
DATED MAY 31, 2018 - PAGE 469 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP S114

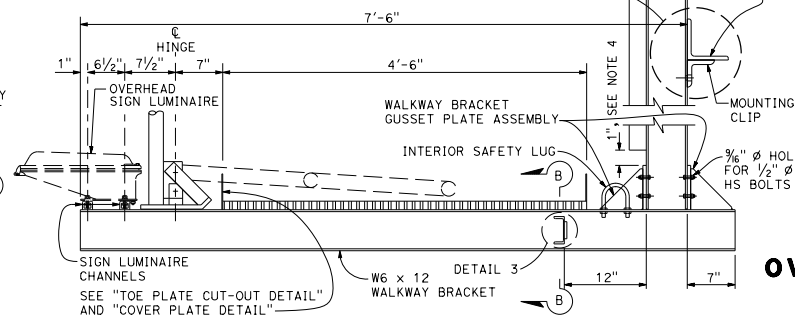


NOTES:

1. Mounting beam spacing to be determined by sign requirements. Refer to Revised Standard Plans RSP S119 to RSP S124 for details.
2. For signs without walkways, mounting beam to be cut short at bottom. Refer to Revised Standard Plans RSP S119 to RSP S122 and RSP S124 for details.
3. Walkway brackets shall be bolted to mounting beams when walkways are provided. Maximum spacing = 5'-6".
4. For sign panels and CMS 710 that don't project below the truss, maintain 1" clearance between the mounting clip and walkway bracket gusset plate assembly.
5. For sign luminaire mounting channel details, see Revised Standard Plan RSP S116.
6. For aluminum walkway grating details, see Revised Standard Plan RSP S116.
7. For "Section B-B" and "Detail 3" see Revised Standard Plan RSP S116.
8. For "Detail 4" and "Detail 5" see Revised Standard Plan RSP S117.
9. For "Toe Plate Cut-Out Detail" and "Cover Plate Detail" see Revised Standard Plan RSP S117.



WALKWAY WITH CMS 500/700/710



WALKWAY WITH SIGN

OVERHEAD SIGNS-VERSATILE TRUSS WALKWAY DETAILS No.1

RSP S115 DATED APRIL 16, 2021 SUPERSEDES STANDARD PLAN S115
DATED MAY 31, 2018 - PAGE 470 OF THE STANDARD PLANS BOOK DATED 2018.

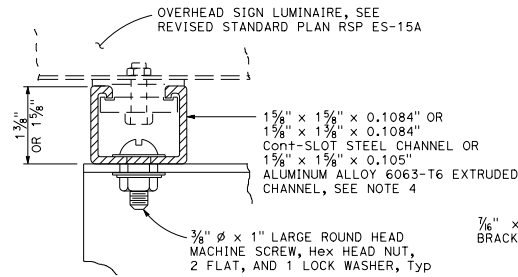
REVISED STANDARD PLAN RSP S115

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL NO. SHEETS
<p>REGISTERED CIVIL ENGINEER</p> <p>April 16, 2021</p> <p>PLANS APPROVAL DATE</p> <p>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.</p>				

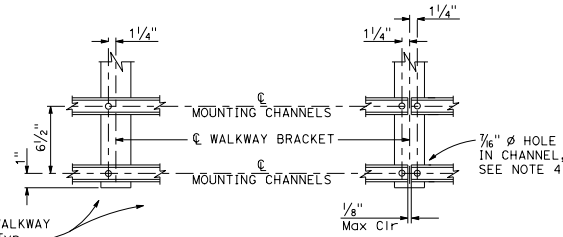
TO ACCOMPANY PLANS DATED _____

NOTES:

- Aluminum bar grating with bearing bars at $\frac{1}{8}$ " spacing shall be used, with cross bars at Max 4" spacing. Max unsupported span shall be 5'-6". Bearing bar Min height shall be $\frac{1}{2}$ ". Max height shall be $2\frac{1}{2}$ ", and bearing bar thickness shall be $\frac{3}{8}$ ". Grating shall be capable of carrying a 500 lb concentrated load and a 40 psf uniform load, applied non-concurrently. Max allowable deflection under 40 psf uniform loading shall be 1.75". The Max allowable grating self-weight shall be 9.0 psf.
- Aluminum walkway grating and light fixture mounting channels to be continuous (no splices) over as many walkway brackets as practical and consistent with fabrication, ease of handling, and assembly.
- Hold down saddle anchors shall be installed at every walkway bracket (not just spliced locations). At non-splice locations, saddle anchors may be installed on one side of girder web only. All hold-down hardware shall be galvanized, the hold-down saddle clip shall be aluminum, and a nylon washer shall be installed on the underside of the nut.
- Contractor may substitute $1\frac{1}{8}$ " x $1\frac{1}{8}$ " x .1084" cont-slot steel channel with pre-punched slots not larger than $\frac{1}{8}$ " x 3". Slots shall be at bottom of channel and shall be parallel to channel. Slots shall be spaced not closer than 4" center to center.



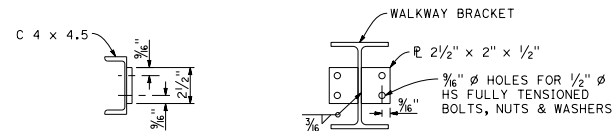
DETAIL 1



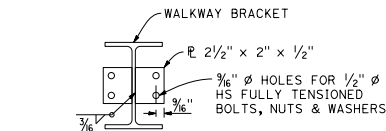
TYPICAL CONNECTION

CONNECTION AT SPLICE

SIGN LUMINAIRE MOUNTING CHANNEL

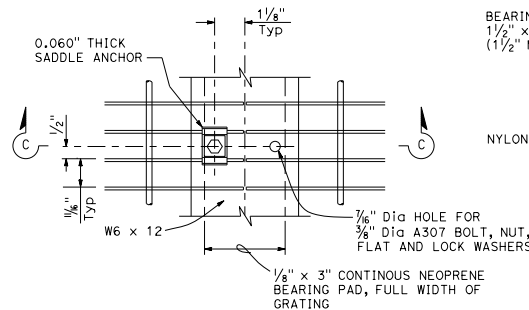


DETAIL 3

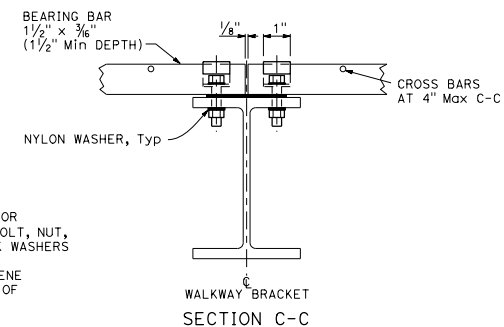


SECTION B-B

Walkway and C-shape not shown



PLAN



WALKWAY BRACKET

SECTION C-C

ALUMINIUM WALKWAY GRATING DETAILS

Shown at splice

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

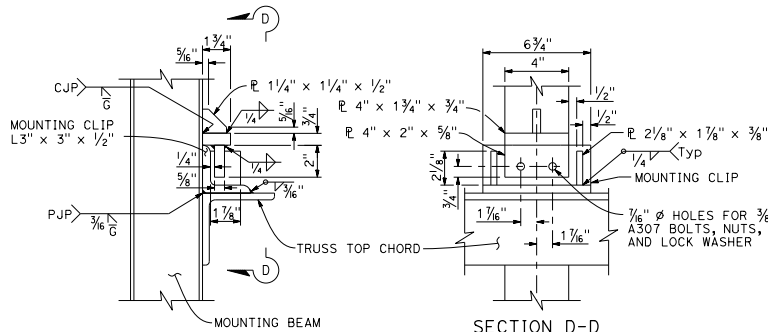
OVERHEAD SIGNS-VERSATILE TRUSS WALKWAY DETAILS No.2

NO SCALE

RSP S116 DATED APRIL 16, 2021 SUPERSEDES STANDARD PLAN S116
DATED MAY 31, 2018 - PAGE 471 OF THE STANDARD PLANS BOOK DATED 2018.

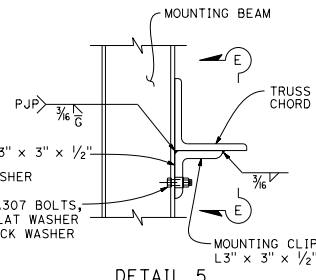
REVISED STANDARD PLAN RSP S116

2018 REVISED STANDARD PLAN RSP S116

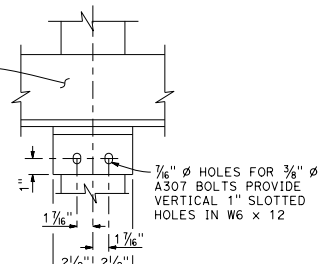


DETAIL 4
Bolt holes not shown

NOTE: L3" x 3" x 1/2" mounting beam supports may be installed over full length of truss if greater sign placement flexibility is desired.



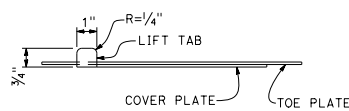
DETAIL 5



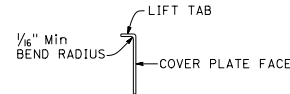
SECTION E-E

NOTES:

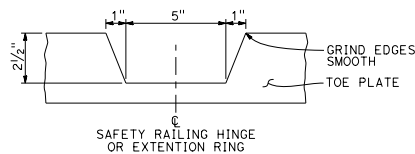
1. Cover plates placed on the walkway grating side of toe plate.
2. Cover plate is 1/16" thick aluminum sheet 5052-H-32.



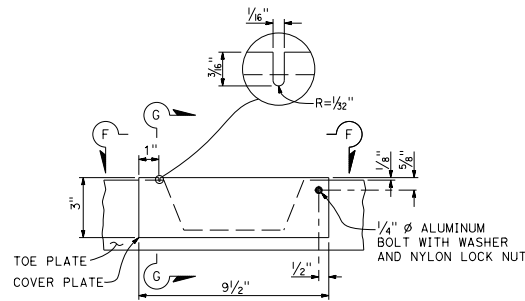
SECTION F-F



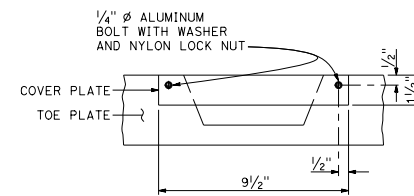
SECTION G-G



TOE PLATE CUT-OUT DETAIL



AT SAFETY RAILING HINGE



AT RING EXTENSION UNDER CMS

COVER PLATE DETAIL
(SEE NOTES 1 AND 2)

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**OVERHEAD SIGNS-VERSATILE TRUSS
WALKWAY DETAILS No.3**
NO SCALE

RSP S117 DATED APRIL 16, 2021 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP S117

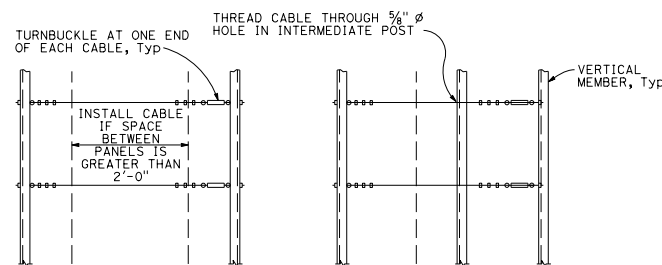
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER

April 16, 2021
PLANS APPROVAL DATE

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TO ACCOMPANY PLANS DATED _____



BETWEEN PANELS BEYOND PANELS
UPPER SAFETY CABLE ELEVATION

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEET

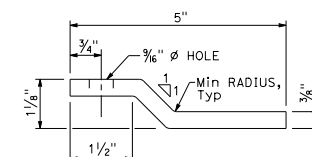
John J. Jauregui
REGISTERED CIVIL ENGINEER

April 16, 2021
PLANS APPROVAL DATE

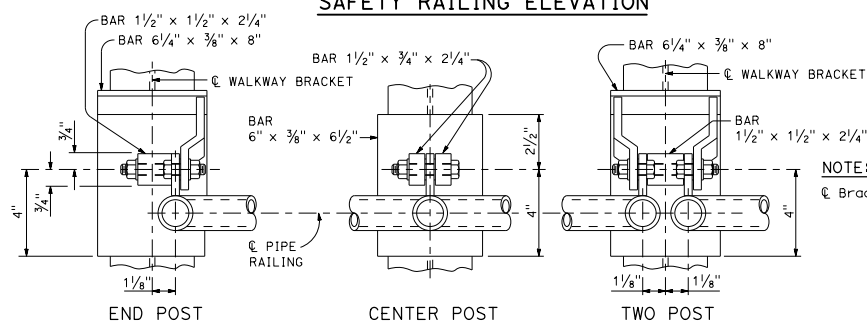
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COPIES OF THIS PLAN SHEET.

John J. Jauregui
No. C63929
Exp. 9-30-22
CIVIL
STATE OF CALIFORNIA
REGISTERED PROFESSIONAL ENGINEER

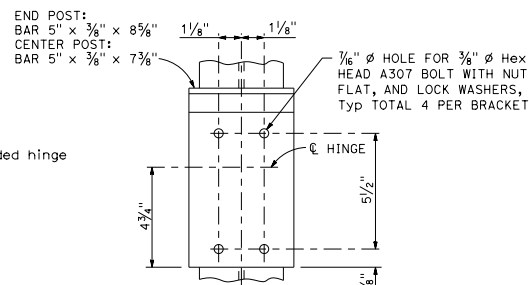
TO ACCOMPANY PLANS DATED



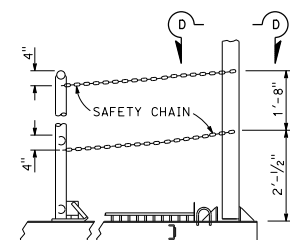
KICKER BAR - PLAN



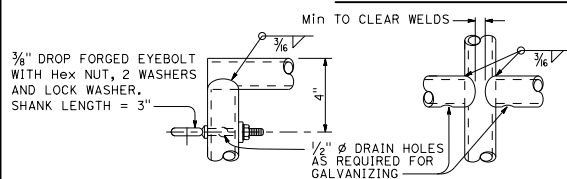
NOTE:
 ⌘ Bracket = ⌘ Welded hinge



TYPICAL BOLTED (ALTERNATIVE)
HINGED CONNECTION



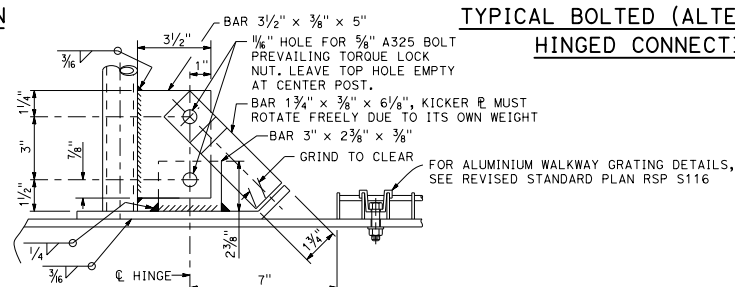
CHAIN ASSEMBLY



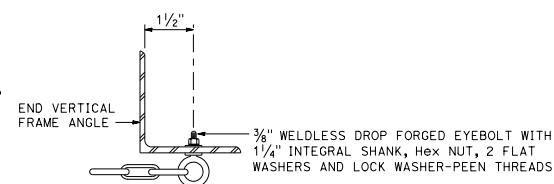
DETAIL A

DETAIL B

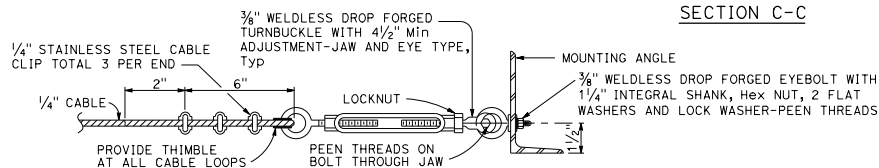
NOTE: Alternative venting methods may be used if approved by the Engineer.



SECTION C-C



VIEW D-D



TURNBUCKLE DETAILS

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

OVERHEAD SIGNS-VERSATILE TRUSS WALKWAY SAFETY RAILING DETAILS

NO SCALE

RSP S118 DATED APRIL 16, 2021 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.

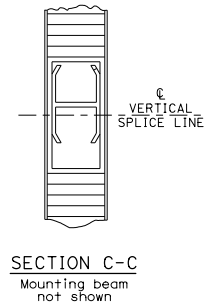
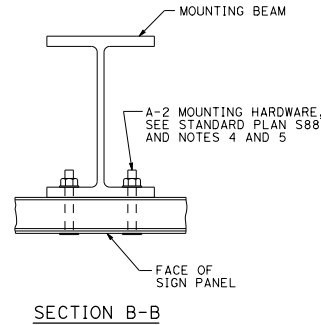
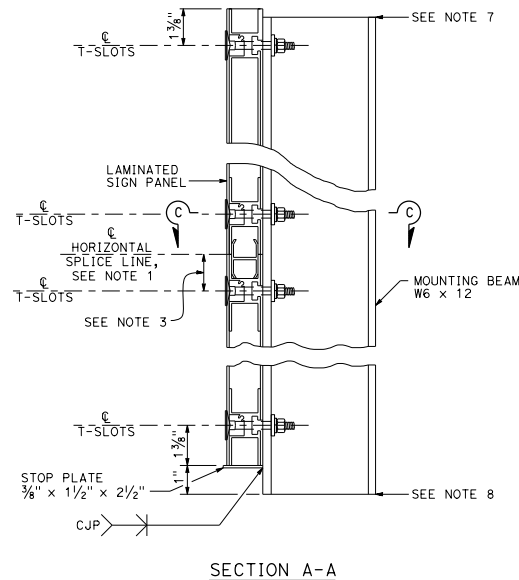
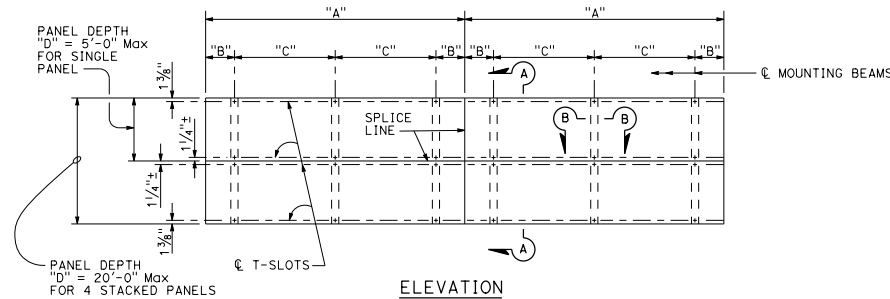
REVISÉ STANDARD PLAN RSP S118

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL NO. SHEETS
April 16, 2021 PLANS APPROVAL DATE THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.				

TO ACCOMPANY PLANS DATED _____

NOTES:

- The location of the horizontal splice line is dependent on the Contractor for signs greater than 60" in depth.
- Mounting bolts and clamps are required on each side of the horizontal splice lines at each support beam.
- Dimension varies from panel to panel. Average value approximate 1".
- Torque stainless steel sign panel mounting bolts to 100 inch-pounds.
- Drill through panel at integral track. Install Type A-2 mounting hardware and attach reflective tape.
- Refer to Revised Standard Plan RSP S115 for mounting beam to truss connection details.
- For sign panel depths of 70' or less the top of the mounting beam extends beyond the limits of the sign panel. Refer to Revised Standard Plan RSP S115.
- For sign panel depths of 60" or less, or where a walkway is installed, the bottom of the mounting beam extends further than 1" from the bottom of the sign panel. Refer to Revised Standard Plan RSP S115.
- The Contractor must verify all dependent dimensions in the field before ordering or fabricating any material.



SIGN PANEL LENGTH *	NUMBER MOUNTING BEAMS	SIGN PANEL OVERHANG	MOUNTING BEAM SPACING
"A"		"B"	"C"
5'-0"	2	9"	3'-6"
6'-0"		1'-0"	4'-0"
7'-0"		1'-3"	4'-6"
8'-0"		1'-6"	5'-0"
9'-0"		1'-10"	5'-6"
10'-0"		2'-0"	6'-0"
11'-0"		2'-0"	7'-0"
12'-0"		2'-6"	7'-0"
13'-0"		2'-6"	8'-0"
14'-0"	3	1'-0"	6'-0"
15'-0"		1'-0"	6'-6"
16'-0"		6"	7'-6"
17'-0"		1'-0"	7'-6"
18'-0"		1'-0"	8'-0"
19'-0"		1'-6"	8'-0"
20'-0"		2'-0"	8'-0"
21'-0"	4	1'-6"	6'-0"
22'-0"		2'-0"	6'-0"
23'-0"		1'-0"	7'-0"
24'-0"		1'-6"	7'-0"

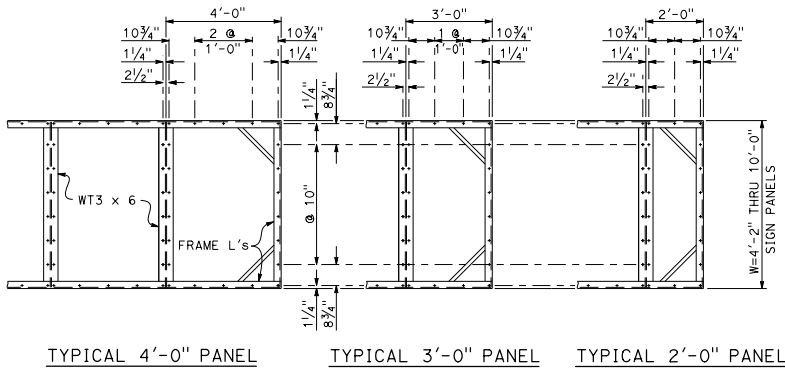
* Signs longer than 24'-0" are fabricated and mounted as adjoining single panels. The location of the vertical splice line will be determined by the Engineer.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**OVERHEAD SIGNS-VERSATILE TRUSS
SIGN MOUNTING DETAILS
LAMINATE PANEL - TYPE A**
NO SCALE

RSP S119 DATED APRIL 16, 2021 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP S119

2018 REVISED STANDARD PLAN RSP S119

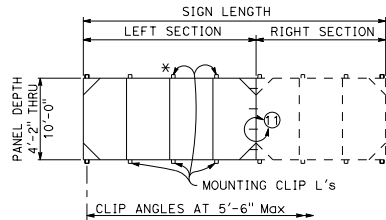


TYPICAL 4'-0" PANEL TYPICAL 3'-0" PANEL TYPICAL 2'-0" PANEL

All holes 1/2" diameter maximum.

MOUNTING HOLE SPACING SIGN PANEL AND FRAME

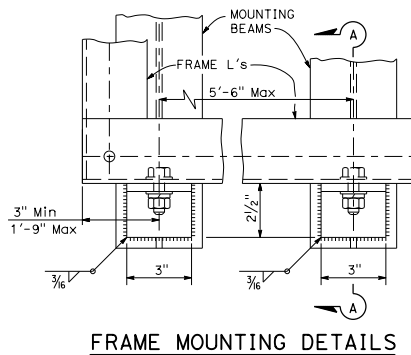
Hole spacing is for single sheet sign panels.
For Overhead Formed Panels refer to "Removable
Sign Panel Frames, Details No. 2" Sheet.



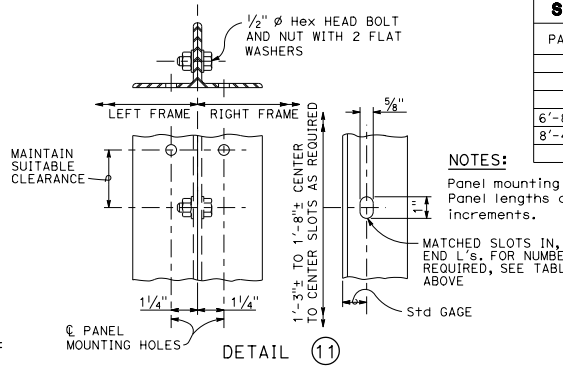
REMOVABLE FRAME GREATER THAN 20'-0"

SECTION LENGTH TABLE

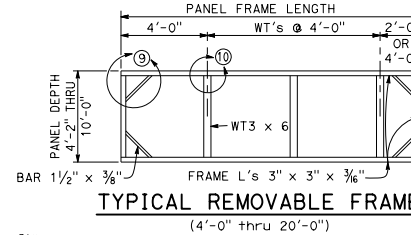
SIGN LENGTH	LEFT SECTION	RIGHT SECTION
22'-0"	12'-0"	10'-0"
23'-0"	12'-0"	11'-0"
24'-0"	12'-0"	12'-0"
25'-0"	12'-0"	13'-0"
26'-0"	12'-0"	14'-0"
27'-0"	12'-0"	15'-0"
28'-0"	16'-0"	12'-0"
29'-0"	16'-0"	13'-0"
30'-0"	16'-0"	14'-0"
31'-0"	16'-0"	15'-0"
32'-0"	16'-0"	16'-0"
33'-0"	16'-0"	17'-0"
34'-0"	16'-0"	18'-0"
35'-0"	16'-0"	19'-0"
36'-0"	20'-0"	16'-0"
37'-0"	20'-0"	17'-0"
38'-0"	20'-0"	18'-0"
39'-0"	20'-0"	19'-0"
40'-0"	20'-0"	20'-0"



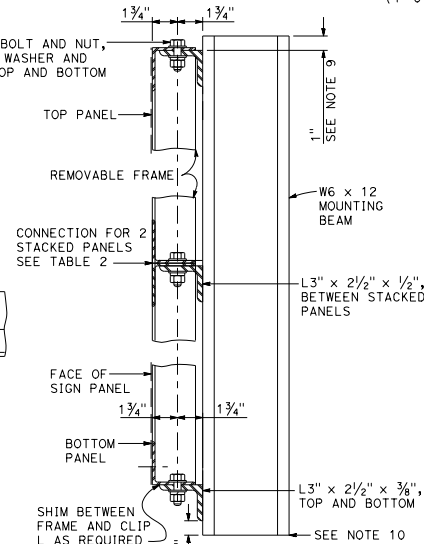
FRAME MOUNTING DETAILS



FRAME TO FRAME CONNECTION DETAILS



TYPICAL REMOVABLE FRAME
(4'-0" thru 20'-0")



SECTION A-A

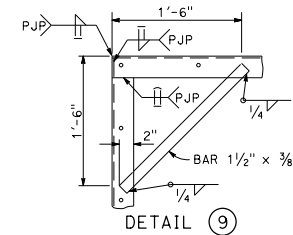
SLOT TABLE	
PANEL DEPTH	No. OF SLOTS
4'-2"	2
5'-0"	3
5'-10"	3
6'-8" AND 7'-6"	4
8'-4" AND 9'-2"	5
10'-0"	6

NOTES:

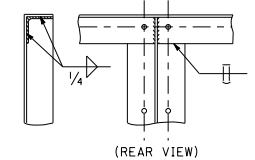
Panel mounting holes not shown.
Panel lengths available in 2'-0"
increments.

NOTES:

- Frames shall be all-welded construction.
- Panel mounting holes shall be drilled by template.
Sign panel may be considered as a template.
- Drilled and tapped holes 1/4" may be used where
interference due to welds or structural members
is encountered.
- WT3 x 6 shall be flush with faces of frame angles.
- Mounting clip angles shall be located such as to
allow the top and bottom frame angles of the removable
sign panel to lie on a straight horizontal line.
- Holes for mounting removable sign panel frame may be
slotted 1" maximum parallel to the axis of the sign.
- WT3 x 6 may be crimped at ends to join frame angles.
Fillet weld all around.
- For "TABLE 2" see Revised Standard Plan RSP S121.
- For sign panel depth of 70" or less the top of the
mounting beam extends beyond the limits of the sign
panel. Refer to Revised Standard Plan RSP S115.
- For sign panel depth of 60" or less, or where a walkway
is installed, the bottom of the mounting beam extends
further than 1" below the clip L.



DETAIL 9



DETAIL 10

TYPICAL FRAME JOINT DETAILS

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

OVERHEAD SIGNS-VERSATILE TRUSS REMOVABLE SIGN PANEL FRAMES DETAILS No.1

NO SCALE

RSP S120 DATED APRIL 16, 2021 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP S120

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL NO. SHEETS

REGISTERED CIVIL ENGINEER

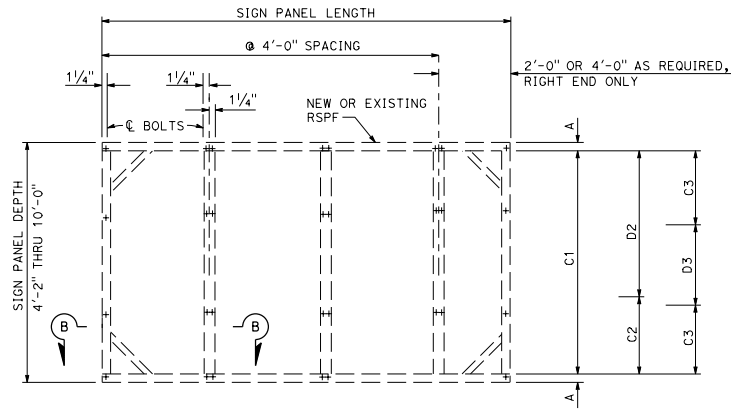
April 16, 2021

PLANS APPROVAL DATE

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TO ACCOMPANY PLANS DATED



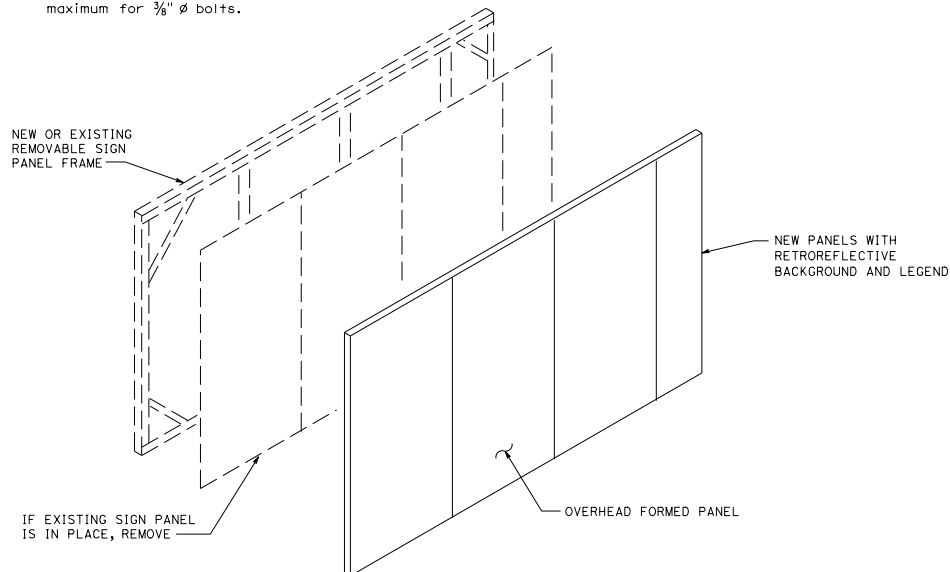


ELEVATION VIEW

NEW OR EXISTING REMOVABLE SIGN PANEL FRAME
MOUNTING HOLE SPACING

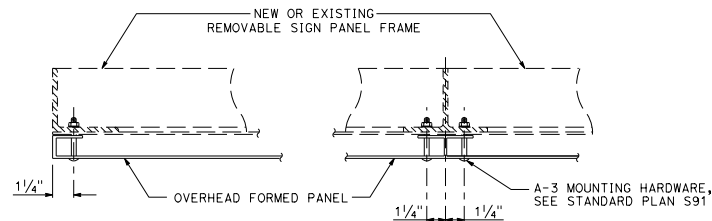
NOTE:

Sign panel mounting holes $\frac{1}{2}$ " \varnothing
maximum for $\frac{3}{8}$ " \varnothing bolts.



NOTE:

The Contractor shall verify all dependent dimensions in the field before ordering or fabricating any material.



CORNER DETAIL

PANEL CONNECTION

SECTION B-B

TABLE 1

MOUNTING BOLT SPACING							
PANEL DEPTH	A	1 SPACE	2 SPACE	3 SPACE			
		C1	C2	D2	C3	D3	C3
50"	1¼"	3'-11½"					
60"	↓		2'-4¾"	2'-4¾"			
70"			1'-6¾"	4'-¾"			
80"			3'-2¾"	3'-2¾"			
90"			3'-2¾"	4'-¾"			
100"				4'-¾"	4'-¾"		
110"	↓				3'-2¾"	2'-6"	3'-2¾"
120"	1¼"				4'-¾"	1'-8"	4'-¾"

TABLE 2

PANEL DEPTH GREATER THAN 120"		
TOTAL PANEL DEPTH	TOP PANEL	BOTTOM PANEL
130"	70"	60"
140"	70"	70"
150"	80"	70"
160"	80"	80"
170"	90"	80"
180"	90"	90"
190"	100"	90"
200"	100"	100"
210"	110"	100"
220"	110"	110"
230"	120"	110"
240"	120"	120"

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

OVERHEAD SIGNS-VERSATILE TRUSS REMOVABLE SIGN PANEL FRAMES DETAILS No.2

NO SCALE

RSP S121 DATED APRIL 16, 2021 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.

REVISÉ STANDARD PLAN RSP S121

DIST	COUNTY	ROUTE	POST MILES	SHEET	TOTAL
			TOTAL PROJECT	NO.	SHEETS

John J. Jaurugui
 REGISTERED CIVIL ENGINEER

April 16, 2021
PLANS APPROVAL DATE

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TO ACCOMPANY PLANS DATED

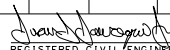

Professional Engineer Seal:
 REGISTERED PROFESSIONAL ENGINEER
 John J. Jaurugui
 No. CE6939
 Exp. 9-30-22
 CIVIL
 STATE OF CALIFORNIA

TO ACCOMPANY PLANS DATED

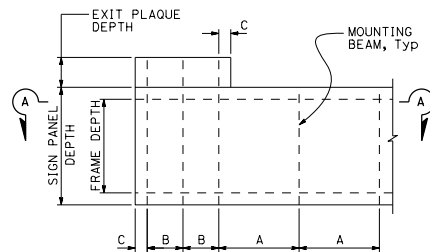
NOTES:

When constructing a new frame:

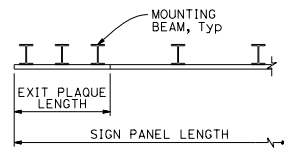
1. Refer to Revised Standard Plan RSP S120 for structural details.
2. Sign panels shall be considered as a template for drilling holes for mounting bolts.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL No. SHEETS
 REGISTERED CIVIL ENGINEER				
April 16, 2021 PLANS APPROVAL DATE				
				
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TO ACCOMPANY PLANS DATED _____



SIGN PANEL ELEVATION



SECTION A-A

MOUNTING BEAM SPACING NOTES AND ABBREVIATIONS:

- A: Maximum mounting beam spacing for sign support = 8'-0".
- B: Maximum mounting beam spacing for exit plaque support.
A minimum of 2 mounting beams are required per exit plaque.
Refer to "EXIT PLAQUE MOUNTING BEAM TABLE" for "B" values.
- C: Maximum sign panel/exit plaque overhang length. Refer to Revised Standard Plans RSP S119 and RSP S120 for permissible overhang values.
- Note: Additional mounting beams will be required when walkways are installed. Maximum mounting beam spacing at walkways = 5'-6". Refer to Revised Standard Plan RSP S115 for walkway mounting beam details. When mounting beams are added for walkway or exit plaque support, they are not required to be attached to the sign panels.

EXIT PLAQUE MOUNTING BEAM TABLE	
SIGN PANEL DEPTH, D	B
$D \leq 80"$	8'-0"
$80" < D \leq 100"$	8'-0"
$100" < D \leq 120"$	8'-0"
$120" < D \leq 150"$	7'-0"
$150" < D \leq 180"$	6'-0"
$180" < D \leq 210"$	7'-0"
$210" < D \leq 240"$	4'-0"

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**OVERHEAD SIGNS-VERSATILE TRUSS
EXIT PLAQUE MOUNTING DETAILS**

NO SCALE

RSP S122 DATED APRIL 16, 2021 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP S122

2018 REVISED STANDARD PLAN RSP S122

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

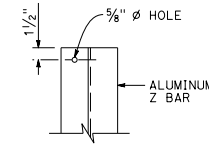
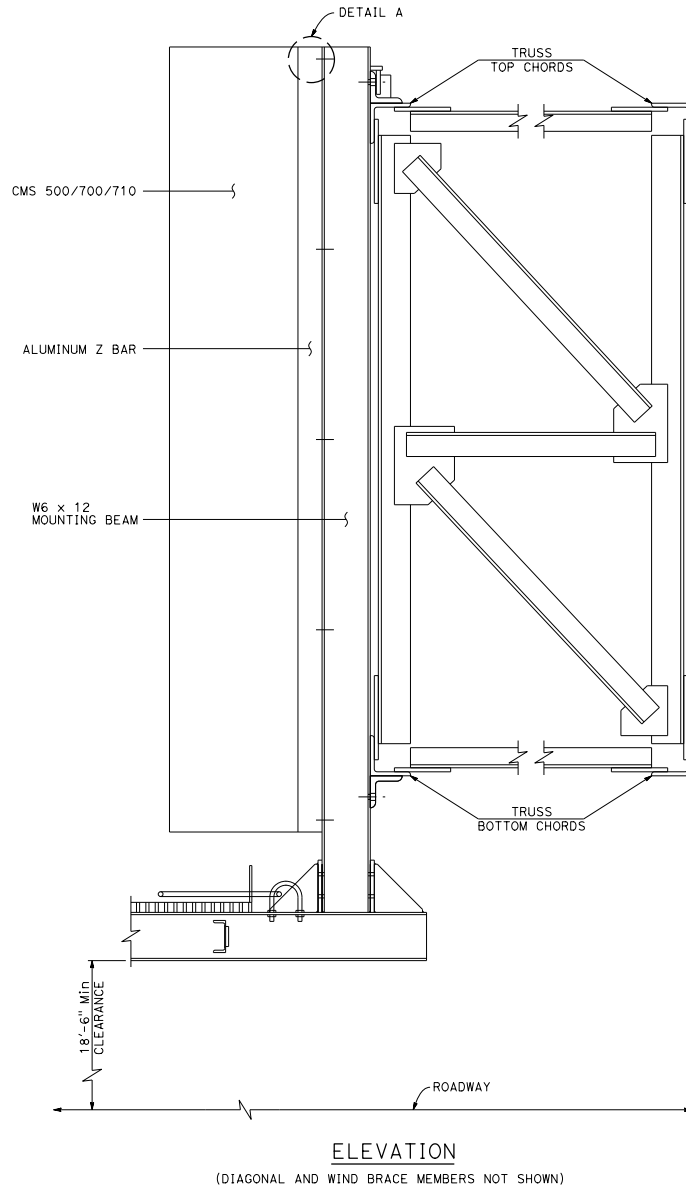
REGISTERED CIVIL ENGINEER
 April 16, 2021
 PLANS APPROVAL DATE
 THE STATE OF CALIFORNIA OR ITS OFFICERS
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REGISTERED PROFESSIONAL ENGINEER
 Juan J. Jauregui
 No. C63939
 Exp. 9-30-22
 CIVIL
 STATE OF CALIFORNIA

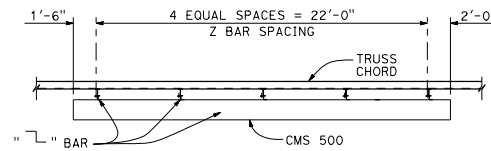
TO ACCOMPANY PLANS DATED _____

NOTES:

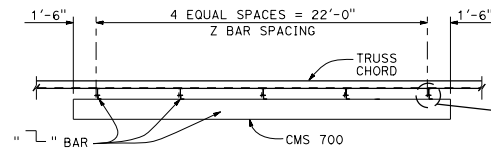
1. For mounting beam to truss chord connection details, see Revised Standard Plan RSP S115.
2. For horizontal and vertical position of CMS 500, 700 or 710 see Project Plans.
3. Contractor shall verify Z bar spacing prior to drilling holes in mounting channels.
4. If walkway is required per Project Plans, refer to Revised Standard Plan RSP S115 for details. Minimum vertical clearance shall be measured to underside of walkway.



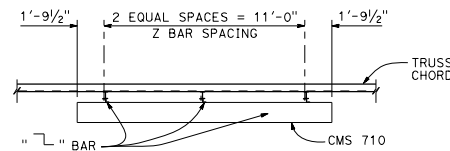
DETAIL A



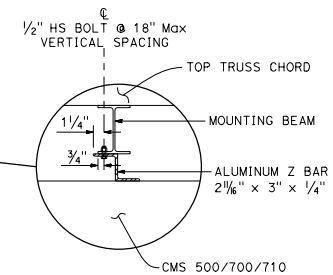
ALUMINUM Z BAR SPACING MODEL 500



ALUMINUM Z BAR SPACING MODEL 700



ALUMINUM Z BAR SPACING MODEL 710



STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
**OVERHEAD SIGNS-VERSATILE TRUSS
 CMS MOUNTING DETAILS**
 NO SCALE

RSP S123 DATED APRIL 16, 2021 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP S123

2018 REVISED STANDARD PLAN RSP S123

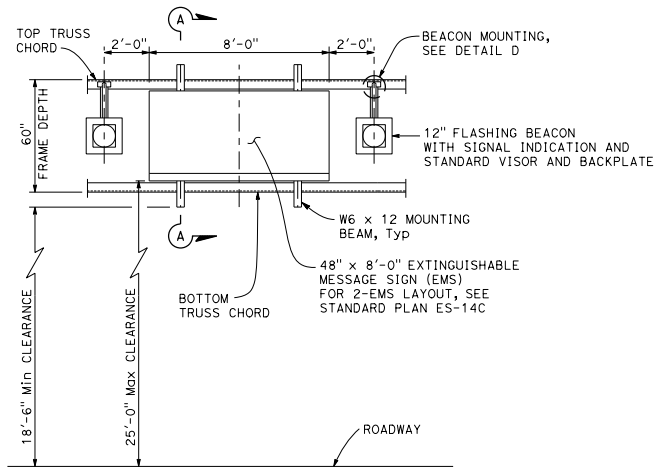
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL NO. SHEETS
<p>April 16, 2021 PLANS APPROVAL DATE</p> <p>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</p>				

REGISTERED CIVIL ENGINEER

April 16, 2021
PLANS APPROVAL DATE

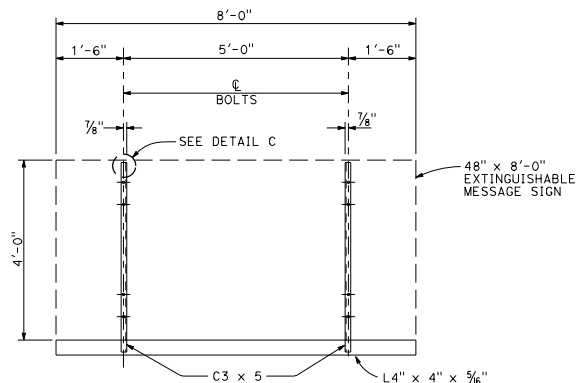
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

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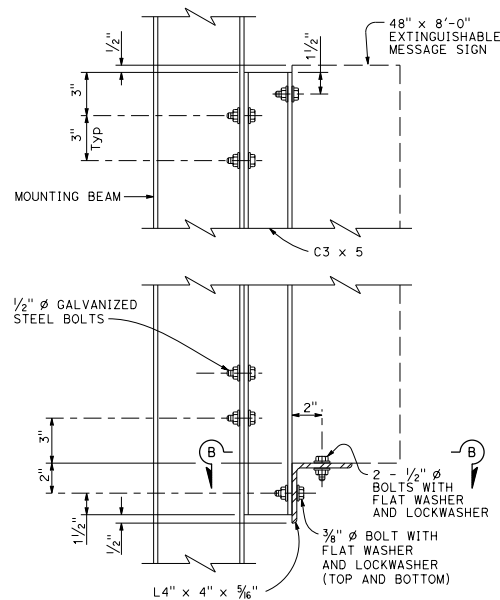


ELEVATION A

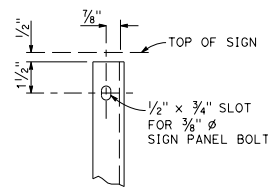
Vertical and Diagonal Truss Members Not Shown



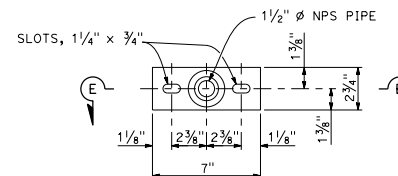
**DETAIL H
SIGN MOUNTING**



SECTION A-A

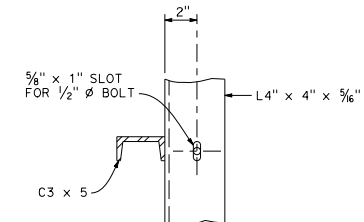


DETAIL C

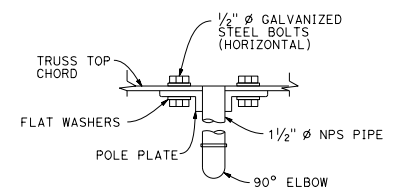


DETAIL D

Top Truss Chord not shown



SECTION B-B



SECTION E-E

Refer to Standard Plan ES-14C for additional details

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**OVERHEAD SIGNS-VERSATILE TRUSS
EMS AND FLASHING BEACON DETAILS**

NO SCALE

RSP S124 DATED APRIL 16, 2021 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP S124

2018 REVISED STANDARD PLAN RSP S124

LEGEND

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

SIGN PANEL SIZE (Min)

- A 48" x 48"
- B 24" x 24"
- C 36" x 18"

NOTES:

See Standard Plan T9 for tables.

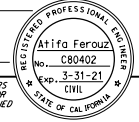
Use cone spacing X for taper segment, Y for tangent segment or Z for conflict situations, as appropriate, per Table 1, unless X, Y, or Z cone spacing is shown on this sheet.

Provide at least one person to continuously maintain traffic control devices for lane closures.

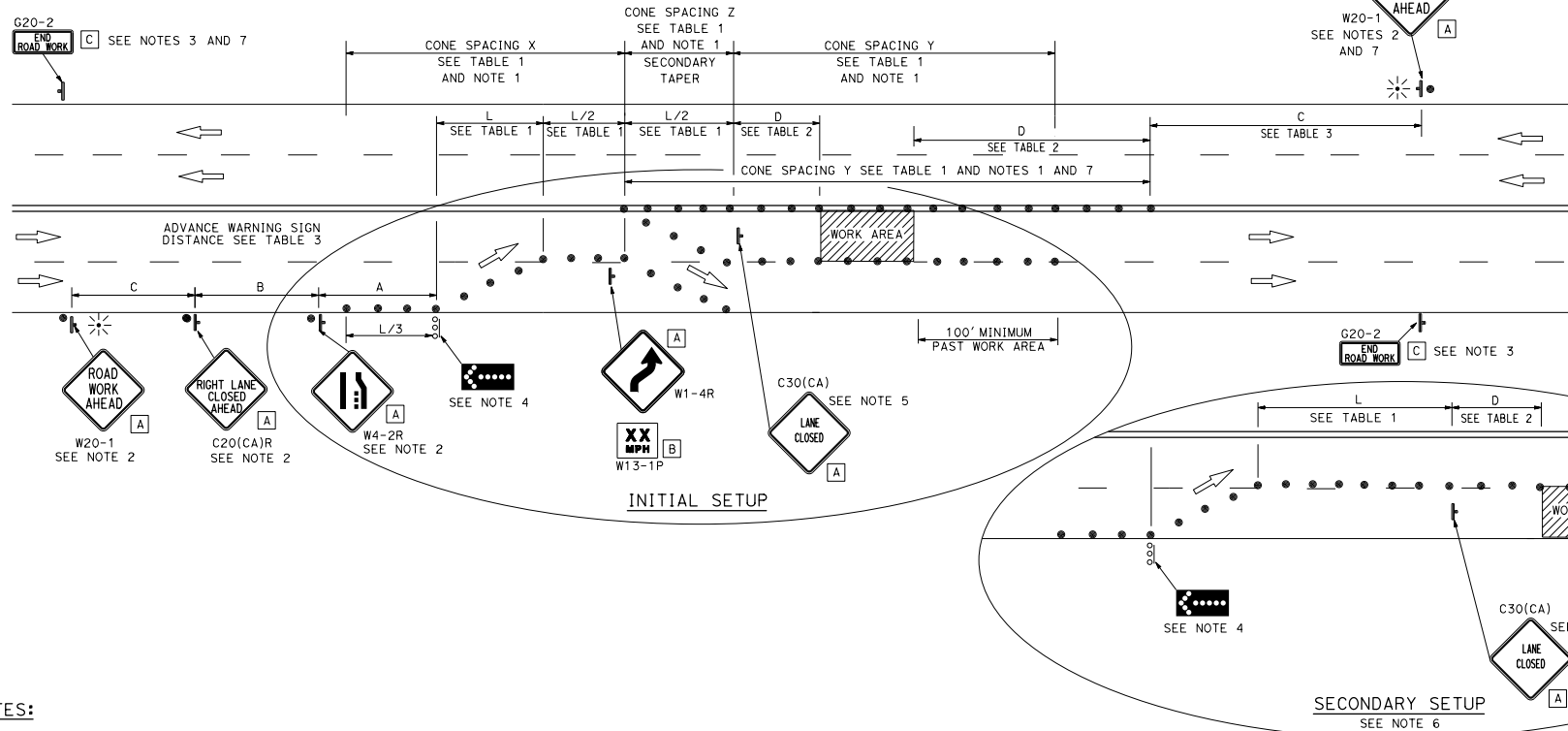
Dist	COUNTY	ROUTE	POST MILES	SHEET TOTAL
			TOTAL PROJECT	NO. SHEETS
October 18, 2019 PLANS APPROVAL DATE THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.				

TO ACCOMPANY PLANS DATED _____

Atifa Ferrouz
REGISTERED CIVIL ENGINEER



TYPICAL CHANGEABLE LANE CLOSURE



NOTES:

- Portable delineators placed at one-half the spacing indicated for traffic cones may be used instead of cones for daytime closures only.
- Each advance warning sign shall be equipped with at least two flags for daytime closure. Each flag shall be at least 16" x 16" in size and shall be orange or fluorescent red-orange in color. Flashing beacon shall be placed at the locations indicated for lane closure during hours of darkness.
- A G20-2 "END ROAD WORK" sign shall be placed at the end of the lane closure unless the end of work area is obvious or ends within the larger project's limits.
- A minimum 1500' of sight distance shall be provided where possible for vehicles approaching the first flashing arrow sign. Lane closures shall not begin at the top of crest vertical curve or on a horizontal curve.
- Place C30(CA) "LANE CLOSED" sign at 500' to 1000' intervals throughout extended work area.
- Relocate secondary taper to tangent location and relocate C30(CA) sign. Remove W1-4R/W13-1P sign package.
- Sign installations and cones are not required when a median barrier is in place.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL SYSTEM FOR CHANGEABLE LANE CLOSURE ON MULTILANE CONVENTIONAL HIGHWAYS AND EXPRESSWAYS

NO SCALE

RSP T11A DATED OCTOBER 18, 2019 SUPERSEDES STANDARD PLAN T11A
DATED MAY 31, 2018 - PAGE 289 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP T11A

NOTES:

See Standard Plan T9 for tables.

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

Provide at least one person to continuously maintain traffic control devices for lane closures.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL NO. SHEETS

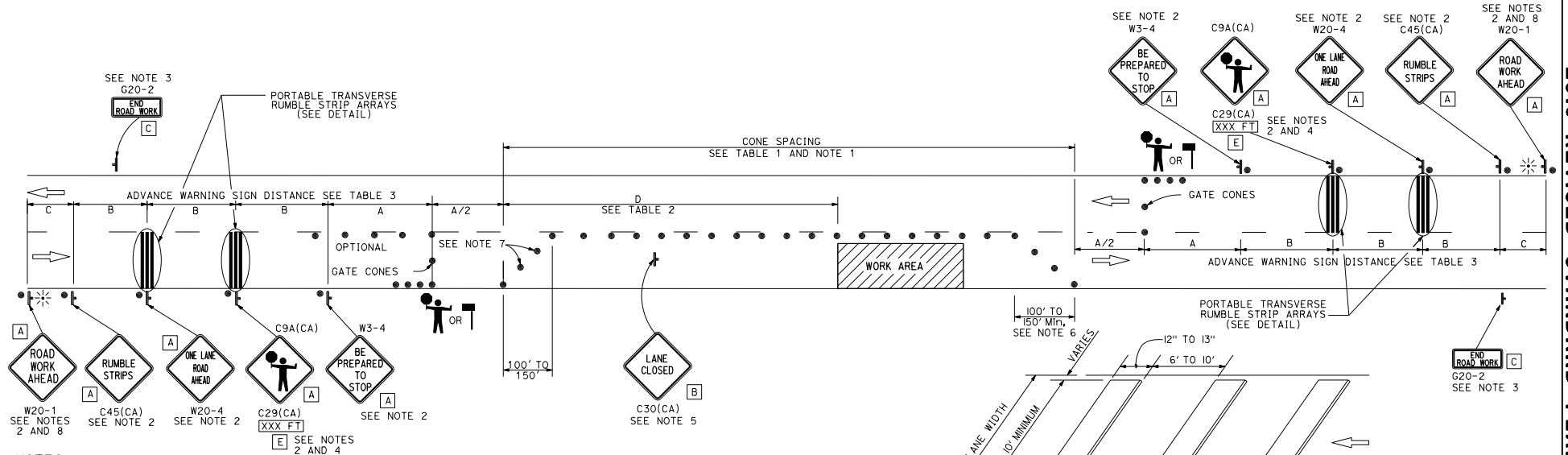
Atifa Ferouz
REGISTERED CIVIL ENGINEER

April 16, 2021
PLANS APPROVAL DATE

No. C80402
EXP. 3-31-23
CIVIL

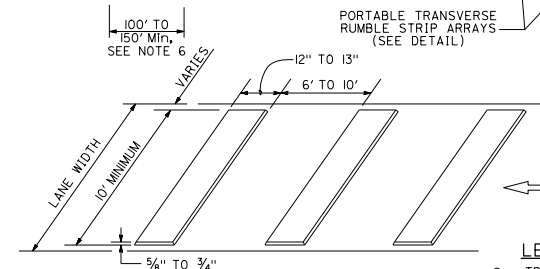
THE STATE OF CALIFORNIA OR ITS OFFICERS
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THE ACCURACY OR COMPLETENESS OF SCANNED
COPIES OF THIS PLAN SHEET.

TO ACCOMPANY PLANS DATED _____



NOTES:

- Portable delineators placed at one-half the spacing indicated for traffic cones may be used instead of cones for daytime closures only.
- Sign must be equipped with at least two flags for daytime closures. Flags must be orange in color and at least 16 inches by 16 inches in size. Place flashing beacons as shown for closures during hours of darkness.
- A G20-2 "END ROAD WORK" sign, shall be placed at the end of the lane closure unless the end of work area is obvious or ends within the larger project's limits.
- An optional C29(CA) sign may be placed below the C9A(CA) sign.
- Place C30(CA) "LANE CLOSED" sign at 500' to 1000' intervals throughout extended work area. They are optional if the work area is visible from the flagger station.
- Length may be reduced by the Engineer to address site conditions.
- Either traffic cones or barricades shall be placed on the taper. Barricades shall be Type I, II, or III.
- If C45(CA) is not used, measure distance C from W20-4.



PORTABLE TRANSVERSE RUMBLE STRIP ARRAY DETAIL

SIGN PANEL SIZE (Min)

- | | |
|---|-----------|
| A | 48" x 48" |
| B | 30" x 30" |
| C | 36" x 18" |
| D | 36" x 42" |
| E | 20" x 7" |

- LEGEND**
- TRAFFIC CONE
 - TEMPORARY TRAFFIC CONTROL SIGN
 - PORTABLE FLASHING BEACON
 - FLAGGER
 - AUTOMATED FLAGGER ASSISTANCE DEVICE (AFAD)

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION TRAFFIC CONTROL SYSTEM WITH REVERSIBLE CONTROL ON TWO LANE CONVENTIONAL HIGHWAYS

NO SCALE

RSP T13 DATED APRIL 16, 2021 SUPERSEDES RSP T13 DATED OCTOBER 18, 2019 AND
STANDARD PLAN T13 DATED MAY 31, 2018 - PAGE 291 OF THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP T13

2018 REVISED STANDARD PLAN RSP T13

LEGEND:

- TRAFFIC CONE
- ⚡ TEMPORARY TRAFFIC CONTROL SIGN
- ⚡ PORTABLE FLASHING BEACON
- 🚚 TRAILER
- 🚧 FLAGGER
- PCMS PORTABLE CHANGEABLE MESSAGE SIGN

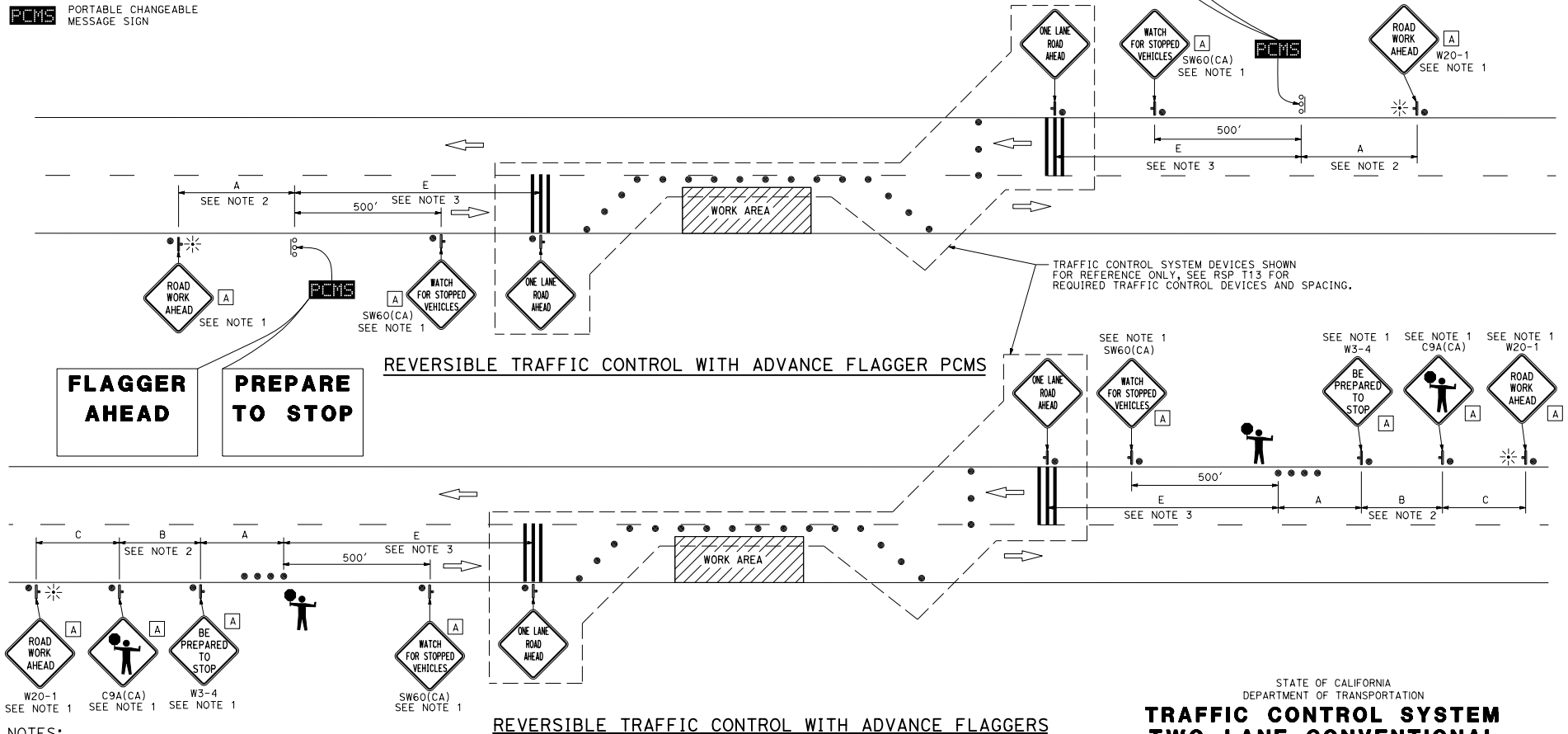
SIGN PANEL SIZE (Min):

A 48" x 48"

**FLAGGER
AHEAD**

**PREPARE
TO STOP**

Dist	COUNTY	ROUTE	POST MILES	SHEET TOTAL
			TOTAL PROJECT	NO. SHEETS
Atifa Ferouz REGISTERED CIVIL ENGINEER April 16, 2021 PLANS APPROVAL DATE No. C80402 EXP. 3-31-23 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.				
TO ACCOMPANY PLANS DATED _____				



NOTES:

- Sign must be equipped with at least two flags for daytime closures. Flags must be orange in color and at least 16 inches by 16 inches in size. Place flashing beacons as shown for closures during hours of darkness.
- See Standard Plan T9, Table 3 for advanced warning sign spacing.
- See Standard Specification 12-4.02C.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**TRAFFIC CONTROL SYSTEM
TWO LANE CONVENTIONAL
HIGHWAYS**
NO SCALE

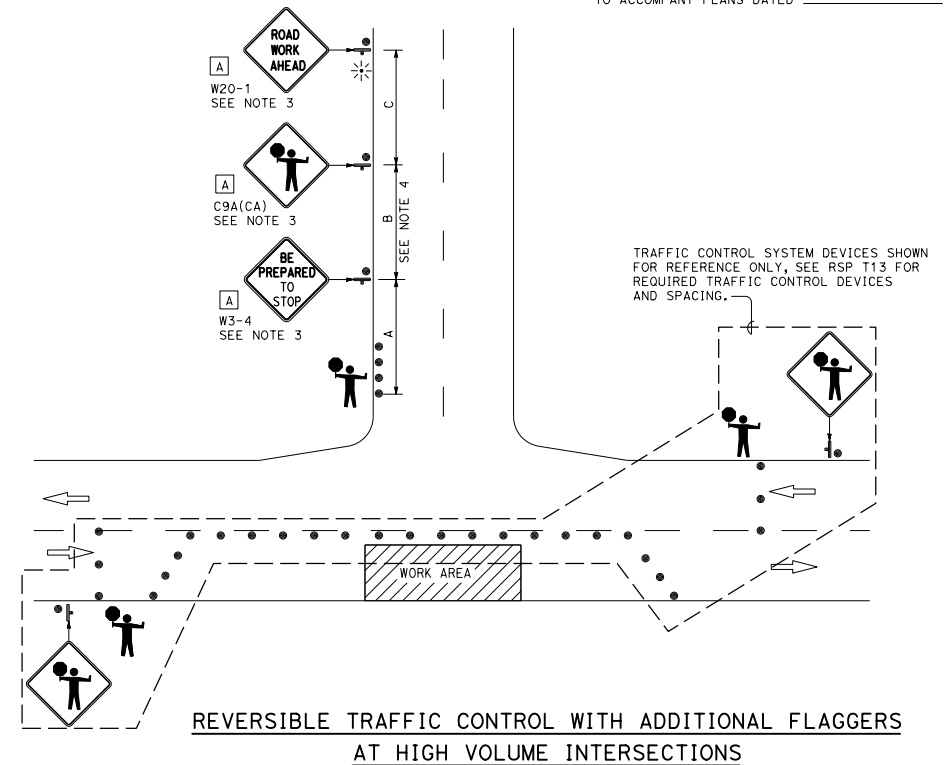
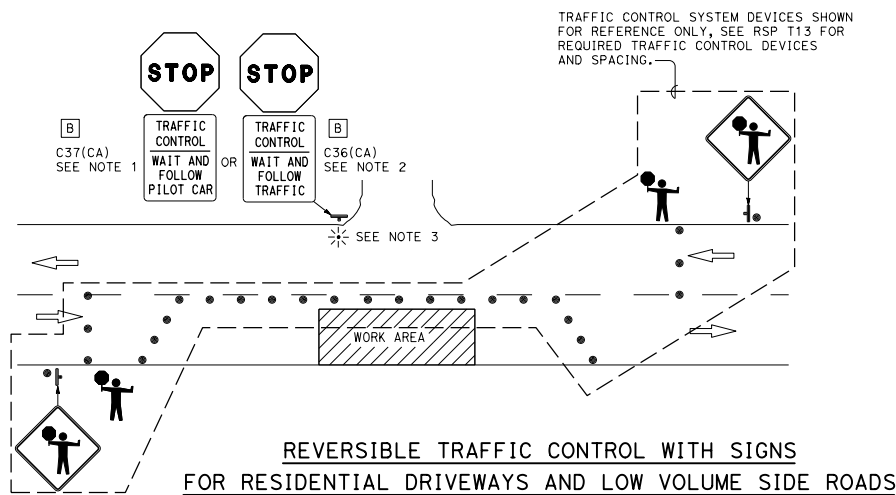
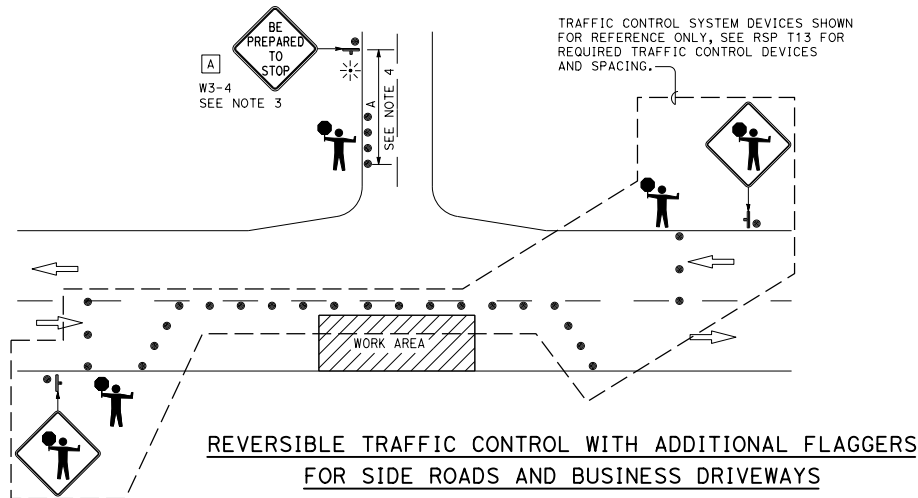
RSP T13A DATED APRIL 16, 2021 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP T13A

2018 REVISED STANDARD PLAN RSP T13A

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL NO. SHEETS
<p><i>Atifa Ferouz</i> REGISTERED CIVIL ENGINEER</p> <p>April 16, 2021 PLANS APPROVAL DATE</p> <p>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.</p>				

TO ACCOMPANY PLANS DATED _____



NOTES:

1. Place C37(CA) sign when pilot car is used.
2. Place C36(CA) sign when pilot car is not used.
3. Sign must be equipped with at least two flags for daytime closures. Flags must be orange in color and at least 16 inches by 16 inches in size. Place flashing beacons as shown for closures during hours of darkness.
4. See Standard Plan T9, Table 3 for advance warning sign spacing.

LEGEND:

- TRAFFIC CONE
- ⌋ TEMPORARY TRAFFIC CONTROL SIGN
- ⚡ PORTABLE FLASHING BEACON
- ⤴ FLAGGER

SIGN PANEL SIZE (Min)

- A 48" x 48"
- B 36" x 42"

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**TRAFFIC CONTROL SYSTEM
TWO LANE CONVENTIONAL HIGHWAYS**
NO SCALE

RSP T13B DATED APRIL 16, 2021 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.
REVISED STANDARD PLAN RSP T13B

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

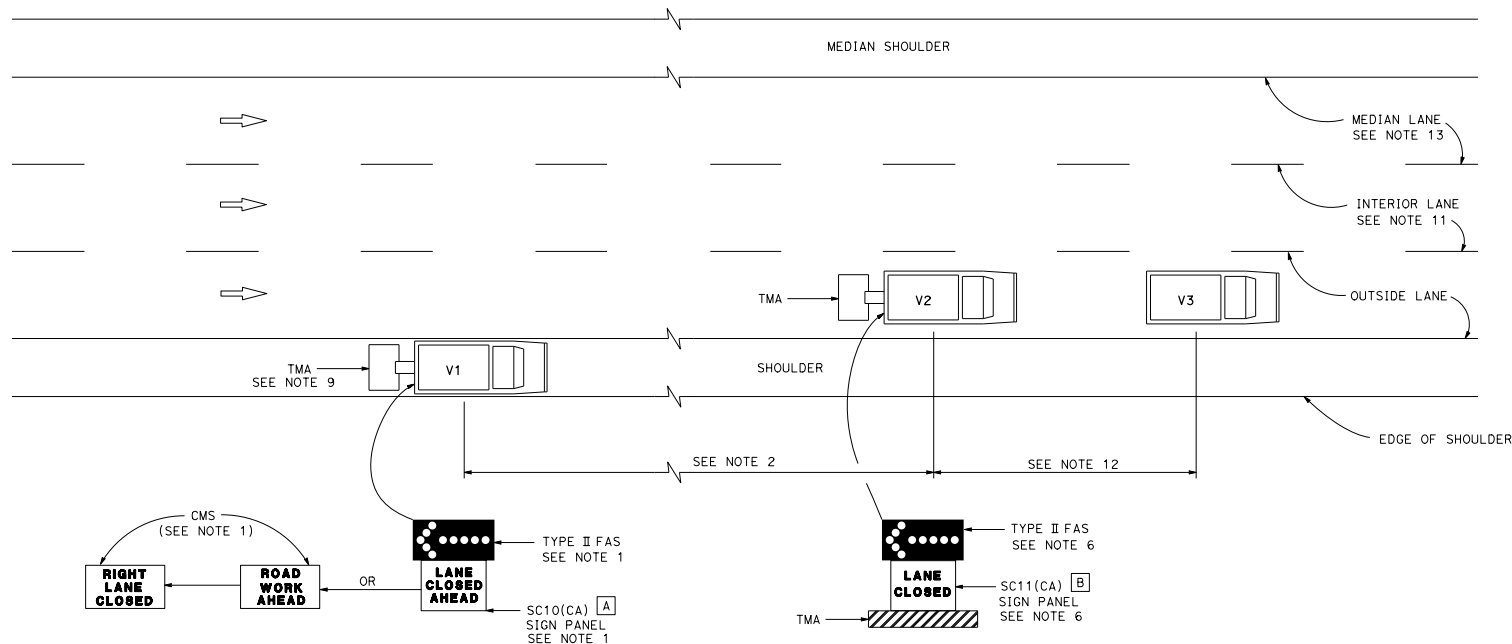
Atifa Forouz
REGISTERED CIVIL ENGINEER

April 19, 2019
PLANS APPROVAL DATE

Atifa Forouz
No. C80402
Exp. 3-31-21
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.

TO ACCOMPANY PLANS DATED _____



SIGN PANEL SIZE (Min)

- A 66" x 36"
- B 54" x 42"

LEGEND

- V1 SIGN VEHICLE
- V2 SHADOW VEHICLE
- V3 WORK/APPLICATION VEHICLE
- FLASHING ARROW SIGN (FAS)
- CMS CHANGEABLE MESSAGE SIGN
- TMA TRUCK-MOUNTED ATTENUATOR

MOVING LANE CLOSURE ON MEDIAN LANE OR OUTSIDE LANE OF MULTILANE HIGHWAYS

NOTES:

1. Either a changeable message sign or a SC10(CA) sign panel and a Type II flashing arrow sign shall be mounted on the rear of sign vehicle V1. The changeable message sign shall be sequenced to show the "ROAD WORK AHEAD" message first, followed by the "RIGHT LANE CLOSED" message. For median lane closure, the flashing arrow symbol shall be reversed with the arrowhead on the right and the changeable message sign shall show "LEFT LANE CLOSED".
2. If traffic queues develop, sign vehicle V1 should be positioned upstream from the end of queue. Sign vehicle V1 shall be positioned where highly visible when shoulders are not available.
3. A minimum sight distance of 1500' should be provided in advance of sign vehicle V1.
4. Sign vehicle V1 should remain at the beginning of horizontal or vertical curves until the other vehicles (V2 and V3) are far enough beyond the curve to resume the minimum sight distance of 1500'.
5. Vehicle-mounted sign panels shall have Type III or above retroreflective sheeting, black on white, or black on fluorescent orange, with 6" minimum series D letters per Caltrans sign specifications.
6. Shadow vehicle V2 shall be equipped with a truck-mounted attenuator. The sign panel shown and a Type II flashing arrow sign shall be mounted on the rear of shadow vehicle V2. For median lane closure the flashing arrow sign symbol shall be displayed with the arrowhead on the right.
7. All vehicles used for lane closures shall be equipped with two-way radios, and the vehicle operators shall maintain communication during the work or application operation.
8. All vehicles shall be equipped with flashing or rotating amber lights.
9. If sign vehicle V1 encroaches into the traffic lane due to insufficient shoulder width, sign vehicle V1 shall be equipped with a truck-mounted attenuator. Sign vehicle V1 shall stay as close to the edge of shoulder as practicable.
10. Where workers would be on foot in the work area, a stationary type lane closure (Standard Plan T10, T11, etc., as applicable) shall be used instead of this plan.
11. For moving lane closure on interior lane of multilane highways, use Standard Plan T16.
12. The spacing between work vehicle(s) and the shadow vehicles, and between each shadow vehicle should be minimized to deter road users from driving in between.
13. When the work/application vehicle V3 occupies the median lane, sign vehicle V1 should drive in the median shoulder and indicate left lane closed ahead.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL SYSTEM FOR MOVING LANE CLOSURE ON MULTILANE HIGHWAYS

NO SCALE

RSP T15 DATED APRIL 19, 2019 SUPERSEDES STANDARD PLAN T15
DATED MAY 31, 2018 - PAGE 293 OF THE STANDARD PLANS BOOK DATED 2018.

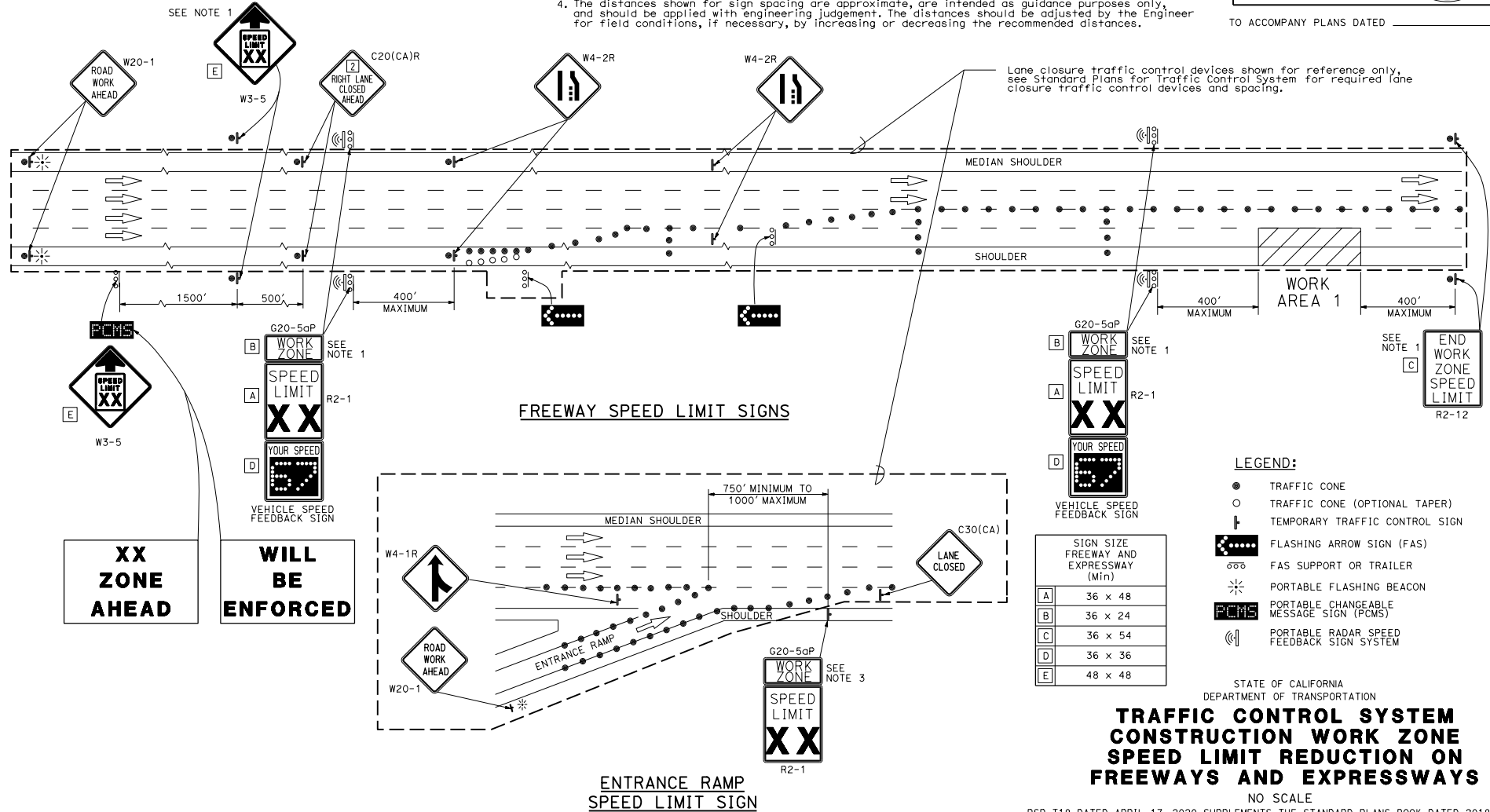
REVISED STANDARD PLAN RSP T15

NOTES:

- Duplicate sign installations are not required:
 - On opposite shoulder if at least one-half of the available lanes remain open to traffic.
 - In the median if the width of the median shoulder is less than 8' and the outside lanes are to be closed.
- Where speed limit reduction zones are longer than 3 miles, place intermediate R2-1 sign and G20-5aP plaque at approximate 3-mile spacing throughout the speed limit reduction zone.
- Place an R2-1 sign and G20-5aP plaque at each entrance ramp within the speed limit reduction zone.
- The distances shown for sign spacing are approximate, are intended as guidance purposes only, and should be applied with engineering judgement. The distances should be adjusted by the Engineer for field conditions, if necessary, by increasing or decreasing the recommended distances.

Dist	COUNTY	ROUTE	POST MILES	SHEET TOTAL
			TOTAL PROJECT	NO. SHEETS
Atifa Ferouz REGISTERED CIVIL ENGINEER		April 17, 2020 PLANS APPROVAL DATE		
No. C80402 EXP. 3-31-21 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.		

TO ACCOMPANY PLANS DATED _____



REVISED STANDARD PLAN RSP T18

LEGEND:

- TRAFFIC CONE
- TRAFFIC CONE (OPTIONAL TAPER)
- ⊥ TEMPORARY TRAFFIC CONTROL SIGN
- ⬇ FLASHING ARROW SIGN (FAS)
- ⬇ FAS SUPPORT OR TRAILER
- ⬇ PORTABLE FLASHING BEACON
- PCMS PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)
- ⬇ PORTABLE RADAR SPEED FEEDBACK SIGN SYSTEM

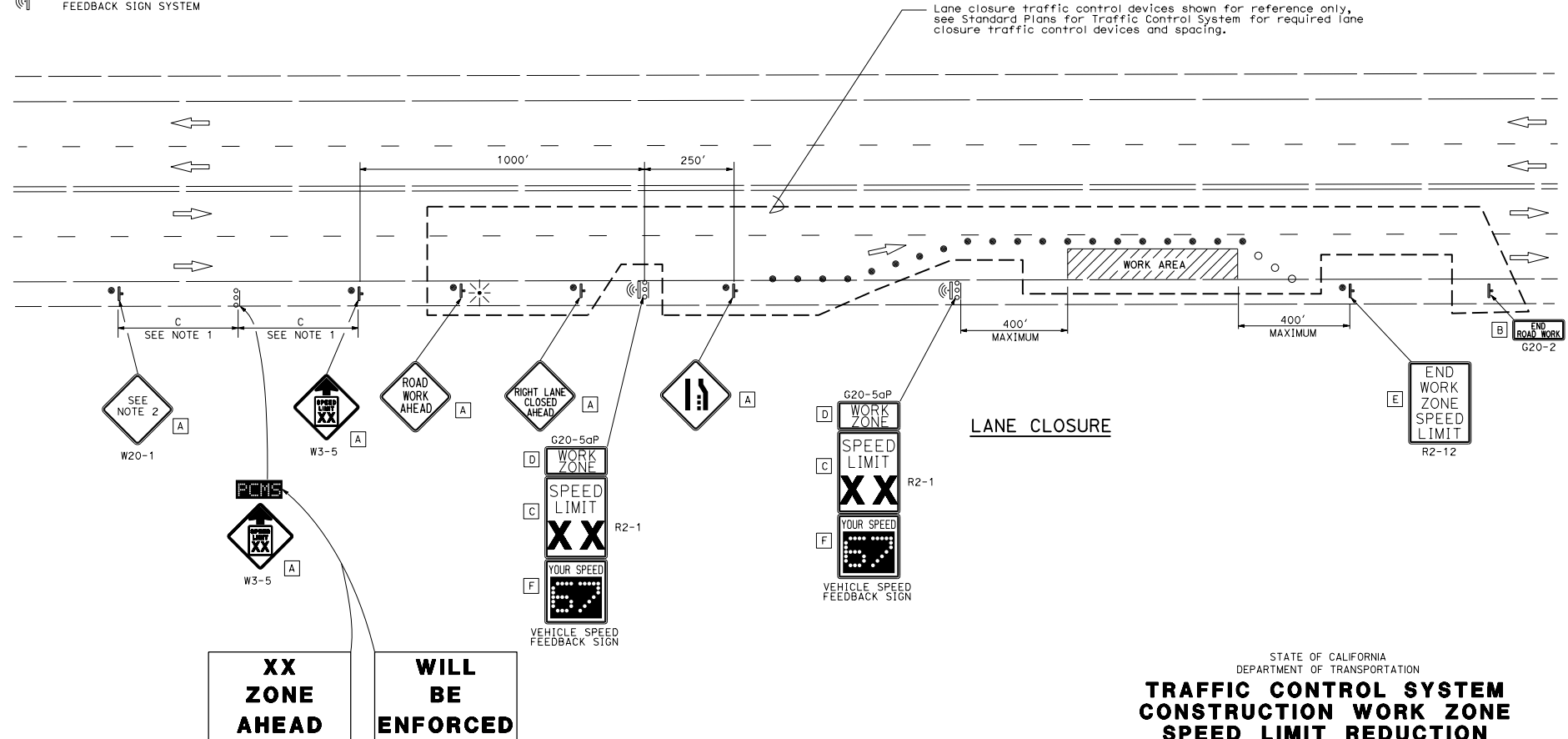
SIGN PANEL SIZE (Min)

- | | |
|---|-----------|
| A | 48" x 48" |
| B | 36" x 18" |
| C | 24" x 30" |
| D | 24" x 18" |
| E | 24" x 36" |
| F | 24" x 24" |

NOTES:

- See Standard Plan T9 for Table 3 showing advanced warning sign spacing.
- If the PCMS is outside the W20-1 construction area sign, place a W20-1 sign in advance of the PCMS.
- Place additional R2-1 sign and G20-5aP plaque:
 - Where speed limit reduction zones are longer than 3 miles. Place intermediate signs at approximately 3-mile spacing throughout the speed limit reduction zone.
 - Approximately 500 feet downstream from major intersections within the speed limit reduction zone.

DIST	COUNTY	ROUTE	POST MILES	SHEET TOTAL
			TOTAL PROJECT	NO. SHEETS
April 17, 2020 PLANS APPROVAL DATE THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.				
TO ACCOMPANY PLANS DATED _____				



STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**TRAFFIC CONTROL SYSTEM
CONSTRUCTION WORK ZONE
SPEED LIMIT REDUCTION
ON CONVENTIONAL HIGHWAYS**
NO SCALE

RSP T19 DATED APRIL 17, 2020 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP T19

LEGEND:

- TRAFFIC CONE
- TRAFFIC CONE (OPTIONAL TAPER)
- ⊥ TEMPORARY TRAFFIC CONTROL SIGN
- FLASHING ARROW SIGN (FAS)
- FAS SUPPORT OR TRAILER
- ☼ PORTABLE FLASHING BEACON
- PCMS PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)
- PORTABLE RADAR SPEED FEEDBACK SIGN SYSTEM

SIGN SIZE (Min)		
	FREEWAY AND EXPRESSWAY	CONVENTIONAL SINGLE LANE AND MULTILANE
A	36 x 48	24 x 30
B	36 x 24	24 x 18
C	36 x 54	24 x 36
D	36 x 36	24 x 24
E	48 x 48	48 x 48

NOTES:

- See Standard Plan T9 for Table 3 showing advanced warning sign spacing.
- Duplicate sign installations are not required:
 - On opposite shoulder if at least one-half of the available lanes remain open to traffic.
 - In the median if the width of the median shoulder is less than 8' and the outside lanes are to be closed.
- If the PCMS is outside the W20-1 construction area sign, place a W20-1 sign in advance of the PCMS.
- Place the R3(CA) sign 400 feet downstream from the end of the last work area and place an additional vehicle speed feedback sign system 400 feet upstream from the beginning of each work area with a separation of more than 2 miles.
- The distances shown for sign spacing are approximate, are intended as guidance purposes only, and should be applied with engineering judgement. The distances should be adjusted by the Engineer for field conditions, if necessary, by increasing or decreasing the recommended distances.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL NO. SHEETS

Atifa Ferrouz
REGISTERED CIVIL ENGINEER

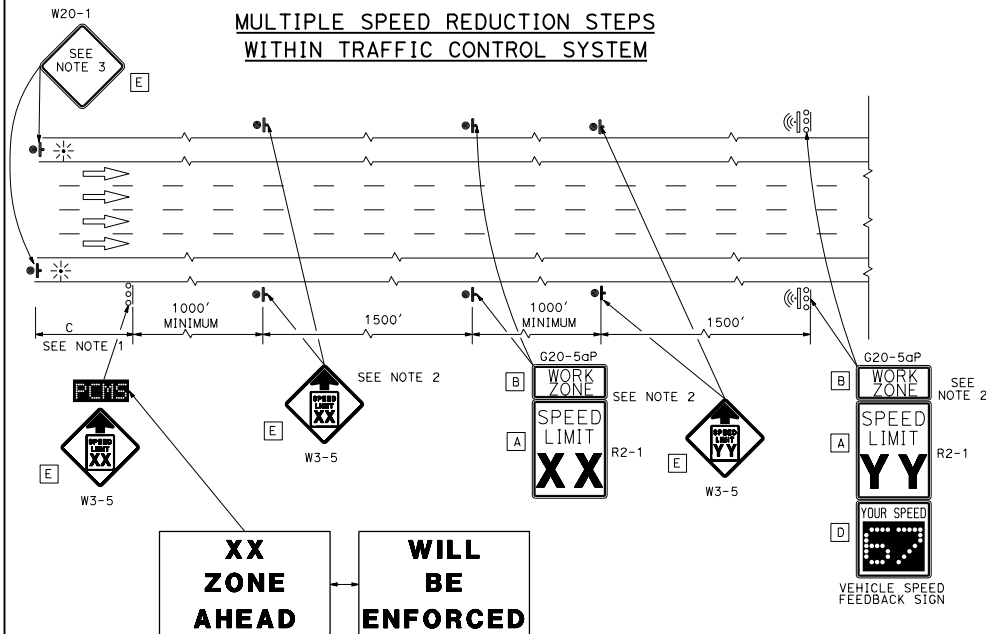
October 16, 2020
PLANS APPROVAL DATE:

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

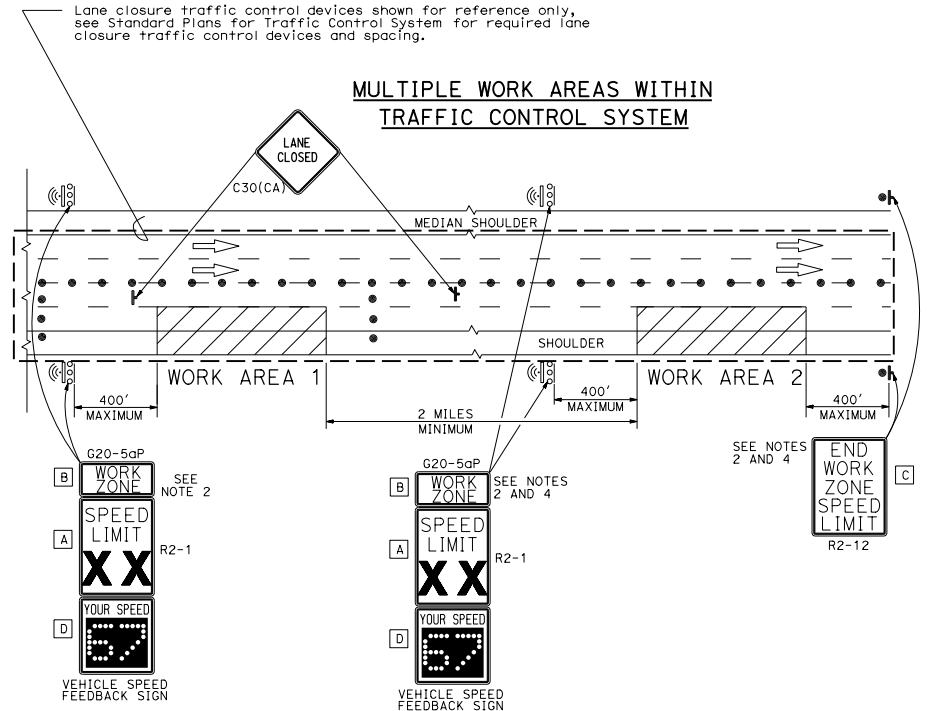
STATE OF CALIFORNIA
REGISTERED PROFESSIONAL ENGINEER
No. C80402
Exp. 3-31-21
CIVIL

TO ACCOMPANY PLANS DATED _____

MULTIPLE SPEED REDUCTION STEPS WITHIN TRAFFIC CONTROL SYSTEM



MULTIPLE WORK AREAS WITHIN TRAFFIC CONTROL SYSTEM



STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL SYSTEM CONSTRUCTION WORK ZONE SPEED LIMIT REDUCTION DETAILS

NO SCALE

RSP T20 DATED OCTOBER 16, 2020 SUPERSEDES RSP T20 DATED APRIL 17, 2020
THAT SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP T20

5-18-20

LEGEND:

- TRAFFIC CONE
- ⚡ TEMPORARY TRAFFIC CONTROL SIGN
- ☀ PORTABLE FLASHING BEACON
- 🚧 FLAGGER
- 📡 PORTABLE RADAR SPEED FEEDBACK SIGN SYSTEM (PRSFSS)
- 🚚 PRSFSS SUPPORT OR TRAILER
- PCMS PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

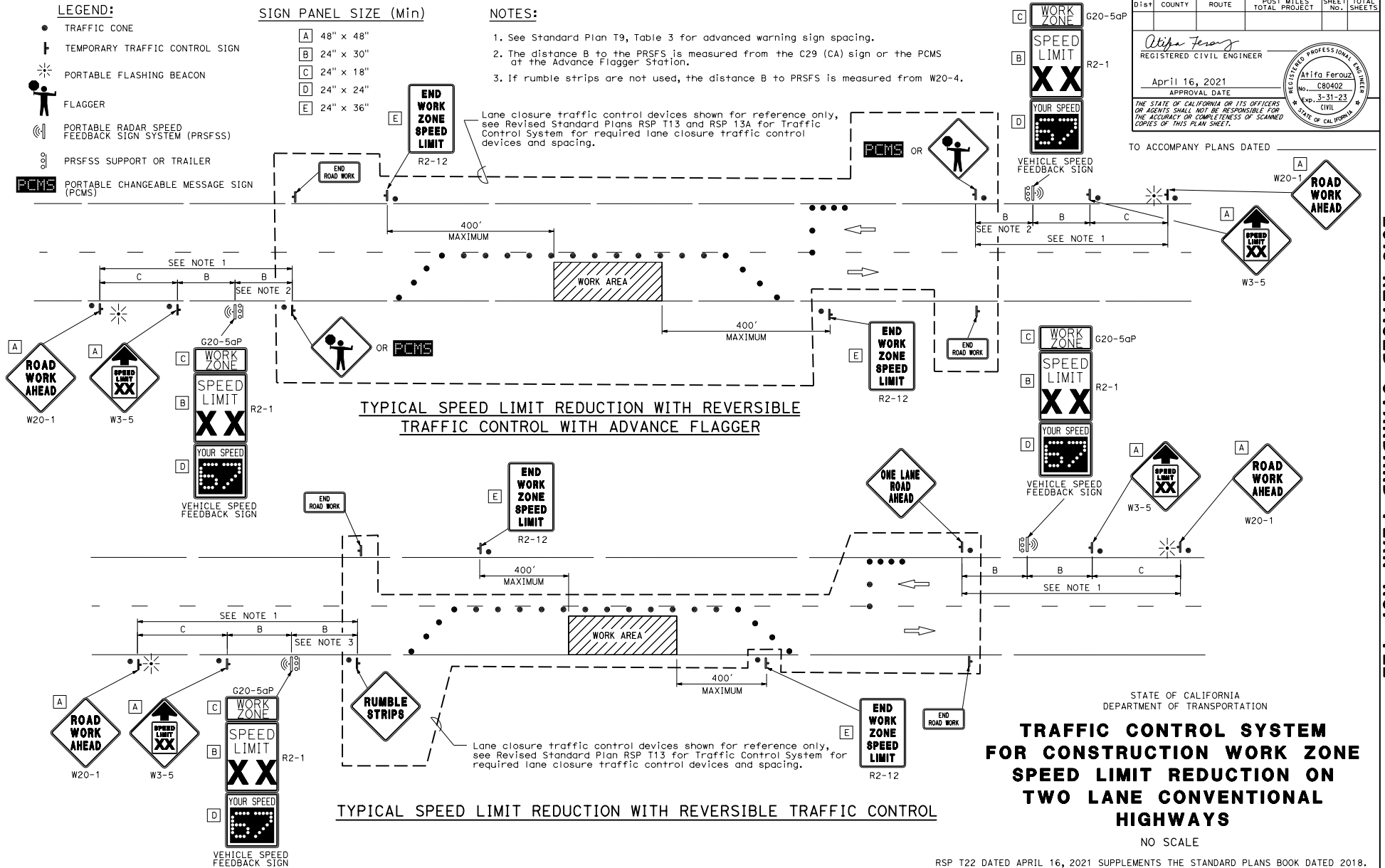
SIGN PANEL SIZE (Min)

- | | |
|---|-----------|
| A | 48" x 48" |
| B | 24" x 30" |
| C | 24" x 18" |
| D | 24" x 24" |
| E | 24" x 36" |

NOTES:

- See Standard Plan T9, Table 3 for advanced warning sign spacing.
- The distance B to the PRSFSS is measured from the C29 (CA) sign or the PCMS at the Advance Flagger Station.
- If rumble strips are not used, the distance B to PRSFSS is measured from W20-4.

Lane closure traffic control devices shown for reference only, see Revised Standard Plans RSP T13 and RSP T3A for Traffic Control System for required lane closure traffic control devices and spacing.



Dist	COUNTY	ROUTE	POST MILES	SHEET TOTAL
			TOTAL PROJECT	NO. SHEETS
Atifa Ferrouz REGISTERED CIVIL ENGINEER April 16, 2021 APPROVAL DATE THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.				
TO ACCOMPANY PLANS DATED _____				

TRAFFIC CONTROL SYSTEM FOR CONSTRUCTION WORK ZONE SPEED LIMIT REDUCTION ON TWO LANE CONVENTIONAL HIGHWAYS

NO SCALE

RSP T22 DATED APRIL 16, 2021 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP T22

NOTES:

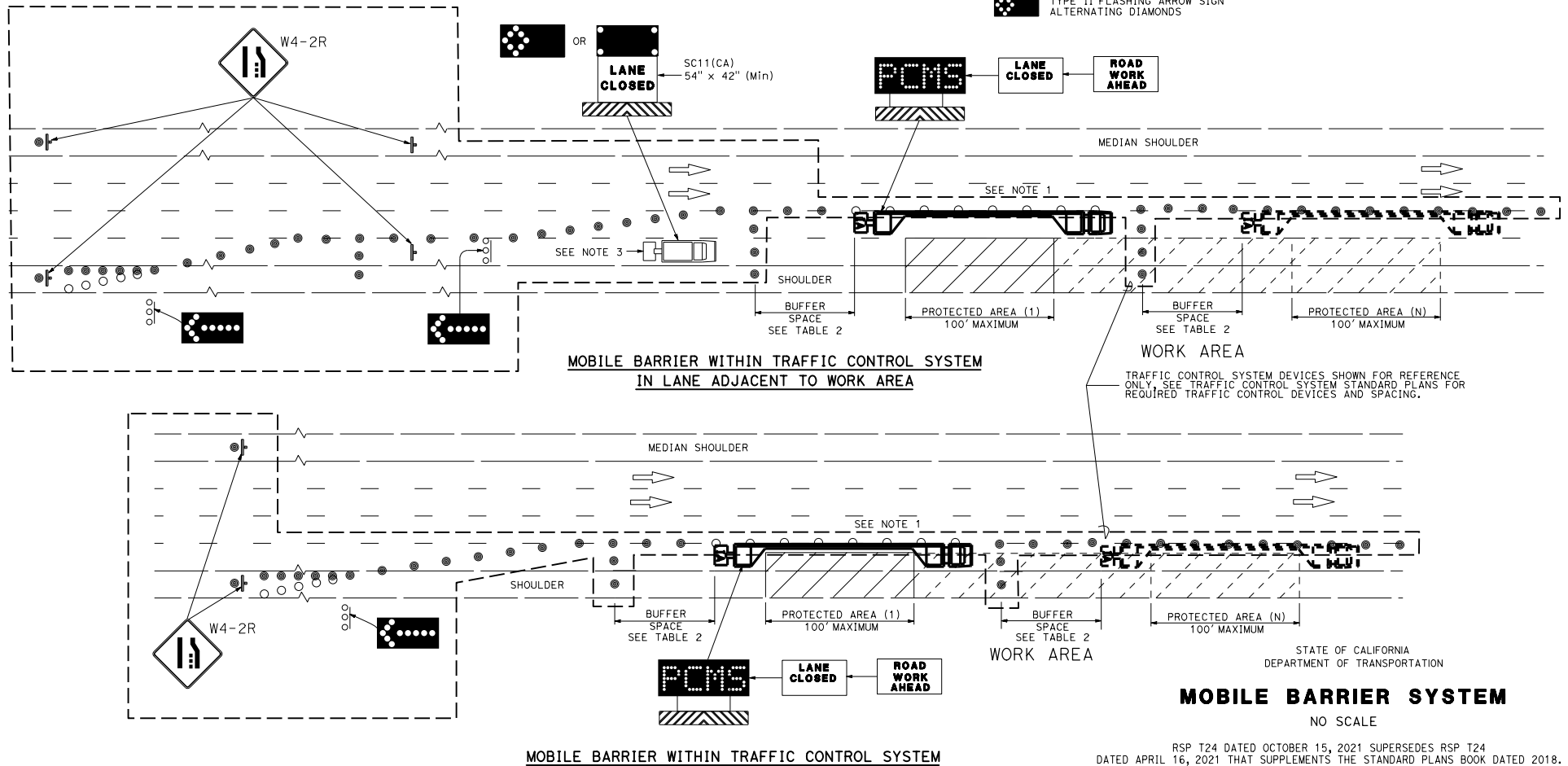
1. Channelizing devices shown adjacent to the mobile barrier may be removed or not placed while the mobile barrier is stationary, but must be placed or replaced as the barrier moves within the work area.
2. See Standard Plan T9 for tables.
3. One impact attenuator vehicle per closed internal lane adjacent to the mobile barrier.

LEGEND:

- TRAFFIC CONE
- TRAFFIC CONE (OPTIONAL)
- ⊥ TEMPORARY TRAFFIC CONTROL SIGN
- ⬢ TYPE II FLASHING ARROW SIGN
- FAS SUPPORT OR TRAILER
- PCMS PORTABLE CHANGEABLE MESSAGE SIGN
- ▨ REPOSITIONING MOBILE BARRIER
- ▨ IMPACT ATTENUATOR
- ⬢ TYPE II FLASHING ARROW SIGN FLASHING CAUTION MODE
- ⬢ TYPE II FLASHING ARROW SIGN ALTERNATING DIAMONDS

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL NO. SHEETS
<p>October 15, 2021</p> <p>PLANS APPROVAL DATE:</p> <p>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.</p>				

TO ACCOMPANY PLANS DATED _____



NOTE:

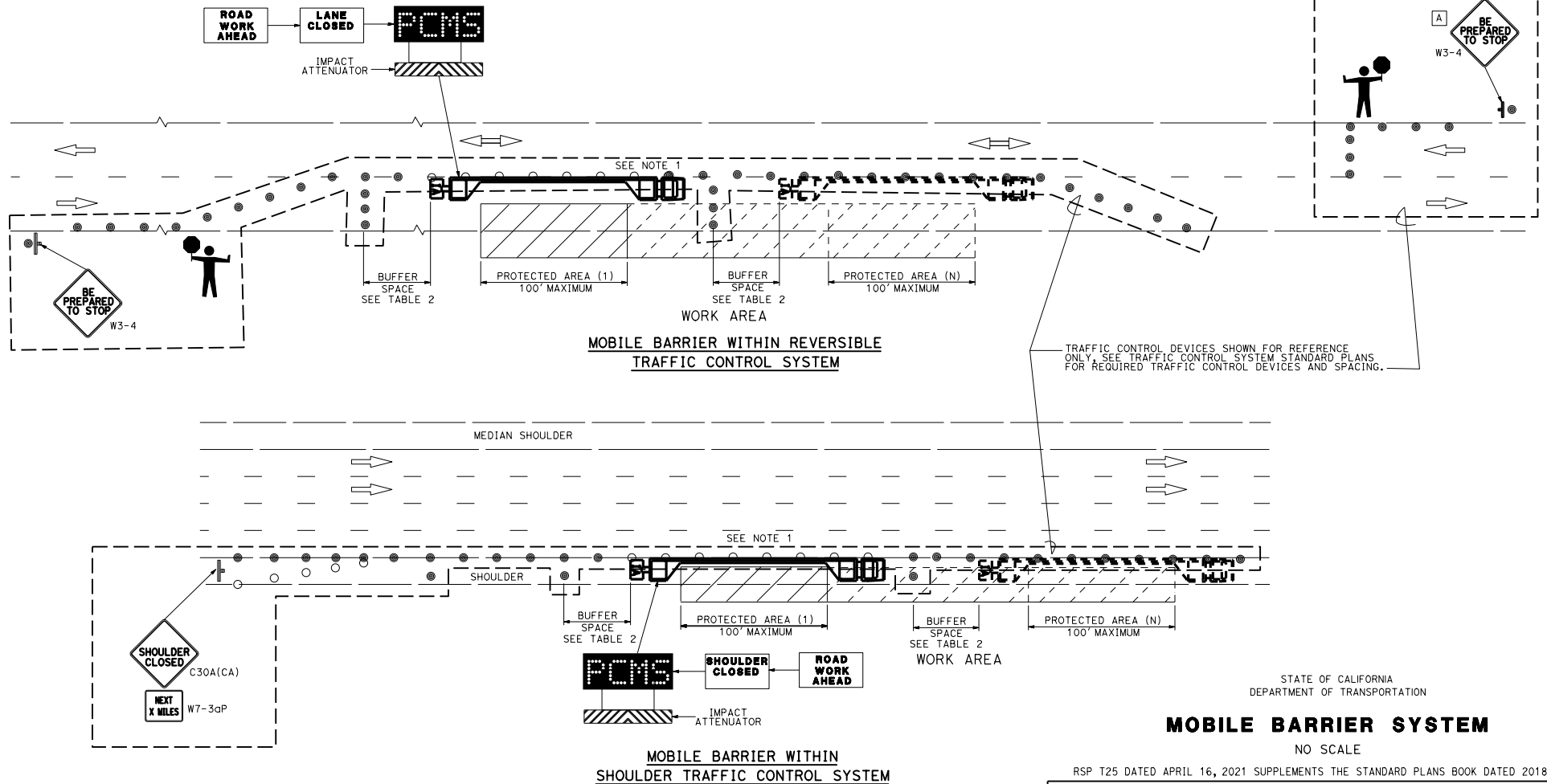
1. Channelizing devices shown adjacent to the mobile barrier may be removed or not placed while the mobile barrier is stationary, but must be placed or replaced as the barrier moves within the work area.
2. See Standard Plan T9 for tables.

LEGEND:

- TRAFFIC CONE
- TRAFFIC CONE (OPTIONAL)
- ⊥ TEMPORARY TRAFFIC CONTROL SIGN
- ◀▶ TYPE II FLASHING ARROW SIGN
- ooo FAS SUPPORT OR TRAILER
- PCMS PORTABLE CHANGEABLE MESSAGE SIGN
- REPOSITIONING MOBILE BARRIER

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL No. SHEETS
<p><i>Charles D. Suenzo</i> REGISTERED CIVIL ENGINEER</p> <p>April 16, 2021 PLANS APPROVAL DATE</p> <p>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.</p>				

TO ACCOMPANY PLANS DATED _____



STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION










MOBILE BARRIER SYSTEM

NO SCALE

RSP T25 DATED APRIL 16, 2021 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.

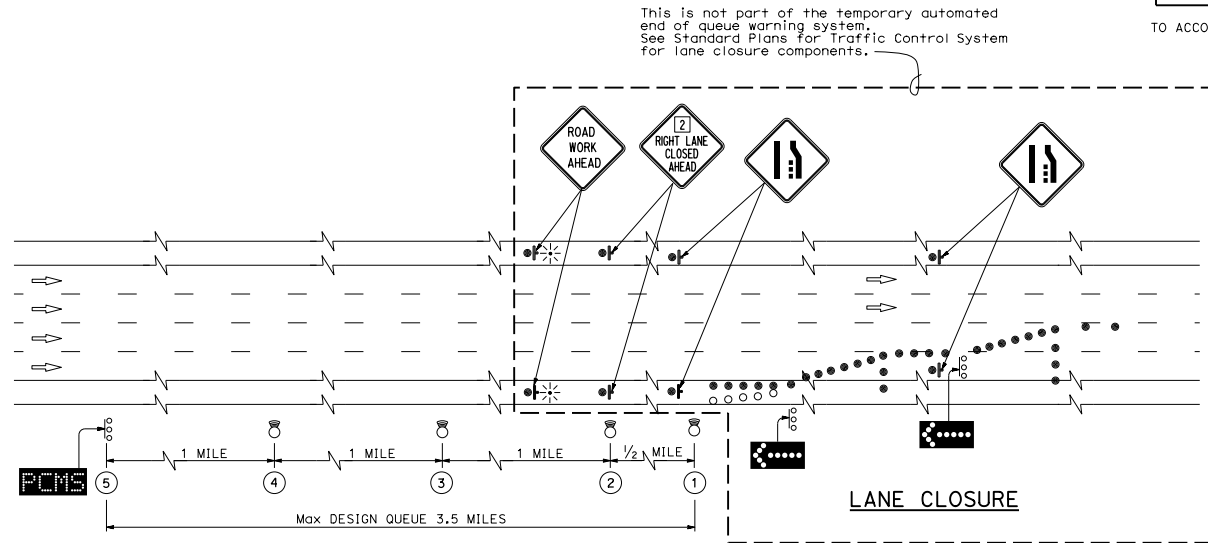
REVISED STANDARD PLAN RSP T25

LEGEND:

-  PORTABLE VEHICLE SPEED SENSOR
-  TRAFFIC CONE
-  TRAFFIC CONE (OPTIONAL TAPER)
-  PORTABLE FLASHING BEACON
-  SIGN
-  SUPPORT OR TRAILER
-  LOCATION
-  FLASHING ARROW SIGN
-  PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
<p>April 17, 2020</p> <p>PLANS APPROVAL DATE</p> <p>REGISTERED CIVIL ENGINEER</p> <p>Charles D. Suenzo</p> <p>No. C43029</p> <p>EXP. 3-31-22</p> <p>CIVIL</p> <p>STATE OF CALIFORNIA</p>					

TO ACCOMPANY PLANS DATED _____



OPERATIONAL GUIDELINE FOR PCMS MESSAGES FOR POSTED SPEED LIMIT 55 MPH				
MESSAGE AT ⑤	LAST 5 Min SPEED AVERAGES, V(MPH)			
	SENSOR AT ④	SENSOR AT ③	SENSOR AT ②	SENSOR AT ①
ROAD WORK AHEAD	> 45	> 45	> 45	=> 45
SLOW TRAFFIC 3 MILES	> 45	> 45	=> 45	25 < V < 45
SLOW TRAFFIC 2 MILES	> 45	=> 45	25 < V < 45	---
SLOW TRAFFIC 1 MILE	=> 45	25 < V < 45	---	---
SLOW TRAFFIC AHEAD	25 < V < 45	---	---	---
STOPPED TRAFFIC 3 MILES	> 25	> 25	> 25	<= 25
STOPPED TRAFFIC 2 MILES	> 25	> 25	<= 25	---
STOPPED TRAFFIC 1 MILE	> 25	<= 25	---	---
STOPPED TRAFFIC AHEAD	<= 25	---	---	---

For other posted speed limits adjust speeds shown on the table by adding or subtracting the calculated speed adjustment using the following formula:

Speed Adjustment = X posted speed limit - 55 mph

Add speed adjustments to speed averages.

STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION **TEMPORARY AUTOMATED END OF QUEUE WARNING SYSTEM TYPE 1 (QUEUE <= 3.5 MILES)**

NO SCALE

RSP T26 DATED APRIL 17, 2020 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP T26

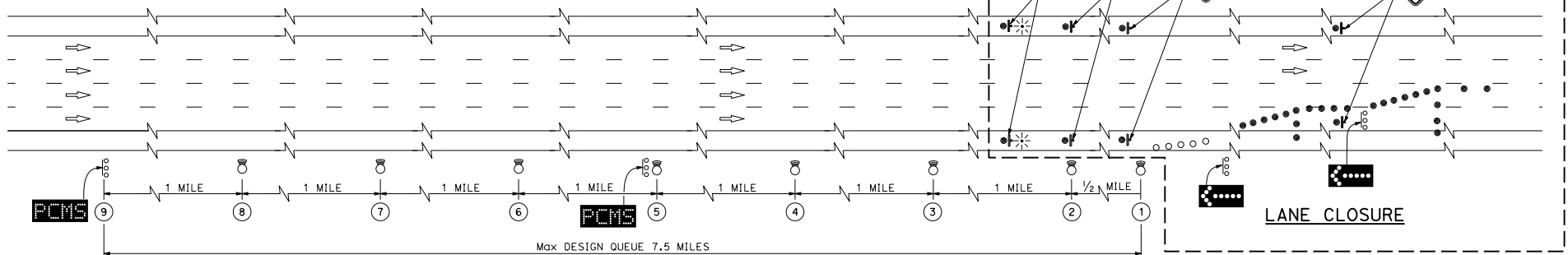
LEGEND:

- PORTABLE VEHICLE SPEED SENSOR
- TRAFFIC CONE
- TRAFFIC CONE (OPTIONAL TAPER)
- ✱ PORTABLE FLASHING BEACON
- ↑ SIGN
- ⊞ SUPPORT OR TRAILER
- ① LOCATION
- ⬅️ FLASHING ARROW SIGN
- PCMS PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

This is not part of the temporary automated end of queue warning system. See Standard Plans for Traffic Control System for lane closure components.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL SHEETS
Charles D. Suenho REGISTERED CIVIL ENGINEER				
April 17, 2020 PLANS APPROVAL DATE				
Charles D. Suenho No. C43029 EXP. 3-31-22 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.				

TO ACCOMPANY PLANS DATED _____



OPERATIONAL GUIDELINE FOR PCMS MESSAGES FOR POSTED SPEED LIMIT 55 MPH

MESSAGE AT ⑨	LAST 5 Min SPEED AVERAGES, V(MPH)				MESSAGE AT ⑤	LAST 5 Min SPEED AVERAGES, V(MPH)			
	SENSOR AT ⑧	SENSOR AT ⑦	SENSOR AT ⑥	SENSOR AT ⑤		SENSOR AT ④	SENSOR AT ③	SENSOR AT ②	SENSOR AT ①
ROAD WORK AHEAD	> 45	> 45	> 45	=> 45	ROAD WORK AHEAD	> 45	> 45	> 45	=> 45
SLOW TRAFFIC 3 MILES	> 45	> 45	=> 45	25 < V < 45	SLOW TRAFFIC 3 MILES	> 45	> 45	=> 45	25 < V < 45
SLOW TRAFFIC 2 MILES	> 45	=> 45	25 < V < 45	---	SLOW TRAFFIC 2 MILES	> 45	=> 45	25 < V < 45	---
SLOW TRAFFIC 1 MILE	=> 45	25 < V < 45	---	---	SLOW TRAFFIC 1 MILE	=> 45	25 < V < 45	---	---
SLOW TRAFFIC AHEAD	25 < V < 45	---	---	---	SLOW TRAFFIC AHEAD	25 < V < 45	---	---	---
STOPPED TRAFFIC 3 MILES	> 25	> 25	> 25	<= 25	STOPPED TRAFFIC 3 MILES	> 25	> 25	> 25	<= 25
STOPPED TRAFFIC 2 MILES	> 25	> 25	<= 25	---	STOPPED TRAFFIC 2 MILES	> 25	> 25	<= 25	---
STOPPED TRAFFIC 1 MILE	> 25	<= 25	---	---	STOPPED TRAFFIC 1 MILE	> 25	<= 25	---	---
STOPPED TRAFFIC AHEAD	<= 25	---	---	---	STOPPED TRAFFIC AHEAD	<= 25	---	---	---

For other posted speed limits adjust speeds shown on the table by adding or subtracting the calculated speed adjustment using the following formula:

Speed Adjustment = X posted speed limit - 55 mph

Add speed adjustments to speed averages.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

**TEMPORARY AUTOMATED END OF
QUEUE WARNING SYSTEM
TYPE 2
(QUEUE <= 7.5 MILES)**

NO SCALE

RSP T27 DATED APRIL 17, 2020 SUPPLEMENTS THE STANDARD PLANS BOOK DATED 2018.

REVISED STANDARD PLAN RSP T27